18178 - COS FUV LP7 Calibration: Lamp Templates

Cycle: 33, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	WAVE	COS/FUV	2	10-Sep-2025 16:00:51.0	yes
02	WAVE	COS/FUV	2	10-Sep-2025 16:00:53.0	yes

4 Total Orbits Used

ABSTRACT

This program obtains COS FUV lamp template data at LP7 for the wavelength calibration of LP7 data. The dispersion coefficients vary with absolute focus position, and since the lamp template reference file currently in use for wavelength calibration was obtained at LP5 (G130M/1291), LP4 (G130M/1222), and LP2 (G130M/1055, 1096) with a different absolute focus than that used for LP7 observations, we want to update the lamp template data for LP7.

OBSERVING DESCRIPTION

This program follows the outline of the SMOV program 11488, and the LP3 Lamp templates program 14856, where long (1800 sec) lamp exposures were first used to let the OSM mechanism settle before the lamp template data were taken in each visit. This program also incorporates structure from the following programs: 15369 (LP4 lamp templates), 16469 (LP5 lamp templates), and 16909 (LP6 lamp templates).

This program obtains PtNe lamp (P1) observations through the WCA using the G130M grating at cenwaves 1055, 1096, 1222, and 1291 (obsmodes moving to LP7), each at all 4 FP-POS, and at the split-wavecal location designated for LP7 observations. The observations are split over 2 visits each containing two internal orbits. Visit 1 contains Lamp Template observations with G130M cenwaves 1055 and 1096, and Visit 2 contains Lamp Templates observations with G130M cenwaves 1096, 1222, and 1291; observations with G130M cenwave 1096 are distributed over both visits.

Each visit starts with a long (1800 s) lamp exposure to let the OSM settle before lamp template data are taken. The PtNe wavecal lamp is regularly flashed during this long exposure (30 seconds ON, 90 seconds OFF), using special engineering mode flash durations (FLASH = S0120D030). These data will be used to understand the OSM drift in the time period before the lamp template data are taken. This long exposure in Visit 1 is obtained using G130M cenwave 1055 at FP-POS = 3. For Visit 2, the first long exposure uses G130M cenwave 1096 at FP-POS = 3. BUFFER-TIME for these long exposures is 360 sec (each read contains 90 sec LAMP-ON data)

Each lamp template exposure with G130M cenwave 1291 is 210 s long, during which the PtNe lamp is flashed ON for 30 seconds, then OFF for 30 seconds (FLASH = S0060D030). The ON/OFF cycling is done to ensure that the lamp does not get too hot, which could reduce its lifetime. The cumulative lamp ON time over the 210 s exposure is of 120 s.

Each exposure with G130M cenwaves 1055, 1096 and 1222 cenwave is set to 1050 sec. This was done to account for the longer lampflash durations for these modes (142 s, 52 s, and 52 s, respectively, compared to the 12 s lampflash duration for G130M/1291). The same lamp ON/OFF cycle applies to these exposures and the the cumulative lamp ON time in each exposure is 540s (~ 4x, 10x, 10x of the lampflash durations for cenwaves 1055, 1096, and 1222, respectively). The buffer time for all lamp template exposures are set to 210 seconds.

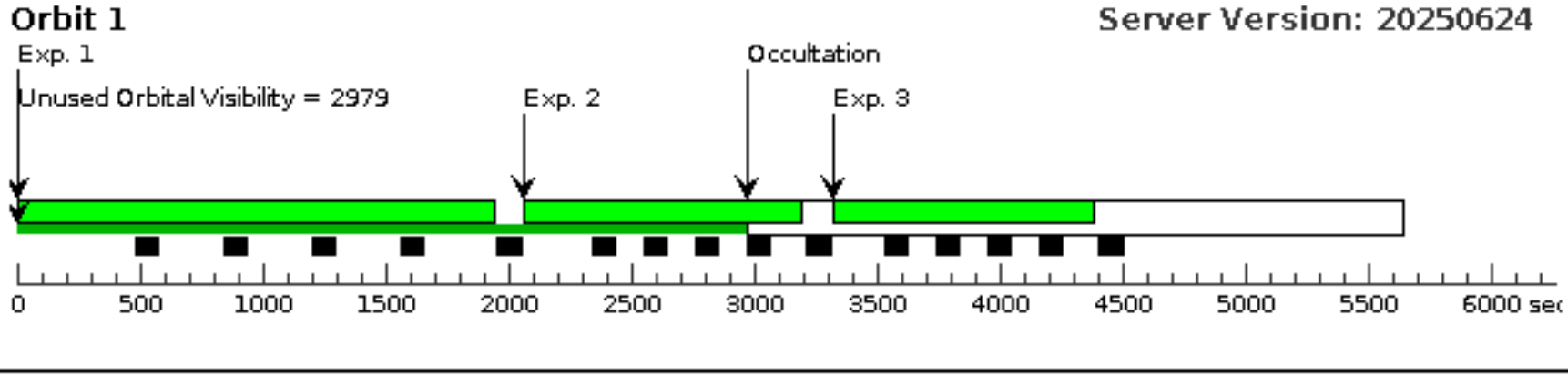
Visit	**Proposal 18178, G130M(1055+1096) for LP7 (01)** Wed Sep 10 20:00:53 GMT 2025 **Diagnostic Status: Warning** Scientific Instruments: COS/FUV Special Requirements: (none)
Diagnostics	(G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1055+1096) for LP7 (01)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB VISIT

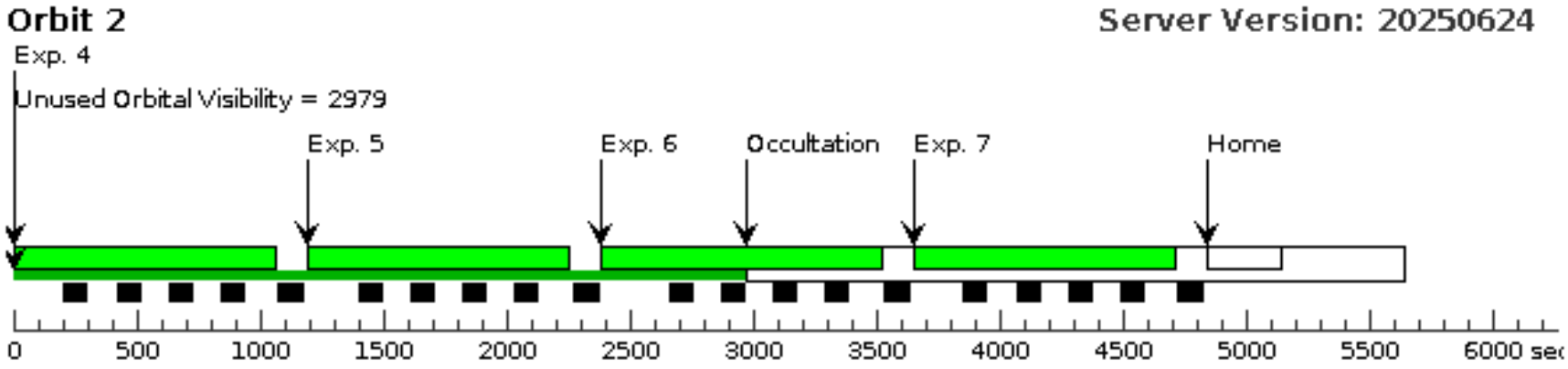
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1055 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=360; FP-POS=3; FLASH=S0120D030			1800 Secs (1800 Secs) *[==>]*	*[1]*
2		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1055 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=1; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[1]*
3		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1055 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=2; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[1]*
4		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1055 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=3; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[2]*
5		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1055 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=4; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[2]*
6		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1096 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=1; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[2]*

	7	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1096 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=2; FLASH=S0060D030	1050 Secs (1050 Secs) *[==>]*	*[2]*

Orbit Structure

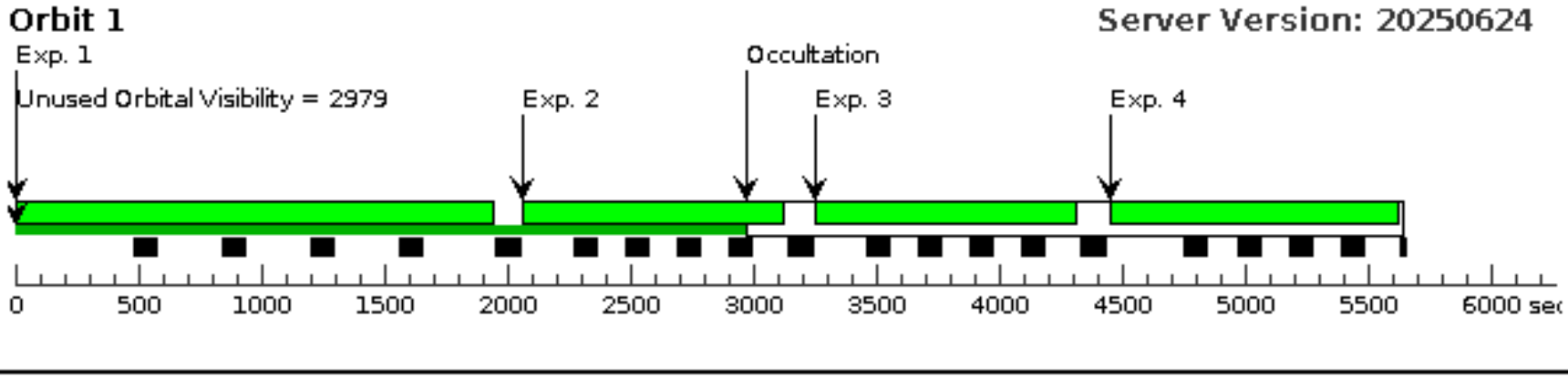
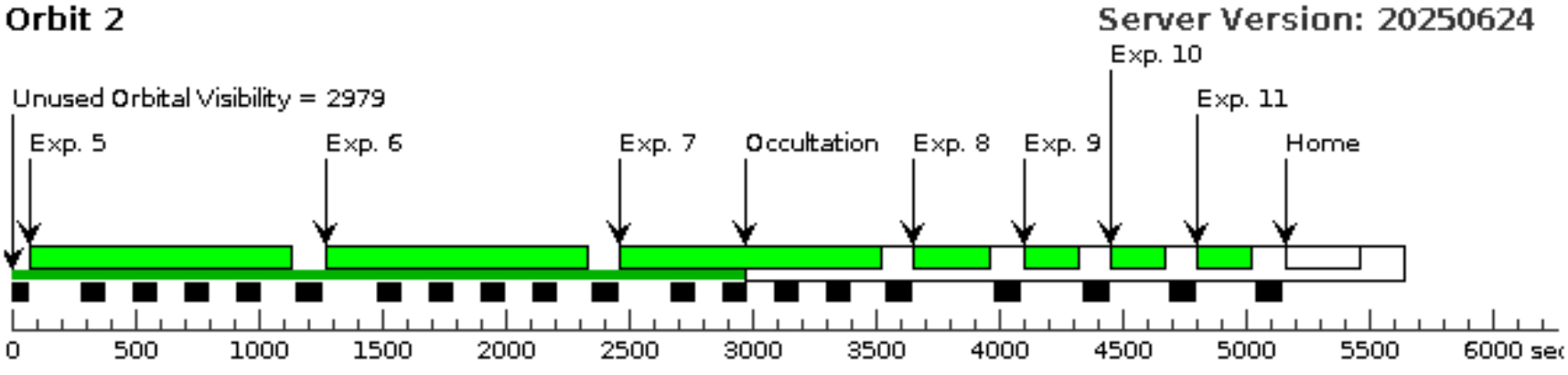




Visit	**Proposal 18178, G130M(1096+1222+1291) for LP7 (02)** Wed Sep 10 20:00:53 GMT 2025 **Diagnostic Status: Warning** Scientific Instruments: COS/FUV Special Requirements: PARALLEL
Diagnostics	(G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): LAMP EXPOSURE EXCEEDS 300 SECONDS (G130M(1096+1222+1291) for LP7 (02)) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB VISIT

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1096 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=360; FP-POS=3; FLASH=S0120D030			1800 Secs (1800 Secs) *[==>]*	*[1]*
2		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1096 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=3; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[1]*
3		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1096 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=4; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[1]*
4		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=1; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[1]*
5		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=2; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[2]*
6		WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	LIFETIME-POS=LP7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=3; FLASH=S0060D030			1050 Secs (1050 Secs) *[==>]*	*[2]*

	7	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1222 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=4; FLASH=S0060D030	1050 Secs (1050 Secs) *[==>]*	***[2]***
	8	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1291 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=1; FLASH=S0060D030	210 Secs (210 Secs) *[==>]*	***[2]***
	9	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1291 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=2; FLASH=S0060D030	210 Secs (210 Secs) *[==>]*	***[2]***
	10	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1291 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=3; FLASH=S0060D030	210 Secs (210 Secs) *[==>]*	***[2]***
	11	WAVE	COS/FUV, TIME-TAG, WCA	G130M 1291 A	LIFETIME-POS=LP 7; SEGMENT=BOTH; BUFFER-TIME=210; FP-POS=4; FLASH=S0060D030	210 Secs (210 Secs) *[==>]*	***[2]***

Orbit Structure