



12678 - COS/FUV Characterization of Optical Effects

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>
01	(1) SK191 NONE	COS COS/FUV	2	14-Oct-2011 21:07:10.0	yes
02	(1) SK191 NONE	COS COS/FUV	2	14-Oct-2011 21:07:38.0	yes
11	(1) SK191 NONE	COS COS/FUV	2	14-Oct-2011 21:08:00.0	yes

6 Total Orbits Used

ABSTRACT

Proposal 12678 (STScI Edit Number: 2, Created: Friday, October 14, 2011 8:08:14 PM EST) - Overview

This program will obtain COS FUV spectra of external targets at a range of cross-dispersion and dispersion positions in order to evaluate the optical performance of the spectrograph at different lifetime positions. Changes to throughput, resolution, gain, rotation, etc. as a function of position will be measured and compared to raytrace models. The data obtained in this program will be used, along with that from programs 12676 and 12677, to determine which positions are suitable for future science operations.

Initially (the first three visits), data will be collected at only G130M/1291, using all FP-POS positions. Followup observations may be made with the other FUV gratings once the initial results are examined.

OBSERVING DESCRIPTION

STRUCTURE:

This program currently consists of three two-orbit visits:

01 - G130M/1291

with (cross-dispersion, dispersion) = (0.0,0.0), (-3.0",0.0), (-6.0",0.0)

02 - G130M/1291 with (cross-dispersion, dispersion) = (0.0,0.0), (+3.0",0.0), (+6.0",0.0)

11 - G130M/1291 with (cross-dispersion, dispersion) = (0.0,0.0), (-3.0",-3.0"), (-3.0,+2.0")

More visits will likely be added once the initial data is evaluated.

Each visit follows the same pattern:

1. Perform an acquisition.
2. Take an exposure at the nominal position at one FP-POSs.
- 3a. Move the aperture to a position corresponding to an offset in the cross-dispersion and/or dispersion direction using ALIGN/APER.. Aperture positions are specified with the YAPER (XAPER) optional parameter, using a scale of -0.0476 arcseconds per YAPER (XAPER) step.
- 3b. Take an exposure with X and Y POS TARGs corresponding to the XAPER and YAPER value in the previous step. The ELNOAPMAIN special instruction is required for every exposure after an ALIGN/APER.
4. Repeat steps 2, 3a and 3b for the remaining positions.

TARGET COUNT RATES:

Both targets have been previously observed, so the count rates and spectra are known.

Previous observations of SK191 in G130M had ~ 2.5 c/s/resel; G160M had similar count rates. Thus, with exposure times of 300 seconds, we will obtain S/N of 40 - 50 per resel in this proposal.

LAMP FLASHES:

At locations where program 12677 has verified that there is no light leakage from the wavecal lamp, FLASH=YES has been used. At other locations, we have used FLASH=NO.

CALIBRATION JUSTIFICATION

Optical performance of the possible lifetime positions must be evaluated before moving to a new 'permanent' position.

ADDITIONAL COMMENTS

TIMING CONSTRAINTS:

Visits 01 and 02 have no constraints, and can be scheduled as soon as possible, since FLASH is set to NO for the +/-6" cross-dispersion position. If Program 12677 has completed and the lamp is found to be safe at -6", this proposal may be modified to set FLASH=YES in that case.

Visit 11 has no constraints since we have set FLASH=NO for the off-nominal exposures.

Proposal 12678 - Visit 01 - COS/FUV Characterization of Optical Effects

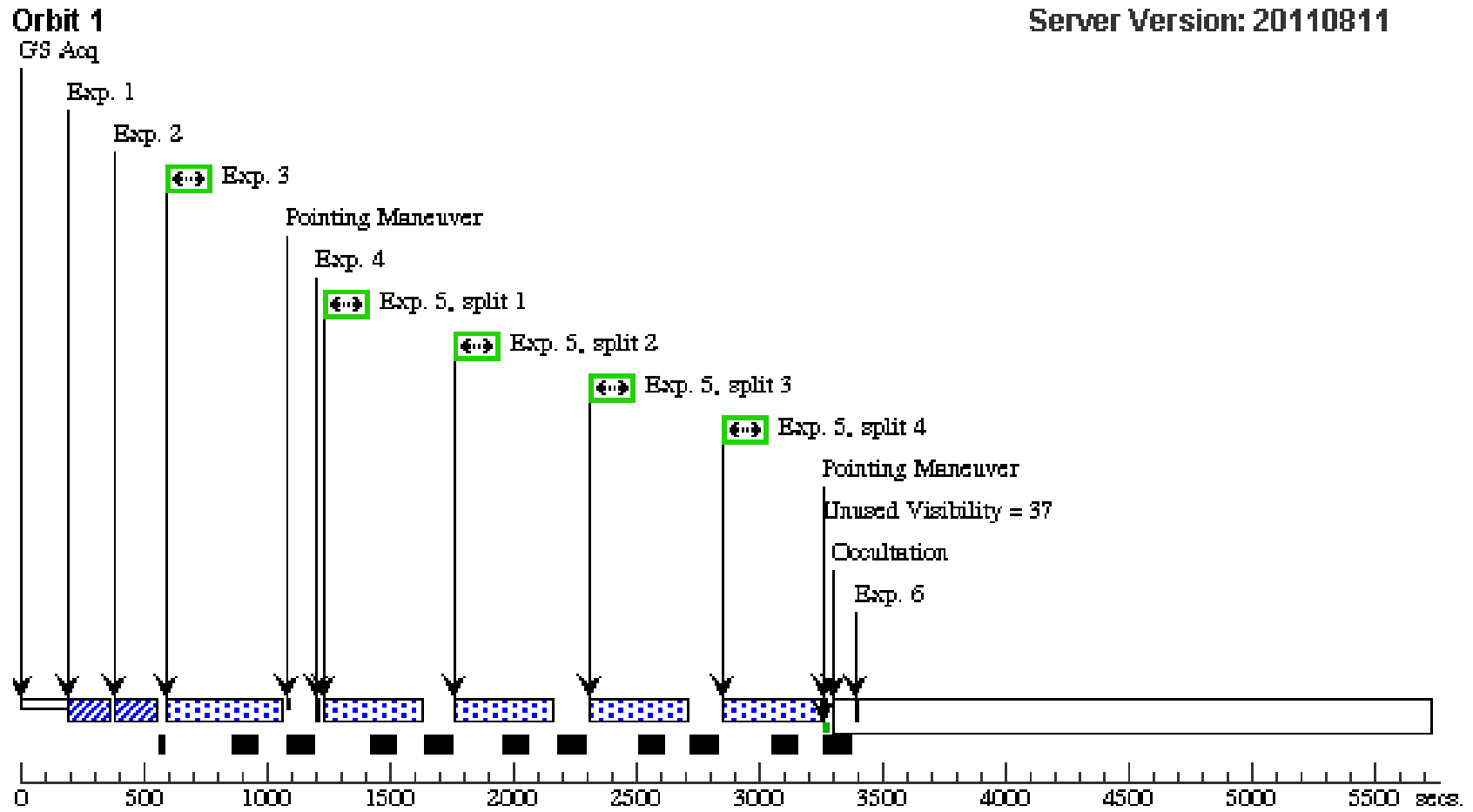
Sat Oct 15 01:08:15 GMT 2011

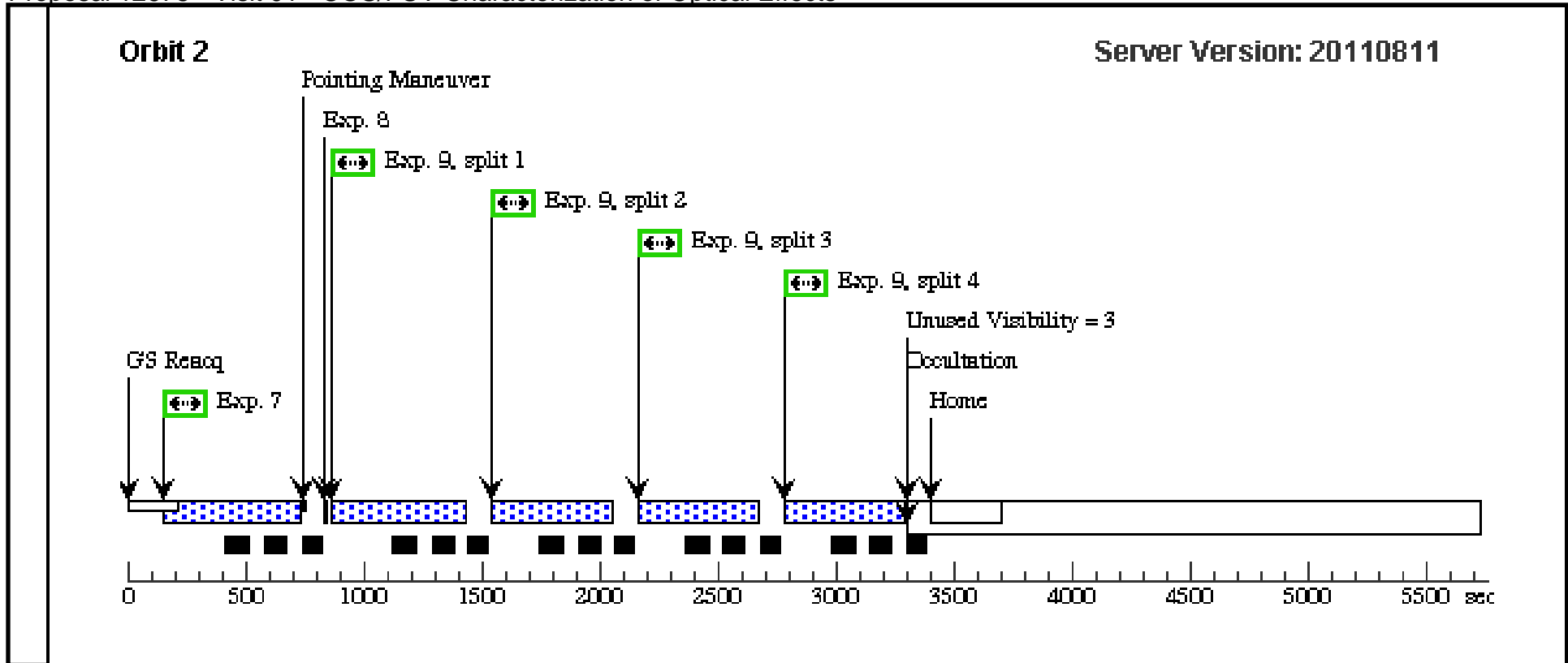
Visit	<p>Proposal 12678, Visit 01, scheduled</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/FUV, COS</p> <p>Special Requirements: SCHED 70%</p> <p><i>Comments: G130M/1291 at (cross-dispersion, dispersion) positions of (0.0",0.0"), (-3.0",0.0"), (-6.0",0.0")</i></p>						
	Diagnostics	<p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p>					
Fixed Targets		#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
		(1)	SK191	RA: 01 41 42.0723 (25.4253012d) Dec: -73 50 38.20 (-73.84394d) Equinox: J2000	Proper Motion RA: 3.19 mas/yr Proper Motion Dec: -2.90 mas/yr Epoch of Position: 1991.25	V=11.84	Reference Frame: ICRS

Proposal 12678 - Visit 01 - COS/FUV Characterization of Optical Effects

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	G130M/129 1 ACQ/PEA KXD (0)	(1) SK191	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs [==>]	[1]
2	G130M/129 1 ACQ/PEA KD (0)	(1) SK191	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=1.0			2 Secs [==>]	[1]
3	G130M/129 1/1 Exposure at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=1; FLASH=YES	POS TARG 0.0,0.0		300 Secs [==>347.0 Secs]	[1]
<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>									
4	Aperture at - 3.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=63; YAPER=0			0.0 Secs [==>]	[1]
<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: -3.0 arcsec (63 x -0.0476)</i>									
5	G130M/129 1/ALL Expo sure at -3.0 (XD) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=YES	POS TARG 0.0,-3.0; SPEC COM INSTR ELNOAPMAIN		300 Secs [==>347.0 Secs (Split 1)] [==>347.0 Secs (Split 2)] [==>347.0 Secs (Split 3)] [==>347.0 Secs (Split 4)]	[1]
<i>Comments: FUV Exposures at -3.0 arcsec with aperture at -3.0 arcsec.</i>									
6	Aperture at 0.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0			0.0 Secs [==>]	[1]
<i>Comments: Move aperture back to nominal position.</i>									
7	G130M/129 1/3 Exposure at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=3; FLASH=YES	POS TARG 0.0,0.0; SPEC COM INSTR ELNOAPMAIN		300 Secs [==>456.0 Secs]	[2]
<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>									
8	Aperture at - 6.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=126; YAPER=0			0.0 Secs [==>]	[2]
<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: -6.0 arcsec (126 x -0.0476)</i>									
9	G130M/129 1/ALL Expo sure at -6.0 (XD) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=NO; WAVECAL=NO	POS TARG 0.0,-6.0; SPEC COM INSTR ELNOAPMAIN		300 Secs [==>456.0 Secs (Split 1)] [==>456.0 Secs (Split 2)] [==>456.0 Secs (Split 3)] [==>456.0 Secs (Split 4)]	[2]
<i>Comments: FUV Exposures at -6.0 arcsec with aperture at -6.0 arcsec.</i>									
<i>FLASH currently set to NO, but this may change after the final visits of 12677 are completed.</i>									

Orbit Structure





Proposal 12678 - Visit 02 - COS/FUV Characterization of Optical Effects

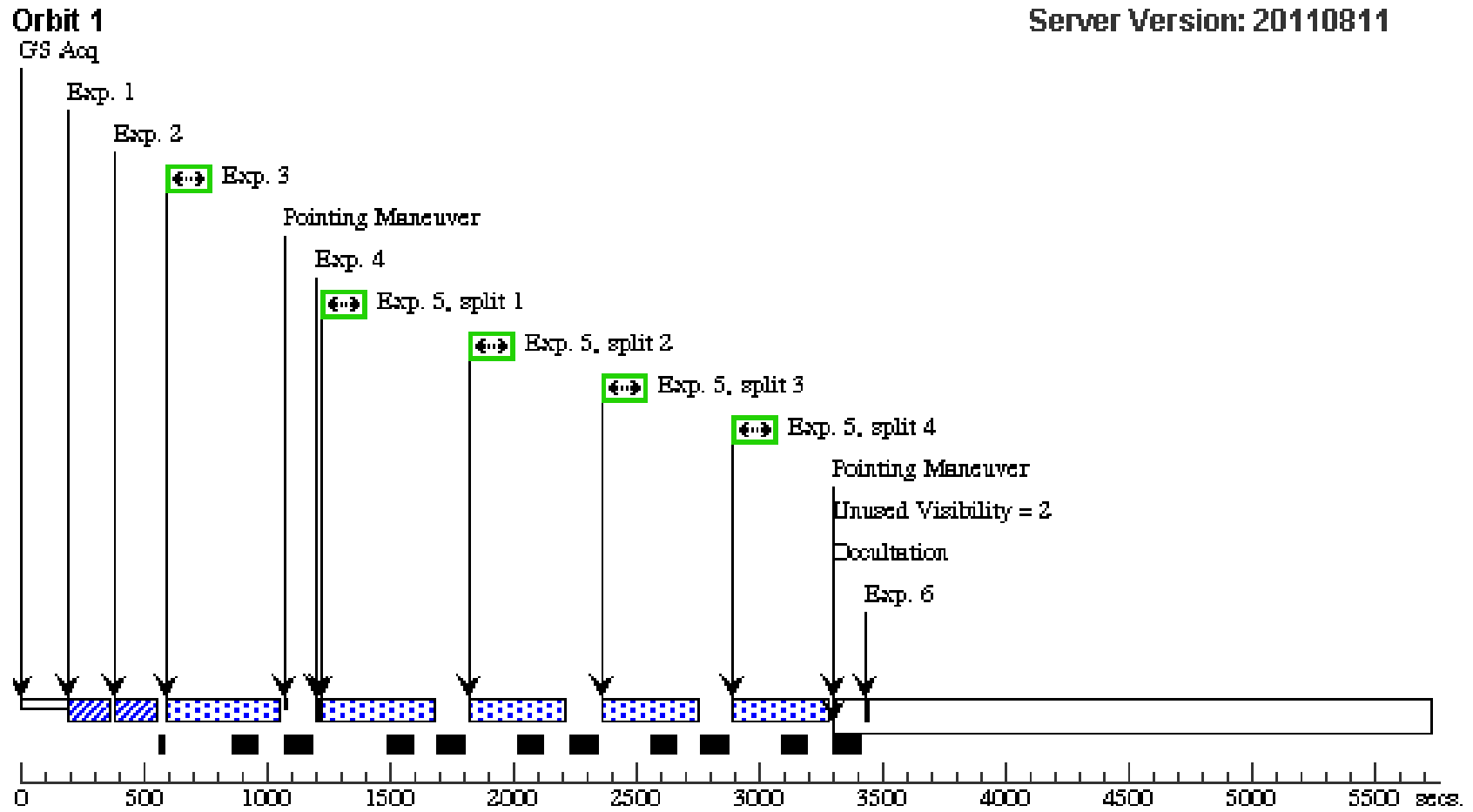
Sat Oct 15 01:08:18 GMT 2011

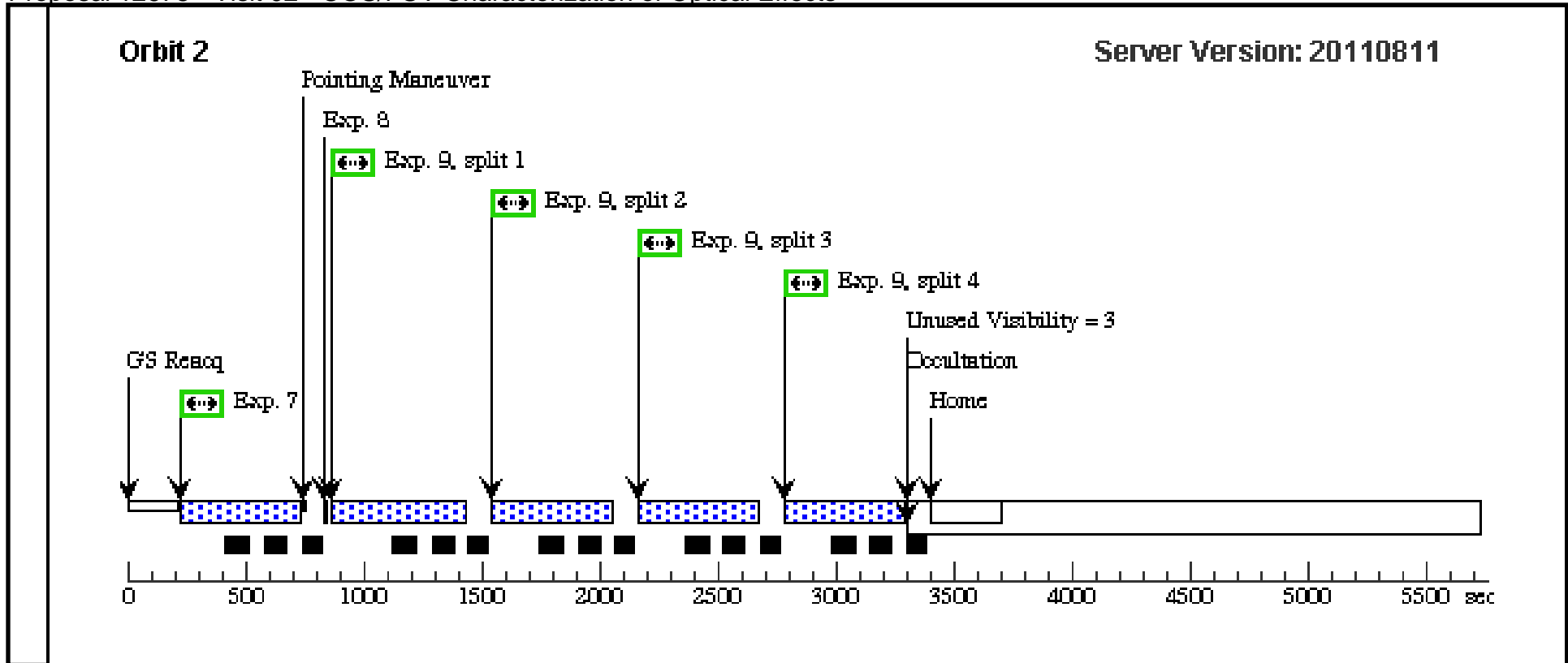
Visit	<p>Proposal 12678, Visit 02, scheduled</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: COS/FUV, COS</p> <p>Special Requirements: SCHED 70%</p> <p><i>Comments: G130M/1291 at (cross-dispersion, dispersion) positions of (0.0",0.0"), (+3.0",0.0"), (+6.0",0.0")</i></p>					
	Diagnostics	(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE				
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	SK191	RA: 01 41 42.0723 (25.4253012d) Dec: -73 50 38.20 (-73.84394d) Equinox: J2000	Proper Motion RA: 3.19 mas/yr Proper Motion Dec: -2.90 mas/yr Epoch of Position: 1991.25	V=11.84	Reference Frame: ICRS

Proposal 12678 - Visit 02 - COS/FUV Characterization of Optical Effects

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
Exposures	1	G130M/129 1 ACQ/PEA KXD (0)	(1) SK191	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A			2 Secs [==>]	[1]	
	2	G130M/129 1 ACQ/PEA KD (0)	(1) SK191	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=1.0		2 Secs [==>]	[1]	
	3	G130M/129 1/2 Exposure at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=2; FLASH=YES	POS TARG 0.0,0.0	300 Secs [==>340.0 Secs]	[1]	
	<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>									
	4	Aperture at +3.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=-63; YAPER=0		0.0 Secs [==>]	[1]	
	<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: +3.0 arcsec (-63 x -0.0476)</i>									
	5	G130M/129 1/ALL Expo sure at +3.0 (XD) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=YES	POS TARG 0.0,3.0; SPEC COM INSTR ELNOAPMAIN	300 Secs [==>340.0 Secs (Split 1)] [==>340.0 Secs (Split 2)] [==>340.0 Secs (Split 3)] [==>340.0 Secs (Split 4)]	[1]	
	<i>Comments: FUV Exposures at +3.0 arcsec with aperture at +3.0 arcsec.</i>									
	6	Aperture at 0.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0		0.0 Secs [==>]	[1]	
<i>Comments: Move aperture back to nominal position.</i>										
7	G130M/129 1/4 Exposure at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=4; FLASH=YES	POS TARG 0.0,0.0; SPEC COM INSTR ELNOAPMAIN	300 Secs [==>456.0 Secs]	[2]		
<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>										
8	Aperture at +6.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=-126; YAPER=0		0.0 Secs [==>]	[2]		
<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: +6.0 arcsec (-126 x -0.0476)</i>										
9	G130M/129 1/ALL Expo sure at +6.0 (XD) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=NO; WAVECAL=NO	POS TARG 0.0,6.0; SPEC COM INSTR ELNOAPMAIN	300 Secs [==>456.0 Secs (Split 1)] [==>456.0 Secs (Split 2)] [==>456.0 Secs (Split 3)] [==>456.0 Secs (Split 4)]	[2]		
<i>Comments: FUV Exposures at +6.0 arcsec with aperture at +6.0 arcsec.</i>										
<i>FLASH currently set to NO, but this may change after the final visits of 12677 are completed.</i>										

Orbit Structure





Proposal 12678 - Visit 11 - COS/FUV Characterization of Optical Effects

Sat Oct 15 01:08:20 GMT 2011

Visit	Proposal 12678, Visit 11 Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS Special Requirements: SCHED 80% <i>Comments: G130M/1291 at (cross-dispersion, dispersion) positions of (0.0",0.0"), (-3.0",-3.0"), (-3.0",+2.0")</i>				
	Diagnostics	(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE			
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
(Visit 11) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	SK191	RA: 01 41 42.0723 (25.4253012d) Dec: -73 50 38.20 (-73.84394d) Equinox: J2000	Proper Motion RA: 3.19 mas/yr Proper Motion Dec: -2.90 mas/yr Epoch of Position: 1991.25	V=11.84
					Miscellaneous
					Reference Frame: ICRS

Proposal 12678 - Visit 11 - COS/FUV Characterization of Optical Effects

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	G130M/129 1 ACQ/PEA KXD (0)	(1) SK191	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs [==>]	[1]
2	G130M/129 1 ACQ/PEA KD (0)	(1) SK191	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	NUM-POS=5; STEP-SIZE=1.0			2 Secs [==>]	[1]
3	G130M/129 1/1 Exposur e at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=1; FLASH=YES	POS TARG 0.0,0.0		300 Secs [==>]	[1]
<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>									
4	Aperture at - 3.0 arcsec (XD), -3.0 ar csec (D) (0)	NONE	COS, ALIGN/APER		XAPER=63; YAPER=-63			0.0 Secs [==>]	[1]
<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: -3.0 arcsec (63 x -0.0476), and in the dispersion direction of: -3.0 arcsec (-63 x 0.0476).</i>									
5	G130M/129 1/ALL Expo sure at -3.0 (XD), -3.0 (D) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=NO; WAVECAL=NO	POS TARG -3.0,-3.0 ; SPEC COM INSTR ELNOAPMAIN		335 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
<i>Comments: FUV Exposures at (-3.0, -3.0) arcsec (XD,D) with aperture at (-3.0, -3.0) arcsec. FLASH set to NO at non-standard dispersion locations.</i>									
6	Aperture at 0.0 arcsec (XD) (0)	NONE	COS, ALIGN/APER		XAPER=0; YAPER=0			0.0 Secs [==>]	[1]
<i>Comments: Move aperture back to nominal position.</i>									
7	G130M/129 1/3 Exposur e at 0.0 (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=3; FLASH=YES	POS TARG 0.0,0.0; SPEC COM INSTR ELNOAPMAIN		300 Secs [==>]	[2]
<i>Comments: FUV Exposure at 0.0 arcsec with aperture at 0.0 arcsec.</i>									
8	Aperture at - 3.0 arcsec (XD), +2.0 ar csec (D) (0)	NONE	COS, ALIGN/APER		XAPER=63; YAPER=42			0.0 Secs [==>]	[2]
<i>Comments: Move aperture to an alternate lifetime position. This corresponds to displacement in the cross-dispersion direction of: -3.0 arcsec (63 x -0.0476), and in the dispersion direction of: +2.0 arcsec (42 x 0.0476).</i>									
9	G130M/129 1/ALL Expo sure at -3.0 (D), +2.0 (D) (0)	(1) SK191	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=16 5; FP-POS=ALL; FLASH=NO; WAVECAL=NO	POS TARG 2.0,-3.0; SPEC COM INSTR ELNOAPMAIN		450 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[2]
<i>Comments: FUV Exposures at (-3.0, +2.0) arcsec (XD,D) with aperture at (-3.0, +2.0) arcsec. FLASH set to NO at non-standard dispersion locations.</i>									

Orbit Structure

