14909 - COS/FUV Wavelength Calibration at Lifetime Position 3

Cycle: 24, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

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) EPSILON-ERI	COS/FUV COS/NUV	4	20-Mar-2017 21:19:11.0	yes
02	(1) EPSILON-ERI	COS/FUV COS/NUV	4	20-Mar-2017 21:19:14.0	yes
03	(2) AV75	COS/FUV COS/NUV	1	20-Mar-2017 21:19:15.0	yes
3A	(2) AV75	COS/FUV	1	20-Mar-2017 21:19:17.0	yes

10 Total Orbits Used

ABSTRACT

The goal of this program is to obtain external data to allow us to derive updated FUV dispersion solutions for COS/FUV LP3.

The G130M and G160M dispersion solutions are 1st order polynomials and the goal of this program is to

1) derive updated dispersion coefficients and
2) derive updated zero points.

Visits 01 and 02 are of the emission-line target epsilon Eridani and are designed to derive dispersions for the G130M/FUVA and G160M/FUVAB modes. Visit 03 is of the continuum+absorption line SMC target AV75.

The exposures times (and number of orbits) are driven by the number of counts needed to achieve good cross correlations with archival STIS data. The eps Eri spectrum contains emission lines while the brighter AV75 spectrum mainly contains absorption features against a bright continuum. The eps Eri spectrum needs to achieve at least 25 counts at the peak of weaker lines. For the AV75 spectrum (G130M/FUVB), we need a continuum S/N of ~20.

Visit 3A has been added to replace Visit 03, which was missed due an SIC&DH lockup.

OBSERVING DESCRIPTION

New wavelength calibrations at LP1 and LP2 have been generated for G130M and G160M based on archival data from COS and STIS. For LP3, there are insufficient data available to derive updated wavelength solutions. In this program, we will obtain additional observations of epsilon Eridani (eps Eri) for all grating/segment modes except G130M FUVB, for which we will use AV75.

The primary goal of this proposal is to obtain spectra at the central and extreme nominal cenwaves for each grating at FP-POS=3 for eps Eri to determine the dispersion vs focus relation and initial zero points for G130M/FUVA and G160M/FUVAB (Visits 01 & 02). We will also obtain spectra of the intermediate cenwaves to derive zero_points for these settings. In Visit 03, we will obtain spectra at FP-POS=3 for G130M cenwaves C1300, C1309, C1318 & C1327 capable of determining the zero points and dispersions on the FUVB segment. Archival data of AV75 for C1291 are adequate for wavelength calibration.

Double BOA NUV ACQ/IMAGE target acquisitions will be performed to insure the best possible target centering for the zero-point measurement. For AV75 we include a NUV 2x2 ACQ/SEARCH because of previous guide star issues for this field.

Exposure times for eps Eri will achieve S/N~5 in most of the chromospheric emission lines previously used in the LP2 wavelength calibrations. For AV75, S/N~20 will be achieved in the continuum, which will provide better cross-correlation measurements than with the archival data.

For eps Eri, we have designated the following lines as fiducials for our correlations:

Visit 01: G130M FUVA 1360.3 (primary) or 1357.7 (secondary)
Visit 02: G160M FUVA 1681.4 & FUVB 1485.7

According to the current ETC, the peak count rates in our fiducial lines, and exposure times to obtain 25+1-sigma = 30 counts are :
G130M FUVA 1360.3 -> 0.0175 counts/s, or for 30 counts, we need -> 1715s
G130M FUVA 1357.7 -> 0.011 counts/s, or for 30 counts, we need -> 2728s

G160M FUVA 1681.4 -> 0.015 counts/s, or for 30 counts, we need -> 2000s
G160M FUVB 1485.7 -> 0.025 counts/s, or for 30 counts, we need -> 1200s

According to the 25.1.1 ETC a single exposure of 300 seconds for AV75 achieves the S/N~20 criterion.

Proposal 14909 - G130M/FUVA/Eps Eri (01) - COS/FUV Wavelength Calibration at Lifetime Position 3

Visit

Proposal 14909, G130M/FUVA/Eps Eri (01), completed Tue Mar 21 01:19:18 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 90%; BEFORE 27-MAR-2017:00:00:00

Comments: These G130M Eps Eri observations must be able to achieve 25 peak counts (~100 total) in the following faint lines (per FP)

G130M FUVA 1360.3 (primary) or 1357.7 (secondary)

The strategy for these visits is obtain full orbits on the central and outside CENWAVEs for accurate dispersion/zero_point measurements, but also obtain short intermediate CENWAVE exposures for zero_points only.

NOTE that the target is only visible BEFORE March 25, 2017

Diagnostics

(G130M/FUVA/Eps Eri (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)	EPSILON-ERI	RA: 03 32 55.8450 (53.2326875d)	Proper Motion RA: -975.17 mas/yr	V=3.73	Reference Frame: ICRS
	Alt Name1: HD22049	Dec: -09 27 29.73 (-9.45826d)	Proper Motion Dec: 19.49 mas/yr		
	Alt Name2: GJ144	Equinox: J2000	Parallax: 0.31094"		
			Epoch of Position: 2000		
			Radial Velocity: 16.43 km/sec		

Comments: This from SIMBAD: eps Eri -- Variable of BY Dra type

ICRS coord. (ep=J2000) : 03 32 55.84496 -09 27 29.7312 (Optical) [1.84 1.75 90] A 2007A&A...474..653V
Proper motions mas/yr : -975.17 19.49 [0.21 0.20 0] A 2007A&A...474..653V
Radial velocity : V(km/s) 16.43 [0.09] / z(~) 0.000055 [0.000000] / cz 16.43 [0.09]

Spectral type: K2Vk: C 2006AJ....132..161G

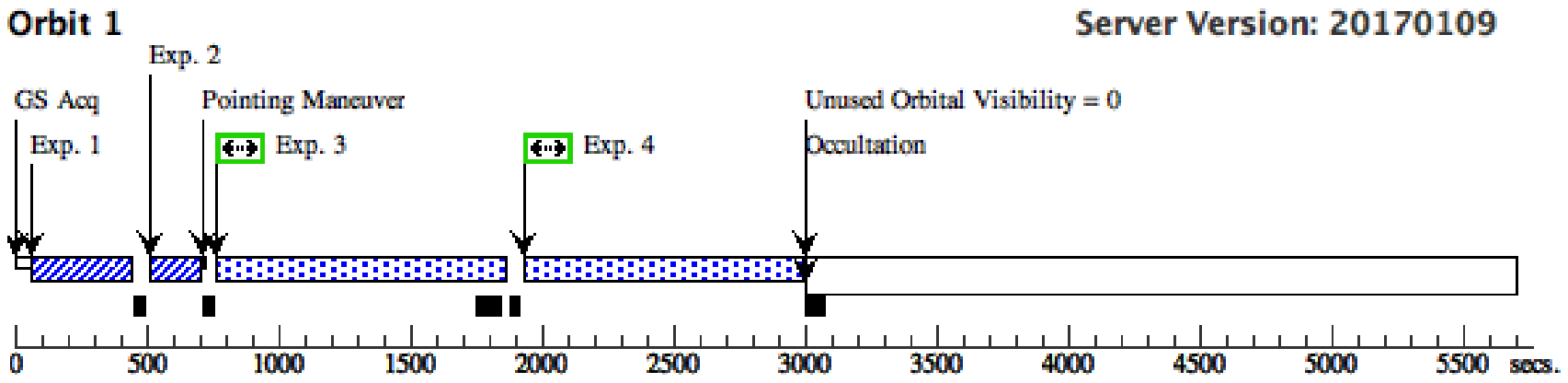
U 5.19 [~] C 2002yCat.2237....0D
B 4.61 [~] C 2002yCat.2237....0D
V 3.73 [~] C 2002yCat.2237....0D
R 3.00 [~] C 2002yCat.2237....0D
I 2.54 [~] C 2002yCat.2237....0D
J 2.23 [~] C 2002yCat.2237....0D
H 1.75 [~] C 2002yCat.2237....0D
K 1.67 [~] C 2002yCat.2237....0D
Extended=NO

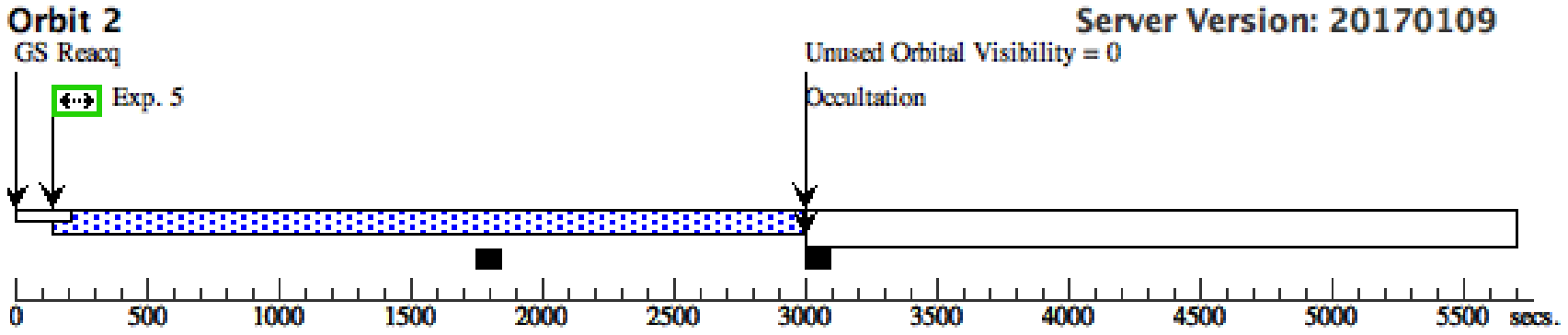
Exposures

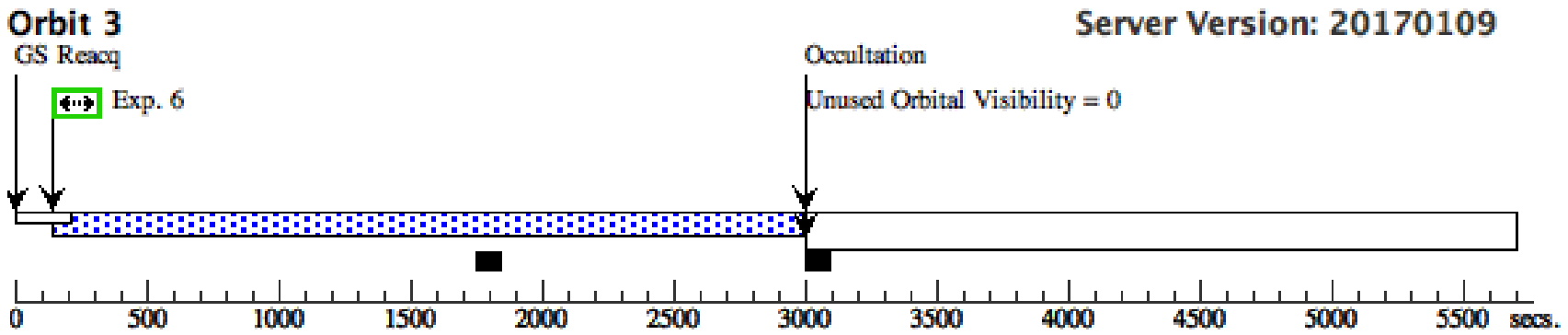
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	BOA+MIRRORB ACQ/IMAGE (COS.ta.903046)	(1) EPSILON-ERI	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				25 Secs (25 Secs) *[==>]*	***[1]***
	Comments: In Visit 01 of 13650, this target gave the following results for a 20 s exposure (COS.ta.615844) *-> Bck subtracted counts in second image = 2986 ; S/N = 54.64* *We want S/N = 60 (3600 counts) so ET = 3600./2986. = 24 seconds* *This is a K2Vk star, we use a standard model in the ETC Run. We use the U-band magnitude in the ETC as it gives the brightest result to show that it is safe. (Brightest Pixel - 29.725)* *We use the 13650 exposure time as it agrees with an actual COS ACQ/IMAGE.*								
2	2nd BOA+MIRRORB ACQ/IMAGE to optimize centering (COS.ta.903046)	(1) EPSILON-ERI	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				30 Secs (30 Secs) *[==>]*	***[1]***
	Comments: Identical to TA of previous exposures , see 01.001 for full comments. We do this twice to ensure the best possible centering with BOA+B.								
3	C1300-3 (FUVA-only) (COS.sp.902282)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G130M 1300 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=8288			928 Secs (928 Secs) *[==>]*	***[1]***
	*Comments: BT=2/3 * 3500 = 2333. So, anything less is ok. Here we use ET-100s*								
4	C1318-3 (FUVA-only) (COS.sp.902282)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G130M 1318 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=1500			929 Secs (929 Secs) *[==>]*	***[1]***
	*Comments: BT=2/3 * 3500 = 2333. So, anything less is ok. To be save, we'll use 1500s for all the G130M exposures from here onward.*								
5	C1291-3 (FUVA-only) (COS.sp.902282)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G130M 1291 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=1500			2722 Secs (2722 Secs) *[==>]*	***[2]***
	*Comments: BT=2/3 * 3500 = 2333. So, anything less is ok. To be safe, we'll use 1500s.* *Our goal here is to get 25 counts in the peak of the following (weak) lines: G130M FUVA 1360.3 or 1357.7* *The peak count rates in the ETC are :* *1360.3 -> 0.0175 counts/s* *1357.7 -> 0.011 counts/s* *According to the current ETC, the peak count rates in our fiducial lines, and exposure times to obtain 25+1-sigma = 30 counts are :* *G130M FUVA 1360.3 -> 0.0175 counts/s, or for 30 counts, we need -> 1715s* *G130M FUVA 1357.7 -> 0.011 counts/s, or for 30 counts, we need -> 2728s* *So, we ~meet the goal for both lines with the ~2720 s exposures in 01.005-01.007*								
6	C1309-3 (FUVA-only) (COS.sp.902282)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G130M 1309 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=1500			2722 Secs (2722 Secs) *[==>]*	***[3]***
	Comments: See comments in 01.005								

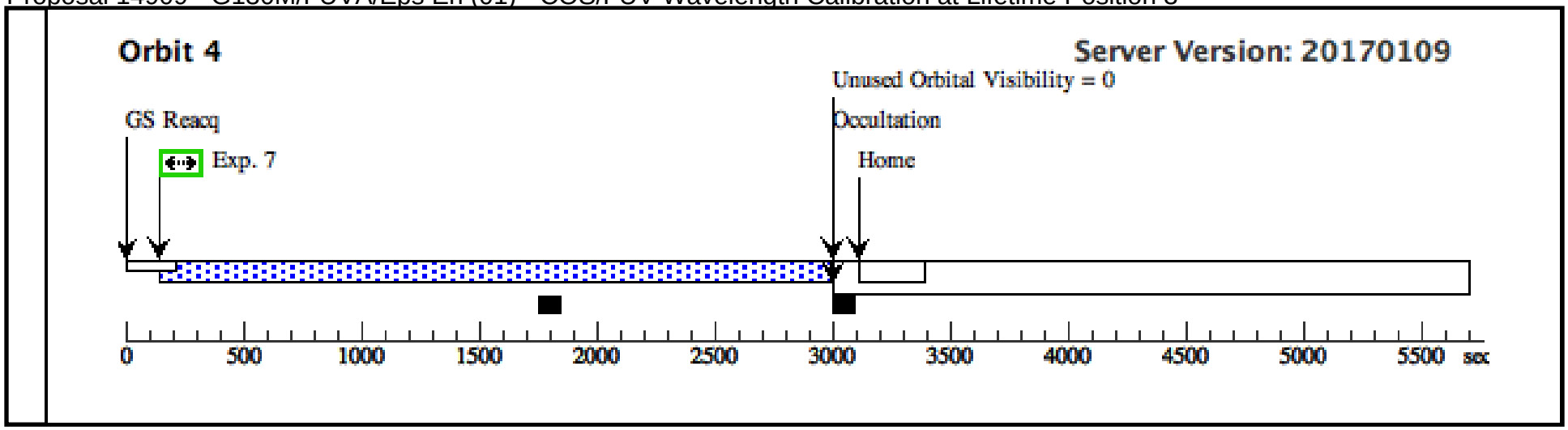
	7	C1327-3 (FUVA-only) (COS.sp.902282)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G130M 1327 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=1500	2722 Secs (2722 Secs) *[==>]*	*[4]*
		Comments: See comments in 01.005						

Orbit Structure





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Exp. 7
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1000
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2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14909, G160M/Eps Eri (02), completed Tue Mar 21 01:19:18 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 90%; BEFORE 27-MAR-2017:00:00:00

Comments: These Eps Eri observations must be able to achieve ~25 peak counts (~100 total) in the following faint lines for G160M per FP-POS (3)

G160M FUVA 1681.4 & G160M FUVB 1485.7

The strategy for these visits is obtain full orbits on the central and outside CENWAVEs for accurate dispersion/zero_point measurements, but also obtain short intermediate CENWAVE exposures for zero_points only.

NOTE that the target is only visible BEFORE March 25, 2017

Diagnostics

(G160M/Eps Eri (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
(1)	EPSILON-ERI	RA: 03 32 55.8450 (53.2326875d)	Proper Motion RA: -975.17 mas/yr	V=3.73	Reference Frame: ICRS
	Alt Name1: HD22049	Dec: -09 27 29.73 (-9.45826d)	Proper Motion Dec: 19.49 mas/yr		
	Alt Name2: GJ144	Equinox: J2000	Parallax: 0.31094"		
			Epoch of Position: 2000		
			Radial Velocity: 16.43 km/sec		

Comments: This from SIMBAD: eps Eri -- Variable of BY Dra type

ICRS coord. (ep=J2000) : 03 32 55.84496 -09 27 29.7312 (Optical) [1.84 1.75 90] A 2007A&A...474..653V
Proper motions mas/yr : -975.17 19.49 [0.21 0.20 0] A 2007A&A...474..653V
Radial velocity : V(km/s) 16.43 [0.09] / z(~) 0.000055 [0.000000] / cz 16.43 [0.09]

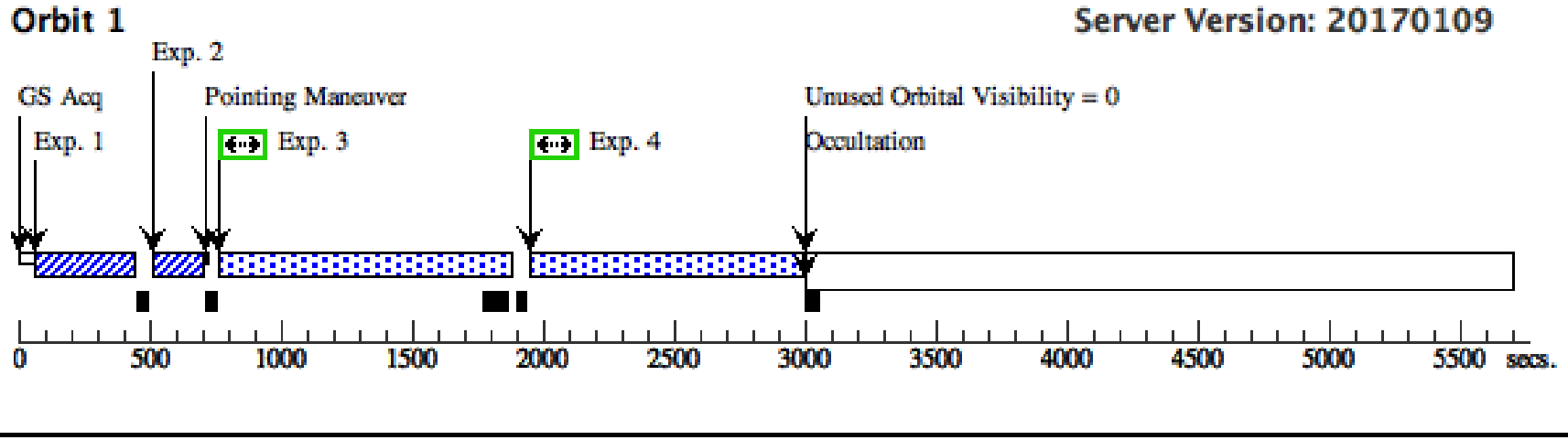
Spectral type: K2Vk: C 2006AJ....132..161G

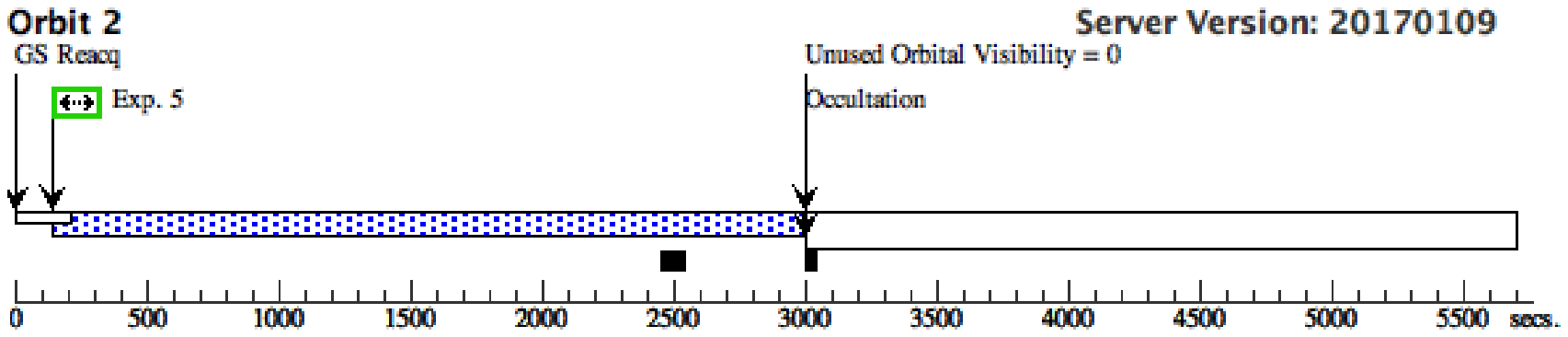
U 5.19 [~] C 2002yCat.2237....0D
B 4.61 [~] C 2002yCat.2237....0D
V 3.73 [~] C 2002yCat.2237....0D
R 3.00 [~] C 2002yCat.2237....0D
I 2.54 [~] C 2002yCat.2237....0D
J 2.23 [~] C 2002yCat.2237....0D
H 1.75 [~] C 2002yCat.2237....0D
K 1.67 [~] C 2002yCat.2237....0D
Extended=NO

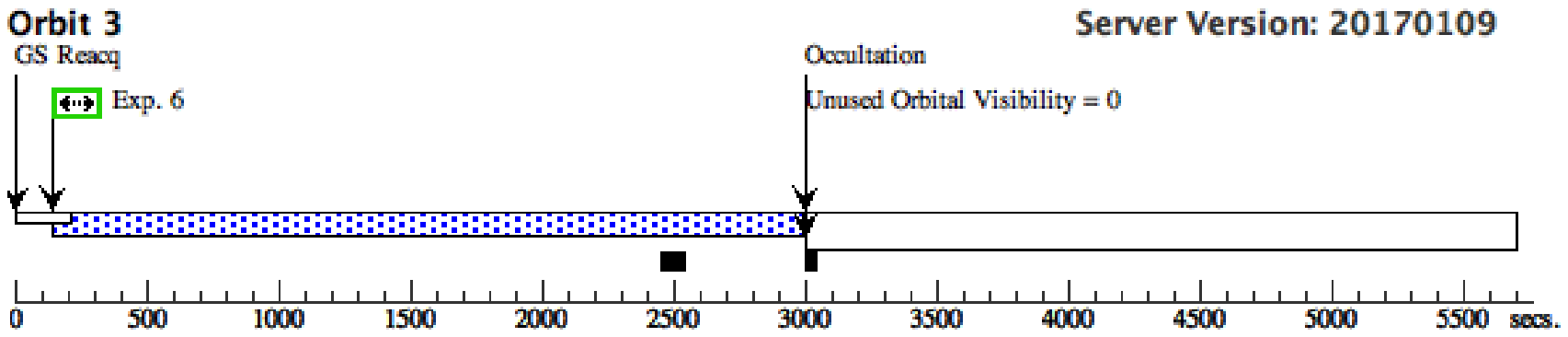
Exposures

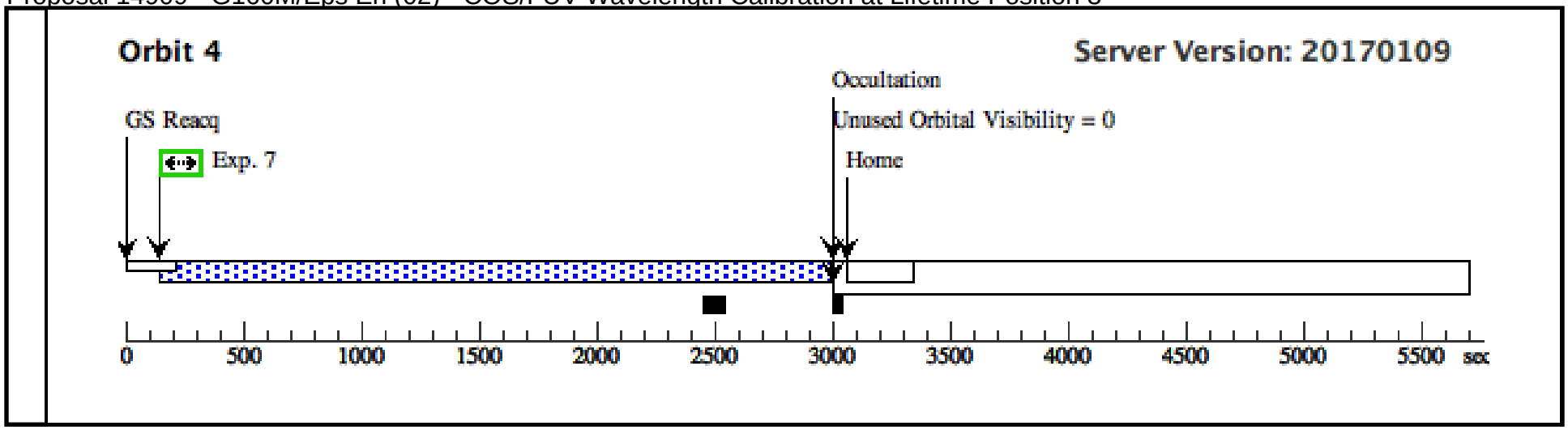
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	BOA+MIRRORB ACQ/IMAGE (COS.ta.903046)	(1) EPSILON-ERI	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				25 Secs (25 Secs) *[==>]*	***[1]***
Comments: Identical to TA of Visit 01, see 01.001 for full comments.									
2	2nd BOA+MIRRORB ACQ/IMAGE to optimize centering (COS.ta.903046)	(1) EPSILON-ERI	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				30 Secs (30 Secs) *[==>]*	***[1]***
Comments: Identical to TA of previous exposures , see 01.001 for full comments. We do this twice to ensure the best possible centering with BOA+B.									
3	C1589 FP-3 (FUVAB) (COS.sp.902283)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=8008			908 Secs (908 Secs) *[==>]*	***[1]***
*Comments: BT=2/3 * 7,172 = 4783. So, anything less is ok. Here we use ET-100s*									
4	C1611 FP-3 (FUVAB) (COS.sp.902283)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=3; BUFFER-TIME=2200			909 Secs (909 Secs) *[==>]*	***[1]***
*Comments: BT=2/3 * 7,172 = 4783. So, anything less is ok. To be safe, we'll use 2200 for all the remaining G160m exposures*									
5	C1577 FP-3 (FUVAB) (COS.sp.902283)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; BUFFER-TIME=2200			2722 Secs (2722 Secs) *[==>]*	***[2]***
*Comments: BT=2/3 * 7,172 = 4783. So, anything less is ok. To be safe, we'll use 2200s.* *Our goal here is to get 25 counts in the peak of the following (weak) lines: G160M FUVA 1681.4 & FUVB 1485.7* *According to the current ETC, the peak count rates in our fiducial lines, and exposure times to obtain 25+1-sigma = 30 counts are :* *G160M FUVA 1681.4 -> 0.015 counts/s, or for 30 counts, we need -> 2000s* *G160M FUVB 1485.7 -> 0.025 counts/s, or for 30 counts, we need -> 1200s* *So, we exceed the goal for both lines with the ~2720 s exposures in 02.005-02.007*									
6	C1600 FP-3 (FUVAB) (COS.sp.902283)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=2200			2722 Secs (2722 Secs) *[==>]*	***[3]***
Comments: See comments in 02.005									
7	C1623 FP-3 (FUVAB) (COS.sp.902283)	(1) EPSILON-ERI	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=3; BUFFER-TIME=2200			2722 Secs (2722 Secs) *[==>]*	***[4]***
Comments: See comments in 02.005									

Orbit Structure





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2000
2500
3000
3500
4000
4500
5000
5500
sec

Proposal 14909 - G130M/AV75 (03) - COS/FUV Wavelength Calibration at Lifetime Position 3

Visit

Proposal 14909, G130M/AV75 (03), completed Tue Mar 21 01:19:18 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 90%; ORIENT 270D TO 60 D; ORIENT 165D TO 165 D; BETWEEN 13-MAR-2017:00:00:00 AND 25-MAR-2017:23:59:59

Comments: Orbital Orientation and Roll constraints confine this visit to small window in March 2017. A timing requirement has been added that is slightly wider in time than the orbital constraint to allow maximum opportunities. Please re-use known good guide-stars as in done in 14855 (COS FUV Wavelength Monitor). The S/N requirement is >20 in the continuum for each FP-POS=3 exposure.

Diagnostics

(G130M/AV75 (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.

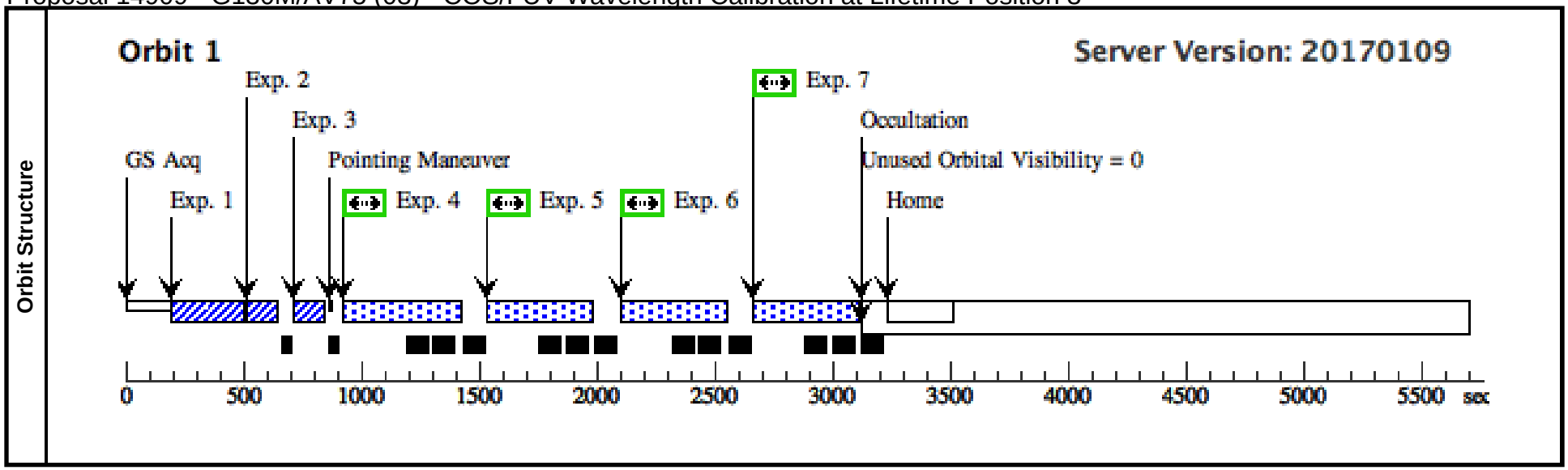
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	AV75	RA: 00 50 32.3900 (12.6349583d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000	Epoch of Position: 2000	V=12.79	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH 2x2 (COS.ta.675262)	(2) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767			5.5 Secs (5.5 Secs) *[==>]*	*[1]*
	Comments: This field has some Guide Star issues, so we add a 2x2 ACQ/SEARCH to increase the likelihood of a successful TA. The ETC run# is borrowed for the recent program 14842 which acquired the same target using the same configuration. The ETC reports a target count rate of ~300 cps, with a brightest pixel (BP) of 41.5 cps. An analysis of the actual TA ACQ/IMAGE gives 3900 count in 14 s (233 cps) with a BP = 2.7 counts/s. We use 14s for the ACQ/SEARCH and 14 for the ACQ/IMAGEs. For the ACQ/SEARCH we use 6s to achive S/N=40								
2	BOA+MIRRORA ACQ/IMAGE (COS.ta.675262)	(2) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				14 Secs (14 Secs) *[==>]*	*[1]*
	Comments: The ETC run# is borrowed for the recent program 14842 which acquired the same target using the same configuration. The ETC reports a target count rate of ~300 cps, with a brightest pixel (BP) of 41.5 cps. An analysis of the actual TA ACQ/IMAGE gives 3900 count in 14 s (233 cps) with a BP = 2.7 counts/s. We use 12s for the ACQ/SEARCH and 14 for the ACQ/IMAGEs								
3	2nd BOA+MIRRORA ACQ/IMAGE to optimize centering (COS.ta.675262)	(2) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				14 Secs (14 Secs) *[==>]*	*[1]*
	Comments: see comment on previous ACQ/IMAGE								
4	C1300 FP-3 (FUVAB) (COS.sp.905182)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=3; BUFFER-TIME=111			320 Secs (320 Secs) *[==>]*	*[1]*
	*Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum. By the book, this gives BT = 2/3 * 153 = 102, so the max exposure time is 204s, But we are choosing to run a a BT of 111s and we are ok if we lose some counts.*								
5	C1309 FP-3 (FUVAB) (COS.sp.828938)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=111			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum								
6	C1318 FP-3 (FUVAB) (COS.sp.828938)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=3; BUFFER-TIME=111			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum								
7	C1327 FP-3 (FUVAB) (COS.sp.828938)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=3; BUFFER-TIME=111			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum								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Exp. 2
Exp. 3
Exp. 7
Occultation
GS Acq
Pointing Maneuver
Unused Orbital Visibility = 0
Exp. 1
Exp. 4
Exp. 5
Exp. 6
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Proposal 14909 - G130M/AV75 (3A) - COS/FUV Wavelength Calibration at Lifetime Position 3

Visit

Proposal 14909, G130M/AV75 (3A) Tue Mar 21 01:19:18 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%; BETWEEN 13-MAR-2017:00:00:00 AND 16-APR-2017:00:00:00

Comments: This visit (3A) is a repeat for Visit 03 that was missed due to a SIC&DH lockup. In order to observe this target, the TA was changed. The previous BOA/A ACQ/IMAGE contained orient constraints to excluded several bright stars in the field. The new TA uses G130M/1300 with the PSA, so the BOA is out in the field instead of the PSA. We have extended the Between date to 16-Apr-2017. However, these data are linked to 14855/Visit 01 which was observed on 18-Mar-2017. Please re-use known good guide-stars as in done in 14855 (COS FUV Wavelength Monitor). The S/N requirement is >20 in the continuum for each FP-POS=3 exposure. We have added 4 20s lamp flashes to the Science exposures just to ensure optimum wavelength calibration.

Diagnostics

(G130M/AV75 (3A)) 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.

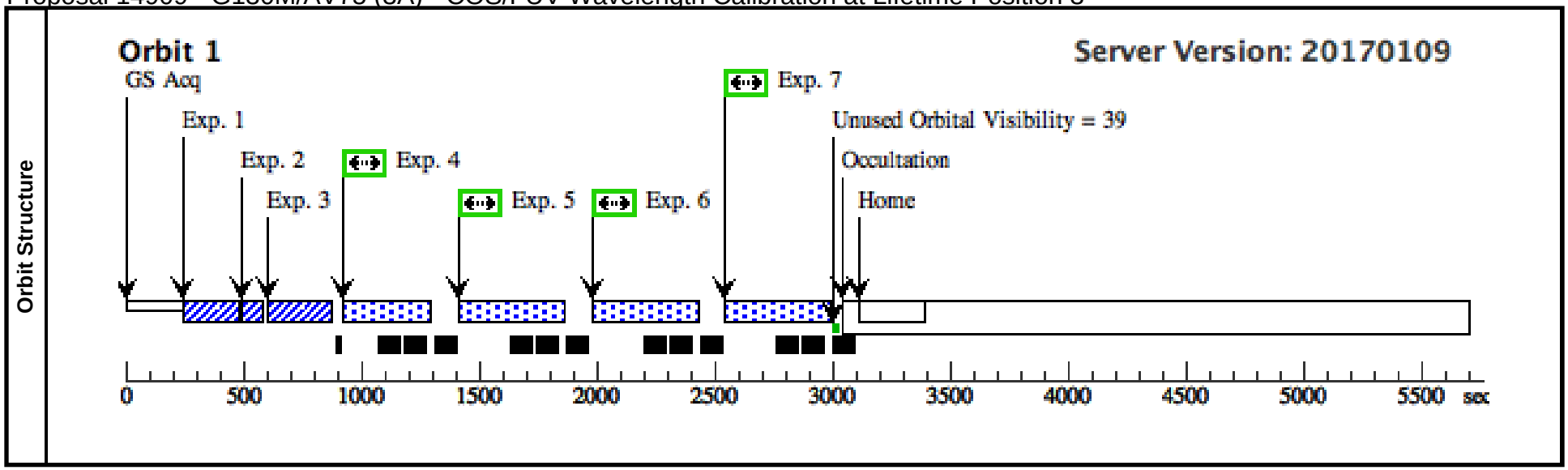
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	AV75	RA: 00 50 32.3900 (12.6349583d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000	Epoch of Position: 2000	V=12.79	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	2x2 ACQ/SEARCH G130M/1300 (COS.sa.915738)	(2) AV75	COS/FUV, ACQ/SEARCH, PSA	G130M 1300 A	SCAN-SIZE=2; STEP-SIZE=1.767			1.5 Secs (1.5 Secs) *[==>]*	*[1]*
	Comments: This field has some Guide Star issues, so we add a 2x2 ACQ/SEARCH to increase the likelihood of a successful TA. We exceed the normal S/N of 40 since we have time available and we want the best TA possible. The visit is for COS FUV LP3.								
2	ACQ/PEAKXD G130M/1300 (COS.sa.915738)	(2) AV75	COS/FUV, ACQ/PEAKXD, PSA	G130M 1300 A				1.5 Secs (1.5 Secs) *[==>]*	*[1]*
	Comments: Standard NUM_POS=1 PEAKXD (for LP3)								
3	ACQ/PEAKD G130M/1300 (COS.sa.915738)	(2) AV75	COS/FUV, ACQ/PEAKD, PSA	G130M 1300 A	NUM-POS=9; STEP-SIZE=0.6; CENTER=FLUX-WT-FLR			1.5 Secs (1.5 Secs) *[==>]*	*[1]*
	Comments: Here we use a 9x0.6" PEAKD to obtain quality AD centering.								
4	C1300 FP-3 (FUVAB) (COS.sp.905182)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1300 A	FP-POS=3; BUFFER-TIME=111; FLASH=S0100D020			320 Secs (320 Secs) *[==>]*	*[1]*
	*Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum. By the book, this gives BT = 2/3 * 153 = 102, so the max exposure time is 204s, But we are choosing to run a a BT of 111s and we are ok if we lose some counts. We have added additional lamp flashes for optimal wavecal alignment. We get 4 20s lamp flashes per exposure.*								
5	C1309 FP-3 (FUVAB) (COS.sp.905182)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1309 A	FP-POS=3; BUFFER-TIME=111; FLASH=S0100D020			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum. We have added additional lamp flashes for optimal wavecal alignment. We get 4 20s lamp flashes per exposure.								
6	C1318 FP-3 (FUVAB) (COS.sp.905182)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1318 A	FP-POS=3; BUFFER-TIME=111; FLASH=S0100D020			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum. We have added additional lamp flashes for optimal wavecal alignment. We get 4 20s lamp flashes per exposure.								
7	C1327 FP-3 (FUVAB) (COS.sp.905182)	(2) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=3; BUFFER-TIME=111; FLASH=S0100D020			320 Secs (320 Secs) *[==>]*	*[1]*
	Comments: This ETC run was performed using ETC 25.1.1 using an uploaded COS spectrum from a previous program. The x1dsum file used was lcgh01040_x1dsum. We have added additional lamp flashes for optimal wavecal alignment. We get 4 20s lamp flashes per exposure.								


Orbit Structure
Orbit 1
Server Version: 20170109
GS Acq
Exp. 1
Exp. 2
Exp. 3
Exp. 4
Exp. 5
Exp. 6
Exp. 7
Unused Orbital Visibility = 39
Occultation
Home
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500
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1500
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