11840 - Identifying the host galaxies for optically dark 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?*
A1	(6) GRB090113	ACS/WFC	1	09-Jul-2010 21:53:54.0	yes
A2	(7) GRB090404	ACS/WFC	1	09-Jul-2010 21:53:58.0	yes
A4	(9) GRB090417B	ACS/WFC	1	09-Jul-2010 21:54:01.0	yes
W1	(6) GRB090113	WFC3/IR	1	09-Jul-2010 21:54:04.0	yes
W2	(7) GRB090404	WFC3/IR	1	09-Jul-2010 21:54:08.0	yes
W4	(9) GRB090417B	WFC3/IR	1	09-Jul-2010 21:54:11.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
D1	(8) GRB090407	WFC3/IR WFC3/UVIS	1	09-Jul-2010 21:54:14.0	yes
D2	(10) GRB100205A	WFC3/IR WFC3/UVIS	1	09-Jul-2010 21:54:18.0	yes
D3	(11) GRB100413A	WFC3/IR WFC3/UVIS	1	09-Jul-2010 21:54:22.0	yes
D4	(12) GRB100615A	WFC3/IR WFC3/UVIS	1	09-Jul-2010 21:54:27.0	yes

10 Total Orbits Used

ABSTRACT

We propose to use the high spatial resolution of Chandra to obtain precise positions for a sample of Gamma-Ray Bursts (GRBs) with no optical afterglows, where the optical light is suppressed relative to the X-ray flux. These bursts are likely to be highly obscured and may have different environments from the optically bright GRBs. Our Chandra observations will (unlike Swift XRT positions) allow for the unique identification of a host galaxy. To locate these host galaxies we will follow up our Chandra positions with deep optical and IR observations with HST. The ultimate aim is to understand any differences between the host galaxies of optically dark and bright GRBs, and how these affect the use of GRBs as tracers of starformation and galaxy evolution at high redshift.

OBSERVING DESCRIPTION

We will observe the host galaxies of dark gamma-ray bursts in two filters utilizing ACS/WFC F606W and WFC3/IR F160W. In each filter we will obtain a one orbit observation, split into a 4 point dither for PSF recovery. Our aim is to detect the hosts, and characterize their luminosity, colours and morphology. We will subsequently constrast these with those of the larger sample of GRBs which exhibit bright optical afterglows.

Our targets will become available over the course of the next Chandra cycle (roughly Dec 2008-Dec 2009), we will activate individual visits as the co-ordinates are known. As the targets are host galaxies and not afterglows these observations are not ToOs and can be scheduled at any time after the positions are known.

Visit

Proposal 11840, Visit A1, completed Sat Jul 10 01:54:30 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: ORIENT 53.2D TO 123.2 D; ORIENT 143.2D TO 213.2 D; ORIENT 233.2D TO 303.2 D; ORIENT 323.2D TO 33.2 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1)

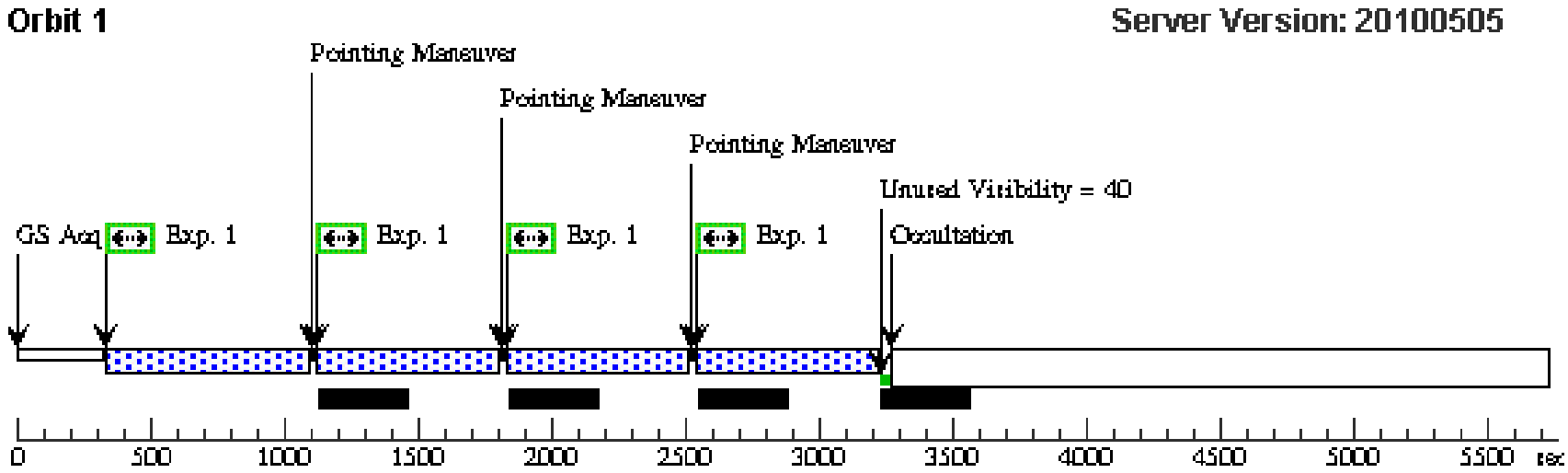
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	GRB090113	RA: 02 08 13.7100 (32.0571250d) Dec: +33 25 42.20 (33.42839d) Equinox: J2000		V=26+/-1	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(6) GRB090113	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1, Exps 1-1 (1)	500 Secs *[==>552.0 Secs (Pattern 1)]* *[==>552.0 Secs (Pattern 2)]* *[==>552.0 Secs (Pattern 3)]* *[==>552.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 11840, Visit A2, implementation Sat Jul 10 01:54:31 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: ORIENT 24.6D TO 56.9 D; ORIENT 81.7D TO 94.6 D; ORIENT 114.6D TO 146.9 D; ORIENT 171.7D TO 184.6 D; ORIENT 204.6D TO 236.9 D; ORIENT 261.7D TO 274.6 D; ORIENT 294.6D TO 326.9 D; ORIENT 351.7D TO 4.6 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1)

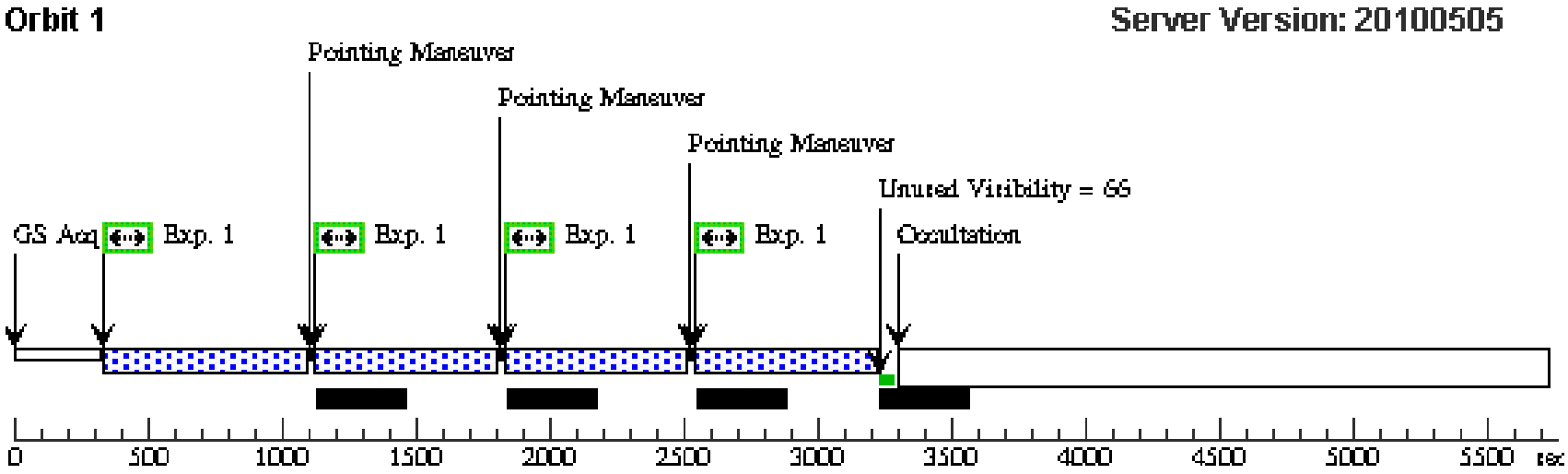
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	GRB090404	RA: 15 56 57.5000 (239.2395833d) Dec: +35 30 58.10 (35.51614d) Equinox: J2000		V=27+/-1	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(7) GRB090404	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1, Exps 1-1 (1)	500 Secs *[==>552.0 Secs (Pattern 1)]* *[==>552.0 Secs (Pattern 2)]* *[==>552.0 Secs (Pattern 3)]* *[==>552.0 Secs (Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 11840, Visit A4, implementation Sat Jul 10 01:54:32 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1)

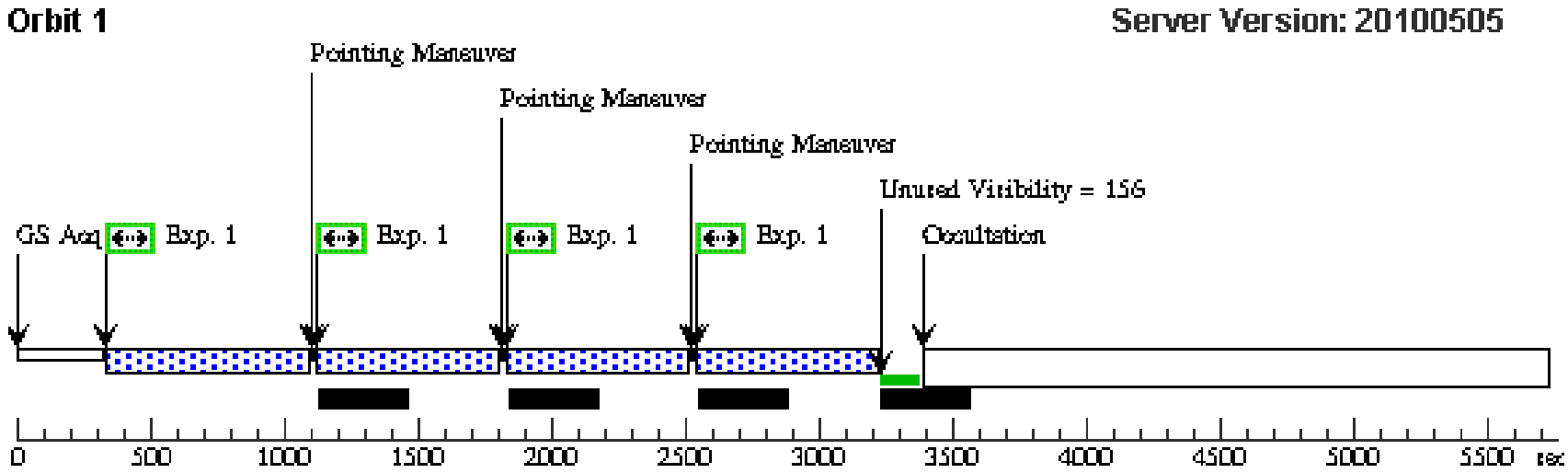
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	GRB090417B	RA: 13 58 46.6200 (209.6942500d) Dec: +47 01 5.40 (47.01817d) Equinox: J2000		V=21.6+/-0.2	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(9) GRB090417B	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1, Exps 1-1 (1)	500 Secs *[==>552.0 Secs (Pattern 1)]* *[==>552.0 Secs (Pattern 2)]* *[==>552.0 Secs (Pattern 3)]* *[==>552.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 11840, Visit W1, completed Sat Jul 10 01:54:32 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 53.2D TO 123.2 D; ORIENT 143.2D TO 213.2 D; ORIENT 233.2D TO 303.2 D; ORIENT 323.2D TO 33.2 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	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)

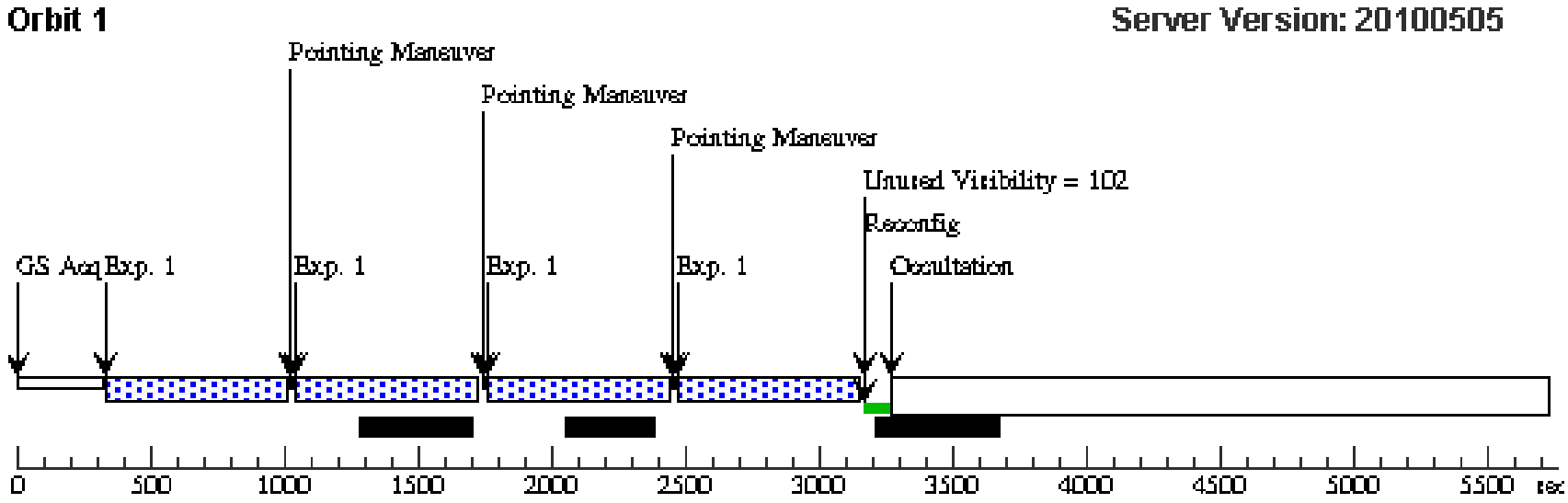
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	GRB090113	RA: 02 08 13.7100 (32.0571250d) Dec: +33 25 42.20 (33.42839d) Equinox: J2000		V=26+/-1	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(6) GRB090113	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=SPARS50		Pattern 2, Exps 1-1 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 11840, Visit W2, completed Sat Jul 10 01:54:32 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 24.6D TO 56.9 D; ORIENT 81.7D TO 94.6 D; ORIENT 114.6D TO 146.9 D; ORIENT 171.7D TO 184.6 D; ORIENT 204.6D TO 236.9 D; ORIENT 261.7D TO 274.6 D; ORIENT 294.6D TO 326.9 D; ORIENT 351.7D TO 4.6 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	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)

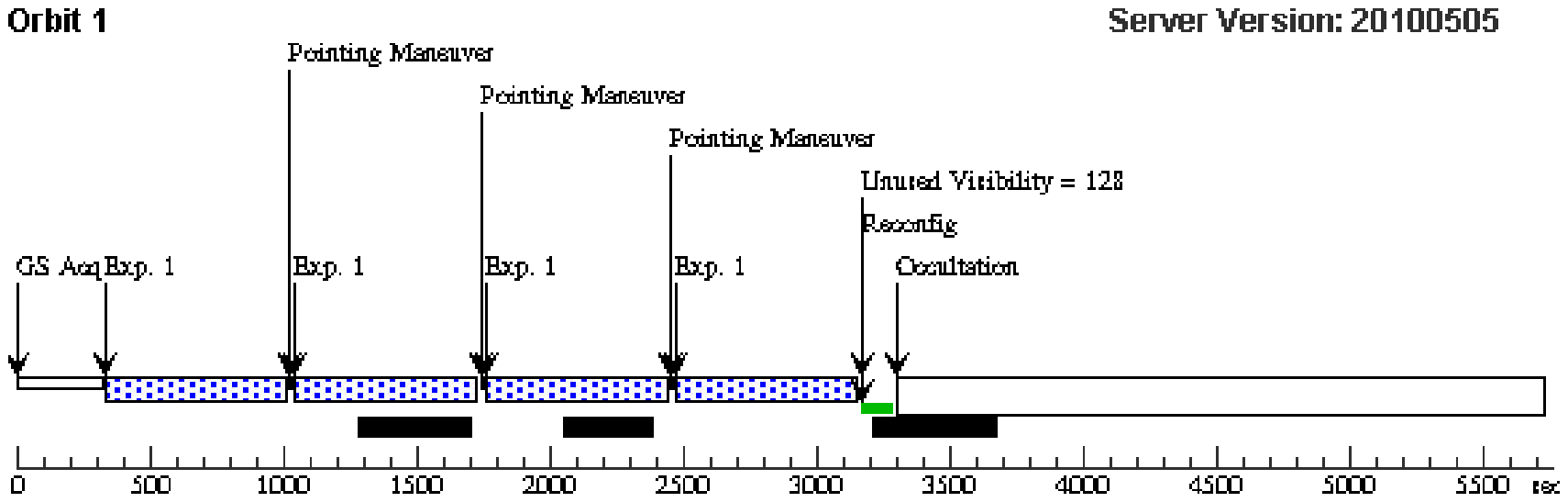
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	GRB090404	RA: 15 56 57.5000 (239.2395833d) Dec: +35 30 58.10 (35.51614d) Equinox: J2000		V=27+/-1	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(7) GRB090404	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=SPARS50		Pattern 2, Exps 1-1 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 11840, Visit W4, completed Sat Jul 10 01:54:33 GMT 2010

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=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

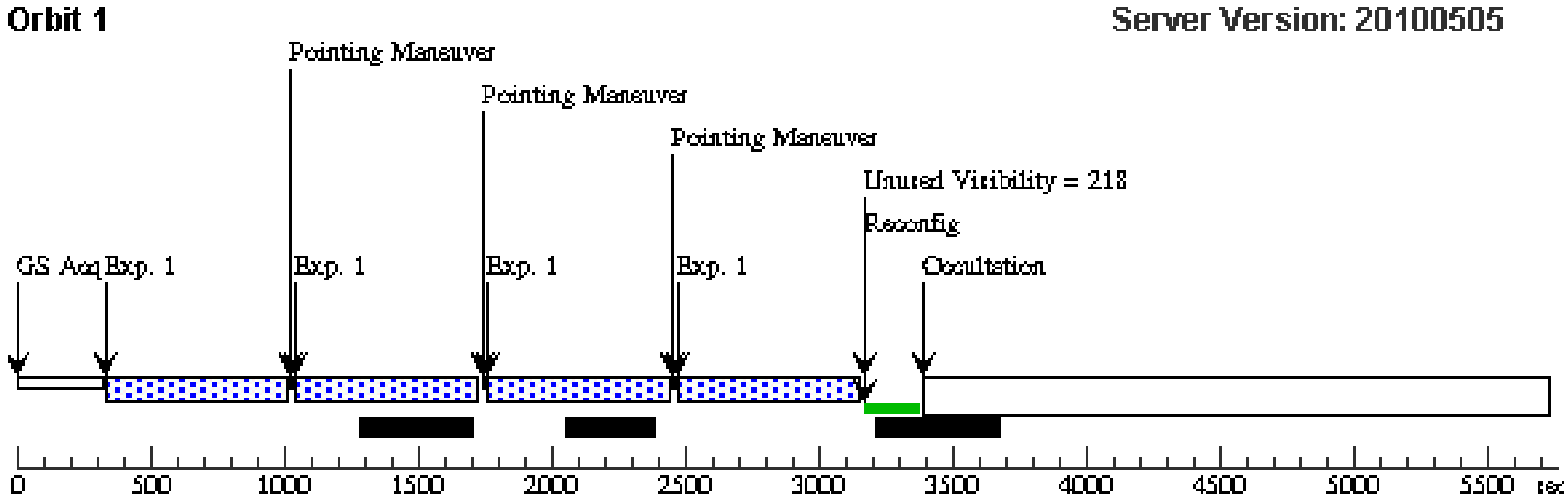
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	GRB090417B	RA: 13 58 46.6200 (209.6942500d) Dec: +47 01 5.40 (47.01817d) Equinox: J2000		V=21.6+/-0.2	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(9) GRB090417B	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=SPARS50		Pattern 2, Exps 1-1 (2)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 11840, Visit D1 Sat Jul 10 01:54:33 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ORIENT 66D TO 103.7 D; ORIENT 156D TO 193.7 D; ORIENT 246D TO 283.7 D; ORIENT 336D TO 13.7 D; ON HOLD

On Hold Comments: Awaiting Dark GRB position from Chandra

Patterns

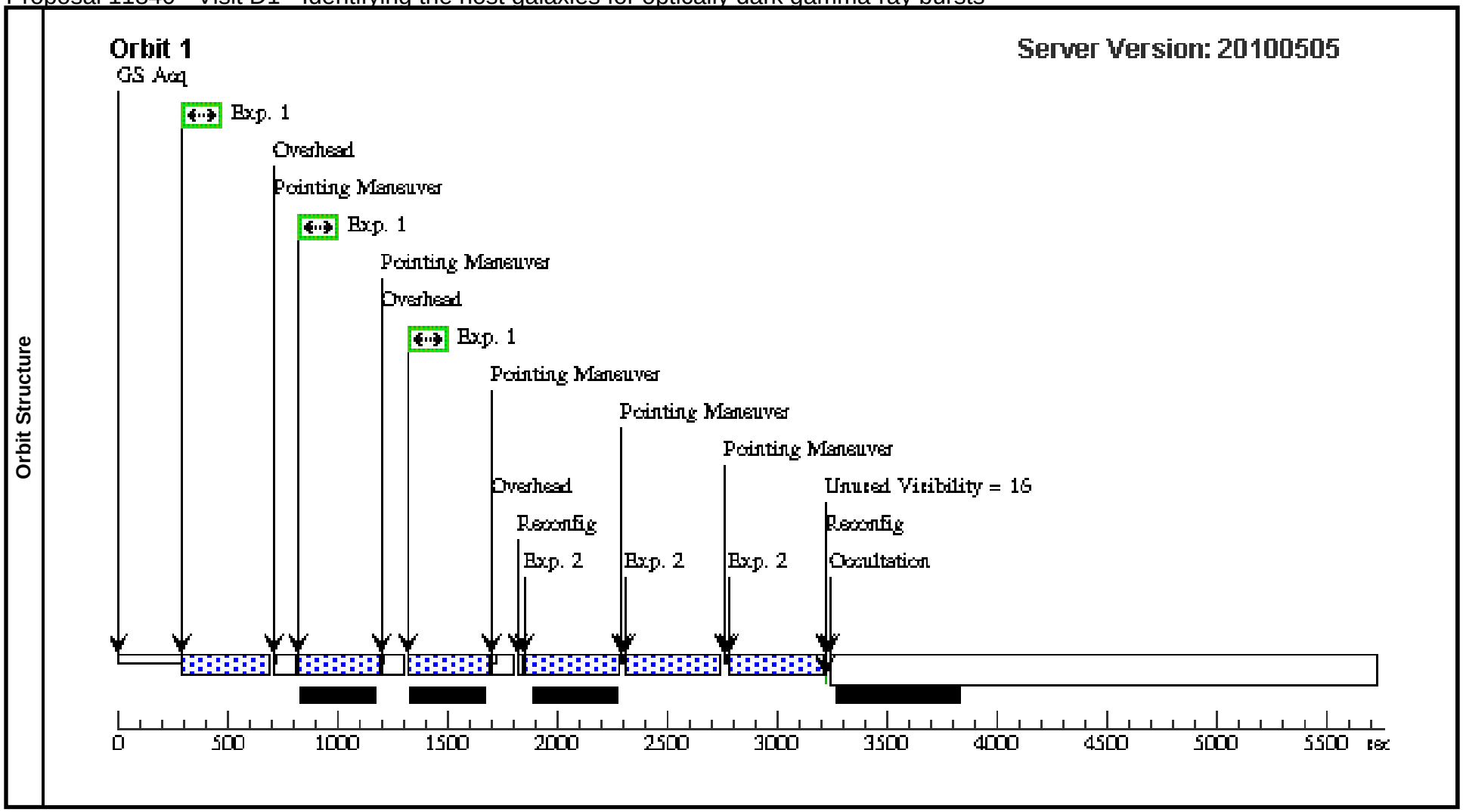
#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	GRB090407	RA: 04 35 55.0100 (68.9792083d) Dec: -12 40 45.60 (-12.67933d) Equinox: J2000		V=27+/-1	Reference Frame: Chandra

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(8) GRB090407	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO		Pattern 3, Exps 1-1 (3)	370 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***
2		(8) GRB090407	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPARS50		Pattern 4, Exps 2-2 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


Orbit 1
Server Version: 20100505
Orbit Structure
GS Acq
Exp. 1
Overhead
Pointing Maneuver
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Overhead
Unused Visibility = 16
Reconfig
Reconfig
Exp. 2
Exp. 2
Exp. 2
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11840, Visit D2 Sat Jul 10 01:54:33 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ON HOLD

On Hold Comments: Awaiting Dark GRB position from Chandra

Patterns

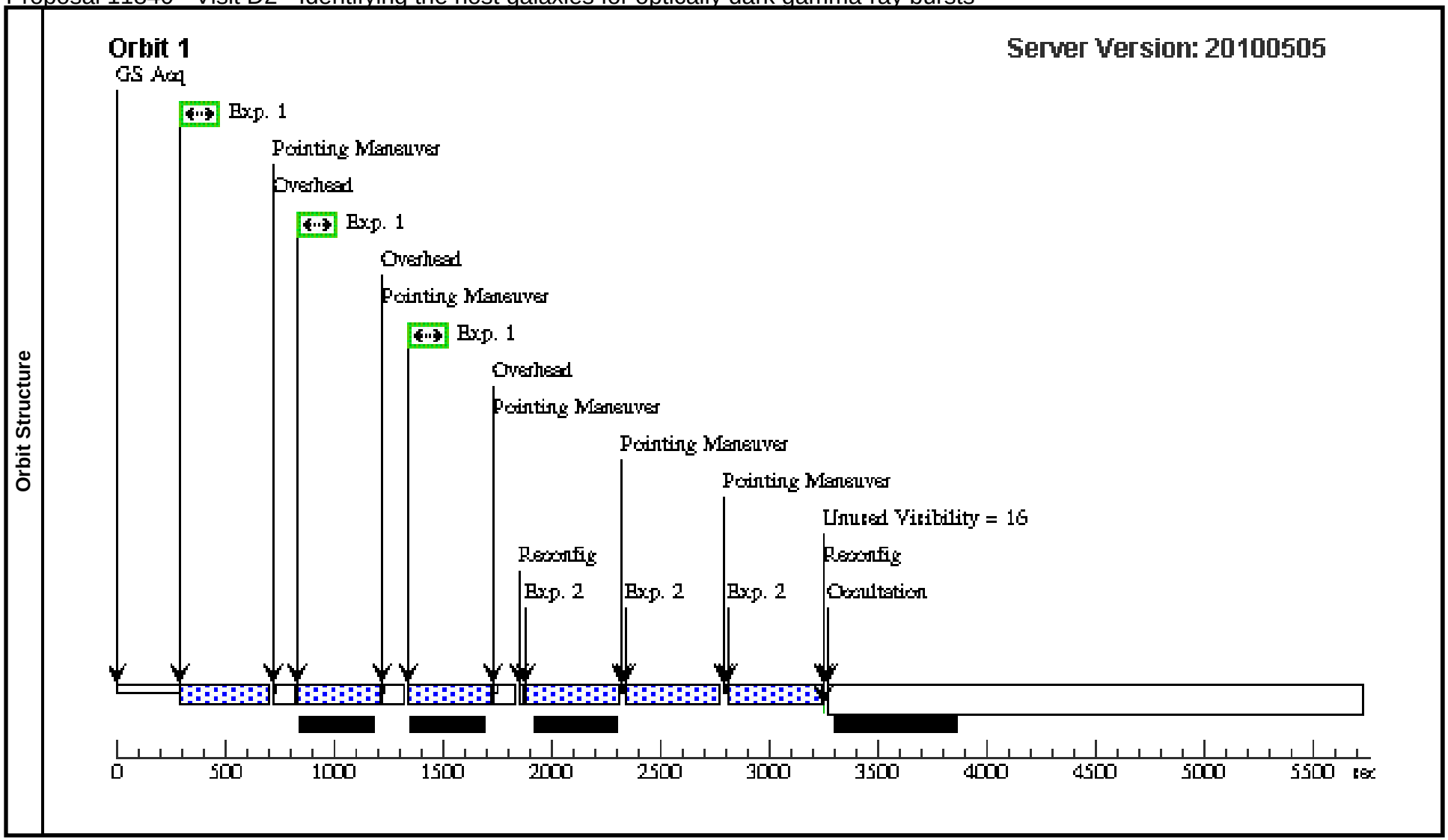
#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	GRB100205A	RA: 09 25 33.0000 (141.3875000d) Dec: +31 44 25.80 (31.74050d) Equinox: J2000		V=25+/-2	Reference Frame: Swift

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(10) GRB100205A	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO		Pattern 3, Exps 1-1 (3)	380 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***
2		(10) GRB100205A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPARS50		Pattern 4, Exps 2-2 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20100505
GS Acq
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Overhead
Pointing Maneuver
Exp. 1
Overhead
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 16
Reconfig
Exp. 2
Exp. 2
Exp. 2
Reconfig
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 11840, Visit D3 Sat Jul 10 01:54:34 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ON HOLD

On Hold Comments: Awaiting Dark GRB position from Chandra

Patterns

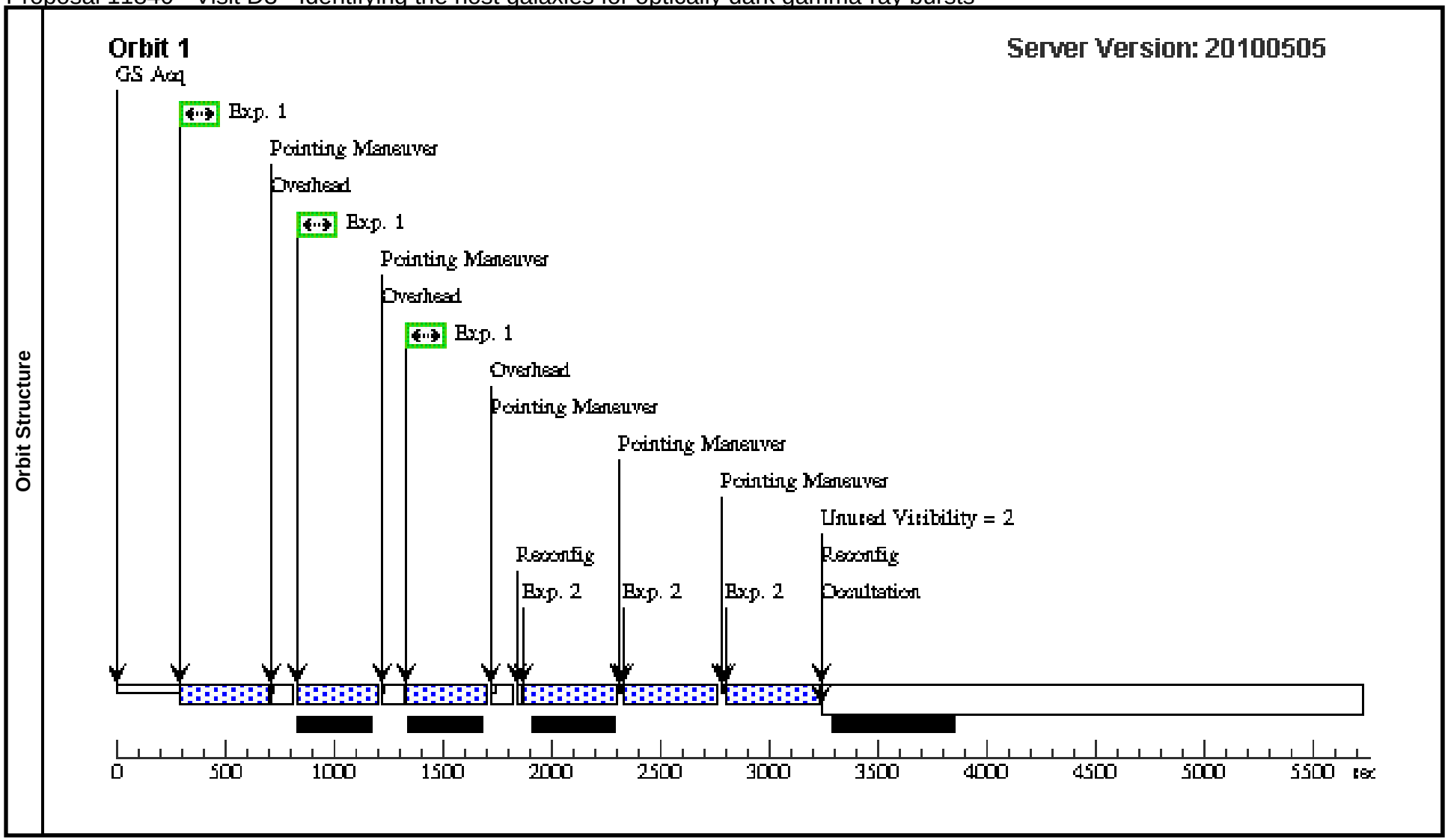
#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	GRB100413A	RA: 17 44 53.1900 (266.2216250d) Dec: +15 50 3.20 (15.83422d) Equinox: J2000		V=25+/-2	Reference Frame: Swift

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(11) GRB100413A	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO		Pattern 3, Exps 1-1 (3)	376 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***
2		(11) GRB100413A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPARS50		Pattern 4, Exps 2-2 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


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

Visit

Proposal 11840, Visit D4 Sat Jul 10 01:54:34 GMT 2010

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: ORIENT 10D TO 80 D; ORIENT 100D TO 170 D; ORIENT 190D TO 260 D; ORIENT 280D TO 350 D; ON HOLD

On Hold Comments: Awaiting Dark GRB position from Chandra

Patterns

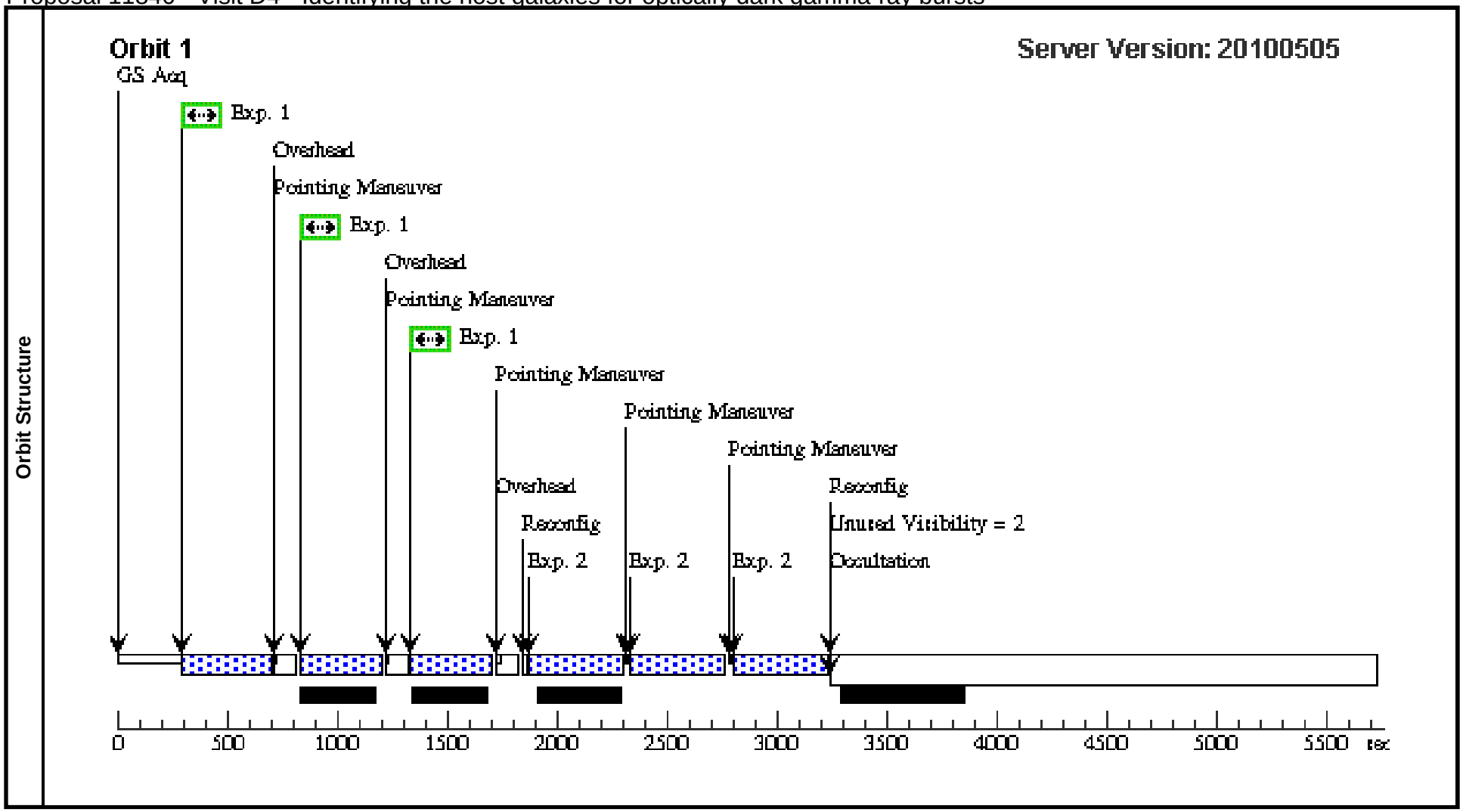
#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(4)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	GRB100615A	RA: 11 48 49.2600 (177.2052500d) Dec: -19 28 52.40 (-19.48122d) Equinox: J2000		V=25+/-2	Reference Frame: Swift

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(12) GRB100615A	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO		Pattern 3, Exps 1-1 (3)	380 Secs *[==>376.0 Secs (Pattern 1)]* *[==>376.0 Secs (Pattern 2)]* *[==>376.0 Secs (Pattern 3)]*	***[1]***
2		(12) GRB100615A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPARS50		Pattern 4, Exps 2-2 (4)	*[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


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