



12528 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Cycle: 19, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Philip Massey (PI)	Lowell Observatory	massey@lowell.edu
Dr. Nathan Smith (CoI)	University of Arizona	nathans@as.arizona.edu

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) AEAND	STIS/CCD	1	20-Jun-2011 21:24:23.0	yes
02	(2) AFAND	STIS/CCD	1	20-Jun-2011 21:24:29.0	yes
03	(3) VAR15	STIS/CCD	1	20-Jun-2011 21:24:35.0	yes
04	(4) VARA1	STIS/CCD	1	20-Jun-2011 21:24:42.0	yes
05	(5) VARC	STIS/CCD	1	20-Jun-2011 21:24:46.0	yes
06	(6) VARB	STIS/CCD	1	20-Jun-2011 21:24:51.0	yes
07	(7) LGG SJ004051.59+403303.0	STIS/CCD	1	20-Jun-2011 21:24:56.0	yes
08	(8) LGG SJ004056.49+410308.7	STIS/CCD	1	20-Jun-2011 21:25:01.0	yes
09	(9) LGG SJ004411.36+413257.2	STIS/CCD	1	20-Jun-2011 21:25:07.0	yes
10	(10) LGG SJ004425.18+413452.2	STIS/CCD	1	20-Jun-2011 21:25:12.0	yes
11	(11) LGG SJ004444.52+412804.0	STIS/CCD	1	20-Jun-2011 21:25:17.0	yes
12	(12) LGG SJ004526.62+415006.3	STIS/CCD	1	20-Jun-2011 21:25:22.0	yes
13	(13) LGG SJ013245.41+303858.3	STIS/CCD	1	20-Jun-2011 21:25:26.0	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>
14	(14) LGG SJ013332.64+304127.2	STIS/CCD	1	20-Jun-2011 21:25:32.0	yes
15	(15) LGG SJ013333.22+303343.4	STIS/CCD	1	20-Jun-2011 21:25:37.0	yes
16	(16) LGG SJ013339.52+304540.5	STIS/CCD	1	20-Jun-2011 21:25:41.0	yes
17	(17) LGG SJ013353.60+303851.6	STIS/CCD	1	20-Jun-2011 21:25:46.0	yes
18	(18) LGG SJ013355.96+304530.6	STIS/CCD	1	20-Jun-2011 21:25:50.0	yes
19	(19) LGG SJ013416.07+303642.1	STIS/CCD	1	20-Jun-2011 21:25:54.0	yes
20	(20) LGG SJ013509.73+304157.3	STIS/CCD	1	20-Jun-2011 21:25:59.0	yes

20 Total Orbits Used

ABSTRACT

Luminous Blue Variables (LBVs) are a short-lived, but critical stage in the evolution of the most massive stars. Episodic outbursts during the LBV phase may provide the dominant mass-loss mechanism for evolution to the Wolf-Rayet stage. However, these large mass-loss outbursts (accompanied by large changes in the visual magnitude) take place on timescales of order 1000 years or so: the archetypical LBVs P Cyg and Eta Car had their last major outbursts in the 17th and 19th centuries, respectively. Were these stars located in nearby galaxies would we know of them today? Only six LBVs have been confirmed in M31 and M33 through detection of outbursts, although 175 stars have now been identified as LBV "candidates" in these galaxies. These LBV candidates are spectroscopically indistinguishable from the known LBVs, but no large-scale (>2 mag) photometric outbursts have been found, although many of the candidates do show smaller photometric variability and/or spectroscopic variability. Rather than wait 1000 years for an outburst, we instead here propose to look for signatures of past outbursts in the form of ejecta nebulae close to the stars. The high spatial resolution of STIS will be sensitive to nebulae with radii larger than 0.3-0.4 pc, which corresponds to ages of >500-1000 yrs. These data will allow us to determine the frequency of ejecta among our LBV candidates compared to those of the known LBVs, and determine the physical characteristics of these past mass-loss events. Ultimately, this will help us constrain the lifetime and total mass lost in the LBV phase.

OBSERVING DESCRIPTION

We will use STIS with the G750M grating centered at 6581.

The observations will be carried out with the 0.2"x52" slit centered at the "E1" position to minimize CTE issues.

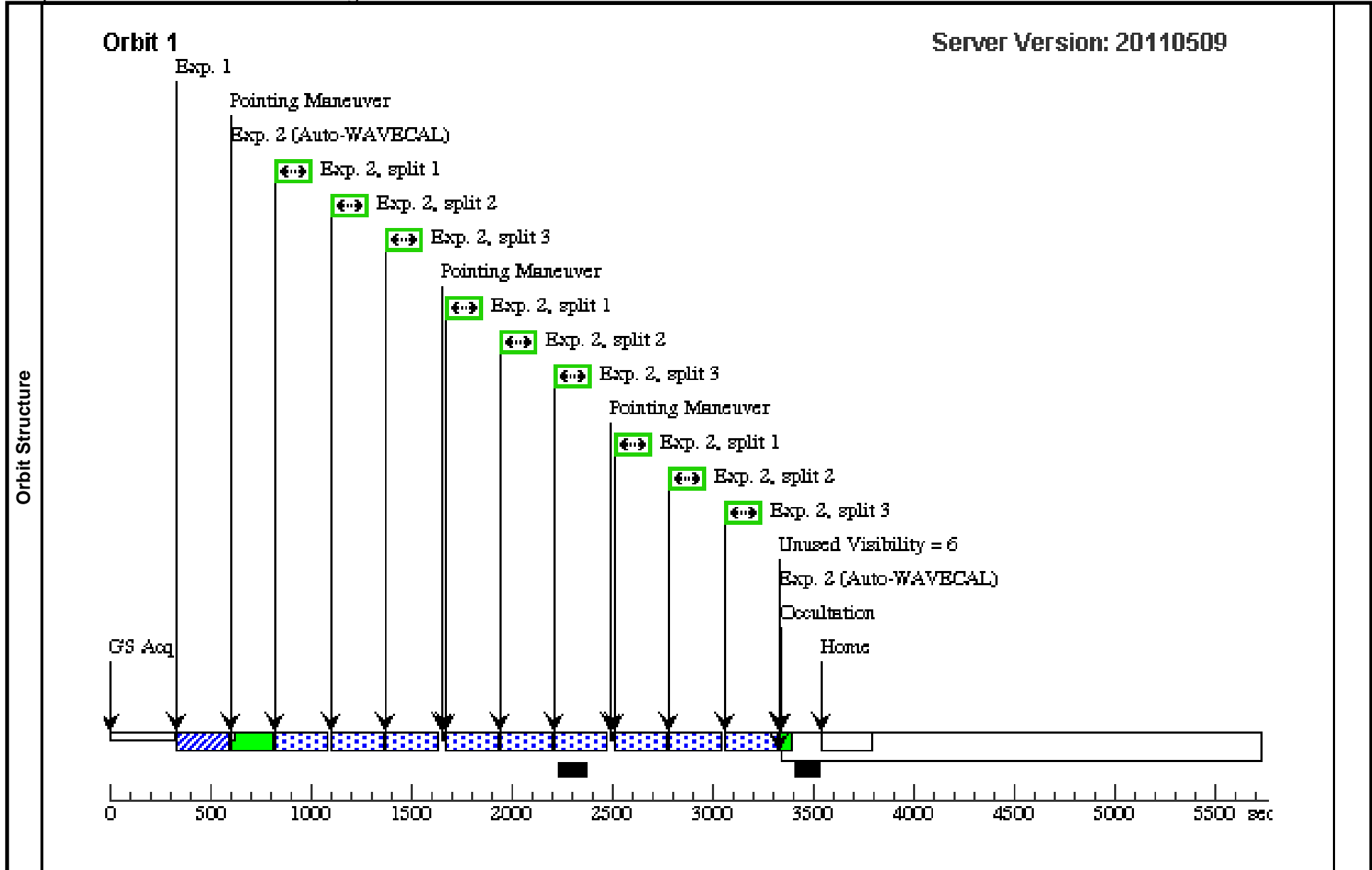
We plan to dither to 3 positions along the slit, stepping by 3.333 pixels in order to increase our spectral resolution and to alleviate the problems of hot pixels. A CR-split will be done at each of the 3 positions.

The ACQ's are all straightforward; we have checked for crowding against our ground-based images. Because these stars are variable, as their name implies, we have used a generously long exposure time (20 sec) on the ACQ for all but the brightest star. This should still be many factors safe from saturation even if the stars are at an unusually bright phase according to the ETC.

Proposal 12528 - Visit 01 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:04 GMT 2011

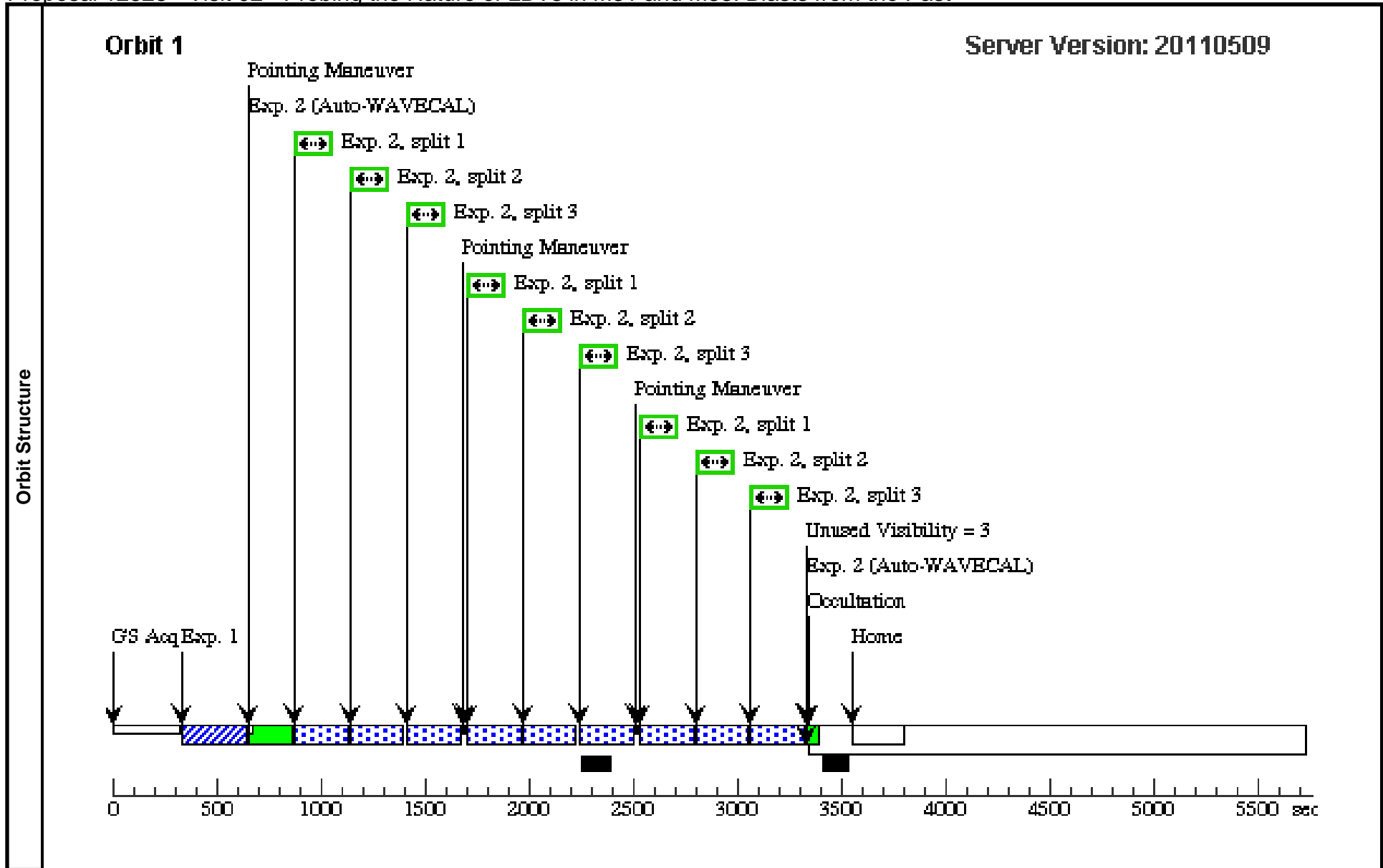
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	AEAND	RA: 00 43 2.5200 (10.7605000d) Dec: +41 49 12.40 (41.82011d) Equinox: J2000		V=17.4+/-0.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) AEAND	STIS/CCD, ACQ, F28X50LP	MIRROR				8 Secs	
									[==>]	[1]
	2		(1) AEAND	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 01 (1)	600 Secs [==>228.0 Secs (Pattern 1, Split 1)] [==>228.0 Secs (Pattern 1, Split 2)] [==>228.0 Secs (Pattern 1, Split 3)] [==>228.0 Secs (Pattern 2, Split 1)] [==>228.0 Secs (Pattern 2, Split 2)] [==>228.0 Secs (Pattern 2, Split 3)] [==>228.0 Secs (Pattern 3, Split 1)] [==>228.0 Secs (Pattern 3, Split 2)] [==>228.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 02 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:04 GMT 2011

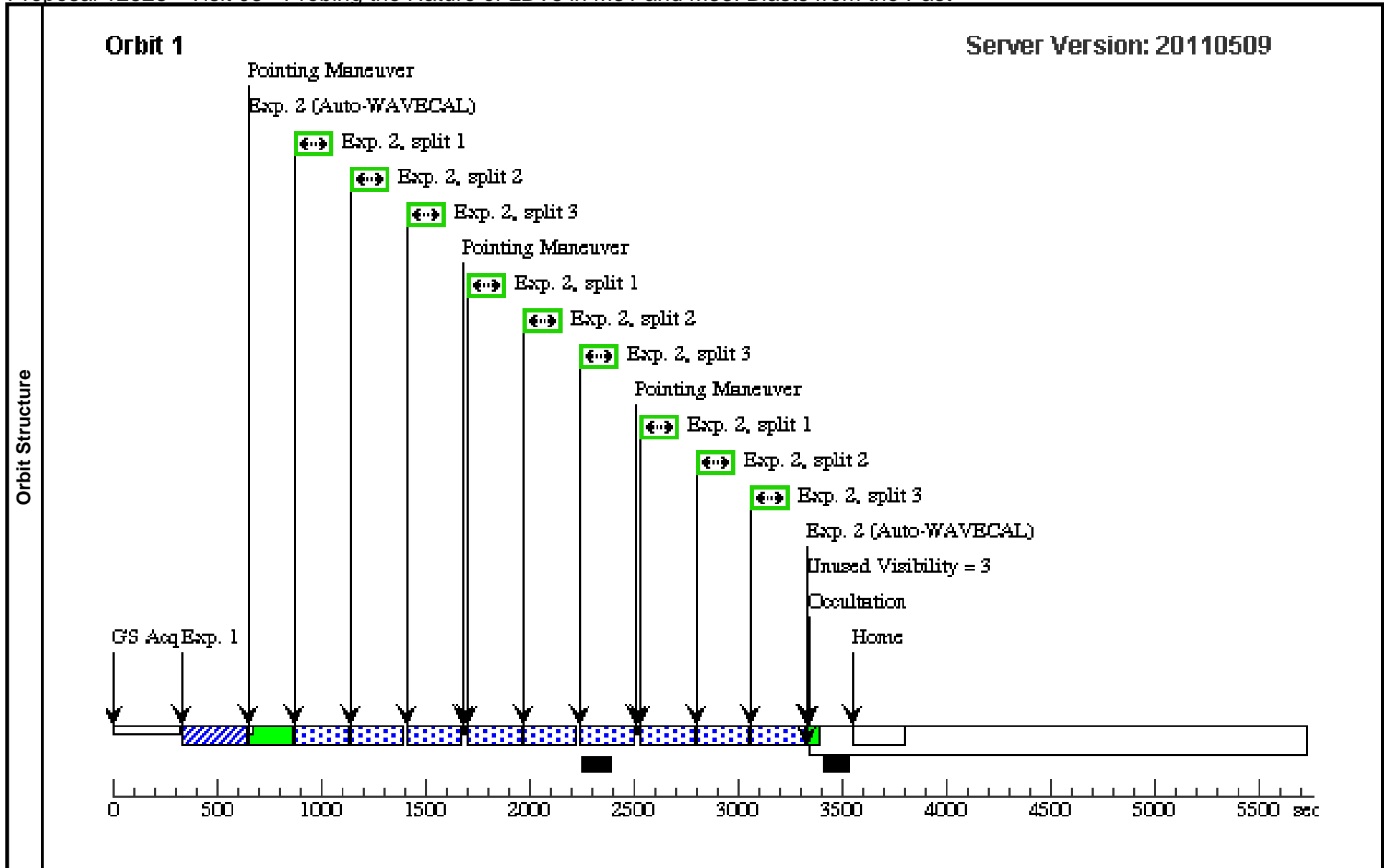
Visit	Proposal 12528, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
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		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(2)	AFAND	RA: 00 43 33.0900 (10.8878750d) Dec: +41 12 10.40 (41.20289d) Equinox: J2000			V=17.3+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) AFAND	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(2) AFAND	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 02 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 03 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:05 GMT 2011

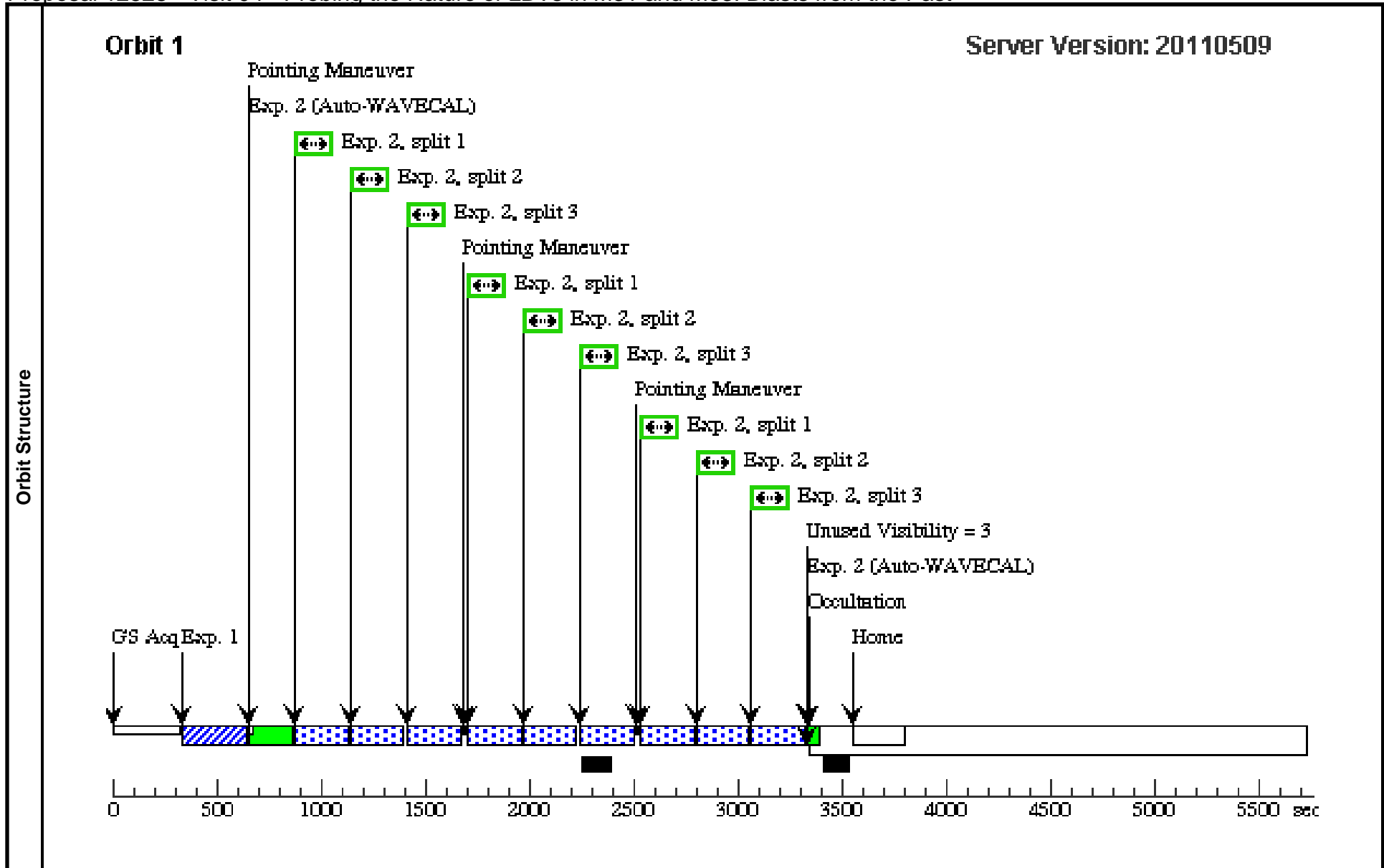
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		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(3)	VAR15	RA: 00 44 19.4300 (11.0809583d) Dec: +41 22 47.00 (41.37972d) Equinox: J2000			V=18.4+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) VAR15		STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2	(3) VAR15		STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 03 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 04 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:05 GMT 2011

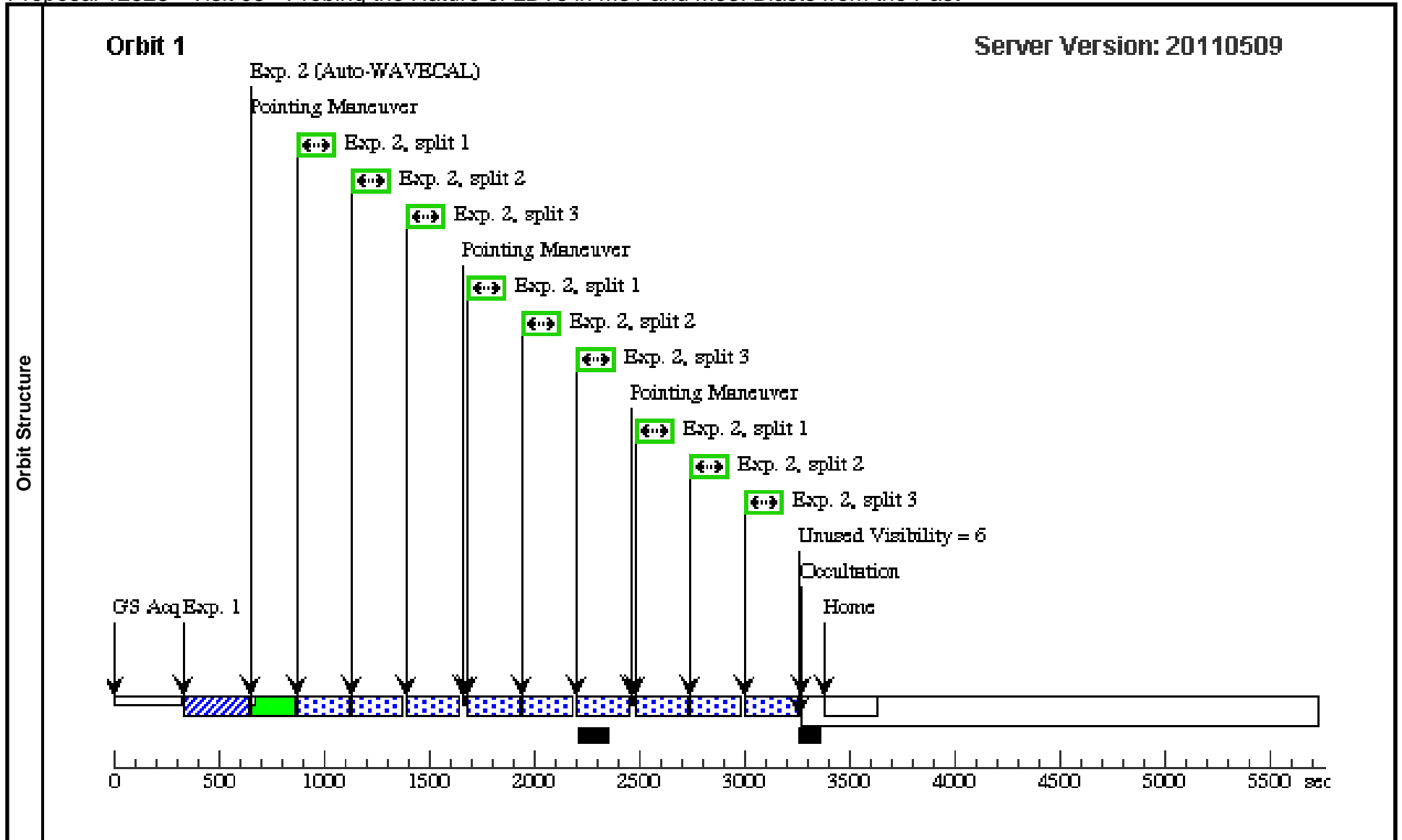
Visit	Proposal 12528, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	VARA1	RA: 00 44 50.5400 (11.2105833d) Dec: +41 30 37.70 (41.51047d) Equinox: J2000		V=17.1+/-0.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) VARA1	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs	
									[==>]	[1]
2		(4) VARA1	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3			Pattern 1, Exps 2-2 in Visit 04 (1)	600 Secs	
									[==>223.0 Secs (Pattern 1, Split 1)]	
									[==>223.0 Secs (Pattern 1, Split 2)]	
									[==>223.0 Secs (Pattern 1, Split 3)]	
									[==>223.0 Secs (Pattern 2, Split 1)]	
									[==>223.0 Secs (Pattern 2, Split 2)]	
									[==>223.0 Secs (Pattern 2, Split 3)]	
									[==>223.0 Secs (Pattern 3, Split 1)]	
									[==>223.0 Secs (Pattern 3, Split 2)]	
									[==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 05 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:05 GMT 2011

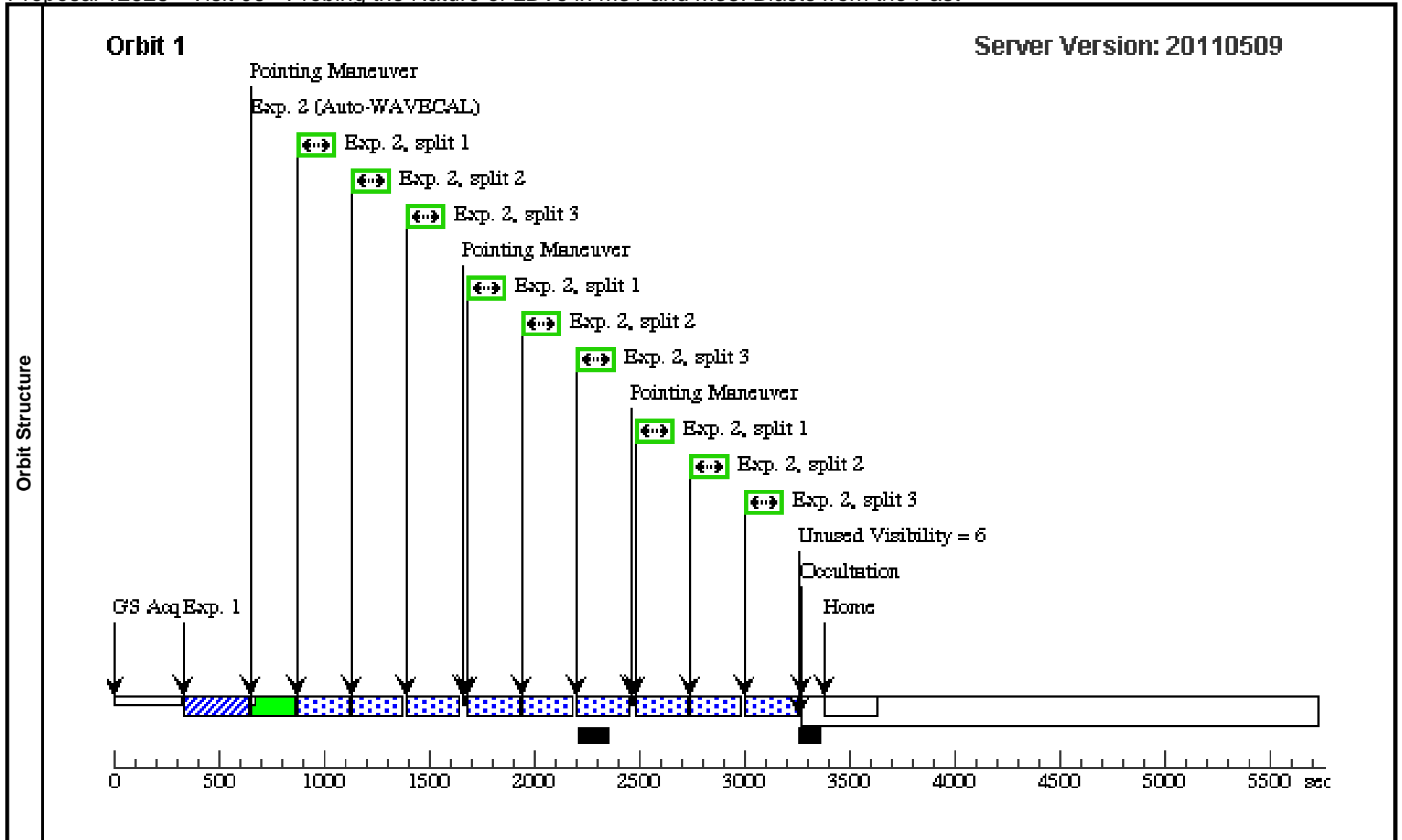
Visit	Proposal 12528, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=3 Point Spacing=0.169 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false					(2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(5)	VARC	RA: 01 33 35.1400 (23.3964167d) Dec: +30 36 0.40 (30.60011d) Equinox: J2000			V=16.4+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) VARC	(5) VARC	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARI O BASE1B3		20 Secs [==>]	[1]
	2	(5) VARC	(5) VARC	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 i n Visit 05 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 06 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:06 GMT 2011

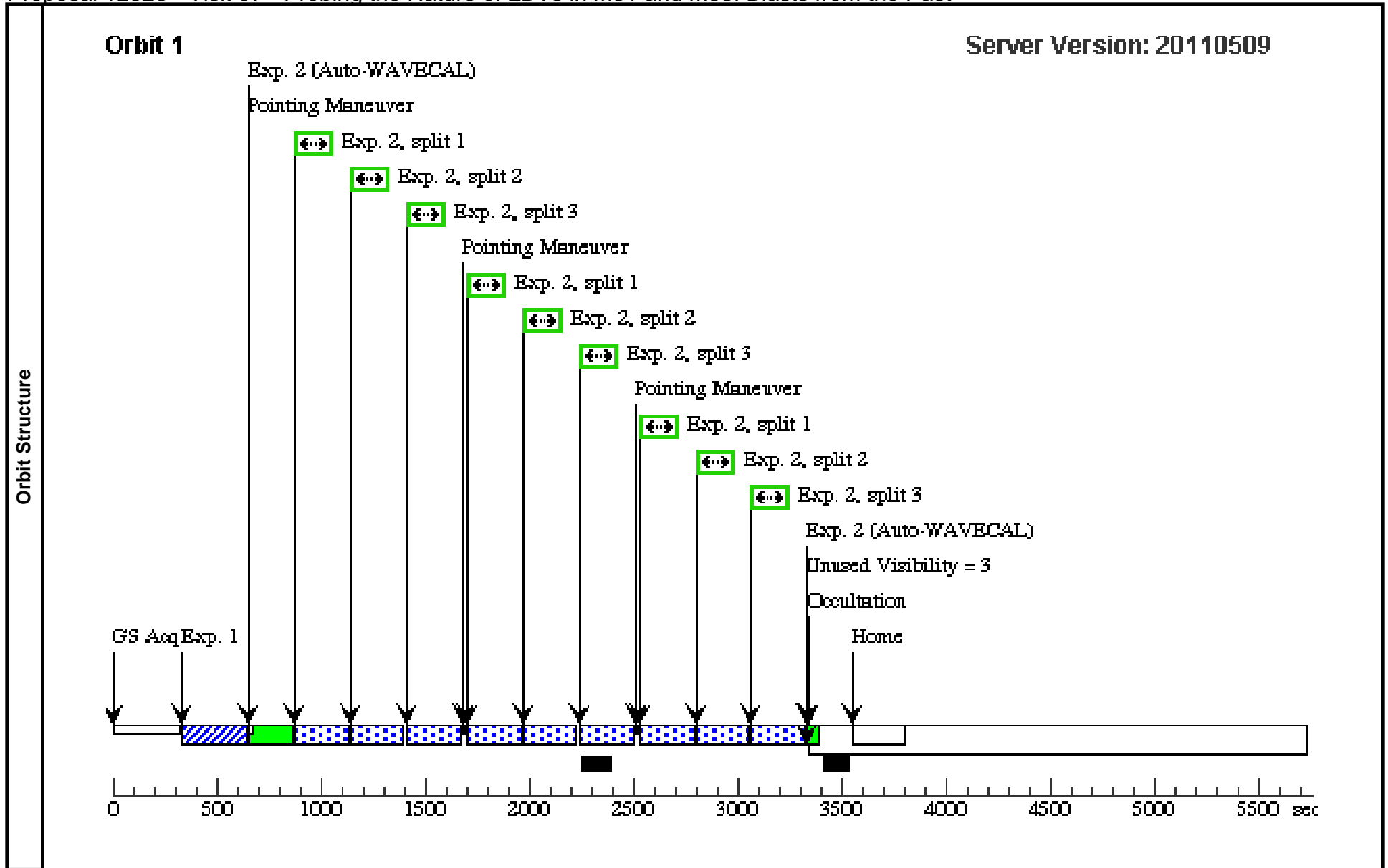
Visit	Proposal 12528, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	VARB	RA: 01 33 49.2300 (23.4551250d) Dec: +30 38 9.10 (30.63586d) Equinox: J2000		V=16.2+/-0.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) VARB		STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARI O BASE1B3		20 Secs [==>]	[1]
	2	(6) VARB		STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 i n Visit 06 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 07 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:06 GMT 2011

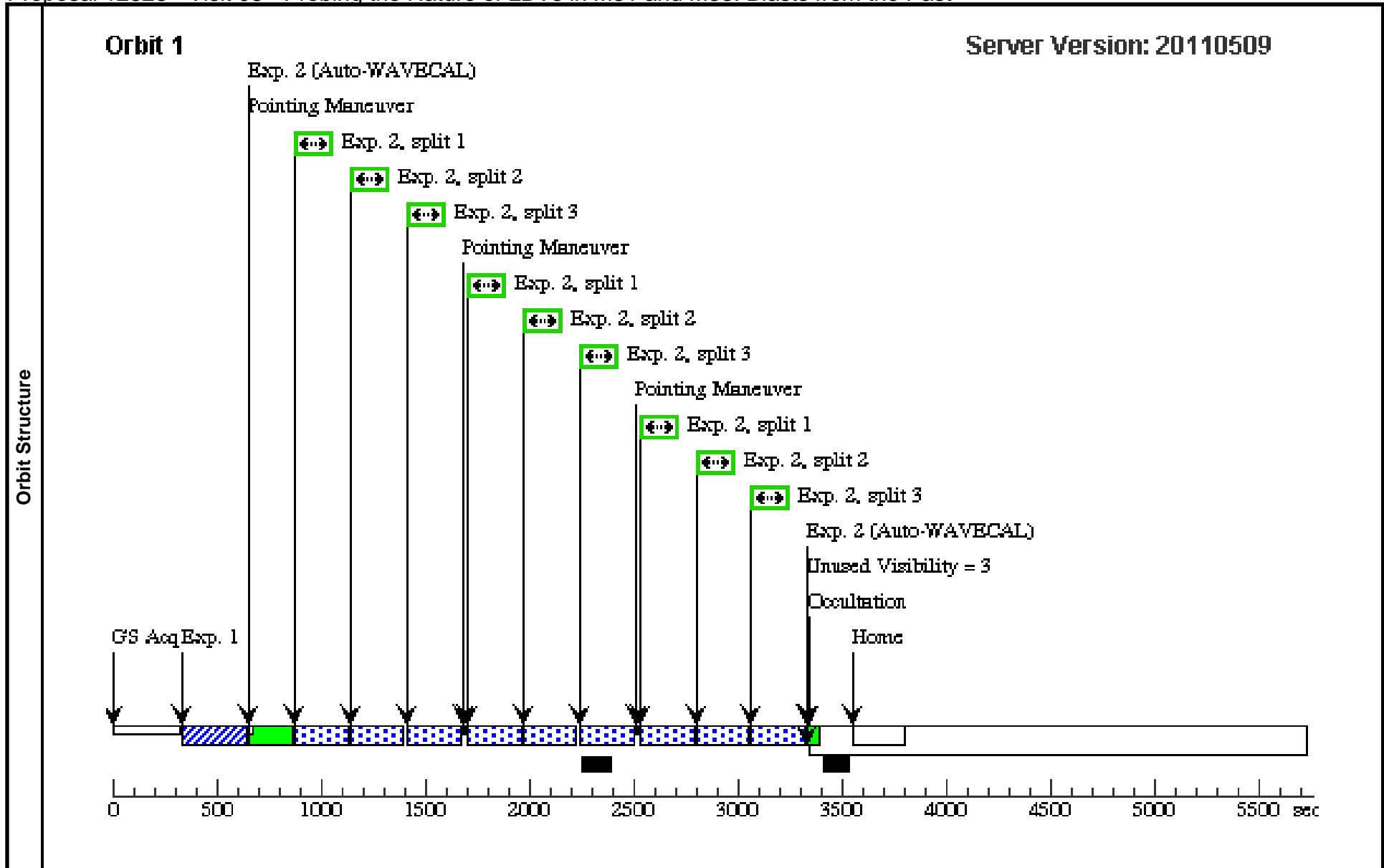
Visit	Proposal 12528, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
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		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(7)	LGGSJ004051.59+403303.0	RA: 00 40 51.5900 (10.2149583d) Dec: +40 33 3.00 (40.55083d) Equinox: J2000			V=16.9+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(7) LGGSJ004051.59+403303.0	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(7) LGGSJ004051.59+403303.0	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 07 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 08 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:07 GMT 2011

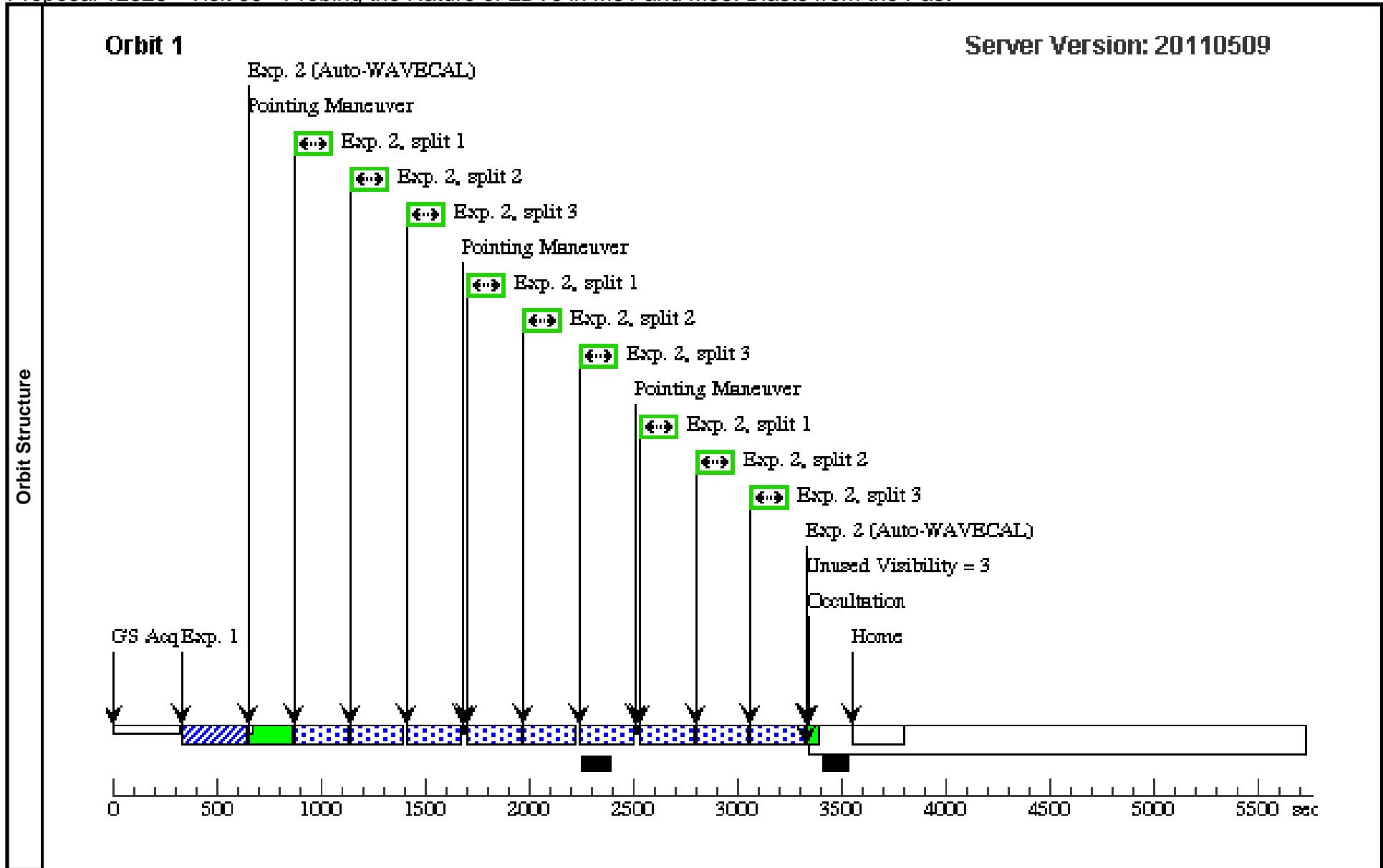
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		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(8)	LGGSJ004056.49+410308.7	RA: 00 40 56.4900 (10.2353750d) Dec: +41 03 8.70 (41.05242d) Equinox: J2000			V=18.0+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(8) LGGSJ004056.49+410308.7	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(8) LGGSJ004056.49+410308.7	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 08 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 09 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:07 GMT 2011

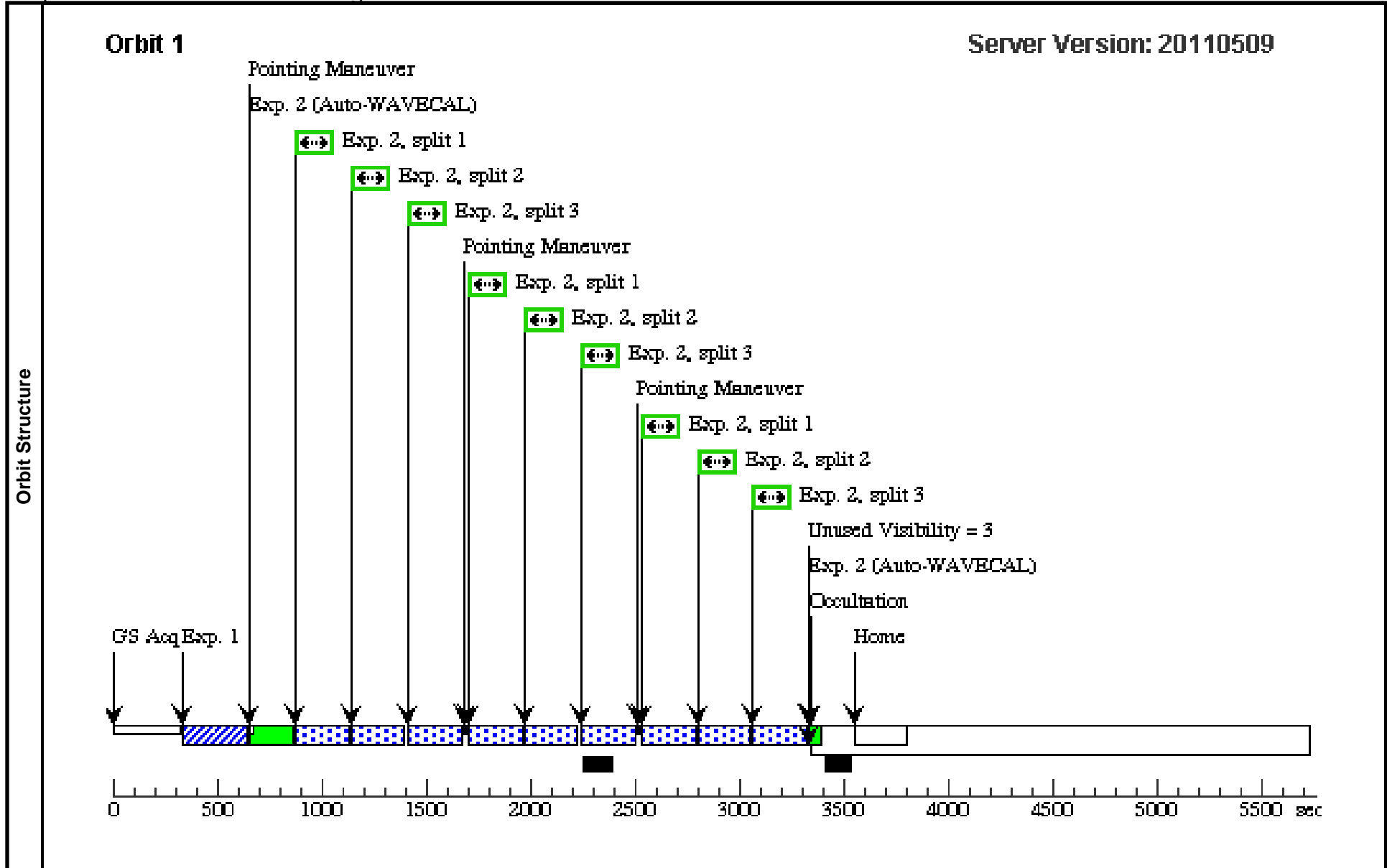
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		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	LGGSJ004411.36+413257.2	RA: 00 44 11.3600 (11.0473333d) Dec: +41 32 57.20 (41.54922d) Equinox: J2000		V=18.0+/-0.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(9) LGGSJ004411.36+413257.2	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(9) LGGSJ004411.36+413257.2	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 09 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 10 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:07 GMT 2011

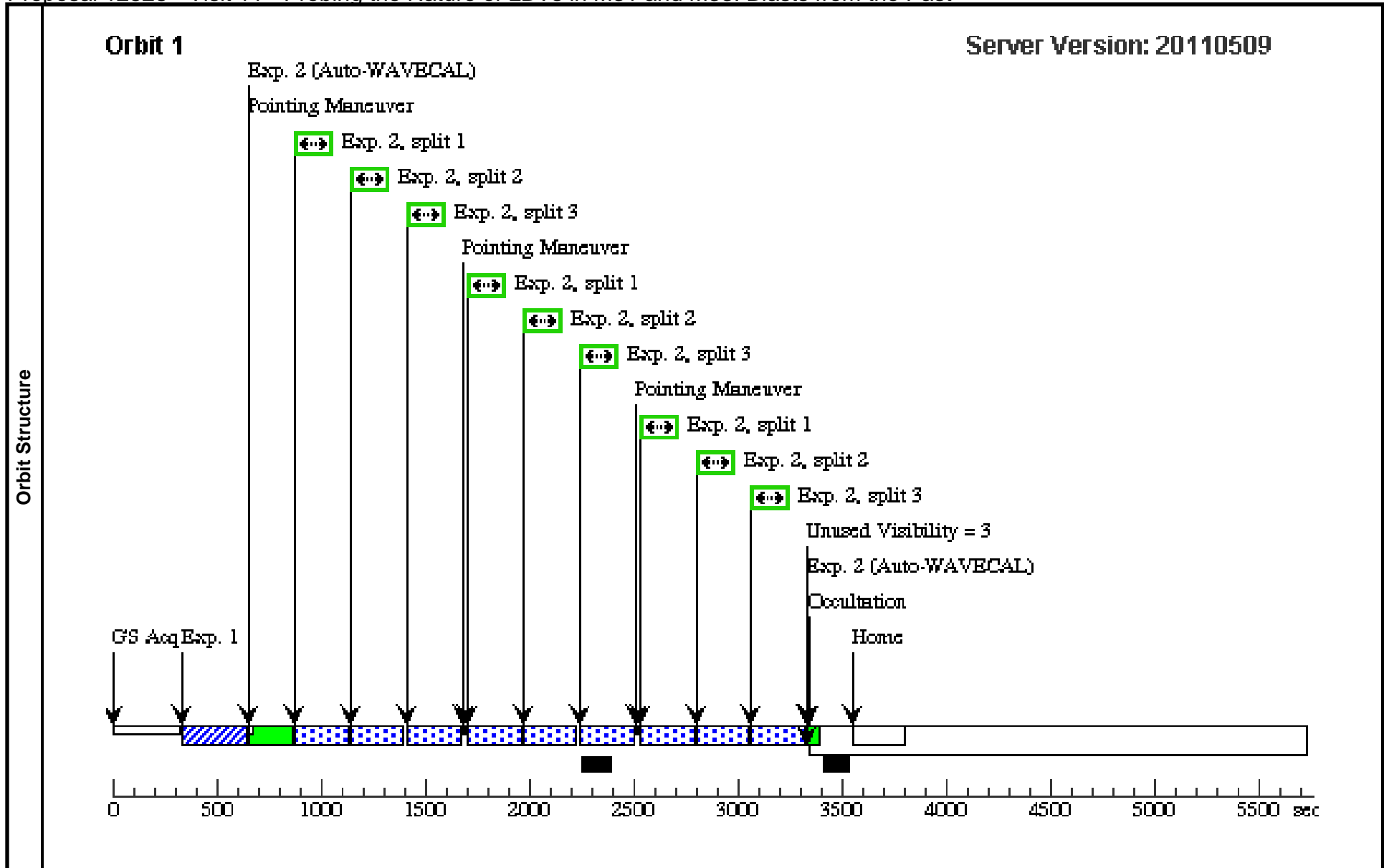
Visit	Proposal 12528, Visit 10, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
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		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(10)	LGGSJ004425.18+413452.2	RA: 00 44 25.1800 (11.1049167d) Dec: +41 34 52.20 (41.58117d) Equinox: J2000			V=17.4+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(10) LGGSJ004425.18+413452.2	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(10) LGGSJ004425.18+413452.2	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 10 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 11 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:08 GMT 2011

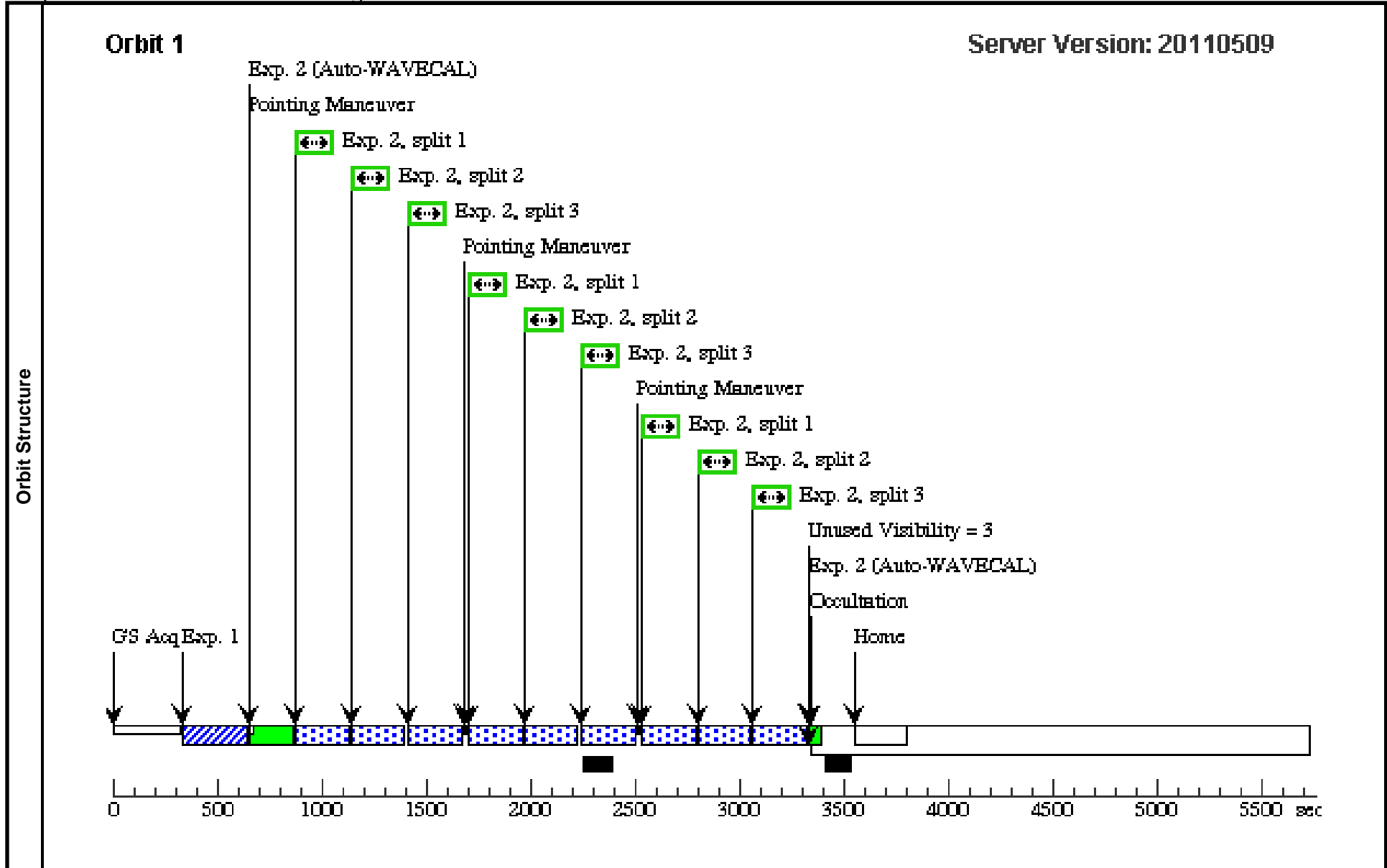
Visit	Proposal 12528, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(11)	LGGSJ004444.52+412804.0	RA: 00 44 44.5200 (11.1855000d) Dec: +41 28 4.00 (41.46778d) Equinox: J2000		V=18.0+/-0.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(11) LGGSJ004444.52+412804.0	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(11) LGGSJ004444.52+412804.0	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 11 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 12 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:08 GMT 2011

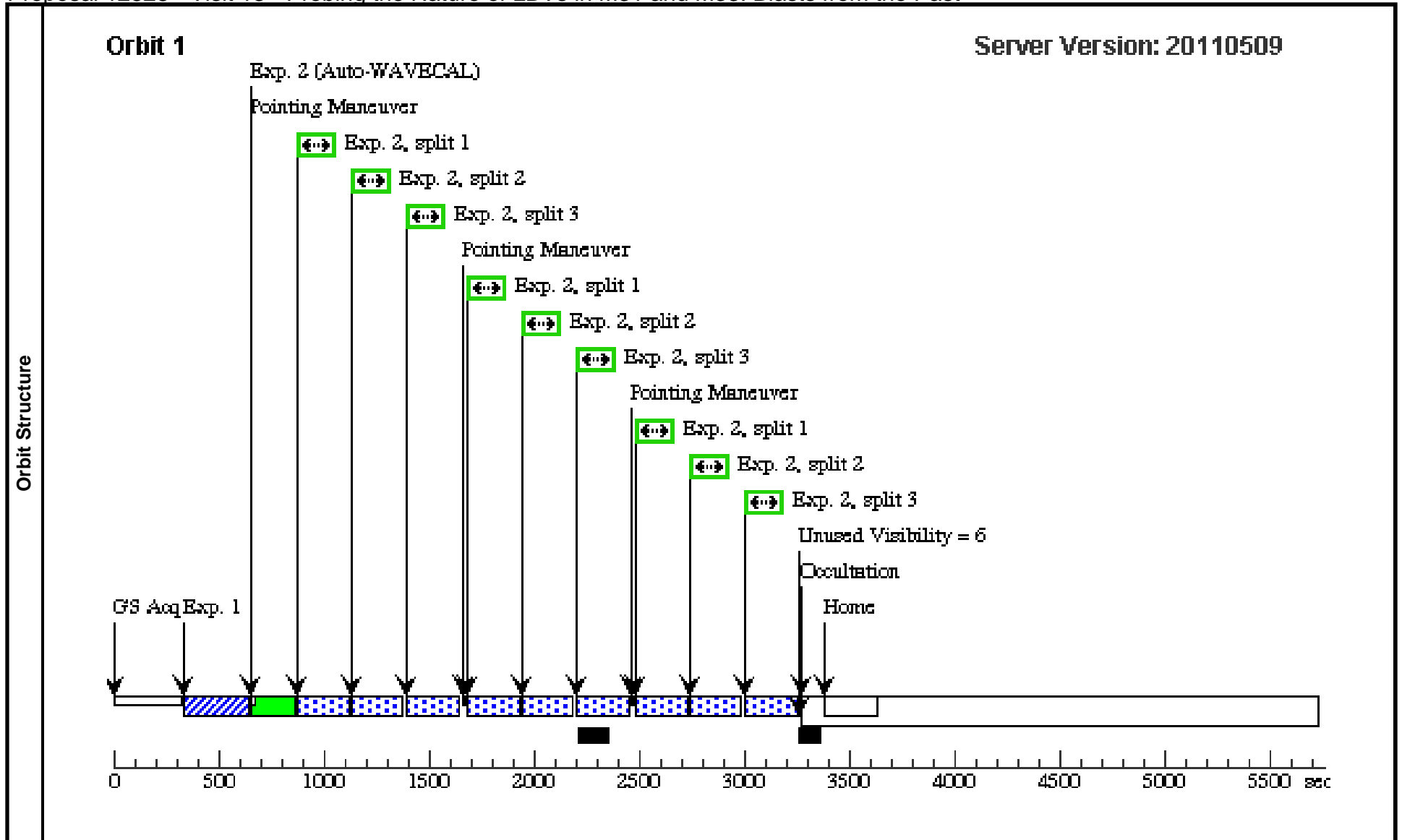
Visit	Proposal 12528, Visit 12, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(12)	LGG SJ004526.62+415006.3	RA: 00 45 26.6200 (11.3609167d) Dec: +41 50 6.30 (41.83508d) Equinox: J2000			V=17.1+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(12) LGG SJ004526.62+415006.3	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(12) LGG SJ004526.62+415006.3	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 12 (1)	600 Secs [==>223.0 Secs (Pattern 1, Split 1)] [==>223.0 Secs (Pattern 1, Split 2)] [==>223.0 Secs (Pattern 1, Split 3)] [==>223.0 Secs (Pattern 2, Split 1)] [==>223.0 Secs (Pattern 2, Split 2)] [==>223.0 Secs (Pattern 2, Split 3)] [==>223.0 Secs (Pattern 3, Split 1)] [==>223.0 Secs (Pattern 3, Split 2)] [==>223.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 13 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:08 GMT 2011

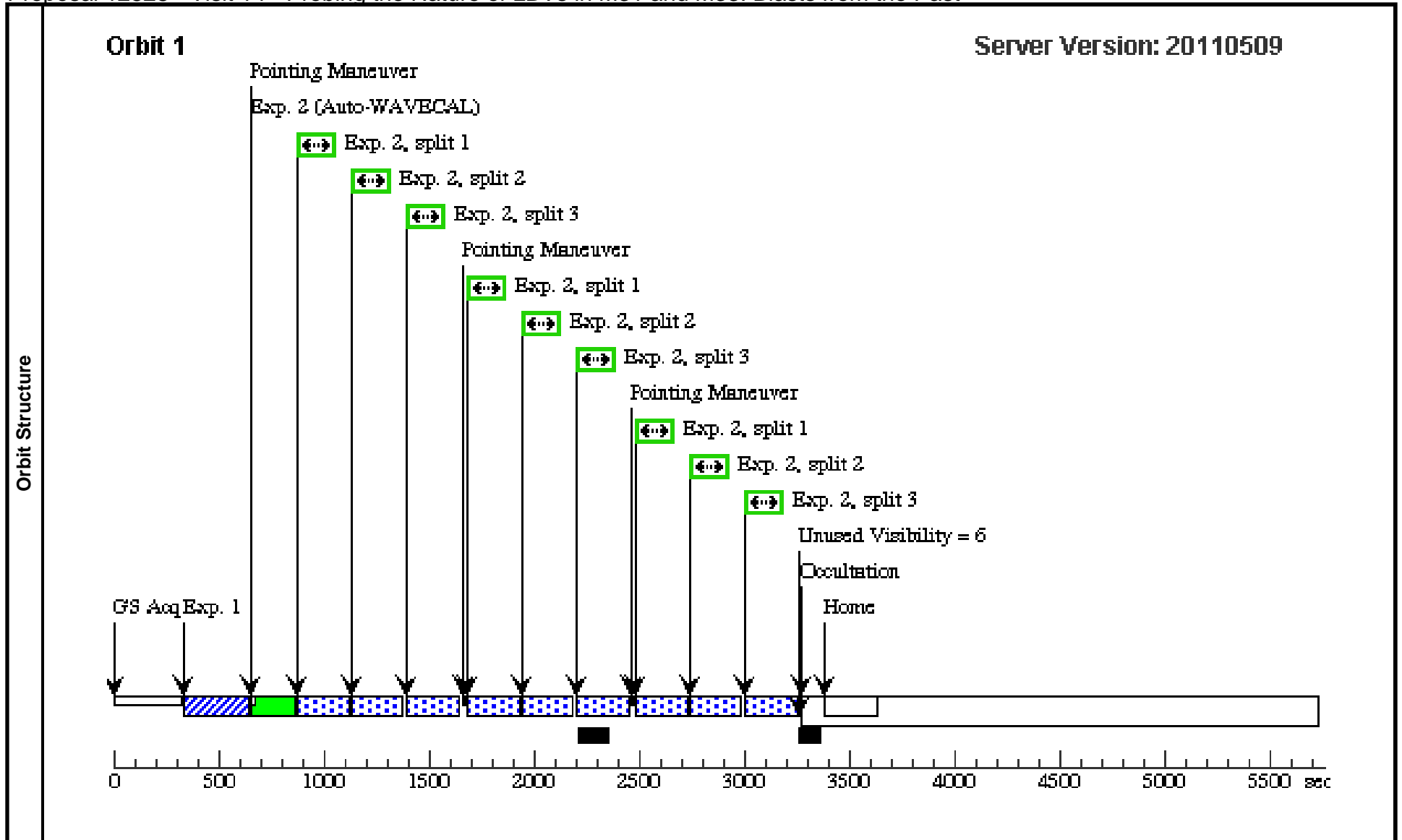
Visit	Proposal 12528, Visit 13, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(13)	LGG SJ013245.41+303858.3	RA: 01 32 45.4100 (23.1892083d) Dec: +30 38 58.30 (30.64953d) Equinox: J2000			V=17.6+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(13) LGG SJ013245.41+303858.3	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(13) LGG SJ013245.41+303858.3	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 13 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 14 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:08 GMT 2011

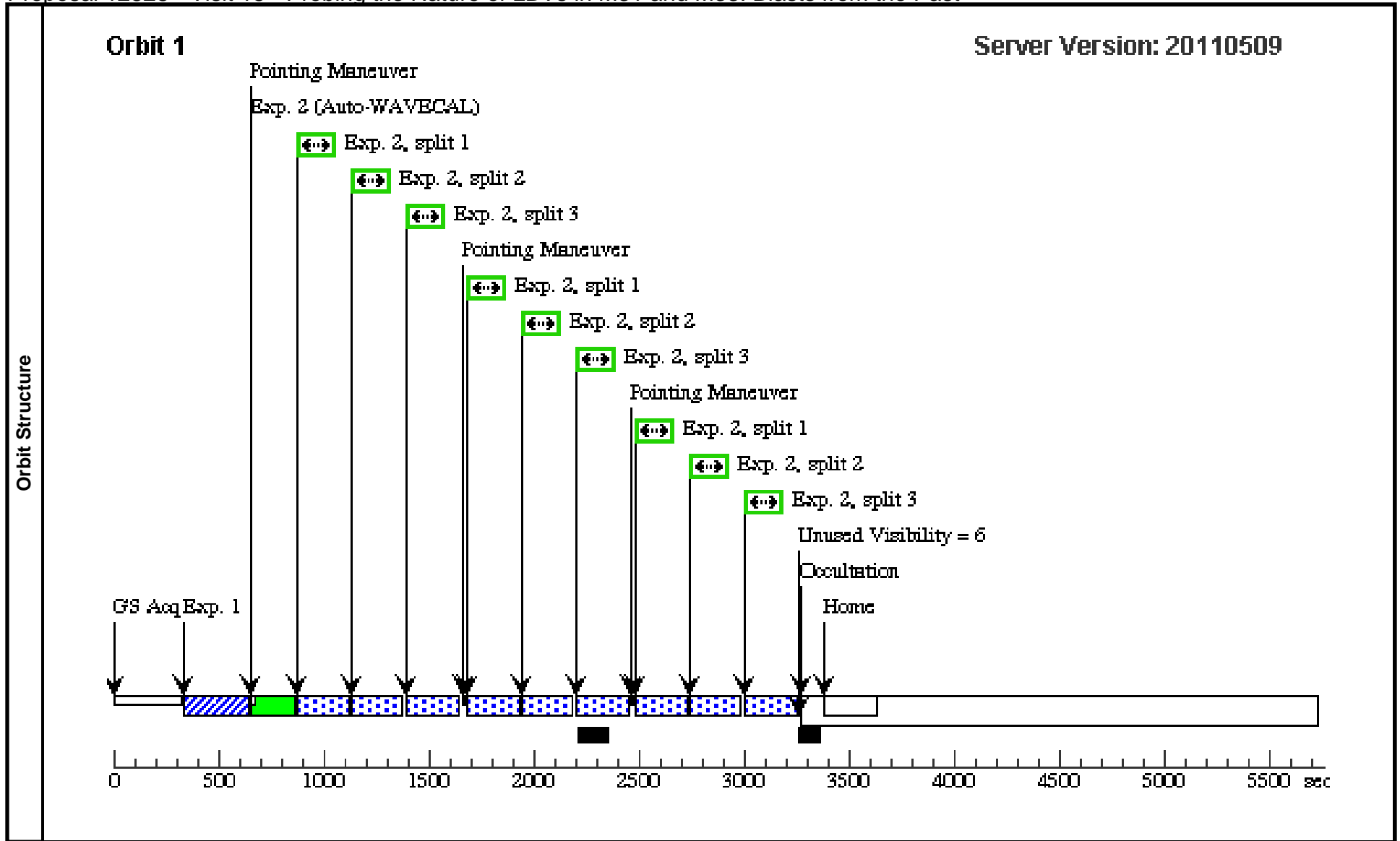
Visit	Proposal 12528, Visit 14, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(14)	LGG SJ013332.64+304127.2	RA: 01 33 32.6400 (23.3860000d) Dec: +30 41 27.20 (30.69089d) Equinox: J2000			V=18.9+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(14) LGG SJ013332.64+304127.2	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3		20 Secs [==>]	[1]
	2		(14) LGG SJ013332.64+304127.2	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 14 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 15 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:09 GMT 2011

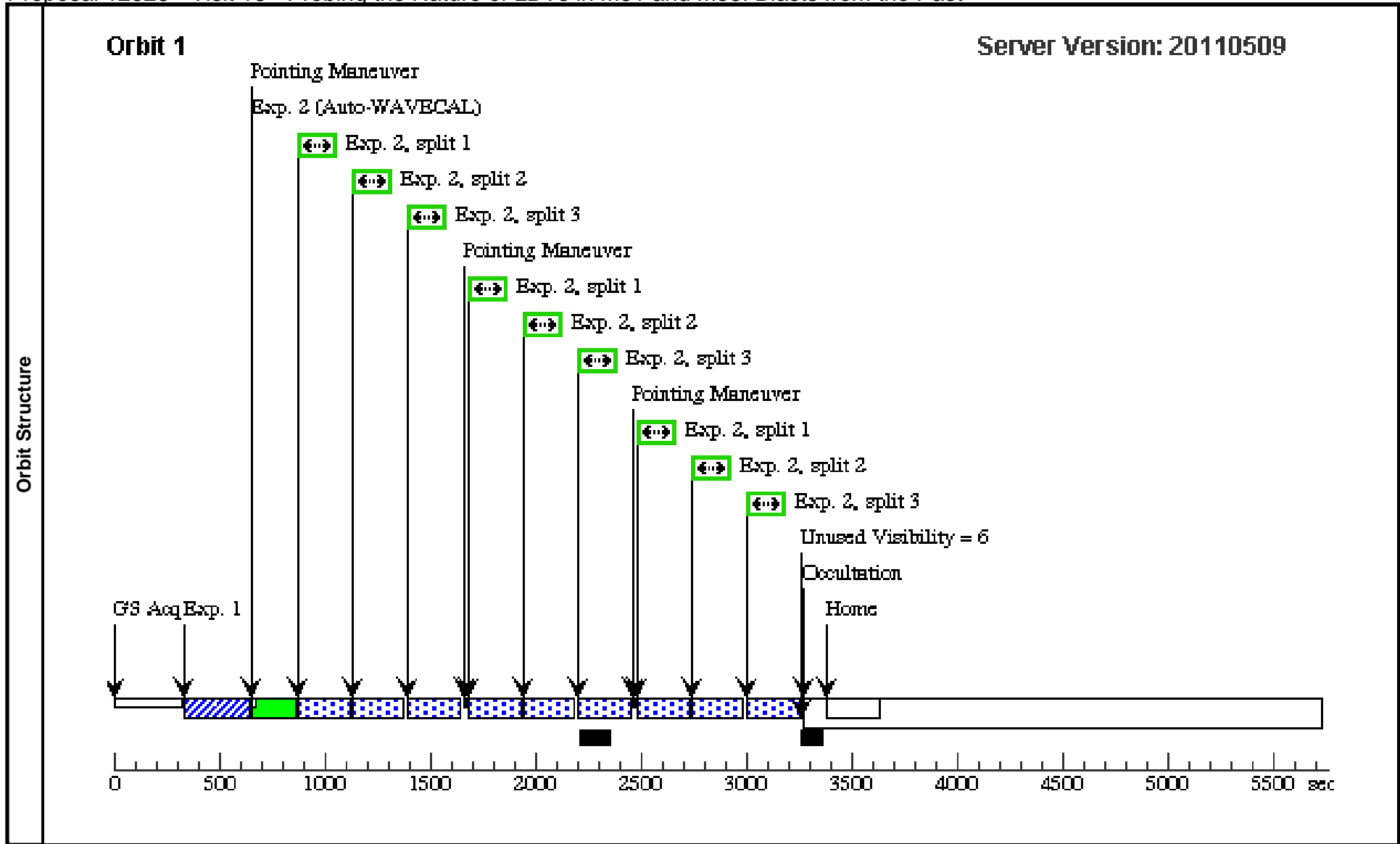
Visit	Proposal 12528, Visit 15, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(15)	LGG SJ013333.22+30334 3.4	RA: 01 33 33.2200 (23.3884167d) Dec: +30 33 43.40 (30.56206d) Equinox: J2000			V=19.4+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(15) LGG SJ013333.22+303343.4	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARI O BASE1B3		20 Secs [==>]	[1]
	2		(15) LGG SJ013333.22+303343.4	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 15 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 16 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:09 GMT 2011

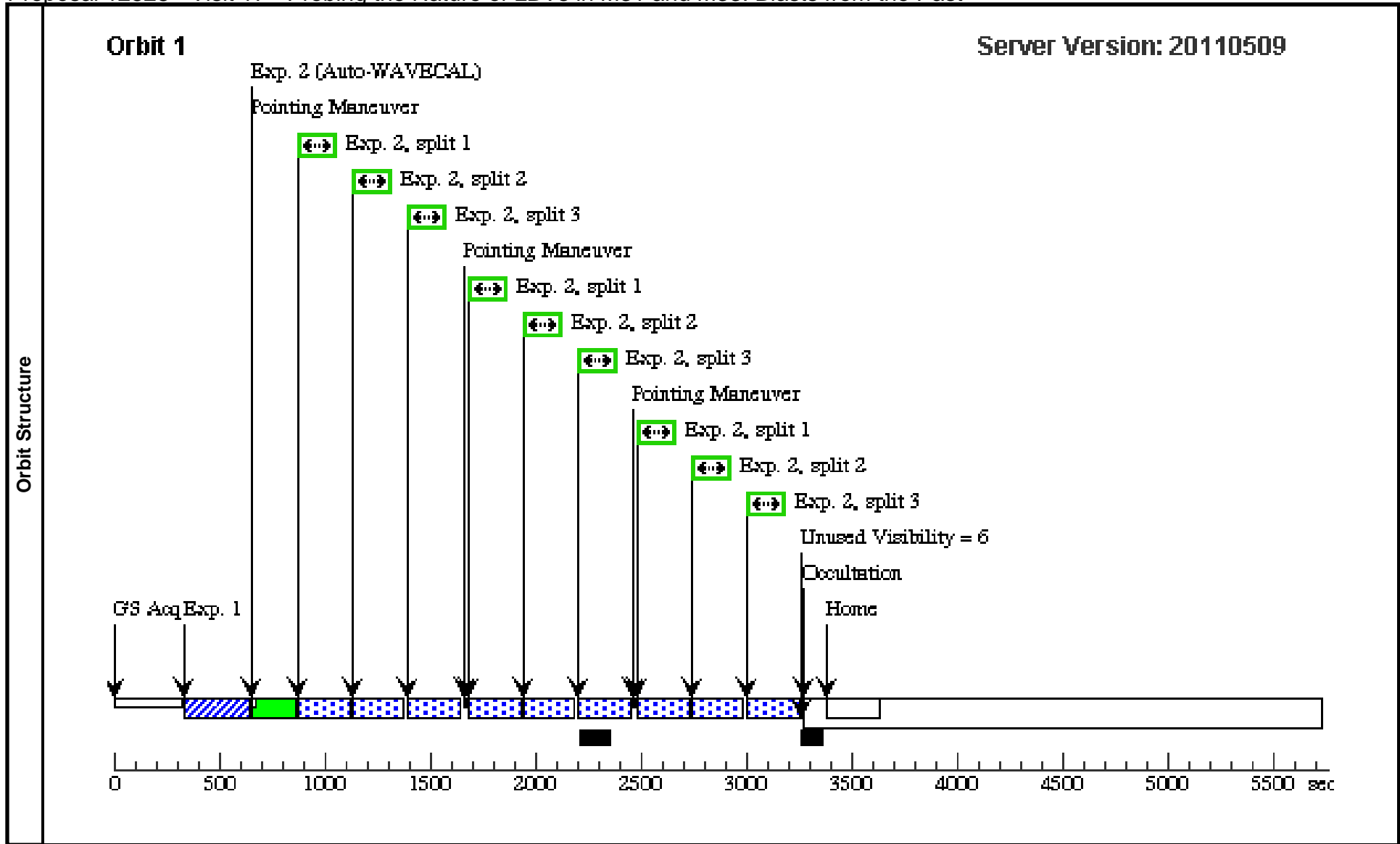
Visit	Proposal 12528, Visit 16, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(16)	LGG SJ013339.52+304540.5	RA: 01 33 39.5200 (23.4146667d) Dec: +30 45 40.50 (30.76125d) Equinox: J2000			V=17.5+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(16) LGG SJ013339.52+304540.5	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(16) LGG SJ013339.52+304540.5	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 16 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 17 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:09 GMT 2011

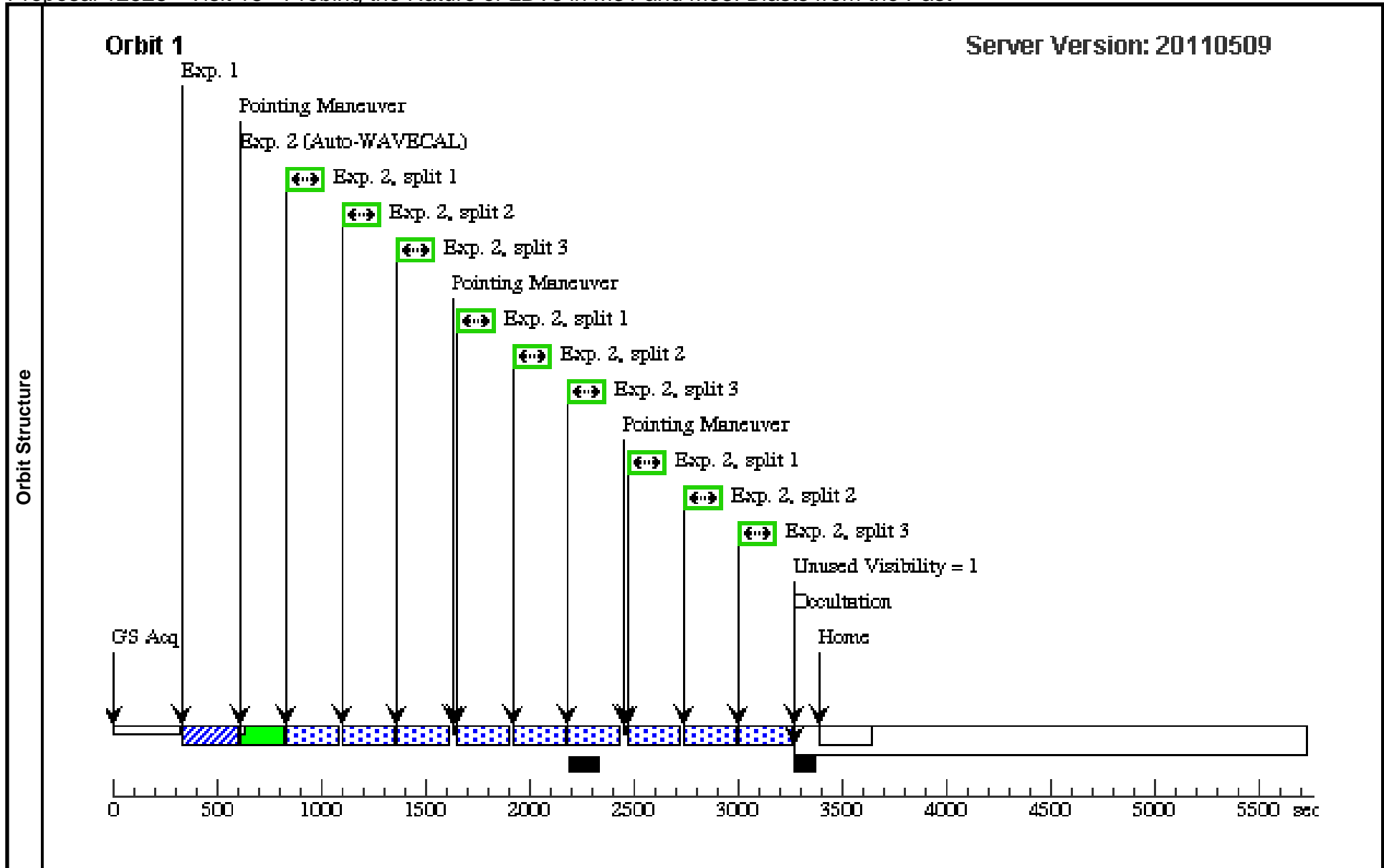
Visit	Proposal 12528, Visit 17, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(17)	LGG SJ013353.60+303851.6	RA: 01 33 53.6000 (23.4733333d) Dec: +30 38 51.60 (30.64767d) Equinox: J2000			V=18.0+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(17) LGG SJ013353.60+303851.6	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(17) LGG SJ013353.60+303851.6	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 17 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 18 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:10 GMT 2011

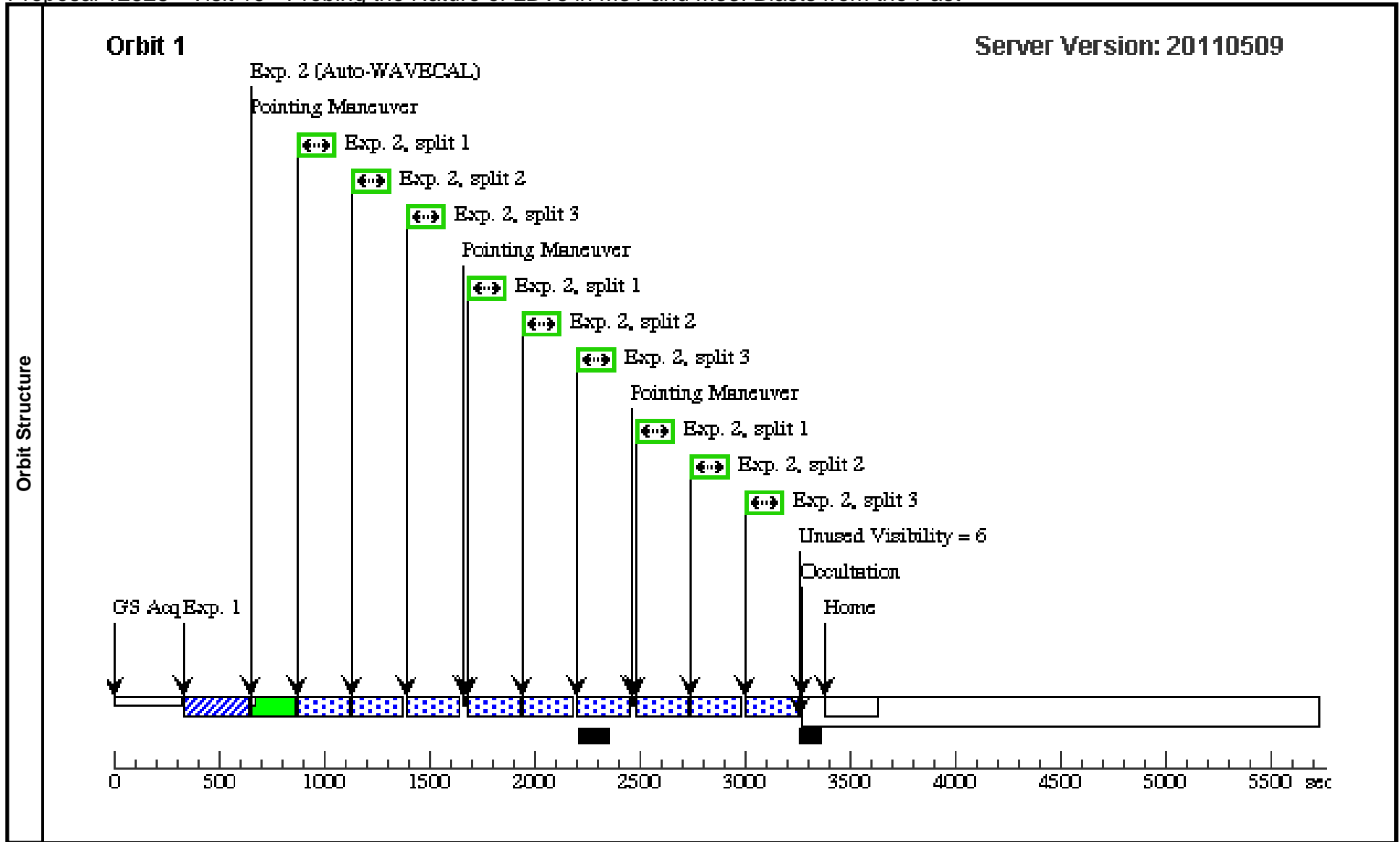
Visit	Proposal 12528, Visit 18, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(18)	LGG SJ013355.96+304530.6	RA: 01 33 55.9600 (23.4831667d) Dec: +30 45 30.60 (30.75850d) Equinox: J2000			V=14.8+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(18) LGG SJ013355.96+304530.6	STIS/CCD, ACQ, F28X50LP	MIRROR				10 Secs [==>]	[1]
	2		(18) LGG SJ013355.96+304530.6	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 18 (1)	600 Secs [==>220.0 Secs (Pattern 1, Split 1)] [==>220.0 Secs (Pattern 1, Split 2)] [==>220.0 Secs (Pattern 1, Split 3)] [==>220.0 Secs (Pattern 2, Split 1)] [==>220.0 Secs (Pattern 2, Split 2)] [==>220.0 Secs (Pattern 2, Split 3)] [==>220.0 Secs (Pattern 3, Split 1)] [==>220.0 Secs (Pattern 3, Split 2)] [==>220.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 19 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:10 GMT 2011

Visit	Proposal 12528, Visit 19, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(19)	LGG SJ013416.07+303642.1	RA: 01 34 16.0700 (23.5669583d) Dec: +30 36 42.10 (30.61169d) Equinox: J2000			V=17.9+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(19) LGG SJ013416.07+303642.1	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(19) LGG SJ013416.07+303642.1	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 19 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]



Proposal 12528 - Visit 20 - Probing the Nature of LBVs in M31 and M33: Blasts from the Past

Tue Jun 21 01:26:10 GMT 2011

Visit	Proposal 12528, Visit 20, implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=3	Angle Between Sides=							
		Point Spacing=0.169	Center Pattern=false							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(20)	LGGSJ013509.73+304157.3	RA: 01 35 9.7300 (23.7905417d) Dec: +30 41 57.30 (30.69925d) Equinox: J2000			V=18.0+/-0.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(20) LGGSJ013509.73+304157.3	STIS/CCD, ACQ, F28X50LP	MIRROR				20 Secs [==>]	[1]
	2		(20) LGGSJ013509.73+304157.3	STIS/CCD, ACCUM, 52X0.2E1	G750M 6581 A	CR-SPLIT=3		Pattern 1, Exps 2-2 in Visit 20 (1)	600 Secs [==>215.0 Secs (Pattern 1, Split 1)] [==>215.0 Secs (Pattern 1, Split 2)] [==>215.0 Secs (Pattern 1, Split 3)] [==>215.0 Secs (Pattern 2, Split 1)] [==>215.0 Secs (Pattern 2, Split 2)] [==>215.0 Secs (Pattern 2, Split 3)] [==>215.0 Secs (Pattern 3, Split 1)] [==>215.0 Secs (Pattern 3, Split 2)] [==>215.0 Secs (Pattern 3, Split 3)]	[1]

