

# 16851 - COS LP6 FUV Target Acquisition Enabling and Verification

Cycle: 29, Proposal Category: CAL/COS (Availability Mode: RESTRICTED)

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# VISITS

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used		OP Current with Visit?
	(1) WDG-1 (11) WDG-1-OFFSET+1AD+1XD	COS/FUV COS/NUV	1	07-Jul-2022 14:00:19.0	yes
	(1) WDG-1 (21) WDG-1-OFFSET+0.7AD (22) WDG-1-OFFSET+0.3AD	COS/FUV COS/NUV	1	07-Jul-2022 14:00:22.0	yes

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
03	(1) WDG-1	COS/FUV	1	07-Jul-2022 14:00:25.0	yes
	(31) WDG-1-OFFSET+0.7XD	COS/NUV			
	(32) WDG-1-OFFSET+0.3XD				
04	(1) WDG-1	COS/FUV	1	07-Jul-2022 14:00:27.0	yes
	(41) WDG-1-OFFSET+1AD+1XD- VISIT4	COS/NUV			
	(42) WDG-1-OFFSET+1AD+1.8XD- VISIT4				
	(43) WDG-1- OFFSET+1.8AD+1.8XD-VISIT4				

4 Total Orbits Used

#### ABSTRACT

This program is designed to verify acquisition parameters at LP6 and to produce spectra at several regions on the detector that would normally be used for target acquisition, but for which data are not downlinked as part of the acquisition process. The idea is that if anything does go wrong with the acquisition tests we will have maps of the detector that we can then use for diagnostics. LP6 is at +6.5" from the on-axis detector position, The program uses ficticious offset targets to nod the telescope away from a centered target and then test the re-acquisition. Because these displacements need to happen along the AD and XD detector direction and target offset coordinates must be entered in RA and DEC, the ORIENT angle for each visit must be restricted to +/- 0.5 degrees, which also means a date range restriction. The date ranges and ORIENT restrictions for each visit are described in the program description. The program is modeled after the LP5 version of this program: 16432. It uses the target WDG-1 (SK 191) and cenwave G160M/1577 for all exposures.

Prior to the execution of this program all LP6 SIAF, aperture mechnism positions, TA subarray, and foci must have been installed.

There is no special commanding in this program.

#### **OBSERVING DESCRIPTION**

This program is structured after the LP5 TA enabling program, 16432. All exposures use cenwave G160M/1577

The general structure of each visit follows the following steps:

1- Acquire the target using NUV ACQ/IMAGE. It is assumed that NUV ACQ/IMAGE acquisitions are correctly centered because ACQ/IMAGE is routinely monitored for accuracy.

2 - Take a high SN spectrum to use as a baseline comparison after ACQ/IMAGE

3 - Use POSTARG to offset the telescope to the positions where the acquisition sequence (SEARCH, PEAKD, or PEAKXD) will take exposures and take a spectrum at each position.

4 - Run the acquisition sequence that was simulated in step 3 on the centered target.

5 - Take a spectrum to verify the centering done on step 4. Verification is done by comparing this spectrum to the one taken on step 2.

6 - Offset the telescope using a virtual target, and run the relevant acquisition. This step tests that the telescope can actually perform an acquisition and center an offset target. This step is repeated for a few different offsets, depending on the acquisition mode being tested. See visit level comments for details.

7 - Take a spectrum after the acquisition to verify centering.

We specify the exposures so that the signal-to-noise varies from about 7 in the blue end of cenwave 1577 to about 3 in the red end, unless otherwise noted in the exposure level comment. The signal to noise for all exposures were increased from the values used in the LP5 program 16432.

ACQ parameters on APT are specified explicitly in visits 1, 2, and 3 even when default values are being used. Visit 4 specifies the parameters as default to test that the correct defaults are being used. The visit level exposures describe the defaults and/or recommended parameters in each case, as per chapter 8 of the COS IHB.

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

Visit 1 - Tests ACQ/SEARCH 2022 MAY 2 to 2022 MAY 7
Visit 2 - Tests ACQ/PEAKD TBD
Visit 3 - Tests ACQ/PEAKXD TBD
Visit 4 - Defaults verification 03 OCT 2022 to 05 OCT 2022 ORIENT=340 (TBD)

Visit 4 repeats the tests using cycle 30 values specified as DEF on APT, as opposed to specifying them explicitly. This is to verify that the defaults

Proposal 16851 (STScl Edit Number: 0, Created: Thursday, July 7, 2022 at 1:00:28 PM Eastern Standard Time) - Overview are working properly. This visit should be run on the first day or so of cycle 30. The precise timing shound be revised when the SMS schedule is known. No FUV acquisitions should be scheduled until the results of this visit are verified.

The last exposure in visit 4, exposure 04.014, will test split-wavecal, which is not yet enabled in APT as of version 2021.3. We tested the schedulability using split-wavecals using the test version of APT, and the non-interrupt sequence fits in an orbit with schedulability=90. We enter exposure 04.014 with WAVECAL=NO, FLASH=NO in version 2021.3 of APT but we will change this to WAVECAL=YES once split-wavecals are enabled in APT. We already use schedulability=90 in version 2021.3 to ensure that the visit will schedule correctly.

The spacing of these visits is restricted in part by target observability, see visit planner.

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

No special commanding is needed for this program.

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

# ACQ/SEARCH

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

# ACQ/PEAKXD

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

# ACQ/PEAKD

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

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

Please turn off calibration for the COS/FUV exposures. These data should not be used for scientific purposes due to non-finalized pointing and focus values.

Please disassociate all exposures. All data that is not calibrated must be disassociated to make it into the archive.

SQL is used to meet the above requests.

In case 1 qexposure.control\_id is modified. In case 2 qeassociation records are deleted. Contact G. Chapman/M. Reinhart for further information about this process.

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	Proposal 16851, ACQ/SEARCH TEST (01), completed	Thu Jul 07 18:00:28 GMT 2022
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: SCHED 80%; ORIENT 195.9D TO 196.1 D; BETWEEN 02-MAY-2022:00:00:00 AND 08-MAY-2022:00:00:00	
Visit	Comments: The sequence of events is: 01.001 - NUV Acquisition 01.002 - centered baseline spectrum after NUV acquisition 01.003 through 01.010 - taking spectra to examine the 3x3 grid used in a 3x3 FUV acq/search - see note below about exposure times and buffer times 01.011 - perform 3x3 ACQ/SEARCH 01.012 - verification spectrum 01.013 - 3x3 ACQ/SEARCH on an offset target 01.014 - verification spectrum 01.015 - 2x2 ACQ/SEARCH on a centered target 01.016 - verification spectrum	
	For exposures 2 through 10: For the 3x3 offset pattern used to simulate ACQ/SEARCH, we use the same timing scheme that was used at LP5 (16432), but with a target that is about twice as bright. Throughput $a > 58\%$ . Throughout at a corner position (1.1, 1.1) is $-28.6\%$ . For the purpose of inspecting the detector we would like the sides and the corners to have the same count rate. Picking $22s *(0.58/0.286) = 45s$ . that would make the center 12s. However we would like to have a high SN spectrum for verifying position, so make the center 30s because that's what fits in increased to account for the vignetted flux, such that the buffer time at a side is 310s and 629s at a corner. Here we do not use the default STEP-SIZE=1.767 because doing so would mapping. Using a smalled STEP-SIZE illuminates the same regions of the detector, but with more light.	22s for a side means the corner is the orbit. Buffer times are also
	SCAN-SIZE should be picked to match uncertainty, as per IHB Table 8.2. We test 2 and 3. Default STEP-SIZE is 1.767 always CENTER=FLUX-WT for SCAN-SIZE=2 and CENTER=FLUX-WT-FLR for SCAN-SIZE >2	
gnostics	(ACQ/SEARCH TEST (01)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the CV exceptions that may apply to observations with G130M/1291 or G160M.	OS Instrument Handbook for
0 Si	(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	
ļğ	(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	
Dia	(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	
Ľ	(ACQ/SEARCH TEST (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	

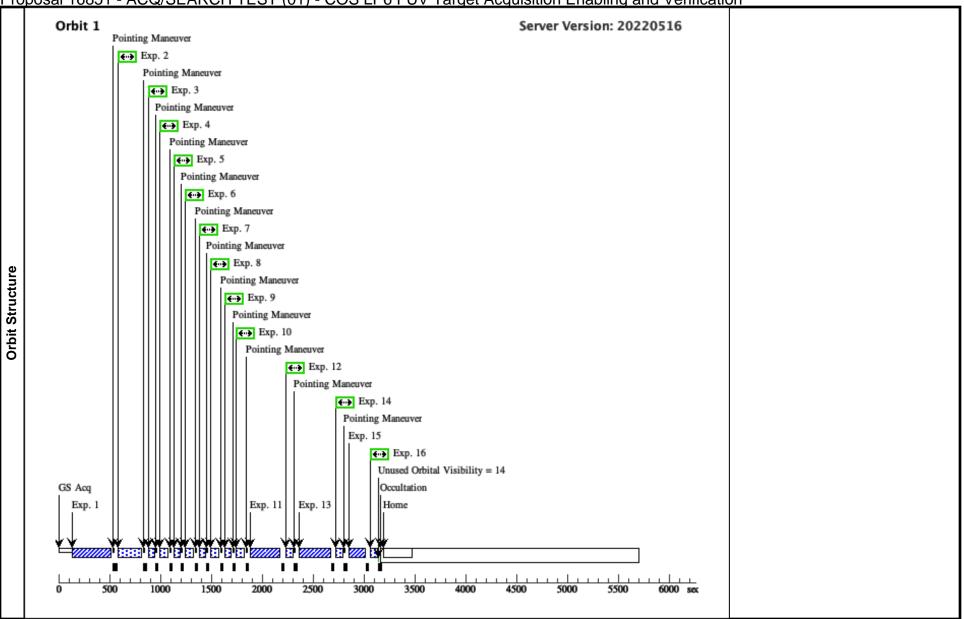
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WDG-1 Alt Name1: SK191	RA: 01 41 42.0729 (25.4253038d) Dec: -73 50 38.21 (-73.84395d)	Proper Motion RA: 2.6618321082955913E-4 sec of time/yr	V=11.84	Reference Frame: ICRS
		Equinox: J2000	Proper Motion Dec: - 0.0013640000361192506 arcsec/yr		
			Epoch of Position: 2015.5		
Blue s Has p	supergiant in periphery of SMO previous COS spectrum.		e SIMBAD database.		
Decin	nal degree coordinates: 025.42	252866734441 -73.8439408698315			
	AD: http://simbad.u-strasbg.fr	:/simbad/sim-id?Ident=WDG+1&NbIdent=1&	Radius=2&Radius.unit=arcmin&submit=submit+id		
V 11.8 G 11.0 J 11.9 H 11.9 K 11.9 Categ Descr Exten	86 [~] E ~ 84 [~] E ~ 8193 [0.0015] C 2018yCat.13 904 [0.024] C 2003yCat.2246. 957 [0.025] C 2003yCat.2246. 906 [0.023] C 2003yCat.2246. pory=STAR iption=[B0-B2 III-1] ded=NO	0C 0C 0C			
(11)	WDG-1- OFFSET+1AD+1XD	Offset from WDG-1		V=11.84	Offset Position (WDG-1- OFFSET+1AD+1XD)
	OTBETTIND	RA Offset: 0.0013571 Degrees			GIIBLI IND IND)
		Dec Offset: -0.38981015 Arcsec			
Delta	(dec) = Delta(AD) * cos(ORIE)		s in ra and dec: l yield the result in arcseconds, which is what APT wan 600. * cos(dec)) will yield the result in decimal degrees		
Categ Descr	NT=196, valid from May 2 to ory=STAR iption=[B0-B2 III-1] ded=NO	May 7, 2022			

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	NUV ACQ/I	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 1-16 Non-I	32 Secs (32 Secs)	
		MAGE (COS.ta.154 0336)						nt in ACQ/SEARCH TEST (01)	[==>]	[1]
	Com	ments: ACQ/I	MAGE to dete	rmine center. Used Castelli-Kurucz Models BO	01 26000 normalize	ed to $B=11.86$ because th	e exisiting spectrum d	oes not cover the entire	NUV range.	
	2	G160M/157	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	LIFETIME-POS=LP		Sequence 1-16 Non-I	24 Secs (22 Secs)	
		7 - BASELI NE SPECT			1577 A	6;		nt in ACQ/SEARCH TEST (01)	[==>22.0 Secs ]	
		RUM				FLASH=NO;		1251 (01)		
		(COS.sp.154 0356)				WAVECAL=NO;				[1]
						BUFFER-TIME=18 0;				
						FP-POS=3				
	Plan	ning on about	10% more flu	ACQ/IMAGE centering to establish center pos x than what the ETC says because the previou. res 01.002 through 01.010.	ition. s obseved spectrum	n used as template ends a	bout 10% short in the	long end. The 2/3 factor	r in the buffer time takes care of that.	
	3	G160M/157	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=31	POS TARG 1.1,0	Sequence 1-16 Non-I	18 Secs (16 Secs)	
		7- POSTAR G + SPECT			1577 A	0;		nt in ACQ/SEARCH TEST (01)	[==>16.0 Secs ]	
		RUM1 (1.1,				LIFETIME-POS=L P6;				
		0) (COS.sp.154				FLASH=NO;				[1]
		ù355)				WAVECAL=NO;				
6						FP-POS=3				
Exposures	Com See	ments: (1.1, 0. visit level note	0) POSTARG about exposu	TO SIMULATE ACQ/SEARCH. At 1.1,0 throw res 01.002 through 01.010.	ighput is ~58%.				1	1
õ	4	G160M/157		COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=62	POS TARG 1.1,1.1	Sequence 1-16 Non-I nt in ACQ/SEARCH		
Ж		7 - POSTAR G + SPECT			1577 A	9; FLASH=NO;		TEST (01)	[==>39.0 Secs ]	
		RUM2 (1.1, 1.1)(Corner)				LIFETIME-POS=L				
		(CÓS.sp.154				P6;				[1]
		0355)				FP-POS=3;				
						WAVECAL=NO				
	Com	ments: (1.1, 1.	1) POSTARG	TO SIMULATE ACQ/SEARCH. At 1.1, 1.1 (co res 01.002 through 01.010.	orner) throughput	is ~28.6%				
	5	G160M/157		COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=31	POS TARG 0.1.1	Sequence 1-16 Non-I	18 Secs (16 Secs)	
	5	7- POSTAR	(1) (1) 0		1577 A	0;	105 11110 0,1.1	nt in ACQ/SEARCH	= >16.0  Secs	
		G + SPECT RUM3 (0,1.			10,,,11	FLASH=NO;		TEST (01)		
		1)				FP-POS=3;				
		(COS.sp.154 0355)				LIFETIME-POS=L				[1]
						P6;				
	C	1 1	DOGTADOT		01.0	WAVECAL=NO				
	Com See	iments: (0, 1.1) visit level note	) POSTARG T about exposu	O SIMULATE ACQ/SEARCH this is a side, so res 01.002 through 01.010.	see exporuse 01.0	103 for comments				
				-						

		(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	I arget Acquisitio		Sequence 1-16 Non-I	41 Secs. (30 Secs)	
	7- POSTAR G + SPECT RUM4 (-1.1, 1.1) (Corner ) (COS.sp.154 0355)	(1) #DG-1	CO5/107, HML-140, 154	1577 A	9; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6;	105 1480 -1.1,1.1	nt in ACQ/SEARCH TEST (01)	[==>39.0 Secs ]	[1]
	(555)				WAVECAL=NO				
			IMULATE ACQ/SEARCH this is a co 002 through 01.010.	rner, so see exporu	se 01.004 for comments.				
	G160M/157	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=31	POS TARG -1.1,0	Sequence 1-16 Non-I	18 Secs (16 Secs)	
	7 - POSTAR G + SPECT			1577 A	0; FP-POS=3;		nt in ACQ/SEARCH TEST (01)	[==>16.0 Secs ]	
	RUM5 (-1.1, 0)				FLASH=NO;				
(	(COS.sp.154 0355)				LIFETIME-POS=L				[1]
	0555)				P6;				
omn	nonts: POSTA	RG TO SIMULATE	ACQ/SEARCH this is a side, so see e	ernoruse 01 003 for	WAVECAL=NO				
			002 through 01.010.	xporuse 01.005 jor	comments.				
9	G160M/157	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M		POS TARG -1.1,-1.1	Sequence 1-16 Non-I	, , , , , , , , , , , , , , , , , , ,	
	7 - POSTAR G + SPECT			1577 A	9; FP-POS=3;		nt in ACQ/SEARCH TEST (01)	[==>39.0 Secs ]	
	RUM6 (-1.1, -1.1) (Corne				FLASH=NO;				
1	r) (COS.sp.154				LIFETIME-POS=L				[1]
í	(COS.sp.154 0355)				P6;				
Comm	ants. POSTA	PC TO SIMULATE	ACO/SEARCH this is a corner, so se	a arnorusa 01 004	WAVECAL=NO				
			002 through 01.010.	e exportise 01.004 j	or comments.				
) (	G160M/157 7 - POSTAR	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=31	POS TARG 0,-1.1	Sequence 1-16 Non-I	18 Secs (16 Secs)	
	G + SPECT RUM7 (0,-1.			1577 A	0; FP-POS=3;		nt in ACQ/SEARCH TEST (01)	[==>16.0 Secs ]	
	1)				FLASH=NO;				[1]
	(COS.sp.154 0355)				LIFETIME-POS=L P6;				[1]
					WAVECAL=NO				
~~~~~			ACQ/SEARCH this is a side, so see e 002 through 01.010.	exporuse 01.003 for	comments.				
	G160M/157		COS/FUV, TIME-TAG, PSA	G160M		POS TARG 1.1,-1.1	Sequence 1-16 Non-I	41 Secs (39 Secs)	
<u>ee vi</u> 0 0				1577 A	9;		nt in ACQ/SEARCH TEST (01)	[==>39.0 Secs ]	
lee vi 0	7 - POSTAR G + SPECT			FP-POS=3;					
ee vi 0	G + SPECT RUM8 (+1.1								
<u>ee vi</u>	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r)				FLASH=NO; LIFETIME-POS=L				[1]
0 0	G + SPECT RUM8 (+1.1 ,-1.1) (Corne				LIFETIME-POS=L P6;				[1]
5 <u>ee vi</u>	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r) (COS.sp.154 0355)	RG TO SIMULATE	ACO/SFARCH this is a corner so se	e exporuse 01 004 ;	LIFETIME-POS=L P6; WAVECAL=NO				[1]
See vi. 10 9	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r) (COS.sp.154 0355) ments: POSTA		ACQ/SEARCH this is a corner, so se 002 through 01.010.	e exporuse 01.004 j	LIFETIME-POS=L P6; WAVECAL=NO				[1]
See vi.	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r) (COS.sp.154 0355) ments: POSTA			e exporuse 01.004 j	LIFETIME-POS=L P6; WAVECAL=NO				[1]
Comm	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r) (COS.sp.154 0355) ments: POSTA			e exporuse 01.004 j	LIFETIME-POS=L P6; WAVECAL=NO				[1]
See vi. 10 9	G + SPECT RUM8 (+1.1 ,-1.1) (Corne r) (COS.sp.154 0355) ments: POSTA			e exporuse 01.004 j	LIFETIME-POS=L P6; WAVECAL=NO				[1]

1	G160M/157 (1) WDG-1	COS/FUV, ACQ/SEARCH, PSA	G160M	SCAN-SIZE=3;	Sequence 1-16 Non-I	2 Secs (2 Secs)	
	7- ACQ/SE ARCH (COS.sa.154 0360)		1577 A	STEP-SIZE=1.1; LIFETIME-POS=L P6;	nt in ACQ/SEARCH TEST (01)	[==>]	
	0300)			P0; CENTER=FLUX-W T-FLR			
	nents: This actually performs the A	CQ/SEARCH that was mapped in exp	osures 01.003 to	01.010. For this reason it is not using a	he default STEP-SIZE of 1.76". Se	e visit level comment on expo	sures 01.002 i
10							
ives	ested Signal/Noise Ratio = 40.000 f : Time = 0.1885 seconds Time Required for Requested SNR Time Required for Requested SNR		ed				
	G160M/157 (1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=18	Sequence 1-16 Non-I	26 Secs (24 Secs)	
2	7 - Verificati	rificati	1577 A	0;	nt in ACQ/SEARCH	[==>24.0  Secs ]	
	on spectrum (COS.sp.154		10,711	FP-POS=3;	TEST (01)	[ 210 5005 ]	
	0356)			FLASH=NO;			
			LIFETIME-POS=L P6;				
				WAVECAL=NO			
om	nents: This exposure is identical to	01.002. The result should be identical	as well.				
		COS/FUV, ACQ/SEARCH, PSA	G160M	SCAN-SIZE=3;	Sequence 1-16 Non-I	2 Secs (2 Secs)	
	7- 3x3 ACQ T+1AD+1XD /SEARCH -		1577 A	STEP-SIZE=1.767;	nt in ACQ/SEARCH TEST (01)	[==>]	
	SEARCH - DFFSET +1 LD +1XD COS.sa.154		LIFETIME-POS=L	1151 (01)			
			P6;			[1]	
	0360)			CENTER=FLUX-W T-FLR			
om	nents: Same as 01.011, but now it s	tars on an offset position with a virtua	ıl target at +1AI	$D_{1}$ , +1XD. Note also that this one uses the	e default STEP-SIZE.		
4	G160M/157 (11) WDG-1-OFFSE	E COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=18	Sequence 1-16 Non-I	26 Secs (24 Secs)	
	7- Verificati T+1AD+1XD on spectrum		1577 A	0; FP-POS=3;	nt in ACQ/SEARCH TEST (01)	[==>24.0 Secs ]	
	(COS.sp.154 0356)			FLASH=NO;			
	0550)			LIFETIME-POS=L			
				P6;			
				WAVECAL=NO			
		012 and 01.002, but after centering fr	<i></i>				I
	G160M/157 (1) WDG-1 7 - 2x2 ACQ	COS/FUV, ACQ/SEARCH, PSA	G160M	SCAN-SIZE=2;	Sequence 1-16 Non-I nt in ACQ/SEARCH	. , ,	
	/SEARCH		1577 A	STEP-SIZE=1.767;	TEST (01)	[==>]	
	(COS.sa.154 0360)			LIFETIME-POS=L P6;			
				CENTER=FLUX-W T			
om	nents: 2x2x1.767" ACQ/SEARCH, a	default settings explicitly selected. Sta	rting from targe	t offset by -1AD, -1XD.			
5	G160M/157 (1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=18	Sequence 1-16 Non-I	26 Secs (24 Secs)	
	7- Verificati on spectrum		1577 A	0; ED DOS-3:	nt in ACQ/SEARCH TEST (01)	[==>24.0 Secs ]	
	(COS.sp.154			FP-POS=3; FLASH=NO;			
	)356)		LIFETIME-POS=L				
			P6;				
			WAVECAL=NO				

Proposal 16851 - ACQ/SEARCH TEST (01) - COS LP6 FUV Target Acquisition Enabling and Verification



	Proposal 16851, ACQ/PEAKD TEST (02), implementation	Thu Jul 07 18:00:28 GMT 2022
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: SCHED 90%; ORIENT 279.9D TO 280.1 D; BETWEEN 25-JUL-2022:00:00:00 AND 08-AUG-2022:00:00:00	
Visit	Comments: ************************************	
5	First we perform an ACQ/IMAGE and take a G160M/1577 high SN spectrum and use it as the baseline for comparing the position of the other spectra.	
	We simulate a 5x0.8" ACQ/PEAKD taking short spectra. We start with the centered (0) position then go to -1.6" in X and proceed in steps of 0.8" out to +1.6" X. These exposures set the detector for anomalies. Second, the flux weighted centroid of all 5 exposures should provide the same result as the acquisition. We then perform an actual 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKD on the centered target and take a spectrum. The position of this spectrum should be centered to the weighted centroiding in the previous step. We then use virtual targets to perform 5x0.9" ACQ/PEAKD starting from offsets of -0.7" and +0.7". We then repeat the process for a 3x1.3 ACQ/PEAKD for offsets of -0.3" and +0.3	e same specifications as the flux
	Default is NUM-POS=5, CENTER=FLUX-WT-FLR, STEP-SIZE=0.9 If using NUM-POS=3 then CENTER=FLUX-WT, STEP-SIZE=1.3	
cs	(ACQ/PEAKD TEST (02)) Warning (Form): COS ACQ/PEAKD exposure should be preceded by an ACQ/PEAKXD exposure in the Visit.	
osti	(ACQ/PEAKD TEST (02)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS exceptions that may apply to observations with G130M/1291 or G160M.	Instrument Handbook for
lg	(ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	
Dia	(ACQ/PEAKD TEST (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	

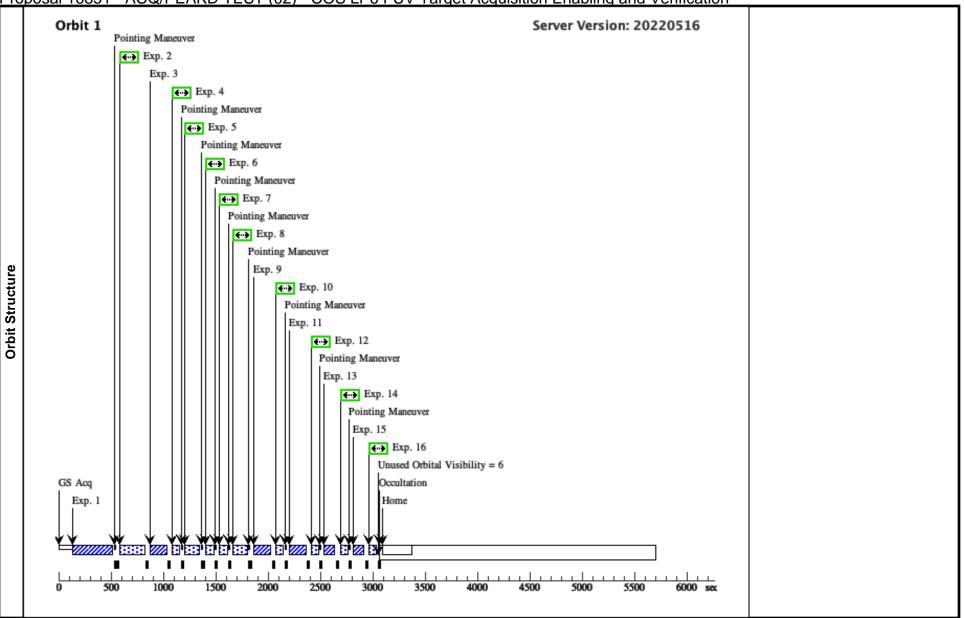
		Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(1)	WDG-1	RA: 01 41 42.0729 (25.4253038d)	Proper Motion RA: 2.6618321082955913E-4	V=11.84	Reference Frame: ICRS					
		Alt Name1: SK191	Dec: -73 50 38.21 (-73.84395d)	sec of time/yr							
			Equinox: J2000	Proper Motion Dec: - 0.0013640000361192506 arcsec/yr							
				Epoch of Position: 2015.5							
	Blue superg	This object was generated iant in periphery of SMC. Is COS spectrum.									
	Decimal degree coordinates: 025.4252866734441 -73.8439408698315										
	SIMBAD: ht	ttp://simbad.u-strasbg.fr/si	mbad/sim-id?Ident=WDG+1&NbIdent=1&Radius	=2&Radius.unit=arcmin&submit=submit+id							
get	J 11.904 [0. H 11.957 [0 K 11.906 [0 Category=S	E ~ (0.0015] C 2018yCat.1345. (0.24] C 2003yCat.22460 (0.025] C 2003yCat.22460 (0.023] C 2003yCat.22460 TTAR =[B0-B2 III-1]	0C 0C								
ΪF	(21)	WDG-1-OFFSET+0.7AD	Offset from WDG-1		V=11.84	Offset Position (WDG-1-OFFSET+0.7AD)					
Fixed			RA Offset: 4.008145E-4 Degrees								
Ë			Dec Offset: -0.573406 Arcsec								
	Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants. Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.										
	Category=S	= <i>[B0-B2 III-I]</i>	8								
	(22)	WDG-1-OFFSET+0.3AD	Offset from WDG-1		V=11.84	Offset Position (WDG-1-OFFSET+0.3AD)					
			RA Offset: 1.717776633E-4 Degrees								
			Dec Offset: 0.2457456132 Arcsec								
	Delta(dec) =	= Delta(AD)*cos(ORIENT	5, going from offsets in AD and XD to offsets in ra a - 45) + Delta(XD)*cos(ORIENT - 135) will yield th - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * c	he result in arcseconds, which is what APT wan	ts. of RA, which is what APT wants.						
	Category=S	=[B0-B2 III-I]	8								

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV ACQ/I	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 1-16 Non-I	32 Secs (32 Secs)	
	MAGE (COS.ta.154 0336)						nt in ACQ/PEAKD TEST (02)	[==>]	[1]
Com	ments: ACQ/I	MAGE to determi	ne center. Identical to exposure 01.001.	See comments there.				1	
2		(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50		Sequence 1-16 Non-I	25 Secs (25 Secs)	
	ctrum (COS.sp.154			1577 A	0; FP-POS=3;		nt in ACQ/PEAKD TEST (02)	[==>]	
	1218)				FLASH=NO;				
					WAVECAL=NO;				[1]
					LIFETIME-POS=L P6				
Com	ments: Spectr	um to determine lo	ocation after ACQ/IMAGE centering. Ne	ed high SN for deter	mining position of other	spectra. exposure time	100s yields SN~7 per r	esel.	
3	ACQ/PEAK	(1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G160M	NUM-POS=5;		Sequence 1-16 Non-I		
	D (COS.sa.154			1577 A	STEP-SIZE=0.8;		nt in ACQ/PEAKD TEST (02)	[==>]	
	1209)				LIFETIME-POS=L P6;		TEST (02)		[1]
					CENTER=FLUX-W T-FLR	7			
Fron Real	n COS.sa.154 uested Signal/A s: Time = 0.18 Time Reauir.	1209, we use 2 sec Noise Ratio = 40.0 885 seconds ed for Reauested S	000 for Segment A and Segment B combi NR in Segment A only: 0.7998		Using STEP-SIZE=0.9 h	tere woula nave ytelae	a loo low a flux lo inspe	co me delector.	
STE. Fron Reau	n COS.sa.154 uested Signal/ s: Time = 0.18 Time Require Time Require	1209, we use 2 sec Noise Ratio = 40.0 885 seconds ed for Requested S ed for Requested S	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned		tere would have yleide		1	
STE. Fron Reau	n COS.sa.154 uested Signal/A s: Time = 0.18 Time Require Time Require Verification spectrum	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998	ned G160M	BUFFER-TIME=50 0;	tere would have yleide	Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs)	
STE. Fron Reau	n COS.sa.154 tested Signal// s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned	BUFFER-TIME=50	iere would nave yleide	Sequence 1-16 Non-I	1	
STE. Fron Reau	n COS.sa.154 uested Signal/A s: Time = 0.18 Time Require Time Require Verification spectrum	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned G160M	BUFFER-TIME=50 0;	iere would nave yleide	Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs)	
STE. Fron Reau	n COS.sa.154 tested Signal// s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned G160M	BUFFER-TIME=50 0; FP-POS=3;	iere would nave yleide	Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs)	[1]
STE. Fron Reau	n COS.sa.154 tested Signal// s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 000 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L	iere would nave yleide	Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs)	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal// s: Time = 0.18 Time Requir. <u>Time Requir.</u> Verification spectrum (COS.sp.154 1218)	1209, we use 2 sec Noise Ratio = 40.6 885 seconds ed for Requested S ed for Requested S (1) WDG-1	ronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 COS/FUV, TIME-TAG, PSA	ned G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO;	iere would nave yleide	Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs)	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal/ s: Time = 0.18 Time Requir. <u>Time Requir.</u> Verification spectrum (COS.sp.154 1218) ments: Spectr	1209, we use 2 sec Noise Ratio = 40.0 885 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 2005/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs) [==>]	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal// s: Time = 0.18 Time Require Time Require Verification spectrum (COS.sp.154 1218) <u>ments: Spectre</u> POSTARG + SPECTR	1209, we use 2 sec Noise Ratio = 40.0 885 seconds ed for Requested S (1) WDG-1	ronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 COS/FUV, TIME-TAG, PSA	ned G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0;		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs) [==>]	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal// s: Time = 0.18 Time Require Time Require Verification spectrum (COS.sp.154 1218) <u>ments: Spectre</u> POSTARG	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 2005/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3;		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I	26 Secs (26 Secs) [==>] 92 Secs (92 Secs)	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal/A s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6)	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 2005/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO;		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs) [==>] 92 Secs (92 Secs)	
STE. Fron Requ give:	n COS.sa.154 uested Signal/J s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 2005/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs) [==>] 92 Secs (92 Secs)	[1]
STE. Fron Requ give:	n COS.sa.154 uested Signal/J s: Time = 0.18 Time Requir. Time Requir. Verification spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 2005/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A G160M	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO;		Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD	26 Secs (26 Secs) [==>] 92 Secs (92 Secs)	
STE. Fron Requ give: 4 4 Com 5	n COS.sa.154 uested Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal Construction Spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154 1205) ments: POSTA	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	x0.8" (NUM-POS=5, STEP-SIZE=0.8")	ned G160M 1577 A G160M 1577 A ACQ/PEAKD. This	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO is the x= -1.6 " position.	POS TARG -1.6,0 Here we strive for SN-	Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs)         [==>]         92 Secs (92 Secs)         [==>]         m was not vignetted that would happenergy	[1] en in a 25s
STE. Fron Requ give: 4 4 Com 5	n COS.sa.154 uested Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal Construction Spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154 1205) ments: POSTA	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	oronds. 2000 for Segment A and Segment B combin 2NR in Segment A only: 0.7998 2NR in Segment B only: 0.2466 COS/FUV, TIME-TAG, PSA 2005/FUV, TIME-TAG, PSA	ned G160M 1577 A G160M 1577 A ACQ/PEAKD. This	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO is the x= -1.6 " position.	POS TARG -1.6,0 Here we strive for SN-	Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs)         [==>]         92 Secs (92 Secs)         [==>]         m was not vignetted that would happenergy	[1] en in a 25.
STE. Fron Requ give: 4 4 Com 5	n COS.sa.154 uested Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal Construction Spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154 1205) ments: POSTA	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	x0.8" (NUM-POS=5, STEP-SIZE=0.8")	ned G160M 1577 A G160M 1577 A ACQ/PEAKD. This	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO is the x= -1.6 " position.	POS TARG -1.6,0 Here we strive for SN-	Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs)         [==>]         92 Secs (92 Secs)         [==>]         m was not vignetted that would happenergy	[1] en in a 25s
STE. Fron Requ give: 4 4 Com 5	n COS.sa.154 uested Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal Construction Spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154 1205) ments: POSTA	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	x0.8" (NUM-POS=5, STEP-SIZE=0.8")	ned G160M 1577 A G160M 1577 A ACQ/PEAKD. This	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO is the x= -1.6 " position.	POS TARG -1.6,0 Here we strive for SN-	Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs)         [==>]         92 Secs (92 Secs)         [==>]         m was not vignetted that would happenergy	[1] en in a 25s
STE. Fron Requ give: 4 4 Com 5	n COS.sa.154 uested Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal/Assisted Signal Construction Spectrum (COS.sp.154 1218) <u>ments: Spectr</u> POSTARG + SPECTR UM1 (-1.6) (COS.sp.154 1205) ments: POSTA	1209, we use 2 sec Noise Ratio = 40.0 85 seconds ed for Requested S (1) WDG-1	x0.8" (NUM-POS=5, STEP-SIZE=0.8")	ned G160M 1577 A G160M 1577 A ACQ/PEAKD. This	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6 BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO is the x= -1.6 " position.	POS TARG -1.6,0 Here we strive for SN-	Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02) Sequence 1-16 Non-I nt in ACQ/PEAKD TEST (02)	26 Secs (26 Secs)         [==>]         92 Secs (92 Secs)         [==>]         m was not vignetted that would happenergy	[1] en in a 25.

posal 1665	T - ACQ/PI	<u>=AKD TEST (02) - COS L</u>	<u>.P6 FUV I</u>	arget Acquisition	Enabling and	a verification		
+ SPECTR UM3 (-0.8) (COS.sp.15/ 1205)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO		Sequence 1-16 Non- nt in ACQ/PEAKD TEST (02)	[==>]	[1]
		5x0.8" (NUM-POS=5, STEP-SIZE=0.8") A s 20%. 25s/(1-0.20)=31s. While the defaul						
-	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=60 0; FP-POS=3; FLASH=NO; LIFETIME-POS=L P6;		Sequence 1-16 Non-1 nt in ACQ/PEAKD TEST (02)		[1]
Comments: POST exposure. But vigi s exposure is symi	netting at $x=+0.8'$	5x0.8" (NUM-POS=5, STEP-SIZE=0.8") / ' is 20%. 25s/(1-0.20)=31s. While the defa	ACQ/PEAKD. Th wilt STEP-SIZE j	WAVECAL=NO his is the $x = +0.8$ " position. for NUM-POS=5 is 0.9", that	Here we strive for SN t would not allow eno	I~5.5 per resel. If the be ugh light through to ins	am was not vignetted that wo pect the detector, so we use S	ould happen in a 2 STEP-SIZE=0.8".
	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=60 0; FP-POS=3;	POS TARG 1.6,0	Sequence 1-16 Non-1 nt in ACQ/PEAKD TEST (02)	92 Secs (92 Secs) [==>]	
1205)				FLASH=NO; LIFETIME-POS=L P6; WAVECAL=NO				[1]
exposure. But vign his exposure is syn	netting at x=+1.6' mmetric to 02.003	5x0.8" (NUM-POS=5, STEP-SIZE=0.8") / ' is 73%. 25s / (1-0.73)=92s. While the dej FFSE_COS/FUV, ACQ/PEAKD, PSA	ACQ/PEAKD. The fault STEP-SIZE	his is the $x = +1.6$ " position. for NUM-POS=5 is 0.9", the NUM-POS=5;	Here we strive for SN at would not allow en	I~5.5 per resel. If the be ough light through to in Sequence 1-16 Non-J	spect the detector, so we use	ould happen in a 2 STEP-SIZE=0.8"
D on offset - 0.7 AD (COS.sa.154 1209)	- T+0.7AD	TSE COSTOV, ACQUEARE, ISA	1577 A	STEP-SIZE=0.9; LIFETIME-POS=L P6;		nt in ACQ/PEAKD TEST (02)	[==>]	[1]
Comments: 5x0.0	" ACO/PFAKD on	an off centered target. The virtual target	is defined as he	CENTER=FLUX-W T-FLR	real target So at the	heginning of acquisition	the real target is offset -0.7	" from the center i
he field of view.			-		rea iai gei. 50 ai ine			Jrom the center of
10 Verification spectrum (COS.sp.15/ 1218)	T+0.7AD	FFSE COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO;		Sequence 1-16 Non-1 nt in ACQ/PEAKD TEST (02)	[==>]	[1]
Comments: Spectr	rum to determine l	ocation after ACQ/PEAKD. This exposure	e is identical to (	LIFETIME-POS=L P6 02.008, except the telescope t	hinks that it's at targe	et 21. But really it center	red on the real target.	

1	ACQ/PEAK (1) WDG-1	COS/FUV, ACQ/PEAKD, PSA	G160M	NUM-POS=5;	Sequence 1-16 Non-I	2 Secs (2 Secs)		
	D on offset +0.7 AD		1577 A	STEP-SIZE=0.9;	nt in ACQ/PEAKD TEST (02)	[==>]		
	+0.7 AD (COS.sa.154			LIFETIME-POS=L	1EST(02)			
	1209)			P6;			l	
				CENTER=FLUX-W T-FLR				
'om 1e t	ments: 5x0.9" ACQ/PEAKD or elescope to go back to the coor	n an off centered target. From the previous dinates of the real target. That moves the t	s acquisition, the stelescope -0.7"AL	telescope thinks it's at +0.7AD from the D. So now the real target is at +0.7"AD.	real target, but the real target is a	actually centered in the field o	of view. Now w	
2	Verification (1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	26 Secs (26 Secs)		
	spectrum (COS.sp.154		1577 A	0;	nt in ACQ/PEAKD TEST (02)	[==>]		
	1218)			FP-POS=3;	1251 (02)			
				FLASH=NO;				
				WAVECAL=NO;				
				LIFETIME-POS=L P6				
om	ments: Spectrum to determine	location after ACQ/PEAKD. This exposure	e is identical to 0					
		OFFSE COS/FUV, ACQ/PEAKD, PSA	G160M	NUM-POS=3:	Sequence 1-16 Non-I	2 Secs (2 Secs)		
<i>.</i>	D on offset - T+0.3AD		1577 A	STEP-SIZE=1.3;	nt in ACQ/PEAKD	[==>]		
(	0.3 AD (COS.sa.154	137711	LIFETIME-POS=L	TEST (02)				
	1209)			P6;				
				CENTER=FLUX-W				
				Т				
		n an off centered target. From the previous 3"AD from the real target. That places the			and also thinks that it is centered o	on the real target. We now co	mmand the te	
4		FFSE COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	26 Secs (26 Secs)		
	spectrum T+0.3AD (COS.sp.154		FP-POS=3; FLASH=NO;		nt in ACQ/PEAKD TEST (02)	[==>]		
	1218)							
				WAVECAL=NO;				
				LIFETIME-POS=L P6				
		location after ACQ/PEAKD. This exposure	e is identical to 02					
5	ACQ/PEAK (1) WDG-1 D on offset	COS/FUV, ACQ/PEAKD, PSA	G160M	NUM-POS=3;	Sequence 1-16 Non-I nt in ACQ/PEAKD			
	+0.3 AD		1577 A	STEP-SIZE=1.3;	TEST (02)	[==>]		
	(COS.sa.154 1209)			LIFETIME-POS=L P6;				
	1207)			CENTER=FLUX-W			[1]	
				T				
om e t	ments: 3x1.3" ACQ/PEAKD or elescope to go back to the coor	n an off centered target. From the previous dinates of the real target. That moves the t	acquisition, the stellar the stellar tells and the second states a	telescope thinks it's at +0.3AD from the D. So now the real target is at +0.3"AD.	real target, but the real target is a	actually centered in the field o	of view. Now	
5	Verification (1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	26 Secs (26 Secs)		
	spectrum	-	1577 A	0;	nt in ACQ/PEAKD	[==>]		
	(COS.sp.154 1218)			FP-POS=3;	TEST (02)			
	-,			FLASH=NO;				
			WAVECAL=NO;					
				LIFETIME-POS=L				

Proposal 16851 - ACQ/PEAKD TEST (02) - COS LP6 FUV Target Acquisition Enabling and Verification



Ē	Proposal 16851, ACQ/PEAKXD TEST (03), completed	Thu Jul 07 18:00:28 GMT 2022
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
	Special Requirements: SCHED 90%; ORIENT 231.9D TO 232.1 D; BETWEEN 06-JUN-2022:00:00:00 AND 20-JUN-2022:00:00:00	
	Comments: This visit tests PEAKXD. It is a copy of vist 02, PEAKD test, with X and Y displacements inverted. The process is entirely symmetrical.	
	First we perform an ACQ/IMAGE and take a G160M/1577 high SN spectrum and use it as the baseline for comparing the position of the other spectra.	
Visit	The Between for this visit is June 06 to June 30, two full SMSs. Please try to schedule in the first half of that window if possible.*** The virtual targets are set for orient=232. Any ORIENT is possible, but if the ORIENT changes then the PI will have to change the offsets for the virtual targets (not hard to do). *********	
	We simulate a 5x0.8" ACQ/PEAXKD taking short spectra. We start with the centered (0) position then go to -1.6" in Y and proceed in steps of 0.8" out to +1.6" Y. These exposures inspect the detector for anomalies. Second, the flux weighted centroid of all 5 exposures should provide the same result as the acquisition. We then perform an actual 5x0.8" (NUM-POS=5, STEP-SIZE=0.8") ACQ/PEAKXD on the centered target and take a spectrum. The position of this spectrum should be centered to weighted centroiding in the previous step. We then use virtual targets to perform 5x0.9" ACQ/PEAKXD starting from offsets of -0.7" XD and +0.7" XD. We then repeat the process for a 3x1.3 ACQ/PEAKD for offsets of -0.7 Default is NUM-POS=3, CENTER=FLUX-WT, STEP-SIZE=1.3 If using NUM-POS=5 then CENTER=FLUX-WT-FLR, STEP-SIZE=0.9	o the same specifications as the flux
Diagnostics	(ACQ/PEAKXD TEST (03)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the 6 exceptions that may apply to observations with G130M/1291 or G160M. (ACQ/PEAKXD TEST (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE	COS Instrument Handbook for

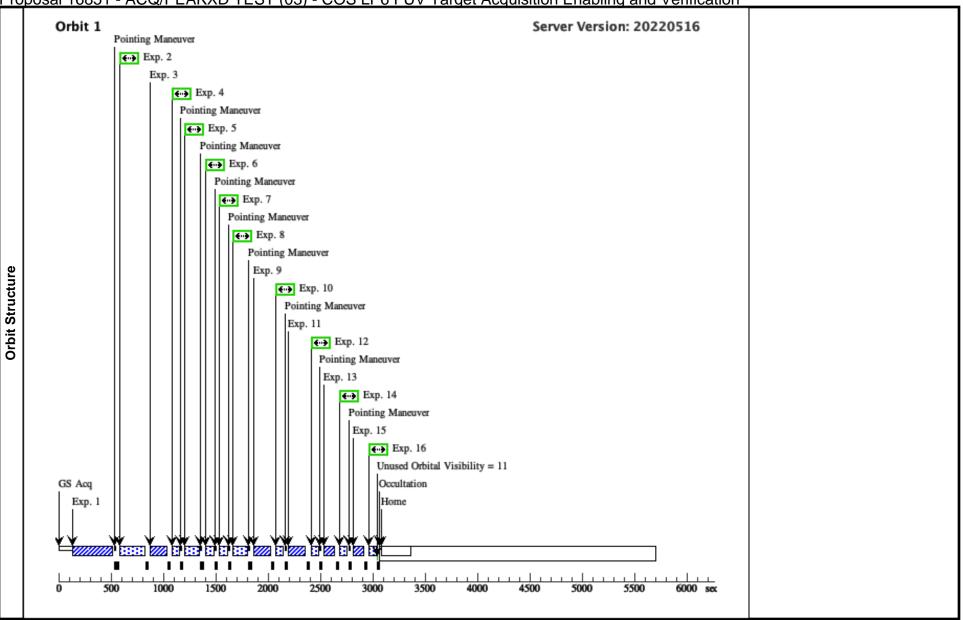
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(1)	WDG-1	RA: 01 41 42.0729 (25.4253038d)	Proper Motion RA: 2.6618321082955913E-4	V=11.84	Reference Frame: ICRS					
		Alt Name1: SK191	Dec: -73 50 38.21 (-73.84395d)	sec of time/yr							
			Equinox: J2000	Proper Motion Dec: - 0.0013640000361192506 arcsec/yr							
				Epoch of Position: 2015.5							
	Blue superg	This object was generated tiant in periphery of SMC. us COS spectrum.	by the targetselector and retrieved from the SIMBA	AD database.							
	Decimal degree coordinates: 025.4252866734441 -73.8439408698315										
	SIMBAD: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=WDG+1&Nb1dent=1&Radius=2&Radius.unit=arcmin&submit=submit+id										
Targets	J 11.904 [0. H 11.957 [0 K 11.906 [0 Category=S Description	E ~ [0.0015] C 2018yCat.1345. .024] C 2003yCat.22460 .025] C 2003yCat.22460 .023] C 2003yCat.22460 STAR =[B0-B2 III-I]	NC NC								
Tar	Extended=N (31)	V <i>O</i> WDG-1-OFFSET+0.7XD	Offerst former WDC 1		V=11.8	Offset Position (WDG-1-OFFSET+0.7XD)					
Fixed	(31)	WDG-1-OFFSE1+0./AD	RA Offset: 2.1369203E-4 Degrees		v=11.8	Oliset Position (wDG-1-OFFSE1+0.7XD)					
ž			Dec Offset: -0.085308572 Arcsec								
-	Commontes	Erom the accurate of COS		and door							
	Comments: From the geometry of COS, going from offsets in AD and XD to offsets in ra and dec: Delta(dec) = Delta(AD)*cos(ORIENT - 45) + Delta(XD)*cos(ORIENT - 135) will yield the result in arcseconds, which is what APT wants. Delta(RA) = (Delta(AD)*sin(ORIENT - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * cos(dec)) will yield the result in decimal degrees of RA, which is what APT wants.										
	Category=S	=[B0-B2 III-I]									
	(32)	WDG-1-OFFSET+0.3XD	Offset from WDG-1		V=11.8	Offset Position (WDG-1-OFFSET+0.3XD)					
			RA Offset: 9.1582302E-5 Degrees								
			Dec Offset: -0.036560819 Arcsec								
	Delta(dec) =	= Delta(AD)*cos(ORIENT	5, going from offsets in AD and XD to offsets in ra a - 45) + Delta(XD)*cos(ORIENT - 135) will yield to - 45) + Delta(XD)*sin(ORIENT - 135))/(3600. * a	he result in arcseconds, which is what APT wan	ts. of RA, which is what APT wants.						
	Category=S	=[B0-B2 III-I]									

	#	Label (ETC Run)	Та	rget	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
ľ	1	NUV ACQ/I	[ (1)	WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 1-16 Non-I	32 Secs (32 Secs)	
		MAGE (COS.ta.154 0336)							nt in ACQ/PEAKXD TEST (03)	[==>]	[1]
	Com	ments: ACQ/I	IMA	GE to determin	e center. Identical to exposure 01.001.	See comments there.					
	2	Baseline spe	(1)	WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50		Sequence 1-16 Non-I		
		ctrum (COS.sp.154	Ļ			1577 A	0; FP-POS=3;		nt in ACQ/PEAKXD TEST (03)	[==>]	
		1218)					FLASH=NO;				
							WAVECAL=NO;				[1]
							LIFETIME-POS=L P6				
	Com	ments: Spectr	um t	o determine loo	cation after ACQ/IMAGE centering. Ne	ed high SN for detern	nining position of other s	spectra. exposure time	100s yields SN~7 per ro	esel.	
	3	ACQ/PEAK	(1)	WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M	LIFETIME-POS=LP		Sequence 1-16 Non-I	2 Secs (2 Secs)	
		XD (COS.sa.154	Ļ			1577 A	6; NUM-POS=5;		nt in ACQ/PEAKXD TEST (03)	[==>]	
		1209)			STEP-SIZE=0.8;				[1]		
					CENTER=FLUX-W T-FLR						
Exposures	Requ gives	s: Time = 0.18 Time Require	885 s ed fo	seconds or Requested SN	00 for Segment A and Segment B combi NR in Segment A only: 0.7998 NR in Segment B only: 0.2466	ned					
F	4	Verification	(1)	WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50		Sequence 1-16 Non-I	25 Secs (25 Secs)	
		spectrum (COS.sp.154	Ļ			1577 A	0; ED DOS-2.		nt in ACQ/PEAKXD TEST (03)	[==>]	
		1218)					FP-POS=3; FLASH=NO;				
							WAVECAL=NO;				[1]
							LIFETIME-POS=L P6				
	Com	ments: Spectr	um t	o determine loo	cation after ACQ/PEAKXD.						
	5	POSTARG	(1)	WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=60	POS TARG 0,-1.6	Sequence 1-16 Non-I	92 Secs (92 Secs)	
		+ SPECTR UM1 (-1.6)				1577 A	0; FP-POS=3;		nt in ACQ/PEAKXD TEST (03)	[==>]	
		(COS.sp.154 1205)	ŀ				FLASH=NO;				
		1203)					LIFETIME-POS=L				[1]
							Рб;				
	_						WAVECAL=NO				
	Com expo	ments: POSTA sure. But vign	ARG 1ettir	f to simulate 5x 1g at y=-1.6" is	0.8" (NUM-POS=5, STEP-SIZE=0.8") 73%. 25s / (1-0.73)=92s. While the deg	ACQ/PEAKXD. This fault STEP-SIZE for N	is the y= -1.6 " position NUM-POS=5 is 0.9", the	. Here we strive for SN 1t would not allow eno	7~5.5 per resel. If the be ugh light through to ins	am was not vignetted that would happe pect the detector, so we use STEP-SIZI	en in a 25s E=0.8"
	1					,	,,				

	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=60	POS TARG 0,-0.8	Sequence 1-16 Non-I	31 Secs (31 Secs)	
+ SPECTR UM3 (-0.8) (COS.sp.154			1577 A	0; FP-POS=3;		nt in ACQ/PEAKXD TEST (03)	[==>]	
1205)				FLASH=NO; LIFETIME-POS=L P6;				[1]
				WAVECAL=NO				
Comments: POSTA	ARG to simulate 5x0.	.8" (NUM-POS=5, STEP-SIZE=0.8") A	CQ/PEAKXD. T	his is the $v = -0.8$ " position. H	Here we strive for Sl	N~5.5 per resel. If the be	am was not vignetted that we	ould happen in a 2
		20%. 25s/(1-0.20)=31s. While the defau						TEP-SIZE=0.8"
+ SPECTR	8)	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=60 1 0;	POS TARG 0,0.8	Sequence 1-16 Non-I nt in ACQ/PEAKXD	$\frac{31 \text{ Secs } (31 \text{ Secs})}{[==>]}$	
UM3 (+0.8) (COS.sp.154			1577 A	FP-POS=3;		TEST (03)	[==>]	
(COS.sp.134 1205)				FLASH=NO;				
				LIFETIME-POS=L P6;				[1]
				WAVECAL=NO				
Comments: POSTA exposure. But vig is exposure is sym	gnetting at $y=+0.8''$ i	.8" (NUM-POS=5, STEP-SIZE=0.8") A is 20%. 25s/(1-0.20)=31s. While the def	CQ/PEAKXD. Th ault STEP-SIZE j	his is the y= +0.8 " position. for NUM-POS=5 is 0.9", that	Here we strive for S t would not allow en	N~5.5 per resel. If the b ough light through to in	eam was not vignetted that w spect the detector, so we use	ould happen in a STEP-SIZE=0.8'
POSTARG	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=60	POS TARG 0,1.6	Sequence 1-16 Non-I	92 Secs (92 Secs)	
+ SPECTR UM1 (+1.6)	.6)		1577 A	0; FP-POS=3;		nt in ACQ/PEAKXD TEST (03)	[==>]	
(COS.sp.154 1205)				FLASH=NO:		. ,		
1203)				LIFETIME-POS=L				[1]
				P6;				
				WAVECAL=NO				
Comments: POSTA	ARG to simulate 5x0.	.8" (NUM-POS=5, STEP-SIZE=0.8") A	CQ/PEAKXD. T	his is the $y = +1.6$ " position.	Here we strive for S	$N \sim 5.5$ per resel. If the b	eam was not vignetted that w	ould hannen in a
	gnetting at y=+1.6" i symmetric to 02.003	45 / 3%. 258 / (1-0./3)=928. While the de	fault STEP-SIZE	E for NUM-POS=5 is 0.9", the	at would not allow e	enough light through to i	nspect the detector, so we us	e STEP-SIZE=0.8
This exposure is sy ACQ/PEAK	<i>mmetric to 02.003</i> (31) WDG-1-OFFS	SE COS/FUV, ACQ/PEAKXD, PSA	fault STEP-SIZE G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP	at would not allow e	enough light through to i Sequence 1-16 Non-I	* ·	e STEP-SIZE=0.8
<i>This exposure is sy</i> ACQ/PEAK XD on offse	<i>mmetric to 02.003</i> (31) WDG-1-OFFS		~	<i>E for NUM-POS=5 is 0.9", the</i> LIFETIME-POS=LP 6;	at would not allow e	nough light through to i Sequence 1-16 Non-I nt in ACQ/PEAKXD	* ·	e STEP-SIZE=0.8
<i>This exposure is sy</i> ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154	<i>mmetric to 02.003</i> (31) WDG-1-OFFS T+0.7XD		G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W	at would not allow e	enough light through to i Sequence 1-16 Non-I	2 Secs (2 Secs)	e STEP-SIZE=0.8
This exposure is sy ACQ/PEAK XD on offse t -0.7 XD	<i>mmetric to 02.003</i> (31) WDG-1-OFFS T+0.7XD		G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR;	at would not allow e	nough light through to i Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs)	[1]
<i>This exposure is sy</i> ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154	<i>mmetric to 02.003</i> (31) WDG-1-OFFS T+0.7XD		G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5;	at would not allow e	nough light through to i Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs)	e STEP-ŠIZE=0.8
This exposure is sy ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209) Comments: 5x0.9"	(31) WDG-1-OFFS (31) WDG-1-OFFS T+0.7XD		G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9	at would not allow e	Requence 1-16 Non-I Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>]	[1]
This exposure is sy ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209) Comments: 5x0.9" he field of view.	(31) WDG-1-OFFS (31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A is defined as bei	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisitio	2 Secs (2 Secs) [==>] m the real target is offset -0.2	[1]
This exposure is sy         ACQ/PEAK         XD on offse         t-0.7 XD         (COS.sa.154         1209)         Comments: 5x0.9"         he field of view.         0       Verification         spectrum	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A is defined as bei G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs) [==>] m the real target is offset -0.1 25 Secs (25 Secs)	[1]
This exposure is sy         ACQ/PEAK         XD on offse         t-0.7 XD         (COS.sa.154         1209)         Comments: 5x0.9"         he field of view.         0       Verification         opectrum         (COS.sp.154	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A is defined as bei	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I	2 Secs (2 Secs) [==>] m the real target is offset -0.2	e STEP-SIZE=0.8
This exposure is sy         ACQ/PEAK         XD on offse         t-0.7 XD         (COS.sa.154         1209)         Comments: 5x0.9"         he field of view.         0       Verification         spectrum	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A is defined as bei G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0;	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs) [==>] m the real target is offset -0.1 25 Secs (25 Secs)	e STEP-SIZE=0.8 [1] 7" from the center
This exposure is sy         ACQ/PEAK         XD on offse         t-0.7 XD         (COS.sa.154         1209)         Comments: 5x0.9"         he field of view.         0       Verification         opectrum         (COS.sp.154	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A is defined as bei G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3;	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs) [==>] m the real target is offset -0.1 25 Secs (25 Secs)	e STEP-SIZE=0.8 [1] 7" from the center
This exposure is sy         ACQ/PEAK         XD on offse         t-0.7 XD         (COS.sa.154         1209)         Comments: 5x0.9"         he field of view.         0       Verification         opectrum         (COS.sp.154	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A is defined as bei G160M	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L	at would not allow e	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I nt in ACQ/PEAKXD	2 Secs (2 Secs) [==>] m the real target is offset -0.1 25 Secs (25 Secs)	e STEP-SIZE=0.8 [1] 7" from the center
<ul> <li>This exposure is sy</li> <li>ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209)</li> <li>Comments: 5x0.9" he field of view.</li> <li>0 Verification spectrum (COS.sp.154 1218)</li> </ul>	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target SE COS/FUV, TIME-TAG, PSA	G160M 1577 A <i>is defined as bei</i> G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6	at would not allow e real target. So at th	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) <i>e beginning of acquisitio</i> Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>] m the real target is offset -0.2 25 Secs (25 Secs) [==>]	[1]
<ul> <li>This exposure is sy</li> <li>ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209)</li> <li>Comments: 5x0.9" he field of view.</li> <li>0 Verification spectrum (COS.sp.154 1218)</li> </ul>	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target	G160M 1577 A <i>is defined as bei</i> G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6	at would not allow e real target. So at th	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) <i>e beginning of acquisitio</i> Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>] m the real target is offset -0.2 25 Secs (25 Secs) [==>]	e STEP-SIZE=0.8 [1] 7" from the center
<ul> <li>This exposure is sy</li> <li>ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209)</li> <li>Comments: 5x0.9" he field of view.</li> <li>0 Verification spectrum (COS.sp.154 1218)</li> </ul>	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target SE COS/FUV, TIME-TAG, PSA	G160M 1577 A <i>is defined as bei</i> G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6	at would not allow e real target. So at th	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) <i>e beginning of acquisitio</i> Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>] m the real target is offset -0.2 25 Secs (25 Secs) [==>]	e STEP-SIZE=0.3 [1] 7" from the center
<ul> <li>This exposure is sy</li> <li>ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209)</li> <li>Comments: 5x0.9" he field of view.</li> <li>0 Verification spectrum (COS.sp.154 1218)</li> </ul>	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target SE COS/FUV, TIME-TAG, PSA	G160M 1577 A <i>is defined as bei</i> G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6	at would not allow e real target. So at th	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) <i>e beginning of acquisitio</i> Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>] m the real target is offset -0.2 25 Secs (25 Secs) [==>]	e STEP-SIZE=0.3 [1] 7" from the center
<ul> <li>This exposure is sy</li> <li>ACQ/PEAK XD on offse t -0.7 XD (COS.sa.154 1209)</li> <li>Comments: 5x0.9" he field of view.</li> <li>0 Verification spectrum (COS.sp.154 1218)</li> </ul>	(31) WDG-1-OFFS T+0.7XD ACQ/PEAKXD on a (31) WDG-1-OFFS T+0.7XD	SE COS/FUV, ACQ/PEAKXD, PSA an off centered target. The virtual target SE COS/FUV, TIME-TAG, PSA	G160M 1577 A <i>is defined as bei</i> G160M 1577 A	E for NUM-POS=5 is 0.9", the LIFETIME-POS=LP 6; CENTER=FLUX-W T-FLR; NUM-POS=5; STEP-SIZE=0.9 ing at a +0.7" offset from the BUFFER-TIME=50 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P6	at would not allow e real target. So at th	enough light through to it Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03) e beginning of acquisition Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>] m the real target is offset -0.2 25 Secs (25 Secs) [==>]	e STEP-SIZE=0. [1] 7" from the cente

1	ACQ/PEAK XD on offse t +0.7 AD	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A	LIFETIME-POS=LP 6;	Sequence 1-16 Non-I nt in ACQ/PEAKXD TEST (03)	2 Secs (2 Secs) [==>]		
	(COS.sa.154 1209)				CENTER=FLUX-W T-FLR;			[1]	
					NUM-POS=5;				
					STEP-SIZE=0.9				
om the	ments: 5x0.9" . telescope to g	ACQ/PEAKXD on o back to the coord	an off centered target. From the previou linates of the real target. That moves the	s acquisition, the telescope -0.7"X	e telescope thinks it's at +0.7XD from the constant of the telescope that the real target is at +0.7"X.	he real target, but the real target is D.	actually centered in the field	d of view. Now	
	Verification		COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	25 Secs (25 Secs)		
	spectrum			1577 A	0;	nt in ACQ/PEAKXD	[==>]		
	(COS.sp.154 1218)				FP-POS=3;	TEST (03)			
	1210)			FLASH=NO;					
				WAVECAL=NO;					
					LIFETIME-POS=L				
					P6				
om	ments: Spectru	m to determine loc	cation after ACQ/PEAKXD. This exposur	e is identical to	03.008		1		
3			SE COS/FUV, ACQ/PEAKXD, PSA	G160M	LIFETIME-POS=LP	Sequence 1-16 Non-I	2 Secs (2 Secs)		
1	XD on offse t -0.3 AD	T+0.3XD		1577 A	6;	nt in ACQ/PEAKXD TEST (03)	[==>]		
	(COS.sa.154			CENTER=FLUX-W T:	1151 (05)		[1]		
	1209)				,				
					NUM-POS=3;				
					STEP-SIZE=1.3				
			an off centered target. From the previou. 'XD from the real target. That places the			et and also thinks that it is centered	on the real target. We now o	command the i	
			SE COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	25 Secs (25 Secs)		
		T+0.3XD		1577 A	0;	nt in ACQ/PEAKXD	[==>]		
	(COS.sp.154 1218)				FP-POS=3;	TEST (03)			
	1210)				FLASH=NO;				
					WAVECAL=NO;				
					LIFETIME-POS=L				
					P6				
	1		cation after ACQ/PEAKXD. This exposur	e is identical to	03.008, except the telescope thinks it's	<i>v i</i>	0		
5	ACQ/PEAK	(1) WDG-1	COS/FUV, ACQ/PEAKXD, PSA	G160M	LIFETIME-POS=LP	Sequence 1-16 Non-I	2 Secs (2 Secs)		
	XD on offse t +0.3 AD			1577 A	6;	nt in ACQ/PEAKXD TEST (03)	[==>]		
	(COS.sa.154				CENTER=FLUX-W T:				
	1209)				NUM-POS=3:				
					STEP-SIZE=1.3				
<u></u>	monto, 2.1 3"	ACO/DEAVVD	an off contanad taxast From the surviv	a aquinitian d		he real target but the real target	actually contained in the Cont	d of migner Mar	
the	telescope to g	o back to the coord	an off centered target. From the previou linates of the real target. That moves the	s acquisition, the telescope -0.3"X	XD. So now the real target is at $+0.3XD$ from the $XD$ .	ne reai iargei, bui ine reai target is D.	actually centered in the field	u oj view. Nov	
	Verification		COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50	Sequence 1-16 Non-I	25 Secs (25 Secs)		
	spectrum		· ·	1577 A	0;	nt in ACQ/PEAKXD	[==>]		
	(COS.sp.154 1218)				FP-POS=3;	TEST (03)			
					FLASH=NO;				
				WAVECAL=NO;					
					LIFETIME-POS=L				

Proposal 16851 - ACQ/PEAKXD TEST (03) - COS LP6 FUV Target Acquisition Enabling and Verification



	Proposal 16851, LP6 Defaults verification test (04), implementation Thu Jul	07 18:00:28 GMT 2022
	Diagnostic Status: Warning	
	Scientific Instruments: COS/FUV, COS/NUV	
si;	Special Requirements: SCHED 90%; ORIENT 340D TO 341 D; BETWEEN 03-OCT-2022:00:00 AND 05-OCT-2022:00:00:00	
Š		
	The last exposure in this visit, exposure 04.014, will test split-wavecal, which is not yet enabled in APT as of version 2021.3. We tested the schedulability using split-wavecals using the test versio interrupt sequence fits in an orbit with schedulability=90. We enter exposure 04.014 with WAVECAL=NO, FLASH=NO in version 2021.3 of APT but we will change this to WAVECAL=YES one enabled in APT. We already use schedulability=90 in version 2021.3 to ensure that the visit will schedule correctly.	n of APT, and the non- ce split-wavecals are
Diagnostics		trument Handbook for

	Name	Target Coordinates	Targ. Coord. Corrections	Iuxes	Miscellaneous
(1)	WDG-1 Alt Name1: SK191	RA: 01 41 42.0729 (25.4253038d) Dec: -73 50 38.21 (-73.84395d)	Proper Motion RA: 2.6618321082955913E-4 vsec of time/yr	/=11.84	Reference Frame: ICRS
		Equinox: J2000	Proper Motion Dec: - 0.0013640000361192506 arcsec/yr		
			Epoch of Position: 2015.5		
Blue sup	ts: This object was generate ergiant in periphery of SMC vious COS spectrum.	ed by the targetselector and retrieved from the	e SIMBAD database.		
Decimal	degree coordinates: 025.42	52866734441 -73.8439408698315			
SIMBAD	: http://simbad.u-strasbg.fr/	/simbad/sim-id?Ident=WDG+1&NbIdent=1&	Radius=2&Radius.unit=arcmin&submit=submit+id		
J 11.904 H 11.957 K 11.906 Category	[~] E ~ 33 [0.0015] C 2018yCat.134 [0.024] C 2003yCat.2246 7 [0.025] C 2003yCat.2246 5 [0.023] C 2003yCat.2246 y=STAR ion=[B0-B2 III-1]				
(41)	WDG-1-	Offset from WDG-1	,	/=11.84	Offset Position (WDG-1-
	OFFSET+1AD+1XD- VISIT4	RA Offset: -0.001327 Degrees			OFFSET+1AD+1XD-VISIT4)
	1.5117	Dec Offset: -0.48369 Arcsec			
Delta(de	c) = Delta(AD)*cos(ORIEN)	T - 45) + Delta(XD)*cos(ORIENT - 135) will	s in ra and dec: I vield the result in arcseconds, which is what APT wants		
Delta(RA 03 OCT 2 Category Descripti	c) = Delta(AD)*cos(ORIEN A) = ( Delta(AD)*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I]	/T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30	yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	<sup>£</sup> RA, which is what Al	PT wants.
Delta(RA 03 OCT 2 Category Descripta Extended	c) = Delta(AD)*cos(ORIEN A) = ( Delta(AD)*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO	T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees oj		
Delta(RA 03 OCT 2 Category Descripti	$c) = Delta(A\overline{D})*cos(ORIENA) = (Delta(AD)*sin(ORIE)2022 to 05 OCT 2022 ORIEv=STARion=[B0-B2 III-I]H=NOWDG-1-OFFSET+1AD+1.8XD-$	<pre>/T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340</pre> Offset from WDG-1	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees oj	<sup>c</sup> RA, which is what Ai 7=11.84	PT wants. Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4)
Delta(RA 03 OCT 2 Category Descripta Extended	c) = $Delta(A\overline{D})*cos(ORIENA) = (Delta(AD)*sin(ORIE)2022 to 05 OCT 2022 ORIEv=STARion=[B0-B2 III-I]t=NOWDG-1-$	<pre>/T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340 Offset from WDG-1 RA Offset: -0.001664 Degrees</pre>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees oj		Offset Position (WDG-1-
Delta(RA 03 OCT : Category Descripti Extended (42) Commen Delta(de	c) = Delta( $AD$ )*cos(ORIEN A) = ( Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of C(c) = Delta( $AD$ )*cos(ORIEN	<ul> <li>T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30</li> <li>NT=340</li> <li>Offset from WDG-1</li> <li>RA Offset: -0.001664 Degrees</li> <li>Dec Offset: -1.20874 Arcsec</li> <li>OS, going from offsets in AD and XD to offset:</li> <li>T - 45) + Delta(XD)*cos(ORIENT - 135) will</li> </ul>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	/=11.84	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4)
Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti	c) = Delta( $AD$ )*cos(ORIEN A) = ( Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE w=STAR ion=[B0-B2 III-I] 1=NO WDG-1- OFFSET+1AD+1.8XD- VISIT4 ts: From the geometry of Co c) = Delta( $AD$ )*cos(ORIEN A) = ( Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE w=STAR ion=[B0-B2 III-I]	<ul> <li><i>(T - 45) + Delta(XD)*cos(ORIENT - 135) will</i> NT - 45) + Delta(XD)*sin(ORIENT - 135))/(36</li> <li><i>(NT=340</i>)</li> <li>Offset from WDG-1</li> <li>RA Offset: -0.001664 Degrees Dec Offset: -1.20874 Arcsec</li> <li>OS, going from offsets in AD and XD to offset: (T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(36</li> </ul>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: I yield the result in arcseconds, which is what APT wants.	/=11.84	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4)
Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti <u>Extendea</u>	c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of CC c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1-	<pre>/T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340 Offset from WDG-1 RA Offset: -0.001664 Degrees Dec Offset: -1.20874 Arcsec OS, going from offsets in AD and XD to offset: /T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340 Offset from WDG-1</pre>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	/=11.84	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4) PT wants. Offset Position (WDG-1-
Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti Extendea	c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of Co c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1- OFFSET+1.8AD+1.8XD	<pre>/T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340 Offset from WDG-1 RA Offset: -0.001664 Degrees Dec Offset: -1.20874 Arcsec OS, going from offsets in AD and XD to offset: /T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30 NT=340 Offset from WDG-1</pre>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	7=11.84 <sup>c</sup> RA, which is what Al	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4) PT wants.
Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti <u>Extendea</u>	c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of CC c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[B0-B2 III-I] l=NO WDG-1-	T - 45) + Delta(XD)*cos(ORIENT - 135) willNT - 45) + Delta(XD)*sin(ORIENT - 135))/(36)NT=340Offset from WDG-1RA Offset: -0.001664 DegreesDec Offset: -1.20874 ArcsecOS, going from offsets in AD and XD to offsets(T - 45) + Delta(XD)*cos(ORIENT - 135))/(36)NT - 45) + Delta(XD)*sin(ORIENT - 135))/(36)NT=340Offset from WDG-1	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	7=11.84 <sup>c</sup> RA, which is what Al	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4) PT wants. Offset Position (WDG-1-
Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti <u>Extendea</u> (43) Commen Delta(de	c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIEI) 2022 to 05 OCT 2022 ORIE w=STAR ion=[B0-B2 III-I] $\frac{1}{2-NO}$ WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of Ct c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIEI) 2022 to 05 OCT 2022 ORIE w=STAR ion=[B0-B2 III-I] $\frac{1}{2-NO}$ WDG-1- OFFSET+1.8AD+1.8XI VISIT4 tts: From the geometry of Ct c) = Delta( $AD$ )*cos(ORIEN	<ul> <li>(T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30</li> <li>(NT=340</li> <li>Offset from WDG-1</li> <li>RA Offset: -0.001664 Degrees Dec Offset: -1.20874 Arcsec</li> <li>OS, going from offsets in AD and XD to offset: (T - 45) + Delta(XD)*cos(ORIENT - 135))/(30</li> <li>(NT=340</li> <li>Offset from WDG-1</li> <li>PA Offset: -0.002388 Degrees Dec Offset: -0.870641 Arcsec</li> <li>OS, going from offsets in AD and XD to offset: T - 45) + Delta(XD)*cos(ORIENT - 135))/(30</li> </ul>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of	/=11.84 FRA, which is what Al /=11.84	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4) PT wants. Offset Position (WDG-1- OFFSET+1.8AD+1.8XD-VISIT4)
Delta(RA 03 OCT : Category Descripti Extendea (42) Commen Delta(de Delta(RA 03 OCT : Category Descripti Extendea (43) Commen Delta(de Delta(RA 03 OCT : Category Delta(CA 03 OCT : Category	c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[ $B0$ - $B2$ III-I] $\frac{1}{4=NO}$ WDG-1- OFFSET+1AD+1.8XD- VISIT4 tts: From the geometry of CC c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE v=STAR ion=[ $B0$ - $B2$ III-I] $\frac{1}{4=NO}$ WDG-1- OFFSET+1.8AD+1.8XI VISIT4 tts: From the geometry of CC c) = Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*cos(ORIEN A) = (Delta( $AD$ )*sin(ORIE) 2022 to 05 OCT 2022 ORIE	<ul> <li>(T - 45) + Delta(XD)*cos(ORIENT - 135) will NT - 45) + Delta(XD)*sin(ORIENT - 135))/(30</li> <li>(NT=340</li> <li>Offset from WDG-1</li> <li>RA Offset: -0.001664 Degrees Dec Offset: -1.20874 Arcsec</li> <li>OS, going from offsets in AD and XD to offset: (T - 45) + Delta(XD)*cos(ORIENT - 135))/(30</li> <li>(NT=340</li> <li>Offset from WDG-1</li> <li>RA Offset: -0.002388 Degrees Dec Offset: -0.870641 Arcsec</li> <li>OS, going from offsets in AD and XD to offset: (T - 45) + Delta(XD)*cos(ORIENT - 135))/(30</li> <li>(NT=340</li> </ul>	l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec: l yield the result in arcseconds, which is what APT wants. 600. * cos(dec)) will yield the result in decimal degrees of s in ra and dec:	/=11.84 FRA, which is what Al /=11.84	Offset Position (WDG-1- OFFSET+1AD+1.8XD-VISIT4) PT wants. Offset Position (WDG-1- OFFSET+1.8AD+1.8XD-VISIT4)

ŧ	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbi
l	NUV ACQ/I MAGE (COS.ta.154	(1) WDG-1	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 1-14 Non-I nt in LP6 Defaults ve rification test (04)	32 Secs (32 Secs)	
	(COS.ta.154 0336)						rification test (04)		[1]
Con	nments: ACQ/II	MAGE to determine ce	nter. Used Castelli-Kurucz Models B	0I 26000 normalize		e exisiting spectrum			
2	Baseline spe	(1) WDG-1	COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=50		Sequence 1-14 Non-I	25 Secs (25 Secs)	
	ctrum (COS.sp.154 1218)			$\begin{array}{ccc} \text{GTOUM} & \text{BUFFER-TIME=50} & \text{Sequence 1-14 Non-1} & 25 \text{ Secs} \\ \text{1577 A} & 0; & \text{nt in LP6 Defaults ve} \\ \text{FP-POS=3;} & \text{rification test (04)} \end{array} \left  \substack{l=> l}{l=> l} \right $			[==>]		
	1210)				LIFETIME-POS=D				[1]
					EF;				[1]
					FLASH=NO;				
Con			ACO/MACE	11: 1 CN Com Later	WAVECAL=NO				
_01 ,			on after ACQ/IMAGE centering. Need COS/FUV, ACQ/SEARCH, PSA	<u>a nign SN for aeteri</u> G160M	LIFETIME-POS=D	spectra. exposure th	Sequence 1-14 Non-I		
,		T+1AD+1XD-VISIT	COS/FUV, ACQ/SEARCH, PSA	1577 A	EF;		nt in LP6 Defaults ve	[==>]	
	FFSET +1A D +1XD	4		1377 A	SCAN-SIZE=3		rification test (04)	[>]	
	(COS.sa.154								[1]
~	0360)								
Con		~	ting at position +0.1 AD, +0.1 XD	G1 (0) (			0 114NT T		
ł	Verification (41) WDG-1-OFFSE COS/FUV, TIME-TAG, PSA spectrum T+1AD+1XD-VISIT (COS.sp.154 4 0356)		G160M 1577 A	BUFFER-TIME=23 0;		Sequence 1-14 Non-I nt in LP6 Defaults ve	25 Secs (25 Secs)		
			15// A	FP-POS=3;		rification test (04)	[==>]		
			LIFETIME-POS=D						
					EF;				[1]
					FLASH=NO;				
					WAVECAL=NO				
Con -			04.002, but after centering from an o						
5	ACQ/PEAK XD from off	(42) WDG-1-OFFSE T+1AD+1.8XD-VIS	COS/FUV, ACQ/PEAKXD, PSA	G160M	LIFETIME-POS=D EF		Sequence 1-14 Non-I nt in LP6 Defaults ve	2 Secs (2 Secs)	
	set -0.8 in X			1577 A	24		rification test (04)	[==>]	
	D (COS.sa.154								[1]
	1209)								
		ning a PEAKXD from at +1.0AD, +1.8XD.	-0.8" offset in XD. From the previous	s acquisition, the te	lescope thinks it's at +1A	D, +1 $XD$ , but really	y it's centered on the real t	arget. To place the target at 0.0 AD, -	0.8 XD, 6
5			COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=23		Sequence 1-14 Non-I	25 Secs (25 Secs)	
	spectrum (COS.sp.154	T+1AD+1.8XD-VIS		1577 A	0;		nt in LP6 Defaults ve rification test (04)	[==>]	
	0356)				FP-POS=3;				
					LIFETIME-POS=D EF;				[1]
					FLASH=NO;				
					WAVECAL=NO				
Con	ments: Functio	onally the same as and	04.002, but after centering from an o	offset position.					
7			COS/FUV, ACQ/PEAKD, PSA	G160M	LIFETIME-POS=D		Sequence 1-14 Non-I	2 Secs (2 Secs)	
	D from offse	T+1.8AD+1.8XD-VI		1577 A	EF;		nt in LP6 Defaults ve rification test (04)		
	t -0.8 in AD (COS.sa.154	5114			STEP-SIZE=0.9		filication test (04)		[1]
	1209)								

				In Enabling and Von		
8	Verification (43) WDG-1-OFFSE COS/FUV, TIME-TAG, PSA spectrum T+1.8AD+1.8XD-VI	G160M	BUFFER-TIME=23	Sequence 1-14 Non-I	25 Secs (25 Secs)	
	(COS.sp.154 SIT4	1577 A	0; FP-POS=3;	nt in LP6 Defaults ve rification test (04)	[==>]	
1	0356)		LIFETIME-POS=D			
			EF;			[1]
			FLASH=NO;			
			WAVECAL=NO			
Com	ments: Functionally the same as and 04.002, but after centering from an o	offset position.				
9	2x2 ACQ/S (41) WDG-1-OFFSE COS/FUV, ACQ/SEARCH, PSA	G160M	CENTER=DEF;	Sequence 1-14 Non-I	2 Secs (2 Secs)	
	EARCH - of T+1AD+1XD-VISIT fset -0.8AD, 4 -0.8XD	1577 A	LIFETIME-POS=D EF;	nt in LP6 Defaults ve rification test (04)	[==>]	[1]
	COS.sa.154 0360)		SCAN-SIZE=2			[1]
	ments: Testing 2x2 acq/search with defaults. The telescope thinks it was a -0.8AD, -0.8XD.	t + 1.8AD, +1.8X	D, but really it was centered. Now we c	command it to go to $+1.0AD$ , $+1.0$	XD, which means that the re	al target will be offs
	Verification (41) WDG-1-OFFSE COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=23	Sequence 1-14 Non-I	25 Secs (25 Secs)	
	spectrum T+1AD+1XD-VISIT	1577 A	0;	nt in LP6 Defaults ve	[==>]	
	(COS.sp.154 4 0356)		FP-POS=3;	rification test (04)		
			LIFETIME-POS=D EF;			[1]
			FLASH=NO;			
			WAVECAL=NO			
Com	ments: Functionally the same as and 04.002, but after centering from an o	offset position.				
11	ACQ/PEAK (41) WDG-1-OFFSE COS/FUV, ACQ/PEAKXD, PSA	G160M	LIFETIME-POS=D	Sequence 1-14 Non-I	· · · · · · · · · · · · · · · · · · ·	
	ACQ/PEAK (41) WDG-1-OFFSE COS/FUV, ACQ/PEAKXD, PSA XD after AC T+1AD+1XD-VISIT Q/SEARCH 4	1577 A	EF;	nt in LP6 Defaults ve rification test (04)	[==>]	
	centering		STEP-SIZE=1.3;			[1]
	(COS.sa.154 1209)		CENTER=DEF;			
Com	ments: Performing a PEAKXD from -0.8" offset in XD. From the previous	a a consistion that	NUM-POS=3		anost To place the tanget at	
	virtual target at +1.0AD, +1.8XD.	acquisition, the	ielescope ininks il s ul +IAD, +IAD, bu	ui really ii s centerea on the real a	irgei. 10 place ine largei al	0.0 AD, -0.8 AD, dej
12	Verification (41) WDG-1-OFFSE COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=23	Sequence 1-14 Non-I	25 Secs (25 Secs)	
	spectrum T+1AD+1XD-VISIT (COS.sp.154 4	1577 A	0;	nt in LP6 Defaults ve rification test (04)	[==>]	
	0356)		FP-POS=3;	filleation test (04)		
			LIFETIME-POS=D EF;			[1]
			FLASH=NO;			
			WAVECAL=NO			
Com	ments: Functionally the same as and 04.002, but after centering from an o	offset position.				
13	ACQ/PEAK (41) WDG-1-OFFSE COS/FUV, ACQ/PEAKD, PSA	G160M	LIFETIME-POS=D	Sequence 1-14 Non-I	2 Secs (2 Secs)	
	D after ACQ T+1AD+1XD-VISIT /SEARCH c 4	1577 A	EF;	nt in LP6 Defaults ve rification test (04)	[==>]	
	entering		CENTER=DEF;	mication test (04)		[1]
	(COS.sa.154 1209)		NUM-POS=5;			[1]
l	,		STEP-SIZE=0.9			
	ments: Performing a PEAKD from -0.8" offset in AD. From the previous of virtual target at +1.8AD, +1.8XD.	acquisition, the te	lescope thinks it's at +1AD, +1.8XD, bu	ut really it's centered on the real t	arget. To place the target at	-0.8 AD, 0.0 XD, def
ł						
ĺ						

14	Verification (41) WDG-1-OFFSE COS/FUV, TIME-TAG, PSA	G160M	BUFFER-TIME=23	Sequence 1-14 Non-I	25 Secs (25 Secs)	
	spectrum T+1AD+1XD-VISIT (COS.sp.154 4 0356)	1577 A 0; nt ir FP-POS=3: rific	nt in LP6 Defaults ve rification test (04)	[==>]		
	0356)		LIFETIME-POS=D EF;			[1]
			FLASH=NO;			
			WAVECAL=NO			
Co	mments: Functionally the same as and 04.002, but after centering from an o	offset position, a	nd with split-wavecal			
th s	is exposure tests split-wavecal, which is not yet enabled in APT as of version schedulability=90. We enter exposure 04.014 with WAVECAL=NO, FLASH bility=90 in version 2021 3 to ensure that the visit will schedule correctly					

