17618 - Cycle 32 COS NUV Spectroscopic Sensitivity Monitor

Cycle: 32, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	*Institution*
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
L1	(1) WD1057+719	COS/NUV	1	07-May-2025 11:00:12.0	yes
L3	(1) WD1057+719	COS/NUV	1	07-May-2025 11:00:13.0	yes
L2	(1) WD1057+719	COS/NUV	1	07-May-2025 11:00:13.0	yes
M1	(2) G191B2B	COS/NUV	1	07-May-2025 11:00:14.0	yes
M2	(2) G191B2B	COS/NUV	1	07-May-2025 11:00:15.0	yes

5 Total Orbits Used

ABSTRACT

This program monitors the sensitivity of three NUV gratings to detect any changes due to contamination or other causes. Observations execute twice a year (in approximately March and September). Beginning in Cycle 24, additional cenwaves were added for the medium-resolution gratings (G185M/2010, G285M/2850, G225M/2306, and G225M/2410). Beginning in Cycle 26, monitoring of G285M was discontinued due to its low sensitivity and lack of usage over the past few HST cycles. Observations with the G285M grating are Available but Unsupported; users interested in

medium-resolution spectroscopic coverage between 2500 and 3200 A are encouraged to use STIS instead. Beginning in Cycle 32, the intermediate cenwave G225M/2306 was exchanged with G225M/2233 to increase wavelength coverage and support the Cycle 31 wavelength-dependent NUV TDSTAB.

OBSERVING DESCRIPTION

As part of the standard monitoring sequence the standard stars, WD1057+719 and G191-B2B, will be observed two times a year (in approximately March and September) in order to measure the time-dependent sensitivity. The first two gratings have stable behavior, while the last is experiencing a steady sensitivity decline.

Each sequence consists of 2 orbits: a 1-orbit visit (target WD1057+719) that covers
G230L/2635,
G230L/2950,

and a 1-orbit visit (target G191-B2B)
G185M/2010,
G185M/1921,
G185M/1786,
G225M/2410,
G225M/2233,
G225M/2186

for a total of 4 orbits.

These comprise the shortest, longest, and intermediate central wavelengths of the medium resolution gratings and the first two shorests of the low resolution grating.

In Cycle 24 and 25, the four orbits increased to six orbits to include the intermediate cenwaves of all medium resolution gratings including G285M.

In Cycle 26, G285M was removed due to rapid sensitivity decline and reduced orbits back to four.

In Cycles 29 and 31, the exposure and buffer times were updated for the G225M exposures due to the nontrivial TDS of that gratings. No updates were needed for the G230L or G185M exposures.

In Cycle 32, the intermediate G225M/2306 cenwave was replaced with G225M/2233 to increase wavelength coverage and support the wavelength-dependent NUV TDSTAB.

SNR requirements:
-The general requirement is for an SNR of 30 per resel.
-The aim is to obtain TDS calibrations better than 5%.

ETC calculations:
-The ETC calculations use CALSPEC standard model versions wd1057_719_mod_009.fits and g191b2b_mod_012.fits against which the TDS model slopes are referenced.
-The ETC calculations are specified by requiring SNR of 30 at specific wavelengths centered in B-stripe of the NUV detector.

Time constraints:
- Complete monitoring sequence should occur every 6 months.

Visit

Proposal 17618, Visit L1, failed

Wed May 07 15:00:15 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 30-MAR-2025:00:00:00 AND 13-APR-2025:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.00973 sec of time/yr Proper Motion Dec: -0.02 arcsec/yr Epoch of Position: 2000.0	V=14.68	Reference Frame: ICRS

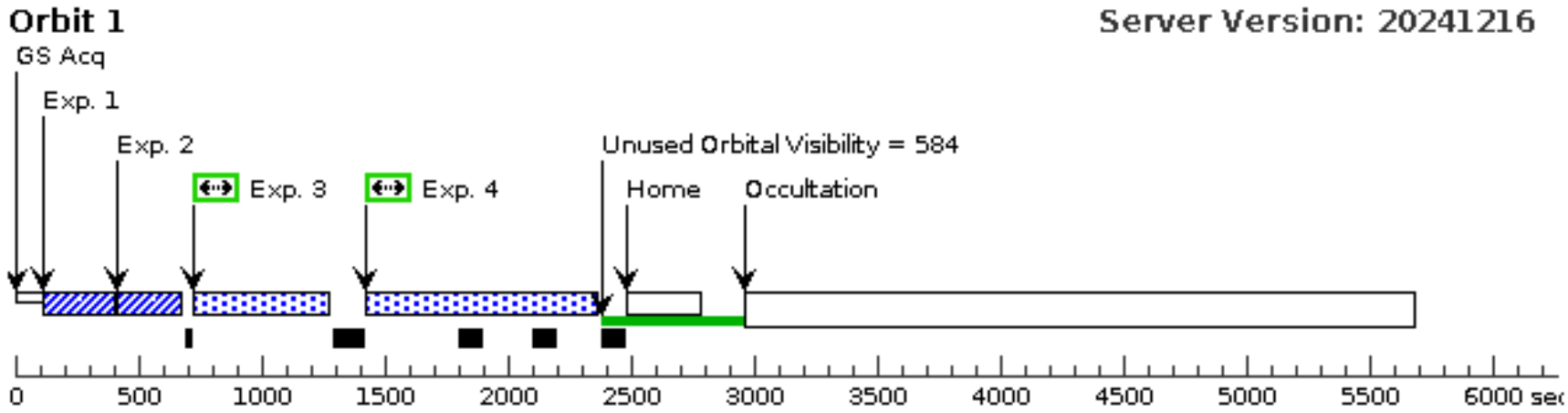
Comments: HST FASTEX standard PM, coords from USNOB

GSC2 coords are 11:00:34.25, 71:38:02.97, 1997.19 epoch
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G230L - ACQ/PEAKXD (COS.sa.1935897)	(1) WD1057+719	COS/NUV, ACQ/PEAKXD, PSA	G230L 2635 A				1 Secs (1 Secs) *[==>]*	*[1]*
2	G230L - ACQ/PEAKD (COS.sa.1935896)	(1) WD1057+719	COS/NUV, ACQ/PEAKD, PSA	G230L 2635 A	CENTER=FLUX-WT-FLR; NUM-POS=9.0; STEP-SIZE=0.6			1 Secs (1 Secs) *[==>]*	*[1]*
3	G230L - 2635 A (COS.sp.1935898)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=4800; FP-POS=3			540 Secs (540 Secs) *[==>]*	*[1]*
4	G230L - 2950 A (COS.sp.1935899)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=3000; FP-POS=3			850 Secs (850 Secs) *[==>]*	*[1]*

Orbit Structure



Proposal 17618 - Visit L3 - Cycle 32 COS NUV Spectroscopic Sensitivity Monitor

Visit

Proposal 17618, Visit L3, implementation Wed May 07 15:00:15 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 30-MAR-2025:00:00:00 AND 25-MAY-2025:00:00:00

Comments: HOPR repeat of visit L1

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.00973 sec of time/yr Proper Motion Dec: -0.02 arcsec/yr Epoch of Position: 2000.0	V=14.68	Reference Frame: ICRS

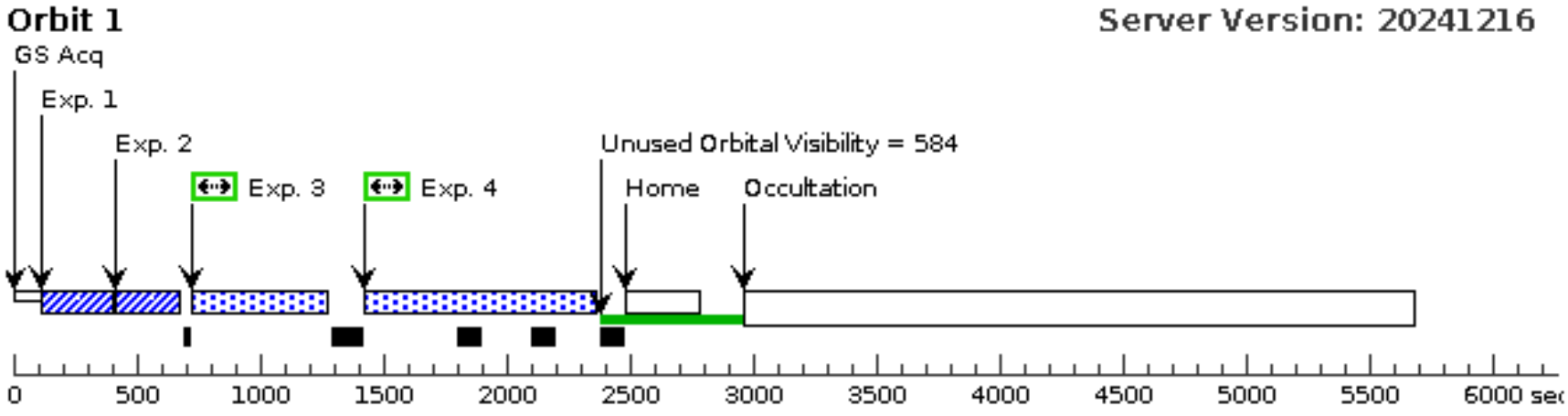
Comments: HST FASTEX standard PM, coords from USNOB

GSC2 coords are 11:00:34.25, 71:38:02.97, 1997.19 epoch
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G230L - ACQ/PEAKXD (COS.sa.1935897)	(1) WD1057+719	COS/NUV, ACQ/PEAKXD, PSA	G230L 2635 A				1 Secs (1 Secs) *[==>]*	***[1]***
2	G230L - ACQ/PEAKD (COS.sa.1935896)	(1) WD1057+719	COS/NUV, ACQ/PEAKD, PSA	G230L 2635 A	CENTER=FLUX-WT-FLR; NUM-POS=9.0; STEP-SIZE=0.6			1 Secs (1 Secs) *[==>]*	***[1]***
3	G230L - 2635 A (COS.sp.1935898)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=4800; FP-POS=3			540 Secs (540 Secs) *[==>]*	***[1]***
4	G230L - 2950 A (COS.sp.1935899)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=3000; FP-POS=3			850 Secs (850 Secs) *[==>]*	***[1]***

Orbit Structure



Visit

Proposal 17618, Visit L2, scheduling Wed May 07 15:00:15 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 28-SEP-2025:00:00:00 AND 12-OCT-2025:00:00:00

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	WD1057+719	RA: 11 00 34.2200 (165.1425833d) Dec: +71 38 2.99 (71.63416d) Equinox: J2000	Proper Motion RA: -0.00973 sec of time/yr Proper Motion Dec: -0.02 arcsec/yr Epoch of Position: 2000.0	V=14.68	Reference Frame: ICRS

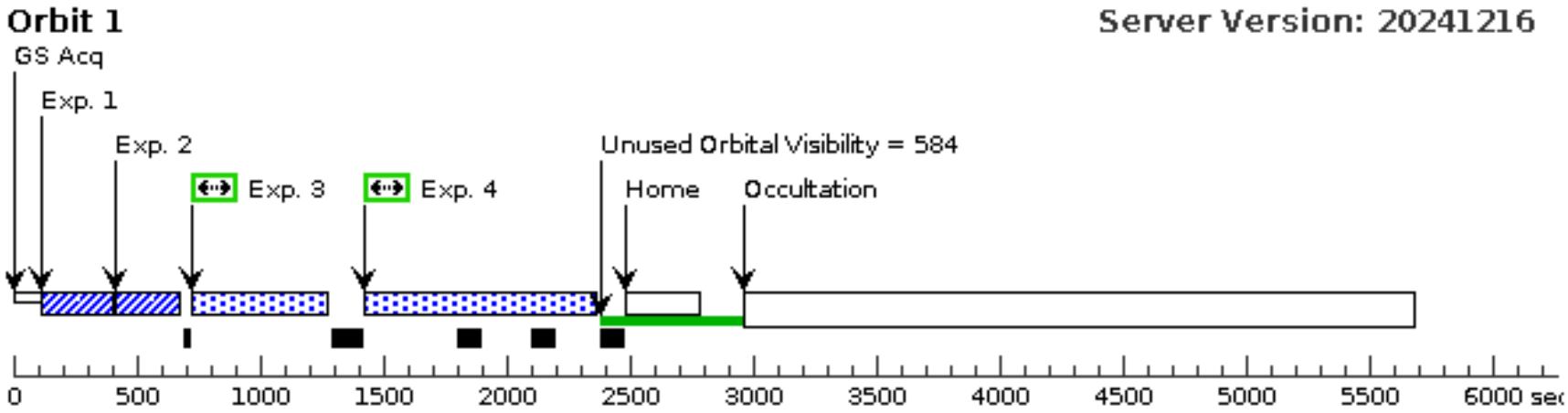
Comments: HST FASTEX standard PM, coords from USNOB

GSC2 coords are 11:00:34.25, 71:38:02.97, 1997.19 epoch
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G230L - ACQ/PEAKXD (COS.sa.1935897)	(1) WD1057+719	COS/NUV, ACQ/PEAKXD, PSA	G230L 2635 A				1 Secs (1 Secs) *[==>]*	*[1]*
2	G230L - ACQ/PEAKD (COS.sa.1935896)	(1) WD1057+719	COS/NUV, ACQ/PEAKD, PSA	G230L 2635 A	CENTER=FLUX-WT-FLR; NUM-POS=9.0; STEP-SIZE=0.6			1 Secs (1 Secs) *[==>]*	*[1]*
3	G230L - 2635 A (COS.sp.1935898)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=4800; FP-POS=3			540 Secs (540 Secs) *[==>]*	*[1]*
4	G230L - 2950 A (COS.sp.1935899)	(1) WD1057+719	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=3000; FP-POS=3			850 Secs (850 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17618, Visit M1, completed Wed May 07 15:00:15 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 30-MAR-2025:00:00:00 AND 13-APR-2025:00:00:00

Fixed Targets

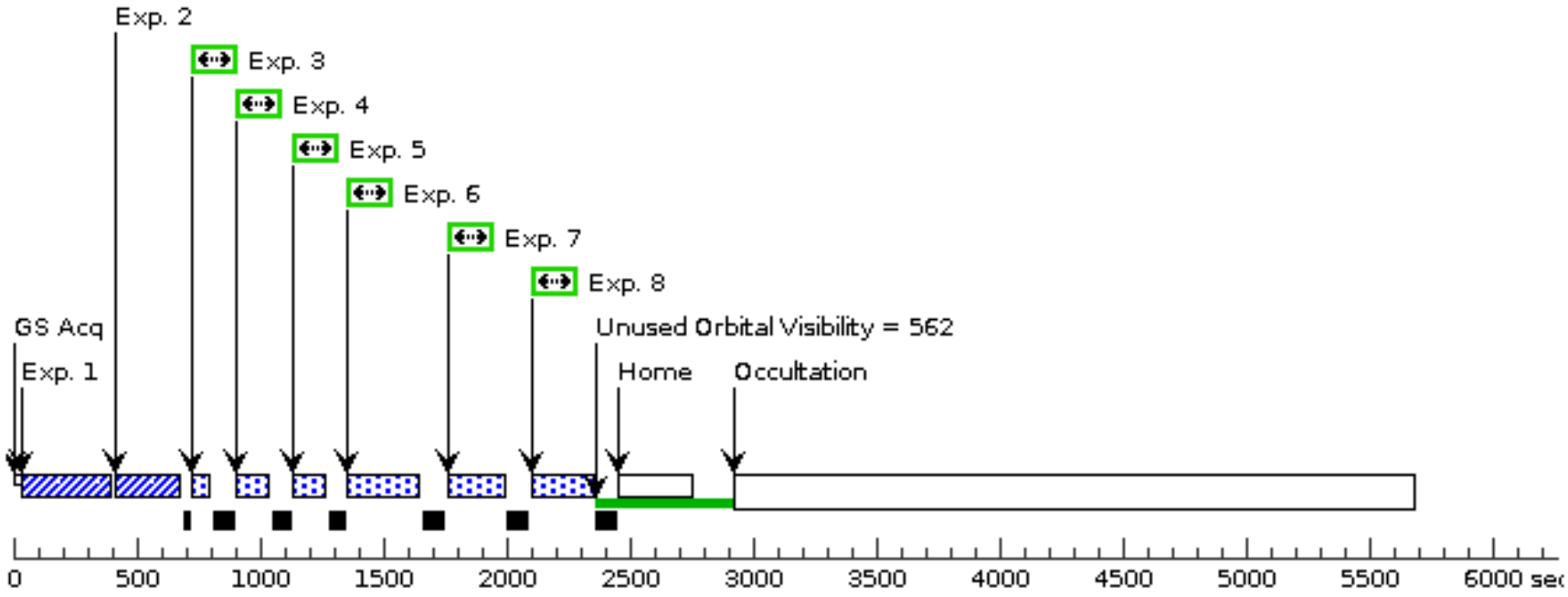
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	G191B2B	RA: 05 05 30.6060 (76.3775250d) Dec: +52 49 52.74 (52.83132d) Equinox: J2000	Proper Motion RA: 0.00071 sec of time/yr Proper Motion Dec: -0.0907 arcsec/yr Epoch of Position: 1991.25	V=11.79	Reference Frame: ICRS

Comments: coords, PM from Hipparcos
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G185M - ACQ/PEAKXD (COS.sa.1935999)	(2) G191B2B	COS/NUV, ACQ/PEAKXD, PSA	G185M 2010 A				1.0 Secs (1 Secs) *[==>]*	 ***[1]***
2	G185M - ACQ/PEAKD (COS.sa.1935998)	(2) G191B2B	COS/NUV, ACQ/PEAKD, PSA	G185M 2010 A	STEP-SIZE=0.6; NUM-POS=9.0			1.0 Secs (1 Secs) *[==>]*	 ***[1]***
3	G185M - 2010 A (COS.sp.1936000)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=80; FP-POS=3			54 Secs (54 Secs) *[==>]*	 ***[1]***
4	G185M - 1921 A (COS.sp.1936002)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=80; FP-POS=3			46 Secs (46 Secs) *[==>]*	 ***[1]***
5	G185M - 1786 A (COS.sp.1936003)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=80; FP-POS=3			40 Secs (40 Secs) *[==>]*	 ***[1]***
6	G225M - 2410 A (COS.sp.1936004)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2410 A	BUFFER-TIME=201; FP-POS=3			143 Secs (143 Secs) *[==>]*	 ***[1]***
7	G225M - 2233 A (COS.sp.1936005)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=213; FP-POS=3			145 Secs (145 Secs) *[==>]*	 ***[1]***
8	G225M - 2186 A (COS.sp.1936006)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2186 A	BUFFER-TIME=226; FP-POS=3			160 Secs (160 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 17618, Visit M2, scheduling Wed May 07 15:00:15 GMT 2025

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: SCHED 100%; BETWEEN 28-SEP-2025:00:00:00 AND 12-OCT-2025:00:00:00

Fixed Targets

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(2)	G191B2B	RA: 05 05 30.6060 (76.3775250d) Dec: +52 49 52.74 (52.83132d) Equinox: J2000	Proper Motion RA: 0.00071 sec of time/yr Proper Motion Dec: -0.0907 arcsec/yr Epoch of Position: 1991.25	V=11.79	Reference Frame: ICRS

Comments: coords, PM from Hipparcos
Category=STAR
Description=[DA]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G185M - ACQ/PEAKXD (COS.sa.1935999)	(2) G191B2B	COS/NUV, ACQ/PEAKXD, PSA	G185M 2010 A				1.0 Secs (1 Secs) *[==>]*	*[1]*
2	G185M - ACQ/PEAKD (COS.sa.1935998)	(2) G191B2B	COS/NUV, ACQ/PEAKD, PSA	G185M 2010 A	STEP-SIZE=0.6; NUM-POS=9.0			1.0 Secs (1 Secs) *[==>]*	*[1]*
3	G185M - 2010 A (COS.sp.1936000)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=80; FP-POS=3			54 Secs (54 Secs) *[==>]*	*[1]*
4	G185M - 1921 A (COS.sp.1936002)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 1921 A	BUFFER-TIME=80; FP-POS=3			46 Secs (46 Secs) *[==>]*	*[1]*
5	G185M - 1786 A (COS.sp.1936003)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G185M 1786 A	BUFFER-TIME=80; FP-POS=3			40 Secs (40 Secs) *[==>]*	*[1]*
6	G225M - 2410 A (COS.sp.1936004)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2410 A	BUFFER-TIME=201; FP-POS=3			143 Secs (143 Secs) *[==>]*	*[1]*
7	G225M - 2233 A (COS.sp.1936005)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=213; FP-POS=3			145 Secs (145 Secs) *[==>]*	*[1]*
8	G225M - 2186 A (COS.sp.1936006)	(2) G191B2B	COS/NUV, TIME-TAG, PSA	G225M 2186 A	BUFFER-TIME=226; FP-POS=3			160 Secs (160 Secs) *[==>]*	*[1]*

Orbit Structure