Proposal 16831 (STScI Edit Number: 0, Created: Friday, November 5, 2021 at 12:01:17 PM Eastern Standard Time) - Overview



16831 - Cycle 29 COS FUV Target Acquisition Monitor

Cycle: 29, Proposal Category: CAL/COS

(Calibration)

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	Institution	E-Mail	
Dr. Sergio B. Dieterich (PI) (Contact)	Space Telescope Science Institute	sdieterich@stsci.edu	
Elaine M Frazer (CoI) (Contact)	Space Telescope Science Institute	efrazer@stsci.edu	
Kate Rowlands (CoI) (Contact)	Space Telescope Science Institute	krowlands@stsci.edu	

VISITS

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used		OP Current with Visit?
01	(1) WD-1657+343	COS/FUV COS/NUV	1	05-Nov-2021 13:01:12.0	yes
02	(1) WD-1657+343	COS/FUV COS/NUV	2	05-Nov-2021 13:01:16.0	yes

³ Total Orbits Used

ABSTRACT

This program verifies that FUV spectroscopic target acquisitions are working nominally for the modes allowed in cycle 29: G130M at LP5, G140L at LP4, and G160M at LP4. For each grating the cenwave with the widest cross dispersion profile in which acquisitions are done is used, yielding the combinations G130M/1291, G140L/1280, and G160M/1600. After the standard target WD 1657+343 is centered using ACQ/IMAGE we take spectra at the NUM-POS positions used by the PEAKXD and PEAKD algorithms to inspect those regions of the detector and check the vignetted flux. We then perform a PEAKXD and/or PEAKD acquisition and take a spectrum to verify centering. We test PEAKXD with NUM-POS=3

Proposal 16831 (STScI Edit Number: 0, Created: Friday, November 5, 2021 at 12:01:17 PM Eastern Standard Time) - Overview (default) and 5, and PEAKD with NUM-POS=5 (default). A detailed description of the observations is given in the visit level comments. This program follows the prescription used in the last several cycles, and is most recently adapted from cycle 28 program 16326.

OBSERVING DESCRIPTION

This program consists of three orbits, each with a non-interrupt sequence. The program is divided into two visits to allows the last two orbits to have schedulability 100, whereas the first orbit needs schedulability 80. The two orbit visit may also be separated into two visits if that facilitates scheduling.

We request that this program execute in January of 2022 (via a BETWEEN), and within 30 days of Visit PB of Program 16539 (via a visit-level comment).

The program is divided into 3 parts, one for each FUV grating. The central wavelengths tested are G130M/1291 at LP5, G140L/1280 at LP4, and G160M/1600 at LP4. These cenwaves were chosen because they provide the widest cross-dispersion profile allowed for acquisitions.

For each grating, we first acquire the target using ACQ/IMAGE, take a spectrum to verify the ACQ/IMAGE centering, take off-centered spectra using POSTARG, and then run an acquisition sequence. The visit level comments contain a detailed description of the observations.

Comments for each exposure give the Buffer Time calculations. However, in most cases we use slighter shorter buffer times in case the targets are brighter than expected. The logic being that if any of the PEAKXDs are not exactly perfect, the followup POS-TARGs may be off and give different count rates than expected.

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01) - Cycle 29 COS FUV Target Acquisition Monitor Proposal 16831, PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01), Fri Nov 05 17:01:17 GMT 2021 implementation **Diagnostic Status: Warning** Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 80%; BETWEEN 01-JAN-2022:00:00:00 AND 31-JAN-2022:00:00:00 Comments: This visit is separated from visit 2 because this visit needs schedulability 80, whereas visit 2 can use 100. This visit has the following timing requirement: * It should execute between 1/1/22 and 1/31/22 * It should execute within 30 days of visit PB of program 16539 This visit tests spectroscopic target acquisition using FUV G130M/1291. The sequence of events is as follows 01.001 - NUV ÂCQ/IMÂĞE 01.002 - NUV Image with WCA lamps, to check alignment later on. 01.003 - G130M/1291 spectrum to establish center position after ACQ/IMAGE 01.004, 01.005 - +/-1.3" XD POSTARGS to simmulate NUM-POS=3 PEAKXD 01.006 - PEAKXD with NUM-POS=3 01.007 - Verification spectrum 01.008 to 01.011 - Simulates PEAKXD with NUM-POS=5, STEP-SIZE=0.9 01.012 - PEAKXD with NUM-POS=5 01.013 - Verification spectrum 01.014 - PEĂKD 01.015 - Verification spectrum (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE gnostic (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACO/IMAGE then G130M FUV TA Monitoring (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT Name **Target Coordinates** Targ. Coord. Corrections **Fluxes** Miscellaneous (1) WD-1657+343 RA: 16 58 51.1202 (254.7130008d) Proper Motion RA: 11 mas/yr V = 16.1Reference Frame: ICRS Dec: +34 18 53.29 (34.31480d) Proper Motion Dec: -31 mas/yr Equinox: J2000 Epoch of Position: 2000 Radial Velocity: 78 km/sec Comments; COS.ta.1032496 indicates S/N = 40 in 5.2s. SIMBAD cordinates are 16 58 51.1202 +34 18 53.293 Proper Motion from SIMBAD is Proper motions mas/yr: 11-31 [3 3 133] C 2011MNRAS.417.1210G, RV=78 B 16.12 [~] D ~ u (AB) 15.749 [0.005] B 2013yCat.5139....0A g (AB) 16.139 [0.003] B 2013yCat.5139....0A (AB) 16.691 [0.004] B 2013yCat.5139....0A (AB) 17.054 [0.005] B 2013yCat.5139....0A z (AB) 17.388 [0.015] C 2013yCat.5139....0A Category=STAR

3

Description=[DA] Extended=NO

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01) - Cycle 29 COS FUV Target Acquisition Monitor

ORB A MAGE (COS.t. 0223) 2 PSA/M ORB L +TARC MAGE MEDIT (COS.t. 40224) Comments: I USELAMP = CURRENT = This target w For the Lamp Reported La Lamp Backg Actual Lamp 3 PSA/C 3 - CEI R (COS.s. 0225) Comments: I 4 PSA/C 3 +1.3a onds in (COS.s. 0225) Comments: I 5 PSA/C 3 -1.3a	MIRR (1) WD-ACQ/I E.ta.154 MIRR (1) WD-LAMP GGET I E (P2/ IUM) .iim.15 b) PSA/MIRRORB/. = LINE2 = MEDIUM was used in Visit mp, LAMP/CURF amp Events = 33 ground events in p Events = 3204 C1291/ (1) WD-ENTE	P2/MED current, se BA of 14857 (Idozba EENT USED = P2/M 6 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	NUV, TIME-TAG, PSA e above for expected count rates adhq). Bck subtracted counts in dedium, LAMP EXPTIME = 12.0 76.33334 counts/s lampflash time (12s) = 112 cts: .026 counts/s FUV, TIME-TAG, PSA	second image = 54	0; FLASH=S0060D01 5; CURRENT=MEDI UM 2, there are 2 QESIPA 230; S/N = 73.69, ET=	QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 1-15 Non-I nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo nitoring (01) Sequence 1-15 Non-I nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo nitoring (01)	[==>] 15.0 Secs (15 Secs)	[1]
MAGE (COS.1 0223) 2	E.ta.154 MIRR (1) WD-LAMP RGET I E (P2/ IUM) .im.15 b) PSA/MIRRORB/. = LINE2 = MEDIUM was used in Visit mp, LAMP/CURF amp Events = 33 ground events in . p Events = 3204 C1291/ (1) WD-ENTE	P2/MED current, se BA of 14857 (ldozb. PENT USED = P2/M 6 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	e above for expected count rates adhq). Bck subtracted counts in dedium, LAMP EXPTIME = 12.076.33334 counts/s lampflash time (12s) = 112 cts:026 counts/s	. To get PtNe Lamp second image = 54 000 s Rate = 9.308 coun	0; FLASH=S0060D01 5; CURRENT=MEDI UM 2, there are 2 QESIPA 230; S/N = 73.69, ET=	MP LINE2; QESIPARM CURR ENT MEDIUM ARMs set:	B ACQ/IMAGE then G130M FUV TA Mo nitoring (01) Sequence 1-15 Non-I nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo	15.0 Secs (15 Secs)	
GRB L +TARC MAGE MAGE MEDII (COS.i 40224) Comments: I USELAMP = CURRENT = This target w For the Lam, Reported La, Lamp Backg Actual Lamp 3 PSA/C 3 - CEI R (COS.s 0225) Comments: I 4 PSA/C 3 +1.3a onds ir (COS.s 0225) Comments: I 5 PSA/C 3 -1.3a	LAMP GET I E (P2/ I(UM) .im.15 b) PSA/MIRRORB/ = LINE2 = MEDIUM was used in Visit mp, LAMP/CURB amp Events = 33. ground events in p Events = 3204 C1291/ (1) WD- ENTE	P2/MED current, se BA of 14857 (ldozb. PENT USED = P2/M 6 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	e above for expected count rates adhq). Bck subtracted counts in dedium, LAMP EXPTIME = 12.076.33334 counts/s lampflash time (12s) = 112 cts:026 counts/s	. To get PtNe Lamp second image = 54 000 s Rate = 9.308 coun	0; FLASH=S0060D01 5; CURRENT=MEDI UM 2, there are 2 QESIPA 230; S/N = 73.69, ET=	MP LINE2; QESIPARM CURR ENT MEDIUM ARMs set:	nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo	I\1	[1]
#TARG MAGE MEDII (COS.i. 40224) Comments: I USELAMP = CURRENT = This target w For the Lamp Reported La Lamp Backg Actual Lamp 3 - CEI R (COS.s. 0225) Comments: I 4 PSA/C 3 + 1.3a onds in (COS.s. 0225) Comments: I 5 PSA/C 3 - 1.3a	RGET I E (PZ/ I(PM) .im.15 E) PSA/MIRRORB/ = LINE2 = MEDIUM was used in Visit mp, LAMP/CURF amp Events = 33 ground events in p Events = 3204 C1291/ (1) WD- ENTE	BA of 14857 (ldozb. PENT USED = P2/M 16 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	adhq). Bck subtracted counts in Medium, LAMP EXPTIME = 12.0 76.33334 counts/s lampflash time (12s) = 112 cts: .026 counts/s FUV, TIME-TAG, PSA	second image = 54 000 s Rate = 9.308 coun	FLASH=S0060D01 5; CURRENT=MEDI UM 2, there are 2 QESIPA (30; S/N = 73.69, ET=	QESIPARM CURR ENT MEDIUM ARMs set:	B ACQ/IMAGE then G130M FUV TA Mo	[==>]	[1]
SELAMP = CURRENT = This target was reported Lamp Backg Actual Lamp Backg Actual Lamp (COS.s. 0225) Comments: 1/4 PSA/C 3+1.3a onds in (COS.s. 0225) Comments: 2/5 PSA/C 3-1.3a	= LINE2 = MEDIUM was used in Visit mp, LAMP/CURN amp Events = 33. ground events in a p Events = 3204 C1291/ (1) WD- ENTE	BA of 14857 (ldozb. PENT USED = P2/M 16 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	adhq). Bck subtracted counts in Medium, LAMP EXPTIME = 12.0 76.33334 counts/s lampflash time (12s) = 112 cts: .026 counts/s FUV, TIME-TAG, PSA	second image = 54 000 s Rate = 9.308 coun	30 ; S/N = 73.69, ET= ts/s				
For the Lam, Reported La, Lamp Backg Actual Lamp 3 PSA/C 3 - CEI R (COS.s. 0225) Comments: 1 4 PSA/C 3 + 1.3a onds in (COS.s. 0225) Comments: 2 5 PSA/C 3 - 1.3a	mp, LAMP/CURE amp Events = 33, ground events in a p Events = 3204 C1291/ (1) WD- ENTE	RENT USED = P2/N 6 counts : Rate = 2 50x300 TA BOX for counts : Rate = 267	dedium, LAMP EXPTIME = 12.076.33334 counts/s lampflash time (12s) = 112 cts: .026 counts/s FUV, TIME-TAG, PSA	000 s Rate = 9.308 coun	its/s	138			
3 - CEI R (COS.s 0225) Comments: I 4 PSA/C 3 + 1.3a onds in (COS.s 0225) Comments: I 5 PSA/C 3 - 1.3a	ENTE	1657+343 COS/	*	G130M					
R (COS.s 0225)				G130141	FP-POS=3;	QESIPARM USELA		25 Secs (25 Secs)	
Comments: 4 5 PSA/C 3 -1.3a				1291 A	BUFFER-TIME=30 0; LIFETIME-POS=D EF		nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo nitoring (01)	[==>]	[1]
Comments: 4 5 PSA/C 3 -1.3a	HST Standard St	ar, S/N ~ 5 in 25s			2.				
Comments: 4 5 PSA/C 3 -1.3a	C1291/ (1) WD-	1657+343 COS/	FUV, TIME-TAG, PSA	G130M	FP-POS=3;	POS TARG null,1.3;	Sequence 1-15 Non-I	55 Secs (55 Secs)	
Comments: A 5 PSA/C 3 -1.3a	n XD .sp.154			1291 A	0;	QESIPARM USELA MP LINE2; QESIPARM CURR	nt in PSA/MIRROR B ACQ/IMAGE then G130M FUV TA Mo	[==>]	[1]
5 PSA/C 3 -1.3a					EF ET INIL-1 OS=D	ENT MEDIUM	intoring (01)		
3 -1.3a	At $R=1.3$ ", the th	roughput is ~45%.	To get the same counts, we need	to increase the exp	osure time to 55s.				
	C1291/ (1) WD-	1657+343 COS/	FUV, TIME-TAG, PSA	G130M	FP-POS=3;	POS TARG null,-1.3	Sequence 1-15 Non-I nt in PSA/MIRROR	55 Secs (55 Secs)	
(COS.s 0225)	n XD .sp.154			1291 A	BUFFER-TIME=50 0; LIFETIME-POS=D EF	MD I INE2:	B ACQ/IMAGE then G130M FUV TA Mo nitoring (01)	[==>]	[1]
						ENT MEDIUM			
		<u> </u>	To get the same counts, we need						
6 PSA/C PEAK	C1291/ (1) WD-	1657+343 COS/		G130M	LIFETIME-POS=D EF	QESIPARM USELA MP LINE2;	Sequence 1-15 Non-I nt in PSA/MIRROR	2 Secs (2 Secs)	
P=3/Di (COS.s 0226)	DEF .sa.154			1291 A	El	QESIPARM CURR	B ACQ/IMAGE then G130M FUV TA Mo nitoring (01)	[==>]	[1]
		and STEP_SIZE are	not included to make sure that t	he correct DEFAU	LTS of NUM_POS=3 a			-WT are still inserted.	
	_	– Star:WD-1657+343			y –	_ ,			
gives: Time	e HST Standard S		nent A and Segment B combined						
Time R	Signal/Noise Ration = 0.4205 second	s uested SNR in Segm	CIN 11 OIN y. 1.20/0						

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01) - Cycle 29 COS FUV Target Acquisition Monitor PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G130M FP-POS=3: QESIPARM USELA Sequence 1-15 Non-I 25 Secs (25 Secs) 3 - After NU MP LINE2; nt in PSA/MIRROR 1291 A BUFFER-TIME=30 M POS=3 P B ACO/IMAGE then OESIPARM CURR **EAKXD** G130M FUV TA Mo [1] ENT MEDIUM LIFETIME-POS=D (COS.sp.154 nitoring (01) 0225) EF PSA/C1291/ (1) WD-1657+343 G130M FP-POS=3; POS TARG null, 1.8; Sequence 1-15 Non-I 192 Secs (192 Secs) COS/FUV, TIME-TAG, PSA 3 +1.8arcsec nt in PSA/MIRROR 1291 A BUFFER-TIME=10 OESIPARM USELA I = = > 1B ACQ/IMAGE then onds in XD 00; MP LINE2; G130M FUV TA Mo (COS.sp.154 [1] 0225) LIFETIME-POS=D OESIPARM CURR nitoring (01) ENT MEDIUM Comments: At R=1.8", the throughput is ~13%. To get the same counts, we need to increase the exposure time. PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G130M FP-POS=3: POS TARG null.0.9: Sequence 1-15 Non-I 35 Secs (35 Secs) 3 +0.9arcsec nt in PSA/MIRROR 1291 A BUFFER-TIME=40 OESIPARM USELA onds in XD B ACO/IMAGE then MP LINE2; (COS.sp.154 G130M FUV TA Mo [1] 0225) LIFETIME-POS=D QESIPARM CURR nitoring (01) ENT MEDIUM EF Comments: At R=0.9", the throughput is ~71%. To get the same counts, we need to increase the exposure time. PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G130M FP-POS=3; POS TARG null,-0.9 Sequence 1-15 Non-I | 35 Secs (35 Secs) 3 -0.9arcsec nt in PSA/MIRROR 1291 A BUFFER-TIME=40 onds in XD B ACO/IMAGE then QESIPARM USELA (COS.sp.154 G130M FUV TA Mo MP LINE2; [1] 0225) LIFETIME-POS=D nitoring (01) OESIPARM CURR EF ENT MEDIUM Comments: At R=0.9", the throughput is ~71%. To get the same counts, we need to increase the exposure time. PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G130M FP-POS=3; POS TARG null,-1.8 Sequence 1-15 Non-I 192 Secs (192 Secs) 3 -1.8arcsec nt in PSA/MIRROR 1291 A FLASH=YES; B ACQ/IMAGE then onds in XD **QESIPARM USELA** BUFFER-TIME=10 G130M FUV TA Mo (COS.sp.154 MP LINE2; 0225) [1] 00: nitoring (01) **QESIPARM CURR** LIFETIME-POS=D **ENT MEDIUM** Comments: At R=1.8", the throughput is ~13%. To get the same counts, we need to increase the exposure time. PSA/C1291/ (1) WD-1657+343 COS/FUV, ACO/PEAKXD, PSA G130M LIFETIME-POS=D OESIPARM USELA Sequence 1-15 Non-I 2 Secs (2 Secs) PEAKXD/N MP LINE2; nt in PSA/MIRROR EF; 1291 A P=5/DEF B ACO/IMAGE then **OESIPARM CURR** NUM-POS=5; [1] G130M FUV TA Mo (COS.sa.154 ENT MEDIUM 0226) STEP-SIZE=0.9 nitoring (01) Comments: The default STEP-SIZE is 1.0", but at +/- 2", the POS TARGS would not create enough counts to track the operation of the NUM POS=5 PEAKXD. 5x0.9" is used instead. Double check that the DEFAUL T CENTER=FLUX-WT-FLR is used. It is left unspecified to test that the default APT logic is still correctly choosing the correct CENTER algorithm. PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G130M FP-POS=3: QESIPARM USELA Sequence 1-15 Non-I 25 Secs (25 Secs) 3 - After NU MP LINE2; nt in PSA/MIRROR BUFFER-TIME=30 1291 A M POS=5 P B ACO/IMAGE then **OESIPARM CURR** G130M FUV TA Mo EAKXD [1] ENT MEDIUM (COS.sp.154 LIFETIME-POS=D nitoring (01) 0225)EF Comments: HST Standard Star, S/N ~ 5 in 25s PSA/C1291/ (1) WD-1657+343 COS/FUV, ACO/PEAKD, PSA G130M LIFETIME-POS=D QESIPARM USELA Sequence 1-15 Non-I 3 Secs (3 Secs) PEAKD/NP EF: MP LINE2: nt in PSA/MIRROR 1291 A B ACO/IMAGE then =5/DEF NUM-POS=5; QESIPARM CURR [1] (COS.sa.154 G130M FUV TA Mo ENT MEDIUM 0226) STEP-SIZE=0.9 nitoring (01) Comments: We want to check the AD NUV to FUV SIAF alignment, so perform a good PEAKD. Double check that the DEFAULT CENTER=FLUX-WT-FLR is used. It is left unspecified to test that the default APT log ic is still correctly choosing the correct CENTER algorithm.

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01) - Cycle 29 COS FUV Target Acquisition Monitor PSA/C1291/ (1) WD-1657+343 COS/FUV, TIME-TAG, PSA FP-POS=3; 25 Secs (25 Secs) G130M QESIPARM USELA Sequence 1-15 Non-I 3 - After PE MP LINE2; nt in PSA/MIRROR B ACQ/IMAGE then [==>] BUFFER-TIME=30 1291 A AKD QESIPARM CURR (COS.sp.154 0225) G130M FUV TA Mo [1] ENT MEDIUM LIFETIME-POS=D nitoring (01) Comments: HST Standard Star, S/N ~ 5 in 25s. Server Version: 20210514 Orbit 1 ←→ Exp. 2 Pointing Maneuver €--> Exp. 3 Pointing Maneuver €--> Exp. 4 Pointing Maneuver €--> Exp. 5 Pointing Maneuver Exp. 6 €--> Exp. 7 Pointing Maneuver € 3 Exp. 8 Pointing Maneuver **Orbit Structure** €... Exp. 9 Pointing Maneuver € Exp. 10 Pointing Maneuver € → Exp. 11 Pointing Maneuver Exp. 12 € ⇒ Exp. 13 Exp. 14 €--> Exp. 15 Unused Orbital Visibility = 30 GS Acq Occultation Home Exp. 1 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) - Cycle 29 COS FUV Target Acquisition Proposal 16831, PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02), Fri Nov 05 17:01:17 GMT 202 implementation **Diagnostic Status: Warning** Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100%; BETWEEN 01-JAN-2022:00:00:00 AND 31-JAN-2022:00:00:00 Comments: These two orbits are in a different visit because they can use schedulability 100. The orbit in visit 1 requires schedulability 80. the 2 orbits in this visit may also be placed into individual visits if it helps with scheduling, so long as the non-interrupt sequences and the BETWEEN are respected. This visit has the following timing requirement: * It should execute between 1/1/22 and 1/31/22 * It should execute within 30 days of visit PB of program 16539 This visit has two orbits, each with a non-interrupt sequence. Each orbit is structured as follows First orbit, tests FUV G140L/1280 spectroscopic acquisition 02.001 - ACQ/IMAGE 02.002 - NUV image with WCA lamps to verify alignment 02.003 - spectrum centered after ACQ/IMAGE, for comparison 02.004, 02.005 - simulate PEAKXD with NUM-POS=3 02.006 - PEAKXD with NUM-POS=3 02.007 - Verification spectrum 02.008 to 02.011 - Simulate PEAKXD with NUM-POS=5 02.012 - PEAKXD with NUM-POS=5 02.013 - Verification spectrum Orbit 2, tests FUV G160M/1600 spectroscopic acquisition 02.014 - ACQ/IMAGE 02.015 - NUV image with WCA lamps to verify alignment 02.016 - spectrum centered after ACO/IMAGE, for comparison 02.017, 02.018 - simulate PEAKXD with NUM-POS=3 02.019 - PEAKXD with NUM-POS=3 02.020 - verification spectrum 02.021 - PEAKD with NUM-POS=5 02.022 - verification spectrum (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACO/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT (PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

PSA/MIRRORB ACO/IMAGE then G140L and G160M FUV TA monitor (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) - Cycle 29 COS FUV Target Acquisition.

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD-1657+343	RA: 16 58 51.1202 (254.7130008d)	Proper Motion RA: 11 mas/yr	V=16.1	Reference Frame: ICRS
		Dec: +34 18 53.29 (34.31480d)	Proper Motion Dec: -31 mas/yr		
		Equinox: J2000	Epoch of Position: 2000		
S			Radial Velocity: 78 km/sec		
B 16.12 u (AB) 1 g (AB) 1 r (AB) 1 i (AB) 1 z (AB) 1 Category	[7] D ~ [5.749 [0.005] B 2013yCa [6.139 [0.003] B 2013yCa [6.691 [0.004] B 2013yCa [7.054 [0.005] B 2013yCa [7.388 [0.015] C 2013yCa y=STAR tion=[DA]	ut.51390A ut.51390A t.51390A	MINNIS-717.112100, NY = 70		

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) - Cycle 29 COS FUV Target Acquisition ...

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit		
	1	PSA/MIRR	(1) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 1-13 Non-I	7 Secs (7 Secs)			
		ORB ACQ/I MAGE (COS.ta.154 0223)						nt in PSA/MIRROR B ACQ/IMAGE then G140L and G160M FUV TA monitor (02	[==>]	[1]		
			(1) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=15			15.0 Secs (15 Secs)			
		ORB LAMP +TARGET I				0; FLASH=S0060D01	MP LINE2; OESIPARM CURR	nt in PSA/MIRROR B ACQ/IMAGE then	[==>]			
		MAGE (P2/ MEDIUM) (COS.im.15				5; CURRENT=MEDI	ENT MEDIUM	G140L and G160M FUV TA monitor (02		[1]		
		40224)				UM		,				
	PSA/I USEI	nents: Identic MIRRORB/P2 LAMP = LINE RENT = MED	/ME. To get PtNe Lar 22	np 2, there are 2 QESIPARMs set:								
			(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L	FP-POS=3;		Sequence 1-13 Non-I	20 Secs (20 Secs)			
		/1280/3 - CE NTER			1280 A	BUFFER-TIME=40 0;	MP LINE2; OESIPARM CURR	nt in PSA/MIRROR B ACQ/IMAGE then	[==>]			
		(COS.sp.154 0229)				LIFETIME-POS=D EF	ENT MEDIUM	G140L and G160M FUV TA monitor (02		[1]		
	Comments: COS.sp.11440229 S/N Ratio = 10 at wavelength 1310. (per RE): Time = 20 sec.											
			(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L	FP-POS=3;	POS TARG null,1.3;		44 Secs (44 Secs)			
res		/1280/3 +1.3 arcseconds i			1280 A		QESIPARM USELA	nt in PSA/MIRROR B ACQ/IMAGE then	[==>]			
Exposures		n XD (COS.sp.154 0229)				0; LIFETIME-POS=D EF	MP LINE2; QESIPARM CURR ENT MEDIUM	G140L and G160M FUV TA monitor (02		[1]		
X	Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time.											
_	5	PSA/G140L	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L	FP-POS=3;	POS TARG null,-1.3	Sequence 1-13 Non-I	44 Secs (44 Secs)			
		/1280/3 -1.3 arcseconds i			1280 A	BUFFER-TIME=80	;	nt in PSA/MIRROR B ACQ/IMAGE then	[==>]			
		n XD				0; LIFETIME-POS=D	QESIPARM USELA MP LINE2;	G140L and G160M FUV TA monitor (02		[1]		
		(COS.sp.154 0229)				EF	QESIPARM CURR ENT MEDIUM			[1]		
	Com	nents: At R=1	.3", the throughput is	~45%. To get the same counts, we need	ed to increase the ex	posure time.				T		
		PSA/G140L /PEAKXD/	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G140L	LIFETIME-POS=D EF;	QESIPARM USELA MP LINE2;	Sequence 1-13 Non-I nt in PSA/MIRROR	3 Secs (3 Secs)			
		NP=3/DEF			1280 A	NUM-POS=3;	QESIPARM CURR	B ACQ/IMAGE then	[==>]			
		(COS.sa.154 0230)				STEP-SIZE=1.3	ENT MEDIUM	G140L and G160M FUV TA monitor (02		[1]		
	Comr gives:	nents: COS.sa : Time = 1.73	i.1540230 Requested i 69 seconds Time Requ	Signal/Noise Ratio = 40.000 for Segm uired for Requested SNR in Segment A	ent A and Segment I only: 1.7369 (only 1	B combined A is used)		,				
	7	PSA/G140L	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L	FP-POS=3;		Sequence 1-13 Non-I	20 Secs (20 Secs)			
		/1280/3 (COS.sp.103 2431)			1280 A	BUFFER-TIME=40 0;	MP LINE2; QESIPARM CURR ENT MEDIUM	nt in PSA/MIRROR B ACQ/IMAGE then G140L and G160M				
						LIFETIME-POS=D EF		FUV TA monitor (02				
										[1]		

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) - Cycle 29 COS FUV Target Acquisition ... PSA/G140L (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G140L FP-POS=3: POS TARG null, 1.8; Sequence 1-13 Non-I | 154 Secs (154 Secs) /1280/3 + 1.8nt in PSA/MIRROR 1280 A BUFFER-TIME=40 OESIPARM USELA arcseconds i B ACO/IMAGE then MP LINE2: n XD G140L and G160M [1] OESIPARM CURR FUV TA monitor (02 (COS.sp.154 LIFETIME-POS=D **ENT MEDIUM** 0229)Comments: 13% flux at 1.8". 20s/.13 = 154sPSA/G140L (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G140L FP-POS=3; POS TARG null,0.9; Sequence 1-13 Non-I 23 Secs (23 Secs) /1280/3 + 0.9nt in PSA/MIRROR 1280 A BUFFER-TIME=40 **OESIPARM USELA** B ACQ/IMAGE then arcseconds i MP LINE2; G140L and G160M n XD [1] (COS.sp.154 LIFETIME-POS=D QESIPARM CURR FUV TA monitor (02 ENT MEDIUM 0229) Comments: 71% flux at 0.9". 20s/.71 ~ 23s PSA/G140L (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G140L FP-POS=3: POS TARG null,-0.9 Sequence 1-13 Non-I 23 Secs (23 Secs) nt in PSA/MIRROR /1280/3 -0.9 1280 A BUFFER-TIME=40 B ACO/IMAGE then arcseconds i **OESIPARM USELA** G140L and G160M n XD MP LINE2; [1] LIFETIME-POS=D FUV TA monitor (02 (COS.sp.154 **OESIPARM CURR** 0229)EF **ENT MEDIUM** Comments: 71% flux at 0.9". 20s/.71 ~ 23s 11 PSA/G140L (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G140L FP-POS=3: POS TARG null,-1.8 Sequence 1-13 Non-I | 154 Secs (154 Secs) /1280/3 -1.8 nt in PSA/MIRROR 1280 A BUFFER-TIME=40 B ACO/IMAGE then arcseconds i **OESIPARM USELA** 0: n XD G140L and G160M MP LINE2; [1] LIFETIME-POS=D (COS.sp.103 FUV TA monitor (02 2431) **OESIPARM CURR** ENT MEDIUM Comments: 13% flux at 1.8". 20s/.13 = 154s12 PSA/G140L (1) WD-1657+343 COS/FUV, ACQ/PEAKXD, PSA QESIPARM USELA Sequence 1-13 Non-I 3 Secs (3 Secs) G140L LIFETIME-POS=D MP LINE2; nt in PSA/MIRROR /PEAKXD/ EF; 1280 A I = = > 1NP=5/DEF B ACO/IMAGE then NUM-POS=5; **OESIPARM CURR** G140L and G160M (COS.sa.154 [1] **ENT MEDIUM** 0230) STEP-SIZE=0.9 FUV TA monitor (02 Comments: COS.sa.1032455 Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 1.6519 seconds Time Required for Requested SNR in Segment A only: 1.6519 PSA/G140L (1) WD-1657+343 COS/FUV, TIME-TAG, PSA G140L FP-POS=3: OESIPARM USELA Sequence 1-13 Non-I 20 Secs (20 Secs) nt in PSA/MIRROR /1280/3 MP LINE2; BUFFER-TIME=40 1280 A (COS.sp.103 B ACO/IMAGE then **OESIPARM CURR** 2431) G140L and G160M [1] ENT MEDIUM LIFETIME-POS=D FUV TA monitor (02 EF 14 PSA/MIRR (1) WD-1657+343 COS/NUV, ACO/IMAGE, PSA MIRRORB Sequence 14-22 Non 7 Secs (7 Secs) ORB ACQ/I -Int in PSA/MIRRO I = = > 1MAGE RB ACO/IMAGE th (COS.ta.154 en G140L and G160 0223)M FUV TA monitor (02)[2]

1.5 DC	A /MIDD	(1) WD 1657 : 242			nd G160M FUV				
OR +T MA ME (CO	RB LAMP TARGET I TAGE (P2/ EDIUM) COS.im.15	(1) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	0;	QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 14-22 Non -Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	[==>]	[2]
PSA/MII USELAN		22	02 t PtNe Lamp 2, there are 2 QESIPARN	As set:					
M/ CE (C0	SA/G160 /1600/3 - ENTER COS.sp.154 231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=80 0; LIFETIME-POS=D EF	QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	82 Secs (82 Secs) [==>]	[2]
		re time (seconds) = 8 89 (per resolution eler	(2.0000 at wavelength 1602.00						
17 PS. M/ 1.3 ds:			COS/FUV, TIME-TAG, PSA	G160M 1600 A	00;	POS TARG null,1.3; QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 14-22 Non -Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	182 Secs (182 Secs) <i>I</i> ==> <i>J</i>	[2
Commen	nts: At R=1	.3", the throughput is	~45%. To get the same counts, we ne	ed to increase the e	exposure time.				
M/ .3a in 2 (C0	SA/G160 5/1600/3 -1 arcseconds XD COS.sp.154 231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; FLASH=YES; BUFFER-TIME=10 00;	POS TARG null,-1.3; QESIPARM USELA MP LINE2; QESIPARM CURR	Sequence 14-22 Non -Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor	182 Secs (182 Secs) [==>]	[2
			~45%. To get the same counts, we ne			ENT MEDIUM			
M/. D/i F (C0	SA/G160 //PEAKX /NP=3/DE COS.sa.154 232)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=D EF; NUM-POS=3; STEP-SIZE=1.3	QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	3 Secs (3 Secs) [==>]	[2
gives: Ti Tin	ime = 1.041 me Require	74 seconds d for Requested SNR	o = 40.000 for Segment A and Segmer in Segment A only: 5.7791 in Segment B only: 1.2792	nt B combined					·
M/ (C0	SA/G160 /1600/3 COS.sp.154 231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=80 0; LIFETIME-POS=D EF	QESIPARM USELA MP LINE2; QESIPARM CURR ENT MEDIUM	Sequence 14-22 Non -Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	82 Secs (82 Secs) [==>]	[2
M/ AK DE	/1600/PE KD/NP=5/	(1) WD-1657+343	COS/FUV, ACQ/PEAKD, PSA	G160M 1600 A	LIFETIME-POS=D EF; NUM-POS=5; STEP-SIZE=0.9		Sequence 14-22 Non -Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	3 Secs (3 Secs) [==>]	[2

Proposal 16831 - PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) - Cycle 29 COS FUV Target Acquisition ...

22		(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M	FP-POS=3;	Sequence 14-22 Non		
	M/1600/3 (COS.sp.154 0231)			1600 A	BUFFER-TIME=80 0; LIFETIME-POS=L P4	-Int in PSA/MIRRO RB ACQ/IMAGE th en G140L and G160 M FUV TA monitor (02)	[==>]	[2]



