17176 - The Innermost Regions of FU Ori Disks: A Spectral Legacy for HST/STIS+COS

Cycle: 30, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) V-FU-ORI	COS/FUV COS/NUV	4	16-Apr-2024 17:00:20.0	yes
04	(6) V-V1515-CYG	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:21.0	yes
05	(3) V-V960-MON	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:22.0	yes
03	(5) V-V2493-CYG	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:23.0	yes
06	(4) V-V646-PUP	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:24.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
07	(2) EM-LKHA-190	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:25.0	yes
02	(1) V-FU-ORI	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	16-Apr-2024 17:00:26.0	yes
08	(1) V-FU-ORI	STIS/CCD STIS/NUV-MAMA	5	16-Apr-2024 17:00:28.0	yes
09	(5) V-V2493-CYG	STIS/CCD STIS/NUV-MAMA	1	16-Apr-2024 17:00:29.0	yes
10	(6) V-V1515-CYG	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:30.0	yes
11	(6) V-V1515-CYG	STIS/CCD STIS/NUV-MAMA	2	16-Apr-2024 17:00:31.0	yes

26 Total Orbits Used

ABSTRACT

FU Ori stars are a rare class of young stellar object, with less than two dozen examples known. Yet the long-lasting FU Ori outburst events play a prominent role in our understanding of stellar mass assembly at the individual star level. The currently favored model is that of an inner disk instability causing a factor of 100-10,000 increase in the disk-to-star accretion rate. Ultraviolet observations are the most direct way to test the accretion disk scenario -- by measuring the hottest part of the inner disk and thereby determining physical parameters such as temperature T_max and temperature profile T(R). We propose here a complete STIS+COS legacy spectrum for the prototype of the class, FU Ori itself (11 orbits), plus a STIS low-resolution NUV spectral survey for four additional FU Ori outbursts (10 orbits). Heating by viscous accretion will be tested by (1) comparing the new data on FU Ori to a previous STIS spectrum obtained 20 years ago, to look for evidence of disk cooling, and (2) comparing the maximum disk temperature across the five targets, which span a factor of 6 in luminosity. These tests can only be done in the NUV, which is sensitive to the hottest disk temperatures. The spectra will be interpreted using a new empirical disk model that has been applied successfully to longer wavelength observations of FU Ori stars. This survey of extreme accretion disks provides an important complement to the ULLYSES DD Spectroscopic Legacy Project, developed to evaluate magnetospheric accretion on typical T Tauri stars. Our program focuses on the extreme state of accretion physics for young stars, with importance for the evolution of the star and the disk.

OBSERVING DESCRIPTION

FU Ori: STIS G430L, G230L, G140L (in two orbits) plus E230M (in 5 orbits)
FU Ori, COS: G130M and G160M (4 orbits)

Five other targets: G230L and quick G430L spectra (2 orbits total)

Optical peakups are based on a flux-calibrated spectrum of V2493 Cyg, scaled to recent ASAS-SN g-band photometry of all targets.

The COS acquisition of FU Ori uses MIRRORB and is estimated from a previous E140M spectrum, but scaled down according to V-band decline over past 20 years.

Count rates are provided for acquisitions and the COS FUV spectra. Sources are not highly variable, so the count rates should be accurate to within a factor of ~2.

Spectra for count rates:
1) Optical: used V2493 Cyg, scaled to appropropriate flux using recent ASAS-SN g-band photometry

2) near-UV: used an old STIS E230M spectrum of FU Ori

3) far-UV, two choices:
(a) V836 Tau COS, scaled for C IV emission that may have been detected in IUE spectrum of FU Ori
(b) flat spectrum with flux of FU Ori from continuum (estimated from IUE, may not be significant)

The targets are all far lower than the bright limits of COS and the STIS MAMA detectors.

Visit

Proposal 17176, FUOri-COS (01), completed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: SCHED 100%

Diagnostics

(FUOri-COS (01)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave.

(FUOri-COS (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(FUOri-COS (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(FUOri-COS (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(FUOri-COS (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-FU-ORI	RA: 05 45 22.3674 (86.3431975d)	Proper Motion RA: 2.44 mas/yr	V=9.6	Reference Frame: ICRS
		Dec: +09 04 12.25 (9.07007d)	Proper Motion Dec: -2.51 mas/yr		
		Equinox: J2000	Epoch of Position: 2015.5		

Comments: RA and Dec from Gaia DR3

g=10.6 in ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (1808972)	(1) V-FU-ORI	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20 Secs (20 Secs) *[==>]*	*[1]*
	Comments: Brightest pixel: 6.8 cts/s *Source: 49.2 cts/s in 9x9 box*								
2	G160M/1589-3 (1808977)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=723; FP-POS=3; LIFETIME-POS=LP6			833 Secs (833 Secs) *[==>]*	*[1]*
	Comments: Two different ETCs: *1808977, using V836 Tau COS spectrum (FU Ori is 2x brighter in C IV:* *Brightest pixel: 0.002 cts/s (=> 0.004 for FU Ori)* *Count rate: 77 cts/s (=> 150 for FU Ori)* *Flat spectrum with flux of 1e-15 erg/cm2/s/A* *ETC 1808973* *Brightest pixel 1.8e-4 cts/s, count rate 89 cts/s*								
3	G160M/1589-4 (1808977)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G160M 1589 A	BUFFER-TIME=723; FP-POS=4; LIFETIME-POS=LP6			833 Secs (833 Secs) *[==>]*	*[1]*
	Comments: Two different ETCs: *1808977, using V836 Tau COS spectrum (FU Ori is 2x brighter in C IV:* *Brightest pixel: 0.002 cts/s (=> 0.004 for FU Ori)* *Count rate: 77 cts/s (=> 150 for FU Ori)* *Flat spectrum with flux of 1e-15 erg/cm2/s/A* *ETC 1808973* *Brightest pixel 1.8e-4 cts/s, count rate 89 cts/s*								
4	G160M/1623-1 (1808977)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=949; FP-POS=1; LIFETIME-POS=LP6			1059 Secs (1059 Secs) *[==>]*	*[2]*
	Comments: Two different ETCs: *1808977, using V836 Tau COS spectrum (FU Ori is 2x brighter in C IV:* *Brightest pixel: 0.002 cts/s (=> 0.004 for FU Ori)* *Count rate: 77 cts/s (=> 150 for FU Ori)* *Flat spectrum with flux of 1e-15 erg/cm2/s/A* *ETC 1808973* *Brightest pixel 1.8e-4 cts/s, count rate 89 cts/s*								

5	G160M/162 3-3 (1808977)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G160M 1623 A	BUFFER-TIME=949; FP-POS=3; LIFETIME-POS=LP6	1059 Secs (1059 Secs) *[==>]*	***[2]***

Comments: Two different ETCs:
1808977, using V836 Tau COS spectrum (FU Ori is 2x brighter in C IV:
Brightest pixel: 0.002 cts/s (=> 0.004 for FU Ori)
Count rate: 77 cts/s (=> 150 for FU Ori)

Flat spectrum with flux of 1e-15 erg/cm2/s/A
ETC 1808973
Brightest pixel 1.8e-4 cts/s, count rate 89 cts/s

6	G130M/130 9-3 (1808999)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=533; FP-POS=3; LIFETIME-POS=LP3	1174 Secs (1174 Secs) *[==>]*	***[3]***

Comments: V836 Tau COS spectrum: 1808999
--0.09 cts/s in brightest pixel at Ly-alpha (geocoronal)
--0.01 cts/s in brightest in Segment A (0.02 cts/s for FU Ori)
--59 cts/s in detector A (=> 120 cts/s for FU Ori)
--228 cts/s in detector B (geocoronal Ly-alpha)

Two different ETCs:
Flat spectrum with flux of 1e-15 erg/cm2/s/A
ETC 1808755
Brightest pixel 0.09 cts/s, count rate 305 cts/s

7	G130M/130 9-4 (1808999)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G130M 1309 A	BUFFER-TIME=532; FP-POS=4; LIFETIME-POS=LP3	1174 Secs (1174 Secs) *[==>]*	***[3]***

Comments: V836 Tau COS spectrum: 1808999
--0.09 cts/s in brightest pixel at Ly-alpha (geocoronal)
--0.01 cts/s in brightest in Segment A (0.02 cts/s for FU Ori)
--59 cts/s in detector A (=> 120 cts/s for FU Ori)
--228 cts/s in detector B (geocoronal Ly-alpha)

Two different ETCs:
Flat spectrum with flux of 1e-15 erg/cm2/s/A
ETC 1808755
Brightest pixel 0.09 cts/s, count rate 305 cts/s

8	G130M/122 2-2 (1808978)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=532; FP-POS=2; LIFETIME-POS=LP4	1175 Secs (1175 Secs) *[==>]*	***[4]***

Comments: V836 Tau COS spectrum:
--0.08 cts/s in brightest pixel (=0.16 for FU Ori)
--100 cts/s in entire detector (=200 for FU Ori)

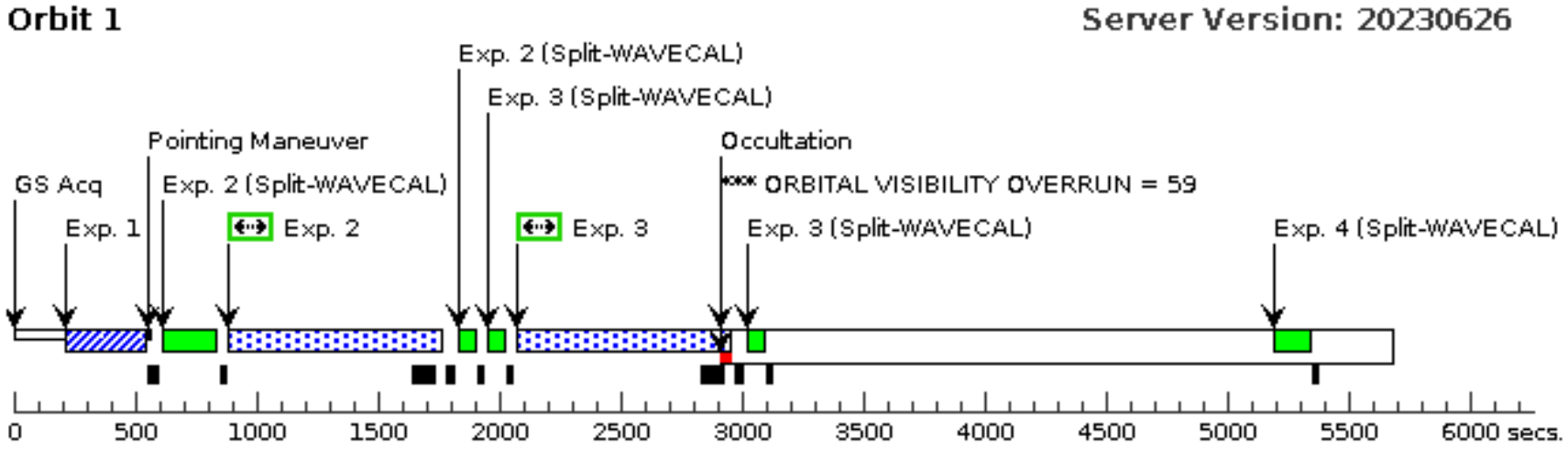
Two different ETCs:
Flat spectrum with flux of 1e-15 erg/cm2/s/A
ETC 1808755
Brightest pixel 0.09 cts/s, count rate 305 cts/s

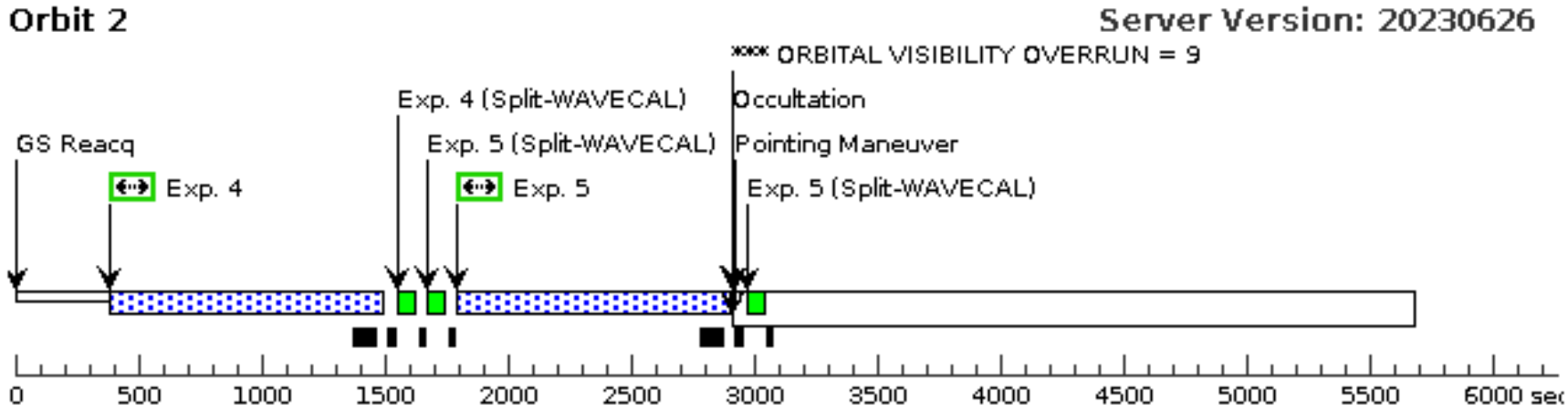
	9	G130M/122 2-4 (1808978)	(1) V-FU-ORI	COS/FUV, TIME-TAG, PSA	G130M 1222 A	BUFFER-TIME=532; FP-POS=4; LIFETIME-POS=LP4	1175 Secs (1175 Secs) *[==>]*	***[4]***

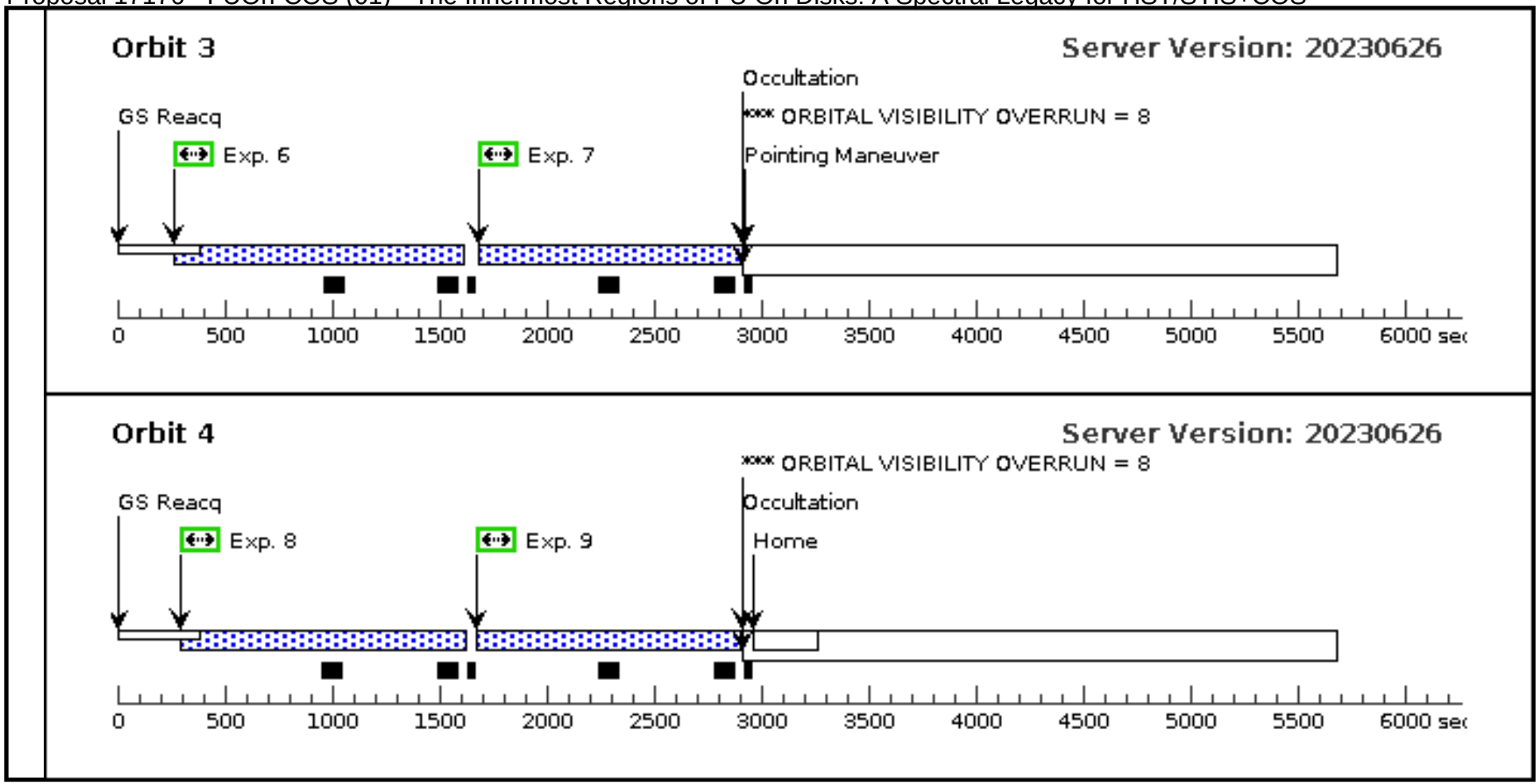
Comments: V836 Tau COS spectrum:
--0.08 cts/s in brightest pixel (=0.16 for FU Ori)
--100 cts/s in entire detector (=200 for FU Ori)

Two different ETCs:
Flat spectrum with flux of 1e-15 erg/cm2/s/A
ETC 1808755
Brightest pixel 0.09 cts/s, count rate 305 cts/s

Orbit Structure



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Occultation
GS Reacq
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Exp. 7
Pointing Maneuver
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1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec
Orbit 4
Server Version: 20230626
*** ORBITAL VISIBILITY OVERRUN = 8
GS Reacq
Occultation
Exp. 8
Exp. 9
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17176, V1515Cyg (04), failed

Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(V1515Cyg (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(V1515Cyg (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	V-V1515-CYG	RA: 20 23 48.0122 (305.9500508d) Dec: +42 12 25.69 (42.20714d) Equinox: J2000	Proper Motion RA: -2.431865089636948E-4 sec of time/yr Proper Motion Dec: -0.005583000097431068 arcsec/yr Epoch of Position: 2015.5	V=14.1	Reference Frame: ICRS

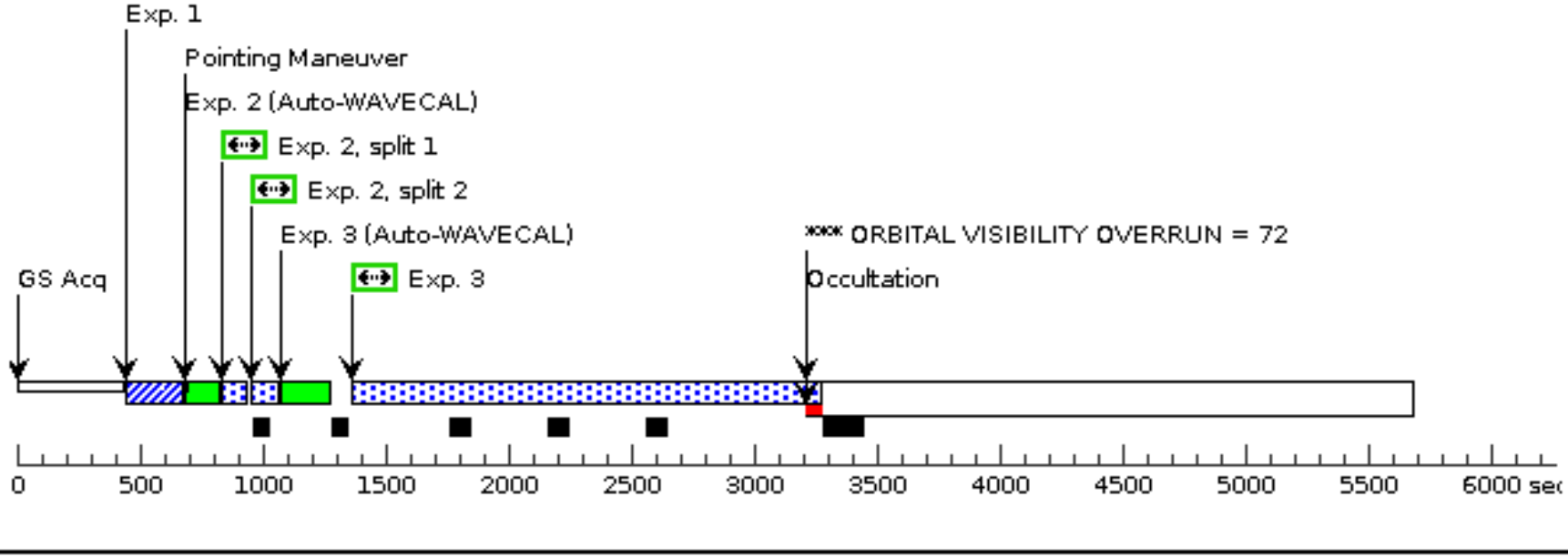
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

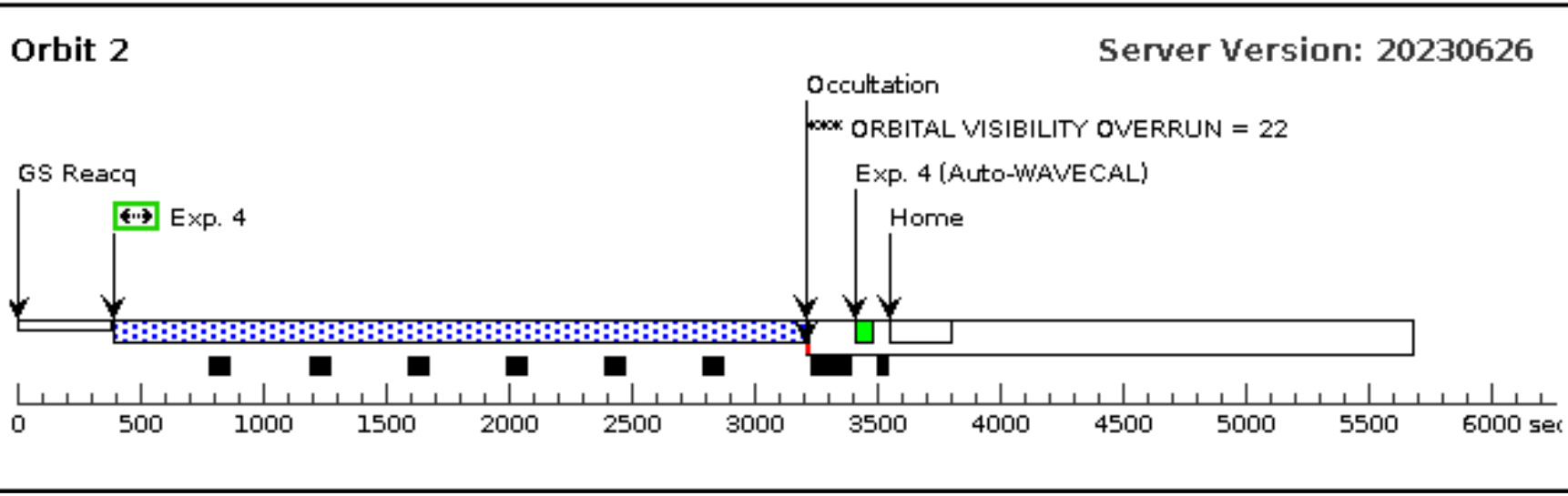
g=14.9 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(1808675)	(6) V-V1515-CYG	STIS/CCD, ACQ, F28X50LP	MIRROR				0.6 Secs (0.6 Secs) *[==>]*	*[1]*
Comments: g=14.4 *S/N=40 in 0.04 s, saturation in 7 s*									
2	(1808706)	(6) V-V1515-CYG	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			140 Secs (140 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3	(180871)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1894 Secs (1894 Secs) *[==>]*	*[1]*
Comments: Brightest pixel: 0.15 cts/s									
4	(180871)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2818 Secs (2818 Secs) *[==>]*	*[2]*
Comments: Brightest pixel: 0.15 cts/s									

Orbit Structure





Visit

Proposal 17176, V960Mon (05), scheduling Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(V960Mon (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(V960Mon (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	V-V960-MON	RA: 06 59 31.5877 (104.8816154d) Dec: -04 05 27.77 (-4.09105d) Equinox: J2000	Proper Motion RA: -8.468244234726461E-5 sec of time/yr Proper Motion Dec: -2.54999963544833E-4 arcsec/yr Epoch of Position: 2015.5	V=14.94	Reference Frame: ICRS

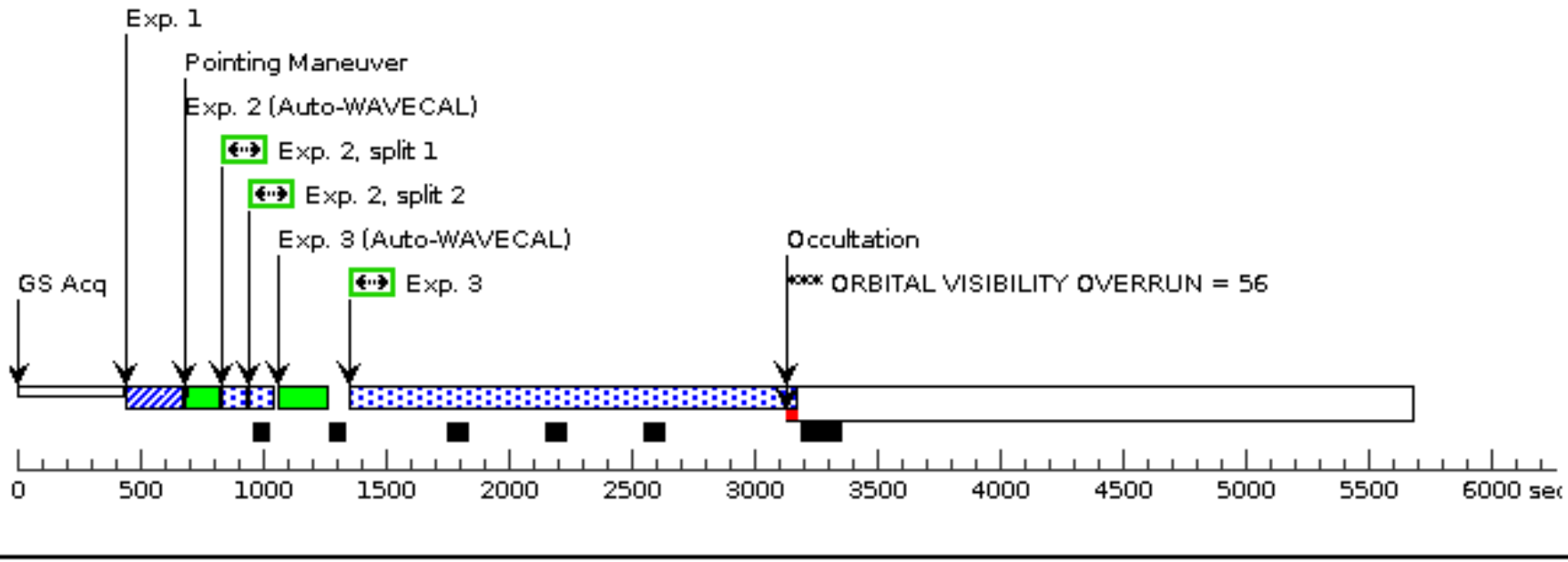
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

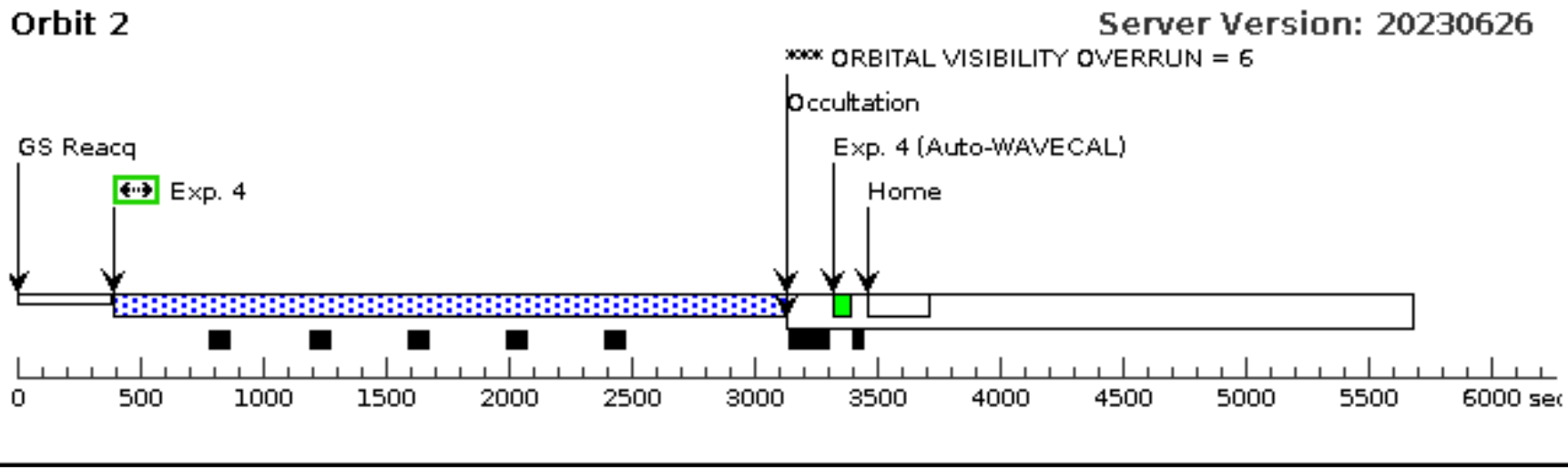
g=13.5 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(1808701)	(3) V-V960-MON	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	 ***[1]***
Comments: g=13.5 *S/N=40 in 0.01 s, saturation in 1.96 s*									
2	(1808707)	(3) V-V960-MON	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			130 Secs (130 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	 ***[1]***
3	(1808721)	(3) V-V960-MON	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1810 Secs (1810 Secs) *[==>]*	 ***[1]***
Comments: 0.34 cts/s in brightest pixel									
4	(1808721)	(3) V-V960-MON	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2722 Secs (2722 Secs) *[==>]*	 ***[2]***
Comments: 0.34 cts/s in brightest pixel									

Orbit Structure





Visit

Proposal 17176, V2493Cyg (03), failed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(V2493Cyg (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(V2493Cyg (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	V-V2493-CYG	RA: 20 58 17.0274 (314.5709475d) Dec: +43 53 43.29 (43.89536d) Equinox: J2000	Proper Motion RA: -5.4861136008634214E-5 sec of time/yr Proper Motion Dec: -0.0029080000103931525 arcsec/yr Epoch of Position: 2015.5	V=13.5	Reference Frame: ICRS

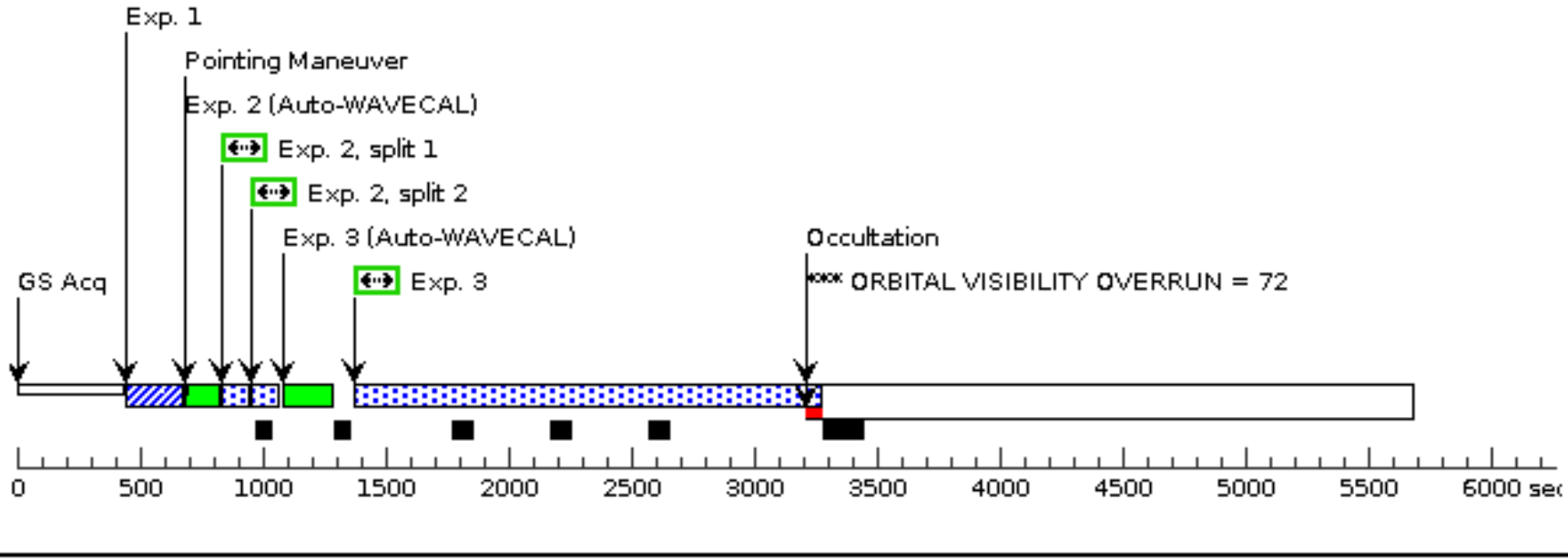
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. V-band from Kospal+2016

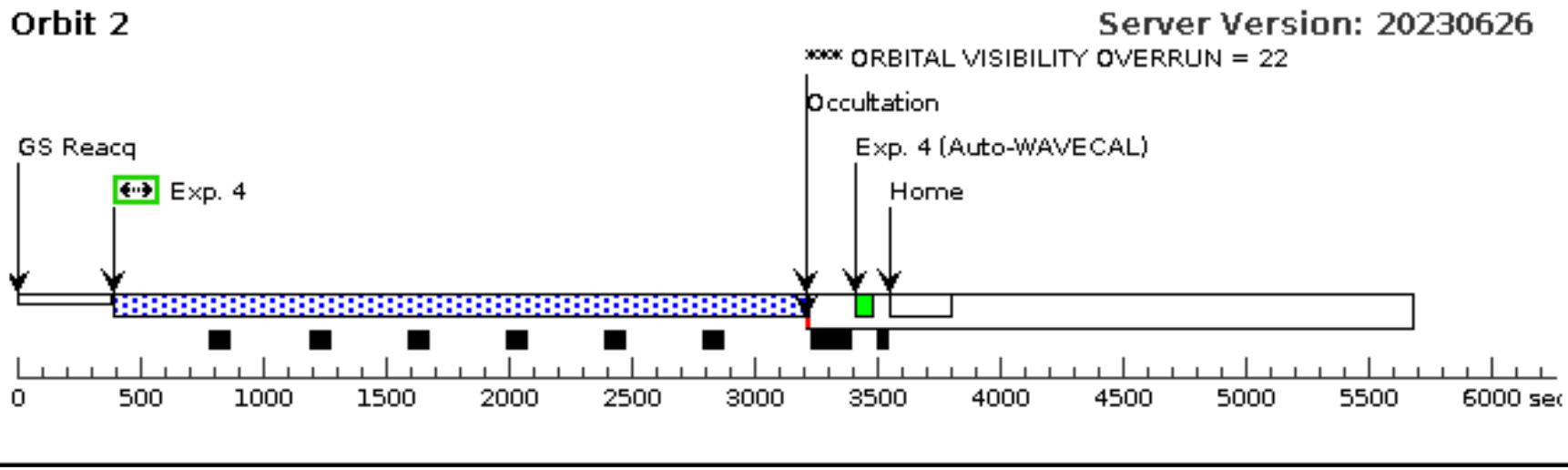
g=14.1 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(1808702)	(5) V-V2493-CYG	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	 ***[1]***
Comments: g=14.1 from ASAS-SN									
2	(1808708)	(5) V-V2493-CYG	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			150 Secs (150 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	 ***[1]***
3	(1808722)	(5) V-V2493-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1886 Secs (1886 Secs) *[==>]*	 ***[1]***
Comments: brightest pixel: 0.2 cts/s									
4	(1808722)	(5) V-V2493-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2818 Secs (2818 Secs) *[==>]*	 ***[2]***
Comments: brightest pixel: 0.2 cts/s									

Orbit Structure





Visit

Proposal 17176, V646Pup (06), completed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(V646Pup (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(V646Pup (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	V-V646-PUP	RA: 07 50 35.5873 (117.6482804d) Dec: -33 06 23.83 (-33.10662d) Equinox: J2000	Proper Motion RA: -3.2710339565449645E-4 sec of time/yr Proper Motion Dec: 0.00501 arcsec/yr Epoch of Position: 2015.5	V=12.65	Reference Frame: ICRS

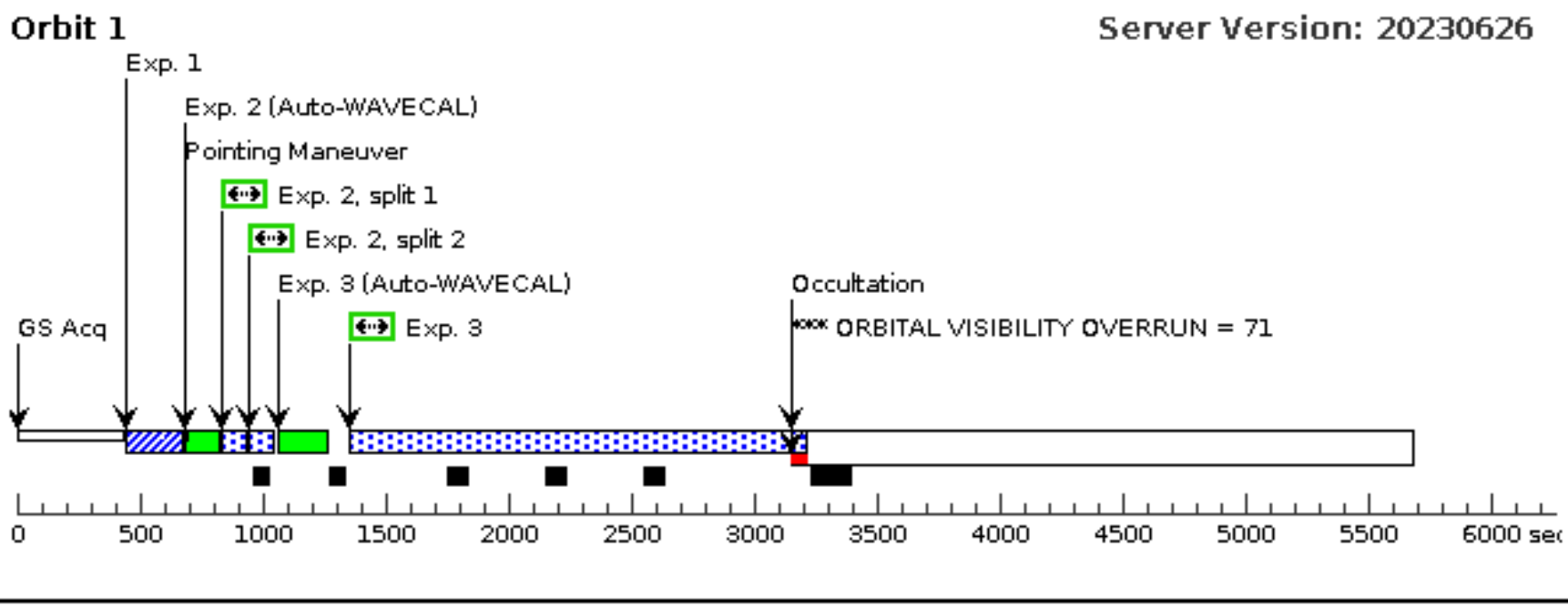
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

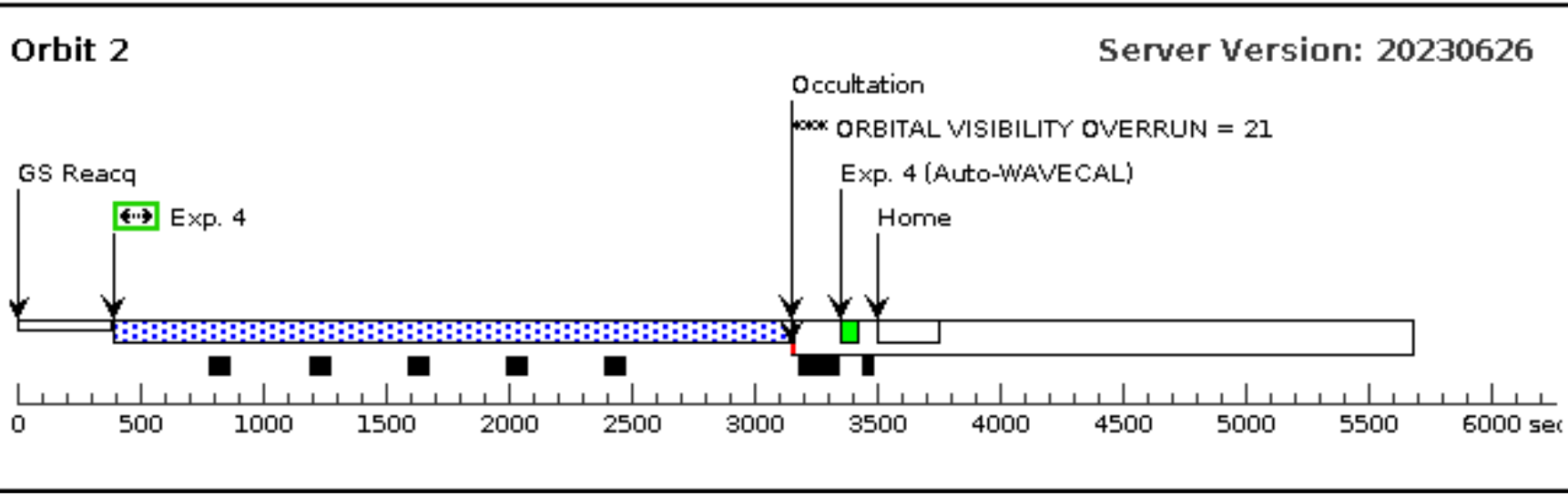
g=13.5 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(4) V-V646-PUP	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	***[1]***
Comments: g=13.5 *Saturation in 1.9 s, S/N=40 in 0.01 s*									
2	(1808709)	(4) V-V646-PUP	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			130 Secs (130 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
Comments: g=13.3									
3	(1808721)	(4) V-V646-PUP	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1848 Secs (1848 Secs) *[==>]*	***[1]***
Comments: 0.34 cts/s in brightest pixel									
4	(1808721)	(4) V-V646-PUP	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2760 Secs (2760 Secs) *[==>]*	***[2]***
Comments: 0.34 cts/s in brightest pixel									

Orbit Structure





Visit

Proposal 17176, LkHa190 (07), completed

Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(LkHa190 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(LkHa190 (07)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	EM-LKHA-190	RA: 20 58 53.7296 (314.7238733d) Dec: +44 15 28.33 (44.25787d) Equinox: J2000	Proper Motion RA: -2.59981026337079E-4 sec of time/yr Proper Motion Dec: -0.003812999989349919 arcsec/yr Epoch of Position: 2015.5	V=15.6	Reference Frame: ICRS

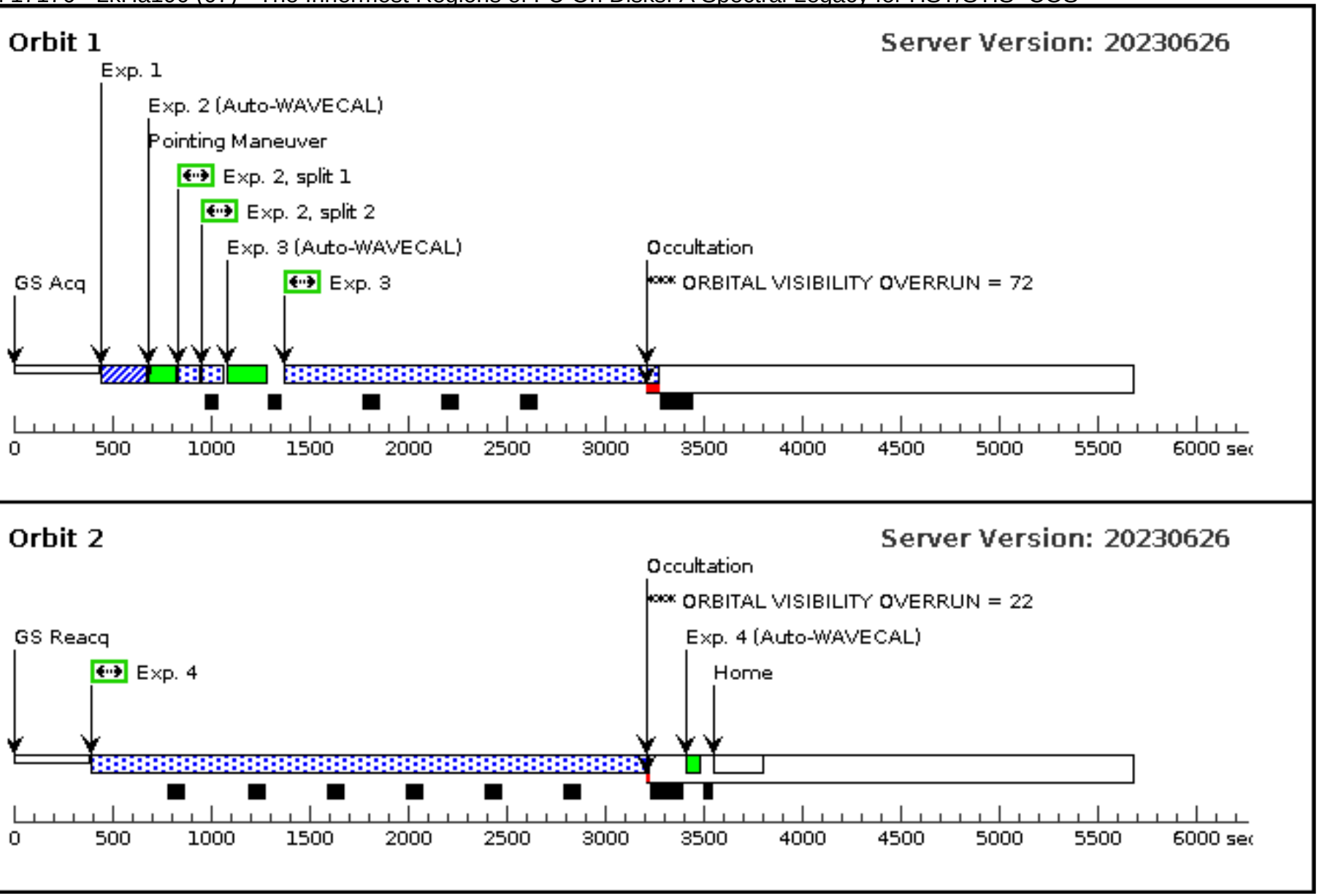
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

g=13.6 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(1808400)	(2) EM-LKHA-190	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	 ***[1]***
Comments: g=13.6 *Saturation in 2.1 s, S/N=40 in 0.01 s*									
2	(1808710)	(2) EM-LKHA-190	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			150 Secs (150 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	 ***[1]***
Comments: g=13.6									
3	(1808721)	(2) EM-LKHA-190	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1886 Secs (1886 Secs) *[==>]*	 ***[1]***
Comments: 0.34 cts/s in brightest pixel									
4	(1808721)	(2) EM-LKHA-190	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2818 Secs (2818 Secs) *[==>]*	 ***[2]***
Comments: 0.34 cts/s in brightest pixel									

Orbit Structure



Visit

Proposal 17176, FUOri-STIS (02), completed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: SCHED 100%

Diagnostics

(FUOri-STIS (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(FUOri-STIS (02)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-FU-ORI	RA: 05 45 22.3674 (86.3431975d) Dec: +09 04 12.25 (9.07007d) Equinox: J2000	Proper Motion RA: 2.44 mas/yr Proper Motion Dec: -2.51 mas/yr Epoch of Position: 2015.5	V=9.6	Reference Frame: ICRS

Comments: RA and Dec from Gaia DR3

g=10.6 in ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1808682)	(1) V-FU-ORI	STIS/CCD, ACQ, F25ND3	MIRROR				0.4 Secs (0.4 Secs) *[==>]*	*[1]*
2	G430L/4300 (STIS.sp.15 24180)	(1) V-FU-ORI	STIS/CCD, ACCUM, 52X2	G430L 4300 A	CR-SPLIT=3; GAIN=4			45 Secs (45 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	*[1]*
3	G230L (1808723)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=250			1381 Secs (1381 Secs) *[==>]*	*[1]*
4	G140L (1809000)	(1) V-FU-ORI	STIS/FUV-MAMA, TIME-TAG, 52X2	G140L 1425 A	BUFFER-TIME=250			2462 Secs (2462 Secs) *[==>]*	*[2]*

Comments: g=10.6

0.25s for S/N=40, 41s to saturation

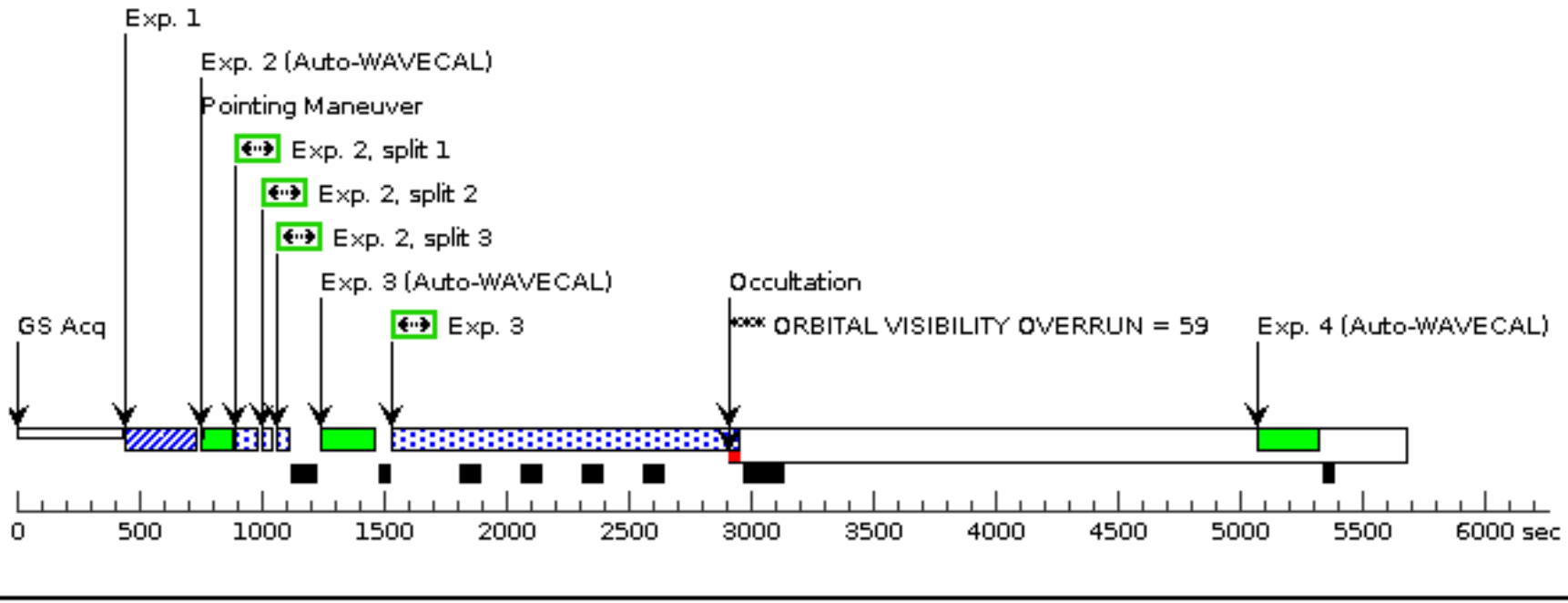
Comments: g=10.6

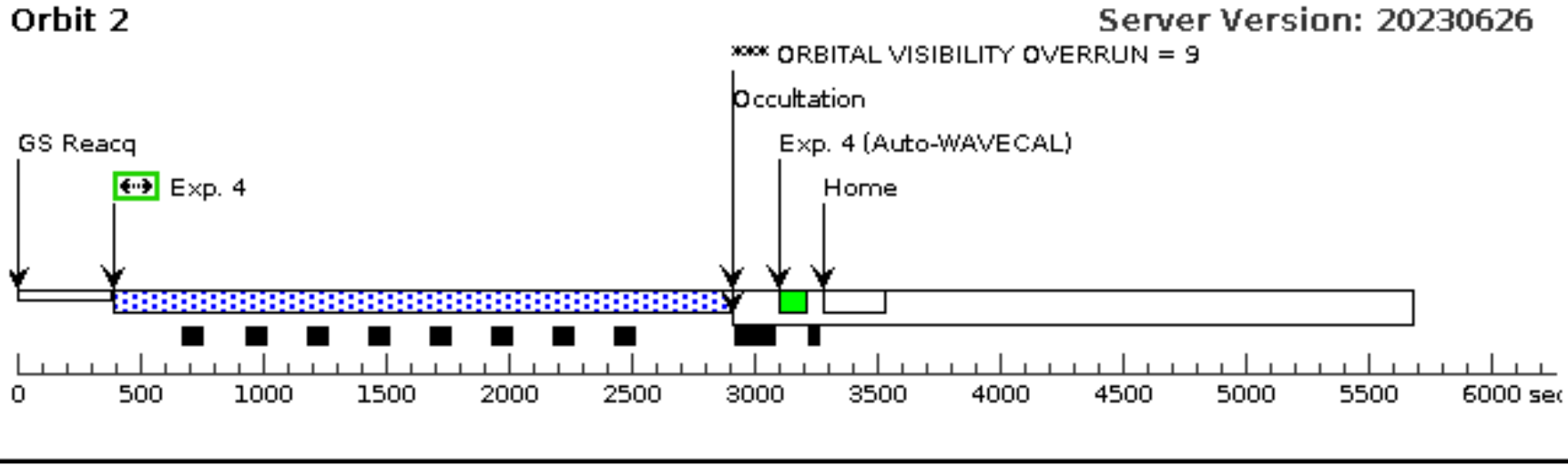
Comments: brightest pixel: 4.6 cts/s
Source count rate: 650 cts/s

Comments: ETC 1809000
V836 Tau COS spectrum as input
Brightest pixel: 0.0145 cts/s (0.03 for FU Ori)
Count rate entire detector: 285 s (geocoronal Ly-alpha), source is 7.7 cts/s (=> 15 cts/s for FU Ori)

If flat spectrum: 0.02 cts/s in brightest pixel
ETC 1808982

Orbit Structure





Visit

Proposal 17176, FUOri-STIS (08), scheduling Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: SCHED 100%

Diagnostics

(FUOri-STIS (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
(FUOri-STIS (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
(FUOri-STIS (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
(FUOri-STIS (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN
(FUOri-STIS (08)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-FU-ORI	RA: 05 45 22.3674 (86.3431975d) Dec: +09 04 12.25 (9.07007d) Equinox: J2000	Proper Motion RA: 2.44 mas/yr Proper Motion Dec: -2.51 mas/yr Epoch of Position: 2015.5	V=9.6	Reference Frame: ICRS

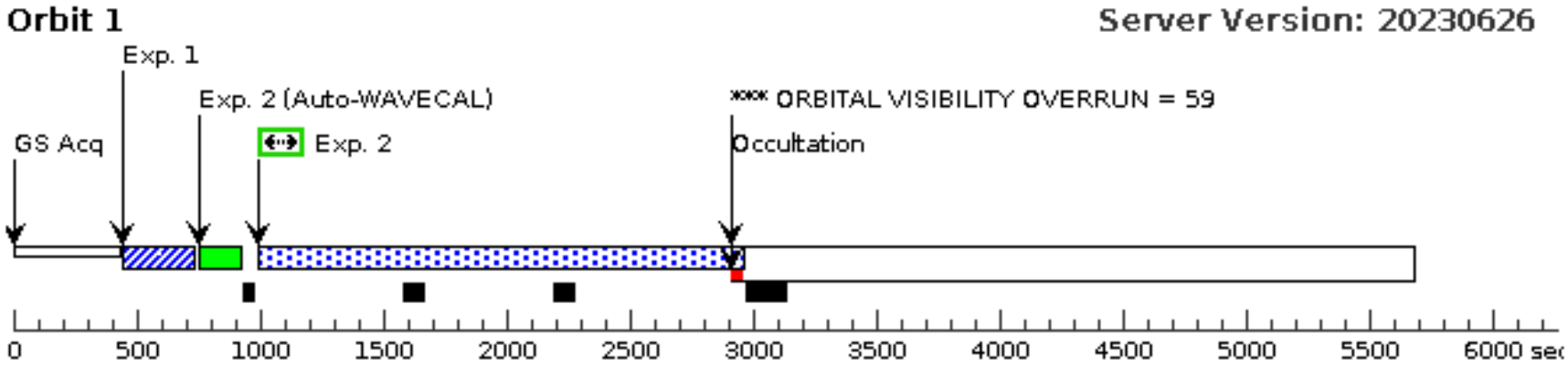
Comments: RA and Dec from Gaia DR3

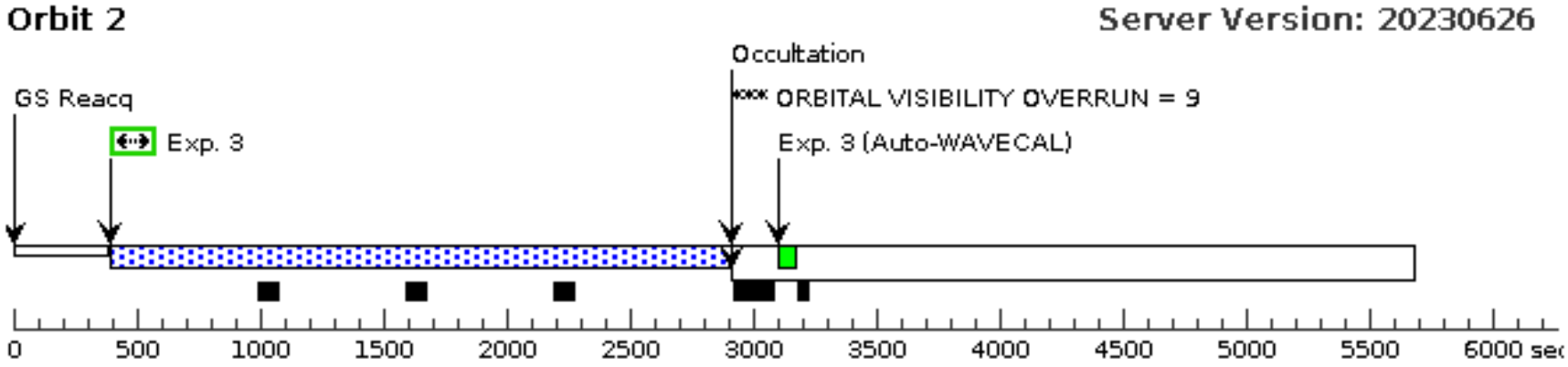
g=10.6 in ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS STAR]
Extended=NO

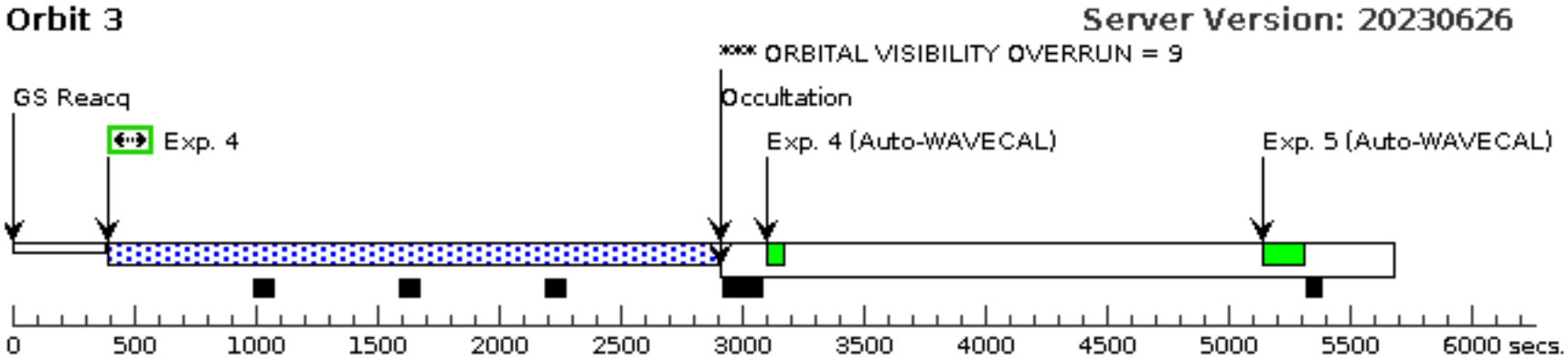
Exposures

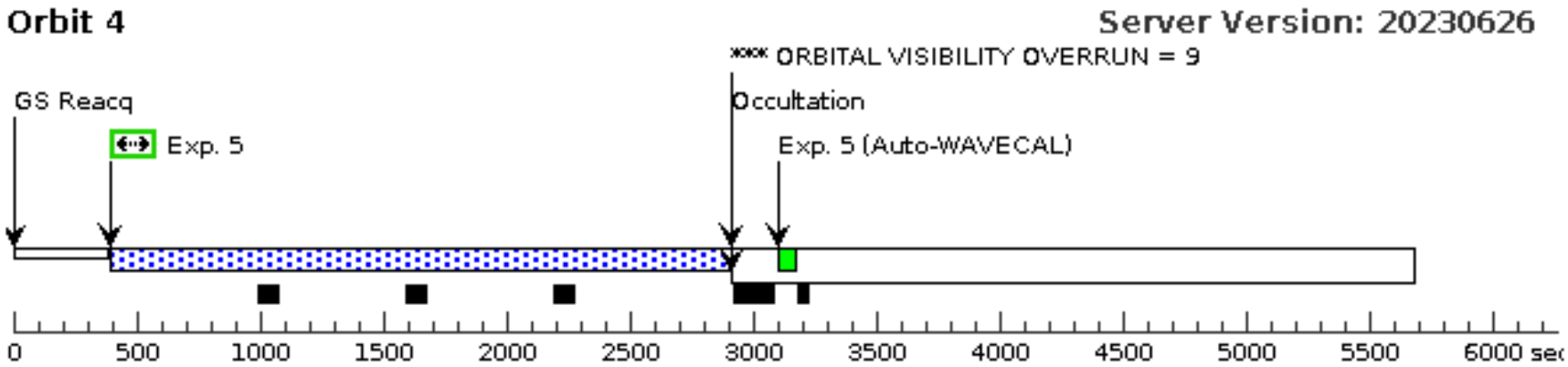
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1808682)	(1) V-FU-ORI	STIS/CCD, ACQ, F25ND3	MIRROR				0.4 Secs (0.4 Secs) *[==>]*	 ***[1]***
Comments: g=10.6 *0.25s for S/N=40, 41s to saturation*									
2	(1808728)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2124 A	BUFFER-TIME=600			1952 Secs (1952 Secs) *[==>]*	 ***[1]***
Comments: Bghtest pixel: 0.01 cts/s									
3	(1808728)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2124 A	BUFFER-TIME=600			2500 Secs (2500 Secs) *[==>]*	 ***[2]***
Comments: Bghtest pixel: 0.01 cts/s									
4	(1808728)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2124 A	BUFFER-TIME=600			2500 Secs (2500 Secs) *[==>]*	 ***[3]***
Comments: Bghtest pixel: 0.01 cts/s									
5	(1808726)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=600			2500 Secs (2500 Secs) *[==>]*	 ***[4]***
Comments: Brightest pixel: 0.1 cts/s *Source cts: 245 cts/s*									
6	(1808726)	(1) V-FU-ORI	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=600			2500 Secs (2500 Secs) *[==>]*	 ***[5]***
Comments: Bghtest pixel: 0.1 cts/s *Source cts: 245 cts/s*									

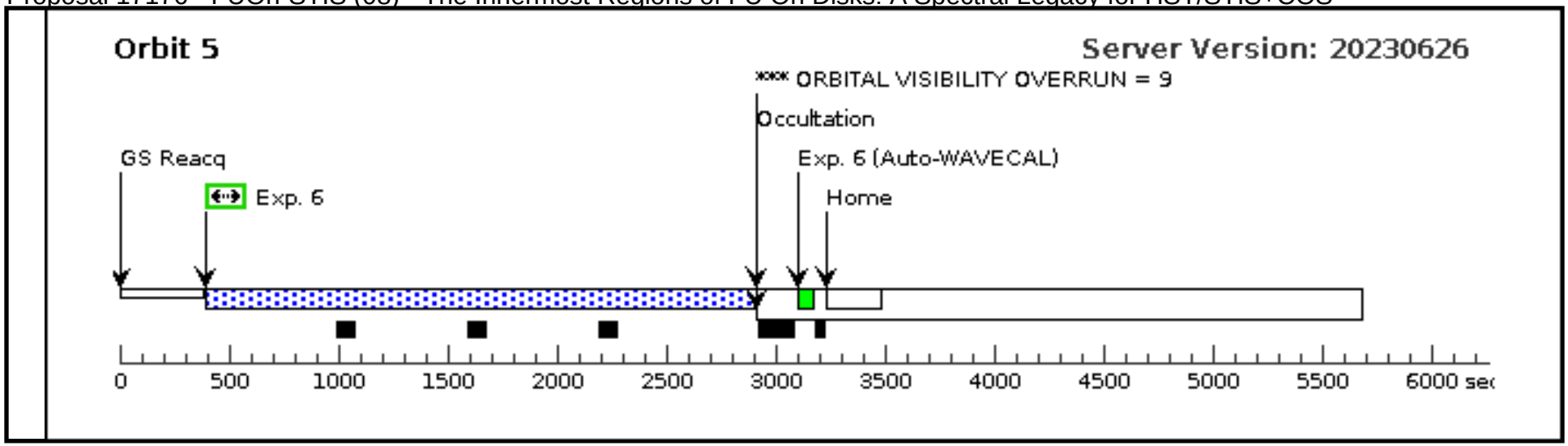
Orbit Structure






Orbit 3
Server Version: 20230626
*** ORBITAL VISIBILITY OVERRUN = 9
GS Reacq
Exp. 4
Occultation
Exp. 4 (Auto-WAVECAL)
Exp. 5 (Auto-WAVECAL)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 secs.


Orbit 4
Server Version: 20230626
*** ORBITAL VISIBILITY OVERRUN = 9
GS Reacq
Exp. 5
Occultation
Exp. 5 (Auto-WAVECAL)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec


Orbit 5
Server Version: 20230626
**** ORBITAL VISIBILITY OVERRUN = 9
Occultation
GS Reacq
Exp. 6
Exp. 6 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17176, V2493Cyg (09), completed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: Warning

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

Special Requirements: (none)

Diagnostics

(V2493Cyg (09)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	V-V2493-CYG	RA: 20 58 17.0274 (314.5709475d) Dec: +43 53 43.29 (43.89536d) Equinox: J2000	Proper Motion RA: -5.4861136008634214E-5 sec of time/yr Proper Motion Dec: -0.0029080000103931525 arcsec/yr Epoch of Position: 2015.5	V=13.5	Reference Frame: ICRS

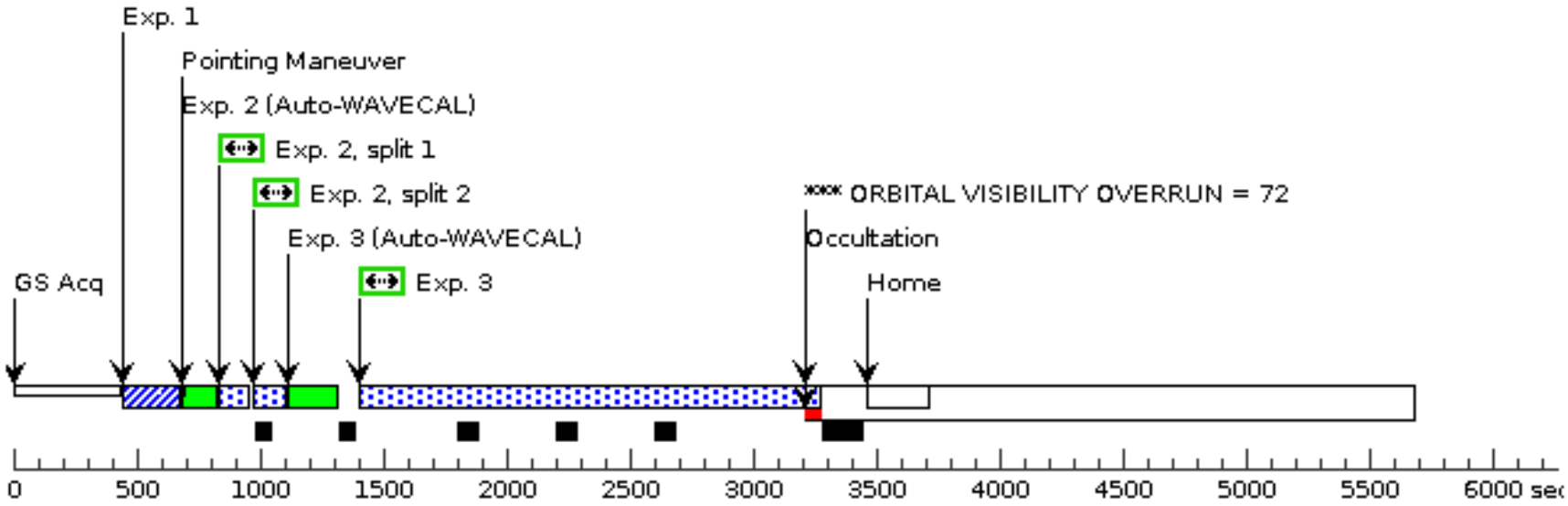
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. V-band from Kospal+2016

g=14.1 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS 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	(1808702)	(5) V-V2493-CYG	STIS/CCD, ACQ, F28X50LP	MIRROR				0.3 Secs (0.3 Secs) *[==>]*	*[1]*
Comments: g=14.1 from ASAS-SN									
2	(1808708)	(5) V-V2493-CYG	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			180 Secs (180 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*
3	(1808722)	(5) V-V2493-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1856 Secs (1856 Secs) *[==>]*	*[1]*
Comments: brightest pixel: 0.2 cts/s									

Orbit Structure



Visit

Proposal 17176, V1515 Cyg redo (10), failed Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	V-V1515-CYG	RA: 20 23 48.0122 (305.9500508d) Dec: +42 12 25.69 (42.20714d) Equinox: J2000	Proper Motion RA: -2.431865089636948E-4 sec of time/yr Proper Motion Dec: -0.005583000097431068 arcsec/yr Epoch of Position: 2015.5	V=14.1	Reference Frame: ICRS

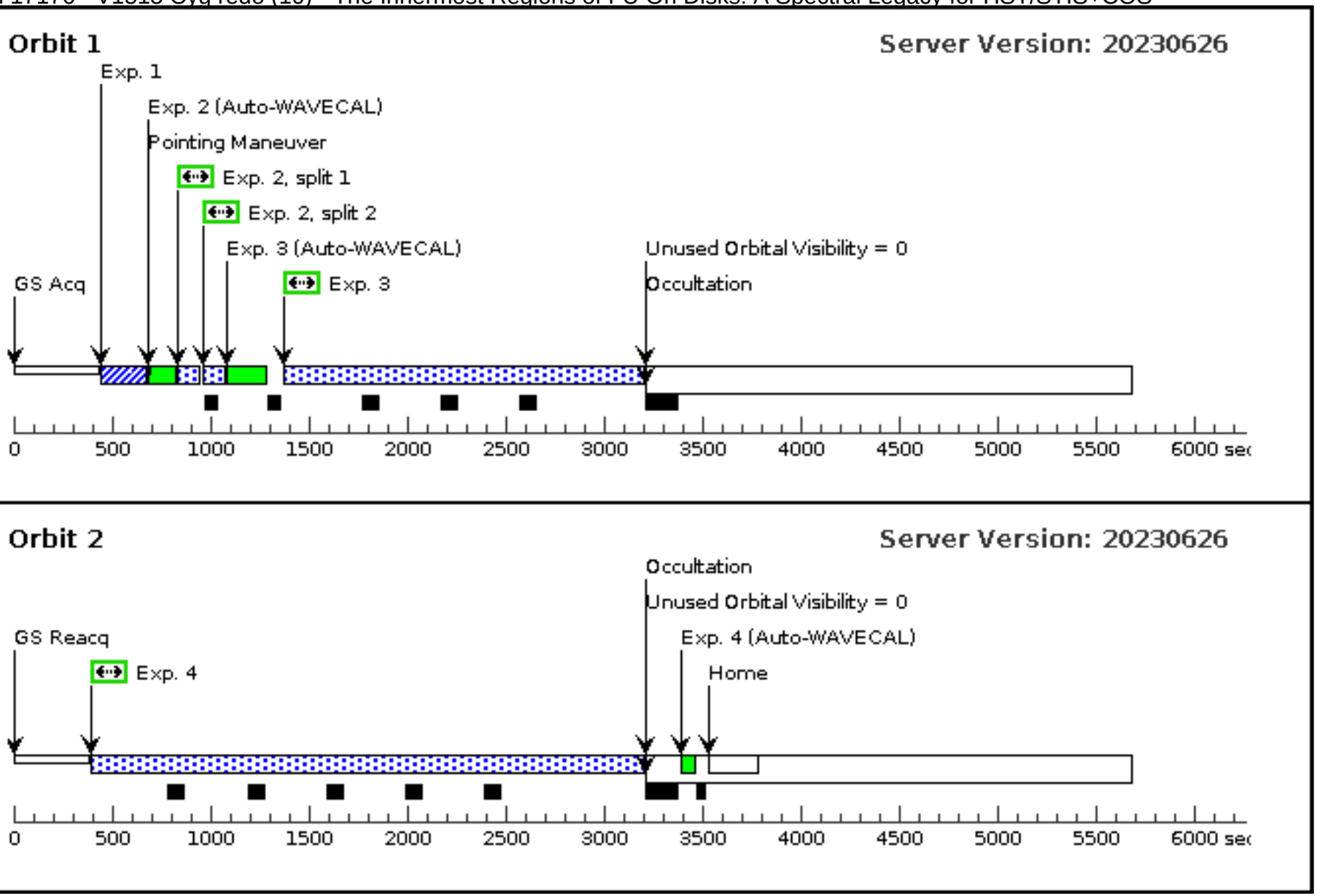
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.

g=14.9 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS 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	(1808400)	(6) V-V1515-CYG	STIS/CCD, ACQ, F28X50LP	MIRROR				0.6 Secs (0.6 Secs) *[==>]*	***[1]***
Comments: g=14.4 *Saturation in 7 s, S/N=40 in 0.04 s*									
2	(1808710)	(6) V-V1515-CYG	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			150 Secs (150 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
Comments: g=14.4									
3	(1808721)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1812 Secs (1812 Secs) *[==>]*	***[1]***
Comments: 0.15 cts/s in brightest pixel									
4	(1808721)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2796 Secs (2796 Secs) *[==>]*	***[2]***
Comments: 0.15 cts/s in brightest pixel									

Orbit Structure



Visit

Proposal 17176, V1515 Cyg redo 2 (11) Tue Apr 16 21:00:32 GMT 2024

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	V-V1515-CYG	RA: 20 23 48.0122 (305.9500508d) Dec: +42 12 25.69 (42.20714d) Equinox: J2000	Proper Motion RA: -2.431865089636948E-4 sec of time/yr Proper Motion Dec: -0.005583000097431068 arcsec/yr Epoch of Position: 2015.5	V=14.1	Reference Frame: ICRS

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

g=14.9 from ASAS-SN
Category=EXT-STAR
Description=[FU ORIONIS 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	(1808400)	(6) V-V1515-CYG	STIS/CCD, ACQ, F28X50LP	MIRROR				0.6 Secs (0.6 Secs) *[==>]*	 ***[1]***
Comments: g=14.4 *Saturation in 7 s, S/N=40 in 0.04 s*									
2	(1808710)	(6) V-V1515-CYG	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=2			150 Secs (150 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	 ***[1]***
Comments: g=14.4									
3	(1808721)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			1812 Secs (1812 Secs) *[==>]*	 ***[1]***
Comments: 0.15 cts/s in brightest pixel									
4	(1808721)	(6) V-V1515-CYG	STIS/NUV-MAMA, TIME-TAG, 52X0.2	G230L 2376 A	BUFFER-TIME=400			2796 Secs (2796 Secs) *[==>]*	 ***[2]***
Comments: 0.15 cts/s in brightest pixel									

Orbit Structure