



## 14907 - COS LP4 FUV Target Acquisition Enabling and Verification

Cycle: 24, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

### INVESTIGATORS

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### VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) AZV18 (11) AZV18-OFFSET+1AD+1XD-OR+1.4OFF	COS/FUV COS/NUV	1	05-Jun-2018 20:00:23.0	yes
02	(1) AZV18 (21) AZV18-OFFSET-AD-0.3 (22) AZV18-OFFSET-AD+0.4	COS/FUV COS/NUV	1	05-Jun-2018 20:00:27.0	yes
03	(1) AZV18 (3) AZV18-OFFSET-XD+0.5 (5) AZV18-OFFSET-XD+0.8	COS/FUV COS/NUV	1	05-Jun-2018 20:00:31.0	yes
04	(1) AZV18 (3) AZV18-OFFSET-XD+0.5 (5) AZV18-OFFSET-XD+0.8	COS/FUV COS/NUV	1	05-Jun-2018 20:00:34.0	yes
05	(1) AZV18 (3) AZV18-OFFSET-XD+0.5 (5) AZV18-OFFSET-XD+0.8	COS/FUV COS/NUV	1	05-Jun-2018 20:00:38.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
06	(6) WD1657+343 (61) WD1657+343-OFFSET-1AD-1XD-1.4AS (63) WD1657+343-OFFSET-XD+0.8	COS/FUV COS/NUV	2	05-Jun-2018 20:00:45.0	yes
07	(1) AZV18 (3) AZV18-OFFSET-XD+0.5 (5) AZV18-OFFSET-XD+0.8	COS/FUV COS/NUV	1	05-Jun-2018 20:00:49.0	yes

8 Total Orbits Used

### ABSTRACT

This LP4 program is designed to verify the ability of the LV0058/LV0059 COS FSW to place an isolated point source at the center of the PSA, using FUV dispersed light target acquisition (TA) for COS (LP4-TA-COS). Tests will be performed for all 3 FUV TA modes (ACQ/SEARCH, ACQ/PEAKD, and ACQ/PEAKXD). It is sufficient to test ACQ/SEARCH and ACQ/PEAKD with only one grating, but all three FUV gratings need to be tested for the new (as of LV0054) ACQ/PEAKXD with NUM\_POS>1 (also known internally, and in the spt files, as OPMODE=ACQ/PEAKD(XD) at the Fourth Lifetime Position (LP4). This program is modeled after the LP2 and LP3 versions of this program; 12797 and 13636.

This program has specific visits to test each portion of the FUV spectroscopic TA process. Visits 01-05 will use the target AV18, while Visit 06 will observe (WD1657+343). Both targets are visible year round. For the LP4 enabling, several improvements to APT, the ground system, and the flight software (FSW) have greatly simplified the enabling process. There are now no non-standard exposures, or special commanding, in this program.

Specifically;

- 1) We now use the LIFETIME-POS = LP4 functionality in APT & FSW to specify the LP. The old procedure of using LIFETIME-POS ="ALTERNATE" has been removed. FUV LPs are now called out by number (e.g., LP4).
- 2) We will be using the new NUM\_POS > 1 PEAKXD algorithm at LP4 due to large geometric distortions (GD) at the "Y" detector positions of LP4. FUV is particularly affected by GD rendering the old PEAKXD algorithm unable to center a target to the required XD accuracy at LP4.
- 3) Numerous FSW Patchable constants that were essential for PEAKXD operations at previous LPs are no longer required. These are the WCA-to-PSA offsets and XD plate-scales. Like PEAKD, the NUM\_POS > 1 PEAKXD requires no patchable constant updates. At previous LPs, numerous updates to the patchable constants were required, this is not necessary for LP4 TA enabling.

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Prior to the submission of this program, all LP4 SIAF, aperture mechanism positions, TA subarrays, and grating foci have been appropriately installed (SMS2017.058). Visits 01-05 will test these parameters and a further update will be initiated, if required. The FSW at the beginning of this program is the patch updated LV0058. Between Visits 02 and 03 of this program, LV0059 will be installed. This was installed on May 8, 2017. Visits 03-06 will be executed using LV0059.

Visit 01 tests ACQ/SEARCH and Visit 02 tests ACQ/PEAKD using the G130M grating. Visit 01 uses the C1291 cenwave as this produces the widest in XD (tallest) spectrum of any cenwave for which TA is allowed that fully covers both detector segments. Visit 02 uses the C1327 cenwave as this is the most different of the TA enabled G130M cenwaves. Visits 03-05 test ACQ/PEAKXD in its new NUM\_POS > 1 form for each of the FUV gratings. This extension of the ACQ/PEAKD algorithm in the cross-dispersion direction (XD) has been available in the FSW since LV0054 and was put in place to handle the much larger geometric distortions found in the LP4 detector regions. Visit 03 tests ACQ/PEAKXD with the widest in XD (tallest) G130M cenwave, C1291. Visit 04 tests ACQ/PEAKXD with G160M/1600 and Visit 05 uses G140L/1280.

Finally, Visit 06 tests all of the TA modes together, in combination, on a separate target (WD1657+343). This visit should be the first FUV Spectroscopic TA executed at LP4.

The specific details of the testing of each visit are given in the Observing Description section and in the visit level comments.

Visit 01 of this program (the ACQ/SEARCH test) will provide an initial test of the TA subarrays and SIAF entries. If needed, the subarrays and/or the SIAF entries will be adjusted before the execution of Visit 02. For this reason, Visit 02 is configured to execute 4-5 weeks after Visit 01.

Visit 02 of this program (14907), the ACQ/PEAKD test, will verify and further test any updates that result from the Visit 01 analysis. In particular, this visit will test the TA subarrays during large along-dispersion AD offsets and provide the G130M AD plate scales.

Visits 03-05 (the ACQ/PEAKXD tests) will further test the TA subarrays with large XD offsets and provide XD plate scales and WCA-to-PSA offsets for each FUV grating. (APT25.2.2)

Visits 01 and 02 will occur before APT25.2 will be released ( June 2017) and will therefore not test the entire LP4 system end-to-end. APT25.2 exposes the new ACQ/PEAKXD to GOs and contains defaults suitable for LP4 FUV TAs. Visits 03-05 can execute as early as 4-5 weeks after Visit 02. However, we must test APT25.2, its associated TRANS, ground system commanding, and LV0059 using its new NUM\_POS and STEP\_SIZE in

this program. We prefer to test this with all 3 FUV gratings and therefore require that Visits 03-05 should execute using the full APT25.2.2 configuration.

Prior to Visit 06, LV0059 and APT25.2 must have been installed and the official switch to LP4 operations must have occurred. We request that Visit 06 be the first FUV Spectroscopic TA executed at LP4 and no other FUV spectroscopic TAs should occur for at least two weeks after the move to LP4 to ensure that LP4 spectroscopic TAs are working properly end-to-end from APT-to-archive.

NUV imaging TAs are used to determine the correct (and initial) desired locations for LP4 FUV spectra.

Note that the ETC runs here were made using ETC 25.1.1 and are therefore valid for Summer 2017. Some TDS drop may have occurred before these visits execute, but we have plenty of counts to do what we need to do in this program.

Each visit intentionally moves the target in the AD or XD, using POS-TARGs, and with targets that are offset in RA and DEC. The RA/DEC target offsets are required for testing the accuracy of the TA, while the POS-TARGs are useful for determining the plate scales and validating the TA subarrays. In order for the targets to be offset correctly in AD and/or XD, the RA and DEC target offsets are tied to a Visit-specific orientation. These orientation requirements produce visits which are only valid for an ~10-day window. Should a visit get delayed, new target RA and DEC offsets and orients must be re-calculated and the program re-submitted. Visit specific offsets and orientations are discussed in the visit level comments.

Note that the PI has been changed to David Sahnaw in June 2018, prior to Visit 07 execution.

## **OBSERVING DESCRIPTION**

The goal is to enable and verify FUV dispersed light centering (target acquisition, TA) of a point source within the PSA at the fourth lifetime position (LP4). This activity defines the FUV TA parameters in the Cycle 25 flight software (FSW) (LV0058/9) and verifies that the FUV centering error is within the required thresholds. viz. 0.1 arcsec.

Visits 01-02 will be created using the APT25.0.3 LIFETIME-POS=LP4 optional keyword. Prior to execution, all the appropriate HV, SIAF, APERTURE, FOCUS, SUBARRAYS, and TA parameter updates must be available (They should all be available by 2017.058). The Subarrays, HV and SIAF are all part of the ground system, while the FOCUS values, APERTURE positions, and the TA parameters are patchable constants in the FSW. Note that for LP4 there are no TA-specific FSW parameters that must be installed before execution of these visits. Visits 03-05 will be

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executed after the LV0059 and APT25.2 operational installations. Visit 06 will execute after the move to LP4 and will use LIFETIME-POS=default.

Visit 01 tests ACQ/SEARCH and also verifies that the updated FUV LP4 SIAF entries and TA sub-arrays are correct for the LP4. After an NUV imaging TA and the standard NUV to FUV LP4 offset, a 3x3x1.1" ACQ/SEARCH pattern is simulated by moving the target relative to the aperture via POSTARGS. At each position, a quick spectrum is taken at each location (with TAGFLASH=YES). 1.1" was selected instead of the default 1.767" so that we ensure that no target light is missing the TA sub-arrays at locations relative to the PSA where target light still enters the PSA. An actual 3x3x1.1" ACQ/SEARCH is performed on the same centered target. Next, a 3x3x1.767" ACQ/SEARCH is performed on a target offset by 1.414" in the aperture. Using the Roll angle on the data of the expected observation, the target will be offset by 1" in AD (Along Dispersion) and 1" in XD (cross-dispersion) or [AD, XD]=[+1,+1]". This will be followed by a 2x2x1.767" ACQ/SEARCH on a target offset in the opposite direction by [AD, XD]=[-1.1,-1.1]" Note that for PEAKXD at LP4 to operate correctly, light must be obtained from a source up to +/- 2" in the XD direction. We will use the +/- 1.1" in XD spectra to determine if our current subarrays are tall enough in the XD by extrapolating from the +/- 1.1" C1291 XD positions to 2" with an appropriate margin.

Visit 01 will use a roll angle of 150 degrees +/- 1 degree, with schedubility of 90%.

Visit 02 tests ACQ/PEAKD. From a centered position, simulate a normal ACQ/PEAKD pattern (i.e., 5 x 0.8"). Take spectra at all positions (via POS-TARGs) using G130M/1327. Track Ly-alpha to make sure the Geocoronal light remains outside the TA extraction boxes (subarrays) at all offsets. Repeat an actual 5x0.8" ACQ/PEAKD for a centered target, then center on off-centered target in both directions. Then execute a 5x0.8" PEAKD on a target offset by -0.3", a 5x0.9" PEAKD of a target offset by +0.7", a 3x1.2" PEAKD on a target offset by -0.7", and finally a 3x1.3" on a target offset by +0.4".

Visit 02 will use a roll angle of 185 degrees +/- 1 degree with schedubility of 90%.

Visits 03-05 test ACQ/PEAKXD with APT25.2.2 and define the plate scales for each grating (Visit 03= G130M, Visit 04= G160M, Visit05 = G140L). Each visit has the same structure, with a schedubility of 100%

- 1) Take spectra as the target is stepped (via POS-TARGs) in the XD direction to determine the plate scales. WCA lamp will also be flashed to verify the plate scale at the WCA position and the PSA locations. Spectra will be taken at 5 XD locations +/- (0, 0.8, 1.6)".
- 2) Test ACQ/PEAKXD with NUM\_POS=5 and STEP\_SIZE=0.8 at the centered position to match the POS\_TARG pattern.

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- 3) Test ACQ/PEAKXD with NUM\_POS=3 and STEP\_SIZE=1.3" at an offset position of +0.8"
  - 4) Test ACQ/PEAKXD with NUM\_POS=3 and STEP\_SIZE=DEF" at an offset position of -0.8"
  - 5) Test ACQ/PEAKXD with NUM\_POS=DEF and STEP\_SIZE=DEF" at an offset position of -0.5"
- AND, if Time available then
- 5) Test ACQ/PEAKXD with NUM\_POS=3 and STEP\_SIZE=1.25" at an offset position of +0.5"

Visits 03-05 will use eAPT25.2.1. Under the current schedule, APT25.2 will be released on June 1-5, 2017. The roll-angle of 315 degrees (+/- 1 degree) for visits 03-05 allows observation all of Aug. 2017.

Visit 06 is the confirmation visit, after the LP4 Move. Start with G130M/1309/PEAKXD with N=3, 5, and 7 using STEP\_SIZE=DEF. Next, test each grating (G130M/1309, G160M/1600, and G140L/1280) for targets offset by +/- 0.8" using nominal N>1 PEAKXDs. Next, perform two full TA sequences with different cenwaves, one with G160M/1577, one with G130M/1291. The G160M ACQ/SEARCH+PEAKXD+PEAKD on a target offset -0.8" in AD, and +0.8" off in XD. G160M/1577 will use a 3x3x1.767" ACQ/SEARCH + DEF PEAKXD+ 7x0.45" PEAKD on an offset target. G130M will use a default 3x1.3" PEAKXD and a 3x1.25" PEAKD. As this visit executes after the LP4 move, it will use the exact LP4 conditions as GO should encounter once LP4 FUV TA spectroscopic TAs are enabled (at least 2 week after this visit)

Visit 06 will use a roll angle of 70 +/- 1 degree, this roll angle is good from Oct 2-9, 2017. Visit 06 uses schedubility = "None Selected"

Visit 07 is an FUV A-only PEAKXD test. The COS team is currently seeking HSTMO approval to execute this visit (in July/Aug 2018). Note that the PI has been changed to David Sahnaw.

There is no special commanding in this program.

Proposal 14907 - ACQ/SEARCH TEST (01) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:51 GMT 2018

**Proposal 14907, ACQ/SEARCH TEST (01), completed**

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 90%; ORIENT 149D TO 151 D; BETWEEN 27-FEB-2017:00:00:00 AND 08-MAR-2017:00:00:00

Comments: ACQ/SEARCH Test. The target is AVZ18 (the SMOV TA target). 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
    
```

**Visit**

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 centered count rate is ~ 2350 counts/s. The throughput at 1.1" offset is 58.1% of center, whereas at 1.55" it is 28.6%. To be balanced, we'll use 22 sec for the sides, and 44s for the corners. This should be FUV A/B total counts of 45k counts/segment for each.

The roll angle is constrained to 150 degrees +/- 1 degree, schedulability = 100%. First we use pos-targs to simulate the 3x3x1.1" pattern, taking TAGFLASHed spectra at each location. 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 and then a 2x2x1.767" ACQ/SEARCH on the target.

Available Roll Angles (we are going with 150 +/- 1)

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27 Feb 2017  141.14 - 151.14
28 Feb 2017  142.20 - 152.20
01 Mar 2017  143.25 - 153.25
02 Mar 2017  144.30 - 154.30
03 Mar 2017  145.35 - 155.35
04 Mar 2017  146.40 - 156.40
05 Mar 2017  147.43 - 157.43
06 Mar 2017  148.47 - 158.47
07 Mar 2017  149.50 - 159.50
08 Mar 2017  150.53 - 160.53
09 Mar 2017  151.55 - 161.55
10 Mar 2017  152.57 - 162.57
11 Mar 2017  153.58 - 163.58
12 Mar 2017  154.59 - 164.59
    
```

**Diagnostics**

(ACQ/SEARCH TEST (01)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

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#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS
<p><i>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.</i></p> <p>Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					
(11)	AZV18- OFFSET+1AD+1XD- OR+1.4OFF	Offset from AZV18 RA Offset: 0.0011709042 Degrees Dec Offset: 0.7071068 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18- OFFSET+1AD+1XD-OR+1.4OFF)
<p><i>Comments: This target is offset by +1" in both AD (X) and XD (Y), so sqrt(2)=1.414" total offset. Note that the AZV18 offset is (AD,XD)=(-1",-1") this moves AV18 in [AD,XD] of [+1,+1]</i></p> <p><i>The U3 roll angle has been constrained to 150 +/- 1 degree, this angle works for March 5, 2017 +/- 5 days</i></p> <p><math>dRA = +\sqrt{2} \cos(15) = +1.366025" = +0.000379451d</math>  <math>dDEC = +\sqrt{2} \sin(15) = +0.366025"</math></p> <p><i>To move the target to this location, the offset should have the opposite sign in the offsets above.</i></p> <p>Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					

Fixed Targets



Proposal 14907 - ACQ/SEARCH TEST (01) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	2 nuv a/im (COS.ta.904 984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				32 Secs (32 Secs) [==>]	[1]
<p><i>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS spectrum plus an IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 32s just to be sure. The previous ACQ/IMAGES in 13636 gave a S/N of 62.6 in 31 seconds (after background subtraction)</i></p>									
2	G130M - B ASELINE S PECTRUM (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=S0080D03 0; LIFETIME-POS=L P4		Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	30 Secs (30 Secs) [==>]	[1]
<p><i>Comments: Spectrum of source to define correct location of star when it is centered in NUV. The ETC uses a previous COS spectrum from 13636. This ETC run (COS.sp.904989) is for 22 seconds and indicates that we should expect a S/N of 3/RE with a BT &lt; 1000*(2/3) = 666, we use 500 to be safe. This spectrum will be used to define the WCA-to-PSA offset for the G130M, which, although not required for LP4, will be documented in SCR370 for inclusion in a future FSW release. Tagflash sequence is 30s on.</i></p> <p><i>THIS ETC RUN WAS MADE WITH ETC 25.1.1 and should be valid anytime in 2017</i></p>									
3	G130M - P OSTARG + SPECTRU M1 (1.1,0) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 1.1,null	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	22 Secs (22 Secs) [==>]	[1]
<p><i>Comments: POSTARG TO SIMULATE ACQ/SEARCH. S/N = 60 is reached in 2 seconds. Observe for 22 seconds. (~45k total counts(A+B), centered). at 1.1" in off, the throughput will be 58% total counts should be ~30k.</i></p>									
4	G130M - P OSTARG + SPECTRU M2 (1.1,1.1) (Corner) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 1.1,1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	44 Secs (44 Secs) [==>]	[1]
<p><i>Comments: POSTARG TO SIMULATE ACQ/SEARCH. S/N = 60 is reached in 2 seconds. Observe for 44 seconds. (~100000 total counts(A+B), centered). 1.55" it is 28.6 %. Total counts should be ~30k.</i></p>									
5	G130M - P OSTARG + SPECTRU M3 (0,1.1) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	22 Secs (22 Secs) [==>]	[1]
<p><i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments</i></p>									
6	G130M - P OSTARG + SPECTRU M4 (-1.1,1.1) (Corner) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG -1.1,1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	44 Secs (44 Secs) [==>]	[1]
<p><i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments</i></p>									

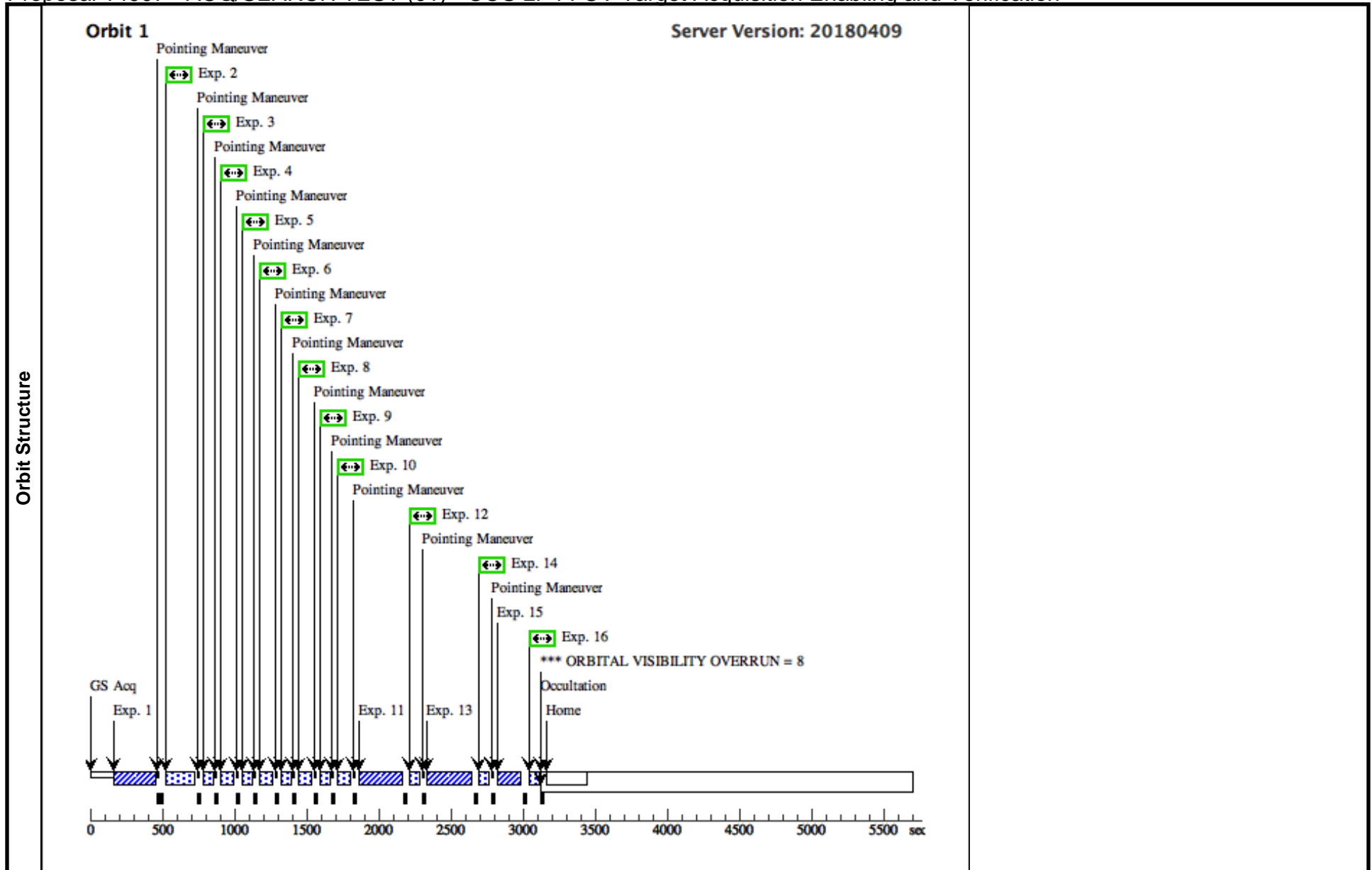
Exposures

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7	G130M - P OSTARG + SPECTRU M5 (-1.1,0) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG -1.1,0	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	22 Secs (22 Secs) [==>]	[1]
<i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments</i>									
8	G130M - P OSTARG + SPECTRU M6 (-1.1,-1.1) (Corner) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG -1.1,-1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	44 Secs (44 Secs) [==>]	[1]
<i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments</i>									
9	G130M - P OSTARG + SPECTRU M7 (0,-1.1) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	22 Secs (22 Secs) [==>]	[1]
<i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a side, so see exporuse 01.003 for comments</i>									
10	G130M - P OSTARG + SPECTRU M8 (+1.1,-1.1) (Corner) (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 1.1,-1.1	Sequence 2-10 Non-Int in ACQ/SEARCH TEST (01)	44 Secs (44 Secs) [==>]	[1]
<i>Comments: POSTARG TO SIMULATE ACQ/SEARCH this is a corner, so see exporuse 01.004 for comments</i>									
11	G130M - A CQ/SEARC H (COS.sa.904 990)	(1) AZV18	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.1; LIFETIME-POS=L P4		Sequence 11-12 Non-Int in ACQ/SEARCH TEST (01)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: 3x3x1.1" ACQ/SEARCH on the centered target. COS.sa.904990. S/N = 60 is reached in 1.0 (A+B) seconds, we go for 2s This is performed on the actual target. A similar ACQ/SEARCH in 13636 found a S/N of 65 in 2s</i>									
12	G130M - B ASELINE S PECTRUM (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4		Sequence 11-12 Non-Int in ACQ/SEARCH TEST (01)	24 Secs (24 Secs) [==>]	[1]
<i>Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum from 13636 . This ETC run (COS.sp.904989) is for 22 seconds and indicates that we should expect a S/N of 3/RE with a BT &lt; 1000*(2/3) = 666, we use 500 to be safe. FLASH=YES</i>									
13	G130M - A CQ/SEARC H (COS.sa.904 990)	(11) AZV18-OFFSET+1AD+1XD-OR+1.4OFF	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=3; STEP-SIZE=1.767; LIFETIME-POS=L P4		Sequence 13-14 Non-Int in ACQ/SEARCH TEST (01)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: 3x3x1.767" ACQ/SEARCH. COS.sa.904990. S/N = 60 is reached in 1.0 (A+B) seconds, we go for 2s. This is performed on the actual target. A similar ACQ/SEARCH in 13636 found a S/N of 65 in 2s 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.</i>									

Proposal 14907 - ACQ/SEARCH TEST (01) - COS LP4 FUV Target Acquisition Enabling and Verification

14	G130M - B ASELINE S PECTRUM (COS.sp.904 989)	(11) AZV18-OFFSE T+1AD+1XD-OR+1 .4OFF	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 13-14 Non -Int in ACQ/SEARC H TEST (01)	24 Secs (24 Secs) [==>]	[1]
<p><i>Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum from 13636 . This ETC run (COS.sp.904989) is for 22 seconds and indicates that we should expect a S/N of 3/RE with a BT &lt; 1000*(2/3) = 666, we use 500 to be safe. FLASH=YES</i></p>								
15	G130M - A CQ/SEARC H (COS.sa.904 990)	(1) AZV18	COS/FUV, ACQ/SEARCH, PSA	G130M 1291 A	SCAN-SIZE=2; STEP-SIZE=1.767; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/SEARC H TEST (01)	2 Secs (2 Secs) [==>]	[1]
<p><i>Comments: 2x2x1.767" ACQ/SEARCH. COS.sa.904990. S/N = 60 is reached in 1.0 (A+B) seconds, we go for 2s. This is performed on the actual target. A similar ACQ/SEARCH in 13636 found a S/N of 65 in 2s This is performed on the fictitious 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</i></p>								
16	G130M - B ASELINE S PECTRUM (COS.sp.904 989)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/SEARC H TEST (01)	24 Secs (24 Secs) [==>]	[1]
<p><i>Comments: Spectrum of source to verify accurate centering. The ETC uses a previous COS spectrum from 13636 . This ETC run (COS.sp.904989) is for 22 seconds and indicates that we should expect a S/N of 3/RE with a BT &lt; 1000*(2/3) = 666, we use 500 to be safe. FLASH=YES</i></p>								



Proposal 14907 - ACQ/PEAKD TEST (02) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:52 GMT 2018

Proposal 14907, ACQ/PEAKD TEST (02), completed

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 90%; ORIENT 184D TO 186 D; BETWEEN 03-APR-2017 AND 13-APR-2017

Comments: *NOTE THAT ORIENT AND RA & DEC Offsets are tied to the execution date range of APR 3-13, 2017. Note the execution of this visit is tied to the successful analysis of the Vist 01 results. All FUV exposures in this visit are C1327*

*ACQ/PEAKD test on AVZ18. In previous versions we needed to measure the WCA-to-PSA offsets for all the FUV gratings. This is not required for LP4 since PEAKXD will not work due to the extreme Y distortion of the FUV segment. In its place, we will be using the PEAKD algorithm adopted to the XD direction. This functionality became available in LV0057 and we begin using it for regular GO observations at LP4. We will measure the WCA-to-PSA offsets from the LP4 focus program and load them into the FSW in a future release (LV0060 ?).*

*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 flash the lamp at all positions. This will allow up to verify that the TA subarrays are correctly preventing geocoronal lines and hot spots from affecting the ACQ/PEAKD algorithm.*

*We then perform an actual 5x0.8" ACQ/PEAKD on the centered target, then attempt a 3x1.2" ACQ/PEAKD on a target offset by +0.3", then a 3x1.3" offset by -0.7".*

*The roll angle is constrained to 185 +/- 1 degrees, and is valid for Apr 3-13, 2017.*

Visit

*Note orient and target RA and DEC OFFSETs have not yet been defined*

*We balance the POSTARG'd spectra by the expected throughput (which is a function of radius)*

OFFSET	%LOSS	ET equivalent/second	ET
0.00	0.00	1.00	24s
0.80	20.00	1.25	30s
1.60	73.33	3.75	90s

*The roll angle's available are*

02 Apr 2017	174.89 - 184.89
03 Apr 2017	175.81 - 185.81
04 Apr 2017	176.74 - 186.74
05 Apr 2017	177.66 - 187.66
06 Apr 2017	178.57 - 188.57
07 Apr 2017	179.49 - 189.49
08 Apr 2017	180.40 - 190.40
09 Apr 2017	181.31 - 191.31
10 Apr 2017	182.22 - 192.22
11 Apr 2017	183.12 - 193.12
12 Apr 2017	184.03 - 194.03
13 Apr 2017	184.93 - 194.93

## Proposal 14907 - ACQ/PEAKD TEST (02) - COS LP4 FUV Target Acquisition Enabling and Verification

<b>Diagnostics</b>	(ACQ/PEAKD TEST (02)) Warning (Form): COS ACQ/PEAKD exposure should be preceded by an ACQ/PEAKXD exposure in the Visit.						
	(ACQ/PEAKD TEST (02)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.						
	(ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
	(ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
	(G130M/1327- BASELINE SPECTRUM (02.002)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - POSTARG + SPECTRUM1 (-1.6) (02.003)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - POSTARG + SPECTRUM3 (-0.8) (02.004)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - POSTARG + SPECTRUM7 (0.8) (02.005)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - POSTARG + SPECTRUM8 (1.6) (02.006)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - ACQ/PEAKD (02.007)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - BASELINE SPECTRUM (02.008)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - ACQ/PEAKD (02.009)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - BASELINE SPECTRUM (02.010)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
	(G130M - ACQ/PEAKD (02.011)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.						
(G130M - BASELINE SPECTRUM (02.012)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.							
(G130M - ACQ/PEAKD (02.013)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.							
(G130M - BASELINE SPECTRUM (02.014)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.							
(G130M - ACQ/PEAKD (02.015)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.							
(G130M - BASELINE SPECTRUM (02.016)) Warning (Form): Defaults for SEGMENT have changed in APT25.2 for use of LP4 with G130M. See full description for details.							
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>	
	(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS	
	<i>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.</i>						
	<i>Category=STAR Description=[B0-B2 III-I] Extended=NO</i>						
(21)	AZV18-OFFSET-AD-0.3	Offset from AZV18 RA Offset: -1.8435906E-4 Degrees Dec Offset: 0.22981334 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-AD-0.3)		
<i>Comments: This target is offset -0.3" in +AD direction. The U3 roll angle has been constrained to be 175 +/- 1 degree</i>							
<i>Category=STAR Description=[B0-B2 III-I] Extended=NO</i>							
(22)	AZV18-OFFSET-AD+0.4	Offset from AZV18 RA Offset: 1.2028E-4 Degrees Dec Offset: -0.25 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-AD+0.4)		
<i>Comments: This target is offset +0.4" in the -AD direction. The U3 roll angle has been constrained to be 175 +/- 1 degree</i>							
<i>Category=STAR Description=[B0-B2 III-I] Extended=NO</i>							

Proposal 14907 - ACQ/PEAKD TEST (02) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	2 nuv a/im (COS.ta.904 984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			32 Secs (32 Secs) [==>]	[1]	
	<p><i>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS spectrum plus an IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 31s just to be sure. The previous ACQ/IMAGES in 13636 gave a S/N of 62.6 is 31 seconds (after background subtraction)</i></p>									
	2	G130M/132 7- BASELI NE SPECT RUM (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=S0040D02 5; WAVECAL=YES; LIFETIME-POS=L P4		Sequence 2-6 Non-Int in ACQ/PEAKD T EST (02)	24 Secs (24 Secs) [==>]	[1]
	<p><i>Comments: Spectrum of source to define correct location of star when it is centered in PSA (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with 25s lamp flash</i></p>									
	3	G130M - P OSTARG + SPECTRU M1 (-1.6) (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG -1.6,null	Sequence 2-6 Non-Int in ACQ/PEAKD T EST (02)	90 Secs (90 Secs) [==>]	[1]
	<p><i>Comments: POSTARG TO SIMULATE 5x0.8" ACQ/PEAKD. This is the x= -1.6 " position. S/N = 60 is reached in 2 seconds (per segment). The vignetting at 1.6" is 73 %, To achieve the same S/N as the previous 25s exposure, we need 94s</i></p>									
4	G130M - P OSTARG + SPECTRU M3 (-0.8) (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG -0.8,null	Sequence 2-6 Non-Int in ACQ/PEAKD T EST (02)	30 Secs (30 Secs) [==>]	[1]	
<p><i>Comments: POSTARG TO SIMULATE 5x0.8" ACQ/PEAKD. This is the x= -0.8 " position. S/N = 60 is reached in 2 seconds (per segment). The vignetting at 0.8" is 20%, To achieve the same S/N as the previous 25s exposure, we need 32s</i></p>										
5	G130M - P OSTARG + SPECTRU M7 (0.8) (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0.8,null	Sequence 2-6 Non-Int in ACQ/PEAKD T EST (02)	30 Secs (30 Secs) [==>]	[1]	
<p><i>Comments: POSTARG TO SIMULATE 5x0.8" ACQ/PEAKD. This is the x= +0.8 " position. S/N = 60 is reached in 2 seconds (per segment). The vignetting at 0.8" is 20%, To achieve the same S/N as the previous 25s exposure, we need 32s</i></p>										
6	G130M - P OSTARG + SPECTRU M8 (1.6) (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 1.6,null	Sequence 2-6 Non-Int in ACQ/PEAKD T EST (02)	90 Secs (90 Secs) [==>]	[1]	
<p><i>Comments: POSTARG TO SIMULATE 5x0.8" ACQ/PEAKD. This is the x= +1.6 " position. S/N = 60 is reached in 2 seconds (per segment). The vignetting at 1.6" is 73 %, To achieve the same S/N as the previous 25s exposure, we need 94s</i></p>										

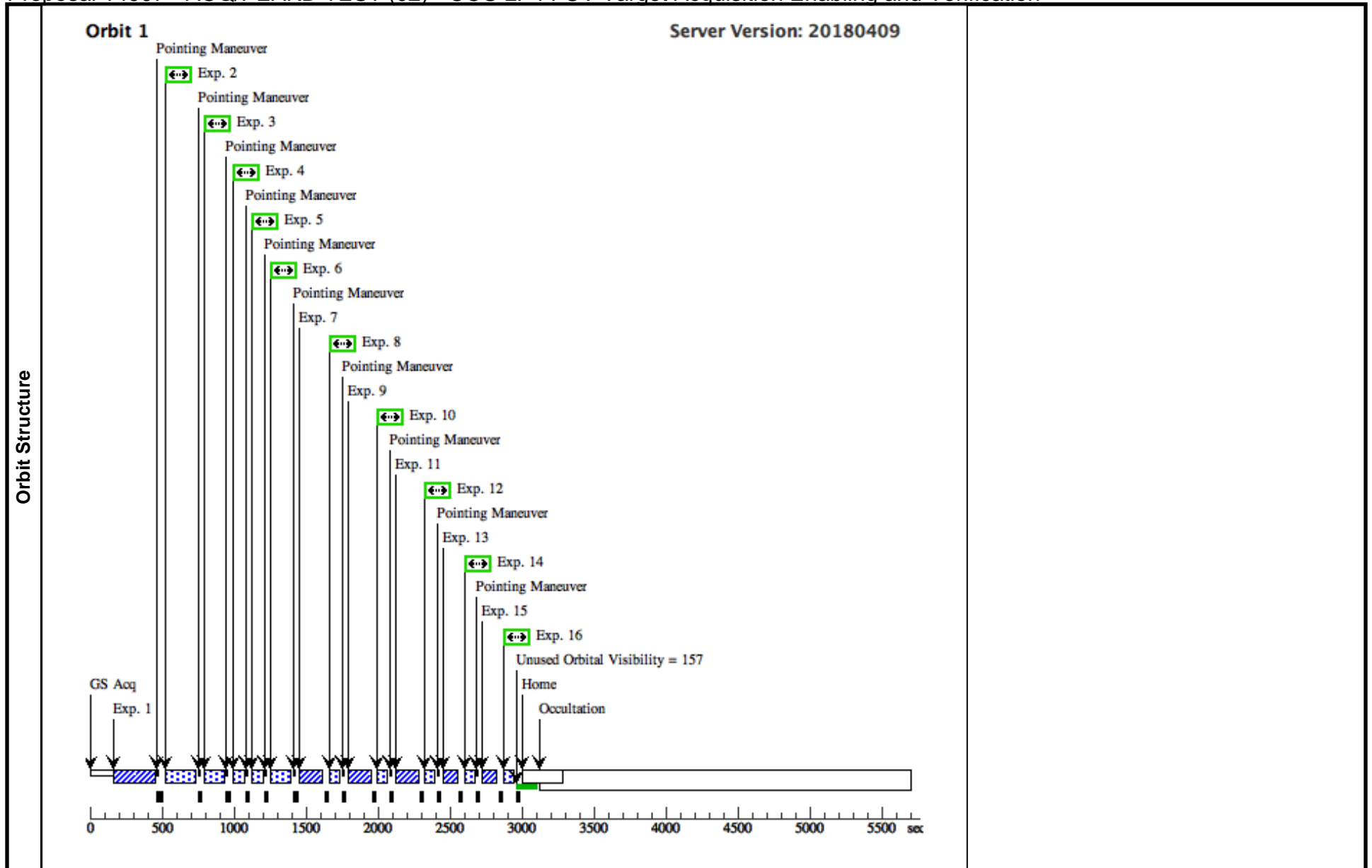
Proposal 14907 - ACQ/PEAKD TEST (02) - COS LP4 FUV Target Acquisition Enabling and Verification

7	G130M - A CQ/PEAKD (COS.sa.904 995)	(1) AZV18	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	NUM-POS=5; STEP-SIZE=0.8; LIFETIME-POS=L P4	Sequence 7-8 Non-Int in ACQ/PEAKD TEST (02)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKD of a centered target on the same 5x0.8" pattern. S/N = 60 is reached in 2 seconds on each segment</i>								
8	G130M - B ASELINE S PECTRUM (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 7-8 Non-Int in ACQ/PEAKD TEST (02)	20 Secs (20 Secs) [==>]	[1]
<i>Comments: Confirmation Spectrum after the PEAKD (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with standard lamp flash</i>								
9	G130M - A CQ/PEAKD (COS.sa.904 995)	(21) AZV18-OFFSE T-AD-0.3	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	NUM-POS=5; STEP-SIZE=0.8; LIFETIME-POS=L P4	Sequence 9-10 Non-Int in ACQ/PEAKD TEST (02)	1.5 Secs (1.5 Secs) [==>]	[1]
<i>Comments: 5x0.8" ACQ/PEAKD on an off centered target. The target is defined 0.3" in the +AD direction from the actual target, so the target will actually now be 0.3" off in the -AD direction.</i>								
10	G130M - B ASELINE S PECTRUM (COS.sp.904 993)	(21) AZV18-OFFSE T-AD-0.3	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 9-10 Non-Int in ACQ/PEAKD TEST (02)	20 Secs (20 Secs) [==>]	[1]
<i>Comments: Confirmation spectrum after the ACQ/PEAKD. Confirmation Spectrum after the PEAKD (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with standard lamp flash</i>								
11	G130M - A CQ/PEAKD (COS.sa.904 995)	(22) AZV18-OFFSE T-AD+0.4	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	NUM-POS=5; STEP-SIZE=0.9; LIFETIME-POS=L P4	Sequence 11-12 Non-Int in ACQ/PEAKD TEST (02)	1.5 Secs (1.5 Secs) [==>]	[1]
<i>Comments: 5x0.9" ACQ/PEAKD on an off centered target, this time the target is 0.7" off to the +AD. (We just centered on the -0.3 position, now we are at +0.4")</i>								
12	G130M - B ASELINE S PECTRUM (COS.sp.904 993)	(22) AZV18-OFFSE T-AD+0.4	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 11-12 Non-Int in ACQ/PEAKD TEST (02)	20 Secs (20 Secs) [==>]	[1]
<i>Comments: Confirmation spectrum after the ACQ/PEAKD. Confirmation Spectrum after the PEAKD (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with standard lamp flash</i>								
13	G130M - A CQ/PEAKD (COS.sa.904 995)	(21) AZV18-OFFSE T-AD-0.3	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	NUM-POS=3; STEP-SIZE=1.2; LIFETIME-POS=L P4	Sequence 13-14 Non-Int in ACQ/PEAKD TEST (02)	1.5 Secs (1.5 Secs) [==>]	[1]
<i>Comments: 3x1.2" ACQ/PEAKD on an off centered target. The target is 0.7" in the -AD direction from the actual target. (We just centered on the +0.4 position, now we are at -0.3")</i>								
14	G130M - B ASELINE S PECTRUM (COS.sp.904 993)	(21) AZV18-OFFSE T-AD-0.3	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 13-14 Non-Int in ACQ/PEAKD TEST (02)	20 Secs (20 Secs) [==>]	[1]
<i>Comments: Confirmation spectrum after the ACQ/PEAKD. Confirmation Spectrum after the PEAKD (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with standard lamp flash</i>								



Proposal 14907 - ACQ/PEAKD TEST (02) - COS LP4 FUV Target Acquisition Enabling and Verification

15	G130M - A CQ/PEAKD (COS.sa.904 995)	(1) AZV18	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	NUM-POS=3; STEP-SIZE=1.3; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/PEAKD TEST (02)	1.5 Secs (1.5 Secs) [==>]	[1]
<i>Comments: 7x0.55" ACQ/PEAKD on an off centered target. We just centered on the -0.3" target, now we are back to the center, so the target is at +0.3"</i>								
16	G130M - B ASELINE S PECTRUM (COS.sp.904 993)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/PEAKD TEST (02)	20 Secs (20 Secs) [==>]	[1]
<i>Comments: Confirmation spectrum after the ACQ/PEAKD. Confirmation Spectrum after the PEAKD (COS.sp.904993). BT=100*(2/3) = ~666, we us 500. This will get us S/N~3 per RE with standard lamp flash</i>								



Proposal 14907 - ACQ/PEAKXD TEST G130M/1291 (03) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:52 GMT 2018

Proposal 14907, ACQ/PEAKXD TEST G130M/1291 (03), completed

**Diagnostic Status: Warning**

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 314D TO 316 D; BETWEEN 06-AUG-2017:00:00:00 AND 28-AUG-2017:00:00:00

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. This will allow us to measure the plate scale. The > +/- 0.5" offsets have expanded exposure times to compensate for vignetting. To maintain S/N, the scale factor for the exposure times should be :

OFFSET	%LOSS	ET equivalent/second"
0.00	0.00	1.00
0.80	22.58	1.29
1.60	73.33	3.75

We expect 1100 FUVA counts/sec over the ~2300 RE, the target spectrum is ~flat, so we get 2 count/RE/s. To get 50 counts/RE, we need 25s. We have time for 35s or 45s at +/- 0.8", and ~130s at +/- 1.6"

After obtaining the plate scales, we then proceed to test PEAKXD with targets offsets by +/-0.5, +/-0.8" in the XD.

APT25.2.2, the following roll-angles are available the weeks of Aug 07 - Aug 27, 2017. We select a roll-angle of 315 degrees (+/- 1 degree) for visits 03-05, but this may change if the observation dates change.

Visit	Start	End
07 Aug 2017	275.37	324.89
08 Aug 2017	276.43	325.95
09 Aug 2017	277.50	327.02
10 Aug 2017	278.56	328.08
11 Aug 2017	279.62	329.14
12 Aug 2017	280.68	330.20
13 Aug 2017	281.74	331.26
14 Aug 2017	282.79	332.31
15 Aug 2017	283.85	333.37
16 Aug 2017	285.07	334.27
17 Aug 2017	286.12	335.32
18 Aug 2017	287.17	336.37
19 Aug 2017	288.22	337.42
20 Aug 2017	289.27	338.47
21 Aug 2017	290.32	339.52
22 Aug 2017	291.37	340.57
23 Aug 2017	292.41	341.61
24 Aug 2017	293.65	342.45
25 Aug 2017	294.69	343.49
26 Aug 2017	295.73	344.53
27 Aug 2017	296.77	345.57
28 Aug 2017	297.80	346.60
29 Aug 2017	298.83	347.63
30 Aug 2017	300.06	348.46
31 Aug 2017	301.08	349.48
01 Sep 2017	302.11	350.51
02 Sep 2017	303.13	351.53
03 Sep 2017	304.15	352.55
04 Sep 2017	305.26	353.46
05 Sep 2017	306.27	354.47
06 Sep 2017	307.28	355.48
07 Sep 2017	308.29	356.49
08 Sep 2017	309.49	357.29

Note orient and target RA and DEC OFFSETs are defined for August 2017, if the execution date changes, the the orientation and target offsets will also change.

**Diagnostics**

- (ACQ/PEAKXD TEST G130M/1291 (03)) Warning (Form): COS ACQ/PEAKXD exposure should be followed by an ACQ/PEAKD exposure in the Visit.
- (ACQ/PEAKXD TEST G130M/1291 (03)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.
- (ACQ/PEAKXD TEST G130M/1291 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
- (ACQ/PEAKXD TEST G130M/1291 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Proposal 14907 - ACQ/PEAKXD TEST G130M/1291 (03) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS
<p>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.                      Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					
(3)	AZV18-OFFSET- XD+0.5	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.5 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.5)
<p>Comments: This target is offset +0.5" in the XD direction, and is valid for visits 03-05 only. The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</p> <p>DELTA_RAD DOUBLE 1.1633051e-11                      DELTA_RA DOUBLE 4.1878985e-08                      DELTA_DEC DOUBLE -0.50000000                      COSDEC DOUBLE 0.29055060                      DELTA_RAD_UNITS STRING 'Degrees'                      DELTA_RA_UNITS STRING 'Arcseconds of Time'                      DELTA_DEC_UNITS STRING 'Arcseconds'                      ORIENT FLOAT 315.000                      AD_OFFSET FLOAT 0.00000                      XD_OFFSET FLOAT -0.500000</p> <p>Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					
(5)	AZV18-OFFSET- XD+0.8	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.8 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.8)
<p>Comments: This target is offset +0.8" in the XD direction, and is valid for visits 03-05 only. A +0.8" offset is designed to move the target UP on the COS detector by 0.8" (about 8-9 rows). The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</p> <p>DELTA_RAD DOUBLE 1.8612883e-11                      DELTA_RA DOUBLE 6.7006377e-08                      DELTA_DEC DOUBLE -0.80000001                      COSDEC DOUBLE 0.29055060                      DELTA_RAD_UNITS STRING 'Degrees'                      DELTA_RA_UNITS STRING 'Arcseconds of Time'                      DELTA_DEC_UNITS STRING 'Arcseconds'                      ORIENT FLOAT 315.000                      AD_OFFSET FLOAT 0.00000                      XD_OFFSET FLOAT -0.800000</p> <p>Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					

Fixed Targets

Proposal 14907 - ACQ/PEAKXD TEST G130M/1291 (03) - COS LP4 FUV Target Acquisition Enabling and Verification

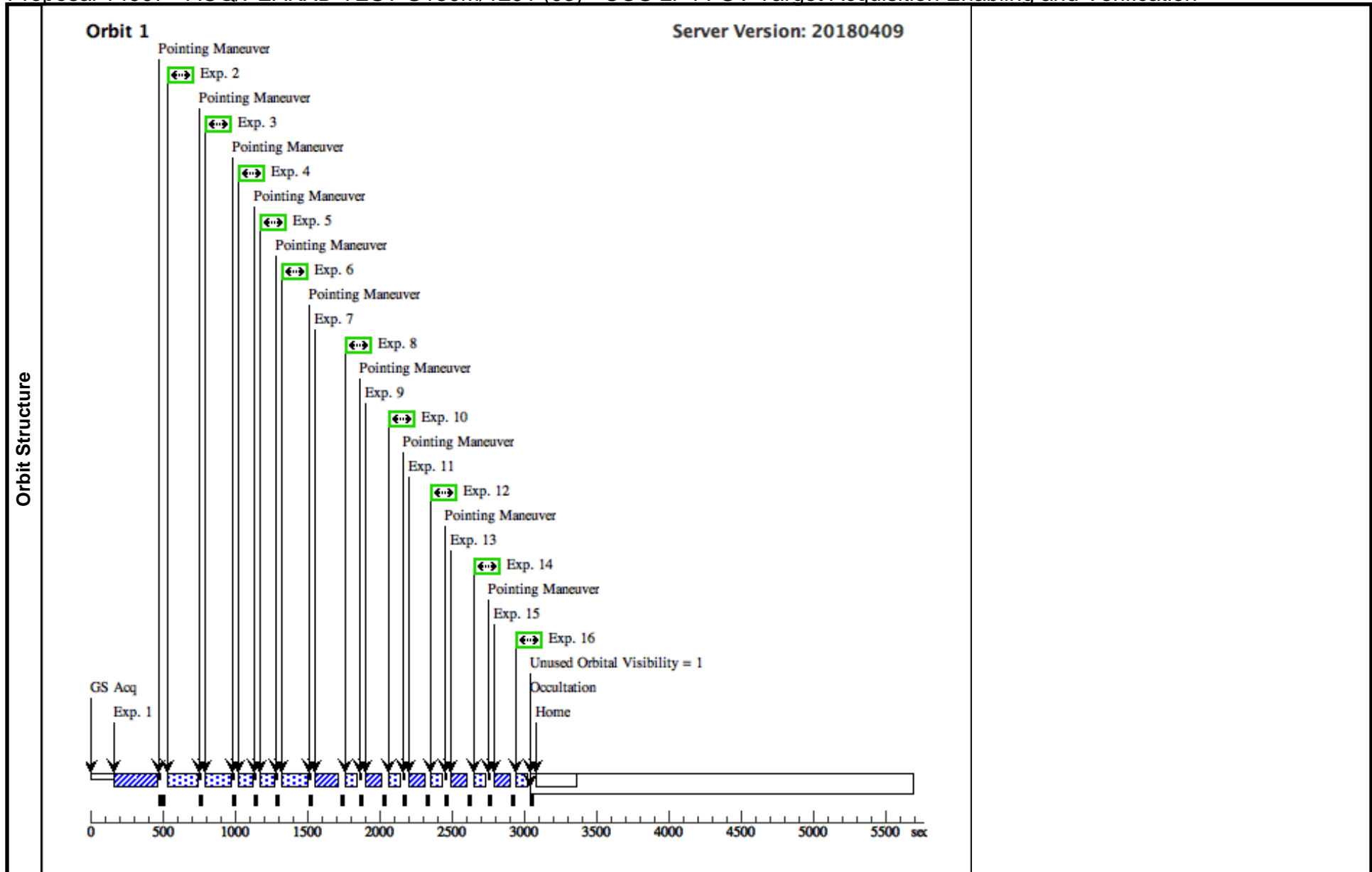
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	BOA/MIRRORA ACQ/IMAGE (COS.ta.904984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARIO BASE1B3		36 Secs (36 Secs) [==>]	[1]
<p>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS+IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 36s just to be sure. The previous ACQ/IMAGES in I3636 gave a S/N of 62.6 in 31 seconds (after background subtraction)</p>									
2	G130M - B ASELINE SPECTRUM (COS.sp.906443)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=500; FP-POS=3; FLASH=S0200D030; LIFETIME-POS=L P4		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to define correct location of star when it is centered using NUV ACQ/IMAGE. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8 (per resolution element). BT=2/3 * 1000 = &lt; 666</p>									
3	G130M - P OSTAR + SPECTRUM M1 (-1.6) (COS.sp.906443)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	130 Secs (130 Secs) [==>]	[1]
<p>Comments: POSTARG TO Move to Y=-1.6. The vignetting here is 73%, so to match the 34s in 03.002, we need 35*3.75 = ~130s</p>									
4	G130M - P OSTAR + SPECTRUM M2 (-0.8) (COS.sp.906443)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	46 Secs (46 Secs) [==>]	[1]
<p>Comments: POSTARG TO Move to Y=-0.8. The vignetting here is 23%, so to match the 34s in 03.002, we need 35*1.3 = 46s. BT=650.</p>									
5	G130M - P OSTAR + SPECTRUM M3 (+0.8) (COS.sp.906443)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	46 Secs (46 Secs) [==>]	[1]
<p>Comments: Same as 03.004, but at +0.8"</p>									
6	G130M - P OSTAR + SPECTRUM M4 (+1.6) (COS.sp.906443)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	130 Secs (130 Secs) [==>]	[1]
<p>Comments: Same as 03.003, but at 1.6"</p>									

Proposal 14907 - ACQ/PEAKXD TEST G130M/1291 (03) - COS LP4 FUV Target Acquisition Enabling and Verification

7	G130M - PE (1) AZV18 AKXD - Centered (COS.sa.904990)	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP4; NUM-POS=5; STEP-SIZE=0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	2 Secs (2 Secs) [==>]	[1]
<p>Comments: COS.sa.904990 Requested Signal/Noise Ratio = 40.000 gives: Time = 0.8984 seconds Time Required for Requested SNR in Segment A only: 1.4029 Time Required for Requested SNR in Segment B only: 2.4982</p> <p>The target should only move slightly (ACQ/IMAGE error and counting uncertainty), unless there is residual pointing error from the POS-TARGs.</p>							
8	G130M - B (1) AZV18 ASELINE SPECTRUM (COS.sp.906443)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=500; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8135 (per resolution element). BT=2/3 * 1000 = &lt; 666</p>							
9	G130M - PE (5) AZV18-OFFSET AKXD-XD +0.8 (UP) (COS.sa.904990)	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP4; NUM-POS=3; STEP-SIZE=1.3	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	2 Secs (2 Secs) [==>]	[1]
<p>Comments: ACQ/PEAKXD on the target offset by +0.8".</p> <p>COS.sa.904990 Requested Signal/Noise Ratio = 40.000 gives: Time = 0.8984 seconds Time Required for Requested SNR in Segment A only: 1.4029 Time Required for Requested SNR in Segment B only: 2.4982</p>							
10	G130M - Co (5) AZV18-OFFSET Confirmation SPECTRUM (COS.sp.906443)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=500; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8135 (per resolution element). BT=2/3 * 1000 = &lt; 666</p>							
11	G130M - PE (1) AZV18 AKXD-XD-0.8 (DOWN) (COS.sa.904990)	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP4; NUM-POS=3	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	2 Secs (2 Secs) [==>]	[1]
<p>Comments: Back on original target, -0.8"</p> <p>COS.sa.904990 Requested Signal/Noise Ratio = 40.000 gives: Time = 0.8984 seconds Time Required for Requested SNR in Segment A only: 1.4029 Time Required for Requested SNR in Segment B only: 2.4982</p>							
12	G130M - Co (1) AZV18 Confirmation SPECTRUM (COS.sp.906443)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=500; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G130M/1291 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8135 (per resolution element). BT=2/3 * 1000 = &lt; 666</p>							

Proposal 14907 - ACQ/PEAKXD TEST G130M/1291 (03) - COS LP4 FUV Target Acquisition Enabling and Verification

13	G130M -PE AKXD- XD +0.5 (COS.sa.904 990)	(3) AZV18-OFFSET COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP 4	Sequence 13-14 Non -Int in ACQ/PEAKX D TEST G130M/129 1 (03)	2 Secs (2 Secs) [==>]	[1]
<p>Comments: ACQ/PEAKXD on the target offset by +0.5".</p> <p>COS.sa.904990 Requested Signal/Noise Ratio = 40.000 gives: Time = 0.8984 seconds Time Required for Requested SNR in Segment A only: 1.4029 Time Required for Requested SNR in Segment B only: 2.4982</p>							
14	G130M -Co nfirmation SPECTRU M (COS.sp.906 443)	(3) AZV18-OFFSET COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 13-14 Non -Int in ACQ/PEAKX D TEST G130M/129 1 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8135 (per resolution element). BT=2/3 * 1000 = &lt; 666</p>							
15	G130M -PE AKXD- XD -0.5 (COS.sa.904 990)	(1) AZV18 COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP 4; NUM-POS=3; STEP-SIZE=1.25; CENTER=FLUX-W T-FLR	Sequence 15-16 Non -Int in ACQ/PEAKX D TEST G130M/129 1 (03)	2 Secs (2 Secs) [==>]	[1]
<p>Comments: ACQ/PEAKXD on the target offset by -0.5". CENTER IS SET to FLUX-WT-FLR, which is wrong for this NUM-POS, but we want to test that we can command it. We can figure the correct centering from the data. This is placed as the last exposure as to not affect subsequent TAS.</p> <p>COS.sa.904990 Requested Signal/Noise Ratio = 40.000 gives: Time = 0.8984 seconds Time Required for Requested SNR in Segment A only: 1.4029 Time Required for Requested SNR in Segment B only: 2.4982</p>							
16	G130M - Co nfirmation SPECTRU M (COS.sp.906 443)	(1) AZV18 COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/PEAKX D TEST G130M/129 1 (03)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. COS.sp.906443 Exposure time (seconds) = 35 at wavelength 1310A gives: SNR = 3.8135 (per resolution element). BT=2/3 * 1000 = &lt; 666.</p>							





Proposal 14907 - ACQ/PEAKXD TEST G160M/1600 (04) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:52 GMT 2018

<b>Visit</b>	<p><b>Proposal 14907, ACQ/PEAKXD TEST G160M/1600 (04), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%; ORIENT 314D TO 316 D; BETWEEN 07-AUG-2017:00:00:00 AND 28-AUG-2017:00:00:00</p> <p><i>Comments: ACQ/PEAKXD Test for G160M/1600. The target is AVZ18 (the SMOV TA target). 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. This will allow us to measure the plate scale. The &gt; +/- 0.5" offsets have expanded exposure times to compensate for vignetting. To maintain S/N, the scale factor for the exposure times should be :</i></p> <table border="1"> <thead> <tr> <th>OFFSET</th> <th>%LOSS</th> <th>ET equivalent/second"</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>0.00</td> <td>1.00</td> </tr> <tr> <td>0.80</td> <td>22.58</td> <td>1.29</td> </tr> <tr> <td>1.60</td> <td>73.33</td> <td>3.75</td> </tr> </tbody> </table> <p><i>We expect 700/1800 FUV A/FUV B counts/sec over the ~2300 RE, the target spectrum is ~flat, so we get 3.8 FUV count/RE in 50s. T ~ 50s exposures at abs(XD) &lt; 0.5, equates to 65s at +/- 0.8", 180s at +/- 1.6"</i></p> <p><i>We then proceed to test PEAKXD with targets offsets by +/-0.5, +/-0.8" in the XD.</i></p> <p><i>The roll angle is 315 degrees (+/- 1 degree, same for visits 03-05). Note orient and target RA and DEC OFFSETs are defined for August 2017 (see Visit 03 comments), if the execution date changes, then the orientation and target offsets may also change.</i></p>	OFFSET	%LOSS	ET equivalent/second"	0.00	0.00	1.00	0.80	22.58	1.29	1.60	73.33	3.75
OFFSET	%LOSS	ET equivalent/second"											
0.00	0.00	1.00											
0.80	22.58	1.29											
1.60	73.33	3.75											
<b>Diagnostics</b>	<p>(ACQ/PEAKXD TEST G160M/1600 (04)) Warning (Form): COS ACQ/PEAKXD exposure should be followed by an ACQ/PEAKD exposure in the Visit.</p> <p>(ACQ/PEAKXD TEST G160M/1600 (04)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.</p> <p>(ACQ/PEAKXD TEST G160M/1600 (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(ACQ/PEAKXD TEST G160M/1600 (04)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(ACQ/PEAKXD TEST G160M/1600 (04)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p>												

Proposal 14907 - ACQ/PEAKXD TEST G160M/1600 (04) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS
<p>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.                      Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					
(3)	AZV18-OFFSET- XD+0.5	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.5 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.5)
<p>Comments: This target is offset +0.5" in the XD direction, and is valid for visits 03-05 only. The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</p> <p>DELTA_RAD DOUBLE 1.1633051e-11                      DELTA_RA DOUBLE 4.1878985e-08                      DELTA_DEC DOUBLE -0.50000000                      COSDEC DOUBLE 0.29055060                      DELTA_RAD_UNITS STRING 'Degrees'                      DELTA_RA_UNITS STRING 'Arcseconds of Time'                      DELTA_DEC_UNITS STRING 'Arcseconds'                      ORIENT FLOAT 315.000                      AD_OFFSET FLOAT 0.00000                      XD_OFFSET FLOAT -0.500000</p> <p>Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					
(5)	AZV18-OFFSET- XD+0.8	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.8 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.8)
<p>Comments: This target is offset +0.8" in the XD direction, and is valid for visits 03-05 only. A +0.8" offset is designed to move the target UP on the COS detector by 0.8" (about 8-9 rows). The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</p> <p>DELTA_RAD DOUBLE 1.8612883e-11                      DELTA_RA DOUBLE 6.7006377e-08                      DELTA_DEC DOUBLE -0.80000001                      COSDEC DOUBLE 0.29055060                      DELTA_RAD_UNITS STRING 'Degrees'                      DELTA_RA_UNITS STRING 'Arcseconds of Time'                      DELTA_DEC_UNITS STRING 'Arcseconds'                      ORIENT FLOAT 315.000                      AD_OFFSET FLOAT 0.00000                      XD_OFFSET FLOAT -0.800000</p> <p>Category=STAR                      Description=[B0-B2 III-I]                      Extended=NO</p>					

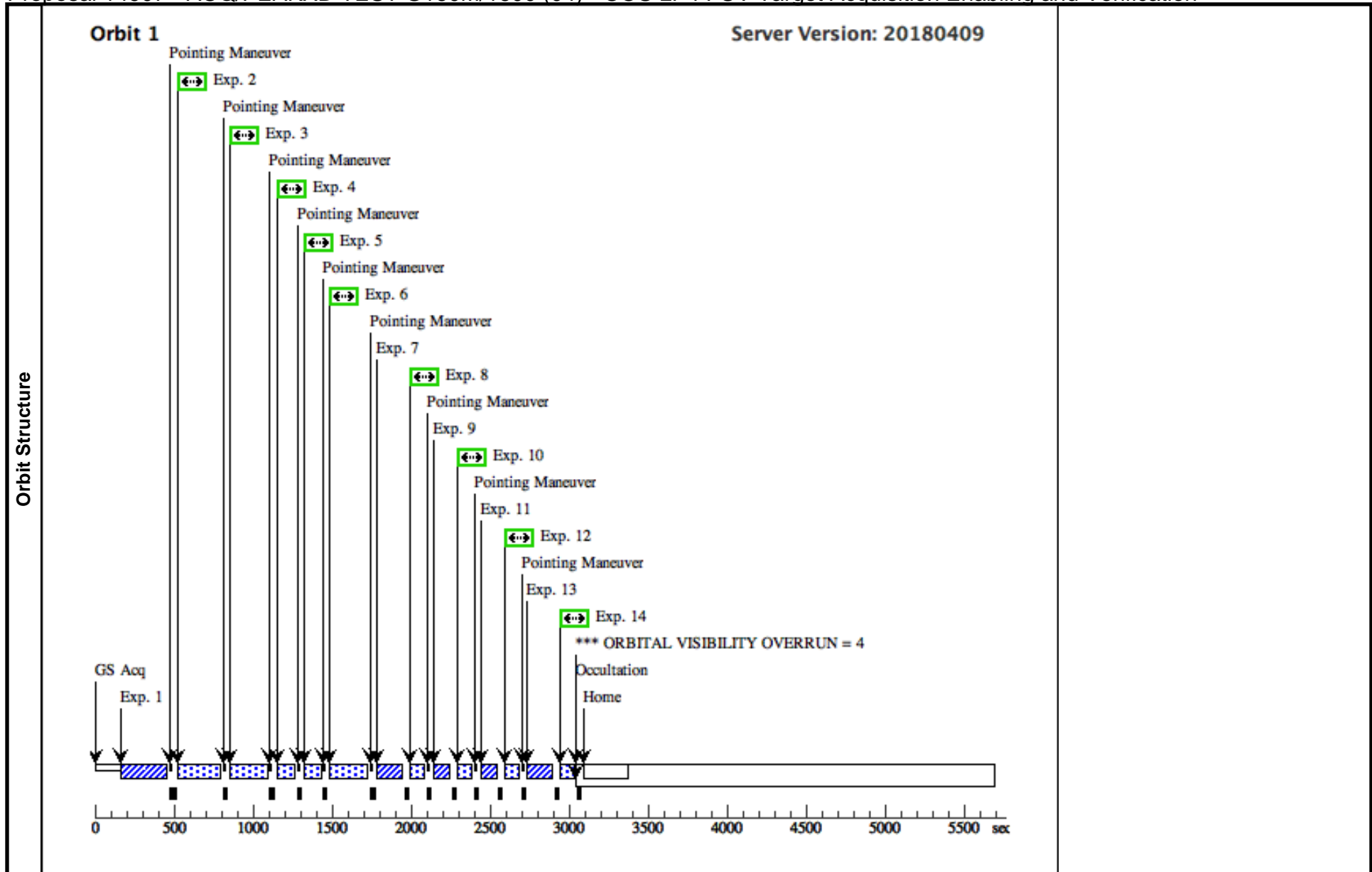
Fixed Targets

Proposal 14907 - ACQ/PEAKXD TEST G160M/1600 (04) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	BOA/MIRROR ACQ/IMAGE (COS.ta.904984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARIO BASE1B3		33 Secs (33 Secs) [==>]	[1]
<i>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS+IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 33s just to be sure. The previous ACQ/IMAGES in 13636 gave a S/N of 62.6 in 31 seconds (after background subtraction)</i>									
2	G160M - B ASELINE SPECTRUM (COS.sp.905008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=3; FLASH=S0080D030; LIFETIME-POS=L P4		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	50 Secs (50 Secs) [==>]	[1]
<i>Comments: Spectrum of source to define G160M/1600 location of a target when it is centered w/ NUV ACQ/IMAGE. COS.sp.905008, S/N/RE=4 (1620A) = 50s. BT=2/3*940 = 600 -&gt; 500</i>									
3	G160M - P OSTARG + SPECTRUM M1 (-1.6) (COS.sp.905008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	190 Secs (190 Secs) [==>]	[1]
<i>Comments: POSTARG TO Move to Y=-1.6. Vignetting is 73%, so we need ET=50*3.75 &gt; 188s BT set to 1200. (lower count rate due to vignetting)</i>									
4	G160M - P OSTARG + SPECTRUM M2 (-0.8) (COS.sp.905008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	65 Secs (65 Secs) [==>]	[1]
<i>Comments: POSTARG TO Move to Y=-0.8. Vignetting is 23%, so we need ET=50*1.3 &gt; 65s BT set to 650 (lower count rate due to vignetting)</i>									
5	G160M - P OSTARG + SPECTRUM M3 (+0.8) (COS.sp.905008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	65 Secs (65 Secs) [==>]	[1]
<i>Comments: Same as 04.004, but at +0.8"</i>									
6	G160M - P OSTARG + SPECTRUM M4 (+1.6) (COS.sp.905008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	190 Secs (190 Secs) [==>]	[1]
<i>Comments: Same as 04.003, but at +1.6"</i>									
7	G160M - PEAKXD - Centered (COS.sa.905009)	(1) AZV18	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=L P4; NUM-POS=5; STEP-SIZE=0.8		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: S/N ~60 (A+B is S/N =40 in 0.7s) The target should only move slightly (ACQ/IMAGE error and counting uncertainty), unless there is residual pointing error from the POS-TARGs.</i>									

Proposal 14907 - ACQ/PEAKXD TEST G160M/1600 (04) - COS LP4 FUV Target Acquisition Enabling and Verification

8	G160M - B ASELINE S PECTRUM (COS.sp.905 008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	42 Secs (42 Secs) [==>]	[1]
<i>Comments: Post PEAKXD confirmation spectrum. COS.sp.905008, S/N/RE=4 (1620A) = 50s. BT=2/3*940 = &lt; 613</i>								
9	G160M - PE AKXD-XD- 0.8 (UP) (COS.sa.905 009)	(5) AZV18-OFFSET	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=LP 4; NUM-POS=3	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: PEAKXD on target offset by +0.8". Default STEP_SIZE</i>								
10	G160M - Co nfirmation SPECTRU M (COS.sp.905 008)	(5) AZV18-OFFSET	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	42 Secs (42 Secs) [==>]	[1]
<i>Comments: Post PEAKXD confirmation spectrum. COS.sp.905008, S/N/RE=4 (1620A) = 50s. BT=2/3*940 = 600 -&gt; 500</i>								
11	G160M - PE AKXD-XD- 0.8 (DOWN ) (COS.sa.905 009)	(1) AZV18	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=LP 4	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: PEAKXD on target offset by -0.8". Full Default</i>								
12	G160M - Co nfirmation SPECTRU M (COS.sp.905 008)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	42 Secs (42 Secs) [==>]	[1]
<i>Comments: Post PEAKXD confirmation spectrum. COS.sp.905008, S/N/RE=4 (1620A) = 50s. BT=2/3*940 = 600 -&gt; 500</i>								
13	G160M - PE AKXD-XD (0.5) (COS.sa.905 009)	(3) AZV18-OFFSET	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	LIFETIME-POS=LP 4; NUM-POS=5; CENTER=FLUX-W T	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	1 Secs (1 Secs) [==>]	[1]
<i>Comments: PEAKXD offset by +0.5" using Non-default CENTER (FW), hich is wrong for this NUM-POS, but we want to test that we can command it. We can figure the correct centering from the data. This is placed as the last exposure as to not affect subsequent TAS.</i>								
14	G160M - Co nfirmation SPECTRU M (COS.sp.905 008)	(3) AZV18-OFFSET	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G160M/1600 (04)	42 Secs (42 Secs) [==>]	[1]
<i>Comments: Post PEAKXD confirmation spectrum. COS.sp.905008, S/N/RE=4 (1620A) = 50s. BT=2/3*940 = 600 -&gt; 500</i>								



Proposal 14907 - ACQ/PEAKXD TEST G140L/1280 (05) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:52 GMT 2018

<b>Visit</b>	<p><b>Proposal 14907, ACQ/PEAKXD TEST G140L/1280 (05), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%; ORIENT 314D TO 316 D; BETWEEN 07-AUG-2017:00:00:00 AND 28-AUG-2017:00:00:00</p> <p><i>Comments: ACQ/PEAKXD Test for G140L The target is AVZ18 (the SMOV TA target). After obtaining a good spectrum of the centered target, We then proceed to take spectra at the following positions (-1.6,-0.8,0.8,1.6) " in the XD direction.. This will allow us to measure the plate scale.The &gt; +/- 0.5" offsets have expanded exposure times to compensate for vignetting. To maintain S/N, the scale factor for the exposure times should be :</i></p> <table border="1" data-bbox="147 316 535 406"> <thead> <tr> <th>OFFSET</th> <th>%LOSS</th> <th>ET equivalent/second"</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>0.00</td> <td>1.00</td> </tr> <tr> <td>0.80</td> <td>22.58</td> <td>1.29</td> </tr> <tr> <td>1.60</td> <td>73.33</td> <td>3.75</td> </tr> </tbody> </table> <p><i>We then proceed to test PEAKXD with targets offsets by +/-0.5, +/-0.8" in the XD.</i></p> <p><i>The roll angle is 315 degrees (+/- 1 degree, same for visits 03-05) Note orient and target RA and DEC OFFSETs are defined for August, 2017 (see Visit 03 comments), if the execution date changes, then the orientation and target offsets may also change.</i></p>	OFFSET	%LOSS	ET equivalent/second"	0.00	0.00	1.00	0.80	22.58	1.29	1.60	73.33	3.75
OFFSET	%LOSS	ET equivalent/second"											
0.00	0.00	1.00											
0.80	22.58	1.29											
1.60	73.33	3.75											
<b>Diagnostics</b>	<p>(ACQ/PEAKXD TEST G140L/1280 (05)) Warning (Form): COS ACQ/PEAKXD exposure should be followed by an ACQ/PEAKD exposure in the Visit.</p> <p>(ACQ/PEAKXD TEST G140L/1280 (05)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.</p> <p>(ACQ/PEAKXD TEST G140L/1280 (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(ACQ/PEAKXD TEST G140L/1280 (05)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p>												

Proposal 14907 - ACQ/PEAKXD TEST G140L/1280 (05) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS
<p><i>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.</i></p> <p>Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					
(3)	AZV18-OFFSET- XD+0.5	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.5 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.5)
<p><i>Comments: This target is offset +0.5" in the XD direction, and is valid for visits 03-05 only. The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</i></p> <p>DELTA_RAD DOUBLE 1.1633051e-11 DELTA_RA DOUBLE 4.1878985e-08 DELTA_DEC DOUBLE -0.50000000 COSDEC DOUBLE 0.29055060 DELTA_RAD_UNITS STRING 'Degrees' DELTA_RA_UNITS STRING 'Arcseconds of Time' DELTA_DEC_UNITS STRING 'Arcseconds' ORIENT FLOAT 315.000 AD_OFFSET FLOAT 0.00000 XD_OFFSET FLOAT -0.500000 Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					
(5)	AZV18-OFFSET- XD+0.8	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.8 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.8)
<p><i>Comments: This target is offset +0.8" in the XD direction, and is valid for visits 03-05 only. A +0.8" offset is designed to move the target UP on the COS detector by 0.8" (about 8-9 rows). The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</i></p> <p>DELTA_RAD DOUBLE 1.8612883e-11 DELTA_RA DOUBLE 6.7006377e-08 DELTA_DEC DOUBLE -0.80000001 COSDEC DOUBLE 0.29055060 DELTA_RAD_UNITS STRING 'Degrees' DELTA_RA_UNITS STRING 'Arcseconds of Time' DELTA_DEC_UNITS STRING 'Arcseconds' ORIENT FLOAT 315.000 AD_OFFSET FLOAT 0.00000 XD_OFFSET FLOAT -0.800000 Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					

Fixed Targets

Proposal 14907 - ACQ/PEAKXD TEST G140L/1280 (05) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	BOA/MIRROR ACQ/IMAGE (COS.ta.904984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARIO BASE1B3		33 Secs (33 Secs) [==>]	[1]
<i>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS+IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 33s just to be sure. The previous ACQ/IMAGES in 13636 gave a S/N of 62.6 in 31 seconds (after background subtraction)</i>									
2	G140L - BA SELINE SPECTRUM (COS.sp.906453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=500; FP-POS=3; FLASH=S0080D030; LIFETIME-POS=L P4		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	34 Secs (34 Secs) [==>]	[1]
<i>Comments: Spectrum of source to define the G140L/1280 XD location of target when it is centered w/ NUV ACQ/IMAGE. COS.sp.906453. ET (seconds) = 35 at wavelength 1310A gives: SNR = 9.25 (per RE), 30s is enough. BT=2/3*876 &lt; 584-&gt; 500</i>									
3	G140L - POSTARG + SPECTRUM 1 (-1.6) (COS.sp.906453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	115 Secs (115 Secs) [==>]	[1]
<i>Comments: POSTARG TO Move to Y=-1.6. Vignetting is 73% so ET should be 30*3.75 = 112 BT -&gt; 1200 (lower count rate due to vignetting)</i>									
4	G140L - POSTARG + SPECTRUM 2 (-0.8) (COS.sp.906453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,-0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	45 Secs (45 Secs) [==>]	[1]
<i>Comments: POSTARG TO Move to Y=-0.8". Vignetting is 23% so ET should be 30*3.75 = 39 BT -&gt; 650 (lower count rate due to vignetting)</i>									
5	G140L - POSTARG + SPECTRUM 3 (+0.8) (COS.sp.906453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=650; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,+0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	45 Secs (45 Secs) [==>]	[1]
<i>Comments: Same as 05.004, but at +0.8"</i>									
6	G140L - POSTARG + SPECTRUM 4 (1.6) (COS.sp.906453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=1200; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	POS TARG 0,1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	115 Secs (115 Secs) [==>]	[1]
<i>Comments: Same as 05.003, but at +1.6"</i>									
7	G140L - PEAKXD - Centered (COS.sa.906454)	(1) AZV18	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=LP4; NUM-POS=5; STEP-SIZE=0.8		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	3 Secs (3 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD test on a centered target. COS.sa.906454 Requested Signal/Noise Ratio = 40 gives: Time = 1.0 seconds</i>									

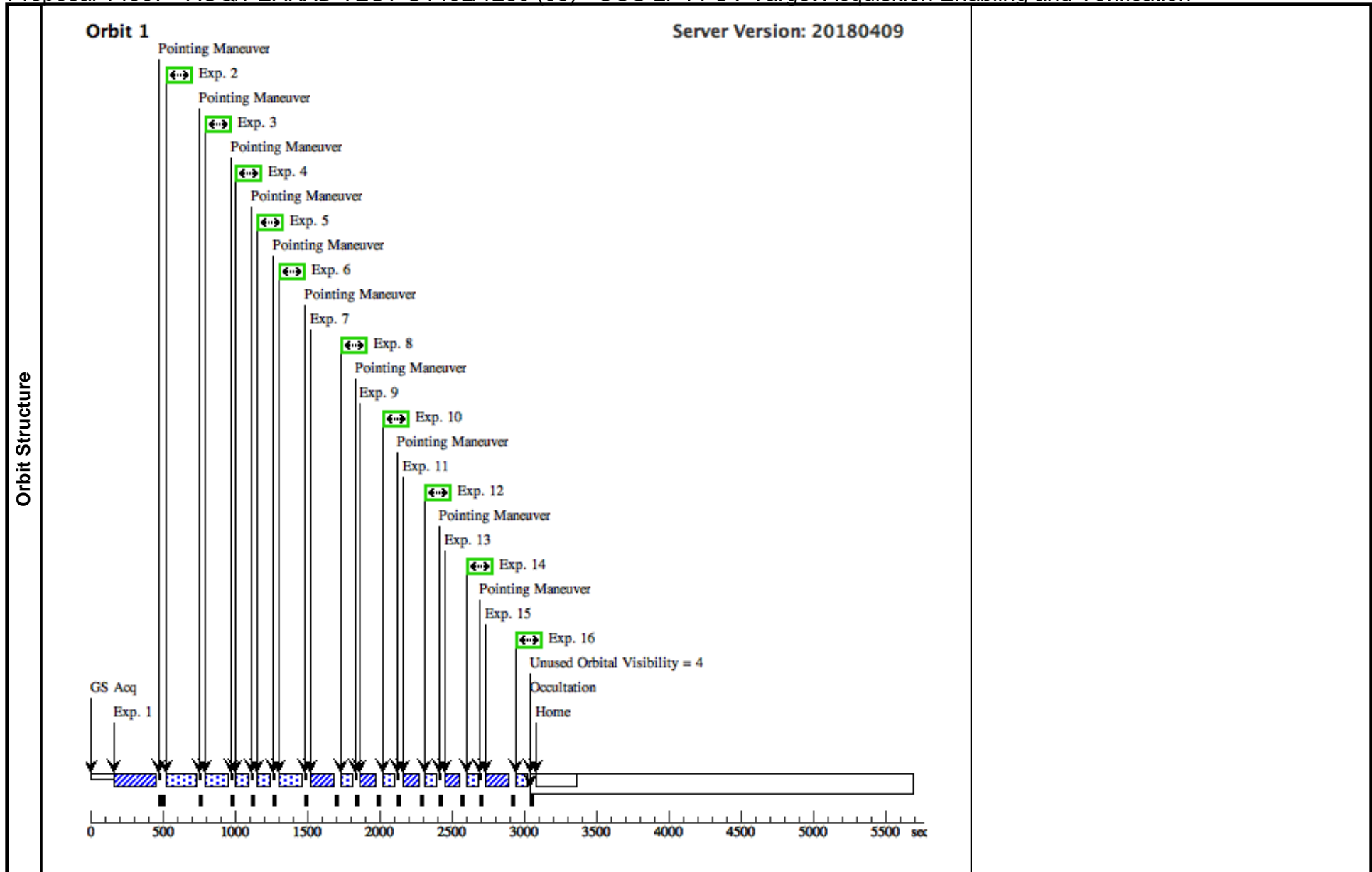


Proposal 14907 - ACQ/PEAKXD TEST G140L/1280 (05) - COS LP4 FUV Target Acquisition Enabling and Verification

8	G140L - BA SELIN E SPECTRUM (COS.sp.906 453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	32 Secs (32 Secs) [==>]	[1]
<i>Comments: COS.sp.617114 gives S/N/RE = 10 at 1400A in 29.5 seconds. BT=2/3 (600) = 400</i>								
9	G140L - PE AKXD-XD +0.8 (UP) (COS.sa.906 454)	(5) AZV18-OFFSET	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=LP 4; NUM-POS=3; STEP-SIZE=1.3	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	3 Secs (3 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD on the target offset by +1.0". COS.sa.906454 Requested Signal/Noise Ratio = 40 gives: Time = 1.0 seconds</i>								
10	G140L - Con firmation SP E SPECTRUM (COS.sp.906 453)	(5) AZV18-OFFSET	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	32 Secs (32 Secs) [==>]	[1]
<i>Comments: COS.sp.617114 gives S/N/RE = 10 at 1400A in 29.5 seconds. BT=2/3 (600) = 400</i>								
11	G140L - PE AKXD-XD- 0.8 (DOWN ) (COS.sa.906 454)	(1) AZV18	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=LP 4; NUM-POS=3	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	3 Secs (3 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD on the target offset by -1.0". COS.sa.906454 Requested Signal/Noise Ratio = 40 gives: Time = 1.0 seconds</i>								
12	G140L - Con firmation S PECTRUM (COS.sp.906 453)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	32 Secs (32 Secs) [==>]	[1]
<i>Comments: COS.sp.617114 gives S/N/RE = 10 at 1400A in 29.5 seconds. BT=2/3 (600) = 400</i>								
13	G140L - PE AKXD-XD +0.5 (COS.sa.906 454)	(3) AZV18-OFFSET	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=LP 4	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	1 Secs (1 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD on the target offset by +0.5". COS.sa.906454 Requested Signal/Noise Ratio = 40 gives: Time = 1.0 seconds, Is here, for S/N=40. FULL defaults.</i>								
14	G140L - Co nfirmation SPECTRUM (COS.sp.906 453)	(3) AZV18-OFFSET	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G140L/1280 (05)	32 Secs (32 Secs) [==>]	[1]
<i>Comments: COS.sp.617114 gives S/N/RE = 10 at 1400A in 29.5 seconds. BT=2/3 (600) = 400</i>								

Proposal 14907 - ACQ/PEAKXD TEST G140L/1280 (05) - COS LP4 FUV Target Acquisition Enabling and Verification

15	G140L - PE (1) AZV18 AKXD-XD +0.5 (COS.sa.906 454)	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	LIFETIME-POS=LP 4; NUM-POS=5; CENTER=BRIGHT EST	Sequence 15-16 Non -Int in ACQ/PEAKX D TEST G140L/128 0 (05)	2 Secs (2 Secs) [==>]	[1]
<p><i>Comments: ACQ/PEAKXD on the target offset by -0.5". COS.sa.906454 Requested Signal/Noise Ratio = 40 gives: Time = 1.0 seconds Non-default Centering (Brightest), which is wrong for this NUM-POS, but we want to test that we can command it. We can figure the correct centering from the data. This is placed as the last exposure as to not affect subsequent TAs.</i></p>							
16	G140L - Co (1) AZV18 nfirmation SPECTRU M (COS.sp.906 453)	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 15-16 Non -Int in ACQ/PEAKX D TEST G140L/128 0 (05)	32 Secs (32 Secs) [==>]	[1]
<p><i>Comments: COS.sp.617114 gives S/N/RE = 10 at 1400A in 29.5 seconds. BT=2/3 (600) = 400</i></p>							



Proposal 14907 - LP4 Verification Visit (06) - COS LP4 FUV Target Acquisition Enabling and Verification

Wed Jun 06 00:00:52 GMT 2018

<b>Visit</b>	<p><b>Proposal 14907, LP4 Verification Visit (06), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: ORIENT 69D TO 71 D; BETWEEN 02-OCT-2017:00:00:00 AND 06-OCT-2017:00:00:00</p> <p><i>Comments: Test ACQ/PEAKXD after the LP4 Move. Start with G130M/1291/PEAKXD with N=3, 5, and 7 using STEP_SIZE=DEF. All exposures use LIFETIME-POS=DEF. Then test each grating for targets offset by +/- 0.8" using nominal N&gt;1 PEAKXDS. Then perform a full TA sequence with one G160M/1577, (SEARCH+PEAKXD+PEAKD) and a PEAKXD+PEAKD with G130M/1291.</i></p> <p><i>Orientation for Visit 06 is currently set to 70 +/- 1 deg, which is good the week of Oct 2, 2017. The date of the start of Cycle 25 and the LP4 move.</i></p> <p>29 Sep 2017 070.64 - 080.64                  30 Sep 2017 069.75 - 079.75                  01 Oct 2017 068.86 - 078.86                  02 Oct 2017 067.97 - 077.97                  03 Oct 2017 067.06 - 077.06                  04 Oct 2017 066.16 - 076.16                  05 Oct 2017 065.24 - 075.24                  06 Oct 2017 064.32 - 074.32                  07 Oct 2017 063.40 - 073.40                  08 Oct 2017 062.47 - 072.47                  09 Oct 2017 061.53 - 071.53                  10 Oct 2017 060.59 - 070.59</p>
	<b>Diagnostics</b>

Proposal 14907 - LP4 Verification Visit (06) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	WD1657+343	RA: 16 58 51.1200 (254.7130000d) Dec: +34 18 53.30 (34.31481d) Equinox: J2000	Proper Motion RA: 12 mas/yr Proper Motion Dec: -32 mas/yr Epoch of Position: 2000 Radial Velocity: 78 km/sec	V=16.4+/-0.1	Reference Frame: ICRS
<p><i>Comments: This object is visible all year.</i></p> <p><i>Proper Motions from 2008ApJS..175..297A and are [12,-32] mas/yr.</i>  <i>The original proposal used [0.0014 sec of time/yr, -0.0342 "/yr].</i>  <i>ICRS coord. (ep=J2000) : 16 58 51.12 +34 18 53.3</i></p> <p><i>The target used is WD1657+343 and the exposure times are based on a spectrum provided by A. Aloisi (extrapolated in wavelength).</i>  <i>Category=STAR</i>  <i>Description=[DA]</i>  <i>Extended=NO</i></p>					
(61)	WD1657+343-OFFSET-1AD-1XD-1.4AS	Offset from WD1657+343 RA Offset: 1.6267059E-4 Degrees Dec Offset: -1.3289261 Arcsec	Radial Velocity: 78 km/sec	V=16.4+/-0.1	Offset Position (WD1657+343-OFFSET-1AD-1XD-1.4AS)
<p><i>Comments: This target is offset [-1,-1]" in the [AD,XD] direction, and is valid for visit 06 only. The roll angle is 70 +/- 1 degree and is valid for the week of OCT 2, 2017.</i></p> <p><i>DELTA_RAD DOUBLE 0.00016267059</i>  <i>DELTA_RA DOUBLE 0.58561411</i>  <i>DELTA_DEC DOUBLE -1.3289261</i>  <i>COSDEC DOUBLE 0.82595265</i>  <i>DELTA_RAD_UNITS STRING 'Degrees'</i>  <i>DELTA_RA_UNITS STRING 'Arcseconds of Time'</i>  <i>DELTA_DEC_UNITS STRING 'Arcseconds'</i>  <i>ORIENT FLOAT 70.0000</i>  <i>AD_OFFSET FLOAT 1.00000</i>  <i>XD_OFFSET FLOAT 1.00000</i></p> <p><i>Category=STAR</i>  <i>Description=[DA]</i>  <i>Extended=NO</i></p>					
(63)	WD1657+343-OFFSET-XD+0.8	Offset from WD1657+343 RA Offset: -2.4384174E-4 Degrees Dec Offset: 0.33809462 Arcsec	Radial Velocity: 78 km/sec	V=16.4+/-0.1	Offset Position (WD1657+343-OFFSET-XD+0.8)
<p><i>Comments: This target is offset +0.8" in the XD direction, and is valid for visit 06 only. The roll angle is 70 +/- 1 degree and is valid for the week of OCT 2, 2017.</i></p> <p><i>DELTA_RAD DOUBLE -0.00024384174</i>  <i>DELTA_RA DOUBLE -0.87783027</i>  <i>DELTA_DEC DOUBLE 0.33809462</i>  <i>COSDEC DOUBLE 0.82595265</i>  <i>DELTA_RAD_UNITS STRING 'Degrees'</i>  <i>DELTA_RA_UNITS STRING 'Arcseconds of Time'</i>  <i>DELTA_DEC_UNITS STRING 'Arcseconds'</i>  <i>ORIENT FLOAT 70.0000</i>  <i>AD_OFFSET FLOAT 0.00000</i>  <i>XD_OFFSET FLOAT -0.800000</i></p> <p><i>Category=STAR</i>  <i>Description=[DA]</i>  <i>Extended=NO</i></p>					

Fixed Targets

Proposal 14907 - LP4 Verification Visit (06) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
Exposures	1	BOA/MIRR ORA ACQ/I MAGE (COS.ta.616 985)	(6) WD1657+343	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			162 Secs (162 Secs) [==>]	[1]	
	<i>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to define centering. COS.ta.616985 Requested Signal/Noise Ratio = 60.000 gives: Time = 150 seconds</i>									
	<i>Counts (box of 9 x 9 pixels)</i>									
	<i>Source 23.922 3,609.76 60.08</i>									
	<i>Background 0.065 9.79 3.13</i>									
	<i>Sky 8.133e-05 0.01 0.11</i>									
	<i>Dark Current 0.065 9.78 3.13</i>									
<i>Total in selected region 23.987 3,619.55 60.16</i>										
<i>Brightest Pixel (single exposure) 3.321 501.16</i>										
<i>Count rate entire detector 862.791</i>										
2	G130M - PE AKXD - N3 DEF - 1291 (COS.sa.906 478)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	LIFETIME-POS=LP 4			2 Secs (2 Secs) [==>]	[1]	
<i>Comments: Test LP4 PEAKXD from a centered start. COS.sa.906478. SNR= 40 gives: Time = 0.4 seconds. NUM_POS=3, STEP_SIZE=DEF</i>										
3	G130M - PE AKXD - N5 DEF - 1291 (COS.sa.906 478)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	NUM-POS=5; LIFETIME-POS=L P4			2 Secs (2 Secs) [==>]	[1]	
<i>Comments: Test LP4 PEAKXD from a centered start. COS.sa.906478. SNR= 40 gives: Time = 0.4 seconds. NUM_POS=5, STEP_SIZE=DEF</i>										
4	G130M - PE AKXD - N7 DEF - 1291 (COS.sa.906 478)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	NUM-POS=7; LIFETIME-POS=L P4; CENTER=FLUX-W T-FLR			2 Secs (2 Secs) [==>]	[1]	
<i>Comments: Test LP4 PEAKXD from a centered start. COS.sa.906478. SNR= 40 gives: Time = 0.4 seconds. NUM_POS=7, STEP_SIZE=DEF, CENTER=FWF</i>										
5	G130M - O FFSET SPE CTRUM + 0 .8 (UP) (COS.sp.617 166)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=29 5; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 5-7 Non-Int in LP4 Verification Visit (06)		22 Secs (22 Secs) [==>]	[1]	
<i>Comments: ETC Request ID: COS.sp.617166, SNR/RE = 3.000 at wavelength 1310.00A gives: Time = 8.6358 seconds. BT=2/3*(441)=295</i>										
6	G130M - PE AKXD-XD +0.8 (UP) (COS.sa.906 478)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	NUM-POS=5; LIFETIME-POS=L P4	Sequence 5-7 Non-Int in LP4 Verification Visit (06)		2 Secs (2 Secs) [==>]	[1]	
<i>Comments: ACQ/PEAKXD on offset target, see previous comment. COS.sa.906478. SNR= 40 gives: Time = 0.4 seconds. Test N=5 default</i>										
7	G130M - Co nfirmation SPECTRU M (COS.sp.617 166)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=29 5; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 5-7 Non-Int in LP4 Verification Visit (06)		22 Secs (22 Secs) [==>]	[1]	
<i>Comments: ETC Request ID: COS.sp.617166, SN = 3.000 at wavelength 1310.00A (per resolution element) gives: Time = 8.6358 seconds</i>										

# Proposal 14907 - LP4 Verification Visit (06) - COS LP4 FUV Target Acquisition Enabling and Verification

8	G130M - O FFSET SPE CTRUM - 0. 8 (DOWN) (COS.sp.617 166)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=29 5; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 8-10 Non-Int in LP4 Verification Visit (06)	22 Secs (22 Secs) [==>]	[1]
<i>Comments: ETC Request ID: COS.sp.617166, SN = 3.000 at wavelength 1310.00A (per resolution element) gives: Time = 8.6358 seconds</i>								
9	G130M - PE AKXD-XD +0.8 (DOWN) (COS.sa.906 478)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	NUM-POS=3; STEP-SIZE=1.25; LIFETIME-POS=L P4	Sequence 8-10 Non-Int in LP4 Verification Visit (06)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD on -0.8" offset target. COS.sa.906478. SNR= 40 gives: Time = 0.4 seconds. Test N=3 STEP_SIZE non-default size</i>								
10	G130M - C ONFIRMATION SPEC TRUM (COS.sp.617 166)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=29 5; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4	Sequence 8-10 Non-Int in LP4 Verification Visit (06)	22 Secs (22 Secs) [==>]	[1]
<i>Comments: ETC Request ID: COS.sp.617166, SN = 3.000 at wavelength 1310.00A (per resolution element) gives: Time = 8.6358 seconds</i>								
11	G140L - OF FSET SPEC TRUM + 0. 8 (UP) (COS.sp.617 167)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=42 7; FP-POS=3; FLASH=YES	Sequence 11-13 Non-Int in LP4 Verification Visit (06)	7 Secs (7 Secs) [==>]	[1]
<i>Comments: ETC Request ID: COS.sp.617167, SNR = 3.000 at wavelength 1310A (per resolution element) gives: Time = 1.5274 seconds, BT = 2/3*(641)=427</i>								
12	G140L - DE F PEAKXD- XD-0.8 (UP ) (COS.sa.906 479)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A		Sequence 11-13 Non-Int in LP4 Verification Visit (06)	3 Secs (3 Secs) [==>]	[1]
<i>Comments: COS.sa.906479. SNR = 40.000 gives: Time = 1.65 s. FULL Defaults.</i>								
13	G140L - CO NFIRMATION SPECT RUM (COS.sa.389 908)	(63) WD1657+343- OFFSET-XD+0.8	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=42 7; FP-POS=3; FLASH=YES	Sequence 11-13 Non-Int in LP4 Verification Visit (06)	7 Secs (7 Secs) [==>]	[1]
<i>Comments: ETC Request ID: COS.sp.617166, SN = 3.000 at wavelength 1310.00A (per resolution element) gives: Time = 8.6358 seconds</i>								
14	G140L - OF FSET SPEC TRUM - 0.8 (DOWN) (COS.sp.617 167)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=42 7; FP-POS=3; FLASH=YES	Sequence 14-16 Non-Int in LP4 Verification Visit (06)	7 Secs (7 Secs) [==>]	[1]
<i>Comments: ETC Request ID: COS.sp.617167, SNR = 3.000 at wavelength 1310A (per resolution element) gives: Time = 1.5274 seconds, BT = 2/3*(641)=427</i>								
15	G140L - NP =3 PEAKX D-XD-0.8 (DOWN) (COS.sa.906 479)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	NUM-POS=3	Sequence 14-16 Non-Int in LP4 Verification Visit (06)	3 Secs (3 Secs) [==>]	[1]
<i>Comments: COS.sa.906479. SNR = 40 gives: Time = 1.65 s. STEP_SIZE default with N=3</i>								

Proposal 14907 - LP4 Verification Visit (06) - COS LP4 FUV Target Acquisition Enabling and Verification

16	G140L - CO NFIRMATI ON SPECT RUM (COS.sp.617 167)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=42 7; FP-POS=3; FLASH=YES	Sequence 14-16 Non -Int in LP4 Verificati on Visit (06)	7 Secs (7 Secs) [==>]	[1]
<p>Comments: ETC Request ID: COS.sp.617167, SNR = 3.000 at wavelength 1310A (per resolution element) gives: Time = 1.5274 seconds, BT = 2/3*(641)=427</p>								
17	G160M - O FFSET SPE CTRUM + 0 .8 (UP) (COS.sp.906 482)	(63) WD1657+343-	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 17-19 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.906482, SNR/RE = 3 at wavelength 1620A gives: Time = 49.9 seconds. BT= 2/3 * 1463 ~ 975. go with 800s. We only have time for 23s, but that is good enough (COS.sp.906483)</p>								
18	G160M - PE AKXD-XD +0.8 (UP) (COS.sa.906 480)	(63) WD1657+343-	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A		Sequence 17-19 Non -Int in LP4 Verificati on Visit (06)	2 Secs (2 Secs) [==>]	[2]
<p>Comments: COS.sa.906480, SNR = 40 gives: Time = 1.05 seconds Time Required for Requested SNR in Segment A only: 5.8063 Time Required for Requested SNR in Segment B only: 1.2852</p>								
19	G160M - C ONFIRMA TION SPEC TRUM (COS.sp.906 482)	(63) WD1657+343-	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 17-19 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.906482, SNR/RE = 3 at wavelength 1620A gives: Time = 49.9 seconds. BT= 2/3 * 1463 ~ 975. go with 800s</p>								
20	G160M - O FFSET SPE CTRUM -0. 8 (DOWN) (COS.sp.906 482)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 20-22 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.906482, SNR/RE = 3 at wavelength 1620A gives: Time = 49.9 seconds. BT= 2/3 * 1463 ~ 975. go with 800s</p>								
21	G160M - PE AKXD-XD- 0.8 (DOWN ) (COS.sa.906 480)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G160M 1600 A	NUM-POS=3	Sequence 20-22 Non -Int in LP4 Verificati on Visit (06)	2 Secs (2 Secs) [==>]	[2]
<p>Comments: COS.sa.906480, SNR = 40 gives: Time = 1.05 seconds Time Required for Requested SNR in Segment A only: 5.8063 Time Required for Requested SNR in Segment B only: 1.2852</p>								
22	G160M - C ONFIRMA TION SPEC TRUM (COS.sp.906 482)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 20-22 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.906482, SNR/RE = 3 at wavelength 1620A gives: Time = 49.9 seconds. BT= 2/3 * 1463 ~ 975. go with 800s</p>								

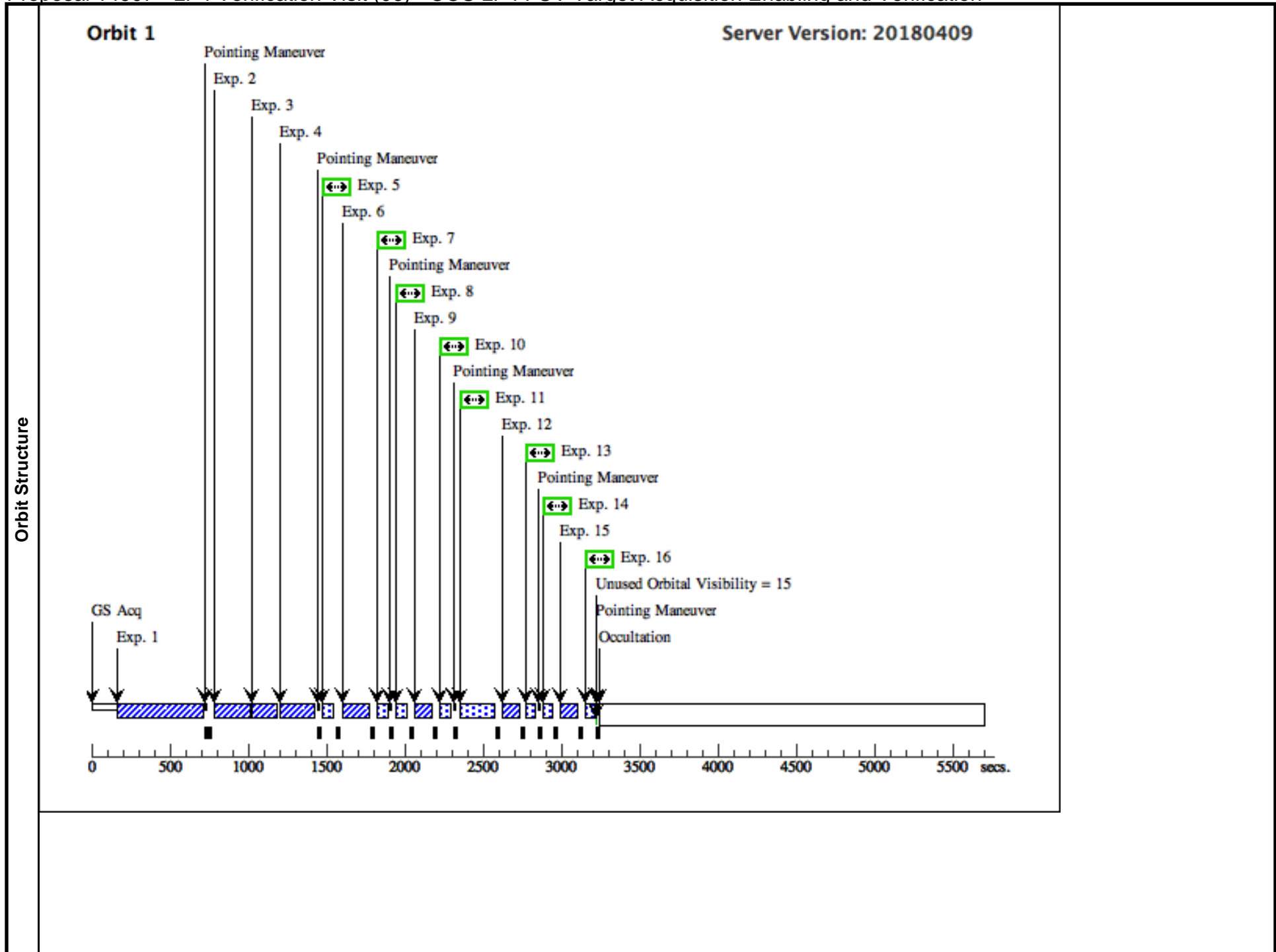


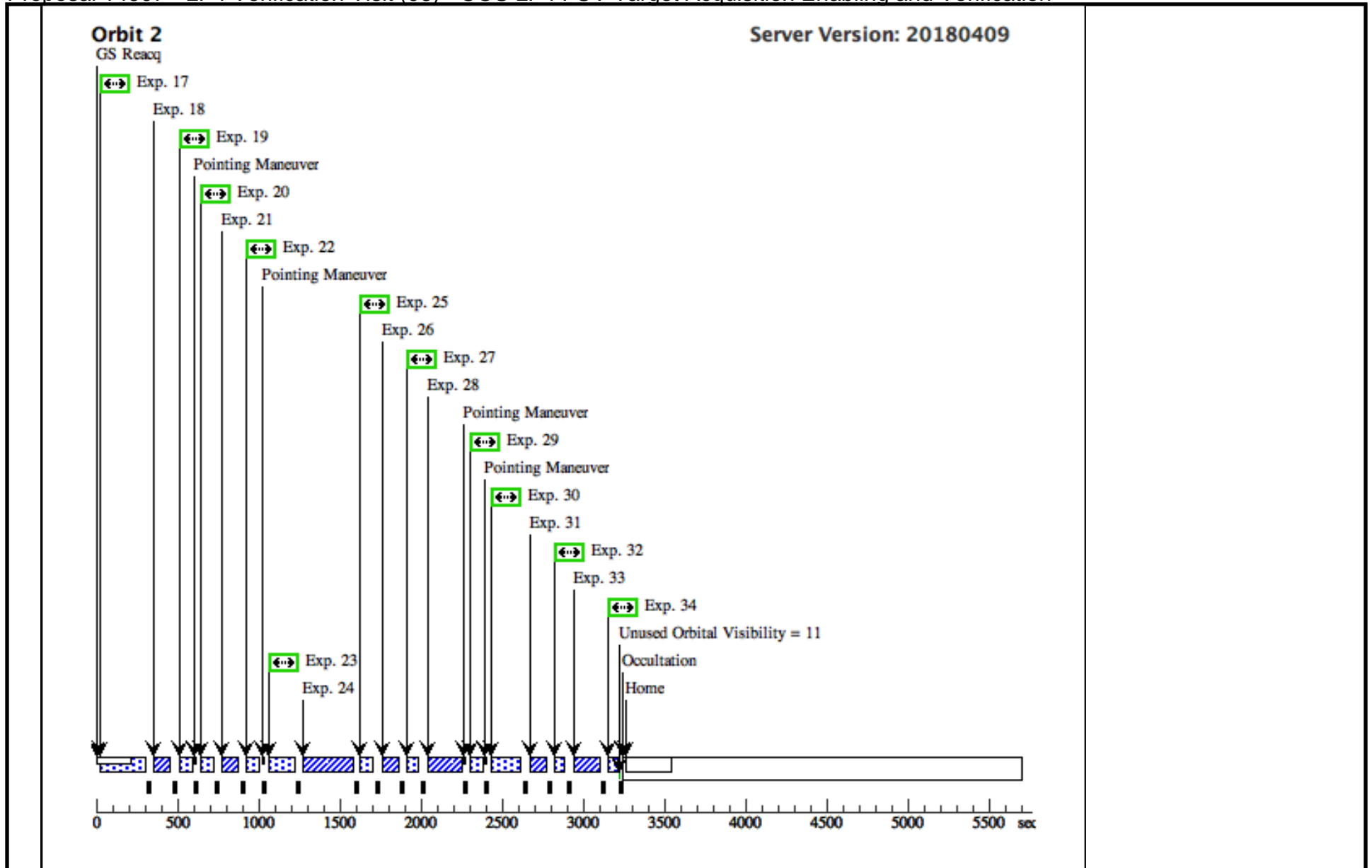
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23	G160M - O FFSET SPE CTRUM [A D,XD]=[1,1 ] (COS.sp.907 019)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check Initial pectrum location, offset in [AD,XD] by [+I,+1], so target should go DOWN and towards longer wavelengths (LEFT in detector coordinates, RIGHT in USER). COS.sp.907019, SNR/RE = 3 at wavelength 1600A gives: Time = 42 seconds. BT= 2/3 * 1275 ~ 850. go with 800s We choose to use the G160M because it has a narrower XD profile, which is easier to measure.</p>								
24	G160M - A CQ/SEARC H on OFFS ET (COS.sa.907 020)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, ACQ/SEARCH, PSA	G160M 1577 A	CENTER=FLUX-W T-FLR; SCAN-SIZE=3; STEP-SIZE=1.765	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	2 Secs (2 Secs) [==>]	[2]
<p>Comments: COS.sa.907020: SNR = 40 gives: Time = 0.9206 seconds Time Required for Requested SNR in Segment A only: 4.9090 Time Required for Requested SNR in Segment B only: 1.1330</p>								
25	G160M - C ONFIRMA TION SPEC TRUM (COS.sp.907 019)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.907019, SNR/RE = 3 at wavelength 1600A gives: Time = 42 seconds. BT= 2/3 * 1275 ~ 850. go with 800s</p>								
26	G160M - D EF ACQ/PE AKXD on O FFSET after SEARCH (COS.sa.907 020)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A		Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	2 Secs (2 Secs) [==>]	[2]
<p>Comments: Default PEAKXD. SNR = 40 gives: Time = 0.9206 seconds Time Required for Requested SNR in Segment A only: 4.9090 Time Required for Requested SNR in Segment B only: 1.1330</p>								
27	G160M - C ONFIRMA TION SPEC TRUM after SEARCH+P EAKXD (COS.sp.907 019)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	25 Secs (25 Secs) [==>]	[2]
<p>Comments: Check spectrum location. COS.sp.907019, SNR/RE = 3 at wavelength 1600A gives: Time = 42 seconds. BT= 2/3 * 1275 ~ 850. go with 800s</p>								
28	G160M - A CQ/PEAKD on OFFSET after PEAK D (COS.sa.907 020)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	NUM-POS=7; STEP-SIZE=0.45	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	2 Secs (2 Secs) [==>]	[2]
<p>Comments: COS.sa.907020: SNR = 40 gives: Time = 0.9206 seconds Time Required for Requested SNR in Segment A only: 4.9090 Time Required for Requested SNR in Segment B only: 1.1330</p>								

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29	G160M - C ONFIRMA TION SPEC TRUM after SEARCH+P EAKXD+P EAKD (COS.sp.907 019)	(61) WD1657+343- OFFSET-1AD-1XD- 1.4AS	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=80 0; FP-POS=3; FLASH=YES	POS TARG 0.333,0	Sequence 23-29 Non -Int in LP4 Verificati on Visit (06)	30 Secs (30 Secs) [==>]	[2]
<p><i>Comments: Check spectrum location. COS.sp.907019, SNR/RE = 3 at wavelength 1600A gives: Time = 42 seconds. BT= 2/3 * 1275 ~ 850. go with 800s</i></p>									
30	G130M - O FFSET C12 91 SPECTR UM [AD,X D]=[-1,-1] (COS.sp.906 475)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=32 4; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4		Sequence 30-34 Non -Int in LP4 Verificati on Visit (06)	14 Secs (14 Secs) [==>]	[2]
<p><i>Comments: Switch to I291 to test the tallest XD profile cenwave. COS.sp.906475 SNR = 4 at wavelength 1310A (per RE) gives: Time = 16.8 seconds. BT=2/3 * 486 = 324. Note that we previously centered on the [AD, XD]=[+1,+1]" target [DOWN,LEFT] in detector coordinates, the target should now be [-1,-1]" [UP,RIGHT] in detector coordinates.</i></p>									
31	G130M - PE AKXD (COS.sa.906 477)	(6) WD1657+343	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	NUM-POS=3; STEP-SIZE=1.25; LIFETIME-POS=L P4; SEGMENT=BOTH; CENTER=FLUX-W T		Sequence 30-34 Non -Int in LP4 Verificati on Visit (06)	1 Secs (1 Secs) [==>]	[2]
<p><i>Comments: COS.sa.906477 Requested Signal/Noise Ratio = 40 gives: Time = 0.4203 seconds, NO DEFAULTS</i></p>									
32	G130M - C ONFIRMA TION C129 1 SPECTRU M after PEA KXD (COS.sp.906 475)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=32 4; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4		Sequence 30-34 Non -Int in LP4 Verificati on Visit (06)	14 Secs (14 Secs) [==>]	[2]
<p><i>Comments: COS.sp.906475 SNR = 4 at wavelength 1310A (per RE) gives: Time = 16.8 seconds. BT=2/3 * 486 = 324</i></p>									
33	G130M - PE AKD (COS.sa.906 477)	(6) WD1657+343	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=0.85; LIFETIME-POS=L P4; SEGMENT=BOTH		Sequence 30-34 Non -Int in LP4 Verificati on Visit (06)	1 Secs (1 Secs) [==>]	[2]
<p><i>Comments: COS.sa.906477 Requested Signal/Noise Ratio = 40 gives: Time = 0.4203 seconds</i></p>									
34	G130M - C ONFIRMA TION C129 1 SPECTRU M AFTER P EAKXD+P EAKD (COS.sp.906 475)	(6) WD1657+343	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=32 4; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4		Sequence 30-34 Non -Int in LP4 Verificati on Visit (06)	14 Secs (14 Secs) [==>]	[2]
<p><i>Comments: COS.sp.906475 SNR = 4 at wavelength 1310A (per RE) gives: Time = 16.8 seconds. BT=2/3 * 486 = 324</i></p>									





Proposal 14907 - ACQ/PEAKXD TEST G130M/1327A (07) - COS LP4 FUV Target Acquisition Enabling and Verification

<b>Visit</b>	<p style="text-align: right;">Wed Jun 06 00:00:52 GMT 2018</p> <p><b>Proposal 14907, ACQ/PEAKXD TEST G130M/1327A (07), implementation</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 100%; ORIENT 313D TO 317 D; ON HOLD</p> <p><i>Comments: ACQ/PEAKXD Test for G130M/1327A (FUVB is OFF, and SEGMENT=A is set for all exposures). Note that this is a repeat of Visit03 testing SEGMENT=A operations at LP4 for 1327A. See the Visit 03 comments for full details. The -0.5" PEAKXD test was removed and replaced w/ basic commanding tests for ACQ/SEARCH &amp; ACQ/PEAKD. See comments on the individual exposures for other details on minor changes from Visit 03.</i></p> <p><i>On Hold Comments: Waiting for HSTMO approval of Visit 07.</i></p>
<b>Diagnostics</b>	<p>(ACQ/PEAKXD TEST G130M/1327A (07)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.</p> <p>(ACQ/PEAKXD TEST G130M/1327A (07)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(ACQ/PEAKXD TEST G130M/1327A (07)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(G130M - PEAKXD - Centered (07.007)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p> <p>(G130M - PEAKXD-XD+0.8 (07.009)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p> <p>(G130M - PEAKXD-XD-0.8 (07.011)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p> <p>(G130M -PEAKXD- XD+0.5 (07.013)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p> <p>(ACQ/SEARCH Commanding Test (07.015)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p> <p>(ACQ/PEAKD Commanding Test (07.016)) Warning (Form): SEGMENT=B is OFF for FUV target acquisition. See full description for details.</p>

Proposal 14907 - ACQ/PEAKXD TEST G130M/1327A (07) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	AZV18	RA: 00 47 12.1700 (11.8007083d) Dec: -73 06 32.68 (-73.10908d) Equinox: J2000	Proper Motion RA: -0.0003 sec of time/yr Proper Motion Dec: -0.0035 arcsec/yr Epoch of Position: 2000	V=12.48 (B-V)=+0.04	Reference Frame: ICRS
<p><i>Comments: B2Ia, Magellanic Clouds. B2Ia, Magellanic Clouds. Nominal ETC exposure times derived from previous COS + IUE spectrum.</i></p> <p>Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					
(3)	AZV18-OFFSET- XD+0.5	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.5 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.5)
<p><i>Comments: This target is offset +0.5" in the XD direction, and is valid for visits 03-05 only. The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</i></p> <p>DELTA_RAD DOUBLE 1.1633051e-11 DELTA_RA DOUBLE 4.1878985e-08 DELTA_DEC DOUBLE -0.50000000 COSDEC DOUBLE 0.29055060 DELTA_RAD_UNITS STRING 'Degrees' DELTA_RA_UNITS STRING 'Arcseconds of Time' DELTA_DEC_UNITS STRING 'Arcseconds' ORIENT FLOAT 315.000 AD_OFFSET FLOAT 0.00000 XD_OFFSET FLOAT -0.500000 Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					
(5)	AZV18-OFFSET- XD+0.8	Offset from AZV18 RA Offset: 0.0 Degrees Dec Offset: -0.8 Arcsec		V=12.48 (B-V)=+0.04	Offset Position (AZV18-OFFSET-XD+0.8)
<p><i>Comments: This target is offset +0.8" in the XD direction, and is valid for visits 03-05 only. A +0.8" offset is designed to move the target UP on the COS detector by 0.8" (about 8-9 rows). The roll angle is 315 +/- 1 degree and is valid for August, 2017. These will change if these visits are not executed then.</i></p> <p>DELTA_RAD DOUBLE 1.8612883e-11 DELTA_RA DOUBLE 6.7006377e-08 DELTA_DEC DOUBLE -0.80000001 COSDEC DOUBLE 0.29055060 DELTA_RAD_UNITS STRING 'Degrees' DELTA_RA_UNITS STRING 'Arcseconds of Time' DELTA_DEC_UNITS STRING 'Arcseconds' ORIENT FLOAT 315.000 AD_OFFSET FLOAT 0.00000 XD_OFFSET FLOAT -0.800000 Category=STAR Description=[B0-B2 III-I] Extended=NO</p>					

Fixed Targets

Proposal 14907 - ACQ/PEAKXD TEST G130M/1327A (07) - COS LP4 FUV Target Acquisition Enabling and Verification

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	2 nuv a/im (COS.ta.904 984)	(1) AZV18	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARI O BASE1B3		36 Secs (36 Secs) [==>]	[1]
<p>Comments: NUV ACQ/IMAGE with BOA+MIRRORA to refine centering. COS.ta.904984 uses a previous COS spectrum plus an IUE spectrum. This ETC25.1.1 gives S/N=60 in 27.4 seconds, we go for 36s just be to s ure. The previous ACQ/IMAGES in 13636 gave a S/N of 62.6 is 31 seconds (after background subtraction)</p>									
2	G130M - B ASELINE S PECTRUM (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=S0200D03 0; LIFETIME-POS=L P4; SEGMENT=A		Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	35 Secs (35 Secs) [==>]	[1]
<p>Comments: Spectrum of source to define correct location of star when it is centered using NUV ACQ/IMAGE. COS.sp.1014994 Exposure time (seconds) = 35 at wavelength 1400A gives: SNR = 4.3 (per resolution element). BT=2/3 * 922 = &lt; 607s. Also, confirms FUV plate scale with a 2nd G130M grating.</p> <p>Count rate entire detector 2,557.776 Count rate Segment A 1,539.410 Count rate Segment B 1,018.366</p>									
3	G130M - P OSTARG + SPECTRU M1 (-1.6) (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=12 00; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	POS TARG 0,-1.6	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	124 Secs (124 Secs) [==>]	[1]
<p>Comments: POSTARG TO Move to Y=-1.6. The vignetting here is 73%. To match the 35s in 07.002, we need would need 35/(1.0-0.73) = 130s. We trim 10s to allow the retention of the +0.5" test (the -0.5" test has been removed to add SEG=A ACQ/SEARCH and ACQ/PEAKD commanding tests. Due to the ~4x lower count rate, the buffer time has been increased for efficiency.</p>									
4	G130M - P OSTARG + SPECTRU M2 (-0.8) (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=65 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	POS TARG 0,-0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	45 Secs (45 Secs) [==>]	[1]
<p>Comments: POSTARG TO Move to Y=-0.8. The vignetting here is 23%, so to match the 35s in 03.002, we need 34*1.3 = 45s. Due to the ~4x lower count rate, the buffer time has been increased for efficiency.</p>									
5	G130M - P OSTARG + SPECTRU M3 (+0.8) (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=65 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	POS TARG 0,0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	45 Secs (45 Secs) [==>]	[1]
<p>Comments: same as 07.004 but at +0.8"</p>									

Proposal 14907 - ACQ/PEAKXD TEST G130M/1327A (07) - COS LP4 FUV Target Acquisition Enabling and Verification

6	G130M - P OSTARG + SPECTRU M4 (+1.6) (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=12 00; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	124 Secs (124 Secs) [==>]	[1]
<i>Comments: same as 0.7.003 bat at +1.6" (towards LP3)</i>								
7	G130M - PE AKXD - Ce ntered (COS.sa.101 4996)	(1) AZV18	COS/FUV, ACQ/PEAKXD, PSA	G130M 1327 A	LIFETIME-POS=LP 4; SEGMENT=A; NUM-POS=5; STEP-SIZE=0.8	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 0.7941 seconds Time Required for Requested SNR in Segment A only: 1.2165 Time Required for Requested SNR in Segment B only: 2.2875</i>								
8	G130M - Co nfirmation S PECTRUM (COS.sp.101 4994)	(1) AZV18	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	Sequence 2-8 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	35 Secs (35 Secs) [==>]	[1]
<i>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. see 07.002 for details</i>								
9	G130M - PE AKXD-XD +0.8 (COS.sa.101 4996)	(5) AZV18-OFFSET -XD+0.8	COS/FUV, ACQ/PEAKXD, PSA	G130M 1327 A	LIFETIME-POS=LP 4; SEGMENT=A; NUM-POS=3; STEP-SIZE=1.3	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	2 Secs (2 Secs) [==>]	[1]
<i>Comments: ACQ/PEAKXD on the target offset by +0.8". Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 0.7941 seconds Time Required for Requested SNR in Segment A only: 1.2165 Time Required for Requested SNR in Segment B only: 2.2875</i>								
10	G130M - Co nfirmation S PECTRUM (COS.sp.101 4994)	(5) AZV18-OFFSET -XD+0.8	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	Sequence 9-10 Non-Int in ACQ/PEAKXD TEST G130M/1327 A (07)	35 Secs (35 Secs) [==>]	[1]
<i>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. see 07.002 for details</i>								



Proposal 14907 - ACQ/PEAKXD TEST G130M/1327A (07) - COS LP4 FUV Target Acquisition Enabling and Verification

11	G130M - PE (1) AZV18 AKXD-XD-0.8 (COS.sa.101 4996)	COS/FUV, ACQ/PEAKXD, PSA	G130M 1327 A	LIFETIME-POS=LP 4; SEGMENT=A; NUM-POS=3	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G130M/1327A (07)	2 Secs (2 Secs) [==>]	[1]
<p><i>Comments: Back on original target, -0.8"</i></p> <p><i>Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 0.7941 seconds</i></p> <p><i>Time Required for Requested SNR in Segment A only: 1.2165</i></p> <p><i>Time Required for Requested SNR in Segment B only: 2.2875</i></p>							
12	G130M - Co (1) AZV18 nfirmation S PECTRUM (COS.sp.101 4994)	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	Sequence 11-12 Non-Int in ACQ/PEAKXD TEST G130M/1327A (07)	35 Secs (35 Secs) [==>]	[1]
<p><i>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. see 07.002 for details</i></p>							
13	G130M -PE (3) AZV18-OFFSET AKXD- XD -XD+0.5 +0.5 (COS.sa.101 4996)	COS/FUV, ACQ/PEAKXD, PSA	G130M 1327 A	LIFETIME-POS=LP 4; SEGMENT=A	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G130M/1327A (07)	1 Secs (1 Secs) [==>]	[1]
<p><i>Comments: ACQ/PEAKXD on the target offset by +0.5". (Intentional drop to 1s to test S/N=40)</i></p> <p><i>Requested Signal/Noise Ratio = 40.000 for Segment A and Segment B combined gives: Time = 0.7941 seconds</i></p> <p><i>Time Required for Requested SNR in Segment A only: 1.2165</i></p> <p><i>Time Required for Requested SNR in Segment B only: 2.2875</i></p>							
14	G130M - Co (3) AZV18-OFFSET nfirmation S -XD+0.5 PECTRUM (COS.sp.101 4994)	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=YES; LIFETIME-POS=L P4; SEGMENT=A	Sequence 13-14 Non-Int in ACQ/PEAKXD TEST G130M/1327A (07)	35 Secs (35 Secs) [==>]	[1]
<p><i>Comments: Spectrum of source to test previous ACQ/PEAKXD centering. see 07.002 for details</i></p>							
15	ACQ/SEAR (1) AZV18 CH Comma nding Test (COS.sp.101 4994)	COS/FUV, ACQ/SEARCH, PSA	G130M 1327 A	SCAN-SIZE=2; SEGMENT=A; LIFETIME-POS=L P4		0.3 Secs (0.3 Secs) [==>]	[1]
<p><i>Comments: The target should start 0.5" offset in XD due to switch in targets from the last PEAKXD</i></p>							
16	ACQ/PEAK (1) AZV18 D Command ing Test (COS.sp.101 4994)	COS/FUV, ACQ/PEAKD, PSA	G130M 1327 A	SEGMENT=A; LIFETIME-POS=L P4; NUM-POS=3; STEP-SIZE=1.1		0.3 Secs (0.3 Secs) [==>]	[1]

