16221 - Red or Reddened Supernovae? Understanding the Ultraviolet Differences of Normal Standard Candles

Cycle: 28, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Peter J. Brown (PI) (Contact)	**Texas A & M University**	**pbrown@physics.tamu.edu**
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(3) SN2021FXY	STIS/CCD STIS/NUV-MAMA	5	19-Mar-2021 16:00:14.0	yes
02	(3) SN2021FXY	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:16.0	yes
03	(3) SN2021FXY	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:17.0	yes
04	(3) SN2021FXY	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:18.0	yes
05	(2) REDSNIA-2	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:20.0	yes
06	(2) REDSNIA-2	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:21.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
07	(2) REDSNIA-2	STIS/CCD STIS/NUV-MAMA	3	19-Mar-2021 16:00:22.0	yes
08	(2) REDSNIA-2	STIS/CCD STIS/NUV-MAMA	5	19-Mar-2021 16:00:25.0	yes

28 Total Orbits Used

ABSTRACT

Constraining systematic uncertainties is critical to accurately and confidently use type Ia supernovae as precise cosmological distance indicators. The two dominant astrophysical systematics in optical-based studies are dust reddening and intrinsic color differences. Swift ultraviolet observations of even the most normal type Ia supernovae show a large dispersion in colors, consistent with contributions from both intrinsic differences and dust reddening. The four sets of high-quality ultraviolet spectra with the Hubble Space Telescope do not yet fully sample this distribution, but comparisons among them reveal a complexity which requires the contribution of multiple effects. We request a series of ultraviolet spectroscopy of two more type Ia supernovae. These will be chosen based on early Swift photometry to be of the undersampled red variety, allowing us to measure the wavelength dependence of the intrinsic color and/or host galaxy reddening by comparison with the existing samples. We will determine the source of the differences and constrain the effect they have on the optical measurements used in cosmological measurements. The spectra will also be a significant fraction of the local comparison sample against which we can compare the rest-frame ultraviolet spectra of higher redshift type Ia supernovae.

OBSERVING DESCRIPTION

This program will trigger on two type Ia supernovae which appear to be intrinsically red or reddened by dust based on early observations including UV data from Swift UVOT. HST will obtain multi-epoch STIS ultraviolet spectroscopy at four epochs separated by about 5 days.

Visit

Proposal 16221, SN2021fxy-1 (01), implementation Fri Mar 19 20:00:25 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; BETWEEN 24-MAR-2021:00:00:00 AND 27-MAR-2021:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SN2021FXY	RA: 13 13 1.5600 (198.2565000d) Dec: -19 30 45.10 (-19.51253d) Equinox: J2000		V=14+/-2	Reference Frame: ICRS

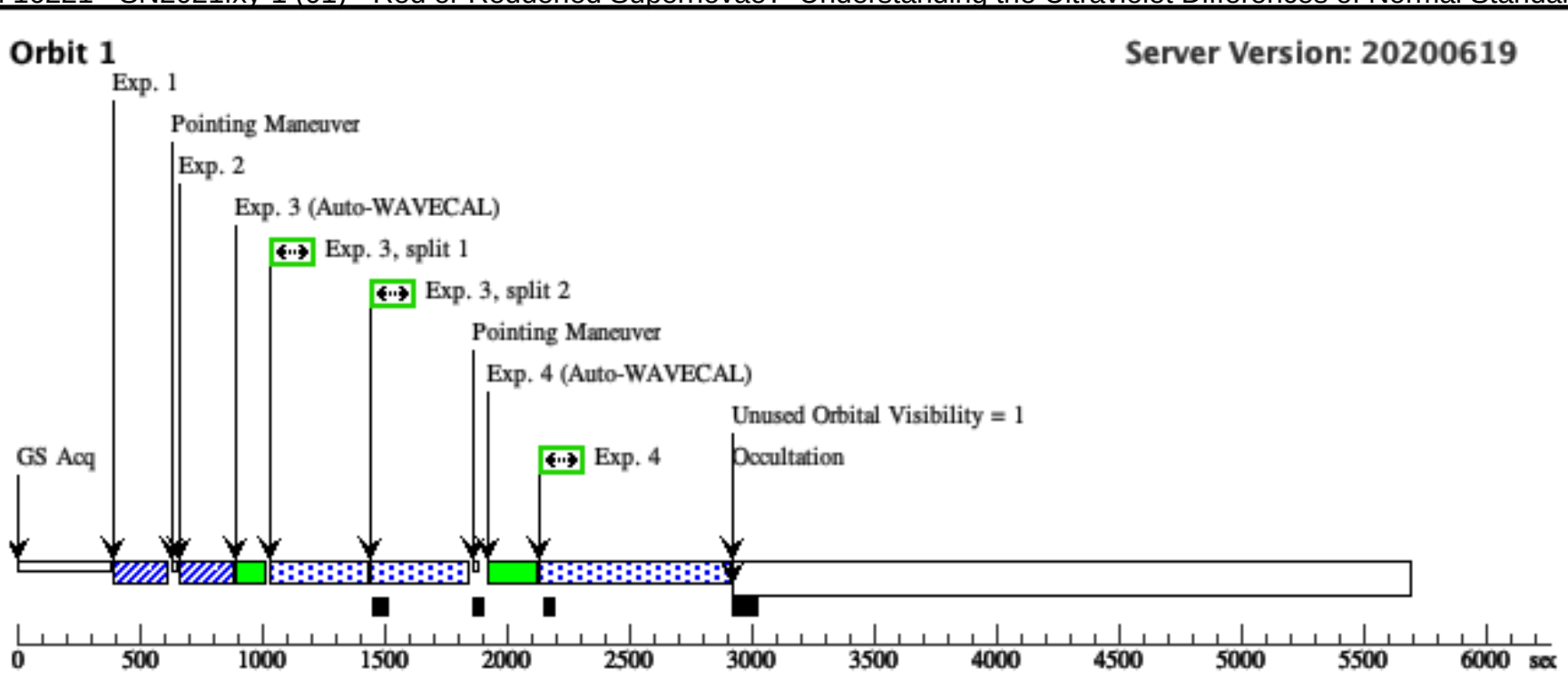
Comments: current magnitude B=16.2 (Mar 19)
expected to rise to B=13.5-14

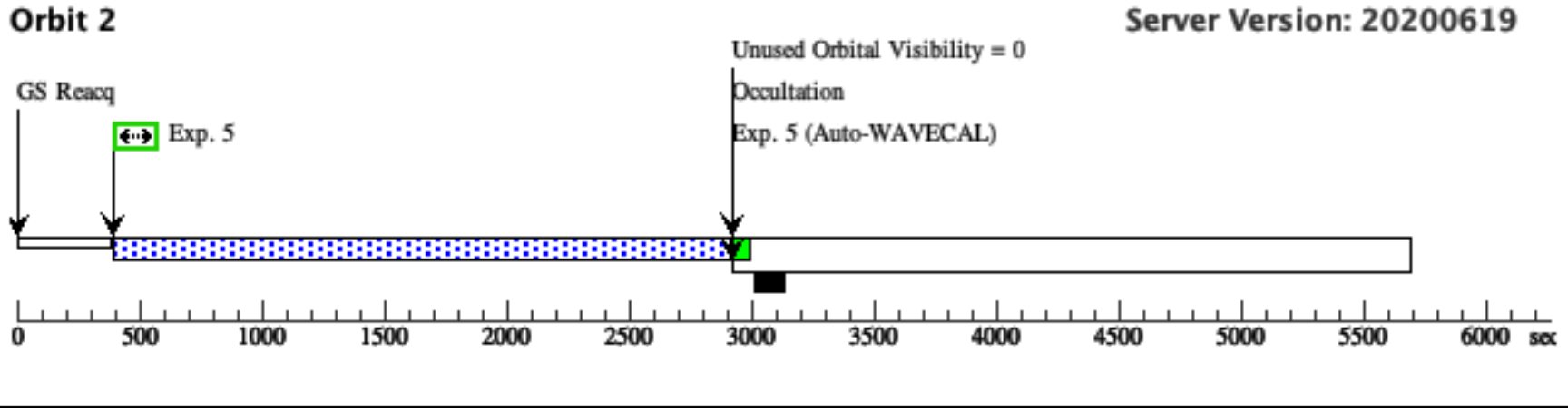
Current Swift mid-UV uvm2 mag~20 expected to rise to ~18
Category=EXT-STAR
Description=[SUPERNOVA TYPE IA]
Extended=NO

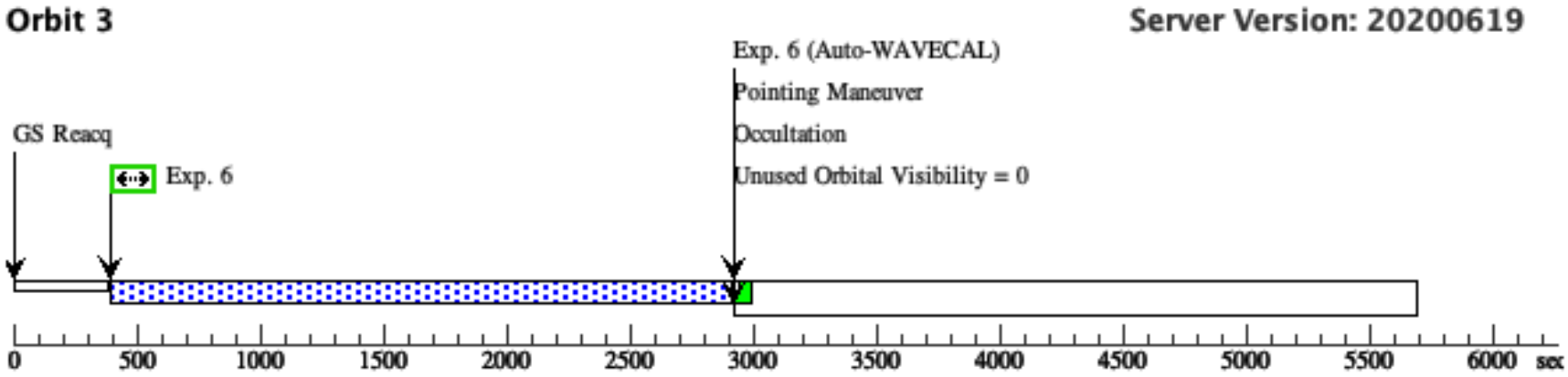
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(3) SN2021FXY	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	***[1]***
2	acq/peak (1003285)	(3) SN2021FXY	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[1]***
3	nuvopt-stis (1485027)	(3) SN2021FXY	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (732 Secs) *[==>366.0 Secs (Split 1)]* *[==>366.0 Secs (Split 2)]*	***[1]***
4	nuv-mama (1484953)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (766 Secs) *[==>766.0 Secs]*	***[1]***
5	nuv-mama2 (1484953)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[2]***
6	nuv-mama3 (1484953)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[3]***
7	acq/peak (1003285)	(3) SN2021FXY	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[4]***
8	nuv-mama4 (1484953)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				1200 Secs (1889 Secs) *[==>1889.0 Secs]*	***[4]***
9	nuv-mama5 (1484953)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				2500 Secs (2509 Secs) *[==>2509.0 Secs]*	***[5]***

Orbit Structure



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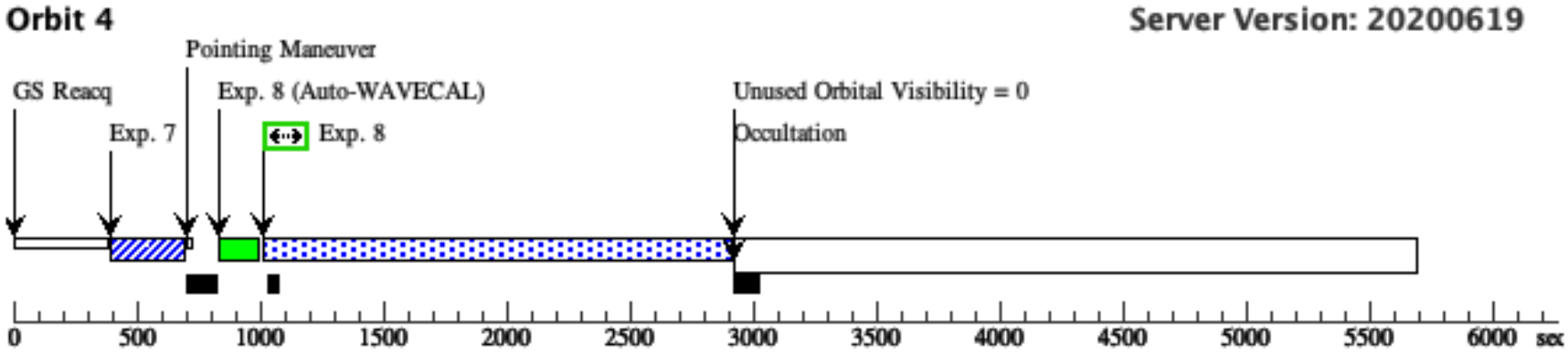
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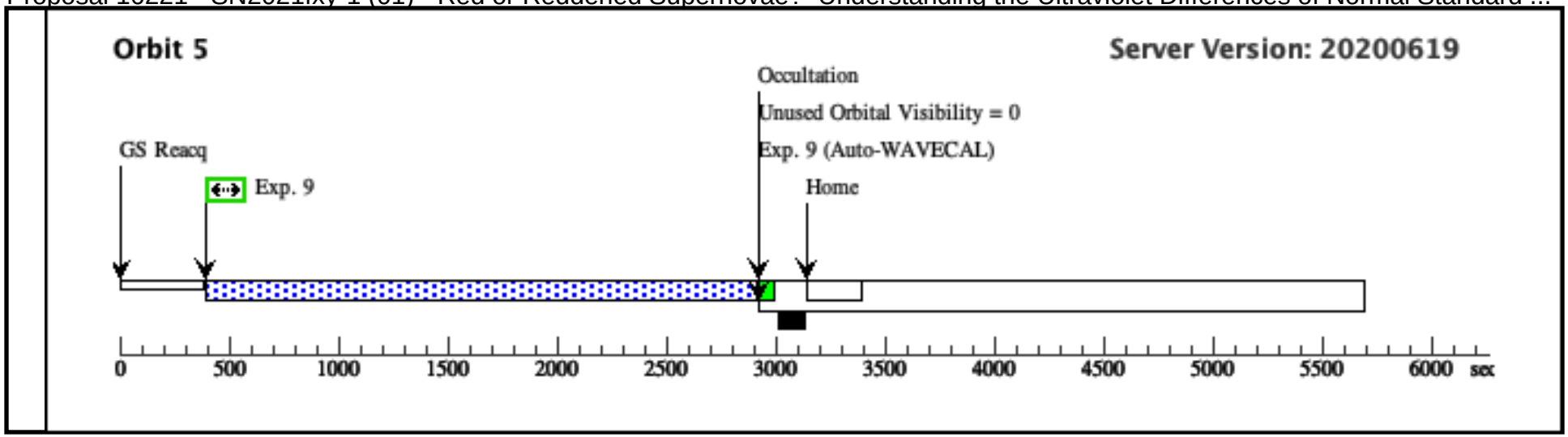
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Exp. 9
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Visit

Proposal 16221, SN2021fxy-2 (02), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; AFTER 01 BY 2 D TO 4 D

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SN2021FXY	RA: 13 13 1.5600 (198.2565000d) Dec: -19 30 45.10 (-19.51253d) Equinox: J2000		V=14+/-2	Reference Frame: ICRS

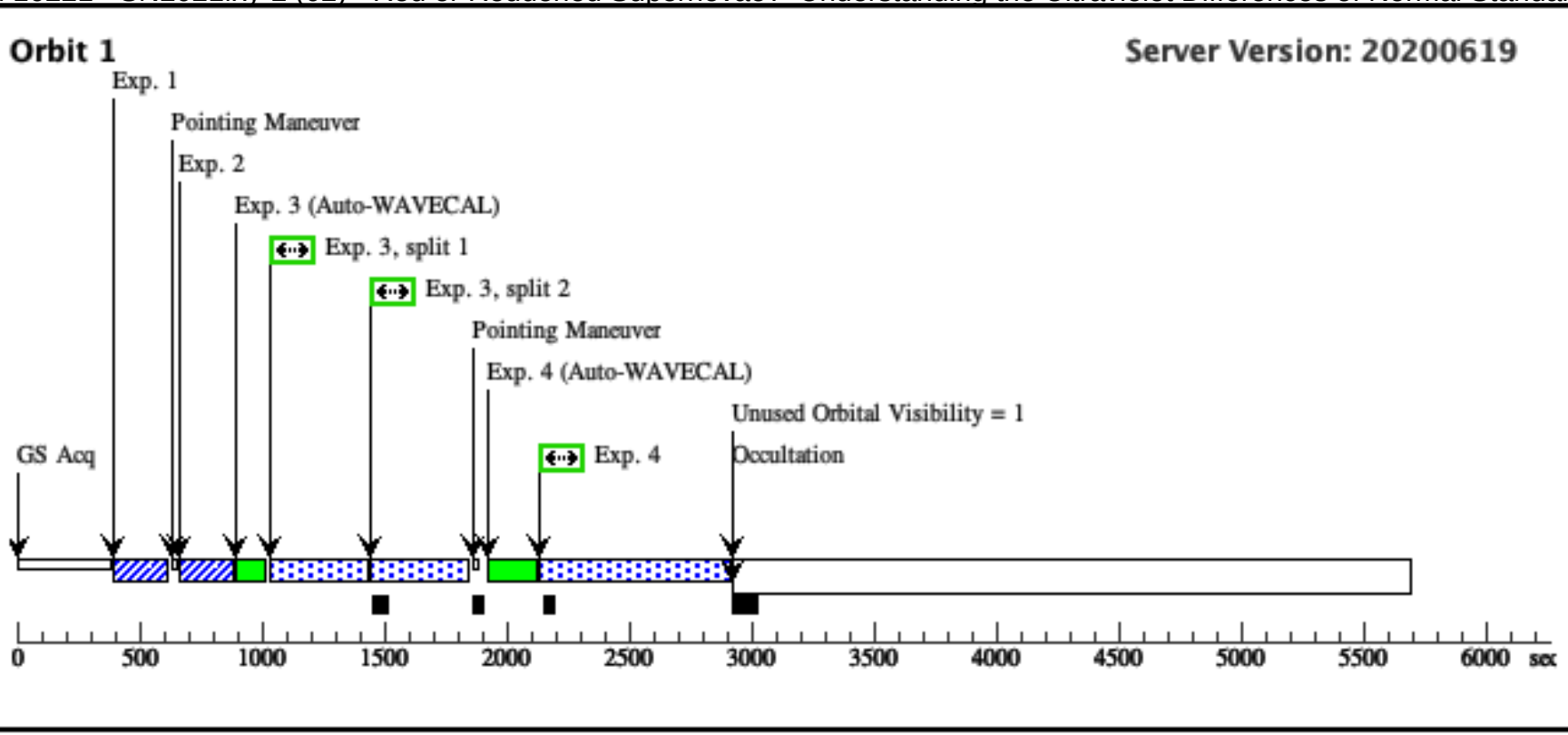
Comments: current magnitude B=16.2 (Mar 19)
expected to rise to B=13.5-14

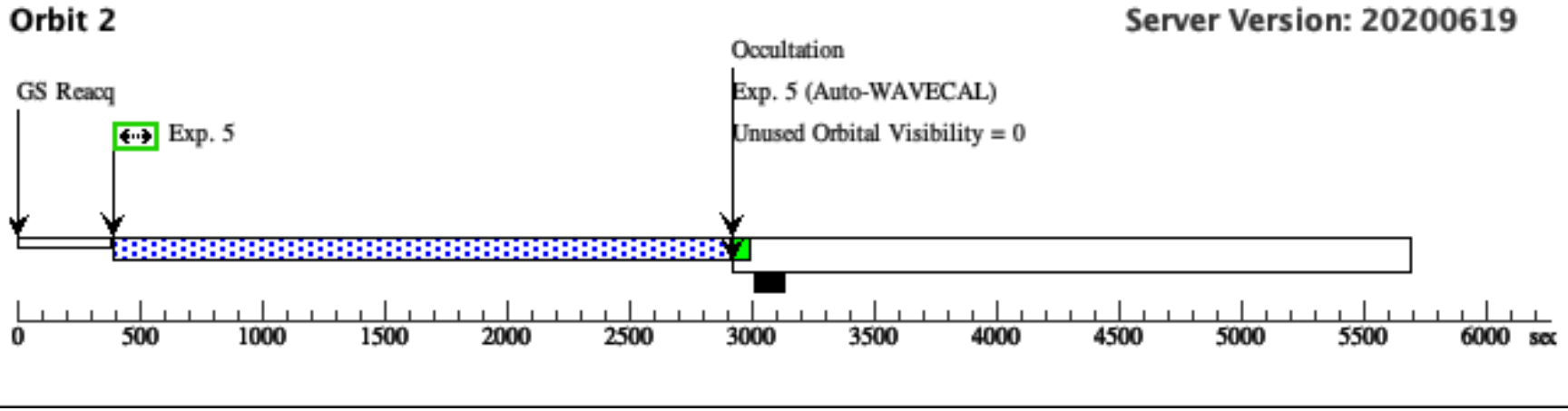
Current Swift mid-UV uvm2 mag~20 expected to rise to ~18
Category=EXT-STAR
Description=[SUPERNOVA TYPE IA]
Extended=NO

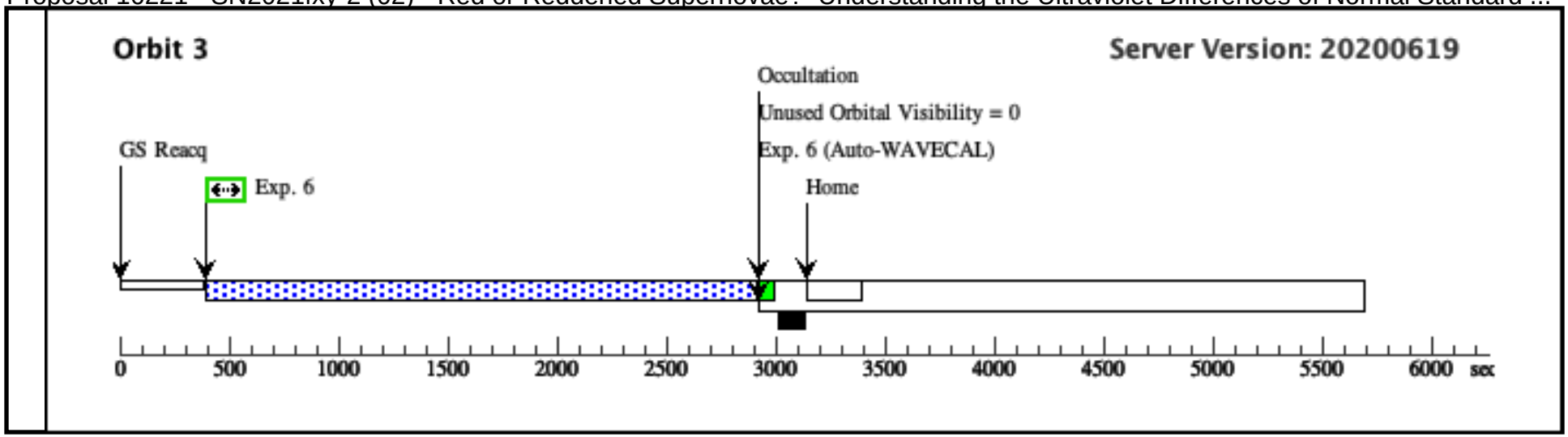
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(3) SN2021FXY	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	***[1]***
2	acq/peak (1003285)	(3) SN2021FXY	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[1]***
3	nuvopt-stis (1003290)	(3) SN2021FXY	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (732 Secs) *[==>366.0 Secs (Split 1)]* *[==>366.0 Secs (Split 2)]*	***[1]***
4	nuv-mama (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (766 Secs) *[==>766.0 Secs]*	***[1]***
5	nuv-mama2 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[2]***
6	nuv-mama3 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20200619
Occultation
Unused Orbital Visibility = 0
Exp. 6 (Auto-WAVECAL)
GS Reacq
Exp. 6
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Visit

Proposal 16221, SN2021fxy-3 (03), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; AFTER 02 BY 2 D TO 4 D

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SN2021FXY	RA: 13 13 1.5600 (198.2565000d) Dec: -19 30 45.10 (-19.51253d) Equinox: J2000		V=14+/-2	Reference Frame: ICRS

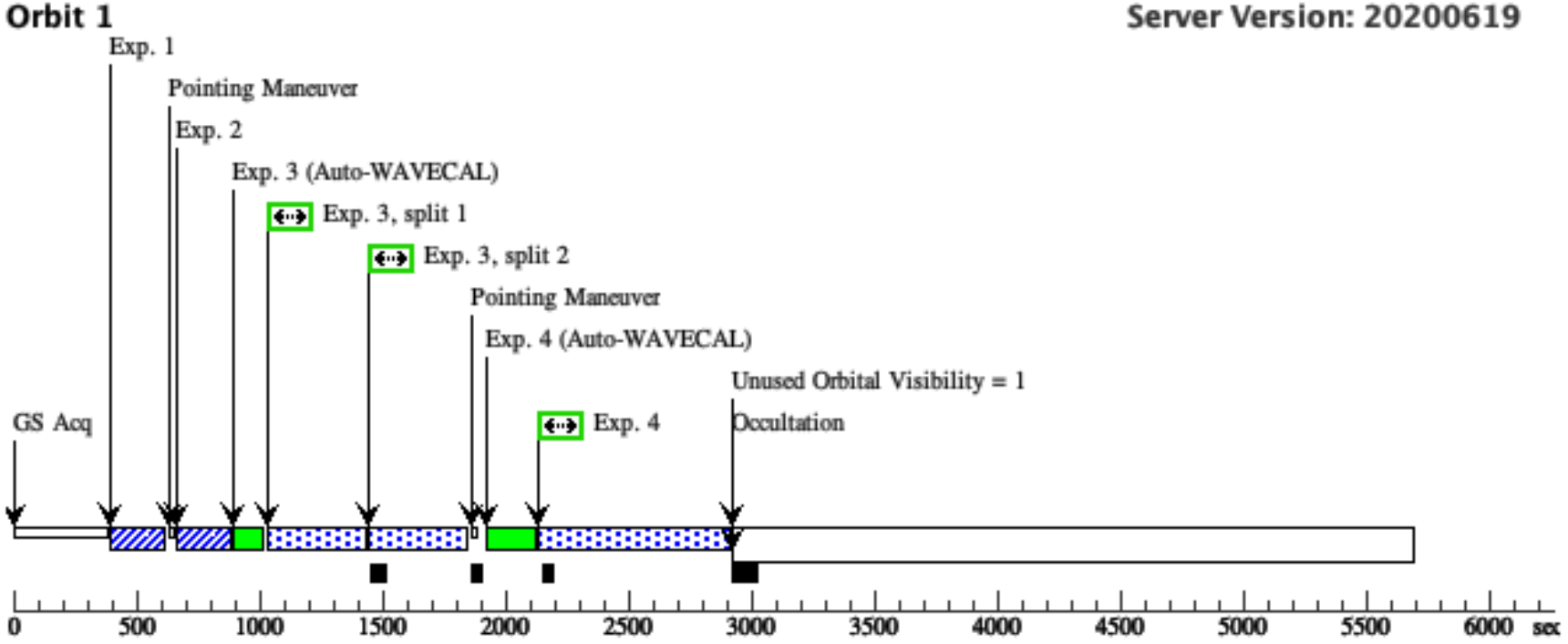
Comments: current magnitude B=16.2 (Mar 19)
expected to rise to B=13.5-14

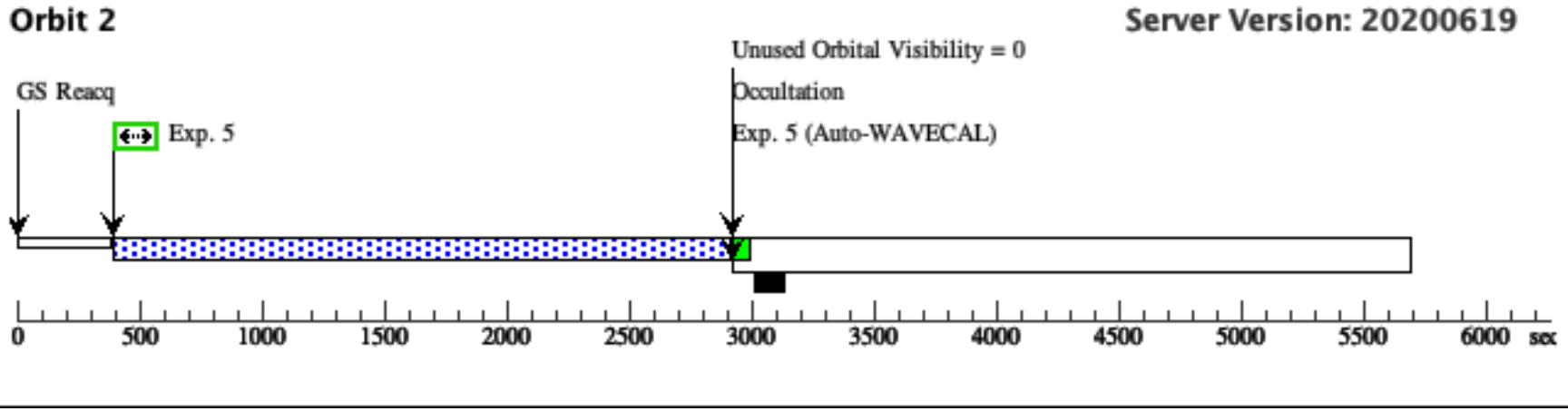
Current Swift mid-UV uvm2 mag~20 expected to rise to ~18
Category=EXT-STAR
Description=[SUPERNOVA TYPE IA]
Extended=NO

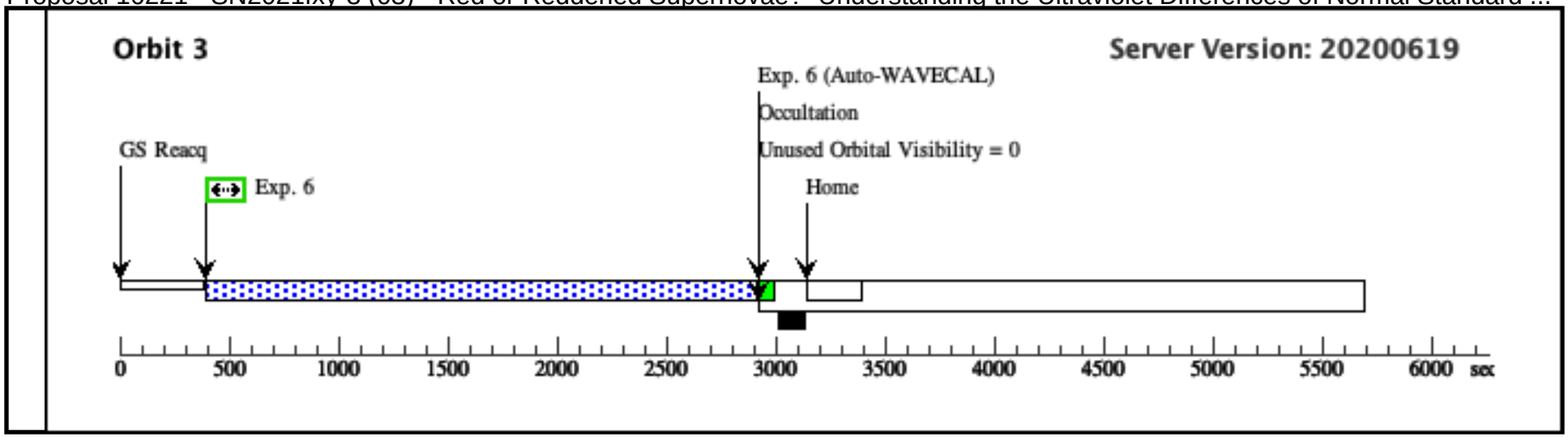
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(3) SN2021FXY	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	***[1]***
2	acq/peak (1003285)	(3) SN2021FXY	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[1]***
3	nuvopt-stis (1003290)	(3) SN2021FXY	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (732 Secs) *[==>366.0 Secs (Split 1)]* *[==>366.0 Secs (Split 2)]*	***[1]***
4	nuv-mama (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (766 Secs) *[==>766.0 Secs]*	***[1]***
5	nuv-mama2 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[2]***
6	nuv-mama3 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	***[3]***

Orbit Structure



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Visit

Proposal 16221, SN2021fxy-4 (04), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; AFTER 03 BY 4 D TO 10 D

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SN2021FXY	RA: 13 13 1.5600 (198.2565000d) Dec: -19 30 45.10 (-19.51253d) Equinox: J2000		V=14+/-2	Reference Frame: ICRS

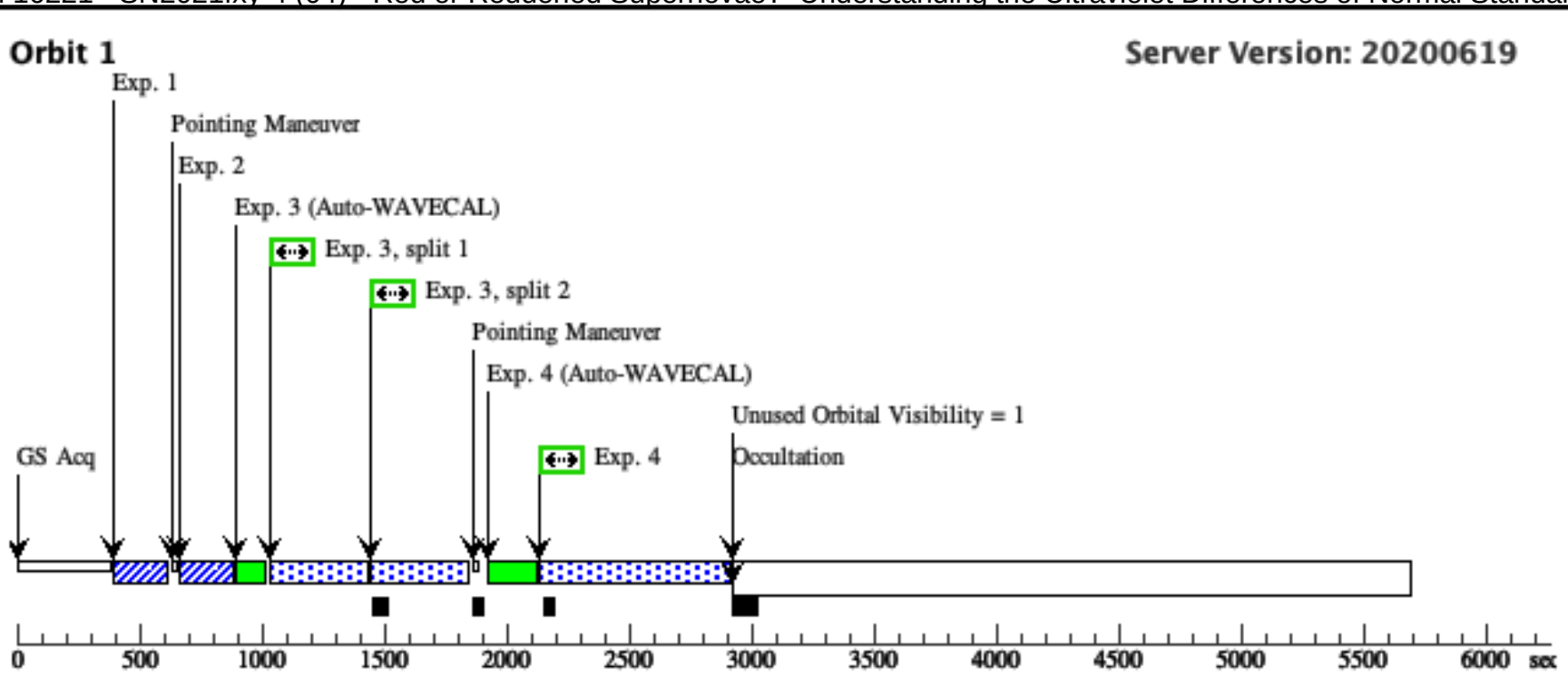
Comments: current magnitude B=16.2 (Mar 19)
expected to rise to B=13.5-14

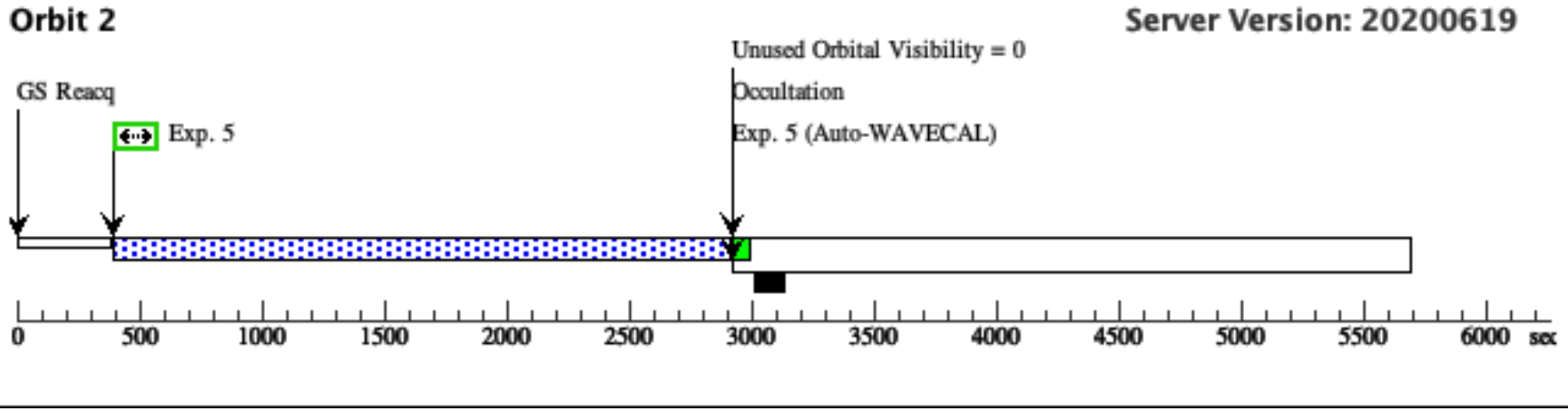
Current Swift mid-UV uvm2 mag~20 expected to rise to ~18
Category=EXT-STAR
Description=[SUPERNOVA TYPE IA]
Extended=NO

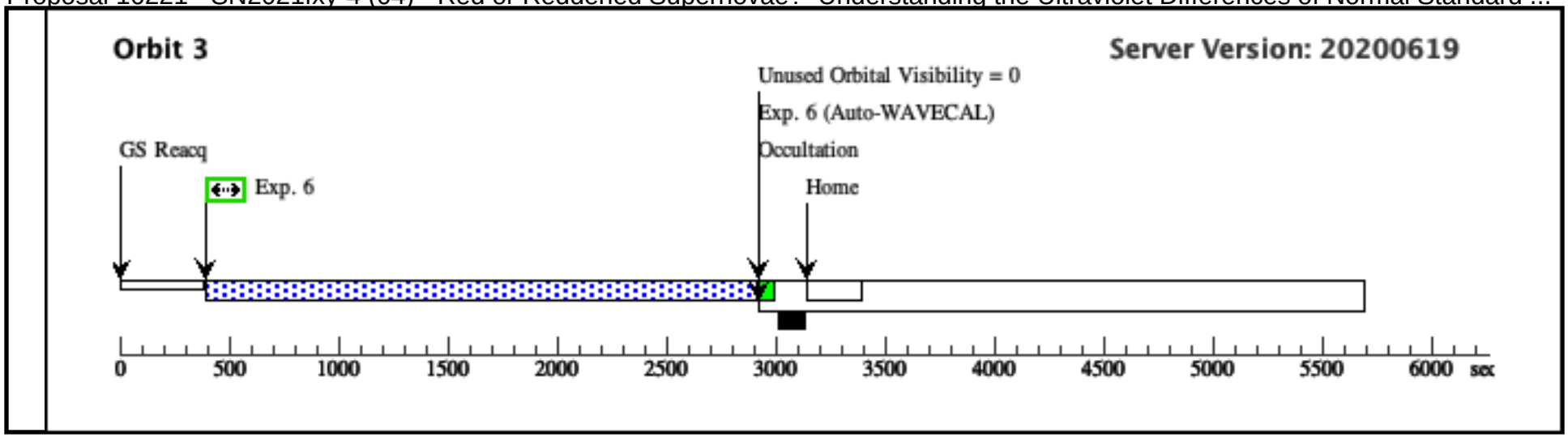
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(3) SN2021FXY	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	 ***[1]***
2	acq/peak (1003285)	(3) SN2021FXY	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	 ***[1]***
3	nuvopt-stis (1003290)	(3) SN2021FXY	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (732 Secs) *[==>366.0 Secs (Split 1)]* *[==>366.0 Secs (Split 2)]*	 ***[1]***
4	nuv-mama (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (766 Secs) *[==>766.0 Secs]*	 ***[1]***
5	nuv-mama2 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	 ***[2]***
6	nuv-mama3 (1484956)	(3) SN2021FXY	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2509 Secs) *[==>2509.0 Secs]*	 ***[3]***

Orbit Structure



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Occultation
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Exp. 6
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sec

Visit

Proposal 16221, fifth visit (05), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: ON HOLD ; TOO RESPONSE TIME 3.0D

On Hold Comments: ToO trigger

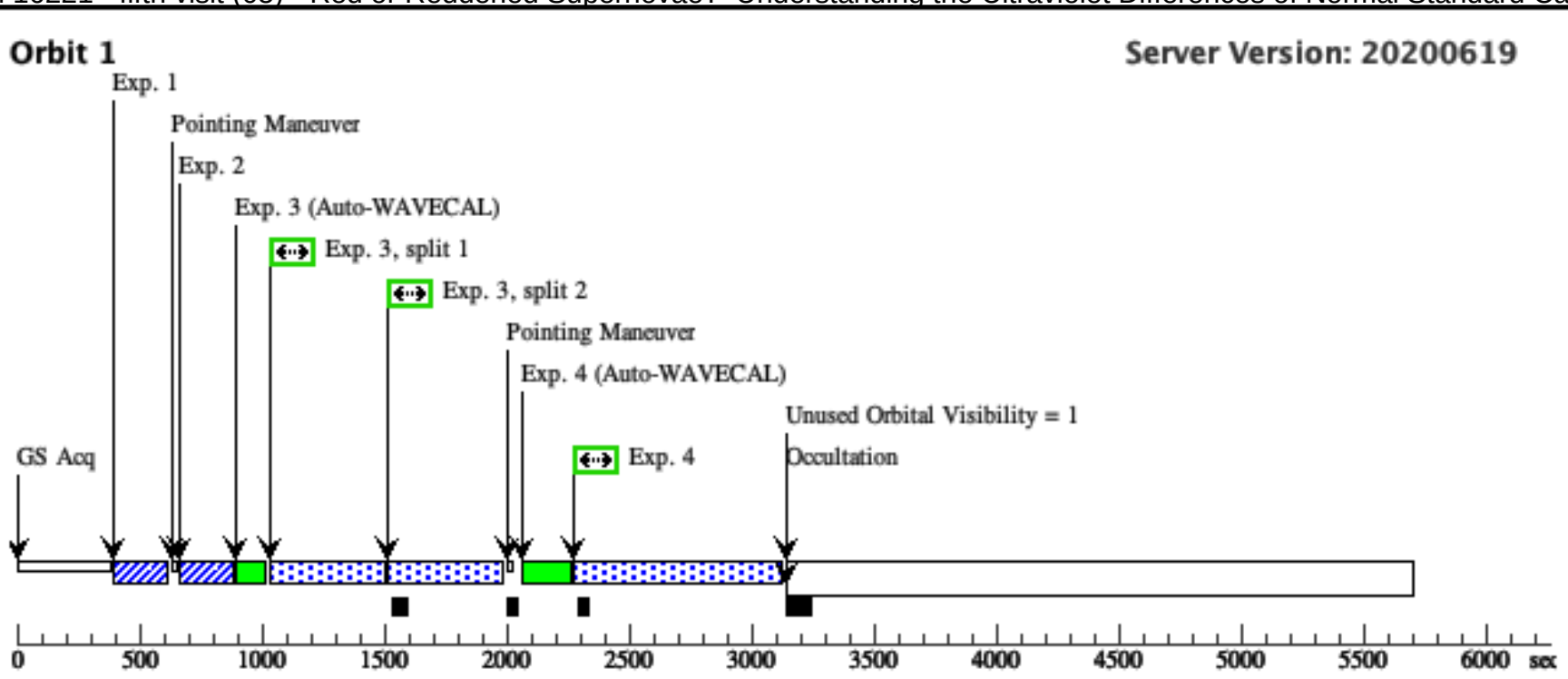
Generic Targets

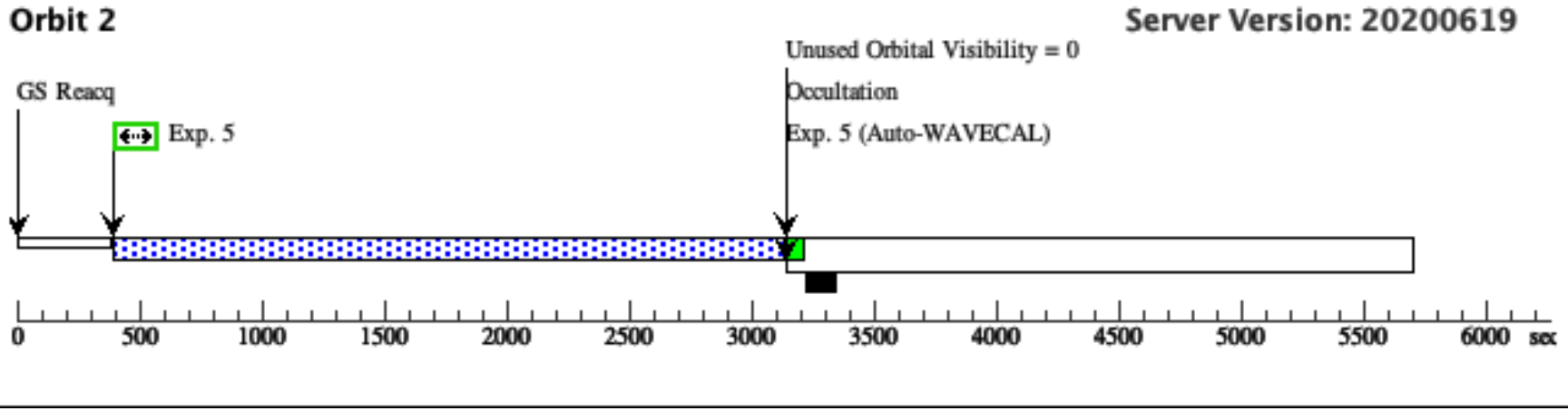
#	Name	Criteria	Description
(2)	REDSNIA-2	red supernova Ia	SUPERNOVA TYPE IA

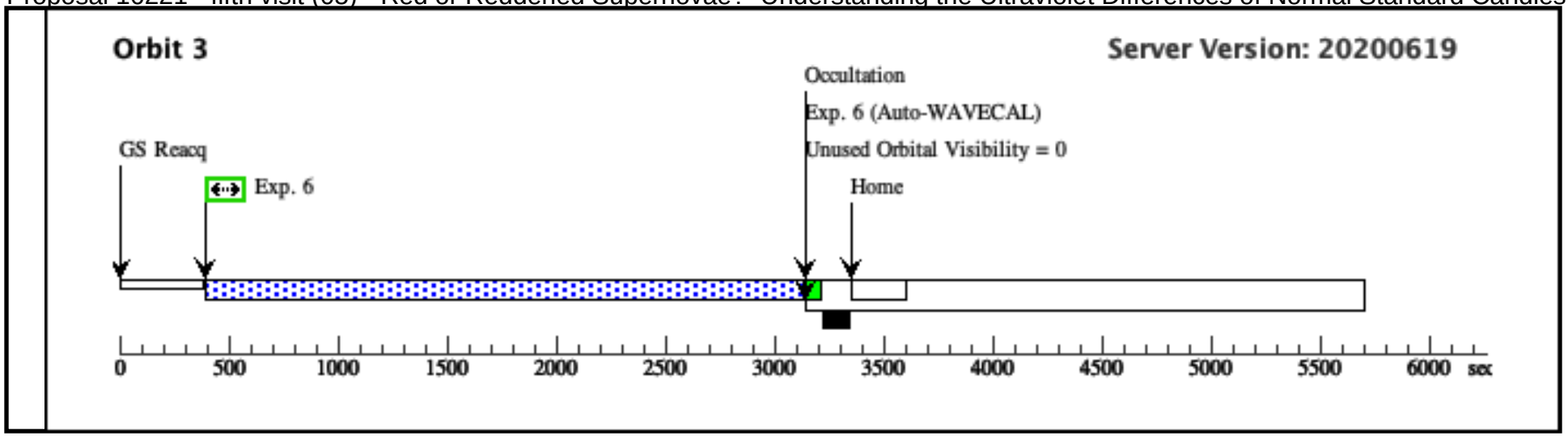
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(2) REDSNIA-2	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	***[1]***
2	acq/peak (1003285)	(2) REDSNIA-2	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[1]***
3	nuvopt-stis (1003290)	(2) REDSNIA-2	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (874 Secs) *[==>437.0 Secs (Split 1)]* *[==>437.0 Secs (Split 2)]*	***[1]***
4	nuv-mama (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (837 Secs) *[==>837.0 Secs]*	***[1]***
5	nuv-mama2 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	***[2]***
6	nuv-mama3 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20200619
Occultation
Exp. 6 (Auto-WAVECAL)
Unused Orbital Visibility = 0
GS Reacq
Exp. 6
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3500
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4500
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5500
6000
sec

Visit

Proposal 16221, sixth visit (06), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: AFTER 05 BY 4 D TO 6 D; ON HOLD

On Hold Comments: ToO trigger

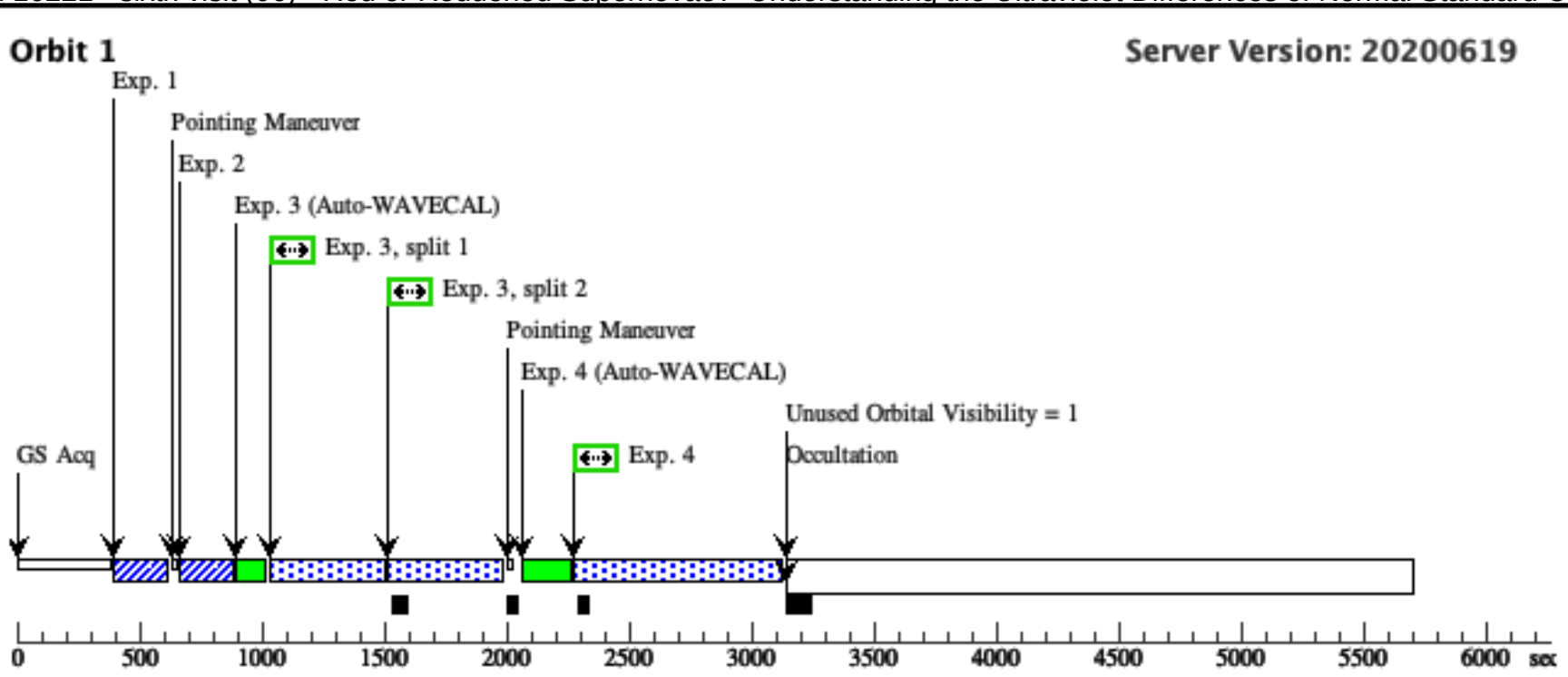
Generic Targets

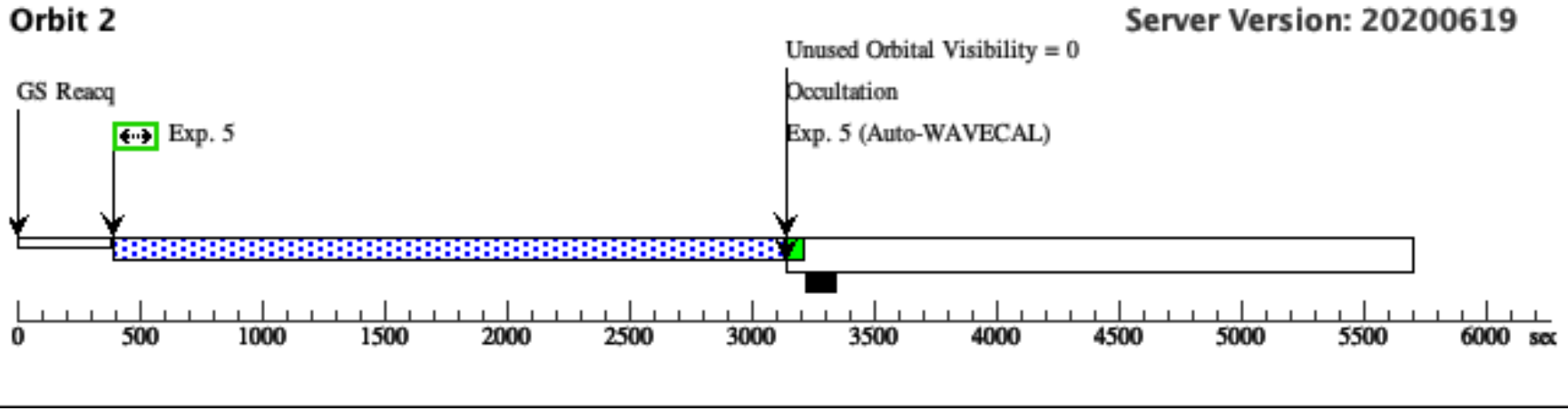
#	Name	Criteria	Description
(2)	REDSNIA-2	red supernova Ia	SUPERNOVA TYPE IA

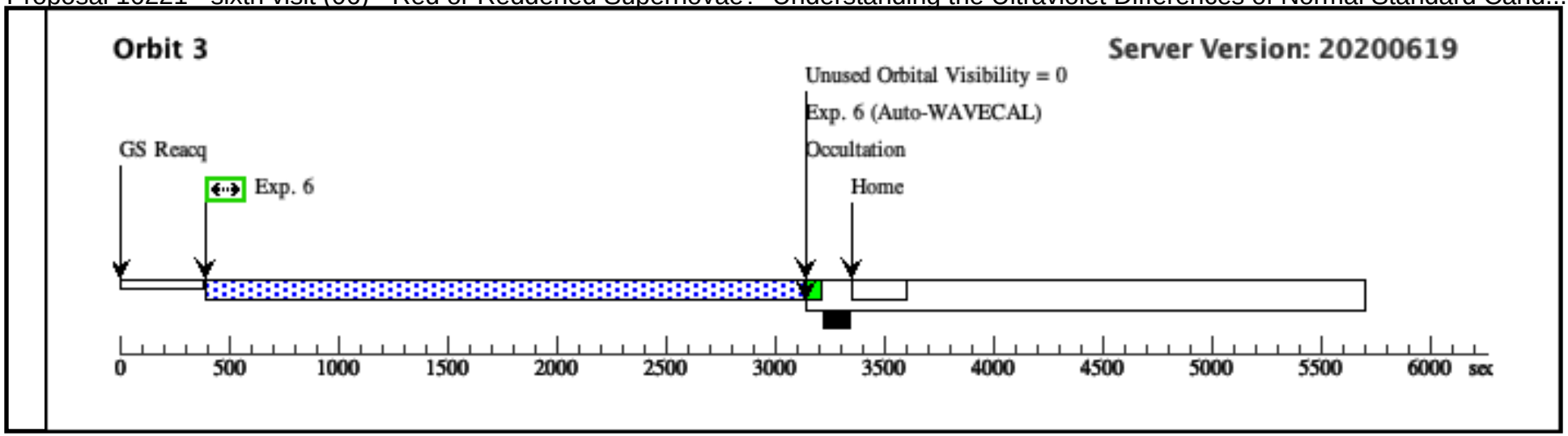
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(2) REDSNIA-2	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	 ***[1]***
2	acq/peak (1003285)	(2) REDSNIA-2	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	 ***[1]***
3	nuvopt-stis (1003290)	(2) REDSNIA-2	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (874 Secs) *[==>437.0 Secs (Split 1)]* *[==>437.0 Secs (Split 2)]*	 ***[1]***
4	nuv-mama (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (837 Secs) *[==>837.0 Secs]*	 ***[1]***
5	nuv-mama2 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	 ***[2]***
6	nuv-mama3 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	 ***[3]***

Orbit Structure






Orbit 3
Server Version: 20200619
Unused Orbital Visibility = 0
Exp. 6 (Auto-WAVECAL)
Occultation
GS Reacq
Exp. 6
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16221, seventh visit (07), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: AFTER 06 BY 4 D TO 6 D; ON HOLD

On Hold Comments: ToO trigger

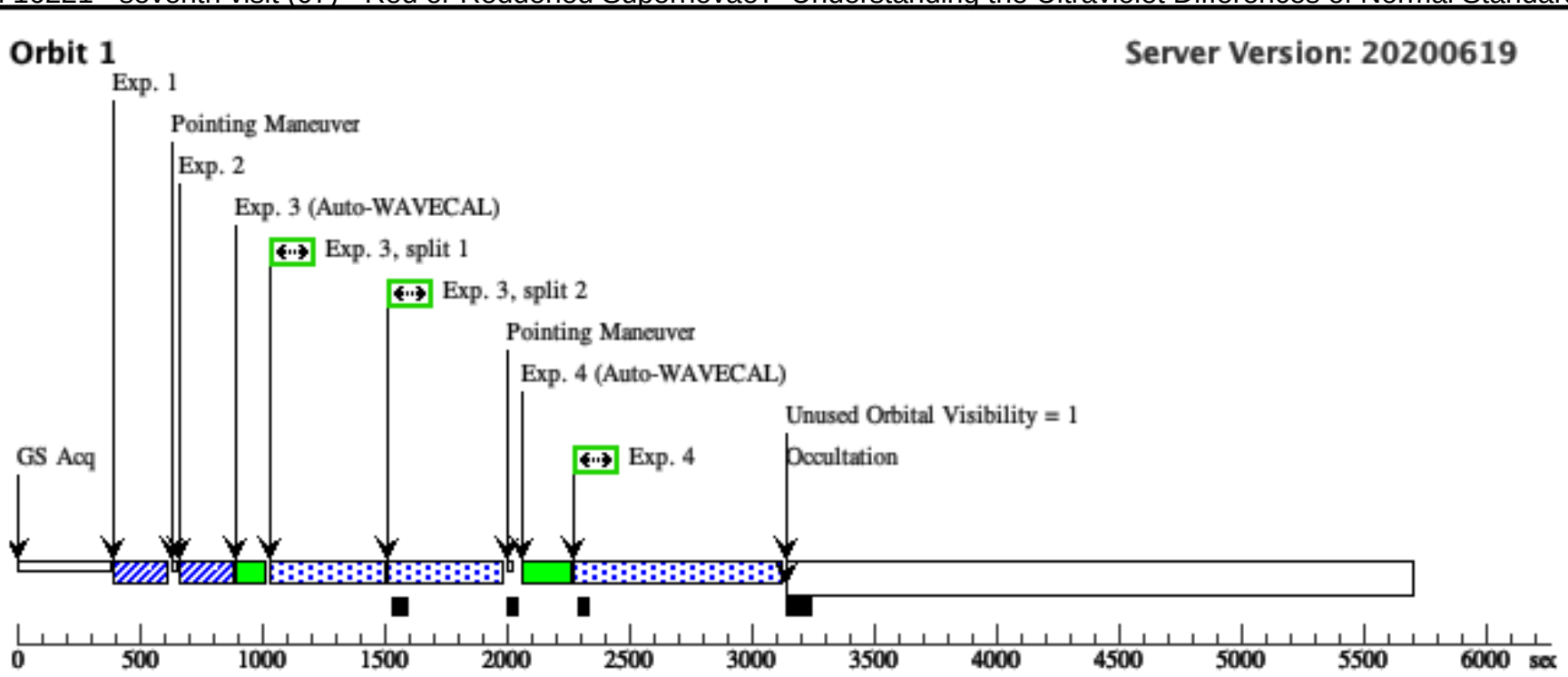
Generic Targets

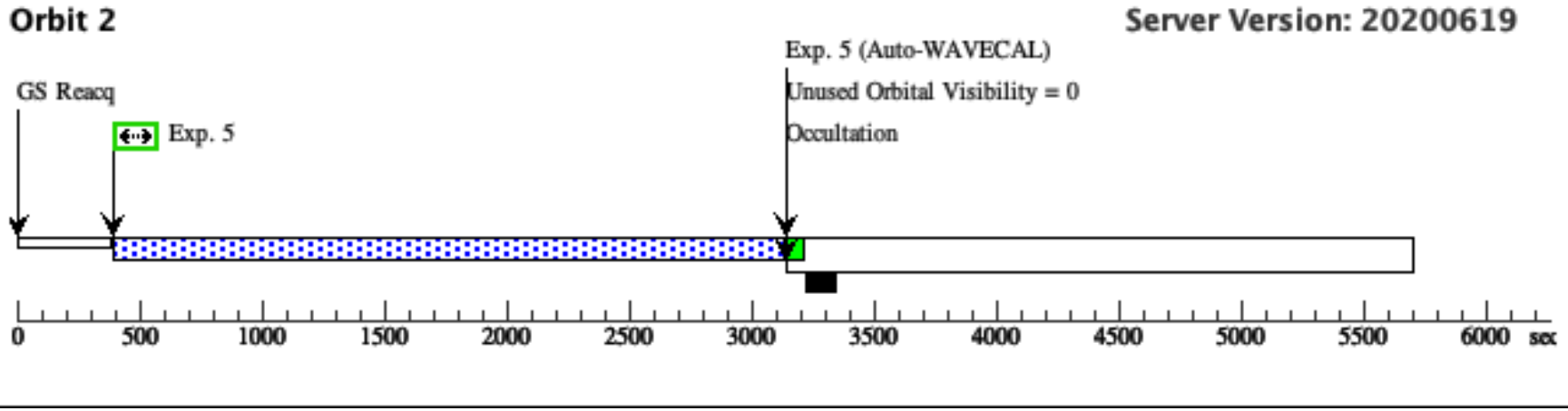
#	Name	Criteria	Description
(2)	REDSNIA-2	red supernova Ia	SUPERNOVA TYPE IA

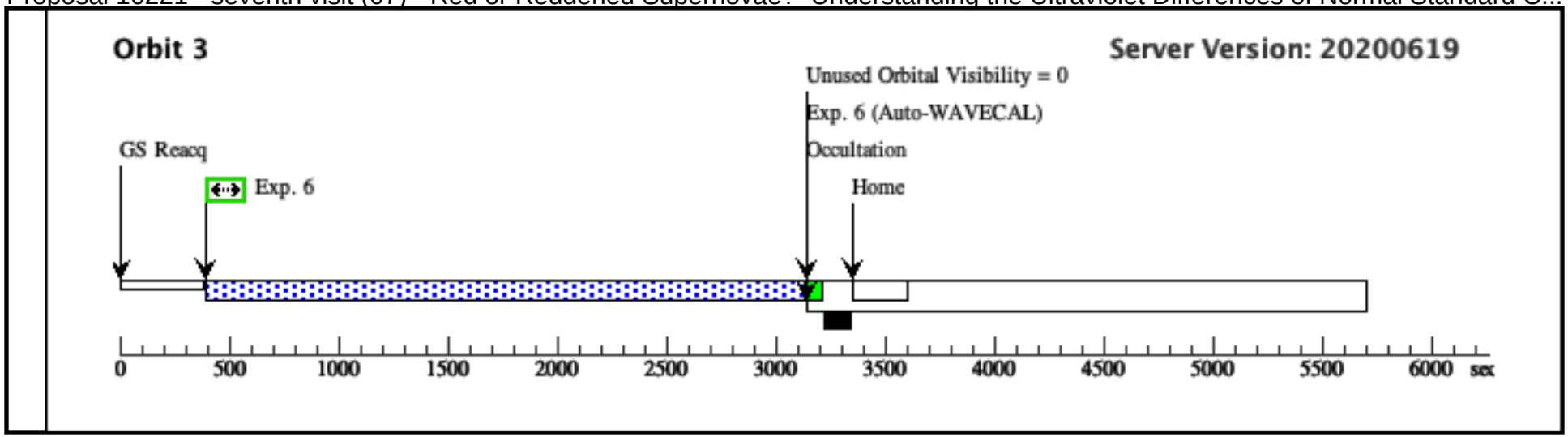
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(2) REDSNIA-2	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	 ***[1]***
2	acq/peak (1003285)	(2) REDSNIA-2	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	 ***[1]***
3	nuvopt-stis (1003290)	(2) REDSNIA-2	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (874 Secs) *[==>437.0 Secs (Split 1)]* *[==>437.0 Secs (Split 2)]*	 ***[1]***
4	nuv-mama (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (837 Secs) *[==>837.0 Secs]*	 ***[1]***
5	nuv-mama2 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	 ***[2]***
6	nuv-mama3 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	 ***[3]***

Orbit Structure






Orbit 3
Server Version: 20200619
Unused Orbital Visibility = 0
Exp. 6 (Auto-WAVECAL)
Occultation
GS Reacq
Exp. 6
Home
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500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16221, eighth visit (08), implementation Fri Mar 19 20:00:26 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: AFTER 07 BY 4 D TO 6 D; ON HOLD

On Hold Comments: ToO trigger

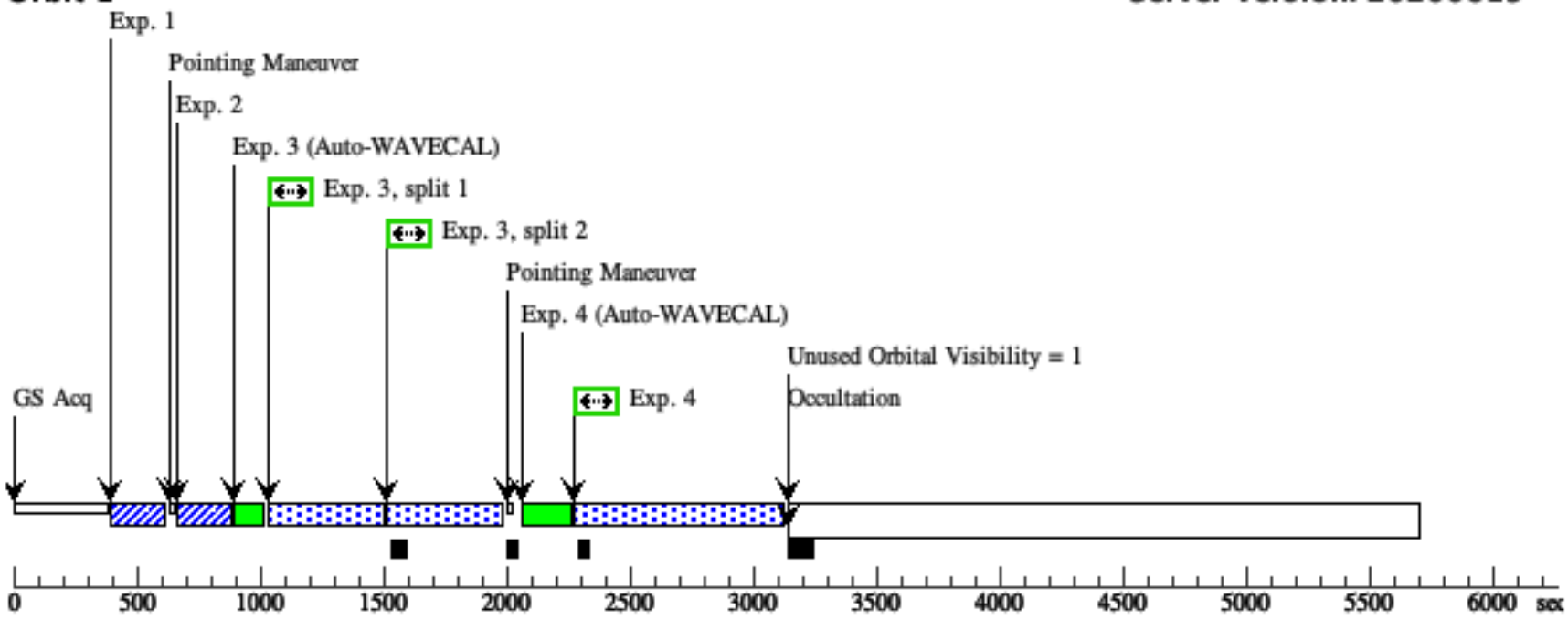
Generic Targets

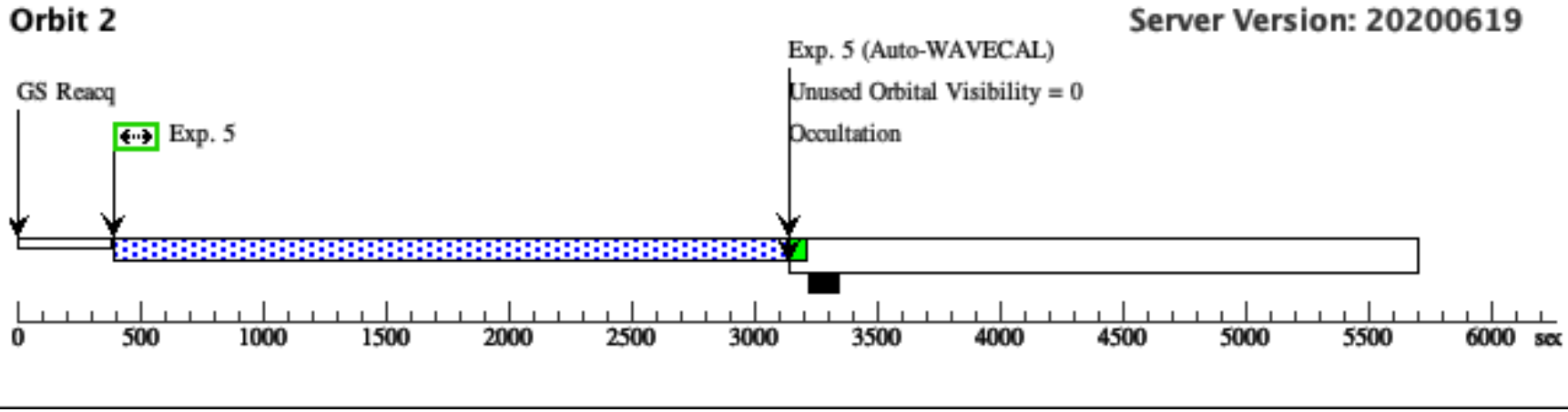
#	Name	Criteria	Description
(2)	REDSNIA-2	red supernova Ia	SUPERNOVA TYPE IA

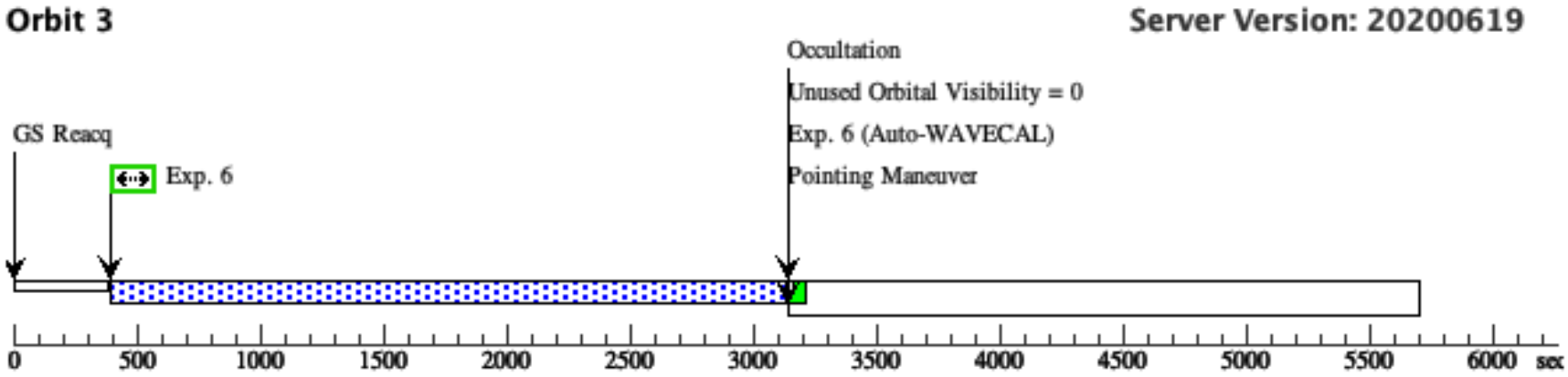
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	acq (1003284)	(2) REDSNIA-2	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	***[1]***
2	acq/peak (1003285)	(2) REDSNIA-2	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[1]***
3	nuvopt-stis (1003290)	(2) REDSNIA-2	STIS/CCD, ACCUM, 52X0.1E1	G430L 4300 A				800 Secs (874 Secs) *[==>437.0 Secs (Split 1)]* *[==>437.0 Secs (Split 2)]*	***[1]***
4	nuv-mama (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				800 Secs (837 Secs) *[==>837.0 Secs]*	***[1]***
5	nuv-mama2 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	***[2]***
6	nuv-mama3 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				3000 Secs (2722 Secs) *[==>2722.0 Secs]*	***[3]***
7	acq/peak (1003285)	(2) REDSNIA-2	STIS/CCD, ACQ/PEAK, 52X0.1E1	MIRROR				0.1 Secs (0.1 Secs) *[==>]*	***[4]***
8	nuv-mama4 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				1200 Secs (2102 Secs) *[==>2102.0 Secs]*	***[4]***
9	nuv-mama5 (1003282)	(2) REDSNIA-2	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				2500 Secs (2722 Secs) *[==>2722.0 Secs]*	***[5]***

Orbit Structure



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Pointing Maneuver
GS Reacq
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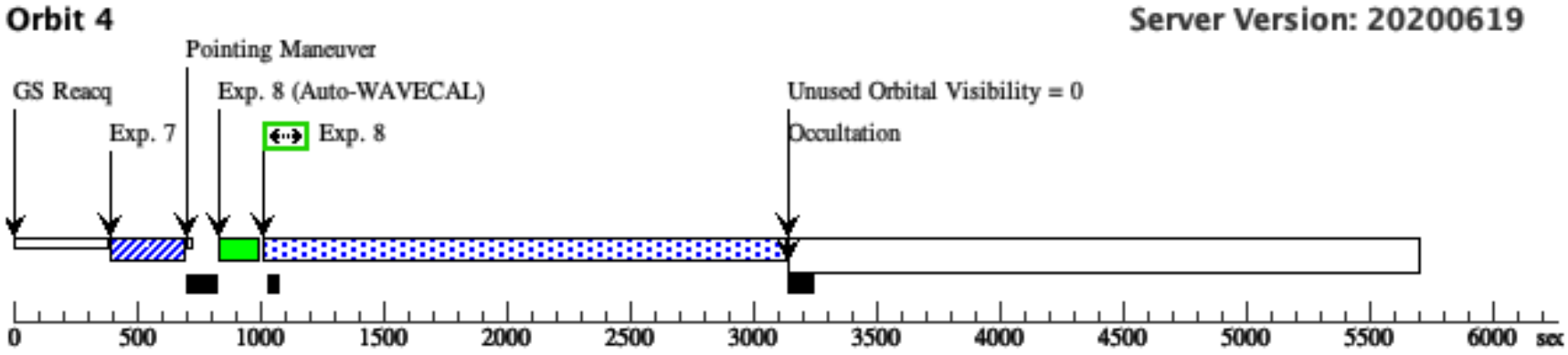
6000
sec


Orbit 4
Server Version: 20200619
Pointing Maneuver
GS Reacq
Exp. 8 (Auto-WAVECAL)
Unused Orbital Visibility = 0
Exp. 7
Exp. 8
Occultation
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3500
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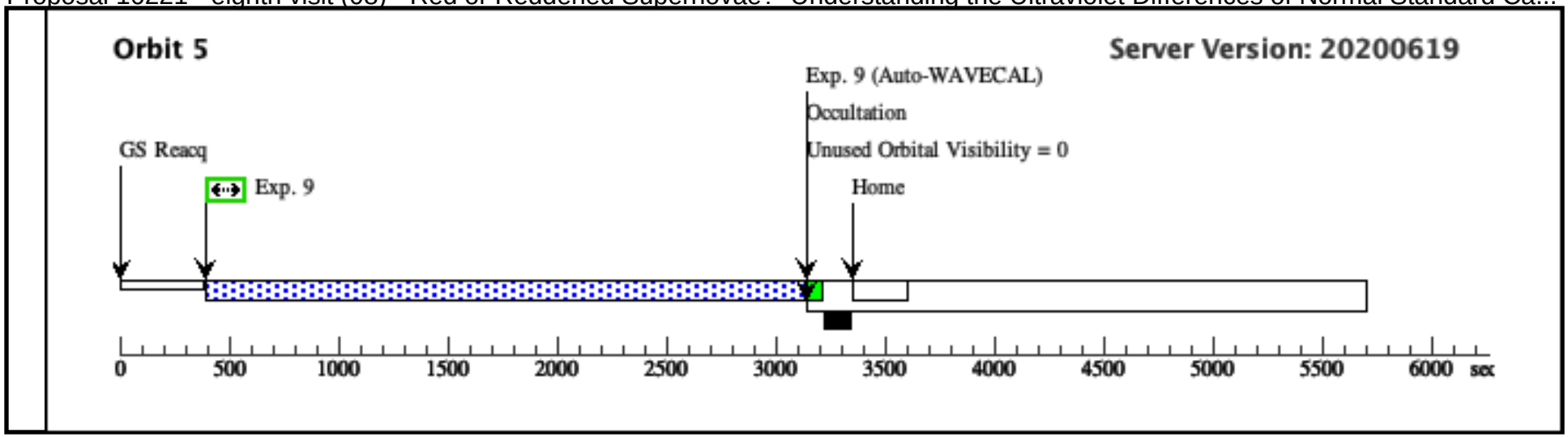
4500
5000
5500
6000
sec


Orbit 5
Server Version: 20200619
Exp. 9 (Auto-WAVECAL)
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 9
Home
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1000
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2000
2500
3000
3500
4000
4500
5000
5500
6000
sec