



18388 - Resolving the Connection between LFBOTs and Star Formation

Cycle: 34, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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Dr. Daniel Perley (PI) (ESA Member) (Contact)	Liverpool John Moores University
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Dr. Ragnhild Lunnan (CoI) (ESA Member)	Stockholm University
Cassie Sevilla (CoI)	Cornell University
Gokul Prem Srinivasaragavan (CoI)	University of Maryland
Jacob Wise (CoI) (ESA Member)	Liverpool John Moores University
Ms. Zoe McGrath (CoI) (ESA Member)	Liverpool John Moores University

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) CSS161010	WFC3/UVIS	1	18-Aug-2026 15:00:39.0	yes
02	(2) AT2018LUG	WFC3/UVIS	1	18-Aug-2026 15:00:39.0	yes
03	(3) AT2020MRF	WFC3/UVIS	3	18-Aug-2026 15:00:40.0	yes
04	(4) AT2022TSD	WFC3/UVIS	1	18-Aug-2026 15:00:40.0	yes
05	(5) AT2022ABFC	WFC3/UVIS	1	18-Aug-2026 15:00:41.0	yes
06	(6) AT2023HKW	WFC3/UVIS	2	18-Aug-2026 15:00:41.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
07	(7) AT2023VTH	WFC3/UVIS	2	18-Aug-2026 15:00:42.0	yes
08	(8) AT2024QFM	WFC3/UVIS	1	18-Aug-2026 15:00:42.0	yes
09	(9) AT2024AEHP	WFC3/UVIS	1	18-Aug-2026 15:00:42.0	yes
10	(10) AT2026DBL	WFC3/UVIS	2	18-Aug-2026 15:00:43.0	yes
11	(11) AT2020XND	WFC3/UVIS	3	18-Aug-2026 15:00:43.0	yes
12	(12) AT2023FHN	WFC3/UVIS	3	18-Aug-2026 15:00:44.0	yes
13	(13) AT2024WPP	WFC3/UVIS	3	18-Aug-2026 15:00:45.0	yes

24 Total Orbits Used

ABSTRACT

Luminous Fast Blue Optical Transients (LFBOTs) are a class of rare, exotic transients likely produced by the rapid accretion of material onto a black hole. Their properties indicate that the mass scale of the accreted object, the black hole, or both are quite different to what is known from other populations: they may result from the formation of very massive (>50 solar mass) stellar black holes following core-collapse or the disruption of stars by intermediate-mass (10^4 solar mass) black holes. The uncertainty in their progenitors arises in large part because their hosts are too distant to usefully resolve from the ground. HST observations have played essential roles in establishing the age and mass of various transient populations, by identifying (or ruling out) associations with young star-forming regions and statistically associating the locations of the transients with the distribution of UV light across the host more broadly. The sample of LFBOTs is now sufficiently large to deploy these methods on this population. We propose to use HST to study the local environments of the full sample of confirmed LFBOTs to test different models of their origins and constrain the mass scales of the progenitor star and black hole. By testing a potential production channel for large black holes - or alternatively, unveiling a population of previously hidden intermediate mass black holes - the results will have important implications for our understanding of the properties and evolution of black holes in the universe more generally.

OBSERVING DESCRIPTION

The goal of the program is to obtain resolved imaging (in the rest-frame near-UV where possible) of a set of LFBOT host galaxies to ascertain whether the transients hosted within these galaxies lie in or near star-forming regions. The galaxies are distant and span a wide range of surface brightnesses, and range between redshift 0.03 to 0.34. Where possible, our goal is to map the position of the transient (available from ground-based optical imaging and/or radio interferometry) onto the host to approximately 0.1 arcsec relative astrometric accuracy.

For brighter galaxies (visits 1, 2, 4, 5, 8) we use a single orbit with a standard UVIS 3-point line dither in either F336W or F390W with the detector subarrayed (C1K1C-SUB) to avoid a buffer delay. This is followed by a shorter observation using 2-point line dither in F350LP (with no subarray using the C1K1C-CTE aperture), primarily for astrometric purposes (but also to characterize the optical light distribution of the host).

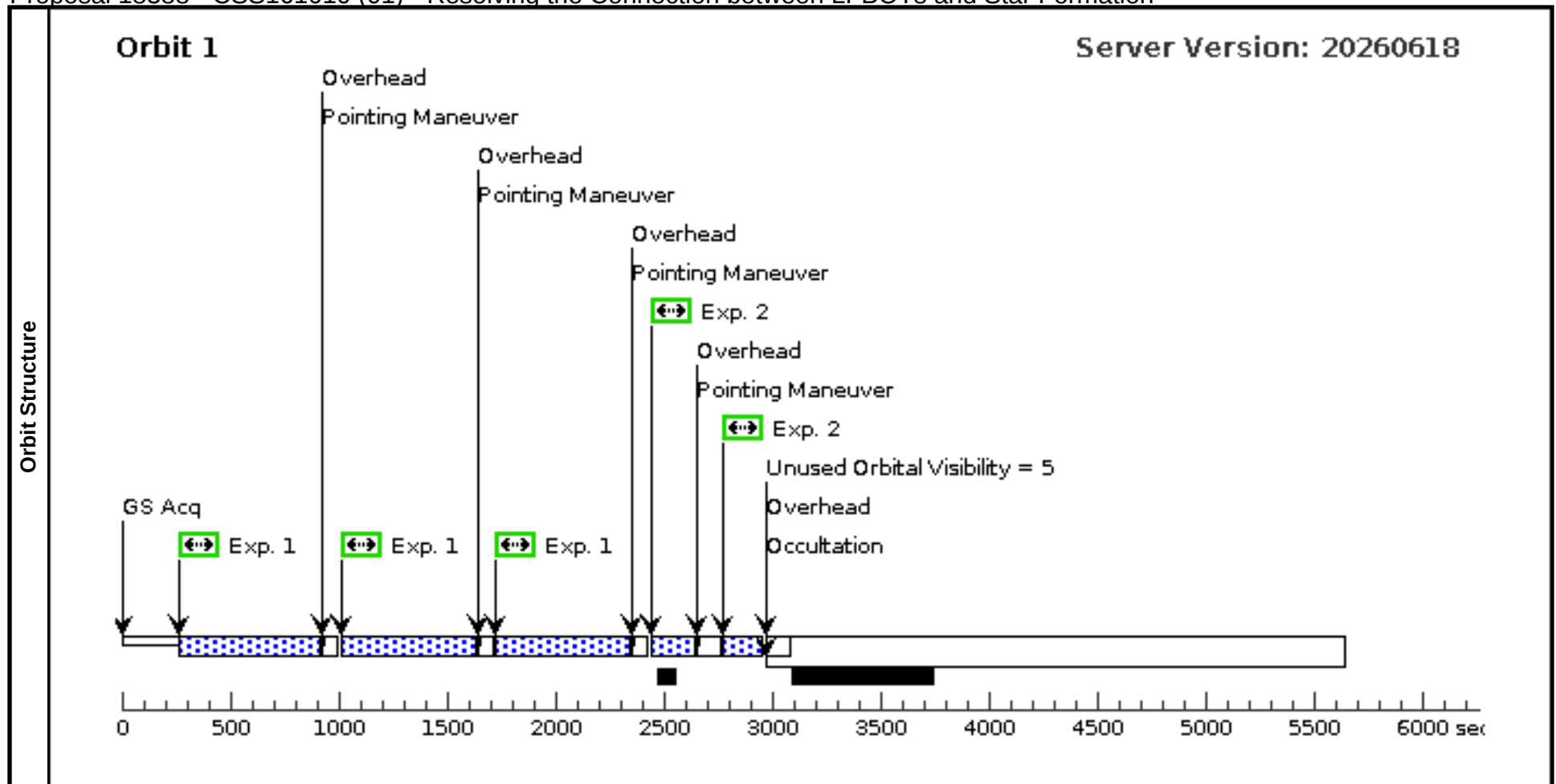
For somewhat fainter galaxies (visits 3, 6, 7, 9, 10), we observe for 2 orbits (or in one case 3 orbits) using F336W or F390W and use a 2-point line dither within each orbit, with additional small offsets applied between orbits. The last orbit includes 2-point line dither in F350LP, with the F336W/F390W observations during that orbit shortened accordingly. As with the brighter galaxies, the F336W/F390W observations are subarrayed but the F350LP observations are not.

For the faintest galaxies (visits 11, 12, 13), we observe only in long-pass filters, using a 4-point dither spanning two orbits (F200LP), plus one additional orbit using a 4-point dither in F350LP.

We use the flash option as needed to ensure at least 20 e-/pix as recommended by the APT.

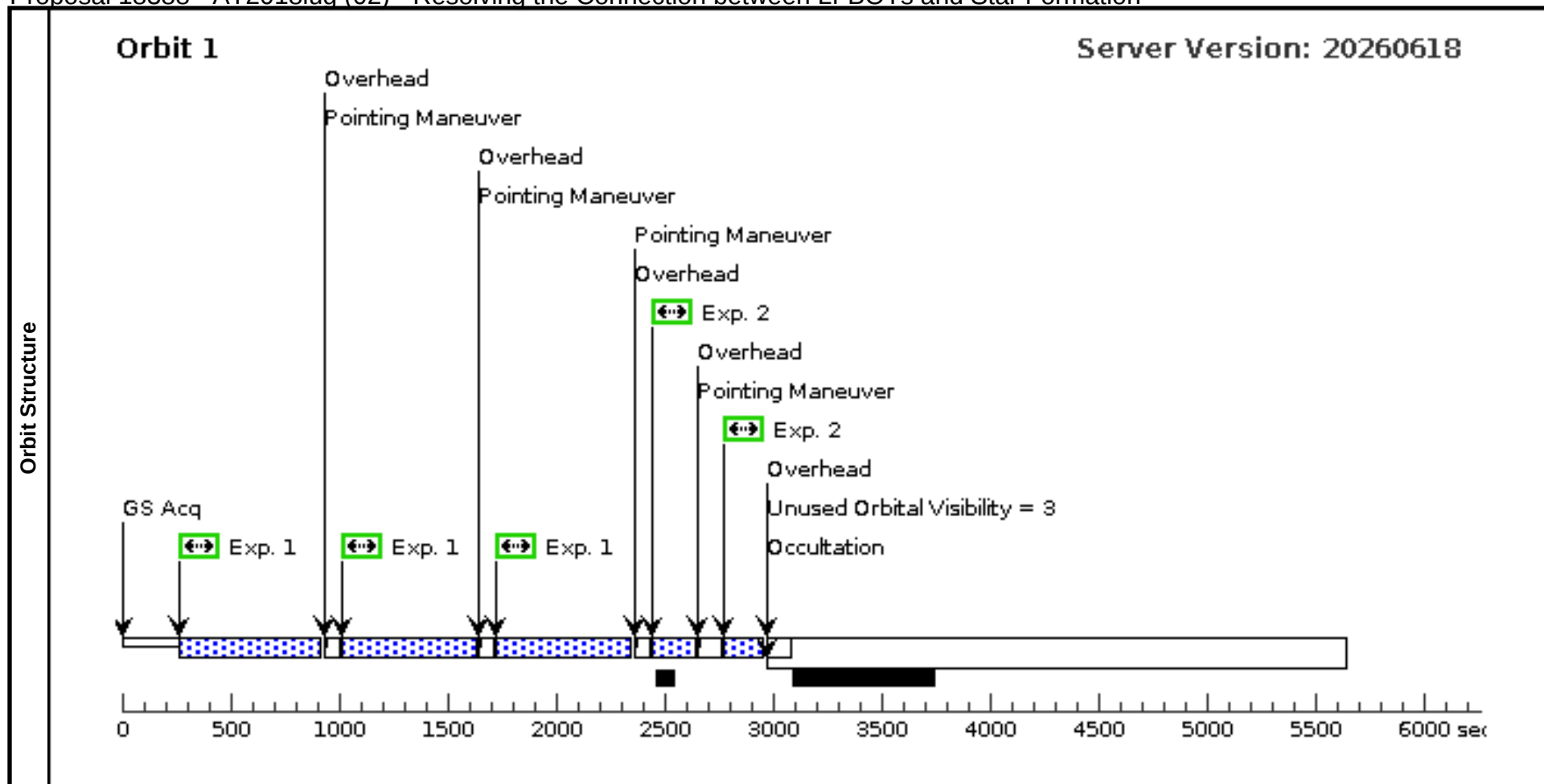
Proposal 18388 - CSS161010 (01) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, CSS161010 (01)										Tue Aug 18 19:00:45 GMT 2026			
	Diagnostic Status: No Diagnostics													
	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(1)	CSS161010		RA: 04 58 34.4000 (74.6433333d) Dec: -08 18 3.90 (-8.30108d) Equinox: J2000				V=21.4		Reference Frame: ICRS				
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	CSS161010-F336W	(1) CSS161010	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F336W	FLASH=15		Pattern 3, Exps 1-1 in CSS161010 (01) (3)	620 Secs (1860 Secs)				
										[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]		
	2	CSS161010-F350LP	(1) CSS161010	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=3		Pattern 2, Exps 2-2 in CSS161010 (01) (2)	180 Secs (360 Secs)				
										[==>(Pattern 1)] [==>(Pattern 2)]		[1]		



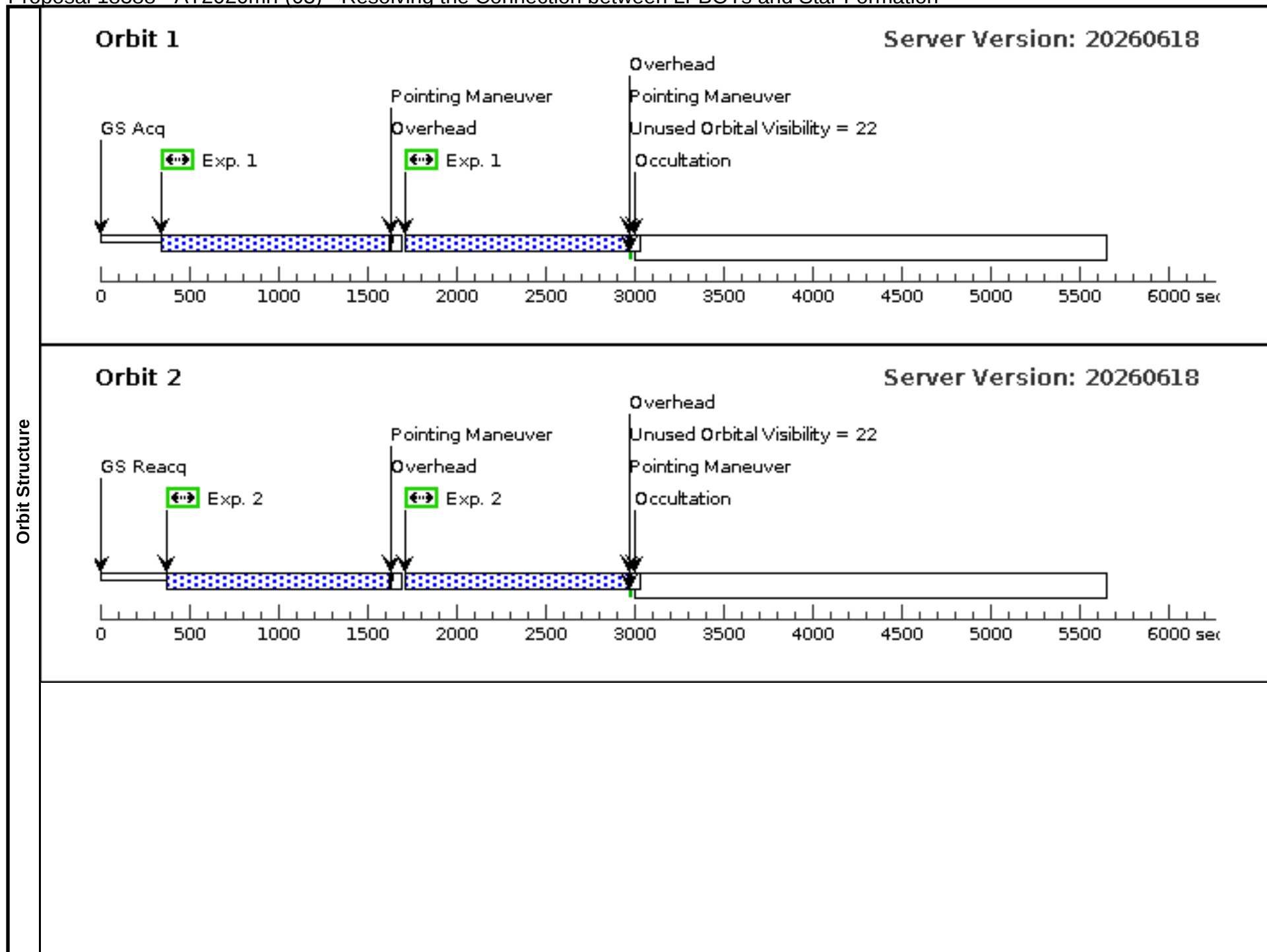
Proposal 18388 - AT2018lug (02) - Resolving the Connection between LFBOTs and Star Formation

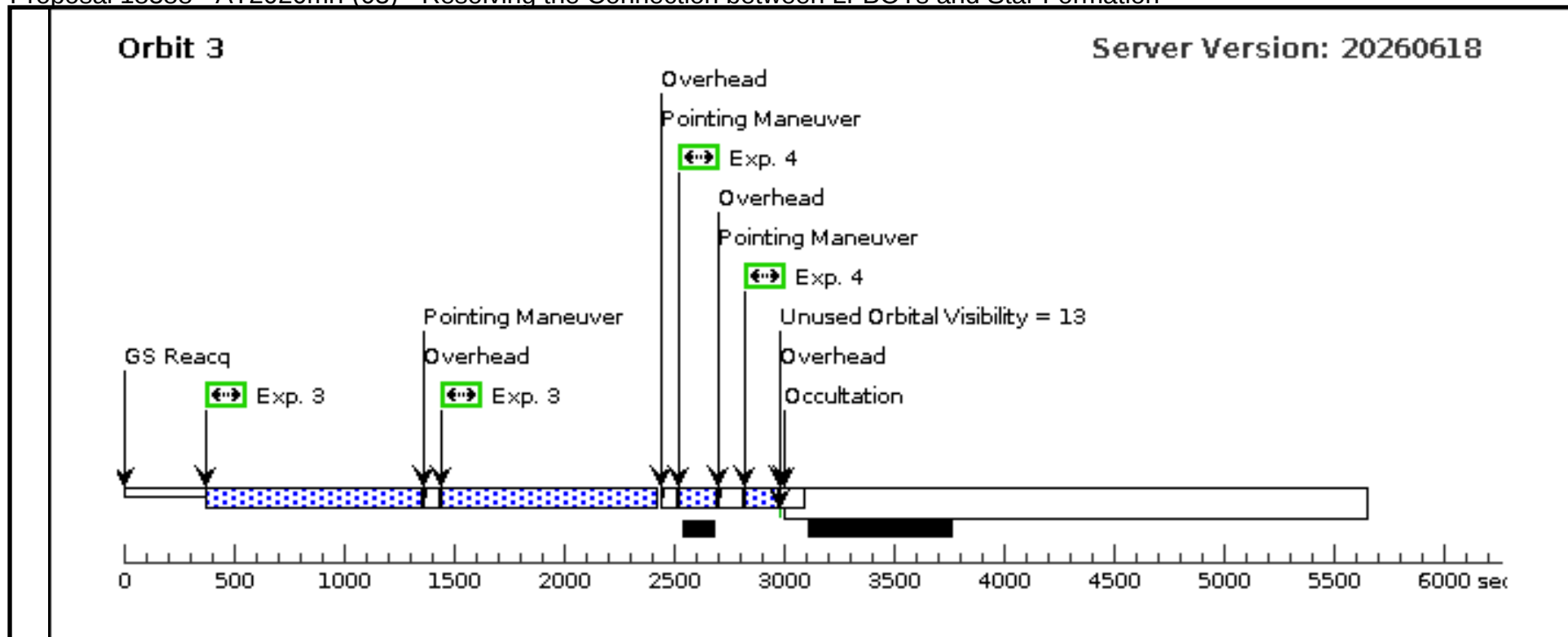
Visit	Proposal 18388, AT2018lug (02)										Tue Aug 18 19:00:45 GMT 2026			
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	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(2)	AT2018LUG Alt Name1: ZTF18ABVKWLA		RA: 02 00 15.1900 (30.0632917d) Dec: +16 47 57.30 (16.79925d) Equinox: J2000				V=21.7		Reference Frame: ICRS				
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2018lug-F390W	(2) AT2018LUG	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=11		Pattern 3, Exps 1-1 in AT2018lug (02) (3)	620 Secs (1866 Secs)				
										[==>622.0 Secs (Pattern 1)] [==>622.0 Secs (Pattern 2)] [==>622.0 Secs (Pattern 3)]		[1]		
	2	AT2018LUG-F350LP	(2) AT2018LUG	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=3		Pattern 2, Exps 2-2 in AT2018lug (02) (2)	180 Secs (364 Secs)				
										[==>182.0 Secs (Pattern 1)] [==>182.0 Secs (Pattern 2)]		[1]		



Proposal 18388 - AT2020mrf (03) - Resolving the Connection between LFBOTs and Star Formation

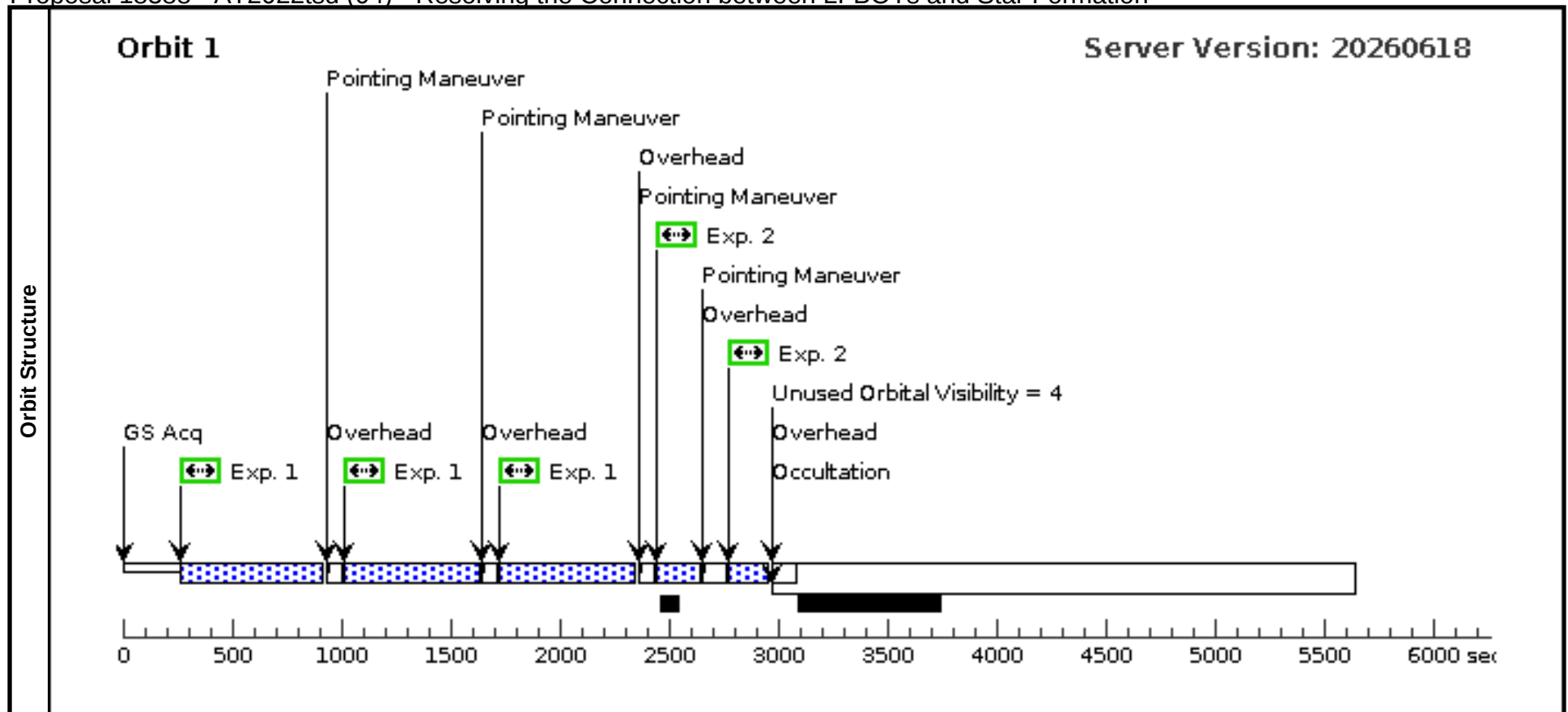
Visit	Proposal 18388, AT2020mrf (03)										Tue Aug 18 19:00:45 GMT 2026		
	Diagnostic Status: No Diagnostics												
	Scientific Instruments: WFC3/UVIS												
	Special Requirements: (none)												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
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Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(3)	AT2020MRF		RA: 15 47 54.1700 (236.9757083d)				V=24.5		Reference Frame: ICRS			
		Alt Name1: ZTF20ABFHYIL		Dec: +44 39 7.30 (44.65203d) Equinox: J2000									
		Alt Name2: SRGE.J154754.2+443907											
	Comments: Category=STAR Description=[SUPERNOVA]												
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2020mrf-F390W	(3) AT2020MRF	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F390W	FLASH=6		Pattern 2, Exps 1-1 in AT2020mrf (03) (2)	1250 Secs (2500 Secs) [==>1250.0 Secs (Pattern 1)] [==>1250.0 Secs (Pattern 2)]		[1]		
	2	AT2020mrf-F390W	(3) AT2020MRF	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F390W	FLASH=6	POS TARG +0.06,-0.07	Pattern 2, Exps 2-2 in AT2020mrf (03) (2)	1250 Secs (2500 Secs) [==>1250.0 Secs (Pattern 1)] [==>1250.0 Secs (Pattern 2)]		[2]		
	3	AT2020mrf-F390W	(3) AT2020MRF	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F390W	FLASH=9	POS TARG -0.092,+0.098	Pattern 2, Exps 3-3 in AT2020mrf (03) (2)	980 Secs (1960 Secs) [==>980.0 Secs (Pattern 1)] [==>980.0 Secs (Pattern 2)]		[3]		
	4	AT2020mrf-F350LP	(3) AT2020MRF	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F350LP	FLASH=5		Pattern 2, Exps 4-4 in AT2020mrf (03) (2)	150 Secs (300 Secs) [==>150.0 Secs (Pattern 1)] [==>150.0 Secs (Pattern 2)]		[3]		





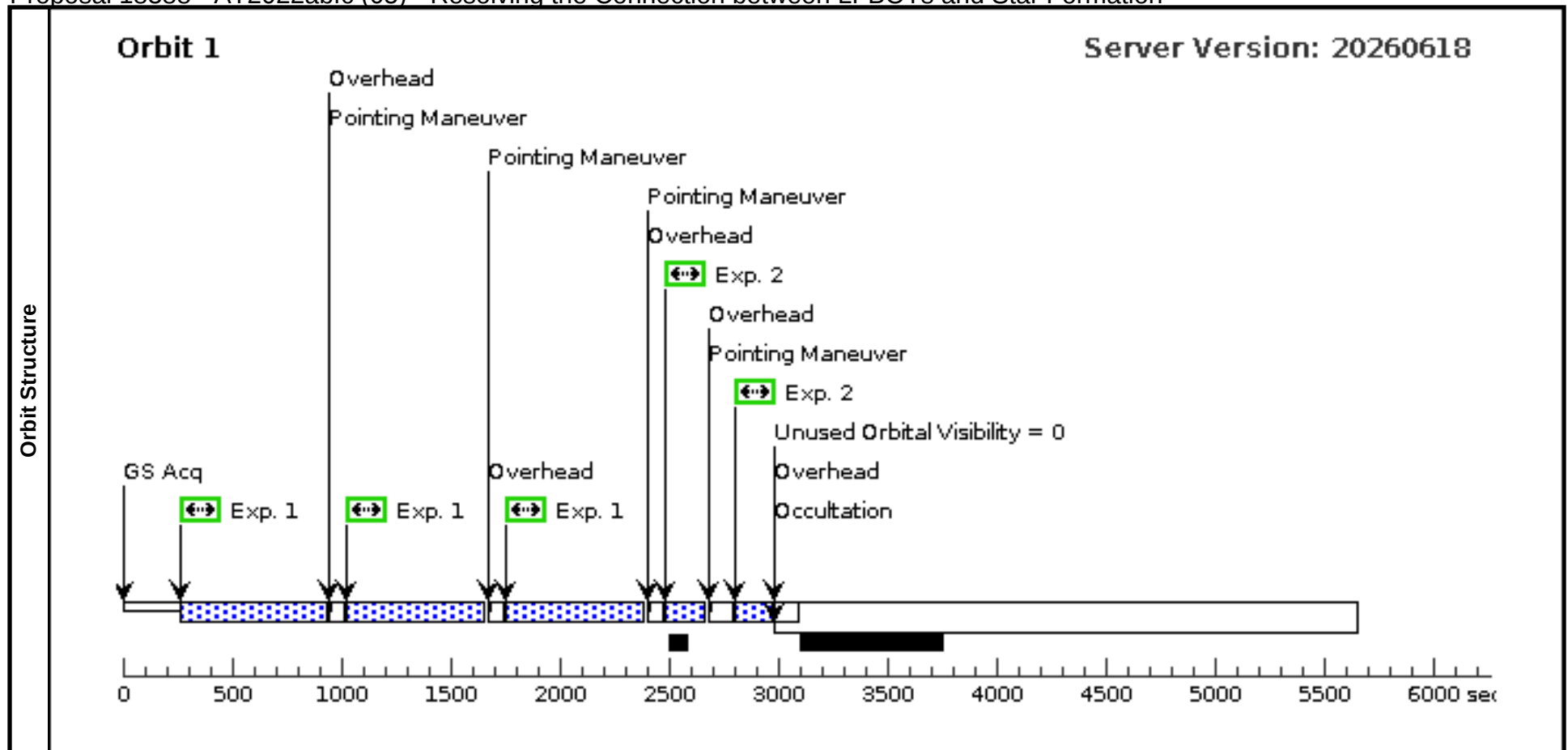
Proposal 18388 - AT2022tsd (04) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2022tsd (04)										Tue Aug 18 19:00:46 GMT 2026			
	Diagnostic Status: No Diagnostics													
	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(4)	AT2022TSD Alt Name1: ZTF22ABFTJKO		RA: 03 20 10.8700 (50.0452917d) Dec: +08 44 55.90 (8.74886d) Equinox: J2000				V=21.4		Reference Frame: ICRS				
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2022tsd-F390W	(4) AT2022TSD	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=11		Pattern 3, Exps 1-1 in AT2022tsd (04) (3)	620 Secs (1866 Secs)				
										[==>622.0 Secs (Pattern 1)] [==>622.0 Secs (Pattern 2)] [==>622.0 Secs (Pattern 3)]		[1]		
	2	AT2022tsd-F350LP	(4) AT2022TSD	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=3		Pattern 2, Exps 2-2 in AT2022tsd (04) (2)	180 Secs (364 Secs)				
										[==>182.0 Secs (Pattern 1)] [==>182.0 Secs (Pattern 2)]		[1]		



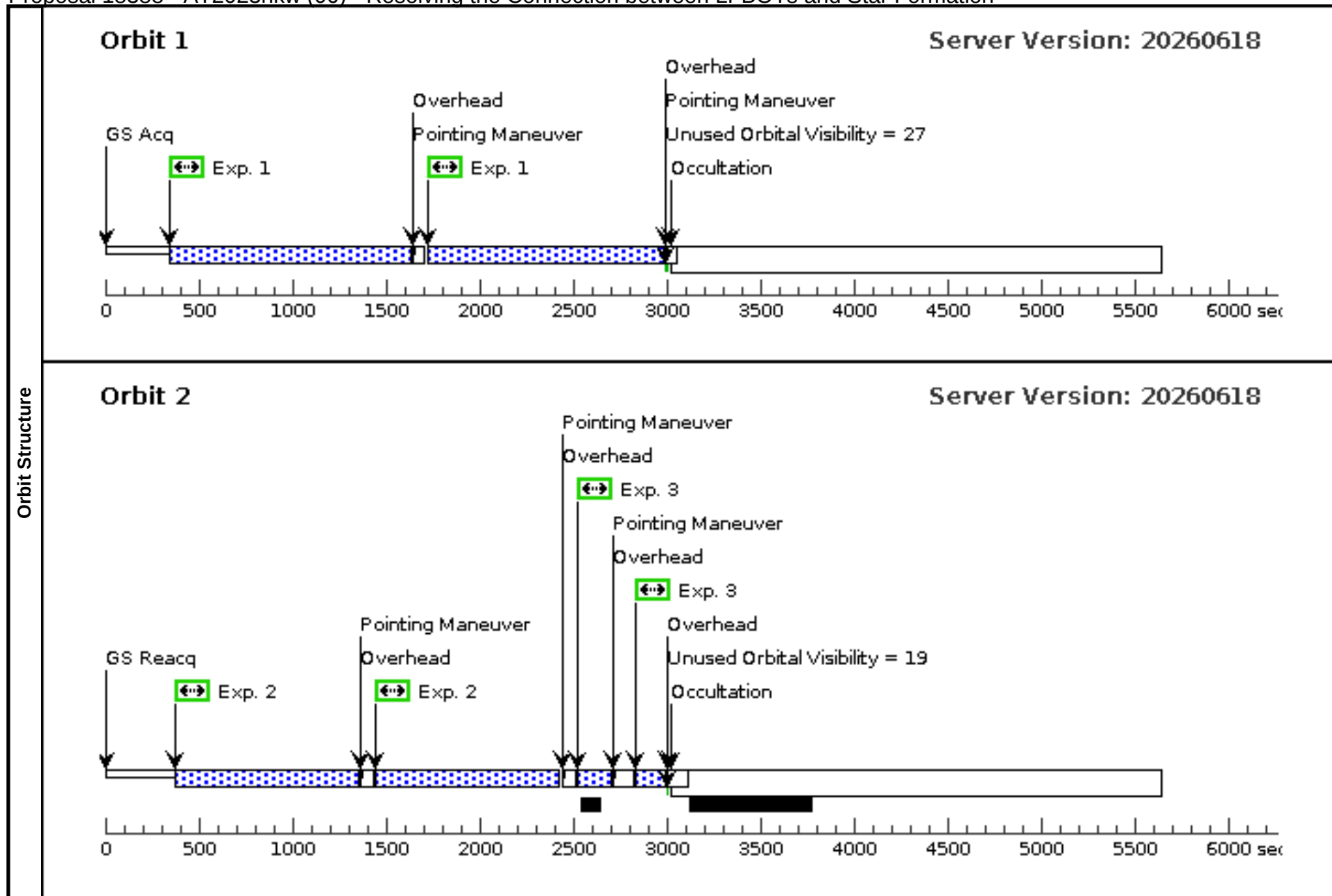
Proposal 18388 - AT2022abfc (05) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2022abfc (05)										Tue Aug 18 19:00:46 GMT 2026			
	Diagnostic Status: No Diagnostics													
	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections			Fluxes		Miscellaneous			
	(5)	AT2022ABFC		RA: 04 51 19.2000 (72.8300000d)					V=19.1		Reference Frame: ICRS			
		Alt Name1: ZTF22ABVRXKK		Dec: -26 58 41.60 (-26.97822d)										
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2022abfc -F390W	(5) AT2022ABFC	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=11		Pattern 3, Exps 1-1 in AT2022abfc (05) (3)	630 Secs (1908 Secs)				
										[==>636.0 Secs (Pattern 1)]				
										[==>636.0 Secs (Pattern 2)]		[1]		
										[==>636.0 Secs (Pattern 3)]				
	2	AT2022abfc -F350LP	(5) AT2022ABFC	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=4		Pattern 2, Exps 2-2 in AT2022abfc (05) (2)	160 Secs (332 Secs)				
										[==>166.0 Secs (Pattern 1)]				
										[==>166.0 Secs (Pattern 2)]		[1]		



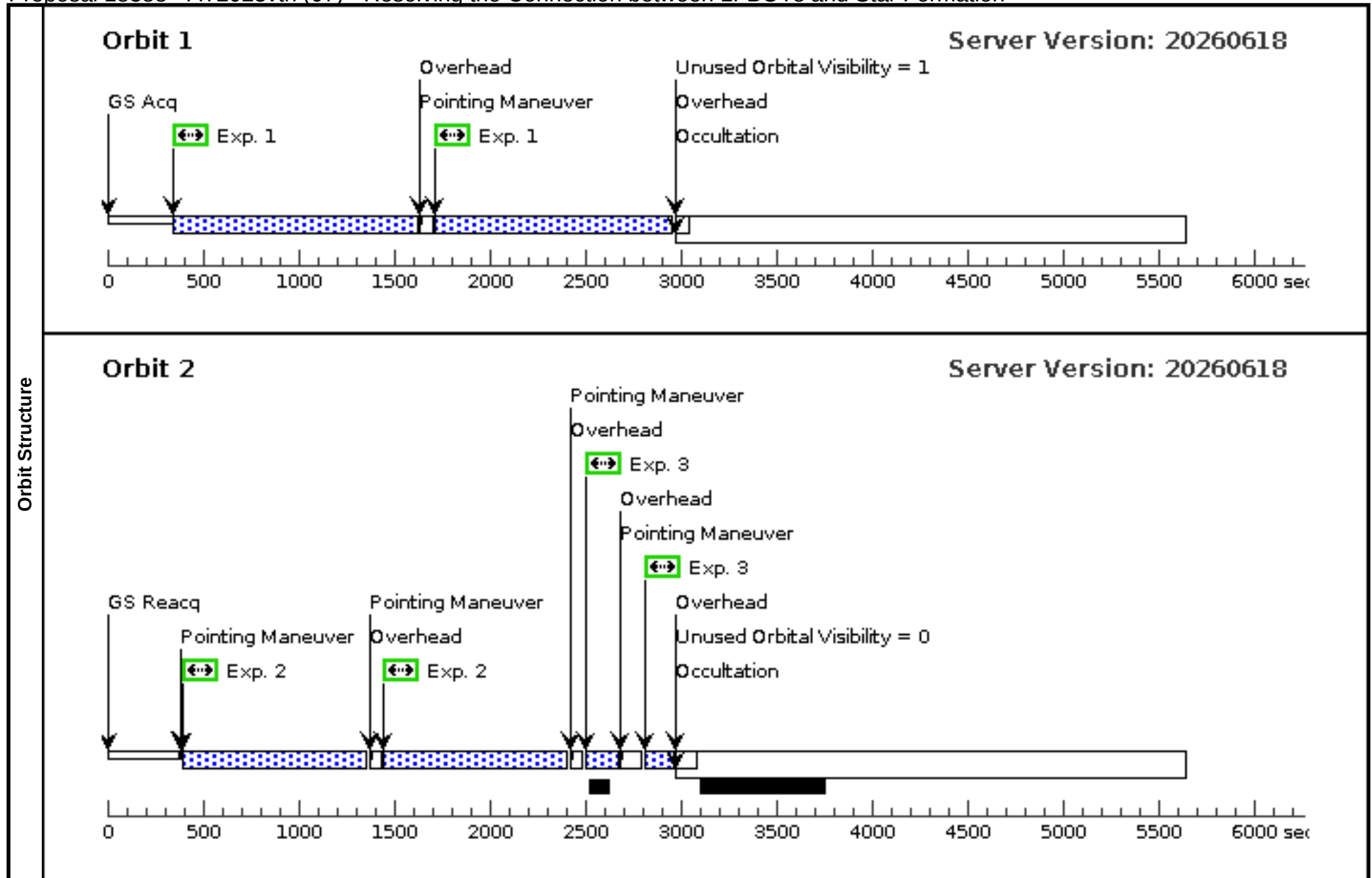
Proposal 18388 - AT2023hkw (06) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2023hkw (06)										Tue Aug 18 19:00:46 GMT 2026		
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	Scientific Instruments: WFC3/UVIS												
	Special Requirements: (none)												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
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Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(6)	AT2023HKW		RA: 10 42 17.7500 (160.5739583d)				V=21.8		Reference Frame: ICRS			
		Alt Name1: ZTF23AAIMSJA		Dec: +52 29 19.30 (52.48869d) Equinox: J2000									
		Comments: Category=STAR Description=[SUPERNOVA]											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1	AT2023hkw -F390W	(6) AT2023HKW	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=6		Pattern 2, Exps 1-1 in AT2023hkw (06) (2)	1260 Secs (2520 Secs) [==>1260.0 Secs (Pattern 1)] [==>1260.0 Secs (Pattern 2)]			
												[1]	
	2	AT2023hkw -F390W	(6) AT2023HKW	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=9	POS TARG +0.06,-0.07	Pattern 2, Exps 2-2 in AT2023hkw (06) (2)	980 Secs (1960 Secs) [==>980.0 Secs (Pattern 1)] [==>980.0 Secs (Pattern 2)]			
												[2]	
	3	AT2023hkw -F350LP	(6) AT2023HKW	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=4		Pattern 2, Exps 3-3 in AT2023hkw (06) (2)	160 Secs (320 Secs) [==>160.0 Secs (Pattern 1)] [==>160.0 Secs (Pattern 2)]			
												[2]	



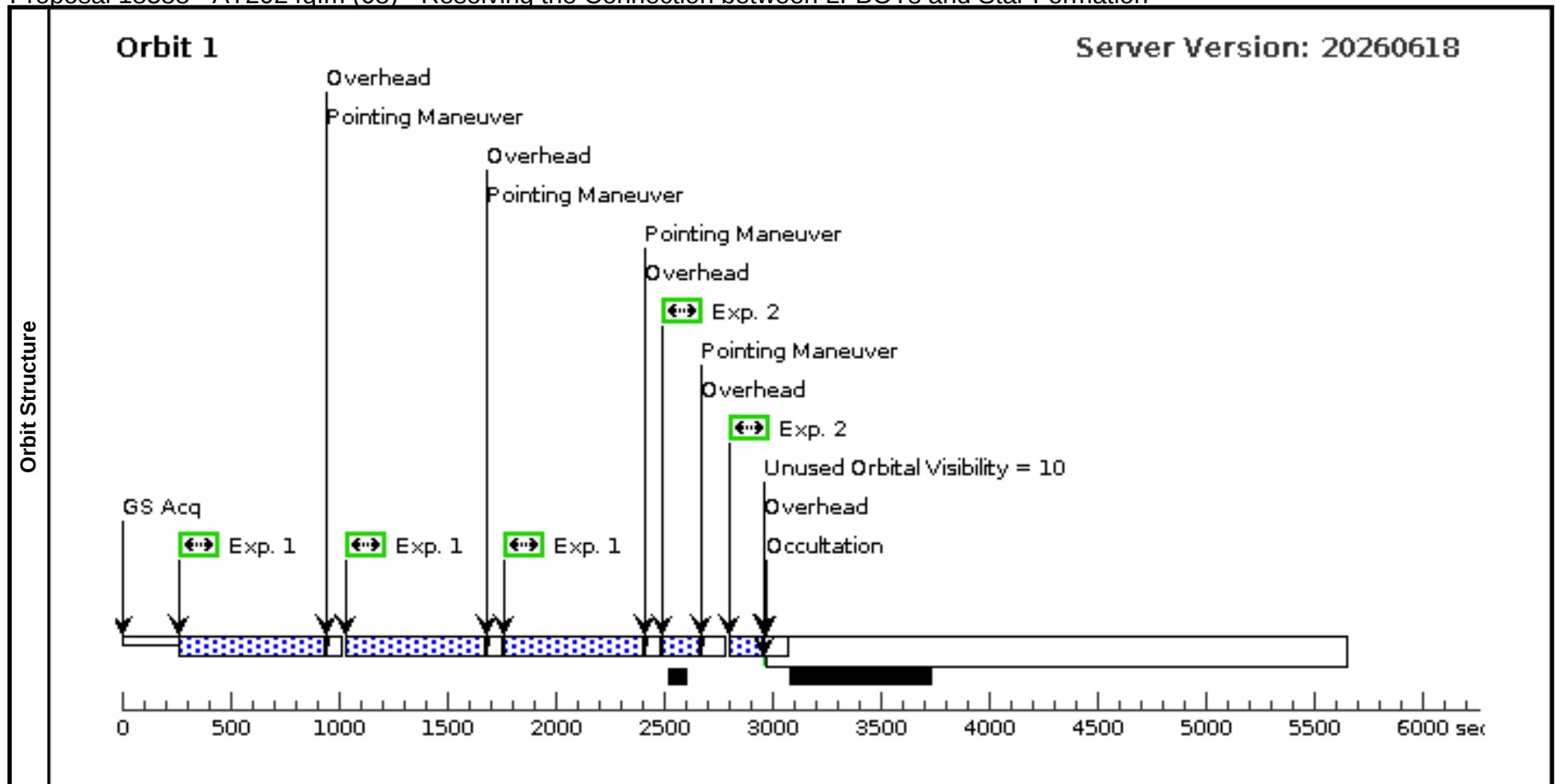
Proposal 18388 - AT2023vth (07) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2023vth (07)										Tue Aug 18 19:00:46 GMT 2026		
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	Scientific Instruments: WFC3/UVIS												
	Special Requirements: (none)												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
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Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(7)	AT2023VTH		RA: 17 56 34.4000 (269.1433333d)				V=22.1		Reference Frame: ICRS			
		Alt Name1: ZTF23ABLEQSP		Dec: +08 02 37.30 (8.04369d) Equinox: J2000									
		Comments: Category=STAR Description=[SUPERNOVA]											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1	AT2023vth-F336W	(7) AT2023VTH	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F336W	FLASH=13		Pattern 2, Exps 1-1 in AT2023vth (07) (2)	1240 Secs (2494 Secs)			
										[==>1247.0 Secs (Pattern 1)]		[1]	
										[==>1247.0 Secs (Pattern 2)]			
	2	AT2023vth-F336W	(7) AT2023VTH	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F336W	FLASH=14	POS TARG +0.06,-0.07	Pattern 2, Exps 2-2 in AT2023vth (07) (2)	960 Secs (1926 Secs)			
										[==>963.0 Secs (Pattern 1)]		[2]	
									[==>963.0 Secs (Pattern 2)]				
3	AT2023vth-F350LP	(7) AT2023VTH	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=5		Pattern 2, Exps 3-3 in AT2023vth (07) (2)	150 Secs (306 Secs)				
									[==>153.0 Secs (Pattern 1)]		[2]		
									[==>153.0 Secs (Pattern 2)]				



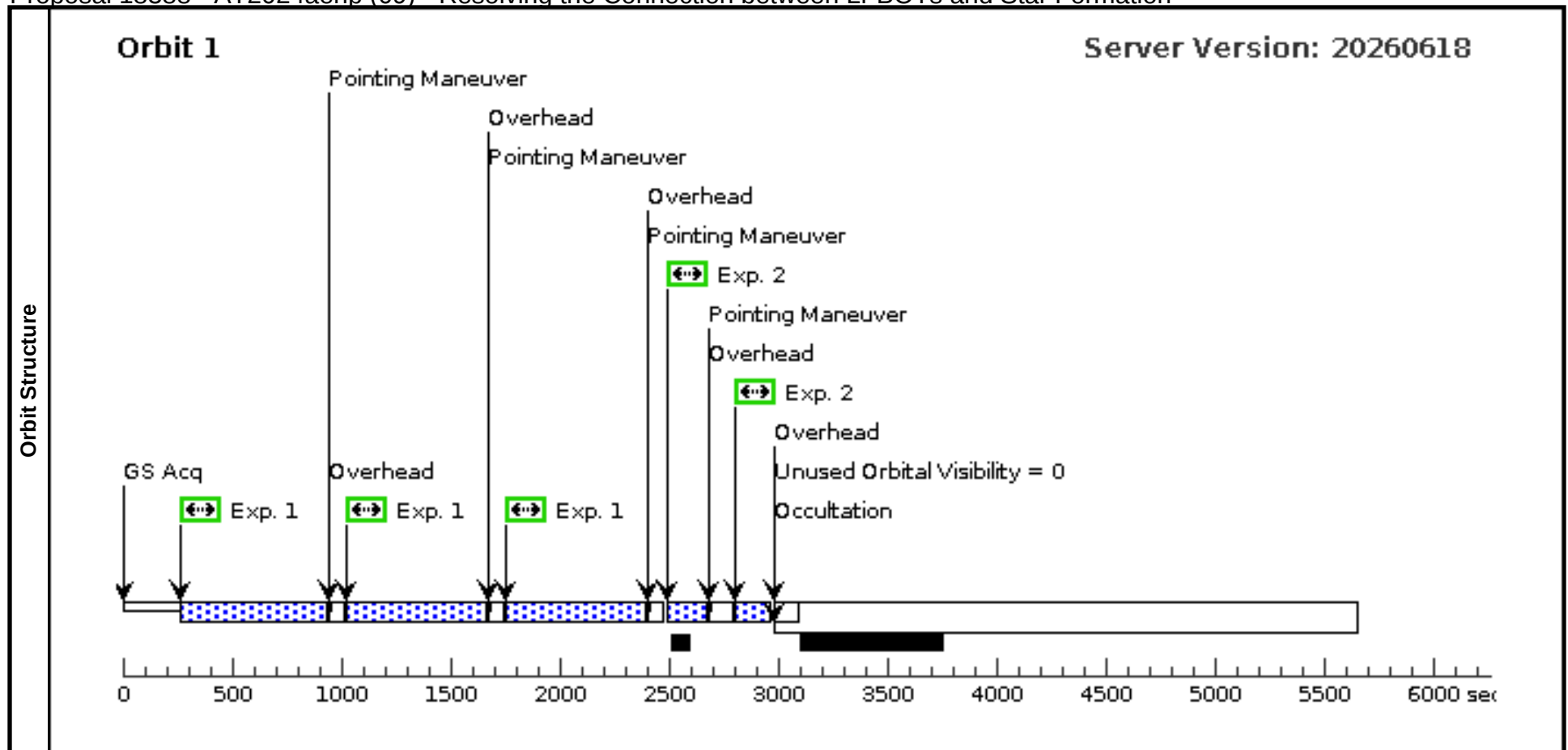
Proposal 18388 - AT2024qfm (08) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2024qfm (08)										Tue Aug 18 19:00:46 GMT 2026			
	Diagnostic Status: No Diagnostics													
	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(8)	AT2024QFM		RA: 23 21 23.4600 (350.3477500d)				V=22.0		Reference Frame: ICRS				
		Alt Name1: ZTF24AAXHXHF		Dec: +11 56 32.00 (11.94222d) Equinox: J2000										
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2024qfm -F390W	(8) AT2024QFM	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=11		Pattern 3, Exps 1-1 in AT2024qfm (08) (3)	640 Secs (1920 Secs)				
										[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]		
	2	AT2024qfm -F350LP	(8) AT2024QFM	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=5		Pattern 2, Exps 2-2 in AT2024qfm (08) (2)	150 Secs (300 Secs)				
										[==>(Pattern 1)] [==>(Pattern 2)]		[1]		



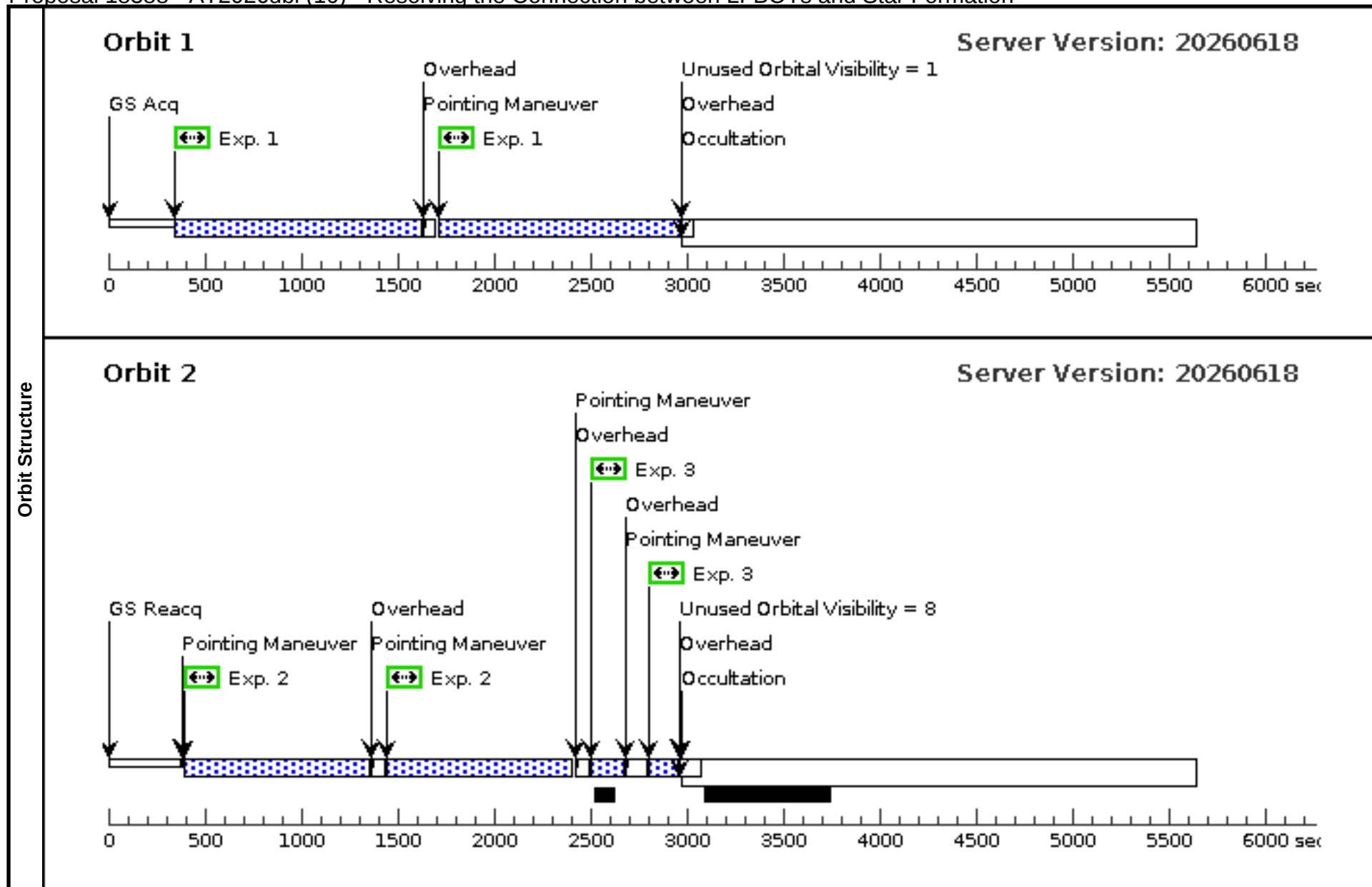
Proposal 18388 - AT2024aehp (09) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2024aehp (09)										Tue Aug 18 19:00:46 GMT 2026			
	Diagnostic Status: No Diagnostics													
	Scientific Instruments: WFC3/UVIS													
	Special Requirements: (none)													
Patterns	#	Primary Pattern					Secondary Pattern					Exposures		
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(1)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous				
	(9)	AT2024AEHP		RA: 08 21 7.4700 (125.2811250d)				V=21.7		Reference Frame: ICRS				
		Alt Name1: ZTF24ABYGBSS		Dec: +28 44 22.30 (28.73953d)										
	Comments: Category=STAR Description=[SUPERNOVA]													
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit		
	1	AT2024aehp-F390W	(9) AT2024AEHP	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=11		Pattern 3, Exps 1-1 in AT2024aehp (09) (3)	635 Secs (1914 Secs)				
										[==>638.0 Secs (Pattern 1)]				
										[==>638.0 Secs (Pattern 2)]		[1]		
										[==>638.0 Secs (Pattern 3)]				
2	AT2024aehp-F350LP	(9) AT2024AEHP	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=4		Pattern 2, Exps 2-2 in AT2024aehp (09) (2)	160 Secs (326 Secs)					
									[==>163.0 Secs (Pattern 1)]					
									[==>163.0 Secs (Pattern 2)]		[1]			



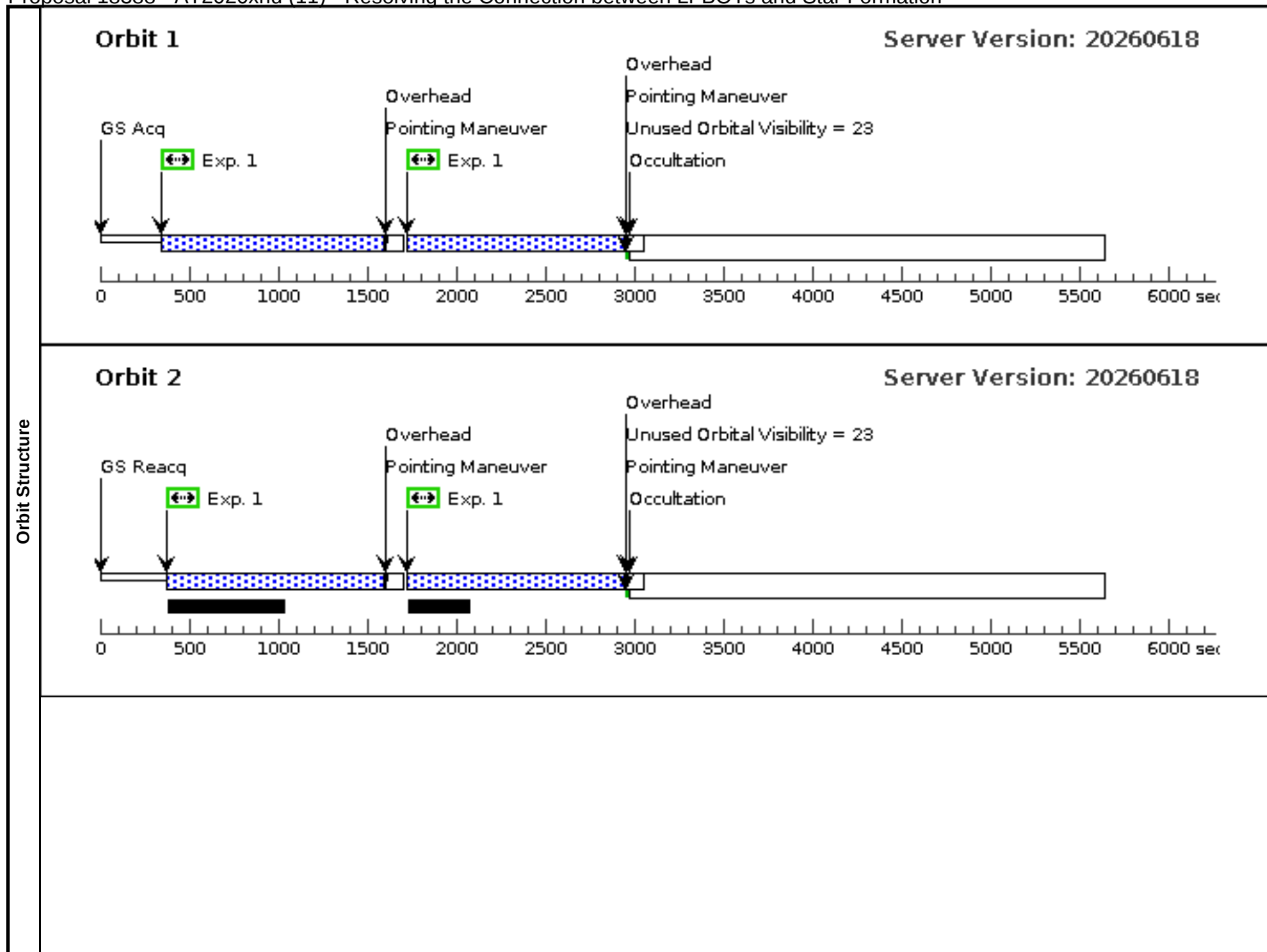
Proposal 18388 - AT2026dbl (10) - Resolving the Connection between LFBOTs and Star Formation

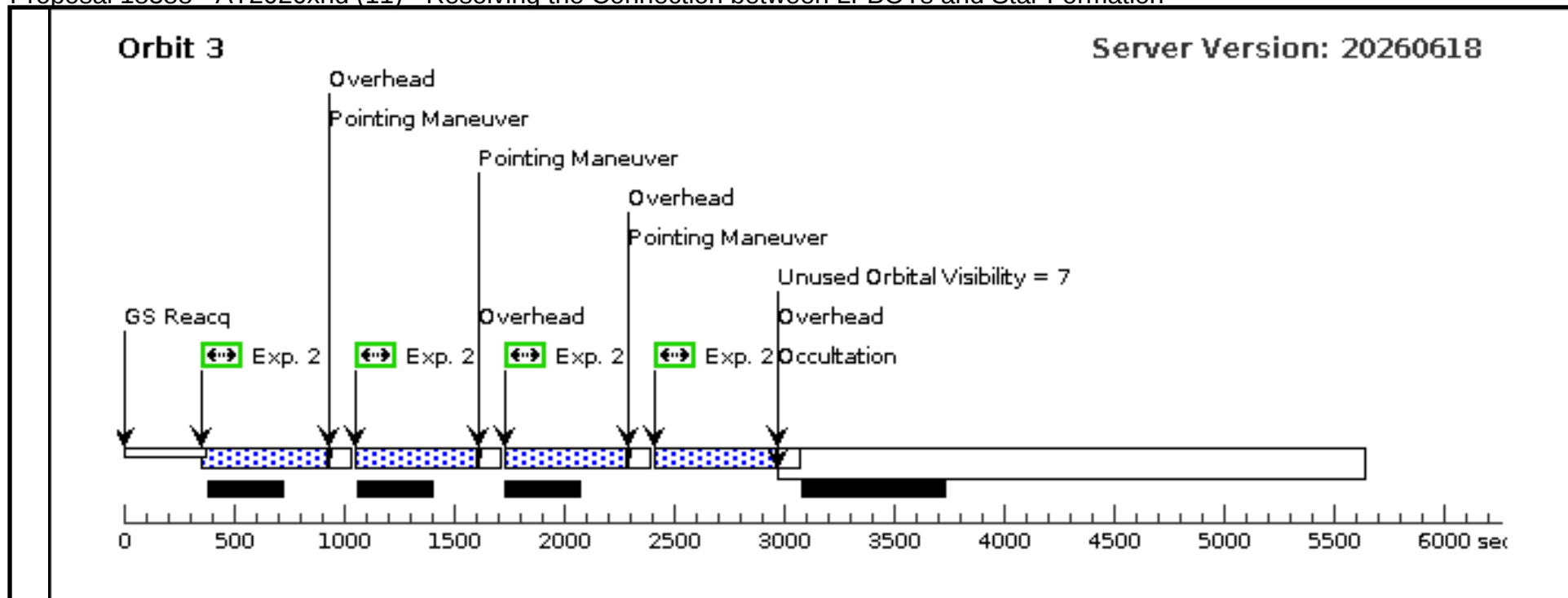
Visit	Proposal 18388, AT2026dbl (10)										Tue Aug 18 19:00:46 GMT 2026		
	Diagnostic Status: No Diagnostics												
	Scientific Instruments: WFC3/UVIS												
	Special Requirements: (none)												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Coordinate Frame=POS-TARG Pattern Orientation=46.84 Purpose=DITHER Angle Between Sides= Number Of Points=2 Center Pattern=false Point Spacing=0.145 Line Spacing=										(1), (2), (3)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(10)	AT2026DBL		RA: 09 01 17.3700 (135.3223750d)				V=21.0		Reference Frame: ICRS			
		Alt Name1: ZTF26AAGLQAK		Dec: +18 36 7.80 (18.60217d) Equinox: J2000									
	Comments: Category=STAR Description=[SUPERNOVA]												
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1	AT2026dbl-F390W	(10) AT2026DBL	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=6		Pattern 2, Exps 1-1 in AT2026dbl (10) (2)	1240 Secs (2496 Secs) [==>1248.0 Secs (Pattern 1)] [==>1248.0 Secs (Pattern 2)]		[1]	
	2	AT2026dbl-F390W	(10) AT2026DBL	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB		F390W	FLASH=9	POS TARG +0.06,-0.07	Pattern 2, Exps 2-2 in AT2026dbl (10) (2)	960 Secs (1920 Secs) [==>(Pattern 1)] [==>(Pattern 2)]		[2]	
	3	AT2026dbl-F350LP	(10) AT2026DBL	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP	FLASH=5		Pattern 2, Exps 3-3 in AT2026dbl (10) (2)	150 Secs (300 Secs) [==>(Pattern 1)] [==>(Pattern 2)]		[2]	



Proposal 18388 - AT2020xnd (11) - Resolving the Connection between LFBOTs and Star Formation

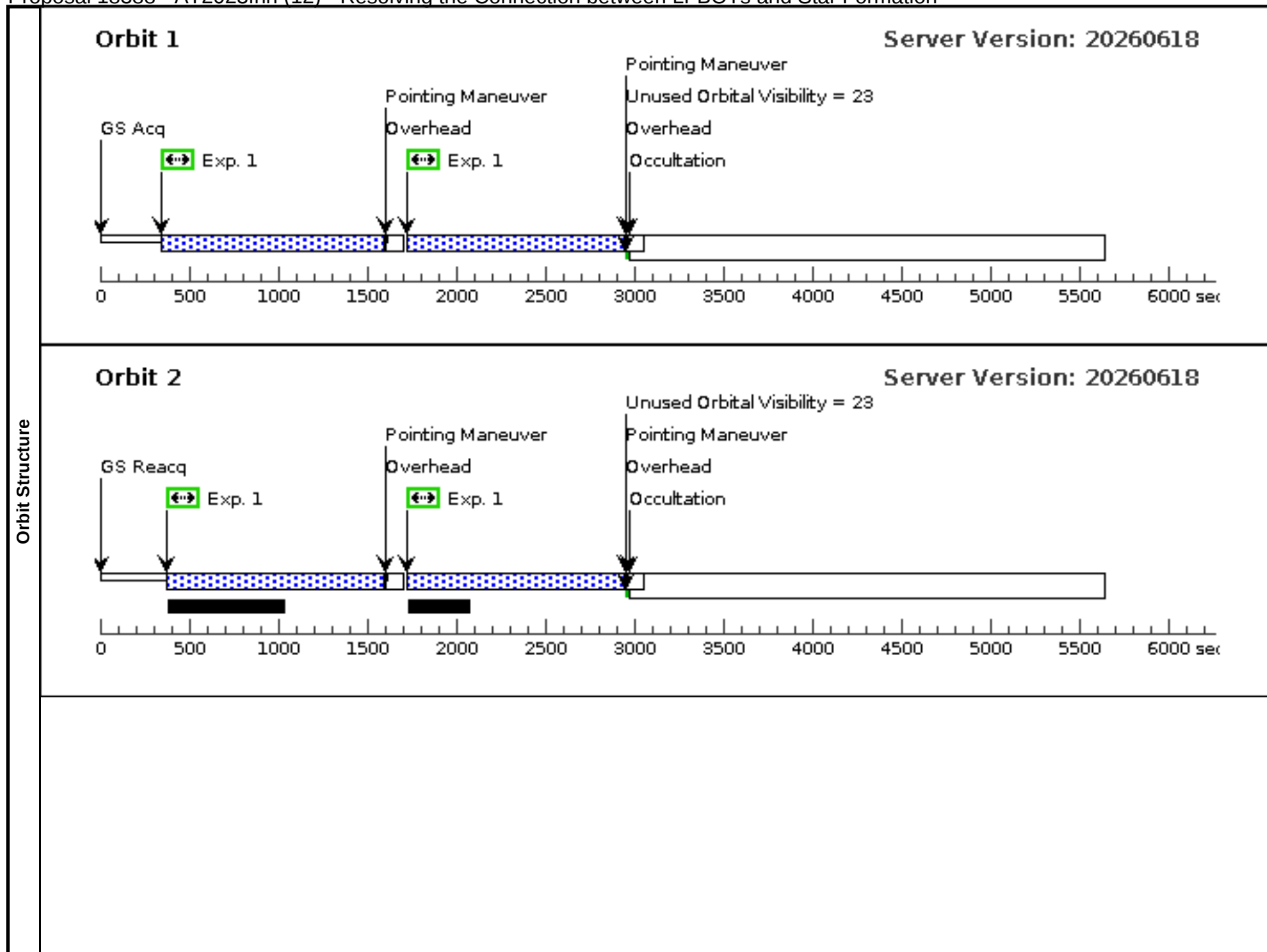
Visit	Proposal 18388, AT2020xnd (11)										Tue Aug 18 19:00:46 GMT 2026	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: WFC3/UVIS											
	Special Requirements: (none)											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures		
	(4)	Pattern Type=WFC3-UVIS-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=23.884 Purpose=DITHER Angle Between Sides=81.785 Number Of Points=4 Center Pattern=false Point Spacing=0.173 Line Spacing=0.112								(1), (2)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(11)	AT2020XND	RA: 22 20 2.0300 (335.0084583d)				V=25.6		Reference Frame: ICRS			
		Alt Name1: ZTF20ACIGMEL	Dec: -02 50 25.30 (-2.84036d)									
		Equinox: J2000										
	Comments: Category=STAR Description=[SUPERNOVA]											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1	AT2020xnd-F200LP	(11) AT2020XND	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F200LP			Pattern 4, Exps 1-1 in AT2020xnd (11) (4)	1220 Secs (4880 Secs)			
									[==>(Pattern 1)]		[1]	
									[==>(Pattern 2)]			
									[==>(Pattern 3)]		[2]	
									[==>(Pattern 4)]			
2	AT2020xnd-F350LP	(11) AT2020XND	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F350LP				Pattern 4, Exps 2-2 in AT2020xnd (11) (4)	550 Secs (2200 Secs)			
									[==>(Pattern 1)]			
									[==>(Pattern 2)]			
									[==>(Pattern 3)]		[3]	
									[==>(Pattern 4)]			

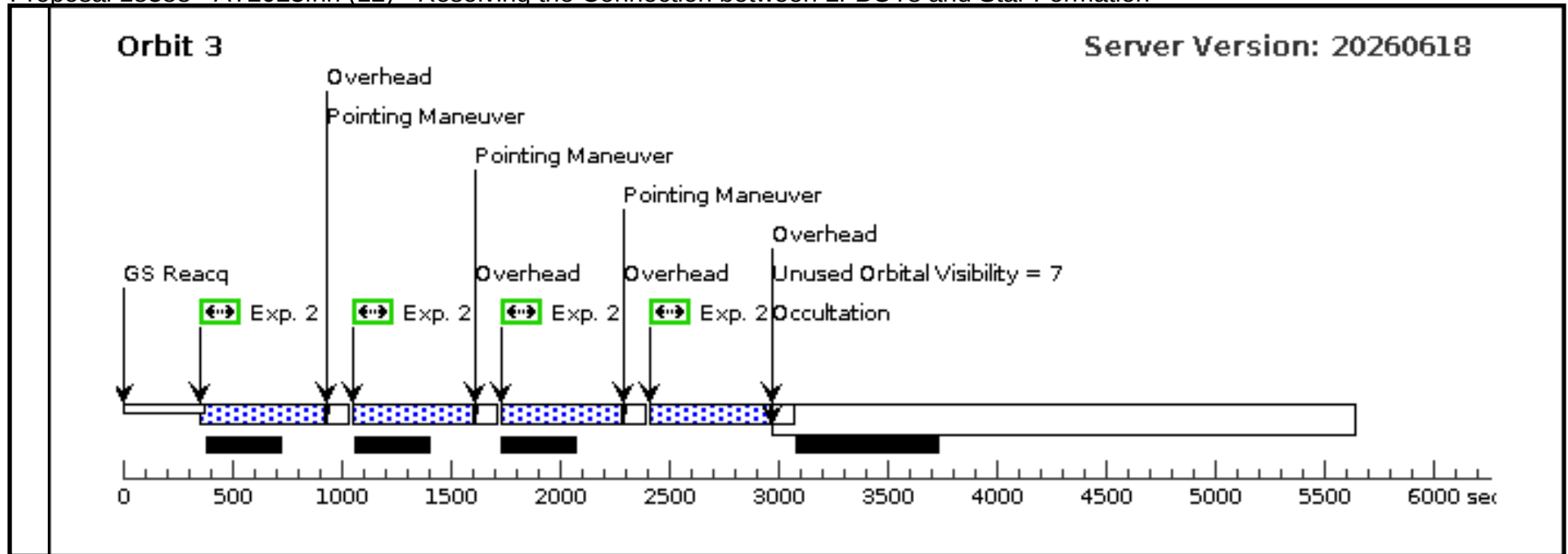




Proposal 18388 - AT2023fhn (12) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2023fhn (12)										Tue Aug 18 19:00:46 GMT 2026		
	Diagnostic Status: No Diagnostics												
	Scientific Instruments: WFC3/UVIS												
	Special Requirements: (none)												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
	(4)	Pattern Type=WFC3-UVIS-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=23.884 Purpose=DITHER Angle Between Sides=81.785 Number Of Points=4 Center Pattern=false Point Spacing=0.173 Line Spacing=0.112										(1), (2)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(12)	AT2023FHN		RA: 10 08 3.8200 (152.0159167d)				V=23.9		Reference Frame: ICRS			
		Alt Name1: ZTF23AAEOZPP		Dec: +21 04 26.90 (21.07414d)									
				Equinox: J2000									
	Comments: Category=STAR Description=[SUPERNOVA]												
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1	AT2023fhn-F200LP	(12) AT2023FHN	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F200LP			Pattern 4, Exps 1-1 in AT2023fhn (12) (4)	1220 Secs (4880 Secs)			
										[==>(Pattern 1)]		[1]	
										[==>(Pattern 2)]			
										[==>(Pattern 3)]		[2]	
										[==>(Pattern 4)]			
	2	AT2023fhn-F350LP	(12) AT2023FHN	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP			Pattern 4, Exps 2-2 in AT2023fhn (12) (4)	550 Secs (2200 Secs)			
									[==>(Pattern 1)]				
									[==>(Pattern 2)]				
									[==>(Pattern 3)]		[3]		
									[==>(Pattern 4)]				





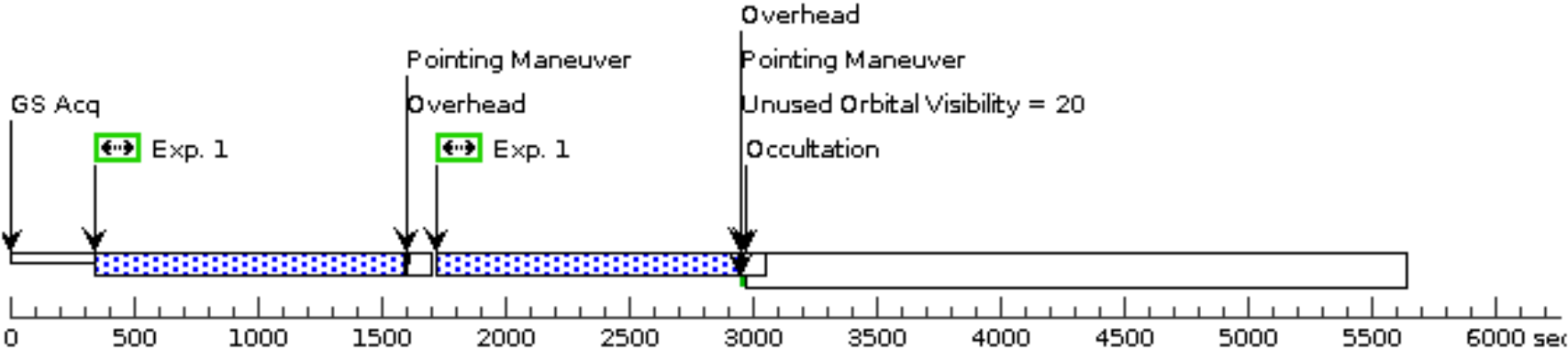
Proposal 18388 - AT2024wpp (13) - Resolving the Connection between LFBOTs and Star Formation

Visit	Proposal 18388, AT2024wpp (13)										Tue Aug 18 19:00:46 GMT 2026	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: WFC3/UVIS											
	Special Requirements: (none)											
Patterns	#	Primary Pattern					Secondary Pattern				Exposures	
	(4)	Pattern Type=WFC3-UVIS-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=23.884 Purpose=DITHER Angle Between Sides=81.785 Number Of Points=4 Center Pattern=false Point Spacing=0.173 Line Spacing=0.112									(1), (2)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(13)	AT2024WPP		RA: 02 42 5.5000 (40.5229167d)				V=22.0		Reference Frame: ICRS		
		Alt Name1: ZTF24ABJJPBO		Dec: -16 57 22.90 (-16.95636d)								
				Equinox: J2000								
	Comments: Category=STAR Description=[SUPERNOVA]											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	AT2024wpp -F200LP	(13) AT2024WPP	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F200LP			Pattern 4, Exps 1-1 in AT2024wpp (13) (4)	1220 Secs (4880 Secs)		
									[==>(Pattern 1)]		[1]	
									[==>(Pattern 2)]			
									[==>(Pattern 3)]		[2]	
									[==>(Pattern 4)]			
	2	AT2024wpp -F350LP	(13) AT2024WPP	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE		F350LP			Pattern 4, Exps 2-2 in AT2024wpp (13) (4)	550 Secs (2200 Secs)		
									[==>(Pattern 1)]			
									[==>(Pattern 2)]			
									[==>(Pattern 3)]		[3]	
								[==>(Pattern 4)]				

Orbit Structure

Orbit 1

Server Version: 20260618



Orbit 2

Server Version: 20260618

