



12432 - COS FUV Detector Gain Sag vs. High Voltage

Cycle: 18, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
UP	DARK	S/C	1	23-Nov-2010 21:27:41.0	yes
DK	DARK	COS/FUV	2	23-Nov-2010 21:27:50.0	yes
HV	(1) WD1057+719	COS/FUV COS/NUV	1	23-Nov-2010 21:28:01.0	yes
DN	DARK	S/C	1	23-Nov-2010 21:28:05.0	yes
LV	(1) WD1057+719	COS/FUV COS/NUV	1	23-Nov-2010 21:28:13.0	yes

6 Total Orbits Used

ABSTRACT

Recent data shows that there is significant gain sag on the FUV detector, particularly at the locations of the Lyman-alpha lines on Segment B. If nothing is done, these areas will eventually become unresponsive, leaving holes in the spectra. One way to increase the gain is to raise the high voltage on the MCPs. We will collect spectra of a standard star after increasing the high voltage on both segments back to the initial on-orbit values of 178 and 175 for Segments A and B. Several dark exposures will also be taken at the higher voltage.

OBSERVING DESCRIPTION

Visit UP: FUV power cycle and Special Commands in order to increase the HV max levels to 178 (A) and 175 (B), followed by ramping up the HV to these levels.

Visit DK: Five 1330 second dark exposures at the increased HV levels.

Visit HV: Observations of standard star WD1057+719 at the increased HV levels, using G160M/1577 at all 4 FP-POS positions.

Visit DN: Return the HV to nominal values (169 and 167) via Special Commanding.

Visit LV: Repeat of Visit HV, but at nominal voltage levels.

CALIBRATION JUSTIFICATION

The data collected will be used to determine if a "permanent" high voltage increase should be made in order to increase the gain of the microchannel plates.

ADDITIONAL COMMENTS

IMPORTANT Scheduling Constraint:

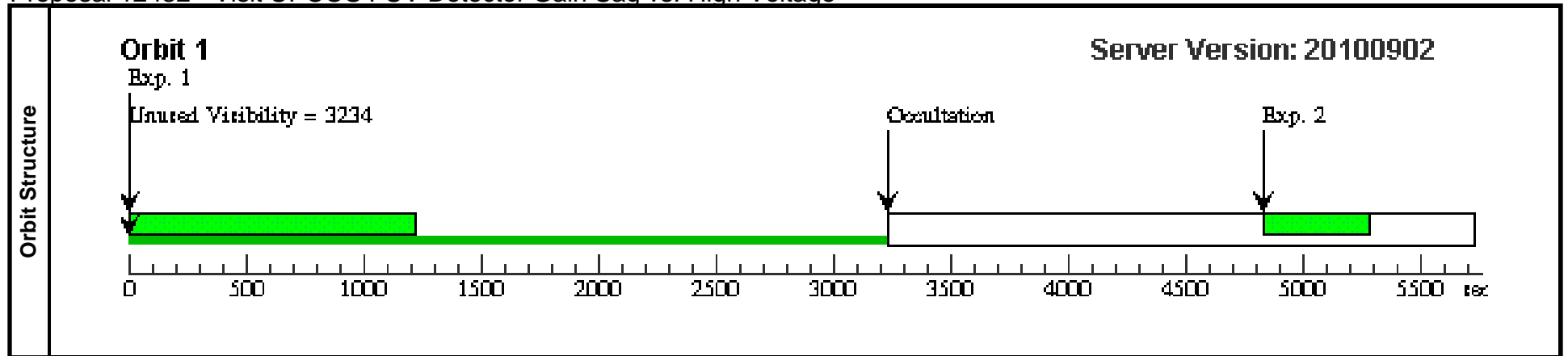
The Sequence UP, DK, HV and DN **MUST** be scheduled during the same SAA-Free time with no other COS observations between any of the visits. Also, schedule as soon as possible after the calendar's 12046 visit with no other COS/FUV between the 12046 and 1242301.

Visit LV has been specified to occur within 2 days of Visit DN, but this is somewhat flexible, and can be adjusted if necessary.

Proposal 12432 - Visit UPCOS FUV Detector Gain Sag vs. High Voltage

Wed Nov 24 02:28:20 GMT 2010

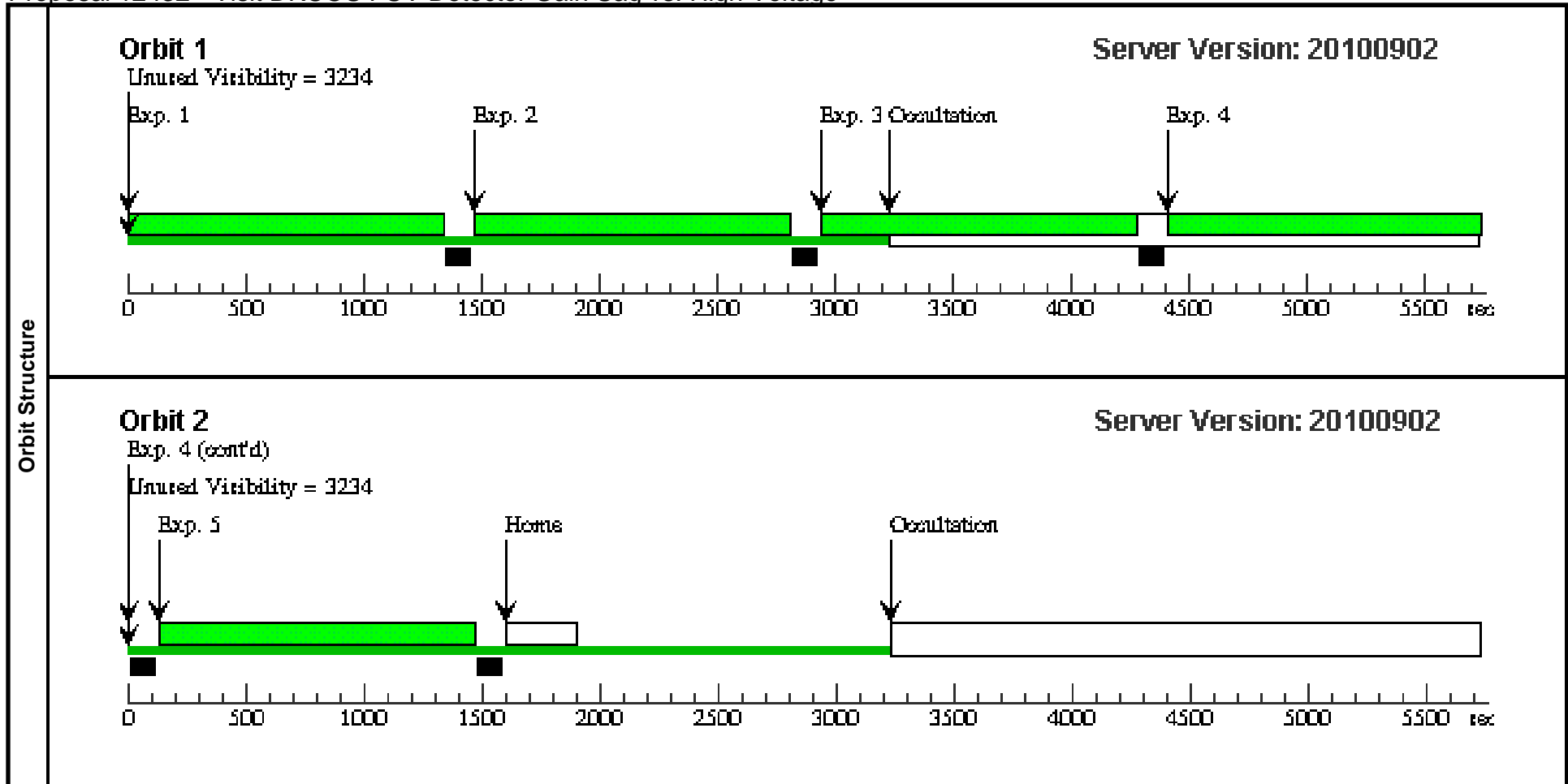
Visit	<p>Proposal 12432, Visit UP Diagnostic Status: Warning Scientific Instruments: S/C Special Requirements: PARALLEL <i>Comments: This visit does an FUV HV power cycle (HVLOW to Operate, followed by Operate to HVLOW) in order to change the maximum allowed HV levels for the FUV detector, then modifies the levels and brings up the HV.</i></p>									
Diagnostics	<p>(Visit UP) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU</p>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	HV Power Cycle	DARK	S/C, DATA, NONE			SPEC COM INSTR ELSETHVMAX; QASISTATES COS SI OPERATE OPER ATE; QASISTATES COS FUV BOOT HVLO W; QASISTATES COS NUV HVSAA HVS AA; QESIPARM MAXH VA 178; QESIPARM MAXH VB 175		1235 Secs [==>]	[1]
	<p><i>Comments: A transition to Operate and back to HVLOW is required in order to change the maximum HV levels to 178 (Segment A) and 175 (Segment B).</i></p>									
	2	Modify HV Levels	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; AFTER BY 4835 S; NEW ALIGNMENT ; QASISTATES COS SI OPERATE OPER ATE; QASISTATES COS FUV HVLOW HVN OM; QASISTATES COS NUV HVSAA HVS AA; QESIPARM ENDC TSA 178; QESIPARM ENDC TSB 175		465 Secs [==>]	[1]
	<p><i>Comments: Increase the HV level to 178 (Segment A) and 175 (Segment B). Includes a 1 hour CARD wait.</i></p>									



Proposal 12432 - Visit DKCOS FUV Detector Gain Sag vs. High Voltage

Wed Nov 24 02:28:22 GMT 2010

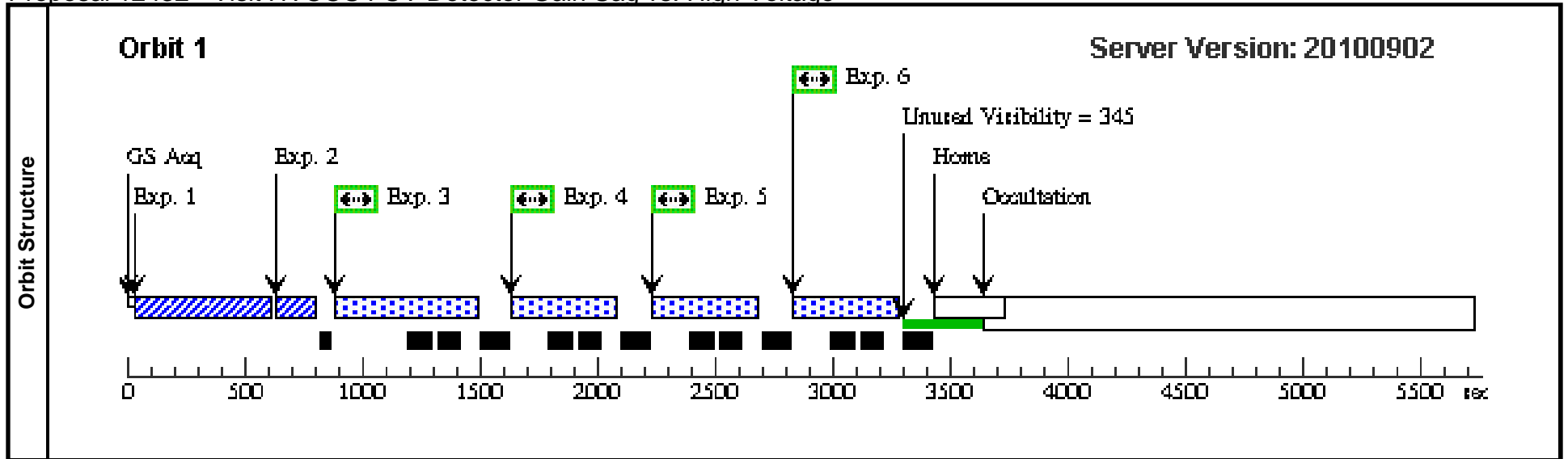
Visit	Proposal 12432, Visit DK Diagnostic Status: Warning Scientific Instruments: COS/FUV Special Requirements: AFTER UP BY 0 Orbits TO 2 Orbits <i>Comments: Take five dark exposures at higher than nominal voltage. Must be done after the HV is increased, and without any intervening SAAs.</i>										
	Diagnostics	(Visit DK) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures		#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Dark Exposure 1	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=13 30				1330.0 Secs [==>]	[1]
	2	Dark Exposure 2	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=13 30	NEW ALIGNMENT			1330.0 Secs [==>]	[1]
	3	Dark Exposure 3	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=13 30	NEW ALIGNMENT			1330.0 Secs [==>]	[1]
	4	Dark Exposure 4	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=13 30	NEW ALIGNMENT			1330.0 Secs [==>]	[1]
	5	Dark Exposure 5	DARK	COS/FUV, TIME-TAG, DEF	DEF	BUFFER-TIME=13 30	NEW ALIGNMENT			1330.0 Secs [==>]	[2]



Proposal 12432 - Visit HVCOS FUV Detector Gain Sag vs. High Voltage

Wed Nov 24 02:28:24 GMT 2010

Visit	Proposal 12432, Visit HV, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: AFTER DK BY 0 Orbits TO 2 Orbits Comments: Standard star observation at higher than nominal voltage. To be done after the HV is increased, and without any intervening SAAs.									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.00973sec of time/yr Proper Motion Dec: -0.02arcsec/yr Epoch of Position: 2000	V=14.68+/-	Reference Frame: ICRS			
	Comments: HST FASTEX standard PM, coords from USNOB GSC2 coords are 11:00:34.25, +71:38:02.97 1997.19 epoch									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	MIRRORA - ACQ/SEA RCH	(1) WD1057+719	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767			35 Secs [==>]	[1]
	Comments: Spectroscopic acquisition - step 1									
	2	MIRRORA - ACQ/IMA GE	(1) WD1057+719	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				35 Secs [==>]	[1]
	Comments: Spectroscopic acquisition - step 2									
	3	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=1; FLASH=YES			395 Secs [==>]	[1]
	4	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=2; FLASH=YES			395 Secs [==>]	[1]
5	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=3; FLASH=YES			395 Secs [==>]	[1]	
6	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=4; FLASH=YES			395 Secs [==>]	[1]	



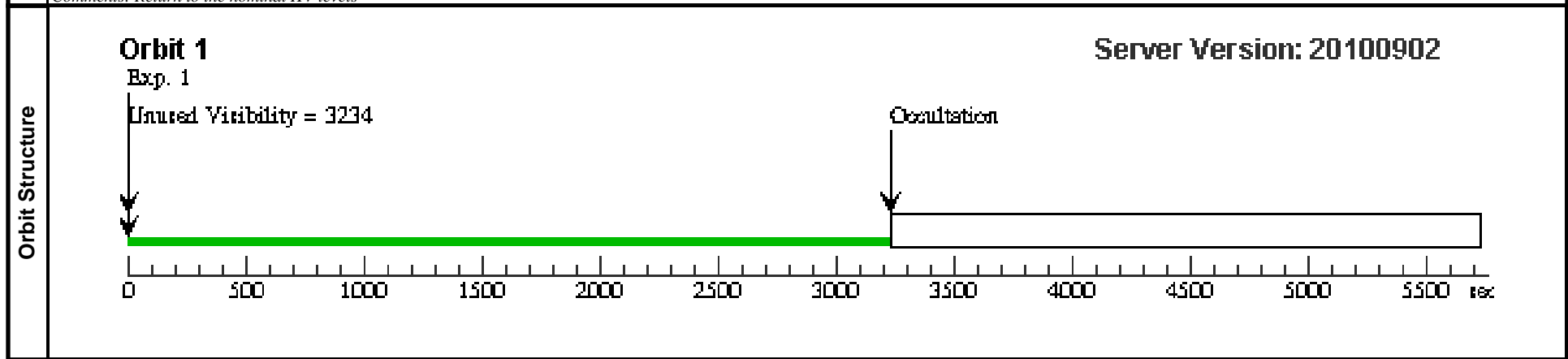
Proposal 12432 - Visit DNCOS FUV Detector Gain Sag vs. High Voltage

Wed Nov 24 02:28:24 GMT 2010

Visit
Proposal 12432, Visit DN
Diagnostic Status: No Diagnostics
 Scientific Instruments: S/C
 Special Requirements: AFTER HV BY 0 Orbits TO 1 Orbits; PARALLEL
Comments: Return to nominal HV levels. Note that the HV Max levels are left at 178 and 175.

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Return to nominal HV levels	DARK	S/C, DATA, NONE			QASISTATES COS SI OPERATE OPERATE; QASISTATES COS FUV HVLOW HVL OW; QASISTATES COS NUV HVSAA HVS AA		0 Secs [==>]	[1]

Comments: Return to the nominal HV levels



Proposal 12432 - Visit LVCOS FUV Detector Gain Sag vs. High Voltage

Wed Nov 24 02:28:25 GMT 2010

Visit	Proposal 12432, Visit LV, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: AFTER DN BY 1 Orbits TO 2 D Comments: Standard star observation at nominal voltage. To be executed after the HV is returned to its nominal value. Aside from voltage levels, identical to visit HV.																
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>WD1057+719</td> <td>RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000</td> <td>Proper Motion RA: -0.00973sec of time/yr Proper Motion Dec: -0.02arcsec/yr Epoch of Position: 2000</td> <td>V=14.68+/-</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> Comments: HST FASTEX standard PM, coords from USNOB GSC2 coords are 11:00:34.25, +71:38:02.97 1997.19 epoch					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.00973sec of time/yr Proper Motion Dec: -0.02arcsec/yr Epoch of Position: 2000	V=14.68+/-
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	Comments: Spectroscopic acquisition - step 1																
	2	MIRRORA - ACQ/IMA GE	(1) WD1057+719	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				35 Secs [==>]	[1]							
	Comments: Spectroscopic acquisition - step 2																
	3	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=1; FLASH=YES			395 Secs [==>]	[1]							
	4	G160M - 15 77	(1) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=12 5; FP-POS=2; FLASH=YES			395 Secs [==>]	[1]							
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