16855 - ULLYSES M-Type T Tauri Survey Stars in Lupus III: Part 1

Cycle: 29, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

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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) SSTC2DJ161243.8-381503	COS/FUV COS/NUV	3	24-Jan-2022 15:01:48.0	yes
1D	(1) SSTC2DJ161243.8-381503	COS/FUV COS/NUV	3	24-Jan-2022 15:01:49.0	yes
1E	(1) SSTC2DJ161243.8-381503	COS/FUV COS/NUV	3	24-Jan-2022 15:01:50.0	yes
1F	(1) SSTC2DJ161243.8-381503	COS/FUV COS/NUV	2	24-Jan-2022 15:01:51.0	yes
1S	(1) SSTC2DJ161243.8-381503 CCDFLAT WAVE	STIS/CCD STIS/NUV-MAMA	1	24-Jan-2022 15:01:52.0	yes
2C	(2) SZ117 (4) SZ117-OFFSET	COS/FUV COS/NUV	3	24-Jan-2022 15:01:53.0	yes
2D	(2) SZ117 (4) SZ117-OFFSET	COS/FUV COS/NUV	2	24-Jan-2022 15:01:54.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
2S	(2) SZ117 CCDFLAT WAVE	STIS/CCD STIS/NUV-MAMA	1	24-Jan-2022 15:01:56.0	yes
3C	(3) SZ97 (5) SZ97-OFFSET	COS/FUV COS/NUV	3	24-Jan-2022 15:01:57.0	yes
3D	(3) SZ97 (5) SZ97-OFFSET	COS/FUV COS/NUV	2	24-Jan-2022 15:01:57.0	yes
3E	(3) SZ97 (5) SZ97-OFFSET	COS/FUV COS/NUV	2	24-Jan-2022 15:01:58.0	yes
3S	(3) SZ97 CCDFLAT WAVE	STIS/CCD STIS/NUV-MAMA	2	24-Jan-2022 15:02:00.0	yes

27 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 low mass ULLYSES survey stars. Each target will be observed with the COS c1291 + c1589 + c1623 settings, as well as with STIS G230L, G430L, and G750L. All observations will normally be constrained to occur within 1 day.

Signal-to-noise requirements used to determine the desired exposures times were defined as follows:
COS/G130M/c1291: N V 1239 +- 1 A -- S/N=10/6-pix-resel at the peak of the line
COS/G160M/c1589: C IV 1549 +- 1 A -- S/N=20/6-pix-resel at the peak of the line (combined c1589 & c1623)
COS/G160M/c1623: C IV 1549 +- 1 A -- S/N=20/6-pix-resel at the peak of the line (combined c1589 & c1623)
STIS/G230L/52X2: Mg II 2800 +-15 A -- S/N=20/2-pix-resel at the peak of the line
STIS/G430L/52X2: continuum average 4000 +-5 A -- S/N=20/2-pix-resel (2 reads)
STIS/G750L/52X2: continuum average 5700 +-5 A -- S/N=20/2-pix-resel (2 reads)

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 16855, SSTC2DJ161243.8-381503-COS (1C) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 1C; SSTC2DJ161243.8-381503; P/COS approved for submission; P/DS 19/01/22 ; intrev: complete ; P/WF 19/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SSTC2DJ161243.8-381503 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in COS and STIS acquisitions for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORB ACQ/IMAGE on target
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
The target is reported unsafe (local count violoation) for acquisition assuming O5V but in reality the target is cooler
see field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
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; yes ...
1S, 1C, 1D, 1E, 1F grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 11

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SSTC2DJ161243.8-381503	RA: 16 12 43.7388 (243.1822450d) Dec: -38 15 3.42 (-38.25095d) Equinox: J2000	Proper Motion RA: -8.561635352 mas/yr Proper Motion Dec: -22.3905315 mas/yr Parallax: 0.00625725103" Epoch of Position: 2015.5	V=14.068 SpT=M1; A_V=0.80; B=15.66; V=14.07; R=13.39; I=11.61; J=10.54	Reference Frame: ICRS

Comments: SSTC2DJ161243.8-381503
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sstc2dj161243.8-381503&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
Input file: lowmass_survey_Input-gaia.csv
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:37:54, v0.8
---
tstatus; SSTC2DJ161243.8-381503; P/COS approved for submission; S/STIS approved for submission; P/DS 19/01/22; S/DS 19/01/22
tcheck; APT/SIMBAD target names: ; SSTC2DJ161243.8-381503; 2MASS J16124373-3815031; Gaia DR2 5997549820286701440
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVR photometry matches closely with CTTS template (~85-102%), I photometry is ~210% of template; using CTTS template and not hybrid model.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1680454)	(1) SSTC2DJ161243.8-381503	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				215 Secs (215 Secs) *[==>]*	***[1]***

Comments: Exposure time a little more than doubled from 106.1 s in case target is faint
Nominal ETC calculation gives 0.539 cts/s in brightest pixel
Worst-case ETC run (1680458) gives 5.5 cts/s in brightest pixel
M dwarf flare ETC run (1680460) gives 5.0 cts/s in brightest pixel

Used the CTTS template at for entire wavelength range
For S/N calcs, A_V = 1.3 is used instead of nominal A_V = 0.8; see sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sstc2dj1612438-381503_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1291-3 (1683223)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1791; FP-POS=3			1791 Secs (1791 Secs) *[==>]*	***[1]***

Comments: ETC exposure time is 5097 s for G130M (both FP-POS combined). This exposure will be coadded with others.
Worst-case ETC run (1683224) gives 0.09 cts/s in brightest pixel and buffer time of 5717 s
M dwarf flare ETC run (1683225) gives 0.09 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5061.3 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 293.9 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:37:53, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G160M/1589-3 (1683232)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=2469; FP-POS=3			2469 Secs (2469 Secs) *[==>]*	***[2]***

Comments: ETC exposure time is 9133 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683233) gives 0.03 cts/s in brightest pixel and buffer time of 15221 s
M dwarf flare ETC run (1683234) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

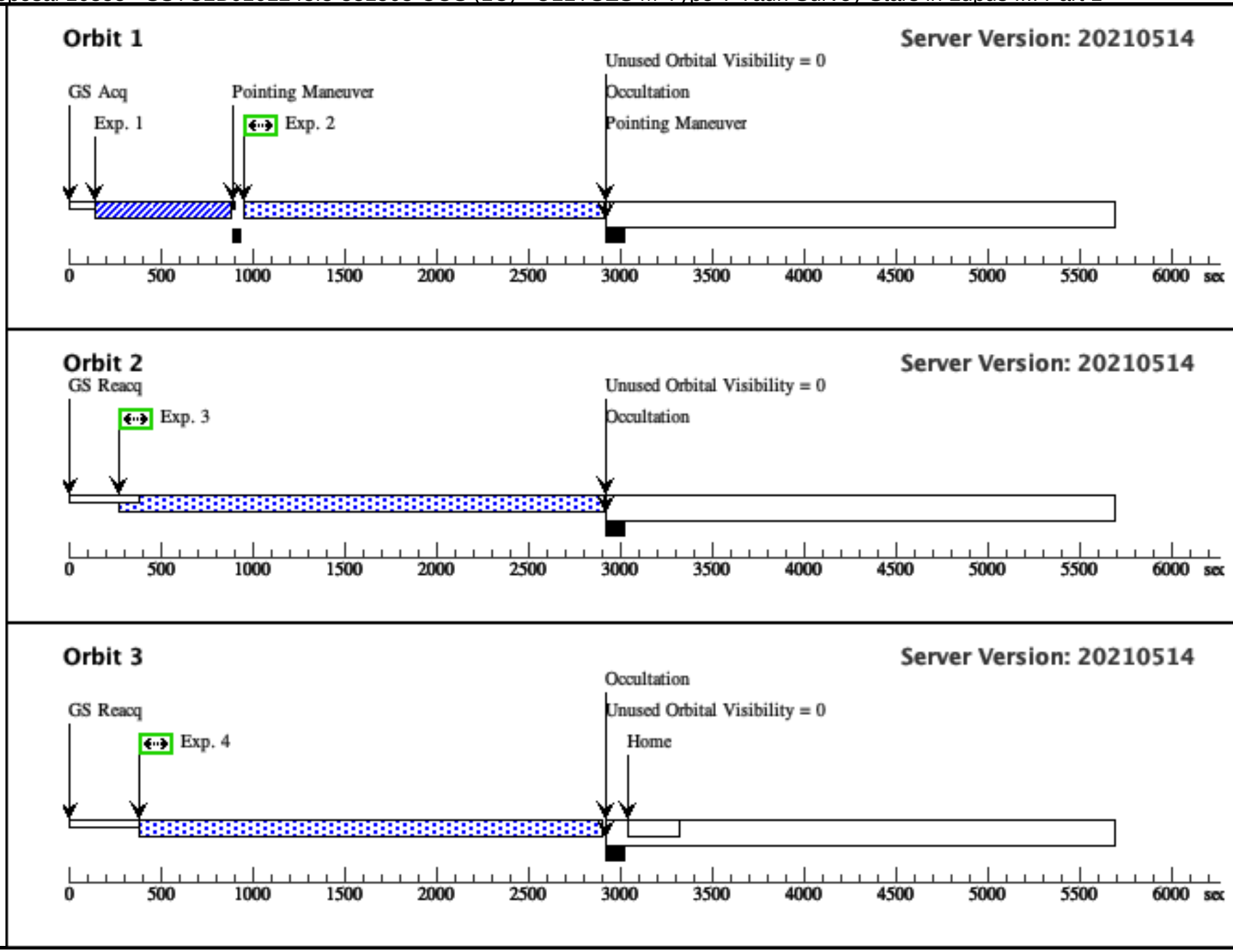
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4480.0 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 69.2 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:50, v0.23

	4	G160M/1589-4 (1683232)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=2471; FP-POS=4	2471 Secs (2471 Secs) *[==>]*	***[3]***

Comments: ETC exposure time is 9133 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683233) gives 0.03 cts/s in brightest pixel and buffer time of 15221 s
M dwarf flare ETC run (1683234) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4480.0 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 69.2 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:50, v0.23

Orbit Structure



Visit

Proposal 16855, SSTC2DJ161243.8-381503-COS (1D) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 1D; SSTC2DJ161243.8-381503; P/COS approved for submission; P/DS 19/01/22 ; intrev: complete ; P/WF 19/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SSTC2DJ161243.8-381503 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in COS and STIS acquisitions for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORB ACQ/IMAGE on target
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
The target is reported unsafe (local count violoation) for acquisition assuming O5V but in reality the target is cooler
see field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
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; yes ...
1S, 1C, 1D, 1E, 1F grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 11

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SSTC2DJ161243.8-381503	RA: 16 12 43.7388 (243.1822450d) Dec: -38 15 3.42 (-38.25095d) Equinox: J2000	Proper Motion RA: -8.561635352 mas/yr Proper Motion Dec: -22.3905315 mas/yr Parallax: 0.00625725103" Epoch of Position: 2015.5	V=14.068 SpT=M1; A_V=0.80; B=15.66; V=14.07; R=13.39; I=11.61; J=10.54	Reference Frame: ICRS

Comments: SSTC2DJ161243.8-381503
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sstc2dj161243.8-381503&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
Input file: lowmass_survey_Input-gaia.csv
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:37:54, v0.8
---
tstatus; SSTC2DJ161243.8-381503; P/COS approved for submission; S/STIS approved for submission; P/DS 19/01/22; S/DS 19/01/22
tcheck; APT/SIMBAD target names: ; SSTC2DJ161243.8-381503; 2MASS J16124373-3815031; Gaia DR2 5997549820286701440
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVR photometry matches closely with CTTS template (~85-102%), I photometry is ~210% of template; using CTTS template and not hybrid model.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1680454)	(1) SSTC2DJ161243.8-381503	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				215 Secs (215 Secs) *[==>]*	***[1]***

Comments: Exposure time a little more than doubled from 106.1 s in case target is faint
Nominal ETC calculation gives 0.539 cts/s in brightest pixel
Worst-case ETC run (1680458) gives 5.5 cts/s in brightest pixel
M dwarf flare ETC run (1680460) gives 5.0 cts/s in brightest pixel

Used the CTTS template at for entire wavelength range
For S/N calcs, A_V = 1.3 is used instead of nominal A_V = 0.8; see sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sstc2dj1612438-381503_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1291-4 (1683223)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1791; FP-POS=4			1791 Secs (1791 Secs) *[==>]*	***[1]***

Comments: ETC exposure time is 5097 s for G130M (both FP-POS combined). This exposure will be coadded with others.
Worst-case ETC run (1683224) gives 0.09 cts/s in brightest pixel and buffer time of 5717 s
M dwarf flare ETC run (1683225) gives 0.09 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5061.3 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 293.9 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:37:53, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G160M/1623-1 (1683237)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=2469; FP-POS=1			2469 Secs (2469 Secs) *[==>]*	***[2]***

Comments: ETC exposure time is 9334 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683238) gives 0.03 cts/s in brightest pixel and buffer time of 16576 s
M dwarf flare ETC run (1683239) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

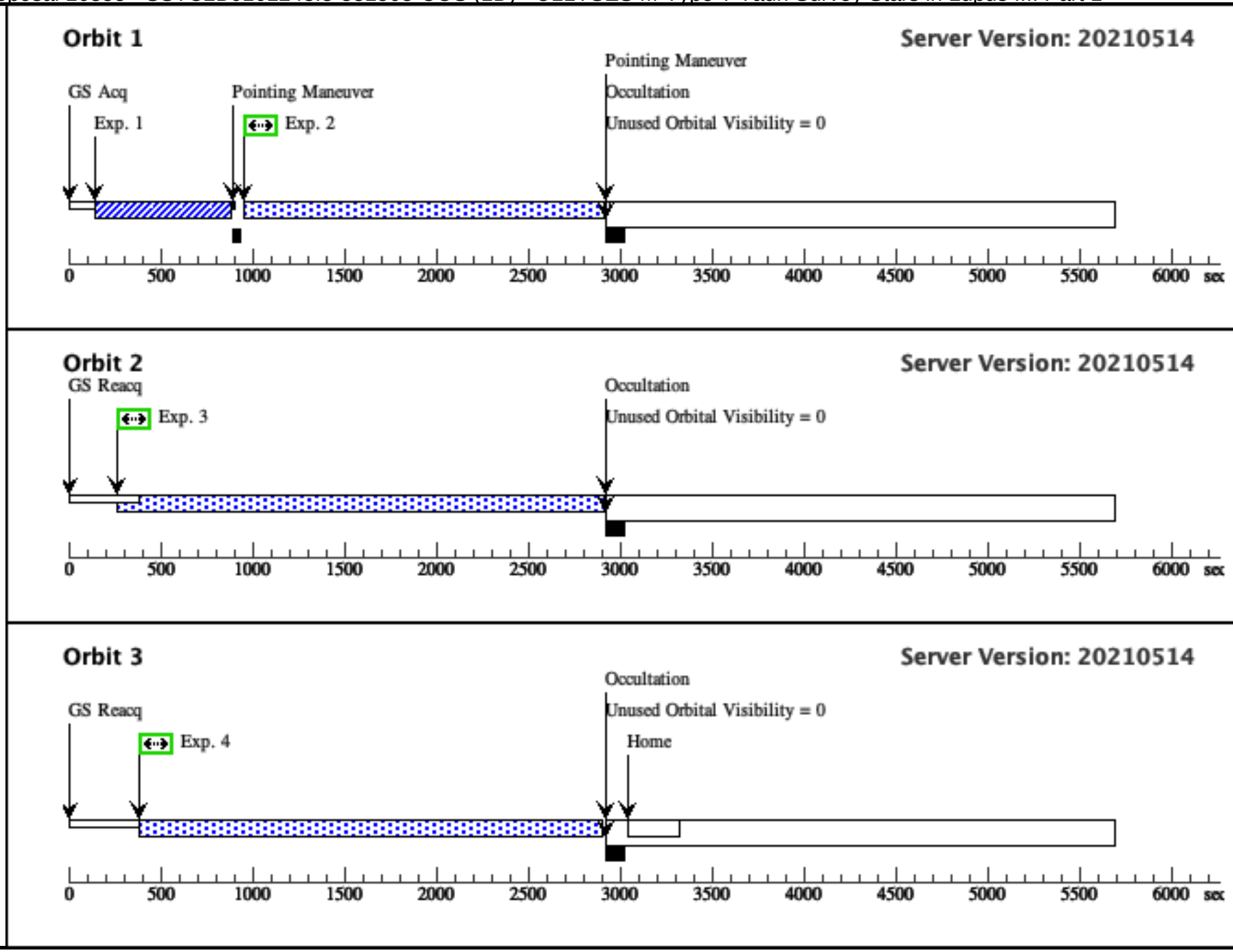
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4585.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 68.3 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:52, v0.23

	4	G160M/1623-2 (1683237)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=2471; FP-POS=2	2471 Secs (2471 Secs)	
							[==>]	***[3]***

Comments: ETC exposure time is 9334 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683238) gives 0.03 cts/s in brightest pixel and buffer time of 16576 s
M dwarf flare ETC run (1683239) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4585.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 68.3 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:52, v0.23

Orbit Structure



Visit

Proposal 16855, SSTC2DJ161243.8-381503-COS (1E) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 1E; SSTC2DJ161243.8-381503; P/COS approved for submission; P/DS 19/01/22 ; intrev: complete ; P/WF 19/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SSTC2DJ161243.8-381503 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in COS and STIS acquisitions for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORB ACQ/IMAGE on target
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
The target is reported unsafe (local count violoation) for acquisition assuming O5V but in reality the target is cooler
see field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
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; yes ...
1S, 1C, 1D, 1E, 1F grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 11

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SSTC2DJ161243.8-381503	RA: 16 12 43.7388 (243.1822450d) Dec: -38 15 3.42 (-38.25095d) Equinox: J2000	Proper Motion RA: -8.561635352 mas/yr Proper Motion Dec: -22.3905315 mas/yr Parallax: 0.00625725103" Epoch of Position: 2015.5	V=14.068 SpT=M1; A_V=0.80; B=15.66; V=14.07; R=13.39; I=11.61; J=10.54	Reference Frame: ICRS

Comments: SSTC2DJ161243.8-381503
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sstc2dj161243.8-381503&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
Input file: lowmass_survey_Input-gaia.csv
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:37:54, v0.8
---
tstatus; SSTC2DJ161243.8-381503; P/COS approved for submission; S/STIS approved for submission; P/DS 19/01/22; S/DS 19/01/22
tcheck; APT/SIMBAD target names: ; SSTC2DJ161243.8-381503; 2MASS J16124373-3815031; Gaia DR2 5997549820286701440
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVR photometry matches closely with CTTS template (~85-102%), I photometry is ~210% of template; using CTTS template and not hybrid model.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1680454)	(1) SSTC2DJ161243.8-381503	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				215 Secs (215 Secs)	
								[==>]	***[1]***

Comments: Exposure time a little more than doubled from 106.1 s in case target is faint
Nominal ETC calculation gives 0.539 cts/s in brightest pixel
Worst-case ETC run (1680458) gives 5.5 cts/s in brightest pixel
M dwarf flare ETC run (1680460) gives 5.0 cts/s in brightest pixel

Used the CTTS template at for entire wavelength range
For S/N calcs, A_V = 1.3 is used instead of nominal A_V = 0.8; see sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sstc2dj1612438-381503_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1291-3 (1683223)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1791; FP-POS=3			1791 Secs (1791 Secs)	
								[==>]	***[1]***

Comments: ETC exposure time is 5097 s for G130M (both FP-POS combined). This exposure will be coadded with others.
Worst-case ETC run (1683224) gives 0.09 cts/s in brightest pixel and buffer time of 5717 s
M dwarf flare ETC run (1683225) gives 0.09 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5061.3 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 293.9 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:37:53, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G160M/1589-3 (1683232)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1072; FP-POS=3			1182 Secs (1182 Secs)	
								[==>]	***[2]***

Comments: ETC exposure time is 9133 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683233) gives 0.03 cts/s in brightest pixel and buffer time of 15221 s
M dwarf flare ETC run (1683234) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time - 110 s

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4480.0 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 69.2 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:50, v0.23

4	G160M/1589-4 (1683232)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=1182; FP-POS=4	1182 Secs (1182 Secs)	[==>]	[2]

Comments: ETC exposure time is 9133 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683233) gives 0.03 cts/s in brightest pixel and buffer time of 15221 s
M dwarf flare ETC run (1683234) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4480.0 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 69.2 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:50, v0.23

5	G160M/1623-1 (1683237)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=10; FP-POS=1	1183 Secs (1183 Secs)	[==>]	[3]

Comments: ETC exposure time is 9334 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683238) gives 0.03 cts/s in brightest pixel and buffer time of 16576 s
M dwarf flare ETC run (1683239) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time - 110 s

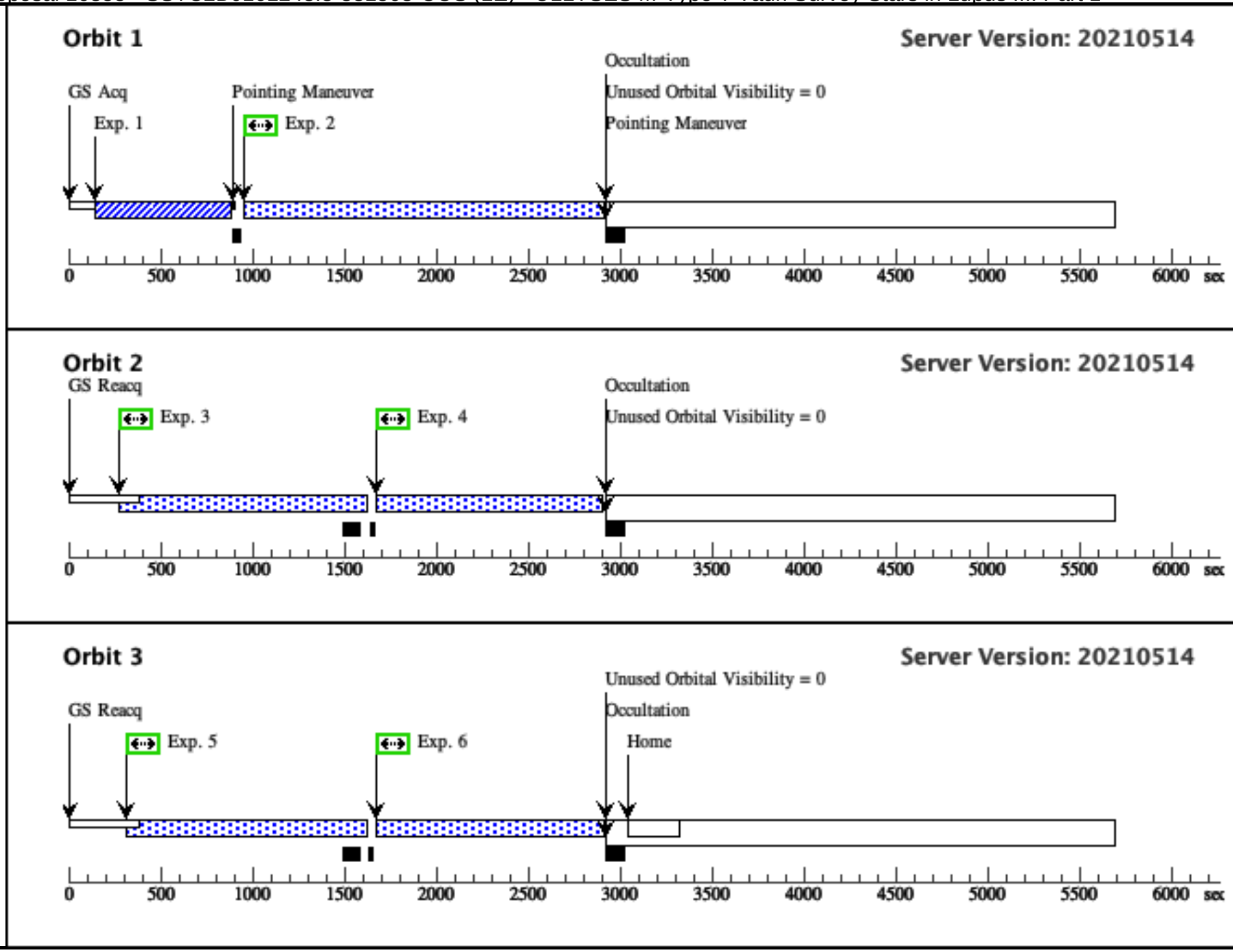
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4585.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 68.3 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:52, v0.23

6	G160M/1623-2 (1683237)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=11; FP-POS=2	1183 Secs (1183 Secs)	[==>]	[3]

Comments: ETC exposure time is 9334 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others
Worst-case ETC run (1683238) gives 0.03 cts/s in brightest pixel and buffer time of 16576 s
M dwarf flare ETC run (1683239) gives 0.02 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=4585.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 68.3 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:52, v0.23

Orbit Structure



Visit

Proposal 16855, SSTC2DJ161243.8-381503-COS (1F) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 1F; SSTC2DJ161243.8-381503; P/COS approved for submission; P/DS 19/01/22 ; intrev: complete ; P/WF 19/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SSTC2DJ161243.8-381503 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in COS and STIS acquisitions for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORB ACQ/IMAGE on target
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
The target is reported unsafe (local count violoation) for acquisition assuming O5V but in reality the target is cooler
see field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
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; yes ...
1S, 1C, 1D, 1E, 1F grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 11

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SSTC2DJ161243.8-381503	RA: 16 12 43.7388 (243.1822450d) Dec: -38 15 3.42 (-38.25095d) Equinox: J2000	Proper Motion RA: -8.561635352 mas/yr Proper Motion Dec: -22.3905315 mas/yr Parallax: 0.00625725103" Epoch of Position: 2015.5	V=14.068 SpT=M1; A_V=0.80; B=15.66; V=14.07; R=13.39; I=11.61; J=10.54	Reference Frame: ICRS

Comments: SSTC2DJ161243.8-381503
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sstc2dj161243.8-381503&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
Input file: lowmass_survey_Input-gaia.csv
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:37:54, v0.8
---
tstatus; SSTC2DJ161243.8-381503; P/COS approved for submission; S/STIS approved for submission; P/DS 19/01/22; S/DS 19/01/22
tcheck; APT/SIMBAD target names: ; SSTC2DJ161243.8-381503; 2MASS J16124373-3815031; Gaia DR2 5997549820286701440
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVR photometry matches closely with CTTS template (~85-102%), I photometry is ~210% of template; using CTTS template and not hybrid model.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1680454)	(1) SSTC2DJ161243.8-381503	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				215 Secs (215 Secs) *[==>]*	 ***[1]***

Comments: Exposure time a little more than doubled from 106.1 s in case target is faint
Nominal ETC calculation gives 0.539 cts/s in brightest pixel
Worst-case ETC run (1680458) gives 5.5 cts/s in brightest pixel
M dwarf flare ETC run (1680460) gives 5.0 cts/s in brightest pixel

Used the CTTS template at for entire wavelength range
For S/N calcs, A_V = 1.3 is used instead of nominal A_V = 0.8; see sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sstc2dj1612438-381503_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/

2	G130M/1291-3 (1683223)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1791; FP-POS=3			1791 Secs (1791 Secs) *[==>]*	 ***[1]***

Comments: ETC exposure time is 5097 s for G130M (both FP-POS combined). This exposure will be coadded with others.
Worst-case ETC run (1683224) gives 0.09 cts/s in brightest pixel and buffer time of 5717 s
M dwarf flare ETC run (1683225) gives 0.09 cts/s in brightest pixel
Buffer time set to exposure time

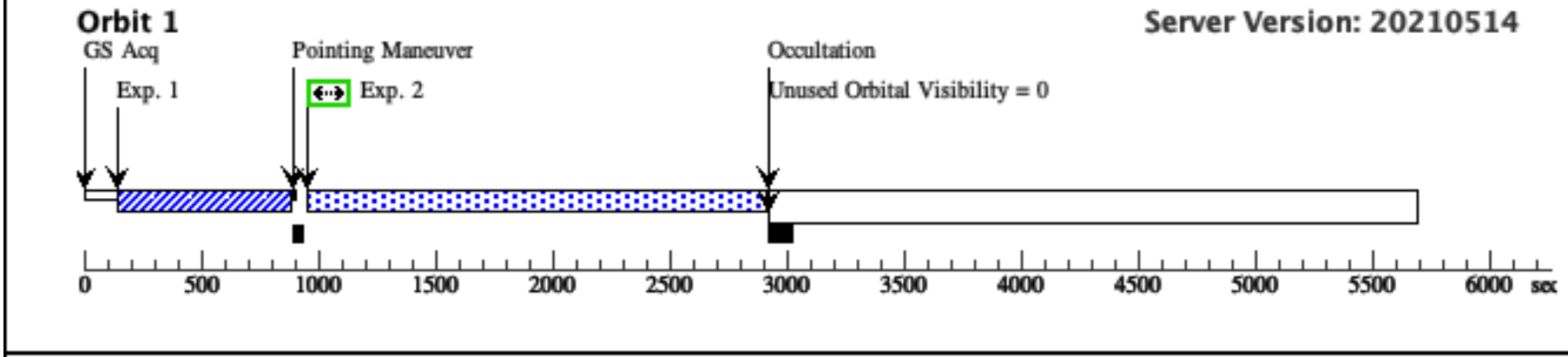
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5061.3 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 293.9 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:37:53, v0.23

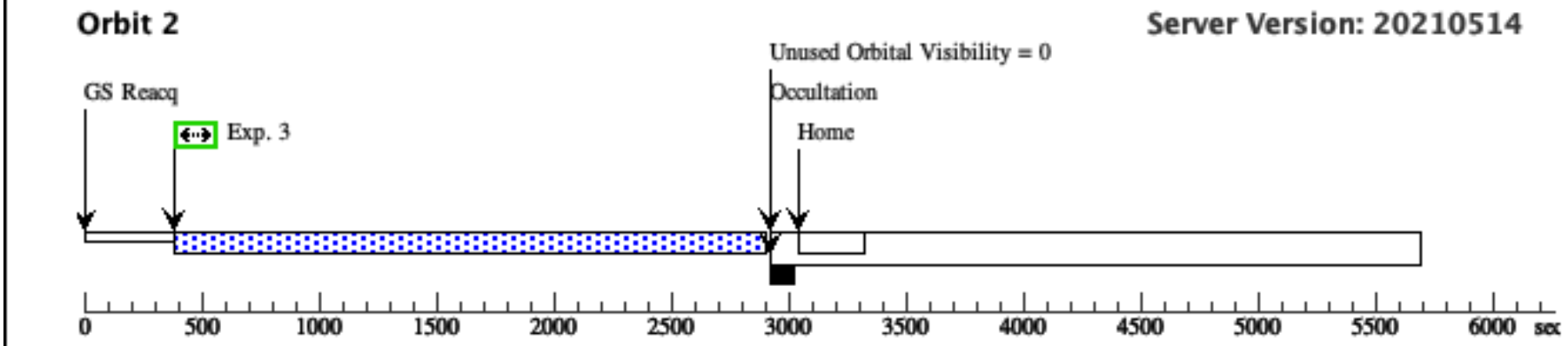
3	G130M/1291-4 (1683223)	(1) SSTC2DJ161243.8-381503	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2471; FP-POS=4			2471 Secs (2471 Secs) *[==>]*	 ***[2]***

Comments: ETC exposure time is 5097 s for G130M (both FP-POS combined). This exposure will be coadded with others.
Worst-case ETC run (1683224) gives 0.09 cts/s in brightest pixel and buffer time of 5717 s
M dwarf flare ETC run (1683225) gives 0.09 cts/s in brightest pixel
Buffer time set to exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5061.3 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 293.9 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:37:53, v0.23

Orbit Structure





Visit

Proposal 16855, SSTC2DJ161243.8-381503-STIS (1S) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00; GROUP 1S,1C,1D,1E,1F WITHIN 2D

Comments: vstatus; 1S; SSTC2DJ161243.8-381503; S/STIS approved for submission; S/DS 19/01/22 ; intrev: complete ; S/WF 19/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SSTC2DJ161243.8-381503 ; STIS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in COS and STIS acquisitions for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
vcheck; Selected ACQ strategy?; yes ...
ACQ with F28X50LP
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
Nothing in the G230L macroaperture
see field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/field/
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; yes ...
1S, 1C, 1D, 1E, 1F grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated STIS orbits = 1

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	SSTC2DJ161243.8-381503	RA: 16 12 43.7388 (243.1822450d) Dec: -38 15 3.42 (-38.25095d) Equinox: J2000	Proper Motion RA: -8.561635352 mas/yr Proper Motion Dec: -22.3905315 mas/yr Parallax: 0.00625725103" Epoch of Position: 2015.5	V=14.068 SpT=M1; A_V=0.80; B=15.66; V=14.07; R=13.39; I=11.61; J=10.54	Reference Frame: ICRS

Comments: SSTC2DJ161243.8-381503
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sstc2dj161243.8-381503&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
Input file: lowmass_survey_Input-gaia.csv
sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:37:54, v0.8
---
tstatus; SSTC2DJ161243.8-381503; P/COS approved for submission; S/STIS approved for submission; P/DS 19/01/22; S/DS 19/01/22
tcheck; APT/SIMBAD target names: ; SSTC2DJ161243.8-381503; 2MASS J16124373-3815031; Gaia DR2 5997549820286701440
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVR photometry matches closely with CTTS template (~85-102%), I photometry is ~210% of template; using CTTS template and not hybrid model.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1682818)	(1) SSTC2DJ161243.8-381503	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*

Comments: Nominal ETC run gives 0.06 sec for S/N = 40
Worst-case ETC run (1682819) gives saturation in 1.5 sec

Used the CTTS template at for entire wavelength range
For S/N calcs, A_V = 1.3 is used instead of nominal A_V = 0.8; see sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and both components are scaled up by 4x; see sstc2dj1612438-381503_lya2_x4.00_etc.txt
Above SEDs and an IDL program to make them are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/SSTc2d-J161243.8-381503/seds/

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G230L/2376 (1682876)	(1) SSTC2DJ161243.8-381503	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	WAVECAL=NO; BUFFER-TIME=450			901.2 Secs (901.2 Secs) *[==>]*	*[1]*

Comments: ETC exposure time (0.34 cts/s in brightest pixel) of 245 s was nearly tripled to 901 s
Worst-case ETC run (1682877) gives 3.30 cts/s in brightest pixel and buffer time of 737 s
M dwarf flare ETC run (1682878) gives 0.78 cts/s in brightest pixel
Buffer time set to just under half the exposure time

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=243.6 s, spectral region:
2800.0 +- 15.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 2354.2 cts/s/segment
brightest pixel: 0.343 cts/s/pix at 2796.8 A
Calculation performed 2021-10-21T02:37:54, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G230L/2376 WAVECAL	WAVE	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				*[==>]*	*[1]*
4	G430L/4300 WAVECAL	WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A				*[==>]*	*[1]*
5	G430L/4300 (1682866)	(1) SSTC2DJ161243.8-381503	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1			302 Secs (302 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Comments: ETC total exposure time (needed to reach SNR ~20 @4000 A) of 151 s was doubled to 302 s
Worst-case ETC run (1682867) gives saturation in 289.3 s for each frame

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=80.5 s, n_reads=2, spectral region:
4000.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 39728.0 cts/s/segment
brightest pixel: 14.573 cts/s/pix at 4560.5 A
Calculation performed 2021-10-21T02:37:54, v0.23

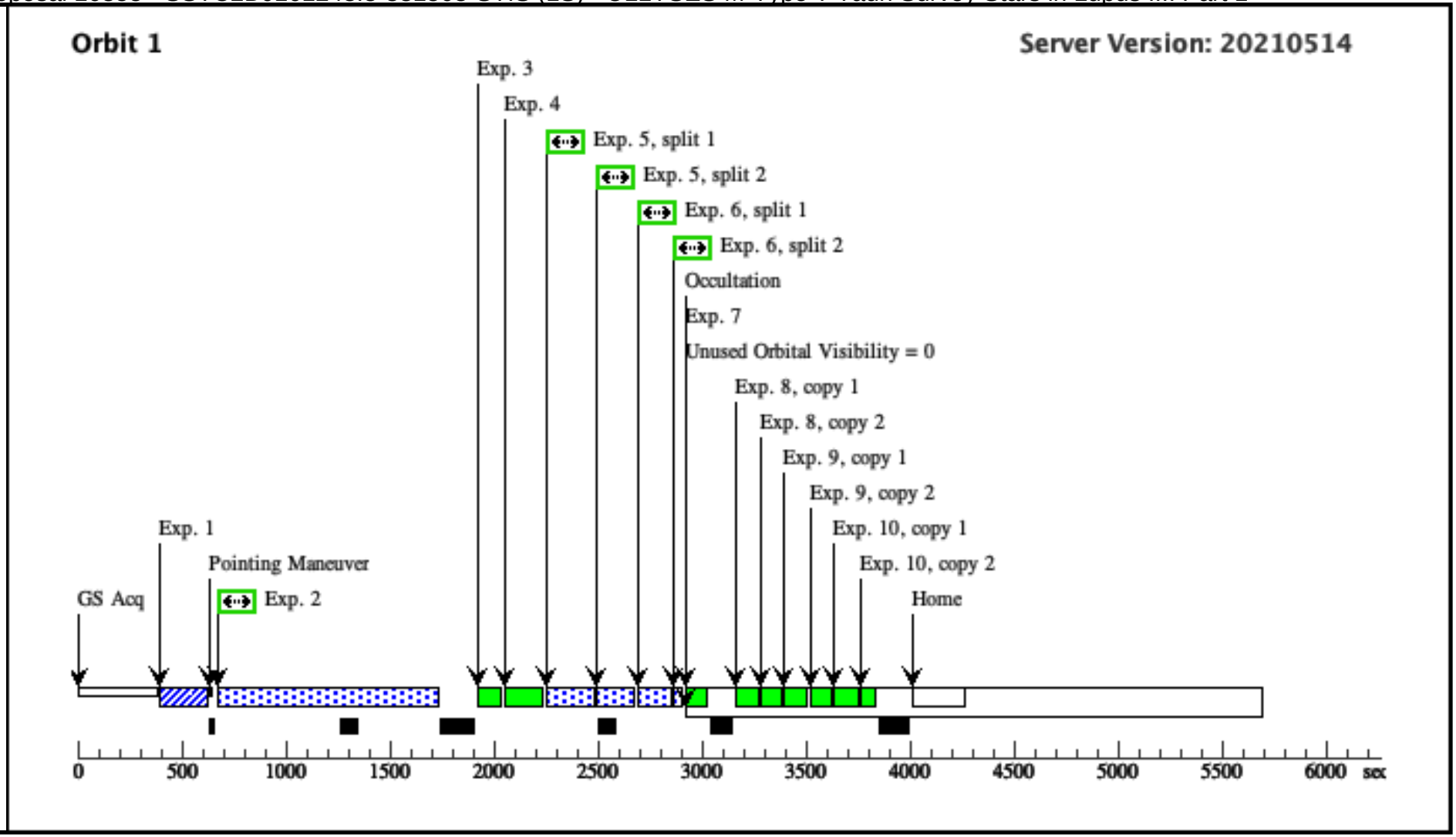
6	G750L/7751 (1682860)	(1) SSTC2DJ161243 .8-381503	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	22 Secs (22 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***

Comments: ETC total exposure time (needed to reach SNR ~20 @5700 A) of 11 s was doubled to 22 s
Worst-case ETC run (1682861) gives saturation in 39.2 s for each frame

sstc2dj1612438-381503_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g750l,c7751,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M1 ; A_V: 0.8 ; Distance (pc): 200
M: 0.44 ; log(dm/dt): -8.76*
For exptime=5.6 s, n_reads=2, spectral region:
5700.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 79166.5 cts/s/segment
brightest pixel: 124.228 cts/s/pix at 6563.9 A
Calculation performed 2021-10-21T02:37:54, v0.23

7	G750L/7751 WAVECAL	WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>]*	***[1]***
8	G750L/7751 CCDFLAT 1	CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
9	G750L/7751 CCDFLAT 2	CCDFLAT	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
10	G750L/7751 CCDFLAT 3	CCDFLAT	STIS/CCD, ACCUM, 52X2	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16855, SZ117-COS (2C) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 2C; SZ117; P/COS approved for submission; P/DS 20/01/22 ; intrev: complete ; P/WF 20/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ117 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
see comments in COS acquistion exposure for details about COS offset target calculations
see comments in STIS acquisition for details about the seds used for science exposures
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORA ACQ/IMAGE acquision on GAIA-DR2-5997393346040677504
see offset notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/offset/
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
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; yes ...
2S, 2C, 2D grouped within 1D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 5

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SZ117 Alt Name1: HBC-626	RA: 16 09 44.3498 (242.4347908d) Dec: -39 13 30.55 (-39.22515d) Equinox: J2000	Proper Motion RA: -8.247579316 mas/yr Proper Motion Dec: -24.45098801 mas/yr Parallax: 0.006306681947999999" Epoch of Position: 2015.5	V=14.901 SpT=M3.5; A_V=0.50; B=16.09 ; V=14.90; R=14.20; I=12.38; J= 10.68	Reference Frame: ICRS

Comments: SZ117 : HBC 626
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz117&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
Input file: lowmass_survey_Input-gaia.csv
sz117_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:03, v0.8
---
tstatus; SZ117; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ117; 2MASS J16094434-3913301; Gaia DR2 5997393311680941696
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-76% of CTTS template; use M3.5 model (phoenix, T_eff=3500, logg=5) in optical.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

(4)	SZ117-OFFSET Alt Name1: GAIA-DR2-5997393346040677504	RA: 16 09 47.2700 (242.4469583d) Dec: -39 13 41.12 (-39.22809d) Equinox: J2000	Proper Motion RA: -6.610706144 mas/yr Proper Motion Dec: -0.964788381 mas/yr Parallax: 0.00076128" Epoch of Position: 2015.5	V=15.7 SpT=A0V; A_V = 4.6; G = 15.68; Bp - Rp (observed) = 1.9; Bp - Rp (de-redenned) = -0.102; B = 15.7	Reference Frame: ICRS

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on GAIA-DR2-5997393346040677504 which is 35.4" away from sz-117. Information on this target is not available on SIMBAD. However, the GAIA archive reports G = 15.68 and Bp-Rp (observed) = 1.927.

The Starhorse catalog (Anders+2019) models Av = 4.6, E(B-V) = (Av/3.1) = 1.48, Teff = 9668.5, logg = 4.2, Fe/H = -0.3, Bp-Rp (de-redenned) = -0.102. These categorizes the star as SpT A0V

Interpolated photometry for target SpT A0V:
V = 15.7 from G = 15.68.0 with G - V = 0.01
B = 15.7 from V = 15.7 with B - V = 0.00

We also consider the scenario that the target is a redenned O star instead and proceed to verify safe observations:

Using the apparent Bp-Rp = 1.927 and colors form https://innerspace.stsci.edu/display/ULLYSES/STIS+TA+vs+broad-band+photometry+including+Gaia, the interpolated photometry for O3V scenario (screening):
V = 16.8 from G = 15.68 with G - V = -1.088
B = 18.1 from V = 16.8 with B - V = 1.342

The estimated E(B-V) in this scenario is (B-V) + 0.31 = 1.65, very similar to what reported in the Starhorse catalog
Category=STAR
Description=[A0-A3 III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1684051)	(4) SZ117-OFFSET	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				252.2 Secs (252.2 Secs)	
								[==>]	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on GAIA-DR2-5997393346040677504 which is 35.4" away from sz-117. Information on this target is not available on SIMBAD. However, the GAIA archive reports G = 15.68 and Bp-Rp (observed) = 1.927.

The Starhorse catalog (Anders+2019) models Av = 4.6, E(B-V) = (Av/3.1) = 1.48, Teff = 9668.5, logg = 4.2, Fe/H = -0.3, Bp-Rp (de-redenned) = -0.102. These categorizes the star as SpT A0V

Interpolated photometry for target SpT A0V:
V = 15.7 from G = 15.68.0 with G - V = 0.01
B = 15.7 from V = 15.7 with B - V = 0.00

We also consider the scenario that the target is a redenned O star instead and proceed to verify safe observations:

Using the apparent Bp-Rp = 1.927, the interpolated photometry for O3V scenario (screening):
V = 16.8 from G = 15.68 with G - V = -1.088
B = 18.1 from V = 16.8 with B - V = 1.342

The estimated E(B-V) in this scenario is (B-V) + 0.31 = 1.65, very similar to what reported in the Starhorse catalog

The nominal ETC calculation uses PSA/MirrorA ACQ/IMAGE with Castelli-Kurucz A0V (T_eff = 9549K, logg = 4.2), normalized to Johnson V = 15.7 Vegamag with E(B-V) = 1.48 (ETC ID 1684051, B.P = 0.889). The exposure time of 255.2 s is for S/N = 40 (double of the PSA recommended S/N of 20) to account for target faintness.

The O3V screening calculation uses PSA/MirrorA ACQ/IMAGE with Castelli-Kurucz O3V (T_eff = 45000K, logg = 4.5), normalized to Johnson V = 16.77 Vegamag with E(B-V) = 1.65 (ETC ID 1684055, B.P = 1.408)

BOT reports the OFFSET target as unsafe for the acquisition with PSA/MirrorA assuming a O5V SED but without any extinction applied. We have shown that the acquisition should be safe for a O3V with extinction E(B-V) = 1.65 which is estimated from the observed GAIA colors.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1291 A 1-3 (1683334)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1715; FP-POS=3			1715 Secs (1715 Secs)	
								[==>]	***[1]***

Comments: ETC exposure time of 1371.3 s for G130M (both FP-POS combined) is increased to a total exposure time of 3430 s
Worst-case ETC run (1683335) gives 0.09 cts/s in brightest pixel and buffer time of 3044 s
M dwarf flare ETC run (1683336) gives 0.851 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to exposure time

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1363.2 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 327.9 cts/s/segment
brightest pixel: 0.020 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:03, v0.23

3	G160M/158 (2) SZ117 9-3 (1683337)	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=10 72; FP-POS=3	1182 Secs (1182 Secs) *[==>]*	 ***[2]***

Comments: ETC exposure time is 3432 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 3372 s
Worst-case ETC run (1683338) gives 0.088 cts/s in brightest pixel and buffer time of 7282 s
M dwarf flare ETC run (1683339) gives 1.40 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1684.3 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 82.2 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:59, v0.23

4	G160M/158 (2) SZ117 9-4 (1683337)	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=11 82; FP-POS=4	1182 Secs (1182 Secs) *[==>]*	 ***[2]***

Comments: ETC exposure time is 3432 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 3372 s
Worst-case ETC run (1683338) gives 0.088 cts/s in brightest pixel and buffer time of 7282 s
M dwarf flare ETC run (1683339) gives 1.40 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1684.3 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 82.2 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:59, v0.23

5	G160M/162 (2) SZ117 3-1 (1683342)	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=10 73; FP-POS=1	1183 Secs (1183 Secs) *[==>]*	 ***[3]***

Comments: ETC exposure time is 3507.3 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 3376 s
Worst-case ETC run (1683341) gives 0.082 cts/s in brightest pixel and buffer time of 8262 s
M dwarf flare ETC run (1683340) gives 1.406 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

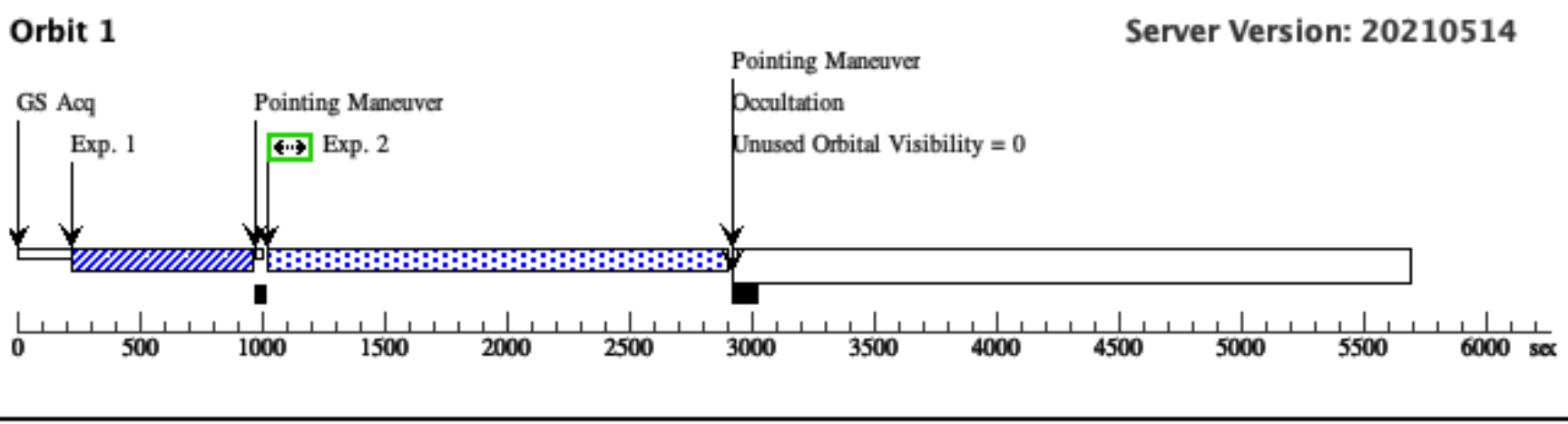
sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1723.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 79.5 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:01, v0.23

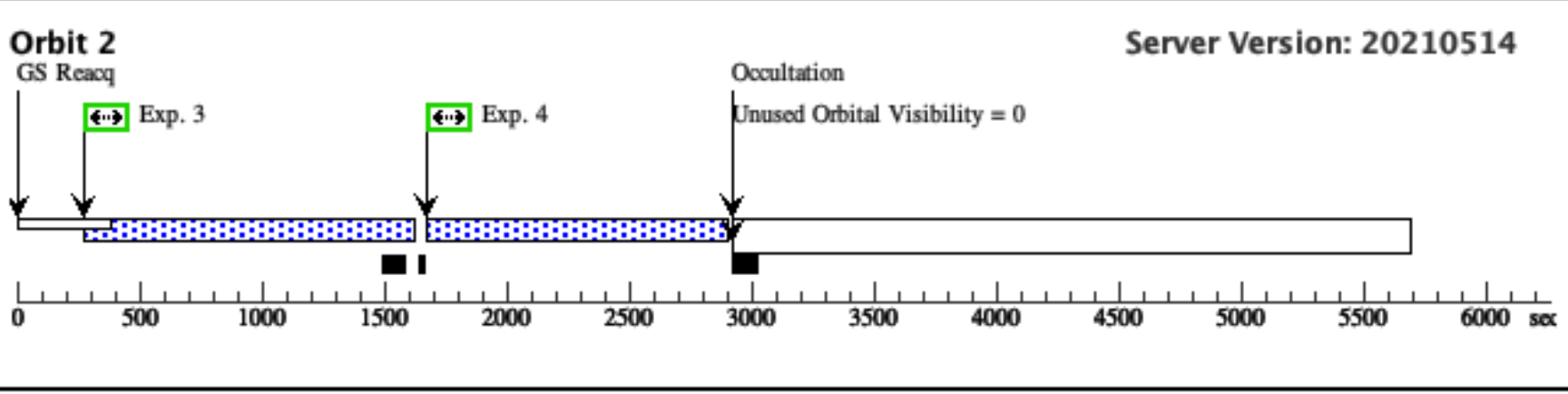
	6	G160M/162 3-2 (1683342)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=11 83; FP-POS=2	1183 Secs (1183 Secs) *[==>]*	***[3]***

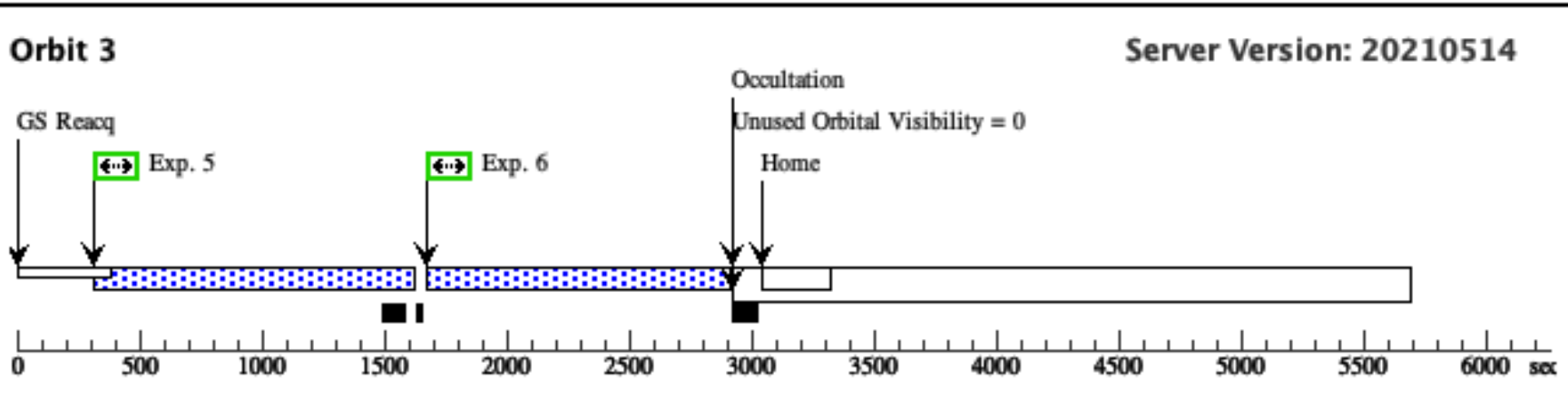
Comments: ETC exposure time is 3507.3 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 3376 s
Worst-case ETC run (1683341) gives 0.082 cts/s in brightest pixel and buffer time of 8262 s
M dwarf flare ETC run (1683340) gives 1.406 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1723.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 79.5 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:01, v0.23

Orbit Structure







Visit

Proposal 16855, SZ117-COS (2D) Mon Jan 24 20:02:01 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 2D; SZ117; P/COS approved for submission; P/DS 20/01/22 ; intrev: complete ; P/WF 20/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ117 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
see comments in COS acquistion exposure for details about COS offset target calculations
see comments in STIS acquisition for details about the seds used for science exposures
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
vcheck; Selected ACQ strategy?; yes ...
PSA/MIRRORA ACQ/IMAGE acquision on GAIA-DR2-5997393346040677504
see offset notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/offset/
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
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; yes ...
2S, 2C, 2D grouped within 1D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 5

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SZ117 Alt Name1: HBC-626	RA: 16 09 44.3498 (242.4347908d) Dec: -39 13 30.55 (-39.22515d) Equinox: J2000	Proper Motion RA: -8.247579316 mas/yr Proper Motion Dec: -24.45098801 mas/yr Parallax: 0.006306681947999999" Epoch of Position: 2015.5	V=14.901 SpT=M3.5; A_V=0.50; B=16.09 ; V=14.90; R=14.20; I=12.38; J= 10.68	Reference Frame: ICRS

Comments: SZ117 : HBC 626
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz117&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
Input file: lowmass_survey_Input-gaia.csv
sz117_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:03, v0.8
---
tstatus; SZ117; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ117; 2MASS J16094434-3913301; Gaia DR2 5997393311680941696
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-76% of CTTS template; use M3.5 model (phoenix, T_eff=3500, logg=5) in optical.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	SZ117-OFFSET Alt Name1: GAIA-DR2-5997393346040677504	RA: 16 09 47.2700 (242.4469583d) Dec: -39 13 41.12 (-39.22809d) Equinox: J2000	Proper Motion RA: -6.610706144 mas/yr Proper Motion Dec: -0.964788381 mas/yr Parallax: 0.00076128" Epoch of Position: 2015.5	V=15.7 SpT=A0V; A_V = 4.6; G = 15.68; Bp - Rp (observed) = 1.9; Bp - Rp (de-redenned) = -0.102; B = 15.7	Reference Frame: ICRS

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on GAIA-DR2-5997393346040677504 which is 35.4" away from sz-117. Information on this target is not available on SIMBAD. However, the GAIA archive reports G = 15.68 and Bp-Rp (observed) = 1.927.

The Starhorse catalog (Anders+2019) models Av = 4.6, E(B-V) = (Av/3.1) = 1.48, Teff = 9668.5, logg = 4.2, Fe/H = -0.3, Bp-Rp (de-redenned) = -0.102. These categorizes the star as SpT A0V

Interpolated photometry for target SpT A0V:
V = 15.7 from G = 15.68.0 with G - V = 0.01
B = 15.7 from V = 15.7 with B - V = 0.00

We also consider the scenario that the target is a redenned O star instead and proceed to verify safe observations:

Using the apparent Bp-Rp = 1.927 and colors form https://innerspace.stsci.edu/display/ULLYSES/STIS+TA+vs+broad-band+photometry+including+Gaia, the interpolated photometry for O3V scenario (screening):
V = 16.8 from G = 15.68 with G - V = -1.088
B = 18.1 from V = 16.8 with B - V = 1.342

The estimated E(B-V) in this scenario is (B-V) + 0.31 = 1.65, very similar to what reported in the Starhorse catalog
Category=STAR
Description=[A0-A3 III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1684051)	(4) SZ117-OFFSET	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				252.2 Secs (252.2 Secs)	
								[==>]	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on GAIA-DR2-5997393346040677504 which is 35.4" away from sz-117. Information on this target is not available on SIMBAD. However, the GAIA archive reports G = 15.68 and Bp-Rp (observed) = 1.927.

The Starhorse catalog (Anders+2019) models Av = 4.6, E(B-V) = (Av/3.1) = 1.48, Teff = 9668.5, logg = 4.2, Fe/H = -0.3, Bp-Rp (de-redenned) = -0.102. These categorizes the star as SpT A0V

Interpolated photometry for target SpT A0V:
V = 15.7 from G = 15.68.0 with G - V = 0.01
B = 15.7 from V = 15.7 with B - V = 0.00

We also consider the scenario that the target is a redenned O star instead and proceed to verify safe observations:

Using the apparent Bp-Rp = 1.927, the interpolated photometry for O3V scenario (screening):
V = 16.8 from G = 15.68 with G - V = -1.088
B = 18.1 from V = 16.8 with B - V = 1.342

The estimated E(B-V) in this scenario is (B-V) + 0.31 = 1.65, very similar to what reported in the Starhorse catalog

The nominal ETC calculation uses PSA/MirrorA ACQ/IMAGE with Castelli-Kurucz A0V (T_eff = 9549K, logg = 4.2), normalized to Johnson V = 15.7 Vegamag with E(B-V) = 1.48 (ETC ID 1684051, B.P = 0.889). The exposure time of 255.2 s is for S/N = 40 (double of the PSA recommended S/N of 20) to account for target faintness.

The O3V screening calculation uses PSA/MirrorA ACQ/IMAGE with Castelli-Kurucz O3V (T_eff = 45000K, logg = 4.5), normalized to Johnson V = 16.77 Vegamag with E(B-V) = 1.65 (ETC ID 1684055, B.P = 1.408)

BOT reports the OFFSET target as unsafe for the acquisition with PSA/MirrorA assuming a O5V SED but without any extinction applied. We have shown that the acquisition should be safe for a O3V with extinction E(B-V) = 1.65 which is estimated from the observed GAIA colors.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1291 1-4 (1683334)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1715; FP-POS=4			1715 Secs (1715 Secs)	
								[==>]	***[1]***

Comments: ETC exposure time of 1371.3 s for G130M (both FP-POS combined) is increased to a total exposure time of 3430 s
Worst-case ETC run (1683335) gives 0.09 cts/s in brightest pixel and buffer time of 3044 s
M dwarf flare ETC run (1683336) gives 0.851 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to exposure time

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1363.2 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 327.9 cts/s/segment
brightest pixel: 0.020 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:03, v0.23

3	G160M/158 9-3 (1683337)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=39 4; FP-POS=3	504 Secs (504 Secs) *[==>]*	**[2]**

Comments: ETC exposure time is 3432 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 3372 s
Worst-case ETC run (1683338) gives 0.088 cts/s in brightest pixel and buffer time of 7282 s
M dwarf flare ETC run (1683339) gives 1.40 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1684.3 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 82.2 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:59, v0.23

4	G160M/158 9-4 (1683337)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=39 4; FP-POS=4	504 Secs (504 Secs) *[==>]*	**[2]**

Comments: ETC exposure time is 3432 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 3372 s
Worst-case ETC run (1683338) gives 0.088 cts/s in brightest pixel and buffer time of 7282 s
M dwarf flare ETC run (1683339) gives 1.40 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1684.3 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 82.2 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:37:59, v0.23

5	G160M/162 3-1 (1683342)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=39 5; FP-POS=1	505 Secs (505 Secs) *[==>]*	**[2]**

Comments: ETC exposure time is 3507.3 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 3376 s
Worst-case ETC run (1683341) gives 0.082 cts/s in brightest pixel and buffer time of 8262 s
M dwarf flare ETC run (1683340) gives 1.406 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

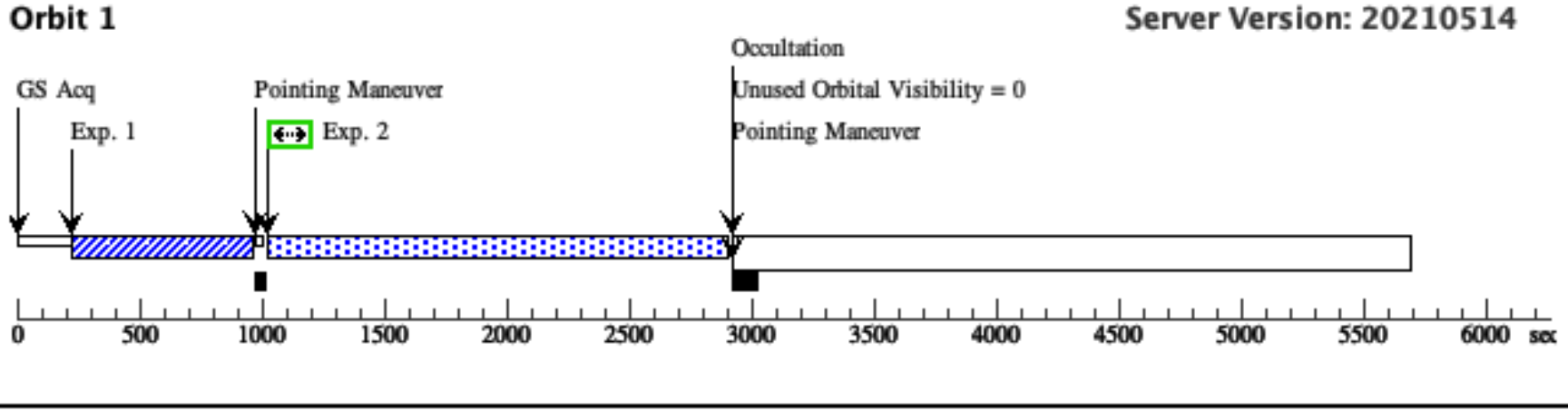
sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1723.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 79.5 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:01, v0.23

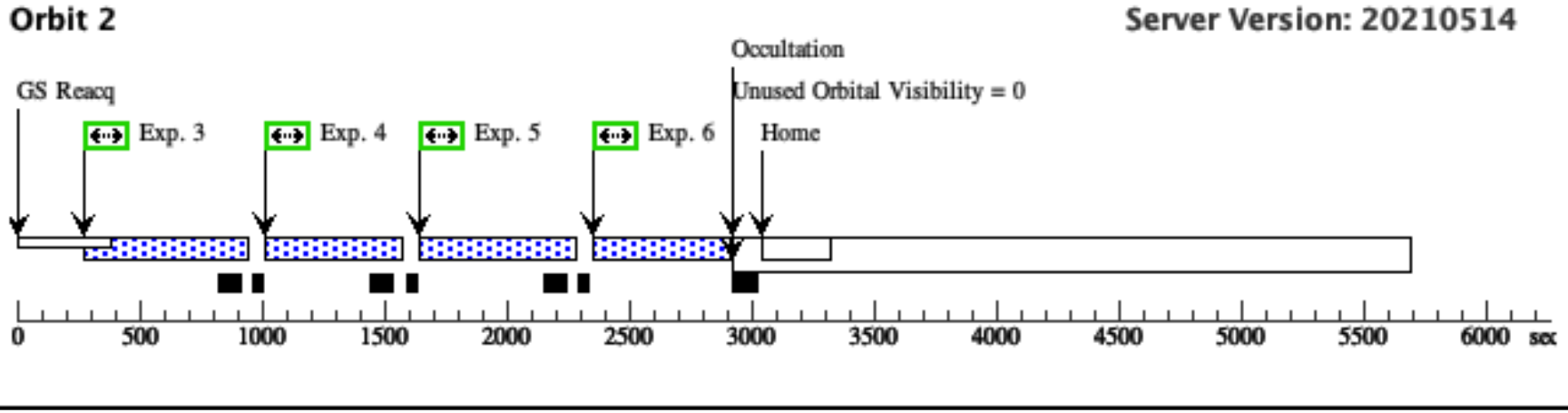
6	G160M/162 3-2 (1683342)	(2) SZ117	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=50 5; FP-POS=2	505 Secs (505 Secs) [==>] / [2]

Comments: ETC exposure time is 3507.3 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 3376 s
Worst-case ETC run (1683341) gives 0.082 cts/s in brightest pixel and buffer time of 8262 s
M dwarf flare ETC run (1683340) gives 1.406 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz117_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=1723.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 79.5 cts/s/segment
brightest pixel: 0.006 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:01, v0.23

Orbit Structure





Visit

Proposal 16855, SZ117-STIS (2S) Mon Jan 24 20:02:02 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00; GROUP 2S,2C,2D WITHIN 1D

Comments: vstatus; 2S; SZ117; S/STIS approved for submission; S/DS 20/01/22 ; intrev: complete ; S/WF 20/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ117 ; STIS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in STIS acquisition for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
vcheck; Selected ACQ strategy?; yes ...
ACQ with F28X50LP
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
Nothing in the G230L macroaperture
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/field/
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; yes ...
2S, 2C, 2D grouped within 1D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated STIS orbits = 1

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SZ117	RA: 16 09 44.3498 (242.4347908d)	Proper Motion RA: -8.247579316 mas/yr	V=14.901	Reference Frame: ICRS
	Alt Name1: HBC-626	Dec: -39 13 30.55 (-39.22515d)	Proper Motion Dec: -24.45098801 mas/yr	SpT=M3.5; A_V=0.50; B=16.09 ; V=14.90; R=14.20; I=12.38; J= 10.68	
		Equinox: J2000	Parallax: 0.006306681947999999"		
			Epoch of Position: 2015.5		

Comments: SZ117 : HBC 626
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz117&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
Input file: lowmass_survey_Input-gaia.csv
sz117_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:03, v0.8
---
tstatus; SZ117; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ117; 2MASS J16094434-3913301; Gaia DR2 5997393311680941696
tcheck; Target info verification status?; OK
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-76% of CTTS template; use M3.5 model (phoenix, T_eff=3500, logg=5) in optical.
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1683300)	(2) SZ117	STIS/CCD, ACQ, F28X50LP	MIRROR				0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: Nominal ETC run gives 0.04 sec for S/N = 40
Worst-case ETC run (1683301) gives saturation in 2.45 sec
M dwarf flare ETC run (1683302) gives saturation in 0.63 sec

Used a hybrid model: CTTS template below 3700 A; M3.5 dwarf scaled to B = 16.08 above 3700 A
For S/N calcs, A_V = 1.0 is used instead of nominal A_V = 0.5; see sz117_lya2_etc_scaled_pAV0.50_M3.5phot.txt
For BOP calcs, nominal A_V is used and both components are scaled up by 4x; see sz117_lya2_x4.00_etc_M3.5phot.txt
Above SEDs and an IDL program to make them are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/mdwarf

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G230L/2376 (1683304)	(2) SZ117	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	WAVECAL=NO; BUFFER-TIME=192			386 Secs (386 Secs) *[==>]*	***[1]***

Comments: ETC exposure time (0.74 cts/s in brightest pixel) of 111 s was increased to 386 s
Worst-case ETC run (1683305) gives 7.20 cts/s in brightest pixel and buffer time of 615 s
M dwarf flare ETC run (1683306) gives 18.7 cts/s in brightest pixel which exceds normal bright limit but is under M-dwarf bright limit
Buffer time set to just under half the exposure time

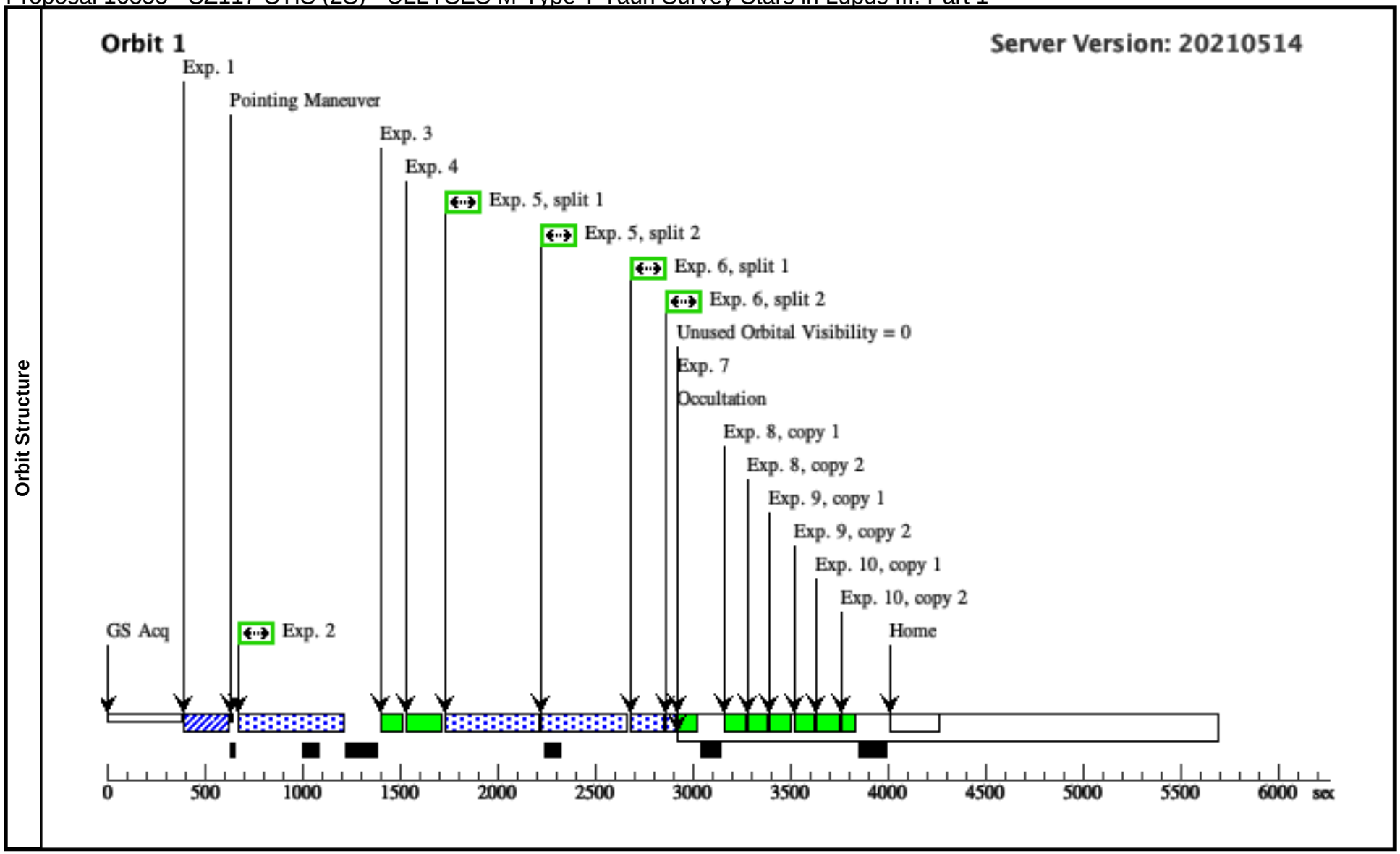
sz117_lya2_etc_scaled_pAV0.50.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=110.5 s, spectral region:
2800.0 +- 15.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 2406.3 cts/s/segment
brightest pixel: 0.742 cts/s/pix at 2796.8 A
Calculation performed 2021-10-21T02:38:03, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G230L/2376 WAVECAL	WAVE	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				*[==>]*	***[1]***
4	G430L/4300 WAVECAL	WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A				*[==>]*	***[1]***
5	G430L/4300 (1683319)	(2) SZ117	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=4			812 Secs (812 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***

Comments: ETC total exposure time (needed to reach SNR ~20 @4000 A) of 541 s is increased ~150% to 812 s
ETC exposure time is larger than automatically calculated below due to use of an M dwarf SED and use of different Gain.
Worst-case ETC run (1683320) gives saturation in 3440 s for each frame
Used GAIN = 4 to guard against saturation on emission lines in 612 s (ETC 1683321) for each frame.

sz117_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200
M: 0.26 ; log(dm/dt): -8.61*
For exptime=43.9 s, n_reads=2, spectral region:
4000.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 46219.0 cts/s/segment
brightest pixel: 25.023 cts/s/pix at 4560.5 A
Calculation performed 2021-10-21T02:38:03, v0.23

	6	G750L/7751 (2) SZ117 (1683329)	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	30 Secs (30 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
	Comments: ETC total exposure time (needed to reach SNR ~20 @5700 A) of 14.5 s was doubled to 30 s *Exposure time is larger than automatically calculated below due to use of an M dwarf SED* *Worst-case ETC run (1683330) gives saturation in 230 s for each frame* *Safe against saturation on emission lines (ETC 1683331)* *sz117_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g750l,c7751,52x2,mjd#59670* *WARNING: operating mode = ACCUM* *Input file: lowmass_survey_Input-gaia.csv* *Spectral type: M3.5 ; A_V: 0.5 ; Distance (pc): 200* *M*: 0.26 ; log(dm/dt): -8.61* *For exptime=3.5 s, n_reads=2, spectral region:* *5700.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel* *A factor of 2.0 has been applied to the exptime in each exposure.* *global countrate (brightest segment): 98664.7 cts/s/segment* *brightest pixel: 179.522 cts/s/pix at 6563.9 A* *Calculation performed 2021-10-21T02:38:03, v0.23*						
	7	G750L/7751 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>]*	***[1]***
	8	G750L/7751 CCDFLAT CCDFLAT 1	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
	9	G750L/7751 CCDFLAT CCDFLAT 2	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
	10	G750L/7751 CCDFLAT CCDFLAT 3	STIS/CCD, ACCUM, 52X2	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20210514
Exp. 1
Pointing Maneuver
Exp. 3
Exp. 4
Exp. 5, split 1
Exp. 5, split 2
Exp. 6, split 1
Exp. 6, split 2
Unused Orbital Visibility = 0
Exp. 7
Occultation
Exp. 8, copy 1
Exp. 8, copy 2
Exp. 9, copy 1
Exp. 9, copy 2
Exp. 10, copy 1
Exp. 10, copy 2
Home
GS Acq
Exp. 2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16855, SZ97-COS (3C) Mon Jan 24 20:02:02 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 3C; SZ97; P/COS approved for submission; P/DS 21/01/22 ; intrev: complete ; P/WF 21/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ97 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
see comments in COS acquistion exposure for details about COS offset target calculations
see comments in STIS acquisition for details about the seds used for science exposures
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
vcheck; Selected ACQ strategy?; yes ...
PEAKXD/2950/B + PEAKD/2950 acquision with PSA on SZ-98
see offset notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
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; yes ...
3S, 3C, 3D, 3E grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 7

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SZ97 Alt Name1: TIC-374813188	RA: 16 08 21.7918 (242.0907992d) Dec: -39 04 21.86 (-39.07274d) Equinox: J2000	Proper Motion RA: -9.143679778 mas/yr Proper Motion Dec: -24.13928771 mas/yr Parallax: 0.006339016788000001" Epoch of Position: 2015.5	V=15.729 SpT=M4; A_V=0.00; B=17.10; V=15.73; R=14.67; I=12.92; J=11.24	Reference Frame: ICRS

Comments: SZ97
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz97&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
Input file: lowmass_survey_Input-gaia.csv
sz97_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:13, v0.8
---
tstatus; SZ97; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ97; 2MASS J16082180-3904214; Gaia DR2 5997082871452217344
tcheck; Target info verification status?; OK ...
For the M dwarf check of Sz 97, we use A_V = 0.3, reported by Mortier et al. (2011, MNRAS, 418, 1194); henceforth M11. This is more reasonable than the A_V = 0.0 reported by Alcala et al. (2014, A&A, 561, A2); henceforth A14. Both M11 and A14 compare spectra of Sz 97 to templates to derive A_V. M11 use a field dwarf as a template, which almost certainly has A_V = 0. A14 use Sz 94 as a template and do not seem to allow for the fact that it may have A_V > 0. This does not affect exposure time estimates, since these were conservatively calculated assuming A_V = 0.5.
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-89% of CTTS template; use M4 model (phoenix, T_eff=3200, logg=5) in optical
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

(5)	SZ97-OFFSET Alt Name1: SZ-98 Alt Name2: V1279-SCO	RA: 16 08 22.4807 (242.0936696d) Dec: -39 04 46.81 (-39.07967d) Equinox: J2000	Proper Motion RA: -9.59431537 mas/yr Proper Motion Dec: -24.4749916 mas/yr Parallax: 0.006401347854" Epoch of Position: 2015.5	V=13.52 SpT=K7; A_V=1.00; B=14.80; V=13.52; J=9.530	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV PEAKXD (1684285)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKXD, PSA	G230L 2950 A	STRIPE=DEF			30.2 Secs (30.2 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.53 s (to reach the recommended S/N of 40 with PEAKXD/2950/B) is quadrupled to 30.2 s to guard against target dimming.
Worst-case ETC run (1684286) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	NUV PEAKD (1684296)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKD, PSA	G230L 2950 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			29 Secs (29 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.2 s (to reach the recommended S/N of 40 with PEAKD/2950) is quadrupled to 29 s to guard against target dimming.
Worst-case ETC run (1684295) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (1683822)	(3) SZ97	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1941; FP-POS=3			1941 Secs (1941 Secs) *[==>]*	***[1]***

Comments: ETC exposure time of 2296 s for G130M (both FP-POS combined) is increased to a total exposure time of 5708 s; this exposure will be co-added with others.
Worst-case ETC run (1683823) gives 0.09 cts/s in brightest pixel and buffer time of 4043 s
M dwarf flare ETC run (1685521) gives 0.91 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2281.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 306.9 cts/s/segment
brightest pixel: 0.010 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:12, v0.23

4	G160M/158 (3) SZ97 9-3 (1683825)	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=24 69; FP-POS=3	2469 Secs (2469 Secs)	[==>]	**[2]**

Comments: ETC exposure time is 5282 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 4940 s
Worst-case ETC run (1683826) gives 0.036 cts/s in brightest pixel and buffer time of 12563 s
M dwarf flare ETC run (1685522) gives 1.54 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

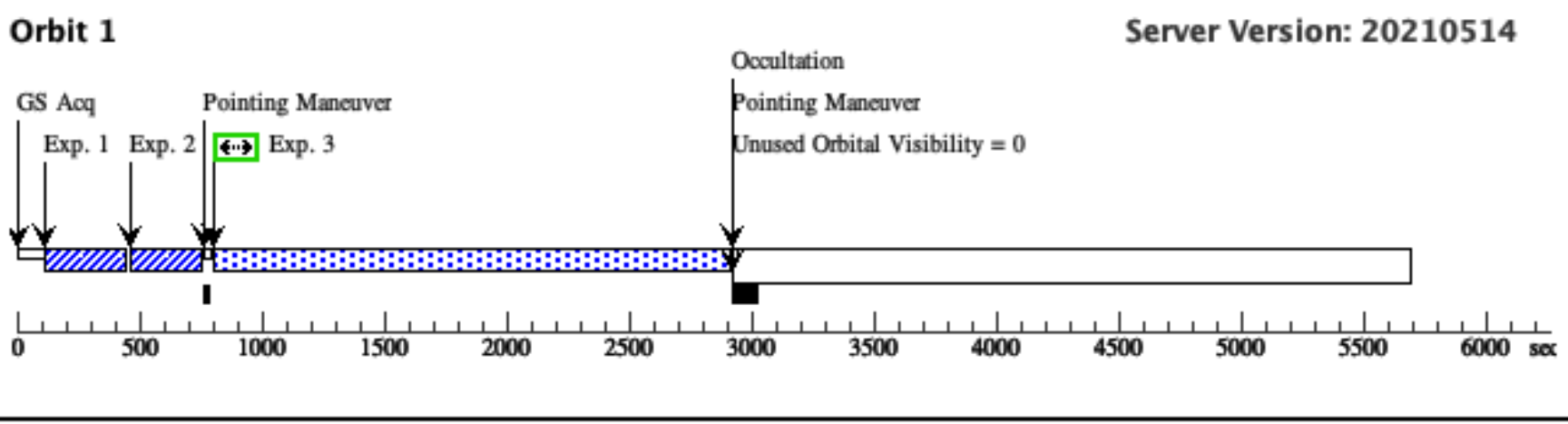
sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2592.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 71.8 cts/s/segment
brightest pixel: 0.003 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:08, v0.23

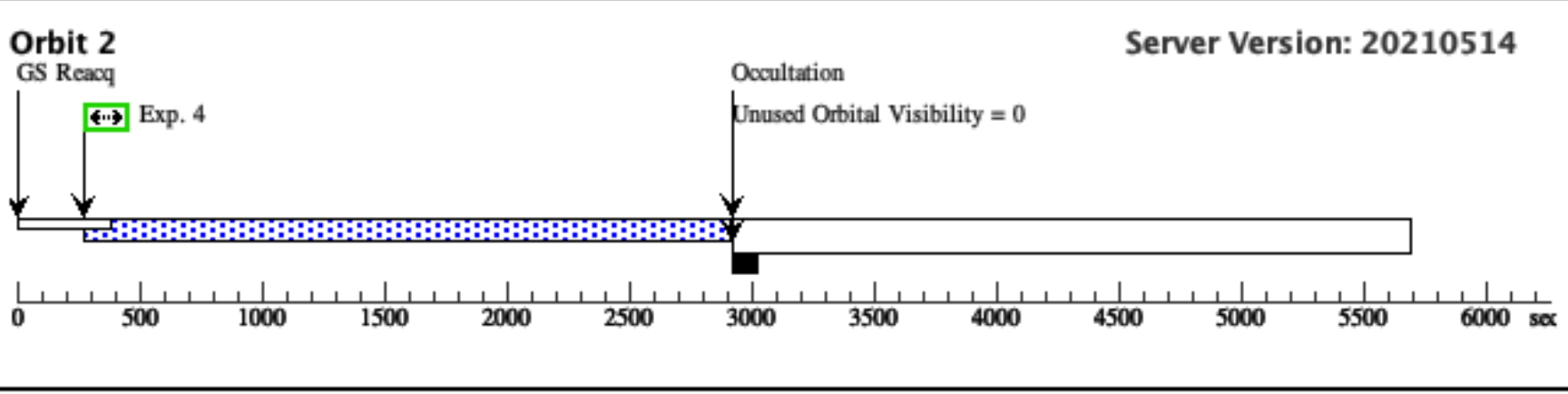
5	G160M/158 (3) SZ97 9-4 (1683825)	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=24 71; FP-POS=4	2471 Secs (2471 Secs)	[==>]	**[3]**

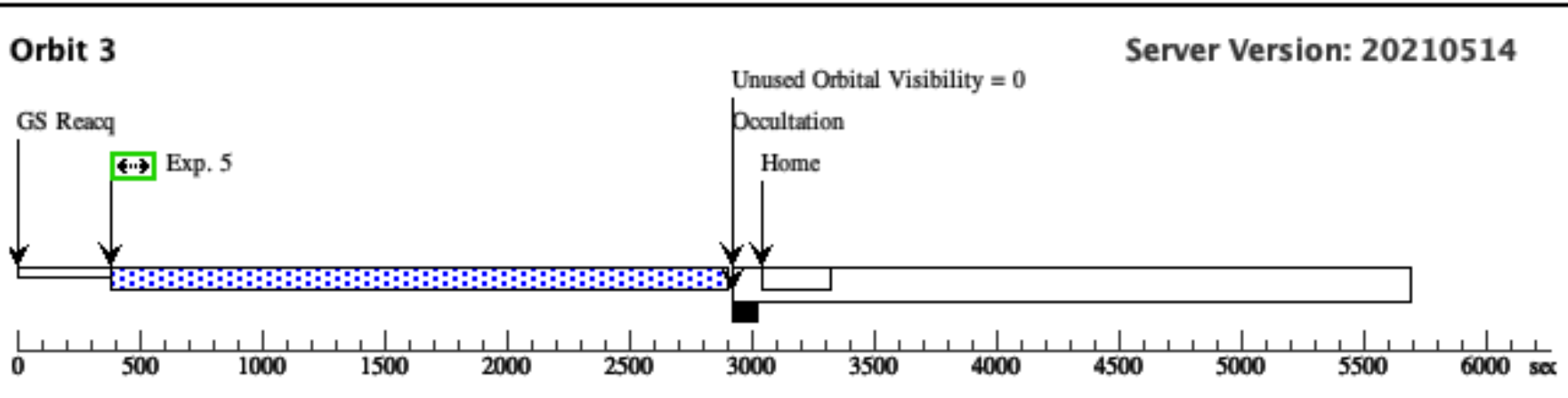
Comments: ETC exposure time is 5282 s for G160M c1589 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1623 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1589 is 4940 s
Worst-case ETC run (1683826) gives 0.036 cts/s in brightest pixel and buffer time of 12563 s
M dwarf flare ETC run (1685522) gives 1.54 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1589,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2592.1 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1589 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 71.8 cts/s/segment
brightest pixel: 0.003 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:08, v0.23

Orbit Structure







Visit

Proposal 16855, SZ97-COS (3D) Mon Jan 24 20:02:02 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 3D; SZ97; P/COS approved for submission; P/DS 21/01/22 ; intrev: complete ; P/WF 21/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ97 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
see comments in COS acquistion exposure for details about COS offset target calculations
see comments in STIS acquisition for details about the seds used for science exposures
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
vcheck; Selected ACQ strategy?; yes ...
PEAKXD/2950/B + PEAKD/2950 acquision with PSA on SZ-98
see offset notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
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; yes ...
3S, 3C, 3D, 3E grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 7

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SZ97 Alt Name1: TIC-374813188	RA: 16 08 21.7918 (242.0907992d) Dec: -39 04 21.86 (-39.07274d) Equinox: J2000	Proper Motion RA: -9.143679778 mas/yr Proper Motion Dec: -24.13928771 mas/yr Parallax: 0.006339016788000001" Epoch of Position: 2015.5	V=15.729 SpT=M4; A_V=0.00; B=17.10; V=15.73; R=14.67; I=12.92; J=11.24	Reference Frame: ICRS

Comments: SZ97
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz97&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
Input file: lowmass_survey_Input-gaia.csv
sz97_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:13, v0.8
---
tstatus; SZ97; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ97; 2MASS J16082180-3904214; Gaia DR2 5997082871452217344
tcheck; Target info verification status?; OK ...
For the M dwarf check of Sz 97, we use A_V = 0.3, reported by Mortier et al. (2011, MNRAS, 418, 1194); henceforth M11. This is more reasonable than the A_V = 0.0 reported by Alcala et al. (2014, A&A, 561, A2); henceforth A14. Both M11 and A14 compare spectra of Sz 97 to templates to derive A_V. M11 use a field dwarf as a template, which almost certainly has A_V = 0. A14 use Sz 94 as a template and do not seem to allow for the fact that it may have A_V > 0. This does not affect exposure time estimates, since these were conservatively calculated assuming A_V = 0.5.
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-89% of CTTS template; use M4 model (phoenix, T_eff=3200, logg=5) in optical
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

(5)	SZ97-OFFSET Alt Name1: SZ-98 Alt Name2: V1279-SCO	RA: 16 08 22.4807 (242.0936696d) Dec: -39 04 46.81 (-39.07967d) Equinox: J2000	Proper Motion RA: -9.59431537 mas/yr Proper Motion Dec: -24.4749916 mas/yr Parallax: 0.006401347854" Epoch of Position: 2015.5	V=13.52 SpT=K7; A_V=1.00; B=14.80; V=13.52; J=9.530	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV PEAKXD (1684285)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKXD, PSA	G230L 2950 A	STRIPE=DEF			30.2 Secs (30.2 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.53 s (to reach the recommended S/N of 40 with PEAKXD/2950/B) is quadrupled to 30.2 s to guard against target dimming.
Worst-case ETC run (1684286) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	NUV PEAKD (1684296)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKD, PSA	G230L 2950 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			29 Secs (29 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.2 s (to reach the recommended S/N of 40 with PEAKD/2950) is quadrupled to 29 s to guard against target dimming.
Worst-case ETC run (1684295) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-4 (1683822)	(3) SZ97	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1941; FP-POS=4			1941 Secs (1941 Secs) *[==>]*	***[1]***

Comments: ETC exposure time of 2296 s for G130M (both FP-POS combined) is increased to a total exposure time of 5708 s; this exposure will be co-added with others.
Worst-case ETC run (1683823) gives 0.09 cts/s in brightest pixel and buffer time of 4043 s
M dwarf flare ETC run (1685521) gives 0.91 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

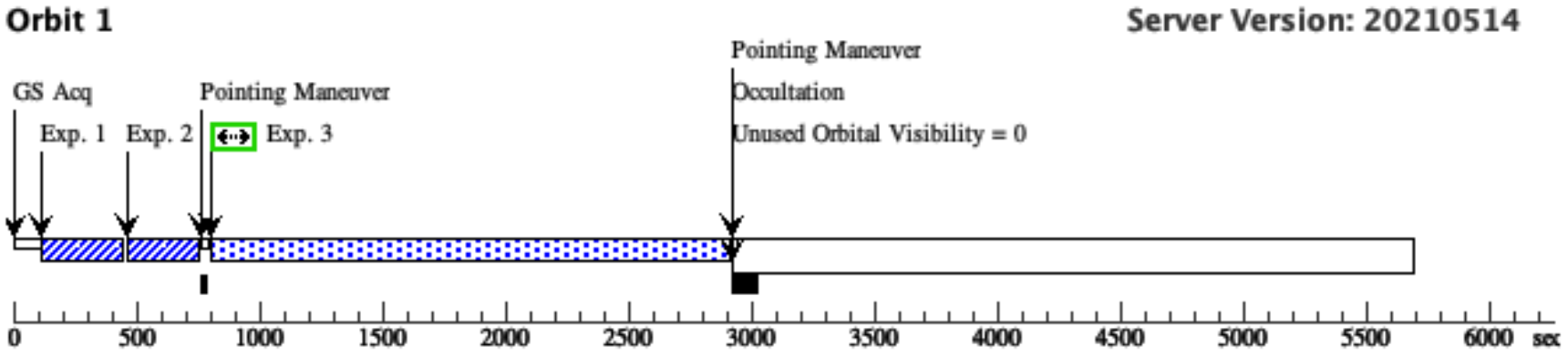
sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2281.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 306.9 cts/s/segment
brightest pixel: 0.010 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:12, v0.23

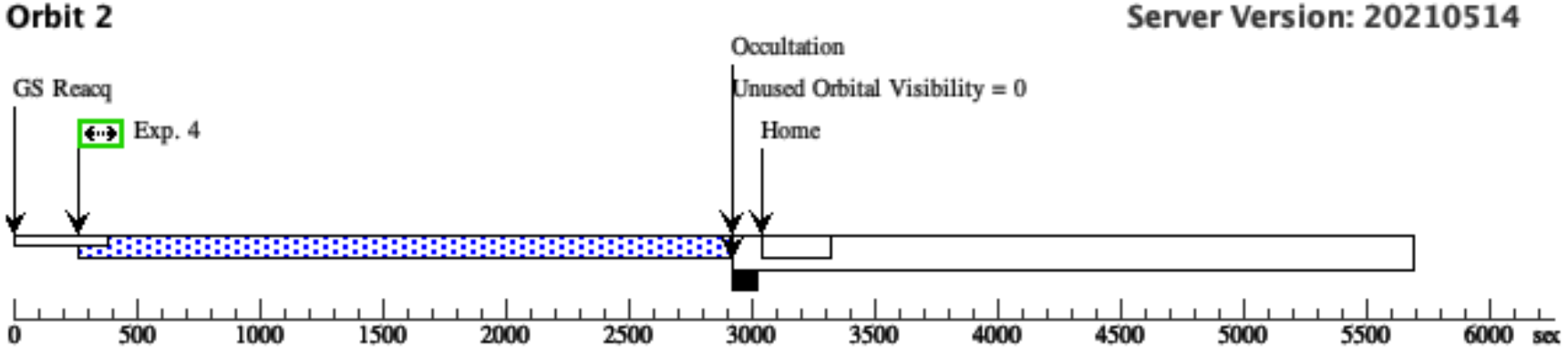
4	G160M/162 (3) SZ97 3-1 (1683830)	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=24 69; FP-POS=1	2469 Secs (2469 Secs) [==>]		[2]

Comments: ETC exposure time is 5399 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 4938 s
Worst-case ETC run (1683832) gives 0.033 cts/s in brightest pixel and buffer time of 14243 s
M dwarf flare ETC run (1685523) gives 1.56 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2652.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 70.1 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:10, v0.23

Orbit Structure





Visit

Proposal 16855, SZ97-COS (3E) Mon Jan 24 20:02:02 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00

Comments: vstatus; 3E; SZ97; P/COS approved for submission; P/DS 21/01/22 ; intrev: complete ; P/WF 21/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ97 ; COS ; DS
vcheck; ETC numbers entered in APT?; yes ...
see comments in COS acquistion exposure for details about COS offset target calculations
see comments in STIS acquisition for details about the seds used for science exposures
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
vcheck; Selected ACQ strategy?; yes ...
PEAKXD/2950/B + PEAKD/2950 acquision with PSA on SZ-98
see offset notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
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; yes ...
3S, 3C, 3D, 3E grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated COS orbits = 7

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SZ97 Alt Name1: TIC-374813188	RA: 16 08 21.7918 (242.0907992d) Dec: -39 04 21.86 (-39.07274d) Equinox: J2000	Proper Motion RA: -9.143679778 mas/yr Proper Motion Dec: -24.13928771 mas/yr Parallax: 0.006339016788000001" Epoch of Position: 2015.5	V=15.729 SpT=M4; A_V=0.00; B=17.10; V=15.73; R=14.67; I=12.92; J=11.24	Reference Frame: ICRS

Comments: SZ97
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz97&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
Input file: lowmass_survey_Input-gaia.csv
sz97_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:13, v0.8
---
tstatus; SZ97; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ97; 2MASS J16082180-3904214; Gaia DR2 5997082871452217344
tcheck; Target info verification status?; OK ...
For the M dwarf check of Sz 97, we use A_V = 0.3, reported by Mortier et al. (2011, MNRAS, 418, 1194); henceforth M11. This is more reasonable than the A_V = 0.0 reported by Alcala et al. (2014, A&A, 561, A2); henceforth A14. Both M11 and A14 compare spectra of Sz 97 to templates to derive A_V. M11 use a field dwarf as a template, which almost certainly has A_V = 0. A14 use Sz 94 as a template and do not seem to allow for the fact that it may have A_V > 0. This does not affect exposure time estimates, since these were conservatively calculated assuming A_V = 0.5.
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-89% of CTTS template; use M4 model (phoenix, T_eff=3200, logg=5) in optical
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

(5)	SZ97-OFFSET Alt Name1: SZ-98 Alt Name2: V1279-SCO	RA: 16 08 22.4807 (242.0936696d) Dec: -39 04 46.81 (-39.07967d) Equinox: J2000	Proper Motion RA: -9.59431537 mas/yr Proper Motion Dec: -24.4749916 mas/yr Parallax: 0.006401347854" Epoch of Position: 2015.5	V=13.52 SpT=K7; A_V=1.00; B=14.80; V=13.52; J=9.530	Reference Frame: ICRS

Comments:
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	NUV PEAKXD (1684285)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKXD, PSA	G230L 2950 A	STRIPE=DEF			30.2 Secs (30.2 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.53 s (to reach the recommended S/N of 40 with PEAKXD/2950/B) is quadrupled to 30.2 s to guard against target dimming.
Worst-case ETC run (1684286) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	NUV PEAKD (1684296)	(5) SZ97-OFFSET	COS/NUV, ACQ/PEAKD, PSA	G230L 2950 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			29 Secs (29 Secs) *[==>]*	***[1]***

Comments: Due to M dwarf rules, direct COS imaging or spectroscopic acquisition is impractical and and an offset acquisition is to be performed.

The offset acquisition is performed on SZ-98 which is 26.6" away from SZ-97, due south-east. SZ-98 itself is a ULLYSES T-Tauri target, being observed in Cycle 29 as part of program 16854. SZ-98 is vetted as a SpT K7 star with Av = 1.00, E(B-V) = (Av/3.1) = 0.32, B = 14.80, V = 13.52 and J = 9.530.

Program 16854 acquire SZ-98 using ACQ/IMAGE with BOA/MIRRORA but our offset acquisition uses PEAKXD/2950/B + PEAKD/2950 to acquire this star since COS NUV spectroscopic acquisition was determined to be more efficient (better S/N delivered with in shorter time; please see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-117/sz97_acq_strategies.xls)

We use the CTTS template to perform the ETC calculations:
For S/N calcs, A_V = 1.5 is used instead of nominal A_V = 1.0; see sz98_lya2_etc_scaled_pAV0.50.txt
For BOP calcs, nominal A_V is used and the spectrum is scaled up by 4x; see sz98_lya2_x4.00_etc.txt
Above SEDs are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/offset/ as well as in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16854/sz-98/seds/

The nominal ETC exposure time of 7.2 s (to reach the recommended S/N of 40 with PEAKD/2950) is quadrupled to 29 s to guard against target dimming.
Worst-case ETC run (1684295) gives 5.3 cts/s in brightest pixel

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (1683822)	(3) SZ97	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=803; FP-POS=3			913 Secs (913 Secs) *[==>]*	***[1]***

Comments: ETC exposure time of 2296 s for G130M (both FP-POS combined) is increased to a total exposure time of 5708 s; this exposure will be co-added with others.
Worst-case ETC run (1683823) gives 0.09 cts/s in brightest pixel and buffer time of 4043 s
M dwarf flare ETC run (1685521) gives 0.91 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time - 110 s

sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2281.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 306.9 cts/s/segment
brightest pixel: 0.010 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:12, v0.23

4	G130M/129 (3) SZ97 1-4 (1683822)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=913; FP-POS=4	913 Secs (913 Secs) *[==>]*		***[1]***

Comments: ETC exposure time of 2296 s for G130M (both FP-POS combined) is increased to a total exposure time of 5708 s; this exposure will be co-added with others.
Worst-case ETC run (1683823) gives 0.09 cts/s in brightest pixel and buffer time of 4043 s
M dwarf flare ETC run (1685521) gives 0.91 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

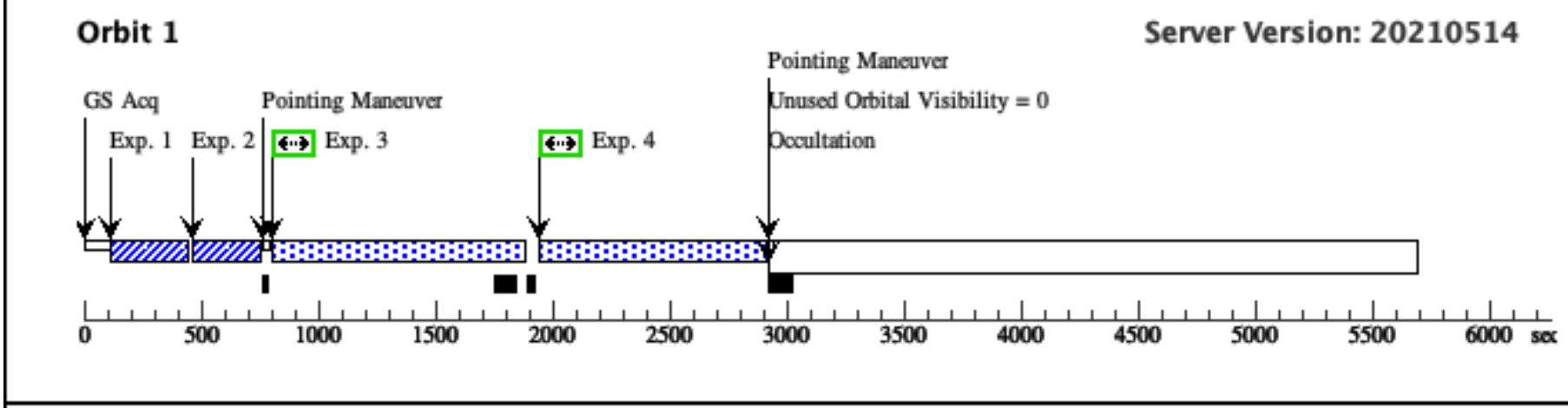
sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g130m,c1291,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2281.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=10.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 306.9 cts/s/segment
brightest pixel: 0.010 cts/s/pix at 1304.8 A
Calculation performed 2021-10-21T02:38:12, v0.23

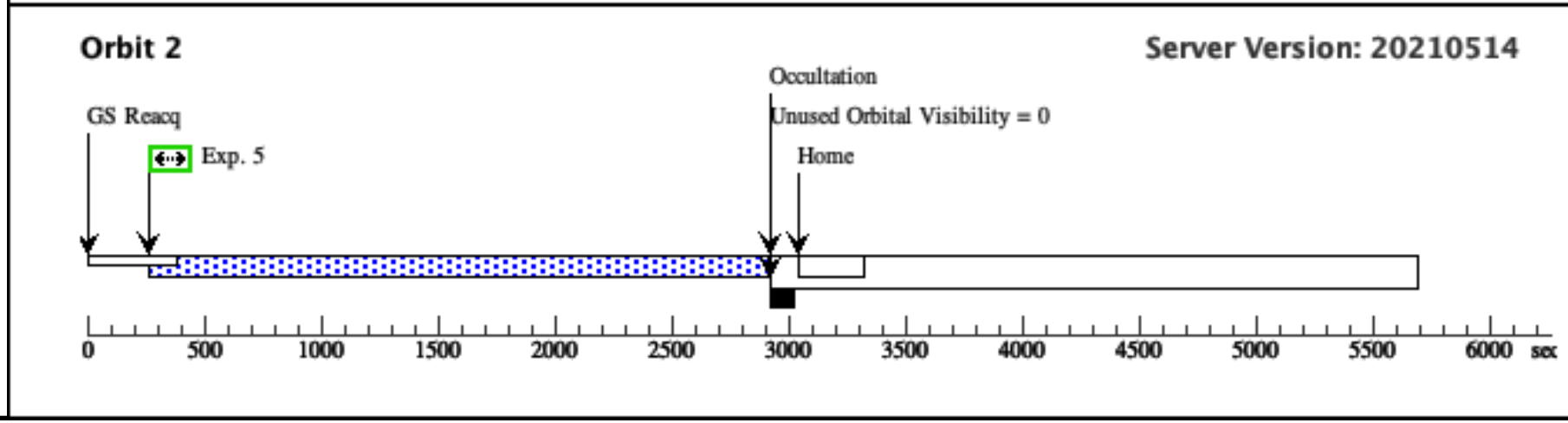
5	G160M/162 (3) SZ97 3-2 (1683830)	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=2469; FP-POS=2	2469 Secs (2469 Secs) *[==>]*		***[2]***

Comments: ETC exposure time is 5399 s for G160M c1623 to achieve S/N ~20 @ 1548.44 A. This should be halved given c1589 targets the same line.
This exposure will be co-added with others; total exposure time with G160M c1623 is 4938 s
Worst-case ETC run (1683832) gives 0.033 cts/s in brightest pixel and buffer time of 14243 s
M dwarf flare ETC run (1685523) gives 1.56 cts/s in brightest pixel which exceeds normal bright limit but is under the M dwarf limit.
Buffer time set to: exposure time

sz97_lya2_etc_scaled_pAV0.50.txt; cos,fuv,g160m,c1623,psa,mjd#59670; fp-pos=None, segment=None)
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=2652.7 s, spectral region:
1549.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel for combined c1589 & c1623
The exptime for this c1623 exposure has been halved because c1589 & c1623 target the same line.
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 70.1 cts/s/segment
brightest pixel: 0.002 cts/s/pix at 1446.2 A
Calculation performed 2021-10-21T02:38:10, v0.23

Orbit Structure





Visit

Proposal 16855, SZ97-STIS (3S) Mon Jan 24 20:02:02 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; BETWEEN 26-MAR-2022:00:00:00 AND 29-JUL-2022:00:00:00; GROUP 3S,3C,3D,3E WITHIN 2D

Comments: vstatus; 3S; SZ97; P/STIS approved for submission; S/DS 21/01/22 ; intrev: complete ; S/WF 21/01/22
vcheck; Enter targ name & Inst. & Resp. Sci.; SZ97 ; STIS ; DS
vcheck; ETC numbers entered in APT?; yes ...
See comments in STIS acquisition for details about the seds used
vcheck; Any screening violations?; no
vcheck; M-dwarf check complete and added to box folder?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/mdwarf/
vcheck; S/N ETC calcs done & documented?; yes
vcheck; Field images checked & saved?; yes ...
located at: ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
vcheck; Selected ACQ strategy?; yes ...
ACQ with F28X50LP
vcheck; Possible ACQ or Sci spoilers?; no
vcheck; Field BOT clear?; yes ...
Nothing in the G230L macroaperture.
see the field notes in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/field/
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; yes ...
3S, 3C, 3D, 3E grouped within 2D
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; yes ...
BETWEEN 26 MAR 2022 - 29 JUL 2022
vcheck; Is visit ready for int. review?; yes
Allocated STIS orbits = 2 (constrained in input CSV)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SZ97 Alt Name1: TIC-374813188	RA: 16 08 21.7918 (242.0907992d) Dec: -39 04 21.86 (-39.07274d) Equinox: J2000	Proper Motion RA: -9.143679778 mas/yr Proper Motion Dec: -24.13928771 mas/yr Parallax: 0.006339016788000001" Epoch of Position: 2015.5	V=15.729 SpT=M4; A_V=0.00; B=17.10; V=15.73; R=14.67; I=12.92; J=11.24	Reference Frame: ICRS

Comments: SZ97
Region: Lupus III
Simbad: http://simbad.u-strasbg.fr/simbad/sim-id?Ident=sz97&submit=submit+id
Target coordinates are from Gaia DR2.
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
Input file: lowmass_survey_Input-gaia.csv
sz97_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-10-21T02:38:13, v0.8
---
tstatus; SZ97; P/COS approved for submission; S/STIS approved for submission; P/DS 21/01/22; S/DS 21/01/22
tcheck; APT/SIMBAD target names: ; SZ97; 2MASS J16082180-3904214; Gaia DR2 5997082871452217344
tcheck; Target info verification status?; OK ...
For the M dwarf check of Sz 97, we use A_V = 0.3, reported by Mortier et al. (2011, MNRAS, 418, 1194); henceforth M11. This is more reasonable than the A_V = 0.0 reported by Alcala et al. (2014, A&A, 561, A2); henceforth A14. Both M11 and A14 compare spectra of Sz 97 to templates to derive A_V. M11 use a field dwarf as a template, which almost certainly has A_V = 0. A14 use Sz 94 as a template and do not seem to allow for the fact that it may have A_V > 0. This does not affect exposure time estimates, since these were conservatively calculated assuming A_V = 0.5.
tcheck; Coordinates & P.M. verified, epoch checked?; yes
tcheck; Adopted SED compared to Observations?; yes ...
BVRI photometry is only 28-89% of CTTS template; use M4 model (phoenix, T_eff=3200, logg=5) in optical
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1683754)	(3) SZ97	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs) *[==>]*	***[1]***

Comments: Nominal ETC run gives 0.09 sec for S/N = 40
Worst-case ETC run (1683755) gives saturation in 5.62 sec
M dwarf flare ETC run (1685527) gives saturation in 1.40 sec

Used a hybrid model: CTTS template below 3700 A; M4 dwarf scaled to B = 17.11 above 3700 A
For S/N calcs, A_V = 0.5 is used instead of nominal A_V = 0.0; see sz97_lya2_etc_scaled_pAV0.50_M4phot.txt
For BOP calcs, nominal A_V is used and both components are scaled up by 4x; see sz97_lya2_x4.00_etc_M4phot.txt
Above SEDs and an IDL program to make them are in ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/seds/
For M dwarf flaring, see ~/Box/ullyses_tech/ullyses_proposals/survey_c29/16855/sz-97/mdwarf
For the M dwarf check of Sz 97, we use A_V = 0.3, reported by Mortier et al. (2011, MNRAS, 418, 1194); henceforth M11. This is more reasonable than the A_V = 0.0 reported by Alcala et al. (2014, A&A, 561, A2); henceforth A14. Both M11 and A14 compare spectra of Sz 97 to templates to derive A_V. M11 use a field dwarf as a template, which almost certainly has A_V = 0. A14 use Sz 94 as a template and do not seem to allow for the fact that it may have A_V > 0. This does not affect exposure time estimates, since these were conservatively calculated assuming A_V = 0.5.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G230L/2376 (1683818)	(3) SZ97	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	WAVECAL=NO; BUFFER-TIME=262			525 Secs (525 Secs) *[==>]*	***[1]***

Comments: ETC exposure time (0.40 cts/s in brightest pixel) of 208.4 s was increased ~150% to 525 s
Worst-case ETC run (1683819) gives 3.90 cts/s in brightest pixel and buffer time of 740 s
M dwarf flare ETC run (1685524) gives 10.9 cts/s in brightest pixel
Buffer time set to just under half the exposure time

sz97_lya2_etc_scaled_pAV0.50.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=207.5 s, spectral region:
2800.0 +- 15.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 2352.7 cts/s/segment
brightest pixel: 0.401 cts/s/pix at 2796.8 A
Calculation performed 2021-10-21T02:38:12, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G230L/2376 WAVECAL	WAVE	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A				*[==>]*	***[1]***
4	G430L/4300 (1683759)	(3) SZ97	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=4			988 Secs (988 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***

Comments: ETC total exposure time (needed to reach SNR ~20 @4000 A) of 1641 s is increased ~80% to 3025 s; this exposure will be co-added with another, longer exposure
ETC exposure time is larger than automatically calculated below due to use of an M dwarf SED and use of different Gain.
Worst-case ETC run (1683761) gives saturation in 8395.3 s for each frame
Used GAIN = 4 to guard against saturation on emission lines in 1213.6 s (ETC 1683858) for each frame.

sz97_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=83.8 s, n_reads=2, spectral region:
4000.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 37702.6 cts/s/segment
brightest pixel: 12.635 cts/s/pix at 4560.5 A
Calculation performed 2021-10-21T02:38:12, v0.23

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
5	G430L/4300 WAVECAL	WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A				*[==>]*	***[1]***
6	G430L/4300 WAVECAL	WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A				*[==>]*	***[2]***

7	G430L/4300 (3) SZ97 (1683759)	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=3; GAIN=4	2037 Secs (2037 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[2]***

Comments: ETC total exposure time (needed to reach SNR ~20 @4000 A) of 1641 s is increased ~80% to 3025 s; this exposure will be co-added with another, shorter exposure
ETC exposure time is larger than automatically calculated below due to use of an M dwarf SED and use of different Gain. This exposure uses SPLIT=3
Worst-case ETC run (1683761) gives saturation in 8395.3 s for each frame
For this exposure: used GAIN = 4 AND SPLIT = 3 to guard against saturation on emission lines in 1213.6 s (ETC 1683865) for each frame.

sz97_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=83.8 s, n_reads=2, spectral region:
4000.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 37702.6 cts/s/segment
brightest pixel: 12.635 cts/s/pix at 4560.5 A
Calculation performed 2021-10-21T02:38:12, v0.23

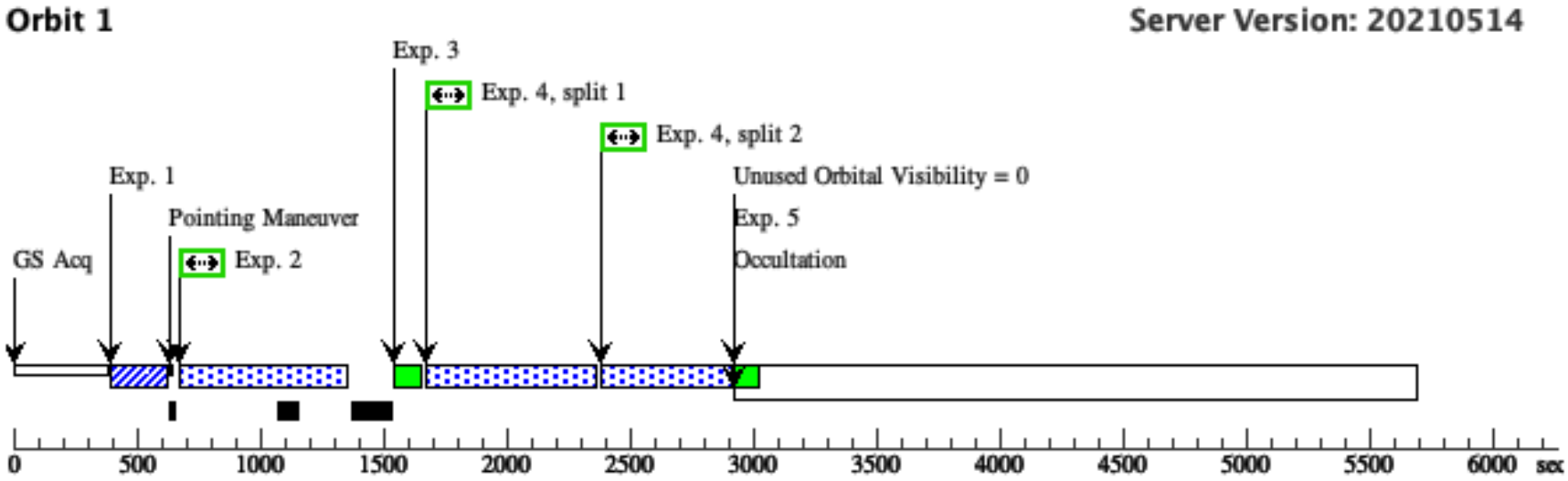
8	G750L/7751 (3) SZ97 (1683815)	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=4	100 Secs (100 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***

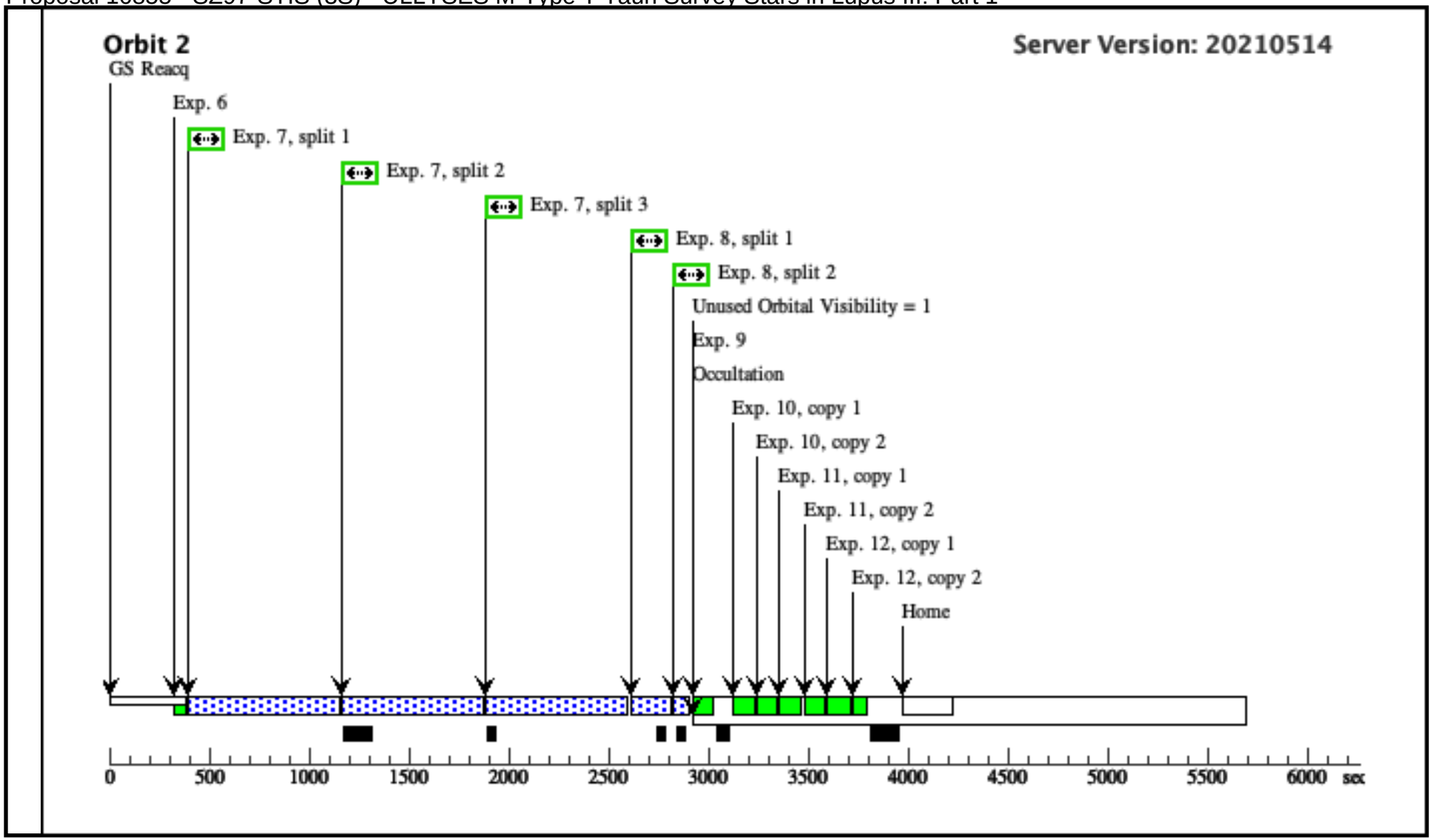
Comments: ETC total exposure time (needed to reach SNR ~20 @5700 A) of 46.4 s was ~doubled to 100 s
Exposure time is larger than automatically calculated below due to use of an M dwarf SED and Gain=4
Worst-case ETC run (1683817) gives saturation in 1681.3 s for each frame
Used GAIN = 4 to guard against saturation on emission lines in 172.8 s (ETC 1683816) for each frame.

sz97_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g750l,c7751,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: lowmass_survey_Input-gaia.csv
Spectral type: M4 ; A_V: 0.0 ; Distance (pc): 200
M: 0.23 ; log(dm/dt): -9.53*
For exptime=8.0 s, n_reads=2, spectral region:
5700.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 66543.1 cts/s/segment
brightest pixel: 102.467 cts/s/pix at 6563.9 A
Calculation performed 2021-10-21T02:38:13, v0.23

9	G750L/7751 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>]*	***[2]***
10	G750L/7751 CCDFLAT CCDFLAT 1	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
11	G750L/7751 CCDFLAT CCDFLAT 2	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
12	G750L/7751 CCDFLAT CCDFLAT 3	STIS/CCD, ACCUM, 52X2	G750L 7751 A		*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***

Orbit Structure




Orbit 2
Server Version: 20210514
GS Reacq
Exp. 6
Exp. 7, split 1
Exp. 7, split 2
Exp. 7, split 3
Exp. 8, split 1
Exp. 8, split 2
Unused Orbital Visibility = 1
Exp. 9
Occultation
Exp. 10, copy 1
Exp. 10, copy 2
Exp. 11, copy 1
Exp. 11, copy 2
Exp. 12, copy 1
Exp. 12, copy 2
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec