14842 - Quick-check of the G130M Spectral Resolution at Lifetime Position 4

Cycle: 23, 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	(3) AV75 DARK NONE	COS COS/FUV COS/NUV S/C	3	07-Sep-2016 19:13:24.0	yes

3 Total Orbits Used

ABSTRACT

Following its change of lifetime position, the core of the LSFs of the COS FUV detector are expected to change by up to 10% once combined with the LSFs of the OTA+MFWE combination. The knowledge of the COS LSFs is critical for users to evaluate the feasibility and S/N requirements of their observations. In addition, accurate COS LSFs are necessary to perform line profile fitting. Thus, it appears necessary to constrain the shape of the COS LSFs at the new lifetime position. To do so, we will acquire COS FUV G130M spectra of the SMC star AzV 75, at the two extreme

CENWAVES and using all FPPOS to optimize the S/N. Once all FPPOS settings are combined, our observations will reach a S/N of 60/resel. We will test whether previous STIS E140M spectra of AzV 75 convolved with model COS LSFs at LP4 can reproduce on-orbit observed COS FUV spectra of the numerous ISM lines toward AzV 75 at LP4. While we will not be able to detect a 10% change in the core of the COS LSFS, we will rather be able to test the validity of the model LSFs at the new position. In addition, we will be able to detect a 15% uniform change across the LSFs, and unexpected larger variations in the COS LSFs larger than 15%. Additionally, we will take observations with G130M/1327 FP-POS 2 and 3 at 2 cross-dispersion positions (XD=-4.5 arcsec and XD=-6.0 arcsec from LP1) encompassing the LP4 location to support efforts to characterize the geometric distortions below LP4. The HV values will be adjusted to those selected for start of operations at LP4. We will use HV values of 163/163 (A/B) for all exposures.

OBSERVING DESCRIPTION
We will acquire COS FUV G130M spectra of the SMC star AzV 75, with the 1291 and 1327 cenwaves and using all FPPOS to optimize the S/N. Once all FPPOS settings are combined, our observations will reach a S/N of 60/resel. We will perform a NUV imaging target acquisition with the BOA.

Additionally, we will take observations with G130M/1327 FP-POS 2 and 3 at 2 cross-dispersion positions (XD=-4.5 arcsec and XD=-6.0 arcsec from LP1) encompassing the LP4 location to support efforts to characterize the geometric distortion correction below LP4. The HV values will be adjusted to those selected for start of operations at LP4. We will use HV values of 163/163 (A/B) for all exposures.

We request that the data be fast tracked once the program has executed. The program needs to be executed before September 6, 2016 to maintain LP4 move schedule.

Visit		
	Proposal 14842, Visit 01, implementation	Wed Sep 07 23:13:26 GMT 2016
	Diagnostic Status: Warning	
	Scientific Instruments: COS, S/C, COS/FUV, COS/NUV	
	Special Requirements: SCHED 100%; ORIENT 280D TO 60 D; ORIENT 160D TO 165 D; BEFORE 06-SEP-2016:00:00:00	

Diagnostics

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

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(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

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

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

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	nuv_boa_mira_acq_search (COS.ta.675262)	(3) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			7 Secs (7 Secs) [==>]	[1]
	2	image_acq_boa (COS.ta.640604)	(3) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				14 Secs (14 Secs) [==>]	[1]
	3	1291_initialize_aperture-position-focus-HV-values (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=100; FP-POS=1; FLASH=NO; WAVECAL=NO			0.1 Secs (0.1 Secs) [==>]	[1]
	Comments: initializes the G130M/1291 observations to set aperture position, HV value and focus values to LP3 defaults before we move to apeture and change HV and focus values relevant for LP4 and derived from 14527 & 14525.									
	4	Move Aperture to -5 arc sec from LP1	NONE	COS, ALIGN/APER		XAPER=53; YAPER=0.0			0.0 Secs (0 Secs) [==>]	[1]
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-5.0") by -2.52"									
	5	adjust HV to 163/163 (A/B) for 1291	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC TSA 163; QESIPARM ENDC TSB 163		39 Secs (39 Secs) [==>]	[1]
	Comments: We start from HVNOM= 167/169 (A/B) - *Based on 14525: we are going to HV= 163/163 (A/B) for 1291 and 1327.* *Exposure time is calculated from: 39 seconds + ceiling (XX*1.1) where XX is step difference (in HV steps) if the HV is set higher than where we started.* *For FUVA: (163-167)= -4 steps* *For FUVB: (163-169)= -6 steps* *So exposure time is: 39s* *Note 1: Special commanding instruction: ELHVADJPROP and special observation requirement SAA CONTOUR 31 need to be set for the HV change to be effective.* *Note: OSM move does not change HV values previously set by special commanding. Only another special command or end of obset can change HV values again.*									
	6	Adjust focus value for 1291 LP4	NONE	COS, ALIGN/OSM		FOCUS=40			0.0 Secs (0 Secs) [==>]	[1]
	Comments: Adjusted focus to the estimate obtained from P14527 analysis.									
	7	1291_FP1 (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=100; FP-POS=1; FLASH=S0055D030	POS TARG 0.0,-2.52		200 Secs (200 Secs) [==>]	[1]
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.52 arcsec (corresponding to YAPER=53 steps)									

8	1291_FP2 (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=100; FP-POS=2; FLASH=S0055D030	SAME POS AS 7	200 Secs (200 Secs) [==>]	[1]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							
9	1291_FP3 (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=100; FP-POS=3; FLASH=S0055D030	SAME POS AS 7	200 Secs (200 Secs) [==>]	[1]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							
10	1291_FP4 (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=100; FP-POS=4; FLASH=S0055D030	SAME POS AS 7	200 Secs (200 Secs) [==>]	[1]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							
11	1327_initialize_focus (COS.sp.828937)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=100; FP-POS=1; FLASH=NO; WAVECAL=NO	POS TARG 0.0,-2.52	0.1 Secs (0.1 Secs) [==>]	[1]
	Comments: initializes the G130M/1327 observations. As long as the config (COS/FUV) and aperture & LP (PSA, LP3) don't change, the ApMech will not be commanded. So we should not need anything special to maintain the ApMech setting when switching central wavelengths.							
12	Adjust focus value for 1327 LP4	NONE	COS, ALIGN/OSM		FOCUS=40		0.0 Secs (0 Secs) [==>]	[1]
	Comments: Adjusted focus to the estimate obtained from P14527 analysis.							
13	1327_FP1 (COS.sp.828938)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=100; FP-POS=1; FLASH=S0055D030	POS TARG 0.0,-2.52	200 Secs (200 Secs) [==>]	[1]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							
14	1327_FP2 (COS.sp.828938)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=100; FP-POS=2; FLASH=S0055D030	SAME POS AS 13	200 Secs (200 Secs) [==>]	[2]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							
15	1327_FP3 (COS.sp.828938)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=100; FP-POS=3; FLASH=S0055D030	SAME POS AS 13	200 Secs (200 Secs) [==>]	[2]
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1							

16	1327_FP4 (COS.sp.828 938)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=4; FLASH=S0055D03 0	SAME POS AS 13	200 Secs (200 Secs) *[==>]* *[2]*
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1291_FP1						
17	Move Apert ure to -6 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=74; YAPER=0.0		0.0 Secs (0 Secs) *[==>]* *[2]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-6.0") by -3.52"						
18	1327_FP4 a nd XD=-6.0 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=4; FLASH=S0055D03 0	POS TARG 0.0,-3.5 2	200 Secs (200 Secs) *[==>]* *[2]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-3.52 arcsec (corresponding to YAPER=74 steps)						
19	Move Apert ure to -4.5 ar csec from L P1	NONE	COS, ALIGN/APER		XAPER=42; YAPER=0.0		0.0 Secs (0 Secs) *[==>]* *[2]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-4.5") by -2.000"						
20	1327_FP4 a nd XD= -4.5 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=4; FLASH=S0055D03 0	POS TARG 0.0,-2.0 00	200 Secs (200 Secs) *[==>]* *[2]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.000 arcsec (corresponding to YAPER=42 steps)						
21	1327_FP1 a nd XD=-4.5 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=1; FLASH=S0055D03 0	SAME POS AS 20	200 Secs (200 Secs) *[==>]* *[2]*
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1327_FP4						
22	Move Apert ure to -5 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=53; YAPER=0.0		0.0 Secs (0 Secs) *[==>]* *[2]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-5.0") by -2.52 "						
23	1327_FP1 a nd XD=-5.0 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=1; FLASH=S0055D03 0	POS TARG 0.0,-2.5 2	200 Secs (200 Secs) *[==>]* *[2]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.52 arcsec (corresponding to YAPER=53 steps)						
24	Move Apert ure to -6 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=74; YAPER=0.0		0.0 Secs (0 Secs) *[==>]* *[2]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-6.0") by -3.52 "						

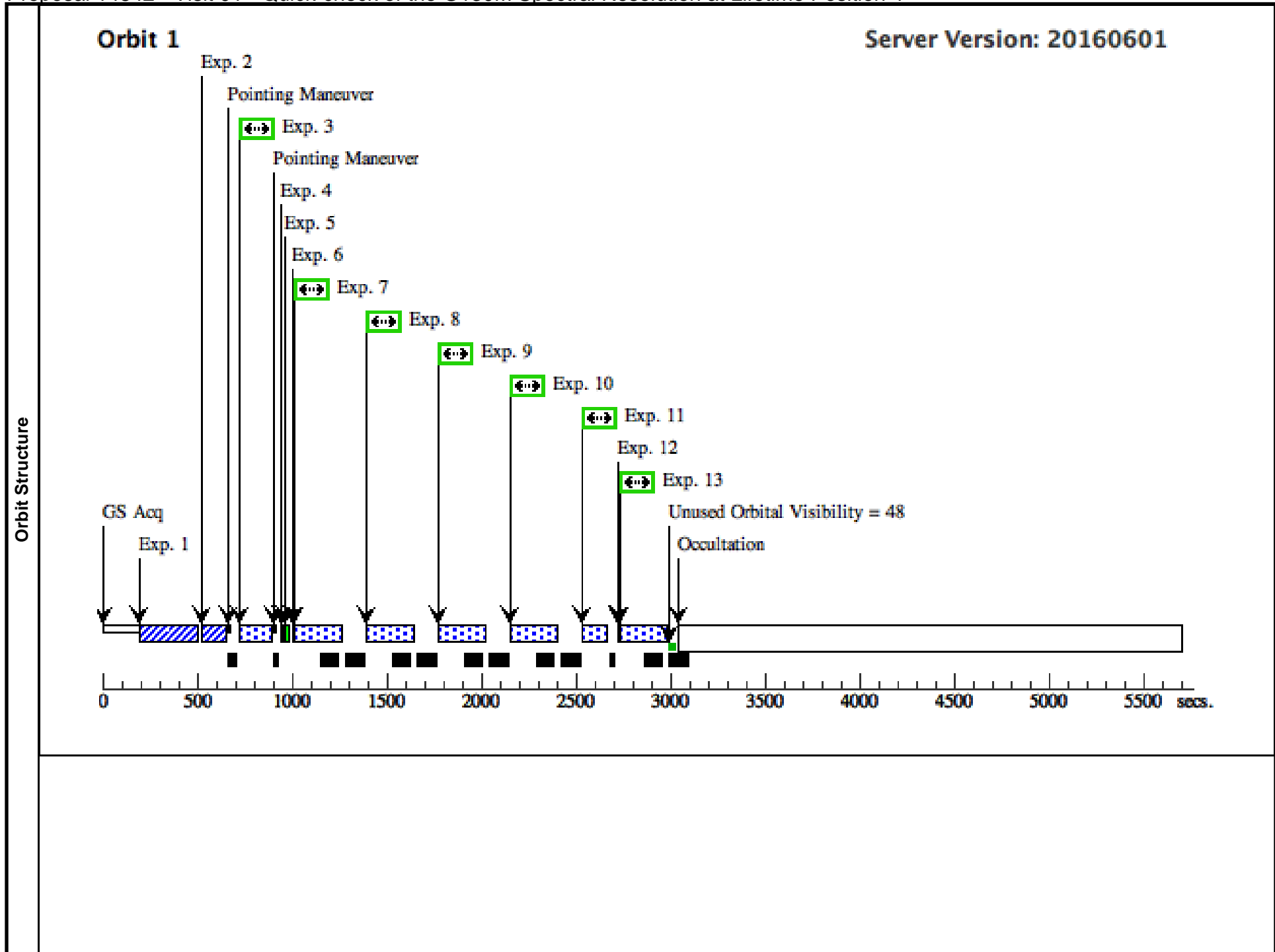|								
25	1327_FP1 a nd XD=-6.0 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=1; FLASH=S0055D03 0	POS TARG 0.0,-3.5 2	200 Secs (200 Secs) *[==>]*	*[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-3.52 arcsec (corresponding to YAPER=74 steps)							
26	1327_FP2 a nd XD=-6.0 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=2; FLASH=S0055D03 0	SAME POS AS 25	200 Secs (200 Secs) *[==>]*	*[3]*
	Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1327_FP1 (01.025)							
27	Move Apert ure to -5 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=53; YAPER=0.0		0.0 Secs (0 Secs) *[==>]*	*[3]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-5.0") by -2.52 "							
28	1327_FP2 a nd XD=-5.0 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=2; FLASH=S0055D03 0	POS TARG 0.0,-2.5 2	200 Secs (200 Secs) *[==>]*	*[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.52 arcsec (corresponding to YAPER=53 steps)							
29	Move Apert ure to -4.5 ar csec from L P1	NONE	COS, ALIGN/APER		XAPER=42; YAPER=0.0		0.0 Secs (0 Secs) *[==>]*	*[3]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-4.5") by -2.000"							
30	1327_FP2 a nd XD=-4.5 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=2; FLASH=S0055D03 0	POS TARG 0.0,-2.0 00	200 Secs (200 Secs) *[==>]*	*[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.000 arcsec (corresponding to YAPER=42 steps)							
31	1327_FP3 a nd XD=-4.5 arcsec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=3; FLASH=S0055D03 0	POS TARG 0.0,-2.0 00	200 Secs (200 Secs) *[==>]*	*[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.000 arcsec (corresponding to YAPER=42 steps)							
32	Move Apert ure to -5 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=53; YAPER=0.0		0.0 Secs (0 Secs) *[==>]*	*[3]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-5.0") by -2.52"							

33	1327_FP3 a nd XD=-5 ar csec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=3; FLASH=S0055D03 0	POS TARG 0.0,-2.5 2	200 Secs (200 Secs) *[==>]* *[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-2.52 arcsec (corresponding to YAPER=53 steps)						
34	Move Apert ure to -6 arc sec from LP 1	NONE	COS, ALIGN/APER		XAPER=74; YAPER=0.0		0.0 Secs (0 Secs) *[==>]* *[3]*
	Comments: Using -21 motor steps per arcsec. The aperture is moved from LP3 cross-dispersion position (XD=-2.5") to position (XD=-6.0") by -3.52"						
35	1327_FP3 a nd XD=-6 ar csec (COS.sp.828 939)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=10 0; FP-POS=3; FLASH=S0055D03 0	POS TARG 0.0,-3.5 2	200 Secs (200 Secs) *[==>]* *[3]*
	Comments: adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=-3.52 arcsec (corresponding to YAPER=74 steps)						
36	Return to H VNOM 167/ 169 (A/B)	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC TSA 167; QESIPARM ENDC TSB 169	46 Secs (46 Secs) *[==>]* *[3]*
	Comments: We start from HV=163/163 (A/B) and we are returning to HVNOM: 167/169 (A/B) We calculate the exposure time as: 39 seconds + ceiling(XX*1.1) where XX is step difference (in HV steps) if the HV is set higher than where we started. For FUVA: (167-163)=4 steps For FUVB: (169-163)=6 steps. So exposure time is: 39s +(6*1.1)= 45.6s						

Orbit 3

GS Reacq

Exp. 25

Exp. 26

Pointing Maneuver

Exp. 27

Exp. 28

Pointing Maneuver

Exp. 29

Exp. 30

Exp. 31

Pointing Maneuver

Exp. 32

Exp. 33

Pointing Maneuver

Exp. 34

Exp. 35

Unused Orbital Visibility = 197

Exp. 36

Home

Occultation

Server Version: 20160601

0   500   1000   1500   2000   2500   3000   3500   4000   4500   5000   5500 sec