15339 - Properties of the Galactic Nuclear Wind at Low Latitudes

Cycle: 25, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

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) UVQSJ192636-182553	COS/FUV COS/NUV	2	14-Jul-2017 19:07:06.0	yes
02	(2) UVQSJ185302-415839	COS/FUV COS/NUV	4	14-Jul-2017 19:07:08.0	yes
03	(2) UVQSJ185302-415839	COS/FUV COS/NUV	4	14-Jul-2017 19:07:09.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
04	(3) UVQSJ191928-295808	COS/FUV COS/NUV	4	14-Jul-2017 19:07:10.0	yes
05	(4) UVQSJ185649-544229	COS/FUV COS/NUV	4	14-Jul-2017 19:07:12.0	yes
06	(5) UVQSJ193819-432646	COS/FUV COS/NUV	4	14-Jul-2017 19:07:14.0	yes

22 Total Orbits Used

ABSTRACT

A biconical nuclear wind drives gas out from the center of the Milky Way, replenishing the giant Fermi Bubbles with new material. We have been using HST/COS to characterize the properties of the cool gas in the nuclear wind via UV spectroscopy of background AGN. Until now, only one low-latitude (|b|<30 degrees) UV-bright AGN was known, hampering our understanding of the mechanism driving the outflow. Thanks to the new UV-bright Quasar Survey (UVQS), we have identified five new confirmed low-latitude AGN, all in the poorly explored southern Fermi Bubble. These low-latitude directions are ideal for studying the nuclear outflow since they probe its base, where the wind is launched, and where the X-ray, gamma-ray, and UV signatures of the outflow are strongest. We request COS/FUV spectroscopic observations of these five QSOs to probe the outflow with a range of low-ionization and high-ionization metal-line tracers. With these data we will assess the kinematics and ionization level of the southern outflow, and determine its gas mass, mass flow rate, patchiness, and symmetry with respect to the northern outflow.

OBSERVING DESCRIPTION

This program observes 5 QSOs near the Galactic Center with G130M/1291 (FP-POS=3 and 4) and G160M/1600 (FP-POS=1,2,3,4). In each visit a 2x2 ACQ/SEARCH and an ACQ/IMAGE (both with MIRRORB) is used for the target acquisition. Each target is observed in a single visit (2-4 orbits in length) except for the faintest target (UVQSJ1853-4158), which is split into a G130M visit and a G160M visit (4 orbits each).

Targets 1 and 2 show small offsets in the DSS target confirmation charts. I have checked their coordinates in the UVQS and in SIMBAD and in the GALEX images, and they should be fine with the 2x2 ACQ/SEARCH.

All exposures pass APT/BOT with GALEX.

Visit

Proposal 15339, UVQSJ1926-1825 (01), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UVQSJ1926-1825 (01)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

Fixed Targets

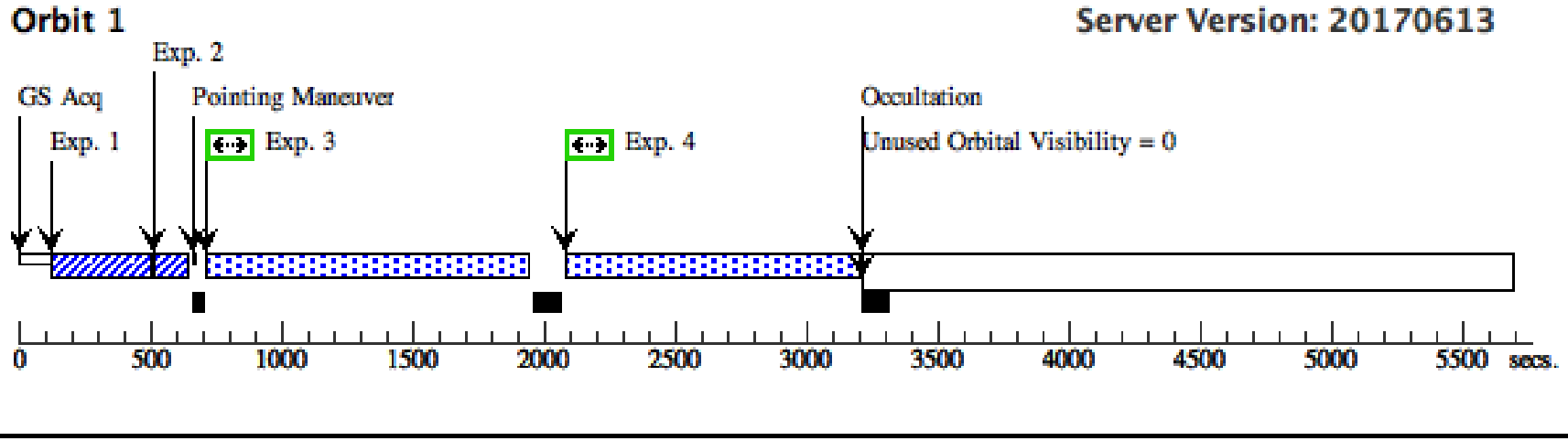
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	UVQSJ192636-182553	RA: 19 26 36.9520 (291.6539667d) Dec: -18 25 53.09 (-18.43141d) Equinox: J2000		V=13.02 GALEX FUV=15.67 NUV=15.28; magnitude above is J	Reference Frame: ICRS

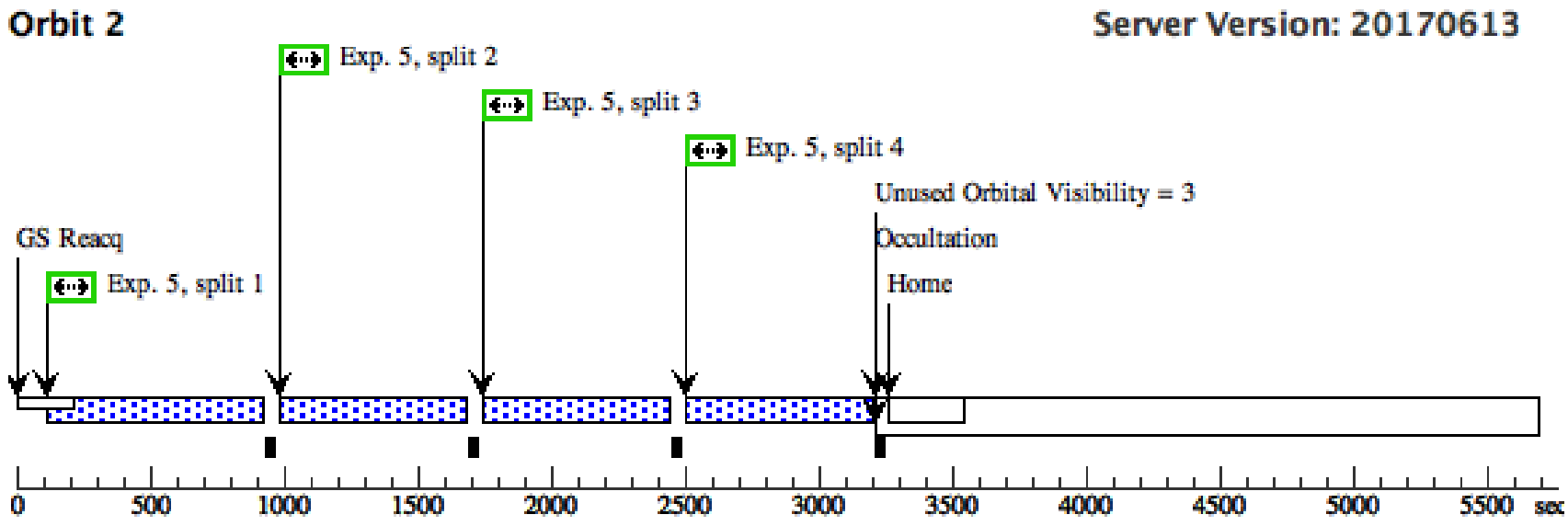
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005897)	(1) UVQSJ192636-182553	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			6 Secs (6 Secs) *[==>]*	*[1]*
2	ACQ/IMAGE (1005897)	(1) UVQSJ192636-182553	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				10 Secs (10 Secs) *[==>]*	*[1]*
3	G130M/1291 FP-POS=3 (1005936)	(1) UVQSJ192636-182553	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=1173			988 Secs (1067 Secs) *[==>1067.0 Secs]*	*[1]*
4	G130M/1291 FP-POS=4 (1005936)	(1) UVQSJ192636-182553	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=1173			988 Secs (1067 Secs) *[==>1067.0 Secs]*	*[1]*
5	G130M/1600 FP-POS=ALL (904448)	(1) UVQSJ192636-182553	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=3115			645 Secs (2580 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[2]*

Orbit Structure





Visit

Proposal 15339, UVQSJ1853-4158-G130M (02), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UVQSJ1853-4158-G130M (02)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

(UVQSJ1853-4158-G130M (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

Fixed Targets

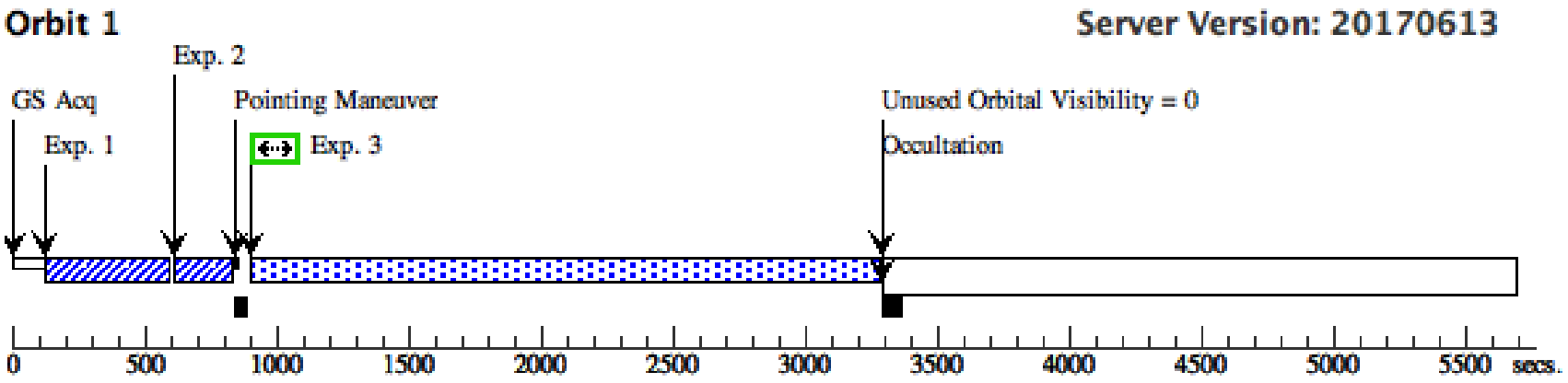
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	UVQSJ185302-415839	RA: 18 53 2.6510 (283.2610458d) Dec: -41 58 39.54 (-41.97765d) Equinox: J2000		V=18.75 GALEX FUV=17.32 NUV=17.25; magnitude above is B	Reference Frame: ICRS

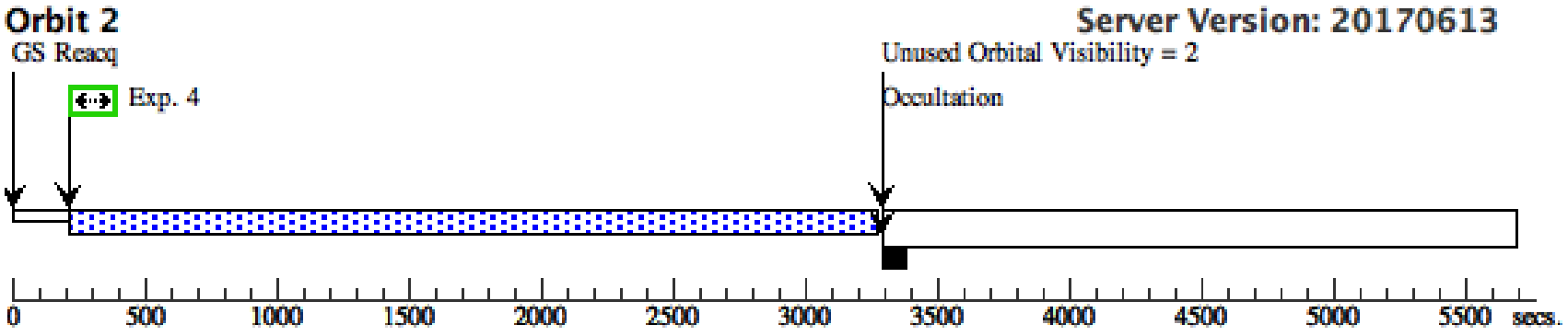
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

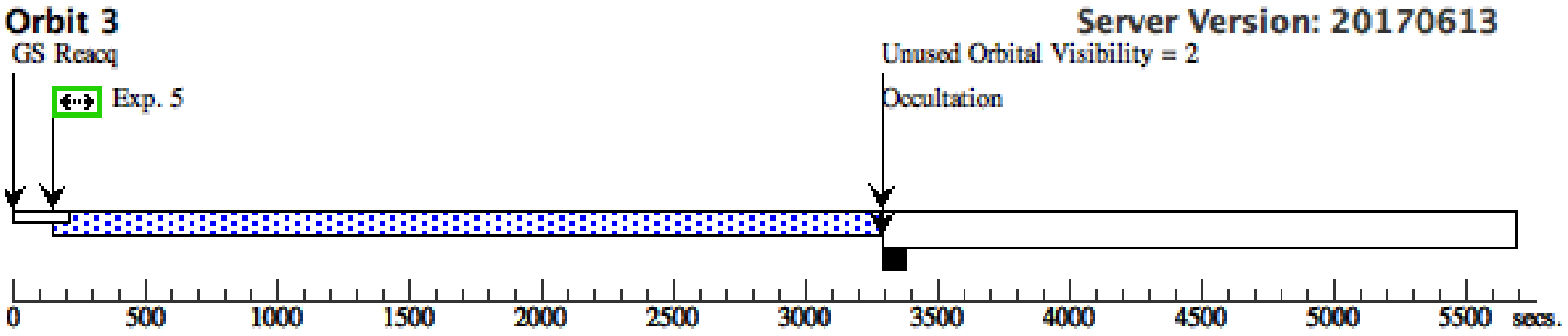
Exposures

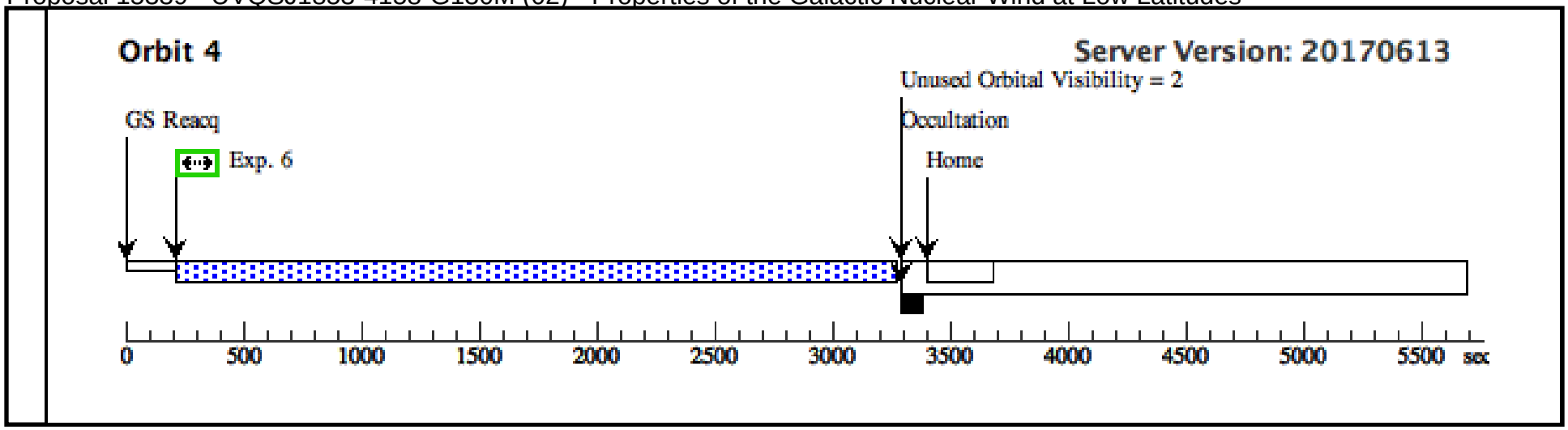
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005899)	(2) UVQSJ185302-415839	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			30 Secs (30 Secs) *[==>]*	*[1]*
2	ACQ/IMAGE (1005899)	(2) UVQSJ185302-415839	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				53 Secs (53 Secs) *[==>]*	*[1]*
3	G130M/1291 FP-POS=3 (1005906)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3647			1929 Secs (2215 Secs) *[==>2215.0 Secs]*	*[1]*
4	G130M/1291 FP-POS=4 (1005906)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3647			3010 Secs (3010 Secs) *[==>]*	*[2]*
5	G130M/1291 FP-POS=3 (1005906)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=3647			3010 Secs (3010 Secs) *[==>]*	*[3]*
6	G130M/1291 FP-POS=4 (1005906)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=3647			3010 Secs (3010 Secs) *[==>]*	*[4]*

Orbit Structure








Orbit 4
Server Version: 20170613
Unused Orbital Visibility = 2
GS Reacq
Exp. 6
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15339, UVQSJ1853-4158-G160M (03), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Fixed Targets

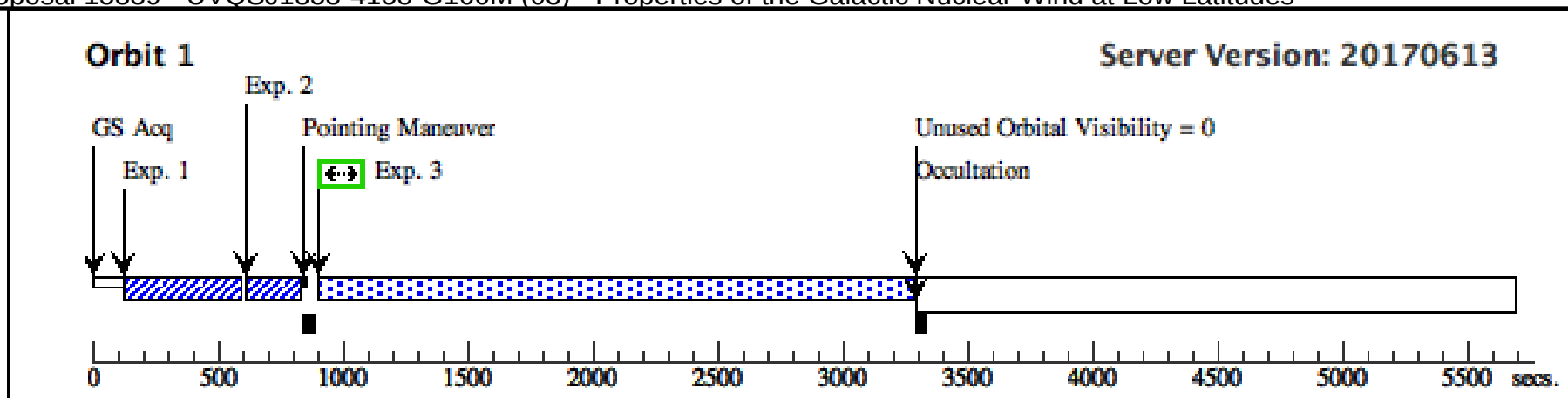
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	UVQSJ185302-415839	RA: 18 53 2.6510 (283.2610458d) Dec: -41 58 39.54 (-41.97765d) Equinox: J2000		V=18.75 GALEX FUV=17.32 NUV=17.25; magnitude above is B	Reference Frame: ICRS

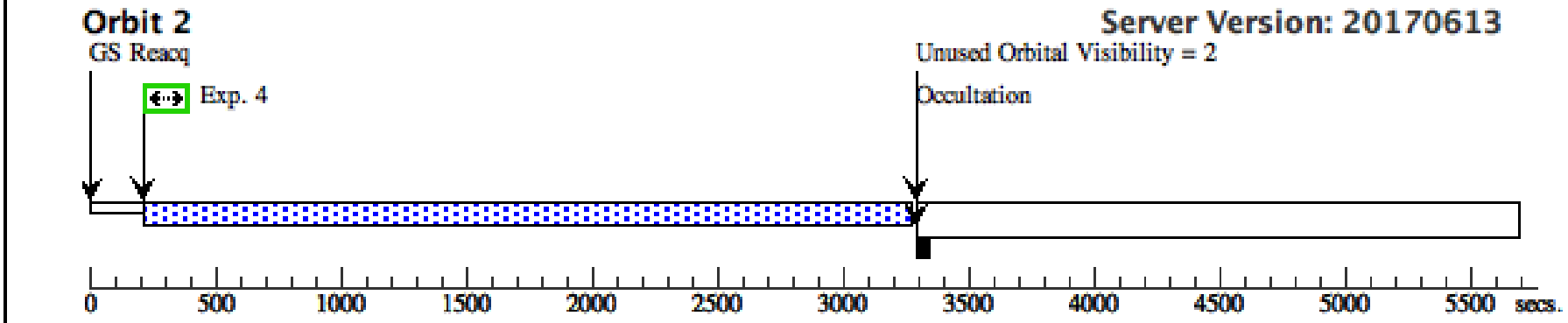
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

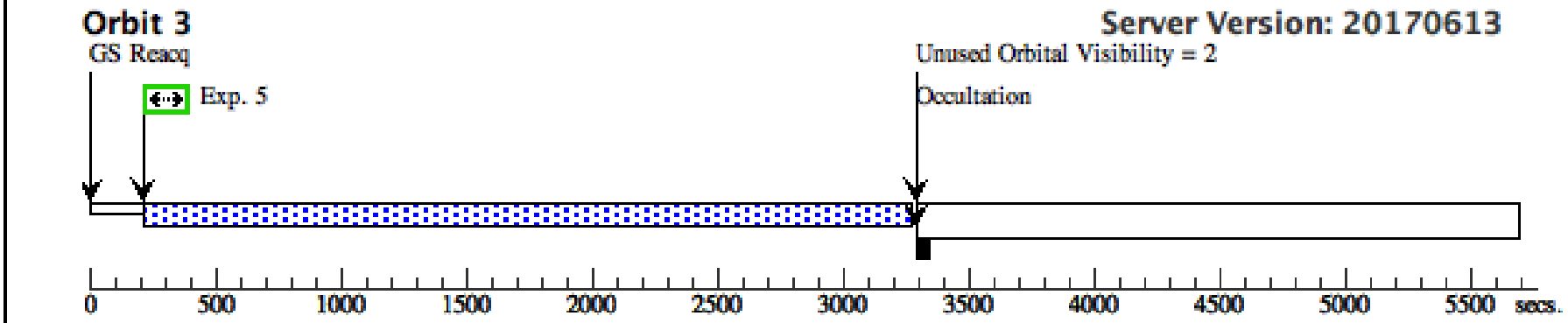
Exposures

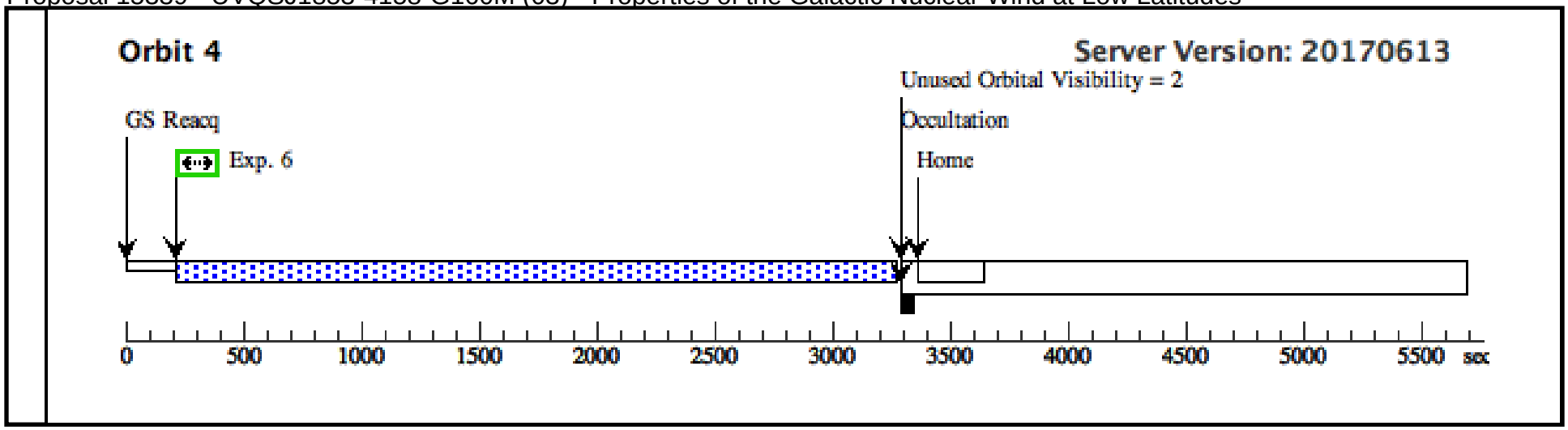
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005899)	(2) UVQSJ185302-415839	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			30 Secs (30 Secs) *[==>]*	*[1]*
2	ACQ/IMAGE (1005899)	(2) UVQSJ185302-415839	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				53 Secs (53 Secs) *[==>]*	*[1]*
3	G130M/1600 FP-POS=1 (904454)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=1; BUFFER-TIME=9011			1887 Secs (2173 Secs) *[==>2173.0 Secs]*	*[1]*
4	G130M/1600 FP-POS=2 (904454)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=2; BUFFER-TIME=9011			3010 Secs (3010 Secs) *[==>]*	*[2]*
5	G130M/1600 FP-POS=3 (904454)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=3; BUFFER-TIME=9011			3010 Secs (3010 Secs) *[==>]*	*[3]*
6	G130M/1600 FP-POS=4 (904454)	(2) UVQSJ185302-415839	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=4; BUFFER-TIME=9011			3010 Secs (3010 Secs) *[==>]*	*[4]*

Orbit Structure








Orbit 4
Server Version: 20170613
Unused Orbital Visibility = 2
GS Reacq
Exp. 6
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15339, UVQSJ1919-2958 (04), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UVQSJ1919-2958 (04)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

Fixed Targets

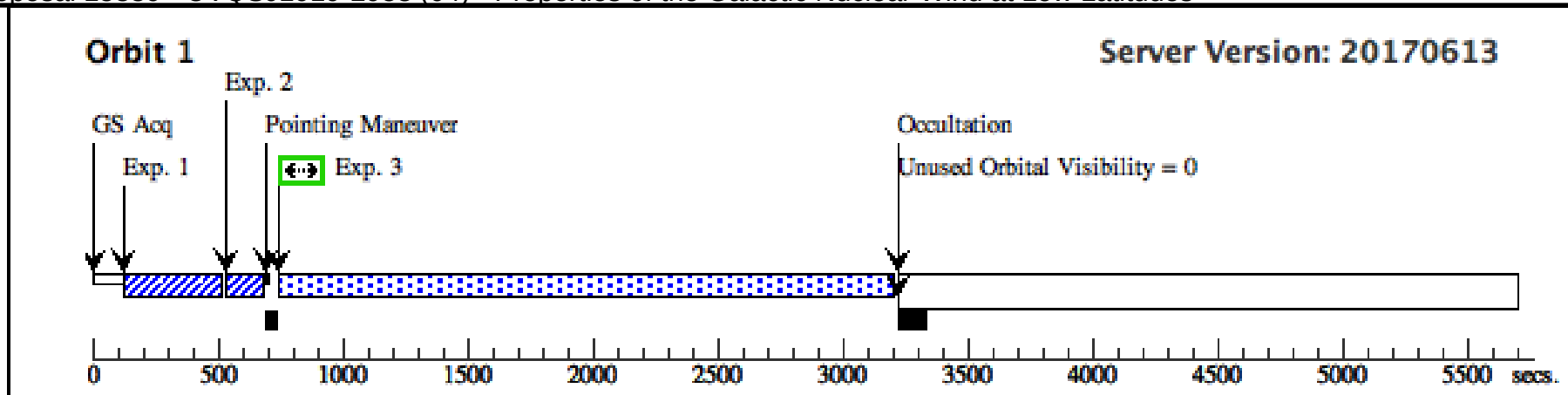
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	UVQSJ191928-295808	RA: 19 19 28.0390 (289.8668292d) Dec: -29 58 8.04 (-29.96890d) Equinox: J2000		V=17.71 GALEX FUV=16.26 NUV=16.00; magnitude above is B	Reference Frame: ICRS

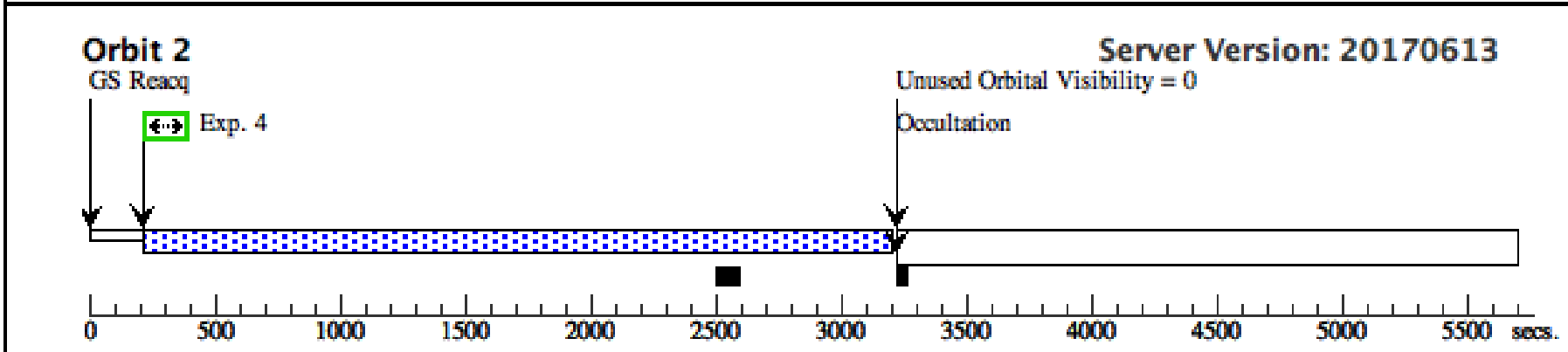
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

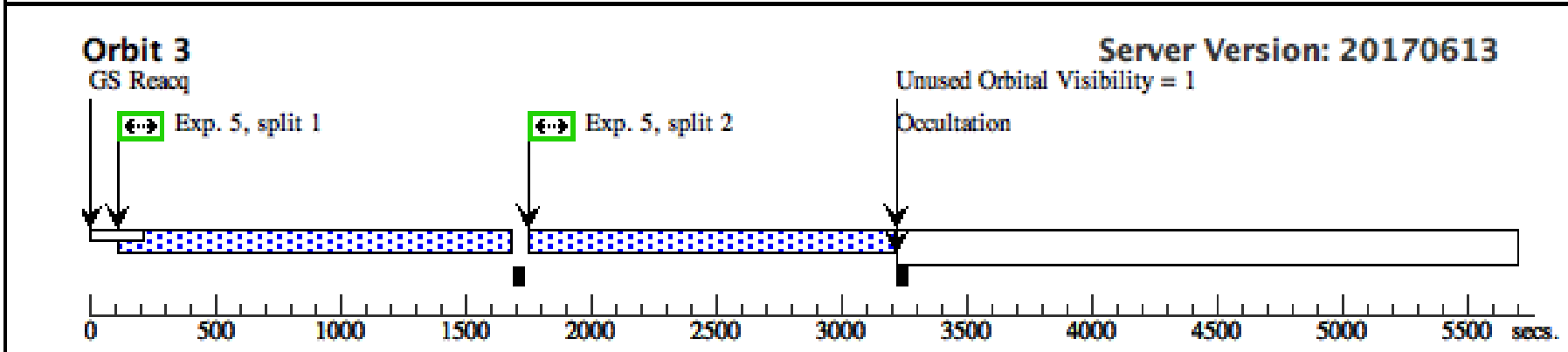
Exposures

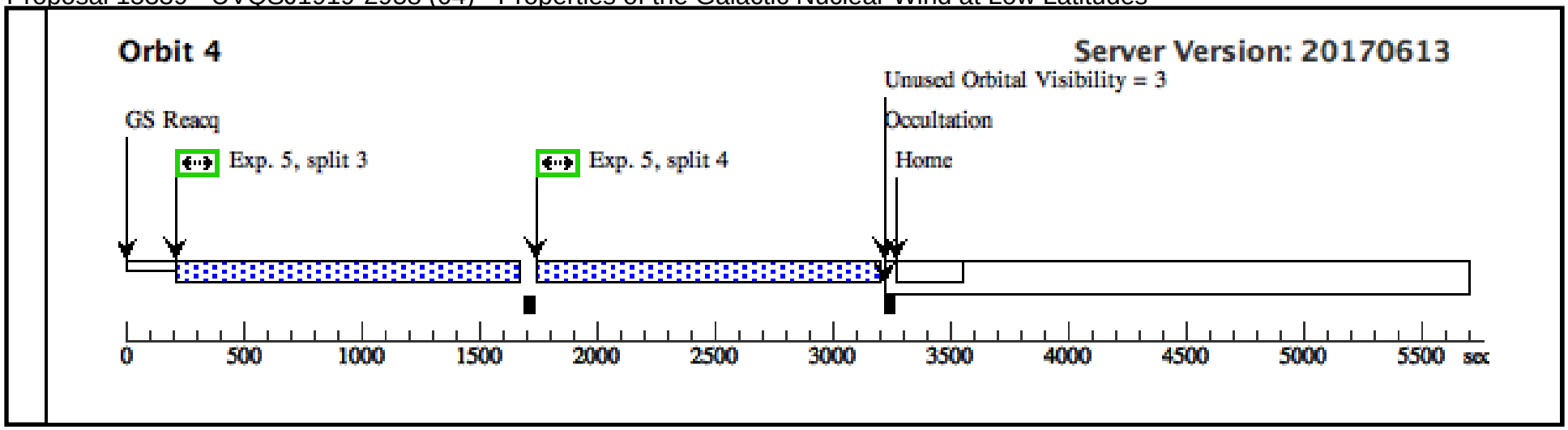
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005901)	(3) UVQSJ191928-295808	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			10 Secs (10 Secs) *[==>]*	*[1]*
2	ACQ/IMAGE (1005901)	(3) UVQSJ191928-295808	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				17 Secs (17 Secs) *[==>]*	*[1]*
3	G130M/1291 FP-POS=3 (1005909)	(3) UVQSJ191928-295808	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2254			2294 Secs (2294 Secs) *[==>]*	*[1]*
4	G130M/1291 FP-POS=4 (1005909)	(3) UVQSJ191928-295808	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2254			2939 Secs (2939 Secs) *[==>]*	*[2]*
5	G130M/1600 FP-POS=ALL (904458)	(3) UVQSJ191928-295808	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=4281			1406 Secs (5624 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]* *[4]*

Orbit Structure








Orbit 4
Server Version: 20170613
Unused Orbital Visibility = 3
GS Reacq
Occultation
Exp. 5, split 3
Exp. 5, split 4
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15339, UVQSJ1856-5442 (05), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UVQSJ1856-5442 (05)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

Fixed Targets

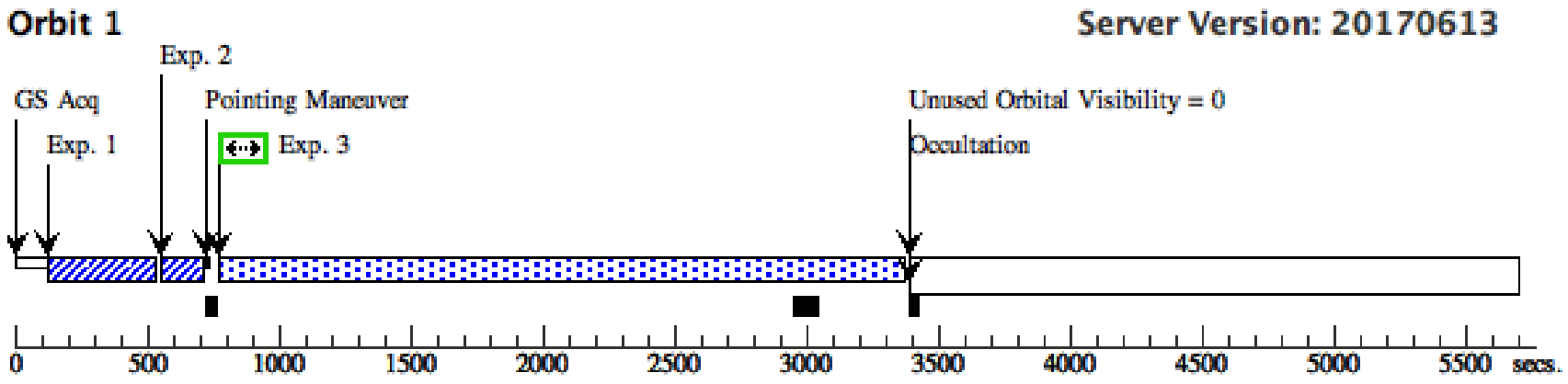
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	UVQSJ185649-544229	RA: 18 56 49.3780 (284.2057417d) Dec: -54 42 29.90 (-54.70831d) Equinox: J2000		V=17.68 GALEX FUV=16.39 FUV=16.30; magnitude above is B	Reference Frame: ICRS

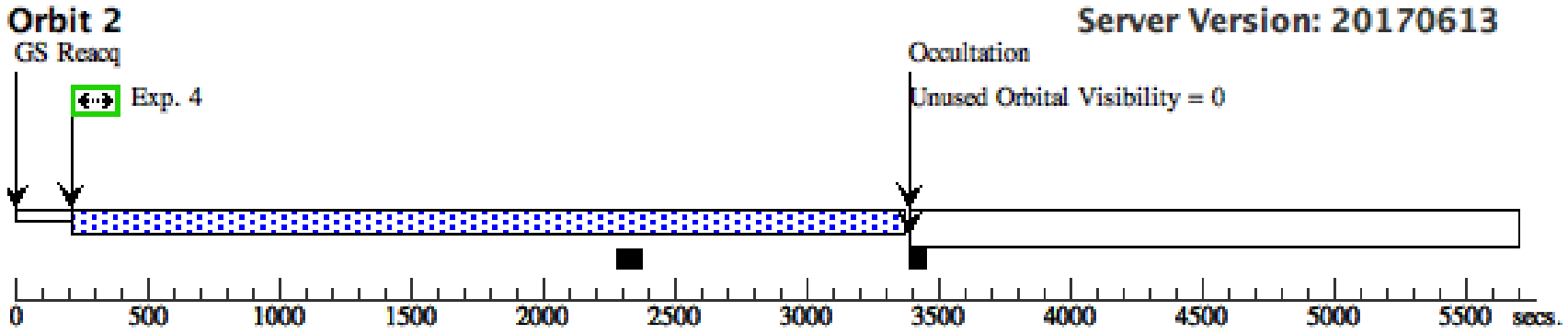
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Extended=NO

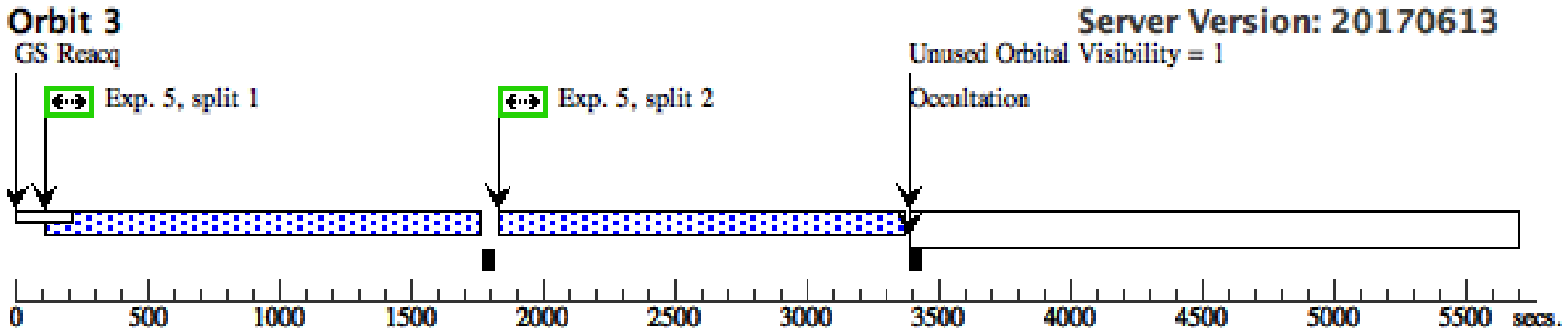
Exposures

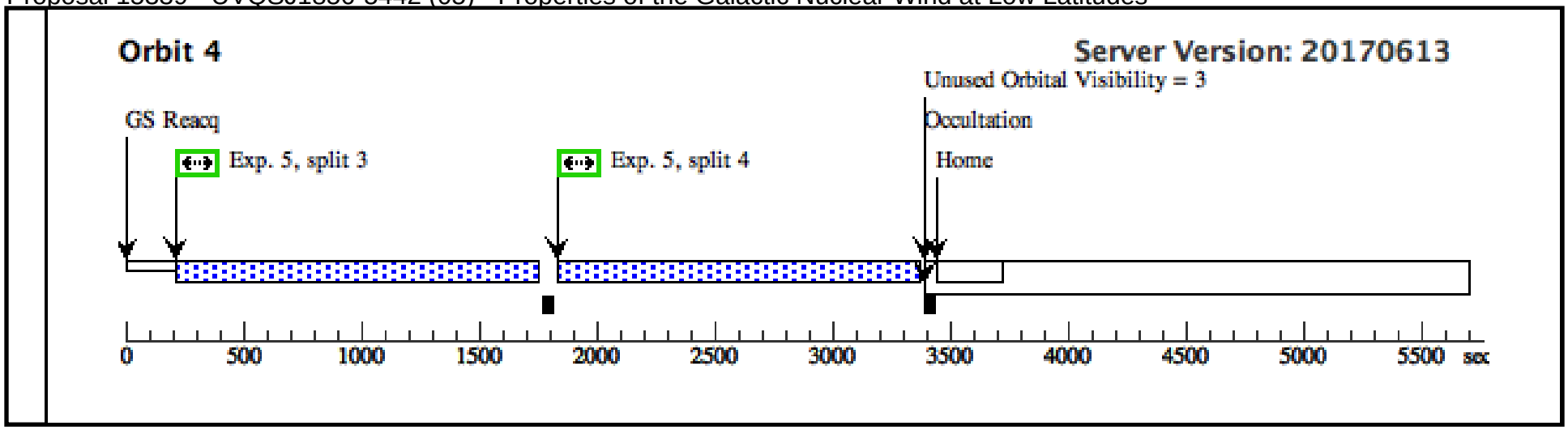
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005902)	(4) UVQSJ185649-544229	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			15 Secs (15 Secs) *[==>]*	 ***[1]***
2	ACQ/IMAGE (1005902)	(4) UVQSJ185649-544229	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				22 Secs (22 Secs) *[==>]*	 ***[1]***
3	G130M/1291 FP-POS=3 (1005918)	(4) UVQSJ185649-544229	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2027			2432 Secs (2432 Secs) *[==>]*	 ***[1]***
4	G130M/1291 FP-POS=4 (1005918)	(4) UVQSJ185649-544229	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2027			3107 Secs (3107 Secs) *[==>]*	 ***[2]***
5	G130M/1600 FP-POS=ALL (904460)	(4) UVQSJ185649-544229	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=5463			1490 Secs (5960 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]*** ***[4]***

Orbit Structure








Orbit 4
Server Version: 20170613
Unused Orbital Visibility = 3
GS Reacq
Exp. 5, split 3
Exp. 5, split 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15339, UVQSJ1938-4326 (06), implementation Fri Jul 14 23:07:15 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Diagnostics

(UVQSJ1938-4326 (06)) Warning (Form): For the best data quality, it is strongly recommended that the maximum number of allowed FP-POS positions is used when observing at a given COS CENWAVE setting. See full description for details.

Fixed Targets

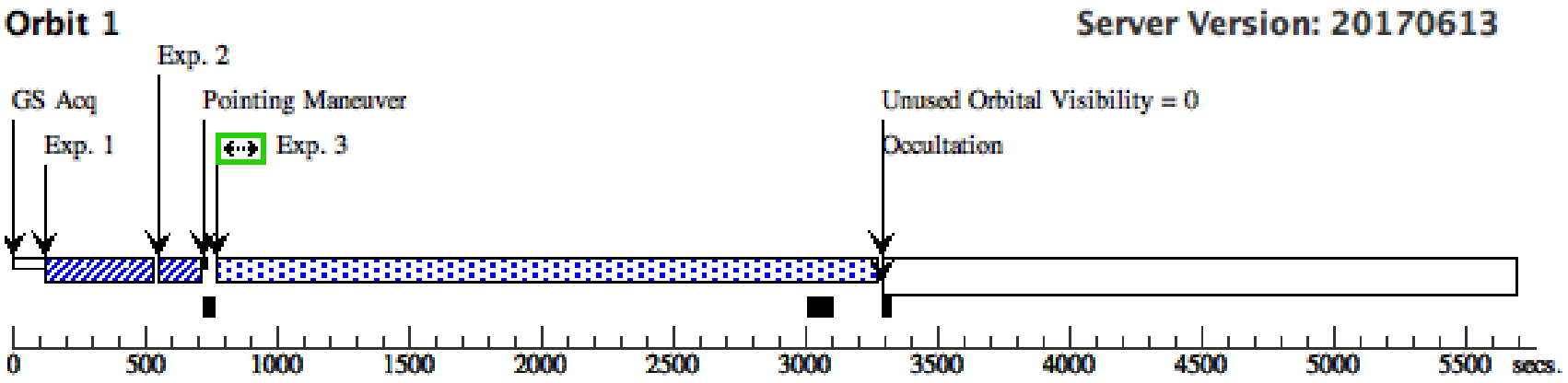
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	UVQSJ193819-432646	RA: 19 38 19.5700 (294.5815417d) Dec: -43 26 46.43 (-43.44623d) Equinox: J2000		V=17.27 GALEX FUV=17.12 NUV=17.11; magnitude above is B	Reference Frame: ICRS

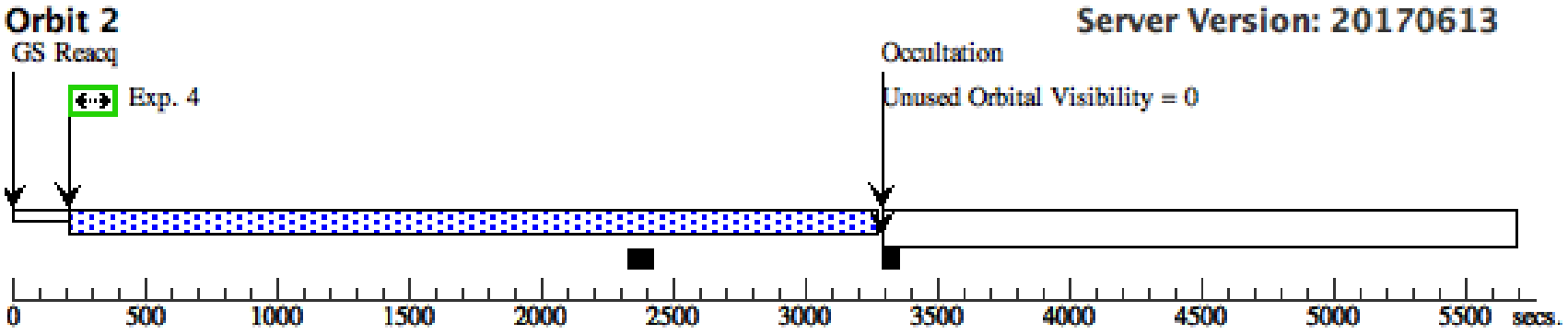
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Extended=NO

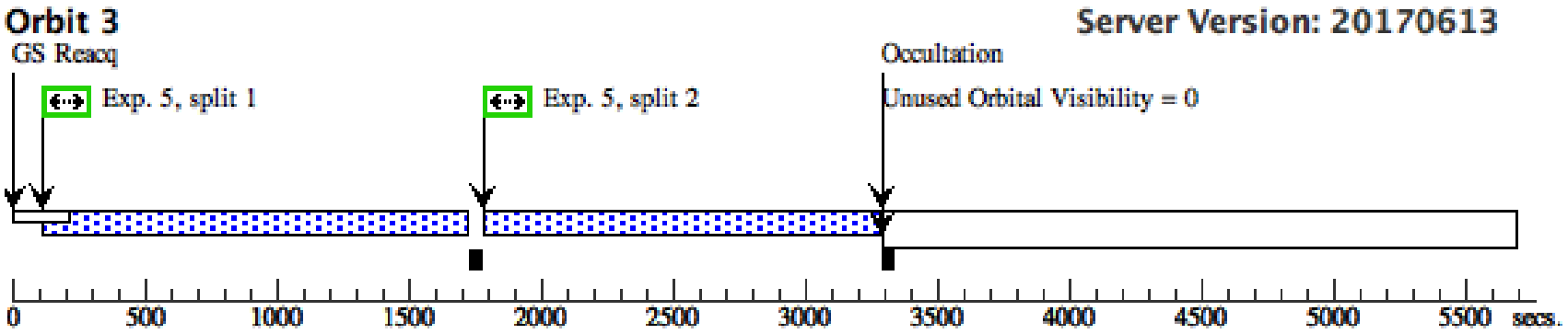
Exposures

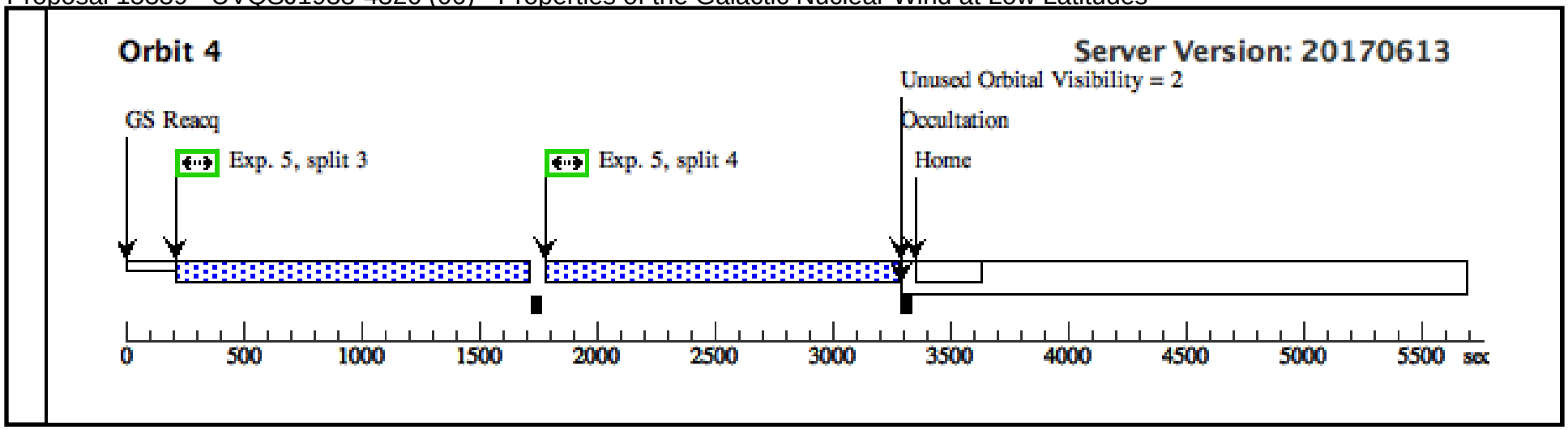
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/SEARCH (1005903)	(5) UVQSJ193819-432646	COS/NUV, ACQ/SEARCH, PSA	MIRRORB	STEP-SIZE=1.767; SCAN-SIZE=2; CENTER=FLUX-WT			15 Secs (15 Secs) *[==>]*	 ***[1]***
2	ACQ/IMAGE (1005903)	(5) UVQSJ193819-432646	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				22 Secs (22 Secs) *[==>]*	 ***[1]***
3	G130M/1291 FP-POS=3 (1005920)	(5) UVQSJ193819-432646	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=2082			2337 Secs (2337 Secs) *[==>]*	 ***[1]***
4	G130M/1291 FP-POS=4 (1005920)	(5) UVQSJ193819-432646	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=2082			3012 Secs (3012 Secs) *[==>]*	 ***[2]***
5	G130M/1600 FP-POS=ALL (904465)	(5) UVQSJ193819-432646	COS/FUV, TIME-TAG, PSA	G160M 1600 A	FP-POS=ALL; BUFFER-TIME=6039			1443 Secs (5772 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]*** ***[4]***

Orbit Structure








Orbit 4
Server Version: 20170613
Unused Orbital Visibility = 2
GS Reacq
Exp. 5, split 3
Exp. 5, split 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec