

14439 - COS FUV Detector Gain Maps

Cycle: 23, Proposal Category: CAL/COS (Availability Mode: RESTRICTED)

INVESTIGATORS

Name	Institution	E-Mail
Dr. David J. Sahnow (PI) (Contact)	Space Telescope Science Institute	sahnow@stsci.edu
Justin Ely (CoI)	Space Telescope Science Institute	ely@stsci.edu

VISITS

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
B1	DEUTERIUM NONE	COS COS/FUV	1	13-Apr-2016 21:11:03.0	yes
B2	DEUTERIUM NONE	COS COS/FUV	1	13-Apr-2016 21:11:05.0	yes
C1	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	13-Apr-2016 21:11:07.0	yes
D1	DARK DEUTERIUM NONE	COS COS/FUV S/C	1	13-Apr-2016 21:11:09.0	yes

⁴ Total Orbits Used

ABSTRACT

This program uses the deuterium lamp to illuminate the regions of the detector being used to collect spectra. 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

Proposal 14439 (STScI Edit Number: 1, Created: Wednesday, April 13, 2016 8:11:11 PM EST) - Overview 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 all HV transitions 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 timespan 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 at the current lifetime position. 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. At LP3, multiple nominal HV levels will be in use at the same time, and data should be taken at each of these voltages.

The initial plan includes 4 one orbit visits, and two one orbit contingency visits:

- * Visits B1 and B2 data will be taken at LIFE_ADJ=3 before and after a change to the Segment B HV for the standard observing modes.
- * Visit C1 data will be taken at LIFE_ADJ=3 before a change to the G130M/1222 Segment B HV, or after about a year from the move to LP3.
- * Visit C2 is a contingency visit at LIFE_ADJ=3 which will only be needed if the G130M/1222 Segment B HV is changed to a value that does not match the standard modes.
- *Visit D1 will be taken at LIFE_ADJ=2 before a change to the Blue Mode (G130M/1055 & 1096) Segment B HV, or after about a year from the move to LP3.

Proposal 14439 (STScI Edit Number: 1, Created: Wednesday, April 13, 2016 8:11:11 PM EST) - Overview

*Visit D2 is a contingency visit at LIFE_ADJ=2 which will only be needed if the Blue Mode HV is changed.

If the standard HV on Segment B changes more than once during Cycle 23, additional contingency orbits will be needed. Similarly, if Segment A is changed, contingency orbits will be required.

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 400 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 400 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 400 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 400 second deuterium lamp exposure.
- *Return the HV values to the nominal values for the standard modes.

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

Proposal 14439 (STScI Edit Number: 1, Created: Wednesday, April 13, 2016 8:11:11 PM EST) - Overview XSTEPS", as was done in Program 13970.

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

<u>Pr</u>	oposal 14439 - Before HV change using HV for most modes (B1) - COS FUV Detector Gain Maps	
	Proposal 14439, Before HV change using HV for most modes (B1), completed	Thu Apr 14 01:11:11 GMT 2016
Ι.	Diagnostic Status: Warning	
S	Scientific Instruments: COS, COS/FUV	
>	Special Requirements: BETWEEN 11-JAN-2016:00:00:00 AND 18-JAN-2016:00:00:00; PARALLEL	
L	Comments: This visit collects data at LP3. It uses the HV values appropriate for most modes at LP3 before the HV increase. It should be one of the last COS visits executed before the HV change.	
SS	(Before HV change using HV for most modes (B1)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
Diagnosti	(Aperture Adjustment 1 for Segment A (B1.001)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.	

Proposal 14439 - Before HV change using HV for most modes (B1) - COS FUV Detector Gain Maps

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Aperture Ad		COS, ALIGN/APER		XAPER=-254			0.0 Secs (0 Secs)	
	justment 1 f or Segment A							[==>]	[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment A	with G130M/1309.		•
		lue at LP3 is 182.1 Pvalue for FCA to il	luminate Segment A with G130M/1309	at Position 1 for LP	23 is -72				
7		R is set to -72 - 182.1							1
2	G130M/130 9 Deuterium	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIUM;	IJ		400 Secs (400 Secs)	
	Exposure 1			1309 A	BUFFER-TIME=11	1		[==>]	
					1;	-			[1]
					FP-POS=1				
(Comments: Deute	rium exposure optim	ized for Segment A. FP-POS=1 was a	hosen because previ	ous observations show t	hat it has slightly mo	re counts than the oti	her FP-POS values.	
3	Aperture Ad justment 2 f		COS, ALIGN/APER		XAPER=-310	QESIPARM XSTI S -56	EP	0.0 Secs (0 Secs)	
	or Segment A					3-30		[==>]	[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment A	with G130M/1309.		
		lue at LP3 is 182.1 Pvalue for FCA to il	luminate Segment A with G130M/1309	at Position 2 for LP	23 is -128				
	Therefore, XAPER ocation.	R is set to -128 - 182.	I = -310. *HOWEVER*, because of the	ne TRANS rules, the	"QESIPARM XSTEPS -:	56" [(-310254) = -	56] Special Requirer	ment is necessary to move the aperture to t	he correct l
ns 4		DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU	IJ		400 Secs (400 Secs)	
<u>o</u>	9 Deuterium Exposure 2			1309 A	M;			[==>]	
<u>й</u>	Exposure 2				BUFFER-TIME=11 1;	1			[1]
					FP-POS=1				
	Comments: Deute	rium exposure optim	ized for Segment A. FP-POS=1 was a	hosen because previ	ous observations show t	hat it has slightly mo	re counts than the oti	her FP-POS values.	1
5			COS, ALIGN/APER	•	XAPER=-266	QESIPARM XSTI		0.0 Secs (0 Secs)	
	justment 1 f or Segment					S 44		[==>]	[1]
	В								[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment B	with G160M/1600.		
		lue at LP3 is 182.1 Pvalue for FCA to il	luminate Segment B with G160M/1600	at Position 1 for LP	23 is -84				
	Therefore, XAPER ation.	R is set to -84 - 182.1	= -266. *HOWEVER*, because of the	TRANS rules, the "	QESIPARM XSTEPS 44	" [(-266310) = +4	4] Special Requirem	ent is necessary to move the aperture to th	e correct lo
ϵ		DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	U		400 Secs (400 Secs)	
	0 Deuterium Exposure 1			1600 A	M;	_		[==>]	
	Exposure 1				BUFFER-TIME=11 1;	1			[1]
					FP-POS=4				
	Comments: Deute	rium exposure optim	mized for Segment B. FP-POS=4 was	chosen because prev		that it has slightly m	ore counts than the o	ther FP-POS values.	1
	onuncius. Beute.	i iiiii eupeeiii e opiiiii	zeujer gegment 2011 1 e.g was	enosen occanse pre-	rous observations show	mar ir mas strgmity me	ore country ment me o	mer 11 1 00 rumes.	

Proposal 14439 - Before HV change using HV for most modes (B1) - COS FUV Detector Gain Maps COS, ALIGN/APER XAPER=-322 QESIPARM XSTEP 0.0 Secs (0 Secs) Aperture Ad NONE justment 2 f S -56 [==>] 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 B with G160M/1600. PSA LAPXSTP value at LP3 is 182.1 Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 2 for LP3 is -140 Therefore, XAPER is set to -140 - 182.1 = -322. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -56" [(-322 - -266) = -56] Special Requirement is necessary to move the aperture to the correct 1 G160M/160 DEUTERIUM COS/FUV, TIME-TAG, FCA G160M CURRENT=MEDIU 400 Secs (400 Secs) 0 Deuterium 1600 A *[==>1* Exposure 2 BUFFER-TIME=11 [1] 1; FP-POS=4 Comments: Deuterium exposure optimmized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values. Orbit 1 Server Version: 20160129 Unused Orbital Visibility = 3210 Exp. 1Exp. 3 Exp. 5 Exp. 7 Occultation Orbit Structure Exp. 8 Home Exp. 2 Exp. 4 Exp. 6. 500 1000 1500 2000 2500 3500 5000 5500 sec 3000 4000 4500

<u>Pr</u>	oposal 14439 - After HV change using HV for most modes (B2) - COS FUV Detector Gain Maps	
	Proposal 14439, After HV change using HV for most modes (B2), completed	Thu Apr 14 01:11:11 GMT 2016
١.	Diagnostic Status: Warning	
<u></u>	Scientific Instruments: COS, COS/FUV	
>	Special Requirements: BETWEEN 18-JAN-2016:00:00:00 AND 25-JAN-2016:00:00:00; PARALLEL	
L	Comments: This visit collects data at LP3. It uses the HV values appropriate for most modes at LP3 after the HV increase. It should be one of the first COS visits executed before the HV change.	
٧	(After HV change using HV for most modes (B2)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
1:	(Aperture Adjustment 1 for Segment A (B2.001)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan	ı.
ב ב		
عًا		

Proposal 14439 - After HV change using HV for most modes (B2) - COS FUV Detector Gain Maps

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Aperture Ad	NONE	COS, ALIGN/APER		XAPER=-254			0.0 Secs (0 Secs)	
	justment 1 f or Segment A							[==>]	[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment A	with G130M/1309.		•
		lue at LP3 is 182.1 Pvalue for FCA to ili	luminate Segment A with G130M/1309	at Position 1 for LF	23 is -72				
7		R is set to -72 - 182.1							1
2	G130M/130 9 Deuterium	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIUM;	J		400 Secs (400 Secs)	
	Exposure 1			1309 A	BUFFER-TIME=11	1		[==>]	
					1;	•			[1]
					FP-POS=1				
(Comments: Deuter	rium exposure optim	ized for Segment A. FP-POS=1 was a	hosen because previ	ous observations show t	hat it has slightly mo	re counts than the oth	ner FP-POS values.	
3	Aperture Ad justment 2 f	NONE	COS, ALIGN/APER		XAPER=-310	QESIPARM XSTI S -56	EP	0.0 Secs (0 Secs)	
	or Segment A					3 - 30		[==>]	[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment A	with G130M/1309.		
		lue at LP3 is 182.1 V value for FCA to ili	luminate Segment A with G130M/1309	at Position 2 for LF	23 is -128				
	Therefore, XAPER	R is set to -128 - 182.	I = -310. *HOWEVER*, because of the	ne TRANS rules, the	"QESIPARM XSTEPS -	56" [(-310254) = -	56] Special Requiren	nent is necessary to move the aperture to t	he correct l
ns 4	G130M/130	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU	J		400 Secs (400 Secs)	
<u>o</u>	9 Deuterium Exposure 2			1309 A	M;			[==>]	
X	Exposure 2				BUFFER-TIME=11 1;	1			[1]
					FP-POS=1				' '
	Comments: Deuter	rium exposure optim	ized for Segment A. FP-POS=1 was c	hosen because previ		hat it has slightly mo	re counts than the oth	ner FP-POS values.	I
5			COS, ALIGN/APER		XAPER=-266	QESIPARM XSTI		0.0 Secs (0 Secs)	
	justment 1 f					S 44		[==>]	
	or Segment B								[1]
(Comments: Put the	e aperture in the app	propriate position to illuminate a porti	on of the LP3 region	of the detector when illi	uminating Segment B	with G160M/1600.		•
I	PSA LAPXSTP vai	lue at LP3 is 182.1	luminate Segment B with G160M/1600						
	Therefore, XAPER ation.	R is set to -84 - 182.1	= -266. *HOWEVER*, because of the	e TRANS rules, the "	QESIPARM XSTEPS 44	" [(-266310) = +4	4] Special Requirem	ent is necessary to move the aperture to th	e correct lo
ϵ		DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	J		400 Secs (400 Secs)	
	0 Deuterium Exposure 1			1600 A	M;			[==>]	
	Exposure 1				BUFFER-TIME=11 1;	1			[1]
					FP-POS=4				
/	Comments: Deutes	rium exposure optim	mized for Segment B. FP-POS=4 was	chosen hecause pro		that it has slightly me	ore counts than the o	ther FP-POS values	_!
- 1	ommenis. Deuter	нит ехрозите орит	mizeu joi segmeni B. 11-1 05-4 was	chosen because pres	nous observations show	inai ii nas siigniiy me	ore counts than the o	mei 11-1 05 vatues.	

Proposal 14439 - After HV change using HV for most modes (B2) - COS FUV Detector Gain Maps COS, ALIGN/APER XAPER=-322 **QESIPARM XSTEP** 0.0 Secs (0 Secs) Aperture Ad NONE justment 2 f S -56 [==>] 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 B with G160M/1600. PSA LAPXSTP value at LP3 is 182.1 Desired LAPXSTP value for FCA to illuminate Segment B with G160M/1600 at Position 2 for LP3 is -140 Therefore, XAPER is set to -140 - 182.1 = -322. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -56" [(-322 - -266) = -56] Special Requirement is necessary to move the aperture to the correct 1 G160M/160 DEUTERIUM COS/FUV, TIME-TAG, FCA G160M CURRENT=MEDIU 400 Secs (400 Secs) 0 Deuterium 1600 A *[==>1* Exposure 2 BUFFER-TIME=11 [1] 1; FP-POS=4 Comments: Deuterium exposure optimmized for Segment B. FP-POS=4 was chosen because previous observations show that it has slightly more counts than the other FP-POS values. Orbit 1 Server Version: 20160129 Unused Orbital Visibility = 3210 Exp. 1Exp. 3 Exp. 5 Exp. 7 Occultation Orbit Structure Exp. 8 Home Exp. 2 Exp. 4 Exp. 6. 500 1000 1500 2000 2500 3500 5000 5500 sec 3000 4000 4500

Pro	oposal 14439 - Before HV change using HV for G130M/1222 (C1) - COS FUV Detector Gain Maps	
	Proposal 14439, Before HV change using HV for G130M/1222 (C1), completed	Thu Apr 14 01:11:11 GMT 2016
۱.,	Diagnostic Status: Warning	
<u>.is</u>	Scientific Instruments: S/C, COS, COS/FUV	
>	Special Requirements: BETWEEN 11-JAN-2016:00:00:00 AND 18-JAN-2016:00:00:00; PARALLEL	
	Comments: This visit collects data at LP3. It uses the HV values appropriate for G130M/1222. It should be one of the last COS visits executed before the HV change.	
SS	(Before HV change using HV for G130M/1222 (C1)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
sti	(Aperture Adjustment 1 for Segment A (C1.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.	
ĺ		
iagn		
ق		

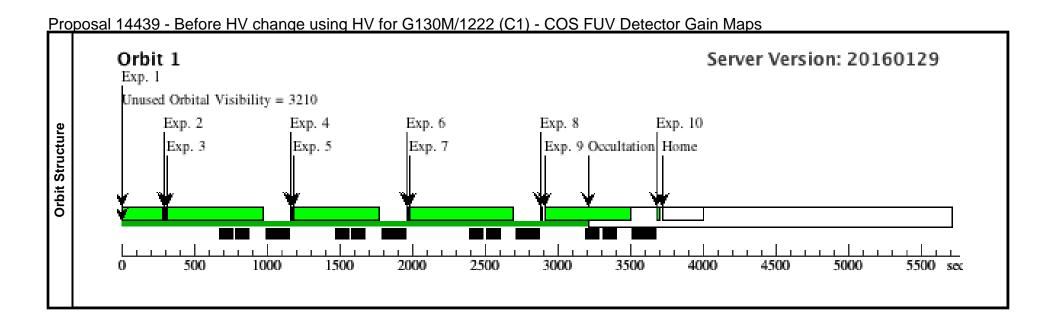
Proposal 14439 - Before HV change using HV for G130M/1222 (C1) - COS FUV Detector Gain Maps

Label Target Config,Mode,Aperture Spectral Els. Opt. Params. Special Regs. Groups

1 Adjust HV t DARK S/C, DATA, NONE SAA CONTOUR 31;

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Adjust HV		S/C, DATA, NONE			SAA CONTOUR 31	;	295 Secs (295 Secs)	
	o G130M/1 22 values	2				SPEC COM INSTR ELHLTHVF;		[==>]	
						QASISTATES COS FUV HVLOW HVN OM;			
						QESIPARM ENDC TSA 171;			[1]
						QESIPARM ENDC TSB 167;			
						QESIPARM SEGM ENT AB			
C	omments: Adjus	st the HV to the pr	e HV increase G130M/1222 values.						
2	Aperture A		COS, ALIGN/APER		XAPER=-254			0.0 Secs (0 Secs)	
	justment 1 f or Segment A							[==>]	[1]
C	omments: Put th	he aperture in the	appropriate position to illuminate a porti	ion of the LP3 region	n of the detector when illi	ıminating Segment A wi	ith G130M/1309.		•
		alue at LP3 is 182. P value for FCA to	.1 o illuminate Segment A with G130M/1309	at Position 1 for L	P3 is -72				
		TR is set to -72 - 18		an I connon I jor 21					
3		0 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU	J		400 Secs (400 Secs)	
Exposures	9 Deuteriun Exposure 1			1309 A	M;			[==>]	
ns I	Zinposure 1				BUFFER-TIME=11 1;				[1]
ë l					FP-POS=1				
<u>X</u> C	omments: Deute	erium exposure op	timized for Segment A. FP-POS=1 was a	chosen because prev	ious observations show th	hat it has slightly more	counts than the other	FP-POS values.	•
4	Aperture A	d NONE	COS, ALIGN/APER		XAPER=-310	QESIPARM XSTEP		0.0 Secs (0 Secs)	
	justment 2 f or Segment A					S -56		[==>]	[1]
C	omments: Put th	he aperture in the	appropriate position to illuminate a porti	ion of the LP3 region	n of the detector when illi	ıminating Segment A wi	ith G130M/1309.		
P.	SA LAPXSTP vo	alue at LP3 is 182							
		v	82.1 = -310. *HOWEVER*, because of t	v		56" [(-310254) = -56] Special Requiremen	t is necessary to move the aperture to t	he correct l
5	cation. G130M/130	0 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU	ī		400 Secs (400 Secs)	
3	9 Deuteriun	n	COS/TOV, TIME-TAG, FCA	1309 A	M;)		[==>]	
	Exposure 2			1507 A	BUFFER-TIME=11			1/	[1]
					1; FP-POS=1				[1]
C	'ammants: Daute	arium arnosura an	timized for Segment A. FP-POS=1 was o	chasan hacausa nrav		hat it has slightly more	counts than the other	ED POS values	-
	ommenis. Deme	енит ехрозите ор	ilmizea for segment A. 11-105-1 was t	nosen because prev	ious observations snow th	ui ii nus siigniiy more	counts than the other	1 -1 OS values.	

Aperture Ad NONE	COS, ALIGN/APER		XAPER=-266	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 1 f or Segment B				S 44	[==>]	[1]
omments: Put the aperture in the ap	ppropriate position to illuminate a porti	on of the LP3 regi	on of the detector when illi	uminating Segment B with G160M/	1600.	
SA LAPXSTP value at LP3 is 182.1	N					
v	Illuminate Segment B with G160M/1600					
herefore, XAPER is set to -84 - 182. ıtion.	1 = -266. *HOWEVER*, because of the	e TRANS rules, the	? "QESIPARM XSTEPS 44"	" [(-266310) = +44] Special Red	quirement is necessary to move the apertur	e to the correct
G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	J	400 Secs (400 Secs)	
0 Deuterium Exposure 1		1600 A	M;		I = => J	
			BUFFER-TIME=11 1;			[1]
			FP-POS=4			
omments: Deuterium exposure opti	nmized for Segment B. FP-POS=4 was	chosen because p	revious observations show	that it has slightly more counts tha	n the other FP-POS values.	
Aperture Ad NONE	COS, ALIGN/APER		XAPER=-322	QESIPARM XSTEP	0.0 Secs (0 Secs)	
				0.56		
justment 2 f or Segment B				S -56	[==>]	[1]
justment 2 f or Segment B	ppropriate position to illuminate a porti	on of the LP3 regi	on of the detector when illi		,	[1]
justment 2 f or Segment B comments: Put the aperture in the ap	ppropriate position to illuminate a porti	on of the LP3 regi	on of the detector when illi		,	[1]
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1	ppropriate position to illuminate a porti Illuminate Segment B with G160M/1600	,	v		,	[1]
justment 2 f or Segment B omments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to the	illuminate Segment B with G160M/1600	at Position 2 for	LP3 is -140	uminating Segment B with G160M/	1600.	
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a merefore, XAPER is set to -140 - 182 action.	illuminate Segment B with G160M/1600 2.1 = -322. *HOWEVER*, because of th	at Position 2 for the TRANS rules, th	LP3 is -140 ne "QESIPARM XSTEPS -5	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re	1600. equirement is necessary to move the apertu	
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a terefore, XAPER is set to -140 - 182 ation. G160M/160 DEUTERIUM	illuminate Segment B with G160M/1600	at Position 2 for the TRANS rules, the G160M	LP3 is -140 ne "QESIPARM XSTEPS -5 CURRENT=MEDIU	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re	equirement is necessary to move the apertudo Secs (400 Secs)	
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a perefore, XAPER is set to -140 - 182 ation.	illuminate Segment B with G160M/1600 2.1 = -322. *HOWEVER*, because of th	at Position 2 for the TRANS rules, th	LP3 is -140 ne "QESIPARM XSTEPS -5 CURRENT=MEDIU M;	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Ro	1600. equirement is necessary to move the apertu	ire to the correc
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a merefore, XAPER is set to -140 - 182 aution. G160M/160 DEUTERIUM 0 Deuterium	illuminate Segment B with G160M/1600 2.1 = -322. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP3 is -140 ne "QESIPARM XSTEPS -5 CURRENT=MEDIUM; BUFFER-TIME=111;	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Ro	equirement is necessary to move the apertudo Secs (400 Secs)	ire to the correc
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a therefore, XAPER is set to -140 - 18. cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS/FUV, TIME-TAG, FCA	at Position 2 for the TRANS rules, the G160M 1600 A	LP3 is -140 ne "QESIPARM XSTEPS -5 CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re	equirement is necessary to move the apertude $\frac{400 \text{ Secs } (400 \text{ Secs})}{[==>]}$	ire to the correc
justment 2 f or Segment B comments: Put the aperture in the ap	illuminate Segment B with G160M/1600 2.1 = -322. *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=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Ro J that it has slightly more counts tha	and the other FP-POS values.	
justment 2 f or Segment B comments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 esired LAPXSTP value for FCA to a therefore, XAPER is set to -140 - 18. cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2	COS/FUV, TIME-TAG, FCA	at Position 2 for the TRANS rules, the G160M 1600 A	LP3 is -140 ne "QESIPARM XSTEPS -5 CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re	and the other FP-POS values. 39 Secs (39 Secs)	ire to the correc
justment 2 f or Segment B somments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 tesired LAPXSTP value for FCA to a therefore, XAPER is set to -140 - 182 cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 comments: Deuterium exposure option 0 Return to no DARK minal HV fo r most mode	illuminate Segment B with G160M/1600 2.1 = -322. *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=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re that it has slightly more counts that SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	and the other FP-POS values.	ire to the correc
justment 2 f or Segment B comments: Put the aperture in the ap	illuminate Segment B with G160M/1600 2.1 = -322. *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=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re that it has slightly more counts that SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC TSA 167;	and the other FP-POS values. 39 Secs (39 Secs)	ire to the correc
justment 2 f or Segment B somments: Put the aperture in the ap SA LAPXSTP value at LP3 is 182.1 tesired LAPXSTP value for FCA to a therefore, XAPER is set to -140 - 182 cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 comments: Deuterium exposure option 0 Return to no DARK minal HV fo r most mode	illuminate Segment B with G160M/1600 2.1 = -322. *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=MEDIUM; BUFFER-TIME=111; FP-POS=4	uminating Segment B with G160M/ 56" [(-322266) = -56] Special Re that it has slightly more counts that SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	and the other FP-POS values. 39 Secs (39 Secs)	re to the correc



<u>Pr</u>	oposal 14439 - ~1 year after move to LP3 using Blue Mode settings (D1) - COS FUV Detector Gain Maps	
	Proposal 14439, ~1 year after move to LP3 using Blue Mode settings (D1), scheduling	Thu Apr 14 01:11:11 GMT 2016
بر ا	Diagnostic Status: Warning	
/is	Scientific Instruments: S/C, COS, COS/FUV	
1-	Special Requirements: BEFORE 01-MAY-2016:00:00:00; PARALLEL	
	Comments: This visit collects data at LP2. It uses the HV values appropriate for the Blue Modes (173/175).	
၂ ပ္	(~1 year after move to LP3 using Blue Mode settings (D1)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU	
Sţ.	(Aperture Adjustment 1 for Segment A (D1.002)) Warning (Form): This ALIGN/APER exposure should be preceded by a science exposure to define the starting position for the scan.	
1 2		
g		
ق		

Proposal 14439 - ~1 year after move to LP3 using Blue Mode settings (D1) - COS FUV Detector Gain Maps

djust HV t Blue Mod values	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; QASISTATES COS		295 Secs (295 Secs) [==>]	
					ELHLTHVF;		[==>]	
					OASISTATES COS		<u> </u>	
					FUV HVLOW HVN OM;			
					QESIPARM ENDC TSA 173;			[1]
					QESIPARM ENDC TSB 175;			
					QESIPARM SEGM ENT AB			
ents: Adjust t	the HV to the Blue	Mode values.						
	NONE	COS, ALIGN/APER		XAPER=-395			0.0 Secs (0 Secs)	
r Segment							[==>]	[1]
ents: Put the	aperture in the ap	propriate position to illuminate a porti	on of the LP2/Blue N	Modes region of the detec	tor when illuminating S	egment A with G1301	M/1309.	
		lluminate Seoment A with G130M/1300	at Position 1 for LF	22 is -213				
	v		ui I osiiion I joi Ei	2 ts 215				
	DEUTERIUM	COS/FUV, TIME-TAG, FCA	G130M	CURRENT=MEDIU	J		400 Secs (400 Secs)	
Deuterium			1309 A	M;			[==>]	
axposure 1								[1]
				*				' '
ents: Deuteri	um exposure optin	nized for Segment A FP-POS=1 was a	chosen because previ		hat it has slightly more o	counts than the other	FP-POS values	I
			mosen seeduse previ			our ment me onter		
stment 2 f					S -54		[==>]	[1]
=	aperture in the ap	propriate position to illuminate a porti	on of the LP2/Blue N	Modes region of the detec	etor when illuminating S	eoment A with G130	M/1309	I
APXSTP valu	e at LP3 is 182.1		·		5.	c8		
ore, XAPER	•		•		54" [(-449395) = -54]	l Special Requiremen	t is necessary to move the aperture to	the correc
i. 2130M/130	DELITERILIM	COS/EUV TIME-TAG ECA	G130M	CURRENT-MEDII	T		400 Secs (400 Secs)	
Deuterium	DECTERION	COS/TOV, TIVIL-TAO, TCA		M;	,		· · · · · · · · · · · · · · · · · · ·	
exposure 2			1309 A	BUFFER-TIME=11			1>1	
				1;				[1]
				FP-POS=1			FP-POS values.	
and a second and a	perture Ad stment 1 f Segment nts: Put the PXSTP valu LAPXSTP re, XAPER 130M/130 Deuterium sposure 1 nts: Deuteri perture Ad stment 2 f Segment nts: Put the PXSTP valu LAPXSTP re, XAPER 130M/130 Deuterium	perture Ad NONE stment 1 f Segment nts: Put the aperture in the app PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to il re, XAPER is set to -213 - 182 130M/130 DEUTERIUM Deuterium sposure 1 nts: Deuterium exposure optim perture Ad NONE stment 2 f Segment nts: Put the aperture in the app PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to il re, XAPER is set to -267 - 182 130M/130 DEUTERIUM Deuterium	stment 1 f Segment nts: Put the aperture in the appropriate position to illuminate a porticular position position position to illuminate a porticular position posit	perture Ad NONE COS, ALIGN/APER stment 1 f Segment nts: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue N PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LB re, XAPER is set to -213 - 182.1 = -395 130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous perture Ad NONE COS, ALIGN/APER stment 2 f Segment nts: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue N PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LB re, XAPER is set to -267 - 182.1 = -449. *HOWEVER*, because of the TRANS rules, the 130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M Deuterium COS/FUV, TIME-TAG, FCA G130M Deuterium	perture Ad NONE COS, ALIGN/APER XAPER=-395 stment 1 f Segment nts: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue Modes region of the detect PXSTP value at LP3 is 182.1 LAPXSTP value at LP3 is 182.1 = -395 130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU Butterium exposure 1 nts: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show the strength of Segment nts: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue Modes region of the detect PXSTP value at LP3 is 182.1 LAPXSTP value at LP3 is 182.1 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP2 is -267 re, XAPER is set to -267 - 182.1 = -449. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -5" 130M/130 DEUTERIUM COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU Butterium Exposure 2 COS/FUV, TIME-TAG, FCA G130M CURRENT=MEDIU Butterium Exposure 2	RESIPARM SEGMENT AB Ints: Adjust the HV to the Blue Mode values. Perture Ad NONE COS, ALIGN/APER XAPER=395 Street I f Segment Ints: Put the aperture in the appropriate position to illuminate a portion of the LP2/Blue Modes region of the detector when illuminating S PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 1 for LP2 is -213 re, XAPER is set to -213 - 182.1 = -395 Ints: Deuterium exposure optimized for Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more of the perture Ad NONE COS, ALIGN/APER Segment Segment A. FP-POS=1 was chosen because previous observations show that it has slightly more of the perture in the appropriate position to illuminate a portion of the LP2/Blue Modes region of the detector when illuminating S PXSTP value at LP3 is 182.1 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP2 is -267 re, XAPER is set to -267 - 182.1 = -449. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-449395) = -54, 130M/130] BUFFER-TIME=11 BUFFER-TIME=11 LAPXSTP value for FCA to illuminate Segment A with G130M/1309 at Position 2 for LP2 is -267 re, XAPER is set to -267 - 182.1 = -449. *HOWEVER*, because of the TRANS rules, the "QESIPARM XSTEPS -54" [(-449395) = -54, 130M/130] BUFFER-TIME=11 BUFFER-TIME=11 BUFFER-TIME=11 BUFFER-TIME=11 BUFFER-TIME=11	Designation of the Blue Mode values. Porture Ad NONE COS, ALIGN/APER Segment Segment	Ints: Adjust the HV to the Blue Mode values. Perture Ad NONE COS, ALIGN/APER XAPER=-395 0.0 Secs (0 Secs) [==>]

Aperture Ad NONE	COS, ALIGN/APER	·	XAPER=-407	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 detec	ctor when illuminating Segment B w	vith G160M/1600.	<u>.</u>
SA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA	2.1 to illuminate Segment B with G160M/1600	at Position 1 for	I.P2 is -225			
	182.1 = -407. *HOWEVER*, because of the	v		8" [(-407449) = +42] Special R	equirement is necessary to move the apert	ure to the correct l
G160M/160 DEUTERIUM	COS/FUV, TIME-TAG, FCA	G160M	CURRENT=MEDIU	J	400 Secs (400 Secs)	
0 Deuterium Exposure 1		1600 A	M;		[==>]	
Exposure 1			BUFFER-TIME=11 1:			[1]
			FP-POS=4			
Comments: Deuterium exposure o	otimmized for Segment B. FP-POS=4 was	chosen because p	revious observations show	that it has slightly more counts tha	n the other FP-POS values.	•
Aperture Ad NONE	COS, ALIGN/APER		XAPER=-449	QESIPARM XSTEP	0.0 Secs (0 Secs)	
justment 2 f				S -42	<i>[==>1</i>	[11]
or Segment B						[1]
or Segment B Comments: Put the aperture in the	appropriate position to illuminate a porti	on of the LP2/Blue	e Modes region of the detec	ctor when illuminating Segment B w		[1]
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA		V	Ų Į		with G160M/1600.	
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is t To leave some pad, I will set it	2.1 to illuminate Segment B with G160M/1600	at Position 2 for .	LP2 is -280, but the apertu	ere soft stop is at -275 and we don't	with G160M/1600. want to exceed that value when including	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is t To leave some pad, I will set it Cherefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th	at Position 2 for .	LP2 is -280, but the apertu ne "QESIPARM XSTEPS -4 CURRENT=MEDIU	are soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro	with G160M/1600. want to exceed that value when including	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is t To leave some pad, I will set it Cherefore, XAPER is set to -267 - Cation. G160M/160 DEUTERIUM 0 Deuterium	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the	LP2 is -280, but the apertu ne "QESIPARM XSTEPS -4 CURRENT=MEDIU M;	are soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is t To leave some pad, I will set it Cherefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP2 is -280, but the apertu ne "QESIPARM XSTEPS -4 CURRENT=MEDIU	are soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro	with G160M/1600. want to exceed that value when including equirement is necessary to move the apertate the second	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is t To leave some pad, I will set it Cherefore, XAPER is set to -267 - Cation. G160M/160 DEUTERIUM 0 Deuterium	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th	at Position 2 for the TRANS rules, the G160M	LP2 is -280, but the apertu ne "QESIPARM XSTEPS -4 CURRENT=MEDIU M; BUFFER-TIME=11	are soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro	with G160M/1600. want to exceed that value when including equirement is necessary to move the apertate the second	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA: t To leave some pad, I will set it Therefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th	the TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	are soft stop is at -275 and we don't 42" [(-449407) = -42] Special Ro J	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts $\frac{400 \text{ Secs } (400 \text{ Secs})}{[==>]}$	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA: t To leave some pad, I will set it Cherefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of Return to no DARK	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of the	the TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	tre soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro J that it has slightly more counts tha	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts $\frac{400 \text{ Secs } (400 \text{ Secs})}{[==>]}$	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA is. To leave some pad, I will set it Cherefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of Return to no DARK minal HV fo	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA	the TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	tre soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro 1 1 1 1 1 1 1 1 1 1 1 1 1	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts $ \frac{400 \text{ Secs } (400 \text{ Secs})}{[==>]} $ In the other FP-POS values.	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Desired LAPXSTP value for FCA: t To leave some pad, I will set it Cherefore, XAPER is set to -267 - cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of Return to no DARK	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA	the TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	tre soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro J that it has slightly more counts tha	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts	the 5 step oversho
or Segment B Comments: Put the aperture in the PSA LAPXSTP value at LP3 is 182 Pesired LAPXSTP value for FCA is I To leave some pad, I will set it Therefore, XAPER is set to -267 - Cation. G160M/160 DEUTERIUM 0 Deuterium Exposure 2 Comments: Deuterium exposure of 0 Return to no DARK minal HV fo r most mode	2.1 to illuminate Segment B with G160M/1600 to match the G130M exposure (-267). 182.1 = -449. *HOWEVER*, because of th COS/FUV, TIME-TAG, FCA	the TRANS rules, the G160M 1600 A	CURRENT=MEDIUM; BUFFER-TIME=111; FP-POS=4	tre soft stop is at -275 and we don't 12" [(-449407) = -42] Special Ro that it has slightly more counts that SPEC COM INSTR ELHVADJPROP; QESIPARM ENDC	with G160M/1600. want to exceed that value when including equirement is necessary to move the aperts	the 5 step oversho

