



## 15073 - Extreme evolved solar systems (EESS)

Cycle: 25, Proposal Category: SNAP

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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### VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01           | (1) PHL778                   | COS/FUV                             | 1                  | 20-Dec-2018 16:03:10.0        | yes                           |
| 02           | (2) WD0022-745               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:11.0        | yes                           |
| 03           | (3) WD0034-602               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:12.0        | yes                           |
| 04           | (4) WD0041-102               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:13.0        | yes                           |

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|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 05           | (5) WD0041+092               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:14.0        | yes                           |
| 06           | (6) WD0048+202               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:15.0        | yes                           |
| 07           | (7) WD0058-044               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:16.0        | yes                           |
| 08           | (8) APASSJ013001.36+263857.4 | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:16.0        | yes                           |
| 09           | (9) WD0127-050               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:17.0        | yes                           |
| 10           | (10) WD0128-387              | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:18.0        | yes                           |
| 11           | (11) WD0129-205              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:19.0        | yes                           |
| 12           | (119) WD2051+095             | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:19.0        | yes                           |
| 13           | (13) WD0158-160              | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:20.0        | yes                           |
| 14           | (14) WD0232+525              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:21.0        | yes                           |
| 15           | (15) WD0253+508              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:22.0        | yes                           |
| 16           | (16) WD0300-232              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:23.0        | yes                           |
| 17           | (17) WD0321-026              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:23.0        | yes                           |
| 18           | (18) WD0348+339              | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:24.0        | yes                           |
| 20           | (19) WD0352+096              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:25.0        | yes                           |
| 19           | (20) WD0406+169              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:25.0        | yes                           |
| 21           | (21) WD0416+334              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:26.0        | yes                           |
| 22           | (22) WD0437+152              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:27.0        | yes                           |
| 23           | (23) WD0503+147              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:28.0        | yes                           |
| 24           | (24) WD0525+526              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:29.0        | yes                           |
| 25           | (25) WD0556+172              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:29.0        | yes                           |

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|--------------|-------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 26           | (26) WD0558+165               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:30.0        | yes                           |
| 27           | (27) WD0615-591               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:31.0        | yes                           |
| 28           | (28) WD0625+415               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:32.0        | yes                           |
| 29           | (29) WD0701-587               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:32.0        | yes                           |
| 30           | (30) WD0716+404               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:33.0        | yes                           |
| 31           | (31) WD0410+117               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:34.0        | yes                           |
| 32           | (32) WD0808+435               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:35.0        | yes                           |
| 33           | (33) APASSJ081237.87+173700.3 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:35.0        | yes                           |
| 34           | (34) SDSSJ081305.55+140317.4  | COS/FUV                             | 1                  | 20-Dec-2018 16:03:36.0        | yes                           |
| 35           | (35) APASSJ083857.48-214611.0 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:37.0        | yes                           |
| 36           | (36) WD0845-188               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:38.0        | yes                           |
| 37           | (37) WD0853+163               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:38.0        | yes                           |
| 38           | (38) APASSJ085913.51-312416.3 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:39.0        | yes                           |
| 39           | (39) APASSJ090028.59-090923.2 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:40.0        | yes                           |
| 40           | (40) APASSJ090515.04-234257.2 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:41.0        | yes                           |
| 41           | (41) SDSSJ090823.14+124703.9  | COS/FUV                             | 1                  | 20-Dec-2018 16:03:41.0        | yes                           |
| 42           | (42) WD0920+375               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:42.0        | yes                           |
| 43           | (43) WD0922+162A              | COS/FUV                             | 1                  | 20-Dec-2018 16:03:43.0        | yes                           |
| 44           | (44) WD0922+183               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:43.0        | yes                           |
| 45           | (45) WD0933+729               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:44.0        | yes                           |
| 46           | (46) WD0937-103               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:45.0        | yes                           |
| 47           | (47) WD0943+140               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:46.0        | yes                           |
| 48           | (48) WD0945+245               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:46.0        | yes                           |
| 49           | (49) WD1003-023               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:47.0        | yes                           |

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|--------------|-------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 50           | (50) APASSJ101047.80-242711.6 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:48.0        | yes                           |
| 51           | (51) WD1015+076               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:49.0        | yes                           |
| 52           | (52) WD1016-308               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:49.0        | yes                           |
| 53           | (53) WD1017+366               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:50.0        | yes                           |
| 54           | (54) WD1020-207               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:51.0        | yes                           |
| 55           | (55) WD1036+085               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:52.0        | yes                           |
| 56           | (56) WD1051-147               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:52.0        | yes                           |
| 57           | (57) SDSSJ110136.86+174155.90 | COS/FUV                             | 1                  | 20-Dec-2018 16:03:53.0        | yes                           |
| 58           | (58) WD1102-281               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:54.0        | yes                           |
| 59           | (59) WD1103+384               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:55.0        | yes                           |
| 60           | (60) WD1105-048               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:55.0        | yes                           |
| 61           | (61) WD1115+166               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:56.0        | yes                           |
| 62           | (62) WD1120+439               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:57.0        | yes                           |
| 63           | (63) WD1130-125               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:03:57.0        | yes                           |
| 64           | (64) WD1132+470               | COS/FUV                             | 1                  | 20-Dec-2018 16:03:58.0        | yes                           |
| 65           | (65) WD1134+300               | STIS/CCD<br>STIS/FUV-MAMA           | 1                  | 20-Dec-2018 16:03:59.0        | yes                           |
| 66           | (66) WD1152+371               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:00.0        | yes                           |
| 67           | (67) SDSSJ115737.93+185503.58 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:01.0        | yes                           |
| 68           | (68) WD1201-001               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:01.0        | yes                           |
| 69           | (69) WD1233-164               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:02.0        | yes                           |
| 70           | (70) WD1241-010               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:03.0        | yes                           |
| 71           | (71) WD1249+160               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:04.0        | yes                           |
| 72           | (72) WD1249+182               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:05.0        | yes                           |

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| 73           | (73) WD1258+593               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:06.0        | yes                           |
| 74           | (74) WD1312+098               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:06.0        | yes                           |
| 75           | (75) WD1324+077               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:07.0        | yes                           |
| 76           | (76) WD1323-514               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:08.0        | yes                           |
| 77           | (77) WD1327-083               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:09.0        | yes                           |
| 78           | (78) WD1334-160               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:09.0        | yes                           |
| 79           | (79) WD1335+369               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:10.0        | yes                           |
| 80           | (80) WD1335-035               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:11.0        | yes                           |
| 81           | (81) WD1336+123               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:12.0        | yes                           |
| 82           | (82) WD1410+081               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:12.0        | yes                           |
| 83           | (83) WD1411+218               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:13.0        | yes                           |
| 84           | (84) WD1411+135               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:14.0        | yes                           |
| 85           | (85) WD1434-223               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:14.0        | yes                           |
| 86           | (86) WD1444-096               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:15.0        | yes                           |
| 87           | (87) WD1446+286               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:16.0        | yes                           |
| 88           | (88) WD1449+513               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:16.0        | yes                           |
| 89           | (89) WD1449+168               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:17.0        | yes                           |
| 90           | (90) APASSJ145521.26+565544.3 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:18.0        | yes                           |
| 91           | (91) WD1459+821               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:19.0        | yes                           |
| 92           | (92) WD1507+220               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:20.0        | yes                           |

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|--------------|--------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 93           | (93) APASSJ151754.65+103043.7  | COS/FUV                             | 1                  | 20-Dec-2018 16:04:20.0        | yes                           |
| 94           | (94) WD1518+636                | COS/FUV                             | 1                  | 20-Dec-2018 16:04:21.0        | yes                           |
| 95           | (95) WD1523+322                | COS/FUV                             | 1                  | 20-Dec-2018 16:04:22.0        | yes                           |
| 96           | (96) WD1525+257                | COS/FUV                             | 1                  | 20-Dec-2018 16:04:22.0        | yes                           |
| 97           | (97) APASSJ152827.83-251503.0  | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:23.0        | yes                           |
| 98           | (98) WD1527+090                | COS/FUV                             | 1                  | 20-Dec-2018 16:04:24.0        | yes                           |
| 99           | (99) WD1542+182                | COS/FUV                             | 1                  | 20-Dec-2018 16:04:25.0        | yes                           |
| 0A           | (100) WD1550+183               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:25.0        | yes                           |
| 0B           | (101) WD1554+215               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:26.0        | yes                           |
| 0C           | (102) APASSJ161442.78+104618.1 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:27.0        | yes                           |
| 0D           | (103) WD1614+136               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:28.0        | yes                           |
| 0E           | (104) SDSSJ170029.93+422452.99 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:28.0        | yes                           |
| 0F           | (105) WD1659+303               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:29.0        | yes                           |
| 0G           | (106) WD1659-531               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:30.0        | yes                           |
| 0H           | (107) WD1726-578               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:31.0        | yes                           |
| 0I           | (108) WD1708-871               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:31.0        | yes                           |
| 0J           | (109) WD1743-521               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:32.0        | yes                           |
| 0K           | (110) WD1844-223               | STIS/CCD<br>STIS/FUV-MAMA           | 1                  | 20-Dec-2018 16:04:33.0        | yes                           |
| 0L           | (111) WD1911+536               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:34.0        | yes                           |
| 0M           | (112) WD1916-362               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:34.0        | yes                           |
| 0N           | (113) WD1932-136               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:35.0        | yes                           |
| 0O           | (114) APASSJ195622.94+641358.0 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:36.0        | yes                           |
| 0P           | (115) APASSJ202336.88-111551.3 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:37.0        | yes                           |

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|--------------|--------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 0Q           | (116) WD2034-532               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:37.0        | yes                           |
| 0R           | (117) APASSJ204713.82-125909.5 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:38.0        | yes                           |
| 0S           | (118) WD2047+372               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:39.0        | yes                           |
| 0T           | (119) WD2051+095               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:40.0        | yes                           |
| 0U           | (120) WD2051-208               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:40.0        | yes                           |
| 0V           | (121) WD2126+734               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:41.0        | yes                           |
| 0W           | (122) WD2130-047               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:42.0        | yes                           |
| 0X           | (123) WD2142-169               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:43.0        | yes                           |
| 0Y           | (124) WD2152-045               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:43.0        | yes                           |
| 0Z           | (125) WD2154-437               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:44.0        | yes                           |
| 1A           | (126) WD2200-136               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:45.0        | yes                           |
| 1B           | (127) WD2205+250               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:46.0        | yes                           |
| 1C           | (128) HS2220+2146B             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:47.0        | yes                           |
| 1D           | (129) HS2220+2146A             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:47.0        | yes                           |
| 1E           | (130) WD2248-504               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:48.0        | yes                           |
| 1F           | (131) WD0220+222               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:49.0        | yes                           |
| 1G           | (132) WD2253-062               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:49.0        | yes                           |
| 1H           | (133) APASSJ225612.94-131939.3 | COS/FUV                             | 1                  | 20-Dec-2018 16:04:50.0        | yes                           |
| 1I           | (134) WD2317-173               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:51.0        | yes                           |
| 1J           | (135) WD2319+691               | COS/FUV                             | 1                  | 20-Dec-2018 16:04:52.0        | yes                           |
| 1K           | (136) WD2328+510               | COS/FUV<br>COS/NUV                  | 1                  | 20-Dec-2018 16:04:52.0        | yes                           |

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|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 1L           | (137) WD2336-079             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:53.0        | yes                           |
| 1M           | (138) WD2341+322             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:54.0        | yes                           |
| 1N           | (139) WD2347-461             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:55.0        | yes                           |
| 1O           | (140) WD2350-083             | COS/FUV                             | 1                  | 20-Dec-2018 16:04:55.0        | yes                           |

140 Total Orbits Used

## ABSTRACT

In just 20 years, we went from not knowing if the solar system is a fluke of Nature to realising that it is totally normal for stars to have planets. More remarkably, it is now clear that planet formation is a robust process, as rich multi-planet systems are found around stars more massive and less massive than the Sun. More recently, planetary systems have been identified in increasingly complex architectures, including circumbinary planets, wide binaries with planets orbiting one or both stellar components, and planets in triple stellar systems.

We have also learned that many planetary systems will survive the evolution of their host stars into the white dwarf phase. Small bodies are scattered by unseen planets into the gravitational field of the white dwarfs, tidally disrupt, form dust discs, and eventually accrete onto the white dwarf, where they can be spectroscopically detected. HST/COS has played a critical role in the study these evolved planetary systems, demonstrating that overall the bulk composition of the debris is rocky and resembles in composition the inner the solar system, including evidence for water-rich planetesimals.

Past observations of planetary systems at white dwarfs have focused on single stars with main-sequence progenitors of  $\sim 1.5$  to  $2.5 M_{\text{sun}}$ . Here we propose to take the study of evolved planetary systems into the extremes of parameter ranges to answer questions such as:

- \* How efficient is planet formation around 4-10 $M_{\text{sun}}$  stars?
- \* What are the metallicities of the progenitors of debris-accreting white dwarfs?
- \* What is the fate of circumbinary planets?
- \* Can star-planet interactions generate magnetic fields in the white dwarf host?

## **OBSERVING DESCRIPTION**

This program is a continuation of our previous snapshot surveys of white dwarfs (12169, 12474, 13652, 14077). The goal of this project is to identify white dwarfs that exhibit metal contamination, indicating the accretion of debris from tidally disrupted asteroids. In the previous programs, we explored the temperature range  $\sim 15000\text{--}30000\text{K}$ , corresponding to cooling ages from a few Myr to  $\sim 500\text{Myr}$ , irrespective of mass or binarity. In this Cycle 25 program, we focus on

- \* high mass white dwarfs, which descend from  $\sim 4\text{--}8M_{\text{sun}}$  main sequence stars, probing the efficiency of planet formation around  $\sim \text{A--B}$  type stars.
- \* low mass white dwarfs that do not show any radial velocity variation. These stars have undergone some binary interaction, but the absence of RV variations could suggest that they interacted with a giant planet / hot Jupiter.
- \* magnetic white dwarfs: so far, no warm/young metal polluted white dwarf is magnetic. Is this a selection effect?
- \* white dwarfs in wide binaries - gravitational interaction should destabilise planetary bodies orbiting the white dwarf, increasing the fraction of white dwarfs with metals in their atmospheres

The observations will be carried out with the G130M grating, which gives the best coverage of all important lines (O I 1150A, C III 1175A, Si II 1260/65A, C II 1330/35A, Si IV 1393/1403). The 1291A central wavelength places the detector gap in a line-free region.

All exposure times have been calculated from model spectra computed for the atmospheric parameters measured from optical spectra, and scaled to the FUV flux, or NUV flux if no FUV was available, or the V-magnitude, if neither FUV or NUV data was available, we are happy to provide these models to the COS team. We have searched the IUE and HST archives for low-resolution spectra, and list those in the target section.

The coordinates and proper motions were sourced from PPMXL, UCAC4/5, and APOP. We will run another sanity check on those in the next week.

We found three targets that need some attention:

- \* WD1134+300 (target #65, visit #65) is very close to the bright object limit
- \* WD1844-233 (target #110, visit 0K) is just a bit brighter than the bright object limit.

These are valuable targets, and we would like to switch them to STIS/E140M => does this need a TTRB request?

\* WD2336-079 (target #137, visit 1L) is a bit too cool / faint for useful G130M observations, we switched to G140L. OK?

===== Changes 2017-Sept-02 =====

We changed the target acquisition strategy from dispersed light, G130M, to near-UV imaging, using MIRRORB to shave of ~100-150sec for the faintest targets / those with the longest exposure times in the spectroscopic acquisition.

02, 08, 18, 19, 31, 36, 47, 53, 63, 73, 74, 80, 82, 88, 97, 0F, 0T, 1F, 1I, 1K, 1L

We did, however, leave targets without GALEX fluxes in spectroscopic acquisition, just to be on the safe side.

===== Changes 2017-Sept-06 =====

Switched the two brightest targets,

visits 0K and 65

to STIS/E140M, as approved by TTRB 88818

===== Changes 2017-Sept-18 =====

Fixed typo in the name of target 63: WD1130-125 instead of WD1140-125.

===== Changes 2017-Sept-22 =====

Fixed some problems with target coordinates and proper motions:

target 69: WD1233-164, p.m. changed from (-300,16) to (-400,30) [mas/yr]

Proposal 15073 (STScI Edit Number: 2, Created: Thursday, December 20, 2018 at 4:04:56 PM Eastern Standard Time) - Overview

target 78: WD1334-160, p.m. changed from (-64,-34) to (-107,3) [mas/yr]

target 89: WD1449+168, coordinates changed from (14:52:4.1420 +16:37:19.96) to (14:52:11.3900 +16:38:03.80),  
p.m. changed from (-260,-296) to (3,57) [mas/yr]

target 125: WD2154-437, coordinates changed from (21:58:1.2340 -43:27:56.21) to (21:58:1.4300 -43:27:59.60),  
p.m. changed from (63,-47) to (158,-187) [mas/yr]

target 131: WD0220+222, coordinates changed from (02:33:6.1300 +22:27:28.70) to (02:23:36.1300 +22:27:28.70)

===== Changes 2017-OCT-10 =====

visit 13: this target has a nearby (7") M-dwarf, which could be potentially dangerous in the target acq.. Nick suggested switching to a spectroscopic NUV acq., using G185M/1786. This works, and adds little extra overhead.

visit 19: WD0406+169, the IUE LWR spectra of this target show the continuum flux increasing beyond 2800 Å.  
switched to spectroscopic FUV acq.

visit 31: the original target (WD0730+487) was observed as part of the Cycle 23 snapshot during the implementation of this program, swapped it with a new target, WD0410+117

visit 1E: the original target (WD2226+061) was observed as part of the Cycle 23 snapshot during the implementation of this program, swapped it with a new target, WD2248-504

visit 1L (WD2236-079): NUV/Image/PSA/MirrorB acquisition fails BOP (COS.ta.1024617), switched to FUV/PeakXD+PeakD/G140L/1105

===== Changes 2018-Jan-02 =====

visit 24 / target 24 (WD0525+526) updated coordinates from (05 29 49.99 +52 39 58.35) to (05 29 50.268 +52 39 53.71) and proper motions from (-2.7 19.2) to (363.4 -540.3) [mas/yr]

visit 69 / target 69 (WD1233-164) updated coordinates from (12 36 13.7200 -16 41 51.90) to (12 36 13.9060 -16 41 52.44) and

proper motions from (-400 30) to (-92.6 -22.6) [mas/yr]

===== Changes 2018-Jan-05 =====

visit 63: changed target name from WD1140-125 to WD1130-125

visit 12: cloned visit OT which failed do to the problem with the guide star acquisition into visit 12, i.e. replaced the original target of visit 12 (WD0132+254) with WD2051+095, and replaced the exposures of visit 12 with those in visit OT.

visit 10: Nick pointed out that there is an IUE spectrum for this target (SWP39693L), which clearly shows that the published temperature of ~28000K is wrong - a quick analysis suggests  $T_{\text{eff}} \sim 15000\text{K}$ . Adopting this lower  $T_{\text{eff}}$ , the acquisition was changed to ACQ/Image, as the FUV flux is lower than expected.

visit 0G: changed the ETC # for the acquisition exposures from COS.sa.1013225 to COS.sa.1013227

===== Changes 2018-May-29 =====

Checked coordinates and proper motions of all targets in Gaia DR2, fixed the following:

visit 78 / target 78 (WD1334-160) updated coordinates from (13 36 59.2480 -16 19 43.70) to (13 36 59.1305 -16 19 44.28) and proper motions from (-106.7 3.3) to (-111.230 -31.312) [mas/yr]

visit 79 / target 79 (WD1335+369) updated coordinates from (13 37 41.5 +36 39 03.50) to (13 37 52.0824 +36 37 32.41) and proper motions from (9.0 -16.4) to (-5.9 -66.8) [mas/yr]

visit 1C / target 128 (HS2220+2146B) updated coordinates from (22 23 1.6530 +22 01 30.96) to (22 23 1.6609 +22 01 30.73) and proper motions from (23.36 -6.7899957) to (51.985 -61.558) [mas/yr]

visit 1D / target 129 (HS2220+2146A) updated coordinates from (22 23 1.7540 +22 01 24.55) to (22 23 1.7621 +22 01 24.32) and proper motions from (43.29 -44.64) to (51.141 -62.349) [mas/yr]

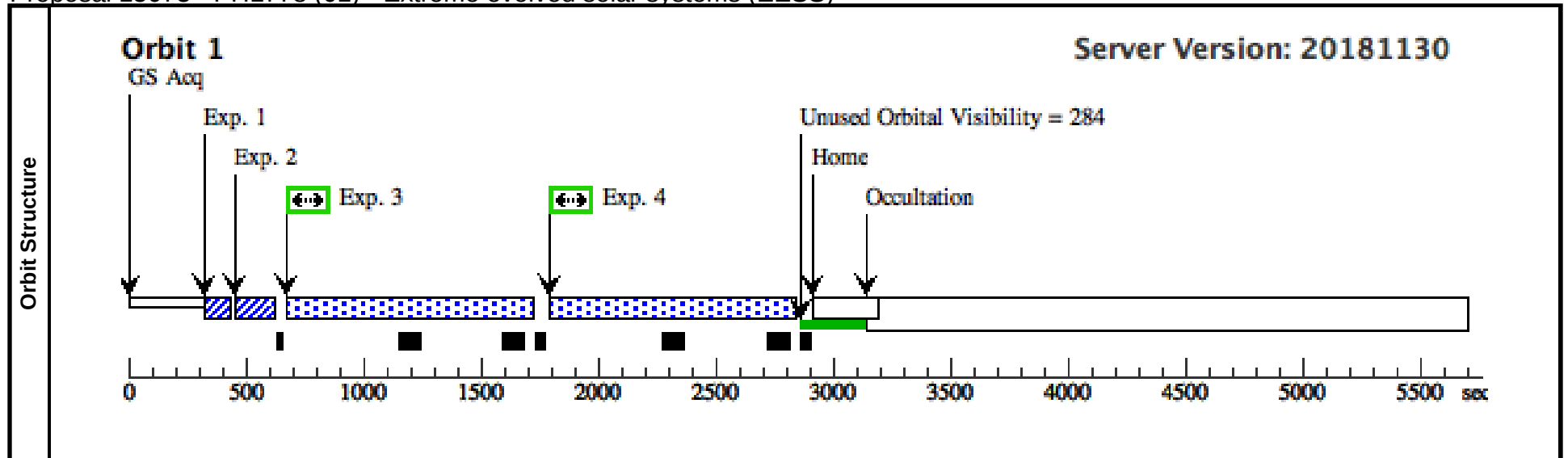
visit 1B: placed on hold, as the astrometry is still a bit dodgy, and even Gaia does not solve it.

===== Changes 2018-Nov-01 =====

visit 1B / target 127 (WD2205+250) updated coordinates from (22 07 45.0280 +25 20 22.26) to ( 22 07 45.0052849711 +25 20 22.039923751) and proper motions from (-42.5 -103) to ( 87.611 -26.538), removed "on hold"

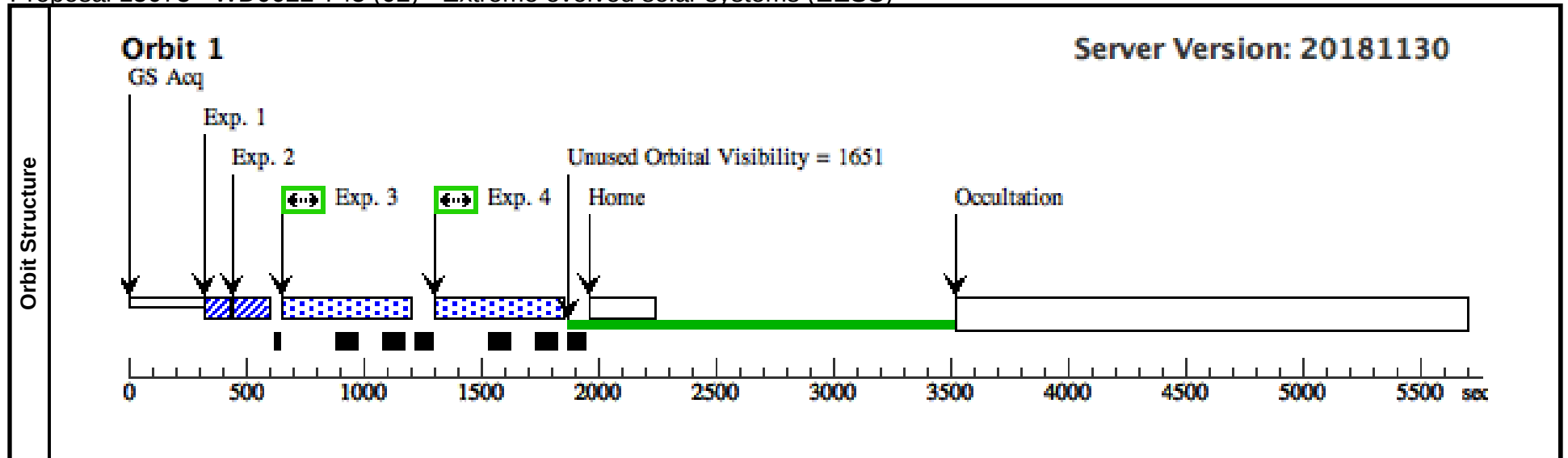
# Proposal 15073 - PHL778 (01) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                  |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------|-----------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, PHL778 (01), completed                                                                                                                                                                                           |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        | Thu Dec 20 21:04:56 GMT 2018    |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                       |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                  |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                     |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
| Diagnostics   | (PHL778 (01)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                | Name                          | Target Coordinates                                                                | Targ. Coord.                                                                                  | Corrections     | Fluxes                                              | Miscellaneous         |        |                                 |       |
|               | (1)                                                                                                                                                                                                                              | PHL778                        | RA: 00 18 30.9590 (4.6289958d)<br>Dec: -09 56 44.71 (-9.94575d)<br>Equinox: J2000 | Proper Motion RA: 72.5 mas/yr<br>Proper Motion Dec: -82.2 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.6+/-0.1<br>GALEX FUV=15.60 GALEX N<br>UV=15.03 | Reference Frame: ICRS |        |                                 |       |
|               | Comments: Massive, Teff=15604K logg=8.37, DBA                                                                                                                                                                                    |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                 |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                | Label (ETC Run)               | Target                                                                            | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                        | Special Reqs.         | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                | ACQ/PEAK XD (COS.sa.101 3040) | (1) PHL778                                                                        | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A |                                                     |                       |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                | ACQ/PEAK D (COS.sa.101 3040)  | (1) PHL778                                                                        | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF          |                       |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                | FP-POS3 (COS.sp.101 4156)     | (1) PHL778                                                                        | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3         |                       |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               | 4                                                                                                                                                                                                                                | FP-POS4 (COS.sp.101 4156)     | (1) PHL778                                                                        | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4         |                       |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               |                                                                                                                                                                                                                                  |                               |                                                                                   |                                                                                               |                 |                                                     |                       |        |                                 |       |



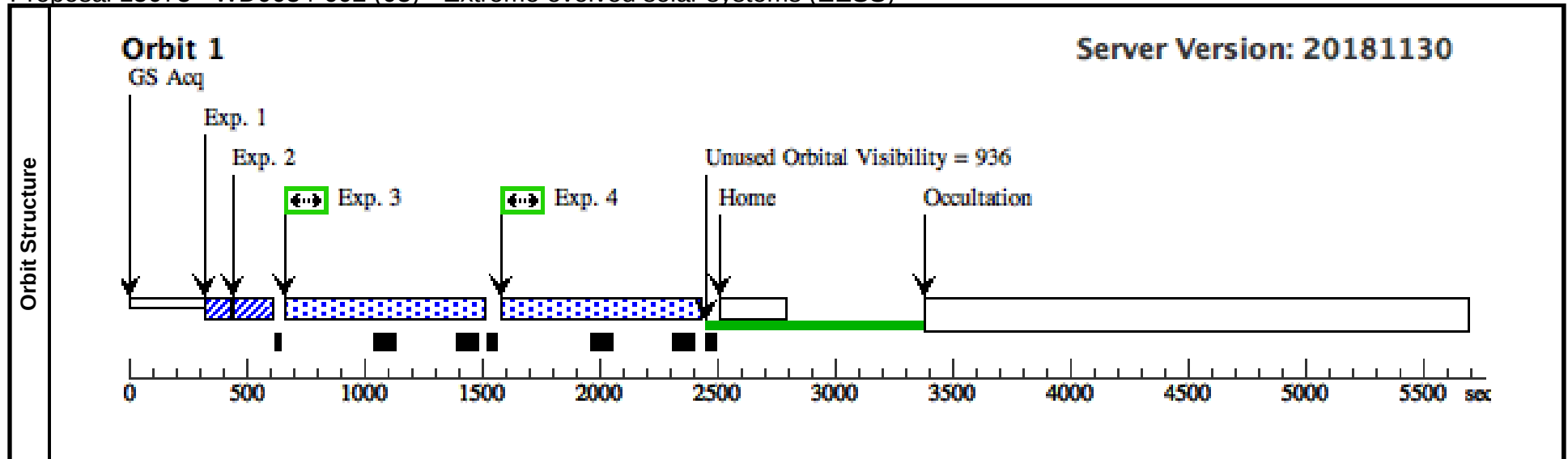
# Proposal 15073 - WD0022-745 (02) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0022-745 (02), scheduling                                                                                                                                                                                          |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  | Thu Dec 20 21:04:56 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
| Diagnostics   | (WD0022-745 (02)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                | Targ. Coord. Corrections                                                                     | Fluxes                                                           | Miscellaneous                               |               |        |                                 |  |                              |
|               | (2)                                                                                                                                                                                                                                  | WD0022-745                    | RA: 00 24 41.3400 (6.1722500d)<br>Dec: -74 14 3.96 (-74.23443d)<br>Equinox: J2000 | Proper Motion RA: 2.8 mas/yr<br>Proper Motion Dec: -12.8 mas/yr<br>Epoch of Position: 2000.0 | V=15.6+/-0.2<br>GALEX FUV=14.05 GALEX N<br>UV=14.4,<br>SWP55659L | Reference Frame: ICRS                       |               |        |                                 |  |                              |
|               | Comments: Wide binary, Teff=26800K logg=8.0, DA + F7V (HD2133A, V=9.62), unresolved                                                                                                                                                  |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                            | Config,Mode,Aperture                                                                         | Spectral Els.                                                    | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3070) | (2) WD0022-745                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M<br>1291 A                                                  |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3070)  | (2) WD0022-745                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M<br>1291 A                                                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3072)     | (2) WD0022-745                                                                    | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3072)     | (2) WD0022-745                                                                    | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                              |                                                                  |                                             |               |        |                                 |  |                              |



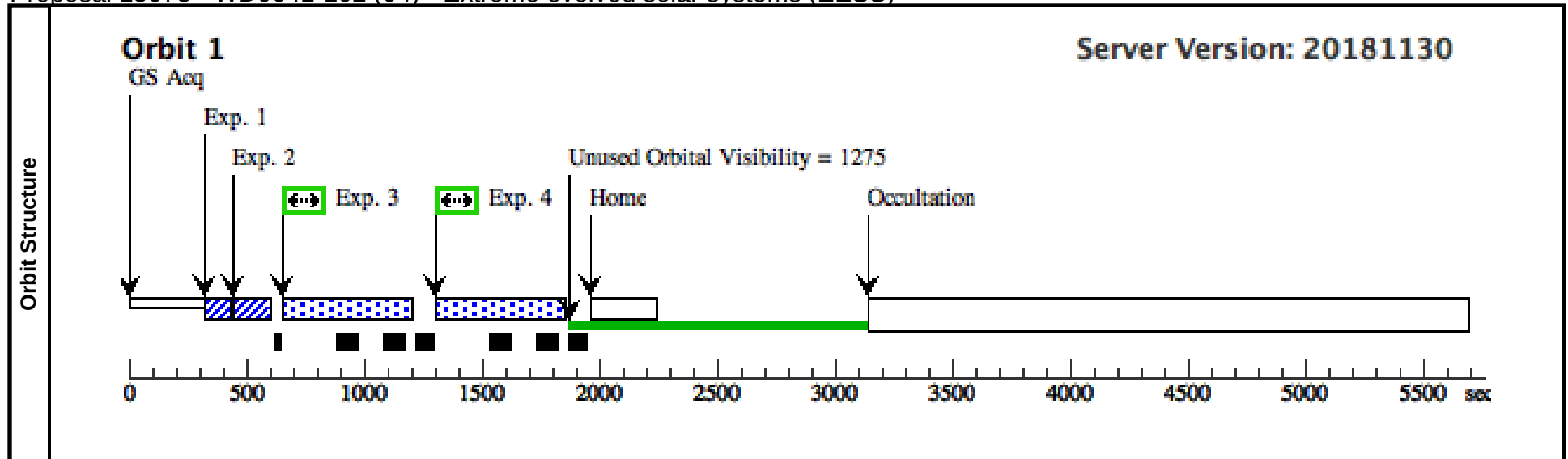
# Proposal 15073 - WD0034-602 (03) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD0034-602 (03), scheduling                                                                                                                                                                                          |                               |                                |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:56 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Diagnostics   | (WD0034-602 (03)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates             |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |  |
|               | (3)                                                                                                                                                                                                                                  | WD0034-602                    | RA: 00 36 22.3220 (9.0930083d) |                          | Proper Motion RA: 272.0 mas/yr  |                                       | V=14.08+/-0.1           |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: -59 55 27.55 (-59.92432d) |                          | Proper Motion Dec: 137.2 mas/yr |                                       | GALEX FUV=14.23 GALEX N |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                 |                          | Epoch of Position: 2000.0       |                                       | UV=14.15                |        |                                 |     |                              |  |
|               | Comments: Massive, Teff=14540K logg=8.5, DA                                                                                                                                                                                          |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                         | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sp.101 3073) | (3) WD0034-602                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sp.101 3073)  | (3) WD0034-602                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3074)     | (3) WD0034-602                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=34 5; FLASH=YES; FP-POS=3 |                         |        | 800 Secs (800 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3074)     | (3) WD0034-602                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=34 5; FLASH=YES; FP-POS=4 |                         |        | 800 Secs (800 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |  |



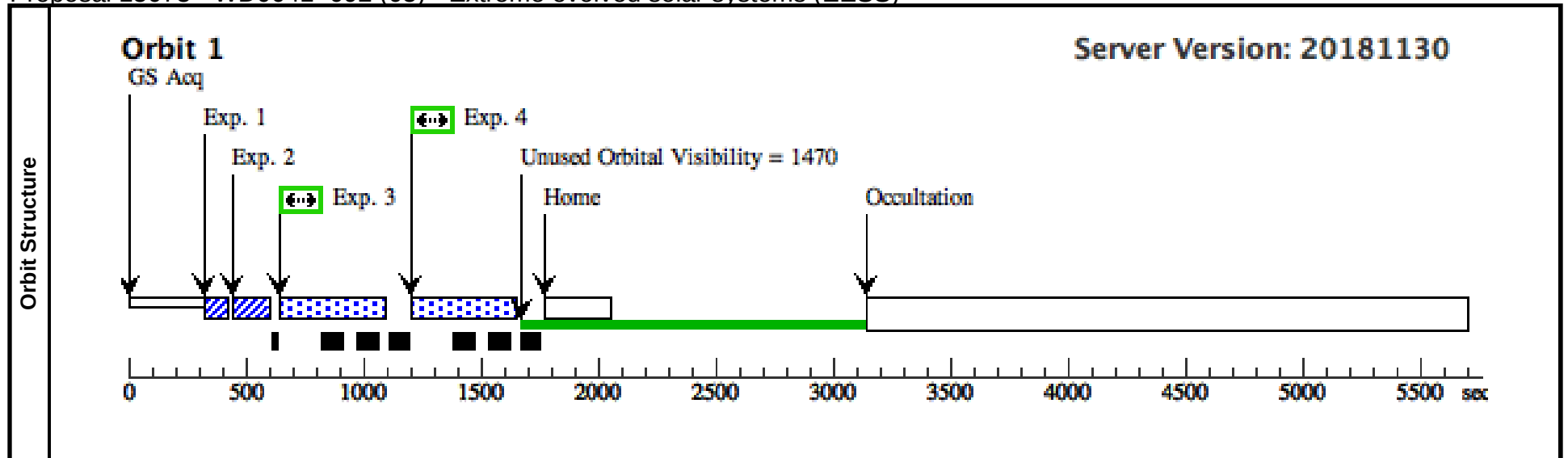
# Proposal 15073 - WD0041-102 (04) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0041-102 (04), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        | Thu Dec 20 21:04:57 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
| Diagnostics   | (WD0041-102 (04)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                         | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |         |
|               | (4)                                                                                                                                                                                                                                  | WD0041-102                    | RA: 00 43 45.9860 (10.9416083d)<br>Dec: -10 00 24.99 (-10.00694d)<br>Equinox: J2000 | Proper Motion RA: -146.5 mas/yr<br>Proper Motion Dec: -132.8 mas/yr<br>Epoch of Position: 2000.0 | V=14.527+/-0.033<br>GALEX FUV=13.96 GALEX N<br>UV=14.06,<br>SWP03765L | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Magnetic, Teff=20000K logg=8.0, DABH, B=35MG                                                                                                                                                                               |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                             | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3075) | (4) WD0041-102                                                                      | COS/FUV, ACQ/PEAKXD, PSA                                                                         | G130M<br>1291 A                                                       |                                                |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3075)  | (4) WD0041-102                                                                      | COS/FUV, ACQ/PEAKD, PSA                                                                          | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3076)     | (4) WD0041-102                                                                      | COS/FUV, TIME-TAG, PSA                                                                           | G130M<br>1291 A                                                       | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3076)     | (4) WD0041-102                                                                      | COS/FUV, TIME-TAG, PSA                                                                           | G130M<br>1291 A                                                       | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                  |                                                                       |                                                |               |        |                                 |         |



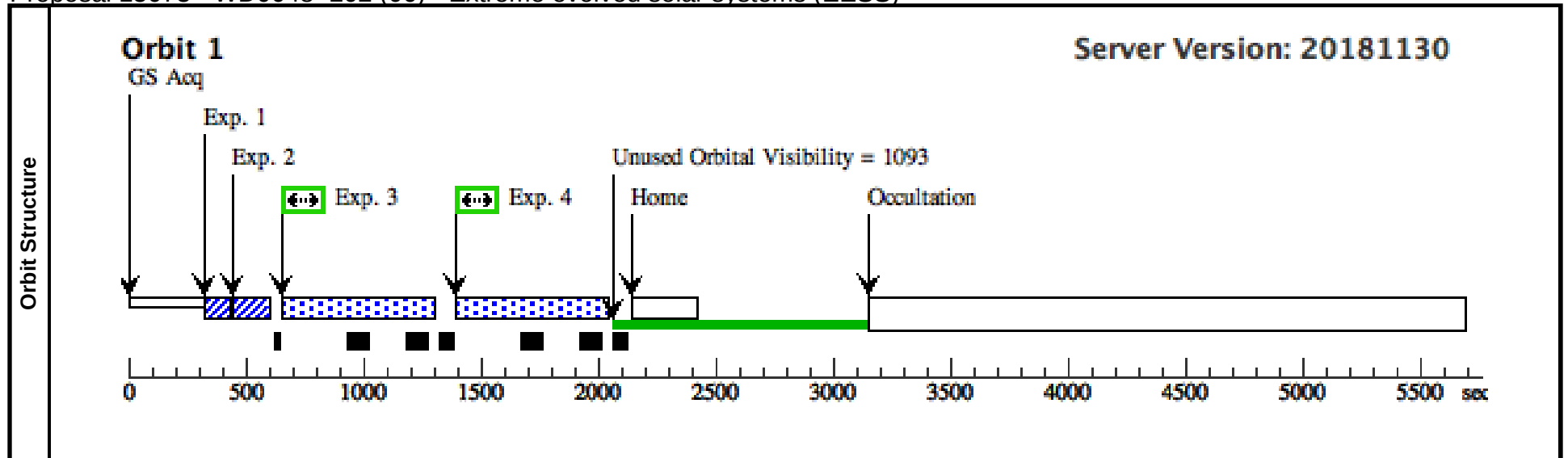
# Proposal 15073 - WD0041+092 (05) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0041+092 (05), scheduling                                                                                                                                                                                          |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        | Thu Dec 20 21:04:57 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
| Diagnostics   | (WD0041+092 (05)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                               | Targ. Coord. Corrections                                                                       | Fluxes                                                            | Miscellaneous                               |               |        |                                 |         |
|               | (5)                                                                                                                                                                                                                                  | WD0041+092                    | RA: 00 44 1.3210 (11.0055042d)<br>Dec: +09 32 57.83 (9.54940d)<br>Equinox: J2000 | Proper Motion RA: 25.86 mas/yr<br>Proper Motion Dec: -49.9 mas/yr<br>Epoch of Position: 2000.0 | V=17.7+/-0.2<br>GALEX FUV=13.16 GALEX N<br>UV=13.46,<br>SWP45396L | Reference Frame: ICRS                       |               |        |                                 |         |
|               | Comments: Wide binary, Teff=23740K logg=8.0, DA + K2V (BD+08 102, V=10.2), unresolved                                                                                                                                                |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                           | Config,Mode,Aperture                                                                           | Spectral Els.                                                     | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sp.101 3080) | (5) WD0041+092                                                                   | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                   |                                             |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sp.101 3080)  | (5) WD0041+092                                                                   | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3081)     | (5) WD0041+092                                                                   | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                   | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3081)     | (5) WD0041+092                                                                   | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                   | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                  |                                                                                                |                                                                   |                                             |               |        |                                 |         |



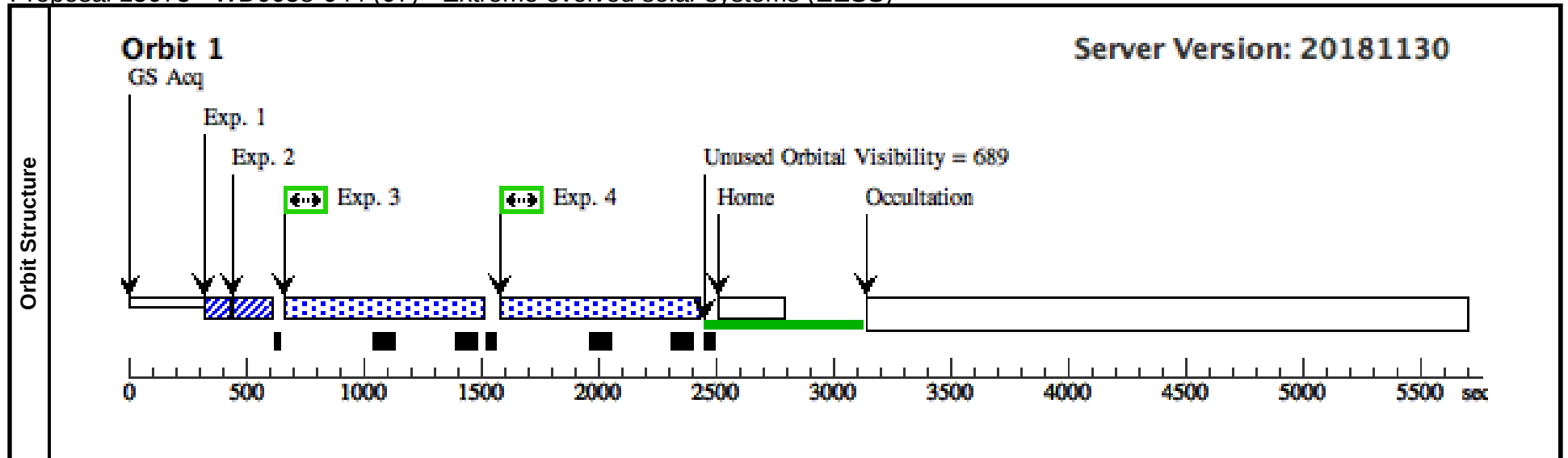
# Proposal 15073 - WD0048+202 (06) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|--------------------------|---------------------------------|-------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0048+202 (06), scheduling                                                                                                                                                                                          |                               |                                 |                          |                                 |                   |                         |        |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
| Diagnostics   | (WD0048+202 (06)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | (WD0048+202 (06)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates              |                          | Targ. Coord. Corrections        |                   | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (6)                                                                                                                                                                                                                                  | WD0048+202                    | RA: 00 51 11.0100 (12.7958750d) |                          | Proper Motion RA: 90.5 mas/yr   |                   | V=14.85+/-0.1           |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +20 31 22.30 (20.52286d)   |                          | Proper Motion Dec: -19.5 mas/yr |                   | GALEX FUV=14.57 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                  |                          | Epoch of Position: 2000.0       |                   | UV=14.84                |        |                                 |  |                              |
|               | Comments: Default, Teff=20160K logg=7.99, DA                                                                                                                                                                                         |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                 |                          |                                 |                   |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                          | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.      | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3082) | (6) WD0048+202                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                   |                         |        | 2 Secs (2 Secs)                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                   |                         |        | [==>]                           |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3082)  | (6) WD0048+202                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9;    |                         |        | 2 Secs (2 Secs)                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 | NUM-POS=5;        |                         |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 | CENTER=DEF        |                         |        |                                 |  |                              |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3083)     | (6) WD0048+202                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=24 5; |                         |        | 600 Secs (600 Secs)             |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 | FLASH=YES;        |                         |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          | FP-POS=3                        |                   |                         |        |                                 |  |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3083)     | (6) WD0048+202                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=24 5; |                         |        | 600 Secs (600 Secs)             |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 | FLASH=YES;        |                         |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 | FP-POS=4          |                         |        |                                 |  |                              |

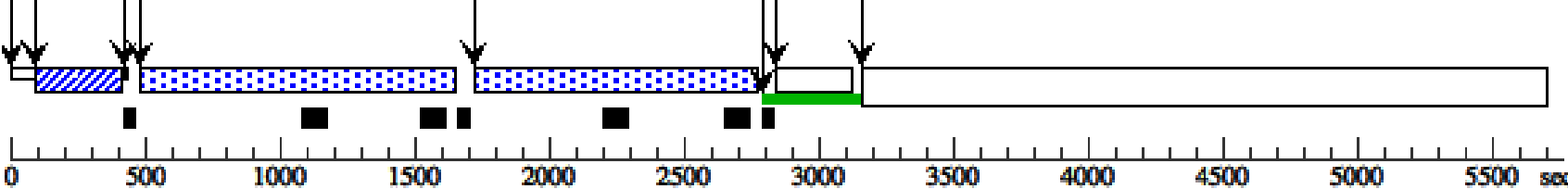


# Proposal 15073 - WD0058-044 (07) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0058-044 (07), scheduling                                                                                                                                                                                          |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
| Diagnos       | (WD0058-044 (07)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                |                          | Targ. Coord. Corrections                                                                      |                                             | Fluxes                                                 |        | Miscellaneous                   |  |                              |
|               | (7)                                                                                                                                                                                                                                  | WD0058-044                    | RA: 01 01 2.2090 (15.2592042d)<br>Dec: -04 11 10.59 (-4.18628d)<br>Equinox: J2000 |                          | Proper Motion RA: 106.5 mas/yr<br>Proper Motion Dec: 35.8 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.409+/-0.099<br>GALEX FUV=14.86 GALEX N<br>UV=15.2 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Magnetic, $T_{\text{eff}}=16700\text{K}$ $\log g=8.07$ , DAH, $B=0.325\text{MG}$                                                                                                                                           |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
| Extended=NO   |                                                                                                                                                                                                                                      |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                            | Config,Mode,Aperture     | Spectral Els.                                                                                 | Opt. Params.                                | Special Reqs.                                          | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3085) | (7) WD0058-044                                                                    | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                               |                                             |                                                        |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3085)  | (7) WD0058-044                                                                    | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                        |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3086)     | (7) WD0058-044                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                                                        |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3086)     | (7) WD0058-044                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                                                        |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                          |                                                                                               |                                             |                                                        |        |                                 |  |                              |

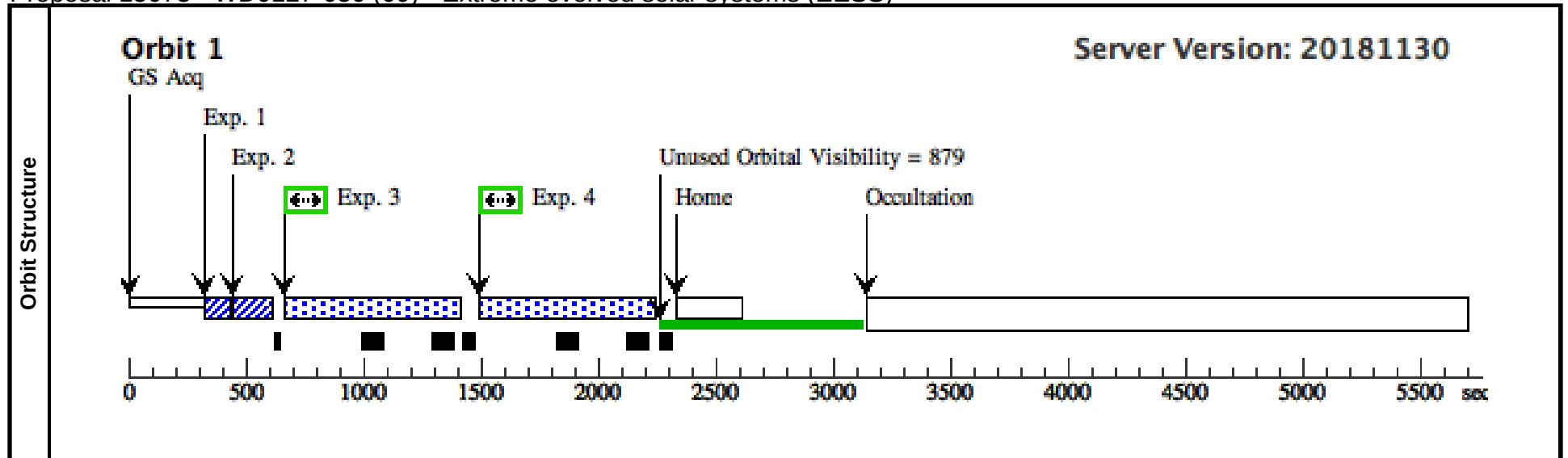


# Proposal 15073 - APASSJ013001.36+263857.4 (08) - Extreme evolved solar systems (EESS)

|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------|---------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                                                         | Proposal 15073, APASSJ013001.36+263857.4 (08), scheduling                                                                                                                                                                                                                                                                                                                                                                             |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|                                                                                               | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
|                                                                                               | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
|                                                                                               | Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
| Diagnostics                                                                                   | (APASSJ013001.36+263857.4 (08)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                                                                                                                                    |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
| Fixed Targets                                                                                 | #                                                                                                                                                                                                                                                                                                                                                                                                                                     | Name                        | Target Coordinates                                                                | Targ. Coord. Corrections                                                                       |                 | Fluxes                                               |               | Miscellaneous         |                                 |  |                              |
|                                                                                               | (8)                                                                                                                                                                                                                                                                                                                                                                                                                                   | APASSJ013001.36+263857.4    | RA: 01 30 1.4310 (22.5059625d)<br>Dec: +26 38 58.07 (26.64946d)<br>Equinox: J2000 | Proper Motion RA: -76.6 mas/yr<br>Proper Motion Dec: -30.8 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.38+/-0.1<br>GALEX FUV=15.59 GALEX N<br>UV=15.57 |               | Reference Frame: ICRS |                                 |  |                              |
| Comments: APASS, Teff=13470K logg=8.25,DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
| Exposures                                                                                     | #                                                                                                                                                                                                                                                                                                                                                                                                                                     | Label (ETC Run)             | Target                                                                            | Config,Mode,Aperture                                                                           | Spectral Els.   | Opt. Params.                                         | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                     | ACQ/Image (COS.ta.101 7580) | (8) APASSJ013001.36+263857.4                                                      | COS/NUV, ACQ/IMAGE, PSA                                                                        | MIRRORB         |                                                      |               |                       | 11 Secs (11 Secs)<br>[==>]      |  | [1]                          |
|                                                                                               | 2                                                                                                                                                                                                                                                                                                                                                                                                                                     | FP-POS3 (COS.sp.101 2993)   | (8) APASSJ013001.36+263857.4                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3       |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                                               | 3                                                                                                                                                                                                                                                                                                                                                                                                                                     | FP-POS4 (COS.sp.101 2993)   | (8) APASSJ013001.36+263857.4                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4       |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
| Orbit Structure                                                                               | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1     Exp. 2     Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 374</div></div> |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |
|                                                                                               | Server Version: 20181130                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                                |                 |                                                      |               |                       |                                 |  |                              |

# Proposal 15073 - WD0127-050 (09) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0127-050 (09), scheduling                                                                                                                                                                                          |                               |                                                                                    |                                                                                                  |                                                        |                                                | Thu Dec 20 21:04:57 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
| Diagnostics   | (WD0127-050 (09)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
|               | (WD0127-050 (09)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                         | Fluxes                                                 | Miscellaneous                                  |                              |        |                                 |       |
|               | (9)                                                                                                                                                                                                                                  | WD0127-050                    | RA: 01 30 23.0300 (22.5959583d)<br>Dec: -04 47 57.90 (-4.79942d)<br>Equinox: J2000 | Proper Motion RA: -205.3 mas/yr<br>Proper Motion Dec: -243.8 mas/yr<br>Epoch of Position: 2000.0 | V=14.914+/-0.069<br>GALEX FUV=14.61 GALEX N<br>UV=14.8 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Default, Teff=16718K logg=7.784, DA                                                                                                                                                                                        |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                             | Spectral Els.                                          | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3087) | (9) WD0127-050                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                         | G130M<br>1291 A                                        |                                                |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3087)  | (9) WD0127-050                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                          | G130M<br>1291 A                                        | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3088)     | (9) WD0127-050                                                                     | COS/FUV, TIME-TAG, PSA                                                                           | G130M<br>1291 A                                        | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3088)     | (9) WD0127-050                                                                     | COS/FUV, TIME-TAG, PSA                                                                           | G130M<br>1291 A                                        | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                  |                                                        |                                                |                              |        |                                 |       |

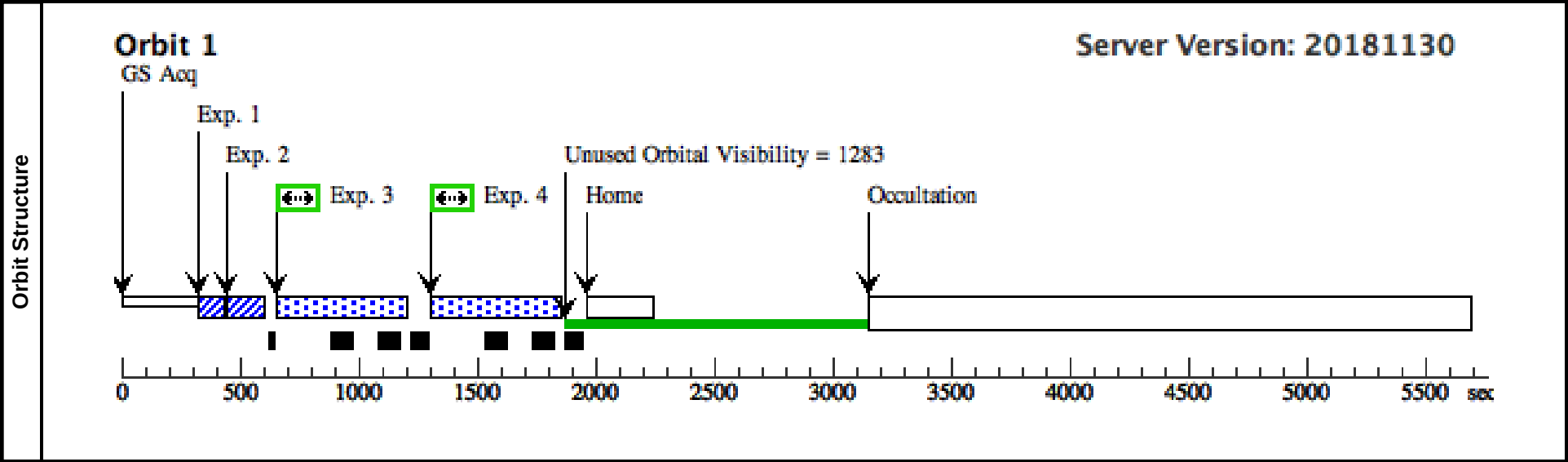


# Proposal 15073 - WD0128-387 (10) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------|---------------|-----------------------|---------------------------------|-------|------------------------------|
| Visit           | Proposal 15073, WD0128-387 (10), completed                                                                                                                                                                                                     |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       | Thu Dec 20 21:04:57 GMT 2018 |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                       |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
|                 | Special Requirements: (none)                                                                                                                                                                                                                   |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
| Diagnos         | (WD0128-387 (10)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.           |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                              | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      |                 | Fluxes                                                             |               | Miscellaneous         |                                 |       |                              |
|                 | (10)                                                                                                                                                                                                                                           | WD0128-387                  | RA: 01 30 28.0490 (22.6168708d)<br>Dec: -38 30 38.56 (-38.51071d)<br>Equinox: J2000 | Proper Motion RA: 172.8 mas/yr<br>Proper Motion Dec: 64.8 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.32+/-0.1<br>GALEX FUV=15.83 GALEX N<br>UV=15.37,<br>SWP39693L |               | Reference Frame: ICRS |                                 |       |                              |
|                 | Comments: Massive, Teff=27909K logg=8.54, DAB [looking at the IUE spectrum, the published Teff must be wrong, more ~15000K]                                                                                                                    |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                               |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |
| Exposures       | #                                                                                                                                                                                                                                              | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                                       | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                 | 1                                                                                                                                                                                                                                              | ACQ/Image (COS.ta.104 3492) | (10) WD0128-387                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                       | MIRRORB         |                                                                    |               |                       | 10 Secs (10 Secs)               |       |                              |
|                 |                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       | [==>]                           | [1]   |                              |
|                 | 2                                                                                                                                                                                                                                              | FP-POS3 (COS.sp.104 3493)   | (10) WD0128-387                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3                     |               |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       | [==>]                           | [1]   |                              |
|                 | 3                                                                                                                                                                                                                                              | FP-POS4 (COS.sp.104 3493)   | (10) WD0128-387                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4                     |               |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       | [==>]                           | [1]   |                              |
| Orbit Structure | <div>Orbit 1<div>GS AcqPointing Maneuver<div>Exp. 1<div>Exp. 2<div>Exp. 3<div>HomeOccultation<div>Unused Orbital Visibility = 411</div></div></div></div></div></div></div> <div><p>05001000150020002500300035004000450050005500 sec</p></div> |                             |                                                                                     |                                                                                               |                 |                                                                    |               |                       |                                 |       |                              |

# Proposal 15073 - WD0129-205 (11) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0129-205 (11), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                              |                                                                |                                             | Thu Dec 20 21:04:57 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
| Diagnostics   | (WD0129-205 (11)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
|               | (WD0129-205 (11)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     | Fluxes                                                         | Miscellaneous                               |                              |        |                                 |       |
|               | (11)                                                                                                                                                                                                                                 | WD0129-205                    | RA: 01 31 39.2200 (22.9134167d)<br>Dec: -20 19 58.60 (-20.33294d)<br>Equinox: J2000 | Proper Motion RA: 163.5 mas/yr<br>Proper Motion Dec: 5.5 mas/yr<br>Epoch of Position: 2000.0 | V=14.64+/-0.1<br>GALEX FUV=5621microJy GA<br>LEX NUV=56microJy | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Default, Teff=19950K logg=7.88, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                                  | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3091) | (11) WD0129-205                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M<br>1291 A                                                |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3091)  | (11) WD0129-205                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M<br>1291 A                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3092)     | (11) WD0129-205                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3092)     | (11) WD0129-205                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                                |                                             |                              |        |                                 |       |

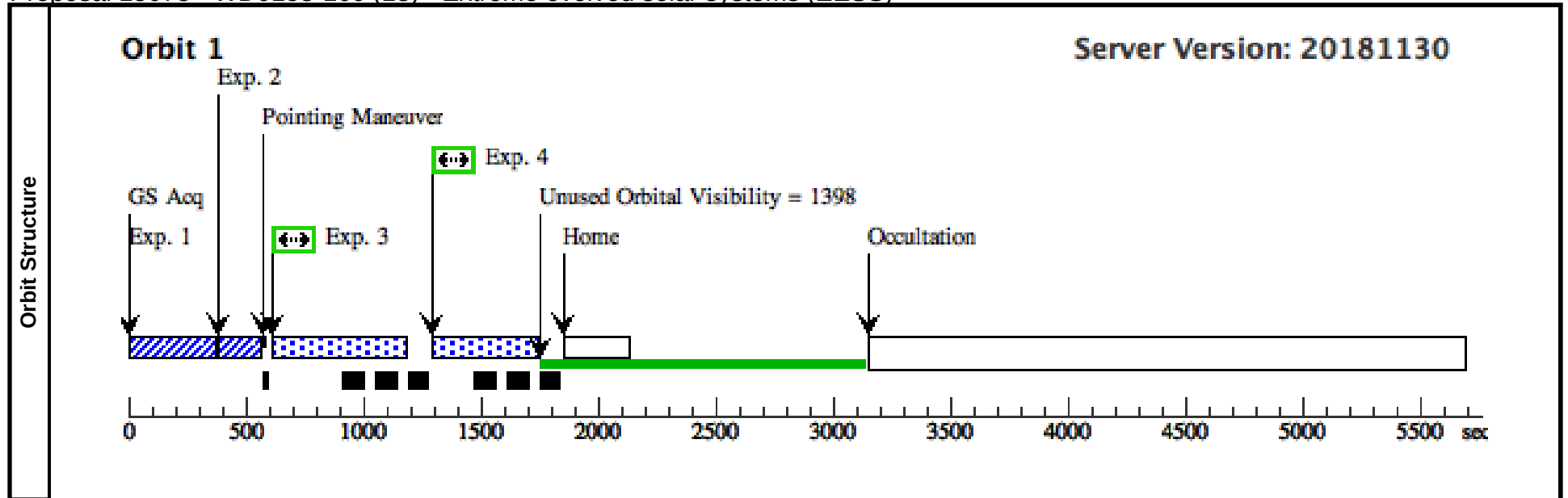


# Proposal 15073 - WD2051+095 repeat (12) - Extreme evolved solar systems (EESS)

|                                                                                                                         |                                                                                                                                                                                                                                                                                    |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------|---------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                                                                                   | Proposal 15073, WD2051+095 repeat (12), completed                                                                                                                                                                                                                                  |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|                                                                                                                         | Diagnostic Status: Warning                                                                                                                                                                                                                                                         |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
|                                                                                                                         | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                           |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
|                                                                                                                         | Special Requirements: (none)                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
| Diagnostics                                                                                                             | (WD2051+095 repeat (12)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                        |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
| Fixed Targets                                                                                                           | #                                                                                                                                                                                                                                                                                  | Name                        | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       |                                                | Fluxes                                              |               | Miscellaneous         |                                 |  |                              |
|                                                                                                                         | (119)                                                                                                                                                                                                                                                                              | WD2051+095                  | RA: 20 53 43.1180 (313.4296583d)<br>Dec: +09 41 16.02 (9.68778d)<br>Equinox: J2000 | Proper Motion RA: -10.2 mas/yr<br>Proper Motion Dec: 114.6 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=16.2+/-0.2<br>GALEX FUV=16.05 GALEX N<br>UV=16.10 |               | Reference Frame: ICRS |                                 |  |                              |
| Comments: Wide binary, Teff=15670K logg=7.95, DA + MV (i=13.9), 10"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                    |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |
| Exposures                                                                                                               | #                                                                                                                                                                                                                                                                                  | Label (ETC Run)             | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els.                                  | Opt. Params.                                        | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                                                         | 1                                                                                                                                                                                                                                                                                  | ACQ/Image (COS.ta.102 1162) | (119) WD2051+095                                                                   | COS/NUV, ACQ/IMAGE, PSA                                                                        | MIRRORB                                        |                                                     |               |                       | 20 Secs (20 Secs)               |  |                              |
|                                                                                                                         |                                                                                                                                                                                                                                                                                    |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       | [==>]                           |  | [1]                          |
|                                                                                                                         | 2                                                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3705)   | (119) WD2051+095                                                                   | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3      |               |                       | 1000 Secs (1000 Secs)           |  |                              |
|                                                                                                                         |                                                                                                                                                                                                                                                                                    |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       | [==>]                           |  | [1]                          |
| 3                                                                                                                       | FP-POS4 (COS.sp.101 3705)                                                                                                                                                                                                                                                          | (119) WD2051+095            | COS/FUV, TIME-TAG, PSA                                                             | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                     |               | 1000 Secs (1000 Secs) |                                 |  |                              |
|                                                                                                                         |                                                                                                                                                                                                                                                                                    |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       | [==>]                           |  | [1]                          |
| Orbit Structure                                                                                                         | <div><div>Orbit 1</div><div><div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Home Occultation</div><div>Unused Orbital Visibility = 336</div></div><div><div>05001000150020002500300035004000450050005500sec</div></div></div> |                             |                                                                                    |                                                                                                |                                                |                                                     |               |                       |                                 |  |                              |

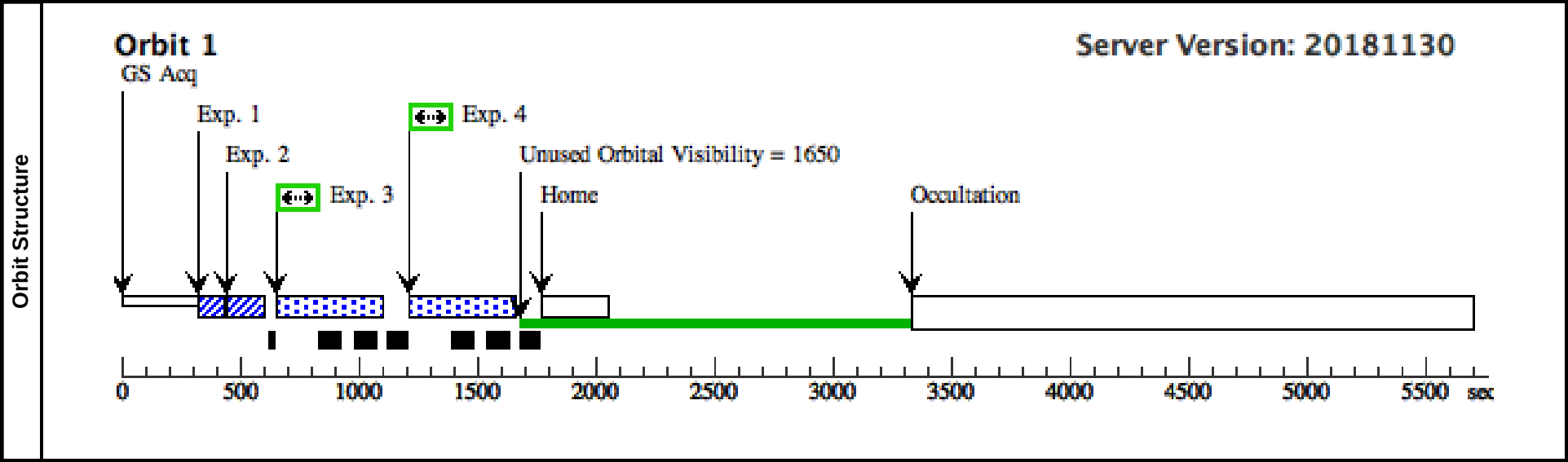
# Proposal 15073 - WD0158-160 (13) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------|--------------------------|--------------------------------|---------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0158-160 (13), scheduling                                                                                                                                                                                          |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                             |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |
| Diagnos       | (WD0158-160 (13)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                      |                          | Targ. Coord. Corrections       |                                             | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (13)                                                                                                                                                                                                                                 | WD0158-160                    | RA: 02 00 56.7080 (30.2362833d)                                                         |                          | Proper Motion RA: 123.5 mas/yr |                                             | V=14.55+/-0.072         |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -15 46 10.15 (-15.76949d)                                                          |                          | Proper Motion Dec: 36.0 mas/yr |                                             | GALEX FUV=13.94 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                          |                          | Epoch of Position: 2000.0      |                                             | UV=14.03                |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: DB, Teff=25518K logg=7.88<br>Category=STAR<br>Description=[DB]<br>Extended=NO |                          |                                |                                             |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                  | Config,Mode,Aperture     | Spectral Els.                  | Opt. Params.                                | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.102 8689) | (13) WD0158-160                                                                         | COS/NUV, ACQ/PEAKXD, PSA | G185M<br>1786 A                |                                             |                         |        | 6 Secs (6 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.102 8689)  | (13) WD0158-160                                                                         | COS/NUV, ACQ/PEAKD, PSA  | G185M<br>1786 A                | CENTER=DEF;<br>NUM-POS=5;<br>STEP-SIZE=0.9  |                         |        | 6 Secs (6 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3415)     | (13) WD0158-160                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3415)     | (13) WD0158-160                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                         |                          |                                |                                             |                         |        |                                 |  |                              |



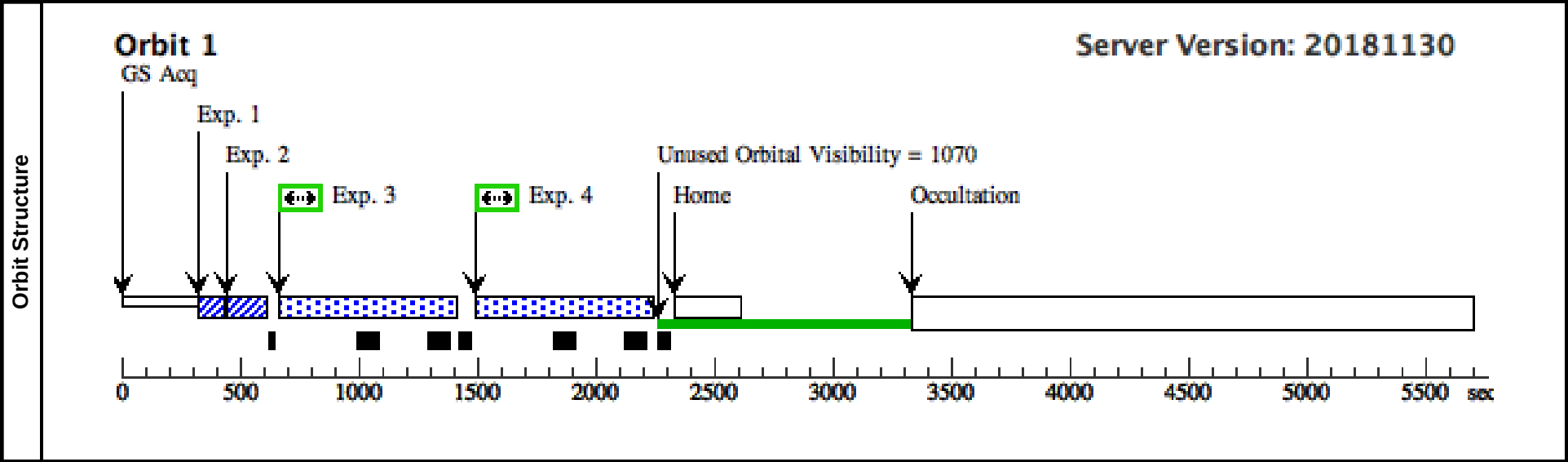
# Proposal 15073 - WD0232+525 (14) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0232+525 (14), completed                                                                                                                                                                                           |                               |                                                                                    |                                                                                                 |                                                                |                                             | Thu Dec 20 21:04:57 GMT 2018 |        |                                 |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
| Diagnostics   | (WD0232+525 (14)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                        | Fluxes                                                         | Miscellaneous                               |                              |        |                                 |         |
|               | (14)                                                                                                                                                                                                                                 | WD0232+525                    | RA: 02 36 19.5630 (39.0815125d)<br>Dec: +52 44 12.34 (52.73676d)<br>Equinox: J2000 | Proper Motion RA: 178.2 mas/yr<br>Proper Motion Dec: -167.6 mas/yr<br>Epoch of Position: 2000.0 | V=13.829+/-0.052<br>GALEX FUV=99 GALEX NUV=13.75,<br>SWP27350L | Reference Frame: ICRS                       |                              |        |                                 |         |
|               | Comments: Massive, Teff=17880K logg=8.37, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                     |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                            | Spectral Els.                                                  | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3108) | (14) WD0232+525                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3108)  | (14) WD0232+525                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3422)     | (14) WD0232+525                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3422)     | (14) WD0232+525                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                                |                                             |                              |        |                                 |         |



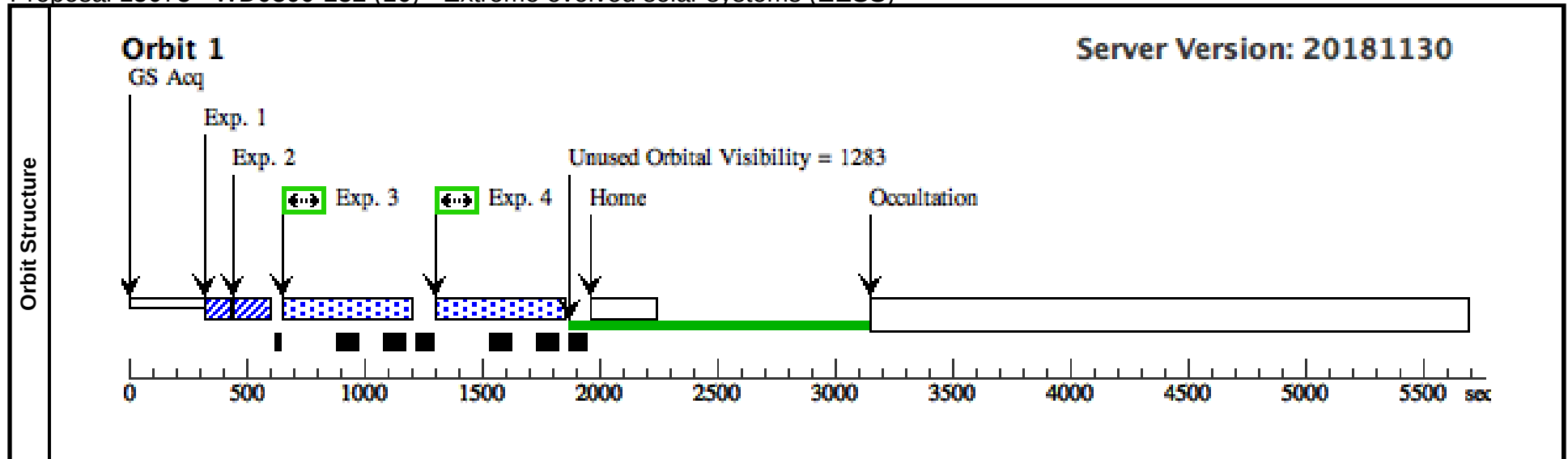
# Proposal 15073 - WD0253+508 (15) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------|------------------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0253+508 (15), scheduling                                                                                                                                                                                          |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     |                              |
| Diagnostics   | (WD0253+508 (15)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                         |                          |                                |                                                |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                                      |                          | Targ. Coord. Corrections       |                                                | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (15)                                                                                                                                                                                                                                 | WD0253+508                    | RA: 02 57 22.0280 (44.3417833d)                                                                         |                          | Proper Motion RA: -27.4 mas/yr |                                                | V=15.22+/-0.1           |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +51 03 43.65 (51.06212d)                                                                           |                          | Proper Motion Dec: 19.1 mas/yr |                                                | GALEX FUV=14.24 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                          |                          | Epoch of Position: 2000.0      |                                                | UV=14.70                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Magnetic, Teff=15000K logg=8, DAH, B=17MG<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                |                                                |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                                  | Config,Mode,Aperture     | Spectral Els.                  | Opt. Params.                                   | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3109) | (15) WD0253+508                                                                                         | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                |                                                |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3109)  | (15) WD0253+508                                                                                         | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3424)     | (15) WD0253+508                                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3424)     | (15) WD0253+508                                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                         |                          |                                |                                                |                         |        | [==>]                           |     | [1]                          |



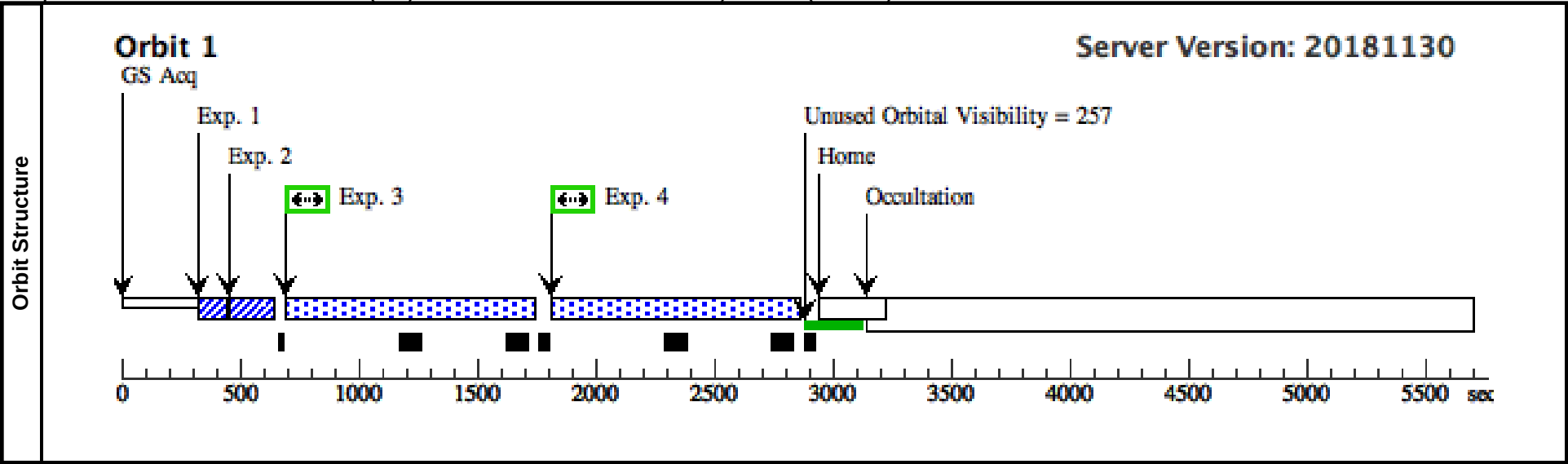
# Proposal 15073 - WD0300-232 (16) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0300-232 (16), scheduling                                                                                                                                                                                          |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnos       | (WD0300-232 (16)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (16)                                                                                                                                                                                                                                 | WD0300-232                    | RA: 03 02 36.6370 (45.6526542d)                                                                  |                          | Proper Motion RA: 12.3 mas/yr   |                                       | V=15.682+/-0.026        |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -23 01 51.23 (-23.03090d)                                                                   |                          | Proper Motion Dec: -10.5 mas/yr |                                       | GALEX FUV=14.44 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                       | UV=14.93                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=22369K logg=8.39, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3110) | (16) WD0300-232                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3110)  | (16) WD0300-232                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3426)     | (16) WD0300-232                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=19 5; FLASH=YES; FP-POS=3 |                         |        | 500 Secs (500 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3426)     | (16) WD0300-232                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=19 5; FLASH=YES; FP-POS=4 |                         |        | 500 Secs (500 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



# Proposal 15073 - WD0321-026 (17) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------|-----------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0321-026 (17), scheduling                                                                                                                                                                                          |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        | Thu Dec 20 21:04:57 GMT 2018    |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
| Diagnostics   | (WD0321-026 (17)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord.                                                                                  | Corrections     | Fluxes                                                | Miscellaneous         |        |                                 |       |
|               | (17)                                                                                                                                                                                                                                 | WD0321-026                    | RA: 03 24 10.4890 (51.0437042d)<br>Dec: -02 29 18.73 (-2.48854d)<br>Equinox: J2000 | Proper Motion RA: 18.7 mas/yr<br>Proper Motion Dec: -10.1 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.995+/-0.1<br>GALEX FUV=16.40 GALEX N<br>UV=16.88 | Reference Frame: ICRS |        |                                 |       |
|               | Comments: Massive, Teff=27370K logg=8.45, DA                                                                                                                                                                                         |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                          | Special Reqs.         | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3111) | (17) WD0321-026                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A |                                                       |                       |        | 7 Secs (7 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3111)  | (17) WD0321-026                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF            |                       |        | 7 Secs (7 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3430)     | (17) WD0321-026                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3           |                       |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3430)     | (17) WD0321-026                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4           |                       |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                 |                                                       |                       |        |                                 |       |

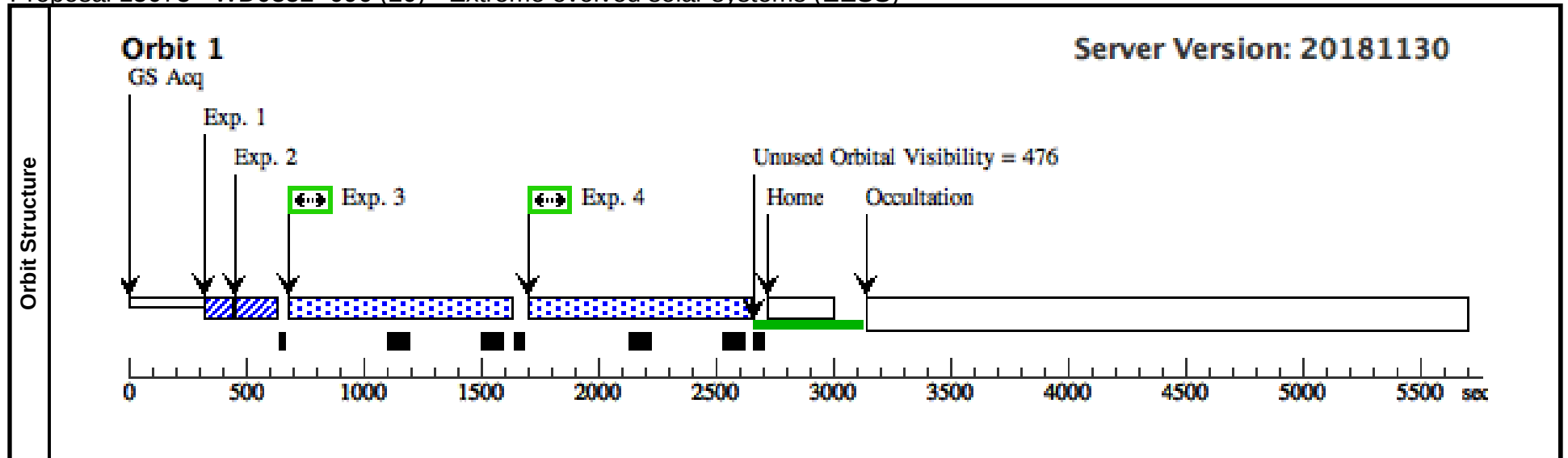


# Proposal 15073 - WD0348+339 (18) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                                                  |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------|---------------------------------------------|-----------------------|---------------|------------------------------|--------|-------|---------------------------------|-----|-------|--|--|--|--|
| Visit           | Proposal 15073, WD0348+339 (18), completed                                                                                                                                                                                                                                       |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               | Thu Dec 20 21:04:57 GMT 2018 |        |       |                                 |     |       |  |  |  |  |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                       |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                         |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                     |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
| Diagnostics     | (WD0348+339 (18)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                             |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                | Name                        | Target Coordinates                                                                 |                         | Targ. Coord. Corrections                                                                       |               | Fluxes                                                         |                                             | Miscellaneous         |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | (18)                                                                                                                                                                                                                                                                             | WD0348+339                  | RA: 03 51 59.9480 (57.9997833d)<br>Dec: +34 07 28.19 (34.12450d)<br>Equinox: J2000 |                         | Proper Motion RA: 159.8 mas/yr<br>Proper Motion Dec: -88.1 mas/yr<br>Epoch of Position: 2000.0 |               | V=15.122+/-0.055<br>GALEX FUV=99 GALEX NUV=15.58,<br>SWP43638L |                                             | Reference Frame: ICRS |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | Comments: Massive, Teff=14820K logg=8.31, DA                                                                                                                                                                                                                                     |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                                                 |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
| Exposures       | #                                                                                                                                                                                                                                                                                | Label (ETC Run)             | Target                                                                             | Config,Mode,Aperture    |                                                                                                | Spectral Els. |                                                                | Opt. Params.                                |                       | Special Reqs. |                              | Groups |       | Exp. Time (Total)/[Actual Dur.] |     | Orbit |  |  |  |  |
|                 | 1                                                                                                                                                                                                                                                                                | ACQ/Image (COS.ta.102 1163) | (18) WD0348+339                                                                    | COS/NUV, ACQ/IMAGE, PSA |                                                                                                | MIRRORB       |                                                                |                                             |                       |               |                              |        |       | 11 Secs (11 Secs)               |     |       |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       | [==>]                           |     | [1]   |  |  |  |  |
|                 | 2                                                                                                                                                                                                                                                                                | FP-POS3 (COS.sp.101 3433)   | (18) WD0348+339                                                                    | COS/FUV, TIME-TAG, PSA  |                                                                                                | G130M 1291 A  |                                                                | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3 |                       |               |                              |        |       | 1000 Secs (1000 Secs)           |     |       |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       | [==>]                           |     | [1]   |  |  |  |  |
|                 | 3                                                                                                                                                                                                                                                                                | FP-POS4 (COS.sp.101 3433)   | (18) WD0348+339                                                                    | COS/FUV, TIME-TAG, PSA  |                                                                                                | G130M 1291 A  |                                                                | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4 |                       |               |                              |        |       | 1000 Secs (1000 Secs)           |     |       |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        | [==>] |                                 | [1] |       |  |  |  |  |
| Orbit Structure | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 389</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500 sec</div></div> |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |
|                 | Server Version: 20181130                                                                                                                                                                                                                                                         |                             |                                                                                    |                         |                                                                                                |               |                                                                |                                             |                       |               |                              |        |       |                                 |     |       |  |  |  |  |

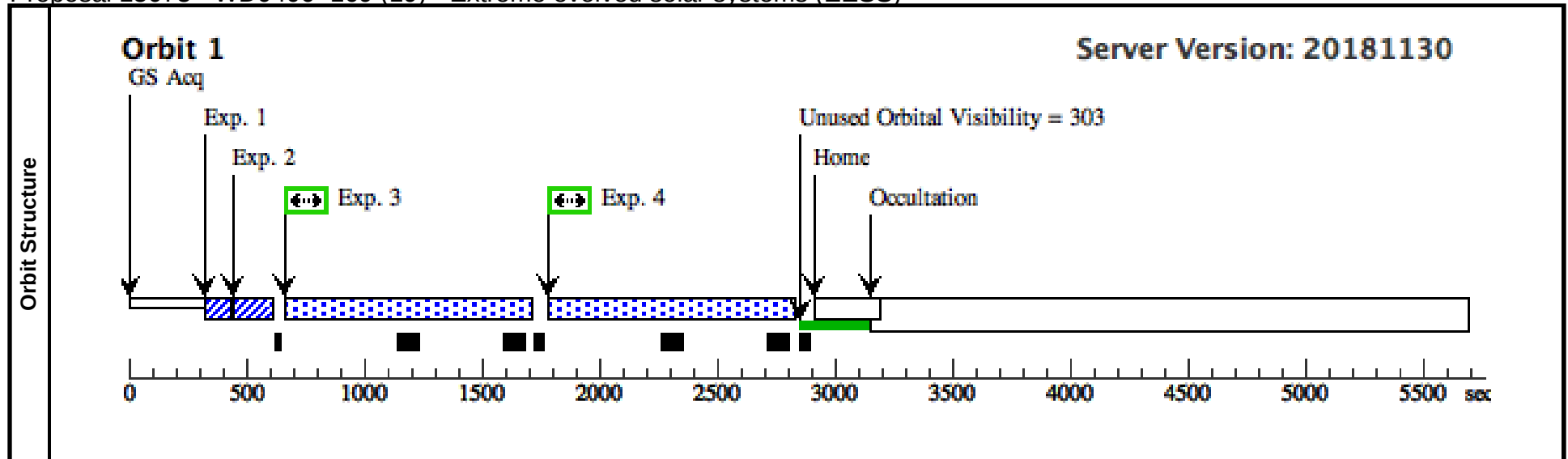
# Proposal 15073 - WD0352+096 (20) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0352+096 (20), scheduling                                                                                                                                                                                          |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        | Thu Dec 20 21:04:57 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
| Diagnostics   | (WD0352+096 (20)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                | Targ. Coord. Corrections                                                                      | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |         |
|               | (19)                                                                                                                                                                                                                                 | WD0352+096                    | RA: 03 55 21.9880 (58.8416167d)<br>Dec: +09 47 18.06 (9.78835d)<br>Equinox: J2000 | Proper Motion RA: 170.6 mas/yr<br>Proper Motion Dec: -2.1 mas/yr<br>Epoch of Position: 2000.0 | V=14.499+/-0.049<br>GALEX FUV=14.60 GALEX N<br>UV=14.57,<br>SWP24733L | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Massive, Teff=14550K logg=8.31, DA                                                                                                                                                                                         |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                            | Config,Mode,Aperture                                                                          | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3113) | (19) WD0352+096                                                                   | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                                                       |                                                |               |        | 5 Secs (5 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3113)  | (19) WD0352+096                                                                   | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 5 Secs (5 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3437)     | (19) WD0352+096                                                                   | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                                       | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 900 Secs (900 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3437)     | (19) WD0352+096                                                                   | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                                       | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 900 Secs (900 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                   |                                                                                               |                                                                       |                                                |               |        |                                 |         |



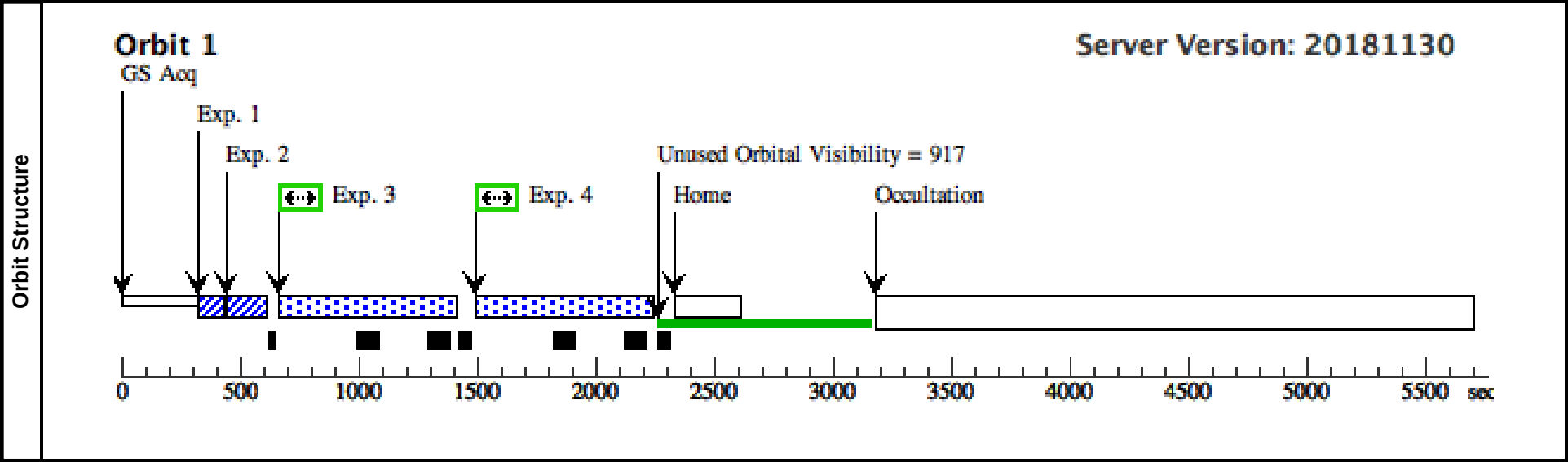
# Proposal 15073 - WD0406+169 (19) - Extreme evolved solar systems (EESS)

|                                                                                                   |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|--|------------------------------|
| Visit                                                                                             | Proposal 15073, WD0406+169 (19), scheduling                                                                                                                                                                                          |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |
|                                                                                                   | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
|                                                                                                   | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
|                                                                                                   | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
| Diagnostics                                                                                       | (WD0406+169 (19)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
|                                                                                                   |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
| Fixed Targets                                                                                     | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       | Fluxes                                                                | Miscellaneous                               |               |        |                                 |  |                              |
|                                                                                                   | (20)                                                                                                                                                                                                                                 | WD0406+169                    | RA: 04 09 28.9000 (62.3704167d)<br>Dec: +17 07 54.40 (17.13178d)<br>Equinox: J2000 | Proper Motion RA: 104.6 mas/yr<br>Proper Motion Dec: -28.8 mas/yr<br>Epoch of Position: 2000.0 | V=15.304+/-0.049<br>GALEX FUV=15.22 GALEX N<br>UV=15.26,<br>SWP24752L | Reference Frame: ICRS                       |               |        |                                 |  |                              |
| Comments: Massive, Teff=16049K logg=8.236, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |
| Exposures                                                                                         | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els.                                                         | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                                   | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.102 8693) | (20) WD0406+169                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                       |                                             |               |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|                                                                                                   | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.102 8693)  | (20) WD0406+169                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|                                                                                                   | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3441)     | (20) WD0406+169                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                       | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                                                   | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3441)     | (20) WD0406+169                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                       | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                                                   |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                             |               |        |                                 |  |                              |



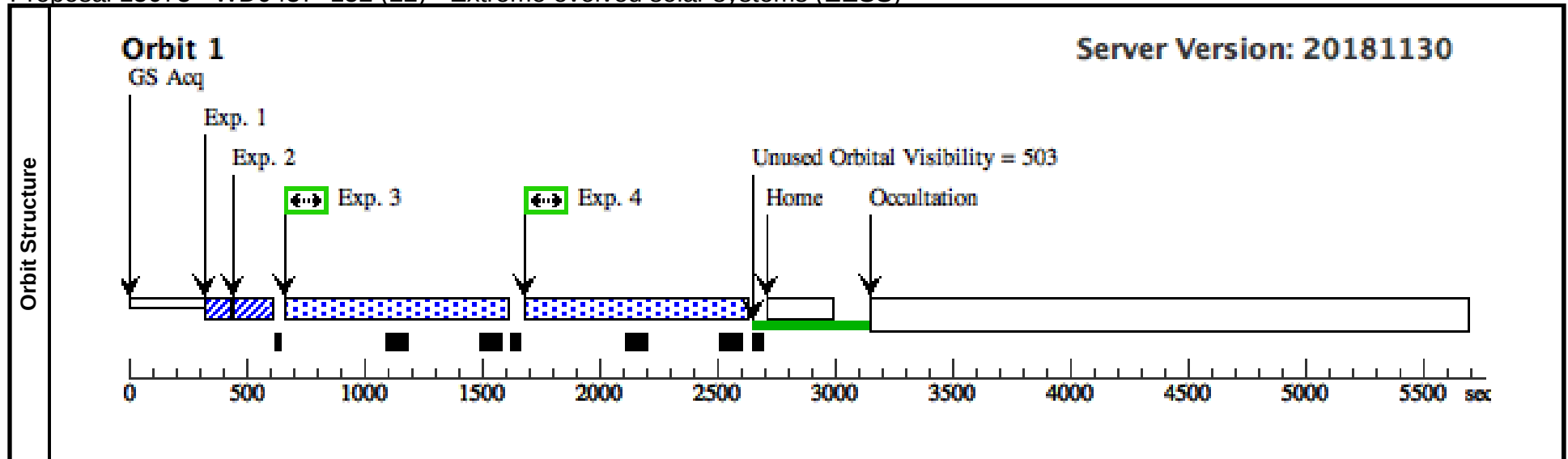
# Proposal 15073 - WD0416+334 (21) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|--------------------------|----------------------------------|---------------------------------------|------------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0416+334 (21), scheduling                                                                                                                                                                                          |                               |                                 |                          |                                  |                                       |                              |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
| Diagnos       | (WD0416+334 (21)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates              |                          | Targ. Coord. Corrections         |                                       | Fluxes                       |        | Miscellaneous                   |     |                              |
|               | (21)                                                                                                                                                                                                                                 | WD0416+334                    | RA: 04 20 11.2010 (65.0466708d) |                          | Proper Motion RA: 79.9 mas/yr    |                                       | V=15.214+/-0.1               |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +33 35 37.06 (33.59363d)   |                          | Proper Motion Dec: -176.6 mas/yr |                                       | GALEX FUV=99 GALEX NUV=15.08 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                  |                          | Epoch of Position: 2000.0        |                                       |                              |        |                                 |     |                              |
|               | Comments: Wide binary, Teff=17700K logg=7.9, DA + M5V (V=18.5), 68"                                                                                                                                                                  |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                 |                          |                                  |                                       |                              |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                          | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.                          | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3115) | (21) WD0416+334                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                     |                                       |                              |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3115)  | (21) WD0416+334                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                     | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                              |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3443)     | (21) WD0416+334                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=29 5; FLASH=YES; FP-POS=3 |                              |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3443)     | (21) WD0416+334                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=29 5; FLASH=YES; FP-POS=4 |                              |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |



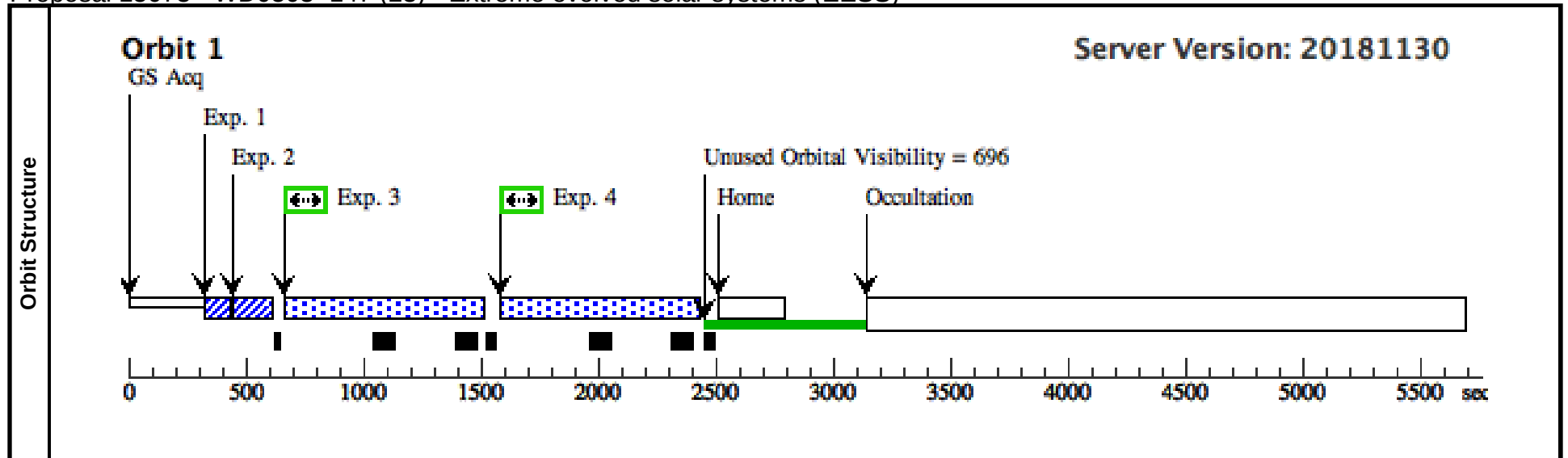
# Proposal 15073 - WD0437+152 (22) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0437+152 (22), completed                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                         |                                                | Thu Dec 20 21:04:57 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
| Diagnostics   | (WD0437+152 (22)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       | Fluxes                                                  | Miscellaneous                                  |                              |        |                                 |       |
|               | (22)                                                                                                                                                                                                                                 | WD0437+152                    | RA: 04 39 52.8990 (69.9704125d)<br>Dec: +15 19 45.46 (15.32929d)<br>Equinox: J2000 | Proper Motion RA: -12.0 mas/yr<br>Proper Motion Dec: -40.1 mas/yr<br>Epoch of Position: 2000.0 | V=15.753+/-0.109<br>GALEX FUV=15.33 GALEX N<br>UV=15.33 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Low mass, Teff=19300K logg=7.48, DA                                                                                                                                                                                        |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els.                                           | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3116) | (22) WD0437+152                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                         |                                                |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3116)  | (22) WD0437+152                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3445)     | (22) WD0437+152                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                         | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 900 Secs (900 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3445)     | (22) WD0437+152                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                         | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 900 Secs (900 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                         |                                                |                              |        |                                 |       |



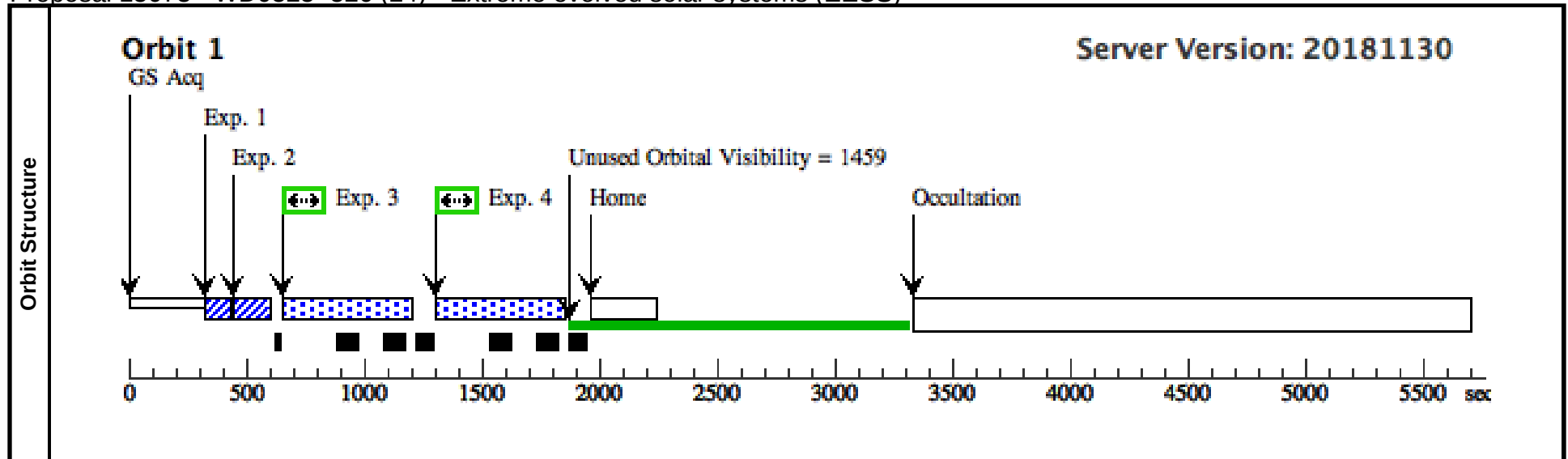
# Proposal 15073 - WD0503+147 (23) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0503+147 (23), scheduling                                                                                                                                                                                          |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnos       | (WD0503+147 (23)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                          |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                       |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (23)                                                                                                                                                                                                                                 | WD0503+147                    | RA: 05 06 15.8220 (76.5659250d)                                                          |                          | Proper Motion RA: 0.7 mas/yr    |                                       | V=14.118+/-0.012        |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +14 48 30.20 (14.80839d)                                                            |                          | Proper Motion Dec: -87.0 mas/yr |                                       | GALEX FUV=14.48 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                           |                          | Epoch of Position: 2000.0       |                                       | UV=14.59                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: DBA, Teff=15640K logg=8.09<br>Category=STAR<br>Description=[DB]<br>Extended=NO |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                   | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3117) | (23) WD0503+147                                                                          | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3117)  | (23) WD0503+147                                                                          | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3448)     | (23) WD0503+147                                                                          | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=34 5; FLASH=YES; FP-POS=3 |                         |        | 800 Secs (800 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3448)     | (23) WD0503+147                                                                          | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=34 5; FLASH=YES; FP-POS=4 |                         |        | 800 Secs (800 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                          |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



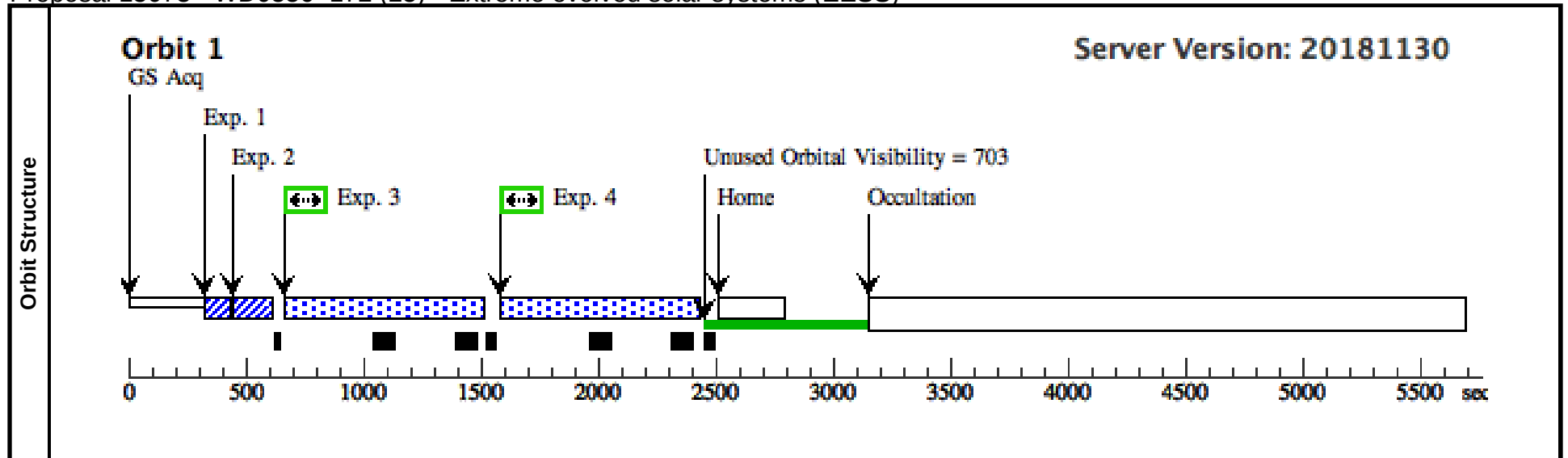
# Proposal 15073 - WD0525+526 (24) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|----------------------------------|---------------------------------------------|---------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit         | Proposal 15073, WD0525+526 (24), completed                                                                                                                                                                                           |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  | Thu Dec 20 21:04:57 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |
| Diagnostics   | (WD0525+526 (24)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections         |                                             | Fluxes                    |        | Miscellaneous                   |  |                              |  |
|               | (24)                                                                                                                                                                                                                                 | WD0525+526                    | RA: 05 29 50.2680 (82.4594500d)                                                                  |                          | Proper Motion RA: 363.4 mas/yr   |                                             | V=15.686+/-0.05           |        | Reference Frame: ICRS           |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +52 39 53.71 (52.66492d)                                                                    |                          | Proper Motion Dec: -540.3 mas/yr |                                             | GALEX FUV=99 GALEX NUV=99 |        |                                 |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0        |                                             |                           |        |                                 |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=22510K logg=9.14, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                  |                                             |                           |        |                                 |  |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.                                | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3118) | (24) WD0525+526                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                  |                                             |                           |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3118)  | (24) WD0525+526                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                           |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3450)     | (24) WD0525+526                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                           |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3450)     | (24) WD0525+526                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                           |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |  |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                  |                                             |                           |        |                                 |  |                              |  |



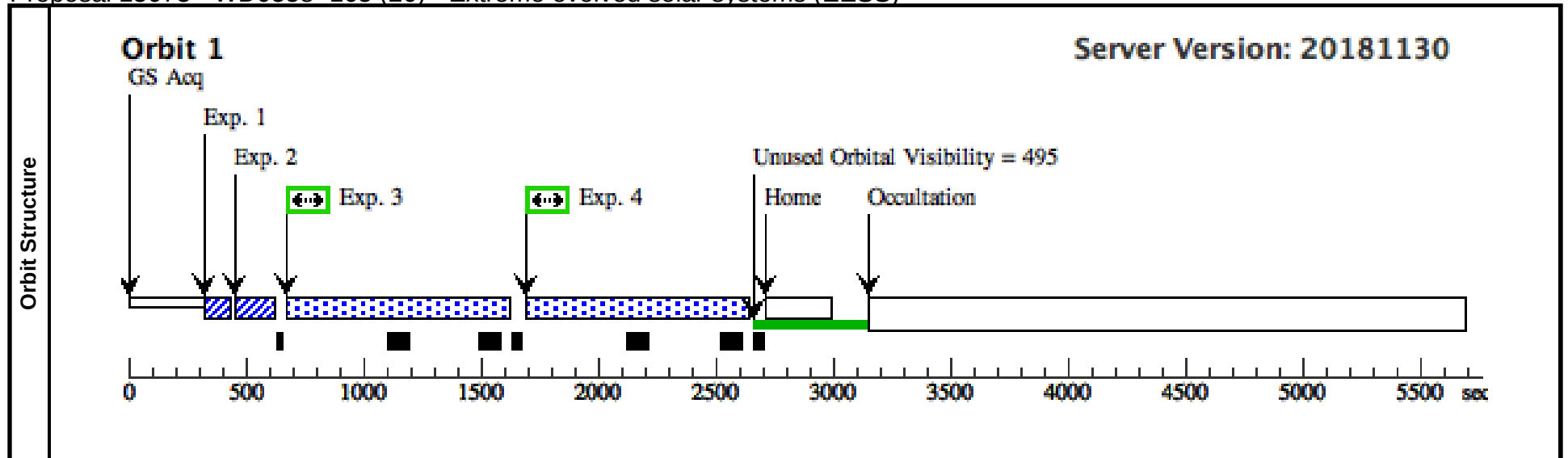
# Proposal 15073 - WD0556+172 (25) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------------|---------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0556+172 (25), completed                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
| Diagnostics   | (WD0556+172 (25)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                             | Fluxes                    |        | Miscellaneous                   |     |                              |
|               | (25)                                                                                                                                                                                                                                 | WD0556+172                    | RA: 05 59 44.9830 (89.9374292d)                                                                  |                          | Proper Motion RA: 1.0 mas/yr    |                                             | V=15.868+/-0.184          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +17 12 3.58 (17.20099d)                                                                     |                          | Proper Motion Dec: -20.6 mas/yr |                                             | GALEX FUV=99 GALEX NUV=99 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                             |                           |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=19280K logg=8.34, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                             |                           |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3120) | (25) WD0556+172                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                 |                                             |                           |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3120)  | (25) WD0556+172                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                           |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3453)     | (25) WD0556+172                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                           |        | 800 Secs (800 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3453)     | (25) WD0556+172                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                           |        | 800 Secs (800 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |



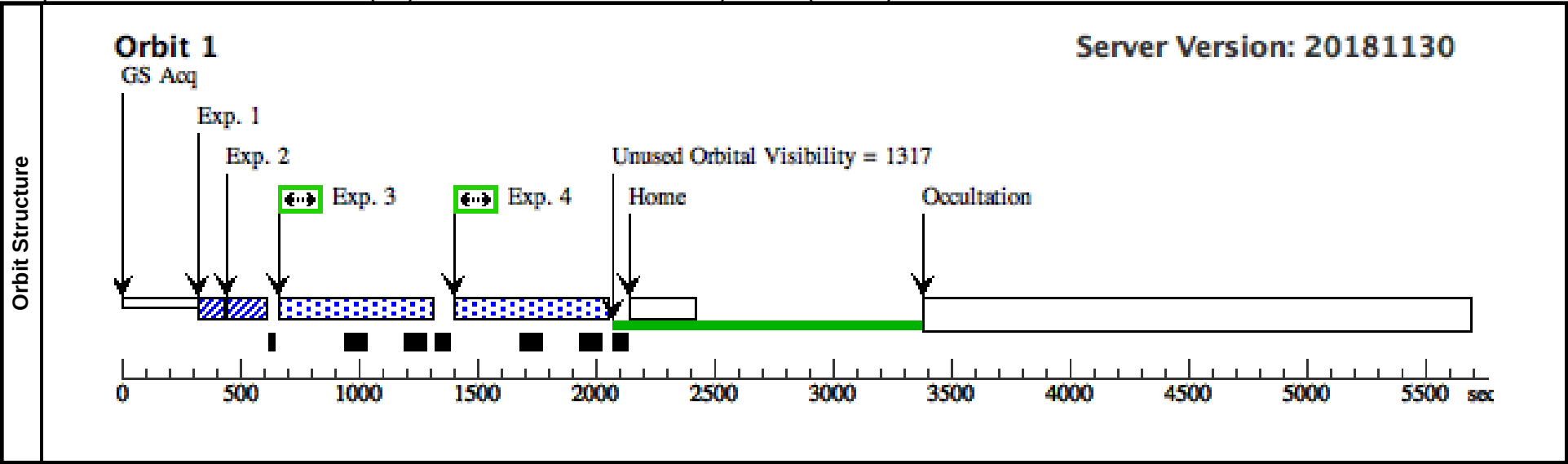
# Proposal 15073 - WD0558+165 (26) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------------|---------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0558+165 (26), scheduling                                                                                                                                                                                          |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     | Thu Dec 20 21:04:57 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
| Diagnos       | (WD0558+165 (26)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                             |                           |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                             | Fluxes                    |        | Miscellaneous                   |     |                              |
|               | (26)                                                                                                                                                                                                                                 | WD0558+165                    | RA: 06 01 17.7200 (90.3238333d)                                                                  |                          | Proper Motion RA: -46.1 mas/yr  |                                             | V=15.597+/-0.014          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +16 31 36.81 (16.52689d)                                                                    |                          | Proper Motion Dec: -37.2 mas/yr |                                             | GALEX FUV=99 GALEX NUV=99 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                             |                           |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=17210K logg=8.42, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                             |                           |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3121) | (26) WD0558+165                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                             |                           |        | 4 Secs (4 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3121)  | (26) WD0558+165                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                           |        | 4 Secs (4 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3454)     | (26) WD0558+165                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=3 |                           |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3454)     | (26) WD0558+165                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=4 |                           |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                             |                           |        | [==>]                           |     | [1]                          |



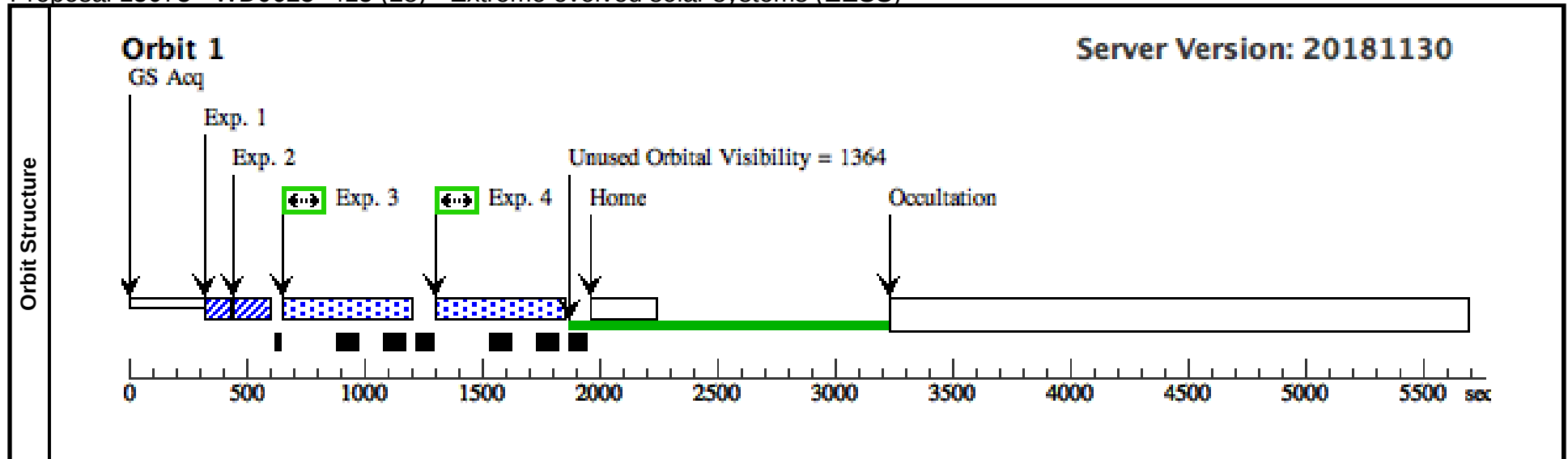
# Proposal 15073 - WD0615-591 (27) - Extreme evolved solar systems (EESS)

|                                                                                   |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit                                                                             | Proposal 15073, WD0615-591 (27), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        | Thu Dec 20 21:04:57 GMT 2018    |         |
|                                                                                   | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
|                                                                                   | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
|                                                                                   | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Diagnostics                                                                       | (WD0615-591 (27)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Fixed Targets                                                                     | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                                            | Miscellaneous                               |               |        |                                 |         |
|                                                                                   | (27)                                                                                                                                                                                                                                 | WD0615-591                    | RA: 06 16 14.2620 (94.0594250d)<br>Dec: -59 12 27.54 (-59.20765d)<br>Equinox: J2000 | Proper Motion RA: -46.0 mas/yr<br>Proper Motion Dec: -316.0 mas/yr<br>Epoch of Position: 2000.0 | V=13.65+/-0.05<br>GALEX FUV=14.43 GALEX N<br>UV=13.85,<br>LBEK03010,<br>SWP14156L | Reference Frame: ICRS                       |               |        |                                 |         |
| Comments: Wide binary, Teff=15750K logg=8.04, DB + F9.5V (HD44120, V=6.43), 40.7" |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Category=STAR                                                                     |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Description=[DA]                                                                  |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Extended=NO                                                                       |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |
| Exposures                                                                         | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                                                     | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|                                                                                   | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3122) | (27) WD0615-591                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                                   |                                             |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|                                                                                   | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3122)  | (27) WD0615-591                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|                                                                                   | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3459)     | (27) WD0615-591                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                                   | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 600 Secs (600 Secs)<br>[==>]    | <br>[1] |
|                                                                                   | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3459)     | (27) WD0615-591                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                                   | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 600 Secs (600 Secs)<br>[==>]    | <br>[1] |
|                                                                                   |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                                   |                                             |               |        |                                 |         |



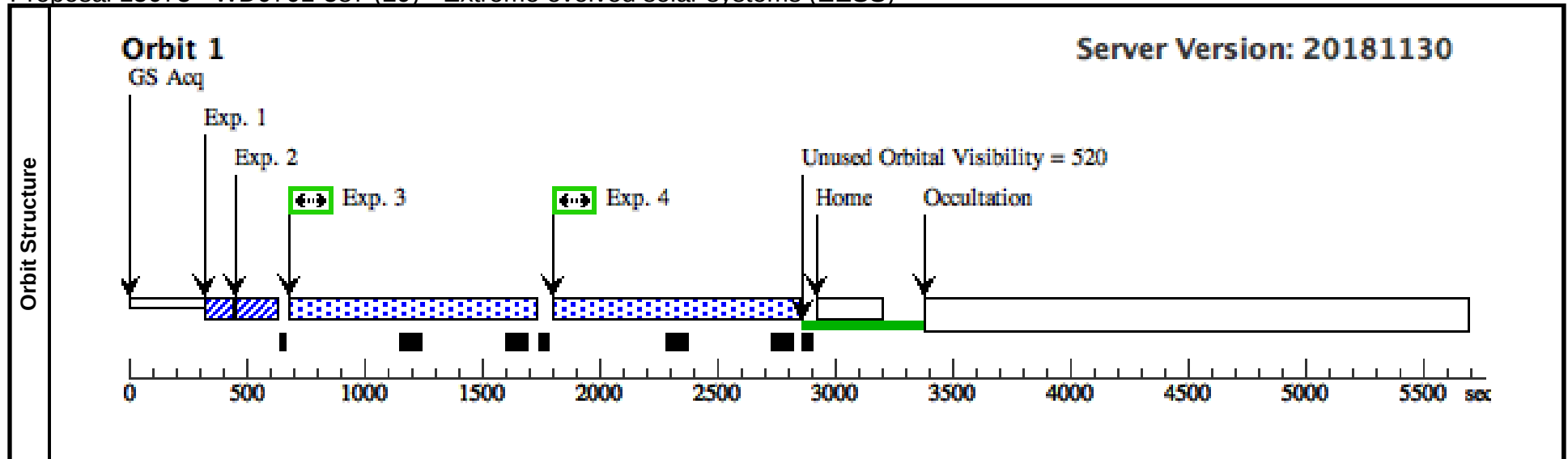
# Proposal 15073 - WD0625+415 (28) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------|-------------------|---------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0625+415 (28), scheduling                                                                                                                                                                                          |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  |                              |
| Diagnostics   | (WD0625+415 (28)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                                           |                          |                                  |                   |                           |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                                                        |                          | Targ. Coord. Corrections         |                   | Fluxes                    |        | Miscellaneous                   |  |                              |
|               | (28)                                                                                                                                                                                                                                 | WD0625+415                    | RA: 06 29 4.3700 (97.2682083d)                                                                                            |                          | Proper Motion RA: -12.6 mas/yr   |                   | V=14.99+/-0.1             |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +41 30 45.92 (41.51276d)                                                                                             |                          | Proper Motion Dec: -116.2 mas/yr |                   | GALEX FUV=99 GALEX NUV=99 |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                                            |                          | Epoch of Position: 2000.0        |                   |                           |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Wide binary, Teff=17610K logg=8.07, DA + M4V (V=17.74), 99"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                  |                   |                           |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                                                    | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.      | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3123) | (28) WD0625+415                                                                                                           | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                     |                   |                           |        | 2 Secs (2 Secs)                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  |                   |                           |        | [==>]                           |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3123)  | (28) WD0625+415                                                                                                           | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                     | STEP-SIZE=0.9;    |                           |        | 2 Secs (2 Secs)                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | NUM-POS=5;        |                           |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | CENTER=DEF        |                           |        |                                 |  |                              |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3461)     | (28) WD0625+415                                                                                                           | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=19 5; |                           |        | 500 Secs (500 Secs)             |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | FLASH=YES;        |                           |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | FP-POS=3          |                           |        |                                 |  |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3461)     | (28) WD0625+415                                                                                                           | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=19 5; |                           |        | 500 Secs (500 Secs)             |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | FLASH=YES;        |                           |        | [==>]                           |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                           |                          |                                  | FP-POS=4          |                           |        |                                 |  |                              |



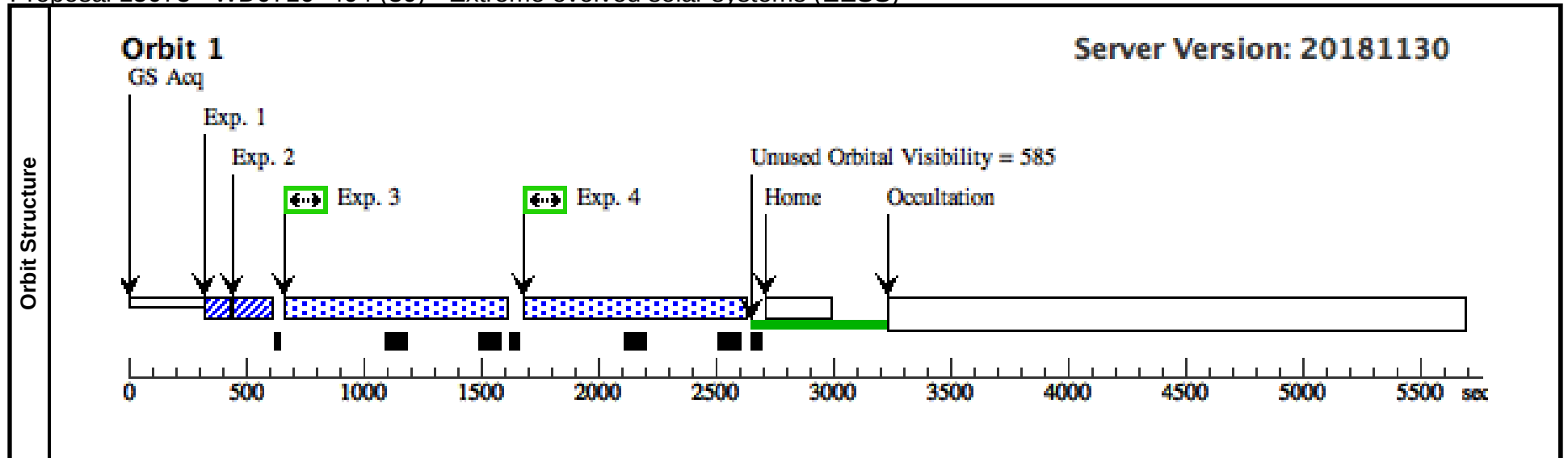
# Proposal 15073 - WD0701-587 (29) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|---------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0701-587 (29), scheduling                                                                                                                                                                                          |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
| Diagnos       | (WD0701-587 (29)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                       | Fluxes                    |        | Miscellaneous                   |     |                              |
|               | (29)                                                                                                                                                                                                                                 | WD0701-587                    | RA: 07 02 19.7250 (105.5821875d)                                                                 |                          | Proper Motion RA: -36.7 mas/yr  |                                       | V=14.534+/-0.018          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -58 50 8.98 (-58.83583d)                                                                    |                          | Proper Motion Dec: 203.2 mas/yr |                                       | GALEX FUV=99 GALEX NUV=99 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                       |                           |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=14550K logg=8.56, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                       |                           |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3124) | (29) WD0701-587                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                           |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3124)  | (29) WD0701-587                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                           |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3465)     | (29) WD0701-587                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                           |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3465)     | (29) WD0701-587                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                           |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                           | [==>]  |                                 | [1] |                              |



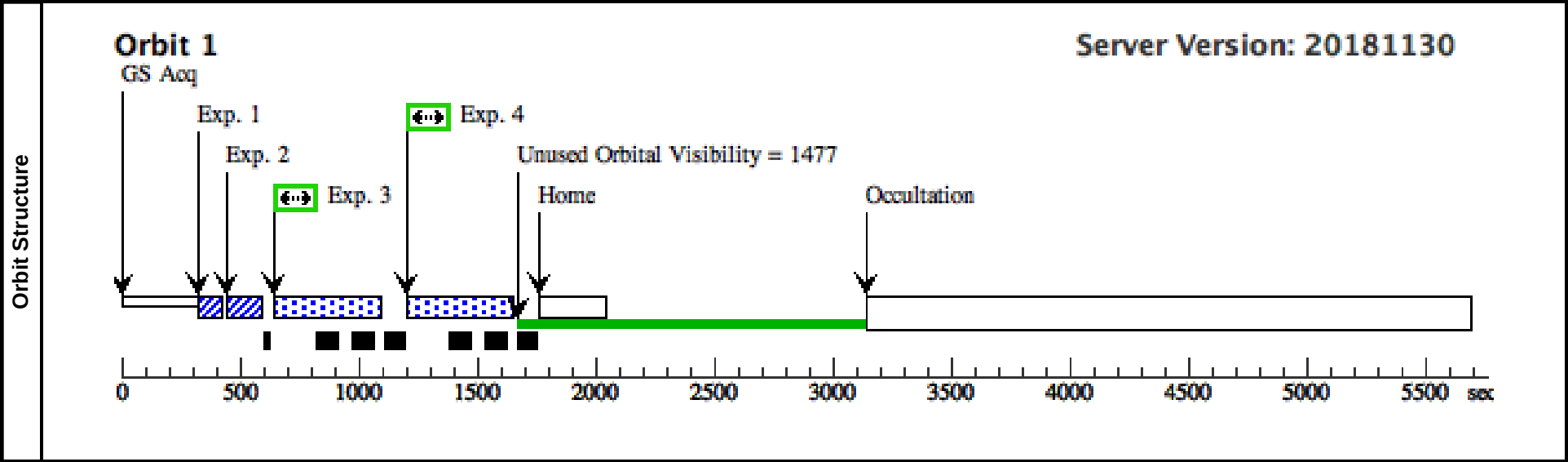
# Proposal 15073 - WD0716+404 (30) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------------|--------------------------|----------------------------------|---------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD0716+404 (30), scheduling                                                                                                                                                                                          |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |
| Diagnostics   | (WD0716+404 (30)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                      |                          | Targ. Coord. Corrections         |                                             | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (30)                                                                                                                                                                                                                                 | WD0716+404                    | RA: 07 19 59.4080 (109.9975333d)                                                        |                          | Proper Motion RA: 130.5 mas/yr   |                                             | V=14.87+/-0.065         |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +40 21 22.12 (40.35614d)                                                           |                          | Proper Motion Dec: -107.1 mas/yr |                                             | GALEX FUV=14.93 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                          |                          | Epoch of Position: 2000.0        |                                             | UV=14.60                |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: DB, Teff=17150K logg=8.08<br>Category=STAR<br>Description=[DB]<br>Extended=NO |                          |                                  |                                             |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                  | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.                                | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3126) | (30) WD0716+404                                                                         | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                  |                                             |                         |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3126)  | (30) WD0716+404                                                                         | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                         |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3468)     | (30) WD0716+404                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 900 Secs (900 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3468)     | (30) WD0716+404                                                                         | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 900 Secs (900 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                         |                          |                                  |                                             |                         |        |                                 |  |                              |



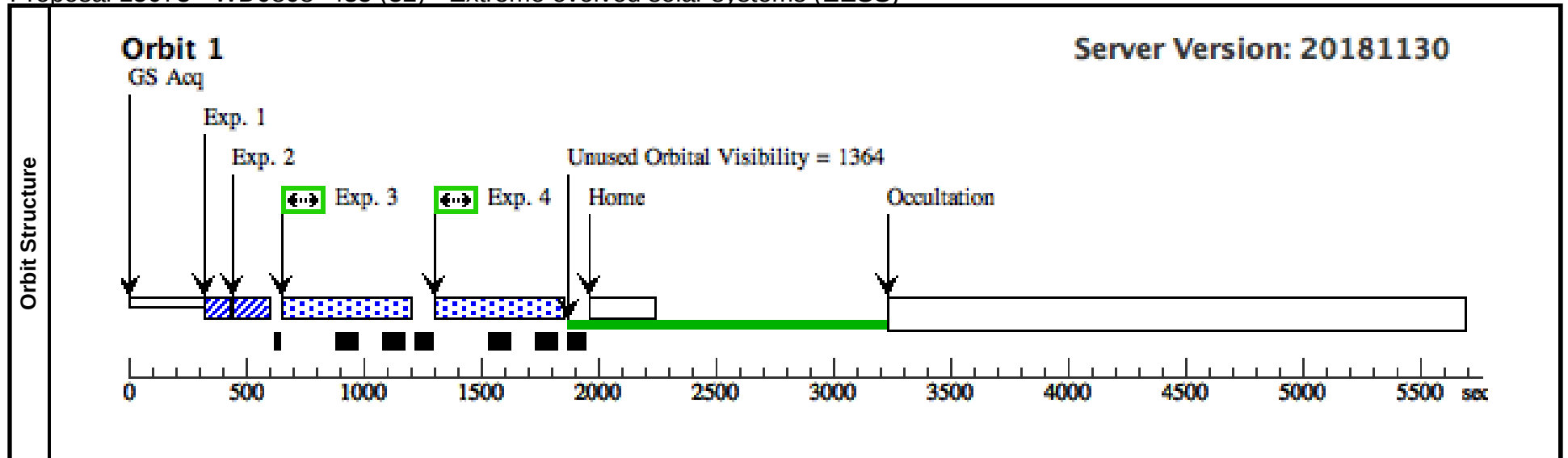
# Proposal 15073 - WD0410+487 (31) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0410+487 (31), completed                                                                                                                                                                                           |                               |                                                                                    |                                                                                               |                                                      |                                             | Thu Dec 20 21:04:58 GMT 2018 |        |                                 |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
| Diagnostics   | (WD0410+487 (31)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                      | Fluxes                                               | Miscellaneous                               |                              |        |                                 |         |
|               | (31)                                                                                                                                                                                                                                 | WD0410+117                    | RA: 04 12 43.5540 (63.1814750d)<br>Dec: +11 51 48.99 (11.86361d)<br>Equinox: J2000 | Proper Motion RA: 62.0 mas/yr<br>Proper Motion Dec: -91.0 mas/yr<br>Epoch of Position: 2000.0 | V=13.91+/-0.1<br>GALEX FUV=13.0 GALEX N<br>UV=113.94 | Reference Frame: ICRS                       |                              |        |                                 |         |
|               | Comments: Default, Teff=21074K logg=7.84, DA, has IUE spectra, SWP24739L                                                                                                                                                             |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                          | Spectral Els.                                        | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.102 8909) | (31) WD0410+117                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                                      |                                             |                              |        | 0.5 Secs (0.5 Secs)<br>[==>]    | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.102 8909)  | (31) WD0410+117                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 0.5 Secs (0.5 Secs)<br>[==>]    | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.102 8910)     | (31) WD0410+117                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                      | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.102 8910)     | (31) WD0410+117                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                      | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                                                      |                                             |                              |        |                                 |         |



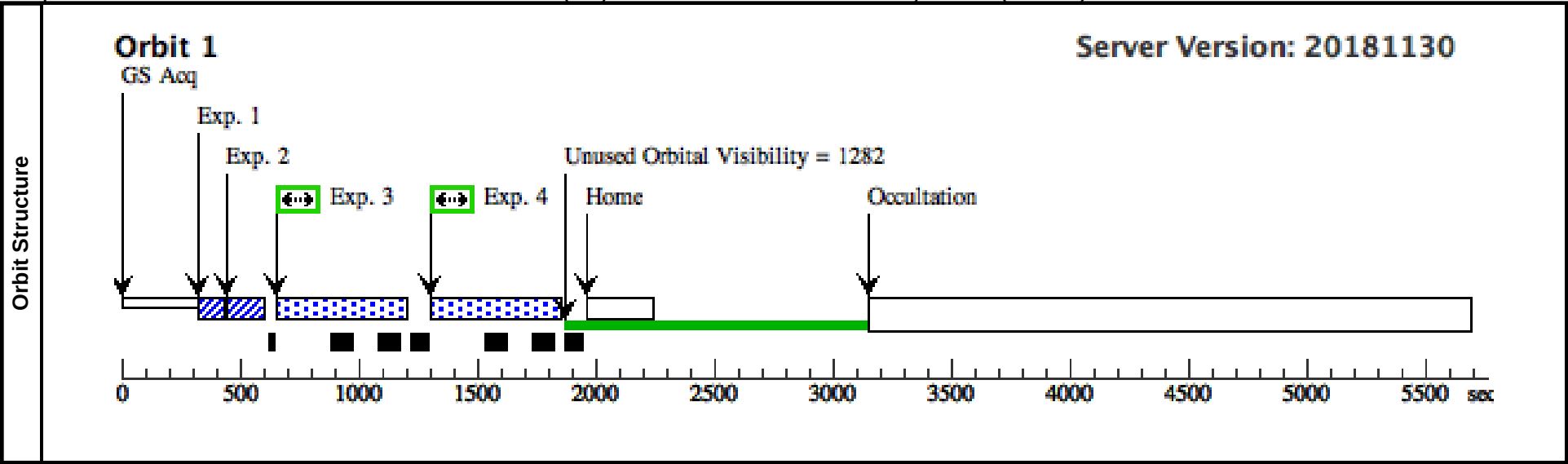
# Proposal 15073 - WD0808+435 (32) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0808+435 (32), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                               | Thu Dec 20 21:04:58 GMT 2018                |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
| Diagnostics   | (WD0808+435 (32)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                        | Miscellaneous                               |               |        |                                 |       |
|               | (32)                                                                                                                                                                                                                                 | WD0808+435                    | RA: 08 11 32.0230 (122.8834292d)<br>Dec: +43 23 13.54 (43.38709d)<br>Equinox: J2000 | Proper Motion RA: -60.3 mas/yr<br>Proper Motion Dec: -51.1 mas/yr<br>Epoch of Position: 2000.0 | V=15.666+/-0.049<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                       |               |        |                                 |       |
|               | Comments: Massive, Teff=23240K logg=8.52, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                 | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3129) | (32) WD0808+435                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M 1291 A                                  |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3129)  | (32) WD0808+435                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M 1291 A                                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3472)     | (32) WD0808+435                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M 1291 A                                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3472)     | (32) WD0808+435                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M 1291 A                                  | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                               |                                             |               |        |                                 |       |



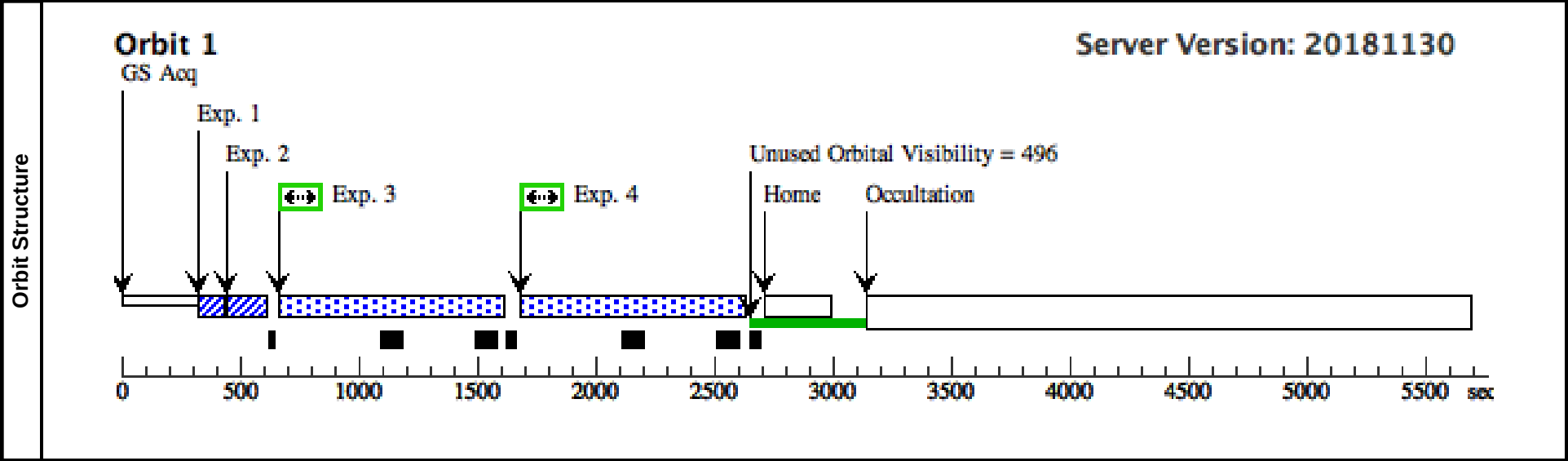
# Proposal 15073 - APASSJ081237.87+173700.3 (33) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|--------------------------|--|-----------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|------------------------------|-------|
| Visit         | Proposal 15073, APASSJ081237.87+173700.3 (33), scheduling                                                                                                                                                                                          |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 | Thu Dec 20 21:04:58 GMT 2018 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
| Diagnostics   | (APASSJ081237.87+173700.3 (33)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                 |                          |  | Targ. Coord. Corrections                                                                      |                                             | Fluxes                                               |        | Miscellaneous                   |                              |       |
|               | (33)                                                                                                                                                                                                                                               | APASSJ081237.87+173700.3      | RA: 08 12 37.8110 (123.1575458d)<br>Dec: +17 37 1.43 (17.61706d)<br>Equinox: J2000 |                          |  | Proper Motion RA: 83.6 mas/yr<br>Proper Motion Dec: -89.9 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=13.28+/-0.1<br>GALEX FUV=13.30 GALEX N<br>UV=13.77 |        | Reference Frame: ICRS           |                              |       |
|               | Comments: APASS, Teff=16730K logg=7.95,DA                                                                                                                                                                                                          |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture     |  | Spectral Els.                                                                                 | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 2995) | (33) APASSJ081237.87+173700.3                                                      | COS/FUV, ACQ/PEAKXD, PSA |  | G130M<br>1291 A                                                                               |                                             |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 2995)  | (33) APASSJ081237.87+173700.3                                                      | COS/FUV, ACQ/PEAKD, PSA  |  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 2996)     | (33) APASSJ081237.87+173700.3                                                      | COS/FUV, TIME-TAG, PSA   |  | G130M<br>1291 A                                                                               | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 500 Secs (500 Secs)<br>[==>]    |                              | [1]   |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 2996)     | (33) APASSJ081237.87+173700.3                                                      | COS/FUV, TIME-TAG, PSA   |  | G130M<br>1291 A                                                                               | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 500 Secs (500 Secs)<br>[==>]    |                              | [1]   |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                    |                          |  |                                                                                               |                                             |                                                      |        |                                 |                              |       |



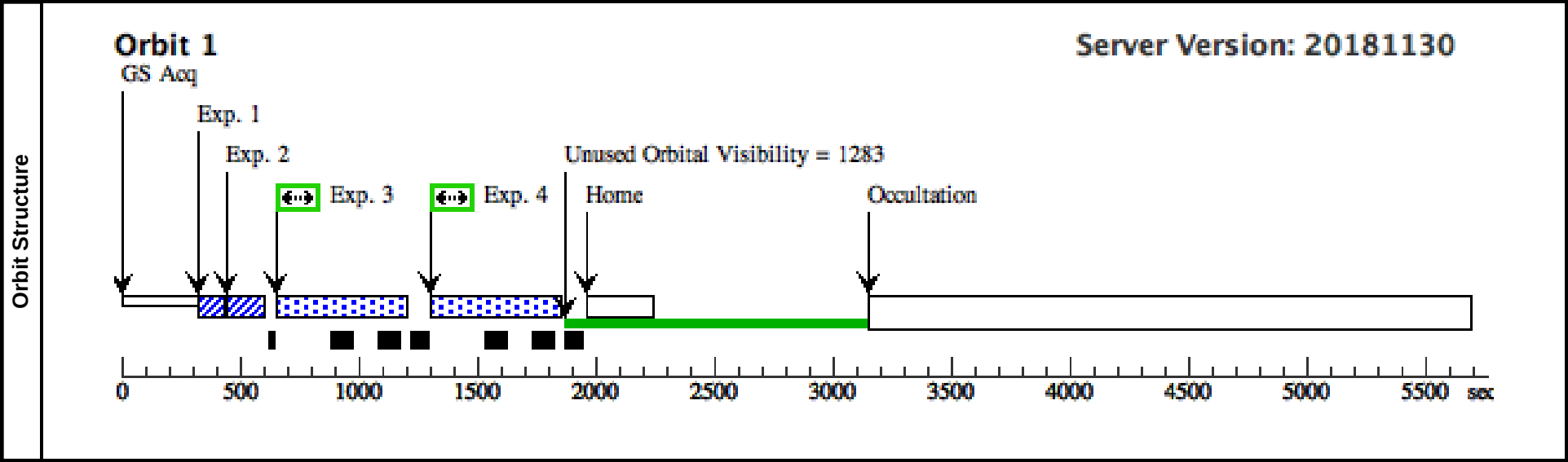
# Proposal 15073 - SDSSJ081305.55+140317.4 (34) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                   |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|--------------------------|--|------------------------------------------------------------------------------------------------|---------------------------------------------|---------------|---------------------------------------------------------|---------------------------------|------------------------------|-------|--|--|
| Visit         | Proposal 15073, SDSSJ081305.55+140317.4 (34), scheduling                                                                                                                                                                                          |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 | Thu Dec 20 21:04:58 GMT 2018 |       |  |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                        |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                   |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
|               | Special Requirements: (none)                                                                                                                                                                                                                      |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
| Diagnostics   | (SDSSJ081305.55+140317.4 (34)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
| Fixed Targets | #                                                                                                                                                                                                                                                 | Name                          | Target Coordinates                                                                 |                          |  | Targ. Coord. Corrections                                                                       |                                             |               | Fluxes                                                  |                                 | Miscellaneous                |       |  |  |
|               | (34)                                                                                                                                                                                                                                              | SDSSJ081305.55+140317.4       | RA: 08 13 5.5560 (123.2731500d)<br>Dec: +14 03 17.73 (14.05493d)<br>Equinox: J2000 |                          |  | Proper Motion RA: -35.1 mas/yr<br>Proper Motion Dec: -27.3 mas/yr<br>Epoch of Position: 2000.0 |                                             |               | V=16.233+/-0.076<br>GALEX FUV=15.38 GALEX N<br>UV=15.65 |                                 | Reference Frame: ICRS        |       |  |  |
|               | Comments: Massive, Teff=21745K logg=8.55, DA                                                                                                                                                                                                      |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                  |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |
| Exposures     | #                                                                                                                                                                                                                                                 | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture     |  | Spectral Els.                                                                                  | Opt. Params.                                | Special Reqs. | Groups                                                  | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |  |  |
|               | 1                                                                                                                                                                                                                                                 | ACQ/PEAK XD (COS.sa.101 3052) | (34) SDSSJ081305.55+140317.4                                                       | COS/FUV, ACQ/PEAKXD, PSA |  | G130M<br>1291 A                                                                                |                                             |               |                                                         | 3 Secs (3 Secs)<br>[==>]        |                              | [1]   |  |  |
|               | 2                                                                                                                                                                                                                                                 | ACQ/PEAK D (COS.sa.101 3052)  | (34) SDSSJ081305.55+140317.4                                                       | COS/FUV, ACQ/PEAKD, PSA  |  | G130M<br>1291 A                                                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |                                                         | 3 Secs (3 Secs)<br>[==>]        |                              | [1]   |  |  |
|               | 3                                                                                                                                                                                                                                                 | FP-POS3 (COS.sp.101 4157)     | (34) SDSSJ081305.55+140317.4                                                       | COS/FUV, TIME-TAG, PSA   |  | G130M<br>1291 A                                                                                | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=3 |               |                                                         | 900 Secs (900 Secs)<br>[==>]    |                              | [1]   |  |  |
|               | 4                                                                                                                                                                                                                                                 | FP-POS4 (COS.sp.101 4157)     | (34) SDSSJ081305.55+140317.4                                                       | COS/FUV, TIME-TAG, PSA   |  | G130M<br>1291 A                                                                                | BUFFER-TIME=39 5;<br>FLASH=YES;<br>FP-POS=4 |               |                                                         | 900 Secs (900 Secs)<br>[==>]    |                              | [1]   |  |  |
|               |                                                                                                                                                                                                                                                   |                               |                                                                                    |                          |  |                                                                                                |                                             |               |                                                         |                                 |                              |       |  |  |



# Proposal 15073 - APASSJ083857.48-214611.0 (35) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ083857.48-214611.0 (35), scheduling                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Diagnostics   | (APASSJ083857.48-214611.0 (35)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                      |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |
|               | (35)                                                                                                                                                                                                                                               | APASSJ083857.48-214611.0      | RA: 08 38 57.4680 (129.7394500d)<br>Dec: -21 46 11.95 (-21.76999d)<br>Equinox: J2000 |                          | Proper Motion RA: -24.5 mas/yr<br>Proper Motion Dec: 35.4 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=14.99+/-0.1<br>GALEX FUV=14.18 GALEX N<br>UV=14.52 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: APASS, Teff=21990K logg=7.95,DA                                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     | Spectral Els.                                                                                 | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 2998) | (35) APASSJ083857.48-214611.0                                                        | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                               |                                             |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 2998)  | (35) APASSJ083857.48-214611.0                                                        | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 2999)     | (35) APASSJ083857.48-214611.0                                                        | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3053)     | (35) APASSJ083857.48-214611.0                                                        | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |

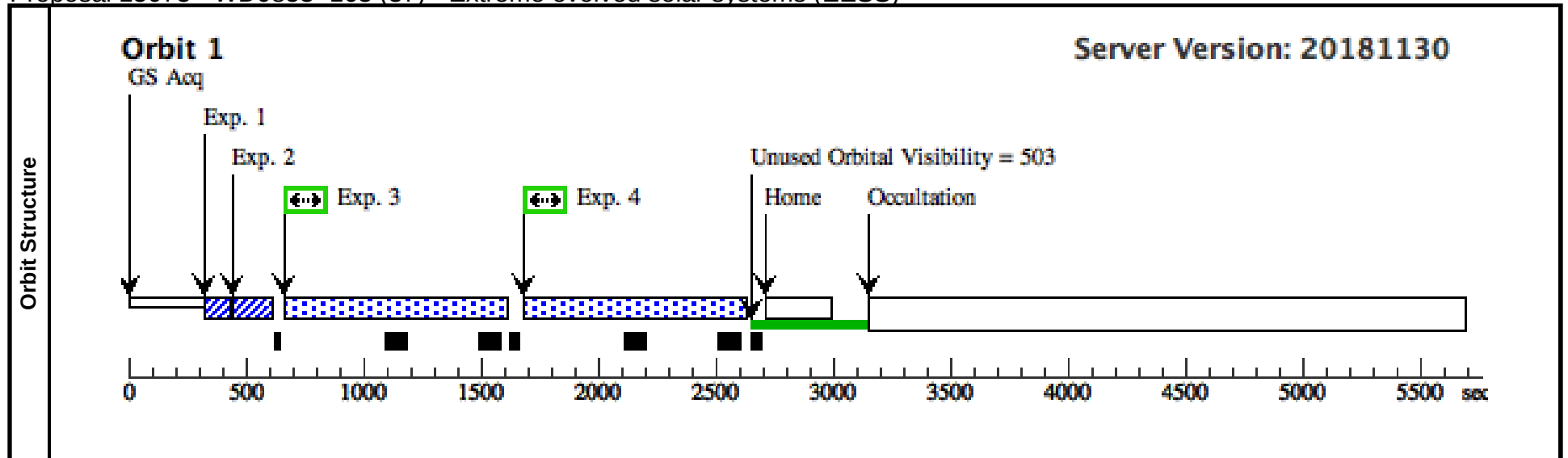


# Proposal 15073 - WD0845-188 (36) - Extreme evolved solar systems (EESS)

|                                                                                                                                              |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------|---------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                                                                                                        | Proposal 15073, WD0845-188 (36), scheduling                                                                                                                                                                                                                                             |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|                                                                                                                                              | Diagnostic Status: Warning                                                                                                                                                                                                                                                              |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
|                                                                                                                                              | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
|                                                                                                                                              | Special Requirements: (none)                                                                                                                                                                                                                                                            |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
| Diagnostics                                                                                                                                  | (WD0845-188 (36)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                    |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
|                                                                                                                                              |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
| Fixed Targets                                                                                                                                | #                                                                                                                                                                                                                                                                                       | Name                        | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       |                                                | Fluxes                                                              |               | Miscellaneous         |                                 |  |                              |
|                                                                                                                                              | (36)                                                                                                                                                                                                                                                                                    | WD0845-188                  | RA: 08 47 29.4290 (131.8726208d)<br>Dec: -18 59 49.78 (-18.99716d)<br>Equinox: J2000 | Proper Motion RA: -188.4 mas/yr<br>Proper Motion Dec: 30.7 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=15.68+/-0.03<br>GALEX FUV=15.65 GALEX N<br>UV=15.30,<br>SWP28389L |               | Reference Frame: ICRS |                                 |  |                              |
| Comments: Wide binary, Teff=17470K logg=8.15, DB + K4V (TYC 6020-1448-1, V=11.23), 30.2"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
| Exposures                                                                                                                                    | #                                                                                                                                                                                                                                                                                       | Label (ETC Run)             | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.                                  | Opt. Params.                                                        | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                                                                              | 1                                                                                                                                                                                                                                                                                       | ACQ/Image (COS.ta.102 1249) | (36) WD0845-188                                                                      | COS/NUV, ACQ/IMAGE, PSA                                                                        | MIRRORB                                        |                                                                     |               |                       | 9 Secs (9 Secs)                 |  |                              |
|                                                                                                                                              |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       | [==>]                           |  | [1]                          |
|                                                                                                                                              | 2                                                                                                                                                                                                                                                                                       | FP-POS3 (COS.sp.101 3473)   | (36) WD0845-188                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3                      |               |                       | 1000 Secs (1000 Secs)           |  |                              |
|                                                                                                                                              |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       | [==>]                           |  | [1]                          |
| 3                                                                                                                                            | FP-POS4 (COS.sp.101 3473)                                                                                                                                                                                                                                                               | (36) WD0845-188             | COS/FUV, TIME-TAG, PSA                                                               | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                                     |               | 1000 Secs (1000 Secs) |                                 |  |                              |
|                                                                                                                                              |                                                                                                                                                                                                                                                                                         |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       | [==>]                           |  | [1]                          |
| Orbit Structure                                                                                                                              | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3</div><div>Unused Orbital Visibility = 369</div><div>Home    Occultation</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500 sec</div></div> |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |
|                                                                                                                                              | Server Version: 20181130                                                                                                                                                                                                                                                                |                             |                                                                                      |                                                                                                |                                                |                                                                     |               |                       |                                 |  |                              |

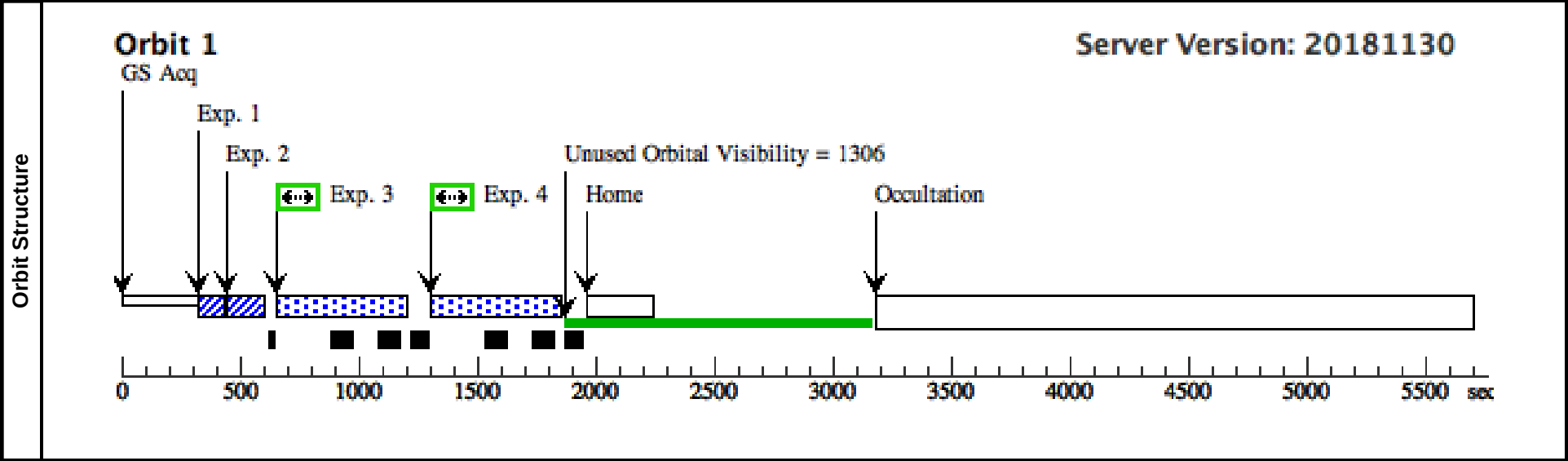
# Proposal 15073 - WD0853+163 (37) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0853+163 (37), implementation                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        | Thu Dec 20 21:04:58 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|               | Special Requirements: AFTER 21-JAN-2019:00:00:00                                                                                                                                                                                     |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
| Diagnostics   | (WD0853+163 (37)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |         |
|               | (37)                                                                                                                                                                                                                                 | WD0853+163                    | RA: 08 56 18.9530 (134.0789708d)<br>Dec: +16 11 3.77 (16.18438d)<br>Equinox: J2000 | Proper Motion RA: -32.3 mas/yr<br>Proper Motion Dec: -30.6 mas/yr<br>Epoch of Position: 2000.0 | V=15.595+/-0.037<br>GALEX FUV=15.27 GALEX N<br>UV=15.20,<br>SWP23030L | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Magnetic, Teff=24450K logg=8, DBAH, B=0.875MG                                                                                                                                                                              |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3132) | (37) WD0853+163                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                       |                                                |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3132)  | (37) WD0853+163                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 4153)     | (37) WD0853+163                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                       | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 900 Secs (900 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 4153)     | (37) WD0853+163                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                       | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 900 Secs (900 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                       |                                                |               |        |                                 |         |



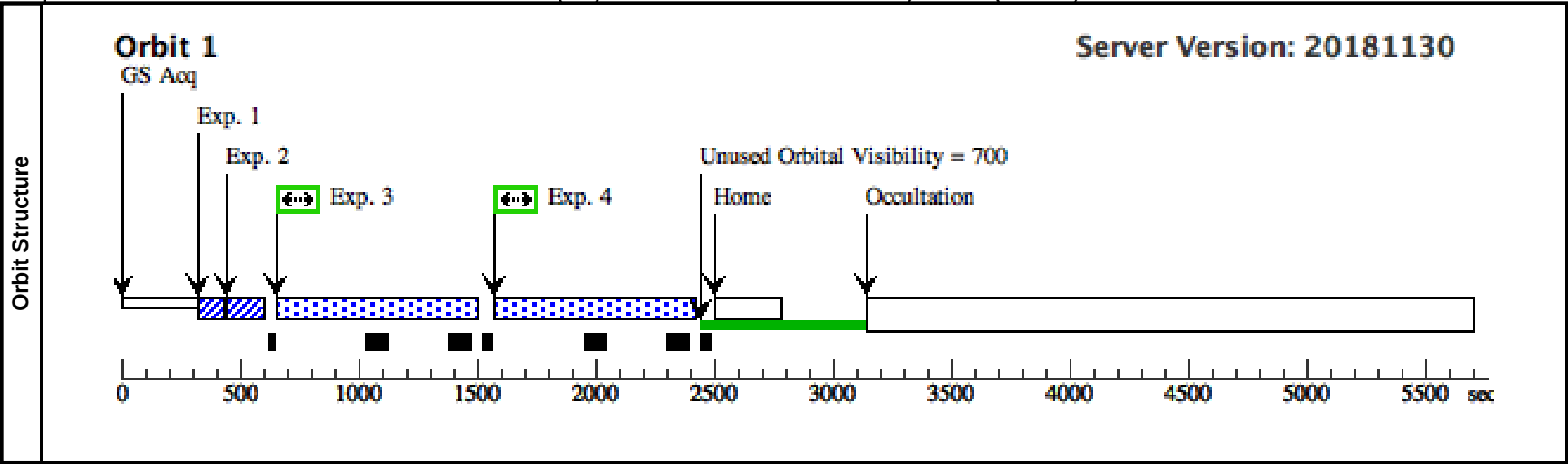
# Proposal 15073 - APASSJ085913.51-312416.3 (38) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|------------------------------|
| Visit         | Proposal 15073, APASSJ085913.51-312416.3 (38), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
| Diagnostics   | (APASSJ085913.51-312416.3 (38)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   | Targ. Coord.                                                                                   | Corrections                                          | Fluxes                                      | Miscellaneous |        |                                 |       |                              |
|               | (38)                                                                                                                                                                                                                                               | APASSJ085913.51-312416.3      | RA: 08 59 13.6950 (134.8070625d)<br>Dec: -31 24 17.30 (-31.40481d)<br>Equinox: J2000 | Proper Motion RA: -124.8 mas/yr<br>Proper Motion Dec: 22.7 mas/yr<br>Epoch of Position: 2000.0 | V=15.83+/-0.1<br>GALEX FUV=14.43 GALEX N<br>UV=14.98 | Reference Frame: ICRS                       |               |        |                                 |       |                              |
|               | Comments: APASS, Teff=31020K logg=8.34,DA                                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               | Category=STAR                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               | Description=[DA]                                                                                                                                                                                                                                   |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               | Extended=NO                                                                                                                                                                                                                                        |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.                                        | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3002) | (38) APASSJ085913.51-312416.3                                                        | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                      |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |                              |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3002)  | (38) APASSJ085913.51-312416.3                                                        | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |                              |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3003)     | (38) APASSJ085913.51-312416.3                                                        | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |                              |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3003)     | (38) APASSJ085913.51-312416.3                                                        | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                                |                                                      |                                             |               |        |                                 |       |                              |



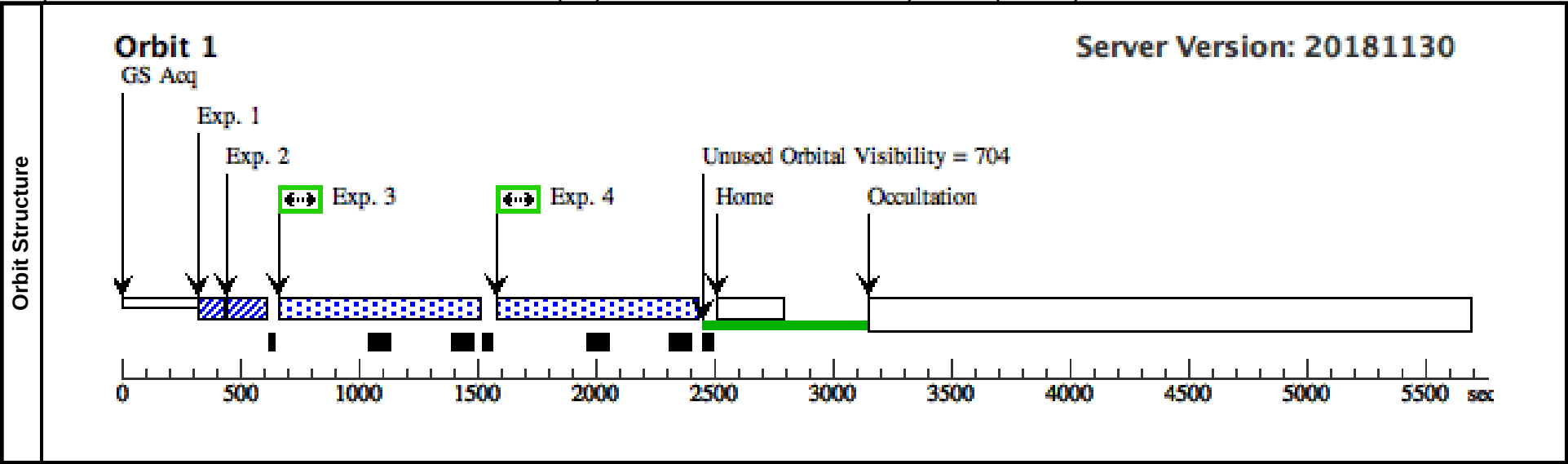
# Proposal 15073 - APASSJ090028.59-090923.2 (39) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ090028.59-090923.2 (39), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Diagnostics   | (APASSJ090028.59-090923.2 (39)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                       |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |
|               | (39)                                                                                                                                                                                                                                               | APASSJ090028.59-090923.2      | RA: 09 00 28.6810 (135.1195042d)<br>Dec: -09 09 24.39 (-9.15677d)<br>Equinox: J2000 |                          | Proper Motion RA: -115.2 mas/yr<br>Proper Motion Dec: 86.4 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=14.46+/-0.1<br>GALEX FUV=13.80 GALEX N<br>UV=14.09 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: APASS, Teff=21110K logg=7.8,DA                                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                  | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3004) | (39) APASSJ090028.59-090923.2                                                       | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                |                                             |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3004)  | (39) APASSJ090028.59-090923.2                                                       | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3005)     | (39) APASSJ090028.59-090923.2                                                       | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3005)     | (39) APASSJ090028.59-090923.2                                                       | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |



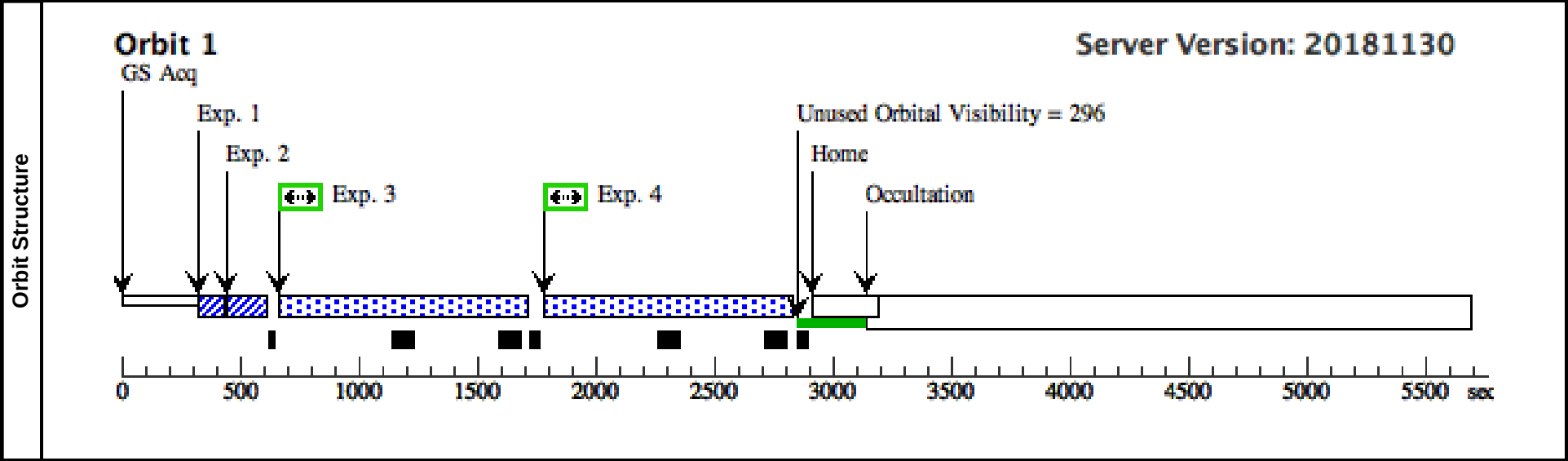
# Proposal 15073 - APASSJ090515.04-234257.2 (40) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------|-----------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ090515.04-234257.2 (40), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
| Diagnostics   | (APASSJ090515.04-234257.2 (40)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   | Targ. Coord.                                                                                  | Corrections     | Fluxes                                               | Miscellaneous         |        |                                 |  |                              |
|               | (40)                                                                                                                                                                                                                                               | APASSJ090515.04-234257.2      | RA: 09 05 15.0690 (136.3127875d)<br>Dec: -23 42 57.42 (-23.71595d)<br>Equinox: J2000 | Proper Motion RA: -34.4 mas/yr<br>Proper Motion Dec: 29.9 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.35+/-0.1<br>GALEX FUV=14.96 GALEX N<br>UV=15.15 | Reference Frame: ICRS |        |                                 |  |                              |
|               | Comments: APASS, Teff=18270K logg=7.75,DA                                                                                                                                                                                                          |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                         | Special Reqs.         | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3006) | (40) APASSJ090515.04-234257.2                                                        | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A |                                                      |                       |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3006)  | (40) APASSJ090515.04-234257.2                                                        | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF           |                       |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3007)     | (40) APASSJ090515.04-234257.2                                                        | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=3       |                       |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3007)     | (40) APASSJ090515.04-234257.2                                                        | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=4       |                       |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                                                                                               |                 |                                                      |                       |        |                                 |  |                              |



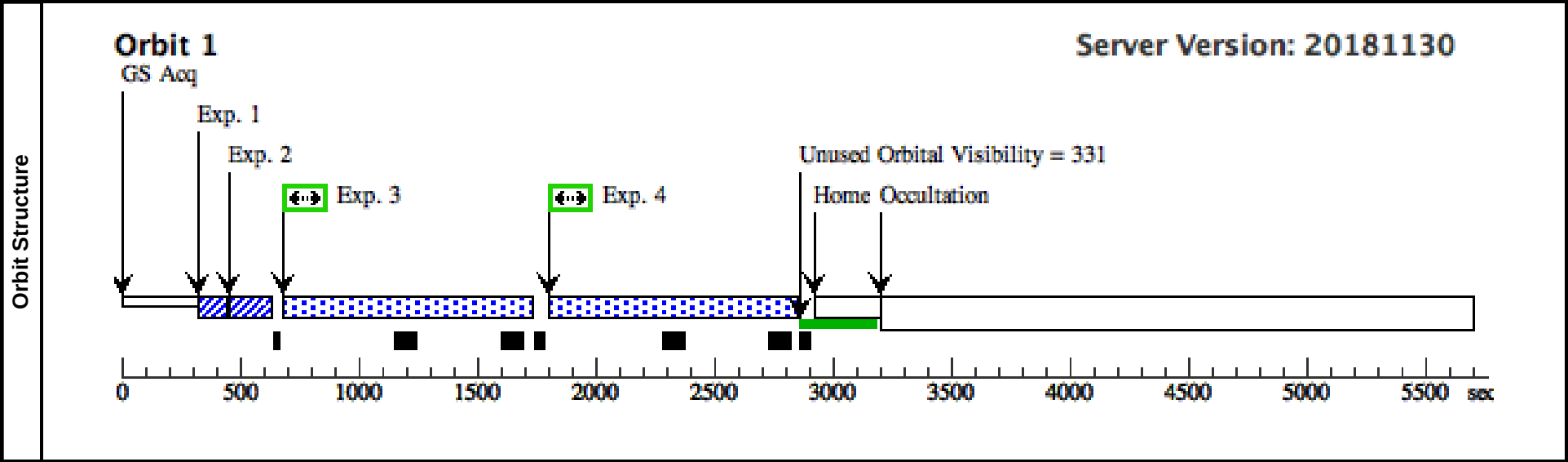
# Proposal 15073 - SDSSJ090823.14+124703.9 (41) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                   |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|-------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, SDSSJ090823.14+124703.9 (41), scheduling                                                                                                                                                                                          |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                        |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                   |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
| Diagnostics   | (SDSSJ090823.14+124703.9 (41)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                 | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                      |                 |                                                | Fluxes                                                |        | Miscellaneous                   |  |                              |
|               | (41)                                                                                                                                                                                                                                              | SDSSJ090823.14+124703.9       | RA: 09 08 23.1420 (137.0964250d)<br>Dec: +12 47 4.19 (12.78450d)<br>Equinox: J2000 | Proper Motion RA: -5.5 mas/yr<br>Proper Motion Dec: -14.9 mas/yr<br>Epoch of Position: 2000.0 |                 |                                                | V=17.278+/-0.1<br>GALEX FUV=15.65 GALEX N<br>UV=16.25 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Magnetic, Teff=66229K logg=7.58, DAH                                                                                                                                                                                                    |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                  |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                 | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                   | Special Reqs.                                         | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                 | ACQ/PEAK XD (COS.sa.101 3058) | (41) SDSSJ090823.1 4+124703.9                                                      | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A |                                                |                                                       |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                 | ACQ/PEAK D (COS.sa.101 3058)  | (41) SDSSJ090823.1 4+124703.9                                                      | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                                                       |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                 | FP-POS3 (COS.sp.101 4158)     | (41) SDSSJ090823.1 4+124703.9                                                      | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                       |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                 | FP-POS4 (COS.sp.101 4158)     | (41) SDSSJ090823.1 4+124703.9                                                      | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                       |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                                   |                               |                                                                                    |                                                                                               |                 |                                                |                                                       |        |                                 |  |                              |



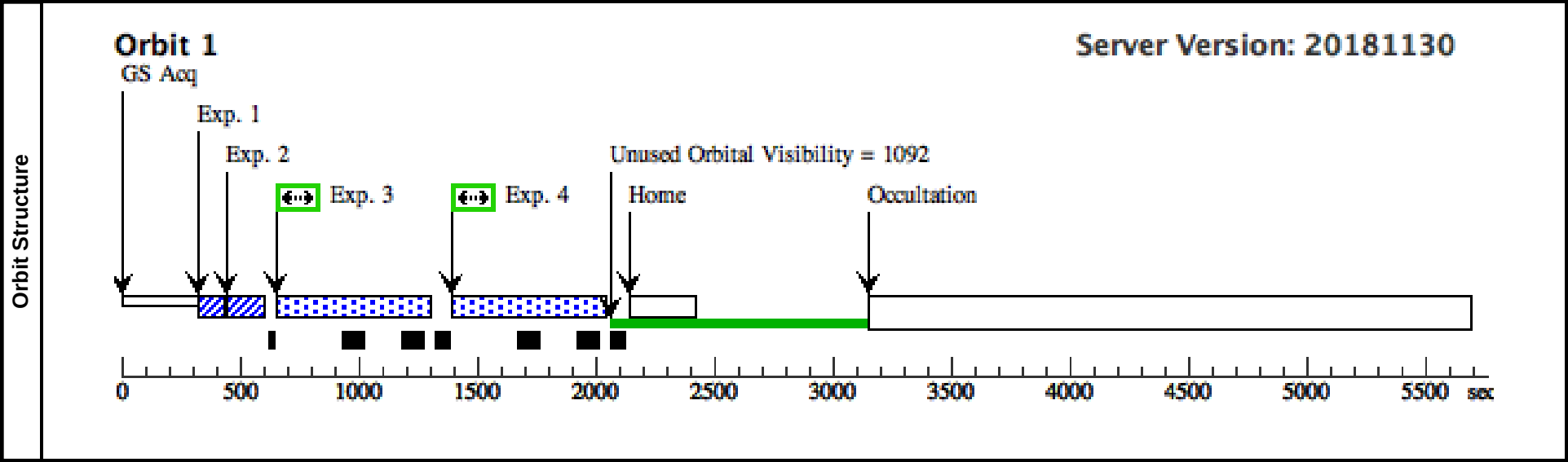
# Proposal 15073 - WD0920+375 (42) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------|---------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD0920+375 (42), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                           |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
| Diagnos       | (WD0920+375 (42)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                       | Fluxes                    |        | Miscellaneous                   |     |                              |
|               | (42)                                                                                                                                                                                                                                 | WD0920+375                    | RA: 09 23 36.2280 (140.9009500d) |                          | Proper Motion RA: -42.9 mas/yr  |                                       | V=16.5+/-0.1              |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +37 17 55.82 (37.29884d)    |                          | Proper Motion Dec: -40.1 mas/yr |                                       | GALEX FUV=99 GALEX NUV=99 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                       |                           |        |                                 |     |                              |
|               | Comments: Massive, Teff=19250K logg=8.47, DA                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                           |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3134) | (42) WD0920+375                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                           |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3134)  | (42) WD0920+375                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                           |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3576)     | (42) WD0920+375                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                           |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3576)     | (42) WD0920+375                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                           |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                           |        | [==>]                           |     | [1]                          |



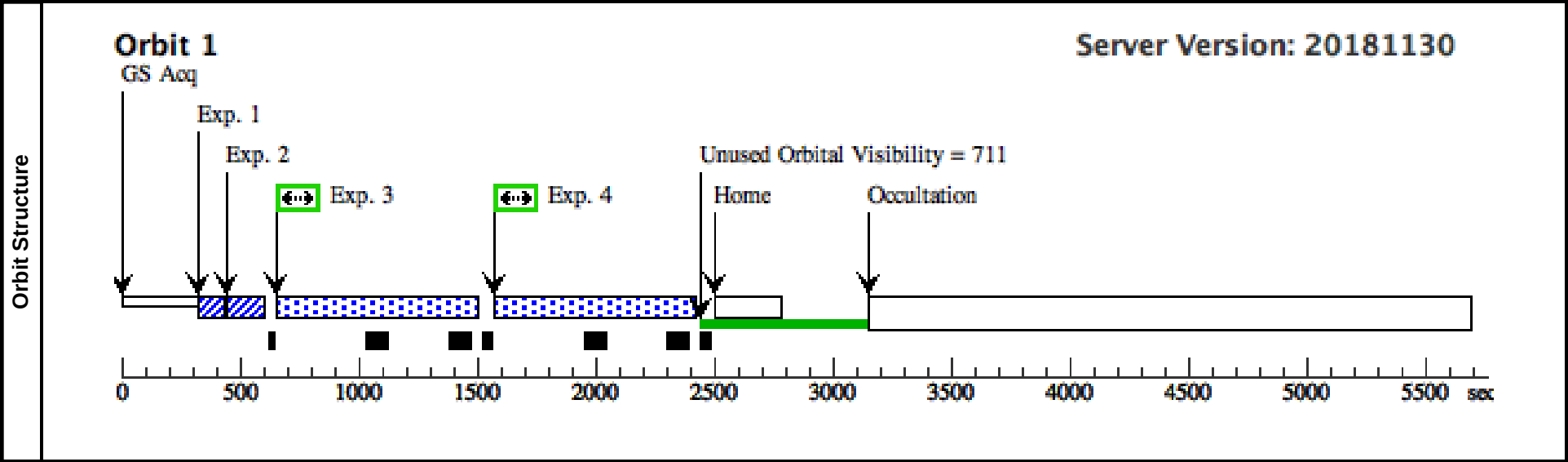
# Proposal 15073 - WD0922+162A (43) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                       |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0922+162A (43), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                       |                                                | Thu Dec 20 21:04:58 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                            |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                       |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
| Diagnostics   | (WD0922+162A (43)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                     | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                                | Miscellaneous                                  |                              |        |                                 |       |
|               | (43)                                                                                                                                                                                                                                  | WD0922+162A                   | RA: 09 25 13.4810 (141.3061708d)<br>Dec: +16 01 44.15 (16.02893d)<br>Equinox: J2000 | Proper Motion RA: -40.5 mas/yr<br>Proper Motion Dec: -32.2 mas/yr<br>Epoch of Position: 2000.0 | V=16.01+/-0.02<br>GALEX FUV=14.72 GALEX N<br>UV=15.15 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Wide binary, Teff=25783K logg=9.039, DA+DA, ~5"                                                                                                                                                                             |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                     | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                         | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                     | ACQ/PEAK XD (COS.sa.101 3135) | (43) WD0922+162A                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                       |                                                |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                     | ACQ/PEAK D (COS.sa.101 3135)  | (43) WD0922+162A                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                     | FP-POS3 (COS.sp.101 3578)     | (43) WD0922+162A                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                       | BUFFER-TIME=24<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                     | FP-POS4 (COS.sp.101 3578)     | (43) WD0922+162A                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                       | BUFFER-TIME=24<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                       |                               |                                                                                     |                                                                                                |                                                       |                                                |                              |        |                                 |       |



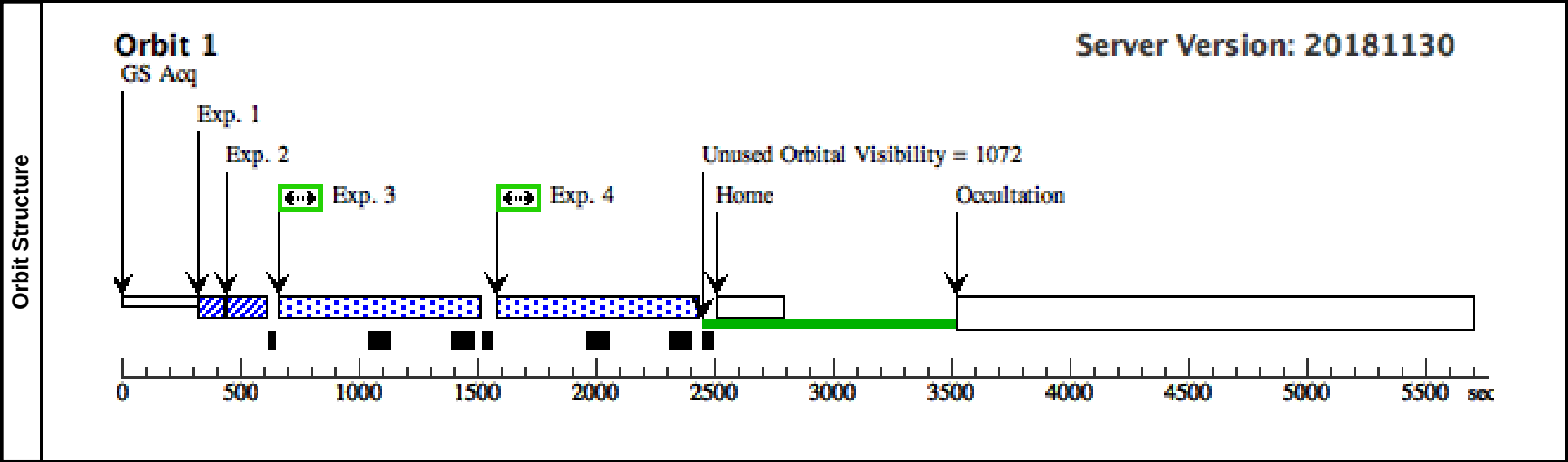
# Proposal 15073 - WD0922+183 (44) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0922+183 (44), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                              |                                                       | Thu Dec 20 21:04:58 GMT 2018                |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
| Diagnosics    | (WD0922+183 (44)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     | Fluxes                                                | Miscellaneous                               |               |        |                                 |       |
|               | (44)                                                                                                                                                                                                                                 | WD0922+183                    | RA: 09 25 18.3490 (141.3264542d)<br>Dec: +18 05 34.21 (18.09284d)<br>Equinox: J2000 | Proper Motion RA: -5.4 mas/yr<br>Proper Motion Dec: -3.4 mas/yr<br>Epoch of Position: 2000.0 | V=16.411+/-0.147<br>GALEX FUV=15.0 GALEX N<br>UV=15.6 | Reference Frame: ICRS                       |               |        |                                 |       |
|               | Comments: Massive, Teff=25660K logg=8.26, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                         | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3136) | (44) WD0922+183                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M<br>1291 A                                       |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3136)  | (44) WD0922+183                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M<br>1291 A                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3581)     | (44) WD0922+183                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                       | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3581)     | (44) WD0922+183                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                       | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                       |                                             |               |        |                                 |       |



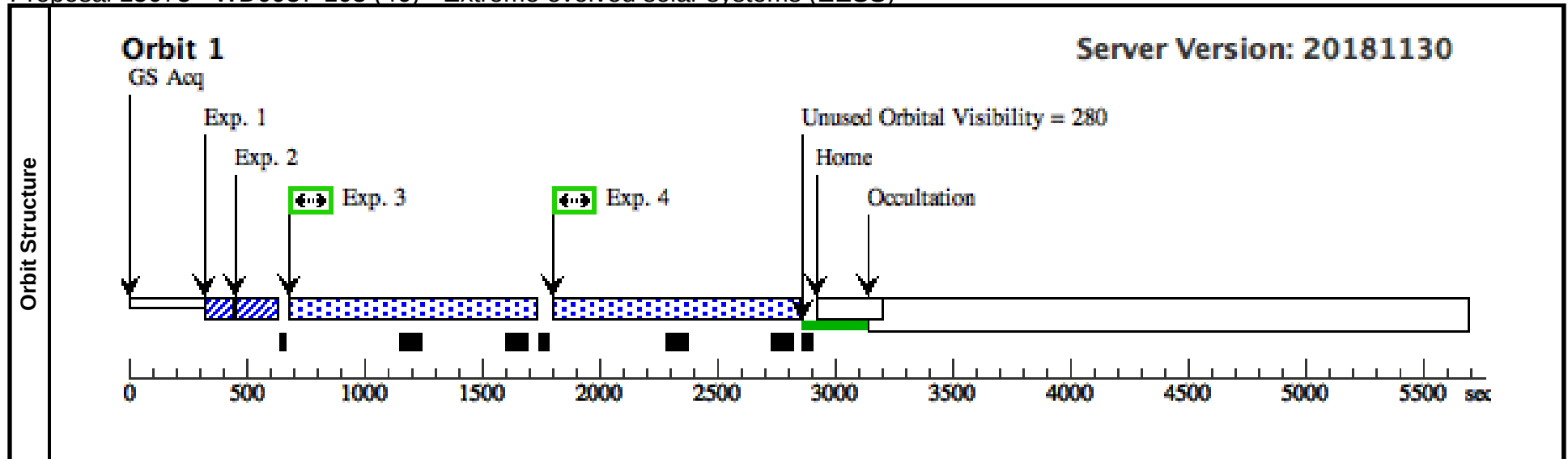
# Proposal 15073 - WD0933+729 (45) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0933+729 (45), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                             | Thu Dec 20 21:04:58 GMT 2018                   |               |        |                                 |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
| Diagnostics   | (WD0933+729 (45)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                      | Miscellaneous                                  |               |        |                                 |         |
|               | (45)                                                                                                                                                                                                                                 | WD0933+729                    | RA: 09 38 21.6440 (144.5901833d)<br>Dec: +72 42 18.99 (72.70528d)<br>Equinox: J2000 | Proper Motion RA: -51.6 mas/yr<br>Proper Motion Dec: -53.2 mas/yr<br>Epoch of Position: 2000.0 | V=15.67+/-0.05<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Wide binary, Teff=18120K logg=8.09, DA + M2V (J=12), 81"                                                                                                                                                                   |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                               | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3137) | (45) WD0933+729                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                             |                                                |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3137)  | (45) WD0933+729                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                             | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3583)     | (45) WD0933+729                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                             | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 800 Secs (800 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3583)     | (45) WD0933+729                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                             | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 800 Secs (800 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                             |                                                |               |        |                                 |         |



# Proposal 15073 - WD0937-103 (46) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|---------------|-----------------------|---------------------------------|-------|
| Visit         | Proposal 15073, WD0937-103 (46), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                 |                                                |               |                       | Thu Dec 20 21:04:58 GMT 2018    |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
| Diagnostics   | (WD0937-103 (46)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       |                 | Fluxes                                         |               | Miscellaneous         |                                 |       |
|               | (46)                                                                                                                                                                                                                                 | WD0937-103                    | RA: 09 40 11.8890 (145.0495375d)<br>Dec: -10 34 24.67 (-10.57352d)<br>Equinox: J2000 | Proper Motion RA: -32.7 mas/yr<br>Proper Motion Dec: -61.0 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.992+/-0.03<br>GALEX FUV=99 GALEX NUV=99   |               | Reference Frame: ICRS |                                 |       |
|               | Comments: Massive, Teff=17562K logg=8.5, DA                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
|               | Description=[DA]<br>Extended=NO                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.   | Opt. Params.                                   | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3138) | (46) WD0937-103                                                                      | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A |                                                |               |                       | 5 Secs (5 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3138)  | (46) WD0937-103                                                                      | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |                       | 5 Secs (5 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3586)     | (46) WD0937-103                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3586)     | (46) WD0937-103                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |       |

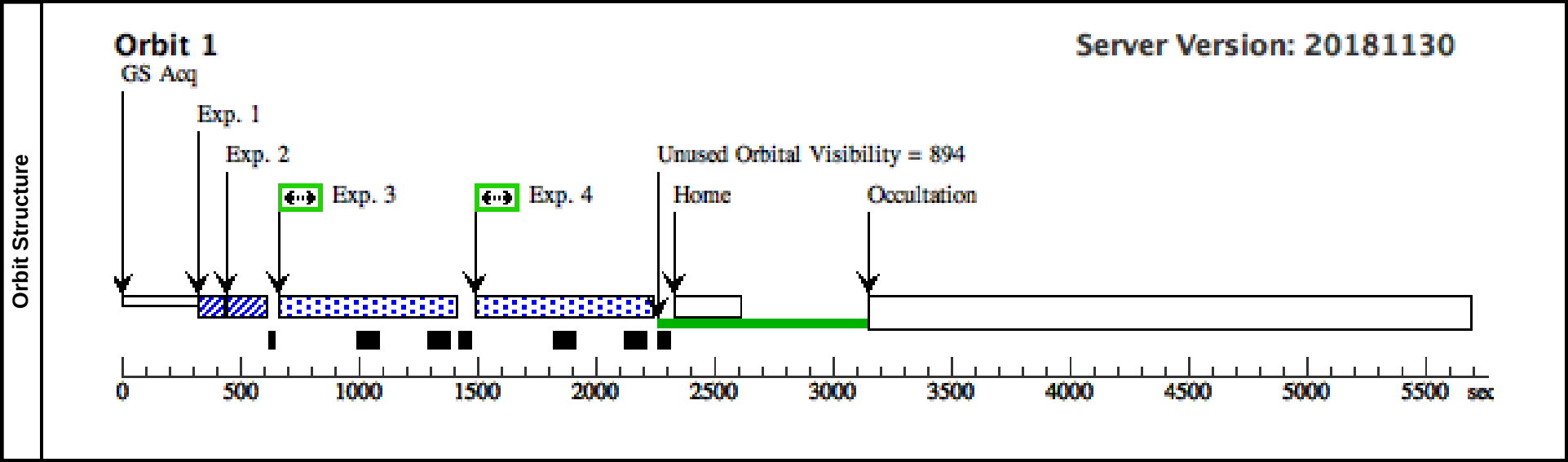


# Proposal 15073 - WD0943+140 (47) - Extreme evolved solar systems (EESS)

|                                                                                                  |                                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|------------------------------|
| Visit                                                                                            | Proposal 15073, WD0943+140 (47), scheduling                                                                                                                                                                                                                              |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       | Thu Dec 20 21:04:58 GMT 2018 |
|                                                                                                  | Diagnostic Status: Warning                                                                                                                                                                                                                                               |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
|                                                                                                  | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                 |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
|                                                                                                  | Special Requirements: (none)                                                                                                                                                                                                                                             |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
| Diagnostics                                                                                      | (WD0943+140 (47)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                     |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
| Fixed Targets                                                                                    | #                                                                                                                                                                                                                                                                        | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     | Fluxes                                                | Miscellaneous                                  |               |        |                                 |       |                              |
|                                                                                                  | (47)                                                                                                                                                                                                                                                                     | WD0943+140                  | RA: 09 46 31.5980 (146.6316583d)<br>Dec: +13 47 35.89 (13.79330d)<br>Equinox: J2000 | Proper Motion RA: -13.8 mas/yr<br>Proper Motion Dec: 0.7 mas/yr<br>Epoch of Position: 2000.0 | V=16.286+/-0.1<br>GALEX FUV=16.00 GALEX N<br>UV=16.15 | Reference Frame: ICRS                          |               |        |                                 |       |                              |
| Comments: Massive, Teff=17605K logg=8.57, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
| Exposures                                                                                        | #                                                                                                                                                                                                                                                                        | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                                                                                                  | 1                                                                                                                                                                                                                                                                        | ACQ/Image (COS.ta.101 7581) | (47) WD0943+140                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                      | MIRRORB                                               |                                                |               |        | 20 Secs (20 Secs)<br>[==>]      | [1]   |                              |
|                                                                                                  | 2                                                                                                                                                                                                                                                                        | FP-POS3 (COS.sp.101 3590)   | (47) WD0943+140                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                       | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |                              |
|                                                                                                  | 3                                                                                                                                                                                                                                                                        | FP-POS4 (COS.sp.101 3590)   | (47) WD0943+140                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                       | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
| Orbit Structure                                                                                  | <div><div>Orbit 1</div><div><div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Unused Orbital Visibility = 340</div><div>Home Occultation</div></div><div>05001000150020002500300035004000450050005500 sec</div></div> |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |
|                                                                                                  | Server Version: 20181130                                                                                                                                                                                                                                                 |                             |                                                                                     |                                                                                              |                                                       |                                                |               |        |                                 |       |                              |

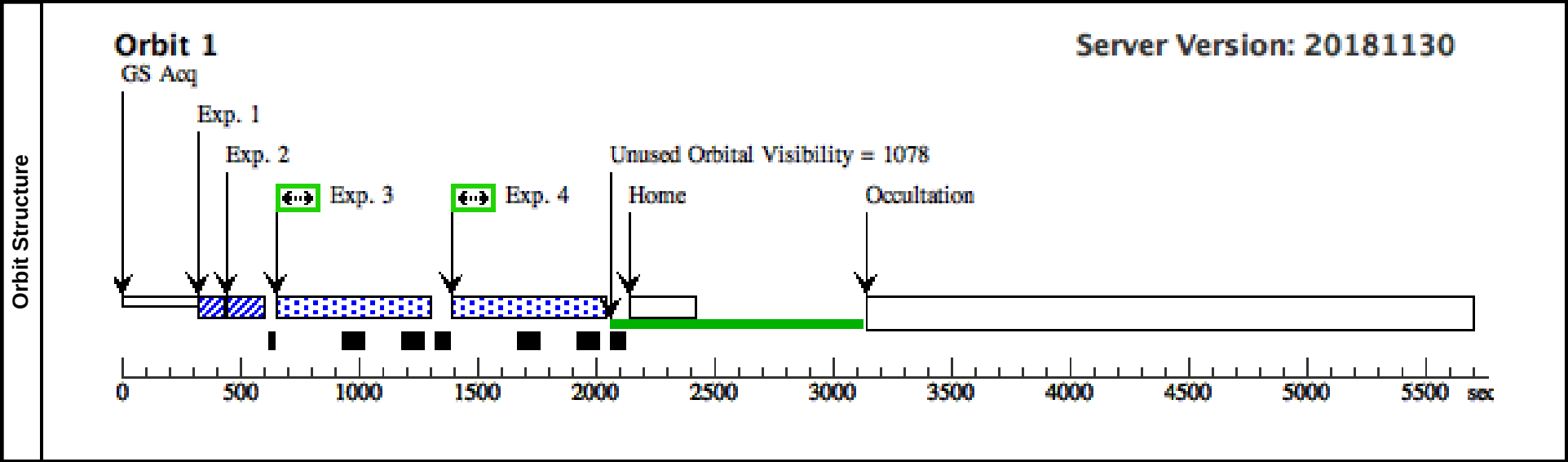
# Proposal 15073 - WD0945+245 (48) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD0945+245 (48), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        | Thu Dec 20 21:04:58 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
| Diagnostics   | (WD0945+245 (48)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |         |
|               | (48)                                                                                                                                                                                                                                 | WD0945+245                    | RA: 09 48 46.6420 (147.1943417d)<br>Dec: +24 21 25.88 (24.35719d)<br>Equinox: J2000 | Proper Motion RA: -65.1 mas/yr<br>Proper Motion Dec: -106.4 mas/yr<br>Epoch of Position: 2000.0 | V=14.245+/-0.016<br>GALEX FUV=14.48 GALEX N<br>UV=13.96,<br>SWP46139L | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Wide binary, Teff=16000K logg=8.4, DA+DXP, SWP46139L, F(1300A)=4e-14                                                                                                                                                       |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3141) | (48) WD0945+245                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                       |                                                |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3141)  | (48) WD0945+245                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3592)     | (48) WD0945+245                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 700 Secs (700 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3592)     | (48) WD0945+245                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=29<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 700 Secs (700 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |



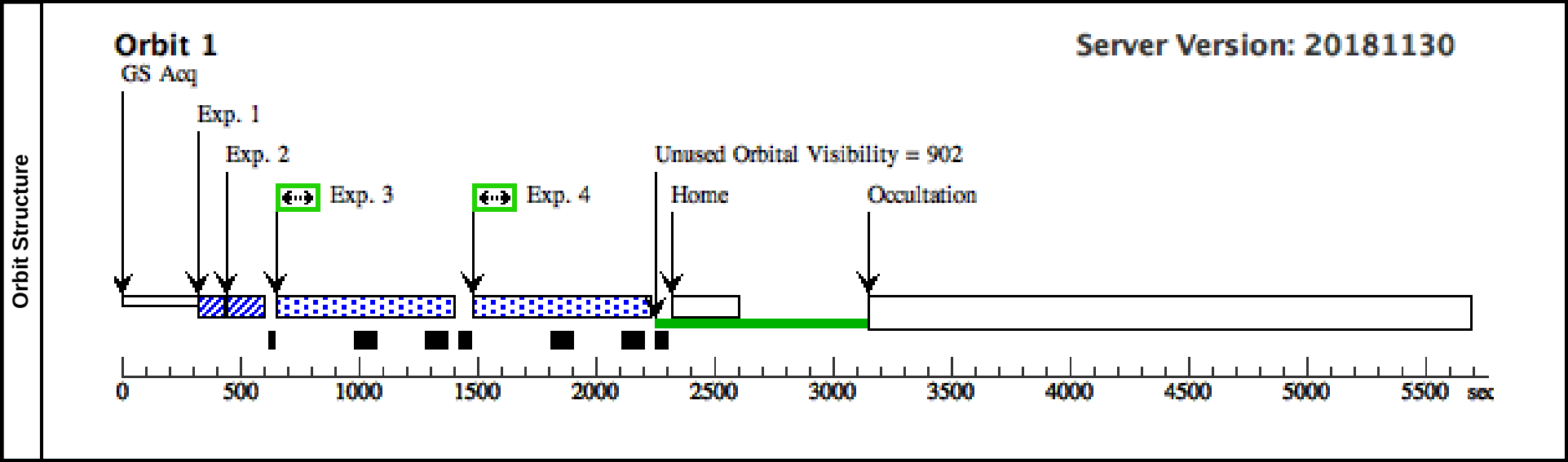
# Proposal 15073 - WD1003-023 (49) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|----------------|-------------------------|---------------------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1003-023 (49), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                |                         |                     |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
| Diagnostics   | (WD1003-023 (49)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | (WD1003-023 (49)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                | Fluxes                  |                     | Miscellaneous                   |     |                              |
|               | (49)                                                                                                                                                                                                                                 | WD1003-023                    | RA: 10 05 51.5100 (151.4646250d) |                          | Proper Motion RA: -113.1 mas/yr |                | V=15.43+/-0.1           |                     | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -02 34 17.80 (-2.57161d)    |                          | Proper Motion Dec: 47.1 mas/yr  |                | GALEX FUV=14.59 GALEX N |                     |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                | UV=14.86                |                     |                                 |     |                              |
|               | Comments: Default, Teff=20340K logg=7.95, DA                                                                                                                                                                                         |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                |                         |                     |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.   | Special Reqs.           | Groups              | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3142) | (49) WD1003-023                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                |                         |                     | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                     | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3142)  | (49) WD1003-023                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; |                         |                     | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 | NUM-POS=5;     |                         |                     | [==>]                           |     | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 | CENTER=DEF     |                         |                     |                                 |     |                              |
| 3             | FP-POS3 (COS.sp.101 3595)                                                                                                                                                                                                            | (49) WD1003-023               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=24 5;               |                |                         | 600 Secs (600 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                      |                |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=3                        |                |                         |                     |                                 |     |                              |
| 4             | FP-POS4 (COS.sp.101 3595)                                                                                                                                                                                                            | (49) WD1003-023               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=24 5;               |                |                         | 600 Secs (600 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                      |                |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=4                        |                |                         |                     |                                 |     |                              |



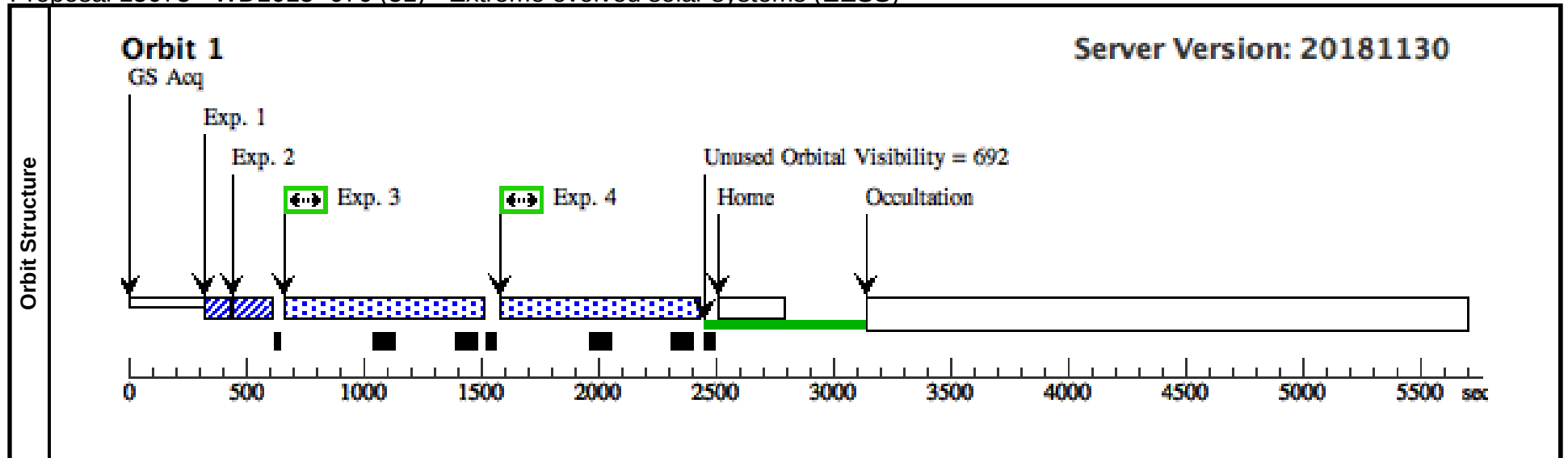
# Proposal 15073 - APASSJ101047.80-242711.6 (50) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit         | Proposal 15073, APASSJ101047.80-242711.6 (50), scheduling                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
| Diagnostics   | (APASSJ101047.80-242711.6 (50)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                        |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |  |
|               | (50)                                                                                                                                                                                                                                               | APASSJ101047.80-242711.6      | RA: 10 10 47.9140 (152.6996417d)<br>Dec: -24 27 10.95 (-24.45304d)<br>Equinox: J2000 |                          | Proper Motion RA: -115.4 mas/yr<br>Proper Motion Dec: -58.8 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.09+/-0.1<br>GALEX FUV=14.83 GALEX N<br>UV=14.73 |        | Reference Frame: ICRS           |  |                              |  |
|               | Comments: APASS, Teff=20370K logg=8,DH                                                                                                                                                                                                             |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     | Spectral Els.                                                                                   | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3008) | (50) APASSJ101047.80-242711.6                                                        | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                 |                                             |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3008)  | (50) APASSJ101047.80-242711.6                                                        | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3009)     | (50) APASSJ101047.80-242711.6                                                        | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 700 Secs (700 Secs)<br>[==>]    |  | [1]                          |  |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3009)     | (50) APASSJ101047.80-242711.6                                                        | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 700 Secs (700 Secs)<br>[==>]    |  | [1]                          |  |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |  |



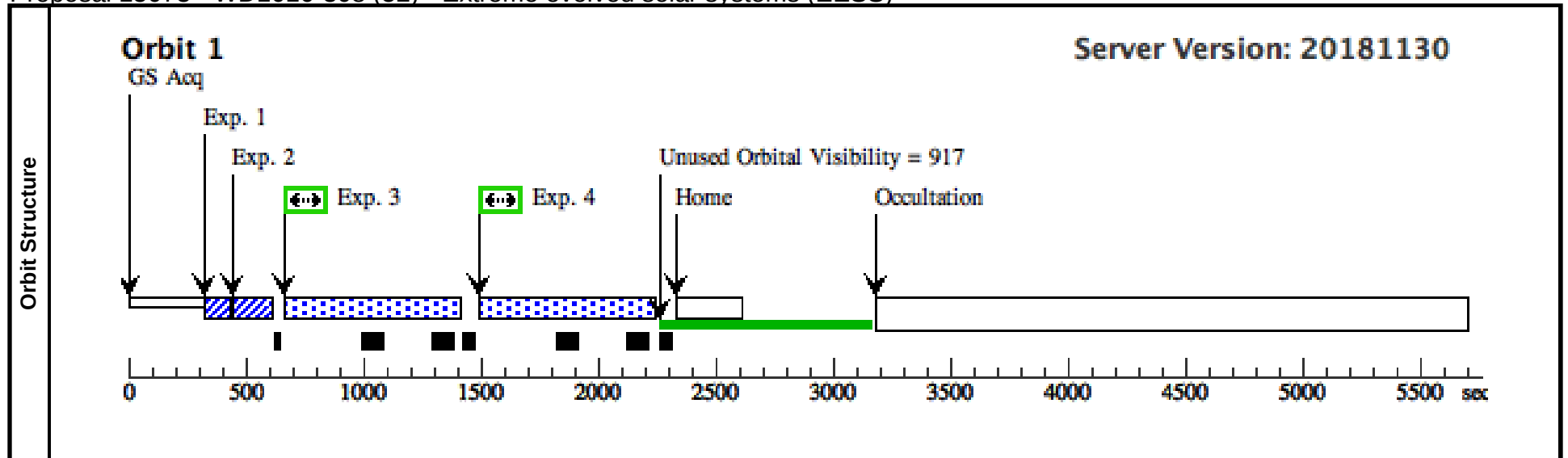
# Proposal 15073 - WD1015+076 (51) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|--------------------------|---------------------------------|------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1015+076 (51), scheduling                                                                                                                                                                                          |                               |                                 |                          |                                 |                                                |                         |        |                                 |  | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
| Diagnostics   | (WD1015+076 (51)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates              |                          | Targ. Coord. Corrections        |                                                | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (51)                                                                                                                                                                                                                                 | WD1015+076                    | RA: 10 18 1.6440 (154.5068500d) |                          | Proper Motion RA: -6.8 mas/yr   |                                                | V=15.385+/-0.02         |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +07 21 23.62 (7.35656d)    |                          | Proper Motion Dec: -24.2 mas/yr |                                                | GALEX FUV=15.26 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                  |                          | Epoch of Position: 2000.0       |                                                | UV=15.76                |        |                                 |  |                              |
|               | Comments: Wide binary, Teff=27375K logg=7.728, DA + M3V (V=16.6), 48"<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                            |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                          | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                   | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3143) | (51) WD1015+076                 | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                 |                                                |                         |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3143)  | (51) WD1015+076                 | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                         |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3597)     | (51) WD1015+076                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3597)     | (51) WD1015+076                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                                |                         |        |                                 |  |                              |



# Proposal 15073 - WD1016-308 (52) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1016-308 (52), scheduling                                                                                                                                                                                          |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     |                              |
| Diagnos       | (WD1016-308 (52)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                 |                          |                                 |                                       |                        |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                              |                          | Targ. Coord. Corrections        |                                       | Fluxes                 |        | Miscellaneous                   |     |                              |
|               | (52)                                                                                                                                                                                                                                 | WD1016-308                    | RA: 10 18 39.8450 (154.6660208d)                                                                |                          | Proper Motion RA: -191.0 mas/yr |                                       | V=14.64+/-0.1          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -31 08 2.07 (-31.13391d)                                                                   |                          | Proper Motion Dec: 74.1 mas/yr  |                                       | GALEX FUV=14.6 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                  |                          | Epoch of Position: 2000.0       |                                       | UV=14.5                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Default, Tef=16340K logg=8.10, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                       |                        |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                          | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.          | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3146) | (52) WD1016-308                                                                                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                        |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3146)  | (52) WD1016-308                                                                                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                        |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3600)     | (52) WD1016-308                                                                                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=29 5; FLASH=YES; FP-POS=3 |                        |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3600)     | (52) WD1016-308                                                                                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=29 5; FLASH=YES; FP-POS=4 |                        |        | 700 Secs (700 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                 |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |

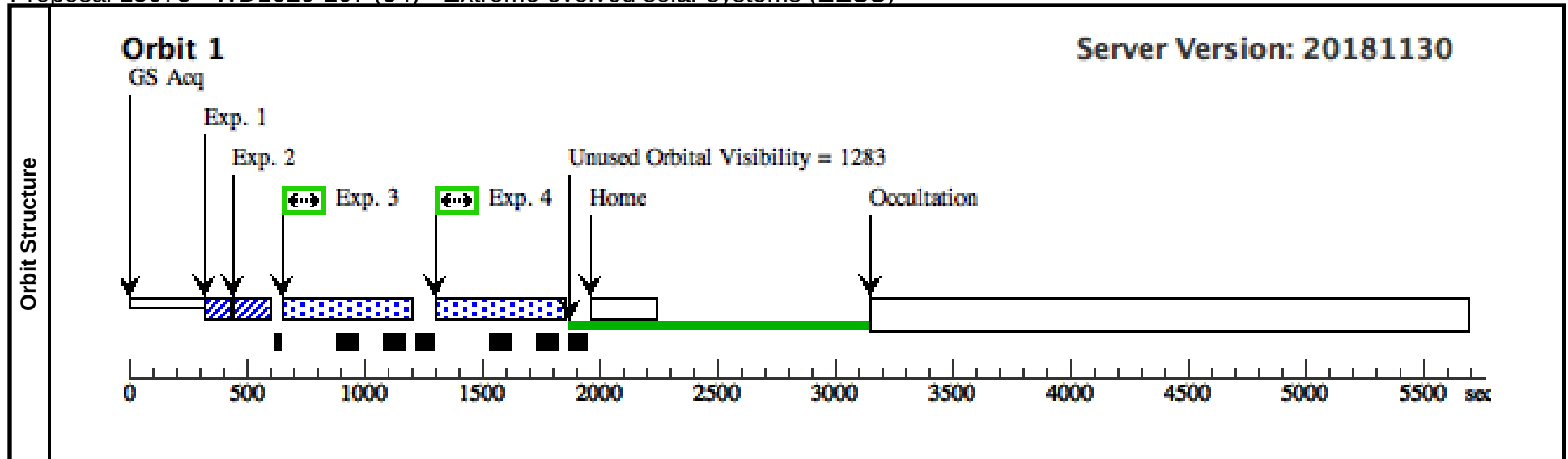


# Proposal 15073 - WD1017+366 (53) - Extreme evolved solar systems (EESS)

|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------|---------------|-----------------------|---------------------------------|-----|------------------------------|
| Visit                                                                                                     | Proposal 15073, WD1017+366 (53), completed                                                                                                                                                                                           |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|                                                                                                           | Diagnostic Status: Warning                                                                                                                                                                                                           |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
|                                                                                                           | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                             |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
|                                                                                                           | Special Requirements: (none)                                                                                                                                                                                                         |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
| Diagnostics                                                                                               | (WD1017+366 (53)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
| Fixed Targets                                                                                             | #                                                                                                                                                                                                                                    | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        |                 | Fluxes                                                            |               | Miscellaneous         |                                 |     |                              |
|                                                                                                           | (53)                                                                                                                                                                                                                                 | WD1017+366                  | RA: 10 20 54.1320 (155.2255500d)<br>Dec: +36 26 47.49 (36.44652d)<br>Equinox: J2000 | Proper Motion RA: -36.1 mas/yr<br>Proper Motion Dec: -129.4 mas/yr<br>Epoch of Position: 2000.0 |                 | V=16.0+/-0.2<br>GALEX FUV=15.61 GALEX N<br>UV=15.74,<br>O6CQ02010 |               | Reference Frame: ICRS |                                 |     |                              |
| Comments: Magnetic, Teff=16000K logg=8.0, DAH, B=65MG<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
| Exposures                                                                                                 | #                                                                                                                                                                                                                                    | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.   | Opt. Params.                                                      | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|                                                                                                           | 1                                                                                                                                                                                                                                    | ACQ/Image (COS.ta.102 1250) | (53) WD1017+366                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                         | MIRRORB         |                                                                   |               |                       | 13 Secs (13 Secs)               |     |                              |
|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       | [==>]                           |     | [1]                          |
|                                                                                                           | 2                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3607)   | (53) WD1017+366                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3                    |               |                       | 1000 Secs (1000 Secs)           |     |                              |
|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       | [==>]                           |     | [1]                          |
|                                                                                                           | 3                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3607)   | (53) WD1017+366                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4                    |               |                       | 1000 Secs (1000 Secs)           |     |                              |
|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               | [==>]                 |                                 | [1] |                              |
| Orbit Structure                                                                                           | <div>Orbit 1<div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Home</div><div>Occultation</div><div>Unused Orbital Visibility = 405</div></div>                                    |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |
|                                                                                                           |                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                 |                 |                                                                   |               |                       |                                 |     |                              |

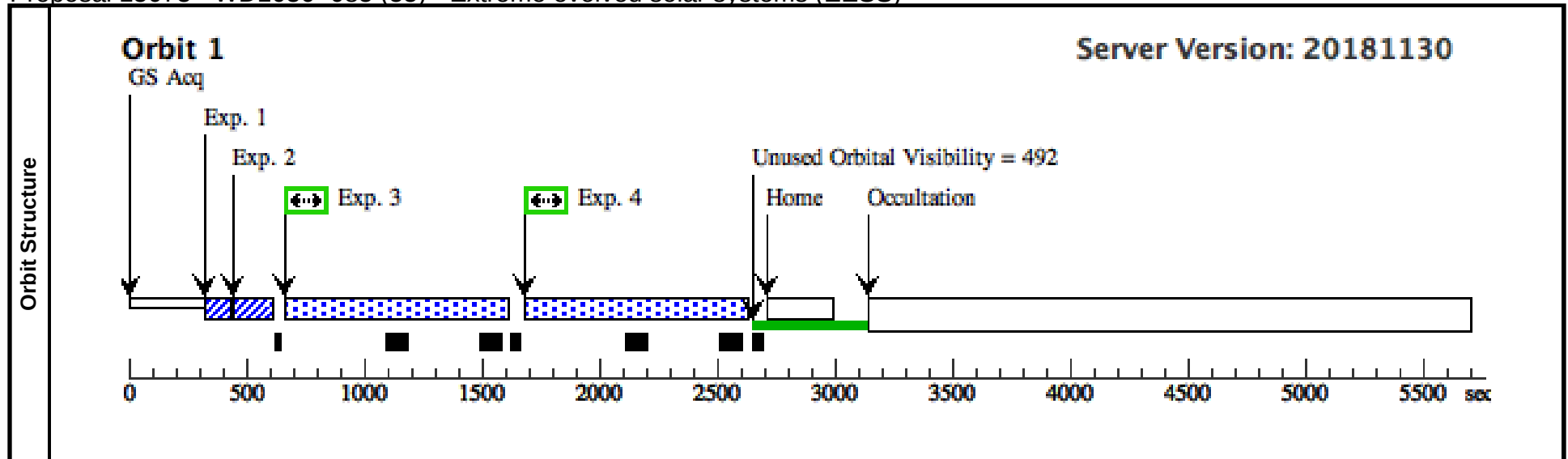
# Proposal 15073 - WD1020-207 (54) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1020-207 (54), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                      |                                             | Thu Dec 20 21:04:58 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1020-207 (54)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | (WD1020-207 (54)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                               | Miscellaneous                               |                              |        |                                 |       |
|               | (54)                                                                                                                                                                                                                                 | WD1020-207                    | RA: 10 22 43.7500 (155.6822917d)<br>Dec: -21 00 1.30 (-21.00036d)<br>Equinox: J2000 | Proper Motion RA: -75.2 mas/yr<br>Proper Motion Dec: -23.8 mas/yr<br>Epoch of Position: 2000.0 | V=15.09+/-0.1<br>GALEX FUV=14.30 GALEX N<br>UV=14.57 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Default, Teff=19920K logg=7.93, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                        | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3148) | (54) WD1020-207                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                      |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3148)  | (54) WD1020-207                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3610)     | (54) WD1020-207                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3610)     | (54) WD1020-207                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |



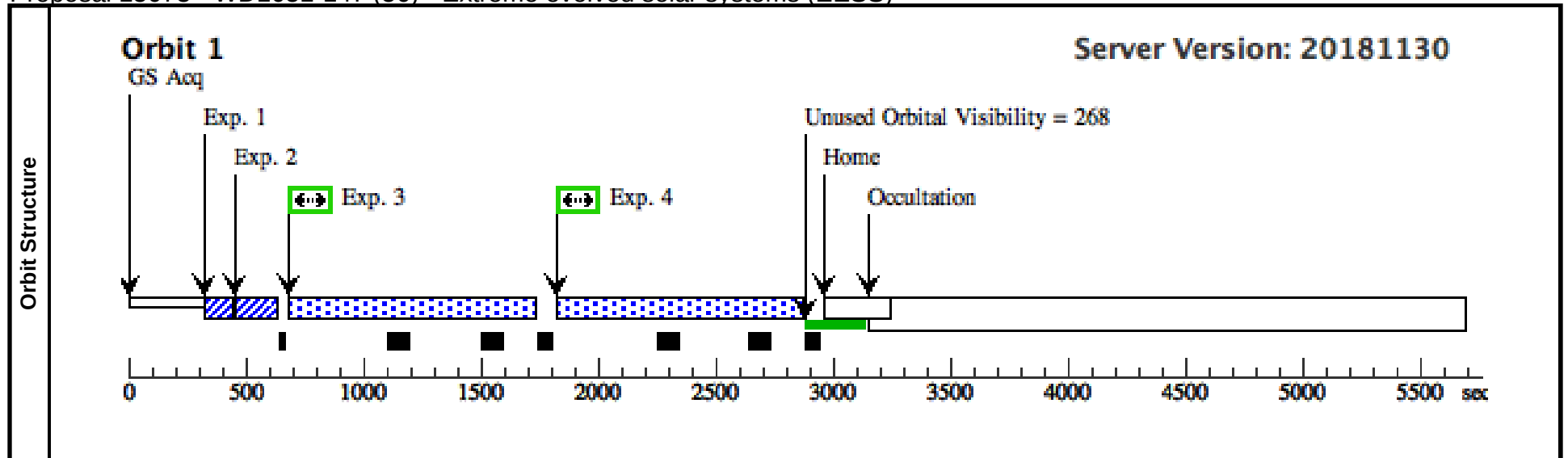
# Proposal 15073 - WD1036+085 (55) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1036+085 (55), scheduling                                                                                                                                                                                          |                               |                                 |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnostics   | (WD1036+085 (55)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates              |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (55)                                                                                                                                                                                                                                 | WD1036+085                    | RA: 10 39 7.3660 (159.7806917d) |                          | Proper Motion RA: 3.6 mas/yr    |                                       | V=16.359+/-0.07         |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +08 18 41.04 (8.31140d)    |                          | Proper Motion Dec: -48.0 mas/yr |                                       | GALEX FUV=15.47 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                  |                          | Epoch of Position: 2000.0       |                                       | UV=15.86                |        |                                 |     |                              |
|               | Comments: Low mass, Teff=23200K logg=7.52, DA                                                                                                                                                                                        |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                 |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                          | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3150) | (55) WD1036+085                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3150)  | (55) WD1036+085                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3611)     | (55) WD1036+085                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5; FLASH=YES; FP-POS=3 |                         |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3611)     | (55) WD1036+085                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5; FLASH=YES; FP-POS=4 |                         |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                 |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



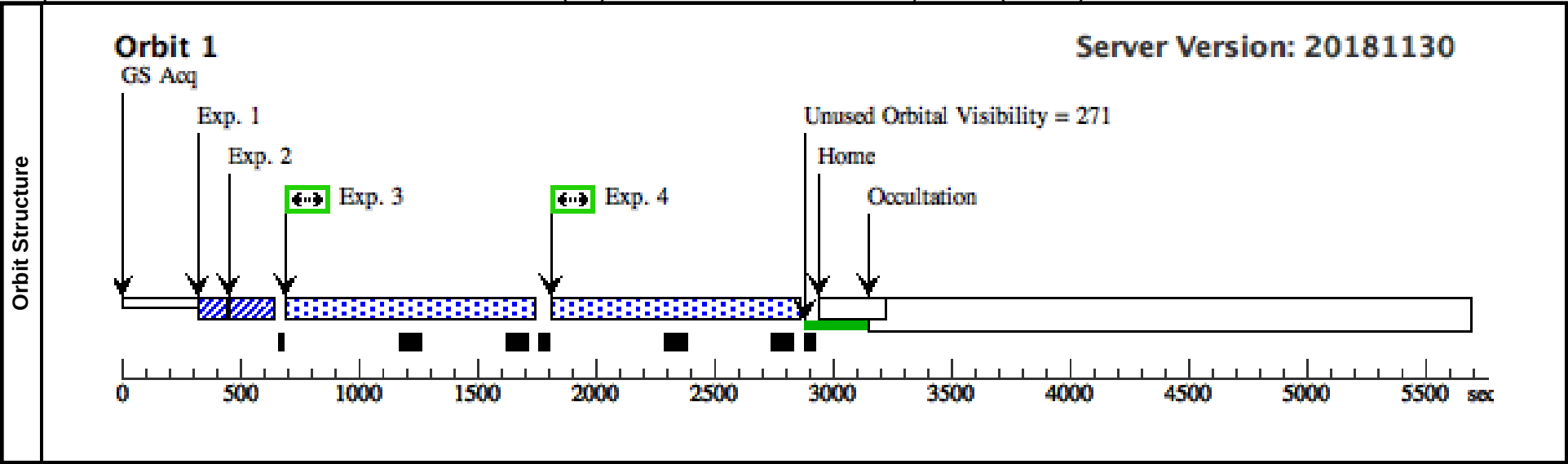
# Proposal 15073 - WD1051-147 (56) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1051-147 (56), scheduling                                                                                                                                                                                          |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnos       | (WD1051-147 (56)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (56)                                                                                                                                                                                                                                 | WD1051-147                    | RA: 10 53 54.5380 (163.4772417d)                                                                 |                          | Proper Motion RA: 21.3 mas/yr   |                                       | V=16.299+/-0.1          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -15 03 55.80 (-15.06550d)                                                                   |                          | Proper Motion Dec: -21.3 mas/yr |                                       | GALEX FUV=15.54 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                       | UV=15.77                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=20570K logg=8.33, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3151) | (56) WD1051-147                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3151)  | (56) WD1051-147                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3613)     | (56) WD1051-147                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5; FLASH=YES; FP-POS=3 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3613)     | (56) WD1051-147                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=39 5; FLASH=YES; FP-POS=4 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



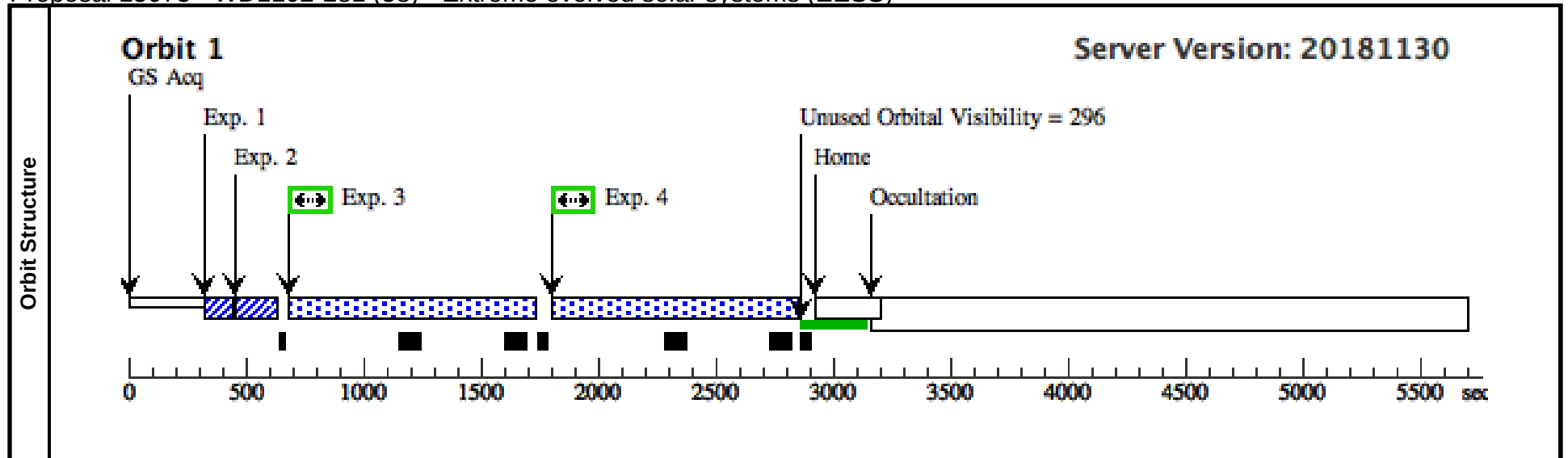
# Proposal 15073 - SDSSJ110136.86+174155.90 (57) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|
| Visit         | Proposal 15073, SDSSJ110136.86+174155.90 (57), scheduling                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
| Diagnostics   | (SDSSJ110136.86+174155.90 (57)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                    |                 | Fluxes                                                 |               | Miscellaneous         |                                 |                              |
|               | (57)                                                                                                                                                                                                                                               | SDSSJ110136.86+174155.90      | RA: 11 01 36.8440 (165.4035167d)<br>Dec: +17 41 56.02 (17.69889d)<br>Equinox: J2000 |                          | Proper Motion RA: 5.0 mas/yr<br>Proper Motion Dec: -3.2 mas/yr<br>Epoch of Position: 2000.0 |                 | V=16.655+/-0.05<br>GALEX FUV=16.09 GALEX N<br>UV=16.38 |               | Reference Frame: ICRS |                                 |                              |
|               | Comments: Massive, Teff=19252K logg=8.69, DA                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     |                                                                                             | Spectral Els.   | Opt. Params.                                           | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3061) | (57) SDSSJ110136.86+174155.90                                                       | COS/FUV, ACQ/PEAKXD, PSA |                                                                                             | G130M<br>1291 A |                                                        |               |                       | 7 Secs (7 Secs)<br>[==>]        | <br>[1]                      |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3061)  | (57) SDSSJ110136.86+174155.90                                                       | COS/FUV, ACQ/PEAKD, PSA  |                                                                                             | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF             |               |                       | 7 Secs (7 Secs)<br>[==>]        | <br>[1]                      |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 4155)     | (57) SDSSJ110136.86+174155.90                                                       | COS/FUV, TIME-TAG, PSA   |                                                                                             | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3            |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 4155)     | (57) SDSSJ110136.86+174155.90                                                       | COS/FUV, TIME-TAG, PSA   |                                                                                             | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4            |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                             |                 |                                                        |               |                       |                                 |                              |



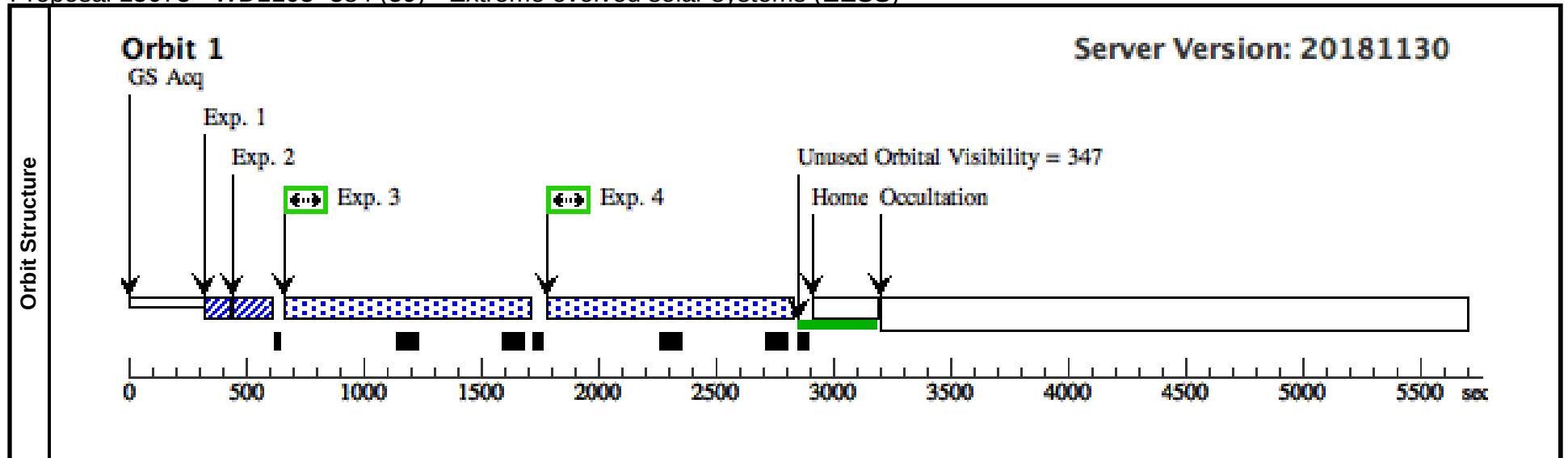
# Proposal 15073 - WD1102-281 (58) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|
| Visit         | Proposal 15073, WD1102-281 (58), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 | Thu Dec 20 21:04:58 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
| Diagnostics   | (WD1102-281 (58)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       |                 | Fluxes                                         |               | Miscellaneous         |                                 |                              |
|               | (58)                                                                                                                                                                                                                                 | WD1102-281                    | RA: 11 04 44.1120 (166.1838000d)<br>Dec: -28 26 15.15 (-28.43754d)<br>Equinox: J2000 | Proper Motion RA: -38.0 mas/yr<br>Proper Motion Dec: -23.1 mas/yr<br>Epoch of Position: 2000.0 |                 | V=16.289+/-0.028<br>GALEX FUV=99 GALEX NUV=99  |               | Reference Frame: ICRS |                                 |                              |
|               | Comments: Massive, Teff=18640K logg=8.64, DA                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
|               | Description=[DA]<br>Extended=NO                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.   | Opt. Params.                                   | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3152) | (58) WD1102-281                                                                      | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A |                                                |               |                       | 5 Secs (5 Secs)<br>[==>]        | <br>[1]                      |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3152)  | (58) WD1102-281                                                                      | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |                       | 5 Secs (5 Secs)<br>[==>]        | <br>[1]                      |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3615)     | (58) WD1102-281                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3615)     | (58) WD1102-281                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                 |                                                |               |                       |                                 |                              |



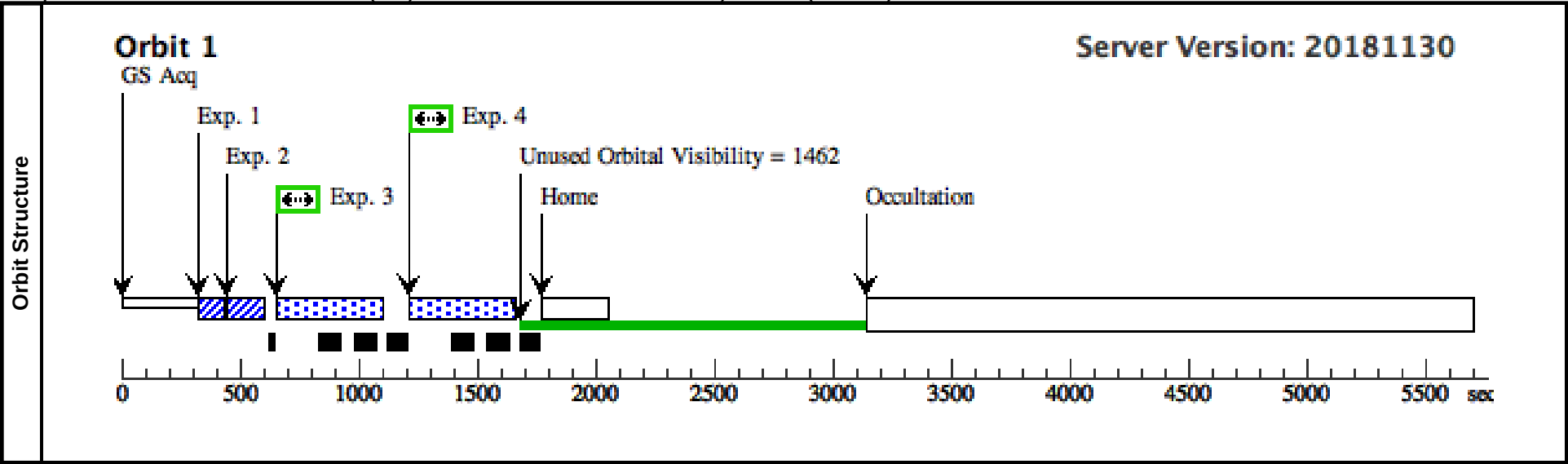
# Proposal 15073 - WD1103+384 (59) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|--------------------------------|---------------------------------------|---------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD1103+384 (59), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                |                                       |                           |        |                                 |     | Thu Dec 20 21:04:58 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
| Diagnostics   | (WD1103+384 (59)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections       |                                       | Fluxes                    |        | Miscellaneous                   |     |                              |  |
|               | (59)                                                                                                                                                                                                                                 | WD1103+384                    | RA: 11 05 50.6380 (166.4609917d) |                          | Proper Motion RA: -52.2 mas/yr |                                       | V=17.2+/-0.1              |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +38 13 3.52 (38.21764d)     |                          | Proper Motion Dec: -5.5 mas/yr |                                       | GALEX FUV=99 GALEX NUV=99 |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0      |                                       |                           |        |                                 |     |                              |  |
|               | Comments: Massive, Teff=26750K logg=8.58, DA                                                                                                                                                                                         |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                |                                       |                           |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                  | Opt. Params.                          | Special Reqs.             | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3154) | (59) WD1103+384                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                   |                                       |                           |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3154)  | (59) WD1103+384                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                   | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                           |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3618)     | (59) WD1103+384                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                   | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                           |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3618)     | (59) WD1103+384                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                   | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                           |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                           |        | [==>]                           |     | [1]                          |  |



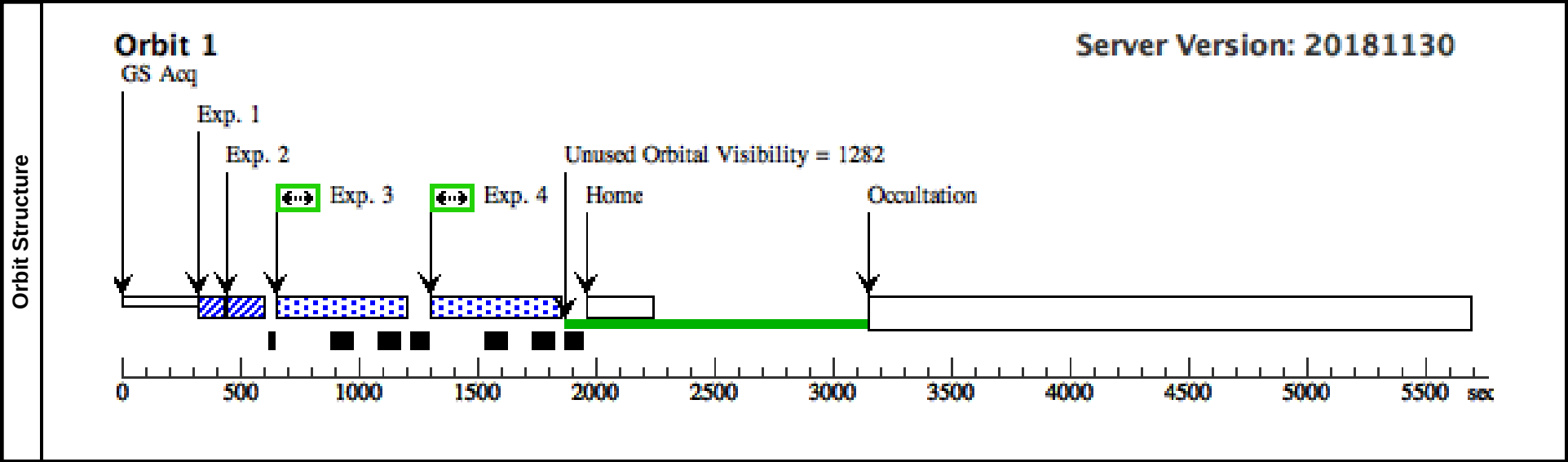
# Proposal 15073 - WD1105-048 (60) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD1105-048 (60), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        | Thu Dec 20 21:04:58 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
| Diagnostics   | (WD1105-048 (60)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                             | Miscellaneous                                  |               |        |                                 |         |
|               | (60)                                                                                                                                                                                                                                 | WD1105-048                    | RA: 11 07 59.9500 (166.9997917d)<br>Dec: -05 09 26.11 (-5.15725d)<br>Equinox: J2000 | Proper Motion RA: -55.3 mas/yr<br>Proper Motion Dec: -437.7 mas/yr<br>Epoch of Position: 2000.0 | V=13.12+/-0.1<br>GALEX FUV=13.32 GALEX N<br>UV=13.76,<br>SWP28184L | Reference Frame: ICRS                          |               |        |                                 |         |
|               | Comments: Wide binary, Teff=15141K logg=7.85, DA + M3V (G163-51, V=12.6), 280"                                                                                                                                                       |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                                      | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3155) | (60) WD1105-048                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                    |                                                |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3155)  | (60) WD1105-048                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                    | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3619)     | (60) WD1105-048                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                    | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3619)     | (60) WD1105-048                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                    | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                    |                                                |               |        |                                 |         |



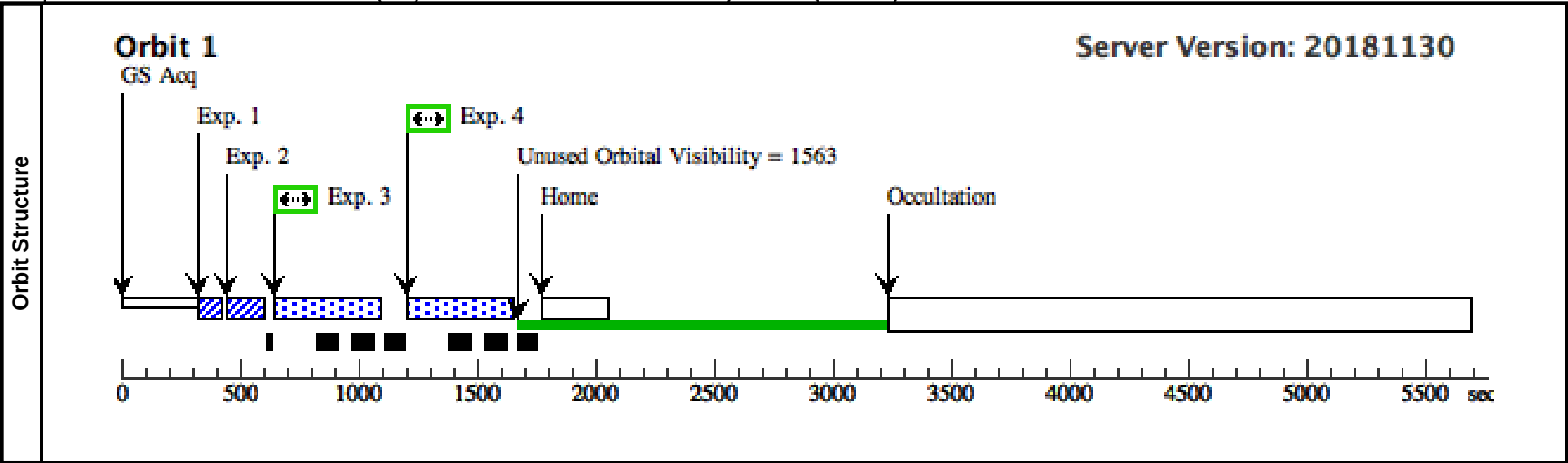
# Proposal 15073 - WD1115+166 (61) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1115+166 (61), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                         | Thu Dec 20 21:04:58 GMT 2018                   |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Diagnostics   | (WD1115+166 (61)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      | Fluxes                                                  | Miscellaneous                                  |               |        |                                 |       |
|               | (61)                                                                                                                                                                                                                                 | WD1115+166                    | RA: 11 17 55.1160 (169.4796500d)<br>Dec: +16 21 29.16 (16.35810d)<br>Equinox: J2000 | Proper Motion RA: -24.8 mas/yr<br>Proper Motion Dec: -2.4 mas/yr<br>Epoch of Position: 2000.0 | V=15.032+/-0.072<br>GALEX FUV=14.40 GALEX N<br>UV=14.64 | Reference Frame: ICRS                          |               |        |                                 |       |
|               | Comments: Wide binary, Teff=23750K logg=8.16, DA+DB                                                                                                                                                                                  |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.                                           | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3156) | (61) WD1115+166                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                                         |                                                |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3156)  | (61) WD1115+166                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3621)     | (61) WD1115+166                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3621)     | (61) WD1115+166                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                                |               |        |                                 |       |

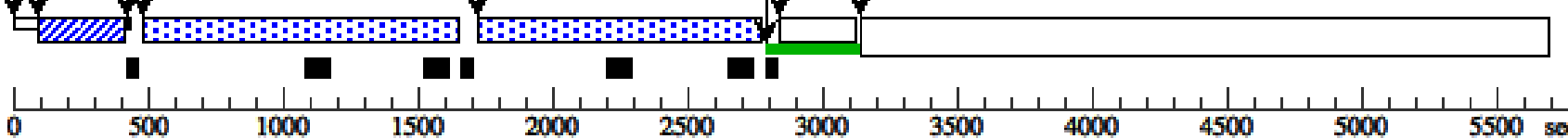


# Proposal 15073 - WD1120+439 (62) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD1120+439 (62), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                         |                                                | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
| Diagnostics   | (WD1120+439 (62)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                                  | Miscellaneous                                  |                              |        |                                 |         |
|               | (62)                                                                                                                                                                                                                                 | WD1120+439                    | RA: 11 22 55.0210 (170.7292542d)<br>Dec: +43 42 57.78 (43.71605d)<br>Equinox: J2000 | Proper Motion RA: -62.2 mas/yr<br>Proper Motion Dec: -28.2 mas/yr<br>Epoch of Position: 2000.0 | V=15.372+/-0.111<br>GALEX FUV=13.78 GALEX N<br>UV=14.37 | Reference Frame: ICRS                          |                              |        |                                 |         |
|               | Comments: Massive, Teff=27800K logg=8.39, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                           | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3157) | (62) WD1120+439                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                         |                                                |                              |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3157)  | (62) WD1120+439                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3624)     | (62) WD1120+439                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                         | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3624)     | (62) WD1120+439                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                         | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                         |                                                |                              |        |                                 |         |

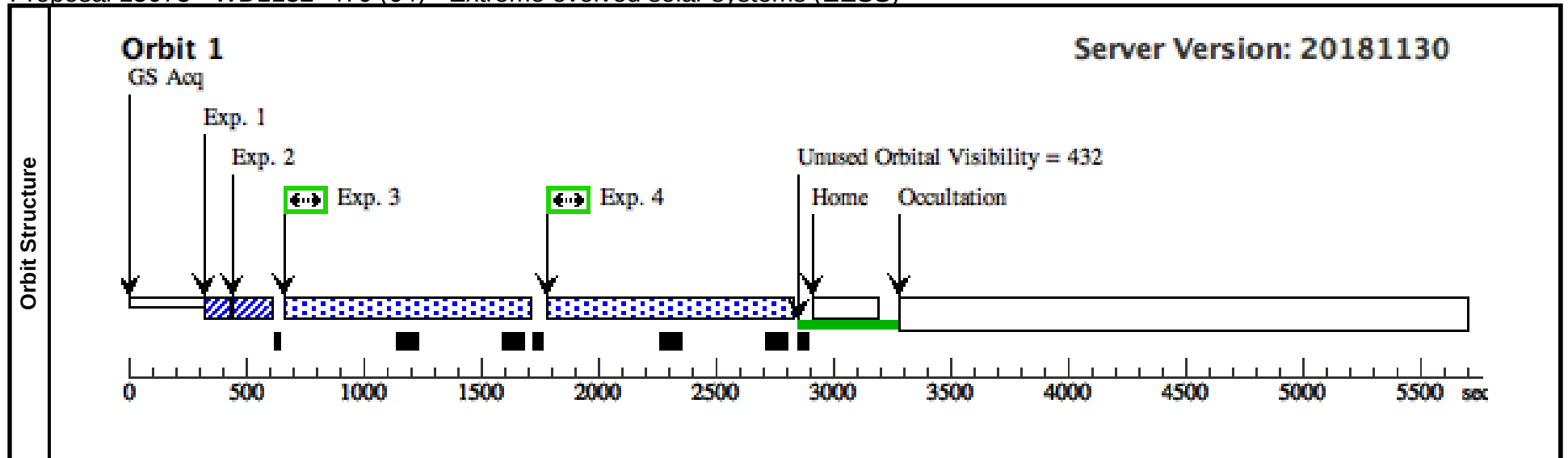


# Proposal 15073 - WD1130-125 (63) - Extreme evolved solar systems (EESS)

|                                                                                                  |                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------|---------------------------------------------------------|-----------------------|---------------------------------|-----|------------------------------|
| Visit                                                                                            | Proposal 15073, WD1130-125 (63), scheduling                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|                                                                                                  | Diagnostic Status: Warning                                                                                                                                                                                                                                           |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
|                                                                                                  | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                             |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
|                                                                                                  | Special Requirements: (none)                                                                                                                                                                                                                                         |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
| Diagnostics                                                                                      | (WD1130-125 (63)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                 |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
| Fixed Targets                                                                                    | #                                                                                                                                                                                                                                                                    | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       |                                                |                                                | Fluxes                                                  | Miscellaneous         |                                 |     |                              |
|                                                                                                  | (63)                                                                                                                                                                                                                                                                 | WD1130-125                  | RA: 11 33 19.4050 (173.3308542d)<br>Dec: -12 49 1.56 (-12.81710d)<br>Equinox: J2000 | Proper Motion RA: -93.8 mas/yr<br>Proper Motion Dec: -56.2 mas/yr<br>Epoch of Position: 2000.0 |                                                |                                                | V=15.618+/-0.216<br>GALEX FUV=15.67 GALEX N<br>UV=15.55 | Reference Frame: ICRS |                                 |     |                              |
| Comments: Massive, Teff=14780K logg=8.38, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |
| Exposures                                                                                        | #                                                                                                                                                                                                                                                                    | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                  | Opt. Params.                                   | Special Reqs.                                           | Groups                | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|                                                                                                  | 1                                                                                                                                                                                                                                                                    | ACQ/Image (COS.ta.101 7584) | (63) WD1130-125                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                        | MIRRORB                                        |                                                |                                                         |                       | 11 Secs (11 Secs)               |     |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       | [==>]                           |     | [1]                          |
|                                                                                                  | 2                                                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3631)   | (63) WD1130-125                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                         |                       | 1000 Secs (1000 Secs)           |     |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       | [==>]                           |     | [1]                          |
| 3                                                                                                | FP-POS4 (COS.sp.101 3631)                                                                                                                                                                                                                                            | (63) WD1130-125             | COS/FUV, TIME-TAG, PSA                                                              | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                |                                                         | 1000 Secs (1000 Secs) |                                 |     |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         | [==>]                 |                                 | [1] |                              |
| Orbit Structure                                                                                  | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3</div><div>Unused Orbital Visibility = 358</div><div>Home    Occultation</div></div> |                             |                                                                                     |                                                                                                |                                                |                                                |                                                         |                       |                                 |     |                              |

# Proposal 15073 - WD1132+470 (64) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------|------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD1132+470 (64), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                        |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
| Diagnostics   | (WD1132+470 (64)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                       | Fluxes                 |        | Miscellaneous                   |     |                              |  |
|               | (64)                                                                                                                                                                                                                                 | WD1132+470                    | RA: 11 34 48.8430 (173.7035125d) |                          | Proper Motion RA: -152.1 mas/yr |                                       | V=16.3+/-0.1           |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +46 48 35.90 (46.80997d)    |                          | Proper Motion Dec: -92.9 mas/yr |                                       | GALEX FUV=15.5 GALEX N |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                       | UV=15.9                |        |                                 |     |                              |  |
|               | Comments: Massive, Teff=28160K logg=8.96, DA                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                        |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.          | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3159) | (64) WD1132+470                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                        |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3159)  | (64) WD1132+470                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                        |        | 3 Secs (3 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3626)     | (64) WD1132+470                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                        |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3626)     | (64) WD1132+470                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                        |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |  |



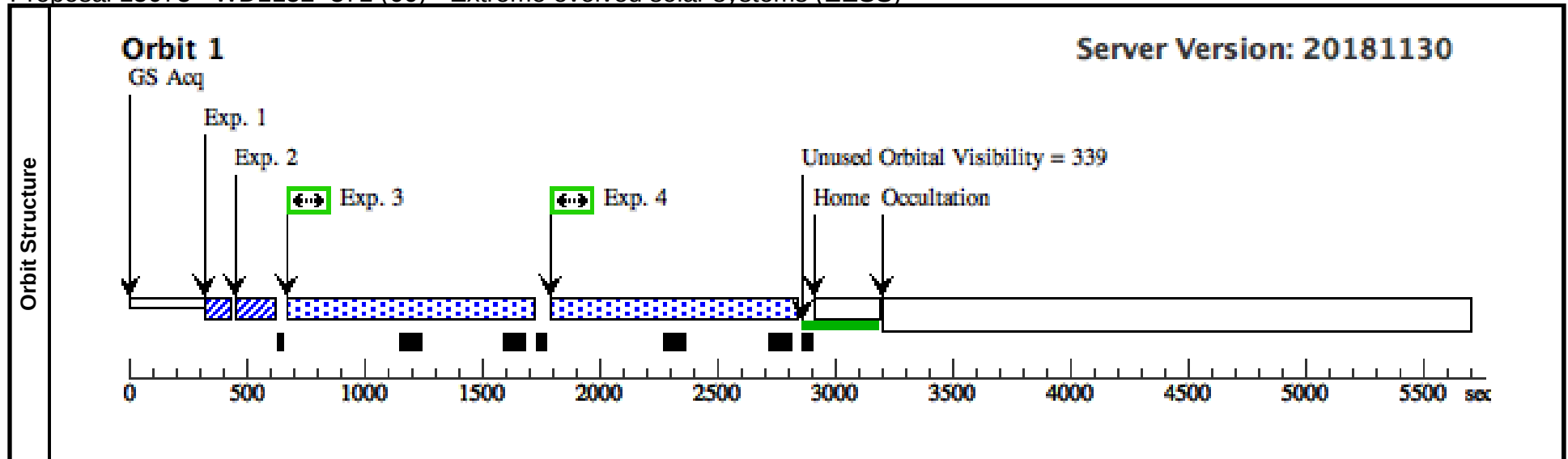
# Proposal 15073 - WD1134+300 (65) - Extreme evolved solar systems (EESS)

Thu Dec 20 21:04:59 GMT 2018

|                                                            |                                                                  |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
|------------------------------------------------------------|------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------|---------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                      | Proposal 15073, WD1134+300 (65), scheduling                      |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|                                                            | Diagnostic Status: No Diagnostics                                |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
|                                                            | Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                  |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
|                                                            | Special Requirements: (none)                                     |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
| Comments: Too bright for COS/G130M, switched to STIS/E140M |                                                                  |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
| Fixed Targets                                              | #                                                                | Name                           | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       |               | Fluxes                                                              |               | Miscellaneous         |                                 |  |                              |
|                                                            | (65)                                                             | WD1134+300                     | RA: 11 37 5.1100 (174.2712917d)<br>Dec: +29 47 58.30 (29.79953d)<br>Equinox: J2000 | Proper Motion RA: -146.5 mas/yr<br>Proper Motion Dec: -8.5 mas/yr<br>Epoch of Position: 2000.0 |               | V=12.474+/-0.027<br>GALEX FUV=12.0 GALEX N<br>UV=12.4,<br>SWP18996L |               | Reference Frame: ICRS |                                 |  |                              |
|                                                            | Comments: Massive, Teff=21280K logg=8.55, DA                     |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
|                                                            | Category=STAR<br>Description=[DA]<br>Extended=NO                 |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |
| Exposures                                                  | #                                                                | Label (ETC Run)                | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els. | Opt. Params.                                                        | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                            | 1                                                                | STIS/ACQ (STIS.ta.102 1631)    | (65) WD1134+300                                                                    | STIS/CCD, ACQ, F28X50LP                                                                        | MIRROR        | ACQTYPE=POINT                                                       |               |                       | 1 Secs (1 Secs)                 |  |                              |
|                                                            |                                                                  |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       | [==>]                           |  | [1]                          |
|                                                            | 2                                                                | STIS/E140 M (STIS.sp.10 21627) | (65) WD1134+300                                                                    | STIS/FUV-MAMA, TIME-TAG, 0.2X0.2                                                               | E140M 1425 A  | BUFFER-TIME=20 0                                                    |               |                       | 1200 Secs (1200 Secs)           |  |                              |
|                                                            |                                                                  |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       | [==>]                           |  | [1]                          |
| Orbit Structure                                            | <div><div>Orbit 1</div><div>Server Version: 20181130</div></div> |                                |                                                                                    |                                                                                                |               |                                                                     |               |                       |                                 |  |                              |

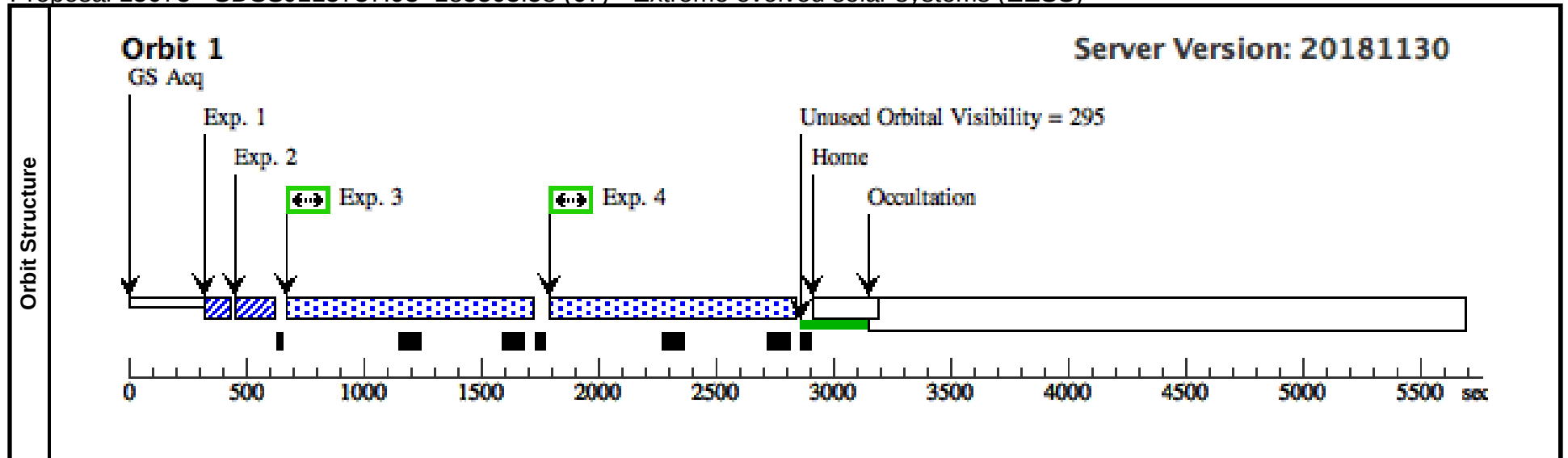
# Proposal 15073 - WD1152+371 (66) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1152+371 (66), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                              |                                                   |                                                | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
| Diagnostics   | (WD1152+371 (66)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     | Fluxes                                            | Miscellaneous                                  |                              |        |                                 |       |
|               | (66)                                                                                                                                                                                                                                 | WD1152+371                    | RA: 11 54 58.8220 (178.7450917d)<br>Dec: +36 50 54.60 (36.84850d)<br>Equinox: J2000 | Proper Motion RA: -42.5 mas/yr<br>Proper Motion Dec: 6.9 mas/yr<br>Epoch of Position: 2000.0 | V=16.8+/-0.1<br>GALEX FUV=15.8 GALEX N<br>UV=16.2 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Massive, Teff=27420K logg=9.14, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                     | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3166) | (66) WD1152+371                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M<br>1291 A                                   |                                                |                              |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3166)  | (66) WD1152+371                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M<br>1291 A                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3633)     | (66) WD1152+371                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                   | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3633)     | (66) WD1152+371                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                   | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                              |                                                   |                                                |                              |        |                                 |       |



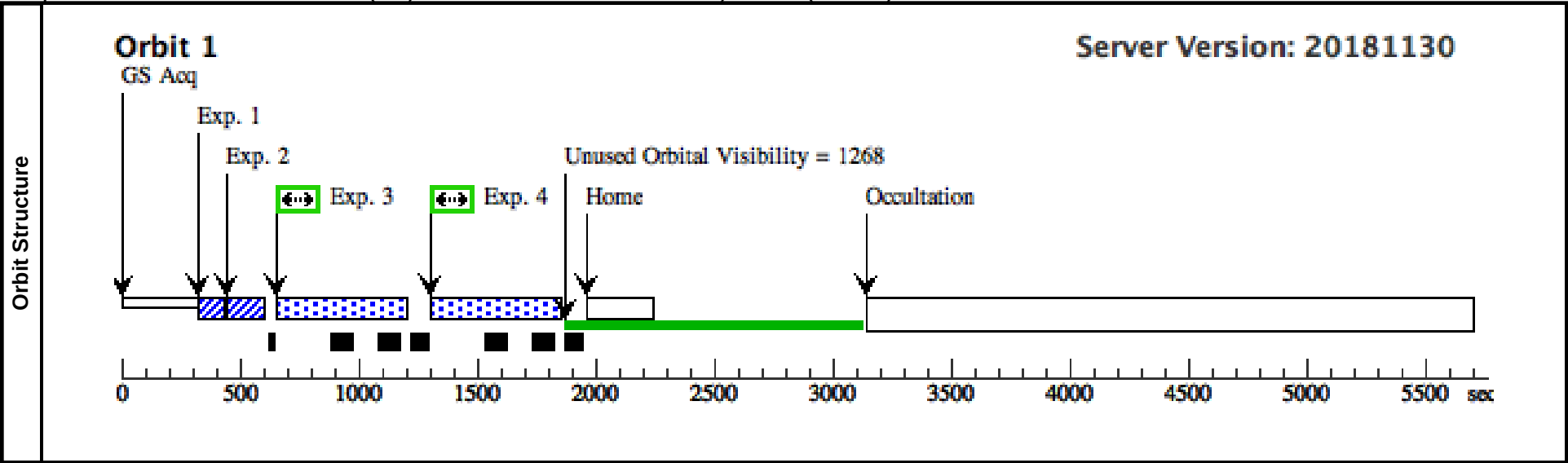
# Proposal 15073 - SDSSJ115737.93+185503.58 (67) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, SDSSJ115737.93+185503.58 (67), scheduling                                                                                                                                                                                          |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
| Diagnostics   | (SDSSJ115737.93+185503.58 (67)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                 |                          | Targ. Coord. Corrections                                                                     |                                            | Fluxes                                            |        | Miscellaneous                   |  |                              |
|               | (67)                                                                                                                                                                                                                                               | SDSSJ115737.93+185503.58      | RA: 11 57 37.9530 (179.4081375d)<br>Dec: +18 55 3.45 (18.91763d)<br>Equinox: J2000 |                          | Proper Motion RA: -17.8 mas/yr<br>Proper Motion Dec: 5.8 mas/yr<br>Epoch of Position: 2000.0 |                                            | V=16.7+/-0.208<br>GALEX FUV=15.73 GALEX NUV=16.04 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Massive, Teff=23256K logg=8.35, DA                                                                                                                                                                                                       |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture     | Spectral Els.                                                                                | Opt. Params.                               | Special Reqs.                                     | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3065) | (67) SDSSJ115737.93+185503.58                                                      | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                              |                                            |                                                   |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3065)  | (67) SDSSJ115737.93+185503.58                                                      | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                              | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF |                                                   |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 4161)     | (67) SDSSJ115737.93+185503.58                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                              | BUFFER-TIME=445;<br>FLASH=YES;<br>FP-POS=3 |                                                   |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 4161)     | (67) SDSSJ115737.93+185503.58                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                              | BUFFER-TIME=445;<br>FLASH=YES;<br>FP-POS=4 |                                                   |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                    |                          |                                                                                              |                                            |                                                   |        |                                 |  |                              |



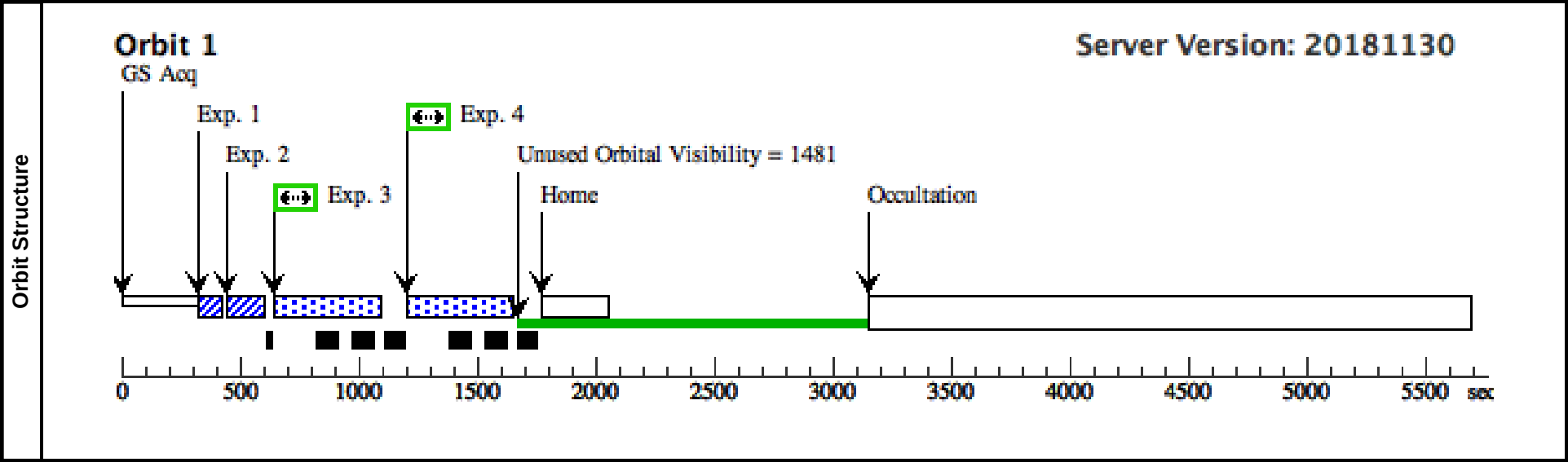
# Proposal 15073 - WD1201-001 (68) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|---------------------------------------|------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1201-001 (68), scheduling                                                                                                                                                                                          |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     |                              |
| Diagnostics   | (WD1201-001 (68)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                                      |                          |                                 |                                       |                        |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                                                   |                          | Targ. Coord. Corrections        |                                       | Fluxes                 |        | Miscellaneous                   |     |                              |
|               | (68)                                                                                                                                                                                                                                 | WD1201-001                    | RA: 12 03 47.4200 (180.9475833d)                                                                                     |                          | Proper Motion RA: -105.4 mas/yr |                                       | V=15.135+/-0.054       |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -00 23 10.90 (-.38636d)                                                                                         |                          | Proper Motion Dec: -32.2 mas/yr |                                       | GALEX FUV=14.3 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                                       |                          | Epoch of Position: 2000.0       |                                       | UV=14.9                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=19770K logg=8.26, DA, NOV SC from K2 C10<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                       |                        |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                                               | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.          | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3167) | (68) WD1201-001                                                                                                      | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                        |        | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3167)  | (68) WD1201-001                                                                                                      | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                        |        | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3635)     | (68) WD1201-001                                                                                                      | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=19 5; FLASH=YES; FP-POS=3 |                        |        | 500 Secs (500 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3635)     | (68) WD1201-001                                                                                                      | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=19 5; FLASH=YES; FP-POS=4 |                        |        | 500 Secs (500 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                      |                          |                                 |                                       |                        |        | [==>]                           |     | [1]                          |



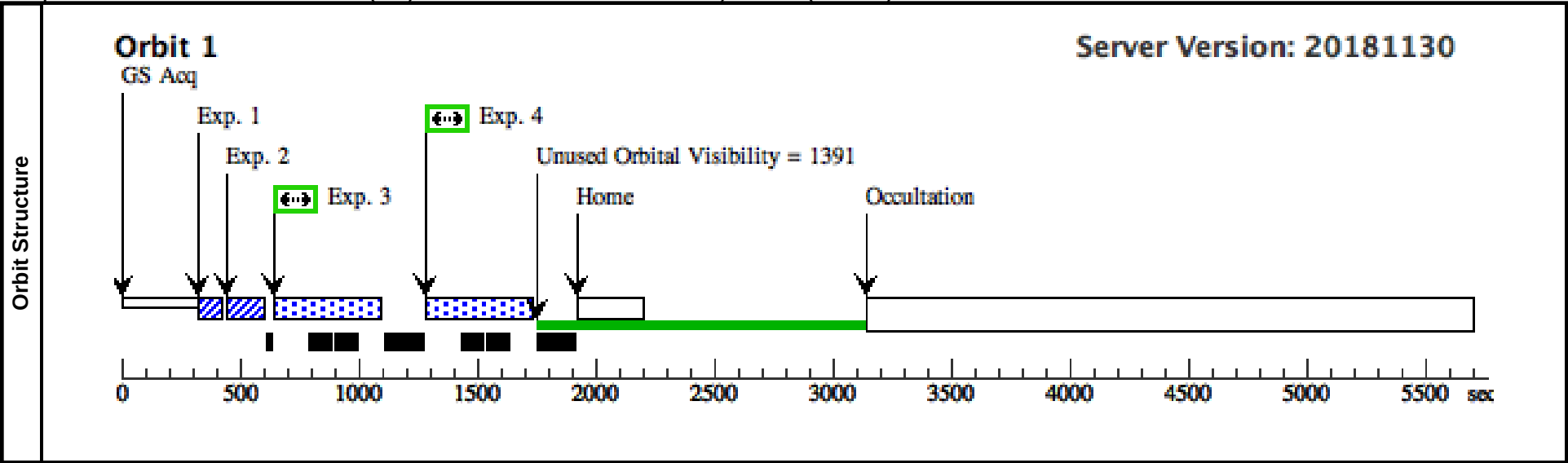
# Proposal 15073 - WD1233-164 (69) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD1233-164 (69), completed                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        | Thu Dec 20 21:04:59 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
| Diagnostics   | (WD1233-164 (69)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       | Fluxes                                                                   | Miscellaneous                               |               |        |                                 |         |
|               | (69)                                                                                                                                                                                                                                 | WD1233-164                    | RA: 12 36 13.9060 (189.0579417d)<br>Dec: -16 41 52.44 (-16.69790d)<br>Equinox: J2000 | Proper Motion RA: -92.6 mas/yr<br>Proper Motion Dec: -22.6 mas/yr<br>Epoch of Position: 2000.0 | V=15.135+/-0.073<br>GALEX FUV=13.7 GALEX N<br>UV=14.5,<br>failed COS obs | Reference Frame: ICRS                       |               |        |                                 |         |
|               | Comments: Massive, Teff=24892K logg=8.21, DA                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.                                                            | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3168) | (69) WD1233-164                                                                      | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                          |                                             |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3168)  | (69) WD1233-164                                                                      | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                          | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3637)     | (69) WD1233-164                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                          | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3637)     | (69) WD1233-164                                                                      | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                          | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                                          |                                             |               |        |                                 |         |



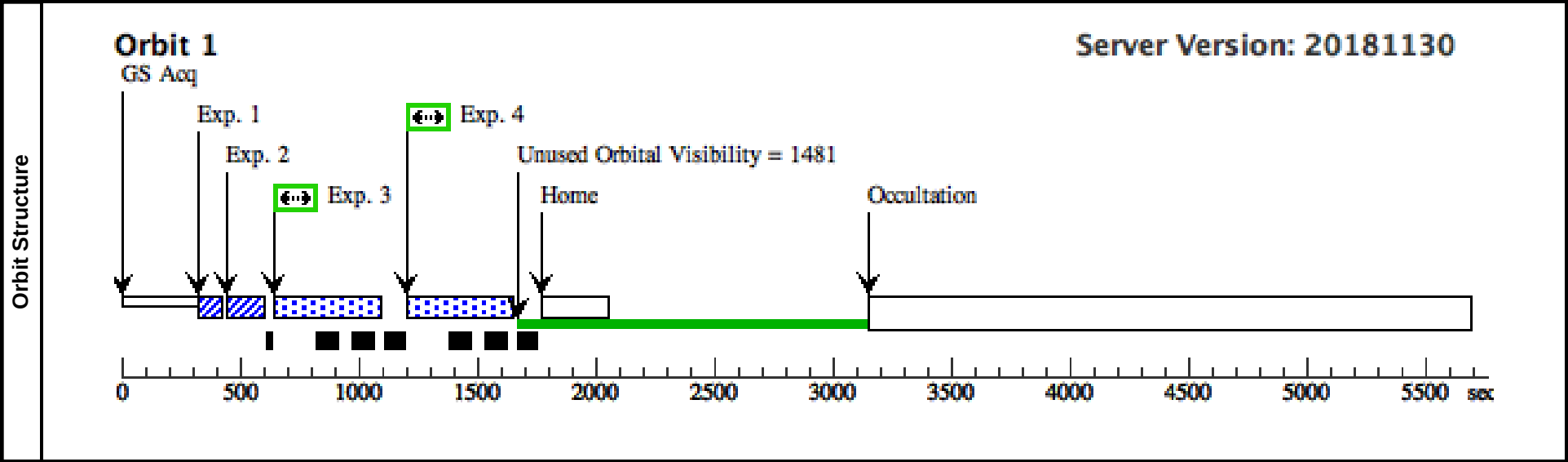
# Proposal 15073 - WD1241-010 (70) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|----------------------------------|---------------|---------------------------------------|---------------|-----------------------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1241-010 (70), scheduling                                                                                                                                                                                          |                               |                                  |                                  |               |                                       |               |                       | Thu Dec 20 21:04:59 GMT 2018    |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
| Diagnostics   | (WD1241-010 (70)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               | Targ. Coord. Corrections         |               | Fluxes                                |               | Miscellaneous         |                                 |       |
|               | (70)                                                                                                                                                                                                                                 | WD1241-010                    | RA: 12 44 28.5670 (191.1190292d) | Proper Motion RA: -60.2 mas/yr   |               | V=14.032+/-0.1                        |               | Reference Frame: ICRS |                                 |       |
|               |                                                                                                                                                                                                                                      |                               | Dec: -01 18 57.96 (-1.31610d)    | Proper Motion Dec: -175.2 mas/yr |               | GALEX FUV=12.84 GALEX N               |               |                       |                                 |       |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   | Epoch of Position: 2000.0        |               | UV=13.52                              |               |                       |                                 |       |
|               | Comments: Low mass, Teff=24480K logg=7.37, DA                                                                                                                                                                                        |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                                  |               |                                       |               |                       |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture             | Spectral Els. | Opt. Params.                          | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3169) | (70) WD1241-010                  | COS/FUV, ACQ/PEAKXD, PSA         | G130M 1291 A  |                                       |               |                       | 1 Secs (1 Secs)                 |       |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               |                       | [==>]                           | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3169)  | (70) WD1241-010                  | COS/FUV, ACQ/PEAKD, PSA          | G130M 1291 A  | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |               |                       | 1 Secs (1 Secs)                 |       |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               |                       | [==>]                           | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3639)     | (70) WD1241-010                  | COS/FUV, TIME-TAG, PSA           | G130M 1291 A  | BUFFER-TIME=11 1; FLASH=YES; FP-POS=3 |               |                       | 400 Secs (400 Secs)             |       |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               | [==>]                 | [1]                             |       |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3639)     | (70) WD1241-010                  | COS/FUV, TIME-TAG, PSA           | G130M 1291 A  | BUFFER-TIME=11 1; FLASH=YES; FP-POS=4 |               |                       | 400 Secs (400 Secs)             |       |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |               |                                       |               |                       | [==>]                           | [1]   |



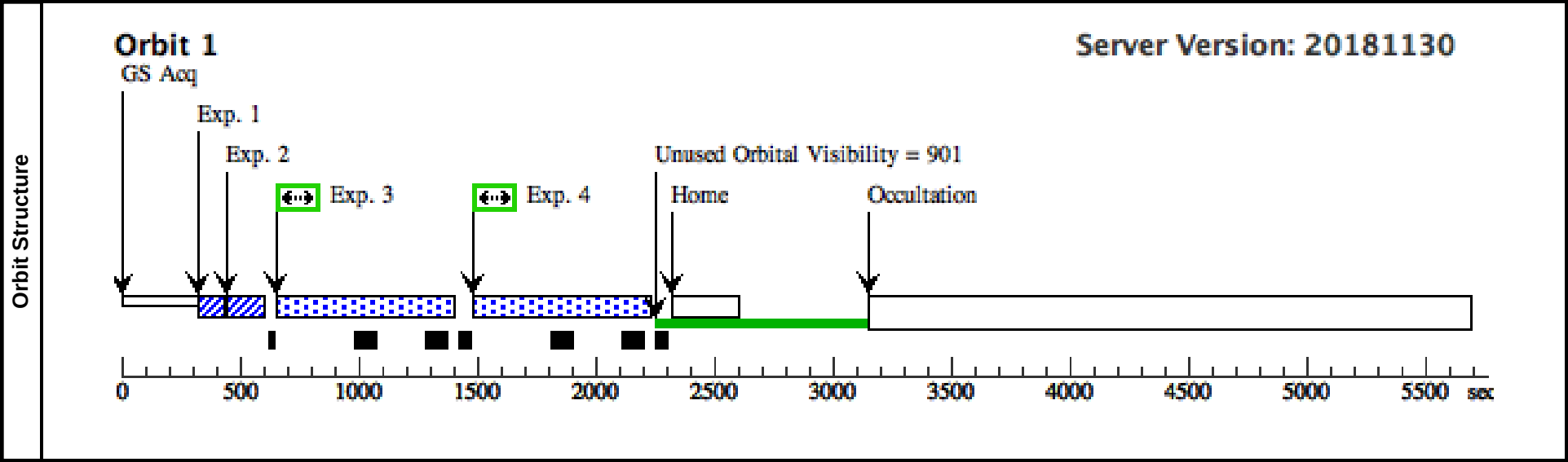
# Proposal 15073 - WD1249+160 (71) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------|---------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit         | Proposal 15073, WD1249+160 (71), completed                                                                                                                                                                                           |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |
| Diagnostics   | (WD1249+160 (71)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                                 |                          | Targ. Coord. Corrections             |                                             | Fluxes                  |        | Miscellaneous                   |  |                              |  |
|               | (71)                                                                                                                                                                                                                                 | WD1249+160                    | RA: 12 52 17.1300 (193.0713750d)                                                                   |                          | Proper Motion RA: -11.16 mas/yr      |                                             | V=14.656+/-0.037        |        | Reference Frame: ICRS           |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +15 44 43.80 (15.74550d)                                                                      |                          | Proper Motion Dec: -23.140007 mas/yr |                                             | GALEX FUV=13.28 GALEX N |        |                                 |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                     |                          | Epoch of Position: 2000.0            |                                             | UV=13.87                |        |                                 |  |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Comments: Low mass, Teff=25792K logg=7.214, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                      |                                             |                         |        |                                 |  |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                             | Config,Mode,Aperture     | Spectral Els.                        | Opt. Params.                                | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3171) | (71) WD1249+160                                                                                    | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                      |                                             |                         |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3171)  | (71) WD1249+160                                                                                    | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                         |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3642)     | (71) WD1249+160                                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                      | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3642)     | (71) WD1249+160                                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                      | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |  |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                    |                          |                                      |                                             |                         |        |                                 |  |                              |  |



# Proposal 15073 - WD1249+182 (72) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1249+182 (72), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                      |                                             | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1249+182 (72)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
|               | (WD1249+182 (72)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      | Fluxes                                               | Miscellaneous                               |                              |        |                                 |       |
|               | (72)                                                                                                                                                                                                                                 | WD1249+182                    | RA: 12 52 23.3300 (193.0972083d)<br>Dec: +17 56 54.00 (17.94833d)<br>Equinox: J2000 | Proper Motion RA: -72.2 mas/yr<br>Proper Motion Dec: 46.6 mas/yr<br>Epoch of Position: 2000.0 | V=15.48+/-0.1<br>GALEX FUV=14.72 GALEX N<br>UV=14.93 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Defailt, Teff=19911K logg=7.73, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.                                        | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3172) | (72) WD1249+182                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                                      |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3172)  | (72) WD1249+182                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3644)     | (72) WD1249+182                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                      | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3644)     | (72) WD1249+182                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                      | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                      |                                             |                              |        |                                 |       |



# Proposal 15073 - WD1258+593 (73) - Extreme evolved solar systems (EESS)

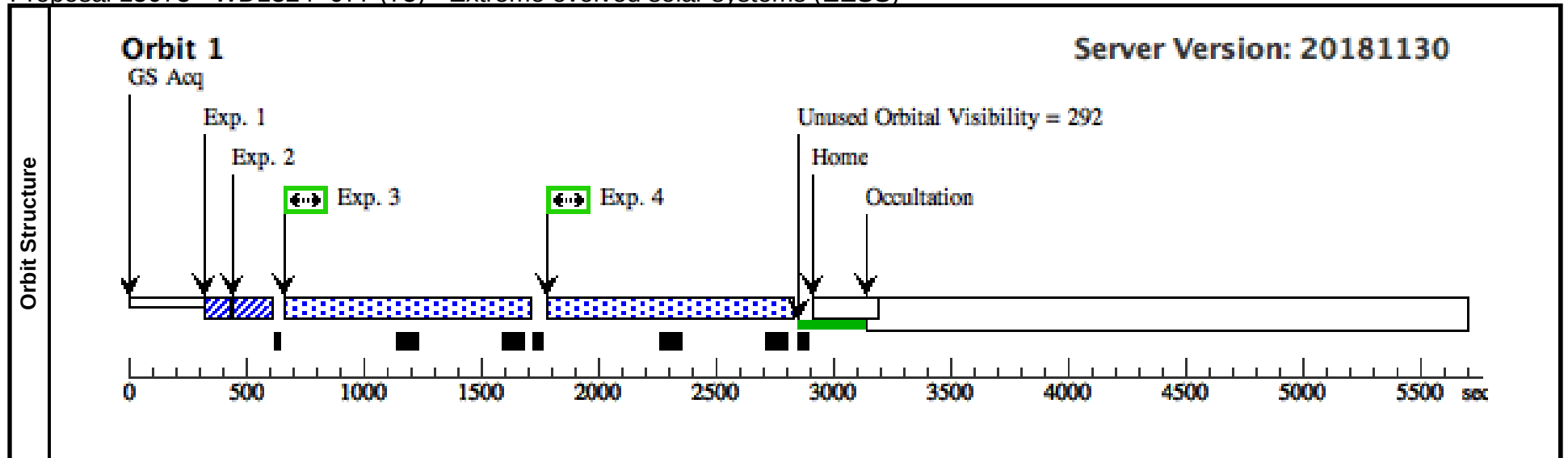
|                                                                                                              |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------|---------------|-----------------------|---------------------------------|-------|
| Visit                                                                                                        | Proposal 15073, WD1258+593 (73), completed                                                                                                                                                                                                                                       |                             |                                                                                     |                                                                                              |                                                        | Thu Dec 20 21:04:59 GMT 2018                   |               |                       |                                 |       |
|                                                                                                              | Diagnostic Status: Warning<br>Scientific Instruments: COS/FUV, COS/NUV<br>Special Requirements: (none)                                                                                                                                                                           |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |
| Diagnostics                                                                                                  | (WD1258+593 (73)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                             |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |
| Fixed Targets                                                                                                | #                                                                                                                                                                                                                                                                                | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     | Fluxes                                                 | Miscellaneous                                  |               |                       |                                 |       |
|                                                                                                              | (73)                                                                                                                                                                                                                                                                             | WD1258+593                  | RA: 13 00 35.1920 (195.1466333d)<br>Dec: +59 04 15.59 (59.07100d)<br>Equinox: J2000 | Proper Motion RA: 37.7 mas/yr<br>Proper Motion Dec: 73.1 mas/yr<br>Epoch of Position: 2000.0 | V=15.311+/-0.03<br>GALEX FUV=15.47 GALEX N<br>UV=15.32 | Reference Frame: ICRS                          |               |                       |                                 |       |
| Comments: Wide binary, Teff=15160K logg=8.0, DA+DAH, 16"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |
| Exposures                                                                                                    | #                                                                                                                                                                                                                                                                                | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                          | Opt. Params.                                   | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                                                                                                              | 1                                                                                                                                                                                                                                                                                | ACQ/Image (COS.ta.102 1252) | (73) WD1258+593                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                      | MIRRORB                                                |                                                |               |                       | 9 Secs (9 Secs)                 |       |
|                                                                                                              |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       | [==>]                           | [1]   |
|                                                                                                              | 2                                                                                                                                                                                                                                                                                | FP-POS3 (COS.sp.101 3645)   | (73) WD1258+593                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                        | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |                       | 1000 Secs (1000 Secs)           |       |
|                                                                                                              |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       | [==>]                           | [1]   |
| 3                                                                                                            | FP-POS4 (COS.sp.101 3645)                                                                                                                                                                                                                                                        | (73) WD1258+593             | COS/FUV, TIME-TAG, PSA                                                              | G130M<br>1291 A                                                                              | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4         |                                                |               | 1000 Secs (1000 Secs) |                                 |       |
|                                                                                                              |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                                                                                              |                                                        |                                                |               | [==>]                 | [1]                             |       |
| Orbit Structure                                                                                              | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 602</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500 sec</div></div> |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |
|                                                                                                              | Server Version: 20181130                                                                                                                                                                                                                                                         |                             |                                                                                     |                                                                                              |                                                        |                                                |               |                       |                                 |       |

# Proposal 15073 - WD1312+098 (74) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                      |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|------------------------------|
| Visit           | Proposal 15073, WD1312+098 (74), scheduling                                                                                                                                                                                          |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       | Thu Dec 20 21:04:59 GMT 2018 |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                           |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                             |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
|                 | Special Requirements: (none)                                                                                                                                                                                                         |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
| Diagnostics     | (WD1312+098 (74)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
|                 |                                                                                                                                                                                                                                      |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                    | Name                        | Target Coordinates                                                                | Targ. Coord. Corrections                                                                     | Fluxes                                                               | Miscellaneous                                  |               |        |                                 |       |                              |
|                 | (74)                                                                                                                                                                                                                                 | WD1312+098                  | RA: 13 15 8.9570 (198.7873208d)<br>Dec: +09 37 13.90 (9.62053d)<br>Equinox: J2000 | Proper Motion RA: 18.1 mas/yr<br>Proper Motion Dec: -2.9 mas/yr<br>Epoch of Position: 2000.0 | V=16.21+/-0.004<br>GALEX FUV=15.74 GALEX N<br>UV=15.80,<br>SWP25874L | Reference Frame: ICRS                          |               |        |                                 |       |                              |
|                 | Comments: Magnetic, Teff=20000K logg=8.0, DAH, B=10MG                                                                                                                                                                                |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |
| Exposures       | #                                                                                                                                                                                                                                    | Label (ETC Run)             | Target                                                                            | Config,Mode,Aperture                                                                         | Spectral Els.                                                        | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                 | 1                                                                                                                                                                                                                                    | ACQ/Image (COS.ta.102 1261) | (74) WD1312+098                                                                   | COS/NUV, ACQ/IMAGE, PSA                                                                      | MIRRORB                                                              |                                                |               |        | 15 Secs (15 Secs)               |       |                              |
|                 |                                                                                                                                                                                                                                      |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        | [==>]                           | [1]   |                              |
|                 | 2                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3648)   | (74) WD1312+098                                                                   | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                      | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                      |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        | [==>]                           | [1]   |                              |
|                 | 3                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3648)   | (74) WD1312+098                                                                   | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                                      | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                      |                             |                                                                                   |                                                                                              |                                                                      |                                                |               | [==>]  | [1]                             |       |                              |
| Orbit Structure | <div>Orbit 1<div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Unused Orbital Visibility = 346</div><div>Home Occultation</div></div> <div></div>                                  |                             |                                                                                   |                                                                                              |                                                                      |                                                |               |        |                                 |       |                              |

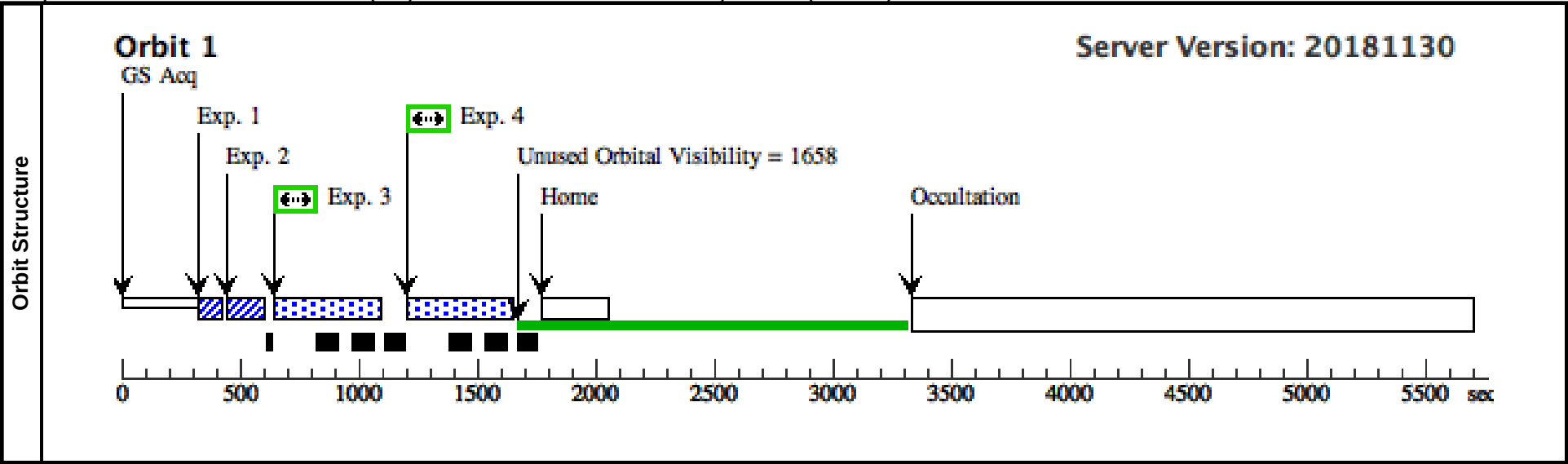
# Proposal 15073 - WD1324+077 (75) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|----------------------------------|-----------------|------------------------------------------------|------------------------|-----------------------|---------------------------------|------------------------------|
| Visit         | Proposal 15073, WD1324+077 (75), scheduling                                                                                                                                                                                          |                               |                                  |                                  |                 |                                                |                        |                       |                                 | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
| Diagnosics    | (WD1324+077 (75)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               | Targ. Coord. Corrections         |                 |                                                | Fluxes                 | Miscellaneous         |                                 |                              |
|               | (75)                                                                                                                                                                                                                                 | WD1324+077                    | RA: 13 26 48.6780 (201.7028250d) | Proper Motion RA: -21.1 mas/yr   |                 |                                                | V=16.8+/-0.1           | Reference Frame: ICRS |                                 |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +07 29 7.17 (7.48533d)      | Proper Motion Dec: -104.3 mas/yr |                 |                                                | GALEX FUV=15.7 GALEX N |                       |                                 |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   | Epoch of Position: 2000.0        |                 |                                                | UV=16.0                |                       |                                 |                              |
|               | Comments: Massive, Teff=27150K logg=8.45, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                     |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture             | Spectral Els.   | Opt. Params.                                   | Special Reqs.          | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3180) | (75) WD1324+077                  | COS/FUV, ACQ/PEAKXD, PSA         | G130M<br>1291 A |                                                |                        |                       | 3 Secs (3 Secs)<br>[==>]        | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3180)  | (75) WD1324+077                  | COS/FUV, ACQ/PEAKD, PSA          | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                        |                       | 3 Secs (3 Secs)<br>[==>]        | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3653)     | (75) WD1324+077                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                        |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3653)     | (75) WD1324+077                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                        |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                        |                       |                                 |                              |



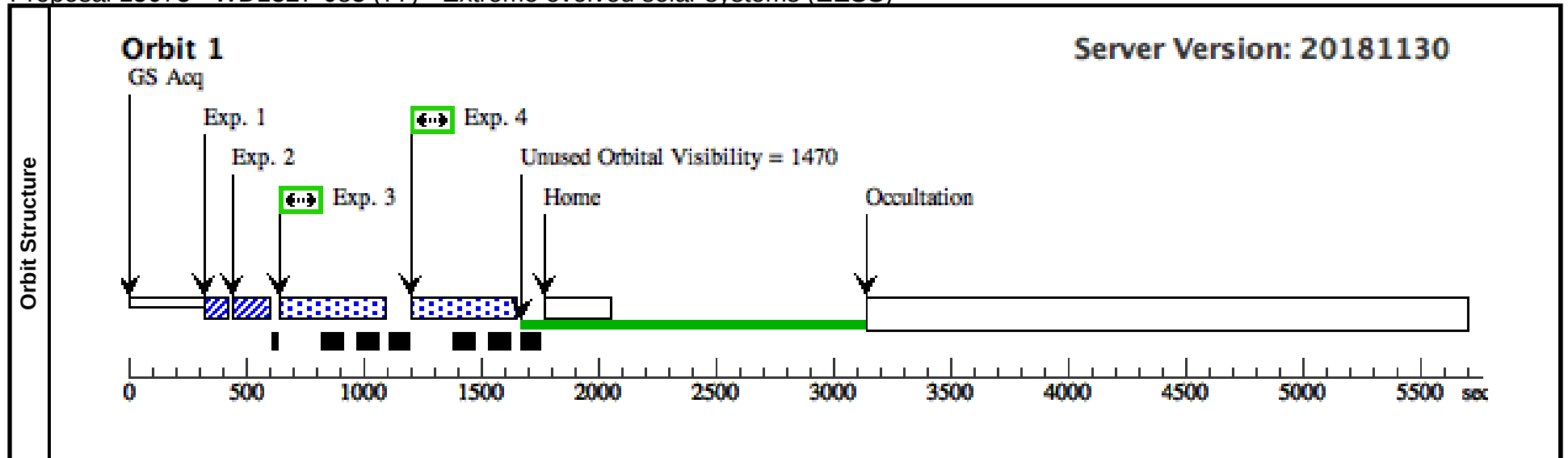
# Proposal 15073 - WD1323-514 (76) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1323-514 (76), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
| Diagnostics   | (WD1323-514 (76)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
|               | (WD1323-514 (76)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                        |                                             | Fluxes                                                                                       |        | Miscellaneous                   |  |                              |
|               | (76)                                                                                                                                                                                                                                 | WD1323-514                    | RA: 13 26 9.5690 (201.5398708d)<br>Dec: -51 41 35.80 (-51.69328d)<br>Equinox: J2000 |                          | Proper Motion RA: -509.0 mas/yr<br>Proper Motion Dec: -28.0 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=14.6+/-0.1<br>GALEX FUV=99 GALEX NUV=99,<br>predicted flux at 1380A = 2.0e-13 erg/cm2/s/AA |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Default, Teff=19357K logg=7.76, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                     |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                   | Opt. Params.                                | Special Reqs.                                                                                | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3178) | (76) WD1323-514                                                                     | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                 |                                             |                                                                                              |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3178)  | (76) WD1323-514                                                                     | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                                                              |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3650)     | (76) WD1323-514                                                                     | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                                                                                              |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3650)     | (76) WD1323-514                                                                     | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                                                                                              |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                 |                                             |                                                                                              |        |                                 |  |                              |



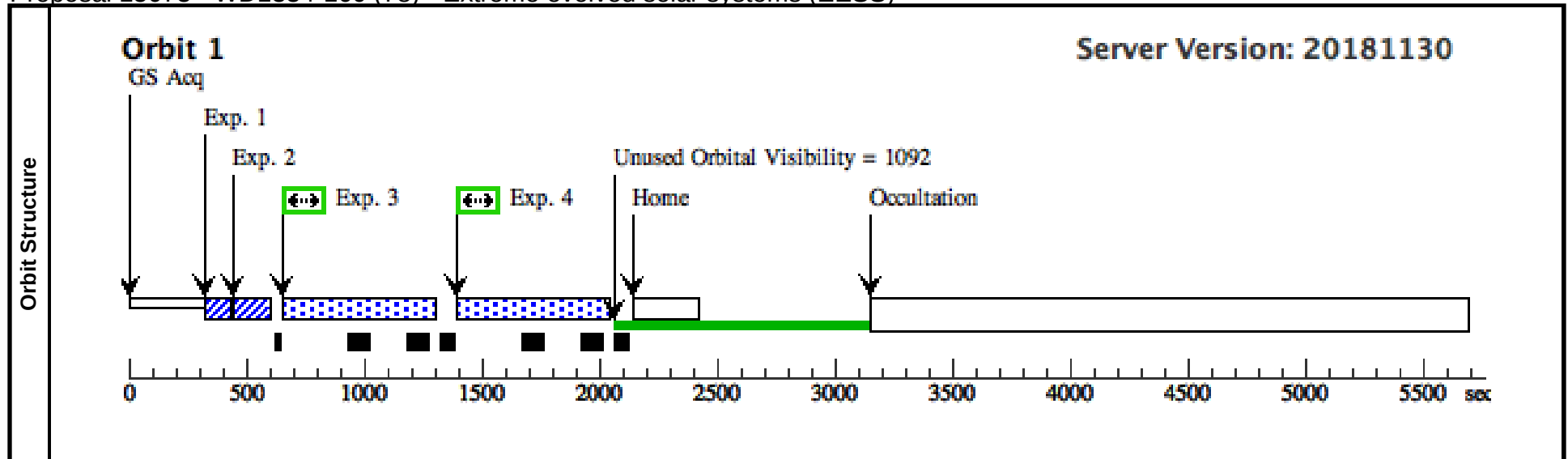
# Proposal 15073 - WD1327-083 (77) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|----------------------------------|----------------|-------------------------|---------------------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1327-083 (77), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                  |                |                         |                     |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
| Diagnostics   | (WD1327-083 (77)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections         |                | Fluxes                  |                     | Miscellaneous                   |     |                              |
|               | (77)                                                                                                                                                                                                                                 | WD1327-083                    | RA: 13 30 13.6550 (202.5568958d) |                          | Proper Motion RA: -1109.3 mas/yr |                | V=12.338+/-0.011        |                     | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -08 34 29.46 (-8.57485d)    |                          | Proper Motion Dec: -473.1 mas/yr |                | GALEX FUV=12.67 GALEX N |                     |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0        |                | UV=12.74,<br>SWP25228L  |                     |                                 |     |                              |
|               | Comments: Wide binary, Teff=14570K logg=8.0, DA + M4V (Ross684, V=14.2), 501"                                                                                                                                                        |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                  |                |                         |                     |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.   | Special Reqs.           | Groups              | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3182) | (77) WD1327-083                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                     |                |                         |                     | 1 Secs (1 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  |                |                         |                     | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3182)  | (77) WD1327-083                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                     | STEP-SIZE=0.9; |                         |                     | 1 Secs (1 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | NUM-POS=5;     |                         |                     | [==>]                           |     | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | CENTER=DEF     |                         |                     |                                 |     |                              |
| 3             | FP-POS3 (COS.sp.101 3656)                                                                                                                                                                                                            | (77) WD1327-083               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=14 5;                |                |                         | 400 Secs (400 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | FLASH=YES;     |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | FP-POS=3       |                         |                     |                                 |     |                              |
| 4             | FP-POS4 (COS.sp.101 3656)                                                                                                                                                                                                            | (77) WD1327-083               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=14 5;                |                |                         | 400 Secs (400 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | FLASH=YES;     |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  | FP-POS=4       |                         |                     |                                 |     |                              |



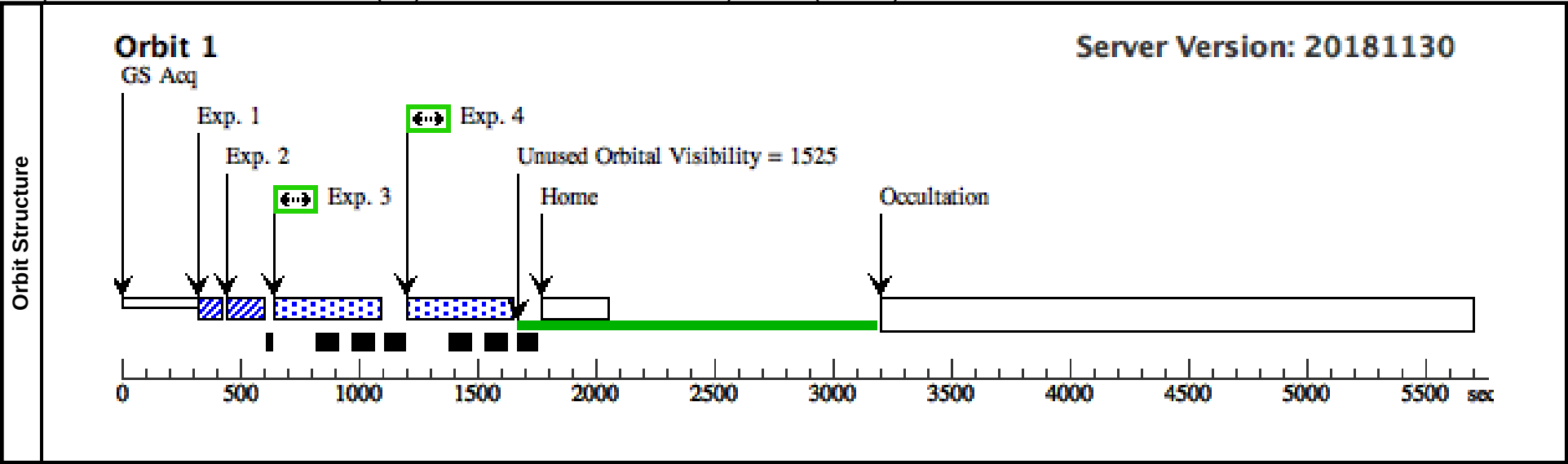
# Proposal 15073 - WD1334-160 (78) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------|--|-----------------------------------|--|----------------------------|--|-----------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1334-160 (78), scheduling                                                                                                                                                                                          |            |                                                        |  |                                   |  |                            |  |                       |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
| Diagnos       | (WD1334-160 (78)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name       | Target Coordinates                                     |  | Targ. Coord. Corrections          |  | Fluxes                     |  | Miscellaneous         |  |                              |
|               | (78)                                                                                                                                                                                                                                 | WD1334-160 | RA: 13 36 59.1305 (204.2463771d)                       |  | Proper Motion RA: -111.230 mas/yr |  | V=15.32+/-0.1              |  | Reference Frame: ICRS |  |                              |
|               |                                                                                                                                                                                                                                      |            | Dec: -16 19 44.28 (-16.32897d)                         |  | Proper Motion Dec: -31.312 mas/yr |  | GALEX FUV=99 GALEX NUV=99, |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            | Equinox: J2000                                         |  | Epoch of Position: 2015.5         |  | F(1380A) = 0.9e-13         |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            | Comments: Massive, Teff=18653K logg=8.32, DA           |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            | 29/May/2018: changed coordinates according to Gaia DR2 |  |                                   |  |                            |  |                       |  |                              |
| Exposures     |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |
|               |                                                                                                                                                                                                                                      |            |                                                        |  |                                   |  |                            |  |                       |  |                              |



# Proposal 15073 - WD1335+369 (79) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1335+369 (79), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1335+369 (79)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                          | Fluxes                                                                                                           | Miscellaneous                               |                              |        |                                 |       |
|               | (79)                                                                                                                                                                                                                                 | WD1335+369                    | RA: 13 37 52.0824 (204.4670100d)<br>Dec: +36 37 32.41 (36.62567d)<br>Equinox: J2000 | Proper Motion RA: -5.900 mas/yr<br>Proper Motion Dec: -66.769 mas/yr<br>Epoch of Position: 2015.5 | V=14.58+/-0.1<br>GALEX FUV=99 GALEX NUV=99,<br>predicted flux at 1380A = 2.4e-13 erg/cm2/s/AA,<br>failed COS obs | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Default, Teff=20510K logg=7.78, DA.                                                                                                                                                                                        |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
|               | 29/May/2018: changed coordinates according to Gaia DR2<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                           |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                              | Spectral Els.                                                                                                    | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3187) | (79) WD1335+369                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                          | G130M<br>1291 A                                                                                                  |                                             |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3187)  | (79) WD1335+369                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                           | G130M<br>1291 A                                                                                                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3663)     | (79) WD1335+369                                                                     | COS/FUV, TIME-TAG, PSA                                                                            | G130M<br>1291 A                                                                                                  | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3663)     | (79) WD1335+369                                                                     | COS/FUV, TIME-TAG, PSA                                                                            | G130M<br>1291 A                                                                                                  | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                   |                                                                                                                  |                                             |                              |        |                                 |       |

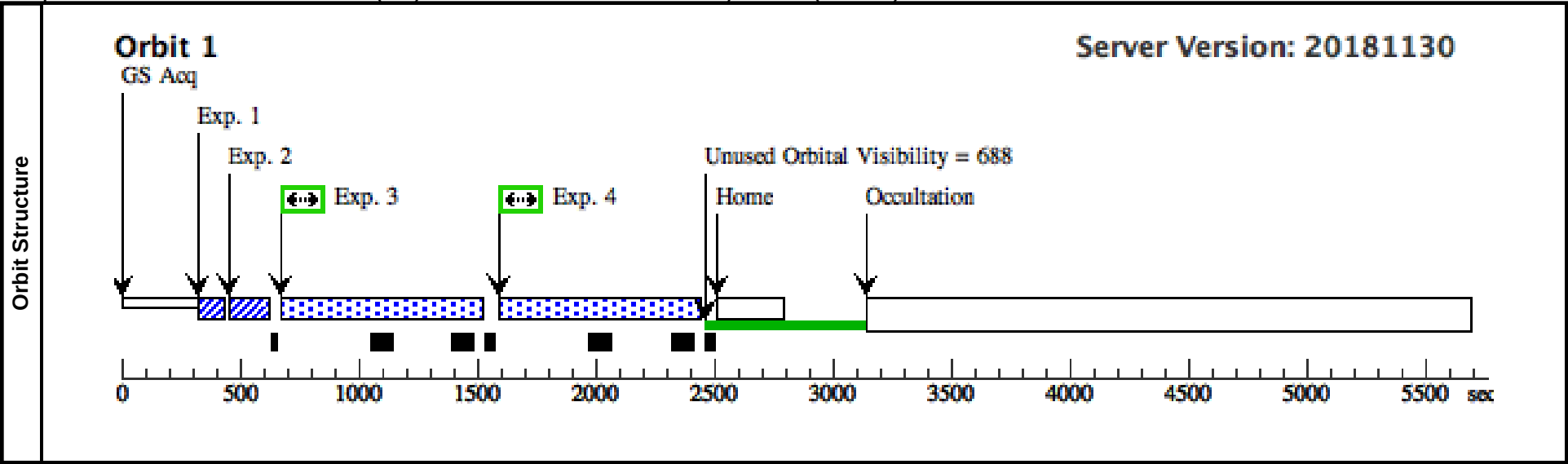


# Proposal 15073 - WD1335-035 (80) - Extreme evolved solar systems (EESS)

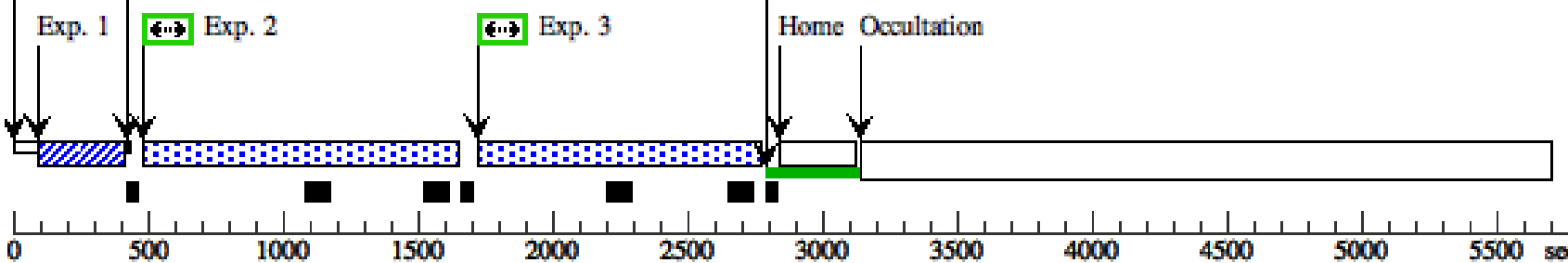
|                 |                                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       |                                 |       |                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------|---------------|-----------------------|---------------------------------|-------|------------------------------|
| Visit           | Proposal 15073, WD1335-035 (80), scheduling<br>Diagnostic Status: Warning<br>Scientific Instruments: COS/FUV, COS/NUV<br>Special Requirements: (none)                                                                                                          |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       |                                 |       | Thu Dec 20 21:04:59 GMT 2018 |
| Diagnostics     | (WD1335-035 (80)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                           |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       |                                 |       |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                                              | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     |                                                | Fluxes                                                  |               | Miscellaneous         |                                 |       |                              |
|                 | (80)                                                                                                                                                                                                                                                           | WD1335-035                  | RA: 13 38 22.6820 (204.5945083d)<br>Dec: -03 47 19.67 (-3.78880d)<br>Equinox: J2000 | Proper Motion RA: -70.4 mas/yr<br>Proper Motion Dec: 9.7 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=16.647+/-0.093<br>GALEX FUV=15.83 GALEX N<br>UV=16.06 |               | Reference Frame: ICRS |                                 |       |                              |
|                 | Comments: Massive, Teff=20188K logg=8.47, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                               |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       |                                 |       |                              |
| Exposures       | #                                                                                                                                                                                                                                                              | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                  | Opt. Params.                                            | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                 | 1                                                                                                                                                                                                                                                              | ACQ/Image (COS.ta.102 1258) | (80) WD1335-035                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                      | MIRRORB                                        |                                                         |               |                       | 17 Secs (17 Secs)               |       |                              |
|                 |                                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       | [==>]                           | [1]   |                              |
|                 | 2                                                                                                                                                                                                                                                              | FP-POS3 (COS.sp.101 3660)   | (80) WD1335-035                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3          |               |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       | [==>]                           | [1]   |                              |
| 3               | FP-POS4 (COS.sp.101 3660)                                                                                                                                                                                                                                      | (80) WD1335-035             | COS/FUV, TIME-TAG, PSA                                                              | G130M<br>1291 A                                                                              | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                         |               |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                                |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       | [==>]                           | [1]   |                              |
| Orbit Structure | <div>Orbit 1</div> <div>Server Version: 20181130</div> <div>Unused Orbital Visibility = 339</div> <div><div>GS Acq</div><div>Exp. 1</div><div>Pointing Maneuver</div><div>Exp. 2</div><div>Exp. 3</div><div>Home</div><div>Occultation</div></div> <div></div> |                             |                                                                                     |                                                                                              |                                                |                                                         |               |                       |                                 |       |                              |

# Proposal 15073 - WD1336+123 (81) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|----------------------------------|-------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1336+123 (81), scheduling                                                                                                                                                                                          |                               |                                  |                                  |                         | Thu Dec 20 21:04:59 GMT 2018                   |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
| Diagnosics    | (WD1336+123 (81)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               | Targ. Coord. Corrections         | Fluxes                  | Miscellaneous                                  |               |        |                                 |       |
|               | (81)                                                                                                                                                                                                                                 | WD1336+123                    | RA: 13 39 13.5360 (204.8064000d) | Proper Motion RA: 124.1 mas/yr   | V=14.74+/-0.054         | Reference Frame: ICRS                          |               |        |                                 |       |
|               |                                                                                                                                                                                                                                      |                               | Dec: +12 08 31.12 (12.14198d)    | Proper Motion Dec: -134.1 mas/yr | GALEX FUV=15.02 GALEX N |                                                |               |        |                                 |       |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   | Epoch of Position: 2000.0        | UV=14.69                |                                                |               |        |                                 |       |
|               | Comments: Wide binary, Teff=16780K logg=8.0, DB + M4V (LP 498-25, V=14.0), 87"                                                                                                                                                       |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                                  |                         |                                                |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture             | Spectral Els.           | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3188) | (81) WD1336+123                  | COS/FUV, ACQ/PEAKXD, PSA         | G130M<br>1291 A         |                                                |               |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3188)  | (81) WD1336+123                  | COS/FUV, ACQ/PEAKD, PSA          | G130M<br>1291 A         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 4 Secs (4 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3664)     | (81) WD1336+123                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A         | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3664)     | (81) WD1336+123                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A         | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                         |                                                |               |        |                                 |       |

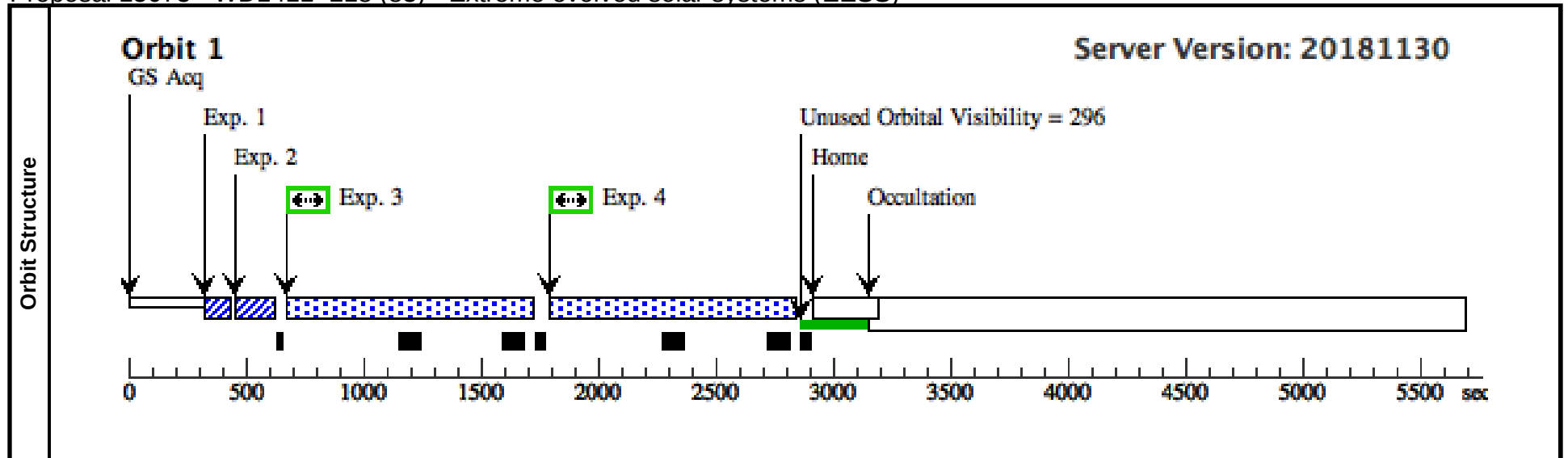


# Proposal 15073 - WD1410+081 (82) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|--------------------------------------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Visit           | Proposal 15073, WD1410+081 (82), scheduling                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       | Thu Dec 20 21:04:59 GMT 2018 |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
| Diagnostics     | (WD1410+081 (82)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                                                                                                                                                         |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                                                                                                                                                                            | Name                        | Target Coordinates                                                                | Targ. Coord. Corrections                                                                    |                 |                                                | Fluxes                                                 | Miscellaneous         |                                 |       |                              |
|                 | (82)                                                                                                                                                                                                                                                                                                                                                                                                                                         | WD1410+081                  | RA: 14 13 6.5140 (213.2771417d)<br>Dec: +07 55 23.06 (7.92307d)<br>Equinox: J2000 | Proper Motion RA: 7.8 mas/yr<br>Proper Motion Dec: -5.2 mas/yr<br>Epoch of Position: 2000.0 |                 |                                                | V=15.633+/-0.04<br>GALEX FUV=15.42 GALEX N<br>UV=15.55 | Reference Frame: ICRS |                                 |       |                              |
|                 | Comments: Massive, Teff=15270K logg=8.67, DA                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                                                                                                                                                                                                             |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |
| Exposures       | #                                                                                                                                                                                                                                                                                                                                                                                                                                            | Label (ETC Run)             | Target                                                                            | Config,Mode,Aperture                                                                        | Spectral Els.   | Opt. Params.                                   | Special Reqs.                                          | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                            | ACQ/Image (COS.ta.101 7585) | (82) WD1410+081                                                                   | COS/NUV, ACQ/IMAGE, PSA                                                                     | MIRRORB         |                                                |                                                        |                       | 11 Secs (11 Secs)               |       |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       | [==>]                           | [1]   |                              |
|                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                            | FP-POS3 (COS.sp.101 3665)   | (82) WD1410+081                                                                   | COS/FUV, TIME-TAG, PSA                                                                      | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                        |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       | [==>]                           | [1]   |                              |
|                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                            | FP-POS4 (COS.sp.101 3665)   | (82) WD1410+081                                                                   | COS/FUV, TIME-TAG, PSA                                                                      | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                        |                       | 1000 Secs (1000 Secs)           |       |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       | [==>]                           | [1]   |                              |
| Orbit Structure | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1     Exp. 2     Exp. 3</div><div>Unused Orbital Visibility = 354</div><div>Home    Occultation</div></div> |                             |                                                                                   |                                                                                             |                 |                                                |                                                        |                       |                                 |       |                              |

# Proposal 15073 - WD1411+218 (83) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1411+218 (83), scheduling                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
| Diagnostics   | (WD1411+218 (83)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                       |                                                | Fluxes                                                            |        | Miscellaneous                   |  |                              |
|               | (83)                                                                                                                                                                                                                                 | WD1411+218                    | RA: 14 13 29.8460 (213.3743583d)<br>Dec: +21 37 39.63 (21.62767d)<br>Equinox: J2000 |                          | Proper Motion RA: -58.3 mas/yr<br>Proper Motion Dec: 108.8 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=14.3+/-0.1<br>GALEX FUV=15.12 GALEX N<br>UV=14.40,<br>SWP18995L |        | Reference Frame: ICRS           |  |                              |
|               | Comments: DB, Teff=14910K logg=8.04, wide binary companion                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                  | Opt. Params.                                   | Special Reqs.                                                     | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3195) | (83) WD1411+218                                                                     | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                |                                                |                                                                   |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3195)  | (83) WD1411+218                                                                     | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                                                                   |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3668)     | (83) WD1411+218                                                                     | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                                   |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3668)     | (83) WD1411+218                                                                     | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                                   |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                                |                                                |                                                                   |        |                                 |  |                              |

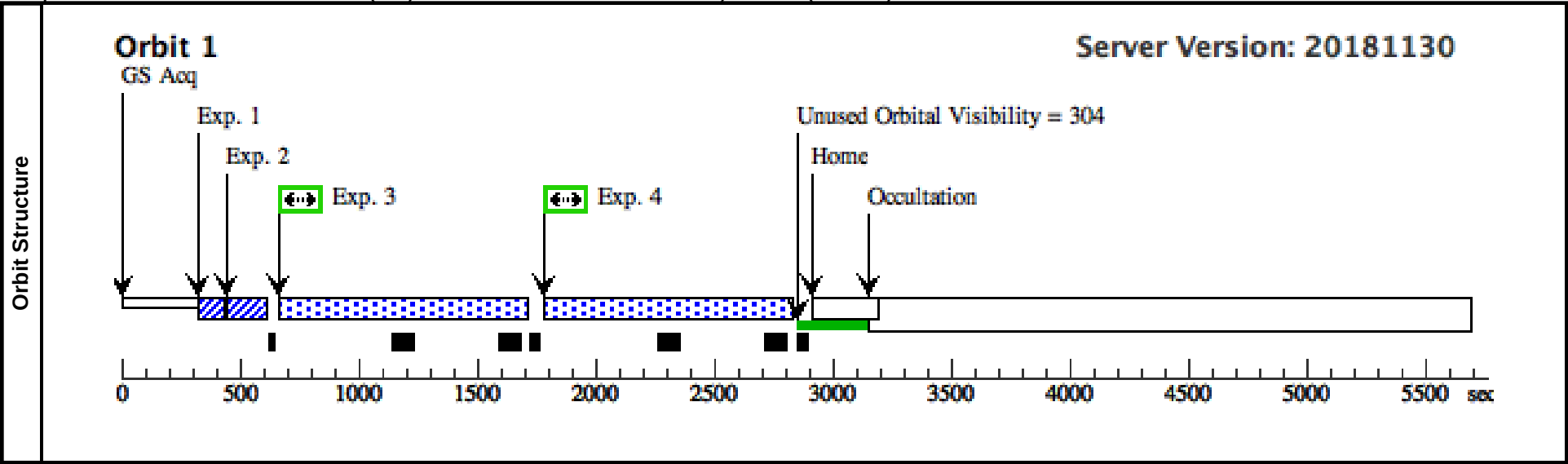


# Proposal 15073 - WD1411+135 (84) - Extreme evolved solar systems (EESS)

|                                                                                                  |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------|---------------------------------------------------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                                                            | Proposal 15073, WD1411+135 (84), scheduling                                                                                                                                                                                                                                         |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|                                                                                                  | Diagnostic Status: Warning                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
|                                                                                                  | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                            |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
|                                                                                                  | Special Requirements: (none)                                                                                                                                                                                                                                                        |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
| Diagnosics                                                                                       | (WD1411+135 (84)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
| Fixed Targets                                                                                    | #                                                                                                                                                                                                                                                                                   | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                     |                                                |                                                | Fluxes                                                  | Miscellaneous         |                                 |  |                              |
|                                                                                                  | (84)                                                                                                                                                                                                                                                                                | WD1411+135                  | RA: 14 13 58.2140 (213.4925583d)<br>Dec: +13 19 19.16 (13.32199d)<br>Equinox: J2000 | Proper Motion RA: 33.2 mas/yr<br>Proper Motion Dec: -6.8 mas/yr<br>Epoch of Position: 2000.0 |                                                |                                                | V=16.524+/-0.048<br>GALEX FUV=15.91 GALEX N<br>UV=16.14 | Reference Frame: ICRS |                                 |  |                              |
| Comments: Massive, Teff=18110K logg=8.26, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |
| Exposures                                                                                        | #                                                                                                                                                                                                                                                                                   | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                         | Spectral Els.                                  | Opt. Params.                                   | Special Reqs.                                           | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                                  | 1                                                                                                                                                                                                                                                                                   | ACQ/Image (COS.ta.102 1242) | (84) WD1411+135                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                      | MIRRORB                                        |                                                |                                                         |                       | 19 Secs (19 Secs)               |  |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       | [==>]                           |  | [1]                          |
|                                                                                                  | 2                                                                                                                                                                                                                                                                                   | FP-POS3 (COS.sp.101 3667)   | (84) WD1411+135                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                         |                       | 1000 Secs (1000 Secs)           |  |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       | [==>]                           |  | [1]                          |
| 3                                                                                                | FP-POS4 (COS.sp.101 3667)                                                                                                                                                                                                                                                           | (84) WD1411+135             | COS/FUV, TIME-TAG, PSA                                                              | G130M<br>1291 A                                                                              | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                |                                                         | 1000 Secs (1000 Secs) |                                 |  |                              |
|                                                                                                  |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       | [==>]                           |  | [1]                          |
| Orbit Structure                                                                                  | <div><div>Orbit 1</div><div><div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Home Occultation</div><div>Unused Orbital Visibility = 342</div></div><div><div>05001000150020002500300035004000450050005500 sec</div></div></div> |                             |                                                                                     |                                                                                              |                                                |                                                |                                                         |                       |                                 |  |                              |

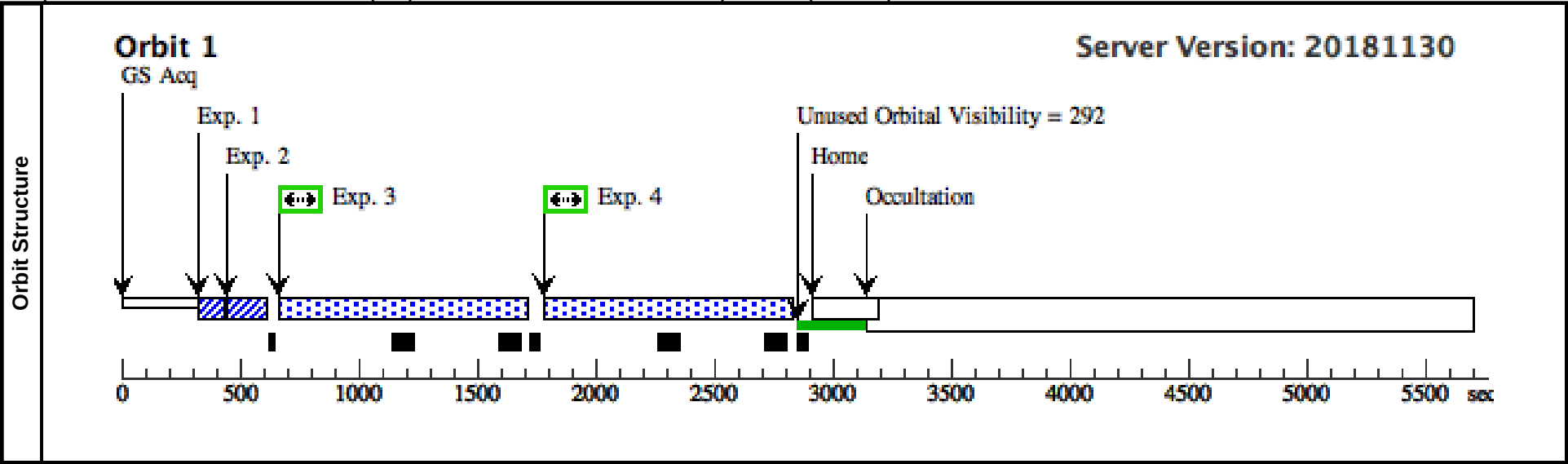
# Proposal 15073 - WD1434-223 (85) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1434-223 (85), completed                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnostics   | (WD1434-223 (85)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (85)                                                                                                                                                                                                                                 | WD1434-223                    | RA: 14 37 14.6280 (219.3109500d) |                          | Proper Motion RA: -9.0 mas/yr   |                                       | V=16.392+/-0.016        |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -22 31 18.61 (-22.52184d)   |                          | Proper Motion Dec: -59.6 mas/yr |                                       | GALEX FUV=15.75 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                       | UV=16.20                |        |                                 |     |                              |
|               | Comments: Low mass, Teff=28460K logg=7.58, DA                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3199) | (85) WD1434-223                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3199)  | (85) WD1434-223                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3670)     | (85) WD1434-223                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3670)     | (85) WD1434-223                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



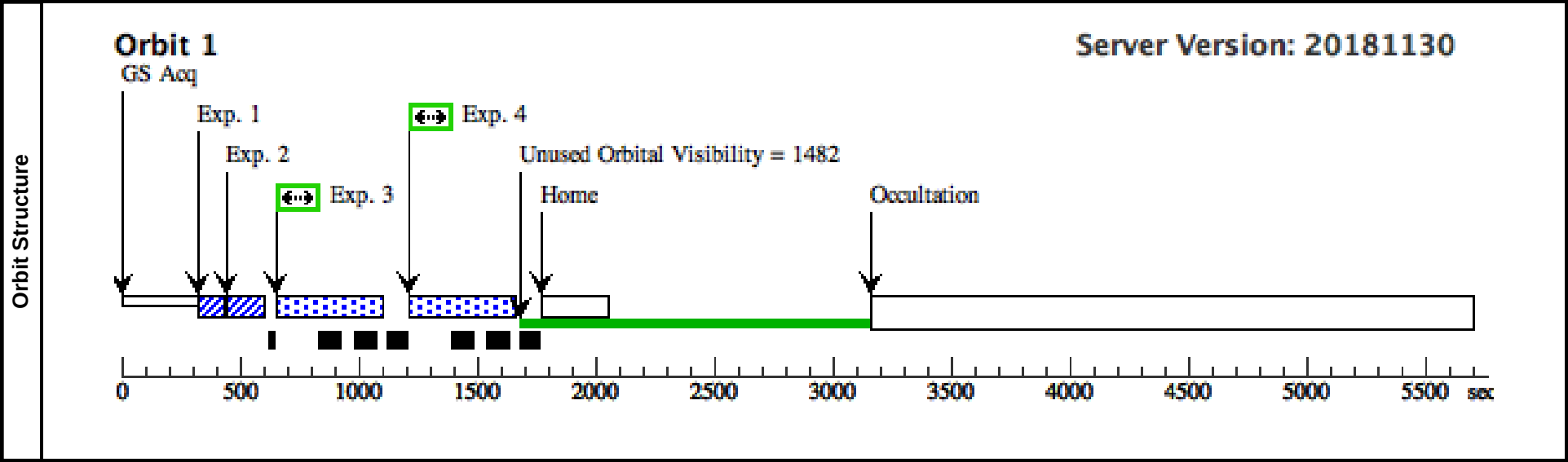
# Proposal 15073 - WD1444-096 (86) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|----------------------------------|-----------------|------------------------------------------------|-------------------------|-----------------------|---------------------------------|------------------------------|
| Visit         | Proposal 15073, WD1444-096 (86), completed                                                                                                                                                                                           |                               |                                  |                                  |                 |                                                |                         |                       |                                 | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
| Diagnostics   | (WD1444-096 (86)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               | Targ. Coord. Corrections         |                 |                                                | Fluxes                  | Miscellaneous         |                                 |                              |
|               | (86)                                                                                                                                                                                                                                 | WD1444-096                    | RA: 14 47 36.9900 (221.9041250d) | Proper Motion RA: 41.0 mas/yr    |                 |                                                | V=14.98+/-0.1           | Reference Frame: ICRS |                                 |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -09 50 6.71 (-9.83520d)     | Proper Motion Dec: -163.8 mas/yr |                 |                                                | GALEX FUV=15.20 GALEX N |                       |                                 |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   | Epoch of Position: 2000.0        |                 |                                                | UV=14.71                |                       |                                 |                              |
|               | Comments: DB, Teff=17040K logg=8.26<br>Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                              |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture             | Spectral Els.   | Opt. Params.                                   | Special Reqs.           | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3201) | (86) WD1444-096                  | COS/FUV, ACQ/PEAKXD, PSA         | G130M<br>1291 A |                                                |                         |                       | 3 Secs (3 Secs)<br>[==>]        | <br>[1]                      |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3201)  | (86) WD1444-096                  | COS/FUV, ACQ/PEAKD, PSA          | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                         |                       | 3 Secs (3 Secs)<br>[==>]        | <br>[1]                      |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3671)     | (86) WD1444-096                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                         |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3671)     | (86) WD1444-096                  | COS/FUV, TIME-TAG, PSA           | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                         |                       | 1000 Secs (1000 Secs)<br>[==>]  | <br>[1]                      |
|               |                                                                                                                                                                                                                                      |                               |                                  |                                  |                 |                                                |                         |                       |                                 |                              |



# Proposal 15073 - WD1446+286 (87) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1446+286 (87), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                            |                                               | Thu Dec 20 21:04:59 GMT 2018                |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
| Diagnostics   | (WD1446+286 (87)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                   | Fluxes                                        | Miscellaneous                               |               |        |                                 |       |
|               | (87)                                                                                                                                                                                                                                 | WD1446+286                    | RA: 14 48 14.0780 (222.0586583d)<br>Dec: +28 25 11.70 (28.41992d)<br>Equinox: J2000 | Proper Motion RA: 2.2 mas/yr<br>Proper Motion Dec: 2.3 mas/yr<br>Epoch of Position: 2000.0 | V=14.652+/-0.107<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                       |               |        |                                 |       |
|               | Comments: Massive, Teff=23860K logg=8.43, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                       | Spectral Els.                                 | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3203) | (87) WD1446+286                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                   | G130M<br>1291 A                               |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3203)  | (87) WD1446+286                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                    | G130M<br>1291 A                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3672)     | (87) WD1446+286                                                                     | COS/FUV, TIME-TAG, PSA                                                                     | G130M<br>1291 A                               | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3672)     | (87) WD1446+286                                                                     | COS/FUV, TIME-TAG, PSA                                                                     | G130M<br>1291 A                               | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                            |                                               |                                             |               |        |                                 |       |

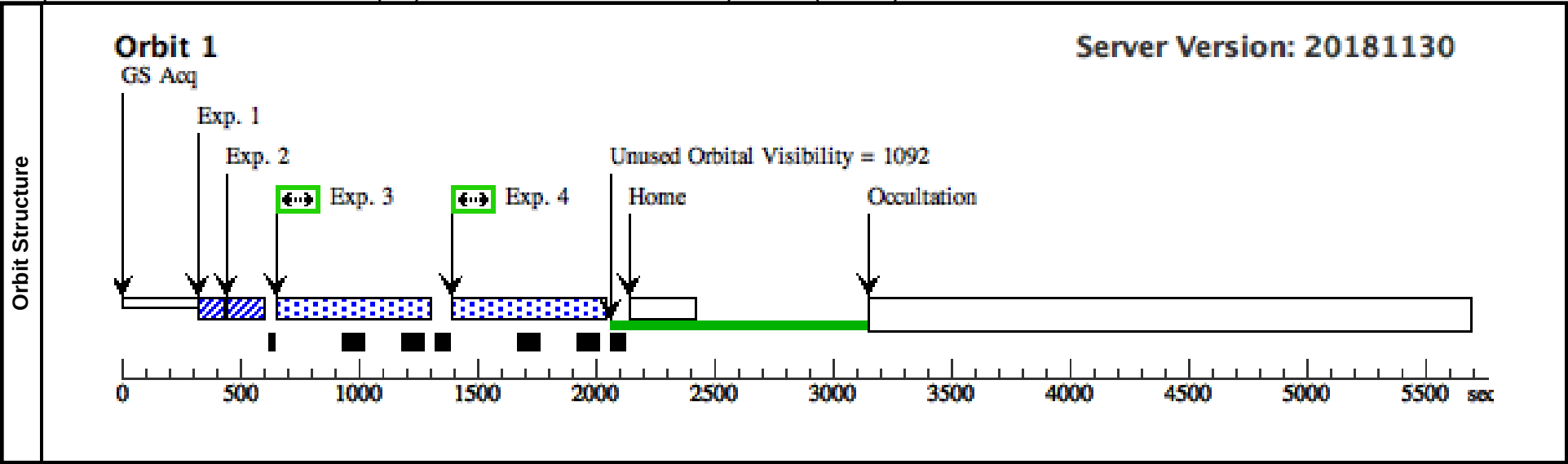


# Proposal 15073 - WD1449+513 (88) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                                                                                      |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------|------------------------------------------------|---------------------------------------------------|-----------------------|---------------------------------|-------|------------------------------|
| Visit           | Proposal 15073, WD1449+513 (88), completed                                                                                                                                                                                                                                                                           |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       | Thu Dec 20 21:04:59 GMT 2018 |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                           |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                                             |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                                                         |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
| Diagnostics     | (WD1449+513 (88)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                                 |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                                                    | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      |                 |                                                | Fluxes                                            | Miscellaneous         |                                 |       |                              |
|                 | (88)                                                                                                                                                                                                                                                                                                                 | WD1449+513                  | RA: 14 51 18.7180 (222.8279917d)<br>Dec: +51 10 47.75 (51.17993d)<br>Equinox: J2000 | Proper Motion RA: -10.4 mas/yr<br>Proper Motion Dec: 10.6 mas/yr<br>Epoch of Position: 2000.0 |                 |                                                | V=16.6+/-0.1<br>GALEX FUV=16.3 GALEX N<br>UV=16.5 | Reference Frame: ICRS |                                 |       |                              |
|                 | Comments: Massive, Teff=17160K logg=8.56, DA                                                                                                                                                                                                                                                                         |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |
| Exposures       | #                                                                                                                                                                                                                                                                                                                    | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.   | Opt. Params.                                   | Special Reqs.                                     | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit |                              |
|                 | 1                                                                                                                                                                                                                                                                                                                    | ACQ/Image (COS.ta.101 7579) | (88) WD1449+513                                                                     | COS/NUV, ACQ/IMAGE, PSA                                                                       | MIRRORB         |                                                |                                                   |                       | 25 Secs (25 Secs)<br>[==>]      | [1]   |                              |
|                 | 2                                                                                                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3674)   | (88) WD1449+513                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                   |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |                              |
|                 | 3                                                                                                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3674)   | (88) WD1449+513                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                   |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |                              |
| Orbit Structure | <div><div>Orbit 1</div><div>Server Version: 20181130</div><div><div>GS Acq</div><div>Pointing Maneuver</div><div>Unused Orbital Visibility = 514</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Home</div><div>Occultation</div></div><div>05001000150020002500300035004000450050005500sec</div></div> |                             |                                                                                     |                                                                                               |                 |                                                |                                                   |                       |                                 |       |                              |

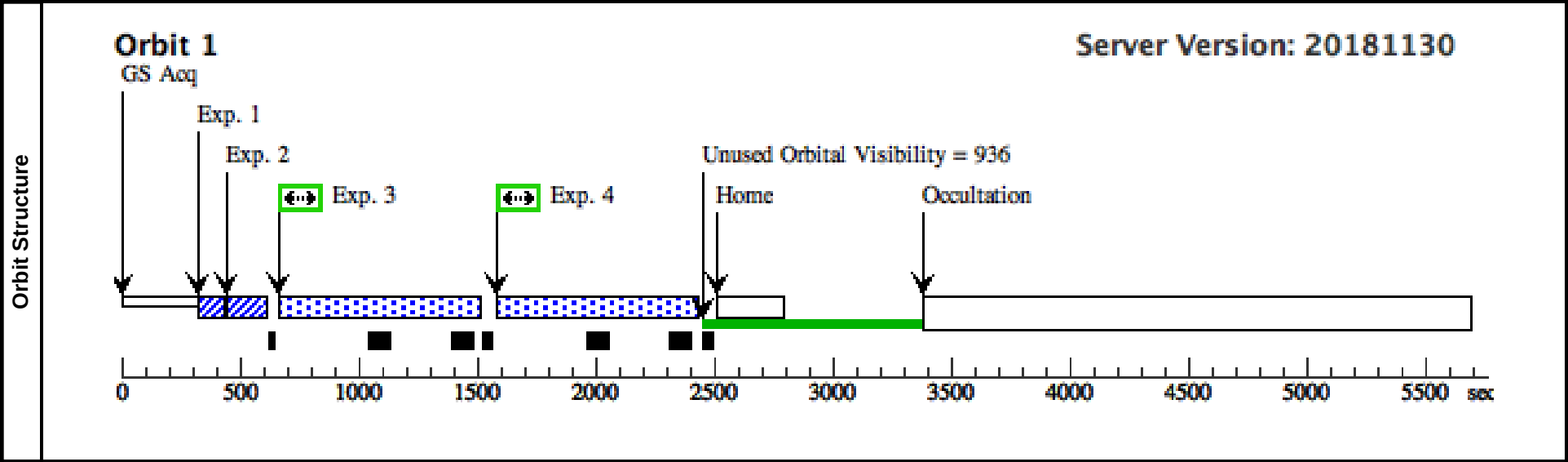
# Proposal 15073 - WD1449+168 (89) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|--------------------------------|----------------|-------------------------|---------------------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1449+168 (89), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                |                |                         |                     |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
| Diagnostics   | (WD1449+168 (89)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections       |                | Fluxes                  |                     | Miscellaneous                   |     |                              |
|               | (89)                                                                                                                                                                                                                                 | WD1449+168                    | RA: 14 52 11.3900 (223.0474583d) |                          | Proper Motion RA: 3.1 mas/yr   |                | V=15.44+/-0.1           |                     | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +16 38 3.80 (16.63439d)     |                          | Proper Motion Dec: 56.9 mas/yr |                | GALEX FUV=14.39 GALEX N |                     |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0      |                | UV=14.82                |                     |                                 |     |                              |
|               | Comments: Wide binary, Teff=21600K logg=7.88, DA + M3V (V=15.44), 78"                                                                                                                                                                |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                |                |                         |                     |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                  | Opt. Params.   | Special Reqs.           | Groups              | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3205) | (89) WD1449+168                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                   |                |                         |                     | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                |                         |                     | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3205)  | (89) WD1449+168                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                   | STEP-SIZE=0.9; |                         |                     | 2 Secs (2 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                | NUM-POS=5;     |                         |                     | [==>]                           |     | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                | CENTER=DEF     |                         |                     |                                 |     |                              |
| 3             | FP-POS3 (COS.sp.101 3673)                                                                                                                                                                                                            | (89) WD1449+168               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=24 5;              |                |                         | 600 Secs (600 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                     |                |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=3                       |                |                         |                     |                                 |     |                              |
| 4             | FP-POS4 (COS.sp.101 3673)                                                                                                                                                                                                            | (89) WD1449+168               | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=24 5;              |                |                         | 600 Secs (600 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                     |                |                         | [==>]               |                                 | [1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=4                       |                |                         |                     |                                 |     |                              |



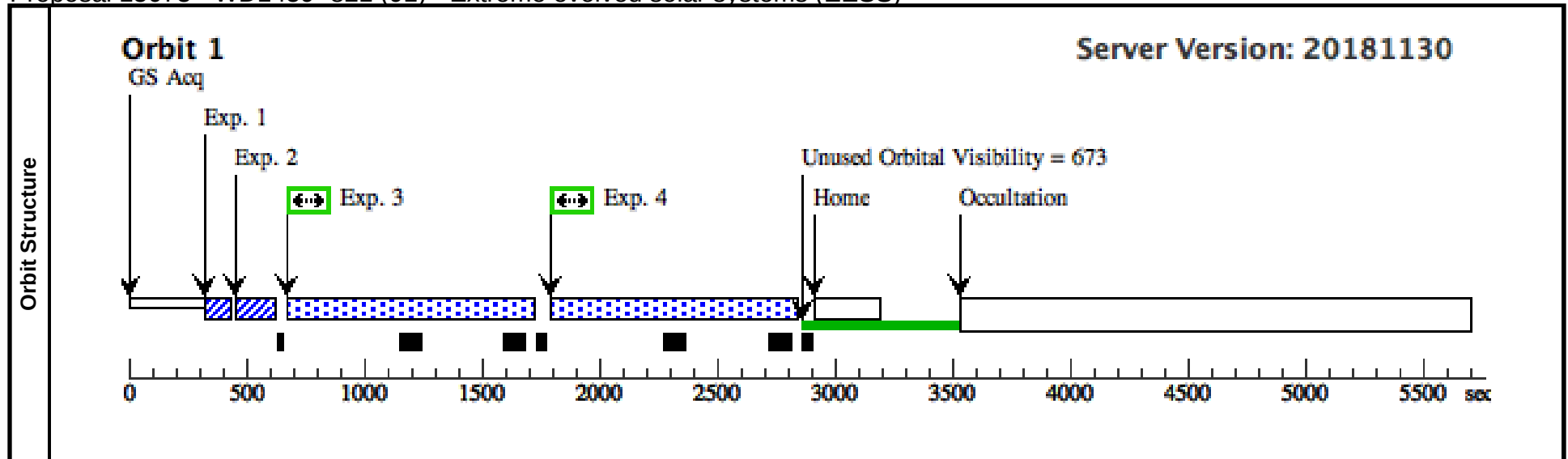
# Proposal 15073 - APASSJ145521.26+565544.3 (90) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, APASSJ145521.26+565544.3 (90), completed                                                                                                                                                                                           |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
| Diagnosics    | (APASSJ145521.26+565544.3 (90)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections              |                                       | Fluxes                  |                     | Miscellaneous                   |     |                              |
|               | (90)                                                                                                                                                                                                                                               | APASSJ145521.26+565544.3      | RA: 14 55 21.3540 (223.8389750d) |                          | Proper Motion RA: -80.8 mas/yr        |                                       | V=14.73+/-0.1           |                     | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                                    |                               | Dec: +56 55 44.25 (56.92896d)    |                          | Proper Motion Dec: 26.8 mas/yr        |                                       | GALEX FUV=14.73 GALEX N |                     |                                 |     |                              |
|               |                                                                                                                                                                                                                                                    |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0             |                                       | UV=14.88                |                     |                                 |     |                              |
|               | Comments: APASS, Teff=15230K logg=7.97,DA                                                                                                                                                                                                          |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                                      |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                                   |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                                        |                               |                                  |                          |                                       |                                       |                         |                     |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                         | Opt. Params.                          | Special Reqs.           | Groups              | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3010) | (90) APASSJ145521.26+565544.3    | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                          |                                       |                         |                     | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         |                     | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3010)  | (90) APASSJ145521.26+565544.3    | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                          | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |                     | 3 Secs (3 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         |                     | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3011)     | (90) APASSJ145521.26+565544.3    | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                          | BUFFER-TIME=34 5; FLASH=YES; FP-POS=3 |                         |                     | 800 Secs (800 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         |                     | [==>]                           |     | [1]                          |
| 4             | FP-POS4 (COS.sp.101 3011)                                                                                                                                                                                                                          | (90) APASSJ145521.26+565544.3 | COS/FUV, TIME-TAG, PSA           | G130M 1291 A             | BUFFER-TIME=34 5; FLASH=YES; FP-POS=4 |                                       |                         | 800 Secs (800 Secs) |                                 |     |                              |
|               |                                                                                                                                                                                                                                                    |                               |                                  |                          |                                       |                                       |                         | [==>]               |                                 | [1] |                              |



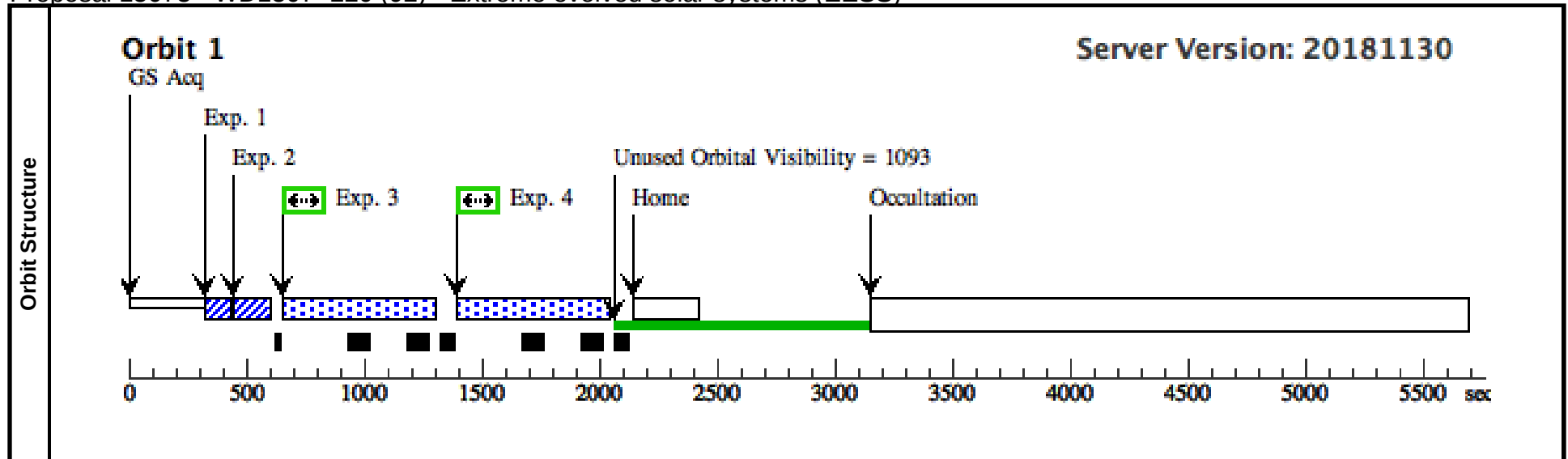
# Proposal 15073 - WD1459+821 (91) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1459+821 (91), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
| Diagnosics    | (WD1459+821 (91)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |  |                              |
|               | (91)                                                                                                                                                                                                                                 | WD1459+821                    | RA: 14 56 31.7110 (224.1321292d)<br>Dec: +81 56 52.56 (81.94793d)<br>Equinox: J2000 | Proper Motion RA: -326.4 mas/yr<br>Proper Motion Dec: 169.3 mas/yr<br>Epoch of Position: 2000.0 | V=14.766+/-0.073<br>GALEX FUV=15.23 GALEX N<br>UV=14.62,<br>SWP19540L | Reference Frame: ICRS                          |               |        |                                 |  |                              |
|               | Comments: DB, Teff=15850K logg=8.09                                                                                                                                                                                                  |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3208) | (91) WD1459+821                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                       |                                                |               |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3208)  | (91) WD1459+821                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3676)     | (91) WD1459+821                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3676)     | (91) WD1459+821                                                                     | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |  |                              |



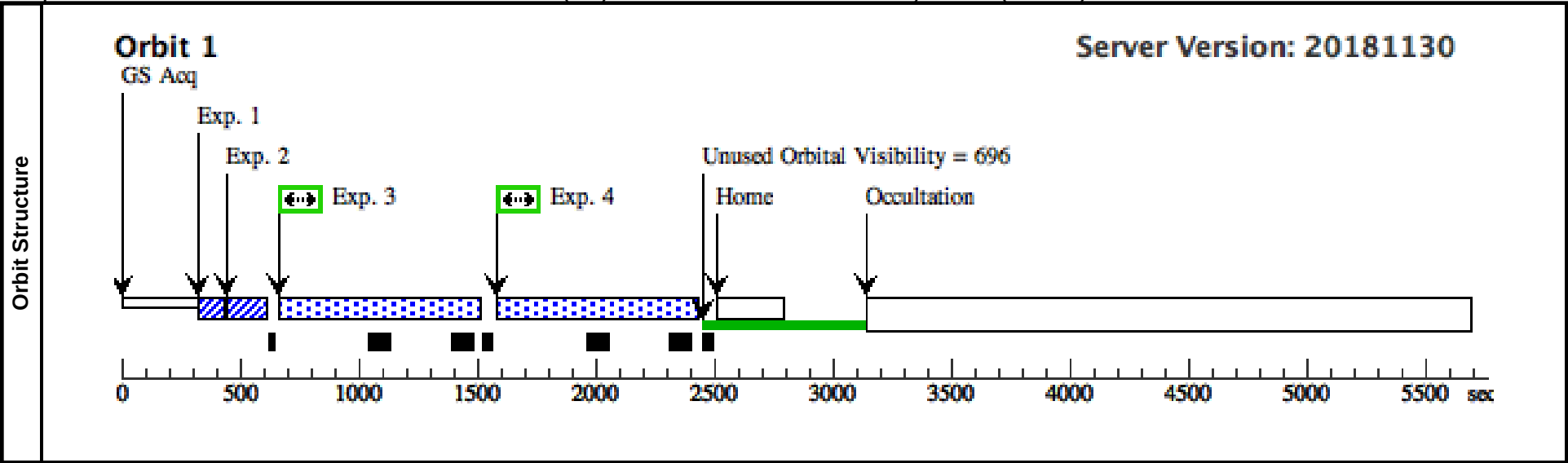
# Proposal 15073 - WD1507+220 (92) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1507+220 (92), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                      |                                             | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1507+220 (92)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | (WD1507+220 (92)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                               | Miscellaneous                               |                              |        |                                 |       |
|               | (92)                                                                                                                                                                                                                                 | WD1507+220                    | RA: 15 09 39.9800 (227.4165833d)<br>Dec: +21 50 15.80 (21.83772d)<br>Equinox: J2000 | Proper Motion RA: -75.3 mas/yr<br>Proper Motion Dec: -29.9 mas/yr<br>Epoch of Position: 2000.0 | V=15.05+/-0.1<br>GALEX FUV=14.23 GALEX N<br>UV=14.48 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Default, Teff=19340K logg=7.91, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                        | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3210) | (92) WD1507+220                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                      |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3210)  | (92) WD1507+220                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3677)     | (92) WD1507+220                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3677)     | (92) WD1507+220                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                      | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                      |                                             |                              |        |                                 |       |



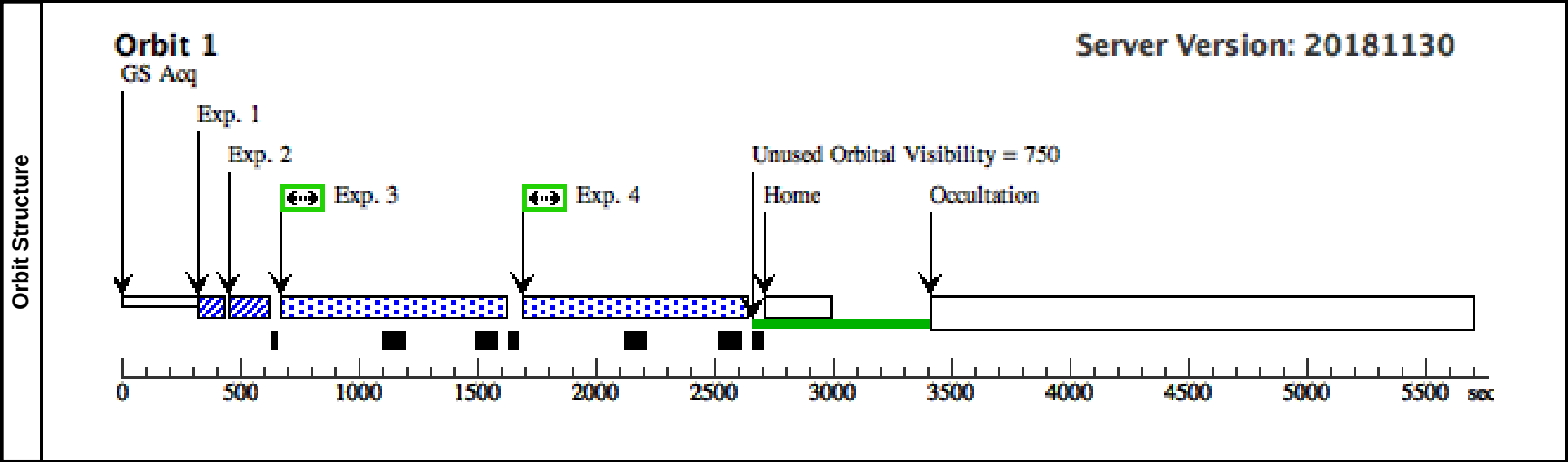
# Proposal 15073 - APASSJ151754.65+103043.7 (93) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ151754.65+103043.7 (93), scheduling                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
| Diagnosics    | (APASSJ151754.65+103043.7 (93)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                        |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |
|               | (93)                                                                                                                                                                                                                                               | APASSJ151754.65+103043.7      | RA: 15 17 54.6190 (229.4775792d)<br>Dec: +10 30 45.38 (10.51261d)<br>Equinox: J2000 |                          | Proper Motion RA: -16.4 mas/yr<br>Proper Motion Dec: -112.1 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.82+/-0.1<br>GALEX FUV=15.17 GALEX N<br>UV=15.50 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: APASS, Teff=19920K logg=7.86,DA                                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                   | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3017) | (93) APASSJ151754.65+103043.7                                                       | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                 |                                             |                                                      |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3017)  | (93) APASSJ151754.65+103043.7                                                       | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3018)     | (93) APASSJ151754.65+103043.7                                                       | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3018)     | (93) APASSJ151754.65+103043.7                                                       | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                 | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                 |                                             |                                                      |        |                                 |  |                              |



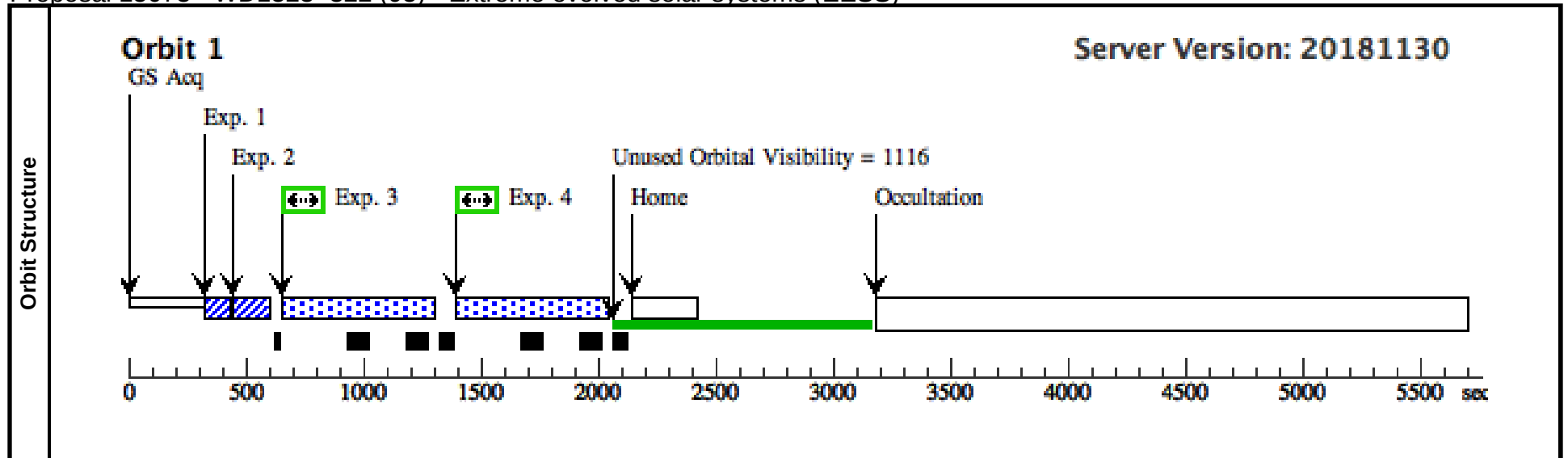
# Proposal 15073 - WD1518+636 (94) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------|------------------------------------------------|------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1518+636 (94), completed                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
| Diagnostics   | (WD1518+636 (94)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                               |                          | Targ. Coord. Corrections        |                                                | Fluxes                 |        | Miscellaneous                   |     |                              |
|               | (94)                                                                                                                                                                                                                                 | WD1518+636                    | RA: 15 19 49.6250 (229.9567708d)                                                                 |                          | Proper Motion RA: -183.3 mas/yr |                                                | V=16.63+/-0.1          |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +63 29 51.87 (63.49774d)                                                                    |                          | Proper Motion Dec: 162.2 mas/yr |                                                | GALEX FUV=15.4 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                   |                          | Epoch of Position: 2000.0       |                                                | UV=15.9                |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Massive, Teff=23190K logg=9.17, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                 |                                                |                        |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                   | Special Reqs.          | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3211) | (94) WD1518+636                                                                                  | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                 |                                                |                        |        | 4 Secs (4 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3211)  | (94) WD1518+636                                                                                  | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                        |        | 4 Secs (4 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3678)     | (94) WD1518+636                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=3 |                        |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3678)     | (94) WD1518+636                                                                                  | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=39<br>5;<br>FLASH=YES;<br>FP-POS=4 |                        |        | 900 Secs (900 Secs)             |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                  |                          |                                 |                                                |                        |        | [==>]                           |     | [1]                          |



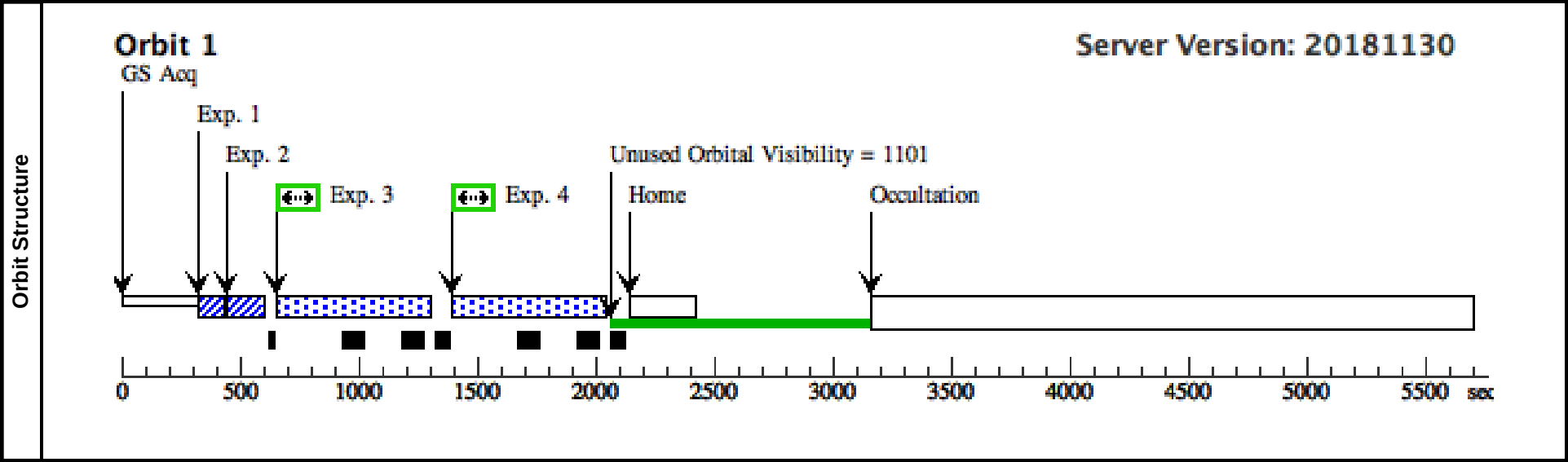
# Proposal 15073 - WD1523+322 (95) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1523+322 (95), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                               |                                           |                                             | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1523+322 (95)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      | Fluxes                                    | Miscellaneous                               |                              |        |                                 |       |
|               | (95)                                                                                                                                                                                                                                 | WD1523+322                    | RA: 15 25 11.4300 (231.2976250d)<br>Dec: +32 05 28.96 (32.09138d)<br>Equinox: J2000 | Proper Motion RA: -35.2 mas/yr<br>Proper Motion Dec: 14.4 mas/yr<br>Epoch of Position: 2000.0 | V=16.2+/-0.1<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Massive, Teff=26730K logg=8.31, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.                             | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3213) | (95) WD1523+322                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                           |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3213)  | (95) WD1523+322                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                           | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3679)     | (95) WD1523+322                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                           | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3679)     | (95) WD1523+322                                                                     | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                           | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                           |                                             |                              |        |                                 |       |



# Proposal 15073 - WD1525+257 (96) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------------|----------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD1525+257 (96), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                                             |                            |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
| Diagnostics   | (WD1525+257 (96)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                             | Fluxes                     |        | Miscellaneous                   |     |                              |  |
|               | (96)                                                                                                                                                                                                                                 | WD1525+257                    | RA: 15 27 36.6500 (231.9027083d) |                          | Proper Motion RA: 12.8 mas/yr   |                                             | V=15.73+/-0.109            |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +25 35 3.50 (25.58431d)     |                          | Proper Motion Dec: -56.6 mas/yr |                                             | GALEX FUV=99 GALEX NUV=99, |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                             | F(1380A) = 1.1e-13         |        |                                 |     |                              |  |
|               | Comments: Massive, Teff=22290K logg=8.28, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                     |                               |                                  |                          |                                 |                                             |                            |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                | Special Reqs.              | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3215) | (96) WD1525+257                  | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                             |                            |        | 2 Secs (2 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3215)  | (96) WD1525+257                  | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                            |        | 2 Secs (2 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3681)     | (96) WD1525+257                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |                            |        | 600 Secs (600 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3681)     | (96) WD1525+257                  | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |                            |        | 600 Secs (600 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                             |                            |        | [==>]                           |     | [1]                          |  |

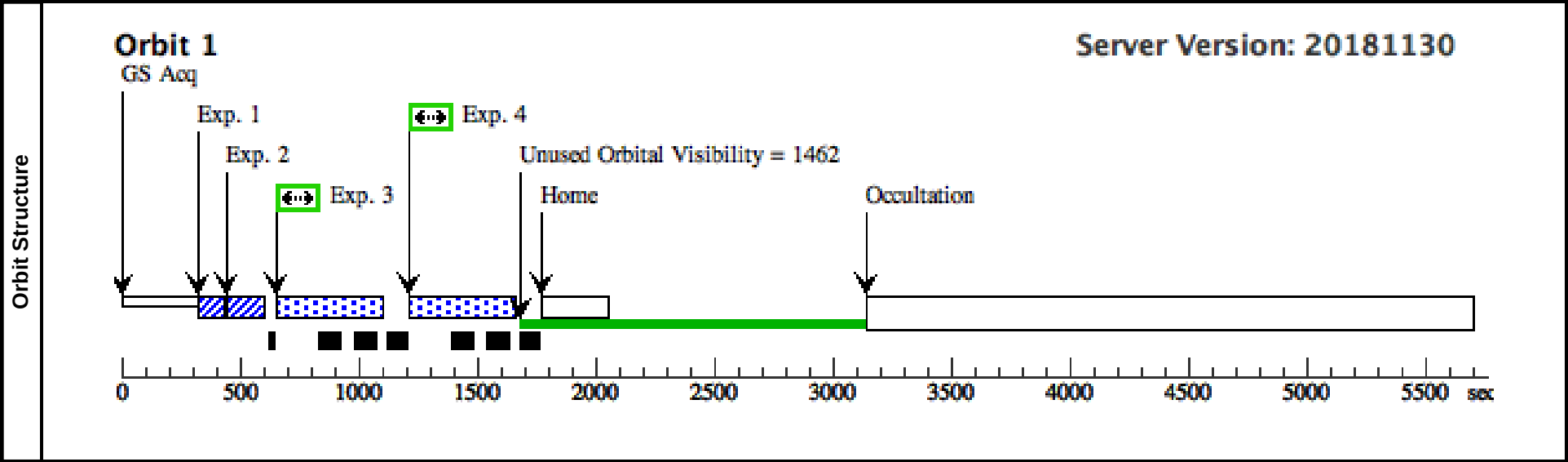


# Proposal 15073 - APASSJ152827.83-251503.0 (97) - Extreme evolved solar systems (EESS)

|                                                                                              |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------|-----------------------|---------------------------------|--|------------------------------|
| Visit                                                                                        | Proposal 15073, APASSJ152827.83-251503.0 (97), scheduling                                                                                                                                                                                                                           |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|                                                                                              | Diagnostic Status: Warning                                                                                                                                                                                                                                                          |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
|                                                                                              | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                            |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
|                                                                                              | Special Requirements: (none)                                                                                                                                                                                                                                                        |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
| Diagnostics                                                                                  | (APASSJ152827.83-251503.0 (97)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                  |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
|                                                                                              |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
| Fixed Targets                                                                                | #                                                                                                                                                                                                                                                                                   | Name                           | Target Coordinates                                                                  |                         | Targ. Coord. Corrections                                                                       |                                                | Fluxes                                               |                       | Miscellaneous                   |  |                              |
|                                                                                              | (97)                                                                                                                                                                                                                                                                                | APASSJ152827.83-251503.0       | RA: 15 28 27.9300 (232.1163750d)<br>Dec: -25 15 2.41 (-25.25067d)<br>Equinox: J2000 |                         | Proper Motion RA: -87.1 mas/yr<br>Proper Motion Dec: -61.1 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=15.25+/-0.1<br>GALEX FUV=15.29 GALEX N<br>UV=15.28 |                       | Reference Frame: ICRS           |  |                              |
| Comments: APASS, Teff=14960K logg=8.4,DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
| Exposures                                                                                    | #                                                                                                                                                                                                                                                                                   | Label (ETC Run)                | Target                                                                              | Config,Mode,Aperture    | Spectral Els.                                                                                  | Opt. Params.                                   | Special Reqs.                                        | Groups                | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                                              | 1                                                                                                                                                                                                                                                                                   | ACQ/Image (COS.ta.102 1259)    | (97) APASSJ152827 .83-251503.0                                                      | COS/NUV, ACQ/IMAGE, PSA | MIRRORB                                                                                        |                                                |                                                      |                       | 10 Secs (10 Secs)               |  |                              |
|                                                                                              |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       | [==>]                           |  | [1]                          |
|                                                                                              | 2                                                                                                                                                                                                                                                                                   | FP-POS3 (COS.sp.101 3021)      | (97) APASSJ152827 .83-251503.0                                                      | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |                       | 1000 Secs (1000 Secs)           |  |                              |
|                                                                                              |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       | [==>]                           |  | [1]                          |
| 3                                                                                            | FP-POS4 (COS.sp.101 3021)                                                                                                                                                                                                                                                           | (97) APASSJ152827 .83-251503.0 | COS/FUV, TIME-TAG, PSA                                                              | G130M<br>1291 A         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4                                                 |                                                |                                                      | 1000 Secs (1000 Secs) |                                 |  |                              |
|                                                                                              |                                                                                                                                                                                                                                                                                     |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       | [==>]                           |  | [1]                          |
| Orbit Structure                                                                              | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 376</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500    sec</div></div> |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |
|                                                                                              | Server Version: 20181130                                                                                                                                                                                                                                                            |                                |                                                                                     |                         |                                                                                                |                                                |                                                      |                       |                                 |  |                              |

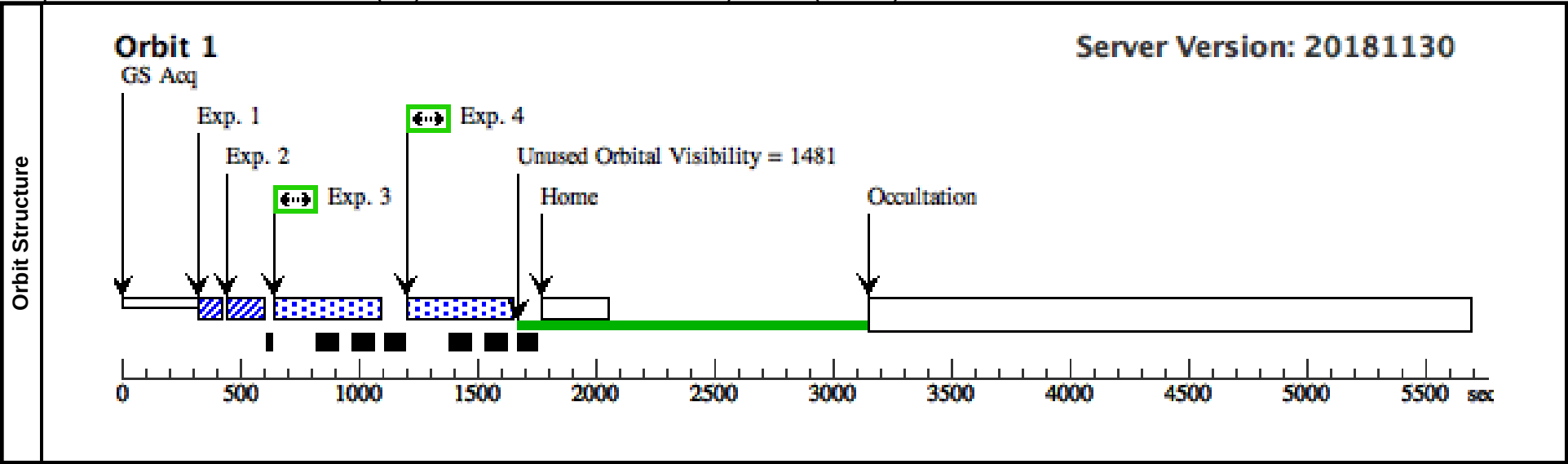
# Proposal 15073 - WD1527+090 (98) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|--------------|--------------------------------|----------------|-------------------------|---------------------|---------------------------------|------------------------------|-------|--|
| Visit         | Proposal 15073, WD1527+090 (98), completed                                                                                                                                                                                           |                               |                                  |                          |              |                                |                |                         |                     |                                 | Thu Dec 20 21:04:59 GMT 2018 |       |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
| Diagnostics   | (WD1527+090 (98)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | (WD1527+090 (98)) Warning (Form): If the target coordinates are not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/PEAKXD.                                                                                          |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          |              | Targ. Coord. Corrections       |                | Fluxes                  |                     | Miscellaneous                   |                              |       |  |
|               | (98)                                                                                                                                                                                                                                 | WD1527+090                    | RA: 15 29 50.4000 (232.4600000d) |                          |              | Proper Motion RA: 54.5 mas/yr  |                | V=14.29+/-0.1           |                     | Reference Frame: ICRS           |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +08 55 46.30 (8.92953d)     |                          |              | Proper Motion Dec: 21.5 mas/yr |                | GALEX FUV=13.97 GALEX N |                     |                                 |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          |              | Epoch of Position: 2000.0      |                | UV=13.94                |                     |                                 |                              |       |  |
|               | Comments: Default, Teff=21520K logg=8.02, DA                                                                                                                                                                                         |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |              |                                |                |                         |                     |                                 |                              |       |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     |              | Spectral Els.                  | Opt. Params.   | Special Reqs.           | Groups              | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3216) | (98) WD1527+090                  | COS/FUV, ACQ/PEAKXD, PSA |              | G130M 1291 A                   |                |                         |                     | 2 Secs (2 Secs)                 |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                |                |                         |                     | [==>]                           |                              | [1]   |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3216)  | (98) WD1527+090                  | COS/FUV, ACQ/PEAKD, PSA  |              | G130M 1291 A                   | STEP-SIZE=0.9; |                         |                     | 2 Secs (2 Secs)                 |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                | NUM-POS=5;     |                         |                     | [==>]                           |                              | [1]   |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                | CENTER=DEF     |                         |                     |                                 |                              |       |  |
| 3             | FP-POS3 (COS.sp.101 3683)                                                                                                                                                                                                            | (98) WD1527+090               | COS/FUV, TIME-TAG, PSA           |                          | G130M 1291 A | BUFFER-TIME=14 5;              |                |                         | 400 Secs (400 Secs) |                                 |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              | FLASH=YES;                     |                |                         | [==>]               |                                 | [1]                          |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              | FP-POS=3                       |                |                         |                     |                                 |                              |       |  |
| 4             | FP-POS4 (COS.sp.101 3683)                                                                                                                                                                                                            | (98) WD1527+090               | COS/FUV, TIME-TAG, PSA           |                          | G130M 1291 A | BUFFER-TIME=14 5;              |                |                         | 400 Secs (400 Secs) |                                 |                              |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              | FLASH=YES;                     |                |                         | [==>]               |                                 | [1]                          |       |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              | FP-POS=4                       |                |                         |                     |                                 |                              |       |  |



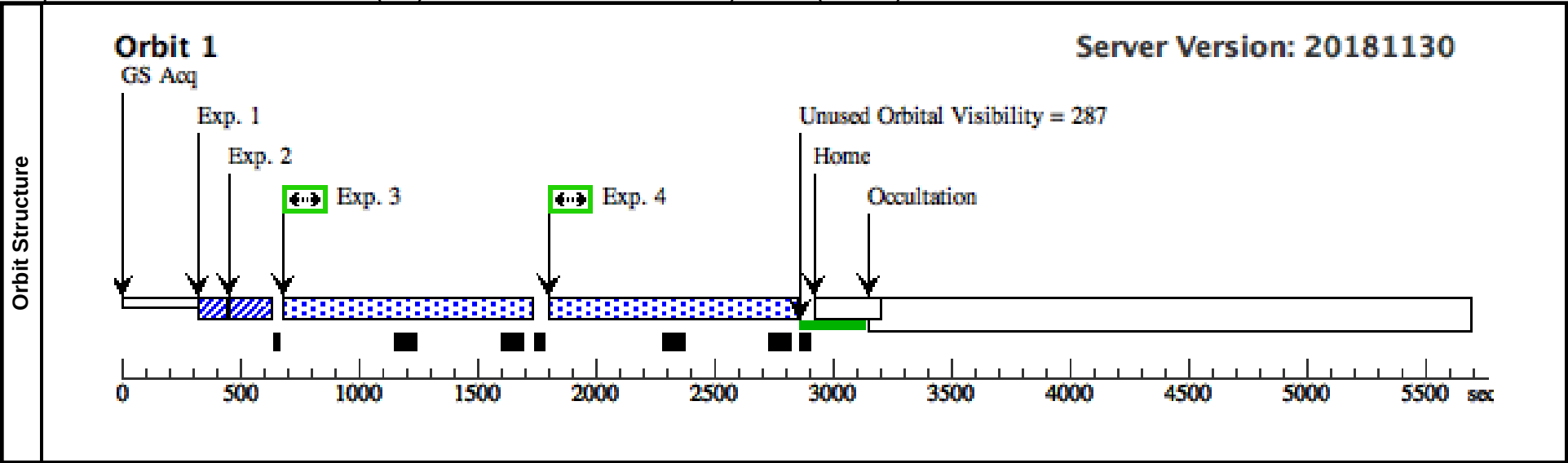
# Proposal 15073 - WD1542+182 (99) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD1542+182 (99), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        | Thu Dec 20 21:04:59 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
| Diagnostics   | (WD1542+182 (99)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                                     | Miscellaneous                               |               |        |                                 |         |
|               | (99)                                                                                                                                                                                                                                 | WD1542+182                    | RA: 15 44 19.4600 (236.0810833d)<br>Dec: +18 06 43.93 (18.11220d)<br>Equinox: J2000 | Proper Motion RA: -0.7 mas/yr<br>Proper Motion Dec: -122.7 mas/yr<br>Epoch of Position: 2000.0 | V=14.664+/-0.036<br>GALEX FUV=99 GALEX NUV=99,<br>SWP03725 | Reference Frame: ICRS                       |               |        |                                 |         |
|               | Comments: DB, Teff=22630K logg=8.04                                                                                                                                                                                                  |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                              | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3219) | (99) WD1542+182                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                            |                                             |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3219)  | (99) WD1542+182                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                            | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3684)     | (99) WD1542+182                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                            | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3684)     | (99) WD1542+182                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                            | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                            |                                             |               |        |                                 |         |



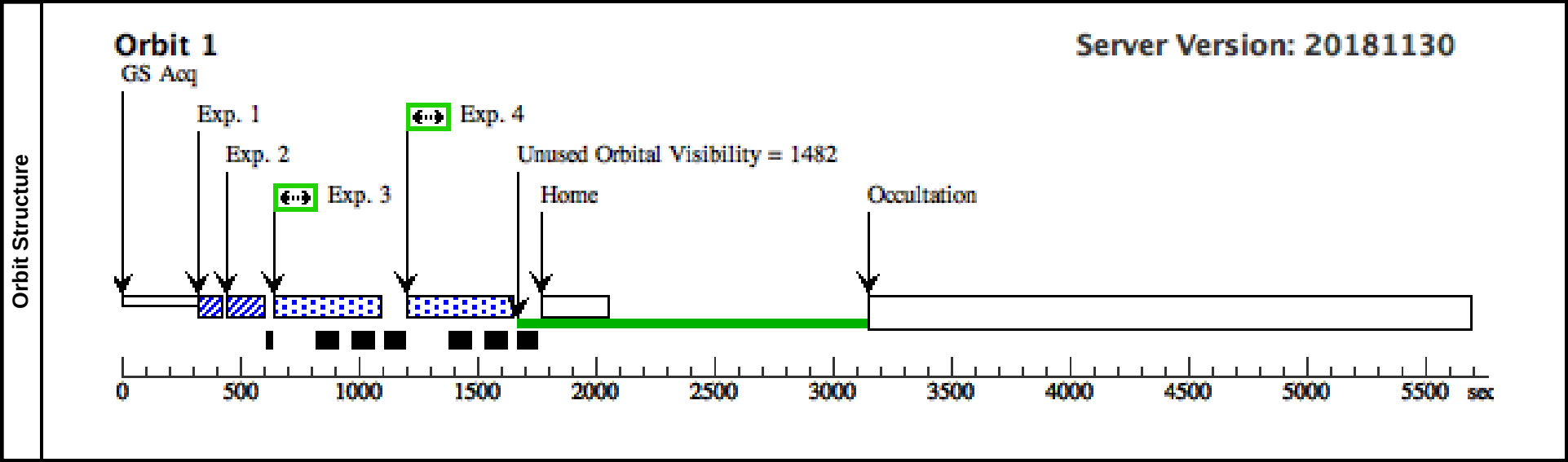
# Proposal 15073 - WD1550+183 (0A) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1550+183 (0A), completed                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Diagnostics   | (WD1550+183 (0A)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |
|               | (100)                                                                                                                                                                                                                                | WD1550+183                    | RA: 15 52 26.3700 (238.1098750d) |                          | Proper Motion RA: -159.1 mas/yr |                                       | V=14.822+/-0.073        |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +18 10 18.60 (18.17183d)    |                          | Proper Motion Dec: 112.3 mas/yr |                                       | GALEX FUV=14.93 GALEX N |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                       | UV=14.82                |        |                                 |     |                              |
|               | Comments: Massive, Teff=14860K logg=8.248, DA                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3221) | (100) WD1550+183                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3221)  | (100) WD1550+183                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3685)     | (100) WD1550+183                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3685)     | (100) WD1550+183                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                         |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |



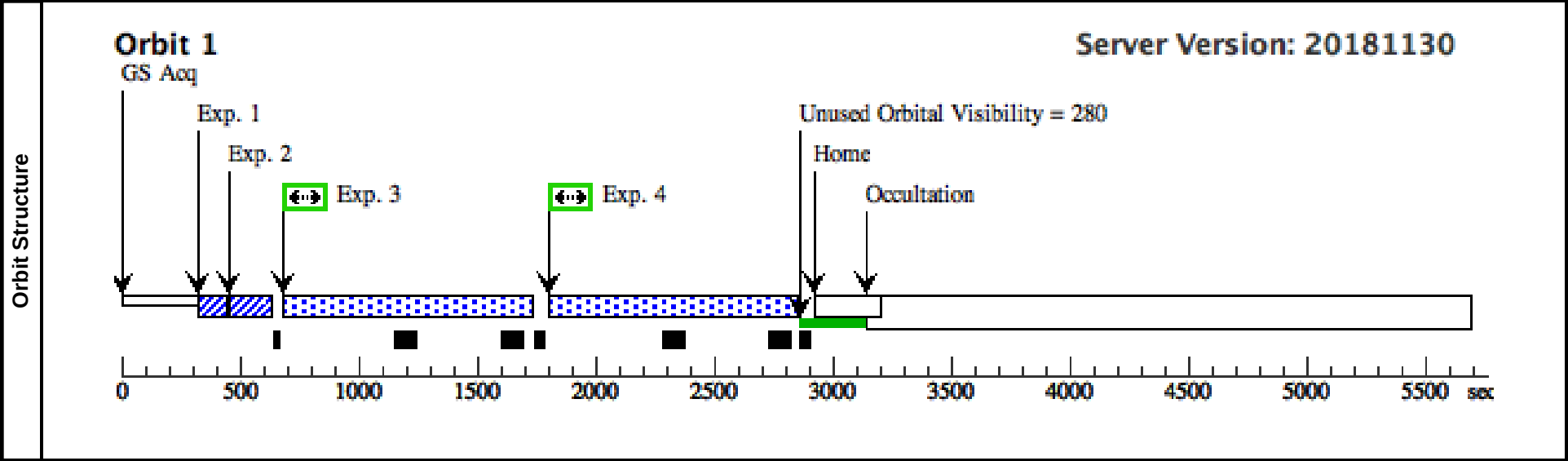
# Proposal 15073 - WD1554+215 (0B) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|-----------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD1554+215 (0B), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                   |                                       |                         |        |                                 |     | Thu Dec 20 21:04:59 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
| Diagnostics   | (WD1554+215 (0B)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections          |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |  |
|               | (101)                                                                                                                                                                                                                                | WD1554+215                    | RA: 15 56 18.7780 (239.0782417d) |                          | Proper Motion RA: 20.993 mas/yr   |                                       | V=15.26+/-0.01          |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: +21 23 55.13 (21.39865d)    |                          | Proper Motion Dec: -58.468 mas/yr |                                       | GALEX FUV=13.80 GALEX N |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0         |                                       | UV=14.28                |        |                                 |     |                              |  |
|               | Comments: Wide binary, Teff=27320K logg=7.90, DA + G5V (TYC 1502-1772-1, V=10.16), 75.8"                                                                                                                                             |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                   |                                       |                         |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                     | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3224) | (101) WD1554+215                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                      |                                       |                         |        | 1 Secs (1 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3224)  | (101) WD1554+215                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                      | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 1 Secs (1 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3686)     | (101) WD1554+215                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                      | BUFFER-TIME=14 5; FLASH=YES; FP-POS=3 |                         |        | 400 Secs (400 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3686)     | (101) WD1554+215                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                      | BUFFER-TIME=14 5; FLASH=YES; FP-POS=4 |                         |        | 400 Secs (400 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                                       |                         |        | [==>]                           |     | [1]                          |  |



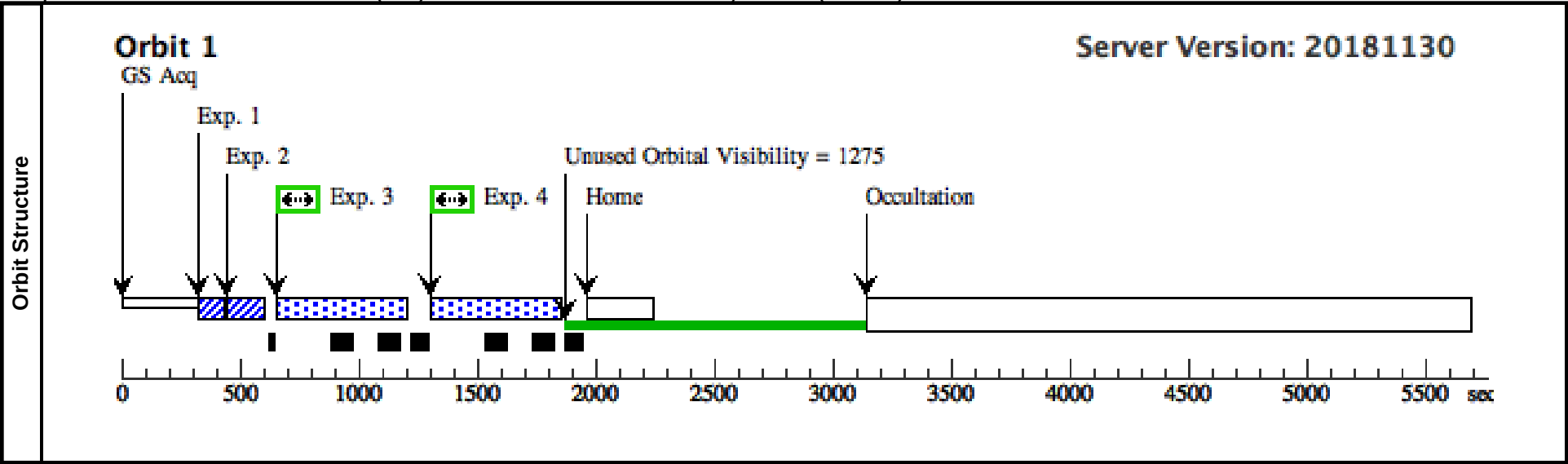
# Proposal 15073 - APASSJ161442.78+104618.1 (0C) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|-------|
| Visit         | Proposal 15073, APASSJ161442.78+104618.1 (0C), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 | Thu Dec 20 21:04:59 GMT 2018 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
| Diagnostics   | (APASSJ161442.78+104618.1 (0C)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                       |               | Fluxes                                               |               | Miscellaneous         |                                 |                              |       |
|               | (102)                                                                                                                                                                                                                                              | APASSJ161442.78+104618.1      | RA: 16 14 42.7960 (243.6783167d)<br>Dec: +10 46 20.00 (10.77222d)<br>Equinox: J2000 |                          | Proper Motion RA: 17.3 mas/yr<br>Proper Motion Dec: -110.5 mas/yr<br>Epoch of Position: 2000.0 |               | V=15.88+/-0.1<br>GALEX FUV=15.58 GALEX N<br>UV=15.74 |               | Reference Frame: ICRS |                                 |                              |       |
|               | Comments: APASS, Teff=16800K logg=8.03,DA                                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     |                                                                                                | Spectral Els. | Opt. Params.                                         | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3024) | (102) APASSJ16144 2.78+104618.1                                                     | COS/FUV, ACQ/PEAKXD, PSA |                                                                                                | G130M 1291 A  |                                                      |               |                       | 5 Secs (5 Secs)<br>[==>]        |                              | [1]   |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3024)  | (102) APASSJ16144 2.78+104618.1                                                     | COS/FUV, ACQ/PEAKD, PSA  |                                                                                                | G130M 1291 A  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF           |               |                       | 5 Secs (5 Secs)<br>[==>]        |                              | [1]   |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3023)     | (102) APASSJ16144 2.78+104618.1                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M 1291 A  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3          |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |                              | [1]   |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3023)     | (102) APASSJ16144 2.78+104618.1                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M 1291 A  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4          |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |                              | [1]   |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |               |                                                      |               |                       |                                 |                              |       |



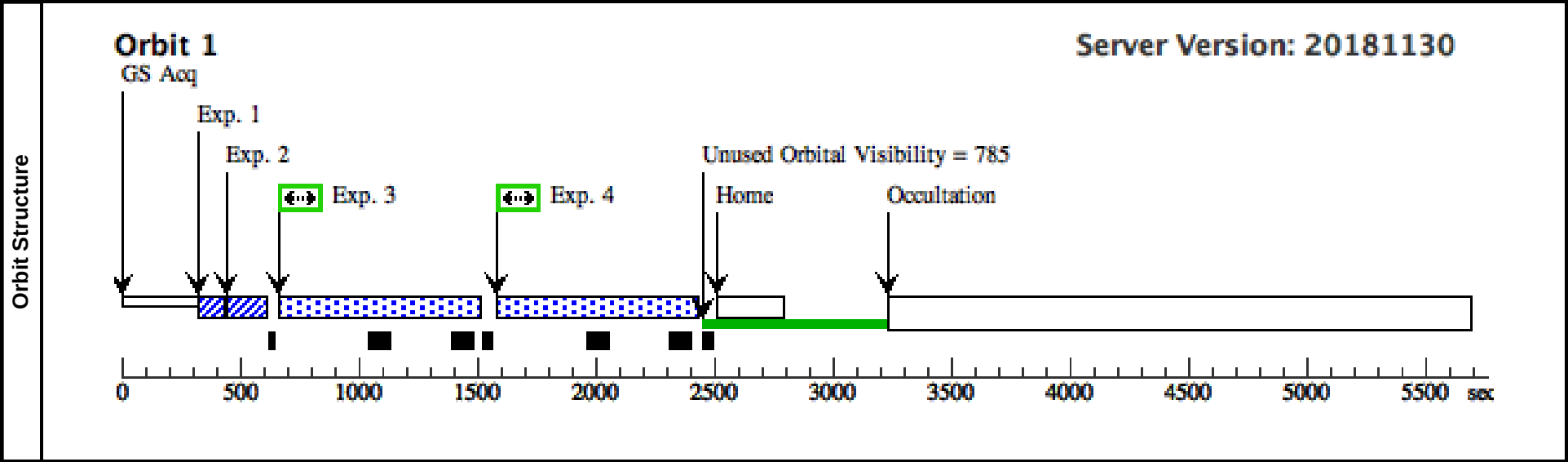
# Proposal 15073 - WD1614+136 (0D) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|------------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD1614+136 (0D), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                                                |                         |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
| Diagnosics    | (WD1614+136 (0D)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                                | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (103)                                                                                                                                                                                                                                | WD1614+136                    | RA: 16 16 52.2950 (244.2178958d) |                          | Proper Motion RA: -7.0 mas/yr   |                                                | V=15.235+/-0.038        |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: +13 34 20.95 (13.57249d)    |                          | Proper Motion Dec: -43.9 mas/yr |                                                | GALEX FUV=14.21 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                                | UV=14.62                |        |                                 |  |                              |
|               | Comments: Low mass, Teff=23190K logg=7.38, DA                                                                                                                                                                                        |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                                   | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3225) | (103) WD1614+136                 | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                 |                                                |                         |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3225)  | (103) WD1614+136                 | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                         |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3687)     | (103) WD1614+136                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3687)     | (103) WD1614+136                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                 | BUFFER-TIME=19<br>5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                                |                         |        |                                 |  |                              |

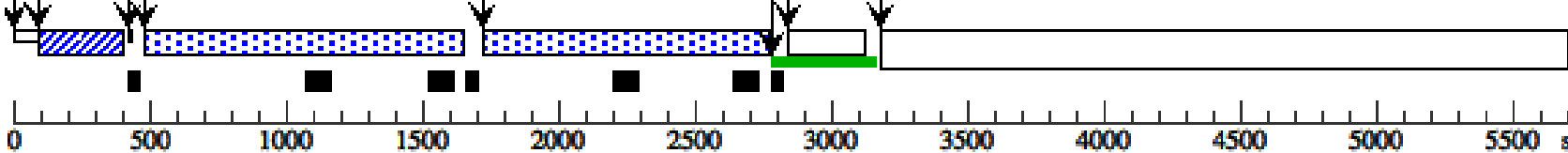


# Proposal 15073 - SDSSJ170029.93+422452.99 (0E) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, SDSSJ170029.93+422452.99 (0E), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  | Thu Dec 20 21:04:59 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
| Diagnostics   | (SDSSJ170029.93+422452.99 (0E)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                     |                                             | Fluxes                                              |        | Miscellaneous                   |  |                              |
|               | (104)                                                                                                                                                                                                                                              | SDSSJ170029.93+422452.99      | RA: 17 00 29.9350 (255.1247292d)<br>Dec: +42 24 53.02 (42.41473d)<br>Equinox: J2000 |                          | Proper Motion RA: -8.8 mas/yr<br>Proper Motion Dec: -1.9 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=16.6+/-0.1<br>GALEX FUV=15.37 GALEX N<br>UV=15.86 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Massive, Teff=25963K logg=8.59, DA                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
|               | Category=STAR                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
|               | Description=[DA]<br>Extended=NO                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                | Opt. Params.                                | Special Reqs.                                       | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3067) | (104) SDSSJ170029.93+422452.99                                                      | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                              |                                             |                                                     |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3067)  | (104) SDSSJ170029.93+422452.99                                                      | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                              | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                     |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 4163)     | (104) SDSSJ170029.93+422452.99                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                              | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                                                     |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 4163)     | (104) SDSSJ170029.93+422452.99                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                              | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                                                     |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                     |        |                                 |  |                              |

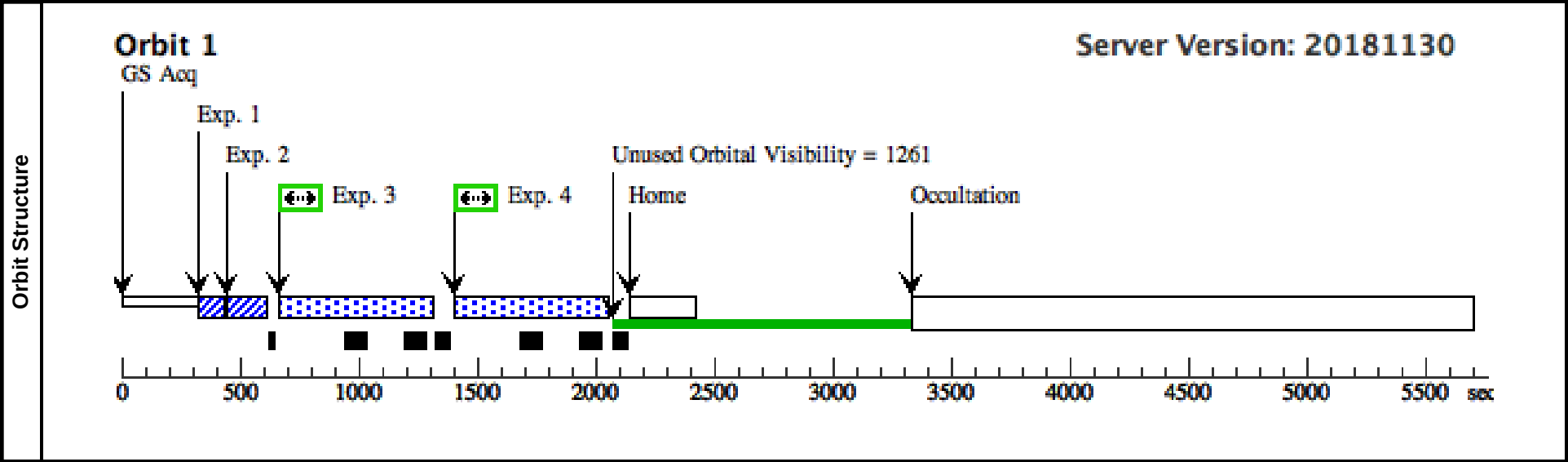


# Proposal 15073 - WD1659+303 (0F) - Extreme evolved solar systems (EESS)

|                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit                                                                                                                      | Proposal 15073, WD1659+303 (0F), completed                                                                                                                                                                                                                                                                                                                                                                                            |                             |                                                                                    |                                                                                               |                                                         | Thu Dec 20 21:04:59 GMT 2018                   |               |        |                                 |       |
| Diagnostic Status: Warning                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Scientific Instruments: COS/FUV, COS/NUV                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Special Requirements: (none)                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Diagnostics                                                                                                                | (WD1659+303 (0F)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                                                                                                                                                  |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Fixed Targets                                                                                                              | #                                                                                                                                                                                                                                                                                                                                                                                                                                     | Name                        | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                      | Fluxes                                                  | Miscellaneous                                  |               |        |                                 |       |
|                                                                                                                            | (105)                                                                                                                                                                                                                                                                                                                                                                                                                                 | WD1659+303                  | RA: 17 01 8.0100 (255.2833750d)<br>Dec: +30 15 35.70 (30.25992d)<br>Equinox: J2000 | Proper Motion RA: 13.3 mas/yr<br>Proper Motion Dec: -66.1 mas/yr<br>Epoch of Position: 2000.0 | V=14.951+/-0.103<br>GALEX FUV=15.22 GALEX N<br>UV=15.27 | Reference Frame: ICRS                          |               |        |                                 |       |
| Comments: Wide binary, Teff=14150K logg=8.07, DA + M2V (V=14.99), 155"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |
| Exposures                                                                                                                  | #                                                                                                                                                                                                                                                                                                                                                                                                                                     | Label (ETC Run)             | Target                                                                             | Config,Mode,Aperture                                                                          | Spectral Els.                                           | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                                                                                                                            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                     | ACQ/Image (COS.ta.102 1253) | (105) WD1659+303                                                                   | COS/NUV, ACQ/IMAGE, PSA                                                                       | MIRRORB                                                 |                                                |               |        | 9 Secs (9 Secs)<br>[==>]        | [1]   |
|                                                                                                                            | 2                                                                                                                                                                                                                                                                                                                                                                                                                                     | FP-POS3 (COS.sp.101 3689)   | (105) WD1659+303                                                                   | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|                                                                                                                            | 3                                                                                                                                                                                                                                                                                                                                                                                                                                     | FP-POS4 (COS.sp.101 3689)   | (105) WD1659+303                                                                   | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
| Orbit Structure                                                                                                            | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1     Exp. 2     Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 393</div></div> |                             |                                                                                    |                                                                                               |                                                         |                                                |               |        |                                 |       |

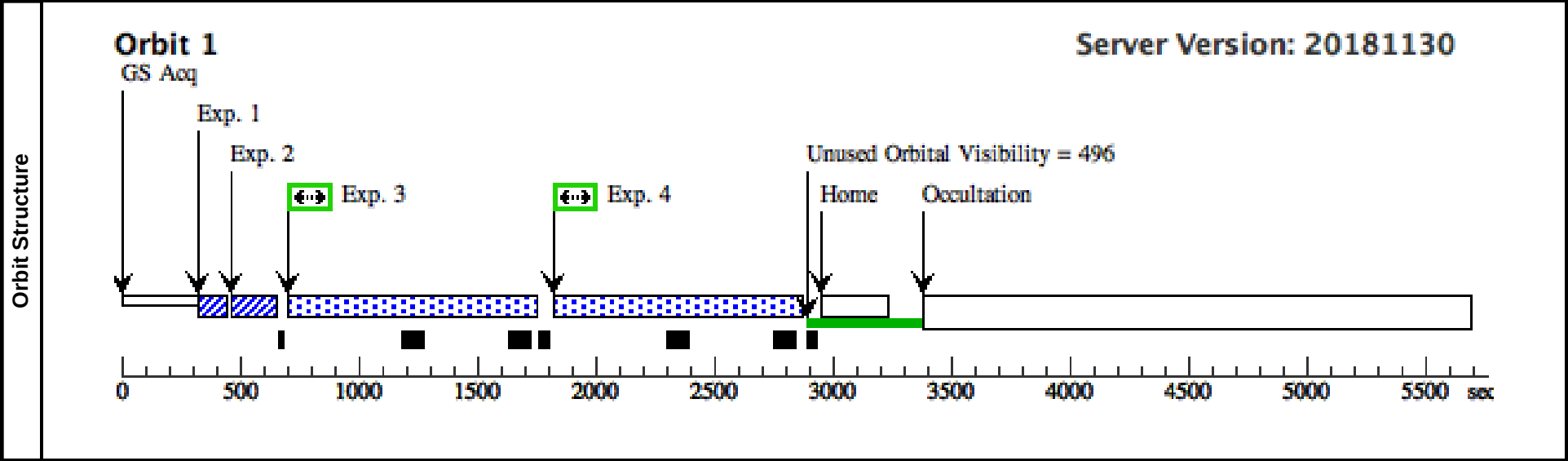
# Proposal 15073 - WD1659-531 (0G) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1659-531 (0G), implementation                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                             |                                                | Thu Dec 20 21:04:59 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
| Diagnostics   | (WD1659-531 (0G)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       | Fluxes                                      | Miscellaneous                                  |                              |        |                                 |       |
|               | (106)                                                                                                                                                                                                                                | WD1659-531                    | RA: 17 02 56.3360 (255.7347333d)<br>Dec: -53 14 36.62 (-53.24351d)<br>Equinox: J2000 | Proper Motion RA: -5.0 mas/yr<br>Proper Motion Dec: -152.6 mas/yr<br>Epoch of Position: 2000.0 | V=13.47+/-0.05<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Wide binary, Teff=13560K logg=7.94, DA + F5V (HIP83431, V=5.29), 113.5"                                                                                                                                                    |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.                               | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3227) | (106) WD1659-531                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                             |                                                |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3227)  | (106) WD1659-531                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                             | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3688)     | (106) WD1659-531                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                             | BUFFER-TIME=24<br>5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3688)     | (106) WD1659-531                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                             | BUFFER-TIME=24<br>5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 600 Secs (600 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                             |                                                |                              |        |                                 |       |



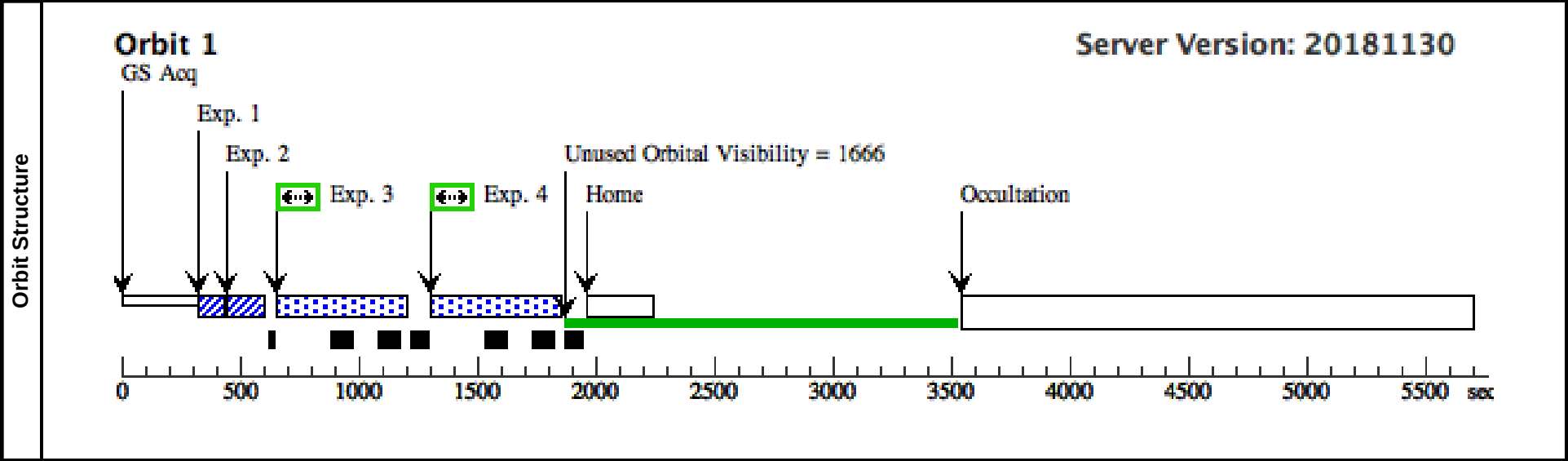
# Proposal 15073 - WD1726-578 (0H) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1726-578 (0H), completed                                                                                                                                                                                           |                               |                                                                                      |                                                                                              |                                               |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
| Diagnostics   | (WD1726-578 (0H)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                     | Fluxes                                        | Miscellaneous                               |                              |        |                                 |       |
|               | (107)                                                                                                                                                                                                                                | WD1726-578                    | RA: 17 30 23.0990 (262.5962458d)<br>Dec: -57 55 25.66 (-57.92379d)<br>Equinox: J2000 | Proper Motion RA: 47.5 mas/yr<br>Proper Motion Dec: 98.6 mas/yr<br>Epoch of Position: 2000.0 | V=15.378+/-0.058<br>GALEX FUV=99 GALEX NUV=99 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: DB, Teff=14320K logg=8.20                                                                                                                                                                                                  |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                         | Spectral Els.                                 | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3233) | (107) WD1726-578                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M 1291 A                                  |                                             |                              |        | 8 Secs (8 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3233)  | (107) WD1726-578                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M 1291 A                                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 8 Secs (8 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3693)     | (107) WD1726-578                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M 1291 A                                  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3693)     | (107) WD1726-578                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M 1291 A                                  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                               |                                             |                              |        |                                 |       |



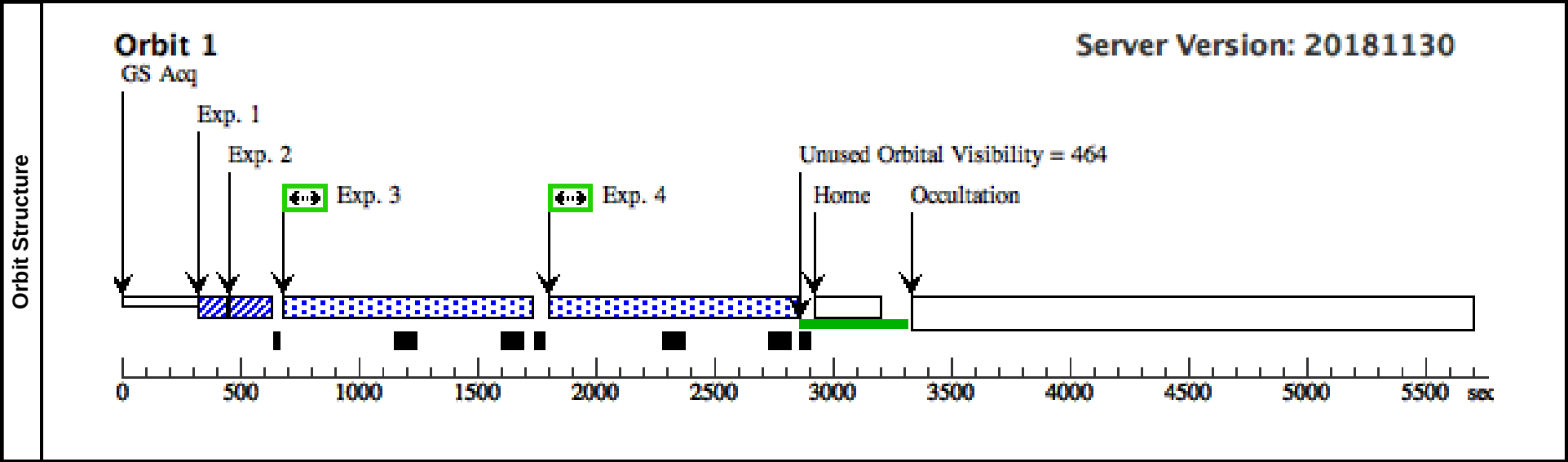
# Proposal 15073 - WD1708-871 (0I) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1708-871 (0I), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        | Thu Dec 20 21:05:00 GMT 2018    |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
| Diagnostics   | (WD1708-871 (0I)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                                         | Miscellaneous                               |               |        |                                 |       |
|               | (108)                                                                                                                                                                                                                                | WD1708-871                    | RA: 17 32 54.8530 (263.2285542d)<br>Dec: -87 10 2.41 (-87.16734d)<br>Equinox: J2000 | Proper Motion RA: 77.6 mas/yr<br>Proper Motion Dec: -140.2 mas/yr<br>Epoch of Position: 2000.0 | V=14.703+/-0.006<br>GALEX FUV=99 GALEX NUV=14.41,<br>SWP28232L | Reference Frame: ICRS                       |               |        |                                 |       |
|               | Comments: DB, Teff=23980K logg=8.05                                                                                                                                                                                                  |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                                  | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3231) | (108) WD1708-871                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3231)  | (108) WD1708-871                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3690)     | (108) WD1708-871                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3690)     | (108) WD1708-871                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                |                                             |               |        |                                 |       |



# Proposal 15073 - WD1743-521 (0J) - Extreme evolved solar systems (EESS)

|                                                                                                           |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|--|-------|--|
| Visit                                                                                                     | Proposal 15073, WD1743-521 (0J), completed                                                                                                                                                                                           |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 | Thu Dec 20 21:05:00 GMT 2018 |  |       |  |
|                                                                                                           | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
|                                                                                                           | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
|                                                                                                           | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
| Diagnostics                                                                                               | (WD1743-521 (0J)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
|                                                                                                           |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
| Fixed Targets                                                                                             | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                       |                 | Fluxes                                                                              |               | Miscellaneous         |                                 |                              |  |       |  |
|                                                                                                           | (109)                                                                                                                                                                                                                                | WD1743-521                    | RA: 17 47 46.9220 (266.9455083d)<br>Dec: -52 07 10.98 (-52.11972d)<br>Equinox: J2000 |                          | Proper Motion RA: 48.0 mas/yr<br>Proper Motion Dec: -121.2 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.686+/-0.065<br>GALEX FUV=15.68 GALEX N<br>UV=15.59,<br>O6CQ03010,<br>SWP30386L |               | Reference Frame: ICRS |                                 |                              |  |       |  |
| Comments: Magnetic, Teff=20000K logg=8.0, DAH, B=36MG<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |
| Exposures                                                                                                 | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     |                                                                                                | Spectral Els.   | Opt. Params.                                                                        | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |                              |  | Orbit |  |
|                                                                                                           | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3234) | (109) WD1743-521                                                                     | COS/FUV, ACQ/PEAKXD, PSA |                                                                                                | G130M<br>1291 A |                                                                                     |               |                       | 5 Secs (5 Secs)<br>[==>]        |                              |  | [1]   |  |
|                                                                                                           | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3234)  | (109) WD1743-521                                                                     | COS/FUV, ACQ/PEAKD, PSA  |                                                                                                | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF                                          |               |                       | 5 Secs (5 Secs)<br>[==>]        |                              |  | [1]   |  |
|                                                                                                           | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3694)     | (109) WD1743-521                                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3                                         |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |                              |  | [1]   |  |
|                                                                                                           | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3694)     | (109) WD1743-521                                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M<br>1291 A | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4                                         |               |                       | 1000 Secs (1000 Secs)<br>[==>]  |                              |  | [1]   |  |
|                                                                                                           |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                                     |               |                       |                                 |                              |  |       |  |



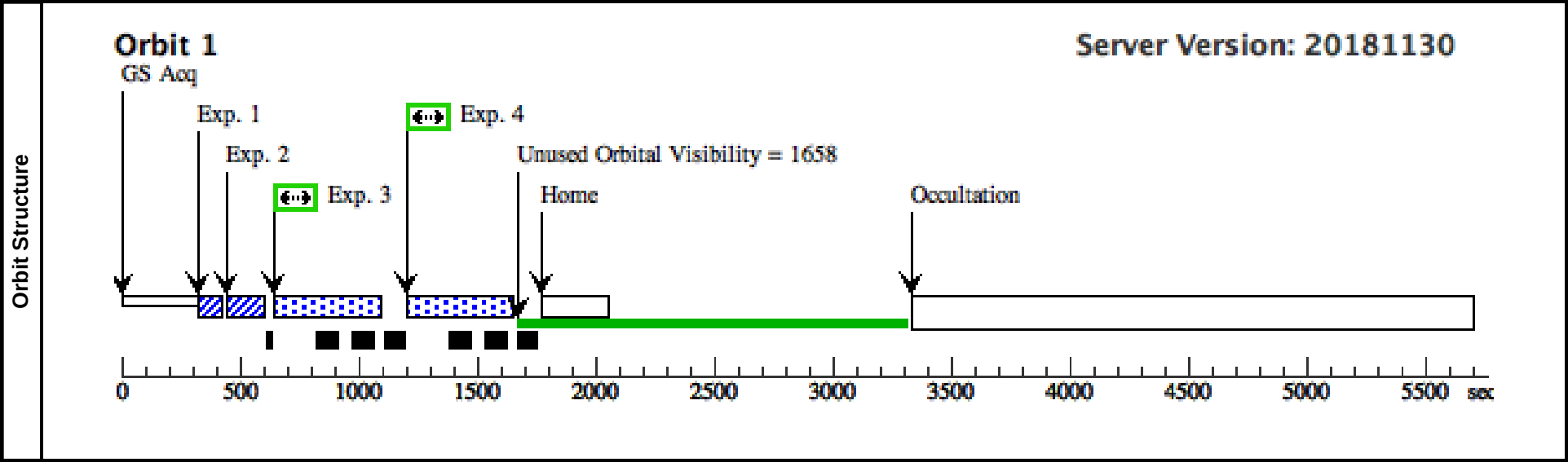
# Proposal 15073 - WD1844-223 (0K) - Extreme evolved solar systems (EESS)

Thu Dec 20 21:05:00 GMT 2018

|                                                                                                  |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------|---------------|--------|---------------------------------|-------|
| Visit                                                                                            | Proposal 15073, WD1844-223 (0K), completed                                                        |                                |                                                                                      |                                                                                               |                                                        | Thu Dec 20 21:05:00 GMT 2018 |               |        |                                 |       |
|                                                                                                  | Diagnostic Status: Warning                                                                        |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Scientific Instruments: STIS/CCD, STIS/FUV-MAMA                                                  |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Special Requirements: (none)                                                                     |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Comments: Almost too bright for COS/G130M, switched to STIS/E140M                                |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Diagnostics                                                                                      | (WD1844-223 (0K)) Warning (Orbit Planner): STIS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Fixed Targets                                                                                    | #                                                                                                 | Name                           | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                      | Fluxes                                                 | Miscellaneous                |               |        |                                 |       |
|                                                                                                  | (110)                                                                                             | WD1844-223                     | RA: 18 47 56.5200 (281.9855000d)<br>Dec: -22 19 37.98 (-22.32722d)<br>Equinox: J2000 | Proper Motion RA: 80.6 mas/yr<br>Proper Motion Dec: -44.9 mas/yr<br>Epoch of Position: 2000.0 | V=13.656+/-0.07<br>GALEX FUV=12.32 GALEX N<br>UV=13.06 | Reference Frame: ICRS        |               |        |                                 |       |
| Comments: Massive, Teff=32610K logg=8.31, DA<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |
| Exposures                                                                                        | #                                                                                                 | Label (ETC Run)                | Target                                                                               | Config,Mode,Aperture                                                                          | Spectral Els.                                          | Opt. Params.                 | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                                                                                                  | 1                                                                                                 | STIS/ACQ (STIS.ta.102 1624)    | (110) WD1844-223                                                                     | STIS/CCD, ACQ, F28X50LP                                                                       | MIRROR                                                 | ACQTYPE=POINT                |               |        | 0.25 Secs (0.25 Secs)           |       |
|                                                                                                  |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        | [==>]                           | [1]   |
|                                                                                                  | 2                                                                                                 | STIS/E140 M (STIS.sp.10 21625) | (110) WD1844-223                                                                     | STIS/FUV-MAMA, TIME-TAG, 0.2X0.2                                                              | E140M 1425 A                                           | BUFFER-TIME=20 0             |               |        | 1200 Secs (1200 Secs)           |       |
|                                                                                                  |                                                                                                   |                                |                                                                                      |                                                                                               |                                                        |                              |               |        | [==>]                           | [1]   |
| Orbit Structure                                                                                  | <div>Orbit 1<div>Server Version: 20181130</div></div>                                             |                                |                                                                                      |                                                                                               |                                                        |                              |               |        |                                 |       |

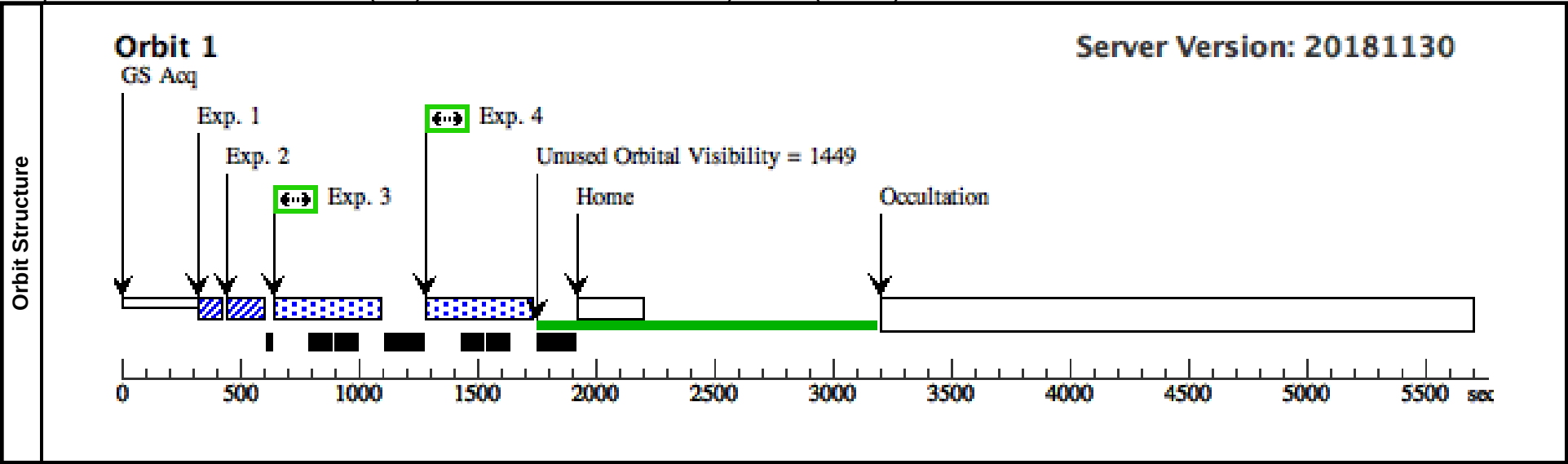
# Proposal 15073 - WD1911+536 (0L) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD1911+536 (0L), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                  |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
| Diagnostics   | (WD1911+536 (0L)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                           | Miscellaneous                               |                              |        |                                 |         |
|               | (111)                                                                                                                                                                                                                                | WD1911+536                    | RA: 19 12 48.5730 (288.2023875d)<br>Dec: +53 43 13.50 (53.72042d)<br>Equinox: J2000 | Proper Motion RA: 140.5 mas/yr<br>Proper Motion Dec: 138.3 mas/yr<br>Epoch of Position: 2000.0 | V=13.132+/-0.021<br>GALEX FUV=99 GALEX NUV=13.30 | Reference Frame: ICRS                       |                              |        |                                 |         |
|               | Comments: Massive, Teff=17670K logg=8.32, DA                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                    | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3239) | (111) WD1911+536                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                  |                                             |                              |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3239)  | (111) WD1911+536                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 1 Secs (1 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3696)     | (111) WD1911+536                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                  | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3696)     | (111) WD1911+536                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                  | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                  |                                             |                              |        |                                 |         |



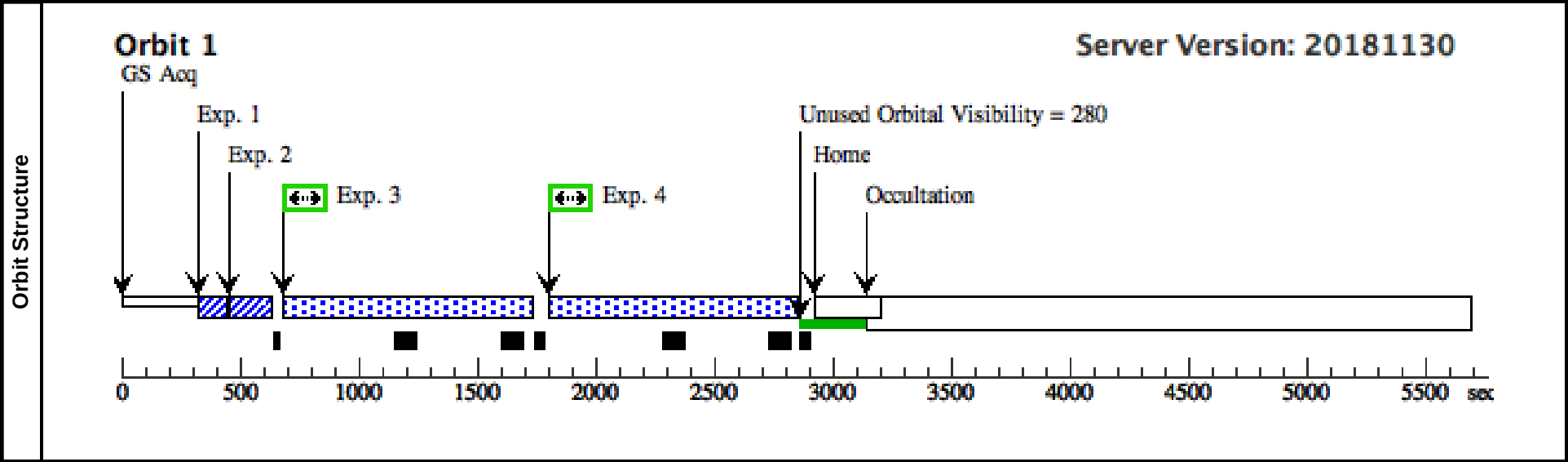
# Proposal 15073 - WD1916-362 (0M) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD1916-362 (0M), completed                                                                                                                                                                                           |                               |                                                                                    |                                                                                                 |                                                         |                                                | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
| Diagnostics   | (WD1916-362 (0M)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                        | Fluxes                                                  | Miscellaneous                                  |                              |        |                                 |       |
|               | (112)                                                                                                                                                                                                                                | WD1916-362                    | RA: 19 20 2.8160 (290.0117333d)<br>Dec: -36 11 2.65 (-36.18407d)<br>Equinox: J2000 | Proper Motion RA: 111.5 mas/yr<br>Proper Motion Dec: -134.7 mas/yr<br>Epoch of Position: 2000.0 | V=13.583+/-0.028<br>GALEX FUV=13.06 GALEX N<br>UV=13.35 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: DB, Teff=23360K logg=8.17                                                                                                                                                                                                  |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                            | Spectral Els.                                           | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3242) | (112) WD1916-362                                                                   | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                         |                                                |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3242)  | (112) WD1916-362                                                                   | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3698)     | (112) WD1916-362                                                                   | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3698)     | (112) WD1916-362                                                                   | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                 |                                                         |                                                |                              |        |                                 |       |



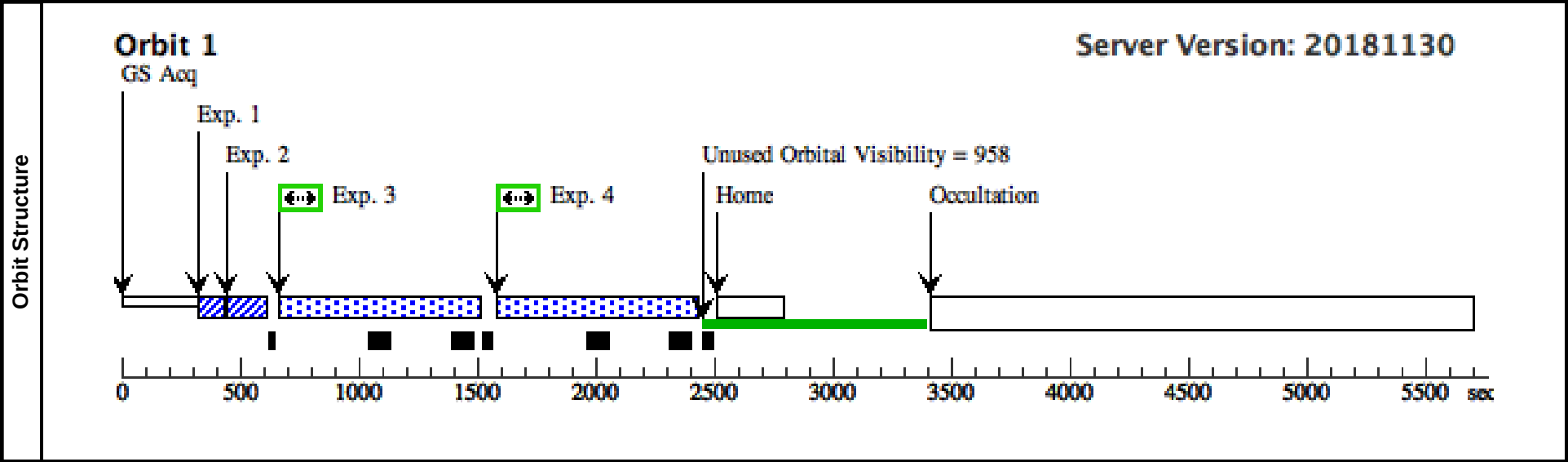
# Proposal 15073 - WD1932-136 (0N) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------|---------------------------------------|------------------------------|--------|---------------------------------|-----|------------------------------|
| Visit         | Proposal 15073, WD1932-136 (0N), completed                                                                                                                                                                                           |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     |                              |
| Diagnos       | (WD1932-136 (0N)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                                                         |                          |                                  |                                       |                              |        |                                 |     |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                                                      |                          | Targ. Coord. Corrections         |                                       | Fluxes                       |        | Miscellaneous                   |     |                              |
|               | (113)                                                                                                                                                                                                                                | WD1932-136                    | RA: 19 35 41.9380 (293.9247417d)                                                                                        |                          | Proper Motion RA: -32.2 mas/yr   |                                       | V=15.977+/-0.1               |        | Reference Frame: ICRS           |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -13 30 6.96 (-13.50193d)                                                                                           |                          | Proper Motion Dec: -127.9 mas/yr |                                       | GALEX FUV=99 GALEX NUV=15.86 |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                                                                                                          |                          | Epoch of Position: 2000.0        |                                       |                              |        |                                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               | Comments: Wide binary, Teff=17520K logg=7.87, DA + MV (i=17.2), 29"<br>Category=STAR<br>Description=[DA]<br>Extended=NO |                          |                                  |                                       |                              |        |                                 |     |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                                                                  | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.                          | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3244) | (113) WD1932-136                                                                                                        | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                     |                                       |                              |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3244)  | (113) WD1932-136                                                                                                        | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                     | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                              |        | 5 Secs (5 Secs)                 |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3700)     | (113) WD1932-136                                                                                                        | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                              |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              | [==>]  |                                 | [1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3700)     | (113) WD1932-136                                                                                                        | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                     | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                              |        | 1000 Secs (1000 Secs)           |     |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                                                         |                          |                                  |                                       |                              |        | [==>]                           |     | [1]                          |



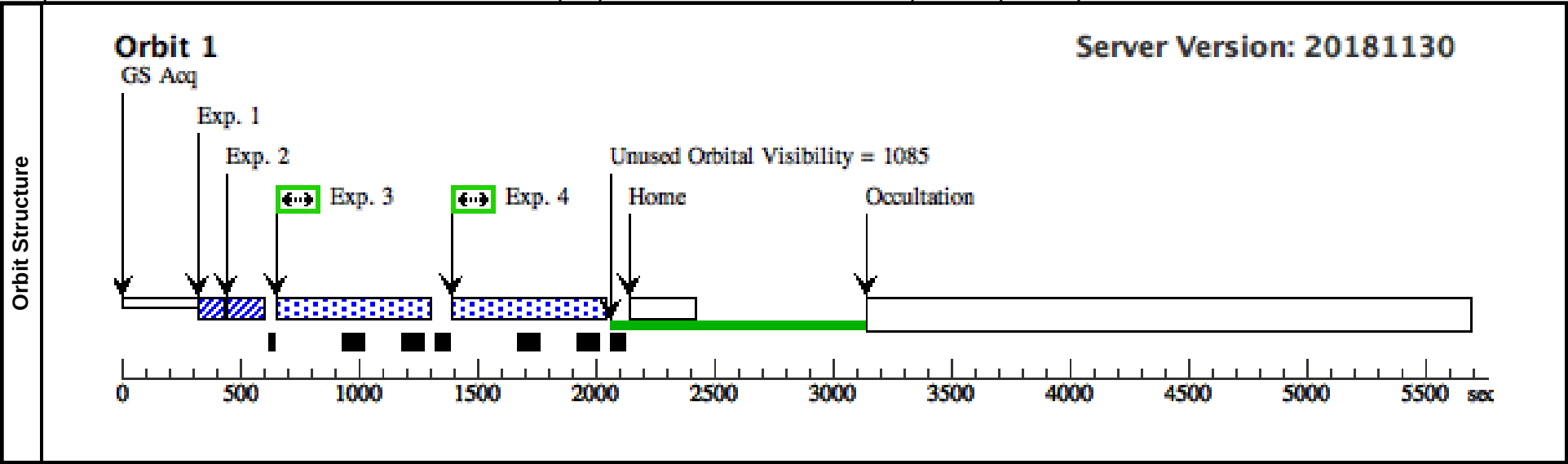
# Proposal 15073 - APASSJ195622.94+641358.0 (00) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ195622.94+641358.0 (00), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Diagnostics   | (APASSJ195622.94+641358.0 (00)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                       |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |
|               | (114)                                                                                                                                                                                                                                              | APASSJ195622.94+641358.0      | RA: 19 56 22.9230 (299.0955125d)<br>Dec: +64 13 59.24 (64.23312d)<br>Equinox: J2000 |                          | Proper Motion RA: -38.8 mas/yr<br>Proper Motion Dec: -77.3 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.09+/-0.1<br>GALEX FUV=15.12 GALEX N<br>UV=15.14 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: APASS, Teff=17780K logg=7.81,DA                                                                                                                                                                                                          |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                  | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3025) | (114) APASSJ19562 2.94+641358.0                                                     | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                                                                                   |                                             |                                                      |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3025)  | (114) APASSJ19562 2.94+641358.0                                                     | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                                                                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3026)     | (114) APASSJ19562 2.94+641358.0                                                     | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                                                                                   | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3026)     | (114) APASSJ19562 2.94+641358.0                                                     | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                                                                                   | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 800 Secs (800 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                                |                                             |                                                      |        |                                 |  |                              |



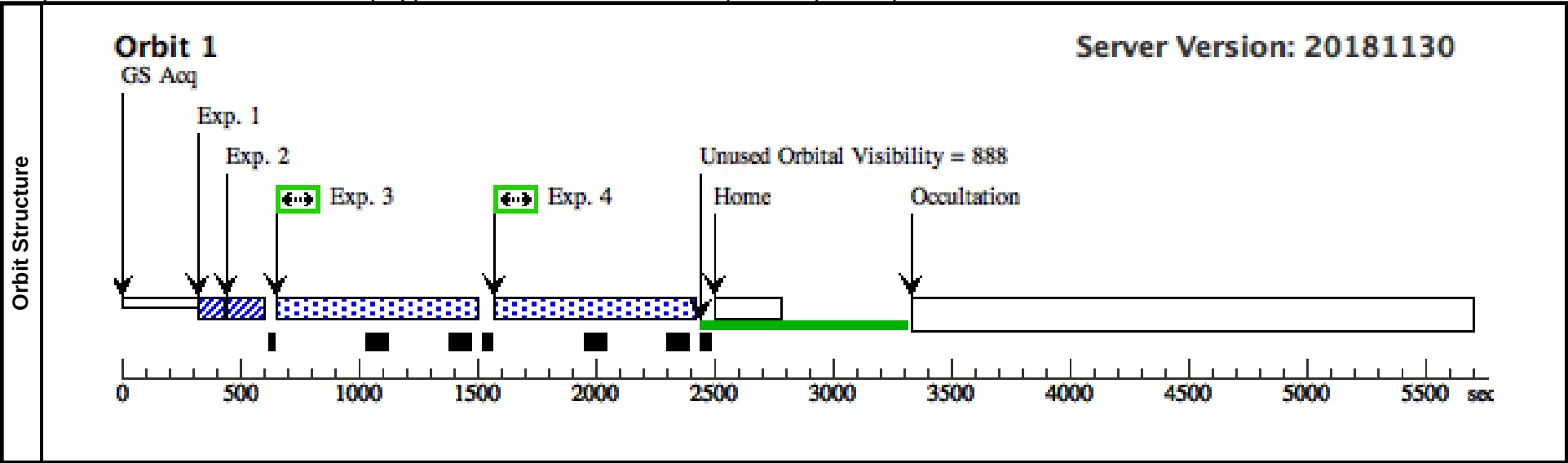
# Proposal 15073 - APASSJ202336.88-111551.3 (0P) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, APASSJ202336.88-111551.3 (0P), scheduling                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Diagnosics    | (APASSJ202336.88-111551.3 (0P)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                      |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |
|               | (115)                                                                                                                                                                                                                                              | APASSJ202336.88-111551.3      | RA: 20 23 36.7990 (305.9033292d)<br>Dec: -11 15 50.39 (-11.26400d)<br>Equinox: J2000 |                          | Proper Motion RA: 94.6 mas/yr<br>Proper Motion Dec: -69.2 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=14.56+/-0.1<br>GALEX FUV=14.42 GALEX N<br>UV=14.54 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: APASS, Teff=16620K logg=8.04,DA                                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     | Spectral Els.                                                                                 | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3027) | (115) APASSJ20233 6.88-111551.3                                                      | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                               |                                             |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3027)  | (115) APASSJ20233 6.88-111551.3                                                      | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3028)     | (115) APASSJ20233 6.88-111551.3                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 600 Secs (600 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3028)     | (115) APASSJ20233 6.88-111551.3                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 600 Secs (600 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                      |        |                                 |  |                              |



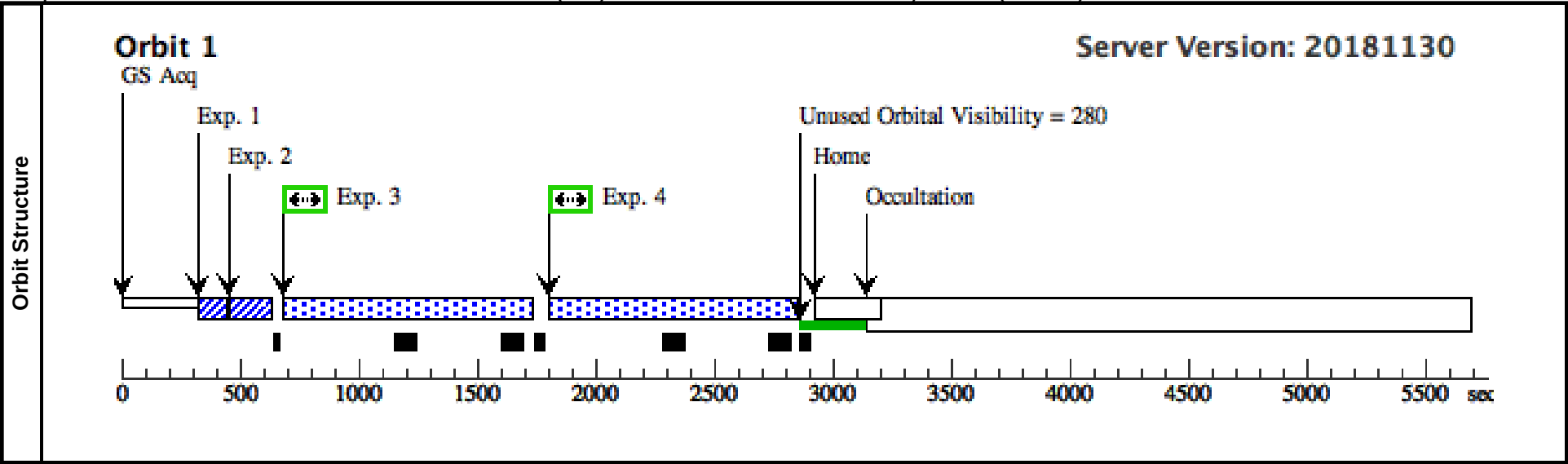
# Proposal 15073 - WD2034-532 (0Q) - Extreme evolved solar systems (EESS)

|                                                                                         |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|-------|
| Visit                                                                                   | Proposal 15073, WD2034-532 (0Q), completed                                                                                                                                                                                           |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 | Thu Dec 20 21:05:00 GMT 2018 |       |
|                                                                                         | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
|                                                                                         | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
|                                                                                         | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
| Diagnostics                                                                             | (WD2034-532 (0Q)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
|                                                                                         |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
| Fixed Targets                                                                           | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                       |                 | Fluxes                                                                |               | Miscellaneous         |                                 |                              |       |
|                                                                                         | (116)                                                                                                                                                                                                                                | WD2034-532                    | RA: 20 38 16.8450 (309.5701875d)<br>Dec: -53 04 25.48 (-53.07374d)<br>Equinox: J2000 |                          | Proper Motion RA: 84.7 mas/yr<br>Proper Motion Dec: -176.4 mas/yr<br>Epoch of Position: 2000.0 |                 | V=14.319+/-0.081<br>GALEX FUV=14.53 GALEX N<br>UV=14.19,<br>SWP10813L |               | Reference Frame: ICRS |                                 |                              |       |
| Comments: DB, Teff=17160K logg=8.48<br>Category=STAR<br>Description=[DB]<br>Extended=NO |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |
| Exposures                                                                               | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     |                                                                                                | Spectral Els.   | Opt. Params.                                                          | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|                                                                                         | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3246) | (116) WD2034-532                                                                     | COS/FUV, ACQ/PEAKXD, PSA |                                                                                                | G130M<br>1291 A |                                                                       |               |                       | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|                                                                                         | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3246)  | (116) WD2034-532                                                                     | COS/FUV, ACQ/PEAKD, PSA  |                                                                                                | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF                            |               |                       | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|                                                                                         | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3702)     | (116) WD2034-532                                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M<br>1291 A | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3                           |               |                       | 800 Secs (800 Secs)<br>[==>]    |                              | [1]   |
|                                                                                         | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3702)     | (116) WD2034-532                                                                     | COS/FUV, TIME-TAG, PSA   |                                                                                                | G130M<br>1291 A | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4                           |               |                       | 800 Secs (800 Secs)<br>[==>]    |                              | [1]   |
|                                                                                         |                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                                |                 |                                                                       |               |                       |                                 |                              |       |



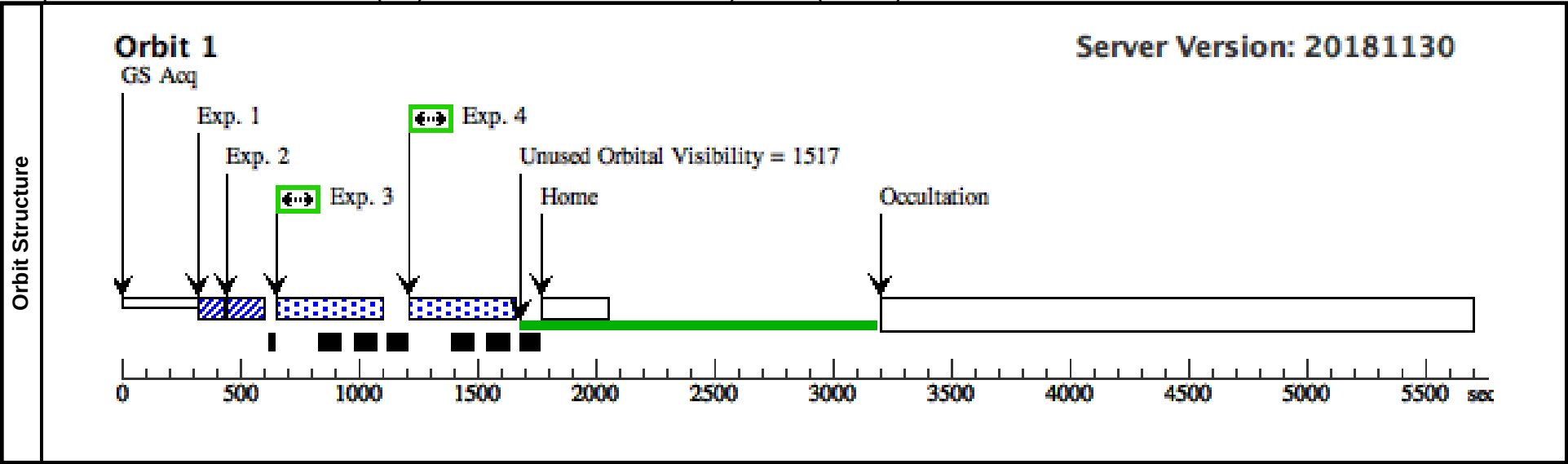
# Proposal 15073 - APASSJ204713.82-125909.5 (0R) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------|------------------------------------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit         | Proposal 15073, APASSJ204713.82-125909.5 (0R), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
| Diagnostics   | (APASSJ204713.82-125909.5 (0R)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                     |                                             | Fluxes                                               |        | Miscellaneous                   |  |                              |  |
|               | (117)                                                                                                                                                                                                                                              | APASSJ204713.82-125909.5      | RA: 20 47 13.7540 (311.8073083d)<br>Dec: -12 59 9.03 (-12.98584d)<br>Equinox: J2000 |                          | Proper Motion RA: 48.8 mas/yr<br>Proper Motion Dec: 33.5 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.85+/-0.1<br>GALEX FUV=15.59 GALEX N<br>UV=15.56 |        | Reference Frame: ICRS           |  |                              |  |
|               | Comments: APASS, Teff=18630K logg=8.37,DAB                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                   |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                | Opt. Params.                                | Special Reqs.                                        | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3029) | (117) APASSJ20471 3.82-125909.5                                                     | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                                                                                 |                                             |                                                      |        | 5 Secs (5 Secs)<br>[==>]        |  | [1]                          |  |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3029)  | (117) APASSJ20471 3.82-125909.5                                                     | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                                                                                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                      |        | 5 Secs (5 Secs)<br>[==>]        |  | [1]                          |  |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3030)     | (117) APASSJ20471 3.82-125909.5                                                     | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                                                                                 | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3 |                                                      |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |  |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3030)     | (117) APASSJ20471 3.82-125909.5                                                     | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                                                                                 | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4 |                                                      |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |  |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                     |                          |                                                                                              |                                             |                                                      |        |                                 |  |                              |  |

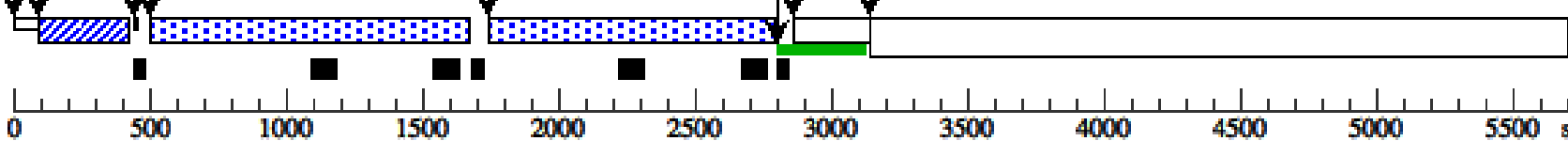


# Proposal 15073 - WD2047+372 (0S) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|---------|
| Visit         | Proposal 15073, WD2047+372 (0S), completed                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        | Thu Dec 20 21:05:00 GMT 2018    |         |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
| Diagnostics   | (WD2047+372 (0S)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                       | Fluxes                                                         | Miscellaneous                               |               |        |                                 |         |
|               | (118)                                                                                                                                                                                                                                | WD2047+372                    | RA: 20 49 6.7170 (312.2779875d)<br>Dec: +37 28 14.15 (37.47060d)<br>Equinox: J2000 | Proper Motion RA: 162.8 mas/yr<br>Proper Motion Dec: 153.6 mas/yr<br>Epoch of Position: 2000.0 | V=12.975+/-0.014<br>GALEX FUV=99 GALEX NUV=13.40,<br>SWP27162L | Reference Frame: ICRS                       |               |        |                                 |         |
|               | Comments: Massive, Teff=14600K logg=8.33, DA                                                                                                                                                                                         |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                           | Spectral Els.                                                  | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3247) | (118) WD2047+372                                                                   | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3247)  | (118) WD2047+372                                                                   | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | <br>[1] |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3703)     | (118) WD2047+372                                                                   | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3703)     | (118) WD2047+372                                                                   | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                | BUFFER-TIME=14 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    | <br>[1] |
|               |                                                                                                                                                                                                                                      |                               |                                                                                    |                                                                                                |                                                                |                                             |               |        |                                 |         |

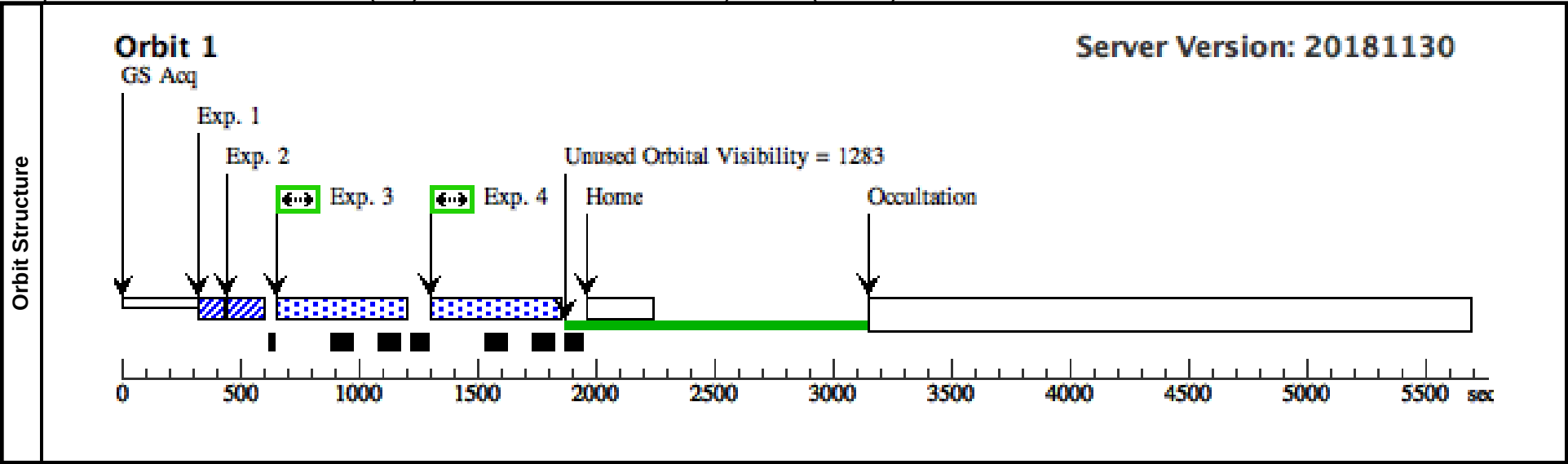


# Proposal 15073 - WD2051+095 (0T) - Extreme evolved solar systems (EESS)

|                                                                     |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit                                                               | Proposal 15073, WD2051+095 (0T), completed                                                                                                                                                                                                                                                                   |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|                                                                     | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                   |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
|                                                                     | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                                     |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
|                                                                     | Special Requirements: (none)                                                                                                                                                                                                                                                                                 |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Diagnostics                                                         | (WD2051+095 (0T)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                         |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Fixed Targets                                                       | #                                                                                                                                                                                                                                                                                                            | Name                        | Target Coordinates                                                                 |                         | Targ. Coord. Corrections                                                                       |                                                | Fluxes                                              |        | Miscellaneous                   |  |                              |
|                                                                     | (119)                                                                                                                                                                                                                                                                                                        | WD2051+095                  | RA: 20 53 43.1180 (313.4296583d)<br>Dec: +09 41 16.02 (9.68778d)<br>Equinox: J2000 |                         | Proper Motion RA: -10.2 mas/yr<br>Proper Motion Dec: 114.6 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=16.2+/-0.2<br>GALEX FUV=16.05 GALEX N<br>UV=16.10 |        | Reference Frame: ICRS           |  |                              |
| Comments: Wide binary, Teff=15670K logg=7.95, DA + MV (i=13.9), 10" |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Category=STAR                                                       |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Description=[DA]                                                    |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Extended=NO                                                         |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Exposures                                                           | #                                                                                                                                                                                                                                                                                                            | Label (ETC Run)             | Target                                                                             | Config,Mode,Aperture    | Spectral Els.                                                                                  | Opt. Params.                                   | Special Reqs.                                       | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|                                                                     | 1                                                                                                                                                                                                                                                                                                            | ACQ/Image (COS.ta.102 1162) | (119) WD2051+095                                                                   | COS/NUV, ACQ/IMAGE, PSA | MIRRORB                                                                                        |                                                |                                                     |        | 20 Secs (20 Secs)<br>[==>]      |  | [1]                          |
|                                                                     | 2                                                                                                                                                                                                                                                                                                            | FP-POS3 (COS.sp.101 3705)   | (119) WD2051+095                                                                   | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                     |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                     | 3                                                                                                                                                                                                                                                                                                            | FP-POS4 (COS.sp.101 3705)   | (119) WD2051+095                                                                   | COS/FUV, TIME-TAG, PSA  | G130M<br>1291 A                                                                                | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                     |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|                                                                     |                                                                                                                                                                                                                                                                                                              |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
| Orbit Structure                                                     | <div><div>Orbit 1</div><div><div>GS Acq</div><div>Pointing Maneuver</div><div>Exp. 1</div><div>Exp. 2</div><div>Exp. 3</div><div>Home Occultation</div><div>Unused Orbital Visibility = 336</div></div><div></div></div> |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |
|                                                                     | Server Version: 20181130                                                                                                                                                                                                                                                                                     |                             |                                                                                    |                         |                                                                                                |                                                |                                                     |        |                                 |  |                              |

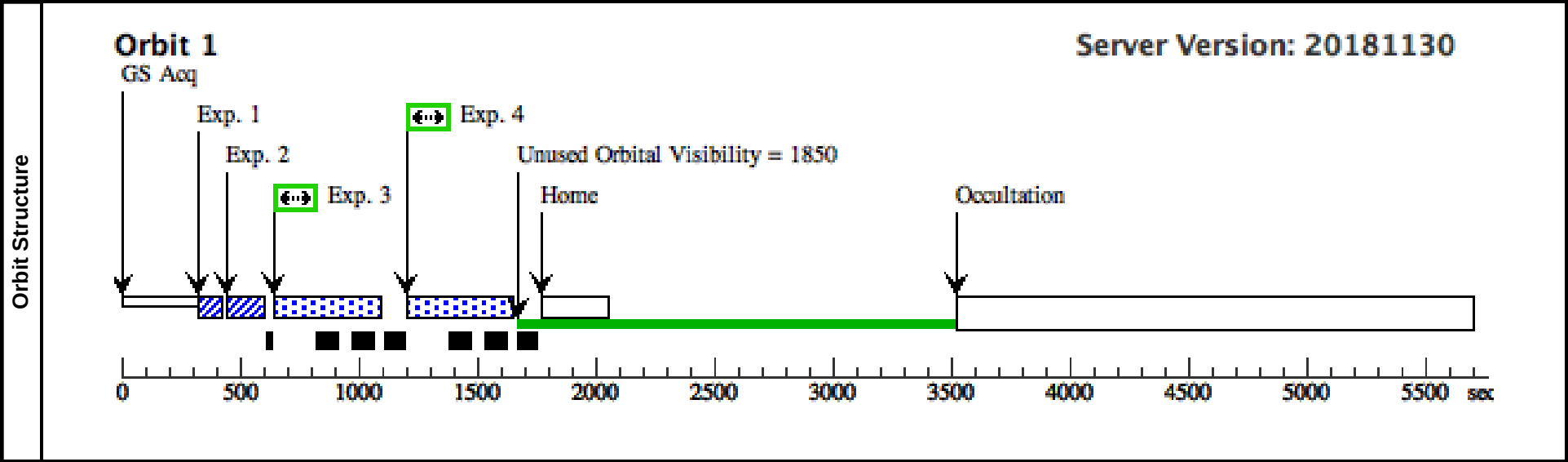
# Proposal 15073 - WD2051-208 (0U) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD2051-208 (0U), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                              |                                                         | Thu Dec 20 21:05:00 GMT 2018                |               |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
| Diagnostics   | (WD2051-208 (0U)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                     | Fluxes                                                  | Miscellaneous                               |               |        |                                 |       |
|               | (120)                                                                                                                                                                                                                                | WD2051-208                    | RA: 20 54 42.8000 (313.6783333d)<br>Dec: -20 39 25.89 (-20.65719d)<br>Equinox: J2000 | Proper Motion RA: 72.7 mas/yr<br>Proper Motion Dec: 13.3 mas/yr<br>Epoch of Position: 2000.0 | V=15.085+/-0.054<br>GALEX FUV=14.14 GALEX N<br>UV=14.43 | Reference Frame: ICRS                       |               |        |                                 |       |
|               | Comments: Magnetic, Teff=21460K logg=9.1, DAH, B=31MG                                                                                                                                                                                |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                         | Spectral Els.                                           | Opt. Params.                                | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3249) | (120) WD2051-208                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                     | G130M<br>1291 A                                         |                                             |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3249)  | (120) WD2051-208                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                      | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |               |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3704)     | (120) WD2051-208                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                         | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3704)     | (120) WD2051-208                                                                     | COS/FUV, TIME-TAG, PSA                                                                       | G130M<br>1291 A                                         | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                              |                                                         |                                             |               |        |                                 |       |



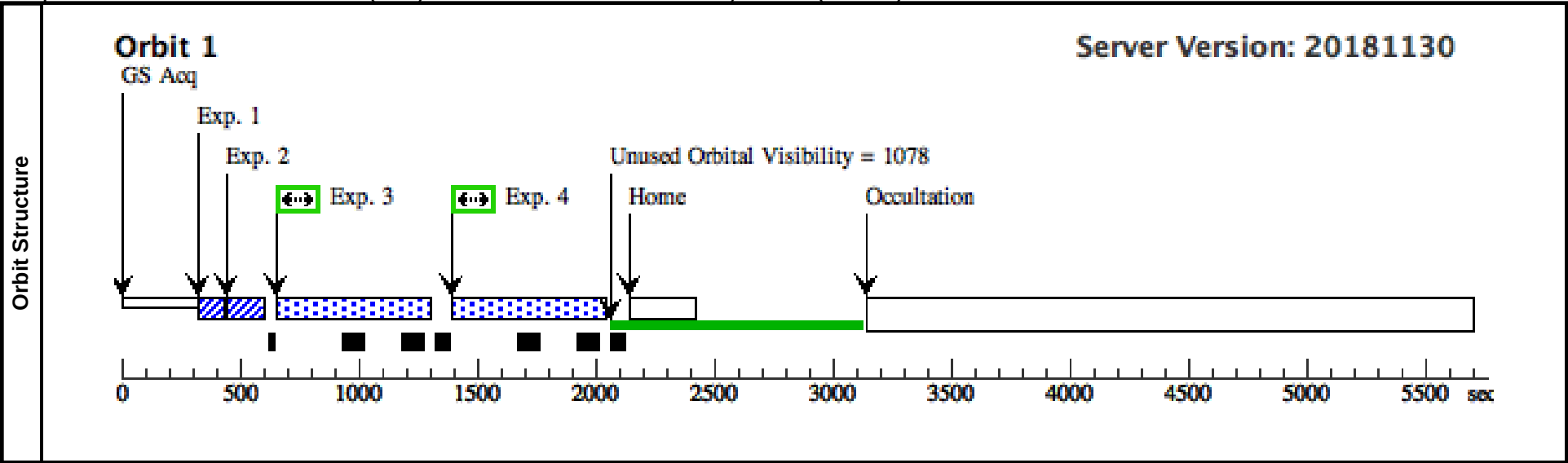
# Proposal 15073 - WD2126+734 (0V) - Extreme evolved solar systems (EESS)

|                                                           |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|--|------------------------------|--|
| Visit                                                     | Proposal 15073, WD2126+734 (0V), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |  |
|                                                           | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
|                                                           | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
|                                                           | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Diagnostics                                               | (WD2126+734 (0V)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Fixed Targets                                             | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                       | Fluxes                                                                            | Miscellaneous                                  |               |        |                                 |  |                              |  |
|                                                           | (121)                                                                                                                                                                                                                                | WD2126+734                    | RA: 21 26 57.6950 (321.7403958d)<br>Dec: +73 38 44.57 (73.64571d)<br>Equinox: J2000 | Proper Motion RA: 57.8 mas/yr<br>Proper Motion Dec: -284.8 mas/yr<br>Epoch of Position: 2000.0 | V=12.85+/-0.05<br>GALEX FUV=13.05 GALEX N<br>UV=13.07,<br>O6GJ04020,<br>SWP01667L | Reference Frame: ICRS                          |               |        |                                 |  |                              |  |
| Comments: Wide binary, Teff=16104K logg=7.97, DA+DC, 1.4" |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Category=STAR                                             |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Description=[DA]                                          |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Extended=NO                                               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |
| Exposures                                                 | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                           | Spectral Els.                                                                     | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|                                                           | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3253) | (121) WD2126+734                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                                                   |                                                |               |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |  |
|                                                           | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3253)  | (121) WD2126+734                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 1 Secs (1 Secs)<br>[==>]        |  | [1]                          |  |
|                                                           | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3706)     | (121) WD2126+734                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                                   | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |  |
|                                                           | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3706)     | (121) WD2126+734                                                                    | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                                                   | BUFFER-TIME=14<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 400 Secs (400 Secs)<br>[==>]    |  | [1]                          |  |
|                                                           |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                |                                                                                   |                                                |               |        |                                 |  |                              |  |



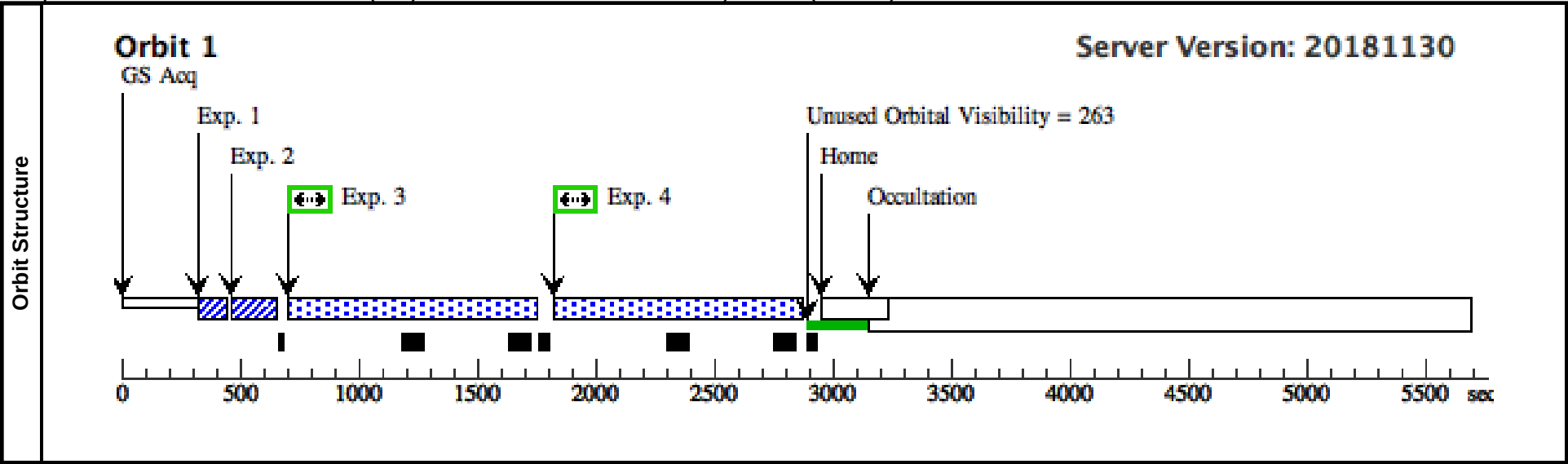
# Proposal 15073 - WD2130-047 (0W) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|--------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD2130-047 (0W), completed                                                                                                                                                                                           |                               |                                  |                          |                                |                                       |                         |        |                                 |     | Thu Dec 20 21:05:00 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
| Diagnostics   | (WD2130-047 (0W)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections       |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |  |
|               | (122)                                                                                                                                                                                                                                | WD2130-047                    | RA: 21 33 34.8400 (323.3951667d) |                          | Proper Motion RA: 243.8 mas/yr |                                       | V=14.479+/-0.039        |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: -04 32 24.15 (-4.54004d)    |                          | Proper Motion Dec: 12.8 mas/yr |                                       | GALEX FUV=14.36 GALEX N |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0      |                                       | UV=14.31                |        |                                 |     |                              |  |
|               | Comments: DB, Teff=18110K logg=8.11                                                                                                                                                                                                  |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|               | Description=[DB]                                                                                                                                                                                                                     |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                |                                       |                         |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                  | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3255) | (122) WD2130-047                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                   |                                       |                         |        | 2 Secs (2 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3255)  | (122) WD2130-047                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                   | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 2 Secs (2 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3707)     | (122) WD2130-047                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                   | BUFFER-TIME=24 5; FLASH=YES; FP-POS=3 |                         |        | 600 Secs (600 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3707)     | (122) WD2130-047                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                   | BUFFER-TIME=24 5; FLASH=YES; FP-POS=4 |                         |        | 600 Secs (600 Secs)             |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                |                                       |                         |        | [==>]                           |     | [1]                          |  |



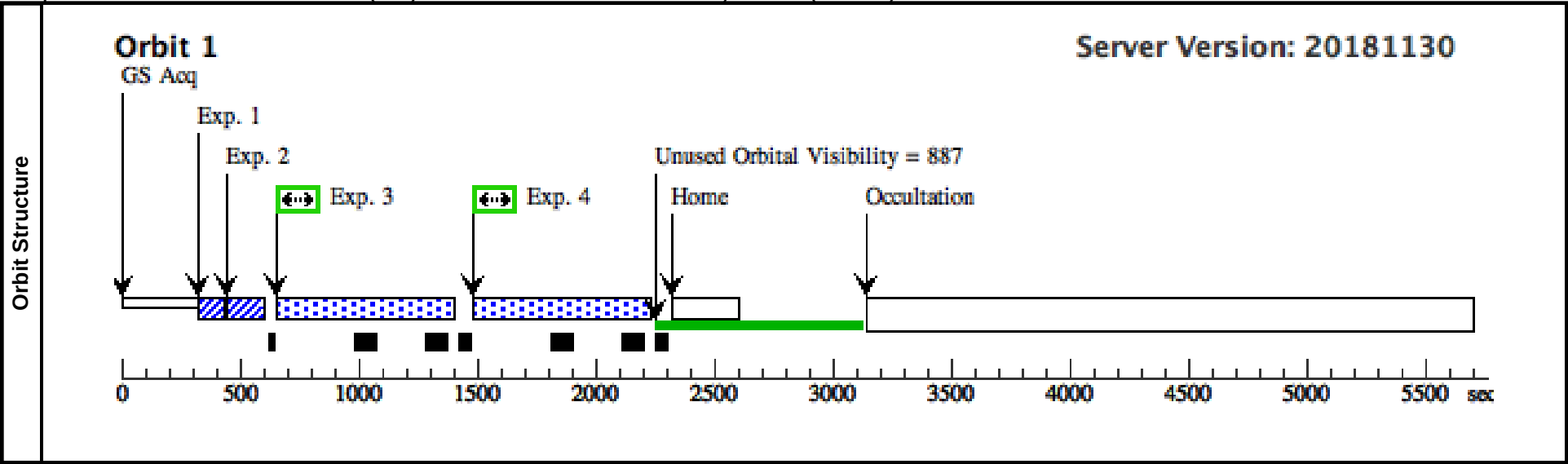
# Proposal 15073 - WD2142-169 (0X) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|--------------|---------------------------------------|---------------------------------------|---------------|---------------------------|---------------------------------|------------------------------|-------|--|--|
| Visit         | Proposal 15073, WD2142-169 (0X), completed                                                                                                                                                                                           |                               |                                  |                          |              |                                       |                                       |               |                           |                                 | Thu Dec 20 21:05:00 GMT 2018 |       |  |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
| Diagnostics   | (WD2142-169 (0X)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          |              | Targ. Coord. Corrections              |                                       |               | Fluxes                    |                                 | Miscellaneous                |       |  |  |
|               | (123)                                                                                                                                                                                                                                | WD2142-169                    | RA: 21 45 27.6720 (326.3653000d) |                          |              | Proper Motion RA: 80.0 mas/yr         |                                       |               | V=15.741+/-0.06           |                                 | Reference Frame: ICRS        |       |  |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: -16 43 8.39 (-16.71900d)    |                          |              | Proper Motion Dec: -36.4 mas/yr       |                                       |               | GALEX FUV=99 GALEX NUV=99 |                                 |                              |       |  |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          |              | Epoch of Position: 2000.0             |                                       |               |                           |                                 |                              |       |  |  |
|               | Comments: DB, Teff=15900K logg=7.93                                                                                                                                                                                                  |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|               | Description=[DB]                                                                                                                                                                                                                     |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |              |                                       |                                       |               |                           |                                 |                              |       |  |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     |              | Spectral Els.                         | Opt. Params.                          | Special Reqs. | Groups                    | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |  |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3257) | (123) WD2142-169                 | COS/FUV, ACQ/PEAKXD, PSA |              | G130M 1291 A                          |                                       |               |                           | 8 Secs (8 Secs)                 |                              |       |  |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               |                           | [==>]                           |                              | [1]   |  |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3257)  | (123) WD2142-169                 | COS/FUV, ACQ/PEAKD, PSA  |              | G130M 1291 A                          | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |               |                           | 8 Secs (8 Secs)                 |                              |       |  |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               |                           | [==>]                           |                              | [1]   |  |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3711)     | (123) WD2142-169                 | COS/FUV, TIME-TAG, PSA   |              | G130M 1291 A                          | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |               |                           | 1000 Secs (1000 Secs)           |                              |       |  |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               | [==>]                     |                                 | [1]                          |       |  |  |
| 4             | FP-POS4 (COS.sp.101 3711)                                                                                                                                                                                                            | (123) WD2142-169              | COS/FUV, TIME-TAG, PSA           |                          | G130M 1291 A | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                                       |               | 1000 Secs (1000 Secs)     |                                 |                              |       |  |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |              |                                       |                                       |               | [==>]                     |                                 | [1]                          |       |  |  |



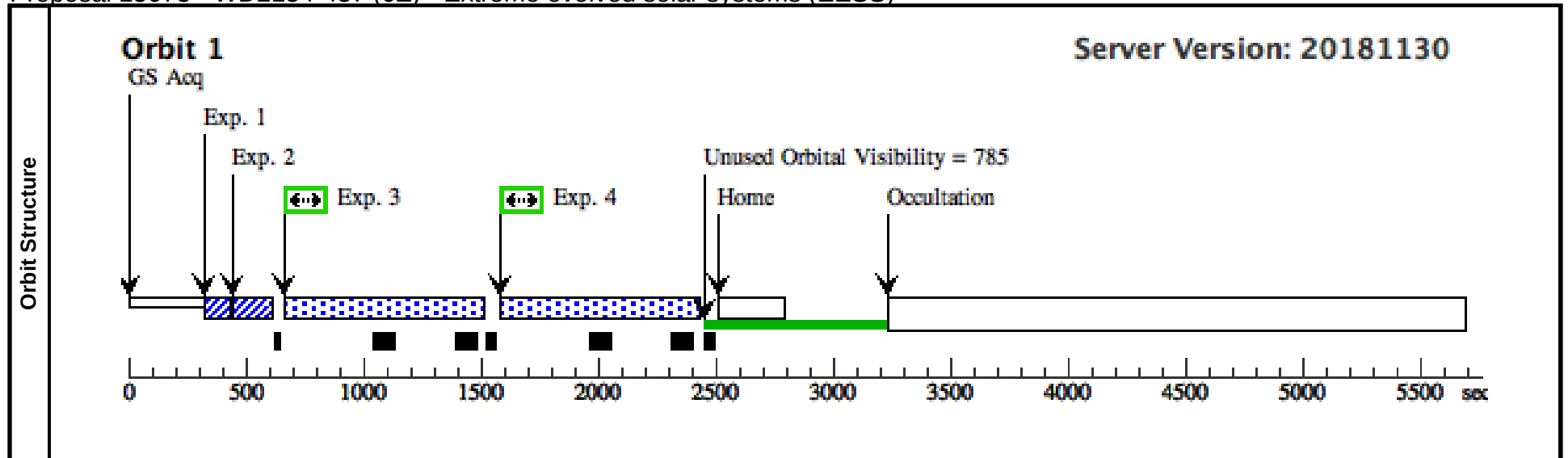
# Proposal 15073 - WD2152-045 (0Y) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD2152-045 (0Y), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                         |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
| Diagnostics   | (WD2152-045 (0Y)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                      | Fluxes                                                  | Miscellaneous                               |                              |        |                                 |       |
|               | (124)                                                                                                                                                                                                                                | WD2152-045                    | RA: 21 54 41.2440 (328.6718500d)<br>Dec: -04 18 17.99 (-4.30500d)<br>Equinox: J2000 | Proper Motion RA: 45.6 mas/yr<br>Proper Motion Dec: -21.2 mas/yr<br>Epoch of Position: 2000.0 | V=15.668+/-0.036<br>GALEX FUV=14.92 GALEX N<br>UV=15.33 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Low mass, Teff=20630K logg=7.55, DA                                                                                                                                                                                        |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                          | Spectral Els.                                           | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3259) | (124) WD2152-045                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                      | G130M<br>1291 A                                         |                                             |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3259)  | (124) WD2152-045                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                       | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3713)     | (124) WD2152-045                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3713)     | (124) WD2152-045                                                                    | COS/FUV, TIME-TAG, PSA                                                                        | G130M<br>1291 A                                         | BUFFER-TIME=29 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 700 Secs (700 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                               |                                                         |                                             |                              |        |                                 |       |



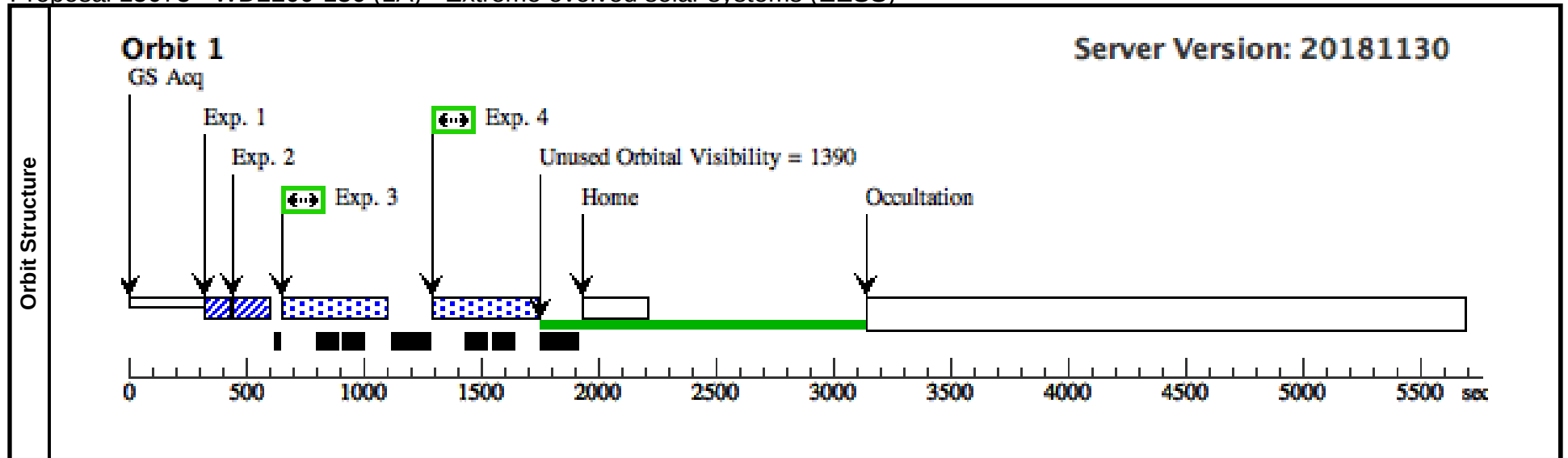
# Proposal 15073 - WD2154-437 (0Z) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD2154-437 (0Z), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                         |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
| Diagnostics   | (WD2154-437 (0Z)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                  | Miscellaneous                               |                              |        |                                 |       |
|               | (125)                                                                                                                                                                                                                                | WD2154-437                    | RA: 21 58 1.4300 (329.5059583d)<br>Dec: -43 27 59.60 (-43.46656d)<br>Equinox: J2000 | Proper Motion RA: 158.5 mas/yr<br>Proper Motion Dec: -187.5 mas/yr<br>Epoch of Position: 2000.0 | V=14.091+/-0.047<br>GALEX FUV=14.88 GALEX N<br>UV=14.29 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: DB, Teff=16734K logg=8.02                                                                                                                                                                                                  |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                           | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3262) | (125) WD2154-437                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                         |                                             |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3262)  | (125) WD2154-437                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3715)     | (125) WD2154-437                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3715)     | (125) WD2154-437                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=34 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 800 Secs (800 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                         |                                             |                              |        |                                 |       |



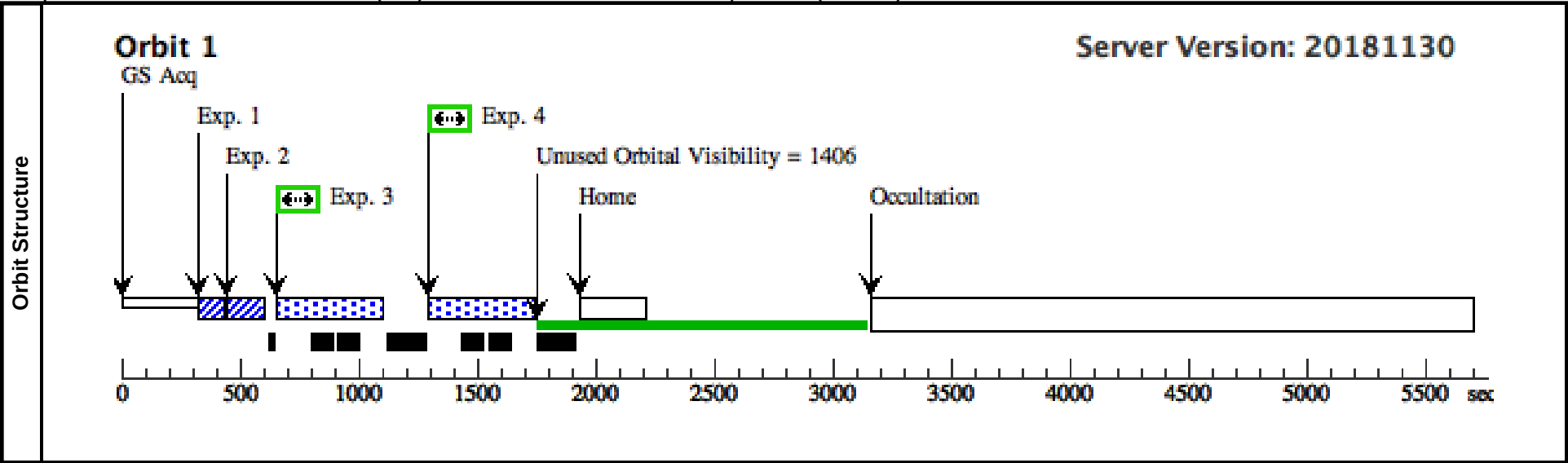
# Proposal 15073 - WD2200-136 (1A) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD2200-136 (1A), scheduling                                                                                                                                                                                          |                               |                                                                                      |                                                                                                |                                                 |                                                | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
| Diagnostics   | (WD2200-136 (1A)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                   | Targ. Coord. Corrections                                                                       | Fluxes                                          | Miscellaneous                                  |                              |        |                                 |       |
|               | (126)                                                                                                                                                                                                                                | WD2200-136                    | RA: 22 03 35.5720 (330.8982167d)<br>Dec: -13 26 49.28 (-13.44702d)<br>Equinox: J2000 | Proper Motion RA: -28.6 mas/yr<br>Proper Motion Dec: -44.2 mas/yr<br>Epoch of Position: 2000.0 | V=15.331+/-0.014<br>GALEX FUV=99 GALEX NUV=14.6 | Reference Frame: ICRS                          |                              |        |                                 |       |
|               | Comments: Massive, Teff=27150K logg=8.45, DA                                                                                                                                                                                         |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture                                                                           | Spectral Els.                                   | Opt. Params.                                   | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3265) | (126) WD2200-136                                                                     | COS/FUV, ACQ/PEAKXD, PSA                                                                       | G130M<br>1291 A                                 |                                                |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3265)  | (126) WD2200-136                                                                     | COS/FUV, ACQ/PEAKD, PSA                                                                        | G130M<br>1291 A                                 | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                              |        | 2 Secs (2 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3718)     | (126) WD2200-136                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                 | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3718)     | (126) WD2200-136                                                                     | COS/FUV, TIME-TAG, PSA                                                                         | G130M<br>1291 A                                 | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 400 Secs (400 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                      |                                                                                                |                                                 |                                                |                              |        |                                 |       |



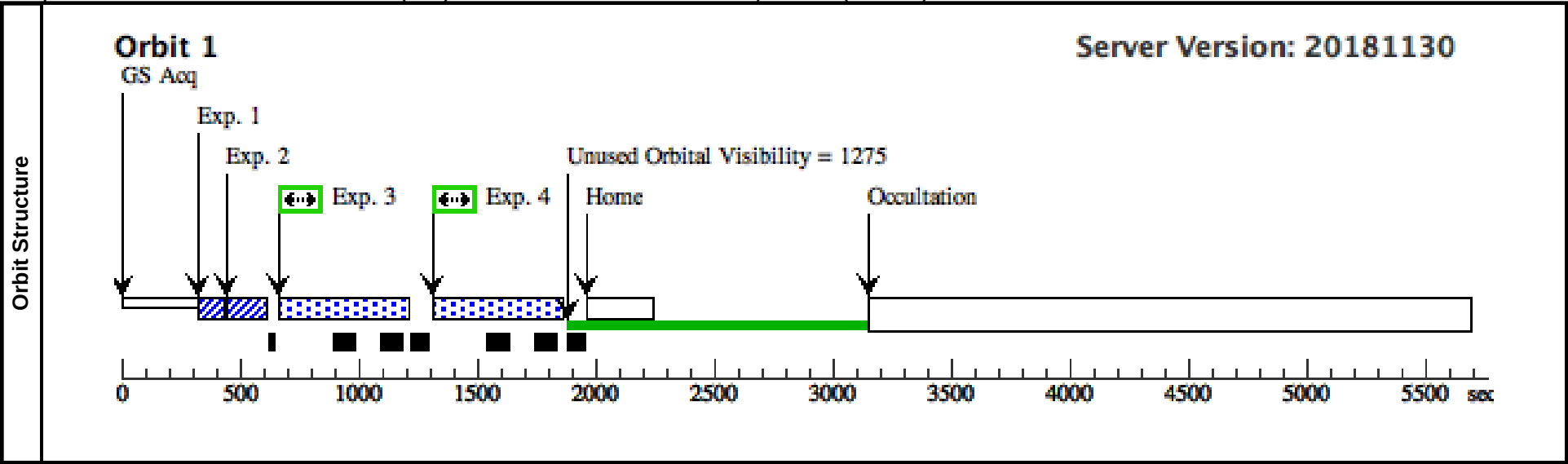
# Proposal 15073 - WD2205+250 (1B) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|-----------------------------------|-----------------|------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|-------|
| Visit         | Proposal 15073, WD2205+250 (1B), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 | Thu Dec 20 21:05:00 GMT 2018 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
| Diagnostics   | (WD2205+250 (1B)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections          |                 | Fluxes                                         |               | Miscellaneous         |                                 |                              |       |
|               | (127)                                                                                                                                                                                                                                | WD2205+250                    | RA: 22 07 45.0053 (331.9375221d) |                          | Proper Motion RA: 87.611 mas/yr   |                 | V=14.47+/-0.1                                  |               | Reference Frame: ICRS |                                 |                              |       |
|               |                                                                                                                                                                                                                                      |                               | Dec: +25 20 22.04 (25.33946d)    |                          | Proper Motion Dec: -26.538 mas/yr |                 | GALEX FUV=99 GALEX NUV=99                      |               |                       |                                 |                              |       |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0         |                 |                                                |               |                       |                                 |                              |       |
|               | Comments: Massive, Teff=27210K logg=8.39, DA                                                                                                                                                                                         |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     |                                   | Spectral Els.   | Opt. Params.                                   | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3267) | (127) WD2205+250                 | COS/FUV, ACQ/PEAKXD, PSA |                                   | G130M<br>1291 A |                                                |               |                       | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3267)  | (127) WD2205+250                 | COS/FUV, ACQ/PEAKD, PSA  |                                   | G130M<br>1291 A | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |                       | 2 Secs (2 Secs)<br>[==>]        |                              | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3718)     | (127) WD2205+250                 | COS/FUV, TIME-TAG, PSA   |                                   | G130M<br>1291 A | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=3 |               |                       | 400 Secs (400 Secs)<br>[==>]    |                              | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3718)     | (127) WD2205+250                 | COS/FUV, TIME-TAG, PSA   |                                   | G130M<br>1291 A | BUFFER-TIME=11<br>1;<br>FLASH=YES;<br>FP-POS=4 |               |                       | 400 Secs (400 Secs)<br>[==>]    |                              | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                   |                 |                                                |               |                       |                                 |                              |       |



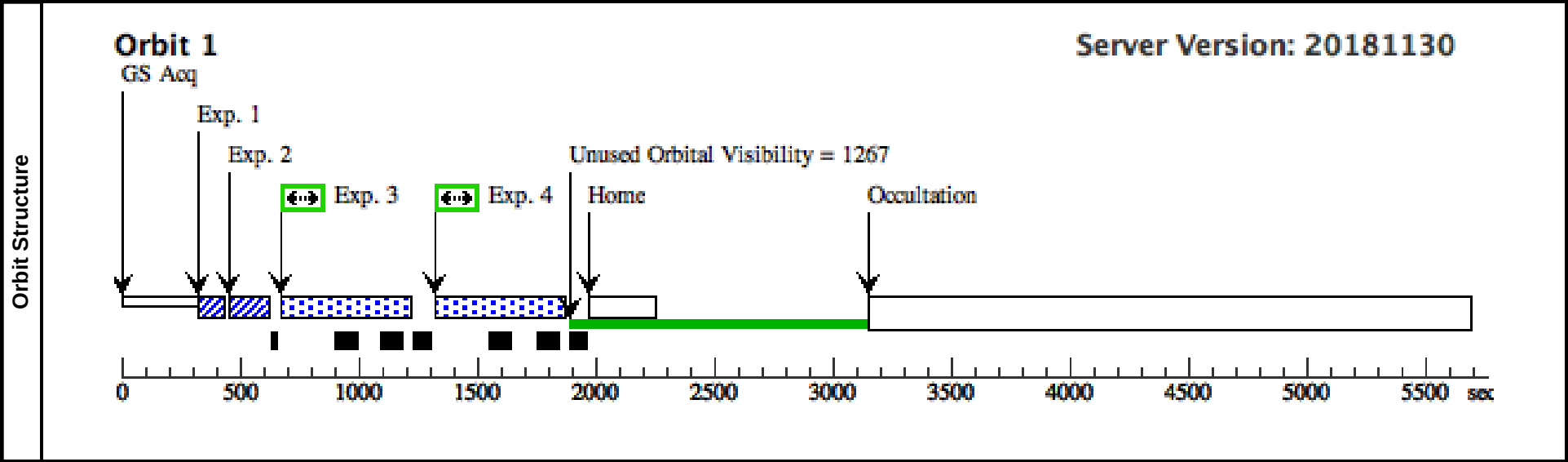
# Proposal 15073 - HS2220+2146B (1C) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                        |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, HS2220+2146B (1C), scheduling                                                                                                                                                                                          |                               |                                                                                    |                                                                                                   |                                                         |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                             |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                        |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                           |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
| Diagnostics   | (HS2220+2146B (1C)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                      | Name                          | Target Coordinates                                                                 | Targ. Coord. Corrections                                                                          | Fluxes                                                  | Miscellaneous                               |                              |        |                                 |       |
|               | (128)                                                                                                                                                                                                                                  | HS2220+2146B                  | RA: 22 23 1.6609 (335.7569204d)<br>Dec: +22 01 30.73 (22.02520d)<br>Equinox: J2000 | Proper Motion RA: 51.985 mas/yr<br>Proper Motion Dec: -61.558 mas/yr<br>Epoch of Position: 2015.5 | V=15.216+/-0.095<br>GALEX FUV=14.85 GALEX N<br>UV=14.94 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Wide binary, Teff=18743K logg=8.241, DA+DA, 5"                                                                                                                                                                               |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
|               | 29/May/2018: changed coordinates according to Gaia DR2                                                                                                                                                                                 |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                       |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                      | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture                                                                              | Spectral Els.                                           | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                      | ACQ/PEAK XD (COS.sa.101 3038) | (128) HS2220+2146 B                                                                | COS/FUV, ACQ/PEAKXD, PSA                                                                          | G130M<br>1291 A                                         |                                             |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                      | ACQ/PEAK D (COS.sa.101 3038)  | (128) HS2220+2146 B                                                                | COS/FUV, ACQ/PEAKD, PSA                                                                           | G130M<br>1291 A                                         | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 3 Secs (3 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                      | FP-POS3 (COS.sp.101 3039)     | (128) HS2220+2146 B                                                                | COS/FUV, TIME-TAG, PSA                                                                            | G130M<br>1291 A                                         | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                      | FP-POS4 (COS.sp.101 3039)     | (128) HS2220+2146 B                                                                | COS/FUV, TIME-TAG, PSA                                                                            | G130M<br>1291 A                                         | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                        |                               |                                                                                    |                                                                                                   |                                                         |                                             |                              |        |                                 |       |



# Proposal 15073 - HS2220+2146A (1D) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                        |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, HS2220+2146A (1D), scheduling                                                                                                                                                                                          |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                             |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                        |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                           |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
| Diagnostics   | (HS2220+2146A (1D)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                      | Name                          | Target Coordinates                                                                 |                          | Targ. Coord. Corrections                                                                          |                                             | Fluxes                                                  |        | Miscellaneous                   |  |                              |
|               | (129)                                                                                                                                                                                                                                  | HS2220+2146A                  | RA: 22 23 1.7621 (335.7573421d)<br>Dec: +22 01 24.32 (22.02342d)<br>Equinox: J2000 |                          | Proper Motion RA: 51.141 mas/yr<br>Proper Motion Dec: -62.349 mas/yr<br>Epoch of Position: 2015.5 |                                             | V=15.216+/-0.095<br>GALEX FUV=14.85 GALEX N<br>UV=14.94 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: Wide binary, Teff=14601K logg=8.08, DA+DA, 5"                                                                                                                                                                                |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
|               | 29/May/2018: changed coordinates according to Gaia DR2                                                                                                                                                                                 |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                       |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                      | Label (ETC Run)               | Target                                                                             | Config,Mode,Aperture     | Spectral Els.                                                                                     | Opt. Params.                                | Special Reqs.                                           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                      | ACQ/PEAK XD (COS.sa.101 3033) | (129) HS2220+2146 A                                                                | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                                   |                                             |                                                         |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                      | ACQ/PEAK D (COS.sa.101 3033)  | (129) HS2220+2146 A                                                                | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                                   | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                         |        | 4 Secs (4 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                      | FP-POS3 (COS.sp.101 3034)     | (129) HS2220+2146 A                                                                | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                   | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                                                         |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               | 4                                                                                                                                                                                                                                      | FP-POS4 (COS.sp.101 3034)     | (129) HS2220+2146 A                                                                | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                                   | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                                                         |        | 500 Secs (500 Secs)<br>[==>]    |  | [1]                          |
|               |                                                                                                                                                                                                                                        |                               |                                                                                    |                          |                                                                                                   |                                             |                                                         |        |                                 |  |                              |



# Proposal 15073 - WD2248-504 (1E) - Extreme evolved solar systems (EESS)

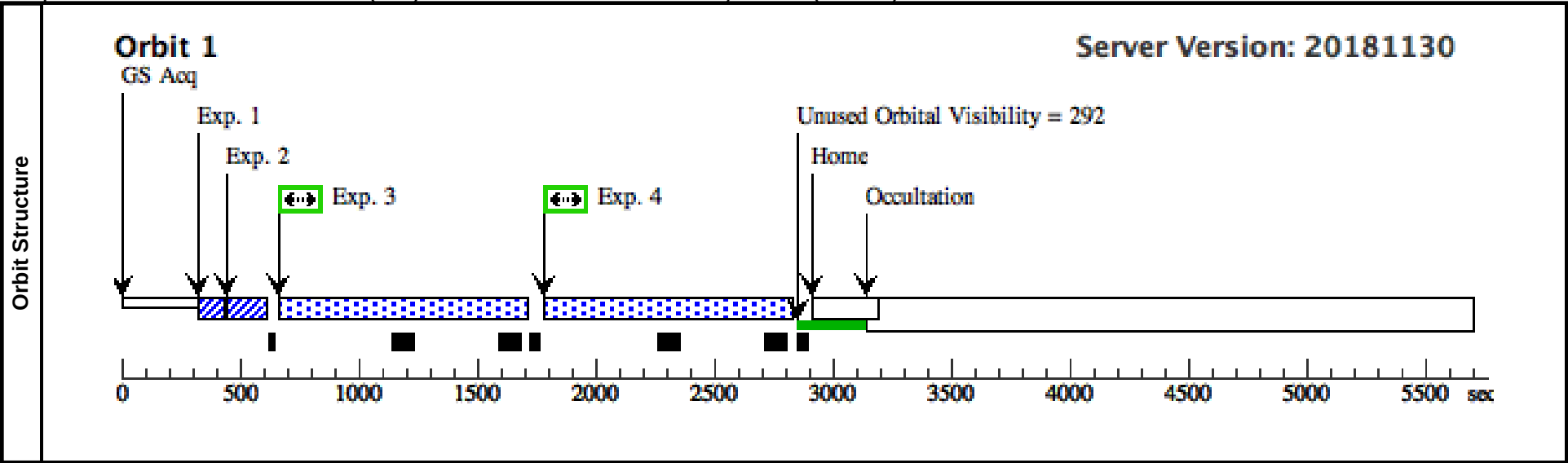
|                 |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|-------|
| Visit           | Proposal 15073, WD2248-504 (1E), completed                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                                 |                                                         | Thu Dec 20 21:05:00 GMT 2018                   |               |        |                                 |       |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                          |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                            |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                        |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
| Diagnosics      | (WD2248-504 (1E)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                   | Name                        | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                  | Miscellaneous                                  |               |        |                                 |       |
|                 | (130)                                                                                                                                                                                                                                                                               | WD2248-504                  | RA: 22 51 2.0570 (342.7585708d)<br>Dec: -50 11 31.53 (-50.19209d)<br>Equinox: J2000 | Proper Motion RA: 155.2 mas/yr<br>Proper Motion Dec: -100.3 mas/yr<br>Epoch of Position: 2000.0 | V=15.668+/-0.022<br>GALEX FUV=14.97 GALEX N<br>UV=14.96 | Reference Frame: ICRS                          |               |        |                                 |       |
|                 | Comments: Default, Teff=16336K logg=7.737, DA                                                                                                                                                                                                                                       |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
|                 | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                                                                    |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
| Exposures       | #                                                                                                                                                                                                                                                                                   | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                           | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|                 | 1                                                                                                                                                                                                                                                                                   | ACQ/Image (COS.ta.102 8916) | (130) WD2248-504                                                                    | COS/NUV, ACQ/IMAGE, PSA                                                                         | MIRRORB                                                 |                                                |               |        | 8 Secs (8 Secs)<br>[==>]        | [1]   |
|                 | 2                                                                                                                                                                                                                                                                                   | FP-POS3 (COS.sp.102 8918)   | (130) WD2248-504                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|                 | 3                                                                                                                                                                                                                                                                                   | FP-POS4 (COS.sp.102 8918)   | (130) WD2248-504                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 1000 Secs (1000 Secs)<br>[==>]  | [1]   |
|                 |                                                                                                                                                                                                                                                                                     |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
| Orbit Structure | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 548</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500    sec</div></div> |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |
|                 | Server Version: 20181130                                                                                                                                                                                                                                                            |                             |                                                                                     |                                                                                                 |                                                         |                                                |               |        |                                 |       |

# Proposal 15073 - WD0220+222 (1F) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                                                  |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|-------------------------|-----------------------------------|---------------|-------------------------|---------------|-----------------------|---------------------------------|------------------------------|-------|-----|--|--|--|--|--|--|--|--|
| Visit           | Proposal 15073, WD0220+222 (1F), completed                                                                                                                                                                                                                                       |                             |                                 |                         |                                   |               |                         |               |                       |                                 | Thu Dec 20 21:05:00 GMT 2018 |       |     |  |  |  |  |  |  |  |  |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                       |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                         |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                     |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
| Diagnostics     | (WD0220+222 (1F)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                             |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                | Name                        | Target Coordinates              |                         | Targ. Coord. Corrections          |               | Fluxes                  |               | Miscellaneous         |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | (131)                                                                                                                                                                                                                                                                            | WD0220+222                  | RA: 02 23 36.1300 (35.9005417d) |                         | Proper Motion RA: 161.6 mas/yr    |               | V=15.6+/-0.2            |               | Reference Frame: ICRS |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             | Dec: +22 27 28.70 (22.45797d)   |                         | Proper Motion Dec: -57.242 mas/yr |               | GALEX FUV=15.62 GALEX N |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             | Equinox: J2000                  |                         | Epoch of Position: 2004.724       |               | UV=15.42                |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Comments: Wide binary, Teff=16240K logg=8.05, DA, companion to THD 14784 (V=8.24), 28.8"                                                                                                                                                                                         |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Category=STAR                                                                                                                                                                                                                                                                    |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Description=[DA]                                                                                                                                                                                                                                                                 |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Extended=NO                                                                                                                                                                                                                                                                      |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
| Exposures       | #                                                                                                                                                                                                                                                                                | Label (ETC Run)             | Target                          | Config,Mode,Aperture    |                                   | Spectral Els. | Opt. Params.            | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] |                              | Orbit |     |  |  |  |  |  |  |  |  |
|                 | 1                                                                                                                                                                                                                                                                                | ACQ/Image (COS.ta.102 1257) | (131) WD0220+222                | COS/NUV, ACQ/IMAGE, PSA |                                   | MIRRORB       |                         |               |                       |                                 | 10 Secs (10 Secs)            |       |     |  |  |  |  |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                 |                         |                                   |               |                         |               |                       |                                 | [==>]                        |       | [1] |  |  |  |  |  |  |  |  |
|                 | 2                                                                                                                                                                                                                                                                                | FP-POS3 (COS.sp.101 3419)   | (131) WD0220+222                | COS/FUV, TIME-TAG, PSA  |                                   | G130M 1291 A  | BUFFER-TIME=44 5;       | FLASH=YES;    |                       |                                 | 1000 Secs (1000 Secs)        |       |     |  |  |  |  |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                 |                         |                                   |               |                         | FP-POS=3      |                       |                                 | [==>]                        |       | [1] |  |  |  |  |  |  |  |  |
|                 | 3                                                                                                                                                                                                                                                                                | FP-POS4 (COS.sp.101 3419)   | (131) WD0220+222                | COS/FUV, TIME-TAG, PSA  |                                   | G130M 1291 A  | BUFFER-TIME=44 5;       | FLASH=YES;    |                       |                                 | 1000 Secs (1000 Secs)        |       |     |  |  |  |  |  |  |  |  |
|                 |                                                                                                                                                                                                                                                                                  |                             |                                 |                         |                                   |               |                         | FP-POS=4      |                       |                                 | [==>]                        |       | [1] |  |  |  |  |  |  |  |  |
| Orbit Structure | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 368</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500 sec</div></div> |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |
|                 | Server Version: 20181130                                                                                                                                                                                                                                                         |                             |                                 |                         |                                   |               |                         |               |                       |                                 |                              |       |     |  |  |  |  |  |  |  |  |

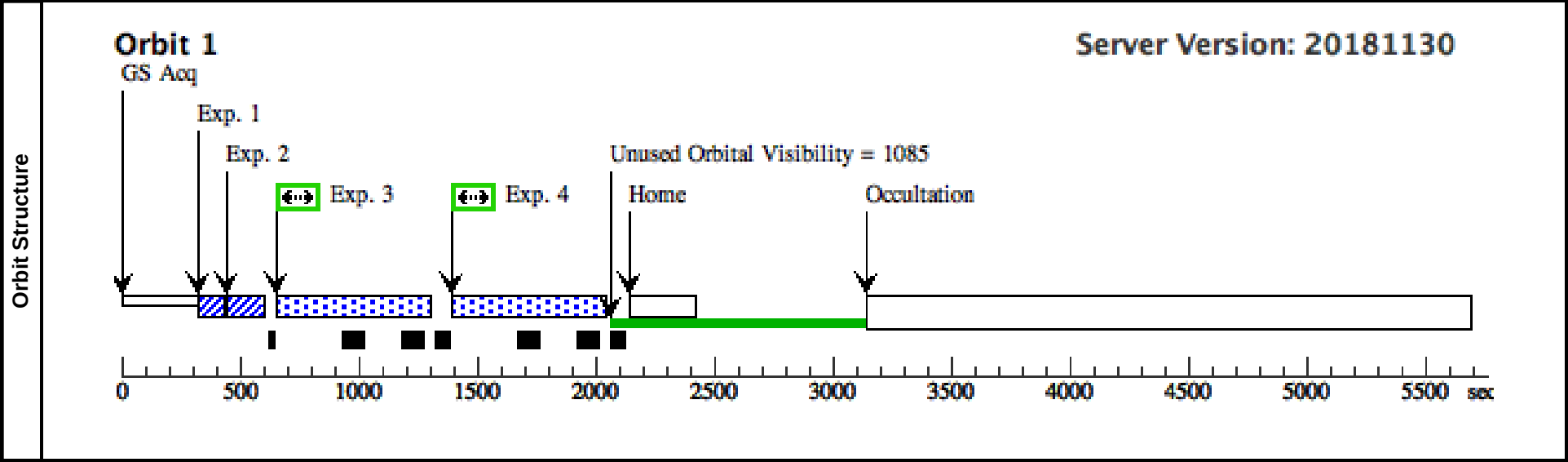
# Proposal 15073 - WD2253-062 (1G) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD2253-062 (1G), completed                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
| Diagnostics   | (WD2253-062 (1G)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  |                          | Targ. Coord. Corrections                                                                      |                                                | Fluxes                                                 |        | Miscellaneous                   |  |                              |
|               | (132)                                                                                                                                                                                                                                | WD2253-062                    | RA: 22 55 47.4240 (343.9476000d)<br>Dec: -06 00 50.37 (-6.01399d)<br>Equinox: J2000 |                          | Proper Motion RA: 76.9 mas/yr<br>Proper Motion Dec: -16.0 mas/yr<br>Epoch of Position: 2000.0 |                                                | V=15.02+/-0.069<br>GALEX FUV=15.03 GALEX N<br>UV=14.71 |        | Reference Frame: ICRS           |  |                              |
|               | Comments: DB, Teff=17190K logg=8.07                                                                                                                                                                                                  |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
|               | Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture     | Spectral Els.                                                                                 | Opt. Params.                                   | Special Reqs.                                          | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3274) | (132) WD2253-062                                                                    | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                               |                                                |                                                        |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3274)  | (132) WD2253-062                                                                    | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |                                                        |        | 3 Secs (3 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3723)     | (132) WD2253-062                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                                                        |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3723)     | (132) WD2253-062                                                                    | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4 |                                                        |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                          |                                                                                               |                                                |                                                        |        |                                 |  |                              |

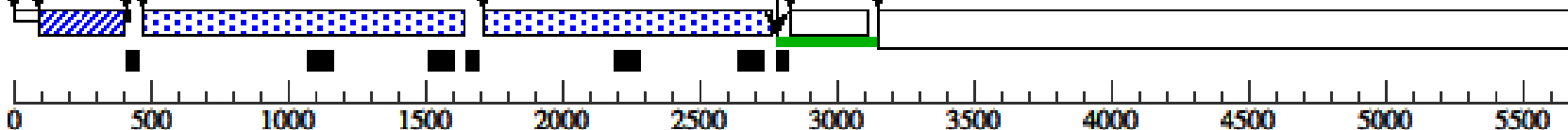


# Proposal 15073 - APASSJ225612.94-131939.3 (1H) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------|--------|---------------------------------|--|------------------------------|--|
| Visit         | Proposal 15073, APASSJ225612.94-131939.3 (1H), scheduling                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                                         |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                                       |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
| Diagnostics   | (APASSJ225612.94-131939.3 (1H)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                                  | Name                          | Target Coordinates                                                                   |                          | Targ. Coord. Corrections                                                                      |                                             | Fluxes                                              |        | Miscellaneous                   |  |                              |  |
|               | (133)                                                                                                                                                                                                                                              | APASSJ225612.94-131939.3      | RA: 22 56 12.9250 (344.0538542d)<br>Dec: -13 19 38.69 (-13.32741d)<br>Equinox: J2000 |                          | Proper Motion RA: 26.6 mas/yr<br>Proper Motion Dec: -26.0 mas/yr<br>Epoch of Position: 2000.0 |                                             | V=15.5+/-0.1<br>GALEX FUV=14.75 GALEX N<br>UV=15.11 |        | Reference Frame: ICRS           |  |                              |  |
|               | Comments: APASS, Teff=20080K logg=7.97,DA                                                                                                                                                                                                          |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
|               | Category=STAR                                                                                                                                                                                                                                      |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
|               | Description=[DA]<br>Extended=NO                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |
| Exposures     | #                                                                                                                                                                                                                                                  | Label (ETC Run)               | Target                                                                               | Config,Mode,Aperture     | Spectral Els.                                                                                 | Opt. Params.                                | Special Reqs.                                       | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                                  | ACQ/PEAK XD (COS.sa.101 3031) | (133) APASSJ22561 2.94-131939.3                                                      | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                                                                               |                                             |                                                     |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 2                                                                                                                                                                                                                                                  | ACQ/PEAK D (COS.sa.101 3031)  | (133) APASSJ22561 2.94-131939.3                                                      | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                                                                               | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                                                     |        | 2 Secs (2 Secs)<br>[==>]        |  | [1]                          |  |
|               | 3                                                                                                                                                                                                                                                  | FP-POS3 (COS.sp.101 3032)     | (133) APASSJ22561 2.94-131939.3                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=3 |                                                     |        | 600 Secs (600 Secs)<br>[==>]    |  | [1]                          |  |
|               | 4                                                                                                                                                                                                                                                  | FP-POS4 (COS.sp.101 3032)     | (133) APASSJ22561 2.94-131939.3                                                      | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                                                                               | BUFFER-TIME=24 5;<br>FLASH=YES;<br>FP-POS=4 |                                                     |        | 600 Secs (600 Secs)<br>[==>]    |  | [1]                          |  |
|               |                                                                                                                                                                                                                                                    |                               |                                                                                      |                          |                                                                                               |                                             |                                                     |        |                                 |  |                              |  |

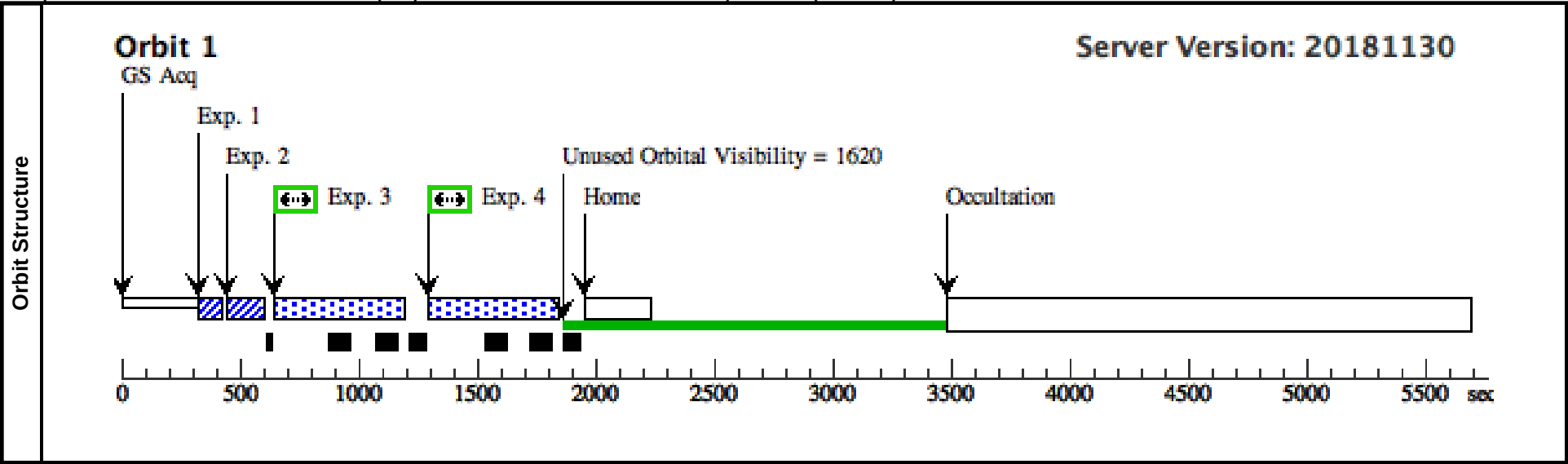


# Proposal 15073 - WD2317-173 (1I) - Extreme evolved solar systems (EESS)

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------|---------------|-----------------------|---------------------------------|------------------------------|
| Visit           | Proposal 15073, WD2317-173 (1I), completed                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 | Thu Dec 20 21:05:00 GMT 2018 |
|                 | Diagnostic Status: Warning                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 | Special Requirements: (none)                                                                                                                                                                                                                                                                                                                                                                                                                 |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
| Diagnostics     | (WD2317-173 (1I)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                                                                                                                                                                                         |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
| Fixed Targets   | #                                                                                                                                                                                                                                                                                                                                                                                                                                            | Name                        | Target Coordinates                                                                   |                         | Targ. Coord. Corrections                                                                     |                 | Fluxes                                                                |               | Miscellaneous         |                                 |                              |
|                 | (134)                                                                                                                                                                                                                                                                                                                                                                                                                                        | WD2317-173                  | RA: 23 19 35.3850 (349.8974375d)<br>Dec: -17 05 28.49 (-17.09125d)<br>Equinox: J2000 |                         | Proper Motion RA: 241.4 mas/yr<br>Proper Motion Dec: 8.5 mas/yr<br>Epoch of Position: 2000.0 |                 | V=14.068+/-0.019<br>GALEX FUV=16.11 GALEX N<br>UV=14.70,<br>SWP15491L |               | Reference Frame: ICRS |                                 |                              |
|                 | Comments: DB, Teff=12610K logg=9.11<br>Category=STAR<br>Description=[DB]<br>Extended=NO                                                                                                                                                                                                                                                                                                                                                      |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
| Exposures       | #                                                                                                                                                                                                                                                                                                                                                                                                                                            | Label (ETC Run)             | Target                                                                               | Config,Mode,Aperture    |                                                                                              | Spectral Els.   | Opt. Params.                                                          | Special Reqs. | Groups                | Exp. Time (Total)/[Actual Dur.] | Orbit                        |
|                 | 1                                                                                                                                                                                                                                                                                                                                                                                                                                            | ACQ/Image (COS.ta.102 1256) | (134) WD2317-173                                                                     | COS/NUV, ACQ/IMAGE, PSA |                                                                                              | MIRRORB         |                                                                       |               |                       | 6 Secs (6 Secs)<br>[==>]        | [1]                          |
|                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                            | FP-POS3 (COS.sp.101 3724)   | (134) WD2317-173                                                                     | COS/FUV, TIME-TAG, PSA  |                                                                                              | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3                        |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]                          |
|                 | 3                                                                                                                                                                                                                                                                                                                                                                                                                                            | FP-POS4 (COS.sp.101 3724)   | (134) WD2317-173                                                                     | COS/FUV, TIME-TAG, PSA  |                                                                                              | G130M<br>1291 A | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4                        |               |                       | 1000 Secs (1000 Secs)<br>[==>]  | [1]                          |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
| Orbit Structure | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1     Exp. 2     Exp. 3</div><div>Unused Orbital Visibility = 375</div><div>Home    Occultation</div></div> |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |
|                 | Server Version: 20181130                                                                                                                                                                                                                                                                                                                                                                                                                     |                             |                                                                                      |                         |                                                                                              |                 |                                                                       |               |                       |                                 |                              |

# Proposal 15073 - WD2319+691 (1J) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------|------------------------------|--------|---------------------------------|-------|
| Visit         | Proposal 15073, WD2319+691 (1J), completed                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                      |                                             | Thu Dec 20 21:05:00 GMT 2018 |        |                                 |       |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
| Diagnostics   | (WD2319+691 (1J)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                               | Miscellaneous                               |                              |        |                                 |       |
|               | (135)                                                                                                                                                                                                                                | WD2319+691                    | RA: 23 21 17.2930 (350.3220542d)<br>Dec: +69 26 22.42 (69.43956d)<br>Equinox: J2000 | Proper Motion RA: -136.1 mas/yr<br>Proper Motion Dec: -13.1 mas/yr<br>Epoch of Position: 2000.0 | V=14.77+/-0.1<br>GALEX FUV=14.33 GALEX N<br>UV=14.34 | Reference Frame: ICRS                       |                              |        |                                 |       |
|               | Comments: Wide binary, Teff=20420K logg=7.96, DA+DC, 29"                                                                                                                                                                             |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                        | Opt. Params.                                | Special Reqs.                | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3281) | (135) WD2319+691                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                      |                                             |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3281)  | (135) WD2319+691                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                      | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                              |        | 1 Secs (1 Secs)<br>[==>]        | [1]   |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3726)     | (135) WD2319+691                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=3 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3726)     | (135) WD2319+691                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                      | BUFFER-TIME=19 5;<br>FLASH=YES;<br>FP-POS=4 |                              |        | 500 Secs (500 Secs)<br>[==>]    | [1]   |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                      |                                             |                              |        |                                 |       |

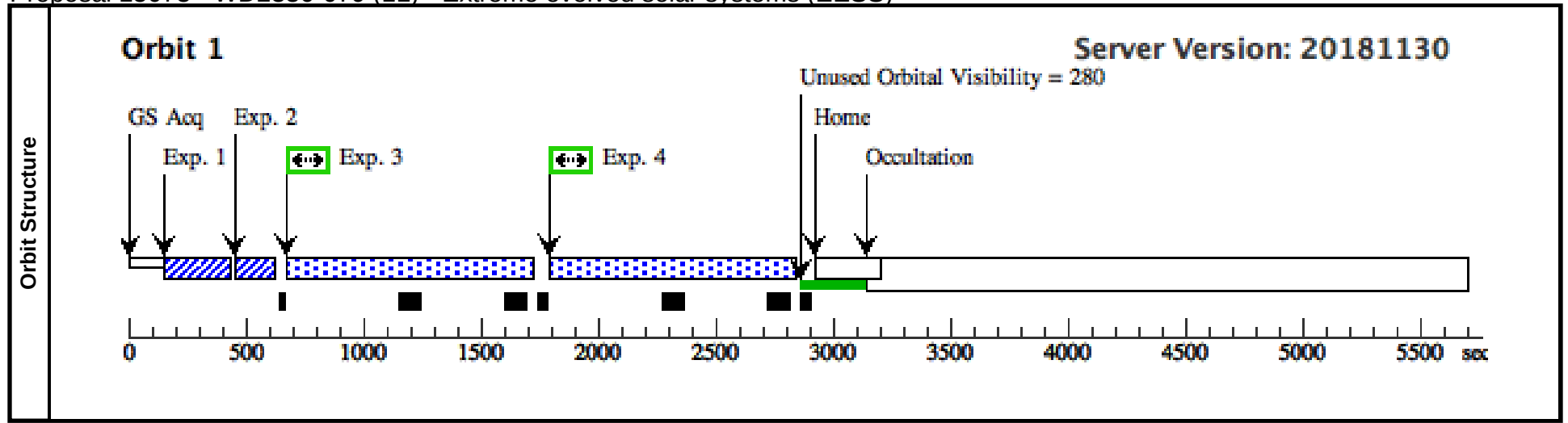


# Proposal 15073 - WD2328+510 (1K) - Extreme evolved solar systems (EESS)

|                                                                                         |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------|------------------------------------------------|-----------------------|---------------|------------------------------|--------|-----------------------|---------------------------------|--|-------|-----|-----|--|--|--|--|
| Visit                                                                                   | Proposal 15073, WD2328+510 (1K), completed                                                                                                                                                                                                                                       |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               | Thu Dec 20 21:05:00 GMT 2018 |        |                       |                                 |  |       |     |     |  |  |  |  |
|                                                                                         | Diagnostic Status: Warning                                                                                                                                                                                                                                                       |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
|                                                                                         | Scientific Instruments: COS/FUV, COS/NUV                                                                                                                                                                                                                                         |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
|                                                                                         | Special Requirements: (none)                                                                                                                                                                                                                                                     |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
| Diagnostics                                                                             | (WD2328+510 (1K)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.                                             |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
| Fixed Targets                                                                           | #                                                                                                                                                                                                                                                                                | Name                        | Target Coordinates                                                                  |                         | Targ. Coord. Corrections                                                                      |                 | Fluxes                                                  |                                                | Miscellaneous         |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
|                                                                                         | (136)                                                                                                                                                                                                                                                                            | WD2328+510                  | RA: 23 30 40.7050 (352.6696042d)<br>Dec: +51 21 49.85 (51.36385d)<br>Equinox: J2000 |                         | Proper Motion RA: 156.4 mas/yr<br>Proper Motion Dec: 68.9 mas/yr<br>Epoch of Position: 2000.0 |                 | V=15.164+/-0.012<br>GALEX FUV=15.94 GALEX N<br>UV=15.11 |                                                | Reference Frame: ICRS |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
| Comments: DB, Teff=14460K logg=8.06<br>Category=STAR<br>Description=[DB]<br>Extended=NO |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |
| Exposures                                                                               | #                                                                                                                                                                                                                                                                                | Label (ETC Run)             | Target                                                                              | Config,Mode,Aperture    |                                                                                               | Spectral Els.   |                                                         | Opt. Params.                                   |                       | Special Reqs. |                              | Groups |                       | Exp. Time (Total)/[Actual Dur.] |  | Orbit |     |     |  |  |  |  |
|                                                                                         | 1                                                                                                                                                                                                                                                                                | ACQ/Image (COS.ta.102 1245) | (136) WD2328+510                                                                    | COS/NUV, ACQ/IMAGE, PSA |                                                                                               | MIRRORB         |                                                         |                                                |                       |               |                              |        |                       | 9 Secs (9 Secs)                 |  |       |     |     |  |  |  |  |
|                                                                                         |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       | [==>]                           |  |       |     | [1] |  |  |  |  |
|                                                                                         | 2                                                                                                                                                                                                                                                                                | FP-POS3 (COS.sp.101 3727)   | (136) WD2328+510                                                                    | COS/FUV, TIME-TAG, PSA  |                                                                                               | G130M<br>1291 A |                                                         | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=3 |                       |               |                              |        |                       | 1000 Secs (1000 Secs)           |  |       |     |     |  |  |  |  |
|                                                                                         |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       | [==>]                           |  |       |     | [1] |  |  |  |  |
| 3                                                                                       | FP-POS4 (COS.sp.101 3727)                                                                                                                                                                                                                                                        | (136) WD2328+510            | COS/FUV, TIME-TAG, PSA                                                              |                         | G130M<br>1291 A                                                                               |                 | BUFFER-TIME=44<br>5;<br>FLASH=YES;<br>FP-POS=4          |                                                |                       |               |                              |        | 1000 Secs (1000 Secs) |                                 |  |       |     |     |  |  |  |  |
|                                                                                         |                                                                                                                                                                                                                                                                                  |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        | [==>]                 |                                 |  |       | [1] |     |  |  |  |  |
| Orbit Structure                                                                         | <div><div>Orbit 1</div><div>GS Acq    Pointing Maneuver</div><div>Exp. 1    Exp. 2    Exp. 3    Home    Occultation</div><div>Unused Orbital Visibility = 546</div><div>0    500    1000    1500    2000    2500    3000    3500    4000    4500    5000    5500 sec</div></div> |                             |                                                                                     |                         |                                                                                               |                 |                                                         |                                                |                       |               |                              |        |                       |                                 |  |       |     |     |  |  |  |  |

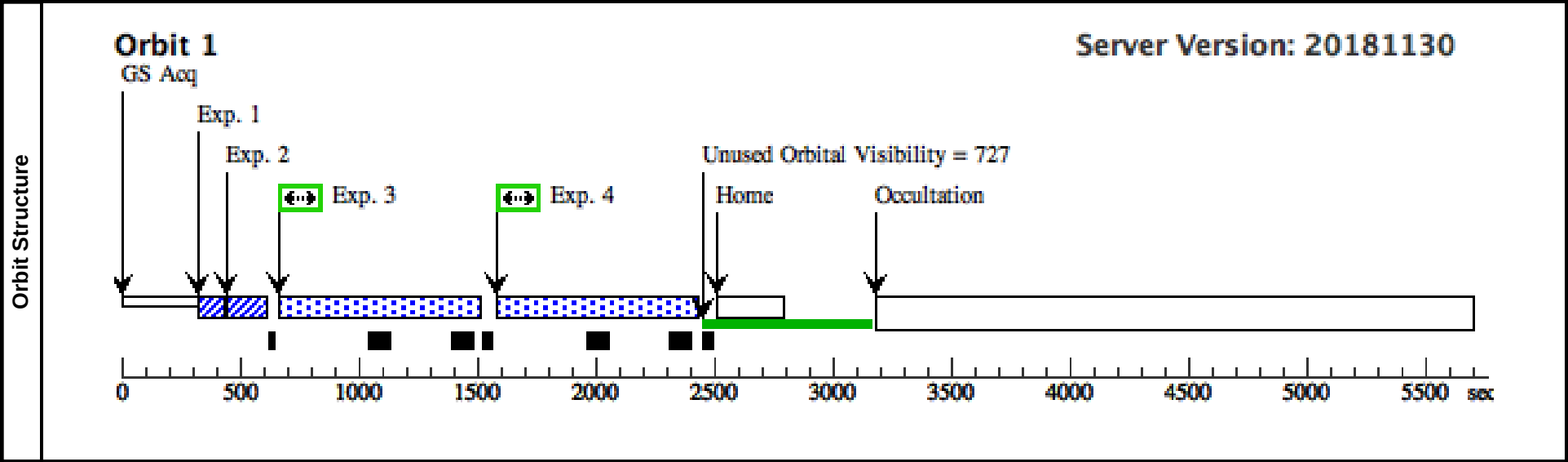
# Proposal 15073 - WD2336-079 (1L) - Extreme evolved solar systems (EESS)

|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|----------------|-------------------------|-----------------------|---------------------------------|-----|------------------------------|
| Visit                                                                        | Proposal 15073, WD2336-079 (1L), completed                                                                                                                                                                                           |                               |                                  |                          |                                 |                |                         |                       |                                 |     | Thu Dec 20 21:05:00 GMT 2018 |
|                                                                              | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
|                                                                              | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
|                                                                              | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Comments: This target is a bit cool, but worthwhile doing => switch to G140L |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Diagnostics                                                                  | (WD2336-079 (1L)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Fixed Targets                                                                | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                | Fluxes                  |                       | Miscellaneous                   |     |                              |
|                                                                              | (137)                                                                                                                                                                                                                                | WD2336-079                    | RA: 23 38 50.7400 (354.7114167d) |                          | Proper Motion RA: 29.7 mas/yr   |                | V=13.257+/-0.048        |                       | Reference Frame: ICRS           |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               | Dec: -07 41 19.98 (-7.68888d)    |                          | Proper Motion Dec: -23.5 mas/yr |                | GALEX FUV=15.67 GALEX N |                       |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                | UV=14.25                |                       |                                 |     |                              |
| Comments: ZZ Ceti, Teff=11280K logg=8.144, DA                                |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Category=STAR                                                                |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Description=[DA]                                                             |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Extended=NO                                                                  |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       |                                 |     |                              |
| Exposures                                                                    | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.   | Special Reqs.           | Groups                | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |
|                                                                              | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.102 8925) | (137) WD2336-079                 | COS/FUV, ACQ/PEAKXD, PSA | G140L<br>1105 A                 |                |                         |                       | 5 Secs (5 Secs)                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                |                         |                       | [==>]                           |     | [1]                          |
|                                                                              | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.102 8925)  | (137) WD2336-079                 | COS/FUV, ACQ/PEAKD, PSA  | G140L<br>1105 A                 | STEP-SIZE=0.9; |                         |                       | 5 Secs (5 Secs)                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 | NUM-POS=5;     |                         |                       | [==>]                           |     | [1]                          |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 | CENTER=DEF     |                         |                       |                                 |     |                              |
| 3                                                                            | FP-POS3 (COS.sp.101 3731)                                                                                                                                                                                                            | (137) WD2336-079              | COS/FUV, TIME-TAG, PSA           | G140L<br>1105 A          | BUFFER-TIME=44                  |                |                         | 1000 Secs (1000 Secs) |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | 5;                              |                |                         | [==>]                 |                                 | [1] |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                      |                |                         |                       |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=3                        |                |                         |                       |                                 |     |                              |
| 4                                                                            | FP-POS4 (COS.sp.101 3731)                                                                                                                                                                                                            | (137) WD2336-079              | COS/FUV, TIME-TAG, PSA           | G140L<br>1105 A          | BUFFER-TIME=44                  |                |                         | 1000 Secs (1000 Secs) |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | 5;                              |                |                         | [==>]                 |                                 | [1] |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | FLASH=YES;                      |                |                         |                       |                                 |     |                              |
|                                                                              |                                                                                                                                                                                                                                      |                               |                                  |                          | FP-POS=4                        |                |                         |                       |                                 |     |                              |



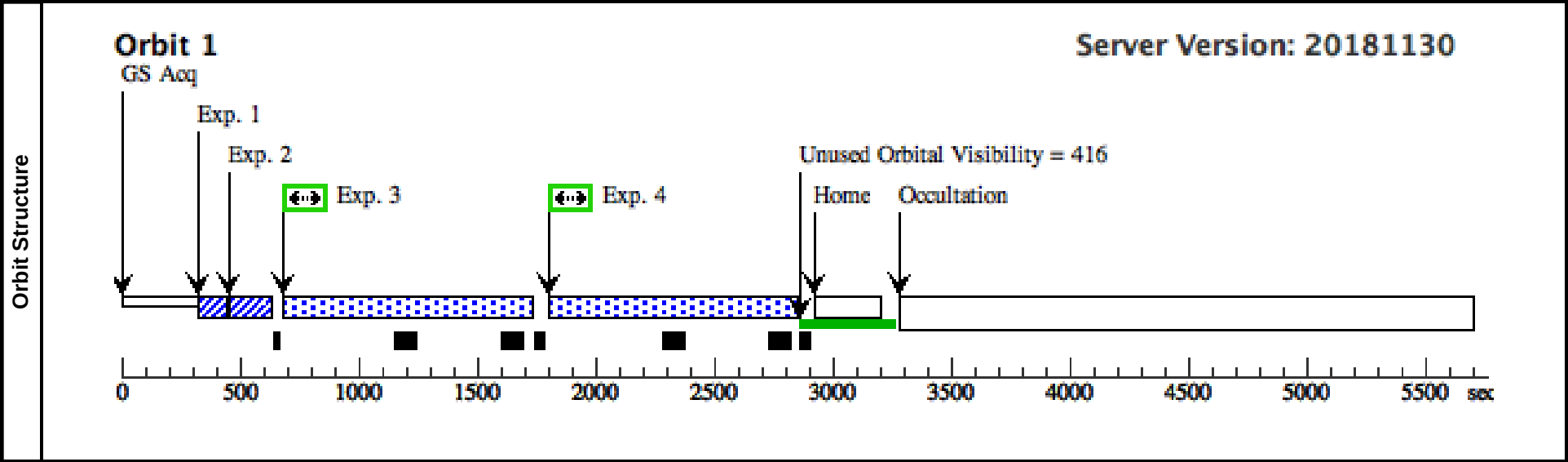
# Proposal 15073 - WD2341+322 (1M) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------|---------------|--------|---------------------------------|---------|------------------------------|
| Visit         | Proposal 15073, WD2341+322 (1M), scheduling                                                                                                                                                                                          |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
| Diagnosics    | (WD2341+322 (1M)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates                                                                  | Targ. Coord. Corrections                                                                        | Fluxes                                                                | Miscellaneous                                  |               |        |                                 |         |                              |
|               | (138)                                                                                                                                                                                                                                | WD2341+322                    | RA: 23 43 50.7190 (355.9613292d)<br>Dec: +32 32 46.76 (32.54632d)<br>Equinox: J2000 | Proper Motion RA: -217.0 mas/yr<br>Proper Motion Dec: -60.1 mas/yr<br>Epoch of Position: 2000.0 | V=12.944+/-0.054<br>GALEX FUV=13.91 GALEX N<br>UV=13.52,<br>SWP14657L | Reference Frame: ICRS                          |               |        |                                 |         |                              |
|               | Comments: Wide binary, Teff=13000K logg=8.02, DA + M1.5V (G 130-6, V=11.7), 174"                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
|               | Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                                                                                     |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                                                                              | Config,Mode,Aperture                                                                            | Spectral Els.                                                         | Opt. Params.                                   | Special Reqs. | Groups | Exp. Time (Total)/[Actual Dur.] | Orbit   |                              |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3286) | (138) WD2341+322                                                                    | COS/FUV, ACQ/PEAKXD, PSA                                                                        | G130M<br>1291 A                                                       |                                                |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |                              |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3286)  | (138) WD2341+322                                                                    | COS/FUV, ACQ/PEAKD, PSA                                                                         | G130M<br>1291 A                                                       | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF     |               |        | 3 Secs (3 Secs)<br>[==>]        | <br>[1] |                              |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3728)     | (138) WD2341+322                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=3 |               |        | 800 Secs (800 Secs)<br>[==>]    | <br>[1] |                              |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3728)     | (138) WD2341+322                                                                    | COS/FUV, TIME-TAG, PSA                                                                          | G130M<br>1291 A                                                       | BUFFER-TIME=34<br>5;<br>FLASH=YES;<br>FP-POS=4 |               |        | 800 Secs (800 Secs)<br>[==>]    | <br>[1] |                              |
|               |                                                                                                                                                                                                                                      |                               |                                                                                     |                                                                                                 |                                                                       |                                                |               |        |                                 |         |                              |



# Proposal 15073 - WD2347-461 (1N) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|---------------------------------|---------------------------------------|-------------------------|--------|---------------------------------|-----|------------------------------|--|
| Visit         | Proposal 15073, WD2347-461 (1N), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                         |        |                                 |     | Thu Dec 20 21:05:00 GMT 2018 |  |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Diagnostics   | (WD2347-461 (1N)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections        |                                       | Fluxes                  |        | Miscellaneous                   |     |                              |  |
|               | (139)                                                                                                                                                                                                                                | WD2347-461                    | RA: 23 50 32.8890 (357.6370375d) |                          | Proper Motion RA: -27.9 mas/yr  |                                       | V=16.191+/-0.074        |        | Reference Frame: ICRS           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Dec: -45 51 34.80 (-45.85967d)   |                          | Proper Motion Dec: -59.4 mas/yr |                                       | GALEX FUV=15.77 GALEX N |        |                                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0       |                                       | UV=15.93                |        |                                 |     |                              |  |
|               | Comments: Low mass, Teff=17738K logg=7.49, DA                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Category=STAR                                                                                                                                                                                                                        |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Description=[DA]                                                                                                                                                                                                                     |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
|               | Extended=NO                                                                                                                                                                                                                          |                               |                                  |                          |                                 |                                       |                         |        |                                 |     |                              |  |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                   | Opt. Params.                          | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |     | Orbit                        |  |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3288) | (139) WD2347-461                 | COS/FUV, ACQ/PEAKXD, PSA | G130M 1291 A                    |                                       |                         |        | 5 Secs (5 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3288)  | (139) WD2347-461                 | COS/FUV, ACQ/PEAKD, PSA  | G130M 1291 A                    | STEP-SIZE=0.9; NUM-POS=5; CENTER=DEF  |                         |        | 5 Secs (5 Secs)                 |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3729)     | (139) WD2347-461                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=3 |                         |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         | [==>]  |                                 | [1] |                              |  |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3729)     | (139) WD2347-461                 | COS/FUV, TIME-TAG, PSA   | G130M 1291 A                    | BUFFER-TIME=44 5; FLASH=YES; FP-POS=4 |                         |        | 1000 Secs (1000 Secs)           |     |                              |  |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                 |                                       |                         |        | [==>]                           |     | [1]                          |  |



# Proposal 15073 - WD2350-083 (1O) - Extreme evolved solar systems (EESS)

|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------------|----------------------------------|---------------------------------------------|-------------------------|--------|---------------------------------|--|------------------------------|
| Visit         | Proposal 15073, WD2350-083 (1O), scheduling                                                                                                                                                                                          |                               |                                  |                          |                                  |                                             |                         |        |                                 |  | Thu Dec 20 21:05:00 GMT 2018 |
|               | Diagnostic Status: Warning                                                                                                                                                                                                           |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
|               | Scientific Instruments: COS/FUV                                                                                                                                                                                                      |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
|               | Special Requirements: (none)                                                                                                                                                                                                         |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
| Diagnostics   | (WD2350-083 (1O)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details. |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
| Fixed Targets | #                                                                                                                                                                                                                                    | Name                          | Target Coordinates               |                          | Targ. Coord. Corrections         |                                             | Fluxes                  |        | Miscellaneous                   |  |                              |
|               | (140)                                                                                                                                                                                                                                | WD2350-083                    | RA: 23 53 27.7680 (358.3657000d) |                          | Proper Motion RA: 130.8 mas/yr   |                                             | V=16.5+/-0.2            |        | Reference Frame: ICRS           |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Dec: -08 04 39.01 (-8.07750d)    |                          | Proper Motion Dec: 31.151 mas/yr |                                             | GALEX FUV=15.60 GALEX N |        |                                 |  |                              |
|               |                                                                                                                                                                                                                                      |                               | Equinox: J2000                   |                          | Epoch of Position: 2000.0        |                                             | UV=15.81                |        |                                 |  |                              |
|               | Comments: Wide binary, Teff=17537K logg=8, DA + GV (V=9.5), 23"<br>Category=STAR<br>Description=[DA]<br>Extended=NO                                                                                                                  |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |
| Exposures     | #                                                                                                                                                                                                                                    | Label (ETC Run)               | Target                           | Config,Mode,Aperture     | Spectral Els.                    | Opt. Params.                                | Special Reqs.           | Groups | Exp. Time (Total)/[Actual Dur.] |  | Orbit                        |
|               | 1                                                                                                                                                                                                                                    | ACQ/PEAK XD (COS.sa.101 3292) | (140) WD2350-083                 | COS/FUV, ACQ/PEAKXD, PSA | G130M<br>1291 A                  |                                             |                         |        | 5 Secs (5 Secs)<br>[==>]        |  | [1]                          |
|               | 2                                                                                                                                                                                                                                    | ACQ/PEAK D (COS.sa.101 3292)  | (140) WD2350-083                 | COS/FUV, ACQ/PEAKD, PSA  | G130M<br>1291 A                  | STEP-SIZE=0.9;<br>NUM-POS=5;<br>CENTER=DEF  |                         |        | 5 Secs (5 Secs)<br>[==>]        |  | [1]                          |
|               | 3                                                                                                                                                                                                                                    | FP-POS3 (COS.sp.101 3730)     | (140) WD2350-083                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=3 |                         |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               | 4                                                                                                                                                                                                                                    | FP-POS4 (COS.sp.101 3730)     | (140) WD2350-083                 | COS/FUV, TIME-TAG, PSA   | G130M<br>1291 A                  | BUFFER-TIME=44 5;<br>FLASH=YES;<br>FP-POS=4 |                         |        | 1000 Secs (1000 Secs)<br>[==>]  |  | [1]                          |
|               |                                                                                                                                                                                                                                      |                               |                                  |                          |                                  |                                             |                         |        |                                 |  |                              |

