



## 15366 - COS FUV Spectral Resolution at LP4

Cycle: 24, 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	(3) AV75	COS/FUV COS/NUV	3	20-Jul-2017 18:47:36.0	yes

3 Total Orbits Used

### ABSTRACT

Following the change of lifetime position to LP4, the spectral resolution of the COS FUV detector is expected to degrade by ~10-15%. The knowledge of COS line spread functions (LSFs) is critical for users to evaluate the feasibility and S/N requirements of their observations and to perform line profile fitting. To constrain the shape of the COS LSFs at LP4, we will acquire COS FUV G130M and G160M spectra of the SMC star AzV 75 in three settings: G130M/1222, G160M/1577, and G160M/1623 (note that data in the G130M/1291 and G130M/1327 settings were already taken under LP4 program 14842, and G130M/1223 was observed in program 14935). Once all FPPOS settings are combined, our observations will reach a S/N of 60 per resolution element. We will test whether previous STIS E140M spectra of AzV 75 convolved with model LP4 COS LSFs can reproduce the observed COS FUV spectra of numerous ISM lines toward AzV 75. While we will not be able to detect a 10% change in the core of

the COS LSFs, we will be able to (1) test the validity of the model LSFs at the new position, and (2) directly detect variations in the COS LSFs of 15% or larger.

### **OBSERVING DESCRIPTION**

We will acquire COS FUV spectra at LP4 of SMC star AzV 75 in three settings: G130M/1222, G160M/1577, and G160M/1623 using all FPPOS positions. The exposure times are calculated such that the combined FPPOS exposures give  $S/N = 60/\text{resel}$ . We will perform a NUV imaging target acquisition using ACQ/SEARCH and ACQ/IMAGE, both with BOA/MIRRORA.

Proposal 15366 - AV75-LP4-resolution (01) - COS FUV Spectral Resolution at LP4

<b>Visit</b>	<b>Proposal 15366, AV75-LP4-resolution (01)</b> <span style="float: right;">Thu Jul 20 22:47:38 GMT 2017</span>					
	<b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100%; ORIENT 280D TO 60 D; ORIENT 160D TO 165 D					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>
	(3)	AV75	RA: 00 50 32.3900 (12.6349583d) Dec: -72 52 36.48 (-72.87680d) Equinox: J2000		V=12.79	Reference Frame: ICRS
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Extended=NO						

Proposal 15366 - AV75-LP4-resolution (01) - COS FUV Spectral Resolution at LP4

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	ACQ/SEAR CH (1003400)	(3) AV75	COS/NUV, ACQ/SEARCH, BOA	MIRRORA	SCAN-SIZE=2; STEP-SIZE=1.767; CENTER=FLUX-W T		6 Secs (6 Secs) [==>]	[1]
	2	image_acq_ boa (1003400)	(3) AV75	COS/NUV, ACQ/IMAGE, BOA	MIRRORA			12 Secs (12 Secs) [==>]	[1]
	3	1222_1 (1003396)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=13 0; FP-POS=1; LIFETIME-POS=L P4		400 Secs (403 Secs) [==>403.0 Secs ]	[1]
	4	1222_2 (1003396)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=13 0; FP-POS=2; LIFETIME-POS=L P4		400 Secs (403 Secs) [==>403.0 Secs ]	[1]
	5	1222_3 (1003396)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=13 0; FP-POS=3; LIFETIME-POS=L P4		400 Secs (403 Secs) [==>403.0 Secs ]	[1]
	6	1222_4 (1003396)	(3) AV75	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=13 0; FP-POS=4; LIFETIME-POS=L P4		340 Secs (343 Secs) [==>343.0 Secs ]	[1]
	7	1577_1 (1003398)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=14 5; FP-POS=1; LIFETIME-POS=L P4		500 Secs (500 Secs) [==>]	[2]
	8	1577_2 (1003398)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=14 5; FP-POS=2; LIFETIME-POS=L P4		500 Secs (500 Secs) [==>]	[2]
	9	1577_3 (1003398)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=14 5; FP-POS=3; LIFETIME-POS=L P4		500 Secs (500 Secs) [==>]	[2]
	10	1577_4 (1003398)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1577 A	BUFFER-TIME=14 5; FP-POS=4; LIFETIME-POS=L P4		570 Secs (570 Secs) [==>]	[2]

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11	1623_1 (1003399)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=14 5; FP-POS=1; LIFETIME-POS=L P4	500 Secs (500 Secs)	
						[==>]	[3]
12	1623_2 (1003399)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=14 5; FP-POS=2; LIFETIME-POS=L P4	500 Secs (500 Secs)	
						[==>]	[3]
13	1623_3 (1003399)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=14 5; FP-POS=3; LIFETIME-POS=L P4	500 Secs (500 Secs)	
						[==>]	[3]
14	1623_4 (1003399)	(3) AV75	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=14 5; FP-POS=4; LIFETIME-POS=L P4	570 Secs (570 Secs)	
						[==>]	[3]



