



15155 - Actively Disintegrating Astroids around a White Dwarf

Cycle: 25, Proposal Category: GO

(UV Initiative)

(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) WD1145+017	COS/FUV COS/NUV	3	07-Dec-2018 06:00:39.0	yes
02	(1) WD1145+017	COS/FUV COS/NUV	3	07-Dec-2018 06:00:40.0	yes

<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>
03	(1) WD1145+017	COS/FUV COS/NUV	3	07-Dec-2018 06:00:42.0	yes
04	(1) WD1145+017	COS/FUV COS/NUV	3	07-Dec-2018 06:00:43.0	yes
05	(1) WD1145+017	COS/FUV COS/NUV	4	07-Dec-2018 06:00:44.0	yes

16 Total Orbits Used

ABSTRACT

Recent studies show that planetary systems can be widespread around white dwarfs. It has been proposed that planetary systems are responsible for the pollution observed in a white dwarf's atmosphere and the excess infrared radiation. This scenario is greatly strengthened by the recent discovery of actively disintegrating bodies orbiting around the white dwarf WD 1145+017. In addition, this system has a heavily polluted atmosphere, a dust disk, and circumstellar gas. Our team has been monitoring this system since its discovery and our recent COS data have revealed many new surprises. We propose to continue studying this system for the next two cycles and further constrain the evolution of the disintegrating bodies: what are the main mechanisms responsible for its destruction? How is circumstellar gas produced and maintained?

OBSERVING DESCRIPTION

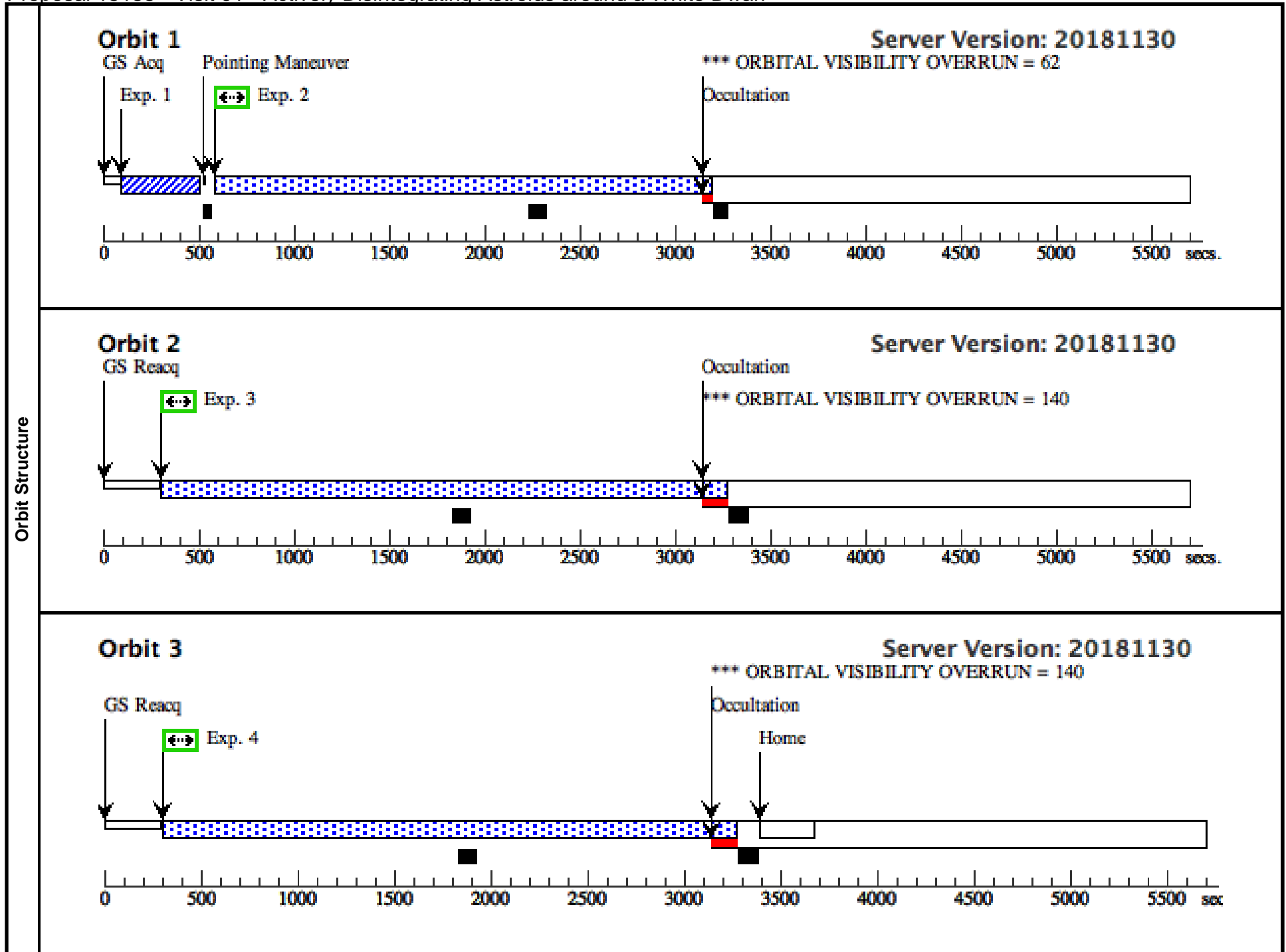
We aim to understand WD 1145+017 system, which has a heavily polluted atmosphere, a dust disk, at least two circumstellar gas components as well as multiple transiting objects. COS observations can uniquely monitor the pollution, circumstellar gas, and transiting objects simultaneously. Here, we propose to obtain a full FUV spectrum of this rapidly evolving object. Specifically, our goal is threefold: (i) Understand the evolution of circumstellar gas; (ii) Study the change of UV light curve; (iii) Explore new spectral features. To have a continuous coverage from 1130 to 1800 Angstrom, we request four set-ups, two with G130M (central wavelength of 1291 Angstrom and 1327 Angstrom), and two with G160M (central wavelength of 1577 Angstrom and 1623 Angstrom).

This is a time-critical proposal that requires coordinated ground-based observations. We prefer to keep the plan windows.

Proposal 15155 - Visit 01 - Actively Disintegrating Astroids around a White Dwarf

Fri Dec 07 11:00:45 GMT 2018

Visit	Proposal 15155, Visit 01, failed Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 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. (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	WD1145+017	RA: 11 48 33.6270 (177.1401125d) Dec: +01 28 59.45 (1.48318d) Equinox: J2000	Proper Motion RA: -43.3 mas/yr Proper Motion Dec: -7 mas/yr Epoch of Position: 2000		V=17.3	Reference Frame: ICRS			
Comments: 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/IMAG E (COS.ta.100 6248)	(1) WD1145+017	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				60 Secs (60 Secs) [==>]	[1]
	2	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2439 Secs) [==>2439.0 Secs]	[1]
	3	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2916 Secs) [==>2916.0 Secs]	[2]
	4	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2916 Secs) [==>2916.0 Secs]	[3]

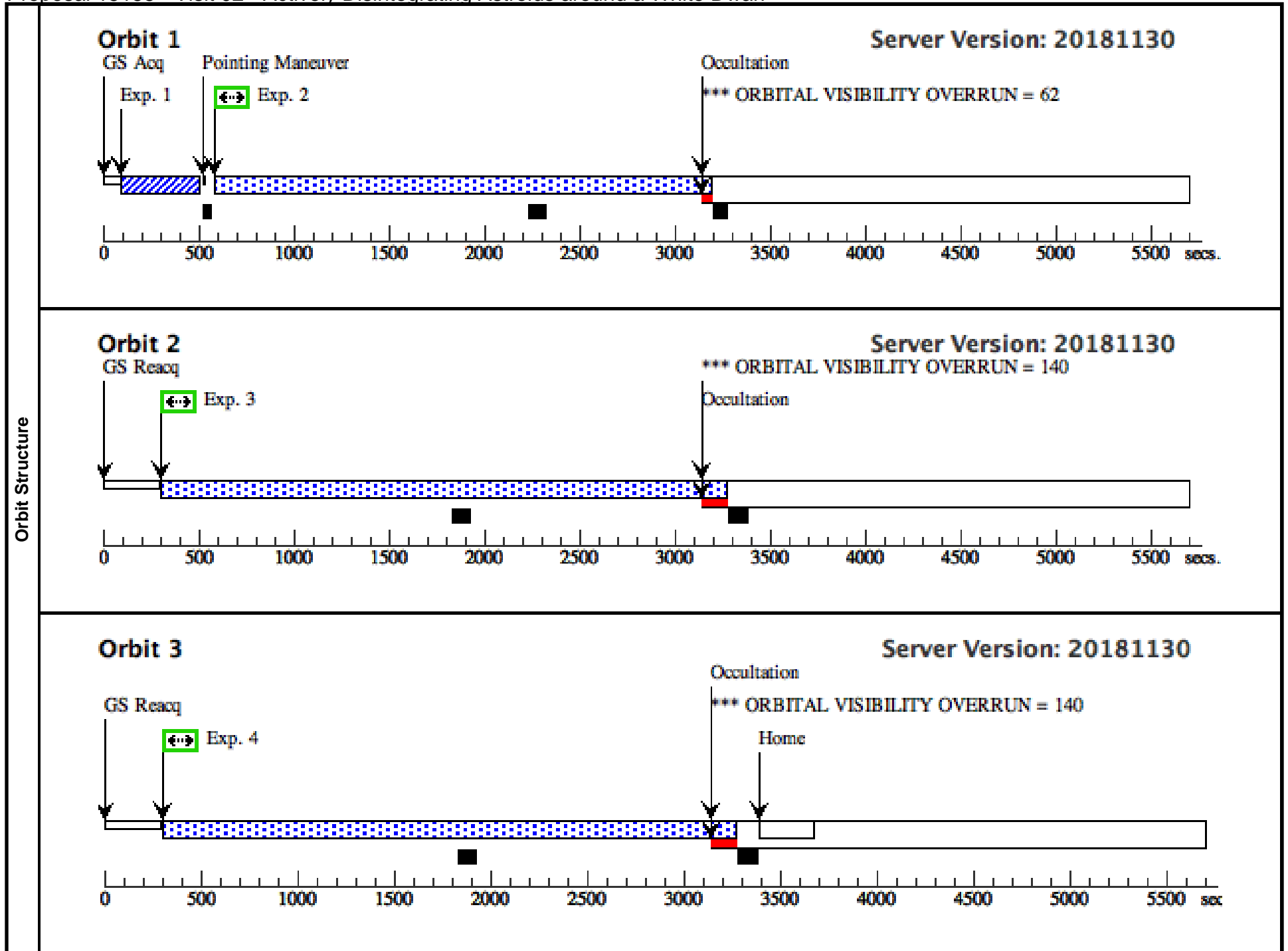


Orbit Structure

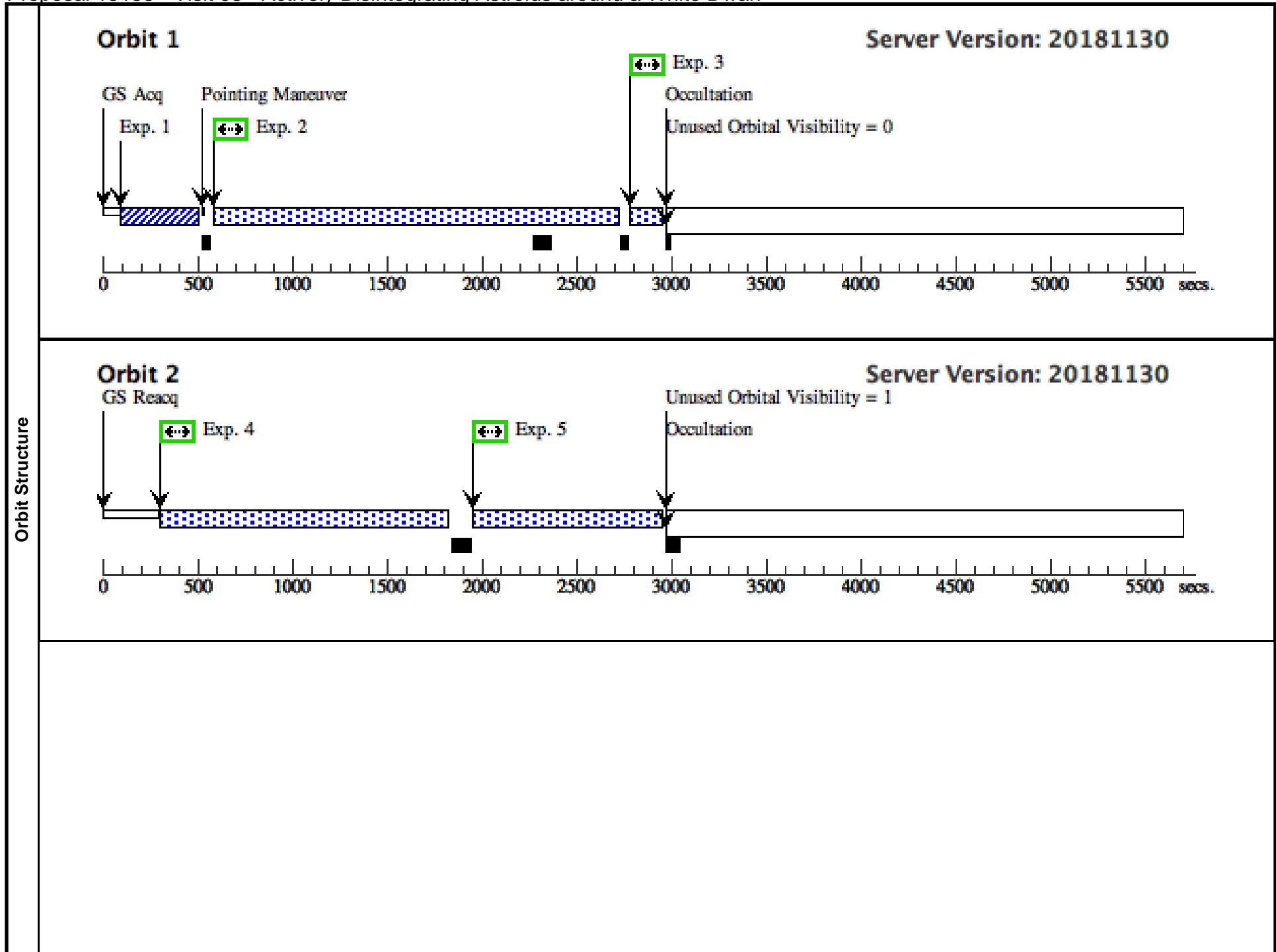
Proposal 15155 - Visit 02 - Actively Disintegrating Astroids around a White Dwarf

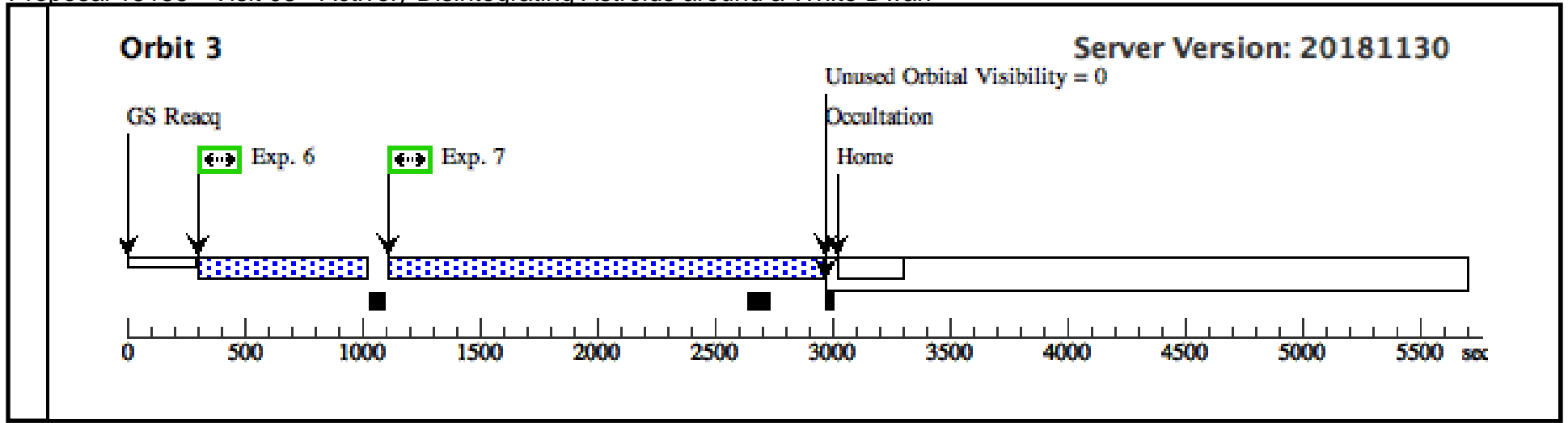
Fri Dec 07 11:00:45 GMT 2018

Visit	Proposal 15155, Visit 02, completed Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: AFTER 01 BY 9.8 Orbits TO 10.2 Orbits																																																						
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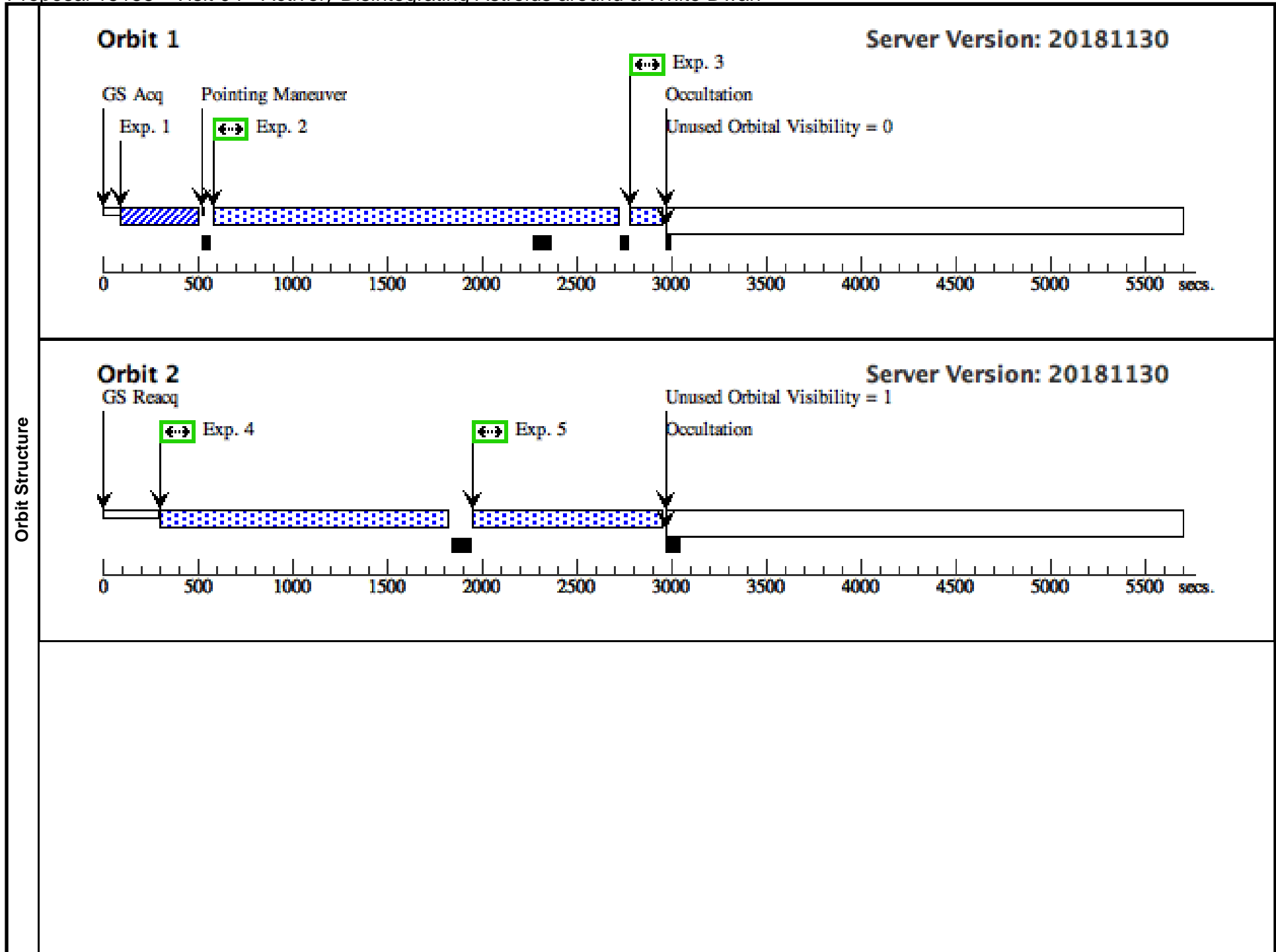


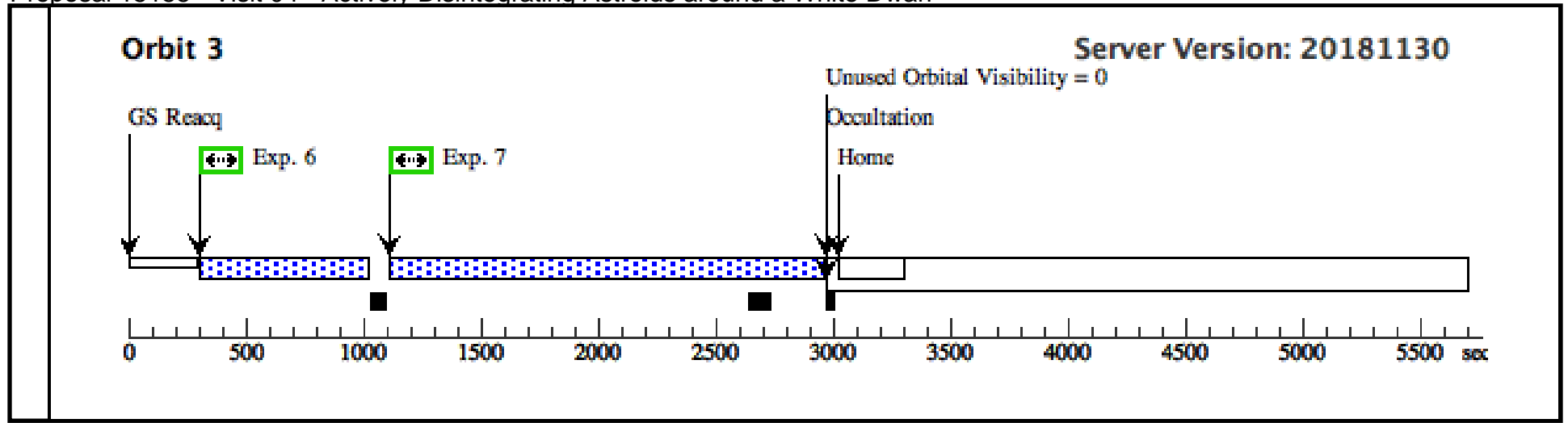


Proposal 15155 - Visit 04 - Actively Disintegrating Astroids around a White Dwarf

Fri Dec 07 11:00:45 GMT 2018

Visit	Proposal 15155, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 80%; AFTER_03 BY 9.8 Orbits TO 10.2 Orbits									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	WD1145+017	RA: 11 48 33.6270 (177.1401125d) Dec: +01 28 59.45 (1.48318d) Equinox: J2000	Proper Motion RA: -43.3 mas/yr Proper Motion Dec: -7 mas/yr Epoch of Position: 2000	V=17.3	Reference Frame: ICRS				
	<i>Comments:</i> 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/IMAG E (COS.ta.100 6248)	(1) WD1145+017	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				60 Secs (60 Secs) [==>]	[1]
	2	WD1145_G 160M (COS.sp.100 6252)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=1; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2100 Secs (1926 Secs) [==>1926.0 Secs]	[1]
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	4	WD1145_G 160M (COS.sp.100 6252)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=2; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			1620 Secs (1474 Secs) [==>1474.0 Secs]	[2]
	5	WD1145_G 160M (COS.sp.100 6252)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			1097 Secs (951 Secs) [==>951.0 Secs]	[2]
	6	WD1145_G 160M (COS.sp.100 6252)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			787 Secs (670 Secs) [==>670.0 Secs]	[3]
	7	WD1145_G 160M (COS.sp.100 6252)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=4; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			1911 Secs (1794 Secs) [==>1794.0 Secs]	[3]





Proposal 15155 - repeat of visit 1&2 (05) - Actively Disintegrating Astroids around a White Dwarf

Fri Dec 07 11:00:45 GMT 2018

Visit	Proposal 15155, repeat of visit 1&2 (05), completed Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)																																																																					
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	1	ACQ/IMAG E (COS.ta.100 6248)	(1) WD1145+017	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				60 Secs (60 Secs) [==>]	[1]																																																												
	2	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2438 Secs) [==>2438.0 Secs]	[1]																																																												
	3	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2916 Secs) [==>2916.0 Secs]	[2]																																																												
	4	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2916 Secs) [==>2916.0 Secs]	[3]																																																												
5	WD1145_G 130M_FPP OS3 (COS.sp.100 6250)	(1) WD1145+017	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; FLASH=YES; SEGMENT=BOTH; BUFFER-TIME=15 00			2000 Secs (2916 Secs) [==>2916.0 Secs]	[4]																																																													

