14190 - Trickles of Accretion: Catching a Final Glimpse of Gas in the Disk

Cycle: 23, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Nuria Calvet (PI) (Contact)	**University of Michigan**	**ncalvet@umich.edu**
Dr. Laura D. Ingleby (CoI)	Boston University	lingleby@bu.edu
Dr. Jesus Hernandez (CoI)	Centro de Investigaciones de Astronomia	hernandj@cida.ve
Dr. Cesar Briceno (CoI)	National Optical Astronomy Observatory - CTIO	cbriceno@ctio.noao.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) CVSO-604	ACS/SBC	1	07-Sep-2016 17:10:55.0	yes
02	(2) CVSO-1335	ACS/SBC	1	07-Sep-2016 17:10:56.0	yes
04	(4) SO-467	ACS/SBC	1	07-Sep-2016 17:10:56.0	yes
05	(5) SO-451	ACS/SBC	1	07-Sep-2016 17:10:57.0	yes
06	(6) SO-435	ACS/SBC	1	07-Sep-2016 17:10:57.0	yes
08	(8) CVSO-95	ACS/SBC	1	07-Sep-2016 17:10:58.0	yes
09	(9) CVSO-114	ACS/SBC	1	07-Sep-2016 17:10:58.0	yes
10	(10) CVSO-1189	ACS/SBC	1	07-Sep-2016 17:10:59.0	yes
11	(11) CVSO-1381	ACS/SBC	1	07-Sep-2016 17:10:59.0	yes
12	(12) CVSO-1231	ACS/SBC	1	07-Sep-2016 17:11:00.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
13	(13) CVSO-115	ACS/SBC	1	07-Sep-2016 17:11:00.0	yes

11 Total Orbits Used

ABSTRACT

The final stages of accretion are complicated to study because very small accretion rates cannot be detected against bright chromospheric emission. Currently, it is not clear what causes accretion to turn off. While the gas has been difficult to observe in the past, new observations of H2 in far-ultraviolet spectra have proved to be sensitive probes of hot accreting disk gas. We propose to look for gas in a sample of sources which have evidence for remaining dust in the disk, yet lack evidence for accretion in the convential tracers (e.g. Halpha and UV excess). We will observe this sample using the Advanced Camera for Surveys/Solar Blind Channel (ACS/SBC) PR130L FUV prism. Similar observations have shown that, while low resolution, the ACS/SBC prism is extremely sensitive to small quantities of gas in circumstellar disks, more sensitive than common accretion diagnostics. We will determine whether or not these sources have any gas remaining in the disk, providing key constraints for disk dissipation theories.

OBSERVING DESCRIPTION

We follow an observing strategy which was successful in previous ACS/SBC observations of T Tauri stars. For each object, we will obtain an FUV spectrum and a brief FUV image for wavelength calibration. Each target will require one orbit of observations in which we will spend
100 - 200s (exposure times vary between sources and are slightly longer for dimmer or more extincted sources) using the F165LP filter and the remaining
time, around 2,400 to 2,600 seconds, with the PR130L prism.

Additional Comments:
Visit 2: Health/Safety source is the target CVSO 1335, is mis-identified as an O5, and is actually a M1 as determined from existing spectra.

Visit 7: Health/Safety source is the target SO 247, is mis-identified as an O5, and is actually a M5 as determined from existing spectra.

Visit 8 Health/Safety source is the target CVSO 95, is mis-identified as an O5, and is actually a M5 as determined from existing spectra.

Visit 9: Health/Safety source is the target CVSO 114, is mis-identified as an O5, and is actually a K7 as determined from existing spectra.

Visit

Proposal 14190, Visit 01, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

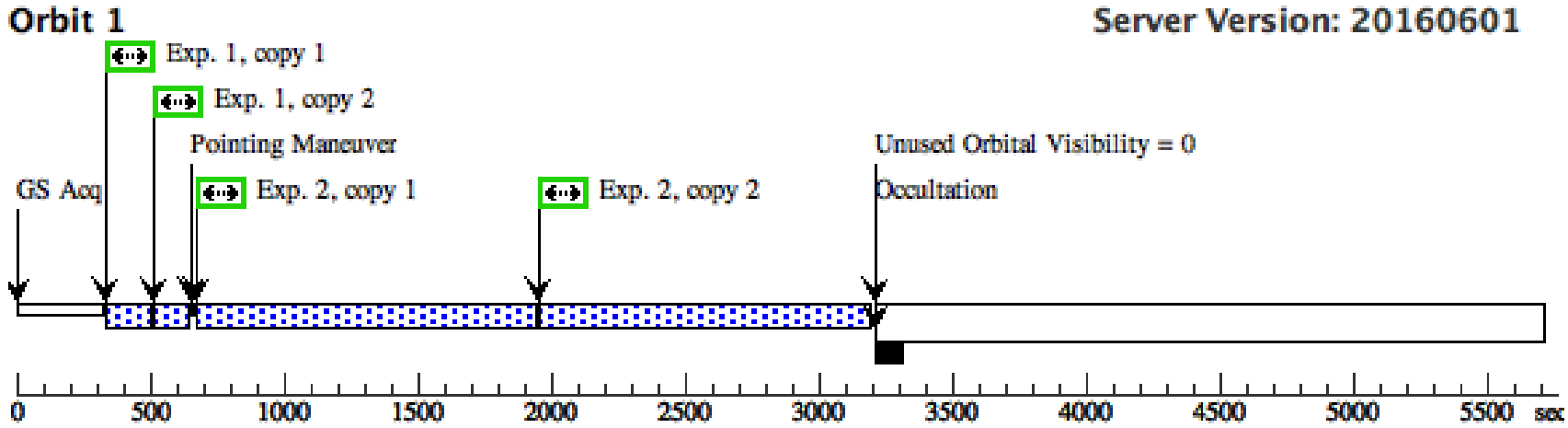
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	CVSO-604	RA: 05 23 15.5154 (80.8146475d) Dec: +01 21 14.60 (1.35406d) Equinox: J2000		V=17.8	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719776)	(1) CVSO-604	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (200 Secs)	
								[==>(Copy 1)] *[==>(Copy 2)]*	*[1]*
2	(719780)	(1) CVSO-604	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2426 Secs)	
								[==>1213.0 Secs (Copy 1)] *[==>1213.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 02, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

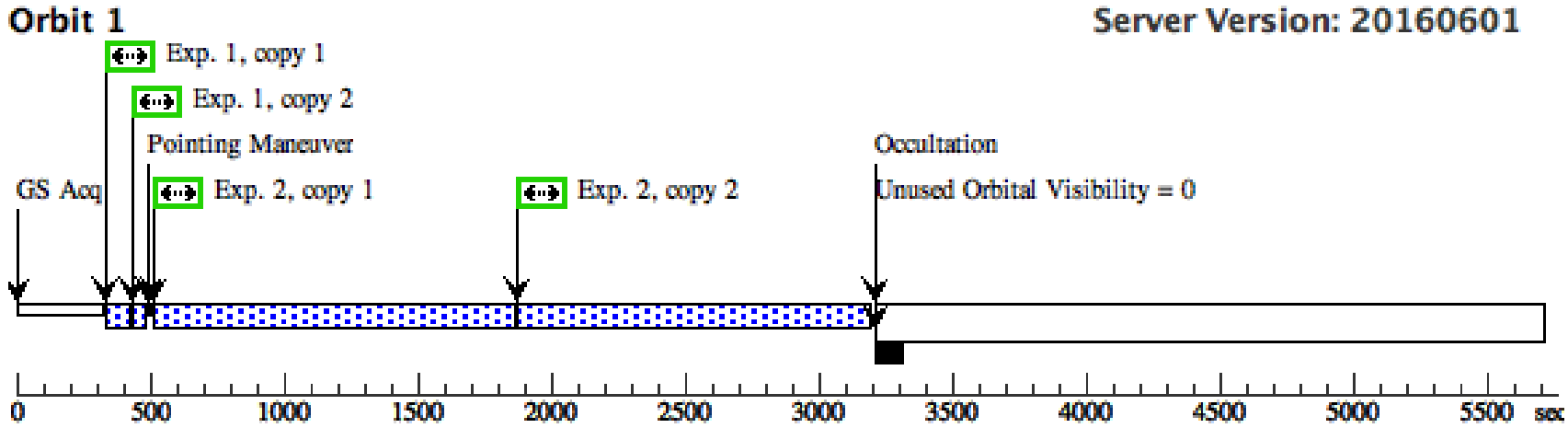
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CVSO-1335	RA: 05 32 10.1621 (83.0423421d) Dec: -00 37 12.41 (-.62011d) Equinox: J2000		V=13.9	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719787)	(2) CVSO-1335	ACS/SBC, ACCUM, SBC	F165LP				20 Secs X 2 (40 Secs)	
								[==>(Copy 1)] *[==>(Copy 2)]*	*[1]*
2	(719788)	(2) CVSO-1335	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2586 Secs)	
								[==>1293.0 Secs (Copy 1)] *[==>1293.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 04, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Fixed Targets

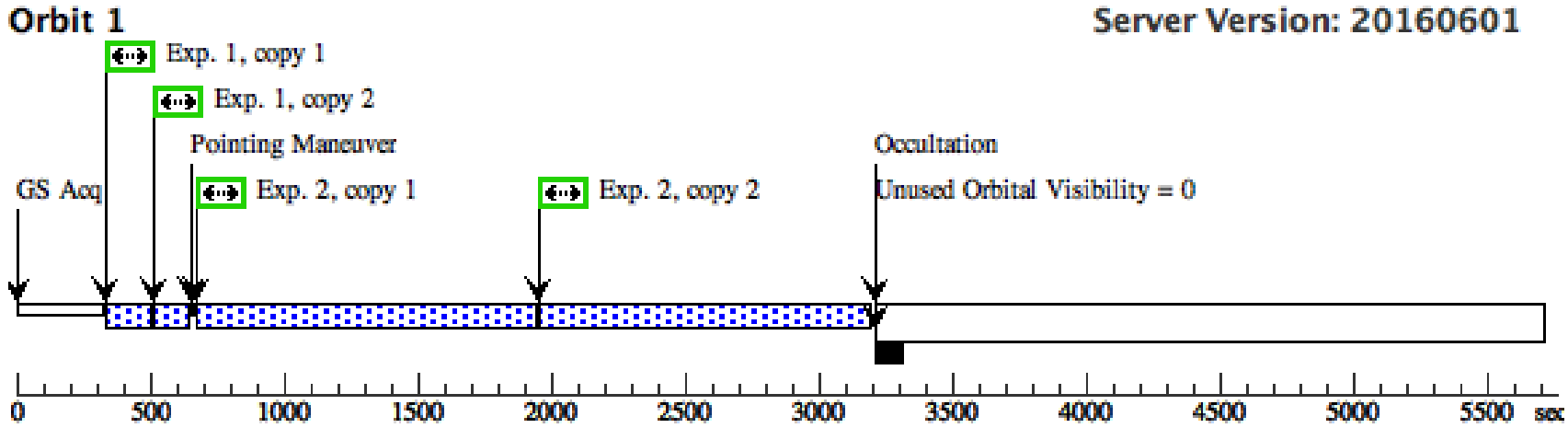
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	SO-467	RA: 05 38 21.1920 (84.5883000d) Dec: -02 54 11.09 (-2.90308d) Equinox: J2000		V=18.21	Reference Frame: SIMBAD

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

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719766)	(4) SO-467	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (200 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
2	(719767)	(4) SO-467	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2426 Secs) *[==>1213.0 Secs (Copy 1)]* *[==>1213.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 05, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Fixed Targets

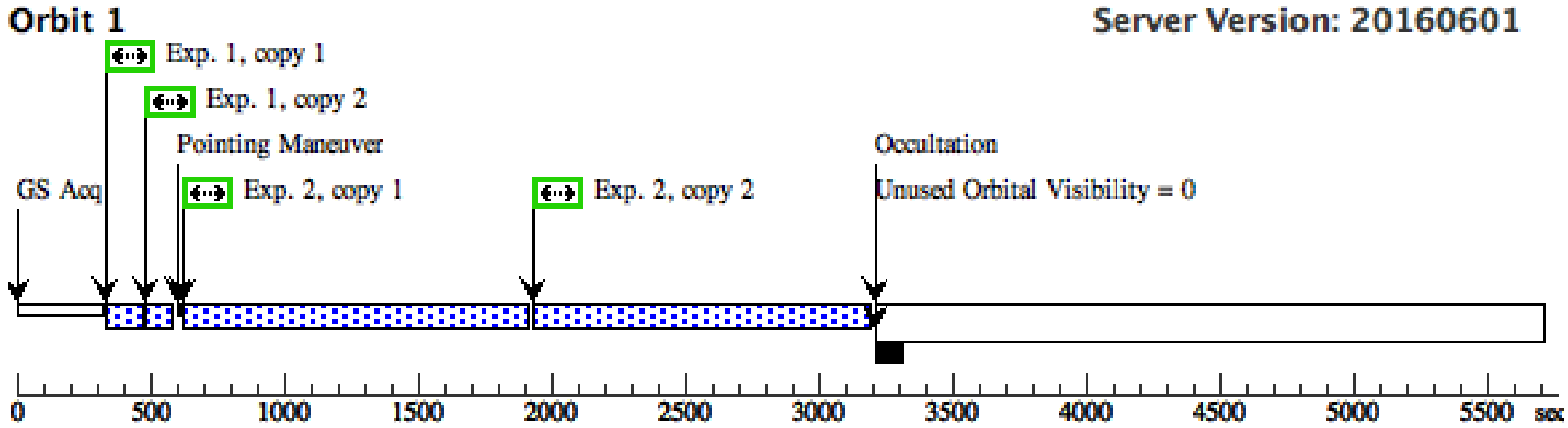
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	SO-451	RA: 05 38 18.8600 (84.5785833d) Dec: -02 51 38.84 (-2.86079d) Equinox: J2000		V=16.81	Reference Frame: SIMBAD

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

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719761)	(5) SO-451	ACS/SBC, ACCUM, SBC	F165LP				75 Secs X 2 (150 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
2	(719770)	(5) SO-451	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2476 Secs) *[==>1238.0 Secs (Copy 1)]* *[==>1238.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 06, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Fixed Targets

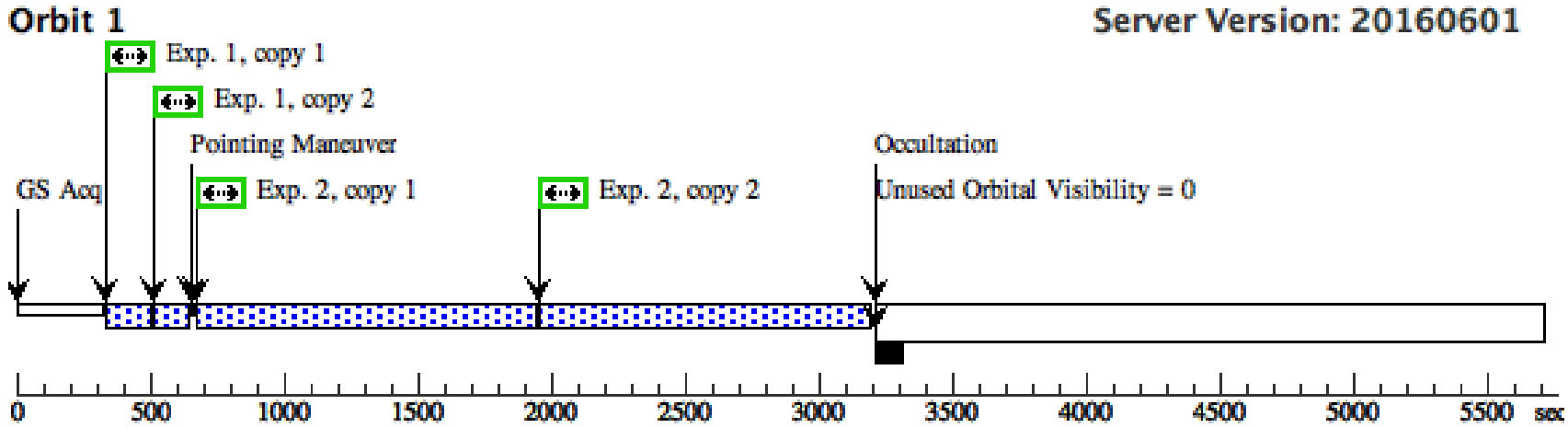
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	SO-435	RA: 05 38 17.7830 (84.5740958d) Dec: -02 40 50.07 (-2.68057d) Equinox: J2000		V=18.14	Reference Frame: SIMBAD

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

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719766)	(6) SO-435	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (200 Secs) *[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
2	(719767)	(6) SO-435	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2426 Secs) *[==>1213.0 Secs (Copy 1)]* *[==>1213.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 08, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

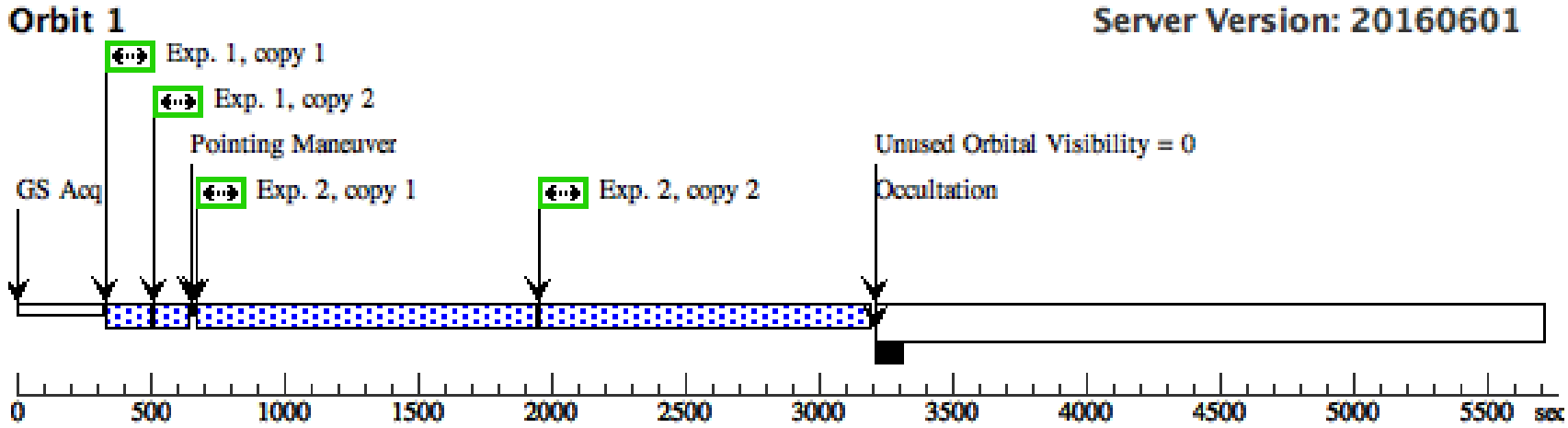
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	CVSO-95	RA: 05 27 46.5033 (81.9437638d) Dec: +03 12 15.65 (3.20435d) Equinox: J2000		V=14.82	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719766)	(8) CVSO-95	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (200 Secs)	
								[==>(Copy 1)] *[==>(Copy 2)]*	*[1]*
2	(719767)	(8) CVSO-95	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2426 Secs)	
								[==>1213.0 Secs (Copy 1)] *[==>1213.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 09, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

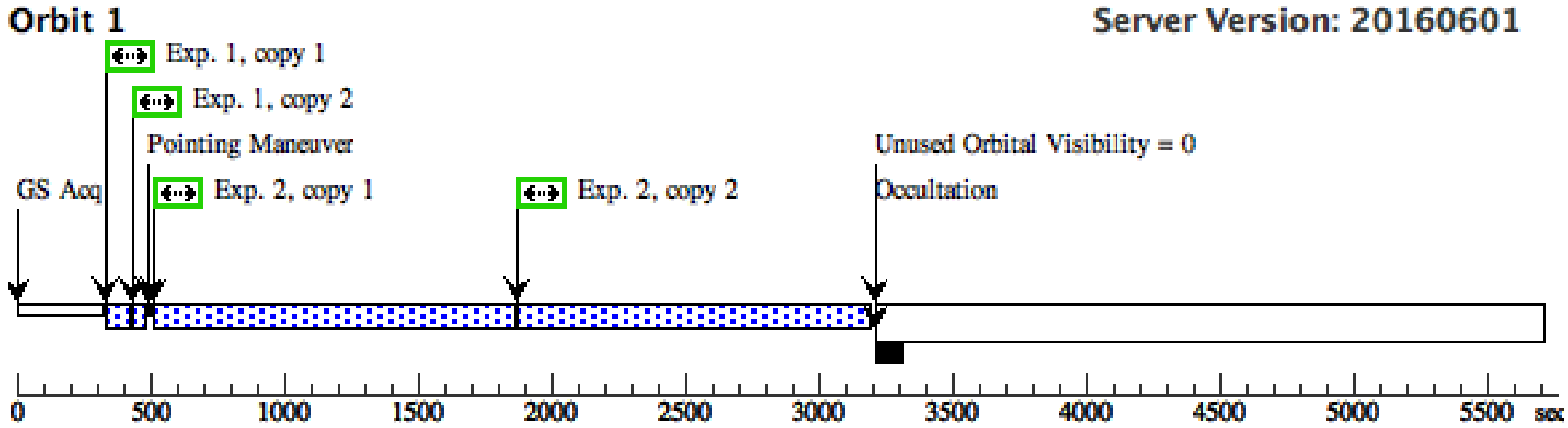
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	CVSO-114	RA: 05 33 1.7597 (83.2573321d) Dec: -00 21 1.92 (-.35053d) Equinox: J2000		V=14.09	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719790)	(9) CVSO-114	ACS/SBC, ACCUM, SBC	F165LP				20 Secs X 2 (40 Secs)	
								[==>(Copy 1)] *[==>(Copy 2)]*	*[1]*
2	(719791)	(9) CVSO-114	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2586 Secs)	
								[==>1293.0 Secs (Copy 1)] *[==>1293.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 10, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

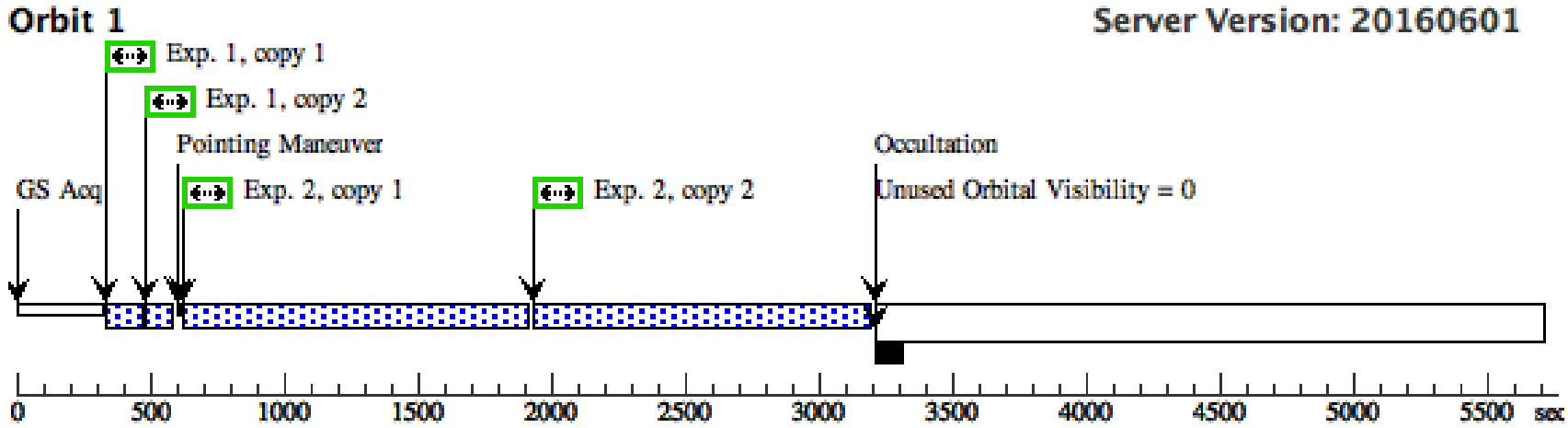
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	CVSO-1189	RA: 05 29 38.8098 (82.4117075d) Dec: -01 19 18.08 (-1.32169d) Equinox: J2000		V=17.47	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719792)	(10) CVSO-1189	ACS/SBC, ACCUM, SBC	F165LP				75 Secs X 2 (150 Secs)	
								[==>(Copy 1)] *[==>(Copy 2)]*	*[1]*
2	(719793)	(10) CVSO-1189	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2476 Secs)	
								[==>1238.0 Secs (Copy 1)] *[==>1238.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 11, completed Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

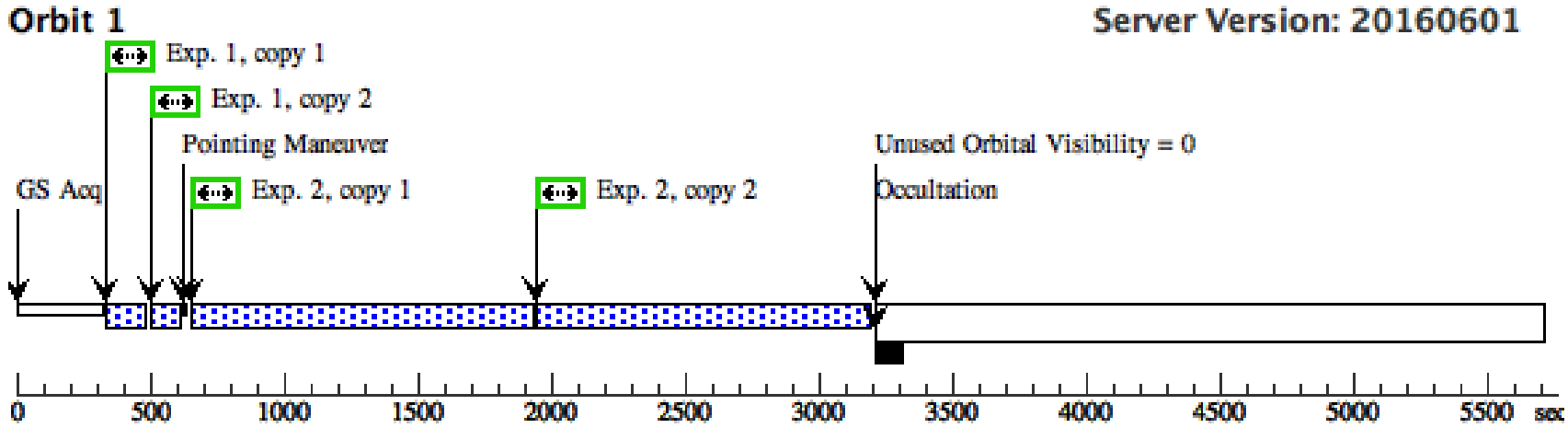
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	CVSO-1381	RA: 05 32 55.3620 (83.2306750d) Dec: -01 32 50.58 (-1.54738d) Equinox: J2000		V=16.67	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(719761)	(11) CVSO-1381	ACS/SBC, ACCUM, SBC	F165LP				75 Secs X 2 (174 Secs)	
								[==>87.0 Secs (Copy 1)] *[==>87.0 Secs (Copy 2)]*	*[1]*
2	(719770)	(11) CVSO-1381	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2452 Secs)	
								[==>1226.0 Secs (Copy 1)] *[==>1226.0 Secs (Copy 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14190, Visit 12 Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	CVSO-1231	RA: 05 30 3.6900 (82.5153750d) Dec: -01 55 46.70 (-1.92964d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.830227)	(12) CVSO-1231	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (412 Secs) *[==>206.0 Secs (Copy 1)]* *[==>206.0 Secs (Copy 2)]*	*[1]*

Comments: The BOT includes an "unknown" object in the field:

Unknown, SBC, S1LR025944, 05 30 2.3108, -01 55 30.94, GSC2,

We have checked in our CVSO photometric survey, as wel as in DSS and 2MASS images. There is no source at that position.

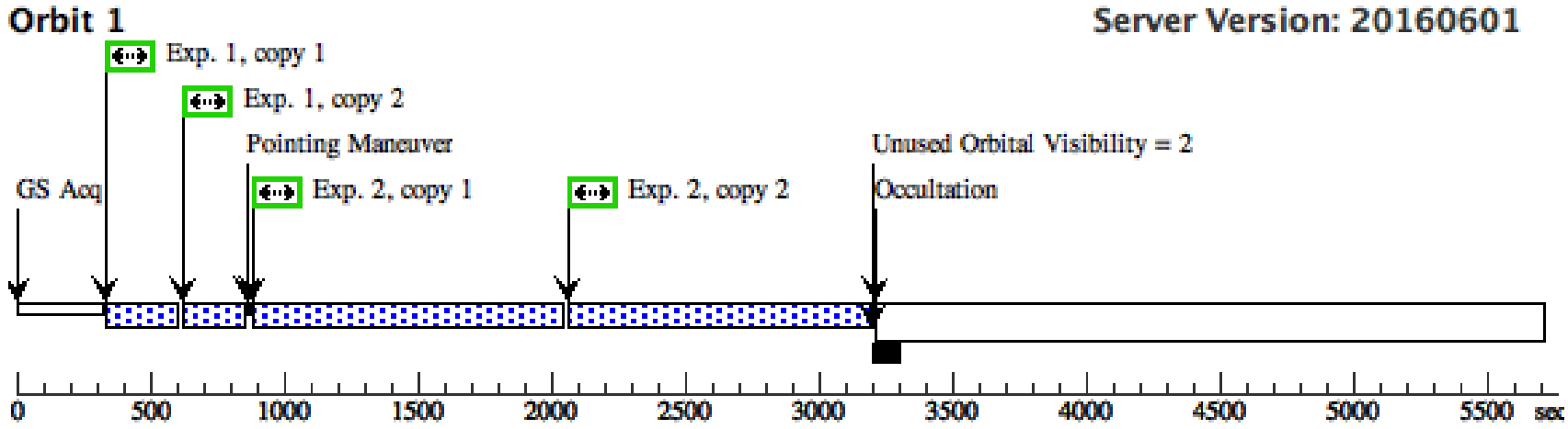
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	(ACS.sp.830226)	(12) CVSO-1231	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2212 Secs) *[==>1106.0 Secs (Copy 1)]* *[==>1106.0 Secs (Copy 2)]*	*[1]*

Comments: The BOT includes an "unknown" object in the field:

Unknown, SBC, S1LR025944, 05 30 2.3108, -01 55 30.94, GSC2,

We have checked in our CVSO photometric survey, as wel as in DSS and 2MASS images. There is no source at that position.

Orbit Structure



Visit

Proposal 14190, Visit 13 Wed Sep 07 21:11:01 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	CVSO-115	RA: 05 33 6.2300 (83.2759583d) Dec: -00 42 19.60 (-.70544d) Equinox: J2000		V=14.8	Reference Frame: ICRS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	(ACS.im.830214)	(13) CVSO-115	ACS/SBC, ACCUM, SBC	F165LP				100 Secs X 2 (412 Secs) *[==>206.0 Secs (Copy 1)]* *[==>206.0 Secs (Copy 2)]*	*[1]*

Comments: The BOT indicates that two objects exceed the Local Health and Safety, assuming that they are unreddeneded O5 stars. These stars are

	RA	DEC		V	B-V
S1LN000172,	*05 33 4.3140,*	*-00 42 18.71,*	*GSC2, 14.18, 15.40,*	*14.74,*	*0.65*
S1LN012378,	*05 33 6.2421,*	*-00 42 19.96,*	*GSC2, 13.57, 15.85,*	*14.71,*	*1.35*

The first star of this list has a B-V color of 0.65. The 3D maps of the dust distribution combining Pan-STARRS 1 and 2MASS photometry (Green et al 2015, ApJ 810, 25) indicate a color excess E(B-V) ~ 0.15 in the dir ection of this star. Using the observed B-V color and standard star photometry (Kenyon & Hartmann 1995, ApJS 101, 117) yields a spectral type of F7 for this star, with V limiting magnitudes 6.7 (F165LP, Table 7.4 of ACS Handbook) and 5 (PR130L), way above the observed V magnitude. The second star in the BOT list is the target. It has a spectral type of M0 (Briceno et al 2005, AJ, 129, 907) so its V magnitude (14.7) is way b elow the bright limit (3 -4).

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	(ACS.sp.830219)	(13) CVSO-115	ACS/SBC, ACCUM, SBC	PR130L				1000 Secs X 2 (2212 Secs) *[==>1106.0 Secs (Copy 1)]* *[==>1106.0 Secs (Copy 2)]*	*[1]*

Comments: The BOT found all sources in the field safe.

Orbit Structure