



17296 - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

Cycle: 29, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

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Dr. David J. Sahnou (CoI)	Space Telescope Science Institute
Dr. Ravi Sankrit (CoI)	Space Telescope Science Institute
Dr. Richard Shaw (CoI)	Space Telescope Science Institute
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Dr. Daniel E. Welty (CoI)	Space Telescope Science Institute

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>
1C	(1) VFTS-355	COS/FUV COS/NUV	2	14-Mar-2023 16:01:02.0	yes
1D	(1) VFTS-355	COS/FUV COS/NUV	2	14-Mar-2023 16:01:03.0	yes
2C	(2) N11-ELS-020	COS/FUV COS/NUV	1	14-Mar-2023 16:01:04.0	yes

5 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 $0.5 M_{\odot}$. 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 Å

COS/G130M/c1291: 30 / six-pixel resel at 1150 Å

COS/G160M/c1611: 30 / six-pixel resel at 1590 Å

COS/G185M/c1953: 30 / three-pixel resel at 1860 Å

COS/G185M/c1986: 30 / three-pixel resel at 1980 Å

STIS/E140M/c1425: 20 / two-pixel resel at 1200 Å

STIS/E230M/c1978: 20 / two-pixel resel at 1800 Å

STIS/E230M/c2707: 20 / two-pixel resel at 2800 Å

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

Proposal 17296 (STScI Edit Number: 1, Created: Tuesday, March 14, 2023 at 3:01:05 PM Eastern Standard Time) - Overview

<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.

Proposal 17296 - VFTS-355-COS (1C) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

Tue Mar 14 20:01:05 GMT 2023

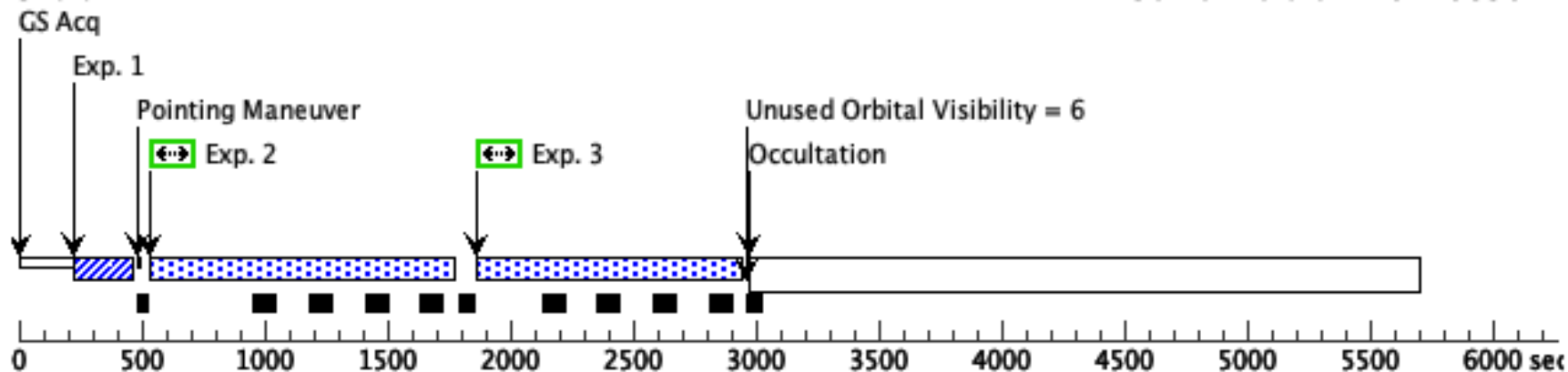
Visit	Proposal 17296, VFTS-355-COS (1C), implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100% Comments: vstatus; 1C; VFTS-355; P/COS approved for submission; P/RS 22/06/22 ; intrev: complete ; P/AF 02/07/22 vcheck; Enter targ name & Inst. & Resp. Sci.; VFTS-355 ; COS ; RS vcheck; ETC numbers entered in APT?; Yes vcheck; Any screening violations?; No vcheck; S/N ETC calcs done & documented?; N/A vcheck; Field images checked & saved?; Yes vcheck; Selected ACQ strategy?; Yes ... NUV ACQ with MIRROR A and BOA vcheck; Possible ACQ or Sci spoilers?; No vcheck; Field BOT clear?; Yes ... the Zaritsky catalog shows that there is one bright star with V=16.5, however, B-V=1.5 for the star probably late G and therefore safe vcheck; Visual BOT check for stars not in catalog?; Okay vcheck; Orbit packing finalized?; Yes vcheck; Buffer times optimized?; Yes vcheck; Verify visit grouping correct; N/A vcheck; Is visit ready for int. review?; Yes Allocated COS orbits = 2 9/3/23 ADDITIONAL NOTES (AF) Visit 1C is designed to increase the S/N of the COS G130M/1096 spectrum of VFTS-355 that was obtained by ULLYSES (PID, Visit) = (16814, 2C). Visit 1C was constructed directly from the previous visit. To start, the APT file for PID 16814 was retrieved from STScI and the target information for VFTS-355 and the detailed implementation of Visit 2C were copied in their entirety. The exposures for G130M/1291 and G160M/1611 were removed, leaving the initial NUV imaging target acquisition (Orbit 1) and 4 G130M/1096 sub-exposures (one for each FP-POS) in Orbits 1 and 2. The exposure and buffer times for FP-POS1 and FP-POS2 were adjusted to fill the time remaining in Orbit 1 after allowing for the target acquisition. The previously executed exposures for FP-POS3 and FP-POS4 had already been planned to fill an orbit, and were not modified. Although detailed ETC calculations were not performed, the combined data from Visits (16814, 2C), (17296, 1C), and (17296, 1D) are expected to produce S/N of ~18 per resel at 1080 Angstroms. Note that most of the information in the vstatus/vcheck checklist (see above) pertains to the original implementation of (16814, 2C), though the visit designation and orbital allocation have been updated for (17296, 1C). Since the target information, bright-object checking, and implementation details were thoroughly vetted for the original visit, the internal review was not repeated for the current "top up" visit.																																	
	<table> <tr> <th>#</th><th>Name</th><th>Target Coordinates</th><th>Targ. Coord. Corrections</th><th>Fluxes</th><th>Miscellaneous</th></tr> <tr> <td>(1)</td><td>VFTS-355</td><td>RA: 05 38 29.1463 (84.6214429d)</td><td>Proper Motion RA: 1.687 mas/yr</td><td>V=14.12</td><td>Reference Frame: ICRS</td></tr> <tr> <td></td><td>Alt Name1: 2MASS-J05382913-6857393</td><td>Dec: -68 57 39.33 (-68.96092d)</td><td>Proper Motion Dec: 0.734 mas/yr</td><td>SpT=O4 V((n))((fc))z; E(B-V)=0.09; B=13.93; V=14.12</td><td></td></tr> <tr> <td></td><td></td><td>Equinox: J2000</td><td>Parallax: 0"</td><td></td><td></td></tr> <tr> <td></td><td></td><td></td><td>Epoch of Position: 2000.0</td><td></td><td></td></tr> </table> Comments: VFTS-355 : VFTS 355 Previous name : VFTS-355 Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv SpT = O4 V((n))((fc))z COS/G130M/c1096 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdodot=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdodot=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdodot=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) Coordinate pedigree: Gaia DR2 Calculation performed 2021-10-25T00:56:59, v0.9 ----- tstatus; VFTS-355; P/COS approved for submission; S/ins not started; P/RS 22/06/22; S/xx DD/MM/YY tcheck; APT/SIMBAD target names: ; VFTS-355 '2MASS J05382913-6857393' tcheck; Target info verification status?; Ok tcheck; Coordinates & P.M. verified, epoch checked?; Yes tcheck; Adopted SED compared to Observations?; Yes ... VFTS-355_COS_G130M_c1291_sed.fits Category=STAR Description=[MAIN SEQUENCE O, OF] Extended=NO					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	VFTS-355	RA: 05 38 29.1463 (84.6214429d)	Proper Motion RA: 1.687 mas/yr	V=14.12	Reference Frame: ICRS		Alt Name1: 2MASS-J05382913-6857393	Dec: -68 57 39.33 (-68.96092d)	Proper Motion Dec: 0.734 mas/yr	SpT=O4 V((n))((fc))z; E(B-V)=0.09; B=13.93; V=14.12				Equinox: J2000	Parallax: 0"						Epoch of Position: 2000.0	
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Proposal 17296 - VFTS-355-COS (1C) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (COS.ta.180 8292)	(1) VFTS-355	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				7.5 Secs (7.5 Secs) [==>]	[1]
Comments: Exposure time not yet calculated.									
2	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=22 6; FP-POS=1			1029 Secs (1029 Secs) [==>]	[1]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq): cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
3	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=22 6; FP-POS=2			1029 Secs (1029 Secs) [==>]	[1]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq): cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
4	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=27 0; FP-POS=3			1190 Secs (1190 Secs) [==>]	[2]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq): cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
5	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=27 0; FP-POS=4			1190 Secs (1190 Secs) [==>]	[2]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq): cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									

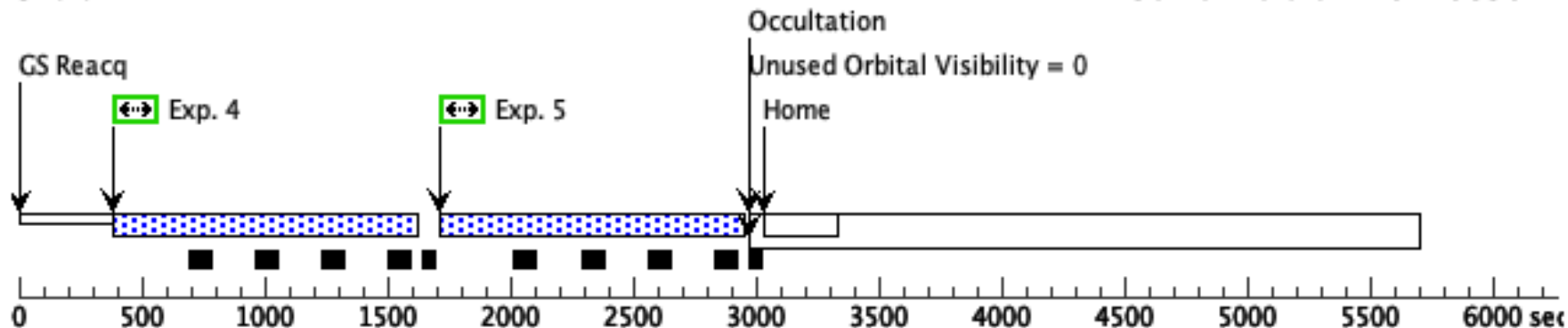
Orbit 1

Server Version: 20220630



Orbit 2

Server Version: 20220630



Proposal 17296 - VFTS-355-COS (1D) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

Tue Mar 14 20:01:05 GMT 2023

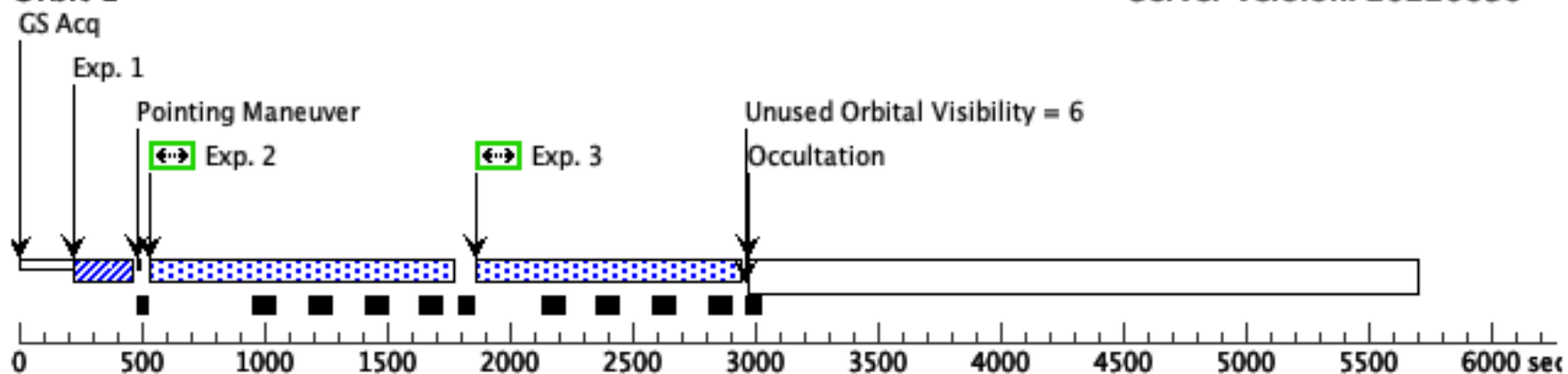
Visit	Proposal 17296, VFTS-355-COS (1D), implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100% Comments: vstatus; 1D; VFTS-355; P/COS approved for submission; P/RS 22/06/22 ; intrev: complete ; P/AF 02/07/22 vcheck; Enter targ name & Inst. & Resp. Sci.; VFTS-355 ; COS ; RS vcheck; ETC numbers entered in APT?; Yes vcheck; Any screening violations?; No vcheck; S/N ETC calcs done & documented?; N/A vcheck; Field images checked & saved?; Yes vcheck; Selected ACQ strategy?; Yes ... NUV ACQ with MIRROR A and BOA vcheck; Possible ACQ or Sci spoilers?; No vcheck; Field BOT clear?; Yes ... the Zaritsky catalog shows that there is one bright star with V=16.5, however, B-V=1.5 for the star probably late G and therefore safe vcheck; Visual BOT check for stars not in catalog?; Okay vcheck; Orbit packing finalized?; Yes vcheck; Buffer times optimized?; Yes vcheck; Verify visit grouping correct; N/A vcheck; Is visit ready for int. review?; Yes Allocated COS orbits = 2 9/3/23 ADDITIONAL NOTES (AF) Visit 1D is an exact copy of Visit 1C. See the additional notes for it.																					
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Fixed Targets	Comments: VFTS-355 : VFTS 355 Previous name : VFTS-355 Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv SpT = O4 V((n))((fc))z COS/G130M/c1096 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) COS/G130M/c1291 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) COS/G160M/c1611 : rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 vegamag) Coordinate pedigree: Gaia DR2 Calculation performed 2021-10-25T00:56:59, v0.9 ----- tstatus; VFTS-355; P/COS approved for submission; S/ins not started; P/RS 22/06/22; S/xx DD/MM/YY tcheck; APT/SIMBAD target names: ; VFTS-355 '2MASS J05382913-6857393' tcheck; Target info verification status?; Ok tcheck; Coordinates & P.M. verified, epoch checked?; Yes tcheck; Adopted SED compared to Observations?; Yes ... VFTS-355_COS_G130M_c1291_sed.fits Category=STAR Description=[MAIN SEQUENCE O, OF] Extended=NO																					

Proposal 17296 - VFTS-355-COS (1D) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

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Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq); cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
3	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=22 6; FP-POS=2			1029 Secs (1029 Secs) [==>]	[1]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq); cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
4	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=27 0; FP-POS=3			1190 Secs (1190 Secs) [==>]	[2]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq); cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									
5	G130M/109 6 (COS.sp.180 8298)	(1) VFTS-355	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=27 0; FP-POS=4			1190 Secs (1190 Secs) [==>]	[2]
Comments: rn(PoWR-OB-new(PoWR_42000_4.40_m7.00_Z0.50.fits, lmc-ob-i 42-44, Z=0.500 solar, Teff=42000, log_lum=4.97, log_g=4.40, log_mdots=-7.00) (extinction lmcavg=0.090), johnson B mag=13.930 veg amaq); cos,fuv,g130m,c1096,psa,mjd#59670; [p-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O4 V(n))((f(c))z SED = VFTS-355_COS_G130M_c1096_sed.fits For exptime=3072.5 s, spectral region: 1080.0 +/- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5923.9 cts/s/segment brightest pixel: 0.118 cts/s/pix at 1221.5 A Calculation performed 2021-10-25T00:57:06, v0.9									

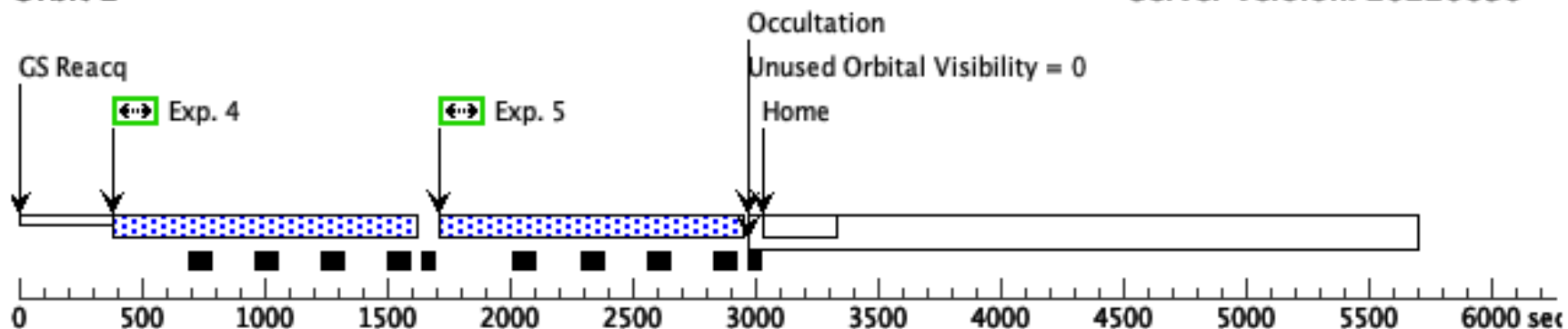
Orbit 1

Server Version: 20220630



Orbit 2

Server Version: 20220630



Proposal 17296 - N11-ELS-020-COS (2C) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

Tue Mar 14 20:01:05 GMT 2023

Visit	Proposal 17296, N11-ELS-020-COS (2C), implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV, COS/NUV Special Requirements: SCHED 100% Comments: vstatus; 2C; N11-ELS-020; P/COS approved for submission; P/RP 11/04/22 ; intrev: complete ; P/AF 12/04/22 vcheck; Enter targ name & Inst. & Resp. Sci.; N11-ELS-020 ; COS ; RP vcheck; ETC numbers entered in APT?; Yes vcheck; Any screening violations?; No vcheck; S/N ETC calcs done & documented?; Yes vcheck; Field images checked & saved?; Yes vcheck; Selected ACQ strategy?; Yes ... ACQ/IMAGE-BOA/MIRRORA vcheck; Possible ACQ or Sci spoilers?; No vcheck; Field BOT clear?; Yes ... The unknown stars in the field are most likely: - Gaia DR3 4662150750288097536 - K5V star with Gmag 17.98 - Gaia DR3 4662150754618470272 - A7V-A8V star with Gmag 18.66 - Gaia DR3 4662150754581323776 - G8V-G9V star with Gmag 18.69 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; N/A vcheck; Is visit ready for int. review?; Yes Allocated COS orbits = 1 9/3/23 ADDITIONAL NOTES (AF) Visit 2C is designed to increase the S/N of the COS G130M/1096 spectrum of N11-ELS-020 that was obtained by ULLYSES (PID, Visit) = (16817, 1C). Visit 2C was constructed directly from the previous visit. To start, the APT file for PID 16817 was retrieved from STScI and the target information for N11-ELS-020 and the detailed implementation of Visit 1C were copied in their entirety. The exposure times for each of the 4 FP-POS sub-exposures were reduced and the buffer time re-optimized to pack a single orbit instead of the 2-orbits allocated to the previous visit. Although detailed ETC calculations were not performed, the combined data from Visits (16817, 1C) and (17296, 2C,) are expected to produce S/N of ~16 per resel at 1080 Angstroms. Note that most of the information in the vstatus/vcheck checklist (see above) pertains to the original implementation of (16817, 1C), though the visit designation and orbital allocation have been updated for (17296, 2C). Since the target information, bright-object checking, and implementation details were thoroughly vetted for the original visit, the internal review was not repeated for the current "top up" visit.																																	
	<table> <tr> <th>#</th><th>Name</th><th>Target Coordinates</th><th>Targ. Coord. Corrections</th><th>Fluxes</th><th>Miscellaneous</th></tr> <tr> <td>(2)</td><td>N11-ELS-020</td><td>RA: 04 56 50.3052 (74.2096050d)</td><td>Proper Motion RA: 1.941 mas/yr</td><td>V=13.18</td><td>Reference Frame: ICRS</td></tr> <tr> <td></td><td>Alt Name1: ELS2006-N11-020</td><td>Dec: -66 31 3.91 (-66.51775d)</td><td>Proper Motion Dec: -0.253 mas/yr</td><td>SpT=O5 Inf+p; E(B-V)=0.06; B=12.96; V=13.18; F1160=5.310e-13; F1360=4.560e-13; F1700=3.630e-13</td><td></td></tr> <tr> <td></td><td></td><td>Equinox: J2000</td><td>Parallax: 0"</td><td></td><td></td></tr> <tr> <td></td><td></td><td></td><td>Epoch of Position: 2016</td><td></td><td></td></tr> </table> Comments: N11-ELS-020 : [ELS2006] N11 020 Previous name : N11-020 Input file: ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv SpT = O5 Inf+p COS/G130M/c1096 : rn(PoWR-OB-new(PoWR_39000_3.80_m7.00_Z0.50.fits, lmc-ob-i 39-38, Z=0.500 solar, Teff=39000, log_lum=5.54, log_g=3.80, log_mdots=-7.00) (extinction lmcavg=0.060), flux1160 +- 2.0A flux=5.3e-13 Flam) Coordinate pedigree: Gaia DR2 Calculation performed 2021-10-25T00:58:05, v0.9 ----- tstatus; N11-ELS-020; P/COS approved for submission; S/ins not started; P/RP 11/04/22; S/xx DD/MM/YY tcheck; APT/SIMBAD target names: ; Yes tcheck; Target info verification status?; Yes tcheck; Coordinates & P.M. verified, epoch checked?; Yes tcheck; Adopted SED compared to Observations?; Yes ... Still using O5 I model, but extinction is increased to 0.18 to fit both the STIS data and the photometry. Flux = 5.2e-13 Flam at 1160A Category=STAR Description=[SUPERGIANT O, OF] Extended=NO					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(2)	N11-ELS-020	RA: 04 56 50.3052 (74.2096050d)	Proper Motion RA: 1.941 mas/yr	V=13.18	Reference Frame: ICRS		Alt Name1: ELS2006-N11-020	Dec: -66 31 3.91 (-66.51775d)	Proper Motion Dec: -0.253 mas/yr	SpT=O5 Inf+p; E(B-V)=0.06; B=12.96; V=13.18; F1160=5.310e-13; F1360=4.560e-13; F1700=3.630e-13				Equinox: J2000	Parallax: 0"						Epoch of Position: 2016	
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																													
(2)	N11-ELS-020	RA: 04 56 50.3052 (74.2096050d)	Proper Motion RA: 1.941 mas/yr	V=13.18	Reference Frame: ICRS																													
	Alt Name1: ELS2006-N11-020	Dec: -66 31 3.91 (-66.51775d)	Proper Motion Dec: -0.253 mas/yr	SpT=O5 Inf+p; E(B-V)=0.06; B=12.96; V=13.18; F1160=5.310e-13; F1360=4.560e-13; F1700=3.630e-13																														
		Equinox: J2000	Parallax: 0"																															
			Epoch of Position: 2016																															

Proposal 17296 - N11-ELS-020-COS (2C) - ULLYSES Supplemental FUV Exposures for LMC O Stars - COS

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/Image (COS.ta.174 4644)	(2) N11-ELS-020	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				5 Secs (5 Secs)	
									[==>]	[1]
	Comments: Expected S/N of ~30 for imaging TA									
	2	G130M/109 6 - 1 (COS.sp.174 4865)	(2) N11-ELS-020	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=28 6; FP-POS=ALL			444 Secs (1776 Secs)	
									[==>(Split 1)]	[1]
									[==>(Split 2)]	
									[==>(Split 3)]	
									[==>(Split 4)]	
	Comments: rn(PoWR-OB-new(PoWR_39000_3.80_m7.00_Z0.50.fits, lmc-ob-i 39-38, Z=0.500 solar, Teff=39000, log_lum=5.54, log_g=3.80, log_mdot=-7.00) (extinction lmcavg=0.060), flux1160 +- 2.0A flux=5.3e-13 Flam); cos,fuv,g130m,c1096,psa,mjd#59670; fp-pos=None, segment=None) From file ULLYSES_Cycle29_MassiveStar_ProgramInput_v5.csv Spectral type: O5 Inf+p SED = N11-ELS-20_COS_G130M_c1096_sed.fits For exptime=3251.1 s, spectral region: 1080.0 +- 0.5 A achieves SNR=20.0/resel global countrate (brightest segment): 5515.4 cts/s/segment brightest pixel: 0.108 cts/s/pix at 1220.0 A Calculation performed 2021-10-25T00:58:11, v0.9 ----- Expected S/N ~20 at 1180 A using the combined FPPOS. The exposure time was calculated using a new model with an extinction=0.18. This change much better reflects the existing STIS data and U, B photometry.									

