16400 - WFC3 UVIS CTI Monitor (EPER)

Cycle: 28, Proposal Category: CAL/WFC3

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Mr. Harish Khandrika (PI) (Contact)	**Space Telescope Science Institute**	**hkhandrika@stsci.edu**
Benjamin Kuhn (CoI)	Space Telescope Science Institute	bkuhn@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:10.0	yes
02	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:11.0	yes
03	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:12.0	yes
04	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:12.0	yes
05	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:13.0	yes
06	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:13.0	yes
07	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:14.0	yes
08	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:14.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
09	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:15.0	yes
10	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:15.0	yes
11	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:16.0	yes
12	DARK TUNGSTEN	WFC3/UVIS	1	31-Jul-2020 14:02:16.0	yes

12 Total Orbits Used

ABSTRACT

This proposal measures CTI (Charge Transfer Inefficiency) for WFC3/UVIS, making use of the EPER mode, Extended Pixel Edge Response. EPER is not unique to WFC3 (also used on ACS) and measures trailing charge in detector overscan regions increased by extended pixels. The EPER program has many cycles worth of similar comparison, including proposals 11924, 12347, 12691, 13082, 12565, 14011, 14377, 14540, 14989, 15575, and 15720

OBSERVING DESCRIPTION

In this 12 orbit program we take pairs of internal flat fields at varying levels of illumination. We take "biases" for this proposals as 1/2 second darks; WFC3/UVIS flight software is unable to take 0 second exposures in the non-standard EPER mode. Every visit pair includes two half-second darks, three F390M internal tungsten flats, and two F438W internal flats. The proposal lasts a full year, made up of 8 weeek visit pair increments .

The analysis is done with a pipeline to remove noise, calibrate images, and look for trends in CTI data, based on the work of Robberto (ISR 2007-13), automated by Bourque & Kozhurina-Platais (TIR 2012-03), and furthered by Khandrika (ISR 2020-06).

--------- Additional Comments ----------

Formerly, EPER programs took monthly instead of bi-monthly data.

Visit

Proposal 16400, Visit 01 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 02-NOV-2020:00:00:00 AND 01-DEC-2020:00:00:00; GROUP 01,02 WITHIN 1D

Diagnostics

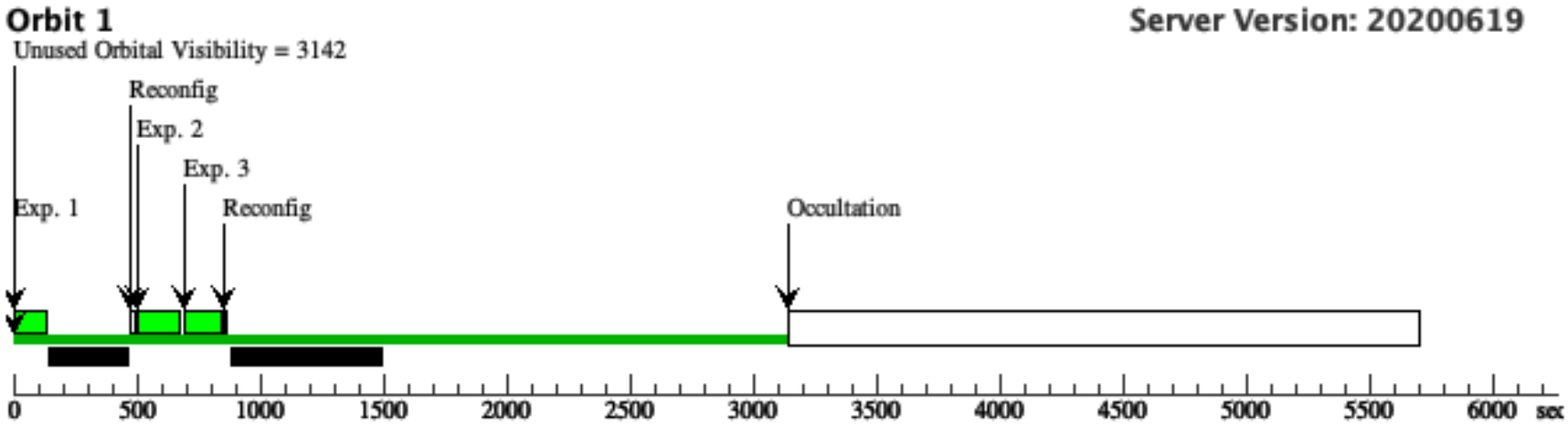
(9.2 (01.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (01.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 02 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 02) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (02.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

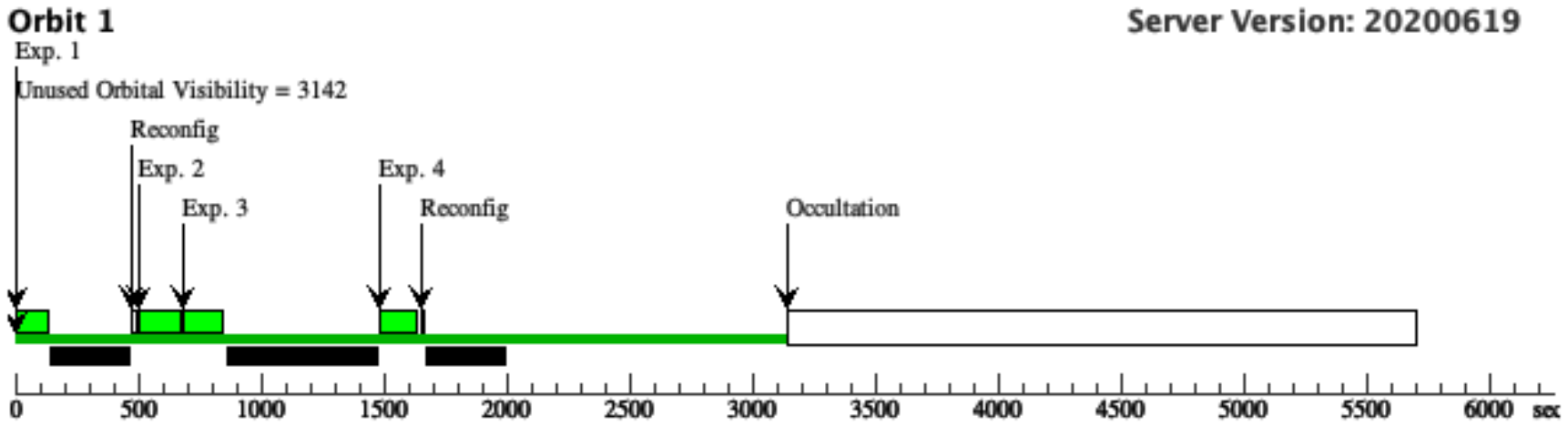
(7.6 (02.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (02.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 03 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-JAN-2021:00:00:00 AND 01-FEB-2021:00:00:00; GROUP 03,04 WITHIN 1D

Diagnostics

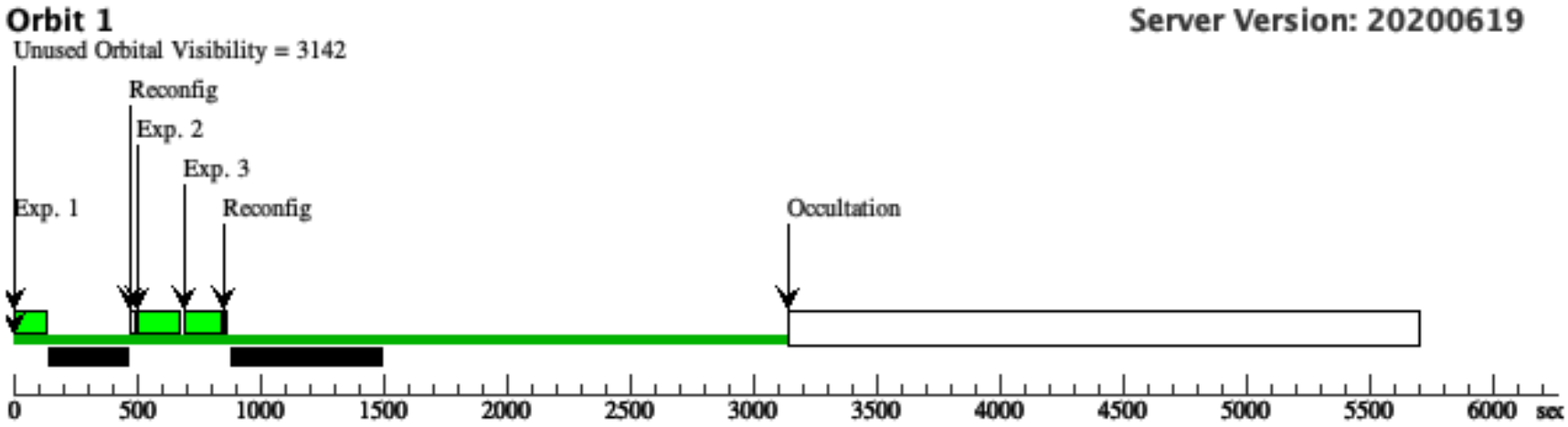
(9.2 (03.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (03.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 04 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 04) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (04.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

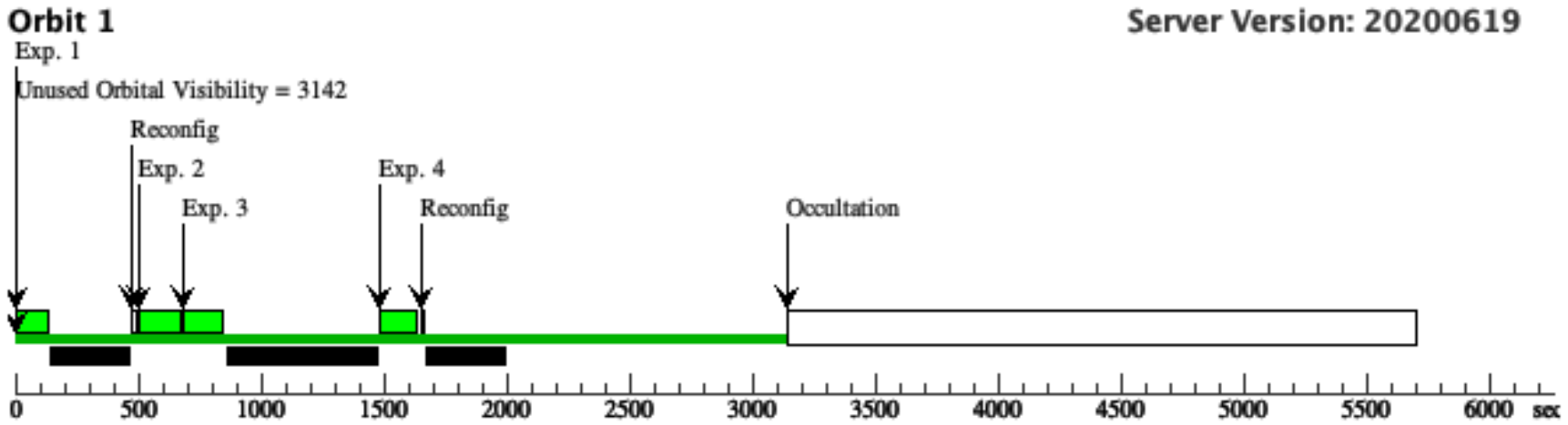
(7.6 (04.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (04.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 05 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-MAR-2021:00:00:00 AND 01-APR-2021:00:00:00; GROUP 05,06 WITHIN 1D

Diagnostics

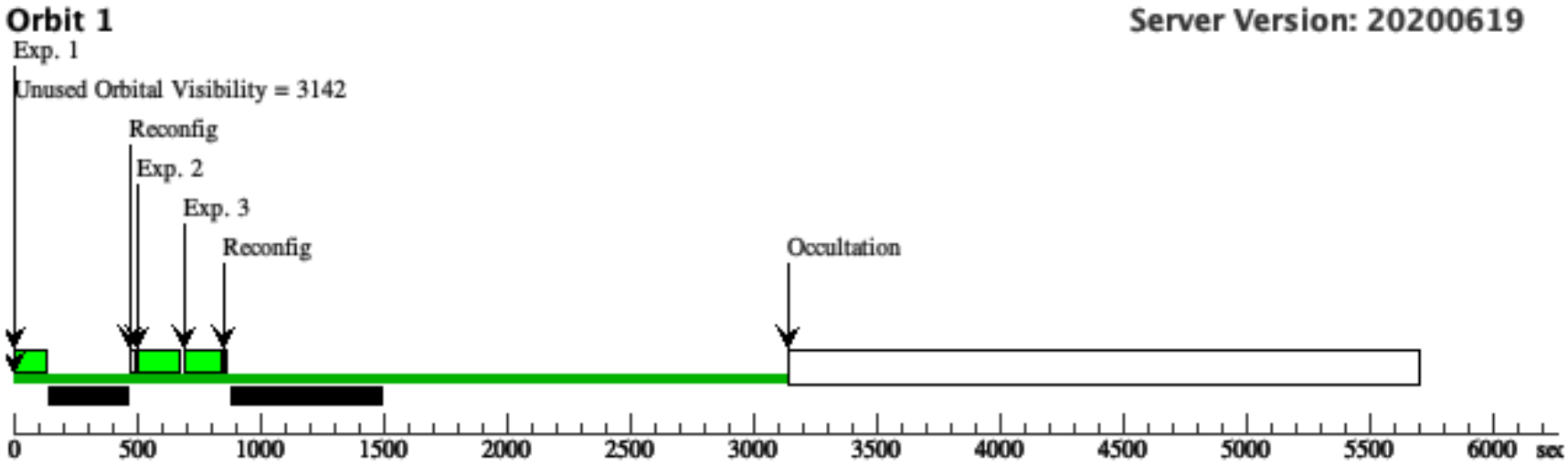
(9.2 (05.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (05.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 06 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 06) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (06.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

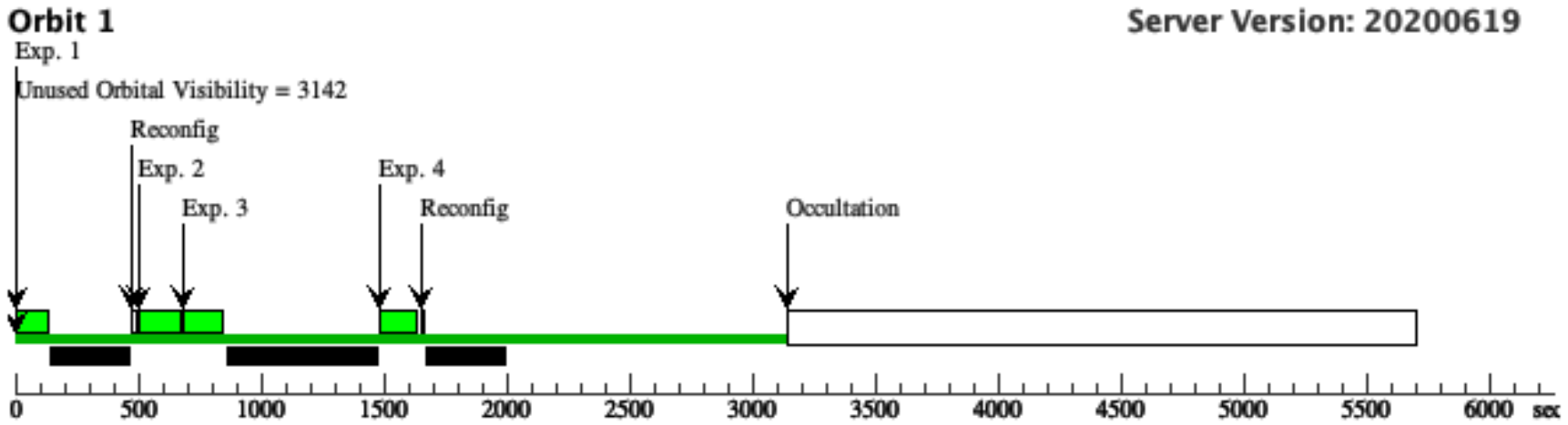
(7.6 (06.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (06.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 07 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-MAY-2021:00:00:00 AND 01-JUN-2021:00:00:00; GROUP 07,08 WITHIN 1D

Diagnostics

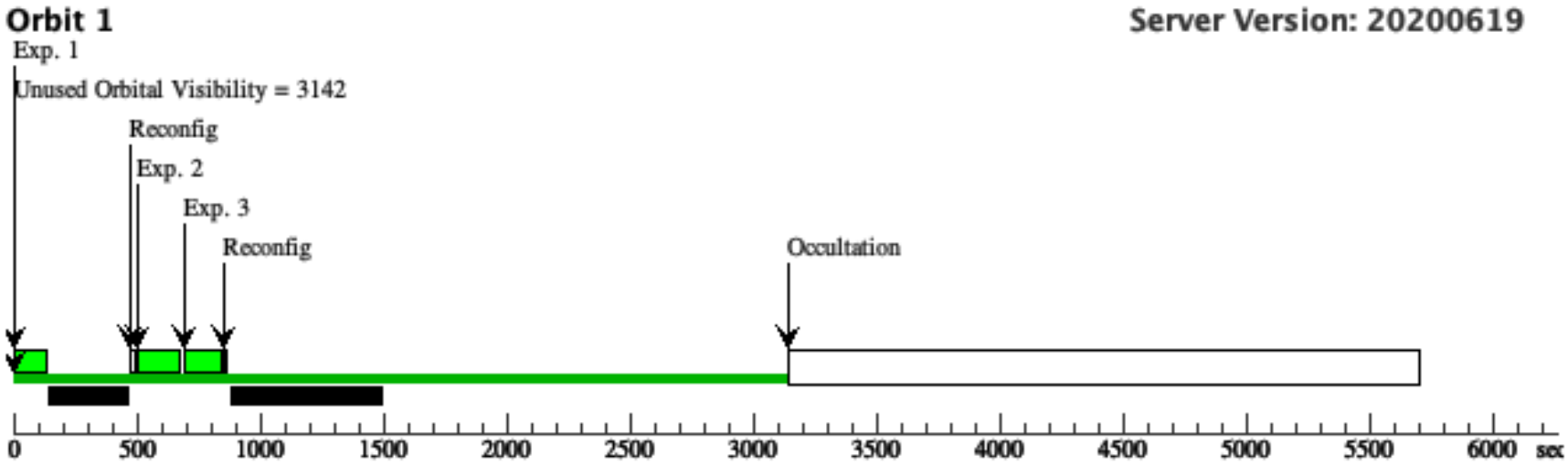
(9.2 (07.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (07.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 08 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 08) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (08.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

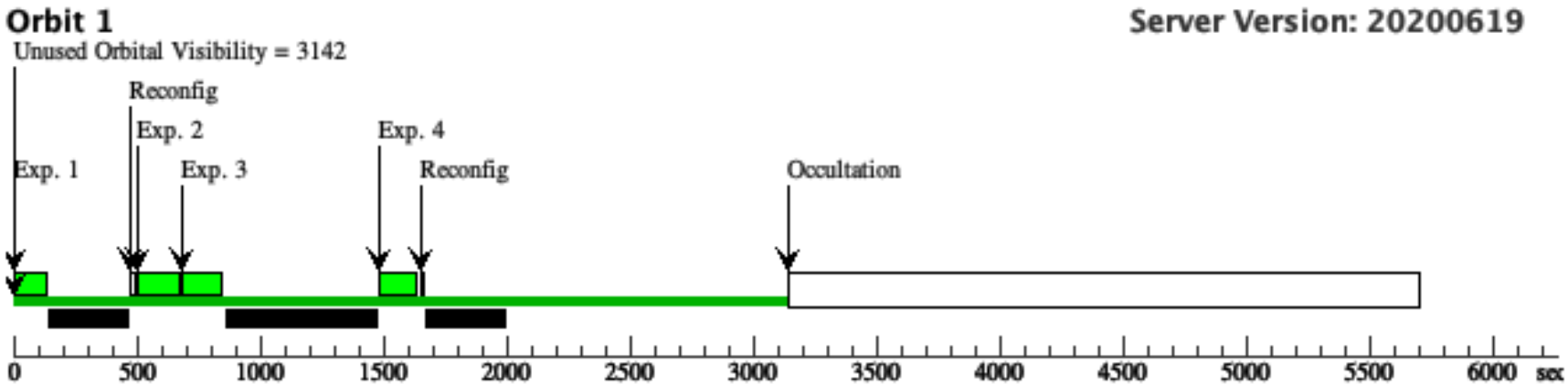
(7.6 (08.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (08.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 09 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-JUL-2021:00:00:00 AND 01-AUG-2021:00:00:00; GROUP 09,10 WITHIN 1D

Diagnostics

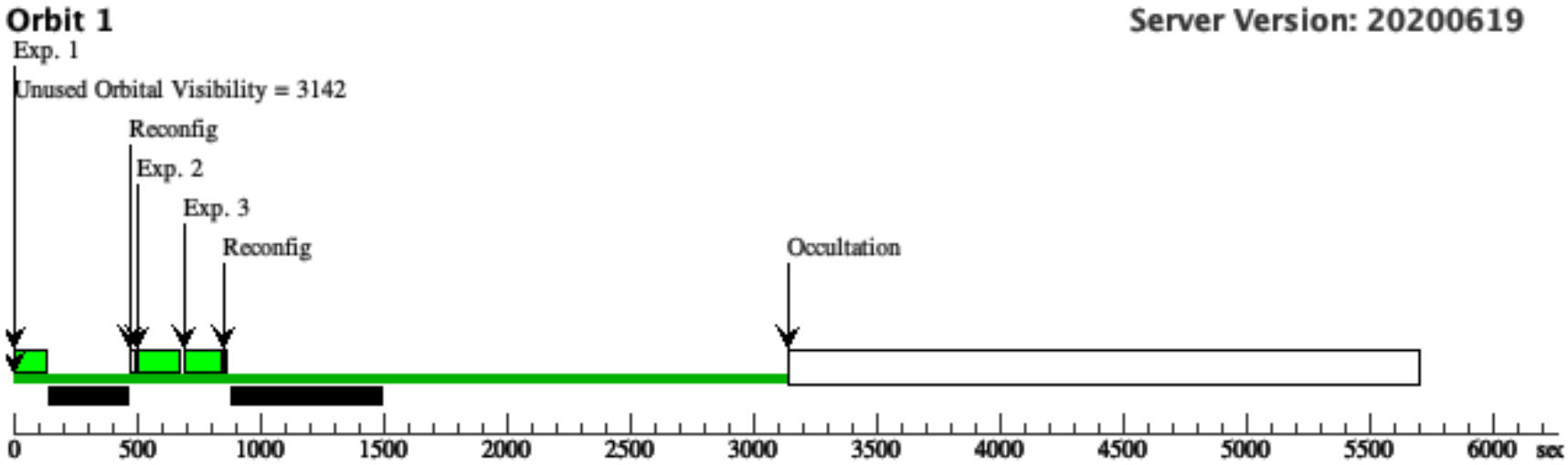
(9.2 (09.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (09.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 10 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 10) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (10.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

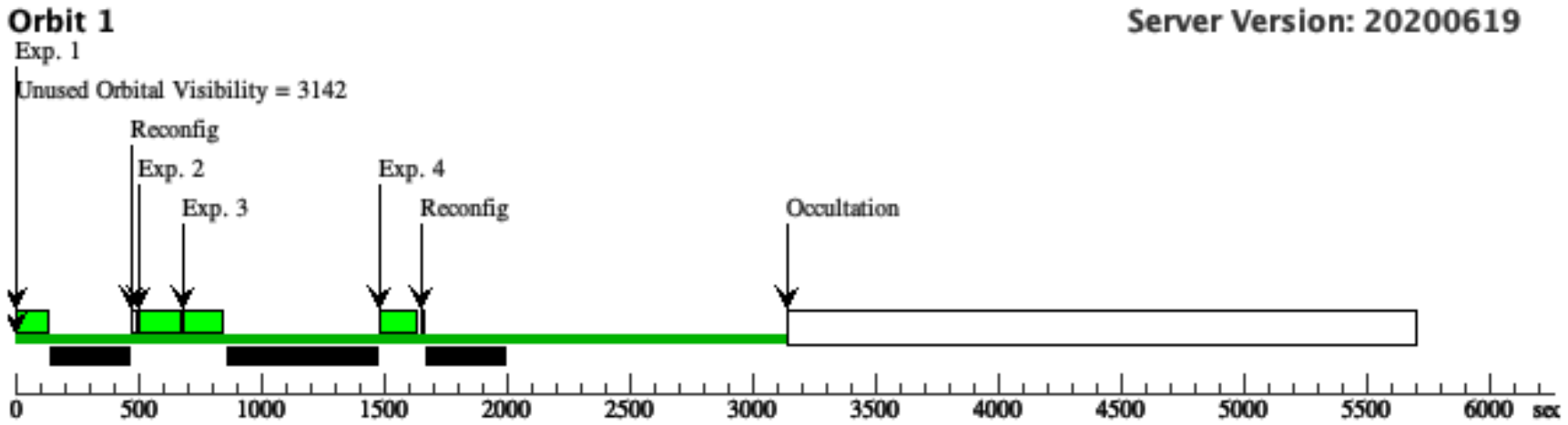
(7.6 (10.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (10.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 11 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: BETWEEN 01-SEP-2021:00:00:00 AND 01-OCT-2021:00:00:00; GROUP 11,12 WITHIN 1D

Diagnostics

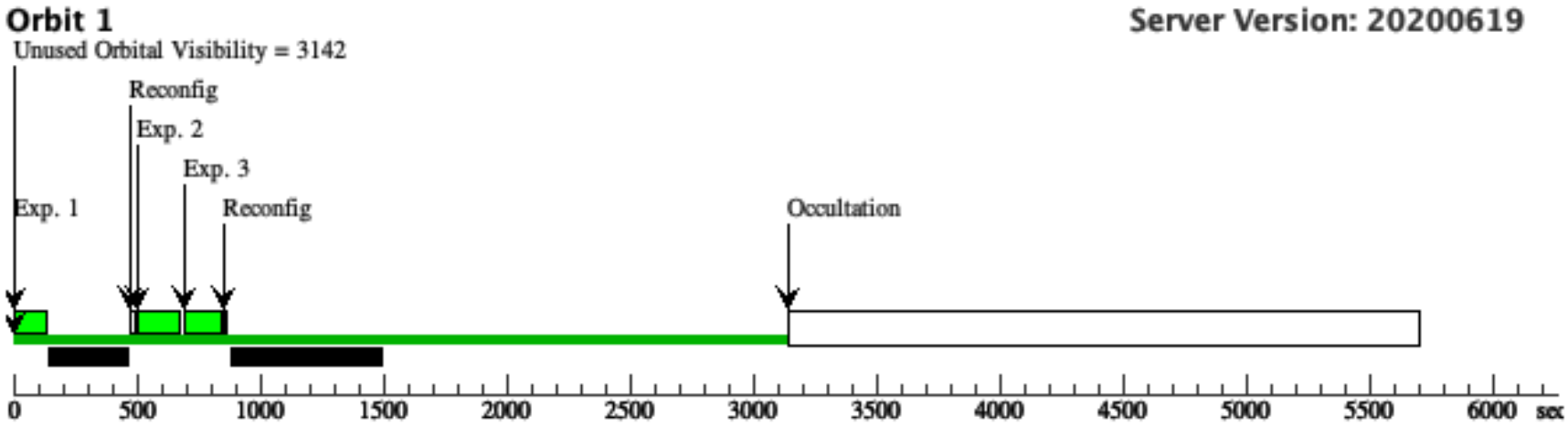
(9.2 (11.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.9 (11.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs (9.2 Secs)	
								[==>]	***[1]***
3	22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs (22.9 Secs)	
								[==>]	***[1]***

Orbit Structure



Visit

Proposal 16400, Visit 12 Fri Jul 31 18:02:17 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(Visit 12) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU

(6.4 (12.002)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(7.6 (12.003)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

(22.7 (12.004)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs (0.5 Secs)	
								[==>]	***[1]***
2	6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs (6.4 Secs)	
								[==>]	***[1]***
3	7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs (7.6 Secs)	
								[==>]	***[1]***
4	22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs (22.7 Secs)	
								[==>]	***[1]***

Orbit Structure