13530 - COS NUV Focus Sweep

Cycle: 21, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. David J. Sahnow (PI) (Contact)	**Space Telescope Science Institute**	**sahnow@stsci.edu**
Dr. Cristina Oliveira (CoI)	Space Telescope Science Institute	oliveira@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) NGC188-41 NONE	COS COS/NUV	1	15-Oct-2013 21:25:07.0	yes

1 Total Orbits Used

ABSTRACT

This program will perform an NUV focus sweep with an external target in order to determine whether or not the COS focus has changed since SMOV.

OBSERVING DESCRIPTION

An NUV focus sweep will be done to verify that the focus is at the expected location. This is based on the one done in Program 11469. See ISR 2010-04 for the results from that program.

Visit

Proposal 13530, NUV Focus Sweep (01) Wed Oct 16 01:25:21 GMT 2013

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS

Special Requirements: SCHED 100%

Comments: This visit will test the NUV ACQ/IMAGE to verify that it works. It will also do a fine focus sweep modeled on Program 11469 Visit 94. From ISR 2010-04, the PSF FWHM should change by a factor of two or so over a +/-200 step range.

The target, NGC188-41, was used in 11469 NUV Focus sweep. This target is visible all year. Note that Version 21.2.2a of APT has a spurious warning: "This visit contains an ALIGN/OSM exposure which should be preceded by an FUV science exposure to define the starting position for the scan."

Diagnostics

(NUV Focus Sweep (01)) Warning (Form): This visit contains an ALIGN/OSM exposure which should be preceded by an FUV science exposure to define the starting position for the scan.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC188-41 Alt Name1: VID-1316-ZZZZ-PLATE	RA: 00 45 56.6230 (11.4859292d) Dec: +85 17 28.85 (85.29135d) Equinox: J2000 Plate Id: ZZZZ	Proper Motion RA: -0.003 sec of time/yr Proper Motion Dec: -0.013 arcsec/yr Epoch of Position: 2000	V=14.21+/-0.2 B-V=0.46 Galex NUV Flux=149 ; Galex NUV mag=18.47 E(B-V)=0.089; (B-V)intrinsic = 0.37	Reference Frame: GSC1

Comments: This target was used in Program 11469. The following information is from the Phase II of that program:

GALEX J004557.4+851728 obj id 2710790968 559273041

E(B-V)=0.0888

GALEX NUV flux = 149.11 +/-8.6975

GALEX NUV mag 18.4662 +/- 0.0633

actual coordinates used from GSC1 plate ZZZZ courtesy Matt Lallo

proper motion from plate ZZZZ (and Matt Lallo) assumption is values in supporting table are sec time per year and sec arc per year

This target is on NGC-188 GSC1 special astrometric plate ZZZZ and has astrometric coordinates. This star is star 41 on special plate ZZZZ. See above comment about proper motion. Keyes and Lallo have inspected plate ZZZZ and Lallo determined (25 June 2008) that there are numerous available potential guide stars for this target.

Using the above information, the ETC has been run with the following parameters:

Spectrum: Castelli-Kurucz Models F2V 7000 4.0
Extinction E(B-V): Milky Way Diffuse (Rv=3.1) = 0.09 applied before normalization
Normalization: Renormalized to Johnson V = 14.21 in magnitudes relative to Vega

The result was COS.im.467283. This gave a count rate of 353 c/s, background rate = 1 c/s, brightest pixel = 49 c/s, count rate over the entire detector = 1394, SNR = 145 in 60 seconds, BUFFER-TIME = 1691. If I use the GALEX NUV Magnitude instead of the V magnitude (COS.im.467312), it gives rate = 220 c/s, brightest pixel = 31, count rate over entire detector = 1262, SNR = 115 in 60 seconds, BUFFER-TIME = 1869. For completeness, I used the same parameters for an ACQ/IMAGE ETC run (COS.ta.467306) using the V magnitude and got essentially the same results.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PSA ACQ/IMAGE (COS.ta.467306)	(1) NGC188-41	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Target 1 used in 11469 SMOV NUV Focus program.									
2	Nominal Focus Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES			60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Exposure at nominal focus position									
3	Move Focus To -200 (0)	NONE	COS, ALIGN/OSM		FOCUS=-200			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Offset to focus position									
4	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES			60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Exposure during focus sweep									
5	Move Focus To -175 (0)	NONE	COS, ALIGN/OSM		FOCUS=-175			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Offset to focus position									
6	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES			60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Exposure during focus sweep									
7	Move Focus To -150 (0)	NONE	COS, ALIGN/OSM		FOCUS=-150			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Offset to focus position									
8	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES			60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Exposure during focus sweep									
9	Move Focus To -125 (0)	NONE	COS, ALIGN/OSM		FOCUS=-125			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Offset to focus position									
10	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES			60 Secs (60 Secs) *[==>]*	***[1]***
Comments: Exposure during focus sweep									
11	Move Focus To -100 (0)	NONE	COS, ALIGN/OSM		FOCUS=-100			0 Secs (0 Secs) *[==>]*	***[1]***
Comments: Offset to focus position									

12	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
13	Move Focus To -75 (0)	NONE	COS, ALIGN/OSM		FOCUS=-75	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
14	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
15	Move Focus To -50 (0)	NONE	COS, ALIGN/OSM		FOCUS=-50	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
16	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
17	Move Focus To -25 (0)	NONE	COS, ALIGN/OSM		FOCUS=-25	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
18	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
19	Move to Nominal Focus (0)	NONE	COS, ALIGN/OSM		FOCUS=0	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Nominal Focus Location							
20	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
21	Move Focus To +25 (0)	NONE	COS, ALIGN/OSM		FOCUS=25	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
22	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
23	Move Focus To +50 (0)	NONE	COS, ALIGN/OSM		FOCUS=50	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							

24	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
25	Move Focus To +75 (0)	NONE	COS, ALIGN/OSM		FOCUS=75	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
26	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
27	Move Focus To +100 (0)	NONE	COS, ALIGN/OSM		FOCUS=100	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
28	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
29	Move Focus To +125 (0)	NONE	COS, ALIGN/OSM		FOCUS=125	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
30	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
31	Move Focus To +150 (0)	NONE	COS, ALIGN/OSM		FOCUS=150	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
32	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
33	Move Focus To +175 (0)	NONE	COS, ALIGN/OSM		FOCUS=175	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							
34	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	**[1]**
Comments: Exposure during focus sweep							
35	Move Focus To +200 (0)	NONE	COS, ALIGN/OSM		FOCUS=200	0 Secs (0 Secs) *[==>]*	**[1]**
Comments: Offset to focus position							

	36	NUV Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	***[1]***
		Comments: Exposure during focus sweep						
	37	Move to Nominal Focus (0)	NONE	COS, ALIGN/OSM		FOCUS=0	0 Secs (0 Secs) *[==>]*	***[1]***
		Comments: Back to Nominal Focus Location						
	38	Nominal Focus Exposure (COS.im.467312)	(1) NGC188-41	COS/NUV, TIME-TAG, PSA	MIRRORA	BUFFER-TIME=1250; FLASH=YES	60 Secs (60 Secs) *[==>]*	***[1]***
		Comments: Exposure at nominal focus position						

Orbit Structure