



16986 - Accreting white dwarfs as probes of compact binary evolution

Cycle: 30, Proposal Category: GO

(UV Initiative, Treasury)

(Availability Mode: AVAILABLE)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Anna Francesca Pala (PI) (ESA Member) (Contact)	ESA-European Space Astronomy Centre
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Prof. Rosa Poggiani (CoI) (ESA Member)	Universita di Pisa
Dr. Gavin Ramsay (CoI) (ESA Member)	Armagh Observatory and Planetarium
Dr. Pablo Rodriguez-Gil (CoI) (ESA Member)	Instituto de Astrofisica de Canarias
Dr. Linda Schmidtobreick (CoI) (ESA Member)	European Southern Observatory - Chile
Prof. Matthias R. Schreiber (CoI)	Universidad Tecnica Federico Santa Maria
Prof. Edward M. Sion (CoI)	Villanova University

Proposal 16986 (STScI Edit Number: 4, Created: Monday, November 27, 2023 at 12:00:35 PM Eastern Standard Time) - Overview

<i>Name</i>	<i>Institution</i>
Prof. Danny Steeghs (CoI) (ESA Member)	The University of Warwick
Prof. Paula Szkody (CoI)	University of Washington
Dr. Odette Fabiola Toloza Castillo (CoI)	Universidad Tecnica Federico Santa Maria
Dr. Gagik Tovmasian (CoI)	Universidad Nacional Autonoma de Mexico (UNAM)
Dr. Dean Townsley (CoI)	University of Alabama
Dr. Patrick Woudt (CoI)	University of Cape Town
Dr. Jan van Roestel (CoI)	California Institute of Technology
Prof. Boris T. Gaensicke (CoI) (ESA Member)	The University of Warwick
Dr. Knox S. Long (CoI)	Eureka Scientific Inc.

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) 2MASS-J23375921+4308509	COS/FUV	2	27-Nov-2023 12:00:27.0	yes
02	(2) 1RXS-J022917.1-395851	COS/FUV	2	27-Nov-2023 12:00:28.0	yes
04	(4) GD-1662	COS/FUV	2	27-Nov-2023 12:00:29.0	yes
54	(4) GD-1662	COS/FUV	2	27-Nov-2023 12:00:30.0	yes
0I	(4) GD-1662	S/C	1	27-Nov-2023 12:00:30.0	yes
0J	(11) GD-1662-SAFE-TARGET	COS/FUV	2	27-Nov-2023 12:00:31.0	yes
06	(6) HS-0506+7725	COS/FUV	3	27-Nov-2023 12:00:31.0	yes
07	(7) V-KR-AUR	COS/FUV COS/NUV	2	27-Nov-2023 12:00:32.0	yes
0O	(7) V-KR-AUR	S/C	1	27-Nov-2023 12:00:33.0	yes
0P	(10) V-KR-AUR-SAFE-TGT	COS/FUV COS/NUV	2	27-Nov-2023 12:00:33.0	yes
08	(8) V-V794-AQL	COS/FUV	3	27-Nov-2023 12:00:34.0	yes
09	(9) V-V442-OPH	COS/FUV	2	27-Nov-2023 12:00:35.0	yes

24 Total Orbits Used

ABSTRACT

In the last 20 years, the study of compact interacting binaries has led to two major breakthroughs in astrophysics: the discovery of dark energy and the first detection of gravitational waves. Although binaries are critically important to probe the properties of the Universe and to test fundamental physical theories, our understanding of their evolution and final fate is still far from being complete.

Accreting white dwarfs are ideal laboratories in which to test the models of compact binary evolution. We here propose a COS Treasury program specifically designed to explore those regions of the parameter space that have been previously poorly studied and where major discrepancies between the theory and observations are found. Combining the high-quality ultraviolet data with the parallaxes from Gaia, we will accurately measure effective temperatures, masses and accretion rates for 43 accreting white dwarfs (the minimum number required to homogeneously sample the entire physical parameter space spanned by this diverse population) thereby testing the mechanisms of angular momentum loss which drive the evolution of all kinds of binaries. The white dwarf masses are a key ingredient in the pathway toward Supernova Type Ia explosions and by obtaining their accurate values, we will constrain both the single and the double-detonation scenarios. Finally, only the ultraviolet allows the detection of the nitrogen and carbon resonance lines. From their abundances, we will establish the formation channel for the most compact systems, which will later be used to verify the performance of the space-mission LISA and calibrate the detector for future gravitational wave source discoveries.

OBSERVING DESCRIPTION

The aim of this program is to obtain far-ultraviolet COS/G140L and STIS/E140M spectroscopy of 43 accreting white dwarfs (WDs). While past HST observations have studied in detail systems in the range $70 \text{ min} < P_{\text{orb}} < 150 \text{ min}$, very few observations have been obtained of long- ($P_{\text{orb}} > 150 \text{ min}$) and short- ($P_{\text{orb}} < 60 \text{ min}$) period accreting WDs, which are therefore the targets of this proposal. We have screened the literature for systems that are bright enough to be observed in 3-5 HST orbits each. The set of targets was chosen to ensure a homogeneous sampling across the P_{orb} range and to maximise the chances of detecting the white dwarf in the UV, and avoiding frequently outbursting systems.

The actual observations are relatively straight-forward: target acquisition, depending on the target brightness, will be done with NUV imaging, or in dispersed light using the G140L grating. The coordinates and proper motions are drawn from Gaia EDR3, hence we do not precede the observations with a search pattern. Depending on the target brightness, the COS G140L spectroscopy will extend over 2, 3, 4, 5 or 6 orbits. We will make use of all 4 FP-POS positions.

Our targets can be divided in two sub-classes according to their observational properties:

1) Dwarf novae: systems characterised by quiescent states of low-mass transfer rates onto the WD, interrupted by bright disc outbursts, during which the binary typically brightens by 2-5 magnitudes. In order to ensure that HST spectroscopy is obtained during quiescence, when the WD is the dominant emission source and safe to be observed, we will obtain intensive continuous ground-based monitoring up until 24 h prior to the HST observations.

2) Nova-likes: systems in the period range $180 \text{ min} < P_{\text{orb}} < 240 \text{ min}$ are typically characterised by high average accretion rates which keep the disc in a stable hot state, equivalent to a permanent outburst. Occasionally the accretion rate drastically drops ("low state"), unveiling the WD. Our sample contains nine systems falling in this category. We will photometrically monitor them from the ground and the HST observations will be triggered via a non-disruptive ToO only once a low state is detected. We expect to detect ~ 3 systems in low state per year and the observations of these targets will be carried out over the over the next three cycles, in order to observe nine of these systems by the end of the program.

Several of the targets are eclipsing (GS Pav, V1239 Her, 2MASS J15445360+2553488, YZ LMi, ZTFJ040749.30-000716.67, ASASSN-14cn, ZTF-J2252-0519). We have included their ephemeris in order for the target acquisition to be scheduled such that it avoids the eclipse (in a similar strategy as that of HST program 12870).

Impact of reduced-gyro operations:

For the dwarf nova targets, we do not expect major impacts on our program in case of reduced-gyro operations. Prolonged acquisition procedures will not significantly affect the SNR we can achieve, while a possible extension of our program into the next cycle will not preclude our science goals, nor affect in any way the feasibility of our observations.

Instead, with time critical observations becoming much more difficult to schedule, reduced-gyro operations could potentially affect the observations of the nova-like targets, for which long-term non-disruptive ToOs are necessary. The additional nova-likes targets we have include can possibility mitigate the limitations related to reduced-gyro operations by offering (i) alternative pointings that can compensate for the limited sky accessibility, (ii) alternative observing windows that could be more easily included in the schedule.

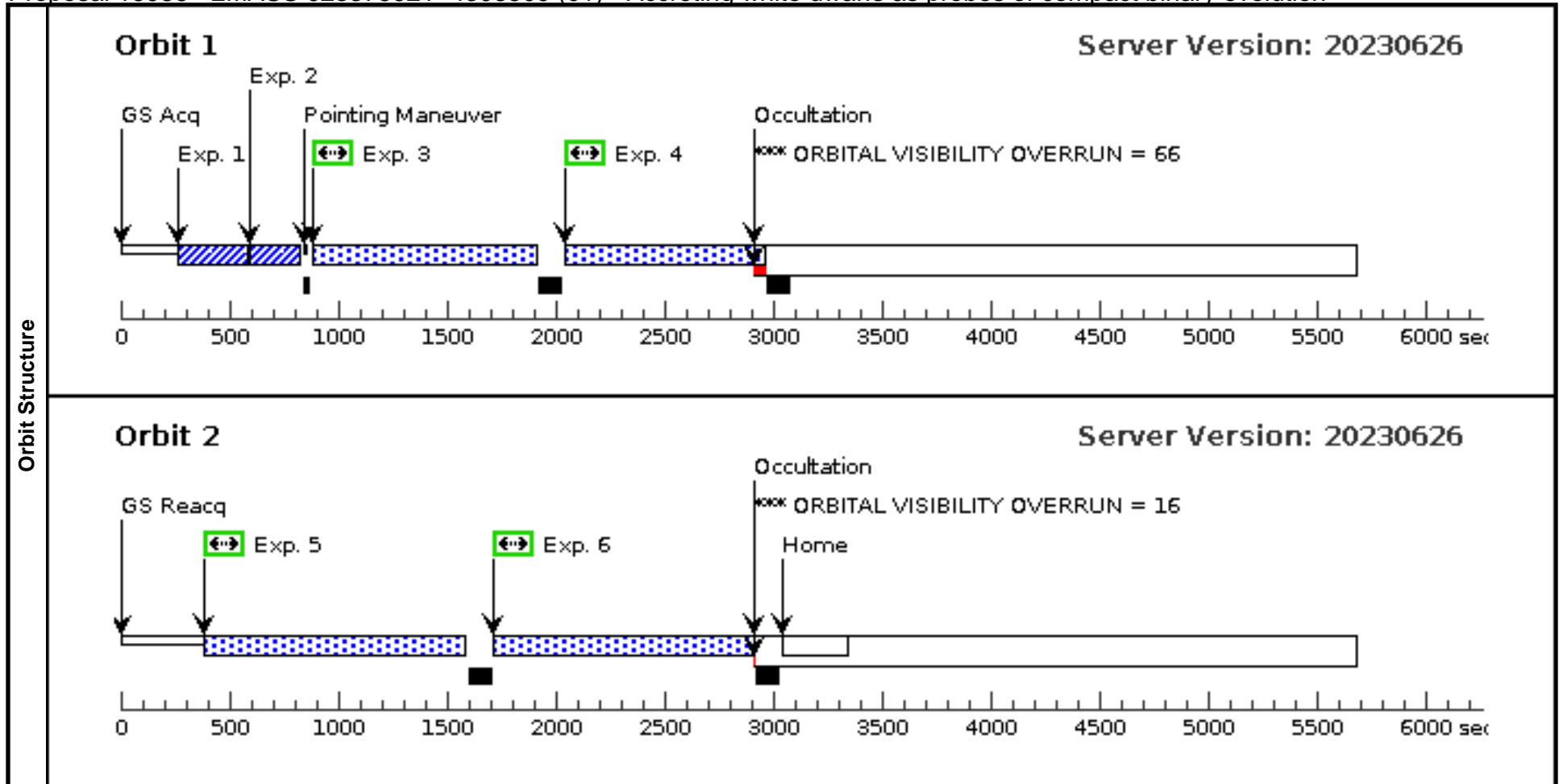
Proposal 16986 - 2MASS-J23375921+4308509 (01) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:35 GMT 2023

Visit	<p>Proposal 16986, 2MASS-J23375921+4308509 (01), implementation</p> <p>Diagnostic Status: Error</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; BETWEEN 15-JUN-2021:00:00:00 AND 15-JAN-2022:00:00:00; BETWEEN 15-JUN-2022:00:00:00 AND 15-JAN-2023:00:00:00; BETWEEN 15-JUN-2023:00:00:00 AND 15-JAN-2024:00:00:00; BETWEEN 15-JUN-2024:00:00:00 AND 15-JAN-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																
	Diagnostics	<p>(ACQ/PEAKXD (01.001)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(ACQ/PEAKD (01.002)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=1 (01.003)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=2 (01.004)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=3 (01.005)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=4 (01.006)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(2MASS-J23375921+4308509 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(2MASS-J23375921+4308509 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>															
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>2MASS-J23375921+4308509</td> <td>RA: 23 37 59.2215 (354.4967563d) Dec: +43 08 50.89 (43.14747d) Equinox: J2000</td> <td>Proper Motion RA: 5.05944115231642 mas/yr Proper Motion Dec: -8.709179843108805 mas/yr Parallax: 0.0011740599949903849" Epoch of Position: 2016.0</td> <td>V=14.31+/-0.08 NUV = 17.49, Gaia EDR3 1925596502097065344, G=16.2, parallax = 1.17(4) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments:</i> <i>Category=STAR</i> <i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i> <i>Extended=NO</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	2MASS-J23375921+4308509	RA: 23 37 59.2215 (354.4967563d) Dec: +43 08 50.89 (43.14747d) Equinox: J2000	Proper Motion RA: 5.05944115231642 mas/yr Proper Motion Dec: -8.709179843108805 mas/yr Parallax: 0.0011740599949903849" Epoch of Position: 2016.0	V=14.31+/-0.08 NUV = 17.49, Gaia EDR3 1925596502097065344, G=16.2, parallax = 1.17(4) mas.
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Proposal 16986 - 2MASS-J23375921+4308509 (01) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/PEAK XD (1527541)	(1) 2MASS-J233759 21+4308509	COS/FUV, ACQ/PEAKXD, PSA 1105 A	G140L			17 Secs (17 Secs) [==>]	[1]	
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 2 more magnitudes.</i>									
	2	ACQ/PEAK D (1527541)	(1) 2MASS-J233759 21+4308509	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9			17 Secs (17 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 2 more magnitudes.</i>									
	3	FP-POS=1 (1527545)	(1) 2MASS-J233759 21+4308509	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=87 2			872 Secs (872 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
4	FP-POS=2 (1527545)	(1) 2MASS-J233759 21+4308509	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=87 2			872 Secs (872 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=3 (1527545)	(1) 2MASS-J233759 21+4308509	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 46			1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
6	FP-POS=4 (1527545)	(1) 2MASS-J233759 21+4308509	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=11 46			1146 Secs (1146 Secs) [==>]	[2]	
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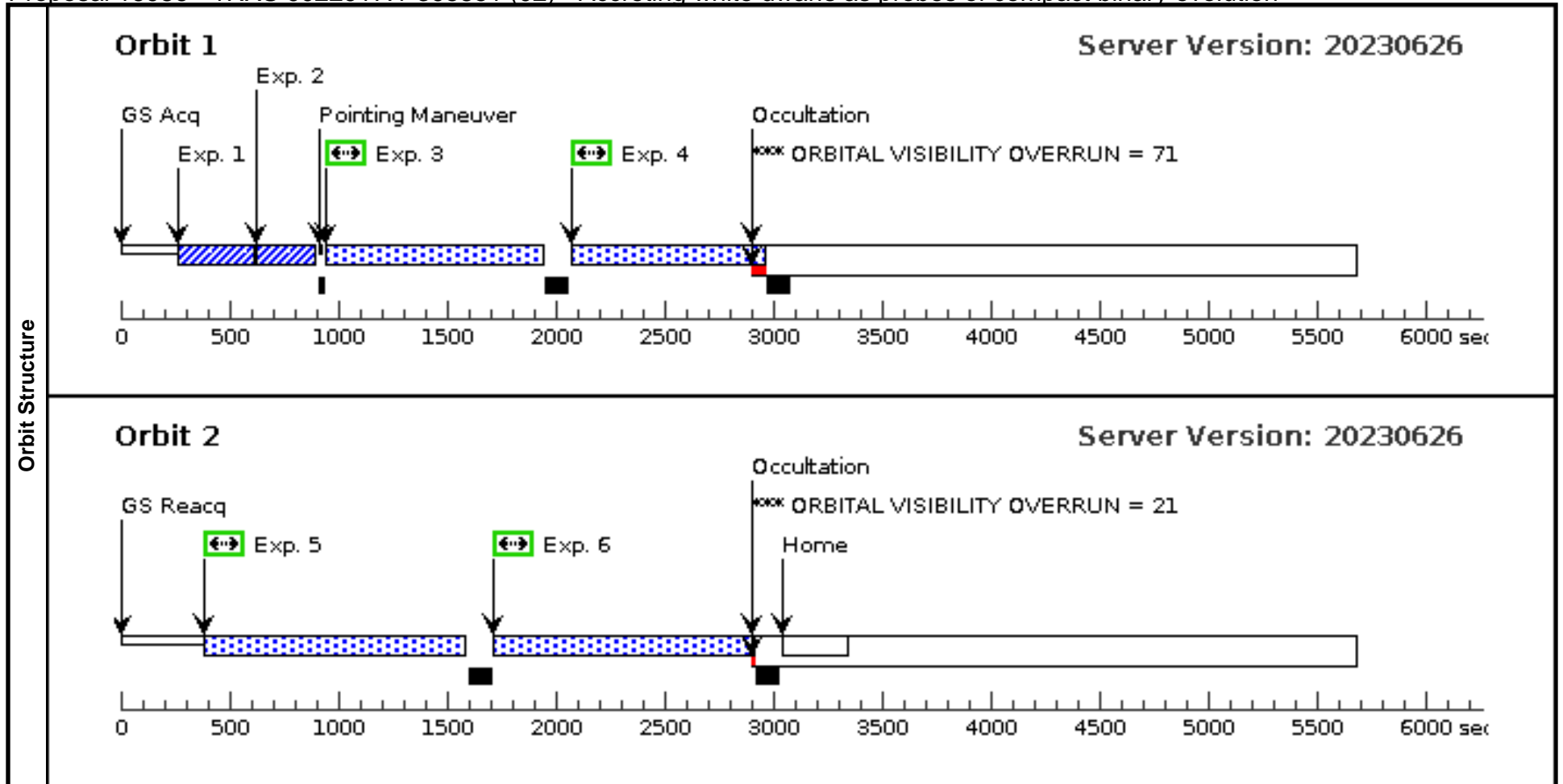
Proposal 16986 - 1RXS-J022917.1-395851 (02) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, 1RXS-J022917.1-395851 (02), implementation</p> <p>Diagnostic Status: Error</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; BETWEEN 30-JUN-2021:00:00:00 AND 22-FEB-2022:00:00:00; BETWEEN 30-JUN-2022:00:00:00 AND 22-FEB-2023:00:00:00; BETWEEN 30-JUN-2023:00:00:00 AND 22-FEB-2024:00:00:00; BETWEEN 30-JUN-2024:00:00:00 AND 22-FEB-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																	
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Proposal 16986 - 1RXS-J022917.1-395851 (02) - Accreting white dwarfs as probes of compact binary evolution

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Exposures	1	ACQ/PEAK XD (1527549)	(2) 1RXS-J022917.1 -395851	COS/FUV, ACQ/PEAKXD, PSA 1105 A	G140L			25 Secs (25 Secs) [==>]	[1]	
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 2 more magnitudes.</i>									
	2	ACQ/PEAK D (1527549)	(2) 1RXS-J022917.1 -395851	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9			25 Secs (25 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 2 more magnitudes.</i>									
	3	FP-POS=1 (1527551)	(2) 1RXS-J022917.1 -395851	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=83 9			839 Secs (839 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
4	FP-POS=2 (1527551)	(2) 1RXS-J022917.1 -395851	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=83 9			839 Secs (839 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=3 (1527551)	(2) 1RXS-J022917.1 -395851	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 45			1145 Secs (1145 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
6	FP-POS=4 (1527551)	(2) 1RXS-J022917.1 -395851	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=11 45			1145 Secs (1145 Secs) [==>]	[2]	
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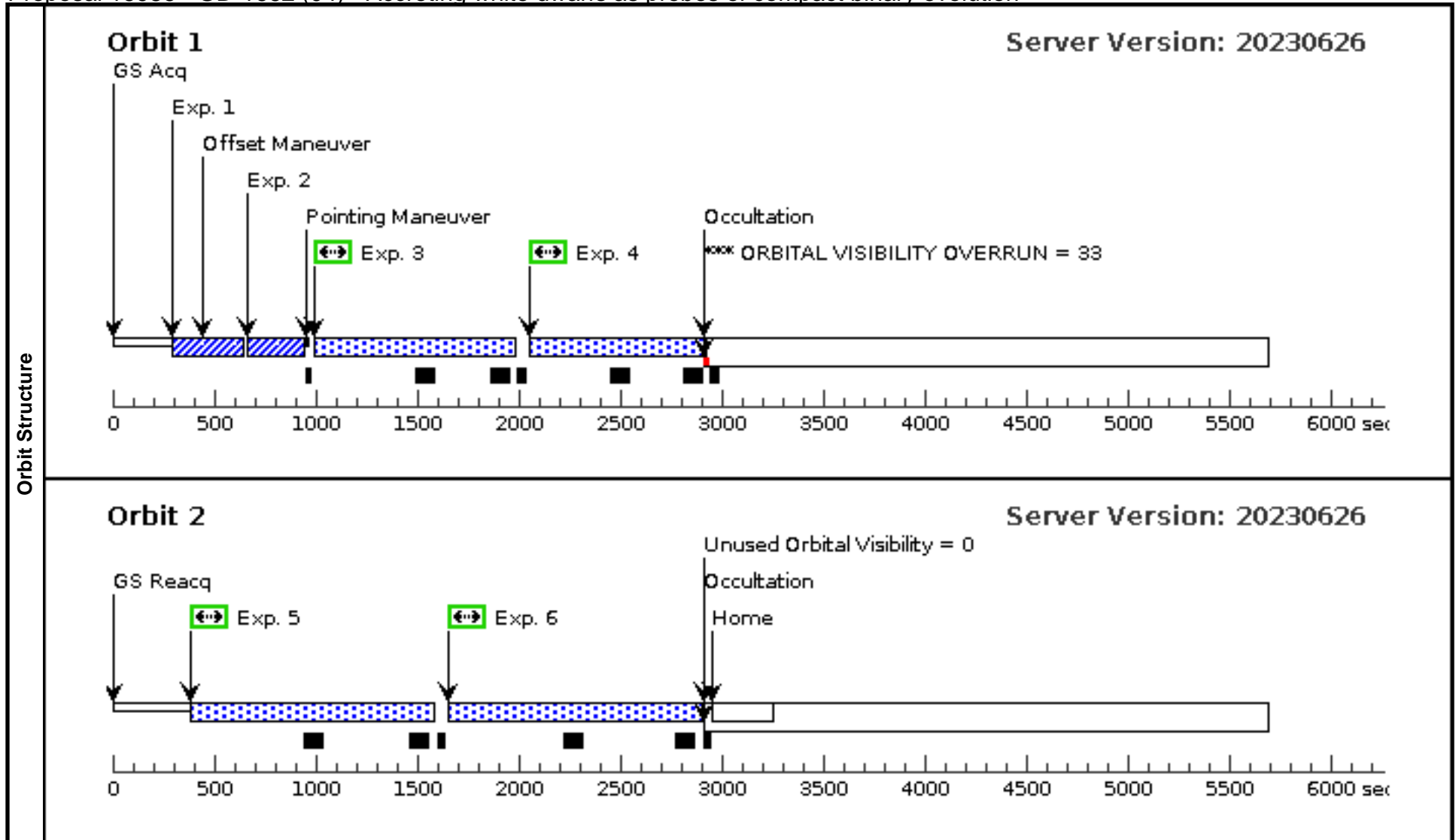
Proposal 16986 - GD-1662 (04) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, GD-1662 (04), failed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; ORIENT 280D TO 85 D; BETWEEN 23-OCT-2023:00:00:00 AND 25-NOV-2023:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>Comments: This should be scheduled in evening local-time on a thursday or friday. Flags need to be cleared during the work day. Weekends & holidays are to be avoided since the CS must clear the target within 24 hours of HST execution</i></p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																	
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Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(4)</td> <td>GD-1662</td> <td>RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000</td> <td>Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0</td> <td>V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827 840, G=13.6, parallax = 1.64(2) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(4)	GD-1662	RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000	Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0	V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827 840, G=13.6, parallax = 1.64(2) mas.	Reference Frame: ICRS					
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<p><i>Comments:</i> <i>Category=STAR</i> <i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i> <i>Extended=NO</i></p>																		

Proposal 16986 - GD-1662 (04) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	ACQ/PEAK XD (1527561)	(4) GD-1662	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A	LIFETIME-POS=L 4	USE OFFSET V04S AF	27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with $T_{\text{eff}}=50000\text{K}$, scaled to $FUV=16.6$ (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	2	ACQ/PEAK D (1527561)	(4) GD-1662	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=L P4	USE OFFSET V04S AF	27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with $T_{\text{eff}}=50000\text{K}$, scaled to $FUV=16.6$ (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	3	FP-POS=1 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=36 1; LIFETIME-POS=L P3	USE OFFSET V04S AF	832 Secs (832 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>								
4	FP-POS=2 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=36 1; LIFETIME-POS=L P3	USE OFFSET V04S AF	820 Secs (820 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
5	FP-POS=3 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=51 8; LIFETIME-POS=L P3	USE OFFSET V04S AF	1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
6	FP-POS=4 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=54 1; LIFETIME-POS=L P3	USE OFFSET V04S AF	1193 Secs (1193 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									



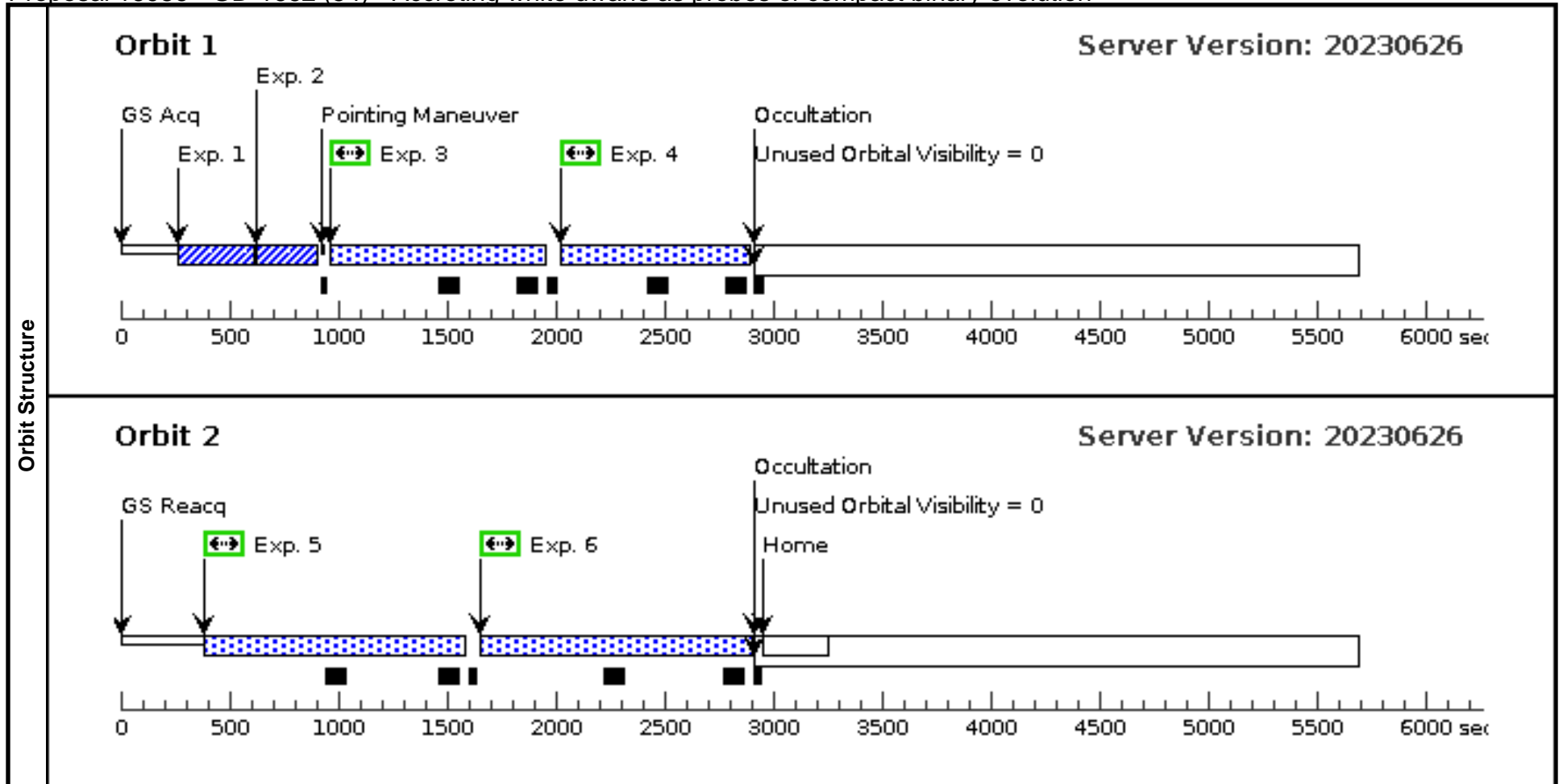
Proposal 16986 - GD-1662 (54) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, GD-1662 (54), implementation</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; ORIENT 280D TO 85 D; BETWEEN 23-OCT-2023:00:00:00 AND 31-DEC-2023:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>Comments: This should be scheduled in evening local-time on a thursday or friday. Flags need to be cleared during the work day. Weekends & holidays are to be avoided since the CS must clear the target within 24 hours of HST execution</i></p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(4)</td> <td>GD-1662</td> <td>RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000</td> <td>Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0</td> <td>V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827840, G=13.6, parallax = 1.64(2) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: Category=STAR Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE] Extended=NO</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(4)	GD-1662	RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000	Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0	V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827840, G=13.6, parallax = 1.64(2) mas.
#		Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous											
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Proposal 16986 - GD-1662 (54) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	ACQ/PEAK XD (1527561)	(4) GD-1662	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A	LIFETIME-POS=LP 4		27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with $T_{\text{eff}}=50000\text{K}$, scaled to $FUV=16.6$ (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	2	ACQ/PEAK D (1527561)	(4) GD-1662	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=L P4		27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with $T_{\text{eff}}=50000\text{K}$, scaled to $FUV=16.6$ (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	3	FP-POS=1 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=36 1; LIFETIME-POS=L P3		832 Secs (832 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>								
4	FP-POS=2 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=36 1; LIFETIME-POS=L P3		820 Secs (820 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
5	FP-POS=3 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=51 8; LIFETIME-POS=L P3		1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
6	FP-POS=4 (1527563)	(4) GD-1662	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=54 1; LIFETIME-POS=L P3		1193 Secs (1193 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									



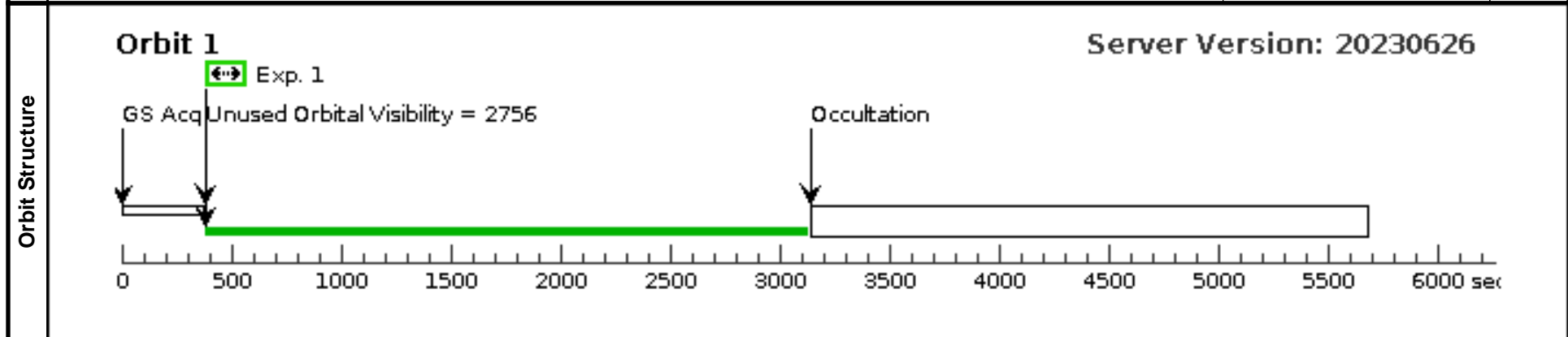
Proposal 16986 - S/C visit for visit 04 (0I) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	Proposal 16986, S/C visit for visit 04 (0I), completed Diagnostic Status: No Diagnostics Scientific Instruments: S/C Special Requirements: ORIENT 280D TO 85 D Comments: This visit allocates and sets up the safe position offset slot for visit 04 which will use that slot. this S/C visit should go 3-5 days before visit 04. This visit will only contain one exposure				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	GD-1662	RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000	Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0	V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827840, G=13.6, parallax = 1.64(2) mas.	Reference Frame: ICRS
	Comments: Category=STAR Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE] Extended=NO					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) GD-1662	S/C, DATA, V1			POS TARG 229.132 8,-241.0575; SAVE OFFSET V04 SAF; SPEC COM INSTR ECSLOTSET; QESIPARM ANGL E 47.2; QESIPARM DIST 9.723		5 Secs (5 Secs) [==>]	[1]



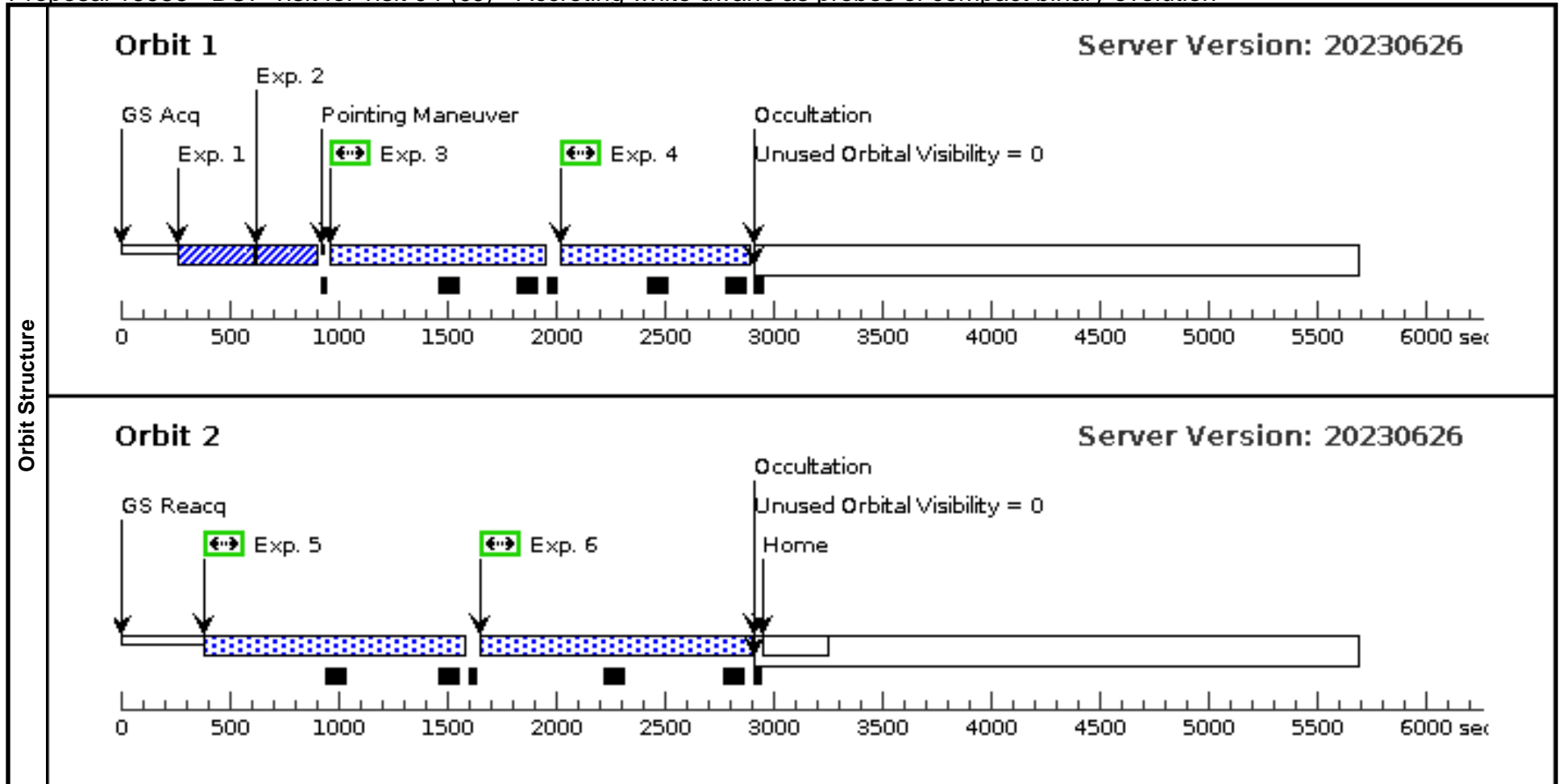
Proposal 16986 - BOP visit for visit 04 (0J) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, BOP visit for visit 04 (0J), withdrawn</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; ORIENT 280D TO 085 D; BETWEEN 23-OCT-2023:00:00:00 AND 25-NOV-2023:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>Comments: This visit is for BOP checking the safe target only and should not execute onboard HST.</i></p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	GD-1662	RA: 23 29 0.4543 (352.2518929d) Dec: -29 46 46.08 (-29.77947d) Equinox: J2000	Proper Motion RA: -13.847933168928266 mas/yr Proper Motion Dec: -6.005677448492444 mas/yr Parallax: 0.001640177333531042" Epoch of Position: 2016.0	V=13.2+/-0.3 FUV=14.0, NUV=13.8, Gaia EDR3 2329317895999827 840, G=13.6, parallax = 1.64(2) mas.	Reference Frame: ICRS	
<p><i>Comments:</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i></p> <p><i>Extended=NO</i></p>	(11)	GD-1662-SAFE-TARGET	Offset from GD-1662 RA Offset: 0.54 Secs Dec Offset: 6.6 Arcsec	V=13.2+/-0.3	Offset Position (GD-1662-SAFE-TARGET)	
<p><i>Comments: This target is a blank piece of sky whihc is the bright object safe pointing and is 9.723" away at PA 47.2 degrees from GD-1662</i></p> <p><i>Category=UNIDENTIFIED</i></p> <p><i>Description=[BLANK FIELD]</i></p> <p><i>Extended=NO</i></p>						

Proposal 16986 - BOP visit for visit 04 (0J) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	ACQ/PEAK XD (1527561)	(11) GD-1662-SAFE -TARGET	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A	LIFETIME-POS=LP 4		27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to FUV=16.6 (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	2	ACQ/PEAK D (1527561)	(11) GD-1662-SAFE -TARGET	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=L P4		27 Secs (27 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to FUV=16.6 (as measured from IUE data obtained in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>								
	3	FP-POS=1 (1527563)	(11) GD-1662-SAFE -TARGET	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=36 1; LIFETIME-POS=L P3		832 Secs (832 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>								
4	FP-POS=2 (1527563)	(11) GD-1662-SAFE -TARGET	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=36 1; LIFETIME-POS=L P3		820 Secs (820 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
5	FP-POS=3 (1527563)	(11) GD-1662-SAFE -TARGET	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=51 8; LIFETIME-POS=L P3		1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									
6	FP-POS=4 (1527563)	(11) GD-1662-SAFE -TARGET	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=54 1; LIFETIME-POS=L P3		1193 Secs (1193 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is observed in a brighter state than the low state minimum.</i>									



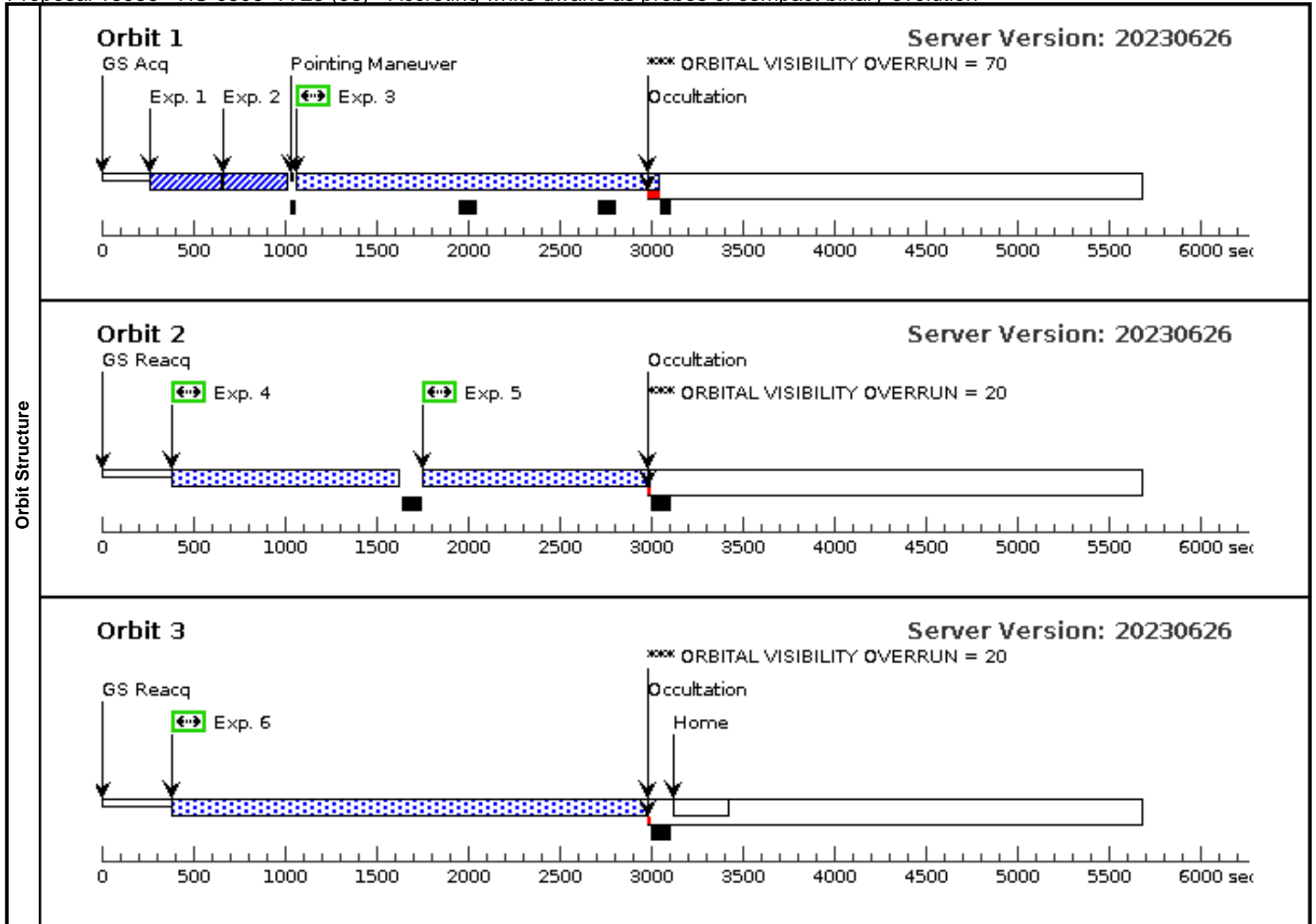
Proposal 16986 - HS-0506+7725 (06) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, HS-0506+7725 (06), implementation</p> <p>Diagnostic Status: Error</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; BETWEEN 01-SEP-2021:00:00:00 AND 05-APR-2022:00:00:00; BETWEEN 01-SEP-2022:00:00:00 AND 05-APR-2023:00:00:00; BETWEEN 01-SEP-2023:00:00:00 AND 05-APR-2024:00:00:00; BETWEEN 01-SEP-2024:00:00:00 AND 05-APR-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																	
	Diagnostics	<p>(ACQ/PEAKXD (06.001)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(ACQ/PEAKD (06.002)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=1 (06.003)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=2 (06.004)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=3 (06.005)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=4 (06.006)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(HS-0506+7725 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(HS-0506+7725 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(HS-0506+7725 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>																
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(6)</td> <td>HS-0506+7725</td> <td>RA: 05 13 36.5757 (78.4023988d) Dec: +77 28 42.67 (77.47852d) Equinox: J2000</td> <td>Proper Motion RA: 1.2821538884881634 mas/yr Proper Motion Dec: -6.849241478209648 mas/yr Parallax: 0.001085954010123805" Epoch of Position: 2016.0</td> <td>V=14.7 FUV=16.5, NUV=16.5, Gaia EDR3 552158697769217664, G=15.04, parallax = 1.09(2) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments:</i> <i>Category=STAR</i> <i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i> <i>Extended=NO</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(6)	HS-0506+7725	RA: 05 13 36.5757 (78.4023988d) Dec: +77 28 42.67 (77.47852d) Equinox: J2000	Proper Motion RA: 1.2821538884881634 mas/yr Proper Motion Dec: -6.849241478209648 mas/yr Parallax: 0.001085954010123805" Epoch of Position: 2016.0	V=14.7 FUV=16.5, NUV=16.5, Gaia EDR3 552158697769217664, G=15.04, parallax = 1.09(2) mas.	Reference Frame: ICRS
		#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous											
		(6)	HS-0506+7725	RA: 05 13 36.5757 (78.4023988d) Dec: +77 28 42.67 (77.47852d) Equinox: J2000	Proper Motion RA: 1.2821538884881634 mas/yr Proper Motion Dec: -6.849241478209648 mas/yr Parallax: 0.001085954010123805" Epoch of Position: 2016.0	V=14.7 FUV=16.5, NUV=16.5, Gaia EDR3 552158697769217664, G=15.04, parallax = 1.09(2) mas.	Reference Frame: ICRS											

Proposal 16986 - HS-0506+7725 (06) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/PEAK XD (1527733)	(6) HS-0506+7725	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A			40 Secs (40 Secs) [==>]	[1]	
	<i>Comments: Exposure time based on a 50000K WD model, scaled to the distance to the system, but conservatively allowing for the target fading two more magnitudes.</i>									
	2	ACQ/PEAK D (1527733)	(6) HS-0506+7725	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9			40 Secs (40 Secs) [==>]	[1]
	<i>Comments: Exposure time based on a 50000K WD model, scaled to the distance to the system, but conservatively allowing for the target fading two more magnitudes.</i>									
	3	FP-POS=1 (1527737)	(6) HS-0506+7725	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=75 2			1820 Secs (1820 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
4	FP-POS=2 (1527737)	(6) HS-0506+7725	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=11 85			1185 Secs (1185 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=3 (1527737)	(6) HS-0506+7725	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 86			1186 Secs (1186 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
6	FP-POS=4 (1527737)	(6) HS-0506+7725	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=25 52			2552 Secs (2552 Secs) [==>]	[3]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										



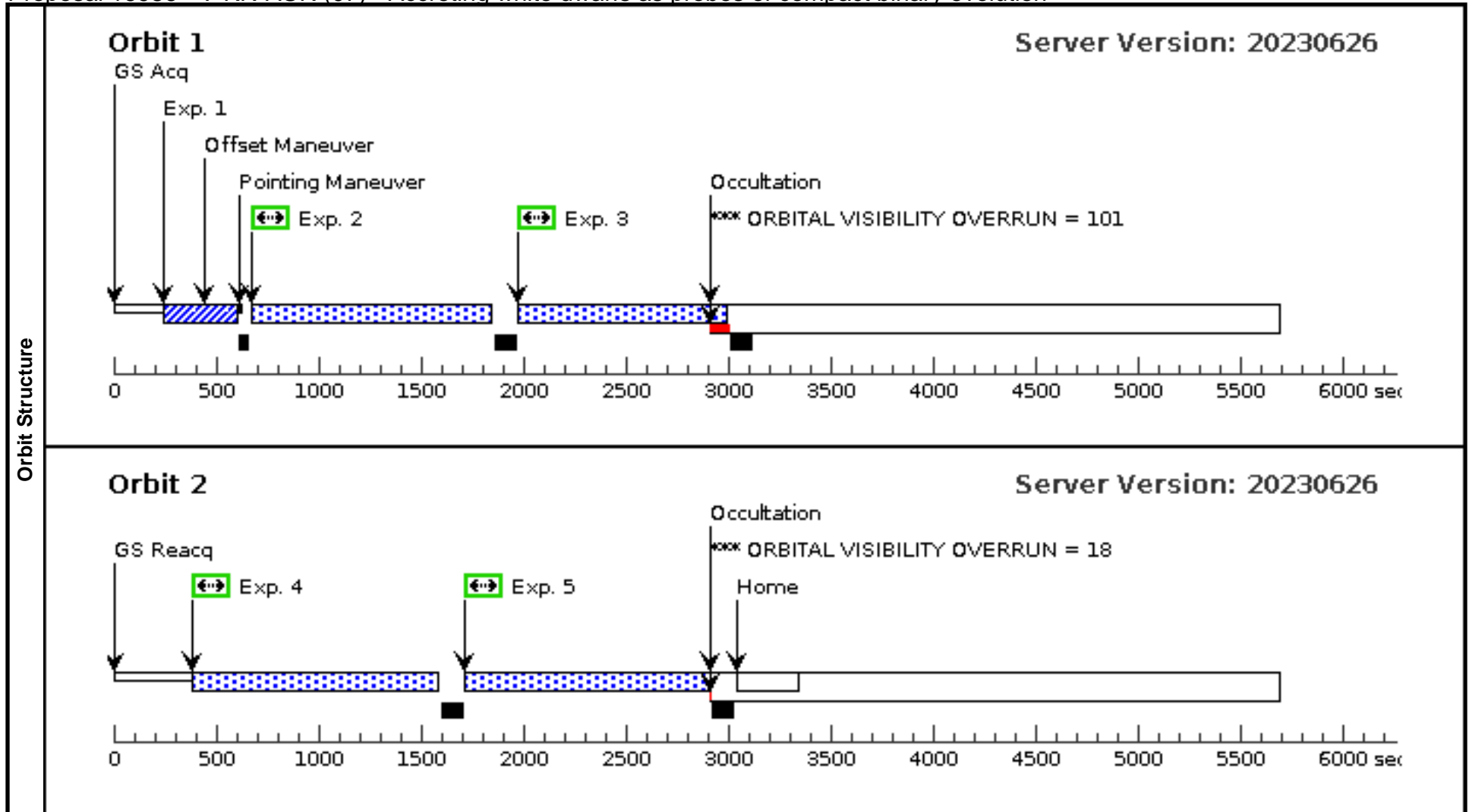
Proposal 16986 - V-KR-AUR (07) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, V-KR-AUR (07), completed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%; ORIENT 75D TO 290 D; BETWEEN 18-SEP-2021:00:00:00 AND 22-APR-2022:00:00:00; BETWEEN 18-SEP-2022:00:00:00 AND 22-APR-2023:00:00:00; BETWEEN 18-SEP-2023:00:00:00 AND 22-APR-2024:00:00:00; BETWEEN 18-SEP-2024:00:00:00 AND 22-APR-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>Comments: This should be scheduled on a Thursday/Friday evening local time.</i></p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																	
	<p>(V-KR-AUR (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(V-KR-AUR (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>																	
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Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(7)</td> <td>V-KR-AUR</td> <td>RA: 06 15 43.9255 (93.9330229d) Dec: +28 35 8.42 (28.58567d) Equinox: J2000</td> <td>Proper Motion RA: 5.389668305798494 mas/yr Proper Motion Dec: -8.128654994250011 mas/yr Parallax: 0.0022451401705564614" Epoch of Position: 2016.0</td> <td>V=13.090 Gaia EDR3 3436435910858051 200, G=18.6, parallax = 2.2(2) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(7)	V-KR-AUR	RA: 06 15 43.9255 (93.9330229d) Dec: +28 35 8.42 (28.58567d) Equinox: J2000	Proper Motion RA: 5.389668305798494 mas/yr Proper Motion Dec: -8.128654994250011 mas/yr Parallax: 0.0022451401705564614" Epoch of Position: 2016.0	V=13.090 Gaia EDR3 3436435910858051 200, G=18.6, parallax = 2.2(2) mas.	Reference Frame: ICRS	<p><i>Comments:</i> <i>Category=STAR</i> <i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i> <i>Extended=NO</i></p>				
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous												
(7)	V-KR-AUR	RA: 06 15 43.9255 (93.9330229d) Dec: +28 35 8.42 (28.58567d) Equinox: J2000	Proper Motion RA: 5.389668305798494 mas/yr Proper Motion Dec: -8.128654994250011 mas/yr Parallax: 0.0022451401705564614" Epoch of Position: 2016.0	V=13.090 Gaia EDR3 3436435910858051 200, G=18.6, parallax = 2.2(2) mas.	Reference Frame: ICRS													

Proposal 16986 - V-KR-AUR (07) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/IMAG E (1840040)	(7) V-KR-AUR	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			35 Secs (35 Secs) [==>]	[1]	
	<i>Comments: Computed assuming a WD model with $T_{\text{eff}}=30000\text{K}$, scaled to $NUV=18$ (allowing the target to be fainter by one magnitude compared to previous low state observations obtained with Swift).</i>									
	2	FP-POS=1 (1527611)	(7) V-KR-AUR	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=96 7; LIFETIME-POS=L P3	USE OFFSET V07S AF		967 Secs (967 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
	3	FP-POS=2 (1527611)	(7) V-KR-AUR	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=96 7; LIFETIME-POS=L P3	USE OFFSET V07S AF		967 Secs (967 Secs) [==>]	[1]
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
4	FP-POS=3 (1527611)	(7) V-KR-AUR	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 46; LIFETIME-POS=L P3	USE OFFSET V07S AF		1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=4 (1527611)	(7) V-KR-AUR	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=11 45; LIFETIME-POS=L P3	USE OFFSET V07S AF		1145 Secs (1145 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										



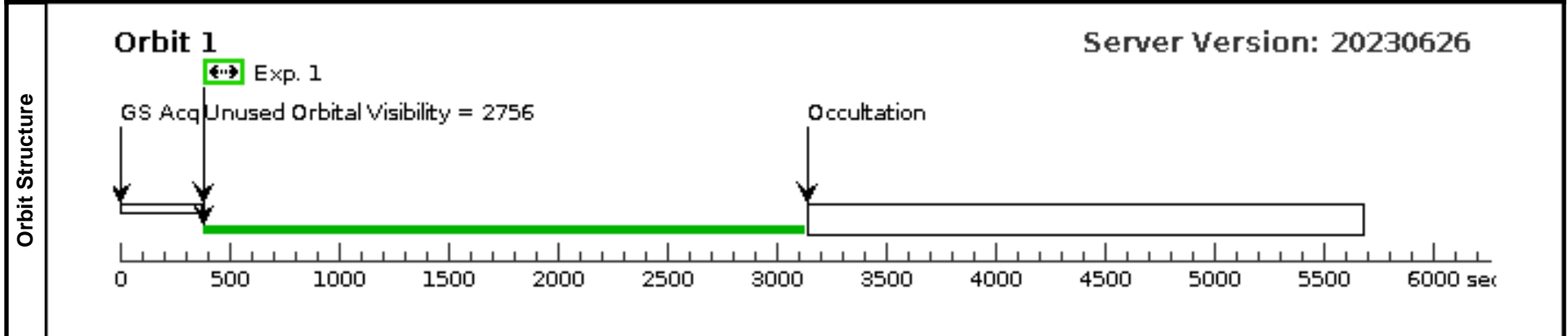
Proposal 16986 - S/C visit for visit 07 (00) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	Proposal 16986, S/C visit for visit 07 (00), completed Diagnostic Status: No Diagnostics Scientific Instruments: S/C Special Requirements: ORIENT 75D TO 290 D <i>Comments: This visit allocates and sets up the safe position offset slot for visit 07 which will use that slot. This S/C visit should go earlier in the week while Visit 07 will be 3-5 days later. The S/C visit will only contain 1 exposure</i>				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(7)	V-KR-AUR	RA: 06 15 43.9255 (93.9330229d) Dec: +28 35 8.42 (28.58567d) Equinox: J2000	Proper Motion RA: 5.389668305798494 mas/yr Proper Motion Dec: -8.128654994250011 mas/yr Parallax: 0.0022451401705564614" Epoch of Position: 2016.0	V=13.090 Gaia EDR3 3436435910858051 200, G=18.6, parallax = 2.2(2) mas.	Reference Frame: ICRS
<i>Comments:</i> Category=STAR Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE] Extended=NO						

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(7) V-KR-AUR	S/C, DATA, V1			POS TARG 232.723, -237.515; SAVE OFFSET V07 SAF; SPEC COM INSTR ECSLOTSET; QESIPARM ANGLE 233; QESIPARM DIST 9.706		5 Secs (5 Secs) [=>]	[1]



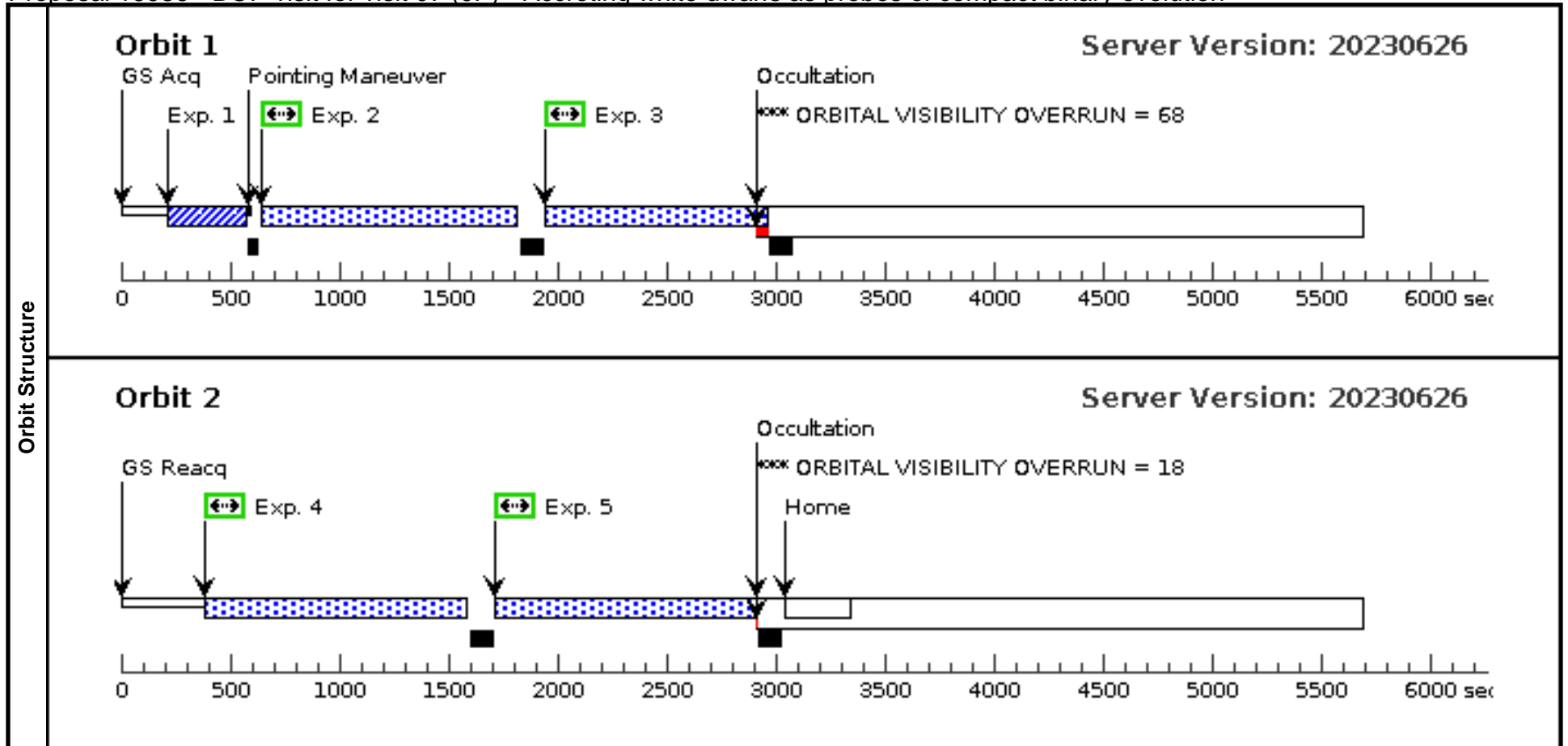
Proposal 16986 - BOP visit for visit 07 (0P) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, BOP visit for visit 07 (0P), withdrawn</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%; ORIENT 75D TO 290 D; BETWEEN 18-SEP-2021:00:00:00 AND 22-APR-2022:00:00:00; BETWEEN 18-SEP-2022:00:00:00 AND 22-APR-2023:00:00:00; BETWEEN 18-SEP-2023:00:00:00 AND 22-APR-2024:00:00:00; BETWEEN 18-SEP-2024:00:00:00 AND 22-APR-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>Comments: This visit is for BOP checking the safe target only and should not execute on board HST</i></p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																																			
	<p>(BOP visit for visit 07 (0P)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(BOP visit for visit 07 (0P)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>																																			
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	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																														
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<p><i>Comments:</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i></p> <p><i>Extended=NO</i></p>																																				
(10)	V-KR-AUR-SAFE-TGT	Offset from V-KR-AUR RA Offset: -0.58 Secs Dec Offset: -5.844 Arcsec		V=13.090	Offset Position (V-KR-AUR-SAFE-TGT)																															
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Proposal 16986 - BOP visit for visit 07 (0P) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/IMAG E (1840040)	(10) V-KR-AUR-SA FE-TGT	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			35 Secs (35 Secs) [==>]	[1]	
	<i>Comments: Computed assuming a WD model with $T_{\text{eff}}=30000\text{K}$, scaled to $NUV=18$ (allowing the target to be fainter by one magnitude compared to previous low state observations obtained with Swift).</i>									
	2	FP-POS=1 (1527611)	(10) V-KR-AUR-SA FE-TGT	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=96 7; LIFETIME-POS=L P3			967 Secs (967 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
	3	FP-POS=2 (1527611)	(10) V-KR-AUR-SA FE-TGT	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=96 7; LIFETIME-POS=L P3			967 Secs (967 Secs) [==>]	[1]
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
4	FP-POS=3 (1527611)	(10) V-KR-AUR-SA FE-TGT	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 46; LIFETIME-POS=L P3			1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=4 (1527611)	(10) V-KR-AUR-SA FE-TGT	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=11 45; LIFETIME-POS=L P3			1145 Secs (1145 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										



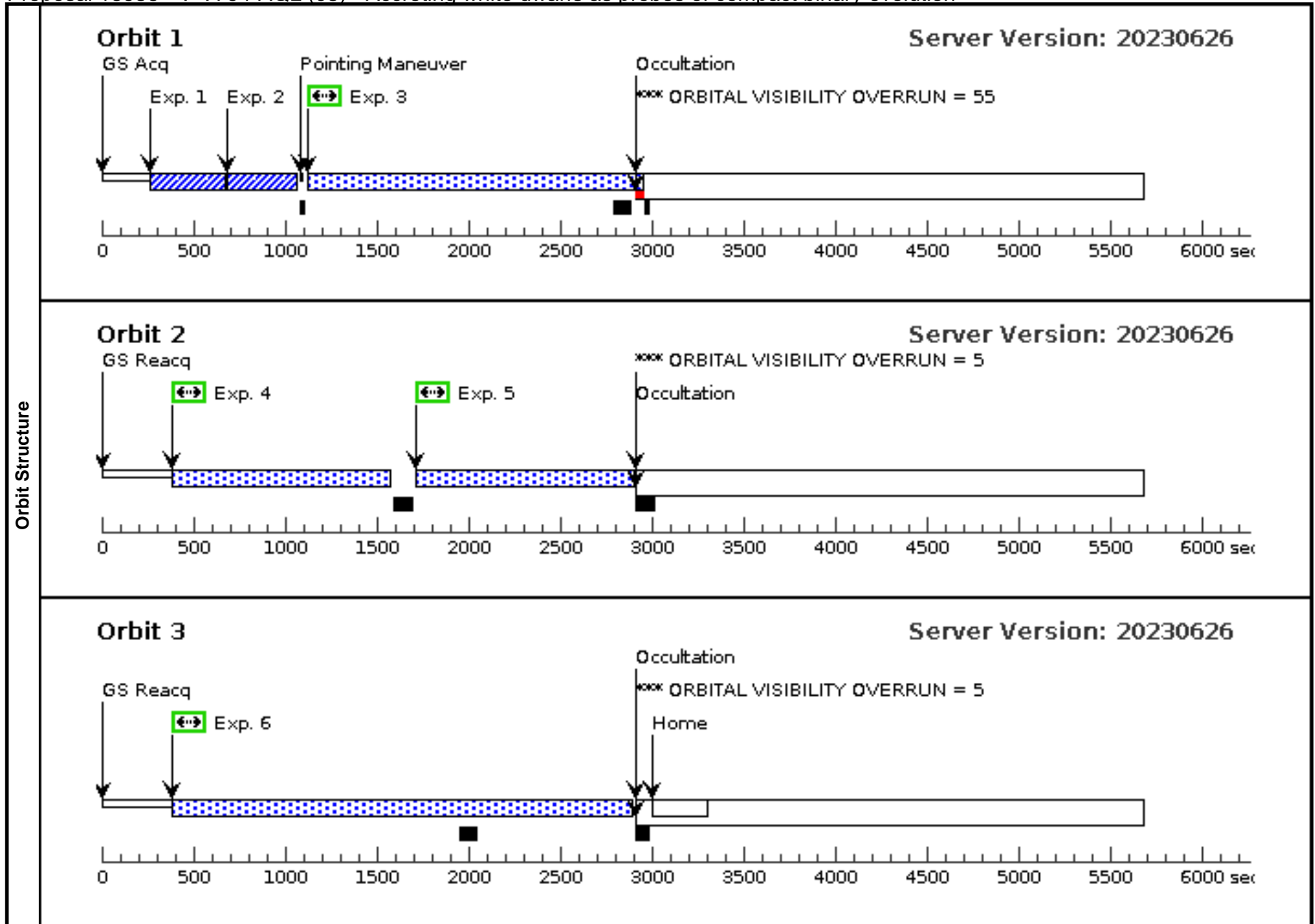
Proposal 16986 - V-V794-AQL (08) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, V-V794-AQL (08), implementation</p> <p>Diagnostic Status: Error</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; BETWEEN 18-APR-2021:00:00:00 AND 08-NOV-2021:00:00:00; BETWEEN 18-APR-2022:00:00:00 AND 08-NOV-2022:00:00:00; BETWEEN 18-APR-2023:00:00:00 AND 08-NOV-2023:00:00:00; BETWEEN 18-APR-2024:00:00:00 AND 08-NOV-2024:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>						
	Diagnostics	<p>(ACQ/PEAKXD (08.001)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(ACQ/PEAKD (08.002)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=1 (08.003)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=2 (08.004)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=3 (08.005)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=4 (08.006)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(V-V794-AQL (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(V-V794-AQL (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(V-V794-AQL (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>					
Fixed Targets		#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
		(8)	V-V794-AQL	RA: 20 17 33.8730 (304.3911375d) Dec: -03 39 51.19 (-3.66422d) Equinox: J2000	Proper Motion RA: -40.13430224001505 mas/yr Proper Motion Dec: -14.632375673806653 mas/yr Parallax: 0.0015277963634299084" Epoch of Position: 2016.0	V=14.7 FUV = 16.2, Gaia EDR3 4222299752184927 616, G=14.8, parallax = 1.53(3) mas.	Reference Frame: ICRS
		<p><i>Comments:</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i></p> <p><i>Extended=NO</i></p>					

Proposal 16986 - V-V794-AQL (08) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/PEAK XD (1527706)	(8) V-V794-AQL	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A			47 Secs (47 Secs) [==>]	[1]	
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 1 more magnitudes.</i>									
	2	ACQ/PEAK D (1527706)	(8) V-V794-AQL	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9			47 Secs (47 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to the distance to the system, through the ETC. The exposure time allows for the system fading 1 more magnitudes.</i>									
	3	FP-POS=1 (1527716)	(8) V-V794-AQL	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=15 27			1674 Secs (1674 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
4	FP-POS=2 (1527716)	(8) V-V794-AQL	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=11 41			1141 Secs (1141 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=3 (1527716)	(8) V-V794-AQL	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 40			1140 Secs (1140 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
6	FP-POS=4 (1527716)	(8) V-V794-AQL	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=15 27			2462 Secs (2462 Secs) [==>]	[3]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										



Proposal 16986 - V-V442-OPH (09) - Accreting white dwarfs as probes of compact binary evolution

Mon Nov 27 17:00:36 GMT 2023

Visit	<p>Proposal 16986, V-V442-OPH (09), implementation</p> <p>Diagnostic Status: Error</p> <p>Scientific Instruments: COS/FUV</p> <p>Special Requirements: SCHED 100%; BETWEEN 07-MAR-2022:00:00:00 AND 10-OCT-2022:00:00:00; BETWEEN 07-MAR-2023:00:00:00 AND 10-OCT-2023:00:00:00; BETWEEN 07-MAR-2024:00:00:00 AND 10-OCT-2024:00:00:00; BETWEEN 07-MAR-2025:00:00:00 AND 10-OCT-2025:00:00:00; ON HOLD ; TOO RESPONSE TIME 21.0D</p> <p><i>On Hold Comments: LONG-TERM TOO</i></p> <p><i>This is one of the targets in which the white dwarf is visible only during a low state. We will trigger the ToO when the occurrence of a low state is detected by our ground-based monitoring.</i></p>																
	Diagnostics	<p>(ACQ/PEAKXD (09.001)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(ACQ/PEAKD (09.002)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=1 (09.003)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=2 (09.004)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=3 (09.005)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(FP-POS=4 (09.006)) Error (Form): LIFETIME-POS is required with G140L when not in Supported mode.</p> <p>(V-V442-OPH (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(V-V442-OPH (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p>															
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(9)</td> <td>V-V442-OPH</td> <td>RA: 17 32 15.1318 (263.0630492d) Dec: -16 15 22.01 (-16.25611d) Equinox: J2000</td> <td>Proper Motion RA: -3.9615056735586376 mas/yr Proper Motion Dec: 3.5013410220099415 mas/yr Parallax: 0.002070837745656075" Epoch of Position: 2016.0</td> <td>V=13.4 FUV=16.7, NUV=16.5, G=13.9, Gaia EDR3 4124654392314770048, G=parallax=2.07(1) mas.</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments:</i> <i>Category=STAR</i> <i>Description=[INTERACTING BINARY, IRREGULAR VARIABLE, NOVA-LIKE]</i> <i>Extended=NO</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(9)	V-V442-OPH	RA: 17 32 15.1318 (263.0630492d) Dec: -16 15 22.01 (-16.25611d) Equinox: J2000	Proper Motion RA: -3.9615056735586376 mas/yr Proper Motion Dec: 3.5013410220099415 mas/yr Parallax: 0.002070837745656075" Epoch of Position: 2016.0	V=13.4 FUV=16.7, NUV=16.5, G=13.9, Gaia EDR3 4124654392314770048, G=parallax=2.07(1) mas.
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Proposal 16986 - V-V442-OPH (09) - Accreting white dwarfs as probes of compact binary evolution

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	ACQ/PEAK XD (1527475)	(9) V-V442-OPH	COS/FUV, ACQ/PEAKXD, PSA	G140L 1105 A			32 Secs (32 Secs) [==>]	[1]	
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to FUV=16.8 (as measured from Galex photometry in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>									
	2	ACQ/PEAK D (1527475)	(9) V-V442-OPH	COS/FUV, ACQ/PEAKD, PSA	G140L 1105 A	CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9			32 Secs (32 Secs) [==>]	[1]
	<i>Comments: I ran a WD spectrum with Teff=50000K, scaled to FUV=16.8 (as measured from Galex photometry in low state), through the ETC. The exposure time allows for the system fading another magnitude.</i>									
	3	FP-POS=1 (1527650)	(9) V-V442-OPH	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=1; BUFFER-TIME=81 2			812 Secs (812 Secs) [==>]	[1]
	<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>									
4	FP-POS=2 (1527650)	(9) V-V442-OPH	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=2; BUFFER-TIME=81 2			812 Secs (812 Secs) [==>]	[1]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
5	FP-POS=3 (1527650)	(9) V-V442-OPH	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=3; BUFFER-TIME=11 46			1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										
6	FP-POS=4 (1527650)	(9) V-V442-OPH	COS/FUV, TIME-TAG, PSA	G140L 800 A	FLASH=YES; FP-POS=4; BUFFER-TIME=11 46			1146 Secs (1146 Secs) [==>]	[2]	
<i>Comments: Buffer-time set conservatively short in case the system is brighter (which will still be safe, but the buffer would overflow if set to the appropriate value for the low state).</i>										

