13113 - ENERGY DEPENDENT X-RAY MICROLENSING AND THE STRUCTURE OF QUASARS

Cycle: 20, 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) HE0435	WFC3/UVIS	1	17-Sep-2012 21:09:44.0	yes
02	(1) HE0435	WFC3/UVIS	1	17-Sep-2012 21:09:51.0	yes
03	(2) SDSS1004+4112	WFC3/UVIS	1	17-Sep-2012 21:09:57.0	yes
04	(2) SDSS1004+4112	WFC3/UVIS	1	17-Sep-2012 21:10:02.0	yes
05	(3) HE1104-1805	WFC3/UVIS	1	17-Sep-2012 21:10:07.0	yes
06	(3) HE1104-1805	WFC3/UVIS	1	17-Sep-2012 21:10:11.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
07	(5) Q2237+0305	WFC3/UVIS	1	17-Sep-2012 21:10:16.0	yes
08	(5) Q2237+0305	WFC3/UVIS	1	17-Sep-2012 21:10:21.0	yes
09	(4) RXJ1131-1231	WFC3/UVIS	1	17-Sep-2012 21:10:26.0	yes
10	(4) RXJ1131-1231	WFC3/UVIS	1	17-Sep-2012 21:10:30.0	yes
12	(5) Q2237+0305	WFC3/UVIS	1	17-Sep-2012 21:10:46.0	yes
13	(5) Q2237+0305	WFC3/UVIS	1	17-Sep-2012 21:11:07.0	yes

12 Total Orbits Used

ABSTRACT

The structure of the X-ray emitting regions of quasars remains an open question. Using microlensing in lensed quasars, we can now constrain the sizes, finding that they are compact compared to the UV emission (2500A) with 1/2 light radii of ~10-30 gravitational radii. We propose measuring the relative sizes of the hard and soft X-ray emission, better constraining the overall X-ray sizes and comparing them to the hottest regions of the accretion disk by coarsely monitoring 6 lenses with CXO (6 epochs each) and 5 with HST/UV (2 epochs). In essence, the variability amplitudes of the X-ray/UV compared to our well-sampled optical light curves allows us to measure the sizes. We request ~2/3 (1/3) of the time in Cycle 14 (15) for a total of 864~ks (with slew tax) and 12 HST orbits.

OBSERVING DESCRIPTION

The UV observations consists of pairs of observations separated by at least one year to look for gravitational microlensing variations in the image fluxes in order to estimate the size of the accretion disk in the (vacuum) UV. These are paired with monitoring observations in the X-ray with Chandra over the same two Cycle baseline.

The 2 orbit optical observation of Q2237 is designed to calibrate our multicolor ground based light curves so that we can accurately estimate time variability in the image colors despite the presence of the bright lens galaxy. In essence we use the HST observations to calibrate ground based observations made at roughly the same epoch (weeks),and then can use difference imaging to provide a full calibration for our multi-year light curves. The

only timing requirement is that the HST observations need to be done when the target is observable from the ground. This observation is driven by the need for high resolution to separate the quasar emission from the bulge of the galaxy as accurately as possible. The target is well up from our monitoring telescope at CTIO from June 22 to Oct 18 2013, so we should be guaranteed several weeks of light curve data before/after the HST observations.

The quasar images are bright but buried in the bulge of the galaxy. We have set these up as a power law sequence of exposures (5, 10, 20, 40 sec) at each of 3 dither positions for each of the 4 filters -- this requires using the UVIS2-C1K1C-SUB aperture in order to minimize the read time overheads. This has a field of view comparable to our old WFPC2/PC images of the system, which is perfectly adequate to our goals. The shortest exposures are conservative, but since we will never be allowed to do this again, we need to be absolutely sure that we have redundant frames in all filters with no saturation. We expect no image to be brighter than 16th mag in any of the bands, and the 5 sec exposure at these bands will have SNR 120, 180, 130, 110 at F438W, F555W, F625W and F814W with a time to saturation of 95, 45, 86, and 140 sec if any image is this bright.
The faintest we expect the images to be is 20 mag, where 40 sec exposures yield SNRs of 50, 80, 55, and 45, respectively. This strategy should guarantee unsaturated high SNR images in all bands no matter the state of the quasar in terms of variability.

Visit

Proposal 13113, Visit 01 Tue Sep 18 01:11:17 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

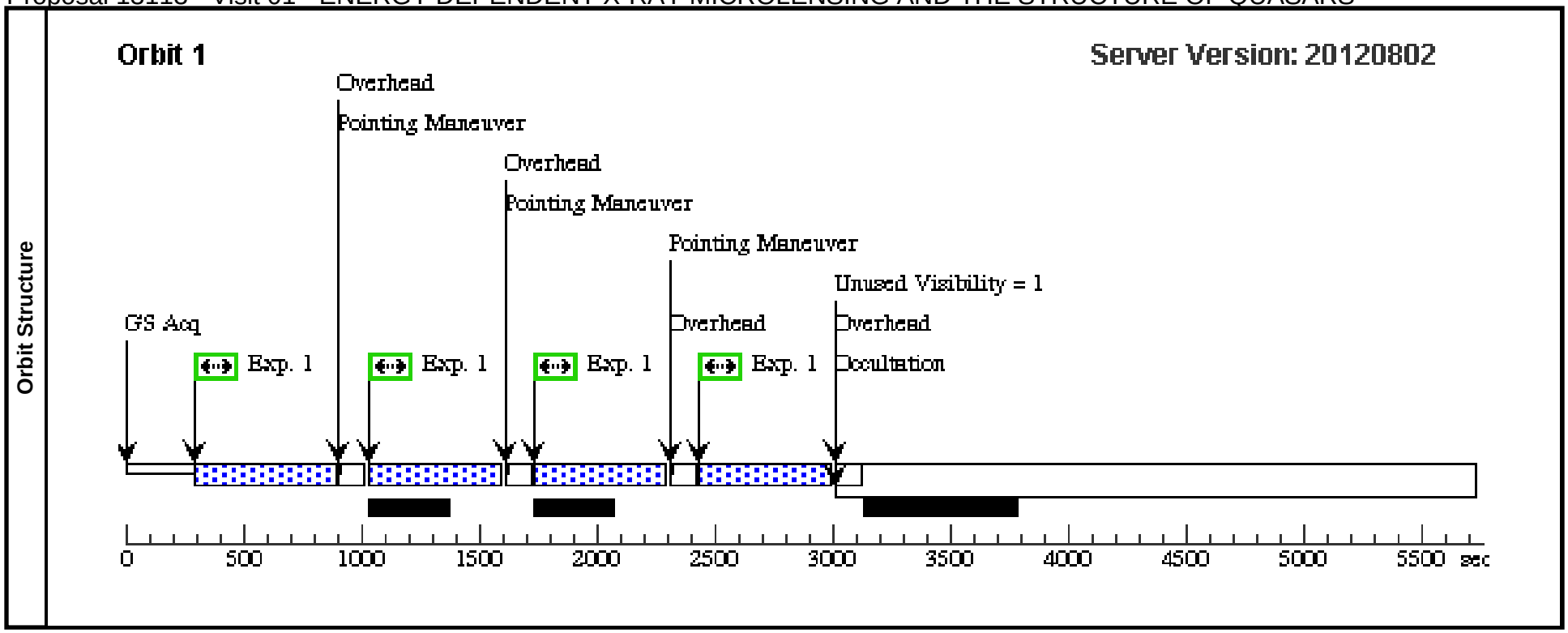
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HE0435	RA: 04 38 13.5300 (69.5563750d) Dec: -12 17 14.40 (-12.28733d) Equinox: J2000		V=17.15	Reference Frame: SIMBAD

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) HE0435	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 01 (1)	550 Secs	
								[==>567.0 Secs (Pattern 1)]	***[1]***
								[==>567.0 Secs (Pattern 2)]	
								[==>567.0 Secs (Pattern 3)]	
								[==>567.0 Secs (Pattern 4)]	


Orbit Structure
Orbit 1
Server Version: 20120802
Overhead
Pointing Maneuver
Overhead
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 1
GS Acq
Exp. 1
Exp. 1
Exp. 1
Exp. 1
Overhead
Overhead
Occultation
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500
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2000
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3000
3500
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4500
5000
5500
sec

Visit

Proposal 13113, Visit 02 Tue Sep 18 01:11:18 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 01 BY 365 D TO 730 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

Fixed Targets

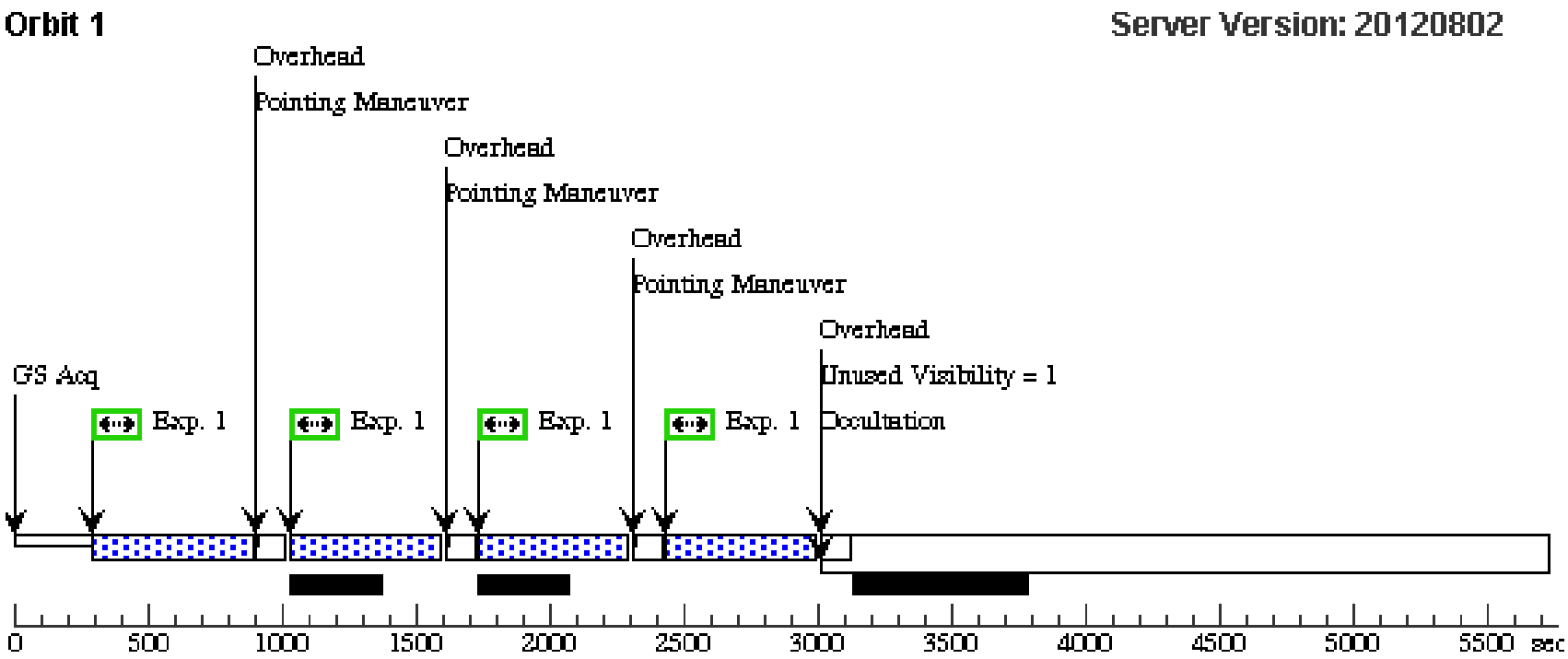
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HE0435	RA: 04 38 13.5300 (69.5563750d) Dec: -12 17 14.40 (-12.28733d) Equinox: J2000		V=17.15	Reference Frame: SIMBAD

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) HE0435	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 02 (1)	550 Secs	
								[==>567.0 Secs (Pattern 1)]	***[1]***
								[==>567.0 Secs (Pattern 2)]	
								[==>567.0 Secs (Pattern 3)]	
								[==>567.0 Secs (Pattern 4)]	

Orbit Structure



Visit

Proposal 13113, Visit 03

Tue Sep 18 01:11:22 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

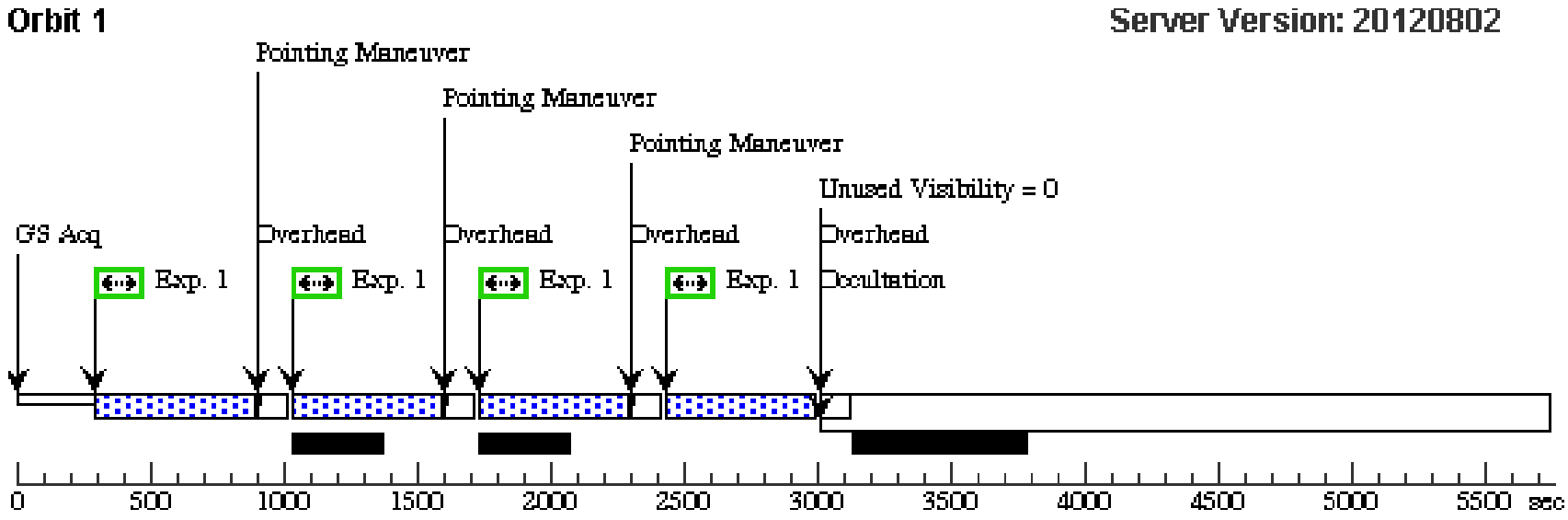
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SDSS1004+4112	RA: 10 04 35.4700 (151.1477917d) Dec: +41 12 30.00 (41.20833d) Equinox: J2000		V=19.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) SDSS1004+4112	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 03 (1)	550 Secs *[==>566.0 Secs (Pattern 1)]* *[==>566.0 Secs (Pattern 2)]* *[==>566.0 Secs (Pattern 3)]* *[==>566.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 13113, Visit 04 Tue Sep 18 01:11:23 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 03 BY 365 D TO 730 D

Patterns

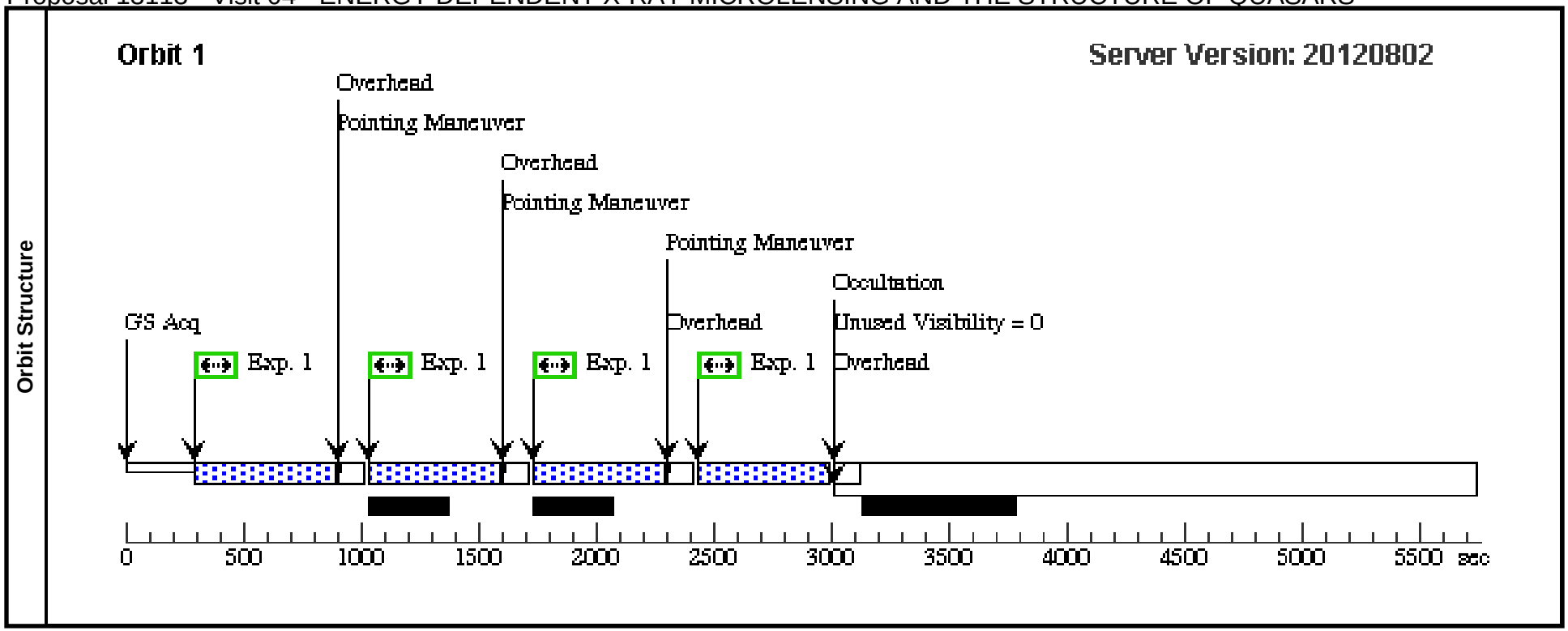
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SDSS1004+4112	RA: 10 04 35.4700 (151.1477917d) Dec: +41 12 30.00 (41.20833d) Equinox: J2000		V=19.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) SDSS1004+4112	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 04 (1)	550 Secs *[==>566.0 Secs (Pattern 1)]* *[==>566.0 Secs (Pattern 2)]* *[==>566.0 Secs (Pattern 3)]* *[==>566.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
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Server Version: 20120802
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Pointing Maneuver
Overhead
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Occultation
GS Acq
Exp. 1
Exp. 1
Exp. 1
Exp. 1
Overhead
Unused Visibility = 0
Overhead
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500
1000
1500
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Visit

Proposal 13113, Visit 05

Tue Sep 18 01:11:24 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%

Patterns

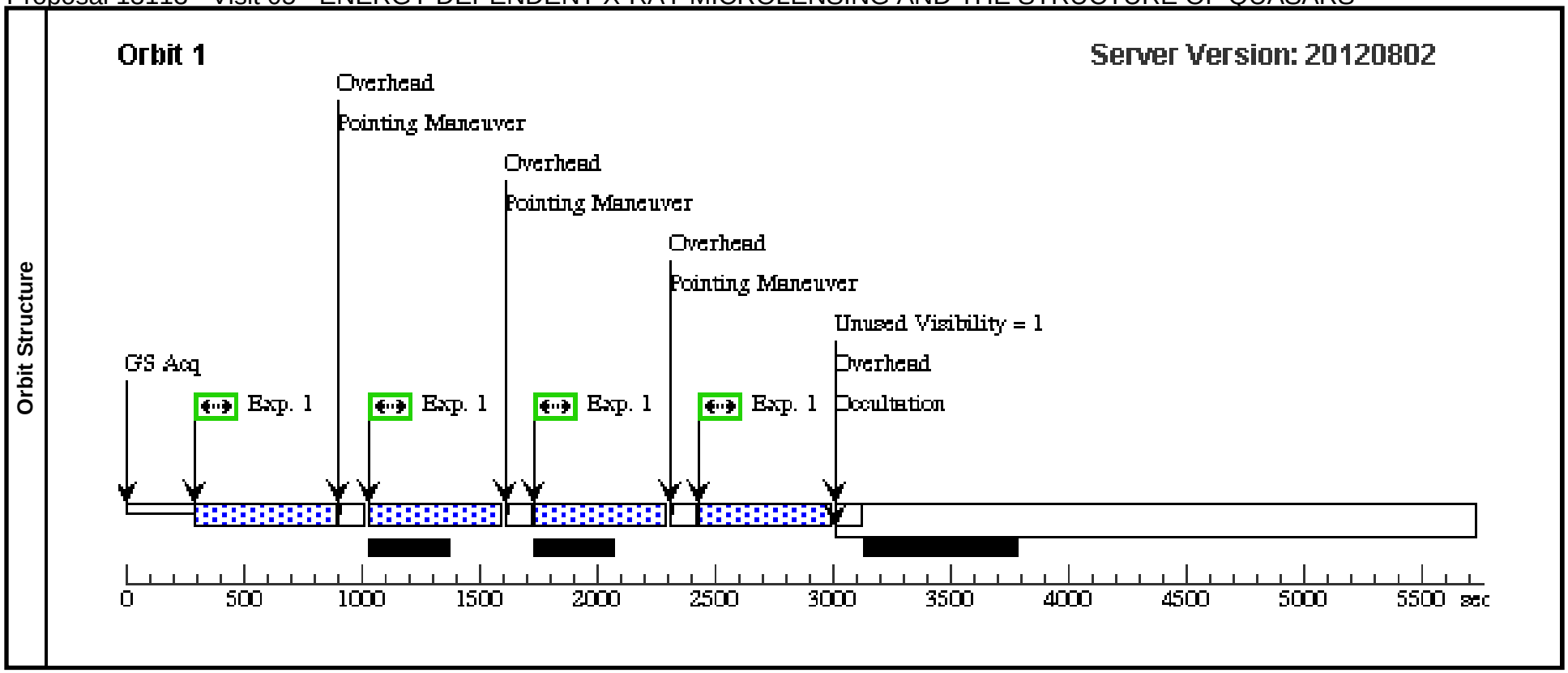
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HE1104-1805	RA: 11 06 33.4500 (166.6393750d) Dec: -18 21 24.20 (-18.35672d) Equinox: J2000		V=16.9	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(3) HE1104-1805	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 05 (1)	550 Secs	
								[==>567.0 Secs (Pattern 1)] *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120802
Overhead
Pointing Maneuver
Overhead
Pointing Maneuver
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Pointing Maneuver
Unused Visibility = 1
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GS Acq
Exp. 1
Exp. 1
Exp. 1
Exp. 1
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1500
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3500
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sec

Visit

Proposal 13113, Visit 06 Tue Sep 18 01:11:25 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 05 BY 365 D TO 730 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

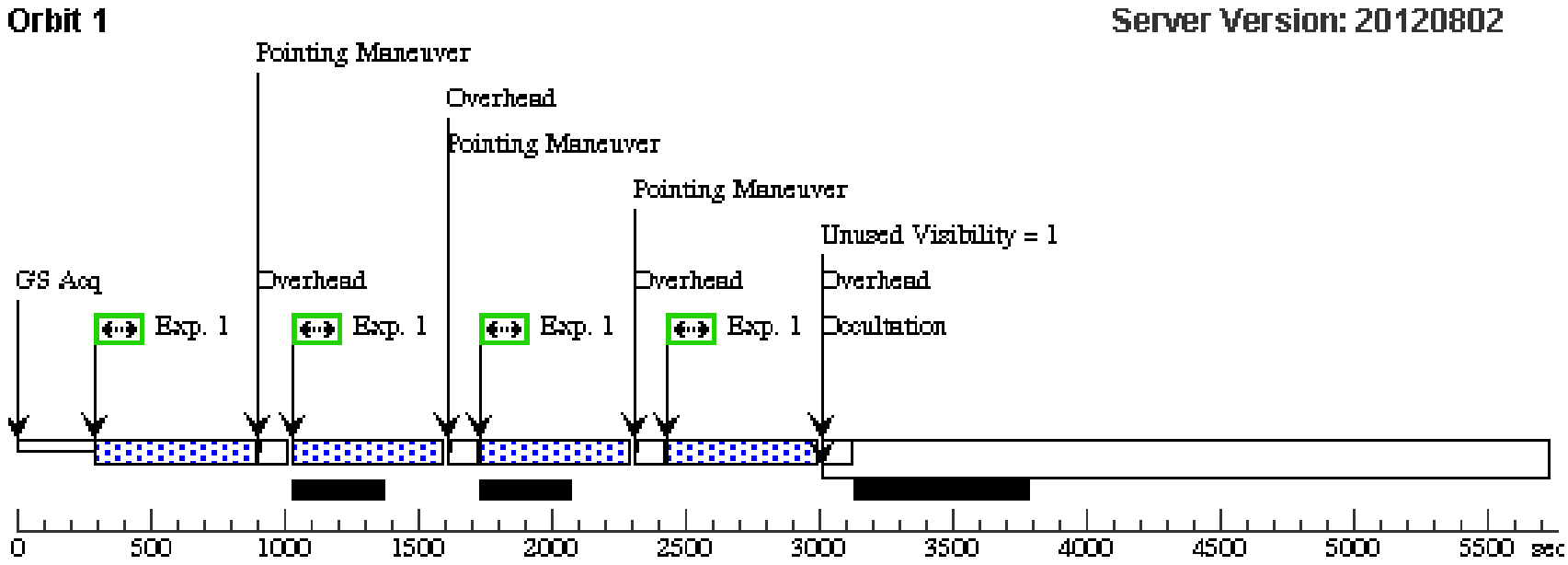
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HE1104-1805	RA: 11 06 33.4500 (166.6393750d) Dec: -18 21 24.20 (-18.35672d) Equinox: J2000		V=16.9	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(3) HE1104-1805	WFC3/UVIS, ACCUM, UVIS2	F275W	FLASH=12		Pattern 1, Exps 1-1 in Visit 06 (1)	550 Secs *[==>567.0 Secs (Pattern 1)]* *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 13113, Visit 07

Tue Sep 18 01:11:26 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

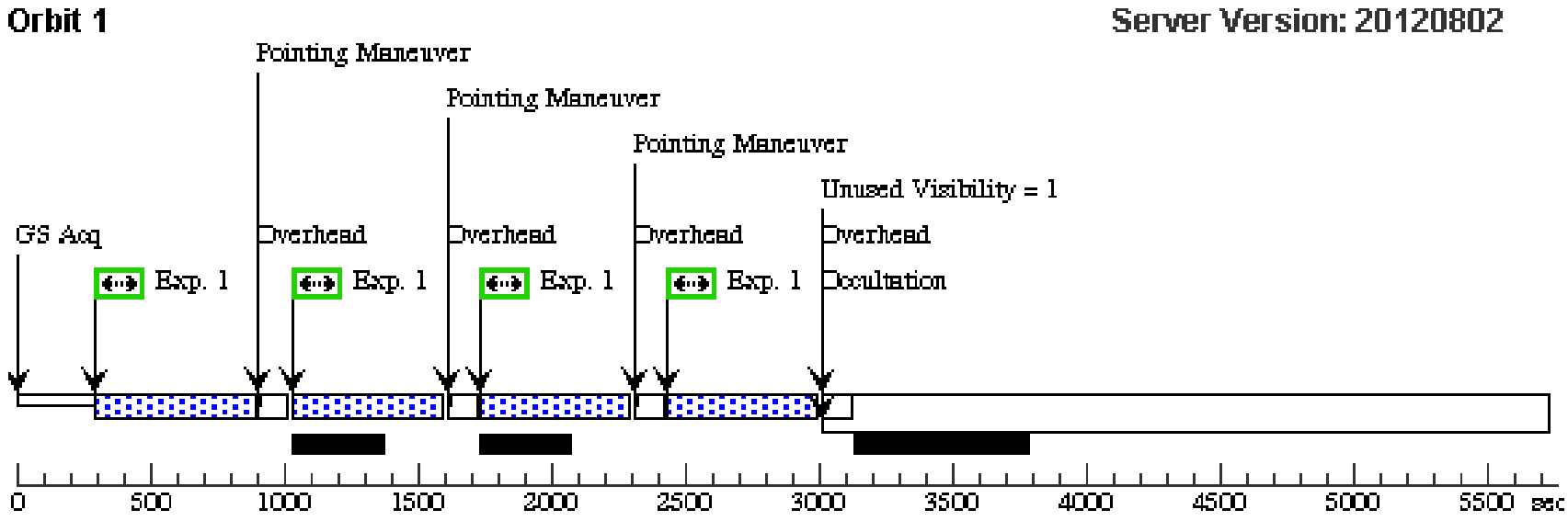
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	Q2237+0305	RA: 22 40 30.3000 (340.1262500d) Dec: +03 21 28.80 (3.35800d) Equinox: J2000		V=17.4	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2	F218W	FLASH=12		Pattern 1, Exps 1-1 in Visit 07 (1)	550 Secs *[==>567.0 Secs (Pattern 1)]* *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 13113, Visit 08 Tue Sep 18 01:11:27 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 07 BY 365 D TO 730 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

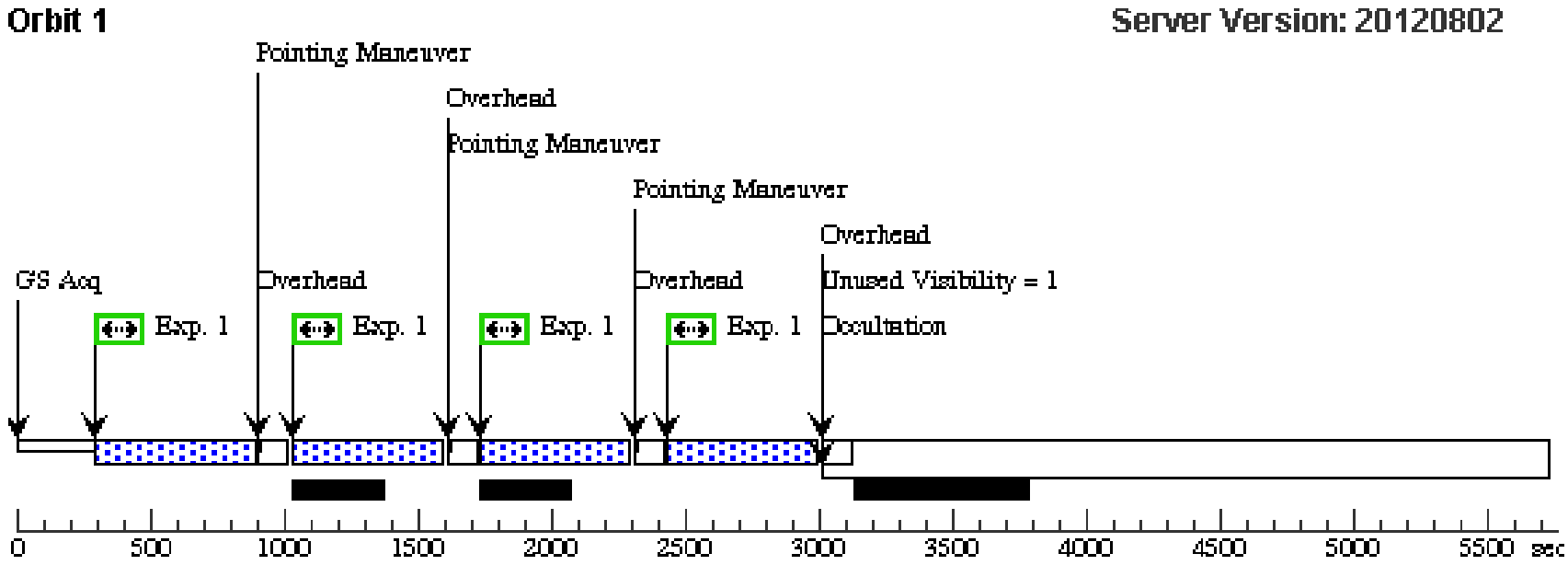
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	Q2237+0305	RA: 22 40 30.3000 (340.1262500d) Dec: +03 21 28.80 (3.35800d) Equinox: J2000		V=17.4	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2	F218W	FLASH=12		Pattern 1, Exps 1-1 in Visit 08 (1)	550 Secs *[==>567.0 Secs (Pattern 1)]* *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 13113, Visit 09 Tue Sep 18 01:11:28 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%

Patterns

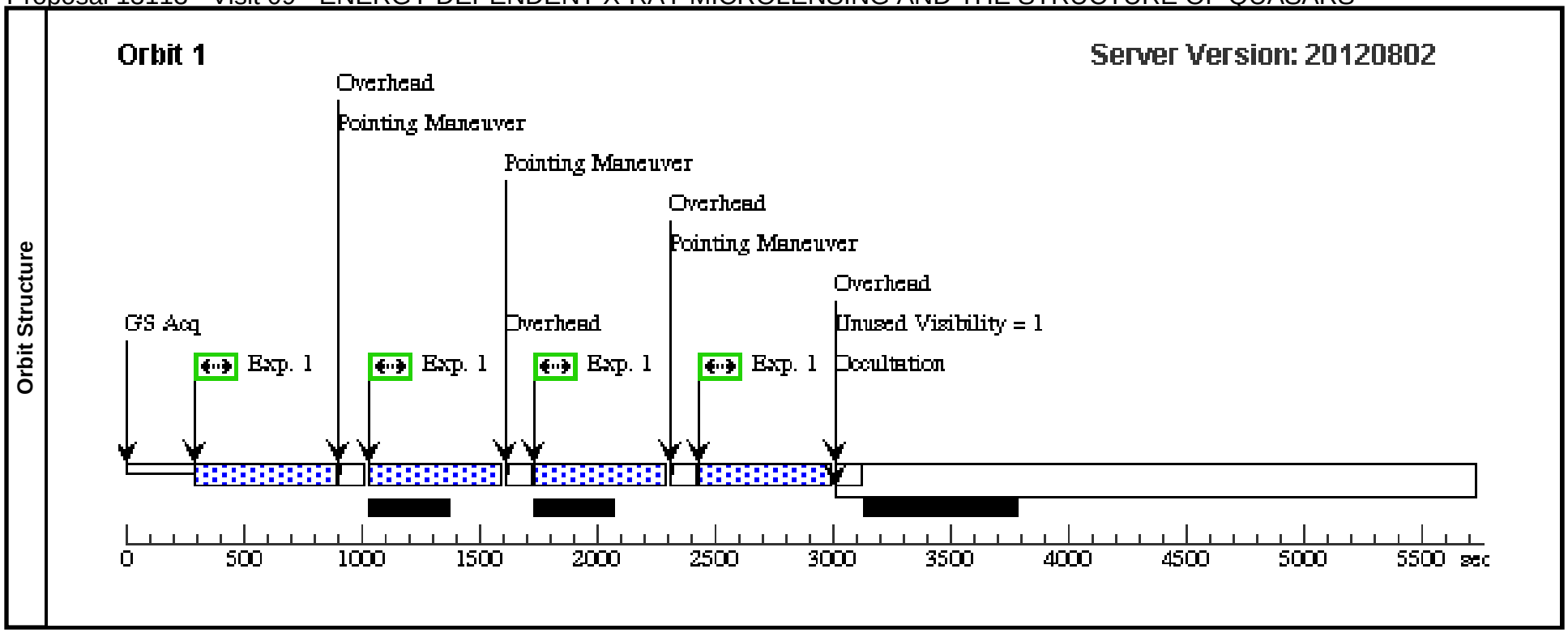
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	RXJ1131-1231	RA: 11 31 51.6000 (172.9650000d) Dec: -12 31 57.00 (-12.53250d) Equinox: J2000		V=18.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(4) RXJ1131-1231	WFC3/UVIS, ACCUM, UVIS2	F218W	FLASH=12		Pattern 1, Exps 1-1 in Visit 09 (1)	550 Secs *[==>567.0 Secs (Pattern 1)]* *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120802
Overhead
Pointing Maneuver
Pointing Maneuver
Overhead
Pointing Maneuver
Overhead
GS Acq
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Exp. 1
Exp. 1
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Exp. 1
Occultation
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Visit

Proposal 13113, Visit 10 Tue Sep 18 01:11:29 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 09 BY 365 D TO 730 D

Patterns

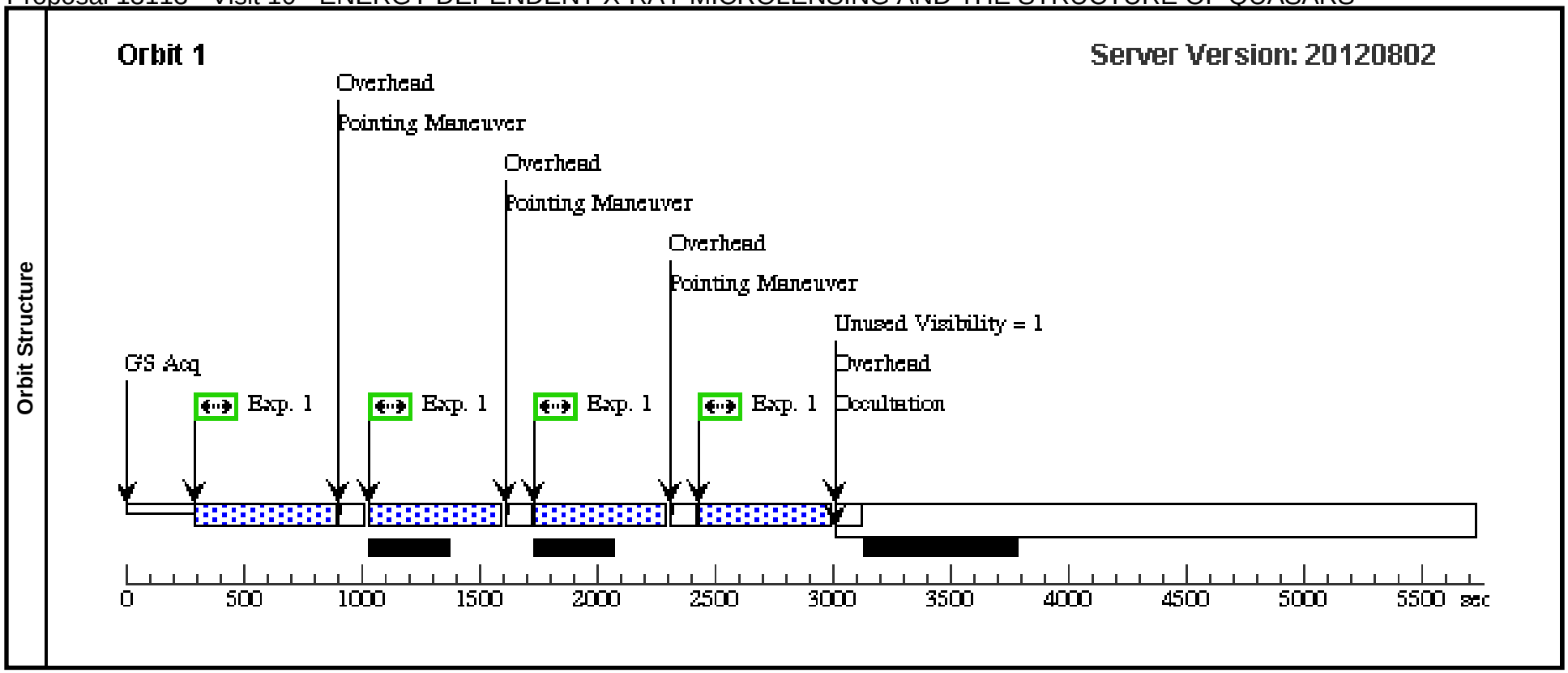
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.653 Line Spacing=0.592	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	RXJ1131-1231	RA: 11 31 51.6000 (172.9650000d) Dec: -12 31 57.00 (-12.53250d) Equinox: J2000		V=18.2	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(4) RXJ1131-1231	WFC3/UVIS, ACCUM, UVIS2	F218W	FLASH=12		Pattern 1, Exps 1-1 in Visit 10 (1)	550 Secs *[==>567.0 Secs (Pattern 1)]* *[==>567.0 Secs (Pattern 2)]* *[==>567.0 Secs (Pattern 3)]* *[==>567.0 Secs (Pattern 4)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20120802
Overhead
Pointing Maneuver
Overhead
Pointing Maneuver
Overhead
Pointing Maneuver
Unused Visibility = 1
Overhead
Occultation
GS Acq
Exp. 1
Exp. 1
Exp. 1
Exp. 1
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5500
sec

Visit

Proposal 13113, Visit 12

Tue Sep 18 01:11:30 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; BETWEEN 22-JUN-2013 AND 18-OCT-2013

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.615 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-8)

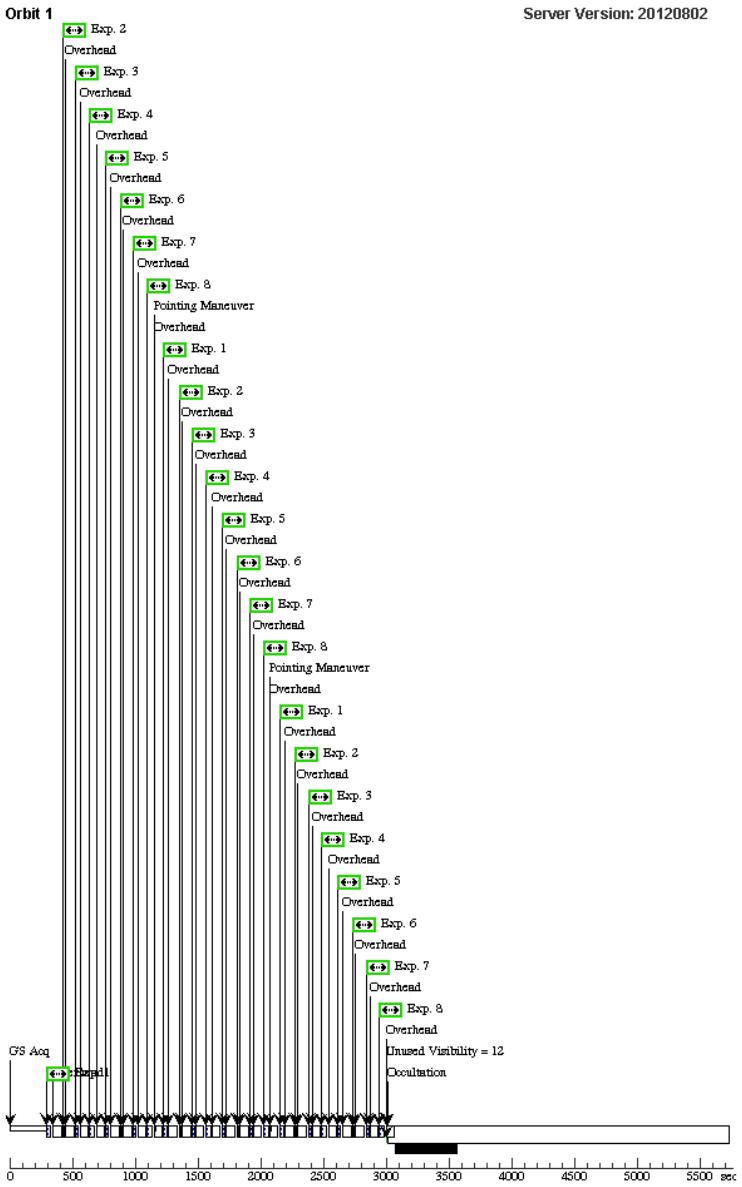
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	Q2237+0305	RA: 22 40 30.3000 (340.1262500d) Dec: +03 21 28.80 (3.35800d) Equinox: J2000		V=17.4	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=12		Pattern 2, Exps 1-8 in Visit 12 (2)	5 Secs *[==>1.0 Secs (Pattern 1)]* *[==>1.0 Secs (Pattern 2)]* *[==>1.0 Secs (Pattern 3)]*	***[1]***
2		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W	FLASH=12		Pattern 2, Exps 1-8 in Visit 12 (2)	10 Secs *[==>6.0 Secs (Pattern 1)]* *[==>6.0 Secs (Pattern 2)]* *[==>6.0 Secs (Pattern 3)]*	***[1]***
3		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W			Pattern 2, Exps 1-8 in Visit 12 (2)	22 Secs *[==>18.0 Secs (Pattern 1)]* *[==>18.0 Secs (Pattern 2)]* *[==>18.0 Secs (Pattern 3)]*	***[1]***
4		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F625W			Pattern 2, Exps 1-8 in Visit 12 (2)	45 Secs *[==>41.0 Secs (Pattern 1)]* *[==>41.0 Secs (Pattern 2)]* *[==>41.0 Secs (Pattern 3)]*	***[1]***
5		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=12		Pattern 2, Exps 1-8 in Visit 12 (2)	5 Secs *[==>1.0 Secs (Pattern 1)]* *[==>1.0 Secs (Pattern 2)]* *[==>1.0 Secs (Pattern 3)]*	***[1]***
6		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=12		Pattern 2, Exps 1-8 in Visit 12 (2)	10 Secs *[==>6.0 Secs (Pattern 1)]* *[==>6.0 Secs (Pattern 2)]* *[==>6.0 Secs (Pattern 3)]*	***[1]***
7		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W			Pattern 2, Exps 1-8 in Visit 12 (2)	22 Secs *[==>18.0 Secs (Pattern 1)]* *[==>18.0 Secs (Pattern 2)]* *[==>18.0 Secs (Pattern 3)]*	***[1]***
8		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W			Pattern 2, Exps 1-8 in Visit 12 (2)	45 Secs *[==>41.0 Secs (Pattern 1)]* *[==>41.0 Secs (Pattern 2)]* *[==>41.0 Secs (Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 13113, Visit 13 Tue Sep 18 01:11:31 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: SCHED 100%; AFTER 12 BY 0 D TO 7 D; BETWEEN 22-JUN-2013 AND 18-OCT-2013

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.615 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1-8)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	Q2237+0305	RA: 22 40 30.3000 (340.1262500d) Dec: +03 21 28.80 (3.35800d) Equinox: J2000		V=17.4	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F438W	FLASH=12		Pattern 2, Exps 1-8 in Visit 13 (2)	5 Secs *[==>1.0 Secs (Pattern 1)]* *[==>1.0 Secs (Pattern 2)]* *[==>1.0 Secs (Pattern 3)]*	 ***[1]***
2		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F438W	FLASH=12		Pattern 2, Exps 1-8 in Visit 13 (2)	10 Secs *[==>6.0 Secs (Pattern 1)]* *[==>6.0 Secs (Pattern 2)]* *[==>6.0 Secs (Pattern 3)]*	 ***[1]***
3		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F438W			Pattern 2, Exps 1-8 in Visit 13 (2)	22 Secs *[==>18.0 Secs (Pattern 1)]* *[==>18.0 Secs (Pattern 2)]* *[==>18.0 Secs (Pattern 3)]*	 ***[1]***
4		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F438W			Pattern 2, Exps 1-8 in Visit 13 (2)	45 Secs *[==>41.0 Secs (Pattern 1)]* *[==>41.0 Secs (Pattern 2)]* *[==>41.0 Secs (Pattern 3)]*	 ***[1]***
5		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=12		Pattern 2, Exps 1-8 in Visit 13 (2)	5 Secs *[==>1.0 Secs (Pattern 1)]* *[==>1.0 Secs (Pattern 2)]* *[==>1.0 Secs (Pattern 3)]*	 ***[1]***
6		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W	FLASH=12		Pattern 2, Exps 1-8 in Visit 13 (2)	10 Secs *[==>6.0 Secs (Pattern 1)]* *[==>6.0 Secs (Pattern 2)]* *[==>6.0 Secs (Pattern 3)]*	 ***[1]***
7		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W			Pattern 2, Exps 1-8 in Visit 13 (2)	21 Secs *[==>17.0 Secs (Pattern 1)]* *[==>17.0 Secs (Pattern 2)]* *[==>17.0 Secs (Pattern 3)]*	 ***[1]***
8		(5) Q2237+0305	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F555W			Pattern 2, Exps 1-8 in Visit 13 (2)	45 Secs *[==>41.0 Secs (Pattern 1)]* *[==>41.0 Secs (Pattern 2)]* *[==>41.0 Secs (Pattern 3)]*	 ***[1]***

Orbit Structure