



18418 - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Cycle: 34, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) SNII-1	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:47.0	yes
02	(1) SNII-1	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:48.0	yes

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
03	(1) SNII-1	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:48.0	yes
04	(2) SNII-2	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:49.0	yes
05	(2) SNII-2	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:49.0	yes
06	(2) SNII-2	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	19-Aug-2026 12:01:50.0	yes

12 Total Orbits Used

ABSTRACT

Ultraviolet (UV) spectroscopy of young type II supernovae (SNe II) in the first weeks post-explosion remains an almost completely unconstrained observational phase space. To date, only 2 published SNe II have been observed in far-UV (<1600 Angstroms) wavelengths in the first week post-explosion and no SN II with spectroscopic signatures of CSM-interaction at such wavelengths. In anticipation of the planned launch of the Ultraviolet Explorer (UVEX) NASA mission, we propose a disruptive ToO program to obtain FUV/NUV spectroscopy of 2 SNe II within their first 1-2 weeks post-explosion. This collection of STIS MAMAS (G140L and G230L gratings) observations will increase the number of young SNe II with FUV HST spectra by a factor of 2 and create a legacy UV dataset necessary for UVEX preparation. HST UV spectroscopy will enable robust constraints to be made on the chemical composition, density and extent of the progenitor star wind as well as the mechanisms for enhanced mass-loss in red supergiants during their final years. Furthermore, these observations will directly inform the creation of physically consistent non-LTE radiative transfer models of young SNe II that can be used to robustly interpret the large number of FUV SN II spectra expected from the UVEX mission.

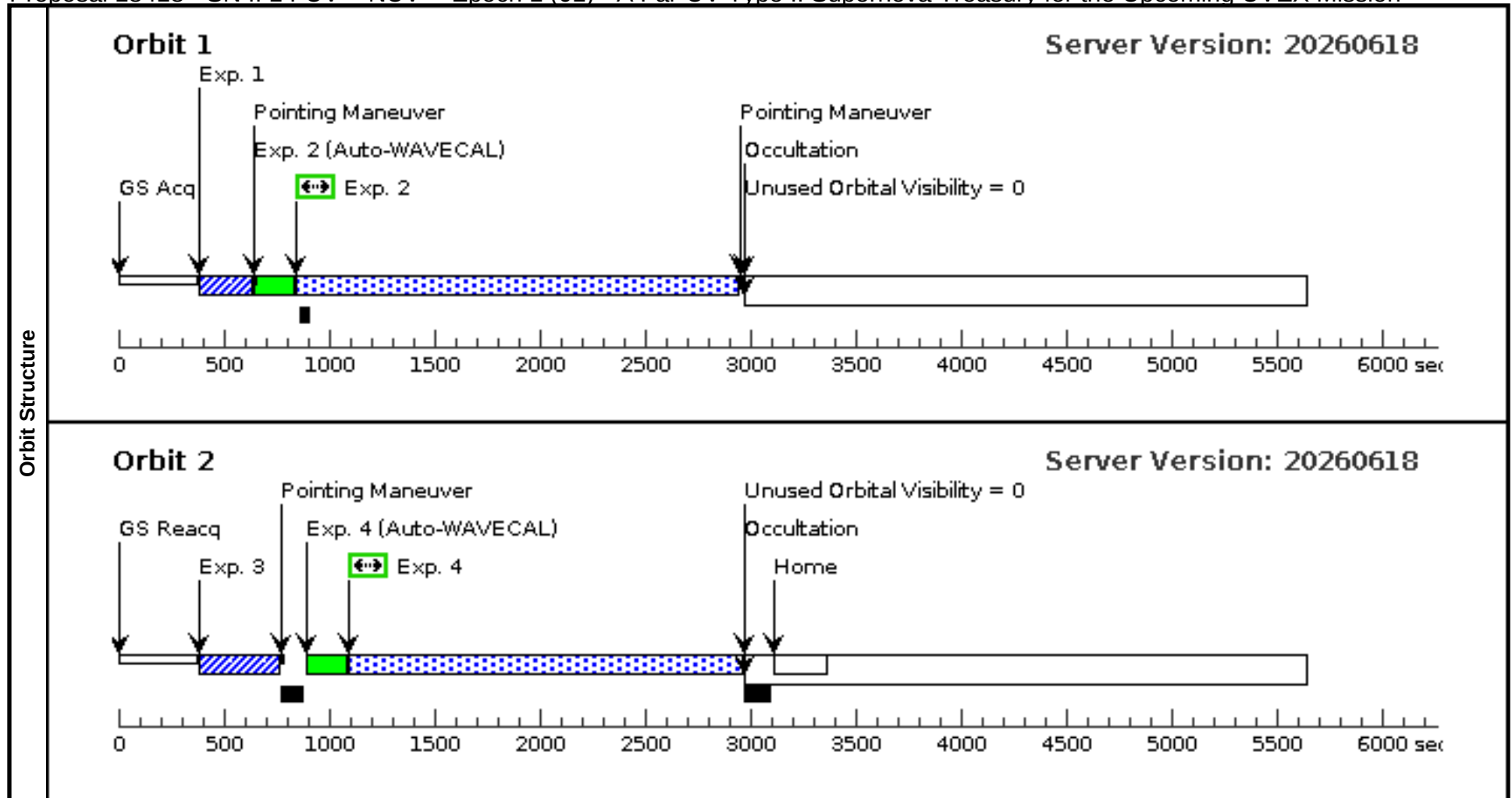
OBSERVING DESCRIPTION

Far- and near-UV spectroscopy observations with STIS/MAMAS of two type II supernovae. Each target will need 3 epochs of observations (2 orbits per obs.). The first observation for each supernova should occur as soon after the ToO trigger as possible. The second and third epochs should occur

~2 days and ~4 days after the first epoch. Far and near-UV spectra observations per epoch need to be linked.

Proposal 18418 - SN II 1 FUV + NUV -- Epoch 1 (01) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Visit	Proposal 18418, SN II 1 FUV + NUV -- Epoch 1 (01), implementation										Wed Aug 19 16:01:50 GMT 2026
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA										
	Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D										
	Comments: First epoch for target 1 -- needs to be observed as soon as possible after trigger (within the constraints of disruptive ToO policy).										
On Hold Comments: ToO activation -- maximum response time is optimistic and can be iterated on. We hope for observations as soon as possible after trigger.											
Generic Targets	#	Name	Criteria					Description			
	(1)	SNII-1	CSM interacting SN II					SUPERNOVA TYPE II			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA orbit 1	(1) SNII-1	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)	
										[==>]	[1]
	2	G140L (STIS.sp.23 66748)	(1) SNII-1	STIS/FUV-MAMA, ACCUM, 52X0.2		G140L 1425 A				2090 Secs (2090 Secs)	
										[==>]	[1]
	3	TA orbit 2	(1) SNII-1	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)	
										[==>]	[2]
	4	G230L (STIS.sp.23 66748)	(1) SNII-1	STIS/NUV-MAMA, ACCUM, 52X0.2		G230L 2376 A				1856 Secs (1856 Secs)	
										[==>]	[2]

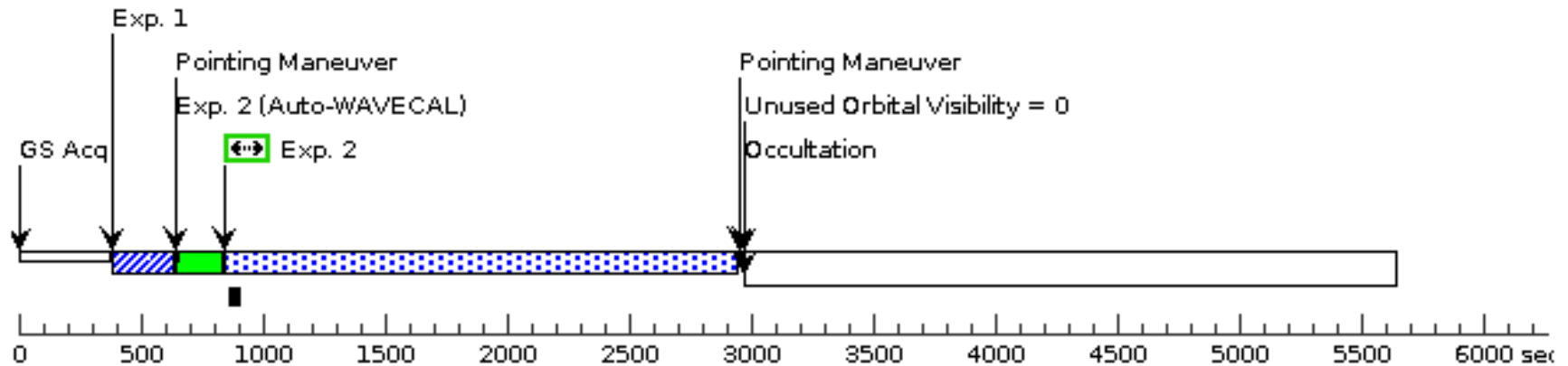


Proposal 18418 - SN II 1 FUV+NUV -- Epoch 2 (02) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Visit	Proposal 18418, SN II 1 FUV+NUV -- Epoch 2 (02) Wed Aug 19 16:01:50 GMT 2026									
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D <i>Comments: Second epoch for target 1 -- needs to be within 1-2 days of the first epoch.</i> <i>On Hold Comments: ToO activation</i>									
Generic Targets	#	Name	Criteria				Description			
	(1)	SNII-1	CSM interacting SN II				SUPERNOVA TYPE II			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA orbit 1	(1) SNII-1	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[1]
	2	G140L (STIS.sp.23 66748)	(1) SNII-1	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A				2090 Secs (2090 Secs)	
									[==>]	[1]
	3	TA orbit 2	(1) SNII-1	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[2]
	4	G230L (STIS.sp.23 66748)	(1) SNII-1	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				1856 Secs (1856 Secs)	
									[==>]	[2]

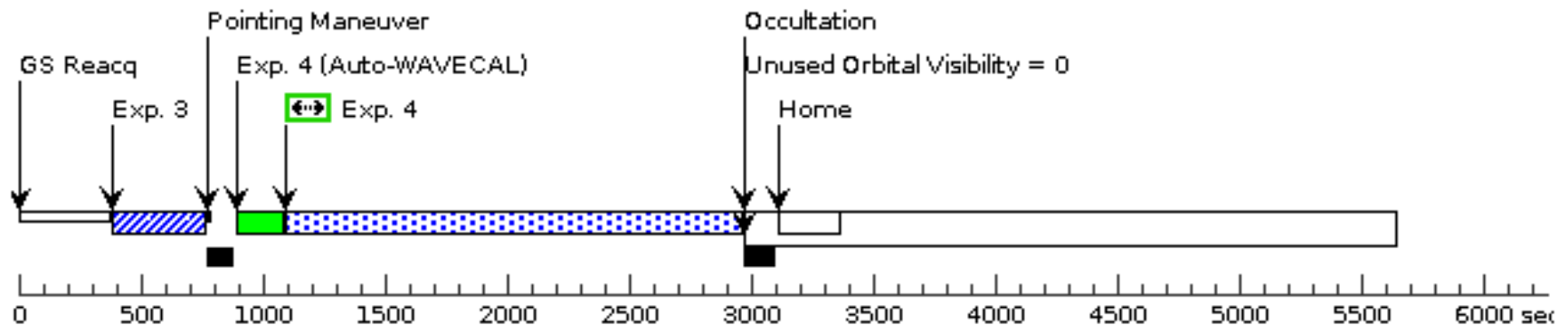
Orbit 1

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Orbit 2

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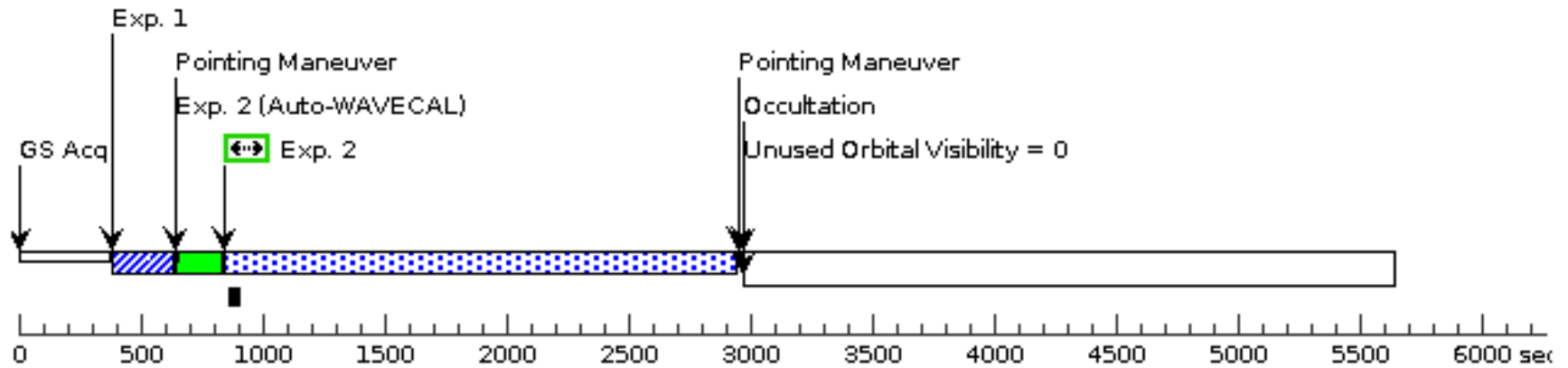


Proposal 18418 - SN II 1 FUV+NUV -- Epoch 3 (03) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Visit	Proposal 18418, SN II 1 FUV+NUV -- Epoch 3 (03) Wed Aug 19 16:01:50 GMT 2026									
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D <i>Comments: Third epoch for target 1 -- needs to be within 1-2 days of the second epoch.</i> <i>On Hold Comments: ToO activation</i>									
Generic Targets	#	Name	Criteria				Description			
	(1)	SNII-1	CSM interacting SN II				SUPERNOVA TYPE II			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA orbit 1	(1) SNII-1	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[1]
	2	G140L (STIS.sp.23 66748)	(1) SNII-1	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A				2090 Secs (2090 Secs)	
									[==>]	[1]
	3	TA orbit 2	(1) SNII-1	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[2]
	4	G230L (STIS.sp.23 66748)	(1) SNII-1	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				1856 Secs (1856 Secs)	
									[==>]	[2]

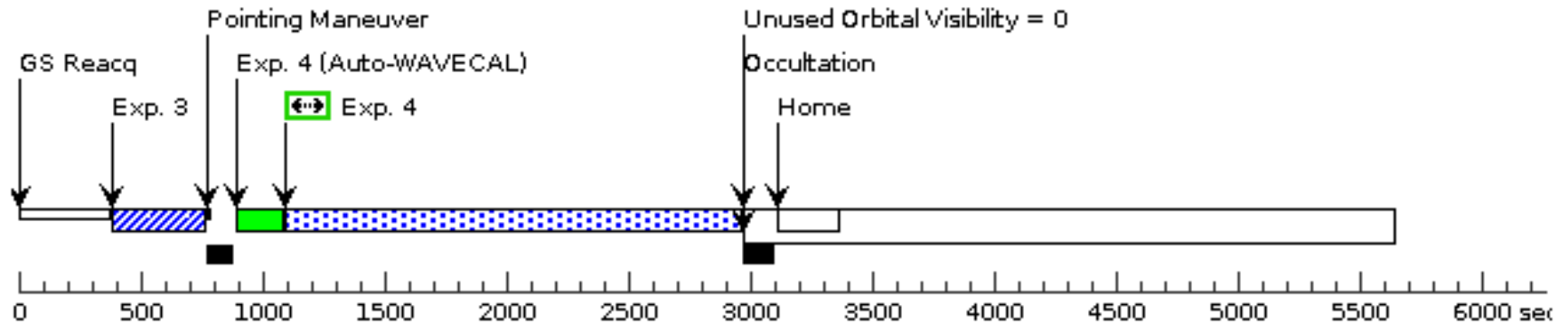
Orbit 1

Server Version: 20260618



Orbit 2

Server Version: 20260618

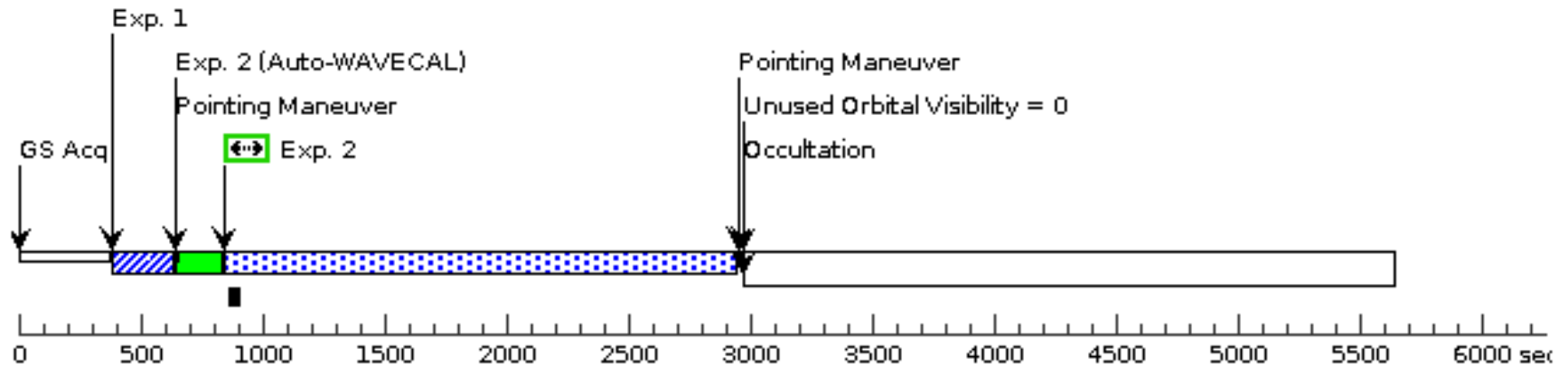


Proposal 18418 - SN II 2 FUV+NUV -- Epoch 1 (04) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

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	Diagnostic Status: No Diagnostics											
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA											
	Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D											
	Comments: First epoch for target 2 -- needs to be observed as soon as possible after trigger (within the constraints of disruptive ToO policy).											
On Hold Comments: ToO Activation												
Generic Targets	#	Name		Criteria				Description				
	(2)	SNII-2		CSM interacting SN II				SUPERNOVA TYPE II				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	TA orbit 1	(2) SNII-2	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)		
										[==>]		[1]
	2	G140L (STIS.sp.23 66748)	(2) SNII-2	STIS/FUV-MAMA, ACCUM, 52X0.2		G140L 1425 A				2090 Secs (2090 Secs)		
										[==>]		[1]
	3	TA orbit 2	(2) SNII-2	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)		
										[==>]		[2]
	4	G230L (STIS.sp.23 66748)	(2) SNII-2	STIS/NUV-MAMA, ACCUM, 52X0.2		G230L 2376 A				1856 Secs (1856 Secs)		
									[==>]		[2]	

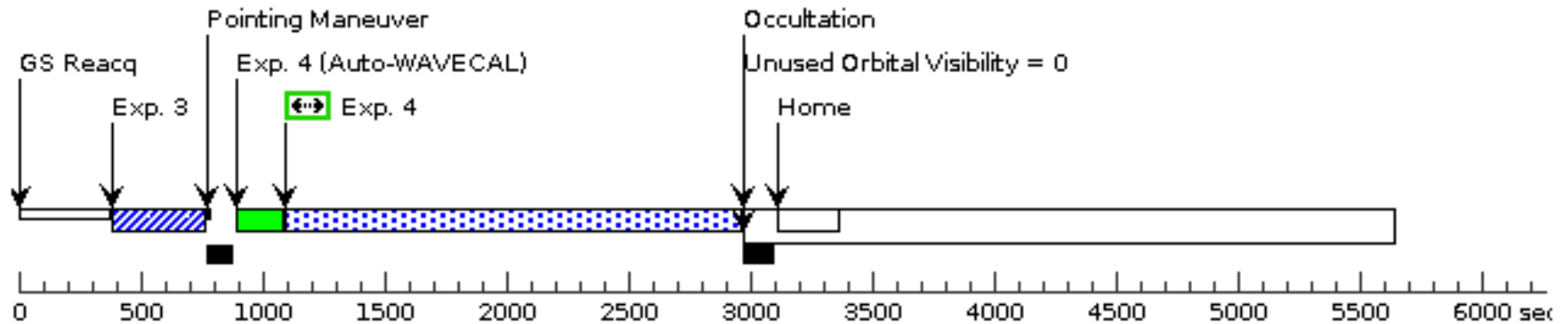
Orbit 1

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Orbit 2

Server Version: 20260618

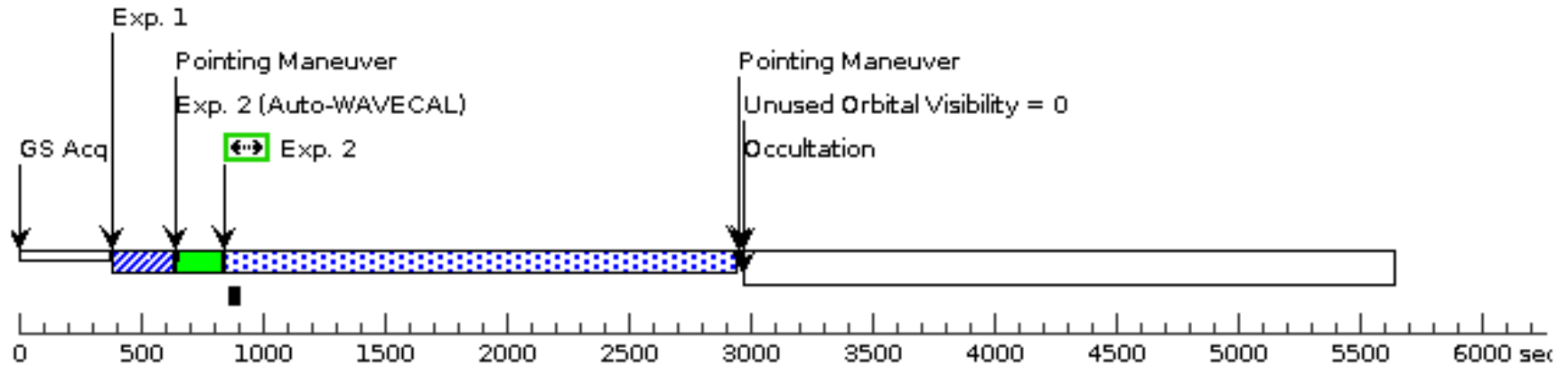


Proposal 18418 - SN II 2 FUV+NUV -- Epoch 2 (05) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Visit	Proposal 18418, SN II 2 FUV+NUV -- Epoch 2 (05) Wed Aug 19 16:01:51 GMT 2026									
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D <i>Comments: Second epoch for target 2 -- needs to be within 1-2 days of the first epoch.</i> <i>On Hold Comments: ToO</i>									
Generic Targets	#	Name	Criteria				Description			
	(2)	SNII-2	CSM interacting SN II				SUPERNOVA TYPE II			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA orbit 1	(2) SNII-2	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[1]
	2	G140L (STIS.sp.23 66748)	(2) SNII-2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A				2090 Secs (2090 Secs)	
									[==>]	[1]
	3	TA orbit 2	(2) SNII-2	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
									[==>]	[2]
	4	G230L (STIS.sp.23 66748)	(2) SNII-2	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				1856 Secs (1856 Secs)	
									[==>]	[2]

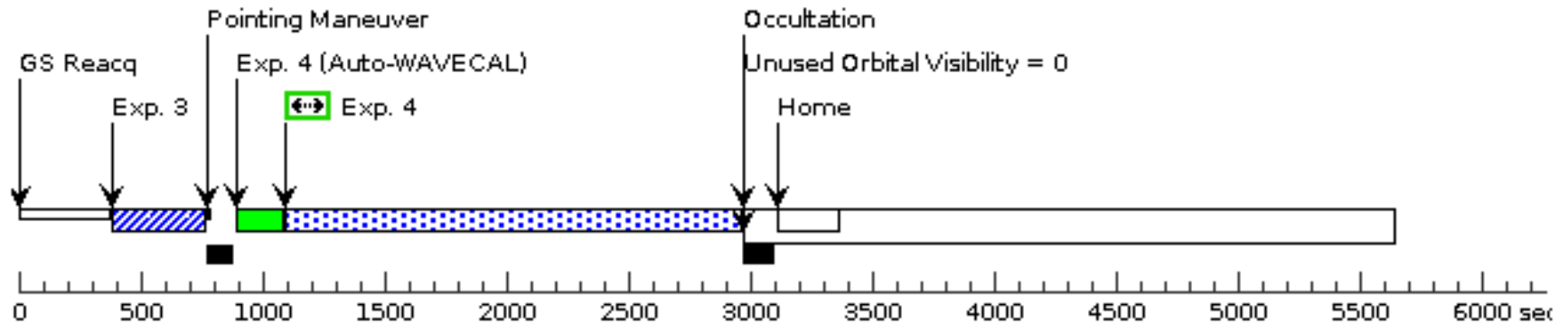
Orbit 1

Server Version: 20260618



Orbit 2

Server Version: 20260618

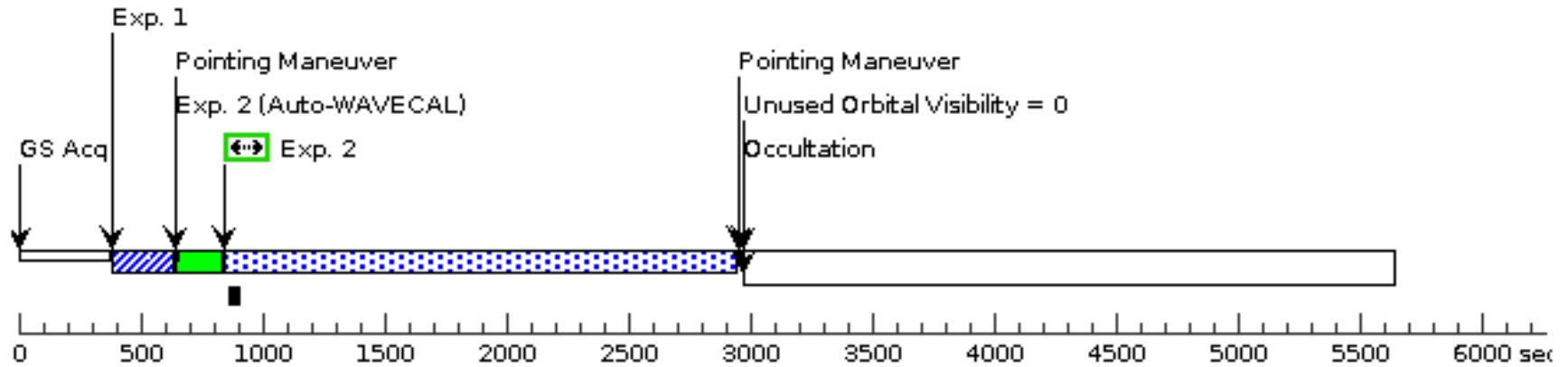


Proposal 18418 - SN II 2 FUV+NUV -- Epoch 3 (06) - A Far-UV Type II Supernova Treasury for the Upcoming UVEX Mission

Visit	Proposal 18418, SN II 2 FUV+NUV -- Epoch 3 (06)										Wed Aug 19 16:01:51 GMT 2026	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA											
	Special Requirements: ON HOLD ; TOO MIN RESPONSE TIME 2.0D; TOO MAX RESPONSE TIME 3.0D											
	Comments: Third epoch for target 2 -- needs to be within 1-2 days of the second epoch. On Hold Comments: ToO											
Generic Targets	#	Name		Criteria				Description				
	(2)	SNII-2		CSM interacting SN II				SUPERNOVA TYPE II				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	TA orbit 1	(2) SNII-2	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)		
										[==>]		[1]
	2	G140L (STIS.sp.23 66748)	(2) SNII-2	STIS/FUV-MAMA, ACCUM, 52X0.2		G140L 1425 A				2090 Secs (2090 Secs)		
										[==>]		[1]
	3	TA orbit 2	(2) SNII-2	STIS/CCD, ACQ, F28X50LP		MIRROR				5 Secs (5 Secs)		
										[==>]		[2]
	4	G230L (STIS.sp.23 66748)	(2) SNII-2	STIS/NUV-MAMA, ACCUM, 52X0.2		G230L 2376 A				1856 Secs (1856 Secs)		
									[==>]		[2]	

Orbit 1

Server Version: 20260618



Orbit 2

Server Version: 20260618

