16313 - Tracking the Uranian magnetosphere between solstice and equinox and the inner rotation rate of the planet

Cycle: 28, 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) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:17.0	yes
02	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:18.0	yes
03	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:19.0	yes
10	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:20.0	yes
04	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:21.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:21.0	yes
06	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:22.0	yes
07	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:23.0	yes
08	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:24.0	yes
09	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:24.0	yes
13	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:25.0	yes
11	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:27.0	yes
12	(1) URANUS	STIS/FUV-MAMA	1	17-Nov-2020 09:00:27.0	yes

13 Total Orbits Used

ABSTRACT

This proposal aims at bringing our understanding of the Uranian magnetosphere, as the archetype of twin ice giant asymmetric magnetospheres, a step forward before the end of HST lifetime. We propose to track the UV (H and H2) aurorae of Uranus with STIS imaging at next opposition, while the planet lies between equinox and solstice. The observations will be carefully scheduled to sample variable solar wind conditions predicted by robust MHD codes throughout a validated methodology. The aurorae, predicted to be brighter and more spatially elongated than near equinox, will sample the ununderstood equinox-to-solstice configuration of the Uranian magnetosphere and the dynamical evolution from equinox to northern winter solstice. Such observations are crucial to resample and update the inner planetary rotation rate, a key parameter for understanding the planetary interior, and to define a valid SIII longitude system which will be required for any future spatial exploration of the planet. For this purpose, the aurorae will be accurately fitted by magnetic field models and cross-compared to the position of the magnetic poles derived previously to constrain the rotation rate at unprecedented accuracy.

OBSERVING DESCRIPTION

This proposal requests a sequence of 9 STIS imaging orbits distributed in three groups scheduled close to next opposition on 31 Oct. 2020. They will be divided in three groups of three orbits which will sample variable solar wind conditions predicted enough in advance. Two groups will sample intervals of high dynamic pressures (compressed state of the magnetosphere) and one group will sample quiet solar wind (relaxed state of the magnetosphere). The methodology employed to predict solar wind conditions at Uranus will be identical to that developed for past similar GO

programs.

The proposed observtions will consist of 9 STIS orbits, with TIME-TAG imaging using the clear and SRF2 filters.

Visit

Proposal 16313, URANUS (01), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51.5 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

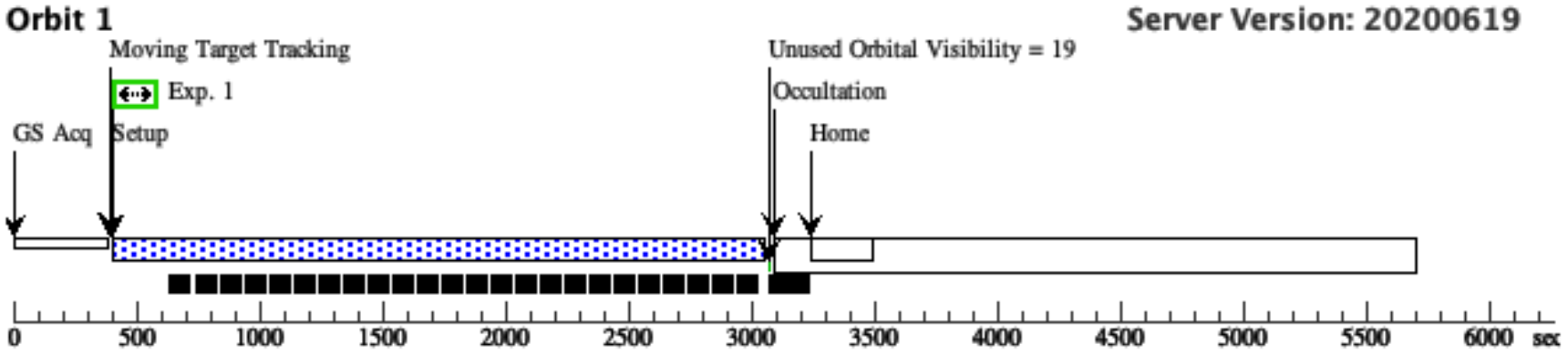
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Filtered image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2503 Secs) *[==>2503.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (02), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

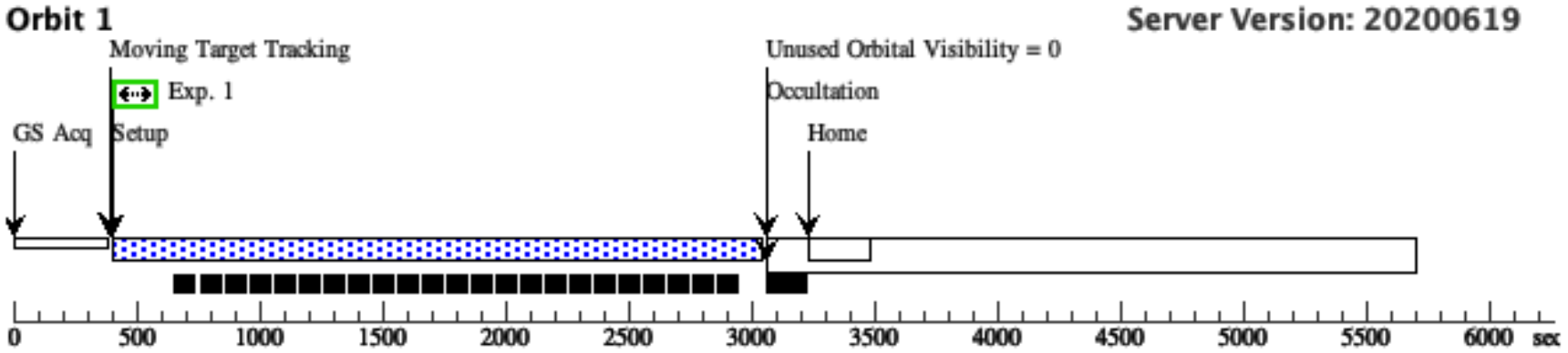
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=1000	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (03), failed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

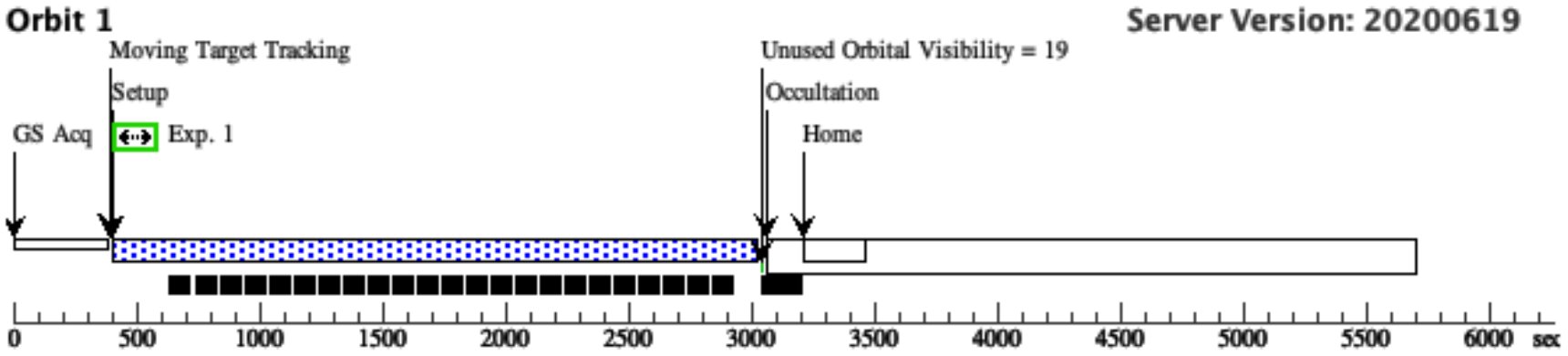
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Filtered image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (10), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

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Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

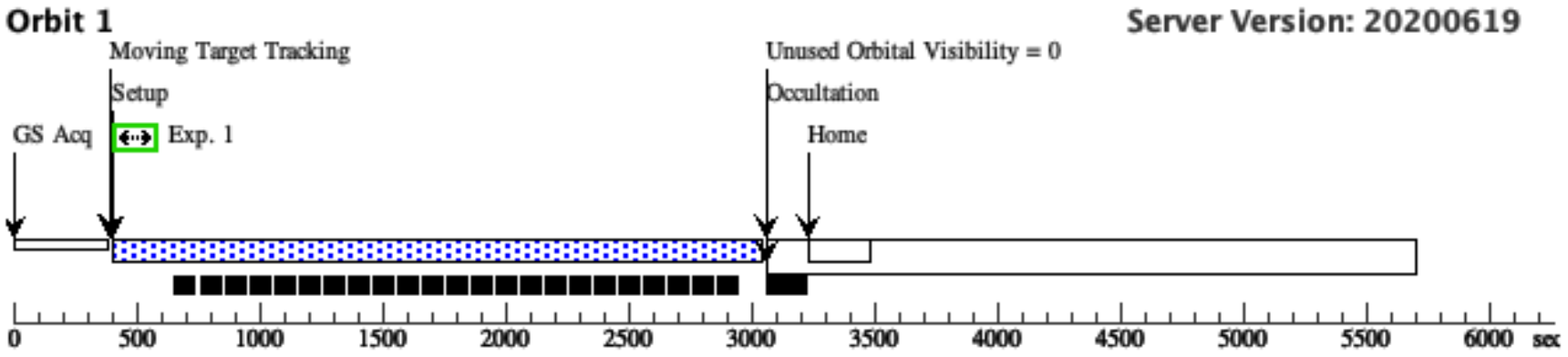
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Filtered image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (04), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51.5 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

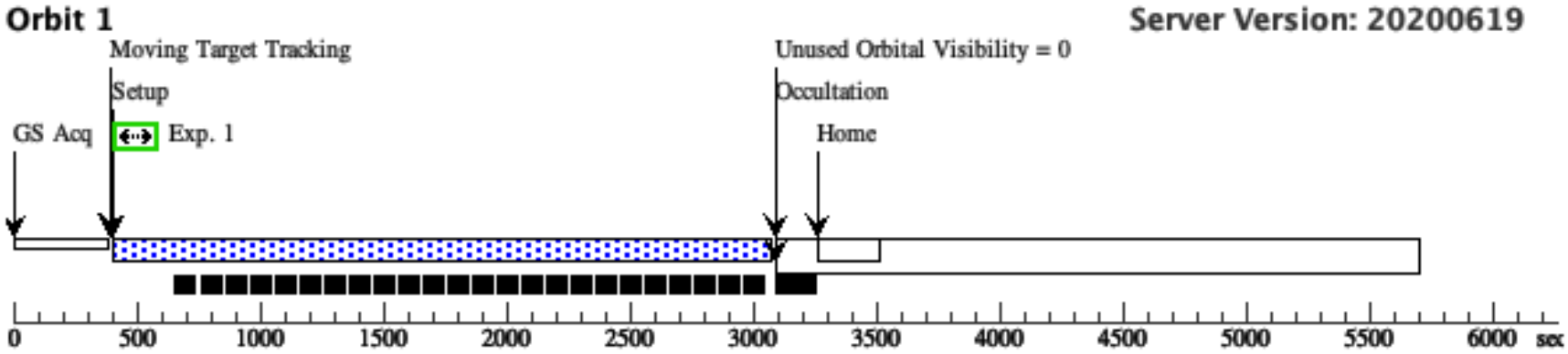
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2503 Secs) *[==>2503.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (05), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51.5 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Diagnostics

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

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

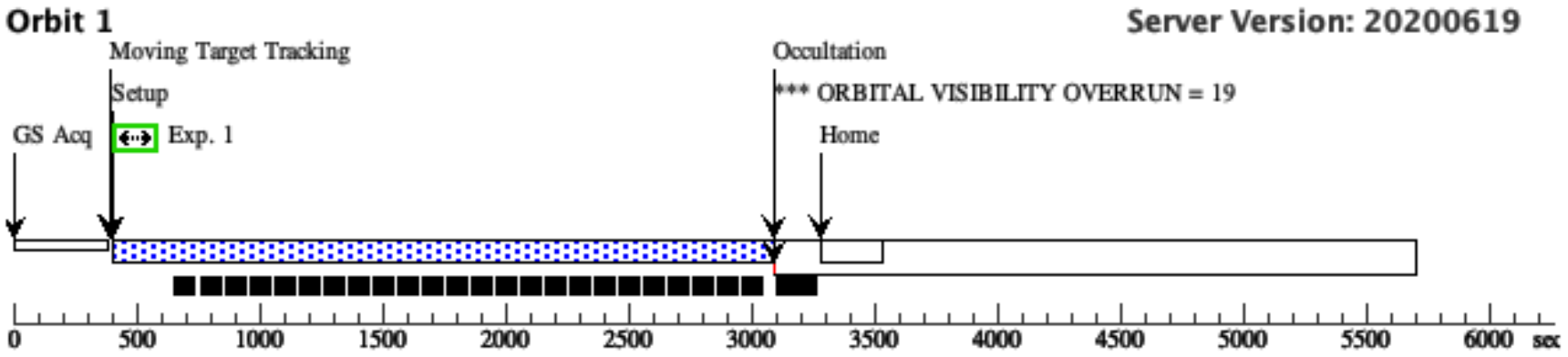
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2522 Secs) *[==>2522.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (06), completed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

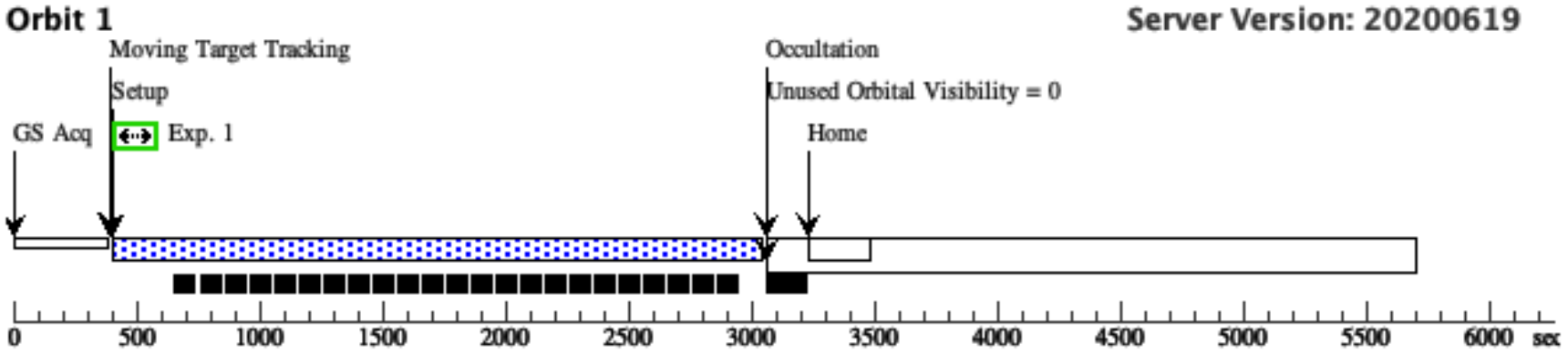
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (07), failed Tue Nov 17 14:00:28 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

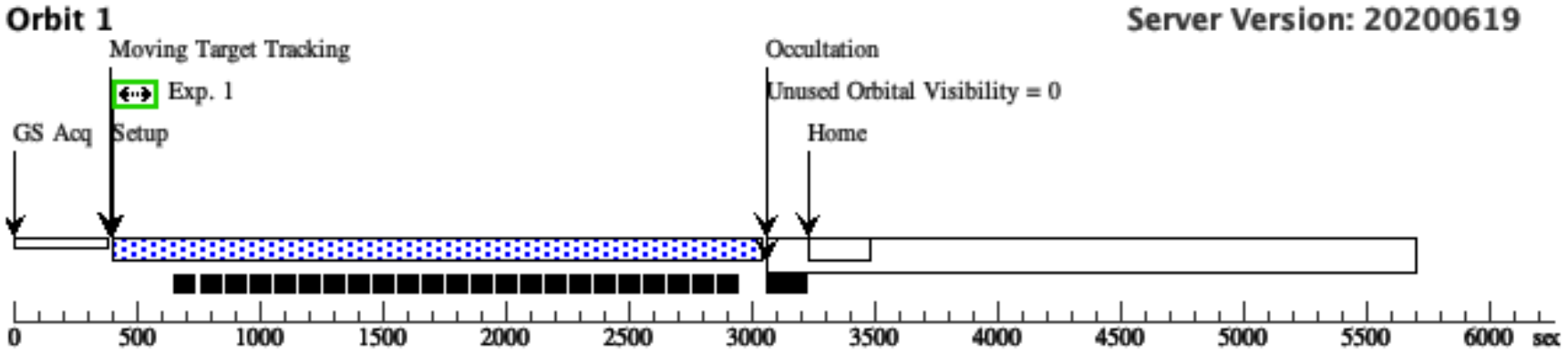
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (08), failed Tue Nov 17 14:00:29 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

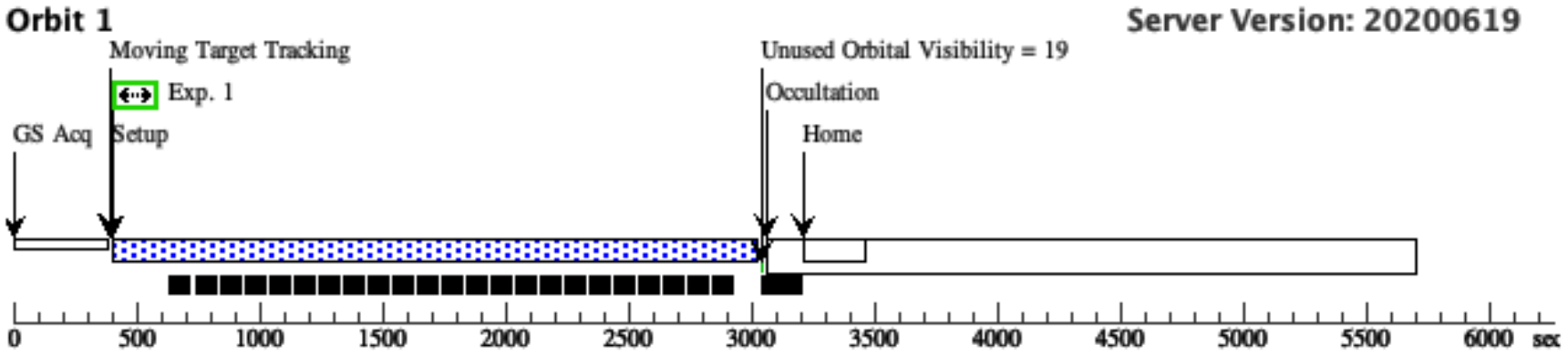
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Filtered image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (09), failed Tue Nov 17 14:00:29 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51.5 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

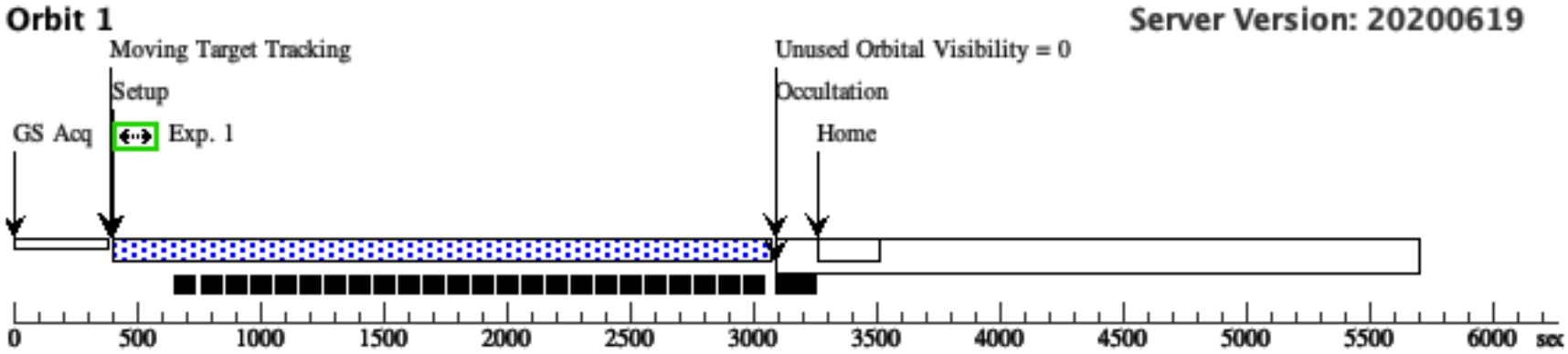
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2503 Secs) *[==>2503.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (13) Tue Nov 17 14:00:29 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 06-DEC-2020:00:00:00 AND 08-DEC-2020; BETWEEN 16-DEC-2020 AND 17-DEC-2020; VISIBILITY INTERVAL 51.5 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.
HOPR copy of visit 09

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

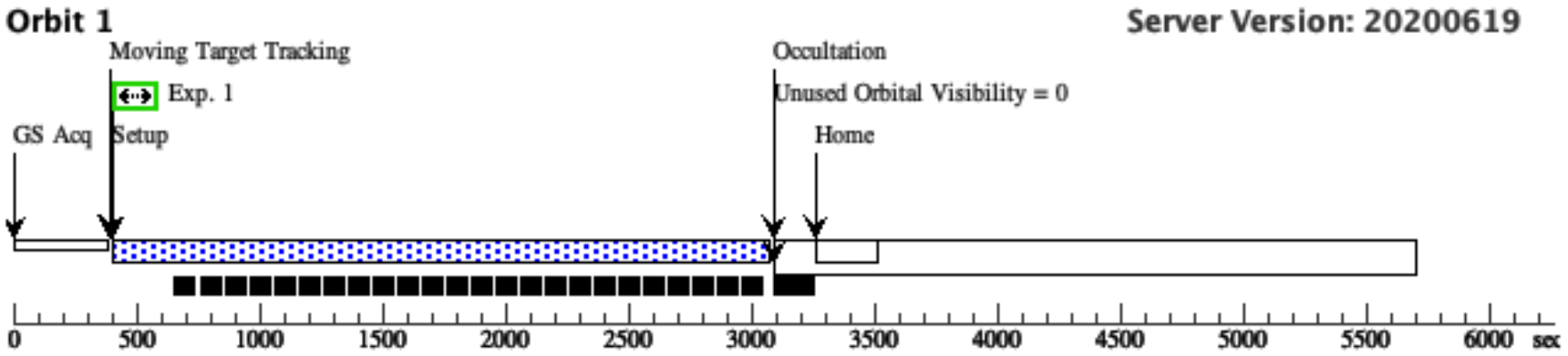
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2503 Secs) *[==>2503.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (11), completed Tue Nov 17 14:00:29 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

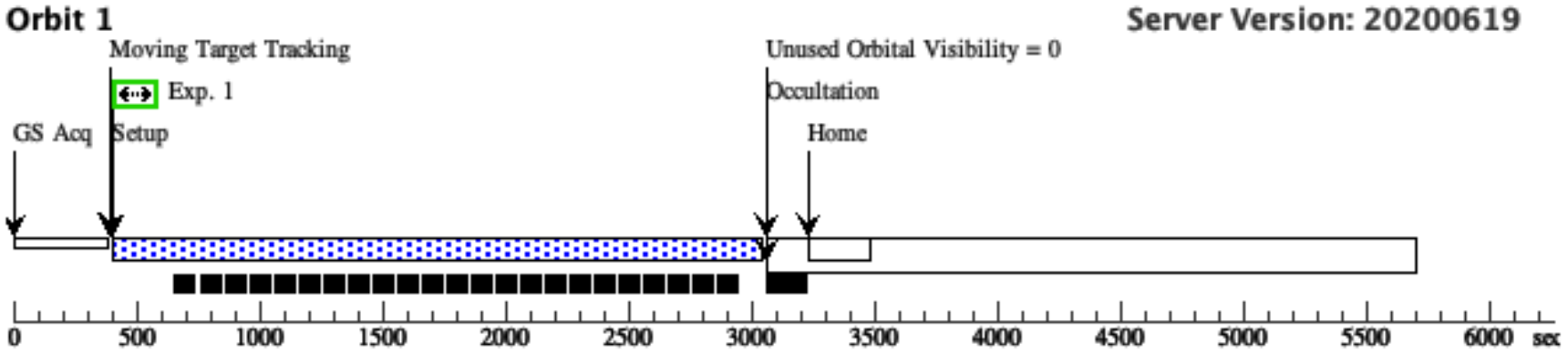
Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Clear image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, 25MAMA	MIRROR	BUFFER-TIME=1000	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure



Visit

Proposal 16313, URANUS (12), completed Tue Nov 17 14:00:29 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/FUV-MAMA

Special Requirements: AFTER 11 BY 0.8 Orbits TO 1.2 Orbits; BETWEEN 15-SEP-2020:00:00:00 AND 15-DEC-2020:00:00:00; VISIBILITY INTERVAL 51 M

Comments: The filter and integration times are similar to those used in proposal 14036.

Please expand exposure time if possible.

Solar System Targets

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	URANUS	STD=URANUS				EARTH

Comments: Description=PLANET URANUS

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Filtered image (189449)	(1) URANUS	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=100	POS TARG null,-3		2670 Secs (2473 Secs) *[==>2473.0 Secs]*	 ***[1]***

Comments: A POS TARG of -3arcsec in AXIS2 will move Uranus' signal away from the repeller wire shadow.

Orbit Structure