

15458 - COS/FUV G160M/1533 Profiles and Fluxes

Cycle: 25, 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	(1) WD0308-565 DARK	COS/FUV COS/NUV S/C	2	08-Jun-2018 14:03:14.0	yes
51	(1) WD0308-565 DARK	COS/FUV COS/NUV S/C	1	08-Jun-2018 14:03:15.0	yes
02	(2) GD-71 DARK	COS/FUV COS/NUV S/C	1	08-Jun-2018 14:03:17.0	yes

⁴ Total Orbits Used

ABSTRACT

We obtain observations of spectrophotometric white dwarf standard stars for the calibration of the new cenwave G160M/1533 at all FP-POS at lifetime position 4. This setting extends the coverage at the short wavelength end of G160M by 44A to overlap with the longest wavelengths covered

Proposal 15458 (STScI Edit Number: 1, Created: Friday, June 8, 2018 1:03:18 PM EST) - Overview

by Segment A of cenwave 1222. This new cenwave will allow a broad range of wavelengths to be covered by just two M mode settings without placing Lya on the detector, avoiding a key contributor to gain sag. These observations in particular will be used to determine flux calibrations to S/N>30 and concurrently, the 2-D cross-dispersion profiles.

The main requirements for this program are S/N~50/resel, which is driven by two requirements: (1) for high S/N 2-D spectral profiles which are calculated by scaling the profiles from Program 12806 (flat and flux calibration at lifetime position 2, PI=Massa) and requiring that the profile contours can be located such that flux errors are less than 1-2%, and (2) for the flat fielding of pixel-to-pixel variations (p-flats). WD 0308-565 is the primary target for this program due to its status as a flux standard and TDS target. GD 71 is used to more efficiently calibrate Segment A.

OBSERVING DESCRIPTION

In this program, we obtain observations of two spectrophotometric white dwarf standard stars in order to calibrate the new cenwave G160M/1533 at all FP-POS. These observations will be used to determine flux calibrations as well as the 2-D cross-dispersion profiles. The exposures in this program are a near copy of the G160M/1577 exposures in Program 14910 (PI=Rafelski) which calibrates all COS/FUV observing modes for lifetime position 4.

The program is designed as follows:

VISIT 1:

- 1. Perform an ACQ/IMAGE to acquire target WD0308-565.
- 2. Use special commanding to redefine the TEST wavelength setting to the G160M/1533 OSM rotation position (11218) and absolute focus position of G160M/1533 (f=-646).
- 3. Take spectra at all 4 FPPOS. Exposures time per FPPOS (283 seconds) is calculated at wavelength 1450 (on Segment B) for S/N~20, totaling S/N~50 when summed. This exposure time is calculated using the lastest ETC version with c1533 included. We extend the exposure time up to 1008 seconds (FPPOS 1 and 2) and 1244 seconds (FPPOS 3 and 4) to better fill the two orbits.
- 4. Use special commanding to restore TEST row using ACTION RESTORE.

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VISIT 2:

- 1. Perform an ACQ/IMAGE to acquire target GD71.
- 2. Special commanding is employed again to redefine the TEST wavelength setting to the G160M/1533 OSM rotation position (11218) and focus position of G160M/1533 (f=-646).
- 3. Take spectra at all 4 FPPOS. Segment B is turned off for these exposures. Exposure time per FPPOS required for S/N~20 at wavelength 1625A is 111 seconds, calculated using the lastest ETC version with c1533 included. We use an exposure time of 370 seconds in order to fill the orbit.
- 4. Use special commanding to restore TEST row using ACTION RESTORE.

Values for special commanding for defining G160M/1533 in Step 2. are:

STEP 11218 (Ray-trace predictions, courtesy Steve Penton)

RES1 18775 (Ray-trace predictions, courtesy Steve Penton)

RES2 23405 (Ray-trace predictions, courtesy Steve Penton)

FOCUS4 -646 (as determined by 1533 focus sweep)

SCHEDULING:

WD0308-565 is available throughout June. We request Visit 1 to be executed before June 30, 2018.

GD-71 is available starting August 11. We request Visit 2 to execute as soon as possible after the target becomes visible.

SPECIAL REQUESTS:

- 1. Please turn off calibration for the COS/FUV exposures.
- 2. Please disassociate all exposures.

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SQL is used to meet the above requests. In case 1 qexposure.control_id is modified. In case 2 qeassociation records are deleted. Please see G. Chapman/M. Reinhart.

** This version (resubmitted 6/8/18 by CoI Andy Fox) has an edited, shorter Visit 51 (the repeat of Visit 01), because only part of Visit 01 failed. We only need to repeat the FPPOS 3 and 4 exposures, not all four FPPOS, which means the new Visit 51 is only one orbit long. **

D	· WD0308-565 (01) - CC	10/ELIV/ 0400N//4E00	
Proposal 15/15x.	. ////)() <()×-565 /()() - ((15/FLIV/ (=16(1)///15 4 4	Profiles and Fillyes

Proposal 15458, WD0308-565 (01), failed Fri Jun 08 18:03:18 GMT 2018 Diagnostic Status: No Diagnostics Scientific Instruments: S/C, COS/FUV, COS/NUV Special Requirements: SCHED 100% Comments: We'd like this visit to be observed before the end of June 2018. The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations. Name **Target Coordinates Targ. Coord. Corrections** Fluxes Miscellaneous **Fixed Targets** WD0308-565 RA: 03 09 47.9200 (47.4496667d) Reference Frame: ICRS Proper Motion RA: 0.018141 sec of time/yr V=14.14Dec: -56 23 49.41 (-56.39706d) Proper Motion Dec: 0.0643 arcsec/yr Equinox: J2000 Epoch of Position: 2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=STAR
Description=[DB]
Extended=NO

Proposal 15458 - WD0308-565 (01) - COS/FUV G160M/1533 Profiles and Fluxes

Comn 2	ACQ/IM (COS.ta.116 2492)	(1) WD0308-565	000000000000000000000000000000000000000							
Comm			COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs (45 Secs)		
2	21/2)							[==>]	[1]	
	nents: 45 seco	ond exposure time gi	ves S/N~60							
	Special Com manding to t	DARK	S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST;		14 Secs (14 Secs)		
1	urn TEŠT in to 1533 (@-					QESIPARM ACTIC N TEST;)	[==>]		
	1731f)					QESIPARM GRATI NG G160M;	I			
						QESIPARM CENT WAVE 1533;				
						QESIPARM STEP 1 1218;	l		[1]	
						QESIPARM RES1 1 8775;	l			
						QESIPARM RES2 2 3405;				
						QESIPARM FOCUS 4 -646	S			
Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Se gment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.										
3		(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M	FP-POS=1;			1150 Secs (1008 Secs)		
	5 FPPOS 1 (COS.sp.116 2855)			1577 A	BUFFER-TIME=3 5	32		[==>1008.0 Secs]	[1]	
Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1008 seconds in order to use more of the two orbits.										
	r time per the	ETC is 487*(2/3) =	325 seconds							
SQL i	is required to	set qelogsheet.minw	ave to 1533, to bypass calibration and	d to delete qeassocia	tions.					
4	WD0308-56	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M	FP-POS=2;			1150 Secs (1008 Secs)		
	5 FPPOS 2 (COS.sp.116 2855)			1577 A	BUFFER-TIME=3 5	32		[==>1008.0 Secs]	[1]	
Comn	nents: The exp	posure time needed t	o acheive S/N~20 per FPPOS exposu	re is 283 seconds. W	e extend this up to 1008	8 seconds in order to use	e more of the two orl	bits.		
Buffer	r time per the	ETC is 487*(2/3) =	325 seconds							
_			ave to 1533, to bypass calibration and	l to delete qeassocia	tions.				1	
	WD0308-56 5 FPPOS 3	(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M	FP-POS=3;			1150 Secs (1244 Secs)		
	(COS.sp.116 2855)			1577 A	BUFFER-TIME=3 5	32		[==>1244.0 Secs]	[2]	
Comn	nents: The exp	posure time needed t	o acheive S/N~20 per FPPOS exposu	re is 283 seconds. W	e extend this up to 124	4 seconds in order to use	e more of the two orl	bits.		
Buffer	r time per the	ETC is 487*(2/3) =	325 seconds							
SQL i	is required to	set qelogsheet.minw	ave to 1533, to bypass calibration and	l to delete qeassocia	tions.					

Proposal 15458 - WD0308-565 (01) - COS/FUV G160M/1533 Profiles and Fluxes WD0308-56 (1) WD0308-565 FP-POS=4: COS/FUV, TIME-TAG, PSA G160M 1150 Secs (1244 Secs) 5 FPPOS 4 1577 A BUFFER-TIME=32 I = > 1244.0 Secs 1(COS.sp.116 [2] 2855) Comments: The exposure time needed to acheive S/N~20 per FPPOS exposure is 283 seconds. We extend this up to 1244 seconds in order to use more of the two orbits. Buffer time per the ETC is 487*(2/3) = 325 seconds SQL is required to set gelogsheet.minwave to 1533, to bypass calibration and to delete geassociations. Special Com DARK S/C. DATA, NONE SPEC COM INSTR 14 Secs (14 Secs) manding to r ELOSMTEST; I = = > 1estore TEST **QESIPARM ACTIO** [2] row N RESTORE Comments: Special Commanding to restore test row. Server Version: 20180409 Orbit 1 Pointing Maneuver Unused Orbital Visibility = 8 GS Acq Exp. 2 Exp. 3 Occultation Exp. 1 Exp. 4 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 **Orbit Structure** Server Version: 20180409 Orbit 2 Unused Orbital Visibility = 64 Occultation GS Reacq Exp. 7 Exp. 6 ۥ• Exp. 5 Home 2500 500 1500 3000 3500 5000 1000 2000 4000 4500 5500 sec

Proposal 15458, WD0308-565 (51), implementation Fri Jun 08 18:03:18 GMT 2018

Diagnostic Status: Warning

Scientific Instruments: S/C, COS/FUV, COS/NUV

Special Requirements: SCHED 100%

Comments: We'd like this visit to be observed before the end of June 2018.

The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

(WD0308-565 (51)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full

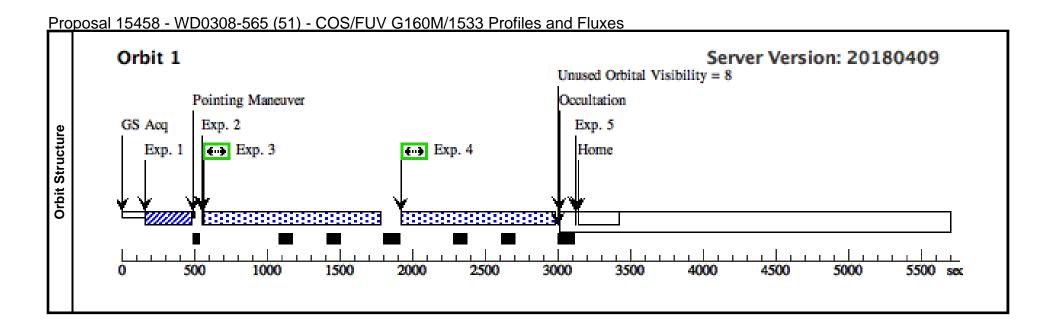
description for details.

<u>,</u>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous		
ets	(1)	WD0308-565	RA: 03 09 47.9200 (47.4496667d)	Proper Motion RA: 0.018141 sec of time/yr	V=14.14	Reference Frame: ICRS		
ırg			Dec: -56 23 49.41 (-56.39706d)	Proper Motion Dec: 0.0643 arcsec/yr				
Ĕ			Equinox: J2000	Epoch of Position: 2000				
ed	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.							
	Catego	$r_{V} - STAR$. •					

Category=STAR
Description=[DB]
Extended=NO

Proposal 15458 - WD0308-565 (51) - COS/FUV G160M/1533 Profiles and Fluxes

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
1		(1) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs (45 Secs)		
	(COS.ta.116 2492)							[==>]	[1]	
Co	mments: 45 seco	ond exposure time gi	ves S/N~60						,	
2	Special Com	DARK	S/C, DATA, NONE			SPEC COM INSTR		14 Secs (14 Secs)		
	manding to t urn TEST in					ELOSMTEST; QESIPARM ACTIO		[==>]		
	to 1533 (@- 1731f)					N TEST;				
	17311)					QESIPARM GRATI NG G160M;				
						QESIPARM CENT WAVE 1533;				
						QESIPARM STEP 1 1218;			[1]	
						QESIPARM RES1 1 8775:				
						QESIPARM RES2 2 3405:				
						QESIPARM FOCUS	;			
Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Se gment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.										
3		(1) WD0308-565	COS/FUV, TIME-TAG, PSA	G160M	FP-POS=3;			1150 Secs (1008 Secs)		
	5 FPPOS 3 (COS.sp.116 2855)			1577 A	BUFFER-TIME=3: 5	2		[==>1008.0 Secs]	[1]	
Co	mments: The exp	oosure time needed t	o acheive S/N~20 per FPPOS exposur	e is 283 seconds. W	e extend this up to 1008	seconds in order to use	more of the two or	bits.		
Rus	ffer time ner the	ETC is $487*(2/3) =$	325 seconds		•					
	. 1	, ,								
<u>3Q</u>	•	set qelogsneet.minwi (1) WD0308-565	ave to 1533, to bypass calibration and COS/FUV, TIME-TAG, PSA	G160M	FP-POS=4:			1150 Secs (1008 Secs)		
1	5 FPPOS 4	(1) WD0308-303	CO5/1-0 V, TIME-1AG, 15A	1577 A	BUFFER-TIME=3:	2.		[==>1008.0 Secs]		
	(COS.sp.116 2855)			13//11	5				[1]	
Co	mments: The exp	oosure time needed t	o acheive S/N~20 per FPPOS exposur	e is 283 seconds. W	e extend this up to 1008	seconds in order to use	more of the two or	bits.		
Ru	for time nor the	ETC is $487*(2/3) =$	325 seconds		•		,			
"		, ,								
SQ.	L is required to Special Com		ave to 1533, to bypass calibration and S/C. DATA. NONE	to delete qeassocia	tions.	CDEC COM INCTD		14 Sags (14 Sags)		
)	manding to r	DAKK	S/C, DATA, NUNE			SPEC COM INSTR ELOSMTEST;		$14 \operatorname{Secs} (14 \operatorname{Secs})$ $I = > I$		
1	estore TEST row					QESIPARM ACTIO		1/	[1]	
	10 W					N RESTORE				



Proposal 15458 -	GD-71 (02)	- COS/FUV G160	M/1533 Profile	e and Fluvae
F10005a1 13430 -	GD-1 1 (02)	- CO3/FUV G100	ババ 1333 F 10111 0	s and Fluxes

Proposal 15458, GD-71 (02), scheduling Fri Jun 08 18:03:18 GMT 2018

Diagnostic Status: No Diagnostics

Scientific Instruments: S/C, COS/FUV Special Requirements: SCHED 100% Scientific Instruments: S/C, COS/FUV, COS/NUV

Comments: We'd like this visit to be observed as soon as possible after GD71 becomes observable on August 11, 2018.

The science exposures inside will need SQL to set qelogsheet.minwave to 1533, to bypass calibration and to delete qeassociations.

s	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
gets	(2)	GD-71	RA: 05 52 27.6140 (88.1150583d)	Proper Motion RA: 85 mas/yr	V=13.032	Reference Frame: ICRS
l g			Dec: +15 53 13.75 (15.88715d)	Proper Motion Dec: -174 mas/yr		
⊨			Equinox: J2000	Epoch of Position: 2000		
ed	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					
	Category=					
ш	Description					
	Extended=.	NO				

Proposal 15458 - GD-71 (02) - COS/FUV G160M/1533 Profiles and Fluxes

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/IM	(2) GD-71	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				140 Secs (140 Secs)	
	(COŠ.ta.116 2495)							[==>]	[1]
Co	mments: Since	Mirror B has two	images and images are 2:1 in brightness,	multiplying ETC ex	sposure time by 4/3 to e	nsure sufficient SNR for	r acquisition. 105°	*4/3 = 140	
Ex	posure time of I	105 seconds gives	S/N~60.						1
2	Special Com manding to t		S/C, DATA, NONE			SPEC COM INSTR ELOSMTEST;	1	14 Secs (14 Secs)	
	urn TEST in to 1533 (@- 1731f)					QESIPARM ACTION TEST;	O	[==>]	
	17311)					QESIPARM GRAT NG G160M;	ľ		
						QESIPARM CENT WAVE 1533;			
						QESIPARM STEP 1218;	1		[1]
						QESIPARM RES1 8775;	1		
						QESIPARM RES2 3405;	2		
						QESIPARM FOCU 4 -646	S		
Comments: Special Commanding to overwrite the G160M/TEST settings with the G160M/1533 settings. OSM1 should be set to position of 11218, +15 steps from the G160M-1577A position of 11203. This shifts the Se gment B coverage to 1342-1515A, and segment A to 1533-1707A (for FP-POS=3). FOCUS4 is at -646, the absolute focus determined for 1533.									
3	G160M/153	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M	SEGMENT=A;	•		370 Secs (370 Secs)	
	(COS.sp.116	3 - GD71 (COS.sp.116	1577 A	FP-POS=1;	.0		[==>]		
	2856)				BUFFER-TIME=2 0;	0			[1]
					LIFETIME-POS=1 P4				
Со	mments: The ex	posure time requ	ired for S/N~20 per exposure is 111 secon	ids. We extend the ex	xposure times to 370 se	conds in order to fill th	e orbit.		
Ви	ffer time per the	ETC is 50 secon	ds, but get a warning saying data is lost i	f I use 80 seconds. U	Ipped to 200 seconds to	get rid of this warning	·.		
SQ	L is required to	set qelogsheet.m	inwave to 1533, to bypass calibration and	l to delete qeassocia	tions.				
4	G160M/153	(2) GD-71	COS/FUV, TIME-TAG, PSA	G160M	SEGMENT=A;			370 Secs (370 Secs)	
	3 - GD71 (COS.sp.116	i		1577 A	FP-POS=2;			[==>]	
	2856)				BUFFER-TIME=2 0:	0.0			[1]
					LIFETIME-POS=	L			[1]
_	mi				P4				
		•	ired for S/N~20 per exposure is 111 secon			•			
	-		ds, but get a warning saying data is lost i			get rid of this warning	'.		
SQ	L is required to	set qelogsheet.m	inwave to 1533, to bypass calibration and	l to delete qeassocia	tions.				

Proposal 15458 - GD-71 (02) - COS/FUV G160M/1533 Profiles and Fluxes G160M/153 (2) GD-71 COS/FUV, TIME-TAG, PSA G160M SEGMENT=A; 370 Secs (370 Secs) 3 - GD71 1577 A FP-POS=3; *[==>1* (COS.sp.116 2856) BUFFER-TIME=20 [1] LIFETIME-POS=L Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit. Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning. SQL is required to set gelogsheet.minwave to 1533, to bypass calibration and to delete geassociations. G160M/153 (2) GD-71 COS/FUV, TIME-TAG, PSA G160M SEGMENT=A; 370 Secs (370 Secs) 3 - GD71 1577 A FP-POS=4; [==>] (COS.sp.116 2856) BUFFER-TIME=20 [1] LIFETIME-POS=L Comments: The exposure time required for S/N~20 per exposure is 111 seconds. We extend the exposure times to 370 seconds in order to fill the orbit. Buffer time per the ETC is 50 seconds, but get a warning saying data is lost if I use 80 seconds. Upped to 200 seconds to get rid of this warning. SQL is required to set gelogsheet.minwave to 1533, to bypass calibration and to delete geassociations. Special Com DARK SPEC COM INSTR 14 Secs (14 Secs) S/C, DATA, NONE ELOSMTEST: manding to r *[==>1* estore TEST OESIPARM ACTIO [1] N RESTORE Comments: Special Commanding to restore test row. Orbit 1 Server Version: 20180409 Exp. 6 Unused Orbital Visibility = 8 Pointing Maneuver Occultation | **Orbit Structure** GS Acq Exp. 2 Exp. 7 Exp. 3 Exp. 4 ← Exp. 5 Exp. 1 Home 5500 sec 1000 1500 2500 5000 500 2000 3000 3500 4000 4500