14277 - Probing Hot Gas in Spiral-Rich Galaxy Groups

Cycle: 23, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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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) SDSSJ10282+2119	COS/FUV COS/NUV	3	17-Mar-2017 21:01:56.0	yes
02	(1) SDSSJ10282+2119	COS/FUV COS/NUV	3	17-Mar-2017 21:01:58.0	yes
03	(2) QSOB1612+266	COS/FUV COS/NUV	5	17-Mar-2017 21:02:00.0	yes
04	(2) QSOB1612+266	COS/FUV COS/NUV	4	17-Mar-2017 21:02:01.0	yes
05	(3) SDSSJ15403-0205	COS/FUV COS/NUV	5	17-Mar-2017 21:02:02.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(3) SDSSJ15403-0205	COS/FUV COS/NUV	4	17-Mar-2017 21:02:04.0	yes
07	(4) RBS711	COS/FUV COS/NUV	2	17-Mar-2017 21:02:05.0	yes
09	(6) SBS0956+509	COS/FUV COS/NUV	3	17-Mar-2017 21:02:06.0	yes
10	(7) FBQSJ103059.1+310255	COS/FUV COS/NUV	2	17-Mar-2017 21:02:08.0	yes
11	(8) FBQSJ1519+2838	COS/FUV COS/NUV	3	17-Mar-2017 21:02:09.0	yes
12	(8) FBQSJ1519+2838	COS/FUV COS/NUV	3	17-Mar-2017 21:02:12.0	yes
13	(9) CSO1080	COS/FUV COS/NUV	4	17-Mar-2017 21:02:13.0	yes
14	(10) SDSSJ133300.83+451809.0	COS/FUV COS/NUV	4	17-Mar-2017 21:02:15.0	yes
15	(9) CSO1080	COS/FUV COS/NUV	1	17-Mar-2017 21:02:16.0	yes
16	(10) SDSSJ133300.83+451809.0	COS/FUV COS/NUV	4	17-Mar-2017 21:02:18.0	yes

50 Total Orbits Used

ABSTRACT

Approximately 30% of the baryons in spiral galaxies like the Milky Way are "missing" in the sense that while predicted to be present by numerical simulations and chemical evolution histories, this gas has not been detected as yet. Based on recent high-S/N (> 20) COS far-UV spectroscopy, this gas MAY have been detected as broad, shallow Ly alpha and OVI absorptions associated with foreground spiral-rich galaxy groups. These low-contrast features associated with T>10^5 K gas have not been detected by any other COS program probing galaxy, group or cluster halos due to insufficient S/N.

This proposal seeks to confirm or deny the presence of massive reservoirs of spiral group gas by obtaining high-S/N (>20) GOS G130M spectra of 10 bright QSOs behind 12 (two sightlines probe two groups each) low-z (0.1-0.2) galaxy groups selected from the SDSS using a consistent group-finding algorithm. Selecting the groups first, then searching for the absorptions provides a homogeneously-selected group sample to investigate and allows us to choose sightlines which probe these groups at a range of radii from their centers (0.3-1.4 R_virial) and which do not pass close to individual group galaxies. The redshift selection places the OVI doublet and Ly alpha in regions of highest COS sensitivity. The UV-initiative program to detect these subtle absorption features requires a total of 45 orbits to execute.

OBSERVING DESCRIPTION

Our set of group-selected absorption-line probes is composed of ten AGN sightlines which probe twelve spiral-rich galaxy groups at z=0.11-0.18. This redshift range was selected such that OVI 1031, 1038 doublet is redshifted into the sensitive COS/G130M spectral range (z>0.11), while Lya 1216 is has not yet redshifted onto the less sensitive COS/G160M grating. Much of this redshift range placed the OVI doublet blueward of Lya rest, making the identification of OVI mostly unambiguous. Additionally, we require that the AGN redshift be at least cz>3000 km/s greater than that of the group to minimize confusion with the signature of AGN outflow absorption. We further screened groups such that both Lya and the stronger OVI lines fall in spectral regions free of strong Galactic absorption. A range of fractional impact parameters and group richnesses are well-represented.

Using galaxy redshift information, we verified that the nearest individual group galaxy to the line of sight lies a minimum of 1.5 virial radii from the line of sight. This makes it most likely that any detected absorption is associated with the group not the halo of an individual galaxy (see e.g., Prochaska et al. 2011; Stocke et al. 2013).

We estimate the far-UV flux of each AGN from GALEX FUV-band photometry, or via previous low-resolution FUV spectra where available. The COS ETC was then used to estimate the exposure time neccessary for our required S/N=20 per resolution element and the results rounded up to the nearest HST orbit.

Visit

Proposal 14277, Targ 1, Visit 1 (01), completed Sat Mar 18 01:02:19 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 1, Visit 1 (01)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

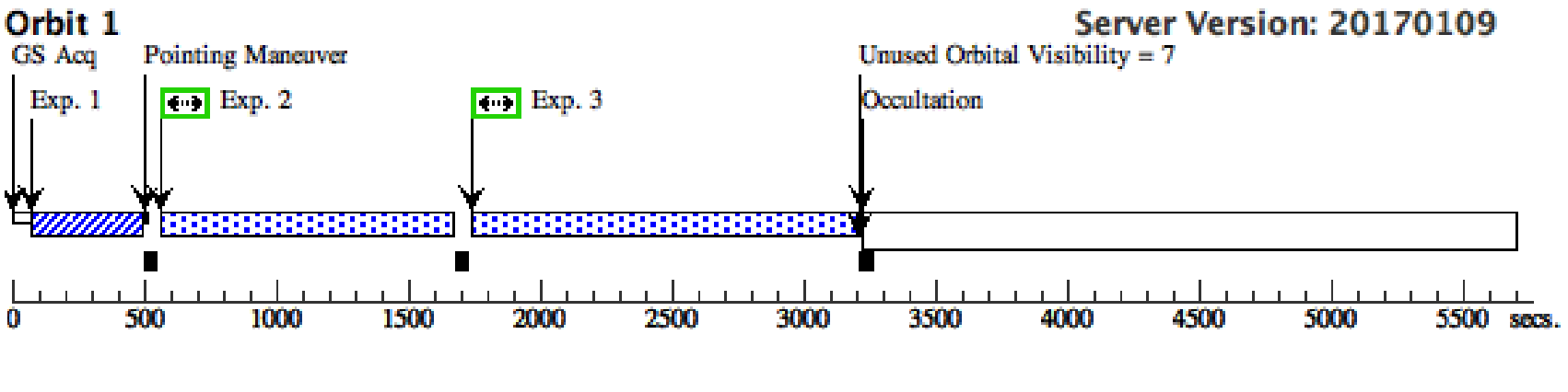
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SDSSJ10282+2119 Alt Name1: SDSSJ102814.54+211955.2	RA: 10 28 14.5460 (157.0606083d) Dec: +21 19 55.18 (21.33199d) Equinox: J2000	Redshift: 0.374	V=17.14 F(1500Ang)~3e-15 (GALEX FUV)	Reference Frame: ICRS

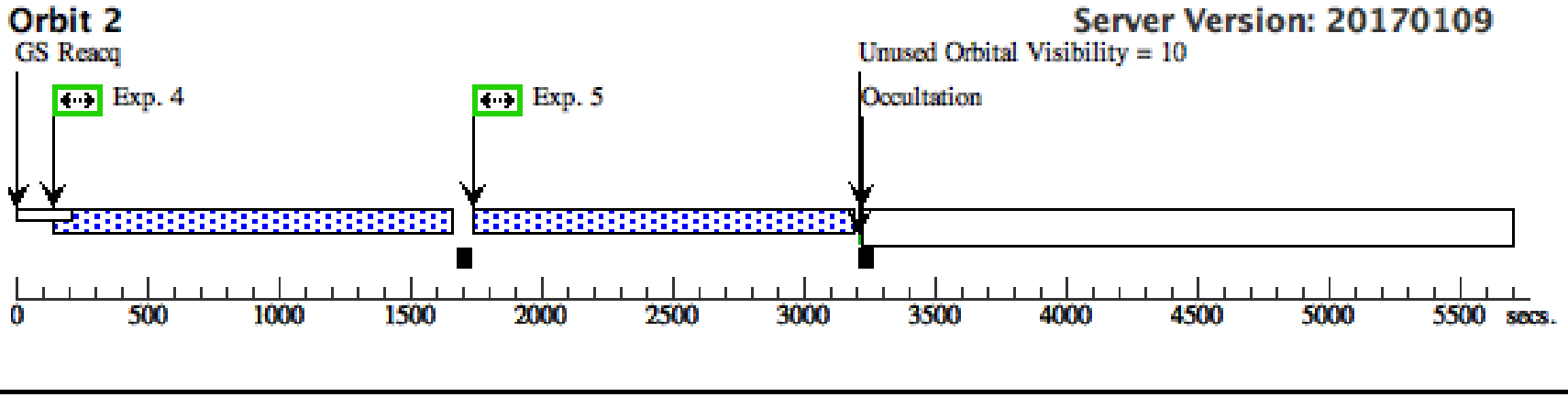
Comments: Coordinates checked with NED.
Extended=NO

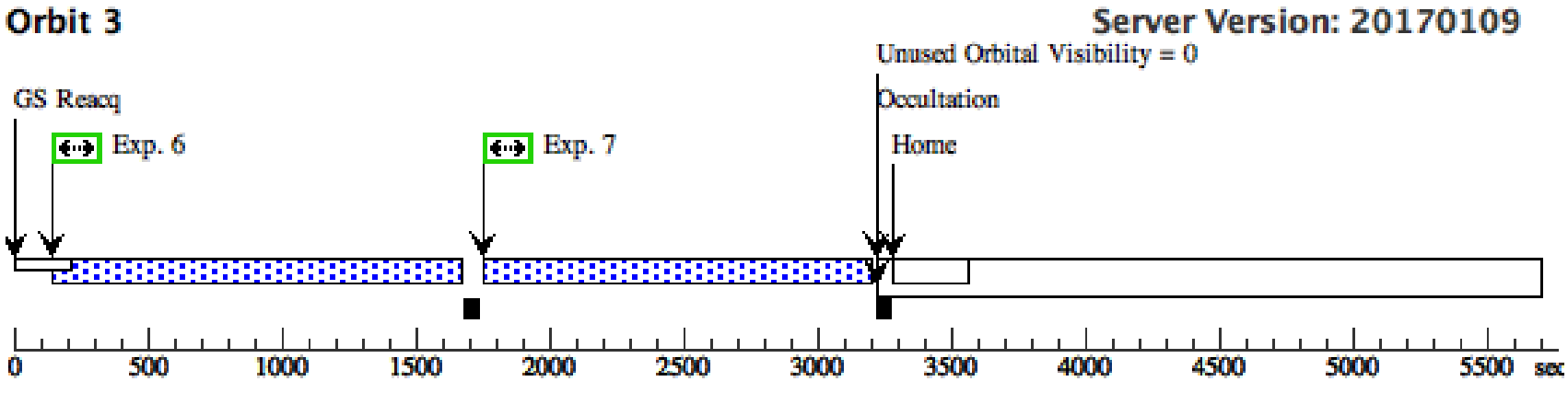
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715912)	(1) SDSSJ10282+2119	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				52 Secs (52 Secs) *[==>]*	*[1]*
2	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (932 Secs) *[==>932.0 Secs]*	*[1]*
3	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=2			2000 Secs (1406 Secs) *[==>1406.0 Secs]*	*[1]*
4	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=3			2000 Secs (1396 Secs) *[==>1396.0 Secs]*	*[2]*
5	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=4			2000 Secs (1396 Secs) *[==>1396.0 Secs]*	*[2]*
6	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (1401 Secs) *[==>1401.0 Secs]*	*[3]*
7	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (1401 Secs) *[==>1401.0 Secs]*	*[3]*

Orbit Structure







Visit

Proposal 14277, Targ 1, Visit 2 (02), completed Sat Mar 18 01:02:19 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 1, Visit 2 (02)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

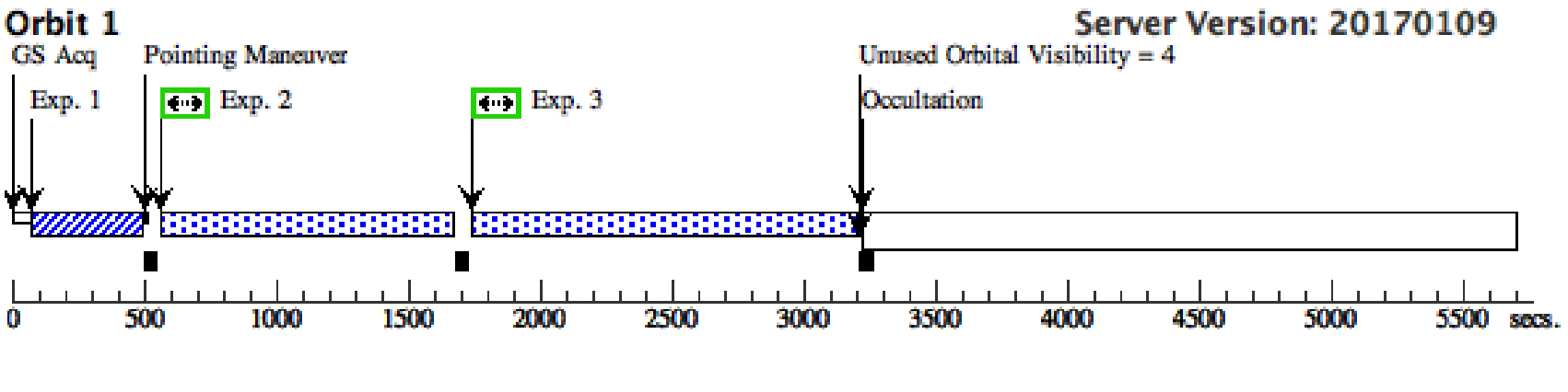
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SDSSJ10282+2119 Alt Name1: SDSSJ102814.54+211955.2	RA: 10 28 14.5460 (157.0606083d) Dec: +21 19 55.18 (21.33199d) Equinox: J2000	Redshift: 0.374	V=17.14 F(1500Ang)~3e-15 (GALEX FUV)	Reference Frame: ICRS

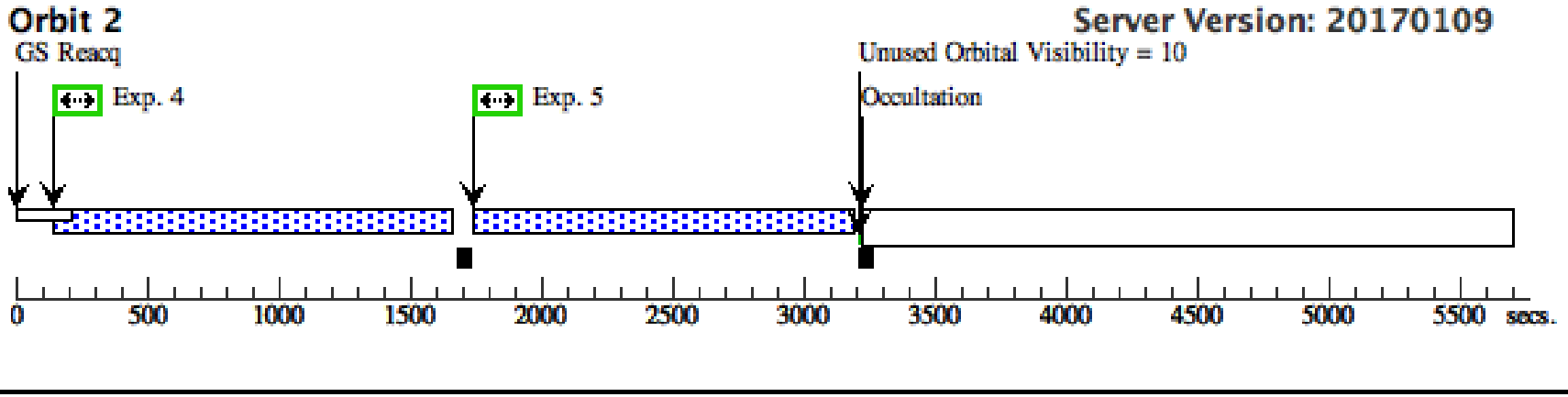
Comments: Coordinates checked with NED.
Extended=NO

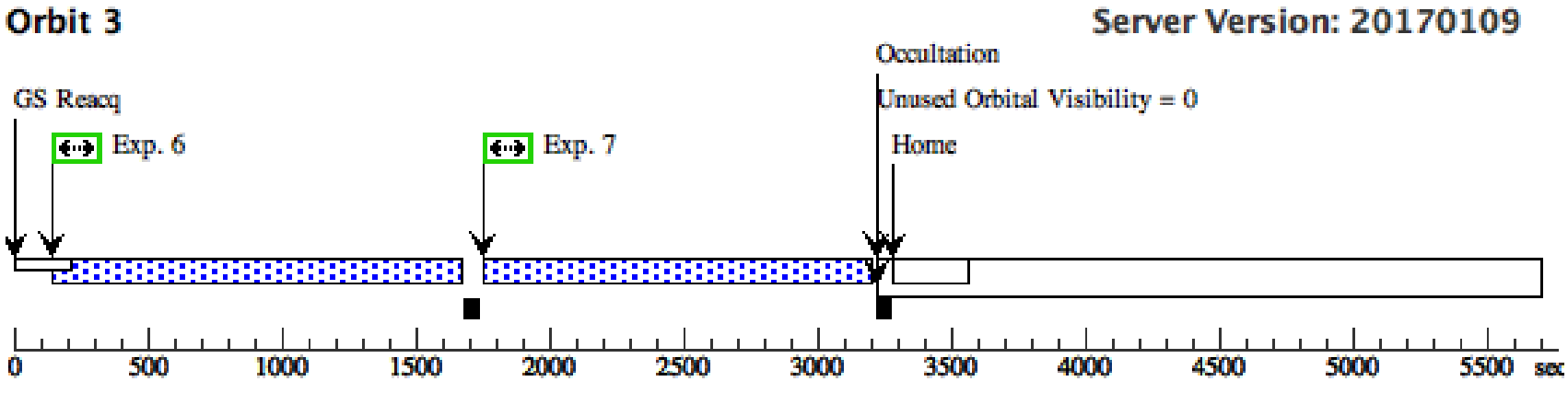
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715912)	(1) SDSSJ10282+2119	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				52 Secs (52 Secs) *[==>]*	*[1]*
2	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (932 Secs) *[==>932.0 Secs]*	*[1]*
3	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=4			2000 Secs (1406 Secs) *[==>1406.0 Secs]*	*[1]*
4	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=3			2000 Secs (1396 Secs) *[==>1396.0 Secs]*	*[2]*
5	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=4			2000 Secs (1396 Secs) *[==>1396.0 Secs]*	*[2]*
6	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (1401 Secs) *[==>1401.0 Secs]*	*[3]*
7	(COS.sp.715895)	(1) SDSSJ10282+2119	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (1401 Secs) *[==>1401.0 Secs]*	*[3]*

Orbit Structure







Visit

Proposal 14277, Targ 2, Visit 1 (03), completed Sat Mar 18 01:02:19 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 2, Visit 1 (03)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

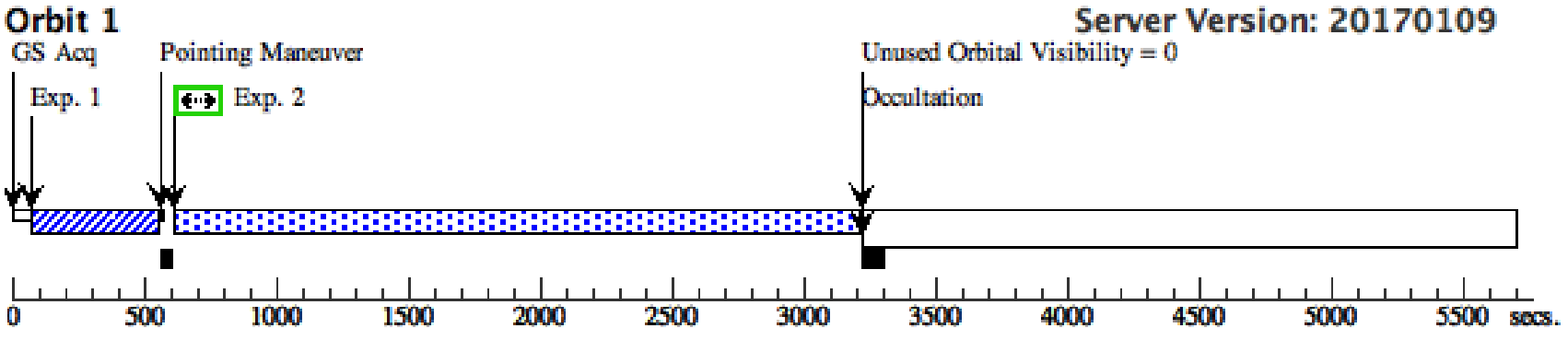
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	QSOB1612+266 Alt Name1: SDSSJ1614.10.62+263250.4	RA: 16 14 10.6230 (243.5442625d) Dec: +26 32 50.46 (26.54735d) Equinox: J2000	Redshift: 0.395	V=17.11 F(1500A)~2e-15 (GALEX FUV)	Reference Frame: ICRS

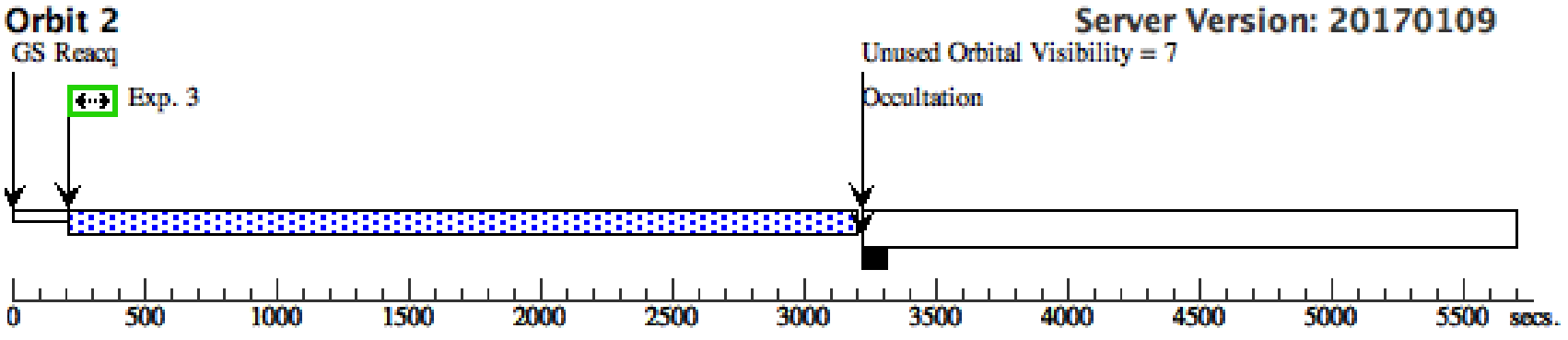
Comments: Extended=NO

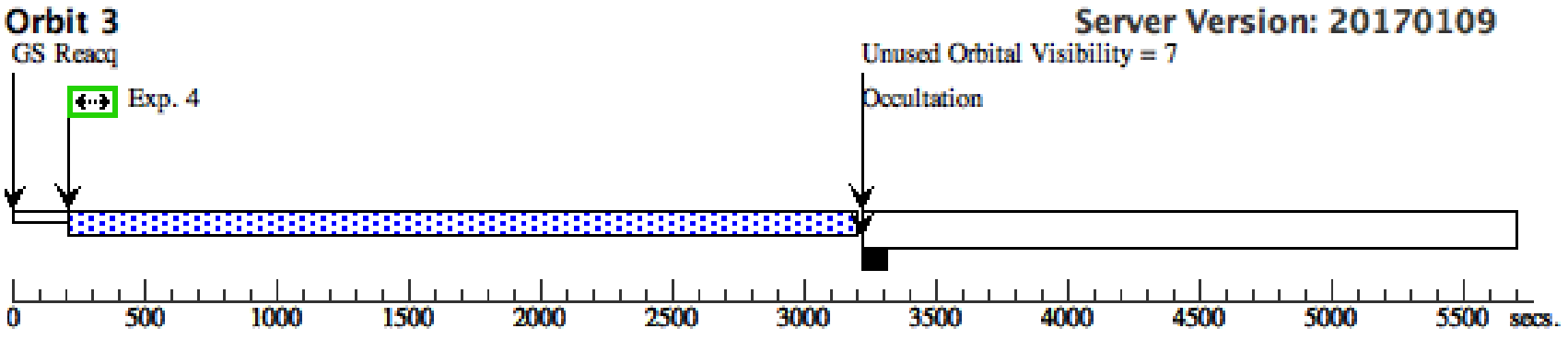
Exposures

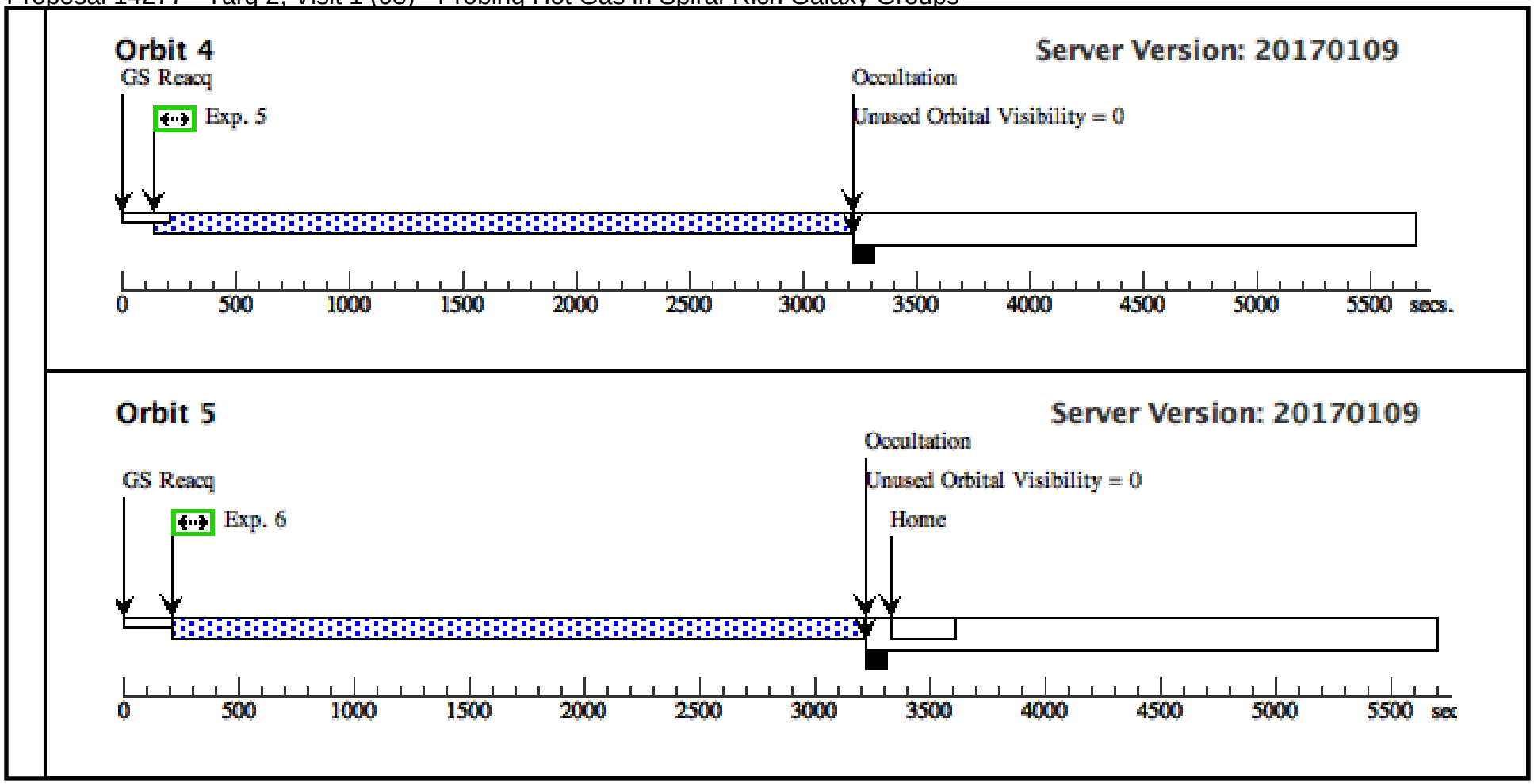
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715913)	(2) QSOB1612+266	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				78 Secs (78 Secs) *[==>]*	*[1]*
2	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (2417 Secs) *[==>2417.0 Secs]*	*[1]*
3	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (2936 Secs) *[==>2936.0 Secs]*	*[2]*
4	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=3			2500 Secs (2936 Secs) *[==>2936.0 Secs]*	*[3]*
5	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=1			2500 Secs (2943 Secs) *[==>2943.0 Secs]*	*[4]*
6	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (2943 Secs) *[==>2943.0 Secs]*	*[5]*

Orbit Structure





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Visit

Proposal 14277, Targ 2, Visit 2 (04), completed Sat Mar 18 01:02:19 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 2, Visit 2 (04)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

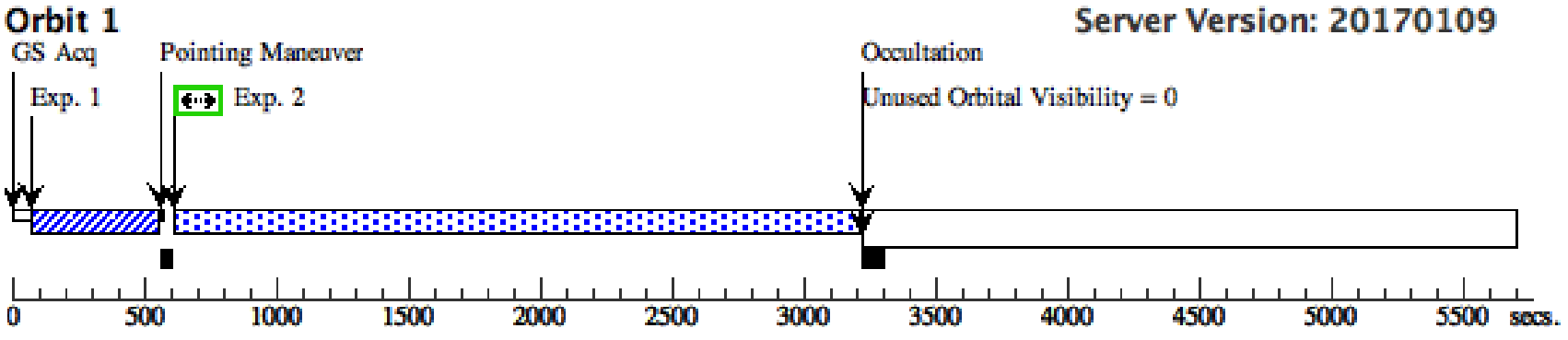
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	QSOB1612+266 Alt Name1: SDSSJ1614.10.62+263250.4	RA: 16 14 10.6230 (243.5442625d) Dec: +26 32 50.46 (26.54735d) Equinox: J2000	Redshift: 0.395	V=17.11 F(1500A)~2e-15 (GALEX FUV)	Reference Frame: ICRS

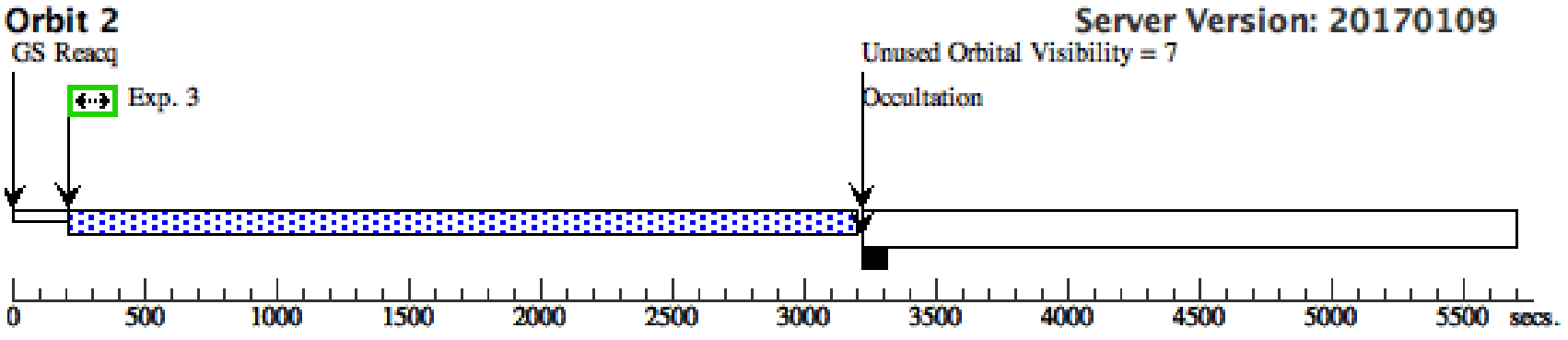
Comments: Extended=NO

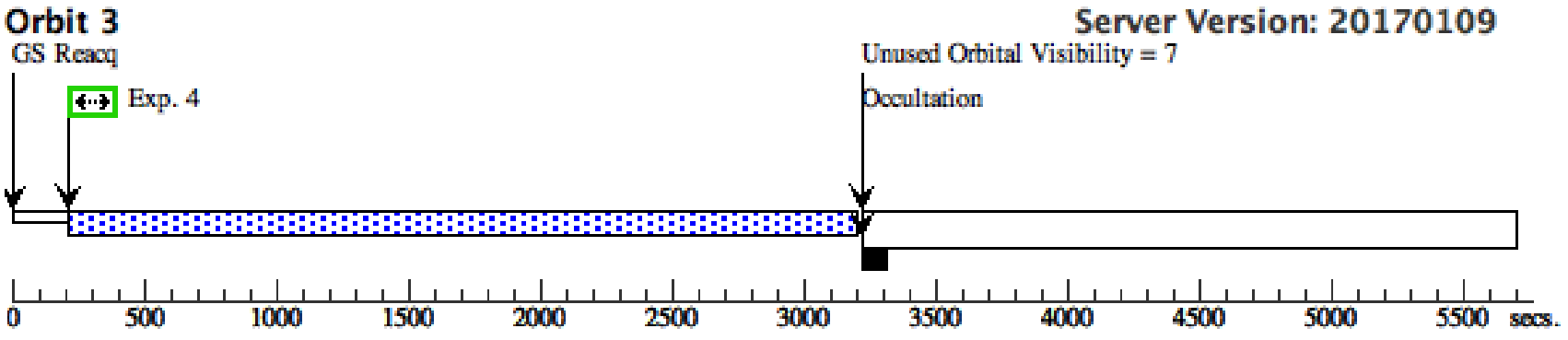
Exposures

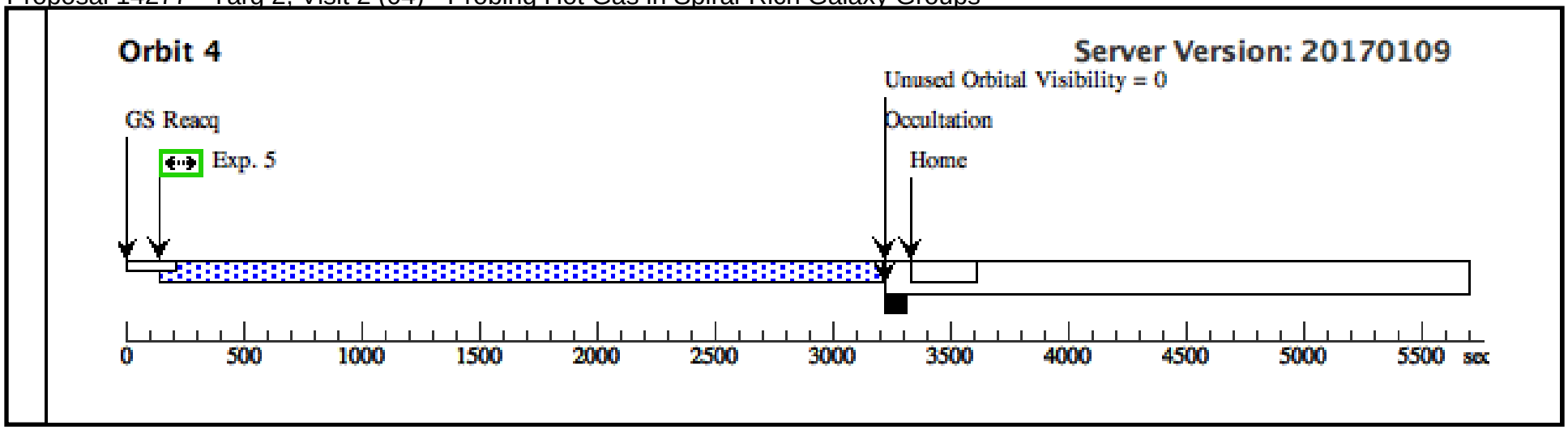
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715913)	(2) QSOB1612+266	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				78 Secs (78 Secs) *[==>]*	*[1]*
2	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (2421 Secs) *[==>2421.0 Secs]*	*[1]*
3	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (2936 Secs) *[==>2936.0 Secs]*	*[2]*
4	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2936 Secs) *[==>2936.0 Secs]*	*[3]*
5	(COS.sp.715896)	(2) QSOB1612+266	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2943 Secs) *[==>2943.0 Secs]*	*[4]*

Orbit Structure





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sec

Visit

Proposal 14277, Targ 3, Visit 1 (05), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 3, Visit 1 (05)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

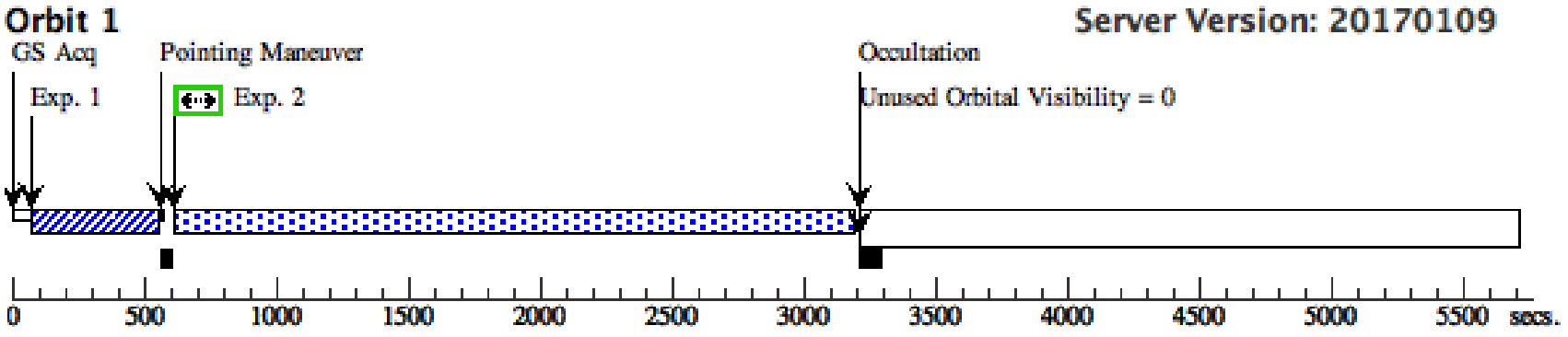
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SDSSJ15403-0205 Alt Name1: SDSSJ154019.57-020505.4 Alt Name2: 2MASXJ15401957-0205053	RA: 15 40 19.5672 (235.0815300d) Dec: -02 05 5.40 (-2.08483d) Equinox: J2000	Redshift: 0.321	V=17.0+/-.5 F(1500A)~2e-15 (GALEX FUV), z=0.3205	Reference Frame: ICRS

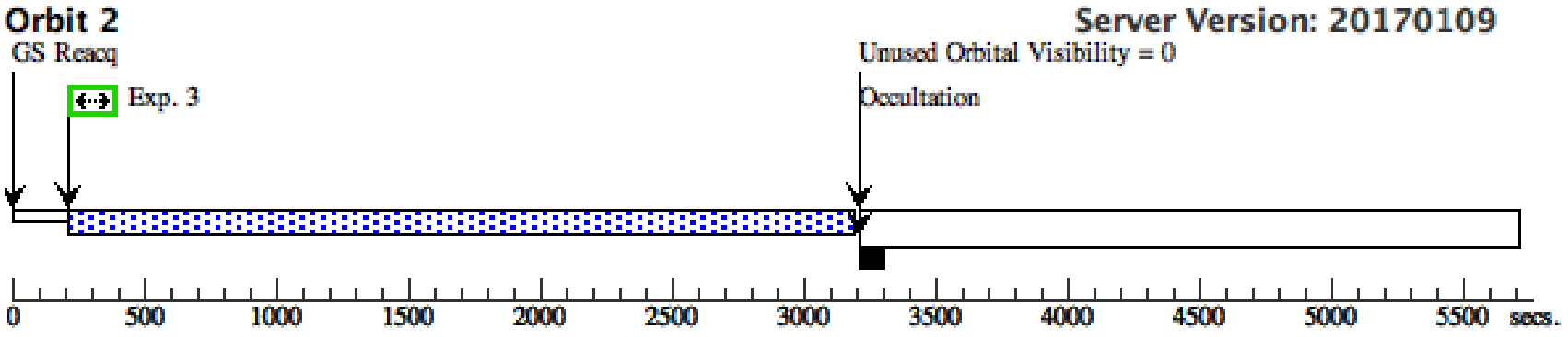
Comments: Sy1
Extended=NO

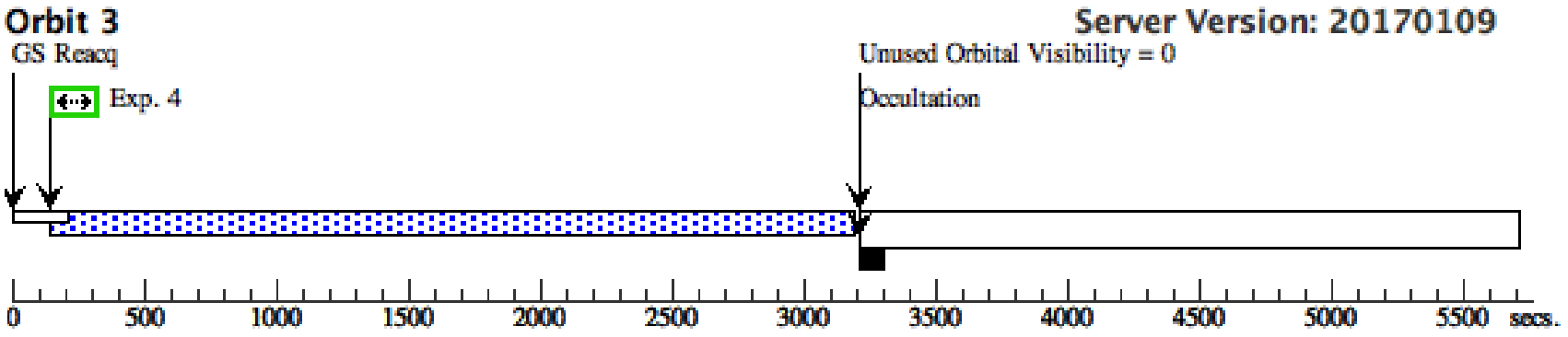
Exposures

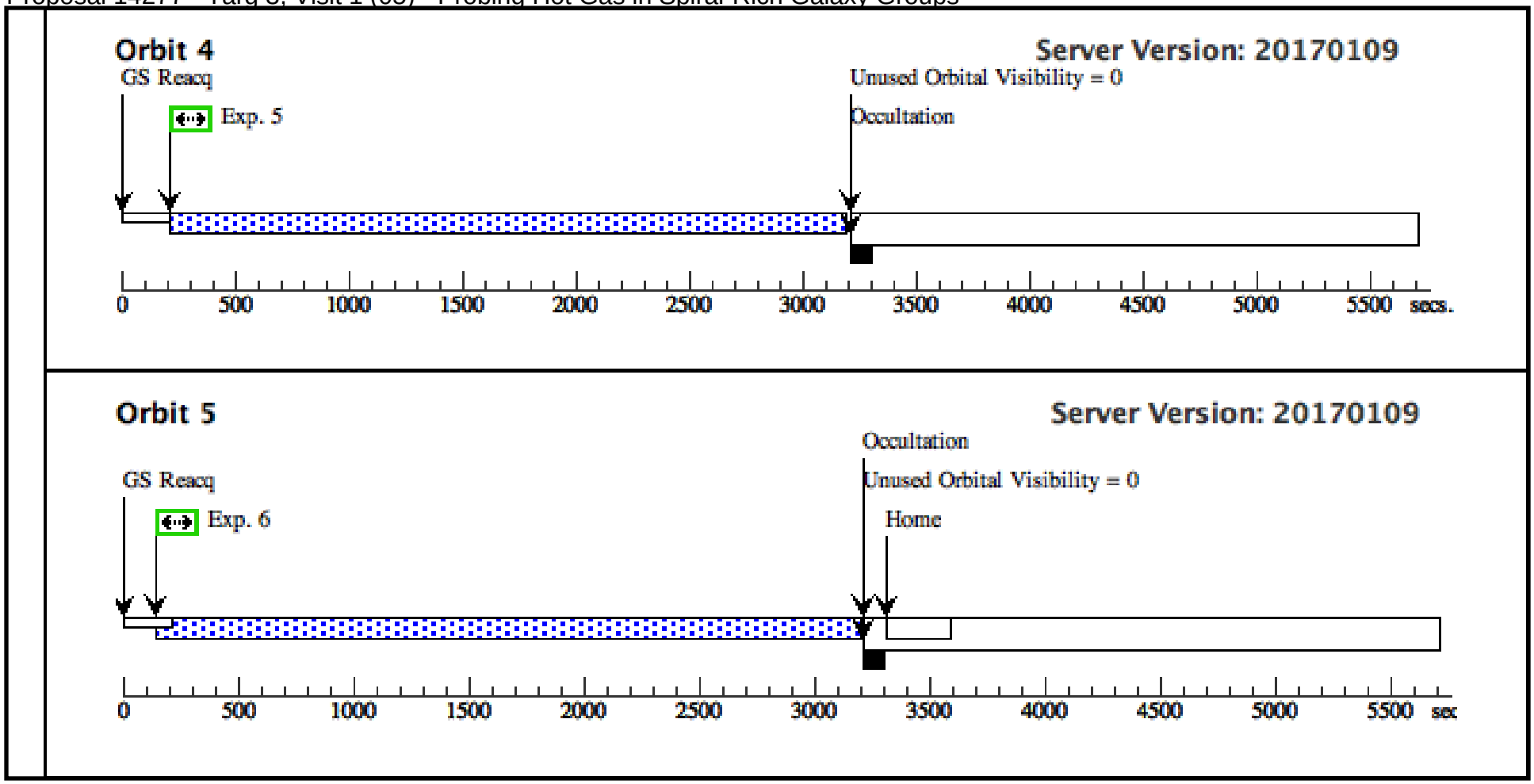
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715913)	(3) SDSSJ15403-0205	COS/NUV, ACQ/IMAGE, PSA	MIRRORB		GS ACQ SCENARIO BASE1B3		78 Secs (78 Secs) *[==>]*	*[1]*
2	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (2412 Secs) *[==>2412.0 Secs]*	*[1]*
3	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=2			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	*[2]*
4	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3500; FP-POS=3			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	*[3]*
5	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	*[4]*
6	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	*[5]*

Orbit Structure








Orbit 4
Server Version: 20170109
GS Reacq
Exp. 5
Unused Orbital Visibility = 0
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 5
Server Version: 20170109
Occultation
GS Reacq
Unused Orbital Visibility = 0
Exp. 6
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14277, Targ 3, Visit 2 (06), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 3, Visit 2 (06)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

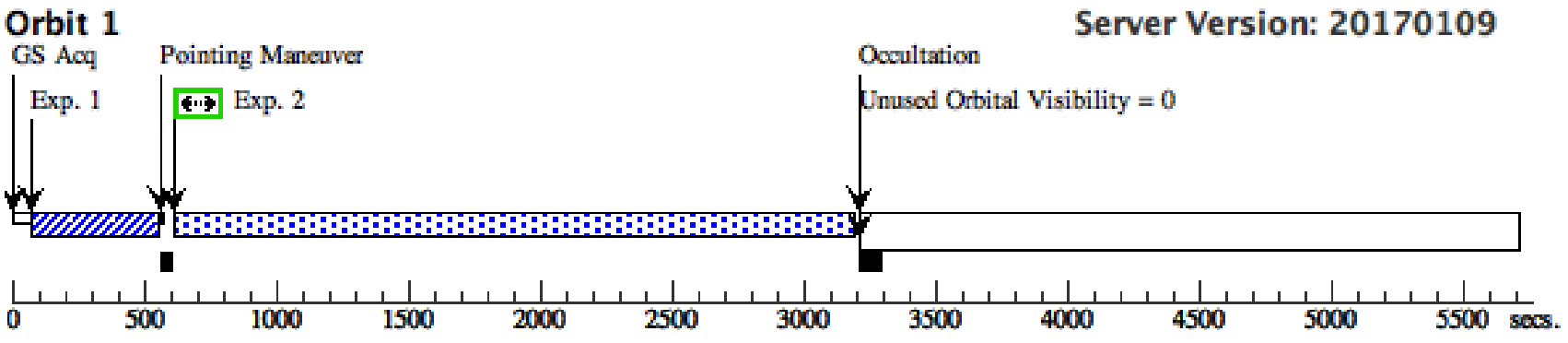
Fixed Targets

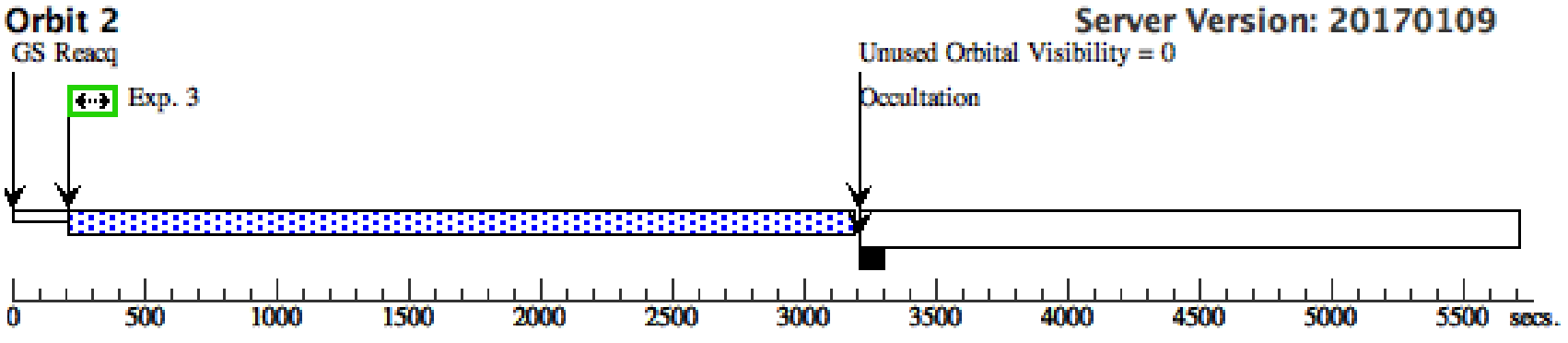
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SDSSJ15403-0205 Alt Name1: SDSSJ154019.57-020505.4 Alt Name2: 2MASXJ15401957-0205053	RA: 15 40 19.5672 (235.0815300d) Dec: -02 05 5.40 (-2.08483d) Equinox: J2000	Redshift: 0.321	V=17.0+/-.5 F(1500A)~2e-15 (GALEX FUV), z=0.3205	Reference Frame: ICRS
Comments: Sy1 Extended=NO					

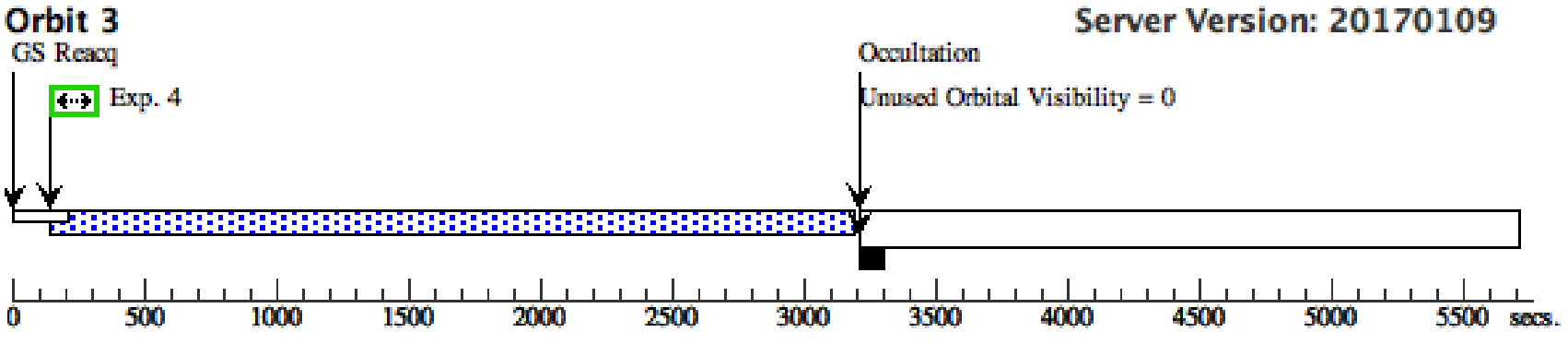
Exposures

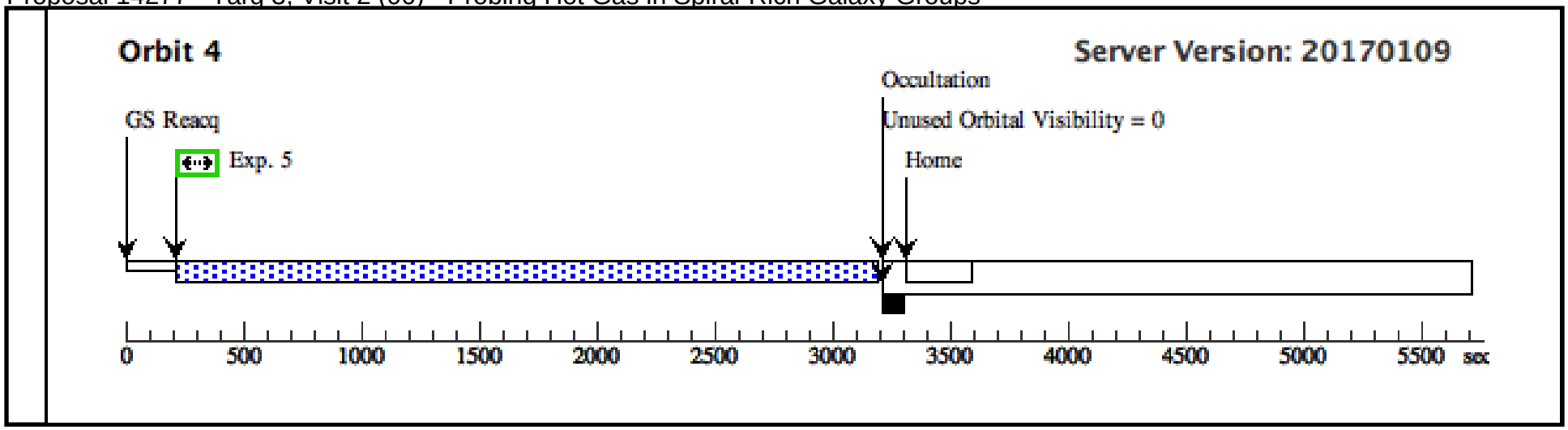
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715913)	(3) SDSSJ15403-0205	COS/NUV, ACQ/IMAGE, PSA	MIRRORB		GS ACQ SCENARIO BASE1B3		78 Secs (78 Secs) *[==>]*	 ***[1]***
2	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (2405 Secs) *[==>2405.0 Secs]*	 ***[1]***
3	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	 ***[2]***
4	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=3			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	 ***[3]***
5	(COS.sp.715896)	(3) SDSSJ15403-0205	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (2924 Secs) *[==>2924.0 Secs]*	 ***[4]***

Orbit Structure








Orbit 4
Server Version: 20170109
Occultation
GS Reacq
Unused Orbital Visibility = 0
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14277, Targ 4 (07), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 4 (07)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

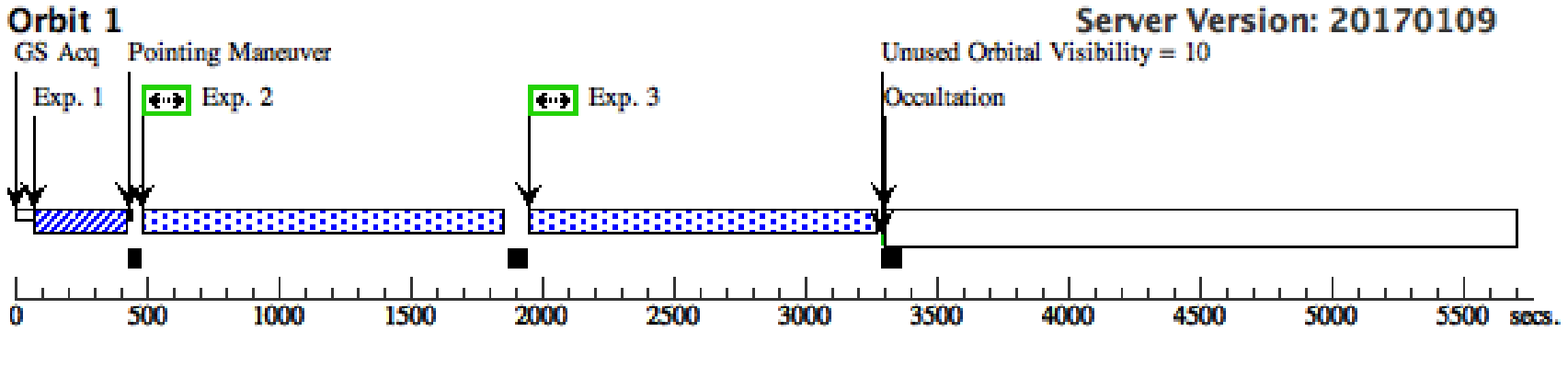
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	RBS711 Alt Name1: SDSSJ083583.90+442602.3 Alt Name2: RXJ08359+4426	RA: 08 36 58.9100 (129.2454583d) Dec: +44 26 2.34 (44.43398d) Equinox: J2000	Redshift: 0.255	V=15.77 F(1500A)~1e-14 (GALEX FUV), z=0.2546	Reference Frame: ICRS

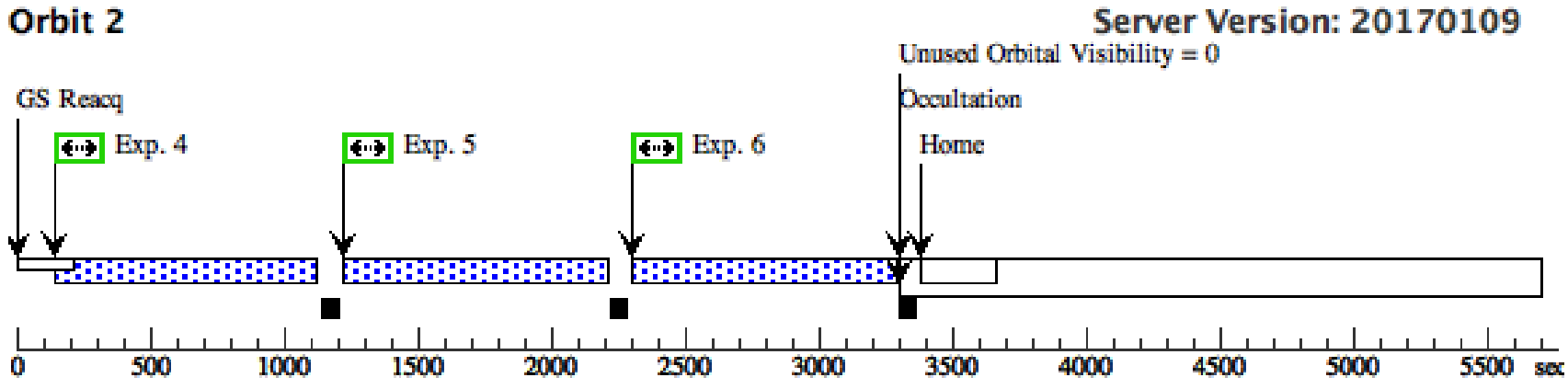
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715914)	(4) RBS711	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				13 Secs (13 Secs) *[==>]*	*[1]*
2	(COS.sp.715897)	(4) RBS711	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=1800; FP-POS=1			1000 Secs (1198 Secs) *[==>1198.0 Secs]*	*[1]*
3	(COS.sp.715897)	(4) RBS711	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=2			1000 Secs (1198 Secs) *[==>1198.0 Secs]*	*[1]*
4	(COS.sp.715897)	(4) RBS711	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (859 Secs) *[==>859.0 Secs]*	*[2]*
5	(COS.sp.715897)	(4) RBS711	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=1800; FP-POS=4			1000 Secs (859 Secs) *[==>859.0 Secs]*	*[2]*
6	(COS.sp.715897)	(4) RBS711	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=4			1000 Secs (859 Secs) *[==>859.0 Secs]*	*[2]*

Orbit Structure





Visit

Proposal 14277, Targ 6 (09), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 6 (09)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

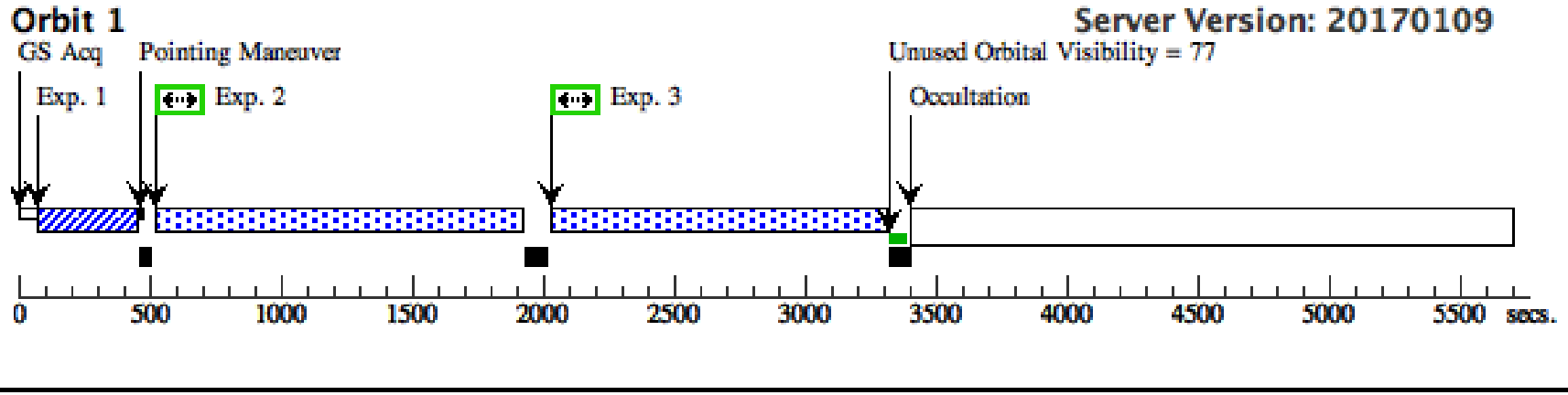
Fixed Targets

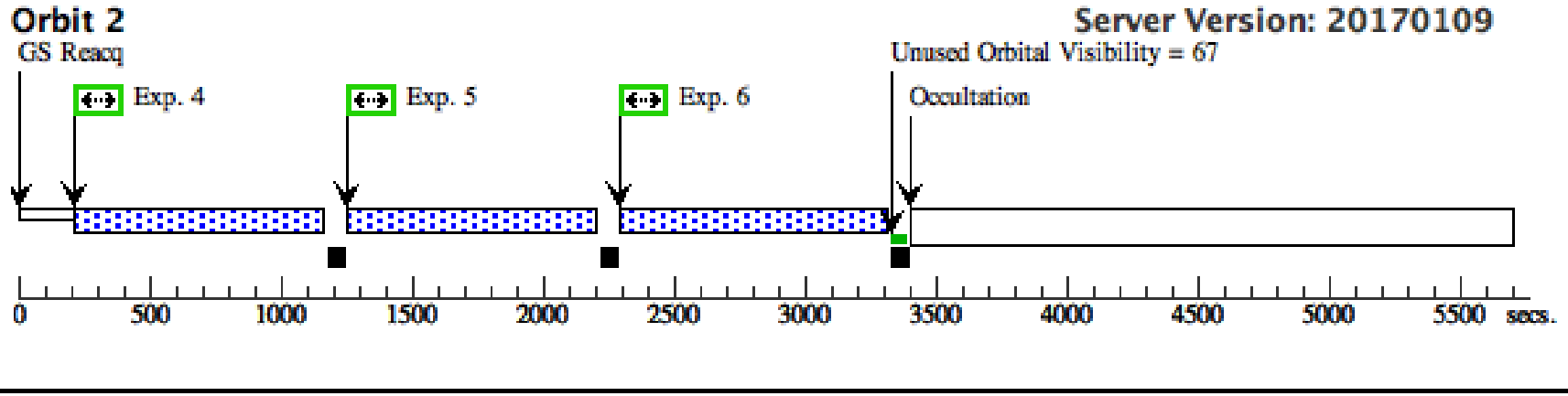
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	SBS0956+509 Alt Name1: SBS0956+510 Alt Name2: SDSSJ095931.66+504449.1 *Comments: Sy1 Extended=NO*	RA: 09 59 31.6700 (149.8819583d) Dec: +50 44 49.11 (50.74697d) Equinox: J2000	Redshift: 0.143	V=16.8 F(1500A)=5e-15 (GALEX FUV), z=0.1434	Reference Frame: ICRS

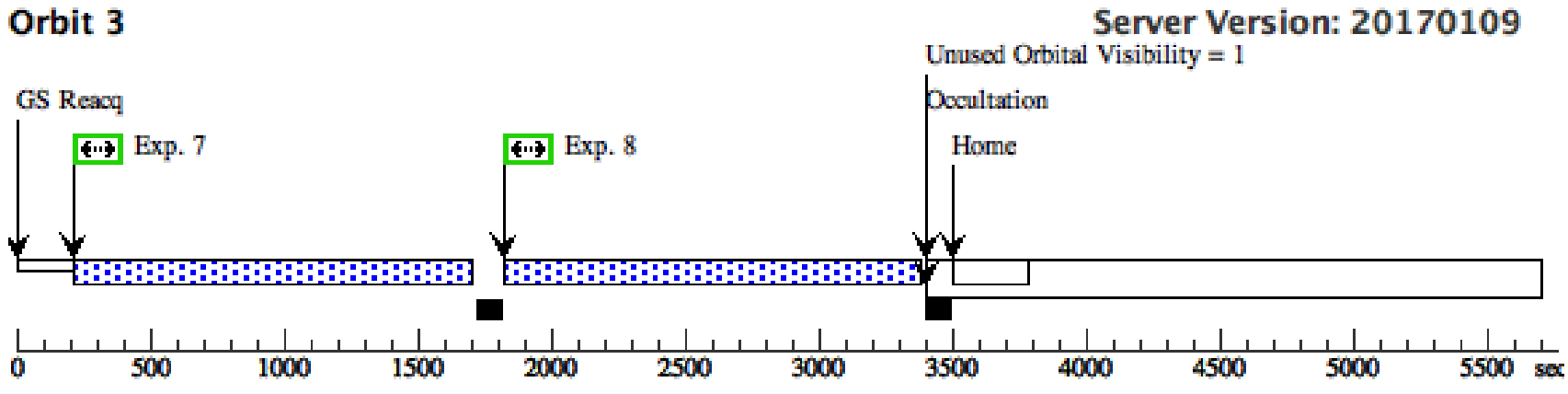
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715916)	(6) SBS0956+509	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				30 Secs (30 Secs) *[==>]*	*[1]*
2	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=1			1000 Secs (1229 Secs) *[==>1229.0 Secs]*	*[1]*
3	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=2			1000 Secs (1229 Secs) *[==>1229.0 Secs]*	*[1]*
4	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (897 Secs) *[==>897.0 Secs]*	*[2]*
5	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=4			1000 Secs (897 Secs) *[==>897.0 Secs]*	*[2]*
6	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=1			1000 Secs (897 Secs) *[==>897.0 Secs]*	*[2]*
7	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (1434 Secs) *[==>1434.0 Secs]*	*[3]*
8	(COS.sp.715899)	(6) SBS0956+509	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (1434 Secs) *[==>1434.0 Secs]*	*[3]*

Orbit Structure







Visit

Proposal 14277, Targ 7 (10), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 7 (10)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

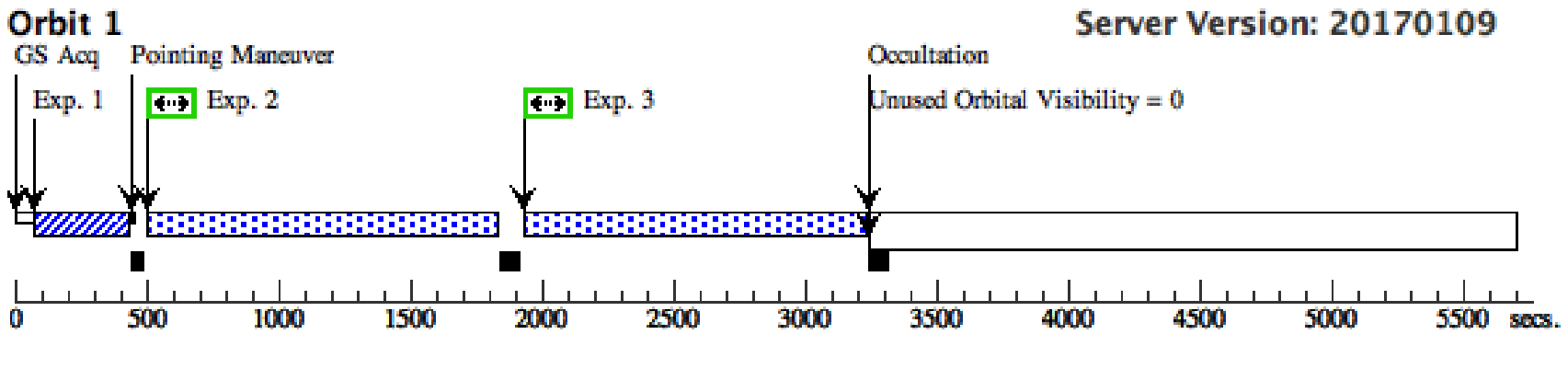
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	FBQSJ103059.1+310255 Alt Name1: B21028+31 Alt Name2: SDSSJ103059.09+310255.8	RA: 10 30 59.0950 (157.7462292d) Dec: +31 02 55.80 (31.04883d) Equinox: J2000	Redshift: 0.178	V=16.8 F(1500A)~2e-15 (GALEX FUV)	Reference Frame: ICRS

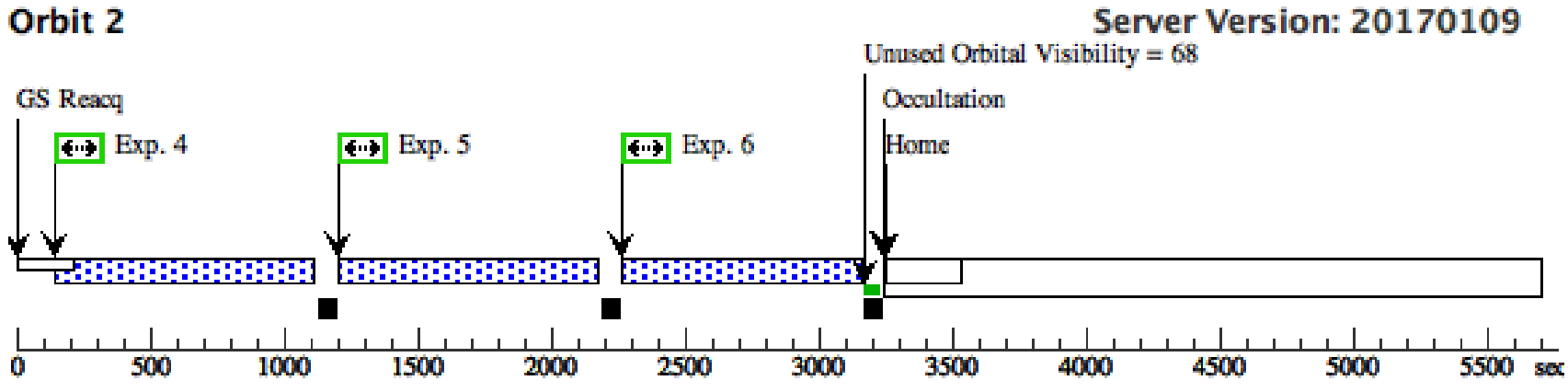
Comments: FSRQ, radio jet
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715917)	(7) FBQSJ103059.1+310255	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20 Secs (20 Secs) *[==>]*	***[1]***
2	(COS.sp.715900)	(7) FBQSJ103059.1+310255	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (1167 Secs) *[==>1167.0 Secs]*	***[1]***
3	(COS.sp.715900)	(7) FBQSJ103059.1+310255	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=1800; FP-POS=3			1000 Secs (1167 Secs) *[==>1167.0 Secs]*	***[1]***
4	(COS.sp.715900)	(7) FBQSJ103059.1+310255	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=1800; FP-POS=2			1000 Secs (844 Secs) *[==>844.0 Secs]*	***[2]***
5	(COS.sp.715900)	(7) FBQSJ103059.1+310255	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=1			1000 Secs (844 Secs) *[==>844.0 Secs]*	***[2]***
6	(COS.sp.715900)	(7) FBQSJ103059.1+310255	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1800; FP-POS=2			1000 Secs (844 Secs) *[==>844.0 Secs]*	***[2]***

Orbit Structure





Visit

Proposal 14277, Targ 8, Visit 1 (11), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 8, Visit 1 (11)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

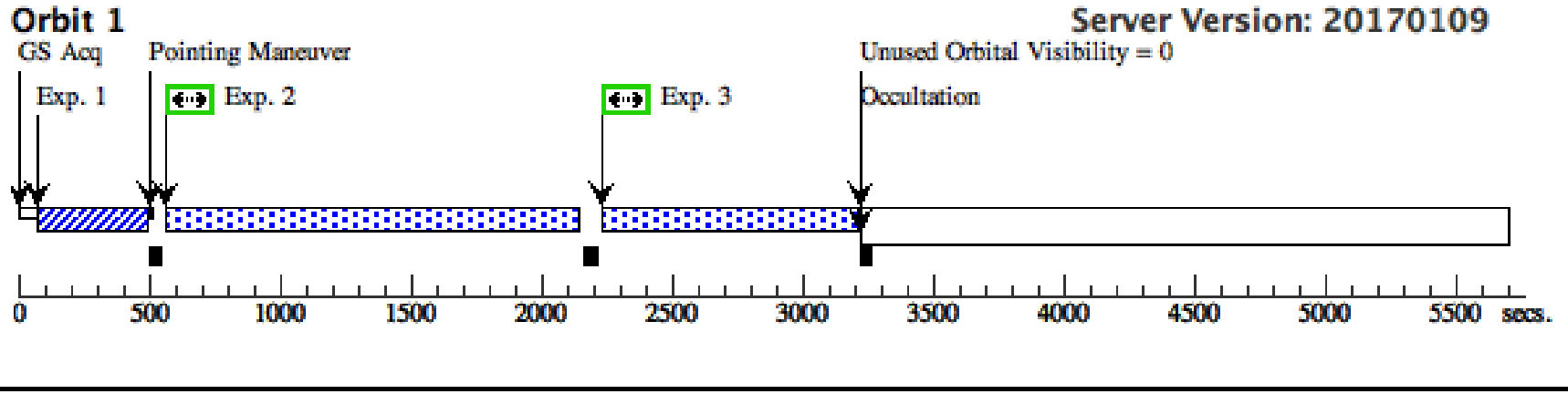
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	FBQSJ1519+2838 Alt Name1: FBQSJ151936.1+283827 Alt Name2: SDSSJ151936.15+283827.6	RA: 15 19 36.1460 (229.9006083d) Dec: +28 38 27.64 (28.64101d) Equinox: J2000	Redshift: 0.270	V=16.8+/-.5 F(1500A)~3e-15 (GALEX FUV), z=0.2700	Reference Frame: ICRS

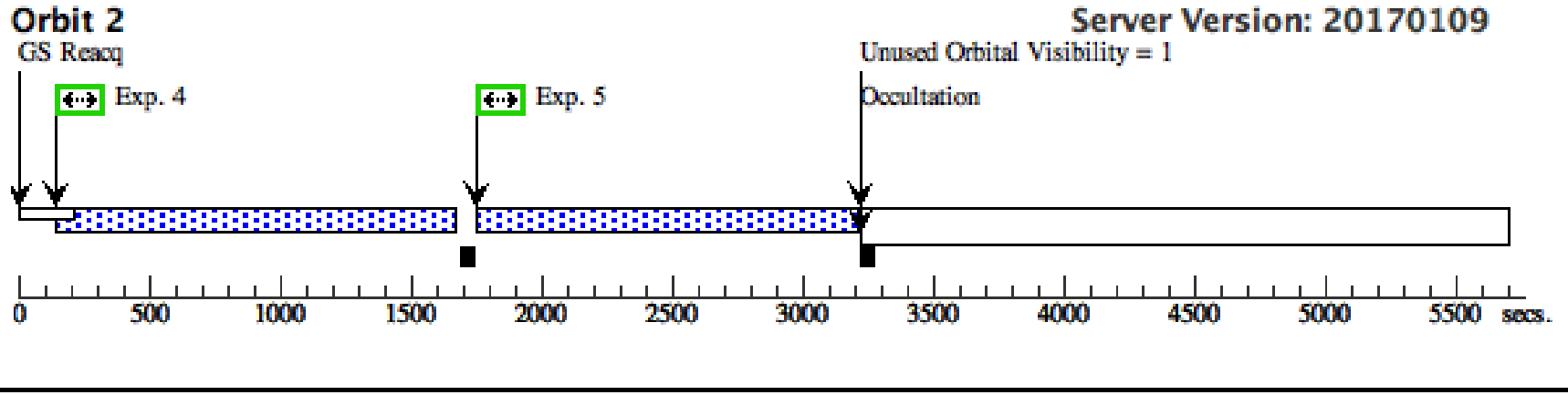
Comments: NLSy1, QSO Extended=NO

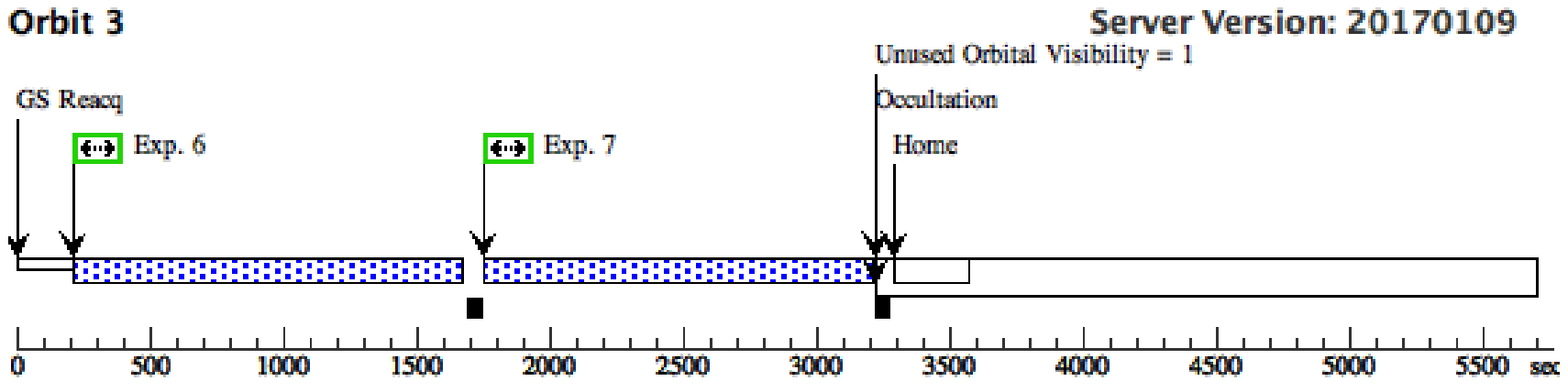
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715912)	(8) FBQSJ1519+2838	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				52 Secs (52 Secs) *[==>]*	 ***[1]***
2	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (1414 Secs) *[==>1414.0 Secs]*	 ***[1]***
3	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3500; FP-POS=2			2000 Secs (931 Secs) *[==>931.0 Secs]*	 ***[1]***
4	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[2]***
5	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=2			2000 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[2]***
6	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=3			2500 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[3]***
7	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[3]***

Orbit Structure







Visit

Proposal 14277, Targ 8, Visit 2 (12), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 8, Visit 2 (12)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

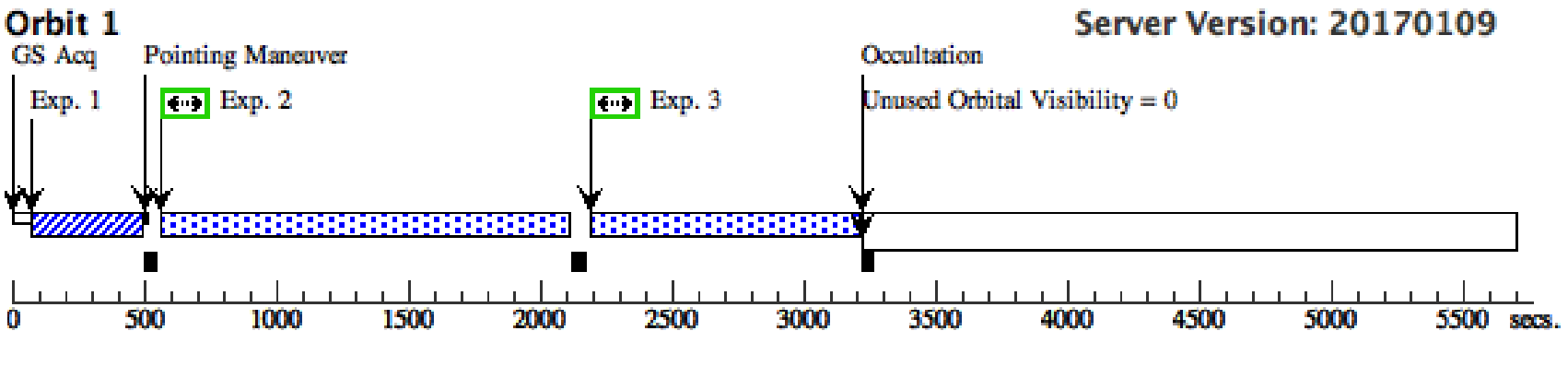
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	FBQSJ1519+2838 Alt Name1: FBQSJ151936.1+283827 Alt Name2: SDSSJ151936.15+283827.6	RA: 15 19 36.1460 (229.9006083d) Dec: +28 38 27.64 (28.64101d) Equinox: J2000	Redshift: 0.270	V=16.8+/-.5 F(1500A)~3e-15 (GALEX FUV), z=0.2700	Reference Frame: ICRS

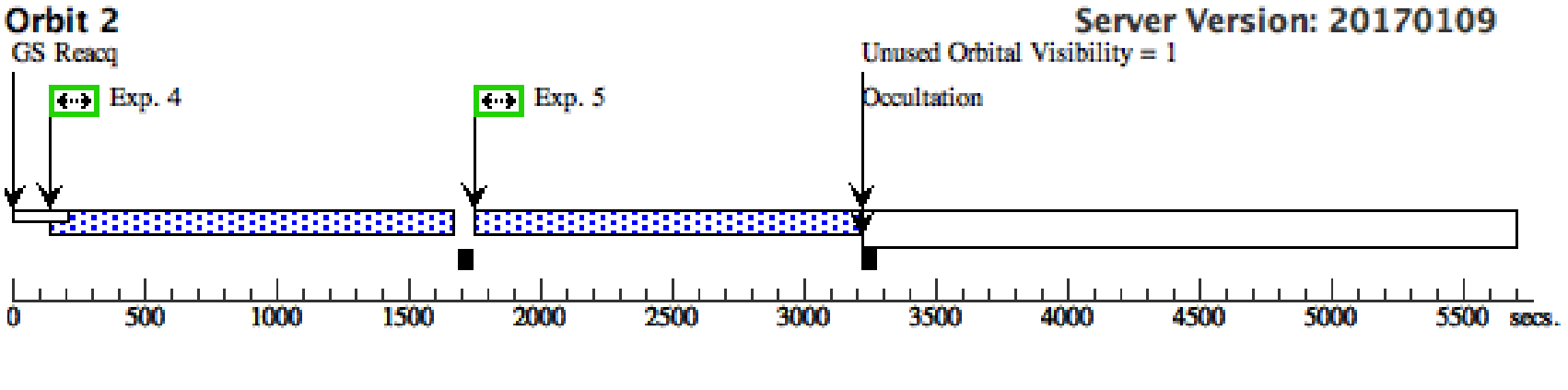
Comments: NLSy1, QSO Extended=NO

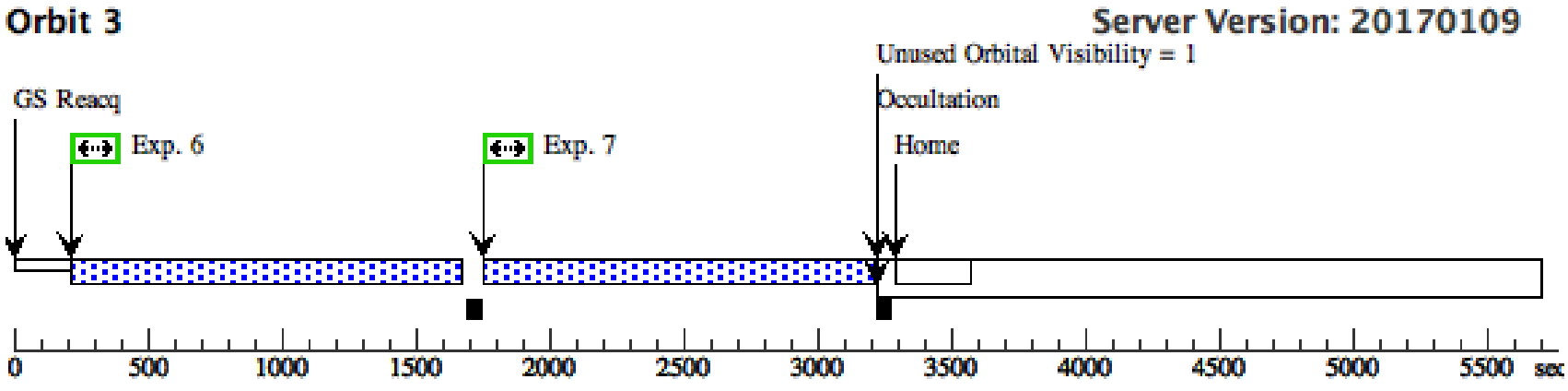
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715912)	(8) FBQSJ1519+2838	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				52 Secs (52 Secs) *[==>]*	 ***[1]***
2	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3500; FP-POS=3			2000 Secs (1376 Secs) *[==>1376.0 Secs]*	 ***[1]***
3	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3500; FP-POS=3			2000 Secs (893 Secs) *[==>893.0 Secs]*	 ***[1]***
4	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=1			2000 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[2]***
5	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=2			2000 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[2]***
6	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=3			2500 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[3]***
7	(COS.sp.715895)	(8) FBQSJ1519+2838	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3500; FP-POS=4			2500 Secs (1404 Secs) *[==>1404.0 Secs]*	 ***[3]***

Orbit Structure







Visit

Proposal 14277, Targ 9 (13), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(Targ 9 (13)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

Fixed Targets

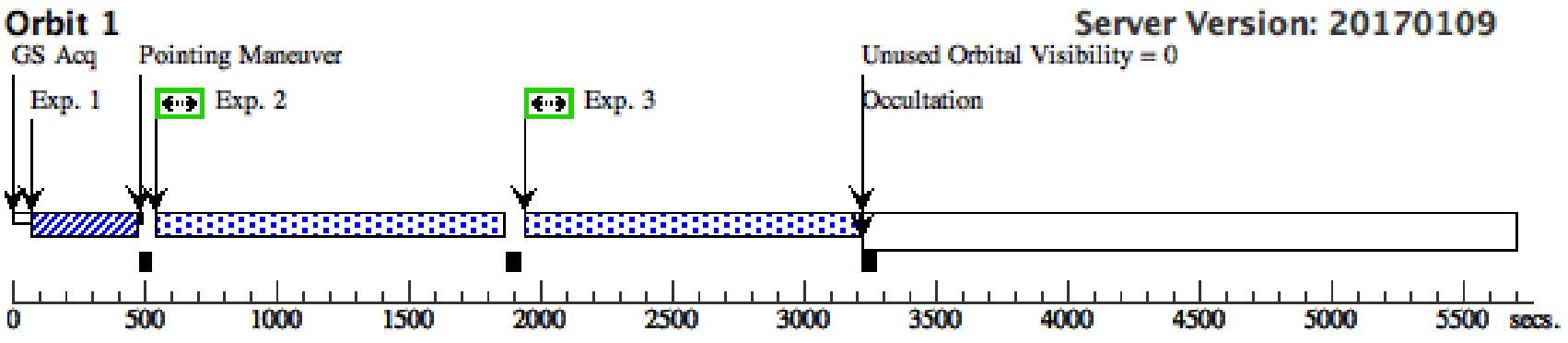
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	CSO1080 Alt Name1: SDSSJ150527.60+294718.3 Alt Name2: 1RXSJ150527.0+294722	RA: 15 05 27.6000 (226.3650000d) Dec: +29 47 18.38 (29.78844d) Equinox: J2000	Redshift: 0.526	V=16.2+/-.5 F(1500A)~4e-15 (GALEX FUV), z=0.5261	Reference Frame: ICRS

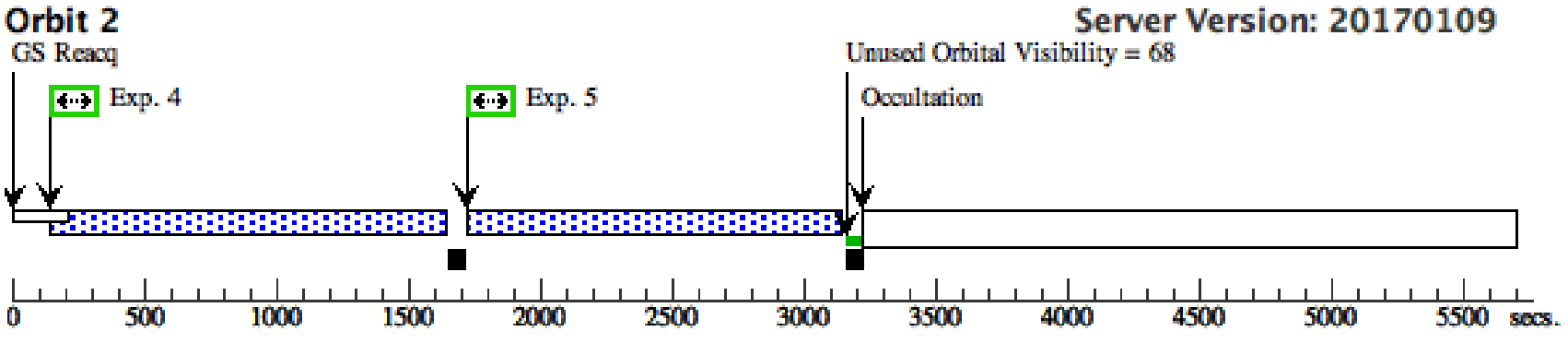
Comments: QSO Extended=NO

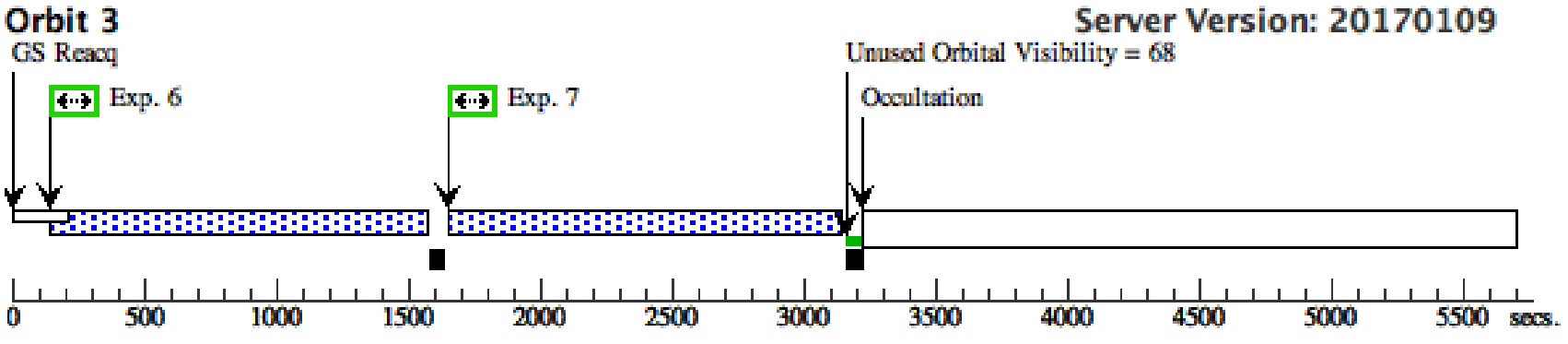
Exposures

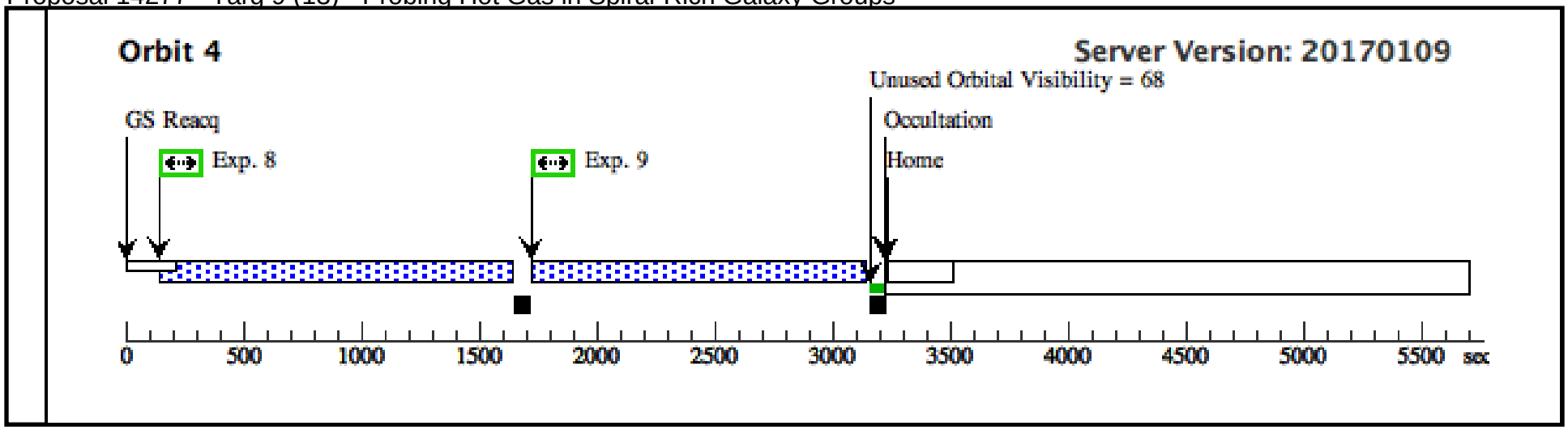
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715915)	(9) CSO1080	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs (40 Secs) *[==>]*	*[1]*
2	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1145 Secs) *[==>1145.0 Secs]*	*[1]*
3	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1145 Secs) *[==>1145.0 Secs]*	*[1]*
4	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1366 Secs) *[==>1366.0 Secs]*	*[2]*
5	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1366 Secs) *[==>1366.0 Secs]*	*[2]*
6	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1301 Secs) *[==>1301.0 Secs]*	*[3]*
7	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3000; FP-POS=4			1000 Secs (1440 Secs) *[==>1440.0 Secs]*	*[3]*
8	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1366 Secs) *[==>1366.0 Secs]*	*[4]*
9	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1366 Secs) *[==>1366.0 Secs]*	*[4]*

Orbit Structure








Orbit 4
Server Version: 20170109
Unused Orbital Visibility = 68
GS Reacq
Exp. 8
Exp. 9
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14277, Targ 10 (14), scheduled Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: New visit substitutes from old Visit 08 (target 5) which was erronious. Jan 6, 2016

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	SDSSJ133300.83+451809.0	RA: 13 33 0.8276 (203.2534483d) Dec: +45 18 8.95 (45.30249d) Equinox: J2000	Redshift: 0.319628	V=17.41	Reference Frame: ICRS

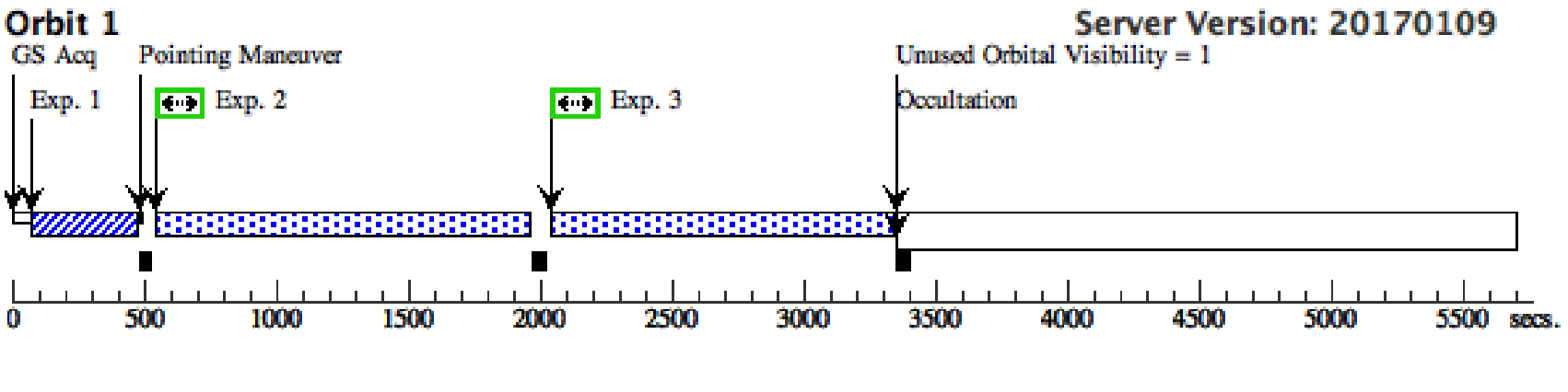
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

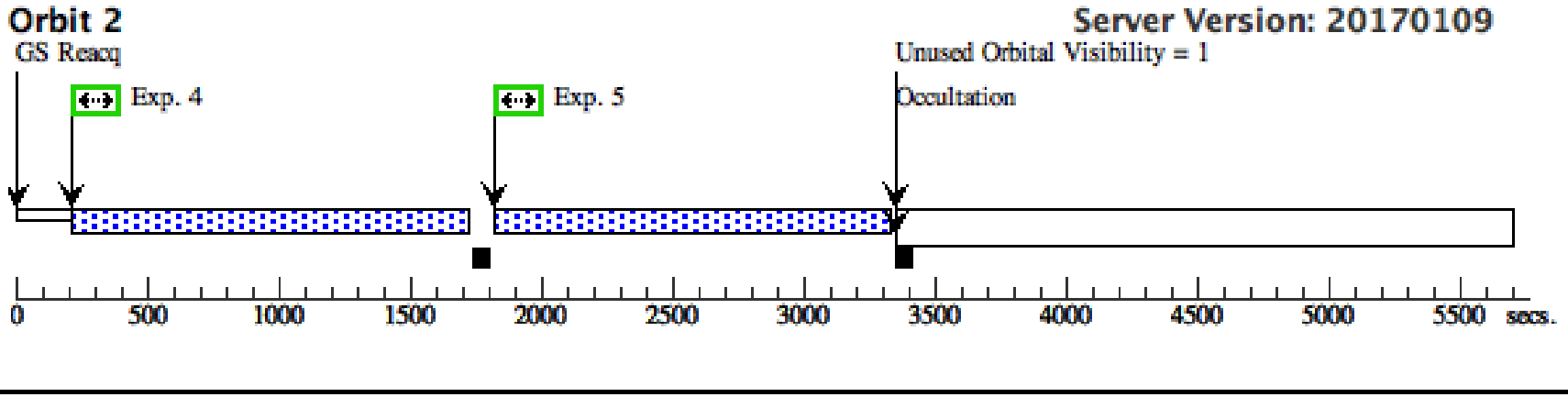
Added to proposal Jan 6, 2016 after change request (substitute for target #5 in this proposal)
Extended=NO

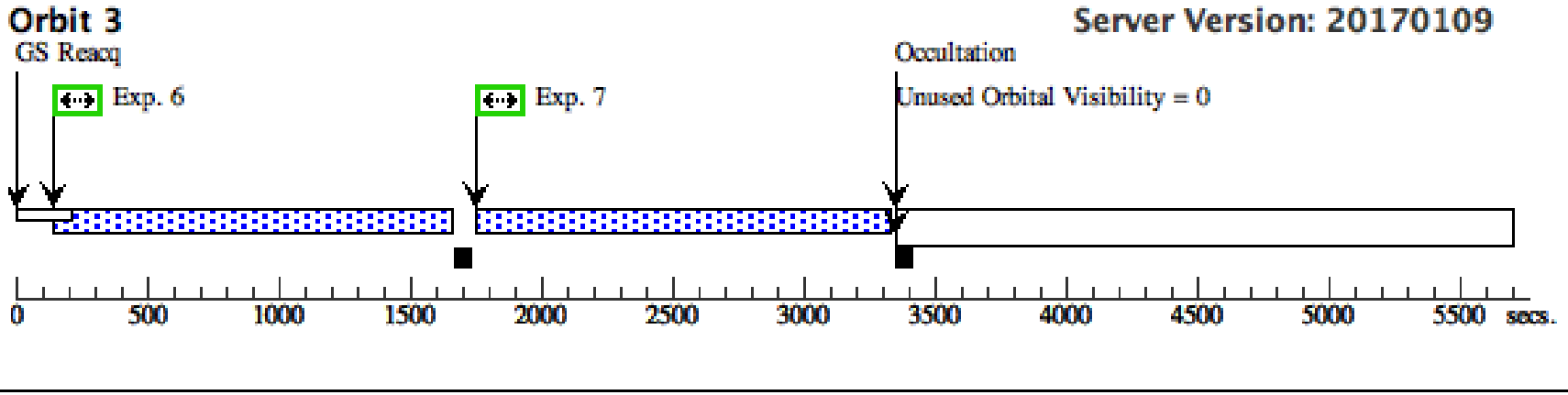
Exposures

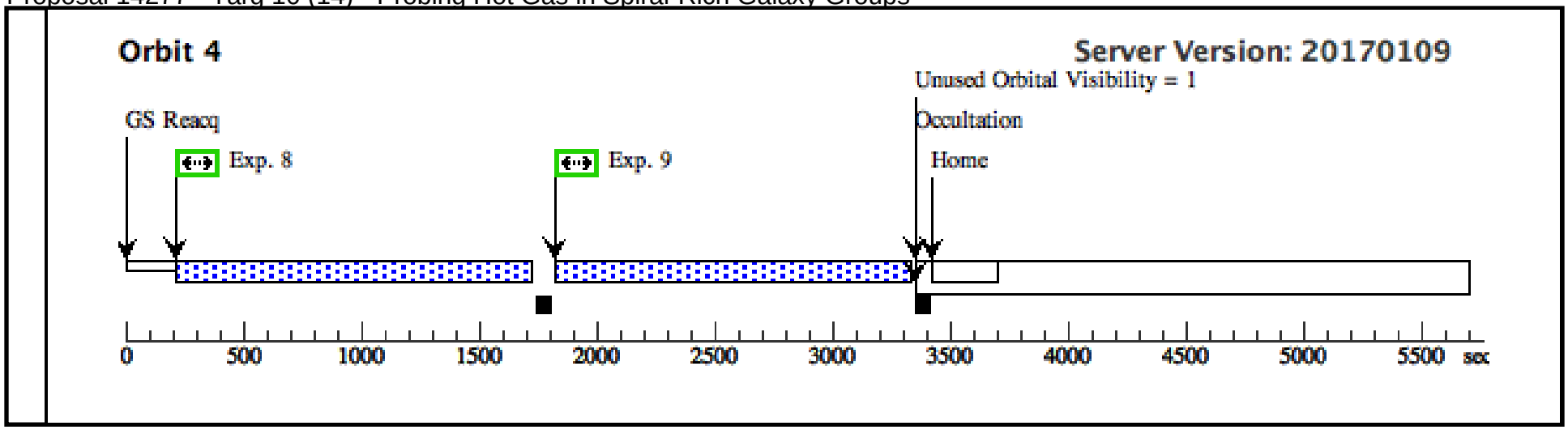
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715915)	(10) SDSSJ133300.83+451809.0	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs (40 Secs) *[==>]*	***[1]***
2	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1244 Secs) *[==>1244.0 Secs]*	***[1]***
3	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=2			1000 Secs (1244 Secs) *[==>1244.0 Secs]*	***[1]***
4	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[2]***
5	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=4			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[2]***
6	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1392 Secs) *[==>1392.0 Secs]*	***[3]***
7	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=2			1000 Secs (1531 Secs) *[==>1531.0 Secs]*	***[3]***
8	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[4]***
9	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=4			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20170109
Unused Orbital Visibility = 1
GS Reacq
Exp. 8
Exp. 9
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14277, Targ 9 - redo (15), completed Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: Re-observation of target 9 to make up for a guide star lock failure on two exposures. See HOPR 85074.

Diagnostics

(Targ 9 - redo (15)) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.

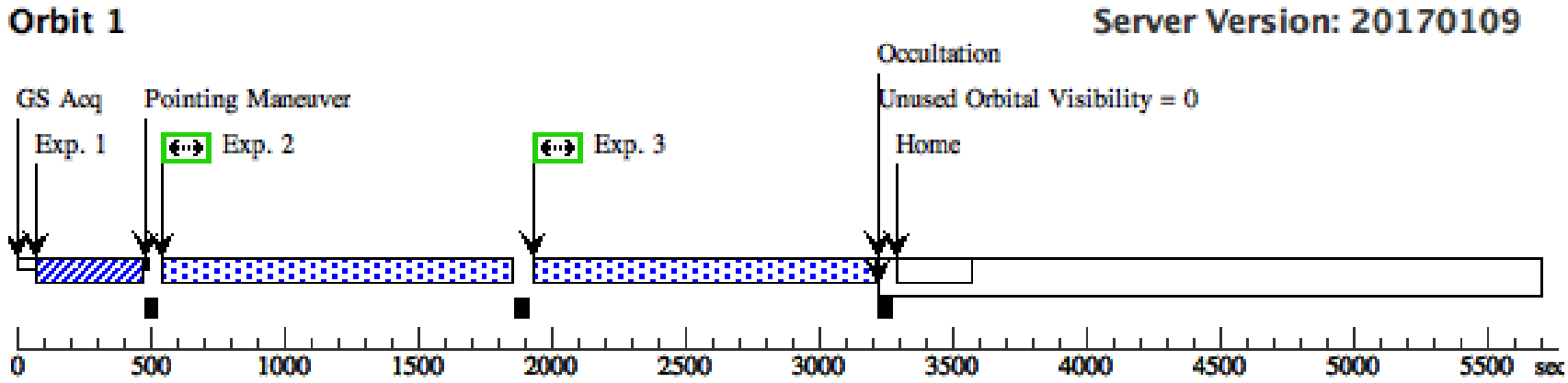
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	CSO1080 Alt Name1: SDSSJ150527.60+294718.3 Alt Name2: 1RXSJ150527.0+294722 *Comments: QSO Extended=NO*	RA: 15 05 27.6000 (226.3650000d) Dec: +29 47 18.38 (29.78844d) Equinox: J2000	Redshift: 0.526	V=16.2+/-.5 F(1500A)~4e-15 (GALEX FUV), z=0.5261	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	(COS.ta.715915)	(9) CSO1080	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs (40 Secs) *[==>]*	*[1]*
2	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1147 Secs) *[==>1147.0 Secs]*	*[1]*
3	(COS.sp.715898)	(9) CSO1080	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1147 Secs) *[==>1147.0 Secs]*	*[1]*

Orbit Structure



Visit

Proposal 14277, Targ 10 - redo (16) Sat Mar 18 01:02:20 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: repeat of visit 14, failed due to anomaly

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	SDSSJ133300.83+451809.0	RA: 13 33 0.8276 (203.2534483d) Dec: +45 18 8.95 (45.30249d) Equinox: J2000	Redshift: 0.319628	V=17.41	Reference Frame: ICRS

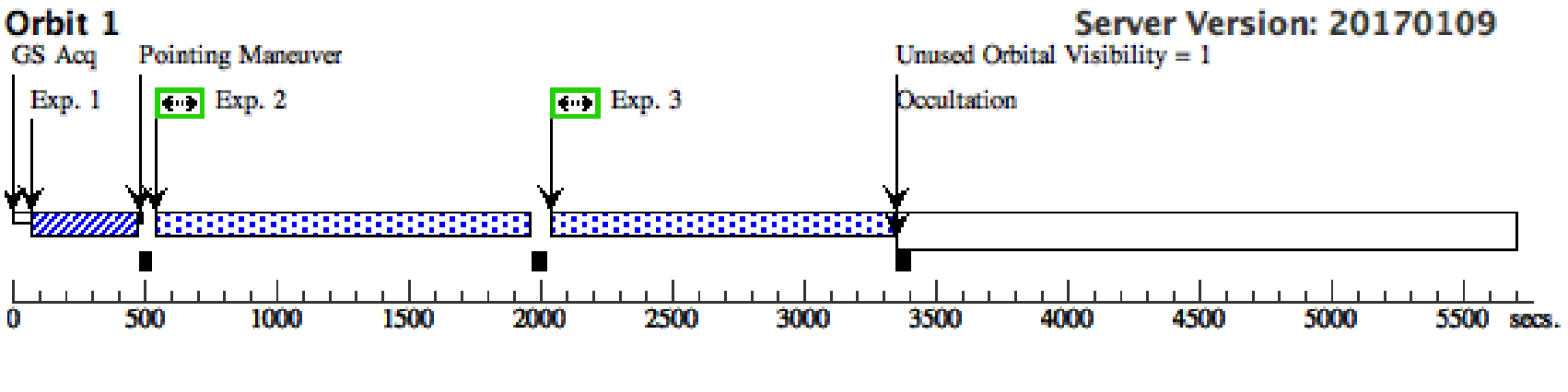
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

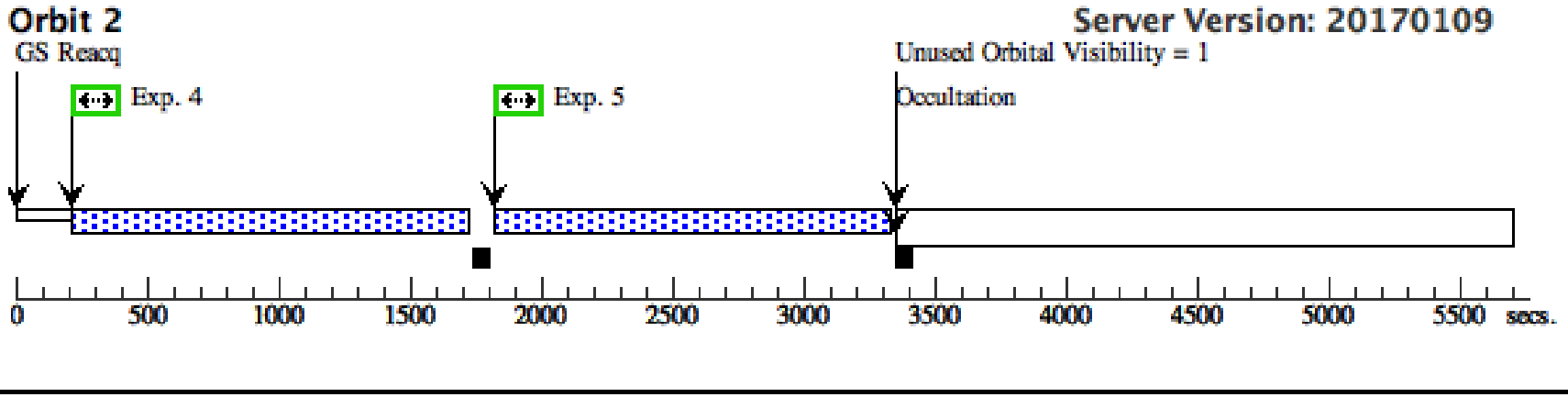
Added to proposal Jan 6, 2016 after change request (substitute for target #5 in this proposal)
Extended=NO

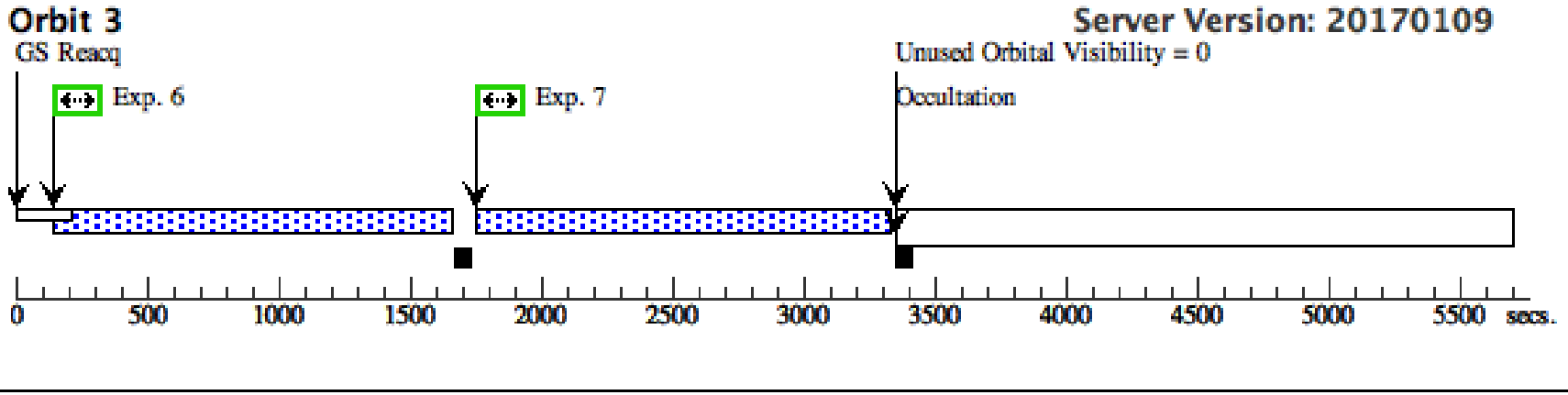
Exposures

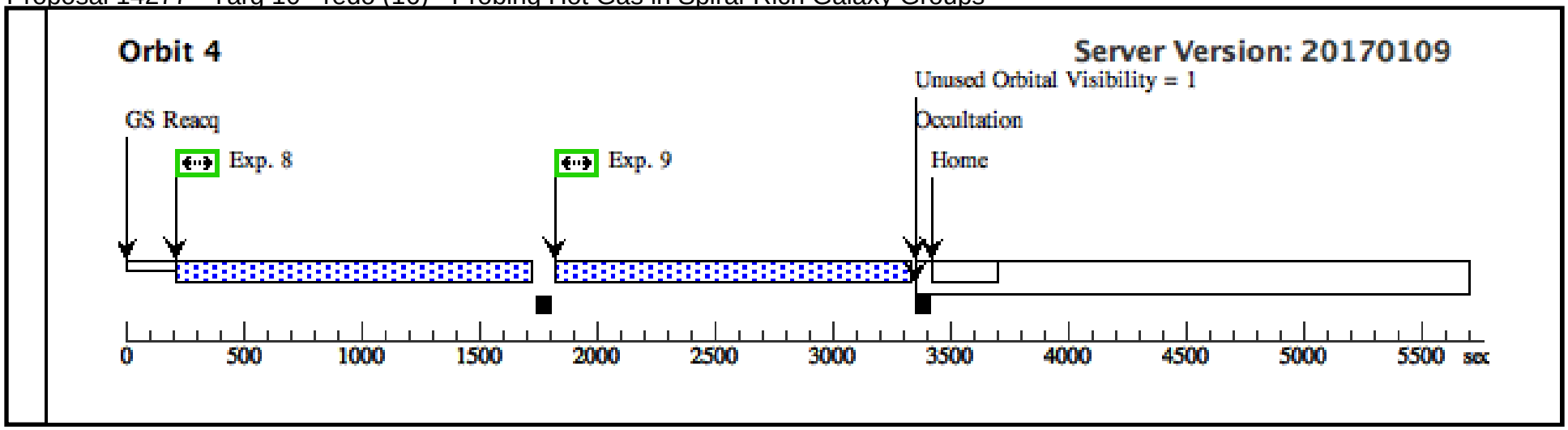
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(COS.ta.715915)	(10) SDSSJ133300.83+451809.0	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs (40 Secs) *[==>]*	***[1]***
2	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1244 Secs) *[==>1244.0 Secs]*	***[1]***
3	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=2			1000 Secs (1244 Secs) *[==>1244.0 Secs]*	***[1]***
4	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[2]***
5	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3000; FP-POS=4			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[2]***
6	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=1			1000 Secs (1392 Secs) *[==>1392.0 Secs]*	***[3]***
7	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=2			1000 Secs (1531 Secs) *[==>1531.0 Secs]*	***[3]***
8	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=3			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[4]***
9	(COS.sp.715898)	(10) SDSSJ133300.83+451809.0	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=3000; FP-POS=4			1000 Secs (1461 Secs) *[==>1461.0 Secs]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20170109
Unused Orbital Visibility = 1
GS Reacq
Exp. 8
Exp. 9
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec