12593 - A Survey of Atomic Hydrogen at 0.2 < z < 0.4

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) Q0949-051	COS/FUV COS/NUV	1	09-Jul-2011 02:08:27.0	yes
02	(2) Q1659+373	COS/FUV COS/NUV	1	09-Jul-2011 02:08:32.0	yes
03	(3) Q1007+363	COS/FUV COS/NUV	1	09-Jul-2011 02:08:37.0	yes
04	(4) Q0950+483	COS/FUV COS/NUV	1	09-Jul-2011 02:08:40.0	yes
05	(5) Q0958+555	COS/FUV COS/NUV	2	09-Jul-2011 02:08:45.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(6) Q1022+393	COS/FUV COS/NUV	1	09-Jul-2011 02:08:49.0	yes
07	(7) Q1021+343	COS/FUV COS/NUV	1	09-Jul-2011 02:08:52.0	yes
08	(8) Q1328+524	COS/FUV COS/NUV	1	09-Jul-2011 02:08:55.0	yes
09	(9) Q1001+594	COS/FUV COS/NUV	1	09-Jul-2011 02:08:59.0	yes
10	(10) Q0949+544	COS/FUV COS/NUV	1	09-Jul-2011 02:09:02.0	yes
11	(11) Q1421+253	COS/FUV COS/NUV	1	09-Jul-2011 02:09:06.0	yes
12	(12) Q1323+343	COS/FUV COS/NUV	1	09-Jul-2011 02:09:09.0	yes
13	(13) Q1410+295	COS/FUV COS/NUV	2	09-Jul-2011 02:09:13.0	yes
14	(14) Q2156+224	COS/FUV COS/NUV	1	09-Jul-2011 02:09:16.0	yes
15	(15) Q1400+553	COS/FUV COS/NUV	1	09-Jul-2011 02:09:20.0	yes
16	(16) Q0255-081	COS/FUV COS/NUV	1	09-Jul-2011 02:09:23.0	yes
17	(17) Q1232-022	COS/FUV COS/NUV	3	09-Jul-2011 02:09:30.0	yes
18	(18) Q1251+463	COS/FUV COS/NUV	3	09-Jul-2011 02:09:35.0	yes
19	(19) Q1017+592	COS/FUV COS/NUV	1	09-Jul-2011 02:09:40.0	yes

25 Total Orbits Used

ABSTRACT

Presently, the role of cool gas in galaxy evolution is poorly constrained by observations. 21cm studies map HI in the very local Universe, but not to cosmological distances, and while many data exist for damped Ly-alpha (DLA) absorbers at z>2, the limitations at high-z make their interpretation difficult. Redshifts z<1.65 were finally probed in our HST cycles 6, 9 and 11 Ly-alpha absorption surveys, and using MgII absorbers through our surveys in the SDSS quasar spectra and our own MMT survey. While these works have contributed greatly to our understanding of cool gas in galaxies across the past ~10Gyrs, the lowest redshifts - where there exists the potential to connect the results from high-z absorption-based studies to that of local emission-based work - remain poorly probed. Thus we propose to obtain COS FUV spectra of 19 known MgII absorption systems at 0.2<z<0.4 to determine their HI column densities. We expect to double the number of classically-selected DLAs and subDLAs in this redshift range. Our targets have known, relatively bright FUV magnitudes and are screened for higher-z absorption systems which could absorb flux at the location of our target Ly-alpha line. Thus we expect a ~100% success rate at detecting and measuring high column density HI systems. In addition to measuring the cosmic density of HI at an epoch intermediate to current high-z and local measurements, these observations will provide unique and invaluable laboratories that can provide constraints on our understanding of metal-line absorbers, cool-gas accretion, processes involving the reservoirs of gas for star formation, and galactic-outflows/IGM-enrichment.

OBSERVING DESCRIPTION

We have proposed to obtain COS FUV spectra of 19 QSOs with strong Mg II absorbers at 0.197 < z_abs < 0.404 to expand the sample of high-NHI systems at z < 0.4, for which only seven damped Lyman alpha systems (DLAs; four discovered with STIS and three with COS) and four subDLAs are currently known. We eliminated any objects with higher-z Mg II systems that could produce Lyman limit systems in their own right (thereby absorbing the quasar flux at the position of the targeted Ly-alpha line), as well as objects with GALEX FUV magnitudes > 20, leaving us with our final target list.

While high spectral resolution is not required to accurately determine NHI for (sub)DLAs, we have chosen to exploit the greater sensitivity of the medium-resolution COS/FUV grat ings (as compared to G140L) and bin heavily to increase S/N. Since all of the Mg II absorbers are located at z_abs > 0.197, the corresponding Ly-alpha absorption will be redshifted into the G160M band for all of our targets. Exposure times were calculated to reach S/N 3 per G160M resolution element at the redshifted wavelength of Ly-alpha using the COS Spectroscopic Exposure Time Calculator, which corresponds to S/N > 10 when binned to R = 2,000.

As we have: (i) confirmed the UV brightness of the targets via GALEX data, and (ii) inspected our QSO spectra to confirm the absence of higher-z intervening low-ion absorption systems whose redshifted Ly-limit could absorb the UV flux at the wavelength of the target Ly-alpha, we expect a 100% success rate at being able to determine NHI with our observations.

Visit

Proposal 12593, Visit 01 Sat Jul 09 06:09:44 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Comments: Since AGN are variable targets, some care was taken in choosing a target acquisition strategy. All of our targets are faint enough that they require NUV imaging target acquisitions with the PSA. To determine whether MIRRORA or MIRRORB is appropriate, we assume that the target is twice as bright (NUV - 0.8 mag) as its GALEX flux would suggest. If the target is safe for MIRRORA observations at this heightened brightness, then MIRRORA is chosen, otherwise we choose MIRRORB. To determine the proper integration time we assume that the target is only half as bright (NUV + 0.8 mag) as its GALEX flux would suggest and time the acquisition exposure to reach S/N=30 at this diminished brightness.

The coordinates of our targets are generally known to better than 0.1 arcsec, so we forgo the ACQ/SEARCH sequence and only perform an ACQ/IMAGE. However, the coordinates for Target 1 are less trustworthy so we perform a 2x2 ACQ/SEARCH before the final ACQ/IMAGE.

All exposure time calculations were performed using the FOS-based QSO template redshifted to the target redshift and reddened by the GALEX-determined E(B-V). The template spectra were normalized to the target's GALEX NUV magnitude (+- 0.8 mag as described above) for target acquisitions and its GALEX FUV magnitude for spectroscopic exposures. The G160M/1600 setting was chosen unless the targeted Lya wavelength was located near the gap between segments, and average background and airglow values were assumed. All targets are observed long enough to reach S/N > 2.5 per resolution element at the wavelength of the expected Lya absorption. We will bin to lower spectral resolution to increase S/N before performing any line fits.

All exposures are cleared by the GALEX BOT, and since only COS NUV target acquisitions and FUV spectra are being obtained we ignore the GSC-II BOT warnings.

Diagnostics

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

Fixed Targets

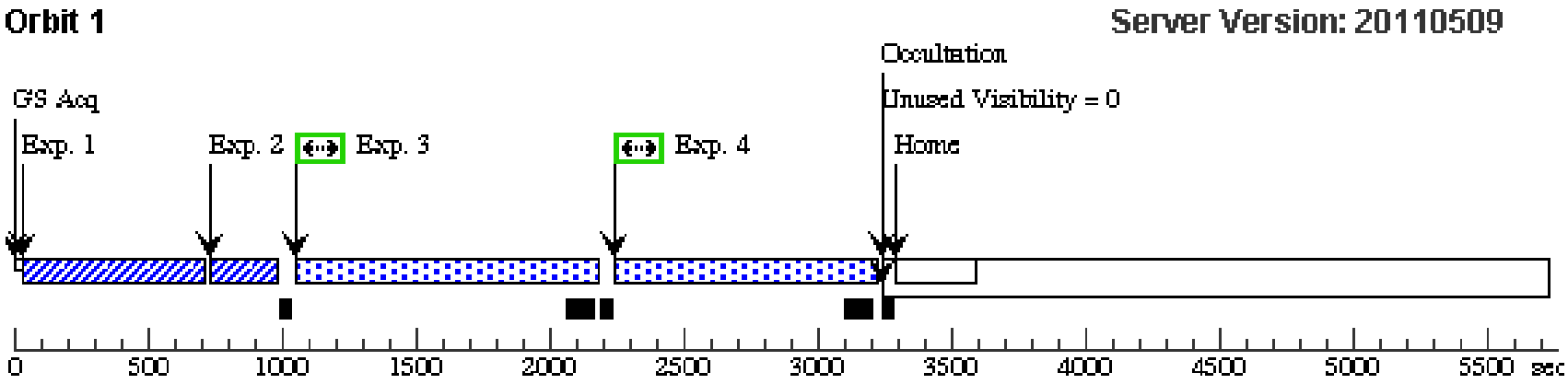
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	Q0949-051	RA: 09 49 30.3000 (147.3762500d) Dec: -05 14 54.00 (-5.24833d) Equinox: J2000		V=16.50 Galex mags = 16.9 NUV, 18.6 FUV	Reference Frame: ICRS

Comments: Coordinates and magnitude as listed in NED; unknown origin

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/SEARCH (COS.im.184028)	(1) Q0949-051	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2			60 Secs *[==>]*	*[1]*
Comments: Coordinates for this target are less trustworthy than those for the other targets, so an ACQ/SEARCH was added.									
2	ACQ/IMAGE (COS.im.184028)	(1) Q0949-051	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				60 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/2 (COS.sp.184029)	(1) Q0949-051	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=820; FP-POS=2			924 Secs *[==>]*	*[1]*
4	Orbit 1 - G160M/1600/3 (COS.sp.184029)	(1) Q0949-051	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=820; FP-POS=3			924 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 02 Sat Jul 09 06:09:45 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 02) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

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

Fixed Targets

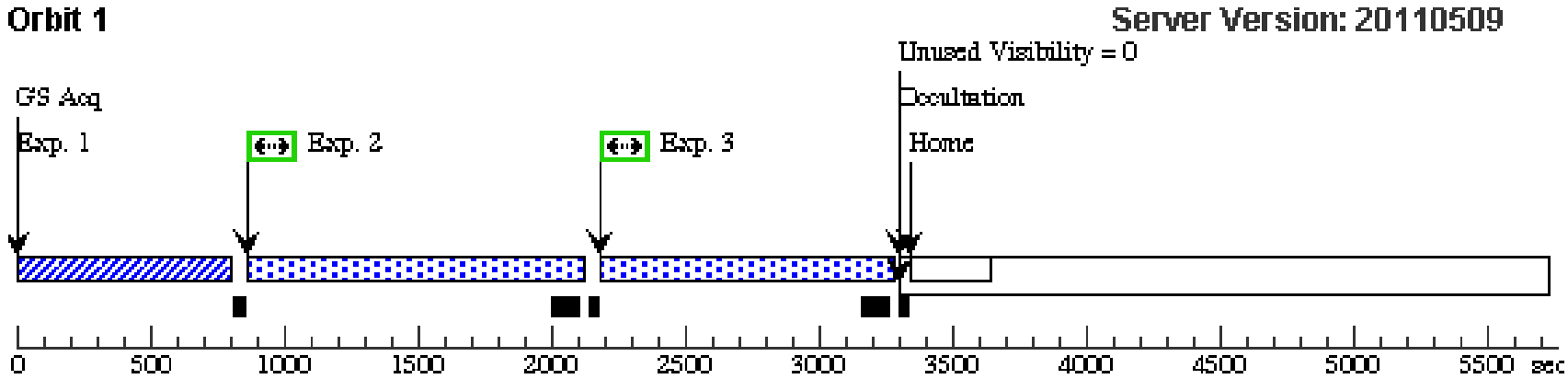
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	Q1659+373	RA: 16 59 31.9280 (254.8830333d) Dec: +37 35 28.98 (37.59138d) Equinox: J2000		V=17.57 Galex mags = 18.1 NUV, 19.1 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184037)	(2) Q1659+373	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				188 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184039)	(2) Q1659+373	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=950; FP-POS=2			1051 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184039)	(2) Q1659+373	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=950; FP-POS=3			1050 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 03 Sat Jul 09 06:09:46 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

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.

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

Fixed Targets

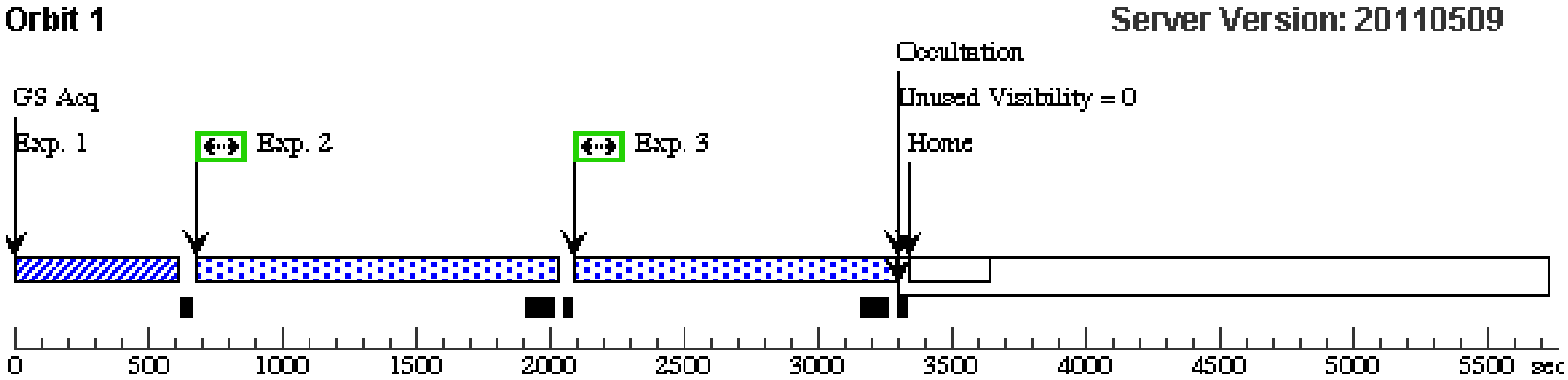
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	Q1007+363	RA: 10 07 36.0600 (151.9002500d) Dec: +36 38 59.60 (36.64989d) Equinox: J2000		V=16.77 Galex mags = 17.4 NUV, 18.4 FUV	Reference Frame: ICRS

Comments: Coordinates from SDSS and SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184042)	(3) Q1007+363	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				97 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184046)	(3) Q1007+363	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1040; FP-POS=2			1142 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184046)	(3) Q1007+363	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1040; FP-POS=3			1141 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 04 Sat Jul 09 06:09:46 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

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.

(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

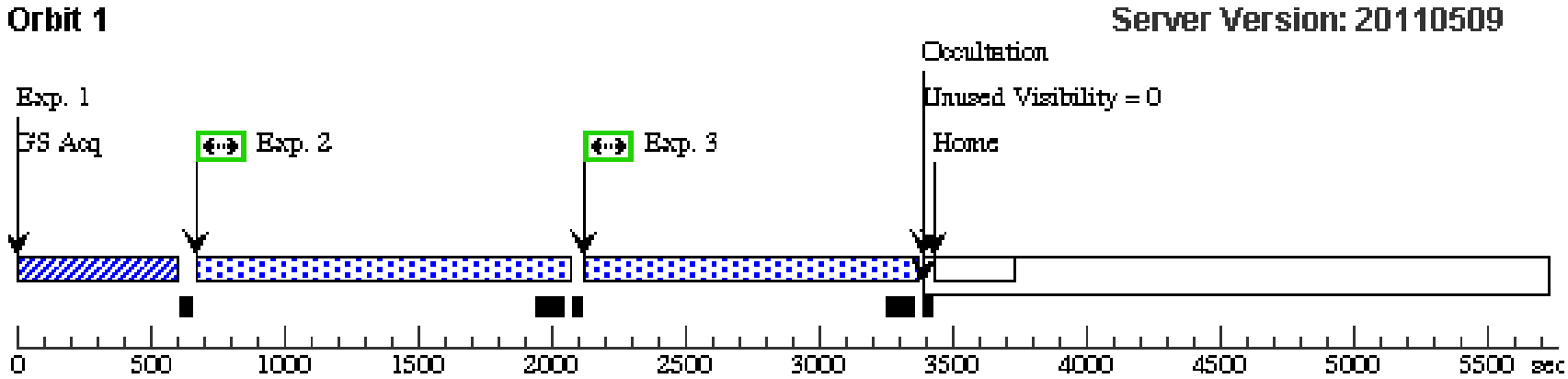
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	Q0950+483	RA: 09 50 0.7300 (147.5030417d) Dec: +48 31 29.50 (48.52486d) Equinox: J2000		V=17.28 Galex mags = 17.4 NUV, 17.9 FUV	Reference Frame: ICRS

Comments: Coordinates from SDSS and SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184089)	(4) Q0950+483	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				89 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184090)	(4) Q0950+483	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1090; FP-POS=2			1195 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184090)	(4) Q0950+483	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1090; FP-POS=3			1194 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 05 Sat Jul 09 06:09:46 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(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

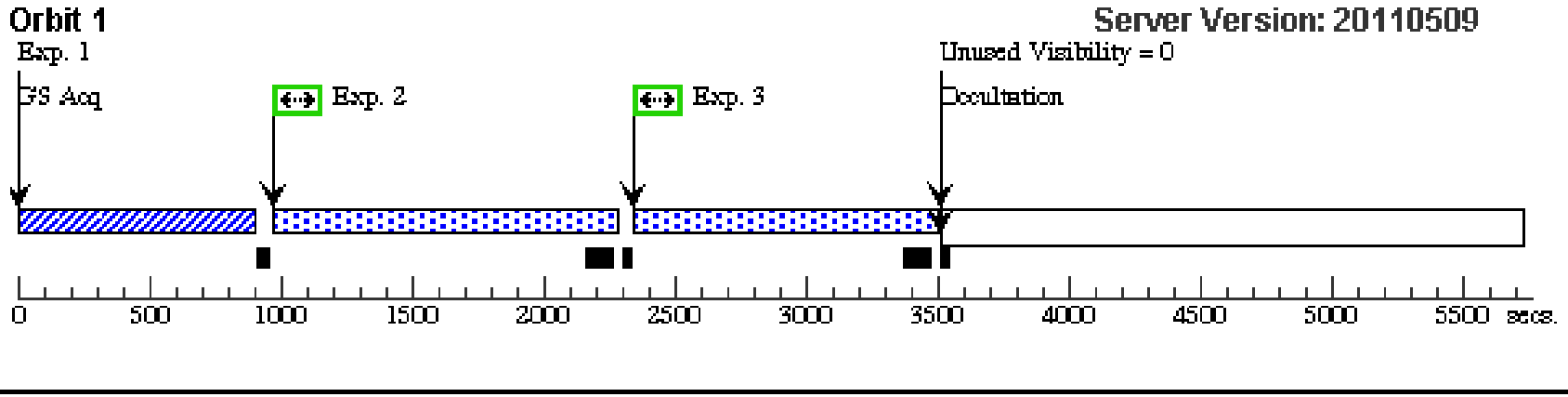
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	Q0958+555	RA: 09 58 37.5840 (149.6566000d) Dec: +55 50 53.12 (55.84809d) Equinox: J2000		V=17.58 Galex mags = 18.3 NUV, 19.8 FUV	Reference Frame: ICRS

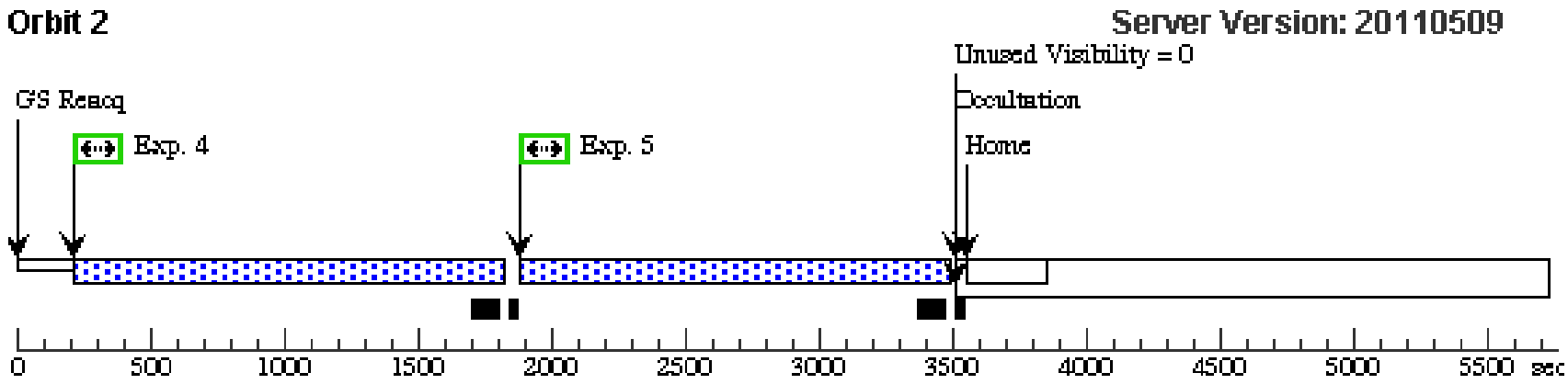
Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184112)	(5) Q0958+555	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				241 Secs *[==>]*	***[1]***
2	Orbit 1 - G160M/1600/1 (COS.sp.184113)	(5) Q0958+555	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1000; FP-POS=1			1103 Secs *[==>]*	***[1]***
3	Orbit 1 - G160M/1600/2 (COS.sp.184113)	(5) Q0958+555	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1000; FP-POS=2			1102 Secs *[==>]*	***[1]***
4	Orbit 2 - G160M/1600/3 (COS.sp.184114)	(5) Q0958+555	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1455; FP-POS=3			1558 Secs *[==>]*	***[2]***
5	Orbit 2 - G160M/1600/4 (COS.sp.184114)	(5) Q0958+555	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1455; FP-POS=4			1558 Secs *[==>]*	***[2]***

Orbit Structure





Visit

Proposal 12593, Visit 06 Sat Jul 09 06:09:47 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

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

Fixed Targets

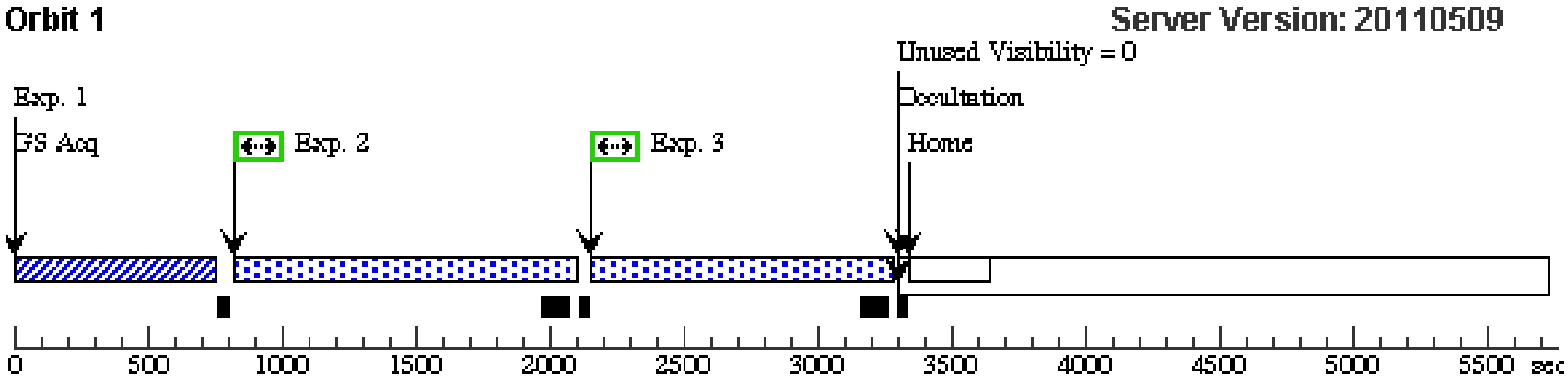
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	Q1022+393	RA: 10 22 37.4190 (155.6559125d) Dec: +39 31 50.53 (39.53070d) Equinox: J2000		V=17.33 Galex mags = 18.0 NUV, 18.8 FUV	Reference Frame: ICRS

Comments: Coordinates from SDSS and SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184106)	(6) Q1022+393	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				164 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184109)	(6) Q1022+393	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=970; FP-POS=2			1075 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184109)	(6) Q1022+393	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=970; FP-POS=3			1074 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 07 Sat Jul 09 06:09:47 GMT 2011

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.

(Visit 07) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

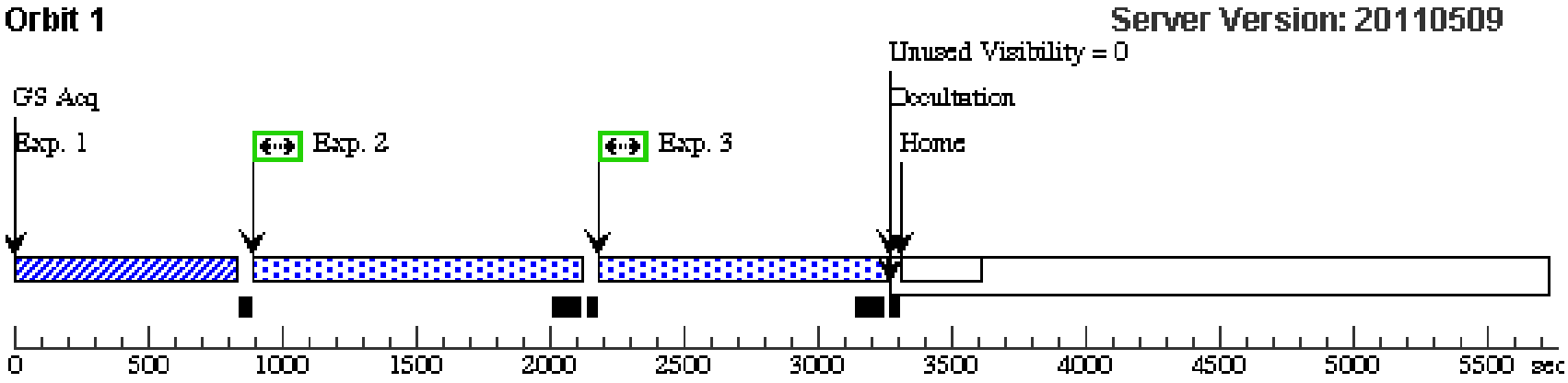
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	Q1021+343	RA: 10 21 17.4746 (155.3228108d) Dec: +34 37 21.67 (34.62269d) Equinox: J2000		V=17.58 Galex mags = 18.3 NUV, 19.5 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184131)	(7) Q1021+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				203 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184133)	(7) Q1021+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=925; FP-POS=2			1023 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184133)	(7) Q1021+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=925; FP-POS=3			1022 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 08 Sat Jul 09 06:09:47 GMT 2011

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.

(Visit 08) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

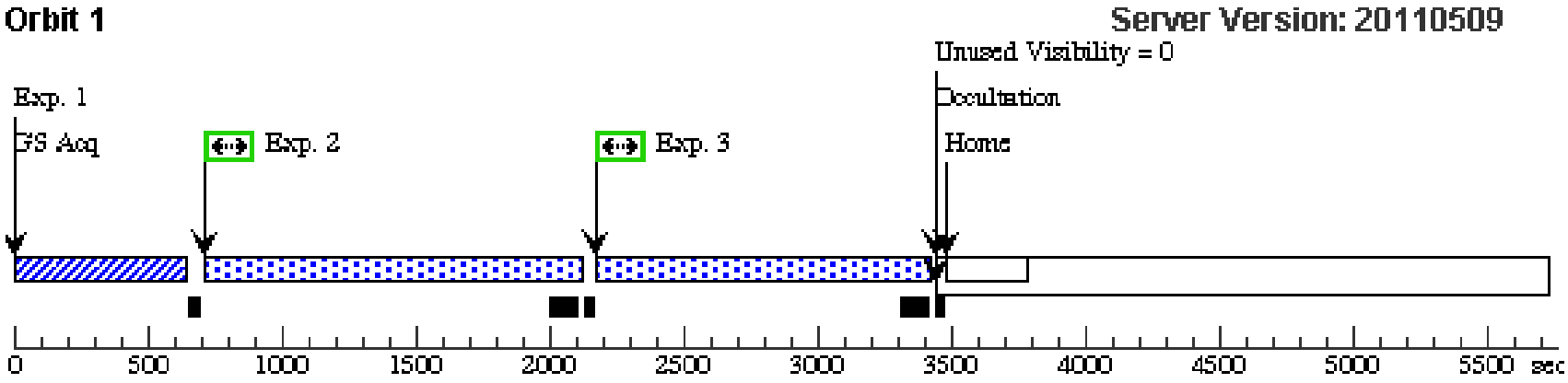
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	Q1328+524	RA: 13 28 15.6100 (202.0650417d) Dec: +52 44 3.80 (52.73439d) Equinox: J2000		V=16.49 Galex mags = 18.6 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184137)	(8) Q1328+524	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				110 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184138)	(8) Q1328+524	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1100; FP-POS=2			1201 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184138)	(8) Q1328+524	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1100; FP-POS=3			1200 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 09 Sat Jul 09 06:09:48 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 09) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

(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

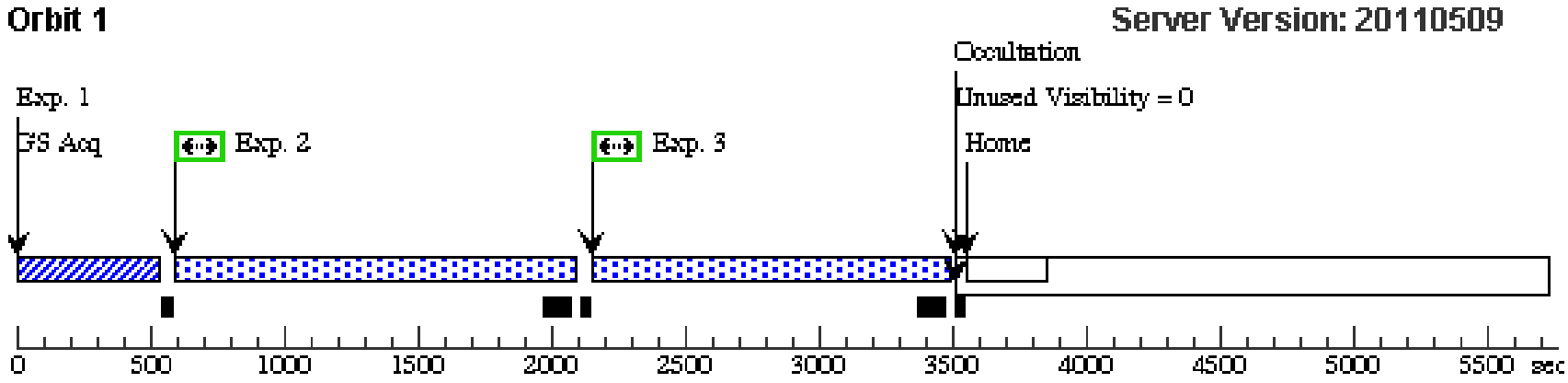
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	Q1001+594	RA: 10 01 2.5520 (150.2606333d) Dec: +59 44 14.41 (59.73734d) Equinox: J2000		V=16.06 Galex mags = 16.8 NUV, 17.4 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184141)	(9) Q1001+594	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				53 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1623/2 (COS.sp.184142)	(9) Q1001+594	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=1190; FP-POS=2			1291 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1623/3 (COS.sp.184142)	(9) Q1001+594	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=1190; FP-POS=3			1290 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 10 Sat Jul 09 06:09:48 GMT 2011

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.

(Visit 10) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

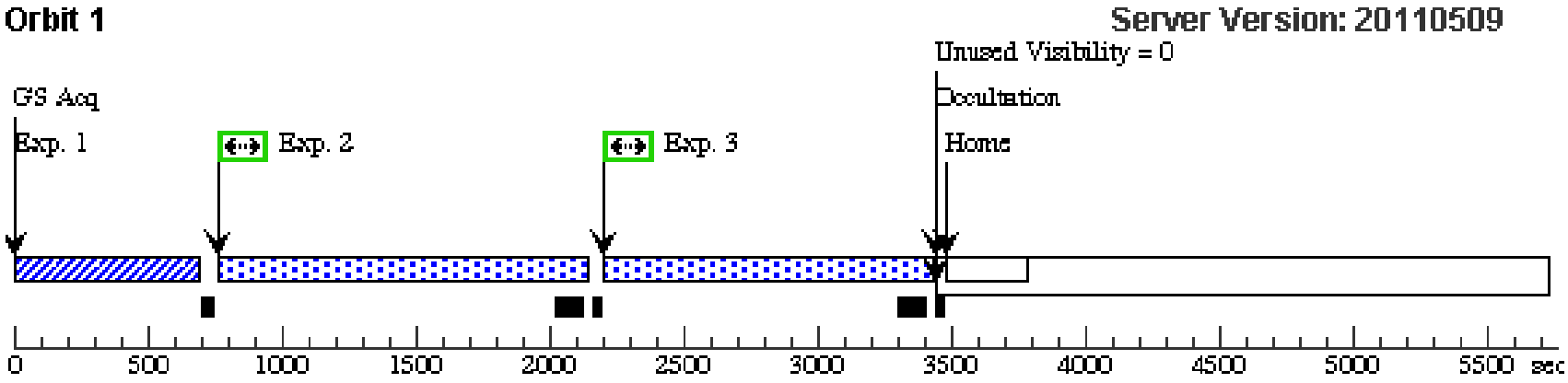
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	Q0949+544	RA: 09 49 7.1580 (147.2798250d) Dec: +54 45 10.50 (54.75292d) Equinox: J2000		V=17.46 Galex mags = 17.9 NUV, 18.7 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184145)	(10) Q0949+544	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				135 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1577/2 (COS.sp.184147)	(10) Q0949+544	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=1070; FP-POS=2			1176 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1577/3 (COS.sp.184147)	(10) Q0949+544	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=1070; FP-POS=3			1175 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 11 Sat Jul 09 06:09:48 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 11) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

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

Fixed Targets

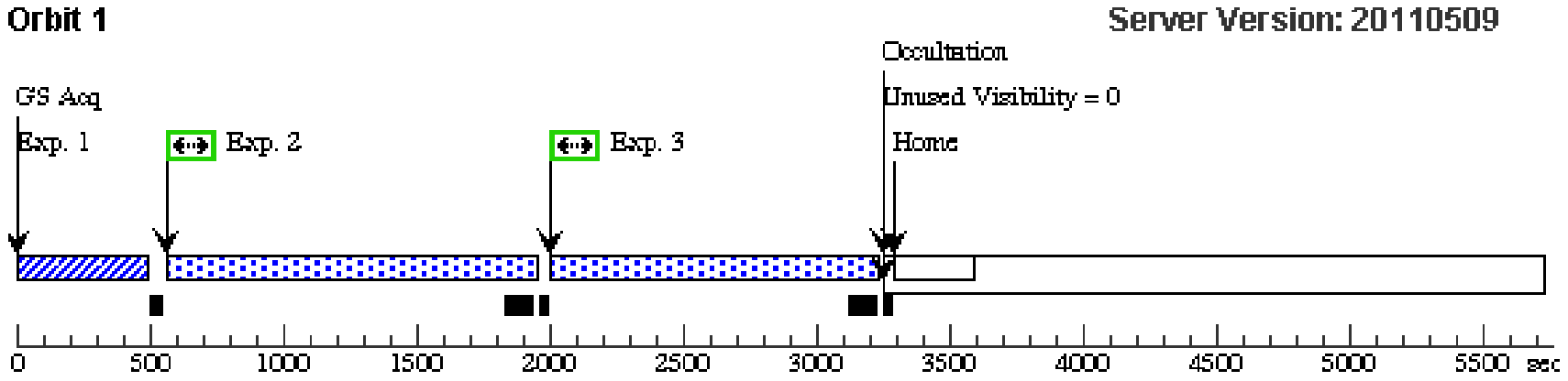
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	Q1421+253	RA: 14 21 7.5650 (215.2815208d) Dec: +25 38 21.08 (25.63919d) Equinox: J2000		V=15.86 Galex mags = 16.4 NUV, 17.8 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184148)	(11) Q1421+253	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				37 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1577/2 (COS.sp.184150)	(11) Q1421+253	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=1080; FP-POS=2			1180 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1577/3 (COS.sp.184150)	(11) Q1421+253	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=1080; FP-POS=3			1179 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 12 Sat Jul 09 06:09:48 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

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

(Visit 12) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

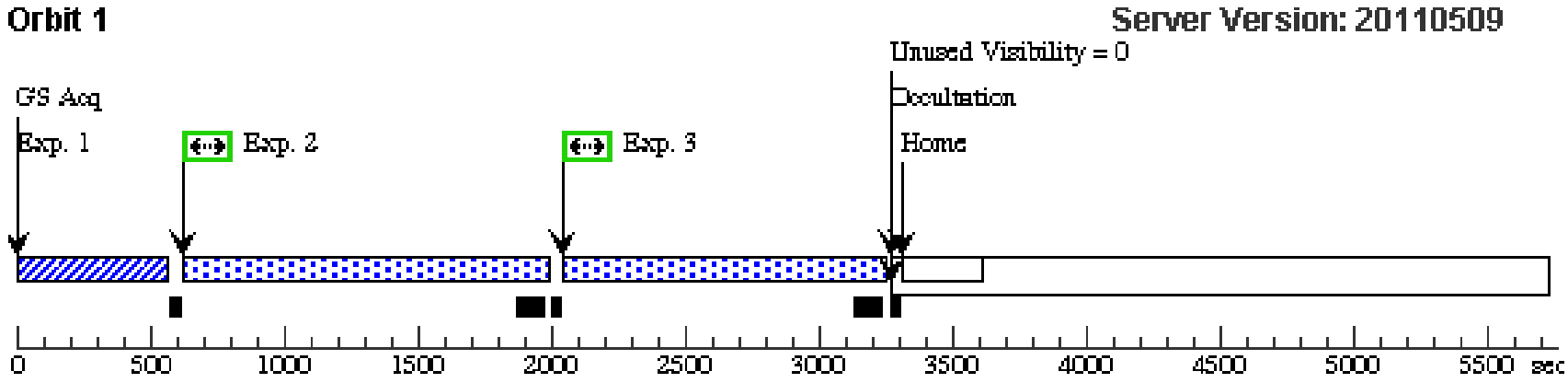
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	Q1323+343	RA: 13 23 25.2460 (200.8551917d) Dec: +34 30 59.33 (34.51648d) Equinox: J2000		V=16.82 Galex mags = 17.2 NUV, 17.5 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184151)	(12) Q1323+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				68 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1589/2 (COS.sp.184152)	(12) Q1323+343	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1055; FP-POS=2			1158 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1589/3 (COS.sp.184152)	(12) Q1323+343	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1055; FP-POS=3			1157 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 13 Sat Jul 09 06:09:49 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 13) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

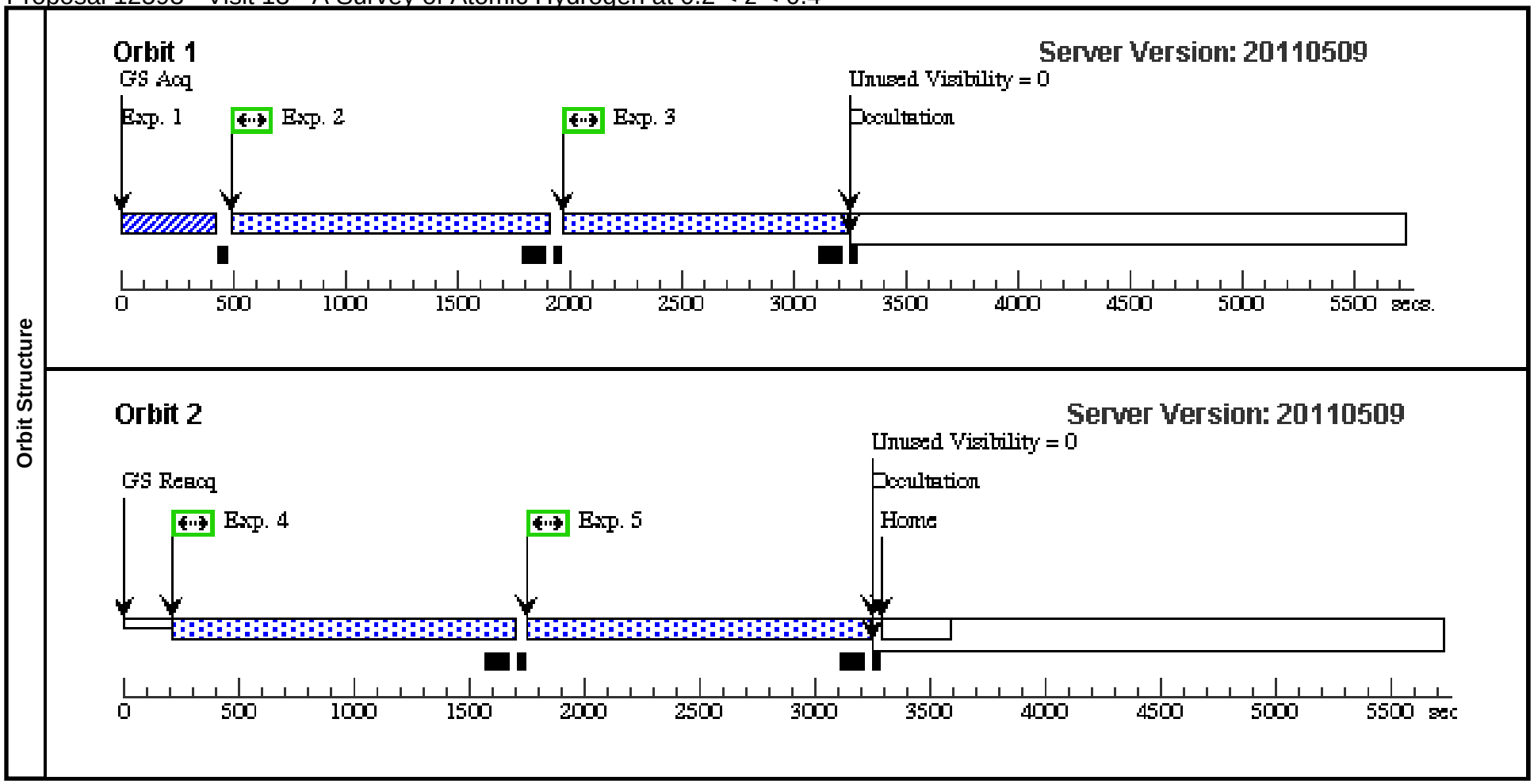
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	Q1410+295	RA: 14 10 36.8050 (212.6533542d) Dec: +29 55 50.94 (29.93082d) Equinox: J2000		V=18.13 Galex mags = 18.7 NUV, 19.8 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184154)	(13) Q1410+295	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				15 Secs *[==>]*	 ***[1]***
2	Orbit 1 - G160M/1589/1 (COS.sp.184155)	(13) Q1410+295	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1110; FP-POS=1			1216 Secs *[==>]*	 ***[1]***
3	Orbit 1 - G160M/1589/2 (COS.sp.184155)	(13) Q1410+295	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1110; FP-POS=2			1216 Secs *[==>]*	 ***[1]***
4	Orbit 2 - G160M/1589/3 (COS.sp.184156)	(13) Q1410+295	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1325; FP-POS=3			1431 Secs *[==>]*	 ***[2]***
5	Orbit 2 - G160M/1589/4 (COS.sp.184156)	(13) Q1410+295	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1325; FP-POS=4			1431 Secs *[==>]*	 ***[2]***


Orbit Structure
Orbit 1
Server Version: 20110509
GS Acq
Exp. 1
Exp. 2
Exp. 3
Unused Visibility = 0
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Orbit 2
Server Version: 20110509
Unused Visibility = 0
GS Reacq
Occultation
Exp. 4
Exp. 5
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12593, Visit 14 Sat Jul 09 06:09:49 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 14) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

(Visit 14) 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

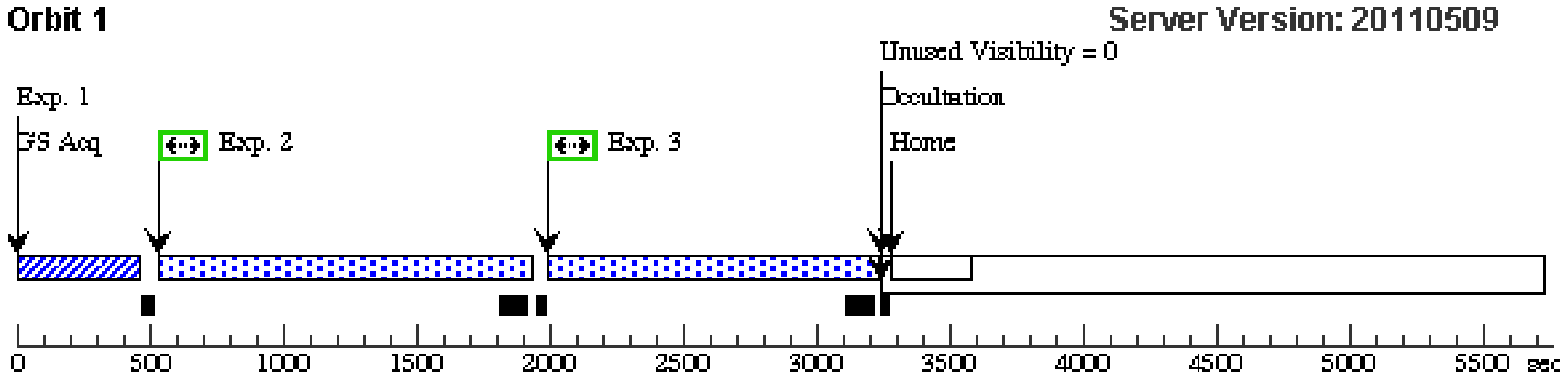
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(14)	Q2156+224	RA: 21 56 47.4600 (329.1977500d) Dec: +22 42 49.90 (22.71386d) Equinox: J2000		V=15.12 Galex mags = 16.0 NUV, 16.9 FUV	Reference Frame: ICRS

Comments: Coordinates from SDSS and SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184161)	(14) Q2156+224	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				22 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184162)	(14) Q2156+224	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1090; FP-POS=2			1191 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184162)	(14) Q2156+224	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1090; FP-POS=3			1190 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 15 Sat Jul 09 06:09:49 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

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

(Visit 15) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

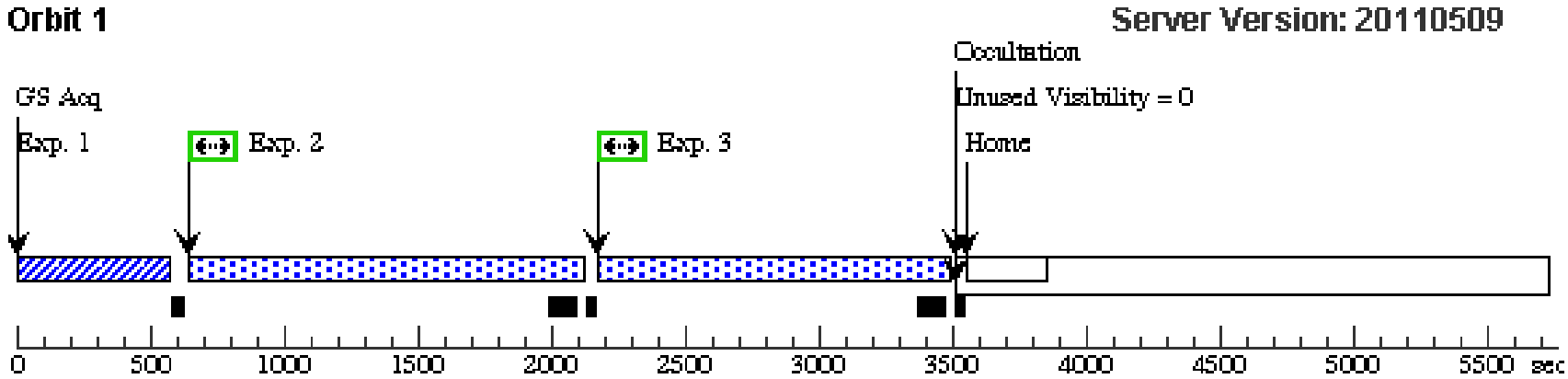
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(15)	Q1400+553	RA: 14 00 35.9170 (210.1496542d) Dec: +55 35 34.41 (55.59289d) Equinox: J2000		V=16.63 Galex mags = 17.2 NUV, 18.2 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184163)	(15) Q1400+553	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				76 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184164)	(15) Q1400+553	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1165; FP-POS=2			1268 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184164)	(15) Q1400+553	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1165; FP-POS=3			1267 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 16 Sat Jul 09 06:09:50 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 16) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

(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

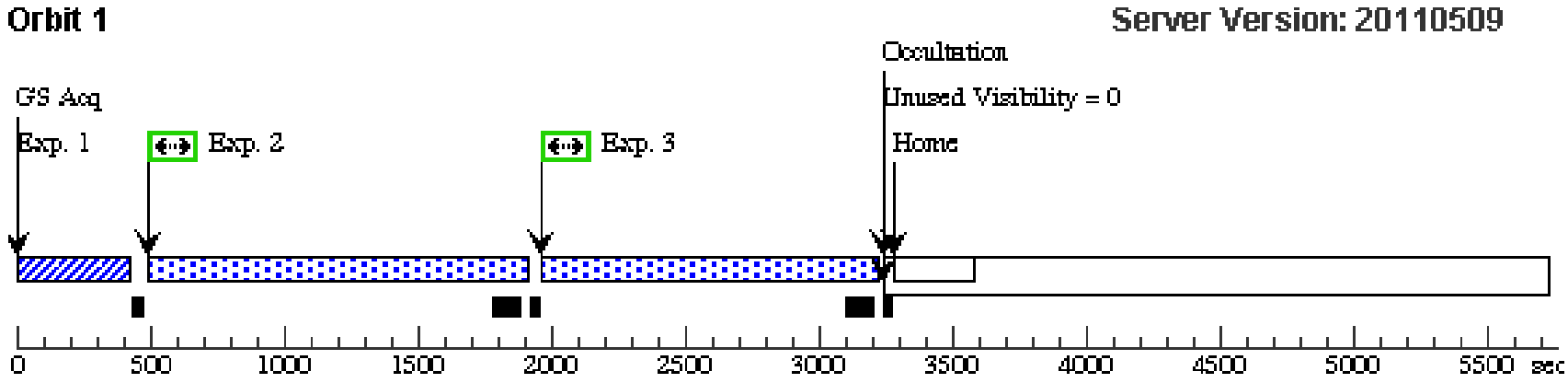
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(16)	Q0255-081	RA: 02 55 8.2380 (43.7843250d) Dec: -08 18 46.13 (-8.31281d) Equinox: J2000		V=17.87 Galex mags = 18.6 NUV, 19.3 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184166)	(16) Q0255-081	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				13 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184167)	(16) Q0255-081	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1110; FP-POS=2			1211 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184167)	(16) Q0255-081	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1110; FP-POS=3			1210 Secs *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 12593, Visit 17 Sat Jul 09 06:09:50 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 17) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

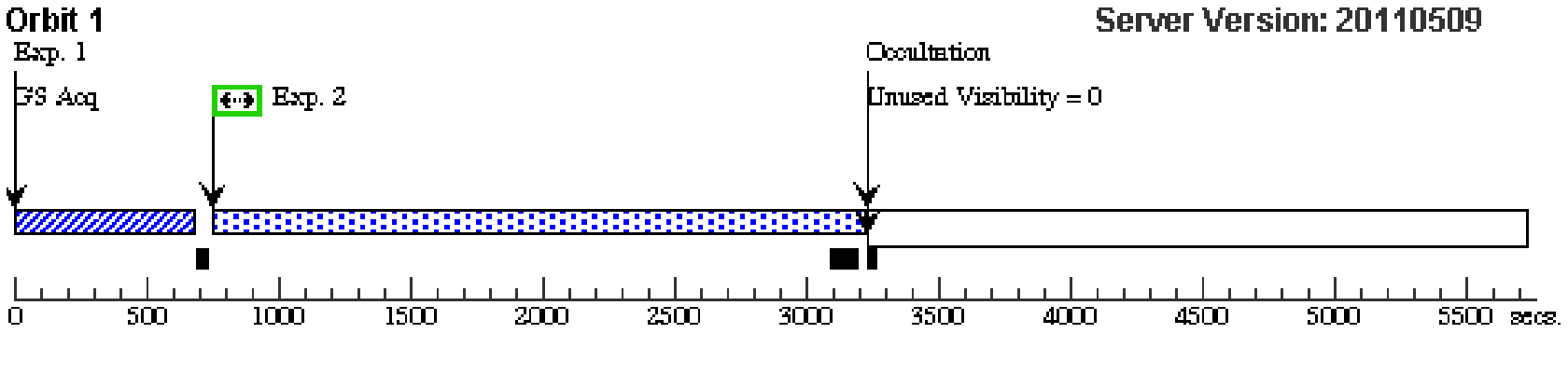
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(17)	Q1232-022	RA: 12 32 0.0135 (188.0000562d) Dec: -02 24 4.78 (-2.40133d) Equinox: J2000		V=17.11 Galex mags = 17.7 NUV, 19.9 FUV	Reference Frame: ICRS

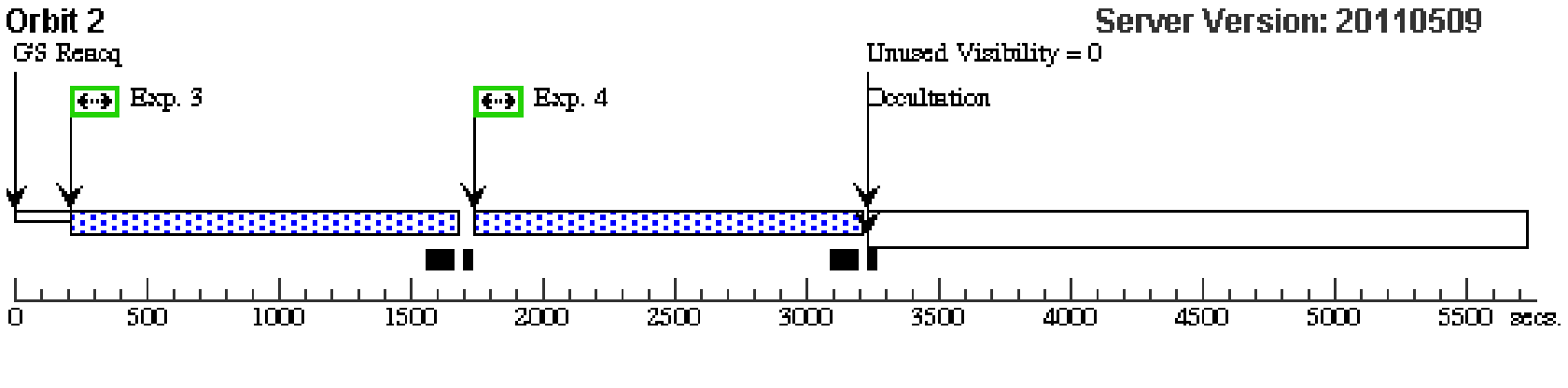
Comments: SDSS g-band magnitude used in place of V-band

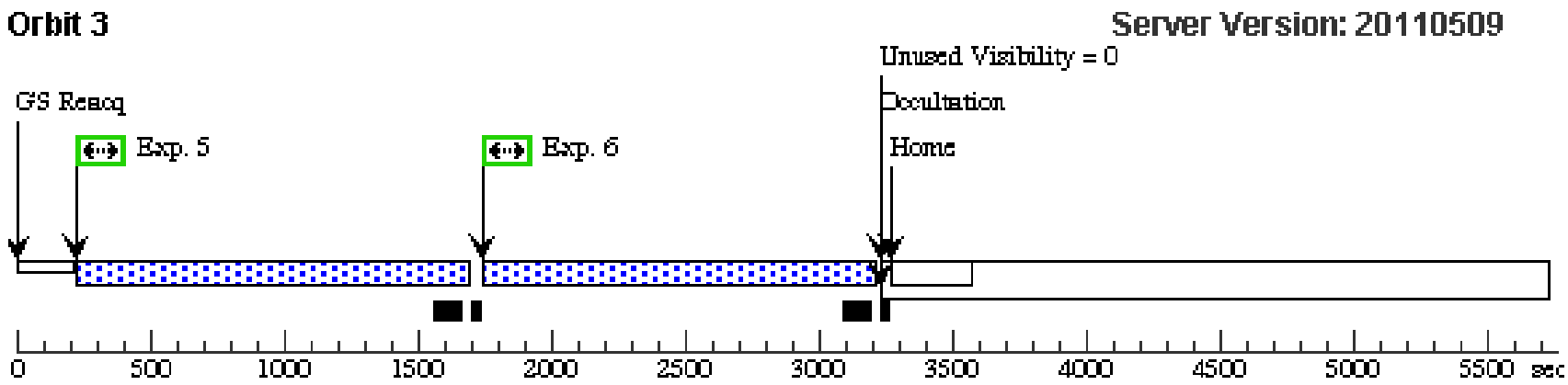
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184169)	(17) Q1232-022	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				130 Secs *[==>]*	***[1]***
2	Orbit 1 - G160M/1600/1 (COS.sp.184170)	(17) Q1232-022	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=2155; FP-POS=1			2259 Secs *[==>]*	***[1]***
3	Orbit 2 - G160M/1600/2 (COS.sp.184171)	(17) Q1232-022	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1315; FP-POS=2			1420 Secs *[==>]*	***[2]***
4	Orbit 2 - G160M/1600/3 (COS.sp.184171)	(17) Q1232-022	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1315; FP-POS=3			1419 Secs *[==>]*	***[2]***
5	Orbit 3 - G160M/1600/3 (COS.sp.184171)	(17) Q1232-022	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1315; FP-POS=3			1420 Secs *[==>]*	***[3]***
6	Orbit 3 - G160M/1600/4 (COS.sp.184171)	(17) Q1232-022	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1315; FP-POS=4			1419 Secs *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 12593, Visit 18 Sat Jul 09 06:09:51 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 18) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

Fixed Targets

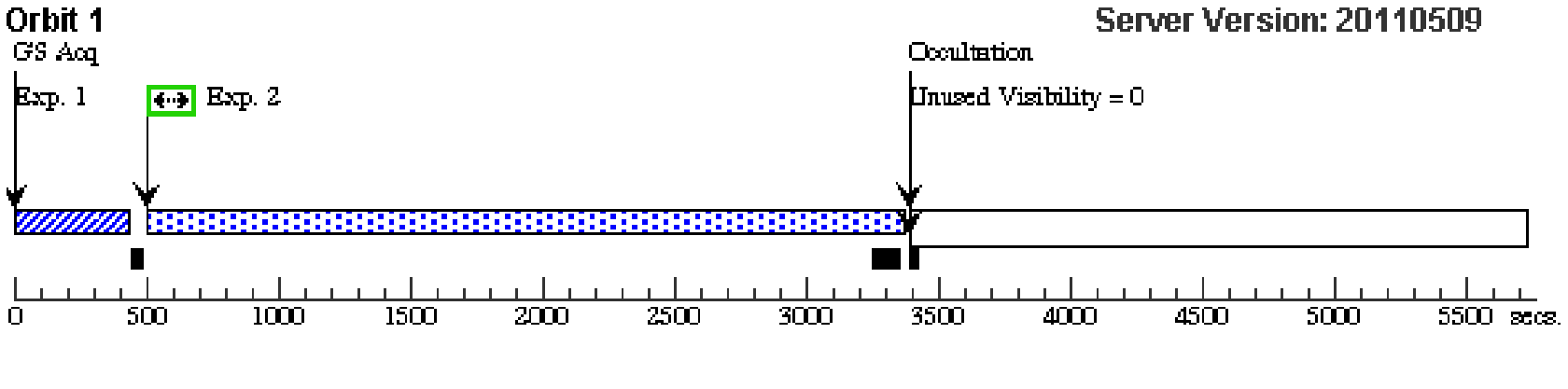
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(18)	Q1251+463	RA: 12 51 42.9995 (192.9291646d) Dec: +46 37 34.80 (46.62633d) Equinox: J2000		V=18.08 Galex mags = 19.1 NUV, 20.1 FUV	Reference Frame: ICRS

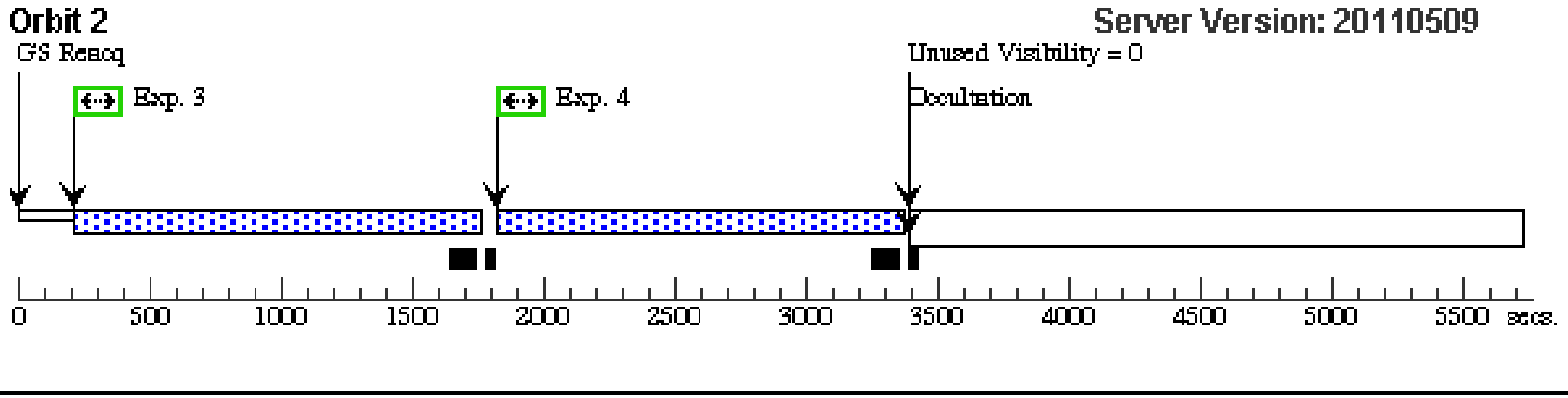
Comments: SDSS g-band magnitude used in place of V-band

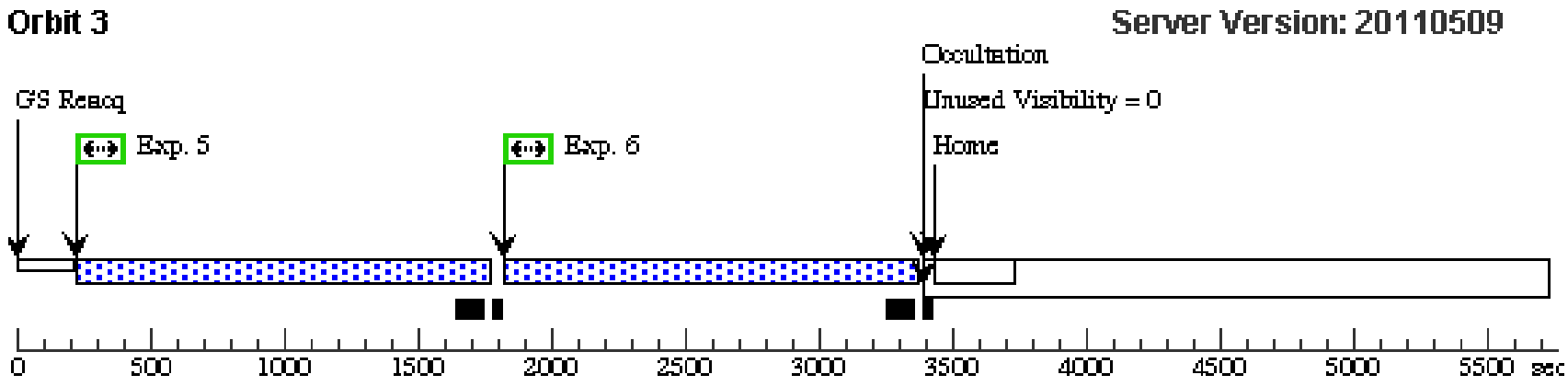
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184174)	(18) Q1251+463	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				19 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/1 (COS.sp.184175)	(18) Q1251+463	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=2565; FP-POS=1			2667 Secs *[==>]*	*[1]*
3	Orbit 2 - G160M/1600/2 (COS.sp.184176)	(18) Q1251+463	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1395; FP-POS=2			1498 Secs *[==>]*	*[2]*
4	Orbit 2 - G160M/1600/3 (COS.sp.184176)	(18) Q1251+463	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1395; FP-POS=3			1498 Secs *[==>]*	*[2]*
5	Orbit 3 - G160M/1600/3 (COS.sp.184176)	(18) Q1251+463	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1395; FP-POS=3			1498 Secs *[==>]*	*[3]*
6	Orbit 3 - G160M/1600/4 (COS.sp.184176)	(18) Q1251+463	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1395; FP-POS=4			1498 Secs *[==>]*	*[3]*

Orbit Structure







Visit

Proposal 12593, Visit 19 Sat Jul 09 06:09:51 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Diagnostics

(Visit 19) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.

(Visit 19) 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
(19)	Q1017+592	RA: 10 17 3.4950 (154.2645625d) Dec: +59 24 28.69 (59.40797d) Equinox: J2000		V=17.71 Galex mags = 17.6 NUV, 18.2 FUV	Reference Frame: ICRS

Comments: SDSS g-band magnitude used in place of V-band

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/IMAGE (COS.im.184178)	(19) Q1017+592	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				112 Secs *[==>]*	*[1]*
2	Orbit 1 - G160M/1600/2 (COS.sp.184179)	(19) Q1017+592	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1130; FP-POS=2			1232 Secs *[==>]*	*[1]*
3	Orbit 1 - G160M/1600/3 (COS.sp.184179)	(19) Q1017+592	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1130; FP-POS=3			1231 Secs *[==>]*	*[1]*

Orbit Structure