16370 - ULLYSES SMC O, OC, & WN Stars - COS

Cycle: 28, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Julia Christine Roman-Duval (PI) (Contact)	**Space Telescope Science Institute**	**duval@stsci.edu**
Dr. Kenneth Sembach (CoI)	Space Telescope Science Institute	sembach@stsci.edu
Dr. Joleen Carlberg (CoI)	Space Telescope Science Institute	jcarlberg@stsci.edu
Dr. Charles R. Proffitt (CoI)	Space Telescope Science Institute	proffitt@stsci.edu
Dr. TalaWanda R. Monroe (CoI)	Space Telescope Science Institute	tmonroe@stsci.edu
Joanna Taylor (CoI)	Space Telescope Science Institute	jotaylor@stsci.edu
Dr. William J. Fischer (CoI)	Space Telescope Science Institute	wfischer@stsci.edu
Dr. Alexander W. Fullerton (CoI) (Contact)	Space Telescope Science Institute	fullerton@stsci.edu
Dr. Alessandra Aloisi (CoI)	Space Telescope Science Institute	aloisi@stsci.edu
Christopher Britt (CoI)	Space Telescope Science Institute	cbritt@stsci.edu
Dr. Thomas M. Brown (CoI)	Space Telescope Science Institute	tbrown@stsci.edu
Ivo Busko (CoI)	Space Telescope Science Institute	busko@stsci.edu
Dr. Gisella De Rosa (CoI)	Space Telescope Science Institute	gderosa@stsci.edu
Dr. Travis C Fischer (CoI) (ESA Member)	Space Telescope Science Institute - ESA	tfischer@stsci.edu
Elaine M Frazer (CoI)	Space Telescope Science Institute	efrazer@stsci.edu
Dr. Bethan Lesley James (CoI)	Space Telescope Science Institute - ESA - JWST	bjames@stsci.edu
Robert Jedrzejewski (CoI)	Space Telescope Science Institute	rij@stsci.edu
Sean Lockwood (CoI)	Space Telescope Science Institute	lockwood@stsci.edu
Dr. Cristina Oliveira (CoI)	Space Telescope Science Institute	oliveira@stsci.edu
Rachel Plesha (CoI)	Space Telescope Science Institute	rplesha@stsci.edu
Dr. I. Neill Reid (CoI)	Space Telescope Science Institute	inr@stsci.edu
Dr. Adric R. Riedel (CoI)	Space Telescope Science Institute	riedel@stsci.edu

Name	*Institution*	*E-Mail*
Allyssa Riley (CoI)	Space Telescope Science Institute	ariley@stsci.edu
Dr. David J. Sahnow (CoI)	Space Telescope Science Institute	sahnow@stsci.edu
Dr. Ravi Sankrit (CoI)	Space Telescope Science Institute	rsankrit@stsci.edu
Dr. Richard Shaw (CoI)	Space Telescope Science Institute	shaw@stsci.edu
Dr. Linda J. Smith (CoI)	Space Telescope Science Institute	lsmith@stsci.edu
Dr. Sangmo Tony Sohn (CoI)	Space Telescope Science Institute	tsohn@stsci.edu
Dr. Leonardo Ubeda (CoI)	Space Telescope Science Institute	lubeda@stsci.edu
Dr. Daniel E. Welty (CoI)	Space Telescope Science Institute	dwelty@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
1C	(1) 2DFS-2266	COS/FUV	5	21-Apr-2022 09:00:23.0	yes
2C	(2) 2DFS-3954	COS/FUV	4	21-Apr-2022 09:00:25.0	yes
3C	(3) 2DFS-999	COS/FUV	2	21-Apr-2022 09:00:26.0	yes
4C	(4) AV251	COS/FUV	4	21-Apr-2022 09:00:28.0	yes
AC	(1) 2DFS-2266	COS/FUV	3	21-Apr-2022 09:00:30.0	yes
FC	(1) 2DFS-2266	COS/FUV	3	21-Apr-2022 09:00:32.0	yes
KC	(1) 2DFS-2266	COS/FUV	2	21-Apr-2022 09:00:33.0	yes
BC	(2) 2DFS-3954	COS/FUV	3	21-Apr-2022 09:00:35.0	yes
DC	(4) AV251	COS/FUV	4	21-Apr-2022 09:00:37.0	yes
IC	(4) AV251	COS/FUV	1	21-Apr-2022 09:00:38.0	yes

31 Total Orbits Used

ABSTRACT

The Space Telescope Science Institute (STScI) Director has decided to devote up to 1000 orbits of Director's Discretionary time in observing Cycles 27-29 to a new Hubble Ultraviolet Legacy program focused on star formation and associated stellar physics. This new program, ULLYSES (UV Legacy Library of Young Stars as Essential Standards), will provide a UV spectroscopic reference sample of young (< 10 Myr) high- and low-mass stars. It will target over ~150 OB stars in the Magellanic Clouds and lower metallicity galaxies in the Local Group, and ~40 T Tauri stars and brown

dwarfs in the Milky Way. In addition, ULLYSES will monitor 4 typical T Tauri stars over different rotational phases through at least three rotation periods, and over timescales of months to years. The resulting library will provide template spectra of massive stars at metallicities substantially below the well studied, while the low mass sample will cover a wide range of ages, accretion rates, and masses, including objects down to well below 0.5 M_sun. The legacy of this large UV dataset on the first 10 Myr of stellar evolution will be enhanced by complementary datasets obtained by the scientific community. In addition to the core goals of the program related to stellar astrophysics of low and high mass stars, this data will also enable exciting science in the fields of ISM, CGM, jets, and exoplanets. ULLYSES will be modeled after the Frontier Fields program: all data obtained will be non-proprietary. The implementation team at STScI is developing high-level science data products and a sophisticated database and website for disseminating data from the ULLYSES program and ancillary datasets for the ULLYSES target sample from space and ground-based facilities.

OBSERVING DESCRIPTION

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

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

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

Additional details about the scientific motivation and technical implementation strategy of the ULLYSES observations can be found at http://www.stsci.edu/stsci-research/research-topics-and-programs/ullyses. The ULLYSES program is based on the recommendations of a working group led by Sally Oey; the full text of that group's report can be found at http://www.stsci.edu/files/live/sites/www/files/home/stsci-research/research-topics-and-programs/ullyses/_documents/HSTUV-report-ULLYSES.pdf.

Visit

Proposal 16370, 2DFS-2266-COS (1C), failed Thu Apr 21 13:00:38 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; 2DFS-2266; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-2266 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes 2DFS-2266_DSS.png and 2DFS-2266_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 20 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed -none
vcheck; Orbit packing finalized?; 5 orbits - needed to treat G130M/1096 FP-POS subexposures individually- see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 5

Diagnostics

(2DFS-2266-COS (1C)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2DFS-2266	RA: 01 07 14.2742 (16.8094758d)		V=15.16	Reference Frame: ICRS
	Alt Name1: M2002-SMC-65577	Dec: -72 13 47.53 (-72.22987d) Equinox: J2000		SpT=OC7 II(f); E(B-V)=0.02; U = 13.83; B=14.91; V=15.16	

Comments: 2DFS-2266 : [2dFS]-2266, [2dFS]_2266, 2dFS 2266
Previous name : [2dFS]-2266
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 2266): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+2266&submit=submit+id
SpT = OC7 II(f)
COS/G130M/c1096 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:46, v0.4
---
tstatus; 2DFS-2266; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-2266, '2dFS 2266' ...
Default name in SIMBAD is OGLE SMC-SC11 61507
tcheck; Target info verification status?; Verified
tcheck; Coordinates & P.M. updated?; Gaia DR2 coords, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
PoWR models were selected according to the nominal SpT-Teff calibration for O7 I and O7 III classifications to bracket the OC7 II(f) classification of 2dFS 2266. For both models, the flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.02 (2002ApJS..141...81M). The flux associated with both models had to be reduced substantially to match the available UBV photometry, which suggests that the star is less luminous (i.e., has a smaller radius) than modeled. A model corresponding to an O7 III star with flux reduced by a factor of 0.14 was ultimately adopted. It corresponds to the file: PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed.fits
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed_vs_UBV.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
The far-UV flux is uncertain because (a) the normalization is set by UBV photometry; and (b) the star is evidently only lightly reddened.
Category=EXT-STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAKXD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 20 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 25 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2266.0; FP-POS=3			372.0 Secs (372 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Waranings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	G130M/1291-4 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2266.0; FP-POS=4			372.0 Secs (372 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Warnings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

5	G160M/161 1 (COS.sp.146 1607)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=624.0; FP-POS=ALL	445 Secs (1780 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]* *[2]*	

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2011.7618 s . See COS.sp.1461396.
No ETC Warnings
Baseline exposure time rounded to 2012 s (503 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2519.869, 530.739, 1989.131) cts/s
Brightest Pixel: 0.036 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 936 s = 624 s*
During orbit packing, the exposure time was decreased to 88% of the baseline: 1780 s total, 445 s per FP-POS. The ETC estimates SNR=28.2/resel at 1590 A; see COS.sp.1461607,
BOT: 20 safe, 0 unknown

6	G130M/109 6-1 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=1	1146. Secs (1146 Secs) *[==>]*	*[2]*	

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

7	G130M/109 6-2 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=2	2530 Secs (2530 Secs) *[==>]*	*[3]*	

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

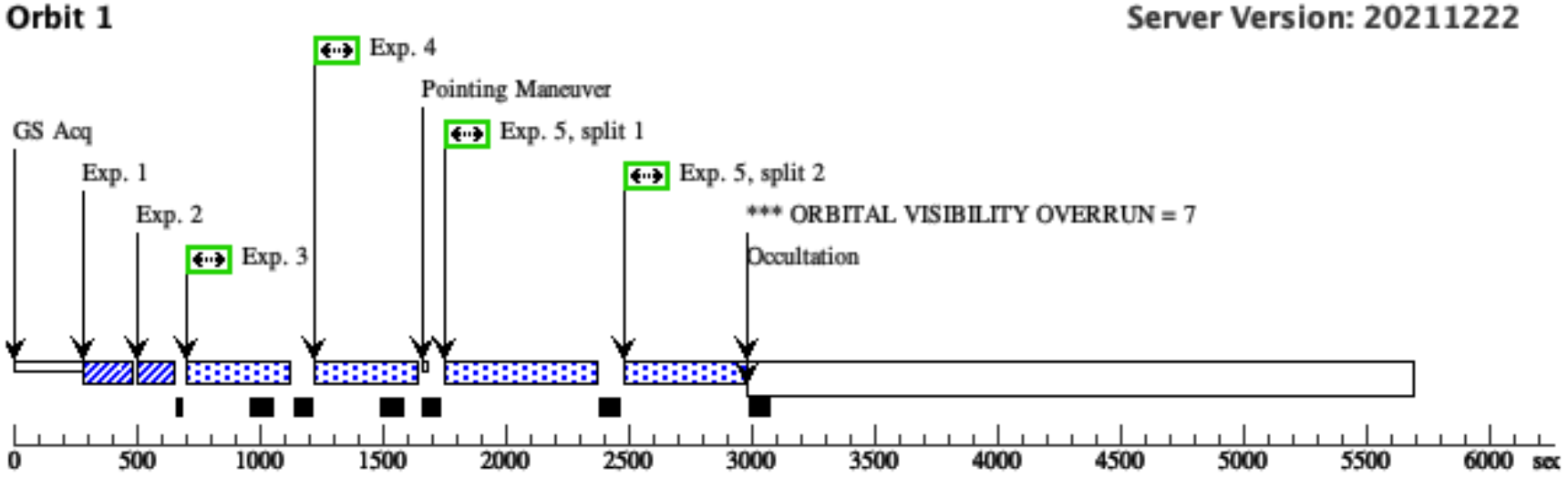
8	G130M/109 6-3 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=72 2.0; FP-POS=3	2530 Secs (2530 Secs) *[==>]*	***[4]***

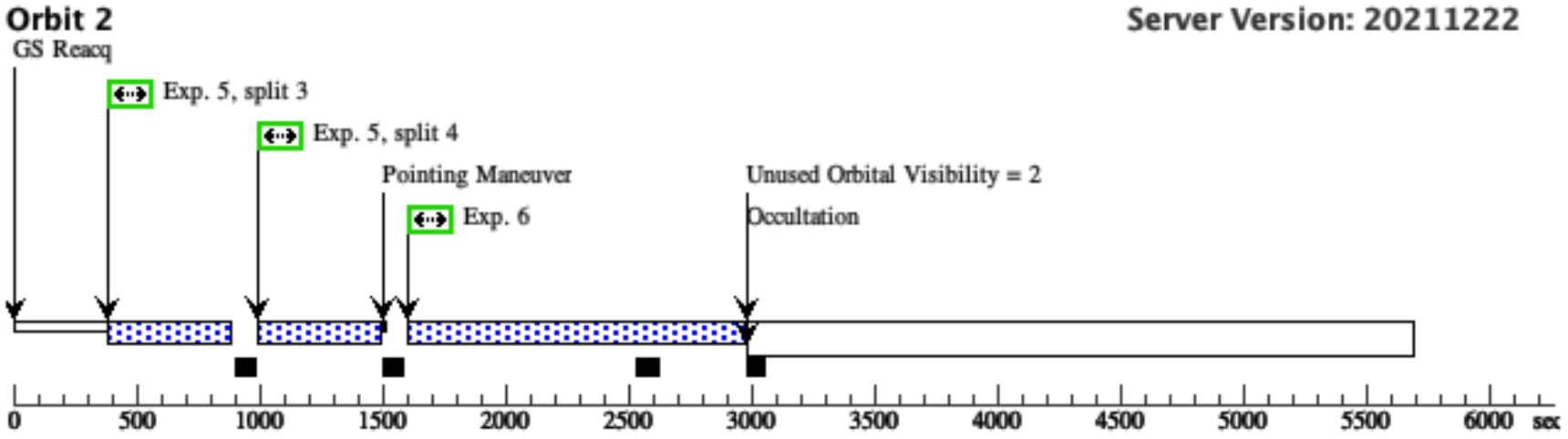
Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

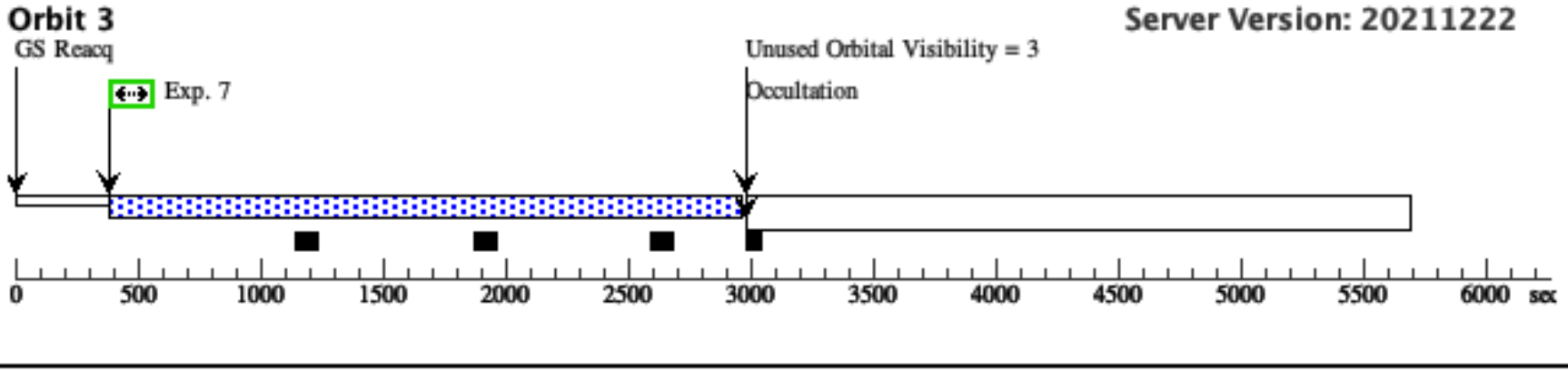
9	G130M/109 6-4 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=72 2.0; FP-POS=4	2530 Secs (2530 Secs) *[==>]*	***[5]***

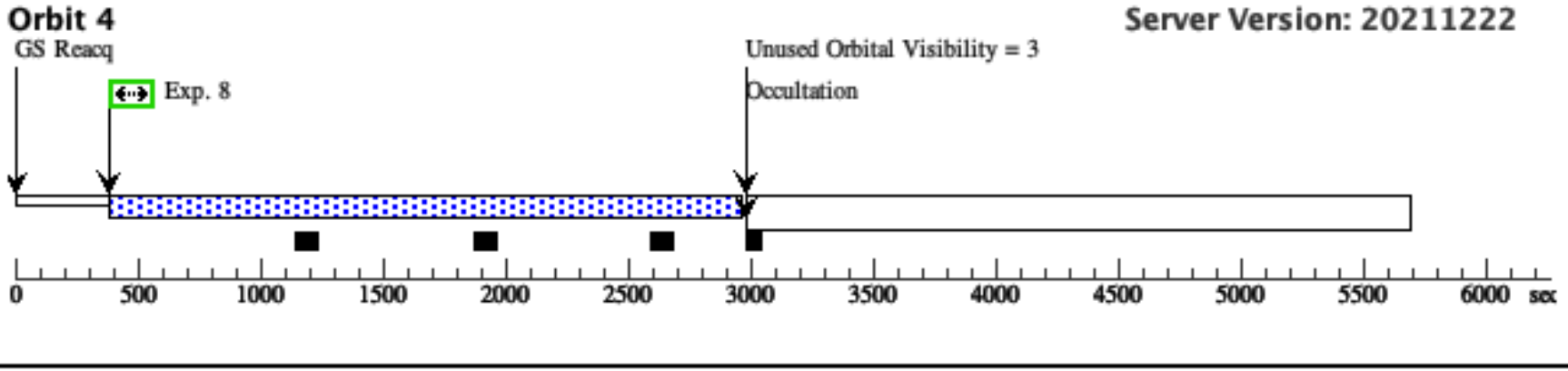
Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

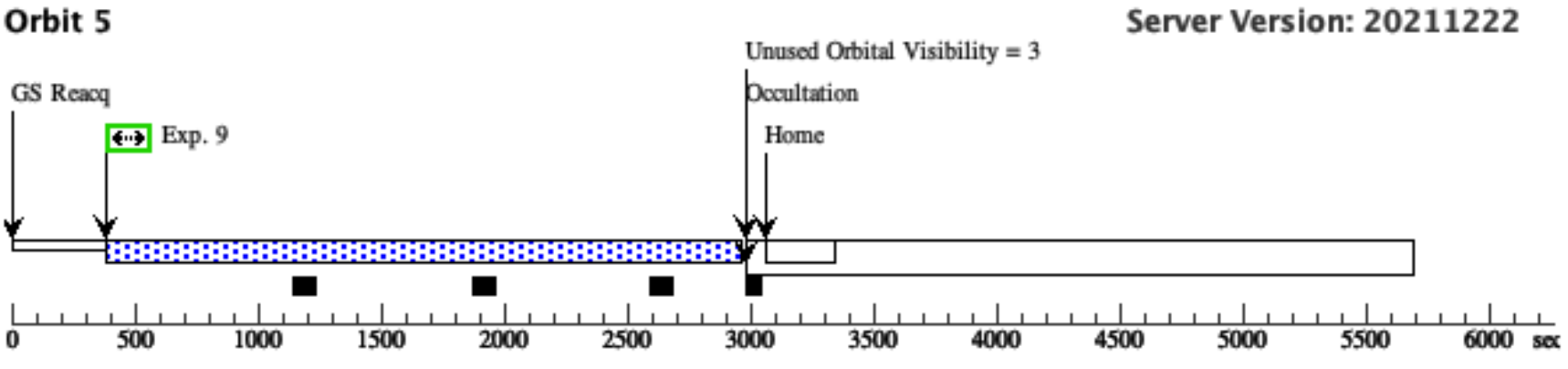
Orbit Structure






Orbit 3
Server Version: 20211222
GS Reacq
Exp. 7
Unused Orbital Visibility = 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 4
Server Version: 20211222
GS Reacq
Exp. 8
Unused Orbital Visibility = 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 5
Server Version: 20211222
GS Reacq
Exp. 9
Unused Orbital Visibility = 3
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, 2DFS-3954-COS (2C), failed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 2C; 2DFS-3954; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-3954 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - 2DFS-3954_DSS.png and 2DFS_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 13 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 4 orbits - needed to reduce exposure times and treat G130M/1096 FP-POS subexposures individually - see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 4

Diagnostics

(2DFS-3954-COS (2C)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	2DFS-3954	RA: 01 30 43.1080 (22.6796167d)		V=15.27	Reference Frame: ICRS
	Alt Name1: M2002-SMC-83639	Dec: -73 25 4.14 (-73.41782d) Equinox: J2000		SpT=O6 V((f))z; E(B-V)=0.02; U=13.93; B=15.01; V=15.27	

Comments: 2DFS-3954 : [2dFS]-3954, [2dFS]_3954, 2dFS 3954
Previous name : [2dFS]-3954
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 3954): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+3954&submit=submit+id
SpT = O6 V((f))z
COS/G130M/c1096 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:32, v0.4
---
tstatus; 2DFS-3954; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-3954; "2dFS 3954"
tcheck; Target info verification status?; Verified ...
SIMBAD lists the spectral type as 07 V (from 2004MNRAS.353..601E), but ULLYSES has adopted O6 V((f))z (from 2019A&A...625A.104R)
tcheck; Coordinates & P.M. updated?; Gaia DR2, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
A PoWR model was selected according to the nominal SpT-Teff calibration: (Teff, logg, logMdot, Z/Zsun) = (37000, 4.00, -7.13, 0.14). The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.03 (2002ApJS..141...81M). A good match to the observed IUE/SWP and IUE/LWP fluxes and UBV photometry required a reduction in the overall flux level by a factor of 0.5. An equally good match was obtained by using a model with a slightly larger logg of 4.20. Since this model is for a more compact object, its flux only required reduction by a factor of 0.9 to achieve the match. The adopted SED corresponds to the file: PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits. The parameters of this model agree closely with those determined by Ramachandran et al. (2019A&A...625A.104R).
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed_vs_IUE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fits
Category=EXT-STAR
Description=[MAIN SEQUENCE O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAKXD (COS.sa.1461559)	(2) 2DFS-3954	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.4 Secs (0.4 Secs) *[==>]*	*[1]*

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.3096 s per dwell point.
No ETC Warnings.
Exposure time per dwell point rounded up to 0.4 s

BOT: 13 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461559)	(2) 2DFS-3954	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.4 Secs (0.4 Secs) *[==>]*	*[1]*

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.3096 s per dwell point.
No ETC Warnings.
Exposure time per dwell point rounded up to 0.4 s

BOT: 16 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461763)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2304.0; FP-POS=3			368. Secs (368 Secs) *[==>]*	*[1]*

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 806.7494 s. See COS.sp.1461560
No ETC Warnings
Baseline exposure time rounded to 808 s (404 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6715.253, 2709.448, 4005.805) cts/s
Brightest Pixel: 0.132 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 351 s = 234 s*
During orbit packing, the exposure time was decreased to 91% of the baseline: 736 s total, 368 s per FP-POS. The ETC estimates SNR=28.7/resel at 1150 A; see COS.sp.1461763
BOT: 13 safe, 0 unknown

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	G130M/1291-4 (COS.sp.1461763)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=2304.0; FP-POS=4			368.0 Secs (368 Secs) *[==>]*	*[1]*

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 806.7494 s. See COS.sp.1461560
No ETC Warnings
Baseline exposure time rounded to 808 s (404 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6715.253, 2709.448, 4005.805) cts/s
Brightest Pixel: 0.132 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 351 s = 234 s*
During orbit packing, the exposure time was decreased to 91% of the baseline: 736 s total, 368 s per FP-POS. The ETC estimates SNR=28.7/resel at 1150 A; see COS.sp.1461763
BOT: 13 safe, 0 unknown

5	G160M/161 1 (COS.sp.146 1766)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=64 5.0; FP-POS=ALL	450.0 Secs (1800 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*	
						[==>(Split 3)] *[==>(Split 4)]*	*[2]*	

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2243.3420 s. See COS.sp.1461561
No ETC Warnings
Baseline exposure time rounded to 2244 s (561 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2435.193, 506.571, 1928.622) cts/s
Brightest Pixel: 0.035 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 968 s = 645 s*
During orbit packing, the exposure time was decreased to 80% of the baseline value: 1800 s total, 450 s per FP-POS. The ETC estimates SNR=26.9/resel at 1590 A; see COS.sp.1461766
BOT: 13 safe, 0 unknown

6	G130M/109 6-1 (COS.sp.146 1771)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=1	1138.0 Secs (1138 Secs) *[==>]*	*[2]*	

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1138s, 1600s, 1493s, 1600s), for a total of 5831 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 88% of the baseline exposure time to be recovered. The ETC predicts SNR=18.8/resel at 1080 A in 5831 s; see COS.sp.1461771

BOT: 13 safe, 0 unknown

7	G130M/109 6-2 (COS.sp.146 1771)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=2	1600 Secs (1600 Secs) *[==>]*	*[3]*	

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1138s, 1600s, 1493s, 1600s), for a total of 5831 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 88% of the baseline exposure time to be recovered. The ETC predicts SNR=18.8/resel at 1080 A in 5831 s; see COS.sp.1461771

BOT: 13 safe, 0 unknown

8	G130M/109 6-3a (COS.sp.146 1771)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=3	742 Secs (742 Secs) [==>]	[3]

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1138s, 1600s, 1493s, 1600s), for a total of 5831 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 88% of the baseline exposure time to be recovered. The ETC predicts SNR=18.8/resel at 1080 A in 5831 s; see COS.sp.1461771

BOT: 13 safe, 0 unknown

9	G130M/109 6-3b (COS.sp.146 1771)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=3	751. Secs (751 Secs) [==>]	[4]

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1138s, 1600s, 1493s, 1600s), for a total of 5831 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 88% of the baseline exposure time to be recovered. The ETC predicts SNR=18.8/resel at 1080 A in 5831 s; see COS.sp.1461771

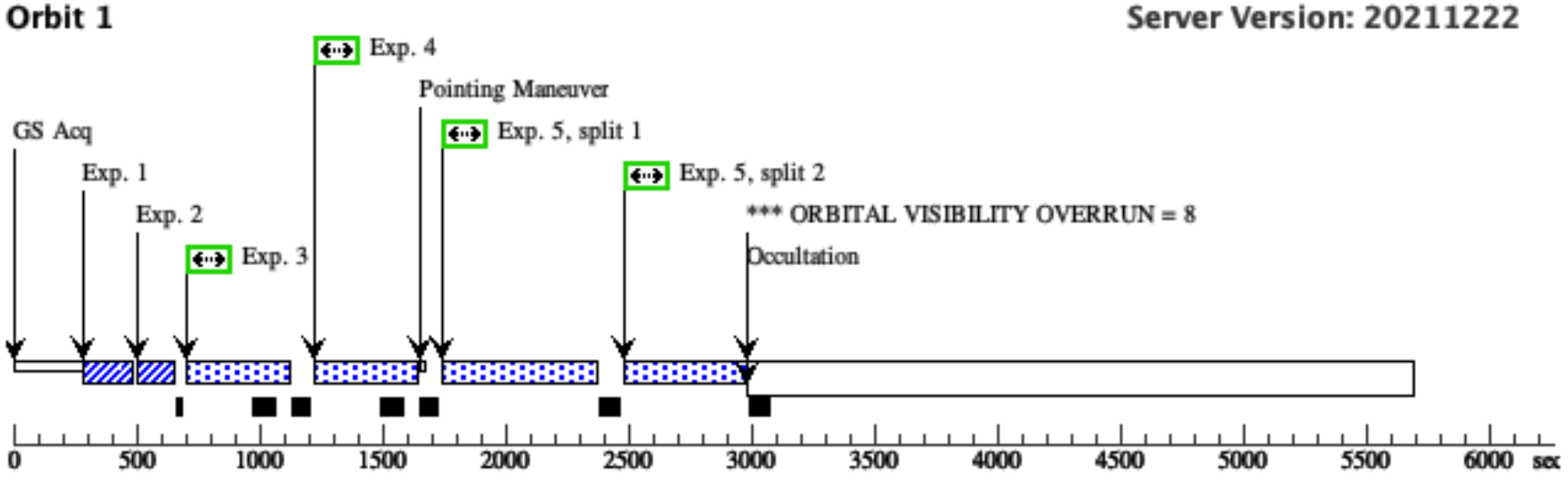
BOT: 13 safe, 0 unknown

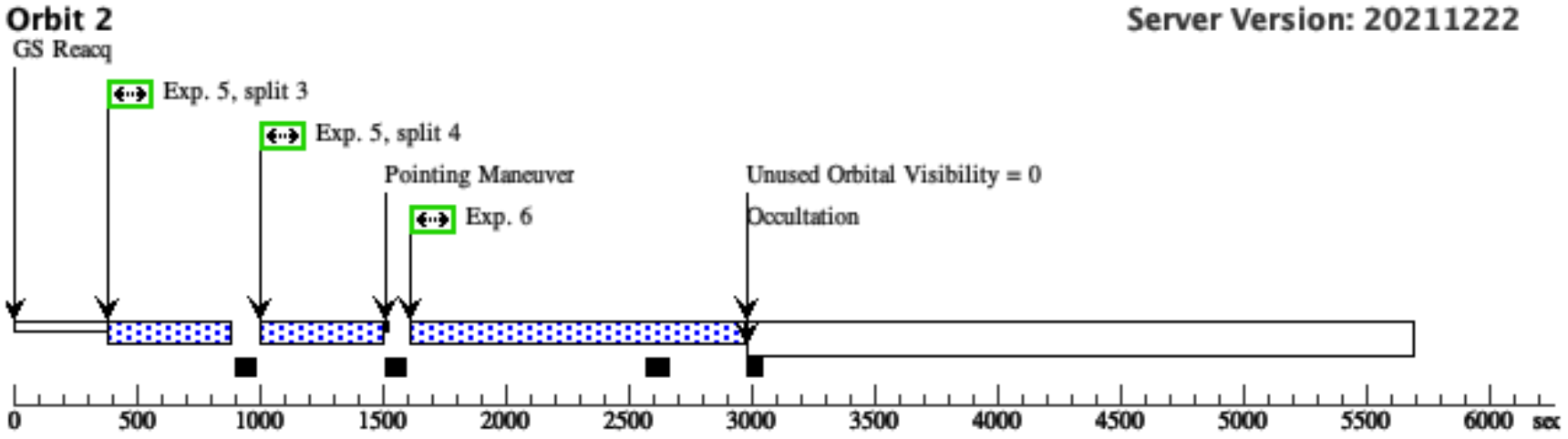
10	G130M/109 6-4 (COS.sp.146 1771)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=4	1600.0 Secs (1600 Secs) [==>]	[4]

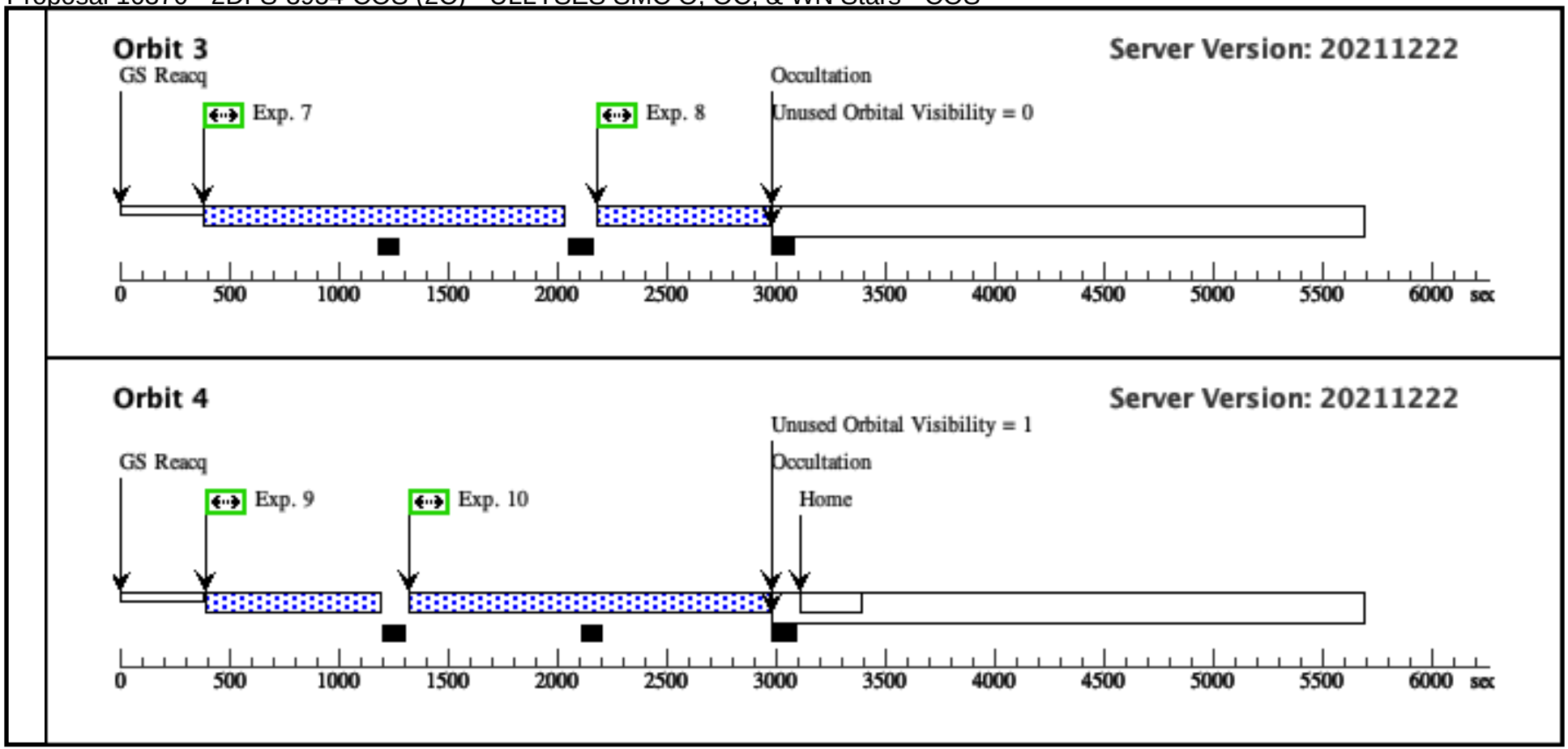
Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1138s, 1600s, 1493s, 1600s), for a total of 5831 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 88% of the baseline exposure time to be recovered. The ETC predicts SNR=18.8/resel at 1080 A in 5831 s; see COS.sp.1461771

BOT: 13 safe, 0 unknown

Orbit Structure






Orbit 3
Server Version: 20211222
GS Reacq
Exp. 7
Exp. 8
Occultation
Unused Orbital Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 4
Server Version: 20211222
Unused Orbital Visibility = 1
GS Reacq
Exp. 9
Exp. 10
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, 2DFS-999-COS (3C), completed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 3C; 2DFS-999; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-999 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - 2DFS-999_DSS.png and 2DFS-999_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None - but see comments
vcheck; Field BOT clear?; Yes - 26 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 2 orbits
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 2

Diagnostics

(2DFS-999-COS (3C)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	2DFS-999	RA: 00 54 32.1581 (13.6339921d)		V=15.24	Reference Frame: ICRS
	Alt Name1: SMC-AB-9	Dec: -72 44 35.64 (-72.74323d)		SpT=WN3ha; E(B-V)=0.09; u=14.13; B=15.12; V=15.24; F1160=1.62e-13	
	Alt Name2: M2002-SMC-30420	Equinox: J2000			

Comments: 2DFS-999 : SMC AB9, SMC-WR9, SMC AB 9
Previous name : SMC-WR9
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (SMC AB 9): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=SMC+AB+9&submit=submit+id
SpT = WN3ha
COS/G130M/c1096 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
COS/G130M/c1291 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
COS/G160M/c1611 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
COS/G185M/c1921 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
COS/G185M/c1953 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
COS/G185M/c1986 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
STIS/E140M/c1425 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
STIS/E230M/c1978 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
STIS/E230M/c2707 : rn-max(CMFGEN-WN(model=10, Z=0.004, Teff=90000) (extinction smcbar=0.090), flux1160 +- 30.0A flux=1.6e-13 Flam)
Coordinate pedigree: 2MASS
Calculation performed 2020-02-24T18:03:34, v0.4
---
tstatus; 2DFS-999; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-999, "2dFS 999" ...
Default name in SIMBAD is "SMC AB 9"
tcheck; Target info verification status?; Verified
tcheck; Coordinates & P.M. updated?; 2MASS J2000
tcheck; Adopted SED compared to Observations?; Yes ...
The detailed analysis of the spectrum of 2dFS 999 = SMC AB 9 by Hainich et al. (2015A&A...581A..21H) provided the starting point for the selection of a model spectrum. A model with very similar parameters to those determined by Hainich et al. was selected from the PoWR grid for WR stars with SMC metallicity and a hydrogen abundance of 0.40 by mass. The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.07. This reddening is slightly lower than the value derived by Hainich et al. (0.095), but well within the uncertainties of the photometry. An additional scaling factor of 3.3 was required to get a good match to the available FUSE spectrum and UBV photometry, and is presumably an indication that the luminosity of the model does not exactly match the luminosity of 2dFS 999. As noted by Hainich et al., the continuum flux level of the FUSE spectrum of 2dFS 999 changes abruptly by a factor of about two for wavelengths shorter than 1000 Angstroms, most likely because the SiC channels were not well aligned at the time of the observation. Consequently, only wavelengths longer than 1000 Angstroms were considered when selecting the model atmosphere. Contamination from other sources within the LWRS aperture may also be an issue, though most of these targets appear to be late-type stars. 2dFS 999 may be in a binary system with an O-type companion, but no allowance was made for this possibility when selecting the spectrum. The adopted SED corresponds to the file PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed.fits.
Fit by Hainich et al: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2015A+A...581A..21H_FigC4.pdf
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed_vs_FUSE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
Category=EXT-STAR
Description=[WOLF RAYET - WN]
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/PEAK XD (COS.sa.1461564)	(3) 2DFS-999	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed; includes an increase in the model flux by a factor of 3.3
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.4386 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 26 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There is one potential spoiler star at a distance of 14.5 arcsec and PA of 284 degrees; see
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_DSS.png
The star is 2MASS J00542899-7244321 = Gaia DR2 4685983558169395840 with G =12.65, (Bp-Rp) = 0.56, (J-H) = 0.17, (H-Ks) = 0.07.
The (Bp-Rp) and (H-Ks) colors are broadly consistent with the colors of a K0 dwarf, though the the J-H color is more appropriate to an F5 dwarf; see
http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt
Despite the discrepancy, it is clear that 2MASS J00542899-7244321 is cooler and redder than 2dFS 999, and therefore very much fainter in the UV. Consequently, its proximity is unlikely to interfere with the successful acquisition of 2dFS 999 in dispersed UV light.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAK D (COS.sa.1461564)	(3) 2DFS-999	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed; includes an increase in the model flux by a factor of 3.3
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.4386 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 27 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There is one potential spoiler star at a distance of 14.5 arcsec and PA of 284 degrees; see
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_DSS.png
The star is 2MASS J00542899-7244321 = Gaia DR2 4685983558169395840 with G =12.65, (Bp-Rp) = 0.56, (J-H) = 0.17, (H-Ks) = 0.07.
The (Bp-Rp) and (H-Ks) colors are broadly consistent with the colors of a K0 dwarf, though the the J-H color is more appropriate to an F5 dwarf; see
http://www.pas.rochester.edu/~emamajek/EEM_dwarf_UBVIJHK_colors_Teff.txt
Despite the discrepancy, it is clear that 2MASS J00542899-7244321 is cooler and redder than 2dFS 999, and therefore very much fainter in the UV. Consequently, its proximity is unlikely to interfere with the successful acquisition of 2dFS 999 in dispersed UV light.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461619)	(3) 2DFS-999	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=3160.0; FP-POS=3			530.0 Secs (530 Secs) *[==>]*	***[1]***

Comments: SED PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed; includes an increase in the model flux by a factor of 3.3
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 1120.5521 s. See COS.sp.1461565
No ETC Warnings
Baseline exposure time rounded to 1122 s (561 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (4964.410, 1919.029, 3045.381) cts/s
Brightest Pixel: 0.192 cts/s at 1215.99 A
*BUFFER-TIME = 2/3 * 475 s = 316 s*
During orbit packing, the exposure time was decreased to 94% of the baseline: 1060 s total, 530 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461619.

BOT: 26 safe, 0 unknown

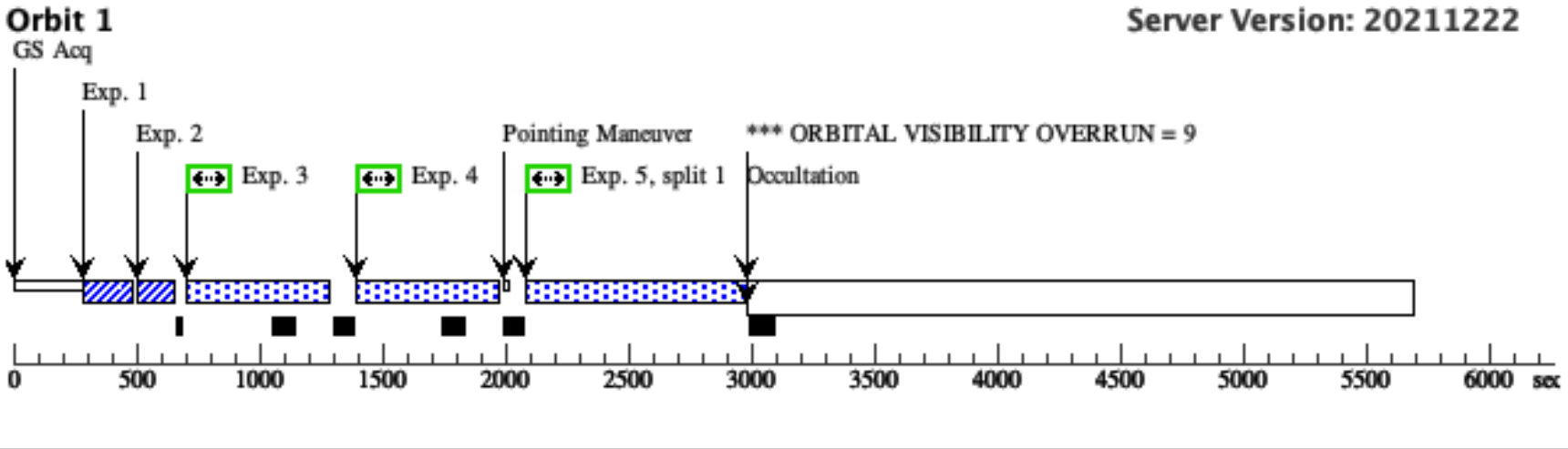
4	G130M/129 1-4 (COS.sp.146 1619)	(3) 2DFS-999	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=31 6.0; FP-POS=4	530.0 Secs (530 Secs) *[==>]*	 ***[1]***

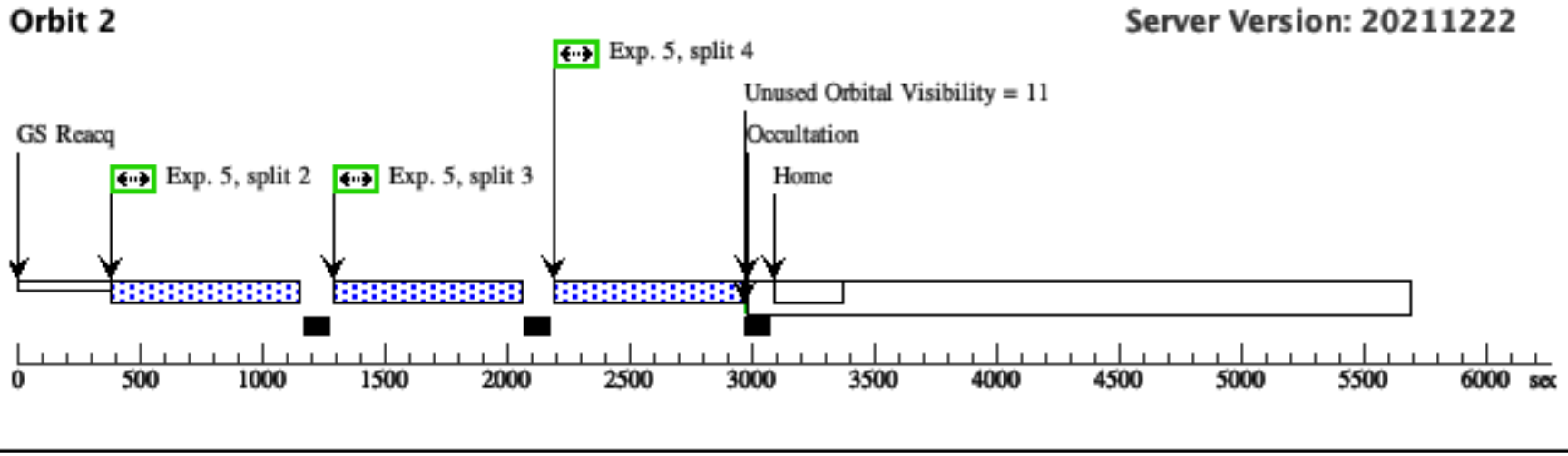
Comments: SED PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed; includes an increase in the model flux by a factor of 3.3
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 1120.5521 s. See COS.sp.1461565.
No ETC Warnings
Baseline exposure time rounded to 1122 s (561 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (4964.410, 1919.029, 3045.381) cts/s
Brightest Pixel: 0.192 cts/s at 1215.99 A
*BUFFER-TIME = 2/3 * 475 s = 316 s*
During orbit packing, the exposure time was decreased to 94% of the baseline: 1060 s total, 530 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461619.
BOT: 26 safe, 0 unknown

5	G160M/161 1 (COS.sp.146 1621)	(3) 2DFS-999	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=77 6.0; FP-POS=ALL	720.0 Secs (2880 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]*** ***[2]***

Comments: SED PoWR_100000_5.17_m5.58_Z0.14_smcbar_ebmv_0.07_sed; includes an increase in the model flux by a factor of 3.3
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-999/2DFS-999_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2398.0478 s. See COS.sp.1461566.
No ETC Warnings
Baseline exposure time rounded to 2400 s (600 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2024.037, 496.842, 1527.195) cts/s
Brightest Pixel: 0.024 cts/s at 1420.01 A
*BUFFER-TIME = 2/3 * 1165 s = 776 s*
During orbit packing, the exposure time was increased to 120% of the baseline: 2880 s total, 720 s per FP-POS. The ETC estimates SNR=32.9 /resel at 1590 A; see COS.sp.1461621.
BOT: 26 safe, 0 unknown

Orbit Structure





Visit

Proposal 16370, AV251-COS (4C), failed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 4C; AV251;P?/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; AV251 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - AV251_DSS.png and AV251_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 22 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 4 orbits - needed to adjust exposure times and treat G130M/1096 FP-POS subexposures individually - see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 4

Diagnostics

(AV251-COS (4C)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	AV251	RA: 01 00 22.1564 (15.0923183d)		V=14.52	Reference Frame: ICRS
	Alt Name1: M2002-SMC-48672	Dec: -72 30 48.75 (-72.51354d) Equinox: J2000		SpT=O7.5 V; E(B-V)=0.09; U=13.32; B=14.34; V=14.52; F1160=3.16e-13; F1360=2.43e-13; F1700=1.49e-13	

Comments: AV251 : [M2002]-48672, [M2002]_48672, AzV 251
Previous name : [M2002]-48672
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (AzV 251): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=AzV+251&submit=submit+id
SpT = O7.5 V
COS/G130M/c1096 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1160 +- 30.0A flux=3.2e-13 Flam)
COS/G130M/c1291 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
COS/G160M/c1611 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1921 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1953 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1986 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E140M/c1425 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
STIS/E230M/c1978 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E230M/c2707 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:59:09, v0.4
---
tstatus; AV251; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; AV251, "AzV 251"
tcheck; Target info verification status?; Verified ...
SIMBAD lists the spectral type as 07 Vn (from 1982PASP...94...31C), but ULLYSES has adopted O7.5 V (from 2016ApJ...817..113L)
tcheck; Coordinates & P.M. updated?; Gaia DR2, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
A PoWR model was selected according to the nominal SpT-Teff calibration: (Teff, logg, logMdot, Z/Zsun) = (37000, 4.00, -7.13, 0.14). The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.09 (2002ApJS..141...81M). Although it provided a good baseline fit to the available IUE low dispersion spectra and UBV photometry, an improved fit to the SWP spectrum was found with a slightly reduced reddening of E(B-V) = 0.06. This value is well within the uncertainty of the photometric measurements. The adopted SED corresponds to the file PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed.fits.
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed_vs_IUE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
Category=EXT-STAR
Description=[MAIN SEQUENCE O]
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/PEAKXD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 22 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 26 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461775)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=198.0; FP-POS=3			418.0 Secs (418 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 725.4344 s. See COS.sp.1461569.
No ETC Warnings
Baseline exposure time rounded to 726 s (363 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (7910.370, 3347.276, 4563.094) cts/s
Brightest Pixel: 0.143 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 298 s = 198 s*

During orbit packing, the exposure time was increased to 112% of the baseline: 816 s total, 418 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461775 .

BOT: 22 safe, 0 unknown

4	G130M/129 (4) AV251 1-4 (COS.sp.146 1775)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=1918.0; FP-POS=4	418.0 Secs (418 Secs) *[==>]*	*[1]*

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 725.4344 s. See COS.sp.1461569.
No ETC Warnings
Baseline exposure time rounded to 726 s (363 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (7910.370, 3347.276, 4563.094) cts/s
Brightest Pixel: 0.143 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 298 s = 198 s*

During orbit packing, the exposure time was increased to 112% of the baseline: 816 s total, 418 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461775 .

BOT: 22 safe, 0 unknown

5	G160M/161 (4) AV251 1 (COS.sp.146 1776)	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=4822.0; FP-POS=ALL	363.0 Secs (1452 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]* *[2]*

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 1610.4297 s. See COS.sp.1461573.
No ETC Warnings
Baseline exposure time rounded to 1612 s (403 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (3259.606, 704.424, 2555.182) cts/s
Brightest Pixel: 0.046 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 723 s = 482 s*

During orbit packing, the exposure time was decreased to 90% of the baseline: 1452 s total, 363 s per FP-POS. The ETC estimates SNR=28.5/resel at 1590 A; see COS.sp.1461776

BOT: 22 safe, 0 unknown

6	G130M/109 (4) AV251 6-1 (COS.sp.146 1777)	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=6826.0; FP-POS=1	1312. Secs (1312 Secs) *[==>]*	*[2]*

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1312s, 1600s, 1609s, 1618s), for a total of 6139 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 93% of the baseline exposure time to be recovered. The ETC predicts SNR=19.3/resel at 1080 A in 6139 s; see COS.sp.1461777.

BOT: 22 safe, 0 unknown

7	G130M/109 (4) AV251 6-2 (COS.sp.146 1777)	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=2	1600 Secs (1600 Secs) *[==>]*	 ***[3]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1312s, 1600s, 1609s, 1618s), for a total of 6139 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 93% of the baseline exposure time to be recovered. The ETC predicts SNR=19.3/resel at 1080 A in 6139 s; see COS.sp.1461777.

BOT: 22 safe, 0 unknown

8	G130M/109 (4) AV251 6-3a (COS.sp.146 1777)	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=3	809 Secs (809 Secs) *[==>]*	 ***[3]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1312s, 1600s, 1609s, 1618s), for a total of 6139 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 93% of the baseline exposure time to be recovered. The ETC predicts SNR=19.3/resel at 1080 A in 6139 s; see COS.sp.1461777.

BOT: 22 safe, 0 unknown

9	G130M/109 (4) AV251 6-3b (COS.sp.146 1777)	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=3	800 Secs (800 Secs) *[==>]*	 ***[4]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1312s, 1600s, 1609s, 1618s), for a total of 6139 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 93% of the baseline exposure time to be recovered. The ETC predicts SNR=19.3/resel at 1080 A in 6139 s; see COS.sp.1461777.

BOT: 22 safe, 0 unknown

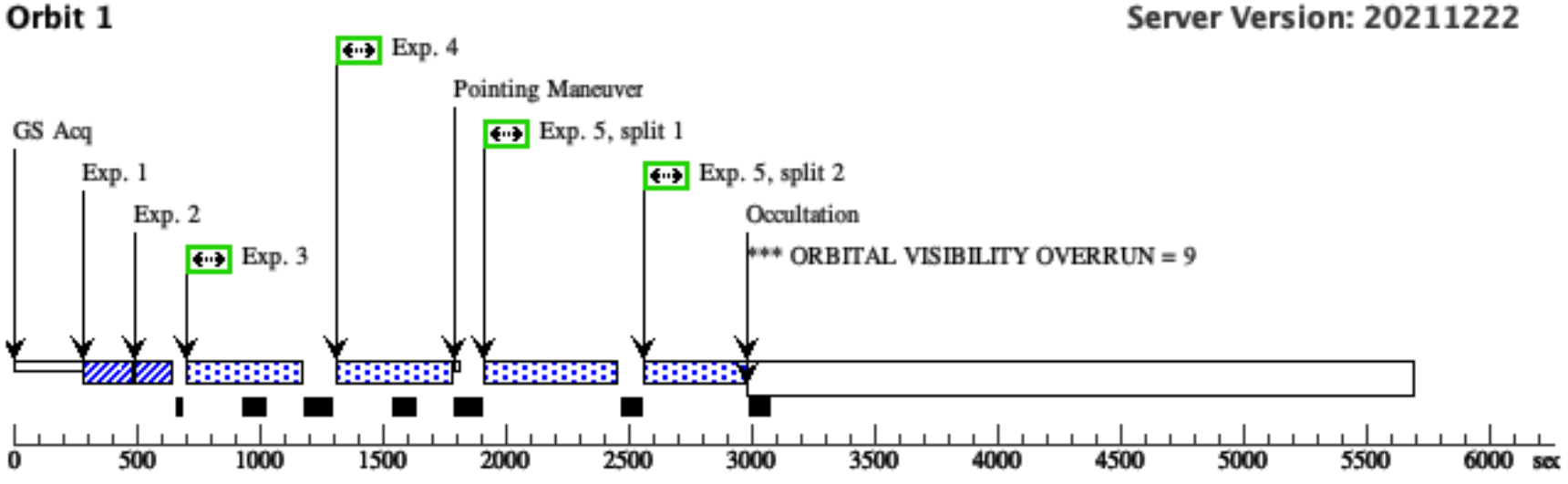
10	G130M/109 6-4 (COS.sp.146 1777)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=4	1618 Secs (1618 Secs) *[==>]*	***[4]***

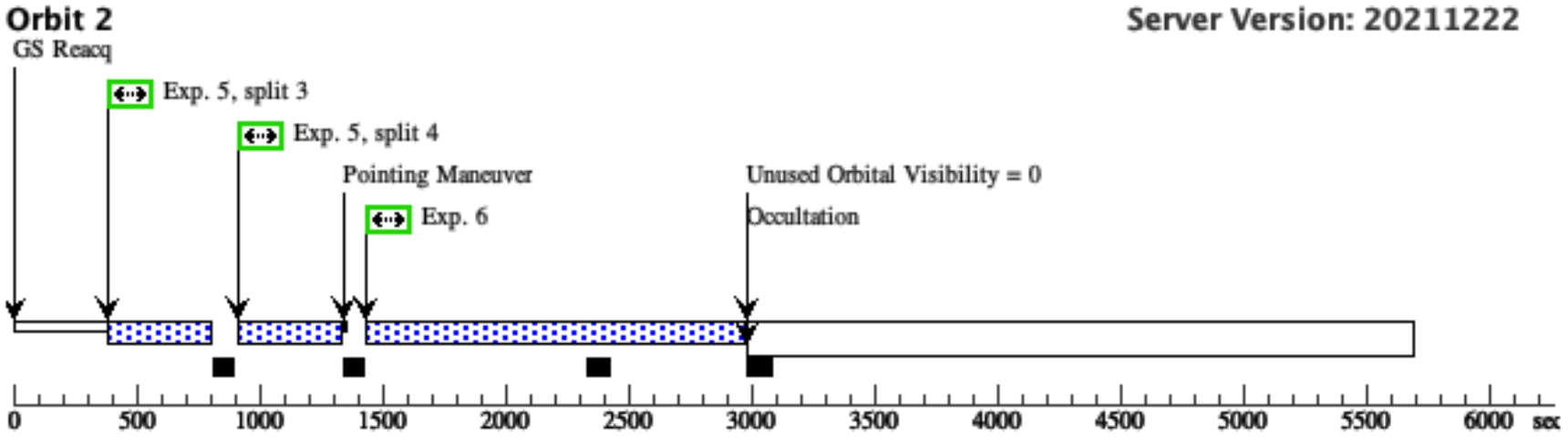
Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

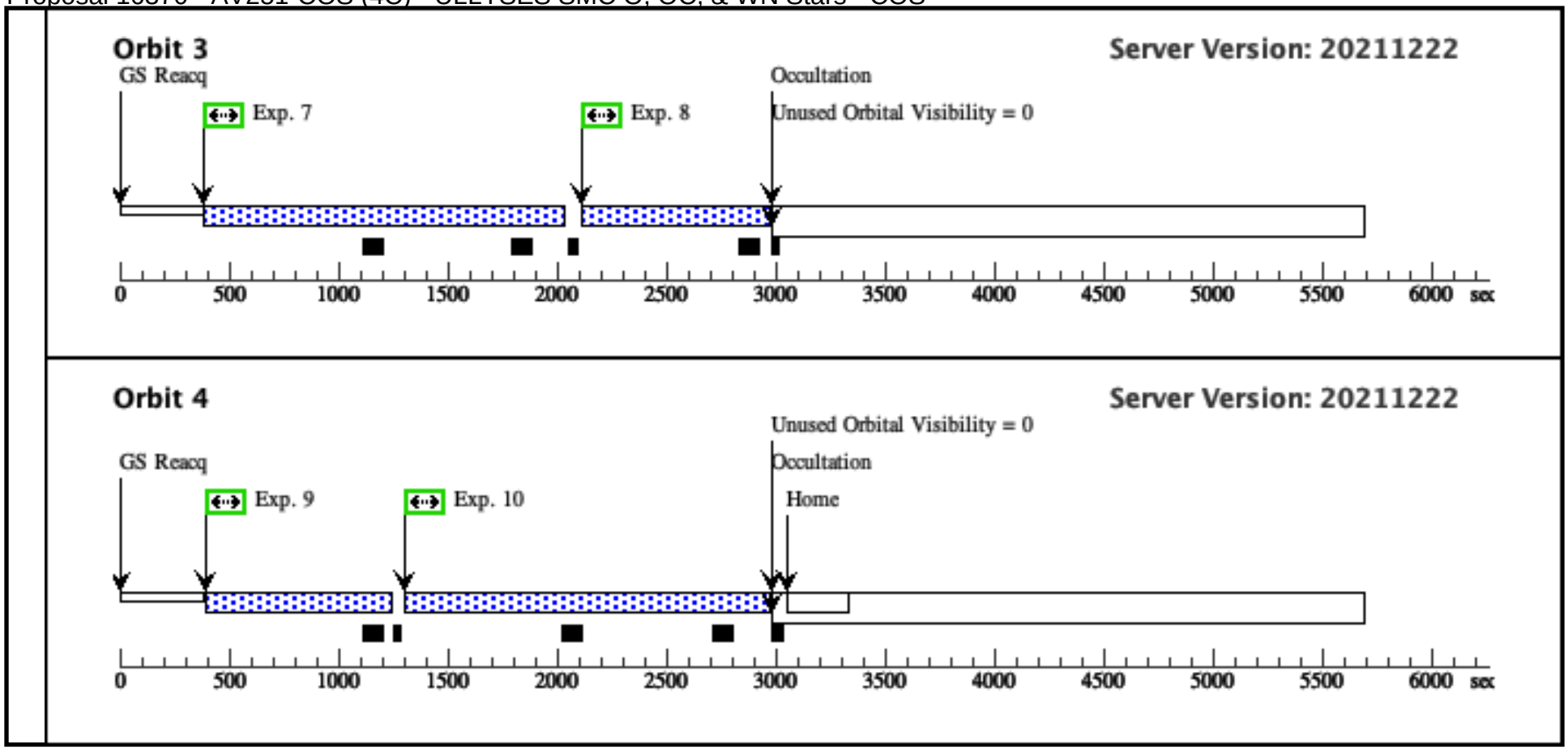
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exp osures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1312s, 1600s, 1609s, 1618s), for a total of 6139 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 93% of the baseline exposure time to be recovered. The ETC predicts SNR=19.3/resel at 1080 A in 6139 s; see COS.sp.1461777.

BOT: 22 safe, 0 unknown

Orbit Structure






Orbit 3
Server Version: 20211222
GS Reacq
Exp. 7
Exp. 8
Occultation
Unused Orbital Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 4
Server Version: 20211222
Unused Orbital Visibility = 0
GS Reacq
Exp. 9
Exp. 10
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, 2DFS-2266-Redo (AC), failed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; 2DFS-2266; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-2266 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes 2DFS-2266_DSS.png and 2DFS-2266_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 20 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed -none
vcheck; Orbit packing finalized?; 5 orbits - needed to treat G130M/1096 FP-POS subexposures individually- see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 5

Additional Notes (P/AF, 8/20/21)
1) AC is a copy of the first 3 orbits of Failed Visit 1C.
2) After further buffer-time optimization:
- the exposure times for G130M/1291 (AC.003 and AC.004) were increased from 372 s to 378 s.
- the exposure time for G130M/1096 was increased from 1146 s to 1224 s.
3) The exposure time for G130M/1096 FP-POS2 (AC.007) was increased from 2530 s to 2533 s.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2DFS-2266	RA: 01 07 14.2742 (16.8094758d)		V=15.16	Reference Frame: ICRS
	Alt Name1: M2002-SMC-65577	Dec: -72 13 47.53 (-72.22987d) Equinox: J2000		SpT=OC7 II(f); E(B-V)=0.02; U = 13.83; B=14.91; V=15.16	

Comments: 2DFS-2266 : [2dFS]-2266, [2dFS]_2266, 2dFS 2266
Previous name : [2dFS]-2266
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 2266): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+2266&submit=submit+id
SpT = OC7 II(f)
COS/G130M/c1096 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:46, v0.4
---
tstatus; 2DFS-2266; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-2266, '2dFS 2266' ...
Default name in SIMBAD is OGLE SMC-SC11 61507
tcheck; Target info verification status?; Verified
tcheck; Coordinates & P.M. updated?; Gaia DR2 coords, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
PoWR models were selected according to the nominal SpT-Teff calibration for O7 I and O7 III classifications to bracket the OC7 II(f) classification of 2dFS 2266. For both models, the flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.02 (2002ApJS..141...81M). The flux associated with both models had to be reduced substantially to match the available UBV photometry, which suggests that the star is less luminous (i.e., has a smaller radius) than modeled. A model corresponding to an O7 III star with flux reduced by a factor of 0.14 was ultimately adopted. It corresponds to the file: PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed.fits
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed_vs_UBV.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
The far-UV flux is uncertain because (a) the normalization is set by UBV photometry; and (b) the star is evidently only lightly reddened.
Category=EXT-STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAKXD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	*[1]*

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 20 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	*[1]*

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 25 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=226; FP-POS=3			378.0 Secs (378 Secs) *[==>]*	*[1]*

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Warnings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	G130M/1291-4 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=226; FP-POS=4			378.0 Secs (378 Secs) *[==>]*	*[1]*

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Warnings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

5	G160M/1611 (COS.sp.1461607)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=345; FP-POS=ALL	445 Secs (1780 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*		***[1]*** ***[2]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2011.7618 s . See COS.sp.1461396.
No ETC Warnings
Baseline exposure time rounded to 2012 s (503 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2519.869, 530.739, 1989.131) cts/s
Brightest Pixel: 0.036 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 936 s = 624 s*
During orbit packing, the exposure time was decreased to 88% of the baseline: 1780 s total, 445 s per FP-POS. The ETC estimates SNR=28.2/resel at 1590 A; see COS.sp.1461607,
BOT: 20 safe, 0 unknown

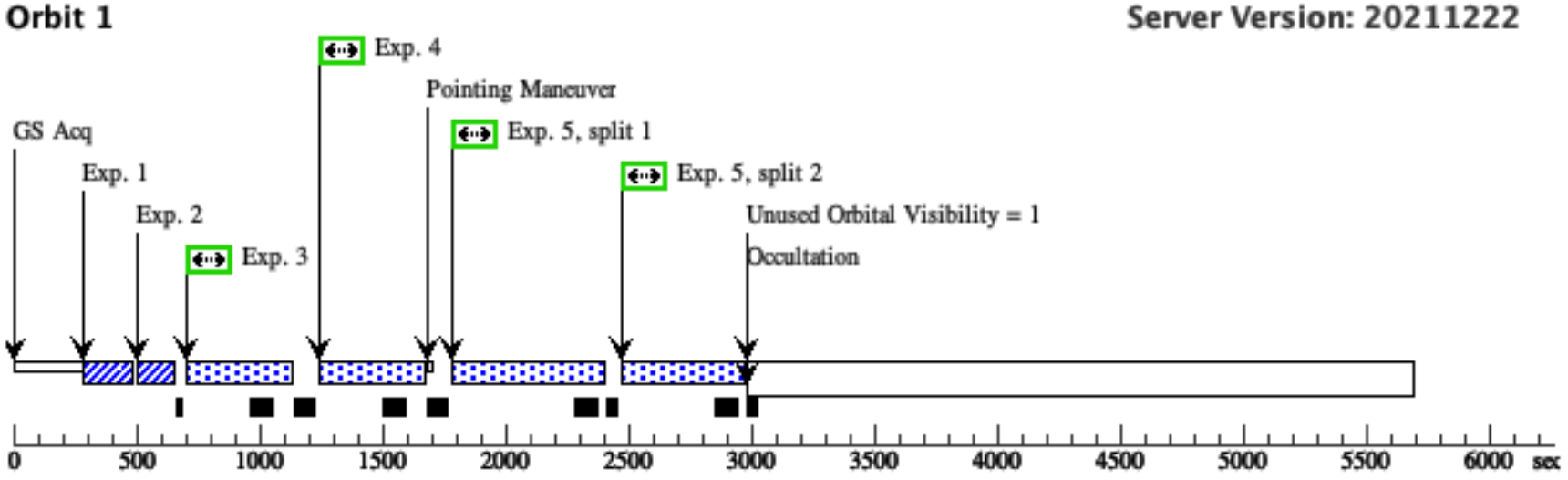
6	G130M/1096 (COS.sp.1461615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=1	1224. Secs (1224 Secs) *[==>]*		***[2]***

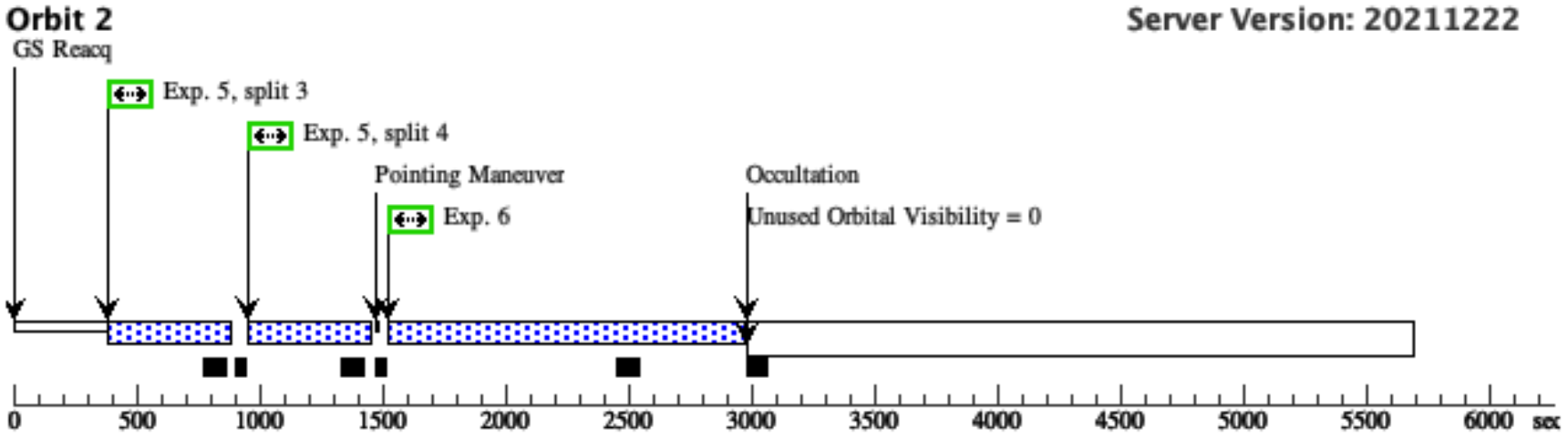
Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

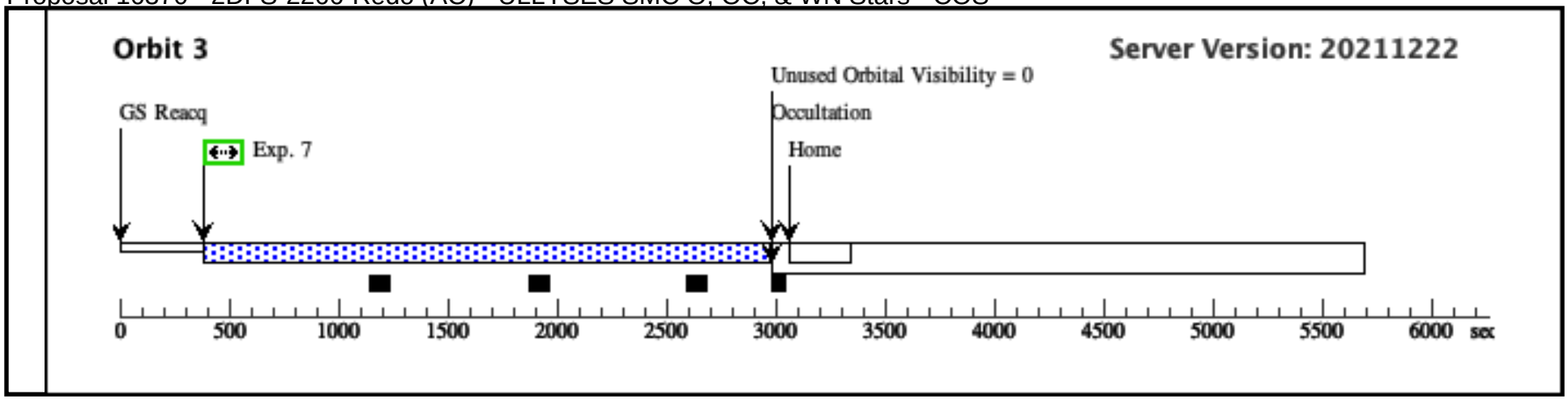
7	G130M/1096 (COS.sp.1461615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=2	2533 Secs (2533 Secs) *[==>]*		***[3]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

Orbit Structure






Orbit 3
Server Version: 20211222
Unused Orbital Visibility = 0
GS Reacq
Occultation
Exp. 7
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, 2DFS-2266-Redo (FC), completed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; 2DFS-2266; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-2266 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes 2DFS-2266_DSS.png and 2DFS-2266_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 20 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed -none
vcheck; Orbit packing finalized?; 5 orbits - needed to treat G130M/1096 FP-POS subexposures individually- see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 5

Additional Notes (P/AF, 2/9/22)
1) Visit FC is an exact copy of failed Visit AC (HOPR-92164) , which is a copy of the first 3 orbits of the partially failed Visit 1C (HOPR-92065).
2) No adjustments were made to the planning of Visit AC.
3) Allocated COS orbits for visit FC = 3

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2DFS-2266	RA: 01 07 14.2742 (16.8094758d)		V=15.16	Reference Frame: ICRS
	Alt Name1: M2002-SMC-65577	Dec: -72 13 47.53 (-72.22987d)		SpT=OC7 II(f); E(B-V)=0.02; U = 13.83; B=14.91; V=15.16	
		Equinox: J2000			

Comments: 2DFS-2266 : [2dFS]-2266, [2dFS]_2266, 2dFS 2266
Previous name : [2dFS]-2266
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 2266): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+2266&submit=submit+id
SpT = OC7 II(f)
COS/G130M/c1096 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:46, v0.4
---
tstatus; 2DFS-2266; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-2266, '2dFS 2266' ...
Default name in SIMBAD is OGLE SMC-SC11 61507
tcheck; Target info verification status?; Verified
tcheck; Coordinates & P.M. updated?; Gaia DR2 coords, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
PoWR models were selected according to the nominal SpT-Teff calibration for O7 I and O7 III classifications to bracket the OC7 II(f) classification of 2dFS 2266. For both models, the flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.02 (2002ApJS..141...81M). The flux associated with both models had to be reduced substantially to match the available UBV photometry, which suggests that the star is less luminous (i.e., has a smaller radius) than modeled. A model corresponding to an O7 III star with flux reduced by a factor of 0.14 was ultimately adopted. It corresponds to the file: PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed.fits
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed_vs_UBV.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
The far-UV flux is uncertain because (a) the normalization is set by UBV photometry; and (b) the star is evidently only lightly reddened.
Category=EXT-STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAK XD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 20 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

2	ACQ/PEAK D (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 25 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

3	G130M/1291-3 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=226; FP-POS=3			378.0 Secs (378 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Warnings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

4	G130M/1291-4 (COS.sp.1461391)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=226; FP-POS=4			378.0 Secs (378 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 742.69 s
No ETC Warnings
Baseline exposure time rounded to 744 s (372 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (6924.780, 2744.172, 4180.607) cts/s
Brightest Pixel: 0.147 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 340 s = 226 s*
BOT: 20 safe, 0 unknown

5	G160M/161 1 (COS.sp.146 1607)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=345; FP-POS=ALL	445 Secs (1780 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]*** ***[2]***	

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2011.7618 s . See COS.sp.1461396.
No ETC Warnings
Baseline exposure time rounded to 2012 s (503 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2519.869, 530.739, 1989.131) cts/s
Brightest Pixel: 0.036 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 936 s = 624 s*
During orbit packing, the exposure time was decreased to 88% of the baseline: 1780 s total, 445 s per FP-POS. The ETC estimates SNR=28.2/resel at 1590 A; see COS.sp.1461607,
BOT: 20 safe, 0 unknown

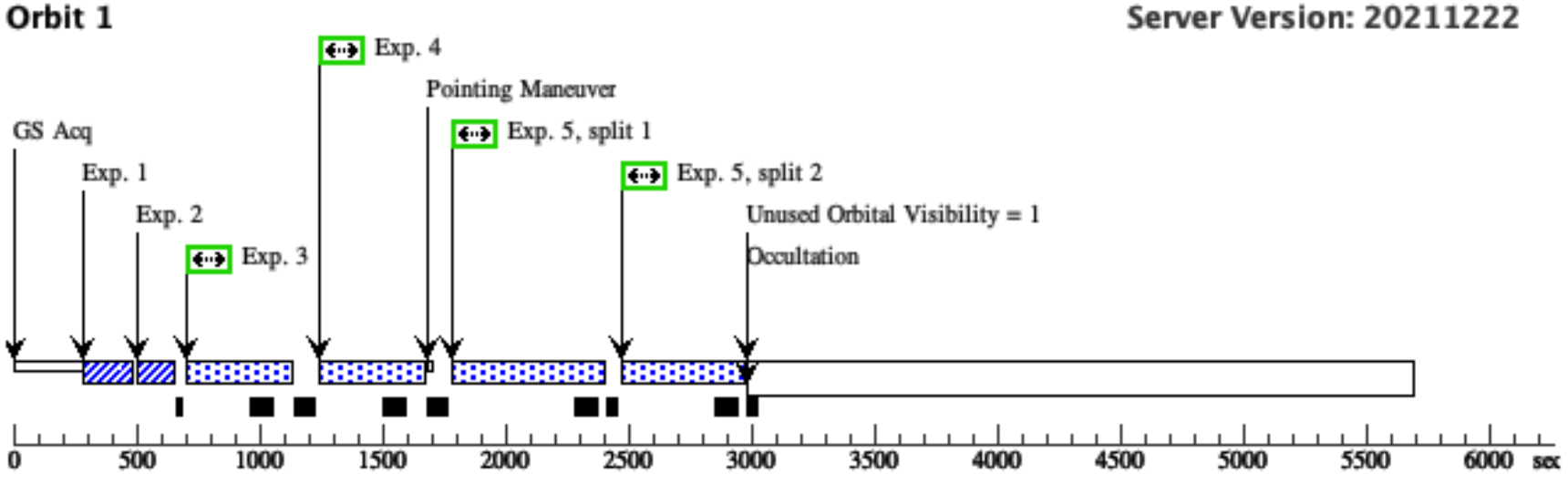
6	G130M/109 6-1 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=1	1224. Secs (1224 Secs) *[==>]*	***[2]***	

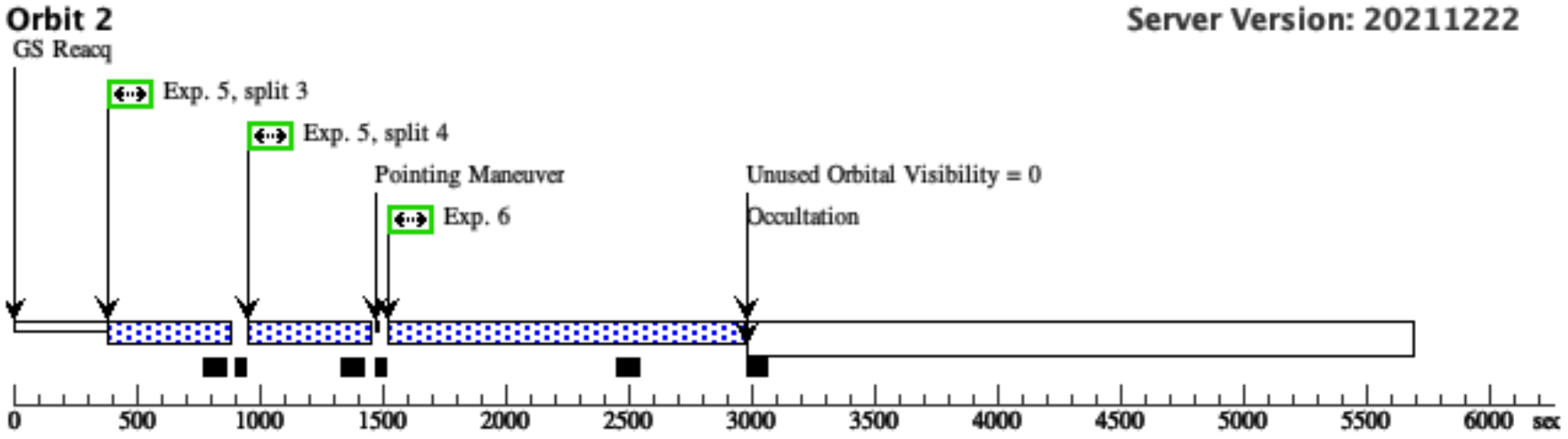
Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

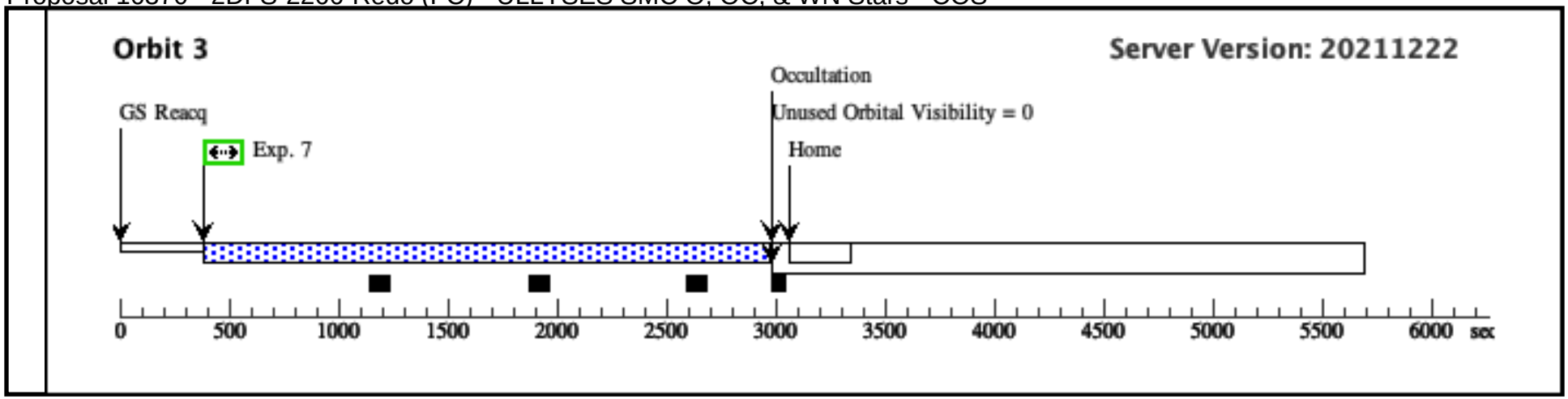
7	G130M/109 6-2 (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=722.0; FP-POS=2	2533 Secs (2533 Secs) *[==>]*	***[3]***	

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

Orbit Structure






Orbit 3
Server Version: 20211222
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 7
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, 2DFS-2266-Redo (KC) Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 1C; 2DFS-2266; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-2266 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes 2DFS-2266_DSS.png and 2DFS-2266_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 20 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed -none
vcheck; Orbit packing finalized?; 5 orbits - needed to treat G130M/1096 FP-POS subexposures individually- see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 5

Additional Notes (P/AF, 4/20/22
1) Visit KC reproduces the COS G130M/1096 exposures for FP-POS=1 and FP-POS=2 that were not obtained during Visit FC (HOPR-92204).
2) A G130M/1291 dispersed light target acquisition preceeds the exposures.
3) The total exposure time approved by the TTRB was balanced betwen the two FP-POS sub-exposures. The buffer times were adjusted to pack the orbits efficiently.
4) Allocated COS orbits for Visit KC = 2, though only ~1.75 are required to replace the exposures lost during Visit FC. Accordingly, the 2nd orbit is not filled.
3) Allocated COS orbits for visit FC = 3

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	2DFS-2266	RA: 01 07 14.2742 (16.8094758d)		V=15.16	Reference Frame: ICRS
	Alt Name1: M2002-SMC-65577	Dec: -72 13 47.53 (-72.22987d) Equinox: J2000		SpT=OC7 II(f); E(B-V)=0.02; U = 13.83; B=14.91; V=15.16	

Comments: 2DFS-2266 : [2dFS]-2266, [2dFS]_2266, 2dFS 2266
Previous name : [2dFS]-2266
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 2266): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+2266&submit=submit+id
SpT = OC7 II(f)
COS/G130M/c1096 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7.5 I, Z=0.004, Teff=37154, log_lum=5.97, log_g=3.40) (extinction smcbar=0.020), johnson B mag=14.990 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:46, v0.4
---
tstatus; 2DFS-2266; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-2266, '2dFS 2266' ...
Default name in SIMBAD is OGLE SMC-SC11 61507
tcheck; Target info verification status?; Verified
tcheck; Coordinates & P.M. updated?; Gaia DR2 coords, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
PoWR models were selected according to the nominal SpT-Teff calibration for O7 I and O7 III classifications to bracket the OC7 II(f) classification of 2dFS 2266. For both models, the flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.02 (2002ApJS..141...81M). The flux associated with both models had to be reduced substantially to match the available UBV photometry, which suggests that the star is less luminous (i.e., has a smaller radius) than modeled. A model corresponding to an O7 III star with flux reduced by a factor of 0.14 was ultimately adopted. It corresponds to the file: PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed.fits
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed_vs_UBV.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
The far-UV flux is uncertain because (a) the normalization is set by UBV photometry; and (b) the star is evidently only lightly reddened.
Category=EXT-STAR
Description=[SUPERGIANT O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAKXD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 20 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461402)	(1) 2DFS-2266	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.5 Secs (0.5 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR = 40 is obtained for Segments A and B combined in 0.3004 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.5 s

BOT: 25 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1096-1 (COS.sp.1461615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=5960.; FP-POS=1			1880. Secs (1880 Secs) *[==>]*	***[1]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically shortened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

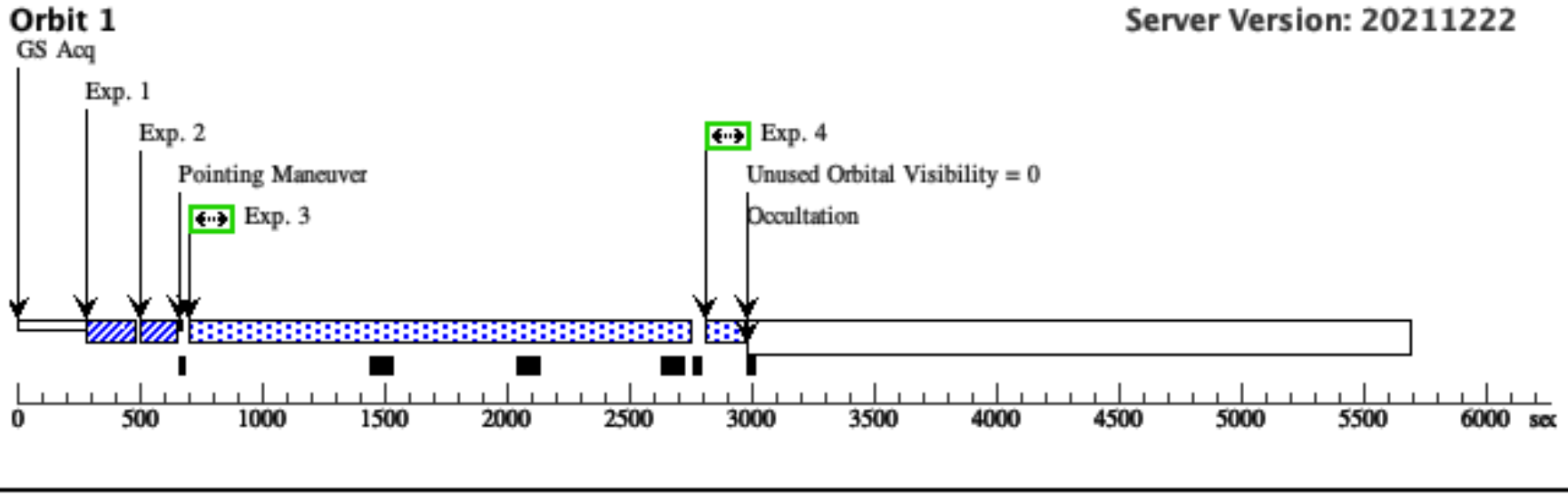
4	G130M/109 6-2a (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=72 2.0; FP-POS=2	105. Secs (105 Secs) *[==>]*	***[1]***

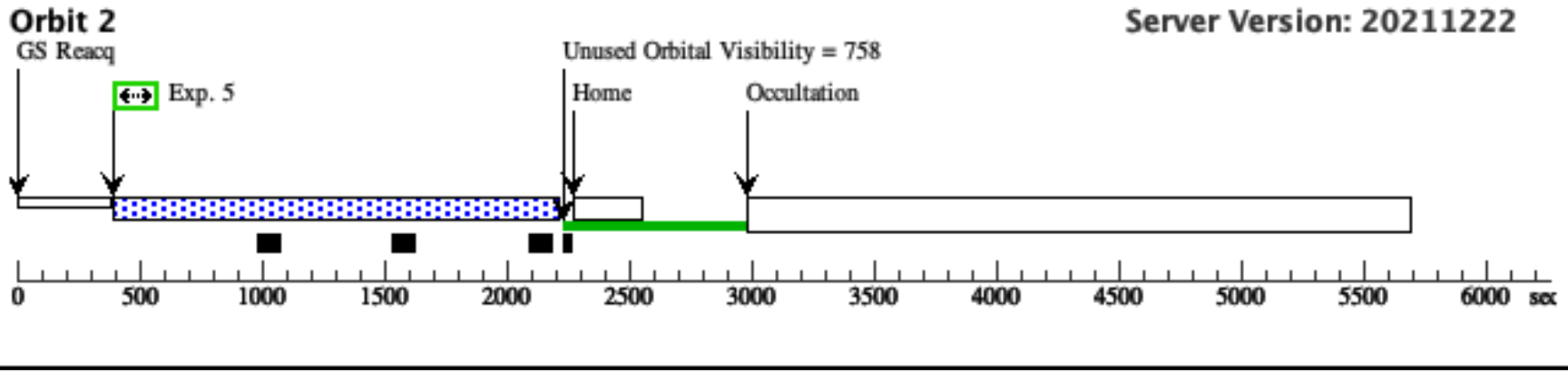
Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

5	G130M/109 6-2b (COS.sp.146 1615)	(1) 2DFS-2266	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=55 5.0; FP-POS=2	1775. Secs (1775 Secs) *[==>]*	***[2]***

Comments: SED PoWR_36000_3.60_m6.76_Z0.14_smcbar_ebmv_0.02_sed; includes a reduction in the model flux by a factor of 0.14.
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-2266/2DFS-2266_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6332.0157 s. See COS.sp.1461394.
No ETC Warnings
Baseline exposure time rounded to 6332 s (1583 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2174.918, 2093.958, 80.960) cts/s
Brightest Pixel: 0.068 cts/s at 1216.20 A
*BUFFER-TIME = 2/3 * 1084 s = 722 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure. In particular, the integration time for FP-POS1 had to be drastically short ened in order to fit it into a fraction of the available visibility period. The resultant exposure times were: (POS1, POS2, POS3, POS4) = (1146s, 2530s, 2530s, 2530s), for a total of 8736 s. Although the "unbalancing" of the sub-exposure times is not optimal, the net exposure time is 138% of the baseline exposure time. The ETC predicts SNR=23.5 at 1080 A in 8736 s; see COS.sp.1461615.
BOT: 20 safe, 0 unknown

Orbit Structure





Visit

Proposal 16370, 2DFS-3954-Redo (BC), completed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 2C; 2DFS-3954; P/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; 2DFS-3954 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - 2DFS-3954_DSS.png and 2DFS_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 13 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 4 orbits - needed to reduce exposure times and treat G130M/1096 FP-POS subexposures individually - see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 4

Additional Notes (P/AF, 8/20/21)
1) BC is a repeat of orbits 2, 3, and 4 of of Failed Visit 2C. Some tinkering was required to insert a target acquisition into the plan.
2) The dispersed light TA was changed from G130M/1291 to G160M/1611. The exposure times for this configuration were recalcuated, and changed from 0.4s to 0.7 s (rounded to 1 s). The ETC calculation ID was updated for both ACQ exposures (BC.001 and BC.002).
3) The buffer times for FP-POS3 and 4 with G160M/1611 (exposures BC.003 and BC.004) was optimized by reducing it from 645s to 350 s.
4) To avoid having a very unbalanced distribution of exposure across the 4 FP-POS of the G130M/1096 configuration, the next exposure was re-distributed across sub-exposures and buffer times were re-optimized to yield a net exposure time of 5594 s distributed as (1399 s, 1399 s, 1398 s, 1398 s) for the 4 FP-POS. ETC calculation COS.sp.1533467 predicts predicts SNR = 18.2 /resel at 1080 A in 5594 s.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	2DFS-3954	RA: 01 30 43.1080 (22.6796167d)		V=15.27	Reference Frame: ICRS
	Alt Name1: M2002-SMC-83639	Dec: -73 25 4.14 (-73.41782d) Equinox: J2000		SpT=O6 V((f))z; E(B-V)=0.02; U=13.93; B=15.01; V=15.27	

Comments: 2DFS-3954 : [2dFS]-3954, [2dFS]_3954, 2dFS 3954
Previous name : [2dFS]-3954
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (2dFS 3954): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=2dFS+3954&submit=submit+id
SpT = O6 V((f))z
COS/G130M/c1096 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G130M/c1291 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G160M/c1611 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1921 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1953 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
COS/G185M/c1986 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E140M/c1425 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E230M/c1978 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
STIS/E230M/c2707 : rn(WM-Basic(O7 V, Z=0.004, Teff=39811, log_lum=5.42, log_g=4.00) (extinction smcbar=0.020), johnson U mag=13.930 vegamag)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:57:32, v0.4
---
tstatus; 2DFS-3954; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; 2DFS-3954; "2dFS 3954"
tcheck; Target info verification status?; Verified ...
SIMBAD lists the spectral type as 07 V (from 2004MNRAS.353..601E), but ULLYSES has adopted O6 V((f))z (from 2019A&A...625A.104R)
tcheck; Coordinates & P.M. updated?; Gaia DR2, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
A PoWR model was selected according to the nominal SpT-Teff calibration: (Teff, logg, logMdot, Z/Zsun) = (37000, 4.00, -7.13, 0.14). The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.03 (2002ApJS..141...81M). A good match to the observed IUE/SWP and IUE/LWP fluxes and UBV photometry required a reduction in the overall flux level by a factor of 0.5. An equally good match was obtained by using a model with a slightly larger logg of 4.20. Since this model is for a more compact object, its flux only required reduction by a factor of 0.9 to achieve the match. The adopted SED corresponds to the file: PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits. The parameters of this model agree closely with those determined by Ramachandran et al. (2019A&A...625A.104R).
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed_vs_IUE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fits
Category=EXT-STAR
Description=[MAIN SEQUENCE O, OF]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/PEAKXD (COS.sa.1533463)	(2) 2DFS-3954	COS/FUV, ACQ/PEAKXD, PSA	G160M 1611 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			1.0 Secs (1 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.3096 s per dwell point.
No ETC Warnings.
Exposure time per dwell point rounded up to 0.4 s

BOT: 13 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1533463)	(2) 2DFS-3954	COS/FUV, ACQ/PEAKD, PSA	G160M 1611 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			1.0 Secs (1 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.3096 s per dwell point.
No ETC Warnings.
Exposure time per dwell point rounded up to 0.4 s

BOT: 16 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G160M/1611 (COS.sp.1461766)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=350; FP-POS=3			450.0 Secs (450 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2243.3420 s. See COS.sp.1461561
No ETC Warnings
Baseline exposure time rounded to 2244 s (561 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2435.193, 506.571, 1928.622) cts/s
Brightest Pixel: 0.035 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 968 s = 645 s*
During orbit packing, the exposure time was decreased to 80% of the baseline value: 1800 s total, 450 s per FP-POS. The ETC estimates SNR=26.9/resel at 1590 A; see COS.sp.1461766
BOT: 13 safe, 0 unknown

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
4	G160M/1611 (COS.sp.1461766)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=350; FP-POS=4			450.0 Secs (450 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 2243.3420 s. See COS.sp.1461561
No ETC Warnings
Baseline exposure time rounded to 2244 s (561 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2435.193, 506.571, 1928.622) cts/s
Brightest Pixel: 0.035 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 968 s = 645 s*
During orbit packing, the exposure time was decreased to 80% of the baseline value: 1800 s total, 450 s per FP-POS. The ETC estimates SNR=26.9/resel at 1590 A; see COS.sp.1461766
BOT: 13 safe, 0 unknown

5	G130M/109 6-1a (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=648; FP-POS=1	901 Secs (901 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

BOT: 13 safe, 0 unknown

6	G130M/109 6-1b (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=389; FP-POS=1	498 Secs (498 Secs) *[==>]*	***[2]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

BOT: 13 safe, 0 unknown

7	G130M/109 6-2 (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=640; FP-POS=2	1399 Secs (1399 Secs) *[==>]*	***[2]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

BOT: 13 safe, 0 unknown

8	G130M/109 6-3a (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=3	397 Secs (397 Secs)		
						[==>]		***[2]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

BOT: 13 safe, 0 unknown

9	G130M/109 6-3b (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=71 5.; FP-POS=3	1001 Secs (1001 Secs)		
						[==>]		***[3]***

Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

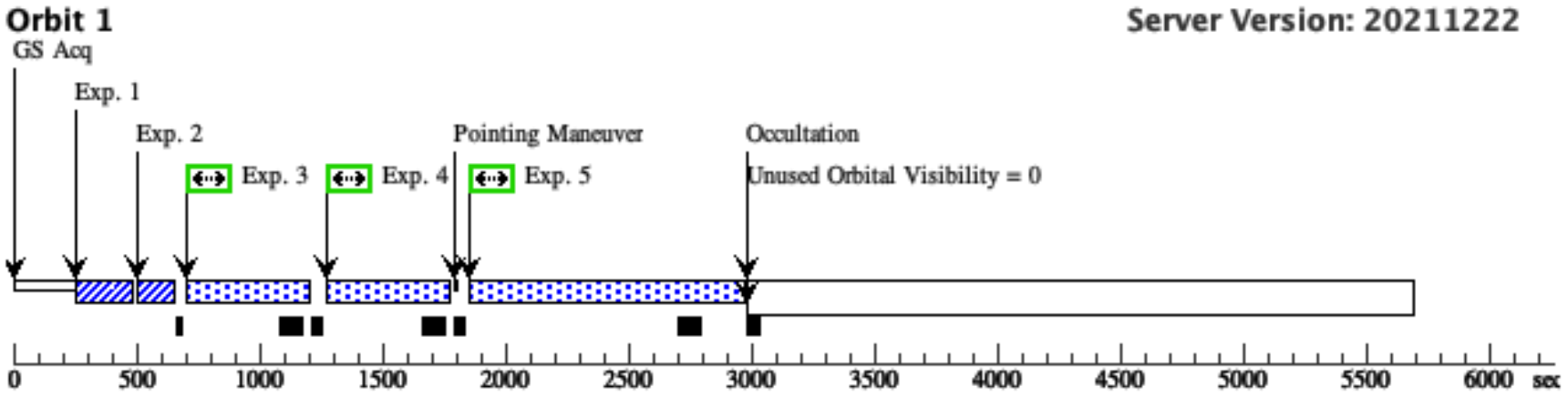
BOT: 13 safe, 0 unknown

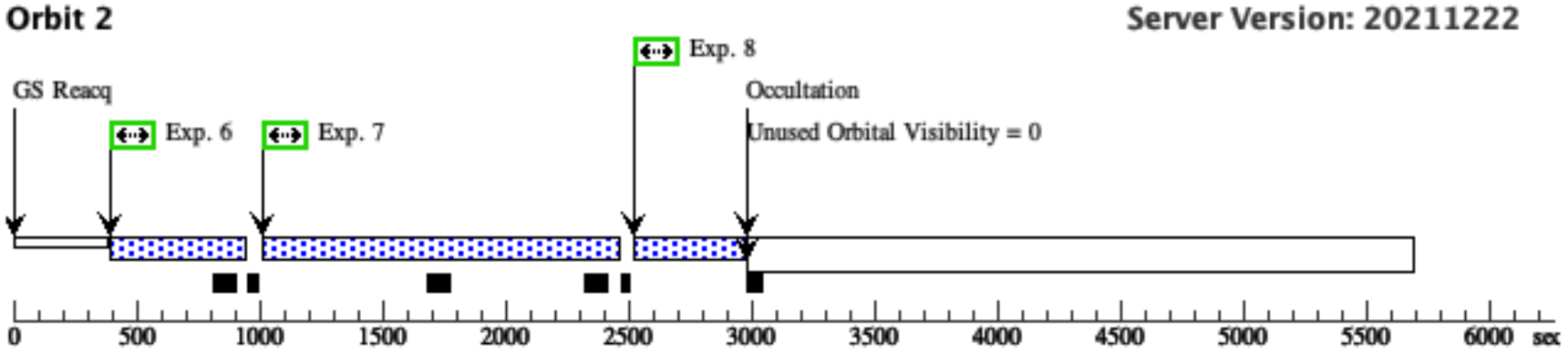
10	G130M/109 6-4 (COS.sp.153 3467)	(2) 2DFS-3954	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=75 8.0; FP-POS=4	1398 Secs (1398 Secs)		
						[==>]		***[3]***

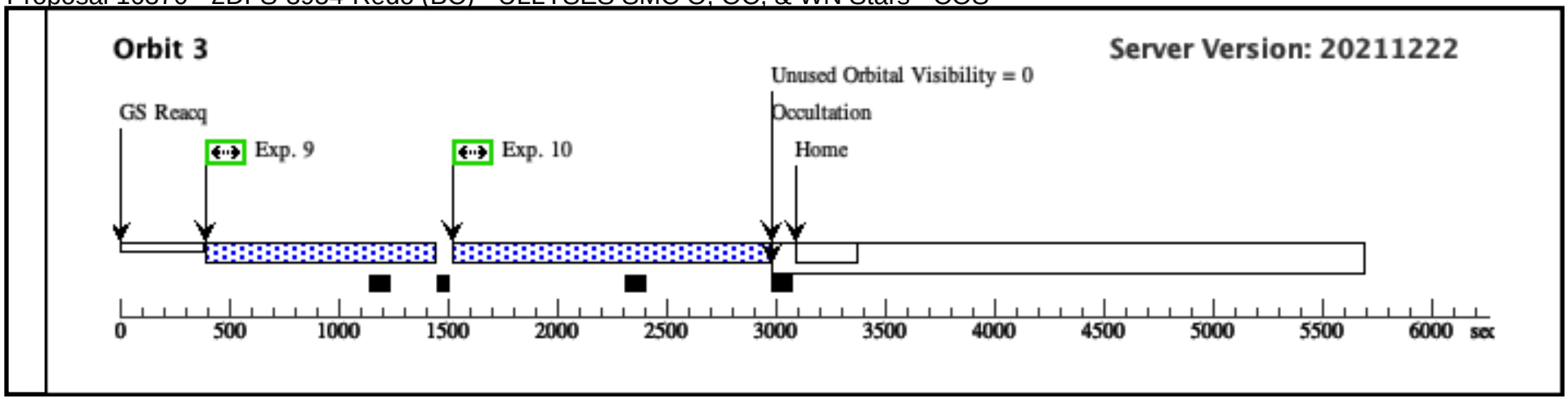
Comments: SED PoWR_37000_4.20_m7.26_Z0.14_smcbar_ebmv_0.03_sed.fits; includes a reduction in the model flux by a factor of 0.9
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/2DFS-3954/2DFS-3954_adopted_sed.fit
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6601.7100 s. See COS.sp.1461562
No ETC Warnings
Baseline exposure time rounded to 6604 s (1651 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2073.544, 1995.702, 77.842) cts/s
Brightest Pixel: 0.065 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1137 s = 758 s*
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integrations at POS1 and POS3 were further sub-divided into two separate exposures to achieve optimal packing. Buffer times were individually optimized for each exposure. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1399s, 1399s, 1398s, 1398s), for a t total of 5594 s. Thus, 85% of the baseline exposure time is recovered. The ETC predicts SNR = 18.2 /resel at 1080 A in 5594 s; see COS.sp.1533467.

BOT: 13 safe, 0 unknown

Orbit Structure






Orbit 3
Server Version: 20211222
Unused Orbital Visibility = 0
GS Reacq
Occultation
Exp. 9
Exp. 10
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, AV251-Redo (DC), failed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 4C; AV251;P?/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; AV251 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - AV251_DSS.png and AV251_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 22 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 4 orbits - needed to adjust exposure times and treat G130M/1096 FP-POS subexposures individually - see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 4

Additional Notes (P/AF, 8/20/21)
1) DC is a repeat of all 4 orbits of of Failed Visit 4C. Some tinkering was required to accommodate current constraints.
2) The exposure times for G130M/1291 (AC.003 and AC.004) were decreased to 370s, which is closer to the baseline (363 s per FP-POS). The buffer times were re-optimized.
3) The 4 FP-split exposures G160M/1611 were separated. The baseline total exposure time of 1612 s was modestly exceeded by unbalancing the individual exposure times to be (440s, 440s, 380s, 380s). The buffer times were re-optimized.
4) The exposure time for FP-POS1 of G130M/1096 (AC.006) was increased from 1312s to 1334 s to balance the exposure time across the 4 FP-POS a little better.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	AV251	RA: 01 00 22.1564 (15.0923183d)		V=14.52	Reference Frame: ICRS
	Alt Name1: M2002-SMC-48672	Dec: -72 30 48.75 (-72.51354d) Equinox: J2000		SpT=O7.5 V; E(B-V)=0.09; U=13.32; B=14.34; V=14.52; F1160=3.16e-13; F1360=2.43e-13; F1700=1.49e-13	

Comments: AV251 : [M2002]-48672, [M2002]_48672, AzV 251
Previous name : [M2002]-48672
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (AzV 251): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=AzV+251&submit=submit+id
SpT = O7.5 V
COS/G130M/c1096 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1160 +- 30.0A flux=3.2e-13 Flam)
COS/G130M/c1291 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
COS/G160M/c1611 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1921 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1953 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1986 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E140M/c1425 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
STIS/E230M/c1978 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E230M/c2707 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:59:09, v0.4
---
tstatus; AV251; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; AV251, "AzV 251"
tcheck; Target info verification status?; Verified ...
SIMBAD lists the spectral type as 07 Vn (from 1982PASP...94...31C), but ULLYSES has adopted O7.5 V (from 2016ApJ...817..113L)
tcheck; Coordinates & P.M. updated?; Gaia DR2, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
A PoWR model was selected according to the nominal SpT-Teff calibration: (Teff, logg, logMdot, Z/Zsun) = (37000, 4.00, -7.13, 0.14). The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.09 (2002ApJS..141...81M). Although it provided a good baseline fit to the available IUE low dispersion spectra and UBV photometry, an improved fit to the SWP spectrum was found with a slightly reduced reddening of E(B-V) = 0.06. This value is well within the uncertainty of the photometric measurements. The adopted SED corresponds to the file PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed.fits.
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed_vs_IUE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
Category=EXT-STAR
Description=[MAIN SEQUENCE O]
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/PEAKXD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 22 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 26 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1291-3 (COS.sp.1461775)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=135; FP-POS=3			370 Secs (370 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 725.4344 s. See COS.sp.1461569.
No ETC Warnings
Baseline exposure time rounded to 726 s (363 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (7910.370, 3347.276, 4563.094) cts/s
Brightest Pixel: 0.143 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 298 s = 198 s*

During orbit packing, the exposure time was increased to 112% of the baseline: 816 s total, 418 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461775 .

BOT: 22 safe, 0 unknown

4	G130M/129 (4) AV251 1-4 (COS.sp.146 1775)	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=135; FP-POS=4	370 Secs (370 Secs) *[==>]*		***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1150 +/- 0.5 A in 725.4344 s. See COS.sp.1461569.
No ETC Warnings
Baseline exposure time rounded to 726 s (363 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (7910.370, 3347.276, 4563.094) cts/s
Brightest Pixel: 0.143 cts/s at 1216.22 A
*BUFFER-TIME = 2/3 * 298 s = 198 s*

During orbit packing, the exposure time was increased to 112% of the baseline: 816 s total, 418 s per FP-POS. The ETC estimates SNR=29.2/resel at 1150 A; see COS.sp.1461775 .

BOT: 22 safe, 0 unknown

5	G160M/161 (4) AV251 1-1 (COS.sp.146 1573)	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=280; FP-POS=1	440 Secs (440 Secs) *[==>]*		***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 1610.4297 s. See COS.sp.1461573.
No ETC Warnings
Baseline exposure time rounded to 1612 s (403 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (3259.606, 704.424, 2555.182) cts/s
Brightest Pixel: 0.046 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 723 s = 482 s*

For efficient orbit-packing, the 4 FP-split exposures G160M/1611 were separated to allow individualized times of (440s, 440s, 380s, 380s). The buffer times were re-optimized. This strategy recovered 102% of the ba seline exposure time.

BOT: 22 safe, 0 unknown

6	G160M/161 (4) AV251 1-2 (COS.sp.146 1573)	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=280; FP-POS=2	440 Secs (440 Secs) *[==>]*		***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 1610.4297 s. See COS.sp.1461573.
No ETC Warnings
Baseline exposure time rounded to 1612 s (403 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (3259.606, 704.424, 2555.182) cts/s
Brightest Pixel: 0.046 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 723 s = 482 s*

For efficient orbit-packing, the 4 FP-split exposures G160M/1611 were separated to allow individualized times of (440s, 440s, 380s, 380s). The buffer times were re-optimized. This strategy recovered 102% of the ba seline exposure time.

BOT: 22 safe, 0 unknown

7	G160M/161 (4) AV251 1-3 (COS.sp.146 1573)	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=280; FP-POS=3	380 Secs (380 Secs) *[==>]*	***[2]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 1610.4297 s. See COS.sp.1461573.
No ETC Warnings
Baseline exposure time rounded to 1612 s (403 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (3259.606, 704.424, 2555.182) cts/s
Brightest Pixel: 0.046 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 723 s = 482 s*

For efficient orbit-packing, the 4 FP-split exposures G160M/1611 were separated to allow individualized times of (440s, 440s, 380s, 380s). The buffer times were re-optimized. This strategy recovered 102% of the baseline exposure time.

BOT: 22 safe, 0 unknown

8	G160M/161 (4) AV251 1-4 (COS.sp.146 1573)	COS/FUV, TIME-TAG, PSA	G160M 1611 A	BUFFER-TIME=280; FP-POS=4	380 Secs (380 Secs) *[==>]*	***[2]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=30/resel is obtained at 1590 +/- 0.5 A in 1610.4297 s. See COS.sp.1461573.
No ETC Warnings
Baseline exposure time rounded to 1612 s (403 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (3259.606, 704.424, 2555.182) cts/s
Brightest Pixel: 0.046 cts/s at 1421.79 A
*BUFFER-TIME = 2/3 * 723 s = 482 s*

For efficient orbit-packing, the 4 FP-split exposures G160M/1611 were separated to allow individualized times of (440s, 440s, 380s, 380s). The buffer times were re-optimized. This strategy recovered 102% of the baseline exposure time.

BOT: 22 safe, 0 unknown

9	G130M/109 (4) AV251 6-1 (COS.sp.153 3473)	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=686.0; FP-POS=1	1334 Secs (1334 Secs) *[==>]*	***[2]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

10	G130M/109 6-2 (COS.sp.153 3473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=2	1600 Secs (1600 Secs) *[==>]*	***[3]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

11	G130M/109 6-3a (COS.sp.153 3473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=3	809 Secs (809 Secs) *[==>]*	***[3]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

12	G130M/109 6-3b (COS.sp.153 3473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=3	800 Secs (800 Secs) *[==>]*	***[4]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed
~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

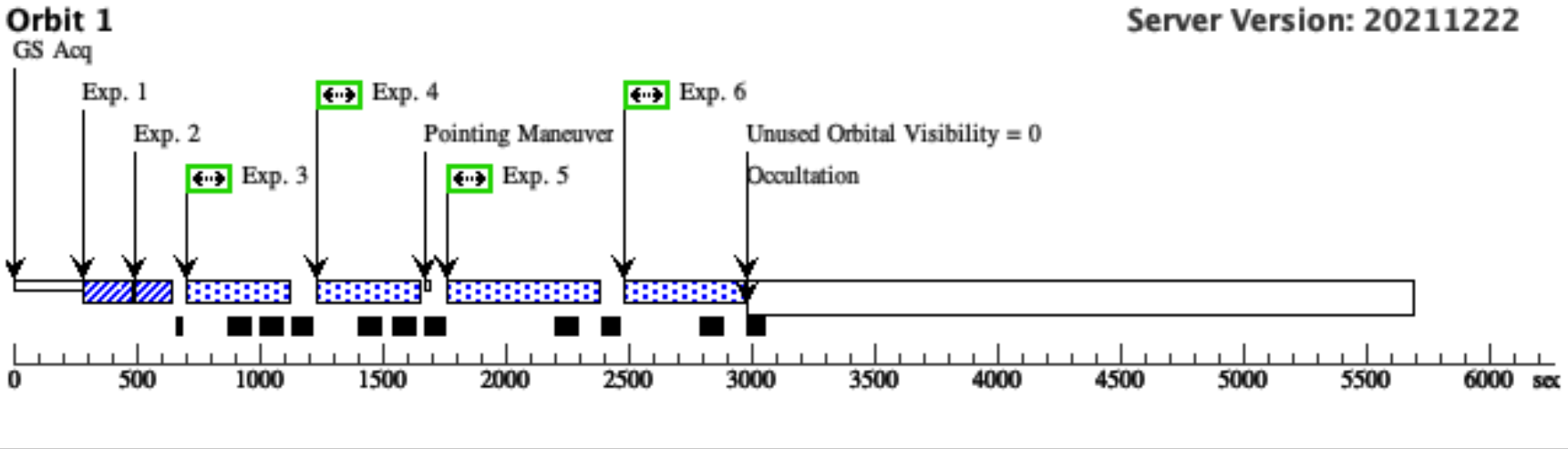
13	G130M/109 6-4 (COS.sp.153 3473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=4	1618 Secs (1618 Secs) *[==>]*	 ***[4]***

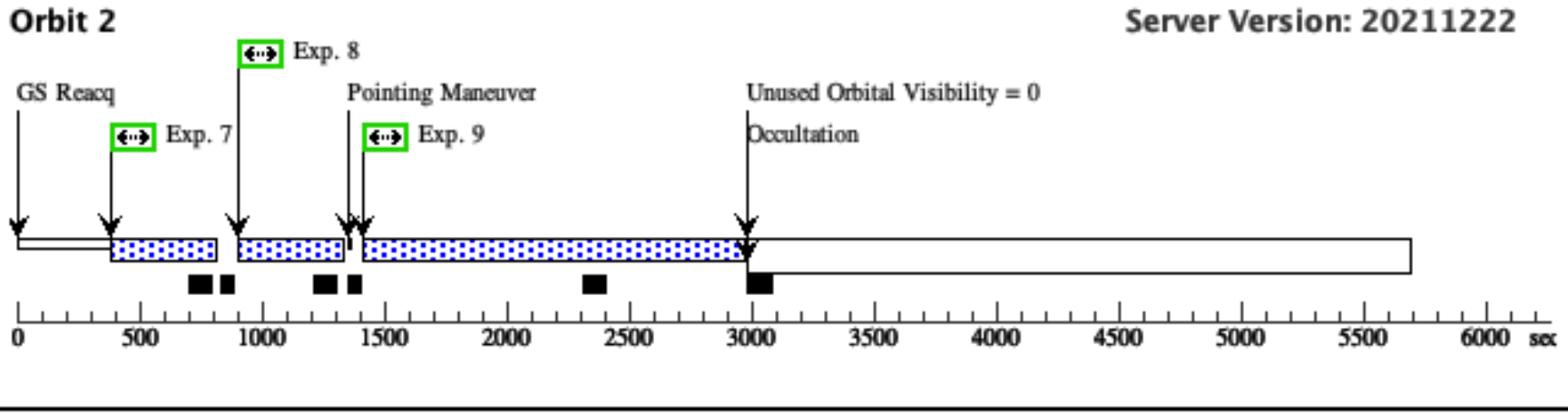
Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

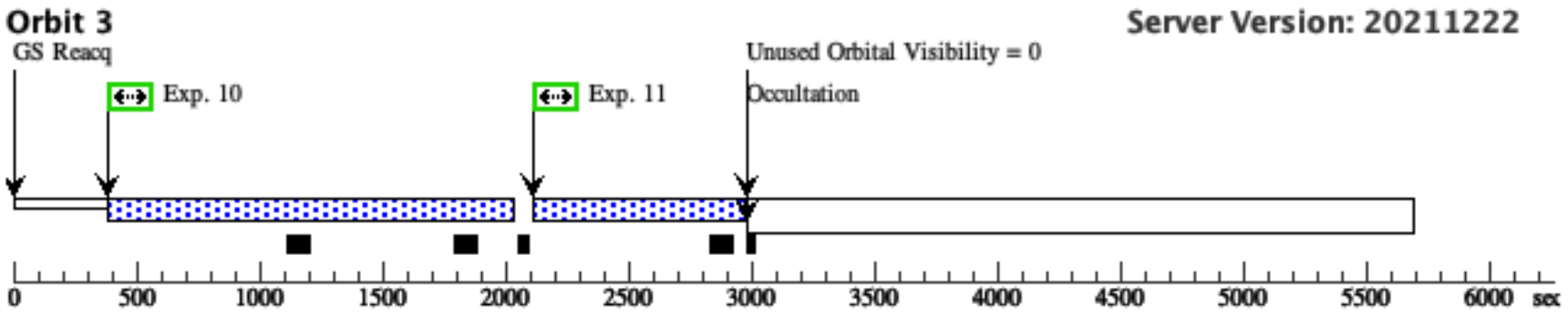
For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exp osures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

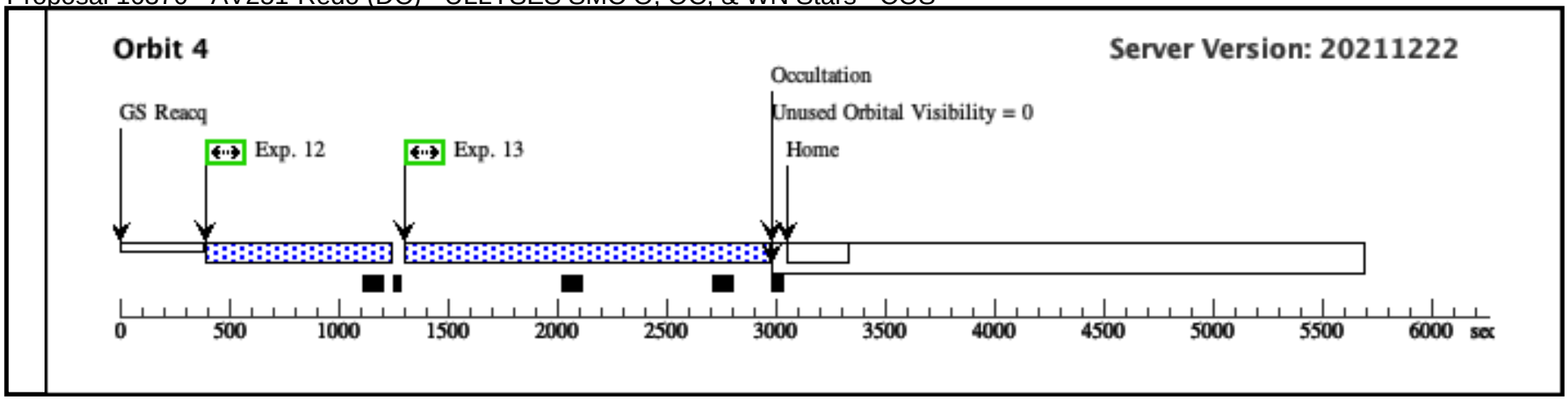
BOT: 22 safe, 0 unknown

Orbit Structure








Orbit 4
Server Version: 20211222
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 12
Exp. 13
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16370, AV251-Redo (IC), completed Thu Apr 21 13:00:39 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: SCHED 100%

Comments: vstatus; 4C; AV251;P?/COS approved for submission; P/AF 20/08/20 ; intrev: complete ; P/RS 23/10/20
vcheck; Enter targ name & Inst. & Resp. Sci.; AV251 ; COS ; AF
vcheck; ETC numbers entered in APT?; Completed
vcheck; Any screening violations?; None
vcheck; S/N ETC calcs done & documented?; N/A
vcheck; Field images checked & saved?; Yes - AV251_DSS.png and AV251_2MASS.png
vcheck; Selected ACQ strategy?; Dispersed G130M/1291
vcheck; Possible ACQ or Sci spoilers?; None
vcheck; Field BOT clear?; Yes - 22 safe, 0 unknown
vcheck; Visual BOT check for stars not in catalog?; Completed - none
vcheck; Orbit packing finalized?; 4 orbits - needed to adjust exposure times and treat G130M/1096 FP-POS subexposures individually - see notes
vcheck; Buffer times optimized?; Done
vcheck; Verify visit grouping correct; Not applicable
vcheck; Is visit ready for int. review?; Yes
Allocated COS orbits = 4

Additional Notes (P/AF, 9/2/22)
1) Visit IC is a repeat of the 4th and final orbit of partially failed Visit DC (HOPR-92163), which is a repeat of the failed visit 4C (HOPR-92067).
2) For Visit DC, the 4th orbit was planned to obtain supplemental integration time at G130M/1096 FP-POS=3 (800 s) and G130M/1096 FP-POS = 4 (1618 s).
3) To allow for G130M/1291 dispersed light TA, the exposure times were adjusted as follows: FP-POS=3 (591 s) and FP-POS=4 (1396 s). The buffer time for the first exposure was reset to 491s.
4) As a result, the 4 sub-exposures for the G130M/1096 spectrum are slightly unbalanced: (1312 s, 1600s, 1400s, 1396s).
5) The SNR of the COS/G130M spectrum at the fiducial wavelength of 1070 Angstroms is predicted to be 15.8 per resel.
6) Allocated COS orbits for Visit IC = 1

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	AV251	RA: 01 00 22.1564 (15.0923183d)		V=14.52	Reference Frame: ICRS
	Alt Name1: M2002-SMC-48672	Dec: -72 30 48.75 (-72.51354d) Equinox: J2000		SpT=O7.5 V; E(B-V)=0.09; U=13.32; B=14.34; V=14.52; F1160=3.16e-13; F1360=2.43e-13; F1700=1.49e-13	

Comments: AV251 : [M2002]-48672, [M2002]_48672, AzV 251
Previous name : [M2002]-48672
Input file: SMC_2020Feb20/input/SMC_all_do1_NewCoords_pids.csv
SIMBAD link (AzV 251): https://simbad.u-strasbg.fr/simbad/sim-id?Ident=AzV+251&submit=submit+id
SpT = O7.5 V
COS/G130M/c1096 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1160 +- 30.0A flux=3.2e-13 Flam)
COS/G130M/c1291 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
COS/G160M/c1611 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1921 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1953 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
COS/G185M/c1986 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E140M/c1425 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1360 +- 30.0A flux=2.4e-13 Flam)
STIS/E230M/c1978 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
STIS/E230M/c2707 : rn-max(WM-Basic(O7.5 V, Z=0.004, Teff=37154, log_lum=5.30, log_g=4.00) (extinction smcbar=0.090), flux1700 +- 5.0A flux=1.5e-13 Flam)
Coordinate pedigree: Gaia
Calculation performed 2020-02-24T17:59:09, v0.4
---
tstatus; AV251; P/COS approved for submission; S/ins not started; P/AF 20/08/20; S/xx DD/MM/YY
tcheck; APT/SIMBAD target names: ; AV251, "AzV 251"
tcheck; Target info verification status?; Verified ...
SIMBAD lists the spectral type as 07 Vn (from 1982PASP...94...31C), but ULLYSES has adopted O7.5 V (from 2016ApJ...817..113L)
tcheck; Coordinates & P.M. updated?; Gaia DR2, Epoch 2015.5
tcheck; Adopted SED compared to Observations?; Yes ...
A PoWR model was selected according to the nominal SpT-Teff calibration: (Teff, logg, logMdot, Z/Zsun) = (37000, 4.00, -7.13, 0.14). The model flux was scaled to the distance of the SMC and attenuated by an SMCbar extinction law with E(B-V) = 0.09 (2002ApJS..141...81M). Although it provided a good baseline fit to the available IUE low dispersion spectra and UBV photometry, an improved fit to the SWP spectrum was found with a slightly reduced reddening of E(B-V) = 0.06. This value is well within the uncertainty of the photometric measurements. The adopted SED corresponds to the file PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed.fits.
Adopted illustrated: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed_vs_IUE.png
Adopted SED: ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
Category=EXT-STAR
Description=[MAIN SEQUENCE O]
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/PEAKXD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	CENTER=FLUX-WT; NUM-POS=3; STEP-SIZE=1.3; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 22 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	ACQ/PEAKD (COS.sa.1461568)	(4) AV251	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9; SEGMENT=BOTH			0.3 Secs (0.3 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=40 is obtained for Segments A and B combined in 0.2621 s per dwell point.
No ETC Warnings
Exposure time per dwell point rounded up to 0.3 s

BOT: 26 safe, 0 unknown

TA in light dispersed by G130M/1291 was selected for efficiency. There are no spoiler stars within 43 arcsec of the center of the PSA: see ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_DSS.png

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	G130M/1096-3b (COS.sp.1533473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=4911.0; FP-POS=3			591 Secs (591 Secs) *[==>]*	***[1]***

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

4	G130M/109 6-4 (COS.sp.153 3473)	(4) AV251	COS/FUV, TIME-TAG, PSA	G130M 1096 A	BUFFER-TIME=68 6.0; FP-POS=4	1396 Secs (1396 Secs) [==>] **[1]**

Comments: SED PoWR_37000_4.00_m7.13_Z0.14_smcbar_ebmv_0.06_sed ~/box/ullyses_tech/ullyses_proposals/c28_mc/16370/AV251/AV251_adopted_sed.fits
ETC estimates that SNR=20/resel is obtained at 1080 +/- 0.5 A in 6566.8118 s. See COS.sp.1461574.
No ETC Warnings
Baseline exposure time rounded to 6568 s (1642 s per FP-POS)
Count Rate (Total, Segment A, Segment B) = (2289.268, 2214.529, 74.739) cts/s
Brightest Pixel: 0.067 cts/s at 1216.21 A
*BUFFER-TIME = 2/3 * 1030 s = 686 s*

For efficient orbit packing, the 4 FP-POS positions were broken into separate exposures to allow for different integration times per exposure; and the integration at POS3 was further sub-divided into two separate exposures to achieve optimal packing. The integration time for FP-POS1 had to be drastically shortened in order to fit it into the available fraction of the visibility period. The resultant total exposure times were: (POS1, POS2, POS3, POS4) = (1334s, 1600s, 1609s, 1618s), for a total of 6151 s. Although the "unbalancing" of the sub-exposure times is not optimal, it enables 94% of the baseline exposure time to be recovered. The ETC predicts SNR=19.1/resel at 1080 A in 6151 s; COS.sp.1533473 .

BOT: 22 safe, 0 unknown

Orbit Structure