16818 - ULLYSES LMC O7-O8 Dwarfs - COS

Cycle: 29, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
1C	(1) BI189	COS/FUV	2	23-Feb-2023 12:00:27.0	yes
AC	(1) BI189	COS/FUV	1	23-Feb-2023 12:00:28.0	yes
2C	(2) N11-ELS-032	COS/FUV	2	23-Feb-2023 12:00:30.0	yes
BC	(2) N11-ELS-032	COS/FUV	1	23-Feb-2023 12:00:31.0	yes
3C	(3) VFTS-190	COS/FUV	3	23-Feb-2023 12:00:32.0	yes

9 Total Orbits Used

ABSTRACT

The Space Telescope Science Institute (STScI) Director has decided to devote up to 1000 orbits of Director's Discretionary time in observing Cycles 27-29 to a new Hubble Ultraviolet Legacy program focused on star formation and associated stellar physics. This new program, ULLYSES (UV Legacy Library of Young Stars as Essential Standards), will provide a UV spectroscopic reference sample of young (< 10 Myr) high- and low-mass stars. It will target over ~150 OB stars in the Magellanic Clouds and lower metallicity galaxies in the Local Group, and ~40 T Tauri stars and brown dwarfs in the Milky Way. In addition, ULLYSES will monitor 4 typical T Tauri stars over different rotational phases through at least three rotation periods, and over timescales of months to years. The resulting library will provide template spectra of massive stars at metallicities substantially below the well studied, while the low mass sample will cover a wide range of ages, accretion rates, and masses, including objects down to well below

0.5 M_sun. The legacy of this large UV dataset on the first 10 Myr of stellar evolution will be enhanced by complementary datasets obtained by the scientific community. In addition to the core goals of the program related to stellar astrophysics of low and high mass stars, this data will also enable exciting science in the fields of ISM, CGM, jets, and exoplanets. ULLYSES will be modeled after the Frontier Fields program: all data obtained will be non-proprietary. The implementation team at STScI is developing high-level science data products and a sophisticated database and website for disseminating data from the ULLYSES program and ancillary datasets for the ULLYSES target sample from space and ground-based facilities.

OBSERVING DESCRIPTION

This proposal includes a subset of the massive ULLYSES stars being observed in the Magellanic clouds.

Depending on target brightness, the main FUV spectral range will generally use either the STIS E140M setting or the combination of the COS c1291 + c1611 settings. Sufficiently bright stars without good FUSE data in the archive will also be observed with the COS c1096 setting to provide coverage at shorter wavelengths. Where time permits, stars of type O9 or later will also be observed with STIS E230M/1978, while for supergiants of spectral type B5 or later E230M/2707 may also be included. Where possible, targets of a given spectral type were selected to span both a range in extinction and in rotation rates to support a variety of stellar and ISM studies.

Signal-to-noise requirements used to determine the desired exposures times were defined as follows:
COS/G130M/c1096: 20 / nine-pixel resel at 1080 A
COS/G130M/c1291: 30 / six-pixel resel at 1150 A
COS/G160M/c1611: 30 / six-pixel resel at 1590 A
COS/G185M/c1953: 30 / three-pixel resel at 1860 A
COS/G185M/c1986: 30 / three-pixel resel at 1980 A
STIS/E140M/c1425: 20 / two-pixel resel at 1200 A
STIS/E230M/c1978: 20 / two-pixel resel at 1800 A
STIS/E230M/c2707: 20 / two-pixel resel at 2800 A
The actual implemented exposure times may be adjusted to efficiently use HST orbits, but should always provide at least 80% of the desired time as defined by the above requirements.

Additional details about the scientific motivation and technical implementation strategy of the ULLYSES observations can be found at http://www.stsci.edu/stsci-research/research-topics-and-programs/ullyses. The ULLYSES program is based on the recommendations of a working

group led by Sally Oey; the full text of that group's report can be found at http://www.stsci.edu/files/live/sites/www/files/home/stsci-research/research-topics-and-programs/ullyses/_documents/HSTUV-report-ULLYSES.pdf.

Visit

Proposal 16818, BI189-COS (1C), failed Thu Feb 23 17:00:32 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; BI189; P/COS approved for submission; P/DJS 17/03/22 ; intrev: complete ; P/AF 19/04/22
vcheck; Enter targ name & Inst. & Resp. Sci.; BI189 'BI 189'; COS; DJS
vcheck; ETC numbers entered in APT?; completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; yes BI189_gsc2.png, BI189_2mass.png
vcheck; Selected ACQ strategy?; COS spectroscopic ACQ
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Unknown objects found and resolved
vcheck; Visual BOT check for stars not in catalog?; yes - cleared with Zaritsky catalog
vcheck; Orbit packing finalized?; 2 orbits
vcheck; Buffer times optimized?; yes
vcheck; Verify visit grouping correct; none needed
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 2

Diagnostics

(BI189-COS (1C)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.

Fixed Targets

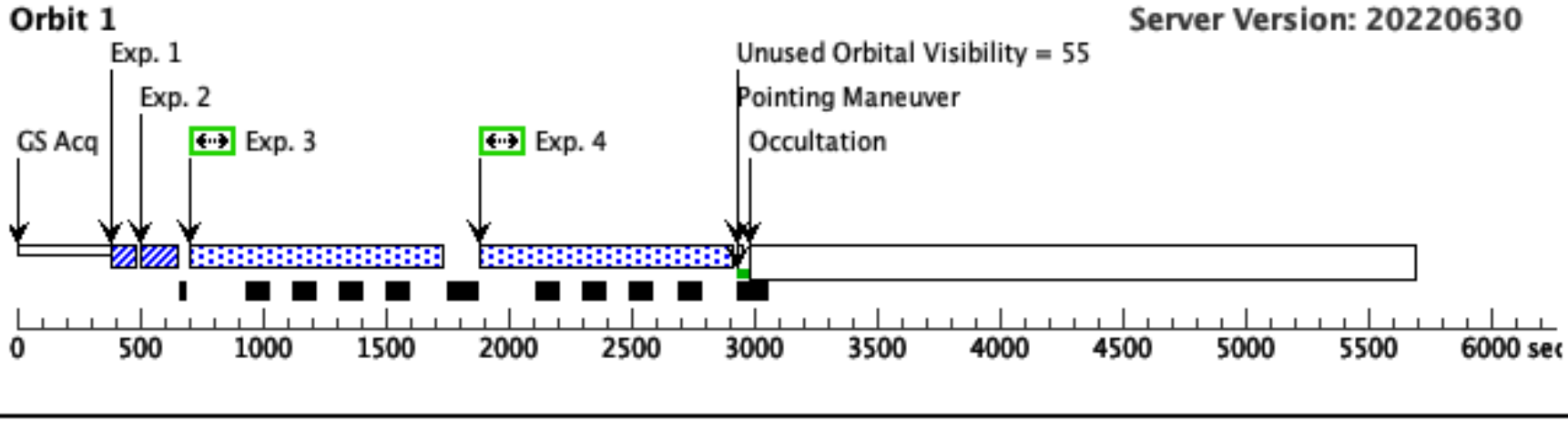
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	BI189	RA: 05 30 57.5830 (82.7399292d)	Parallax: 0"	V=13.45	Reference Frame: ICRS
	Alt Name1: BI-189	Dec: -71 03 33.79 (-71.05939d)		SpT=O8 IV((f))e; E(B-V)=0.21; U=12.45; B=13.39; V=13.45	
		Equinox: J2000			

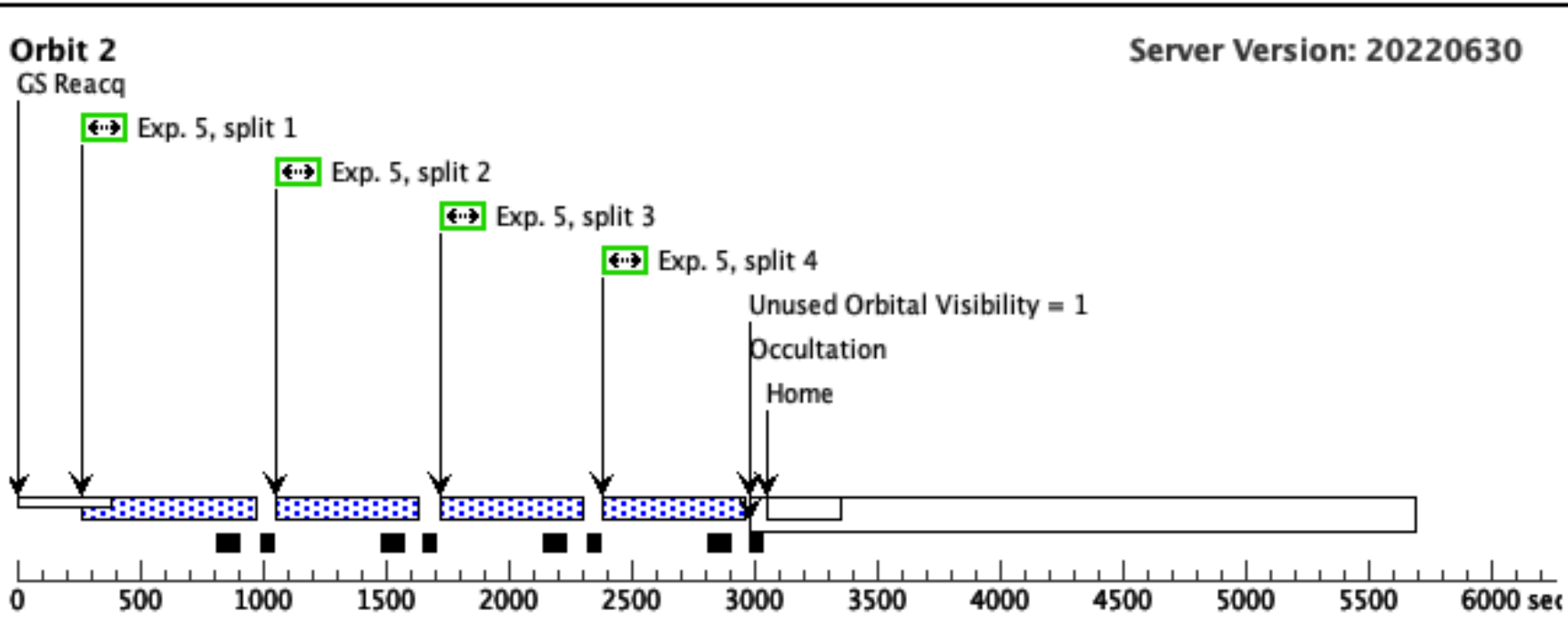
Comments: BI189 : BI 189
Previous name : BI 189
Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
SpT = O8 IV((f))e
COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 vegamag)
COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 vegamag)
Coordinate pedigree: Gaia DR2
Calculation performed 2021-10-25T00:58:24, v0.9
---
tstatus; BI189; P/COS approved for submission; S/ins not started; P/DJS 16/12/21; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; BI189 'BI 189'
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; Yes - Gaia coordinates
tcheck; Adopted SED compared to Observations?; ------
Category=STAR
Description=[MAIN SEQUENCE O, OF, OE]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FUV PEAK XD (COS.sa.168 2354)	(1) BI189	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=3; STEP-SIZE=1.3			0.6 Secs (0.6 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
2	FUV PEAK D (COS.sa.168 2354)	(1) BI189	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			0.6 Secs (0.6 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
3	G130M/1291-3 (COS.sp.168 2356)	(1) BI189	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=192; FP-POS=3			982 Secs (982 Secs) *[==>]*	***[1]***
	Comments: rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 veg amag); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O8 IV((f))e* *SED = BI189_COS_G130M_c1291_sed.fits* *For exptime=791.8 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 4383.2 cts/s/segment* *brightest pixel: 0.075 cts/s/pix at 1276.0 A* *Calculation performed 2021-10-25T00:58:27, v0.9*								
4	G130M/1291-4 (COS.sp.168 2356)	(1) BI189	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=192; FP-POS=4			982 Secs (982 Secs) *[==>]*	***[1]***
	Comments: rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 veg amag); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O8 IV((f))e* *SED = BI189_COS_G130M_c1291_sed.fits* *For exptime=791.8 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 4383.2 cts/s/segment* *brightest pixel: 0.075 cts/s/pix at 1276.0 A* *Calculation performed 2021-10-25T00:58:27, v0.9*								
5	G160M/1611 (COS.sp.168 2357)	(1) BI189	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=390; FP-POS=ALL			532 Secs (2128 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]***
	Comments: rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 veg amag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O8 IV((f))e* *SED = BI189_COS_G160M_c1611_sed.fits* *For exptime=1021.4 s, spectral region:* *1590.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 3207.0 cts/s/segment* *brightest pixel: 0.061 cts/s/pix at 1424.5 A* *Calculation performed 2021-10-25T00:58:29, v0.9*								

Orbit Structure





Visit

Proposal 16818, BI189-COS (AC), completed Thu Feb 23 17:00:33 GMT 2023

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; BI189; P/COS approved for submission; P/DJS 17/03/22 ; intrev: complete ; P/AF 19/04/22
vcheck; Enter targ name & Inst. & Resp. Sci.; BI189 'BI 189'; COS; DJS
vcheck; ETC numbers entered in APT?; completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; yes BI189_gsc2.png, BI189_2mass.png
vcheck; Selected ACQ strategy?; COS spectroscopic ACQ
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Unknown objects found and resolved
vcheck; Visual BOT check for stars not in catalog?; yes - cleared with Zaritsky catalog
vcheck; Orbit packing finalized?; 2 orbits
vcheck; Buffer times optimized?; yes
vcheck; Verify visit grouping correct; none needed
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 2

Update on 04/11/22:
Visit AC was authorized by the TTRB (HOPR 92375) to repeat the COS G160M/1611 exposures that did not execute during Visit 1C. Visit AC is 1 orbit in duration. To allow for a dispersed light target acquisition, the original exposure time was decreased from 532 s per FP-POS to 429 s per FP-POS. The buffer time was also adjusted to optimize orbit packing. ETC calculation COS.sp.1830747 shows that the adjusted exposure time of 4 x 429 = 1716 s should achieve a S/N of 37.9 per resel at 1590 Angstroms, which is consistent with the requirements of the ULLYSES project.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	BI189	RA: 05 30 57.5830 (82.7399292d)	Parallax: 0"	V=13.45	Reference Frame: ICRS
	Alt Name1: BI-189	Dec: -71 03 33.79 (-71.05939d)		SpT=O8 IV((f))e; E(B-V)=0.21; U=12.45; B=13.39; V=13.45	
		Equinox: J2000			

Comments: BI189 : BI 189
Previous name : BI 189
Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
SpT = O8 IV((f))e
COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 vegamag)
COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 vegamag)
Coordinate pedigree: Gaia DR2
Calculation performed 2021-10-25T00:58:24, v0.9
---
tstatus; BI189; P/COS approved for submission; S/ins not started; P/DJS 16/12/21; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; BI189 'BI 189'
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; Yes - Gaia coordinates
tcheck; Adopted SED compared to Observations?; ------
Category=STAR
Description=[MAIN SEQUENCE O, OF, OE]
Extended=NO

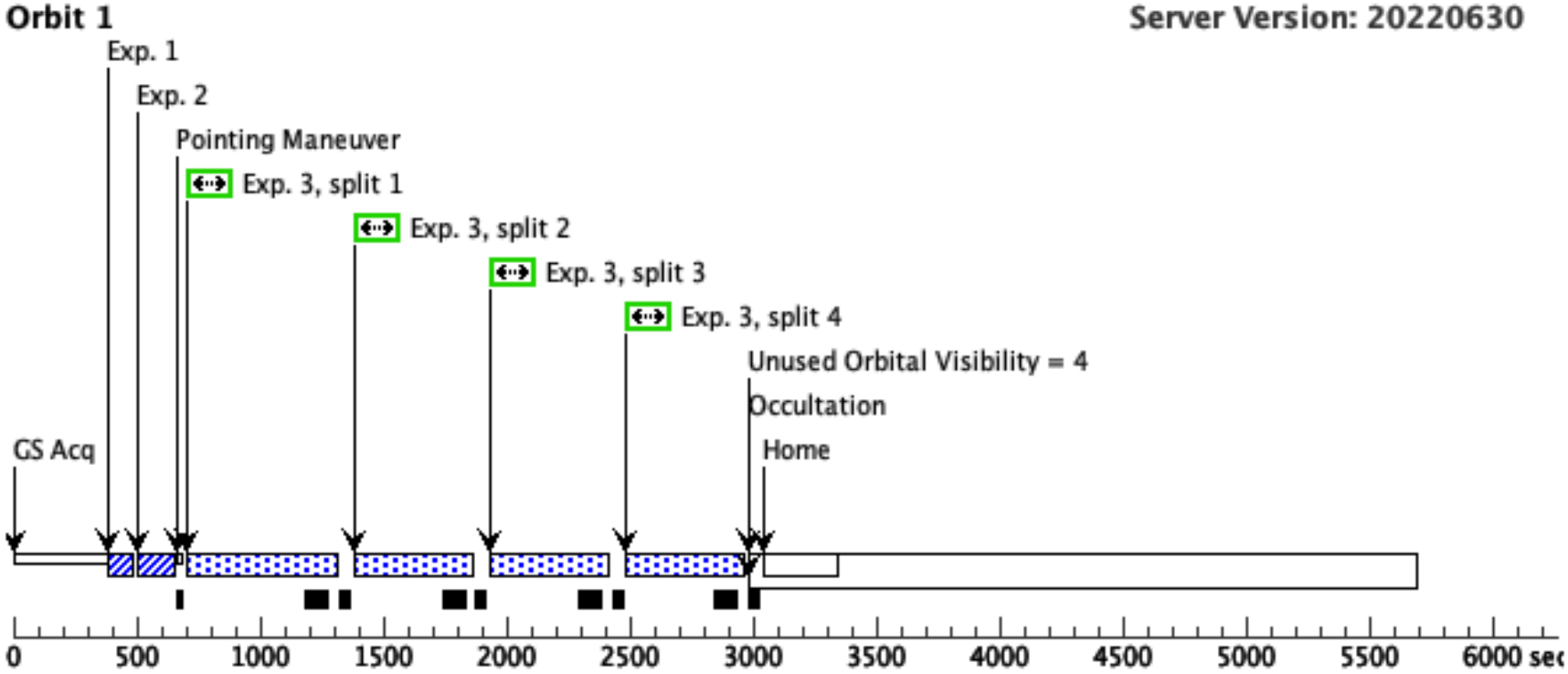
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FUV PEAK XD (COS.sa.1682354)	(1) BI189	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3			0.6 Secs (0.6 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
2	FUV PEAK D (COS.sa.1682354)	(1) BI189	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			0.6 Secs (0.6 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
3	G160M/1611 (COS.sp.1830747)	(1) BI189	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=322; FP-POS=ALL			429 Secs (1716 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***

Comments: rn(PoWR-OB-new(PoWR_34000_3.80_m7.00_Z0.50.fits, lmc-ob-i 34-38, Z=0.500 solar, Teff=34000, log_lum=5.10, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.210), johnson U mag=12.450 veg amag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None)
From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
Spectral type: O8 IV((f))e
SED = BI189_COS_G160M_c1611_sed.fits
For exptime=1021.4 s, spectral region:
1590.0 +- 0.5 A achieves SNR=30.0/resel
global countrate (brightest segment): 3207.0 cts/s/segment
brightest pixel: 0.061 cts/s/pix at 1424.5 A
Calculation performed 2021-10-25T00:58:29, v0.9

To accommodate a dispersed light target acqusition in the single orbit of Visit AC, the exposure time per FP-POS was decreased to 429 s (1716 s total).
ETC calculation COS.sp.1830747 indicates that a strong exposure is still expected.
Count rate (Total, Segment A, Segment B) = (3919, 872, 3047) per s
Brightest pixel: 0.058 ct/s at 1424.5 Angstroms
Buffer Fill Time = 602 s.
*Buffer Time = 2/3. * 602 s = 401 s. Decreased to 322 s to optimize orbit-packing.*

Orbit Structure



Visit

Proposal 16818, N11-ELS-032-COS (2C), failed Thu Feb 23 17:00:33 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 2C; N11-ELS-032; P/COS approved for submission; P/DJS 17/03/22 ; intrev: complete ; P/AF 19/04/22
vcheck; Enter targ name & Inst. & Resp. Sci.; N11-ELS-032 '[ELS2006] N11 032'; COS; DJS
vcheck; ETC numbers entered in APT?; completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; yes N11-ELS-032_gsc2.png, N11-ELS-032_2mass.png
vcheck; Selected ACQ strategy?; COS Spectroscopic ACQ
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Unknown objects found ard resolved
vcheck; Visual BOT check for stars not in catalog?; yes - cleared with Zaritsky catalog
vcheck; Orbit packing finalized?; 2 orbits
vcheck; Buffer times optimized?; yes
vcheck; Verify visit grouping correct; none needed
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 2

Diagnostics

(N11-ELS-032-COS (2C)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	N11-ELS-032 Alt Name1: ELS2006-N11-032	RA: 04 56 54.4645 (74.2269354d) Dec: -66 24 15.87 (-66.40441d) Equinox: J2000	Proper Motion RA: 1.663 mas/yr Proper Motion Dec: 0.158 mas/yr Parallax: 0" Epoch of Position: 2015.5	V=13.68 SpT=O7 II(f); E(B-V)=0.16; U=12.58; B=13.57; V=13.68; F1160=2.110e-13	Reference Frame: ICRS

Comments: N11-ELS-032 : [ELS2006] N11 032
Previous name : N11-032
Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
SpT = O7 II(f)
COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam)
COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam)
Coordinate pedigree: Gaia DR2
Calculation performed 2021-10-25T00:58:14, v0.9
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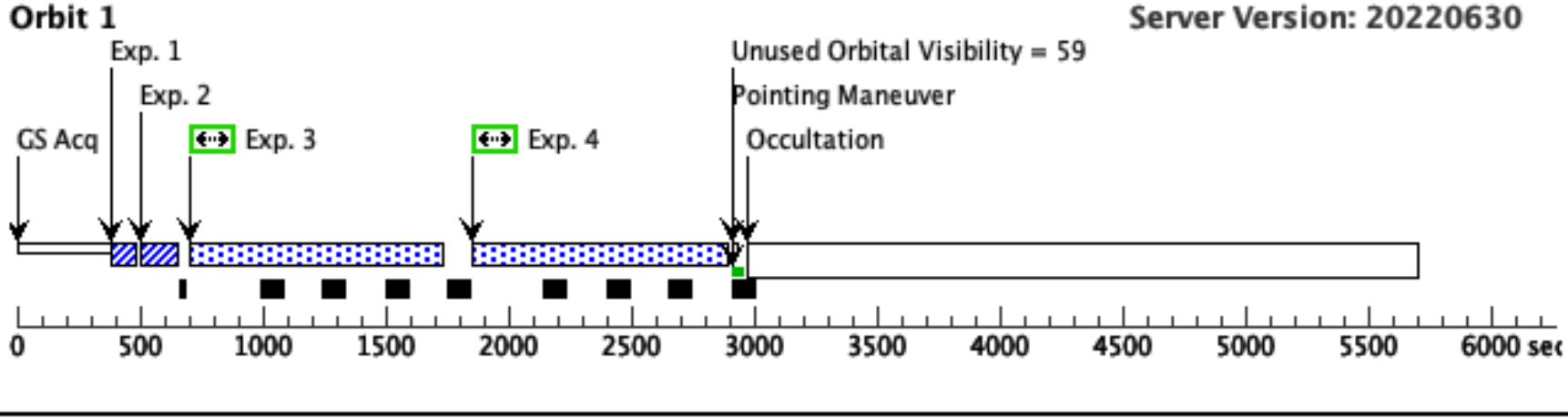
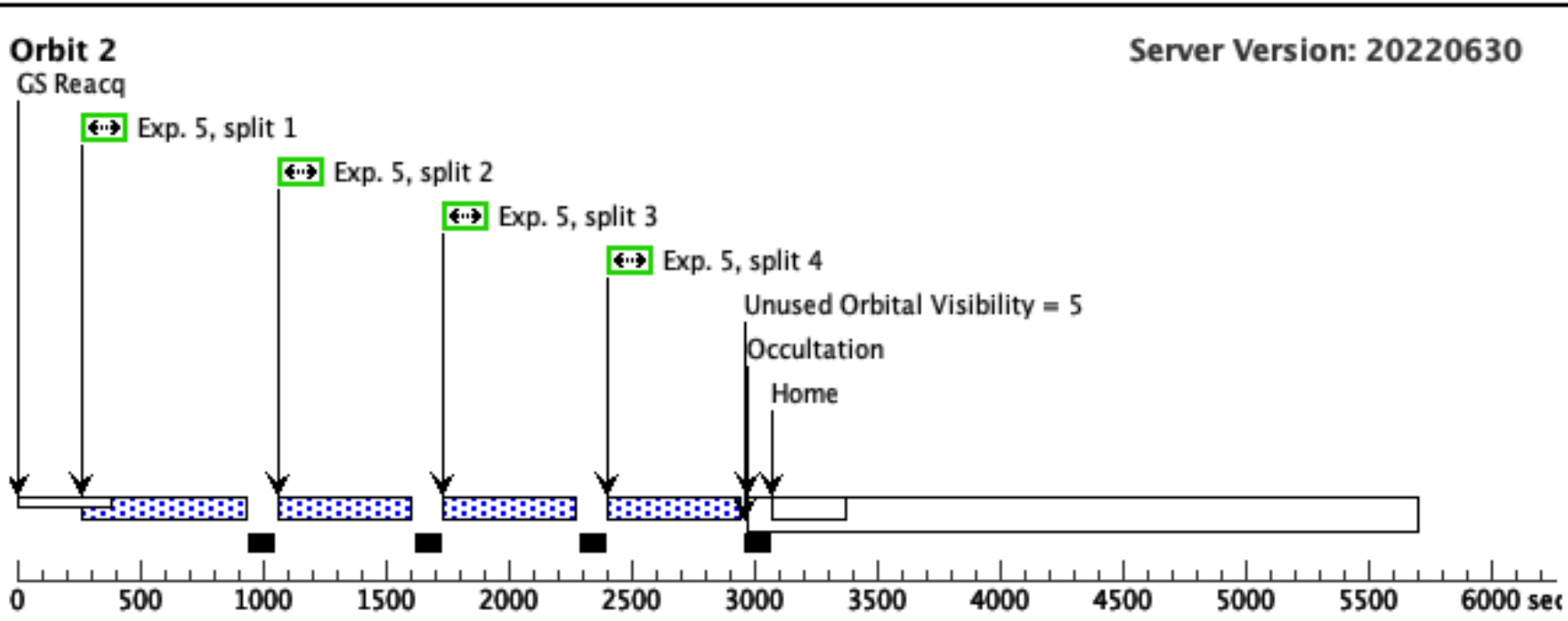
tstatus; N11-ELS-032; P/COS approved for submission; S/ins not started; P/DJS 29/12/21; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; N11-ELS-032 '[ELS2006] N11 032'
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; Yes - Gaia coordinates
tcheck; Adopted SED compared to Observations?; ------
Category=STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FUV PEAK XD (COS.sa.168 2374)	(2) N11-ELS-032	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=3; STEP-SIZE=1.3			0.4 Secs (0.4 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
2	FUV PEAK D (COS.sa.168 2374)	(2) N11-ELS-032	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			0.4 Secs (0.4 Secs) *[==>]*	***[1]***
	Comments: Exposure time not yet calculated.								
3	G130M/1291-3 (COS.sp.168 2375)	(2) N11-ELS-032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2504; FP-POS=3			985 Secs (985 Secs) *[==>]*	***[1]***
	Comments: rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 II(f)* *SED = N11-ELS-32_COS_G130M_c1291_sed.fits* *For exptime=909.6 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 3539.7 cts/s/segment* *brightest pixel: 0.068 cts/s/pix at 1243.5 A* *Calculation performed 2021-10-25T00:58:17, v0.9*								
4	G130M/1291-4 (COS.sp.168 2375)	(2) N11-ELS-032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2504; FP-POS=4			985 Secs (985 Secs) *[==>]*	***[1]***
	Comments: rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 II(f)* *SED = N11-ELS-32_COS_G130M_c1291_sed.fits* *For exptime=909.6 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 3539.7 cts/s/segment* *brightest pixel: 0.068 cts/s/pix at 1243.5 A* *Calculation performed 2021-10-25T00:58:17, v0.9*								
5	G160M/1611 (COS.sp.168 2376)	(2) N11-ELS-032	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=5510; FP-POS=ALL			491 Secs (1964 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]***
	Comments: rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 II(f)* *SED = N11-ELS-32_COS_G160M_c1611_sed.fits* *For exptime=1440.0 s, spectral region:* *1590.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 2268.5 cts/s/segment* *brightest pixel: 0.041 cts/s/pix at 1424.5 A* *Calculation performed 2021-10-25T00:58:19, v0.9*								

Orbit Structure





Visit

Proposal 16818, N11-ELS-032-COS (BC) Thu Feb 23 17:00:33 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 2C; N11-ELS-032; P/COS approved for submission; P/DJS 17/03/22 ; intrev: complete ; P/AF 19/04/22
vcheck; Enter targ name & Inst. & Resp. Sci.; N11-ELS-032 '[ELS2006] N11 032'; COS; DJS
vcheck; ETC numbers entered in APT?; completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; yes N11-ELS-032_gsc2.png, N11-ELS-032_2mass.png
vcheck; Selected ACQ strategy?; COS Spectroscopic ACQ
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Unknown objects found ard resolved
vcheck; Visual BOT check for stars not in catalog?; yes - cleared with Zaritsky catalog
vcheck; Orbit packing finalized?; 2 orbits
vcheck; Buffer times optimized?; yes
vcheck; Verify visit grouping correct; none needed
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 2

Diagnostics

(N11-ELS-032-COS (BC)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.

Fixed Targets

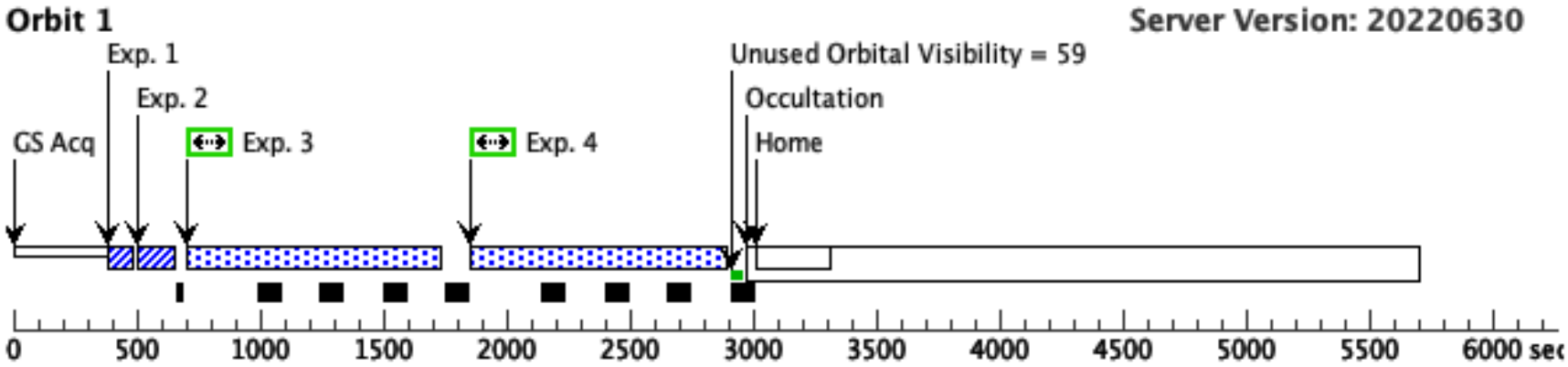
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	N11-ELS-032 Alt Name1: ELS2006-N11-032	RA: 04 56 54.4645 (74.2269354d) Dec: -66 24 15.87 (-66.40441d) Equinox: J2000	Proper Motion RA: 1.663 mas/yr Proper Motion Dec: 0.158 mas/yr Parallax: 0" Epoch of Position: 2015.5	V=13.68 SpT=O7 II(f); E(B-V)=0.16; U=12.58; B=13.57; V=13.68; F1160=2.110e-13	Reference Frame: ICRS

Comments: N11-ELS-032 : [ELS2006] N11 032
Previous name : N11-032
Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
SpT = O7 II(f)
COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam)
COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam)
Coordinate pedigree: Gaia DR2
Calculation performed 2021-10-25T00:58:14, v0.9
---
tstatus; N11-ELS-032; P/COS approved for submission; S/ins not started; P/DJS 29/12/21; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; N11-ELS-032 '[ELS2006] N11 032'
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; Yes - Gaia coordinates
tcheck; Adopted SED compared to Observations?; ------
Category=STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FUV PEAK XD (COS.sa.168 2374)	(2) N11-ELS-032	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=3; STEP-SIZE=1.3			0.4 Secs (0.4 Secs) [==>]	[1]
	Comments: Exposure time not yet calculated.								
2	FUV PEAK D (COS.sa.168 2374)	(2) N11-ELS-032	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			0.4 Secs (0.4 Secs) [==>]	[1]
	Comments: Exposure time not yet calculated.								
3	G130M/1291-3 (COS.sp.168 2375)	(2) N11-ELS-032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=254; FP-POS=3			985 Secs (985 Secs) [==>]	[1]
	Comments: rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 II(f)* *SED = N11-ELS-32_COS_G130M_c1291_sed.fits* *For exptime=909.6 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 3539.7 cts/s/segment* *brightest pixel: 0.068 cts/s/pix at 1243.5 A* *Calculation performed 2021-10-25T00:58:17, v0.9*								
4	G130M/1291-4 (COS.sp.168 2375)	(2) N11-ELS-032	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=254; FP-POS=4			985 Secs (985 Secs) [==>]	[1]
	Comments: rn(PoWR-OB-new(PoWR_36000_3.60_m7.00_Z0.50.fits, lmc-ob-i 36-36, Z=0.500 solar, Teff=36000, log_lum=5.61, log_g=3.60, log_mdot=-7.00) (extinction lmcavg=0.160), flux1160 +- 2.0A flux=2.1e-13 Flam); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 II(f)* *SED = N11-ELS-32_COS_G130M_c1291_sed.fits* *For exptime=909.6 s, spectral region:* *1150.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 3539.7 cts/s/segment* *brightest pixel: 0.068 cts/s/pix at 1243.5 A* *Calculation performed 2021-10-25T00:58:17, v0.9*								

Orbit Structure



Visit

Proposal 16818, VFTS-190-COS (3C), completed Thu Feb 23 17:00:33 GMT 2023

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 3C; VFTS-190; P/COS approved for submission; P/DJS 17/03/22 ; intrev: complete ; P/AF 19/04/22
vcheck; Enter targ name & Inst. & Resp. Sci.; VFTS-190 'VFTS 190'; COS; DJS
vcheck; ETC numbers entered in APT?; completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; yes VFTS-190_gsc2.png, VFTS-190_2mass.png
vcheck; Selected ACQ strategy?; COS spectroscopic ACQ
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; yes
vcheck; Visual BOT check for stars not in catalog?; yes
vcheck; Orbit packing finalized?; yes
vcheck; Buffer times optimized?; yes
vcheck; Verify visit grouping correct; none needed
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 3

Diagnostics

(VFTS-190-COS (3C)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	VFTS-190	RA: 05 37 53.2982 (84.4720758d) Dec: -69 12 57.23 (-69.21590d) Equinox: J2000	Proper Motion RA: 1.654 mas/yr Proper Motion Dec: 0.704 mas/yr Parallax: 0" Epoch of Position: 2015.5	V=14.67 SpT=O7 Vnn((f))p; E(B-V)=0.23; B=14.63; V=14.67	Reference Frame: ICRS

Comments: VFTS-190 : VFTS 190
Previous name : VFTS-190
Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
SpT = O7 Vnn((f))p
COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 vegamag)
COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 vegamag)
Coordinate pedigree: Gaia DR2
Calculation performed 2021-10-25T00:58:34, v0.9
---
tstatus; VFTS-190; P/COSapproved for submission; S/ins not started; P/DJS 29/12/21; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; VFTS-190 'VFTS 190'
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; Yes - Gaia coordinates
tcheck; Adopted SED compared to Observations?; ------
Category=STAR
Description=[MAIN SEQUENCE O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FUV PEAK XD (COS.sa.168 2382)	(3) VFTS-190	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=3; STEP-SIZE=1.3			1 Secs (1 Secs) *[==>]*	*[1]*
	Comments: Exposure time not yet calculated.								
2	FUV PEAK D (COS.sa.168 2382)	(3) VFTS-190	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			1 Secs (1 Secs) *[==>]*	*[1]*
	Comments: Exposure time not yet calculated.								
3	G160M/1611 (COS.sp.168 2385)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=849; FP-POS=1			977 Secs (977 Secs) *[==>]*	*[1]*
	Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 Vnn((f))p* *SED = VFTS-190_COS_G160M_c1611_sed.fits* *For exptime=3384.4 s, spectral region:* *1590.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 1009.8 cts/s/segment* *brightest pixel: 0.018 cts/s/pix at 1424.5 A* *Calculation performed 2021-10-25T00:58:39, v0.9*								
4	G160M/1611 (COS.sp.168 2385)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=849; FP-POS=2			977 Secs (977 Secs) *[==>]*	*[1]*
	Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 Vnn((f))p* *SED = VFTS-190_COS_G160M_c1611_sed.fits* *For exptime=3384.4 s, spectral region:* *1590.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 1009.8 cts/s/segment* *brightest pixel: 0.018 cts/s/pix at 1424.5 A* *Calculation performed 2021-10-25T00:58:39, v0.9*								
5	G160M/1611 (COS.sp.168 2385)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=849; FP-POS=3			949 Secs (949 Secs) *[==>]*	*[2]*
	Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None) *From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv* *Spectral type: O7 Vnn((f))p* *SED = VFTS-190_COS_G160M_c1611_sed.fits* *For exptime=3384.4 s, spectral region:* *1590.0 +- 0.5 A achieves SNR=30.0/resel* *global countrate (brightest segment): 1009.8 cts/s/segment* *brightest pixel: 0.018 cts/s/pix at 1424.5 A* *Calculation performed 2021-10-25T00:58:39, v0.9*								

6	G160M/161 1 (COS.sp.168 2385)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=849; FP-POS=4	949 Secs (949 Secs) *[==>]*	***[2]***

Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g160m,c1611,psa,mjd#59670; fp-pos=None, segment=None)
From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
Spectral type: O7 Vnn((f))p
SED = VFTS-190_COS_G160M_c1611_sed.fits
For exptime=3384.4 s, spectral region:
1590.0 +- 0.5 A achieves SNR=30.0/resel
global countrate (brightest segment): 1009.8 cts/s/segment
brightest pixel: 0.018 cts/s/pix at 1424.5 A
Calculation performed 2021-10-25T00:58:39, v0.9

7	G130M/129 1-3 (COS.sp.168 2383)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=595; FP-POS=3	257 Secs (257 Secs) *[==>]*	***[2]***

Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
Spectral type: O7 Vnn((f))p
SED = VFTS-190_COS_G130M_c1291_sed.fits
For exptime=2464.6 s, spectral region:
1150.0 +- 0.5 A achieves SNR=30.0/resel
global countrate (brightest segment): 1494.5 cts/s/segment
brightest pixel: 0.026 cts/s/pix at 1243.5 A
Calculation performed 2021-10-25T00:58:37, v0.9

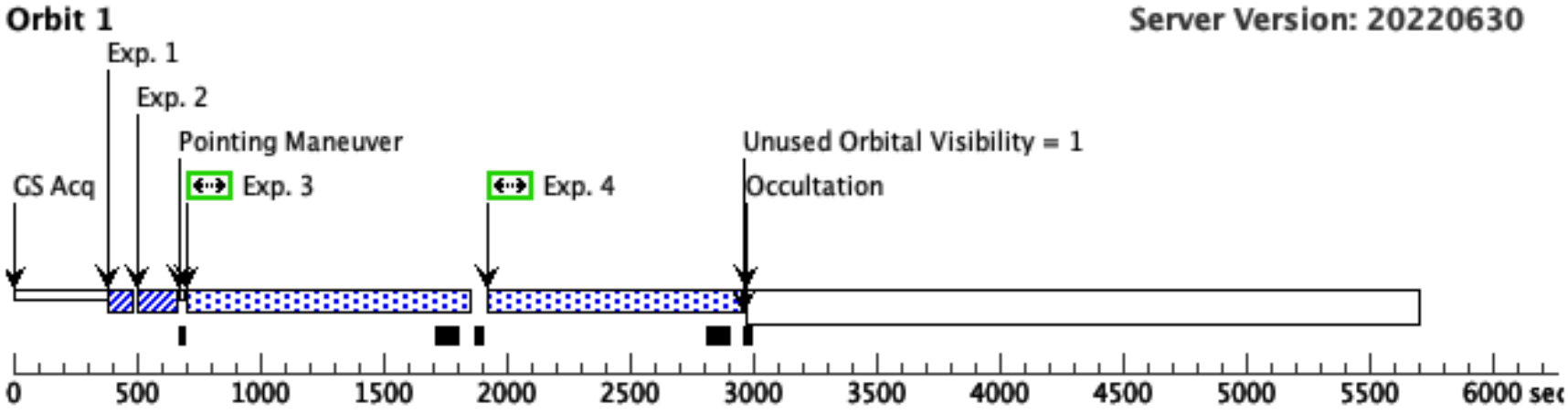
8	G130M/129 1-3 (COS.sp.168 2383)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=495; FP-POS=3	1033 Secs (1033 Secs) *[==>]*	***[3]***

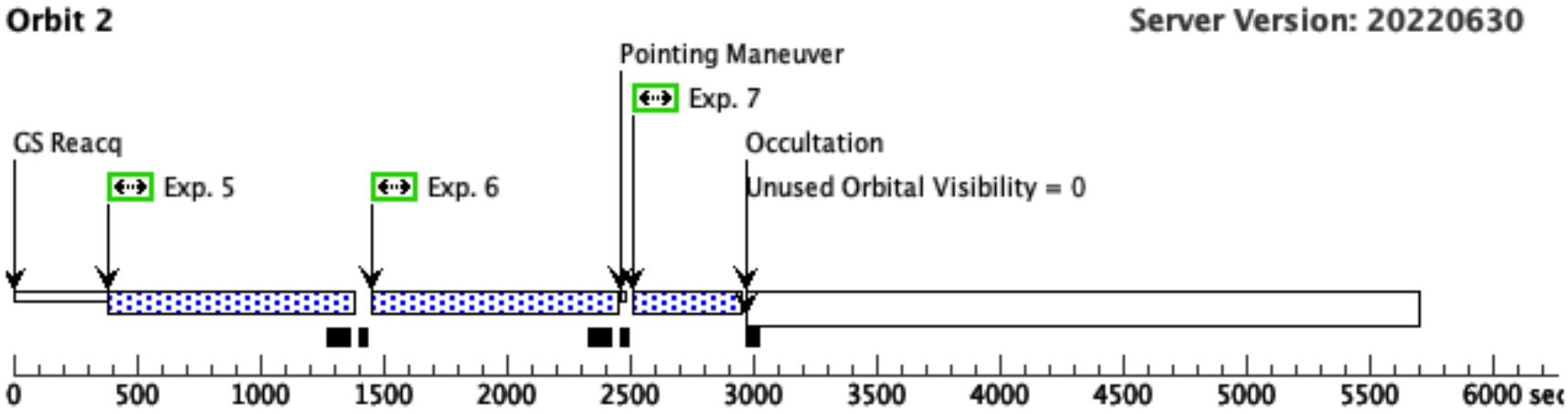
Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
Spectral type: O7 Vnn((f))p
SED = VFTS-190_COS_G130M_c1291_sed.fits
For exptime=2464.6 s, spectral region:
1150.0 +- 0.5 A achieves SNR=30.0/resel
global countrate (brightest segment): 1494.5 cts/s/segment
brightest pixel: 0.026 cts/s/pix at 1243.5 A
Calculation performed 2021-10-25T00:58:37, v0.9

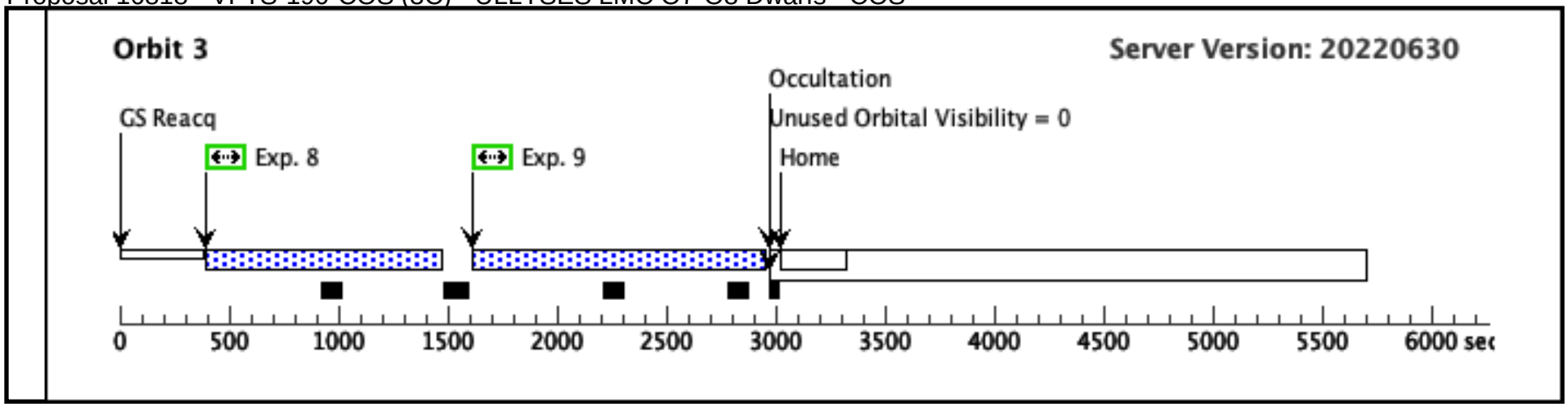
9	G130M/129 1-4 (COS.sp.168 2383)	(3) VFTS-190	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=566; FP-POS=4	1290 Secs (1290 Secs) *[==>]*	***[3]***

Comments: rn(PoWR-OB-new(PoWR_37000_4.00_m7.00_Z0.50.fits, lmc-ob-i 37-40, Z=0.500 solar, Teff=37000, log_lum=5.07, log_g=4.00, log_mdot=-7.00) (extinction lmc30dor=0.230), johnson B mag=14.630 v egamag); cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv
Spectral type: O7 Vnn((f))p
SED = VFTS-190_COS_G130M_c1291_sed.fits
For exptime=2464.6 s, spectral region:
1150.0 +- 0.5 A achieves SNR=30.0/resel
global countrate (brightest segment): 1494.5 cts/s/segment
brightest pixel: 0.026 cts/s/pix at 1243.5 A
Calculation performed 2021-10-25T00:58:37, v0.9

Orbit Structure






Orbit 3
Server Version: 20220630
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 8
Exp. 9
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4500
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5500
6000 sec