



17395 - Cycle 30 COS NUV Supplemental Spectroscopic Sensitivity Monitor

Cycle: 30, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

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Dr. Marc Rafelski (CoI)	Space Telescope Science Institute
Dr. Svea S Hernandez (CoI) (ESA Member)	Space Telescope Science Institute - ESA - JWST

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) BD+52-913	COS/NUV	1	12-Jul-2023 10:00:15.0	yes
02	(2) GD-71	COS/NUV	2	12-Jul-2023 10:00:16.0	yes

3 Total Orbits Used

ABSTRACT

This program is a deeper investigation into the time-dependent sensitivity of the NUV/G225M grating to supplement the routine sensitivity monitoring programs for the NUV TDS conducted twice a year (in approximately February and August). Observations are executed alongside the Cycle 30 August NUV TDS monitoring for additional cenwaves of the G225M grating for the standard stars G191-B2B and GD71. The following modes are used: G225M/2217-2282, five cenwaves for G191-B2B, and G225M/2186-2306, seven cenwaves for GD71. G191-B2B is routinely monitored at cenwaves 2186 and 2306 but has only been observed once with one of the intermediate cenwaves. GD71 was previously monitored in

Cycle 17 for all relevant cenwaves. Through this additional monitoring, a wavelength-dependent characterization of the time-dependent sensitivity of G225M will be created.

OBSERVING DESCRIPTION

In addition to the standard monitoring sequence for the NUV the standard stars, G191-B2B and GD71, will be observed alongside the Cycle 30 NUV sensitivity monitoring program for additional wavelengths.

This will consist of three orbits: a 2-orbit visit (target GD71) that covers

G225M/2186,

G225M/2217,

G225M/2233,

G225M/2250,

G225M/2268,

G225M/2286,

G225M/2306,

and a 1-orbit visit (target G191-B2B) that covers

G225M/2217,

G225M/2233,

G225M/2250,

G225M/2268,

G225M/2286.

These comprise the intermediate wavelengths between two currently monitored wavelengths G225M/2186 and G225M/2306.

SNR requirements:

-The minimum requirement is for an SNR of 30 per resel.

-As future analysis may require binning over fewer pixels, exposure times have been increased to span the available orbit time to increase the SNR per resel to aid in this analysis.

ETC calculations:

-The ETC calculations use CALSPEC standard model versions `gd71_mod_011.fits` and `g191b2b_mod_010.fits` against which the TDS model slopes are referenced.

-For G191-B2B, the same exposure time is used for each cenwave because differences reported by the ETC are small. Exposures fill the orbit, guaranteeing $S/N > 30$ at the central wavelength of each cenwave. Buffer times are $2/3$ of the ETC value for cenwave 2233 and well below the ETC value for each cenwave.

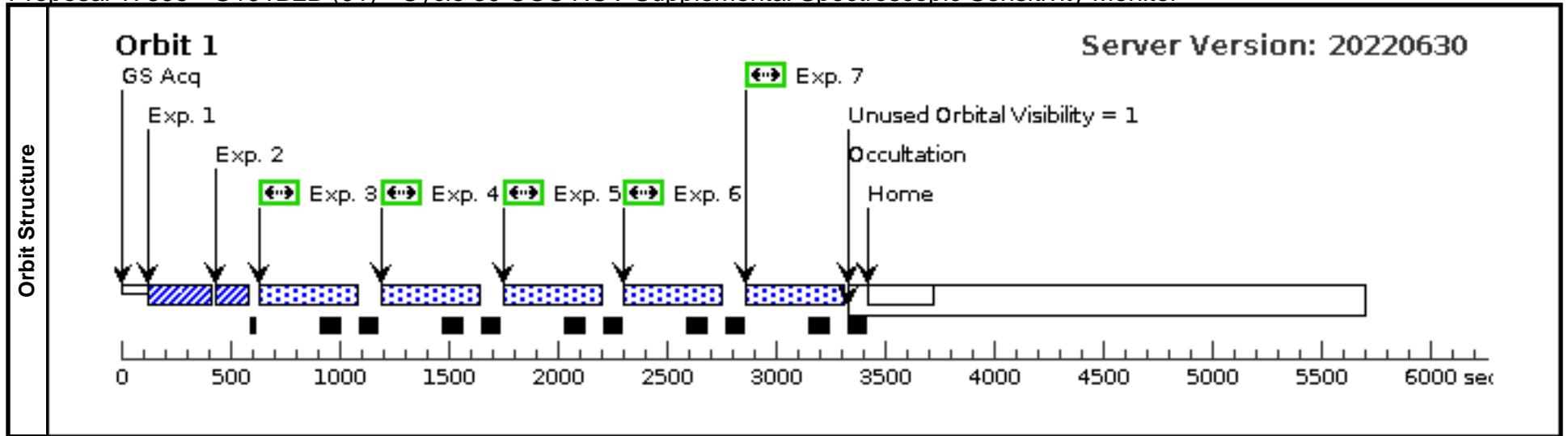
-For GD71, the first orbit uses the exposure times needed to reach $S/N = 30$ at the central wavelength of each cenwave, padded to fill the orbit. The second orbit uses a constant exposure time per cenwave that reaches $S/N = 30$ at the central wavelength of the least sensitive of the four cenwaves, again padded to fill the orbit. In both orbits, buffer times are less than $2/3$ of the ETC value to reduce overheads

The exposure times and organization of visits follow the scheme used in previous NUV TDS programs, with the exception of the target acquisition method for GD71 which will be ACQ/IMAGE similar to the FUV TDS target acquisition of the same standard star. G191-B2B remains with ACQ/PEAKXD and ACQ/PEAKD method as the star is too bright for an image acquisition.

Proposal 17395 - G191B2B (01) - Cycle 30 COS NUV Supplemental Spectroscopic Sensitivity Monitor

Wed Jul 12 14:00:17 GMT 2023

Visit	Proposal 17395, G191B2B (01), implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: BETWEEN 19-AUG-2023:00:00:00 AND 09-SEP-2023:00:00:00 <i>Comments: In previous NUV TDS Monitoring Programs, ACQ/SEARCH has been used for G191-B2B. ACQ/SEARCH has been omitted from this program because the APT fixed target resolver now pulls coordinates from Gaia, which are accurate enough not to require ACQ/SEARCH.</i>																					
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>BD+52-913 Alt Name1: G191-B2B</td> <td>RA: 05 05 30.6398 (76.3776658d) Dec: +52 49 50.47 (52.83069d) Equinox: J2000</td> <td>Proper Motion RA: 0.0014014763037501232 sec of time/yr Proper Motion Dec: -0.09341600000425387 arcsec/yr Epoch of Position: 2015.5</td> <td>V=11.69</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-STAR Description=[DA] Extended=NO</p>										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	BD+52-913 Alt Name1: G191-B2B	RA: 05 05 30.6398 (76.3776658d) Dec: +52 49 50.47 (52.83069d) Equinox: J2000	Proper Motion RA: 0.0014014763037501232 sec of time/yr Proper Motion Dec: -0.09341600000425387 arcsec/yr Epoch of Position: 2015.5	V=11.69
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Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit												
	1	PEAKXD (COS.sa.186 5135)	(1) BD+52-913	COS/NUV, ACQ/PEAKXD, PSA	G225M 2250 A				1 Secs (1 Secs) [==>]	[1]												
	2	PEAKD (COS.sa.186 5134)	(1) BD+52-913	COS/NUV, ACQ/PEAKD, PSA	G225M 2250 A	NUM-POS=5; STEP-SIZE=0.9			1 Secs (1 Secs) [==>]	[1]												
	3	(COS.sp.186 5245)	(1) BD+52-913	COS/NUV, TIME-TAG, PSA	G225M 2217 A	BUFFER-TIME=20 9; FP-POS=3			319 Secs (362 Secs) [==>362.0 Secs]	[1]												
	4	(COS.sp.186 5246)	(1) BD+52-913	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=20 9; FP-POS=3			319 Secs (362 Secs) [==>362.0 Secs]	[1]												
	5	(COS.sp.186 5247)	(1) BD+52-913	COS/NUV, TIME-TAG, PSA	G225M 2250 A	BUFFER-TIME=20 9; FP-POS=3			319 Secs (362 Secs) [==>362.0 Secs]	[1]												
	6	(COS.sp.186 5248)	(1) BD+52-913	COS/NUV, TIME-TAG, PSA	G225M 2268 A	BUFFER-TIME=20 9; FP-POS=3			319 Secs (362 Secs) [==>362.0 Secs]	[1]												
	7	(COS.sp.186 5249)	(1) BD+52-913	COS/NUV, TIME-TAG, PSA	G225M 2283 A	BUFFER-TIME=20 9; FP-POS=3			319 Secs (362 Secs) [==>362.0 Secs]	[1]												



Proposal 17395 - GD71 (02) - Cycle 30 COS NUV Supplemental Spectroscopic Sensitivity Monitor

Wed Jul 12 14:00:17 GMT 2023

Visit	Proposal 17395, GD71 (02), implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: BETWEEN 19-AUG-2023:00:00:00 AND 09-SEP-2023:00:00:00																					
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>GD-71</td> <td>RA: 05 52 27.7023 (88.1154262d) Dec: +15 53 10.55 (15.88626d) Equinox: J2000</td> <td>Proper Motion RA: 0.005318322900077921 sec of time/yr Proper Motion Dec: -0.1729599998623302 arcsec/yr Epoch of Position: 2015.5</td> <td>V=13.032</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-STAR Description=[DA] Extended=NO</p>										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(2)	GD-71	RA: 05 52 27.7023 (88.1154262d) Dec: +15 53 10.55 (15.88626d) Equinox: J2000	Proper Motion RA: 0.005318322900077921 sec of time/yr Proper Motion Dec: -0.1729599998623302 arcsec/yr Epoch of Position: 2015.5	V=13.032
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Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit												
	1	Image (COS.ta.186 5211)	(2) GD-71	COS/NUV, ACQ/IMAGE, BOA	MIRRORB				26 Secs (26 Secs) [==>]	[1]												
	2	(COS.sp.186 5250)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2186 A	BUFFER-TIME=52 4; FP-POS=3			636 Secs (732 Secs) [==>732.0 Secs]	[1]												
	3	(COS.sp.186 5538)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2217 A	BUFFER-TIME=48 2; FP-POS=3			592 Secs (688 Secs) [==>688.0 Secs]	[1]												
	4	(COS.sp.186 5539)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=46 6; FP-POS=3			576 Secs (672 Secs) [==>672.0 Secs]	[1]												
	5	(COS.sp.186 5540)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2250 A	BUFFER-TIME=45 0; FP-POS=3			560 Secs (565 Secs) [==>565.0 Secs]	[2]												
	6	(COS.sp.186 5541)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2268 A	BUFFER-TIME=45 0; FP-POS=3			560 Secs (565 Secs) [==>565.0 Secs]	[2]												
	7	(COS.sp.186 5149)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2283 A	BUFFER-TIME=45 0; FP-POS=3			560 Secs (565 Secs) [==>565.0 Secs]	[2]												
	8	(COS.sp.186 5150)	(2) GD-71	COS/NUV, TIME-TAG, PSA	G225M 2306 A	BUFFER-TIME=45 0; FP-POS=3			560 Secs (565 Secs) [==>565.0 Secs]	[2]												

