16595 - ULLYSES Mid M-type T Tauri Survey Stars in Eta Cha

Cycle: 29, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
1C	(1) RECX-5	COS/FUV COS/NUV	2	30-Jul-2021 13:01:29.0	yes
1S	(1) RECX-5 CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	30-Jul-2021 13:01:31.0	yes
2C	(2) RECX-9	COS/FUV COS/NUV	2	30-Jul-2021 13:01:33.0	yes
2S	(2) RECX-9 CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	30-Jul-2021 13:01:34.0	yes

8 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 16595, RECX-5-COS (1C) Fri Jul 30 17:01:35 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; ORIENT 0D TO 200 D; ORIENT 300D TO 359 D; BETWEEN 28-DEC-2021:00:00:00 AND 20-MAR-2022:00:00:00

Comments: vstatus; 1C; RECX-5; P/COS ready for submission; P/JRD 12/07/21 ; intrev complete ; P/CP 27/07/21
vcheck; Enter targ name & Inst. & Resp. Sci.; RECX-5 ; COS ; JRD
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Yes
vcheck; Possible ACQ or Sci spoilers?; Yes
vcheck; Field BOT clear?; Yes
vcheck; Visual BOT check for stars not in catalog?; Yes
vcheck; Orbit packing finalized?; Yes
vcheck; Buffer times optimized?; Yes
vcheck; Verify visit grouping correct; Yes
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; Yes
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 2

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	RECX-5 Alt Name1: EK-CHA Alt Name2: J08422710-7857479	RA: 08 42 26.9282 (130.6122008d) Dec: -78 57 47.48 (-78.96319d) Equinox: J2000	Proper Motion RA: -30.242448351255998 mas/yr Proper Motion Dec: 26.861542925161 mas/yr Parallax: 0.010152221176913001" Epoch of Position: 2016	V=15.2 SpT=M4.5; A_V=0.00; U=16.0; V=15.2	Reference Frame: ICRS

Comments: RECX-5 : EK Cha, J08422710-7857479
Region: eta Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=RECX+5&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia EDR3.
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
Input file: targets_up_to_May30-2022.csv
recx5_lya2_etc.txt
Calculation performed 2021-06-18T15:04:33, 0.24
---
tstatus; RECX-5; P/COS ready for internal review; S/STIS ready for internal review ; P/JRD 09/07/21; S/JRD 09/07/21
tcheck; APT/SIMBAD target names: ; Yes
tcheck; Target info verification status?; Yes
tcheck; Coordinates & P.M. verified, epoch checked?; Yes
tcheck; Adopted SED compared to Observations?; Yes (recx5_photometry.png). Flarespec spectrum uploaded on box (recx5_flarespec.fits) was generated with A_V = 0 and a floor N(HI) = 19.3 cm-2 using Elaine's code. The log N(H) = 19.3 floor is estimated from the N(HI) of nearby stars with no reddening from McJunkin+2014. (cleartargets.py on ullyses_tech repo)
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 (COS.ta.1523531)	(1) RECX-5	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				700 Secs (700 Secs) *[==>]*	*[1]*

Comments: Exposure time padded to account for flux uncertainties and variability (500s instead of 360s computed with the recx5_lya2_etc template)

TA with BOA/MIRRORA is safe under M dwarf flare conditions, see COS.ta.1523551 using recx5_flarespec.fits for which V mag is input (max lcr = 39 cts/pix/s, global = 1543 cts/s)

This configuration is also safe for the high end of accretion variability (recx5_lya2_x4.00_etc.txt), see COS.ta.1523556

Excluding field star for which no photometry is available when the PSA is in the field.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G130M/1222 (COS.sp.1523525)	(1) RECX-5	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1000; FP-POS=1			882 Secs (882 Secs) *[==>]*	*[1]*

Comments: recx5_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=1094.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 289.6 cts/s/segment
brightest pixel: 0.089 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:32, v0.24

Exptime verified using recx5_lya2_etc.txt, padded to account for flux uncertainty and variability since photometry for this target stops at 4500A and templates aren't very accurate for late M stars.

Configuration is safe under M dwarf flare conditions (recx5_flarespec.fits, uses V mag as input), see COS.sp.1523524

Also safe with high range of accretion variability: COS.sp.1523526 (uses recx5_lya2_x4.00_etc)

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1222 (COS.sp.1523525)	(1) RECX-5	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=640; FP-POS=2			770 Secs (770 Secs) *[==>]*	*[2]*

Comments: recx5_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=1094.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 289.6 cts/s/segment
brightest pixel: 0.089 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:32, v0.24

Exptime verified using recx5_lya2_etc.txt, padded to account for flux uncertainty and variability since photometry for this target stops at 4500A and templates aren't very accurate for late M stars.

Configuration is safe under M dwarf flare conditions (recx5_flarespec.fits, uses V mag as input), see COS.sp.1523524

Also safe with high range of accretion variability: COS.sp.1523526 (uses recx5_lya2_x4.00_etc)

4	G130M/122 2 (COS.sp.1523525)	(1) RECX-5	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=64 0; FP-POS=3	770 Secs (770 Secs)	[==>]	[2]

Comments: recx5_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=1094.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 289.6 cts/s/segment
brightest pixel: 0.089 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:32, v0.24

Exptime verified using recx5_lya2_etc.txt, padded to account for flux uncertainty and variability since photometry for this target stops at 4500A and templates aren't very accurate for late M stars.

Configuration is safe under M dwarf flare conditions (recx5_flarespec.fits, uses V mag as input), see COS.sp.1523524

Also safe with high range of accretion variability: COS.sp.1523526 (uses recx5_lya2_x4.00_etc)

5	G130M/122 2 (COS.sp.1523525)	(1) RECX-5	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=64 0; FP-POS=4	770 Secs (770 Secs)	[==>]	[2]

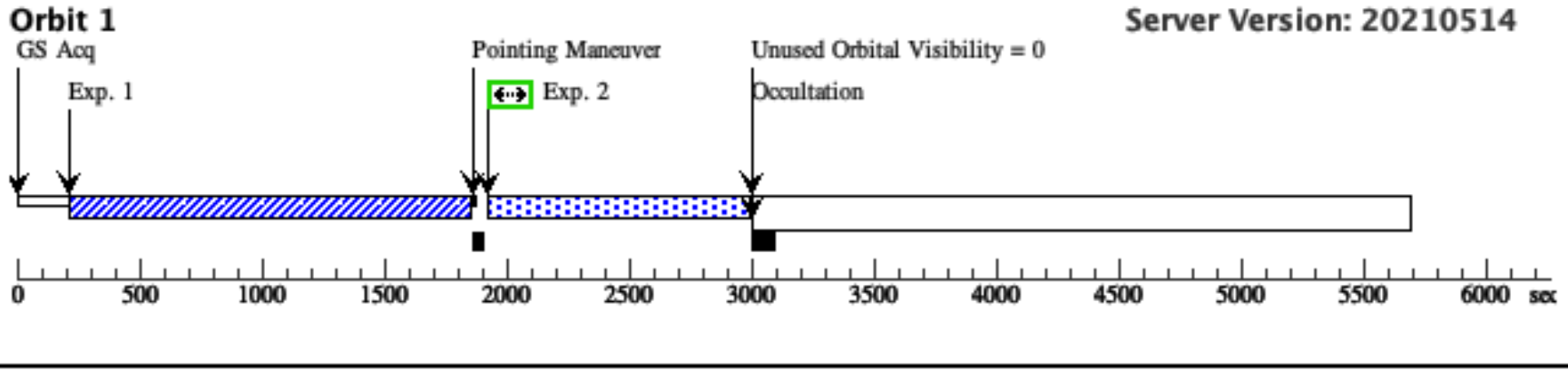
Comments: recx5_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=1094.7 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 289.6 cts/s/segment
brightest pixel: 0.089 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:32, v0.24

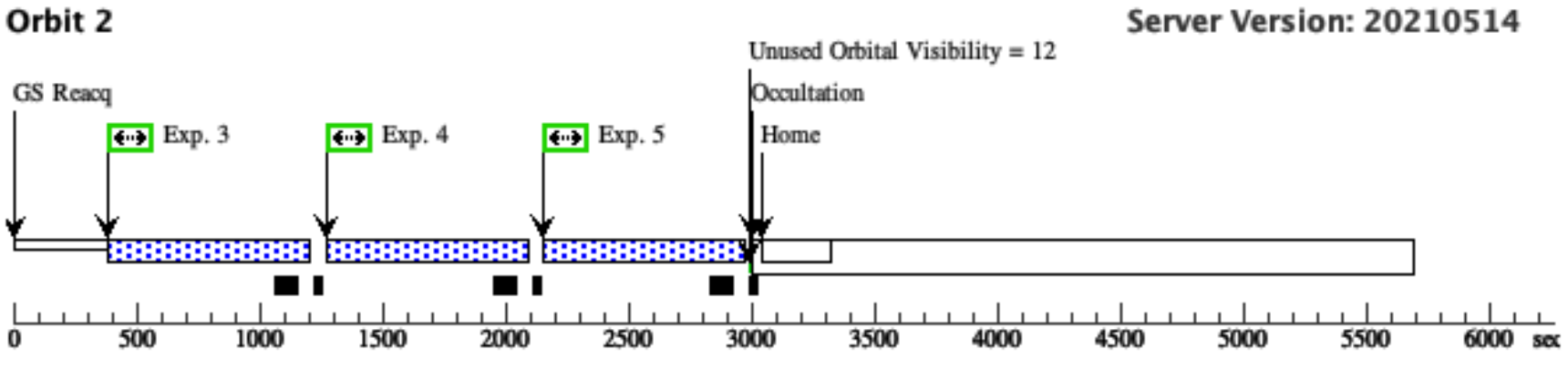
Exptime verified using recx5_lya2_etc.txt, padded to account for flux uncertainty and variability since photometry for this target stops at 4500A and templates aren't very accurate for late M stars.

Configuration is safe under M dwarf flare conditions (recx5_flarespec.fits, uses V mag as input), see COS.sp.1523524

Also safe with high range of accretion variability: COS.sp.1523526 (uses recx5_lya2_x4.00_etc)

Orbit Structure





Visit

Proposal 16595, RECX-5-STIS (1S) Fri Jul 30 17:01:35 GMT 2021

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; BETWEEN 28-DEC-2021:00:00:00 AND 20-MAR-2022:00:00:00; GROUP 1S,1C WITHIN 1D

Comments: vstatus; 1S; RECX-5; S/STIS ready for submission; S/JRD 12/07/21 ; intrev: complete ; S/DW 30/07/21
vcheck; Enter targ name & Inst. & Resp. Sci.; RECX-5 ;STIS ; JRD
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Yes
vcheck; Possible ACQ or Sci spoilers?; No
vcheck; Field BOT clear?; Yes
vcheck; Visual BOT check for stars not in catalog?; Yes
vcheck; Orbit packing finalized?; Yes
vcheck; Buffer times optimized?; Yes
vcheck; Verify visit grouping correct; Yes
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; Yes
vcheck; Is visit ready for int. review?; Yes
Allocated STIS orbits = 2

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	RECX-5 Alt Name1: EK-CHA Alt Name2: J08422710-7857479	RA: 08 42 26.9282 (130.6122008d) Dec: -78 57 47.48 (-78.96319d) Equinox: J2000	Proper Motion RA: -30.242448351255998 mas/yr Proper Motion Dec: 26.861542925161 mas/yr Parallax: 0.010152221176913001" Epoch of Position: 2016	V=15.2 SpT=M4.5; A_V=0.00; U=16.0; V=15.2	Reference Frame: ICRS

Comments: RECX-5 : EK Cha, J08422710-7857479
Region: eta Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=RECX+5&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia EDR3.
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
Input file: targets_up_to_May30-2022.csv
recx5_lya2_etc.txt
Calculation performed 2021-06-18T15:04:33, 0.24
---
tstatus; RECX-5; P/COS ready for internal review; S/STIS ready for internal review ; P/JRD 09/07/21; S/JRD 09/07/21
tcheck; APT/SIMBAD target names: ; Yes
tcheck; Target info verification status?; Yes
tcheck; Coordinates & P.M. verified, epoch checked?; Yes
tcheck; Adopted SED compared to Observations?; Yes (recx5_photometry.png). Flarespec spectrum uploaded on box (recx5_flarespec.fits) was generated with A_V = 0 and a floor N(HI) = 19.3 cm-2 using Elaine's code. The log N(H) = 19.3 floor is estimated from the N(HI) of nearby stars with no reddening from McJunkin+2014. (cleartargets.py on ullyses_tech repo)
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 (STIS.ta.1523540)	(1) RECX-5	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
Comments: Exposure time calculated using interpolated spectrum based on optical photometry (recx5_interp.dat). The photometry VOT file was obtained from Vizier. TIme to saturation is 10s, so plenty of margin.									
2	G140L/1425 (STIS.sp.1523515)	(1) RECX-5	STIS/FUV-MAMA, TIME-TAG, 52X2	G140L 1425 A	WAVECAL=NO; BUFFER-TIME=500		Sequence 2-3 Non-Int in RECX-5-STIS (1S)	2163 Secs (2163 Secs) *[==>]*	*[1]*
Comments: recx5_lya2_etc.txt; stis,fuvmama,g140l,c1425,52x2,mjd#59670 *Input file: targets_up_to_May30-2022.csv* *Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94* *M*: 0.15 ; log(dm/dt): -9.89* *For exptime=193.3 s, spectral region:* *1549.0 +- 2.0 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): 973.6 cts/s/segment* *brightest pixel: 3.889 cts/s/pix at 1304.7 A* *Calculation performed 2021-06-18T15:04:30, v0.24* *Exposure time computed using recx5_lya2_etc.txt, and padded heavily to account for flux uncertainty in this late M star.* *Configuration is safe for flaring M dwarf - STIS.sp.1523512 (uses recx5_flarespec.fits, which has V mag input)* *Also safe for high range of accretion (recx5_lya2_x4.00_etc.txt) - STIS.sp.1523521*									
3	G140L/1425 WAVECAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.05	G140L 1425 A			Sequence 2-3 Non-Int in RECX-5-STIS (1S)	*[==>]*	*[1]*
4	G230L/2376 WAVECAL	WAVE	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A			Sequence 4-5 Non-Int in RECX-5-STIS (1S)	*[==>]*	*[1]*
5	G230L/2376 (STIS.sp.1523516)	(1) RECX-5	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	WAVECAL=NO; BUFFER-TIME=200		Sequence 4-5 Non-Int in RECX-5-STIS (1S)	1087 Secs (1087 Secs) *[==>]*	*[2]*
Comments: recx5_lya2_etc.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670 *Input file: targets_up_to_May30-2022.csv* *Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94* *M*: 0.15 ; log(dm/dt): -9.89* *For exptime=33.2 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): 2526.4 cts/s/segment* *brightest pixel: 2.442 cts/s/pix at 2796.8 A* *Calculation performed 2021-06-18T15:04:32, v0.24* *Exposure time computed using recx5_lya2_etc.txt, and padded heavily to account for flux uncertainty in this late M star.* *Configuration is safe for flaring M dwarf - STIS.sp.1523559 (uses recx5_flarespec.fits, which has V mag input)* *. Note that FSW (not ETC) bright limits apply for flaring M dwarfs.* *Also safe for high range of accretion (recx5_lya2_x4.00_etc.txt) - STIS.sp.1523561*									

6	G430L/4300 (1) RECX-5 (STIS.sp.15 23518)	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	600 Secs (600 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	**[2]**

Comments: recx5_lya2_etc.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=13.9 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): 71014.0 cts/s/segment
brightest pixel: 68.817 cts/s/pix at 4560.5 A
Calculation performed 2021-06-18T15:04:32, v0.24

Exposure time computed from interpolated photometry (recx5_interp.dat), which is just an interpolation of the photometry from Vizier. Exptime is padded by factor 2 to account for variability.Saturation not an issue.

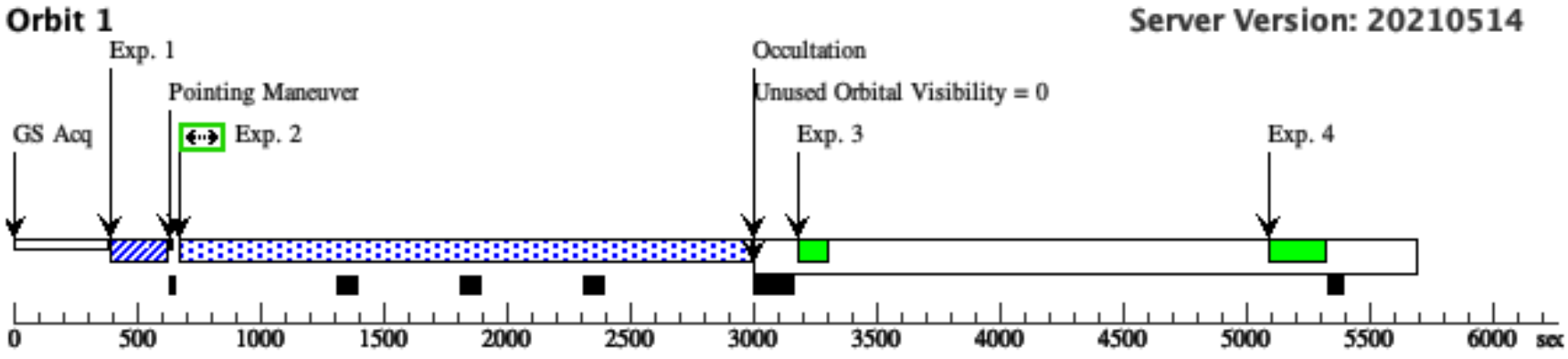
7	G430L/4300 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A		*[==>]*	**[2]**
8	G750L/7751 (1) RECX-5 (STIS.sp.15 23520)	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	80 Secs (80 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	**[2]**

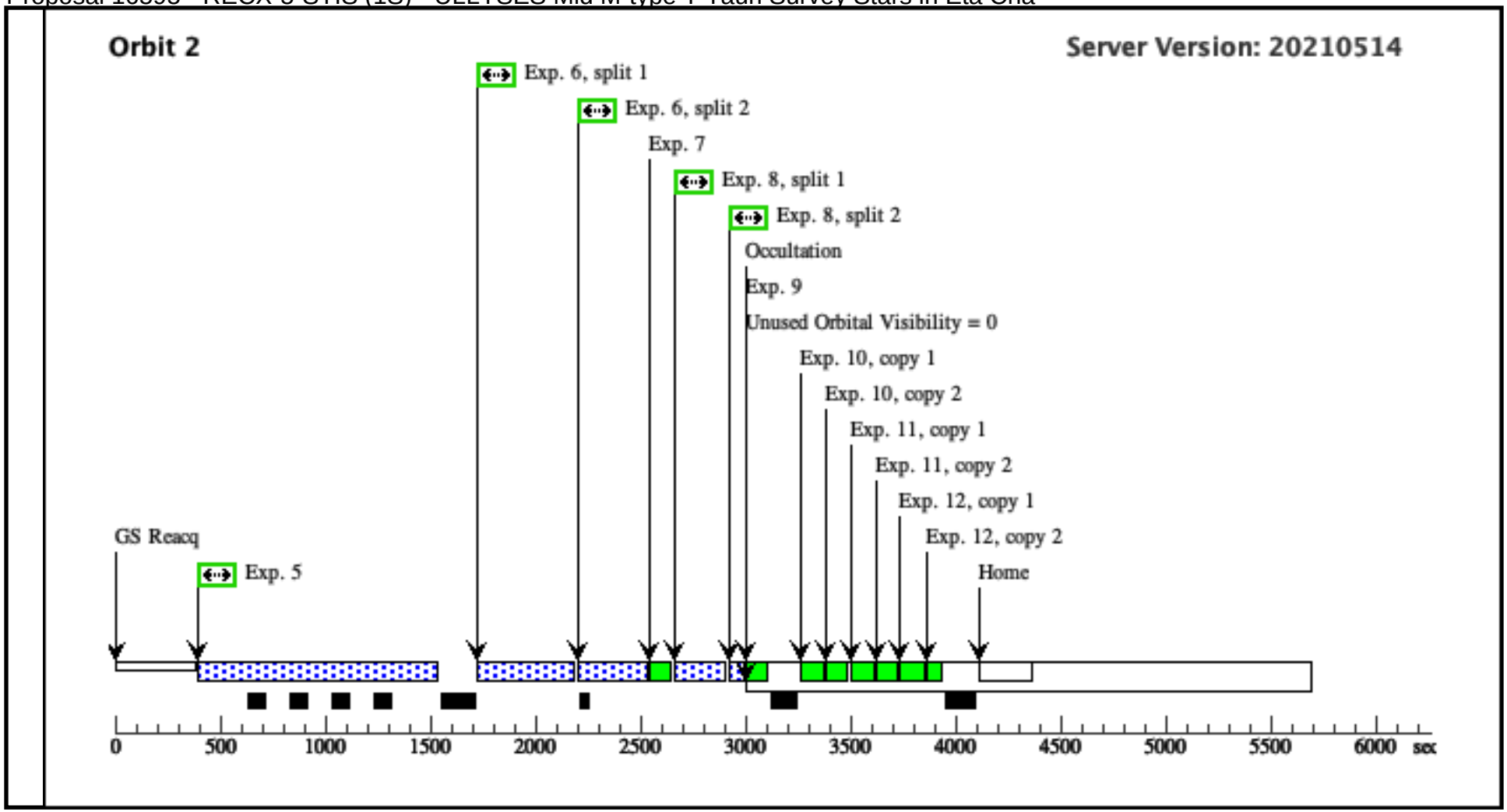
Comments: recx5_lya2_etc.txt; stis,ccd,g750l,c7751,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.89*
For exptime=1.6 s, n_reads=2, spectral region:
5700.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 213776.0 cts/s/segment
brightest pixel: 548.575 cts/s/pix at 6563.9 A
Calculation performed 2021-06-18T15:04:33, v0.24

Exposure time computed from interpolated photometry (recx5_interp.dat), which is just an interpolation of the photometry from Vizier. Exptime is padded by factor 2 to account for variability.Saturation not an issue.

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
Exp. 6, split 1
Exp. 6, split 2
Exp. 7
Exp. 8, split 1
Exp. 8, split 2
Occultation
Exp. 9
Unused Orbital Visibility = 0
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
GS Reacq
Exp. 5
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16595, RECX-9-COS (2C) Fri Jul 30 17:01:36 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%; BETWEEN 28-DEC-2021:00:00:00 AND 20-MAR-2022:00:00:00

Comments: vstatus; 2C; RECX-9; P/COS ready for submission; P/JRD 12/07/21 ; intrev complete ; P/CP 27/07/21
vcheck; Enter targ name & Inst. & Resp. Sci.; RECX-9 ; COS ; JRD
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Yes
vcheck; Possible ACQ or Sci spoilers?; No
vcheck; Field BOT clear?; Yes
vcheck; Visual BOT check for stars not in catalog?; Yes
vcheck; Orbit packing finalized?; Yes
vcheck; Buffer times optimized?; Yes
vcheck; Verify visit grouping correct; Yes
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; Yes
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 2

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	RECX-9	RA: 08 44 16.2375 (131.0676562d)	Proper Motion RA: -27.2 mas/yr	V=15.0	Reference Frame: ICRS
	Alt Name1: EN-CHA	Dec: -78 59 7.63 (-78.98545d)	Proper Motion Dec: 23.8 mas/yr	SpT=M4.5; A_V=0.00; U=15.8; V=15.0	
	Alt Name2: J08441637-7859080	Equinox: J2000	Parallax: 0.0"		
			Epoch of Position: 2016		

Comments: RECX-9 : EN Cha, J08441637-7859080
Region: eta Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=RECX+9&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia EDR3.
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
Input file: targets_up_to_May30-2022.csv
recx9_lya2_etc.txt
Calculation performed 2021-06-18T15:04:42, 0.24
---
tstatus; RECX-9; P/COS ready for internal review; S/STIS ready for internal review; P/JRD 09/07/21; S/JRD 09/07/21
tcheck; APT/SIMBAD target names: ; Yes
tcheck; Target info verification status?; Yes
tcheck; Coordinates & P.M. verified, epoch checked?; Yes
tcheck; Adopted SED compared to Observations?; Yes (recx9_photometry.png). Flarespec spectrum uploaded on box (recx9_flarespec.fits) was generated with A_V = 0 and a floor N(HI) = 19.3 cm-2 using Elaine's code (cleartargets.py on ullyses_tech repo). The log N(H) = 19.3 floor is estimated from the N(HI) of nearby stars with no reddening from McJunkin+2014.
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 PEAK XD (COS.sa.1523584)	(2) RECX-9	COS/NUV, ACQ/PEAKXD, PSA	G230L 2950 A	STRIPE=DEF			160 Secs (160 Secs) *[==>]*	***[1]***

Comments: Exptime based on recx9_lya2_etc.txt, with x2 padding to account for flux uncertainties and variability

Configuration safe under M dwarf flare conditions (recx9_flarespec.fits, generated with input V mag), see COS.sa.1523583 . The flarespec was computed using the SpT and V mag as input (zero extinction).

Also safe assuming x4 accretion increase, see COS.sa.1523614 generated from recx9_lya2_x4.00_etc.txt

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	NUV PEAK D (COS.sa.1523581)	(2) RECX-9	COS/NUV, ACQ/PEAKD, PSA	G230L 3360 A	CENTER=DEF; NUM-POS=5; STEP-SIZE=0.9			150 Secs (150 Secs) *[==>]*	***[1]***

Comments: Exptime based on recx9_lya2_etc.txt, with x2 padding to account for flux uncertainties and variability

Configuration safe under M dwarf flare conditions (recx9_flarespec.fits, generated with input V mag), see COS.sa.1523583. The flarespec was computed using the SpT and V mag as input (zero extinction).

Also safe assuming x4 accretion increase, see COS.sa.1523614 generated from recx9_lya2_x4.00_etc.txt

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1222 (COS.sp.1523585)	(2) RECX-9	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1089; FP-POS=1			1199 Secs (1199 Secs) *[==>]*	***[1]***

Comments: recx9_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=1172.6 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 274.4 cts/s/segment
brightest pixel: 0.083 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:42, v0.24

Exptime computed from recx9_lya2_etc.txt, with extra padding (x8) to account for large uncertainty in flux for this weakly accreting star.

Configuration safe under M dwarf flaring conditions, see COS.sp.1523616 generated from recx9_flarespec.fits. The flarespec was computed using the SpT and V mag as input (zero extinction).

Configuration is safe for x4 accretion variability, see COS.sp.1523619 generated from recx9_lya2_x4.00_etc.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	G130M/1222 (COS.sp.1523585)	(2) RECX-9	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=660; FP-POS=2			770 Secs (770 Secs) *[==>]*	***[2]***

Comments: recx9_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=1172.6 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 274.4 cts/s/segment
brightest pixel: 0.083 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:42, v0.24

Exptime computed from recx9_lya2_etc.txt, with extra padding (x8) to account for large uncertainty in flux for this weakly accreting star.

Configuration safe under M dwarf flaring conditions, see COS.sp.1523616 generated from recx9_flarespec.fits. The flarespec was computed using the SpT and V mag as input (zero extinction).

Configuration is safe for x4 accretion variability, see COS.sp.1523619 generated from recx9_lya2_x4.00_etc.

5	G130M/1222 (COS.sp.1523585)	(2) RECX-9	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=660; FP-POS=3	770 Secs (770 Secs) *[==>]*	***[2]***

Comments: recx9_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=1172.6 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 274.4 cts/s/segment
brightest pixel: 0.083 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:42, v0.24

Exptime computed from recx9_lya2_etc.txt, with extra padding (x8) to account for large uncertainty in flux for this weakly accreting star.

Configuration safe under M dwarf flaring conditions, see COS.sp.1523616 generated from recx9_flarespec.fits. The flarespec was computed using the SpT and V mag as input (zero extinction).

Configuration is safe for x4 accretion variability, see COS.sp.1523619 generated from recx9_lya2_x4.00_etc.

6	G130M/1222 (COS.sp.1523585)	(2) RECX-9	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=660; FP-POS=4	770 Secs (770 Secs) *[==>]*	***[2]***

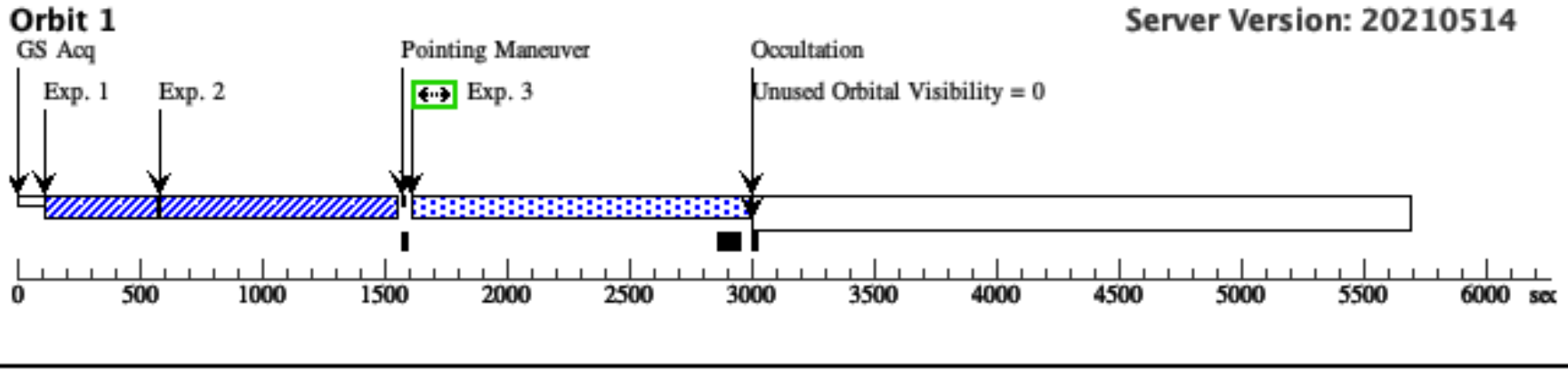
Comments: recx9_lya2_etc.txt; cos,fuv,g130m,c1222,psa,mjd#59670; fp-pos=None, segment=None)
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=1172.6 s, spectral region:
1239.0 +- 1.0 A achieves SNR=20.0 / 6-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 274.4 cts/s/segment
brightest pixel: 0.083 cts/s/pix at 1304.8 A
Calculation performed 2021-06-18T15:04:42, v0.24

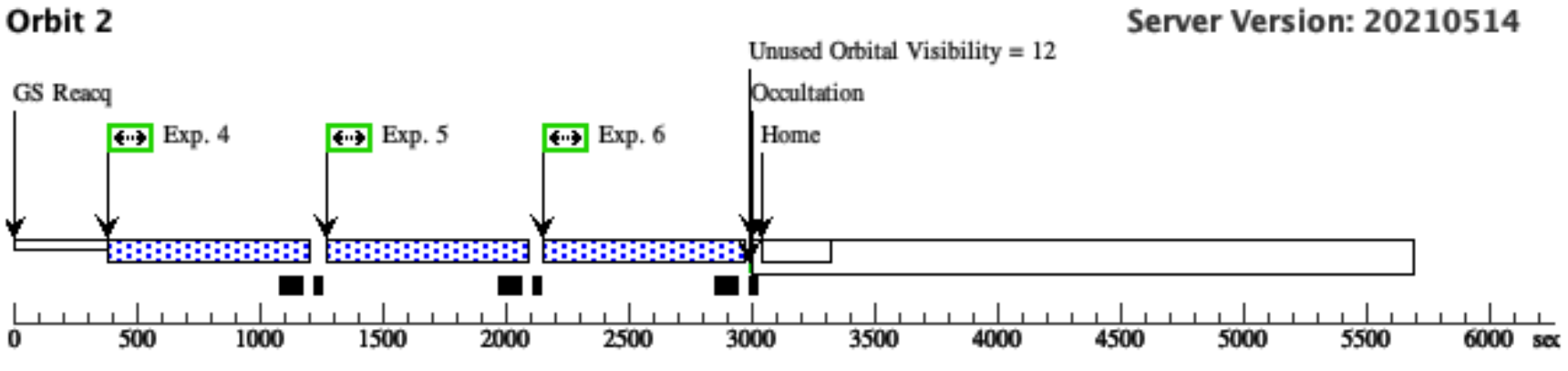
Exptime computed from recx9_lya2_etc.txt, with extra padding (x8) to account for large uncertainty in flux for this weakly accreting star.

Configuration safe under M dwarf flaring conditions, see COS.sp.1523616 generated from recx9_flarespec.fits. The flarespec was computed using the SpT and V mag as input (zero extinction).

Configuration is safe for x4 accretion variability, see COS.sp.1523619 generated from recx9_lya2_x4.00_etc.

Orbit Structure





Visit

Proposal 16595, RECX-9-STIS (2S) Fri Jul 30 17:01:36 GMT 2021

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; BETWEEN 28-DEC-2021:00:00:00 AND 20-MAR-2022:00:00:00; GROUP 2S,2C WITHIN 1D

Comments: vstatus; 2S; RECX-9; S/STIS ready for submission; S/JRD 15/07/21 ; intrev: complete ; S/DW 30/07/21
vcheck; Enter targ name & Inst. & Resp. Sci.; RECX-9 ; STIS ; JRD
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Yes
vcheck; Possible ACQ or Sci spoilers?; No
vcheck; Field BOT clear?; Yes
vcheck; Visual BOT check for stars not in catalog?; Yes
vcheck; Orbit packing finalized?; Yes
vcheck; Buffer times optimized?; Yes
vcheck; Verify visit grouping correct; Yes
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; Yes
vcheck; Is visit ready for int. review?; Yes
Allocated STIS orbits = 2

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	RECX-9	RA: 08 44 16.2375 (131.0676562d)	Proper Motion RA: -27.2 mas/yr	V=15.0	Reference Frame: ICRS
	Alt Name1: EN-CHA	Dec: -78 59 7.63 (-78.98545d)	Proper Motion Dec: 23.8 mas/yr	SpT=M4.5; A_V=0.00; U=15.8; V=15.0	
	Alt Name2: J08441637-7859080	Equinox: J2000	Parallax: 0.0"		
			Epoch of Position: 2016		

Comments: RECX-9 : EN Cha, J08441637-7859080
Region: eta Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=RECX+9&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia EDR3.
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
Input file: targets_up_to_May30-2022.csv
recx9_lya2_etc.txt
Calculation performed 2021-06-18T15:04:42, 0.24
---
tstatus; RECX-9; P/COS ready for internal review; S/STIS ready for internal review; P/JRD 09/07/21; S/JRD 09/07/21
tcheck; APT/SIMBAD target names: ; Yes
tcheck; Target info verification status?; Yes
tcheck; Coordinates & P.M. verified, epoch checked?; Yes
tcheck; Adopted SED compared to Observations?; Yes (recx9_photometry.png). Flarespec spectrum uploaded on box (recx9_flarespec.fits) was generated with A_V = 0 and a floor N(HI) = 19.3 cm-2 using Elaine's code (cleartargets.py on ullyses_tech repo). The log N(H) = 19.3 floor is estimated from the N(HI) of nearby stars with no reddening from McJunkin+2014.
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 (STIS.ta.1523624)	(2) RECX-9	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs) *[==>]*	 ***[1]***
Comments: Exptime calculated from interpolation of photometry obtained from Vizier (recx9_interp.dat). Saturation in 10s, so not an issue.									
2	G140L/1425 (STIS.sp.1523625)	(2) RECX-9	STIS/FUV-MAMA, TIME-TAG, 52X2	G140L 1425 A	WAVECAL=NO; BUFFER-TIME=1000		Sequence 2-3 Non-Int in RECX-9-STIS (2S)	2163 Secs (2163 Secs) *[==>]*	 ***[1]***
Comments: recx9_lya2_etc.txt; stis,fuvmama,g140l,c1425,52x2,mjd#59670 *Input file: targets_up_to_May30-2022.csv* *Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94* *M*: 0.15 ; log(dm/dt): -9.92* *For exptime=203.7 s, spectral region:* *1549.0 +- 2.0 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): 960.2 cts/s/segment* *brightest pixel: 3.626 cts/s/pix at 1304.7 A* *Calculation performed 2021-06-18T15:04:40, v0.24* *Exptime computed from recx9_lya2_etc.txt, padded by factor 2 to account for flux uncertainties* *Configuration safe under M dwarf flare conditions, see STIS.sp.1523628, generated with recx9_flarespec.fits. The flarespec is computed using V mag and SpT as inputs (no extinction).* *Also safe with x4 accretion variability, see STIS.sp.1523626 generated from recx9_lya2_x4.00_etc*									
3	G140L/1425 WAVECAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.05	G140L 1425 A			Sequence 2-3 Non-Int in RECX-9-STIS (2S)	*[==>]*	***[1]***
4	G230L/2376 WAVECAL	WAVE	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A			Sequence 4-5 Non-Int in RECX-9-STIS (2S)	*[==>]*	***[1]***
5	G230L/2376 (STIS.sp.1523638)	(2) RECX-9	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	WAVECAL=NO; BUFFER-TIME=300		Sequence 4-5 Non-Int in RECX-9-STIS (2S)	1000 Secs (1000 Secs) *[==>]*	 ***[2]***
Comments: recx9_lya2_etc.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670 *Input file: targets_up_to_May30-2022.csv* *Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94* *M*: 0.15 ; log(dm/dt): -9.92* *For exptime=34.9 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): 2514.3 cts/s/segment* *brightest pixel: 2.325 cts/s/pix at 2796.8 A* *Calculation performed 2021-06-18T15:04:42, v0.24* *Exptime computed from recx9_lya2_etc, padded by factor 6 since flux is very uncertain for mid-late M stars.* *Configuration is safe under M dwarf flare conditions, see STIS.sp.1523630 generated from recx9_flarespec.fits (with V mag and SpT input, no extinction). Note that FSW limits are used, not ETC screening limits, for Mdwarf BOP clearing.* *COnfiguration also safe with x4 accretion variability, see STIS.sp.1523631 generated from recx9_lya2_x4.00_etc*									

6	G430L/4300 (2) RECX-9 (STIS.sp.15 23641)	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	700 Secs (700 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	**[2]**

Comments: recx9_lya2_etc.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=14.5 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): 69374.2 cts/s/segment
brightest pixel: 66.074 cts/s/pix at 4560.5 A
Calculation performed 2021-06-18T15:04:42, v0.24

Exptime computed using interpolated photometry from Vizier (recx9_interp.dat), padded by 250s. Long saturation time (>5000s) so not an issue.

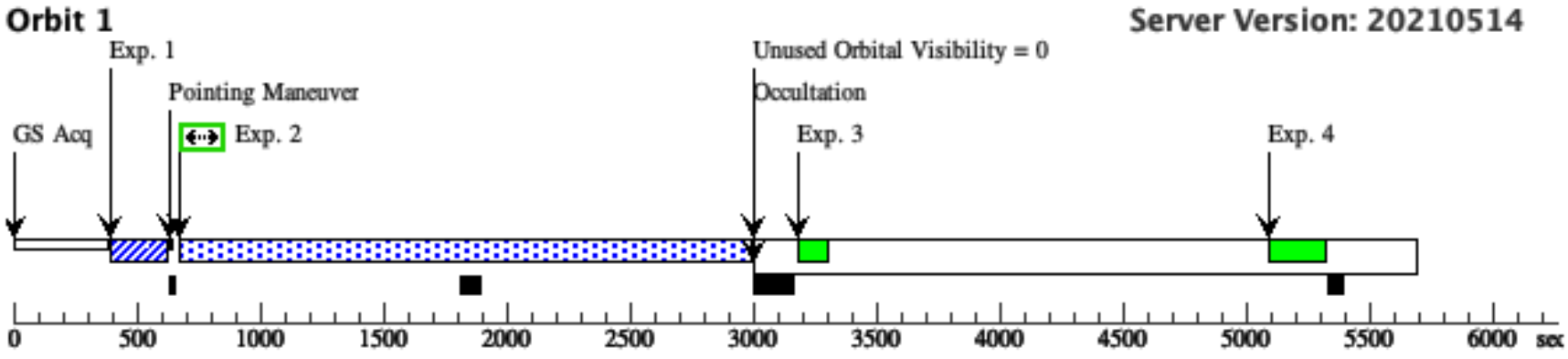
7	G430L/4300 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A		*[==>]*	**[2]**
8	G750L/7751 (2) RECX-9 (STIS.sp.15 23642)	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	65 Secs (65 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	**[2]**

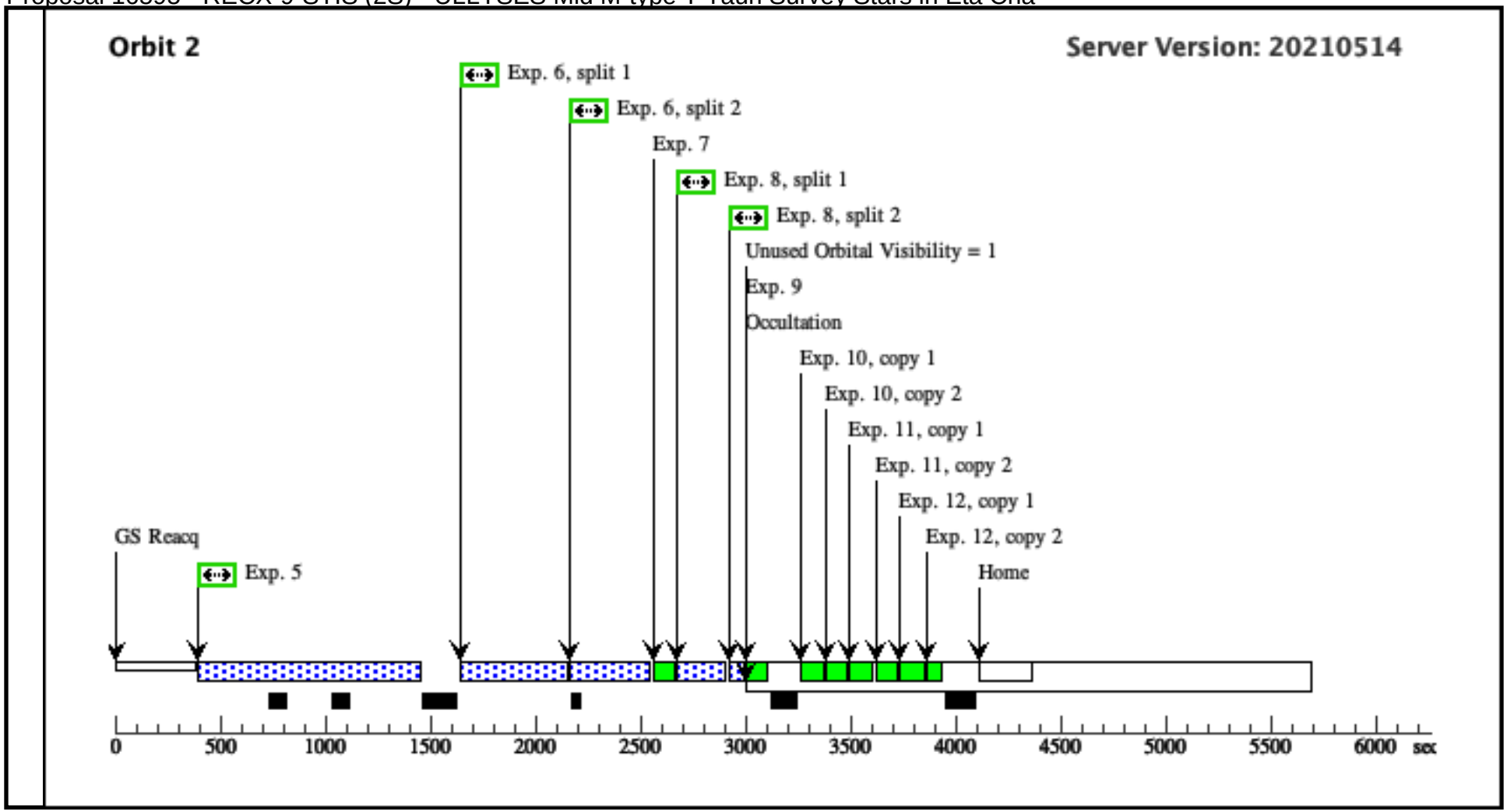
Comments: recx9_lya2_etc.txt; stis,ccd,g750l,c7751,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: M4.5 ; A_V: 0.0 ; Distance (pc): 94
M: 0.15 ; log(dm/dt): -9.92*
For exptime=1.7 s, n_reads=2, spectral region:
5700.0 +- 5.0 A achieves SNR=20.0 / 2-pix-resel
A factor of 2.0 has been applied to the exptime in each exposure.
global countrate (brightest segment): 208232.1 cts/s/segment
brightest pixel: 532.289 cts/s/pix at 6563.9 A
Calculation performed 2021-06-18T15:04:42, v0.24

Exptime computed from photometry from Vizier interpolated (recx9_interp.dat). Exptime padded by factor 2.

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
Exp. 6, split 1
Exp. 6, split 2
Exp. 7
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
GS Reacq
Exp. 5
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec