15458 - COS/FUV G160M/1533 Profiles and Fluxes

Cycle: 25, 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) WD0308-565 DARK	COS/FUV COS/NUV S/C	2	08-Jun-2018 14:03:14.0	yes
51	(1) WD0308-565 DARK	COS/FUV COS/NUV S/C	1	08-Jun-2018 14:03:15.0	yes
02	(2) GD-71 DARK	COS/FUV COS/NUV S/C	1	08-Jun-2018 14:03:17.0	yes

4 Total Orbits Used

ABSTRACT

We obtain observations of spectrophotometric white dwarf standard stars for the calibration of the new cenwave G160M/1533 at all FP-POS at lifetime position 4. This setting extends the coverage at the short wavelength end of G160M by 44A to overlap with the longest wavelengths covered

by Segment A of cenwave 1222. This new cenwave will allow a broad range of wavelengths to be covered by just two M mode settings without placing Lya on the detector, avoiding a key contributor to gain sag. These observations in particular will be used to determine flux calibrations to S/N>30 and concurrently, the 2-D cross-dispersion profiles.

The main requirements for this program are S/N~50/resel, which is driven by two requirements: (1) for high S/N 2-D spectral profiles which are calculated by scaling the profiles from Program 12806 (flat and flux calibration at lifetime position 2, PI=Massa) and requiring that the profile contours can be located such that flux errors are less than 1-2%, and (2) for the flat fielding of pixel-to-pixel variations (p-flats). WD 0308-565 is the primary target for this program due to its status as a flux standard and TDS target. GD 71 is used to more efficiently calibrate Segment A.

OBSERVING DESCRIPTION

In this program, we obtain observations of two spectrophotometric white dwarf standard stars in order to calibrate the new cenwave G160M/1533 at all FP-POS. These observations will be used to determine flux calibrations as well as the 2-D cross-dispersion profiles. The exposures in this program are a near copy of the G160M/1577 exposures in Program 14910 (PI=Rafelski) which calibrates all COS/FUV observing modes for lifetime position 4.

The program is designed as follows:

VISIT 1:

1. Perform an ACQ/IMAGE to acquire target WD0308-565.

2. Use special commanding to redefine the TEST wavelength setting to the G160M/1533 OSM rotation position (11218) and absolute focus position of G160M/1533 (f=-646).

3. Take spectra at all 4 FPPOS. Exposures time per FPPOS (283 seconds) is calculated at wavelength 1450 (on Segment B) for S/N~20, totaling S/N~50 when summed. This exposure time is calculated using the lastest ETC version with c1533 included. We extend the exposure time up to 1008 seconds (FPPOS 1 and 2) and 1244 seconds (FPPOS 3 and 4) to better fill the two orbits.

4. Use special commanding to restore TEST row using ACTION RESTORE.

VISIT 2:

1. Perform an ACQ/IMAGE to acquire target GD71.

2. Special commanding is employed again to redefine the TEST wavelength setting to the G160M/1533 OSM rotation position (11218) and focus position of G160M/1533 (f=-646).

3. Take spectra at all 4 FPPOS. Segment B is turned off for these exposures. Exposure time per FPPOS required for S/N~20 at wavelength 1625A is 111 seconds, calculated using the lastest ETC version with c1533 included. We use an exposure time of 370 seconds in order to fill the orbit.

4. Use special commanding to restore TEST row using ACTION RESTORE.

Values for special commanding for defining G160M/1533 in Step 2. are:
STEP 11218 (Ray-trace predictions, courtesy Steve Penton)
RES1 18775 (Ray-trace predictions, courtesy Steve Penton)
RES2 23405 (Ray-trace predictions, courtesy Steve Penton)
FOCUS4 -646 (as determined by 1533 focus sweep)

SCHEDULING:

WD0308-565 is available throughout June. We request Visit 1 to be executed before June 30, 2018.
GD-71 is available starting August 11. We request Visit 2 to execute as soon as possible after the target becomes visible.

SPECIAL REQUESTS:

1. Please turn off calibration for the COS/FUV exposures.
2. Please disassociate all exposures.

SQL is used to meet the above requests. In case 1 qexposure.control_id is modified. In case 2 qeassociation records are deleted. Please see G. Chapman/M. Reinhart.

** This version (resubmitted 6/8/18 by CoI Andy Fox) has an edited, shorter Visit 51 (the repeat of Visit 01), because only part of Visit 01 failed. We only need to repeat the FPPOS 3 and 4 exposures, not all four FPPOS, which means the new Visit 51 is only one orbit long. **

Visit

Proposal 15458, WD0308-565 (01), failed Fri Jun 08 18:03:18 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: S/C, COS/FUV, COS/NUV

Special Requirements: SCHED 100%

Comments: We'd like this visit to be observed before the end of June 2018.

The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9200 (47.4496667d)	Proper Motion RA: 0.018141 sec of time/yr	V=14.14	Reference Frame: ICRS
		Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 0.0643 arcsec/yr		
		Equinox: J2000	Epoch of Position: 2000		

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[DB]
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/IM (COS.ta.1162492)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs (45 Secs) *[==>]*	***[1]***
Comments: 45 second exposure time gives S/N~60									
2	Special Commanding to turn TEST into 1533 (@-1731f)	DARK	S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST; QESIPARM ACTION TEST; QESIPARM GRATING G160M; QESIPARM CENTWAVE 1533; QESIPARM STEP 1 1218; QESIPARM RES1 1 8775; QESIPARM RES2 2 3405; QESIPARM FOCUS 4 -646		14 Secs (14 Secs) *[==>]*	***[1]***
Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Segment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.									
3	WD0308-565 FPPOS 1 (COS.sp.1162855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=1; BUFFER-TIME=325			1150 Secs (1008 Secs) *[==>1008.0 Secs]*	***[1]***
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1008 seconds in order to use more of the two orbits. *Buffer time per the ETC is 487*(2/3) = 325 seconds* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*									
4	WD0308-565 FPPOS 2 (COS.sp.1162855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=2; BUFFER-TIME=325			1150 Secs (1008 Secs) *[==>1008.0 Secs]*	***[1]***
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1008 seconds in order to use more of the two orbits. *Buffer time per the ETC is 487*(2/3) = 325 seconds* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*									
5	WD0308-565 FPPOS 3 (COS.sp.1162855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; BUFFER-TIME=325			1150 Secs (1244 Secs) *[==>1244.0 Secs]*	***[2]***
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1244 seconds in order to use more of the two orbits. *Buffer time per the ETC is 487*(2/3) = 325 seconds* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*									

6	WD0308-56 5 FPPOS 4 (COS.sp.116 2855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=4; BUFFER-TIME=325	1150 Secs (1244 Secs) *[==>1244.0 Secs]*	*[2]*
7	Special Com manding to r estore TEST row	DARK	S/C, DATA, NONE		SPEC COM INSTR ELOSMTEST; QESIPARM ACTIO N RESTORE	14 Secs (14 Secs) *[==>]*	*[2]*

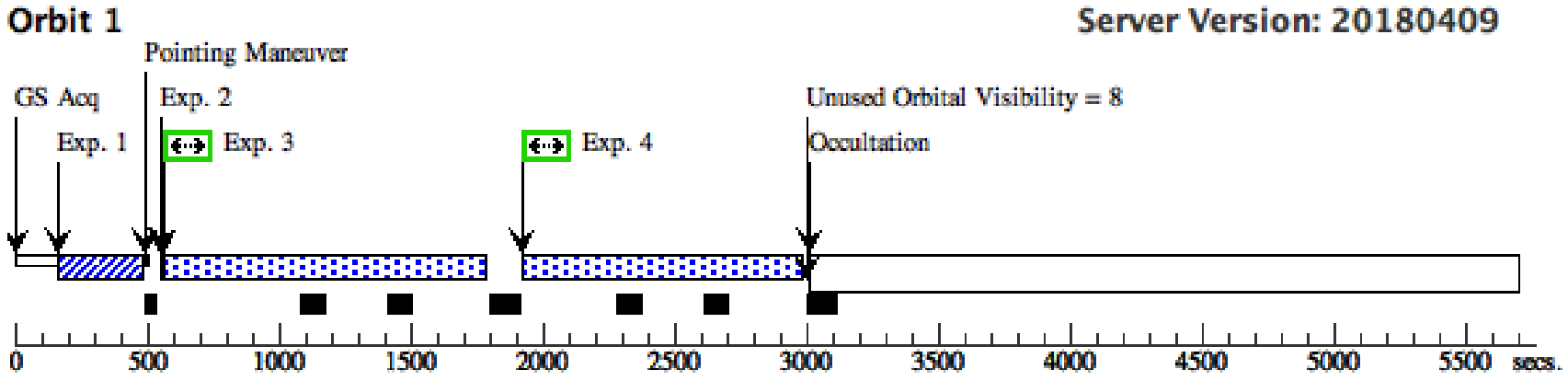
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1244 seconds in order to use more of the two orbits.

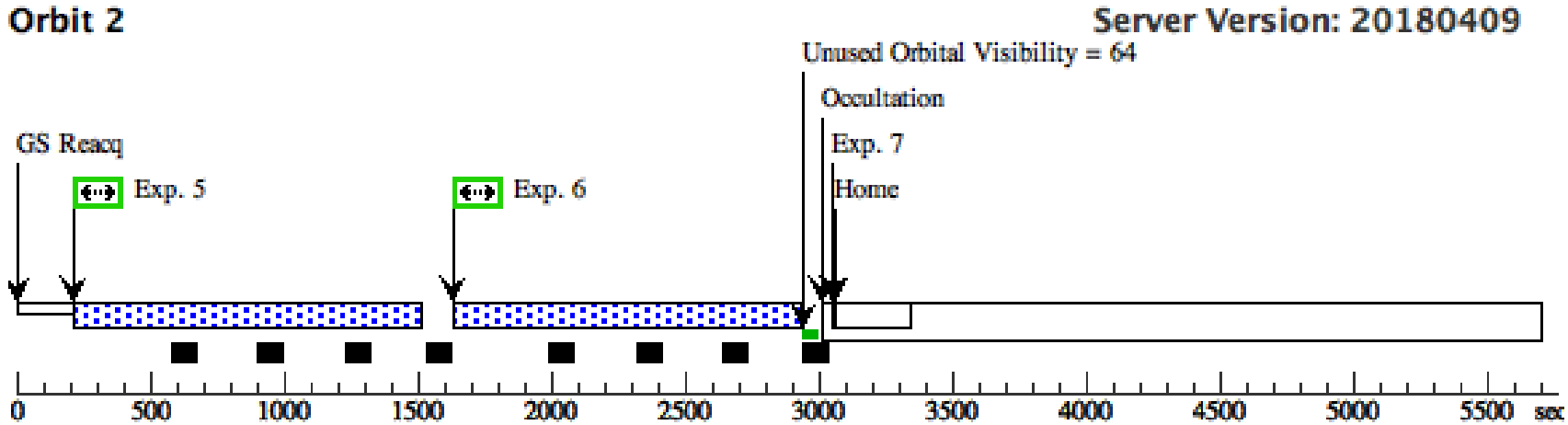
Buffer time per the ETC is 487(2/3) = 325 seconds*

SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

Comments: Special Commanding to restore test row.

Orbit Structure





Proposal 15458 - WD0308-565 (51) - COS/FUV G160M/1533 Profiles and Fluxes

Visit

Proposal 15458, WD0308-565 (51), implementation Fri Jun 08 18:03:18 GMT 2018

Diagnostic Status: Warning

Scientific Instruments: S/C, COS/FUV, COS/NUV

Special Requirements: SCHED 100%

Comments: We'd like this visit to be observed before the end of June 2018.

The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

Diagnostics

(WD0308-565 (51)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

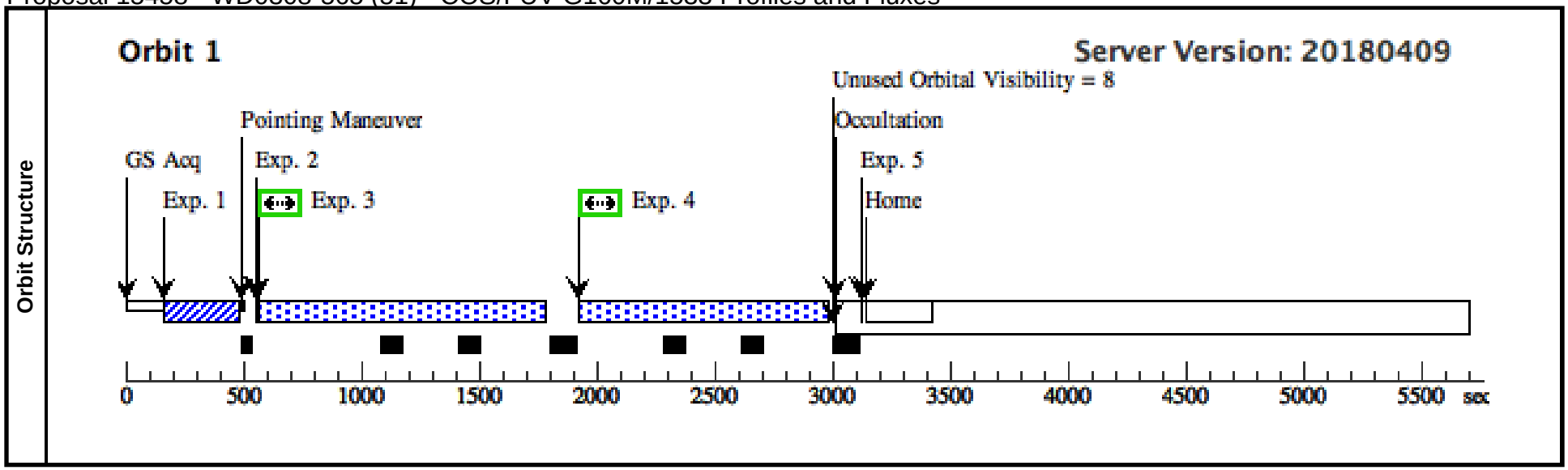
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD0308-565	RA: 03 09 47.9200 (47.4496667d)	Proper Motion RA: 0.018141 sec of time/yr	V=14.14	Reference Frame: ICRS
		Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 0.0643 arcsec/yr		
		Equinox: J2000	Epoch of Position: 2000		

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[DB]
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/IM (COS.ta.1162492)	(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs (45 Secs) *[==>]*	***[1]***
Comments: 45 second exposure time gives S/N~60									
2	Special Commanding to turn TEST into 1533 (@-1731f)	DARK	S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST; QESIPARM ACTION TEST; QESIPARM GRATING G160M; QESIPARM CENTWAVE 1533; QESIPARM STEP 1 1218; QESIPARM RES1 1 8775; QESIPARM RES2 2 3405; QESIPARM FOCUS 4 -646		14 Secs (14 Secs) *[==>]*	***[1]***
Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Segment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.									
3	WD0308-565 FPPOS 3 (COS.sp.1162855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; BUFFER-TIME=325			1150 Secs (1008 Secs) *[==>1008.0 Secs]*	***[1]***
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1008 seconds in order to use more of the two orbits. *Buffer time per the ETC is 487*(2/3) = 325 seconds* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*									
4	WD0308-565 FPPOS 4 (COS.sp.1162855)	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=4; BUFFER-TIME=325			1150 Secs (1008 Secs) *[==>1008.0 Secs]*	***[1]***
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1008 seconds in order to use more of the two orbits. *Buffer time per the ETC is 487*(2/3) = 325 seconds* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*									
5	Special Commanding to restore TEST row	DARK	S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST; QESIPARM ACTION RESTORE		14 Secs (14 Secs) *[==>]*	***[1]***
Comments: Special Commanding to restore test row.									


Orbit Structure
Orbit 1
Server Version: 20180409
Unused Orbital Visibility = 8
Pointing Maneuver
Occultation
GS Acq
Exp. 2
Exp. 5
Exp. 1
Exp. 3
Exp. 4
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15458, GD-71 (02), scheduling Fri Jun 08 18:03:18 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: S/C, COS/FUV, COS/NUV

Special Requirements: SCHED 100%

Comments: We'd like this visit to be observed as soon as possible after GD71 becomes observable on August 11, 2018.

The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GD-71	RA: 05 52 27.6140 (88.1150583d)	Proper Motion RA: 85 mas/yr	V=13.032	Reference Frame: ICRS
		Dec: +15 53 13.75 (15.88715d)	Proper Motion Dec: -174 mas/yr		
		Equinox: J2000	Epoch of Position: 2000		

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[DA]
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/IM (COS.ta.1162495)	(2) GD-71	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				140 Secs (140 Secs) *[==>]*	***[1]***
	*Comments: Since Mirror B has two images and images are 2:1 in brightness, multiplying ETC exposure time by 4/3 to ensure sufficient SNR for acquisition. 105*4/3 = 140* *Exposure time of 105 seconds gives S/N~60.*								
2	Special Commanding to turn TEST into 1533 (@-1731f)	DARK	S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST; QESIPARM ACTION TEST; QESIPARM GRATING G160M; QESIPARM CENTWAVE 1533; QESIPARM STEP 1 1218; QESIPARM RES1 1 8775; QESIPARM RES2 2 3405; QESIPARM FOCUS 4 -646		14 Secs (14 Secs) *[==>]*	***[1]***
	Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Segment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.								
3	G160M/1533 - GD71 (COS.sp.1162856)	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M 1577 A	SEGMENT=A; FP-POS=1; BUFFER-TIME=200; LIFETIME-POS=LP4			370 Secs (370 Secs) *[==>]*	***[1]***
	Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit. *Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning.* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*								
4	G160M/1533 - GD71 (COS.sp.1162856)	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M 1577 A	SEGMENT=A; FP-POS=2; BUFFER-TIME=200; LIFETIME-POS=LP4			370 Secs (370 Secs) *[==>]*	***[1]***
	Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit. *Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning.* *SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.*								

5	G160M/153 3 - GD71 (COS.sp.116 2856)	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M 1577 A	SEGMENT=A; FP-POS=3; BUFFER-TIME=200; LIFETIME-POS=LP4	370 Secs (370 Secs) [==>]	[1]

Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit.

Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning.

SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

6	G160M/153 3 - GD71 (COS.sp.116 2856)	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M 1577 A	SEGMENT=A; FP-POS=4; BUFFER-TIME=200; LIFETIME-POS=LP4	370 Secs (370 Secs) [==>]	[1]

Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit.

Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning.

SQL is required to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

7	Special Com manding to r estore TEST row	DARK	S/C, DATA, NONE		SPEC COM INSTR ELOSMTEST; QESIPARM ACTION RESTORE	14 Secs (14 Secs) [==>]	[1]

Comments: Special Commanding to restore test row.

Orbit Structure