12536 - Sub-damped Lyman-alpha Absorbers at z < 0.6: An Unexplored Terrain in the Quest for Cosmic Metals

Cycle: 19, 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) PHL1226	COS/FUV COS/NUV	3	23-Jul-2012 21:07:50.0	yes
02	(1) PHL1226	COS/FUV COS/NUV	3	23-Jul-2012 21:08:07.0	yes
03	(2) Q0439-433	COS/FUV COS/NUV	5	23-Jul-2012 21:08:25.0	yes
04	(3) Q0454-220	COS/NUV	5	23-Jul-2012 21:08:45.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(3) Q0454-220	COS/NUV	4	23-Jul-2012 21:09:02.0	yes
06	(4) Q1525+0026	COS/NUV	4	23-Jul-2012 21:09:23.0	yes
07	(4) Q1525+0026	COS/NUV	3	23-Jul-2012 21:09:36.0	yes
08	(5) PHL1598	COS/NUV	5	23-Jul-2012 21:09:52.0	yes
09	(5) PHL1598	COS/NUV	4	23-Jul-2012 21:10:08.0	yes

36 Total Orbits Used

ABSTRACT

The metal content of galaxies offers a unique tracer of star formation and galaxy evolution processes. Damped and sub-damped Lyman-alpha absorbers constitute the primary neutral gas reservoir for star formation and provide the most accurate element abundances in distant galaxies. Contrary to model predictions, DLAs appear to be metal-poor at all redshifts, with relatively little metallicity evolution. Surprisingly, we have recently discovered several near-solar or supersolar sub-DLAs at $0.6 < z < 1.5$, suggesting that sub-DLAs may contribute much more than DLAs to the cosmic metal budget at these redshifts. However the sub-DLA samples are small, with no sub-DLA metallicity data at $0.01 < z < 0.6$ (~40% of the age of the universe). Furthermore, the effect of ionization corrections on sub-DLA metallicities needs to be investigated. Here we propose COS spectroscopy of 5 sub-DLAs at $z < 0.6$ to measure absorption lines of S II, S III, Si II, Si III, Fe II, Fe III, etc. Our data will yield the first sub-DLA metallicities at low z, clarify the role of ionization in these systems, and help explore the velocity-metallicity correlations in sub-DLAs. Our data will shed light on where sub-DLAs and DLAs fit in the overall picture of galaxy evolution.

OBSERVING DESCRIPTION

We will use the COS NUV and FUV channels in TIME-TAG mode with the G130M and G185M gratings, which have the spectral resolution and wavelength coverage necessary for the abundance determinations. All observations will be obtained using the primary science aperture. Our main goal is to measure multiple absorption lines of Fe II, Fe III, S II, S III, Si II, and Si III. In addition, our settings will also cover lines of H I, C II, CII*, NI, N V, O I, O VI, Ar I, Si II*, S IV, and H_2. The central wavelengths have been chosen to cover as many lines of interest as possible. The presence of multiple lines for most ions will help to remove confusion with Ly-alpha forest lines.

The exposure times were estimated using the COS online ETC and the FUV/NUV fluxes for the target quasars. The exposure times were designed

so as to reach the S/N needed for each object to detect the S II 1253 absorption line to a 3 sigma sensitivity of 10-28 mA (rest frame). We will have much stronger detections of S II 1253 for our objects if the metallicities are near solar.

The target acquisitions will be done using the ACQ/SEARCH mode followed by the ACQ/IMAGE mode, with the NUV configuration, using exposure times designed to give a S/N of at least 40. Given the estimated coordinate accuracies for our targets, we will use a scan-size of 2 and the associated default setting of flux-weighted centroiding in the ACQ/SEARCH exposures. The deafult step-size of 1.767" will be used in the ACQ/SEARCH exposures.

Each TIME-TAG exposure will be split into two exposures taken at different FP-POS settings to reduce the effect of fixed-pattern noise and thus to improve flat-fielding. The FP-POS values will be distributed as evenly as possible, in order to help reduce the damage caused by Lyman alpha airglow on the detectors.

Visit

Proposal 12536, Visit 01, scheduling Tue Jul 24 01:10:18 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: VISIBILITY INTERVAL 53.6 M

Diagnostics

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

(Visit 01) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

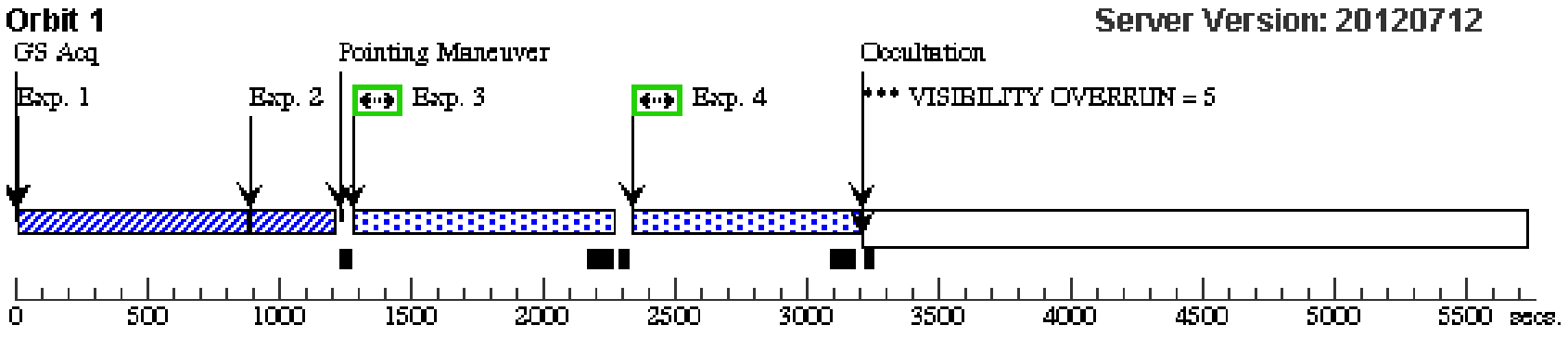
Fixed Targets

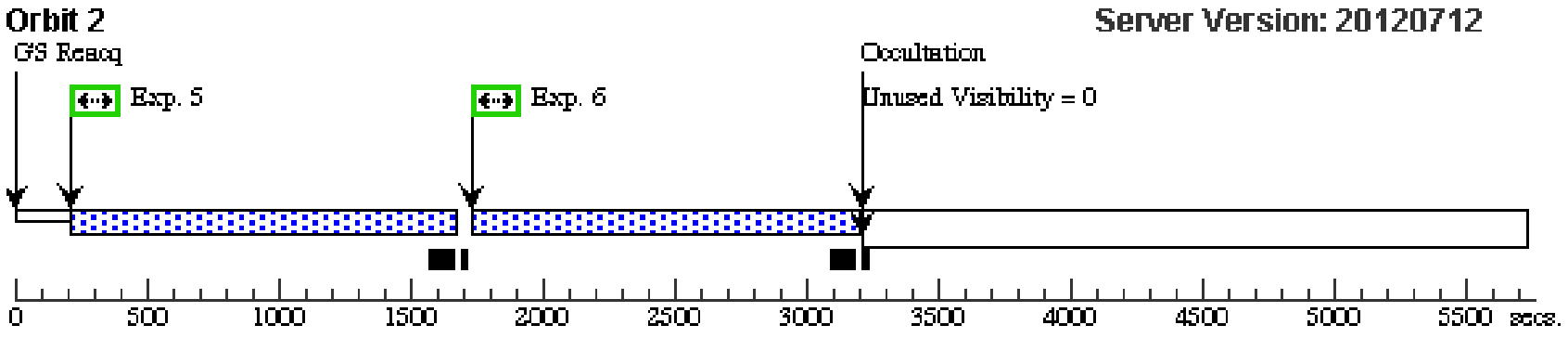
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	PHL1226	RA: 01 54 27.9900 (28.6166250d) Dec: +04 48 18.70 (4.80519d) Equinox: J2000		V=17.5 NUV=17.81, FUV=18.29	Reference Frame: ICRS

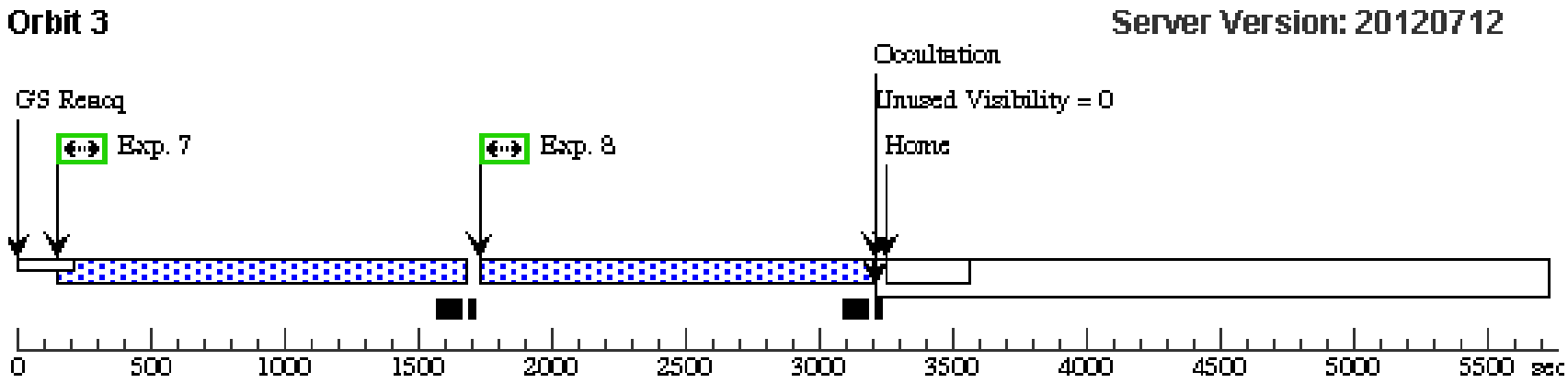
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	phl1226_acq search (cos.ta.194175)	(1) PHL1226	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			101 Secs *[==>]*	***[1]***
2	phl1226_acq image (cos.ta.194175)	(1) PHL1226	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				101 Secs *[==>]*	***[1]***
3	phl1226_g130m1 (COS.sp.194303)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=719; FP-POS=1			810 Secs *[==>]*	***[1]***
4	phl1226_g130m2 (COS.sp.194303)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=719; FP-POS=2			810 Secs *[==>]*	***[1]***
5	phl1226_g130m3 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=1319; FP-POS=3			1412 Secs *[==>]*	***[2]***
6	phl1226_g130m4 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=1319; FP-POS=4			1413 Secs *[==>]*	***[2]***
7	phl1226_g130m5 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=1; BUFFER-TIME=1319			1412 Secs *[==>]*	***[3]***
8	phl1226_g130m6 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=2; BUFFER-TIME=1319			1413 Secs *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 12536, Visit 02, scheduling Tue Jul 24 01:10:21 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: VISIBILITY INTERVAL 53.6 M

Diagnostics

(Visit 02) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

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

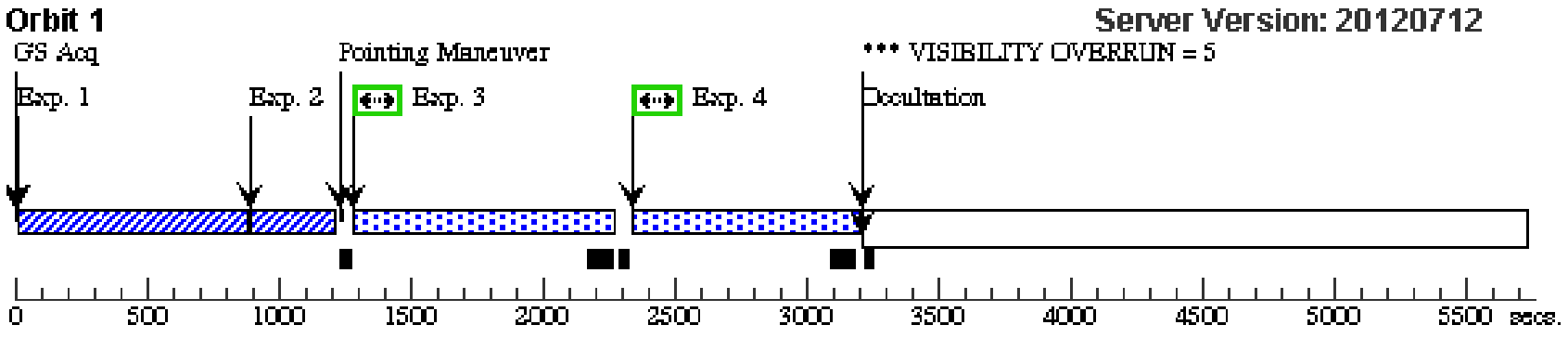
Fixed Targets

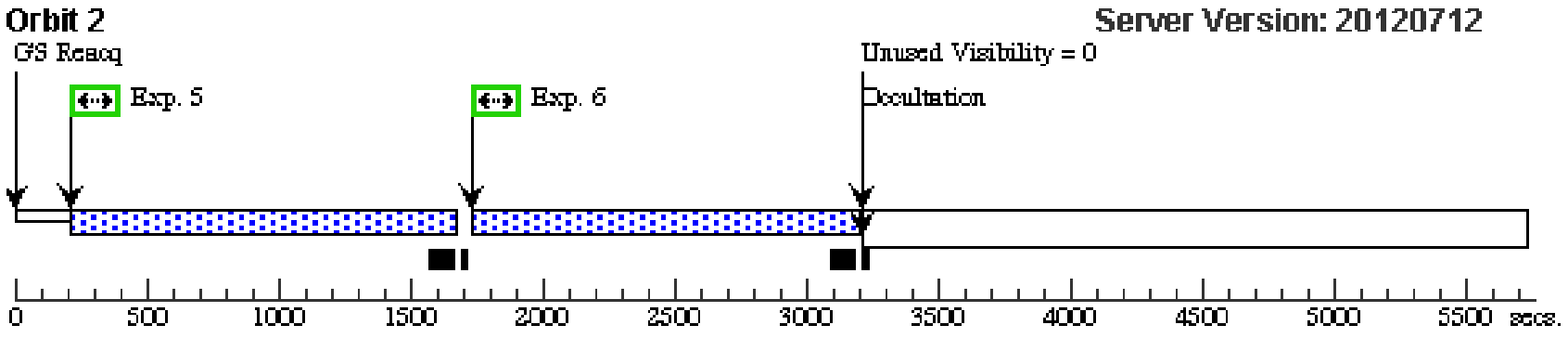
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	PHL1226	RA: 01 54 27.9900 (28.6166250d) Dec: +04 48 18.70 (4.80519d) Equinox: J2000		V=17.5 NUV=17.81, FUV=18.29	Reference Frame: ICRS

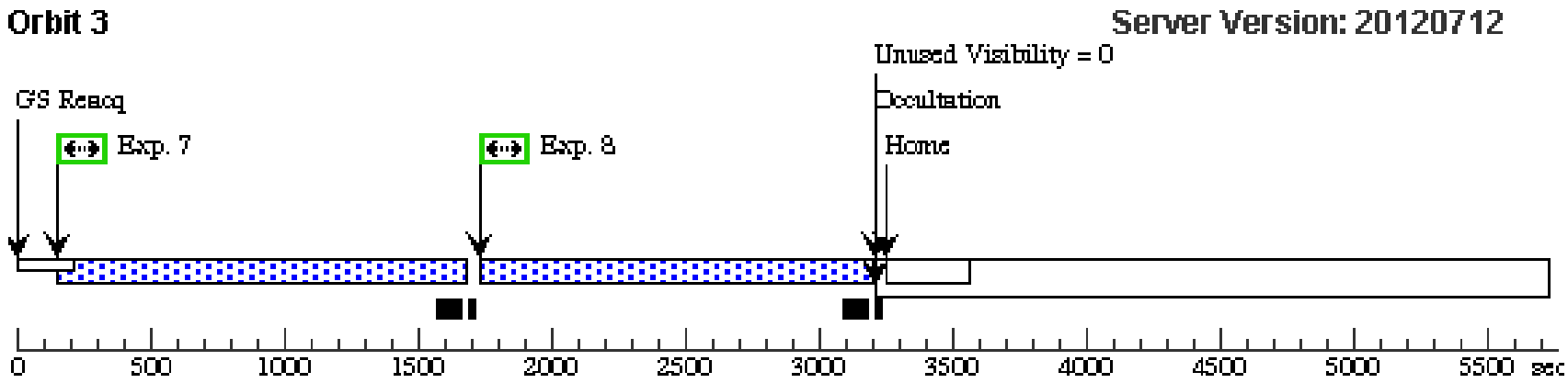
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	phl1226_acq search (cos.ta.194175)	(1) PHL1226	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			101 Secs *[==>]*	***[1]***
2	phl1226_acq image (cos.ta.194175)	(1) PHL1226	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				101 Secs *[==>]*	***[1]***
3	phl1226_g130m1 (COS.sp.194303)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=719; FP-POS=1			810 Secs *[==>]*	***[1]***
4	phl1226_g130m2 (COS.sp.194303)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=719; FP-POS=2			810 Secs *[==>]*	***[1]***
5	phl1226_g130m3 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=1319; FP-POS=3			1412 Secs *[==>]*	***[2]***
6	phl1226_g130m4 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=1319; FP-POS=4			1413 Secs *[==>]*	***[2]***
7	phl1226_g130m5 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=1; BUFFER-TIME=1319			1412 Secs *[==>]*	***[3]***
8	phl1226_g130m6 (COS.sp.194368)	(1) PHL1226	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=2; BUFFER-TIME=1319			1413 Secs *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 12536, Visit 03, completed Tue Jul 24 01:10:24 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

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

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

(Visit 03) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

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

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(Visit 03) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

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

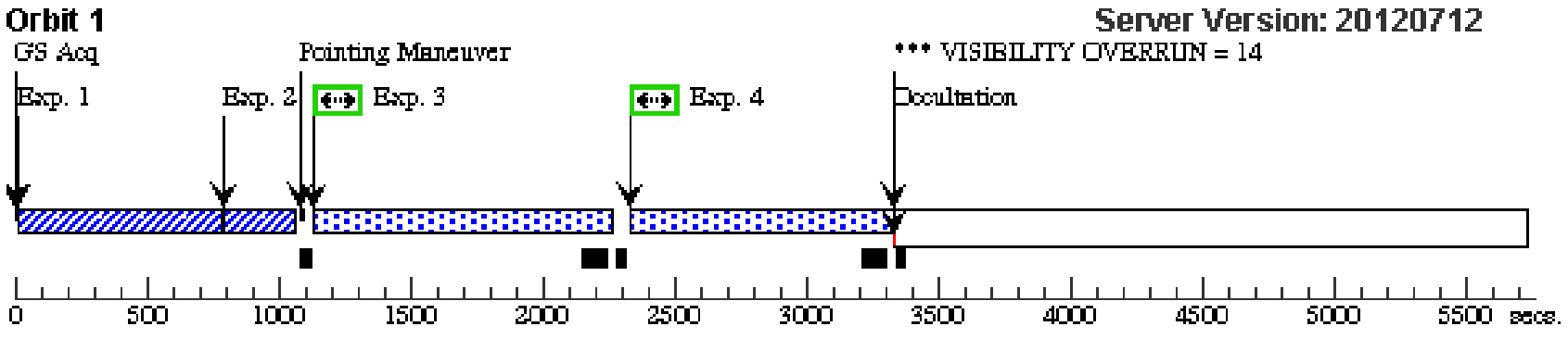
Fixed Targets

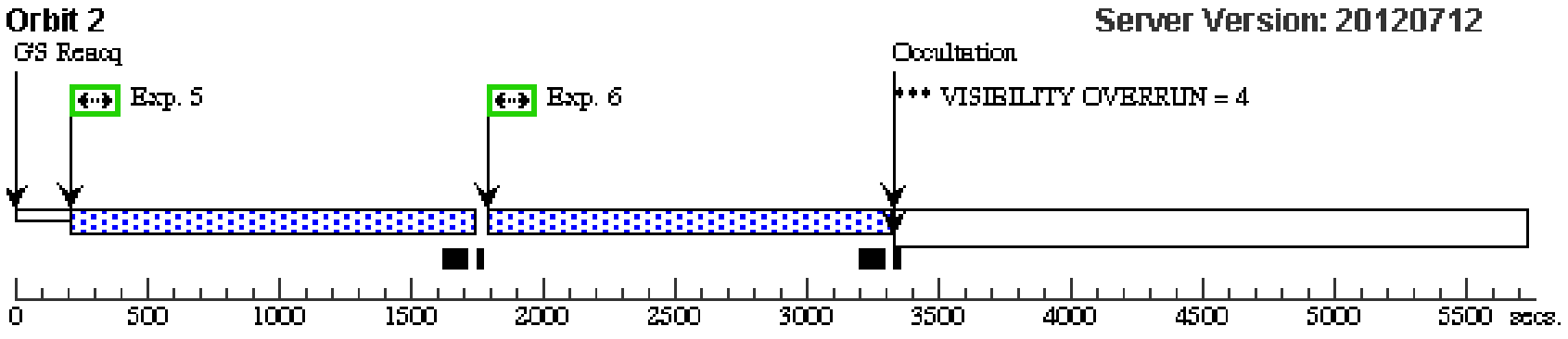
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	Q0439-433	RA: 04 41 17.3200 (70.3221667d) Dec: -43 13 45.40 (-43.22928d) Equinox: J2000		V=16.4 NUV=17.50, FUV=18.36	Reference Frame: ICRS

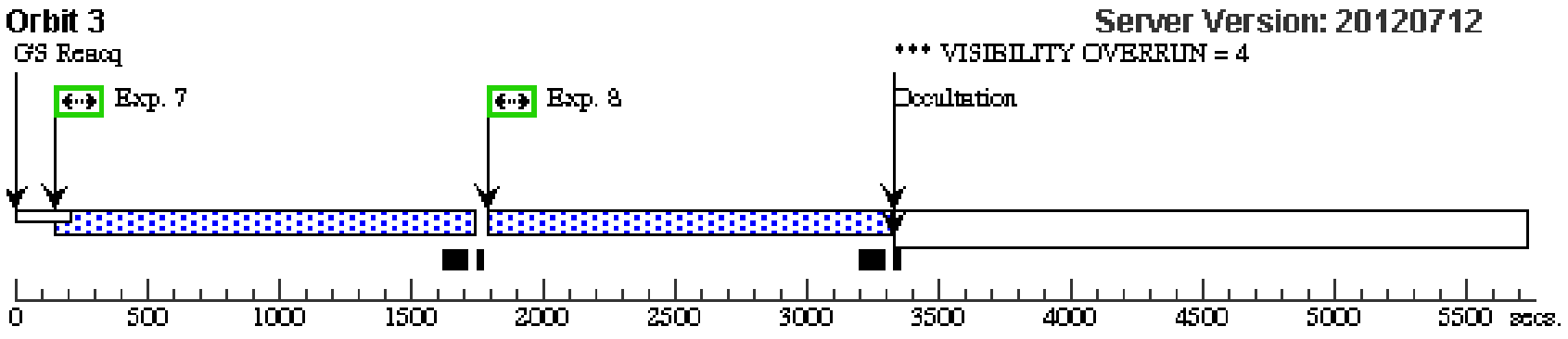
Exposures

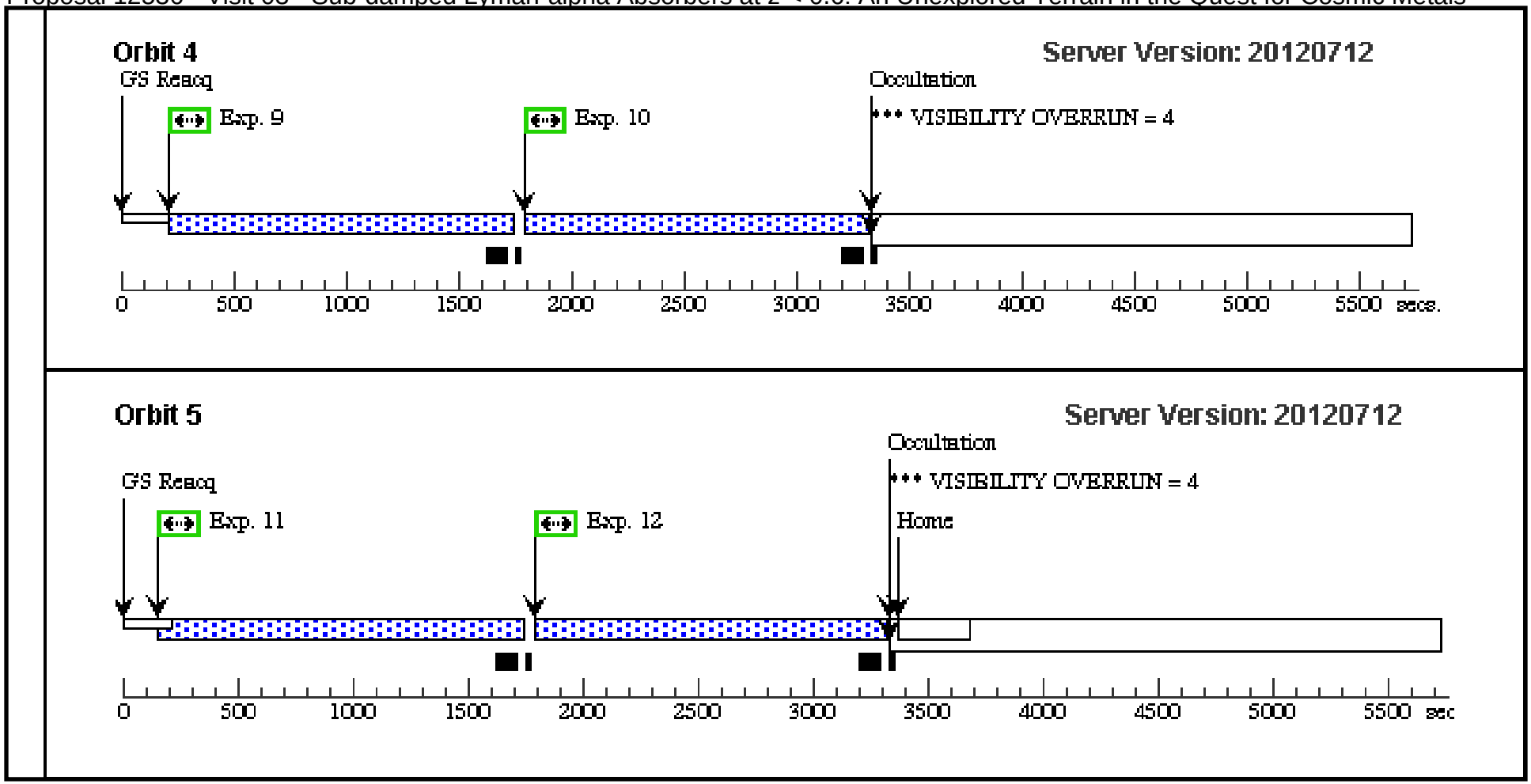
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	q0439-433_acqsearch (cos.ta.194610)	(2) Q0439-433	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			76 Secs *[==>]*	*[1]*
2	q0439-433_acqimage (cos.ta.194610)	(2) Q0439-433	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				76 Secs *[==>]*	*[1]*
3	q0439-433_g130m1 (COS.sp.194708)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=848; FP-POS=1			948 Secs *[==>]*	*[1]*
4	q0439-433_g130m2 (COS.sp.194708)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=848; FP-POS=2			948 Secs *[==>]*	*[1]*
5	q0439-433_g130m3 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1373; FP-POS=3			1473 Secs *[==>]*	*[2]*
6	q0439-433_g130m4 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1373; FP-POS=4			1473 Secs *[==>]*	*[2]*
7	q0439-433_g130m5 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=1373			1473 Secs *[==>]*	*[3]*
8	q0439-433_g130m6 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=2; BUFFER-TIME=1373			1473 Secs *[==>]*	*[3]*
9	q0439-433_g130m7 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1373; FP-POS=3			1473 Secs *[==>]*	*[4]*
10	q0439-433_g130m8 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1373; FP-POS=4			1473 Secs *[==>]*	*[4]*
11	q0439-433_g130m9 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=1373			1473 Secs *[==>]*	*[5]*
12	q0439-433_g130m10 (COS.sp.194798)	(2) Q0439-433	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=2; BUFFER-TIME=1373			1473 Secs *[==>]*	*[5]*

Orbit Structure





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Visit

Proposal 12536, Visit 04, completed Tue Jul 24 01:10:29 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 04) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 04) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 04) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(Visit 04) Warning (Orbit Planner): VISIBILITY OVERRUN

(Visit 04) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(Visit 04) Warning (Orbit Planner): VISIBILITY OVERRUN

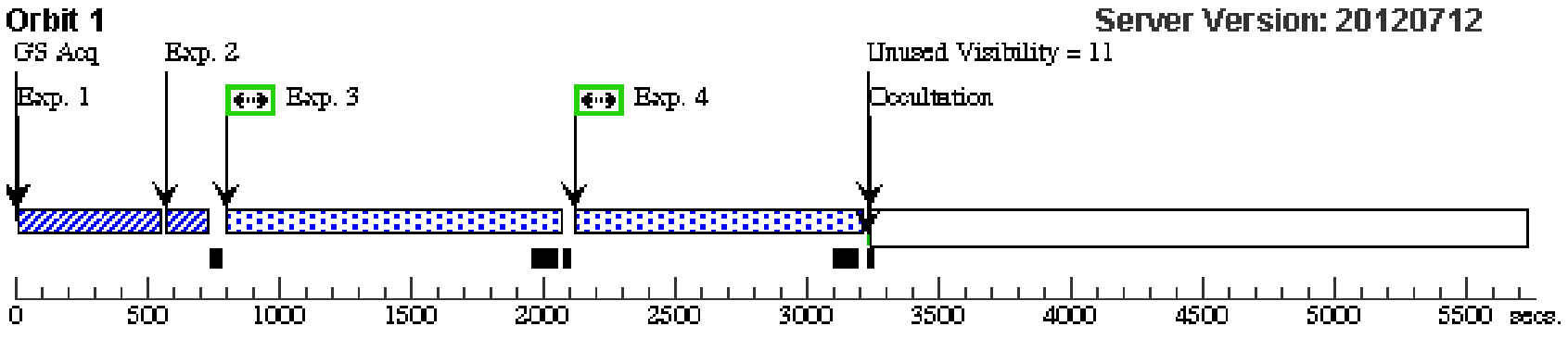
Fixed Targets

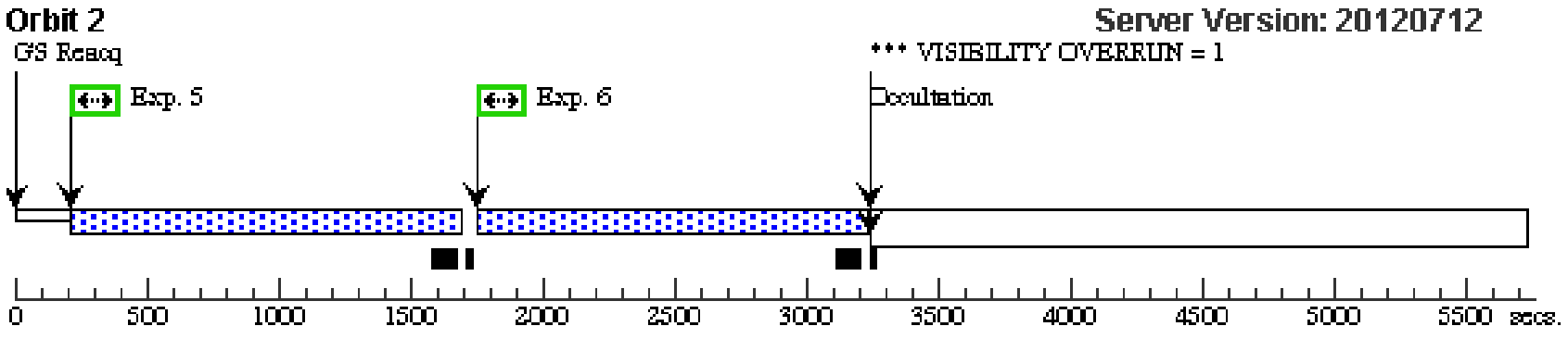
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	Q0454-220	RA: 04 56 8.9236 (74.0371817d) Dec: -21 59 9.40 (-21.98594d) Equinox: J2000		V=16.1 NUV=15.84, FUV=16.51	Reference Frame: ICRS

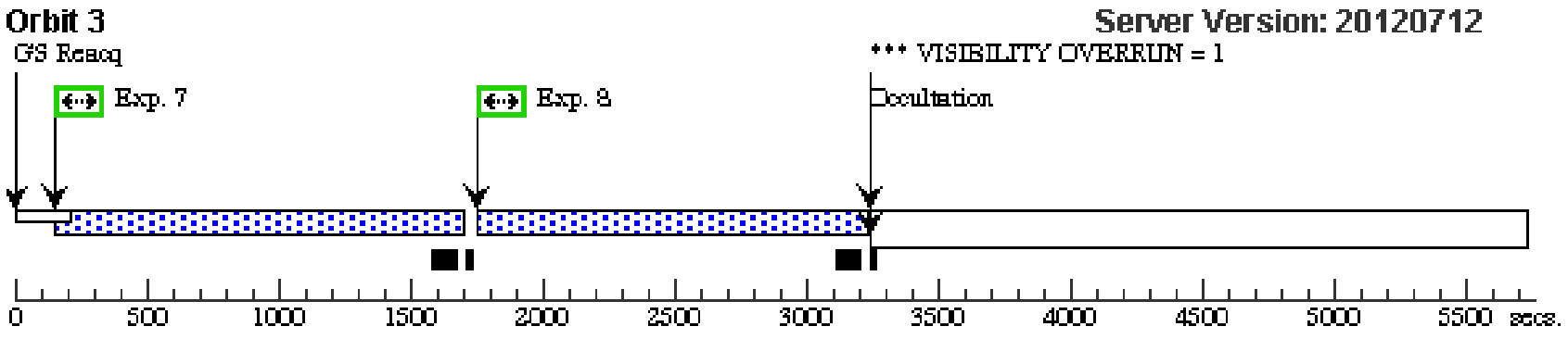
Exposures

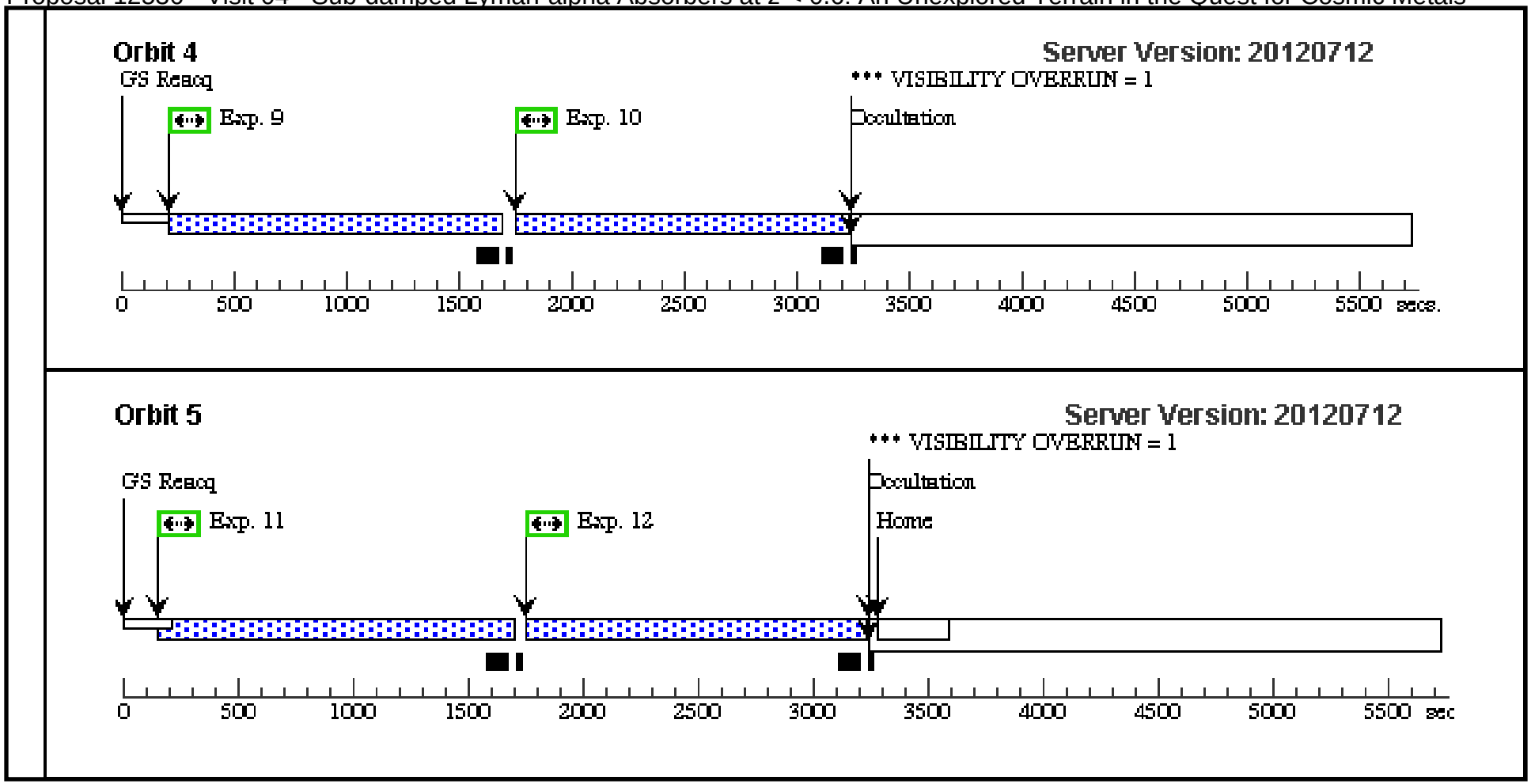
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	q0454-220_acqsearch (COS.ta.186497)	(3) Q0454-220	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			20 Secs *[==>]*	***[1]***
2	q0454-220_acqimage (COS.ta.186497)	(3) Q0454-220	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20 Secs *[==>]*	***[1]***
3	q0454-220_g185m1 (COS.sp.192424)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=9766; FP-POS=1			1076 Secs *[==>]*	***[1]***
4	q0454-220_g185m2 (COS.sp.192424)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=9766; FP-POS=2			1076 Secs *[==>]*	***[1]***
5	q0454-220_g185m3 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=3			1464 Secs *[==>]*	***[2]***
6	q0454-220_g185m4 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=4			1464 Secs *[==>]*	***[2]***
7	q0454-220_g185m5 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=1			1464 Secs *[==>]*	***[3]***
8	q0454-220_g185m6 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=2			1464 Secs *[==>]*	***[3]***
9	q0454-220_g185m7 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=3			1464 Secs *[==>]*	***[4]***
10	q0454-220_g185m8 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=4			1464 Secs *[==>]*	***[4]***
11	q0454-220_g185m9 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=1			1464 Secs *[==>]*	***[5]***
12	q0454-220_g185m10 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=2			1464 Secs *[==>]*	***[5]***

Orbit Structure





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Orbit 5
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Visit

Proposal 12536, Visit 05, completed Tue Jul 24 01:10:33 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

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

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

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

(Visit 05) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

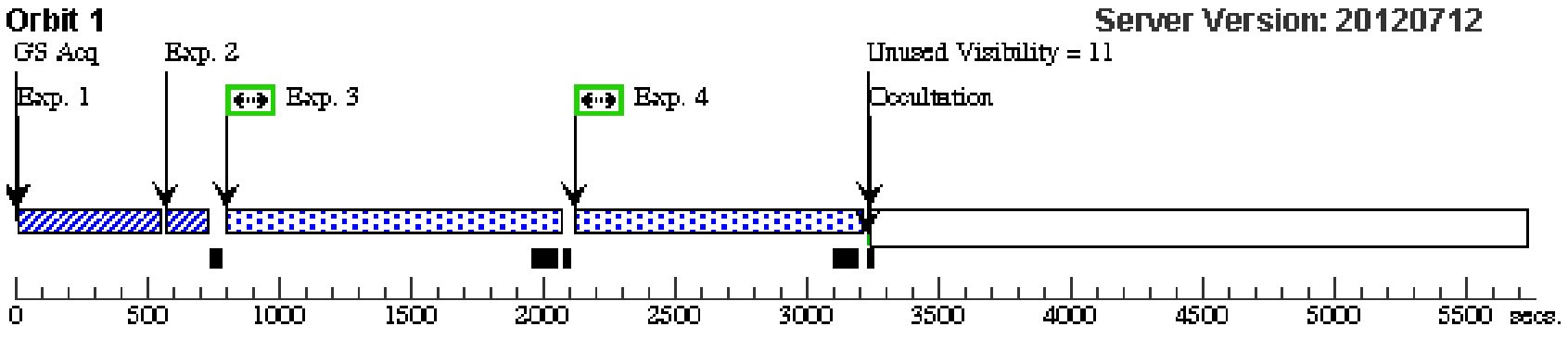
Fixed Targets

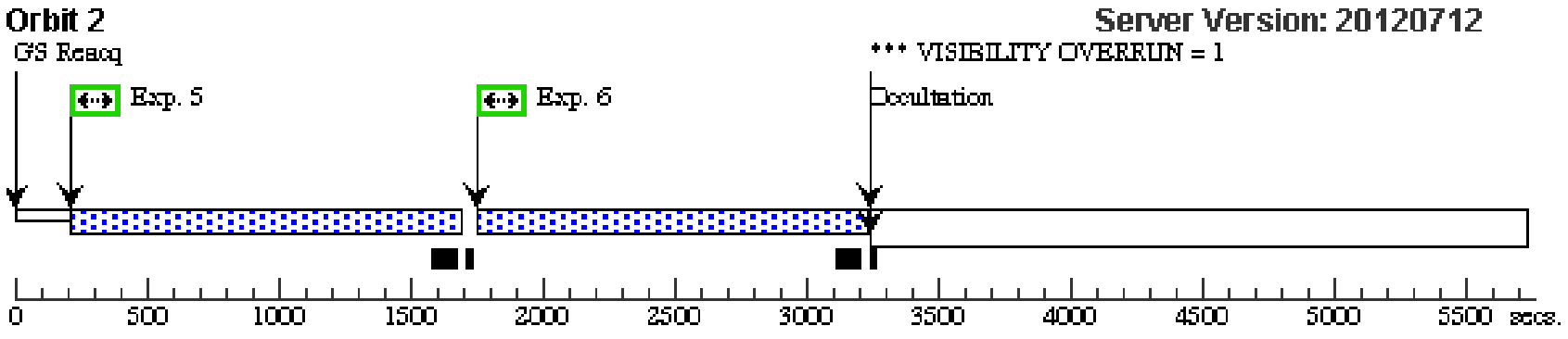
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	Q0454-220	RA: 04 56 8.9236 (74.0371817d) Dec: -21 59 9.40 (-21.98594d) Equinox: J2000		V=16.1 NUV=15.84, FUV=16.51	Reference Frame: ICRS

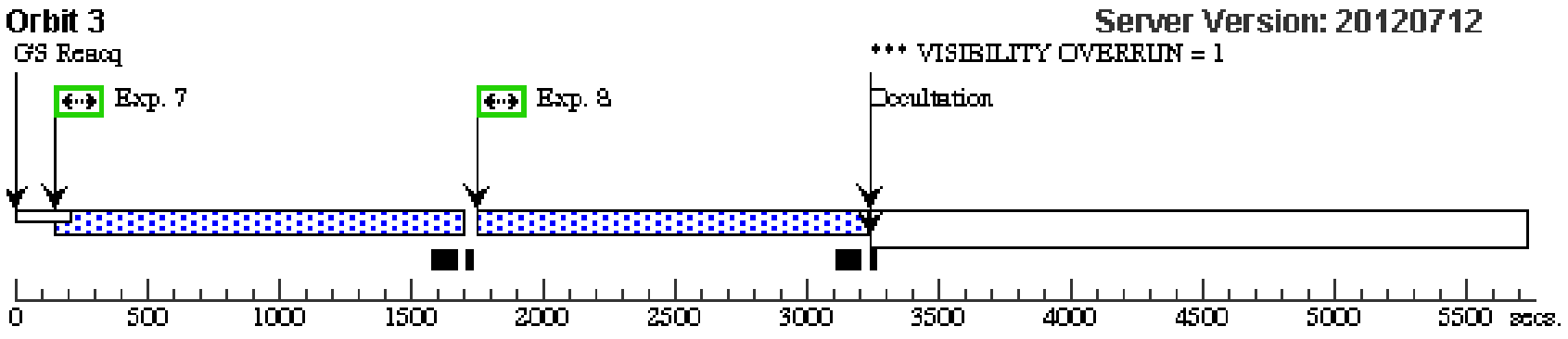
Exposures

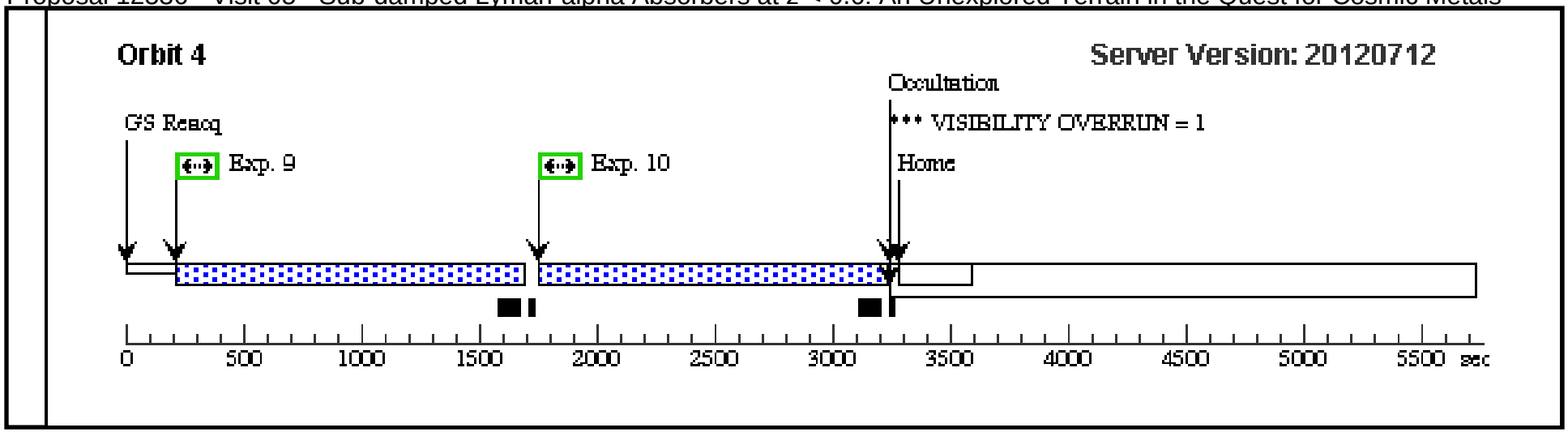
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	q0454-220_acqsearch (COS.ta.186497)	(3) Q0454-220	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			20 Secs *[==>]*	*[1]*
2	q0454-220_acqimage (COS.ta.186497)	(3) Q0454-220	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20 Secs *[==>]*	*[1]*
3	q0454-220_g185m1 (COS.sp.192424)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=9766; FP-POS=1			1076 Secs *[==>]*	*[1]*
4	q0454-220_g185m2 (COS.sp.192424)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=9766; FP-POS=2			1076 Secs *[==>]*	*[1]*
5	q0454-220_g185m3 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=3			1464 Secs *[==>]*	*[2]*
6	q0454-220_g185m4 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=4			1464 Secs *[==>]*	*[2]*
7	q0454-220_g185m5 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=1			1464 Secs *[==>]*	*[3]*
8	q0454-220_g185m6 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=2			1464 Secs *[==>]*	*[3]*
9	q0454-220_g185m7 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=3			1464 Secs *[==>]*	*[4]*
10	q0454-220_g185m8 (COS.sp.192573)	(3) Q0454-220	COS/NUV, TIME-TAG, PSA	G185M 1850 A	BUFFER-TIME=1364; FP-POS=4			1464 Secs *[==>]*	*[4]*

Orbit Structure








Orbit 4
Server Version: 20120712
Occultation
GS Reacq
*** VISIBILITY OVERRUN = 1
Exp. 9
Exp. 10
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12536, Visit 06, scheduled Tue Jul 24 01:10:36 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 06) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

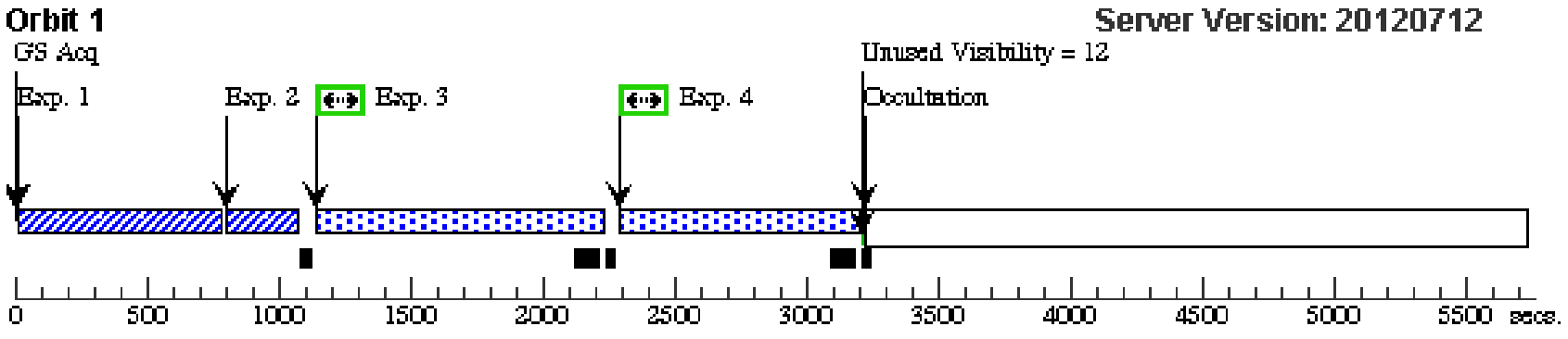
Fixed Targets

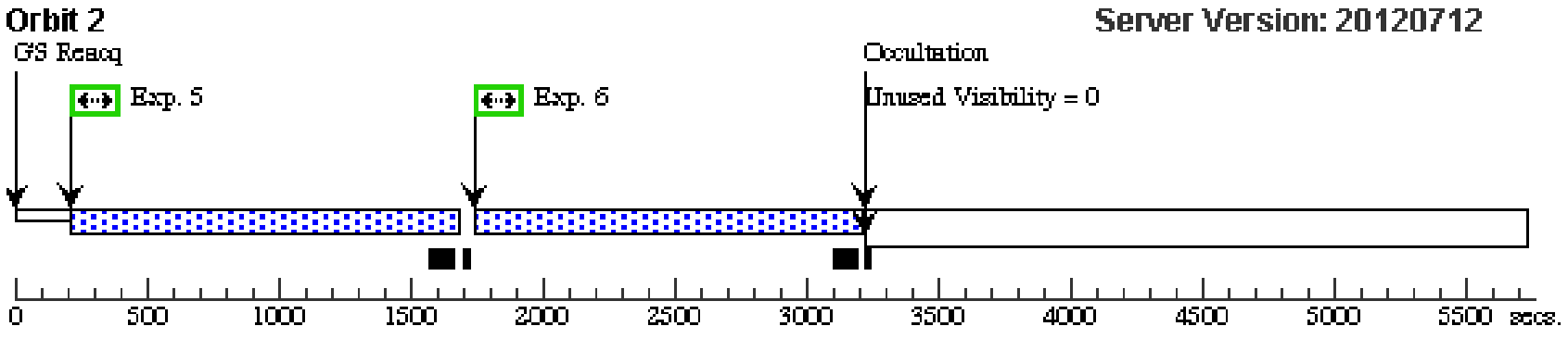
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	Q1525+0026	RA: 15 25 10.6129 (231.2942204d) Dec: +00 26 33.70 (.44269d) Equinox: J2000		V=17.0 NUV=17.52	Reference Frame: ICRS

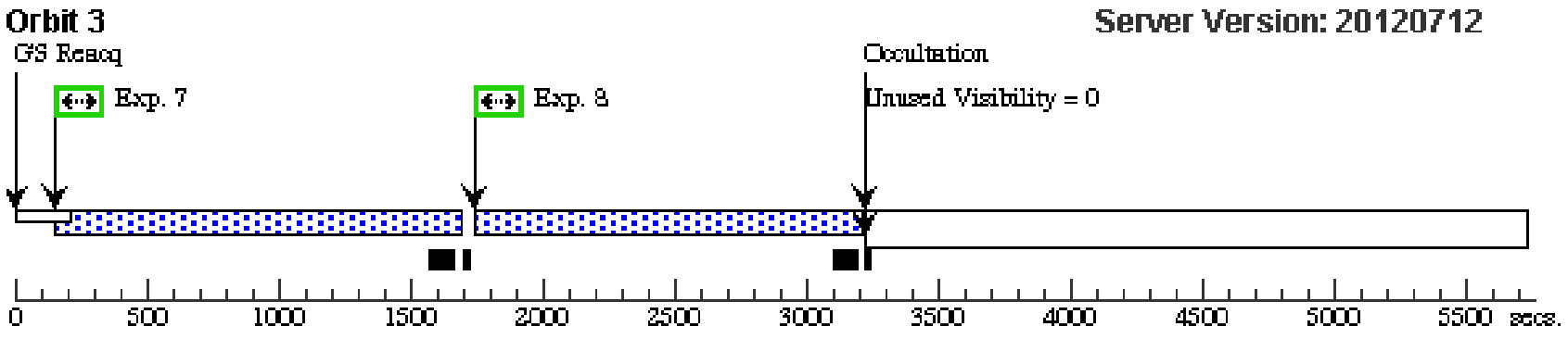
Exposures

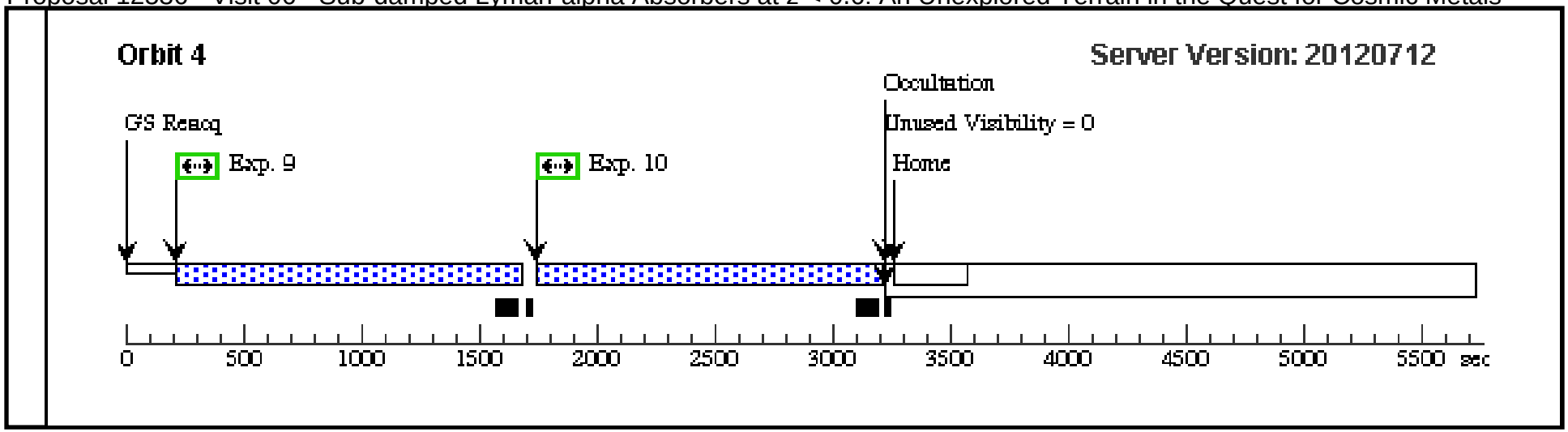
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	q1525+0026_acqsearch (cos.ta.192814)	(4) Q1525+0026	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			77 Secs *[==>]*	***[1]***
2	q1525+0026_acqimage (cos.ta.192814)	(4) Q1525+0026	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				77 Secs *[==>]*	***[1]***
3	q1525+0026_g185m1 (COS.sp.192933)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=7922; FP-POS=1			892 Secs *[==>]*	***[1]***
4	q1525+0026_g185m2 (COS.sp.192933)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=7922; FP-POS=2			892 Secs *[==>]*	***[1]***
5	q1525+0026_g185m3 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=3			1456 Secs *[==>]*	***[2]***
6	q1525+0026_g185m4 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=4			1456 Secs *[==>]*	***[2]***
7	q1525+0026_g185m5 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=1			1456 Secs *[==>]*	***[3]***
8	q1525+0026_g185m6 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=2			1456 Secs *[==>]*	***[3]***
9	q1525+0026_g185m7 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=3			1456 Secs *[==>]*	***[4]***
10	q1525+0026_g185m8 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=4			1456 Secs *[==>]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20120712
Occultation
GS Reacq
Unused Visibility = 0
Exp. 9
Exp. 10
Home
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4000
4500
5000
5500
sec

Visit

Proposal 12536, Visit 07, completed Tue Jul 24 01:10:39 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 07) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

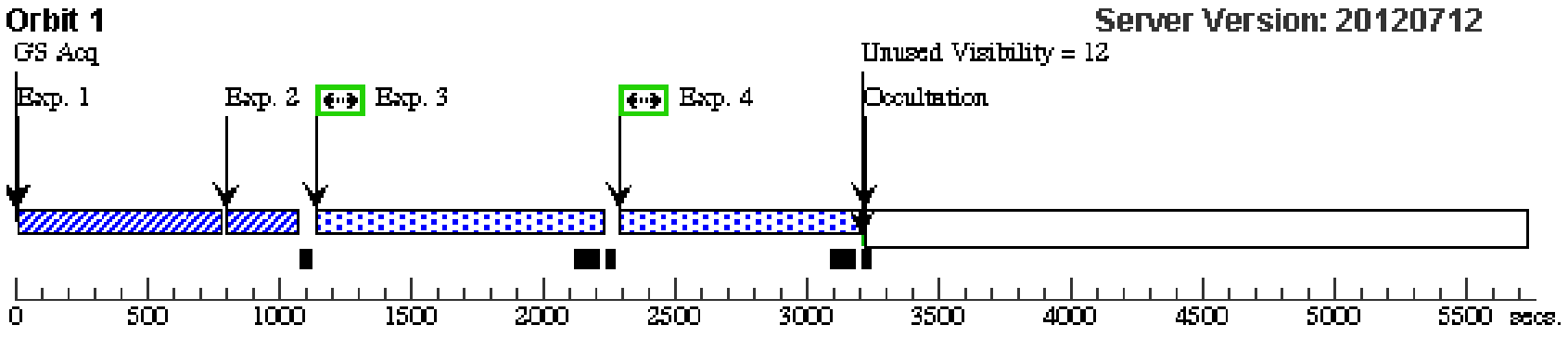
Fixed Targets

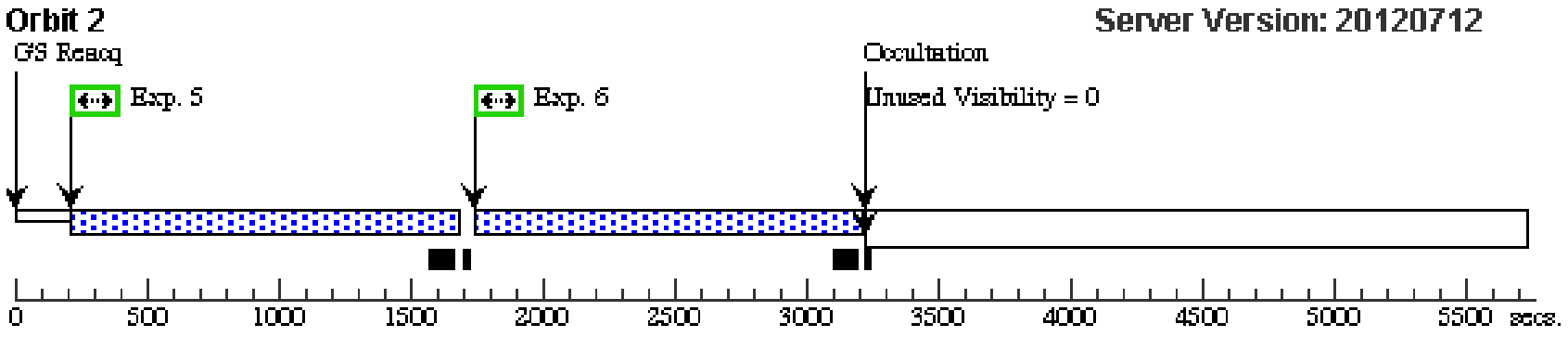
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	Q1525+0026	RA: 15 25 10.6129 (231.2942204d) Dec: +00 26 33.70 (.44269d) Equinox: J2000		V=17.0 NUV=17.52	Reference Frame: ICRS

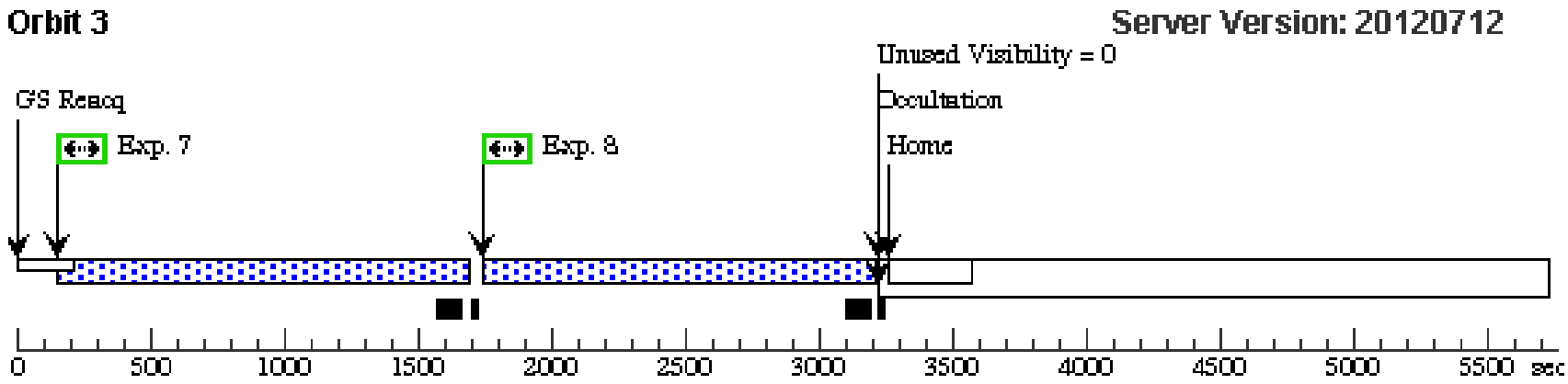
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	q1525+0026_acqsearch (cos.ta.192814)	(4) Q1525+0026	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			77 Secs *[==>]*	 ***[1]***
2	q1525+0026_acqimage (cos.ta.192814)	(4) Q1525+0026	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				77 Secs *[==>]*	 ***[1]***
3	q1525+0026_g185m1 (COS.sp.192933)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=792; FP-POS=1			892 Secs *[==>]*	 ***[1]***
4	q1525+0026_g185m2 (COS.sp.192933)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=792; FP-POS=2			892 Secs *[==>]*	 ***[1]***
5	q1525+0026_g185m3 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=3			1456 Secs *[==>]*	 ***[2]***
6	q1525+0026_g185m4 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=4			1456 Secs *[==>]*	 ***[2]***
7	q1525+0026_g185m5 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=1			1456 Secs *[==>]*	 ***[3]***
8	q1525+0026_g185m6 (COS.sp.192974)	(4) Q1525+0026	COS/NUV, TIME-TAG, PSA	G185M 1864 A	BUFFER-TIME=1356; FP-POS=2			1456 Secs *[==>]*	 ***[3]***

Orbit Structure







Visit

Proposal 12536, Visit 08, completed Tue Jul 24 01:10:41 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

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

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

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

(Visit 08) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

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

(Visit 08) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

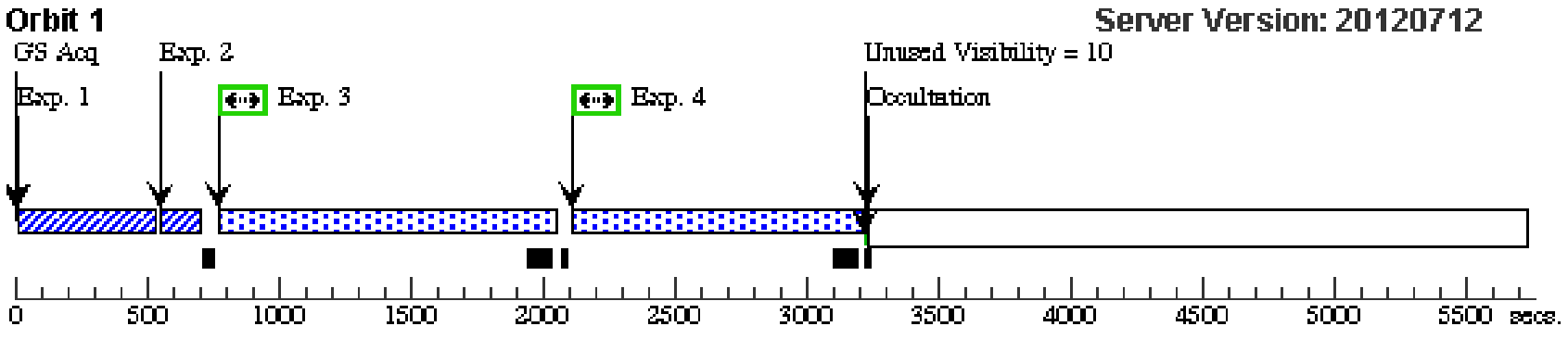
Fixed Targets

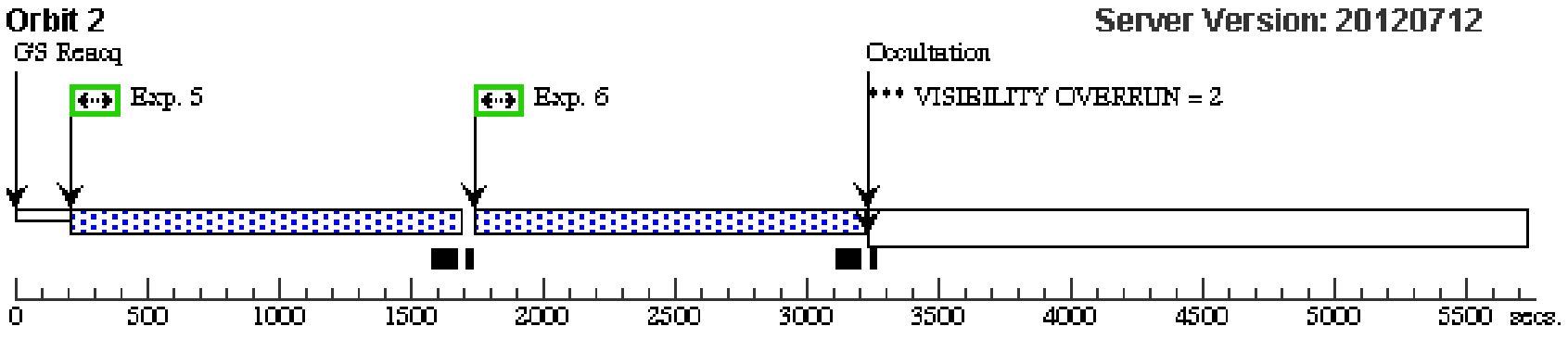
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	PHL1598	RA: 21 31 35.2617 (322.8969238d) Dec: -12 07 4.80 (-12.11800d) Equinox: J2000		V=15.5 NUV=15.73, FUV=16.47	Reference Frame: ICRS

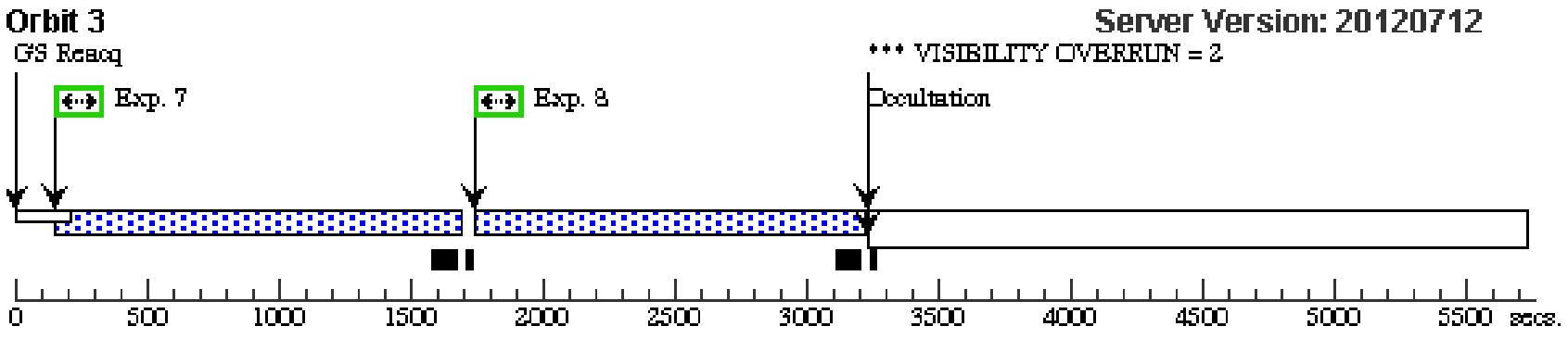
Exposures

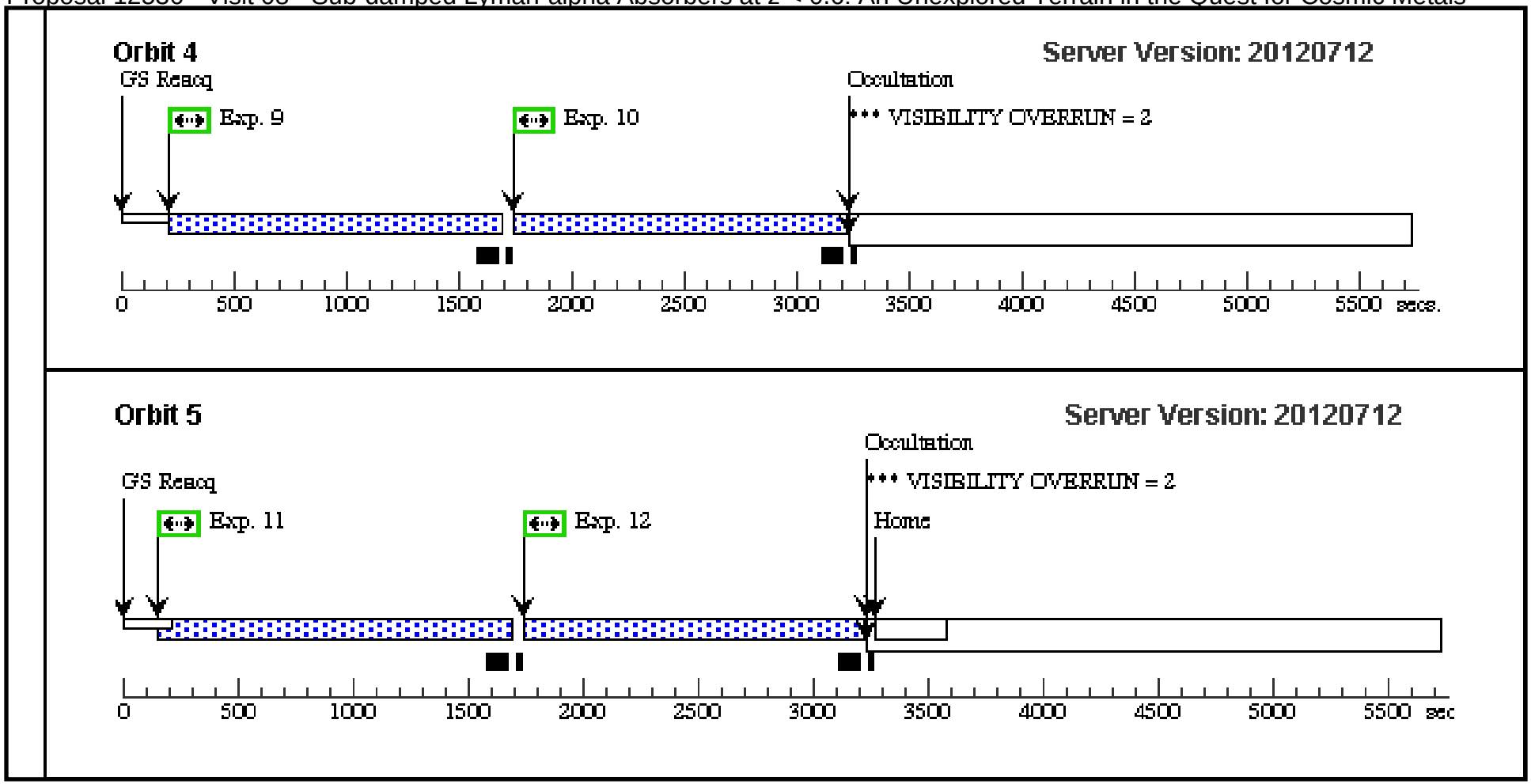
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	phl1598_acq search (COS.ta.193277)	(5) PHL1598	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			15 Secs *[==>]*	*[1]*
2	phl1598_acq image (COS.ta.193277)	(5) PHL1598	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				15 Secs *[==>]*	*[1]*
3	phl1598_g185m1 (COS.sp.193613)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=9889; FP-POS=1			1089 Secs *[==>]*	*[1]*
4	phl1598_g185m2 (COS.sp.193613)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=9889; FP-POS=2			1089 Secs *[==>]*	*[1]*
5	phl1598_g185m3 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=3			1462 Secs *[==>]*	*[2]*
6	phl1598_g185m4 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=4			1462 Secs *[==>]*	*[2]*
7	phl1598_g185m5 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=1			1462 Secs *[==>]*	*[3]*
8	phl1598_g185m6 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=2			1462 Secs *[==>]*	*[3]*
9	phl1598_g185m7 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=3			1462 Secs *[==>]*	*[4]*
10	phl1598_g185m8 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=4			1462 Secs *[==>]*	*[4]*
11	phl1598_g185m9 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=1			1462 Secs *[==>]*	*[5]*
12	phl1598_g185m10 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=2			1462 Secs *[==>]*	*[5]*

Orbit Structure





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Exp. 10
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3500
4000
4500
5000
5500
secs.
Orbit 5
Server Version: 20120712
Occultation
GS Reacq
*** VISIBILITY OVERRUN = 2
Exp. 11
Exp. 12
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1000
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2000
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4000
4500
5000
5500
sec

Visit

Proposal 12536, Visit 09, completed Tue Jul 24 01:10:45 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 09) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

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

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

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

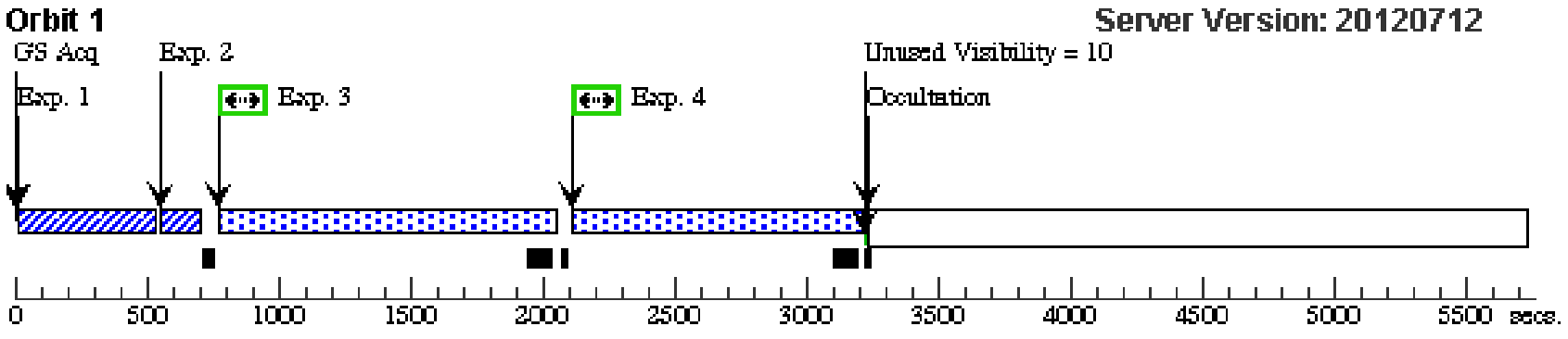
Fixed Targets

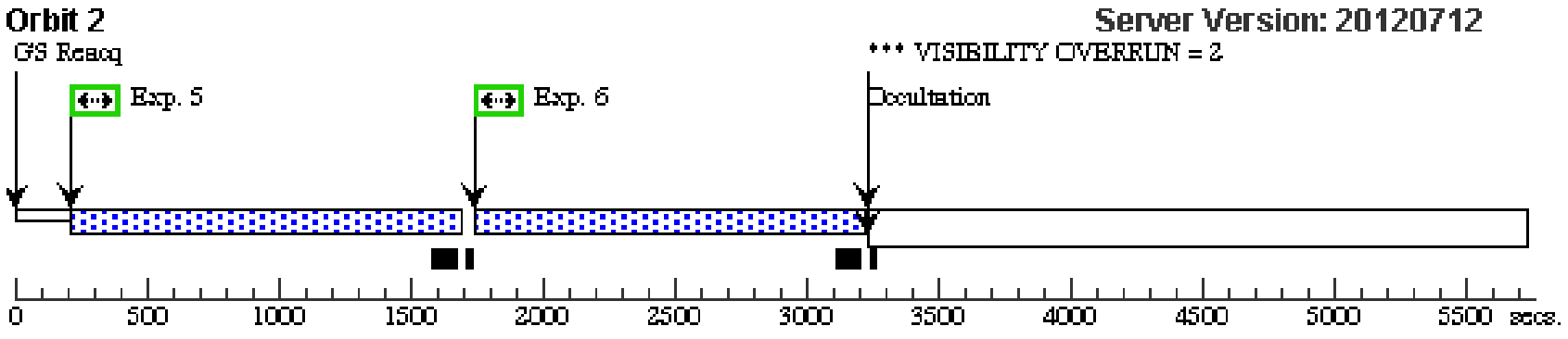
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	PHL1598	RA: 21 31 35.2617 (322.8969238d) Dec: -12 07 4.80 (-12.11800d) Equinox: J2000		V=15.5 NUV=15.73, FUV=16.47	Reference Frame: ICRS

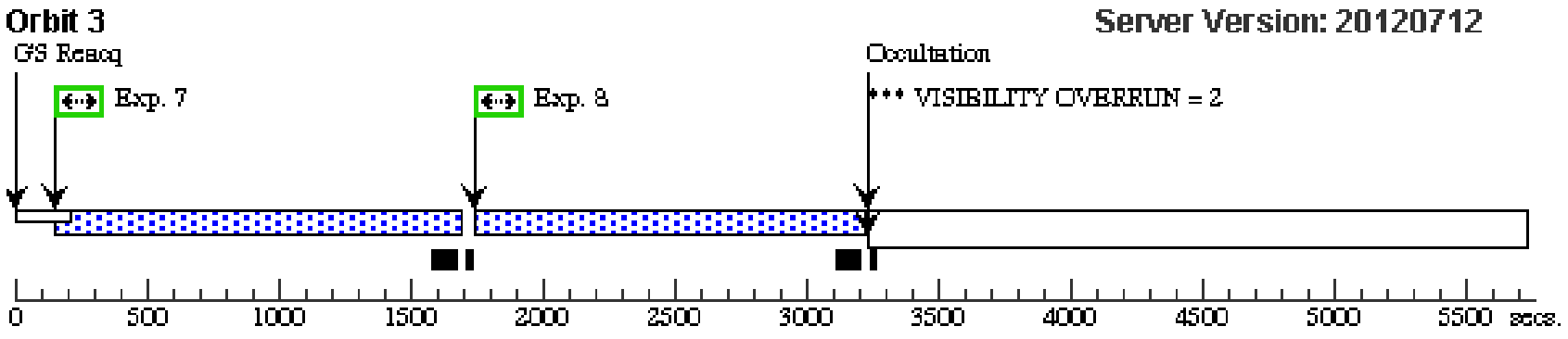
Exposures

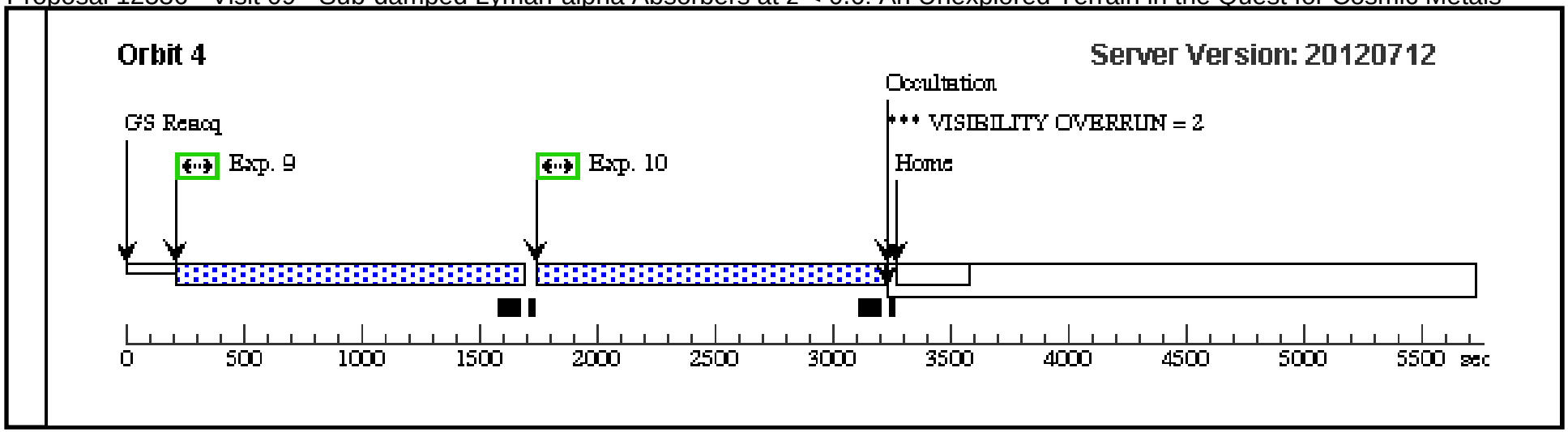
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	phl1598_acq search (COS.ta.193277)	(5) PHL1598	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2; STEP-SIZE=1.767			15 Secs *[==>]*	***[1]***
2	phl1598_acq image (COS.ta.193277)	(5) PHL1598	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				15 Secs *[==>]*	***[1]***
3	phl1598_g185m1 (COS.sp.193613)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=989; FP-POS=1			1089 Secs *[==>]*	***[1]***
4	phl1598_g185m2 (COS.sp.193613)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=989; FP-POS=2			1089 Secs *[==>]*	***[1]***
5	phl1598_g185m3 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=3			1462 Secs *[==>]*	***[2]***
6	phl1598_g185m4 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=4			1462 Secs *[==>]*	***[2]***
7	phl1598_g185m5 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=1			1462 Secs *[==>]*	***[3]***
8	phl1598_g185m6 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=2			1462 Secs *[==>]*	***[3]***
9	phl1598_g185m7 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=3			1462 Secs *[==>]*	***[4]***
10	phl1598_g185m8 (COS.sp.193665)	(5) PHL1598	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=1362; FP-POS=4			1462 Secs *[==>]*	***[4]***

Orbit Structure





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Occultation
GS Reacq
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Exp. 10
Home
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1000
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4000
4500
5000
5500
sec