18356 - Extreme Mass Transfer and Mass Loss in the Massive Interacting Binary W Serpentis

Cycle: 34, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*
Dr. Douglas Russell Gies (PI) (Contact)	**Georgia State University Research Foundation**
Katherine Shepard (CoI)	Georgia State University Research Foundation

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:42.0	yes
02	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:44.0	yes
03	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:45.0	yes
04	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:46.0	yes
05	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:47.0	yes
06	(1) V-W-SER	COS/FUV COS/NUV	1	17-Aug-2026 12:00:49.0	yes

6 Total Orbits Used

ABSTRACT

W Ser is the proto-type of a rare type of interacting massive binary that is experiencing a stage of very high mass transfer rate. The donor will be stripped of its envelope, while the gainer will emerge as a massive rapid rotator. The evolutionary destiny is set by how much of the mass transfer is captured by the gainer or lost from the binary. W Ser is surrounded by a dense circumbinary disk that indicates that systemic mass loss is underway. The donor star is cool, so the flux in the ultraviolet spectrum originates in gas in the vicinity of the gainer star. HST/COS spectra obtained around the orbit will show where and how the high excitation emission lines are formed through accretion power. These observations will demonstrate the importance of systemic mass loss for massive binaries and their remnants.

OBSERVING DESCRIPTION

The binary consists of a cool mass donor and a hot mass gainer embedded in an accretion disk. The accretion disk flux will dominate in the FUV, and in this program we record the orbital phase variations in the FUV continuum and emission lines to map out the flux components from the accretion stream, occulting disk, and outflow into a circumbinary disk. The COS G160M grating is ideal for the required spectral resolution to measure Doppler shifts of several key emission lines including Si IV 1400, C IV 1550, and O III 1666. We plan to obtain FUV spectra using three central wavelengths (1533, 1577, and 1600 Angstroms) to cover the gaps between the A and B segments of COS. The spectra will made with all four FP-POS offset positions in each case to optimize the S/N ratio. Based upon ETC calculations, we expect to obtain a net S/N = 10 in the continuum and 35 at the peak of the strongest emission line per visit. There will be six visits to sample the full range of orbital phase with one of these centered on the eclipse of the disk by the mass donor star to determine the spatial extent of the eclipsed flux. The total counts at the brightest pixel summmed over six visits is about 60 counts, so the observations meet the safety requirements of COS.

Visit

Proposal 18356, V1 (01) Mon Aug 17 16:00:49 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 1 corresponds to an eclipse phase.
Primary minimum occurs at HJD 2461775.8089 or phaseIngress)=0.046.
Epoch used for APT is T(min)-0.65 days, so that this eclipse visit occurs between phase 0.0 and 0.092.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.

The ETC calculations were made using IUE low dispersion spectra as the source for flux.
There are three bright emission lines in the range 1342 to 1774 Angstroms:
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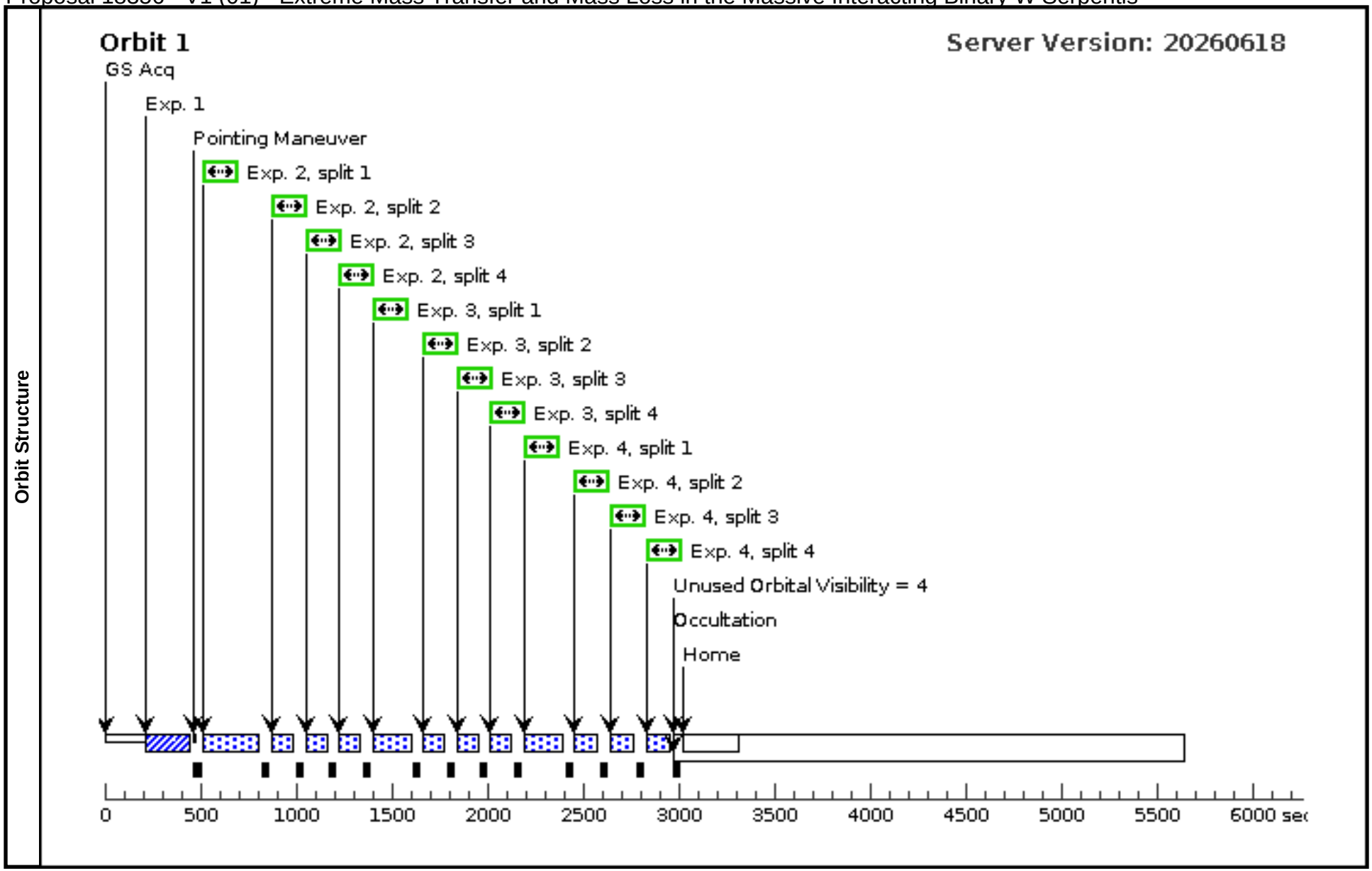
C IV 1550
O III 1666
The peak intensities are reduced in the low dispersion IUE spectra, but there are two HST/GHRS spectra in the archive with comparable spectral resolution to COS. These record the Si IV doublet that is narrower but fully resolved and appears with a peak flux that is 4.36 times larger (peak to continuum) than that of the low resolution IUE spectrum. The other two lines are formed in similar environments in the binary system, so they should also be fully resolved at the COS spectral resolution. Consequently, we multiplied the IUE fluxes of these three emission lines by the same factor of 4.36 to estimate the peak emission line fluxes. This will lead to a small over-estimate of the total wavelength-integrated counts in the ETC, but the emission line peak counts should be consistent with the expectations from the archival HST/GHRS spectra of the target.
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V1 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.00 TO 0.0916		3.5 Secs (3.5 Secs) *[==>]*	 ***[1]***
2	V1 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	 ***[1]***
3	V1 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	 ***[1]***
4	V1 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	 ***[1]***


Orbit 1
Server Version: 20260618
Orbit Structure
GS Acq
Exp. 1
Pointing Maneuver
Exp. 2, split 1
Exp. 2, split 2
Exp. 2, split 3
Exp. 2, split 4
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Orbital Visibility = 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18356, V2 (02) Mon Aug 17 16:00:49 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 2 for phase 0.095 to 0.270.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

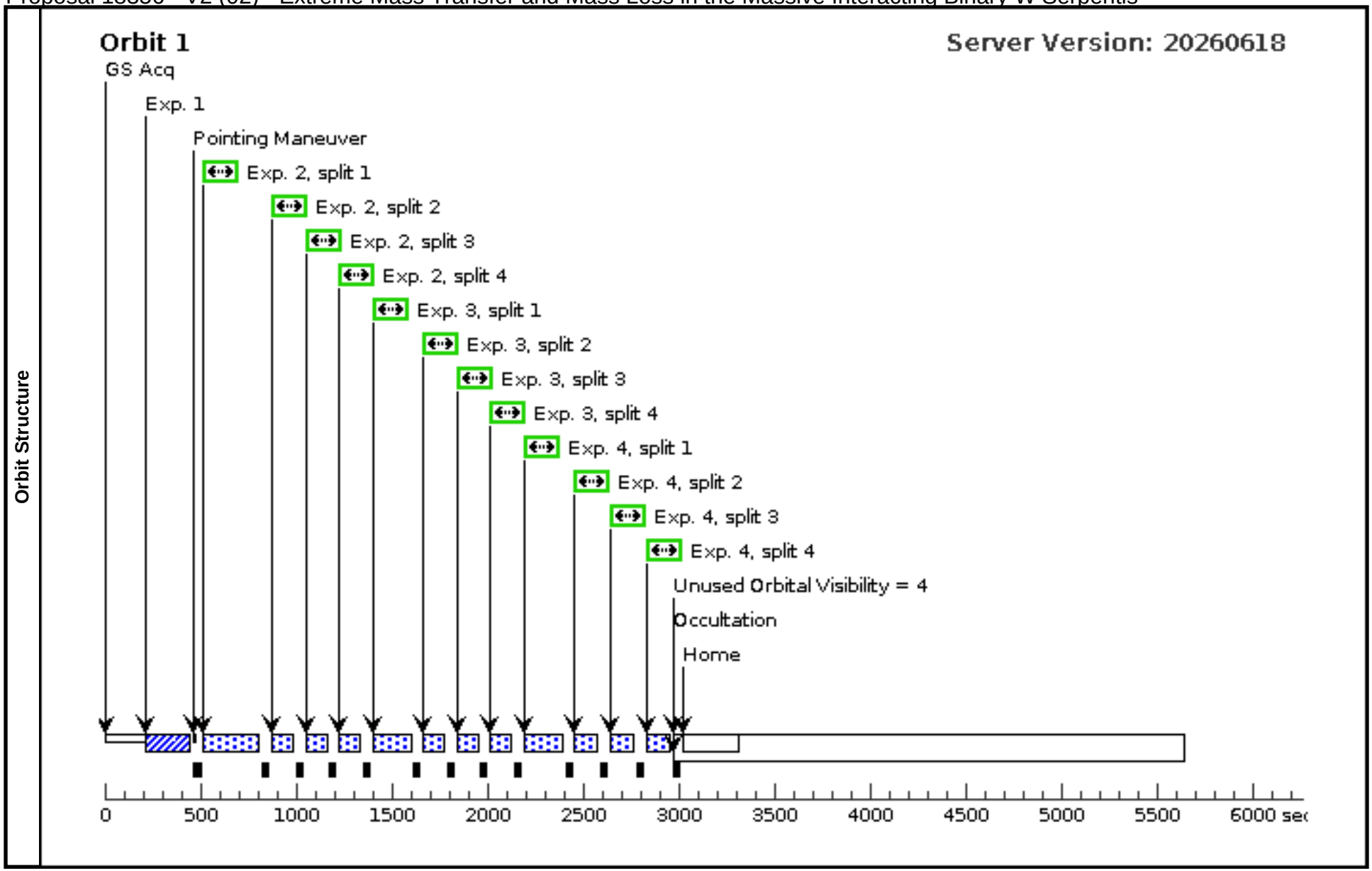
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.

The ETC calculations were made using IUE low dispersion spectra as the source for flux.
There are three bright emission lines in the range 1342 to 1774 Angstroms:
Si IV 1400
C IV 1550
O III 1666
The peak intensities are reduced in the low dispersion IUE spectra, but there are two HST/GHRS spectra in the archive with comparable spectral resolution to COS. These record the Si IV doublet that is narrower but fully resolved and appears with a peak flux that is 4.36 times larger (peak to continuum) than that of the low resolution IUE spectrum. The other two lines are formed in similar environments in the binary system, so they should also be fully resolved at the COS spectral resolution. Consequently, we multiplied the IUE fluxes of these three emission lines by the same factor of 4.36 to estimate the peak emission line fluxes. This will lead to a small over-estimate of the total wavelength-integrated counts in the ETC, but the emission line peak counts should be consistent with the expectations from the archival HST/GHRS spectra of the target.
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V2 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.095 TO 0.270		3.5 Secs (3.5 Secs) *[==>]*	 ***[1]***
2	V2 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	 ***[1]***
3	V2 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	 ***[1]***
4	V2 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	 ***[1]***


Orbit 1
Server Version: 20260618
Orbit Structure
GS Acq
Exp. 1
Pointing Maneuver
Exp. 2, split 1
Exp. 2, split 2
Exp. 2, split 3
Exp. 2, split 4
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Orbital Visibility = 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18356, V3 (03) Mon Aug 17 16:00:49 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 3 for phase 0.276 to 0.452.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.

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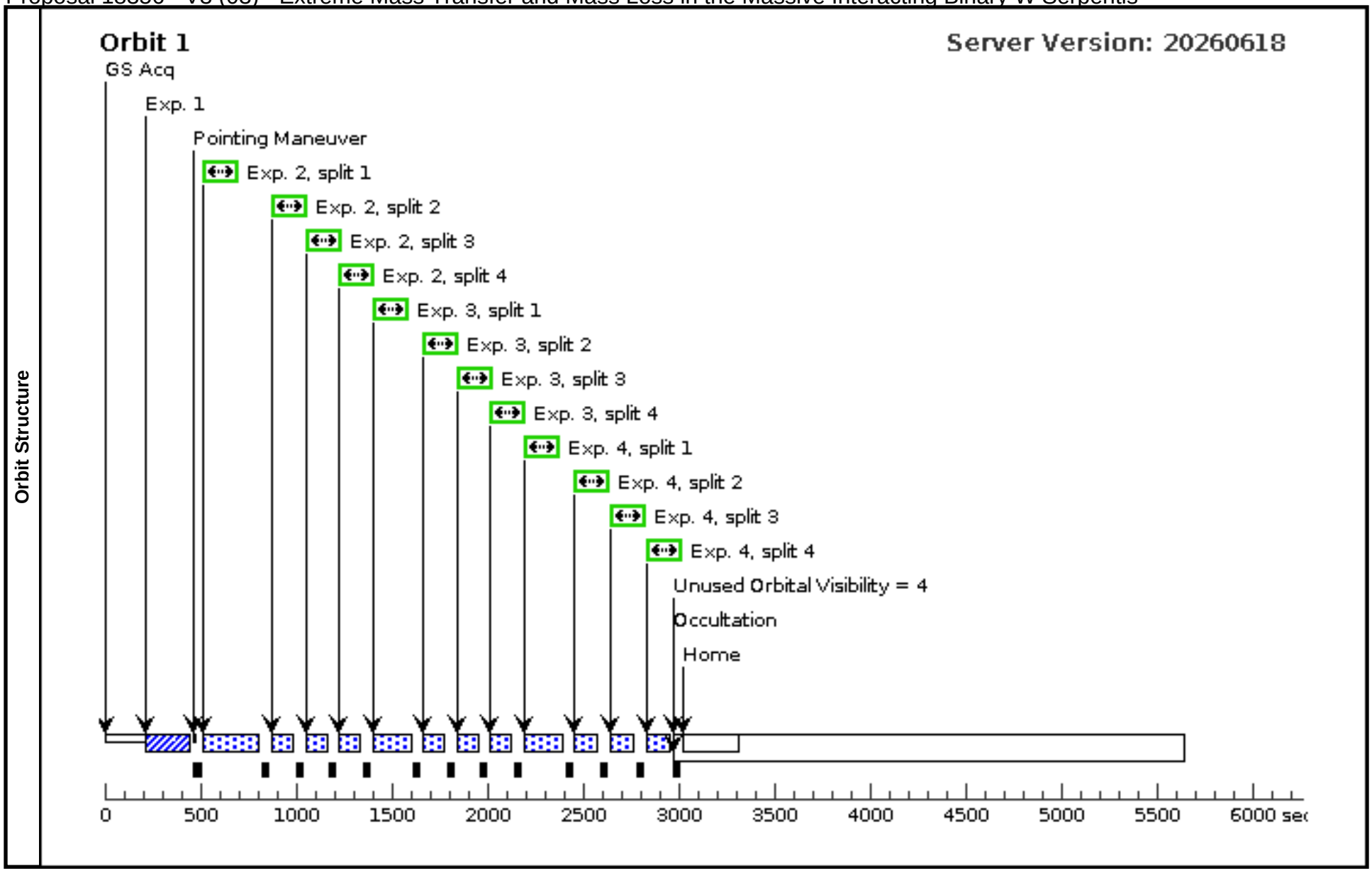
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V3 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.276 TO 0.452		3.5 Secs (3.5 Secs) *[==>]*	*[1]*
2	V3 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	*[1]*
3	V3 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	*[1]*
4	V3 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	*[1]*


Orbit 1
Server Version: 20260618
Orbit Structure
GS Acq
Exp. 1
Pointing Maneuver
Exp. 2, split 1
Exp. 2, split 2
Exp. 2, split 3
Exp. 2, split 4
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Orbital Visibility = 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18356, V4 (04) Mon Aug 17 16:00:50 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 4 for phase 0.458 to 0.634.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

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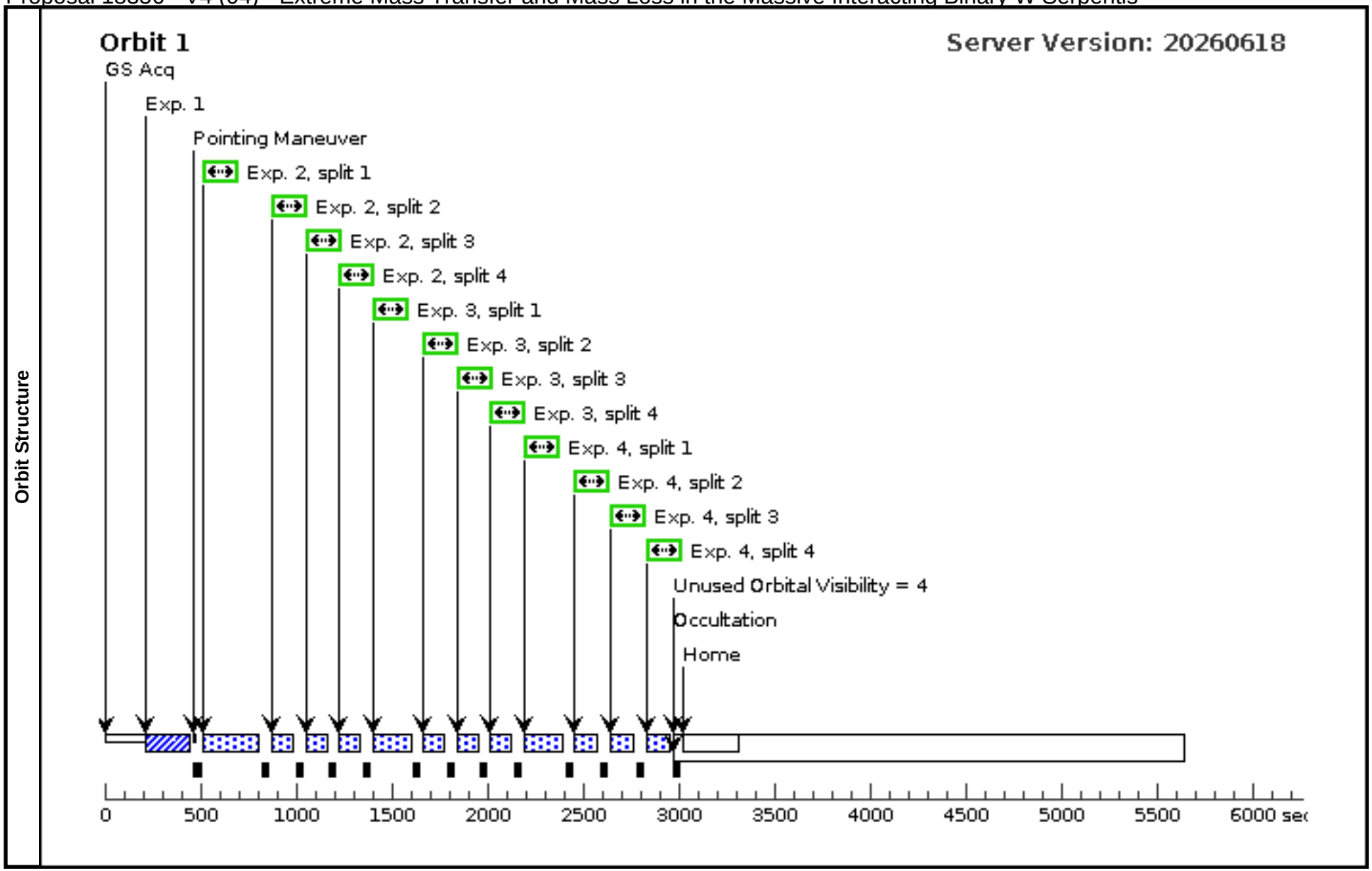
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V4 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.458 TO 0.634		3.5 Secs (3.5 Secs) *[==>]*	***[1]***
2	V4 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	***[1]***
3	V4 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	***[1]***
4	V4 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	***[1]***


Orbit 1
Server Version: 20260618
Orbit Structure
GS Acq
Exp. 1
Pointing Maneuver
Exp. 2, split 1
Exp. 2, split 2
Exp. 2, split 3
Exp. 2, split 4
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Orbital Visibility = 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18356, V5 (05) Mon Aug 17 16:00:50 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 5 for phase 0.640 to 0.815.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

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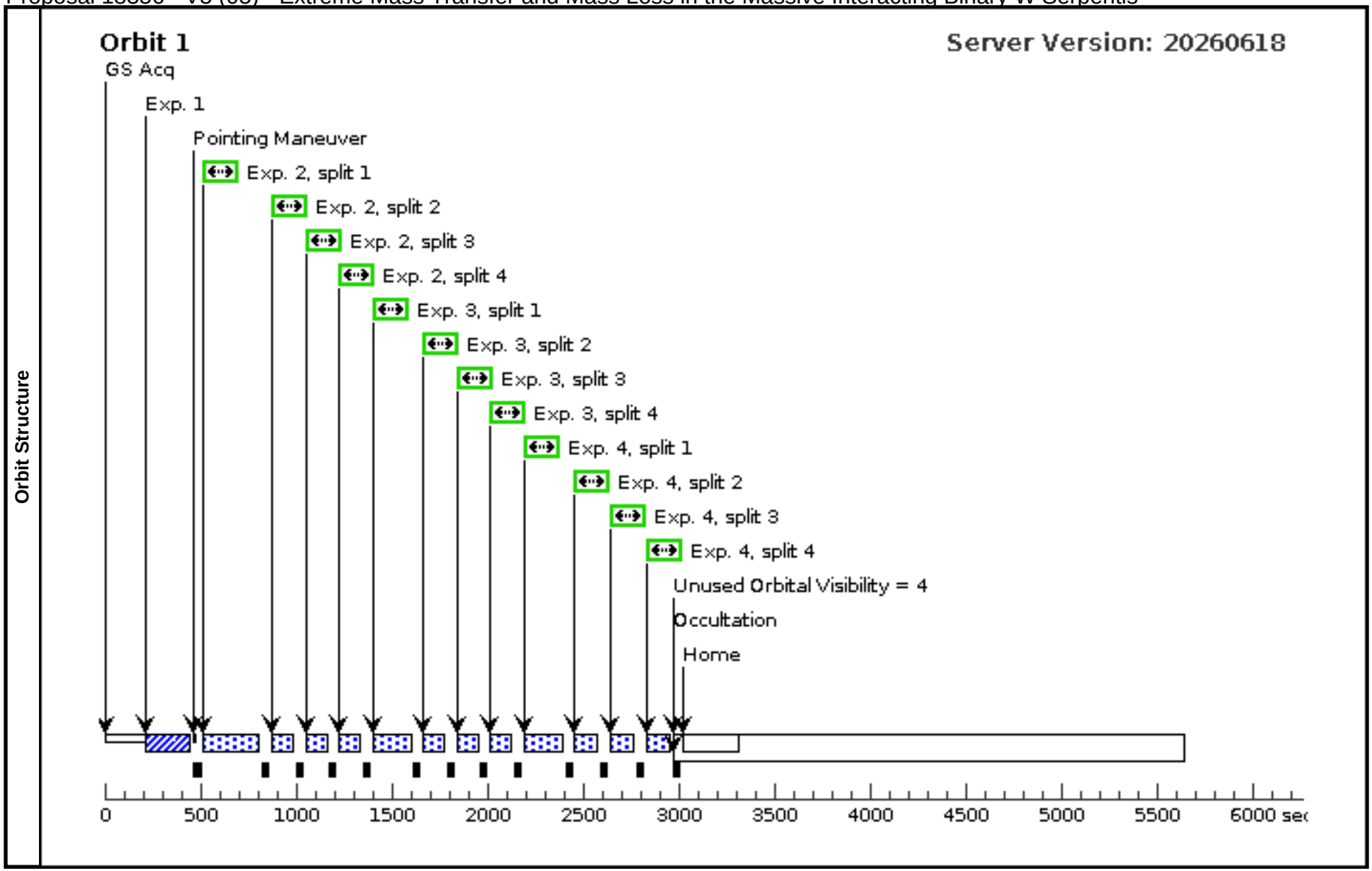
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V5 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.640 TO 0.815		3.5 Secs (3.5 Secs) *[==>]*	*[1]*
2	V5 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	*[1]*
3	V5 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	*[1]*
4	V5 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	*[1]*


Orbit 1
Server Version: 20260618
Orbit Structure
GS Acq
Exp. 1
Pointing Maneuver
Exp. 2, split 1
Exp. 2, split 2
Exp. 2, split 3
Exp. 2, split 4
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Exp. 4, split 1
Exp. 4, split 2
Exp. 4, split 3
Exp. 4, split 4
Unused Orbital Visibility = 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 18356, V6 (06) Mon Aug 17 16:00:50 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: Period 14.18608 D AND ZERO-PHASE HJD2461775.1589

Comments: Visit 6 for phase 0.821 to 0.997.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-W-SER	RA: 18 09 50.6486 (272.4610358d) Dec: -15 33 0.26 (-15.55007d) Equinox: J2000	Proper Motion RA: 0.59 mas/yr Proper Motion Dec: 3.058 mas/yr Parallax: 0.001134" Epoch of Position: 2000 Radial Velocity: -27 km/sec	V=8.42+/-1.0 F(1500) = 1.4E-13 erg/s/cm^2/Angstrom	Reference Frame: ICRS

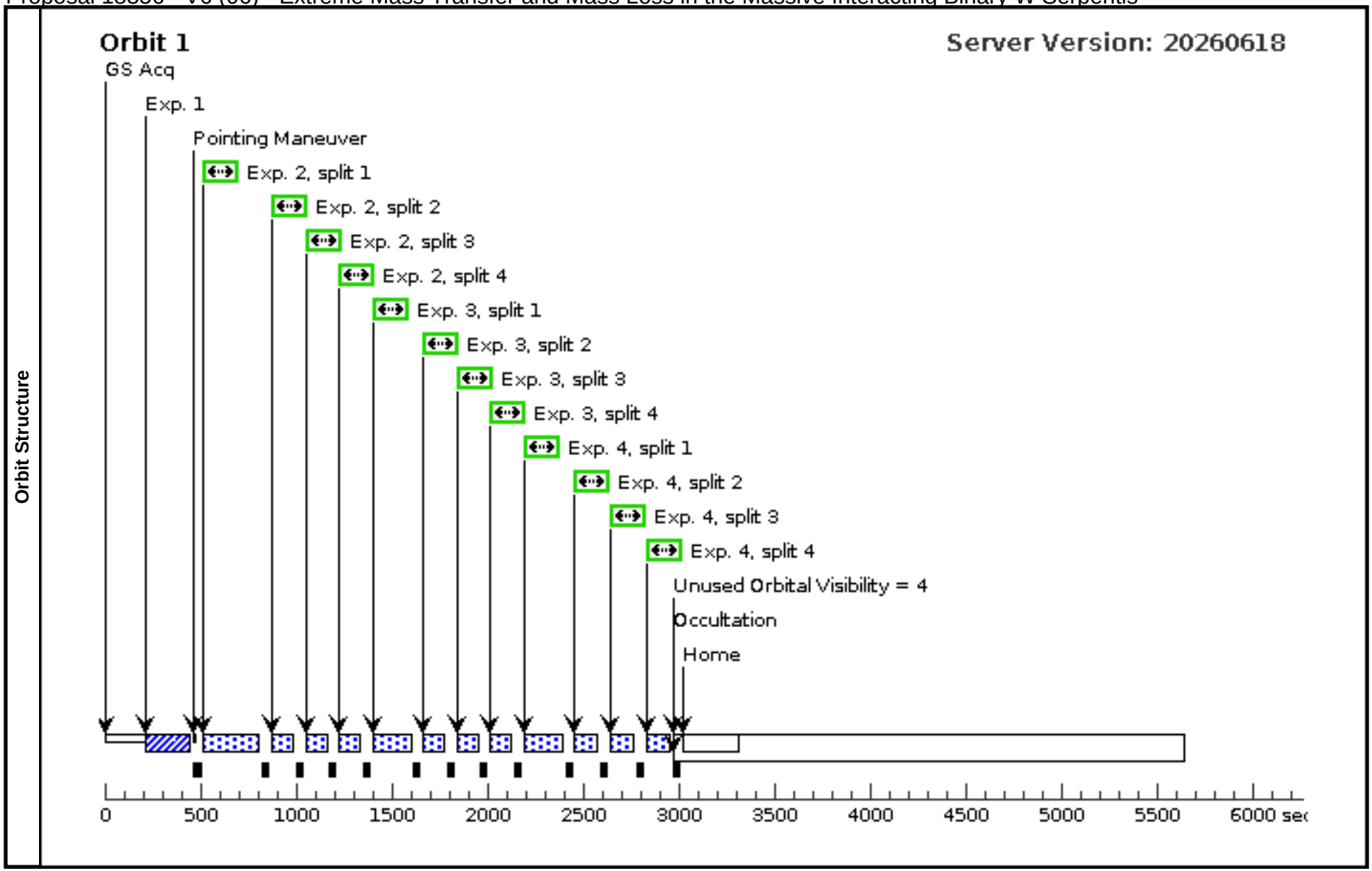
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

SIMBAD listed proper motion for this target. When retrieving targets with PM from SIMBAD, APT requests the coordinates be calculated with an epoch of the year 2000. Do not modify this epoch. Always review coordinates using the Target Confirmation tool, which graphically displays the PM.

The ETC calculations were made using IUE low dispersion spectra as the source for flux.
There are three bright emission lines in the range 1342 to 1774 Angstroms:
Si IV 1400
C IV 1550
O III 1666
The peak intensities are reduced in the low dispersion IUE spectra, but there are two HST/GHRS spectra in the archive with comparable spectral resolution to COS. These record the Si IV doublet that is narrower but fully resolved and appears with a peak flux that is 4.36 times larger (peak to continuum) than that of the low resolution IUE spectrum. The other two lines are formed in similar environments in the binary system, so they should also be fully resolved at the COS spectral resolution. Consequently, we multiplied the IUE fluxes of these three emission lines by the same factor of 4.36 to estimate the peak emission line fluxes. This will lead to a small over-estimate of the total wavelength-integrated counts in the ETC, but the emission line peak counts should be consistent with the expectations from the archival HST/GHRS spectra of the target.
Category=STAR
Description=[ALGOL SYSTEM, CIRCUMSTELLAR MATTER, EMISSION LINE STAR, SHELL STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	V6 Acquisition (COS.ta.2365891)	(1) V-W-SER	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		PHASE 0.821 TO 0.997		3.5 Secs (3.5 Secs) *[==>]*	 ***[1]***
2	V6 1533 (COS.sp.2365918)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1533 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=380			36. Secs (248 Secs) *[==>62.0 Secs (Split 1)]* *[==>62.0 Secs (Split 2)]* *[==>62.0 Secs (Split 3)]* *[==>62.0 Secs (Split 4)]*	 ***[1]***
3	V6 1577 (COS.sp.2365945)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; LIFETIME-POS=LP10; BUFFER-TIME=346			35. Secs (244 Secs) *[==>61.0 Secs (Split 1)]* *[==>61.0 Secs (Split 2)]* *[==>61.0 Secs (Split 3)]* *[==>61.0 Secs (Split 4)]*	 ***[1]***
4	V6 1600 (COS.sp.2365922)	(1) V-W-SER	COS/FUV, TIME-TAG, PSA	G160M 1600 A	BUFFER-TIME=500; FP-POS=ALL; LIFETIME-POS=LP10			46. Secs (288 Secs) *[==>72.0 Secs (Split 1)]* *[==>72.0 Secs (Split 2)]* *[==>72.0 Secs (Split 3)]* *[==>72.0 Secs (Split 4)]*	 ***[1]***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Exp. 4, split 4
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6000 sec