11669 - The Origins of Short Gamma-Ray Bursts

Cycle: 17, Proposal Category: GO

(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	(1) GRB-070429B	WFC3/IR WFC3/UVIS	2	18-Aug-2010 15:09:35.0	yes
02	(2) GRB-070707	WFC3/IR	2	18-Aug-2010 15:09:36.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(3) GRB-070714B	WFC3/IR WFC3/UVIS	2	18-Aug-2010 15:09:38.0	yes
04	(4) GRB-070809	WFC3/IR	2	18-Aug-2010 15:09:39.0	yes
05	(5) GRB-071227	WFC3/IR WFC3/UVIS	2	18-Aug-2010 15:09:40.0	yes
06	(2) GRB-070707	ACS/WFC	2	18-Aug-2010 15:09:42.0	yes
07	(4) GRB-070809	ACS/WFC	2	18-Aug-2010 15:09:42.0	yes
08	(6) TOO-SF	WFC3/UVIS	1	18-Aug-2010 15:09:43.0	yes
09	(6) TOO-SF	WFC3/IR WFC3/UVIS	3	18-Aug-2010 15:09:45.0	yes
10	(7) TOO-GC	WFC3/UVIS	1	18-Aug-2010 15:09:46.0	yes
11	(7) TOO-GC	WFC3/UVIS	4	18-Aug-2010 15:09:47.0	yes
S1	(8) GRB-100816A	WFC3/UVIS	1	18-Aug-2010 15:09:48.0	yes

24 Total Orbits Used

ABSTRACT

During the past decade extraordinary progress has been made in determining the origin of long-duration gamma-ray bursts. It has been conclusively shown that these objects derive from the deaths of massive stars. Nonetheless, the origin of their observational cousins, short-duration gamma-ray bursts (SGRBs) remains a mystery. While 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 even an edge-on spiral. Whether they primarily result from an old population, a young population, or rapid evolution of binaries in globular clusters remains open.

Here we propose to employ two related sets of observations which may dramatically advance our understanding of short bursts. The first is a variant of a technique that we pioneered and used to great effect in elucidating the origins of long-duration bursts. We will examine a statistical sample of hosts and measure the degree to which SGRB locations trace the red or blue light of their hosts, and thus old or young stellar populations. This will allow us to study the demographics of the SGRB population in a manner largely free of the distance dependent selection effects which have so far bedeviled this field. In the second line of attack we will use two targets of opportunity to obtain extremely precise positions of up to two nearby

bursts -- one on a star-forming galaxy and the other on a elliptical. Observation of the star-formation galaxy could link at least some bursts directly to a young population; however, a discovery in later images of a globular cluster at the site of the explosion in an elliptical would provide revolutionary evidence that SGRBs are formed from compact binaries.

OBSERVING DESCRIPTION

We propose to observe SGRB hosts where the location of the GRB is known to better than 0.2. In practice, these are GRBs with optical transients (OTs). The sample is derived from GRBs discovered since our last successful proposal, GO 11176, as well as two nearby GRBs which would be followed as ToOs. The positions of the last year's GRBs have been obtained by early ground-based imaging, or in one case by a detection using the optical camera on Swift. Where we have VLT or Gemini detections of the optical transient, past experience shows we should be able to obtain relative astrometry between the ground and HST better than 0.05. The optical transient of GRB 070429B was only detected by the telescope on Swift. In this case, after taking an image with the CTIO 4-m to transfer the UVOT image to HST, we expect to have relative astrometry better than 0.2. The position of the optical transient of 070714B is from its discovery observations at the Liverpool Telescope. Here too our errors will be better than 0.2. Of course in the case of the ToOs (discussed in greater detail later) we should know the position of the GRB to better than an HST pixel. We will image all of last year's hosts, and the star-forming ToO host, in "blue" and "red" filters. In cases where a redshift is known, we have chosen filters that will straddle the 4000 Å break. In other cases (primarily cases where the host magnitude is > 25), we have assumed that the redshift is comparable to or greater than one, and have chosen filters which should assure our two bands lie on opposite sides of the 4000 Å break. We will reach a SNR of 1.0 per pixel at 24 Vega mags per square arc-second in F160W in one orbit (about 25.6 mags AB) and 24.5 Vegamags in two orbits (we gain slightly over root two, as we use four dithers in both observations). Single orbits in F438W and F475W will reach a SNR of 1 per pixel at 24, and 24.7 B mag per square arc-second. The host of 071227, on which F438W must be used, is quite bright, so this depth should easily be sufficient. Similarly, two orbits of F606W on ACS will obtain a SNR of 1 on a (larger) ACS pixel at 25.2 R mag per square arc-second.

Visit

Proposal 11669, Visit 01, completed Wed Aug 18 19:09:49 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 01) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 01) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(2)
(3)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365 Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

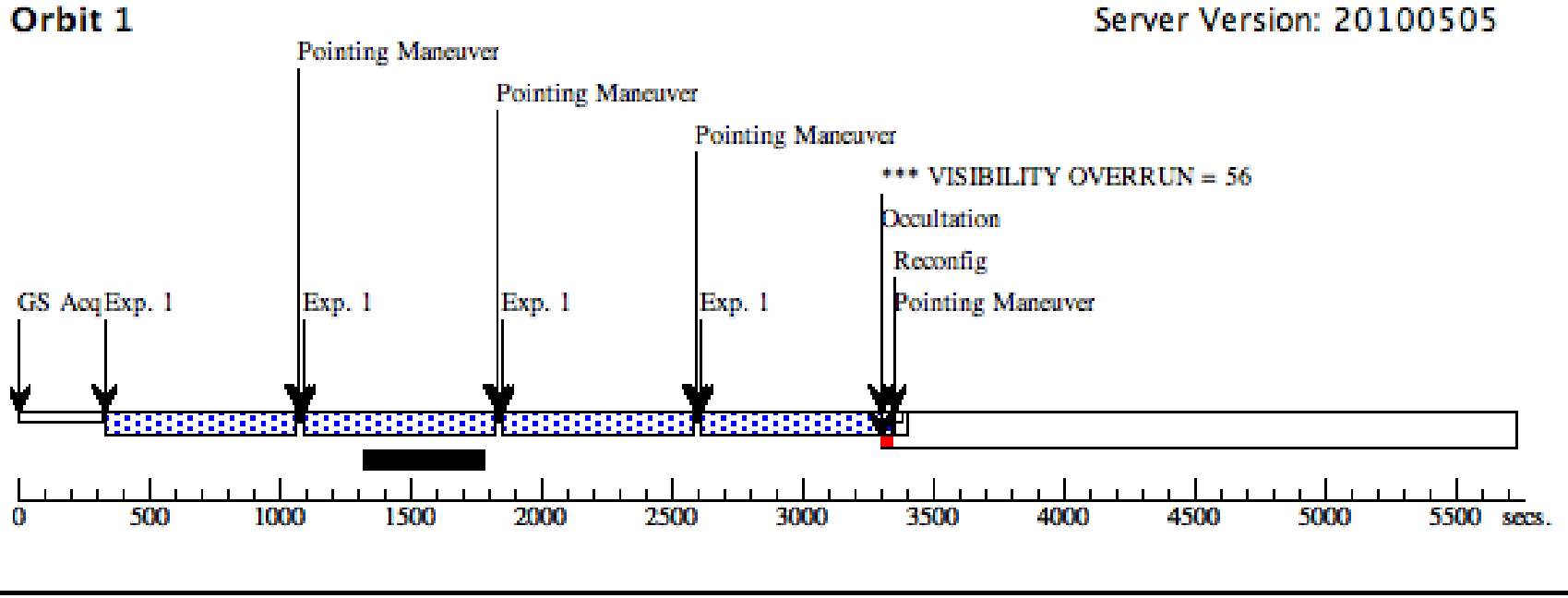
Fixed Targets

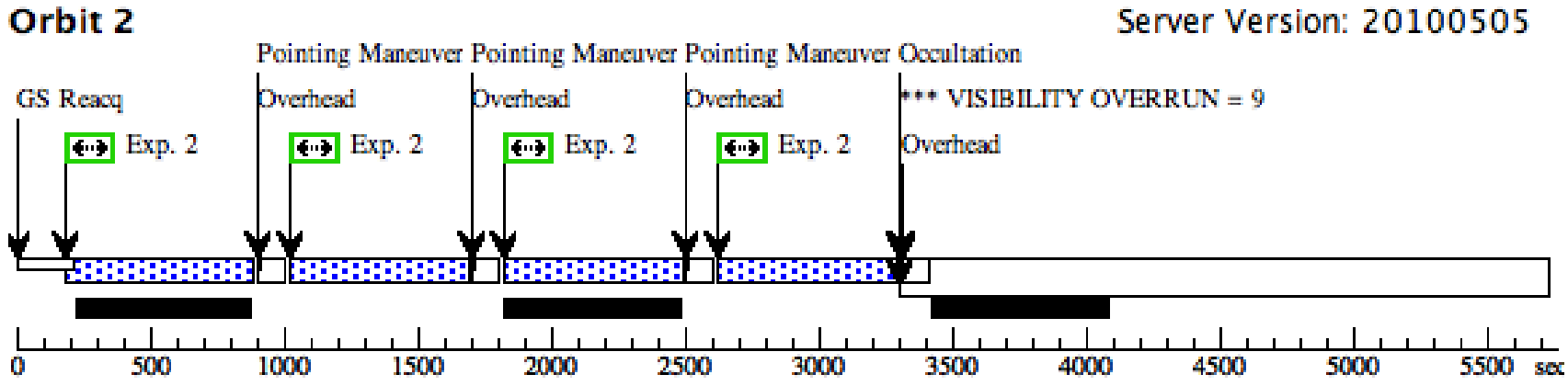
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB-070429B	RA: 21 52 3.6800 (328.0153333d) Dec: -38 49 43.60 (-38.82878d) Equinox: J2000	Redshift: 0.904	V=(?) R = 23.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB-070429B	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=STEP100		Pattern 3, Exps 1-1 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(1) GRB-070429B	WFC3/UVIS, ACCUM, UVIS1	F475W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	674 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 11669, Visit 02, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Diagnostics

(Visit 02) Warning (Orbit Planner): VISIBILITY OVERRUN

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

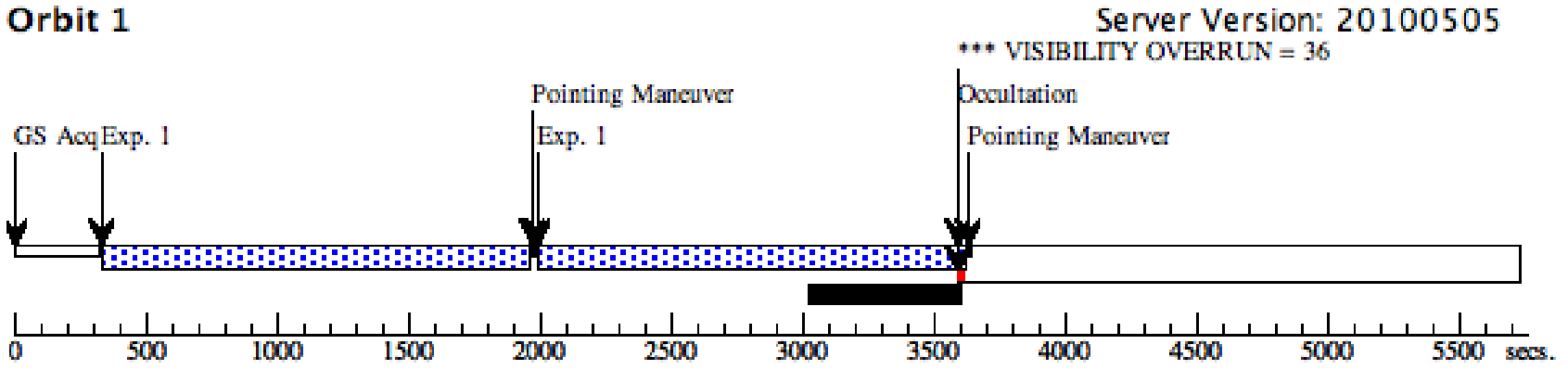
Fixed Targets

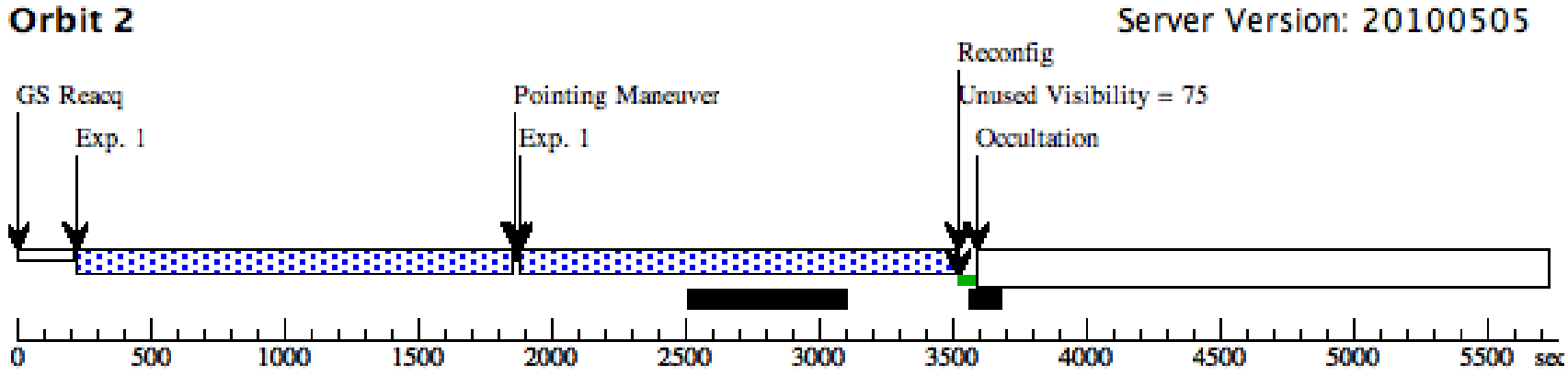
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GRB-070707	RA: 17 50 58.5500 (267.7439583d) Dec: -68 55 27.20 (-68.92422d) Equinox: J2000		V=(?) R = 27	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) GRB-070707	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=15; SAMP-SEQ=STEP200		Pattern 3, Exps 1-1 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>(Pattern 3)] *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 11669, Visit 03, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 03) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(2)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.604 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1)

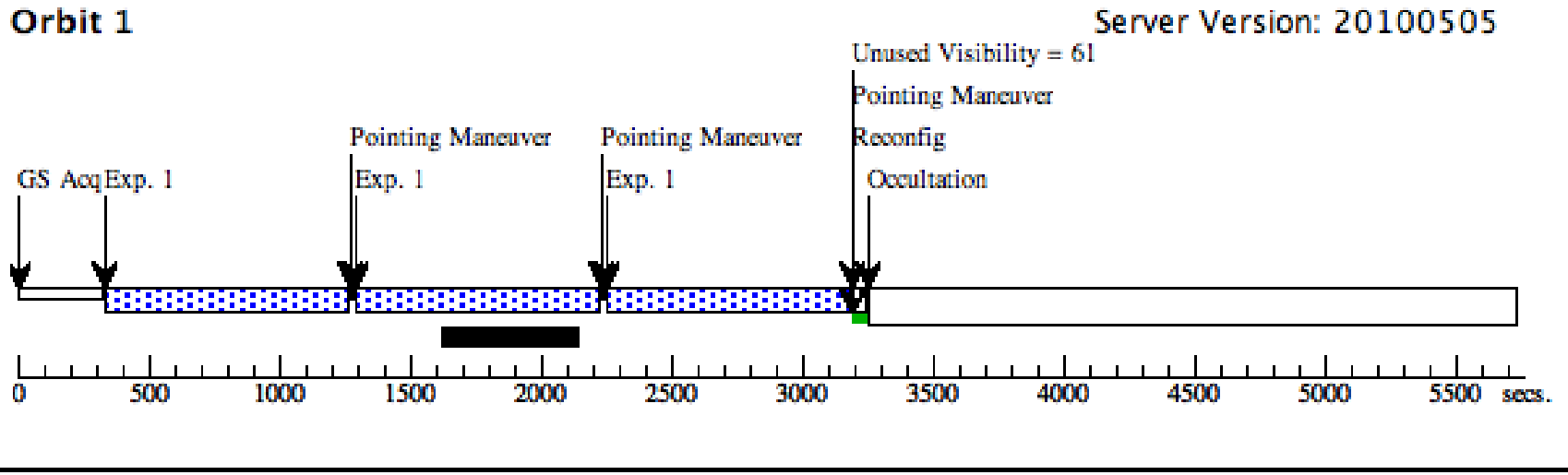
Fixed Targets

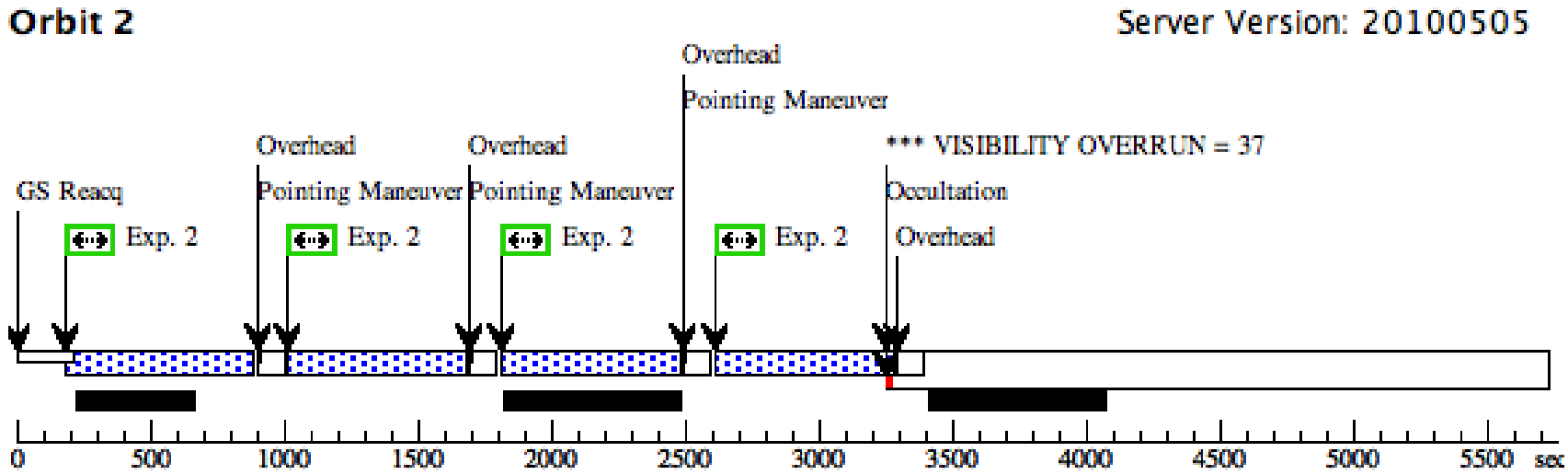
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	GRB-070714B	RA: 03 51 22.2300 (57.8426250d) Dec: +28 17 50.80 (28.29744d) Equinox: J2000	Redshift: 0.923	V=(?) R = 24.6	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(3) GRB-070714B	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=15; SAMP-SEQ=STEP100		Pattern 4, Exps 1-1 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***
2		(3) GRB-070714B	WFC3/UVIS, ACCUM, UVIS1	F475W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	650 Secs *[==>670.0 Secs (Pattern 1)]* *[==>670.0 Secs (Pattern 2)]* *[==>670.0 Secs (Pattern 3)]* *[==>670.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 11669, Visit 04, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

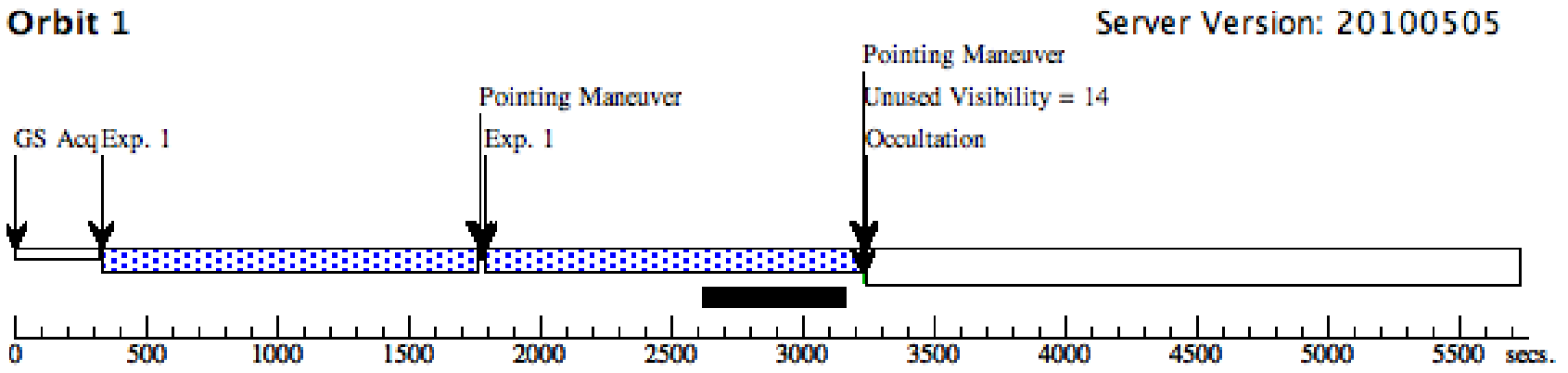
Fixed Targets

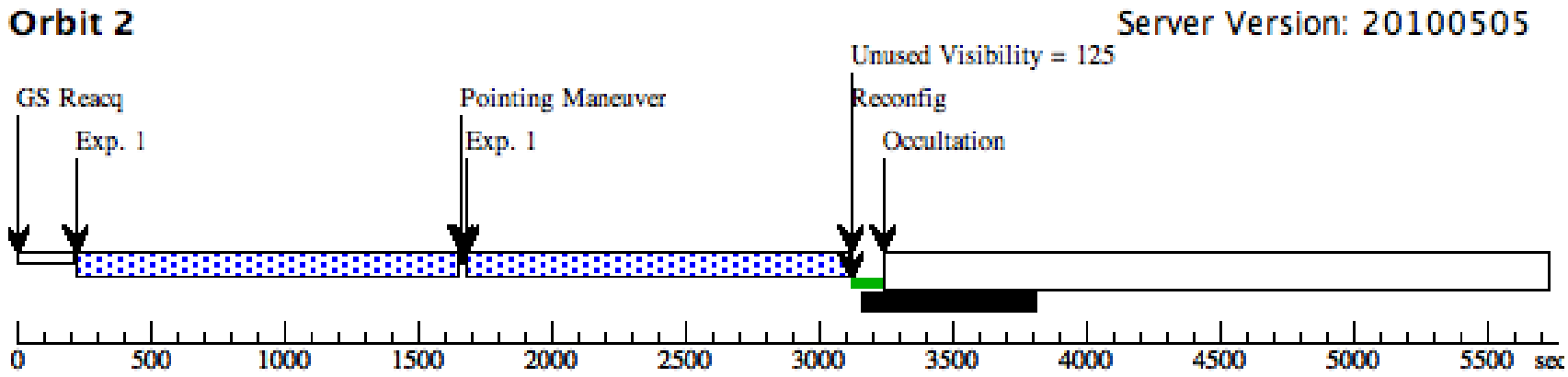
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	GRB-070809	RA: 13 35 4.5500 (203.7689583d) Dec: -22 08 30.80 (-22.14189d) Equinox: J2000		V=(?) R = 25	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(4) GRB-070809	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=STEP200		Pattern 3, Exps 1-1 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>(Pattern 3)] *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 11669, Visit 05, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 05) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(2)
(3)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

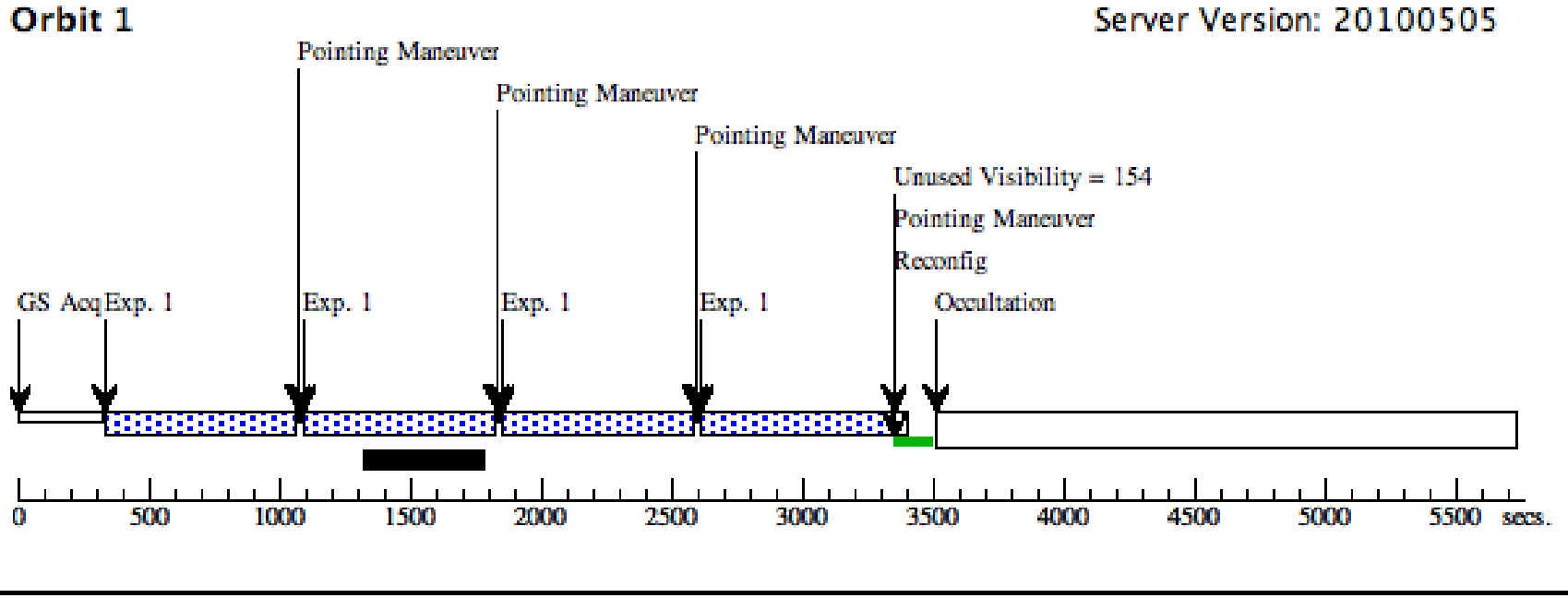
Fixed Targets

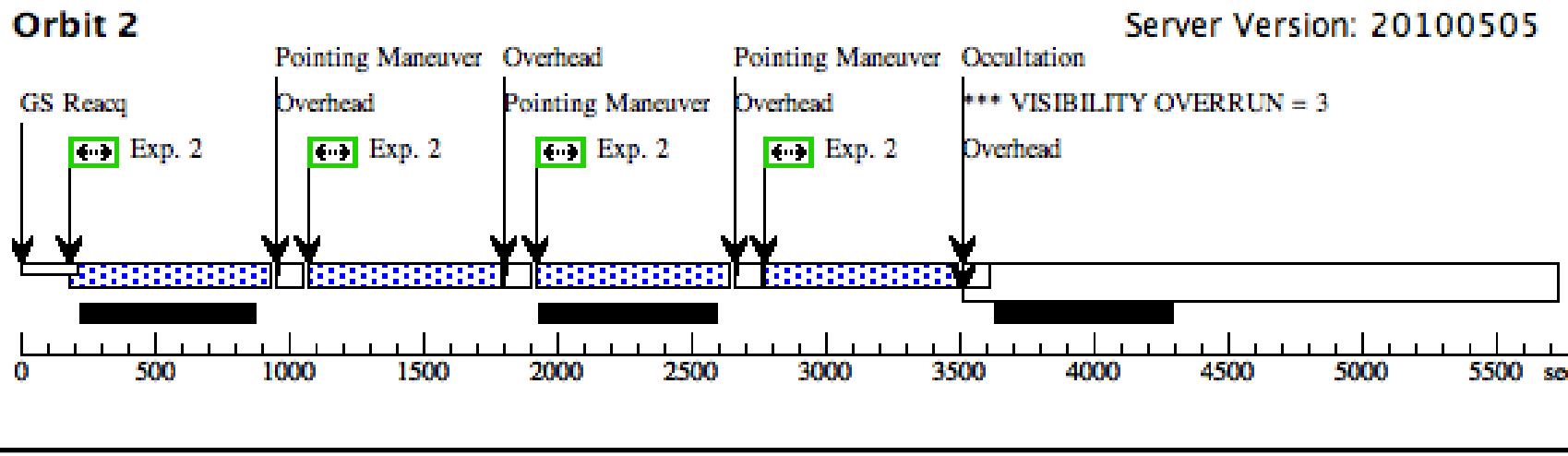
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	GRB-071227	RA: 03 52 31.2600 (58.1302500d) Dec: -55 59 3.50 (-55.98431d) Equinox: J2000	Redshift: 0.383	V=(?) R = 19.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) GRB-071227	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=STEP100		Pattern 3, Exps 1-1 (3)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(5) GRB-071227	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	725 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 11669, Visit 06, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Visit 06) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 06) Warning (Orbit Planner): VISIBILITY OVERRUN

Patterns

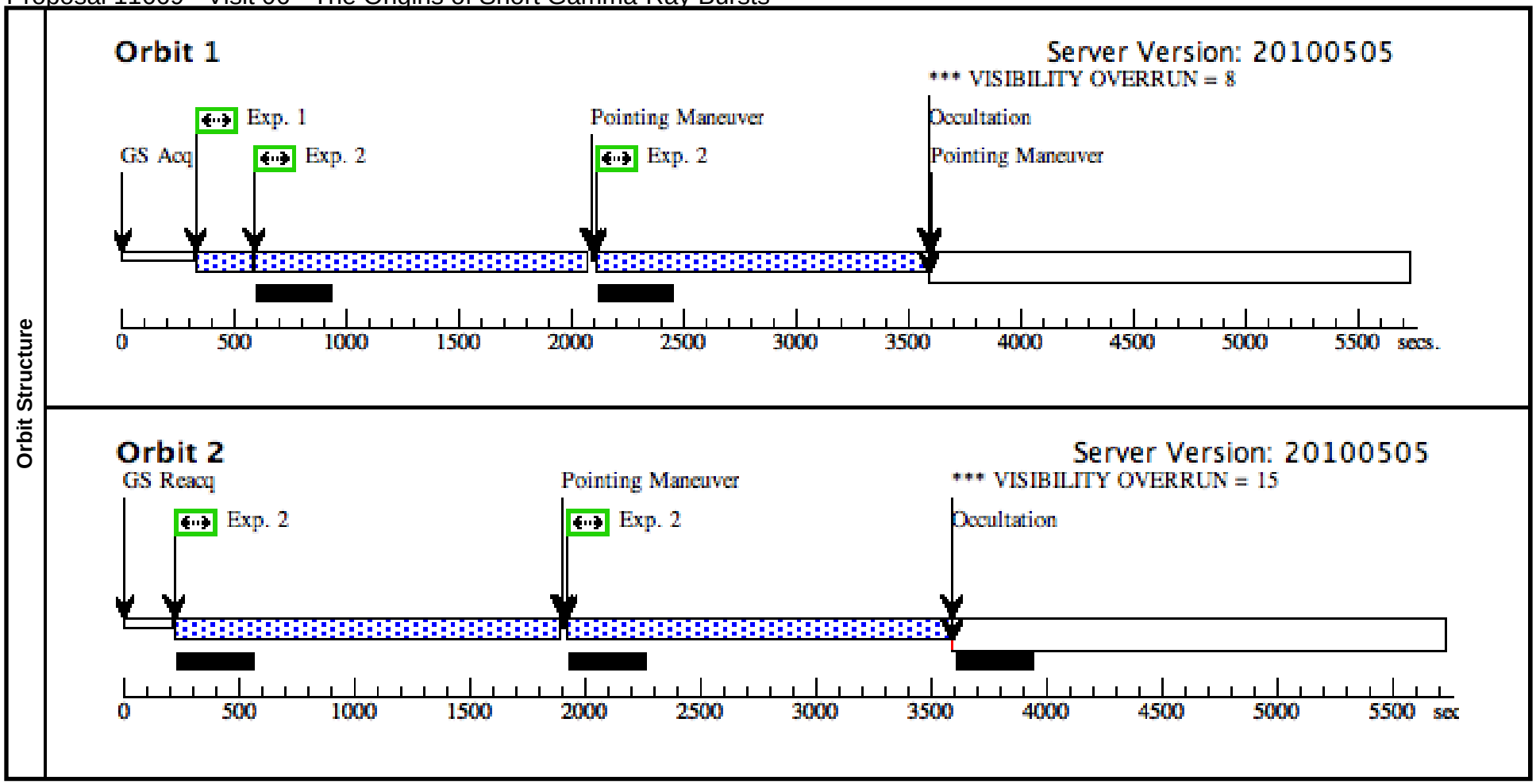
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GRB-070707	RA: 17 50 58.5500 (267.7439583d) Dec: -68 55 27.20 (-68.92422d) Equinox: J2000		V=(?) R = 27	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) GRB-070707	ACS/WFC, ACCUM, WFC1	F606W				20 Secs	
								[==>26.0 Secs]	***[1]***
2		(2) GRB-070707	ACS/WFC, ACCUM, WFC1	F606W			Pattern 2, Exps 2-2 (2)	1350 Secs	
								[==>1356.0 Secs (Pattern 1)] *[==>1356.0 Secs (Pattern 2)]*	***[1]***
								[==>1548.0 Secs (Pattern 3)] *[==>1548.0 Secs (Pattern 4)]*	***[2]***


Orbit Structure
Orbit 1
Server Version: 20100505
*** VISIBILITY OVERRUN = 8
GS Acq
Exp. 1
Exp. 2
Pointing Maneuver
Exp. 2
Occultation
Pointing Maneuver
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20100505
*** VISIBILITY OVERRUN = 15
GS Reacq
Exp. 2
Pointing Maneuver
Exp. 2
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11669, Visit 07, completed Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Visit 07) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 07) Warning (Orbit Planner): VISIBILITY OVERRUN

Patterns

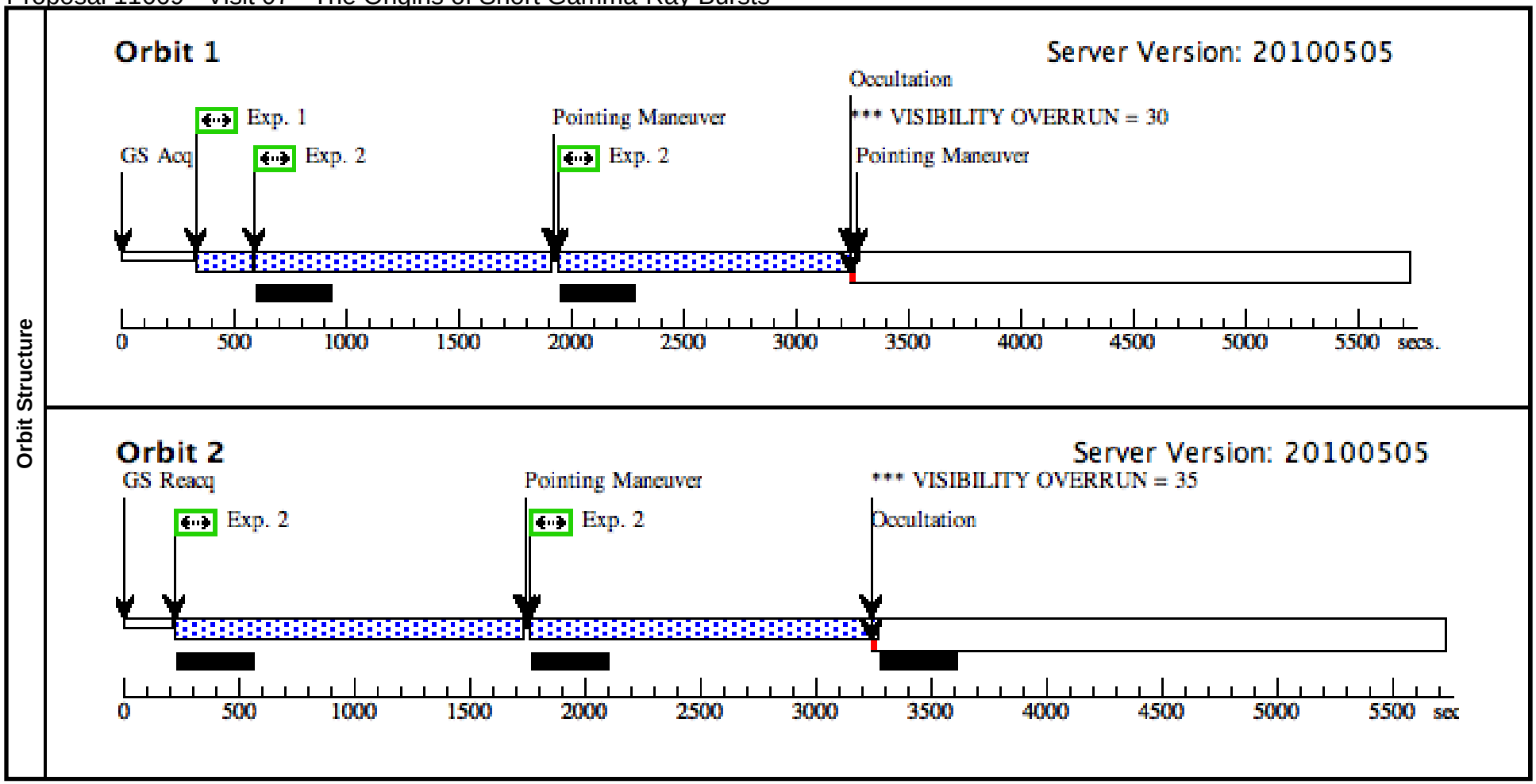
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	GRB-070809	RA: 13 35 4.5500 (203.7689583d) Dec: -22 08 30.80 (-22.14189d) Equinox: J2000		V=(?) R = 25	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(4) GRB-070809	ACS/WFC, ACCUM, WFC1	F606W				20 Secs	
								[==>]	***[1]***
2		(4) GRB-070809	ACS/WFC, ACCUM, WFC1	F606W			Pattern 2, Exps 2-2 (2)	1150 Secs	
								[==>1192.0 Secs (Pattern 1)] *[==>1192.0 Secs (Pattern 2)]*	***[1]***
								[==>1383.0 Secs (Pattern 3)] *[==>1383.0 Secs (Pattern 4)]*	***[2]***


Orbit Structure
Orbit 1
Server Version: 20100505
Occultation
*** VISIBILITY OVERRUN = 30
Exp. 1
Pointing Maneuver
GS Acq
Exp. 2
Exp. 2
Pointing Maneuver
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20100505
GS Reacq
Pointing Maneuver
*** VISIBILITY OVERRUN = 35
Exp. 2
Exp. 2
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11669, Visit 08, implementation Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ON HOLD

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

Diagnostics

(Visit 08) Warning (Orbit Planner): VISIBILITY OVERRUN

Patterns

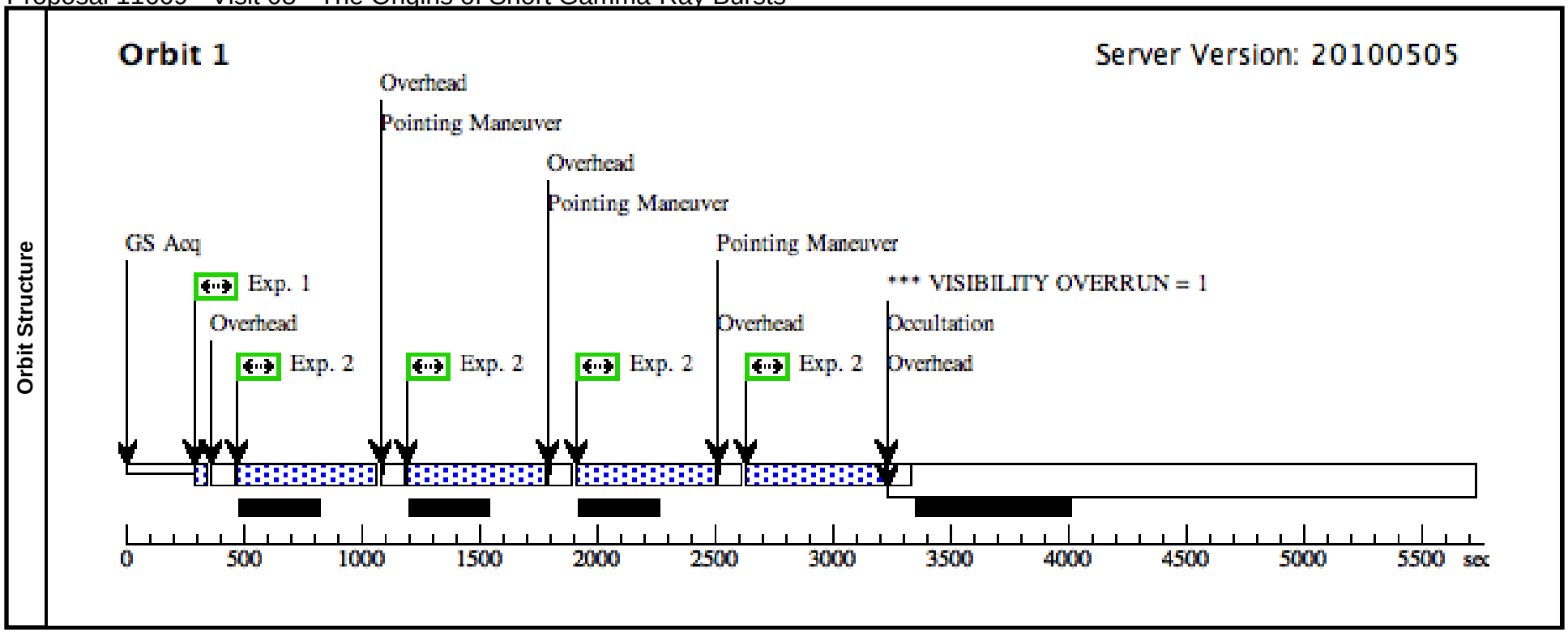
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	TOO-SF	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) 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		(6) TOO-SF	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO			20 Secs	
								[==>]	***[1]***
2		(6) TOO-SF	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	580 Secs	
								[==>590.0 Secs (Pattern 1)] *[==>590.0 Secs (Pattern 2)]* *[==>590.0 Secs (Pattern 3)]* *[==>590.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20100505
GS Acq
Exp. 1
Overhead
Exp. 2
Overhead
Pointing Maneuver
Exp. 2
Overhead
Pointing Maneuver
Exp. 2
Pointing Maneuver
Exp. 2
*** VISIBILITY OVERRUN = 1
Occultation
Overhead
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11669, Visit 09, implementation Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ON HOLD ; ON HOLD FOR 08

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 8.

Diagnostics

(Visit 09) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(3), (4)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.604 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1)

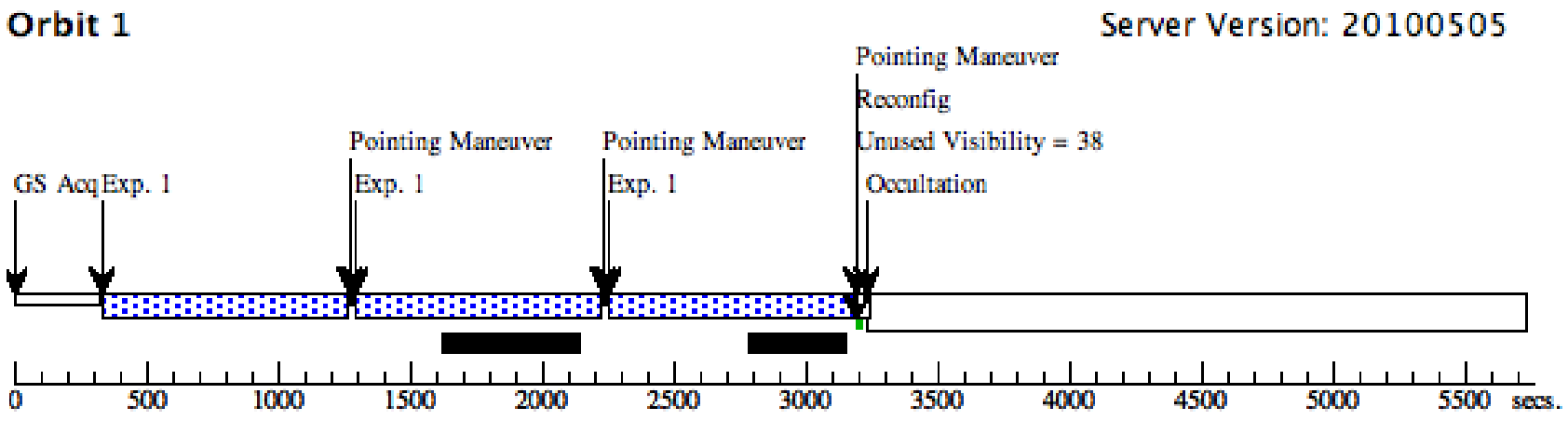
Fixed Targets

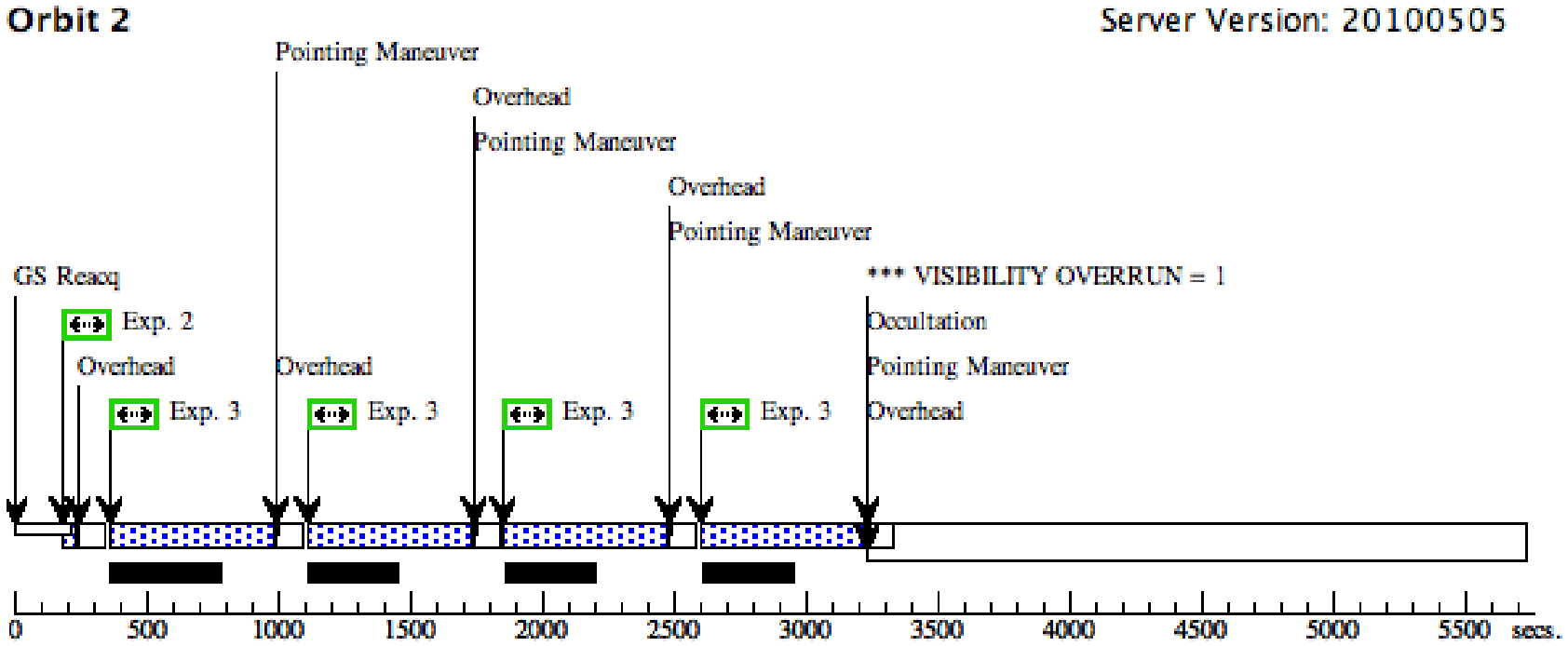
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	TOO-SF	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) Equinox: J2000		V=25	Reference Frame: ICRS

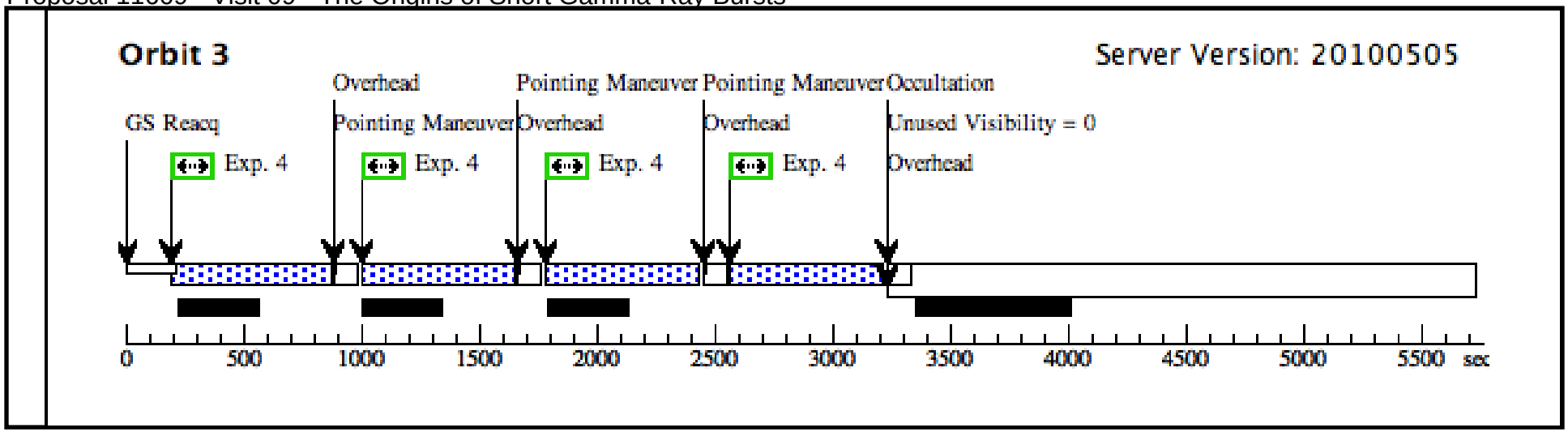
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(6) TOO-SF	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=15; SAMP-SEQ=STEP100		Pattern 4, Exps 1-1 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***
2		(6) TOO-SF	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO			20 Secs *[==>15.0 Secs]*	***[2]***
3		(6) TOO-SF	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO		Pattern 1, Exps 3-3 (1)	600 Secs *[==>619.0 Secs (Pattern 1)]* *[==>619.0 Secs (Pattern 2)]* *[==>619.0 Secs (Pattern 3)]* *[==>619.0 Secs (Pattern 4)]*	***[2]***
4		(6) TOO-SF	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1, Exps 4-4 (1)	650 Secs *[==>655.0 Secs (Pattern 1)]* *[==>655.0 Secs (Pattern 2)]* *[==>655.0 Secs (Pattern 3)]* *[==>655.0 Secs (Pattern 4)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20100505
GS Reacq
Exp. 4
Overhead
Pointing Maneuver
Exp. 4
Pointing Maneuver
Overhead
Exp. 4
Pointing Maneuver
Overhead
Exp. 4
Occultation
Unused Visibility = 0
Overhead
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11669, Visit 10, implementation Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ON HOLD

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

Diagnostics

(Visit 10) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(2)

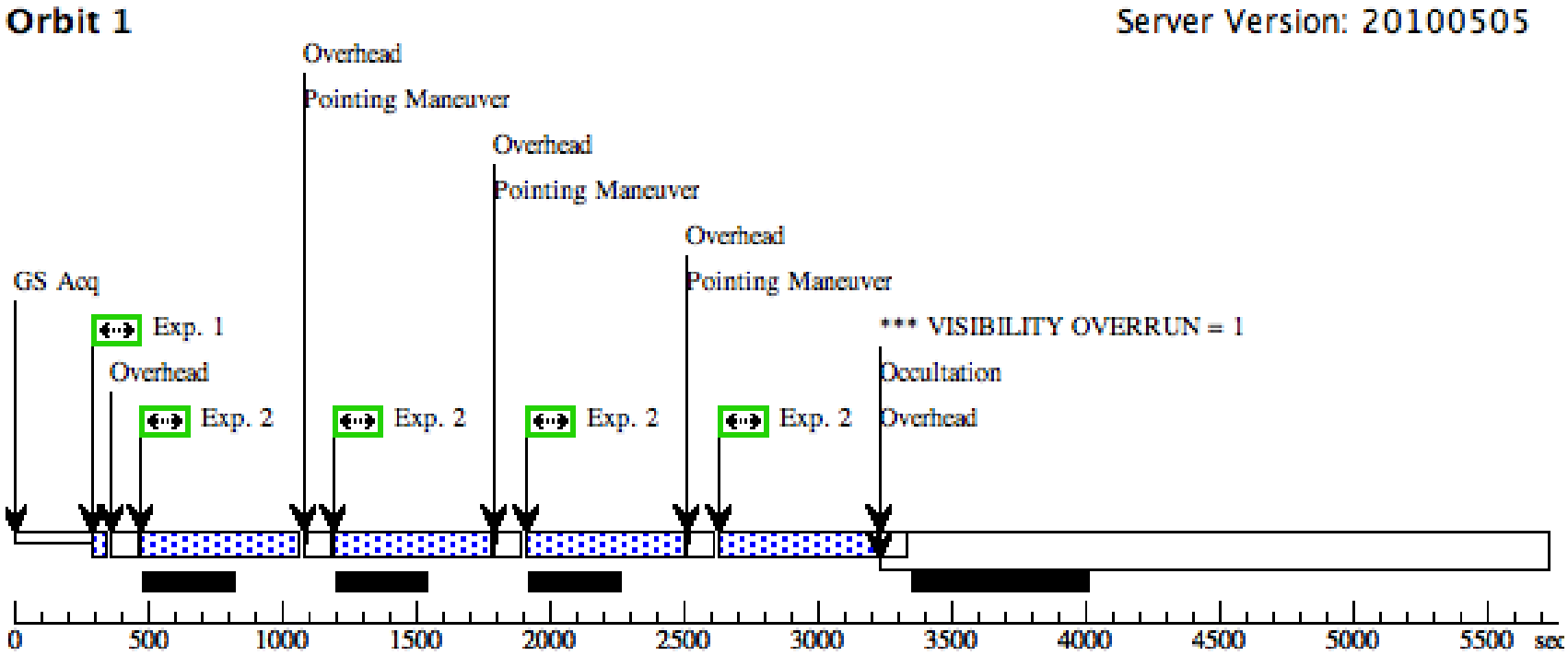
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	TOO-GC	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) 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) TOO-GC	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO			20 Secs	
								[==>]	***[1]***
2		(7) TOO-GC	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	550 Secs	
								[==>590.0 Secs (Pattern 1)] *[==>590.0 Secs (Pattern 2)]* *[==>590.0 Secs (Pattern 3)]* *[==>590.0 Secs (Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 11669, Visit 11, implementation Wed Aug 18 19:09:50 GMT 2010

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ON HOLD ; ON HOLD FOR 10

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 10.

Diagnostics

(Visit 11) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 11) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 11) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 11) Warning (Orbit Planner): VISIBILITY OVERRUN

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		(2)

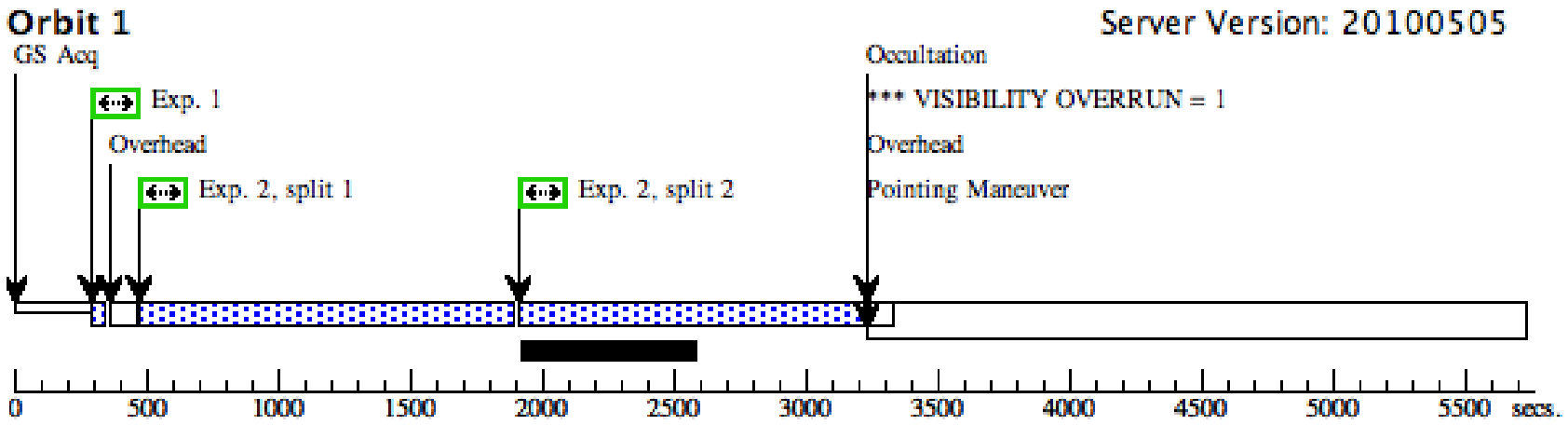
Fixed Targets

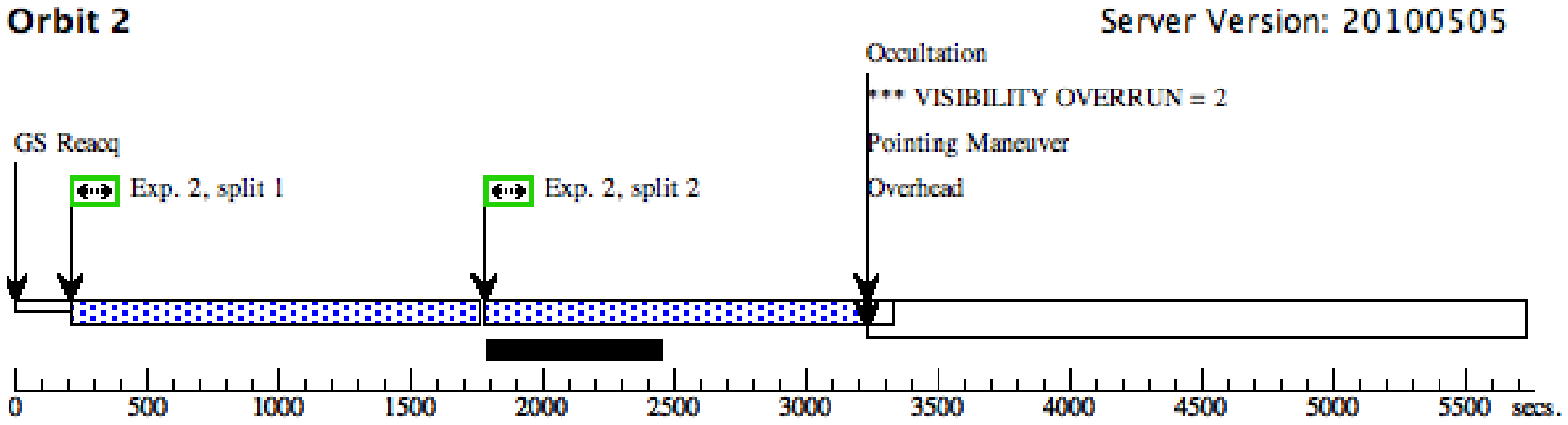
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	TOO-GC	RA: 00 00 0.0000 (.0000000d) Dec: +00 00 0.00 (.00000d) Equinox: J2000		V=25	Reference Frame: ICRS

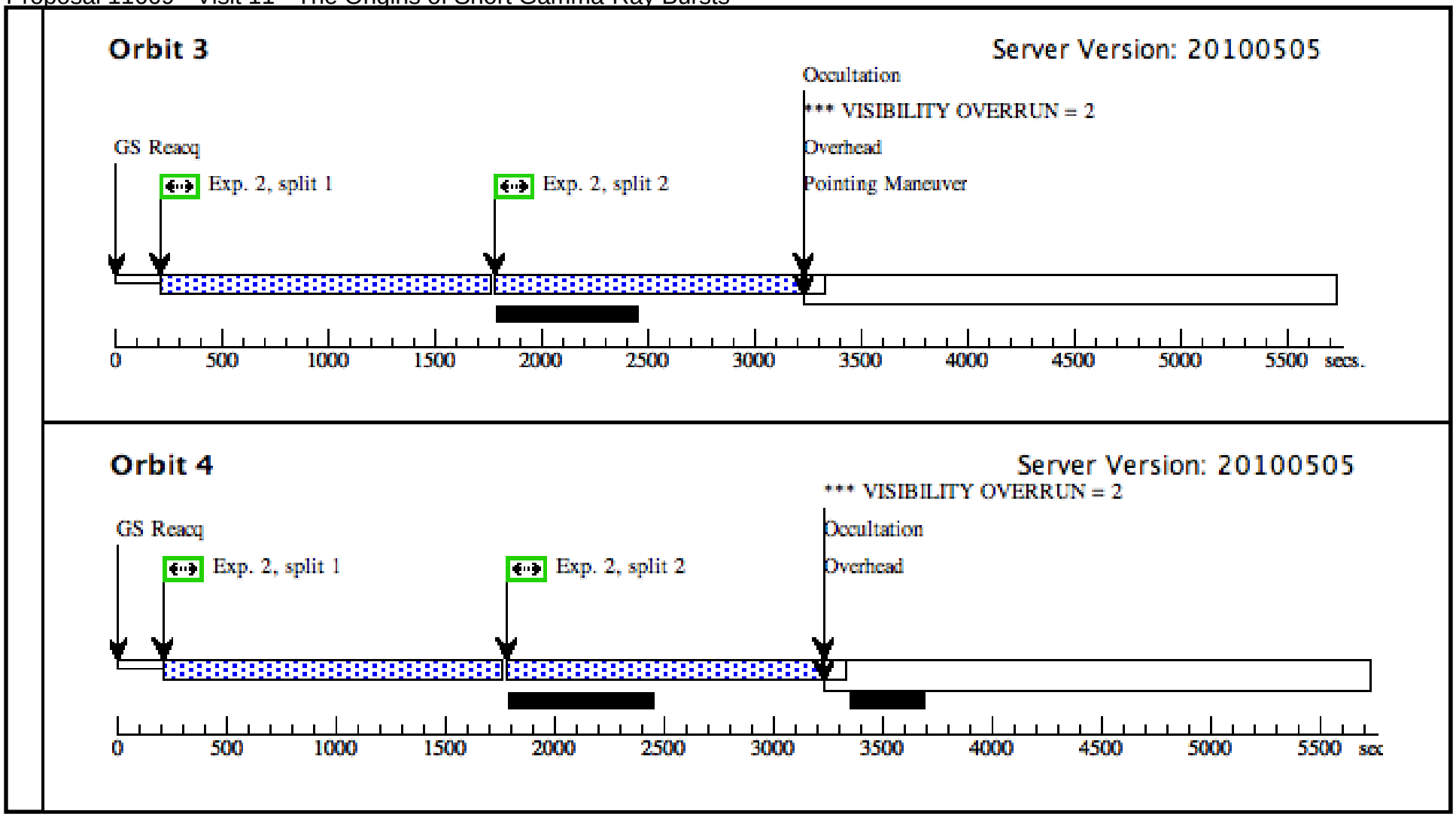
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(7) TOO-GC	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO			20 Secs	
								[==>]	***[1]***
2		(7) TOO-GC	WFC3/UVIS, ACCUM, UVIS1	F606W			Pattern 1, Exps 2-2 (1)	2675 Secs	
								[==>1307.5 Secs (Pattern 1, Split 1)] *[==>1307.5 Secs (Pattern 1, Split 2)]*	***[1]***
								[==>1438.5 Secs (Pattern 2, Split 1)] *[==>1438.5 Secs (Pattern 2, Split 2)]*	***[2]***
								[==>1438.5 Secs (Pattern 3, Split 1)] *[==>1438.5 Secs (Pattern 3, Split 2)]*	***[3]***
								[==>1438.5 Secs (Pattern 4, Split 1)] *[==>1438.5 Secs (Pattern 4, Split 2)]*	***[4]***

Orbit Structure






Orbit 3
Server Version: 20100505
Occultation
*** VISIBILITY OVERRUN = 2
GS Reacq
Exp. 2, split 1
Exp. 2, split 2
Overhead
Pointing Maneuver
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 4
Server Version: 20100505
*** VISIBILITY OVERRUN = 2
GS Reacq
Exp. 2, split 1
Exp. 2, split 2
Occultation
Overhead
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11669, Visit S1, implementation Wed Aug 18 19:09:51 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; ON HOLD

Comments: ToO Observation of GRB 100816a based on Visit 8

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

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		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	GRB-100816A	RA: 23 26 57.6200 (351.7400833d) Dec: +26 34 43.90 (26.57886d) 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		(8) GRB-100816A	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO			20 Secs	
								[==>]	***[1]***
2		(8) GRB-100816A	WFC3/UVIS, ACCUM, UVIS1	F606W	CR-SPLIT=NO		Pattern 1, Exps 2-2 (1)	580 Secs	
								[==>536.0 Secs (Pattern 1)] *[==>536.0 Secs (Pattern 2)]* *[==>536.0 Secs (Pattern 3)]* *[==>536.0 Secs (Pattern 4)]*	***[1]***

Orbit Structure