12502 - From the Locations to the Origins of Short Gamma-Ray Bursts

Cycle: 19, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Andrew S. Fruchter (PI)	**Space Telescope Science Institute**	**fruchter@stsci.edu**
Dr. Kryzysztof Belczynski (CoI)	Warsaw University	kbelczyn@astrouw.edu.pl
Dr. David Bersier (CoI) (ESA Member)	Liverpool John Moores University	dfb@astro.livjm.ac.uk
Prof. Joshua S. Bloom (CoI)	University of California - Berkeley	jbloom@astron.berkeley.edu
Dr. Guido Chincarini (CoI) (ESA Member)	Osservatorio Astronomico di Brera, Milano	guido.chincarini@brera.inaf.it
Dr. Christopher J. Conselice (CoI) (ESA Member)	University of Nottingham	conselice@nottingham.ac.uk
Mr. John Graham (CoI)	The Johns Hopkins University	graham@stsci.edu
Dr. Stephen T. Holland (CoI)	Space Telescope Science Institute	sholland@stsci.edu
Dr. C. Kouveliotou (CoI)	NASA Marshall Space Flight Center	chryssa.kouveliotou-2@nasa.gov
Dr. Andrew J. Levan (CoI) (ESA Member)	The University of Warwick	a.j.levan@warwick.ac.uk
Dr. Mario Livio (CoI)	Space Telescope Science Institute	mlivio@stsci.edu
Dr. Kuntal Misra (CoI)	Space Telescope Science Institute	misra@stsci.edu
Dr. Asaf Pe'er (CoI)	Harvard University	apeer@cfa.harvard.edu
Dr. Daniel Perley (CoI)	California Institute of Technology	dperley@astro.caltech.edu
Prof. Nial R. Tanvir (CoI) (ESA Member)	University of Leicester	nrt3@star.le.ac.uk

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) GRB-061201	WFC3/IR	2	20-Mar-2012 21:06:50.0	yes
02	(3) GRB-070724A	WFC3/IR	1	20-Mar-2012 21:06:57.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(2) GRB-080503	WFC3/IR	2	20-Mar-2012 21:07:02.0	yes
04	(4) GRB-080905A	WFC3/IR	1	20-Mar-2012 21:07:07.0	yes
05	(6) GRB-090305A	WFC3/IR	2	20-Mar-2012 21:07:12.0	yes
06	(7) GRB-090426	WFC3/IR	1	20-Mar-2012 21:07:16.0	yes
07	(5) GRB-090510	WFC3/IR	1	20-Mar-2012 21:07:21.0	yes
08	(12) GRB-090515	WFC3/IR	2	20-Mar-2012 21:07:25.0	yes
09	(9) GRB-091109B	WFC3/IR	2	20-Mar-2012 21:07:30.0	yes
10	(10) GRB-100117A	WFC3/IR	1	20-Mar-2012 21:07:34.0	yes
11	(11) GRB-100816A	WFC3/IR	1	20-Mar-2012 21:07:39.0	yes
14	(13) TOO-GC	WFC3/UVIS	1	20-Mar-2012 21:07:44.0	yes
15	(13) TOO-GC	WFC3/UVIS	4	20-Mar-2012 21:07:54.0	yes
16	(14) GRB-080905A-HSTPOS	WFC3/IR WFC3/UVIS	3	20-Mar-2012 21:08:11.0	yes

24 Total Orbits Used

ABSTRACT

While long-duration gamma-ray bursts (LGRBs) result from the collapse of massive stars, the progenitors of short-duration gamma-ray bursts (SGRBs) are still unknown. Although SGRBs are widely thought to result from the inspiral of compact binaries, this is a conjecture. SGRBs have been found in elliptical galaxies, Abell Clusters, star-forming dwarfs and spirals. Analysis of our Cycle 16 and Cycle 17 programs shows that the vast majority of SGRBs lie off of the rest-frame UV light (lambda < 400nm) of their hosts, and may even be more widely distributed than the red light (lambda > 600 nm). These results may be an indication that the progenitors of SGRBs have significant velocities.

We will use two lines of attack to obtain substantial new insight into the origins of SGRBs. 1) WFC3 IR imaging of eleven hosts will nearly double the number of hosts with HST imaging in the rest-frame red. This new sample is large enough to turn the statistical suggestion already seen in the red light distribution into a statistical certainty, and would strongly imply that SGRBs are formed from compact binaries. Additionally if some of these bursts continue to show no evidence of an underlying host, models which predict neutron-star binaries with large velocities would be favored. 2) If an SGRB goes off in a nearby elliptical we will trigger a target of opportunity. The discovery of a globular cluster at the site of the explosion

would provide revolutionary evidence that SGRBs are formed from compact binaries.

OBSERVING DESCRIPTION

We propose to observe all SGRBs localized to better than $0\farcs1$ since the Cycle 17 deadline. There are nine such bursts, all with optical or NIR transients observed with eight-meter telescopes. Based on past experience we can expect to be able transfer the astrometry to an HST image to better than $0\farcs05$, or less than the width of a drizzled WFC3/IR pixel. In addition we will observe the fields of two SGRBs that have already been imaged by ACS (GRB~060121) or WFPC2 (GRB~080503) without detecting the host. In the case of GRB~080503, the OT was still visible in one epoch, so for this burst we will be able to do astrometry to $\sim 0\farcs01$.

All observations will be done in F160W of WFC3 to give us the reddest filter possible. We do this to attempt to avoid contaminating the red light profile of the galaxy by the narrower blue light profile, independent of redshift. Given the dramatic improvement in signal-to-noise ratio we have seen moving from WFPC2 or ACS to NICMOS, or for GRB~070714B, from the UVIS to the NIR on WFC3, observing in F160W would likely be a wise move even in the absence of this consideration. We will observe hosts with an R band magnitude brighter than 25 for one orbit, and fainter hosts for two orbits. We will reach a SNR of 1.0 per pixel at 24.1 Vega mags per arcsec^2 in F160W in one orbit (about 25.7 mags AB) and 24.5 Vegamags in two orbits. We find that a SNR of 1.0 per pixel works well with Sextractor in defining the boundary of the host.

We make only one exception to our choice of F160W as our observing filter. This is in the search for an underlying globular cluster in the case of a burst going off in an elliptical with $z < 0.1$. Because of the exquisite PSF of the UVIS channel of WFC3, we will get a better optimal extraction SNR, and a better contrast between globular and elliptical, in the visible F606W filter than we would in the near-IR.

Visit

Proposal 12502, Visit 01, scheduling Wed Mar 21 01:08:20 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

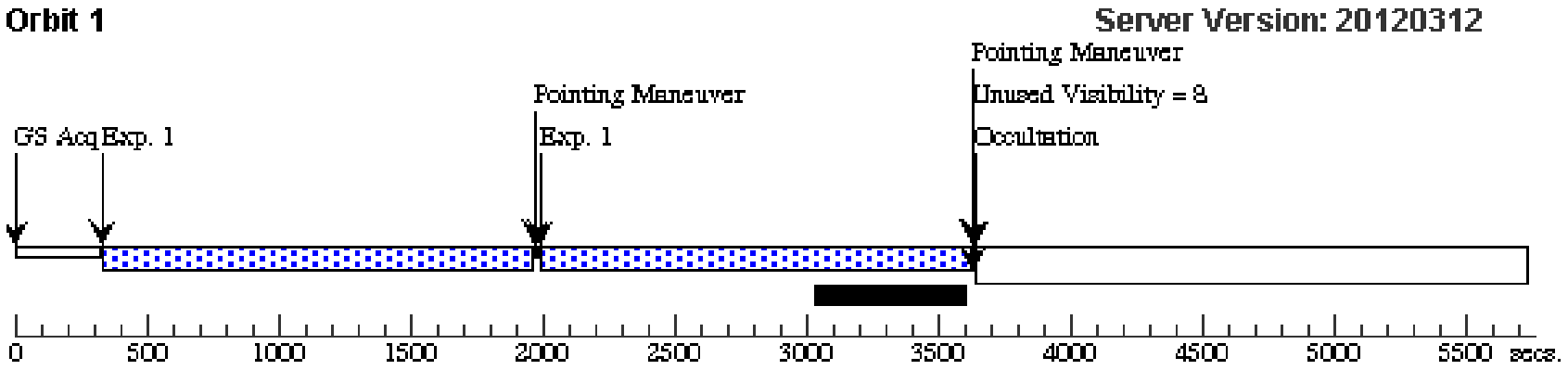
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB-061201	RA: 22 08 32.2300 (332.1342917d) Dec: -74 34 49.10 (-74.58031d) Equinox: J2000		V=29	Reference Frame: ICRS

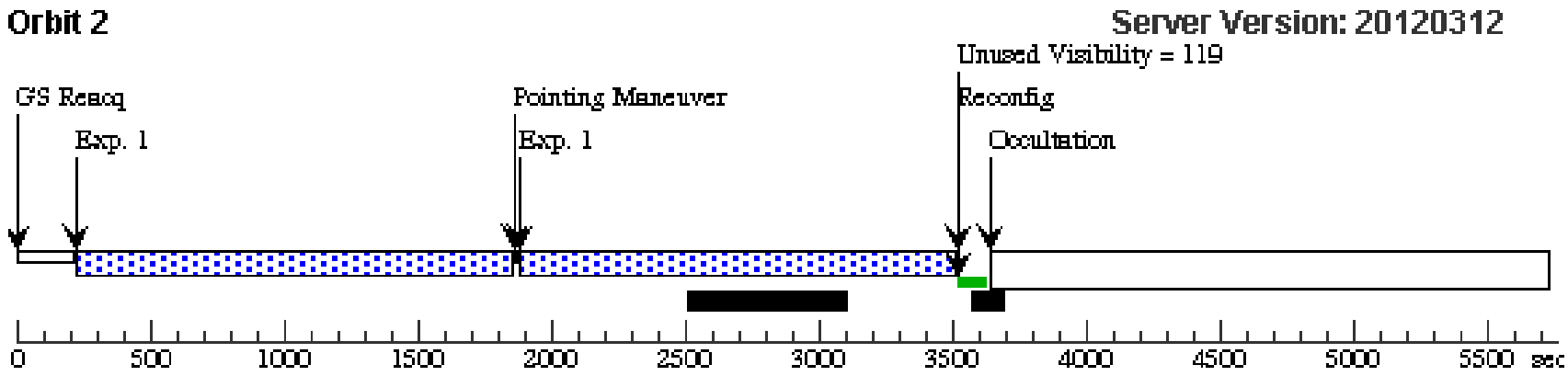
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB-061201	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP200; NSAMP=15		Pattern 2, Exps 1-1 in Visit 01 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>(Pattern 3)] *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 12502, Visit 02, completed Wed Mar 21 01:08:21 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

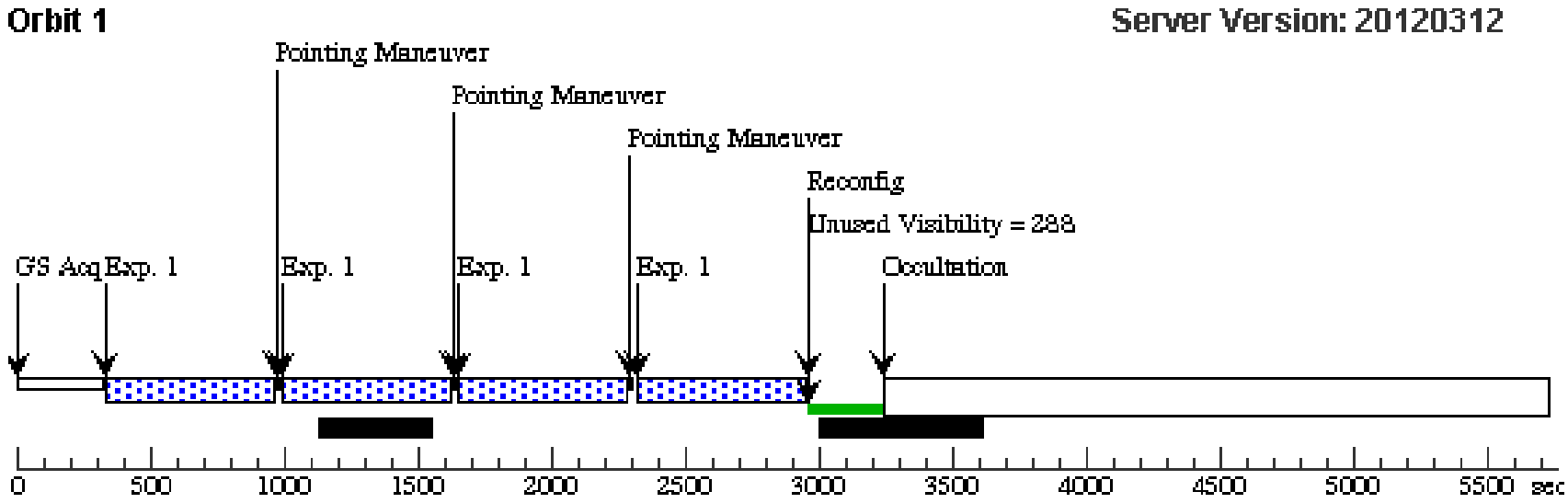
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	GRB-070724A	RA: 01 51 13.9600 (27.8081667d) Dec: -18 35 40.10 (-18.59447d) Equinox: J2000		V=21	Reference Frame: ICRS

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		(3) GRB-070724A	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 02 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 03, completed Wed Mar 21 01:08:21 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

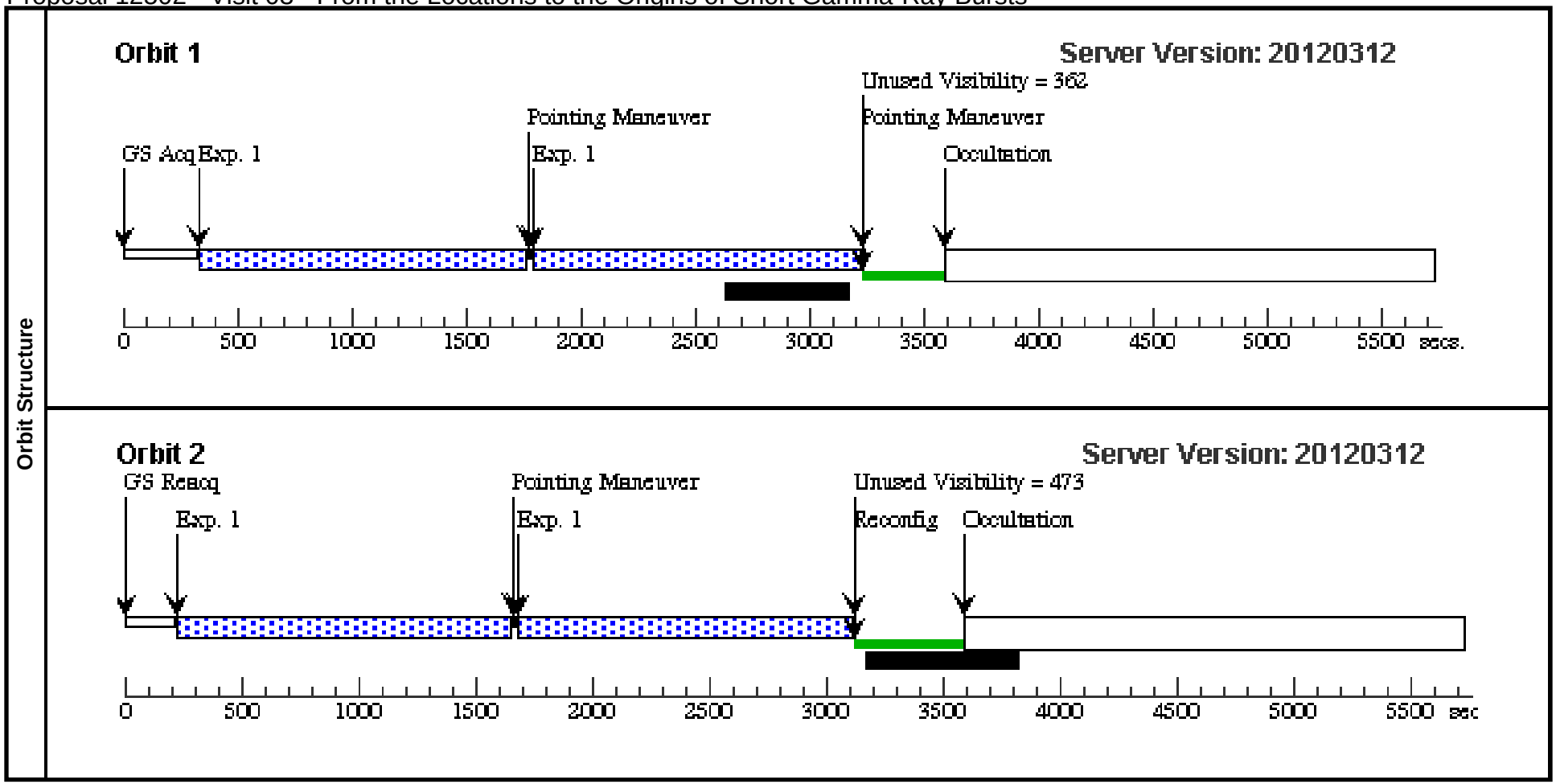
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GRB-080503	RA: 19 06 28.7200 (286.6196667d) Dec: +68 47 35.30 (68.79314d) Equinox: J2000		V=29	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		(2) GRB-080503	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP200; NSAMP=14		Pattern 2, Exps 1-1 in Visit 03 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>(Pattern 3)] *[==>(Pattern 4)]*	***[2]***


Orbit Structure
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Server Version: 20120312
Unused Visibility = 362
Pointing Maneuver
Pointing Maneuver
GS Acq
Exp. 1
Exp. 1
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20120312
GS Reacq
Pointing Maneuver
Unused Visibility = 473
Exp. 1
Exp. 1
Reconfig
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12502, Visit 04, completed Wed Mar 21 01:08:22 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

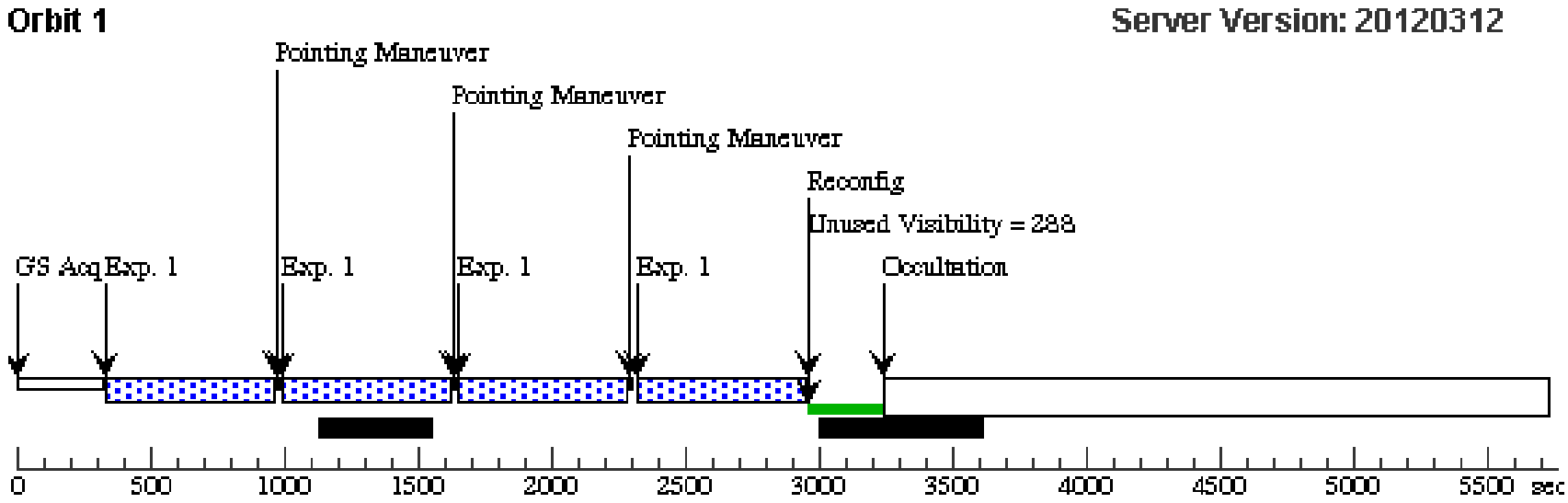
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	GRB-080905A	RA: 19 10 39.1000 (287.6629167d) Dec: -18 51 55.40 (-18.86539d) Equinox: J2000		V=18.5	Reference Frame: ICRS

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		(4) GRB-080905A	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 04 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 05, completed Wed Mar 21 01:08:23 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

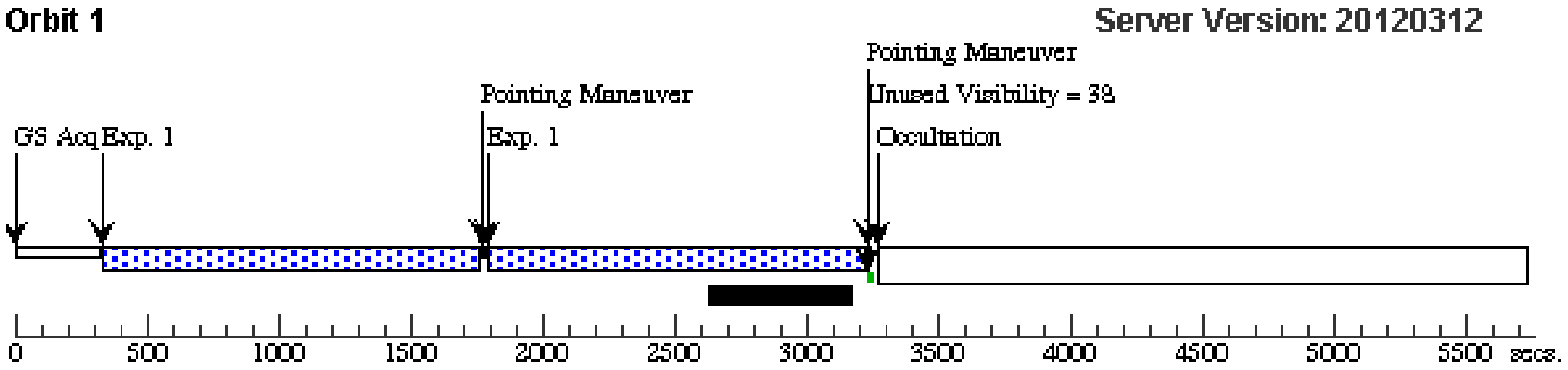
Fixed Targets

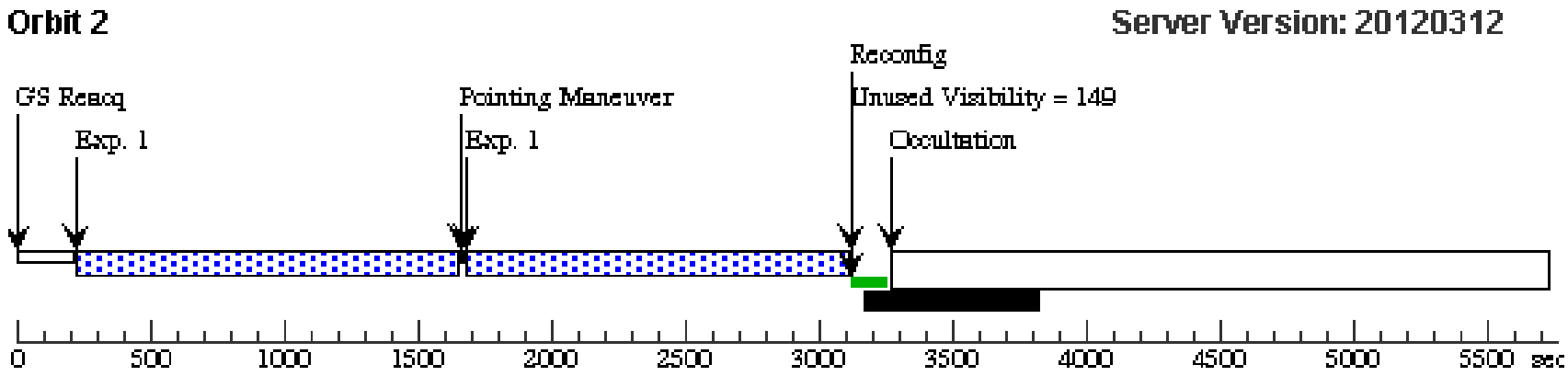
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	GRB-090305A	RA: 16 07 7.6100 (241.7817083d) Dec: -31 33 21.90 (-31.55608d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(6) GRB-090305A	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP200; NSAMP=14		Pattern 2, Exps 1-1 in Visit 05 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>(Pattern 3)] *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 12502, Visit 06, completed Wed Mar 21 01:08:23 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

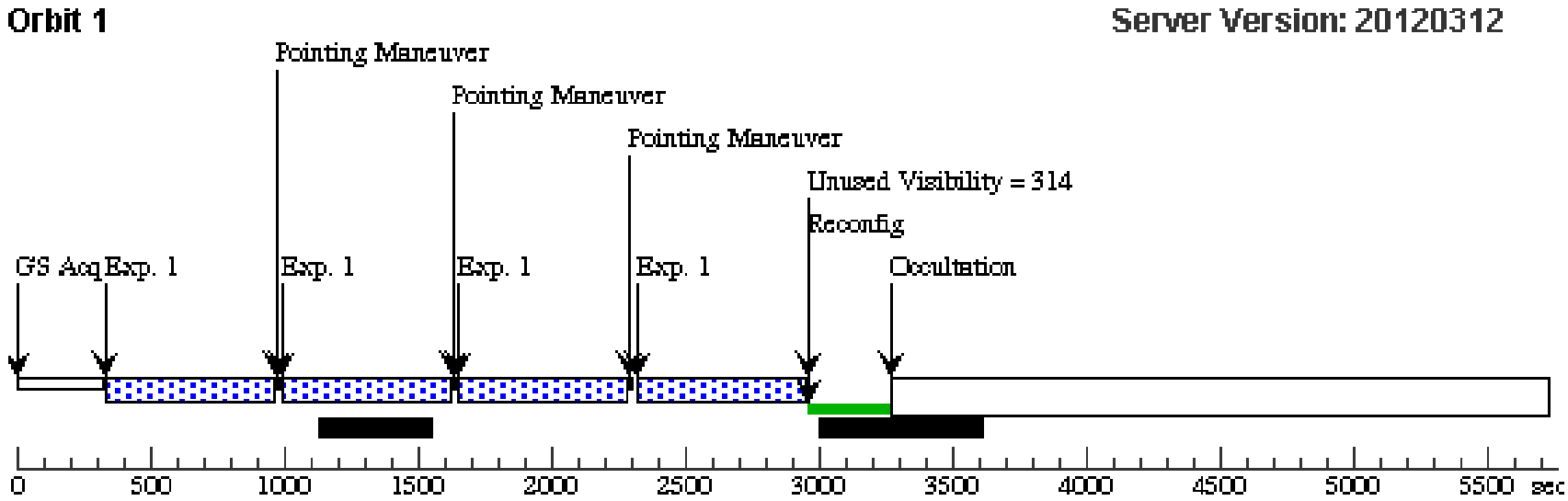
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	GRB-090426	RA: 12 36 18.1000 (189.0754167d) Dec: +32 59 8.77 (32.98577d) Equinox: J2000		V=25	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(7) GRB-090426	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 06 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 07, completed Wed Mar 21 01:08:24 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
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Fixed Targets

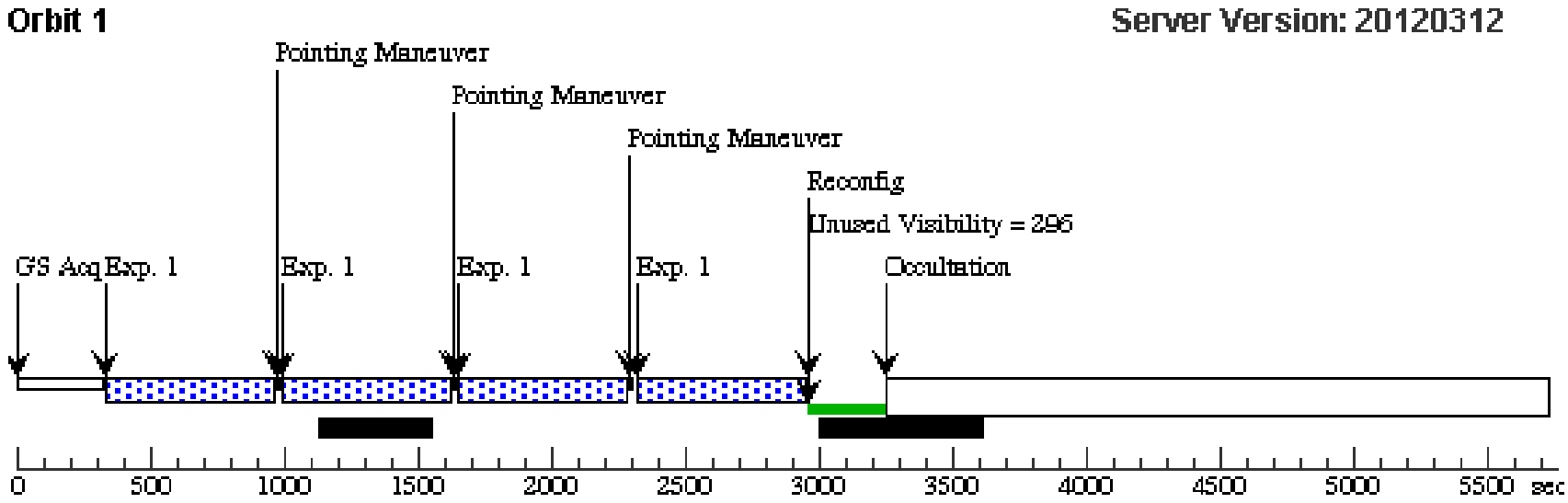
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	GRB-090510	RA: 22 14 12.6000 (333.5525000d) Dec: -26 35 51.10 (-26.59753d) Equinox: J2000		V=23	Reference Frame: ICRS

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		(5) GRB-090510	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 07 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 08, completed Wed Mar 21 01:08:24 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
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Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	GRB-090515	RA: 10 56 36.3000 (164.1512500d) Dec: +14 26 30.80 (14.44189d) Equinox: J2000		V=26	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(12) GRB-090515	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP200; NSAMP=14		Pattern 2, Exps 1-1 in Visit 08 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
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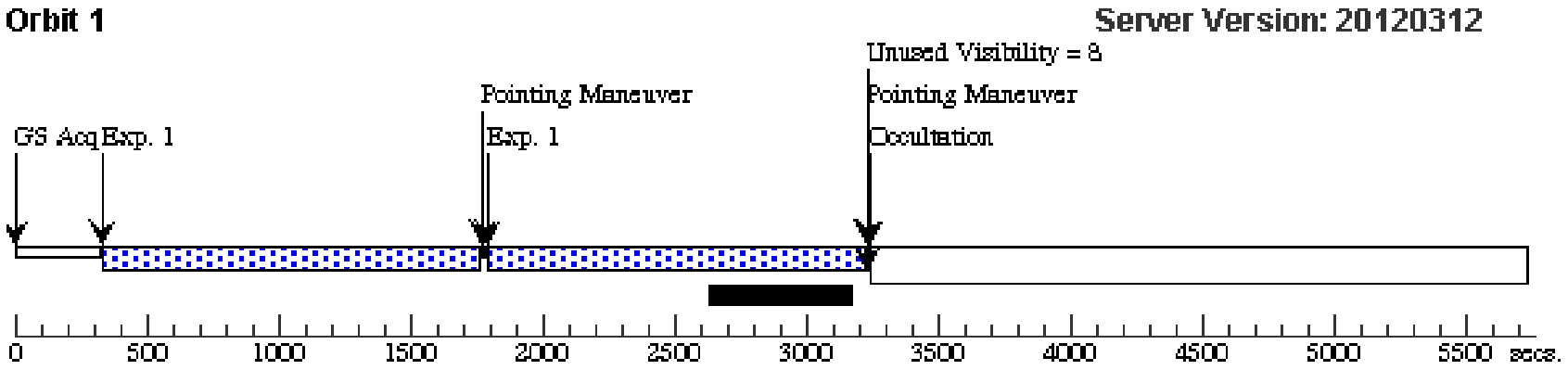
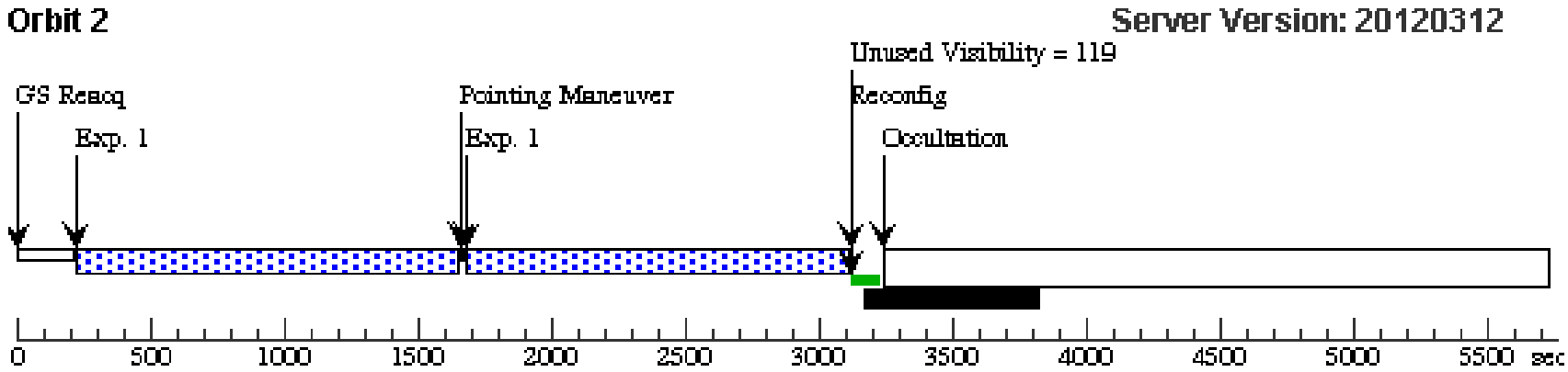
Orbit Structure





Visit

Proposal 12502, Visit 09, completed Wed Mar 21 01:08:25 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
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Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	GRB-091109B	RA: 07 30 56.6500 (112.7360417d) Dec: -54 05 23.40 (-54.08983d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(9) GRB-091109B	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP200; NSAMP=14		Pattern 2, Exps 1-1 in Visit 09 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
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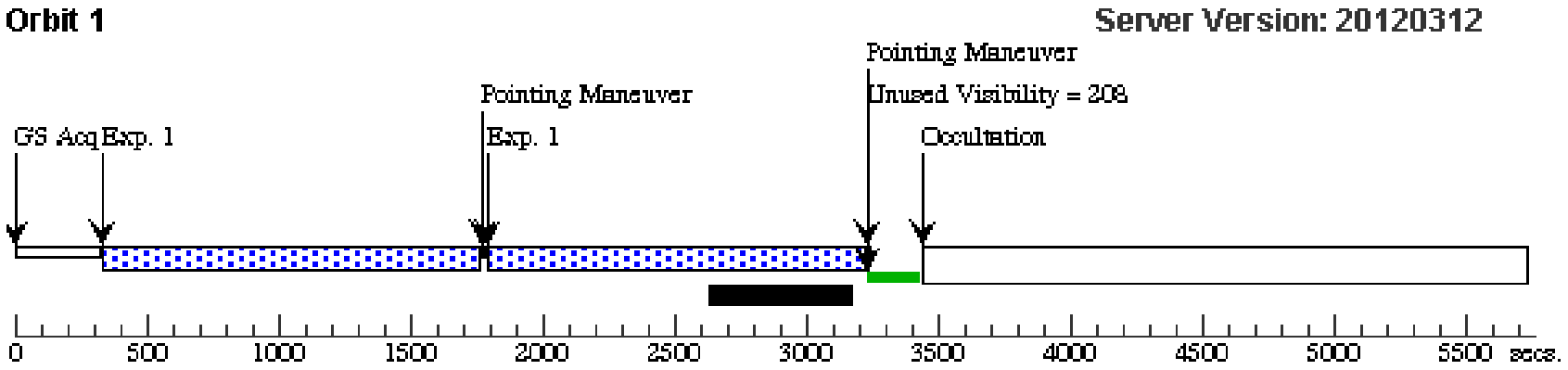
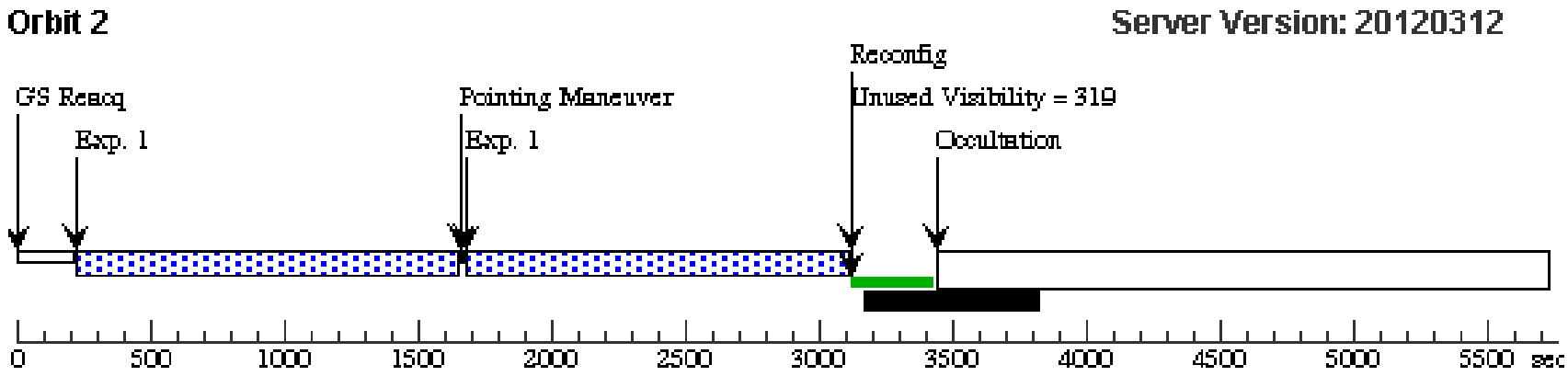
Orbit Structure





Visit

Proposal 12502, Visit 10, completed Wed Mar 21 01:08:25 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
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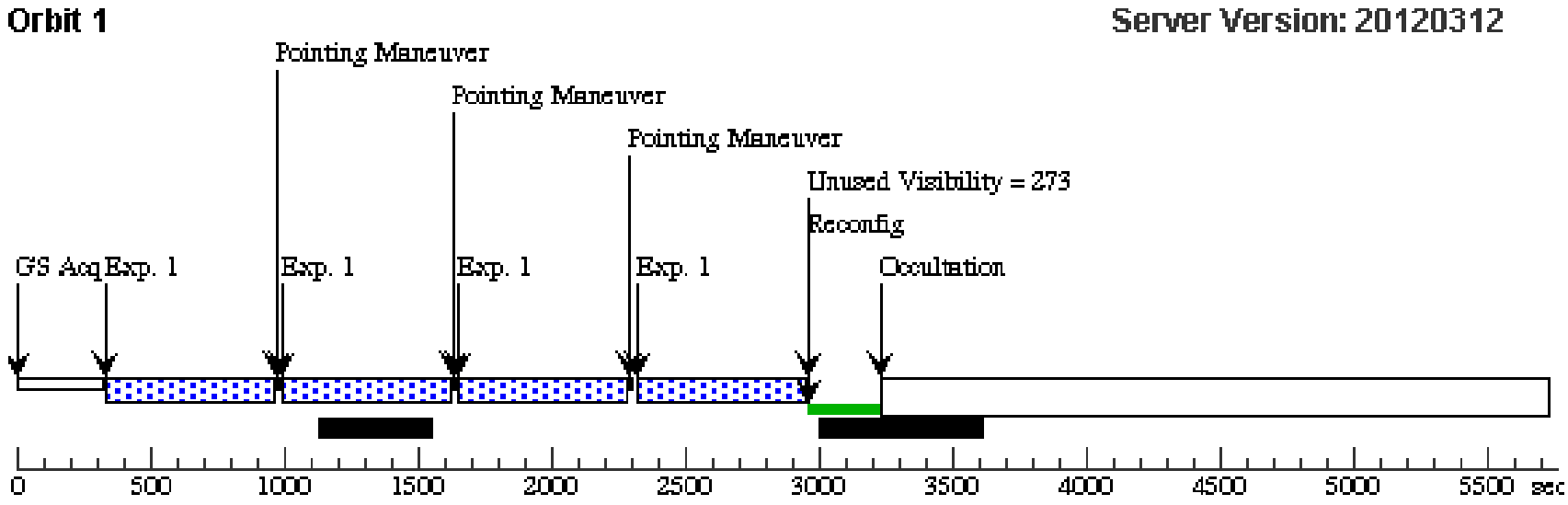
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	GRB-100117A	RA: 00 45 4.7000 (11.2695833d) Dec: -01 35 42.00 (-1.59500d) Equinox: J2000		V=22.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(10) GRB-100117A	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 10 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 11, scheduling Wed Mar 21 01:08:26 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

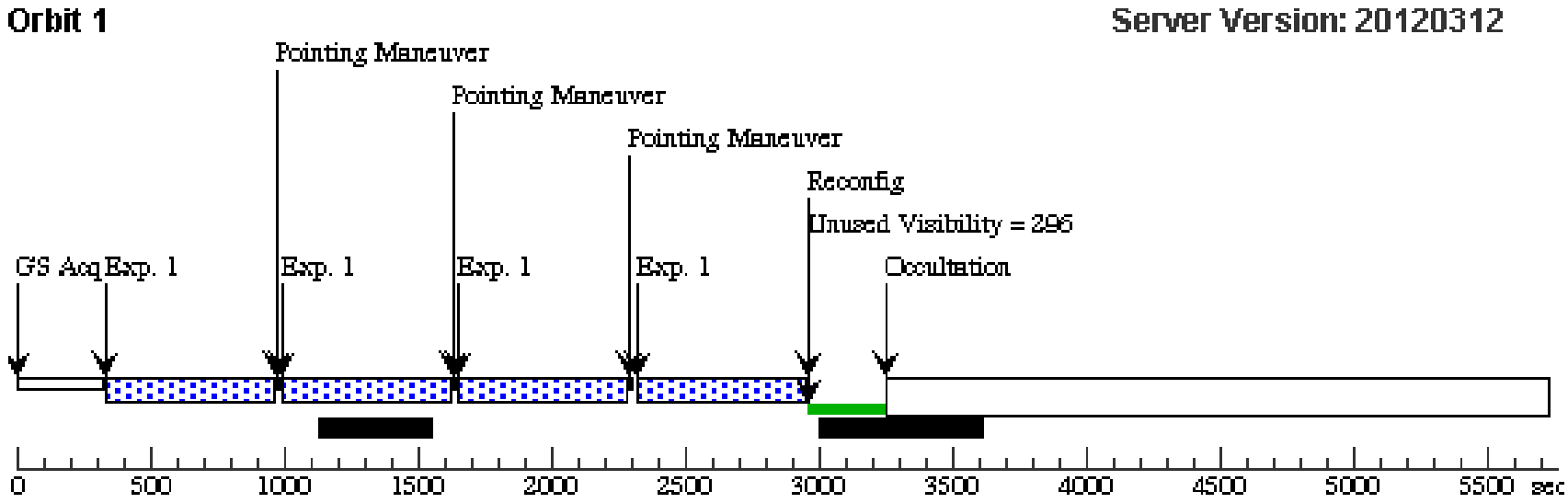
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	GRB-100816A	RA: 23 26 57.6000 (351.7400000d) Dec: +26 34 42.90 (26.57858d) Equinox: J2000		V=23	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(11) GRB-100816A	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 11 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 14, implementation Wed Mar 21 01:08:26 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: ON HOLD

On Hold Comments: This is a rapid Target of Opportunity observation.

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(6)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.9961 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=180 Angle Between Sides= Center Pattern=false	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)

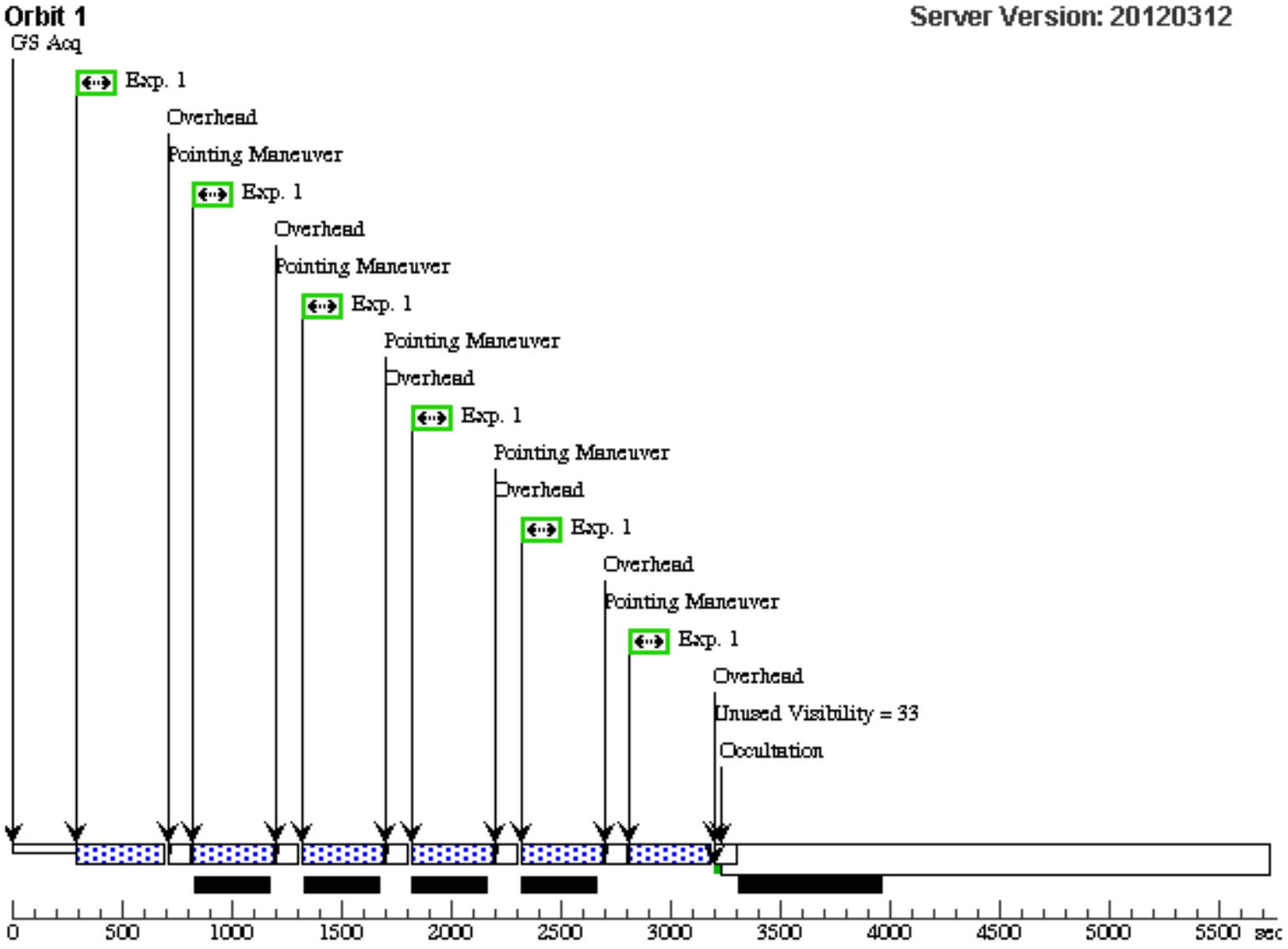
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	TOO-GC	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) Equinox: J2000		V=27	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(13) TOO-GC	WFC3/UVIS, ACCUM, UVIS2	F606W	CR-SPLIT=NO		Pattern 6, Exps 1-1 in Visit 14 (6)	370 Secs	
								[==>(Pattern 1,1)] *[==>(Pattern 1,2)]* *[==>(Pattern 1,3)]* *[==>(Pattern 2,1)]* *[==>(Pattern 2,2)]* *[==>(Pattern 2,3)]*	***[1]***

Orbit Structure



Visit

Proposal 12502, Visit 15, implementation Wed Mar 21 01:08:27 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: ON HOLD ; ON HOLD FOR 14

On Hold Comments: This is a Target of Opportunity follow up observation. We will probably want to schedule it about a year after we trigger observations on the rapid Target of Opportunity visit 14.

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(7)	Pattern Type=LINE 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	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)

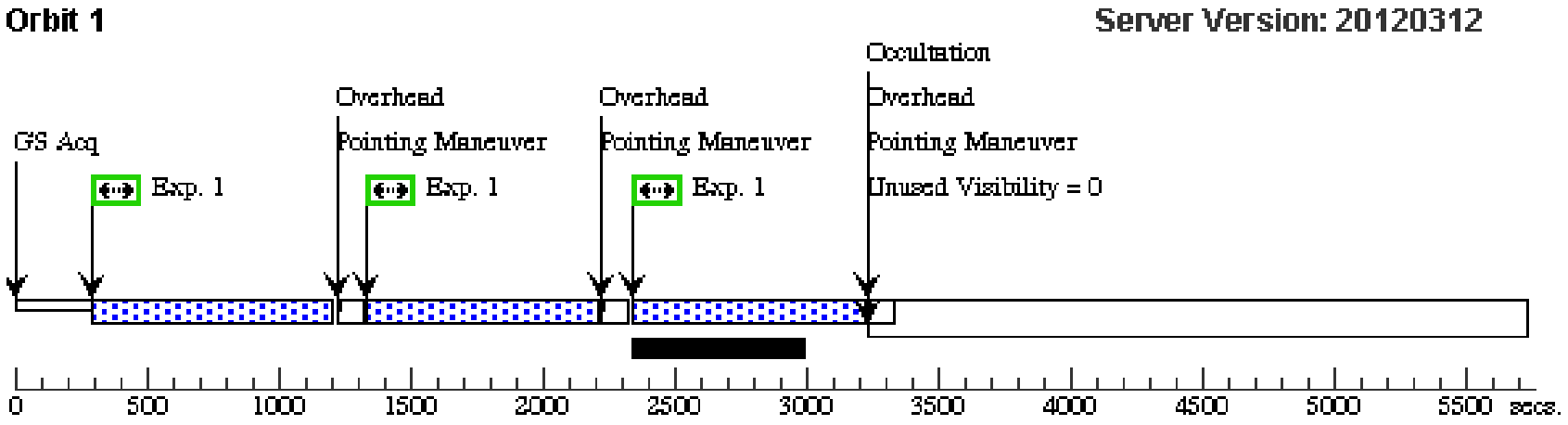
Fixed Targets

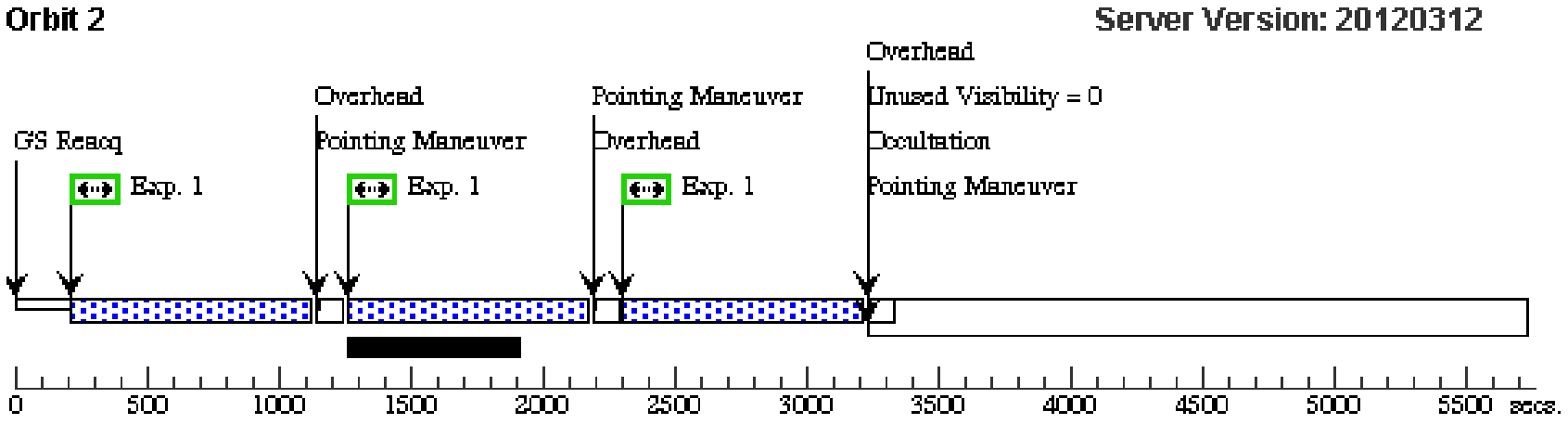
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	TOO-GC	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) Equinox: J2000		V=27	Reference Frame: ICRS

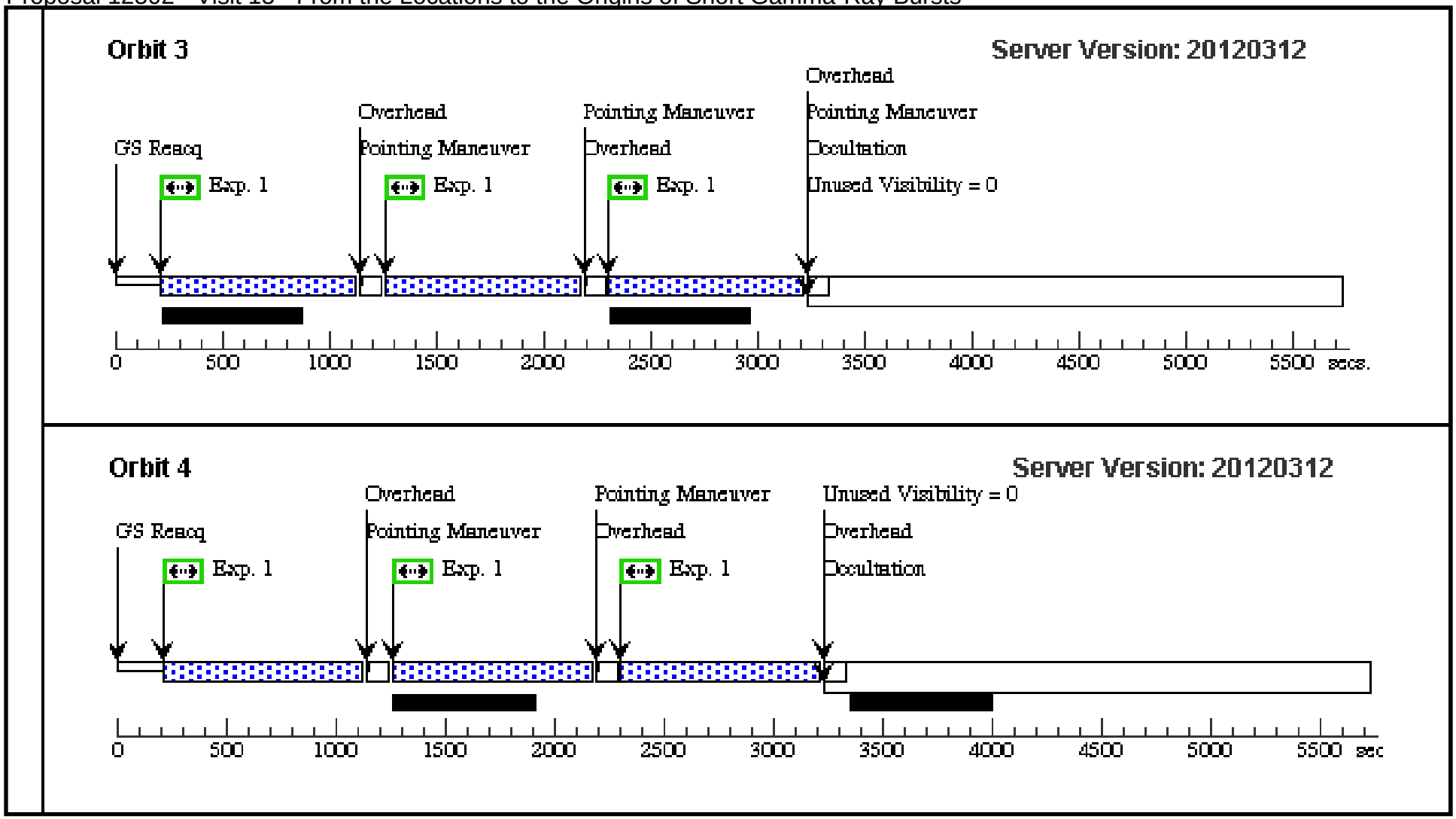
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(13) TOO-GC	WFC3/UVIS, ACCUM, UVIS2	F606W	CR-SPLIT=NO		Pattern 7, Exps 1-1 in Visit 15 (7)	850 Secs	
								[==>879.0 Secs (Pattern 1,1)] *[==>879.0 Secs (Pattern 1,2)]* *[==>879.0 Secs (Pattern 1,3)]*	***[1]***
								[==>916.0 Secs (Pattern 1,4)] *[==>916.0 Secs (Pattern 2,1)]* *[==>916.0 Secs (Pattern 2,2)]*	***[2]***
								[==>916.0 Secs (Pattern 2,3)] *[==>916.0 Secs (Pattern 2,4)]* *[==>916.0 Secs (Pattern 3,1)]*	***[3]***
								[==>916.0 Secs (Pattern 3,2)] *[==>916.0 Secs (Pattern 3,3)]* *[==>916.0 Secs (Pattern 3,4)]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20120312
GS Reacq
Exp. 1
Overhead
Pointing Maneuver
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Overhead
Pointing Maneuver
Occultation
Unused Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 4
Server Version: 20120312
GS Reacq
Exp. 1
Overhead
Pointing Maneuver
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Unused Visibility = 0
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12502, Visit 16 Wed Mar 21 01:08:28 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ORIENT 259D TO 265 D; ORIENT 349D TO 355 D; ORIENT 169D TO 175 D; ORIENT 79D TO 85 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=1.716 Line Spacing=1.095	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)
(9)	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		(2), (3)

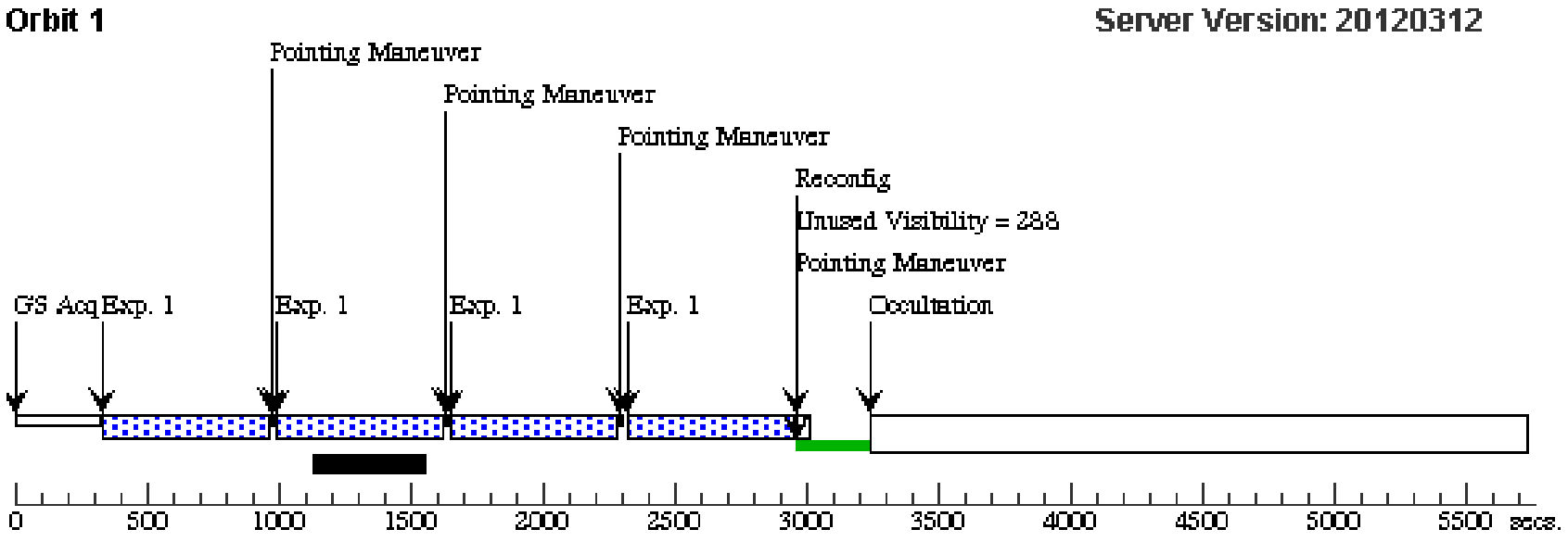
Fixed Targets

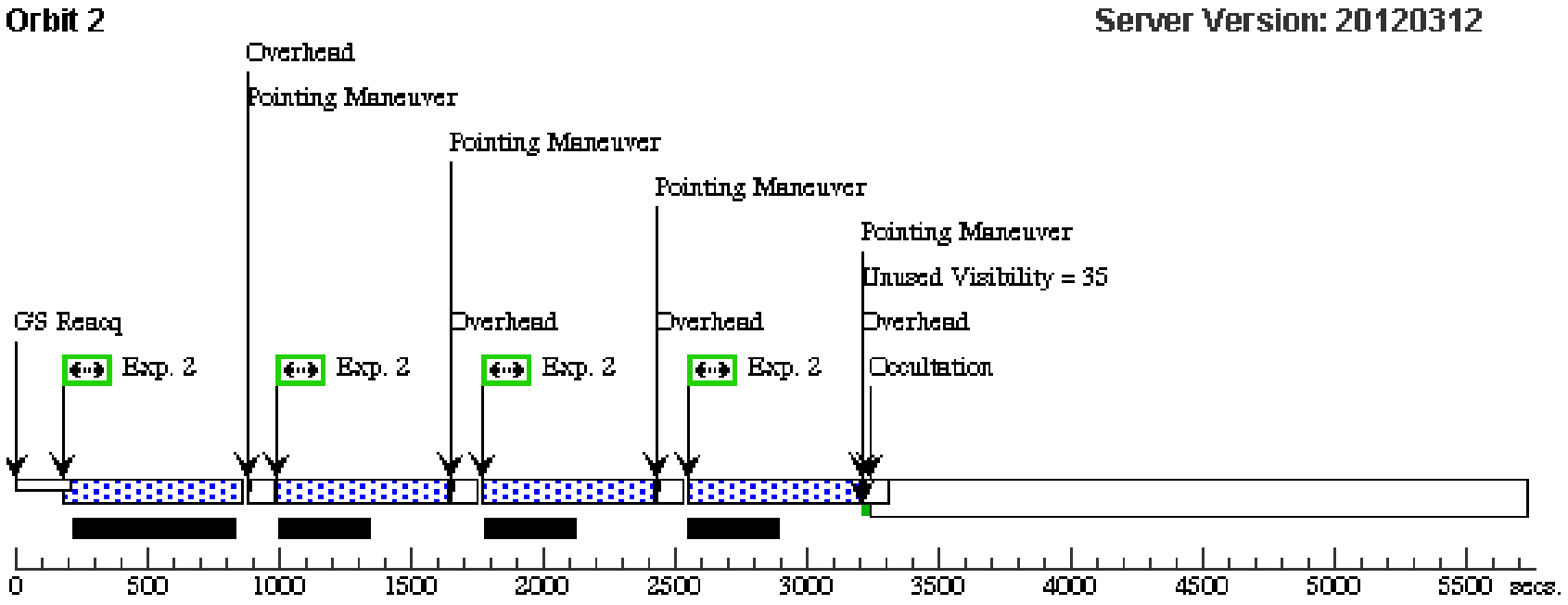
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(14)	GRB-080905A-HSTPOS	RA: 19 10 41.6600 (287.6735833d) Dec: -18 52 47.70 (-18.87992d) Equinox: J2000		V=25	Reference Frame: ICRS

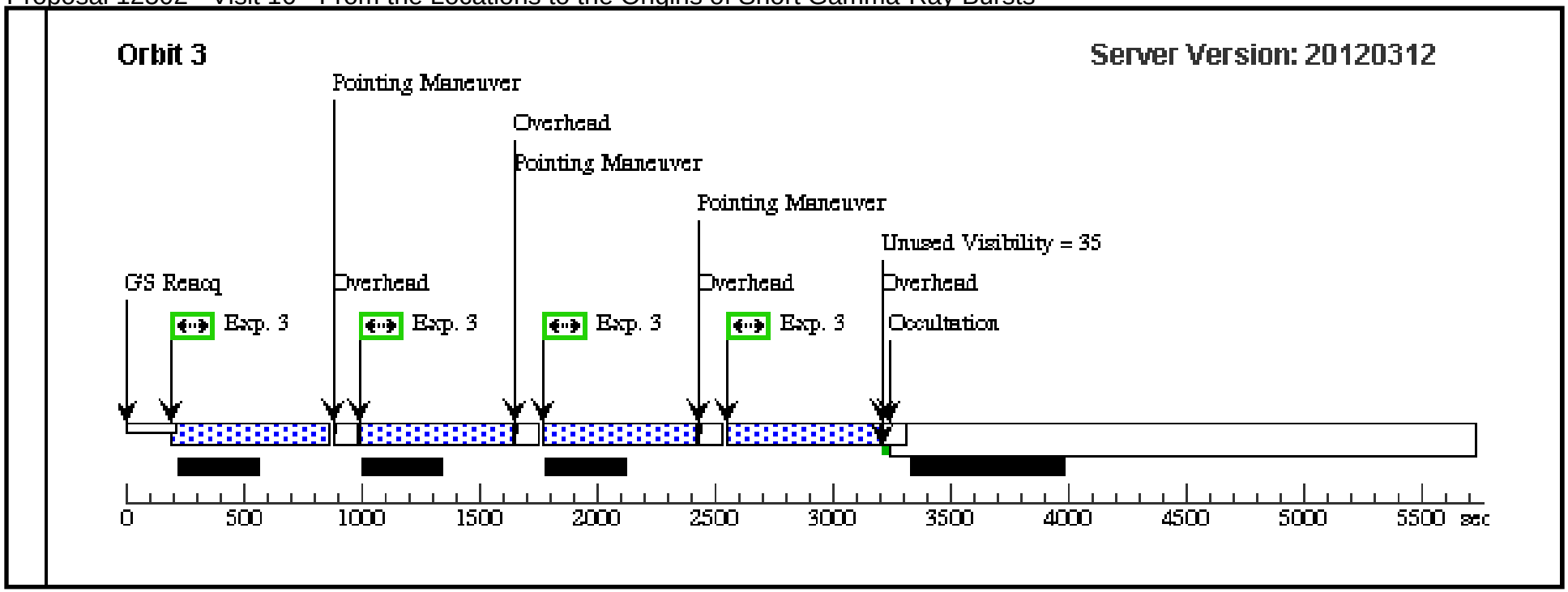
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(14) GRB-080905A-HSTPOS	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=STEP100; NSAMP=12		Pattern 2, Exps 1-1 in Visit 16 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(14) GRB-080905A-HSTPOS	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 9, Exps 2-2 in Visit 16 (9)	650 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3		(14) GRB-080905A-HSTPOS	WFC3/UVIS, ACCUM, UVIS1	F606W			Pattern 9, Exps 3-3 in Visit 16 (9)	650 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20120312
Pointing Maneuver
Overhead
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 35
GS Reacq
Overhead
Overhead
Overhead
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec