

# 16323 - Cycle 28 COS FUV Detector Gain Maps

Cycle: 28, Proposal Category: CAL/COS (Availability Mode: RESTRICTED)

# **INVESTIGATORS**

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# **VISITS**

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
2A	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:17.0	yes
2C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:19.0	yes
3A	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:20.0	yes
3C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:21.0	yes

Proposal 16323 (STScI Edit Number: 4, Created: Thursday, September 9, 2021 at 2:00:26 PM Eastern Standard Time) - Overview

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
4A	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:23.0	yes
4C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:24.0	yes
4D	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 15:00:26.0	yes

<sup>7</sup> Total Orbits Used

### **ABSTRACT**

This program uses the deuterium lamp to illuminate the regions of the detector being used to collect spectra during Cycle 28. The data obtained will be used to create gain maps of the detector. Because of the strongly varying intensity of the lamp as a function of wavelength, G130M/1309 data will be obtained for Segment A, and G160M/1600 will be used for Segment B.

Gain map data will be obtained at ~6 month intervals for modes where the voltage is unchanged. Obtaining a gain map at these times will help to improve the modeling of the modal gain as a function of time and extracted charge, since it will provide data that cover the full time span of each high voltage at each LP. Improving these models will allow better predictions of the future lifetime of the detector.

### **OBSERVING DESCRIPTION**

This program will obtain spectra from the deuterium lamp with enough counts to permit the construction of a gain map covering the region where the spectra fall. In order to efficiently illuminate the two segments, the G130M/1309 setting will be used for Segment A, and G160M/1600 will be used for Segment B. Both segments can safely remain on with either setting.

Gain maps should be taken at ~6 month and ~1 year intervals when the default HV does not change. They should be obtained at the appropriate HV levels and detector locations.

Proposal 16323 (STScI Edit Number: 4, Created: Thursday, September 9, 2021 at 2:00:26 PM Eastern Standard Time) - Overview The plan for Cycle 28 includes 8 one-orbit visits:

\*Visits 2A and 2C will be taken at LIFE\_ADJ=2 after about 6 months and 1 year from the gain map taken at this position near the end of Cycle 27 at the nominal Blue Mode HV values (currently 173/175).

\*Visits 3A and 3C will be taken at LIFE\_ADJ=3 after about 6 months and 1 year from the gain map taken at this position near the end of Cycle 27 at the nominal LP3 HV values (currently 173/175).

\*Visits 4A and 4C will be taken at LIFE\_ADJ=4 after about 6 months and 1 year from the gain map taken at this position near the end of Cycle 27 at the HV values for the Standard Modes at LP4 (167/169).

\*If needed, Visits 4B and 4D will be taken at LIFE\_ADJ=4 after about 6 months and 1 year from the gain map taken at this position near the end of Cycle 27 at the HV values for G130M/1222 at LP4. They will only be necessary if the G130M/1222 HV values differ from those used for the Standard Modes.

The procedure for collecting this data in each visit is given below. Note that this procedure has been modified from that used in previous cycles to add the initial exposure to explicitly set the aperture position and HV.

- \* Take an exposure at LP1 to set up the aperture position and HV. This can also be used to measure the gain at LP1.
- \* Adjust the HV values
- \* Adjust the aperture in the cross dispersion direction so that the deuterium lamp will illuminate the appropriate region on Segment A when using G130M/1309.
- \* Take a 440 second deuterium lamp exposure using both detector segments.
- \* Adjust the aperture to a second cross-dispersion location to obtain additional coverage on Segment A and take another 440 second deuterium lamp

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\* Adjust the aperture in the cross dispersion direction so that the deuterium lamp will illuminate the appropriate region on Segment B when using G160M/1600.

\* Take a 440 second deuterium lamp exposure using both detector segments.

\* Adjust the aperture to a second cross-dispersion location to obtain additional coverage on Segment B and take another 440 second deuterium lamp exposure.

Note that because TRANS resets its aperture zero point when FCA exposures are taken, the aperture is explicitly moved using "QESIPARM XSTEPS", as was done in Program 13970, 14439, 14519, 14941, 15534, 15772, etc.

For reference, the soft and hard stops for the apertures are listed below. All aperture moves should be kept within these ranges.

MEB1:

SOFT STOPS = -275 to 275

HARD STOPS = -282 to 285

MEB2:

SOFT STOPS = -275 to 275

HARD STOPS = -284 to 283

Since the initial exposure of each visit uses the FCA\_LP1 aperture position, LAPXSTP = -153. Thus all XAPER values are relative to that position.

Summary table:

Visit LP Grating/Segment Y Position LAPXSTP XAPER

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2	G130M/A	1	-213	-60
2	G130M/A	2	-267*	-114
2	G160M/B	1	-225	-72
2	G160M/B	2	-267*	-114
3	G130M/A	1	-72	+81
3	G130M/A	2	-128	+25
3	G160M/B	1	-84	+69
3	G160M/B	2	-140	+13
4	G130M/A	1	-32	+121
4	G130M/A	2	-86	+67
4	G160M/B	1	-41	+112
4	G160M/B	2	-95	+58
	2 2 2 3 3 3 4 4	2 G130M/A 2 G160M/B 2 G160M/B 3 G130M/A 3 G130M/A 3 G160M/B 4 G130M/A 4 G130M/A 4 G130M/A	2 G130M/A 2 2 G160M/B 1 2 G160M/B 2 3 G130M/A 1 3 G130M/A 2 3 G160M/B 1 3 G160M/B 1 4 G130M/A 1 4 G130M/A 2 4 G130M/A 1 4 G130M/A 1	2 G130M/A 2 -267*  2 G160M/B 1 -225 2 G160M/B 2 -267*  3 G130M/A 1 -72 3 G130M/A 2 -128  3 G160M/B 1 -84 3 G160M/B 2 -140  4 G130M/A 1 -32 4 G160M/B 1 -41

<sup>\*</sup> Limited to be within the soft stops

Note that the gain map programs in earlier cycles typically used 400 second exposures. This was increased to 440 seconds starting with the October visits in Cycle 27 (Program 15772) in order to account for a decrease in count rates seen in recent cycles.

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As of March 2021, the HV values for the Standard Modes and G130M/1222 at LP4 are identical. Therefore, it is not necessary to execute both visits 4A and 4B, and 4B has been withdrawn. If the HV values remain the same in October 2021 (which is likely), visit 4D will also be withdrawn; for now it has been put on hold.

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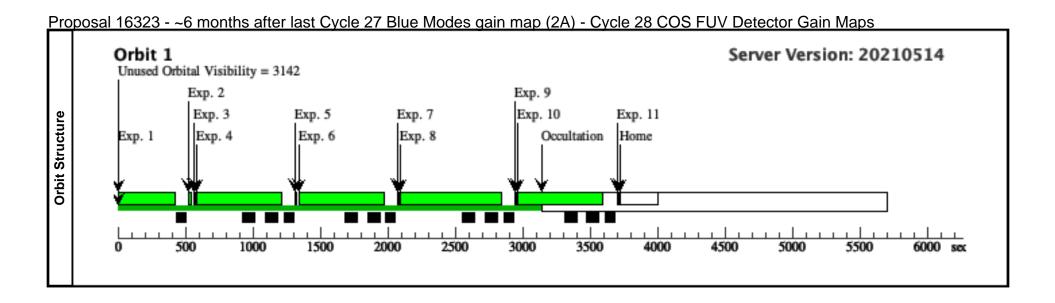
On April 8, 2021, an aperture move was added to the end of each visit that has not yet been scheduled in order to return the aperture block to the HOME position. These exposures had been removed in March, but were added back in when it was realized that it is sometimes necessary to explicitly include them to ensure that enough time is reserved for the HOME move.

<u> </u>	ro	<u> posal 16323 - ~6 months after last Cycle 27 Blue Modes gain map (2A) - Cycle 28 COS FUV Detector Gain Maj</u>	<u> </u>
		Proposal 16323, ~6 months after last Cycle 27 Blue Modes gain map (2A), completed	Thu Sep 09 19:00:26 GMT 2021
.   .		Diagnostic Status: Warning	
:	/15	Scientific Instruments: S/C, COS, COS/FUV	
1		Special Requirements: BETWEEN 01-APR-2021:00:00:00 AND 06-JUN-2021:00:00:00; PARALLEL	
L		Comments: This visit collects data at LP2. It uses the HV values appropriate for the Blue Modes (173/175).	
	CS	(~6 months after last Cycle 27 Blue Modes gain map (2A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
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Proposal 16323 - ~6 months after last Cycle 27 Blue Modes gain map (2A) - Cycle 28 COS FUV Detector Gain Maps

1 C120M/120	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU			125 Secs (125 Secs)	
9 Deuterium Exposure - S			1309 A	M;			[==>]	
et up at LP1				BUFFER-TIME=19 6;				
				FP-POS=1;				
				SEGMENT=BOTH;				[1]
				LIFETIME-POS=L				
				P1				
Comments: Short ex	xposure to set aperti	ure to LP1, which is near the center o	f the aperture range	used in this program. It a	ilso sets the HV to the	LP1 values.		
2 Adjust HV t	DARK	S/C, DATA, NONE			SAA CONTOUR 31	ļ;	39 Secs (39 Secs)	
o Blue Mod e values					SPEC COM INSTR ELHVADJPROP;		[==>]	
					QASISTATES COS FUV HVNOM HVN			
					OM; QESIPARM ENDC			[1]
					TSA 173;			[1]
					QESIPARM ENDC			
					TSB 175;			
					QESIPARM SEGM ENT AB			
Comments: Adjust th	he HV to the Blue M	Mode values						
•								
		re time = 39 seconds		WARED CO			0.05 (0.5	
3 Aperture Ad 1 justment 1 f	NONE	COS, ALIGN/APER		XAPER=-60			0.0 Secs (0 Secs)	
or Segment							[==>]	[1]
or Segment A	an autuma in tha ann	noniista maiti on ta illuminata a mant	on of the LD2/Dlue N	Madaguagian of the detect	san al an illamin ation	Samuel Amide C120		[1]
or Segment A	aperture in the app	ropriate position to illuminate a porti	on of the LP2/Blue N	Modes region of the detect	or when illuminating	Segment A with G130.		[1]
or Segment A Comments: Put the of FCA LAPXSTP valu	ue at LP1 is -153		v		or when illuminating	Segment A with G130.		[1]
or Segment A Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v	ue at LP1 is -153 value for FCA to illu	uminate Segment A with G130M/1309	v		or when illuminating	Segment A with G130.		[1]
or Segment A Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER i	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	at Position 1 for LF	22 is -213	or when illuminating	Segment A with G130.	M/1309.	[1]
or Segment A Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER if 4 G130M/130	ue at LP1 is -153 value for FCA to illu	uminate Segment A with G130M/1309	O at Position 1 for LF G130M	22 is -213  CURRENT=MEDIU	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	[1]
or Segment A Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER i	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	at Position 1 for LF	CURRENT=MEDIU M;	or when illuminating	Segment A with G130.	M/1309.	[1]
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	O at Position 1 for LF G130M	22 is -213  CURRENT=MEDIU	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	[1]
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	O at Position 1 for LF G130M	CURRENT=MEDIU M; BUFFER-TIME=16	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	O at Position 1 for LF G130M	CURRENT=MEDIU M; BUFFER-TIME=16 5;	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	[1]
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	O at Position 1 for LF G130M	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1;	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium	ue at LP1 is -153 value for FCA to illi is set to -213153	uminate Segment A with G130M/130s = -60	O at Position 1 for LF G130M	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH;	or when illuminating	Segment A with G130.	M/1309.  440 Secs (440 Secs)	
or Segment A  Comments: Put the of FCA LAPXSTP value Desired LAPXSTP value Desired LAPXSTP value Therefore, XAPER i. 4 G130M/130 9 Deuterium Exposure 1	te at LP1 is -153 value for FCA to illi is set to -213153 DEUTERIUM	uminate Segment A with G130M/130s = -60	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1	at it has slightly more	counts than the other	440 Secs (440 Secs) [==>]	
or Segment A  Comments: Put the of FCA LAPXSTP value Desired LAPXSTP value Desired LAPXSTP value of G130M/130 g Deuterium Exposure 1  Comments: Deuterium 5  Aperture Ad	ue at LP1 is -153 value for FCA to illi is set to -213153 DEUTERIUM	uminate Segment A with G130M/1309 = -60 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1	at it has slightly more QESIPARM XSTEF	counts than the other	440 Secs (440 Secs) [==>]	
or Segment A  Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v  Therefore, XAPER i. 4 G130M/130 9 Deuterium Exposure 1	ue at LP1 is -153 value for FCA to illi is set to -213153 DEUTERIUM	uminate Segment A with G130M/1309 = -60 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ious observations show the	at it has slightly more	counts than the other	440 Secs (440 Secs) [==>]  FP-POS values.	
or Segment A  Comments: Put the of FCA LAPXSTP value Desired LAPXSTP value Desired LAPXSTP value Therefore, XAPER is 4 G130M/130 g Deuterium Exposure 1  Comments: Deuterium Exposure 1  Comments: Deuterium Exposure 1	te at LP1 is -153 value for FCA to illi is set to -213153 DEUTERIUM  um exposure optimi NONE	uminate Segment A with G130M/1309 = -60 COS/FUV, TIME-TAG, FCA	G130M 1309 A 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1  Tous observations show the	at it has slightly more QESIPARM XSTER S -54	counts than the other	### Add Secs (440 Secs)  ### Image: I	[1]
or Segment A  Comments: Put the of FCA LAPXSTP valuation Desired LAPXSTP valuation Desired LAPXSTP valuation of the properties of the prop	te at LP1 is -153 value for FCA to illi is set to -213153 DEUTERIUM  um exposure optimi  NONE  aperture in the app. te at LP1 is -153	uminate Segment A with G130M/1309  = -60  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a  COS, ALIGN/APER  ropriate position to illuminate a porti	G130M 1309 A 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ious observations show the XAPER=-114  Modes region of the detect	at it has slightly more QESIPARM XSTER S -54	counts than the other	### Add Secs (440 Secs)  ### Image: I	[1]
or Segment A  Comments: Put the of FCA LAPXSTP value Desired LAPXSTP value Desired LAPXSTP value of Grand Segment Segment A  Comments: Deutering Segment A  Comments: Put the of FCA LAPXSTP value Desired LAPXSTP value of Grand Segment A  FCA LAPXSTP value of Grand Segment Segmen	we at LP1 is -153 value for FCA to illuis set to -213153 DEUTERIUM  um exposure optimi NONE  aperture in the appure at LP1 is -153 value for FCA to illuit	uminate Segment A with G130M/1309  = -60  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was of COS, ALIGN/APER  ropriate position to illuminate a portiuminate Segment A with G130M/1309	G130M 1309 A 1309 on of the LP2/Blue M 1 at Position 2 for LF	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1  Tous observations show the XAPER=-114  Modes region of the detect	at it has slightly more QESIPARM XSTER S -54 For when illuminating	counts than the other  Segment A with G130.	### Add Secs (440 Secs)  ### Image: I	[1]

6 G130M/130 DEUTERIUM	000000000000000000000000000000000000000	G1267 -	aumpres		Detector Gain Maps	
9 Deuterium Exposure 2	COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16		440 Secs (440 Secs) [==>]	
			5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1			[1]
Comments: Deuterium exposure op	timized for Segment A. FP-POS=1 was c	hosen because pre	vious observations show th	at it has slightly more counts than	the other FP-POS values.	
7 Aperture Ad NONE	COS, ALIGN/APER		XAPER=-72	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B				S 42	[==>]	[1]
Comments: Put the aperture in the	appropriate position to illuminate a porti	on of the LP2/Blue	Modes region of the detect	or when illuminating Segment B	with G160M/1600.	,
v	o illuminate Segment B with G160M/1600	•		(-72114) = +42] Special Requ	irement is necessary to move the aperture	to the correct loc
8 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M; BUFFER-TIME=16 5;		[==>]	
			FP-POS=4;			[1]
			SEGMENT=BOTH;			111
			LIFETIME-POS=L P1			
	stimmized for Seament R FP-POS-4 was	chosen because pr		hat it has slightly more counts the	un the other FP-POS values.	
Comments: Deuterium exposure op	timinized for beginein B. 11 1 OB=+ was	chosen occurse pr				
9 Aperture Ad NONE	COS, ALIGN/APER	enesen seedase pr	XAPER=-114	QESIPARM XSTEP	0.0 Secs (0 Secs)	
		enosen seeding pr				[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the	COS, ALIGN/APER appropriate position to illuminate a porti		XAPER=-114	QESIPARM XSTEP S -42	$0.0 \operatorname{Secs} (0 \operatorname{Secs})$ $I = > I$	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to	COS, ALIGN/APER  appropriate position to illuminate a porti	on of the LP2/Blue	XAPER=-114  Modes region of the detect	QESIPARM XSTEP S -42 or when illuminating Segment B	$0.0 \operatorname{Secs} (0 \operatorname{Secs})$ $I = > I$	
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it t Therefore, XAPER is set to -267 ation.	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for I	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	$0.0  \mathrm{Secs}  (0  \mathrm{Secs})$ $[==>]$ with G160M/1600.  want to exceed that value when including uirement is necessary to move the aperture	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it t Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM	COS, ALIGN/APER  appropriate position to illuminate a porti  o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).	on of the LP2/Blue at Position 2 for 1 TRANS rules, the	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[l] 0.0  Secs  (0  Secs) $[l] = > l$ with G160M/1600.  want to exceed that value when including nuirement is necessary to move the aperture $[440  Secs  (440  Secs)]$	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it t Therefore, XAPER is set to -267 ation.	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for I	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	$0.0  \mathrm{Secs}  (0  \mathrm{Secs})$ $[==>]$ with G160M/1600.  want to exceed that value when including uirement is necessary to move the aperture	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it to Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for 1 TRANS rules, the	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M;  BUFFER-TIME=16	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[l] 0.0  Secs  (0  Secs) $[l] = > l$ with G160M/1600.  want to exceed that value when including nuirement is necessary to move the aperture $[440  Secs  (440  Secs)]$	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it to Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for 1 TRANS rules, the	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M; BUFFER-TIME=16 5;	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[l] 0.0  Secs  (0  Secs) $[l] = > l$ with G160M/1600.  want to exceed that value when including nuirement is necessary to move the aperture $[440  Secs  (440  Secs)]$	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it to Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for 1 TRANS rules, the	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M;  BUFFER-TIME=16 5;  FP-POS=4;	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[l] 0.0  Secs  (0  Secs) $[l] = > l$ with G160M/1600.  want to exceed that value when including nuirement is necessary to move the aperture $[440  Secs  (440  Secs)]$	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it to Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the	on of the LP2/Blue at Position 2 for 1 e TRANS rules, the G160M 1600 A	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M;  BUFFER-TIME=16 5;  FP-POS=4;  SEGMENT=BOTH;  LIFETIME-POS=L P1	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't  [(-11472) = -42] Special Reg	I  = > J with G160M/1600.  The want to exceed that value when including the suirement is necessary to move the aperture $ 440  Secs  (440  Secs) $ $ I  = > J$	the 5 step oversh
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the FCA LAPXSTP value at LP1 is -15 Desired LAPXSTP value for FCA to ot. To leave some pad, I will set it to Therefore, XAPER is set to -267 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER  appropriate position to illuminate a porti  3 o illuminate Segment B with G160M/1600 o match the G130M exposure (-267).  153 = -114. *HOWEVER*, because of the  COS/FUV, TIME-TAG, FCA	on of the LP2/Blue at Position 2 for 1 e TRANS rules, the G160M 1600 A	XAPER=-114  Modes region of the detect  LP2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M;  BUFFER-TIME=16 5;  FP-POS=4;  SEGMENT=BOTH;  LIFETIME-POS=L P1	QESIPARM XSTEP S -42  or when illuminating Segment B we soft stop is at -275 and we don't  [(-11472) = -42] Special Reg	I  = > J with G160M/1600.  The want to exceed that value when including the suirement is necessary to move the aperture $ 440  Secs  (440  Secs) $ $ I  = > J$	the 5 step oversh



<u>Pr</u>	<u>oposal 16323 - ~12 months after last Cycle 27 Blue Modes gain map (2C) - Cycle 28 COS FUV Detector Gain N</u>	<u>laps</u>
	Proposal 16323, ~12 months after last Cycle 27 Blue Modes gain map (2C), scheduling	Thu Sep 09 19:00:26 GMT 2021
.≝	Diagnostic Status: Warning	
lis/	Scientific Instruments: S/C, COS, COS/FUV	
1	Special Requirements: BETWEEN 01-OCT-2021:00:00:00 AND 01-NOV-2021:00:00:00; PARALLEL	
	Comments: This visit collects data at LP2. It uses the HV values appropriate for the Blue Modes (173/175).	
S	(~12 months after last Cycle 27 Blue Modes gain map (2C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
Sti		
2		
ad		

Proposal 16323 - ~12 months after last Cycle 27 Blue Modes gain map (2C) - Cycle 28 COS FUV Detector Gain Maps Label Target Config, Mode, Aperture Spectral Els. Opt. Params. Special Reqs. Groups Exp. Time (Total)/[Actual Dur.] Orbit G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 125 Secs (125 Secs) 9 Deuterium 1309 A *[==>1* Exposure - S BUFFER-TIME=19 et up at LP1 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L Comments: Short exposure to set aperture to LP1, which is near the center of the aperture range used in this program. It also sets the HV to the LP1 values. Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 39 Secs (39 Secs) o Blue Mod SPEC COM INSTR I ==> Ie values ELHVADJPROP; OASISTATES COS **FUV HVNOM HVN** OM; **OESIPARM ENDC** [1] TSA 173; OESIPARM ENDC TSB 175; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the Blue Mode values. Exposures Since the HV is not increasing, exposure time = 39 seconds Aperture Ad NONE COS, ALIGN/APER XAPER=-60 0.0 Secs (0 Secs) justment 1 f *[==>1* or Segment [1] Comments: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue Modes region of the detector when illuminating Segment A with G130M/1309. FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP2 is -213 Therefore, XAPER is set to -213 - -153 = -60G130M/130 DEUTERIUM COS/FUV. TIME-TAG. FCA 440 Secs (440 Secs) G130M CURRENT=MEDIU 9 Deuterium 1309 A [==>1 Exposure 1 BUFFER-TIME=16 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L

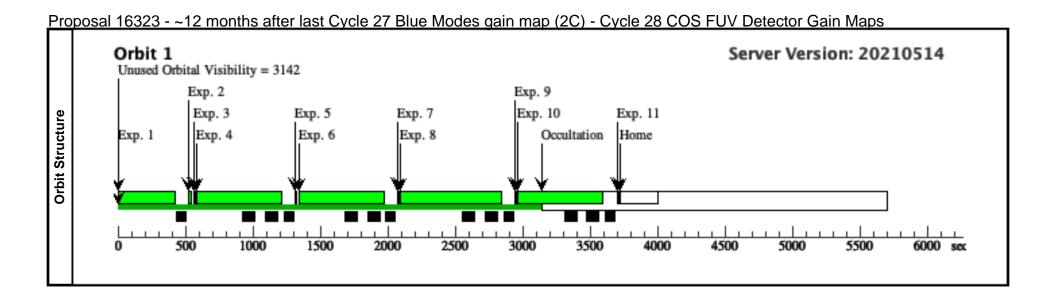
			PI				
Con	ıments: Deuterium exposure op	timized for Segment A. FP-POS=1 was chose	en because previous observations show t	hat it has slightly more counts than	the other F	P-POS values.	
5	Aperture Ad NONE	COS, ALIGN/APER	XAPER=-114	QESIPARM XSTEP		0.0 Secs (0 Secs)	
	justment 2 f			S -54		I==>1	
	or Segment A					. ,	[1]
Con	ments: Put the aperture in the	appropriate position to illuminate a portion o	f the LP2/Rlue Modes region of the detec	tor when illuminating Seament A	with G130M.	/1300	
Con	intenis. I in the aperture in the	αρρτορτιαίε ροзιίτου το πιμπιπαίε α ροτίτου ο	ine Li 2/Dine Modes region of the detec	ior when illuminating segment A	Willi GIJOM/	150%.	

FCA LAPXSTP value at LP1 is -153

Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP2 is -267

Therefore, XAPER is set to -267 - -153 = -114. \*HOWEVER\*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-114 - -60) = -54] Special Requirement is necessary to move the aperture to the correct location.

6	G130M/130 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU		440 Secs (440 Secs)	
	9 Deuterium Exposure 2	., .	1309 A	M; BUFFER-TIME=16 5;		[==>]	
				FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L PI			[1]
Co	omments: Deuterium exposure optim	nized for Segment A. FP-POS=1 was c	hosen because pre	vious observations show th	at it has slightly more counts than	the other FP-POS values.	•
7	Aperture Ad NONE	COS, ALIGN/APER		XAPER=-72	QESIPARM XSTEP	0.0 Secs (0 Secs)	
	justment 1 f or Segment B				S 42	[==>]	[1]
	•	propriate position to illuminate a porti	on of the LP2/Blue	Modes region of the detect	or when illuminating Segment B w	vith G160M/1600.	
$D_{\epsilon}$		lluminate Segment B with G160M/1600	v				
Th io		3 = -72. *HOWEVER*, because of the	TRANS rules, the "	'QESIPARM XSTEPS 42" [	(-72114) = +42] Special Requ	irement is necessary to move the aperture t	to the correct lo
8	G160M/160 DEUTERIUM 0 Deuterium	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU M;		440 Secs (440 Secs)	
	Exposure 1		1600 A	BUFFER-TIME=16 5;		[==>]	
				FP-POS=4;			[1]
				SEGMENT=BOTH;			
				LIFETIME-POS=L P1			
	omments: Deuterium exposure optim	nmized for Segment B. FP-POS=4 was	chosen because pr	evious observations show t	hat it has slightly more counts tha	n the other FP-POS values.	
Ca	onunction Bettier tunt enpositie optin					0.00	
<u>С</u> (	Aperture Ad NONE	COS, ALIGN/APER		XAPER=-114	QESIPARM XSTEP	0.0 Secs (0 Secs)	
9		COS, ALIGN/APER		XAPER=-114	QESIPARM XSTEP S -42	0.0 Secs (0 Secs) [==>]	[1]
9	Aperture Ad NONE justment 2 f or Segment B	COS, ALIGN/APER  propriate position to illuminate a porti	on of the LP2/Blue		S -42	[==>]	[1]
9 <i>Ca</i> <i>F</i> (	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il.	propriate position to illuminate a porti Uuminate Segment B with G160M/1600	·	Modes region of the detect	S -42 or when illuminating Segment B w	[==>]	
9 Co FO Ot:	Aperture Ad NONE justment 2 f or Segment B omments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m	propriate position to illuminate a porti lluminate Segment B with G160M/1600 natch the G130M exposure (-267).	at Position 2 for L	Modes region of the detect	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600.	the 5 step oversh
9 Co FO Ot:	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m herefore, XAPER is set to -267153 ion.  G160M/160 DEUTERIUM	propriate position to illuminate a porti lluminate Segment B with G160M/1600 natch the G130M exposure (-267).	at Position 2 for L	Modes region of the detect P2 is -280, but the apertur "QESIPARM XSTEPS -42 CURRENT=MEDIU	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600. want to exceed that value when including to	the 5 step oversh
9 Co F( Do ot: Th	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to meterfore, XAPER is set to -267153 ion.	propriate position to illuminate a porti- lluminate Segment B with G160M/1600 natch the G130M exposure (-267). 3 = -114. *HOWEVER*, because of the	at Position 2 for L	Modes region of the detect  P2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU  M;  BUFFER-TIME=16	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600. want to exceed that value when including wirement is necessary to move the aperture	the 5 step oversh
9 Co FO Oot: Th	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m therefore, XAPER is set to -267153 ion.  O G160M/160 DEUTERIUM O Deuterium	propriate position to illuminate a porti- lluminate Segment B with G160M/1600 natch the G130M exposure (-267). 3 = -114. *HOWEVER*, because of the	at Position 2 for L TRANS rules, the	Modes region of the detect P2 is -280, but the apertur "QESIPARM XSTEPS -42  CURRENT=MEDIU M;	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600.  want to exceed that value when including wirement is necessary to move the aperture  440 Secs (440 Secs)	to the correct la
9 Co F( Do ot: Th	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m therefore, XAPER is set to -267153 ion.  O G160M/160 DEUTERIUM O Deuterium	propriate position to illuminate a porti- lluminate Segment B with G160M/1600 natch the G130M exposure (-267). 3 = -114. *HOWEVER*, because of the	at Position 2 for L TRANS rules, the	Modes region of the detect P2 is -280, but the apertur "QESIPARM XSTEPS -42  CURRENT=MEDIU M; BUFFER-TIME=16 5;	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600.  want to exceed that value when including wirement is necessary to move the aperture  440 Secs (440 Secs)	the 5 step oversh
9 Co FO Oot: Th	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m therefore, XAPER is set to -267153 ion.  O G160M/160 DEUTERIUM O Deuterium	propriate position to illuminate a porti- lluminate Segment B with G160M/1600 natch the G130M exposure (-267). 3 = -114. *HOWEVER*, because of the	at Position 2 for L TRANS rules, the	Modes region of the detect  P2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU  M;  BUFFER-TIME=16  5;  FP-POS=4;	S -42  or when illuminating Segment B we soft stop is at -275 and we don't	[==>] with G160M/1600.  want to exceed that value when including wirement is necessary to move the aperture  440 Secs (440 Secs)	to the correct la
9 FO ot. That	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m therefore, XAPER is set to -267153 ion.  G160M/160 DEUTERIUM 0 Deuterium Exposure 2	propriate position to illuminate a portion of the control of the GI support of the GI support of the COS/FUV, TIME-TAG, FCA control of the cost of the	at Position 2 for L TRANS rules, the G160M 1600 A	Modes region of the detect  "P2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU  M;  BUFFER-TIME=16  5;  FP-POS=4;  SEGMENT=BOTH;  LIFETIME-POS=L  P1	S -42  or when illuminating Segment B we soft stop is at -275 and we don't  " [(-11472) = -42] Special Requirements of the stight of the s	[==>] with G160M/1600.  want to exceed that value when including the contract of the contra	to the correct la
9 Co FO Do ot. Th at	Aperture Ad NONE justment 2 f or Segment B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to il. To leave some pad, I will set it to m therefore, XAPER is set to -267153 ion. O G160M/160 DEUTERIUM 0 Deuterium Exposure 2	propriate position to illuminate a portion lluminate Segment B with G160M/1600 natch the G130M exposure (-267). 3 = -114. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	at Position 2 for L TRANS rules, the G160M 1600 A	Modes region of the detect  P2 is -280, but the apertur  "QESIPARM XSTEPS -42  CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P1	S -42  or when illuminating Segment B we soft stop is at -275 and we don't  '[(-11472) = -42] Special Requ	[==>] with G160M/1600.  want to exceed that value when including the contract of the contra	to the correct la

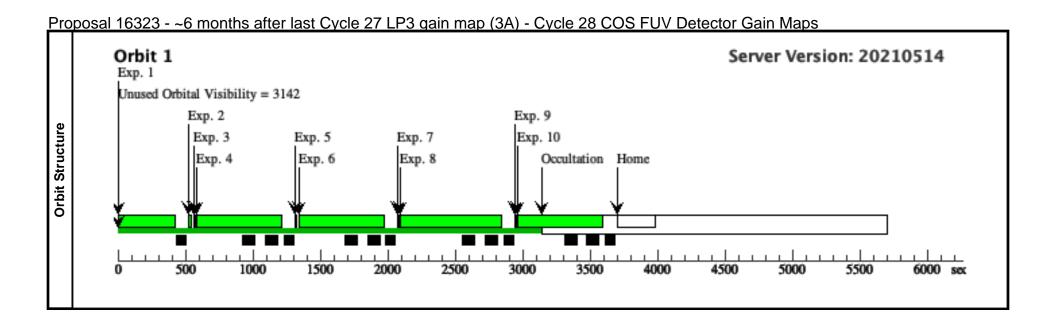


<u>P</u>	oposal 16323 - ~6 months after last Cycle 27 LP3 gain map (3A) - Cycle 28 COS FUV Detector Gain Maps	
	Proposal 16323, ~6 months after last Cycle 27 LP3 gain map (3A), completed	Thu Sep 09 19:00:26 GMT 2021
۱,	Diagnostic Status: Warning	
15	Scientific Instruments: S/C, COS, COS/FUV	
1	Special Requirements: BETWEEN 01-APR-2021:00:00:00 AND 15-MAY-2021:00:00:00; PARALLEL	
L	Comments: This visit collects data at LP3. It uses the HV values appropriate for LP3 (173/175).	
18	(~6 months after last Cycle 27 LP3 gain map (3A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
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Proposal 16323 - ~6 months after last Cycle 27 LP3 gain map (3A) - Cycle 28 COS FUV Detector Gain Maps

1 G130M/120	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU			125 Secs (125 Secs)	
9 Deuterium Exposure - S			1309 A	M;			I = => J	
et up at LP1				BUFFER-TIME=19 6;				
_				FP-POS=1;				
l				SEGMENT=BOTH;				[1]
				LIFETIME-POS=L				
				P1				
Comments: Short e	exposure to set apert	ure to LP1, which is near the center o	f the aperture range	used in this program. It a	lso sets the HV to the	LP1 values.		•
2 Adjust HV t	DARK	S/C, DATA, NONE			SAA CONTOUR 3	1;	39 Secs (39 Secs)	
o LP3 value					SPEC COM INSTR		f==>1	
S					ELHVADJPROP;			
					QASISTATES COS			
l					FUV HVNOM HVI OM;	N		
					QESIPARM ENDO	1		[1]
					TSA 173;			',
					QESIPARM ENDO			
l					TSB 175;			
l					QESIPARM SEGMENT AB	L		
Comments: Adjust	the HV to LP3 value	25						
,								
		re time = 39 seconds		WARER 01			0.00	
3 Aperture Ad justment 1 f	NONE	COS, ALIGN/APER		XAPER=81			0.0 Secs (0 Secs)	_
or Segment								
							[==>]	[1]
Α							[==>]	[1]
Α	aperture in the app	ropriate position to illuminate a porti	on of the LP3 region	of the detector when illu	minating Segment A v	with G130M/1309.	[==>]	[1]
A  Comments: Put the  FCA LAPXSTP val	lue at LP1 is -153		, c		minating Segment A v	with G130M/1309.	[==>]	[1]
A  Comments: Put the  FCA LAPXSTP val	lue at LP1 is -153	ropriate position to illuminate a porti uminate Segment A with G130M/1309	, c		minating Segment A v	with G130M/1309.	[==>]	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP	lue at LP1 is -153	uminate Segment A with G130M/1309	, c		minating Segment A v	with G130M/1309.	[==>]	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130	lue at LP1 is -153 value for FCA to ill	uminate Segment A with G130M/1309	, c	23 is -72  CURRENT=MEDIU	minating Segment A v	with G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	at Position 1 for LP	CURRENT=MEDIU M;	minating Segment A v	with G130M/1309.		[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	O at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16	minating Segment A v	with G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	O at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5;	minating Segment A v	with G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	O at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1;		with G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	O at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH;		with G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium	lue at LP1 is -153 value for FCA to ill is set to -72153 =	uminate Segment A with G130M/1309 = +81	O at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L		with G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1	lue at LP1 is -153 value for FCA to ill is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1			440 Secs (440 Secs) [==>]	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show the	at it has slightly more	e counts than the oth	440 Secs (440 Secs) [==>]  er FP-POS values.	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1		e counts than the oth	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show the	at it has slightly more QESIPARM XSTE	e counts than the oth	440 Secs (440 Secs) [==>]  er FP-POS values.	
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment A	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show th	at it has slightly more QESIPARM XSTE S -56	<i>e counts than the oth</i> P	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment A	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM	uminate Segment A with G130M/1309 = +81 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show th	at it has slightly more QESIPARM XSTE S -56	<i>e counts than the oth</i> P	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment A Comments: Put the FCA LAPXSTP val	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM  ium exposure optima NONE e aperture in the app lue at LP1 is -153	uminate Segment A with G130M/1309  = +81  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a  COS, ALIGN/APER  ropriate position to illuminate a porti	G130M G1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1  ous observations show th XAPER=25	at it has slightly more QESIPARM XSTE S -56	<i>e counts than the oth</i> P	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER 4 G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment A Comments: Put the FCA LAPXSTP val	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM  ium exposure optima NONE e aperture in the app lue at LP1 is -153	uminate Segment A with G130M/1309 = +81  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a	G130M G1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1  ous observations show th XAPER=25	at it has slightly more QESIPARM XSTE S -56	<i>e counts than the oth</i> P	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the FCA LAPXSTP val Desired LAPXSTP Therefore, XAPER G130M/130 9 Deuterium Exposure 1  Comments: Deuter 5 Aperture Ad justment 2 f or Segment A Comments: Put the FCA LAPXSTP val Desired LAPXSTP	lue at LP1 is -153 value for FCA to ill. is set to -72153 = DEUTERIUM  itum exposure optima NONE  a aperture in the app lue at LP1 is -153 value for FCA to ill.	uminate Segment A with G130M/1309 = +81  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a  COS, ALIGN/APER  ropriate position to illuminate a porti	G130M G1309 A 1309 A on of the LP3 region Output Description 2 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 Ous observations show th XAPER=25  of the detector when illusted is -128	at it has slightly more QESIPARM XSTE S -56 minating Segment A v	e counts than the oth P vith G130M/1309.	440 Secs (440 Secs) [==>]  er FP-POS values.  0.0 Secs (0 Secs)	(1)

<u> </u>	<u>is after last Cycle 27 LF</u>	<u>'3 gain mai</u>	<u> 3 (3A) - Cycle 28</u>	COS FOV Detector	Gain Maps	
6 G130M/130 DEUTERIUM 9 Deuterium Exposure 2  Comments: Deuterium exposure optim 7 Aperture Ad NONE justment 1 f or Segment	COS/FUV, TIME-TAG, FCA  nized for Segment A. FP-POS=1 was a	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1	;	440 Secs (440 Secs) [==>]	[1]
B  Comments: Put the aperture in the app	propriate position to illuminate a porti	on of the LP3 region	on of the detector when illu	uminating Segment B with G160M	1/1600.	123
FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to il		,	v	0		
				{(+69 - +25) = +44} Special Req	uirement is necessary to move the aperture t	to the correct loca
8 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	J	440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M; BUFFER-TIME=16 5;	i	[==>]	
			FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L			[1]
			P1			
Comments: Deuterium exposure optim	* *	chosen because pr				
9 Aperture Ad NONE justment 2 f or Segment B	COS, ALIGN/APER		XAPER=13	QESIPARM XSTEP S -56	[0.0  Secs  (0  Secs)] $[l] = > J$	[1]
_	propriate position to illuminate a porti	on of the LP3 region	on of the detector when illu	uminating Segment B with G160M	1/1600.	
FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to il	luminate Segment B with G160M/1600	at Position 2 for I	LP3 is -140.			
Therefore, XAPER is set to -140155 ation.	3 = +13. *HOWEVER*, because of the	TRANS rules, the	"QESIPARM XSTEPS -56	" [(+13 - +69) = -56] Special Re	quirement is necessary to move the aperture	to the correct loc
10 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	J	440 Secs (440 Secs)	
0 Deuterium Exposure 2		1600 A	M; BUFFER-TIME=16 5;	j	[==>]	
			FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L			[1]
Comments: Deuterium exposure optim	nmized for Seament R FP-POS-4 was	chosen hecause n	P1		an the other FP-POS values	

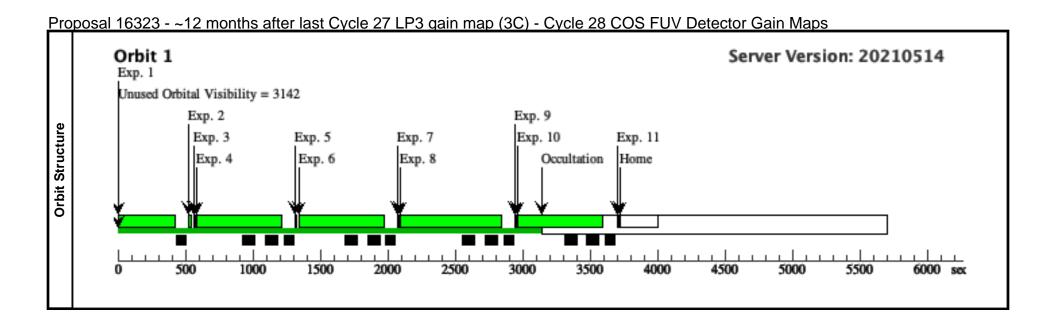


<u>P</u>	oposal 16323 - ~12 months after last Cycle 27 LP3 gain map (3C) - Cycle 28 COS FUV Detector Gain Maps	
	Proposal 16323, ~12 months after last Cycle 27 LP3 gain map (3C), scheduling	Thu Sep 09 19:00:27 GMT 2021
<u> </u>	Diagnostic Status: Warning	
٤	Scientific Instruments: S/C, COS, COS/FUV	
[	Special Requirements: BETWEEN 01-OCT-2021:00:00:00 AND 01-NOV-2021:00:00:00; PARALLEL	
L	Comments: This visit collects data at LP3. It uses the HV values appropriate for LP3 (173/175).	
8	(~12 months after last Cycle 27 LP3 gain map (3C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
1 7		
5		
ع		

Proposal 16323 - ~12 months after last Cycle 27 LP3 gain map (3C) - Cycle 28 COS FUV Detector Gain Maps

1 C120M/120 DELT	t	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1 G130M/130 DEUT	ERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU			125 Secs (125 Secs)	
9 Deuterium Exposure - S			1309 A	M;			[==>]	
et up at LP1				BUFFER-TIME=19 6;				
				FP-POS=1;				
				SEGMENT=BOTH;				[1]
i				LIFETIME-POS=L				
i				P1				
Comments: Short exposur	e to set aperture	e to LP1, which is near the center of	of the aperture range	used in this program. It a	lso sets the HV to the	LP1 values.		
2 Adjust HV t DARK	ζ	S/C, DATA, NONE			SAA CONTOUR 31	Į;	39 Secs (39 Secs)	
o LP3 value s					SPEC COM INSTR ELHVADJPROP;		[==>]	
					QASISTATES COS FUV HVNOM HVN			
i					OM;			
					QESIPARM ENDC TSA 173;			[1]
					QESIPARM ENDC TSB 175;			
					QESIPARM SEGM ENT AB			
Comments: Adjust the HV	to LP3 values.							
		. 20 1						
Since the HV is not increa				XAPER=81			0.0 Secs (0 Secs)	
3 Aperture Ad NONE justment 1 f	2	COS, ALIGN/APER		AAPEK=81				+
or Segment							[==>]	
A							[>]	[1]
A	re in the approp	oriate position to illuminate a port	ion of the LP3 region	of the detector when illu	ninating Segment A w	vith G130M/1309.	11	[1]
A  Comments: Put the apertu  FCA LAPXSTP value at L	P1 is -153	oriate position to illuminate a porta	v		ninating Segment A w	vith G130M/1309.		[1]
A  Comments: Put the apertu  FCA LAPXSTP value at L	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	v		ninating Segment A w	vith G130M/1309.		[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP G130M	3 is -72  CURRENT=MEDIU	ninating Segment A w	rith G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	CURRENT=MEDIU M;	ninating Segment A w	vith G130M/1309.		[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	3 is -72  CURRENT=MEDIU	ninating Segment A w	vith G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5;	ninating Segment A w	vith G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1;	ninating Segment A w	vith G130M/1309.	440 Secs (440 Secs)	[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH;	ninating Segment A w	vith G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium	P1 is -153 for FCA to illum p -72153 = +	inate Segment A with G130M/1309	9 at Position 1 for LP	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1;	ninating Segment A w	vith G130M/1309.	440 Secs (440 Secs)	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value for Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium Exposure 1	P1 is -153 for FCA to illum 10 -72153 = + TERIUM	inate Segment A with G130M/1309	9 at Position 1 for LP G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1			440 Secs (440 Secs) [==>]	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value for Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium Exposure 1  Comments: Deuterium exp 5 Aperture Ad NONE	P1 is -153 or FCA to illum o -72153 = + TERIUM	inate Segment A with G130M/1309 -81 COS/FUV, TIME-TAG, FCA	9 at Position 1 for LP G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1	at it has slightly more QESIPARM XSTEI	counts than the other	440 Secs (440 Secs) [==>]	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set tu 4 G130M/130 DEUT 9 Deuterium Exposure 1  Comments: Deuterium exp	P1 is -153 or FCA to illum o -72153 = + TERIUM	inate Segment A with G130M/1309 81 COS/FUV, TIME-TAG, FCA	9 at Position 1 for LP G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show the	at it has slightly more	counts than the other	440 Secs (440 Secs) [==>]  FP-POS values.	
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fi Therefore, XAPER is set to G130M/130 DEUT 9 Deuterium Exposure 1  Comments: Deuterium exp  5 Aperture Ad NONE justment 2 f or Segment A	P1 is -153 FCA to illum  2-72153 = + FERIUM  POSSURE optimized	inate Segment A with G130M/1309 81 COS/FUV, TIME-TAG, FCA d for Segment A. FP-POS=1 was a	9 at Position 1 for LP G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show the	at it has slightly more QESIPARM XSTEI S -56	counts than the other	440 Secs (440 Secs) [==>]  FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value for Therefore, XAPER is set to G130M/130 DEUT 9 Deuterium Exposure 1  Comments: Deuterium exp A A Comments: Put the apertu FCA LAPXSTP value at L	P1 is -153 or FCA to illum 0 -72153 = + TERIUM  posure optimized  re in the approp	inate Segment A with G130M/1309 81 COS/FUV, TIME-TAG, FCA d for Segment A. FP-POS=1 was a COS, ALIGN/APER	G130M 1309 A  chosen because previ	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ous observations show the XAPER=25	at it has slightly more QESIPARM XSTEI S -56	counts than the other	440 Secs (440 Secs) [==>]  FP-POS values.  0.0 Secs (0 Secs)	[1]
A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fs Therefore, XAPER is set to 4 G130M/130 DEUT 9 Deuterium Exposure 1  Comments: Deuterium exp 5 Aperture Ad NONE justment 2 f or Segment A Comments: Put the apertu FCA LAPXSTP value at L Desired LAPXSTP value fs	P1 is -153 or FCA to illum p-72153 = + TERIUM  DOSURE OPTIMIZED TO INTERIOR OF THE P1 is -153 or FCA to illum	inate Segment A with G130M/1309 81 COS/FUV, TIME-TAG, FCA  d for Segment A. FP-POS=1 was a COS, ALIGN/APER  priate position to illuminate a portainate Segment A with G130M/1309	9 at Position 1 for LP G130M 1309 A  chosen because previ	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1  Ous observations show the XAPER=25  of the detector when illumed is is -128	at it has slightly more QESIPARM XSTEI S -56 ninating Segment A w	e counts than the other o	440 Secs (440 Secs) [==>]  FP-POS values.  0.0 Secs (0 Secs)	[1]

6	G130M/130 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU		440 Secs (440 Secs)	
l	9 Deuterium Exposure 2	COS/TOV, TIME-TAG, TCA	1309 A	M;		[==>]	
	•			BUFFER-TIME=16 5;			
				FP-POS=1;			[1]
				SEGMENT=BOTH;			[ [1]
				LIFETIME-POS=L			
				P1			
$C_{i}$		ized for Segment A. FP-POS=1 was c	hosen because prev	vious observations show th		the other FP-POS values.	
7	Aperture Ad NONE	COS, ALIGN/APER		XAPER=69	QESIPARM XSTEP S 44	0.0 Secs (0 Secs)	
	justment 1 f or Segment B				5 44	[==>]	[1]
C	omments: Put the aperture in the app	propriate position to illuminate a porti	on of the LP3 regio	n of the detector when illu	ninating Segment B with G160M/1	600.	
	CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill	uminate Segment B with G160M/1600	at Position 1 for L	P3 is -84			
T	herefore, XAPER is set to -84153 :		Ť		(+69 - +25) = +44] Special Requi	rement is necessary to move the aperture to	o the correct loc
<i>io</i> 8		COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
	0 Deuterium Exposure 1		1600 A	M;		[==>]	
	Exposure 1			BUFFER-TIME=16 5;			
				FP-POS=4;			[11]
				SEGMENT=BOTH;			[1]
				LIFETIME-POS=L			
				P1			
$C_{i}$	omments: Deuterium exposure optim	mized for Segment B. FP-POS=4 was	chosen because pre	evious observations show t	hat it has slightly more counts thar	the other FP-POS values.	
)	Aperture Ad NONE	COS, ALIGN/APER		XAPER=13	QESIPARM XSTEP	0.0 Secs (0 Secs)	
	justment 2 f				S -56	[==>]	[1]
	or Segment B						
C	В	propriate position to illuminate a porti	on of the LP3 regio	n of the detector when illu	ninating Segment B with G160M/1	600.	
F	B  omments: Put the aperture in the app  CA LAPXSTP value at LP1 is -153			•	ninating Segment B with G160M/1	600.	
F(D)	B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153	uminate Segment B with G160M/1600	at Position 2 for L	P3 is -140.		600.  direment is necessary to move the aperture	
F(D)	B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 resired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 rion. Comments Display British Comments Display British British British Display British British British Display British British British Display British British Display British British Display British British British Display British British Display Br	uminate Segment B with G160M/1600	at Position 2 for L	P3 is -140. "QESIPARM XSTEPS -56" CURRENT=MEDIU			
F(D)	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 tion.  D G160M/160 DEUTERIUM 0 Deuterium	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L	P3 is -140. "QESIPARM XSTEPS -56"  CURRENT=MEDIU M;		irement is necessary to move the aperture	
F(D)	B comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 resired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 rion. Comments Display British Comments Display British British British Display British British British Display British British British Display British British Display British British Display British British British Display British British Display Br	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L TRANS rules, the G160M	P3 is -140. "QESIPARM XSTEPS -56"  CURRENT=MEDIU M; BUFFER-TIME=16		tirement is necessary to move the aperture  440 Secs (440 Secs)	
F(D)	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 tion.  D G160M/160 DEUTERIUM 0 Deuterium	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L TRANS rules, the G160M	P3 is -140. "QESIPARM XSTEPS -56"  CURRENT=MEDIU M; BUFFER-TIME=16 5;		tirement is necessary to move the aperture  440 Secs (440 Secs)	to the correct lo
F(D)	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 tion.  D G160M/160 DEUTERIUM 0 Deuterium	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L TRANS rules, the G160M	P3 is -140.  "QESIPARM XSTEPS -56"  CURRENT=MEDIU M;  BUFFER-TIME=16 5; FP-POS=4;		tirement is necessary to move the aperture  440 Secs (440 Secs)	
F D Tl	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 esired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 tion.  D G160M/160 DEUTERIUM 0 Deuterium	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L TRANS rules, the G160M	P3 is -140.  "QESIPARM XSTEPS -56"  CURRENT=MEDIU M;  BUFFER-TIME=16 5;  FP-POS=4;  SEGMENT=BOTH;  LIFETIME-POS=L		tirement is necessary to move the aperture  440 Secs (440 Secs)	to the correct lo
F(D)	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 resired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 rion.  O G160M/160 DEUTERIUM O Deuterium Exposure 2	Suminate Segment B with G160M/1600 $t=+13$ . *HOWEVER*, because of the	at Position 2 for L TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P1	[(+13 - +69) = -56] Special Requ	tirement is necessary to move the aperture $\frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]}$	to the correct lo
F(D) T() at	B Comments: Put the aperture in the app CA LAPXSTP value at LP1 is -153 resired LAPXSTP value for FCA to ill therefore, XAPER is set to -140153 rion.  O G160M/160 DEUTERIUM O Deuterium Exposure 2	Tuminate Segment B with G160M/1600 = +13. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	at Position 2 for L TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P1	[(+13 - +69) = -56] Special Requ	tirement is necessary to move the aperture $\frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]}$	to the correct lo



<u>Pr</u>	oposal 16323 - ~6 months after last Cycle 27 Standard Modes gain map (4A) - Cycle 28 COS FUV Detector Gai	n Maps
	Proposal 16323, ~6 months after last Cycle 27 Standard Modes gain map (4A), completed	Thu Sep 09 19:00:27 GMT 2021
<u>  .</u> =		
į	Scientific Instruments: S/C, COS, COS/FUV	
1	Special Requirements: BETWEEN 01-APR-2021:00:00:00 AND 15-MAY-2021:00:00:00; PARALLEL	
	Comments: This visit collects data at LP4. It uses the HV values appropriate for the Standard Modes (167/169).	
၂ တ	(~6 months after last Cycle 27 Standard Modes gain map (4A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
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Proposal 16323 - ~6 months after last Cycle 27 Standard Modes gain map (4A) - Cycle 28 COS FUV Detector Gain Maps Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 125 Secs (125 Secs) 9 Deuterium 1309 A *[==>1* Exposure - S BUFFER-TIME=19 et up at LP1 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L Comments: Short exposure to set aperture to LP1, which is near the center of the aperture range used in this program. It also sets the HV to the LP1 values. Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 39 Secs (39 Secs) o LP3 value SPEC COM INSTR I ==> IELHVADJPROP: OASISTATES COS **FUV HVNOM HVN** OM; **OESIPARM ENDC** [1] TSA 167; OESIPARM ENDC TSB 169; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to LP4 values. Exposures Since the HV is not increasing, exposure time = 39 seconds Aperture Ad NONE COS, ALIGN/APER XAPER=121 0.0 Secs (0 Secs) justment 1 f *[==>1* or Segment [1] Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment A with G130M/1309. FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP4 is -32 Therefore, XAPER is set to -32 - -153 = +121G130M/130 DEUTERIUM COS/FUV. TIME-TAG. FCA 440 Secs (440 Secs) G130M CURRENT=MEDIU 9 Deuterium 1309 A *[==>]* Exposure 1 BUFFER-TIME=16 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values. Aperture Ad NONE COS. ALIGN/APER XAPER=67 OESIPARM XSTEP 0.0 Secs (0 Secs) justment 2 f S -54 f = = > 1

or Segment

[1]

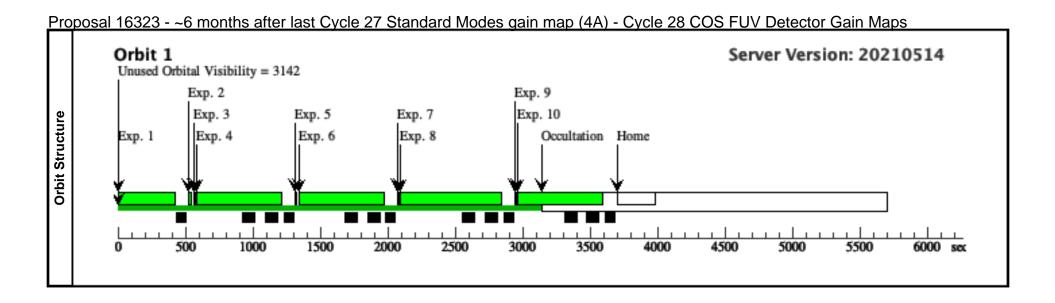
Comments: Put the aperture in the appropriate position to illuminate a portion of the LP3 region of the detector when illuminating Segment A with G130M/1309.

FCA LAPXSTP value at LP1 is -153

Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP3 is -86

Therefore, XAPER is set to -86 - -153 = +67. \*HOWEVER\*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+67 - +121) = -54] Special Requirement is necessary to move the aperture to the correct loc ation.

Detector Carri Maps	
440 Secs (440 Secs)	
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e other FP-POS values.	
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ment is necessary to move the aperture	to the correct loc
440 Secs (440 Secs)	
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2000	[==>] $[==>]$ 0.0 Secs (0 Secs) $[==>]$ 0.  rement is necessary to move the aperture 440 Secs (440 Secs) $[==>]$ $[==>]$ the other FP-POS values.



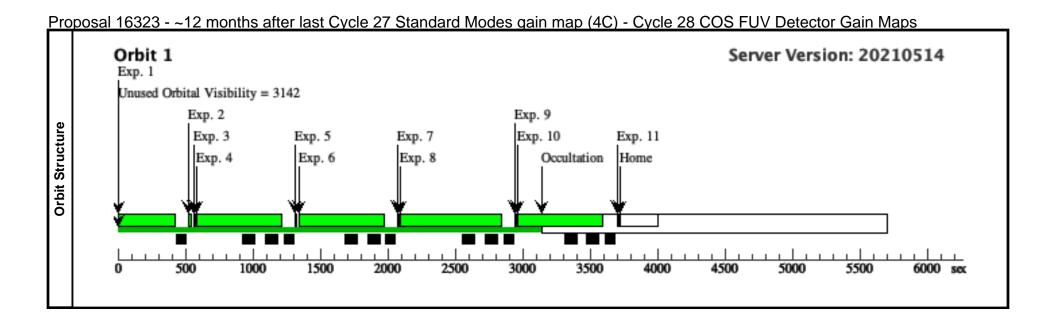
<u>Pr</u>	oposal 16323 - ~12 months after last Cycle 27 Standard Modes gain map (4C) - Cycle 28 COS FUV Detector G	ain Maps
	Proposal 16323, ~12 months after last Cycle 27 Standard Modes gain map (4C), scheduling	Thu Sep 09 19:00:27 GMT 2021
l.±	Diagnostic Status: Warning	
1 :5	Scientific Instruments: S/C, COS, COS/FUV	
_	Special Requirements: BETWEEN 01-OCT-2021:00:00:00 AND 01-NOV-2021:00:00:00; PARALLEL	
L	Comments: This visit collects data at LP4. It uses the HV values appropriate for the Standard Modes (167/169).	
l g	(~12 months after last Cycle 27 Standard Modes gain map (4C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
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Proposal 16323 - ~12 months after last Cycle 27 Standard Modes gain map (4C) - Cycle 28 COS FUV Detector Gain Maps Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 125 Secs (125 Secs) 9 Deuterium 1309 A *[==>1* Exposure - S BUFFER-TIME=19 et up at LP1 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L Comments: Short exposure to set aperture to LP1, which is near the center of the aperture range used in this program. It also sets the HV to the LP1 values. Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 39 Secs (39 Secs) o LP4 value SPEC COM INSTR I ==> IELHVADJPROP: OASISTATES COS **FUV HVNOM HVN** OM; **OESIPARM ENDC** [1] TSA 167; OESIPARM ENDC TSB 169; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to LP4 values. Exposures Since the HV is not increasing, exposure time = 39 seconds Aperture Ad NONE COS, ALIGN/APER XAPER=121 0.0 Secs (0 Secs) justment 1 f *[==>1* or Segment [1] Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment A with G130M/1309. FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP4 is -32 Therefore, XAPER is set to -32 - -153 = +121G130M/130 DEUTERIUM COS/FUV. TIME-TAG. FCA 440 Secs (440 Secs) G130M CURRENT=MEDIU 9 Deuterium 1309 A *[==>]* Exposure 1 BUFFER-TIME=16 FP-POS=1; [1] SEGMENT=BOTH; LIFETIME-POS=L Comments: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more counts than the other FP-POS values. Aperture Ad NONE COS. ALIGN/APER XAPER=67 OESIPARM XSTEP 0.0 Secs (0 Secs) justment 2 f S -54 f = = > 1or Segment [1] Comments: Put the aperture in the appropriate position to illuminate a portion of the LP4 region of the detector when illuminating Segment A with G130M/1309. FCA LAPXSTP value at LP1 is -153

Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP3 is -86

Therefore, XAPER is set to -86 - -153 = +67. \*HOWEVER\*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(+67 - +121) = -54] Special Requirement is necessary to move the aperture to the correct loc ation.

6 G130M/130 DEUTERIUM						
9 Deuterium	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU M;		440 Secs (440 Secs)	
Exposure 2		1309 A	BUFFER-TIME=16		[==>]	
			5; FP-POS=1;			
			SEGMENT=BOTH;			[1]
			LIFETIME-POS=L			
			P1			
	timized for Segment A. FP-POS=1 was a	chosen because pre				
7 Aperture Ad NONE justment 1 f	COS, ALIGN/APER		XAPER=112	QESIPARM XSTEP S 45	0.0 Secs (0 Secs)	
or Segment B				5 43	[==>]	[1]
Comments: Put the aperture in the a	appropriate position to illuminate a porti	on of the LP4 regio	on of the detector when illu	minating Segment B with G160M/1	600.	
Therefore, XAPER is set to -4115	illuminate Segment B with G160M/1600			[(+112 - +67) = +45] Special Req	uirement is necessary to move the apertus	re to the correct lo
cation.  8 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M;		[==>]	
Exposure 1			BUFFER-TIME=16 5;			
			FP-POS=4;			[1]
			SEGMENT=BOTH;			[11]
			LIFETIME-POS=L			
	i i la g	, ,	P1	1	L FR ROG 1	
	immized for Segment B. FP-POS=4 was	chosen because pr	evious observations show t	hat it has slightly more counts than		
			VADED_50	OECIDADM VCTED		
9 Aperture Ad NONE justment 2 f	COS, ALIGN/APER		XAPER=58	QESIPARM XSTEP S -54	0.0 Secs (0 Secs)	
9 Aperture Ad NONE justment 2 f or Segment			XAPER=58	QESIPARM XSTEP S -54	[l] = -3	[1]
9 Aperture Ad NONE justment 2 f or Segment B	COS, ALIGN/APER	on of the LP4 regio		S -54	[==>]	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a	COS, ALIGN/APER appropriate position to illuminate a porti	v	on of the detector when illu	S -54	[==>]	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to	COS, ALIGN/APER appropriate position to illuminate a porti billuminate Segment B with G160M/1600	at Position 2 for I	on of the detector when illu .P4 is -95.	S -54 minating Segment B with G160M/1	[==>]	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM	COS, ALIGN/APER appropriate position to illuminate a porti billuminate Segment B with G160M/1600	at Position 2 for I	on of the detector when illu .P4 is -95.	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>] 600.	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	at Position 2 for I	on of the detector when illu .P4 is -95. QESIPARM XSTEPS -54" CURRENT=MEDIU M;	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>] 600. irement is necessary to move the aperture	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	at Position 2 for I TRANS rules, the " G160M	on of the detector when illustrates on of the detector when illustrates on the control of the co	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  600.  irement is necessary to move the aperture  440 Secs (440 Secs)	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	at Position 2 for I TRANS rules, the " G160M	on of the detector when illu .P4 is -95. QESIPARM XSTEPS -54" CURRENT=MEDIU M;	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  600.  irement is necessary to move the aperture  440 Secs (440 Secs)	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	at Position 2 for I TRANS rules, the " G160M	on of the detector when illustrates and the detector when illustrates and the control of the con	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  600.  irement is necessary to move the aperture  440 Secs (440 Secs)	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	at Position 2 for I TRANS rules, the " G160M	on of the detector when illustrates of the detector when illustrates of the control of the contr	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  600.  irement is necessary to move the aperture  440 Secs (440 Secs)	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER appropriate position to illuminate a portion $B$ illuminate Segment $B$ with $G160M/1600$ $B3 = +58$ . *HOWEVER*, because of the	O at Position 2 for I TRANS rules, the " G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  foot.  irement is necessary to move the aperture $\frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]}$	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the of FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER appropriate position to illuminate a portion illuminate Segment B with G160M/1600 illuminate Segment B with G160M/1600 illuminate Segment B with G160M/1600 COS/FUV, TIME-TAG, FCA	O at Position 2 for I TRANS rules, the " G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=165; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=LP1	S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>]  foot.  irement is necessary to move the aperture $\frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]}$	to the correct loc



Proposal 16323 - ~12 months after last Cycle 27 1222 gain map (4D) - Cycle 28 COS FUV Detector Gair
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Proposal 16323, ~12 months after last Cycle 27 1222 gain map (4D), withdrawn

Thu Sep 09 19:00:27 GMT 2021

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Diagnostics

Diagnostic Status: Warning

Scientific Instruments: S/C, COS, COS/FUV

Special Requirements: BETWEEN 01-OCT-2021:00:00:00 AND 01-NOV-2021:00:00:00; ON HOLD; PARALLEL

Comments: This visit collects data at LP4. It uses the HV values appropriate for G130M/1222 (167/169).

On Hold Comments: As of March 2021, the HV values for the Standard Modes and G130M/1222 at LP4 are identical. If this is still the case in October 2021, it will not be necessary to execute this visit, so it has been

placed on hold.

(~12 months after last Cycle 27 1222 gain map (4D)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

Proposal 16323 - ~12 months after last Cycle 27 1222 gain map (4D) - Cycle 28 COS FUV Detector Gain Maps

C120M/120	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU			125 Secs (125 Secs)	
9 Deuterium Exposure - S			1309 A	M;			[==>]	
et up at LP1	,			BUFFER-TIME=19 6;				
				FP-POS=1;				
				SEGMENT=BOTH;				[1]
				LIFETIME-POS=L				
				P1				
Comments: Short	exposure to set apert	ture to LP1, which is near the center o	of the aperture range	used in this program. It a	lso sets the HV to the	LP1 values.		
2 Adjust HV t	DARK	S/C, DATA, NONE			SAA CONTOUR 31	;	39 Secs (39 Secs)	
o ĽP4 value s					SPEC COM INSTR ELHVADJPROP;		[==>]	
					QASISTATES COS FUV HVNOM HVN			
					OM; QESIPARM ENDC TSA 167;			[1]
					QESIPARM ENDC			
					TSB 169;			
					QESIPARM SEGM ENT AB			
Comments: Adjus	the HV to LP4 value	es.						•
Since the HV is no	ot increasing expess	re time = 39 seconds						
3 Aperture Ad		COS, ALIGN/APER		XAPER=121			0.0 Secs (0 Secs)	
Aperture Au	NONE	COS, ALIGIVAI LIC						
justment 1 f								
or Segment							[==>]	[1]
or Segment A	e aperture in the app	propriate position to illuminate a porti	ion of the LP4 region		ninatino Seoment A w	iith G130M/1309		[1]
or Segment A Comments: Put th		propriate position to illuminate a porti	ion of the LP4 region		ninating Segment A w	ith G130M/1309.		[1]
or Segment A Comments: Put th	ulue at LP1 is -153		, o	of the detector when illu	ninating Segment A w	ith G130M/1309.		[1]
or Segment A Comments: Put th FCA LAPXSTP vo Desired LAPXSTP	ulue at LP1 is -153 P value for FCA to ill	uminate Segment A with G130M/1309	, o	of the detector when illu	ninating Segment A w	ith G130M/1309.		[1]
or Segment A Comments: Put th FCA LAPXSTP vo Desired LAPXSTI Therefore, XAPEI	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 :	Suminate Segment A with $G130M/130S = +121$	at Position 1 for LI	of the detector when illun	ninating Segment A w	ith G130M/1309.	[==>]	[1]
or Segment A Comments: Put th FCA LAPXSTP vo Desired LAPXSTI Therefore, XAPEI 4 G130M/130	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	uminate Segment A with G130M/1309	O at Position 1 for LF	of the detector when illunder of the detector of the detecto	ninating Segment A w	ith G130M/1309.	[==>] 440 Secs (440 Secs)	[1]
or Segment A Comments: Put th FCA LAPXSTP vo Desired LAPXSTI Therefore, XAPEI	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	Suminate Segment A with $G130M/130S = +121$	at Position 1 for LI	of the detector when illum P4 is -32 CURRENT=MEDIU M;	ninating Segment A w	ith G130M/1309.	[==>]	[1]
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130  9 Deuterium	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	Suminate Segment A with $G130M/130S = +121$	O at Position 1 for LF	of the detector when illunder of the detector of the detecto	ninating Segment A w	ith G130M/1309.	[==>] 440 Secs (440 Secs)	[1]
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130  9 Deuterium	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	Suminate Segment A with $G130M/130S = +121$	O at Position 1 for LF	of the detector when illum 24 is -32 CURRENT=MEDIU M; BUFFER-TIME=16	ninating Segment A w	ith G130M/1309.	[==>] 440 Secs (440 Secs)	
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130  9 Deuterium	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	Suminate Segment A with $G130M/130S = +121$	O at Position 1 for LF	c of the detector when illumed is -32  CURRENT=MEDIU M;  BUFFER-TIME=16 5;	ninating Segment A w	ith G130M/1309.	[==>] 440 Secs (440 Secs)	
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130  9 Deuterium	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	Suminate Segment A with $G130M/130S = +121$	O at Position 1 for LF	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L	ninating Segment A w	ith G130M/1309.	[==>] 440 Secs (440 Secs)	
or Segment A Comments: Put th FCA LAPXSTP vo Desired LAPXSTI Therefore, XAPEI G130M/130 9 Deuterium Exposure 1	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	luminate Segment A with G130M/1309 = +121 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1			[==>]  440 Secs (440 Secs) [==>]	
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130 9 Deuterium Exposure 1	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	luminate Segment A with G130M/1309  = +121  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 Gous observations show the	at it has slightly more	counts than the othe	[==>]  440 Secs (440 Secs)  [==>]  r FP-POS values.	[1]
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTI  Therefore, XAPEI G130M/130 9 Deuterium Exposure 1  Comments: Deute Aperture Ad	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	luminate Segment A with G130M/1309 = +121 COS/FUV, TIME-TAG, FCA	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1	at it has slightly more  OESIPARM XSTEF	counts than the othe	[==>]  440 Secs (440 Secs) [==>]	
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130 9 Deuterium Exposure 1	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM	luminate Segment A with G130M/1309  = +121  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a	G130M 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 Gous observations show the	at it has slightly more	counts than the othe	[==>]  440 Secs (440 Secs)  [==>]  r FP-POS values.	
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTF  Therefore, XAPEI  G130M/130 9 Deuterium Exposure 1  Comments: Deute A justment 2 f or Segment A	tlue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM  rium exposure optim NONE	luminate Segment A with G130M/1309  = +121  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a	G130M G1309 A 1309 A	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ious observations show the	at it has slightly more QESIPARM XSTEF S -54	counts than the othe	[==>]  440 Secs (440 Secs)  [==>]  r FP-POS values.  0.0 Secs (0 Secs)	[1]
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTI  Therefore, XAPEI G130M/130 9 Deuterium Exposure 1  Comments: Deute Aperture Ad justment 2 f or Segment A  Comments: Put th	thue at LP1 is -153 P value for FCA to ill R is set to -32153 = DEUTERIUM  Tium exposure optim NONE  e aperture in the app	tuminate Segment A with G130M/1308  = +121  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a  COS, ALIGN/APER  propriate position to illuminate a portion	G130M 1309 A  Chosen because previous of the LP4 region	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 Sous observations show the XAPER=67	at it has slightly more QESIPARM XSTEF S -54	counts than the othe	[==>]  440 Secs (440 Secs)  [==>]  r FP-POS values.  0.0 Secs (0 Secs)	[1]
or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTI  Therefore, XAPEI  G130M/130 9 Deuterium Exposure 1  Comments: Deute or Segment A  Comments: Put th  FCA LAPXSTP vo Desired LAPXSTI	thue at LP1 is -153 Value for FCA to ill R is set to -32153 = DEUTERIUM  rium exposure optim NONE  e aperture in the app thue at LP1 is -153 Value for FCA to ill	tuminate Segment A with G130M/1309  = +121  COS/FUV, TIME-TAG, FCA  ized for Segment A. FP-POS=1 was a  COS, ALIGN/APER  tropriate position to illuminate a portion of the company of the	G130M G1309 A 1309 A  chosen because previous of the LP4 region of at Position 2 for LF	CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=1; SEGMENT=BOTH; LIFETIME-POS=L P1 ious observations show the XAPER=67	at it has slightly more QESIPARM XSTEF S -54 ninating Segment A w	counts than the othe	[==>]  440 Secs (440 Secs)  [==>]  r FP-POS values.  0.0 Secs (0 Secs)	

6 G130M/130 DEUTERIUM						
	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU		440 Secs (440 Secs)	
9 Deuterium Exposure 2		1309 A	M; BUFFER-TIME=16		I==>J	
-			5;			
			FP-POS=1;			[1]
			SEGMENT=BOTH;			129
			LIFETIME-POS=L			
			P1			
	imized for Segment A. FP-POS=1 was a	chosen because pre			1	
7 Aperture Ad NONE justment 1 f	COS, ALIGN/APER		XAPER=112	QESIPARM XSTEP S 45	0.0 Secs (0 Secs)	
or Segment B					[==>]	[1]
Comments: Put the aperture in the a	appropriate position to illuminate a porti	ion of the LP4 regio	on of the detector when illu	minating Segment B with G160M/I	600.	<b>,</b>
FCA LAPXSTP value at LP1 is -153						
Desired LAPXSTP value for FCA to	illuminate Segment B with G160M/1600	at Position 1 for 1	LP4 is -41			
Therefore, XAPER is set to -4115 cation.	3 = +112. *HOWEVER*, because of the	e TRANS rules, the	"QESIPARM XSTEPS 45"	[(+112 - +67) = +45] Special Req	quirement is necessary to move the apertur	re to the correct lo
8 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M;		I ==> J	
•			BUFFER-TIME=16 5;			
			FP-POS=4;			[1]
			SEGMENT=BOTH;			[2]
			LIFETIME-POS=L			
			P1			
a						
	immized for Segment B. FP-POS=4 was	chosen because pr				
Comments: Deuterium exposure opt  9 Aperture Ad NONE justment 2 f	immized for Segment B. FP-POS=4 was COS, ALIGN/APER	chosen because pr	XAPER=58	hat it has slightly more counts than QESIPARM XSTEP S-54	0.0 Secs (0 Secs)	
9 Aperture Ad NONE justment 2 f or Segment		chosen because pr		QESIPARM XSTEP		[1]
9 Aperture Ad NONE justment 2 f or Segment B	COS, ALIGN/APER		XAPER=58	QESIPARM XSTEP S -54	0.0 Secs (0 Secs) $I = = > J$	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a	COS, ALIGN/APER appropriate position to illuminate a porti		XAPER=58	QESIPARM XSTEP S -54	0.0 Secs (0 Secs) $I = = > J$	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153	COS, ALIGN/APER appropriate position to illuminate a porti	ion of the LP4 regio	XAPER=58 on of the detector when illu	QESIPARM XSTEP S -54	0.0 Secs (0 Secs) $I = = > J$	[1]
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to	COS, ALIGN/APER appropriate position to illuminate a porti illuminate Segment B with G160M/1600	ion of the LP4 region	XAPER=58 on of the detector when illuP4 is -95.	QESIPARM XSTEP S -54 minating Segment B with G160M/1	0.0 Secs (0 Secs) [==>] 600.	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the	XAPER=58 on of the detector when illu. LP4 is -95. QESIPARM XSTEPS -54"	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	0.0 Secs (0 Secs)  [==>]  600.  tirement is necessary to move the aperture	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM	COS, ALIGN/APER appropriate position to illuminate a porti illuminate Segment B with G160M/1600	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M	XAPER=58  on of the detector when illustrates  P4 is -95.  QESIPARM XSTEPS -54"  CURRENT=MEDIU	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	[l] 0.0  Secs  (0  Secs) $[l] = > J$ $600.$ $[l] a b c c c c c c c c c c c c c c c c c c$	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the	XAPER=58  on of the detector when illustrates  LP4 is -95.  QESIPARM XSTEPS -54"  CURRENT=MEDIU M;	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	0.0 Secs (0 Secs)  [==>]  600.  tirement is necessary to move the aperture	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M	XAPER=58  on of the detector when illustrates  P4 is -95.  QESIPARM XSTEPS -54"  CURRENT=MEDIU	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	[l] 0.0  Secs  (0  Secs) $[l] = > J$ $600.$ $[l] a b c c c c c c c c c c c c c c c c c c$	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M	XAPER=58  on of the detector when illustrates -95.  QESIPARM XSTEPS -54"  CURRENT=MEDIU M;  BUFFER-TIME=16	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	[l] 0.0  Secs  (0  Secs) $[l] = > J$ $600.$ $[l] a b c c c c c c c c c c c c c c c c c c$	<u> </u>
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M	XAPER=58  on of the detector when illustrates -95.  QESIPARM XSTEPS -54"  CURRENT=MEDIU M;  BUFFER-TIME=16 5;	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	[l] 0.0  Secs  (0  Secs) $[l] = > J$ $600.$ $[l] a b c c c c c c c c c c c c c c c c c c$	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M	XAPER=58  on of the detector when illustrates and the detector when illustrates are seen as a se	QESIPARM XSTEP S -54 minating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	[l] 0.0  Secs  (0  Secs) $[l] = > J$ $600.$ $[l] a b c c c c c c c c c c c c c c c c c c$	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER  appropriate position to illuminate a portical illuminate Segment B with G160M/1600 $3 = +58$ . *HOWEVER*, because of the	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M  1600 A	XAPER=58  on of the detector when illustrates and the detector when illustrates and the control of the detector when illustrates and the control of the cont	QESIPARM XSTEP S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>] 600.  tirement is necessary to move the aperture $[==>]$ $[==>]$	to the correct loc
9 Aperture Ad NONE justment 2 f or Segment B  Comments: Put the aperture in the a FCA LAPXSTP value at LP1 is -153 Desired LAPXSTP value for FCA to Therefore, XAPER is set to -9515 ation.  10 G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS, ALIGN/APER appropriate position to illuminate a portical states of the constraint of the constraint of the cost of the co	ion of the LP4 region  of at Position 2 for I  TRANS rules, the "  G160M  1600 A	XAPER=58  on of the detector when illustrates and the detector when illustrates and the control of the detector when illustrates and the control of the cont	QESIPARM XSTEP S -54  minating Segment B with G160M/1 $[(+58 - +112) = -54]$ Special Requ	[==>] 600.  tirement is necessary to move the aperture $[==>]$ $[==>]$	to the correct loc

