17886 - COS LP7/10 FUV Target Acquisition Enabling and Verification

Cycle: 32, 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) WDG-1 (2) WDG-1-OFFSET+1AD+1XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:20.0	yes
51	(1) WDG-1 (2) WDG-1-OFFSET+1AD+1XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:22.0	yes
02	(1) WDG-1 (3) WDG-1-OFFSET+0.7AD-VISIT1 (5) WDG-1-OFFSET+0.3AD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:24.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(1) WDG-1 (4) WDG-1-OFFSET+0.7XD-VISIT1 (6) WDG-1-OFFSET+0.3XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:27.0	yes
04	(1) WDG-1 (7) WDG-1-OFFSET+1AD+1XD-VISIT4 (8) WDG-1-OFFSET+1AD+1.8XD-VISIT4 (9) WDG-1-OFFSET+1.8AD+1.8XD-VISIT4	COS/FUV COS/NUV	1	21-Aug-2025 07:00:29.0	yes
08	(1) WDG-1 (7) WDG-1-OFFSET+1AD+1XD-VISIT4 (8) WDG-1-OFFSET+1AD+1.8XD-VISIT4 (9) WDG-1-OFFSET+1.8AD+1.8XD-VISIT4	COS/FUV COS/NUV	1	21-Aug-2025 07:00:31.0	yes
05	(1) WDG-1 (2) WDG-1-OFFSET+1AD+1XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:33.0	yes
52	(1) WDG-1 (2) WDG-1-OFFSET+1AD+1XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:36.0	yes
06	(1) WDG-1 (3) WDG-1-OFFSET+0.7AD-VISIT1 (5) WDG-1-OFFSET+0.3AD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:38.0	yes
07	(1) WDG-1 (4) WDG-1-OFFSET+0.7XD-VISIT1 (6) WDG-1-OFFSET+0.3XD-VISIT1	COS/FUV COS/NUV	1	21-Aug-2025 07:00:40.0	yes

10 Total Orbits Used

ABSTRACT

This program is designed to verify acquisition parameters at LP7/10 and to produce spectra at several regions on the detector that would normally be used for target acquisition, but for which data are not downlinked as part of the acquisition process. The idea is that if anything does go wrong with the acquisition tests we will have maps of the detector that we can then use for diagnostics.
The program uses ficticious offset targets to nod the telescope away from a centered target and then test the re-acquisition. Because these displacements need to happen along the AD and XD detector direction and target offset coordinates must be entered in RA and DEC, the ORIENT angle for each visit must be restricted to +/- 0.5 degrees, which also means a date range restriction. The date ranges and ORIENT restrictions for each visit are described in the program description. The program is modeled after the LP4/5/6 versions of this program: 16432, 16851 and 17246.

The target that will be used for enabling are:
WDG-1 for cenwave G130M/1291 at LP7
WDG-1 for cenwave G160M/1577 at LP10

The target that will be used for verification at the start of cycle 33:
WDG-1 for both LP7 and LP10.

Due to RGM, visibility windows around the cycle 33 start date (2025 Nov 1) are:
2025 Oct 17-28
2025 Dec 6-15

Prior to the execution of this program all LP7/10 SIAF, aperture mechanism positions, TA subarray, and foci must have been installed.

There is no special commanding in this program.

Please see special request at the bottom of the proposal description. Those requests still apply here.

OBSERVING DESCRIPTION
This program is structured after the LP5/6 TA enabling program, 16432, 16851, 17246.
All LP10 exposures use cenwave G160M/1577.
All LP7 exposures use cenwave G130M/1291

The general structure of each visit follows the following steps (visits 01-03 and 05-07):
1- Acquire the target using NUV ACQ/IMAGE. It is assumed that NUV ACQ/IMAGE acquisitions are correctly centered because ACQ/IMAGE is routinely monitored for accuracy.
2 - Take a high SN spectrum to use as a baseline comparison after ACQ/IMAGE
3 - Use POSTARG to offset the telescope to the positions where the acquisition sequence (SEARCH, PEAKD, or PEAKXD) will take exposures and take a spectrum at each position.
4 - Run the acquisition sequence that was simulated in step 3 on the centered target.
5 - Take a spectrum to verify the centering done on step 4. Verification is done by comparing this spectrum to the one taken on step 2.
6 - Offset the telescope using a virtual target, and run the relevant acquisition. This step tests that the telescope can actually perform an acquisition and center an offset target. This step is repeated for a few different offsets, depending on the acquisition mode being tested. See visit level comments for details.
7 - Take a spectrum after the acquisition to verify centering.

We specify the exposures so that the signal-to-noise varies from about 10 in the blue end of cenwave 1577 to about 5 in the red end, unless otherwise noted in the exposure level comment. The signal to noise for all exposures were increased from the values used in the LP5/6 programs.

Visit 04/08 specifies the parameters as default to test that the correct defaults are being used. The visit level exposures describe the defaults and/or recommended parameters in each case, as per chapter 8 of the COS IHB.

The four visits should be spaced by at least 6 weeks to allow time for analysis and modification of the next visit if necessary. The following windows are tentative and will depend on the progress of the other enabling programs.

Visit 04/08 - Defaults verification. First SMS for which LP10 becomes the default for G160M, either last week of October 2025 ORIENT=91 or 2025 December 6-15 window ORIENT=48
Visit 04/08 repeats the tests using cycle 33 values specified as DEF on APT, as opposed to specifying them explicitly. This is to verify that the defaults are working properly. This visit should be run on the first day or so of cycle 33. The precise timing should be revised when the SMS schedule is known. No FUV acquisitions at LP7/10 should be scheduled until the results of this visit are verified.

The exposures are described in more detail at the visit level comments.

No special commanding is needed for this program.

----SUMMARY OF RECOMMENDED FUV ACQUISITION PARAMETERS, FROM IHB, CHAPTER 8 ----------

ACQ/SEARCH

SCAN-SIZE should be picked to match uncertainty, as per IHB Table 8.2. We test 2 and 3.
Default STEP-SIZE is 1.767 always
CENTER=FLUX-WT for SCAN-SIZE=2 and CENTER=FLUX-WT-FLR for SCAN-SIZE >2

ACQ/PEAKXD

Default is NUM-POS=3, CENTER=FLUX-WT, STEP-SIZE=1.3
If using NUM-POS=5 then CENTER=FLUX-WT-FLR, STEP-SIZE=0.9

ACQ/PEAKD

Default is NUM-POS=5, CENTER=FLUX-WT-FLR, STEP-SIZE=0.9
If using NUM-POS=3 then CENTER=FLUX-WT, STEP-SIZE=1.3

----SPECIAL REQUESTS:-----

The following requests still apply even for the visit that tests default values.

Please turn off calibration for the COS/FUV exposures. These data should not be used for scientific purposes.
Please disassociate all exposures. All data that is not calibrated must be disassociated to make it into the archive.

SQL is used to meet the above requests.
In case 1 qexposure.control_id is modified. In case 2 qeassociation records are deleted. Contact G. Chapman/M. Reinhart for further information about this process.

Visit

Proposal 17886, WDG-1 LP10/G160M ACQ/SEARCH TEST (01), failed Thu Aug 21 11:00:41 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: ORIENT 226.5D TO 227.5 D; BETWEEN 26-MAY-2025:00:00:00 AND 14-JUN-2025:00:00:00

Comments: The sequence of events is:
01.001 - NUV Acquisition
01.002 - centered baseline spectrum after NUV acquisition
01.003 through 01.010 - taking spectra to examine the 3x3 grid used in a 3x3 FUV acq/search - see note below about exposure times and buffer times
01.011 - perform 3x3 ACQ/SEARCH
01.012 - verification spectrum
01.013 - 3x3 ACQ/SEARCH on an offset target
01.014 - verification spectrum
01.015 - 2x2 ACQ/SEARCH on a centered target
01.016 - verification spectrum

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

For exposures 2 through 10:
For the 3x3 offset pattern used to simulate ACQ/SEARCH, we use the same timing scheme that was used at LP6 (16851). Throughput at a side position (e.g., 0.0, 1.1) is ~58%. Throughout at a corner position (1.1, 1.1) is ~28.6%. For the purpose of inspecting the detector we would like the sides and the corners to have the same count rate. However we would like to have a high SN spectrum for verifying position, so make the center 24s because that's what fits in the orbit. Buffer times are also increased to account for the vignetted flux. Here we do not use the default STEP-SIZE=1.767 because doing so would not provide enough flux for detector mapping. Using a smalled STEP-SIZE illuminates the same regions of the detector, but with more light.

SCAN-SIZE should be picked to match uncertainty, as per IHB Table 8.2. We test 2 and 3.
Default STEP-SIZE is 1.767 always
CENTER=FLUX-WT for SCAN-SIZE=2 and CENTER=FLUX-WT-FLR for SCAN-SIZE >2

Diagnostics

(WDG-1 LP10/G160M ACQ/SEARCH TEST (01)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP10/G160M ACQ/SEARCH TEST (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP10/G160M ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

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(WDG-1 LP10/G160M ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G160M/1577 - BASELINE SPECTRUM (01.002)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - BASELINE SPECTRUM (01.002)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - BASELINE SPECTRUM (01.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (01.003)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (01.003)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (01.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM2 (1.1,1.1)(Corner) (01.004)) Informational (Form): LP8 is not a valid selection

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(G160M/1577 - POSTARG + SPECTRUM2 (1.1,1.1)(Corner) (01.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (01.005)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (01.005)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (01.005)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (01.006)) Informational (Form): LP8 is not a valid selection

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(G160M/1577- POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (01.006)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (01.007)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (01.007)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (01.007)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (01.008)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (01.008)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (01.008)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (01.009)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (01.009)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (01.009)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (01.010)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (01.010)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (01.010)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- ACQ/SEARCH (01.011)) Informational (Form): LP8 is not a valid selection

(G160M/1577- ACQ/SEARCH (01.011)) Informational (Form): LP8 is not a valid selection

(G160M/1577- ACQ/SEARCH (01.011)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - Verification spectrum (01.012)) Informational (Form): LP8 is not a valid selection

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(G160M/1577 - Verification spectrum (01.012)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (01.013)) Informational (Form): LP8 is not a valid selection

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (01.013)) Informational (Form): LP8 is not a valid selection

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (01.013)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- Verification spectrum (01.014)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (01.014)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (01.014)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (01.015)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (01.015)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (01.015)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- Verification spectrum (01.016)) Informational (Form): LP8 is not a valid selection

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(G160M/1577- Verification spectrum (01.016)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(2)	WDG-1-OFFSET+1AD+1XD-VISIT1	Offset from WDG-1 RA Offset: 9.62839E-4 Degrees Dec Offset: -1.03429 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	G160M/1577 - BASELINE SPECTRUM (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FLASH=NO; BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=LP8; WAVECAL=NO		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	30 Secs (30 Secs) *[==>]*	***[1]***
	Comments: Take spectrum after ACQ/IMAGE centering to establish center position. *Used a co-added COS G130M+G160M spectrum for the ETC.* *Exposure time of 24 seconds is what fits within the orbit and gives SNR=9 for the blue end.* *See visit level note about exposures 01.002 through 01.010.*								
3	G160M/1577- POSTARG + SPECTRUM1 (1.1, 0) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=3500; LIFETIME-POS=LP8; FLASH=NO; WAVECAL=NO; FP-POS=3	POS TARG 1.1,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	22 Secs (22 Secs) *[==>]*	***[1]***
	Comments: (1.1, 0.0) POSTARG TO SIMULATE ACQ/SEARCH. At 1.1,0 throughput is ~58%. *BUFFER-TIME is adjusted from 01.002 to take into account the decreased throughput.* *See visit level note about exposures 01.002 through 01.010.*								
4	G160M/1577 - POSTARG + SPECTRUM2 (1.1, 1.1)(Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=7300; FLASH=NO; LIFETIME-POS=LP8; FP-POS=3; WAVECAL=NO	POS TARG 1.1,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	41 Secs (41 Secs) *[==>]*	***[1]***
	Comments: (1.1, 1.1) POSTARG TO SIMULATE ACQ/SEARCH. At 1.1, 1.1 (corner) throughput is ~28.6% *BUFFER-TIME is adjusted from 01.002 to take into account the decreased throughput.* *See visit level note about exposures 01.002 through 01.010.*								
5	G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=3500; FLASH=NO; FP-POS=3; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	21 Secs (21 Secs) *[==>]*	***[1]***
	Comments: (0, 1.1) POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments *See visit level note about exposures 01.002 through 01.010.*								

6	G160M/1577- POSTARG + SPECTRUM4 (-1.1, 1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: (-1.1, 1.1) POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									
7	G160M/1577 - POSTARG + SPECTRUM5 (-1.1, 0) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=350; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	21 Secs (21 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments. *See visit level note about exposures 01.002 through 01.010.*									
8	G160M/1577 - POSTARG + SPECTRUM6 (-1.1, -1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									
9	G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=350; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	22 Secs (22 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments. *See visit level note about exposures 01.002 through 01.010.*									
10	G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 1.1,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									

11	G160M/1577- ACQ/SEARCH (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=3; STEP-SIZE=1.1; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	2 Secs (2 Secs) [==>]	[1]

Comments: This actually performs the ACQ/SEARCH that was mapped in exposures 01.003 to 01.010. For this reason it is not using the default STEP-SIZE of 1.76". See visit level comment on exposures 01.002 to 01.010

Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined

gives: Time = 0.2255 seconds
Time Required for Requested SNR in Segment A only: 1.0070
Time Required for Requested SNR in Segment B only: 0.2906

12	G160M/1577 - Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	28 Secs (28 Secs) [==>]	[1]

Comments: This exposure is identical to 01.002. The result should be identical as well.

13	G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1 AD +1XD (COS.sa.1942805)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=3; STEP-SIZE=1.767; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	2 Secs (2 Secs) [==>]	[1]

Comments: Same as 01.011, but now it stars on an offset position with a virtual target at +1AD, +1XD. Note also that this one uses the default STEP-SIZE.

14	G160M/1577- Verification spectrum (COS.sp.1942801)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	28 Secs (28 Secs) [==>]	[1]

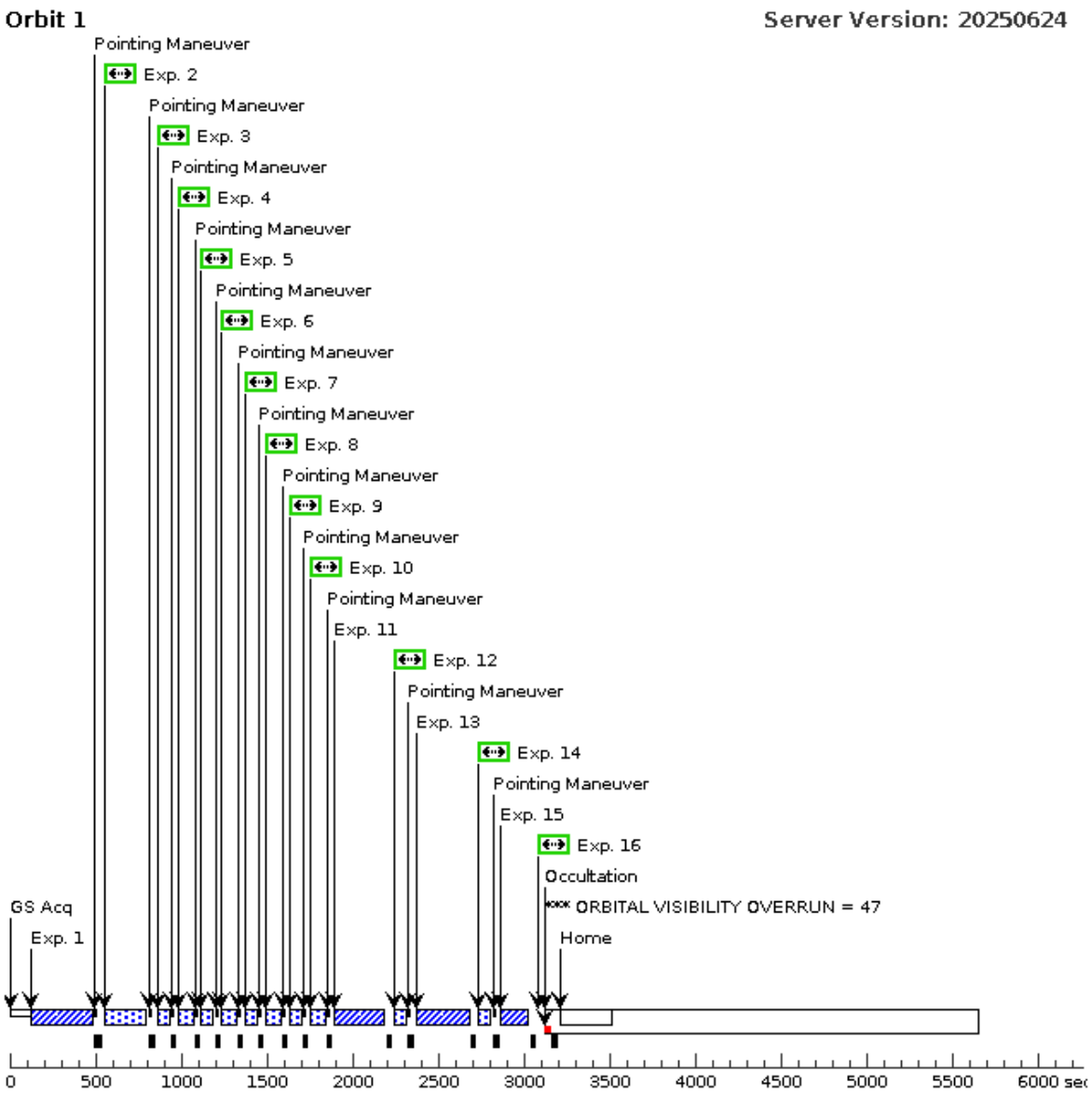
Comments: Functionally the same as 01.012 and 01.002, but after centering from an offset position.

15	G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1 AD -1XD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=2; STEP-SIZE=1.767; LIFETIME-POS=LP8; CENTER=FLUX-WT	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	2 Secs (2 Secs) [==>]	[1]

Comments: 2x2x1.767" ACQ/SEARCH, default settings explicitly selected. Starting from target offset by -1AD, -1XD.

	16	G160M/1577- Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (01)	28 Secs (28 Secs) *[==>]*	***[1]***
	Comments: To verify the ACQ/SEARCH results. Identical to 01.002								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP10/G160M ACQ/SEARCH TEST (51), completed Thu Aug 21 11:00:41 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: ORIENT 226.5D TO 227.5 D; BETWEEN 26-MAY-2025:00:00:00 AND 19-JUN-2025:00:00:00

Comments: The sequence of events is:
01.001 - NUV Acquisition
01.002 - centered baseline spectrum after NUV acquisition
01.003 through 01.010 - taking spectra to examine the 3x3 grid used in a 3x3 FUV acq/search - see note below about exposure times and buffer times
01.011 - perform 3x3 ACQ/SEARCH
01.012 - verification spectrum
01.013 - 3x3 ACQ/SEARCH on an offset target
01.014 - verification spectrum
01.015 - 2x2 ACQ/SEARCH on a centered target
01.016 - verification spectrum

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

For exposures 2 through 10:
For the 3x3 offset pattern used to simulate ACQ/SEARCH, we use the same timing scheme that was used at LP6 (16851). Throughput at a side position (e.g., 0.0, 1.1) is ~58%. Throughout at a corner position (1.1, 1.1) is ~28.6%. For the purpose of inspecting the detector we would like the sides and the corners to have the same count rate. However we would like to have a high SN spectrum for verifying position, so make the center 24s because that's what fits in the orbit. Buffer times are also increased to account for the vignetted flux. Here we do not use the default STEP-SIZE=1.767 because doing so would not provide enough flux for detector mapping. Using a smalled STEP-SIZE illuminates the same regions of the detector, but with more light.

SCAN-SIZE should be picked to match uncertainty, as per IHB Table 8.2. We test 2 and 3.
Default STEP-SIZE is 1.767 always
CENTER=FLUX-WT for SCAN-SIZE=2 and CENTER=FLUX-WT-FLR for SCAN-SIZE >2

HOPR repeat of visit 01.

Diagnostics

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/SEARCH TEST (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G160M/1577 - BASELINE SPECTRUM (51.002)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - BASELINE SPECTRUM (51.002)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - BASELINE SPECTRUM (51.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (51.003)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (51.003)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM1 (1.1,0) (51.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM2 (1.1,1.1)(Corner) (51.004)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM2 (1.1,1.1)(Corner) (51.004)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM2 (1.1,1.1)(Corner) (51.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (51.005)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (51.005)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (51.005)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (51.006)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (51.006)) Informational (Form): LP8 is not a valid selection

(G160M/1577- POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (51.006)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (51.007)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (51.007)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM5 (-1.1,0) (51.007)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (51.008)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (51.008)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (51.008)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (51.009)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (51.009)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (51.009)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (51.010)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (51.010)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (51.010)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- ACQ/SEARCH (51.011)) Informational (Form): LP8 is not a valid selection

(G160M/1577- ACQ/SEARCH (51.011)) Informational (Form): LP8 is not a valid selection

(G160M/1577- ACQ/SEARCH (51.011)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - Verification spectrum (51.012)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - Verification spectrum (51.012)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - Verification spectrum (51.012)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (51.013)) Informational (Form): LP8 is not a valid selection

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (51.013)) Informational (Form): LP8 is not a valid selection

(G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (51.013)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- Verification spectrum (51.014)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (51.014)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (51.014)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (51.015)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (51.015)) Informational (Form): LP8 is not a valid selection

(G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1AD -1XD (51.015)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(G160M/1577- Verification spectrum (51.016)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (51.016)) Informational (Form): LP8 is not a valid selection

(G160M/1577- Verification spectrum (51.016)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(2)	WDG-1-OFFSET+1AD+1XD-VISIT1	Offset from WDG-1 RA Offset: 9.62839E-4 Degrees Dec Offset: -1.03429 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	G160M/1577 - BASELINE SPECTRUM (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FLASH=NO; BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=LP8; WAVECAL=NO		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	30 Secs (30 Secs) *[==>]*	***[1]***
	Comments: Take spectrum after ACQ/IMAGE centering to establish center position. *Used a co-added COS G130M+G160M spectrum for the ETC.* *Exposure time of 24 seconds is what fits within the orbit and gives SNR=9 for the blue end.* *See visit level note about exposures 01.002 through 01.010.*								
3	G160M/1577- POSTARG + SPECTRUM1 (1.1, 0) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=3500; LIFETIME-POS=LP8; FLASH=NO; WAVECAL=NO; FP-POS=3	POS TARG 1.1,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	22 Secs (22 Secs) *[==>]*	***[1]***
	Comments: (1.1, 0.0) POSTARG TO SIMULATE ACQ/SEARCH. At 1.1,0 throughput is ~58%. *BUFFER-TIME is adjusted from 01.002 to take into account the decreased throughput.* *See visit level note about exposures 01.002 through 01.010.*								
4	G160M/1577 - POSTARG + SPECTRUM2 (1.1, 1.1)(Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=7300; FLASH=NO; LIFETIME-POS=LP8; FP-POS=3; WAVECAL=NO	POS TARG 1.1,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	41 Secs (41 Secs) *[==>]*	***[1]***
	Comments: (1.1, 1.1) POSTARG TO SIMULATE ACQ/SEARCH. At 1.1, 1.1 (corner) throughput is ~28.6% *BUFFER-TIME is adjusted from 01.002 to take into account the decreased throughput.* *See visit level note about exposures 01.002 through 01.010.*								
5	G160M/1577- POSTARG + SPECTRUM3 (0,1.1) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=3500; FLASH=NO; FP-POS=3; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	21 Secs (21 Secs) *[==>]*	***[1]***
	Comments: (0, 1.1) POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments *See visit level note about exposures 01.002 through 01.010.*								

6	G160M/1577- POSTARG + SPECTRUM4 (-1.1, 1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: (-1.1, 1.1) POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									
7	G160M/1577 - POSTARG + SPECTRUM5 (-1.1, 0) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=350; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	21 Secs (21 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments. *See visit level note about exposures 01.002 through 01.010.*									
8	G160M/1577 - POSTARG + SPECTRUM6 (-1.1, -1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.1,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									
9	G160M/1577 - POSTARG + SPECTRUM7 (0,-1.1) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=350; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	22 Secs (22 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments. *See visit level note about exposures 01.002 through 01.010.*									
10	G160M/1577 - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=730; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 1.1,-1.1	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	41 Secs (41 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments. *See visit level note about exposures 01.002 through 01.010.*									

11	G160M/1577- ACQ/SEARCH (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=3; STEP-SIZE=1.1; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	2 Secs (2 Secs) [==>]	[1]

Comments: This actually performs the ACQ/SEARCH that was mapped in exposures 01.003 to 01.010. For this reason it is not using the default STEP-SIZE of 1.76". See visit level comment on exposures 01.002 to 01.010

Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined

gives: Time = 0.2255 seconds
Time Required for Requested SNR in Segment A only: 1.0070
Time Required for Requested SNR in Segment B only: 0.2906

12	G160M/1577 - Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	28 Secs (28 Secs) [==>]	[1]

Comments: This exposure is identical to 01.002. The result should be identical as well.

13	G160M/1577- 3x3 ACQ/SEARCH - OFFSET +1 AD +1XD (COS.sa.1942805)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=3; STEP-SIZE=1.767; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	2 Secs (2 Secs) [==>]	[1]

Comments: Same as 01.011, but now it stars on an offset position with a virtual target at +1AD, +1XD. Note also that this one uses the default STEP-SIZE.

14	G160M/1577- Verification spectrum (COS.sp.1942801)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	28 Secs (28 Secs) [==>]	[1]

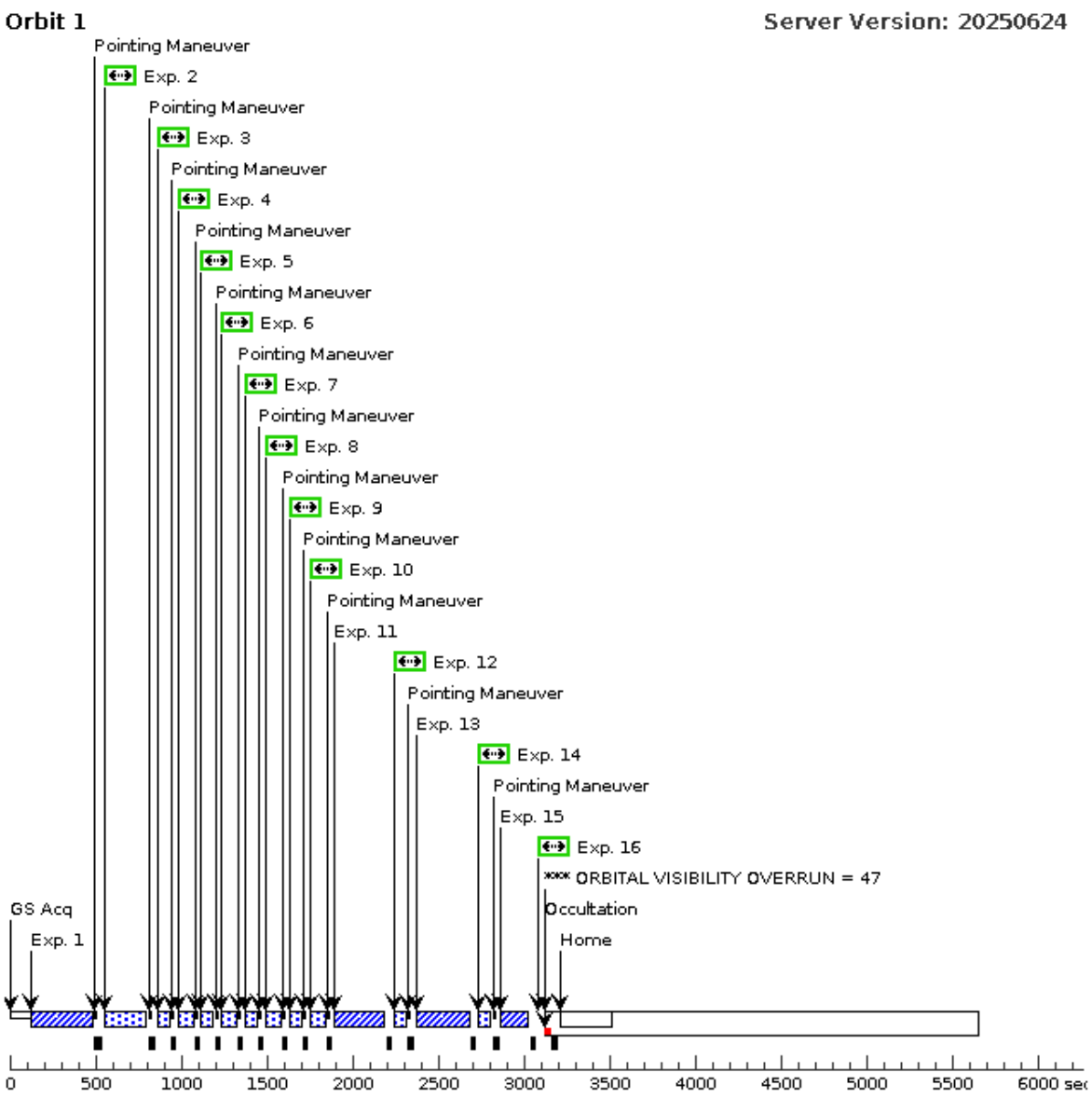
Comments: Functionally the same as 01.012 and 01.002, but after centering from an offset position.

15	G160M/1577 - 2x2 ACQ/SEARCH - OFFSET -1 AD -1XD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	SCAN-SIZE=2; STEP-SIZE=1.767; LIFETIME-POS=LP8; CENTER=FLUX-WT	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	2 Secs (2 Secs) [==>]	[1]

Comments: 2x2x1.767" ACQ/SEARCH, default settings explicitly selected. Starting from target offset by -1AD, -1XD.

	16	G160M/1577- Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/SEARCH TEST (51)	28 Secs (28 Secs) *[==>]*	***[1]***
	Comments: To verify the ACQ/SEARCH results. Identical to 01.002								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP10/G160M ACQ/PEAKD TEST (02), completed Thu Aug 21 11:00:41 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: ORIENT 275D TO 276 D; BETWEEN 14-JUL-2025:00:00:00 AND 31-JUL-2025:00:00:00

*Comments: *************
*The Between for this visit is TBD. ****
The virtual targets are set for ORIENT=91. Any ORIENT is possible, but if the ORIENT changes then the PI will have to change the offsets for the virtual targets (not hard to do).
****

First we perform an ACQ/IMAGE and take a G160M/1577 high SN spectrum and use it as the baseline for comparing the position of the other spectra.

We simulate a 5x0.8" ACQ/PEAKD taking short spectra. We start with the centered (0) position then go to -1.6" in X and proceed in steps of 0.8" out to +1.6" X. These exposures serve two purposes. First, they inspect the detector for anomalies. Second, the flux weighted centroid of all 5 exposures should provide the same result as the acquisition.
We then perform an actual 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD on the centered target and take a spectrum. The position of this spectrum should be centered to the same specifications as the flux weighted centroiding in the previous step.
We then use virtual targets to perform 5x0.9" ACQ/PEAKD starting from offsets of -0.7" and +0.7". We then repeat the process for a 3x1.3 ACQ/PEAKD for offsets of -0.3" and +0.3".

Default is NUM-POS=5, CENTER=FLUX-WT-FLR, STEP-SIZE=0.9
If using NUM-POS=3 then CENTER=FLUX-WT, STEP-SIZE=1.3

Diagnostics

(WDG-1 LP10/G160M ACQ/PEAKD TEST (02)) Warning (Form): COS ACQ/PEAKD exposure should be preceded by an ACQ/PEAKXD exposure in the Visit.

(WDG-1 LP10/G160M ACQ/PEAKD TEST (02)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP10/G160M ACQ/PEAKD TEST (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP10/G160M ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(Baseline spectrum (02.002)) Informational (Form): LP8 is not a valid selection

(Baseline spectrum (02.002)) Informational (Form): LP8 is not a valid selection

(Baseline spectrum (02.002)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKD (02.003)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD (02.003)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD (02.003)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (02.004)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.004)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.004)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM1 (-1.6) (02.005)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (-1.6) (02.005)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (-1.6) (02.005)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM3 (-0.8) (02.006)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (-0.8) (02.006)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (-0.8) (02.006)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM3 (+0.8) (02.007)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (+0.8) (02.007)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (+0.8) (02.007)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM1 (+1.6) (02.008)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (+1.6) (02.008)) Informational (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (+1.6) (02.008)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKD on offset -0.7 AD (02.009)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset -0.7 AD (02.009)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset -0.7 AD (02.009)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (02.010)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.010)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.010)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKD on offset +0.7 AD (02.011)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset +0.7 AD (02.011)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset +0.7 AD (02.011)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (02.012)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.012)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.012)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKD on offset -0.4 AD (02.013)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset -0.4 AD (02.013)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset -0.4 AD (02.013)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (02.014)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.014)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.014)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKD on offset +0.4 AD (02.015)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset +0.4 AD (02.015)) Informational (Form): LP8 is not a valid selection

(ACQ/PEAKD on offset +0.4 AD (02.015)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (02.016)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.016)) Informational (Form): LP8 is not a valid selection

(Verification spectrum (02.016)) Informational (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(3)	WDG-1-OFFSET+0.7AD-VISIT1	Offset from WDG-1 RA Offset: -5.4307E-4 Degrees Dec Offset: -0.44052427 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.7AD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(5)	WDG-1-OFFSET+0.3AD-VISIT1	Offset from WDG-1 RA Offset: -2.3274E-4 Degrees Dec Offset: -0.188796117 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.3AD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Identical to exposure 01.001. See comments there.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	Baseline spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8; FP-POS=3		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/IMAGE centering. Need high SN for determining position of other spectra.								
3	ACQ/PEAKD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=5; STEP-SIZE=0.8; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: ACQ/PEAKD of a centered target on the same 5x0.8"" pattern. This ACQ/PEAKD goes through the same positions that exposures 02.005 through 02.008 do. The flux weighted centroid of those exposures should yield the same center as this PEAKD. Here we do not use the default STEP-SIZE because we would like to replicate the mapping done in exposures 02.005 to 02.008. Using STEP-SIZE=0.9 there would have yielded too low a flux to inspect the detector.								
4	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/PEAKD.								
5	POSTARG + SPECTRUM1 (-1.6) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=750; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -1.6,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	93 Secs (93 Secs) *[==>]*	***[1]***
	Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD. This is the x= -1.6 " position. If the beam was not vignetted we would reach SNR~10 in a 25s exposure. But vignetting at x=-1.6" is 73%. 25s / (1-0.73)=92s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8"								
6	POSTARG + SPECTRUM3 (-0.8) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG -0.8,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
	Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD. This is the x= -0.8 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25s exposure. But vignetting at x=-0.8" is 20%. 25s/(1-0.20)=31s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8"								

7	POSTARG + SPECTRUM3 (+0.8) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0.8,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs)	[==>]	[1]

Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD. This is the x= +0.8 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25s exposure. But vignetting at x=+0.8" is 20%. 25s/(1-0.20)=31s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8". This exposure is symmetric to 02.004

8	POSTARG + SPECTRUM1 (+1.6) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=750; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 1.6,0	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	93 Secs (93 Secs)	[==>]	[1]

Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD. This is the x= +1.6 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25s exposure. But vignetting at x=+1.6" is 73%. 25s / (1-0.73)=92s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8". This exposure is symmetric to 02.003

9	ACQ/PEAKD on offset -0.7 AD (COS.sa.1942805)	(3) WDG-1-OFFSET +0.7AD-VISIT1	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	2 Secs (2 Secs)	[==>]	[1]

Comments: 5x0.9" ACQ/PEAKD on an off centered target. The virtual target is defined as being at a +0.7" offset from the real target. So at the beginning of acquisition the real target is offset -0.7" from the center of the field of view.

10	Verification spectrum (COS.sp.1942801)	(3) WDG-1-OFFSET +0.7AD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs)	[==>]	[1]

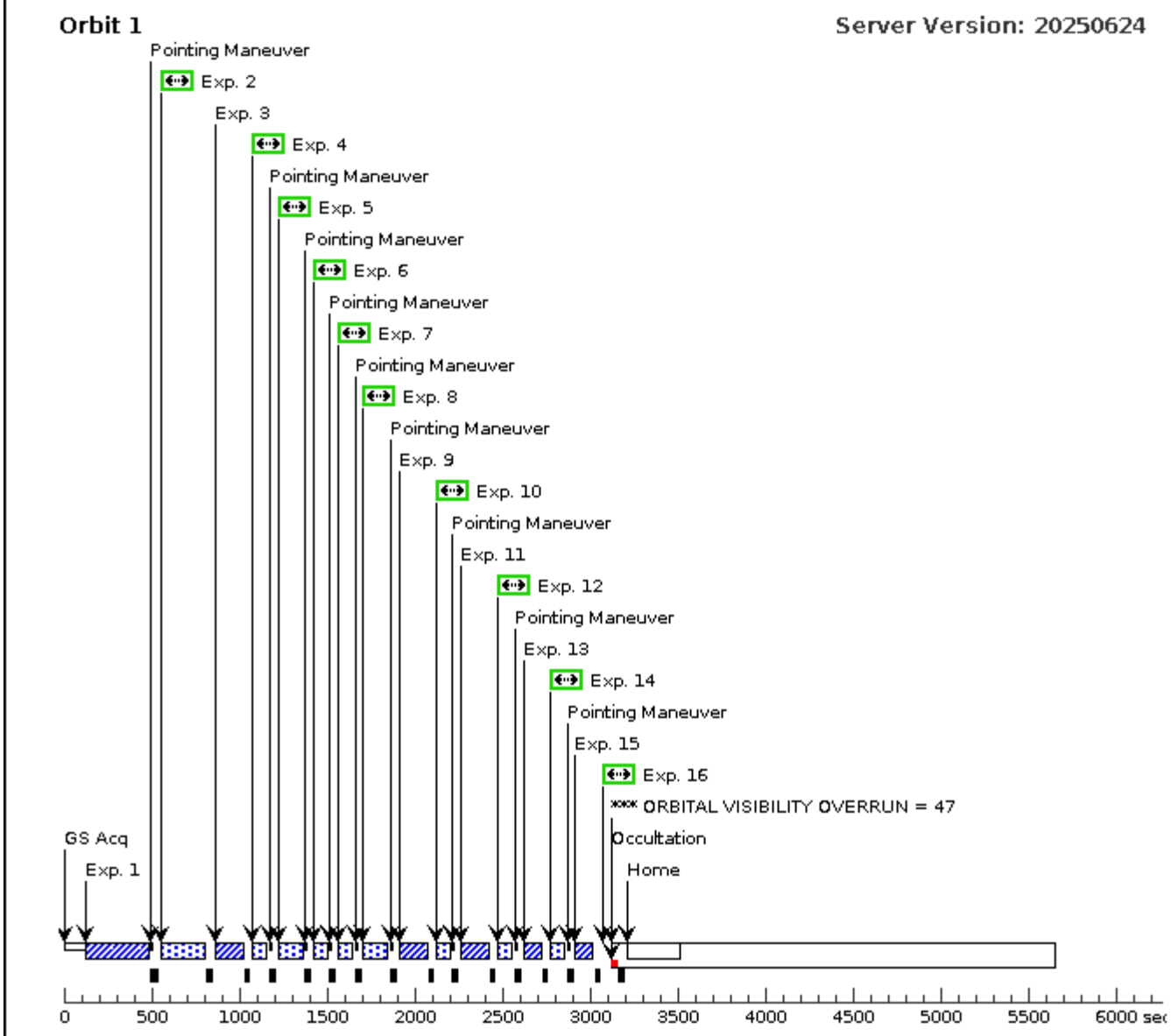
Comments: Spectrum to determine location after ACQ/PEAKD. This exposure is identical to 02.002, except the telescope thinks that it's at an off-center target. But really it centered on the real target.

11	ACQ/PEAKD on offset +0.7 AD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	2 Secs (2 Secs)	[==>]	[1]

Comments: 5x0.9" ACQ/PEAKD on an off centered target. From the previous acquisition, the telescope thinks it's at +0.7AD from the real target, but the real target is actually centered in the field of view. Now we ask the telescope to go back to the coordinates of the real target. That moves the telescope -0.7"AD. So now the real target is at +0.7"AD.

12	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKD. This exposure is identical to 02.002								
13	ACQ/PEAKD on offset -0.4 AD (COS.sa.1942805)	(5) WDG-1-OFFSET +0.3AD-VISIT1	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=3; STEP-SIZE=1.3; LIFETIME-POS=LP8; CENTER=FLUX-WT	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x1.3" ACQ/PEAKD on an off centered target. From the previous acquisition, the telescope is centered on the real target and also thinks that it is centered on the real target. We now command the telescope to move to a virtual target at +0.3"AD from the real target. That places the real target at -0.4"AD in the filed of view.								
14	Verification spectrum (COS.sp.1942801)	(5) WDG-1-OFFSET +0.3AD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKD. This exposure is identical to 02.008, except the telescope thinks it's at target 22. It's actually centered on the real target.								
15	ACQ/PEAKD on offset +0.4 AD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=3; STEP-SIZE=1.3; LIFETIME-POS=LP8; CENTER=FLUX-WT	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x1.3" ACQ/PEAKD on an off centered target. From the previous acquisition, the telescope thinks it's at +0.3AD from the real target, but the real target is actually centered in the field of view. Now we ask the telescope to go back to the coordinates of the real target. That moves the telescope -0.3"AD. So now the real target is at +0.4"AD.								
16	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKD TEST (02)	36 Secs (36 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKD. This exposure is identical to 02.002								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP10/G160M ACQ/PEAKXD TEST (03), implementation Thu Aug 21 11:00:41 GMT 2025

Diagnostic Status: Error

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: ORIENT 299.5D TO 300.5 D; BETWEEN 21-AUG-2025:00:00:00 AND 10-SEP-2025:00:00:00

Comments: This visit tests PEAKXD. It is a copy of visit 02, PEAKD test, with X and Y displacements inverted. The process is entirely symmetrical.

First we perform an ACQ/IMAGE and take a G160M/1577 high SN spectrum and use it as the baseline for comparing the position of the other spectra.
****
*The Between for this visit is TBD. Please try to schedule in the first half of that window if possible.****
The virtual targets are set for orient=91. Any ORIENT is possible, but if the ORIENT changes then the PI will have to change the offsets for the virtual targets (not hard to do).
****

We simulate a 5x0.8" ACQ/PEAXKD taking short spectra. We start with the centered (0) position then go to -1.6" in Y and proceed in steps of 0.8" out to +1.6" Y. These exposures serve two purposes. First, they inspect the detector for anomalies. Second, the flux weighted centroid of all 5 exposures should provide the same result as the acquisition.
We then perform an actual 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD on the centered target and take a spectrum. The position of this spectrum should be centered to the same specifications as the flux weighted centroiding in the previous step.
We then use virtual targets to perform 5x0.9" ACQ/PEAKXD starting from offsets of -0.7" XD and +0.7" XD. We then repeat the process for a 3x1.3 ACQ/PEAKD for offsets of -0.3" XD and +0.3" XD.

Default is NUM-POS=3, CENTER=FLUX-WT, STEP-SIZE=1.3
If using NUM-POS=5 then CENTER=FLUX-WT-FLR, STEP-SIZE=0.9

Diagnostics

(Baseline spectrum (03.002)) Error (Form): LP8 is not a valid selection

(Baseline spectrum (03.002)) Error (Form): LP8 is not a valid selection

(Baseline spectrum (03.002)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKXD (03.003)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD (03.003)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD (03.003)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (03.004)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.004)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.004)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM1 (-1.6) (03.005)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (-1.6) (03.005)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (-1.6) (03.005)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM3 (-0.8) (03.006)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (-0.8) (03.006)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (-0.8) (03.006)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM3 (+0.8) (03.007)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (+0.8) (03.007)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM3 (+0.8) (03.007)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(POSTARG + SPECTRUM1 (+1.6) (03.008)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (+1.6) (03.008)) Error (Form): LP8 is not a valid selection

(POSTARG + SPECTRUM1 (+1.6) (03.008)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKXD on offset -0.7 XD (03.009)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset -0.7 XD (03.009)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset -0.7 XD (03.009)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (03.010)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.010)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.010)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKXD on offset +0.7 XD (03.011)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset +0.7 XD (03.011)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset +0.7 XD (03.011)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (03.012)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.012)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.012)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKXD on offset -0.4 XD (03.013)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset -0.4 XD (03.013)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset -0.4 XD (03.013)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (03.014)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.014)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.014)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(ACQ/PEAKXD on offset +0.4 XD (03.015)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset +0.4 XD (03.015)) Error (Form): LP8 is not a valid selection

(ACQ/PEAKXD on offset +0.4 XD (03.015)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(Verification spectrum (03.016)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.016)) Error (Form): LP8 is not a valid selection

(Verification spectrum (03.016)) Error (Form): This attribute cannot have this value due to other choices: Optional_Parameter=LIFETIME-POS=LP8.
The combination of attributes chosen is illegal.

(WDG-1 LP10/G160M ACQ/PEAKXD TEST (03)) Warning (Form): COS ACQ/PEAKXD exposure should be followed by an ACQ/PEAKD exposure in the Visit.

(WDG-1 LP10/G160M ACQ/PEAKXD TEST (03)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP10/G160M ACQ/PEAKXD TEST (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP10/G160M ACQ/PEAKXD TEST (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP10/G160M ACQ/PEAKXD TEST (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(4)	WDG-1-OFFSET+0.7XD-VISIT1	Offset from WDG-1 RA Offset: 1.8086295797057245E-4 Degrees Dec Offset: -0.6761480784023477 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.7XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(6)	WDG-1-OFFSET+0.3XD-VISIT1	Offset from WDG-1 RA Offset: 7.751269627310247E-5 Degrees Dec Offset: -0.28977774788672045 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.3XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Identical to exposure 01.001. See comments there.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	Baseline spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/IMAGE centering. Need high SN for determining position of other spectra.								
3	ACQ/PEAKXD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP8; NUM-POS=5; STEP-SIZE=0.8; CENTER=FLUX-WT-FLR		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: ACQ/PEAKXD of a centered target on the same 5x0.8"" pattern. This ACQ/PEAKXD goes through the same positions that exposures 03.005 through 03.008 do. The flux weighted centroid of those exposures should yield the same center as this PEAKXD. Here we do not use the default STEP-SIZE because we would like to replicate the mapping done in exposures 03.005 to 03.008. Using STEP-SIZE=0.9 there would have yielded too low a flux to inspect the detector.								
4	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/PEAKXD.								
5	POSTARG + SPECTRUM1 (-1.6) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=7500; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,-1.6	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	99 Secs (99 Secs) *[==>]*	***[1]***
	Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD. This is the y= -1.6 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25s exposure. But vignetting at y=-1.6" is 73%. 25s / (1-0.73)=92s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8"								
6	POSTARG + SPECTRUM3 (-0.8) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2665; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,-0.8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	39 Secs (39 Secs) *[==>]*	***[1]***
	Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD. This is the y= -0.8 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25s exposure. But vignetting at y=-0.8" is 20%. 25s/(1-0.20)=31s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8"								

7	POSTARG + SPECTRUM3 (+0.8) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,0.8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	39 Secs (39 Secs) *[==>]*	*[1]*

Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD. This is the y= +0.8 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25 s exposure. But vignetting at y=+0.8" is 20%. 25s/(1-0.20)=31s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8". This exposure is symmetric to 02.004

8	POSTARG + SPECTRUM1 (+1.6) (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=750; FP-POS=3; FLASH=NO; LIFETIME-POS=LP8; WAVECAL=NO	POS TARG 0,1.6	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	99 Secs (99 Secs) *[==>]*	*[1]*

Comments: POSTARG to simulate 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD. This is the y= +1.6 " position. Here we strive for SN~5.5 per resel. If the beam was not vignetted that would happen in a 25 s exposure. But vignetting at y=+1.6" is 73%. 25s / (1-0.73)=92s. While the default STEP-SIZE for NUM-POS=5 is 0.9", that would not allow enough light through to inspect the detector, so we use STEP-SIZE=0.8". This exposure is symmetric to 02.003

9	ACQ/PEAKXD on offset -0.7 XD (COS.sa.1942805)	(4) WDG-1-OFFSET +0.7XD-VISIT1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) *[==>]*	*[1]*

Comments: 5x0.9" ACQ/PEAKXD on an off centered target. The virtual target is defined as being at a +0.7" offset from the real target. So at the beginning of acquisition the real target is offset -0.7" from the center of the field of view.

10	Verification spectrum (COS.sp.1942801)	(4) WDG-1-OFFSET +0.7XD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	*[1]*

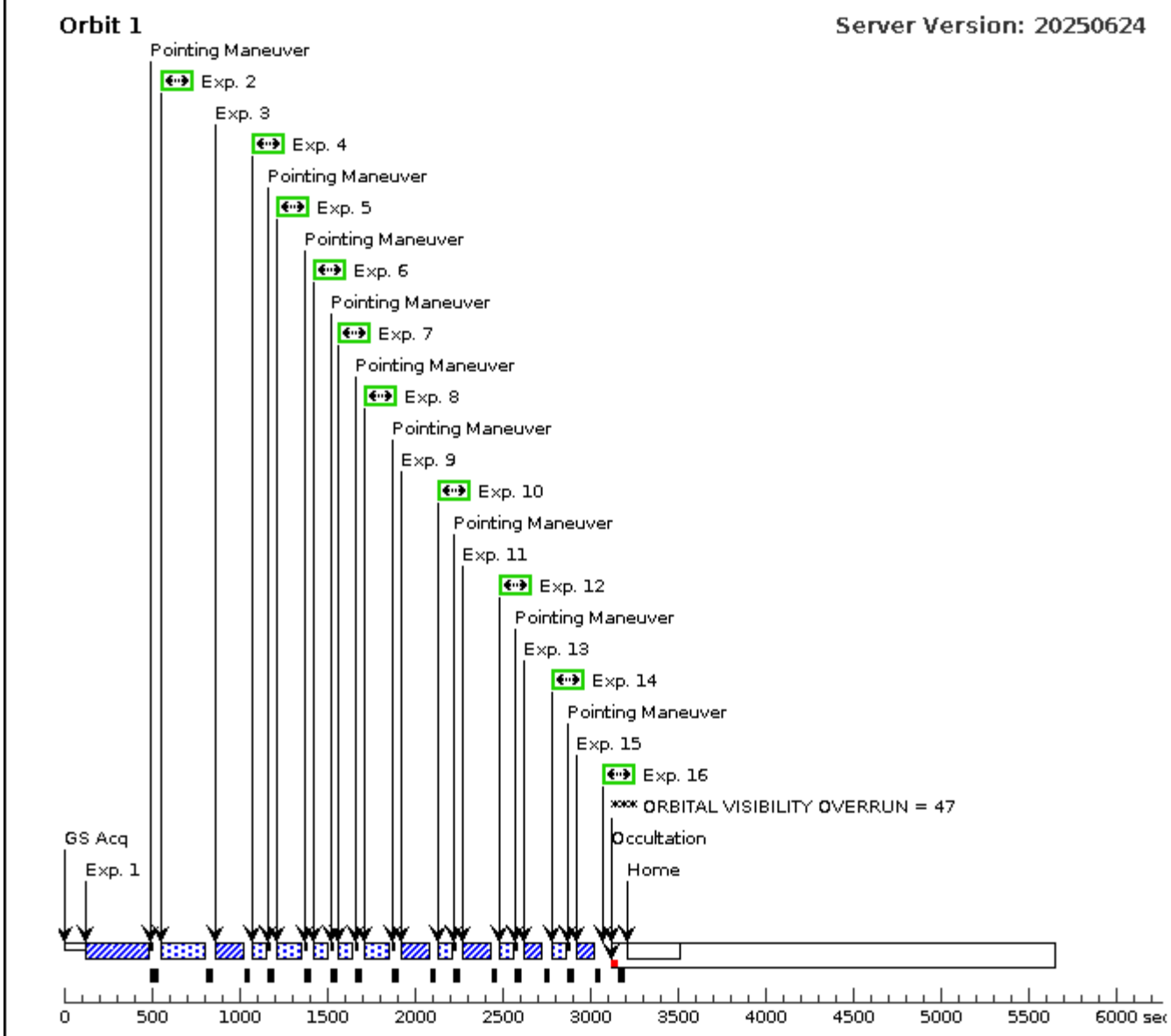
Comments: Spectrum to determine location after ACQ/PEAKD. This exposure is identical to 03.002, except the telescope thinks that it's at an offset position. But really it centered on the real target.

11	ACQ/PEAKXD on offset +0.7 XD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP8; CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9		Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) *[==>]*	*[1]*

Comments: 5x0.9" ACQ/PEAKXD on an off centered target. From the previous acquisition, the telescope thinks it's at +0.7XD from the real target, but the real target is actually centered in the field of view. Now we ask the telescope to go back to the coordinates of the real target. That moves the telescope -0.7"XD. So now the real target is at +0.7"XD.

12	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKXD. This exposure is identical to 03.002								
13	ACQ/PEAKXD on offset -0.4 XD (COS.sa.1942805)	(6) WDG-1-OFFSET +0.3XD-VISIT1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP8; CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x1.3" ACQ/PEAKXD on an off centered target. From the previous acquisition, the telescope is centered on the real target and also thinks that it is centered on the real target. We now command the telescope to move to a virtual target at +0.3"XD from the real target. That places the real target at -0.4"XD in the filed of view.								
14	Verification spectrum (COS.sp.1942801)	(6) WDG-1-OFFSET +0.3XD-VISIT1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKXD. This exposure is identical to 03.002, except the telescope thinks it's offset but it's actually centered on the real target.								
15	ACQ/PEAKXD on offset +0.4 XD (COS.sa.1942805)	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP8; CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x1.3" ACQ/PEAXKD on an off centered target. From the previous acquisition, the telescope thinks it's at +0.3XD from the real target, but the real target is actually centered in the field of view. Now we ask the telescope to go back to the coordinates of the real target. That moves the telescope -0.3"XD. So now the real target is at +0.3"XD.								
16	Verification spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP8	Sequence 1-16 Non-Int in WDG-1 LP10/ G160M ACQ/PEAKXD TEST (03)	33 Secs (33 Secs) *[==>]*	***[1]***
Comments: Spectrum to determine location after ACQ/PEAKXD. This exposure is identical to 03.002								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP10/G160M Defaults verification test (04), implementation Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 25-OCT-2025:00:00:00 AND 28-OCT-2025:00:00:00

Comments: This visit should run on the first days for which G160M exposures default to LP10. Nominally this is the first day of Cycle 33, but in practice it may depend on the SMS schedule. ORIENT and BETWEEN will need to be updated before this visit can execute.

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

It tests that the intended Cycle 33 values are now the defaults.
It does an ACQ/IMAGE, ACQ/PEAKXD, and ACQ/PEAKD, all from offset positions.

Diagnostics

(WDG-1 LP10/G160M Defaults verification test (04)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP10/G160M Defaults verification test (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(7)	WDG-1-OFFSET+1AD+1XD-VISIT4	Offset from WDG-1 RA Offset: -7.058954148325681E-4 Degrees Dec Offset: -1.2247448713915892 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(8)	WDG-1-OFFSET+1AD+1.8XD-VISIT4	Offset from WDG-1 RA Offset: -4.991948914376281E-4 Degrees Dec Offset: -1.9974855324228438 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1.8XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(9)	WDG-1-OFFSET+1.8AD+1.8XD-VISIT4	Offset from WDG-1 RA Offset: -0.0012706117466986227 Degrees Dec Offset: -2.204540768504861 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1.8AD+1.8XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					

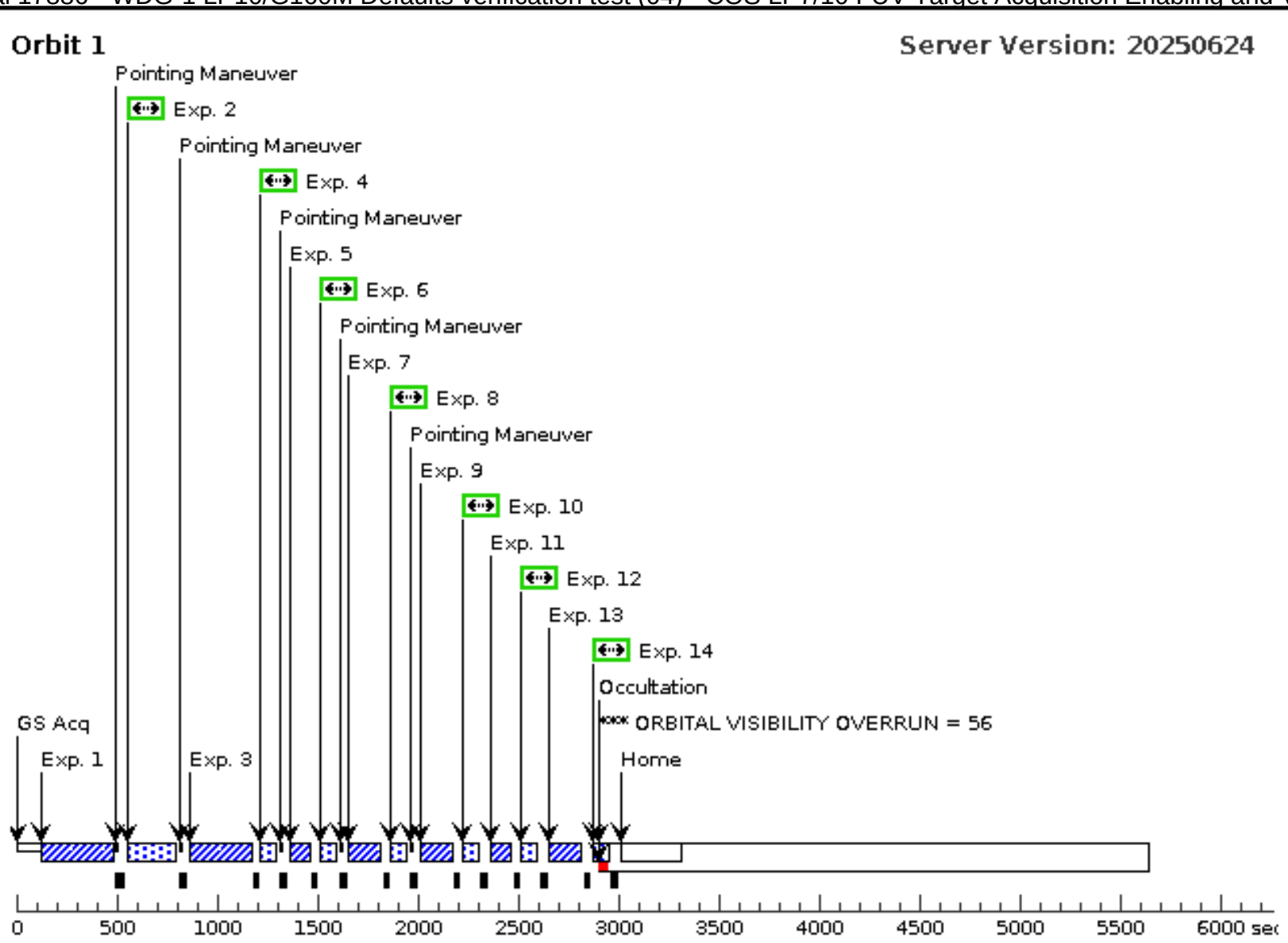
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	Baseline spectrum (COS.sp.1942801)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	35 Secs (35 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/IMAGE centering. Need high SN for determining position of other spectra.								
3	3x3 ACQ/SEARCH - OFFSET +1AD +1XD (COS.sa.1942805)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	LIFETIME-POS=DEF; SCAN-SIZE=3		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: 3x3 FUV ACQ/SEARCH starting at position +1 AD, +1 XD								
4	Verification spectrum (COS.sp.1942801)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	35 Secs (35 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position.								
5	ACQ/PEAKXD from offset -0.8 in XD (COS.sa.1942805)	(8) WDG-1-OFFSET +1AD+1.8XD-VISIT4	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=DEF		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: Performing a PEAKXD from -0.8" offset in XD. From the previous acquisition, the telescope thinks it's at +1AD, +1XD, but really it's centered on the real target. To place the target at 0.0 AD, -0.8 XD, define a virtual target at +1.0AD, +1.8XD.								
6	Verification spectrum (COS.sp.1942801)	(8) WDG-1-OFFSET +1AD+1.8XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	35 Secs (35 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position.								
7	ACQ/PEAKD from offset -0.8 in AD (COS.sa.1942805)	(9) WDG-1-OFFSET +1.8AD+1.8XD-VISIT4	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	LIFETIME-POS=DEF; STEP-SIZE=0.9		Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: Performing a PEAKD from -0.8" offset in AD. From the previous acquisition, the telescope thinks it's at +1AD, +1.8XD, but really it's centered on the real target. To place the target at -0.8 AD, 0.0 XD, define a virtual target at +1.8AD, +1.8XD.								

8	Verification spectrum (COS.sp.1942801)	(9) WDG-1-OFFSET +1.8AD+1.8XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	35 Secs (35 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
9	2x2 ACQ/SEARCH - offset -0.8AD, -0.8XD (COS.sa.1942805)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	CENTER=DEF; LIFETIME-POS=DEF; SCAN-SIZE=2	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Testing 2x2 acq/search with defaults. The telescope thinks it was at +1.8AD, +1.8XD, but really it was centered. Now we command it to go to +1.0AD, +1.0XD, which means that the real target will be offset to -0.8AD, -0.8XD.								
10	Verification spectrum (COS.sp.1942801)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	33 Secs (33 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
11	ACQ/PEAKXD after ACQ/SEARCH centering (COS.sa.1942805)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=DEF; STEP-SIZE=1.3; CENTER=DEF; NUM-POS=3	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Performing a PEAKXD from -0.8" offset in XD. From the previous acquisition, the telescope thinks it's at +1AD, +1XD, but really it's centered on the real target. To place the target at 0.0 AD, -0.8 XD, define a virtual target at +1.0AD, +1.8XD.								
12	Verification spectrum (COS.sp.1942801)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=2100; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	33 Secs (33 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
13	ACQ/PEAKD after ACQ/SEARCH centering (COS.sa.1942805)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	LIFETIME-POS=DEF; CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Performing a PEAKD from -0.8" offset in AD. From the previous acquisition, the telescope thinks it's at +1AD, +1.8XD, but really it's centered on the real target. To place the target at -0.8 AD, 0.0 XD, define a virtual target at +1.8AD, +1.8XD.								

	14	Verification spectrum (COS.sp.1942801)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=210; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP10/ G160M Defaults verification test (04)	33 Secs (33 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position. wave-cals are not tested as they are not split.								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP7/G130M Defaults verification test (08), implementation Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 25-OCT-2025:00:00:00 AND 28-OCT-2025:00:00:00

Comments: This visit should run on the first days for which G130M exposures default to LP7. Nominally this is the first day of Cycle 33, but in practice it may depend on the SMS schedule. Right now the BETWEEN is TBD.
ORIENT needs to be updated when execution date is known.

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

The orbit has not been filled completely on purpose, because there is a split wave-cal that is currently not included in APT.
auto wavecal is included as a placeholder.
Exact exposure times need to be updated once it is known how much overheads these split wave-cals will take.

It tests that the intended Cycle 33 values are now the defaults.
It does an ACQ/IMAGE, ACQ/PEAKXD, and ACQ/PEAKD, all from offset positions.

Diagnostics

(WDG-1 LP7/G130M Defaults verification test (08)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. *SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(7)	WDG-1-OFFSET+1AD+1XD-VISIT4	Offset from WDG-1 RA Offset: -7.058954148325681E-4 Degrees Dec Offset: -1.2247448713915892 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(8)	WDG-1-OFFSET+1AD+1.8XD-VISIT4	Offset from WDG-1 RA Offset: -4.991948914376281E-4 Degrees Dec Offset: -1.9974855324228438 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1.8XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					
(9)	WDG-1-OFFSET+1.8AD+1.8XD-VISIT4	Offset from WDG-1 RA Offset: -0.0012706117466986227 Degrees Dec Offset: -2.204540768504861 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1.8AD+1.8XD-VISIT4)
Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: *Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.* *Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.* *2025 October 25-28 ORIENT=6* *Category=CALIBRATION* *Description=[TARGET ACQUISITION TEST]* *Extended=NO*					

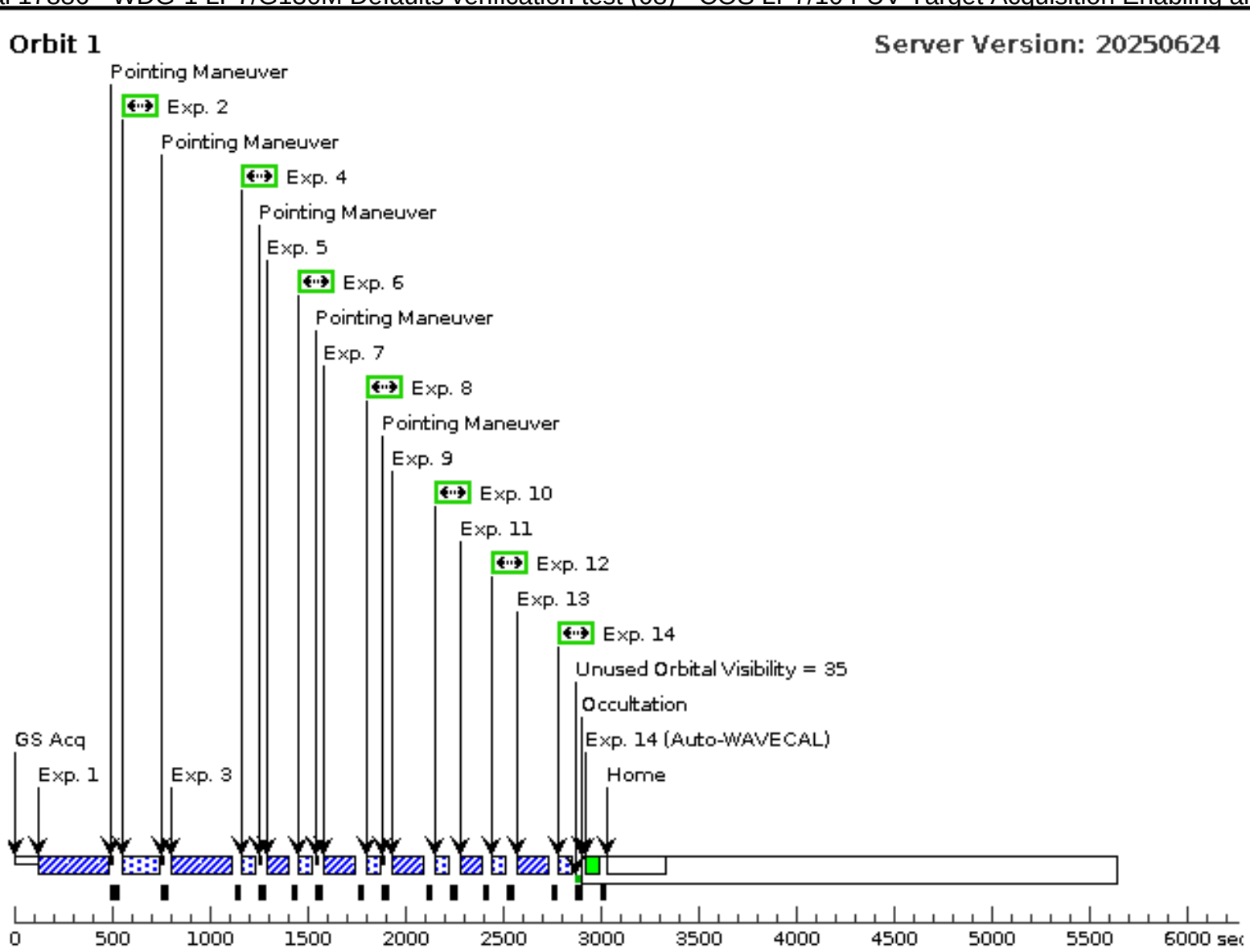
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: ACQ/IMAGE to determine center. Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	Baseline spectrum (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
	Comments: Spectrum to determine location after ACQ/IMAGE centering. Need high SN for determining position of other spectra.								
3	3x3 ACQ/SEARCH - OFFSET +1AD +1XD (COS.sa.1942815)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	LIFETIME-POS=DEF; SCAN-SIZE=3		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: 3x3 FUV ACQ/SEARCH starting at position +0.1 AD, +0.1 XD								
4	Verification spectrum (COS.sp.1942813)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position.								
5	ACQ/PEAKXD from offset -0.8 in XD (COS.sa.1942815)	(8) WDG-1-OFFSET +1AD+1.8XD-VISIT4	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=DEF		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: Performing a PEAKXD from -0.8" offset in XD. From the previous acquisition, the telescope thinks it's at +1AD, +1XD, but really it's centered on the real target. To place the target at 0.0 AD, -0.8 XD, define a virtual target at +1.0AD, +1.8XD.								
6	Verification spectrum (COS.sp.1942813)	(8) WDG-1-OFFSET +1AD+1.8XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position.								
7	ACQ/PEAKD from offset -0.8 in AD (COS.sa.1942815)	(9) WDG-1-OFFSET +1.8AD+1.8XD-VISIT4	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	LIFETIME-POS=DEF; STEP-SIZE=0.9		Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: Performing a PEAKD from -0.8" offset in AD. From the previous acquisition, the telescope thinks it's at +1AD, +1.8XD, but really it's centered on the real target. To place the target at -0.8 AD, 0.0 XD, define a virtual target at +1.8AD, +1.8XD.								

8	Verification spectrum (COS.sp.1942813)	(9) WDG-1-OFFSET +1.8AD+1.8XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
9	2x2 ACQ/SEARCH - offset -0.8AD, -0.8XD (COS.sa.1942815)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	CENTER=DEF; LIFETIME-POS=DEF; SCAN-SIZE=2	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Testing 2x2 acq/search with defaults. The telescope thinks it was at +1.8AD, +1.8XD, but really it was centered. Now we command it to go to +1.0AD, +1.0XD, which means that the real target will be offset to -0.8AD, -0.8XD.								
10	Verification spectrum (COS.sp.1942813)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
11	ACQ/PEAKXD after ACQ/SEARCH centering (COS.sa.1942815)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=DEF; STEP-SIZE=1.3; CENTER=DEF; NUM-POS=3	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Performing a PEAKXD from -0.8" offset in XD. From the previous acquisition, the telescope thinks it's at +1AD, +1XD, but really it's centered on the real target. To place the target at 0.0 AD, -0.8 XD, define a virtual target at +1.0AD, +1.8XD.								
12	Verification spectrum (COS.sp.1942813)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO; WAVECAL=NO	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
Comments: Functionally the same as and 04.002, but after centering from an offset position.								
13	ACQ/PEAKD after ACQ/SEARCH centering (COS.sa.1942815)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	LIFETIME-POS=DEF; CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Performing a PEAKD from -0.8" offset in AD. From the previous acquisition, the telescope thinks it's at +1AD, +1.8XD, but really it's centered on the real target. To place the target at -0.8 AD, 0.0 XD, define a virtual target at +1.8AD, +1.8XD.								

	14	Verification spectrum (COS.sp.1942813)	(7) WDG-1-OFFSET +1AD+1XD-VISIT4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; LIFETIME-POS=DEF; FLASH=NO	Sequence 1-14 Non-Int in WDG-1 LP7/G130M Defaults verification test (08)	24 Secs (24 Secs) *[==>]*	***[1]***
	Comments: Functionally the same as and 04.002, but after centering from an offset position, and with split-wavecal *This exposure tests split-wavecal at LP7, which at the time of submission (2024 Nov 12) is not yet enabled in APT.* *This exposure needs to be updated closer to execution time when split wave-cals are implemented in APT.*								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP7/G130M ACQ/SEARCH TEST (05), failed Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 226.5D TO 227.5 D; BETWEEN 26-MAY-2025:00:00:00 AND 14-JUN-2025:00:00:00

Comments: ACQ/SEARCH Test. The target is WDG-1. 1-orbit.

For a 3x3x1.1" spiral pattern, the telescope slew is [AD,XD]

0.00	*0.00*
1.10	*0.00*
1.10	*1.10*
0.00	*1.10*
-1.10	*1.10*
-1.10	*0.00*
-1.10	*-1.10*
0.00	*-1.10*
1.10	*-1.10*

*We want the ~same S/N for each spectrum in the pattern, the arms of the central cross are at 1.1" offset, the corners are sqrt(2)*1.1".*
The throughput at 1.1" offset is 58.1% of center, whereas at 1.55" it is 28.6%

The ORIENT angle is TBD. First we use pos-targs to simulate the 3x3x1.1" pattern. We then perform a 3x3x1.1" ACQ/SEARCH on the centered target. We then offset the target 1" in XD and 1" in AD and perform a 3x3x1.767" ACQ/SEARCH.

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

Diagnostics

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(2)	WDG-1-OFFSET+1AD+1XD-VISIT1	Offset from WDG-1 RA Offset: 9.62839E-4 Degrees Dec Offset: -1.03429 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

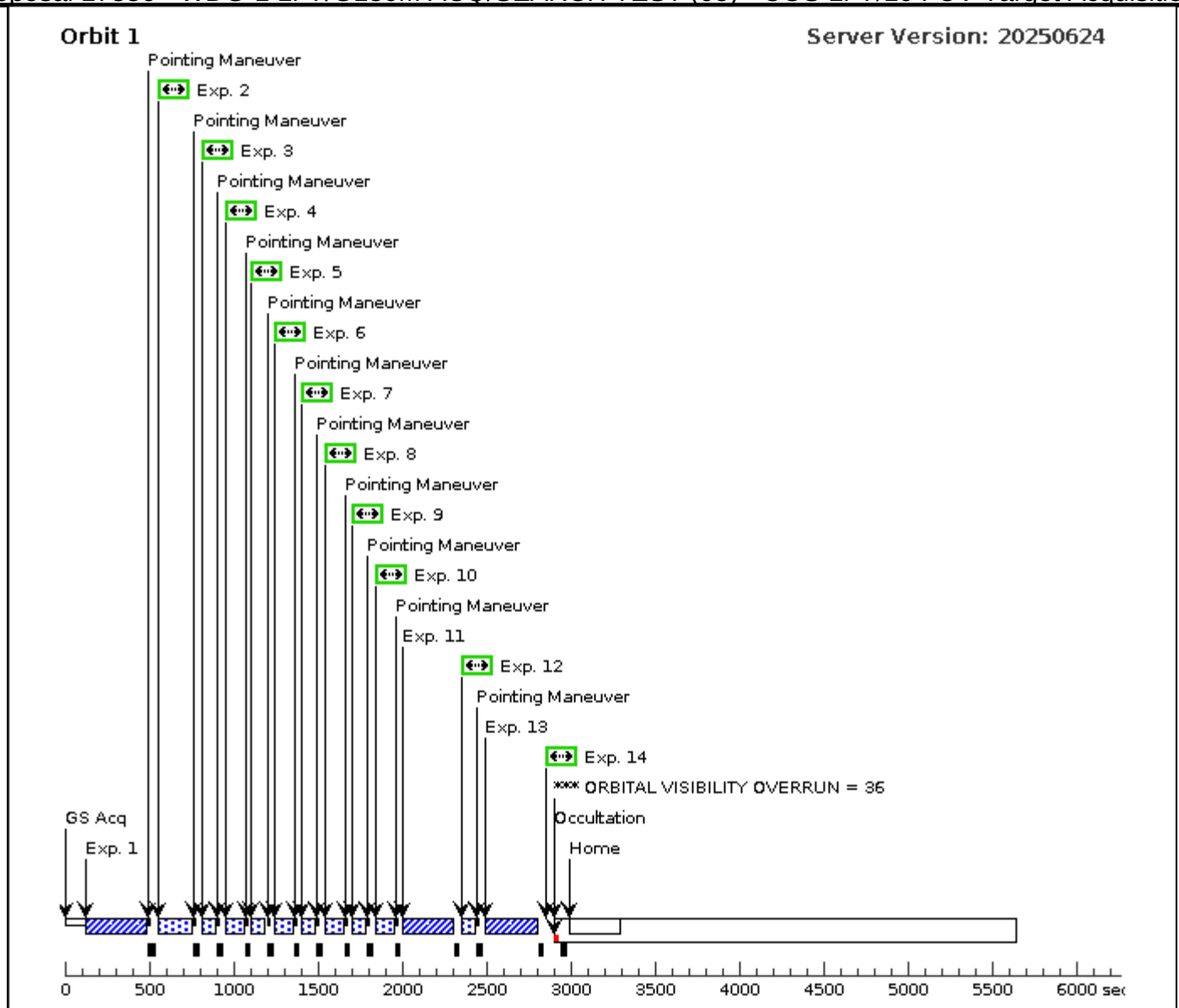
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR		23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: NUV ACQ/IMAGE with BOA+MIRRORB to refine centering.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: Spectrum of source to define correct location of star when it is centered in NUV. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).								
3	G130M - POSTARG + SPECTRUM1 (1.1,0) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2655; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,0	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH. At 1.1" in off, the throughput will be 58%, so scale exposure and buffer-time. Cannot scale exactly because we need to fit this into 1 orbit, so SNR will be a bit lower.								
4	G130M - POSTARG + SPECTRUM2 (1.1,1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5400; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	60 Secs (60 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH. At 1.55" in offset (corner), the throughput will be 28%, so scale exposure and buffer-time.Cannot scale exactly because we need to fit this into 1 orbit, so SNR will be a bit lower.								
5	G130M - POSTARG + SPECTRUM3 (0,1.1) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2655; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments								
6	G130M - POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5400; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	60 Secs (60 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments								

7	G130M - POSTARG + SPECTRUM5 (-1.1,0) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,0	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	32 Secs (32 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments									
8	G130M - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=540; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	60 Secs (60 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments									
9	G130M - POSTARG + SPECTRUM7 (0,-1.1) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	32 Secs (32 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments									
10	G130M - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=540; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	60 Secs (60 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments									
11	G130M - ACQ/SEARCH (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.1; LIFETIME-POS=LP7; CENTER=FLUX-WT-FLR		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x3x1.1" ACQ/SEARCH on the centered target.									
12	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (05)	31 Secs (31 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).									

	13	G130M - 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (COS.sa.1942815)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.767; LIFETIME-POS=LP7; CENTER=FLUX-WT-FLR	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/SEARCH TEST (05)	2 Secs (2 Secs) *[==>]*	***[1]***
		Comments: 3x3x1.767" ACQ/SEARCH. This is performed on the actual target.This is performed on the fictious target offset in [AD,XD} by [+1,+1]". The target will be 1/3 vignetted, in the center search position, but that's ok, that's what we want.							
	14	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/SEARCH TEST (05)	31 Secs (31 Secs) *[==>]*	***[1]***
		Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).							

Orbit Structure



Visit

Proposal 17886, WDG-1 LP7/G130M ACQ/SEARCH TEST (52), completed Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 226.5D TO 227.5 D; BETWEEN 26-MAY-2025:00:00:00 AND 19-JUN-2025:00:00:00

Comments: ACQ/SEARCH Test. The target is WDG-1. 1-orbit.

For a 3x3x1.1" spiral pattern, the telescope slew is [AD,XD]

0.00	*0.00*
1.10	*0.00*
1.10	*1.10*
0.00	*1.10*
-1.10	*1.10*
-1.10	*0.00*
-1.10	*-1.10*
0.00	*-1.10*
1.10	*-1.10*

*We want the ~same S/N for each spectrum in the pattern, the arms of the central cross are at 1.1" offset, the corners are sqrt(2)*1.1".*
The throughput at 1.1" offset is 58.1% of center, whereas at 1.55" it is 28.6%

The ORIENT angle is TBD. First we use pos-targs to simulate the 3x3x1.1" pattern. We then perform a 3x3x1.1" ACQ/SEARCH on the centered target. We then offset the target 1" in XD and 1" in AD and perform a 3x3x1.767" ACQ/SEARCH.

The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

HOPR repeat of visit 05

Diagnostics

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/SEARCH TEST (52)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(2)	WDG-1-OFFSET+1AD+1XD-VISIT1	Offset from WDG-1 RA Offset: 9.62839E-4 Degrees Dec Offset: -1.03429 Arcsec	V=11.84	Offset Position (WDG-1-OFFSET+1AD+1XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

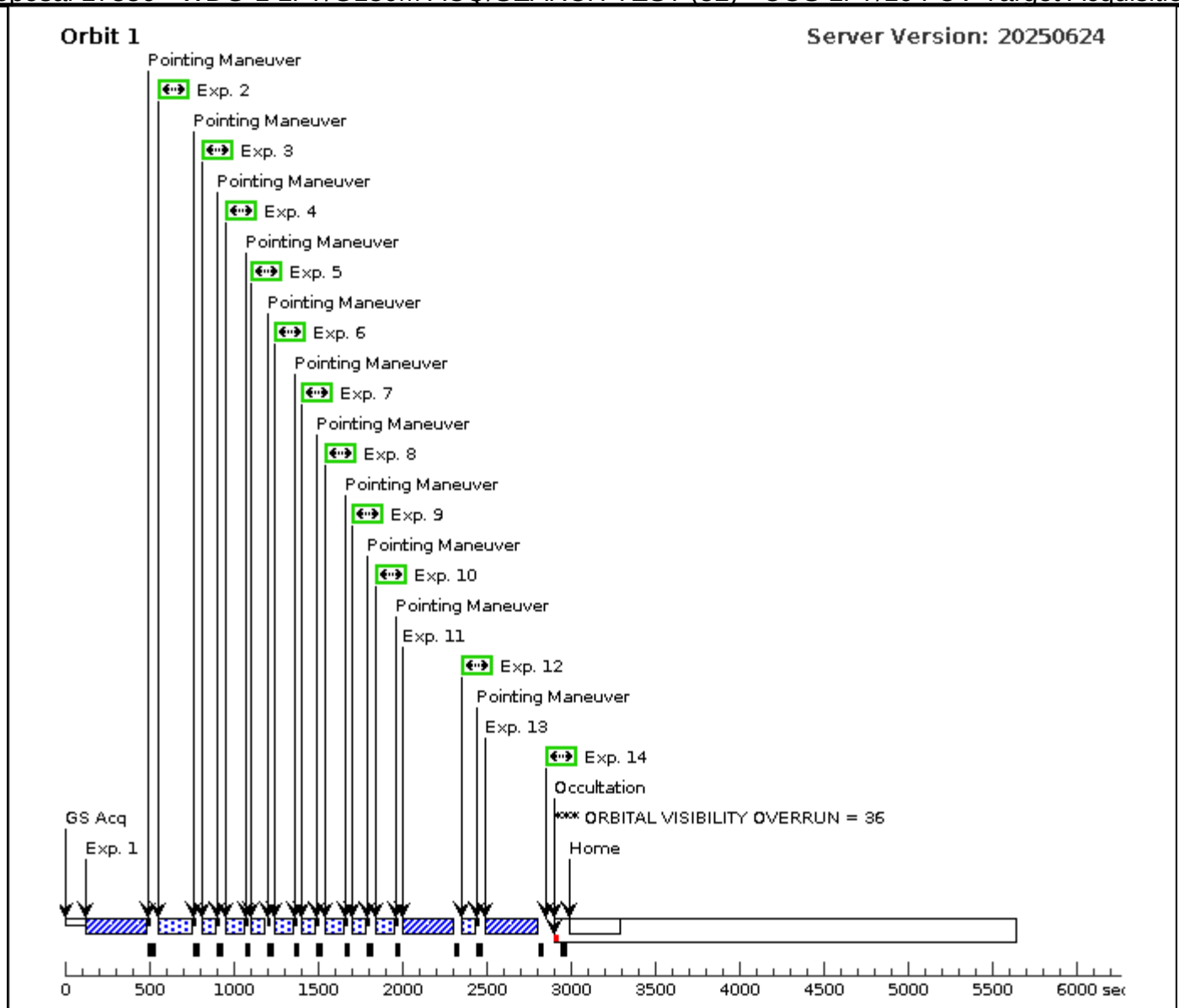
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR		23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: NUV ACQ/IMAGE with BOA+MIRRORB to refine centering.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: Spectrum of source to define correct location of star when it is centered in NUV. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).								
3	G130M - POSTARG + SPECTRUM1 (1.1,0) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2665; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,0	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH. At 1.1" in off, the throughput will be 58%, so scale exposure and buffer-time. Cannot scale exactly because we need to fit this into 1 orbit, so SNR will be a bit lower.								
4	G130M - POSTARG + SPECTRUM2 (1.1,1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5400; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	60 Secs (60 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH. At 1.55" in offset (corner), the throughput will be 28%, so scale exposure and buffer-time.Cannot scale exactly because we need to fit this into 1 orbit, so SNR will be a bit lower.								
5	G130M - POSTARG + SPECTRUM3 (0,1.1) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2665; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments								
6	G130M - POSTARG + SPECTRUM4 (-1.1,1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5400; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	60 Secs (60 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments								

7	G130M - POSTARG + SPECTRUM5 (-1.1,0) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,0	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	32 Secs (32 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments									
8	G130M - POSTARG + SPECTRUM6 (-1.1,-1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=540; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.1,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	60 Secs (60 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments									
9	G130M - POSTARG + SPECTRUM7 (0,-1.1) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=265; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	32 Secs (32 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments									
10	G130M - POSTARG + SPECTRUM8 (+1.1,-1.1) (Corner) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=540; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.1,-1.1	Sequence 2-10 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	60 Secs (60 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments									
11	G130M - ACQ/SEARCH (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.1; LIFETIME-POS=LP7; CENTER=FLUX-WT-FLR		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x3x1.1" ACQ/SEARCH on the centered target.									
12	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/SEARCH TEST (52)	31 Secs (31 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).									

	13	G130M - 3x3 ACQ/SEARCH - OFFSET +1AD +1XD (COS.sa.1942815)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.767; LIFETIME-POS=LP7; CENTER=FLUX-WT-FLR	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/SEARCH TEST (52)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: 3x3x1.767" ACQ/SEARCH. This is performed on the actual target.This is performed on the fictious target offset in [AD,XD} by [+1,+1]". The target will be 1/3 vignetted, in the center search position, but that's ok, that's what we want.								
	14	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(2) WDG-1-OFFSET +1AD+1XD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/SEARCH TEST (52)	31 Secs (31 Secs) *[==>]*	***[1]***
	Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum that includes airglow Ly-alpha (which is why the bright pixel warning can be ignored).								

Orbit Structure



Visit

Proposal 17886, WDG-1 LP7/G130M ACQ/PEAKD TEST (06), completed Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 275D TO 276 D; BETWEEN 14-JUL-2025:00:00:00 AND 31-JUL-2025:00:00:00

Comments: We simulate a 5x0.8" ACQ/PEAKD taking short spectra. We start with the centered (0) position then go to -1.6" in X and proceed in steps of 0.8" out to +1.6" X.

We then perform an actual 5x0.9" ACQ/PEAKD on the centered target, then attempt a 5x0.9" ACQ/PEAKD on an 0.7" offset target (+AD and -AD directions), 3x1.3" ACQ/PEAKD on a target offset by 0.4" (+AD and -AD directions).

The ORIENT angle is constrained to TBD degrees
The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

Diagnostics

(WDG-1 LP7/G130M ACQ/PEAKD TEST (06)) Warning (Form): COS ACQ/PEAKD exposure should be preceded by an ACQ/PEAKXD exposure in the Visit.

(WDG-1 LP7/G130M ACQ/PEAKD TEST (06)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP7/G130M ACQ/PEAKD TEST (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP7/G130M ACQ/PEAKD TEST (06)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/PEAKD TEST (06)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(3)	WDG-1-OFFSET+0.7AD-VISIT1	Offset from WDG-1 RA Offset: -5.4307E-4 Degrees Dec Offset: -0.44052427 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.7AD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(5)	WDG-1-OFFSET+0.3AD-VISIT1	Offset from WDG-1 RA Offset: -2.3274E-4 Degrees Dec Offset: -0.188796117 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.3AD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

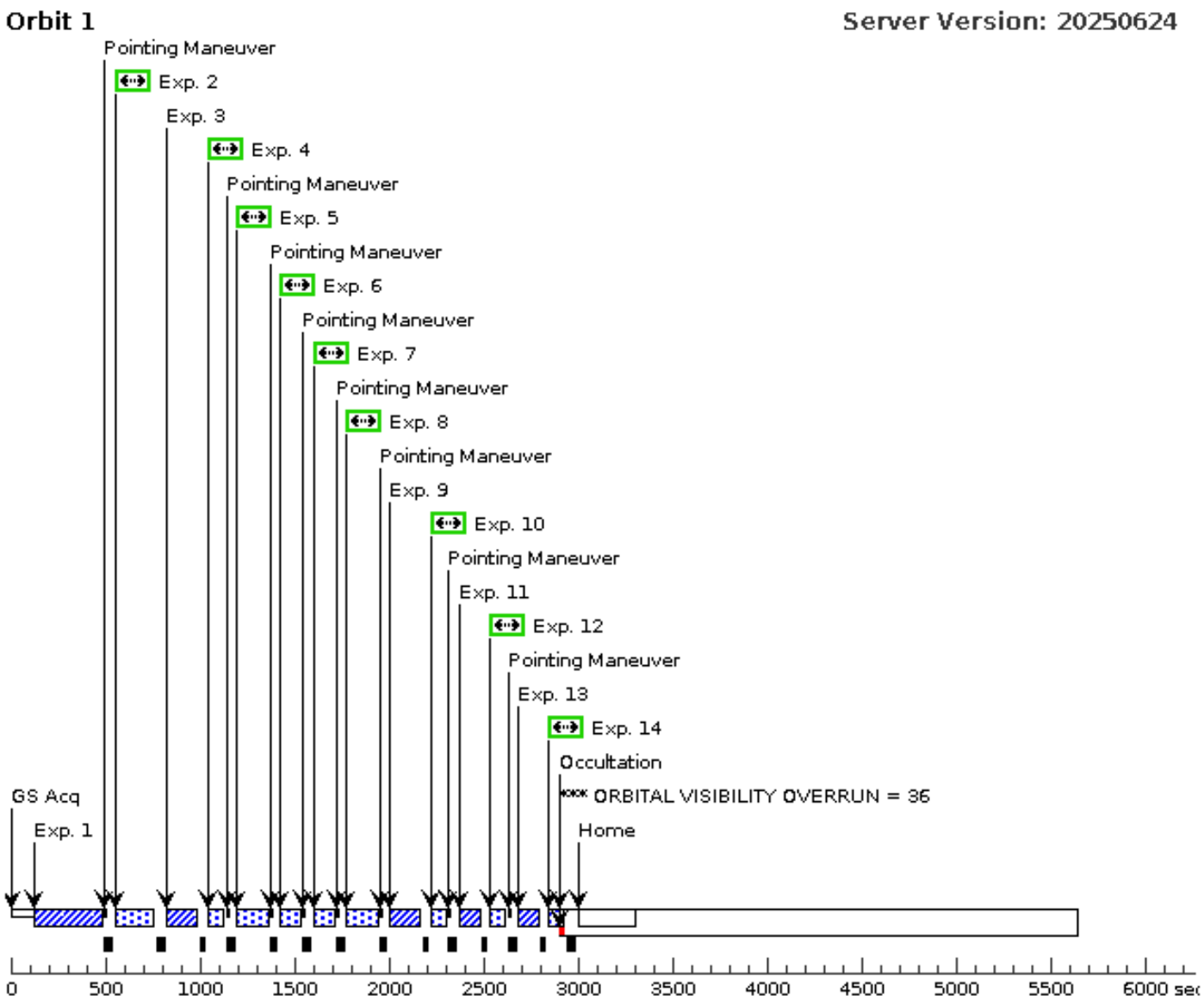
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR		23 Secs (23 Secs) *[==>]*	***[1]***
	Comments: NUV ACQ/IMAGE with BOA+MIRRORB to refine centering.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.								
2	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO			38 Secs (38 Secs) *[==>]*	***[1]***
	Comments: Confirmation Spectrum after the PEAKD. Identical to 05.002								
3	G130M - ACQ/PEAKD (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=0.8; LIFETIME-POS=LP7; CENTER=FLUX-WT-FLR		Sequence 3-4 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	2 Secs (2 Secs) *[==>]*	***[1]***
	Comments: ACQ/PEAKD of a centered target on the same 5x0.8"" pattern.								
4	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1555; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 3-4 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	38 Secs (38 Secs) *[==>]*	***[1]***
	Comments: Confirmation Spectrum after the PEAKD. Identical to 06.002 so result should be the same								
5	G130M - POSTARG + SPECTRUM1 (-1.6) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=560; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -1.6,0	Sequence 5-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	120 Secs (120 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE 5x0.8"" ACQ/PEAKD. This is the x= -1.6 " position. The vignetting at 1.6" is73 %, 90 seconds achieves the same SN as the 25s exposures when centered.								
6	G130M - POSTARG + SPECTRUM3 (-0.8) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=190; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG -0.8,0	Sequence 5-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	60 Secs (60 Secs) *[==>]*	***[1]***
	Comments: POSTARG TO SIMULATE 5x0.8"" ACQ/PEAKD. This is the x= -0.8 " position. The vignetting at 1.6" is 20 %, 40 seconds achieves the same SN as the 25s exposures when centered.								

7	G130M - POSTARG + SPECTRUM7 (0.8) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1900; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0.8,0	Sequence 5-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	60 Secs (60 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE 5x0.8"" ACQ/PEAKD. This is the x= +0.8 " position. The vignetting at 1.6" is 20 %, 40 seconds achieves the same SN as the 25s exposures when centered.									
8	G130M - POSTARG + SPECTRUM8 (1.6) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=560; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 1.6,0	Sequence 5-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	120 Secs (120 Secs) *[==>]*	***[1]***
Comments: POSTARG TO SIMULATE 5x0.8"" ACQ/PEAKD. This is the x= -1.6 " position. The vignetting at 1.6" is73 %, 90 seconds achieves the same SN as the 25s exposures when centered.									
9	G130M - ACQ/PEAKD offset +0.7AD (COS.sa.1942815)	(3) WDG-1-OFFSET +0.7AD-VISIT1	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=LP7		Sequence 9-10 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 5x0.9" ACQ/PEAKD on an off centered target. The virtual target is defined as being at a +0.7" offset from the real target. So at the beginning of acquisition the real target is offset -0.7" from the center of the field of view.									
10	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(3) WDG-1-OFFSET +0.7AD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 9-10 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	37 Secs (37 Secs) *[==>]*	***[1]***
Comments: Confirmation spectrum after the ACQ/PEAKD. Identical to 06.002 so result should be the same									
11	G130M - ACQ/PEAKD on offset +0.4AD (COS.sa.1942815)	(5) WDG-1-OFFSET +0.3AD-VISIT1	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=3; STEP-SIZE=1.3; LIFETIME-POS=LP7		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: 3x1.3" ACQ/PEAKD on an off centered target. The target is 0.4" in the -AD direction from the actual target. (We just centered on the +0.7" position and went to the +0.3AD position, now we are at -0.4" (0.4" in the +AD direction).									
12	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(5) WDG-1-OFFSET +0.3AD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/PEAKD TEST (06)	37 Secs (37 Secs) *[==>]*	***[1]***
Comments: Confirmation spectrum after the ACQ/PEAKD. Identical to 06.002 so result should be the same									

	13	G130M - ACQ/PEAKD on offset -0.4AD (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=3; STEP-SIZE=1.3; LIFETIME-POS=LP7	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/PEAKD TEST (06)	2 Secs (2 Secs) *[==>]*	***[1]***
		Comments: 3x1.3" ACQ/PEAKD on an off centered target. We just centered on the -0.4" target, now we are back to the center, so the target is at +0.4" (0.4" in the -AD direction)							
	14	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/PEAKD TEST (06)	37 Secs (37 Secs) *[==>]*	***[1]***
		Comments: Confirmation spectrum after the ACQ/PEAKD. Identical to 06.002 so result should be the same							

Orbit Structure



Visit

Proposal 17886, WDG-1 LP7/G130M ACQ/PEAKXD TEST (07), implementation Thu Aug 21 11:00:42 GMT 2025

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 299.5D TO 300.5 D; BETWEEN 21-AUG-2025:00:00:00 AND 10-SEP-2025:00:00:00

Comments: ACQ/PEAKXD Test for G130M/1291. The target is AVZ18. After obtaining a good spectrum of the centered target, take spectra at the following positions (-1.6,-0.8,+0.8,+1.6) " in the XD direction. The > +/- 0.5" offsets have expanded exposure times to compensate for vignetting.

After obtaining the offset spectra, we then proceed to test PEAKXD with targets offsets by +/-0.4, +/-0.7" in the XD.

ORIENT should be TBD degrees
The offsets used for the targets are ORIENT dependent and need to be updated/verified before execution.

Diagnostics

(WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)) Warning (Form): COS ACQ/PEAKXD exposure should be followed by an ACQ/PEAKD exposure in the Visit.

(WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions at a given COS cenwave (or 2 positions for certain exception cases). See extended explanation in the diagnostic browser.

(WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1	RA: 01 41 42.0684 (25.4252850d) Dec: -73 50 38.18 (-73.84394d) Equinox: J2000	Proper Motion RA: 1.238 mas/yr Proper Motion Dec: -1.5679999251005938 mas/yr Epoch of Position: 2000	V=11.84	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(4)	WDG-1-OFFSET+0.7XD-VISIT1	Offset from WDG-1 RA Offset: 1.8086295797057245E-4 Degrees Dec Offset: -0.6761480784023477 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.7XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

(6)	WDG-1-OFFSET+0.3XD-VISIT1	Offset from WDG-1 RA Offset: 7.751269627310247E-5 Degrees Dec Offset: -0.28977774788672045 Arcsec		V=11.84	Offset Position (WDG-1-OFFSET+0.3XD-VISIT1)

Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec:
*Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants.*
*Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.*

Jan 16 2025 to JAN 25 2025 ORIENT=91
May 26 2025 to June 14 2025 ORIENT=227
Category=CALIBRATION
Description=[TARGET ACQUISITION TEST]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/IMAGE (COS.ta.1942799)	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		GS ACQ SCENARIO BASE1OR		30 Secs (30 Secs) *[==>]*	***[1]***
Comments: NUV ACQ/IMAGE with BOA+MIRRORB to refine centering.Used Castelli-Kurucz Models B0I 26000 normalized to B=11.86 because the exisiting spectrum does not cover the entire NUV range.									
2	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO		Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	30 Secs (30 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to define correct location of star when it is centered using NUV ACQ/IMAGE.									
3	G130M - POSTARG + SPECTRUM1 (-1.6) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,-1.6	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	118 Secs (118 Secs) *[==>]*	***[1]***
*Comments: POSTARG TO Move to Y=-1.6. The vignetting here is 73%, so to match the 34s in 07.002, we need 30*3.75 = ~130s*									
4	G130M - POSTARG + SPECTRUM2 (-0.8) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,-0.8	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	45 Secs (45 Secs) *[==>]*	***[1]***
*Comments: POSTARG TO Move to Y=-0.8. The vignetting here is 23%, so to match the 30s in 07.002, we need 35*1.3 = 46s.*									
5	G130M - POSTARG + SPECTRUM3 (+0.8) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,0.8	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	45 Secs (45 Secs) *[==>]*	***[1]***
Comments: Same as 07.004, but at +0.8"									
6	G130M - POSTARG + SPECTRUM4 (+1.6) (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	POS TARG 0,1.6	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	118 Secs (118 Secs) *[==>]*	***[1]***
Comments: Same as 07.003, but at 1.6"									

7	G130M - PEAKXD - Centered (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP7; NUM-POS=5; STEP-SIZE=0.8; CENTER=FLUX-WT-FLR	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Nominal step size of 0.9 would give too low flux, so using 0.8 instead. *The target should only move slightly (ACQ/IMAGE error and counting uncertainty), unless there is residual pointing error from the POS-TARGs.*								
8	G130M - BASELINE SPECTRUM (COS.sp.1942813)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 2-8 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	30 Secs (30 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to test previous ACQ/PEAKXD centering.								
9	ACQ/PEAKXD on offset +0.7 XD (COS.sa.1942815)	(4) WDG-1-OFFSET +0.7XD-VISIT1	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP7; NUM-POS=5; STEP-SIZE=0.9; CENTER=FLUX-WT-FLR	Sequence 9-10 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: ACQ/PEAKXD on the target offset by +0.7". After centering the telescope this is the target location.								
10	G130M - Verification SPECTRUM (COS.sp.1942813)	(4) WDG-1-OFFSET +0.7XD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 9-10 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	29 Secs (29 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to test previous ACQ/PEAKXD centering.								
11	ACQ/PEAKXD on offset +0.4 XD (COS.sa.1942815)	(6) WDG-1-OFFSET +0.3XD-VISIT1	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP7; STEP-SIZE=1.3; NUM-POS=3; CENTER=FLUX-WT	Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	2 Secs (2 Secs) *[==>]*	***[1]***
Comments: ACQ/PEAKXD on the target offset by +0.4". *From the previous acquisition, the telescope thinks it's at +0.7XD from the real target, but the real target is actually centered in the field of view. Now we ask the telescope to go back to +0.3XD. That moves the telescope -0.4"XD. So now the real target is at +0.4"XD.*								
12	G130M -Verification SPECTRUM (COS.sp.1942813)	(6) WDG-1-OFFSET +0.3XD-VISIT1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 11-12 Non-Int in WDG-1 LP7/G130M ACQ/PEAKXD TEST (07)	30 Secs (30 Secs) *[==>]*	***[1]***
Comments: Spectrum of source to test previous ACQ/PEAKXD centering.								

	13	ACQ/PEAKXD on offset -0.4 XD (COS.sa.1942815)	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP7; NUM-POS=3; STEP-SIZE=1.3; CENTER=FLUX-WT	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/PEAKXD TEST (07)	2 Secs (2 Secs) *[==>]*	***[1]***
		Comments: ACQ/PEAKXD on the target offset by -0.4". *From the previous acquisition, the telescope thinks it's at +0.4XD from the real target, but the real target is actually at -0.4" in the field of view. We want the telescope to arrive at +0.4". So now we ask the telescope to go to the coordinates of the original target. So now the real target is at -0.4"XD (i.e. +0.4").*							
	14	G130M - Verification SPECTRUM (COS.sp.906443)	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=155; FP-POS=3; FLASH=NO; LIFETIME-POS=LP7; WAVECAL=NO	Sequence 13-14 Non-Int in WDG-1 LP7/ G130M ACQ/PEAKXD TEST (07)	30 Secs (30 Secs) *[==>]*	***[1]***
		Comments: Spectrum of source to test previous ACQ/PEAKXD centering.							

Orbit Structure