12936 - The Physical and Dynamical Properties of Gas that Molds the Fermi Bubbles

Cycle: 20, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) RXS-J21388-3828	COS/FUV COS/NUV	4	10-Jul-2012 23:24:37.0	yes
02	(3) ESO-141-55	COS/FUV	2	10-Jul-2012 23:24:56.0	yes
03	(4) 1H-2129-624	COS/FUV COS/NUV	2	10-Jul-2012 23:25:12.0	yes
04	(5) RXS-J00057-5007	COS/FUV COS/NUV	3	10-Jul-2012 23:25:23.0	yes
05	(5) RXS-J00057-5007	COS/FUV COS/NUV	3	10-Jul-2012 23:25:34.0	yes
06	(6) RXS-J23218-7026	COS/FUV COS/NUV	5	10-Jul-2012 23:25:54.0	yes

19 Total Orbits Used

ABSTRACT

Two sharply defined lobes of gamma-ray emission emerging from the center of our Galaxy, called the Fermi Bubbles, have been discovered in the Galactic halo. Their emissivity appears to be uniform and extends up to 8 kpc on either side of the plane. Accompanying the Fermi Bubbles are excess emissions seen in X-rays and microwaves. It is generally believed that cosmic ray particles emitted from the central portion of the Galactic disk (or perhaps the nucleus itself) are responsible for these emissions. These particles must have been advected into the halo by a wind or shock. Our goal is to gain a better understanding of the nature of this gaseous transport by viewing the UV spectra of bright, extragalactic sources behind one of the Fermi Bubbles and its surrounding regions. We plan to obtain COS spectra of 5 such objects, with the goal of measuring absorption features from Si III, Si IV, C IV and N V. We expect that our mapping of column densities and kinematics of the gases will help us to distinguish a shock from a wind. Moreover, if a shock is present, we should be able to evaluate the product of its age and the density of the gas by comparing the column densities of different species.

OBSERVING DESCRIPTION

We have planned for COS G130M and G160M observations of 5 extragalactic targets that have sightlines that penetrate the environment of the Fermi Bubbles (FB). We require a total of 19 orbits of observations. Our objective is to record UV absorption features from species that will reveal the internal densities, kinematics and overall level of
ionization of the gas surrounding and within the FB. When we combine our observations with those of other targets that have already been observed with COS, we expect to have a reasonably balanced coverage consisting of 10 directions that are within the FB perimeter, outside the FB but inside the X-ray plume, and just outside the X-ray plume.

All of our targets are QSOs or bright AGNs at low redshifts that have far-UV fluxes measured by GALEX that exceed 800 Jy, thus assuring that we can obtain respectable S/N within modest allocations of orbital time. These targets are spatially unresolved by GALEX (i.e., reported FWHM about 5), so that we have a good indication that they are point-like, and thus reported fluxes are not dominated by early-type stars in a nuclear starburst or UV-emitting sources elsewhere in the host galaxy.

Our primary discriminant between an outflow and a shock will be the overall systematic changes in gas column densities and kinematics. If it appears that our data indicate the presence of ionized gas ahead of a shock, we will determine the product of the electron density and the shock’s age. We expect to do this by determining the ratios of some combination of the ions Si III, Si IV, C IV, and N V in the photoionized preshock material.

Starting with Si III and progressing to ions with higher ionization potentials, we can expect to span four orders of magnitude in shock development with no significant gaps where all lines are either too strong or weak.

It is important to have good velocity resolution; hence we will use the highest dispersion modes of COS. With that requirement, we must use two different gratings, G130M and G160M, to cover all of ions mentioned above. We have selected the 1589 central wavelength setting for G160M so that we can obtain an observation of the weaker member of the Si IV doublet at 1402.77 A that duplicates the one recorded by G130M. Depending on the brightness of a target, we plan to use 1 to 3 orbits for each grating setting. For each target, we plan to achieve at least S/N = 30 per resolution element (resel) for the G130M setting. This requirement is established by our need to record the relatively weak doublet of N V. For the G160M spectrum that covers the usually strong absorptions by C IV, we are willing to relax this requirement to S/N = 20 per resel. Some of our observations should yield spectra with S/N that exceed our minimum requirements, due to the quantization of observing time into full orbits. In order to reduce the fixed-pattern noise and achieve our S/N goals, we plan to break the exposures into segments that have different FP-POS settings.

Three of our targets are at declinations that are favorable for CVZ observations, but only one of them can be scheduled as such (1H 2129-624: 6 CVZ opportunities in a year). The target RXS- J2328-7026 is in the RA interval where maximum scheduability must be specified, hence CVZ observations are disallowed. According to the APT visit planner, the target ESO-141-55 has no scheduling opportunities for CVZ operations, even though it has a favorable declination and is not within one of the restricted RA intervals.

As a final note, we plan to use the MAST archive to retrieve spectra of various stars in the general vicinity of our targets in the sky, but whose distances are less than that toward the Galactic center. These spectra will help us to identify foreground gas components. One star, HD 156359, is in the general vicinity of our targets but is situated at a distance of 11 kpc (i.e., behind the Galactic center region) and shows an interesting high velocity component for N V (Sembach et al. 1995). We will incorporate the results for this star in our overall analysis.

ADDITIONAL COMMENTS

Our original Phase I proposal had specified 6 targets for our program. On further investigation, relying mainly on COS data recently released to the public, we find that the far-UV flux of Target 2 (the nucleus of NGC 7552) is far below that indicated by an observation by GALEX (3908 Jy), which we had used in our initial selection of targets. We have decided to drop this target and move the 1 orbit that was slated for this object to another one of our targets, Target 6. Calculations of the expected S/N for this target (RXS-J23218-7026) were somewhat below our specification of 30 for G130M and 20 for G160M, so this transfer of observing time is a prudent choice for meeting our scientific objectives. We have retained the dropped target in our target list (but without any orbits scheduled) in order to avoid confusion with target renumbering.

Bright Object Tool reveals some red flags with the GSC2 review, but reviews with GALEX show all green. We have verified that GALEX has properly covered all of the field footprints of COS centered on our targets.

Visit

Proposal 12936, Visit 01 Wed Jul 11 03:26:10 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 01) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

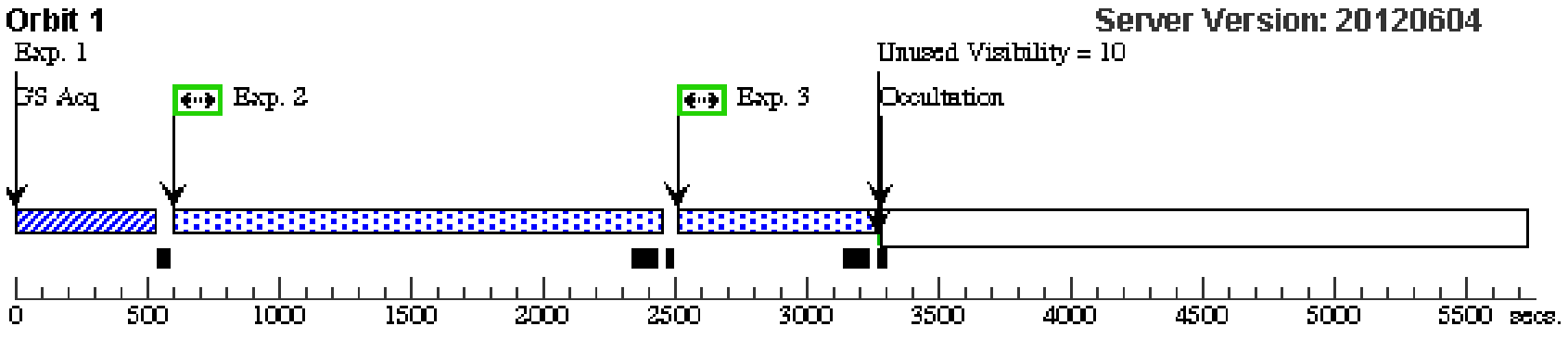
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	RXS-J21388-3828	RA: 21 38 49.8900 (324.7078750d) Dec: -38 28 40.34 (-38.47787d) Equinox: J2000	Redshift: 0.188303	V=16.3 GALEX fuv flux = 1320 micro-Jy	Reference Frame: ICRS

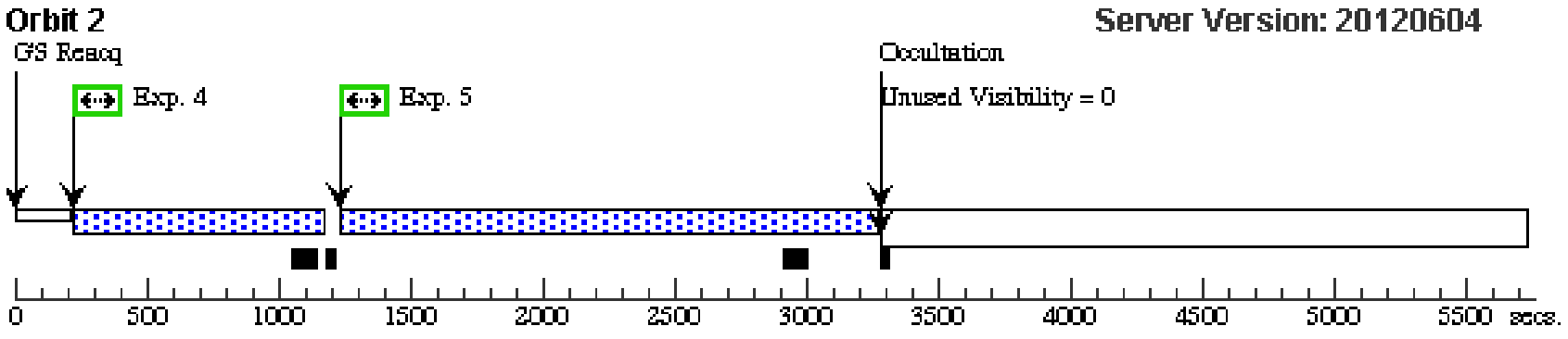
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

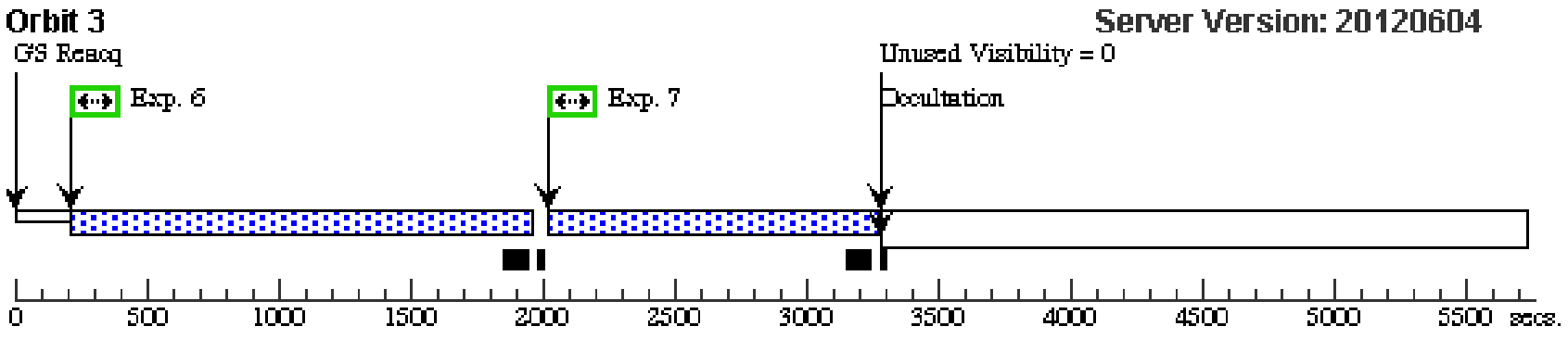
Exposures

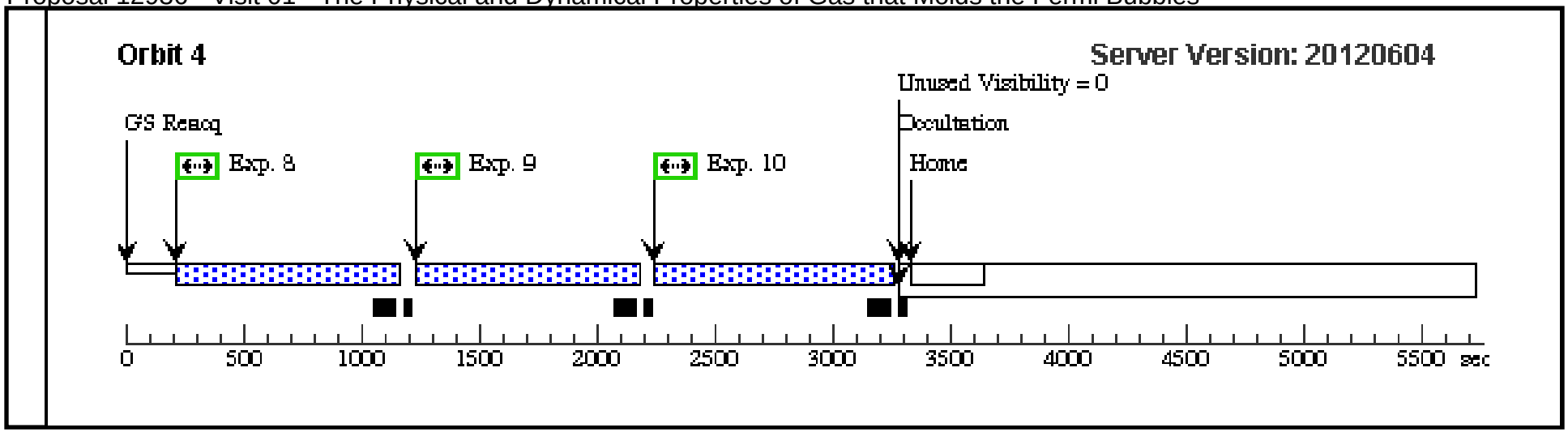
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(412095)	(1) RXS-J21388-3828	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				52 Secs *[==>]*	***[1]***
Comments: Exposure time increased by a factor of two over the ETC value to allow for a variability in the flux in an unfavorable direction.									
2	(411660)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=1575			1500 Secs *[==>1675.0 Secs]*	***[1]***
3	(411660)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=600			700 Secs *[==>]*	***[1]***
4	(411660)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=800			900 Secs *[==>]*	***[2]***
5	(411660)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=1642			1800 Secs *[==>1986.0 Secs]*	***[2]***
Comments: Unlike most exposures, here we specify buffer time in terms of 2/3 X ETC calc. of buffer time instead of exp time - 100.									
6	(411660)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=1600			1700 Secs *[==>]*	***[3]***
7	(411673)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=965			800 Secs *[==>1065.0 Secs]*	***[3]***
8	(411673)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=800			900 Secs *[==>]*	***[4]***
9	(411673)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=800			900 Secs *[==>]*	***[4]***
10	(411673)	(1) RXS-J21388-3828	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=871			900 Secs *[==>971.0 Secs]*	***[4]***

Orbit Structure





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1500
2000
2500
3000
3500
4000
4500
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5500
sec

Visit

Proposal 12936, Visit 02 Wed Jul 11 03:26:16 GMT 2012

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: (none)

Fixed Targets

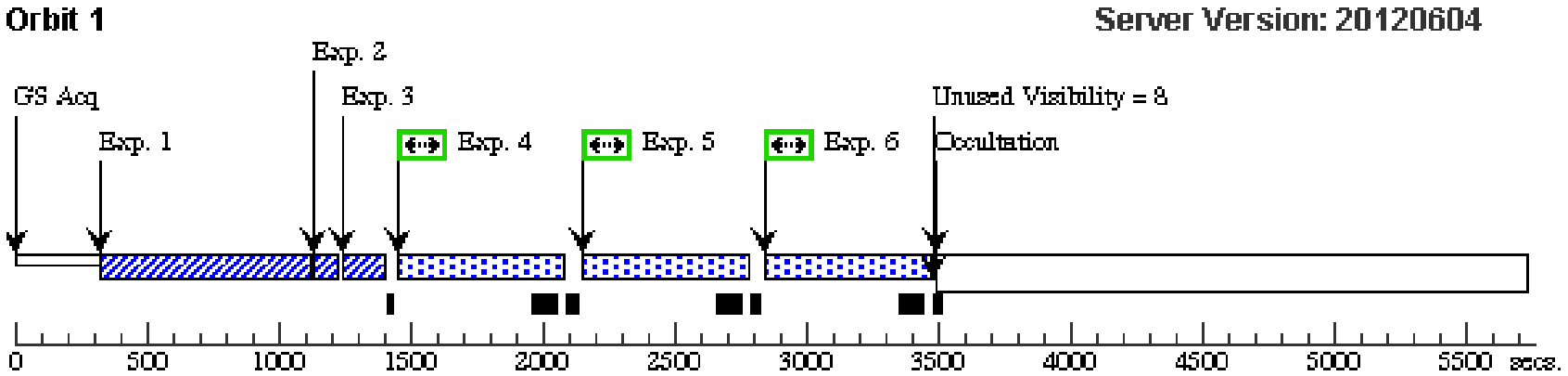
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ESO-141-55	RA: 19 21 14.1480 (290.3089500d) Dec: -58 40 13.06 (-58.67029d) Equinox: J2000	Redshift: 0.036649	V=13.6 GALEX fuv flux = 4361 micro-Jy	Reference Frame: ICRS

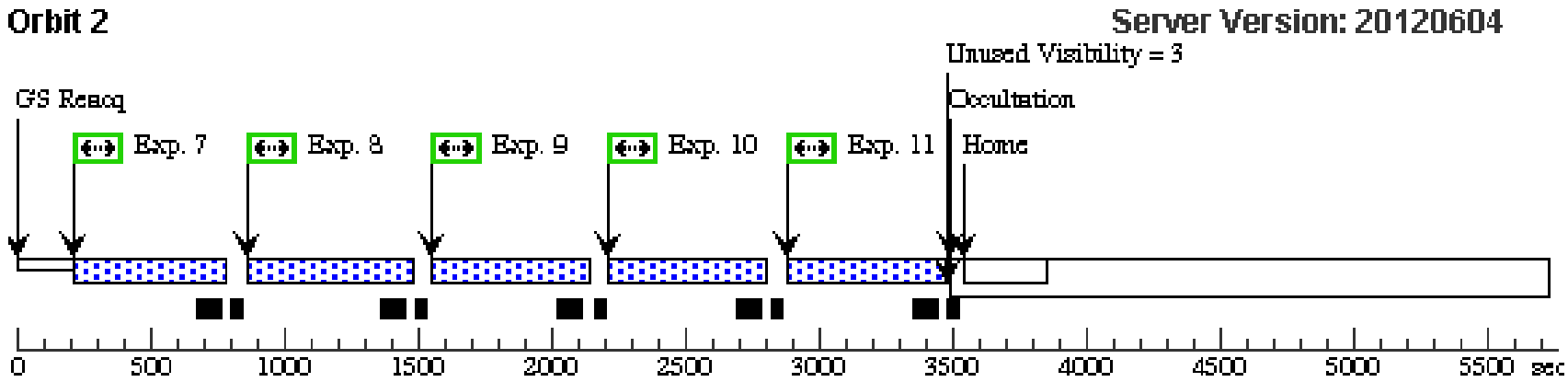
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(415910)	(3) ESO-141-55	COS/FUV, ACQ/SEARCH, PSA	G130M 1309 A	SCAN-SIZE=5; STEP-SIZE=1.767; CENTER=FLUX-WT-FLR; SEGMENT=BOTH			1 Secs *[==>]*	***[1]***
2	(415910)	(3) ESO-141-55	COS/FUV, ACQ/PEAKXD, PSA	G130M 1309 A	SEGMENT=BOTH			2 Secs *[==>]*	***[1]***
Comments: Exposure time boosted by a factor of two above ETC time of 1 sec (which gives SNR = 28 for Segment A only) in order to allow for a possible factor two decrease in the target's flux since the reference IUE spectrum was taken.									
3	(415910)	(3) ESO-141-55	COS/FUV, ACQ/PEAKD, PSA	G130M 1309 A	NUM-POS=5; STEP-SIZE=.9; CENTER=FLUX-WT-FLR; SEGMENT=BOTH			1 Secs *[==>]*	***[1]***
4	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=413			440 Secs *[==>513.0 Secs]*	***[1]***
5	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=473			500 Secs *[==>573.0 Secs]*	***[1]***
6	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=473			500 Secs *[==>573.0 Secs]*	***[1]***
7	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=417			500 Secs *[==>519.0 Secs]*	***[2]***
8	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=337			420 Secs *[==>439.0 Secs]*	***[2]***
9	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=437			520 Secs *[==>539.0 Secs]*	***[2]***
10	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=437			520 Secs *[==>539.0 Secs]*	***[2]***
11	(411671)	(3) ESO-141-55	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=437			520 Secs *[==>539.0 Secs]*	***[2]***

Orbit Structure





Visit

Proposal 12936, Visit 03 Wed Jul 11 03:26:18 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: CVZ

Diagnostics

(Visit 03) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

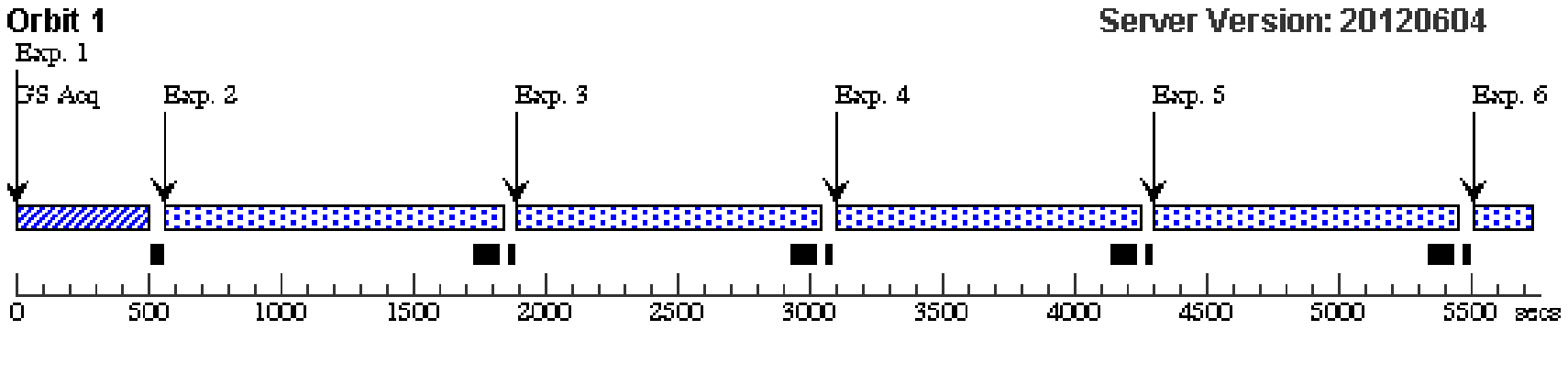
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	1H-2129-624	RA: 21 36 23.0000 (324.0958333d) Dec: -62 24 1.00 (-62.40028d) Equinox: J2000	Redshift: 0.0578	V=15.15 GALEX fuv flux = 1356 micro-Jy	Reference Frame: ICRS

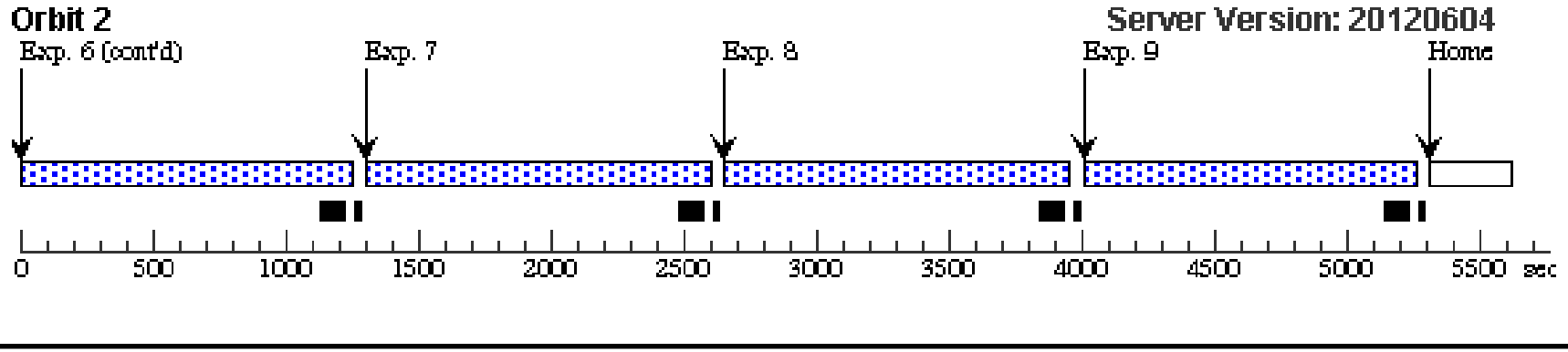
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(412102)	(4) 1H-2129-624	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				34 Secs *[==>]*	***[1]***
Comments: Exposure time increased by a factor of two over the ETC value to allow for a variability in the flux in an unfavorable direction.									
2	(411664)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=1000			1100 Secs *[==>]*	***[1]***
3	(411664)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=1000			1100 Secs *[==>]*	***[1]***
4	(411664)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=1000			1100 Secs *[==>]*	***[1]***
5	(411664)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=1000			1100 Secs *[==>]*	***[1]***
6	(411669)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=1200			1300 Secs *[==>]*	***[1]***
7	(411669)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=1150			1250 Secs *[==>]*	***[2]***
8	(411669)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=1150			1250 Secs *[==>]*	***[2]***
9	(411669)	(4) 1H-2129-624	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=1100			1200 Secs *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 12936, Visit 04 Wed Jul 11 03:26:20 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: SCHED 100%

Diagnostics

(Visit 04) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

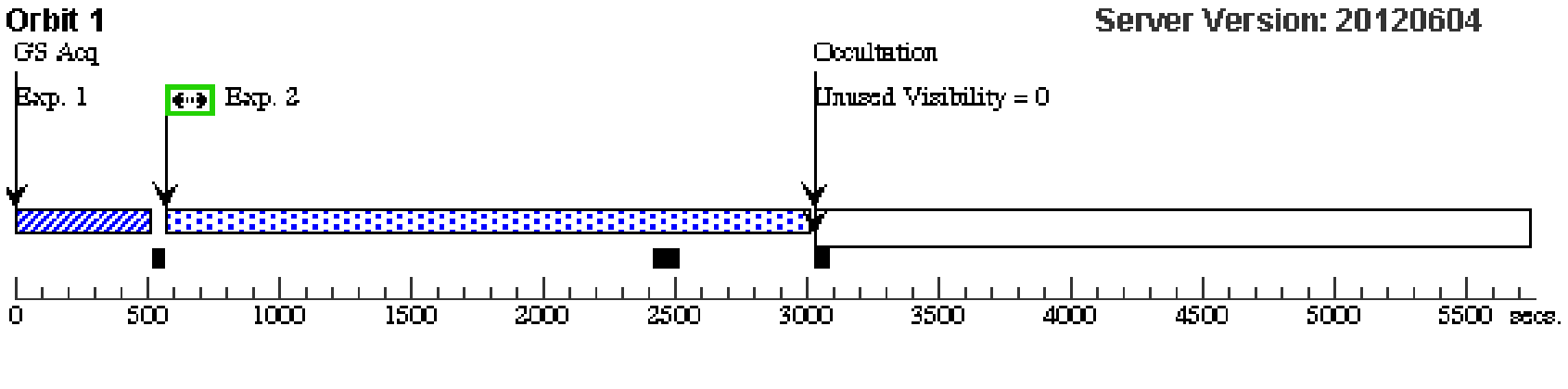
Fixed Targets

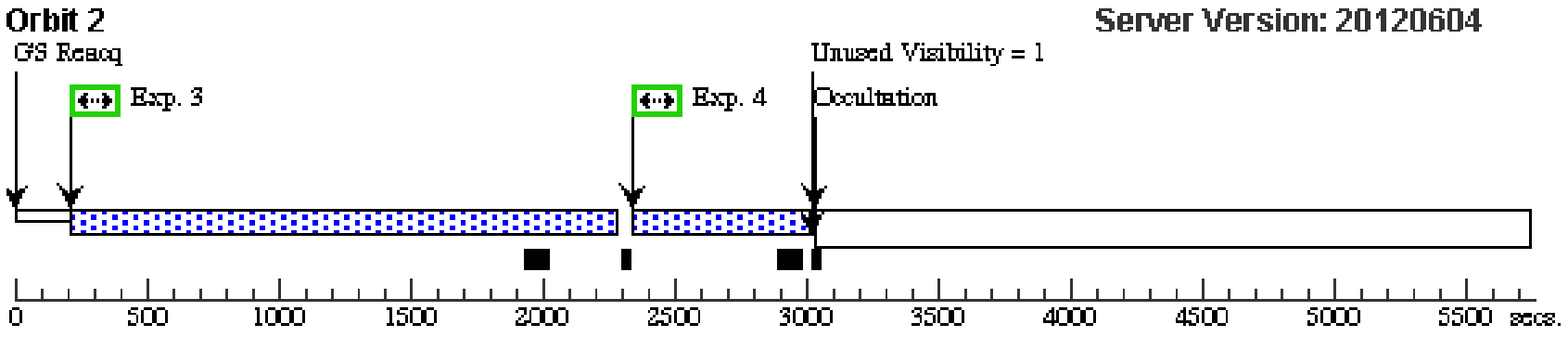
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXS-J00057-5007	RA: 00 05 43.0500 (1.4293750d) Dec: -50 06 54.50 (-50.11514d) Equinox: J2000	Redshift: 0.03328	V=14.00 GALEX fuv flux = 877 micro-Jy	Reference Frame: ICRS

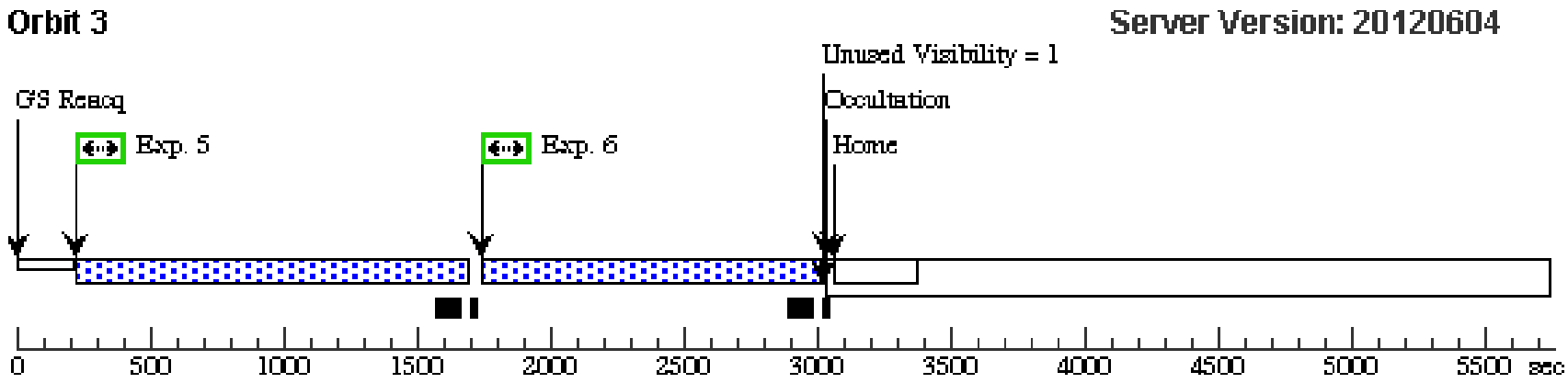
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(412104)	(5) RXS-J00057-5007	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs *[==>]*	*[1]*
Comments: Exposure time increased by a factor of two over the ETC value to allow for a variability in the flux in an unfavorable direction.									
2	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=16080			2000 Secs *[==>2257.0 Secs]*	*[1]*
Comments: Unlike most exposures, here we specify buffer time in terms of 2/3 X ETC calc. of buffer time instead of exp time - 100.									
3	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=16080			2000 Secs *[==>2014.0 Secs]*	*[2]*
Comments: Unlike most exposures, here we specify buffer time in terms of 2/3 X ETC calc. of buffer time instead of exp time - 100.									
4	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=514			600 Secs *[==>614.0 Secs]*	*[2]*
5	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=1319			1400 Secs *[==>1419.0 Secs]*	*[3]*
6	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=1119			1200 Secs *[==>1219.0 Secs]*	*[3]*

Orbit Structure







Visit

Proposal 12936, Visit 05 Wed Jul 11 03:26:23 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: SCHED 100%

Diagnostics

(Visit 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.

(Visit 05) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

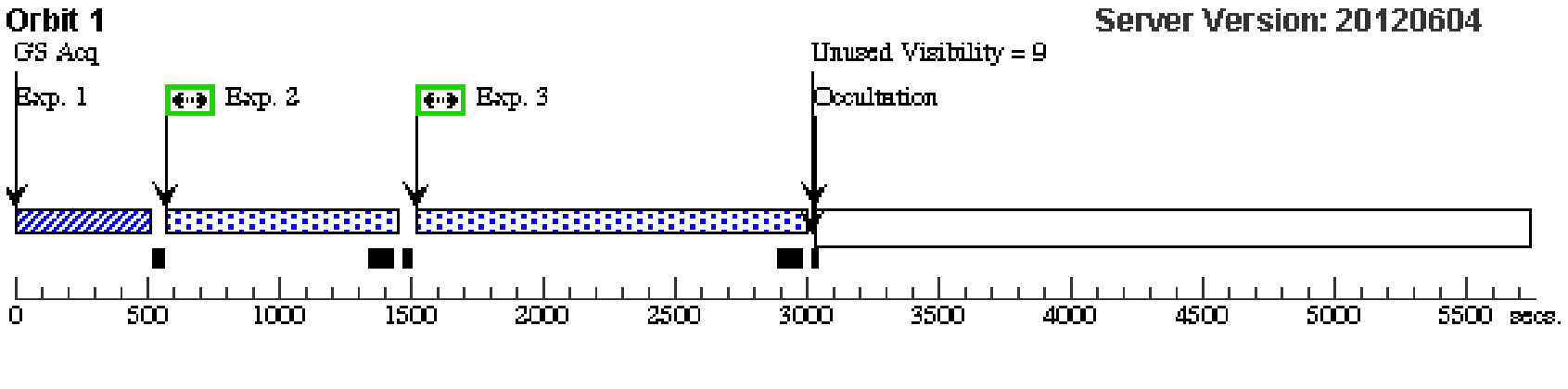
Fixed Targets

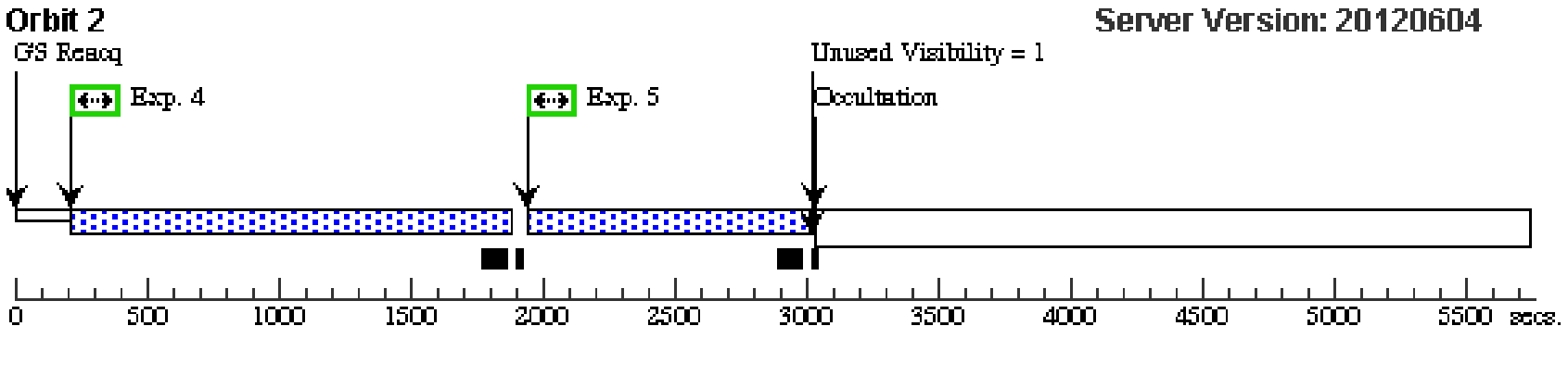
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXS-J00057-5007	RA: 00 05 43.0500 (1.4293750d) Dec: -50 06 54.50 (-50.11514d) Equinox: J2000	Redshift: 0.03328	V=14.00 GALEX fuv flux = 877 micro-Jy	Reference Frame: ICRS

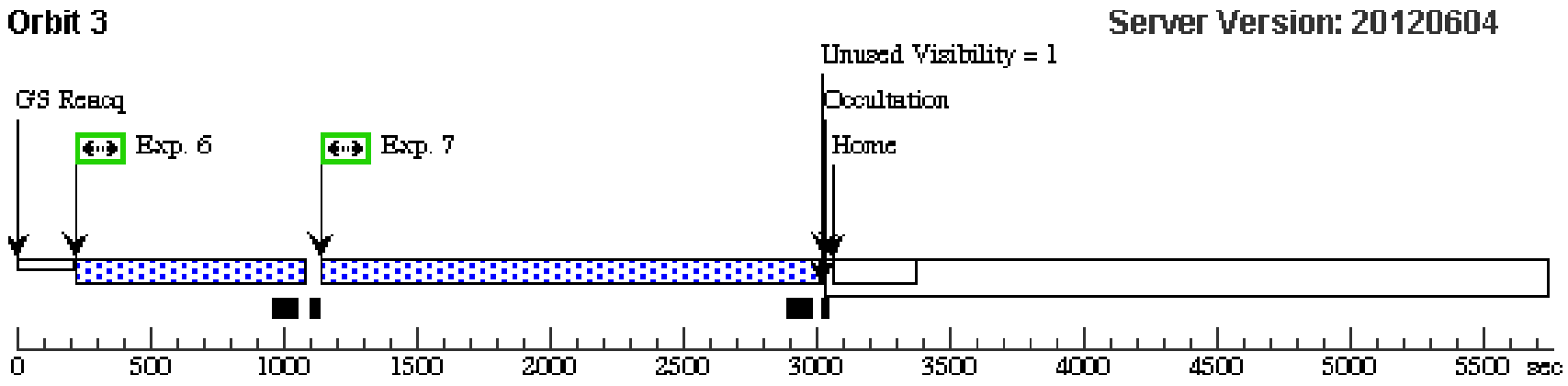
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(412104)	(5) RXS-J00057-5007	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				40 Secs *[==>]*	***[1]***
Comments: Exposure time increased by a factor of two over the ETC value to allow for a variability in the flux in an unfavorable direction.									
2	(411665)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=601			600 Secs *[==>701.0 Secs]*	***[1]***
3	(411669)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=1201			1200 Secs *[==>1301.0 Secs]*	***[1]***
4	(411669)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=1519			1600 Secs *[==>1619.0 Secs]*	***[2]***
5	(411669)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=919			1000 Secs *[==>1019.0 Secs]*	***[2]***
6	(411669)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=714			800 Secs *[==>814.0 Secs]*	***[3]***
7	(411669)	(5) RXS-J00057-5007	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=1714			1800 Secs *[==>1814.0 Secs]*	***[3]***

Orbit Structure







Proposal 12936 - Visit 06 - The Physical and Dynamical Properties of Gas that Molds the Fermi Bubbles

Visit

Proposal 12936, Visit 06 Wed Jul 11 03:26:25 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: SCHED 100%

Diagnostics

(Visit 06) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

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

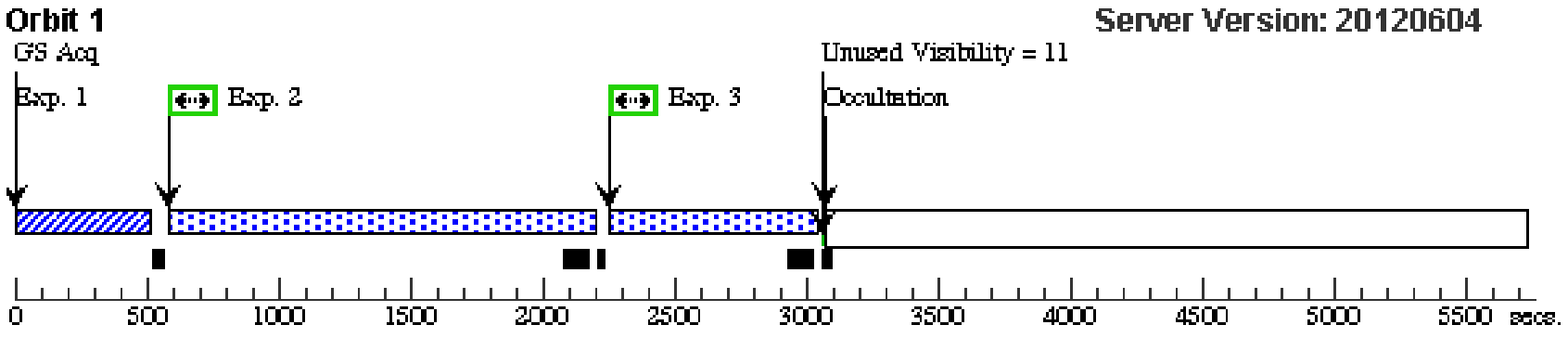
Fixed Targets

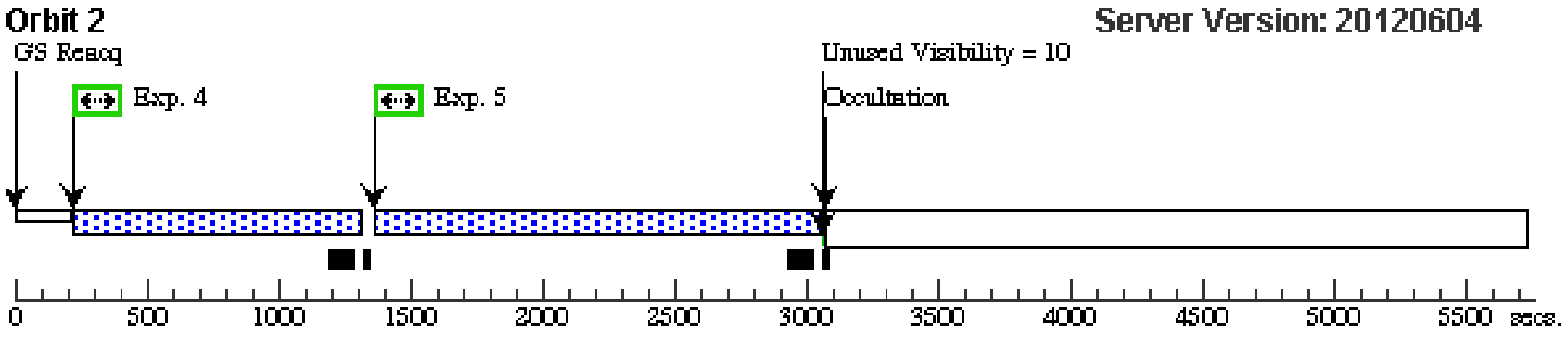
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	RXS-J23218-7026	RA: 23 21 51.1000 (350.4629167d) Dec: -70 26 44.00 (-70.44556d) Equinox: J2000	Redshift: 0.300	V=16.0 GALEX fuv flux = 1037 micro-Jy	Reference Frame: ICRS

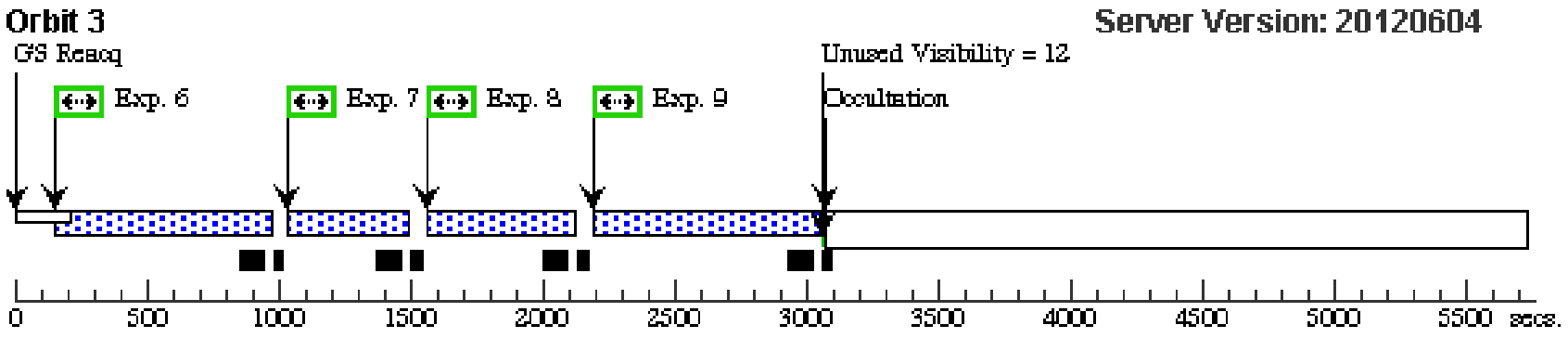
Exposures

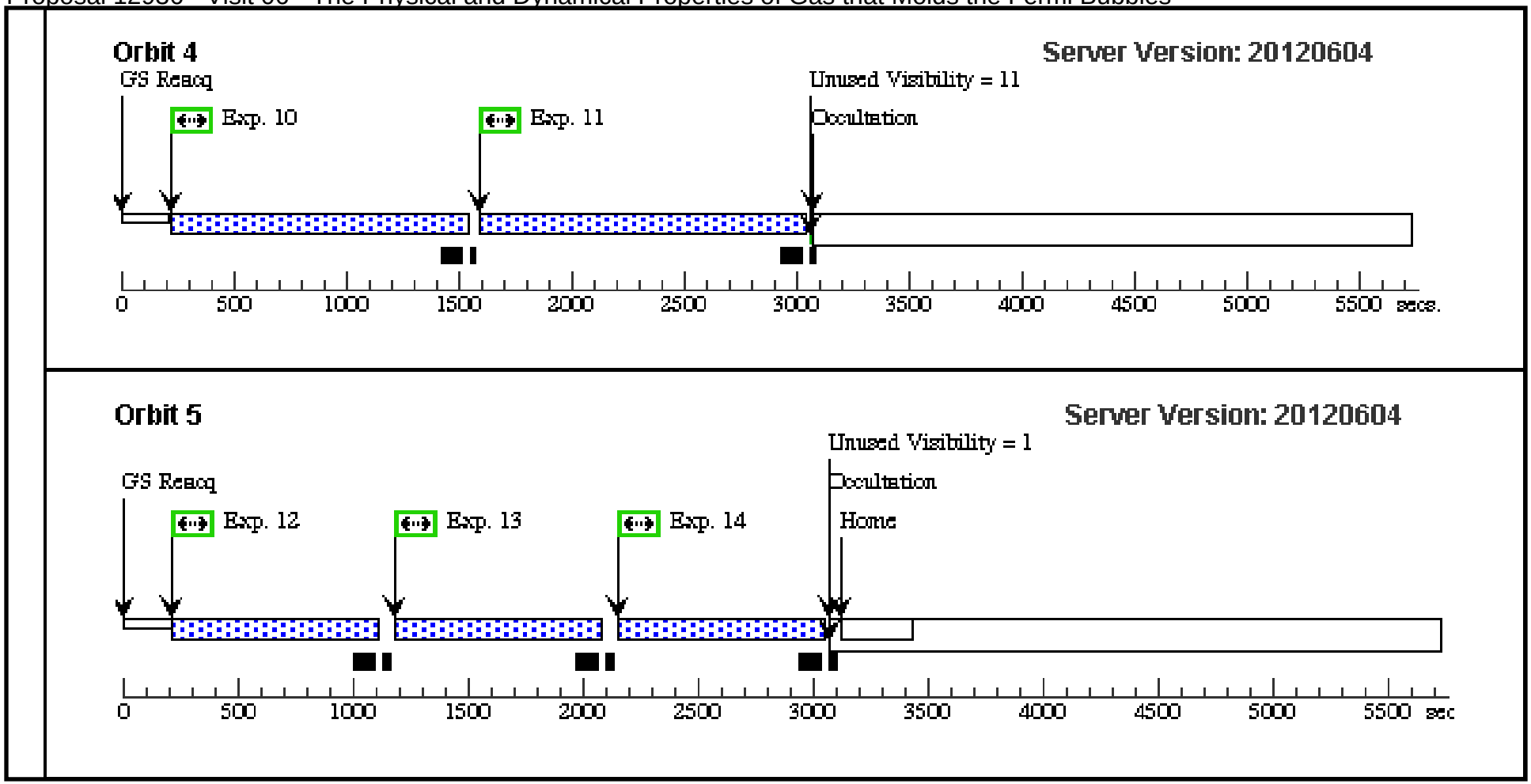
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(412112)	(6) RXS-J23218-7026	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				42 Secs *[==>]*	 ***[1]***
Comments: Exposure time increased by a factor of two over the ETC value to allow for a variability in the flux in an unfavorable direction.									
2	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=1340			1400 Secs *[==>1440.0 Secs]*	 ***[1]***
3	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=640			700 Secs *[==>740.0 Secs]*	 ***[1]***
4	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=936			1000 Secs *[==>1036.0 Secs]*	 ***[2]***
5	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=1536			1600 Secs *[==>1636.0 Secs]*	 ***[2]***
6	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=1; BUFFER-TIME=603			700 Secs *[==>703.0 Secs]*	 ***[3]***
7	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=2; BUFFER-TIME=303			400 Secs *[==>403.0 Secs]*	 ***[3]***
8	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=403			500 Secs *[==>503.0 Secs]*	 ***[3]***
9	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=703			800 Secs *[==>803.0 Secs]*	 ***[3]***
10	(411666)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=4; BUFFER-TIME=1170			1200 Secs *[==>1270.0 Secs]*	 ***[4]***
11	(411668)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=1170			1200 Secs *[==>1270.0 Secs]*	 ***[4]***
12	(411668)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=752			800 Secs *[==>852.0 Secs]*	 ***[5]***
13	(411668)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=752			800 Secs *[==>852.0 Secs]*	 ***[5]***
14	(411668)	(6) RXS-J23218-7026	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=752			800 Secs *[==>852.0 Secs]*	 ***[5]***

Orbit Structure





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Orbit 5
Server Version: 20120604
Unused Visibility = 1
GS Reacq
Occultation
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Exp. 13
Exp. 14
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