



13353 - Flux calibration of the COS FUV modes

Cycle: 21, Proposal Category: GO

(Calibration, UV Initiative)

(Availability Mode: SUPPORTED)

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) WD-0308-565	COS/FUV COS/NUV	4	13-Aug-2013 21:38:59.0	yes
02	(1) WD-0308-565	COS/FUV COS/NUV	4	13-Aug-2013 21:39:13.0	yes

8 Total Orbits Used

ABSTRACT

We intend to use a model atmosphere for the DB white dwarf WD0308-565 to calibrate COS below 1150 Ang. This model has been vetted at longer wavelengths, where it has been shown to agree with previous DA calibrations. However, unlike the DA standards, WD0309-565 contains very little hydrogen. This eliminates uncertainties in the physics of the Lyman stark wings which affect virtually all wavelengths below 1100 Ang. As a result, it will provide a superior, less biased calibration for COS at these wavelengths. These same data will be used to produce fixed pattern templates for the new COS FUV settings. These can be used to reduce the effects of the COS fixed pattern noise.

OBSERVING DESCRIPTION

We used the available STIS and FUSE spectra of WD0308-565 for the ETC calculations (COS.sp.490029 for CENWAVE 1055 and COS.sp.490065 for CENWAVE 1096). The exposure times are set by the counts on segment B (FUVB), since its wavelength coverage is short ward of the MgF2 cut off, where the COS response drops by a factor of 100. The ETC calculations show that in a 50 min. orbit, the count rate over the FUVB is relatively uniform at roughly $250 \text{ counts/resel/s} = 0.0028/\text{counts/pixel/s}$. Further, for 1055 and 1096 settings, the FUVB has a plate scale of $' 0:01\text{A}/\text{pixel}$. Using these numbers, we see that we can achieve our primary goal of a $S/N = 50/1$ over 1A bins with four 50 min. orbits (one at each FPPOS) for each CENWAVE. These will give a S/N of $58/1/\text{A}$.

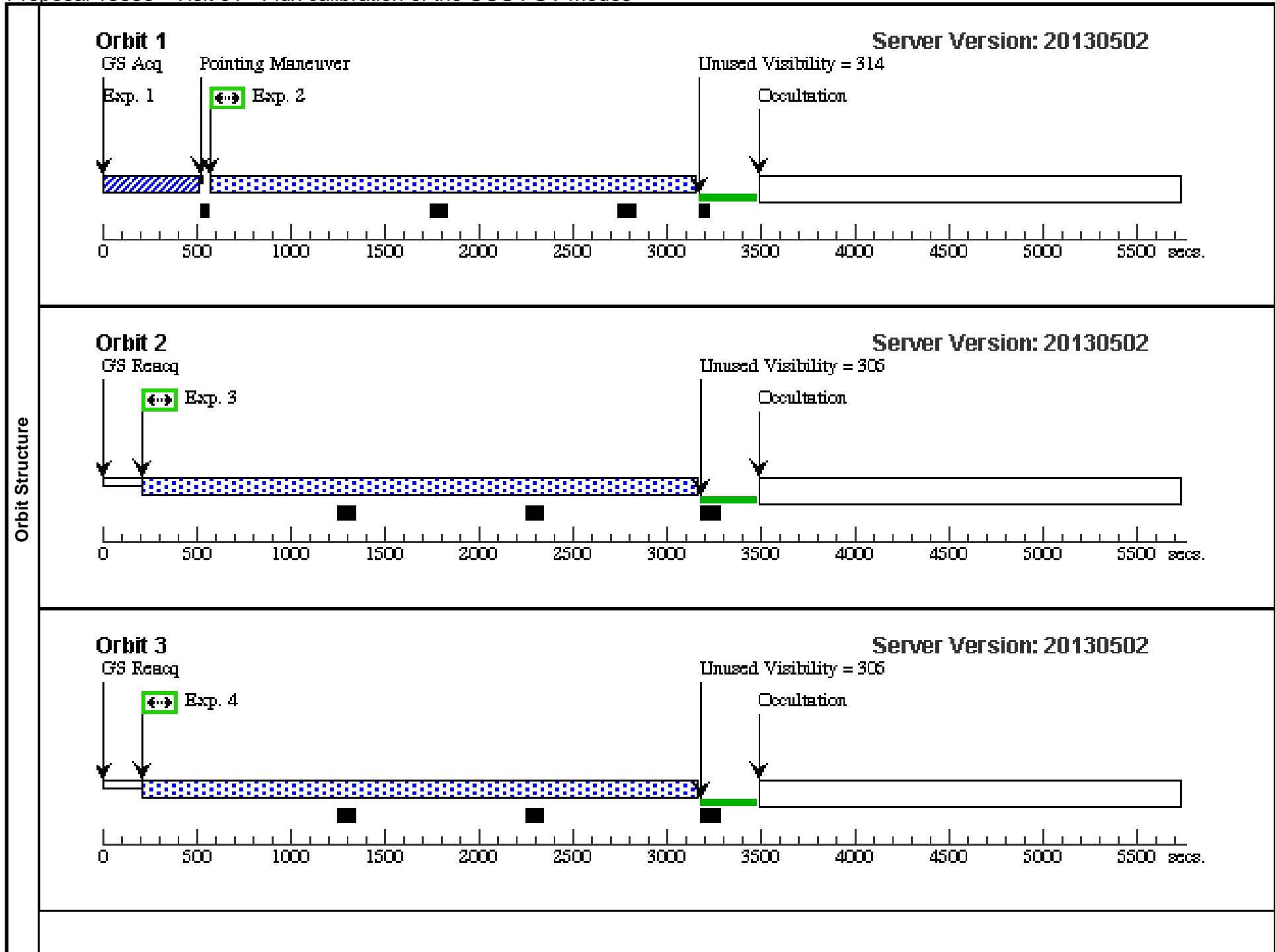
CALIBRATION JUSTIFICATION

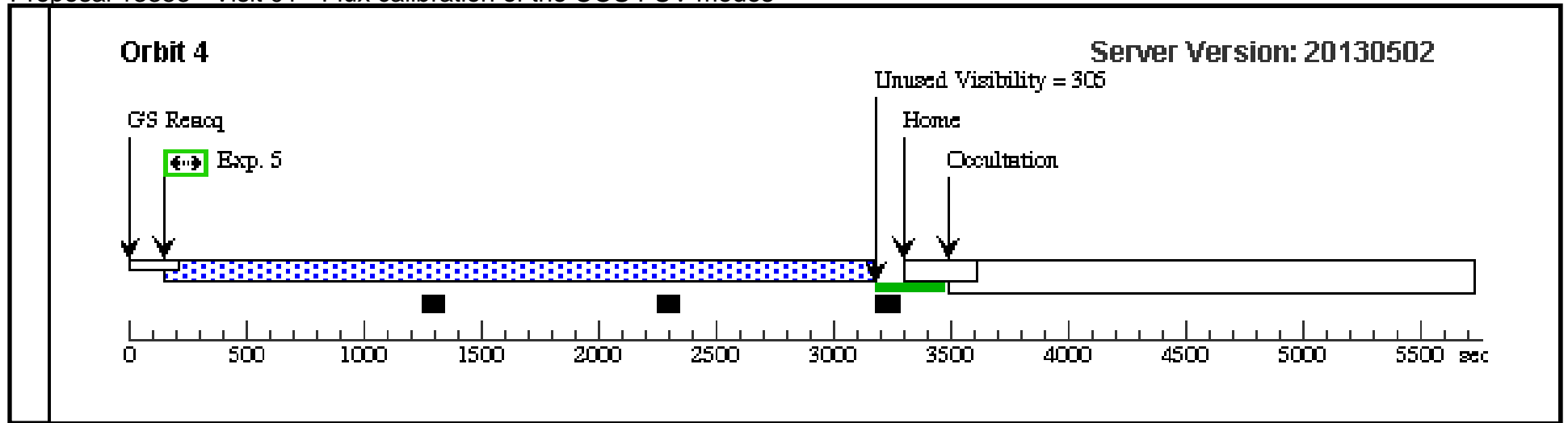
The goals of this proposal are straightforward: To produce a better FUV flux calibration for the COS FUV settings which is free of uncertainties due to Stark broadening of the Lyman lines and to develop a P-flat that will greatly enhance the data quality of all COS FUV data. Upon its completion, we will furnish STScI with sensitivity curves for the COS FUV CENWAVE 1055 and 1096 settings derived from the best available model atmosphere for the DB WD0308-565. We will also provide P-ats for these CENWAVEs. Because the P-flat is a 1-D correction for an inherently 2-D effect, a new P-flat must be determined for the FUV settings since they fall at a different cross-dispersion location on the detector than the traditional settings. The same observations used to derive the absolute flux calibration can be used to derive the P-ats as well, if adequate S/N is achieved.

Proposal 13353 - Visit 01 - Flux calibration of the COS FUV modes

Wed Aug 14 01:39:22 GMT 2013

Visit	Proposal 13353, Visit 01, implementation Diagnostic Status: Warning Scientific Instruments: COS/NUV, COS/FUV Special Requirements: GROUP 01.02 WITHIN 7D									
	(Visit 01) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS (Visit 01) 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				
	(1)	WD-0308-565	RA: 03 09 47.9200 (47.4496667d) Dec: -56 23 49.41 (-56.39706d) Equinox: J2000	Proper Motion RA: 150.6 mas/yr Proper Motion Dec: 64.3 mas/yr Epoch of Position: 2000	V=14.07+/-0.02	Reference Frame: ICRS				
<i>Comments: Coordinate information same as Prop 12795</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(513597)	(1) WD-0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				50 Secs (50 Secs) [==>]	[1]
	2	(513685)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1055 A	FP-POS=2; BUFFER-TIME=10 00			2400 Secs (2400 Secs) [==>]	[1]
	3	(513685)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1055 A	FP-POS=3; BUFFER-TIME=10 00			2900 Secs (2900 Secs) [==>]	[2]
	4	(513685)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1055 A	FP-POS=4; BUFFER-TIME=10 00			2900 Secs (2900 Secs) [==>]	[3]
	5	(513685)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1055 A	FP-POS=1; BUFFER-TIME=10 00			2900 Secs (2900 Secs) [==>]	[4]





Proposal 13353 - Visit 02 - Flux calibration of the COS FUV modes

Wed Aug 14 01:39:25 GMT 2013

Visit	Proposal 13353, Visit 02, implementation Diagnostic Status: Warning Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)									
	(Visit 02) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS (Visit 02) 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				
	(1)	WD-0308-565	RA: 03 09 47.9200 (47.4496667d) Dec: -56 23 49.41 (-56.39706d) Equinox: J2000	Proper Motion RA: 150.6 mas/yr Proper Motion Dec: 64.3 mas/yr Epoch of Position: 2000	V=14.07+/-0.02	Reference Frame: ICRS				
<i>Comments: Coordinate information same as Prop 12795</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(513597)	(1) WD-0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				50 Secs (50 Secs) [==>]	[1]
	2	(513683)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1096 A	FP-POS=2; BUFFER-TIME=70 0			2400 Secs (2400 Secs) [==>]	[1]
	3	(513683)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1096 A	FP-POS=3; BUFFER-TIME=70 0			2900 Secs (2900 Secs) [==>]	[2]
	4	(513683)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1096 A	FP-POS=4; BUFFER-TIME=70 0			2900 Secs (2900 Secs) [==>]	[3]
	5	(513683)	(1) WD-0308-565	COS/FUV, TIME-TAG, PSA	G130M 1096 A	FP-POS=1; BUFFER-TIME=70 0			2900 Secs (2900 Secs) [==>]	[4]

