16227 - Extremely Metal Poor Galaxies (XMPGs): A Search for the Lowest Metallicity Gas in Nearby Galaxies

Cycle: 28, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. David V. Bowen (PI) (Contact)	**Princeton University**	**dvb@astro.princeton.edu**
Prof. Todd M. Tripp (CoI)	University of Massachusetts - Amherst	tripp@astro.umass.edu
Prof. Max Pettini (CoI) (ESA Member)	University of Cambridge	pettini@ast.cam.ac.uk

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) DDO68-1	COS/FUV COS/NUV	3	21-Jun-2021 12:00:13.0	yes
02	(1) DDO68-1	COS/FUV COS/NUV	3	21-Jun-2021 12:00:15.0	yes
03	(2) SBS1159+545	COS/FUV COS/NUV	3	21-Jun-2021 12:00:16.0	yes
04	(2) SBS1159+545	COS/FUV COS/NUV	3	21-Jun-2021 12:00:17.0	yes
05	(3) SBS0940+544	COS/FUV COS/NUV	3	21-Jun-2021 12:00:19.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(3) SBS0940+544	COS/FUV COS/NUV	3	21-Jun-2021 12:00:20.0	yes
07	(4) UM323	COS/FUV COS/NUV	3	21-Jun-2021 12:00:21.0	yes
08	(4) UM323	COS/FUV COS/NUV	3	21-Jun-2021 12:00:22.0	yes
09	(5) SDSSJ103137.28+043422	COS/FUV COS/NUV	3	21-Jun-2021 12:00:24.0	yes
10	(5) SDSSJ103137.28+043422	COS/FUV COS/NUV	3	21-Jun-2021 12:00:25.0	yes

30 Total Orbits Used

ABSTRACT

We propose a COS G130M program to measure the gas-phase metallicities of the cool neutral medium in 5 "extremely metal poor galaxies", or XMPGs. We have selected the XMPGs to have emission line metallicities, Z_emm, in the range 12+log(O/H) = 7.1 to 7.5, or 1/40th to 1/16 times the solar metallicity. The COS spectra of the UV-bright regions in the galaxies will record, in particular, Lyman-alpha, SII, PII, NI, CII and OI absorption lines, which can be used to derive accurate column densities and therefore abundances and abundance ratios. We aim to test how much less the metallicity of the neutral medium, Z_abs, can be, compared to Z_emm, a difference that is seen in higher metallicity star-forming galaxies. We also aim to provide accurate N/O and alpha/O abundance ratios in the XMPGs' neutral gas from which to investigate their star formation histories. Two unique galaxies are targeted, DDO 68, which is one of the lowest metallicity galaxies known, and SBS 0940+544, a galaxy where Z_emm drops by a dex over a transverse length of only 400 pc. Confirming differences in Z_abs and Z_emm in XMPGs will show that the baseline metallicity for the canonical stellar-mass to metallicity relationship should use Z_abs instead of Z_emm in galaxy evolution modelling. We will also use our data to explore whether XMPGs could be the progenitors of young galaxies seen by the damped Lyman-alpha absorption systems detected towards background QSOs, or whether the origin of the latter population still needs to be properly explained.

OBSERVING DESCRIPTION

Our aim is to observe the brightest regions of the selected XMPGs with the COS G130M grating to record Lyman-alpha absorption and metal absorption lines from the interstellar gas in and around the galaxy. The galaxies range in redshift from ~ 500 - 3600 km/s, so, e.g., Lyman-alpha lies between 1218-1230A. 3 of 5 sightlines have been observed by COS before, either at lower resolution with the G140L grating, or at longer wavelengths (e.g. with the G185M grating), so information already exists on UV fluxes and previous ACQ exposure times. These are discussed in this Phase 2 for each object individually. UV fluxes for the remaining 2 sightlines are extrapolated from optical SDSS spectra. For all sightlines, we use the 2 FP-POS settings allowed for the grating centered at 1291A, a wavelength which is essential for observing the Lyman-alpha absorption. For one sightline (DDO68-1), one of the 2 visits needs to be spent in SHADOW, in order to resolve the Lyman-alpha absorption line profile from strong geocoronal Lyman-alpha emission.

Visit

Proposal 16227, DDO68-1: Visit 1 (of 2) (01), completed Mon Jun 21 16:00:26 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Comments: We require that the visit is spent in SHADOW, in order to minimize the effects of geocoronal Lyman-alpha emission.

Diagnostics

(DDO68-1: Visit 1 (of 2) (01)) Warning (Form): If the target position is not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/IMAGE.

(DDO68-1: Visit 1 (of 2) (01)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(DDO68-1: Visit 1 (of 2) (01)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 1a (01.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 1b (01.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2a (01.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2b (01.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3a (01.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3b (01.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

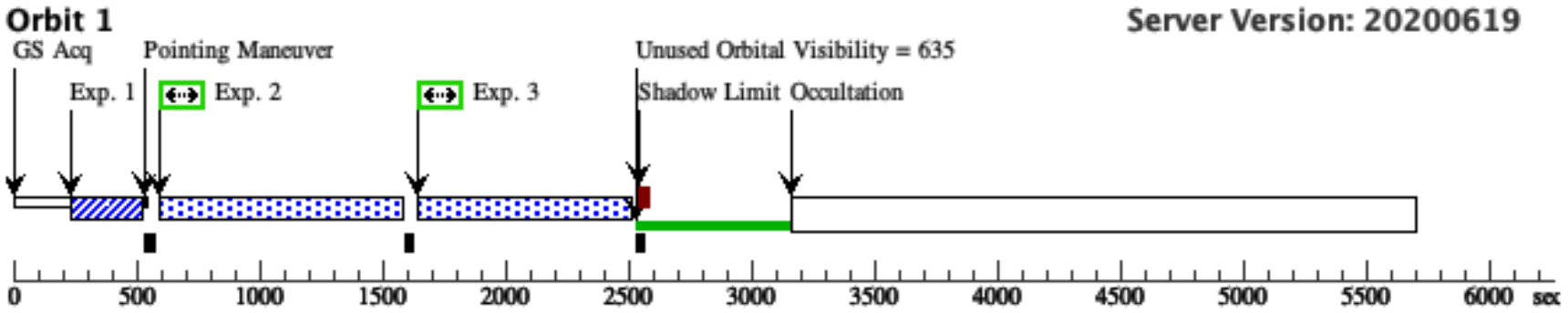
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	DDO68-1	RA: 09 56 46.8000 (149.1950000d)	Radial Velocity: 503 km/sec	V=15.9+/-0.1	Reference Frame: ICRS
	Alt Name1: UGC5340	Dec: +28 50 10.50 (28.83625d)		FUV(1460) flux = 1.0e-15 ergs/cm^2/s/A (based on previous COS G160M data)	
		Equinox: J2000			

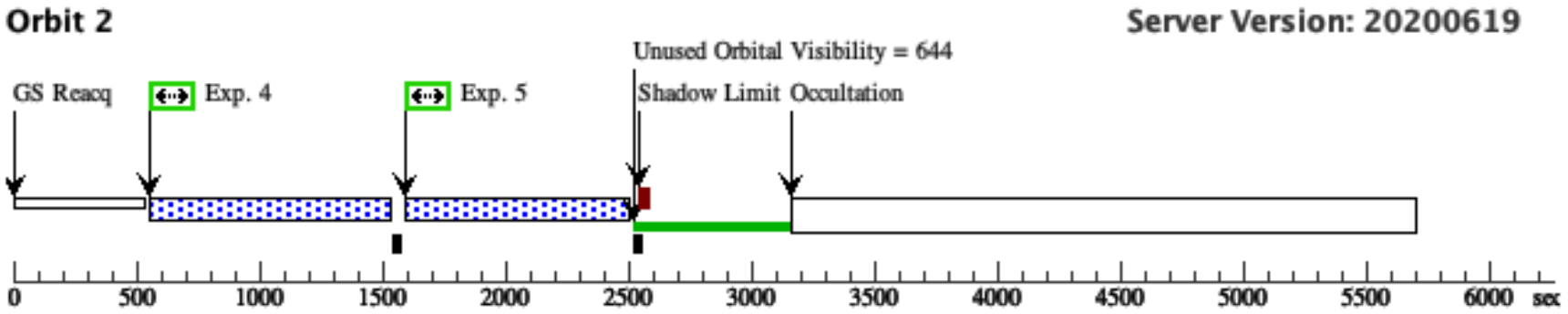
Comments: The position of the star-forming region is based on the previous COS observations (P13788) and agrees with (a) its position on the WFC3 UVIS F275W image retrieved from the Hubble Legacy Archive, and (b) its position on the 22 sec MIRROR-B ACQ/IMAGE exposure used to acquire the object in P13788 (lcne01qzq_flt.fits).
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

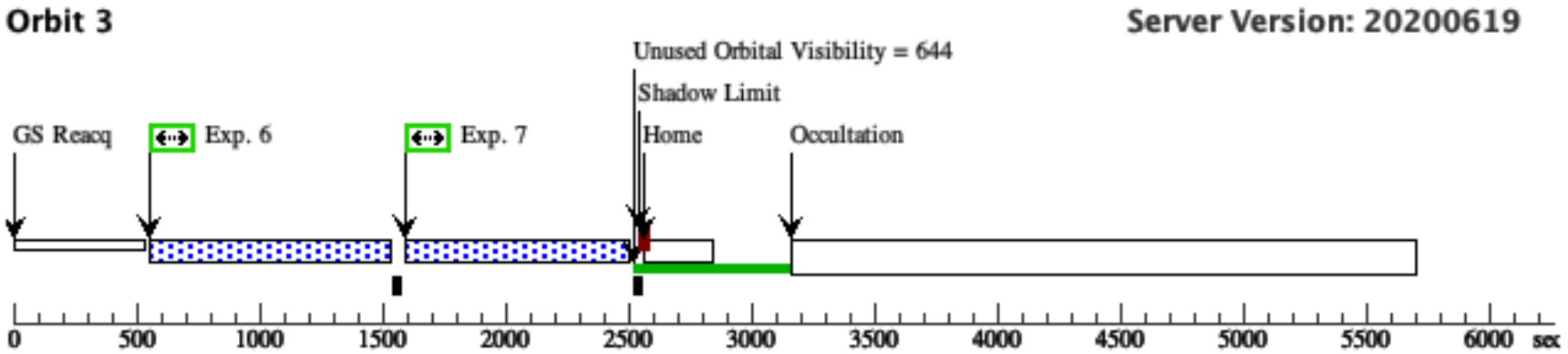
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	DDO68-1 - Visit 1 - ACQ (COS.ta.1448016)	(1) DDO68-1	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				35 Secs (35 Secs) *[==>]*	***[1]***
Comments: Examination of a 22 second COS ACQ image taken as part of the P13788 G160M observations (lcne01qzq_flt.fits) shows that 22 seconds with MIRROR-B gives ~ 20 counts in a 9x9 pix^2 (0.23x0.23 arcsec^2) box, which is inadequate for a reliable ACQ. The count-rate recorded is equivalent to F(1580) ~ 2e-16 cgs for a power-law SED that varies as lambda^-3.5. [This exponent is estimated from fluxes at 1460A (G160M), 1740A (G185M), 2750A (MAG_AUTO estimates from the WFC3 F275W HLA data), and 3600A (ground based spectrophometry published by Annabali et al 2019 (MNRAS, 482, 3892).] (NB. This flux is ~ one-quarter that measured through the full 2.5" aperture and G160M grating.) Switching to MIRROR-A, to reach a S/N of 20, we require a 35 sec exposure.									
2	orbit 1a (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		820 Secs (820 Secs) *[==>]*	***[1]***
3	orbit 1b (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		820 Secs (820 Secs) *[==>]*	***[1]***
4	orbit 2a (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		860 Secs (860 Secs) *[==>]*	***[2]***
5	orbit 2b (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		860 Secs (860 Secs) *[==>]*	***[2]***
6	orbit 3a (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		860 Secs (860 Secs) *[==>]*	***[3]***
7	orbit 3b (COS.sp.1449388)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH	SHADOW		860 Secs (860 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 16227, DDO68-1: Visit 2 (of 2) (02), completed Mon Jun 21 16:00:26 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(DDO68-1: Visit 2 (of 2) (02)) Warning (Form): If the target position is not known to 0.4" (or better), an ACQ/SEARCH should precede the ACQ/IMAGE.

(DDO68-1: Visit 2 (of 2) (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(DDO68-1: Visit 2 (of 2) (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 4a (02.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 4b (02.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5a (02.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5b (02.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6a (02.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6b (02.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

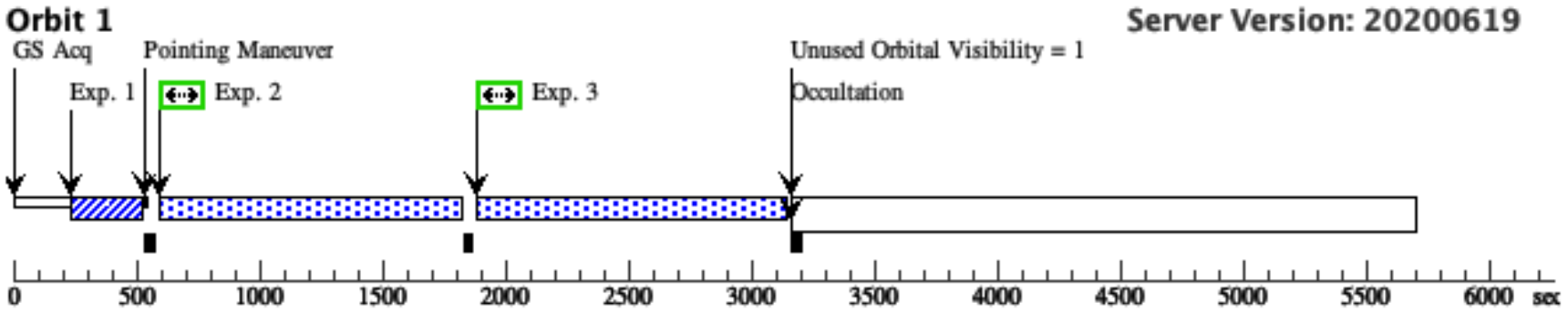
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	DDO68-1	RA: 09 56 46.8000 (149.1950000d)	Radial Velocity: 503 km/sec	V=15.9+/-0.1	Reference Frame: ICRS
	Alt Name1: UGC5340	Dec: +28 50 10.50 (28.83625d)		FUV(1460) flux = 1.0e-15 ergs/cm^2/s/A (based on previous COS G160M data)	
		Equinox: J2000			

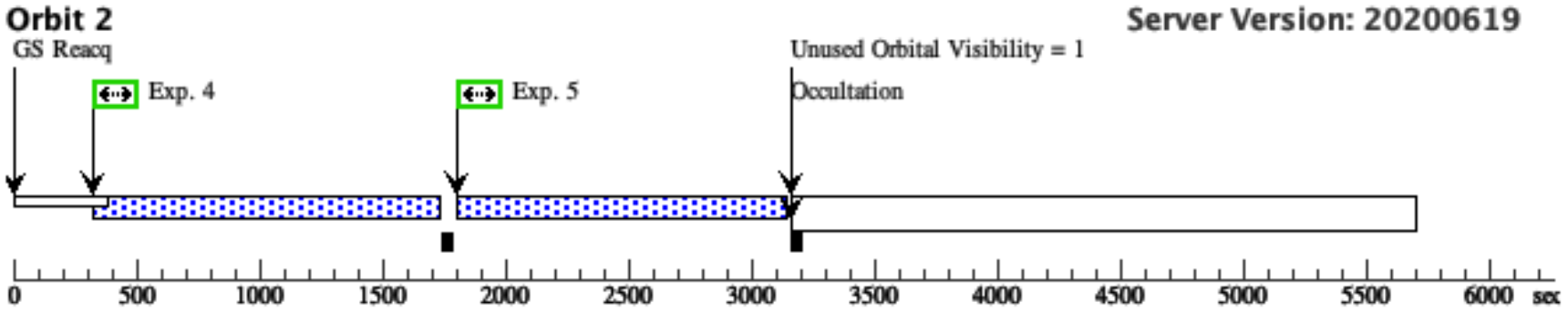
Comments: The position of the star-forming region is based on the previous COS observations (P13788) and agrees with (a) its position on the WFC3 UVIS F275W image retrieved from the Hubble Legacy Archive, and (b) its position on the 22 sec MIRROR-B ACQ/IMAGE exposure used to acquire the object in P13788 (lcne01qzq_flt.fits).
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

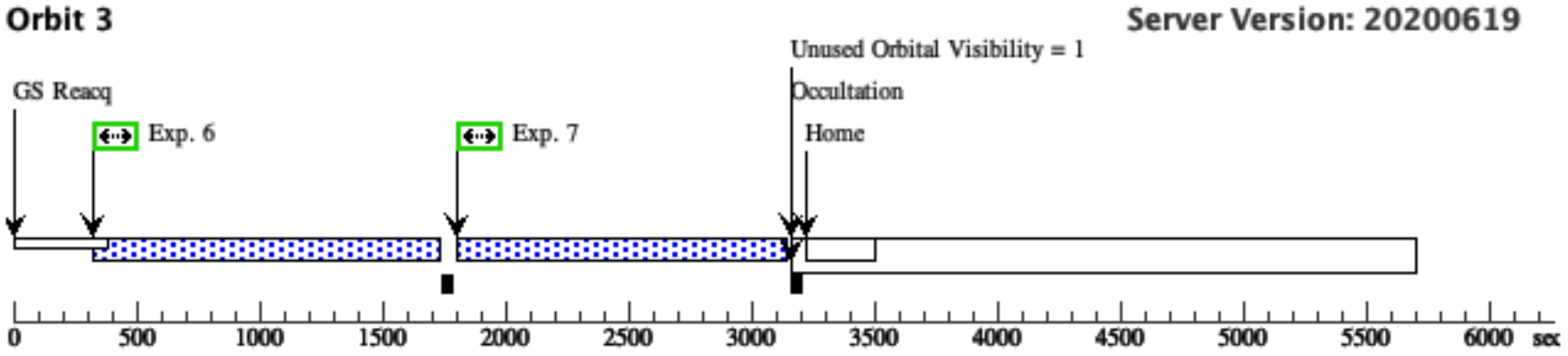
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	DDO68-1 - Visit 2 - ACQ (COS.ta.1448016)	(1) DDO68-1	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				35 Secs (35 Secs) *[==>]*	***[1]***
Comments: Examination of a 22 second COS ACQ image taken as part of the P13788 G160M observations (lcne01qzq_flt.fits) shows that 22 seconds with MIRROR-B gives ~ 20 counts in a 9x9 pix^2 (0.23x0.23 arcsec^2) box, which is inadequate for a reliable ACQ. The count-rate recorded is equivalent to F(1580) ~ 2e-16 cgs for a power-law SED that varies as lambda^-3.5. [This exponent is estimated from fluxes at 1460A (G160M), 1740A (G185M), 2750A (MAG_AUTO estimates from the WFC3 F275W HLA data), and 3600A (ground based spectrophometry published by Annabali et al 2019 (MNRAS, 482, 3892).] (NB. This flux is ~ one-quarter that measured through the full 2.5" aperture and G160M grating.) Switching to MIRROR-A, to reach a S/N of 20, we require a 35 sec exposure.									
2	orbit 4a (COS.sp.1449390)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH			1050 Secs (1062 Secs) *[==>1062.0 Secs]*	***[1]***
3	orbit 4b (COS.sp.1449391)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH			1200 Secs (1212 Secs) *[==>1212.0 Secs]*	***[1]***
4	orbit 5a (COS.sp.1449392)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH			1280 Secs (1292 Secs) *[==>1292.0 Secs]*	***[2]***
5	orbit 5b (COS.sp.1449392)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH			1280 Secs (1292 Secs) *[==>1292.0 Secs]*	***[2]***
6	orbit 6a (COS.sp.1449392)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=5060; SEGMENT=BOTH			1280 Secs (1292 Secs) *[==>1292.0 Secs]*	***[3]***
7	orbit 6b (COS.sp.1449392)	(1) DDO68-1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=5060; SEGMENT=BOTH			1280 Secs (1292 Secs) *[==>1292.0 Secs]*	***[3]***

Orbit Structure







Visit

Proposal 16227, SBS1159+545: Visit 1 (of 2) (03), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SBS1159+545: Visit 1 (of 2) (03)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SBS1159+545: Visit 1 (of 2) (03)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 1a (03.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 1b (03.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2a (03.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2b (03.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3a (03.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3b (03.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

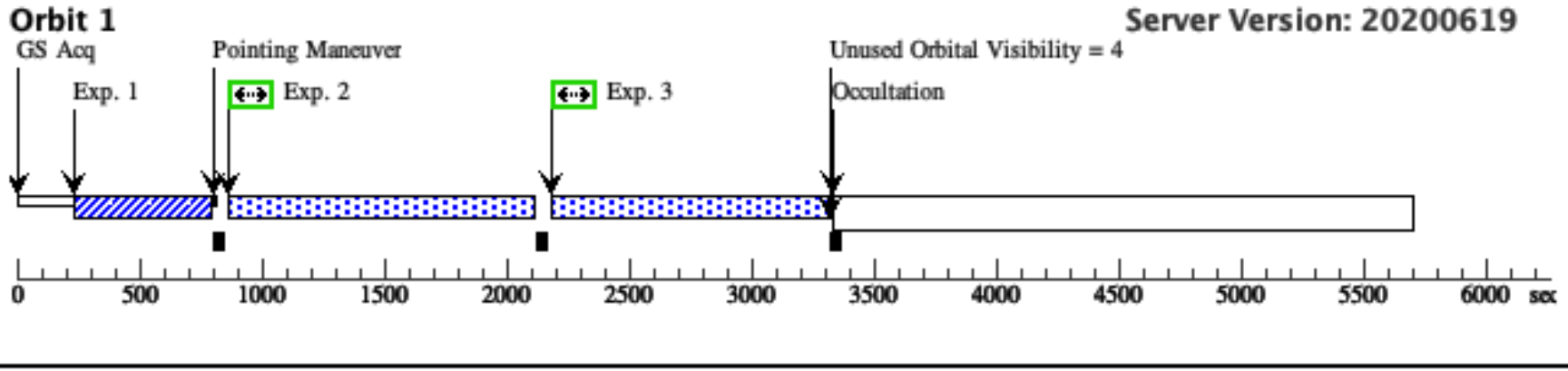
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SBS1159+545 Alt Name1: SDSJ120202.49+541551.05	RA: 12 02 2.4940 (180.5103917d) Dec: +54 15 51.00 (54.26417d) Equinox: J2000	Radial Velocity: 3600 km/sec	V=18.7+/-0.1 F(1220) = 1.3e-15 ergs/cm^2/s/A	Reference Frame: ICRS

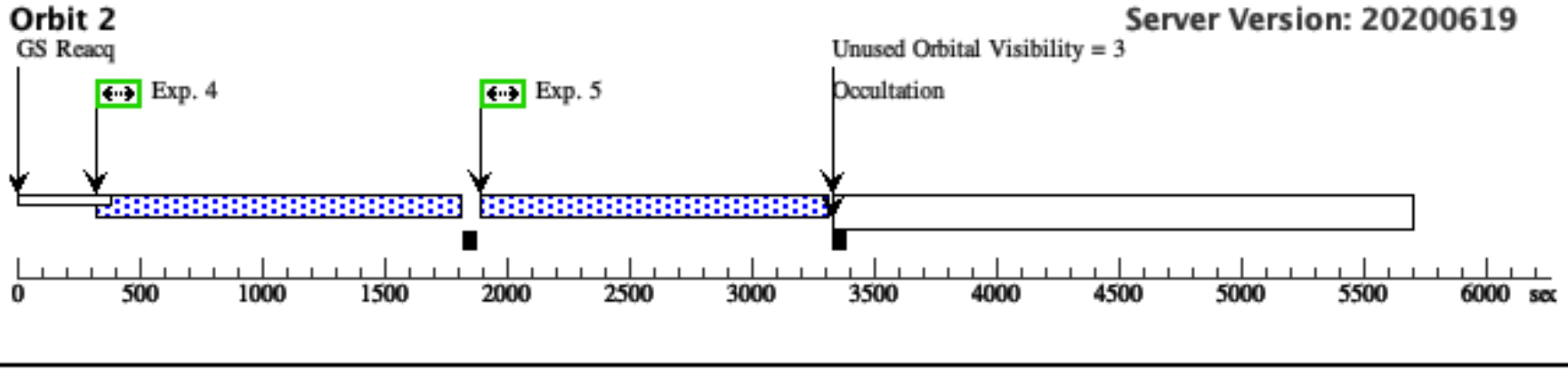
Comments: The position of the star-forming region is measured from a 160sec COS MIRROR-A ACQ image (ldaf03pxq_flt.fits) taken as part of P14628 for a COS G140L observation. Image shows several point sources all confined to a radius ~ 0.3 arcsec, but assume EXTENDED.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

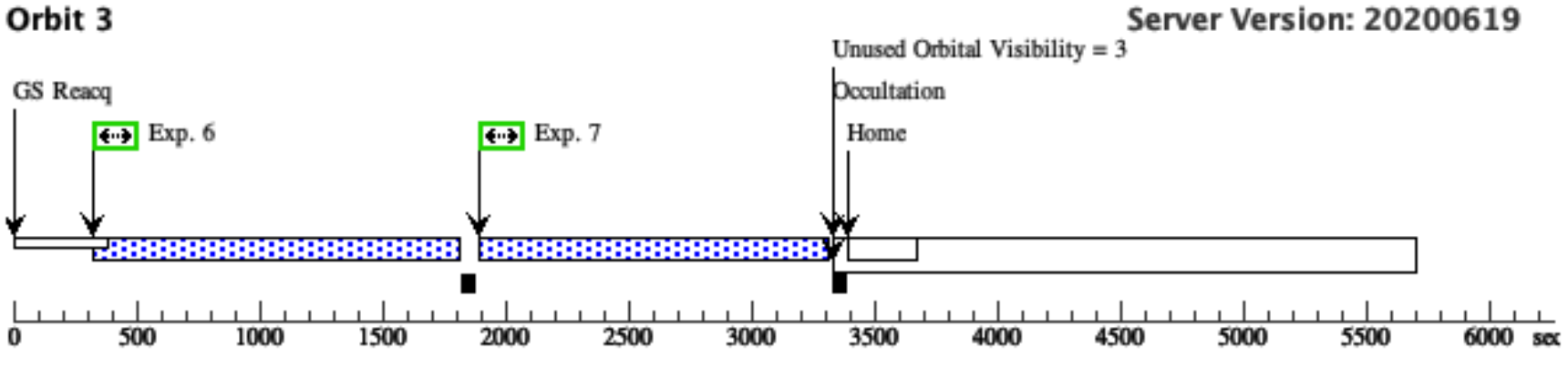
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBS1159 - Visit 1 - ACQ (COS.ta.1446081)	(2) SBS1159+545	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				170 Secs (170 Secs) *[==>]*	***[1]***
Comments: Exposure time is based on the flux measured from previous COS G140L observations [P14628, F(1220)=1.3e-15 cgs] and assuming that the SED follows a power law that varies as lambda^(-2.5). Exposure time is set to give a S/N of 20. A previous 160 sec COS ACQ image (ldaf03pxq_flt.fits) for the same G140L observations shows that this exposure time gives a good S/N (e.g. 1600 counts from source+bg in a 0.23x0.23 arcsec box centered on the brightest spot in the image).									
2	orbit 1a (COS.sp.1446799)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1080 Secs (1080 Secs) *[==>]*	***[1]***
3	orbit 1b (COS.sp.1446799)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1080 Secs (1080 Secs) *[==>]*	***[1]***
4	orbit 2a (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[2]***
5	orbit 2b (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[2]***
6	orbit 3a (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[3]***
7	orbit 3b (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 16227, SBS1159+545: Visit 2 (of 2) (04), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SBS1159+545: Visit 2 (of 2) (04)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SBS1159+545: Visit 2 (of 2) (04)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 4a (04.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 4b (04.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5a (04.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5b (04.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6a (04.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6b (04.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

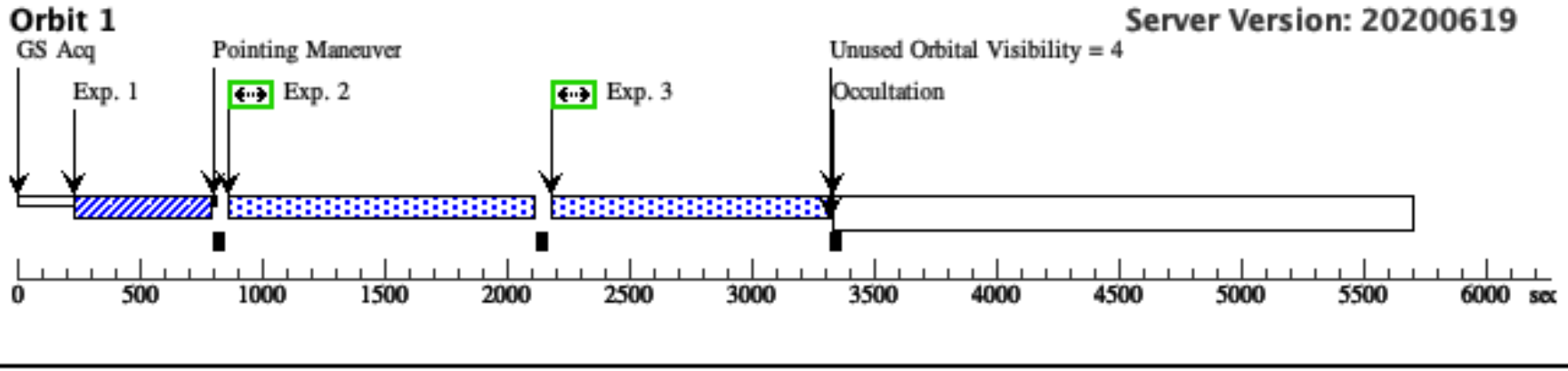
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SBS1159+545	RA: 12 02 2.4940 (180.5103917d)	Radial Velocity: 3600 km/sec	V=18.7+/-0.1	Reference Frame: ICRS
	Alt Name1: SDSJ120202.49+541551.05	Dec: +54 15 51.00 (54.26417d) Equinox: J2000		F(1220) = 1.3e-15 ergs/cm^2/s/A	

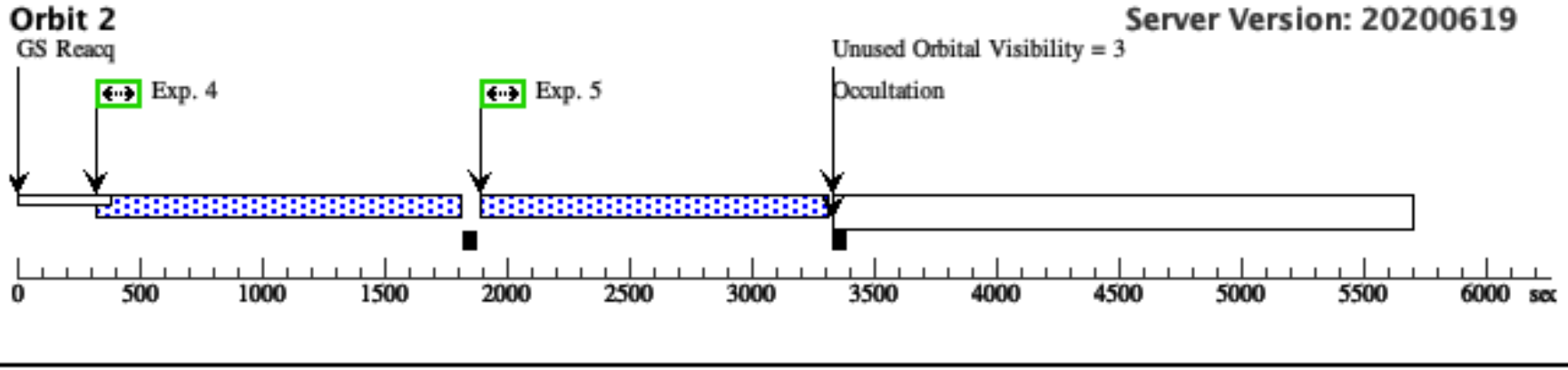
Comments: The position of the star-forming region is measured from a 160sec COS MIRROR-A ACQ image (ldaf03pxq_flt.fits) taken as part of P14628 for a COS G140L observation. Image shows several point sources all confined to a radius ~ 0.3 arcsec, but assume EXTENDED.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

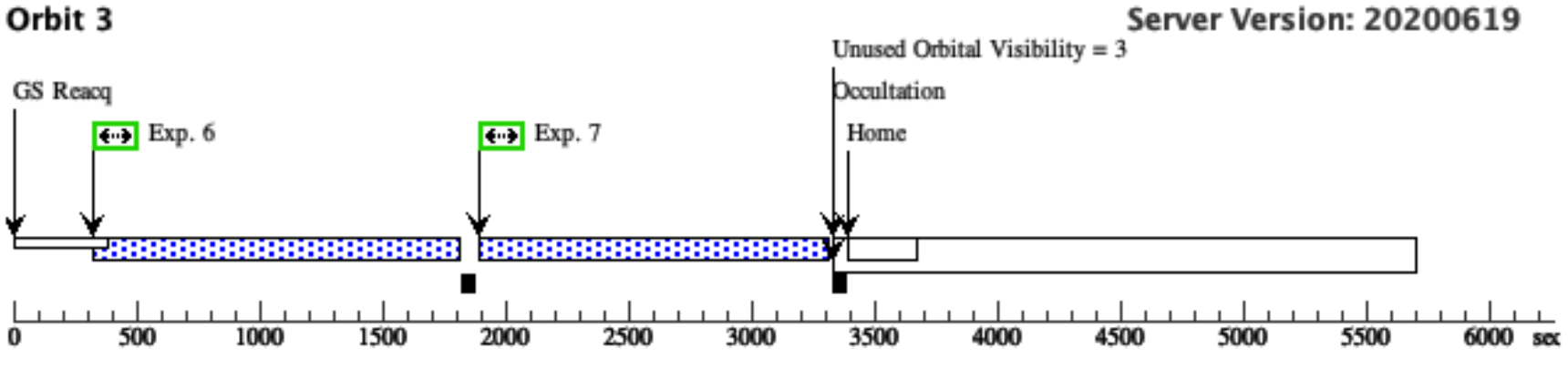
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBS1159 - Visit 2 - ACQ (COS.ta.1446081)	(2) SBS1159+545	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				170 Secs (170 Secs) *[==>]*	***[1]***
Comments: Exposure time is based on the flux measured from previous COS G140L observations [P14628, F(1220)=1.3e-15 cgs] and assuming that the SED follows a power law that varies as lambda^(-2.5). Exposure time is set to give a S/N of 20. A previous 160 sec COS ACQ image (ldaf03pxq_flt.fits) for the same G140L observations shows that this exposure time gives a good S/N (e.g. 1600 counts from source+bg in a 0.23x0.23 arcsec box centered on the brightest spot in the image).									
2	orbit 4a (COS.sp.1446799)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1080 Secs (1080 Secs) *[==>]*	***[1]***
3	orbit 4b (COS.sp.1446799)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1080 Secs (1080 Secs) *[==>]*	***[1]***
4	orbit 5a (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[2]***
5	orbit 5b (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[2]***
6	orbit 6a (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[3]***
7	orbit 6b (COS.sp.1446800)	(2) SBS1159+545	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3343; SEGMENT=BOTH			1370 Secs (1370 Secs) *[==>]*	***[3]***

Orbit Structure







Visit

Proposal 16227, SBS0940+544 - Visit 1 (of 2) (05), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SBS0940+544 - Visit 1 (of 2) (05)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SBS0940+544 - Visit 1 (of 2) (05)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

Fixed Targets

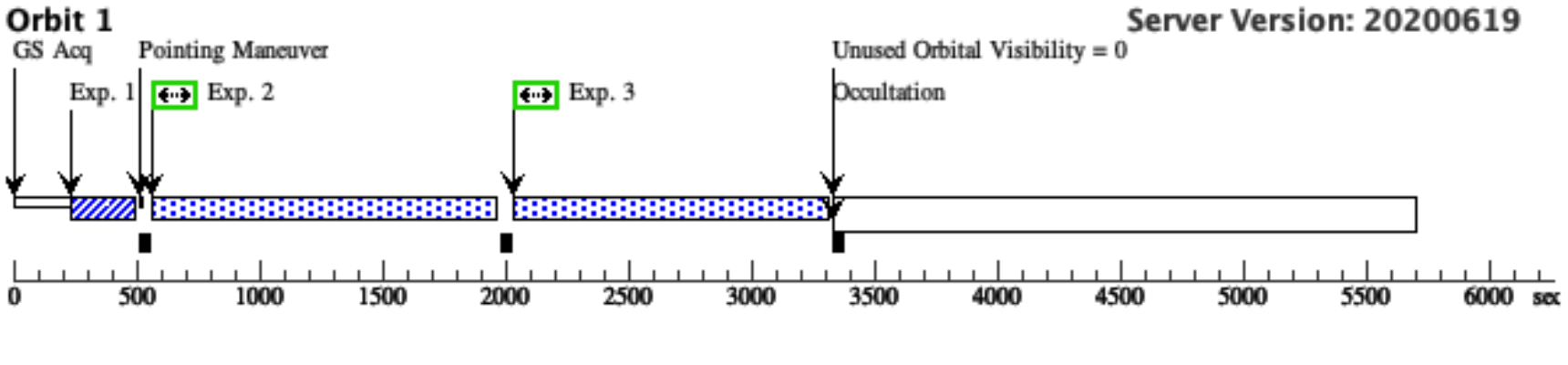
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SBS0940+544 Alt Name1: SDSSJ094416.59+541134.3	RA: 09 44 16.5890 (146.0691208d) Dec: +54 11 34.33 (54.19287d) Equinox: J2000	Radial Velocity: 1640 km/sec	V=18.4+/-0.1 F(1220) = 1.4e-15 ergs/cm^2/s/A	Reference Frame: ICRS

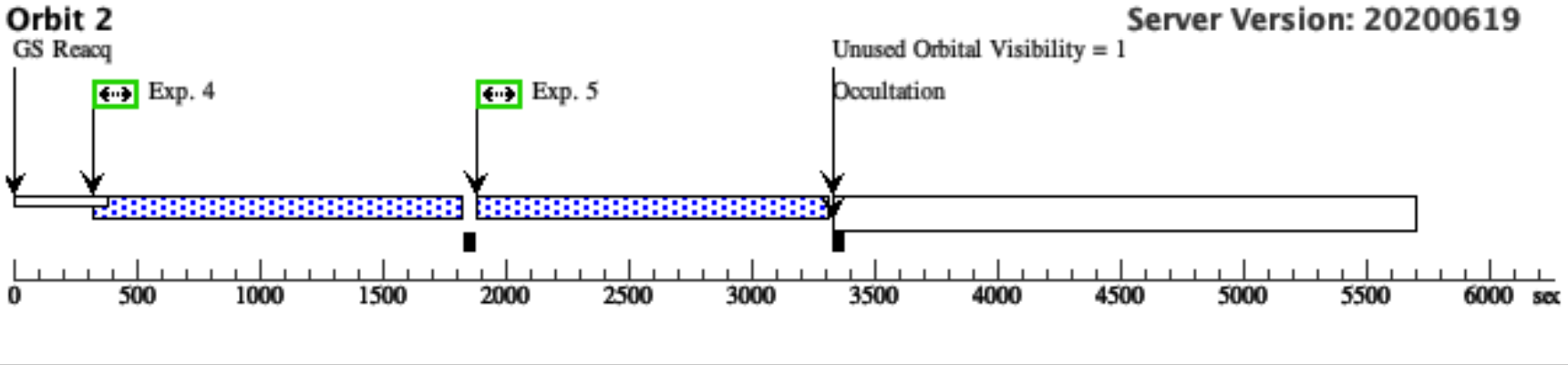
Comments: Position of star cluster is measured from a 9 sec COS ACQ MIRROR-A image (ldkm04zbq_flt.fits) obtained as part of G140L observations (P15220)
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=NO

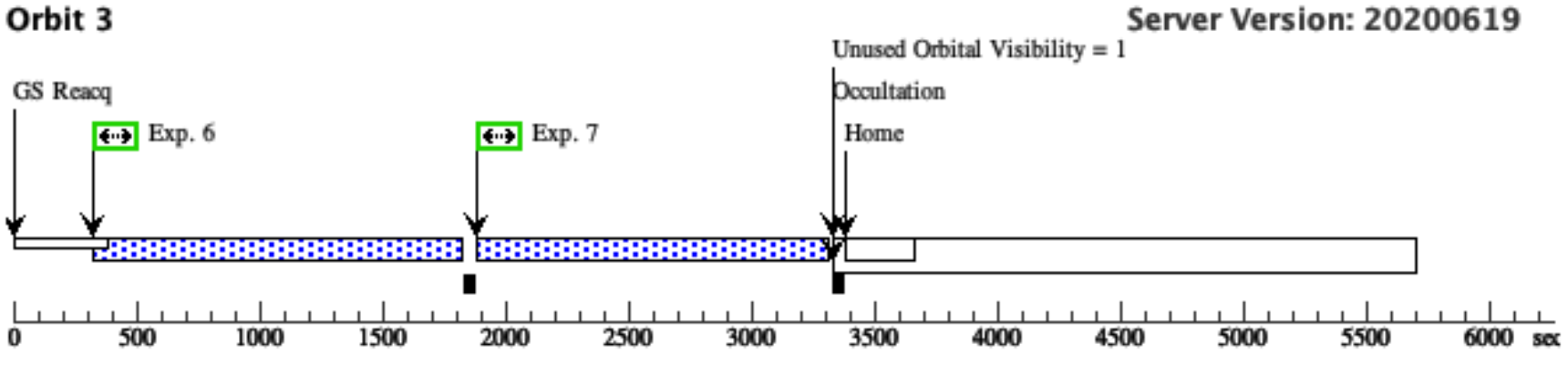
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBS0940+544 - Visit 1 - ACQ (COS.ta.1446300)	(3) SBS0940+544	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				23 Secs (23 Secs) *[==>]*	***[1]***
Comments: From a previous 9 sec COS ACQ IMAGE with MIRROR-A (P15220, ldkm04zbq_flt.fits) the count-rate (source+bg) within a 0.23x0.23 box centered on the star cluster is 18 counts/sec. So a 23 sec exposure should give a S/N ~ 20 in the same box.									
2	orbit 1a (COS.sp.1446836)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1220 Secs (1229 Secs) *[==>1229.0 Secs]*	***[1]***
3	orbit 1b (COS.sp.1446836)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1220 Secs (1229 Secs) *[==>1229.0 Secs]*	***[1]***
4	orbit 2a (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[2]***
5	orbit 2b (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[2]***
6	orbit 3a (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[3]***
7	orbit 3b (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[3]***

Orbit Structure







Visit

Proposal 16227, SBS0940+544 - Visit 2 (of 2) (06), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SBS0940+544 - Visit 2 (of 2) (06)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SBS0940+544 - Visit 2 (of 2) (06)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

Fixed Targets

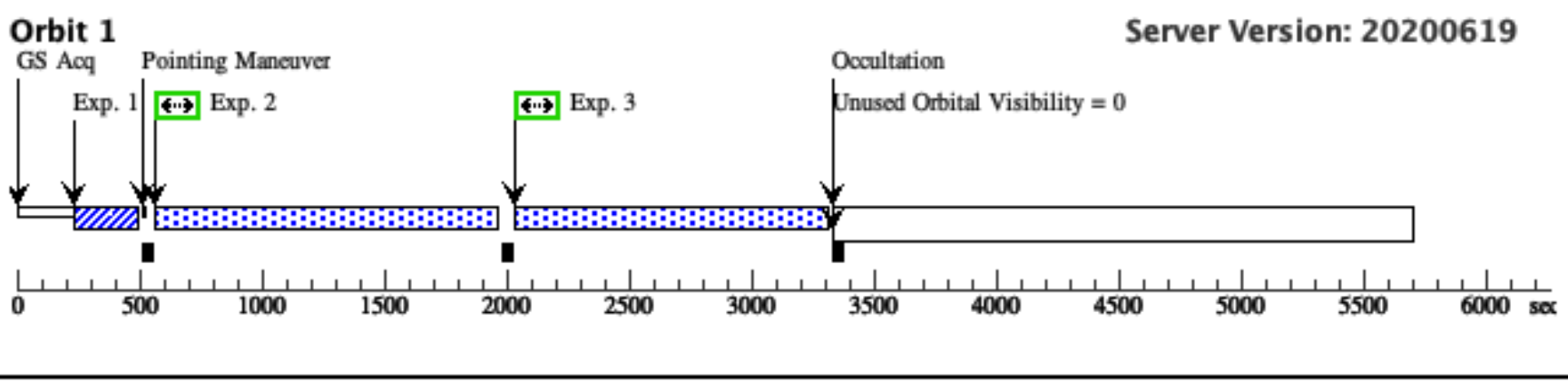
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SBS0940+544 Alt Name1: SDSSJ094416.59+541134.3	RA: 09 44 16.5890 (146.0691208d) Dec: +54 11 34.33 (54.19287d) Equinox: J2000	Radial Velocity: 1640 km/sec	V=18.4+/-0.1 F(1220) = 1.4e-15 ergs/cm^2/s/A	Reference Frame: ICRS

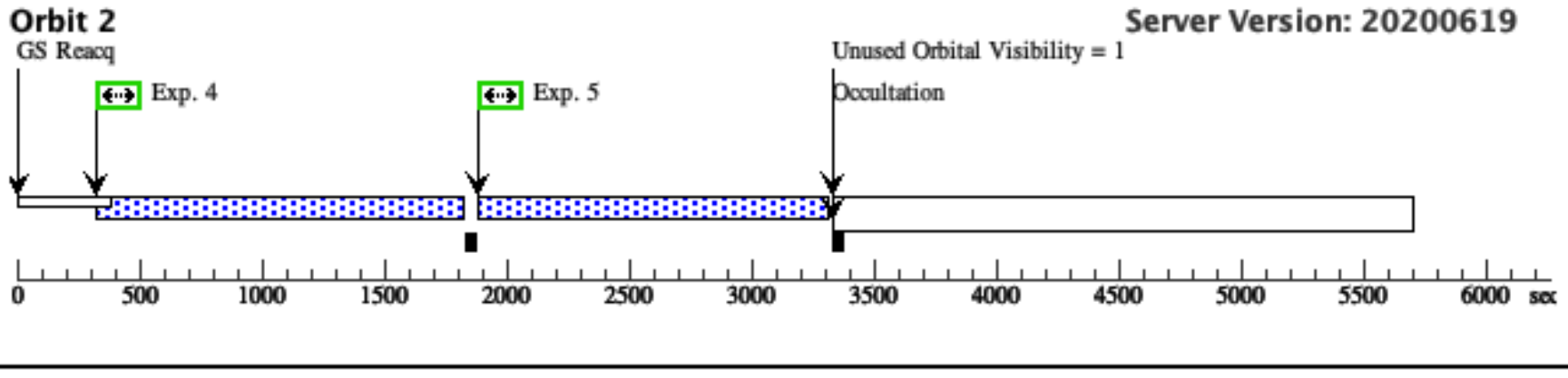
Comments: Position of star cluster is measured from a 9 sec COS ACQ MIRROR-A image (ldkm04zbq_flt.fits) obtained as part of G140L observations (P15220)
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=NO

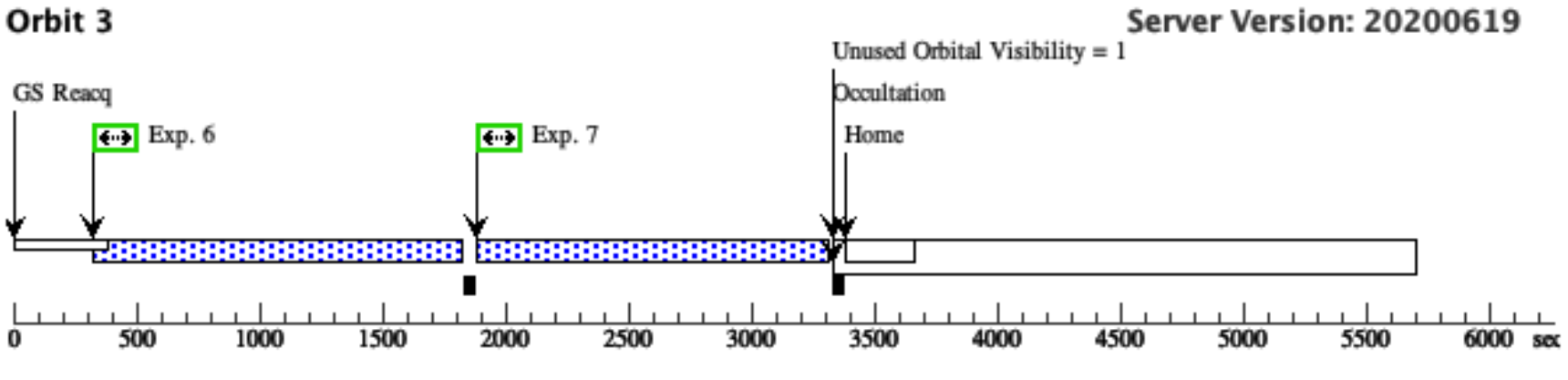
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBS0940+544 - Visit 1 - ACQ (COS.ta.1446300)	(3) SBS0940+544	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				23 Secs (23 Secs) *[==>]*	***[1]***
Comments: From a previous 9 sec COS ACQ IMAGE with MIRROR-A (P15220, ldkm04zbq_flt.fits) the count-rate (source+bg) within a 0.23x0.23 box centered on the star cluster is 18 counts/sec. So a 23 sec exposure should give a S/N ~ 20 in the same box.									
2	orbit 4a (COS.sp.1446836)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1220 Secs (1229 Secs) *[==>1229.0 Secs]*	***[1]***
3	orbit 4b (COS.sp.1446836)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1220 Secs (1229 Secs) *[==>1229.0 Secs]*	***[1]***
4	orbit 5a (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[2]***
5	orbit 5b (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[2]***
6	orbit 6a (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[3]***
7	orbit 6b (COS.sp.1446837)	(3) SBS0940+544	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=4823; SEGMENT=BOTH			1370 Secs (1376 Secs) *[==>1376.0 Secs]*	***[3]***

Orbit Structure







Visit

Proposal 16227, UM323 - Visit 1 (of 2) (07), scheduling Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UM323 - Visit 1 (of 2) (07)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(UM323 - Visit 1 (of 2) (07)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 1a (07.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 1b (07.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2a (07.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2b (07.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3a (07.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3b (07.008)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

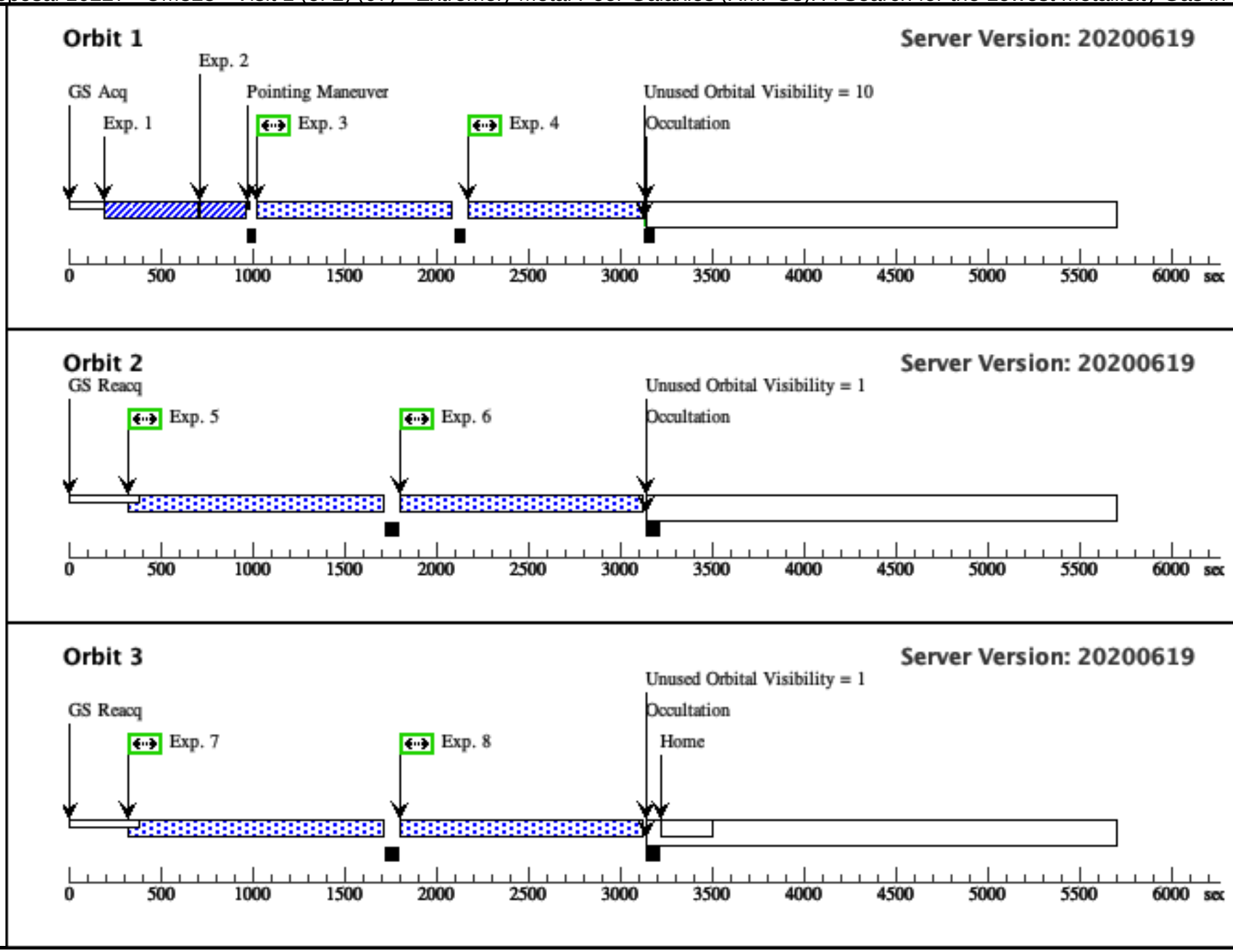
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	UM323	RA: 01 26 46.5900 (21.6941250d)	Radial Velocity: 1913 km/sec	V=18.4+/-0.1	Reference Frame: ICRS
	Alt Name1: SDSSJ012646.39-003845.6	Dec: -00 38 46.10 (-.64614d) Equinox: J2000		F(1220) = 1.5e-15 ergs/cm^2/s/A	

Comments: Co-ords are taken from the brightest central point seen in SDSS. No HST data exists in the Archive to better verify fluxes or position.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	UM323 - Visit 1 - ACQ - SEARCH (COS.ta.1446377)	(4) UM323	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2			40 Secs (40 Secs) *[==>]*	***[1]***
Comments: No HST data exists for this object. F(4000) = 4e-16 cgs from SDSS spectrum of central region, and suggests a power-law SED that varies as lambda^(-1.8).									
2	UM323 - Visit 1 - ACQ - IMAGE (COS.ta.1448047)	(4) UM323	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				40 Secs (40 Secs) *[==>]*	***[1]***
3	orbit 1a (COS.sp.1446838)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2012; SEGMENT=BOTH			890 Secs (893 Secs) *[==>893.0 Secs]*	***[1]***
4	orbit 1b (COS.sp.1446838)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			890 Secs (893 Secs) *[==>893.0 Secs]*	***[1]***
5	orbit 2a (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1266 Secs) *[==>1266.0 Secs]*	***[2]***
6	orbit 2b (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1266 Secs) *[==>1266.0 Secs]*	***[2]***
7	orbit 3a (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1266 Secs) *[==>1266.0 Secs]*	***[3]***
8	orbit 3b (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1266 Secs) *[==>1266.0 Secs]*	***[3]***

Orbit Structure



Visit

Proposal 16227, UM323 - Visit 2 (of 2) (08), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(orbit 4a (08.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 4b (08.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5a (08.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5b (08.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6a (08.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6b (08.008)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

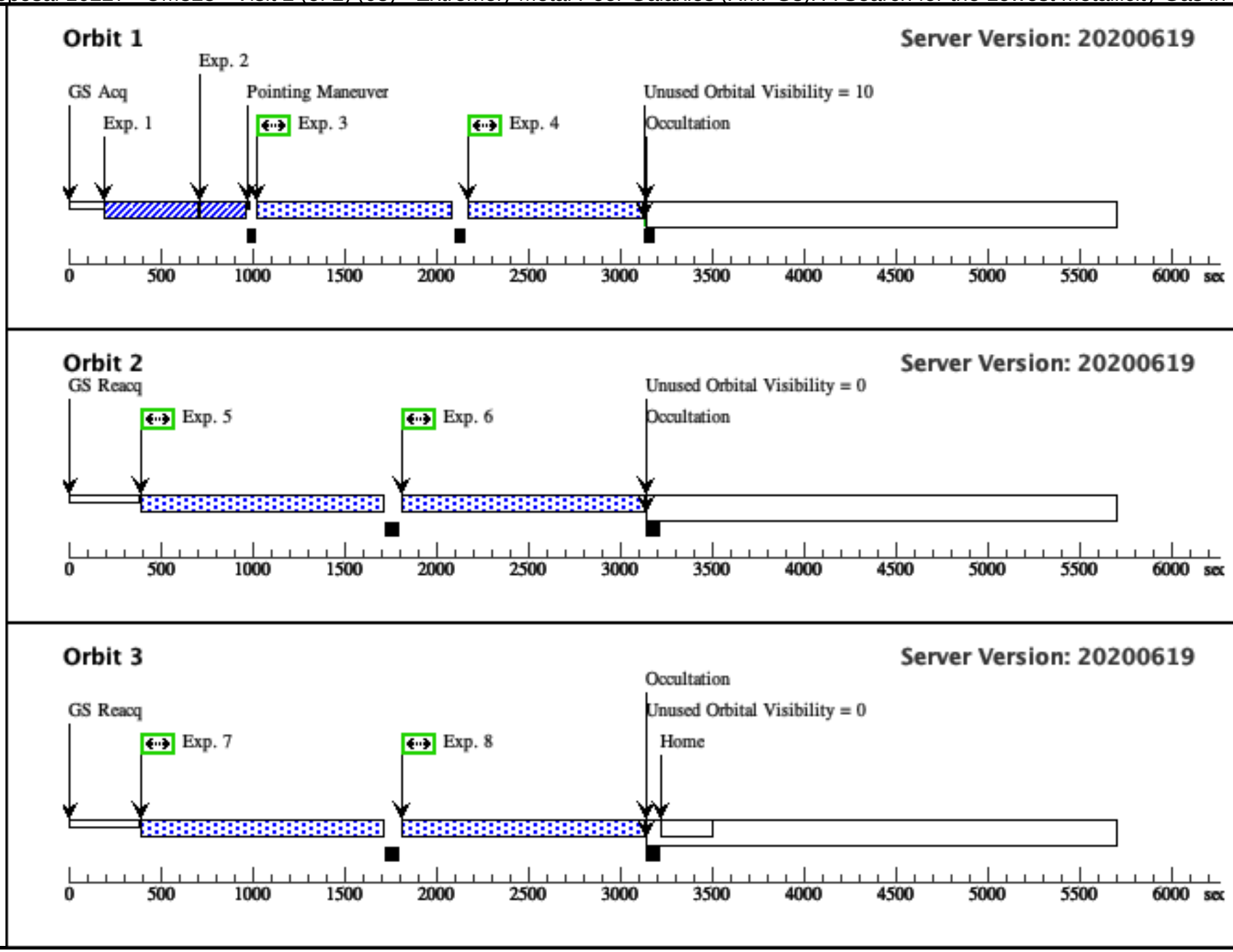
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	UM323	RA: 01 26 46.5900 (21.6941250d)	Radial Velocity: 1913 km/sec	V=18.4+/-0.1	Reference Frame: ICRS
	Alt Name1: SDSSJ012646.39-003845.6	Dec: -00 38 46.10 (-.64614d) Equinox: J2000		F(1220) = 1.5e-15 ergs/cm^2/s/A	

Comments: Co-ords are taken from the brightest central point seen in SDSS. No HST data exists in the Archive to better verify fluxes or position.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	UM323 - Visit 2 - ACQ - SEARCH (COS.ta.1446377)	(4) UM323	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2			40 Secs (40 Secs) *[==>]*	***[1]***
Comments: No HST data exists for this object. F(4000) = 4e-16 cgs from SDSS spectrum of central region, and suggests a power-law SED that varies as lambda^(-1.8).									
2	UM323 - Visit 2 - ACQ - IMAGE (COS.ta.1448047)	(4) UM323	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				40 Secs (40 Secs) *[==>]*	***[1]***
3	orbit 4a (COS.sp.1446838)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2012; SEGMENT=BOTH			890 Secs (893 Secs) *[==>893.0 Secs]*	***[1]***
4	orbit 4b (COS.sp.1446838)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			890 Secs (893 Secs) *[==>893.0 Secs]*	***[1]***
5	orbit 5a (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1268 Secs) *[==>1268.0 Secs]*	***[2]***
6	orbit 5b (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1268 Secs) *[==>1268.0 Secs]*	***[2]***
7	orbit 6a (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1268 Secs) *[==>1268.0 Secs]*	***[3]***
8	orbit 6b (COS.sp.1446839)	(4) UM323	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2012; SEGMENT=BOTH			1260 Secs (1268 Secs) *[==>1268.0 Secs]*	***[3]***

Orbit Structure



Visit

Proposal 16227, SDSSJ103137 - Visit 1 (of 2) (09), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SDSSJ103137 - Visit 1 (of 2) (09)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SDSSJ103137 - Visit 1 (of 2) (09)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 1a (09.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 1b (09.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2a (09.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 2b (09.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3a (09.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 3b (09.008)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

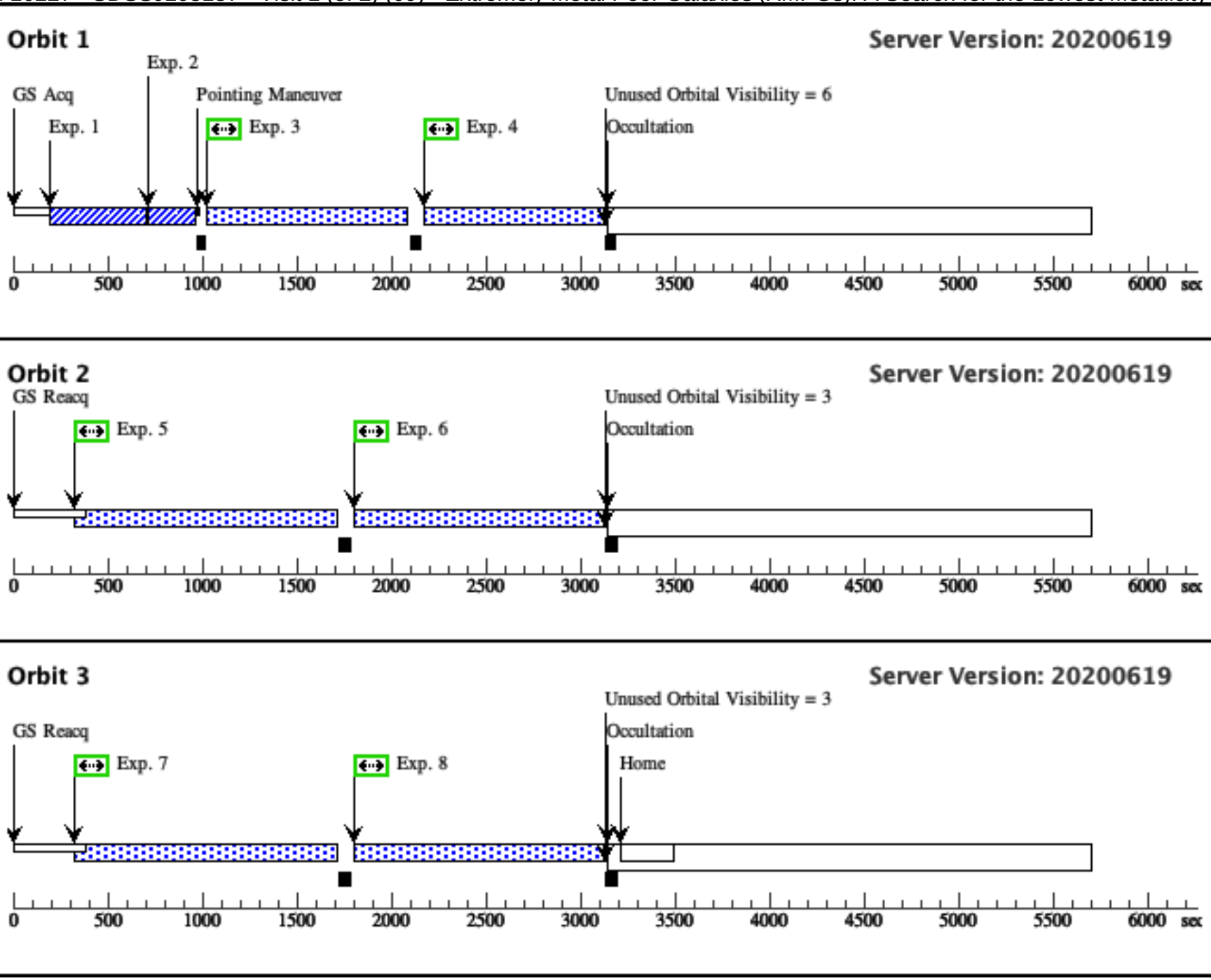
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	SDSSJ103137.28+043422	RA: 10 31 37.2700 (157.9052917d) Dec: +04 34 22.10 (4.57281d) Equinox: J2000	Radial Velocity: 1202 km/sec	V=16.2+/-0.1 F(1220) = 1.3e-15 ergs/cm^2/s/A	Reference Frame: ICRS

Comments: Flux calculated from SDSS spectrum and assuminf a power-law SED with alpha = -1.5. No HST data exists in the Archive to better verify fluxes or position.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J103137 - Visit 1 - ACQ - SEARCH (COS.ta.1448043)	(5) SDSSJ103137.28+043422	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2			40 Secs (40 Secs) *[==>]*	***[1]***
Comments: Assuming (F4000) = 5e-16 and alpha=-1.5 from SDSS spectrum of the central source.									
2	J103137 - Visit 1 - ACQ - IMAGE (COS.ta.1448050)	(5) SDSSJ103137.28+043422	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				40 Secs (40 Secs) *[==>]*	***[1]***
Comments: S/N of 68 for this exposure time (4600 counts in brightest pix)									
3	orbit 1a (COS.sp.1446929)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			895 Secs (895 Secs) *[==>]*	***[1]***
4	orbit 1b (COS.sp.1446929)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			895 Secs (895 Secs) *[==>]*	***[1]***
5	orbit 2a (COS.sp.1446930)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[2]***
6	orbit 2b (COS.sp.1446930)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[2]***
7	orbit 3a (COS.sp.1446930)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[3]***
8	orbit 3b (COS.sp.1446930)	(5) SDSSJ103137.28+043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[3]***

Orbit Structure



Visit

Proposal 16227, SDSSJ103137 - Visit 2 (of 2) (10), completed Mon Jun 21 16:00:27 GMT 2021

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(SDSSJ103137 - Visit 2 (of 2) (10)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(SDSSJ103137 - Visit 2 (of 2) (10)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(orbit 4a (10.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 4b (10.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5a (10.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 5b (10.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6a (10.007)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

(orbit 6b (10.008)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	SDSSJ103137.28+043422	RA: 10 31 37.2700 (157.9052917d) Dec: +04 34 22.10 (4.57281d) Equinox: J2000	Radial Velocity: 1202 km/sec	V=16.2+/-0.1 F(1220) = 1.3e-15 ergs/cm^2/s/A	Reference Frame: ICRS

Comments: Flux calculated from SDSS spectrum and assuminf a power-law SED with alpha = -1.5. No HST data exists in the Archive to better verify fluxes or position.
Category=EXT-CLUSTER
Description=[STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J103137 - Visit 2 - ACQ - SEARCH (COS.ta.1448043)	(5) SDSSJ103137.28 +043422	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	SCAN-SIZE=2			40 Secs (40 Secs) *[==>]*	***[1]***
Comments: Assuming (F4000) = 5e-16 and alpha=-1.5 from SDSS spectrum of the central source.									
2	J103137 - Visit 2 - ACQ - IMAGE (COS.ta.1448050)	(5) SDSSJ103137.28 +043422	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				40 Secs (40 Secs) *[==>]*	***[1]***
3	orbit 4a (COS.sp.1446929)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			895 Secs (895 Secs) *[==>]*	***[1]***
4	orbit 4b (COS.sp.1446929)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			895 Secs (895 Secs) *[==>]*	***[1]***
5	orbit 5a (COS.sp.1446930)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[2]***
6	orbit 5b (COS.sp.1446930)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[2]***
7	orbit 6a (COS.sp.1446930)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[3]***
8	orbit 6b (COS.sp.1446930)	(5) SDSSJ103137.28 +043422	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2470; SEGMENT=BOTH			1270 Secs (1270 Secs) *[==>]*	***[3]***

Orbit Structure