



12577 - Spectral Time Series of the Cas A Supernova

Cycle: 19, Proposal Category: GO

(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) CASA-LIGHTECHO	WFC3/UVIS	1	19-Feb-2013 02:05:25.0	yes
02	(1) CASA-LIGHTECHO	WFC3/UVIS	1	19-Feb-2013 02:05:35.0	yes
03	(1) CASA-LIGHTECHO CCDFLAT	STIS/CCD	3	19-Feb-2013 02:05:51.0	yes
04	(1) CASA-LIGHTECHO CCDFLAT	STIS/CCD	3	19-Feb-2013 02:06:10.0	yes
05	(1) CASA-LIGHTECHO CCDFLAT	STIS/CCD	4	19-Feb-2013 02:06:30.0	yes
10	(2) TYC2116A	WFC3/UVIS	4	19-Feb-2013 02:06:51.0	yes
11	(2) TYC2116A	WFC3/UVIS	1	19-Feb-2013 02:07:00.0	yes
12	(3) TYC2116B	WFC3/UVIS	4	19-Feb-2013 02:07:12.0	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>
13	(3) TYC2116B	WFC3/UVIS	1	19-Feb-2013 02:07:23.0	yes

22 Total Orbits Used

ABSTRACT

We propose to obtain time-resolved spectroscopy of the outburst of the enigmatic historical supernova Cas A using STIS spectroscopy of light scattered by a narrow filament of interstellar dust. Our group has identified recent, high-surface brightness filaments that are likely to provide high signal-to-noise reproduction of the evolving spectrum of the Cas A outburst using verified, published techniques developed by us.

The timescales to see any appreciable evolution in individual astrophysical objects are typically many orders of magnitudes larger than a human life. As a result, astronomers study large numbers of objects at different stages of their evolution to connect how a single object should change with time. Cas A can provide us with the ability, to look back in time to the point of explosion by observing its light echoes -- SN light scattered off of dust in the Milky Way, which causes a time delay in reaching us. In obtaining spectra of light echoes, we have been able to determine the maximum-light characteristics of the SN. Our goal here is to obtain a single STIS spectrum of a bright Cas A LE, which will provide us a time series of spectra and a spatially resolved light curve of the Cas A SN. With these data, we will measure the properties of the cooling envelope after the shock breakout of the SN to estimate the radius of the progenitor star. We will then be able to connect the progenitor star to the explosion to the SN to the SNR.

OBSERVING DESCRIPTION

Hi,

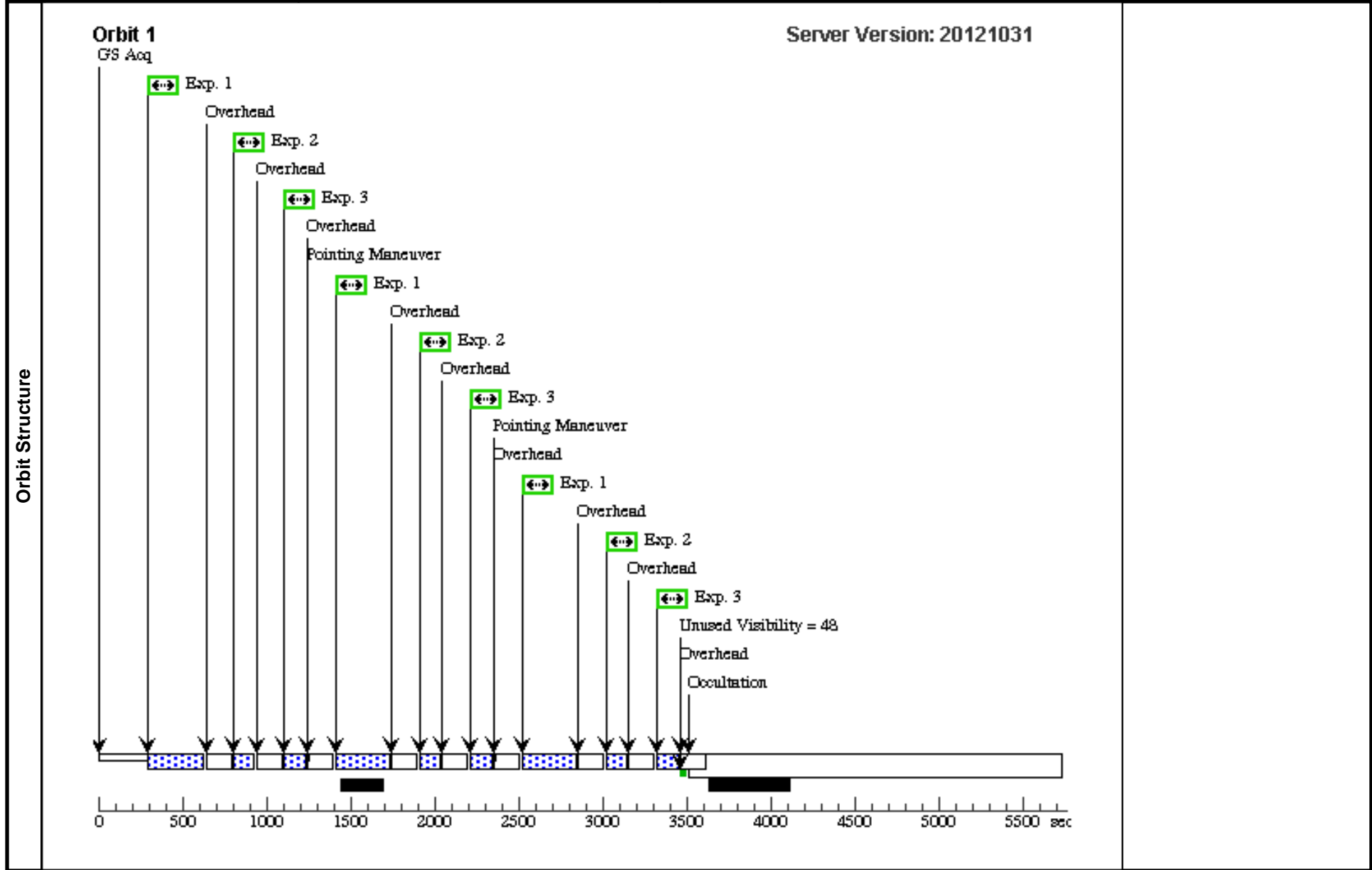
visit #1 will be expected as a non-distrutive ToO when we discover our Cas A light echo. Cas A is near the CVZ, so we expect the orbits to be longer than indicated here, and we will adjust all the exposure times accordingly.

Visit #2,3,4,5 to be scheduled all within 1-2 days, need to be executed about 10-40 days after visit 1. The reason for this is to measure precisely the position and orientation of the STIS slit in visits 3,4,5

Proposal 12577 - Visit 01 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:31 GMT 2013

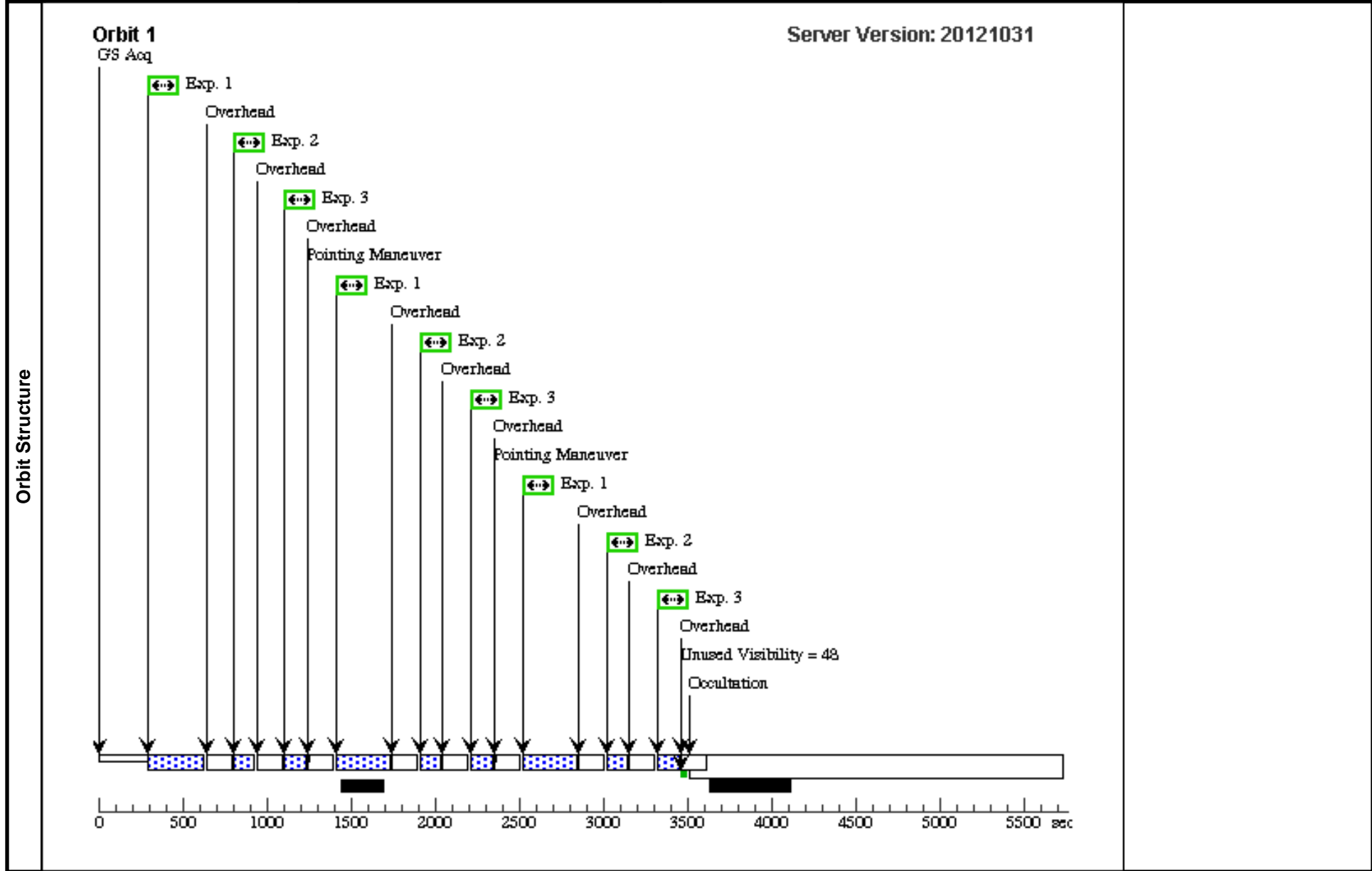
Visit	Proposal 12577, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 190D TO 200 D; BETWEEN 01-SEP-2012:00:00:00 AND 30-OCT-2012 Comments: After we get the data from visit 1, we can provide a proper acquisition star and offset (Or slew) to the light echo. The time between visit 1 and visits 2,3,4,5 is on the order of a couple weeks. angle of 180 is desireable, but +/- 5 degrees is okay									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER- Coordinate Frame=POS-TARG LINE-3PT Pattern Orientation=46.84 Purpose=DITHER Angle Between Sides= Number Of Points=3 Center Pattern=false Point Spacing=0.135 Line Spacing=							(1-3)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(1)	CASA-LIGHTECHO	RA: 00 19 14.8300 (4.8117917d) Dec: +61 48 29.90 (61.80831d) Equinox: J2000				V=22	Reference Frame: ICRS		
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F275W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 01 (2)	300 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F606W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 01 (2)	100 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	3	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F390W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 01 (2)	100 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]



Proposal 12577 - Visit 02 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:33 GMT 2013

Visit	Proposal 12577, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: SEQ 02,03,04,05 WITHIN 2 D Comments: A									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(2)	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		(1-3)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	CASA-LIGHTECHO	RA: 00 19 14.8300 (4.8117917d) Dec: +61 48 29.90 (61.80831d) Equinox: J2000		V=22	Reference Frame: ICRS				
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F275W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 02 (2)	300 Secs	
									[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F606W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 02 (2)	100 Secs	
								[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]	
	3	(1) CASA-LIGHTECHO	(1) CASA-LIGHTECHO	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F390W	CR-SPLIT=NO		Pattern 2, Exps 1-3 in Visit 02 (2)	100 Secs	
								[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]	

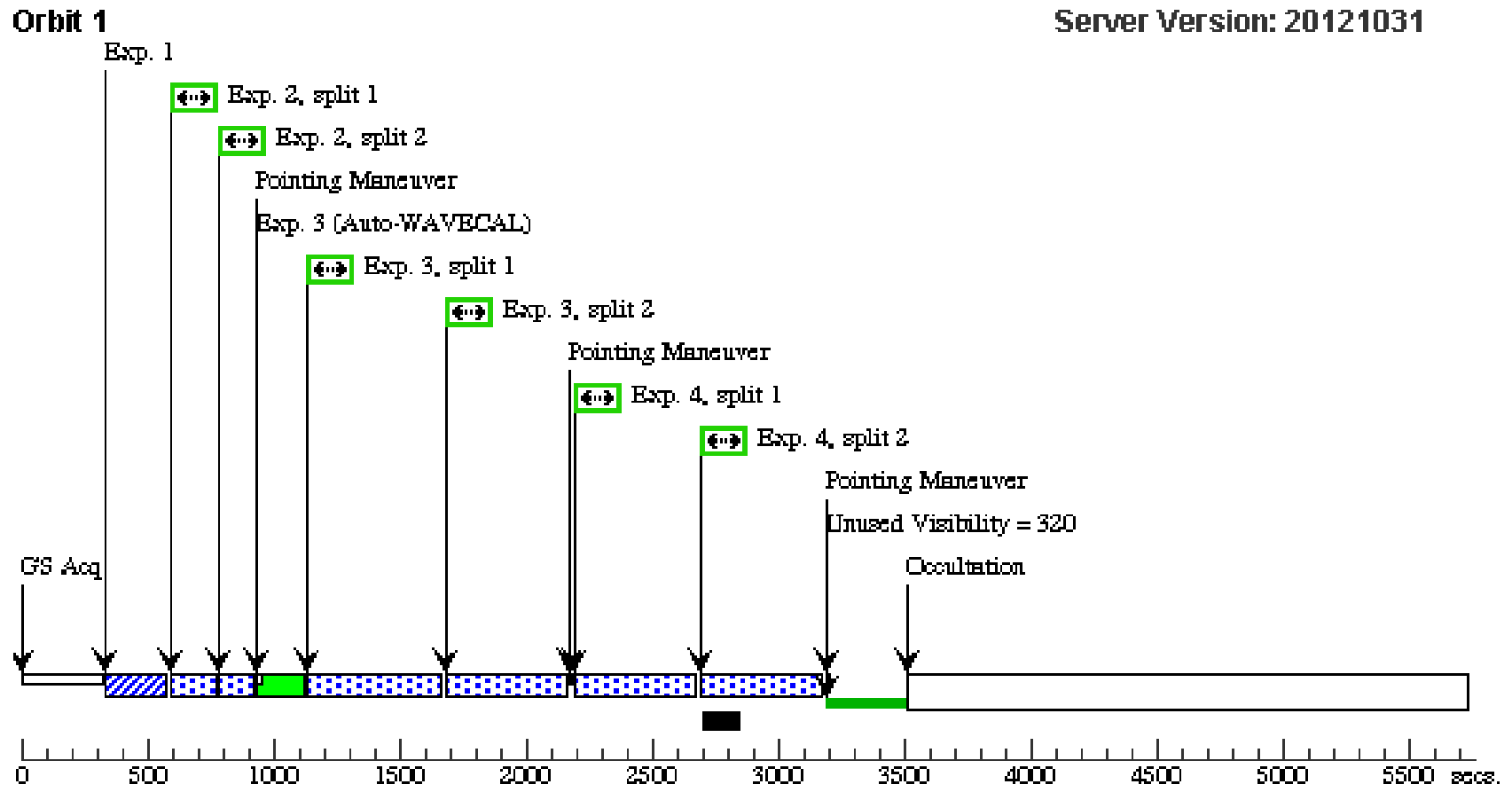


Proposal 12577 - Visit 03 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:34 GMT 2013

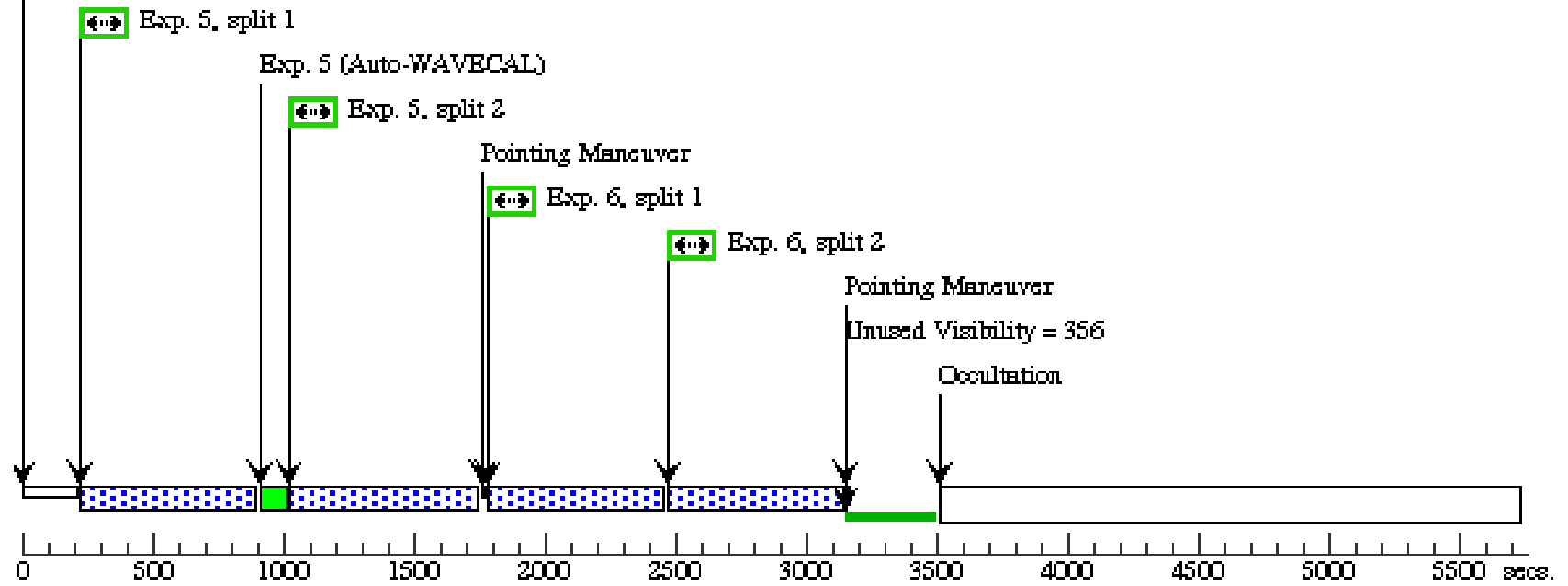
Visit	Proposal 12577, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: ORIENT 200D TO 200 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CASA-LIGHTECHO	RA: 00 19 14.8300 (4.8117917d) Dec: +61 48 29.90 (61.80831d) Equinox: J2000		V=22	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CASA-LIGHTECHO	STIS/CCD, ACQ, 50CCD	MIRROR				1 Secs [==>]	[1]
	2		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 50CCD	MIRROR	CR-SPLIT=2			200 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0		900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0.5		900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	5		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	6		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-0.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	7		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	8		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	9		CCDFLAT	STIS/CCD, ACCUM, 52X2	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[3]

Orbit Structure



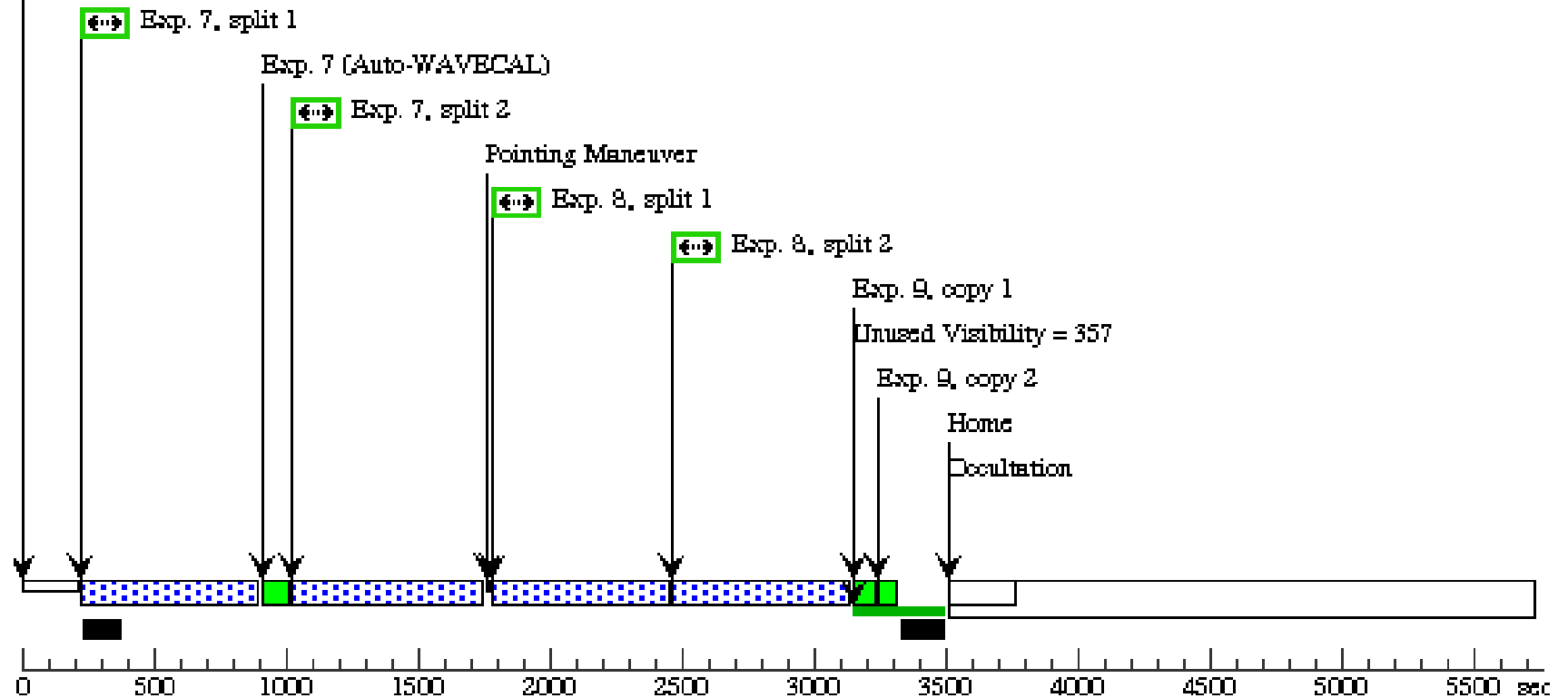
Orbit 2

GS Reacq



Orbit 3

GS Req

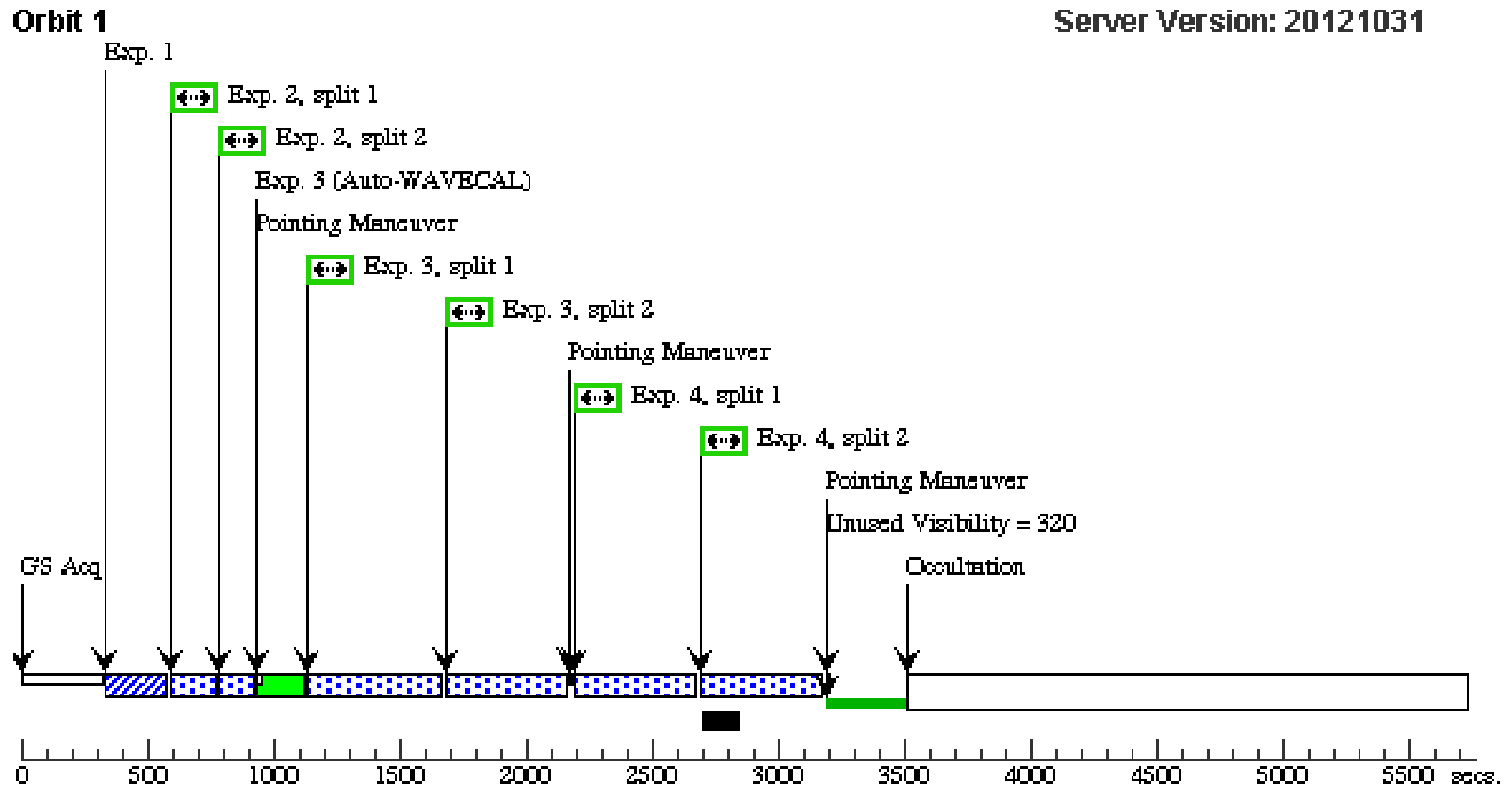


Proposal 12577 - Visit 04 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:37 GMT 2013

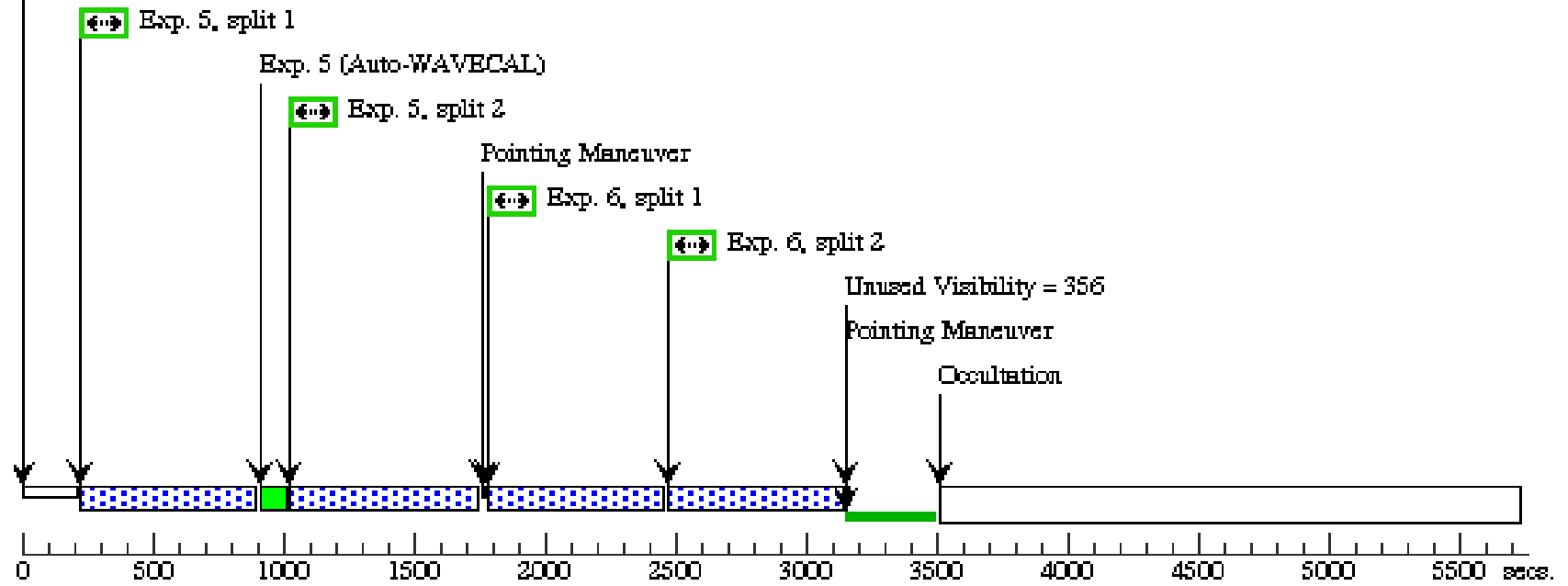
Visit	Proposal 12577, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SAME ORIENT AS 03									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CASA-LIGHTECHO	RA: 00 19 14.8300 (4.8117917d) Dec: +61 48 29.90 (61.80831d) Equinox: J2000		V=22	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CASA-LIGHTECHO	STIS/CCD, ACQ, 50CCD	MIRROR				1 Secs [==>]	[1]
	2		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 50CCD	MIRROR	CR-SPLIT=2			200 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2			900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0.5		900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	5		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	6		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-0.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	7		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	8		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	9		CCDFLAT	STIS/CCD, ACCUM, 52X2	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[3]

Orbit Structure



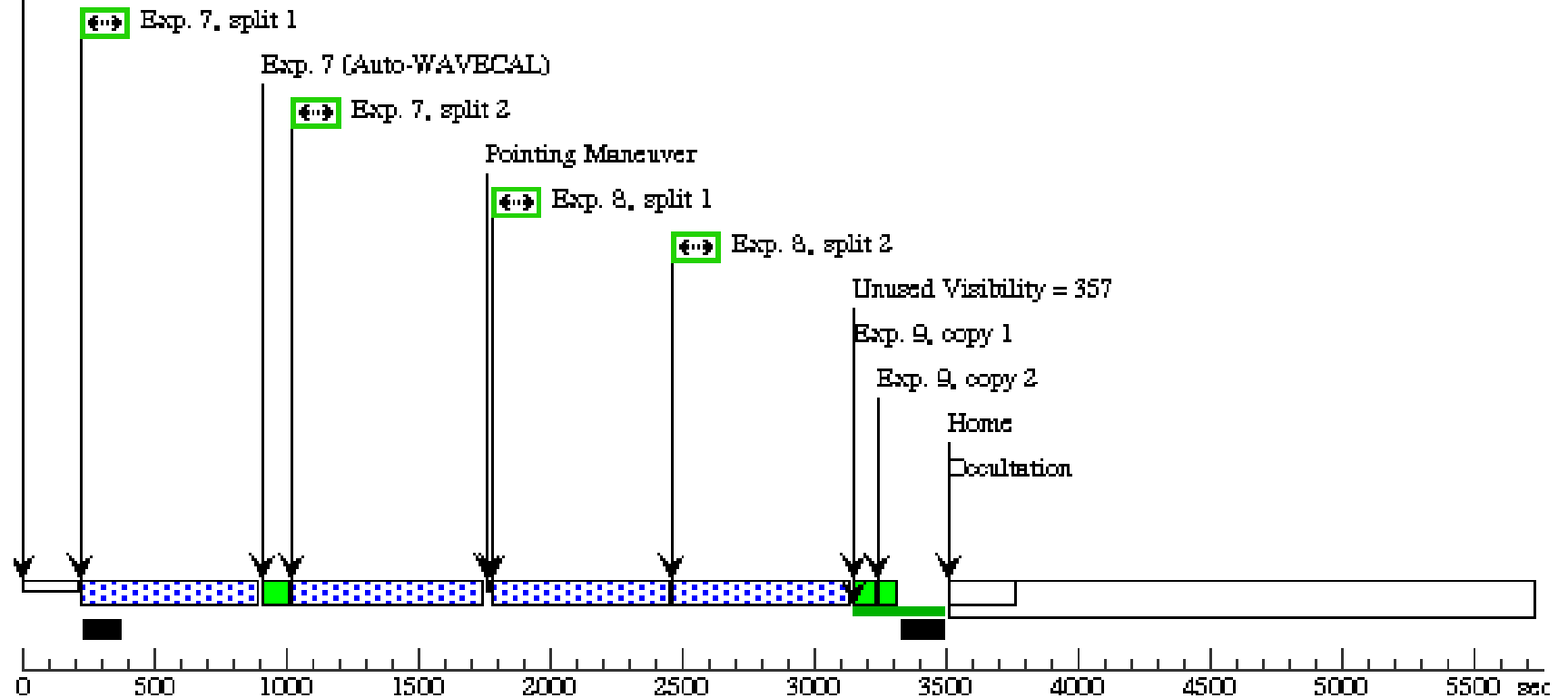
Orbit 2

GS Reacq



Orbit 3

GS Req

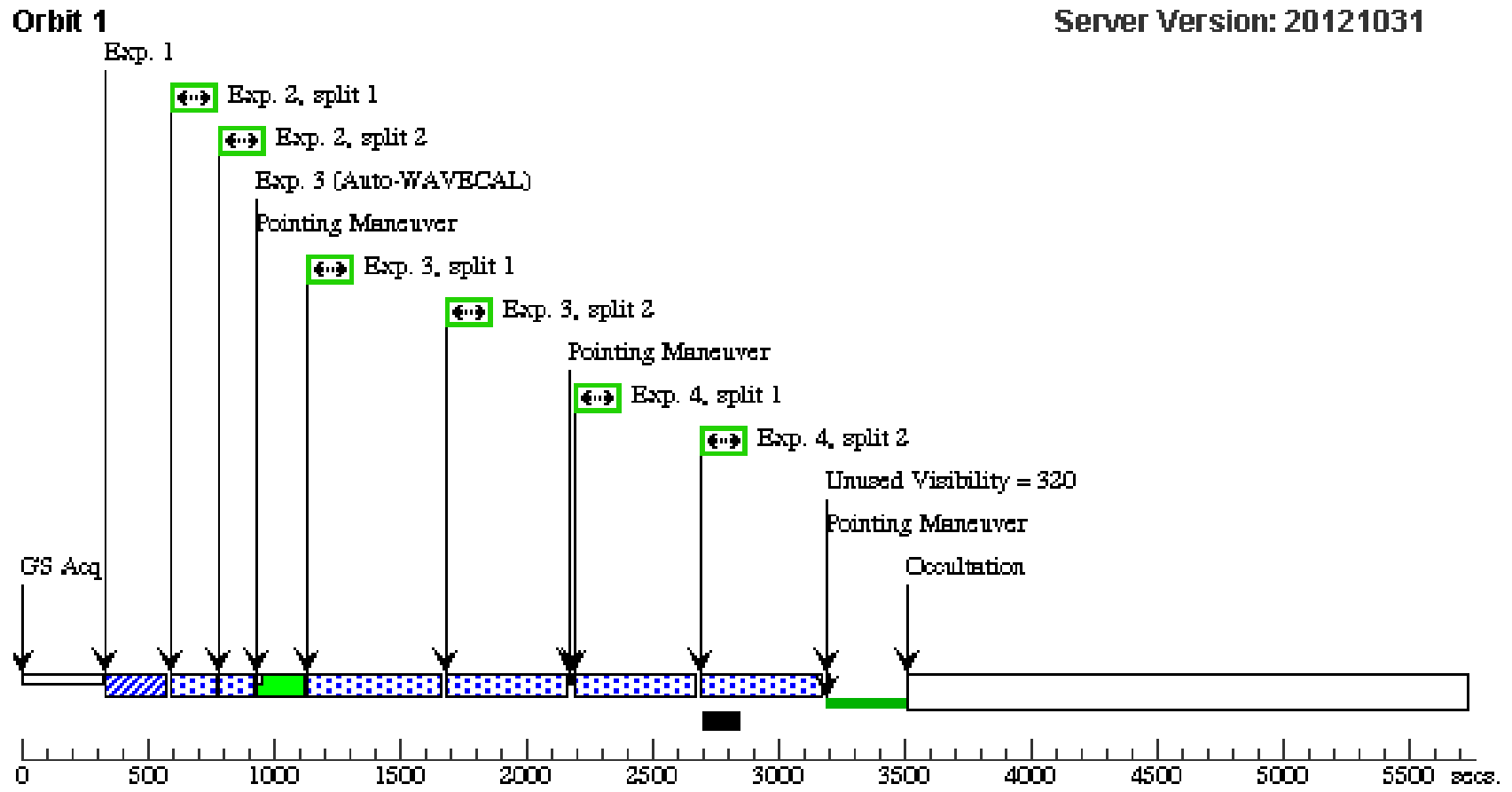


Proposal 12577 - Visit 05 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:40 GMT 2013

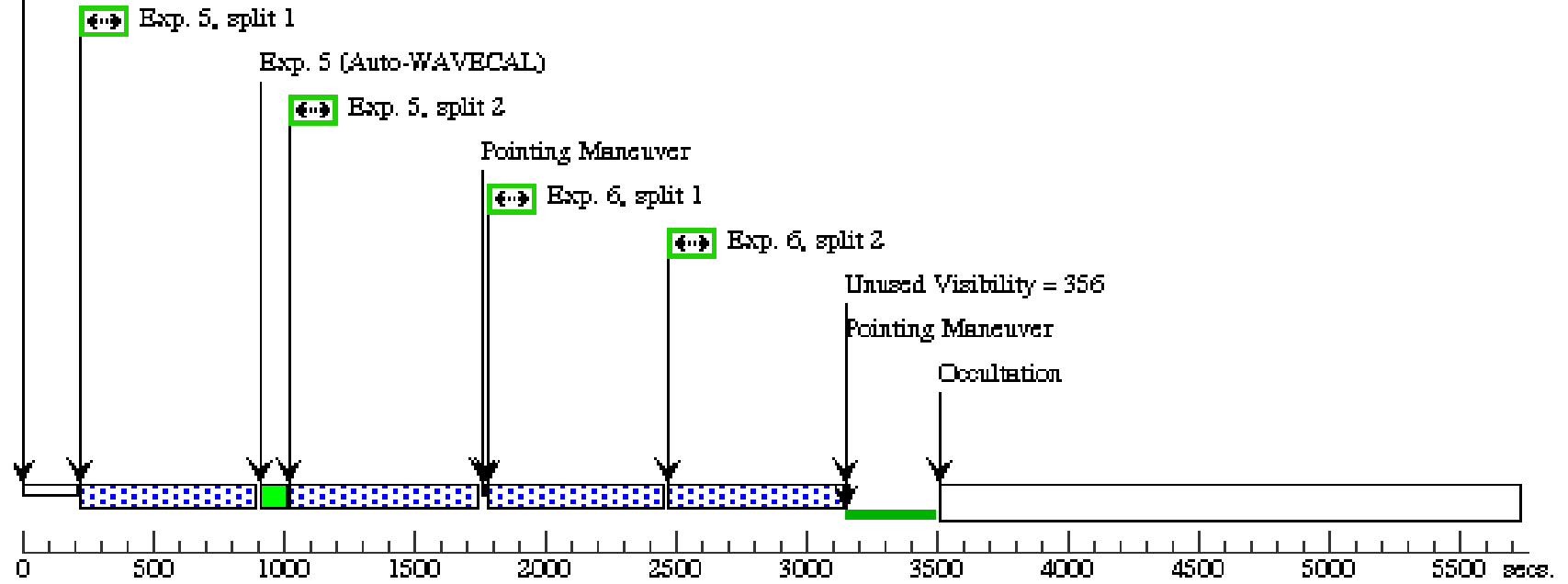
Visit	Proposal 12577, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: SAME ORIENT AS 03									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	CASA-LIGHTECHO	RA: 00 19 14.8300 (4.8117917d) Dec: +61 48 29.90 (61.80831d) Equinox: J2000		V=22	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) CASA-LIGHTECHO	STIS/CCD, ACQ, 50CCD	MIRROR				1 Secs [==>]	[1]
	2		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 50CCD	MIRROR	CR-SPLIT=2			200 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2			900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	4		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,0.5		900 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	5		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	6		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-0.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	7		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	8		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.5		1275 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	9		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-1.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[4]
	10		(1) CASA-LIGHTECHO	STIS/CCD, ACCUM, 52X2E2	G750L 7751 A	CR-SPLIT=2	POS TARG 0,-2.0		1275 Secs [==>(Split 1)] [==>(Split 2)]	[4]
11		CCDFLAT	STIS/CCD, ACCUM, 52X2	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[4]	

Orbit Structure



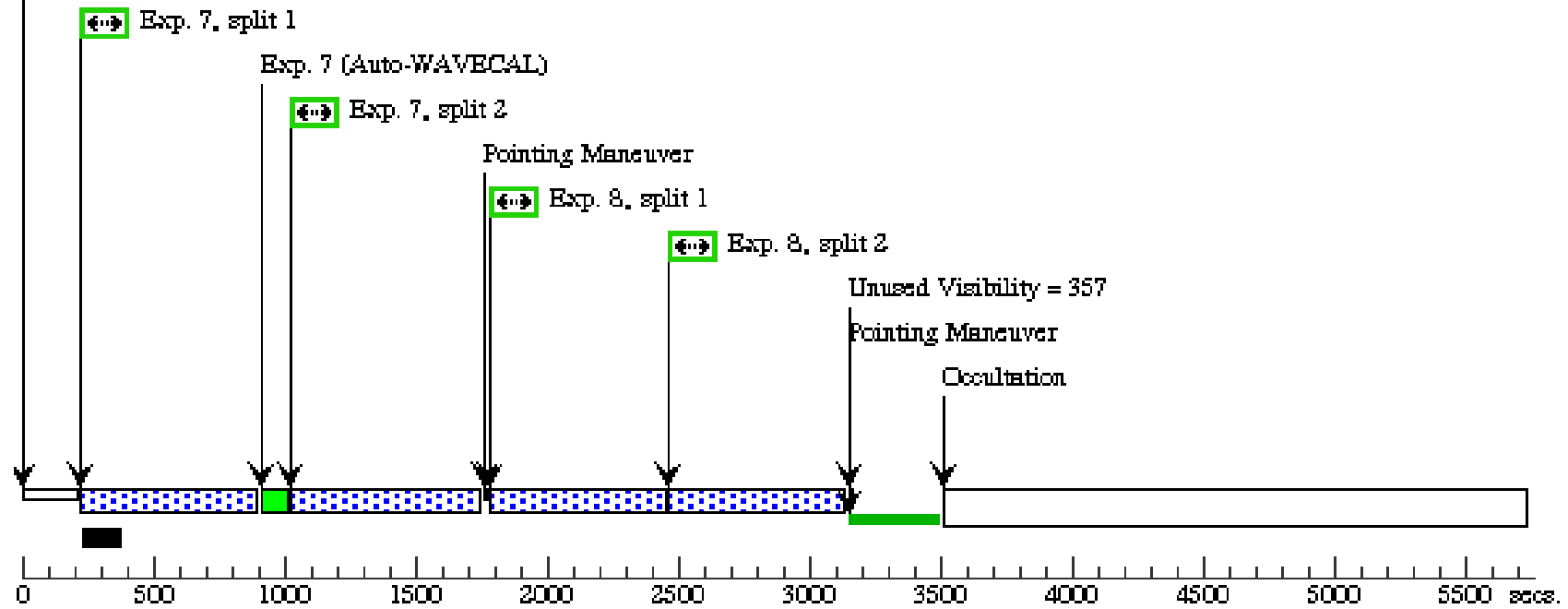
Orbit 2

GS Reacq



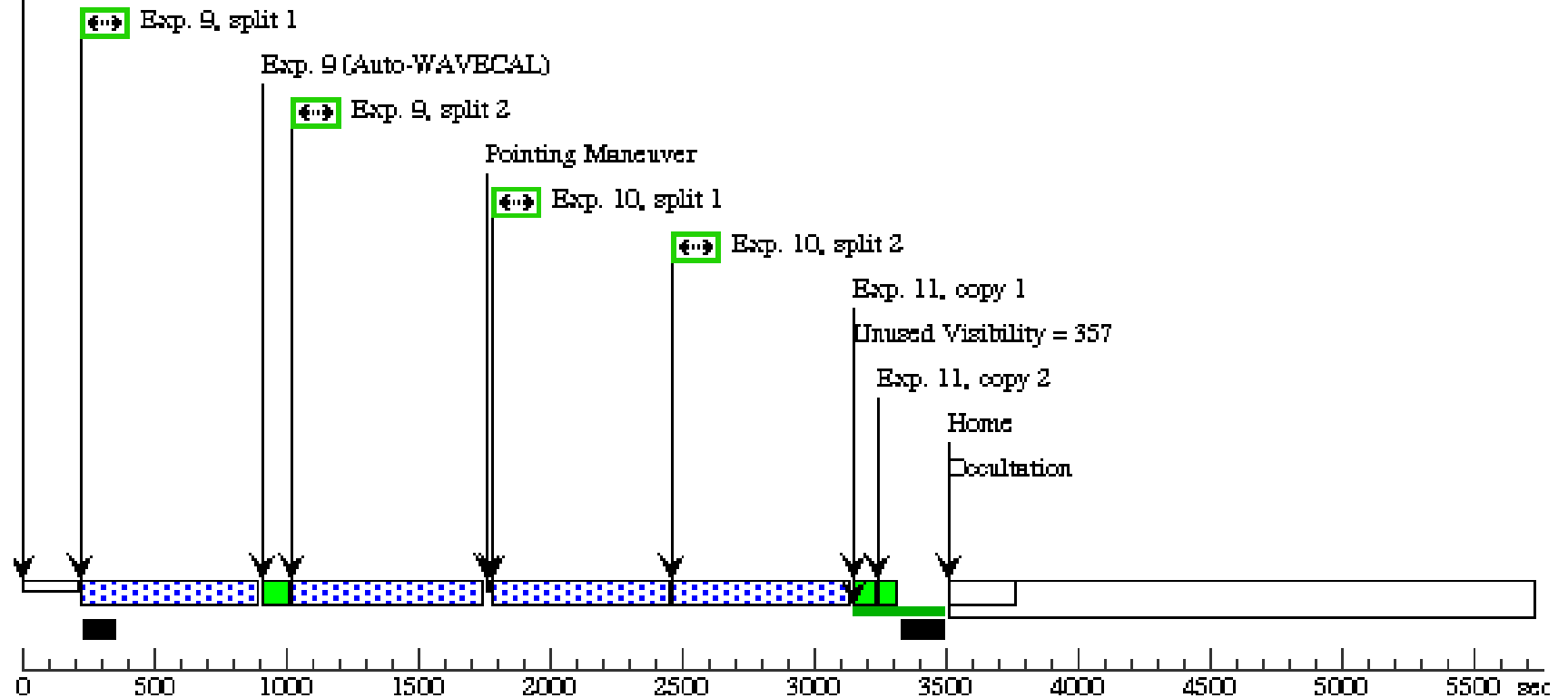
Orbit 3

GS Reacq



Orbit 4

GS Reacq

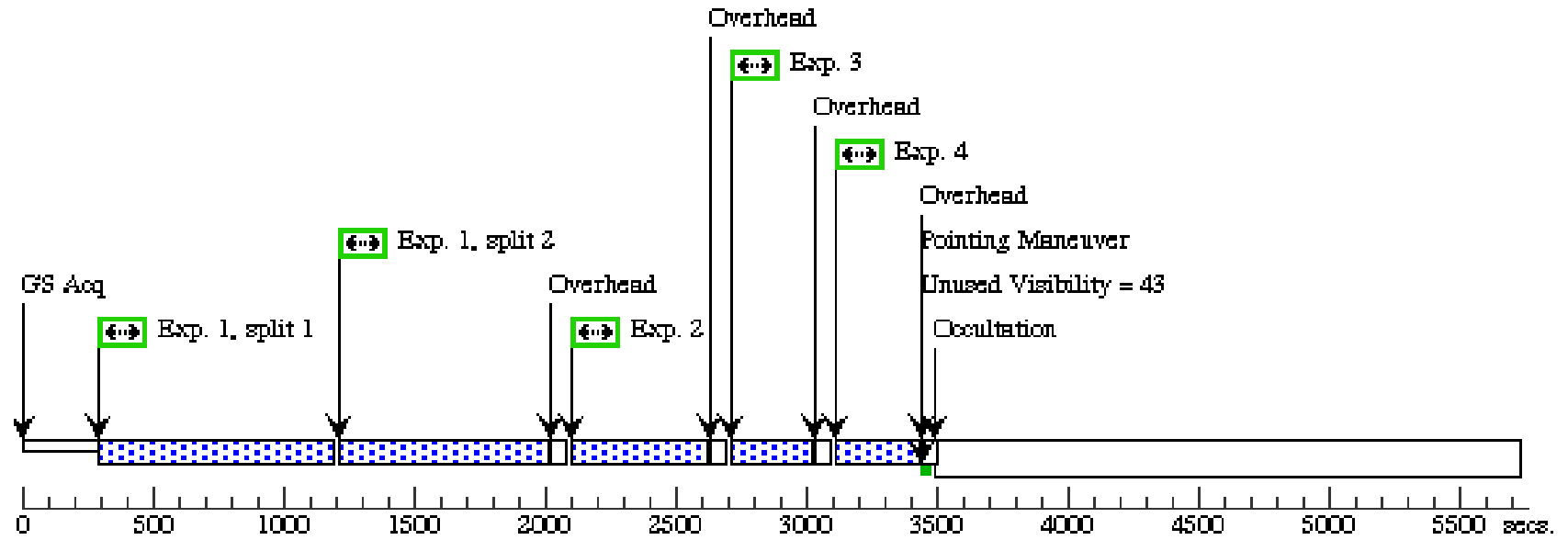


Proposal 12577 - Visit 10 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:44 GMT 2013

Visit	Proposal 12577, Visit 10 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 17-FEB-2013:00:00:00 AND 30-APR-2013:00:00:00									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1-4)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	TYC2116A	RA: 23 02 24.6100 (345.6025417d) Dec: +56 53 13.66 (56.88713d) Equinox: J2000		V=23.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(2) TYC2116A	(2) TYC2116A	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F390W	CR-SPLIT=2		Pattern 1, Exps 1-4 in Visit 10 (1)	1600 Secs	
									[==>(Pattern 1, Split 1)]	[1]
									[==>(Pattern 1, Split 2)]	
									[==>(Pattern 2, Split 1)]	[2]
									[==>(Pattern 2, Split 2)]	
									[==>(Pattern 3, Split 1)]	[3]
									[==>(Pattern 3, Split 2)]	
									[==>(Pattern 4, Split 1)]	[4]
									[==>(Pattern 4, Split 2)]	
	2	(2) TYC2116A	(2) TYC2116A	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 10 (1)	500 Secs	
									[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
	3	(2) TYC2116A	(2) TYC2116A	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 10 (1)	300 Secs	
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
								[==>(Pattern 3)]	[3]	
								[==>(Pattern 4)]	[4]	
4	(2) TYC2116A	(2) TYC2116A	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 10 (1)	300 Secs		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
								[==>(Pattern 3)]	[3]	
								[==>(Pattern 4)]	[4]	

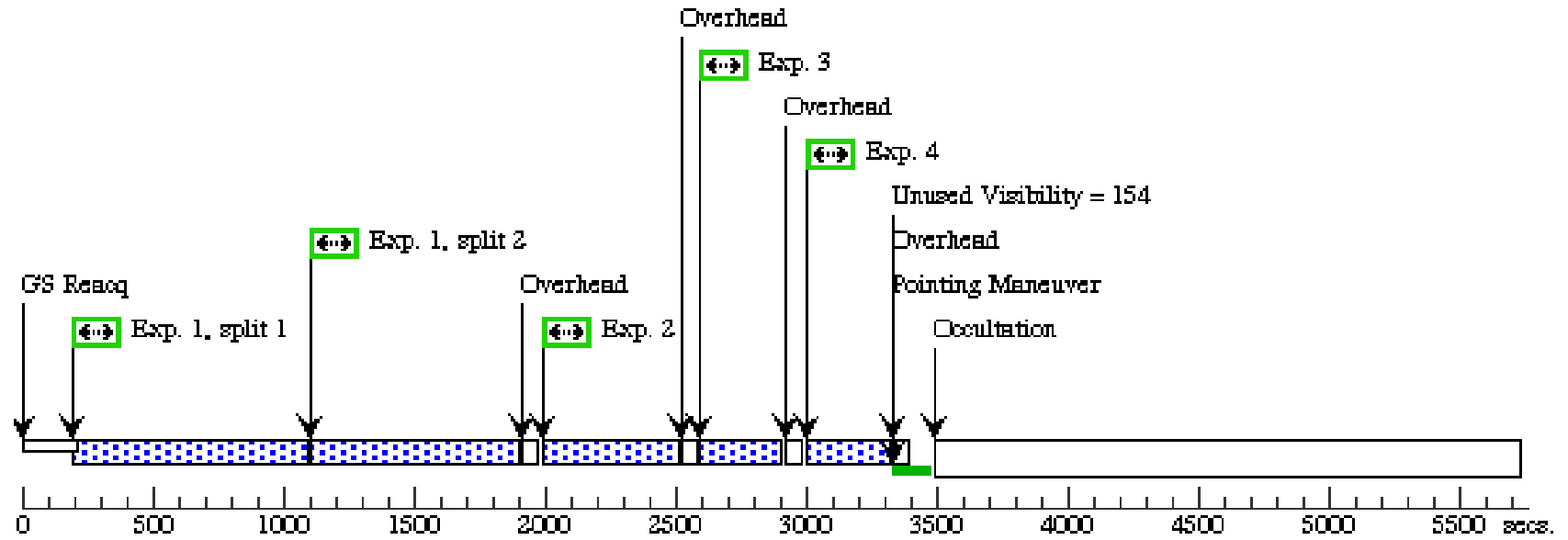
Orbit 1



Orbit Structure

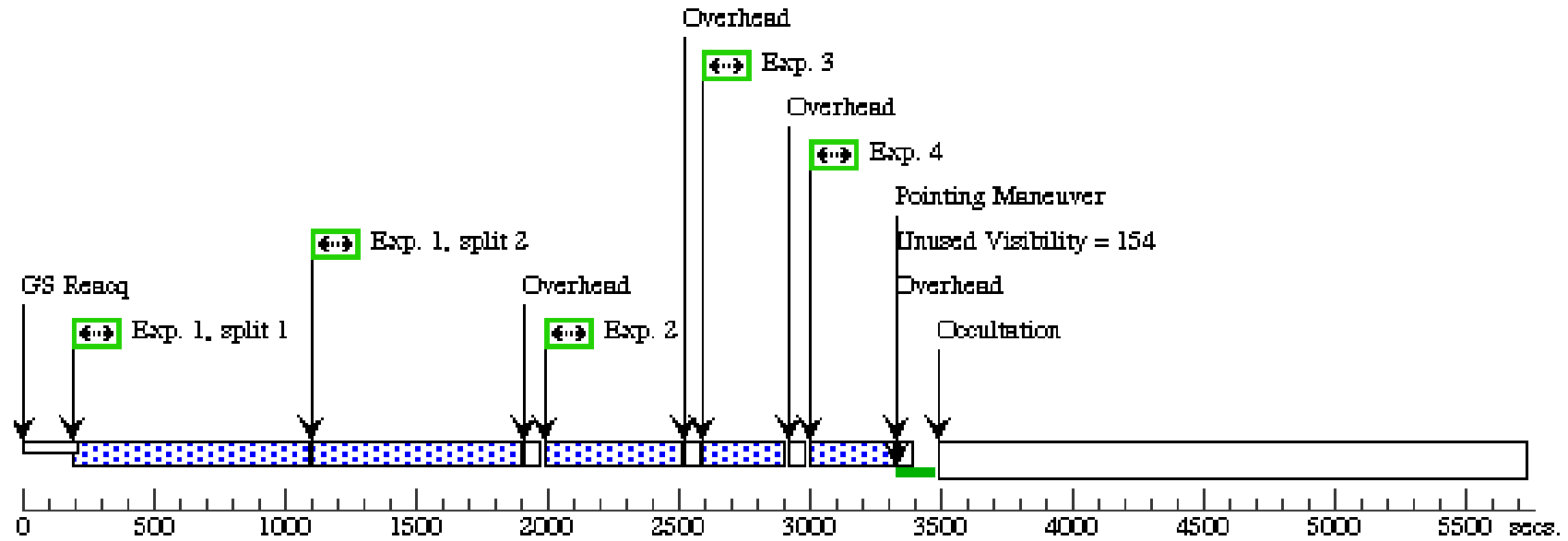
Orbit 2

Server Version: 20121031



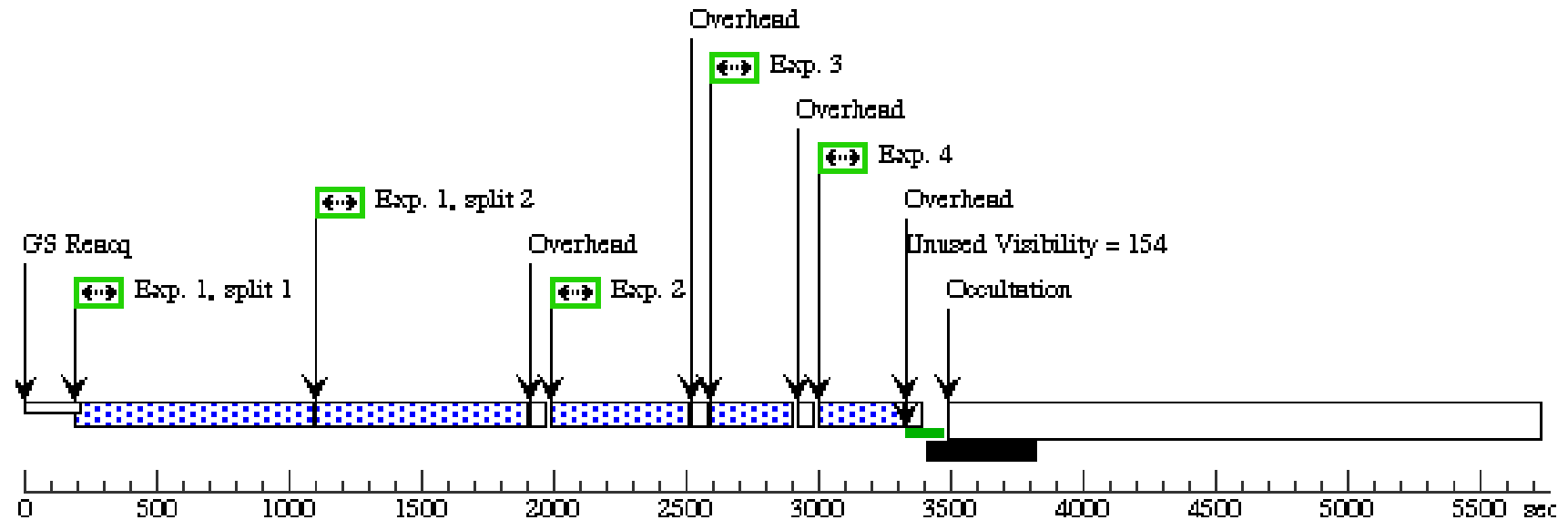
Orbit 3

Server Version: 20121031



Orbit 4

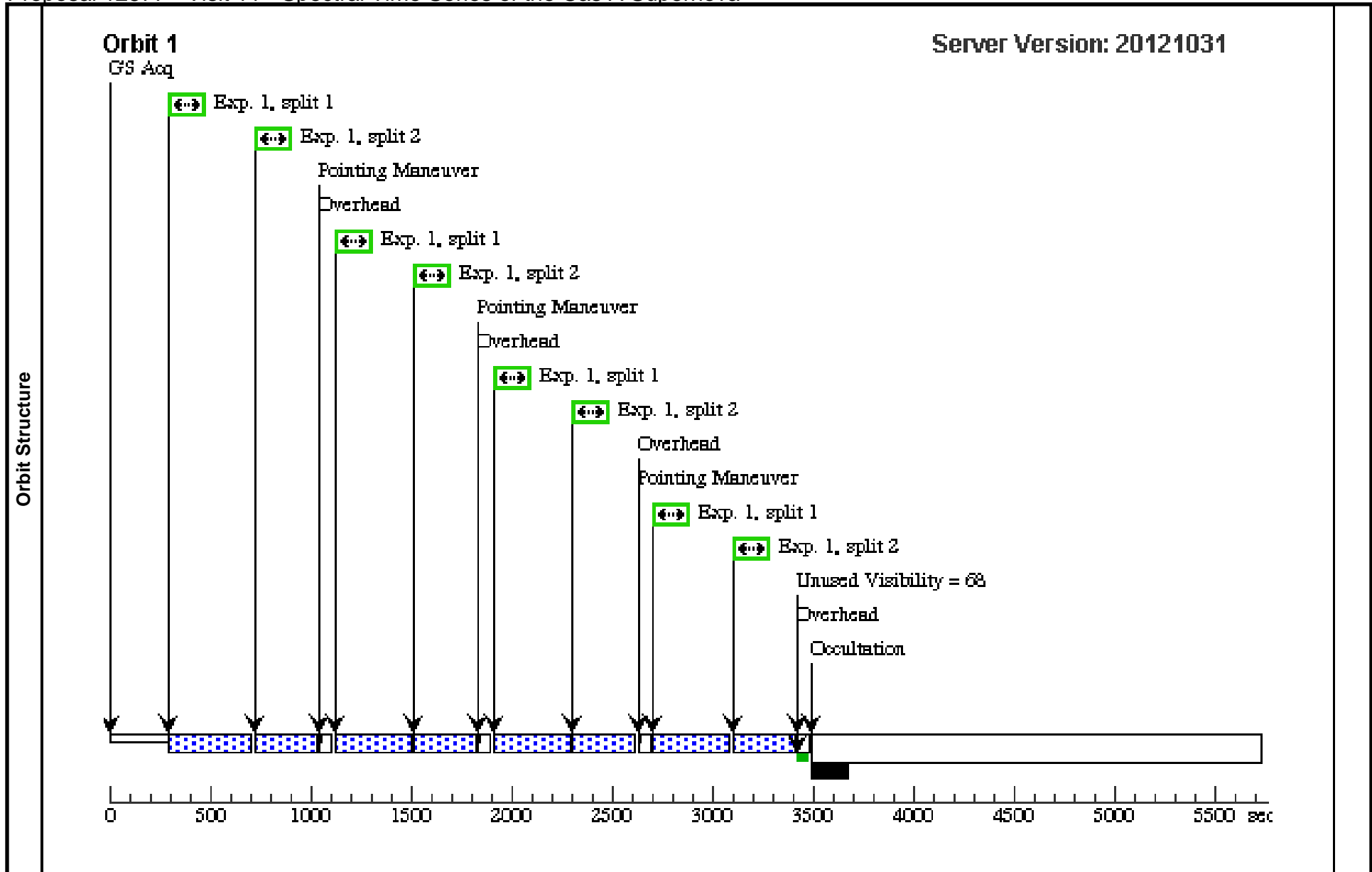
Server Version: 20121031



Proposal 12577 - Visit 11 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:48 GMT 2013

Visit	Proposal 12577, Visit 11 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 10 BY 40 D TO 70 D									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	TYC2116A	RA: 23 02 24.6100 (345.6025417d) Dec: +56 53 13.66 (56.88713d) Equinox: J2000		V=23.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) TYC2116A	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=2		Pattern 1, Exps 1-1 in Visit 11 (1)	620 Secs [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 4, Split 1)] [==>(Pattern 4, Split 2)]	[1]

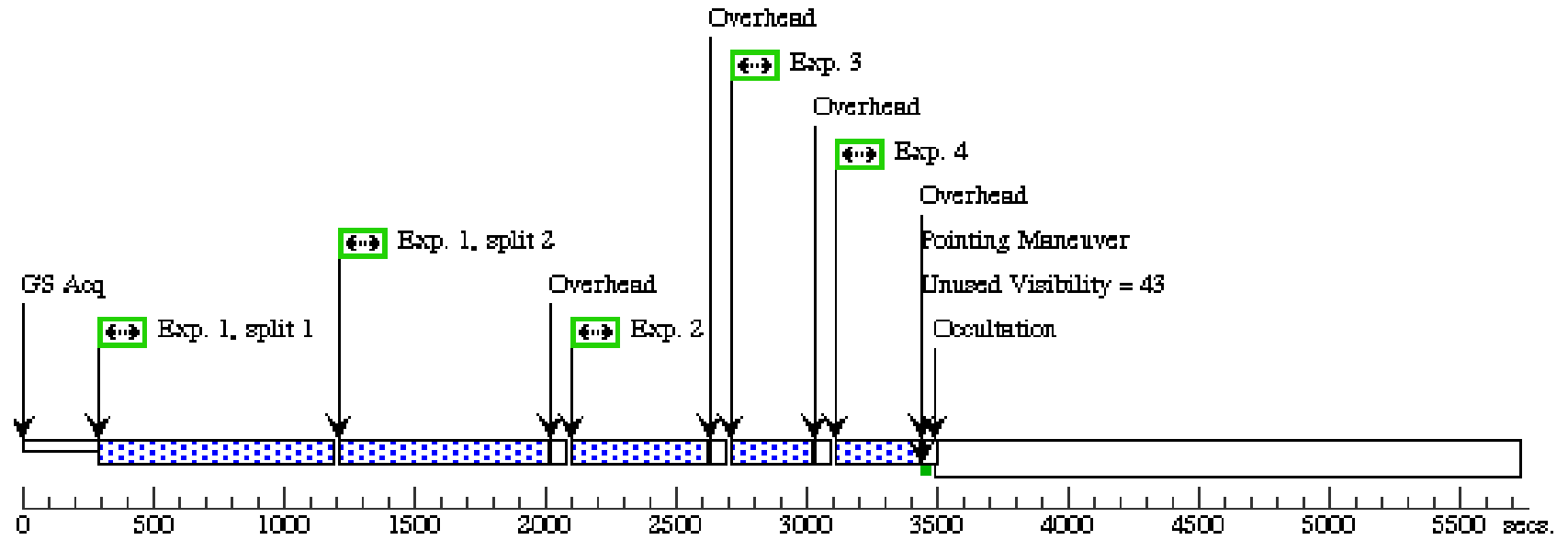


Proposal 12577 - Visit 12 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:49 GMT 2013

Visit	Proposal 12577, Visit 12 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 17-FEB-2013:00:00:00 AND 30-APR-2013:00:00:00									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1-4)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	TYC2116B	RA: 23 02 38.0000 (345.6583333d) Dec: +56 43 26.24 (56.72396d) Equinox: J2000		V=23.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) TYC2116B	(3) TYC2116B	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F390W	CR-SPLIT=2		Pattern 1, Exps 1-4 in Visit 12 (1)	1600 Secs	
									[==>(Pattern 1, Split 1)]	[1]
									[==>(Pattern 1, Split 2)]	
									[==>(Pattern 2, Split 1)]	[2]
									[==>(Pattern 2, Split 2)]	
									[==>(Pattern 3, Split 1)]	[3]
									[==>(Pattern 3, Split 2)]	
									[==>(Pattern 4, Split 1)]	[4]
									[==>(Pattern 4, Split 2)]	
	2	(3) TYC2116B	(3) TYC2116B	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 12 (1)	500 Secs	
									[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
	3	(3) TYC2116B	(3) TYC2116B	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 12 (1)	300 Secs	
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
								[==>(Pattern 3)]	[3]	
								[==>(Pattern 4)]	[4]	
4	(3) TYC2116B	(3) TYC2116B	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO		Pattern 1, Exps 1-4 in Visit 12 (1)	300 Secs		
								[==>(Pattern 1)]	[1]	
								[==>(Pattern 2)]	[2]	
								[==>(Pattern 3)]	[3]	
								[==>(Pattern 4)]	[4]	

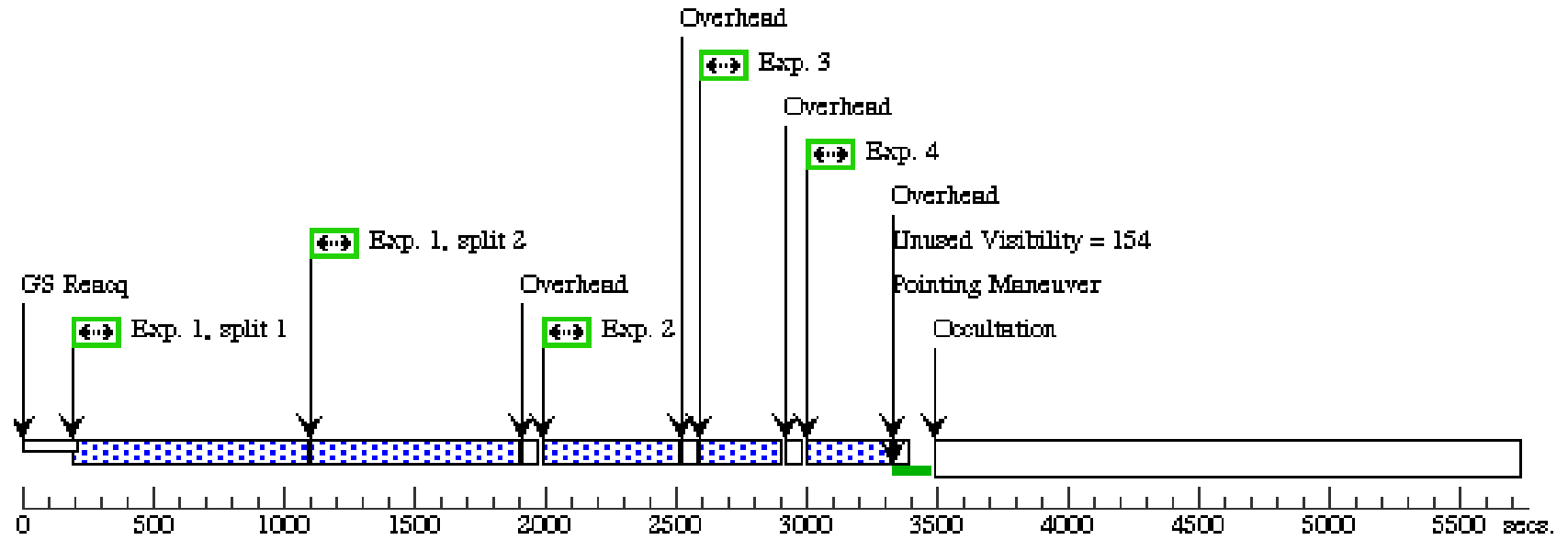
Orbit 1



Orbit Structure

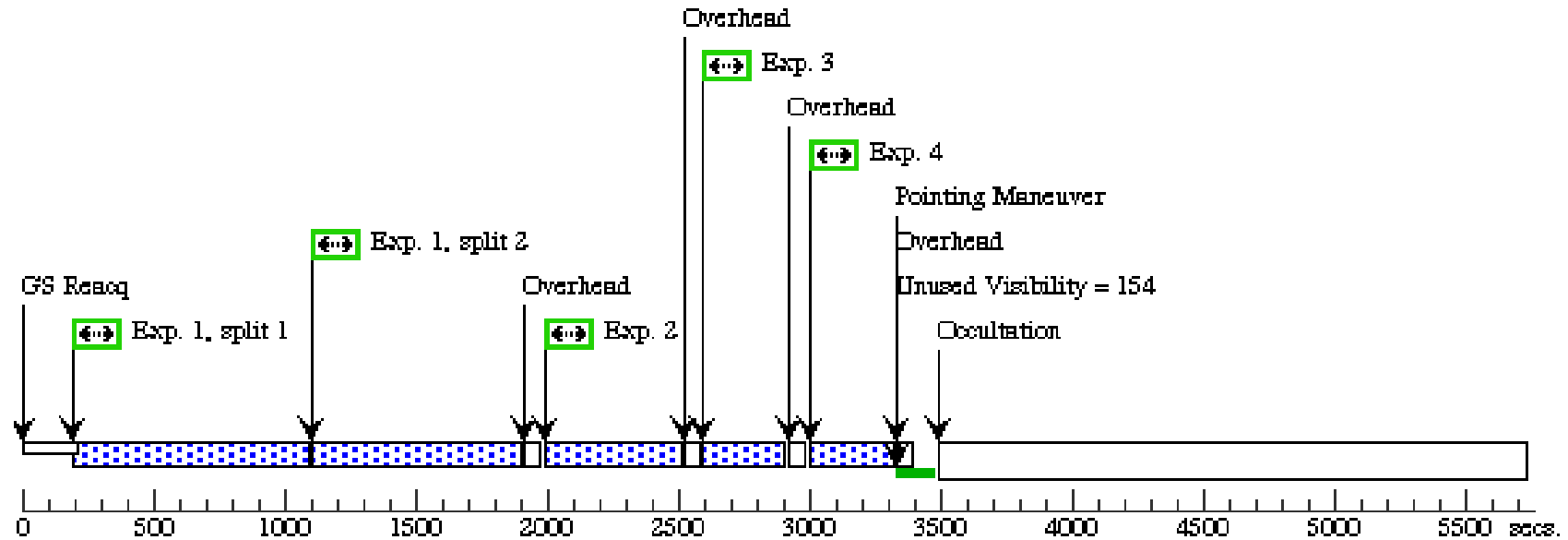
Orbit 2

Server Version: 20121031



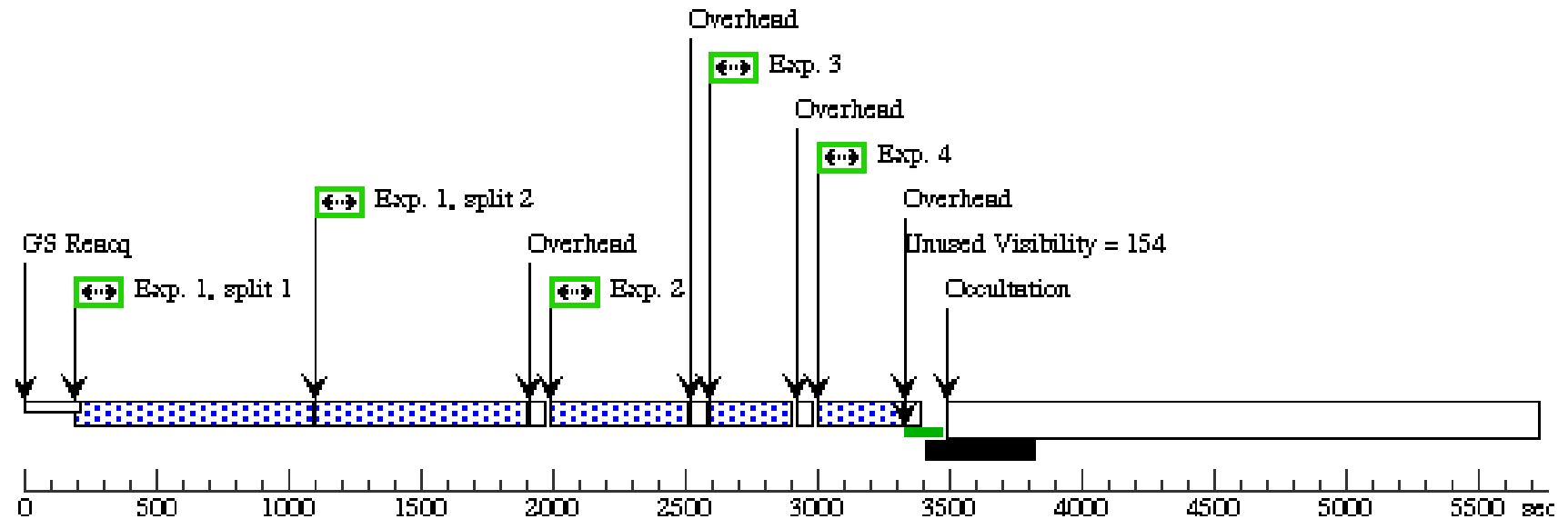
Orbit 3

Server Version: 20121031



Orbit 4

Server Version: 20121031



Proposal 12577 - Visit 13 - Spectral Time Series of the Cas A Supernova

Tue Feb 19 02:07:53 GMT 2013

Visit	Proposal 12577, Visit 13 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: AFTER 12 BY 40 D TO 70 D									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	TYC2116B	RA: 23 02 38.0000 (345.6583333d) Dec: +56 43 26.24 (56.72396d) Equinox: J2000		V=23.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(3) TYC2116B	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	CR-SPLIT=2		Pattern 1, Exps 1-1 in Visit 13 (1)	620 Secs [=>(Pattern 1, Split 1)] [=>(Pattern 1, Split 2)] [=>(Pattern 2, Split 1)] [=>(Pattern 2, Split 2)] [=>(Pattern 3, Split 1)] [=>(Pattern 3, Split 2)] [=>(Pattern 4, Split 1)] [=>(Pattern 4, Split 2)]	[1]

