13314 - Characterizing the Elusive Intragroup Medium and Its Role in Galaxy Evolution

Cycle: 21, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Sanchayeeta Borthakur (PI) (Contact)	**The Johns Hopkins University**	**sanch@pha.jhu.edu**
Dr. Timothy M. Heckman (CoI)	The Johns Hopkins University	heckman@pha.jhu.edu
Dr. Jason Tumlinson (CoI)	Space Telescope Science Institute	tumlinson@stsci.edu
Dr. Romeel Dave (CoI)	University of Arizona	rad@as.arizona.edu
Dr. Christopher Thom (CoI)	Space Telescope Science Institute	cthom@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) J084159.13+140642.1	COS/FUV COS/NUV	4	18-Sep-2013 21:06:11.0	yes
02	(2) J134447.56+554656.8	COS/FUV COS/NUV	4	18-Sep-2013 21:06:22.0	yes
03	(3) J142859.03+322506.8	COS/FUV COS/NUV	4	18-Sep-2013 21:06:33.0	yes
04	(4) J101730.98+470225.0	COS/FUV COS/NUV	3	18-Sep-2013 21:06:40.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(5) J102512.86+480853.2	COS/FUV COS/NUV	4	18-Sep-2013 21:06:49.0	yes
06	(6) J110236.65+052117.0	COS/FUV COS/NUV	4	18-Sep-2013 21:06:58.0	yes
07	(7) J112632.91+120437.3	COS/FUV COS/NUV	3	18-Sep-2013 21:07:06.0	yes
08	(8) J130100.86+281944.7	COS/FUV COS/NUV	3	18-Sep-2013 21:07:12.0	yes
09	(9) J133912.37+535527.3	COS/FUV COS/NUV	3	18-Sep-2013 21:07:20.0	yes
10	(10) J102056.37+100332.7	COS/FUV COS/NUV	3	18-Sep-2013 21:07:27.0	yes
11	(11) J140854.17+565743.3	COS/FUV COS/NUV	4	18-Sep-2013 21:07:35.0	yes
12	(12) J134854.76+430309.1	COS/FUV COS/NUV	2	18-Sep-2013 21:07:43.0	yes
13	(13) J142455.53+421407.6	COS/FUV COS/NUV	3	18-Sep-2013 21:07:51.0	yes
14	(14) J142613.31+195524.6	COS/FUV COS/NUV	2	18-Sep-2013 21:07:58.0	yes
15	(15) J161723.67+085414.7	COS/FUV COS/NUV	2	18-Sep-2013 21:08:06.0	yes
16	(16) J134356.74+253847.6	COS/FUV COS/NUV	3	18-Sep-2013 21:08:13.0	yes

51 Total Orbits Used

ABSTRACT

A large fraction of galaxies today reside in groups, and the dominant form of baryons in these groups is predicted to be a diffuse Intragroup medium (IGrM). Thus, the IGrM is not only a significant baryon repository, but must play a key role in the formation and evolution of galaxies. Despite its importance, direct observational detection of the IGrM has been limited to the most massive groups where it is hot enough to emit soft X-rays. There have been a number of possible detections of the IGrM in the typical lower-mass groups via absorption-lines seen in the spectra of background QSOs. However, no one has yet mounted a controlled absorption-line experiment to search for the IGrM using a pre-defined sample of groups. In this proposal we request time to do this by observing a sample of 16 groups using QSO sightlines that pass within 1.5 virial radii. Our data will probe the OVI line tracing hot gas as well as the Lyman series lines and metal lines probing cooler gas. We will combine this sample with the complementary COS-Halos program (PI, Tumlinson), which mostly probes sightlines through the halos of individual isolated galaxies. This will enable us to isolate the IGrM itself (rather than gas associated with individual galaxies), probe the properties of the IGrM, and explore how individual galaxies may influence the IGrM (and vice versa). Our data will be interpreted within the context of state-of-the-art simulations of galaxy formation and the IGrM.

OBSERVING DESCRIPTION

Our goal is to build a sample of QSO galaxy-groups pairs with impact parameter < 1.5 R_vir. We plan to study the multi-phase gas in the intragroup medium and its dependence on global properties of the groups such as halo masses and distance from the group center. Our G130M COS data will cover wavelength from 1100 - 1450 A, which gives us access to a host of important ionization, density, and metallicity diagnostics. The redshifts of the groups range from z ~ 0.09-0.165 and OVI transition will be covered in all the targets.

Sample: Our target QSOs are come from the GALEX-SDSS catalog and our groups are derived from SDSS by Tago et al. The group catalog go unto z=0.2 in order to ensure a good completeness criterion. In total we have 19 targets and 16 of which will be observed in this program.

Exposure times: The 16 targets that have not yet been observed spectroscopically in the UV before, will be observed in this program. To ensure sufficient flux in the G130M bands at the observed wavelength of OVI (1031) within 4 orbits, we have used QSOs with measured GALEX FUV magnitudes less than 18.3 (range 16.6-18.3) with redshifts >0.1 greater than the foreground target.
All of the target acquisition will be carried out using MIRROR B.

We use the COS online ETC to calculate the observing time required to achieve a S/N = 10-12 per resolution element at the observed wavelength of he OVI transition. These calculations were made based on GALEX FUV fluxes, which means that we do not need to correct for interstellar

extinction.

Notes on Acquisitions:
Our coordinates are all from SDSS, with astrometry good to 100 mas, so we adopt NUV imaging (ACQ/IMAGE) for all targets. Our experience in previous HST cycles is that IMAGE acquisitions are working well for these targets. We have set the exposure times for each "orbit bin" (1,2,3, or 4) using the faintest target at S/N = 40 in each bin as the limiting case.

The Phase II ISR says use 1 mag brighter for bright-object check on ACQs. Brightest target here has GALEX NUV = 16.6, and this one is acquired in 37 sec at S/N = 40 for MIRRORB and PSA (ETC COS.im.514902). It has 7 ct/s in the brightest pixel, and 54 ct/s in the selected region. At one magnitude brighter (GALEX FUV = 15.6), this target is still safe to acquire with MIRRORB in the NUV, with 17 ct/s in the brightest pixel, 121 ct/s in the selected region, and 1194 ct/s on the entire detector (ETC COS.im.515159).
In fact this target at one magnitude brighter is safe to observe with MIRRORB even for our longest exposure of 174 secs (for NUV=18.3). The ETC run COS.im.515165 shows that the brightest will be at 17ct/s, 123 ct/s for the selected region and the count rate for the entire detector is 1194 ct/s.

For program targets with multi-epoch GALEX data, the true variability of these QSOs is of order ~< 0.2 mag, much less than this 1 mag assumption. For this reason, and because our brightest target is safe to acquire, all our targets are safe to acquire in NUV imaging with MIRRORB.

As anticipated for these targets selected from SDSS+GALEX, the BOT returns no health-and-safety issues for the targets or their fields.

To estimate the range of S/N ratios we will acquire for our science exposures, and to estimate their count rates for health-and safety checks, we ran a grid of representative ETC calculations for a range of QSO brightness and redshift.
The central wavelengths are set to optimally cover the interesting absorption lines from the galaxies of interest.

Visit

Proposal 13314, Visit 01, implementation Thu Sep 19 01:08:23 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

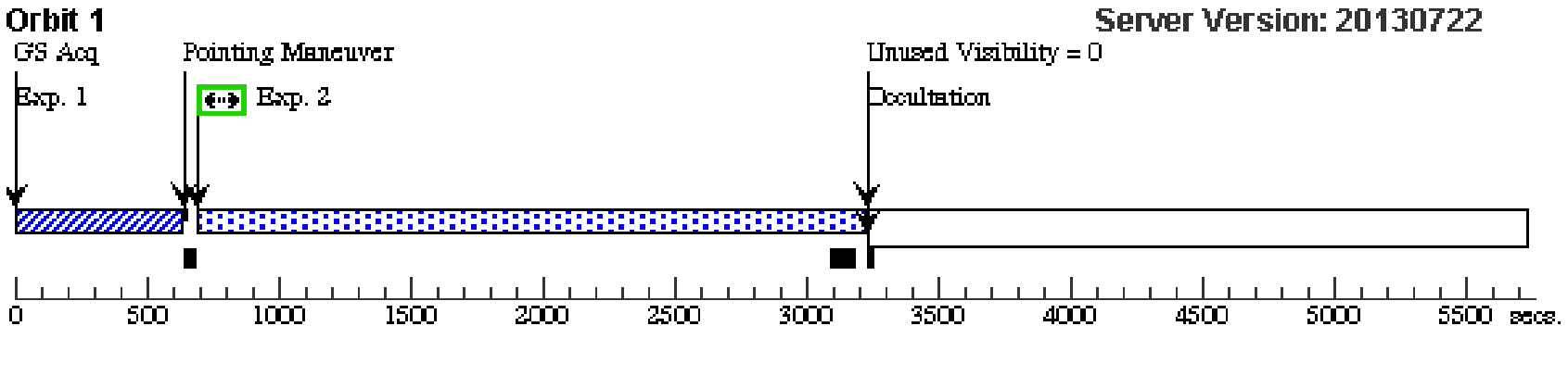
Fixed Targets

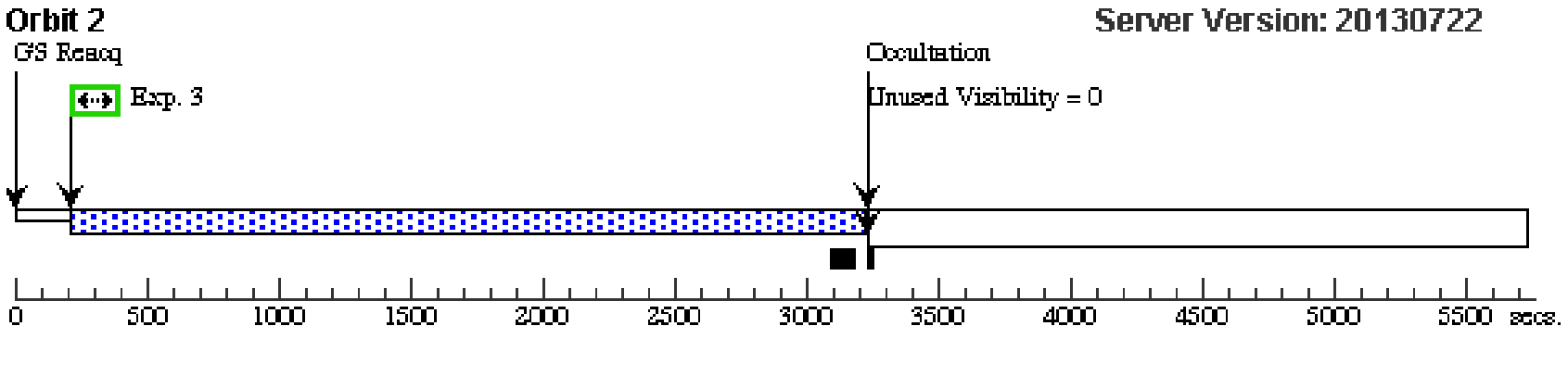
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	J084159.13+140642.1	RA: 08 41 59.1372 (130.4964050d) Dec: +14 06 42.19 (14.11172d) Equinox: J2000	Redshift: 1.251	V=17.02+/-0.01 GALEX FUV=18.3	Reference Frame: ICRS

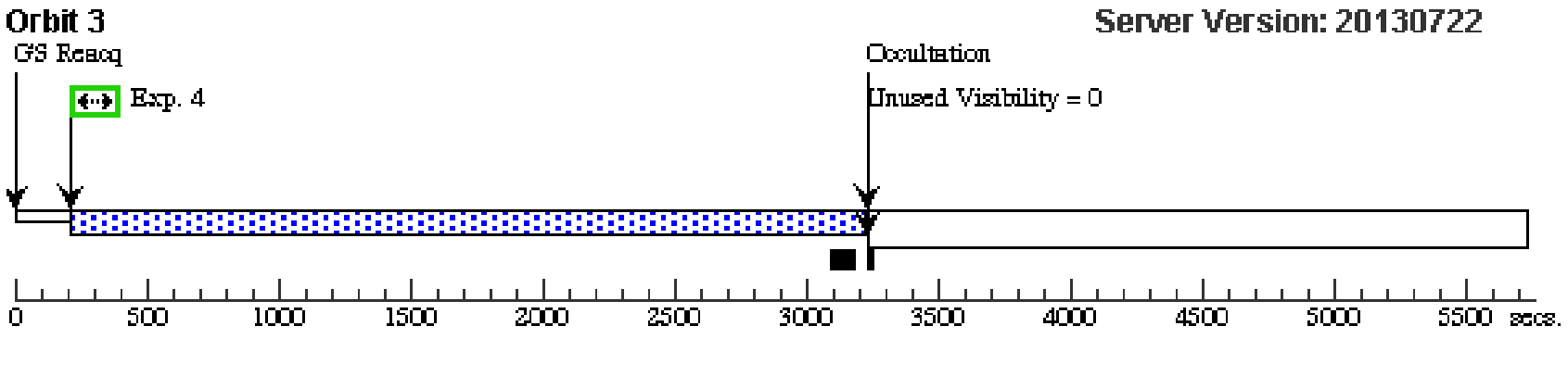
Exposures

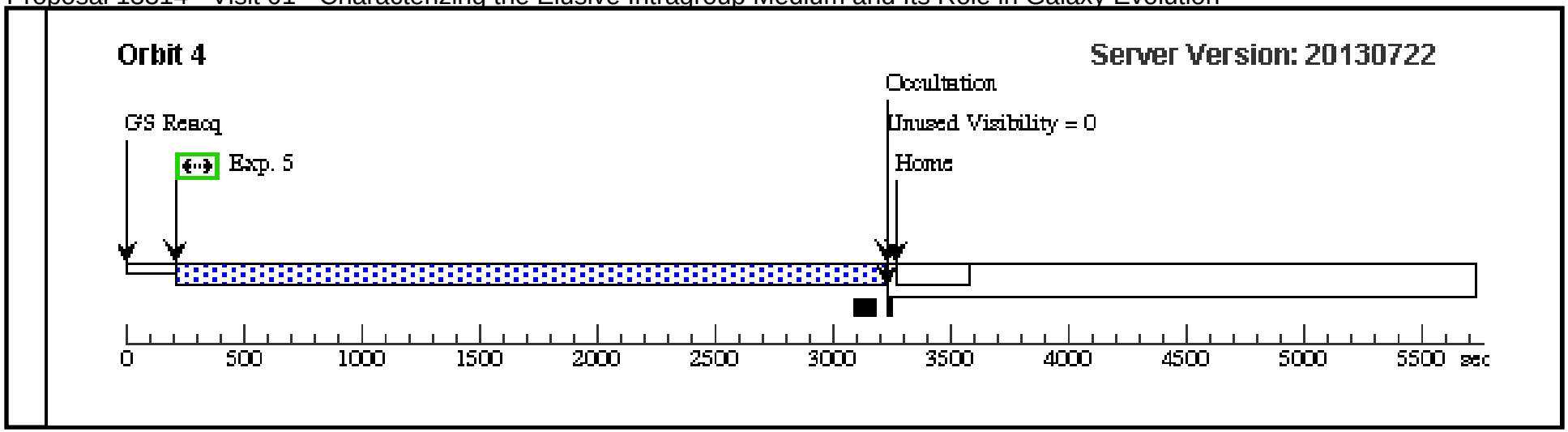
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 1 Orbit - 1/4 --- Acquisition (514892)	(1) J084159.13+140642.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				98 Secs (98 Secs) *[==>]*	*[1]*
2	Targer 1 Orbit - 1/4 (514924)	(1) J084159.13+140642.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2234; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2344 Secs (2344 Secs) *[==>]*	*[1]*
3	Targer 1 Orbit - 2/4 (514924)	(1) J084159.13+140642.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2843; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[2]*
4	Targer 1 Orbit - 3/4 (514924)	(1) J084159.13+140642.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2843; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[3]*
5	Targer 1 Orbit - 4/4 (514924)	(1) J084159.13+140642.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2843; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[4]*

Orbit Structure





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Visit

Proposal 13314, Visit 02, implementation Thu Sep 19 01:08:26 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

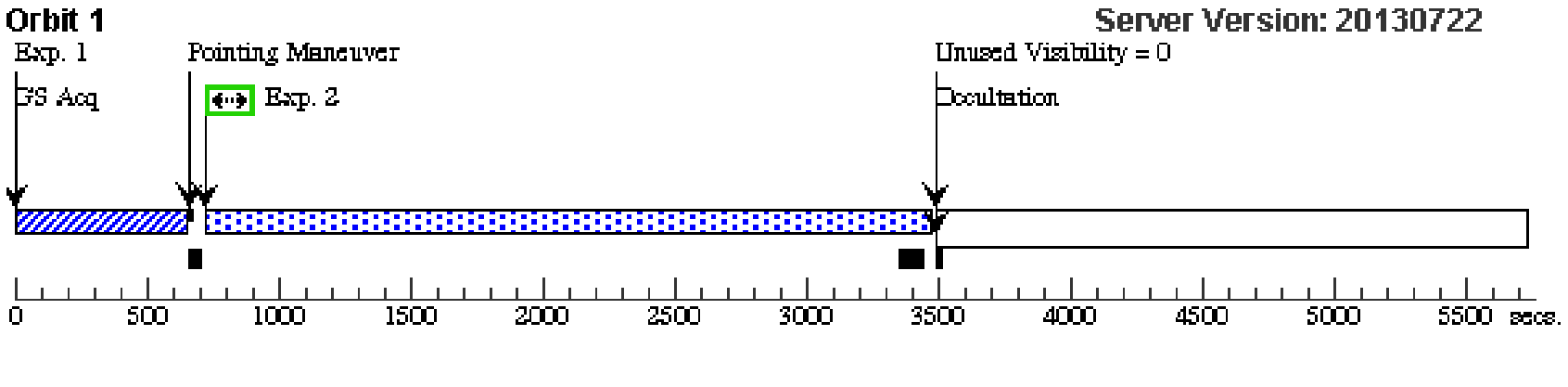
Fixed Targets

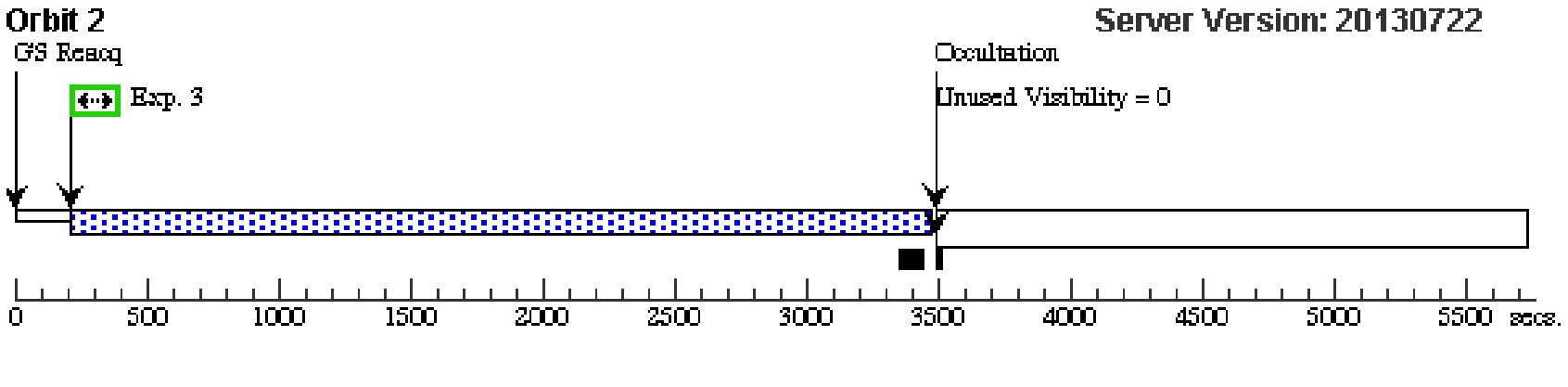
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	J134447.56+554656.8	RA: 13 44 47.5601 (206.1981671d) Dec: +55 46 56.81 (55.78245d) Equinox: J2000	Redshift: 0.937	V=17.43+/-0.01 GALEX FUV=18.5	Reference Frame: ICRS

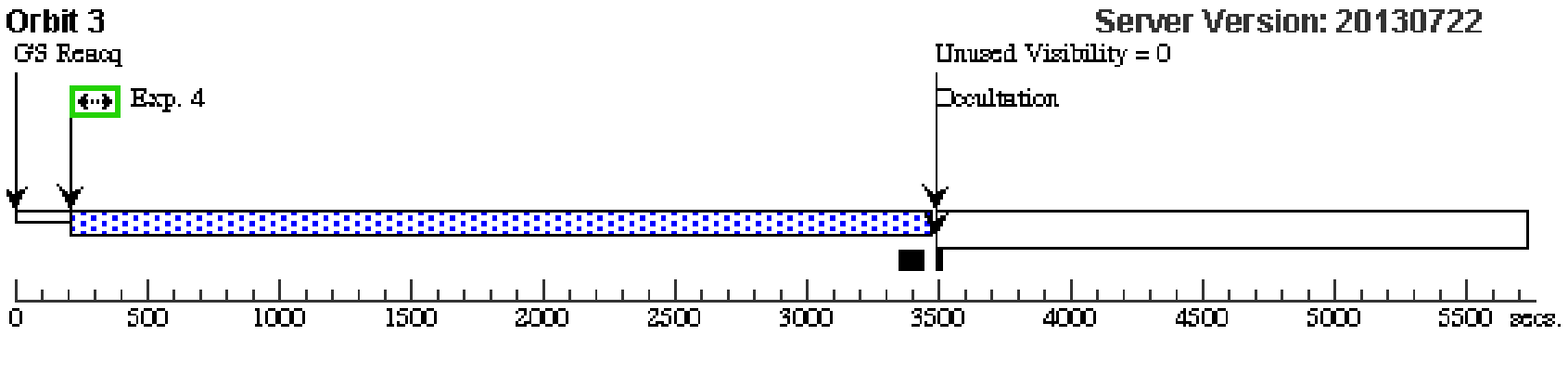
Exposures

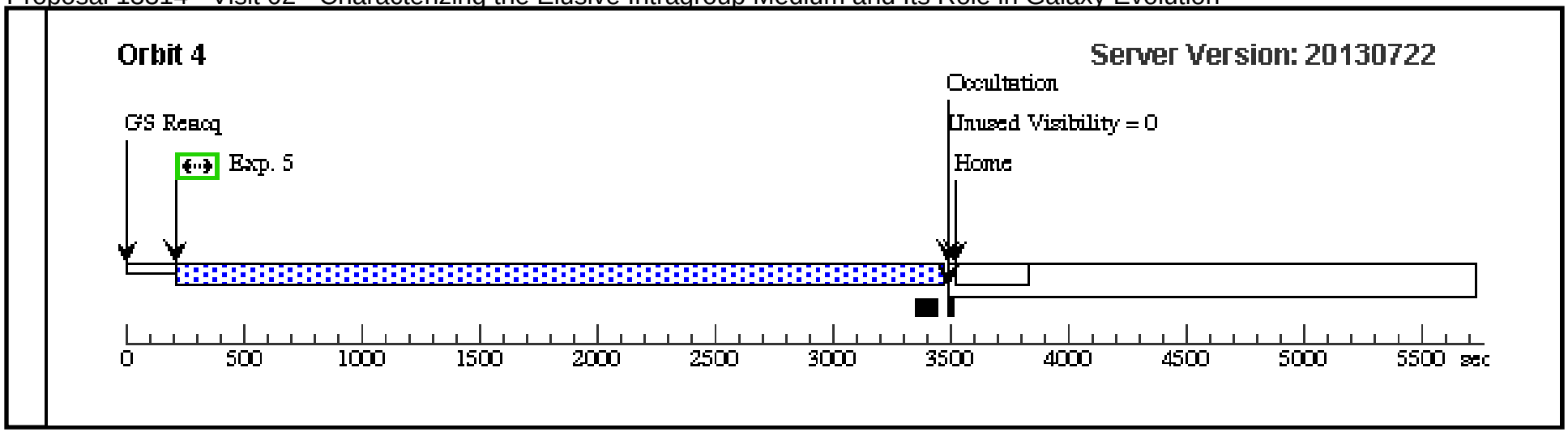
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 2 Orbit - 1/4 --- Acquisition (514894)	(2) J134447.56+554656.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				110 Secs (110 Secs) *[==>]*	*[1]*
2	Targer 2 Orbit - 1/4 (514945)	(2) J134447.56+554656.8	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2462; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2572 Secs (2572 Secs) *[==>]*	*[1]*
3	Targer 2 Orbit - 2/4 (514945)	(2) J134447.56+554656.8	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3095; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	*[2]*
4	Targer 2 Orbit - 3/4 (514945)	(2) J134447.56+554656.8	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3095; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	*[3]*
5	Targer 2 Orbit - 4/4 (514945)	(2) J134447.56+554656.8	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3095; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	*[4]*

Orbit Structure





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Visit

Proposal 13314, Visit 03, implementation Thu Sep 19 01:08:28 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

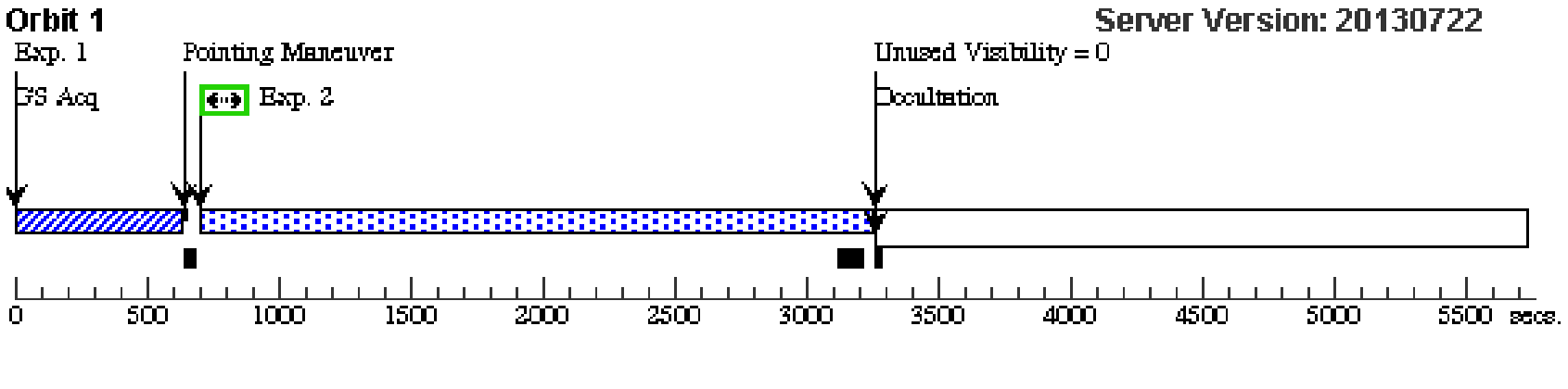
Fixed Targets

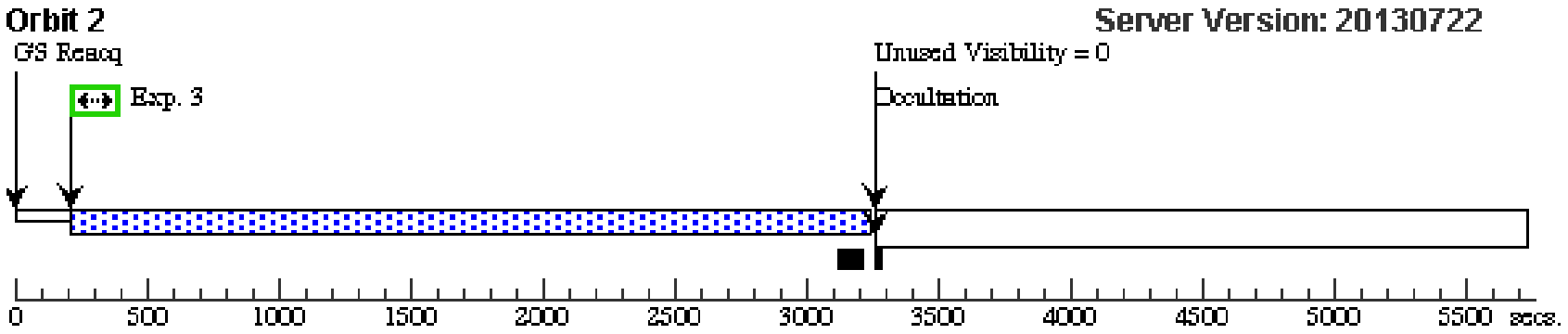
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	J142859.03+322506.8	RA: 14 28 59.0334 (217.2459725d) Dec: +32 25 6.81 (32.41856d) Equinox: J2000	Redshift: 0.627042	V=17.63+/-0.02 GALEX FUV=18.3	Reference Frame: ICRS

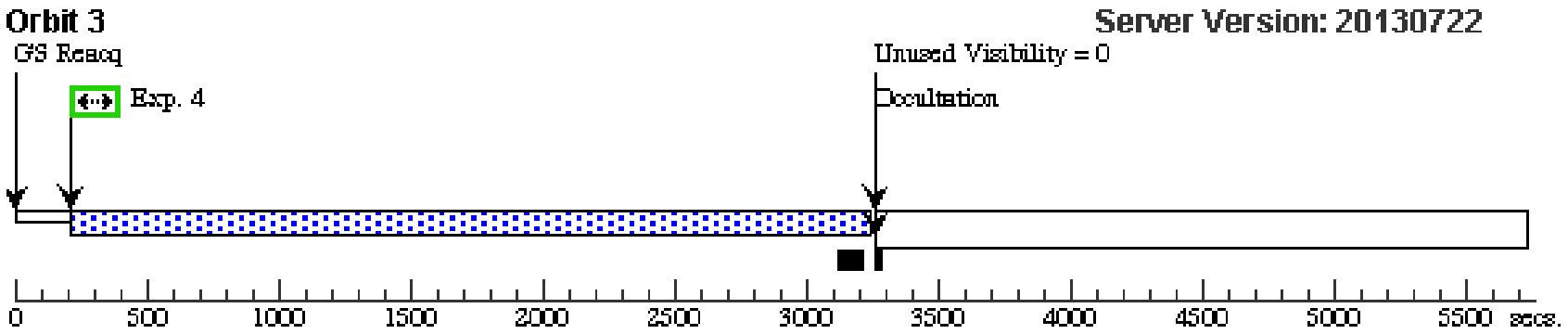
Exposures

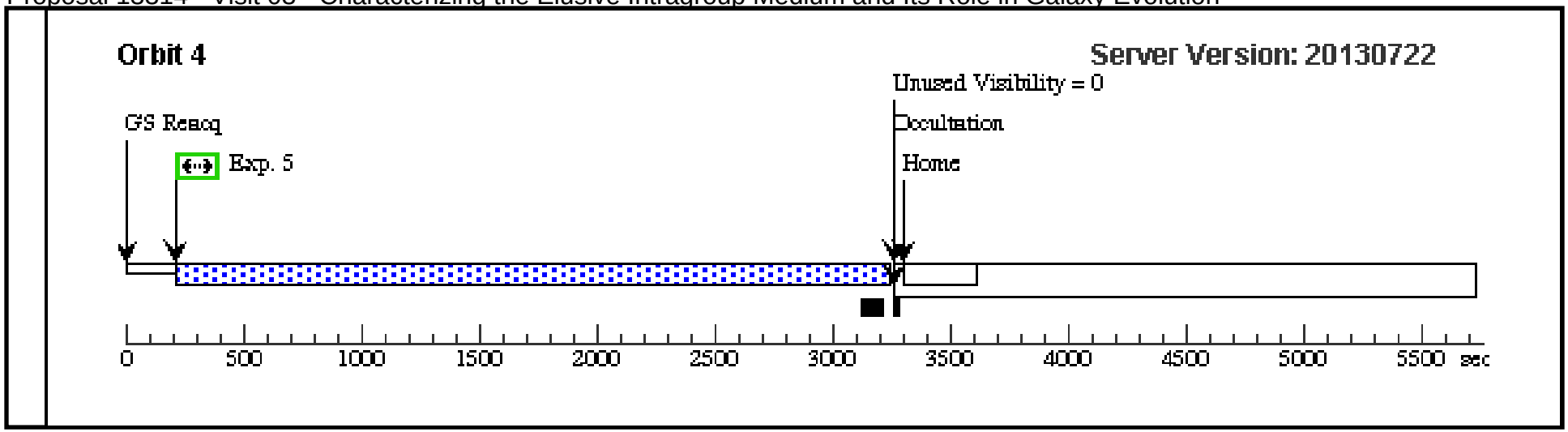
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 3 Orbit - 1/4 --- Acquisition (515160)	(3) J142859.03+322506.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				99 Secs (99 Secs) *[==>]*	***[1]***
2	Targer 3 Orbit - 1/4 (515166)	(3) J142859.03+322506.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2260; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2370 Secs (2370 Secs) *[==>]*	***[1]***
3	Targer 3 Orbit - 2/4 (515166)	(3) J142859.03+322506.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2871; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2981 Secs (2981 Secs) *[==>]*	***[2]***
4	Targer 3 Orbit - 3/4 (515166)	(3) J142859.03+322506.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2871; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2981 Secs (2981 Secs) *[==>]*	***[3]***
5	Targer 3 Orbit - 4/4 (515166)	(3) J142859.03+322506.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2871; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2981 Secs (2981 Secs) *[==>]*	***[4]***

Orbit Structure





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Visit

Proposal 13314, Visit 04, implementation Thu Sep 19 01:08:29 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 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.

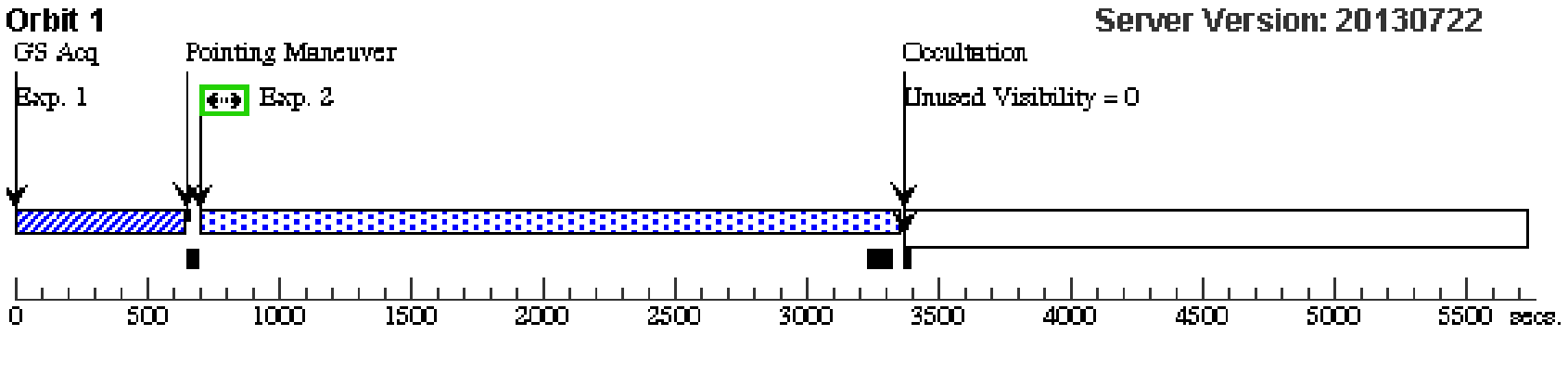
Fixed Targets

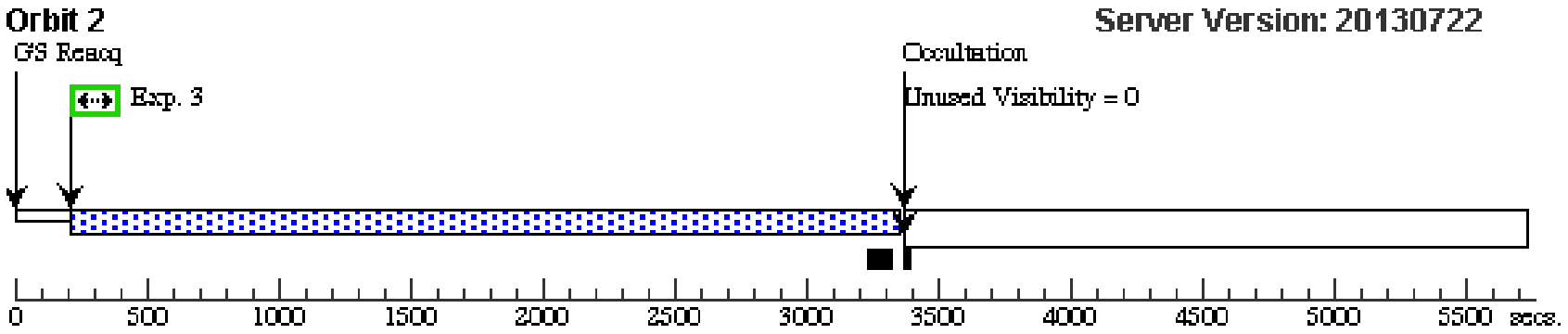
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	J101730.98+470225.0	RA: 10 17 30.9814 (154.3790892d) Dec: +47 02 25.09 (47.04030d) Equinox: J2000	Redshift: 0.335018	V=17.48+/-0.01 GALEX FUV=17.8	Reference Frame: ICRS

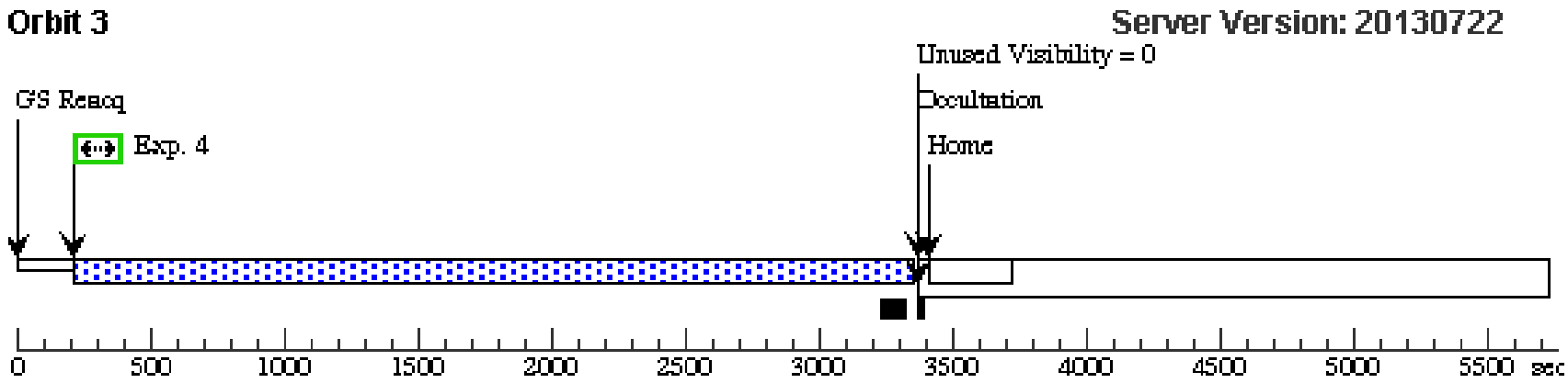
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 4 Orbit - 1/3 --- Acquisition (515161)	(4) J101730.98+470225.0	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				103 Secs (103 Secs) *[==>]*	***[1]***
2	Targer 4 Orbit - 1/3 (515167)	(4) J101730.98+470225.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2362; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2472 Secs (2472 Secs) *[==>]*	***[1]***
3	Targer 4 Orbit - 2/3 (515167)	(4) J101730.98+470225.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2981; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3091 Secs (3091 Secs) *[==>]*	***[2]***
4	Targer 4 Orbit - 3/3 (515167)	(4) J101730.98+470225.0	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2981; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3091 Secs (3091 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 13314, Visit 05, implementation Thu Sep 19 01:08:30 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

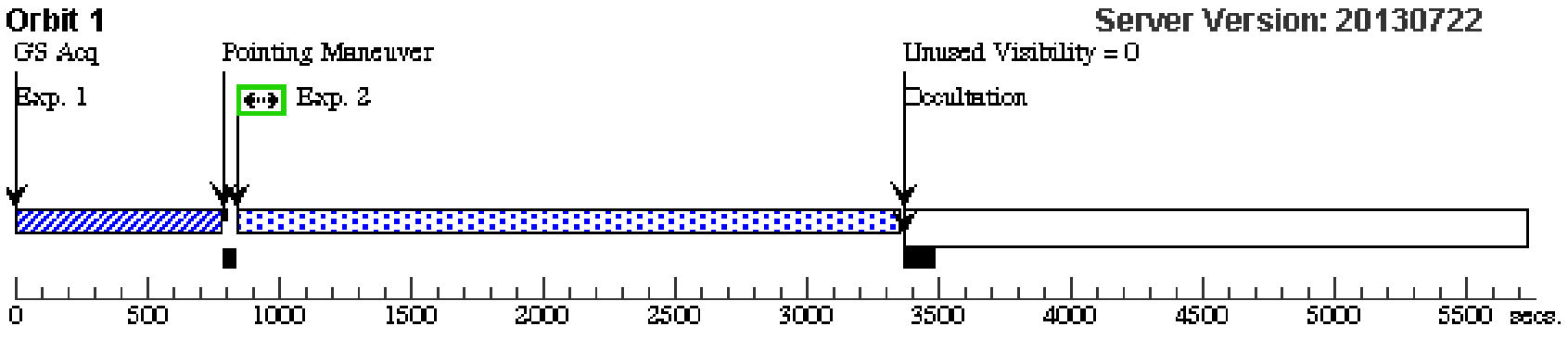
Fixed Targets

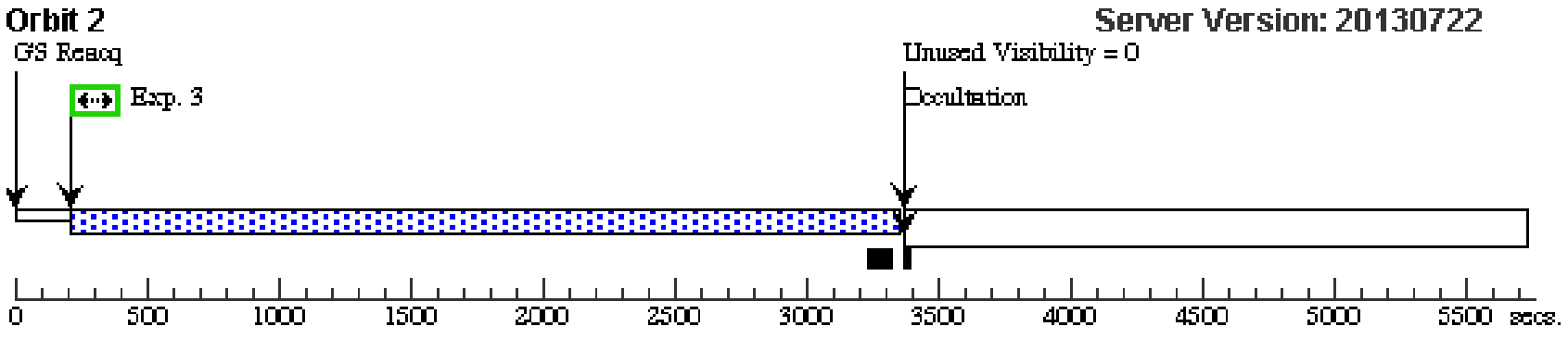
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	J102512.86+480853.2	RA: 10 25 12.8624 (156.3035933d) Dec: +48 08 53.24 (48.14812d) Equinox: J2000	Redshift: 0.331719	V=17.89+/-0.01 GALEX FUV=18.3	Reference Frame: ICRS

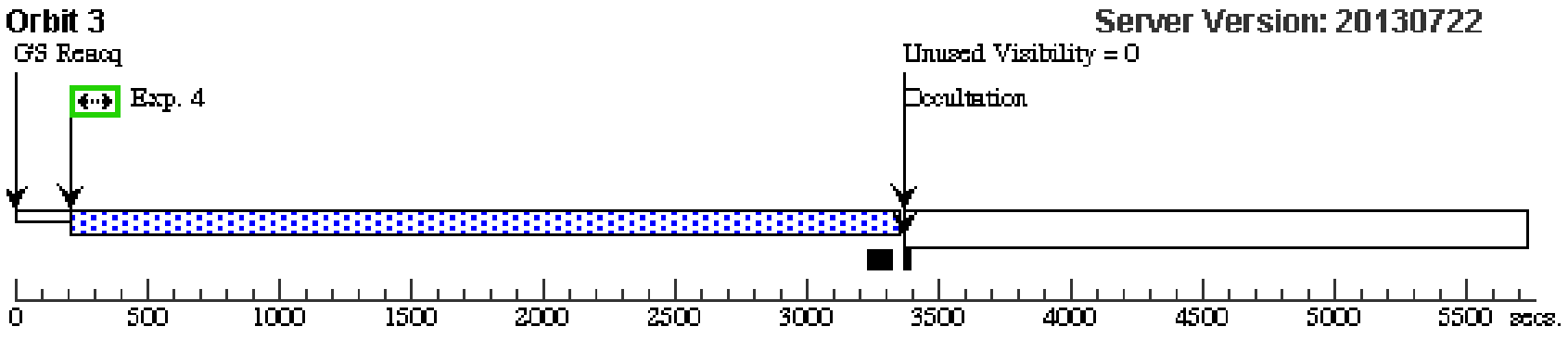
Exposures

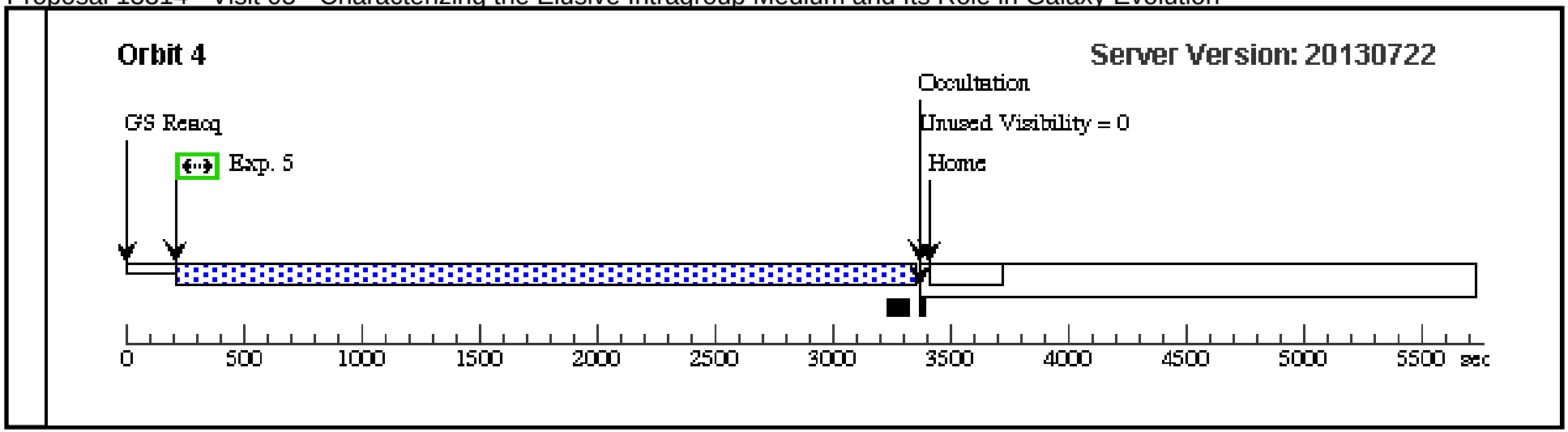
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 5 Orbit - 1/4 --- Acquisition (515162)	(5) J102512.86+480853.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				173 Secs (173 Secs) *[==>]*	***[1]***
2	Targer 5 Orbit - 1/4 (515169)	(5) J102512.86+480853.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2251; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2332 Secs (2332 Secs) *[==>]*	***[1]***
3	Targer 5 Orbit - 2/4 (515169)	(5) J102512.86+480853.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2981; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3091 Secs (3091 Secs) *[==>]*	***[2]***
4	Targer 5 Orbit - 3/4 (515169)	(5) J102512.86+480853.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2981; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3091 Secs (3091 Secs) *[==>]*	***[3]***
5	Targer 5 Orbit - 4/4 (515169)	(5) J102512.86+480853.2	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2981; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3091 Secs (3091 Secs) *[==>]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20130722
Occultation
GS Reacq
Unused Visibility = 0
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13314, Visit 06, implementation Thu Sep 19 01:08:31 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

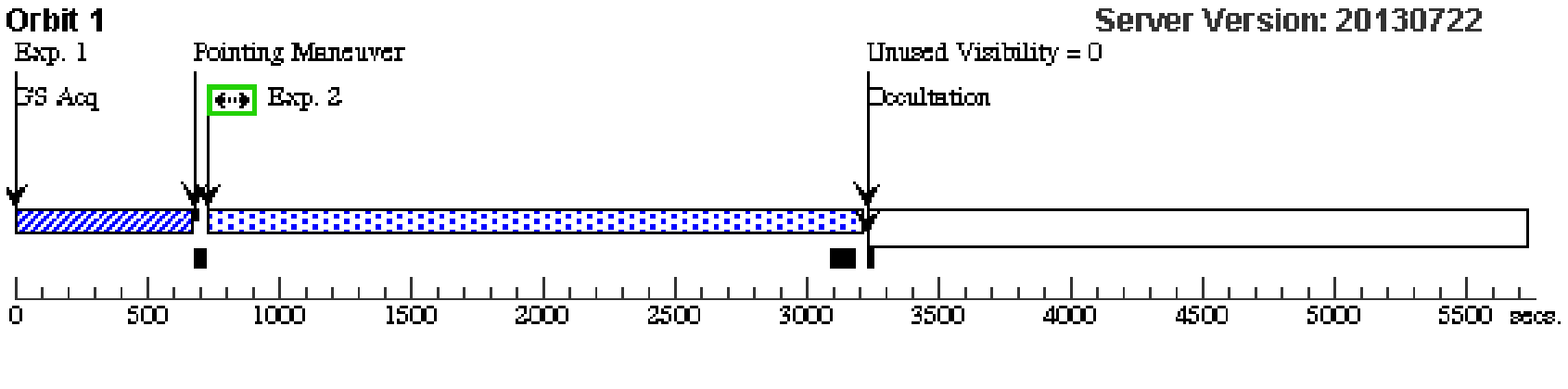
Fixed Targets

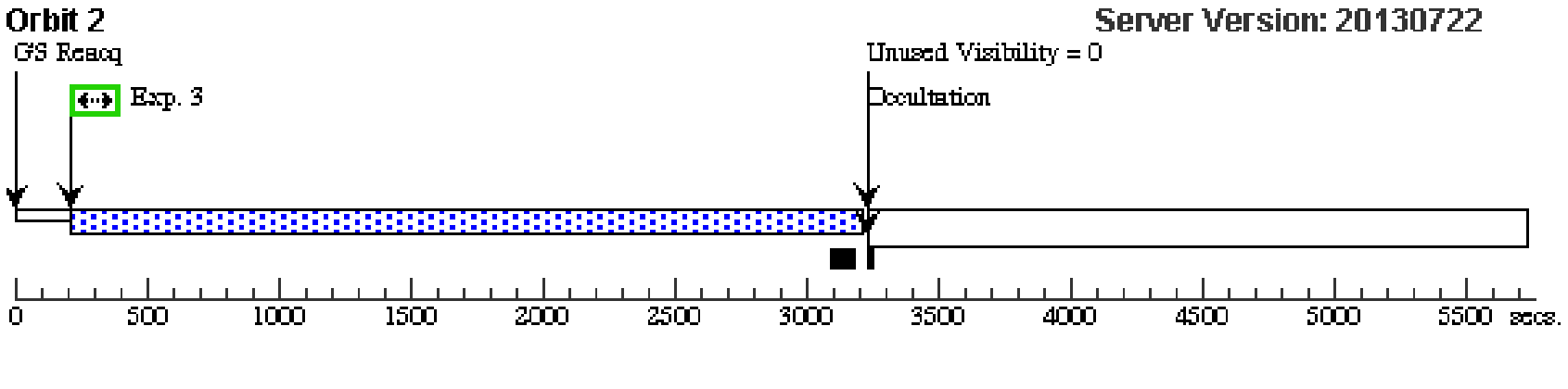
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	J110236.65+052117.0	RA: 11 02 36.6569 (165.6527371d) Dec: +05 21 17.08 (5.35474d) Equinox: J2000	Redshift: 0.498739	V=17.51+/-0.01 GAEX FUV=18.4	Reference Frame: ICRS

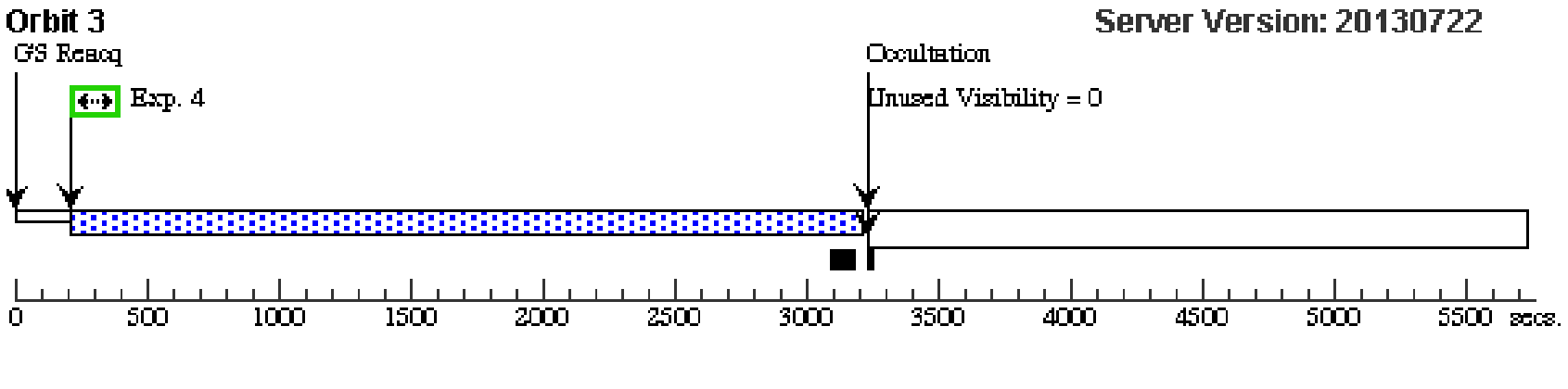
Exposures

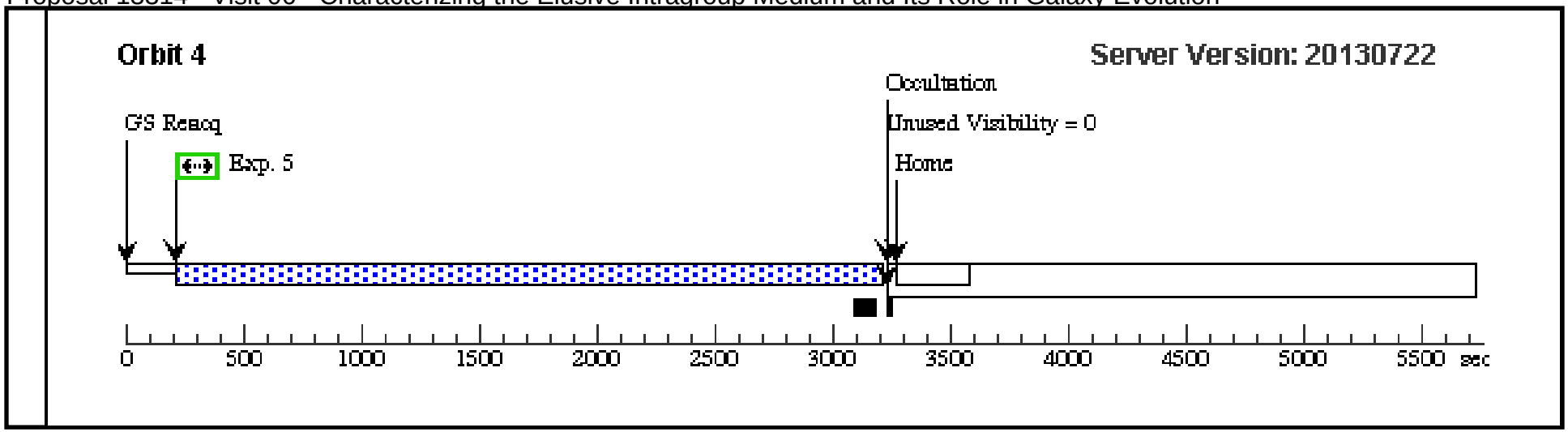
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 6 Orbit - 1/4 --- Acquisition (515163)	(6) J110236.65+052117.0	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				117 Secs (117 Secs) *[==>]*	***[1]***
2	Targer 6 Orbit - 1/4 (515172)	(6) J110236.65+052117.0	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2190; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2300 Secs (2300 Secs) *[==>]*	***[1]***
3	Targer 6 Orbit - 2/4 (515172)	(6) J110236.65+052117.0	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2837; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2947 Secs (2947 Secs) *[==>]*	***[2]***
4	Targer 6 Orbit - 3/4 (515172)	(6) J110236.65+052117.0	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2837; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2947 Secs (2947 Secs) *[==>]*	***[3]***
5	Targer 6 Orbit - 4/4 (515172)	(6) J110236.65+052117.0	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2837; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2947 Secs (2947 Secs) *[==>]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20130722
Occultation
GS Reacq
Unused Visibility = 0
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13314, Visit 07, implementation Thu Sep 19 01:08:33 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 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.

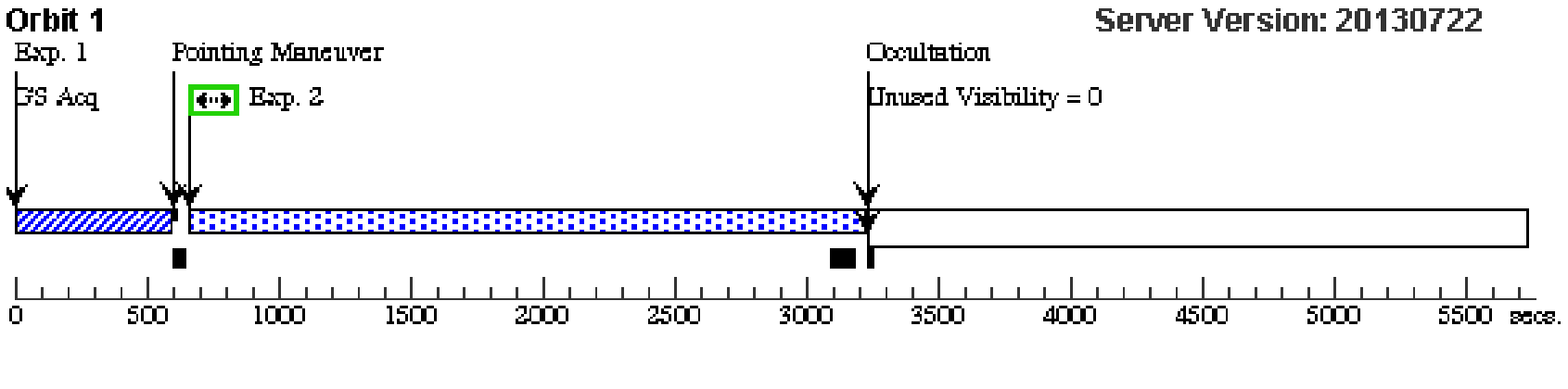
Fixed Targets

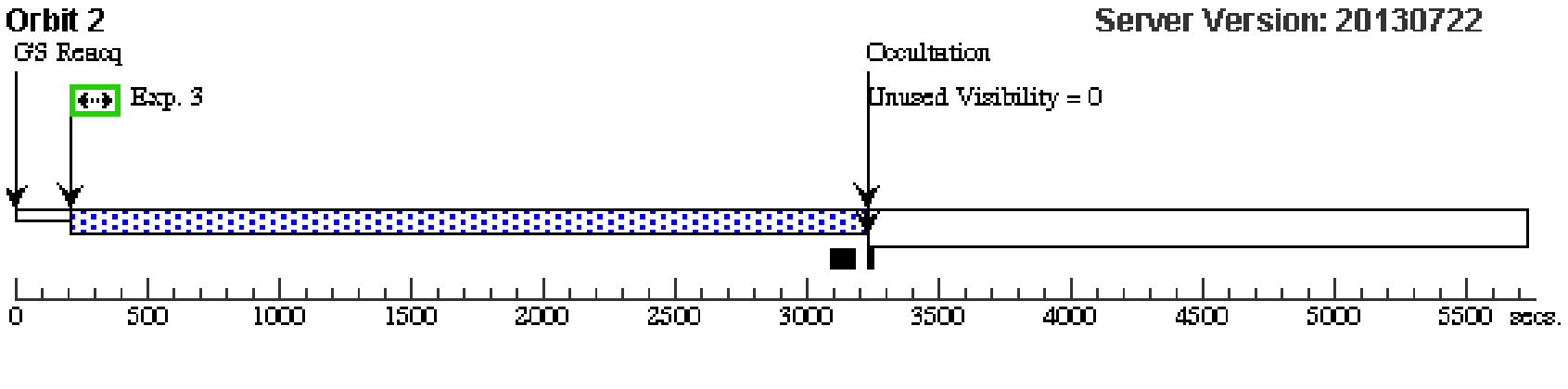
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	J112632.91+120437.3	RA: 11 26 32.9186 (171.6371608d) Dec: +12 04 37.39 (12.07705d) Equinox: J2000	Redshift: 0.975872	V=16.94+/-0.01 GALEX FUV=18.1	Reference Frame: ICRS

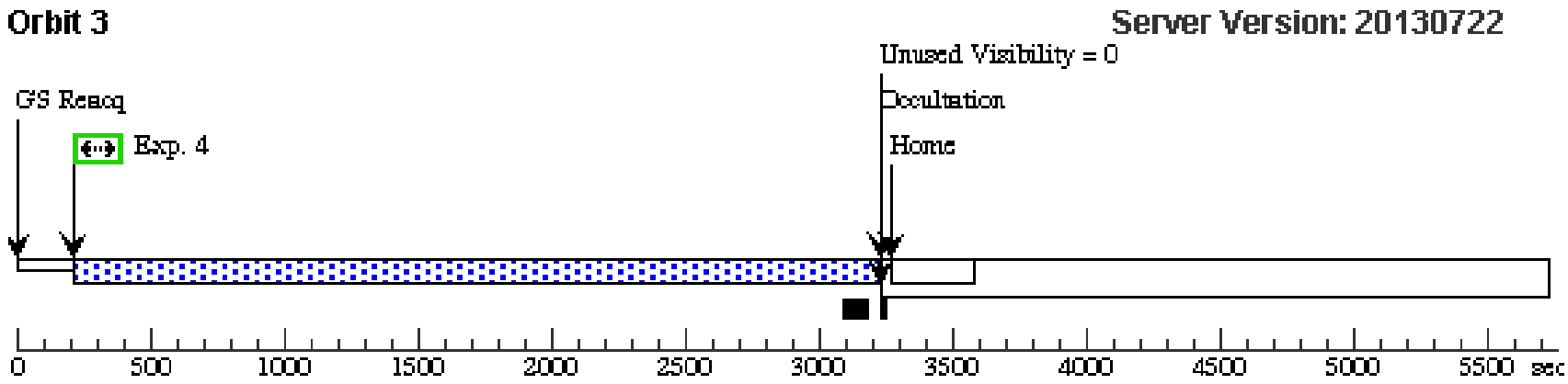
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 7 Orbit - 1/3 --- Acquisition (514898)	(7) J112632.91+120437.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				79 Secs (79 Secs) *[==>]*	*[1]*
2	Targer 7 Orbit - 1/3 (514964)	(7) J112632.91+120437.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2272; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2382 Secs (2382 Secs) *[==>]*	*[1]*
3	Targer 7 Orbit - 2/3 (514964)	(7) J112632.91+120437.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2843; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[2]*
4	Targer 7 Orbit - 3/3 (514964)	(7) J112632.91+120437.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2843; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[3]*

Orbit Structure







Visit

Proposal 13314, Visit 08, implementation Thu Sep 19 01:08:34 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 08) 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.

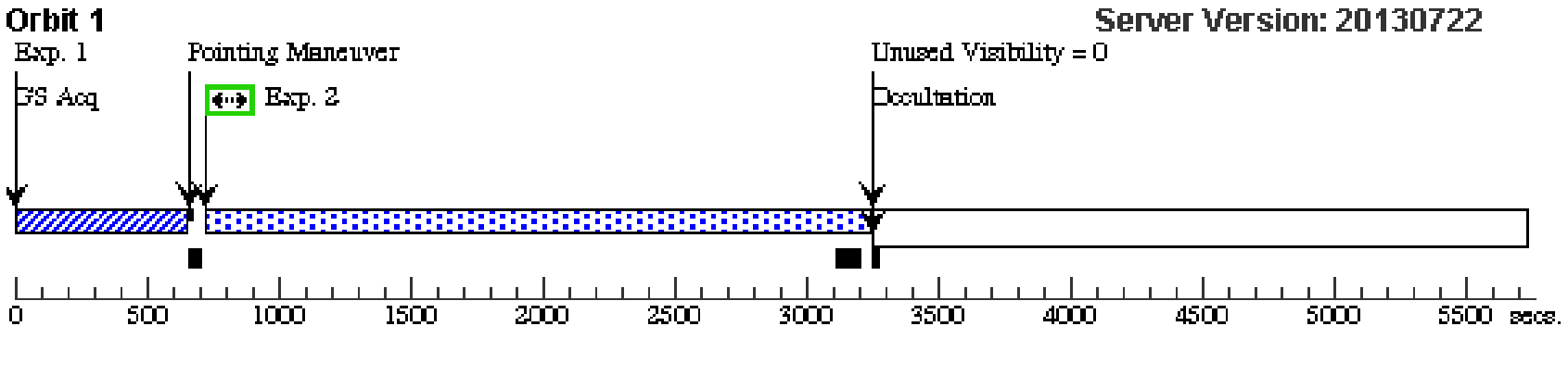
Fixed Targets

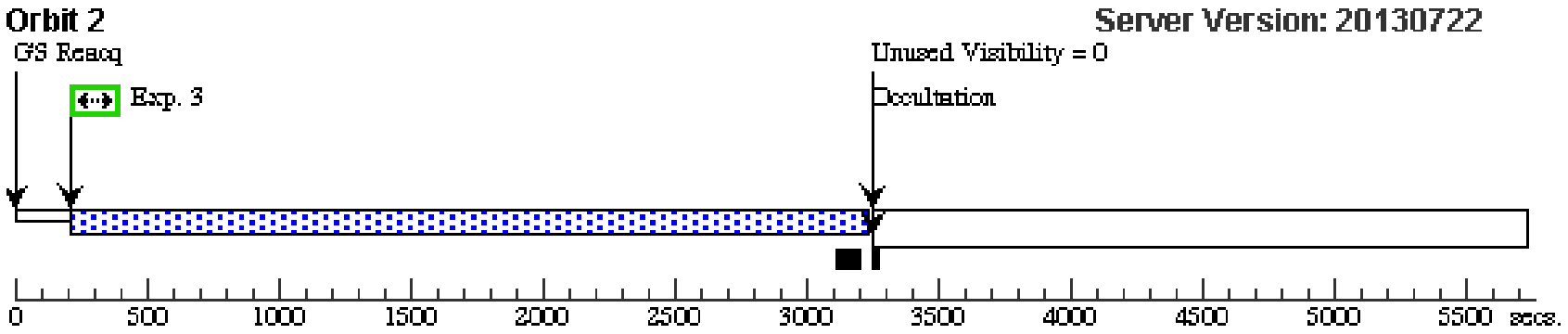
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	J130100.86+281944.7	RA: 13 01 0.8645 (195.2536021d) Dec: +28 19 44.73 (28.32909d) Equinox: J2000	Redshift: 1.359700	V=17.32+/-0.01 GALEX FUV=18.1	Reference Frame: ICRS

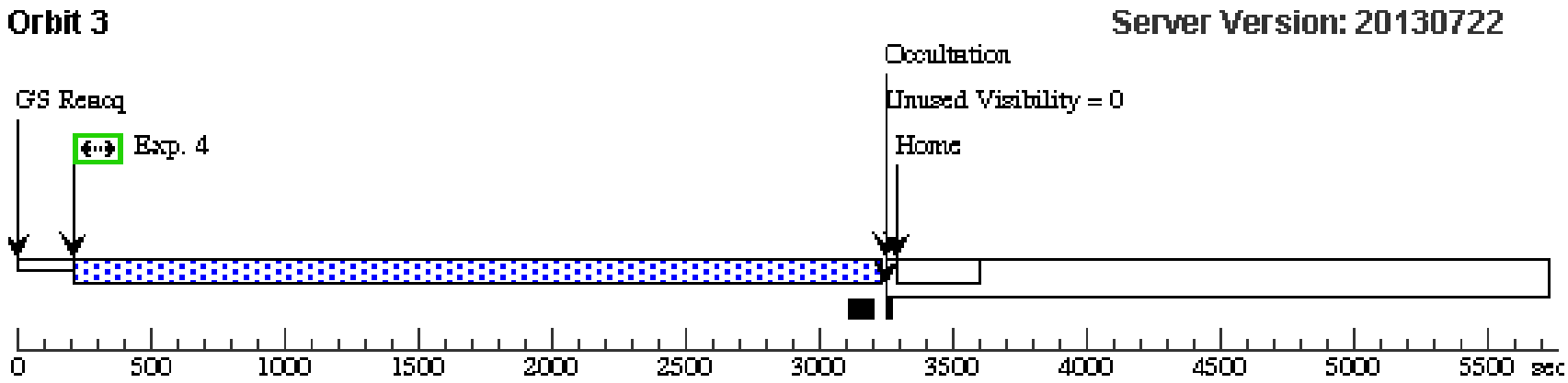
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 8 Orbit - 1/3 --- Acquisition (514894)	(8) J130100.86+281944.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				110 Secs (110 Secs) *[==>]*	***[1]***
2	Targer 8 Orbit - 1/3 (514965)	(8) J130100.86+281944.7	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=2224; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2334 Secs (2334 Secs) *[==>]*	***[1]***
3	Targer 8 Orbit - 2/3 (514965)	(8) J130100.86+281944.7	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=2857; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2967 Secs (2967 Secs) *[==>]*	***[2]***
4	Targer 8 Orbit - 3/3 (514965)	(8) J130100.86+281944.7	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=2857; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2967 Secs (2967 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 13314, Visit 09, implementation Thu Sep 19 01:08:35 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 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.

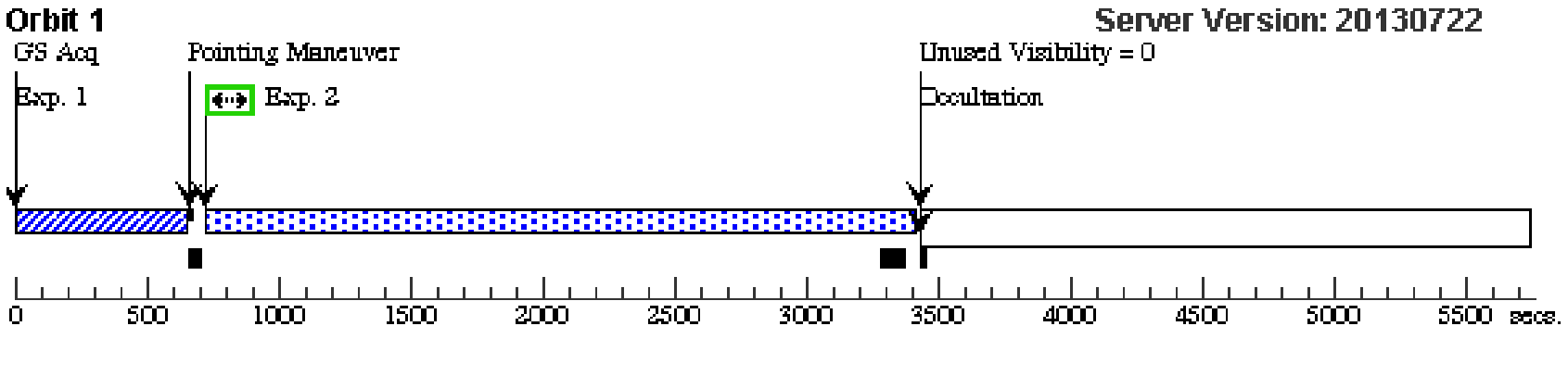
Fixed Targets

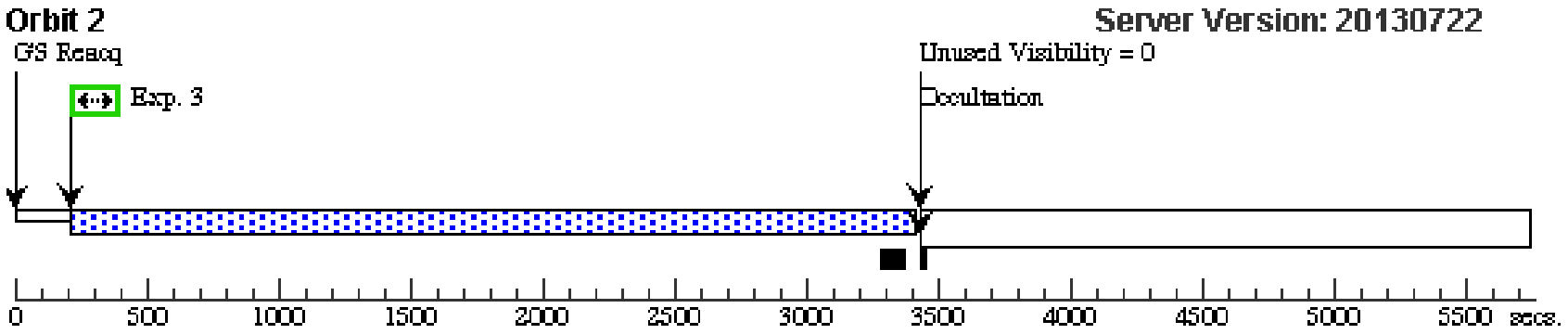
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	J133912.37+535527.3	RA: 13 39 12.3730 (204.8015542d) Dec: +53 55 27.38 (53.92427d) Equinox: J2000	Redshift: 0.293283	V=18.07+/-0.01 GALEX FUV=18.0	Reference Frame: ICRS

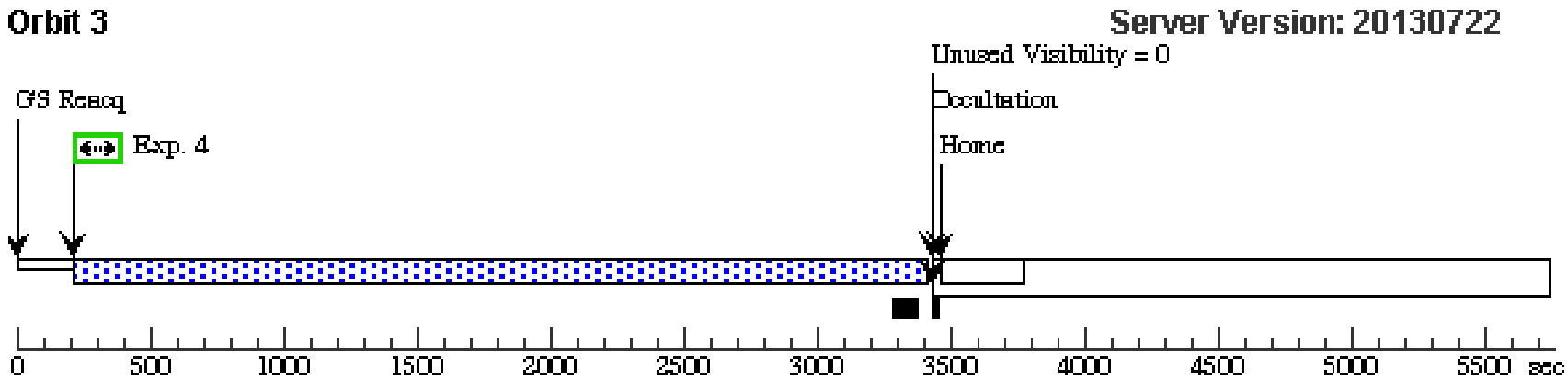
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 9 Orbit - 1/3 --- Acquisition (514894)	(9) J133912.37+535527.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				110 Secs (110 Secs) *[==>]*	*[1]*
2	Targer 9 Orbit - 1/3 (514966)	(9) J133912.37+535527.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=2401; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2511 Secs (2511 Secs) *[==>]*	*[1]*
3	Targer 9 Orbit - 2/3 (514966)	(9) J133912.37+535527.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3034; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3144 Secs (3144 Secs) *[==>]*	*[2]*
4	Targer 9 Orbit - 3/3 (514966)	(9) J133912.37+535527.3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=3034; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3144 Secs (3144 Secs) *[==>]*	*[3]*

Orbit Structure







Visit

Proposal 13314, Visit 10, implementation Thu Sep 19 01:08:36 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 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.

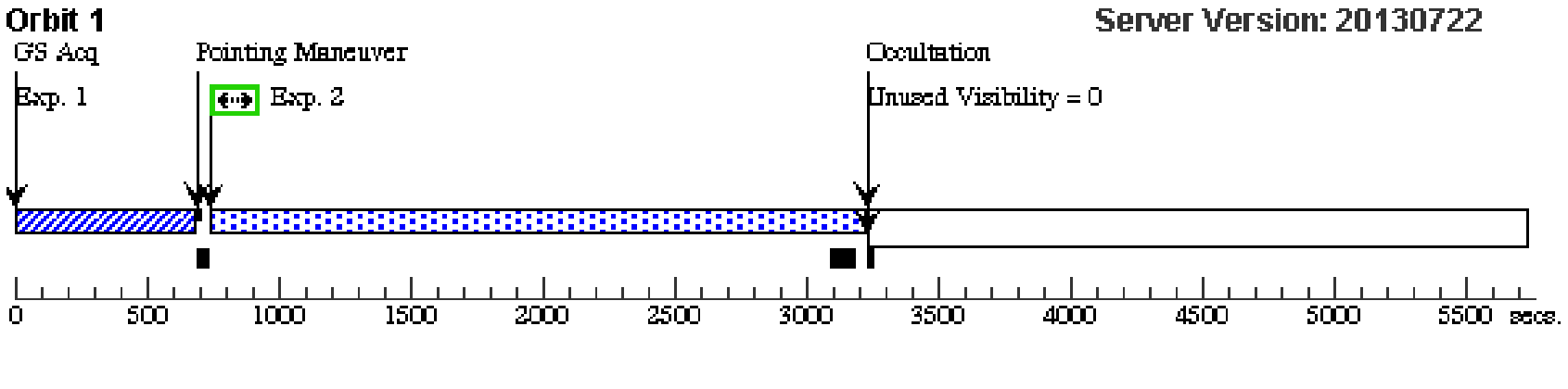
Fixed Targets

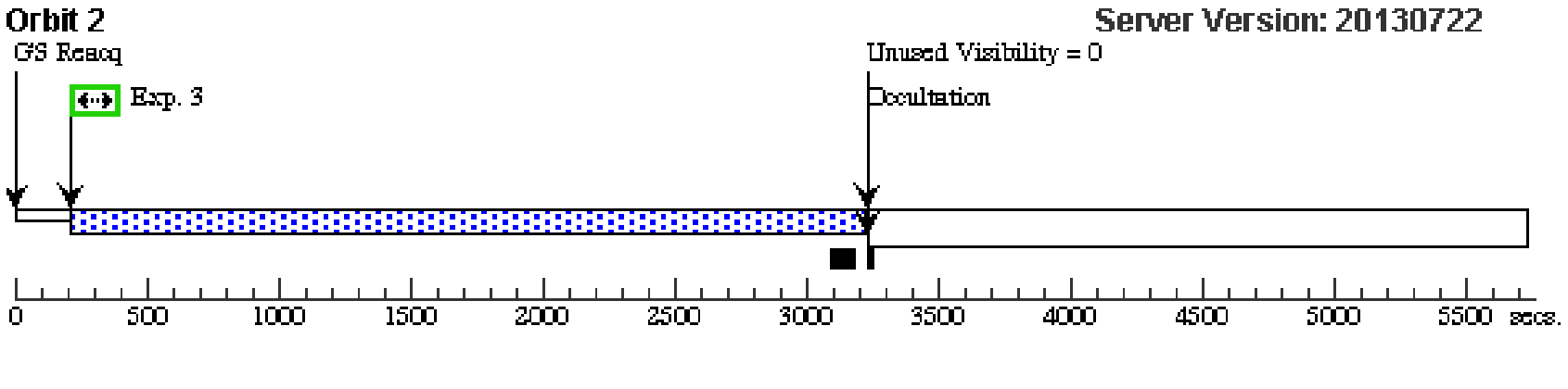
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	J102056.37+100332.7	RA: 10 20 56.3713 (155.2348804d) Dec: +10 03 32.79 (10.05911d) Equinox: J2000	Redshift: 0.607444	V=17.36+/-0.01 GALEX FUV =18.1	Reference Frame: ICRS

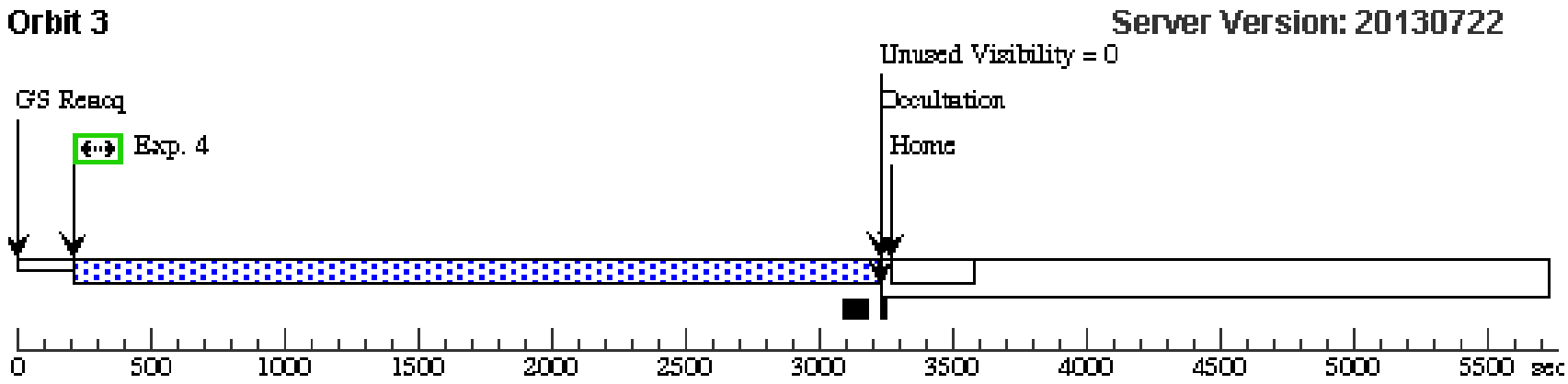
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 10 Orbit - 1/3 --- Acquisition (514897)	(10) J102056.37+100332.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				123 Secs (123 Secs) *[==>]*	*[1]*
2	Targer 10 Orbit - 1/3 (514969)	(10) J102056.37+100332.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2184; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2294 Secs (2294 Secs) *[==>]*	*[1]*
3	Targer 10 Orbit - 2/3 (514969)	(10) J102056.37+100332.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2843; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[2]*
4	Targer 10 Orbit - 3/3 (514969)	(10) J102056.37+100332.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2843; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2953 Secs (2953 Secs) *[==>]*	*[3]*

Orbit Structure







Visit

Proposal 13314, Visit 11, implementation Thu Sep 19 01:08:37 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

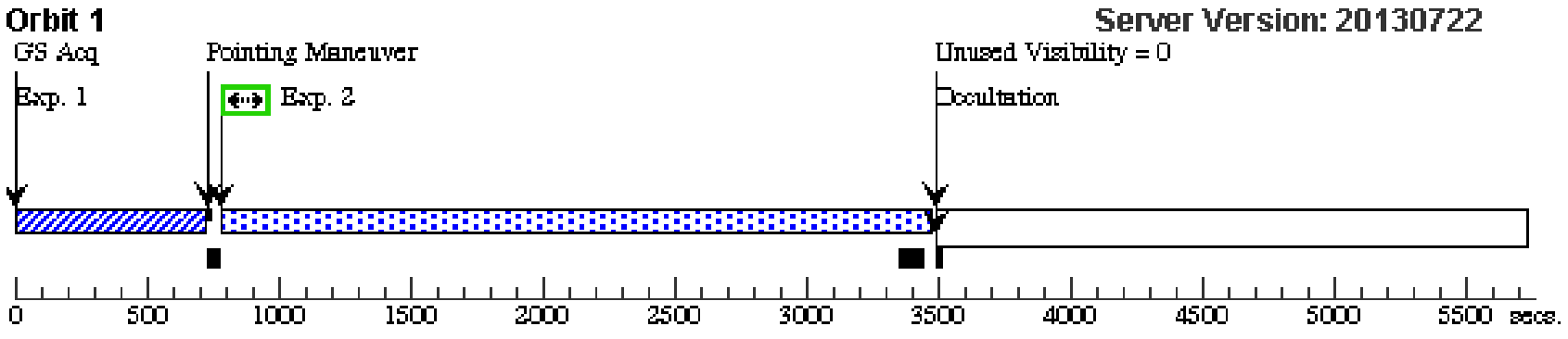
Fixed Targets

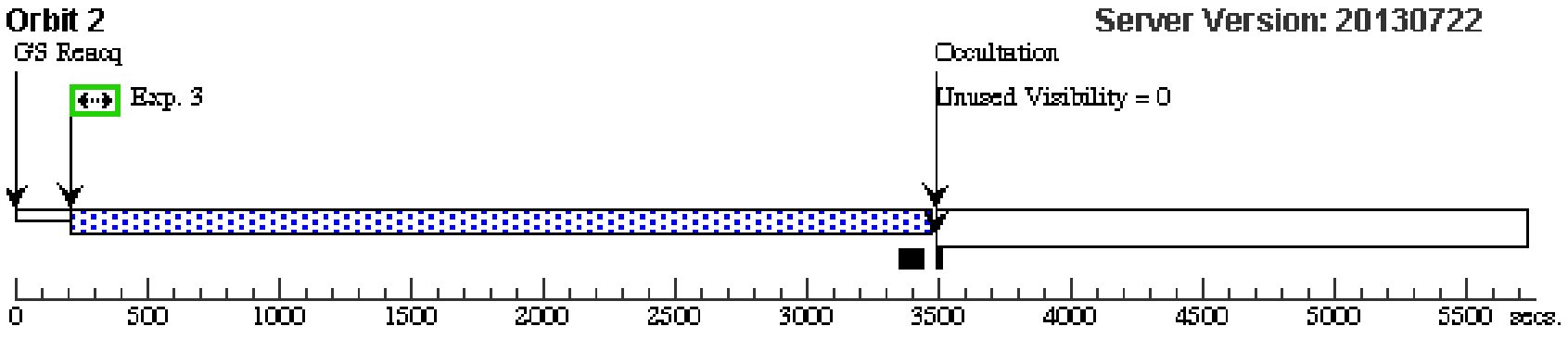
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	J140854.17+565743.3	RA: 14 08 54.1701 (212.2257088d) Dec: +56 57 43.36 (56.96204d) Equinox: J2000	Redshift: 0.336276	V=17.35+/-0.01 GALEX FUV=18.5	Reference Frame: ICRS

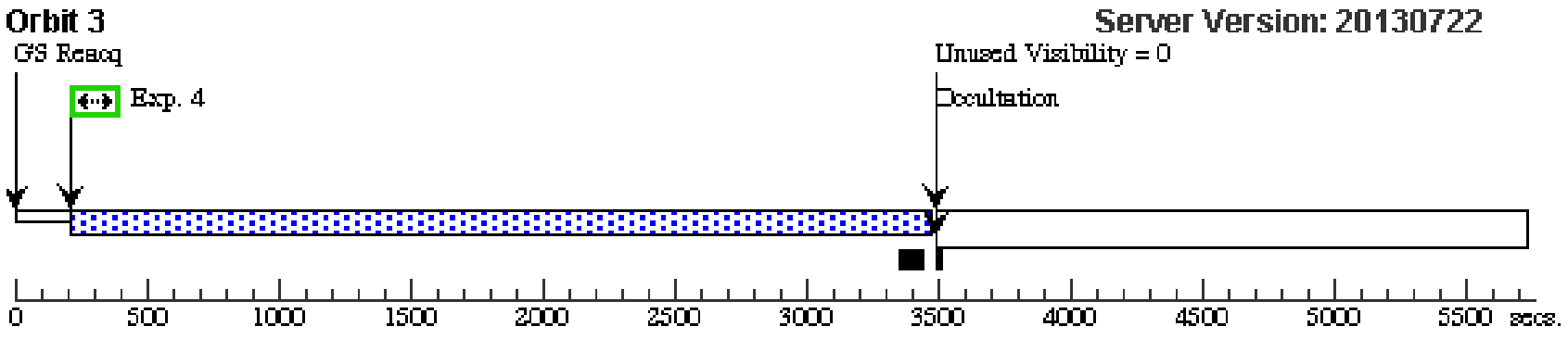
Exposures

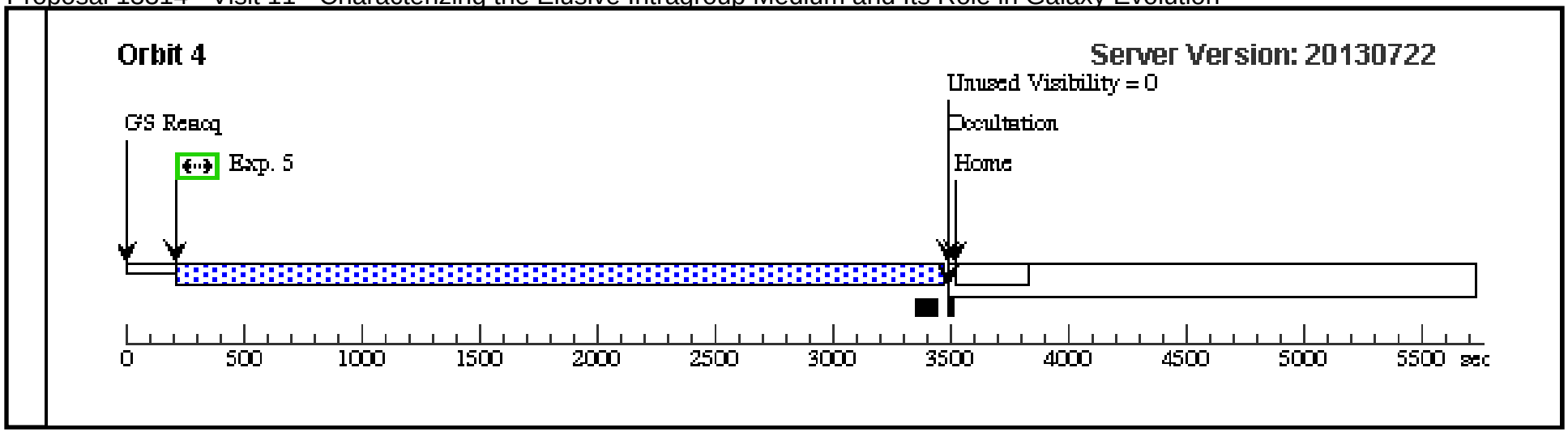
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 11 Orbit - 1/4 --- Acquisition (515164)	(11) J140854.17+565743.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				143 Secs (143 Secs) *[==>]*	***[1]***
2	Targer 11 Orbit - 1/4 (515173)	(11) J140854.17+565743.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2396; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2506 Secs (2506 Secs) *[==>]*	***[1]***
3	Targer 11 Orbit - 2/4 (515173)	(11) J140854.17+565743.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3095; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	***[2]***
4	Targer 11 Orbit - 3/4 (515173)	(11) J140854.17+565743.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3095; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	***[3]***
5	Targer 11 Orbit - 4/4 (515173)	(11) J140854.17+565743.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3095; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3205 Secs (3205 Secs) *[==>]*	***[4]***

Orbit Structure








Orbit 4
Server Version: 20130722
Unused Visibility = 0
GS Reacq
Occultation
Exp. 5
Home
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500
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1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13314, Visit 12, implementation Thu Sep 19 01:08:38 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

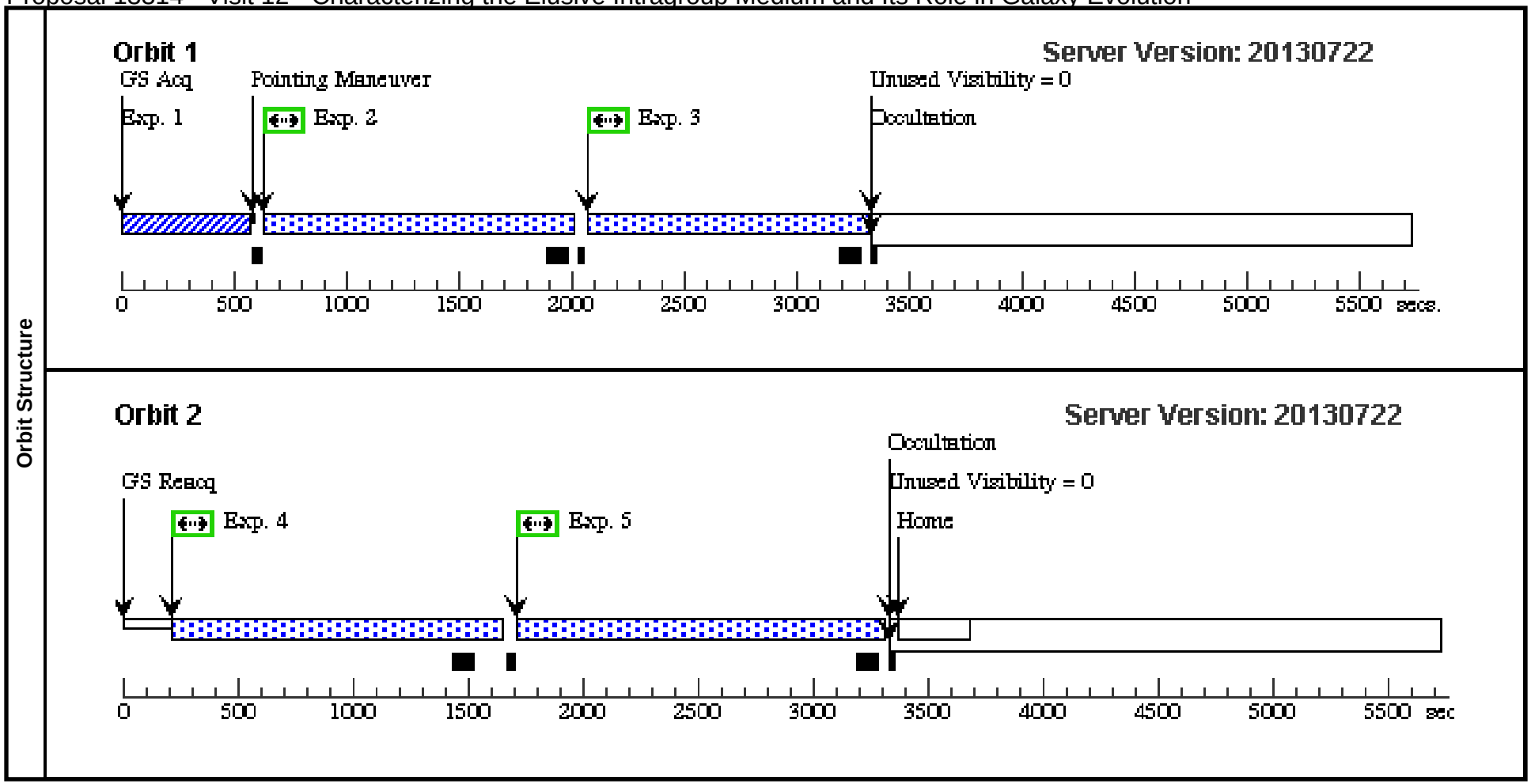
Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	J134854.76+430309.1	RA: 13 48 54.7659 (207.2281912d) Dec: +43 03 9.10 (43.05253d) Equinox: J2000	Redshift: 0.274750	V=17.06+/-0.01 GALEX FUV = 17.2	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	Targer 12 Orbit - 1/2 --- Acquisition (514899)	(12) J134854.76+430309.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				68 Secs (68 Secs) *[==>]*	*[1]*
2	Targer 12 Orbit - 1/2 (515126)	(12) J134854.76+430309.1	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1090; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1200 Secs (1200 Secs) *[==>]*	*[1]*
3	Targer 12 Orbit - 1/2 (515126)	(12) J134854.76+430309.1	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1083; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1193 Secs (1193 Secs) *[==>]*	*[1]*
4	Targer 12 Orbit - 2/2 (515126)	(12) J134854.76+430309.1	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1175; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1385 Secs (1385 Secs) *[==>]*	*[2]*
5	Targer 12 Orbit - 2/2 (515126)	(12) J134854.76+430309.1	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1437; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1547 Secs (1547 Secs) *[==>]*	*[2]*


Orbit Structure
Orbit 1
Server Version: 20130722
GS Acq
Pointing Maneuver
Unused Visibility = 0
Exp. 1
Exp. 2
Exp. 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20130722
Occultation
GS Reacq
Unused Visibility = 0
Exp. 4
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13314, Visit 13, implementation Thu Sep 19 01:08:39 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 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.

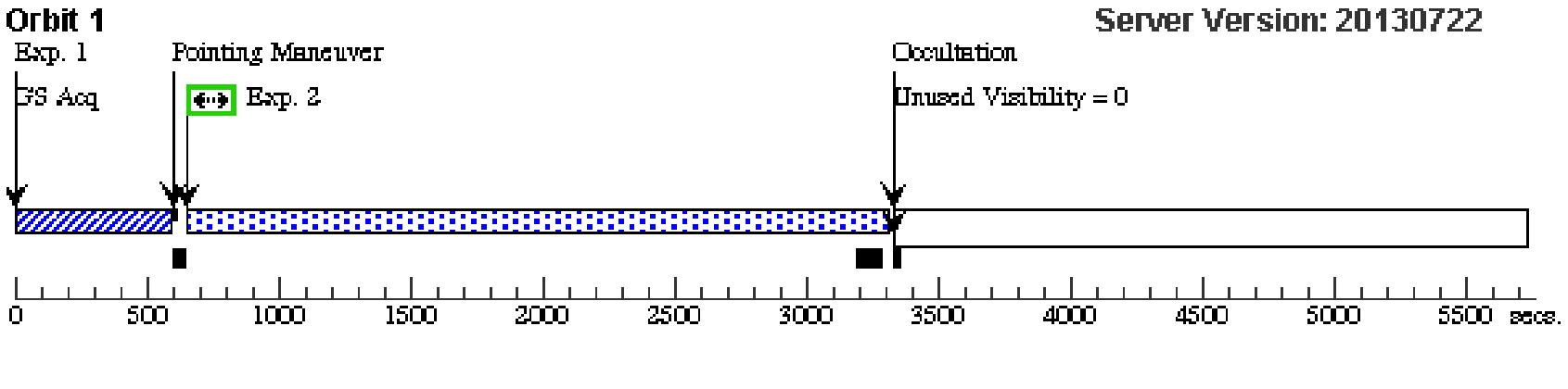
Fixed Targets

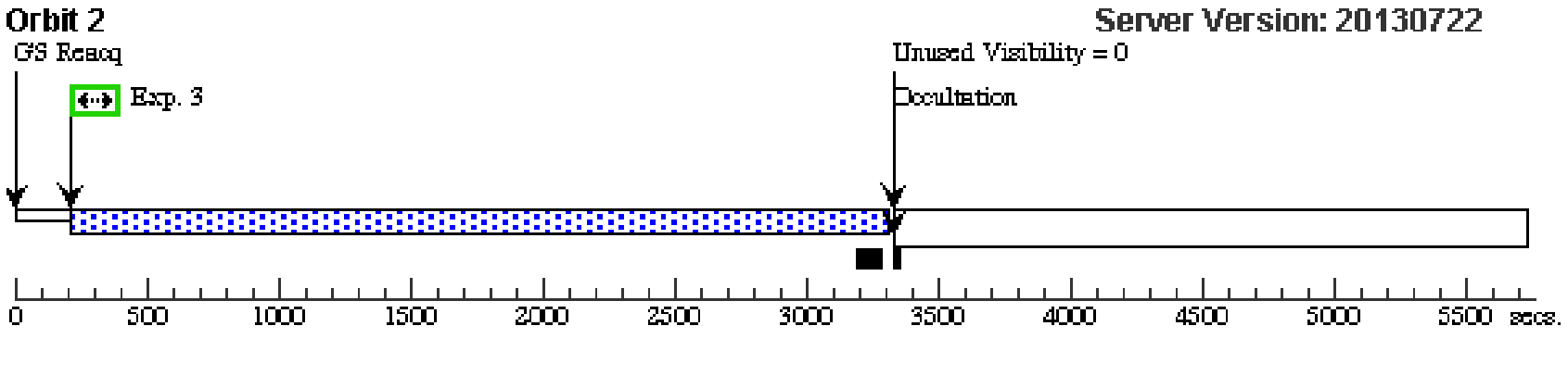
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	J142455.53+421407.6	RA: 14 24 55.5332 (216.2313883d) Dec: +42 14 7.63 (42.23545d) Equinox: J2000	Redshift: 0.316199	V=16.75+/-0.01 GALEX FUV=17.5	Reference Frame: ICRS

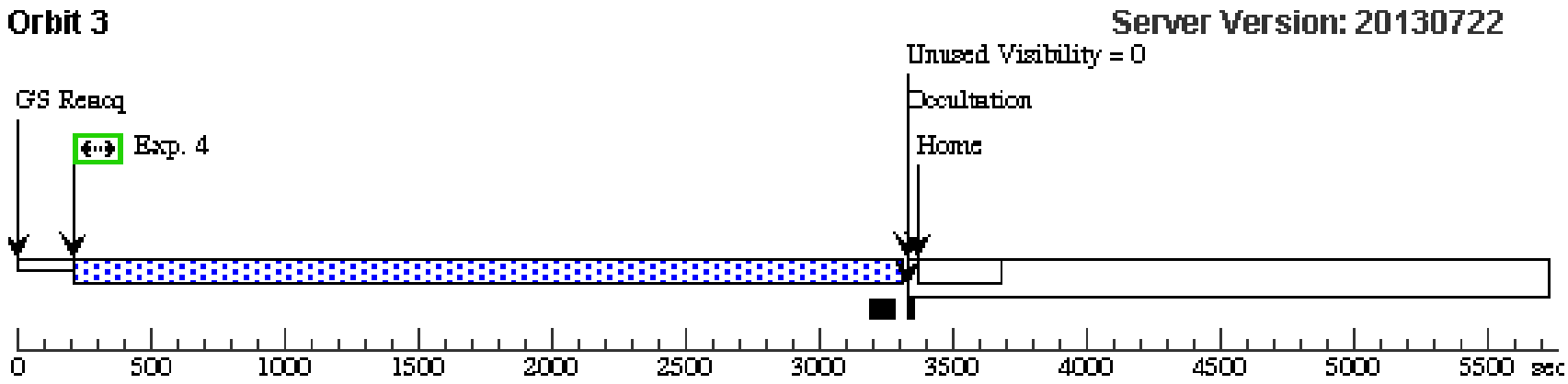
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 13 Orbit - 1/2 --- Acquisition (514898)	(13) J142455.53+421407.6	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				78 Secs (78 Secs) *[==>]*	***[1]***
2	Targer 13 Orbit - 1/3 (515125)	(13) J142455.53+421407.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2368; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2478 Secs (2478 Secs) *[==>]*	***[1]***
3	Targer 13 Orbit - 2/3 (515125)	(13) J142455.53+421407.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2937; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3047 Secs (3047 Secs) *[==>]*	***[2]***
4	Targer 13 Orbit - 3/3 (515125)	(13) J142455.53+421407.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2937; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			3047 Secs (3047 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 13314, Visit 14, implementation Thu Sep 19 01:08:39 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

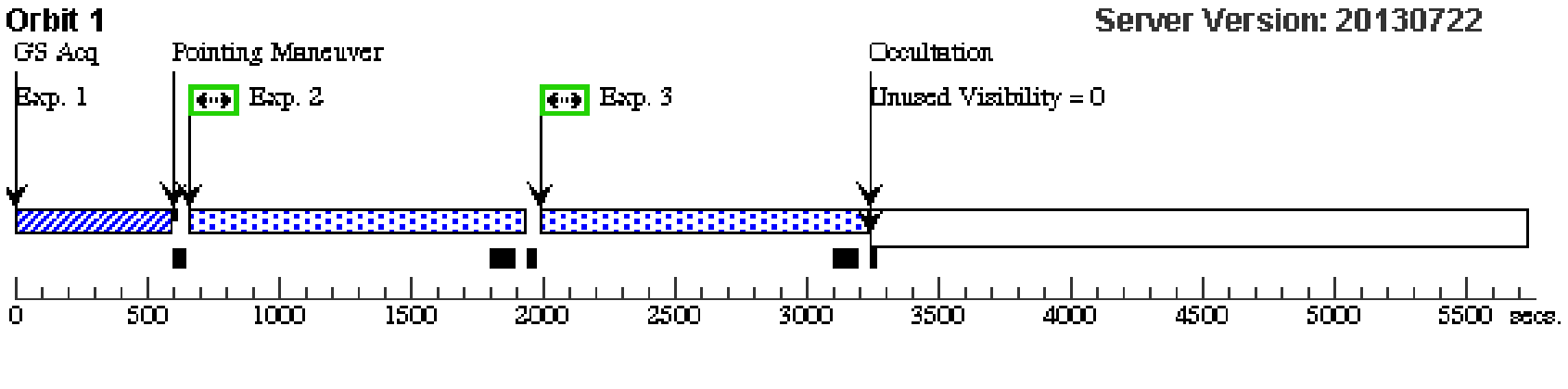
Fixed Targets

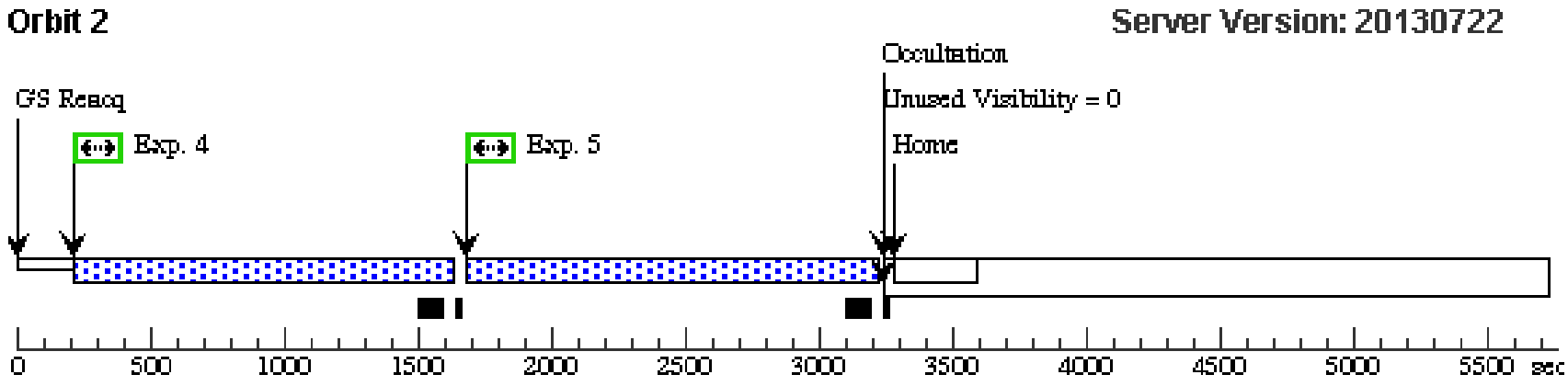
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(14)	J142613.31+195524.6	RA: 14 26 13.3193 (216.5554971d) Dec: +19 55 24.69 (19.92352d) Equinox: J2000	Redshift: 0.213280	V=16.64+/-0.01 GALEX FUV=17.4	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Targer 14 Orbit - 1/2 --- Acquisition (514894)	(14) J142613.31+195524.6	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				80 Secs (80 Secs) *[==>]*	***[1]***
2	Targer 14 Orbit - 1/2 (515124)	(14) J142613.31+195524.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=975; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1085 Secs (1085 Secs) *[==>]*	***[1]***
3	Targer 14 Orbit - 1/2 (515124)	(14) J142613.31+195524.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1075; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1185 Secs (1185 Secs) *[==>]*	***[1]***
4	Targer 14 Orbit - 2/2 (515124)	(14) J142613.31+195524.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1253; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1363 Secs (1363 Secs) *[==>]*	***[2]***
5	Targer 14 Orbit - 2/2 (515124)	(14) J142613.31+195524.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1380; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1490 Secs (1490 Secs) *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 13314, Visit 15, implementation Thu Sep 19 01:08:40 GMT 2013

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

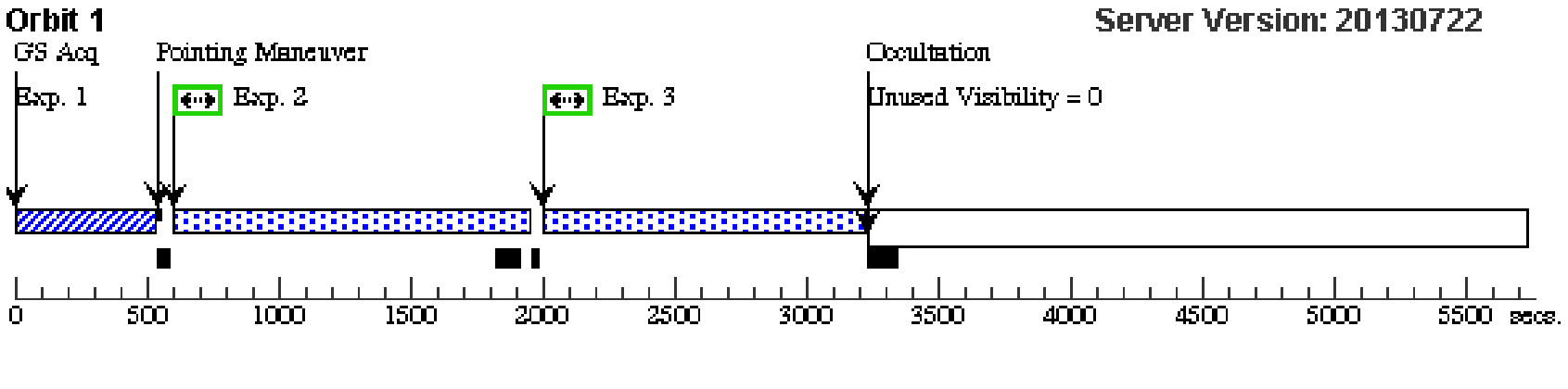
Fixed Targets

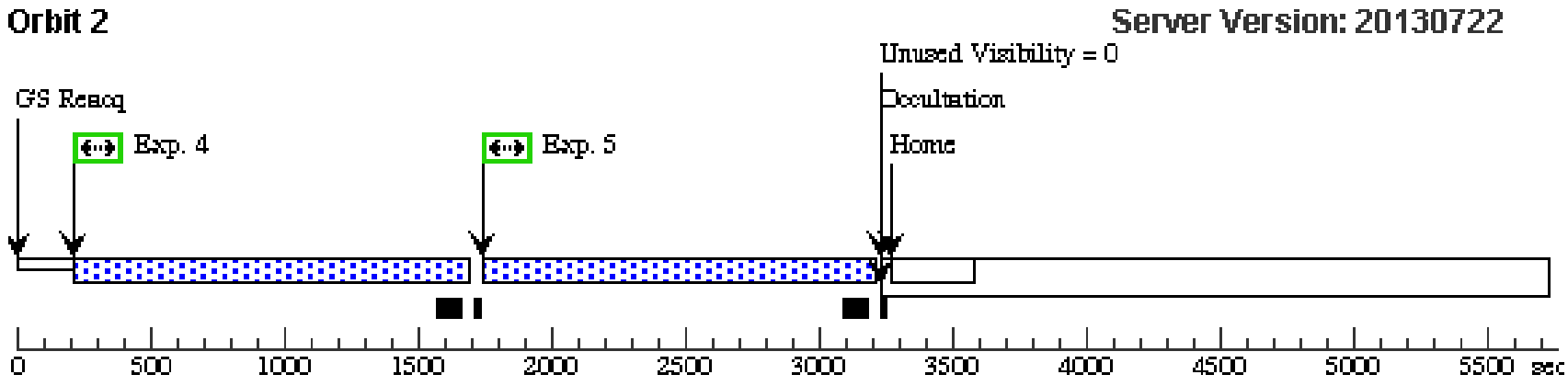
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(15)	J161723.67+085414.7	RA: 16 17 23.6700 (244.3486250d) Dec: +08 54 14.75 (8.90410d) Equinox: J2000	Redshift: 0.206398	V=16.65+/-0.01 GALEX FUV=16.9	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(514900)	(15) J161723.67+085414.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				50 Secs (50 Secs) *[==>]*	*[1]*
2	Targer 15 Orbit - 1/2 (515122)	(15) J161723.67+085414.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1055; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1165 Secs (1165 Secs) *[==>]*	*[1]*
3	Targer 15 Orbit - 1/2 (515122)	(15) J161723.67+085414.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1154; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1164 Secs (1164 Secs) *[==>]*	*[1]*
4	Targer 15 Orbit - 2/2 (515122)	(15) J161723.67+085414.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1315; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1425 Secs (1425 Secs) *[==>]*	*[2]*
5	Targer 15 Orbit - 2/2 (515122)	(15) J161723.67+085414.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1307; FP-POS=4; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			1417 Secs (1417 Secs) *[==>]*	*[2]*

Orbit Structure





Visit

Proposal 13314, Visit 16, implementation Thu Sep 19 01:08:41 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 16) 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
(16)	J134356.74+253847.6	RA: 13 43 56.7443 (205.9864346d) Dec: +25 38 47.69 (25.64658d) Equinox: J2000	Redshift: 0.086552	V=16.01+/-0.01 GALEX FUV=16.6	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	Targer 16 Orbit - 1/3 --- Acquisition (514902)	(16) J134356.74+253847.6	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				37 Secs (37 Secs) *[==>]*	***[1]***
2	Targer 16 Orbit - 1/3 (515121)	(16) J134356.74+253847.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2370; FP-POS=1; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2480 Secs (2480 Secs) *[==>]*	***[1]***
3	Targer 16 Orbit - 2/3 (515121)	(16) J134356.74+253847.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2857; FP-POS=2; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2967 Secs (2967 Secs) *[==>]*	***[2]***
4	Targer 16 Orbit - 3/3 (515121)	(16) J134356.74+253847.6	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=2857; FP-POS=3; EXTENDED=NO; SEGMENT=BOTH; FLASH=YES			2967 Secs (2967 Secs) *[==>]*	***[3]***

Orbit Structure