14180 - The wind of ksi Per: a tomographic view of stellar wind dynamics

Cycle: 23, 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) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:46.0	yes
02	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:48.0	yes
03	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:49.0	yes
04	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:51.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:52.0	yes
06	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:54.0	yes
07	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:55.0	yes
08	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:56.0	yes
09	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:57.0	yes
10	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:10:59.0	yes
11	(1) KSI-PER	STIS/CCD STIS/FUV-MAMA	1	22-Jan-2016 21:11:00.0	yes

11 Total Orbits Used

ABSTRACT

We propose to obtain 11 STIS and 10 XMM spectra of ksi Per to provide the critical information needed to progress our understanding of the structure of O star winds. In recent years, it has become apparent that radiatively driven winds are far more complex than the homogeneous, spherically symmetric flows originally envisioned. Instead, they have been shown to contain optically thick structures which may be quite small or very large. Until we unravel the details of these structures and how they interact, we cannot hope to reliably translate observational diagnostics into physical quantities such as mass loss rates. The state of affairs is evident from the huge swings in the values of observationally derived mass loss rates that have appeared in the recent literature. The proposed set of combined HST and XMM observations are key to developing a coherent picture of wind flows, their structure and how they fit together. The proposed observations will provide conclusive proof of whether the discrete absorption components observed in UV wind line profiles are related to X-ray variability and they will provide the phase difference between the two, which determines their relative locations in the winds. Together with existing data, we will also explore the optical thickness and covering factor of the wind structures and use all of these data to begin to produce a comprehensive model of radiatively driven winds. These observations will guide theoretical progress for years to come. Further, the window of opportunity to obtain such an important and unique data set is closing.

OBSERVING DESCRIPTION

This proposal entails 11 HST orbits spaced roughly 10 hours apart to obtain 11 STIS E140M and 11 STIS G750M spectra. Exposure times were estimated using a mean of 30 IUE spectra of xi Per for the UV exposure times and an O7 star model reddened by E(B-V) = 0.32 mag and normalized to V = 4:08 mag for the H alpha exposures.

These observations should occur near the middle of the XMM-Newton observing run (roughly 17 Feb, 2016) which spans a much longer time interval.

Visit

Proposal 14180, Visit 01, scheduling Sat Jan 23 02:11:01 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; BETWEEN 15-FEB-2016:00:00:00 AND 18-FEB-2016:00:00:00

Fixed Targets

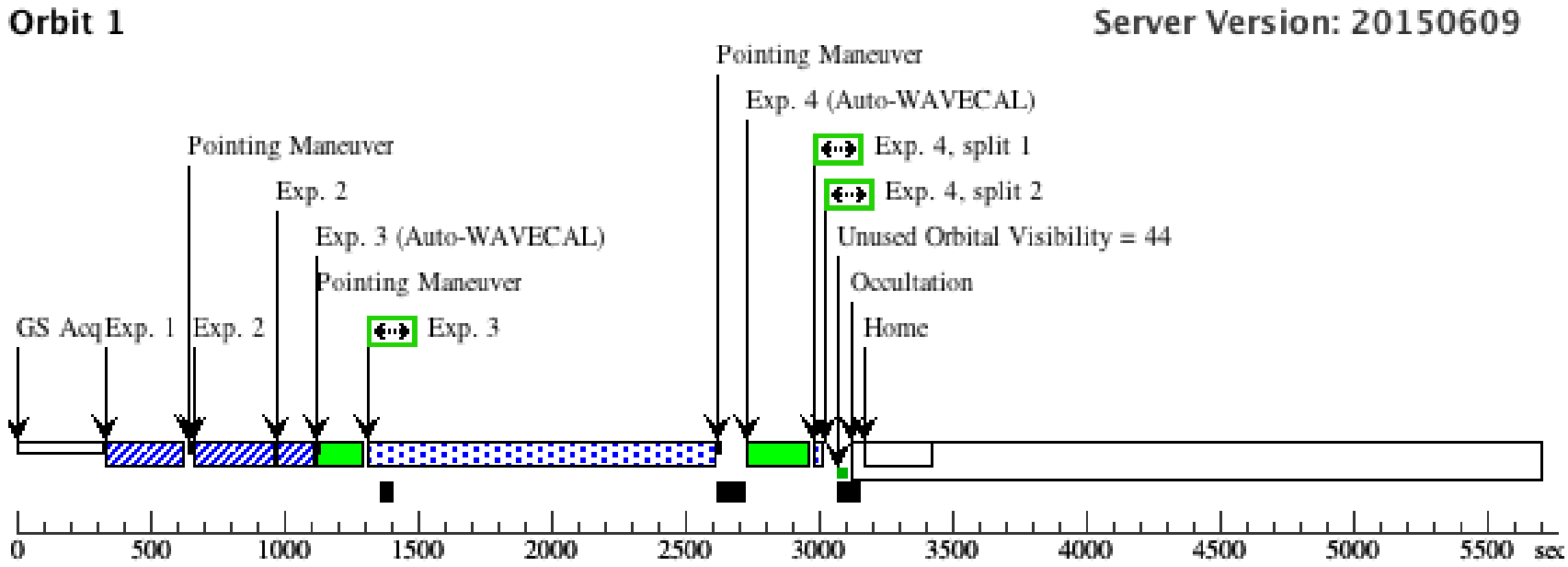
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 02, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 01 BY 11 Orbits TO 11.5 Orbits

Fixed Targets

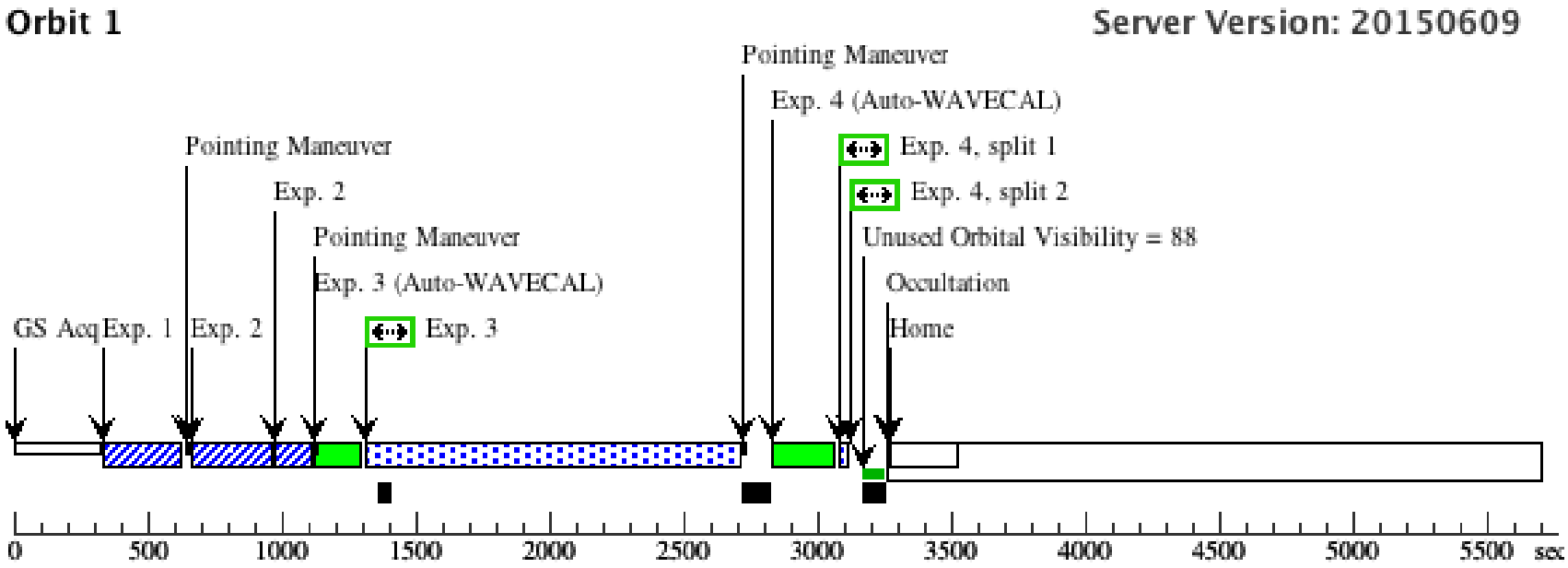
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1350 Secs (1350 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 03, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; AFTER 01 BY 23 H TO 25 H

Fixed Targets

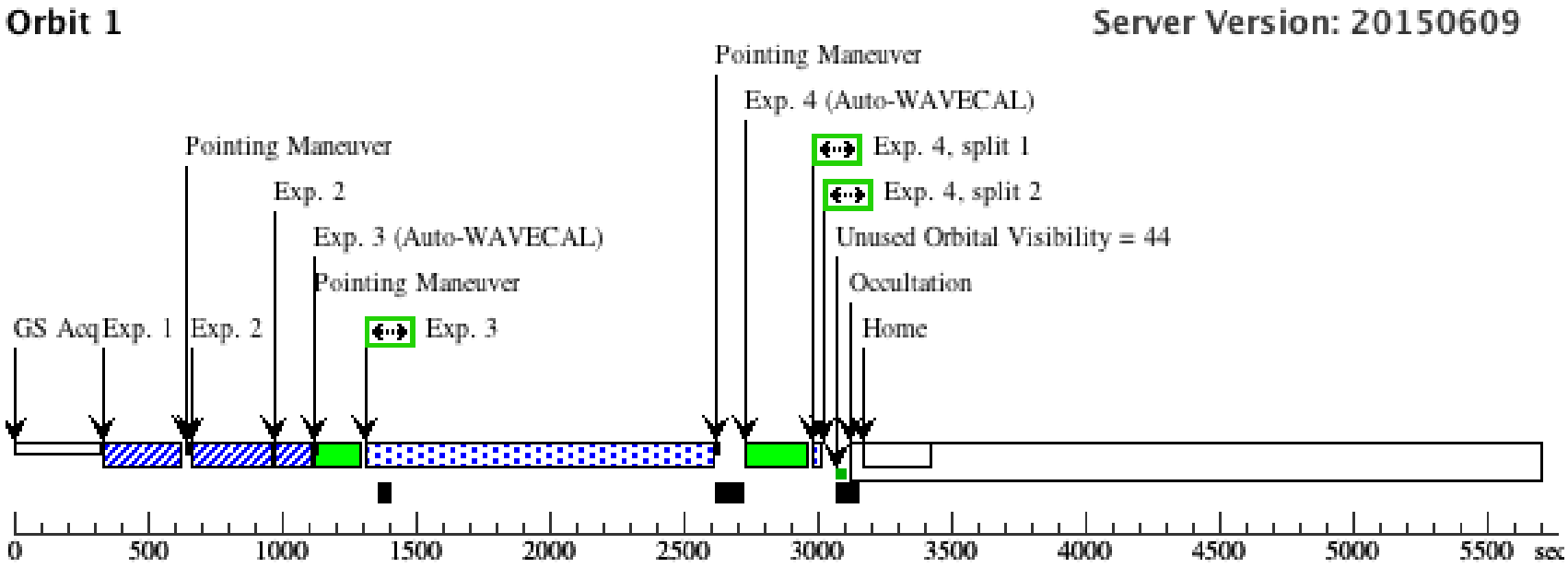
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 04, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 03 BY 11 Orbits TO 11.5 Orbits

Fixed Targets

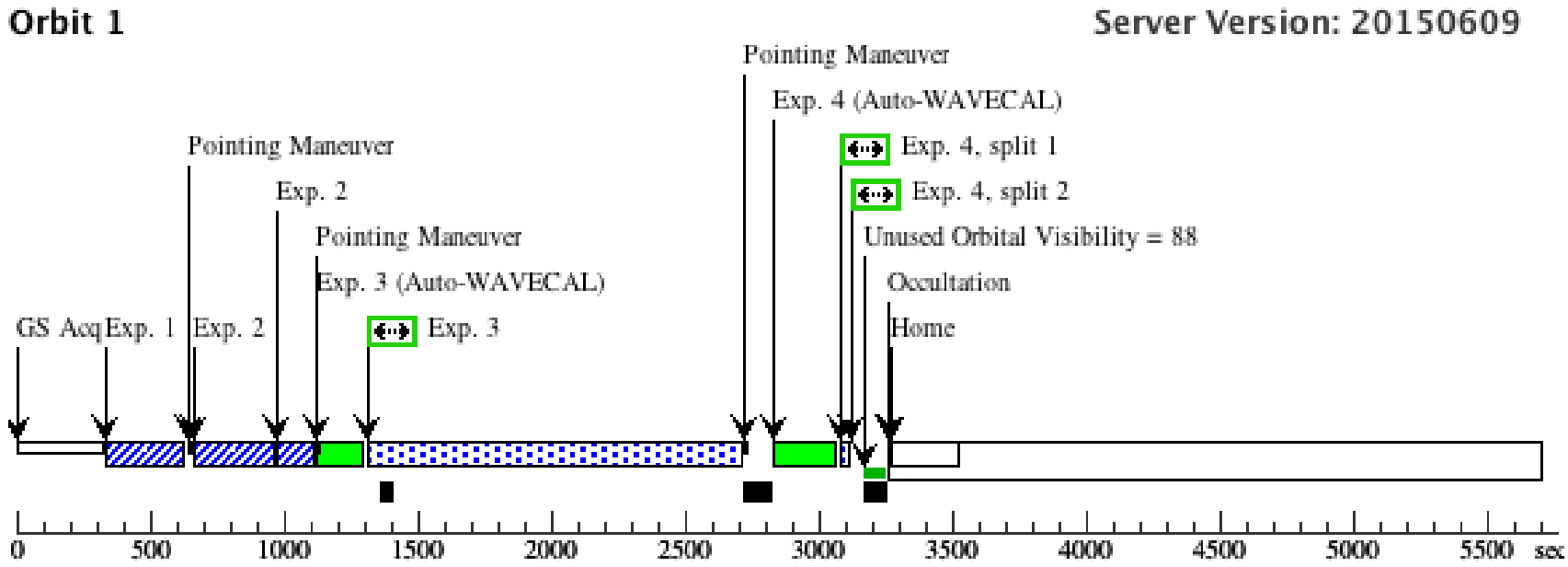
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1350 Secs (1350 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 05, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; AFTER 01 BY 47 H TO 48 H

Fixed Targets

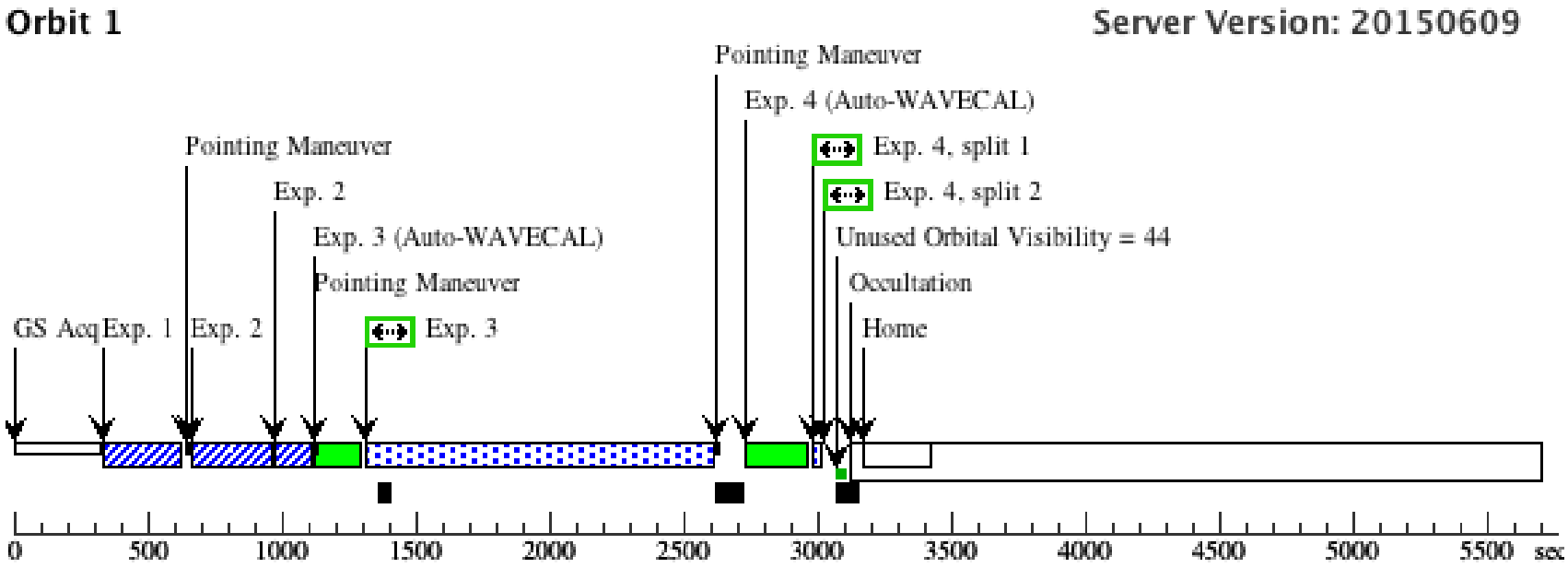
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 06, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 05 BY 11 Orbits TO 11.5 Orbits

Fixed Targets

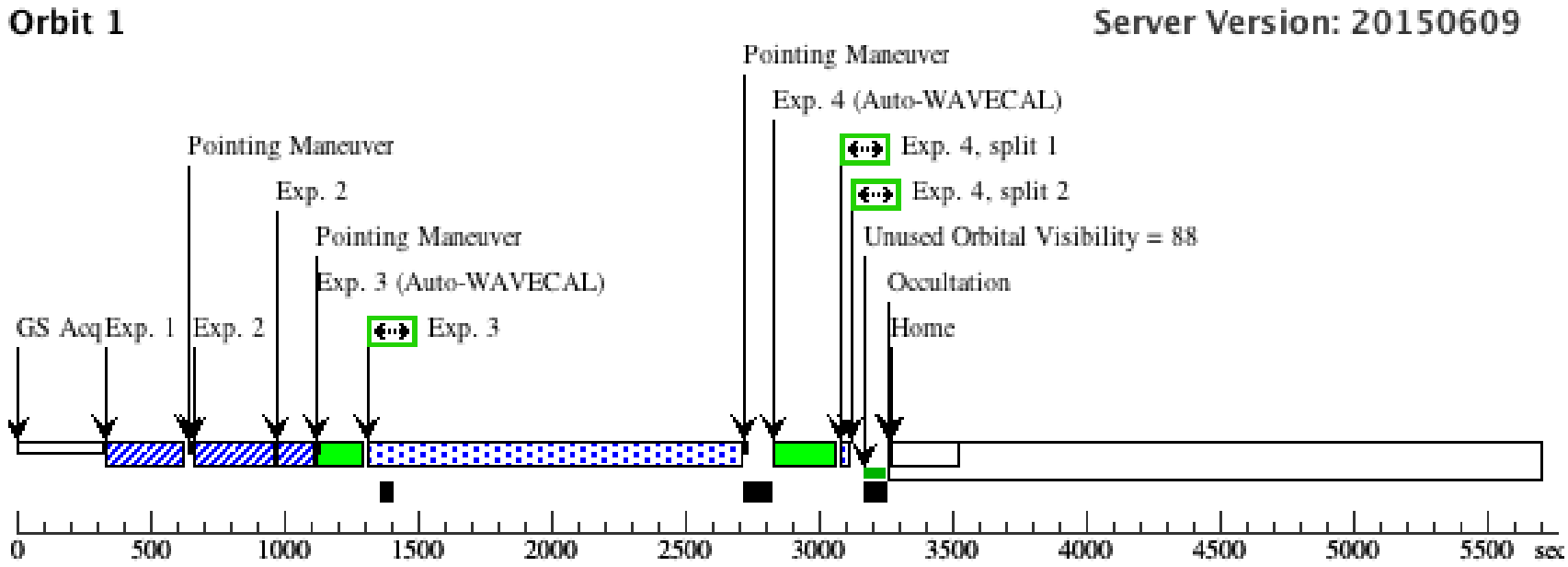
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1350 Secs (1350 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 07, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; AFTER 01 BY 71 H TO 72 H

Fixed Targets

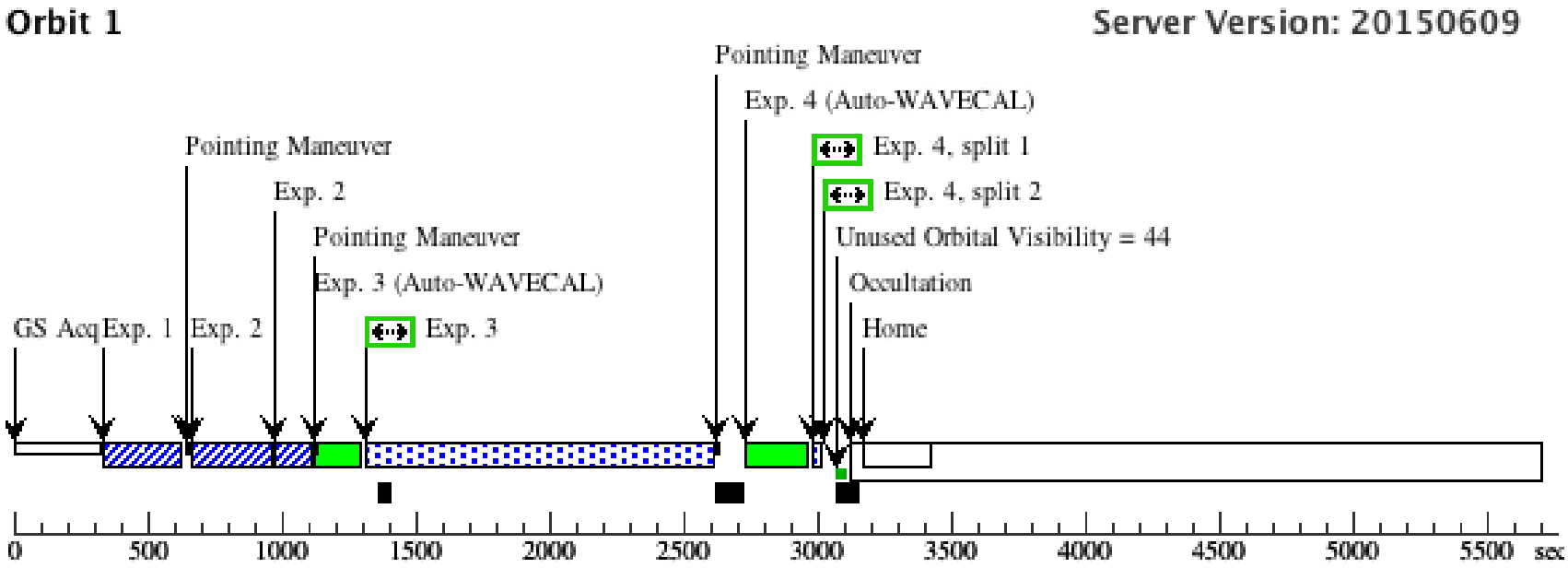
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 08, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 07 BY 11 Orbits TO 11.5 Orbits

Fixed Targets

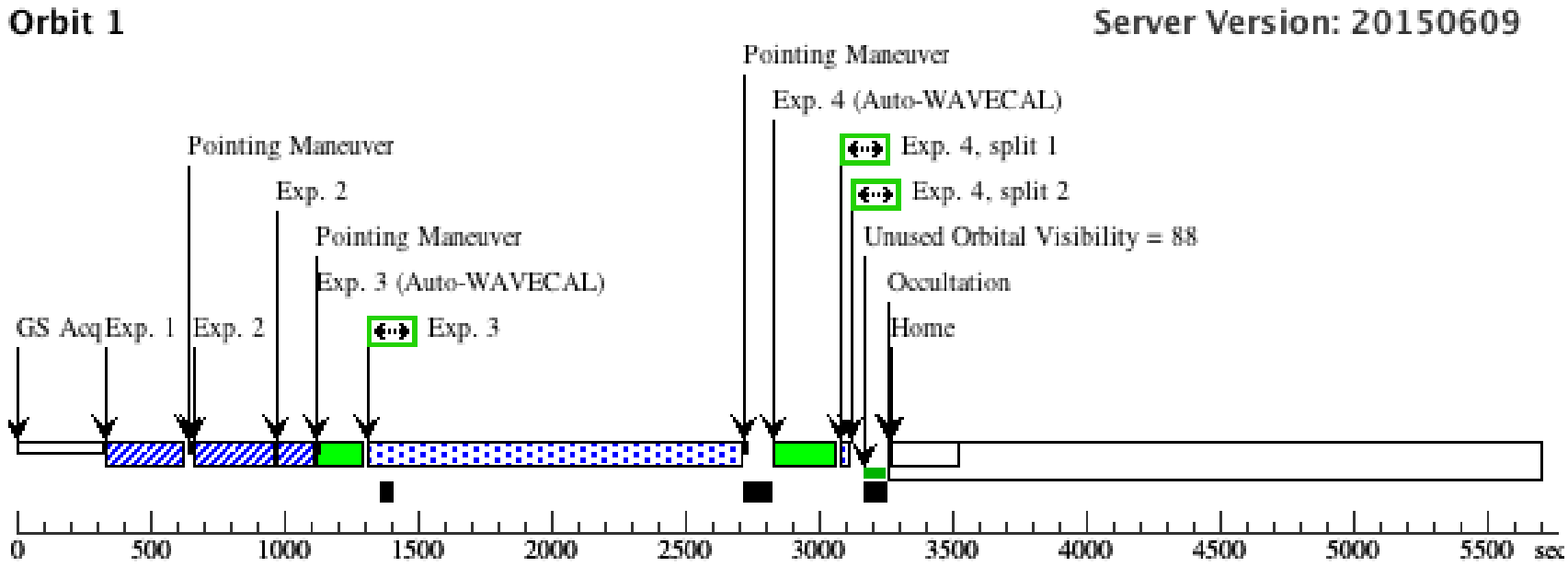
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1350 Secs (1350 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 09, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; AFTER 01 BY 95 H TO 96 H

Fixed Targets

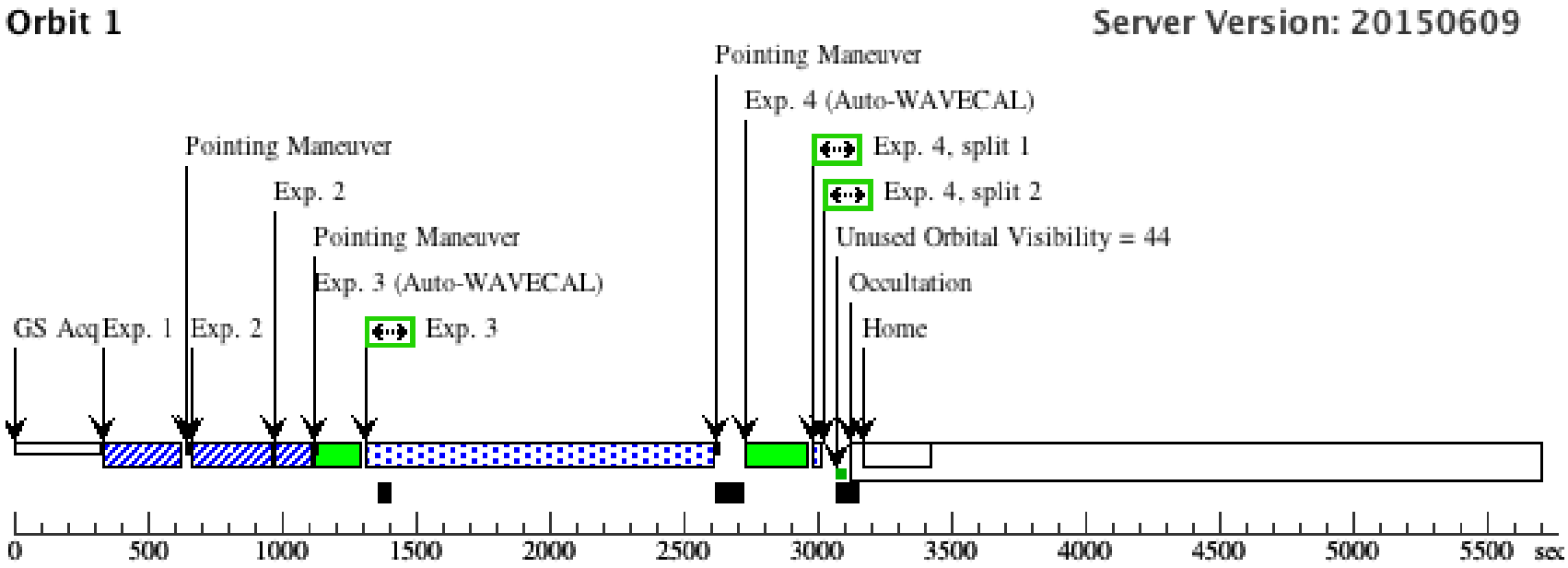
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 10, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 09 BY 11 Orbits TO 11.5 Orbits

Fixed Targets

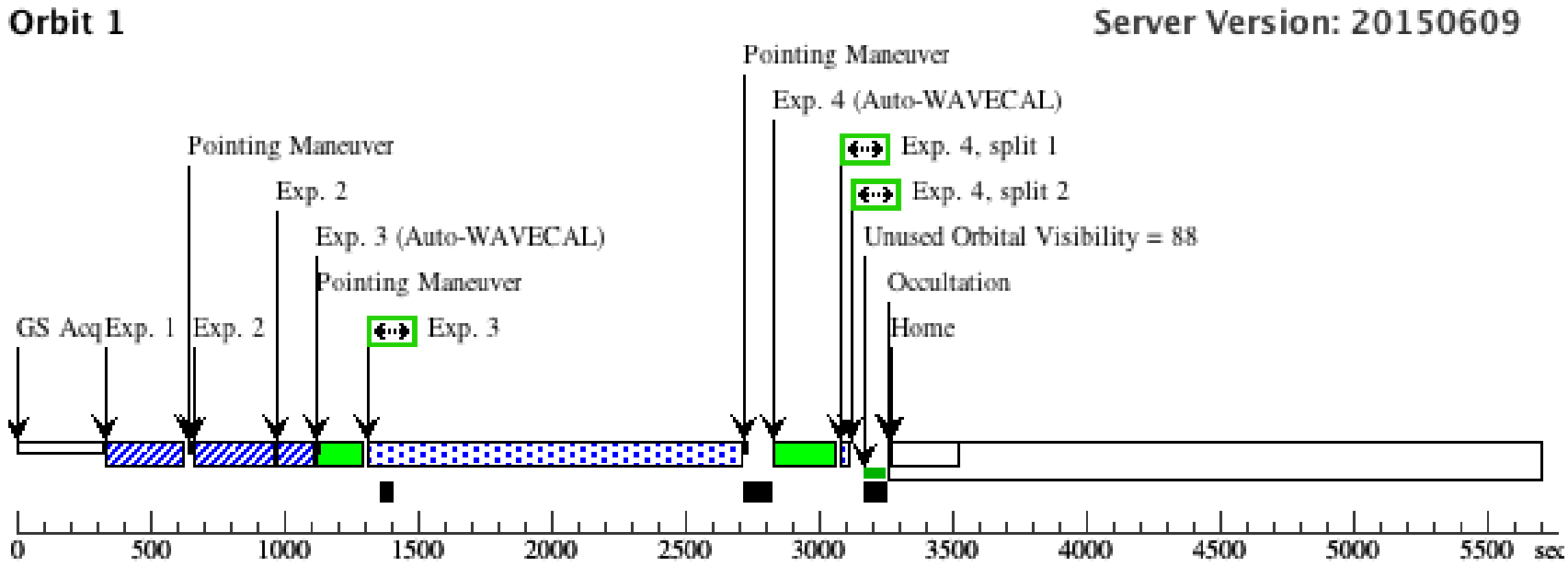
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1350 Secs (1350 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure



Visit

Proposal 14180, Visit 11, scheduling Sat Jan 23 02:11:02 GMT 2016

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 70%; AFTER 01 BY 117 H TO 118 H

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	KSI-PER	RA: 03 58 57.9023 (59.7412596d) Dec: +35 47 27.71 (35.79103d) Equinox: J2000		V=4.06	Reference Frame: ICRS

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	(732698)	(1) KSI-PER	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	(732681)	(1) KSI-PER	STIS/CCD, ACQ/PEAK, 0.3X0.05ND	MIRROR				0.2 Secs (0.2 Secs) *[==>]*	*[1]*
3	(676028)	(1) KSI-PER	STIS/FUV-MAMA, ACCUM, 0.2X0.05ND	E140M 1425 A				1250 Secs (1250 Secs) *[==>]*	*[1]*
4	(676034)	(1) KSI-PER	STIS/CCD, ACCUM, 52X0.05	G750M 6581 A				1 Secs (1 Secs) *[==>(Split 1)]* *[==>(Split 2)]*	*[1]*

Orbit Structure