16599 - ULLYSES T Tauri Survey Star HD 104237E in Eps Cha

Cycle: 29, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

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Proposal 16599 (STScI Edit Number: 0, Created: Thursday, November 11, 2021 at 5:00:28 PM Eastern Standard Time) - Overview

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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) HD-104237E (2) HD-104237-OFFSET	COS/FUV	3	11-Nov-2021 17:00:24.0	yes
1D	(1) HD-104237E (2) HD-104237-OFFSET	COS/FUV	2	11-Nov-2021 17:00:25.0	yes
1S	(1) HD-104237E CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	3	11-Nov-2021 17:00:27.0	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.

<table>
<tr><td rowspan="2">Visit</td><td>Proposal 16599, HD-104237E-COS (1C), implementation</td><td>Thu Nov 11 22:00:28 GMT 2021</td></tr>
<tr><td colspan="2">

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%; BETWEEN 05-FEB-2022:00:00:00 AND 23-MAY-2022:00:00:00; GROUP 1C,1D,1S WITHIN 1D

Comments: vstatus; 1C; HD-104237E; P/COS approved for submission; P/RP 30/09/21 ; internal review complete ; P/DJS 30/09/21
vcheck; Enter targ name & Inst. & Resp. Sci.; HD-104237E ; COS ; RP
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes...
 PSA: COS.sp.1532254
 Global count rate: 1,421.82 counts/s
 Brightest pixel: 0.012 counts /s at 1302.53 A
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Offset target PEAKD & PEAKXD
vcheck; Possible ACQ or Sci spoilers?; Yes. HD104237D ~4" away. M3 star
vcheck; Field BOT clear?; No, but everything is cleared for the settings we are using...
 BOA (science): COS.sp.1530431
 PSA (science): COS.sa.1530014
 PSA (acq): COS.sa.1530325
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; 1C, 1D, 1S within 1 days
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 = 5

</td></tr>
</table>

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-104237E	RA: 12 00 9.0896 (180.0378733d)	Proper Motion RA: -42.834939658582 mas/yr	V=12.08	Reference Frame: ICRS
	Alt Name1: EPS-CHA-7	Dec: -78 11 42.39 (-78.19511d)	Proper Motion Dec: -4.162395045111 mas/yr	SpT=K5.5; A_V=1.00; V=12.1	
	Alt Name2: J12000931-7811424	Equinox: J2000	Parallax: 0.009980166861302"		
			Epoch of Position: 2016		

Comments: HD-104237E : eps Cha 7, J12000931-7811424
Region: eps Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+104237E&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia DR3.
Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114
M: 0.9 ; log(dm/dt): -9.07*
Input file: targets_up_to_May30-2022.csv
hd104237e_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-06-18T15:05:41, 0.24
---
tstatus; HD-104237E; P/COS approved for submission; S/STIS internal review complete; P/DJS 30/09/21; S/RP 30/09/22
tcheck; APT/SIMBAD target names: ; [FLG2003] eps Cha 7 & 2MASS J12000931-7811424
tcheck; Target info verification status?; Yes. Photometry is scarce; Our model of the target was checked against U=15.279 V=13.674 B=15.912
tcheck; Coordinates & P.M. verified, epoch checked?; Yes. Correct against Gaia DR3
tcheck; Adopted SED compared to Observations?; Yes
Category=STAR
Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]
Extended=NO

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	HD-104237-OFFSET	RA: 12 00 4.8821 (180.0203421d)	Proper Motion RA: -39.28398511978727 mas/yr	V=6.6	Reference Frame: ICRS
	Alt Name1: DX-CHA	Dec: -78 11 34.66 (-78.19296d)	Proper Motion Dec: -5.78439986079345 mas/yr		
		Equinox: J2000	Parallax: 0.009380516058296632"		
			Epoch of Position: 2016		

Comments: HD-104237 is going to be an offset target about 11" away from HD-104237E because of an M-dwarf in the field that isn't safe to observe with the COS/PSA.

All ETC runs used archival HST/STIS data of this target.
V-magnitude and Spectral type pulled from Simbad
Coordinates, proper motion, and parallax are from GAIA DR3 release

Spectroscopic TA clears with the PSA in the ETC: COS.sa.1530325
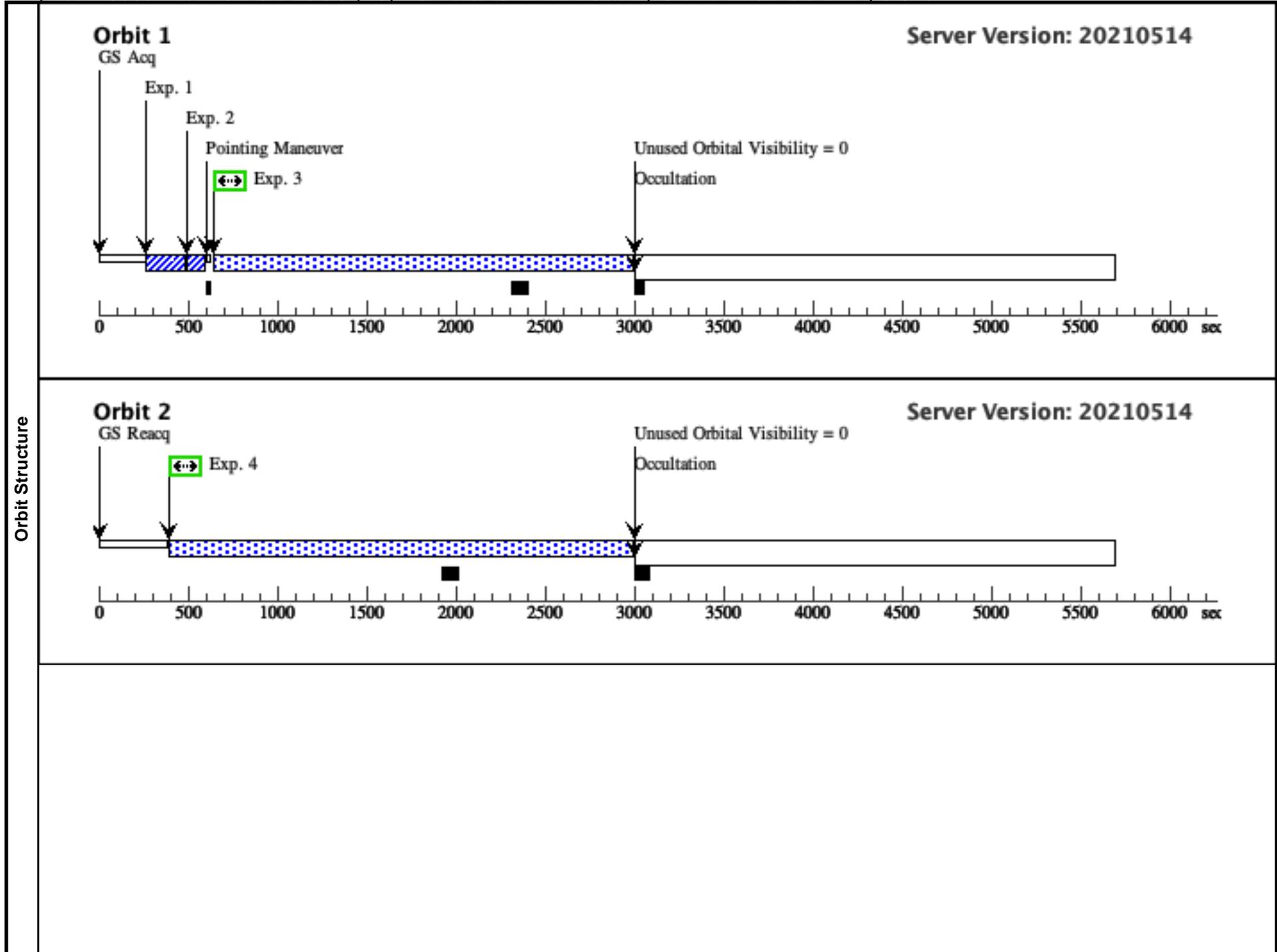*Category=STAR*
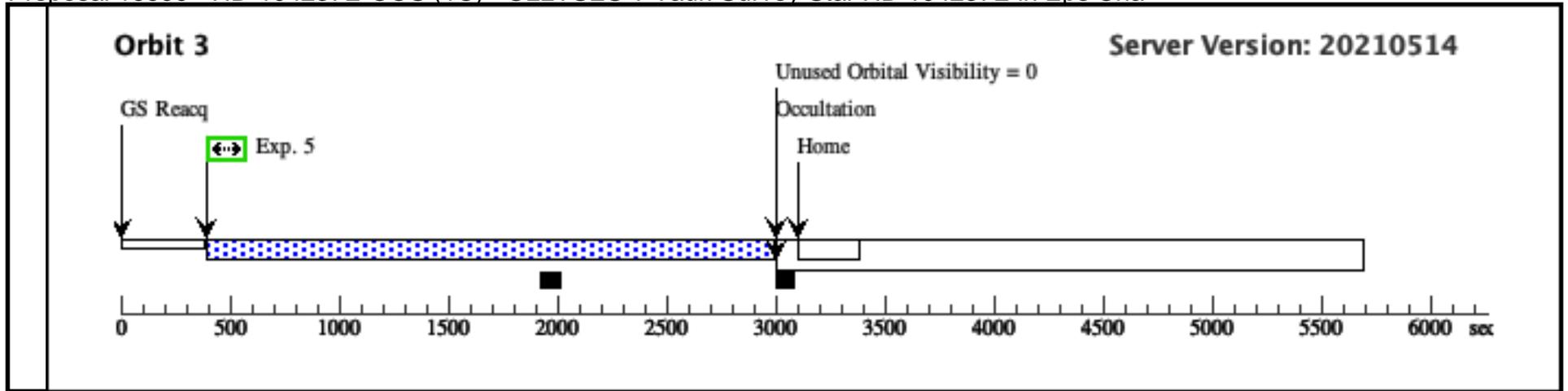*Description=[A0-A3 III-I]*
Extended=NO

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ FUV PEAKXD (COS.sa.1530325)	(2) HD-104237-OFFSET	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A				0.3 Secs (0.3 Secs) [==>]	[1]

Comments: *Because of M-dwarf flaring rules, a offset target acq is used. We are using a spectroscopic acq because the offset target is too bright to be observed with the PSA, so we do not want to have to worry about the difference in the sky of the BOA and PSA.*

ETC calculations were done to obtain a S/N of 40 using a HST/STIS G140L spectrum of HD-104237.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ FUV PEAKD (COS.sa.1530325)	(2) HD-104237-OFFSET	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3			0.3 Secs (0.3 Secs) [==>]	[1]

Comments: *Because of M-dwarf flaring rules, a offset target acq is used. We are using a spectroscopic acq because the offset target is too bright to be observed with the PSA, so we do not want to have to worry about the difference in the sky of the BOA and PSA.*

ETC calculations were done to obtain a S/N of 40 using a HST/STIS G140L spectrum of HD-104237.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/122 2-4 (COS.sp.1530070)	(1) HD-104237E	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=1500; FP-POS=4			2165 Secs (2165 Secs) [==>]	[1]

Comments: *Because of an M-dwarf in the field, only G130M/1222 can be used with COS.*
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

Updated Calculations:
COS.sp.1530070 for the exposure time.
* global countrate (brightest segment): 60.218 cts/s (FUVA)*
* brightest pixel: 0.009 cts/s/pix at 1301.98 A*
* S/N ~ 10 at 1239A*

COS.sp.1530071 for bright object checks & buffer times
* global countrate (brightest segment): 136.675 cts/s (FUVA)*
* brightest pixel: 0.014 cts/s/pix at 1301.98 A*
* Buffer fill time = 12,536s * (2/3) =8357.33, so anything less is fine; using 1500 to be safe*

COS.sp.1530073 for M-dwarf clearing
* global countrate (brightest segment): 899.888 cts/s (FUVA)*
* brightest pixel: 0.011 cts/s/pix at 1302.53 A*
* No warnings, so we are safe to observe with 1222 even if there is an M-dwarf flare*

Exposures

4	G130M/122 2-4 (COS.sp.153 0070)	(1) HD-104237E	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=15 00; FP-POS=4	2552 Secs (2552 Secs) [==>]	[2]

Comments: Because of an M-dwarf in the field, only G130M/1222 can be used with COS.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

Updated Calculations:
COS.sp.1530070 for the exposure time.
  global countrate (brightest segment): 60.218 cts/s (FUVA)
  brightest pixel: 0.009 cts/s/pix at 1301.98 A
  S/N ~ 10 at 1239A

COS.sp.1530071 for bright object checks & buffer times
  global countrate (brightest segment): 136.675 cts/s (FUVA)
  brightest pixel: 0.014 cts/s/pix at 1301.98 A
  *Buffer fill time = 12,536s * (2/3) =8357.33, so anything less is fine; using 1500 to be safe*

COS.sp.1530073 for M-dwarf clearing
  global countrate (brightest segment): 899.888 cts/s (FUVA)
  brightest pixel: 0.011 cts/s/pix at 1302.53 A
  No warnings, so we are safe to observe with 1222 even if there is an M-dwarf flare

5	G130M/122 2-4 (COS.sp.153 0070)	(1) HD-104237E	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=15 00; FP-POS=4	2552 Secs (2552 Secs) [==>]	[3]

Comments: Because of an M-dwarf in the field, only G130M/1222 can be used with COS.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

Updated Calculations:
COS.sp.1530070 for the exposure time.
  global countrate (brightest segment): 60.218 cts/s (FUVA)
  brightest pixel: 0.009 cts/s/pix at 1301.98 A
  S/N ~ 10 at 1239A

COS.sp.1530071 for bright object checks & buffer times
  global countrate (brightest segment): 136.675 cts/s (FUVA)
  brightest pixel: 0.014 cts/s/pix at 1301.98 A
  *Buffer fill time = 12,536s * (2/3) =8357.33, so anything less is fine; using 1500 to be safe*

COS.sp.1530073 for M-dwarf clearing
  global countrate (brightest segment): 899.888 cts/s (FUVA)
  brightest pixel: 0.011 cts/s/pix at 1302.53 A
  No warnings, so we are safe to observe with 1222 even if there is an M-dwarf flare

Orbit 1

GS Acq

Exp. 1

Exp. 2

Pointing Maneuver

Exp. 3

Unused Orbital Visibility = 0

Occultation

Server Version: 20210514

Orbit 2

GS Reacq

Exp. 4

Unused Orbital Visibility = 0

Occultation

Server Version: 20210514

Orbit Structure

Orbit 3

Server Version: 20210514

Unused Orbital Visibility = 0

GS Reacq

Occultation

Exp. 5

Home

Proposal 16599, HD-104237E-COS (1D), implementation	Thu Nov 11 22:00:28 GMT 2021

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%; BETWEEN 05-FEB-2022:00:00:00 AND 23-MAY-2022:00:00:00; GROUP 1D,1C,1S WITHIN 1D

Comments: vstatus; 1C; HD-104237E; P/COS approved for submission; P/RP 30/09/21 ; internal review complete ; P/DJS 30/09/21
vcheck; Enter targ name & Inst. & Resp. Sci.; HD-104237E ; COS ; RP
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes...
  PSA: COS.sp.1532254
  Global count rate: 1,421.82 counts/s
  Brightest pixel: 0.012 counts /s at 1302.53 A
vcheck; S/N ETC calcs done & documented?; Yes
vcheck; Field images checked & saved?; Yes
vcheck; Selected ACQ strategy?; Offset target PEAKD & PEAKXD
vcheck; Possible ACQ or Sci spoilers?; Yes. HD104237D ~4" away. M3 star
vcheck; Field BOT clear?; No, but everything is cleared for the settings we are using...
  BOA (science): COS.sp.1530431
  PSA (science): COS.sa.1530014
  PSA (acq): COS.sa.1530325
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; 1C, 1D, 1S within 1 days
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 = 5

Visit

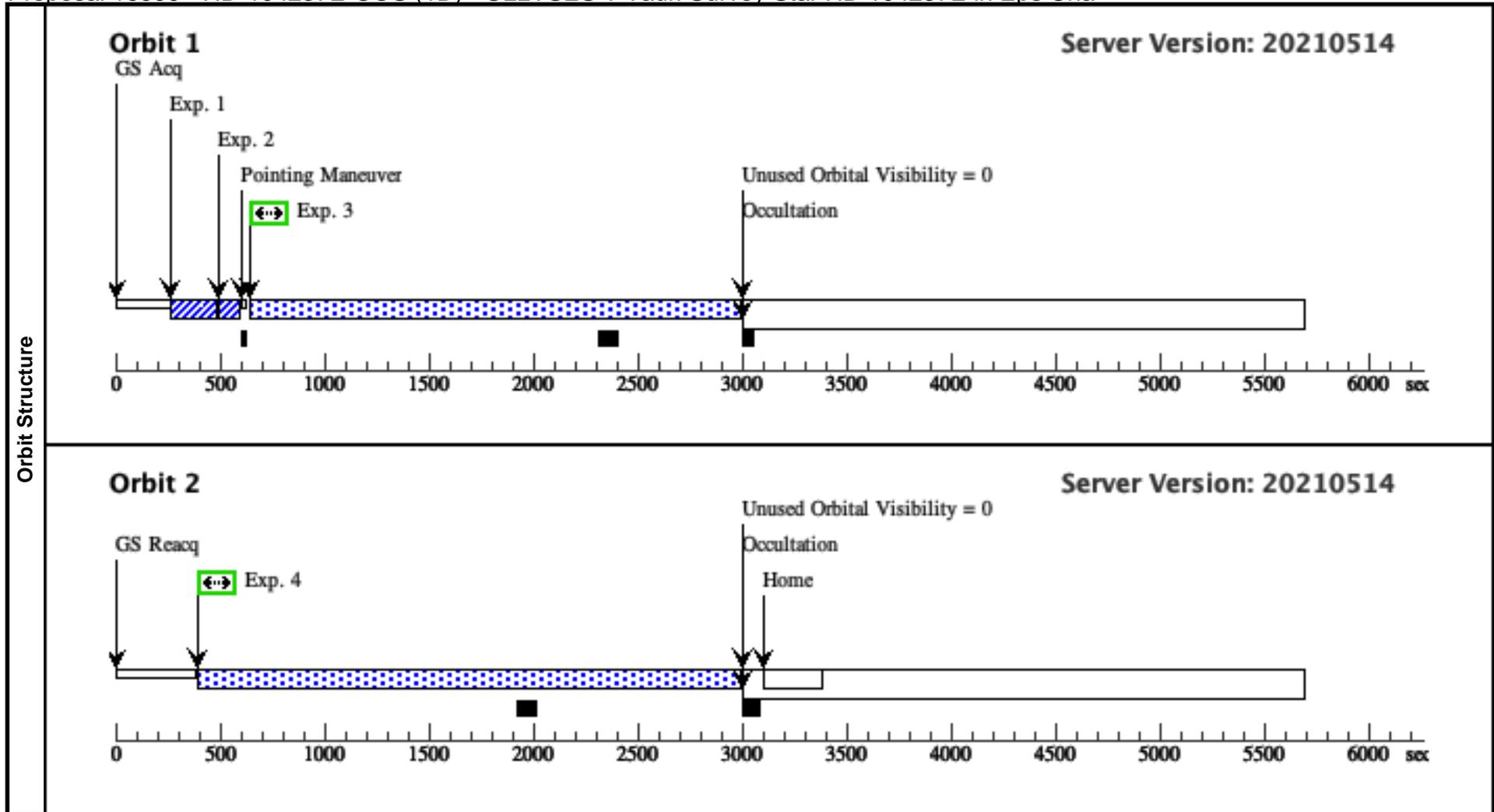|	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
Fixed Targets	(1)	HD-104237E Alt Name1: EPS-CHA-7 Alt Name2: J12000931-7811424	RA: 12 00 9.0896 (180.0378733d) Dec: -78 11 42.39 (-78.19511d) Equinox: J2000	Proper Motion RA: -42.834939658582 mas/yr Proper Motion Dec: -4.162395045111 mas/yr Parallax: 0.009980166861302" Epoch of Position: 2016	V=12.08 SpT=K5.5; A_V=1.00; V=12.1	Reference Frame: ICRS
		Comments: HD-104237E : eps Cha 7, J12000931-7811424 *Region: eps Cha* *Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+104237E&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id* *Target coordinates are from Gaia DR3.* *Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114* *M*: 0.9 ; log(dm/dt): -9.07* *Input file: targets_up_to_May30-2022.csv* *hd104237e_lya2_etc_scaled_pAV0.50.txt* *Calculation performed 2021-06-18T15:05:41, 0.24* *---* *tstatus; HD-104237E; P/COS approved for submission; S/STIS internal review complete; P/DJS 30/09/21; S/RP 30/09/22* *tcheck; APT/SIMBAD target names: ; [FLG2003] eps Cha 7 & 2MASS J12000931-7811424* *tcheck; Target info verification status?; Yes. Photometry is scarce; Our model of the target was checked against U=15.279 V=13.674 B=15.912* *tcheck; Coordinates & P.M. verified, epoch checked?; Yes. Correct against Gaia DR3* *tcheck; Adopted SED compared to Observations?; Yes* *Category=STAR* *Description=[T TAURI STAR, PRE-MAIN SEQUENCE STAR]* *Extended=NO*			
	(2)	HD-104237-OFFSET Alt Name1: DX-CHA	RA: 12 00 4.8821 (180.0203421d) Dec: -78 11 34.66 (-78.19296d) Equinox: J2000	Proper Motion RA: -39.28398511978727 mas/yr Proper Motion Dec: -5.78439986079345 mas/yr Parallax: 0.0093805160582966632" Epoch of Position: 2016	V=6.6	Reference Frame: ICRS
		Comments: HD-104237 is going to be an offset target about 11" away from HD-104237E because of an M-dwarf in the field that isn't safe to observe with the COS/PSA. *All ETC runs used archival HST/STIS data of this target.* *V-magnitude and Spectral type pulled from Simbad* *Coordinates, proper motion, and parallax are from GAIA DR3 release* *Spectroscopic TA clears with the PSA in the ETC: COS.sa.1530325* *Category=STAR* *Description=[A0-A3 III-I]* *Extended=NO*			

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ FUV P EAKXD (COS.sa.153 0325)	(2) HD-104237-OFF SET	COS/FUV, ACQ/PEAKXD, PSA	G160M 1577 A				0.3 Secs (0.3 Secs) [==>]	[1]

Comments: *Because of M-dwarf flaring rules, a offset target acq is used. We are using a spectroscopic acq because the offset target is too bright to be observed with the PSA, so we do not want to have to worry about the difference in the sky of the BOA and PSA.*

ETC calculations were done to obtain a S/N of 40 using a HST/STIS G140L spectrum of HD-104237.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ FUV P EAKD (COS.sa.153 0325)	(2) HD-104237-OFF SET	COS/FUV, ACQ/PEAKD, PSA	G160M 1577 A	CENTER=FLUX-W T-FLR; NUM-POS=3; STEP-SIZE=1.3			0.3 Secs (0.3 Secs) [==>]	[1]

Comments: *Because of M-dwarf flaring rules, a offset target acq is used. We are using a spectroscopic acq because the offset target is too bright to be observed with the PSA, so we do not want to have to worry about the difference in the sky of the BOA and PSA.*

ETC calculations were done to obtain a S/N of 40 using a HST/STIS G140L spectrum of HD-104237.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/122 2-3 (COS.sp.153 0070)	(1) HD-104237E	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=15 00; FP-POS=3			2165 Secs (2165 Secs) [==>]	[1]

Comments: *Because of an M-dwarf in the field, only G130M/1222 can be used with COS.*
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

Updated Calculations:
COS.sp.1530070 for the exposure time.
 global countrate (brightest segment): 60.218 cts/s (FUVA)
 brightest pixel: 0.009 cts/s/pix at 1301.98 A
 S/N ~ 10 at 1239A

COS.sp.1530071 for bright object checks & buffer times
 global countrate (brightest segment): 136.675 cts/s (FUVA)
 brightest pixel: 0.014 cts/s/pix at 1301.98 A
 *Buffer fill time = 12,536s * (2/3) =8357.33, so anything less is fine; using 1500 to be safe*

COS.sp.1530073 for M-dwarf clearing
 global countrate (brightest segment): 899.888 cts/s (FUVA)
 brightest pixel: 0.011 cts/s/pix at 1302.53 A
 No warnings, so we are safe to observe with 1222 even if there is an M-dwarf flare

Exposures

4	G130M/122 2-3 (COS.sp.153 0070)	(1) HD-104237E	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=15 00; FP-POS=3	2552 Secs (2552 Secs)
						[==>] [2]

Comments: Because of an M-dwarf in the field, only G130M/1222 can be used with COS.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

Updated Calculations:
COS.sp.1530070 for the exposure time.
  global countrate (brightest segment): 60.218 cts/s (FUVA)
  brightest pixel: 0.009 cts/s/pix at 1301.98 A
  S/N ~ 10 at 1239A

COS.sp.1530071 for bright object checks & buffer times
  global countrate (brightest segment): 136.675 cts/s (FUVA)
  brightest pixel: 0.014 cts/s/pix at 1301.98 A
  *Buffer fill time = 12,536s * (2/3) =8357.33, so anything less is fine; using 1500 to be safe*

COS.sp.1530073 for M-dwarf clearing
  global countrate (brightest segment): 899.888 cts/s (FUVA)
  brightest pixel: 0.011 cts/s/pix at 1302.53 A
  No warnings, so we are safe to observe with 1222 even if there is an M-dwarf flare

Visit	**Proposal 16599, HD-104237E-STIS (1S), implementation**	Thu Nov 11 22:00:28 GMT 2021

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; ORIENT 20D TO 140 D; ORIENT 200D TO 320 D; BETWEEN 05-FEB-2022:00:00:00 AND 23-MAY-2022:00:00:00; GROUP 1S,1C,1D WITHIN 1D

Comments: vstatus; 1S; HD-104237E; S/STIS approved for submission; P/RP 30/09/21 ; internal review complete; S/DW 29/09/21
vcheck; Enter targ name & Inst. & Resp. Sci.; HD-104237E ; STIS ; RP
vcheck; ETC numbers entered in APT?; Yes
vcheck; Any screening violations?; No
vcheck; M-dwarf check complete and added to box folder?; Yes
*   FUV MAMA: STIS.sp.1532255*
*   NUV MAMA: STIS.sp.1532256*
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. HD104237D ~4" away. M3 star
vcheck; Field BOT clear?; No...
*   NUV MAMA: HD-104237A does not clear the field; STIS.sp.1537639*
*   An orient was set to avoid ~6" away from HD-104237A, which means we cannot constrain the slit to also include the M-dwarf.*
*   HD-104237A does clear for the FUV MAMA using previous STIS/G140L data: STIS.sp.1530432*
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; 1C, 1D, 1S within 1 days
vcheck; phase constraint for ground based observations added?; N/A
vcheck; BETWEENS for coordinated observations added?; Yes & additional ORIENT to avoid HD-104237A in the slit
vcheck; Is visit ready for int. review?; Yes
Allocated STIS orbits = 3

	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
Fixed Targets	(1)	HD-104237E	RA: 12 00 9.0896 (180.0378733d)	Proper Motion RA: -42.834939658582 mas/yr	V=12.08	Reference Frame: ICRS
		Alt Name1: EPS-CHA-7	Dec: -78 11 42.39 (-78.19511d)	Proper Motion Dec: -4.162395045111 mas/yr	SpT=K5.5; A_V=1.00; V=12.1	
		Alt Name2: J12000931-7811424	Equinox: J2000	Parallax: 0.009980166861302"		
				Epoch of Position: 2016		

Comments: HD-104237E : eps Cha 7, J12000931-7811424
Region: eps Cha
Simbad: https://simbad.u-strasbg.fr/simbad/sim-id?Ident=HD+104237E&NbIdent=1&Radius=2&Radius.unit=arcmin&submit=submit+id
Target coordinates are from Gaia DR3.
Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114
M: 0.9 ; log(dm/dt): -9.07*
Input file: targets_up_to_May30-2022.csv
hd104237e_lya2_etc_scaled_pAV0.50.txt
Calculation performed 2021-06-18T15:05:41, 0.24
---
tstatus; HD-104237E; P/COS approved for submission; S/STIS internal review complete; P/DJS 30/09/21; S/RP 30/09/22
tcheck; APT/SIMBAD target names: ; [FLG2003] eps Cha 7 & 2MASS J12000931-7811424
tcheck; Target info verification status?; Yes. Photometry is scarce; Our model of the target was checked against U=15.279 V=13.674 B=15.912
tcheck; Coordinates & P.M. verified, epoch checked?; Yes. Correct against Gaia DR3
tcheck; Adopted SED compared to Observations?; Yes
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.1529281)	(1) HD-104237E	STIS/CCD, ACQ, F28X50LP	MIRROR				0.5 Secs (0.5 Secs)	
								[==>]	[1]

Comments: With a 0.5s exposure we get a S/N of 182.0992

The bright object check for this target acq was done in ETC run STIS.ta.1529279, which had a saturation time of 0.78s, so we want to stay under that time because we will get plenty of S/N with a 0.5s exposure.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	G140L/1425 (STIS.sp.1531287)	(1) HD-104237E	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140L 1425 A	WAVECAL=NO; BUFFER-TIME=1095		Sequence 2-3 Non-Int in HD-104237E-STIS (1S)	2190 Secs (2190 Secs)	
								[==>]	[1]

Comments: Because of an M-dwarf in the field, we are observing with G140L instead of COS/G160M.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A and S/N of 20/resel at the peak of the C IV line at 1549 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

ETC Calculations:

STIS.sp.1531287 for the exposure time.
  global countrate: 278.636 cts/s
  brightest pixel: 0.162 cts/s/pix at 1304.70 A
  S/N ~ 12 at 1239A & S/N ~22 at 1549A

STIS.sp.1531288 for bright object checks & buffer times
  global countrate: 362.029 cts/s
  brightest pixel: 0.690 cts/s/pix at 1304.70 A
  *Buffer fill time = 5,524.42s * 0.80 = 4419.5, so using half exposure time instead (1095)*

STIS.sp.1532255 for M-dwarf clearing
  global countrate: 3725.156 cts/s
  brightest pixel: 71.778 cts/s/pix at 1548.3 A
  A global count rate of ~3700 is less than the limit of 120,000 cnts/s, so we are safe to observe even if there is an M-dwarf flare

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G140L/1425 WAVECAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Sequence 2-3 Non-Int in HD-104237E-STIS (1S)	[==>]	[1]
4	G140L/1425 WAVECAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Sequence 4-5 Non-Int in HD-104237E-STIS (1S)	[==>]	[2]
5	G140L/1425 (STIS.sp.1531287)	(1) HD-104237E	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140L 1425 A	WAVECAL=NO; BUFFER-TIME=1294		Sequence 4-5 Non-Int in HD-104237E-STIS (1S)	2588 Secs (2588 Secs)	
								[==>]	[2]

Comments: Because of an M-dwarf in the field, we are observing with G140L instead of COS/G160M.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A and S/N of 20/resel at the peak of the C IV line at 1549 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

ETC Calculations:

STIS.sp.1531287 for the exposure time.
  global countrate: 278.636 cts/s
  brightest pixel: 0.162 cts/s/pix at 1304.70 A
  S/N ~ 12 at 1239A & S/N ~22 at 1549A

STIS.sp.1531288 for bright object checks & buffer times
  global countrate: 362.029 cts/s
  brightest pixel: 0.690 cts/s/pix at 1304.70 A
  *Buffer fill time = 5,524.42s * 0.80 = 4419.5, so using half exposure time instead (1095)*

STIS.sp.1532255 for M-dwarf clearing
  global countrate: 3725.156 cts/s
  brightest pixel: 71.778 cts/s/pix at 1548.3 A
  A global count rate of ~3700 is less than the limit of 120,000 cnts/s, so we are safe to observe even if there is an M-dwarf flare

6	G140L/1425 WAVE WAVECAL	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A		Sequence 6-7 Non-Int in HD-104237E-STIS (1S)	[==>]	
							[3]
7	G140L/1425 (1) HD-104237E (STIS.sp.15 31287)	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140L 1425 A	WAVECAL=NO; BUFFER-TIME=42 7	Sequence 6-7 Non-Int in HD-104237E-STIS (1S)	855 Secs (855 Secs)	
						[==>]	[3]

Comments: Because of an M-dwarf in the field, we are observing with G140L instead of COS/G160M.
We aim to get a total S/N of 10/resel at the peak of the N V line at 1239 A and S/N of 20/resel at the peak of the C IV line at 1549 A.

Additional observations will be done with STIS/G140L to obtain the remaning goals of S/N of 20/resel at the peak of the C IV line at 1549 A.

ETC Calculations:

STIS.sp.1531287 for the exposure time.
*   global countrate: 278.636 cts/s*
*   brightest pixel: 0.162 cts/s/pix at 1304.70 A*
*   S/N ~ 12 at 1239A & S/N ~22 at 1549A*

STIS.sp.1531288 for bright object checks & buffer times
*   global countrate: 362.029 cts/s*
*   brightest pixel: 0.690 cts/s/pix at 1304.70 A*
*   Buffer fill time = 5,524.42s * 0.80 = 4419.5, so using half exposure time instead (1095)*

STIS.sp.1532255 for M-dwarf clearing
*   global countrate: 3725.156 cts/s*
*   brightest pixel: 71.778 cts/s/pix at 1548.3 A*
*   A global count rate of ~3700 is less than the limit of 120,000 cnts/s, so we are safe to observe even if there is an M-dwarf flare*

| 8 | G230L/2376 (1) HD-104237E (STIS.sp.15 29572) | STIS/NUV-MAMA, TIME-TAG, 52X2 | G230L
2376 A | WAVECAL=NO;
  BUFFER-TIME=18 6 | | 371.6 Secs (371.6 Secs) | |
| | | | | | | [==>] | [3] |

Comments: hd104237e_lya2_etc_scaled_pAV0.50.txt; stis,nuvmama,g230l,c2376,52x2,mjd#59670
Input file: targets_up_to_May30-2022.csv
Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114
M: 0.9 ; log(dm/dt): -9.07*
For exptime=185.8 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): 2359.7 cts/s/segment
brightest pixel: 0.446 cts/s/pix at 2796.8 A
Calculation performed 2021-06-18T15:05:41, v0.24

STIS.sp.1529572 for the exposure time.
*   global countrate: 2367.777 cts/s*
*   brightest pixel: 0.446 cts/s/pix at 2796.8 A*
*   S/N ~ 18 at 2800A*

STIS.sp.1529574 for bright object checks & buffer times
*   global countrate: 2769.19 cts/s*
*   brightest pixel: 4.216 cts/s/pix at 2796.80 A*
*   Buffer fill time = 722.23s * 0.80 = 577.784, so using half exposure time instead (186)*

STIS.sp.1532256 for M-dwarf clearing
*   global countrate: 92,558.916 cts/s*
*   brightest pixel: 53.941 cts/s/pix at 2692.80 A*
*   A global count rate of ~90,000 is less than the limit of 120,000 cnts/s, so we are safe to observe even if there is an M-dwarf flare*

9	G230L/2376 WAVE WAVECAL	STIS/NUV-MAMA, ACCUM, 52X0.1	G230L 2376 A			[==>]	[3]
10	G430L/4300 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			[==>]	
							[3]

11	G430L/4300 (1) HD-104237E (STIS.sp.15 29582)	STIS/CCD, ACCUM, 52X2	G430L 4300 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	100.4 Secs (100.4 Secs) [==>(Split 1)] [==>(Split 2)]	[3]

Comments: hd104237e_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g430l,c4300,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114
M: 0.9 ; log(dm/dt): -9.07*
For exptime=50.2 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): 46110.2 cts/s/segment
brightest pixel: 23.498 cts/s/pix at 4560.5 A
Calculation performed 2021-06-18T15:05:41, v0.24

12	G750L/7751 (1) HD-104237E (STIS.sp.15 29583)	STIS/CCD, ACCUM, 52X2	G750L 7751 A	WAVECAL=NO; CR-SPLIT=2; GAIN=1	6.6 Secs (6.6 Secs) [==>(Split 1)] [==>(Split 2)]	[3]

Comments: hd104237e_lya2_etc_scaled_pAV0.50.txt; stis,ccd,g750l,c7751,52x2,mjd#59670
WARNING: operating mode = ACCUM
Input file: targets_up_to_May30-2022.csv
Spectral type: K5.5 ; A_V: 1.0 ; Distance (pc): 114
M: 0.9 ; log(dm/dt): -9.07*
For exptime=3.3 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): 127415.6 cts/s/segment
brightest pixel: 242.239 cts/s/pix at 6563.9 A
Calculation performed 2021-06-18T15:05:41, v0.24

13	G750L/7751 WAVE WAVECAL	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		[==>]	[3]
14	G750L/7751 CCDFLAT CCDFLAT 1	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A		[==>(Copy 1)] [==>(Copy 2)]	[3]
15	G750L/7751 CCDFLAT CCDFLAT 2	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A		[==>(Copy 1)] [==>(Copy 2)]	[3]
16	G750L/7751 CCDFLAT CCDFLAT 3	STIS/CCD, ACCUM, 52X2	G750L 7751 A		[==>(Copy 1)] [==>(Copy 2)]	[3]

Orbit 1

Server Version: 20210514

GS Acq · Exp. 1 · Pointing Maneuver · Exp. 2 · Occultation · Unused Orbital Visibility = 0 · Exp. 3

Orbit 2

Server Version: 20210514

Exp. 4 · Exp. 5 · Occultation · Unused Orbital Visibility = 0

Orbit Structure

Orbit 3

Server Version: 20210514

Exp. 9
Exp. 10
Exp. 11, split 1
Exp. 11, split 2
Exp. 12, split 1
Exp. 12, split 2
Occultation
Exp. 13
Unused Orbital Visibility = 0
Exp. 14, copy 1
Exp. 14, copy 2
Exp. 15, copy 1
Exp. 15, copy 2
Exp. 16, copy 1
Exp. 16, copy 2

Pointing Maneuver

Exp. 6   Exp. 7   Exp. 8   Home

0   500   1000   1500   2000   2500   3000   3500   4000   4500   5000   5500   6000 sec