16831 - Cycle 29 COS FUV Target Acquisition Monitor

Cycle: 29, Proposal Category: CAL/COS

(Calibration)

(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) 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

(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.

Visit	**Proposal 16831, PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01), implementation** Fri Nov 05 17:01:17 GMT 2021 **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 ACQ/IMAGE* *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 - PEAKD* *01.015 - Verification spectrum*

Diagnostics	(PSA/MIRRORB ACQ/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 (PSA/MIRRORB ACQ/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 (PSA/MIRRORB ACQ/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 ACQ/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

Fixed Targets

#	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		
			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
r (AB) 16.691 [0.004] B 2013yCat.5139....0A
i (AB) 17.054 [0.005] B 2013yCat.5139....0A
z (AB) 17.388 [0.015] C 2013yCat.5139....0A
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	PSA/MIRRORB ACQ/IMAGE (COS.ta.1540223)	(1) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	7 Secs (7 Secs) [==>]	[1]
2	PSA/MIRRORB LAMP+TARGET IMAGE (P2/MEDIUM) (COS.im.1540224)	(1) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150; FLASH=S0060D015; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	15.0 Secs (15 Secs) [==>]	[1]

Comments: PSA/MIRRORB/P2/MED current, see above for expected count rates. To get PtNe Lamp 2, there are 2 QESIPARMs set:
USELAMP = LINE2
CURRENT = MEDIUM

This target was used in Visit BA of 14857 (ldozbadhq). Bck subtracted counts in second image = 5430 ; S/N = 73.69, ET=13s

For the Lamp, LAMP/CURRENT USED = P2/Medium, LAMP EXPTIME = 12.000 s
Reported Lamp Events = 3316 counts : Rate = 276.33334 counts/s
Lamp Background events in 50x300 TA BOX for lampflash time (12s) = 112 cts : Rate = 9.308 counts/s
Actual Lamp Events = 3204 counts : Rate = 267.026 counts/s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	PSA/C1291/3 - CENTER (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=300; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	25 Secs (25 Secs) [==>]	[1]

Comments: HST Standard Star, S/N ~ 5 in 25s

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	PSA/C1291/3 +1.3arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=500; LIFETIME-POS=DEF	POS TARG null,1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	55 Secs (55 Secs) [==>]	[1]

Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time to 55s.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
5	PSA/C1291/3 -1.3arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=500; LIFETIME-POS=DEF	POS TARG null,-1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	55 Secs (55 Secs) [==>]	[1]

Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time to 55s.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
6	PSA/C1291/3 PEAKXD/NP=3/DEF (COS.sa.1540226)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	2 Secs (2 Secs) [==>]	[1]

Comments: The NUM_POS and STEP_SIZE are not included to make sure that the correct DEFAULTS of NUM_POS=3 and STEP_SIZE=1.3", and CENTER = FLUX-WT are still inserted.

Target is the HST Standard Star:WD-1657+343

Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined
gives: Time = 0.4205 seconds
    Time Required for Requested SNR in Segment A only: 1.2676
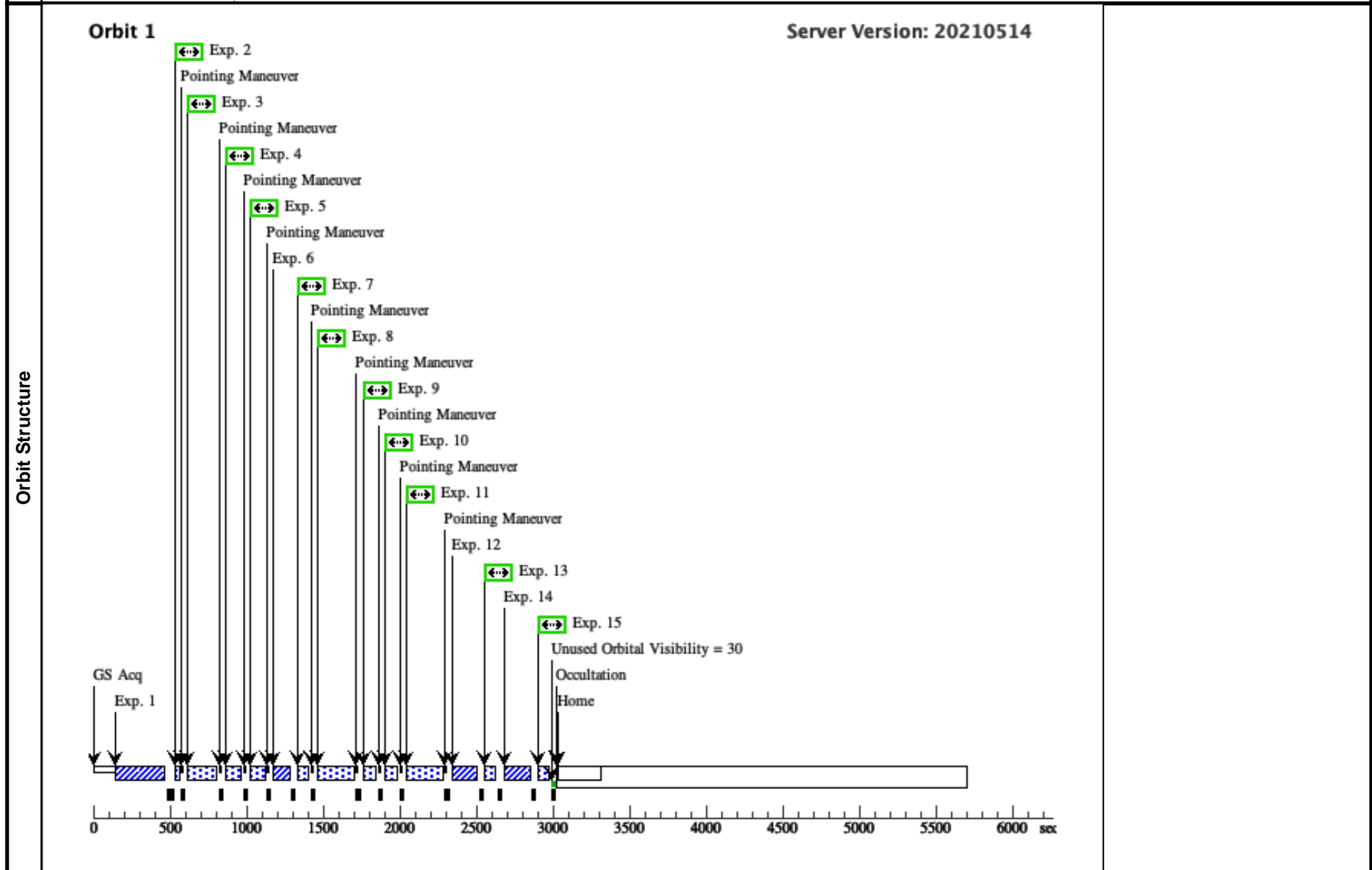   Time Required for Requested SNR in Segment B only: 0.6292

7	PSA/C1291/3 - After NUM_POS=3 PEAKXD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=300; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	25 Secs (25 Secs) [==>] *[1]*
8	PSA/C1291/3 +1.8arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1000; LIFETIME-POS=DEF	POS TARG null,1.8; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	192 Secs (192 Secs) [==>] *[1]*
Comments: At R=1.8", the throughput is ~13%. To get the same counts, we need to increase the exposure time.								
9	PSA/C1291/3 +0.9arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,0.9; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	35 Secs (35 Secs) [==>] *[1]*
Comments: At R=0.9", the throughput is ~71%. To get the same counts, we need to increase the exposure time.								
10	PSA/C1291/3 -0.9arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,-0.9; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	35 Secs (35 Secs) [==>] *[1]*
Comments: At R=0.9", the throughput is ~71%. To get the same counts, we need to increase the exposure time.								
11	PSA/C1291/3 -1.8arcseconds in XD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; FLASH=YES; BUFFER-TIME=1000; LIFETIME-POS=DEF	POS TARG null,-1.8; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	192 Secs (192 Secs) [==>] *[1]*
Comments: At R=1.8", the throughput is ~13%. To get the same counts, we need to increase the exposure time.								
12	PSA/C1291/PEAKXD/NP=5/DEF (COS.sa.1540226)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=DEF; NUM-POS=5; STEP-SIZE=0.9	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	2 Secs (2 Secs) [==>] *[1]*
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 DEFAULT 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.								
13	PSA/C1291/3 - After NUM_POS=5 PEAKXD (COS.sp.1540225)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=300; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	25 Secs (25 Secs) [==>] *[1]*
Comments: HST Standard Star, S/N ~ 5 in 25s								
14	PSA/C1291/PEAKD/NP=5/DEF (COS.sa.1540226)	(1) WD-1657+343	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	LIFETIME-POS=DEF; NUM-POS=5; STEP-SIZE=0.9	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01)	3 Secs (3 Secs) [==>] *[1]*
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 logic is still correctly choosing the correct CENTER algorithm.								

| 15 | PSA/C1291/3 - After PE AKD (COS.sp.1540225) | (1) WD-1657+343 | COS/FUV, TIME-TAG, PSA | G130M 1291 A | FP-POS=3; BUFFER-TIME=300; LIFETIME-POS=DEF | QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM | Sequence 1-15 Non-Int in PSA/MIRRORB ACQ/IMAGE then G130M FUV TA Monitoring (01) | 25 Secs (25 Secs) [==>] | [1] |

Comments: *HST Standard Star, S/N ~ 5 in 25s.*

Orbit 1 — Server Version: 20210514

Orbit Structure

Exp. 2
Pointing Maneuver
Exp. 3
Pointing Maneuver
Exp. 4
Pointing Maneuver
Exp. 5
Pointing Maneuver
Exp. 6
Exp. 7
Pointing Maneuver
Exp. 8
Pointing Maneuver
Exp. 9
Pointing Maneuver
Exp. 10
Pointing Maneuver
Exp. 11
Pointing Maneuver
Exp. 12
Exp. 13
Exp. 14
Exp. 15
Unused Orbital Visibility = 30
Occultation
Home
GS Acq
Exp. 1

Visit	**Proposal 16831, PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02), implementation** Fri Nov 05 17:01:17 GMT 2021

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 ACQ/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 |
| **Diagnostics** | (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

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

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(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 |

	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
Fixed Targets	(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		
				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
r (AB) 16.691 [0.004] B 2013yCat.5139....0A
i (AB) 17.054 [0.005] B 2013yCat.5139....0A
z (AB) 17.388 [0.015] C 2013yCat.5139....0A
Category=STAR
Description=[DA]
Extended=NO

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA/MIRRORB ACQ/IMAGE (COS.ta.1540223)	(1) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	7 Secs (7 Secs) [==>]	[1]
2	PSA/MIRRORB LAMP +TARGET IMAGE (P2/MEDIUM) (COS.im.1540224)	(1) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150; FLASH=S0060D015; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	15.0 Secs (15 Secs) [==>]	[1]

Comments: Identical to 01.002
PSA/MIRRORB/P2/ME. To get PtNe Lamp 2, there are 2 QESIPARMs set:
USELAMP = LINE2
CURRENT = MEDIUM

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	PSA/G140L/1280/3 - CENTER (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	20 Secs (20 Secs) [==>]	[1]

Comments: COS.sp.11440229 S/N Ratio = 10 at wavelength 1310. (per RE) : Time = 20 sec.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	PSA/G140L/1280/3 +1.3 arcseconds in XD (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=800; LIFETIME-POS=DEF	POS TARG null,1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	44 Secs (44 Secs) [==>]	[1]

Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
5	PSA/G140L/1280/3 -1.3 arcseconds in XD (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=800; LIFETIME-POS=DEF	POS TARG null,-1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	44 Secs (44 Secs) [==>]	[1]

Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
6	PSA/G140L/PEAKXD/NP=3/DEF (COS.sa.1540230)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=DEF; NUM-POS=3; STEP-SIZE=1.3	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	3 Secs (3 Secs) [==>]	[1]

Comments: COS.sa.1540230 Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 1.7369 seconds Time Required for Requested SNR in Segment A only: 1.7369 (only A is used)

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
7	PSA/G140L/1280/3 (COS.sp.1032431)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	20 Secs (20 Secs) [==>]	[1]

8	PSA/G140L /1280/3 +1.8 arcseconds in XD (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,1.8; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	154 Secs (154 Secs) *[==>]*	*[1]*
	Comments: 13% flux at 1.8". 20s/.13 = 154s									
9	PSA/G140L /1280/3 +0.9 arcseconds in XD (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,0.9; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	23 Secs (23 Secs) *[==>]*	*[1]*
	Comments: 71% flux at 0.9". 20s/.71 ~ 23s									
10	PSA/G140L /1280/3 -0.9 arcseconds in XD (COS.sp.1540229)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,-0.9; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	23 Secs (23 Secs) *[==>]*	*[1]*
	Comments: 71% flux at 0.9". 20s/.71 ~ 23s									
11	PSA/G140L /1280/3 -1.8 arcseconds in XD (COS.sp.1032431)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	POS TARG null,-1.8; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	154 Secs (154 Secs) *[==>]*	*[1]*
	Comments: 13% flux at 1.8". 20s/.13 = 154s									
12	PSA/G140L /PEAKXD/ NP=5/DEF (COS.sa.1540230)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=DEF; NUM-POS=5; STEP-SIZE=0.9	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	3 Secs (3 Secs) *[==>]*	*[1]*
	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									
13	PSA/G140L /1280/3 (COS.sp.1032431)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	FP-POS=3; BUFFER-TIME=400; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 1-13 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	20 Secs (20 Secs) *[==>]*	*[1]*
14	PSA/MIRRORB ACQ/IMAGE (COS.ta.1540223)	(1) WD-1657+343	COS/NUV, ACQ/IMAGE, PSA	MIRRORB			Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	7 Secs (7 Secs) *[==>]*	*[2]*

15	PSA/MIRRORB LAMP +TARGET IMAGE (P2/ MEDIUM) (COS.im.15 40224)	(1) WD-1657+343	COS/NUV, TIME-TAG, PSA	MIRRORB	BUFFER-TIME=150; FLASH=S0060D015; CURRENT=MEDIUM	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	15.0 Secs (15 Secs) [==>]	[2]
	Comments: Identical to 02.002 and 01.002 *PSA/MIRRORB/P2/MED current. To get PtNe Lamp 2, there are 2 QESIPARMs set:* *USELAMP = LINE2* *CURRENT = MEDIUM*								
16	PSA/G160 M/1600/3 - CENTER (COS.sp.154 0231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=800; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	82 Secs (82 Secs) [==>]	[2]
	Comments: Exposure time (seconds) = 82.0000 at wavelength 1602.00 *gives: SNR = 3.9389 (per resolution element)*								
17	PSA/G160 M/1600/3 + 1.3arcseconds in XD (COS.sp.154 0231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=1000; LIFETIME-POS=DEF	POS TARG null,1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	182 Secs (182 Secs) [==>]	[2]
	Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time.								
18	PSA/G160 M/1600/3 -1 .3arcseconds in XD (COS.sp.154 0231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; FLASH=YES; BUFFER-TIME=1000; LIFETIME-POS=DEF	POS TARG null,-1.3; QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	182 Secs (182 Secs) [==>]	[2]
	Comments: At R=1.3", the throughput is ~45%. To get the same counts, we need to increase the exposure time.								
19	PSA/G160 M/PEAKX D/NP=3/DEF (COS.sa.154 0232)	(1) WD-1657+343	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=DEF; NUM-POS=3; STEP-SIZE=1.3	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	3 Secs (3 Secs) [==>]	[2]
	Comments: Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined *gives: Time = 1.0474 seconds* *Time Required for Requested SNR in Segment A only: 5.7791* *Time Required for Requested SNR in Segment B only: 1.2792*								
20	PSA/G160 M/1600/3 (COS.sp.154 0231)	(1) WD-1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=800; LIFETIME-POS=DEF	QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM	Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	82 Secs (82 Secs) [==>]	[2]
21	PSA/G160 M/1600/PE AKD/NP=5/ DEF (COS.sa.154 0232)	(1) WD-1657+343	COS/FUV, ACQ/PEAKD, PSA	G160M 1600 A	LIFETIME-POS=DEF; NUM-POS=5; STEP-SIZE=0.9		Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02)	3 Secs (3 Secs) [==>]	[2]
	Comments: Analogous to exposure 01.014 carried over from previous cycles, but this time to test PEAKD at LP4.								

| 22 | PSA/G160 M/1600/3 (COS.sp.154 0231) | (1) WD-1657+343 | COS/FUV, TIME-TAG, PSA | G160M 1600 A | FP-POS=3; BUFFER-TIME=800; LIFETIME-POS=LP4 | QESIPARM USELAMP LINE2; QESIPARM CURRENT MEDIUM | Sequence 14-22 Non-Int in PSA/MIRRORB ACQ/IMAGE then G140L and G160M FUV TA monitor (02) | 82 Secs (82 Secs) *[==>]* | *[2]* |

Orbit 2

Server Version: 20210514

GS Reacq

Exp. 14

Exp. 15

Pointing Maneuver

Exp. 16

Pointing Maneuver

Exp. 17

Pointing Maneuver

Exp. 18

Pointing Maneuver

Exp. 19

Exp. 20

Exp. 21

Exp. 22

Unused Orbital Visibility = 671

Home   Occultation

0   500   1000   1500   2000   2500   3000   3500   4000   4500   5000   5500   6000 sec