



12426 - FUV Sensitivity Characterization

Cycle: 18, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Derck L. Massa (PI)	Space Telescope Science Institute	massa@stsci.edu

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>
01	(2) WD-1057+719	COS/FUV COS/NUV	6	11-Feb-2011 21:15:40.0	yes
02	(1) WD-0308-565	COS/FUV COS/NUV	4	11-Feb-2011 21:16:08.0	yes
03	(3) WD1057+719	COS/FUV COS/NUV	6	11-Feb-2011 21:16:35.0	yes

16 Total Orbits Used

ABSTRACT

Obtain high S/N G130M and G160M data to characterize how the sensitivity depends on CENWAVE settings and to establish an accurate flux calibration. These data will also allow us to monitor changes in the COS detector flat fields.

OBSERVING DESCRIPTION

To fully characterize the flux calibration, we require high S/N spectra at each CENWAVE setting at the same time. This, in turn, requires spectra with S/N greater than about 10 per pixel (or 25 per resolution element) at each of the 4 FP-POS settings so that a high S/N spectrum that is free of flat

field effects can be derived. For the standard stars available, this will require 1 orbit per CENWAVE setting, or 10 orbits in all. We cannot adopt brighter standards, since then we would be forced to either:

- 1) use the ACCUM mode, or;
- 2) use the time tag mode and accept that some counts will be lost because the electronics cannot keep up with the count rate.

In the first case, the PHA information needed to calibrate time tagged data (which are PHA filtered) is lost. In the second case, it seems unwise to pin a precise flux calibration on data which require an additional level of assumptions (i.e., that the missed counts are randomly distributed in position and that the detector remains linear in the high count rate regime) compared to typical data. Although we do have recent high S/N standard star data for 2 G160M CENWAVE settings, it would be best to obtain all of the flux calibration at the same epoch, since we know that the instrumental sensitivity is time dependent. Finally, although these data will have about half the counts of the flat field data, they will be adequate for us to examine the time dependence of the COS flat fields. This is very important since we have already detected differences between the flats derived from program 12086 and those derived from the SMOV data high S/N program 11494 obtained 11 months earlier.

CALIBRATION JUSTIFICATION

COS FUV flux calibration observations of primary standards were obtained during SMOV. However, our understanding of the instrument and target acquisition strategies have changed dramatically since then. Consequently, we feel that a new set of observations are now needed to produce a high quality flux calibration. Specifically, as a consequence of the high S/N data obtained during Cycle 17, we now recognize that there can be 5-10% differences in the instrumental response at the same wavelength for spectra obtained at different CENWAVE positions. While the exact origin of these differences is not yet understood (possibly from large scale flat field variations or small changes in the grating illumination), they must be accurately characterized to achieve an absolute flux calibration with a precision better than 5%. The CENWAVE differences were not appreciated in the SMOV data because uncertainties in the initial instrumental response lead to conservative brightness limits and poorly exposed spectra which, together with unexpectedly strong fixed pattern noise, masked the effect.

Proposal 12426 - Visit 01 - FUV Sensitivity Characterization

Sat Feb 12 02:16:49 GMT 2011

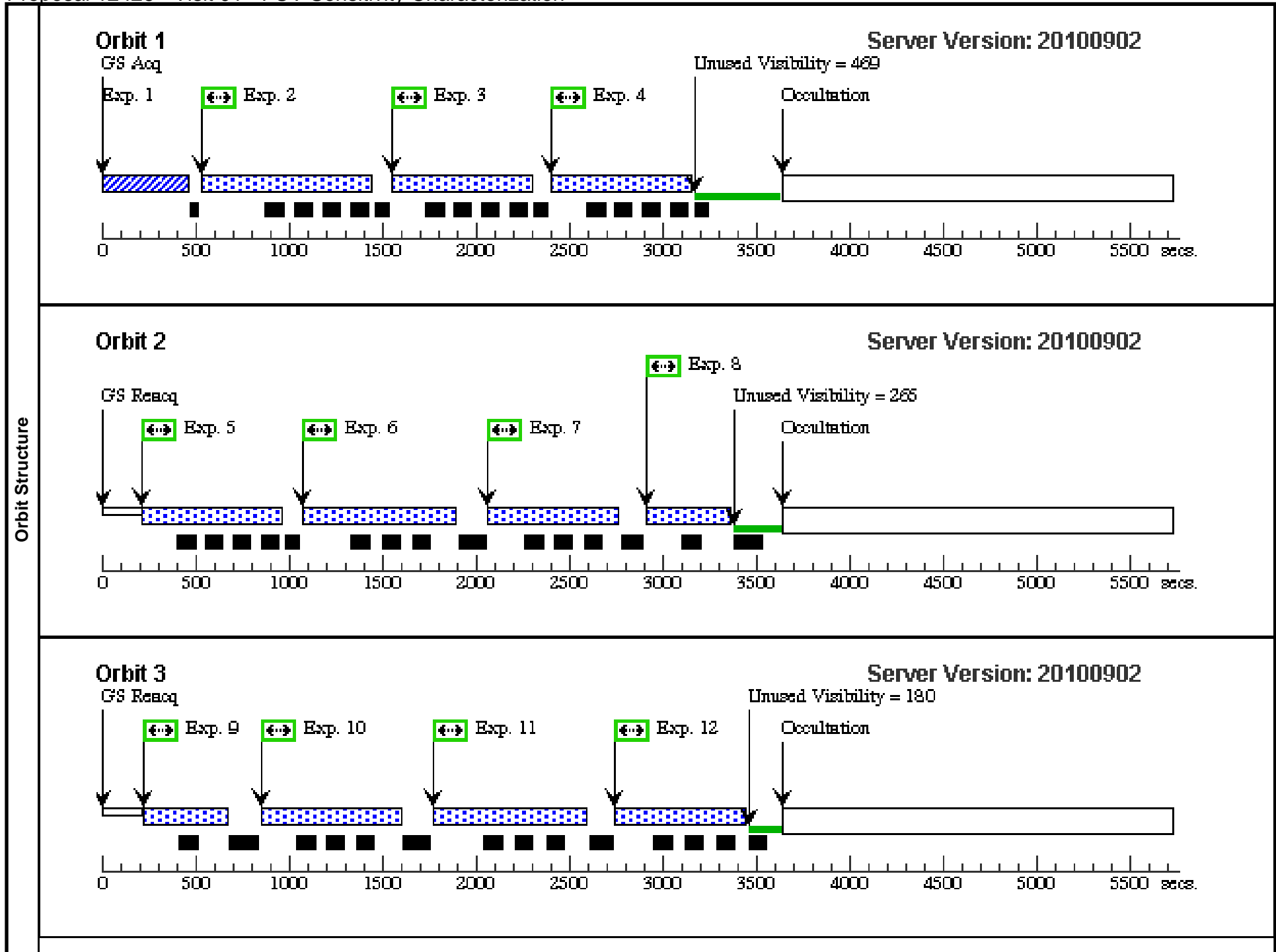
Visit	<p>Proposal 12426, Visit 01, completed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/NUV, COS/FUV</p> <p>Special Requirements: BEFORE 15-FEB-2011:00:00:00</p> <p><i>Comments: WD1057 - MIRRORA/BOA = COS.A366794 S/N = 60, T = 32.7319</i></p> <p><i>WD1057 G160M S/N = 25</i></p> <p><i>COS.A366771 - 1577 @ 1650 643s buffer time = 223 -- S/N = 20 at longest lam</i></p> <p><i>COS.A366774 - 1623 @ 1750 1096s = 298</i></p>																												
Diagnostics	<p>(Visit 01) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.</p>																												
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>(2)</td> <td>WD-1057+719</td> <td>RA: 11 00 32.6900 (165.1362083d)</td> <td>Proper Motion RA: -0.0097 sec of time/yr</td> <td>V=14.68</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td></td> <td>Dec: +71 38 0.00 (71.63333d)</td> <td>Proper Motion Dec: -0.020 arcsec/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Epoch of Position: 2000</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(2)	WD-1057+719	RA: 11 00 32.6900 (165.1362083d)	Proper Motion RA: -0.0097 sec of time/yr	V=14.68	Reference Frame: ICRS			Dec: +71 38 0.00 (71.63333d)	Proper Motion Dec: -0.020 arcsec/yr					Equinox: J2000	Epoch of Position: 2000						
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																								
(2)	WD-1057+719	RA: 11 00 32.6900 (165.1362083d)	Proper Motion RA: -0.0097 sec of time/yr	V=14.68	Reference Frame: ICRS																								
		Dec: +71 38 0.00 (71.63333d)	Proper Motion Dec: -0.020 arcsec/yr																										
		Equinox: J2000	Epoch of Position: 2000																										

Proposal 12426 - Visit 01 - FUV Sensitivity Characterization

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) WD-1057+719	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				35 Secs [==>]	[1]
	2		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=1; BUFFER-TIME=15 0			700 Secs [==>]	[1]
	3		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=2; BUFFER-TIME=15 0			700 Secs [==>]	[1]
	4		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=3; BUFFER-TIME=15 0			700 Secs [==>]	[1]
	5		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=4; BUFFER-TIME=15 0			700 Secs [==>]	[2]
	6		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=1; BUFFER-TIME=16 0			700 Secs [==>]	[2]
	7		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=2; BUFFER-TIME=16 0			650 Secs [==>]	[2]
	8		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=16 0			400 Secs [==>]	[2]
	9		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=3; BUFFER-TIME=16 0			400 Secs [==>]	[3]
	10		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	FP-POS=4; BUFFER-TIME=16 0			700 Secs [==>]	[3]
	11		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=1; BUFFER-TIME=17 0			700 Secs [==>]	[3]
	12		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=2; BUFFER-TIME=17 0			650 Secs [==>]	[3]
	13		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=17 0			700 Secs [==>]	[4]
	14		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=4; BUFFER-TIME=17 0			700 Secs [==>]	[4]
	15		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=1; BUFFER-TIME=18 0			700 Secs [==>]	[4]
16		(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=2; BUFFER-TIME=18 0			300 Secs [==>]	[4]	

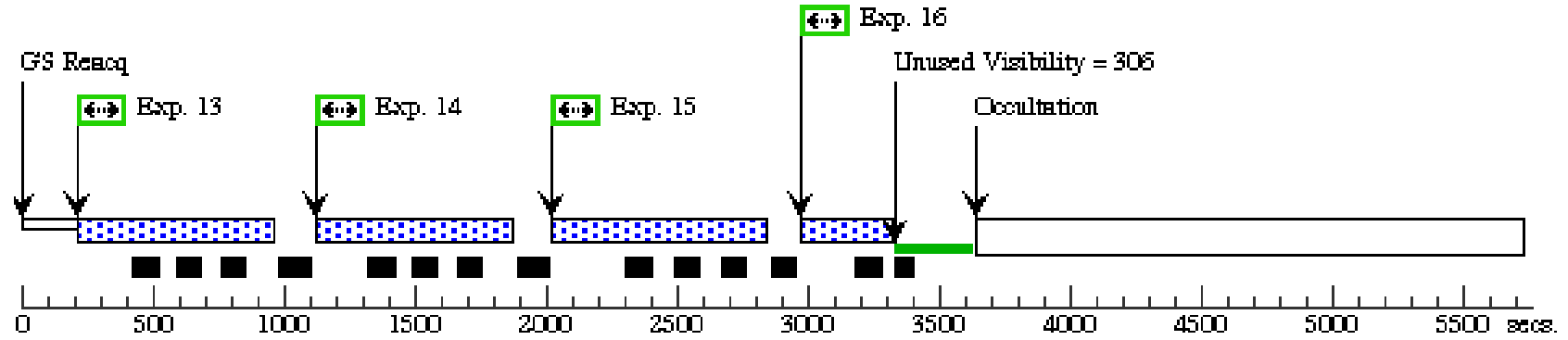
Proposal 12426 - Visit 01 - FUV Sensitivity Characterization

17	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=2; BUFFER-TIME=18 0	400 Secs	
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18	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=3; BUFFER-TIME=18 0	700 Secs	
					[==>]	[5]
19	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	FP-POS=4; BUFFER-TIME=18 0	700 Secs	
					[==>]	[5]
20	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=1; BUFFER-TIME=19 0	650 Secs	
					[==>]	[5]
21	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=2; BUFFER-TIME=19 0	900 Secs	
					[==>]	[6]
22	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=3; BUFFER-TIME=19 0	900 Secs	
					[==>]	[6]
23	(2) WD-1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=4; BUFFER-TIME=19 0	900 Secs	
					[==>]	[6]



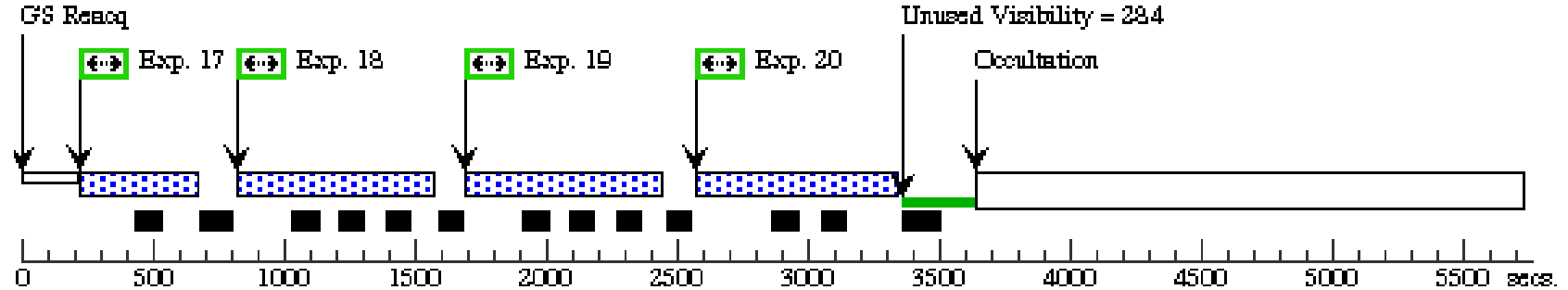
Orbit 4

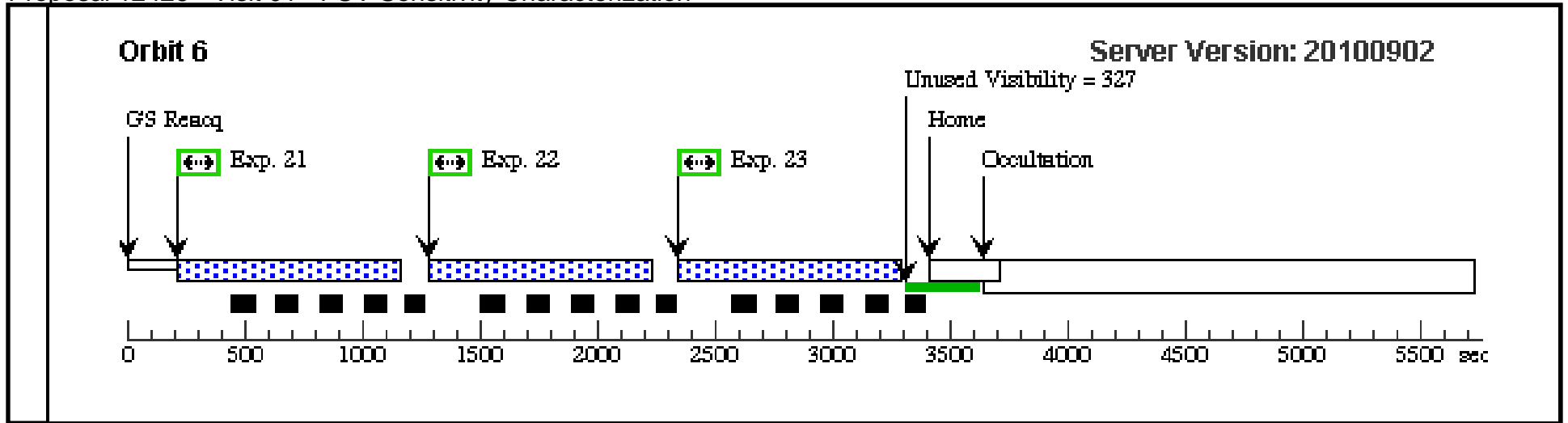
Server Version: 20100902



Orbit 5

Server Version: 20100902





Proposal 12426 - Visit 02 - FUV Sensitivity Characterization

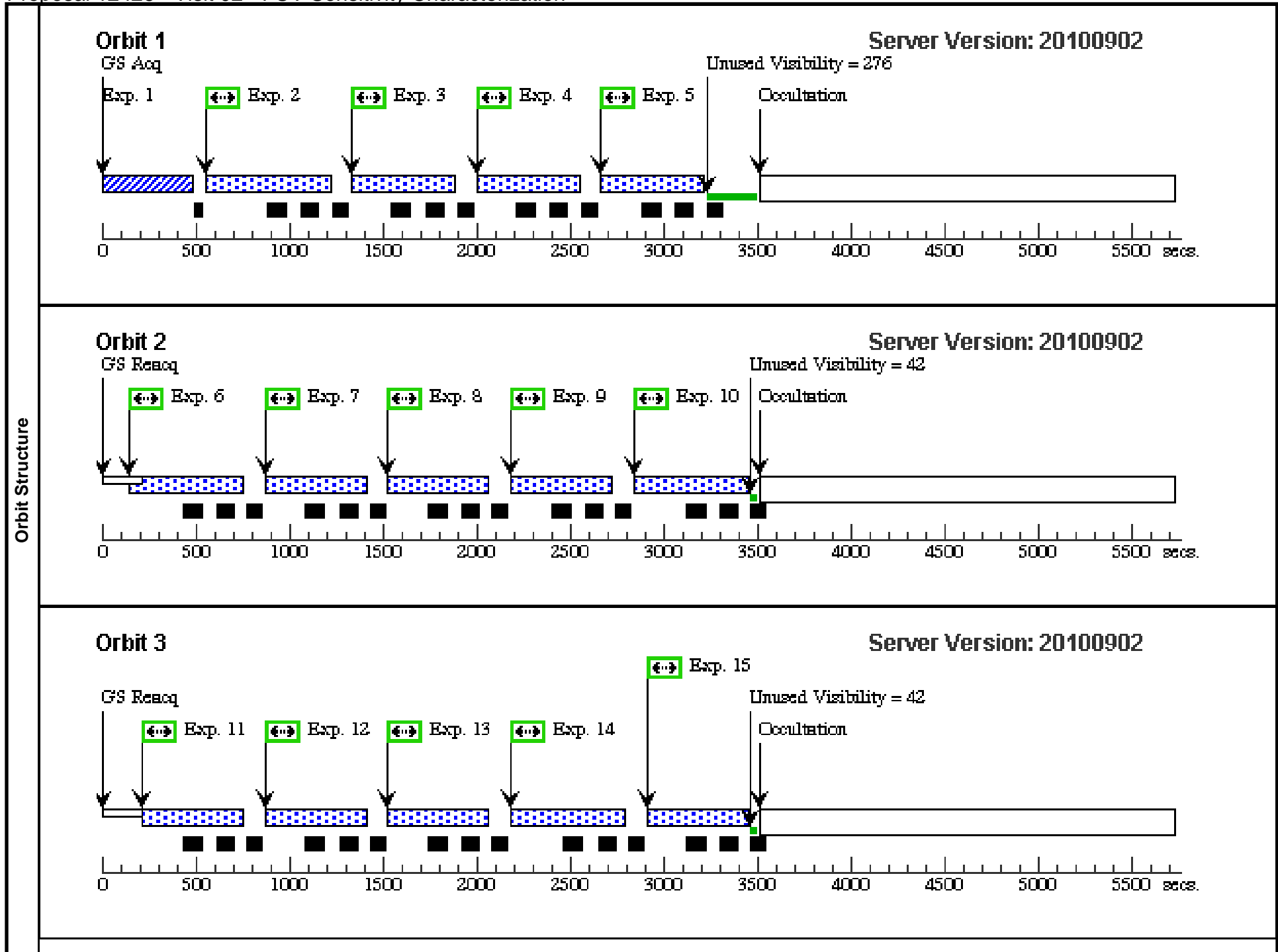
Visit	<p>Proposal 12426, Visit 02, completed Sat Feb 12 02:16:52 GMT 2011</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/NUV, COS/FUV</p> <p>Special Requirements: BETWEEN 28-NOV-2010:16:08:21 AND 12-JAN-2011:00:00:00</p> <p><i>Comments: WD0308 - MIRRORA/BOA = COS.A366798 S/N = 60, T = 44.0567</i> <i>WD0308 G130M S/N = 25 @ 1425</i> <i>COS.A366815 1291 - T = 481, Buffer = 269 *2/3 = 179</i> <i>COS.A366816 1327 - T = 481, Buffer = 269 = 179</i></p>																
	<p>Diagnosics (Visit 02) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.</p>																
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>WD-0308-565</td> <td>RA: 03 09 47.9100 (47.4496250d) Dec: -56 23 49.50 (-56.39708d) Equinox: J2000</td> <td>Proper Motion RA: 0.113 arcsec/yr Proper Motion Dec: 0.030 arcsec/yr Epoch of Position: 2000</td> <td>V=14.07</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	WD-0308-565	RA: 03 09 47.9100 (47.4496250d) Dec: -56 23 49.50 (-56.39708d) Equinox: J2000	Proper Motion RA: 0.113 arcsec/yr Proper Motion Dec: 0.030 arcsec/yr Epoch of Position: 2000	V=14.07	Reference Frame: ICRS
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous											
(1)	WD-0308-565	RA: 03 09 47.9100 (47.4496250d) Dec: -56 23 49.50 (-56.39708d) Equinox: J2000	Proper Motion RA: 0.113 arcsec/yr Proper Motion Dec: 0.030 arcsec/yr Epoch of Position: 2000	V=14.07	Reference Frame: ICRS												

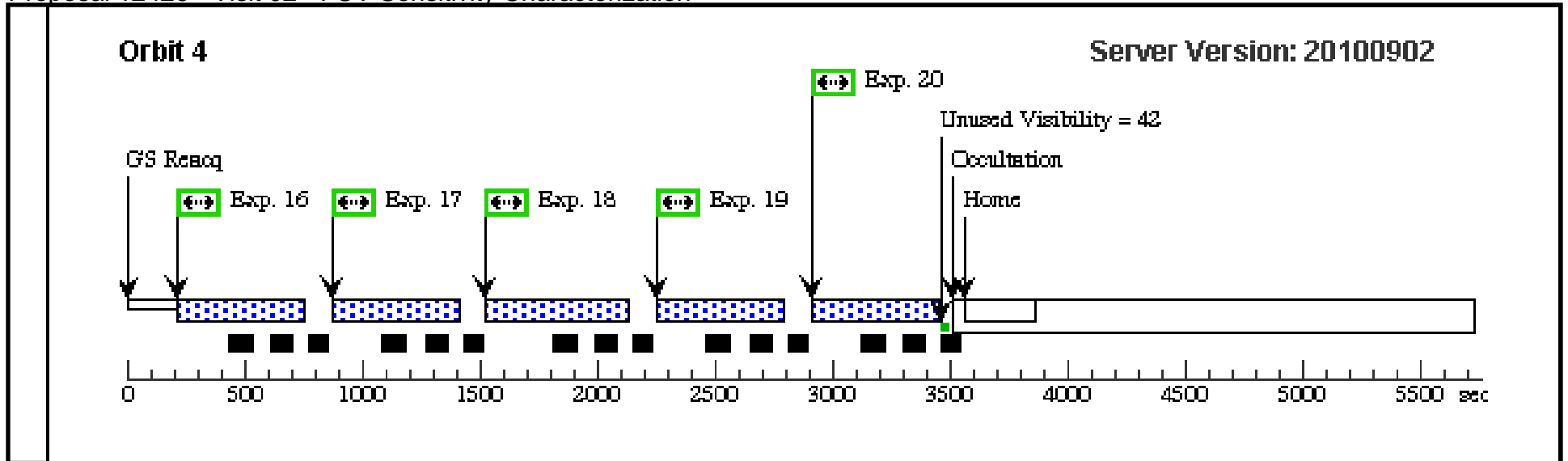
Proposal 12426 - Visit 02 - FUV Sensitivity Characterization

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) WD-0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs	
									[==>]	[1]
	2		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=18 0;			500 Secs	
							FP-POS=1		[==>]	[1]
	3		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=18 0;			500 Secs	
							FP-POS=2		[==>]	[1]
	4		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=18 0;			500 Secs	
							FP-POS=3		[==>]	[1]
	5		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=18 0;			500 Secs	
							FP-POS=4		[==>]	[1]
	6		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=18 0;			490 Secs	
							FP-POS=1		[==>]	[2]
	7		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=18 0;			490 Secs	
							FP-POS=2		[==>]	[2]
	8		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=18 0;			490 Secs	
						FP-POS=3		[==>]	[2]	
9		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1300 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=4		[==>]	[2]	
10		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=1		[==>]	[2]	
11		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=2		[==>]	[3]	
12		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=3		[==>]	[3]	
13		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=4		[==>]	[3]	
14		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=1		[==>]	[3]	
15		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=2		[==>]	[3]	
16		(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=18 0;			490 Secs		
						FP-POS=3		[==>]	[4]	

Proposal 12426 - Visit 02 - FUV Sensitivity Characterization

17	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1318 A	BUFFER-TIME=18 0; FP-POS=4	490 Secs	
					[==>]	[4]
18	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=18 0; FP-POS=1	490 Secs	
					[==>]	[4]
19	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=18 0; FP-POS=2	490 Secs	
					[==>]	[4]
20	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1327 A	BUFFER-TIME=18 0; FP-POS=3	490 Secs	
					[==>]	[4]





Proposal 12426 - Visit 03 - FUV Sensitivity Characterization

Sat Feb 12 02:16:53 GMT 2011

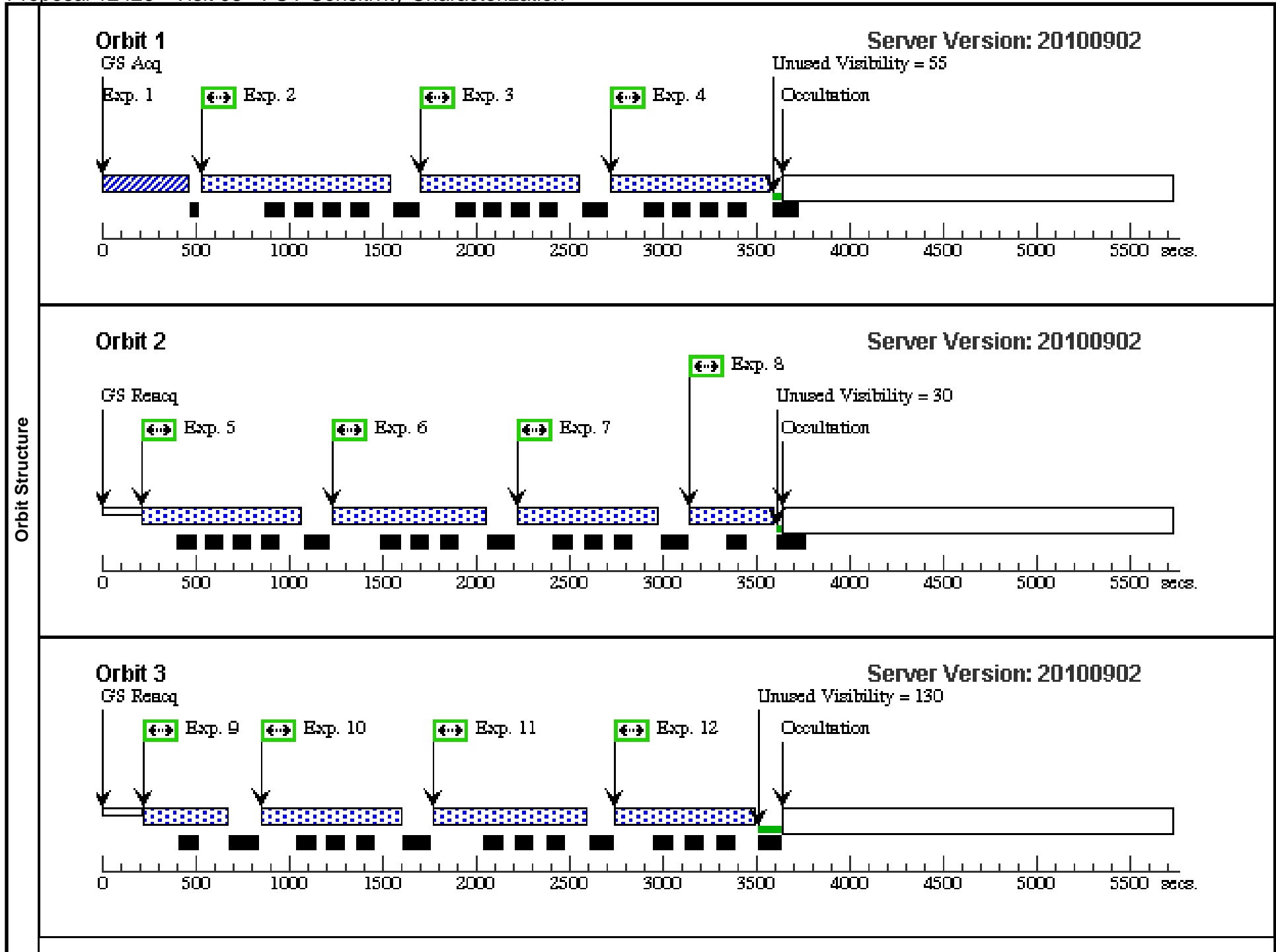
Visit	<p>Proposal 12426, Visit 03 Diagnostic Status: Warning Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none) <i>Comments: A redo of visit 2 with the proper coordinates</i></p>					
Diagnostics	(Visit 03) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/IMAGE.					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.0097 sec of time/yr Proper Motion Dec: -0.0200 arcsec/yr Epoch of Position: 2000	V=14.68	Reference Frame: ICRS

Proposal 12426 - Visit 03 - FUV Sensitivity Characterization

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(3) WD1057+719	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				35 Secs	
									[==>]	[1]
	2		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=15 0;			800 Secs	
									[==>]	[1]
							FP-POS=1			
	3		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=15 0;			800 Secs	
									[==>]	[1]
							FP-POS=2			
	4		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=15 0;			800 Secs	
									[==>]	[1]
							FP-POS=3			
	5		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=15 0;			800 Secs	
									[==>]	[2]
							FP-POS=4			
	6		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=16 0;			700 Secs	
								[==>]	[2]	
						FP-POS=1				
7		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=16 0;			700 Secs		
								[==>]	[2]	
						FP-POS=2				
8		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=16 0;			400 Secs		
								[==>]	[2]	
						FP-POS=3				
9		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=16 0;			400 Secs		
								[==>]	[3]	
						FP-POS=3				
10		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=16 0;			700 Secs		
								[==>]	[3]	
						FP-POS=4				
11		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=17 0;			700 Secs		
								[==>]	[3]	
						FP-POS=1				
12		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=17 0;			700 Secs		
								[==>]	[3]	
						FP-POS=2				
13		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=17 0;			700 Secs		
								[==>]	[4]	
						FP-POS=3				
14		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=17 0;			700 Secs		
								[==>]	[4]	
						FP-POS=4				
15		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=18 0;			700 Secs		
								[==>]	[4]	
						FP-POS=1				
16		(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=18 0;			500 Secs		
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						FP-POS=2				

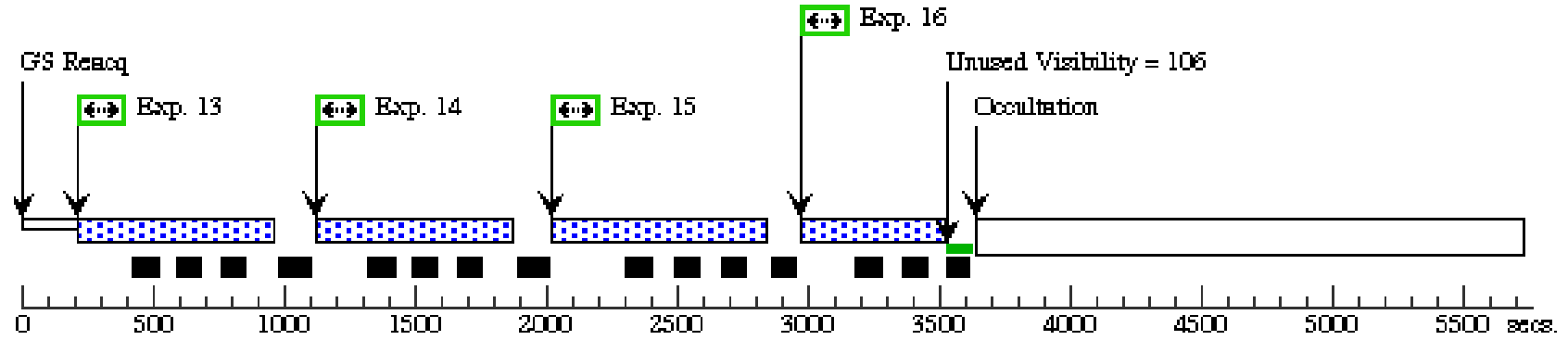
Proposal 12426 - Visit 03 - FUV Sensitivity Characterization

17	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=18 0; FP-POS=2	400 Secs	
					[==>]	[5]
18	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=18 0; FP-POS=3	700 Secs	
					[==>]	[5]
19	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=18 0; FP-POS=4	700 Secs	
					[==>]	[5]
20	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=19 0; FP-POS=1	800 Secs	
					[==>]	[5]
21	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=19 0; FP-POS=2	900 Secs	
					[==>]	[6]
22	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=19 0; FP-POS=3	1000 Secs	
					[==>]	[6]
23	(3) WD1057+719	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=19 0; FP-POS=4	1000 Secs	
					[==>]	[6]



Orbit 4

Server Version: 20100902



Orbit 5

Server Version: 20100902

