12612 - Probing Weak Intergalactic Absorption with Flaring Blazar Spectra

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) PG1424+240	COS/FUV COS/NUV	5	15-Oct-2012 21:01:27.0	yes
02	(2) 3C066A	COS/FUV COS/NUV	5	15-Oct-2012 21:01:49.0	yes
04	(2) 3C066A	COS/FUV COS/NUV	5	15-Oct-2012 21:02:06.0	yes
03	(3) GENERIC-BLAZAR-3	COS/FUV COS/NUV	5	15-Oct-2012 21:02:28.0	yes

20 Total Orbits Used

ABSTRACT

We propose to exploit the flaring states of high- and unknown-redshift blazars to obtain very high S/N > 25 COS spectra in order to study details of the local intergalactic medium (IGM) not accessible for study using the plethora of lower S/N data being obtained. Only with very high S/N spectra is it possible to detect the weakest Ly alpha and metal lines wherein may lie a substantial portion of the cosmic baryons. The numbers of weak OVI absorbers can discriminate between collisionally ionized and photoionized models, as well as determine which of several galactic outflow models best matches the IGM metal enrichment. Most importantly, high S/N spectra plus the featureless UV power-law continuum of blazars facilitates the detection of broad, shallow absorbers ["broad Ly alpha" (BLA) and broad OVI-only absorbers] which uniquely probe the T = 3 x 10^5 - 3 x 10^6 K range in the IGM where many cosmic baryons are predicted to be "hiding."

In addition, these same spectra will be used to obtain lower limits on, or estimates of, the redshift for any featureless blazars observed using the foreground Ly-alpha forest absorbers. In some cases weak Lyman alpha emission may also be detected, as was recently discovered for a few well-known low-redshift BL Lac objects using COS spectra. We request up to three *non-disruptive ToOs* to carry out this program in Cycle 19. Ground-based monitoring will select objects flaring to V ~ 13.5 mag for HST observations, out of a set of about 30 monitored blazars.

OBSERVING DESCRIPTION

We have selected our targets from several pools of known blazars. The rst group (12) are objects with known or suggested emission redshifts > 0.3 to maximize the pathlength for weak intergalactic Ly, O VI, and other important diagnostic lines. The second group (6) are objects known to be simultaneously bright in TeV gamma-rays and with nominal UV uxes above ~10^15 erg cm2 s1 A1. All targets have measured GALEX NUV and FUV uxes and are in regions of moderate to low Galactic extinction.

We assume the unreddened continuum in the optical-UV range follows a power-law behavior of the form f and determine the slope from published GALEX NUV/FUV uxes. These uxes were obtained simultaneously and their ratio should be insensitive to luminosity variations in the AGN. Observed GALEX UV indices are 0 < < 2, typical

of those seen in detailed UV spectra of BL Lac objects (e.g., Stocke, Danforth & Perlman 2011).

All targets will be monitored on the ground by a network of small, optical telescopes (see Coordinated Observations below) with a ~3 day cadence. We estimate optical trigger thresholds for each target based on these power laws and the observed Galactic extinction toward each object. When the optical magnitude indicates that the reddened ux in the far-UV is ~(23)e14 erg cm2 s1 A1, we will activate a non-disruptive ToO observation.
The typical magnitude for triggering these observations is V 13.5.
For F15003e14 erg cm2 s1 A1, we estimate that we can achieve S/N 25 per resolution element in a single ve-orbit HST visit. The observations will be carried out in both COS/G130M (~2 orbits) and COS/G160M (~3 orbits) using muliple grating central wavelength and FP positions. This is to ensure continuous spectral coverage over the 1132 < < 1795 wavelength range and to dither instrumental features (repellor grid wire shadows, gain sag artifacts, etc.) across the spectrum. Two members of the team have extensive experience in this area as members of the COS GTO team.

Unfortunately, we cannot guarantee that any particular object will remain above our are threshold for the 2-4 weeks required for Preferred Scheduling observations (a.k.a. “non-disruptive ToO”). To minimize the chances of a “miss,” we will carefully examine the historical variability record for each object and the trend of the are in progress to predict the duration of a are. However, even if our chosen blazar has faded somewhat below our F15003e14 erg cm2 s1 A1 trigger level, we can still obtain very useful data at lower S/N with our planned observations. As a case in point, 1ES 1553+113 was observed in a non-aring state (3 HST orbits, F1500~1.5e14, S/N 15). Danforth et al. (2010) published a study of over 100 intervening absorption lines, including several interesting new OVI absorbers, and constrained the source redshift to 0.3950 z < 0.45. Even if the objects are not near peak ux during the HST observations, our data (obtained at an above-average ux level) will enable compelling and original science.

Proposal 12612 - Visit 01 - Probing Weak Intergalactic Absorption with Flaring Blazar Spectra

Visit

Proposal 12612, Visit 01, completed Tue Oct 16 01:02:42 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Comments: Flaring Blazar ToO #1 (5 orbits)

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

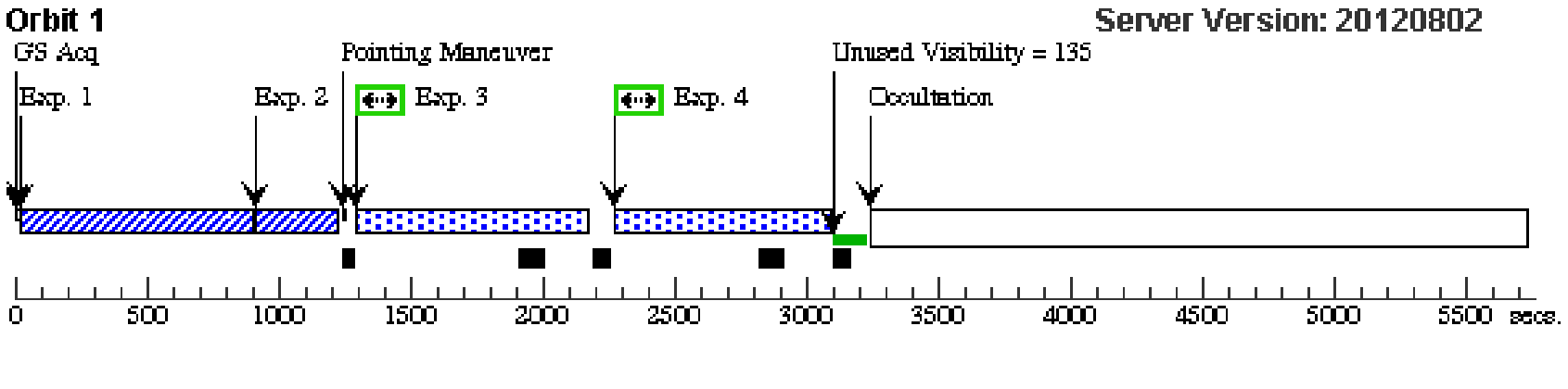
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	PG1424+240 Alt Name1: 7C1424+2401 Alt Name2: J1427+2347	RA: 14 27 0.3918 (216.7516325d) Dec: +23 48 0.04 (23.80001d) Equinox: J2000		V=13.7+/-0.5 F(1300A)~(2.7+/-1.4)e-14 erg cm-2 s-1 Ang-1, R~13.7+/-0.5	Reference Frame: ICRS

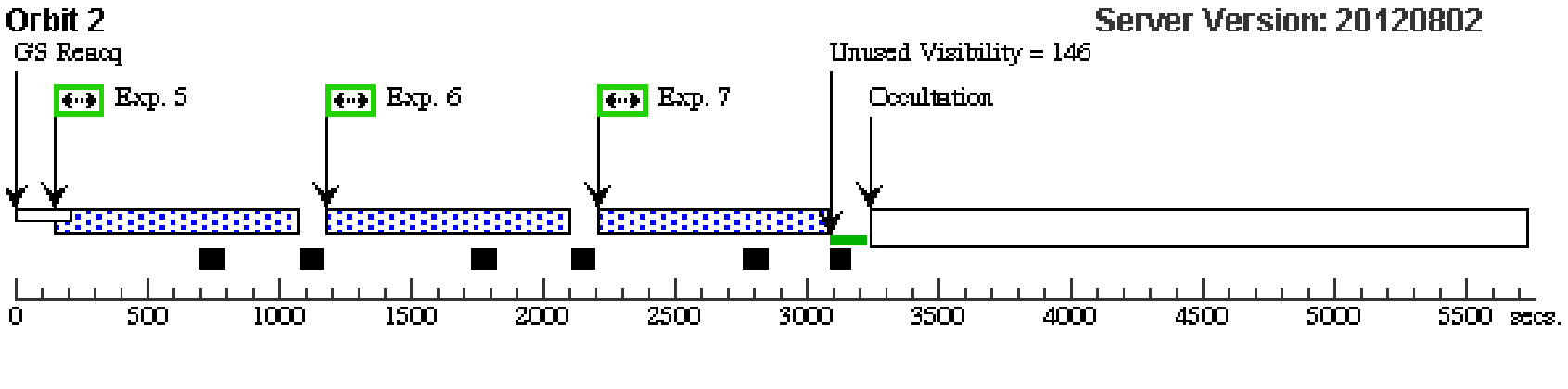
Exposures

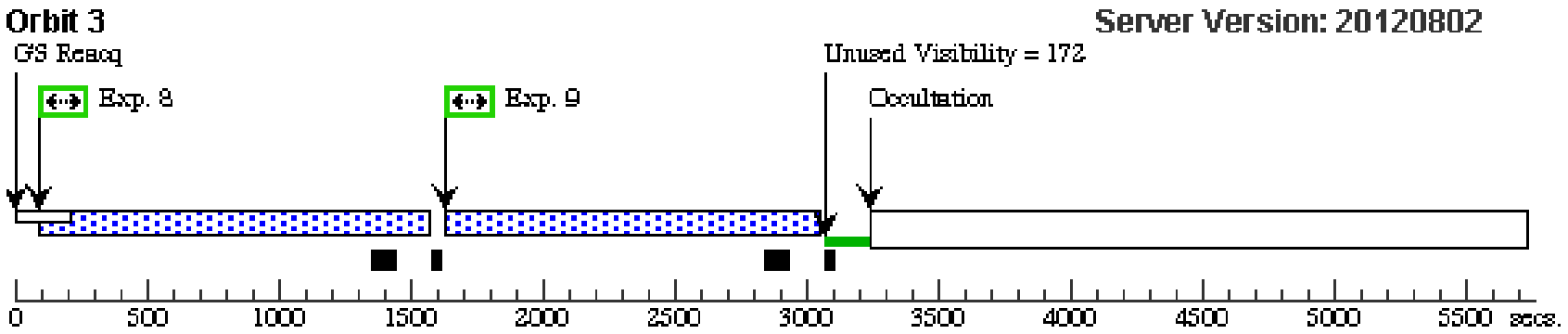
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/SEARCH (COS.ta.196481)	(1) PG1424+240	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2			105 Secs *[==>]*	*[1]*
	Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).								
2	ACQ/IMAGE (COS.ta.196481)	(1) PG1424+240	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				105 Secs *[==>]*	*[1]*
	Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).								
3	Blazar 1 - G130M 1291 (COS.sp.186162)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=450			700 Secs *[==>]*	*[1]*
	Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.								
4	Blazar 1 - G130M 1300 (COS.sp.186162)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=2; BUFFER-TIME=450			700 Secs *[==>]*	*[1]*
	Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.								
5	Blazar 1 - G130M 1309 (COS.sp.186162)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=450			800 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
6	Blazar 1 - G130M 1318 (COS.sp.186162)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=4; BUFFER-TIME=450			800 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
7	Blazar 1 - G130M 1327 (COS.sp.186162)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=4; BUFFER-TIME=450			750 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
8	Blazar 1 - G160M 1623 (COS.sp.186167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=4; BUFFER-TIME=1100			1300 Secs *[==>]*	*[3]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
9	Blazar 1 - G160M 1611 (COS.sp.186167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=3; BUFFER-TIME=1100			1300 Secs *[==>]*	*[3]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
10	Blazar 1 - G160M 1600 (COS.sp.186167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=2; BUFFER-TIME=1100			1300 Secs *[==>]*	*[4]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								

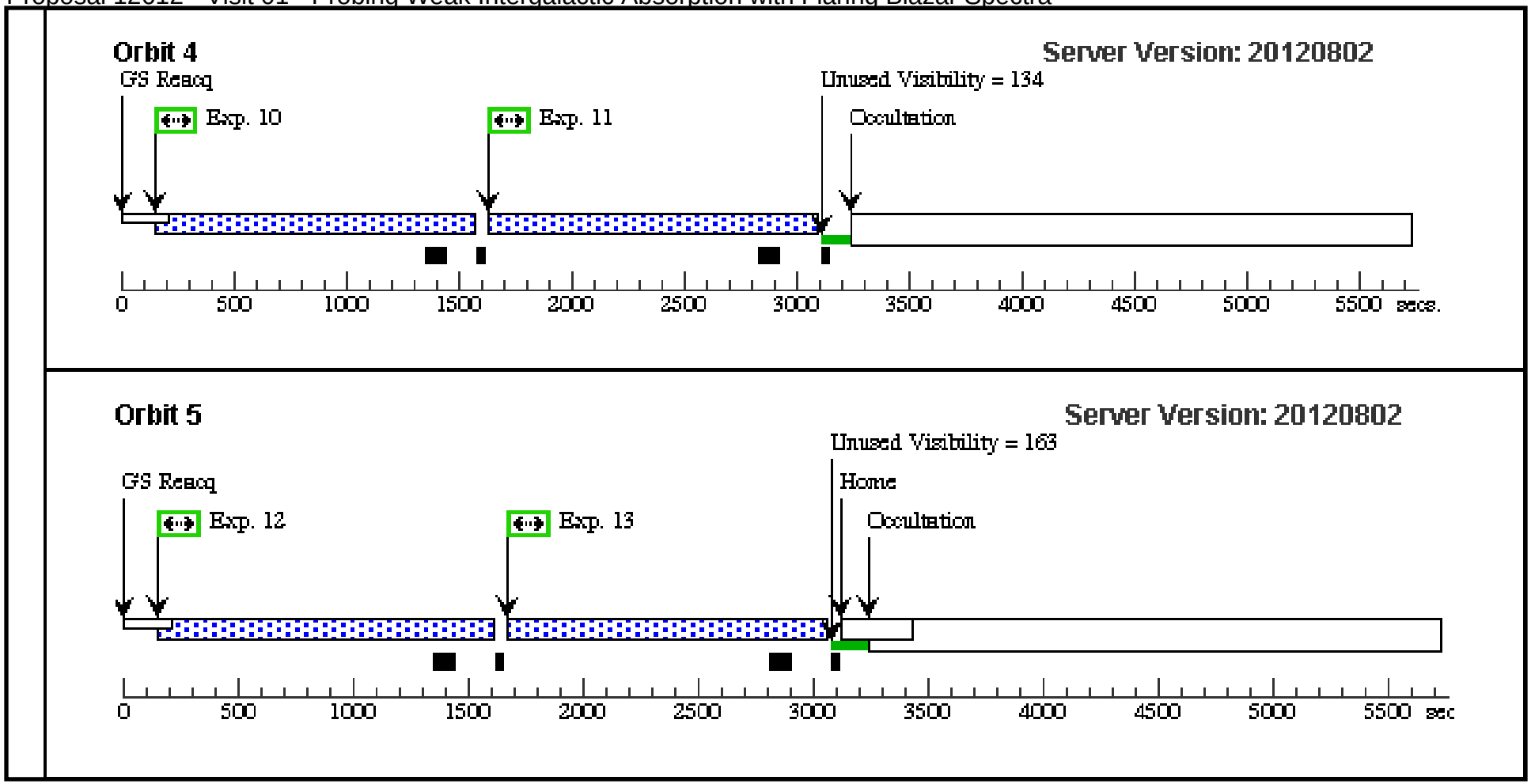
	11	Blazar 1 - G 160M 1589 (COS.sp.186 167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=1100	1340 Secs *[==>]*	***[4]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						
	12	Blazar 1 - G 160M 1577 (COS.sp.186 167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=1; BUFFER-TIME=1100	1340 Secs *[==>]*	***[5]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						
	13	Blazar 1 - G 160M 1577 (COS.sp.186 167)	(1) PG1424+240	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=2; BUFFER-TIME=1100	1340 Secs *[==>]*	***[5]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						

Orbit Structure





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Proposal 12612 - Visit 02 - Probing Weak Intergalactic Absorption with Flaring Blazar Spectra

Visit

Proposal 12612, Visit 02, completed Tue Oct 16 01:02:50 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Comments: 3C66A ToO #2 (5 orbits)

Diagnostics

(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

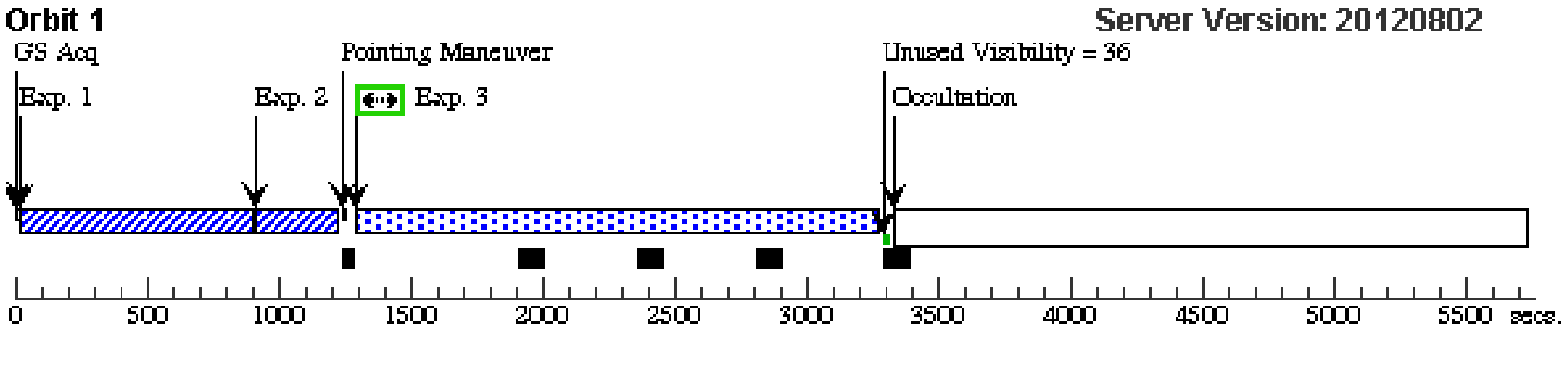
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	3C066A	RA: 02 22 39.6120 (35.6650500d)	Redshift: 0.4	V=14+/-1	Reference Frame: ICRS
	Alt Name1: J0222+4302	Dec: +43 02 7.80 (43.03550d)		F(1500A)~(2.0+-0.5)e-14 erg cm-2 s-1 Ang-1	
		Equinox: J2000			

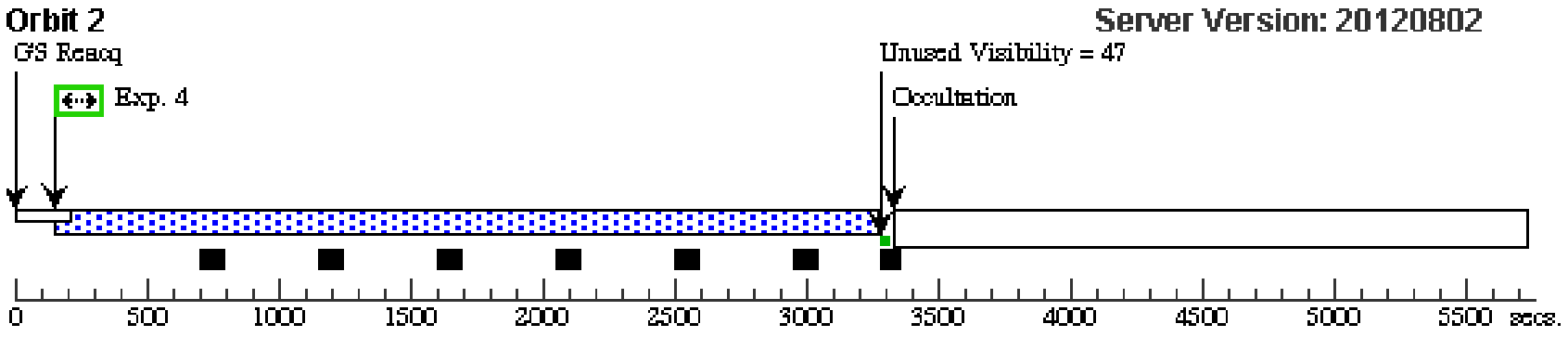
Comments: This object was generated by the targetselector and retrieved from the NED database.

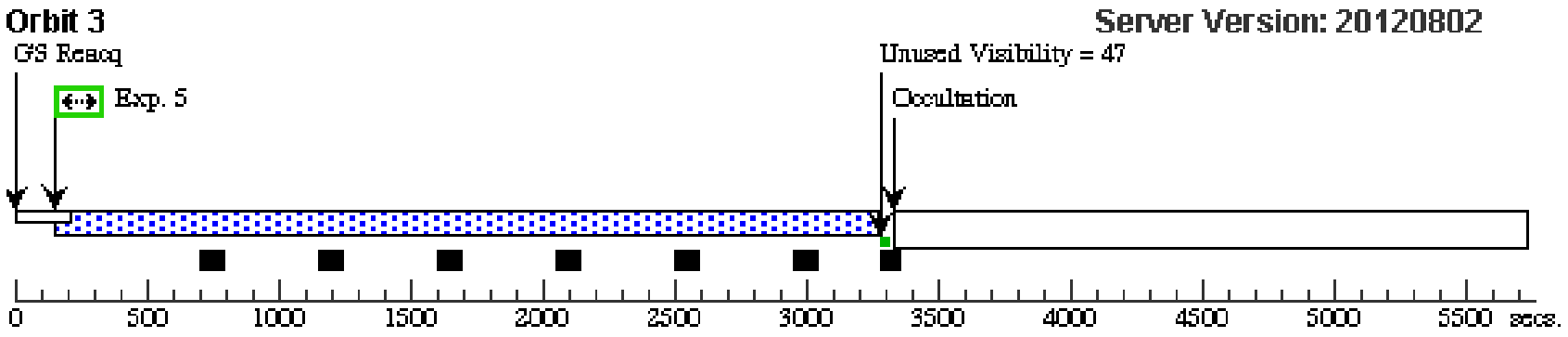
Exposures

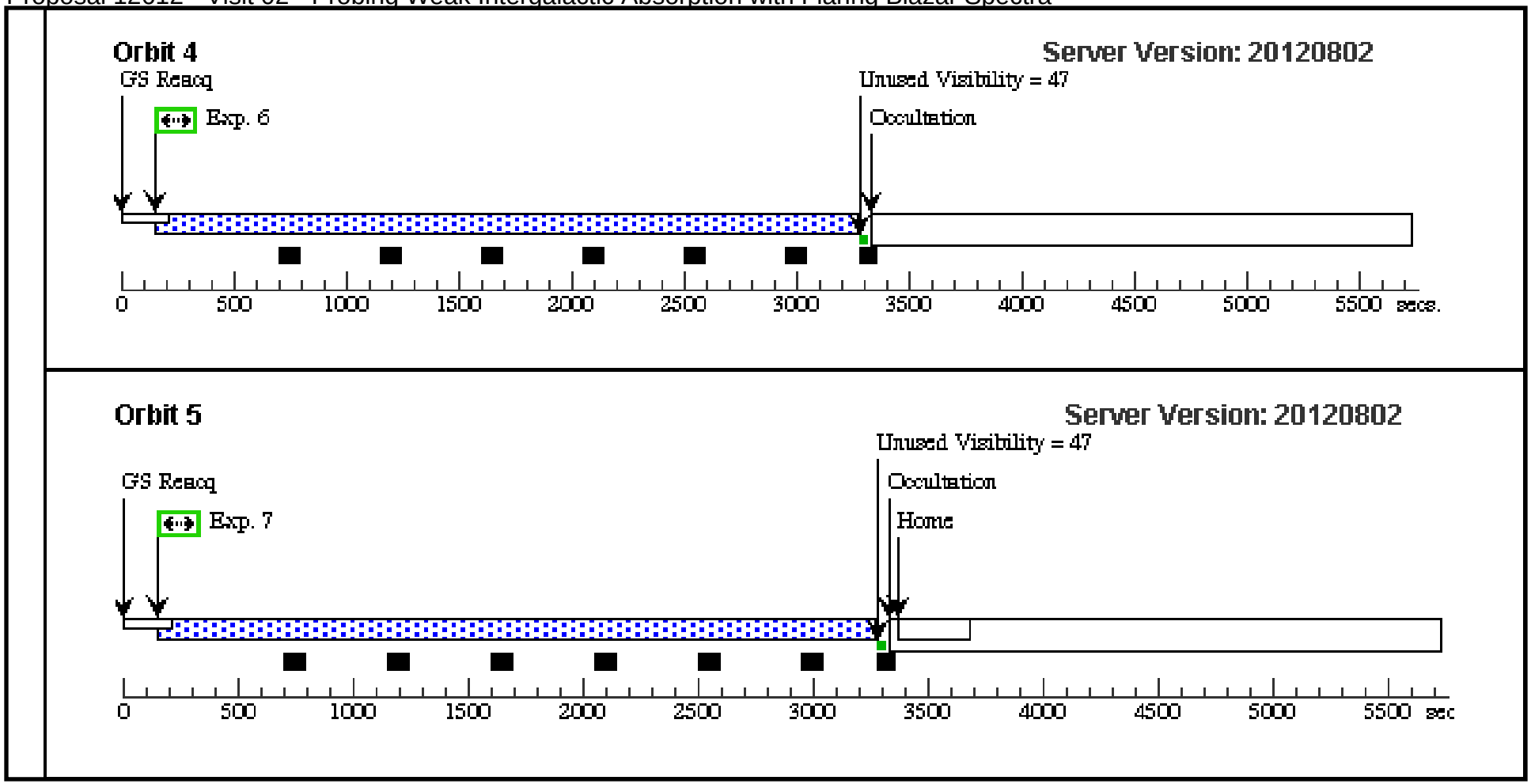
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/SEARCH (COS.ta.196481)	(2) 3C066A	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2			105 Secs *[==>]*	***[1]***
Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).									
2	ACQ/IMAGE (COS.ta.196481)	(2) 3C066A	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				105 Secs *[==>]*	***[1]***
Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).									
3	Blazar 1 - G130M 1291 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=450			1800 Secs *[==>]*	***[1]***
Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.									
4	Blazar 1 - G130M 1300 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=450			3000 Secs *[==>]*	***[2]***
Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.									
5	Blazar 1 - G130M 1309 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=3; BUFFER-TIME=450			3000 Secs *[==>]*	***[3]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									
6	Blazar 1 - G130M 1318 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=2; BUFFER-TIME=450			3000 Secs *[==>]*	***[4]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									
7	Blazar 1 - G130M 1327 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=1; BUFFER-TIME=450			3000 Secs *[==>]*	***[5]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									

Orbit Structure





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Visit

Proposal 12612, Visit 04, implementation Tue Oct 16 01:02:54 GMT 2012

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Comments: HOPR copy of visit 02:
3C66A ToO #2 (5 orbits)
Exposures shortened to improve visibility ranges.

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

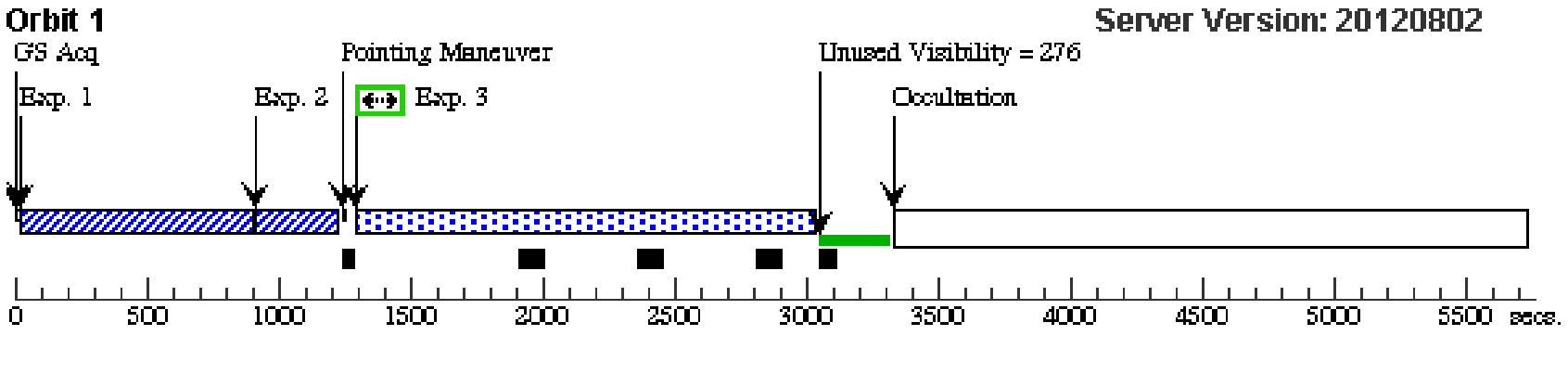
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	3C066A	RA: 02 22 39.6120 (35.6650500d)	Redshift: 0.4	V=14+/-1	Reference Frame: ICRS
	Alt Name1: J0222+4302	Dec: +43 02 7.80 (43.03550d)		F(1500A)~(2.0+-0.5)e-14 erg cm-2 s-1 Ang-1	
		Equinox: J2000			

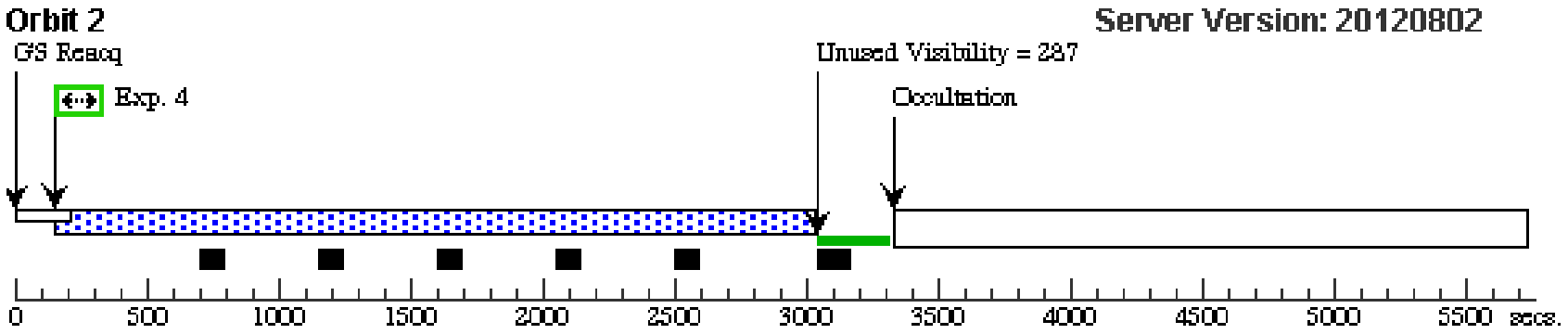
Comments: This object was generated by the targetselector and retrieved from the NED database.

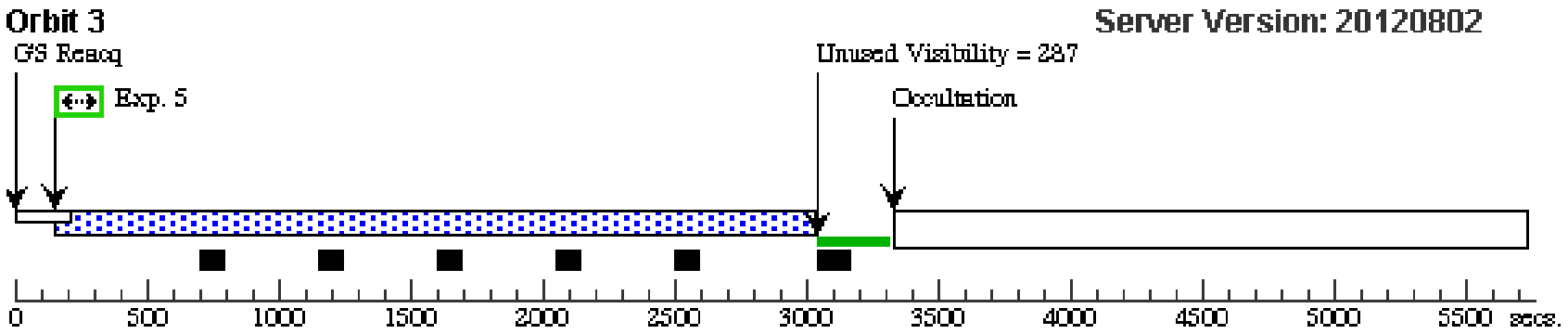
Exposures

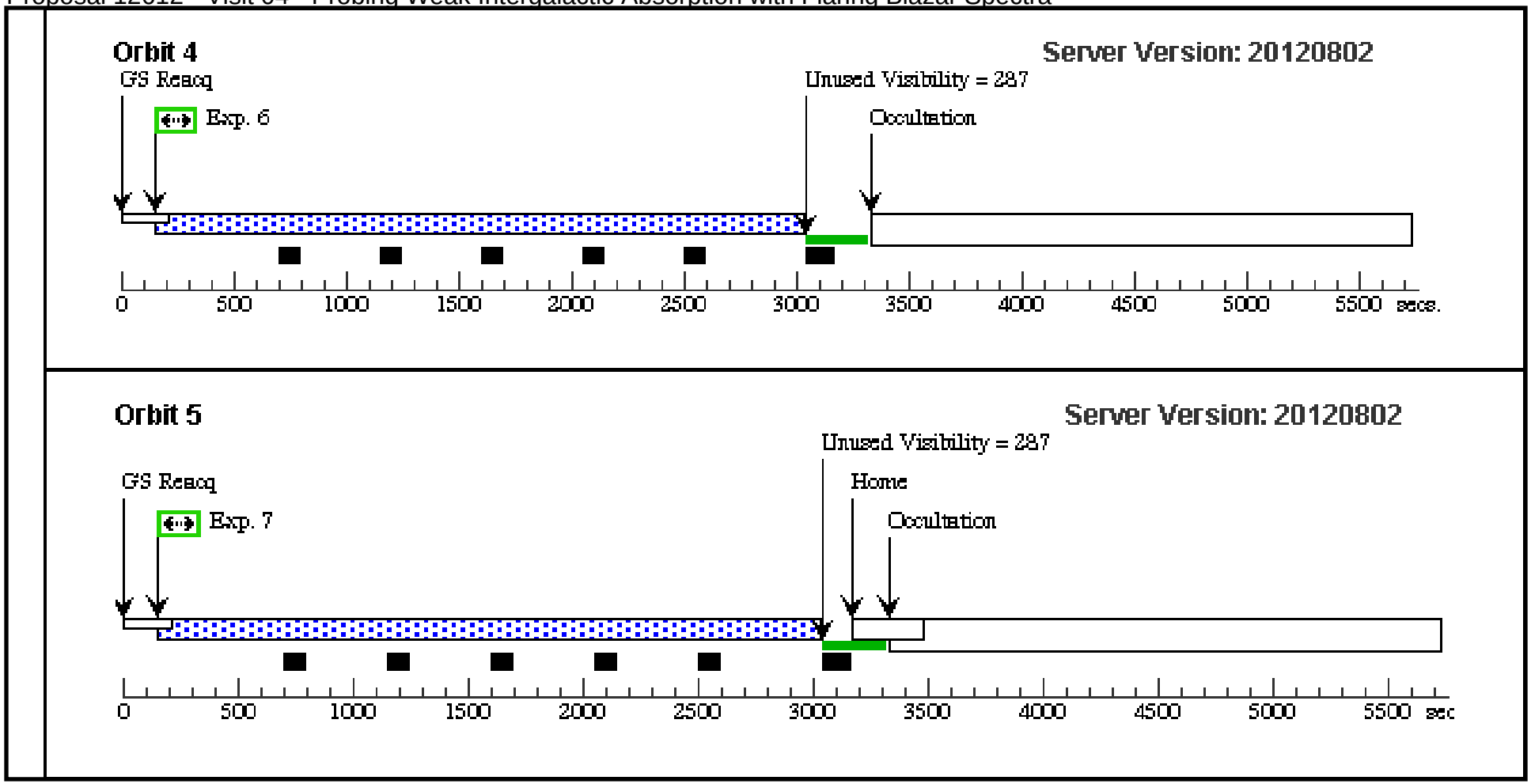
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/SEARCH (COS.ta.196481)	(2) 3C066A	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2			105 Secs *[==>]*	***[1]***
Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).									
2	ACQ/IMAGE (COS.ta.196481)	(2) 3C066A	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				105 Secs *[==>]*	***[1]***
Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).									
3	Blazar 1 - G130M 1291 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=450			1560 Secs *[==>]*	***[1]***
Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.									
4	Blazar 1 - G130M 1300 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=450			2760 Secs *[==>]*	***[2]***
Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.									
5	Blazar 1 - G130M 1309 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=3; BUFFER-TIME=450			2760 Secs *[==>]*	***[3]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									
6	Blazar 1 - G130M 1318 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=2; BUFFER-TIME=450			2760 Secs *[==>]*	***[4]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									
7	Blazar 1 - G130M 1327 (COS.sp.186162)	(2) 3C066A	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=1; BUFFER-TIME=450			2760 Secs *[==>]*	***[5]***
Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.									

Orbit Structure





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secs.
Orbit 5
Server Version: 20120802
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Visit

Proposal 12612, Visit 03, withdrawn Tue Oct 16 01:02:58 GMT 2012

Diagnostic Status: Error

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: (none)

Comments: Flaring Blazar ToO #3 (5 orbits)

Diagnostics

(ACQ/SEARCH (03.001)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(ACQ/IMAGE (03.002)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G130M 1291 (03.003)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G130M 1300 (03.004)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G130M 1309 (03.005)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G130M 1318 (03.006)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G130M 1327 (03.007)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1623 (03.008)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1611 (03.009)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1600 (03.010)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1589 (03.011)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1577 (03.012)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(Blazar 3 - G160M 1577 (03.013)) Error (Form): Illegal use of Generic Target or ANY target. See full description for details

(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.

Generic Targets

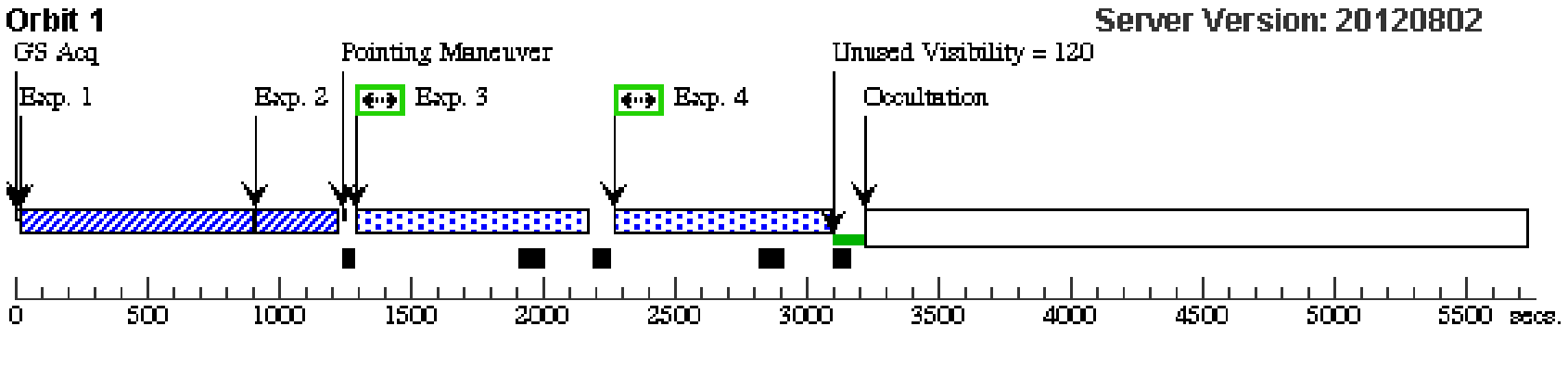
#	Name	Criteria	Description
(3)	GENERIC-BLAZAR-3	ToO (optically-monitored flaring blazar)	BL LAC

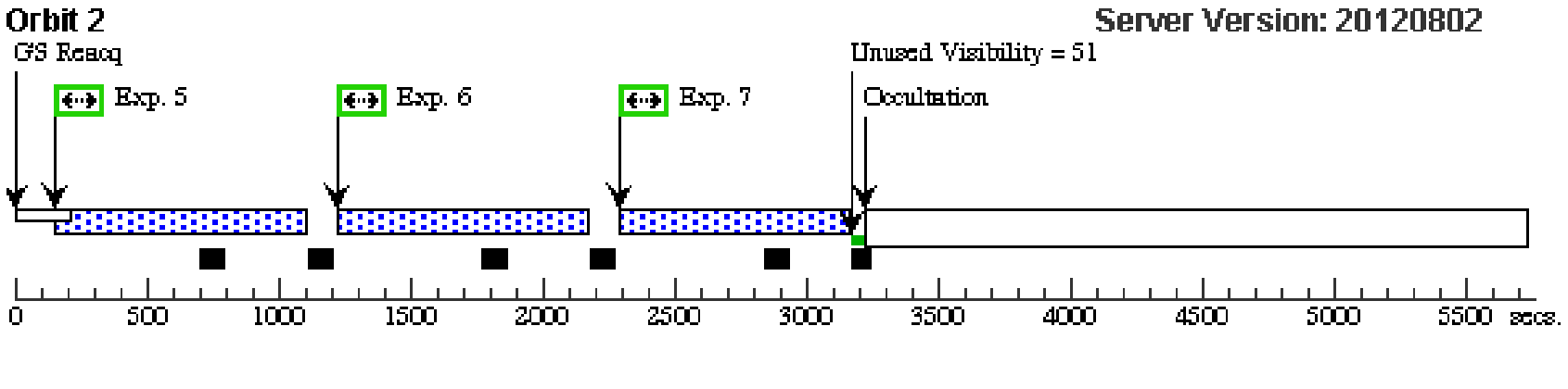
Exposures

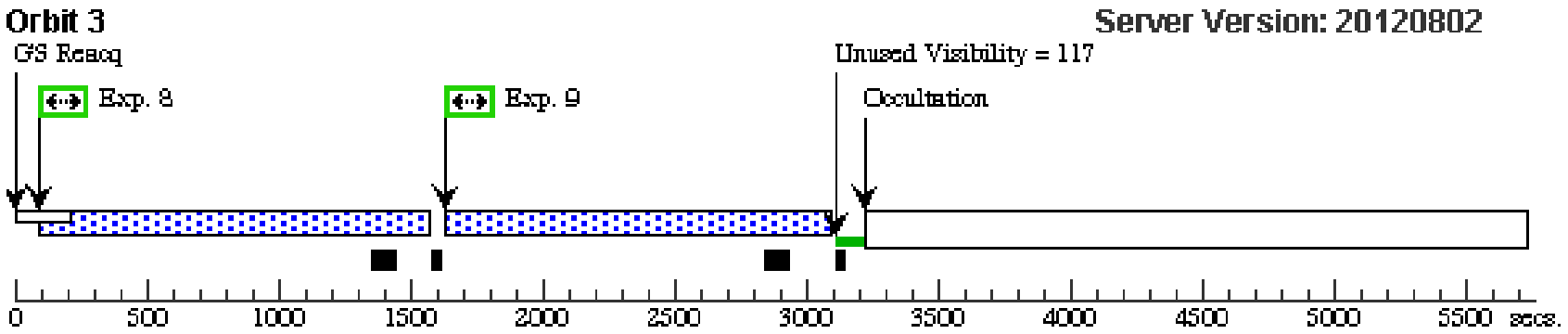
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ/SEARCH (COS.ta.196481)	(3) GENERIC-BLAZAR-3	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2			105 Secs *[==>]*	*[1]*
	Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).								
2	ACQ/IMAGE (COS.ta.196481)	(3) GENERIC-BLAZAR-3	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				105 Secs *[==>]*	*[1]*
	Comments: S/N>40 at 50% nominal flux or above (F_1500>1.5e-14). However, if flux is 2x expected level, count rate is still acceptable (COS.ta.196577).								
3	Blazar 3 - G130M 1291 (COS.sp.186162)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=450			700 Secs *[==>]*	*[1]*
	Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.								
4	Blazar 3 - G130M 1300 (COS.sp.186162)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=2; BUFFER-TIME=450			700 Secs *[==>]*	*[1]*
	Comments: For F(1500)=3e-14, expect S/N~18 per resel. Buffer time based on 2x nominal count rate.								
5	Blazar 3 - G130M 1309 (COS.sp.186162)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=450			830 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
6	Blazar 3 - G130M 1318 (COS.sp.186162)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=4; BUFFER-TIME=450			830 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
7	Blazar 3 - G130M 1327 (COS.sp.186162)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=4; BUFFER-TIME=450			750 Secs *[==>]*	*[2]*
	Comments: For F(1500)=3e-14, expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
8	Blazar 3 - G160M 1623 (COS.sp.186167)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=4; BUFFER-TIME=1100			1300 Secs *[==>]*	*[3]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
9	Blazar 3 - G160M 1611 (COS.sp.186167)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=3; BUFFER-TIME=1100			1340 Secs *[==>]*	*[3]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								
10	Blazar 3 - G160M 1600 (COS.sp.186167)	(3) GENERIC-BLAZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=2; BUFFER-TIME=1100			1340 Secs *[==>]*	*[4]*
	Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.								

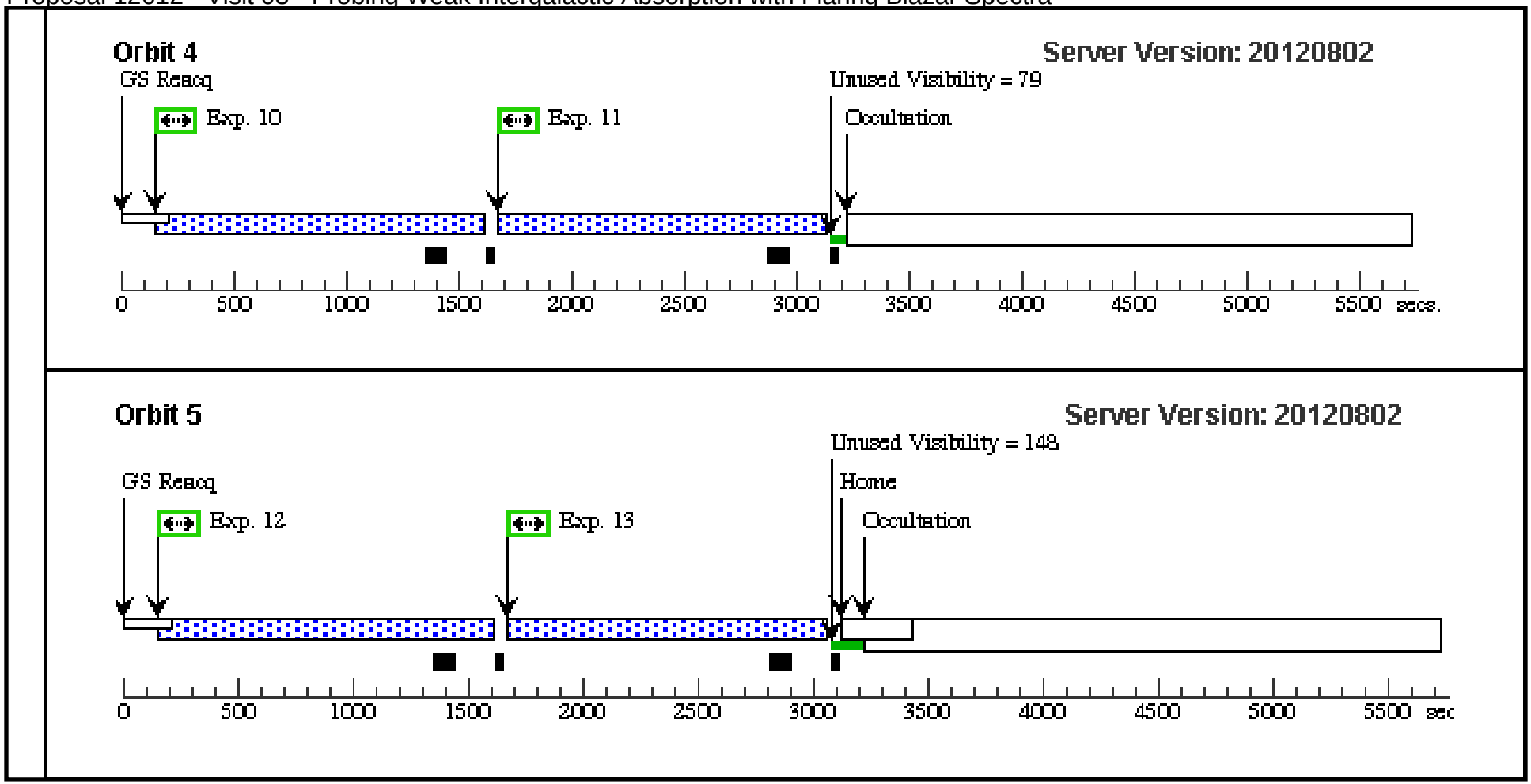
	11	Blazar 3 - G 160M 1589 (COS.sp.186 167)	(3) GENERIC-BLA ZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=11 00	1340 Secs *[==>]*	***[4]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						
	12	Blazar 3 - G 160M 1577 (COS.sp.186 167)	(3) GENERIC-BLA ZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=1; BUFFER-TIME=11 00	1340 Secs *[==>]*	***[5]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						
	13	Blazar 3 - G 160M 1577 (COS.sp.186 167)	(3) GENERIC-BLA ZAR-3	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=2; BUFFER-TIME=11 00	1340 Secs *[==>]*	***[5]***
		Comments: For F(1500)=3e-14, we expect S/N~16 per resel. Buffer time based on 2x nominal count rate.						

Orbit Structure





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Exp. 13
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