

16333 - Cycle 28 COS FUV Characterization of Modal Gain When Changing High

Voltage

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 09:00:17.0	yes
2C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 09:00:19.0	yes
3A	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 09:00:20.0	yes
3C	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 09:00:22.0	yes

Proposal 16333 (STScI Edit Number: 1, Created: Thursday, September 9, 2021 at 8:00:25 AM Eastern Standard Time) - Overview

Visit	,	Configurations used in Visit	Orbits Used		OP Current with Visit?
	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 09:00:23.0	yes
	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	09-Sep-2021 09:00:25.0	yes

6 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 both before and after any change is made to any nominal high voltage value on either segment, and before and after any lifetime move. 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 before and after any high voltage change, and before and after any change in Lifetime Position. They should be obtained at the appropriate HV levels and detector locations.

The plan for Cycle 28 includes 2 one-orbit contingency visits for each HV change. These two visits will be used if a HV change is made during the cycle. One will be taken immediately before the change using the current HV values (visits 2A, 3A, or 4A), and one will be taken after at the new

Proposal 16333 (STScI Edit Number: 1, Created: Thursday, September 9, 2021 at 8:00:25 AM Eastern Standard Time) - Overview values (visits 2C, 3C, or 4C).

The procedure for collecting this data in each visit is:

- * Adjust the HV values if necessary.
- * 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 exposure.
- * 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.
- *Return the aperture to the nominal LP4 location.
- *Return the HV values to the nominal values for the standard modes, if necessary.

Note that because TRANS resets its aperture zero point when FCA exposures are taken, the aperture is explicitly moved using "QESIPARM

Proposal 16333 (STScI Edit Number: 1, Created: Thursday, September 9, 2021 at 8:00:25 AM Eastern Standard Time) - Overview 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

Summary table:

Visit	LP Gr	ating/Segment	Y Position	LAPXSTP	XAPER
2A/2C	2	G130M/A	1	-213	-448
2A/2C	2	G130M/A	2	-267*	-502
2A/2C	2	G160M/B	1	-225	-460
2A/2C	2	G160M/B	2	-267*	-502
3A/3C	3	G130M/A	1	-72	-307
3A/3C	3	G130M/A	2	-128	-363
3A/3C	3	G160M/B	1	-84	-319
3A/3C	3	G160M/B	2	-140	-375

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4A/4C	4	G130M/A	1	-32	-267
4A/4C	4	G130M/A	2	-86	-321
4A/4C	4	G160M/B	1	-41	-276
4A/4C	4	G160M/B	2	-95	-330

^{*} Limited to be within the soft stops

The Mission Office approved using visit 4C of this program to be the 'after' visit for the HV increase on 10/4/2021. As a result, the 'On Hold' for that visit was removed, and the structure of the visit was changed to match visit 4C of program 16323, which had been updated several months earlier. In addition, the HV values were changed to 173/169. The new description of the layout of this visit (as described in 16323) is:

^{*} 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 exposure.

^{*} 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.

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^{*} 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.

Proposal 16333 - LP2 gain map - before HV increase (2A) - Cycle 28 COS FUV Characterization of Modal Ga	Bain When Changing High
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Thu Sep 09 13:00:25 GMT 202

Proposal 16333, LP2 gain map - before HV increase (2A), implementation

Diagnostic Status: Warning

Scientific Instruments: S/C, COS, COS/FUV
Special Requirements: ON HOLD; PARALLEL

Comments: This visit collects data at LP2. It uses the HV values appropriate for the Blue Modes at the current HV (173/175).

On Hold Comments: Only needed if HV changed during Cycle 28

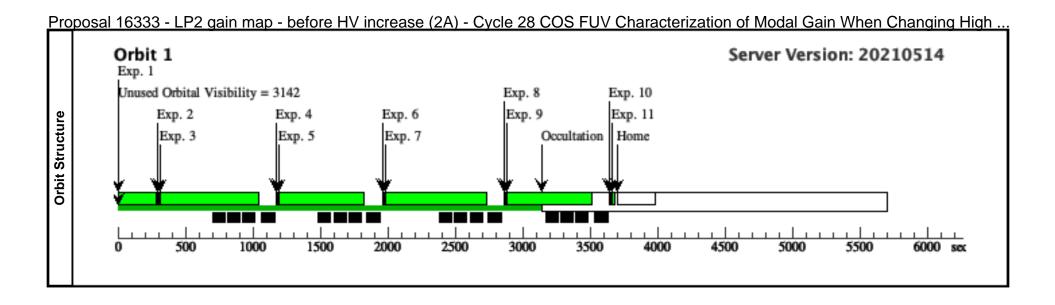
Diagnostics
(A)

(LP2 gain map - before HV increase (2A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(Aperture Adjustment 1 for Segment A (2A.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.

Proposal 16333 - LP2 gain map - before HV increase (2A) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 295 Secs (295 Secs) o Blue Mod SPEC COM INSTR *[==>1* e values ELHLTHVF: **QASISTATES COS FUV HVLOW HVN** OM; **QESIPARM ENDC** [1] TSA 173; OESIPARM ENDC TSB 175; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the Blue Mode values. XAPER=-448 0.0 Secs (0 Secs) Aperture Ad NONE COS, ALIGN/APER 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. PSA LAPXSTP value at LP4 is 235.1 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 - 235.1 = -448* G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium Exposures 1309 A [==>1 Exposure 1 BUFFER-TIME=11 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=-502 **OESIPARM XSTEP** 0.0 Secs (0 Secs) justment 2 f S -54 I==>Jor 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. PSA LAPXSTP value at LP4 is 235.1 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 - 235.1 = -502. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-502 - -448) = -54] Special Requirement is necessary to move the aperture to the correct 1 ocation. G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium M; 1309 A [==>1 Exposure 2 BUFFER-TIME=11 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.

6	Aperture Ad NONE	COS, ALIGN/APER		XAPER=-460	QESIPARM XSTEP	0.0 Secs (0 Secs)	
	justment 1 f or Segment B				S 42	[==>]	[1]
Con	nments: Put the aperture in the app	propriate position to illuminate a porti	on of the LP2/Blue	Modes region of the dete	ector when illuminating Segment B	with G160M/1600.	<u>'</u>
	LAPXSTP value at LP4 is 235.1 ired LAPXSTP value for FCA to il	luminate Segment B with G160M/1600	at Position 1 for I	LP2 is -225			
The		1 = -460. *HOWEVER*, because of the	he TRANS rules, th	e "QESIPARM XSTEPS 4	42" [(-460502) = +42] Special R	Requirement is necessary to move the apert	ure to the correc
7	G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDI	IU	440 Secs (440 Secs)	
	0 Deuterium Exposure 1		1600 A	M; BUFFER-TIME=1 1;	11	[==>]	
				FP-POS=4;			[1]
				SEGMENT=BOTI	H;		[1]
				LIFETIME-POS=1 P4	L		
Con	nments: Deuterium exposure optim	mized for Segment B. FP-POS=4 was	chosen because pr		w that it has slightly more counts the	un the other FP-POS values.	
8	Aperture Ad NONE justment 2 f	COS, ALIGN/APER		XAPER=-502	QESIPARM XSTEP S -42	0.0 Secs (0 Secs)	
	or Segment				3-42	I==>J	[1]
		огоргіате розіпоп то иштіпате а рогті	on of the LP2/Blue	Modes region of the dete	ector when illuminating Segment B	with G160M/1600.	
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Proposal 16333 - LP2 gain map - after HV increase (2C) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High V...

Thu Sep 09 13:00:26 GMT 202

Proposal 16333, LP2 gain map - after HV increase (2C), implementation

Diagnostic Status: Warning

isit

Scientific Instruments: S/C, COS, COS/FUV Special Requirements: ON HOLD; PARALLEL

Comments: This visit collects data at LP2. It uses the HV values appropriate for the Blue Modes after increasing the HV (178/175).

On Hold Comments: Only needed if HV changed during Cycle 28

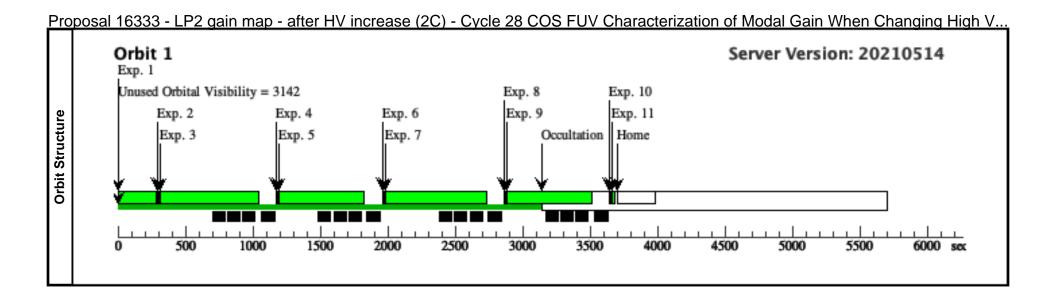
Diagnostics

(LP2 gain map - after HV increase (2C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(Aperture Adjustment 1 for Segment A (2C.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.

Proposal 16333 - LP2 gain map - after HV increase (2C) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High V.. Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 295 Secs (295 Secs) o Blue Mod SPEC COM INSTR *[==>1* e values ELHLTHVF: **QASISTATES COS FUV HVLOW HVN** OM; **QESIPARM ENDC** [1] TSA 178; OESIPARM ENDC TSB 175; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the Blue Mode values. XAPER=-448 0.0 Secs (0 Secs) Aperture Ad NONE COS, ALIGN/APER 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. PSA LAPXSTP value at LP4 is 235.1 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 - 235.1 = -448* G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium Exposures 1309 A [==>1 Exposure 1 BUFFER-TIME=11 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=-502 **OESIPARM XSTEP** 0.0 Secs (0 Secs) justment 2 f S -54 I==>Jor 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. PSA LAPXSTP value at LP4 is 235.1 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 - 235.1 = -502. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-502 - -448) = -54] Special Requirement is necessary to move the aperture to the correct 1 ocation. G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium M; 1309 A [==>1 Exposure 2 BUFFER-TIME=11 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=-460	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B					S 42	[==>]	[1]
omments: Put the aperture	e in the appr	ropriate position to illuminate a porti	on of the LP2/Blue	Modes region of the det	ector when illuminating Segment B	with G160M/1600.	-
SA LAPXSTP value at LP- Desired LAPXSTP value for		uminate Segment B with G160M/1600	at Position 1 for I	LP2 is -225			
Therefore, XAPER is set to ocation.	-225 - 235.1	= -460. *HOWEVER*, because of the	he TRANS rules, th	e "QESIPARM XSTEPS	42" [(-460502) = +42] Special F	equirement is necessary to move the apert	ure to the correct
G160M/160 DEUTE	ERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MED	IU	440 Secs (440 Secs)	
0 Deuterium Exposure 1			1600 A	M; BUFFER-TIME=: 1;	11	[==>]	
				FP-POS=4;			[1]
				SEGMENT=BOT	Н;		""
				LIFETIME-POS= P4	L		
Comments: Deuterium expo	sure optimn	nized for Segment B. FP-POS=4 was	chosen because pr			an the other FP-POS values.	
Aperture Ad NONE justment 2 f		COS, ALIGN/APER		XAPER=-502	QESIPARM XSTEP S -42	0.0 Secs (0 Secs)	
or Segment					5 12	I = > J	[1]
PSA LAPXSTP value at LP Desired LAPXSTP value for tt To leave some pad, I wi	4 is 235.1 r FCA to illu ll set it to mo	uminate Segment B with G160M/1600 atch the G130M exposure (-267).	at Position 2 for I	LP2 is -280, but the apera		want to exceed that value when including	-
PSA LAPXSTP value at LP- Desired LAPXSTP value for t To leave some pad, I wi Therefore, XAPER is set to ccation.	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267). = -502. *HOWEVER*, because of th	at Position 2 for I	LP2 is -280, but the aperate "QESIPARM XSTEPS"	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F	want to exceed that value when including equirement is necessary to move the apert	-
SA LAPXSTP value at LP- esired LAPXSTP value for To leave some pad, I wi herefore, XAPER is set to cation. G160M/160 DEUTE 0 Deuterium	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267).	at Position 2 for I	LP2 is -280, but the aperate "QESIPARM XSTEPS CURRENT=MED M;	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F	want to exceed that value when including	-
SA LAPXSTP value at LP- esired LAPXSTP value for To leave some pad, I wi herefore, XAPER is set to eation. G160M/160 DEUTE	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267). = -502. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	LP2 is -280, but the aperate "QESIPARM XSTEPS CURRENT=MED M; BUFFER-TIME=	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F	want to exceed that value when including requirement is necessary to move the aperta	-
SA LAPXSTP value at LP- esired LAPXSTP value for To leave some pad, I wi herefore, XAPER is set to eation. G160M/160 DEUTE 0 Deuterium	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267). = -502. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	LP2 is -280, but the aperate "QESIPARM XSTEPS CURRENT=MED M;	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F	want to exceed that value when including requirement is necessary to move the aperta	ure to the correct
PSA LAPXSTP value at LP- Desired LAPXSTP value for t. To leave some pad, I wi Therefore, XAPER is set to cation. G160M/160 DEUTE 0 Deuterium	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267). = -502. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	CURRENT=MED M; BUFFER-TIME=1;	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU	want to exceed that value when including requirement is necessary to move the aperta	-
PSA LAPXSTP value at LP- Desired LAPXSTP value for t To leave some pad, I wi Therefore, XAPER is set to cation. G160M/160 DEUTE 0 Deuterium	4 is 235.1 r FCA to illu ll set it to mo -267 - 235.1	uminate Segment B with G160M/1600 atch the G130M exposure (-267). = -502. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	CURRENT=MED M; BUFFER-TIME= 1; FP-POS=4;	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F	want to exceed that value when including requirement is necessary to move the aperta	ure to the correct
PSA LAPXSTP value at LP- Desired LAPXSTP value for the third that the same pad, I will Therefore, XAPER is set to the contain. G160M/160 DEUTE 0 Deuterium Exposure 2	4 is 235.1 r FCA to illu ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MED M; BUFFER-TIME= 1; FP-POS=4; SEGMENT=BOT LIFETIME-POS= P4	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU II II II; L w that it has slightly more counts the	want to exceed that value when including requirement is necessary to move the aperts 440 Secs (440 Secs) [==>]	ure to the correct
PSA LAPXSTP value at LP- Desired LAPXSTP value for t To leave some pad, I wi Therefore, XAPER is set to cation. G160M/160 DEUTE 0 Deuterium Exposure 2	4 is 235.1 r FCA to illu ll set it to me -267 - 235.1 ERIUM	uminate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MED. M; BUFFER-TIME= 1; FP-POS=4; SEGMENT=BOT LIFETIME-POS= P4	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H;	want to exceed that value when including equirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ In the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$	[1]
PSA LAPXSTP value at LP- Desired LAPXSTP value for tt. To leave some pad, I wi Therefore, XAPER is set to tocation. O G160M/160 DEUTE 0 Deuterium Exposure 2 Comments: Deuterium expo- ture to Nomi nal Position	4 is 235.1 r FCA to illu ll set it to me -267 - 235.1 ERIUM	uminate Segment B with G160M/1600 atch the G130M exposure (-267). The end of the G130M exposure (-267). COS/FUV, TIME-TAG, FCA The end of the G130M exposure (-267). COS/FUV, TIME-TAG, FCA The end of the G130M exposure (-267). COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MED M; BUFFER-TIME= 1; FP-POS=4; SEGMENT=BOT LIFETIME-POS= P4	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H; L w that it has slightly more counts the QESIPARM XSTEP	want to exceed that value when including requirement is necessary to move the aperts 440 Secs (440 Secs) [==>]	ure to the correct
SA LAPXSTP value at LP- Desired LAPXSTP value for t To leave some pad, I wi Therefore, XAPER is set to cation. G160M/160 DEUTE 0 Deuterium Exposure 2 Comments: Deuterium expo 0 Return Aper NONE ture to Nomi nal Position Comments: Return the aper	4 is 235.1 r FCA to illul ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	the TRANS rules, the G160M 1600 A	CURRENT=MED M; BUFFER-TIME=1; FP-POS=4; SEGMENT=BOT LIFETIME-POS=P4 revious observations show	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU II H; L w that it has slightly more counts the QESIPARM XSTEP S 502	want to exceed that value when including sequirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ an the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$	[1]
Comments: Deuterium expo O Return Aper NONE ture to Nomi nal Position Comments: Return the aper HOWEVER*, because of to	4 is 235.1 r FCA to illul ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA COS/FUV, TIME-TAG, FCA COS, ALIGN/APER cominal position, i.e. XAPER=0.	the TRANS rules, the G160M 1600 A	CURRENT=MED M; BUFFER-TIME=1; FP-POS=4; SEGMENT=BOT LIFETIME-POS=P4 revious observations show	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H; L w that it has slightly more counts the QESIPARM XSTEP S 502 is necessary to move the aperture to SPEC COM INSTR	want to exceed that value when including sequirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ an the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$	[1]
Comments: Deuterium expo O Return Aper NONE ture to Nomi nal Position Comments: Return the aper HOWEVER*, because of to minal HV fo r standard m	4 is 235.1 r FCA to illul ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA COS/FUV, TIME-TAG, FCA mized for Segment B. FP-POS=4 was COS, ALIGN/APER cominal position, i.e. XAPER=0. ules, the "QESIPARM XSTEPS +502	the TRANS rules, the G160M 1600 A	CURRENT=MED M; BUFFER-TIME=1; FP-POS=4; SEGMENT=BOT LIFETIME-POS=P4 revious observations show	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H; L w that it has slightly more counts the QESIPARM XSTEP S 502 is necessary to move the aperture to SPEC COM INSTR ELHVADJPROP;	want to exceed that value when including requirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ un the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$ wits correct location.	[1]
PSA LAPXSTP value at LP- Desired LAPXSTP value for st. To leave some pad, I wi Therefore, XAPER is set to location. G160M/160 DEUTE 0 Deuterium Exposure 2 Comments: Deuterium expo Return Aper NONE ture to Nomi nal Position Comments: Return the aper HOWEVER*, because of to Return to no DARK minal HV fo	4 is 235.1 r FCA to illul ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA COS/FUV, TIME-TAG, FCA mized for Segment B. FP-POS=4 was COS, ALIGN/APER cominal position, i.e. XAPER=0. ules, the "QESIPARM XSTEPS +502	the TRANS rules, the G160M 1600 A	CURRENT=MED M; BUFFER-TIME=1; FP-POS=4; SEGMENT=BOT LIFETIME-POS=P4 revious observations show	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H; L w that it has slightly more counts the QESIPARM XSTEP S 502 is necessary to move the aperture to SPEC COM INSTR	want to exceed that value when including requirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ In the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$ This correct location. $39 \mathrm{Secs} (39 \mathrm{Secs})$	[1]
Comments: Deuterium expo 0 Return Aper NONE ture to Nominal Position Comments: Return the aper HOWEVER*, because of the position of the standard m	4 is 235.1 r FCA to illul ll set it to me -267 - 235.1 ERIUM	uninate Segment B with G160M/1600 atch the G130M exposure (-267). T = -502. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA COS/FUV, TIME-TAG, FCA mized for Segment B. FP-POS=4 was COS, ALIGN/APER cominal position, i.e. XAPER=0. ules, the "QESIPARM XSTEPS +502	the TRANS rules, the G160M 1600 A	CURRENT=MED M; BUFFER-TIME=1; FP-POS=4; SEGMENT=BOT LIFETIME-POS=P4 revious observations show	ture soft stop is at -275 and we don' -42" [(-502460) = -42] Special F IU H; L w that it has slightly more counts the QESIPARM XSTEP S 502 is necessary to move the aperture to SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	want to exceed that value when including requirement is necessary to move the apertude $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ In the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$ This correct location. $39 \mathrm{Secs} (39 \mathrm{Secs})$	[1]



I	<u> Proposal 16333 - LP3 gain map - before HV increase (3A) - Cy</u>	cle 28 COS FUV Characterization of Modal Gain When Changing High
ſ	Proposal 16333, LP3 gain map - before HV increase (3A), implementation	Thu Sep 09 13:00:26 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: S/C, COS, COS/FUV Special Requirements: ON HOLD; PARALLEL

Comments: This visit collects data at LP3. It uses the HV values appropriate for LP3 (167/175).

On Hold Comments: Only needed if HV changed during Cycle 28

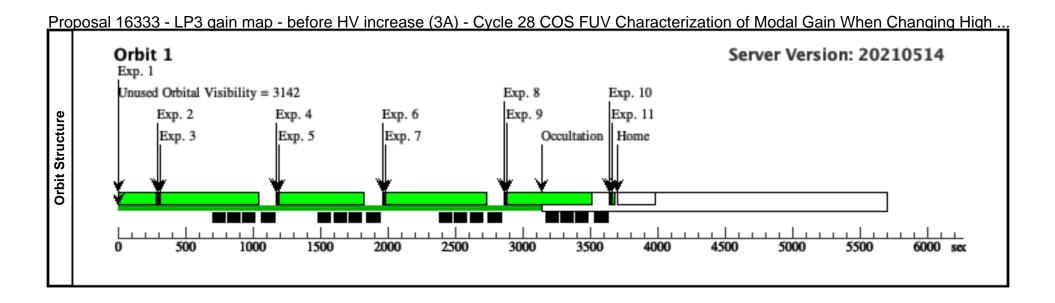
Diagnostics

(LP3 gain map - before HV increase (3A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(Aperture Adjustment 1 for Segment A (3A.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.

Proposal 16333 - LP3 gain map - before HV increase (3A) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 295 Secs (295 Secs) o LP3 value SPEC COM INSTR *[==>1* ELHLTHVF: **QASISTATES COS FUV HVLOW HVN** OM; **QESIPARM ENDC** [1] TSA 167; OESIPARM ENDC TSB 175; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the LP3 values. XAPER=-307 0.0 Secs (0 Secs) Aperture Ad NONE COS, ALIGN/APER 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. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP3 is -72 Therefore, XAPER is set to -72 - 235.1 = -307G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium Exposures 1309 A [==>1 Exposure 1 BUFFER-TIME=11 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=-363 **OESIPARM XSTEP** 0.0 Secs (0 Secs) justment 2 f S-56 I==>Jor 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. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP3 is -128 Therefore, XAPER is set to -128 - 235.1 = -363. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -56" [(-363 - -307) = -56] Special Requirement is necessary to move the aperture to the correct 1 ocation. G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium M; 1309 A [==>1 Exposure 2 BUFFER-TIME=11 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=-319	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B				S 44	[==>]	[1]
Comments: Put the aperture in the ap	opropriate position to illuminate a porti	on of the LP3 region	on of the detector when illu	minating Segment B with G160M/	71600.	
PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to i	illuminate Segment B with G160M/1600	at Position 1 for I	LP3 is -84			
Therefore, XAPER is set to -84 - 235. cation.	.1 = -319. *HOWEVER*, because of the	e TRANS rules, the	"QESIPARM XSTEPS 44"	[(-319363) = +44] Special Red	quirement is necessary to move the apertu	re to the correct
G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M; BUFFER-TIME=11		I==>J	
			1;			
			FP-POS=4;			[1]
			SEGMENT=BOTH;			
			LIFETIME-POS=L P4			
Comments: Deuterium exposure opti	mmized for Segment B. FP-POS=4 was	chosen because pr	revious observations show t	hat it has slightly more counts tha	in the other FP-POS values.	
Aperture Ad NONE	COS, ALIGN/APER		XAPER=-375	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 2 f or Segment				S -56	[==>]	[1]
В						
PSA LAPXSTP value at LP4 is 235.1		,	·	minating Segment B with G160M/	71600.	
Comments: Put the aperture in the aperture in the apers. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to a Cherefore, XAPER is set to -140 - 23: ocation.	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of the	at Position 2 for I	LP3 is -140. ne "QESIPARM XSTEPS -50	v v	equirement is necessary to move the apert	ure to the correc
Comments: Put the aperture in the aperture is 235.1 Desired LAPXSTP value for FCA to a Cherefore, XAPER is set to -140 - 23. Section. G160M/160 DEUTERIUM 0 Deuterium	illuminate Segment B with G160M/1600	at Position 2 for 1 the TRANS rules, th	LP3 is -140.	v v	equirement is necessary to move the apertal	ure to the correc
Comments: Put the aperture in the aperture is 235.1 Desired LAPXSTP value for FCA to a continuous	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th	at Position 2 for I	LP3 is -140. e "QESIPARM XSTEPS -50 CURRENT=MEDIU	v v	equirement is necessary to move the apert	ure to the correc
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	LP3 is -140. LP3 is -140. CURRENT=MEDIU M; BUFFER-TIME=11	v v	equirement is necessary to move the apertal	
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	CURRENT=MEDIU M; BUFFER-TIME=11	5" [(-375319) = -56] Special R	equirement is necessary to move the apertal	ure to the correc
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th	at Position 2 for 1 the TRANS rules, th	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L	5" [(-375319) = -56] Special R	equirement is necessary to move the apertal	
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th	at Position 2 for I the TRANS rules, th G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4	5" [(-375319) = -56] Special R	equirement is necessary to move the aperto $440 \text{ Secs } (440 \text{ Secs})$ $[==>]$	
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	at Position 2 for I the TRANS rules, th G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4	6" [(-375319) = -56] Special R hat it has slightly more counts that QESIPARM XSTEP	equirement is necessary to move the aperto $440 \text{ Secs } (440 \text{ Secs})$ $[==>]$	
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA	at Position 2 for I the TRANS rules, th G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4	5" [(-375319) = -56] Special R hat it has slightly more counts tha	equirement is necessary to move the apert $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ In the other FP-POS values.	
Comments: Put the aperture in	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA mmized for Segment B. FP-POS=4 was COS, ALIGN/APER nominal position, i.e. XAPER=0.	at Position 2 for the TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 **revious observations show to the state of	hat it has slightly more counts that QESIPARM XSTEP S 375	equirement is necessary to move the aperts	[1]
Comments: Put the aperture in the aperture desired LAPXSTP value for FCA to a continuation. Comments: Deuterium exposure option in the aperture in the aperture in the aperture to its approximate in the aperture in the ape	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA mmized for Segment B. FP-POS=4 was COS, ALIGN/APER	at Position 2 for the TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 **revious observations show to the state of	hat it has slightly more counts that QESIPARM XSTEP S 375 necessary to move the aperture to SPEC COM INSTR	equirement is necessary to move the aperts	[1]
Comments: Put the aperture in the aperture described in the aperture in the ap	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA mmized for Segment B. FP-POS=4 was COS, ALIGN/APER nominal position, i.e. XAPER=0. S rules, the "QESIPARM XSTEPS +375	at Position 2 for the TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 **revious observations show to the state of	hat it has slightly more counts that QESIPARM XSTEP S 375 necessary to move the aperture to SPEC COM INSTR ELHVADJPROP;	equirement is necessary to move the aperts	[1]
Comments: Put the aperture in the aperture desired LAPXSTP value for FCA to a continuation. Comments: Deuterium exposure option in the aperture in the aperture in the aperture to its approximate in the aperture in the ape	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA mmized for Segment B. FP-POS=4 was COS, ALIGN/APER nominal position, i.e. XAPER=0. S rules, the "QESIPARM XSTEPS +375	at Position 2 for the TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 **revious observations show to the state of	hat it has slightly more counts that QESIPARM XSTEP S 375 necessary to move the aperture to SPEC COM INSTR	equirement is necessary to move the aperts	(1)
Comments: Put the aperture in in the aperture in the aperture in the aperture in in the aperture in the apertu	illuminate Segment B with G160M/1600 5.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA mmized for Segment B. FP-POS=4 was COS, ALIGN/APER nominal position, i.e. XAPER=0. S rules, the "QESIPARM XSTEPS +375	at Position 2 for the TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 **revious observations show to the state of	hat it has slightly more counts that QESIPARM XSTEP S 375 necessary to move the aperture to SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	equirement is necessary to move the aperts	[1]



Thu Sep 09 13:00:26 GMT 2021

Proposal 16333, LP3 gain map - after HV increase (3C), implementation

Diagnostic Status: Warning

Sit

Scientific Instruments: S/C, COS, COS/FUV Special Requirements: ON HOLD; PARALLEL

Comments: This visit collects data at LP3. It uses the HV values appropriate for LP3 after a HV increase (173/175).

On Hold Comments: Only needed if HV changed during Cycle 28

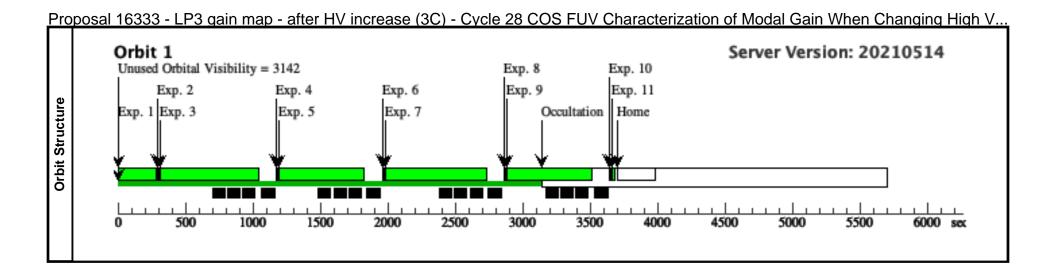
Diagnostics

(LP3 gain map - after HV increase (3C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(Aperture Adjustment 1 for Segment A (3C.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.

Proposal 16333 - LP3 gain map - after HV increase (3C) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High V.. Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 295 Secs (295 Secs) o LP3 value SPEC COM INSTR *[==>1* ELHLTHVF: **QASISTATES COS FUV HVLOW HVN** OM; **QESIPARM ENDC** [1] TSA 173; OESIPARM ENDC TSB 175; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the LP3 values. XAPER=-307 0.0 Secs (0 Secs) Aperture Ad NONE COS, ALIGN/APER 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. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP3 is -72 Therefore, XAPER is set to -72 - 235.1 = -307G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium Exposures 1309 A [==>1 Exposure 1 BUFFER-TIME=11 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=-363 **OESIPARM XSTEP** 0.0 Secs (0 Secs) justment 2 f S-56 I==>Jor 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. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP3 is -128 Therefore, XAPER is set to -128 - 235.1 = -363. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -56" [(-363 - -307) = -56] Special Requirement is necessary to move the aperture to the correct 1 ocation. G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium M; 1309 A [==>1 Exposure 2 BUFFER-TIME=11 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.

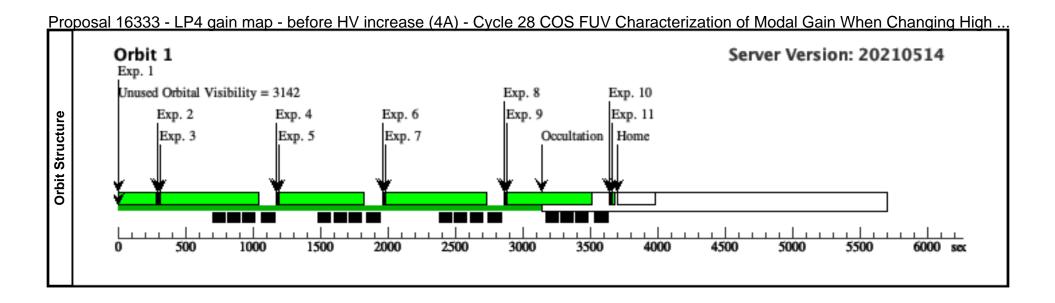
OOSAI 16333 - LP3 gai 6 Aperture Ad NONE	COS, ALIGN/APER		XAPER=-319	OESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B	500, 1210. VIII 21.		2N- 317	S 44	[==>]	[1]
Comments: Put the aperture in the c	appropriate position to illuminate a porti	on of the LP3 regi	on of the detector when illu	minating Segment B with G160M	<u></u>	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to	1 illuminate Segment B with G160M/1600	at Position 1 for 1	LP3 is -84			
Therefore, XAPER is set to -84 - 23. cation.	5.1 = -319. *HOWEVER*, because of the	e TRANS rules, the	"QESIPARM XSTEPS 44"	'[(-319363) = +44] Special R	Requirement is necessary to move the aperture	re to the correct lo
7 G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1		1600 A	M; BUFFER-TIME=11 1;		[==>]	
			FP-POS=4;			[1]
			SEGMENT=BOTH;	;		
			LIFETIME-POS=L P4			
Comments: Deuterium exposure op	immized for Segment B. FP-POS=4 was	chosen because p	revious observations show t	that it has slightly more counts th	nan the other FP-POS values.	
8 Aperture Ad NONE justment 2 f	COS, ALIGN/APER		XAPER=-375	QESIPARM XSTEP S -56	0.0 Secs (0 Secs)	
or Segment B				5 30	[==>]	[1]
PSA LAPXSTP value at LP4 is 235.	appropriate position to illuminate a porti l illuminate Segment B with G160M/1600	, ,	•	minating Segment B with G160M	1/1600.	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. ocation.	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the	LP3 is -140. ne "QESIPARM XSTEPS -5	6" [(-375319) = -56] Special	Requirement is necessary to move the apertu	ure to the correct
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2.	1 1 illuminate Segment B with G160M/1600	at Position 2 for the TRANS rules, the G160M	LP3 is -140.	6" [(-375319) = -56] Special	Requirement is necessary to move the apertu	ure to the correct
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. Decation. G160M/160 DEUTERIUM	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the	LP3 is -140. ne "QESIPARM XSTEPS -5 CURRENT=MEDIU	6" [(-375319) = -56] Special .	Requirement is necessary to move the apertu	ure to the correct
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 ocation. G160M/160 DEUTERIUM 0 Deuterium	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP3 is -140. The "QESIPARM XSTEPS -5" CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4;	6" [(-375319) = -56] Special .	Requirement is necessary to move the apertu	ure to the correct
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 ocation. G160M/160 DEUTERIUM 0 Deuterium	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP3 is -140. The "QESIPARM XSTEPS -5" CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH;	6" [(-375319) = -56] Special .	Requirement is necessary to move the apertu	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 ocation. G160M/160 DEUTERIUM 0 Deuterium	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP3 is -140. The "QESIPARM XSTEPS -5" CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4;	6" [(-375319) = -56] Special .	Requirement is necessary to move the apertu	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. ocation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	at Position 2 for the TRANS rules, the G160M 1600 A	LP3 is -140. ne "QESIPARM XSTEPS -5 CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 revious observations show in	6" [(-375319) = -56] Special s	Requirement is necessary to move the apertu $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ han the other FP-POS values.	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. Decation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. The Return Aper NONE ture to Nomi	1 illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of the	at Position 2 for the TRANS rules, the G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5 CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4	6" [(-375319) = -56] Special .	Requirement is necessary to move the apertu	[1]
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 Decation. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op ture to Nomi nal Position	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA immized for Segment B. FP-POS=4 was COS, ALIGN/APER	at Position 2 for the TRANS rules, the G160M 1600 A	LP3 is -140. ne "QESIPARM XSTEPS -5 CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 revious observations show in	6" [(-375319) = -56] Special : that it has slightly more counts the QESIPARM XSTEP	Requirement is necessary to move the apertu $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ han the other FP-POS values.	
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 Decation. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. 10 Return Aper NONE ture to Nomi nal Position Comments: Return the aperture to i	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA immized for Segment B. FP-POS=4 was COS, ALIGN/APER	at Position 2 for A the TRANS rules, th G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5. CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 Tevious observations show in the state of the state o	6" [(-375319) = -56] Special . that it has slightly more counts the QESIPARM XSTEP S 375	Requirement is necessary to move the aperturbed $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ Than the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$	[1]
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2 Decation. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. 10 Return Aper NONE ture to Nomi nal Position Comments: Return the aperture to i *HOWEVER*, because of the TRAI 11 Return to no DARK	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA immized for Segment B. FP-POS=4 was COS, ALIGN/APER ts nominal position, i.e. XAPER=0.	at Position 2 for A the TRANS rules, th G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5. CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 Tevious observations show in the state of the state o	6" [(-375319) = -56] Special : that it has slightly more counts the QESIPARM XSTEP S 375 necessary to move the aperture to SPEC COM INSTR	Requirement is necessary to move the aperturbed $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ Than the other FP-POS values. $0 \mathrm{Secs} (0 \mathrm{Secs})$ $[==>]$	[1]
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. Decation. Gl60M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. Return Aper NONE ture to Nomi nal Position Comments: Return the aperture to is *HOWEVER*, because of the TRAI 11 Return to no DARK minal HV fo r standard m	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA cimmized for Segment B. FP-POS=4 was COS, ALIGN/APER ts nominal position, i.e. XAPER=0. IS rules, the "QESIPARM XSTEPS +375"	at Position 2 for A the TRANS rules, th G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5. CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 Tevious observations show in the state of the state o	that it has slightly more counts the QESIPARM XSTEP S 375 necessary to move the aperture of SPEC COM INSTR ELHVADJPROP;	Requirement is necessary to move the apertu	[1]
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. Decation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. Return Aper NONE ture to Nomi nal Position Comments: Return the aperture to i *HOWEVER*, because of the TRAN 11 Return to no DARK minal HV fo	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA cimmized for Segment B. FP-POS=4 was COS, ALIGN/APER ts nominal position, i.e. XAPER=0. IS rules, the "QESIPARM XSTEPS +375"	at Position 2 for A the TRANS rules, th G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5. CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 Tevious observations show in the state of the state o	that it has slightly more counts the QESIPARM XSTEP S 375 necessary to move the aperture of SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC TSA 163;	Requirement is necessary to move the aperturbal $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[==>]$ $[==>]$ $[==>]$ to its correct location. $[==>]$ $[==>]$ $[==>]$	[1]
PSA LAPXSTP value at LP4 is 235. Desired LAPXSTP value for FCA to Therefore, XAPER is set to -140 - 2. Decation. Gl60M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure op. Return Aper NONE ture to Nomi nal Position Comments: Return the aperture to is *HOWEVER*, because of the TRAI 11 Return to no DARK minal HV fo r standard m	illuminate Segment B with G160M/1600 35.1 = -375. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA cimmized for Segment B. FP-POS=4 was COS, ALIGN/APER ts nominal position, i.e. XAPER=0. IS rules, the "QESIPARM XSTEPS +375"	at Position 2 for A the TRANS rules, th G160M 1600 A	LP3 is -140. The "QESIPARM XSTEPS -5. CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P4 Tevious observations show in the state of the state o	that it has slightly more counts the QESIPARM XSTEP S 375 mecessary to move the aperture of SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	Requirement is necessary to move the aperturbal $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[==>]$ $[==>]$ $[==>]$ to its correct location. $[==>]$ $[==>]$ $[==>]$	[1]



Pr	oposal 16333 - LP4 gain map - before HV increase (4A) - Cycle 28 COS FUV Characterization of Modal Gain Wh	nen Changing High
	Proposal 16333, LP4 gain map - before HV increase (4A), implementation	Thu Sep 09 13:00:26 GMT 2021
	Diagnostic Status: Warning	
	Scientific Instruments: S/C, COS, COS/FUV	
Sit	Special Requirements: ON HOLD; PARALLEL	
5	Comments: This visit collects data at LP4. It uses the HV values appropriate for the Standard Modes (163/163) or G130M/1222 (163/167).	
ı	NOTE that the HV values should be adjusted appropriately before this visit is executed.	
	On Hold Comments: Only needed if HV changed during Cycle 28 HV values should be verified before scheduling	
SS	(LP4 gain map - before HV increase (4A)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
osti	(Aperture Adjustment 1 for Segment A (4A.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.	
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ق		

Proposal 16333 - LP4 gain map - before HV increase (4A) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31; 295 Secs (295 Secs) o LP4 value SPEC COM INSTR *[==>1* ELHLTHVF: **QASISTATES COS FUV HVLOW HVN** OM; **QESIPARM ENDC** [1] TSA 163; OESIPARM ENDC TSB 163; **OESIPARM SEGM** ENT AB Comments: Adjust the HV to the LP4 TBD Modes values. COS, ALIGN/APER XAPER=-267 0.0 Secs (0 Secs) Aperture Ad NONE 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. PSA LAPXSTP value at LP4 is 235.1 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 - 235.1 = -267* G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium Exposures 1309 A I ==> 1Exposure 1 BUFFER-TIME=11 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=-321 **OESIPARM XSTEP** 0.0 Secs (0 Secs) justment 2 f S -54 I==>Jor 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. PSA LAPXSTP value at LP4 is 235.1 Desired LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP4 is -86 Therefore, XAPER is set to -86 - 235.1 = -321. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-321 - -267) = -54] Special Requirement is necessary to move the aperture to the correct lo cation. G130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU 440 Secs (440 Secs) 9 Deuterium M; 1309 A [==>1 Exposure 2 BUFFER-TIME=11 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.

6 Aperture Ad NONE	COS, ALIGN/APER		XAPER=-276	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B				S 45	[==>]	[1]
omments: Put the aperture in th	e appropriate position to illuminate a porti	ion of the LP4 regi	on of the detector when illu	minating Segment B with G160M	1/1600.	
SA LAPXSTP value at LP4 is 23 esired LAPXSTP value for FCA	5.1 to illuminate Segment B with G160M/1600	0 at Position 1 for .	LP4 is -41			
Therefore, XAPER is set to -41 - 2 ation.	235.1 = -276. *HOWEVER*, because of the	e TRANS rules, the	e "QESIPARM XSTEPS 45"	'[(-276321) = +45] Special R	equirement is necessary to move the aperture	e to the correct lo
G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M 1600 A	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium Exposure 1			M; BUFFER-TIME=11 1;		[==>]	
			FP-POS=4;			[1]
			SEGMENT=BOTH			1-5
			LIFETIME-POS=L P4			
Comments: Deuterium exposure o	ptimmized for Segment B. FP-POS=4 was	chosen because p	revious observations show	that it has slightly more counts th	nan the other FP-POS values.	
Aperture Ad NONE justment 2 f	COS, ALIGN/APER		XAPER=-330	QESIPARM XSTEP S -54	0.0 Secs (0 Secs)	
or Segment				5 54	[==>]	[1]
PSA LAPXSTP value at LP4 is 23	e appropriate position to illuminate a porti 5.1 to illuminate Segment B with G160M/1600		v	minating Segment B with G160M	M/1600.	
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 vation.	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the	0 at Position 2 for a	LP4 is -95. e "QESIPARM XSTEPS -54	" [(-330276) = -54] Special R	equirement is necessary to move the aperture	e to the correct lo
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 1	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the	0 at Position 2 for a e TRANS rules, the G160M	LP4 is -95.	" [(-330276) = -54] Special R	dequirement is necessary to move the aperture 440 Secs (440 Secs)	e to the correct lo
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. O G160M/160 DEUTERIUM	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the	0 at Position 2 for a	LP4 is -95. 2 "QESIPARM XSTEPS -54 CURRENT=MEDIU	" [(-330276) = -54] Special R	equirement is necessary to move the aperture	e to the correct lo
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Desired LAPXSTP value for FCA Therefore, Desired to -95 - 2 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, VAPER is set to -95 - 2 Desired LAPXSTP value for FCAP Therefore, V	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the	0 at Position 2 for a e TRANS rules, the G160M	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4;	" [(-330276) = -54] Special R	dequirement is necessary to move the aperture 440 Secs (440 Secs)	re to the correct lo
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PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4	" [(-330276) = -54] Special R	Requirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ The proof of the aperture I and I and I are the other FP-POS values.	
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of the comments of the co	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4	" [(-330276) = -54] Special R	dequirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[===>]$ $[===>]$ $[====]$ $[===]$ $[$	[1]
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Station. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of the Return Aper NONE ture to Nomi nal Position	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA The periment of the segment B. FP-POS=4 was COS, ALIGN/APER	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP	Requirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ The proof of the aperture I and I and I are the other FP-POS values.	
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of ture to Nomi nal Position Comments: Return the aperture to	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4 revious observations show in the control of the	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP S 330	equirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $\frac{\mathrm{dan the other FP-POS values.}}{0 \mathrm{Secs} (0 \mathrm{Secs})}$ $[==>]$	[1]
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of ture to Nomi nal Position Comments: Return the aperture to *HOWEVER*, because of the TR Return to no DARK	to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA COS/FUV, TIME-TAG, FCA pptimmized for Segment B. FP-POS=4 was COS, ALIGN/APER to its nominal position, i.e. XAPER=0.	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4 revious observations show in the control of the	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP S 330 necessary to move the aperture to SPEC COM INSTR	equirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $\frac{\mathrm{dan the other FP-POS values.}}{0 \mathrm{Secs} (0 \mathrm{Secs})}$ $[==>]$	[1]
PSA LAPXSTP value at LP4 is 23. Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2. Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return to no DARK minal HV for standard m	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA The primmized for Segment B. FP-POS=4 was COS, ALIGN/APER To its nominal position, i.e. XAPER=0. ANS rules, the "QESIPARM XSTEPS +330"	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4 revious observations show in the control of the	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP S 330 necessary to move the aperture to SPEC COM INSTR ELHVADJPROP;	dequirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[==>]$ $[==>]$ $[==>]$ $[==>]$ to its correct location.	[1]
PSA LAPXSTP value at LP4 is 23 Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2 Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of ture to Nomi nal Position Comments: Return the aperture to *HOWEVER*, because of the TR 11 Return to no DARK minal HV fo	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA The primmized for Segment B. FP-POS=4 was COS, ALIGN/APER To its nominal position, i.e. XAPER=0. ANS rules, the "QESIPARM XSTEPS +330"	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4 revious observations show in the control of the	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP S 330 necessary to move the aperture to SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC TSA 163;	dequirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[====]$ $[=====]$ $[====]$ $[====]$ $[====]$ $[=====]$ $[=====]$ $[=====]$ $[=====]$ $[======]$ $[======]$ $[=======]$ $[=======]$ $[====================================$	[1]
PSA LAPXSTP value at LP4 is 23. Desired LAPXSTP value for FCA Therefore, XAPER is set to -95 - 2. Section. D G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return the aperture to the ture to Nominal Position Comments: Return to no DARK minal HV for standard m	5.1 to illuminate Segment B with G160M/1600 235.1 = -330. *HOWEVER*, because of the COS/FUV, TIME-TAG, FCA The primmized for Segment B. FP-POS=4 was COS, ALIGN/APER To its nominal position, i.e. XAPER=0. ANS rules, the "QESIPARM XSTEPS +330"	0 at Position 2 for a e TRANS rules, the G160M 1600 A	CURRENT=MEDIU M; BUFFER-TIME=11 1; FP-POS=4; SEGMENT=BOTH: LIFETIME-POS=L P4 revious observations show in the control of the	" [(-330276) = -54] Special R that it has slightly more counts the QESIPARM XSTEP S 330 necessary to move the aperture to SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	dequirement is necessary to move the aperture $440 \mathrm{Secs} (440 \mathrm{Secs})$ $[==>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[===>]$ $[====]$ $[=====]$ $[====]$ $[====]$ $[====]$ $[=====]$ $[=====]$ $[=====]$ $[=====]$ $[======]$ $[======]$ $[=======]$ $[=======]$ $[====================================$	[1]



<u>Pro</u>	oposal 16333 - LP4 gain map - after HV increase (4C) - Cycle 28 COS FUV Characterization of Modal Gain Who	en Changing High V
	Proposal 16333, LP4 gain map - after HV increase (4C)	Thu Sep 09 13:00:26 GMT 2021
<u> </u>	Diagnostic Status: Warning	
/is	Scientific Instruments: S/C, COS, COS/FUV	
-	Special Requirements: PARALLEL	
	Comments: This visit collects data at LP4. It uses the HV values appropriate for LP4 after the HV increase (173/169).	
ပ္သ	(LP4 gain map - after HV increase (4C)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
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Proposal 16333 - LP4 gain map - after HV increase (4C) - Cycle 28 COS FUV Characterization of Modal Gain When Changing High V.. Label **Target** Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] 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 ELHVADJPROP: OASISTATES COS **FUV HVNOM HVN** OM; **OESIPARM ENDC** [1] TSA 173; 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 G130M CURRENT=MEDIU 440 Secs (440 Secs) 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

ation.

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

5 64603.54460							
	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU		440 Secs (440 Secs)	
9 Deuterium Exposure 2			1309 A	M;		[==>]	
1				BUFFER-TIME=16 5;			
				FP-POS=1;			[1]
				SEGMENT=BOTH;			[1]
				LIFETIME-POS=L			
	,	10 G A ED DOG 1	, ,	P1		d d En nog l	
Tomments: Deuterii Aperture Ad 1		nized for Segment A. FP-POS=1 was c COS, ALIGN/APER	nosen because pre	XAPER=112	at it nas slightly more counts than th QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B	NONE	COS, ALIONAI EK		AAI EK-112	S 45	[==>]	[1]
_	aperture in the appr	ropriate position to illuminate a portio	on of the LP4 regio	n of the detector when illu	ninating Segment B with G160M/1	600.	
	value for FCA to illu	uminate Segment B with G160M/1600: +112. *HOWEVER*, because of the			[(+112 - +67) = +45] Special Req	quirement is necessary to move the apertur	re to the correct l
8 G160M/160 I	DELITERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU		440 Secs (440 Secs)	
0 Deuterium	DECTERION	COS/10 V, 11WL-1AG, 1CA	1600 A	M;		[==>]	
Exposure 1			1000 X	BUFFER-TIME=16			
				5; FP-POS=4;			
				SEGMENT=BOTH;			[1]
				LIFETIME-POS=L P1			
Comments: Deuteriu	um exposure optimn	nized for Segment B. FP-POS=4 was	chosen because pre	evious observations show t	hat it has slightly more counts than	the other FP-POS values.	•
	NONE	COS, ALIGN/APER		XAPER=58	QESIPARM XSTEP	0.0 Secs (0 Secs)	
9 Aperture Ad 1	NONE	COD, TILITOT WITH LIK			S -54		
9 Aperture Ad I justment 2 f or Segment B	NONE	COS, ABIOLVIII BA			S -54	[==>]	[1]
justment 2 f or Segment B		copriate position to illuminate a portic	on of the LP4 regio	n of the detector when illu			[1]
justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valu	aperture in the appr te at LP1 is -153	,		•			[1]
justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is	aperture in the appr ue at LP1 is -153 value for FCA to illu	ropriate position to illuminate a portion noniminate Segment B with G160M/1600	at Position 2 for L	P4 is -95.	ninating Segment B with G160M/1		
justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is ation.	aperture in the appr ne at LP1 is -153 value for FCA to illu s set to -95153 =	ropriate position to illuminate a portion noniminate Segment B with G160M/1600	at Position 2 for L	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU	ninating Segment B with G160M/1	600.	
justment 2 f or Segment B Comments: Put the a FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is ation. 10 G160M/160 1 0 Deuterium	aperture in the appr ne at LP1 is -153 value for FCA to illu s set to -95153 =	copriate position to illuminate a portion comminate Segment B with G160M/1600 comminate Segment B with G160M/1600	at Position 2 for L	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU M;	ninating Segment B with G160M/1	600. irement is necessary to move the aperture	
justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is ation.	aperture in the appr ne at LP1 is -153 value for FCA to illu s set to -95153 =	copriate position to illuminate a portion comminate Segment B with G160M/1600 comminate Segment B with G160M/1600	at Position 2 for L FRANS rules, the "G	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU	ninating Segment B with G160M/1	direment is necessary to move the aperture 440 Secs (440 Secs)	
justment 2 f or Segment B Comments: Put the a FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is ation. 10 G160M/160 1 0 Deuterium	aperture in the appr ne at LP1 is -153 value for FCA to illu s set to -95153 =	copriate position to illuminate a portion comminate Segment B with G160M/1600 comminate Segment B with G160M/1600	at Position 2 for L FRANS rules, the "G	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU M; BUFFER-TIME=16	ninating Segment B with G160M/1	direment is necessary to move the aperture 440 Secs (440 Secs)	to the correct lo
justment 2 f or Segment B Comments: Put the a FCA LAPXSTP valu Desired LAPXSTP v Therefore, XAPER is ation. 10 G160M/160 1 0 Deuterium	aperture in the appr ne at LP1 is -153 value for FCA to illu s set to -95153 =	copriate position to illuminate a portion comminate Segment B with G160M/1600 comminate Segment B with G160M/1600	at Position 2 for L FRANS rules, the "G	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU M; BUFFER-TIME=16 5;	ninating Segment B with G160M/1	direment is necessary to move the aperture 440 Secs (440 Secs)	
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justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valuation. Therefore, XAPER is ation. G160M/160 1 0 Deuterium Exposure 2	aperture in the appr te at LP1 is -153 value for FCA to illu is set to -95153 = DEUTERIUM	copriate position to illuminate a portion uminate Segment B with G160M/1600 : +58. *HOWEVER*, because of the C COS/FUV, TIME-TAG, FCA	at Position 2 for L TRANS rules, the "G G160M 1600 A	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P1	ninating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	direment is necessary to move the aperture $ \frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]} $	to the correct loo
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justment 2 f or Segment B Comments: Put the of FCA LAPXSTP valuation. Therefore, XAPER is ation. G160M/160 1 0 Deuterium Exposure 2	aperture in the appr te at LP1 is -153 value for FCA to illu is set to -95153 = DEUTERIUM	copriate position to illuminate a portion uminate Segment B with G160M/1600 : +58. *HOWEVER*, because of the C COS/FUV, TIME-TAG, FCA	at Position 2 for L TRANS rules, the "G G160M 1600 A	P4 is -95. QESIPARM XSTEPS -54", CURRENT=MEDIU M; BUFFER-TIME=16 5; FP-POS=4; SEGMENT=BOTH; LIFETIME-POS=L P1	ninating Segment B with G160M/1 [(+58 - +112) = -54] Special Requ	direment is necessary to move the aperture $ \frac{440 \text{ Secs } (440 \text{ Secs})}{[==>]} $	to the correct loc

