15274 - Watching Supernovae Explode: The K2 Supernova Experiment

Cycle: 25, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

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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) KEPLER-SUPERNOVA	COS/FUV COS/NUV	2	16-Mar-2018 21:00:18.0	yes
02	(3) KEPLER-SUPERNOVA CCDFLAT	STIS/CCD STIS/NUV-MAMA	2	16-Mar-2018 21:00:21.0	yes
11	(3) KEPLER-SUPERNOVA	COS/FUV COS/NUV	2	16-Mar-2018 21:00:23.0	yes
12	(3) KEPLER-SUPERNOVA CCDFLAT	STIS/CCD STIS/NUV-MAMA	2	16-Mar-2018 21:00:25.0	yes
21	(3) KEPLER-SUPERNOVA	COS/FUV COS/NUV	2	16-Mar-2018 21:00:27.0	yes
22	(3) KEPLER-SUPERNOVA CCDFLAT	STIS/CCD STIS/NUV-MAMA	2	16-Mar-2018 21:00:29.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
31	(3) KEPLER-SUPERNOVA	COS/FUV COS/NUV	2	16-Mar-2018 21:00:30.0	yes
32	(3) KEPLER-SUPERNOVA CCDFLAT	STIS/CCD STIS/NUV-MAMA	2	16-Mar-2018 21:00:33.0	yes
41	(4) SN2018OH CCDFLAT	STIS/CCD	3	16-Mar-2018 21:00:35.0	yes
42	(4) SN2018OH CCDFLAT	STIS/CCD	3	16-Mar-2018 21:00:38.0	yes
43	(4) SN2018OH CCDFLAT	STIS/CCD	2	16-Mar-2018 21:00:40.0	yes
50	(5) SNAT2018AGK CCDFLAT	STIS/CCD STIS/NUV-MAMA	4	16-Mar-2018 21:00:42.0	yes
51	(5) SNAT2018AGK CCDFLAT	STIS/CCD STIS/NUV-MAMA	4	16-Mar-2018 21:00:44.0	yes

32 Total Orbits Used

ABSTRACT

The final campaigns of NASA's K2 mission will be focused on the study of supernovae and extragalactic transients. To maximize the science possible from this mission we propose ultraviolet HST observations of two supernovae discovered in the K2 fields. We plan rapid ToO observations to obtain spectra

during the early phases of the event to complement the continuous K2 photometry and the extensive ground-based follow-up planned for this unique opportunity. Spectroscopy and photometry in the first few hours and days after a supernova explosion provides critical information on the nature of their progenitors and physics driving the explosions. K2/Kepler provides an unprecedented cadence for photometry and has already observed nearly thirty supernovae and transients in exquisite detail as they exploded.

OBSERVING DESCRIPTION

We are requesting observations of two transients identified in the K2 fields during Campaigns 16 and 17 as targets-of-opportunity (ToO). K2 will reverse its normal observing direction to provide ground-based observers the opportunity to study transients at the same time the Kepler satellite is

continuously recording the light curves. UV observations are critical to understanding the early phases of supernovae, so we are requesting HST obtain the data 2-5 days after a trigger. These are two disruptive ToOs.

For each transient, we will obtain a FUV COS spectrum (G140L) over 2 orbits, a NUV STIS spectrum (G230L) over 1 orbit and a single orbit for STIS CCD (G430L+G750L) spectra covering the optical light.

These observations will be repeated 2 to 4 days after the first visit to understand the evolution of the UV emission. Each of the two ToOs require 8 orbits for a total of 16 in this program.

Type Ia supernovae tend to be faint at UV wavelengths due to iron line blanketing. But a |*|Kasen|*| shock due to interaction with a companion (e.g. Marion et al. 2016) will generate UV emission, and this is exactly what we are looking for with K2 and HST. Core-collapse supernovae show a wide range of properties in the UV. The shock breakout is quite hot, but is likely to be gone within a day. But the ionization of circumstellar gas or the direct shock interaction of the ejecta with an earlier period of progenitor mass loss can generate bright UV emission. Either type of supernova or even a new kind of transient may be targets for this program, but we will only trigger based on the safety criteria described below.

Of critical importance is the protection of the COS detectors and STIS MAMAS. Be- fore triggering HST we will require a Swift NUV observation of the transients. The NUV magnitude of the transient must be greater than 15.0 (<2.2|*|10|*|14 erg/cm2/s/ |*|A) before we consider sending the target to HST. The COS ETC shows that a 50000|*| blackbody with a NUV Galex magnitude of 14.5 will generate a maximum rate of 0.267 counts per second in the FUV detector (COS.sp.939849). This is a safe level. Generally UV emission fades rapidly, but to be safe for the second visit, we will request Swift to continue to monitor the target in the NUV and cancel the COS observations if the UV magnitude exceeds our limit.

We expect our supernova targets to have UV magnitudes between 17 and 20 mag. At NUV=20.0 mag and a 50000|*| blackbody spectrum, we will get a S/N=10 in the FUV with 2500 seconds of exposure (COS.sp.941446), so we are requesting 2 orbits with COS. We switch to STIS for the NUV which covers the wavelength band more efficiently than COS.

Visit

Proposal 15274, Visit 01, implementation Sat Mar 17 01:00:46 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 01-DEC-2017:00:00:00 AND 01-JUL-2018:00:00:00; SEQ 01,02 WITHIN 0.25 D; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: Visit 1,2,11,12 are for a type Ia supernova. Visit 1,2 are to be scheduled togethor and visit 11,12 scheduld together 2-4 days after visit 1. The spectral features of a type Ia supernova in the VUV don't change very much from early to maximum brightness. The overall brightness does change 1.23 mags in B from -10 days before max to maximum brightness in a very reliable and understoof way. Using the Sn1992A spectrum from 1700-7000A we find the COS target acquistion exposure time varies when the SN in tthe range of B mag 18.5 to 15.0 from 400.0 to 15.0 seconds Mirror A + PSA. The COS acquisition time for exposrue 1 is based on our best guess of brightness at time of schedule to be 17.0 For the S/N in COS exposures we used 10K BB @ mag B 17.0

On Hold Comments: please try to schedule asap

Fixed Targets

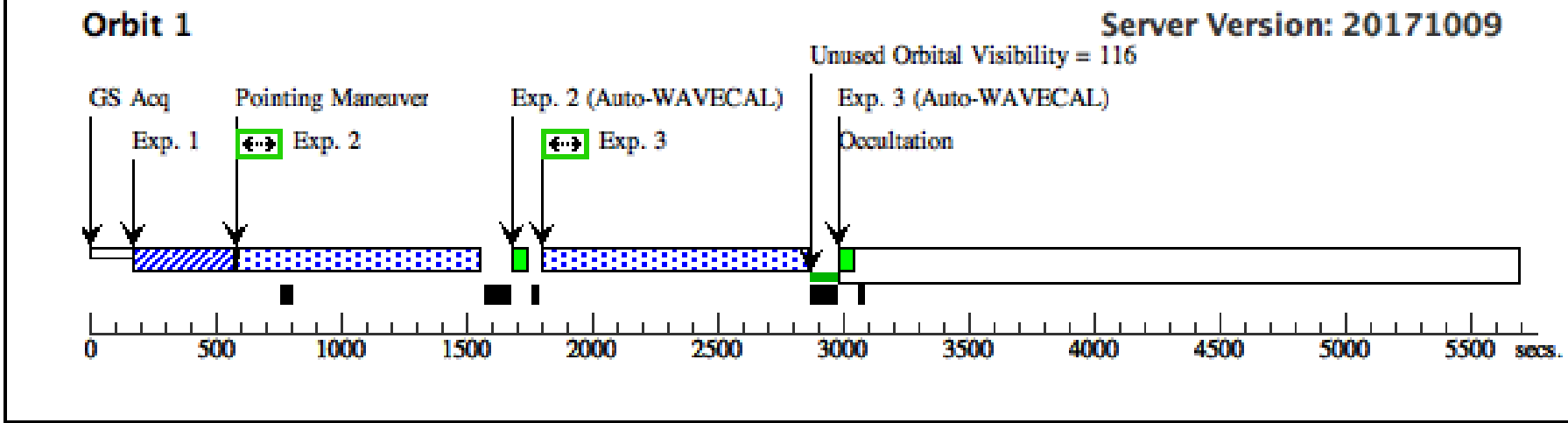
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

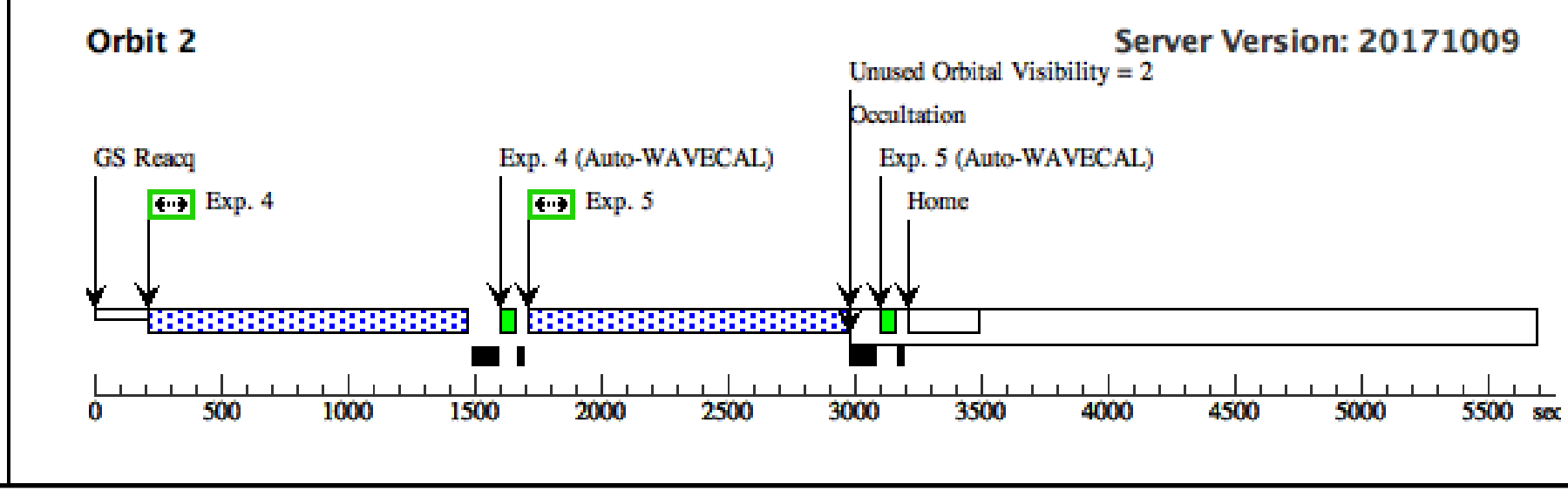
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1012453)	(3) KEPLER-SUPERNOVA	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				91 Secs (91 Secs) *[==>]*	***[1]***
2	(COS.sp.1012475)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=1			800 Secs (800 Secs) *[==>]*	***[1]***
3	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=2			1000 Secs (1000 Secs) *[==>]*	***[1]***
4	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=3			1200 Secs (1200 Secs) *[==>]*	***[2]***
5	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=4			1200 Secs (1200 Secs) *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 15274, Visit 02, implementation Sat Mar 17 01:00:46 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: The brightness of this supernova may baries from mag 18.5 to 15.0
This is only a change from 3.0 to 0.2 seconds in the STIS acquisition.
we used sn1992A HST STIS UV spectrum as input to the ETC.

On Hold Comments: please try to schedule as soon after visit 01 as possible

Fixed Targets

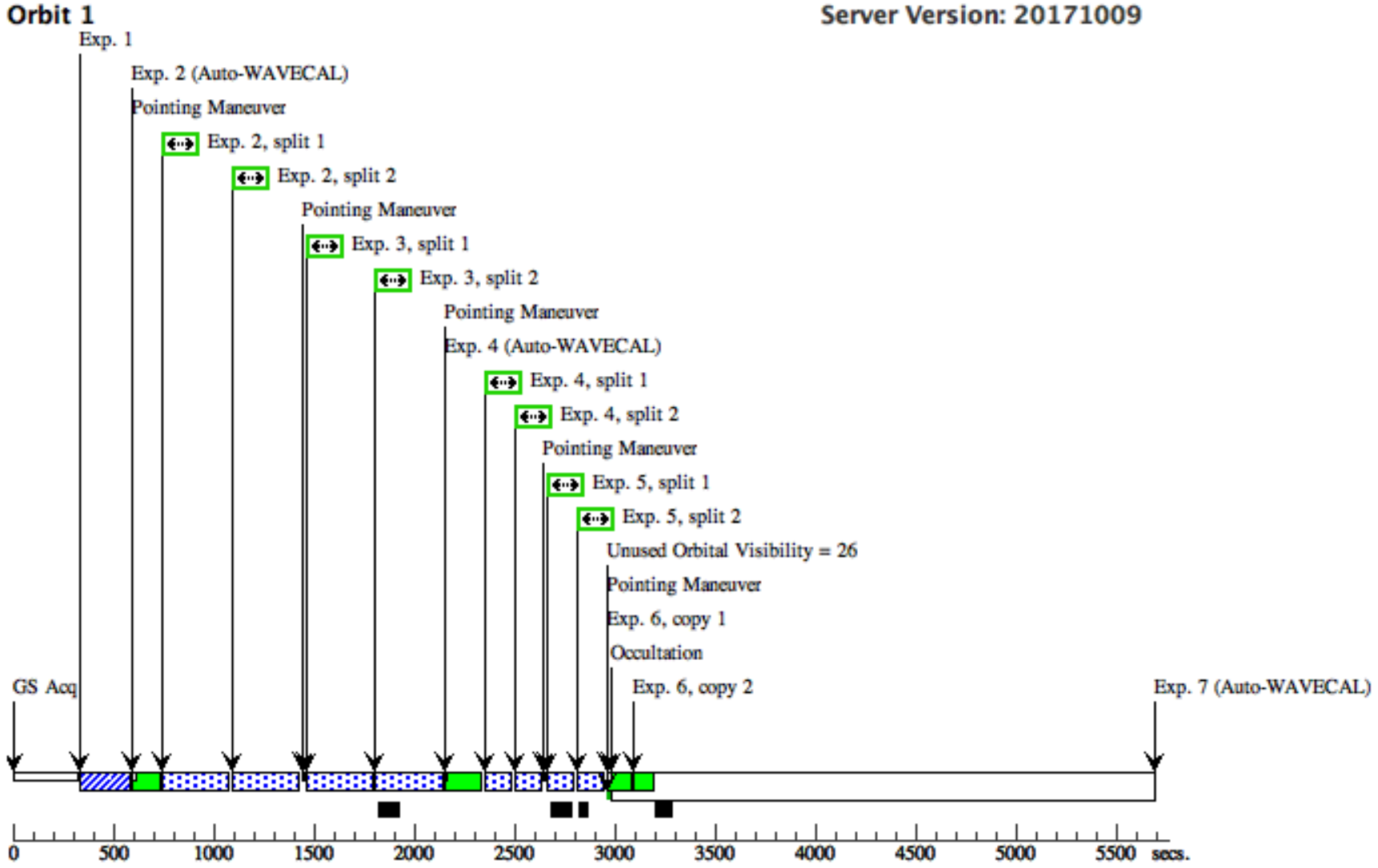
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

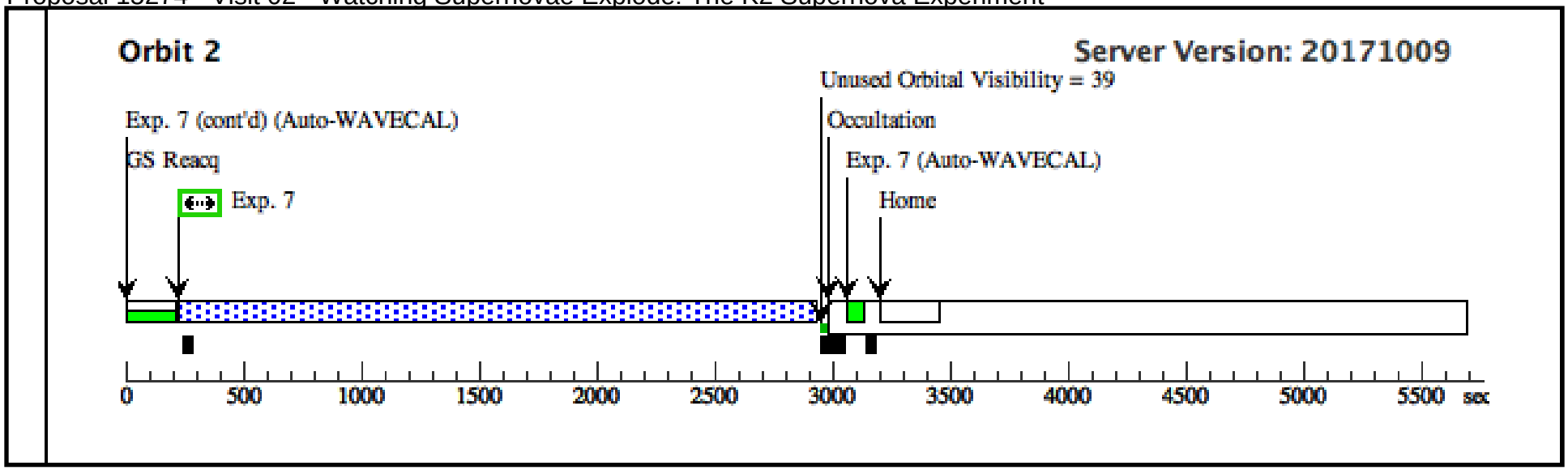
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1012458)	(3) KEPLER-SUPERNOVA	STIS/CCD, ACQ, 50CCD	MIRROR				1.2 Secs (1.2 Secs) *[==>]*	***[1]***
Comments: The exposure time is set for mag 17.0 can be easily changed to mag of supernova at time of activation.									
2		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
4		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2			200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
5		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0.0,0.5		200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
6		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
7	(STIS.sp.1012460)	(3) KEPLER-SUPERNOVA	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	***[2]***
Comments: This ETC run is assumed for type Ia spectrum @ -5 days before maximum normalized at mag 17. This exposure saturates or becomes too bright at mag 9.STIS.sp.1012470 *we are not expecting the SN to be brighter than 14.0* *we*									

Orbit Structure




Orbit 2
Server Version: 20171009
Unused Orbital Visibility = 39
Exp. 7 (cont'd) (Auto-WAVECAL)
GS Reacq
Exp. 7
Occultation
Exp. 7 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 11, implementation Sat Mar 17 01:00:46 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; AFTER 01 BY 2 D TO 4 D; SEQ 11,12 WITHIN 0.25 D; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: This visit is to scheduled 2- 4 days ater visit 1.
The SN will increase in brightness about 0.5 mags
we assume visit will be 17.0, therefore we assume 16.5 here.

On Hold Comments: please try to schedule asap

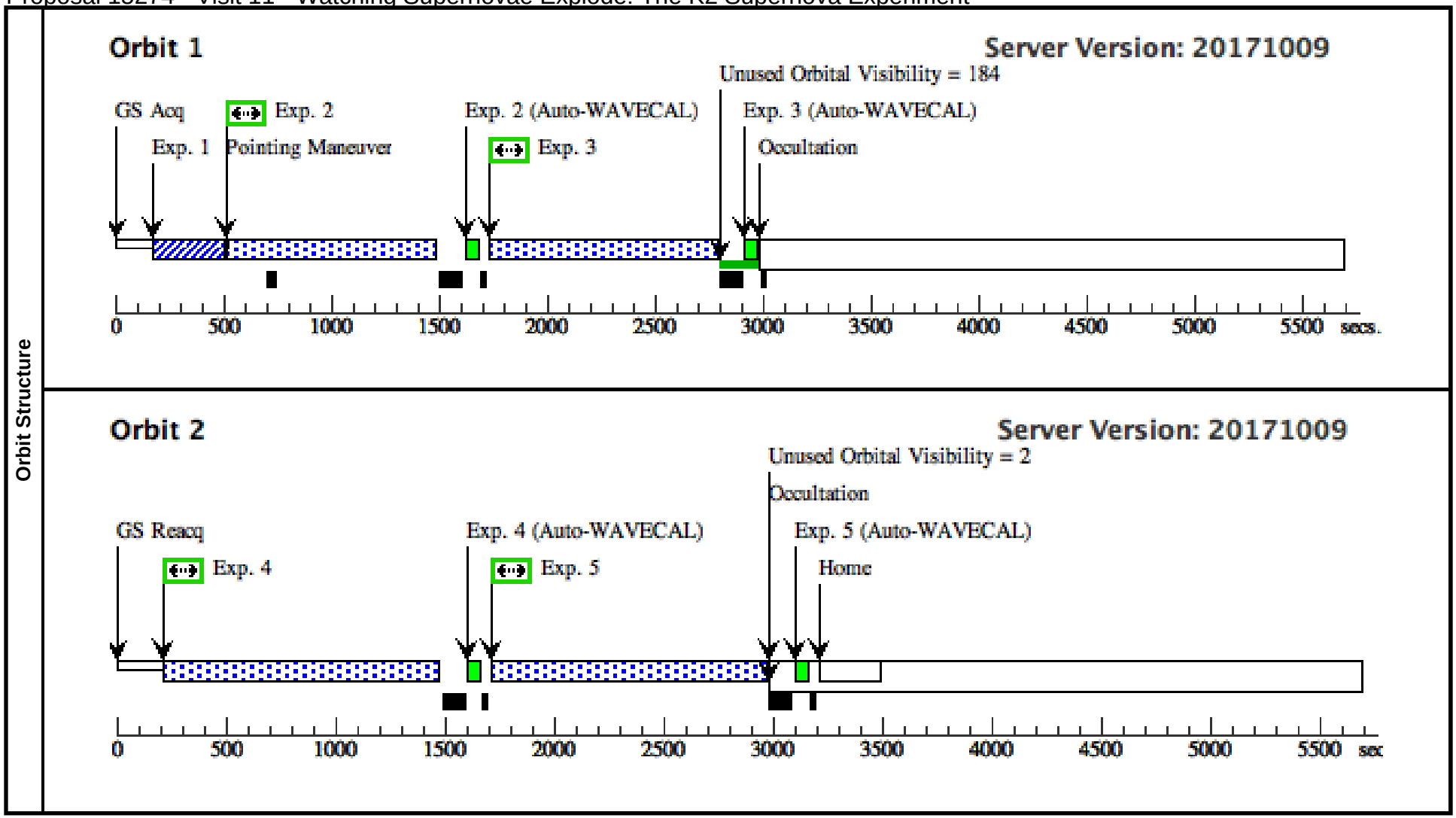
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1012452)	(3) KEPLER-SUPERNOVA	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				57 Secs (57 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1012479)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=1			800 Secs (800 Secs) *[==>]*	 ***[1]***
3	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=2			1000 Secs (1000 Secs) *[==>]*	 ***[1]***
4	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=3			1200 Secs (1200 Secs) *[==>]*	 ***[2]***
5	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=4			1200 Secs (1200 Secs) *[==>]*	 ***[2]***


Orbit Structure
Orbit 1
Server Version: 20171009
Unused Orbital Visibility = 184
GS Acq
Exp. 1
Exp. 2
Pointing Maneuver
Exp. 2 (Auto-WAVECAL)
Exp. 3
Exp. 3 (Auto-WAVECAL)
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20171009
Unused Orbital Visibility = 2
Occultation
GS Reacq
Exp. 4
Exp. 4 (Auto-WAVECAL)
Exp. 5
Exp. 5 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 12, implementation Sat Mar 17 01:00:46 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: The brightness of this supernova may baries from mag 18.5 to 15.0
This is only a change from 3.0 to 0.2 seconds in the STIS acquisition.
we used sn1992A HST STIS UV spectrum as input to the ETC.

On Hold Comments: please try to schedule as soon after visit 01 as possible

Fixed Targets

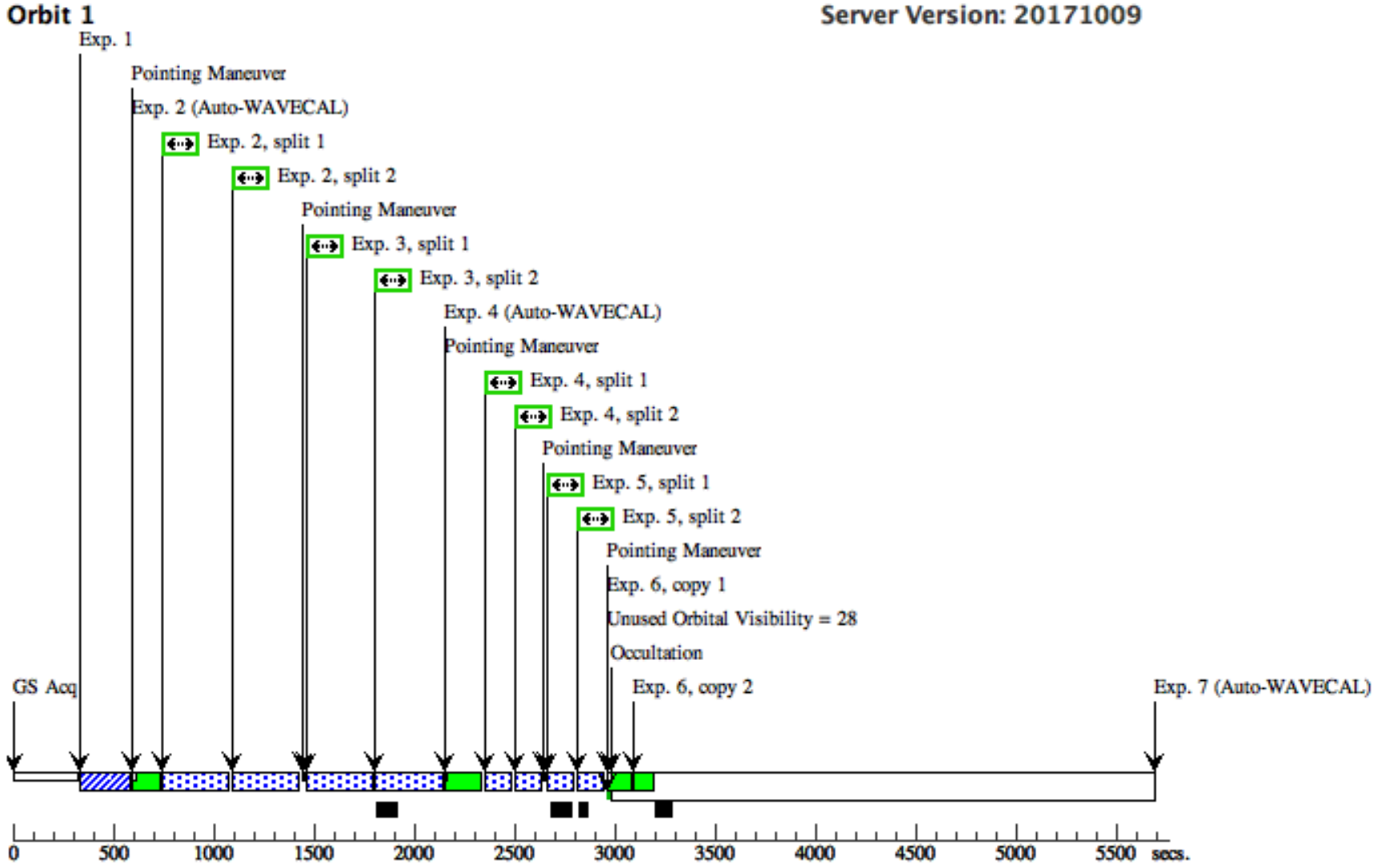
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

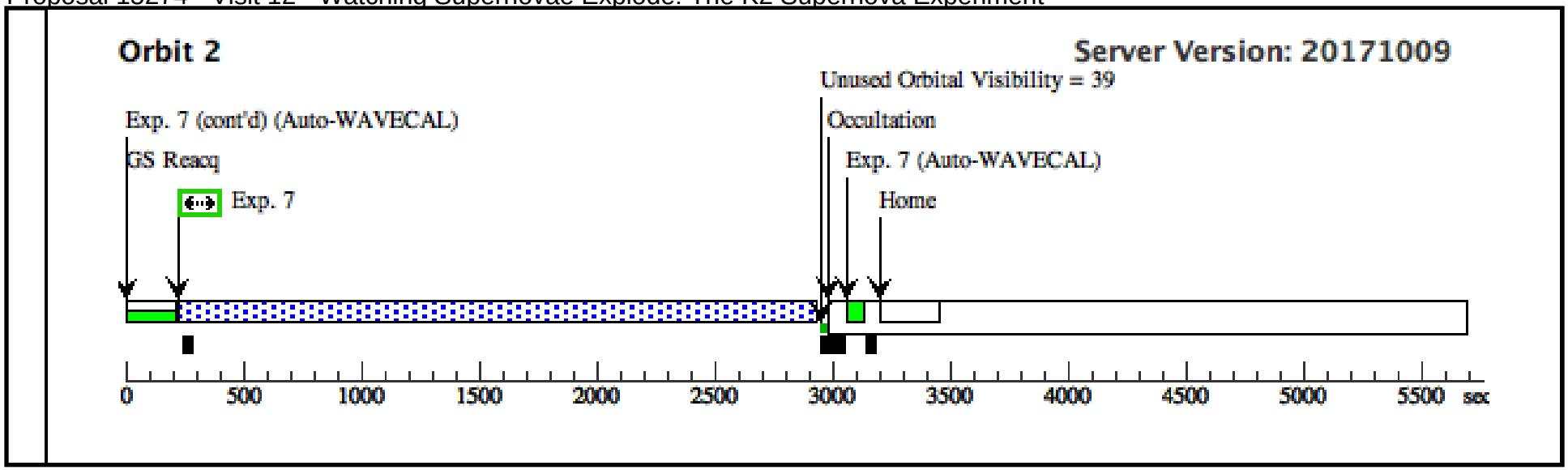
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1012471)	(3) KEPLER-SUPERNOVA	STIS/CCD, ACQ, 50CCD	MIRROR				0.8 Secs (0.8 Secs) *[==>]*	*[1]*
	Comments: The exposure time is set for mag 16.5 can be easily changed to mag of supernova at time of activation.								
2		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
4		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2			200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
5		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0.0,0.5		200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
6		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
7	(STIS.sp.1012460)	(3) KEPLER-SUPERNOVA	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	*[2]*
	Comments: This ETC run is assumed for type Ia spectrum @ -5 days before maximum normalized at mag 17. This exposure saturates or becomes too bright at mag 9.STIS.sp.1012470 *we are not expecting the SN to be brighter than 14.0* *we*								

Orbit Structure




Orbit 2
Server Version: 20171009
Unused Orbital Visibility = 39
Exp. 7 (cont'd) (Auto-WAVECAL)
GS Reacq
Exp. 7
Occultation
Exp. 7 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 21, implementation Sat Mar 17 01:00:46 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 01-DEC-2017:00:00:00 AND 01-JUL-2018:00:00:00; SEQ 21,22 WITHIN 0.25 D; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: Visit 21,22,31,32 are for a normal type IIPsupernova. Visit 21,22 are to be scheduled togethor and visit 31,32 scheduld together 2-4 days after visit 21.

On Hold Comments: please try to schedule asap

Fixed Targets

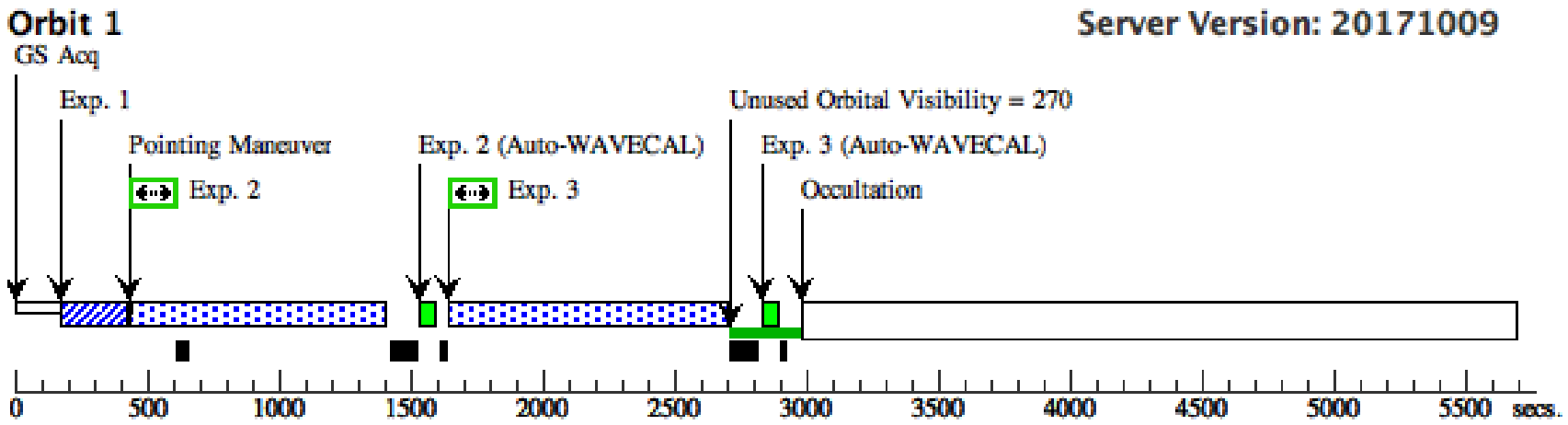
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

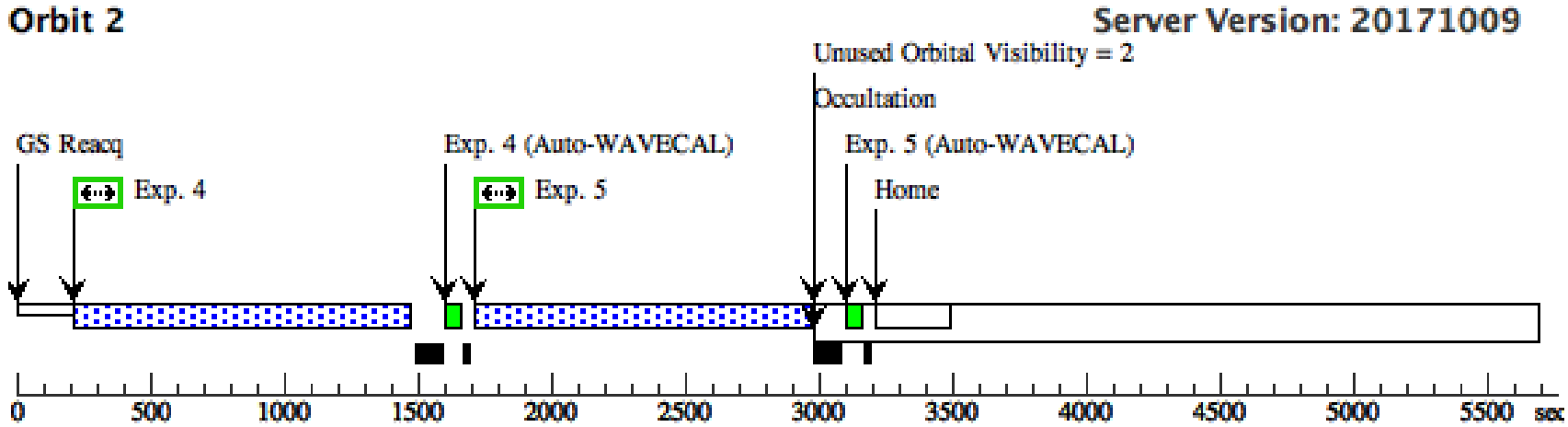
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1012501)	(3) KEPLER-SUPERNOVA	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				14.0 Secs (14 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1012510)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=1			800 Secs (800 Secs) *[==>]*	 ***[1]***
3	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=2			1000 Secs (1000 Secs) *[==>]*	 ***[1]***
4	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=3			1200 Secs (1200 Secs) *[==>]*	 ***[2]***
5	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=4			1200 Secs (1200 Secs) *[==>]*	 ***[2]***

Orbit Structure





Visit

Proposal 15274, Visit 22, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: The brightness of this supernova may baries from mag 18.5 to 15.0
This is only a change from 3.0 to 0.2 seconds in the STIS acquisition.

On Hold Comments: please try to schedule as soon after visit 01 as possible

Fixed Targets

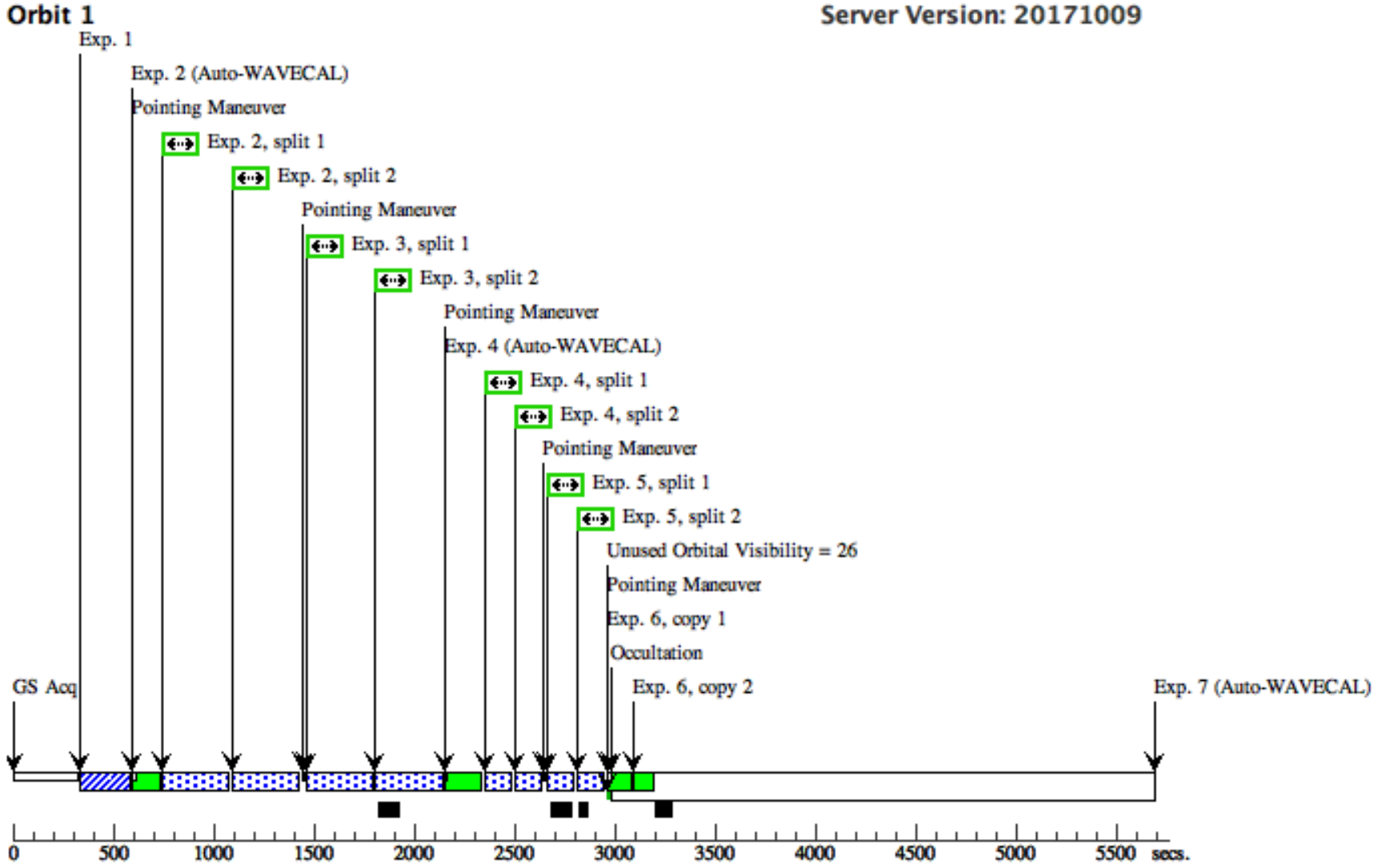
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

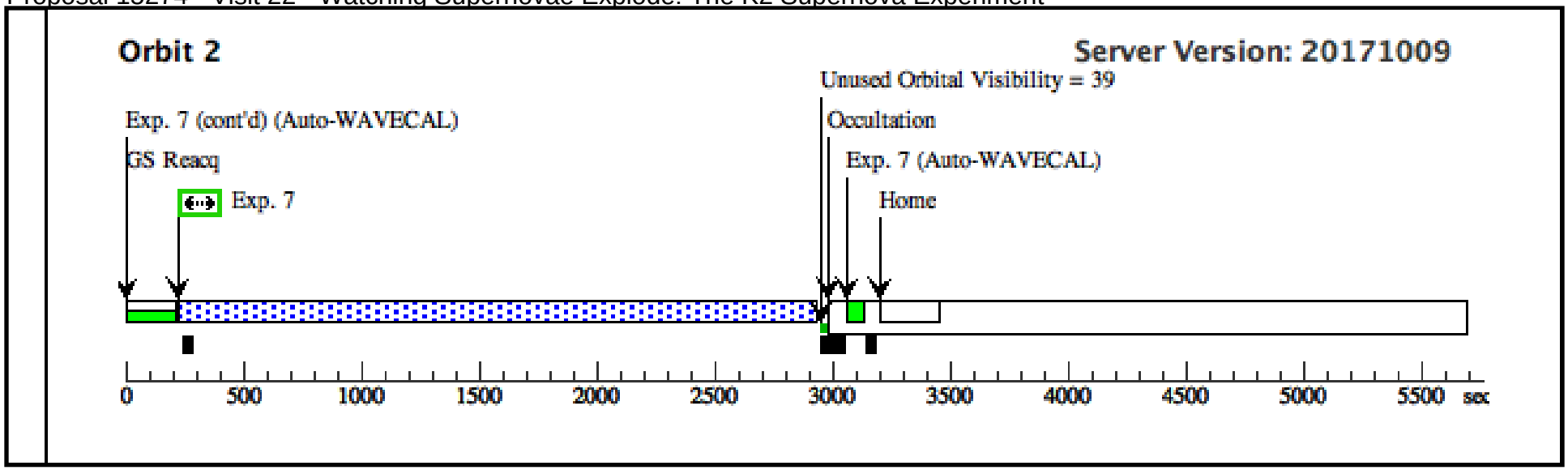
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1012458)	(3) KEPLER-SUPERNOVA	STIS/CCD, ACQ, 50CCD	MIRROR				1.2 Secs (1.2 Secs) *[==>]*	*[1]*
Comments: The exposure time is set for mag 17.0 can be easily changed to mag of supernova at time of activation.									
2		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
4		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2			200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
5		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0.0,0.5		200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
6		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
7	(STIS.sp.1012460)	(3) KEPLER-SUPERNOVA	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	*[2]*
Comments: This ETC run is assumed for type Ia spectrum @ -5 days before maximum normalized at mag 17. This exposure saturates or becomes too bright at mag 9.STIS.sp.1012470 we are not expecting the SN to be brighter than 14.0 we									

Orbit Structure




Orbit 2
Server Version: 20171009
Unused Orbital Visibility = 39
Exp. 7 (cont'd) (Auto-WAVECAL)
GS Reacq
Exp. 7
Occultation
Exp. 7 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 31, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; AFTER 01 BY 2 D TO 4 D; SEQ 31,32 WITHIN 0.25 D; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: This visit is to scheduled 2- 4 days ater visit 21

On Hold Comments: please try to schedule asap

Fixed Targets

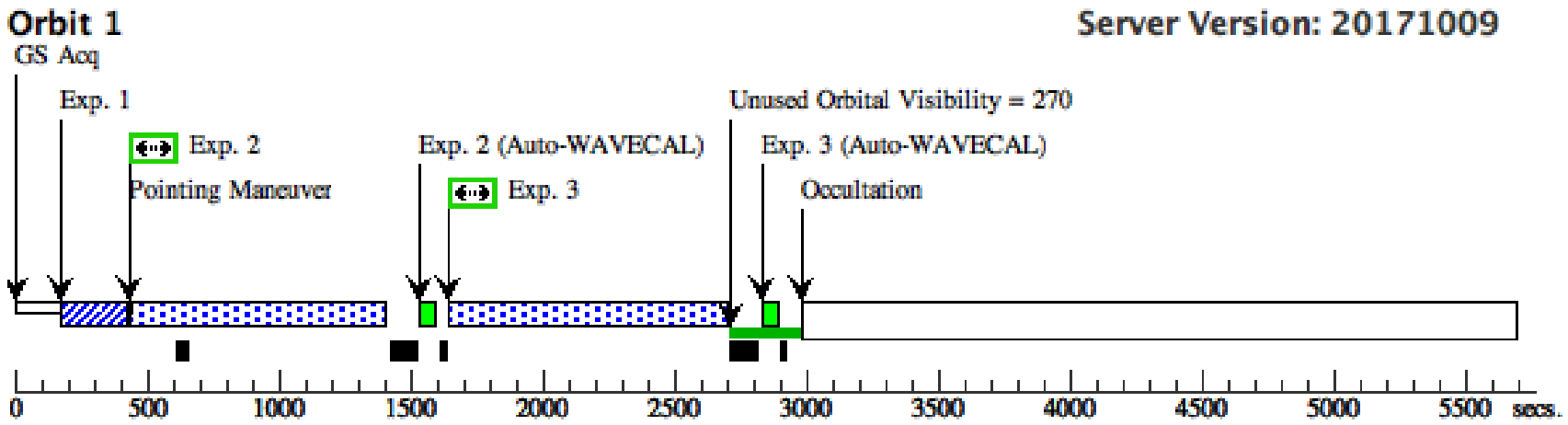
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

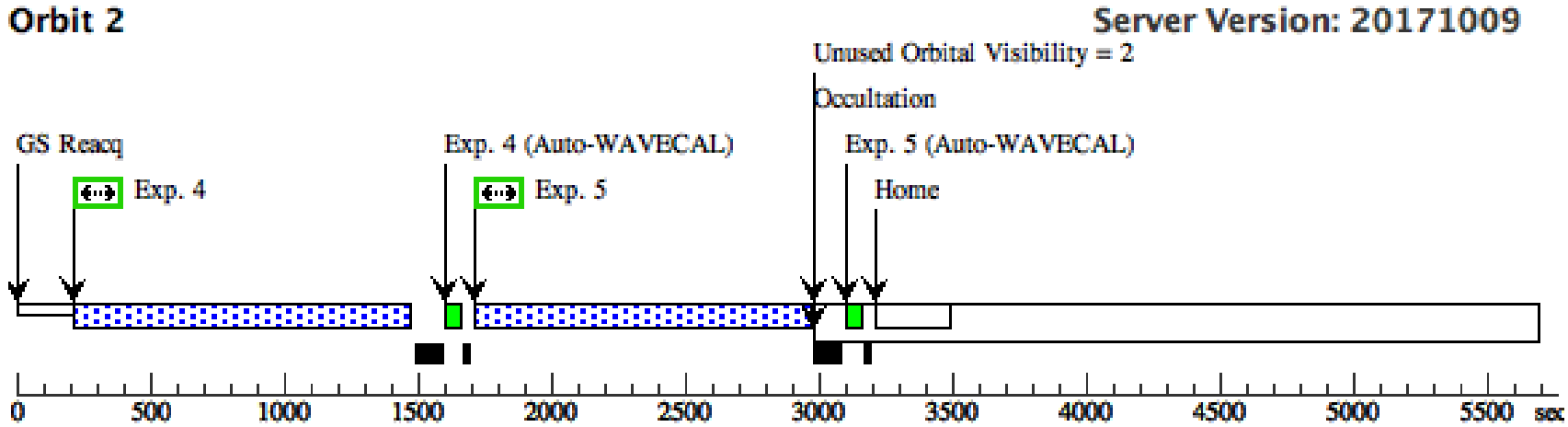
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.1012501)	(3) KEPLER-SUPERNOVA	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				14.0 Secs (14 Secs) *[==>]*	 ***[1]***
2	(COS.sp.1012479)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=1			800 Secs (800 Secs) *[==>]*	 ***[1]***
3	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=2			1000 Secs (1000 Secs) *[==>]*	 ***[1]***
4	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=3			1200 Secs (1200 Secs) *[==>]*	 ***[2]***
5	(COS.sp.1009826)	(3) KEPLER-SUPERNOVA	COS/FUV, ACCUM, PSA	G140L 1280 A	FP-POS=4			1200 Secs (1200 Secs) *[==>]*	 ***[2]***

Orbit Structure





Visit

Proposal 15274, Visit 32, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 1.0D

Comments: The brightness of this supernova may baries from mag 18.5 to 15.0
This is only a change from 3.0 to 0.2 seconds in the STIS acquisition.

On Hold Comments: please try to schedule as soon after visit 01 as possible

Fixed Targets

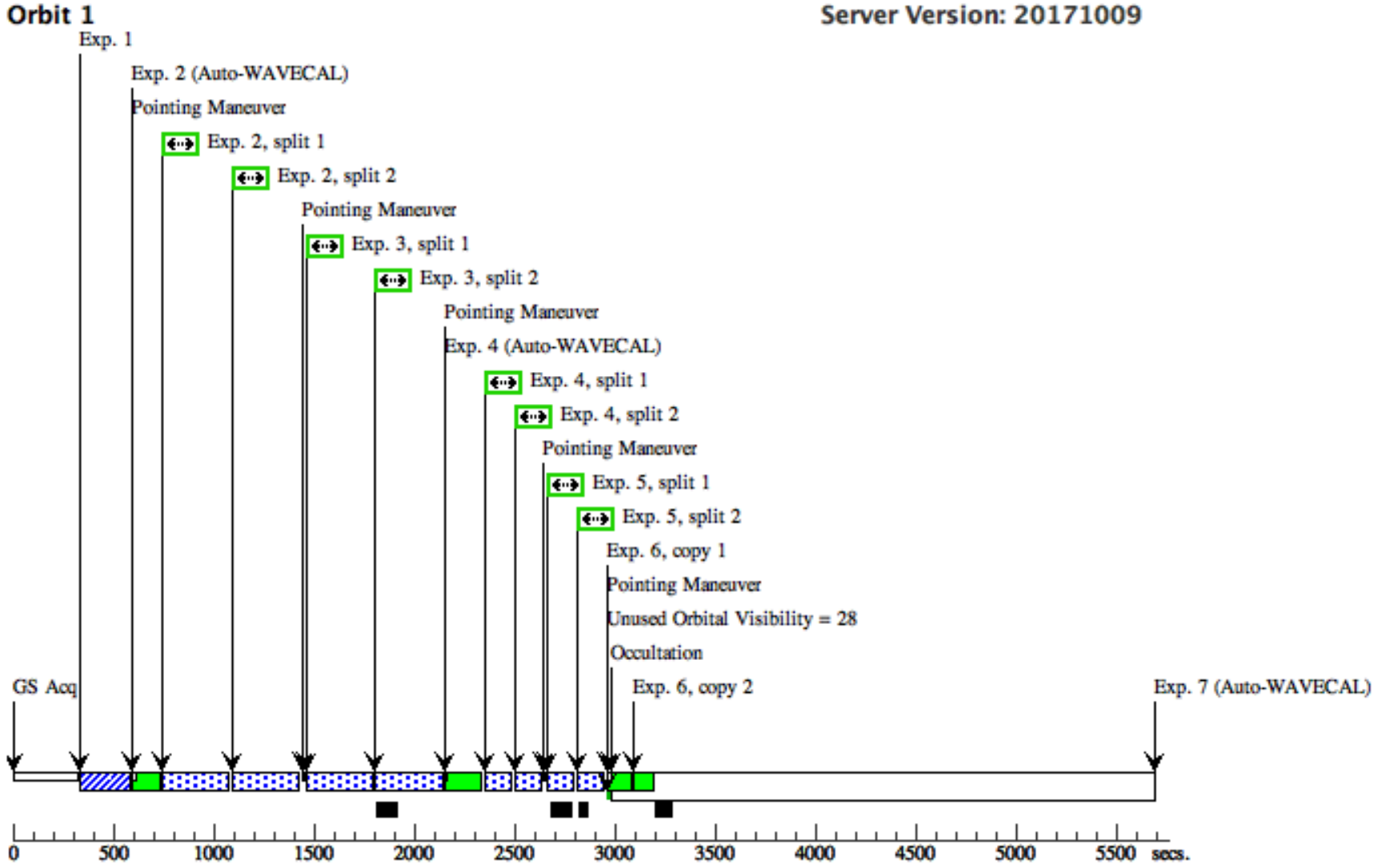
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	KEPLER-SUPERNOVA	RA: 08 54 50.0000 (133.7083333d) Dec: +18 31 31.00 (18.52528d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

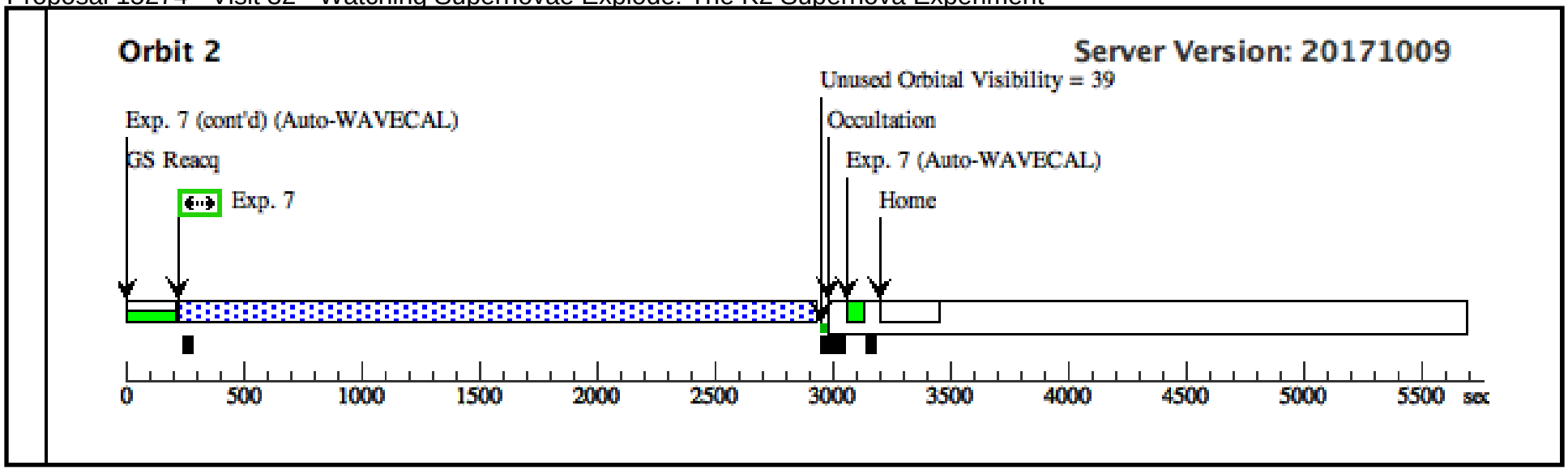
Comments: 08:54:50 +18:31:31 K16 field center
Category=EXT-STAR
Description=[SUPERNOVA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1012471)	(3) KEPLER-SUPERNOVA	STIS/CCD, ACQ, 50CCD	MIRROR				0.8 Secs (0.8 Secs) *[==>]*	*[1]*
Comments: The exposure time is set for mag 16.5 can be easily changed to mag of supernova at time of activation.									
2		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
4		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2			200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
5		(3) KEPLER-SUPERNOVA	STIS/CCD, ACCUM, 52X0.2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0.0,0.5		200 Secs (200 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
6		CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
7	(STIS.sp.1012460)	(3) KEPLER-SUPERNOVA	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	*[2]*
Comments: This ETC run is assumed for type Ia spectrum @ -5 days before maximum normalized at mag 17. This exposure saturates or becomes too bright at mag 9.STIS.sp.1012470 we are not expecting the SN to be brighter than 14.0 we									

Orbit Structure




Orbit 2
Server Version: 20171009
Unused Orbital Visibility = 39
Exp. 7 (cont'd) (Auto-WAVECAL)
GS Reacq
Exp. 7
Occultation
Exp. 7 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 41, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: SCHED 100%; ON HOLD

On Hold Comments: ToO, please schedule as soon as possible.

Fixed Targets

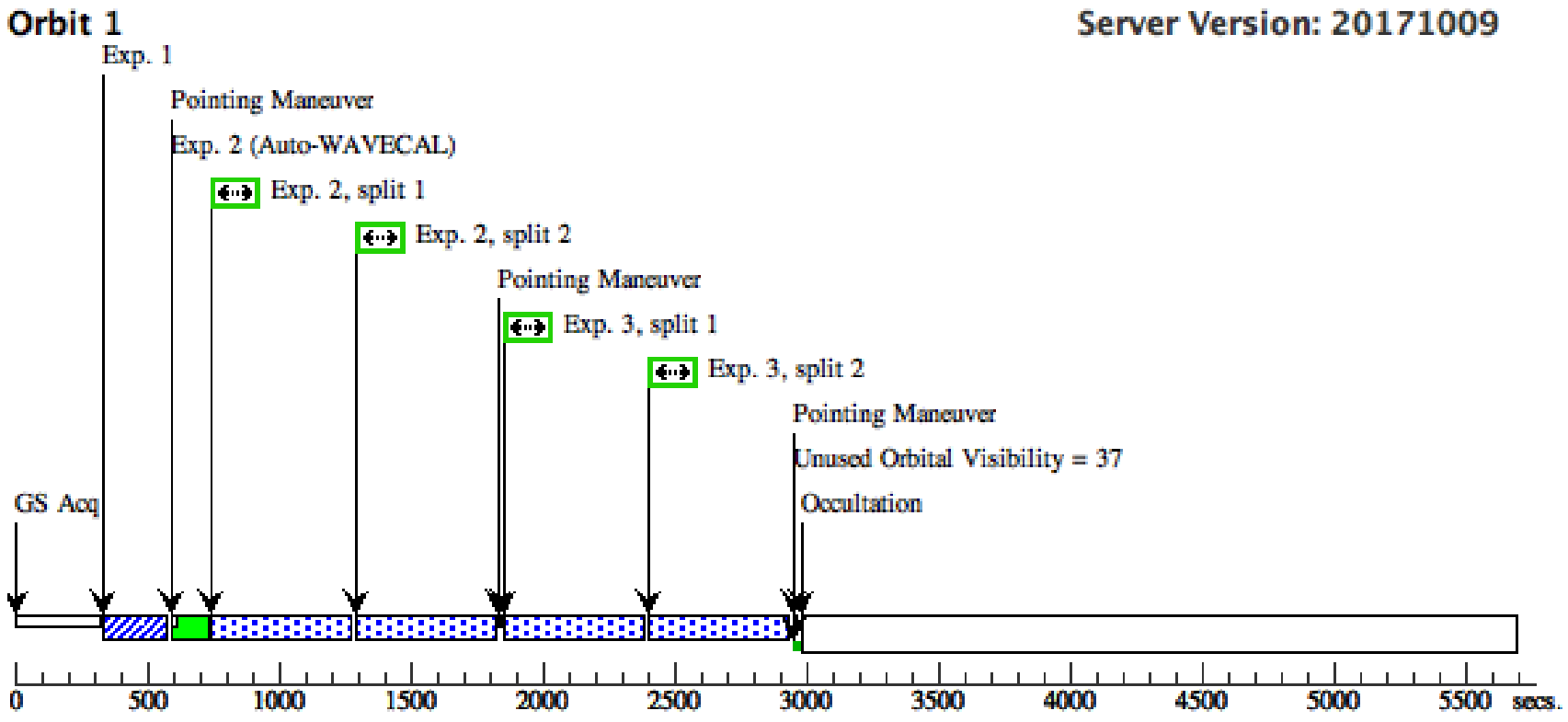
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	SN2018OH	RA: 09 06 39.5400 (136.6647500d) Dec: +19 20 17.77 (19.33827d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

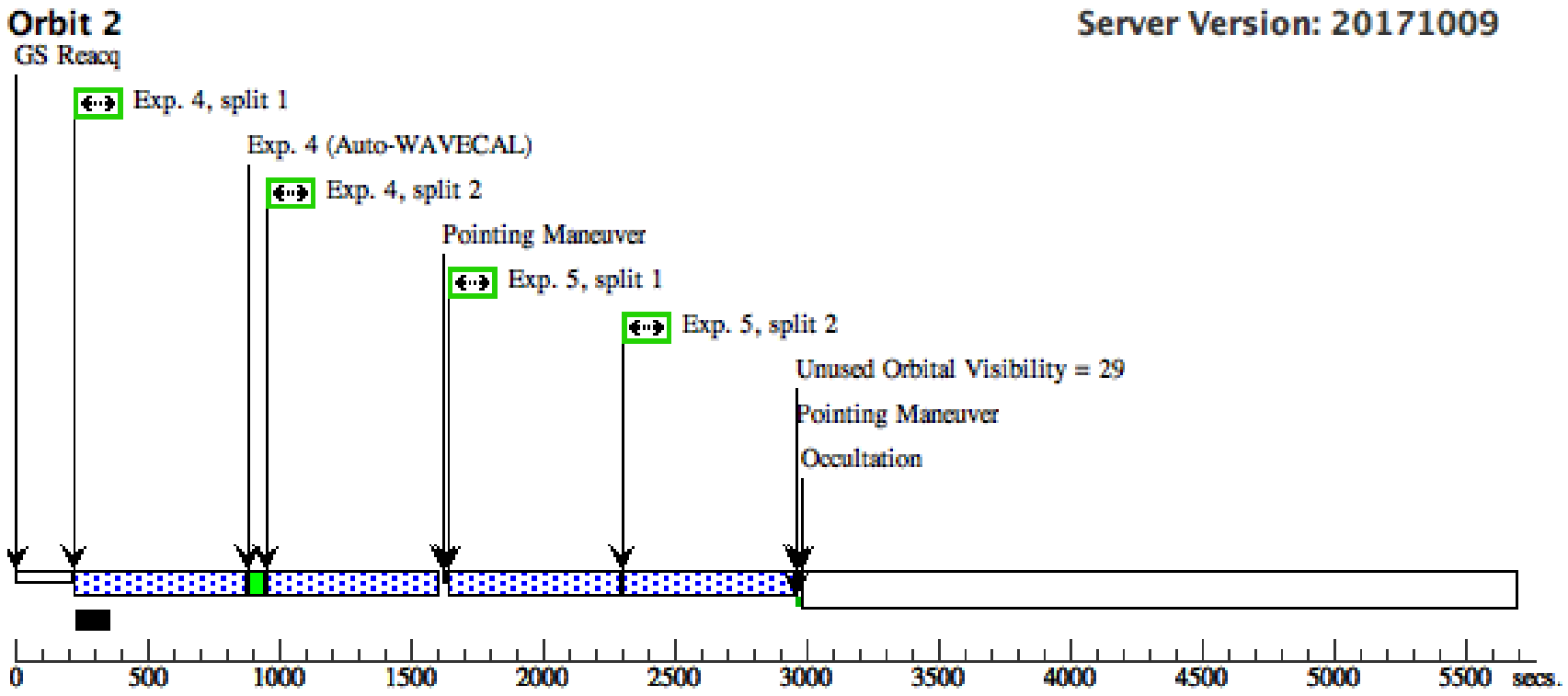
Comments:
Category=EXT-STAR
Description=[SUPERNOVA, SUPERNOVA TYPE IA]
Extended=NO

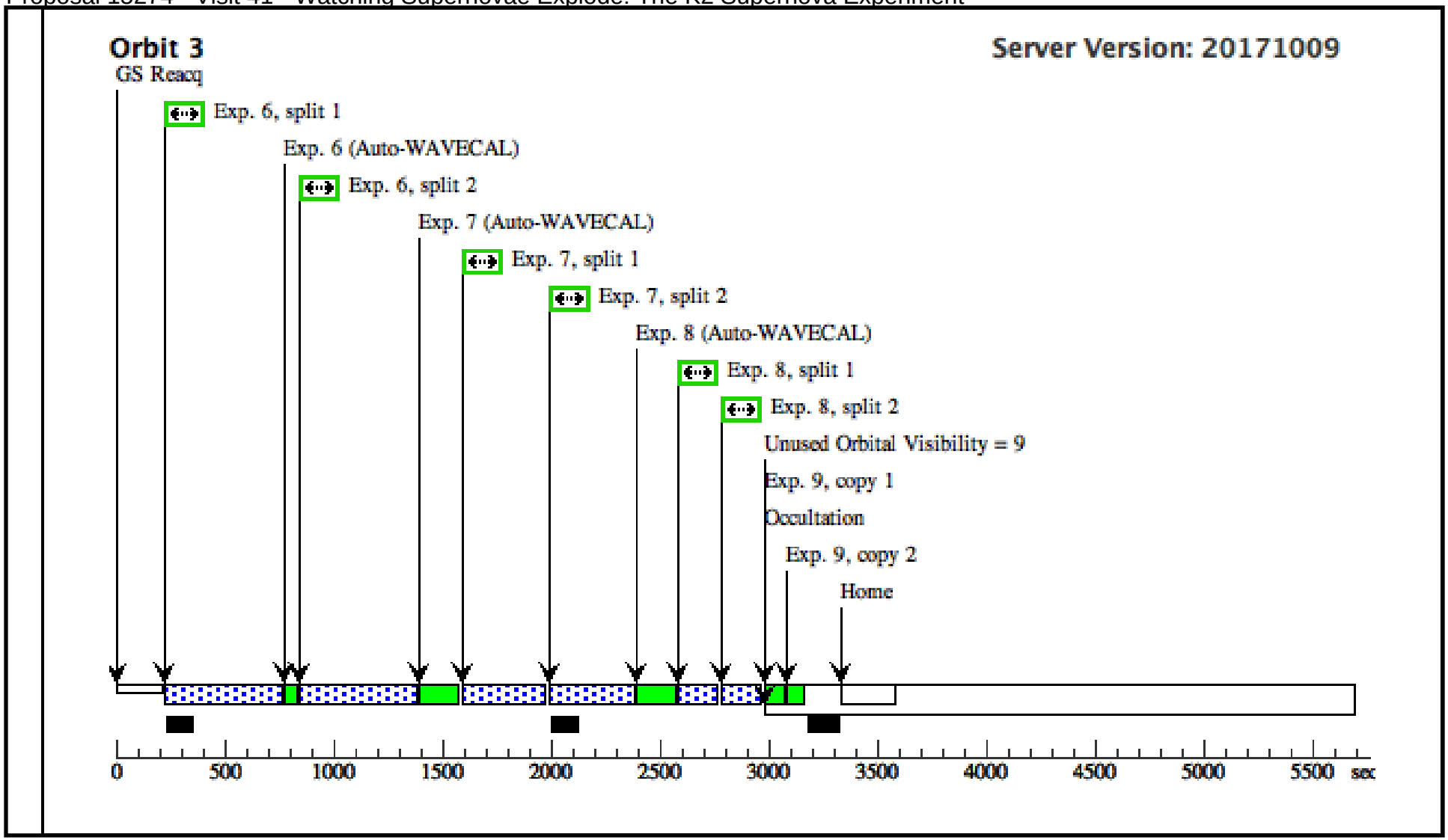
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1048390)	(4) SN2018OH	STIS/CCD, ACQ, 50CCD	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	***[1]***
Comments: The discovery mag was 15.15, at a phase of -8 days before max, Peak will be 14.7 about when this visit will execute. I used mag 15 for the STIS ETC									
2	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0.2		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
4	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,-0.2		1225 Secs (1225 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
5	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,-0.4		1225 Secs (1225 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
6	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[3]***
7	(STIS.sp.1048396)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0		700 Secs (700 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[3]***
8	(STIS.sp.1048400)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0		300 Secs (300 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[3]***
9		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***

Orbit Structure




Orbit 2
Server Version: 20171009
GS Reacq
Exp. 4, split 1
Exp. 4 (Auto-WAVECAL)
Exp. 4, split 2
Pointing Maneuver
Exp. 5, split 1
Exp. 5, split 2
Unused Orbital Visibility = 29
Pointing Maneuver
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20171009
GS Reacq
Exp. 6, split 1
Exp. 6 (Auto-WAVECAL)
Exp. 6, split 2
Exp. 7 (Auto-WAVECAL)
Exp. 7, split 1
Exp. 7, split 2
Exp. 8 (Auto-WAVECAL)
Exp. 8, split 1
Exp. 8, split 2
Unused Orbital Visibility = 9
Exp. 9, copy 1
Occultation
Exp. 9, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 42, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: SCHED 100%; ON HOLD

Comments: The AFTER visit 41 requirement can be deleted if need be.

On Hold Comments: ToO

Fixed Targets

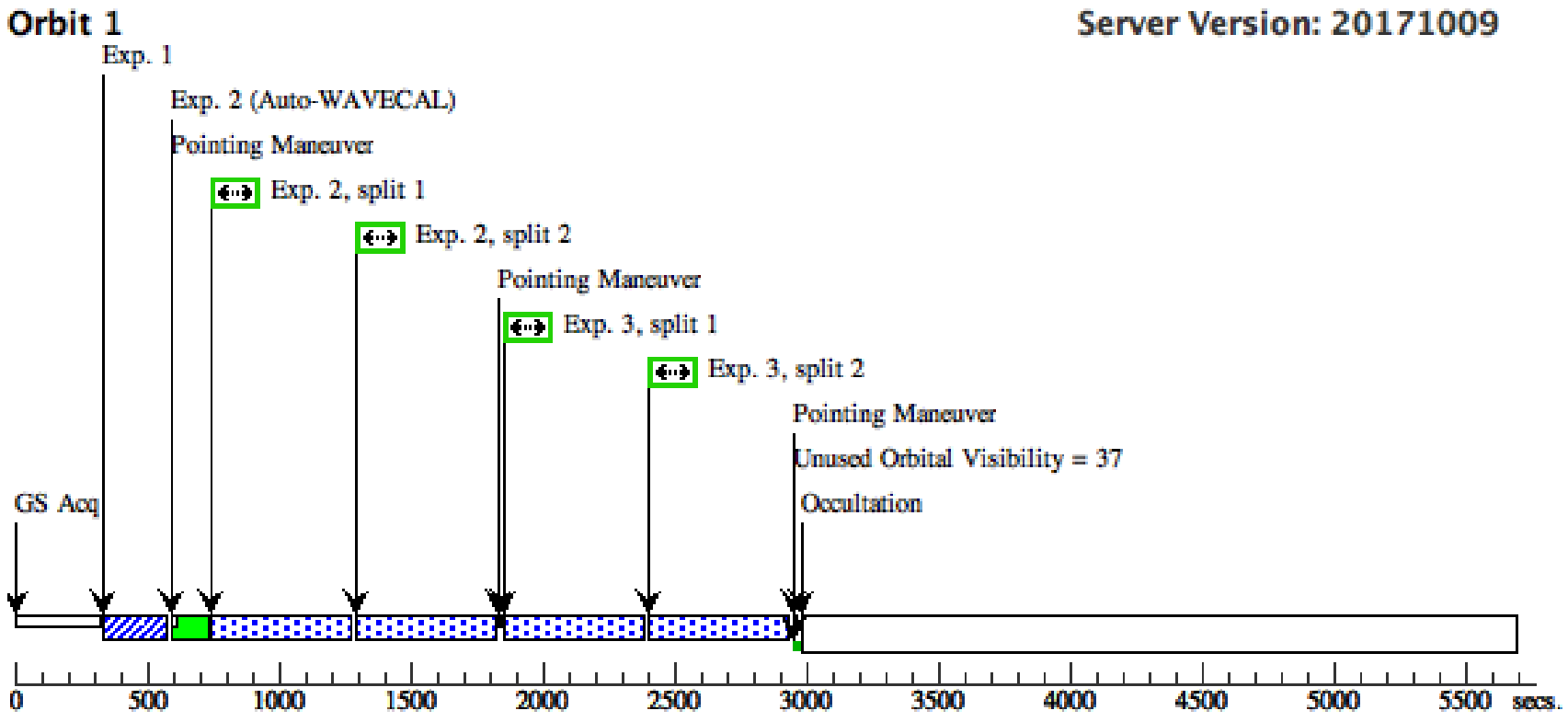
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	SN2018OH	RA: 09 06 39.5400 (136.6647500d) Dec: +19 20 17.77 (19.33827d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

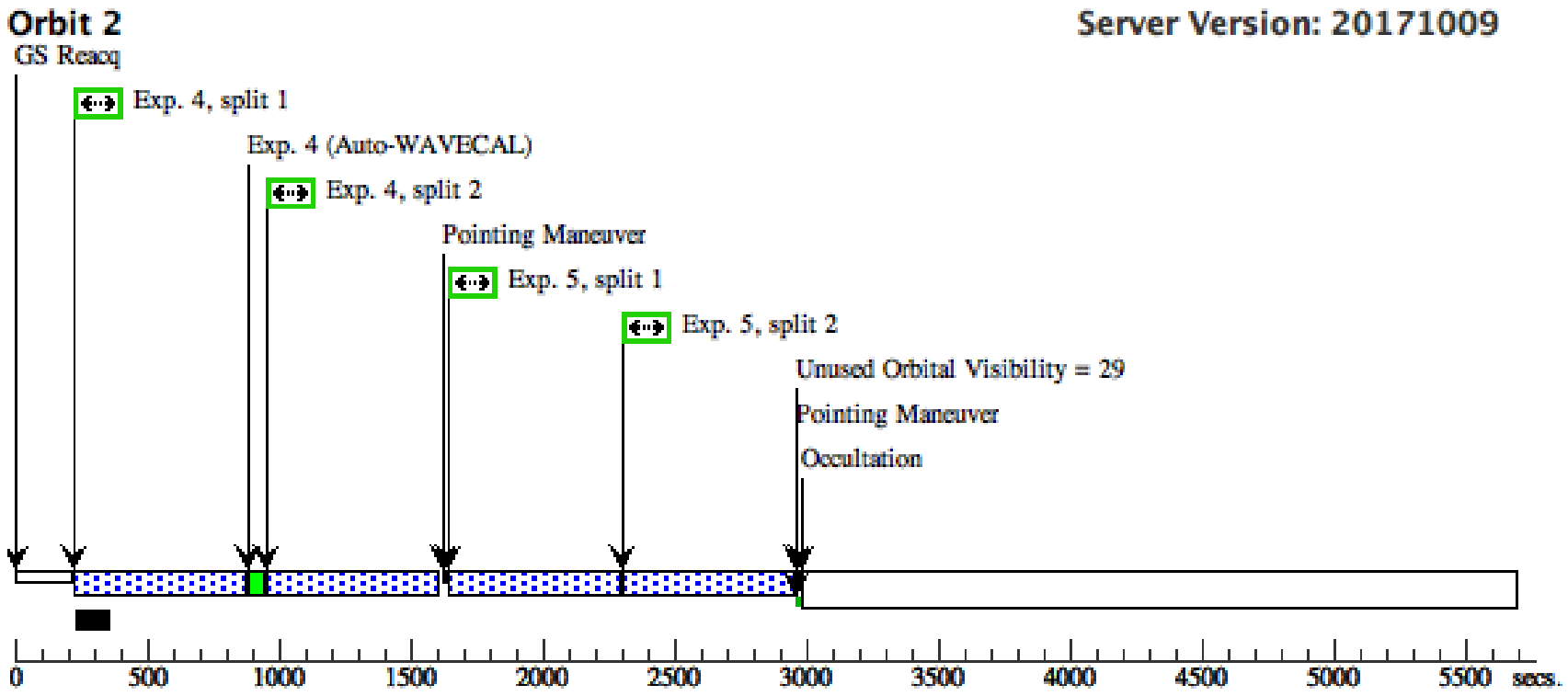
Comments:
Category=EXT-STAR
Description=[SUPERNOVA, SUPERNOVA TYPE IA]
Extended=NO

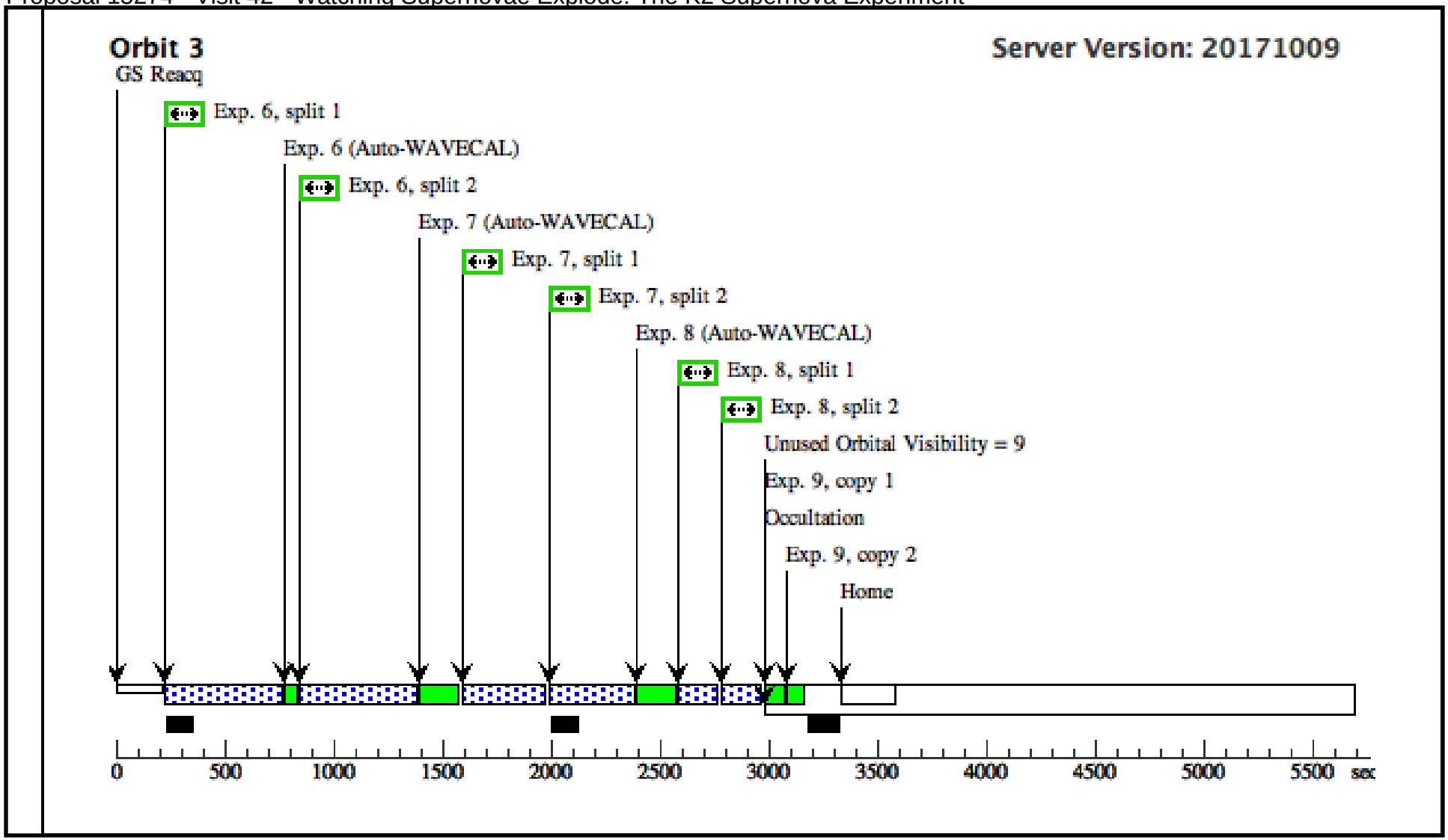
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1048390)	(4) SN2018OH	STIS/CCD, ACQ, 50CCD	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
	Comments: The discovery mag was 15.15, at a phase of -8 days before max, Peak will be 14.7 about when this visit will execute. I used mag 15 for the STIS ETC								
2	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0.2		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
4	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,-0.2		1225 Secs (1225 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[2]*
5	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,-0.4		1225 Secs (1225 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[2]*
6	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[3]*
7	(STIS.sp.1048396)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0		700 Secs (700 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[3]*
8	(STIS.sp.1048400)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0		300 Secs (300 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[3]*
9		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	*[3]*

Orbit Structure




Orbit 2
Server Version: 20171009
GS Reacq
Exp. 4, split 1
Exp. 4 (Auto-WAVECAL)
Exp. 4, split 2
Pointing Maneuver
Exp. 5, split 1
Exp. 5, split 2
Unused Orbital Visibility = 29
Pointing Maneuver
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20171009
GS Reacq
Exp. 6, split 1
Exp. 6 (Auto-WAVECAL)
Exp. 6, split 2
Exp. 7 (Auto-WAVECAL)
Exp. 7, split 1
Exp. 7, split 2
Exp. 8 (Auto-WAVECAL)
Exp. 8, split 1
Exp. 8, split 2
Unused Orbital Visibility = 9
Exp. 9, copy 1
Occultation
Exp. 9, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 43, implementation Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD

Special Requirements: SCHED 100%; ON HOLD

Comments: The AFTER visit 41 requirement can be deleted if need be.

On Hold Comments: ToO

Fixed Targets

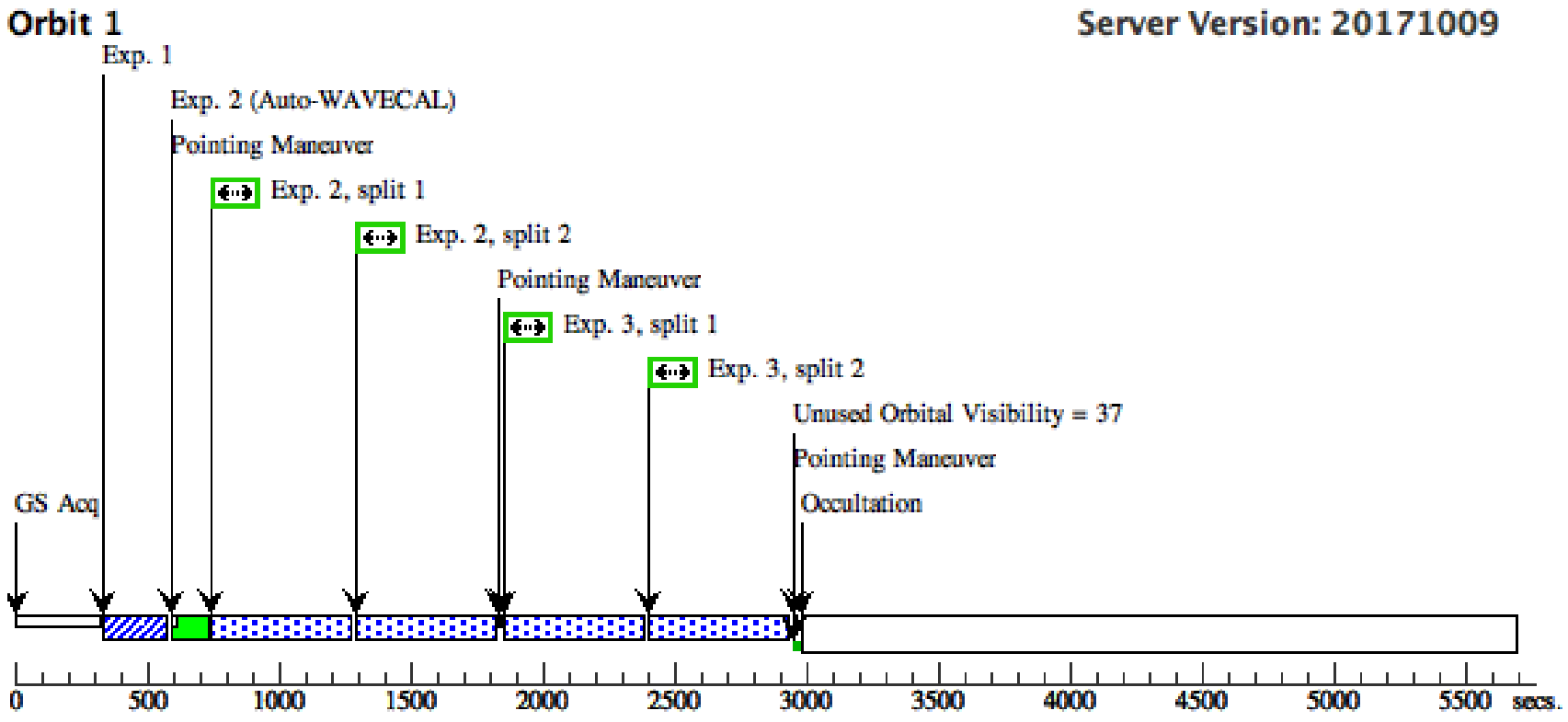
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	SN2018OH	RA: 09 06 39.5400 (136.6647500d) Dec: +19 20 17.77 (19.33827d) Equinox: J2000		V=18.0+/-0.5	Reference Frame: ICRS

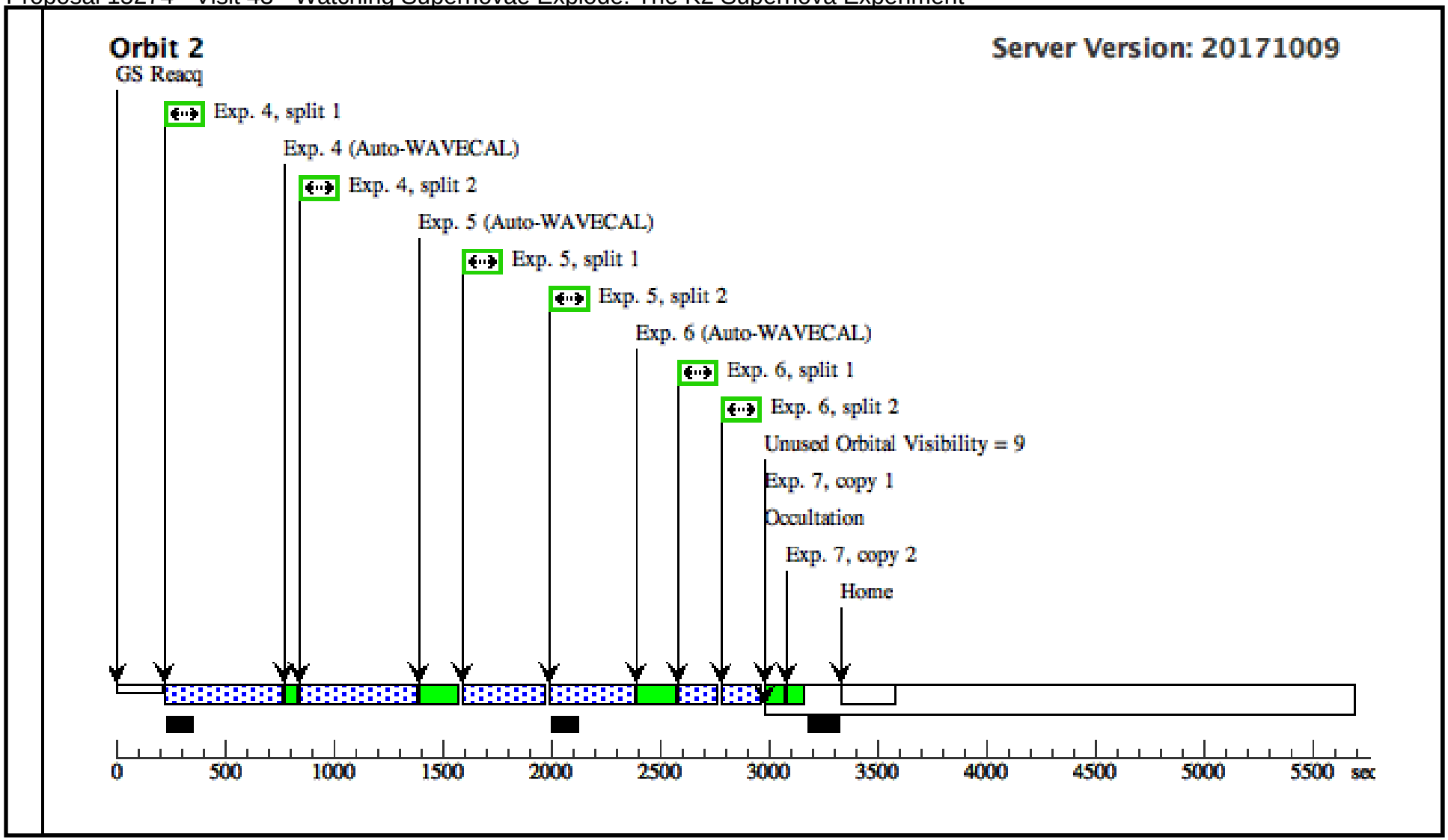
Comments:
Category=EXT-STAR
Description=[SUPERNOVA, SUPERNOVA TYPE IA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(STIS.ta.1048390)	(4) SN2018OH	STIS/CCD, ACQ, 50CCD	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	***[1]***
Comments: The discovery mag was 15.15, at a phase of -8 days before max, Peak will be 14.7 about when this visit will execute. I used mag 15 for the STIS ETC									
2	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0.2		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
4	(STIS.sp.1048392)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G230LB 2375 A	CR-SPLIT=2	POS TARG 0,0		1000 Secs (1000 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
5	(STIS.sp.1048396)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0		700 Secs (700 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
6	(STIS.sp.1048400)	(4) SN2018OH	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0		300 Secs (300 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
7		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***

Orbit Structure




Orbit 2
Server Version: 20171009
GS Reacq
Exp. 4, split 1
Exp. 4 (Auto-WAVECAL)
Exp. 4, split 2
Exp. 5 (Auto-WAVECAL)
Exp. 5, split 1
Exp. 5, split 2
Exp. 6 (Auto-WAVECAL)
Exp. 6, split 1
Exp. 6, split 2
Unused Orbital Visibility = 9
Exp. 7, copy 1
Occultation
Exp. 7, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 50 Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ON HOLD

On Hold Comments: ToO

Fixed Targets

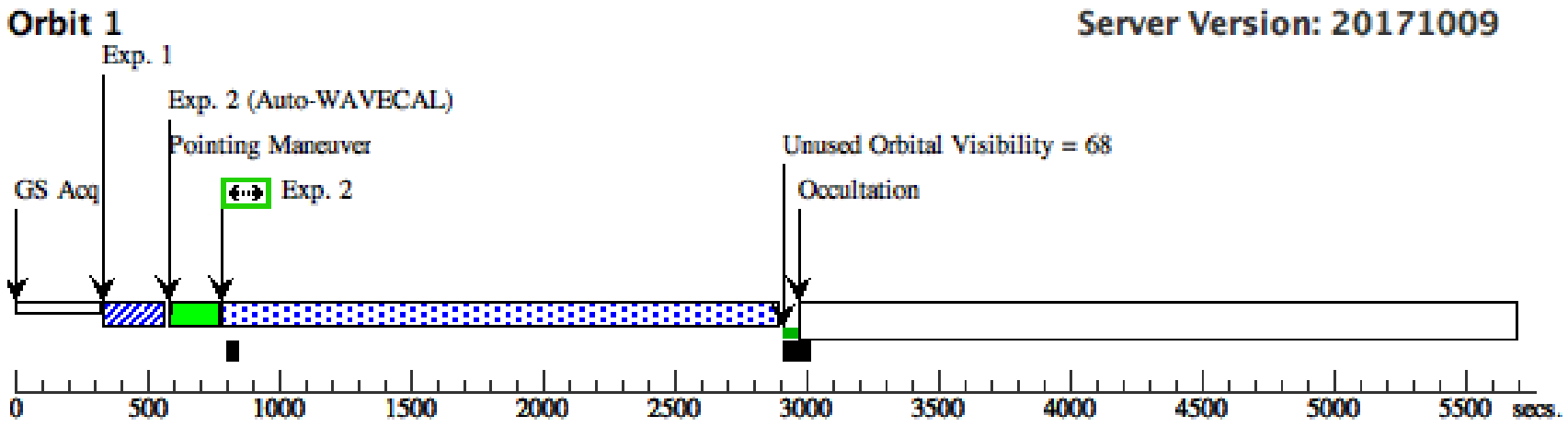
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	SNAT2018AGK	RA: 13 10 36.3860 (197.6516083d) Dec: -04 29 8.67 (-4.48574d) Equinox: J2000		V=17	Reference Frame: ICRS

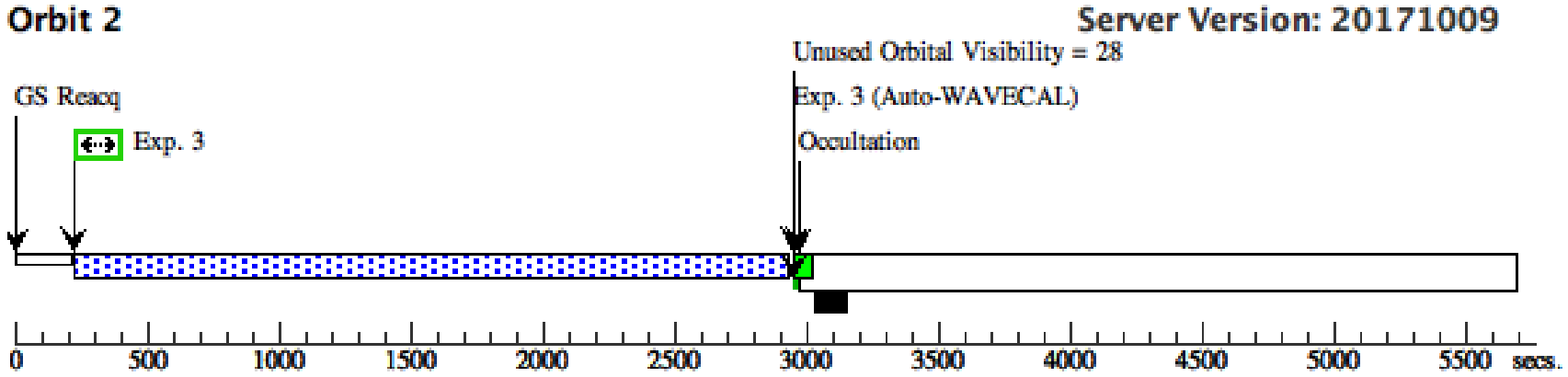
Comments: type Ia discovered at mag 20. on march 8 2018
peak will be about 15th mag, on march 23 2018
Category=EXT-STAR
Description=[SUPERNOVA]

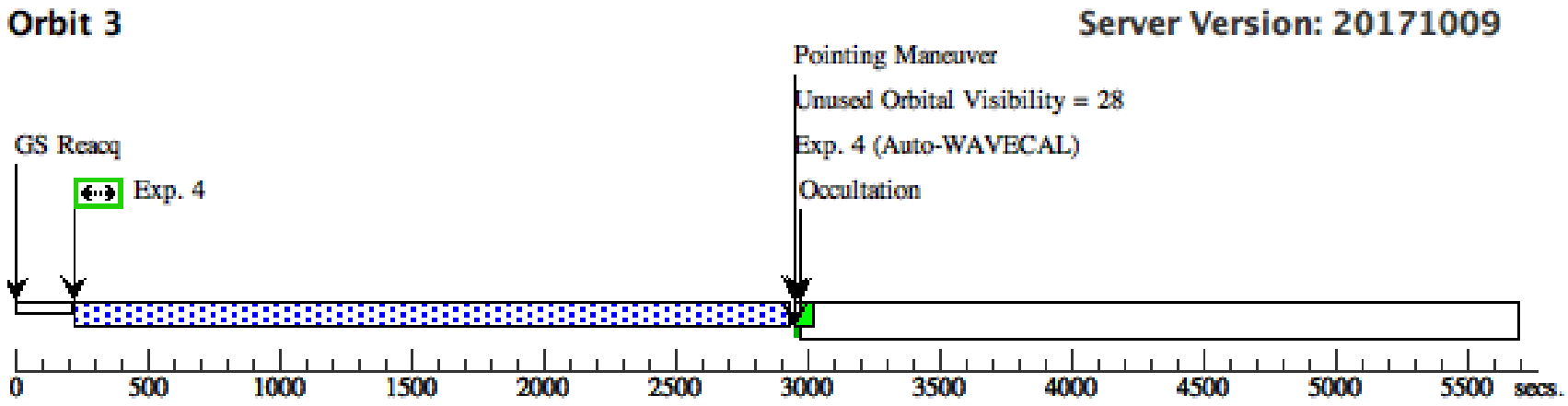
Exposures

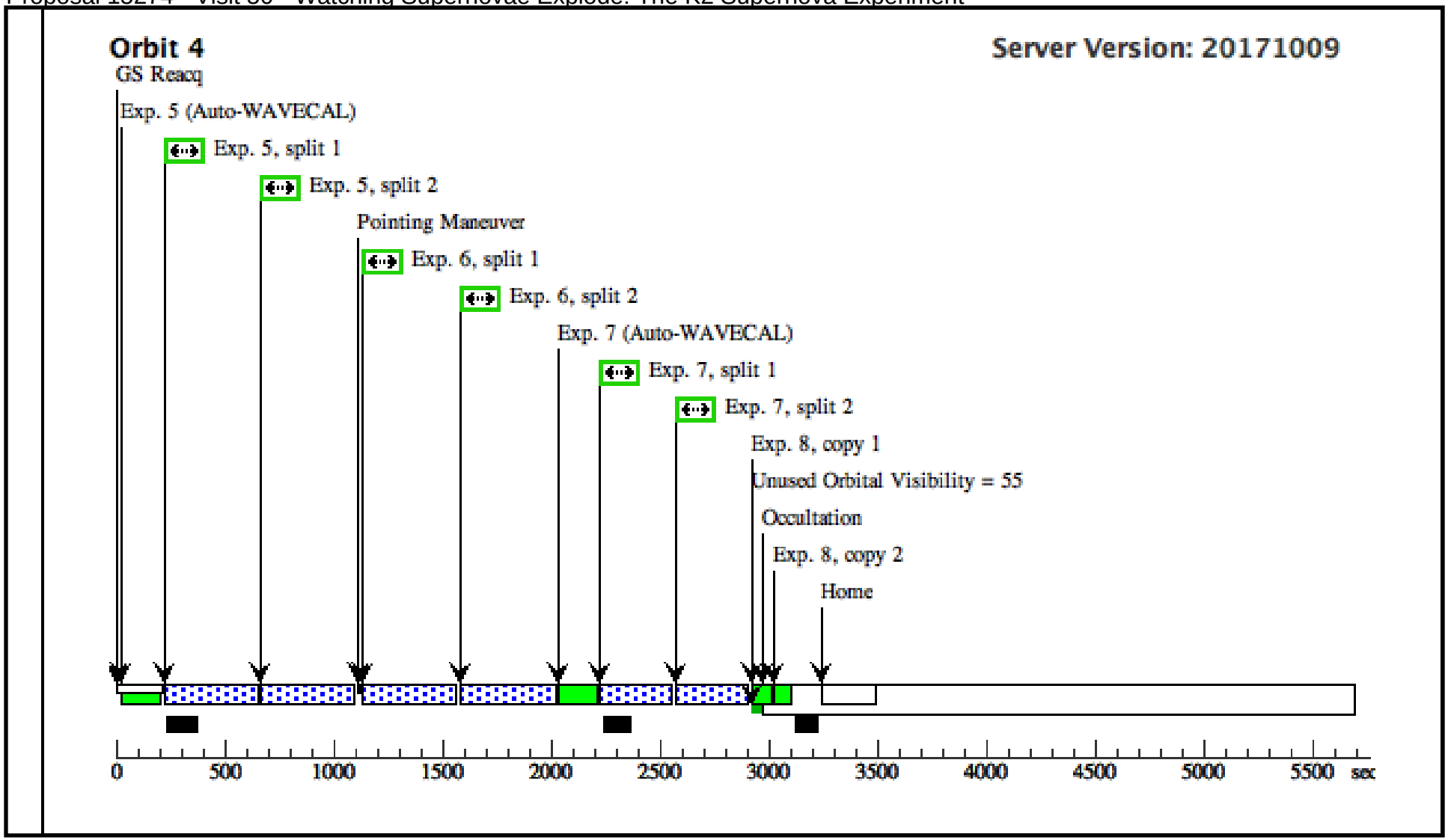
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) SNAT2018AGK	STIS/CCD, ACQ, F28X50LP	MIRROR				2 Secs (2 Secs) *[==>]*	***[1]***
Comments: mag about 17 the mag									
2	(STIS.sp.11 53766)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2100 Secs (2100 Secs) *[==>]*	***[1]***
Comments: mag about 17th									
3	(STIS.sp.11 53766)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	***[2]***
Comments: mag about 17th									
4	(STIS.sp.11 53766)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	***[3]***
Comments: mag about 17th									
5		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			800 Secs (800 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
6		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		800 Secs (800 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
7		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
8		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20171009
Pointing Maneuver
Unused Orbital Visibility = 28
Exp. 4 (Auto-WAVECAL)
Occultation
GS Reacq
Exp. 4
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 4
Server Version: 20171009
GS Reacq
Exp. 5 (Auto-WAVECAL)
Exp. 5, split 1
Exp. 5, split 2
Pointing Maneuver
Exp. 6, split 1
Exp. 6, split 2
Exp. 7 (Auto-WAVECAL)
Exp. 7, split 1
Exp. 7, split 2
Exp. 8, copy 1
Unused Orbital Visibility = 55
Occultation
Exp. 8, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15274, Visit 51 Sat Mar 17 01:00:47 GMT 2018

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; AFTER 50 BY 4 D TO 6 D; ON HOLD

On Hold Comments: ToO

Fixed Targets

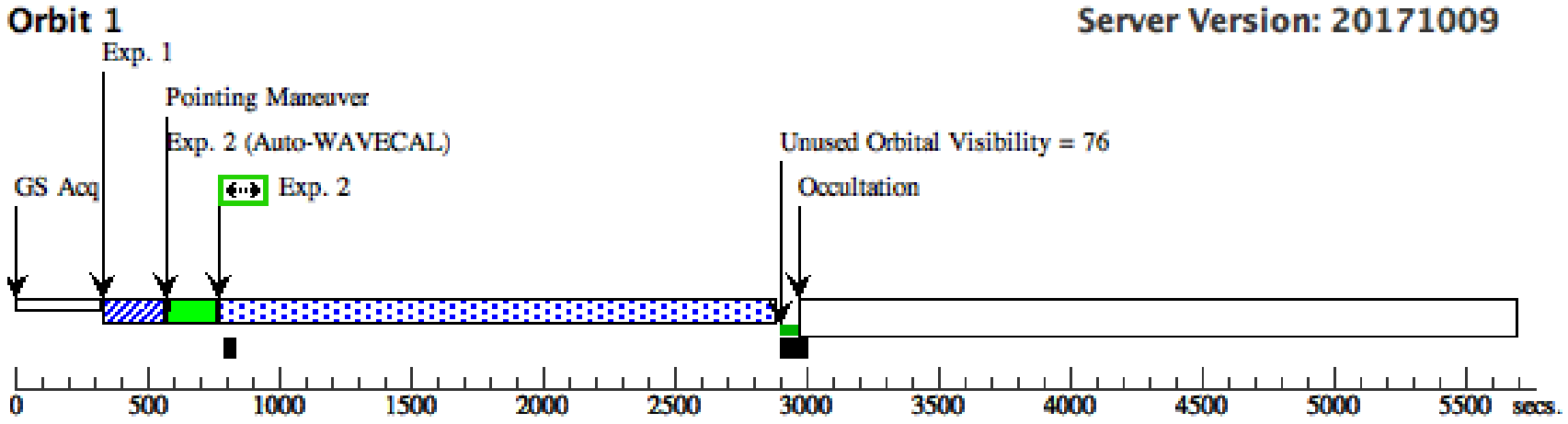
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	SNAT2018AGK	RA: 13 10 36.3860 (197.6516083d) Dec: -04 29 8.67 (-4.48574d) Equinox: J2000		V=17	Reference Frame: ICRS

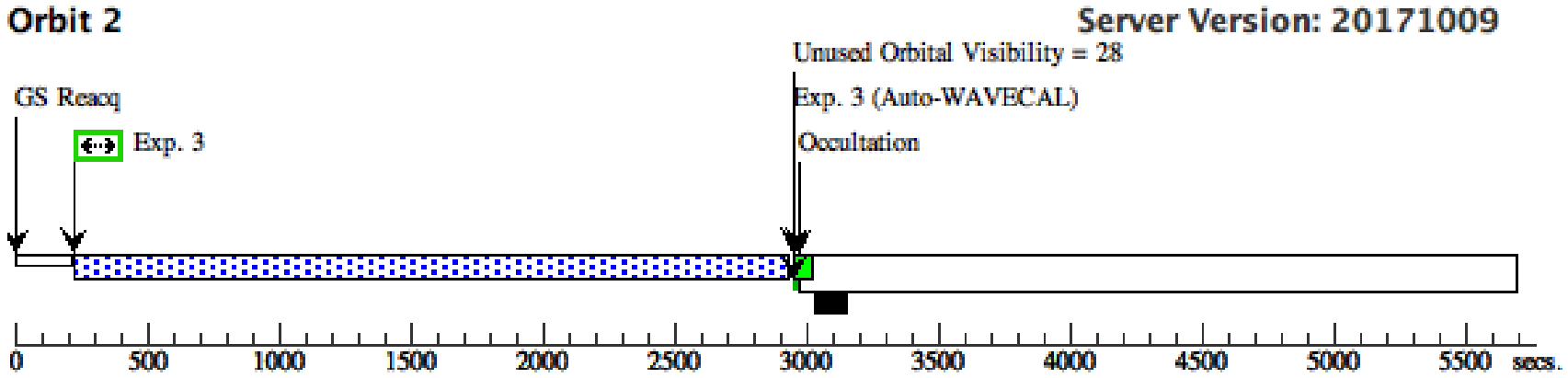
Comments: type Ia discovered at mag 20. on march 8 2018
peak will be about 15th mag, on march 23 2018
Category=EXT-STAR
Description=[SUPERNOVA]

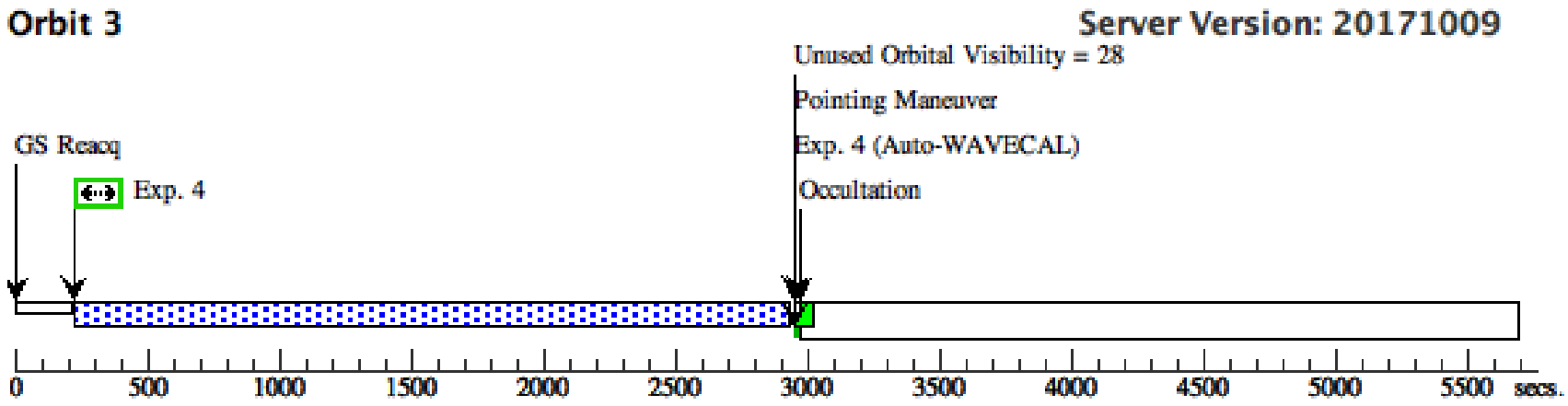
Exposures

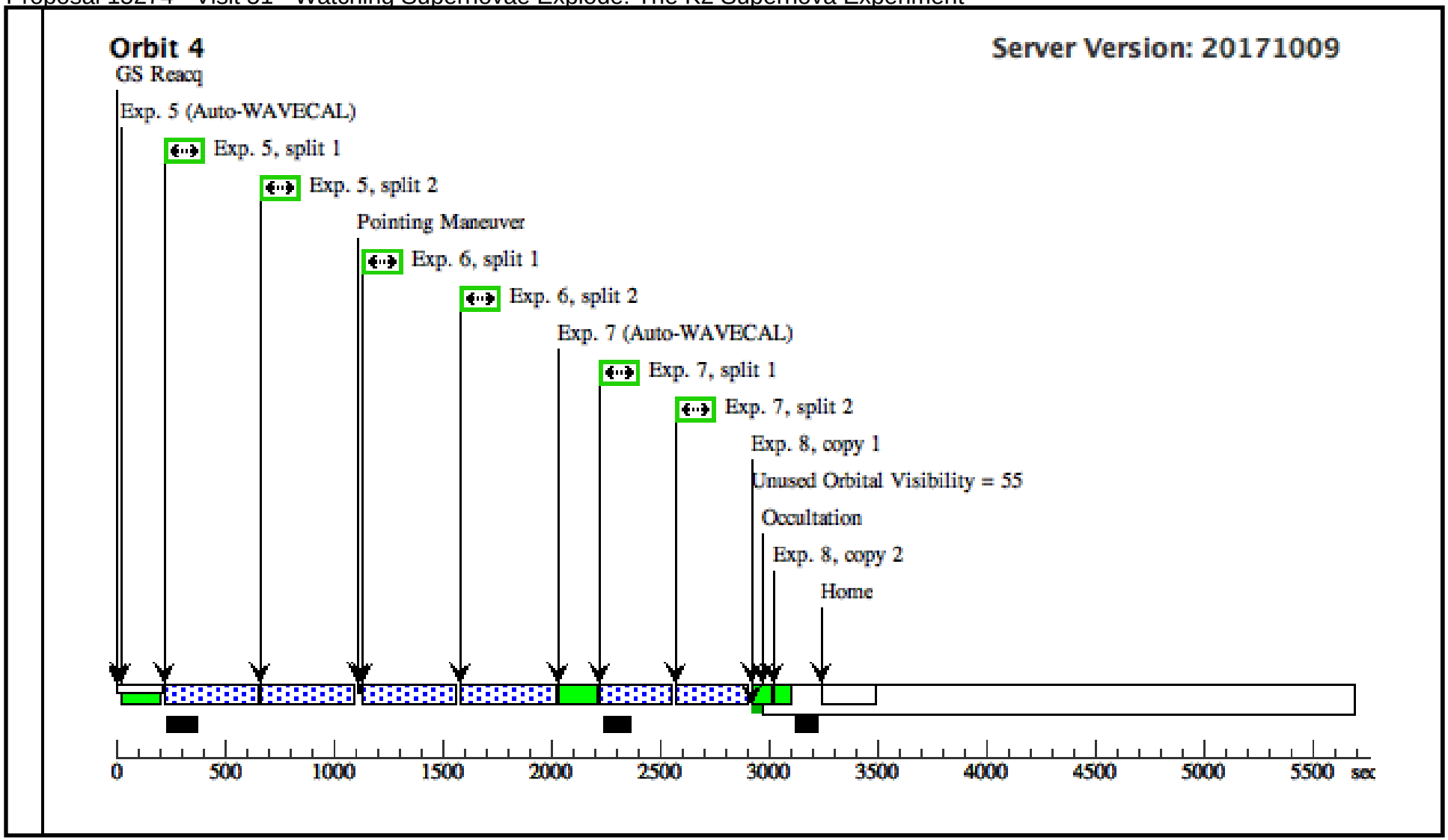
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) SNAT2018AGK	STIS/CCD, ACQ, F28X50LP	MIRROR				0.4 Secs (0.4 Secs) *[==>]*	***[1]***
Comments: mag about 16 to 15									
2	(STIS.sp.11 53769)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2100 Secs (2100 Secs) *[==>]*	***[1]***
Comments: mag about 15									
3	(STIS.sp.11 53769)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	***[2]***
Comments: mag about 15									
4	(STIS.sp.11 53769)	(5) SNAT2018AGK	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A				2700 Secs (2700 Secs) *[==>]*	***[3]***
Comments: mag about 15									
5		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2			800 Secs (800 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
6		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=2	POS TARG 0,0.5		800 Secs (800 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
7		(5) SNAT2018AGK	STIS/CCD, ACCUM, 52X0.2E1	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0.5		600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[4]***
8		CCDFLAT	STIS/CCD, ACCUM, 52X0.2	G750L 7751 A				*[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20171009
Unused Orbital Visibility = 28
Pointing Maneuver
Exp. 4 (Auto-WAVECAL)
Occultation
GS Reacq
Exp. 4
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 4
Server Version: 20171009
GS Reacq
Exp. 5 (Auto-WAVECAL)
Exp. 5, split 1
Exp. 5, split 2
Pointing Maneuver
Exp. 6, split 1
Exp. 6, split 2
Exp. 7 (Auto-WAVECAL)
Exp. 7, split 1
Exp. 7, split 2
Exp. 8, copy 1
Unused Orbital Visibility = 55
Occultation
Exp. 8, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec