



17754 - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process production

Cycle: 32, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

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) NGC-2867	COS/FUV COS/NUV	1	17-Dec-2025 18:00:16.0	yes
02	(2) NGC-7026	COS/FUV COS/NUV	2	17-Dec-2025 18:00:17.0	yes

Proposal 17754 (STScI Edit Number: 1, Created: Wednesday, December 17, 2025, 6:00:26PM Eastern Standard Time) - Overview

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
03	(3) HEN-2-55	COS/FUV COS/NUV	2	17-Dec-2025 18:00:18.0	yes
04	(4) NGC-1501	COS/FUV COS/NUV	1	17-Dec-2025 18:00:19.0	yes
05	(5) NGC-6751	COS/FUV COS/NUV	1	17-Dec-2025 18:00:19.0	yes
06	(6) HEN-2-459	COS/FUV COS/NUV	2	17-Dec-2025 18:00:20.0	yes
07	(7) HEN-2-113	COS/FUV COS/NUV	1	17-Dec-2025 18:00:20.0	yes
08	(8) PN-K-2-16	COS/FUV COS/NUV	1	17-Dec-2025 18:00:21.0	yes
58	(8) PN-K-2-16	COS/FUV COS/NUV	1	17-Dec-2025 18:00:22.0	yes
09	(9) CPD-56-8032	COS/FUV COS/NUV	1	17-Dec-2025 18:00:22.0	yes
59	(9) CPD-56-8032	COS/FUV COS/NUV	1	17-Dec-2025 18:00:23.0	yes
10	(10) PN-M-4-18	COS/FUV COS/NUV	3	17-Dec-2025 18:00:23.0	yes
11	(11) PN-PC-22	COS/FUV COS/NUV	2	17-Dec-2025 18:00:24.0	yes
12	(12) RAMUL-2	COS/FUV COS/NUV	4	17-Dec-2025 18:00:25.0	yes
13	(13) TYC-8216-799-1	STIS/CCD STIS/FUV-MAMA	2	17-Dec-2025 18:00:26.0	yes

25 Total Orbits Used

ABSTRACT

Asymptotic-giant-branch (AGB) stars are the primary production sites for carbon and s-process elements in the Universe. After leaving the AGB, such a star eventually becomes the central star of a planetary nebula (CSPN). In most cases the nucleary processed material remains trapped beneath a hydrogen-rich envelope. However, about 20% of CSPNe display H-deficient and helium- and carbon-rich atmospheres. They have emission-line spectra, resembling those of massive Wolf-Rayet stars, and are classified as [WC] objects. Their spectra indicate strong mass-loss, delivering carbon and heavy elements to the interstellar medium and future stellar generations.

How these [WC]-type CSPNe lost their hydrogen, by blowing off their envelopes, and/or by ingesting them, is still poorly understood. Various evolutionary scenarios, involving helium-shell thermal pulses, predict very distinct chemical compositions. Spectroscopic analyses are needed to decide between these scenarios, and to quantify chemical feedback from these stars. Such analyses are best carried out using UV spectra, which are crucial both for stellar-wind modeling and for quantitative determination of chemical abundances. However, UV data of sufficient quality exist only for a very few [WC]-type CSPN.

We propose to obtain UV spectra for a comprehensive sample of 13 [WC]-type CSPNe, using COS and STIS (23 HST orbits), and covering all of the subtypes of [WC] stars. For the analysis, we will use state-of-the-art non-LTE model-atmosphere codes, which account for complex model atoms, and will provide abundances for key chemical elements. The UV data will be complemented by optical spectra, already available.

OBSERVING DESCRIPTION

We propose to

observe 13 targets in individual visits, requiring 23 HST orbits. The early subtypes ([WCE]) have fast winds that broaden the spectral lines, and hence medium-resolution spectra are perfectly sufficient.

In general, we will employ the COS grating

G140L. We chose $\lambda_{\text{c}} = 800\text{\AA}$, i.e., a spectral range 913 -- 1950\AA on detector A, while detector B is off. Thus we fully cover the important N\,I resonance line, while sacrificing some less interesting region at the long-wavelength end. For four of our [WCE] targets, we additionally propose to employ grating G230L with $\lambda_{\text{c}} = 3360\text{\AA}$. These exposures aim mainly at the strong Ne\,VI complex at 2222 -- 2228\AA, because the neon abundance is an important discriminator between the debated [WC] formation channels. [WCL] winds are slower, and therefore a higher spectral resolution is preferred unless the target is too faint for that. For three of the [WCL] we propose exposures with G130M and G140M, covering together the range from 1132 -- 1772\AA (with two small gaps).

The exposure times are mainly estimated from existing IUE observations.

Fitting preliminary models of the spectral energy distribution to the observations over a large wavelength range gives additional safety and has been performed for all targets, as demonstrated for one example.

The IUE data as well as (preliminary)

model spectra have been uploaded to the ETC for calculating the exposure times, aiming on a S/N of about 20 and better.

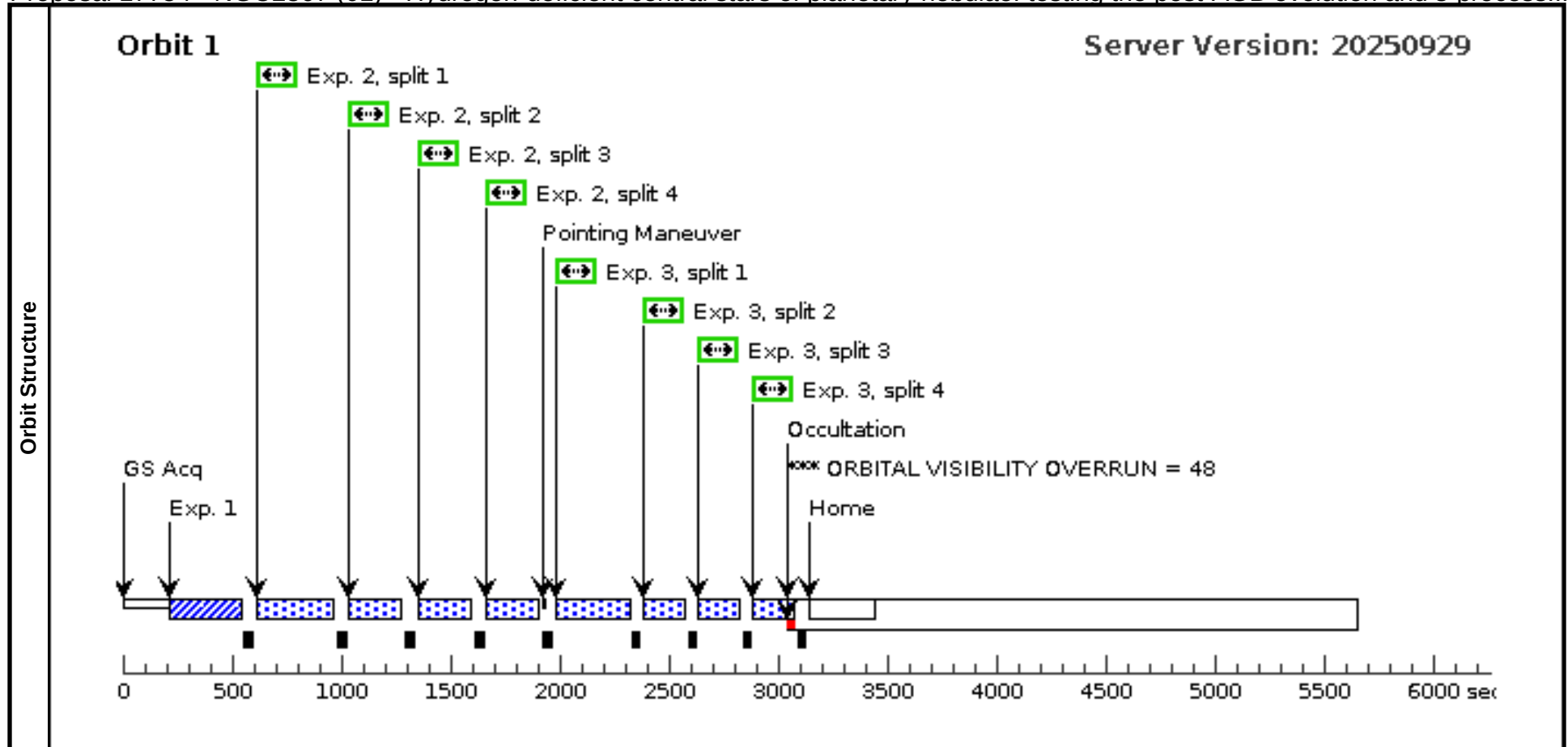
We carefully checked that the emission lines (stellar and nebular) stay below the bright object limit, taking into account that nebular lines may peak

higher than in IUE spectra due to the higher spectral resolution. The nebular Ly α emission will be masked by the interstellar absorption, since our targets have a color excess of $E(B-V) \geq 0.24$ mag.

The only challenging object is NCG 2867 with its nebular C $_{\text{iv}}$, $\lambda 1548$ emission. While this line marginally hits the bright pixel limit if using the IUE spectra for the ETC, the much smaller COS aperture of 2.5 arcsec compared to the 11 arcsec diameter of the PN (fully included in the IUE aperture) will sufficiently reduce the nebular contamination and thus mitigate the problem.

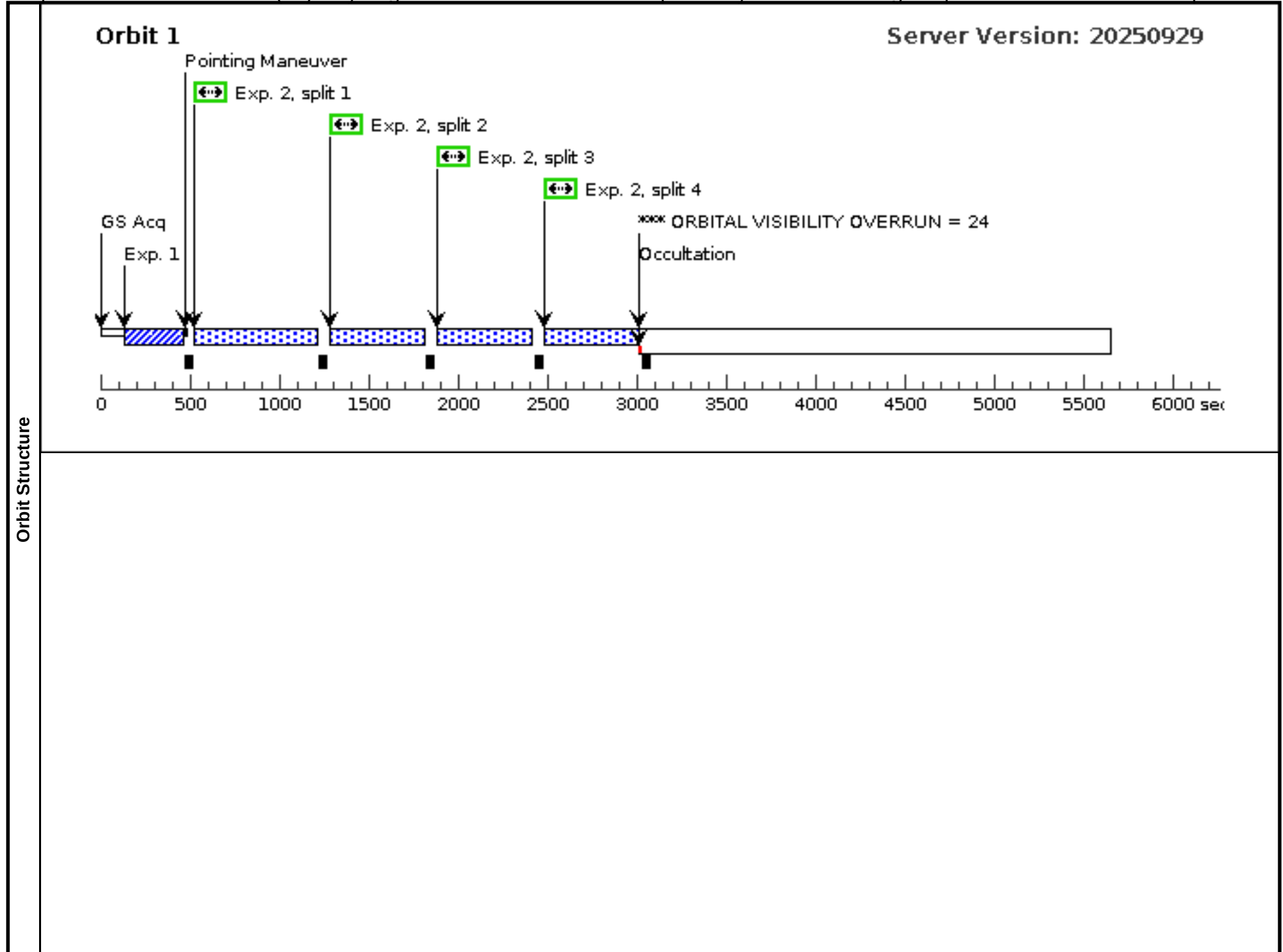
Proposal 17754 - NGC2867 (01) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

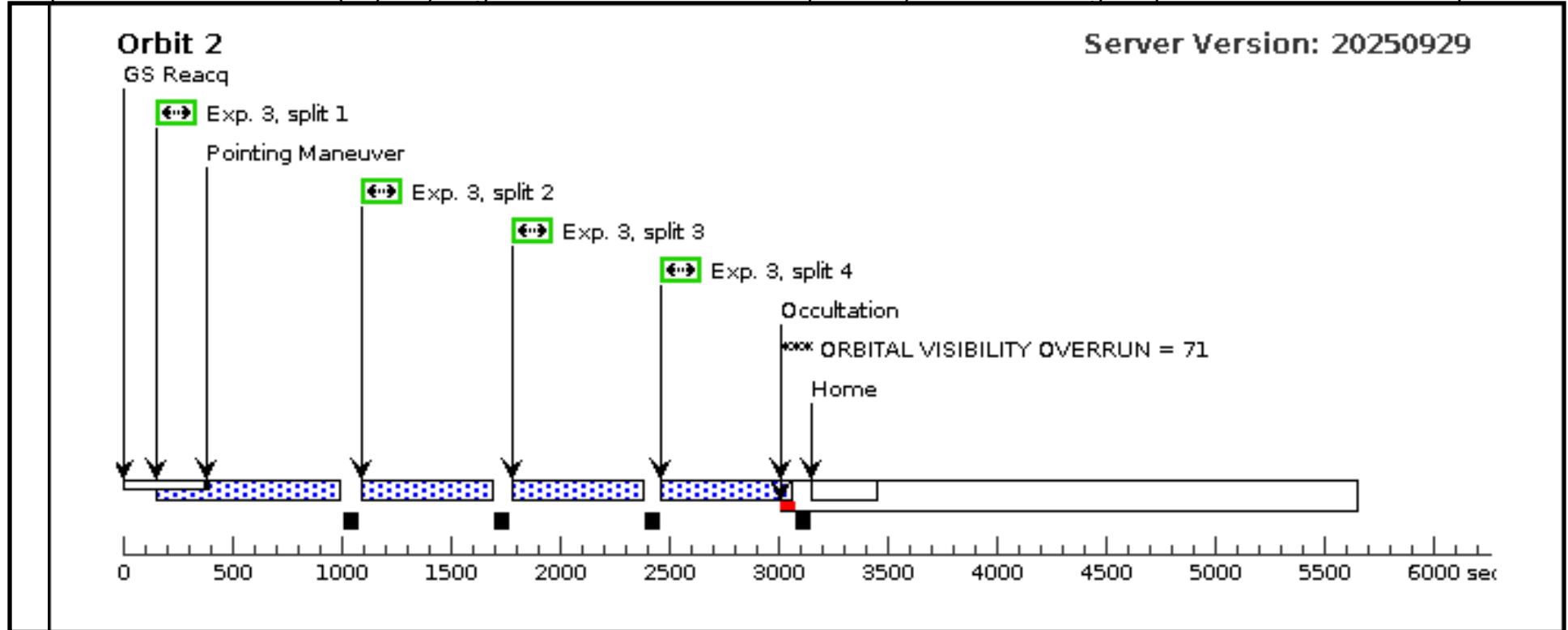
Visit	Proposal 17754, NGC2867 (01), completed										Wed Dec 17 23:00:26 GMT 2025			
	Diagnostic Status: Warning													
	Scientific Instruments: COS/FUV, COS/NUV													
	Special Requirements: (none)													
Diagnostics	(NGC2867 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN													
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous					
	(1)	NGC-2867	RA: 09 21 25.3721 (140.3557171d)		Proper Motion RA: -5.498 mas/yr		V=14.5		Reference Frame: ICRS					
			Dec: -58 18 40.58 (-58.31127d)		Proper Motion Dec: 3.036 mas/yr									
			Equinox: J2000		Parallax: 0.0003447"									
					Epoch of Position: 2016									
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.													
	Category=STAR													
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]													
	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 (1933296)	(1) NGC-2867	COS/NUV, ACQ/IMAGE, BOA		MIRRORA				52.1 Secs (52.1 Secs)				
										[==>]		[1]		
		Comments: tested t_exp=52 s with IUE+FUSE flux : 1933293												
	2	G230L (1933961)	(1) NGC-2867	COS/NUV, TIME-TAG, PSA		G230L 3360 A	FP-POS=ALL; BUFFER-TIME=880; FLASH=YES			238 Secs (912 Secs)				
										[==>228.0 Secs (Split 1)] [==>228.0 Secs (Split 2)] [==>228.0 Secs (Split 3)] [==>228.0 Secs (Split 4)]		[1]		
		Comments: SN 28.5 for 912 s at 2200 tested with FUSE+IUE for 952 s 1933303												
	3	G140L (1933962)	(1) NGC-2867	COS/FUV, TIME-TAG, PSA		G140L 800 A	FP-POS=ALL; BUFFER-TIME=896; SEGMENT=A; FLASH=YES; LIFETIME-POS=L P3			146 Secs (544 Secs)				
										[==>136.0 Secs (Split 1)] [==>136.0 Secs (Split 2)] [==>136.0 Secs (Split 3)] [==>136.0 Secs (Split 4)]		[1]		
		Comments: SN 27.5 for 544 s at 1400 Ang tested with FUSE+IUE 1933302 for 584s												



Proposal 17754 - NGC7026 (02) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

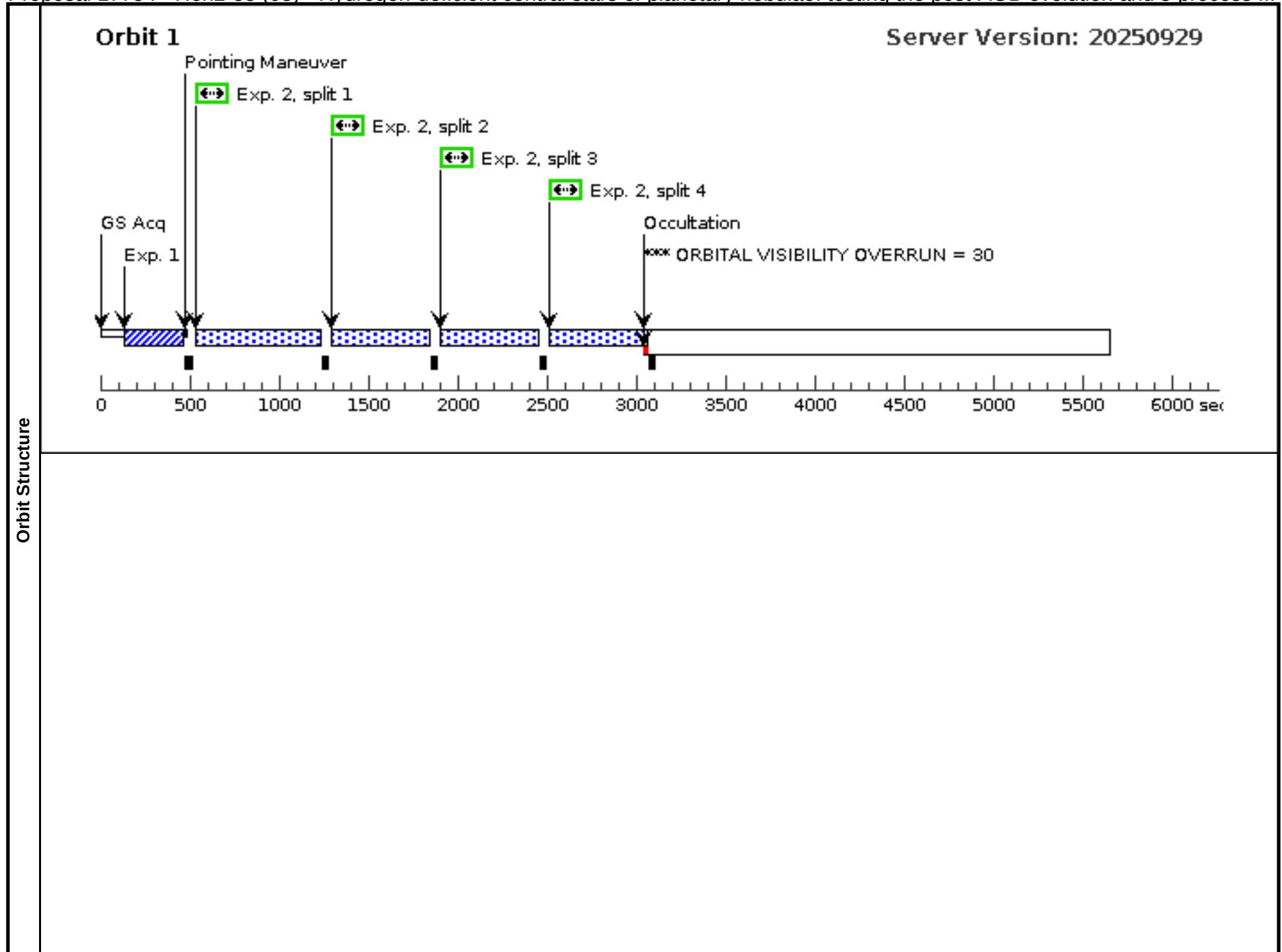
Visit	Proposal 17754, NGC7026 (02), completed										Wed Dec 17 23:00:26 GMT 2025
	Diagnostic Status: Warning										
	Scientific Instruments: COS/FUV, COS/NUV										
	Special Requirements: (none)										
Diagnostics	(NGC7026 (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN										
	(NGC7026 (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(2)	NGC-7026	RA: 21 06 18.5680 (316.5773667d) Dec: +47 51 6.73 (47.85187d) Equinox: J2000		Proper Motion RA: -2.748 mas/yr Proper Motion Dec: -2.904 mas/yr Parallax: 0.0003129" Epoch of Position: 2016		V=15.1		Reference Frame: ICRS		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
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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 (1932822)	(2) NGC-7026	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				8.8 Secs (8.8 Secs)		
									[==>]		[1]
	2	G140L (1932824)	(2) NGC-7026	COS/FUV, TIME-TAG, PSA	G140L 800 A	BUFFER-TIME=19 16; FP-POS=ALL; FLASH=YES; SEGMENT=A; LIFETIME-POS=L P3			479 Secs (1916 Secs)		
									[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[1]
	Comments: SN=18.4 for 1916 s at 1400 Ang										
	3	G230L (1933969)	(2) NGC-7026	COS/NUV, TIME-TAG, PSA	G230L 3360 A	FP-POS=ALL; FLASH=YES; BUFFER-TIME=11 44			583 Secs (2332 Secs)		
									[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[2]
Comments: SN=12.6 for 2332 s at 2300 Ang											

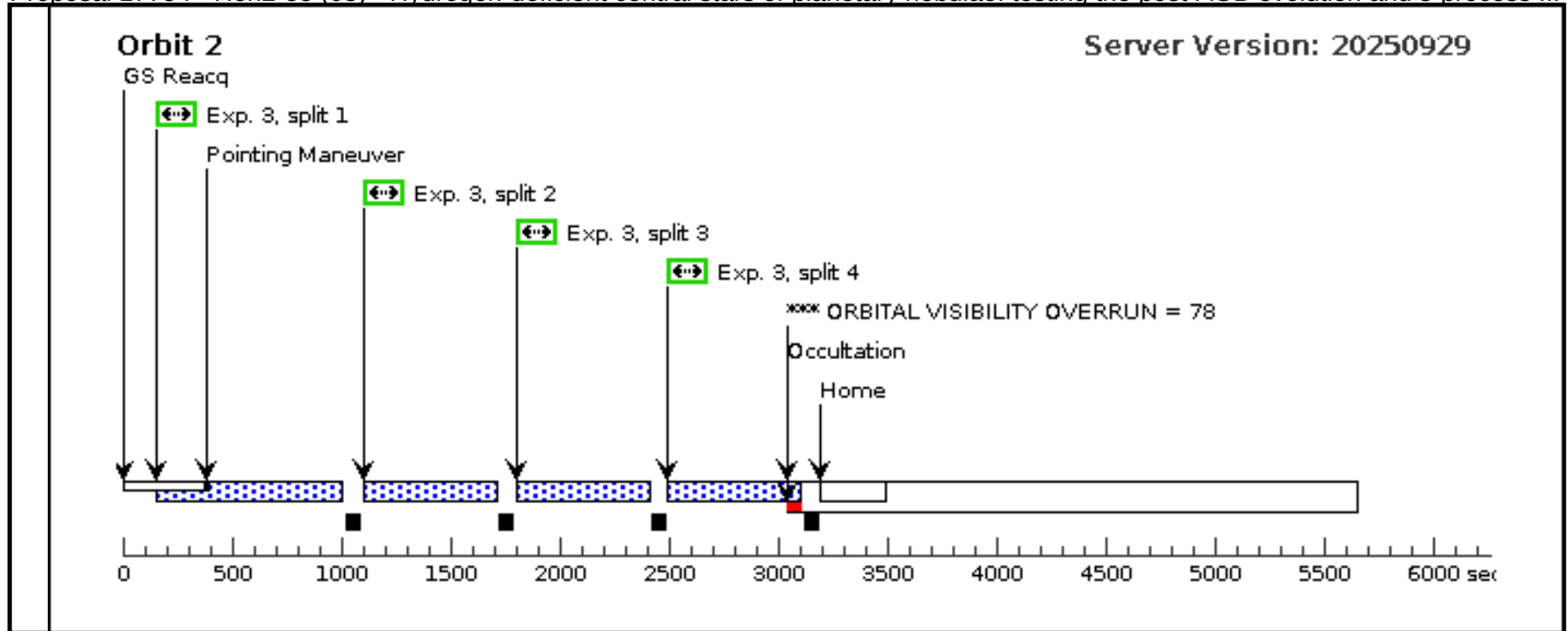




Proposal 17754 - Hen2-55 (03) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process ...

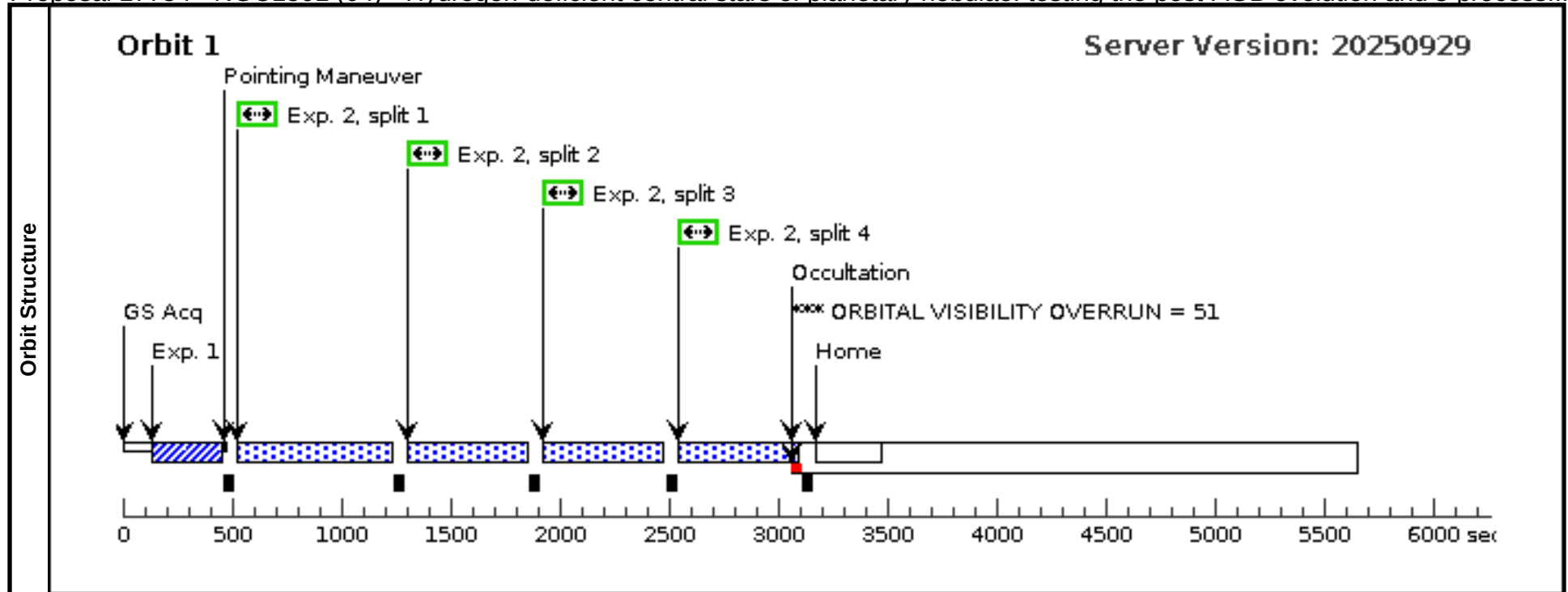
Visit	Proposal 17754, Hen2-55 (03), completed									Wed Dec 17 23:00:26 GMT 2025
	Diagnostic Status: Warning									
	Scientific Instruments: COS/FUV, COS/NUV									
	Special Requirements: (none)									
Diagnostics	(Hen2-55 (03)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS									
	(Hen2-55 (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
	(Hen2-55 (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(3)	HEN-2-55	RA: 10 48 43.2182 (162.1800758d) Dec: -56 03 9.62 (-56.05267d) Equinox: J2000		Proper Motion RA: -6.287 mas/yr Proper Motion Dec: 1.114 mas/yr Parallax: 0.0002287" Epoch of Position: 2016		V=17.4	Reference Frame: ICRS		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1932834)	(3) HEN-2-55	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				11.7 Secs (11.7 Secs)	
									[==>]	[1]
	2	G140L (1932844)	(3) HEN-2-55	COS/FUV, TIME-TAG, PSA	G140L 800 A	FP-POS=ALL; BUFFER-TIME=25 60; FLASH=YES; SEGMENT=A; LIFETIME-POS=L P3			494 Secs (1976 Secs)	
									[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SN 18.6 for 1976s at 1400 Ang									
	3	G230L (1933973)	(3) HEN-2-55	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=11 64; FP-POS=ALL; FLASH=YES			593 Secs (2372 Secs)	
								[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[2]	
Comments: SN 17. for 2372 s at 2100 Ang										





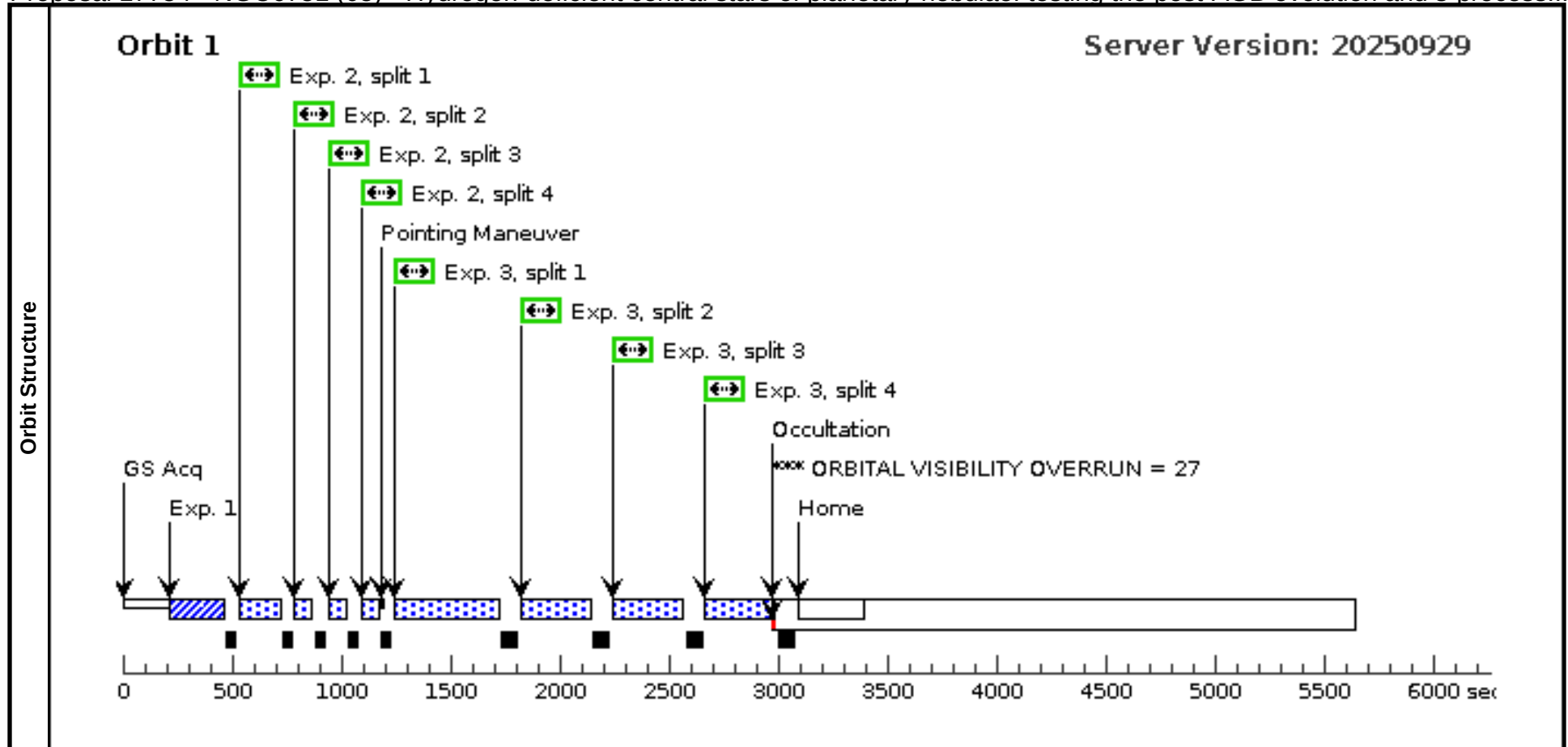
Proposal 17754 - NGC1501 (04) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Visit	Proposal 17754, NGC1501 (04), completed										Wed Dec 17 23:00:26 GMT 2025		
	Diagnostic Status: Warning												
	Scientific Instruments: COS/FUV, COS/NUV												
	Special Requirements: (none)												
Diagnostics	(NGC1501 (04)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS												
	(NGC1501 (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN												
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(4)	NGC-1501	RA: 04 06 59.3968 (61.7474867d)		Proper Motion RA: 2.143 mas/yr		V=13.0		Reference Frame: ICRS				
			Dec: +60 55 14.19 (60.92061d)		Proper Motion Dec: -5.261 mas/yr								
			Equinox: J2000		Parallax: 0.0005789"								
					Epoch of Position: 2016								
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.												
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	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]												
	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 (1932852)	(4) NGC-1501	COS/NUV, ACQ/IMAGE, PSA		MIRRORB				6.8 Secs (6.8 Secs)			
										[>=>]		[1]	
	2	G140L (1932857)	(4) NGC-1501	COS/FUV, TIME-TAG, PSA		G140L 800 A	BUFFER-TIME=20 00;				500 Secs (2000 Secs)		
							FP-POS=ALL; FLASH=YES; SEGMENT=A; LIFETIME-POS=L P3				[>=>(Split 1)] [>=>(Split 2)] [>=>(Split 3)] [>=>(Split 4)]		[1]
	Comments: 20.6 for 2000 s at 1400 Ang												



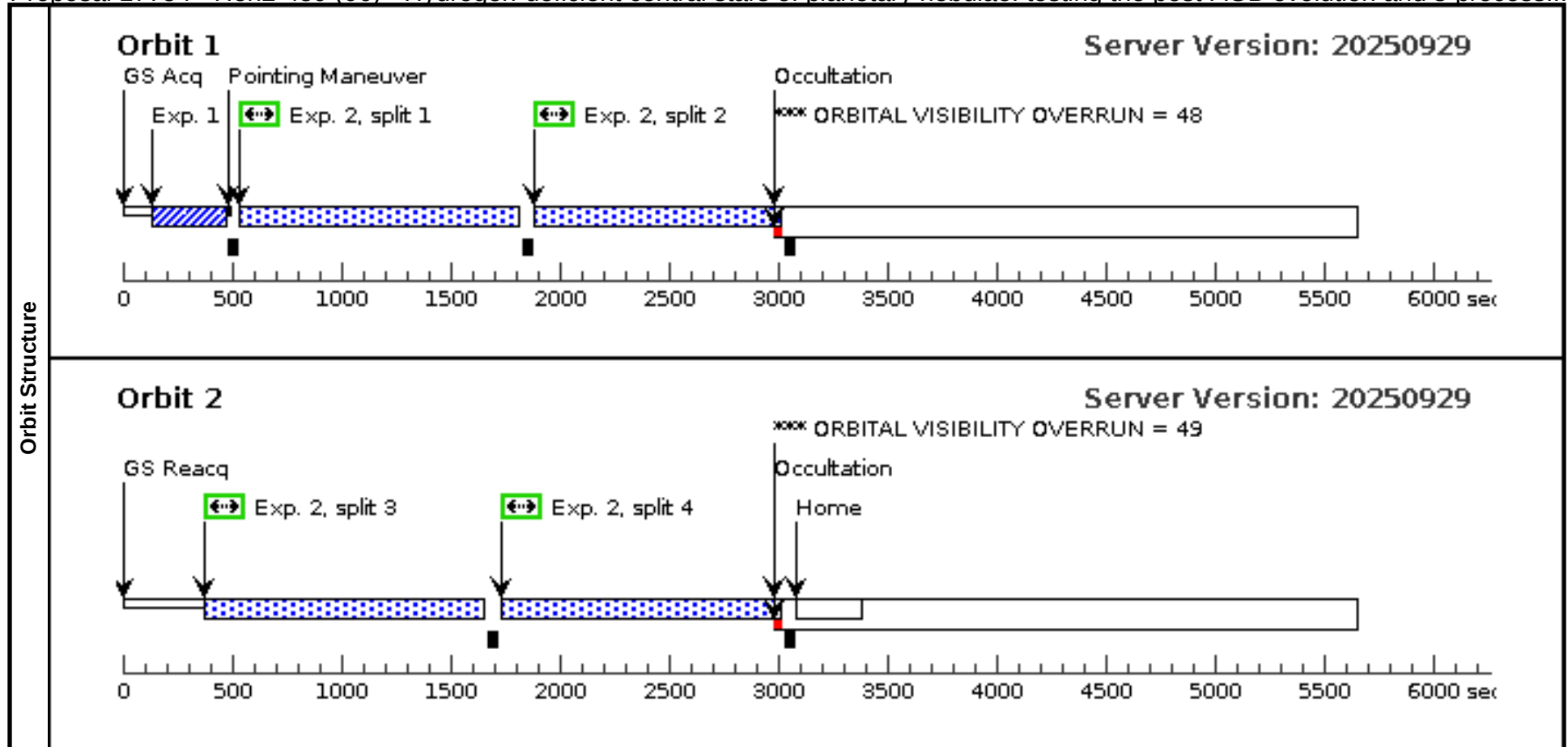
Proposal 17754 - NGC6751 (05) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Visit	Proposal 17754, NGC6751 (05), completed										Wed Dec 17 23:00:26 GMT 2025		
	Diagnostic Status: Warning												
Scientific Instruments: COS/FUV, COS/NUV													
Special Requirements: (none)													
Diagnostics	(NGC6751 (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN												
	(G130M (05.003)) Informational (Form): 1096 is not a valid selection.												
	(G130M (05.003)) Informational (Form): G130M is not a valid selection.												
	(G130M (05.003)) Informational (Form): LP2 is not a valid selection												
	(G130M (05.003)) Informational (Form): LP2 is not a valid selection												
	(G130M (05.003)) Informational (Form): PSA is not a valid selection.												
	(G130M (05.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelengths 1055, 1096, and 1222 are only allowed on Lifetime Position LP7												
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	(G130M (05.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP2. G130M Wavelengths 1055, 1096, and 1222 are only allowed on Lifetime Position LP7												
	(G130M (05.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelengths 1055, 1096, and 1222 are only allowed on Lifetime Position LP7												
(G130M (05.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1096. G130M Wavelengths 1055, 1096, and 1222 are only allowed on Lifetime Position LP7													
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(5)	NGC-6751		RA: 19 05 55.5374 (286.4814058d) Dec: -05 59 32.34 (-5.99232d) Equinox: J2000		Proper Motion RA: -0.908 mas/yr Proper Motion Dec: -3.143 mas/yr Parallax: 0.0002908" Epoch of Position: 2016		V=15.48		Reference Frame: ICRS			
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.													
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Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]													
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 BOA (1931874)	(5) NGC-6751	COS/NUV, ACQ/IMAGE, BOA		MIRRORA					10.3 Secs (10.3 Secs)		
										[==>]	[1]		
	2	G230L (1933980)	(5) NGC-6751	COS/NUV, TIME-TAG, PSA		G230L 3360 A	FP-POS=ALL; BUFFER-TIME=25 6; FLASH=YES				69 Secs (256 Secs)		
											[==>64.0 Secs (Split 1)] [==>64.0 Secs (Split 2)] [==>64.0 Secs (Split 3)] [==>64.0 Secs (Split 4)]	[1]	
Comments: SN 32.7 for 256 s at 2200 Ang													
	3	G130M (1933981)	(5) NGC-6751	COS/FUV, TIME-TAG, PSA		G130M 1096 A	FP-POS=ALL; BUFFER-TIME=42 0; FLASH=YES; SEGMENT=BOTH; LIFETIME-POS=L P2				275 Secs (1080 Secs)		
										[==>270.0 Secs (Split 1)] [==>270.0 Secs (Split 2)] [==>270.0 Secs (Split 3)] [==>270.0 Secs (Split 4)]	[1]		
Comments: SN 29.0 for 1080 s at 1120 Ang													



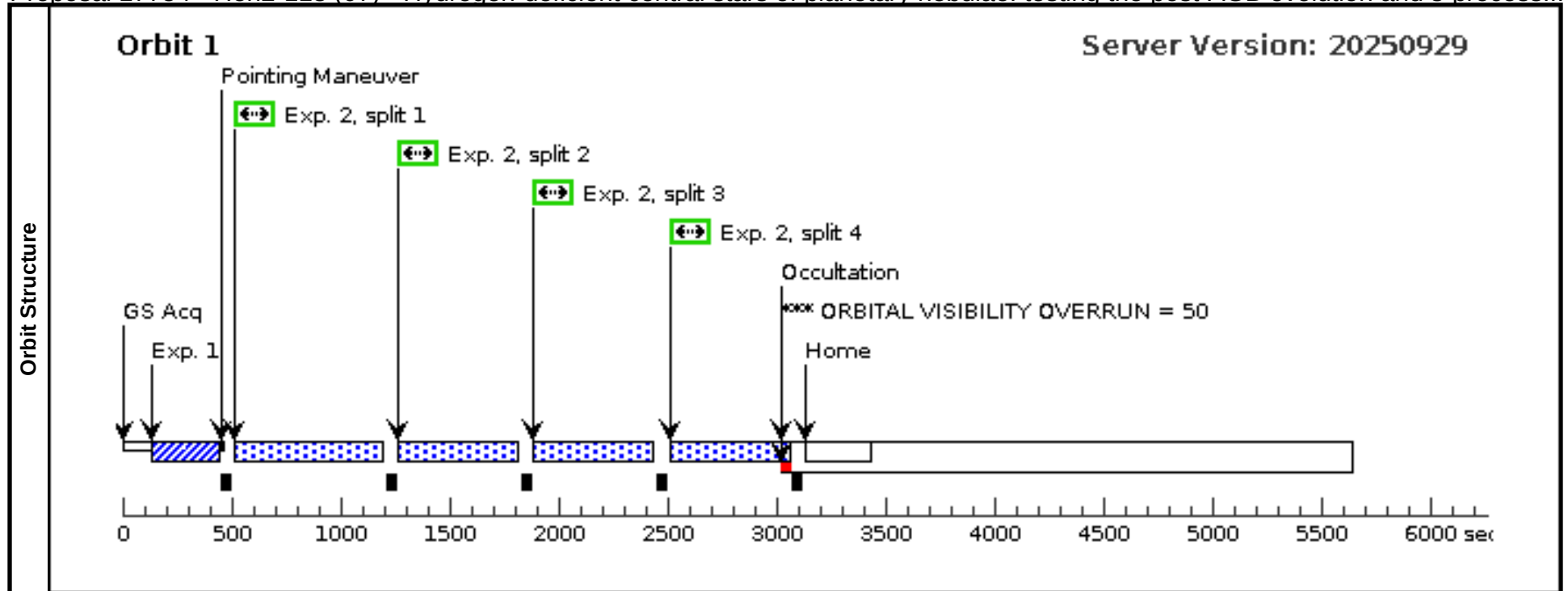
Proposal 17754 - Hen2-459 (06) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Visit	Proposal 17754, Hen2-459 (06), completed										Wed Dec 17 23:00:26 GMT 2025		
	Diagnostic Status: Warning												
	Scientific Instruments: COS/FUV, COS/NUV												
	Special Requirements: (none)												
Diagnostics	(Hen2-459 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN												
	(Hen2-459 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN												
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(6)	HEN-2-459	RA: 20 13 57.8883 (303.4912012d)		Proper Motion RA: -2.130 mas/yr		V=12.67		Reference Frame: ICRS				
			Dec: +29 33 55.72 (29.56548d)		Proper Motion Dec: -9.378 mas/yr								
			Equinox: J2000		Parallax: 0.0009911"								
					Epoch of Position: 2016								
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.												
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	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]												
	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 (1932867)	(6) HEN-2-459	COS/NUV, ACQ/IMAGE, PSA		MIRRORB				13.8 Secs (13.8 Secs)			
										[==>]		[1]	
	2	G140L (1932871)	(6) HEN-2-459	COS/FUV, TIME-TAG, PSA		G140L 800 A	FP-POS=ALL;				1000 Secs (4614 Secs)		
							SEGMENT=A;				[==>1075.0 Secs (Split 1)]		
							FLASH=YES;				[==>1075.0 Secs (Split 2)]		[1]
							BUFFER-TIME=46 14;				[==>1232.0 Secs (Split 3)]		
						LIFETIME-POS=L P3				[==>1232.0 Secs (Split 4)]		[2]	
	Comments: SN 20.6 for 4614 s at 1400 Ang												



Proposal 17754 - Hen2-113 (07) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Visit	Proposal 17754, Hen2-113 (07), completed										Wed Dec 17 23:00:26 GMT 2025			
	Diagnostic Status: Warning													
	Scientific Instruments: COS/FUV, COS/NUV													
	Special Requirements: (none)													
Diagnos	(Hen2-113 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN													
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes		Miscellaneous					
	(7)	HEN-2-113	RA: 14 59 53.4731 (224.9728046d)	Proper Motion RA: -4.855 mas/yr			V=11.88		Reference Frame: ICRS					
			Dec: -54 18 7.52 (-54.30209d)	Proper Motion Dec: -0.202 mas/yr										
			Equinox: J2000	Parallax: 0.0004824"										
	Epoch of Position: 2016													
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.													
	Category=STAR													
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]													
	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 Hen2-113 (1933088)	(7) HEN-2-113	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				2.5 Secs (2.5 Secs)					
									[==>]		[1]			
	2	G140L Hen 2-113 (1933090)	(7) HEN-2-113	COS/FUV, TIME-TAG, PSA	G140L 1105 A	BUFFER-TIME=19 92;				498 Secs (1992 Secs)				
						FP-POS=ALL;				[==>(Split 1)]		[1]		
					FLASH=YES;				[==>(Split 2)]					
					SEGMENT=A;				[==>(Split 3)]					
					LIFETIME-POS=L P3				[==>(Split 4)]					
	Comments: SN 20.6 for 1992 s at 1400 Ang													



Proposal 17754 - PN-K2-16 (08) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Visit	Proposal 17754, PN-K2-16 (08), failed Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)
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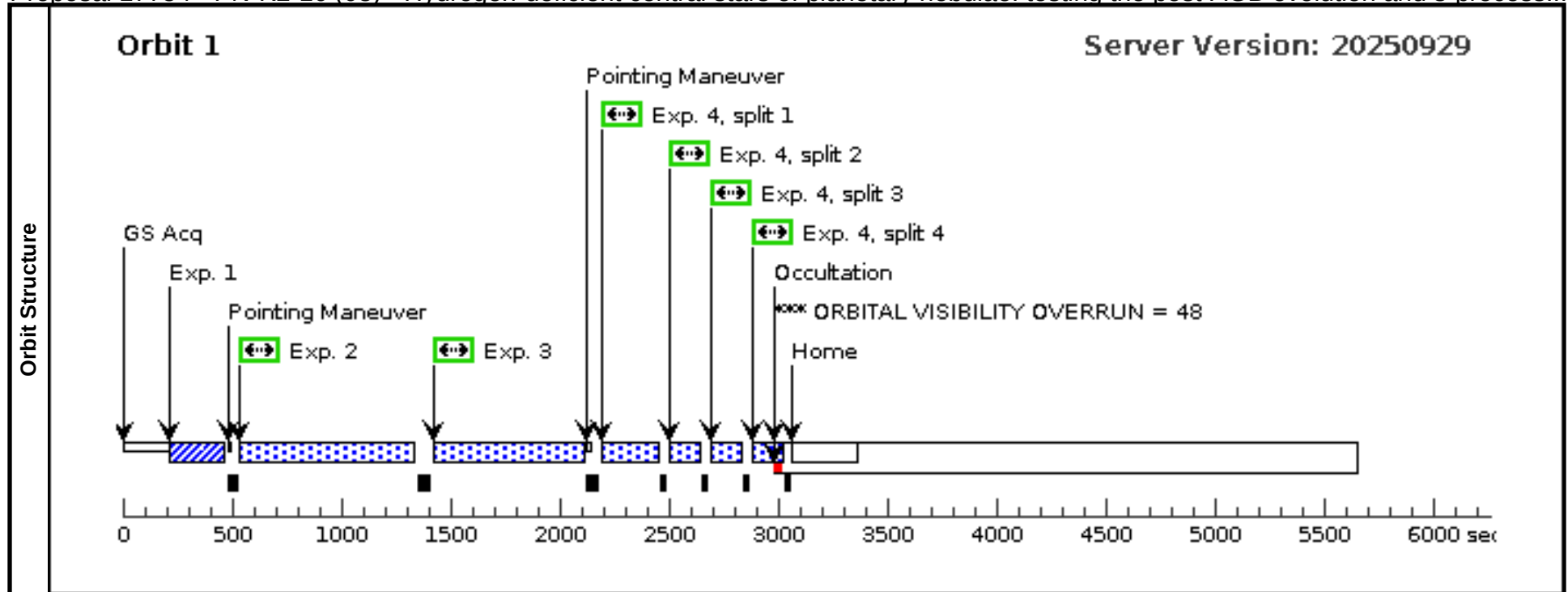
Wed Dec 17 23:00:26 GMT 2025

Proposal 17754 - PN-K2-16 (08) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Diagnostics	(PN-K2-16 (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(G130M-FP-POS3 (08.002)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS3 (08.002)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS3 (08.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (08.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (08.002)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS3 (08.002)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (08.002)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS4 (08.003)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS4 (08.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (08.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (08.003)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS4 (08.003)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (08.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G160M (08.004)) Informational (Form): Illegal selection: G160M.
	(G160M (08.004)) Informational (Form): Illegal selection: PSA.
	(G160M (08.004)) Informational (Form): LP4 is not a valid selection
	(G160M (08.004)) Informational (Form): LP4 is not a valid selection
	(G160M (08.004)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (08.004)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (08.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP4. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (08.004)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G160M. Only lifetime position LP10 may be specified for G160M exposures

Proposal 17754 - PN-K2-16 (08) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(8)	PN-K-2-16	RA: 16 44 49.0493 (251.2043721d) Dec: -28 04 4.75 (-28.06799d) Equinox: J2000	Proper Motion RA: -2.434 mas/yr Proper Motion Dec: -2.694 mas/yr Parallax: 0.0001753" Epoch of Position: 2016	V=12.75	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR									
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1931891)	(8) PN-K-2-16	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				14.9 Secs (14.9 Secs) [==>]	 [1]
	2	G130M-FP-POS3 (1945216)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1500; FLASH=YES; SEGMENT=BOTH; LIFETIME-POS=L P5			635 Secs (635 Secs) [==>]	 [1]
	Comments: SNR = 21.3 for 1270 s at 1300 Ang									
	3	G130M-FP-POS4 (1945216)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=1500; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			635 Secs (635 Secs) [==>]	 [1]
	Comments: SNR = 21.3 for 1270 s at 1300 Ang									
	4	G160M (1933986)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=2000; SEGMENT=BOTH; LIFETIME-POS=L P4			84 Secs (336 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SN 11.1 for 336 s at 1510 Ang									



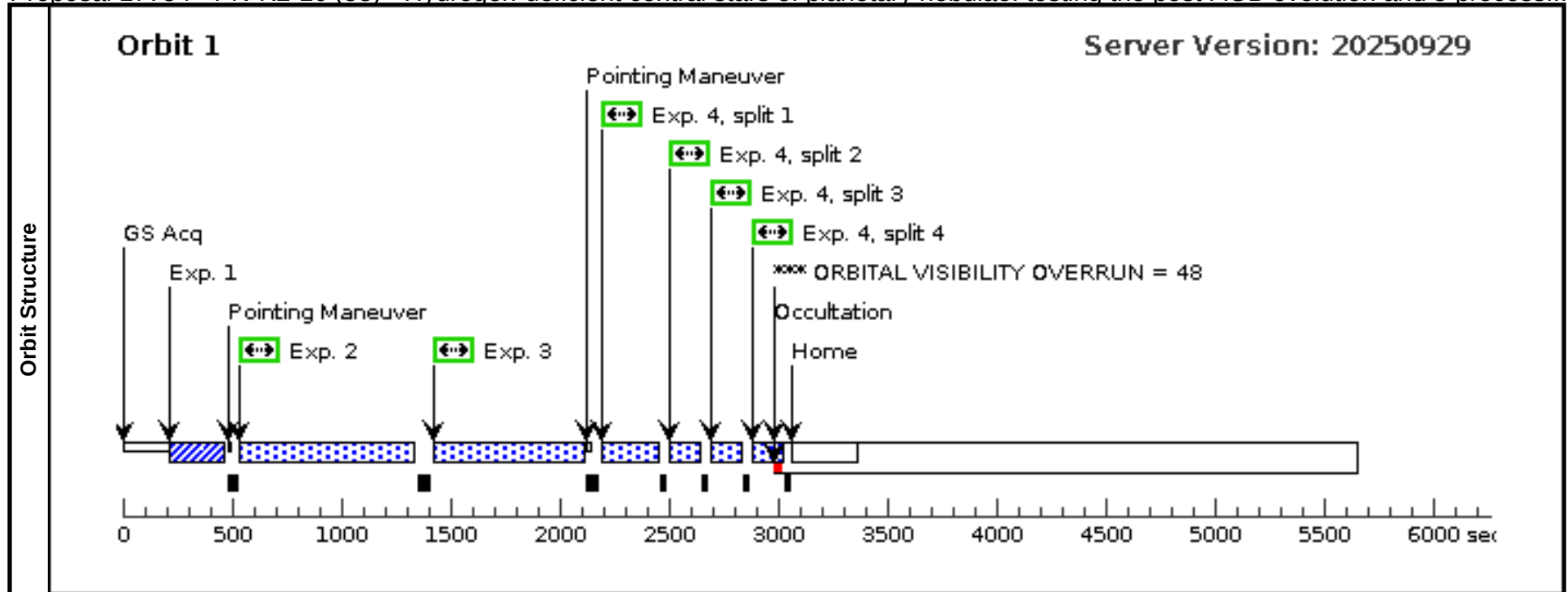
Visit	Proposal 17754, PN-K2-16 (58), completed	Wed Dec 17 23:00:27 GMT 2025
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: (none)	

Proposal 17754 - PN-K2-16 (58) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Diagnostics	(PN-K2-16 (58)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (G130M-FP-POS3 (58.002)) Informational (Form): 1291 is not a valid selection. (G130M-FP-POS3 (58.002)) Informational (Form): G130M is not a valid selection. (G130M-FP-POS3 (58.002)) Informational (Form): LP5 is not a valid selection (G130M-FP-POS3 (58.002)) Informational (Form): LP5 is not a valid selection (G130M-FP-POS3 (58.002)) Informational (Form): PSA is not a valid selection. (G130M-FP-POS3 (58.002)) Informational (Form): TIME-TAG is not a valid selection. (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS3 (58.002)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): 1291 is not a valid selection. (G130M-FP-POS4 (58.003)) Informational (Form): G130M is not a valid selection. (G130M-FP-POS4 (58.003)) Informational (Form): LP5 is not a valid selection (G130M-FP-POS4 (58.003)) Informational (Form): LP5 is not a valid selection (G130M-FP-POS4 (58.003)) Informational (Form): PSA is not a valid selection. (G130M-FP-POS4 (58.003)) Informational (Form): TIME-TAG is not a valid selection. (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G130M-FP-POS4 (58.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7 (G160M (58.004)) Informational (Form): Illegal selection: G160M. (G160M (58.004)) Informational (Form): Illegal selection: PSA. (G160M (58.004)) Informational (Form): LP4 is not a valid selection (G160M (58.004)) Informational (Form): LP4 is not a valid selection (G160M (58.004)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. Only lifetime position LP10 may be specified for G160M exposures (G160M (58.004)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. Only lifetime position LP10 may be specified for G160M exposures (G160M (58.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP4. Only lifetime position LP10 may be specified for G160M exposures (G160M (58.004)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G160M. Only lifetime position LP10 may be specified for G160M exposures
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Proposal 17754 - PN-K2-16 (58) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process...

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(8)	PN-K-2-16	RA: 16 44 49.0493 (251.2043721d) Dec: -28 04 4.75 (-28.06799d) Equinox: J2000	Proper Motion RA: -2.434 mas/yr Proper Motion Dec: -2.694 mas/yr Parallax: 0.0001753" Epoch of Position: 2016	V=12.75	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR									
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1931891)	(8) PN-K-2-16	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				14.9 Secs (14.9 Secs) [>=>]	[1]
	2	G130M-FP-POS3 (1945216)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1500; FLASH=YES; SEGMENT=BOTH; LIFETIME-POS=L P5			635 Secs (635 Secs) [>=>]	[1]
	Comments: SNR = 21.3 for 1270 s at 1300 Ang									
	3	G130M-FP-POS4 (1945216)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=1500; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			635 Secs (635 Secs) [>=>]	[1]
	Comments: SNR = 21.3 for 1270 s at 1300 Ang									
	4	G160M (1933986)	(8) PN-K-2-16	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=2000; SEGMENT=BOTH; LIFETIME-POS=L P4			84 Secs (336 Secs) [>=>(Split 1)] [>=>(Split 2)] [>=>(Split 3)] [>=>(Split 4)]	[1]
Comments: SN 11.1 for 336 s at 1510 Ang										



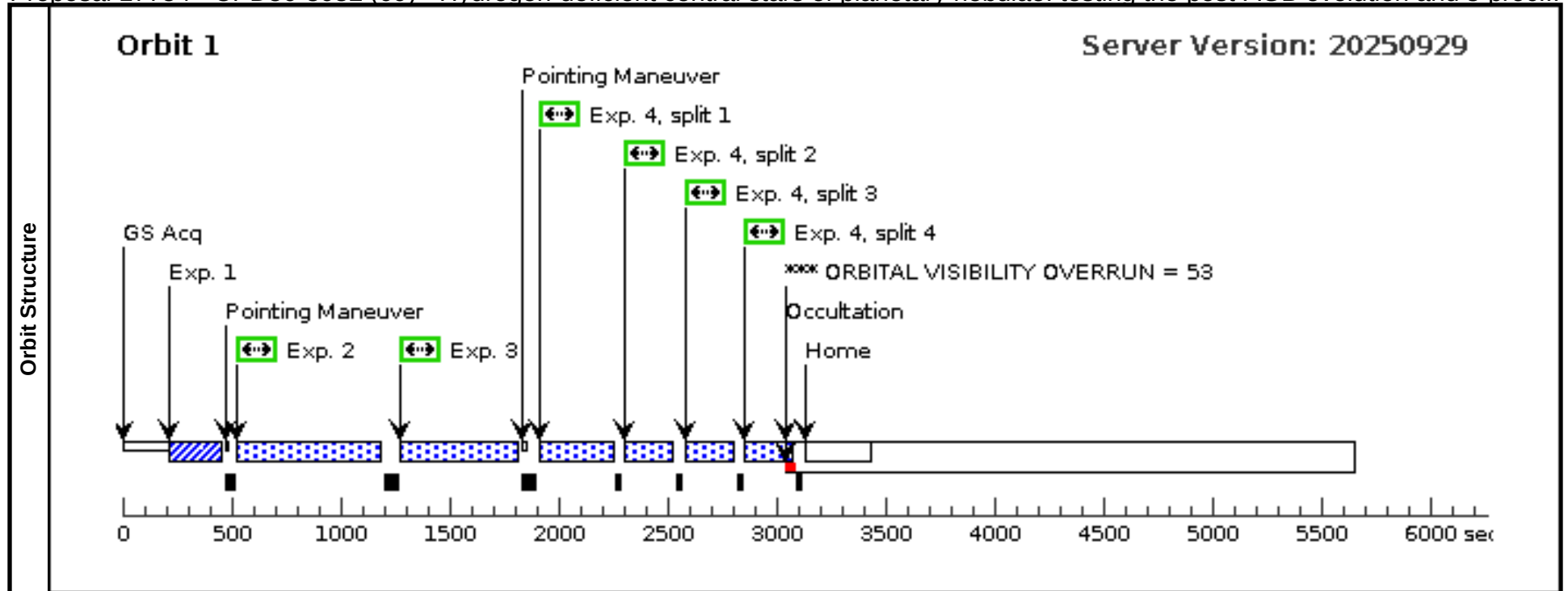
Visit	Proposal 17754, CPD56-8032 (09), failed	Wed Dec 17 23:00:27 GMT 2025
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: (none)	

Proposal 17754 - CPD56-8032 (09) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proc...

Diagnostics	(CPD56-8032 (09)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS
	(CPD56-8032 (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(G130M-FP-POS3 (09.002)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS3 (09.002)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS3 (09.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (09.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (09.002)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS3 (09.002)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (09.002)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS4 (09.003)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS4 (09.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (09.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (09.003)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS4 (09.003)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (09.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G160M (09.004)) Informational (Form): Illegal selection: G160M.
	(G160M (09.004)) Informational (Form): Illegal selection: PSA.
	(G160M (09.004)) Informational (Form): LP4 is not a valid selection
	(G160M (09.004)) Informational (Form): LP4 is not a valid selection
	(G160M (09.004)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (09.004)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (09.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP4. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (09.004)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G160M. Only lifetime position LP10 may be specified for G160M exposures

Proposal 17754 - CPD56-8032 (09) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proc...

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	CPD-56-8032	RA: 17 09 0.9250 (257.2538542d) Dec: -56 54 47.96 (-56.91332d) Equinox: J2000	Proper Motion RA: -1.461 mas/yr Proper Motion Dec: -5.982 mas/yr Parallax: 0.0006779" Epoch of Position: 2016	V=11.04	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR									
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1931897)	(9) CPD-56-8032	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				9.6 Secs (9.6 Secs) [==>]	[1]
	2	G130M-FP-POS3 (1945215)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1080; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			490 Secs (490 Secs) [==>]	[1]
	Comments: SN 16.9 for 980 s at 1400 Ang									
	3	G130M-FP-POS4 (1945215)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=1080; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			490 Secs (490 Secs) [==>]	[1]
	Comments: SNR = 16.9 for 980 s at 1400 Ang									
	4	G160M (1933330)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=1550; LIFETIME-POS=L P4; SEGMENT=BOTH			171 Secs (684 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SN 16.3 for 684 s at 1500 Ang									



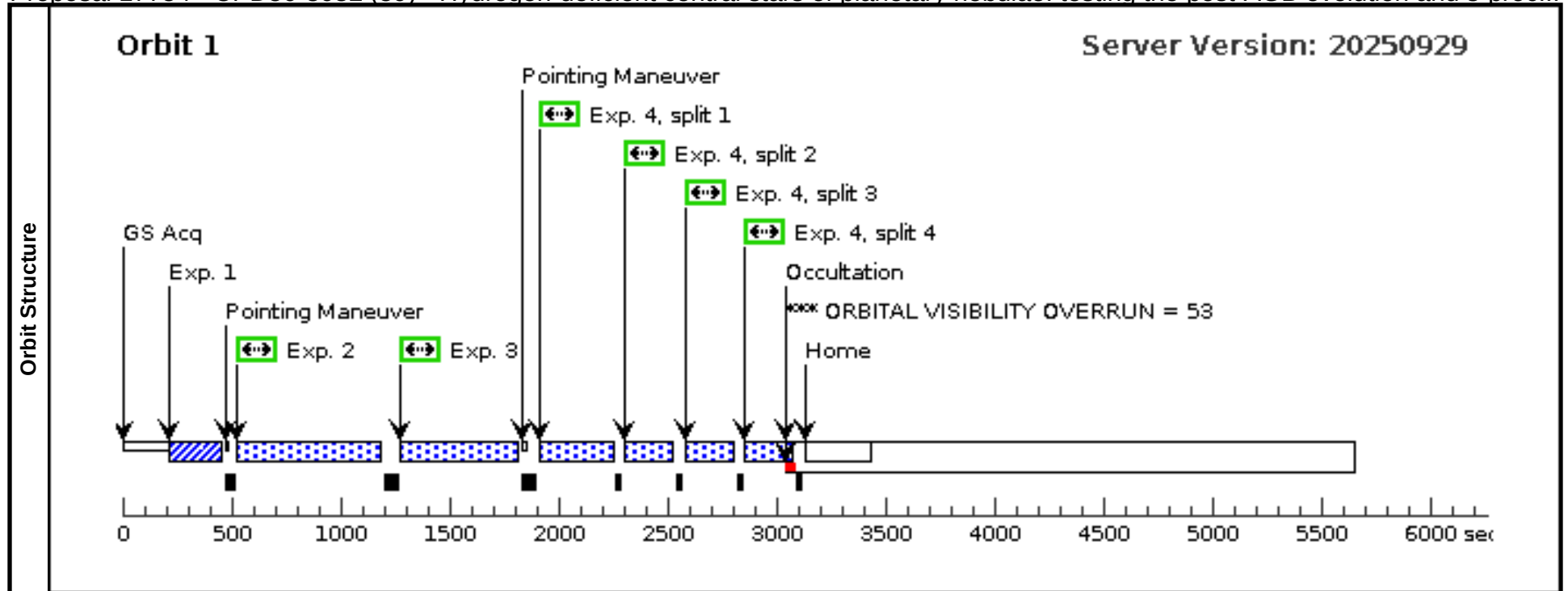
Visit	Proposal 17754, CPD56-8032 (59), completed	Wed Dec 17 23:00:27 GMT 2025
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: (none)	

Proposal 17754 - CPD56-8032 (59) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proc...

Diagnostics	(CPD56-8032 (59)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS
	(CPD56-8032 (59)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(G130M-FP-POS3 (59.002)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS3 (59.002)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS3 (59.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (59.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (59.002)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS3 (59.002)) Informational (Form): TIME-TAG is not a valid selection.
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	(G130M-FP-POS3 (59.002)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (59.002)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (59.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (59.002)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (59.002)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS4 (59.003)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS4 (59.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (59.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (59.003)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS4 (59.003)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (59.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G160M (59.004)) Informational (Form): Illegal selection: G160M.
	(G160M (59.004)) Informational (Form): Illegal selection: PSA.
	(G160M (59.004)) Informational (Form): LP4 is not a valid selection
	(G160M (59.004)) Informational (Form): LP4 is not a valid selection
	(G160M (59.004)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (59.004)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (59.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP4. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (59.004)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G160M. Only lifetime position LP10 may be specified for G160M exposures

Proposal 17754 - CPD56-8032 (59) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proc...

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	CPD-56-8032	RA: 17 09 0.9250 (257.2538542d) Dec: -56 54 47.96 (-56.91332d) Equinox: J2000	Proper Motion RA: -1.461 mas/yr Proper Motion Dec: -5.982 mas/yr Parallax: 0.0006779" Epoch of Position: 2016	V=11.04	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR									
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1931897)	(9) CPD-56-8032	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				9.6 Secs (9.6 Secs) [==>]	[1]
	2	G130M-FP-POS3 (1945215)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1080; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			490 Secs (490 Secs) [==>]	[1]
	Comments: SN 16.9 for 980 s at 1400 Ang									
	3	G130M-FP-POS4 (1945215)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=1080; FLASH=YES; LIFETIME-POS=L P5; SEGMENT=BOTH			490 Secs (490 Secs) [==>]	[1]
	Comments: SNR = 16.9 for 980 s at 1400 Ang									
	4	G160M (1933330)	(9) CPD-56-8032	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=1550; LIFETIME-POS=L P4; SEGMENT=BOTH			171 Secs (684 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
Comments: SN 16.3 for 684 s at 1500 Ang										



Visit	Proposal 17754, PN-M4-18 (10), completed	Wed Dec 17 23:00:27 GMT 2025
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: (none)	

Proposal 17754 - PN-M4-18 (10) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proces...

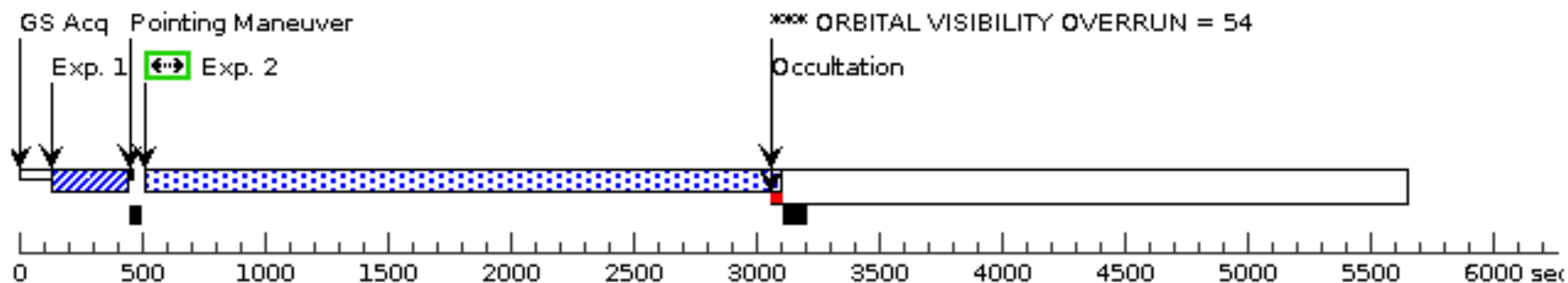
Diagnostics	(PN-M4-18 (10)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS
	(PN-M4-18 (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(PN-M4-18 (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(PN-M4-18 (10)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
	(G130M-FP-POS3 (10.002)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS3 (10.002)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS3 (10.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (10.002)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS3 (10.002)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS3 (10.002)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS3 (10.002)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): 1291 is not a valid selection.
	(G130M-FP-POS4 (10.003)) Informational (Form): G130M is not a valid selection.
	(G130M-FP-POS4 (10.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (10.003)) Informational (Form): LP5 is not a valid selection
	(G130M-FP-POS4 (10.003)) Informational (Form): PSA is not a valid selection.
	(G130M-FP-POS4 (10.003)) Informational (Form): TIME-TAG is not a valid selection.
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Mode=TIME-TAG. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP5. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G130M. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G130M-FP-POS4 (10.003)) Informational (Form): This attribute cannot have this value due to other choices: Wavelength=1291. G130M Wavelength 1291 is only allowed on Lifetime Positions LP3 and LP7
	(G160M (10.004)) Informational (Form): Illegal selection: G160M.
	(G160M (10.004)) Informational (Form): LP4 is not a valid selection
	(G160M (10.004)) Informational (Form): LP4 is not a valid selection
	(G160M (10.004)) Informational (Form): PSA is not a valid selection.
	(G160M (10.004)) Informational (Form): This attribute cannot have this value due to other choices: Aperture=PSA. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (10.004)) Informational (Form): This attribute cannot have this value due to other choices: Config=COS/FUV. Only lifetime position LP10 may be specified for G160M exposures
	(G160M (10.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP4. Only lifetime position LP10 may be specified for G160M exposures

Proposal 17754 - PN-M4-18 (10) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-proces...

(G160M (10.004)) Informational (Form): This attribute cannot have this value due to other choices: Spectral_Element=G160M. Only lifetime position LP10 may be specified for G160M exposures										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(10)	PN-M-4-18	RA: 04 25 50.8372 (66.4618217d) Dec: +60 07 12.77 (60.12021d) Equinox: J2000	Proper Motion RA: 0.717 mas/yr Proper Motion Dec: -0.755 mas/yr Parallax: 0.0001528" Epoch of Position: 2016		V=13.96		Reference Frame: ICRS		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	Category=STAR									
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1933105)	(10) PN-M-4-18	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				2.4 Secs (2.4 Secs) [==>]	[1]
	2	G130M-FP-POS3 (1945209)	(10) PN-M-4-18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2900; FLASH=YES; LIFETIME-POS=L P5; FP-POS=3; SEGMENT=BOTH			2420 Secs (2420 Secs) [==>]	[1]
	Comments: SNR = 17.7 for 5064s at 1400 Ang									
	3	G130M-FP-POS4 (1945209)	(10) PN-M-4-18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2900; LIFETIME-POS=L P5; FLASH=YES; SEGMENT=BOTH; FP-POS=4			2644 Secs (2644 Secs) [==>]	[2]
	4	G160M (1945213)	(10) PN-M-4-18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=3000; FLASH=YES; FP-POS=ALL; LIFETIME-POS=L P4; SEGMENT=BOTH			300 Secs (2296 Secs) [==>574.0 Secs (Split 1)] [==>574.0 Secs (Split 2)] [==>574.0 Secs (Split 3)] [==>574.0 Secs (Split 4)]	[3]
	Comments: SN 17.5 for 2296 s at 1500 Ang									

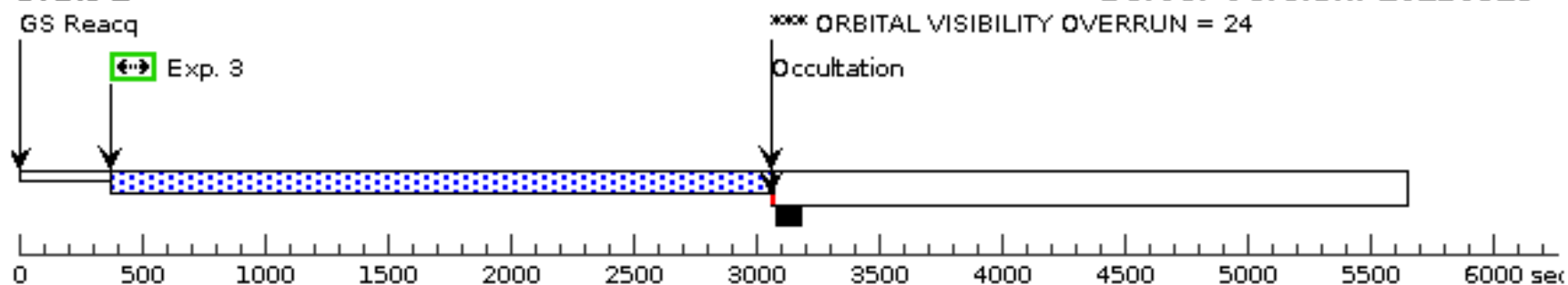
Orbit 1

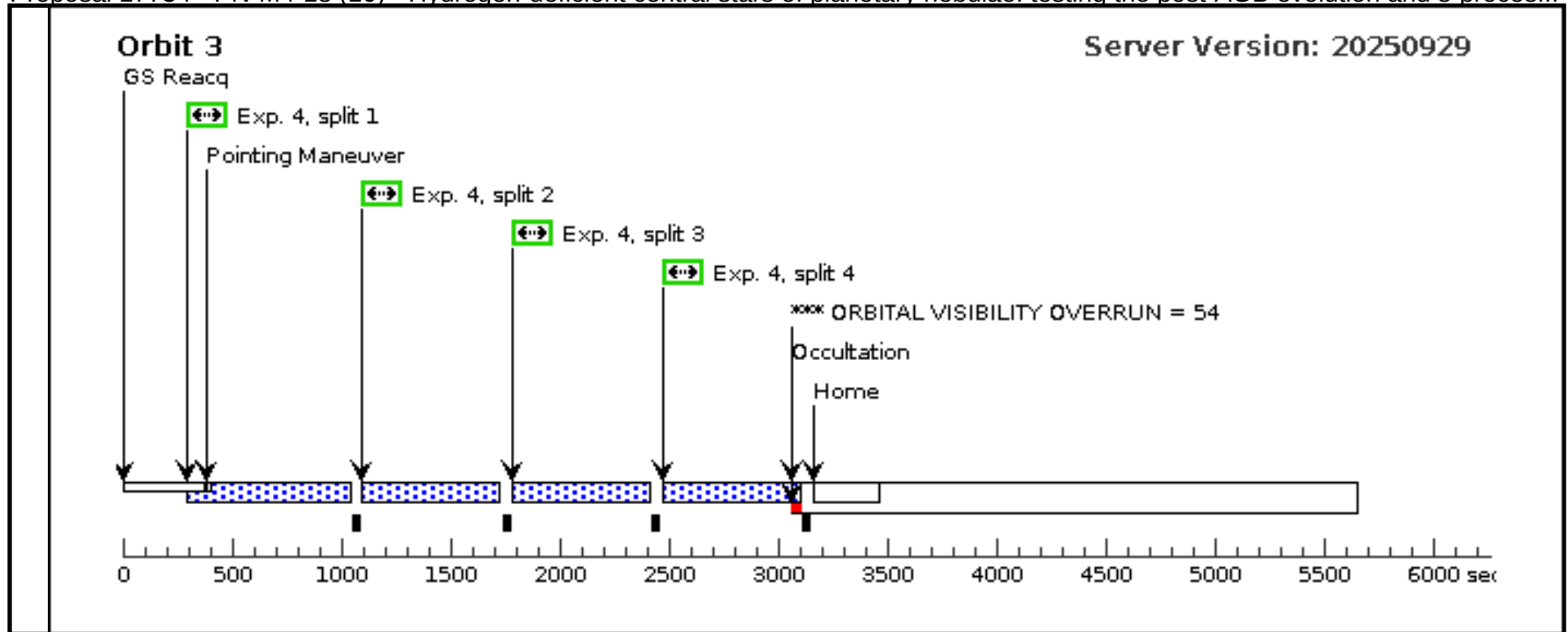
Server Version: 20250929



Orbit 2

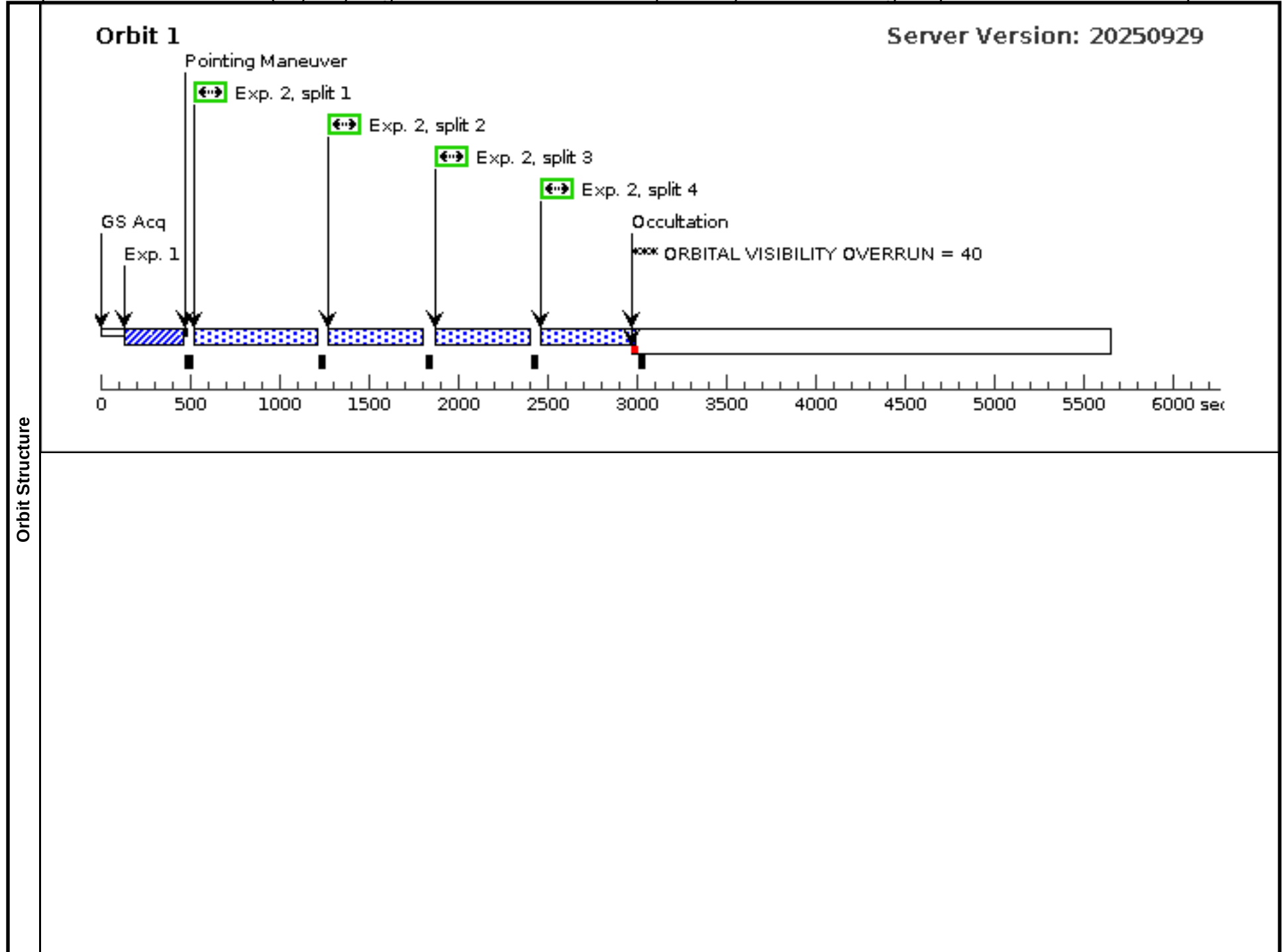
Server Version: 20250929

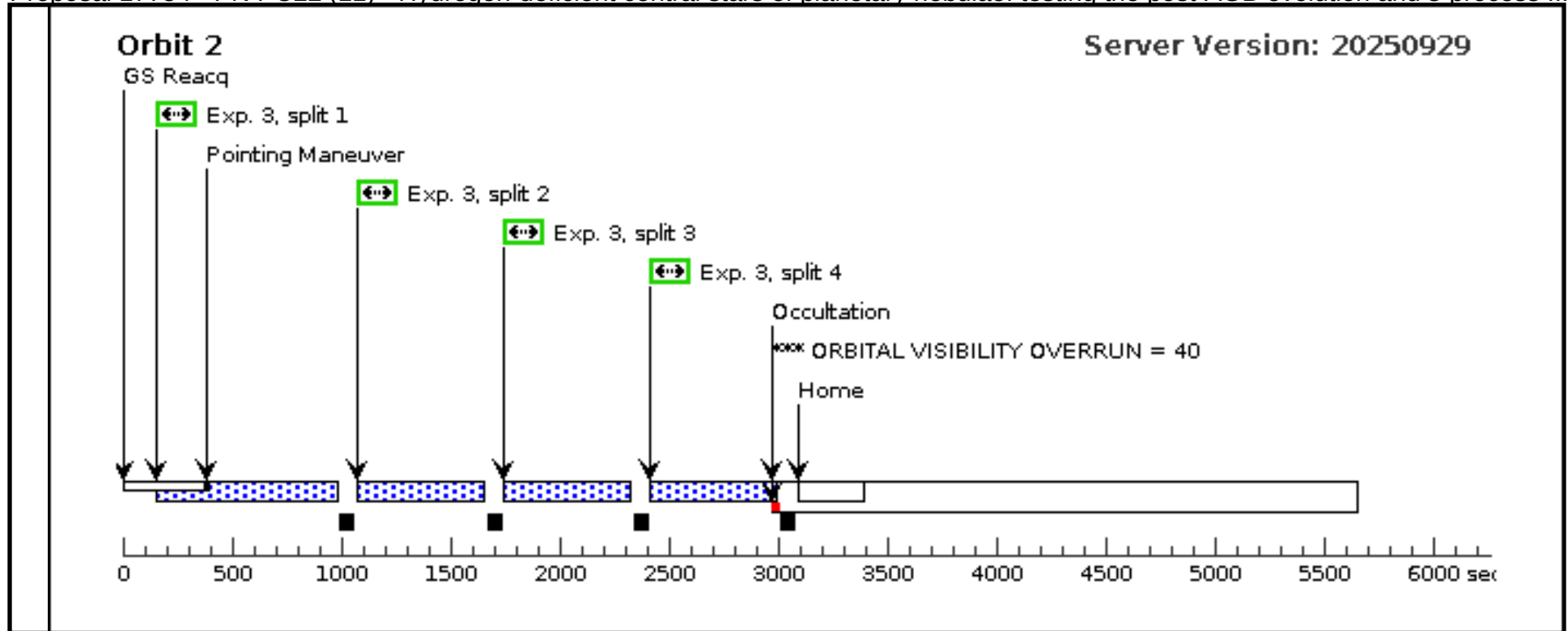




Proposal 17754 - PN PC22 (11) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process ...

Visit	Proposal 17754, PN PC22 (11), completed										Wed Dec 17 23:00:27 GMT 2025	
	Diagnostic Status: Warning											
	Scientific Instruments: COS/FUV, COS/NUV											
	Special Requirements: (none)											
Diagnostics	(PN PC22 (11)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
	(PN PC22 (11)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Fluxes		Miscellaneous	
	(11)	PN-PC-22	RA: 19 42 3.4784 (295.5144933d) Dec: +13 50 37.41 (13.84373d) Equinox: J2000			Proper Motion RA: -3.298 mas/yr Proper Motion Dec: -4.078 mas/yr Parallax: 0.00016" Epoch of Position: 2016			V=17.4		Reference Frame: ICRS	
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Parallax in Gaia is negative, value of 0.00016 estimated from our distance estimate in Sabin et al. (2022)											
	Category=STAR Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR] 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 (1933131)	(11) PN-PC-22	COS/NUV, ACQ/IMAGE, PSA		MIRRORB				9.1 Secs (9.1 Secs)		
										[==>]		[1]
	2	G140L (1933989)	(11) PN-PC-22	COS/FUV, TIME-TAG, PSA		G140L 800 A	BUFFER-TIME=33 33; LIFETIME-POS=L P3; FLASH=YES; FP-POS=ALL; SEGMENT=A			480 Secs (1920 Secs)		
										[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[1]
	Comments: SN 24.4 for 1920 s at 1400 Ang											
	3	G230L (1933993)	(11) PN-PC-22	COS/NUV, TIME-TAG, PSA		G230L 3360 A	BUFFER-TIME=11 50; FP-POS=ALL; FLASH=YES			566 Secs (2264 Secs)		
									[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[2]	
Comments: SN 19.5 for 2264 s at 2200 Ang												



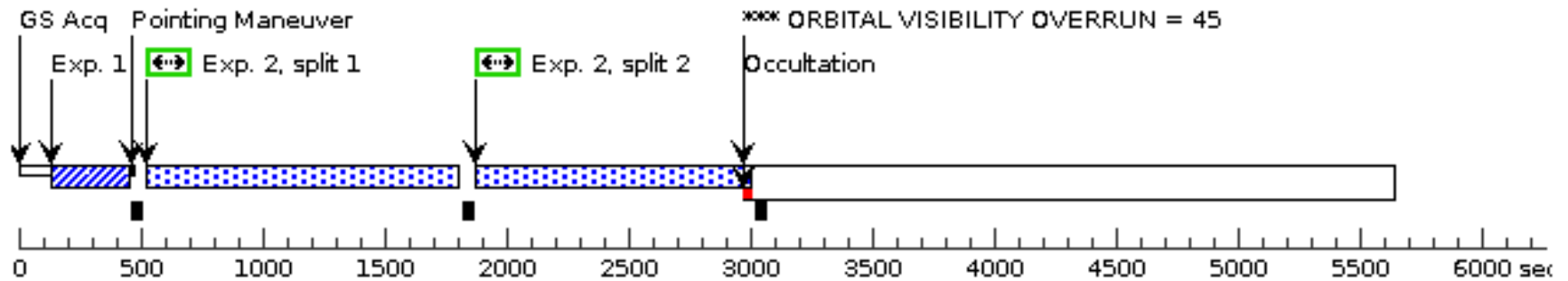


Proposal 17754 - RAMUL2 (12) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-process ...

Visit	Proposal 17754, RAMUL2 (12), completed										Wed Dec 17 23:00:27 GMT 2025	
	Diagnostic Status: Warning											
	Scientific Instruments: COS/FUV, COS/NUV											
	Special Requirements: (none)											
Diagnostics	(RAMUL2 (12)) Warning (Orbit Planner): COS EXPOSURE TIME ROUNDED DOWN TO NEAREST 0.1 SECONDS											
	(RAMUL2 (12)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
	(RAMUL2 (12)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
	(RAMUL2 (12)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
	(RAMUL2 (12)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN											
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous				
	(12)	RAMUL-2	RA: 19 49 53.7033 (297.4737637d)	Proper Motion RA: -1.792 mas/yr			V=15.8	Reference Frame: ICRS				
		Alt Name1: PN-G056.1-03.8	Dec: +18 40 14.76 (18.67077d)	Proper Motion Dec: -3.681 mas/yr								
			Equinox: J2000	Parallax: 0.0001078"								
				Epoch of Position: 2016								
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
	Category=STAR											
	Description=[EMISSION LINE STAR, PLANETARY NEBULA CENTRAL STAR]											
	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 (1933147)	(12) RAMUL-2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				7.8 Secs (7.8 Secs)			
									[==>]		[1]	
	2	G140L (1933175)	(12) RAMUL-2	COS/FUV, TIME-TAG, PSA	G140L 800 A	BUFFER-TIME=3866;			1000 Secs (4584 Secs)			
						FLASH=YES;			[==>1076.0 Secs (Split 1)]		[1]	
						FP-POS=ALL;			[==>1076.0 Secs (Split 2)]			
						LIFETIME-POS=L P3;			[==>1216.0 Secs (Split 3)]			
						SEGMENT=A			[==>1216.0 Secs (Split 4)]		[2]	
		Comments: SN 22.8 for 4602 s at 1500 Ang										
	3	G230L (1933165)	(12) RAMUL-2	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=1130;				1200 Secs (5074 Secs)		
					FP-POS=ALL;				[==>1268 Secs (Split 1)]			
					FLASH=YES				[==>1268 Secs (Split 2)]		[3]	
									[==>1269 Secs (Split 3)]			
									[==>1269 Secs (Split 4)]		[4]	
	Comments: SN 20.5 for 5074 s at 2200 Ang											

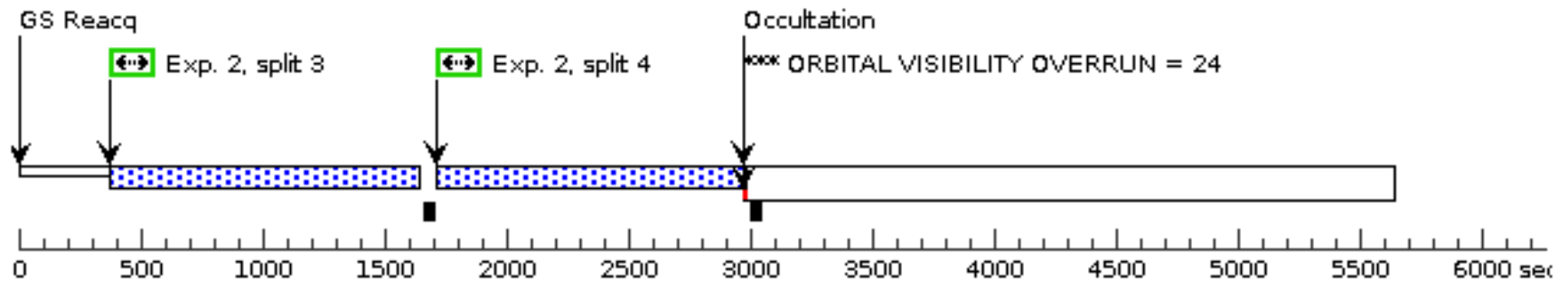
Orbit 1

Server Version: 20250929



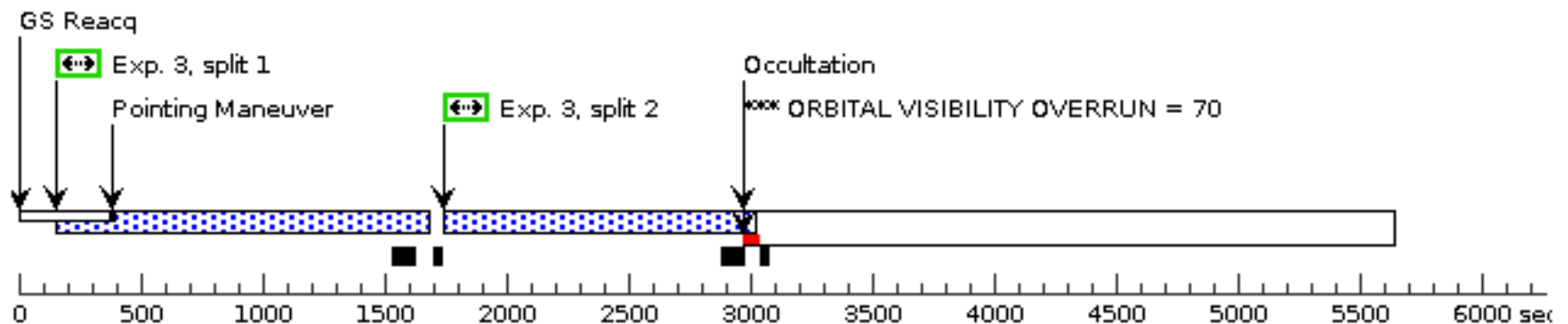
Orbit 2

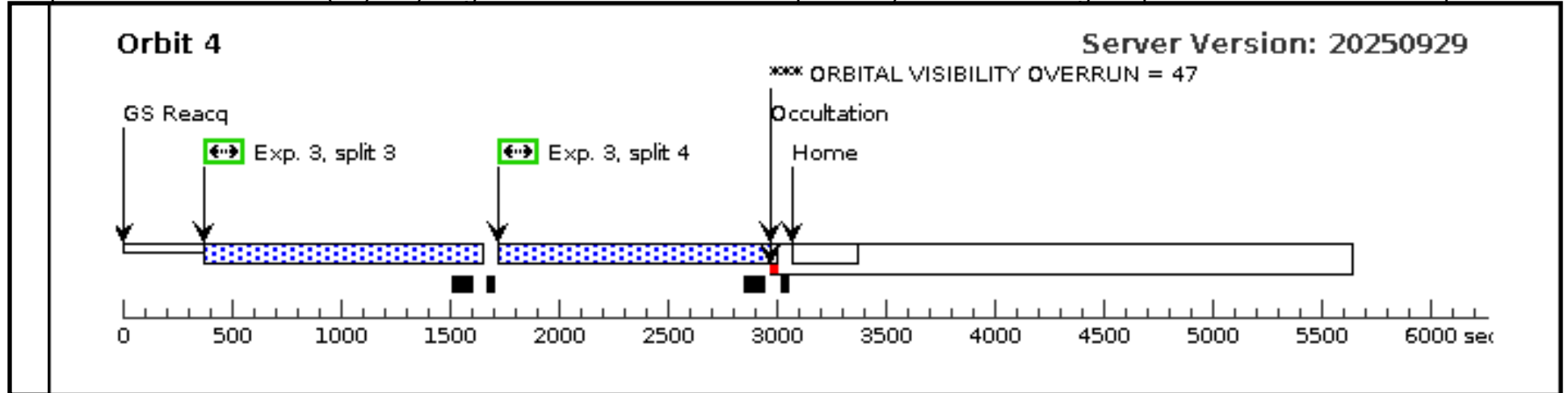
Server Version: 20250929



Orbit 3

Server Version: 20250929



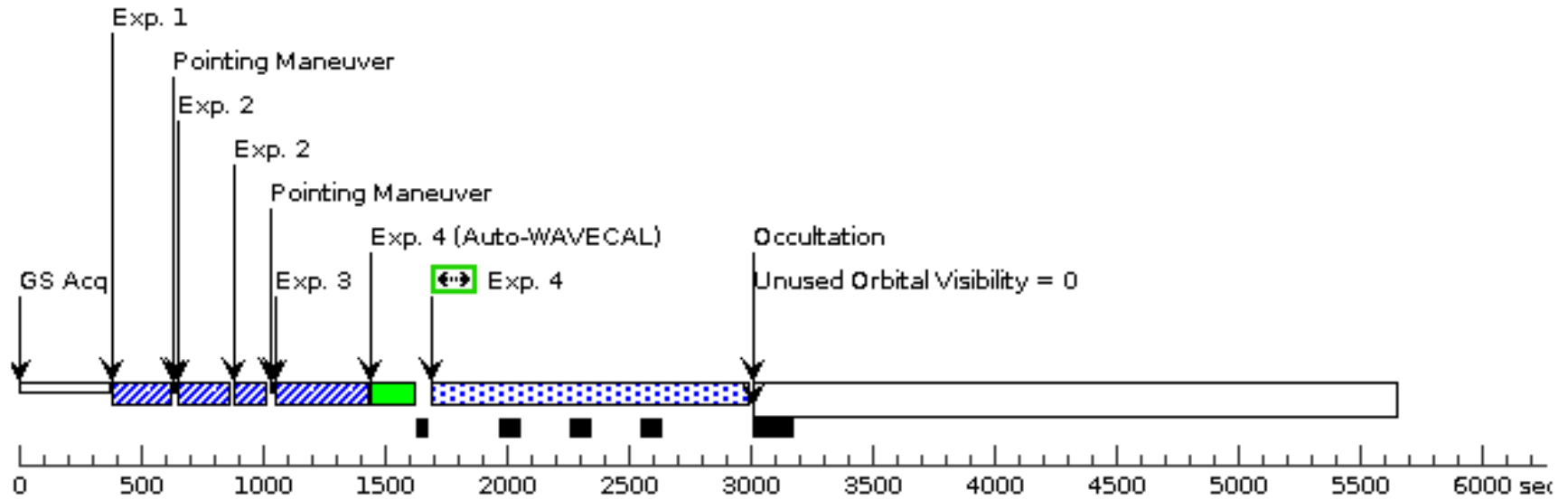


Proposal 17754 - TYC8216-799-1 (13) - Hydrogen-deficient central stars of planetary nebulae: testing the post-AGB evolution and s-pr...

Visit	Proposal 17754, TYC8216-799-1 (13), implementation								Wed Dec 17 23:00:27 GMT 2025	
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: STIS/CCD, STIS/FUV-MAMA									
	Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(13)	TYC-8216-799-1	RA: 11 52 33.0137 (178.1375571d) Dec: -45 30 47.31 (-45.51314d) Equinox: J2000	Proper Motion RA: -3.463 mas/yr Proper Motion Dec: 0.024 mas/yr Parallax: 4.107E-4" Epoch of Position: 2016	V=12.43	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
	SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM. Category=STAR Description=[EMISSION LINE STAR] 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 CCD STIS 50CC D (1933938)	(13) TYC-8216-799-1	STIS/CCD, ACQ, 50CCD	MIRROR				0.1 Secs (0.1 Secs) [==>]	[1]
	2	ACQ/PEAK 0.2X0.09 (STIS.ta.2260425)	(13) TYC-8216-799-1	STIS/CCD, ACQ/PEAK, 0.2X0.09	MIRROR				0.1 Secs (0.1 Secs) [==>]	[1]
	3	ACQ/PEAK 0.1X0.03 (1933940)	(13) TYC-8216-799-1	STIS/CCD, ACQ/PEAK, 0.1X0.03	MIRROR				0.1 Secs (0.1 Secs) [==>]	[1]
	4	STIS FUV-MAMA E140M 0.1x0.03 (STIS.sp.2260430)	(13) TYC-8216-799-1	STIS/FUV-MAMA, TIME-TAG, 0.1X0.03	E140M 1425 A	BUFFER-TIME=28 6			1289 Secs (1289 Secs) [==>]	[1]
	Comments: SN 10.5 for 1289 s at 1610 Ang (splitted exposure time)									
	5	STIS FUV-MAMA E140M 0.1x0.03 (STIS.sp.2260431)	(13) TYC-8216-799-1	STIS/FUV-MAMA, TIME-TAG, 0.1X0.03	E140M 1425 A	BUFFER-TIME=28 6			2601 Secs (2601 Secs) [==>]	[2]
	Comments: SN 14.9 for 2601 s at 1610 Ang (splitted exposure time) total in STIS.sp.2260432 (SN=18.2)									

Orbit 1

Server Version: 20250929



Orbit 2

Server Version: 20250929

