



16495 - FUV Exploratory Spectral Resolution Program at LP6

Cycle: 28, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

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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) AZV-80 NONE WAVE	COS COS/FUV COS/NUV	3	28-Jun-2021 10:00:50.0	yes
51	(1) AZV-80 NONE WAVE	COS COS/FUV COS/NUV	3	28-Jun-2021 10:00:58.0	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>
02	(1) AZV-80 NONE WAVE	COS COS/FUV COS/NUV	3	28-Jun-2021 10:01:06.0	yes
03	(1) AZV-80 NONE WAVE	COS COS/FUV COS/NUV	3	28-Jun-2021 10:01:15.0	yes

12 Total Orbits Used

ABSTRACT

This program is a program to measure the change in the spectral resolution for the G130M/1222 and G160M/1577 settings at 7", 9", 11" on the FUV detector as an exploratory program for Lifetime Position 6 (LP6). Knowledge of the COS line spread functions (LSFs) is critical for users to evaluate the feasibility and S/N requirements of their observations and to perform line profile fitting. It is not known what the spectral resolution is at and above 7", and we need to know how it changes as we move up the detector in order to optimize the placement of LP6 and future LPs.

To do so, we will acquire COS FUV G130M/1222 and G160M/1577 spectra of the SMC star AzV 80, using two FPPOS to optimize the S/N whilst keeping overheads (due to split-LP-wavecals) at a minimum. Once all FPPOS settings are combined, our observations will reach a S/N of 42/resel. We will test whether previous STIS E140M spectra of AzV 80 convolved with model COS LSFs at LP2 (the nearest calibrated lifetime position on the detector) can reproduce on-orbit observed COS FUV spectra of the numerous ISM lines toward AzV 80 at three different detector positions of +7", +9" and +11".

We will be able to measure the relative change in the spectral resolution, and unexpected larger variations in the COS LSFs larger than 15%.

For simplicity, we will use LP2 HV values of 173/175 (A/B) for all exposures.

This strategy is based on several earlier programs (LP4 resolution programs 14842 and 15366), which executed successfully.

Azv80 is used instead of the usual target for resolution programs (Azv75) because the visibility windows of Azv75 are too small. The depth of absorption features in Azv80 are comparable to those in Azv75.

OBSERVING DESCRIPTION

We will acquire COS FUV G130M/1222 and G160M/1577 spectra of the SMC star AzV 80, using two FPPOS to optimize the S/N while minimizing overheads. Once all FPPOS settings are combined, our observations will reach a S/N of 42/resel. We will perform NUV imaging target acquisition with the BOA.

We will take observations at 3 cross-dispersion positions of 7", 9" and 11" (XD=+3.5 arcsec, XD=+5.5 arcsec and XD=+7.5 from LP2) encompassing the potential LP6 locations to support efforts to characterize the spectral resolution at 7" and above. We will use the LP2 HV values for all exposures for simplicity.

Wavecal concurrent with the science exposure cannot be taken at these positions on the detector due to a light leak from the FCA above +5.5", so wavecal is turned off (FLASH=NO and WAVECAL=NO). The aperture block is moved to LP2 to take wavecal before and after the science exposures.

All the exposures have LIFETIME-POSITION = LP2, aperture movements and focus values are relative to this LP.

Following PID 14935, make sure the focus is re-initialized before each FP-POS exposure. In orbit one (where we change FP-POS in the same orbit), because the FP-POS OSM movement would not allow enough time to move the focus between FP-POS exposures, we ordered the FP-POS in reverse, i.e., 3, 1, which has longer overheads and allows for enough time to move the focus between each exposure.

Exposure times -

Wavecal:

G130M/1222 - 52s

G160M/1577 - 12s

Exposure times from 11.5.4 of the Phase II instructions.

Science exposures:

G130M/1222 - S/N=42 at 1150A

G160M/1577 - S/N=42 at 1650A

To get S/N>42 for all important absorption lines.

Aperture positions -

We use XAPER to move the aperture from +3.5" (LP2) to another position.

$XAPER = (LP6_npos - LP2_pos) * -21 \text{ steps/arcsecond}$.

+7" example: $XAPER = 7.0" - 3.5" * -21 \text{ steps/arcsecond} = -74$.

In addition to using XAPER steps to command aperture movement, we will also use the QESIPARM XSTEPS special requirement to command to move the aperture to the correct location.

$QESIPARM \ XSTEPS = XAPER(\text{Current}) - XAPER(\text{Previous})$

Step	XAPER	POSTARG	QESIPARM XSTEPS
LP2 (+3.5")	0	0"	NA
LP2 (+7.0")	-74	+3.52"	+74
LP2 (+9.0")	-116	+5.52"	+116
LP2 (+11.0")	-158	+7.52"	+158

Focus values -

Focus will be set to the values obtained from PID 16491 analysis. Set to placeholder value for now, which is the estimated minimum value of the focus curve in PID 16491. Focus is being measured for G130M/1222 FUVB, focus is applicable to both segments. Focus is being measured for G160M/1600, focus offset to 1577 is known (340 steps).

OLD VALUES -

The focus relative to LP2 is -

Step	G130M/1222	G160M/1577
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Proposal 16495 (STScI Edit Number: 3, Created: Monday, June 28, 2021 at 9:01:16 AM Eastern Standard Time) - Overview

LP2 (+3.5")	0	0
LP2 (+7.0")	+460	+534
LP2 (+9.0")	+860	+984
LP2 (+11.0")	+1360	+1484

Focus set to the values obtained from PID 16491 analysis. Focus measured for G130M/1222 FUVB, focus is applicable to both segments. Focus measured for G160M/1600 (both segments), focus offset to 1577 is known (-340 steps). The absolute focus for G160M/1600 at LP2 is +116, therefore the 1557 absolute focus at LP2 is $116 - 340 = -224$.

NEW VALUES -

The absolute focus values are -

Step	G130M/1222	G160M/1600	G160M/1577
LP2 (+3.5")	-810	+116	-224
LP2 (+7.0")	-951	+78	-262
LP2 (+9.0")	-851	+219	-121
LP2 (+11.0")	-897	+267	-73

LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus

The focus relative to LP2 (what we put in APT) is -

Step	G130M/1222	G160M/1577
LP2 (+3.5")	0	0
LP2 (+7.0")	-141	-38
LP2 (+9.0")	-41	+103
LP2 (+11.0")	-87	+151

Scheduling -

All visits will need to execute after focus values from PID 16491 have been calculated.

Proposal 16495 (STScI Edit Number: 3, Created: Monday, June 28, 2021 at 9:01:16 AM Eastern Standard Time) - Overview

Visit 01 of our program should be scheduled ~4 weeks after visits 01 and 04 of PID 16491.

Visit 02 of our program should be scheduled ~4 weeks after visits 02 and 05 of PID 16491.

Visit 03 of our program should be scheduled ~4 weeks after visits 03 and 06 of PID 16491.

This should give adequate time for the focus values to be derived and checked, implemented in this program, and for this program to be put back onto the schedule.

Program structure: 9 orbits

---- Marks non-interruptible sequences

Visit 01: 3 orbits

1. ACQ/IMAGE

2. ACQ/IMAGE (to guard against late GS acquisition)

3. G130M/1222 Initialization exposure at LP2, FP-POS=3

4. Adjust focus value to +7" value

5. Take a wavecal at LP2, FP-POS=3

6. Move aperture block -74 steps from LP2 to 7"

7. G130M/1222 exposure at YPOSTARG = 3.52", FP-POS=3

8. Move aperture block back to default location

9. Take a wavecal at LP2, FP-POS=3

10. G130M/1222 Initialization exposure at LP2, FP-POS=1

11. Adjust focus value to +7" value

12. Take a wavecal at LP2, FP-POS=1

13. Move aperture block -74 steps from LP2 to 7"

14. G130M/1222 exposure at YPOSTARG = 3.52", FP-POS=1

15. Move aperture block back to default location

16. Take a wavecal at LP2, FP-POS=1

17. G160M/1577 Initialization exposure at LP2, FP-POS=1

18. Adjust focus value to +7" value

19. Take a wavecal at LP2, FP-POS=1

20. Move aperture block -74 steps from LP2 to 7"

21. G160M/1577 exposure at YPOSTARG = 3.52", FP-POS=1

22. Move aperture block back to default location

23. Take a wavecal at LP2, FP-POS=1

24. G130M/1222 Initialization exposure at LP2, FP-POS=1

25. Adjust focus value to +7" value

26. Take a wavecal at LP2, FP-POS=1

27. Move aperture block -74 steps from LP2 to 7"

28. G130M/1222 exposure at YPOSTARG = 3.52", FP-POS=1

29. Move aperture block back to default location

30. Take a wavecal at LP2, FP-POS=1

31. G160M/1577 Initialization exposure at LP2, FP-POS=3

32. Adjust focus value to +7" value

33. Take a wavecal at LP2, FP-POS=3

34. Move aperture block -74 steps from LP2 to 7"

35. G160M/1577 exposure at YPOSTARG = 3.52", FP-POS=3

36. Move aperture block back to default location

37. Take a wavecal at LP2, FP-POS=3

38. G130M/1222 Initialization exposure at LP2, FP-POS=3

39. Adjust focus value to +7" value

40. Take a wavecal at LP2, FP-POS=3

41. Move aperture block -74 steps from LP2 to 7"
42. G130M/1222 exposure at YPOSTARG = 3.52", FP-POS=3
43. Move aperture block back to default location
44. Take a wavecal at LP2, FP-POS=3

Visit 02: 3 orbits

1. ACQ/IMAGE
 2. ACQ/IMAGE (to guard against late GS acquisition)
-
3. G130M/1222 Initialization exposure at LP2, FP-POS=3
 4. Adjust focus value to +9" value
 5. Take a wavecal at LP2, FP-POS=3
 6. Move aperture block -116 steps from LP2 to 9"
 7. G130M/1222 exposure at YPOSTARG = 5.52", FP-POS=3
 8. Move aperture block back to default location
 9. Take a wavecal at LP2, FP-POS=3
-
10. G130M/1222 Initialization exposure at LP2, FP-POS=1
 11. Adjust focus value to +9" value
 12. Take a wavecal at LP2, FP-POS=1
 13. Move aperture block -116 steps from LP2 to 9"
 14. G130M/1222 exposure at YPOSTARG = 5.52", FP-POS=1
 15. Move aperture block back to default location
 16. Take a wavecal at LP2, FP-POS=1
-
17. G160M/1577 Initialization exposure at LP2, FP-POS=1
 18. Adjust focus value to +9" value

19. Take a wavecal at LP2, FP-POS=1
20. Move aperture block -116 steps from LP2 to 9"
21. G160M/1577 exposure at YPOSTARG = 5.52", FP-POS=1
22. Move aperture block back to default location
23. Take a wavecal at LP2, FP-POS=1
-
24. G130M/1222 Initialization exposure at LP2, FP-POS=1
25. Adjust focus value to +9" value
26. Take a wavecal at LP2, FP-POS=1
27. Move aperture block -116 steps from LP2 to 9"
28. G130M/1222 exposure at YPOSTARG = 5.52", FP-POS=1
29. Move aperture block back to default location
30. Take a wavecal at LP2, FP-POS=1
-
31. G160M/1577 Initialization exposure at LP2, FP-POS=3
32. Adjust focus value to +9" value
33. Take a wavecal at LP2, FP-POS=3
34. Move aperture block -116 steps from LP2 to 9"
35. G160M/1577 exposure at YPOSTARG = 5.52", FP-POS=3
36. Move aperture block back to default location
37. Take a wavecal at LP2, FP-POS=3
-
38. G130M/1222 Initialization exposure at LP2, FP-POS=3
39. Adjust focus value to +9" value
40. Take a wavecal at LP2, FP-POS=3
41. Move aperture block -116 steps from LP2 to 9"
42. G130M/1222 exposure at YPOSTARG = 5.52", FP-POS=3
43. Move aperture block back to default location
44. Take a wavecal at LP2, FP-POS=3

Visit 03: 3 orbits

1. ACQ/IMAGE

2. ACQ/IMAGE (to guard against late GS acquisition)

3. G130M/1222 Initialization exposure at LP2, FP-POS=3

4. Adjust focus value to +11" value

5. Take a wavecal at LP2, FP-POS=3

6. Move aperture block -158 steps from LP2 to 11"

7. G130M/1222 exposure at YPOSTARG = 7.52", FP-POS=3

8. Move aperture block back to default location

9. Take a wavecal at LP2, FP-POS=3

10. G130M/1222 Initialization exposure at LP2, FP-POS=1

11. Adjust focus value to +11" value

12. Take a wavecal at LP2, FP-POS=1

13. Move aperture block -158 steps from LP2 to 11"

14. G130M/1222 exposure at YPOSTARG = 7.52", FP-POS=1

15. Move aperture block back to default location

16. Take a wavecal at LP2, FP-POS=1

17. G160M/1577 Initialization exposure at LP2, FP-POS=1

18. Adjust focus value to +11" value

19. Take a wavecal at LP2, FP-POS=1

20. Move aperture block -158 steps from LP2 to 11"

21. G160M/1577 exposure at YPOSTARG = 7.52", FP-POS=1

22. Move aperture block back to default location

23. Take a wavecal at LP2, FP-POS=1

24. G130M/1222 Initialization exposure at LP2, FP-POS=1

25. Adjust focus value to +11" value

26. Take a wavecal at LP2, FP-POS=1

27. Move aperture block -158 steps from LP2 to 11"

28. G130M/1222 exposure at YPOSTARG = 7.52", FP-POS=1

29. Move aperture block back to default location

30. Take a wavecal at LP2, FP-POS=1

31. G160M/1577 Initialization exposure at LP2, FP-POS=3

32. Adjust focus value to +11" value

33. Take a wavecal at LP2, FP-POS=3

34. Move aperture block -158 steps from LP2 to 11"

35. G160M/1577 exposure at YPOSTARG = 7.52", FP-POS=3

36. Move aperture block back to default location

37. Take a wavecal at LP2, FP-POS=3

38. G130M/1222 Initialization exposure at LP2, FP-POS=3

39. Adjust focus value to +11" value

40. Take a wavecal at LP2, FP-POS=3

41. Move aperture block -158 steps from LP2 to 11"

42. G130M/1222 exposure at YPOSTARG = 7.52", FP-POS=3

43. Move aperture block back to default location

44. Take a wavecal at LP2, FP-POS=3

---SPECIAL REQUESTS:

1. Turn off calibration for the COS/FUV exposures.
2. Disassociate all exposures.

SQL is required to perform these actions.

Proposal 16495 - 7arcsec (01) - FUV Exploratory Spectral Resolution Program at LP6

Mon Jun 28 14:01:16 GMT 2021

Visit	<p>Proposal 16495, 7arcsec (01), failed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 90%</p> <p><i>Comments: - Bypass calibration for the COS/FUV exposures.</i> <i>- Disassociate all exposures.</i></p>																	
	Diagnostics	<p>(7arcsec (01)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS</p> <p>(7arcsec (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(7arcsec (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>																
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>AZV-80</td> <td>RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000</td> <td>Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5</td> <td>V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: Coordinates are from Gaia DR2.</i></p> <p><i>Av 80 - O7 III - V=13.32, B=13.19, E(B-V)=0.13 (SMC), from ULLYSES.</i> <i>SED derived from fitting to STIS E140M spectrum, E(B-V) modified from 0.14 to 0.13 to better fit existing data.</i></p> <p><i>BOT GSC2 lists 3 unknown sources, but they are faint/invisible in the Swift W1 image. No GALEX imaging available. There are several fairly bright field objects which are not identified by the BOT, from Massey+02 these are >15" from the target, brightest have Vmags (Vega) of 16.85, 16.04, 16.36, 16.38. The target (which is safe) is the brightest object in the Swift W1 image, the fainter field objects are therefore safe for the science exposures. The field objects could affect the PSA during the NUV TA with the BOA but are safe based on their likely spectral types. From Massey+02 the B-V color of Av80 is -0.13, the colors of the field objects are all >0.34 and are therefore type later than A7. These are all safe, from Massey+02:</i></p> <p><i>Field star which is brightest in the Swift W1 image and bluest within 20" - 15.08" away from Av80, RA=50 44.8100, Dec=-72 47 27.100. V=16.85, B-V=0.34 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.21. Zaritsky+02 has V=17.08. According to https://www.stsci.edu/~inr/intrins.html, http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt this corresponds to spectral type A7, is safe COS.ta.1480381. XMM W1=17.35 (Page+14), is safe COS.ta.1480281.</i></p> <p><i>Field star 15.35" away from target, RA=00 50 47.22, Dec=-72 47 39.2, V=16.04, B-V=0.63 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.50, this corresponds to spectral type F8, is safe COS.ta.1480380.</i></p> <p><i>Field star 16.85" away from target, quite blue, RA=00 50 41.59, Dec=-72 47 55.2, V=16.36, B-V=0.39 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.26, this corresponds to spectral type A8, is safe COS.ta.1480383. XMM W1=18.40 Page+14) is safe COS.ta.1480395.</i></p> <p><i>Field star 17.83" away from target, RA=00 50 41.56, Dec=-72 47 56.3, V=16.38, B-V=0.52 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.39, this corresponds to spectral type F3, is safe COS.ta.1480386.</i></p> <p><i>There are numerous sources in Zaritsky+02 but these sources are very faint/invisible in the Swift W1 imaging, and should not pose an issue for the NUV TA.</i> <i>Category=EXT-STAR</i> <i>Description=[OF]</i> <i>Extended=NO</i></p>						#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous												
(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A	Reference Frame: ICRS													

Proposal 16495 - 7arcsec (01) - FUV Exploratory Spectral Resolution Program at LP6

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	image_acq_ boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
2	image_acq_ boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
<i>Comments: Repeat ACQ/IMAGE to protect against late GS acquisition.</i>									
3	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[1]
<i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i>									
4	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 3-9 Non-Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[1]
<i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i>									
5	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[1]
<i>Comments: Exposure at LP2. Lamp exposure time from 11.5.4 of the Phase II instructions. SQL needed to by-pass calibration</i>									
6	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 3-9 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[1]
<i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i>									
<i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i>									
<i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i>									
7	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	POS TARG 0.0,+3.5 2	Sequence 3-9 Non-Int in 7arcsec (01)	498 Secs (498 Secs) [==>]	[1]
<i>Comments: Adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=+3.52 arcsec (corresponding to YAPER=74/21 steps). This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i>									

Proposal 16495 - 7arcsec (01) - FUV Exploratory Spectral Resolution Program at LP6

8	Ap_move_LP2 NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 3-9 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> <i>XAPER = 21 steps per arcsec or 1 step = 0.0476"</i> <i>-----</i> <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>								
9	Wave_LP2_FP3 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>								
10	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[1]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
11	Adjust focus value for 12 22 LP6 NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 10-16 Non-Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i></p>								
12	Wave_LP2_FP1 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>								
13	Move Aperture to +7 arcsec from LP2 NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 10-16 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is</i> <i>XAPER = 21 steps per arcsec or 1 step = 0.0476"</i> <i>-----</i> <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>								

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14	1222_FP1 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; LIFETIME-POS=L P2; WAVECAL=NO	SAME POS AS 7	Sequence 10-16 Non -Int in 7arcsec (01)	498 Secs (498 Secs) [==>]	[1]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>									
15	Ap_move_L P2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 10-16 Non -Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[1]
<p>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>									
16	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non -Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[1]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
17	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[2]
<p>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>									
18	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=-38		Sequence 17-23 Non -Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[2]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 7" is -262. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -262 -224 gives a focus offset of -38 relative LP2.</p>									
19	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 7arcsec (01)	12 Secs (12 Secs) [==>]	[2]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

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20	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 17-23 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>									
21	1577_FP1 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A		BUFFER-TIME=23 SAME POS AS 7 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 7arcsec (01)	1383.5 Secs (1383.5 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</i></p>									
22	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 17-23 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>-----</i> <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>									
23	Wave_LP2_FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A		FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 7arcsec (01)	12 Secs (12 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>									
24	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)		COS/FUV, TIME-TAG, PSA	G130M 1222 A		BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 24-30 Non-Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[2]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									
25	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 24-30 Non-Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i></p>									

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26	Wave_LP2_ WAVE FP1	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 24-30 Non -Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[2]	
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>								
27	Move Apert ure to +7 arc sec from LP 2	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 24-30 Non -Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[2]
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, $(7.0-3.5)" * -21 \text{ steps/arcsecond} \Rightarrow \text{XAPER} = -74 \text{ steps}$.</p> <p>Conversion is $\text{XAPER} = 21 \text{ steps per arcsec or } 1 \text{ step} = 0.0476"$ ----- $\text{QESIPARM XSTEPS} = \text{XAPER}(\text{Current}) - \text{XAPER}(\text{Previous}), \text{ therefore } \text{XSTEPS} = -74 - 0 = -74 \text{ XSTEPS}$</p>								
28	1222_FP1 (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; LIFETIME-POS=L P2; WAVECAL=NO	SAME POS AS 7	Sequence 24-30 Non -Int in 7arcsec (01)	152 Secs (152 Secs) [==>]	[2]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>								
29	Ap_move_L P2	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 24-30 Non -Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[2]
<p>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, $(3.5-3.5)" * -21 \text{ steps/arcsecond} \Rightarrow \text{XAPER} = 0 \text{ steps}$</p> <p>Conversion is $\text{XAPER} = 21 \text{ steps per arcsec or } 1 \text{ step} = 0.0476"$ ----- $\text{QESIPARM XSTEPS} = \text{XAPER}(\text{Current}) - \text{XAPER}(\text{Previous})$ XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "$\text{QESIPARM XSTEPS} +74$" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>								
30	Wave_LP2_ WAVE FP1	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 24-30 Non -Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[2]	
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>								
31	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80 COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 31-37 Non -Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[3]	
<p>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>								

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32	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=-38		Sequence 31-37 Non-Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 7" is -262. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -262 - -224 gives a focus offset of -38 relative LP2.</i></p>									
33	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 7arcsec (01)	12 Secs (12 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
34	Move Aperture to +7 arc sec from LP 2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 31-37 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>									
35	1577_FP3 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 31-37 Non-Int in 7arcsec (01)	1383.5 Secs (1383.5 Secs) [==>]	[3]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</i></p>									
36	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 31-37 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>									
37	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 7arcsec (01)	12 Secs (12 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									

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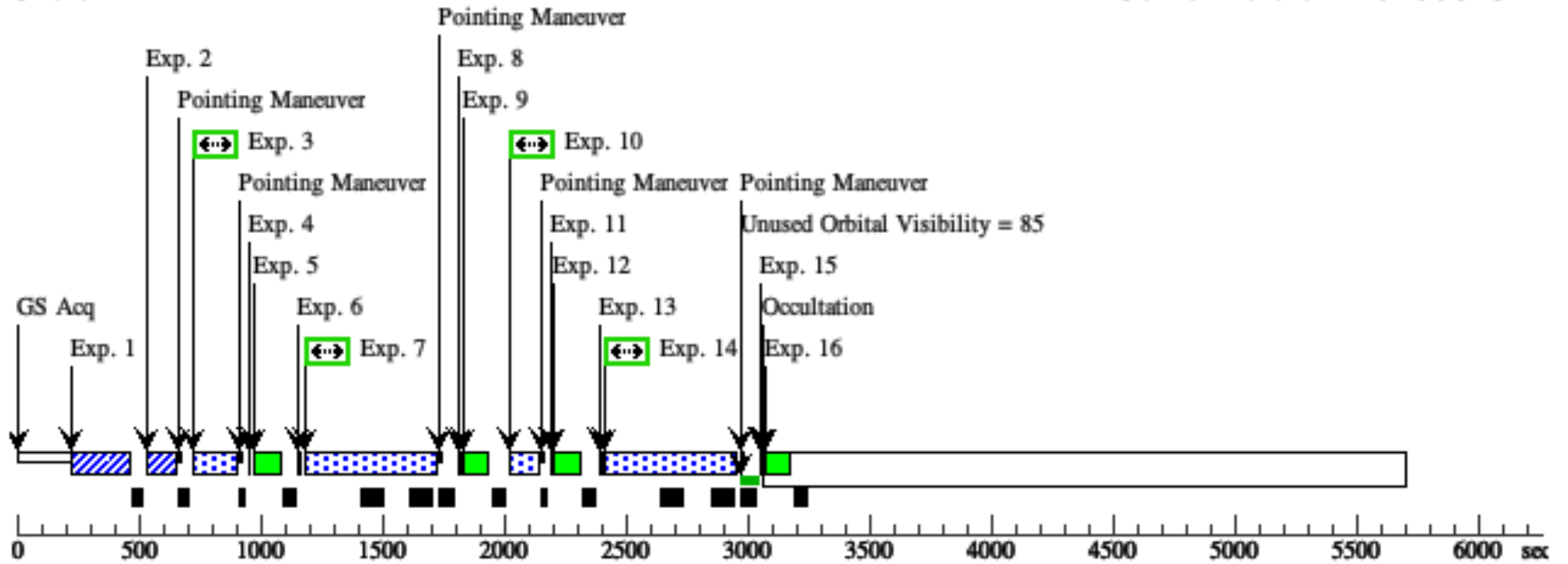
38	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 7arcsec (01)	0.1 Secs (0.1 Secs) [==>]	[3]	
<p>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>									
39	Adjust focus value for 12 22 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141	Sequence 38-44 Non-Int in 7arcsec (01)	0.0 Secs (0 Secs) [==>]	[3]	
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</p>									
40	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[3]	
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
41	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 38-44 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</p>									
42	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 38-44 Non-Int in 7arcsec (01)	152 Secs (152 Secs) [==>]	[3]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>									
43	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 38-44 Non-Int in 7arcsec (01)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-7.0)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>									

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44	Wave_LP2_ WAVE FP3	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non -Int in 7arcsec (01)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>							

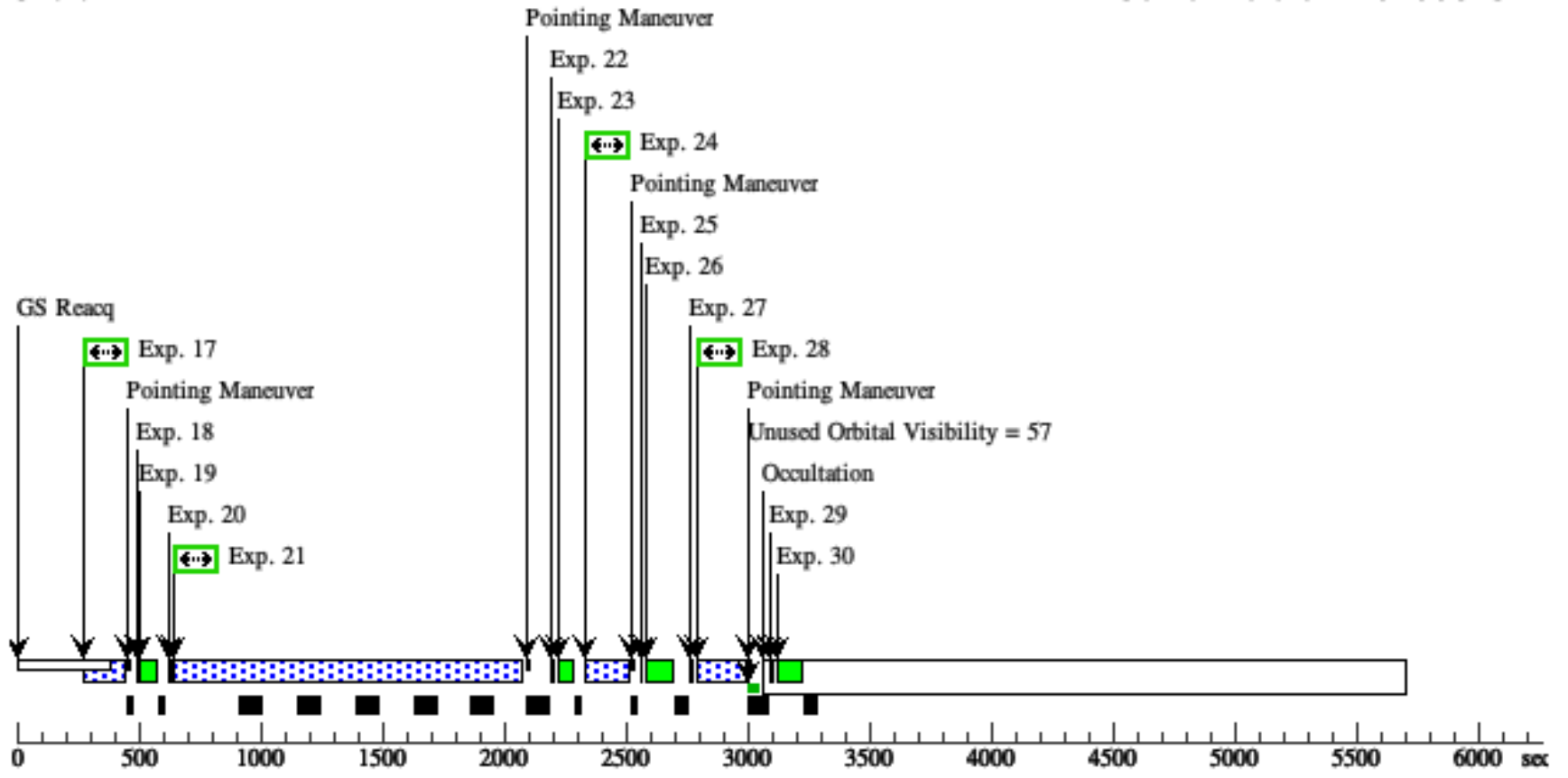
Orbit 1

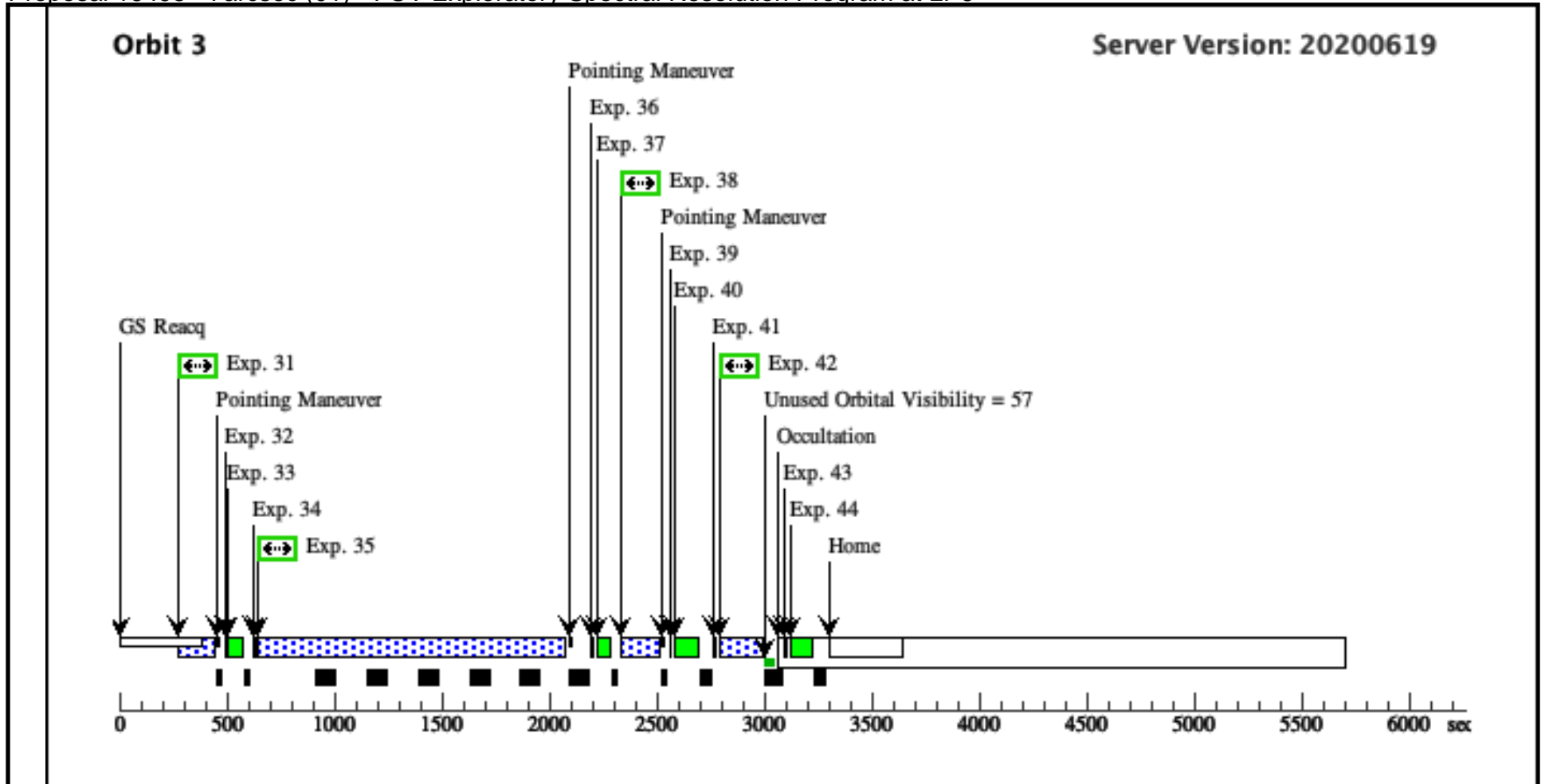
Orbit Structure



Orbit 2

Server Version: 20200619





Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

Mon Jun 28 14:01:17 GMT 2021

Visit	<p>Proposal 16495, 7arcsec (51), scheduling</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 90%</p> <p>Comments: - Bypass calibration for the COS/FUV exposures. - Disassociate all exposures.</p> <p>Repeat of visit 01 which was lost due to the June 13 NSSC-1 safing event.</p>																
	Diagnostics	<p>(7arcsec (51)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS</p> <p>(7arcsec (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(7arcsec (51)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>															
Fixed Targets		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>AZV-80</td> <td>RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000</td> <td>Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5</td> <td>V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p>Comments: Coordinates are from Gaia DR2.</p> <p>Av 80 - O7 III - V=13.32, B=13.19, E(B-V)=0.13 (SMC), from ULLYSES. SED derived from fitting to STIS E140M spectrum, E(B-V) modified from 0.14 to 0.13 to better fit existing data.</p> <p>BOT GSC2 lists 3 unknown sources, but they are faint/invisible in the Swift W1 image. No GALEX imaging available. There are several fairly bright field objects which are not identified by the BOT, from Massey+02 these are >15" from the target, brightest have Vmags (Vega) of 16.85, 16.04, 16.36, 16.38. The target (which is safe) is the brightest object in the Swift W1 image, the fainter field objects are therefore safe for the science exposures. The field objects could affect the PSA during the NUV TA with the BOA but are safe based on their likely spectral types. From Massey+02 the B-V color of Av80 is -0.13, the colors of the field objects are all >0.34 and are therefore type later than A7. These are all safe, from Massey+02:</p> <p>Field star which is brightest in the Swift W1 image and bluest within 20" - 15.08" away from Av80, RA=50 44.8100, Dec=-72 47 27.100. V=16.85, B-V=0.34 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.21. Zaritsky+02 has V=17.08. According to https://www.stsci.edu/~inr/intrins.html, http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt this corresponds to spectral type A7, is safe COS.ta.1480381. XMM W1=17.35 (Page+14), is safe COS.ta.1480281.</p> <p>Field star 15.35" away from target, RA=00 50 47.22, Dec=-72 47 39.2, V=16.04, B-V=0.63 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.50, this corresponds to spectral type F8, is safe COS.ta.1480380.</p> <p>Field star 16.85" away from target, quite blue, RA=00 50 41.59, Dec=-72 47 55.2, V=16.36, B-V=0.39 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.26, this corresponds to spectral type A8, is safe COS.ta.1480383. XMM W1=18.40 Page+14) is safe COS.ta.1480395.</p> <p>Field star 17.83" away from target, RA=00 50 41.56, Dec=-72 47 56.3, V=16.38, B-V=0.52 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.39, this corresponds to spectral type F3, is safe COS.ta.1480386.</p> <p>There are numerous sources in Zaritsky+02 but these sources are very faint/invisible in the Swift W1 imaging, and should not pose an issue for the NUV TA.</p> <p>Category=EXT-STAR Description=[OF] Extended=NO</p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous											
(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A	Reference Frame: ICRS												

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
2	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
<i>Comments: Repeat ACQ/IMAGE to protect against late GS acquisition.</i>									
3	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[1]
<i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i>									
4	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 3-9 Non-Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[1]
<i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i>									
5	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[1]
<i>Comments: Exposure at LP2. Lamp exposure time from 11.5.4 of the Phase II instructions. SQL needed to by-pass calibration</i>									
6	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 3-9 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[1]
<i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i>									
<i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i>									
<i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i>									
7	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	POS TARG 0.0,+3.5 2	Sequence 3-9 Non-Int in 7arcsec (51)	498 Secs (498 Secs) [==>]	[1]
<i>Comments: Adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=+3.52 arcsec (corresponding to YAPER=74/21 steps). This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i>									

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

8	Ap_move_LP2 NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 3-9 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> <i>XAPER = 21 steps per arcsec or 1 step = 0.0476"</i> ----- <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>								
9	Wave_LP2_FP3 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>								
10	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[1]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
11	Adjust focus value for 12 22 LP6 NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 10-16 Non-Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i></p>								
12	Wave_LP2_FP1 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>								
13	Move Aperture to +7 arcsec from LP2 NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 10-16 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is</i> <i>XAPER = 21 steps per arcsec or 1 step = 0.0476"</i> ----- <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>								

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

14	1222_FP1 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; LIFETIME-POS=L P2; WAVECAL=NO	SAME POS AS 7	Sequence 10-16 Non -Int in 7arcsec (51)	498 Secs (498 Secs) [==>]	[1]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>									
15	Ap_move_L P2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 10-16 Non -Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[1]
<p>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>									
16	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non -Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[1]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
17	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[2]
<p>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>									
18	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=-38		Sequence 17-23 Non -Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[2]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 7" is -262. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -262 --224 gives a focus offset of -38 relative LP2.</p>									
19	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 7arcsec (51)	12 Secs (12 Secs) [==>]	[2]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

20	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 17-23 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>									
21	1577_FP1 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A		BUFFER-TIME=23 SAME POS AS 7 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 7arcsec (51)	1383.5 Secs (1383.5 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</i></p>									
22	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 17-23 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>									
23	Wave_LP2_FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A		FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 7arcsec (51)	12 Secs (12 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
24	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A		BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 24-30 Non-Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[2]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									
25	Adjust focus value for 122 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141		Sequence 24-30 Non-Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951--810 gives a focus offset of -141 relative LP2.</i></p>									

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

26	Wave_LP2_ WAVE FP1	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 24-30 Non -Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[2]	
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
27	Move Apert ure to +7 arc sec from LP 2	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 24-30 Non -Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>-----</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>								
28	1222_FP1 (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; LIFETIME-POS=L P2; WAVECAL=NO	SAME POS AS 7	Sequence 24-30 Non -Int in 7arcsec (51)	152 Secs (152 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i></p>								
29	Ap_move_L P2	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 24-30 Non -Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>-----</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>								
30	Wave_LP2_ WAVE FP1	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 24-30 Non -Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[2]	
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
31	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80 COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 31-37 Non -Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[3]	
<p><i>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

32	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=-38		Sequence 31-37 Non-Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[3]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 7" is -262. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -262 - -224 gives a focus offset of -38 relative LP2.</p>									
33	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 7arcsec (51)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
34	Move Aperture to +7 arc sec from LP 2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74	Sequence 31-37 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</p>									
35	1577_FP3 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 31-37 Non-Int in 7arcsec (51)	1383.5 Secs (1383.5 Secs) [==>]	[3]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</p>									
36	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74	Sequence 31-37 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</p>									
37	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 7arcsec (51)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

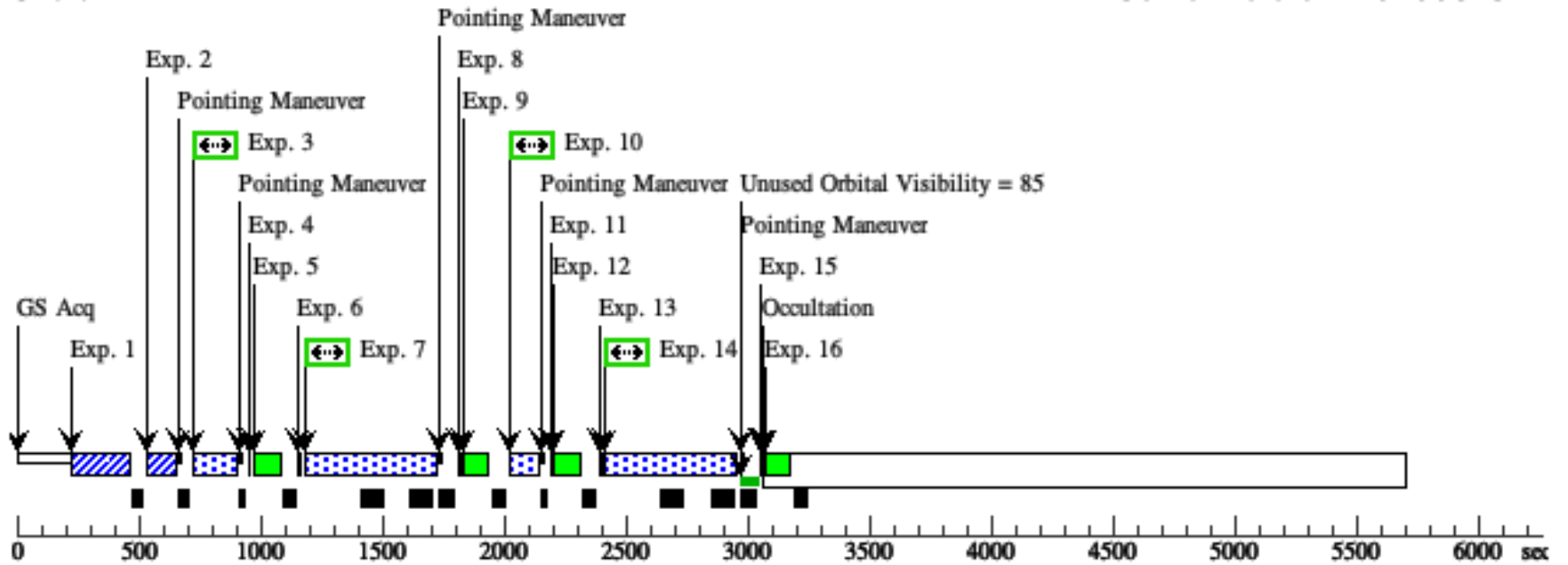
38	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 7arcsec (51)	0.1 Secs (0.1 Secs) [==>]	[3]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
39	Adjust focus value for 12 22 LP6	NONE	COS, ALIGN/OSM		FOCUS=-141	Sequence 38-44 Non-Int in 7arcsec (51)	0.0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 7" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -951 - -810 gives a focus offset of -141 relative LP2.</i></p>								
40	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
41	Move Aperture to +7 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-74; YAPER=0	QESIPARM XSTEP S -74 Sequence 38-44 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +7.0". So, (7.0-3.5)" * -21 steps/arcsecond => XAPER= -74 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -74 - 0 = -74 XSTEPS</i></p>								
42	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7 Sequence 38-44 Non-Int in 7arcsec (51)	152 Secs (152 Secs) [==>]	[3]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i></p>								
43	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 74 Sequence 38-44 Non-Int in 7arcsec (51)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +7.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-7.0)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +74" [(0 - -74) = +74] Special Requirement is necessary to move the aperture to the correct location.</i></p>								

Proposal 16495 - 7arcsec (51) - FUV Exploratory Spectral Resolution Program at LP6

44	Wave_LP2_ WAVE FP3	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non -Int in 7arcsec (51)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>							

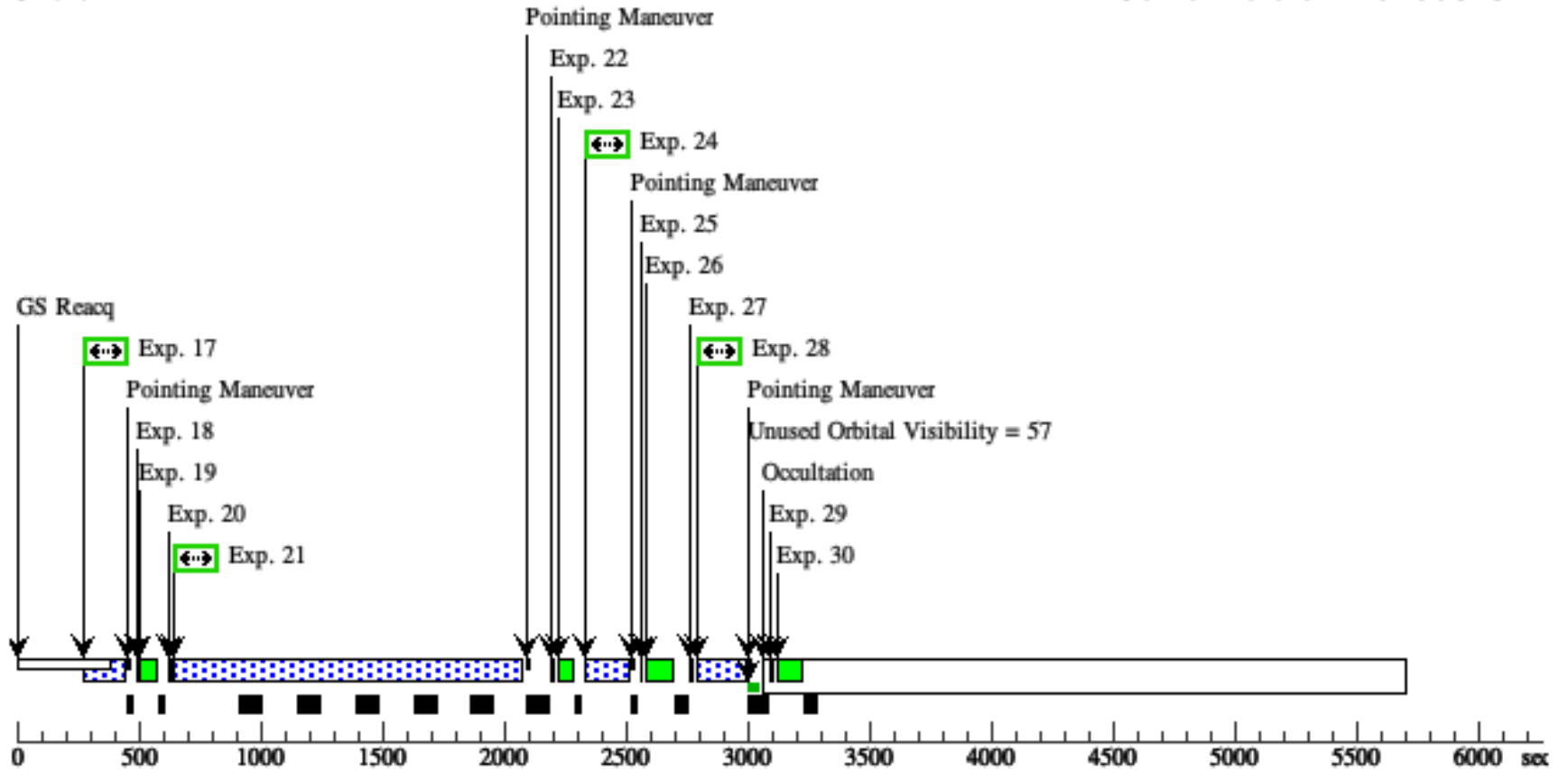
Orbit 1

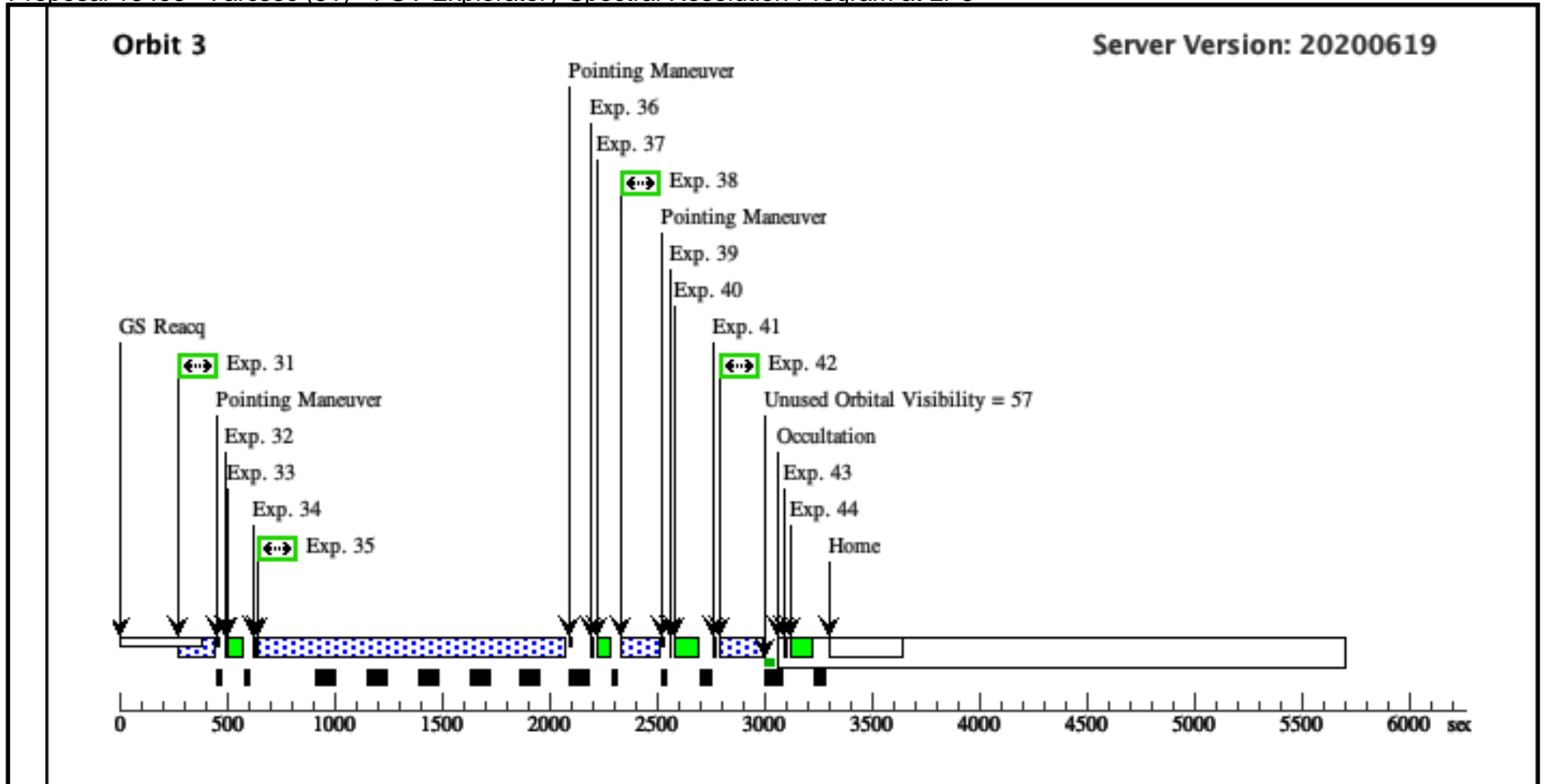
Orbit Structure



Orbit 2

Server Version: 20200619





Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

Mon Jun 28 14:01:17 GMT 2021

Visit	<p>Proposal 16495, 9arcsec (02), scheduling</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 90%</p> <p><i>Comments: - Bypass calibration for the COS/FUV exposures.</i></p> <p><i>- Disassociate all exposures.</i></p>																	
	<p>Diagnosics</p> <p>(9arcsec (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS</p> <p>(9arcsec (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(9arcsec (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>																	
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>AZV-80</td> <td>RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000</td> <td>Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5</td> <td>V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>						#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A	Reference Frame: ICRS
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<p><i>Comments: Coordinates are from Gaia DR2.</i></p> <p><i>Av 80 - O7 III - V=13.32, B=13.19, E(B-V)=0.13 (SMC), from ULLYSES.</i></p> <p><i>SED derived from fitting to STIS E140M spectrum, E(B-V) modified from 0.14 to 0.13 to better fit existing data.</i></p> <p><i>BOT GSC2 lists 3 unknown sources, but they are faint/invisible in the Swift W1 image. No GALEX imaging available. There are several fairly bright field objects which are not identified by the BOT, from Massey+02 these are >15" from the target, brightest have Vmags (Vega) of 16.85, 16.04, 16.36, 16.38. The target (which is safe) is the brightest object in the Swift W1 image, the fainter field objects are therefore safe for the science exposures. The field objects could affect the PSA during the NUV TA with the BOA but are safe based on their likely spectral types. From Massey+02 the B-V color of Av80 is -0.13, the colors of the field objects are all >0.34 and are therefore type later than A7. These are all safe, from Massey+02:</i></p> <p><i>Field star which is brightest in the Swift W1 image and bluest within 20" - 15.08" away from Av80, RA=50 44.8100, Dec=-72 47 27.100. V=16.85, B-V=0.34 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.21. Zaritsky+02 has V=17.08. According to https://www.stsci.edu/~inr/intrins.html, http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt this corresponds to spectral type A7, is safe COS.ta.1480381. XMM W1=17.35 (Page+14), is safe COS.ta.1480281.</i></p> <p><i>Field star 15.35" away from target, RA=00 50 47.22, Dec=-72 47 39.2, V=16.04, B-V=0.63 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.50, this corresponds to spectral type F8, is safe COS.ta.1480380.</i></p> <p><i>Field star 16.85" away from target, quite blue, RA=00 50 41.59, Dec=-72 47 55.2, V=16.36, B-V=0.39 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.26, this corresponds to spectral type A8, is safe COS.ta.1480383. XMM W1=18.40 Page+14) is safe COS.ta.1480395.</i></p> <p><i>Field star 17.83" away from target, RA=00 50 41.56, Dec=-72 47 56.3, V=16.38, B-V=0.52 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.39, this corresponds to spectral type F3, is safe COS.ta.1480386.</i></p> <p><i>There are numerous sources in Zaritsky+02 but these sources are very faint/invisible in the Swift W1 imaging, and should not pose an issue for the NUV TA.</i></p> <p><i>Category=EXT-STAR</i></p> <p><i>Description=[OF]</i></p> <p><i>Extended=NO</i></p>																		

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
2	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
<i>Comments: Repeat ACQ/IMAGE to protect against late GS acquisition.</i>									
3	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[1]
<i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i>									
4	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-41		Sequence 3-9 Non-Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[1]
<i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 9" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -851--810 gives a focus offset of -41 relative LP2.</i>									
5	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[1]
<i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i>									
6	Move Aperture to +9 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116	Sequence 3-9 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[1]
<i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</i>									
<i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i>									
<i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</i>									
7	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	POS TARG 0.0,+5.5 2	Sequence 3-9 Non-Int in 9arcsec (02)	498 Secs (498 Secs) [==>]	[1]
<i>Comments: Adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=+5.52 arcsec (corresponding to YAPER=116/21 steps). This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i>									

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

8	Ap_move_LP2 NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116	Sequence 3-9 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</i></p>								
9	Wave_LP2_FP3 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
10	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[1]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
11	Adjust focus value for 12 22 LP6 NONE	COS, ALIGN/OSM		FOCUS=-41		Sequence 10-16 Non-Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 9" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -851--810 gives a focus offset of -41 relative LP2.</i></p>								
12	Wave_LP2_FP1 WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
13	Move Aperture to +9 arcsec from LP2 NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116	Sequence 10-16 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</i></p>								

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

14	1222_FP1 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 10-16 Non -Int in 9arcsec (02)	498 Secs (498 Secs) [==>]	[1]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>									
15	Ap_move_L P2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116	Sequence 10-16 Non -Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[1]
<p>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</p>									
16	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non -Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[1]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
17	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[2]
<p>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>									
18	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=+103		Sequence 17-23 Non -Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[2]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 9" is -121. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -121 --224 = +103.</p>									
19	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 9arcsec (02)	12 Secs (12 Secs) [==>]	[2]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

20	Move Aperture to +9 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116	Sequence 17-23 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</i></p>									
21	1577_FP1 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A		BUFFER-TIME=23 SAME POS AS 7 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 9arcsec (02)	1383.5 Secs (1383.5 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</i></p>									
22	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116	Sequence 17-23 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</p>									
23	Wave_LP2_FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A		FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 9arcsec (02)	12 Secs (12 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
24	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A		BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 24-30 Non-Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[2]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									
25	Adjust focus value for 12 LP6	NONE	COS, ALIGN/OSM		FOCUS=-41		Sequence 24-30 Non-Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 9" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -851--810 gives a focus offset of -41 relative LP2.</i></p>									

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

26	Wave_LP2_ WAVE FP1		COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 24-30 Non -Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
27	Move Apert ure to +9 arc sec from LP 2	NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116	Sequence 24-30 Non -Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</i></p>									
28	1222_FP1 (1) (COS.sp.147 6390)	AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 24-30 Non -Int in 9arcsec (02)	152 Secs (152 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i></p>									
29	Ap_move_L P2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116	Sequence 24-30 Non -Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</i></p>									
30	Wave_LP2_ WAVE FP1		COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 24-30 Non -Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
31	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1)	AZV-80	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 31-37 Non -Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[3]
<p><i>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

32	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=+103		Sequence 31-37 Non-Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[3]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 9" is -121. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -121 - -224 = +103.</p>									
33	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 9arcsec (02)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
34	Move Aperture to +9 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116	Sequence 31-37 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</p>									
35	1577_FP3 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 31-37 Non-Int in 9arcsec (02)	1383.5 Secs (1383.5 Secs) [==>]	[3]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</p>									
36	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116	Sequence 31-37 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</p>									
37	Wave_LP2_ FP3	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 9arcsec (02)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

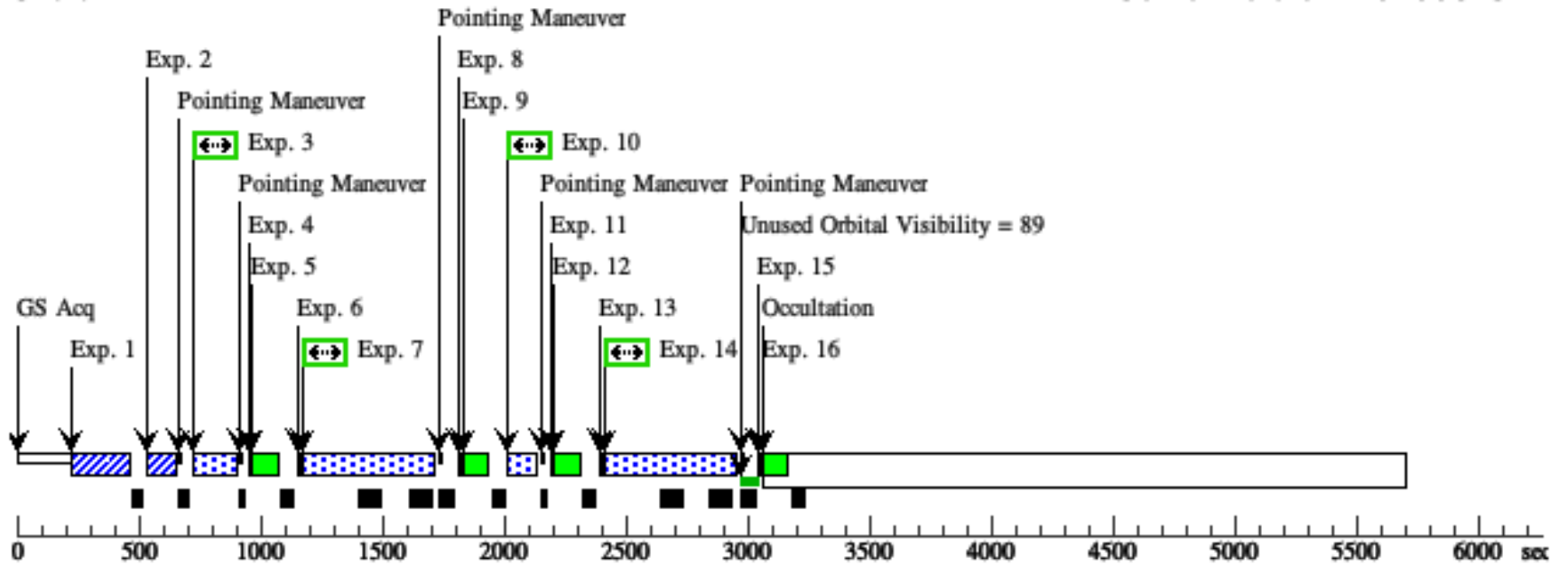
38	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 9arcsec (02)	0.1 Secs (0.1 Secs) [==>]	[3]
<p>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>								
39	Adjust focus value for 12 22 LP6	NONE	COS, ALIGN/OSM		FOCUS=-41	Sequence 38-44 Non-Int in 9arcsec (02)	0.0 Secs (0 Secs) [==>]	[3]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 9" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -851--810 gives a focus offset of -41 relative LP2.</p>								
40	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>								
41	Move Aperture to +9 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-116; YAPER=0	QESIPARM XSTEP S -116 Sequence 38-44 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +9.0". So, (9.0-3.5)" * -21 steps/arcsecond => XAPER= -116 steps.</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -116 - 0 = -116 XSTEPS</p>								
42	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7 Sequence 38-44 Non-Int in 9arcsec (02)	152 Secs (152 Secs) [==>]	[3]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>								
43	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 116 Sequence 38-44 Non-Int in 9arcsec (02)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +9.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +116" [(0 - -116) = +116] Special Requirement is necessary to move the aperture to the correct location.</p>								

Proposal 16495 - 9arcsec (02) - FUV Exploratory Spectral Resolution Program at LP6

44	Wave_LP2_ WAVE FP3	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non -Int in 9arcsec (02)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>							

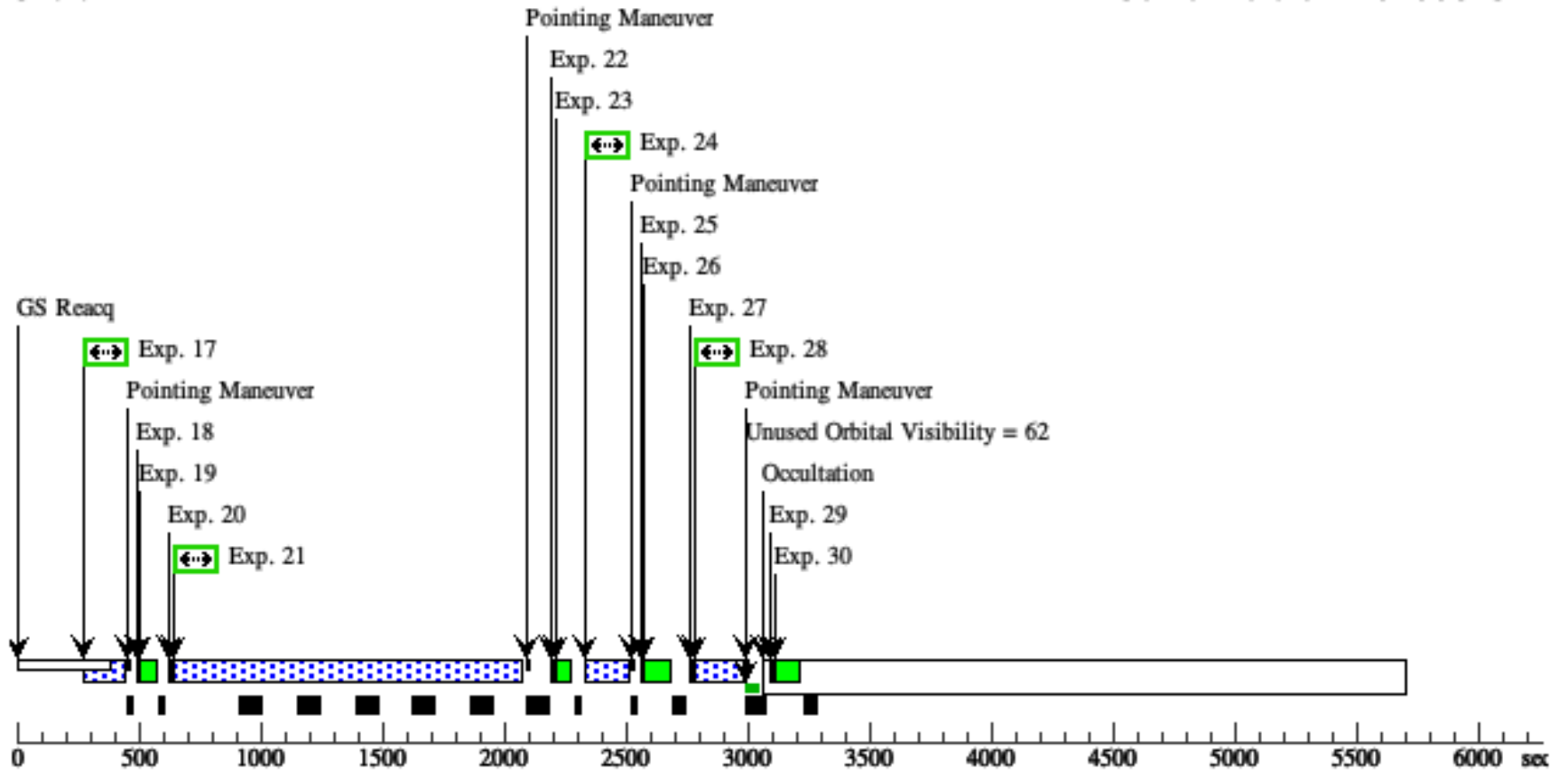
Orbit 1

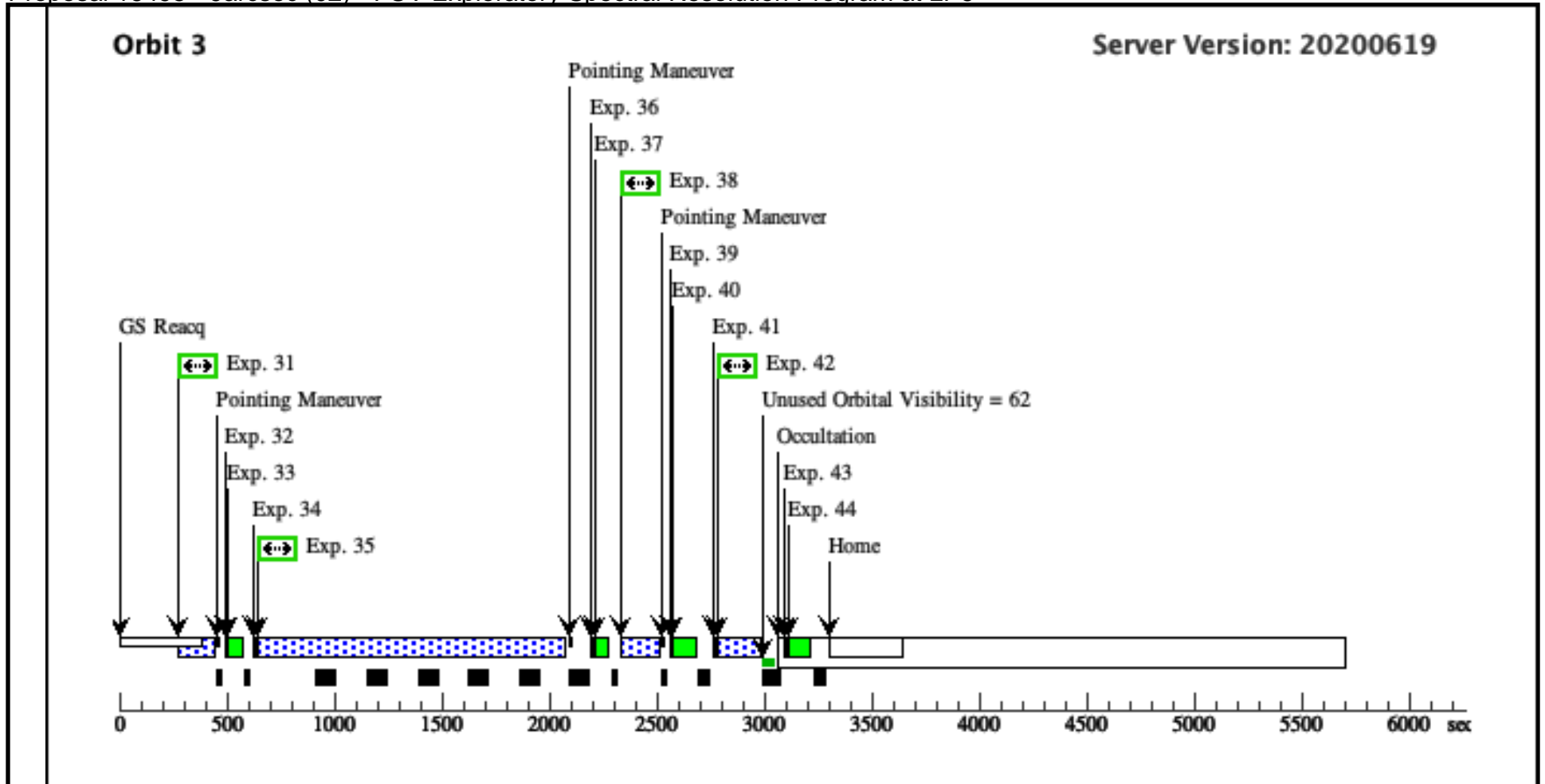
Orbit Structure



Orbit 2

Server Version: 20200619





Proposal 16495 - 11arcsec (03) - FUV Exploratory Spectral Resolution Program at LP6

Mon Jun 28 14:01:17 GMT 2021

Visit	<p>Proposal 16495, 11arcsec (03), implementation</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS, COS/FUV, COS/NUV</p> <p>Special Requirements: SCHED 90%</p> <p><i>Comments: - Bypass calibration for the COS/FUV exposures.</i> <i>- Disassociate all exposures.</i></p>																	
	<p>Diagnosics</p> <p>(11arcsec (03)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS</p> <p>(11arcsec (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(11arcsec (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>																	
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>AZV-80</td> <td>RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000</td> <td>Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5</td> <td>V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>						#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A	Reference Frame: ICRS
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous												
(1)	AZV-80	RA: 00 50 43.8154 (12.6825642d) Dec: -72 47 41.57 (-72.79488d) Equinox: J2000	Proper Motion RA: 0.114 mas/yr Proper Motion Dec: -1.453 mas/yr Epoch of Position: 2015.5	V=13.32 B=13.19, 1360A flux from STIS=3.3e-13 erg/s/cm^2/A	Reference Frame: ICRS													
<p><i>Comments: Coordinates are from Gaia DR2.</i></p> <p><i>Av 80 - O7 III - V=13.32, B=13.19, E(B-V)=0.13 (SMC), from ULLYSES.</i> <i>SED derived from fitting to STIS E140M spectrum, E(B-V) modified from 0.14 to 0.13 to better fit existing data.</i></p> <p><i>BOT GSC2 lists 3 unknown sources, but they are faint/invisible in the Swift W1 image. No GALEX imaging available. There are several fairly bright field objects which are not identified by the BOT, from Massey+02 these are >15" from the target, brightest have Vmags (Vega) of 16.85, 16.04, 16.36, 16.38. The target (which is safe) is the brightest object in the Swift W1 image, the fainter field objects are therefore safe for the science exposures. The field objects could affect the PSA during the NUV TA with the BOA but are safe based on their likely spectral types. From Massey+02 the B-V color of Av80 is -0.13, the colors of the field objects are all >0.34 and are therefore type later than A7. These are all safe, from Massey+02:</i></p> <p><i>Field star which is brightest in the Swift W1 image and bluest within 20" - 15.08" away from Av80, RA=50 44.8100, Dec=-72 47 27.100. V=16.85, B-V=0.34 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.21. Zaritsky+02 has V=17.08. According to https://www.stsci.edu/~inr/intrins.html, http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt this corresponds to spectral type A7, is safe COS.ta.1480381. XMM W1=17.35 (Page+14), is safe COS.ta.1480281.</i></p> <p><i>Field star 15.35" away from target, RA=00 50 47.22, Dec=-72 47 39.2, V=16.04, B-V=0.63 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.50, this corresponds to spectral type F8, is safe COS.ta.1480380.</i></p> <p><i>Field star 16.85" away from target, quite blue, RA=00 50 41.59, Dec=-72 47 55.2, V=16.36, B-V=0.39 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.26, this corresponds to spectral type A8, is safe COS.ta.1480383. XMM W1=18.40 Page+14) is safe COS.ta.1480395.</i></p> <p><i>Field star 17.83" away from target, RA=00 50 41.56, Dec=-72 47 56.3, V=16.38, B-V=0.52 from Massey+02. If E(B-V) = 0.13 then intrinsic B-V is 0.39, this corresponds to spectral type F3, is safe COS.ta.1480386.</i></p> <p><i>There are numerous sources in Zaritsky+02 but these sources are very faint/invisible in the Swift W1 imaging, and should not pose an issue for the NUV TA.</i></p> <p><i>Category=EXT-STAR</i> <i>Description=[OF]</i> <i>Extended=NO</i></p>																		

Proposal 16495 - 11arcsec (03) - FUV Exploratory Spectral Resolution Program at LP6

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
2	image_acq_boa (COS.ta.147 4056)	(1) AZV-80	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5.3 Secs (5.3 Secs) [==>]	[1]
<i>Comments: Repeat ACQ/IMAGE to protect against late GS acquisition.</i>									
3	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=200; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP2		Sequence 3-9 Non-Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[1]
<i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i>									
4	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-87		Sequence 3-9 Non-Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[1]
<i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 11" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -897--810 gives a focus offset of -87 relative LP2.</i>									
5	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=LP2		Sequence 3-9 Non-Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[1]
<i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i>									
6	Move Aperture to +11 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158	Sequence 3-9 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[1]
<i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (11.0-3.5)" * -21 steps/arcsecond => XAPER= -158 steps.</i>									
<i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i>									
<i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = -158 XSTEPS</i>									
7	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=200; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=LP2	POS TARG 0.0,+7.5 2	Sequence 3-9 Non-Int in 11arcsec (03)	498 Secs (498 Secs) [==>]	[1]
<i>Comments: Adjusted target position in aperture by setting a POS TARG to X=0.0 and Y=+7.52 arcsec (corresponding to YAPER=158/21 steps). This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i>									

Proposal 16495 - 11arcsec (03) - FUV Exploratory Spectral Resolution Program at LP6

8	Ap_move_LP2 NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158	Sequence 3-9 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</p>								
9	Wave_LP2_WAVE FP3	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 3-9 Non-Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> SQL needed to by-pass calibration</p>								
10	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[1]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
11	Adjust focus value for 12 22 LP6 NONE	COS, ALIGN/OSM		FOCUS=-87		Sequence 10-16 Non-Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 11" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -897--810 gives a focus offset of -87 relative LP2.</i></p>								
12	Wave_LP2_WAVE FP1	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non-Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[1]
<p><i>Comments: Exposure at LP2</i> SQL needed to by-pass calibration</p>								
13	Move Aperture to +11 arcsec from LP2 NONE	COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158	Sequence 10-16 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[1]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (11.0-3.5)" * -21 steps/arcsecond => XAPER= -158 steps.</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = -158 XSTEPS</p>								

Proposal 16495 - 11arcsec (03) - FUV Exploratory Spectral Resolution Program at LP6

14	1222_FP1 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 10-16 Non -Int in 11arcsec (03)	498 Secs (498 Secs) [==>]	[1]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</p>									
15	Ap_move_L P2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158	Sequence 10-16 Non -Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[1]
<p>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</p>									
16	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 10-16 Non -Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[1]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
17	1577_initiali ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 7; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[2]
<p>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</p>									
18	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=+151		Sequence 17-23 Non -Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[2]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 11" is -73. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -73 --224 gives a focus offset of +151 relative LP2.</p>									
19	Wave_LP2_ FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 17-23 Non -Int in 11arcsec (03)	12 Secs (12 Secs) [==>]	[2]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

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20	Move Aperture to +11 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158	Sequence 17-23 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (11.0-3.5)" * -21 steps/arcsecond => XAPER= -158 steps.</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = -158 XSTEPS</i></p>									
21	1577_FP1 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A		BUFFER-TIME=23 SAME POS AS 7 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 11arcsec (03)	1383.5 Secs (1383.5 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1650A.</i></p>									
22	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158	Sequence 17-23 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is</i> XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p><i>-----</i> <i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</i></p>									
23	Wave_LP2_FP1	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1577 A		FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 17-23 Non-Int in 11arcsec (03)	12 Secs (12 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2</i> <i>SQL needed to by-pass calibration</i></p>									
24	1222_initialize_aperture-position-focus-HV-values (1) AZV-80 (COS.sp.147 6390)		COS/FUV, TIME-TAG, PSA	G130M 1222 A		BUFFER-TIME=20 0; FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 24-30 Non-Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[2]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									
25	Adjust focus value for 12 LP6	NONE	COS, ALIGN/OSM		FOCUS=-87		Sequence 24-30 Non-Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 11" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -897--810 gives a focus offset of -87 relative LP2.</i></p>									

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26	Wave_LP2_ WAVE FP1		COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 24-30 Non -Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
27	Move Apert NONE ure to +11 ar csec from L P2		COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158	Sequence 24-30 Non -Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (11.0-3.5)" * -21 steps/arcsecond => XAPER= -158 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = -158 XSTEPS</i></p>									
28	1222_FP1 (1) AZV-80 (COS.sp.147 6390)		COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 FP-POS=1; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 24-30 Non -Int in 11arcsec (03)	152 Secs (152 Secs) [==>]	[2]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i></p>									
29	Ap_move_L NONE P2		COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158	Sequence 24-30 Non -Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[2]
<p><i>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</i></p>									
30	Wave_LP2_ WAVE FP1		COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 24-30 Non -Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[2]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>									
31	1577_initiali (1) AZV-80 ze_aperture- position-foc us-HV-value s (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2		Sequence 31-37 Non -Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[3]
<p><i>Comments: initializes the G160M/1577 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>									

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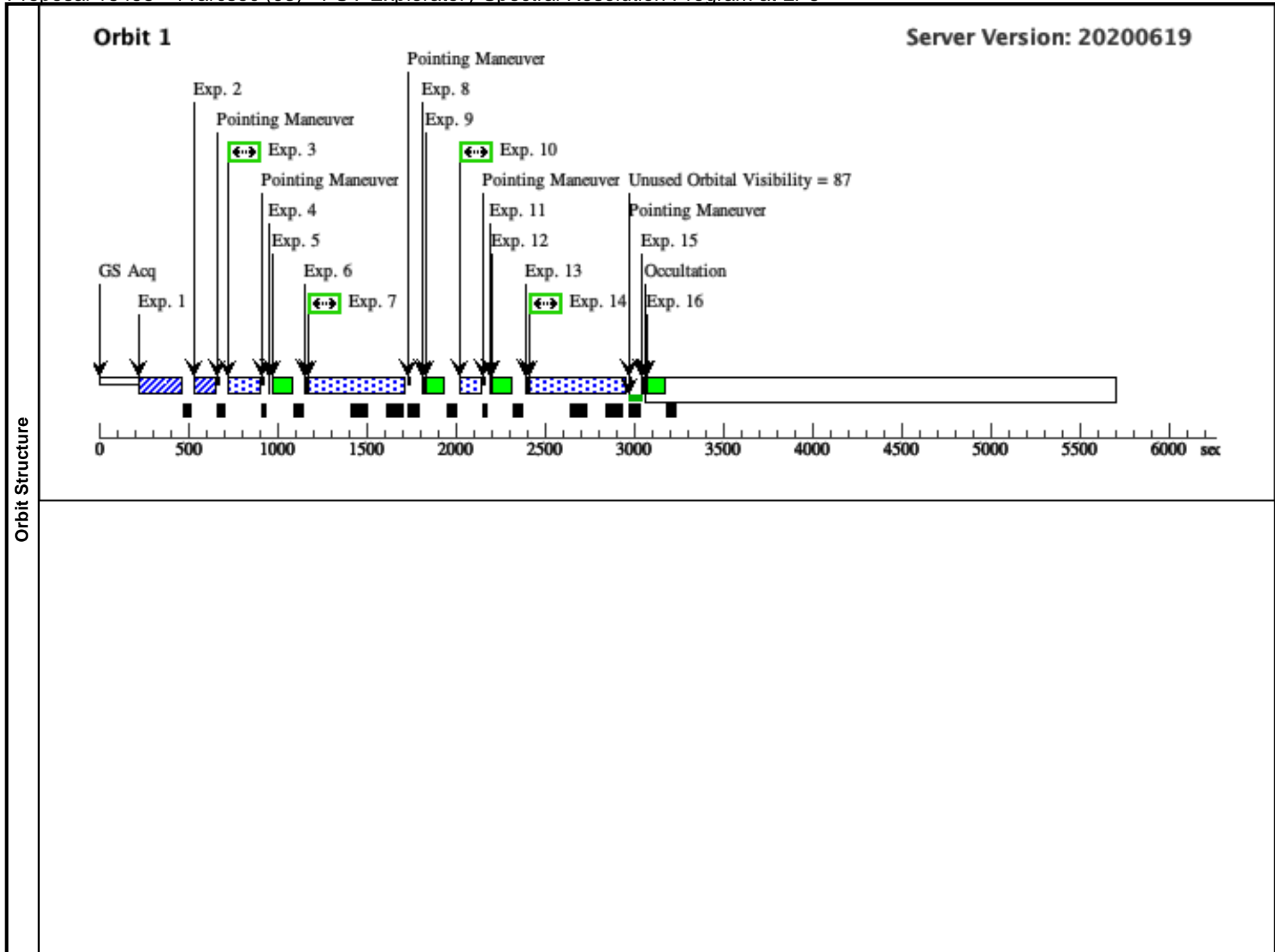
32	Adjust focus value for 15 77 LP6	NONE	COS, ALIGN/OSM		FOCUS=+151		Sequence 31-37 Non-Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[3]
<p>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G160M/1600 focus at LP2 is +116. The focus offset from cenwave 1600 to 1577 is -340 steps. G160M/1557 focus at LP2 is -224. The absolute G160M/1577 focus at 11" is -73. LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -73 --224 gives a focus offset of +151 relative LP2.</p>									
33	Wave_LP2_ WAVE FP3		COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 11arcsec (03)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									
34	Move Aperture to +11 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158	Sequence 31-37 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (3.5-11.0)" * 21 steps/arcsecond => XAPER= -158 steps.</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = -158 XSTEPS</p>									
35	1577_FP3 (1) AZV-80 (COS.sp.151 6692)		COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=23 FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7	Sequence 31-37 Non-Int in 11arcsec (03)	1383.5 Secs (1383.5 Secs) [==>]	[3]
<p>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3 This exposure time gives S/N=42 at 1650A.</p>									
36	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158	Sequence 31-37 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[3]
<p>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</p> <p>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</p> <p>----- QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous) XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</p>									
37	Wave_LP2_ WAVE FP3		COS/FUV, TIME-TAG, WCA	G160M 1577 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2		Sequence 31-37 Non-Int in 11arcsec (03)	12 Secs (12 Secs) [==>]	[3]
<p>Comments: Exposure at LP2 SQL needed to by-pass calibration</p>									

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38	1222_initialize_aperture-position-focus-HV-values (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 11arcsec (03)	0.1 Secs (0.1 Secs) [==>]	[3]
<p><i>Comments: initializes the G130M/1222 observations to set aperture position, HV value and focus values to LP2 defaults before we move the aperture and change focus values relevant for LP6 derived from PID 16491.</i></p>								
39	Adjust focus value for 1222 LP6	NONE	COS, ALIGN/OSM		FOCUS=-87	Sequence 38-44 Non-Int in 11arcsec (03)	0.0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: Adjust focus to the estimate obtained from PID 16491 analysis. G130M/1222 focus at LP2 is -810. G130M/1222 at 11" is: LP6_npos focus step relative to LP2 = LP6_npos estimated absolute focus - LP2 absolute focus = -897--810 gives a focus offset of -87 relative LP2.</i></p>								
40	Wave_LP2_FP3	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non-Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>								
41	Move Aperture to +11 arcsec from LP2	NONE	COS, ALIGN/APER		XAPER=-158; YAPER=0	QESIPARM XSTEP S -158 Sequence 38-44 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +3.5" (LP2) to +11.0". So, (3.5-11.0)" * 21 steps/arcsecond => XAPER= -158 steps.</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous), therefore XSTEPS = -158 - 0 = 158 XSTEPS</i></p>								
42	1222_FP3 (COS.sp.147 6390)	(1) AZV-80	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=20 0; FP-POS=3; FLASH=NO; WAVECAL=NO; LIFETIME-POS=L P2	SAME POS AS 7 Sequence 38-44 Non-Int in 11arcsec (03)	152 Secs (152 Secs) [==>]	[3]
<p><i>Comments: Adjusted target in aperture by setting POS TARG value to: Same as 1222_FP3. This exposure time gives S/N=42 at 1150A (wavelength of bluest window).</i></p>								
43	Ap_move_LP2	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0	QESIPARM XSTEP S 158 Sequence 38-44 Non-Int in 11arcsec (03)	0 Secs (0 Secs) [==>]	[3]
<p><i>Comments: In this exposure we move the aperture from +11.0" (LP6) to +3.5" (LP2). Observations are defined as being at LP2. So, (3.5-3.5)" * -21 steps/arcsecond => XAPER= 0 steps</i></p> <p><i>Conversion is XAPER = 21 steps per arcsec or 1 step = 0.0476"</i></p> <p><i>QESIPARM XSTEPS = XAPER(Current) - XAPER(Previous)</i> <i>XAPER is set to = 0. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS +158" [(0 - -158) = +158] Special Requirement is necessary to move the aperture to the correct location.</i></p>								

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44	Wave_LP2_ WAVE FP3	COS/FUV, TIME-TAG, WCA	G130M 1222 A	FP-POS=3; SEGMENT=BOTH; LIFETIME-POS=L P2	Sequence 38-44 Non -Int in 11arcsec (03)	52 Secs (52 Secs) [==>]	[3]
<p><i>Comments: Exposure at LP2 SQL needed to by-pass calibration</i></p>							



Orbit 2

Server Version: 20200619

