

14522 - COS FUV Detector Recovery after Anomalous Shutdown

Cycle: 24, Proposal Category: CAL/COS (Availability Mode: RESTRICTED)

INVESTIGATORS

Name	Institution	E-Mail
Mr. Thomas Wheeler (PI) (Contact)	Space Telescope Science Institute	wheeler@stsci.edu
Dr. Alan D. Welty (CoI)	Space Telescope Science Institute	welty@stsci.edu
Dr. David J. Sahnow (CoI)	Space Telescope Science Institute	sahnow@stsci.edu
Dr. Steven V. Penton (CoI)	Space Telescope Science Institute	penton@stsci.edu
Dr. Charles R. Proffitt (CoI)	Space Telescope Science Institute	proffitt@stsci.edu
Dr. Jason Mcphate (CoI)	University of California - Berkeley	mcphate@ssl.berkeley.edu

VISITS

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
01	DARK	S/C	1	29-Jul-2016 13:43:37.0	yes
02	DARK	S/C	1	29-Jul-2016 13:43:37.0	yes
03	DARK	COS/FUV S/C	1	29-Jul-2016 13:43:38.0	yes
04	DARK	S/C	1	29-Jul-2016 13:43:38.0	yes
05	DARK	S/C	1	29-Jul-2016 13:43:38.0	yes
06	DARK	COS/FUV S/C	1	29-Jul-2016 13:43:39.0	yes
07	DARK	S/C	1	29-Jul-2016 13:43:39.0	yes

	Targets used in Visit	Configurations used in Visit		Last Orbit Planner Run	OP Current with Visit?
08	DARK WAVE	COS/FUV S/C	1	29-Jul-2016 13:43:40.0	yes
09	DARK	S/C	1	29-Jul-2016 13:43:40.0	yes
10	DARK WAVE	COS/FUV S/C	1	29-Jul-2016 13:43:41.0	yes
11	DARK	S/C	1	29-Jul-2016 13:43:41.0	yes
12	DARK WAVE	COS/FUV S/C	1	29-Jul-2016 13:43:42.0	yes
13	DARK	S/C	1	29-Jul-2016 13:43:42.0	yes
14	DARK WAVE	COS/FUV S/C	1	29-Jul-2016 13:43:42.0	yes
15	DARK	S/C	1	29-Jul-2016 13:43:43.0	yes
16	DARK WAVE	COS/FUV S/C	1	29-Jul-2016 13:43:43.0	yes
17	DARK	S/C	1	29-Jul-2016 13:43:44.0	yes

17 Total Orbits Used

ABSTRACT

This proposal consists of the steps for turning on and ramping up the COS FUV high voltage in a safe and conservative manner after a HV anomalous shutdown by executing a "reduced set" of visits from Cycle 19 Proposal 12810. The nature of the shutdown, i.e., over-light, HV current transient ("crackle"), ion feedback (induced by a high energy particle), or field emission (possibly caused by dust or other particulate on the QE grid or other close-by structure or hardware), and the value of the commanded HV at the time of the shutdown will determine what visits are executed. Because of gain sag and the selected Lifetime Position, commanded HV settings updates may be required.

First, prior to execution of this proposal or selected visits from this proposal, all preliminary steps should be exercised to gather the necessary diagnostic data, e.g., science data evaluation (if a science exposure was in progress and the science data is available), memory dumps (DCE, EXEC RAM, and possibly the CS BUFFER), engineering telemetry, or other information that might provide insight as to the nature of the shutdown and

Proposal 14522 (STScI Edit Number: 1, Created: Friday, July 29, 2016 12:43:45 PM EST) - Overview estimated count rate.

The complete step-by-step procedure is detailed in the Observing Description, but in summary, the following is done:

Day 01 activities, visits 01-07, contain both QE grid off and on HV ramping to HVLow (100/100) with diagnostics (DCE dumps) and darks to exclude QE grid involvement in the shutdown. Subsequent to day 01, all HV ramping will be with the QE grid on with the same diagnostics and exposures. All days end with the setting of COS event flag 3 to prevent any FUV HV commanding.

Time is allotted for COS instrument scientist and engineers to examine data dumps, science exposures, and engineering telemetry. If all is well, the go-ahead will be given to clear flag 3 for the next day's visits.

This proposal is modeled after the Cycle 23, Proposal 14445.

OBSERVING DESCRIPTION

This proposal consists of necessary steps for turning on and ramping up the COS FUV high voltage in a conservative manner after an anomalous shutdown. It is intended to be used for the on-orbit turn-on of the detector after such a shutdown.

Prior to execution of this proposal or selected visits from this proposal, all preliminary steps to collect diagnostic data should be exercised.

- 1. Gather the needed data
 - Do DCE dump as soon as possible
- 2. Circular buffer with 10 s of events and histograms of currents and voltages
 - Dump EXEC RAM for CVT (Current Value Table) telemetry and error logs
 - Examine exposure (if any) occurring during the anomaly
- 3. If instrument not suspended, normal readout of exposure in CS BUFFER should occur
 - CS BUFFER memory dump as may be appropriate
 - Examine engineering telemetry (including snapshots)
- 4. If event is determined to be similar to a previous event that did not damage the detector, and there does not appear to be evidence for more extended damage, we may decide on an accelerated recovery, e.g.,

- Will first go to HVLOW both without and then with the QE grid on
- If HVLOW data look normal, will consider proceeding directly to HVNOM and QE grid on
- Under some circumstances (i.e., a well understood event with essentially no risk of damage), we may consider returning directly to operations without additional testing
- 5. If event shows new or poorly understood behavior, will consult with appropriate experts prior to deciding which visits in the anomalous recovery proposal are required.
- 6. Primary criteria for deciding if event is the "same" as the 30 April event will be the temporal and spatial structure of the counts and gain
 - Sudden drop in gain followed by extended field emission
 - Primary emission localized to regions previously seen to have slightly enhanced dark rate
 - May have less information than before if shutdown occurs outside a time-tag exposure
- 7. Event will also be compared to FUSE like "crackles" that produced current transients
- 8. Shutdowns due to external or internal lamp over-light will be evaluated based on estimated level of violation to decide if damage is a concern

The sequence day, visits numbers, exposures, and rough "after by" times (end to start) are listed. Number listed in parentheses, e.g., (100/100), or 154/151 are the HV command counts for Segment A and B, respectively.

Throughout the proposal, different "after by" times, sequence containers, and new alignments are used to optimize flow, schedulability, telemetry and science data analyses, and the clearing of flag 3. When "after by" times are listed as 0.0 to 1.0 hr., this means that this step should be scheduled and executed as soon as possible after the previous visit. If scheduling determines that a longer time is required for the sequence to schedule properly, then scheduling has the right to adjust this time as they deem appropriate. The proposal is designed such that the selected visits and exposures MUST be executed in order.

Additionally, all visits are compliant with CARD 3.4.12.8 - COS FUV Mandatory Dwell Time at HVLow (1 hour dwell at HVLow before ramping to a more negative voltage) and CARD 3.4.12.9 -- COS FUV High Voltage QE Grid Operation (HV must be less negative or equal to the HVLow to switch grid on or off).

All dark exposures will be 3600 sec. with STIMS set to 30. All wave exposures will be 60 sec. with STIMs set to 2000.

V01 Uninhibit the DCE - Flag 3 must be clear to execute.

- 1. FUV Inhibit to Boot
- 2. DCE RAM Dump to capture the cause of the shutdown
- 3. FUV Boot to Operate

V02 QE off - Turn HV on - After Visit 01 by 0.0 to 1.0hr

- 1. QE off Turn HV on (0/0 do not ramp)
- 2. DCE RAM dump

V03 QE off - Ramp to HVLow - After V02 by 0.0 to 1.0hr

- 1. Ramp to HVLow (100/100)
- 2. DCE RAM dump
- 3. Dark exposure

V04 Return to Operate - After V03 by 0.0 to 1.0hr

- 1. Return to Operate (HV off)
- 2. DCE RAM dump

V05 QE on - Turn HV on - After V04 by 0.0 to 1.0hr

- 1. QE on Turn HV on (0/0 do not ramp)
- 2. DCE RAM dump

V06 QE on - Ramp to HVLow (100/100) - After V05 by 0.0 to 1.0hr

- 1. Ramp to HVLow (100/100)
- 2. DCE RAM Dump
- 3. Dark exposure

V07 Return to Operate - After V06 by 0.0 to 1.0hr

- 1. Return to Operate (HV off)
- 2. DCE RAM dump
- 3. Set flag 3

Day 2

V08 QE on - Ramp to 154/151 - After V01 by 1D to 2D for analysis. Flag 3 must be clear to execute.

Qasi_States will auto-schedule the normal Operate to HVLow transition

- 1. Install memory monitors
- 2. Ramp HV to 154/151
- 3. DCE RAM dump
- 4. Dark exposure
- 5. Wave exposure

V09 Return to Operate - After V08 by 0.0 to 1.0hr

- 1. Return to HVLow (100/100)
- 2. DCE RAM dump
- 3. Set flag 3

Day 3

V10 QE on - Ramp to 160/157 - After V08 by 1D to 2D for analysis. Flag 3 must be clear to execute.

Qasi_States will auto-schedule the normal Operate to HVLow transition

- 1. Ramp HV to 160/157
- 2. DCE RAM dump
- 3. Dark exposure
- 4. Wave exposure

V11 Return to Operate - After V10 by 0.0 to 1.0hr

- 1. Return to HVLow
- 2. DCE RAM dump
- 3. Set flag 3

Day 4

V12 QE on - Ramp to 167/163 - After V10 by 1D to 2D for analysis. Flag 3 must be clear to execute.

Qasi_States will auto-schedule the normal Operate to HVLow transition

- 1. Ramp to HV to 167/163
- 2. DCE RAM dump
- 3. Dark exposure
- 4. Wave exposure

V13 Return to Operate - After by V12 by 0.0 to 1.0hr

- 1. Return to HVLow (100/100)
- 2. DCE RAM dump
- 3. Set flag 3

Day 5

V14 QE on - Ramp to 172/169 - After V12 by 1D to 2D for analysis. Flag 3 must be clear to execute.

Qasi_States will auto-schedule the normal Operate to HVLow transition

- 1. Ramp to HV to 172/169
- 2. DCE RAM dump
- 3. Dark exposure
- 4. Wave exposure

V15 Return to Operate - After V14 by 0.0 to 1.0hr

- 1. Return to HVLow (100/100)
- 2. DCE RAM dump
- 3. Set flag 3

Day 06

V16 QE on - Ramp to HVNom (178/175) - After V14 by 1D to 2D for analysis. Flag 3 must be clear to execute.

Qasi_States will auto-schedule the normal Operate to HVLow transition

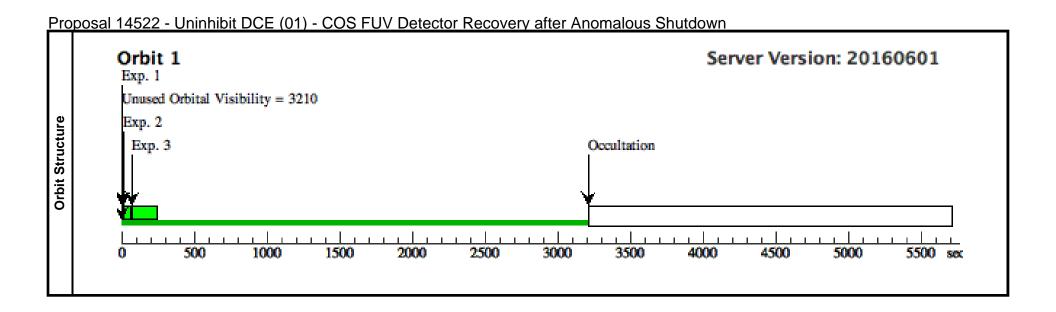
- 1. Ramp to HV to HVNom (178/175)
- 2. DCE RAM dump
- 3. Dark exposure
- 4. Wave exposure

V17 Return to HVOperate -- After V26 by 1.5hr to 2.1

- 1. Return to HVLow (100/100)
- 2. DCE RAM dump
- 3. Set flag 3

Proposal 14522 (STScI Edit Number: 1, Created: Friday, July 29, 2016 12:43:45 PM EST) - Overview Day 07 Clear flag 3 (Real-time) - After V16 1D for analysis. Flag 3 must be clear to continue science operations. ----- Realtime Justification -----Real-time commanding is required to clear NSSC-1 COS event flag 3 prior to visit 01 and to go ahead with the selected visits. Flag 3 must also be cleared to go ahead with science observations after the last selected visit. ----- Additional Comments -----This is a recovery from a HV anomalous shutdown. No regular or calibration FUV science exposures are allowed during recovery. This is not a requirement but it is desirable to have real-time engineering telemetry (MA return) during the execution of this proposal. A contingency Operations Request to place to command the FUV detector into its Inhibit mode must be in place in case a significant anomaly occurs. ISQL is required to Id S/C exposures as COS, to set the SI interleave flag properly, to adjust SI states on DUMP and HOME alignments, and to model readouts for the DCE dump exposures. See visits/exposures for detail. This proposal requires Special Commanding.

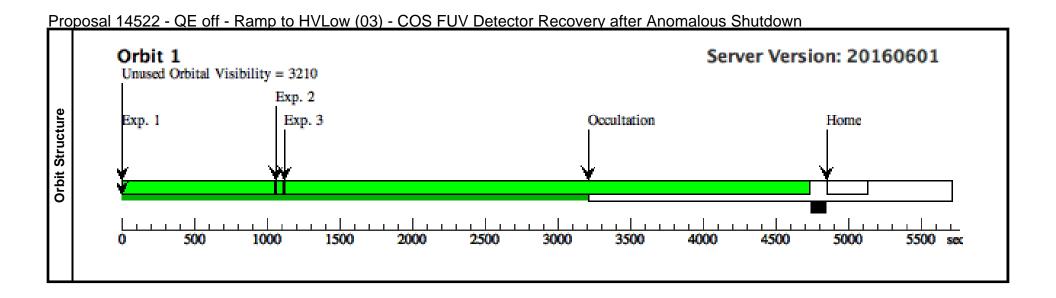
IC		hhibit DCE (01) - COS FUV	Defector Kec	overy arter Ar	iomaious Smulo	IOWII	E.: L.100.17.42.45	CMT 201
	Proposal 14522, Uninhibit D	· · · · ·					Fri Jul 29 17:43:45	GMT 2010
	Diagnostic Status: No Diagn Scientific Instruments: S/C	iosucs						
	Special Requirements: ON HO	OLD - PARALLEI						
<u>=</u>	Comments: Uninhibit the DCI							
Visit								
-	This visit uninhibits the DCE (detector from Boot to Operate	(sets dce_FUVInhibitMode == FALSE and a c. Special commanding is used to uninhibit th	does other CS cleanup, he DCE and to dump th	thus ensuring the DCI e DCE RAM. Regular	E is in its nominal Boot sto recon commanding is use	ite), takes diagnostics (d for the Boot to Opera	DCE RAM dump), and transitions the teransition.	FUV
		visit, Flag 3 must be cleared by the ground v	•	· ·	_	•		and with the
	recovery.	visti, Piug 5 musi de cieurea dy the grouna v	ла геш-ите соттапан	ng. 1 nis can be aone a	is soon as the anomatous I	iiv shuldown is unders	iooa an ine go-aneda is given io proce	eea wiin ine
	On Hold Comments: To be us	ed only after an anomalous shutdown of the	FUV high voltage.					
	# Label Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1 FUV Inhibit DARK	S/C, DATA, NONE			SPEC COM INSTR	Sequence 1-3 Non-In		
	to Boot				ELRECOVERF; QASISTATES COS	t in Uninhibit DCE (01)	[==>]	
					SI OBSERVE OBSE			
					RVE;			[1]
					QASISTATES COS FUV HVLOW OPE			
					RATE			
	Comments: Unhibit the DCE j	for commanding by setting dce_FUVInhibitN	Mode == FALSE in the	CS FSW. Several othe	r houskeeping tasks are a	lso cleaned up.		
	It is assumed that this will be	the first FUV activity on an SMS and that the	e CS is in Operate state	. Therefore, the startin	ng FUV state is set to HVI	LOW, which is the nomi	inal SMS boundary state.	
	SQL: tag as COS (si_used and	d si_intrlv)						
	2 DCE RAM DARK	S/C, DATA, NONE			SPEC COM INSTR	Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
	dump				ELCOPYDCE;	t in Uninhibit DCE (01)	[==>]	
					NEW ALIGNMENT ;	01)		
, 0					QASISTATES COS			
Exposures					SI OBSERVE OBSE RVE;			[1]
SU					QASISTATES COS			
ĝ					FUV OPERATE OP			
ш	Comments: Convand dumn F	OCE DAM			ERATE			
	Comments: Copy and dump D							
	"[I'm after] the procedure to	ey FUV detector expert, who defined the FU get a memory dump of the FUV HV and AU.	X power current monito	ors (HVIA, HVIB, AUX	I). Each of these has a 10	000 (possibly 1024) san	nple buffer that monitors the current a	ıt 1ms samı
	ling (looping through, overwr	iting the data that is 1 second old), and a cut	mulative histogram of t	he current values (this	would be a buffer of 256	values for each monito	r)." This information is in a DCE RAM	M dump.
	SQL: setup readout entry for t	the DCE dump (qalignment, qexposure, qrea	adout), tag as COS (si_ı	used and si_intrlv)				
	3 FUV Boot t DARK	S/C, DATA, NONE			SPEC COM INSTR	Sequence 1-3 Non-In	180 Secs (180 Secs)	
	o Operate				RLBTTOPF;	t in Uninhibit DCE (01)	[==>]	
					NEW ALIGNMENT ;	,		
					QASISTATES COS			
					SI OBSERVE OBSE RVE;			[1]
					QASISTATES COS			
					FUV OPERATE OP			
	Comments: Transition the DC	E from Boot to Operate. Use standard recor	7		ERATE			
			· .					
	SQL: tag as COS (si_used and	a si_intrlv)						



Pro	posa	al 14522	2 - QE off -	Turn HV on (02) - COS	FUV Detecto	or Recovery a	fter Anomalous	Shutdown		
	Propos	sal 14522, Ç)E off - Turn HV	on (02), implementation					Fri Jul 29 17:43:45	GMT 2016
	Diagno	ostic Status	: No Diagnostics							
I∺	Scienti	ific Instrume	ents: S/C							
Visit	Specia	ıl Requireme	ents: AFTER 01 E	BY 0.1 H TO 1.5 H; PARALLEL						
	Comm	nents: QE gri	id off, Turn-on HV	,						
	Specia	ıl commandii	ng will be used to	execute the FUV Operate to HV On (0)/0 or approximately ~	-2500V) reconfigurat	ion and will stop there. Di	agnostics are taken (D	CE RAM dumps) after each transition.	
		Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
		QE off - Tur	DARK	S/C, DATA, NONE				; Sequence 1-2 Non-In	50 Secs (50 Secs)	
		n HV on (0/ 0)					SPEC COM INSTR ELOPTNQF;	t in QE off - Turn H V on (02)	[==>]	
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV OPERATE HV LOW			
l es	Comm	ents: Turn o	n the FUV HV wit	hout the QE grid. Do not ramp up.						
ns		DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31	; Sequence 1-2 Non-In	60.0 Secs (60 Secs)	
Exposures	d	dump					SPEC COM INSTR	t in QE off - Turn H V on (02)	[==>]	
Ιŭ							ELCOPYDCE;	* *		
							NEW ALIGNMENT ;			
							QASISTATES COS SI OBSERVE OBSE RVE;	;		[1]
							QASISTATES COS FUV HVLOW HVL OW			
	Comm	ents: DCE R	RAM copy and dun	np. See Visit 1, Exposure 2 for a comp	lete description of the d	dump.				
	SOL: s	setun readou	at entry for the DC	E dump (qalignment, qexposure, qrea	dout), tag as COS (si-i	used and si_intrly)				
			, , , , , , , , , , , , , , , , , , , ,	=	,,,	,				
		Orbi Exp.						Server Ve	rsion: 20160601	
				sibility = 3210						
l a		Exp.	2	•			Occultation			
Structure										
<u>+</u>		٠				,	↓			
o dr dr		V <u>a</u>								
										_
		0	500	1000 1500	2000 250	0 3000	3500 4	000 4500	5000 5500 sc	DX.
_										

Ω.,	- 10 4	1 4 4 5 0	0 OF 0#	Decree to 11\/1 out (02\)	000 EUV Da	ete etan Dagovan	 	Lawa Chuthalaw	_	
	_			- Ramp to HVLow (03) - (03) - (03) - (03)	COS FUV De	etector Recover	<u>V atter Anoma</u>	lous Shutdow	n Fri Jul 29 17:43:45	CMT 2016
		oposai 14522, agnostic Statu		10 H v Low (05), implementation					FH Jul 27 17.45.45	JW11 2010
<u>ٿ</u> [-	ents: S/C, COS/	FIIV						
Visit				2 BY 0.1 H TO 1.5 H; PARALLEL						
-		•		ntinue with the FUV ramp-up with the OE	off to HVLow value ((100/100).				
			,	1 1 2	0)) 10 11 , 20	,100,100).				
F	_			<i>ed and may be deleted via SQL.</i> Warning (Orbit Planner): MAXIMUM DU	ID ATION EXCEEDS	ED EOD INTEDNAL OD	EADTH CALIB SIL			
Diagnostics	(4.	L Oir Ruinp &	711120w (03 ₇₇)	valling (Oron Fiamer). Management	TATION DIVERSE	DION INTERINE CA	EARTH CALLS SC			
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Ramp to HV		S/C, DATA, NONE			SAA CONTOUR 31;		1060 Secs (1060 Secs)	
		Low (100/100)	0				SPEC COM INSTR ELHOTHLF;	t in QE off - Ramp to HVLow (03)	[==>]	
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVLOW HVL OW			
ı	Co			HVLow. The commanding assumes the H	V is already on.					
س	2	DCE RAM	DARK	S/C, DATA, NONE				Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in QE off - Ramp to HVLow (03)	[==>]	
ö							NEW ALIGNMENT ;			
<u>^</u>							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVLOW HVL OW			
ı	Co	mments: DCE	RAM copy and d	lump. See Visit 1, Exposure 2 for a comple	ete description of the a	dump.				
ı	SQ	L: setup reado	ut entry for the L	DCE dump (qalignment, qexposure, qread	out), tag as COS (si_i	used and si_intrlv)				
	3	Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=36	NEW ALIGNMENT		3600.0 Secs (3600 Secs)	
1	1					00;	;	t in QE off - Ramp to HVLow (03)	[==>]	
						STIM-RATE=30	QASISTATES COS FUV HVLOW HVL OW	(- /		[1]

OW

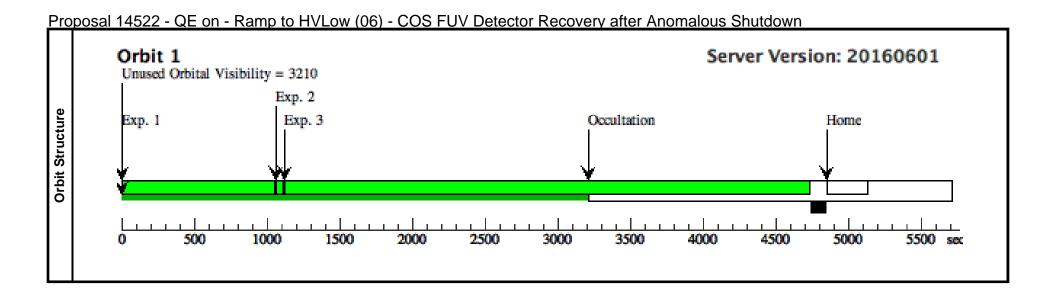


Proposal 14522 - Return to Operate (04) - COS FUV Detector Recovery after Anomalous Shutdown Proposal 14522, Return to Operate (04), implementation Fri Jul 29 17:43:45 GMT 2016 Diagnostic Status: No Diagnostics Scientific Instruments: S/C Special Requirements: AFTER 03 BY 1.4 H TO 3.5 H; PARALLEL Comments: Return to Operate Return to Operate, and dump DCE memory. Label Target Config, Mode, Aperture Spectral Els. Opt. Params. Special Regs. Groups Exp. Time (Total)/[Actual Dur.] Orbit Return to O DARK S/C, DATA, NONE SAA CONTOUR 31; Sequence 1-2 Non-In 50 Secs (50 Secs) SPEC COM INSTR t in Return to Operat perate (HV [==>] off) RLHLTOPF; **OASISTATES COS** SI OBSERVE OBSE [1] RVE; **OASISTATES COS FUV HVLOW OPE** RATE Exposures Comments: Turn off the FUV high voltage SAA CONTOUR 31; Sequence 1-2 Non-In 60.0 Secs (60 Secs) DCE RAM DARK S/C, DATA, NONE SPEC COM INSTR t in Return to Operat dump *[==>1* ELCOPYDCE: NEW ALIGNMENT **OASISTATES COS** [1] SI OBSERVE OBSE RVE; **QASISTATES COS FUV OPERATE OP ERATE** Comments: DCE RAM copy and dump. See Visit 1, Exposure 2 for a complete description of the dump. SQL: setup readout entry for the DCE dump (galignment, qexposure, greadout), tag as COS (si_used and si_intrly) Orbit 1 Server Version: 20160601 Unused Orbital Visibility = 3210 Exp. 1**Orbit Structure** Occultation Exp. 2 500 1500 1000 2000 2500 3000 3500 4000 4500 5000 5500 sec

Proposal 14522 - QE on - Turn HV on (05) - COS FUV Detector Recovery after Anomalous Shutdown Proposal 14522, QE on - Turn HV on (05), implementation Fri Jul 29 17:43:45 GMT 2016 Diagnostic Status: No Diagnostics Scientific Instruments: S/C Special Requirements: AFTER 04 BY 0.1 H TO 1.5 H; PARALLEL Comments: QE grid on, HV on Special commanding will be used to execute the FUV Operate to HV On (0/0 or approximately ~ -2500V) reconfiguration and will stop there. Label Target Config, Mode, Aperture Spectral Els. Opt. Params. Special Reqs. Groups Exp. Time (Total)/[Actual Dur.] Orbit OE on - Tur DARK S/C, DATA, NONE SAA CONTOUR 31; Sequence 1-2 Non-In 50 Secs (50 Secs) SPEC COM INSTR t in QE on - Turn HV = -1n HV on (0/ on (05) ELOPTHOF; **OASISTATES COS** SI OBSERVE OBSE [1] RVE; **QASISTATES COS FUV OPERATE HV** LOW Exposures Comments: Turn on the FUV HV, including the QE grid. Do not ramp up. SAA CONTOUR 31; Sequence 1-2 Non-In 60.0 Secs (60 Secs) DCE RAM DARK S/C, DATA, NONE SPEC COM INSTR t in QE on - Turn HV dump I = = > 1ELCOPYDCE: NEW ALIGNMENT **OASISTATES COS** [1] SI OBSERVE OBSE RVE; **QASISTATES COS FUV HVLOW HVL** OW Comments: DCE RAM copy and dump. See Visit 1, Exposure 2 for a complete description of the dump. SQL: setup readout entry for the DCE dump (galignment, qexposure, greadout), tag as COS (si_used and si_intrly) Orbit 1 Server Version: 20160601 Unused Orbital Visibility = 3210 Exp. 1**Orbit Structure** Occultation Exp. 2 500 1500 1000 2000 2500 3000 3500 4000 4500 5000 5500 sec

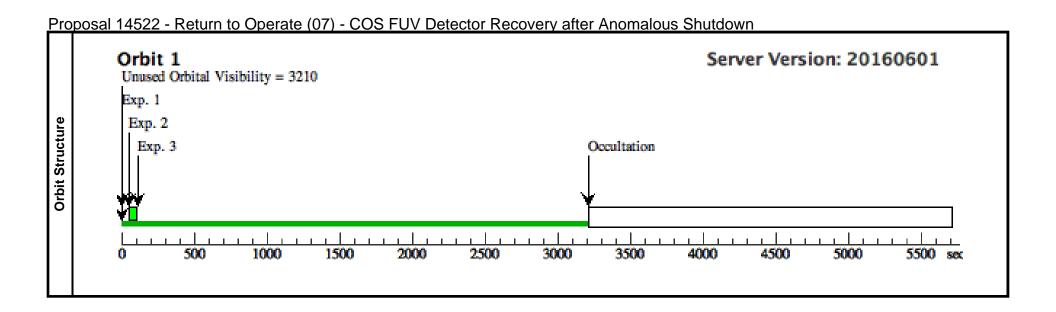
				- Ramp to HVLow (06) - (o HVLow (06), implementation					Fri Jul 29 17:43:45	GMT 201
	Diagr	nostic Status	: Warning							
Visit	Scien	tific Instrume	ents: S/C, COS/F	UV						
Ë	Speci	ial Requireme	ents: AFTER 05	BY 0.1 H TO 1.5 H; PARALLEL						
	Comn	nents: Turn Q	E on and Ramp	the FUV high voltage up to HVLow.						
	The H	HOME alignm	ent is not needed	d and may be deleted via SQL.						
Diagnostics	(QE o	on - Ramp to	HVLow (06)) W	arning (Orbit Planner): MAXIMUM DUI	RATION EXCEEDE	ED FOR INTERNAL OR	EARTH CALIB SU			
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
		QE on - Ra	DARK	S/C, DATA, NONE	_	-	SAA CONTOUR 31;	Sequence 1-3 Non-In	1060 Secs (1060 Secs)	
		mp to HVLo w (100/100)					SPEC COM INSTR RLOPTHLF;	t in QE on - Ramp to HVLow (06)	[==>]	
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV OPERATE HV LOW			
		DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in QE on - Ramp to HVLow (06)	[==>]	
osı							NEW ALIGNMENT			
Exp							, QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVLOW HVL OW			
	Comn	nents: DCE R	PAM copy and du	ump. See Visit 1, Exposure 2 for a complet	te description of the	dump.				
	SQL:	setup readou	t entry for the D	CE dump (qalignment, qexposure, qreado	out), tag as COS (si_s	used and si_intrlv)				
	3	Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=36	NEW ALIGNMENT	Sequence 1-3 Non-In	3600.0 Secs (3600 Secs)	
						00; STIM-RATE=30	; QASISTATES COS FUV HVLOW HVL OW	t in QE on - Ramp to HVLow (06)	[==>]	[1]

OW

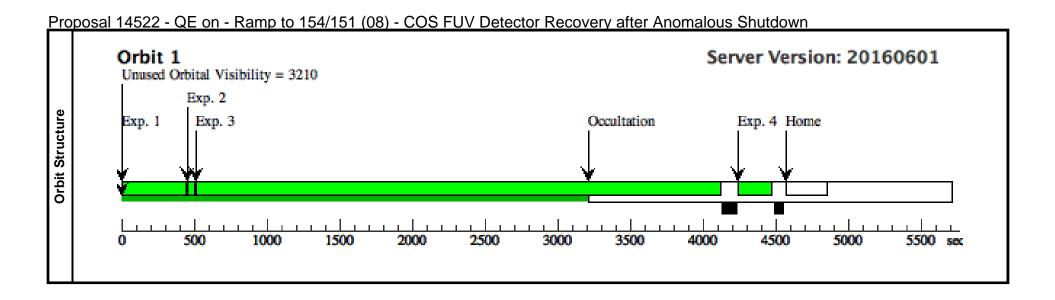


Proposal 14522 - Return to Operate (07) - COS FUV Detector Recovery after Anomalous Shutdown

				<u> </u>	OV DCICCIOI I	tccovery and	i / triornaious Oi	IUIUOWII		
		-	Return to Operate (07), implementation					Fri Jul 29 17:43:45	GMT 2016
;;	Diag	gnostic Status	: No Diagnostics							
Visit	Scie	entific Instrume	ents: S/C							
_	Spec	cial Requireme	ents: AFTER 06 BY 1	.4 H TO 3.5 H; PARALLEL						
	Con	nments: Return	to Operate, dump DC	EE memory, and set flag 3.						
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Return to O	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	50 Secs (50 Secs)	
		perate (HV off)					SPEC COM INSTR RLHLTOPF;	t in Return to Operat e (07)	[==>]	
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVLOW OPE RATE			
	Con	nments: Turn o	ff the FUV high voltag	ge						
<u>س</u> ا	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in Return to Operat e (07)	[==>]	
ğ							NEW ALIGNMENT ;			
<u>û</u>							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV OPERATE OP ERATE			
	Con	nments: DCE R	RAM copy and dump. S	See Visit 1, Exposure 2 for a complete	e description of the d	ump.				
	SOI	: setun readou	at entry for the DCE da	ımp (qalignment, qexposure, qreado	ut) tag as COS (si u	sed and si_intrly)				
	3	Set flag 3	DARK	S/C, DATA, NONE	,, 45 005 (51_11		SPEC COM INSTR	Sequence 1-3 Non-In	1.0 Secs (1 Secs)	
	5	Social S	2	S. C., 271171, 11011E			ELFLAG3;	t in Return to Operat	[==>]	
							NEW ALIGNMENT	e (07)	11	[1]
	Con	nments: Set NS	SC-1 COS event flag 3	3. This will prevent subsequent FUV	commanding unless i	t is cleared first.			-	

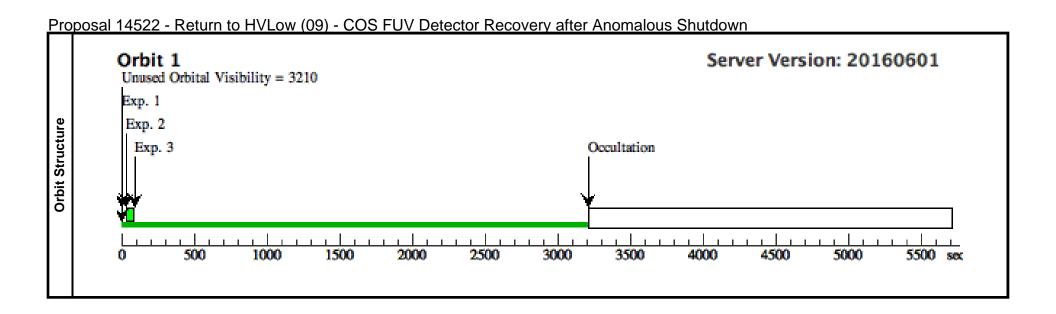


Pro	posal 14	522 - QE on	- Ramp to 154/151 (08) -	COS FUV D	etector Recove	ry after Anom	alous Shutdov	vn		
tics Visit	Comments: Ramp the FUV high voltage up to a specified value (well below HVNom). No SAA Passage between Visits 08 and 09.									
Diagnostics	# Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
S	/151	amp the FUV HV to a	S/C, DATA, NONE 154/151 counts (A/B).			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; QASISTATES COS SI OBSERVE OBSE RVE; QASISTATES COS FUV HVLOW HVN OM; QESIPARM ENDC TSA 154; QESIPARM SECPE RCT 3; QESIPARM ENDC TSB 151	Sequence 1-4 Non-In t in QE on - Ramp to 154/151 (08)	451 Secs (451 Secs) [==>]	[1]	
Exposures	2 DCE RA dump	M DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELCOPYDCE; NEW ALIGNMENT; QASISTATES COS SI OBSERVE OBSE RVE; QASISTATES COS FUV HVNOM HVN OM	Sequence 1-4 Non-In t in QE on - Ramp to 154/151 (08)	60.0 Secs (60 Secs) [==>]	[1]	
		**	ump. See Visit 1, Exposure 2 for a compl CE dump (galignment, gexposure, gread	• •	•					
	3 Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF		NEW ALIGNMENT	Sequence 1-4 Non-In t in QE on - Ramp to 154/151 (08)	3600.0 Secs (3600 Secs) [==>]	[1]	
	4 Wave	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1600 A	CURRENT=MEDIU M; FP-POS=3; STIM-RATE=2000		Sequence 1-4 Non-In t in QE on - Ramp to 154/151 (08)	60 Secs (60 Secs) [==>]	[1]	

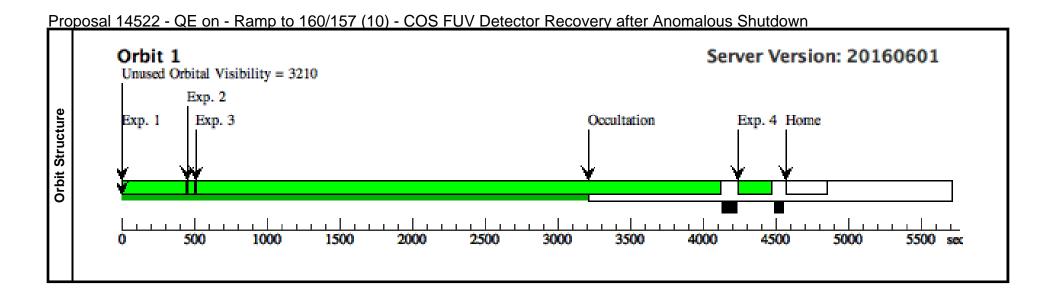


Proposal 14522 - Return to HVLow (09) - COS FUV Detector Recovery after Anomalous Shutdown

Pro	po:	sai 14522	<u> 2 - Return to I</u>	<u> HVLow (09) - COS FU</u>	v Detector R	ecovery after	Anomaious Sn	utaown		
	Pro	posal 14522, R	Return to HVLow (09), implementation					Fri Jul 29 17:43:45	GMT 2016
Ħ	Diag	gnostic Status:	No Diagnostics							
Visit	Scie	entific Instrume	ents: S/C							
_	Spec	cial Requireme	nts: AFTER 08 BY 1	.2 H TO 3.5 H; PARALLEL						
	Con	nments: Return	to HVLow, dump DC	E memory, and set flag 3.						
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Return to H	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	35 Secs (35 Secs)	
		VLow					SPEC COM INSTR RLHNTHLF;	t in Return to HVLo w (09)	[==>]	
							NEW OBSET;			
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVNOM OPE RATE			
	Con	nments: SQL: E	Enforce the seq non-in	t across the obsets						
Se	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in Return to HVLo w (09)	[==>]	
×							NEW ALIGNMENT			
ш							, QASISTATES COS			643
							SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV OPERATE OP ERATE			
	Con	nments: DCE R	AM copy and dump.	See Visit 1, Exposure 2 for a complet	e description of the d	итр.				
	SOL	: setup readou	t entry for the DCE di	ump (qalignment, qexposure, qreado	ut) tag as COS (si. u	sed and si_intrly)				
	3		DARK	S/C, DATA, NONE	,,		SPEC COM INSTR	Sequence 1-3 Non-In	1.0 Secs (1 Secs)	
				···· - , · · · · · · · · · · · · · · · ·			ELFLAG3;	t in Return to HVLo	[==>1	
							NEW ALIGNMENT	w (09)	,	[1]
	Con	nments: Set NS	SC-1 COS event flag .	3. This will prevent subsequent FUV	commanding unless i	t is cleared first.				

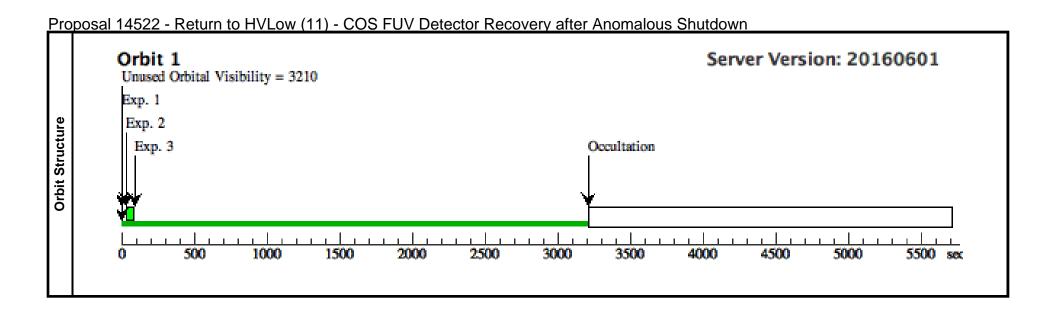


Pro	posal 14	522 - QE on	- Ramp to 160/157 (10) -	COS FUV D	etector Recove	ry after Anom	alous Shutdov	vn		
ics Visit	Proposal 14522, QE on - Ramp to 160/157 (10), implementation Diagnostic Status: Warning Scientific Instruments: S/C, COS/FUV Special Requirements: AFTER 08 BY 1.0 D TO 2.0 D; PARALLEL Comments: Ramp the FUV high voltage up to a specified value (higher than V08, lower than HVNom). No SAA Passage between Visits 10 and 11. (QE on - Ramp to 160/157 (10)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Diagnostics	# Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	/157	160 DARK	S/C, DATA, NONE 160/157 counts (A/B).			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; QASISTATES COS SI OBSERVE OBSE RVE; QASISTATES COS FUV HVLOW HVN OM; QESIPARM ENDC TSA 160; QESIPARM SECPE RCT 3; QESIPARM ENDC TSB 157	Sequence 1-4 Non-In t in QE on - Ramp to 160/157 (10)	451 Secs (451 Secs) [==>]	[1]	
Exposures	2 DCE RA dump	M DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELCOPYDCE; NEW ALIGNMENT; QASISTATES COS SI OBSERVE OBSE RVE; QASISTATES COS FUV HVNOM HVN OM	Sequence 1-4 Non-In t in QE on - Ramp to 160/157 (10)	60.0 Secs (60 Secs) [==>]	[1]	
		• •	ump. See Visit 1, Exposure 2 for a compl CE dump (qalignment, qexposure, qread	• •	Î					
	3 Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF		NEW ALIGNMENT	Sequence 1-4 Non-In t in QE on - Ramp to 160/157 (10)	3600.0 Secs (3600 Secs) [==>]	[1]	
	4 Wave	WAVE	COS/FUV, TIME-TAG, WCA	G160M 1600 A	CURRENT=MEDIU M; FP-POS=3; STIM-RATE=2000		Sequence 1-4 Non-In t in QE on - Ramp to 160/157 (10)	60 Secs (60 Secs) [==>]	[1]	

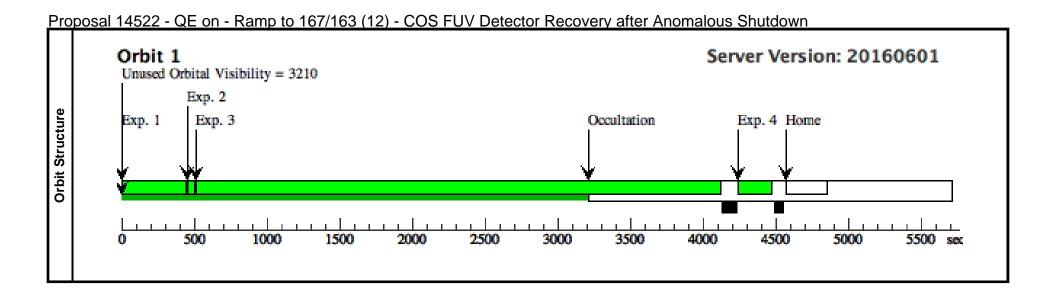


Proposal 14522 - Return to HVLow (11) - COS FUV Detector Recovery after Anomalous Shutdown

<u> </u>	DO:	<u>Sai 14022</u>	<u> - Return to</u>	HVLow (11) - COS FI	OV Detector R	<u>lecovery after</u>	Anomaious Sn	uldown		
	Pro	posal 14522, R	Return to HVLow (1	11), implementation					Fri Jul 29 17:43:45	GMT 2016
يدا	Dia	gnostic Status:	: No Diagnostics							
Visit	Scie	entific Instrume	ents: S/C							
_	Spe	cial Requireme	nts: AFTER 10 BY	1.2 H TO 3.5 H; PARALLEL						
	Con	nments: Return	to HVLow, dump D	CE memory, and set flag 3.						
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
l	1	Return to H	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	35 Secs (35 Secs)	
		VLow					SPEC COM INSTR RLHNTHLF;	t in Return to HVLo w (11)	[==>]	
l							NEW OBSET;			
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV HVNOM OPE RATE			
l	Con	nments: SQL:	Enforce the seq non-	int across the obsets						
နှ	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)	
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in Return to HVLo w (11)	[==>]	
ğ							NEW ALIGNMENT			
Ι"							, QASISTATES COS			<i>[11]</i>
							SI OBSERVE OBSE RVE;			[1]
							QASISTATES COS FUV OPERATE OP ERATE			
	Con	nments: DCE R	AM copy and dump.	See Visit 1, Exposure 2 for a comple	lete description of the d	lump.				
	SOI	: setup readou	t entry for the DCE	dump (qalignment, qexposure, qreac	dout), tag as COS (si_u	sed and si_intrly)				
	3	Set flag 3	DARK	S/C, DATA, NONE			SPEC COM INSTR	Sequence 1-3 Non-In	1.0 Secs (1 Secs)	
		C		•			ELFLAG3;	t in Return to HVLo	[==>]	
							NEW ALIGNMENT	w (11)	,	[1]
	Con	nments: Set NS	SC-1 COS event flag	3. This will prevent subsequent FU	V commanding unless i	it is cleared first.				

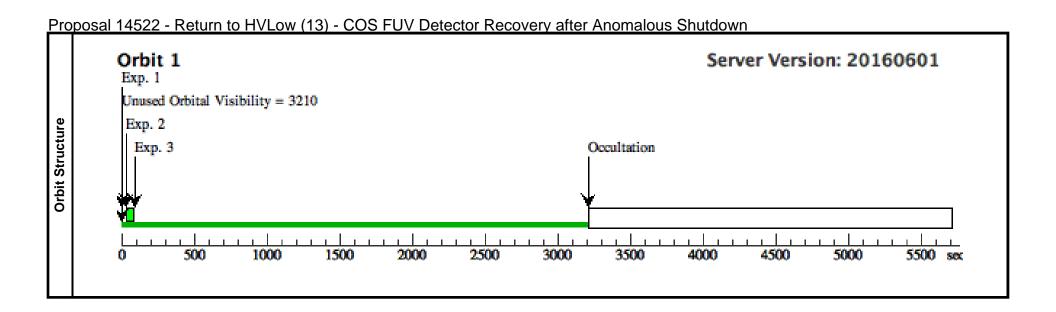


Pro	pc	osal 1452	22 - QE on	- Ramp to 167/163 (12) -	COS FUV D	etector Recove	ry after Anom	alous Shutdov	vn				
	Pr	oposal 14522	, QE on - Ramp to	o 167/163 (12), implementation					Fri Jul 29 17:43:45	GMT 2016			
	Dia	agnostic Stat	us: Warning										
Visit		cientific Instruments: S/C, COS/FUV											
5		pecial Requirements: AFTER 10 BY 1.0 D TO 2.0 D; PARALLEL Comments: Ramp the FUV high voltage up to a specified value (higher than V10).											
	Co	omments: Ramp the FUV high voltage up to a specified value (higher than V10). SAA Passage between Visits 12 and 13.											
	_												
Diagnostics	(Q	E on - Ramp t	to 167/163 (12)) W	arning (Orbit Planner): MAXIMUM DU	RATION EXCEEDE	ED FOR INTERNAL OR	EARTH CALIB SU						
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Regs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit			
	1	Ramp to 1	67 DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-4 Non-In	451 Secs (451 Secs)				
		/163			SPEC COM INSTR t in Q ELHLTHVF; t in Q ELHLTHVF;	t in QE on - Ramp to 167/163 (12)	[==>]						
							QASISTATES COS SI OBSERVE OBSE RVE;						
							QASISTATES COS FUV HVLOW HVN						
							OM;			[1]			
							QESIPARM ENDC TSA 167;						
							QESIPARM SECPE						
							RCT 3;						
	C.	D	d FIWING	167/162 (A/D)			QESIPARM ENDC TSB 163						
Exposures	2.	DCE RAM	4	167/163 counts (A/B). S/C, DATA, NONE			SAA CONTOUR 31:	Sequence 1-4 Non-In	60.0 Secs. (60 Secs)				
Su	ĺ	dump		2, 3, 21111, 1131, 2			SPEC COM INSTR	t in QE on - Ramp to					
g							ELCOPYDCE;	167/163 (12)					
ш							NEW ALIGNMENT:						
							QASISTATES COS SI OPERATE OPER ATE;			[1]			
							QASISTATES COS FUV HVNOM HVN OM						
			• •	ump. See Visit 1, Exposure 2 for a comple	• •	•				!			
				CE dump (qalignment, qexposure, qread						1			
	3	Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=36 00;	NEW ALIGNMENT	Sequence 1-4 Non-In t in QE on - Ramp to	3600.0 Secs (3600 Secs)				
						STIM-RATE=30		167/163 (12)	[>]	[1]			
	4	Wave	WAVE	COS/FUV, TIME-TAG, WCA	G160M	CURRENT=MEDIU M;		Sequence 1-4 Non-In t in QE on - Ramp to					
					1600 A	FP-POS=3;		167/163 (12)	[==>]	[1]			
	1					STIM-RATE=2000				[1]			

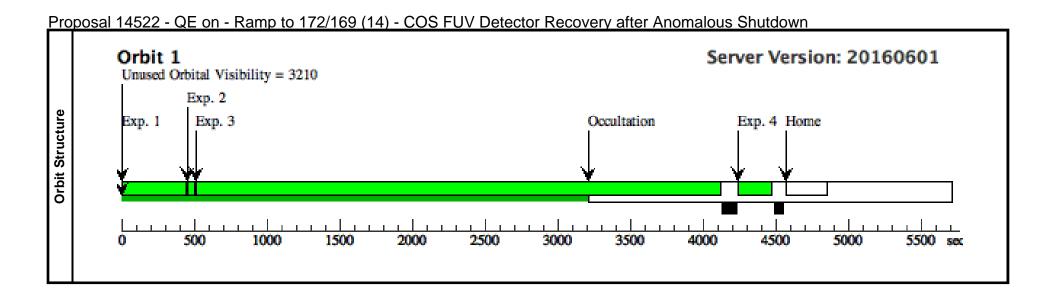


Proposal 14522 - Return to HVLow (13) - COS FUV Detector Recovery after Anomalous Shutdown

<u> </u>	po:	Sai 14522	<u> 2 - Return to</u>	HVLOW (13) - COS FI	J V Detector R	<u>lecovery after</u>	Anomaious Sn	uldown			
	Pro	posal 14522, R	Return to HVLow (1	3), implementation					Fri Jul 29 17:43:45	GMT 2016	
يدا	Diag	Diagnostic Status: No Diagnostics									
Visit	Scie	entific Instrume	ents: S/C								
_	Spec	cial Requireme	nts: AFTER 12 BY	1.2 H TO 3.5 H; PARALLEL							
	Con	nments: Return	to HVLow, dump Do	CE memory, and set flag 3.							
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	Return to H	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	35 Secs (35 Secs)		
		VLow					SPEC COM INSTR RLHNTHLF;	t in Return to HVLo w (13)	[==>]		
							NEW OBSET;				
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]	
							QASISTATES COS FUV HVNOM OPE RATE				
	Con	nments: SQL: H	Enforce the seq non-i	nt across the obsets							
Se	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)		
Exposures		dump				SPEC COM INSTR ELCOPYDCE;	t in Return to HVLo w (13)	[==>]			
ď							NEW ALIGNMENT				
"							, QASISTATES COS SI OBSERVE OBSE			[1]	
							RVE;				
							QASISTATES COS FUV OPERATE OP ERATE				
	Con	nments: DCE R	AM copy and dump.	See Visit 1, Exposure 2 for a comple	ete description of the d	ump.					
	SOI	: setun readou	t entry for the DCF a	dump (qalignment, qexposure, qreac	dout) tag as COS (si u	sed and si intrly)					
	3	Set flag 3	DARK	S/C, DATA, NONE	ioni, ing as cos (st_ii	oca ana bi_initity)	SPEC COM INSTR	Sequence 1-3 Non-In	1.0 Secs (1 Secs)		
	5	SSC Hug S	.	5/C, DATA, NONE			ELFLAG3;	t in Return to HVLo	[==>]		
							NEW ALIGNMENT	w (13)	11	[1]	
	Con	nments: Set NS	SC-1 COS event flag	3. This will prevent subsequent FU	V commanding unless	it is cleared first.					

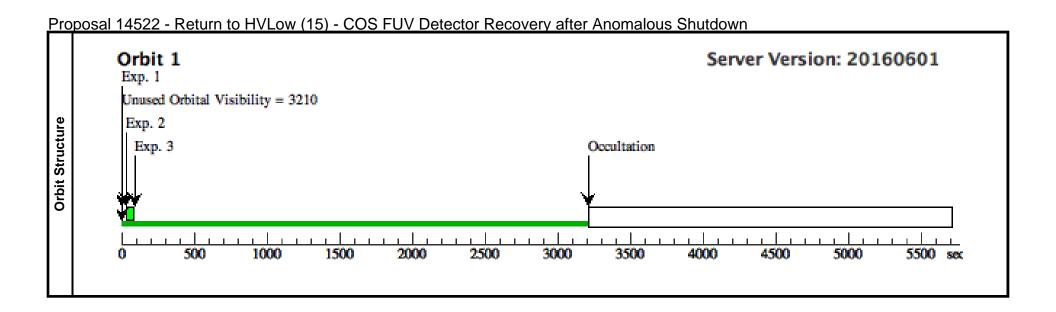


			 Ramp to 172/169 (14) - 	COS FUV D	<u> etector Recove</u>	ry after Anom	alous Shutdov		
	-		to 172/169 (14), implementation					Fri Jul 29 17:43:45	GMT 201
	_	atus: Warning							
G) I		ruments: S/C, COS/I							
		rements: AFTER 12							
			oltage up to a specified value (higher than	t V12).					
S		ge between Visits 14 2 to 172/169 (14)) W	<i>ana 13.</i> Varning (Orbit Planner): MAXIMUM DU	IR ATION EXCEEDS	ED EOR INTERNAL OR	FARTH CALIR SII			
Diagnostics	(QE on - Kam	9 to 172/109 (14)) V	varining (Orbit Flaimer). WAXIWOW DC	RATION EXCEEDE	ED FOR INTERNAL OR	EARTH CALID 30			
စ္က									
ਲੂ									
ב ב									
	# Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
		172 DARK	S/C, DATA, NONE				Sequence 1-4 Non-In t in QE on - Ramp to		
	/169	/169				SPEC COM INSTR ELHLTHVF;		[==>]	
						QASISTATES COS SI OBSERVE OBSE RVE;			
						QASISTATES COS			
						FUV HVLOW HVN OM;			[1]
						QESIPARM ENDC			
						TSA 172; OESIPARM SECPE			
						RCT 3;			
						QESIPARM ENDC			
	Commonte: Po	ump the FUV HV to	172/169 counts (A/B).			TSB 169			
Exposures		M DARK	S/C, DATA, NONE			SAA CONTOUR 31:	Sequence 1-4 Non-In	60.0 Secs (60 Secs)	
)Su	dump					SPEC COM INSTR	t in QE on - Ramp to 172/169 (14)		
ĝ۱						ELCOPYDCE;	172/109 (14)		
<u> </u>						NEW ALIGNMENT:			
						QASISTATES COS SI OBSERVE OBSE			[1]
						RVE;			
						QASISTATES COS FUV HVNOM HVN OM			
	Comments: DO	CE RAM copy and d	lump. See Visit 1, Exposure 2 for a comple	ete description of the	dump.				
			OCE dump (qalignment, qexposure, qread					T	1
	3 Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=36 00;	NEW ALIGNMENT	Sequence 1-4 Non-In t in QE on - Ramp to	3600.0 Secs (3600 Secs)	
					STIM-RATE=30		172/169 (14)	[==>]	[1]
	4 Wave	WAVE	COS/FUV, TIME-TAG, WCA	G160M	CURRENT=MEDIU		Sequence 1-4 Non-In t in QE on - Ramp to		
				1600 A	M; FP-POS=3;		172/169 (14)	[==>]	[1]
					STIM-RATE=2000				[1]



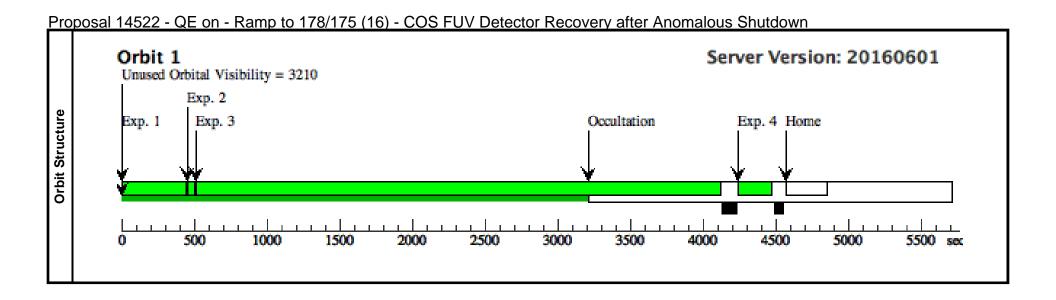
Proposal 14522 - Return to HVLow (15) - COS FUV Detector Recovery after Anomalous Shutdown

				1VLOW (15) - COS FU	v Detector ix	ecovery anter	Anomalous on	utuowii			
	Pro	Proposal 14522, Return to HVLow (15), implementation Fri Jul 29 17:43:45 GMT 2016									
ij	Diag	Diagnostic Status: No Diagnostics									
Visit	Scientific Instruments: S/C										
	Spec	cial Requireme	nts: AFTER 14 BY 1	.2 H TO 3.5 H; PARALLEL							
	Con	nments: Return	to HVLow, dump DC	E memory, and set flag 3.							
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	Return to H	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	35 Secs (35 Secs)		
		VLow					SPEC COM INSTR RLHNTHLF;	t in Return to HVLo w (15)	[==>]		
							NEW OBSET;				
							QASISTATES COS SI OBSERVE OBSE RVE:		[1]		
							QASISTATES COS FUV HVNOM OPE RATE	V HVNOM OPE			
	Con	nments: SQL: 1	Enforce the seq non-in	at across the obsets							
Se	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)		
Exposures		dump					SPEC COM INSTR ELCOPYDCE;	t in Return to HVLo w (15)	[==>]		
zxbα							NEW ALIGNMENT ;				
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]	
							QASISTATES COS FUV OPERATE OP ERATE				
	Comments: DCE RAM copy and dump. See Visit 1, Exposure 2 for a complete description of the dump.										
	SOI	: setun readou	t entry for the DCF du	ump (qalignment, qexposure, qreadoi	ut) tag as COS (si us	sed and si_intrly)					
	3	Set flag 3	DARK	S/C. DATA. NONE	adoui), iag as COS (si_usea ana si_initiv)		SPEC COM INSTR	Sequence 1-3 Non-In	1.0 Secs. (1 Secs.)		
	5	Sot mag 5		S. C., 2.1111, 11011L				t in Return to HVLo	[==>]		
							NEW ALIGNMENT	w (15)	L 7 J	[1]	
	Con	nments: Set NS	SC-1 COS event flag 3	3. This will prevent subsequent FUV o	commanding unless it	t is cleared first.					



			- Ramp to 178/175 (16) -	0001010	CICOIOI I ICOOVC	iy aitoi 7tiloili	alous Orlatuov		GMT 2014			
	Proposal 14522, QE on - Ramp to 178/175 (16), implementation Diagnostic Status: Warning											
sit	Scientific Instruments: S/C, COS/FUV											
	Special Requirements: AFTER 14 BY 1.0 D TO 2.0 D; PARALLEL											
-	Comments: Ramp the FUV high voltage up to 178/175.											
		e between Visits 16	•									
Ś			farning (Orbit Planner): MAXIMUM DUI	RATION EXCEEDE	ED FOR INTERNAL OR	EARTH CALIB SU						
Diagnostics		· //										
	# Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit			
		78 DARK	S/C, DATA, NONE			SAA CONTOUR 31;		451 Secs (451 Secs)				
	/175					SPEC COM INSTR RLHLTHNF;	t in QE on - Ramp to 178/175 (16)	[==>]				
						QASISTATES COS SI OBSERVE OBSE RVE;			[1]			
						QASISTATES COS FUV HVLOW HVN OM						
	Comments: Ramp the FUV HV to 178/175 counts (A/B, the nominal HVNom values).											
	2 DCE RAN dump	I DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-4 Non-In t in QE on - Ramp to					
es	dump					SPEC COM INSTR ELCOPYDCE;	178/175 (16)	[==>]				
sur						NEW ALIGNMENT						
Exposures						QASISTATES COS SI OBSERVE OBSE RVE;			[1]			
						QASISTATES COS FUV HVNOM HVN OM						
	Comments: DCI	E RAM copy and du	ump. See Visit 1, Exposure 2 for a complet	te description of the d	dump.							
	SOL: setup read	out entry for the D	CE dump (qalignment, qexposure, qreado	out) tag as COS (si_1	used and si_intrly)							
	3 Dark	DARK	COS/FUV, TIME-TAG, DEF	DEF		NEW ALIGNMENT	Sequence 1-4 Non-In	3600.0 Secs (3600 Secs)				
					00; STIM-RATE=30		t in QE on - Ramp to 178/175 (16)	[==>]	[1]			
	4 Wave	WAVE	COS/FUV, TIME-TAG, WCA	G160M	CURRENT=MEDIU		Sequence 1-4 Non-In	60 Secs (60 Secs)				
				1600 A	M;		t in QE on - Ramp to	J==>1	1			

STIM-RATE=2000



Proposal 14522 - Return to HVLow (17) - COS FUV Detector Recovery after Anomalous Shutdown

<u> </u>	po:	<u>Sai 14022</u>	<u> - Return to</u>	HVLOW (17) - COS FU	JV Detector R	ecovery after	Anomaious Sn	uldown			
l	Pro	posal 14522, R	Return to HVLow (1	7), implementation					Fri Jul 29 17:43:45	GMT 2016	
يدا	Diag	Diagnostic Status: No Diagnostics									
Visit	Scientific Instruments: S/C										
_	Spec	cial Requireme	nts: AFTER 16 BY	1.2 H TO 3.5 H; PARALLEL							
	Con	nments: Return	to HVLow, dump DC	CE memory, and set flag 3.							
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	Return to H	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	35 Secs (35 Secs)		
		VLow					SPEC COM INSTR RLHNTHLF;	t in Return to HVLo w (17)	[==>]		
							NEW OBSET;				
							QASISTATES COS SI OBSERVE OBSE RVE;			[1]	
							QASISTATES COS FUV HVNOM OPE RATE				
	Con	nments: SQL:	Enforce seq non-int a	across the obsets							
Se	2	DCE RAM	DARK	S/C, DATA, NONE			SAA CONTOUR 31;	Sequence 1-3 Non-In	60.0 Secs (60 Secs)		
Exposures		dump				SPEC COM INSTR ELCOPYDCE;	t in Return to HVLo w (17)	[==>]			
ď							NEW ALIGNMENT				
"							QASISTATES COS SI OBSERVE OBSE RVE;			[1]	
							QASISTATES COS FUV OPERATE OP ERATE				
	Con	nments: DCE R	PAM copy and dump.	See Visit 1, Exposure 2 for a compl	ete description of the d	ump.					
	SOI	: setun readou	t entry for the DCF o	lump (qalignment, qexposure, qreac	lout) tag as COS (si u	sed and si intrly)					
	3	Set flag 3	DARK	S/C, DATA, NONE	1011), 145 43 COS (St_t	out, ing as COS (st_usea and st_intriv)		t in Return to HVLo	1.0 Secs. (1 Secs.)		
	5	Sol mag s	2. mur	5/C, DATA, NONE			SPEC COM INSTR ELFLAG3;		[==>]		
							NEW ALIGNMENT	w (17)	11	[1]	
	Con	nments: Set NS.	SC-1 COS event flag	3. This will prevent subsequent FU	V commanding unless i	it is cleared first.					

