



# 16195 - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Cycle: 28, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

## INVESTIGATORS

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## VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) SATURN-AURORA-NORTH-01	STIS/FUV-MAMA	1	10-Nov-2020 08:00:21.0	yes
02	(2) SATURN-AURORA-NORTH-02	STIS/FUV-MAMA	1	10-Nov-2020 08:00:21.0	yes
52	(2) SATURN-AURORA-NORTH-02	STIS/FUV-MAMA	1	10-Nov-2020 08:00:22.0	yes
03	(3) SATURN-AURORA-NORTH-03	STIS/FUV-MAMA	1	10-Nov-2020 08:00:23.0	yes
53	(3) SATURN-AURORA-NORTH-03	STIS/FUV-MAMA	1	10-Nov-2020 08:00:24.0	yes
04	(4) SATURN-AURORA-NORTH-04	STIS/FUV-MAMA	1	10-Nov-2020 08:00:25.0	yes
05	(5) SATURN-AURORA-NORTH-05	STIS/FUV-MAMA	1	10-Nov-2020 08:00:25.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
55	(5) SATURN-AURORA-NORTH-05	STIS/FUV-MAMA	1	10-Nov-2020 08:00:26.0	yes
06	(6) SATURN-AURORA-NORTH-06	STIS/FUV-MAMA	1	10-Nov-2020 08:00:27.0	yes
07	(7) SATURN-AURORA-NORTH-07	STIS/FUV-MAMA	1	10-Nov-2020 08:00:28.0	yes
08	(8) SATURN-AURORA-NORTH-08	STIS/FUV-MAMA	1	10-Nov-2020 08:00:28.0	yes
09	(9) SATURN-AURORA-NORTH-09	STIS/FUV-MAMA	1	10-Nov-2020 08:00:29.0	yes
10	(10) SATURN-AURORA-NORTH-10	STIS/FUV-MAMA	1	10-Nov-2020 08:00:30.0	yes
11	(11) SATURN-AURORA-NORTH-11	STIS/FUV-MAMA	1	10-Nov-2020 08:00:31.0	yes
12	(12) SATURN-AURORA-NORTH-12	STIS/FUV-MAMA	1	10-Nov-2020 08:00:32.0	yes
13	(13) SATURN-AURORA-NORTH-13	STIS/FUV-MAMA	1	10-Nov-2020 08:00:33.0	yes
14	(14) SATURN-AURORA-NORTH-14	STIS/FUV-MAMA	1	10-Nov-2020 08:00:33.0	yes
15	(15) SATURN-AURORA-NORTH-15	STIS/FUV-MAMA	1	10-Nov-2020 08:00:34.0	yes
16	(16) SATURN-AURORA-NORTH-16	STIS/FUV-MAMA	1	10-Nov-2020 08:00:35.0	yes

19 Total Orbits Used

## ABSTRACT

In November 2020, Saturn will pass through Jupiter's vast magnetotail. No other planet experiences such an event, which occurs for Saturn once every 19 years. It presents a unique natural experiment to capture the behaviour of a planet's magnetosphere in the absence of driving by the solar wind. A major scientific question for outer planetary magnetospheres is to understand the relative importance of internally- and externally-driven processes. Because of the rarity of this occurrence, however, planetary auroras have never been observed when the solar wind driver is all but removed. These proposed observations during Saturn's encounter with Jupiter's magnetotail present a crucial and unique opportunity to answer the following science questions:

- \* Does encountering Jupiter's magnetotail affect Saturn's auroras?
- \* What is the effect on a magnetosphere when solar wind driving is eliminated?

- \* Is Saturn's magnetosphere dominated by solar wind or internal processes?
- \* Is the solar wind interaction required for the existence of Saturn's main auroral oval?
- \* How does a dramatic expansion of the magnetosphere affect the flow and loss from the magnetosphere of plasma originating from Enceladus?
- \* Is the enigmatic magnetospheric planetary period oscillation modified by the encounter?
- \* Is dayside magnetic reconnection affected by the magnetotail encounter?

The HST is the only observatory capable of obtaining these FUV observations, and this encounter will not occur again during the lifetime of HST. We thus propose to image Saturn's northern auroras with HST/STIS during October-November 2020 to discover the planet's auroral morphology and evolution during this exciting event.

### **OBSERVING DESCRIPTION**

Observations will be taken in October and November 2020, to capture the evolution of the state of the magnetosphere through ingress and into the core of the magnetotail. Four 1-orbit visits at a cadence of 1 every 4 days will be obtained over 15 Oct-2 November (modified from the planned 6 due to a gap from 22-28 October due to poor FHST visibility), and thereafter 12 1-orbit visits at a cadence of 1 every 2 days will be obtained over 1-24 Nov, for a total of 16 orbits. Saturn will enter the 54 deg solar exclusion zone on 25 November and remain unavailable until March 2021. The density depletions observed by Voyager-2 lasted typically 1-5 days. A 2 day cadence will ensure that density depletions are observed along with intervals between when the magnetosphere returns to more typical rarefaction conditions. The lower cadence at the start of the program allows a wider range of angles to firmly establish the background solar wind state via analysis of Saturn's auroral morphology, and to aid the determination of the width of the tail if it extends further in the direction of planetary motion. All timings can be adjusted by a few days either side to ease scheduling (except for the hard 25 Nov cut-off). There are ~5 SAA-free orbits per day, and Saturn has been observed in the SAA-free orbits once per day successfully in the past, normally with few allowances needing to be made for ease of scheduling and the avoidance of bright stars.

These observations will be made using the STIS/FUV-MAMA instrument. Auroral images will be obtained using the F25SRF2 filter, in order to observe the H<sub>2</sub> Lyman and Werner emission whilst removing contamination from the geocoronal Lyman-alpha. Only the northern auroras will be visible owing to the planet's season. Saturn will be centred in the instrument's FOV and previous observations have yielded typical count rates of <25,000 counts/s, well below the safety limit. During the first orbit a ~200 s image with the F25QTZ filter will be obtained, to determine the planet's background disc and aid its subtraction from the auroral images. Observations will be obtained in ~2600 s time-tagged exposures, from which images integrated over smaller intervals (e.g. 300 s) will be extracted. This length of exposure has previously successfully been used to observe Saturn using STIS/FUV in TIMETAG mode with the F25SRF2 filter. In the event of STIS not being available, observations will be made with the

Proposal 16195 (STScI Edit Number: 4, Created: Tuesday, November 10, 2020 at 8:00:35 AM Eastern Standard Time) - Overview  
Solar Blind Channel of the Advanced Camera for Surveys, which in practice yields lower signal to noise than STIS owing to its red leak. In the event that ACS is used, 500 s ACCUM images will be obtained with the F125LP filter and the background with F140LP.

In the past, Saturn observations have been successfully obtained in both 2-gyro and 3-gyro mode, and these observations can be obtained with any roll angle. We thus expect to be able to execute these observations in the event that the observatory is operating in 2-gyro mode.

Proposal 16195 - 1 (01) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Tue Nov 10 13:00:35 GMT 2020

**Visit**  
**Proposal 16195, 1 (01), completed**  
**Diagnostic Status: Warning**  
 Scientific Instruments: STIS/FUV-MAMA  
 Special Requirements: BETWEEN 14-OCT-2020:00:00:00 AND 17-OCT-2020:00:00:00  
*Comments: This is the first visit, planned to execute between 14 and 16 October. As well as the F25SRF2 filter, this visit uniquely has an additional 200 s exposure with the Crystal Quartz filter. We have not requested any specific roll angles due to the observing geometry at this time of year and its impact on schedulability. BETWEEN requirements below are to maintain the schedule outlined in the proposal, but these can be expanded if necessary once the HST orbit is known.*

**Diagnostics**  
 (Exposure 1 (1 (01))) Warning (Form): Sensitive exposures should have an ETC run number provided.  
 (Exposure 2 (1 (01))) Warning (Form): Sensitive exposures should have an ETC run number provided.

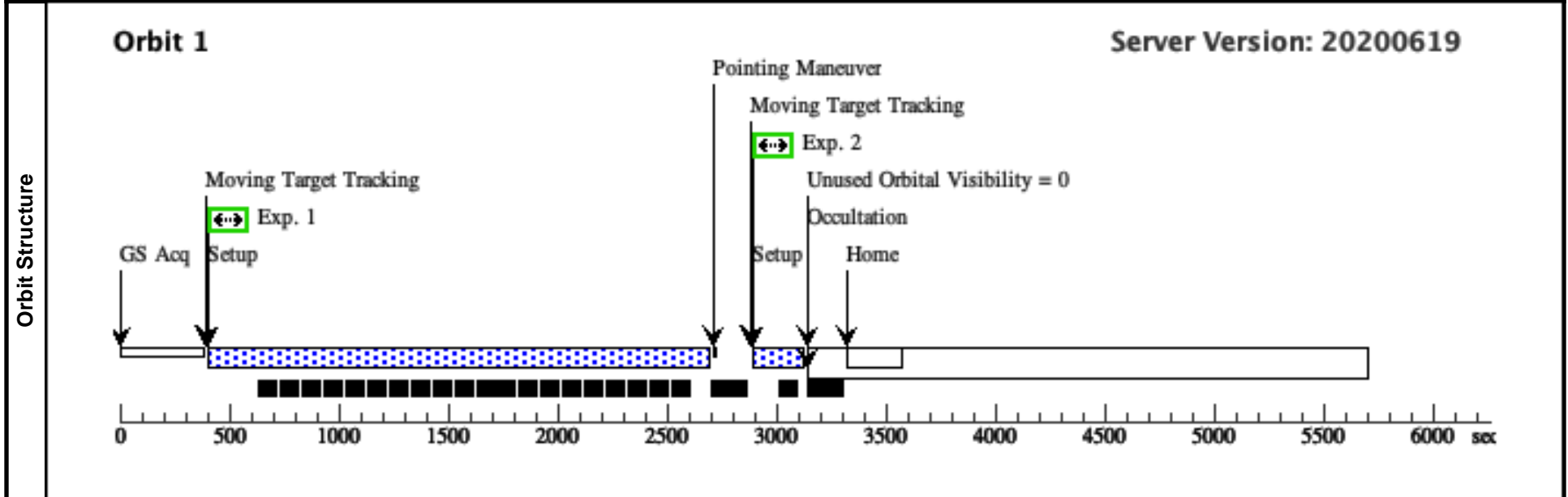
**Solar System Targets**

#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
(1)	SATURN-AURORA-NORTH-01	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-01 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-01 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-01 TITAN FROM EARTH GT 10"	EARTH

*Comments: Description=01*

**Exposures**

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) SATURN-AURO RA-NORTH-01	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2141 Secs (2141 Secs) [=>]	[1]
2		(1) SATURN-AURO RA-NORTH-01	STIS/FUV-MAMA, TIME-TAG, F25QTZ	MIRROR	BUFFER-TIME=99			200 Secs (200 Secs) [=>]	[1]



Proposal 16195 - 2 (02) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

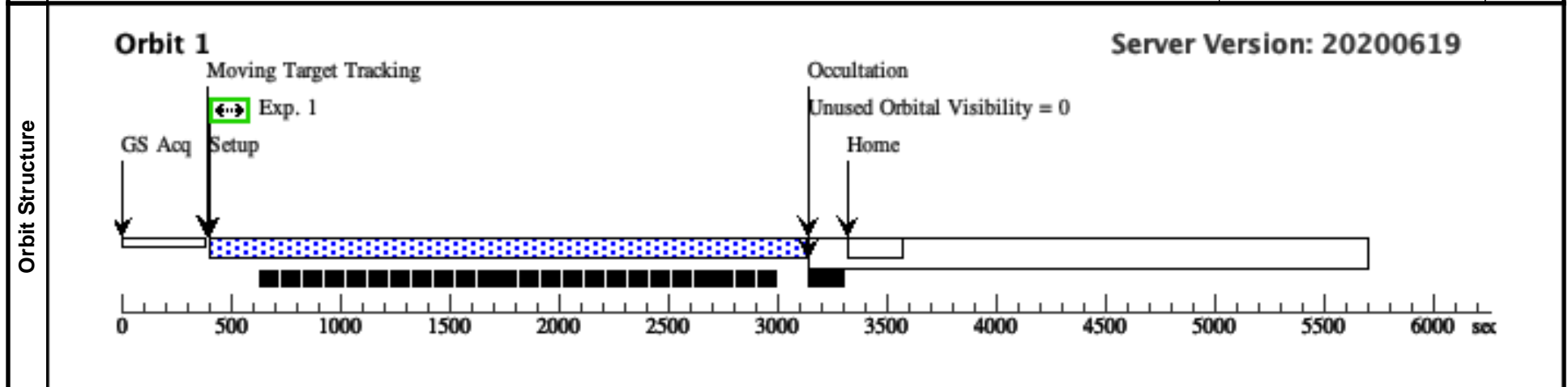
Tue Nov 10 13:00:35 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 2 (02), failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 17-OCT-2020:00:00:00 AND 19-OCT-2020:00:00:00
	(Exposure 1 (2 (02))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Level 1</th> <th>Level 2</th> <th>Level 3</th> <th>Window</th> <th>Ephem Center</th> </tr> </thead> <tbody> <tr> <td>(2)</td> <td>SATURN-AURORA-NORTH-02</td> <td>STD=SATURN</td> <td></td> <td></td> <td>NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-02 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-02 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-02 TITAN FROM EARTH GT 10"</td> <td>EARTH</td> </tr> </tbody> </table>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center	(2)	SATURN-AURORA-NORTH-02	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-02 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-02 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-02 TITAN FROM EARTH GT 10"	EARTH
	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center								
(2)	SATURN-AURORA-NORTH-02	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-02 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-02 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-02 TITAN FROM EARTH GT 10"	EARTH									
Comments: Description=02															

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) SATURN-AURO RA-NORTH-02	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]

<b>Exposures</b>	(Detailed exposure data table as shown above)								
	[Additional exposure details or notes]								



Proposal 16195 - 2 (52) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Tue Nov 10 13:00:35 GMT 2020

<b>Visit</b>	Proposal 16195, 2 (52), scheduled <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: (none) <i>Comments: HOPR repeat of visit 02</i>									
	(Exposure 1 (2 (52))) Warning (Form): Sensitive exposures should have an ETC run number provided.									
<b>Diagnostics</b>										
<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(2)	SATURN-AURORA-NORTH-02	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-02 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-02 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-02 TITAN FROM EARTH GT 10"	EARTH		
<i>Comments: Description=02</i>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) SATURN-AURO RA-NORTH-02	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99				2574 Secs (2574 Secs) [==>]
<b>Orbit Structure</b>	<p><b>Orbit 1</b> <span style="float: right;"><b>Server Version: 20200619</b></span></p>									
	<p>GS Acq   Setup   Exp. 1   Occultation   Home   Unused Orbital Visibility = 0</p> <p>0   500   1000   1500   2000   2500   3000   3500   4000   4500   5000   5500   6000 sec</p>									

Proposal 16195 - 3 (03) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

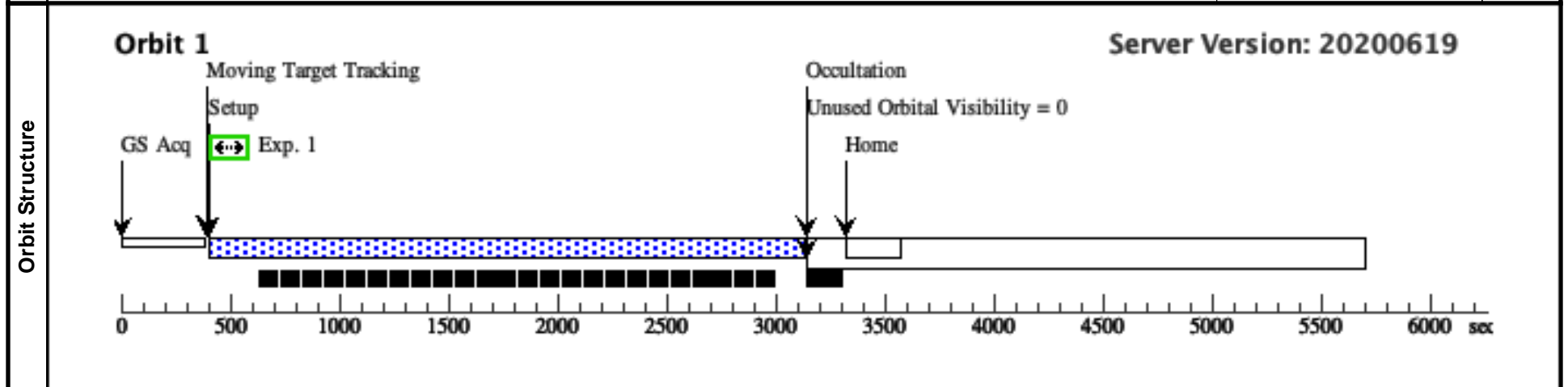
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 3 (03), failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 19-OCT-2020:00:00:00 AND 22-OCT-2020:00:00:00
	(Exposure 1 (3 (03))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (3 (03))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (3 (03))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(3)	SATURN-AURORA-NORTH-03	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-03 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-03 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-03 TITAN FROM EARTH GT 10"
<i>Comments: Description=03</i>							

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) SATURN-AURO RA-NORTH-03	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99				2574 Secs (2574 Secs)
									[==>]	[1]



Proposal 16195 - 3 (53) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	Proposal 16195, 3 (53), scheduled <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: (none) <i>Comments: HOPR repeat of visit 53.</i>									
	(Exposure 1 (3 (53))) Warning (Form): Sensitive exposures should have an ETC run number provided.									
<b>Diagnostics</b>										
<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center			
	(3)	SATURN-AURORA-NORTH-03	STD=SATURN				NOT ECL P PARTIAL OF SATURN- EARTH AURORA-NORTH-03 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-03 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-03 TITAN FROM EARTH GT 10"			
<i>Comments: Description=03</i>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) SATURN-AURO RA-NORTH-03	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]
<b>Orbit Structure</b>	<b>Orbit 1</b> <span style="float: right;">Server Version: 20200619</span>									

Proposal 16195 - 4 (04) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

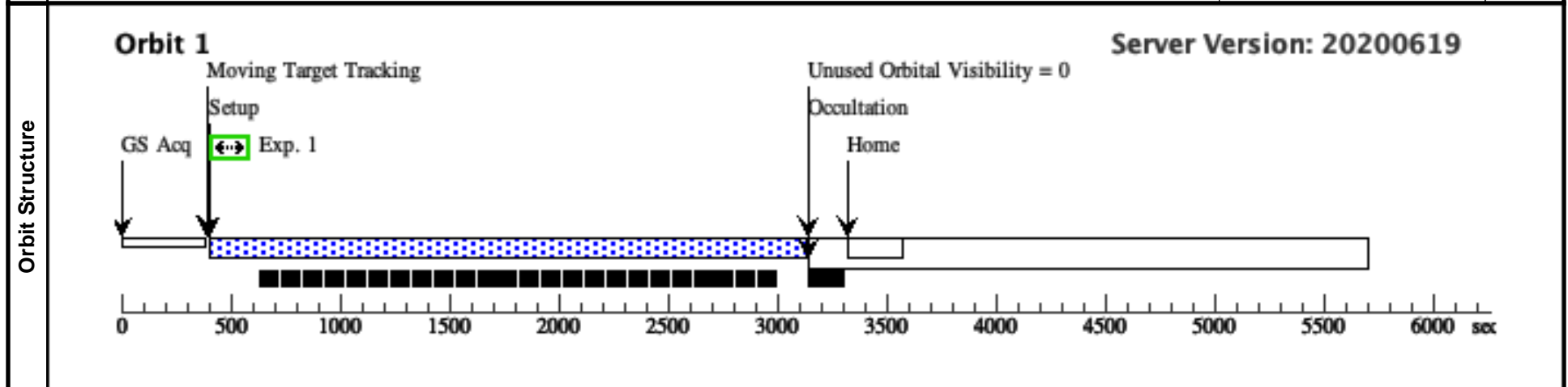
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 4 (04), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 29-OCT-2020:00:00:00 AND 01-NOV-2020:00:00:00
	(Exposure 1 (4 (04))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (4 (04))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (4 (04))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(4)	SATURN-AURORA-NORTH-04	STD=SATURN				NOT ECL P PARTIAL OF SATURN- EARTH AURORA-NORTH-04 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-04 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-04 TITAN FROM EARTH GT 10"
<i>Comments: Description=04</i>							

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) SATURN-AURO RA-NORTH-04	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99				2574 Secs (2574 Secs)
[==>]										
[1]										



Proposal 16195 - 5 (05) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

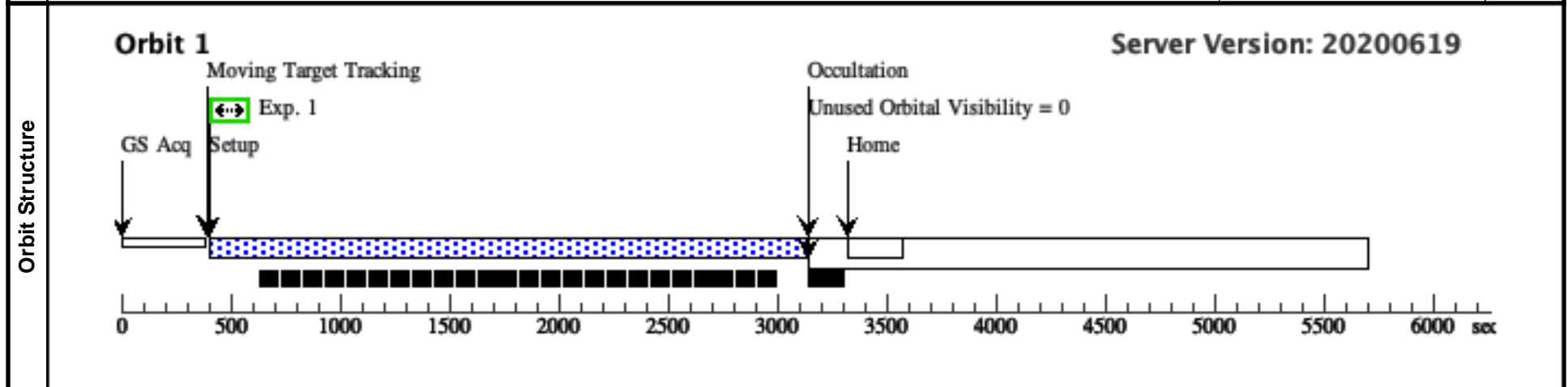
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 5 (05), failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 01-NOV-2020:00:00:00 AND 03-NOV-2020:00:00:00
	(Exposure 1 (5 (05))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Level 1</th> <th>Level 2</th> <th>Level 3</th> <th>Window</th> <th>Ephem Center</th> </tr> </thead> <tbody> <tr> <td>(5)</td> <td>SATURN-AURORA-NORTH-05</td> <td>STD=SATURN</td> <td></td> <td></td> <td>NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-05 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-05 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-05 TITAN FROM EARTH GT 10"</td> <td>EARTH</td> </tr> </tbody> </table>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center	(5)	SATURN-AURORA-NORTH-05	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-05 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-05 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-05 TITAN FROM EARTH GT 10"	EARTH
	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center								
(5)	SATURN-AURORA-NORTH-05	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-05 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-05 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-05 TITAN FROM EARTH GT 10"	EARTH									
Comments: Description=05															

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) SATURN-AURO RA-NORTH-05	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]

<b>Exposures</b>	# Label Target Config,Mode,Aperture Spectral Els. Opt. Params. Special Reqs. Groups Exp. Time (Total)/[Actual Dur.] Orbit
	1 (5) SATURN-AURO RA-NORTH-05 STIS/FUV-MAMA, TIME-TAG, F25SRF2 MIRROR BUFFER-TIME=99 2574 Secs (2574 Secs) [==>] [1]



Proposal 16195 - 5 (55) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	Proposal 16195, 5 (55), implementation <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 24-NOV-2020 AND 25-NOV-2020 <i>Comments: HOPR repeat of visit 5.</i>									
	(Exposure 1 (5 (55))) Warning (Form): Sensitive exposures should have an ETC run number provided.									
<b>Diagnostics</b>										
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	(5)	SATURN-AURORA-NORTH-05	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-05 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-05 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-05 TITAN FROM EARTH GT 10"	EARTH		
<i>Comments: Description=05</i>										
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) SATURN-AURO RA-NORTH-05	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99				2574 Secs (2574 Secs) [==>]
<b>Orbit Structure</b>	<b>Orbit 1</b> <span style="float: right;">Server Version: 20200619</span>									

Proposal 16195 - 6 (06) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

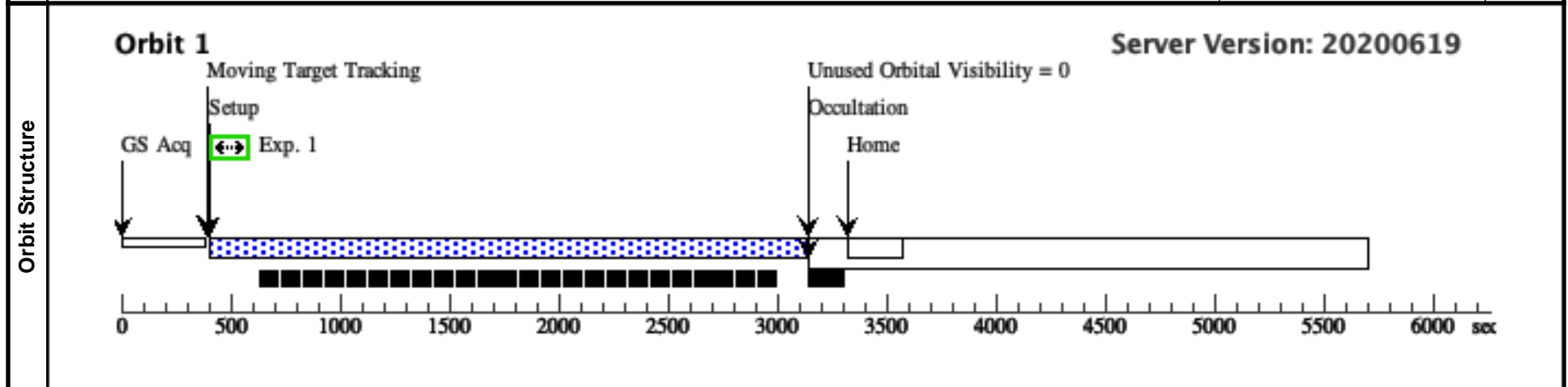
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 6 (06), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 03-NOV-2020:00:00:00 AND 05-NOV-2020:00:00:00
	(Exposure 1 (6 (06))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (6 (06))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (6 (06))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
		(6)	SATURN-AURORA-NORTH-06	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-06 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-06 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-06 TITAN FROM EARTH GT 10"
	<i>Comments: Description=06</i>						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
		1		(6) SATURN-AURO RA-NORTH-06	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)
									[==>]	[1]



Proposal 16195 - 7 (07) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

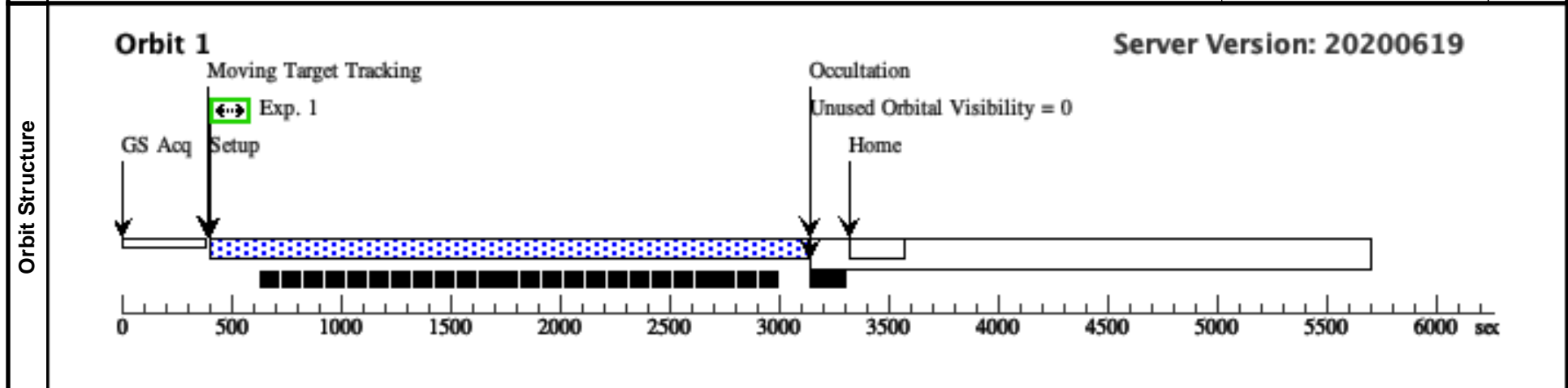
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	Proposal 16195, 7 (07), completed Diagnostic Status: Warning Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 05-NOV-2020:00:00:00 AND 07-NOV-2020:00:00:00

<b>Diagnostics</b>	(Exposure 1 (7 (07))) Warning (Form): Sensitive exposures should have an ETC run number provided.
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Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(7)	SATURN-AURORA-NORTH-07	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-07 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-07 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-07 TITAN FROM EARTH GT 10"	EARTH
	Comments: Description=07						

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) SATURN-AURO RA-NORTH-07	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]



Proposal 16195 - 8 (08) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

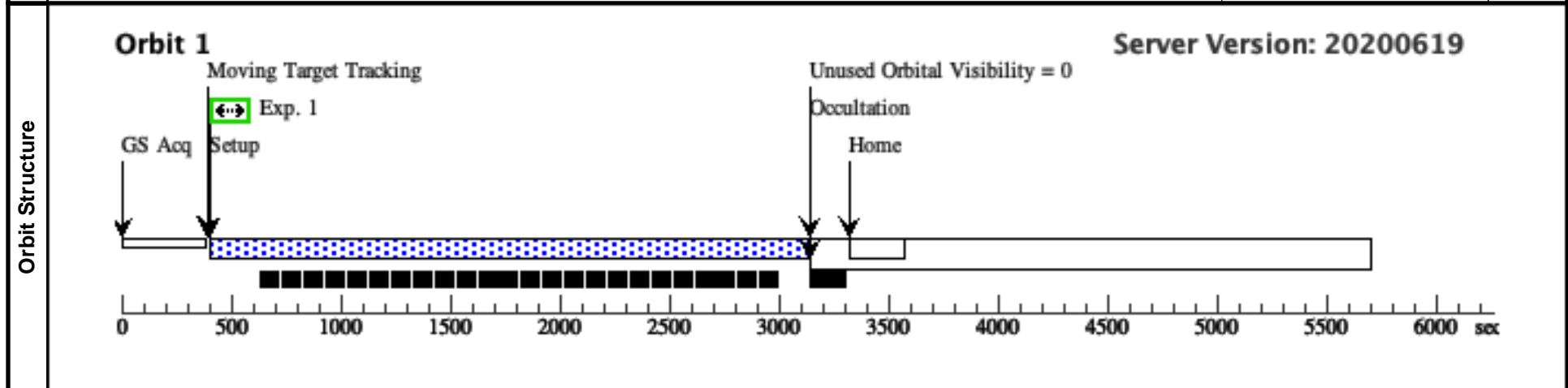
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 8 (08), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 07-NOV-2020:00:00:00 AND 09-NOV-2020:00:00:00
	(Exposure 1 (8 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (8 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (8 (08))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
		(8)	SATURN-AURORA-NORTH-08	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-08 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-08 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-08 TITAN FROM EARTH GT 10"
	<i>Comments: Description=08</i>						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
		1		(8) SATURN-AURO RA-NORTH-08	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)
									[==>]	[1]



Proposal 16195 - 9 (09) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

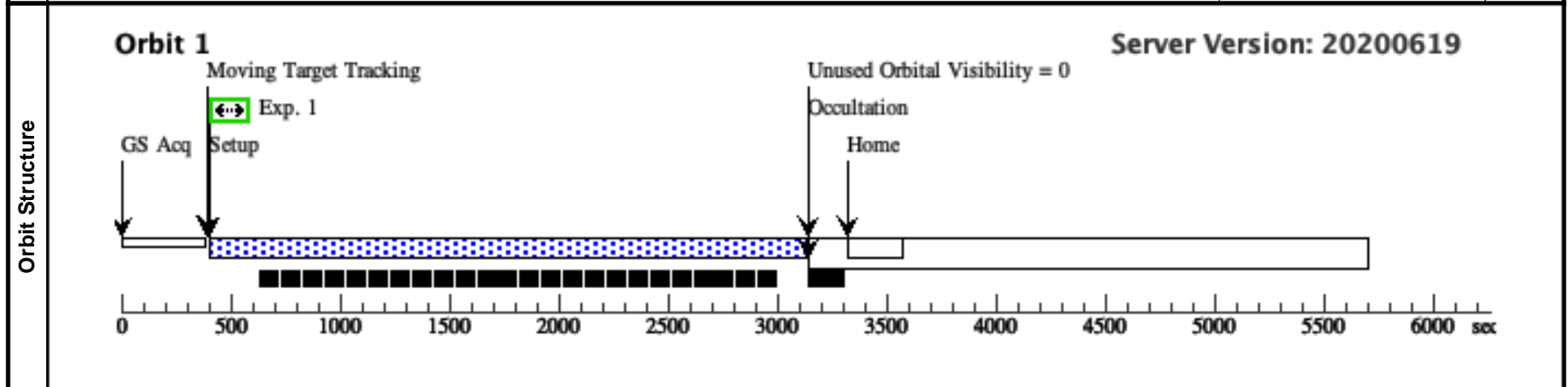
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 9 (09), completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 09-NOV-2020:00:00:00 AND 11-NOV-2020:00:00:00
	(Exposure 1 (9 (09))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (9 (09))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (9 (09))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(9)	SATURN-AURORA-NORTH-09	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-09 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-09 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-09 TITAN FROM EARTH GT 10"
<i>Comments: Description=09</i>							

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(9) SATURN-AURO RA-NORTH-09	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR		BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]



Proposal 16195 - 10 (10) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

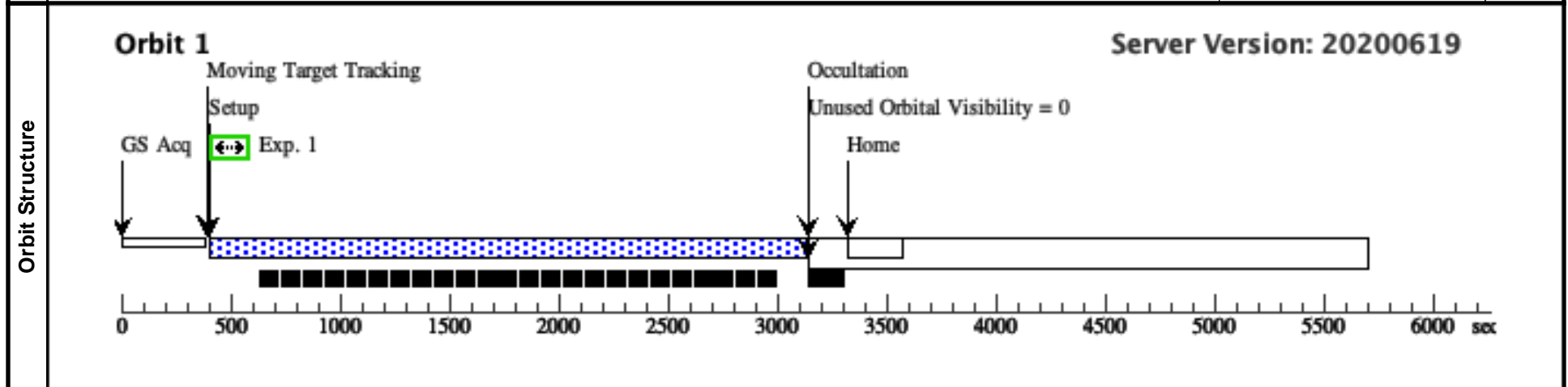
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 10 (10), scheduled</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 11-NOV-2020:00:00:00 AND 13-NOV-2020:00:00:00

<b>Diagnostics</b>	(Exposure 1 (10 (10))) Warning (Form): Sensitive exposures should have an ETC run number provided.
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<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(10)	SATURN-AURORA-NORTH-10	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-10 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-10 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-10 TITAN FROM EARTH GT 10"	EARTH
	<i>Comments: Description=10</i>						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(10) SATURN-AURORA-NORTH-10	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]



Proposal 16195 - 11 (11) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

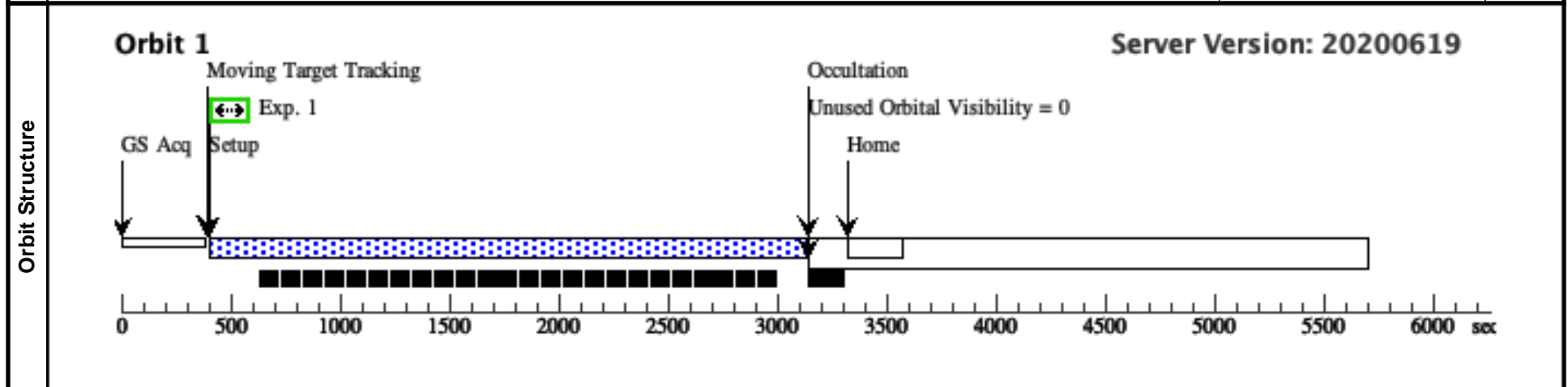
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<p><b>Proposal 16195, 11 (11), scheduled</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: STIS/FUV-MAMA</p> <p>Special Requirements: BETWEEN 13-NOV-2020:00:00:00 AND 15-NOV-2020:00:00:00</p>
	<p>(Exposure 1 (11 (11))) Warning (Form): Sensitive exposures should have an ETC run number provided.</p>

<b>Diagnostics</b>	<p>(Exposure 1 (11 (11))) Warning (Form): Sensitive exposures should have an ETC run number provided.</p>
	<p>Comments: Description=11</p>

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(11)	SATURN-AURORA-NORTH-11	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-11 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-11 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-11 TITAN FROM EARTH GT 10"
	Comments: Description=11						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(11) SATURN-AURORA-NORTH-11	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR		BUFFER-TIME=99			2574 Secs (2574 Secs)
									[==>]	[1]



Proposal 16195 - 12 (12) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

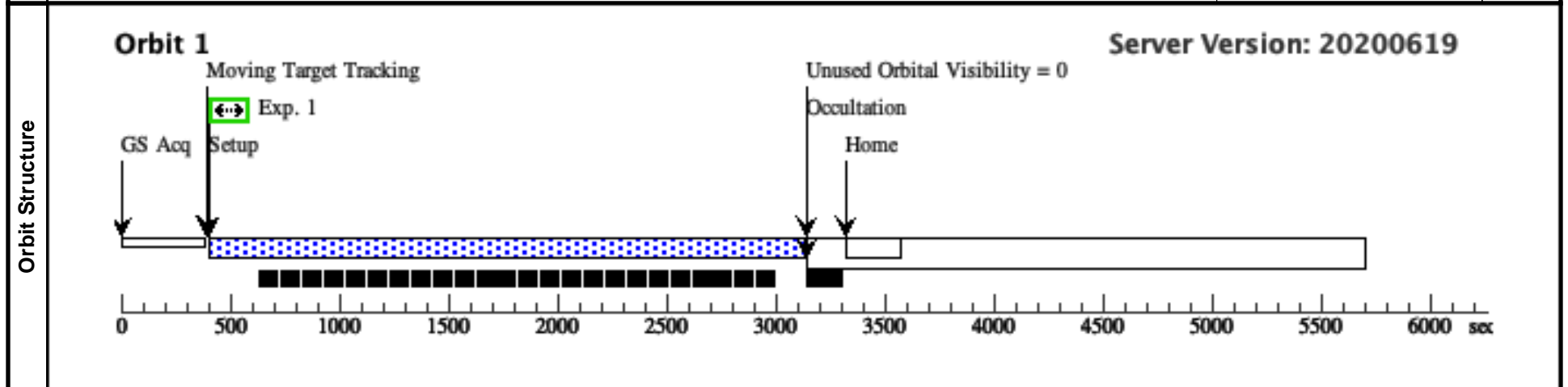
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 12 (12), scheduled</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 15-NOV-2020:00:00:00 AND 17-NOV-2020:00:00:00

<b>Diagnostics</b>	(Exposure 1 (12 (12))) Warning (Form): Sensitive exposures should have an ETC run number provided.
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<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(12)	SATURN-AURORA-NORTH-12	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-12 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-12 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-12 TITAN FROM EARTH GT 10"	EARTH
	<i>Comments: Description=12</i>						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(12) SATURN-AURORA-NORTH-12	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)	
									[==>]	[1]



Proposal 16195 - 13 (13) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

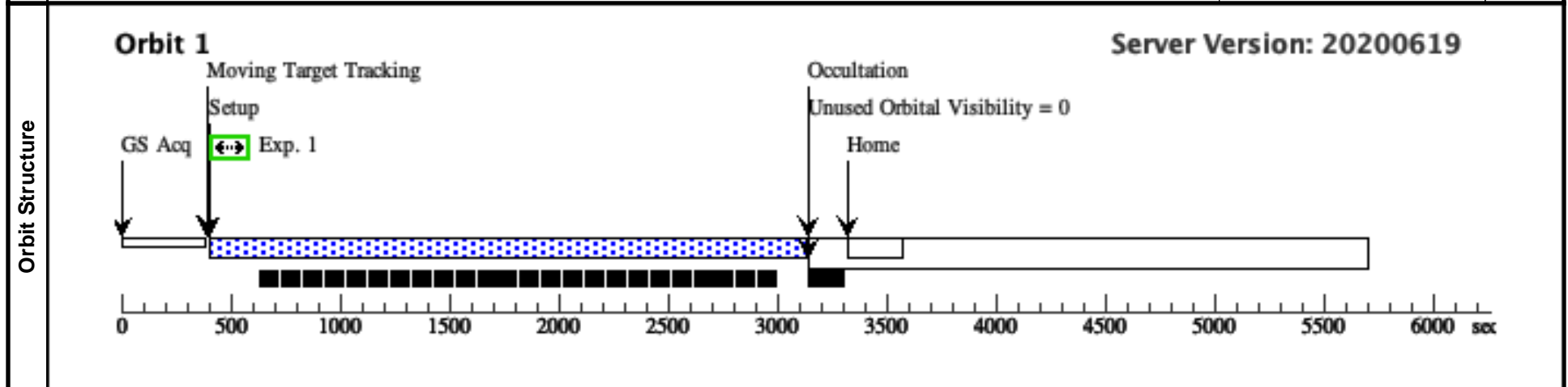
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 13 (13), scheduled</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 17-NOV-2020:00:00:00 AND 19-NOV-2020:00:00:00

<b>Diagnostics</b>	(Exposure 1 (13 (13))) Warning (Form): Sensitive exposures should have an ETC run number provided.
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Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(13)	SATURN-AURORA-NORTH-13	STD=SATURN			NOT ECL P PARTIAL OF SATURN- AURORA-NORTH-13 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-13 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-13 TITAN FROM EARTH GT 10"	EARTH
	<i>Comments: Description=13</i>						

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(13) SATURN-AURORA-NORTH-13	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs) [==>]	[1]



Proposal 16195 - 14 (14) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

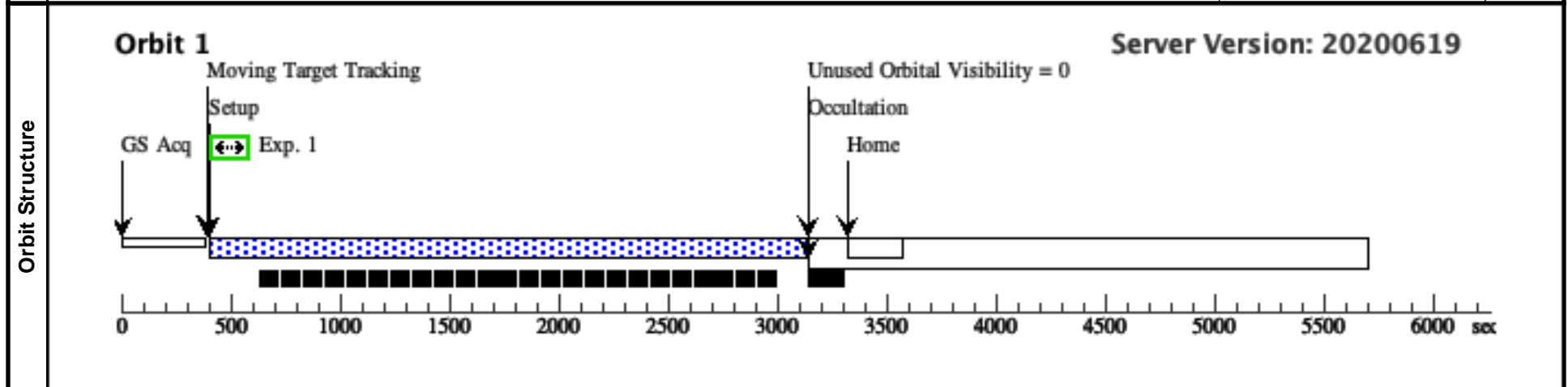
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<p><b>Proposal 16195, 14 (14), scheduled</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: STIS/FUV-MAMA</p> <p>Special Requirements: BETWEEN 19-NOV-2020:00:00:00 AND 22-NOV-2020:00:00:00</p>
	<p>(Exposure 1 (14 (14))) Warning (Form): Sensitive exposures should have an ETC run number provided.</p>

<b>Diagnostics</b>	<p>(Exposure 1 (14 (14))) Warning (Form): Sensitive exposures should have an ETC run number provided.</p>
	<p>Comments: Description=14</p>

Solar System Targets	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(14)	SATURN-AURORA-NORTH-14	STD=SATURN			NOT ECL P PARTIAL OF SATURN- AURORA-NORTH-14 BY TITAN FROM EARTH, SEP OF SATURN-AURORA- NORTH-14 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA- NORTH-14 TITAN FROM EARTH GT 10"	EARTH
	Comments: Description=14						

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(14) SATURN-AURORA-NORTH-14	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)	
									[==>]	[1]



Proposal 16195 - 15 (15) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

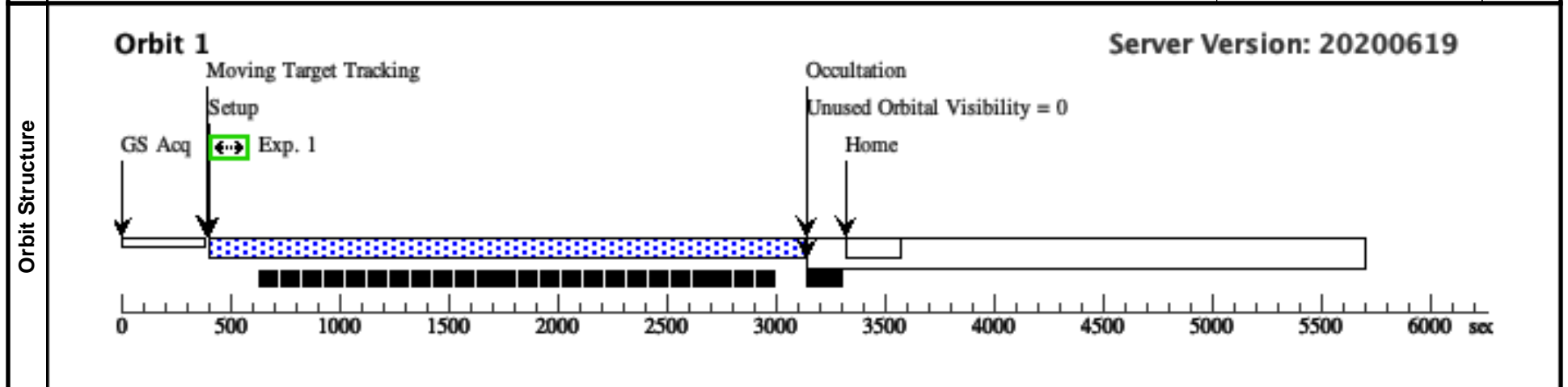
Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 15 (15), scheduled</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 21-NOV-2020:00:00:00 AND 23-NOV-2020:00:00:00
	(Exposure 1 (15 (15))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Diagnostics</b>	(Exposure 1 (15 (15))) Warning (Form): Sensitive exposures should have an ETC run number provided.
	(Exposure 1 (15 (15))) Warning (Form): Sensitive exposures should have an ETC run number provided.

<b>Solar System Targets</b>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center
	(15)	SATURN-AURORA-NORTH-15	STD=SATURN				NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-15 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-15 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-15 TITAN FROM EARTH GT 10"
<i>Comments: Description=15</i>							

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(15) SATURN-AURORA-NORTH-15	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99				2574 Secs (2574 Secs)
[==>]										
[1]										



Proposal 16195 - 16 (16) - A Tail of Two Giants: Observing Saturn's FUV auroras in Jupiter's magnetotail in 2020

Tue Nov 10 13:00:36 GMT 2020

<b>Visit</b>	<b>Proposal 16195, 16 (16), implementation</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/FUV-MAMA Special Requirements: BETWEEN 23-NOV-2020:00:00:00 AND 24-NOV-2020:00:00:00

<b>Diagnostics</b>	(Exposure 1 (16 (16))) Warning (Form): Sensitive exposures should have an ETC run number provided.
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<b>Solar System Targets</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Level 1</th> <th>Level 2</th> <th>Level 3</th> <th>Window</th> <th>Ephem Center</th> </tr> </thead> <tbody> <tr> <td>(16)</td> <td>SATURN-AURORA-NORTH-16</td> <td>STD=SATURN</td> <td></td> <td></td> <td>NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-16 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-16 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-16 TITAN FROM EARTH GT 10"</td> <td>EARTH</td> </tr> </tbody> </table>	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center	(16)	SATURN-AURORA-NORTH-16	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-16 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-16 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-16 TITAN FROM EARTH GT 10"	EARTH
	#	Name	Level 1	Level 2	Level 3	Window	Ephem Center								
(16)	SATURN-AURORA-NORTH-16	STD=SATURN			NOT ECL P PARTIAL OF SATURN-AURORA-NORTH-16 BY TITAN FROM EARTH, SEP OF SATURN-AURORA-NORTH-16 RHEA FROM EARTH GT 10", SEP OF SATURN-AURORA-NORTH-16 TITAN FROM EARTH GT 10"	EARTH									
Comments: Description=16															

<b>Exposures</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>(16) SATURN-AURORA-NORTH-16</td> <td>STIS/FUV-MAMA, TIME-TAG, F25SRF2</td> <td>MIRROR</td> <td>BUFFER-TIME=99</td> <td></td> <td></td> <td>2574 Secs (2574 Secs)</td> <td></td> </tr> </tbody> </table>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	1		(16) SATURN-AURORA-NORTH-16	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)	
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit											
1		(16) SATURN-AURORA-NORTH-16	STIS/FUV-MAMA, TIME-TAG, F25SRF2	MIRROR	BUFFER-TIME=99			2574 Secs (2574 Secs)													
[==>]																					

