14123 - Does All The Lyman Continuum Emission Escape From Young, Low Mass Starbursts?

Cycle: 23, 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) OBJ-100018+022502	ACS/SBC	2	24-Jul-2015 21:39:31.0	yes
02	(2) OBJ-100022+021928	ACS/SBC	2	24-Jul-2015 21:39:33.0	yes
03	(3) OBJ-100019+021926	ACS/SBC	3	24-Jul-2015 21:39:35.0	yes
04	(4) OBJ-100015+022656	ACS/SBC	2	24-Jul-2015 21:39:36.0	yes
05	(5) OBJ-100031+021351	ACS/SBC	3	24-Jul-2015 21:39:38.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(6) OBJ-100025+022458	ACS/SBC	3	24-Jul-2015 21:39:40.0	yes
07	(7) OBJ-033248-275148	ACS/SBC	3	24-Jul-2015 21:39:42.0	yes
08	(8) OBJ-033215-274553	ACS/SBC	2	24-Jul-2015 21:39:44.0	yes
09	(9) OBJ-033248-275243	ACS/SBC	1	24-Jul-2015 21:39:45.0	yes
10	(10) OBJ-033247-275039	ACS/SBC	3	24-Jul-2015 21:39:46.0	yes
11	(11) OBJ-033224-274349	ACS/SBC	2	24-Jul-2015 21:39:48.0	yes

26 Total Orbits Used

ABSTRACT

Searches for escaping Lyman continuum emission from star-forming galaxies have been largely unsuccessful across a wide range of redshifts, seemingly in contradiction with the observed ionized Universe. However, the main focus of these searches has been massive galaxies, despite theoretical studies that predict a higher escape fraction of ionizing radiation in galaxies at the low mass end. We propose to measure the escaping Lyman continuum emission from a sample of 11 low mass, emission line galaxies at $1.2 < z < 1.4$, selected from the 3DHST survey, using the ACS SBC camera and its F150LP filter. These low mass emission line galaxies have all been selected to have very high (> 190 Angstrom) equivalent widths, indicating that their stellar populations are both very young and very low metallicity, similar to the primordial star formation believed to have re-ionized the universe. We will be sensitive to an intrinsic escape fraction of 5% for these low mass sources. Efficient searches for escaping Lyman continuum emission require HST ultraviolet imaging, because of the rapid rise in IGM opacity with redshift.

OBSERVING DESCRIPTION

We propose deep FUV imaging of 11 sources at $1.2 < z < 1.4$ in the GOODS fields, using the ACS/SBC in the F150LP filter. The low sky background and dark count, coupled with the absence of read noise, means that ACS can detect galaxies in the far-UV with a high efficiency.

Our goal is to measure the Lyman continuum from a high equivalent width (EW) H-alpha emitter of $U < 24.2$, down to an escape fraction of 5%. Our definition of fesc is the fraction of the total intrinsic Lyman continuum radiation which escapes the galaxy. A young stellar population has an SED with rest- frame f700/f1500 ~ 0.1. Combined with the average intergalactic absorption from the Ly alpha forest (~60% at $z = 1.3$), this makes the expected drop from U band to the FUV about 3.5 magnitudes. Therefore, a 3 sigma sensitivity of FUVAB ~ 29.2 enables us to detect an U=24.2

galaxy from which 25% of the LC escapes relative to the UV continuum at 1500 Angstroms. Much of the UV continuum does not escape, however, due to dust extinction. Assuming an additonal factor of ~5 extinction in FUV flux due to dust reddening (which we infer from the slope of the UV continuum, Beta, see Meurer et al. 1999), implies an intrinsic fesc of 5%.

Our signal to noise estimates are based on our observations of ACS/SBC surveys of the UDF and GOODS, including those presented in Siana et al. (2010). After accounting for minimized dark current and extraction apertures, we can achieve 3 sigma sensitivities of FUVAB = 29.2 in 8000 seconds, or 3 orbits. This assumes a 0.5" diameter aperture, which is appropriate for the highly compact nature of these sources. The target galaxies span a magnitude in U band magnitudes and also include one very bright (U=22.5) source, so we propose to scale the length of each observation to match the brightness of each source. Our total survey request is 26 orbits of F150LP imaging with SBC, targeting 11 UV-bright, high-EW $1.2 < z < 1.4$ galaxies.

The dark current is the primary source of noise in the MAMA detector and our primary observing strategy is therefore driven by minimizing the dark current. First, the MAMA detectors warm up while in use, causing a significant dark "glow" which doubles every 2 hours in use. We will therefore work with the Program Coordinator at STScI to schedule each object in visits where the SBC has not been used for long periods of time. The SBC is not used often, so there is little danger of other long SBC observations randomly being scheduled near this program. The dark "glow" is most prominent near the center of the chip. Therefore, we will modify our target positions once the roll angle is known to place our sources in the corner least effected by the glow (x=250,y=250). The dark glow rate in this region is a factor of ~10 less than at the peak. This still allows 6" on all sides of the object for background fitting and subtraction.

We also note that most of our proposed fields include additional Halpha emitters of varying brightness and EWs that did not make our final candidate cuts. Therefore in addition to the robust limits for our 11 strongest candidates, we will also measure significant limits (5-25%) for fesc for an additional 7 UV-bright, low mass star forming galaxies.

Visit

Proposal 14123, OBJ-100018+022502 (01), implementation Sat Jul 25 01:39:49 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2)

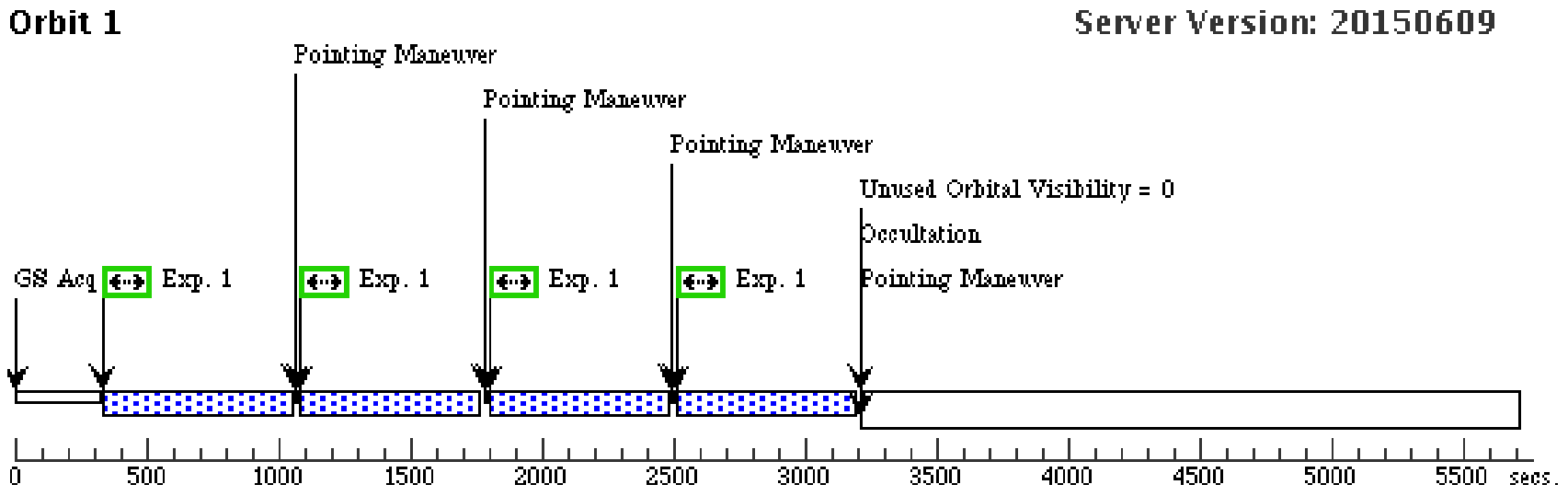
Fixed Targets

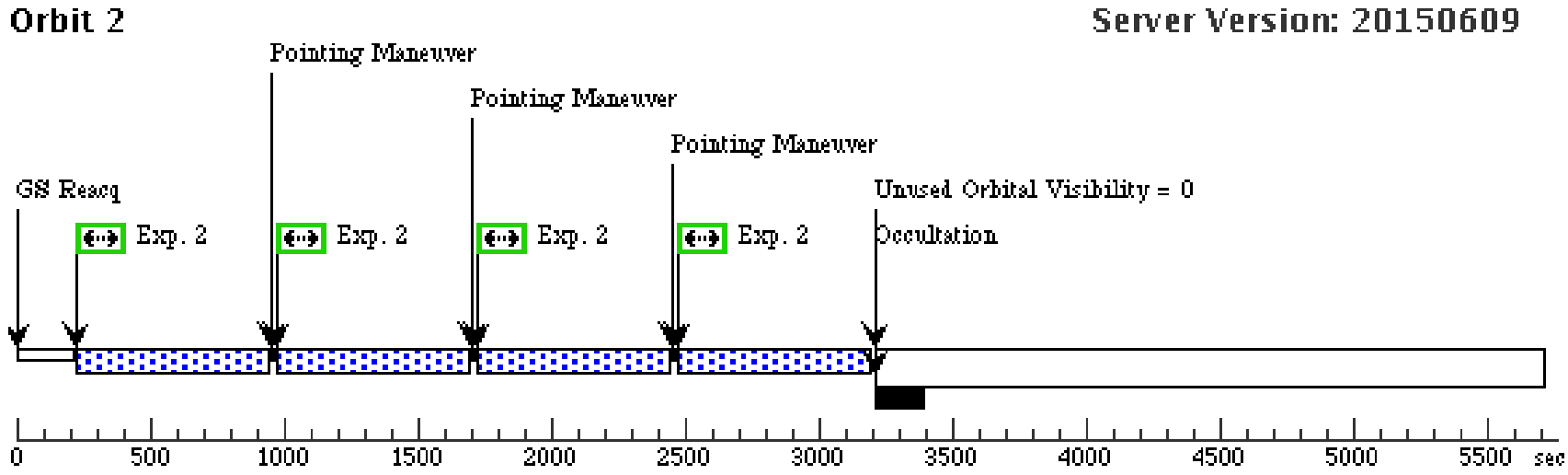
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	OBJ-100018+022502	RA: 10 00 17.8752 (150.0744800d) Dec: +02 25 1.96 (2.41721d) Equinox: J2000	Redshift: 1.254	V=23.6+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732949)	(1) OBJ-100018+022502	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-100018+022502 (01) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732952)	(1) OBJ-100018+022502	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100018+022502 (01) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 14123, OBJ-100022+021928 (02), implementation Sat Jul 25 01:39:49 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2)

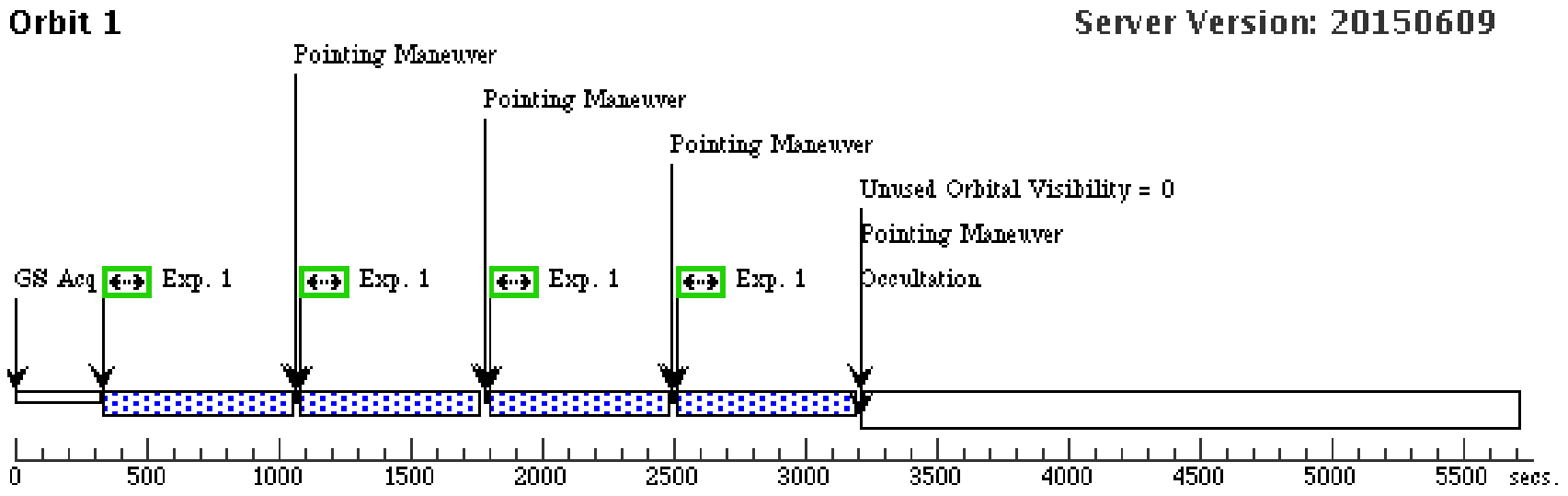
Fixed Targets

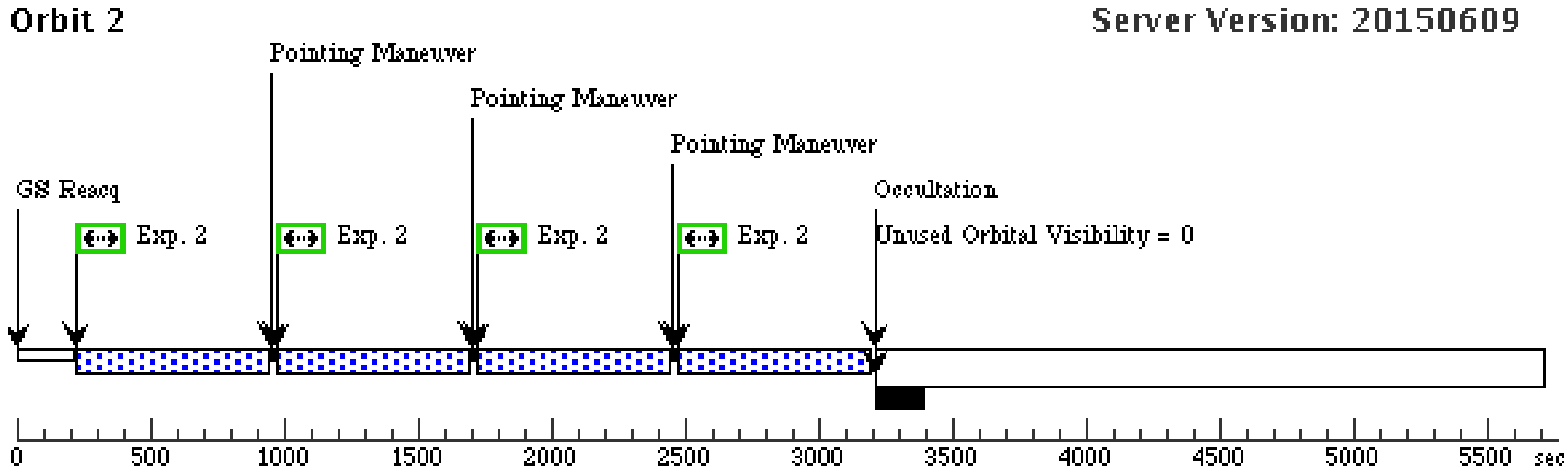
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	OBJ-100022+021928	RA: 10 00 22.2216 (150.0925900d) Dec: +02 19 28.16 (2.32449d) Equinox: J2000	Redshift: 1.400	V=23.6+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732957)	(2) OBJ-100022+021928	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-100022+021928 (02) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732952)	(2) OBJ-100022+021928	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100022+021928 (02) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 14123, OBJ-100019+021926 (03), implementation Sat Jul 25 01:39:49 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: ORIENT 300D TO 75 D

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2), (3)

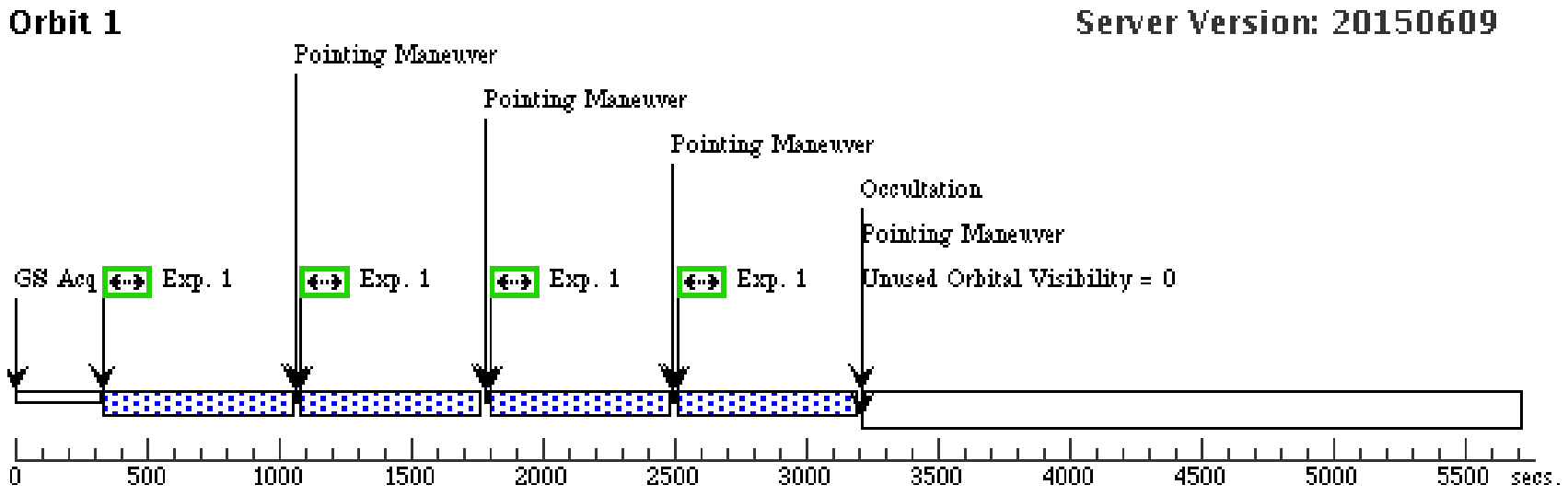
Fixed Targets

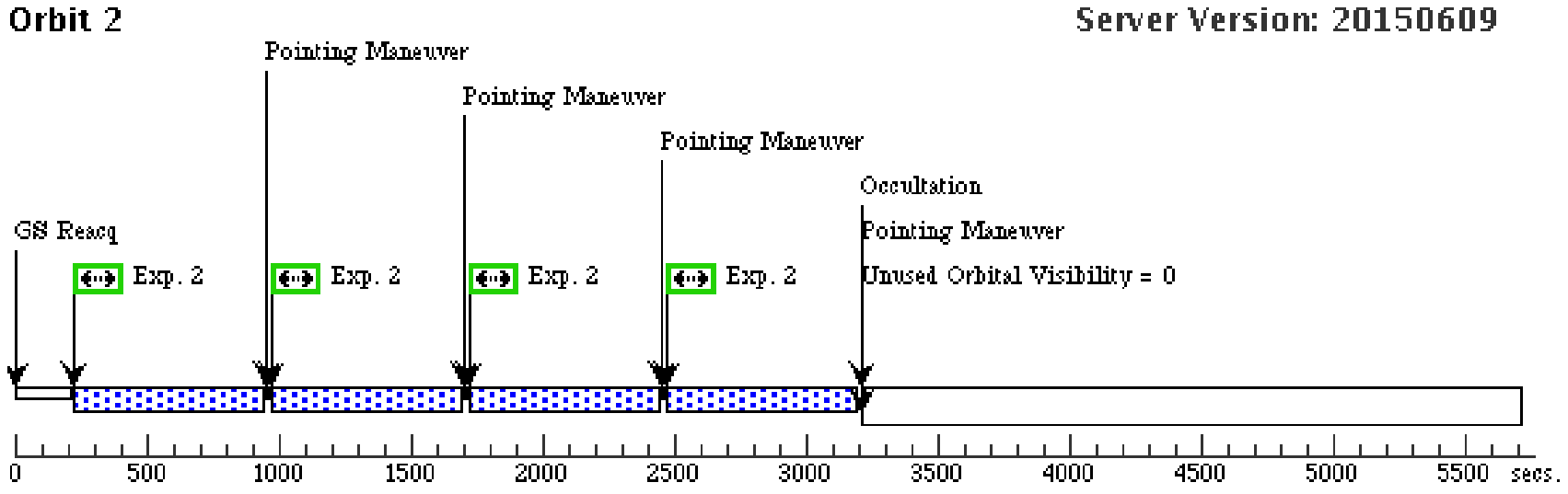
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	OBJ-100019+021926	RA: 10 00 19.4130 (150.0808875d) Dec: +02 19 26.32 (2.32398d) Equinox: J2000	Redshift: 1.257	V=24.1+/-0.1	Reference Frame: ICRS

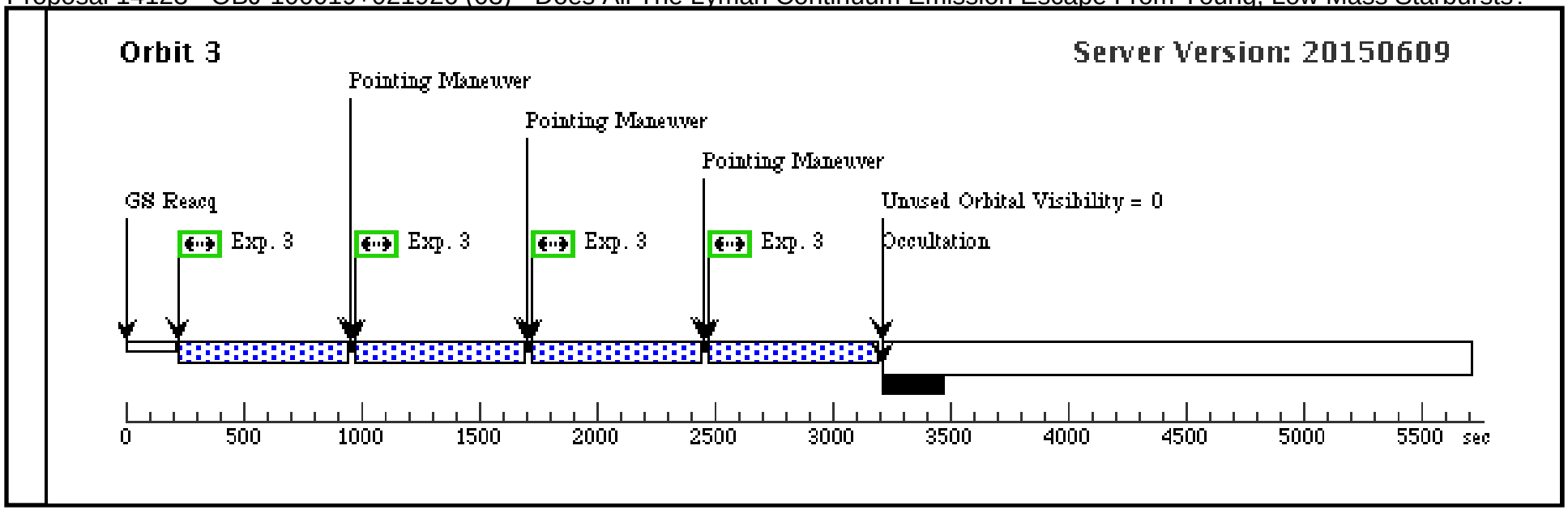
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732958)	(3) OBJ-100019+021926	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-100019+021926 (03) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732960)	(3) OBJ-100019+021926	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100019+021926 (03) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3	(ACS.im.732960)	(3) OBJ-100019+021926	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 3-3 in OBJ-100019+021926 (03) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure



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Occultation
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1000
1500
2000
2500
3000
3500
4000
4500
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sec

Visit

Proposal 14123, OBJ-100015+022656 (04), implementation Sat Jul 25 01:39:50 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2)

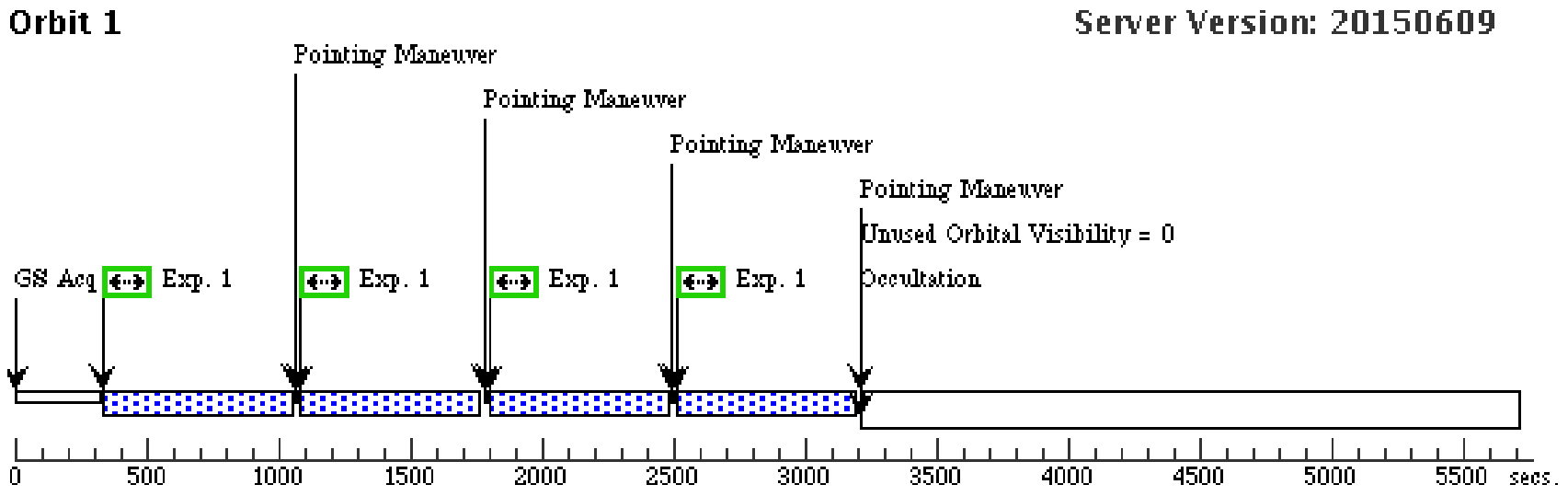
Fixed Targets

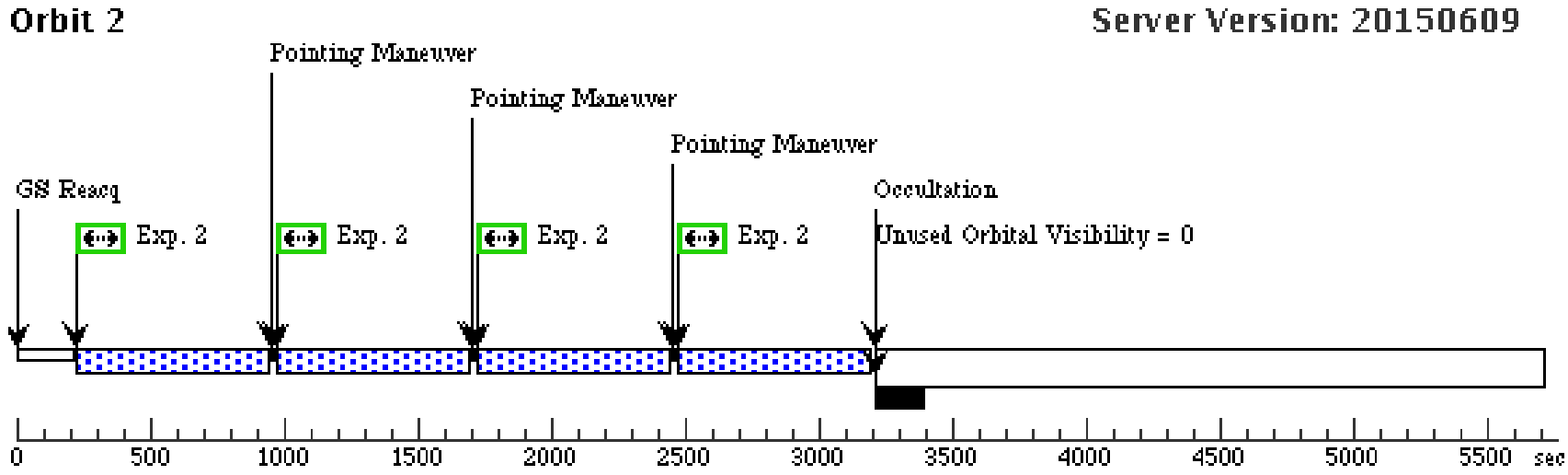
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	OBJ-100015+022656	RA: 10 00 15.1800 (150.0632500d) Dec: +02 26 55.88 (2.44886d) Equinox: J2000	Redshift: 1.32	V=23.1+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732964)	(4) OBJ-100015+022656	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-100015+022656 (04) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732962)	(4) OBJ-100015+022656	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100015+022656 (04) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 14123, OBJ-100031+021351 (05), implementation Sat Jul 25 01:39:50 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: ORIENT 130D TO 220 D

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2), (3)

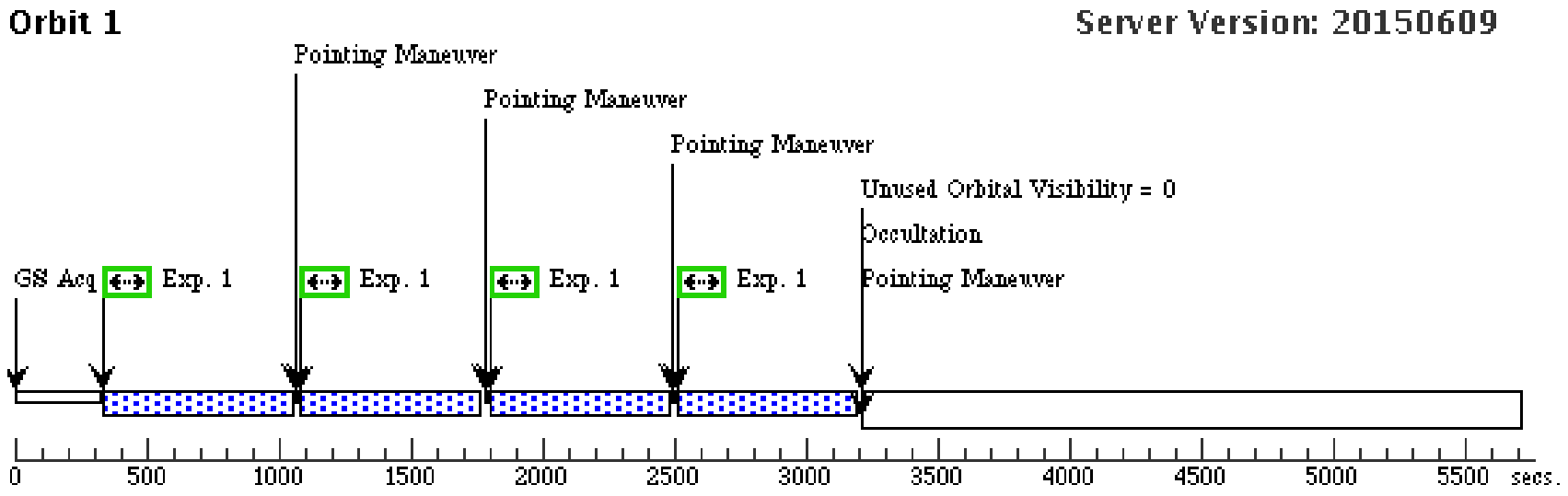
Fixed Targets

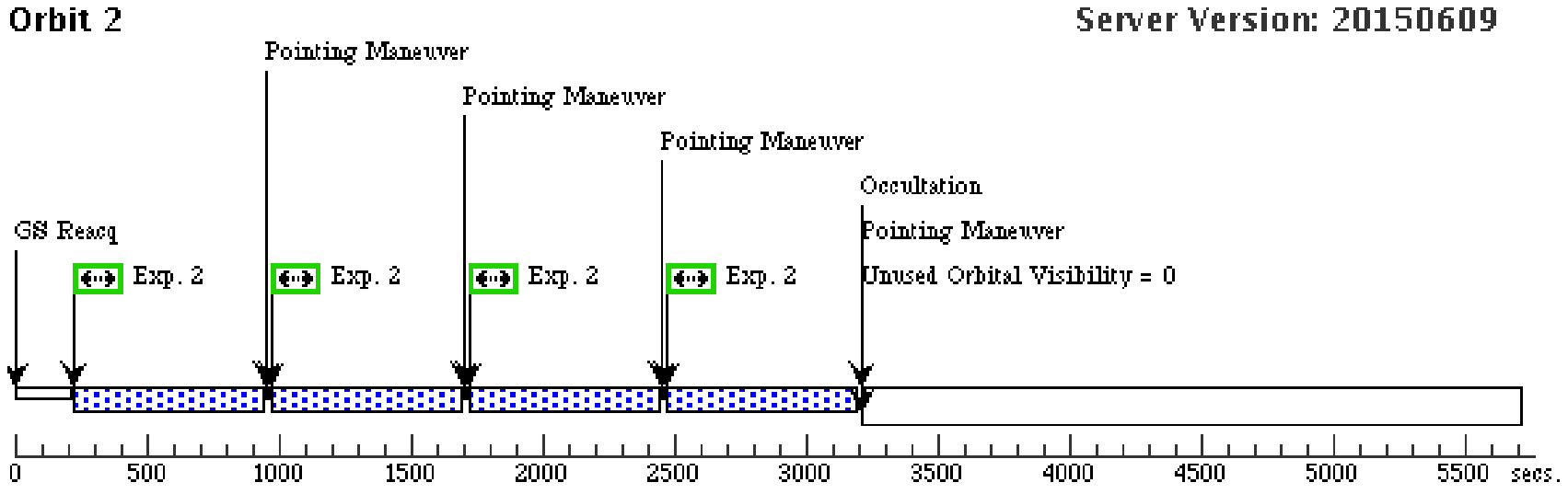
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	OBJ-100031+021351	RA: 10 00 30.9744 (150.1290600d) Dec: +02 13 50.85 (2.23079d) Equinox: J2000	Redshift: 1.230	V=23.8+/-0.1	Reference Frame: ICRS

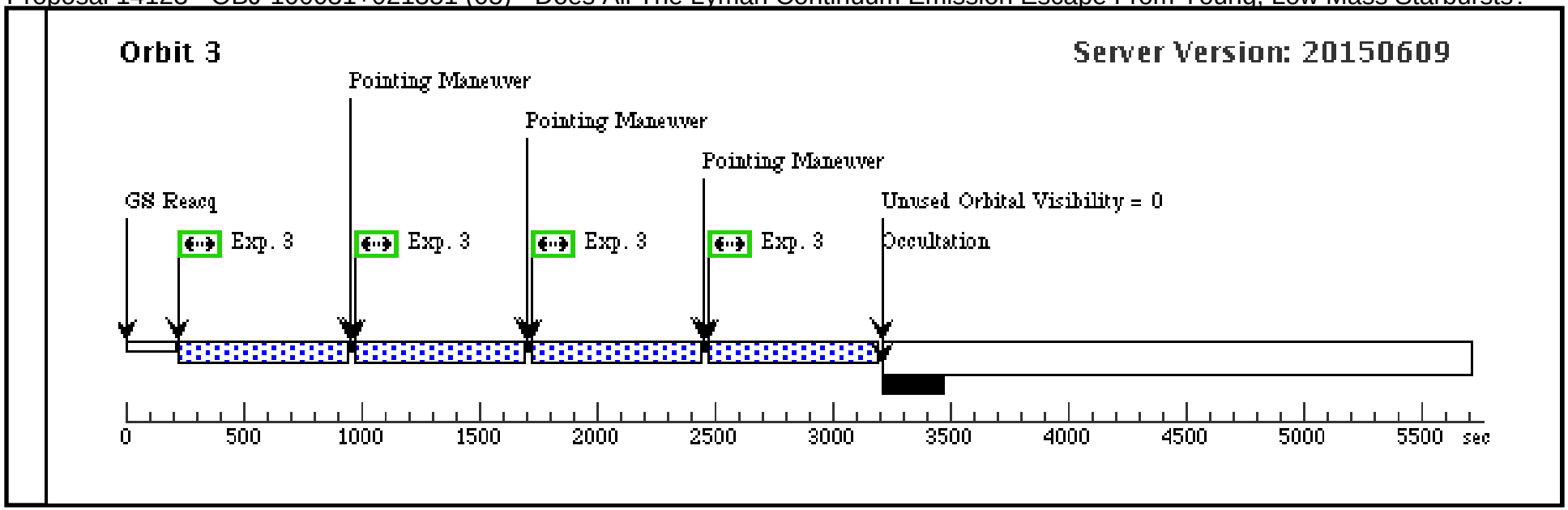
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732966)	(5) OBJ-100031+021351	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0; GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in OBJ-100031+021351 (05) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732969)	(5) OBJ-100031+021351	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100031+021351 (05) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3	(ACS.im.732969)	(5) OBJ-100031+021351	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 3-3 in OBJ-100031+021351 (05) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure



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Pointing Maneuver
Pointing Maneuver
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Exp. 3
Exp. 3
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Exp. 3
Unused Orbital Visibility = 0
Occultation
0
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14123, OBJ-100025+022458 (06), implementation Sat Jul 25 01:39:50 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2), (3)

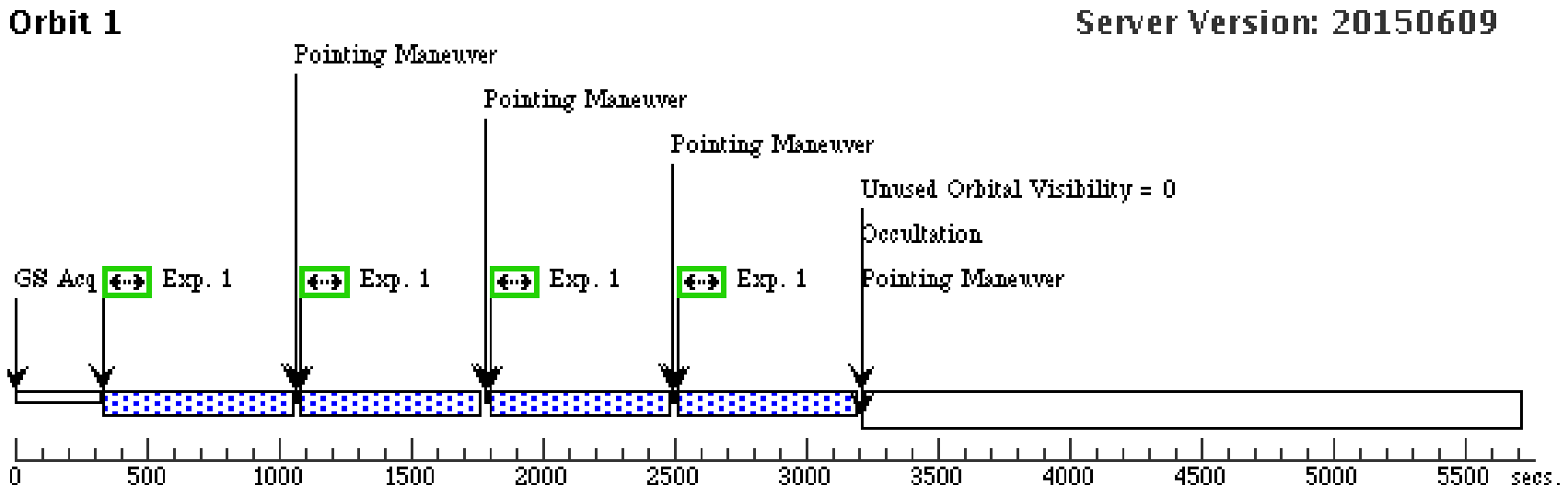
Fixed Targets

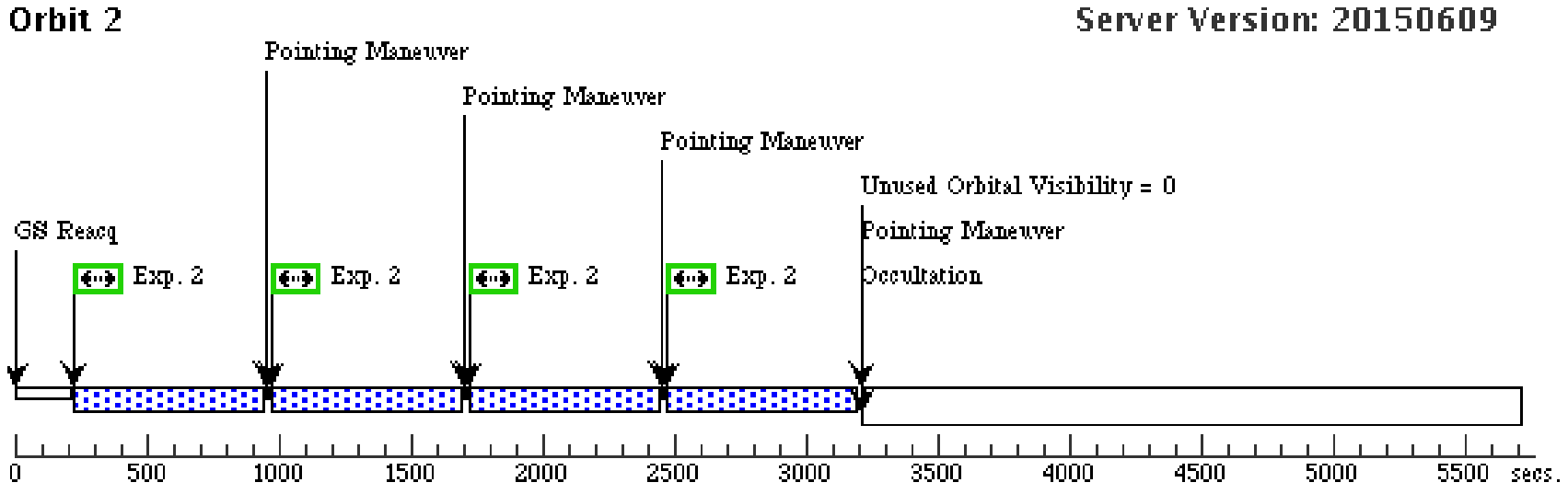
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	OBJ-100025+022458	RA: 10 00 25.4232 (150.1059300d) Dec: +02 24 58.48 (2.41624d) Equinox: J2000	Redshift: 1.262	V=24.2+/-0.1	Reference Frame: ICRS

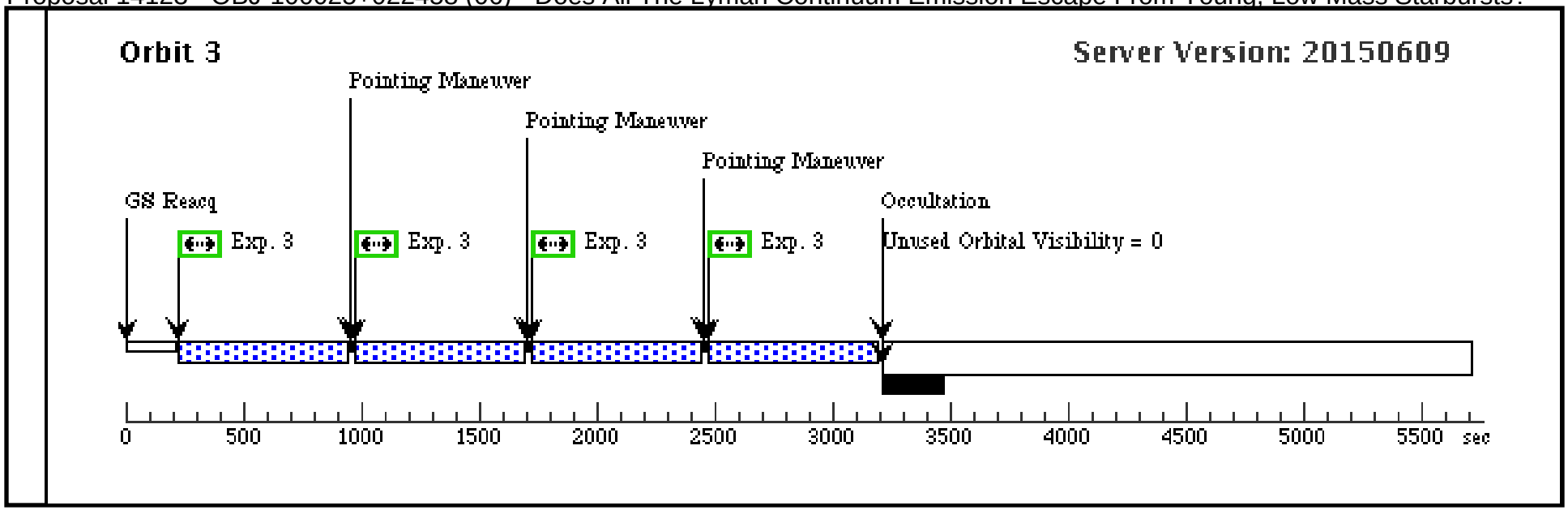
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732978)	(6) OBJ-100025+022458	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-100025+022458 (06) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732975)	(6) OBJ-100025+022458	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-100025+022458 (06) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3	(ACS.im.732975)	(6) OBJ-100025+022458	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 3-3 in OBJ-100025+022458 (06) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure



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Server Version: 20150609
Pointing Maneuver
Pointing Maneuver
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GS Reacq
Occultation
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Unused Orbital Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14123, OBJ-033248-275148 (07), implementation Sat Jul 25 01:39:50 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2), (3)

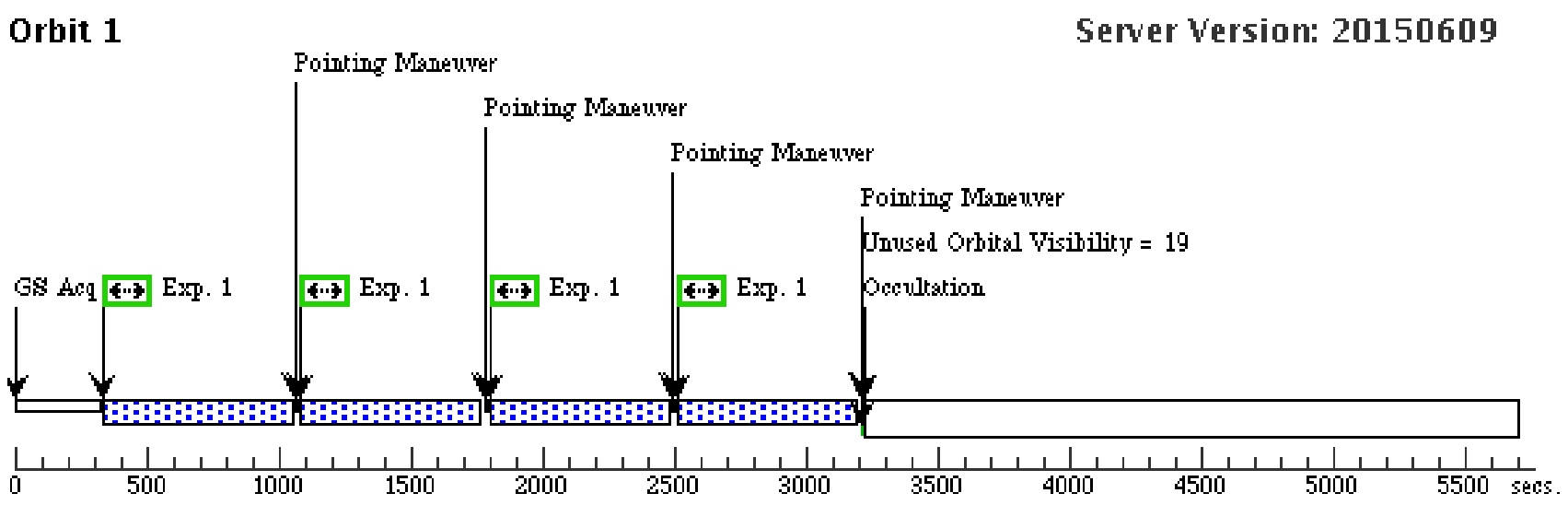
Fixed Targets

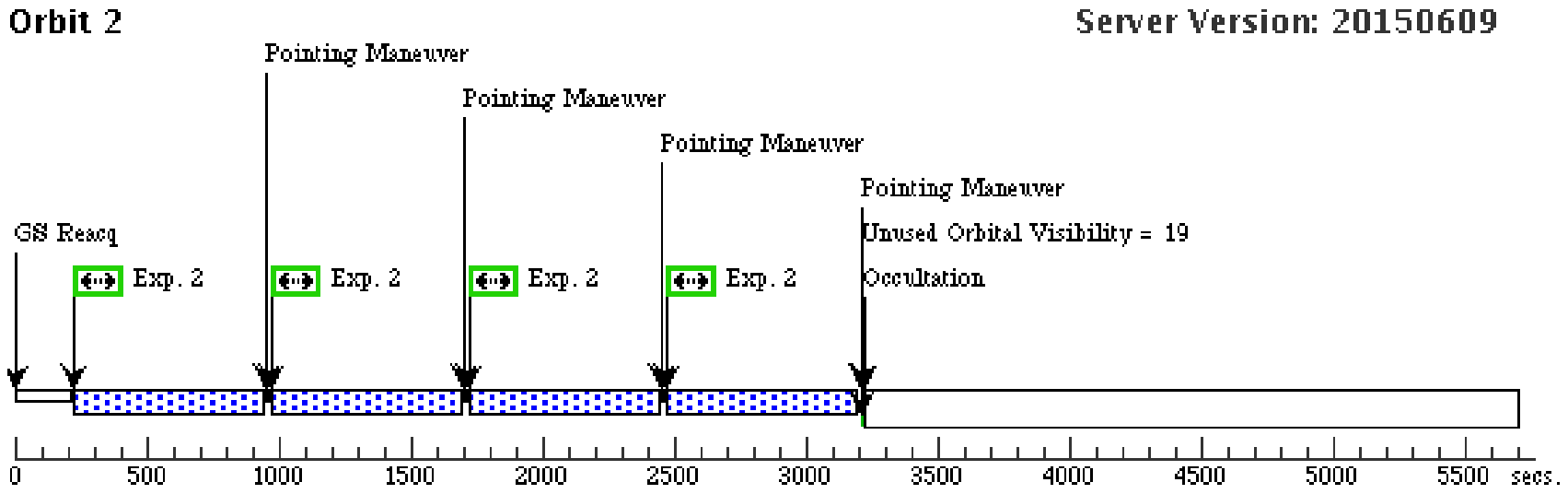
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	OBJ-033248-275148	RA: 03 32 47.8939 (53.1995579d) Dec: -27 51 47.60 (-27.86322d) Equinox: J2000	Redshift: 1.231	V=24.2+/-0.1	Reference Frame: ICRS

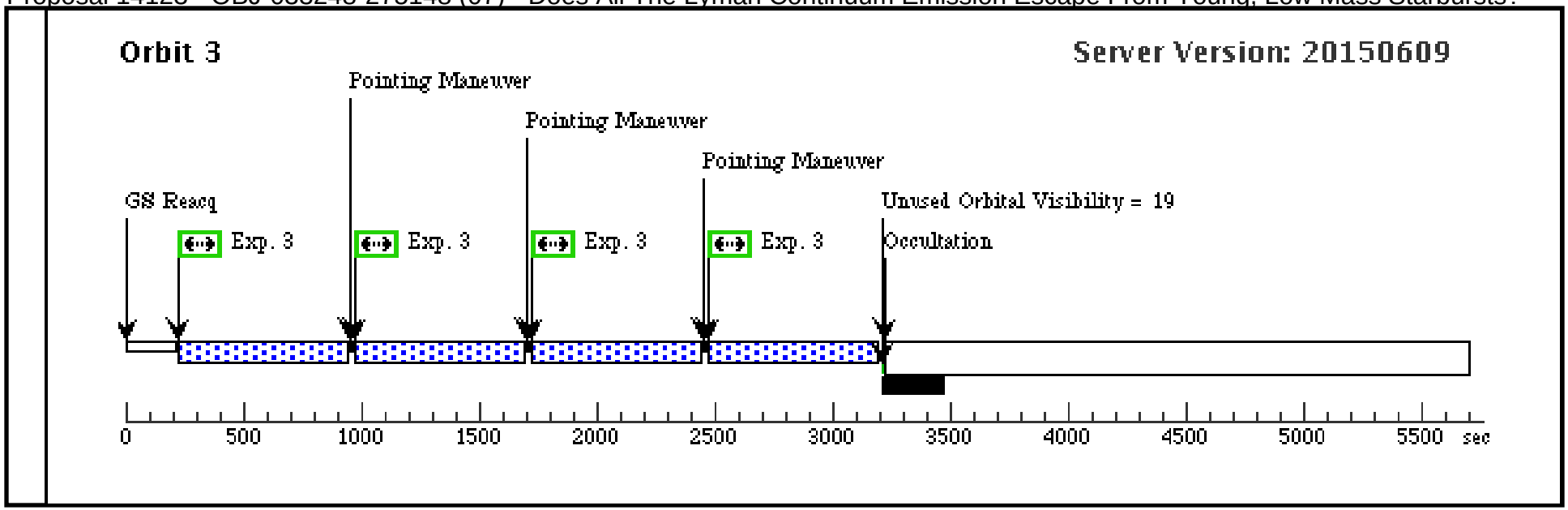
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732958)	(7) OBJ-033248-275148	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-033248-275148 (07) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732960)	(7) OBJ-033248-275148	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-033248-275148 (07) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3	(ACS.im.732960)	(7) OBJ-033248-275148	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 3-3 in OBJ-033248-275148 (07) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20150609
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
GS Reacq
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Unused Orbital Visibility = 19
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14123, OBJ-033215-274553 (08), implementation Sat Jul 25 01:39:50 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2)

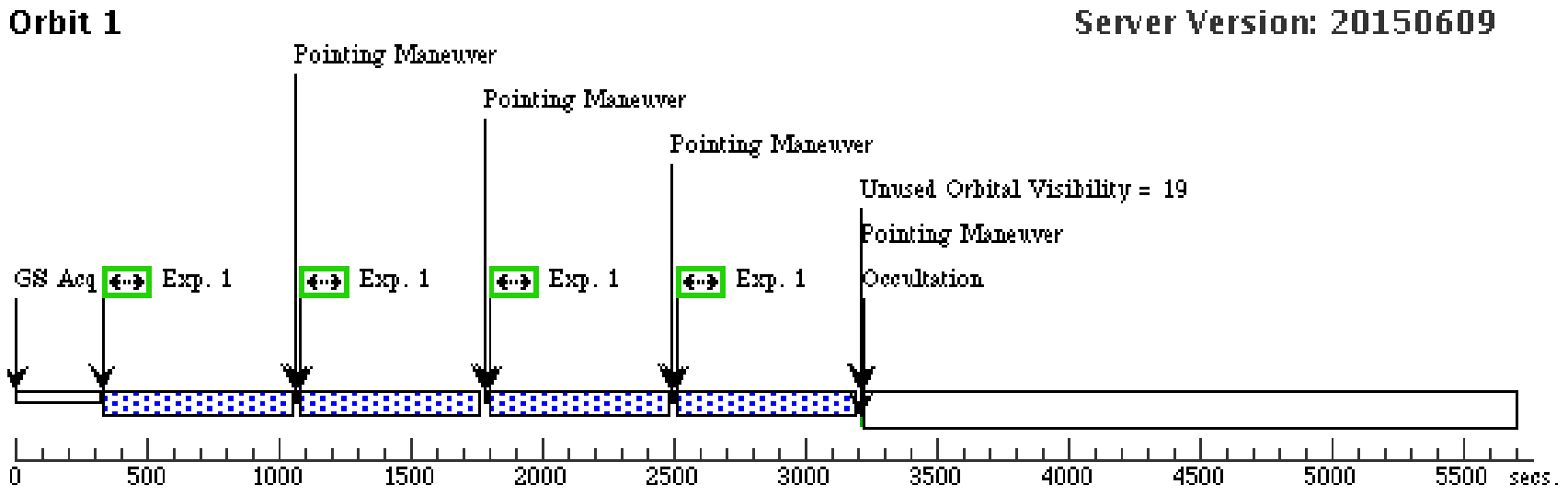
Fixed Targets

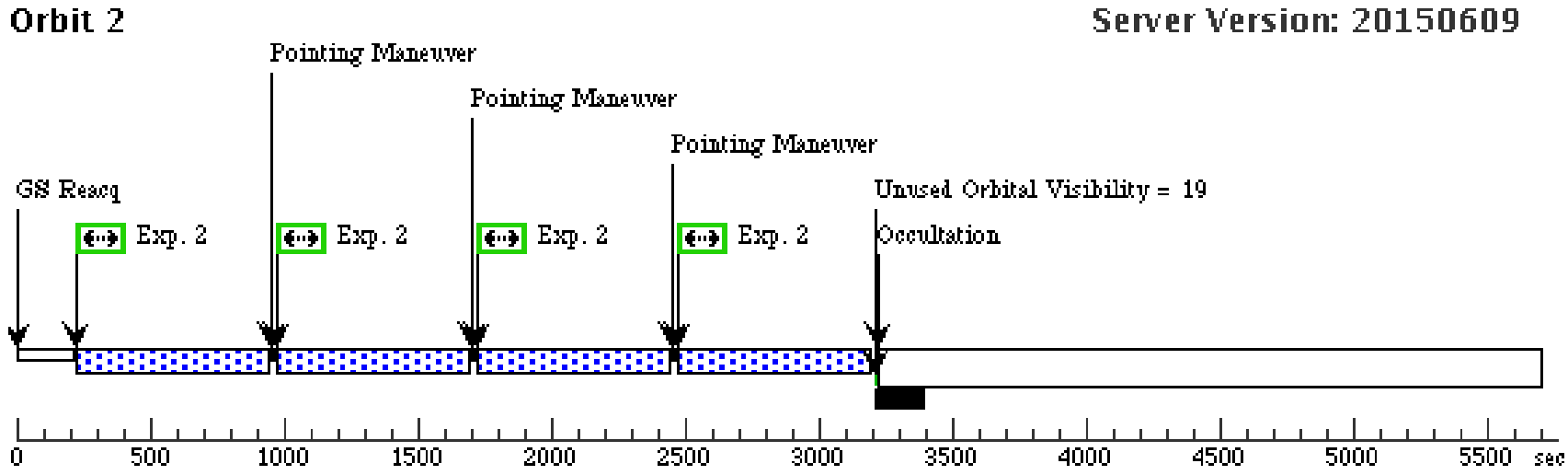
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	OBJ-033215-274553	RA: 03 32 15.0010 (53.0625042d) Dec: -27 45 53.36 (-27.76482d) Equinox: J2000	Redshift: 1.232	V=23.8+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732988)	(8) OBJ-033215-274553	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-033215-274553 (08) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732990)	(8) OBJ-033215-274553	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-033215-274553 (08) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 14123, OBJ-033248-275243 (09), implementation Sat Jul 25 01:39:51 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: ORIENT 80D TO 260 D

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1)

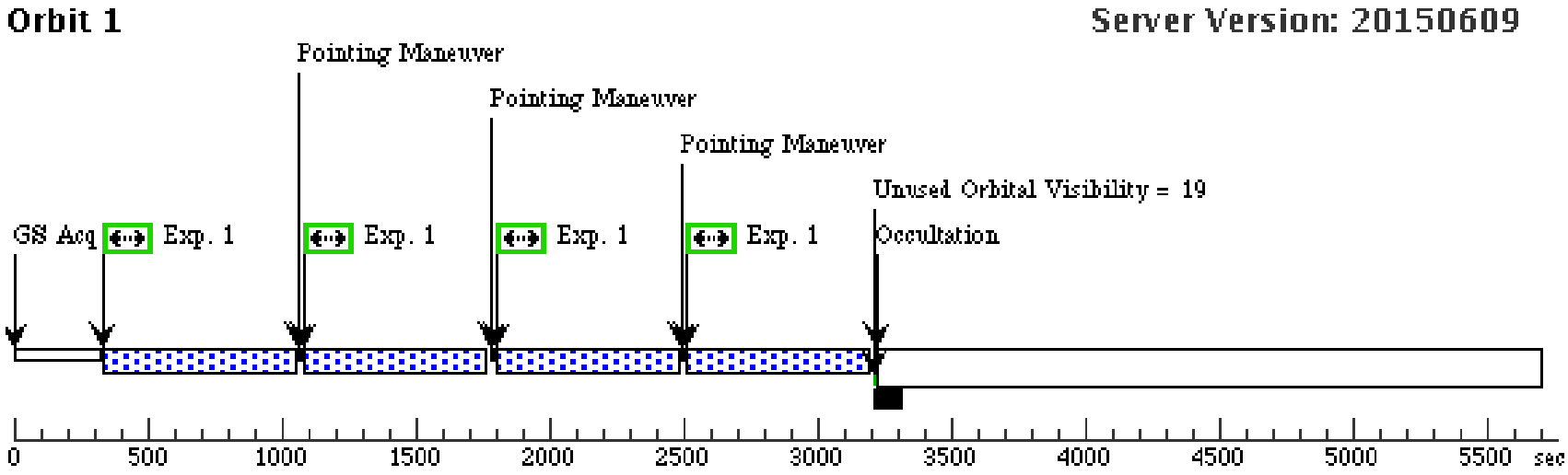
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	OBJ-033248-275243	RA: 03 32 47.5634 (53.1981808d) Dec: -27 52 43.20 (-27.87867d) Equinox: J2000	Redshift: 1.253	V=22.3+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732993)	(9) OBJ-033248-275243	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-033248-275243 (09) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 14123, OBJ-033247-275039 (10), implementation Sat Jul 25 01:39:51 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: ORIENT 10D TO 40 D

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2), (3)

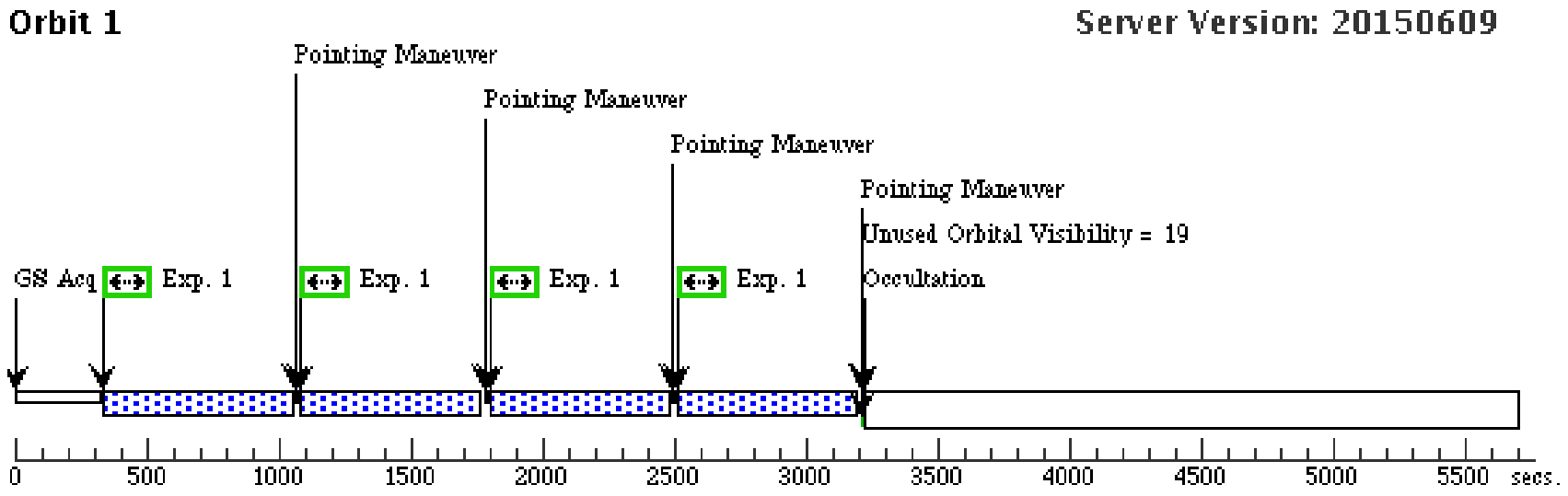
Fixed Targets

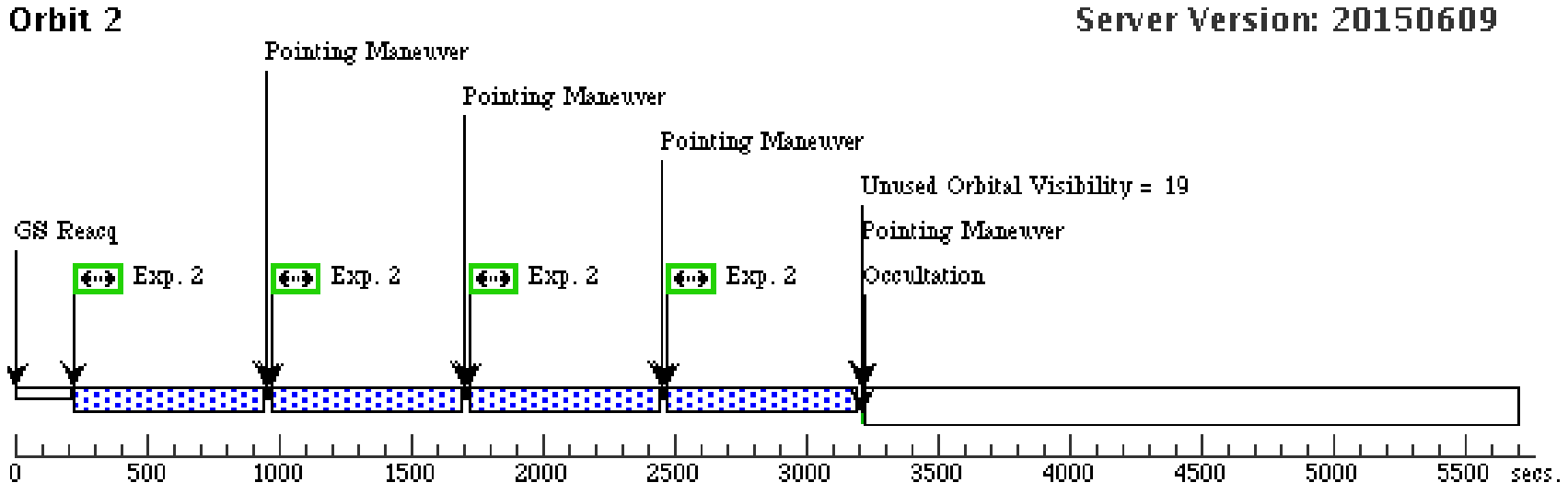
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	OBJ-033247-275039	RA: 03 32 46.5206 (53.1938358d) Dec: -27 50 39.39 (-27.84427d) Equinox: J2000	Redshift: 1.237	V=24.2+/-0.1	Reference Frame: ICRS

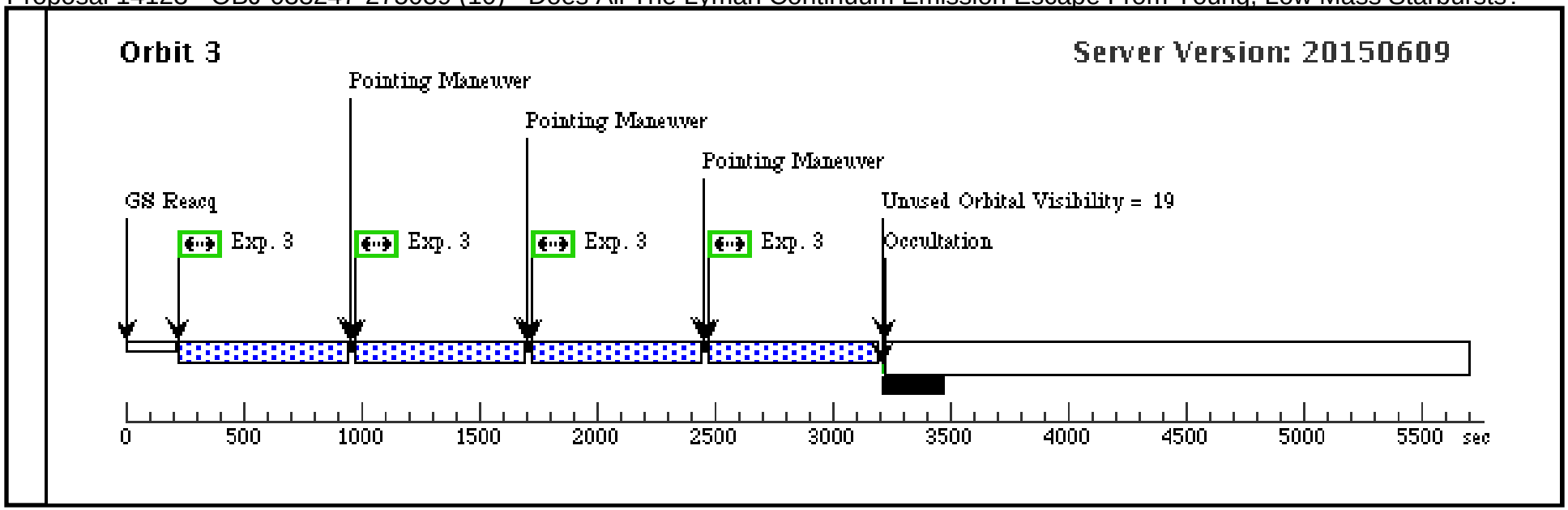
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732978)	(10) OBJ-033247-275039	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-033247-275039 (10) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732975)	(10) OBJ-033247-275039	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-033247-275039 (10) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***
3	(ACS.im.732975)	(10) OBJ-033247-275039	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 3-3 in OBJ-033247-275039 (10) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20150609
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
GS Reacq
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Unused Orbital Visibility = 19
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14123, OBJ-033224-274349 (11), implementation Sat Jul 25 01:39:51 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Comments: We request that the SBC not be used 24 hours before this visit in order to mitigate the effects of dark current.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1), (2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	OBJ-033224-274349	RA: 03 32 23.9558 (53.0998158d) Dec: -27 43 49.08 (-27.73030d) Equinox: J2000	Redshift: 1.309	V=23.1+/-0.1	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.732997)	(11) OBJ-033224-274349	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 1-1 in OBJ-033224-274349 (11) (1)	654 Secs (2616 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	(ACS.im.732999)	(11) OBJ-033224-274349	ACS/SBC, ACCUM, SBC-FIX	F150LP		POS TARG -11.0,-9.0	Pattern 1, Exps 2-2 in OBJ-033224-274349 (11) (1)	692 Secs (2768 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[2]***

Orbit Structure