



11924 - WFC3/UVIS external and internal CTE monitor

Cycle: 17, Proposal Category: CAL/WFC3

(Availability Mode: RESTRICTED)

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) NGC6791	WFC3/UVIS	2	14-Aug-2009 21:21:11.0	yes
02	(1) NGC6791	WFC3/UVIS	2	14-Aug-2009 21:21:21.0	yes
03	(1) NGC6791	WFC3/UVIS	2	14-Aug-2009 21:21:32.0	yes
04	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:36.0	yes
05	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:38.0	yes
06	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:40.0	yes
07	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:42.0	yes

Proposal 11924 (STScI Edit Number: 2, Created: Friday, August 14, 2009 8:22:22 PM EST) - Overview

<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>
08	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:44.0	yes
09	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:46.0	yes
10	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:48.0	yes
11	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:50.0	yes
12	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:52.0	yes
13	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:54.0	yes
14	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:56.0	yes
15	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:58.0	yes
16	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:21:59.0	yes
17	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:02.0	yes
18	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:03.0	yes
19	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:05.0	yes
20	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:07.0	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>
21	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:09.0	yes
22	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:11.0	yes
23	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:13.0	yes
24	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:14.0	yes
25	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:16.0	yes
26	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:18.0	yes
27	DARK TUNGSTEN	WFC3/UVIS	1	14-Aug-2009 21:22:20.0	yes

30 Total Orbits Used

ABSTRACT

CCD detector Charge Transfer Inefficiency (CTI) induced losses in photometry and astrometry will be measured using observations of the rich open cluster NGC6791 and with the EPER (Extended Pixel Edge Response) method using tungsten lamp flat field exposures. Although we do not expect to see CTE effects at the outset of Cycle 17, this CTE monitoring program is the first of a multi-cycle program to monitor and establish CTE-induced losses with time. We expect to measure CTE effects with a precision comparable to the ACS measurements.

OBSERVING DESCRIPTION

This program has two components. The first consists of observations of the rich open cluster NGC6791 taken in three visits during Cycle 17, approximately 4-5 months apart to establish the CTE-induced losses with time. During each visit, observations are taken through the F606W and F502N filters with 3 pointings of half-FOV size dithers in both X and Y directions to characterize the parallel and serial CTE induced losses. Each

pointing will consist of one short and one long exposure in each filter to ensure that the sky background is in the range between ~ 0 to ~ 50 e-/pixel. These values have been estimated from the analysis of a 30-sec and 1000-sec ACS F606W images of NGC 6791, and scaled to the WFC3 response. The observation will be used to derive aperture photometry and centroid shift for each stars in this cluster and later to characterize the CTE induced losses in photometry and astrometry. The analysis of CTE monitoring program will follow by method of Kozhurina-Platais et.al (2007, ACS-ISR-07-04).

The ACS CTE monitoring program used globular clusters. Our concern is that the globular clusters have such high densities of stars that many pixels in the transfer column of a particular star will have been exposed to starlight prior to the charge transfer. Instead of that we propose to use the rich open cluster NGC 6791 to test the hypothesis that a sparser stellar field will give a more accurate determination of CTE. Analysis of a 30-sec ACS F606W image of NGC 6791 shows that there are ~ 3000 stars with $FLUX > 1000$ counts in the ACS/WFC FOV which is similar to the WFC3 UVIS FOV. Also, NGC 6791 has an ecliptic latitude of 59 degrees, so it can be observed year round by HST. It is also contains the solar analog favorite of JWST (Diaz-Miller 2006; JWST-STScI- 000959, SM- 12). For Cycle 17, each visit consists of 2 orbits, 3 pointings and a total of 12 exposures (6 per filter). There are three visits during Cycle 17, therefore this program requires a total of 6 external orbits.

The second component of this program consists of internal tungsten lamp flat field observations of short exposures through three filters, F390M, F390W and F438W, in order obtain large range of illumination levels, namely 3000, 1000, 500, 250, and 100 electrons. The internal observation of flat fields with different levels of illumination will be used to monitor the CTE detector with time, by measuring the profiles into trailing over-scan region (EPER - extended pixel edge response), as it described by M. Robberto (2007, WFC-ISR-07-13) Internal observations with tungsten lamp are similar to exposures taken during the TV3 ground tests. Each visit consists of one orbit, and every 2 visits are grouped together so that all illumination levels are acquired in each pair of visits. Each group is repeated 12 times spaced approximately 4-6 weeks apart, for a total of 24 internal orbits.

CALIBRATION JUSTIFICATION

The accuracy goal of this program is to measure the CTE-induced losses in photometry with a precision better than 1%, and in astrometry with precision to less than 5%. The analysis of the data will be used to determine the formula of potential CTE-induced losses from either FLT or DRZ UVIS images in order to improve stellar photometry down 1%, and will be used to characterize the CTE-induced centroid shift. We will provide CTE correction parameters appropriate for science of dense fields (e.g. globular clusters, LMC, M31 halo) and parameters appropriate for sparse

fields.

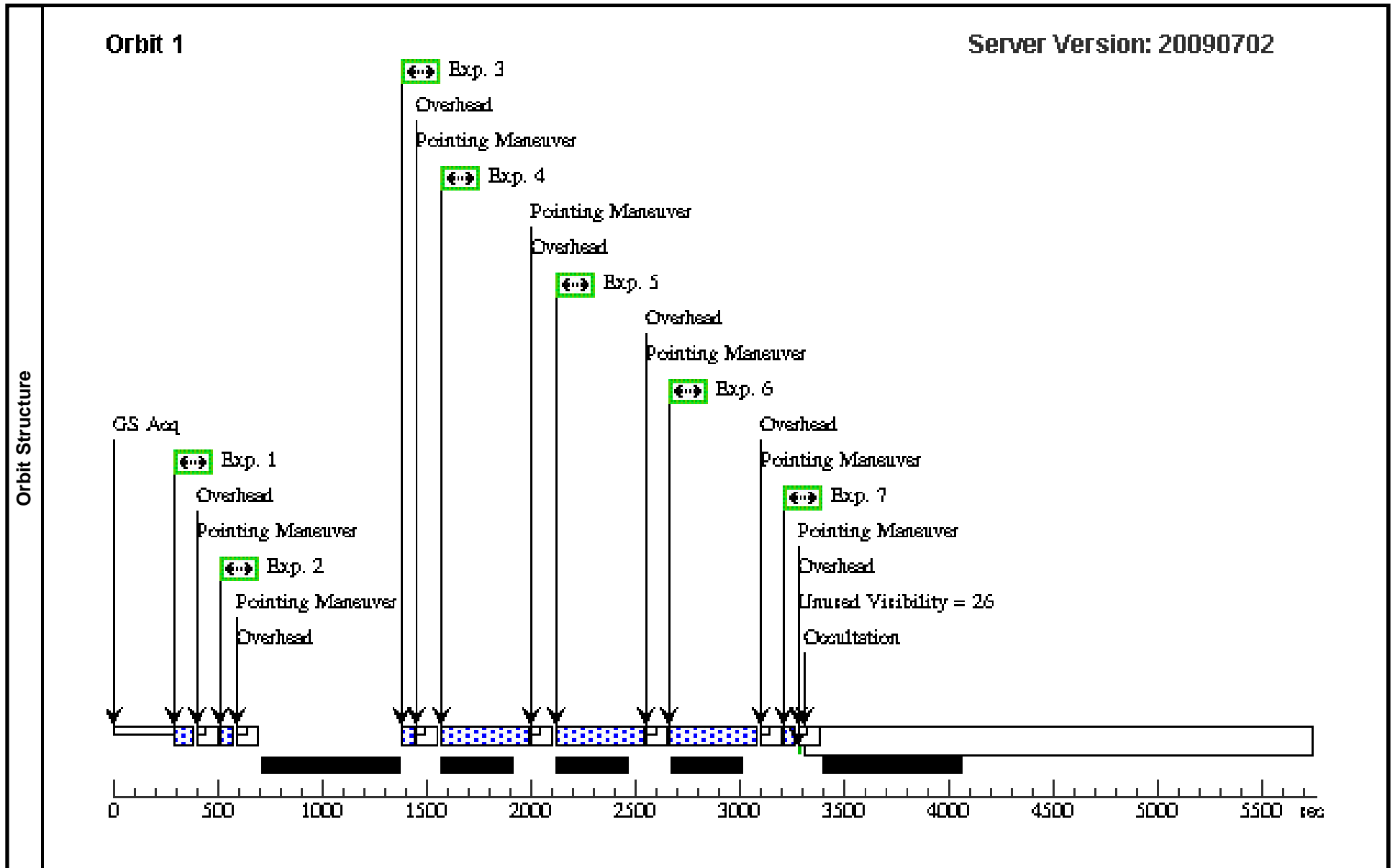
Proposal 11924 - Visit 01 - WFC3/UVIS external and internal CTE monitor

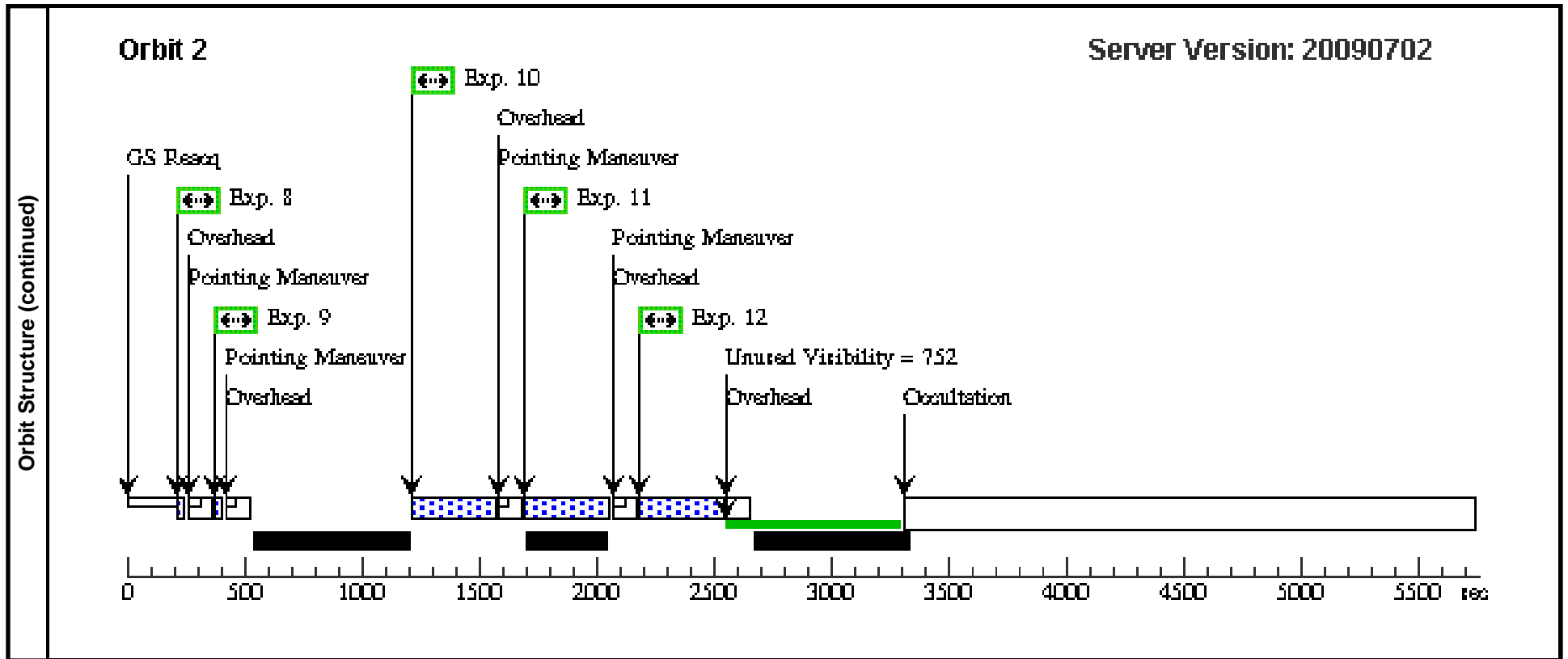
Sat Aug 15 01:22:23 GMT 2009

Visit	Proposal 11924, Visit 01, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 24-SEP-2009:00:00:59 AND 10-OCT-2009:00:00:59 <i>Comments: USE SAME GUIDE STAR THROUGHOUT VISIT.</i> <i>SAME ORIENTATION THROUGHOUT VISIT</i>									
	(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NGC6791	RA: 19 20 53.9500 (290.2247917d) Dec: +37 48 9.60 (37.80267d) Equinox: J2000		V=16.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	f502n-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			60.0 Secs [==>]	[1]
	2	f502n-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		60.0 Secs [==>]	[1]
	3	f502n-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		60.0 Secs [==>]	[1]
	4	f502n-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			420.0 Secs [==>]	[1]
	5	f502n-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		420.0 Secs [==>]	[1]
	6	f502n-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		420.0 Secs [==>]	[1]
	7	f606w-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			30.0 Secs [==>]	[1]
	8	f606w-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		30.0 Secs [==>]	[2]
	9	f606w-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		30.0 Secs [==>]	[2]
	10	f606w-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			360.0 Secs [==>]	[2]

Proposal 11924 - Visit 01 - WFC3/UVIS external and internal CTE monitor

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		11	f606w-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		360.0 Secs
									[==>]	[2]
	12	f606w-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		360.0 Secs	
									[==>]	[2]





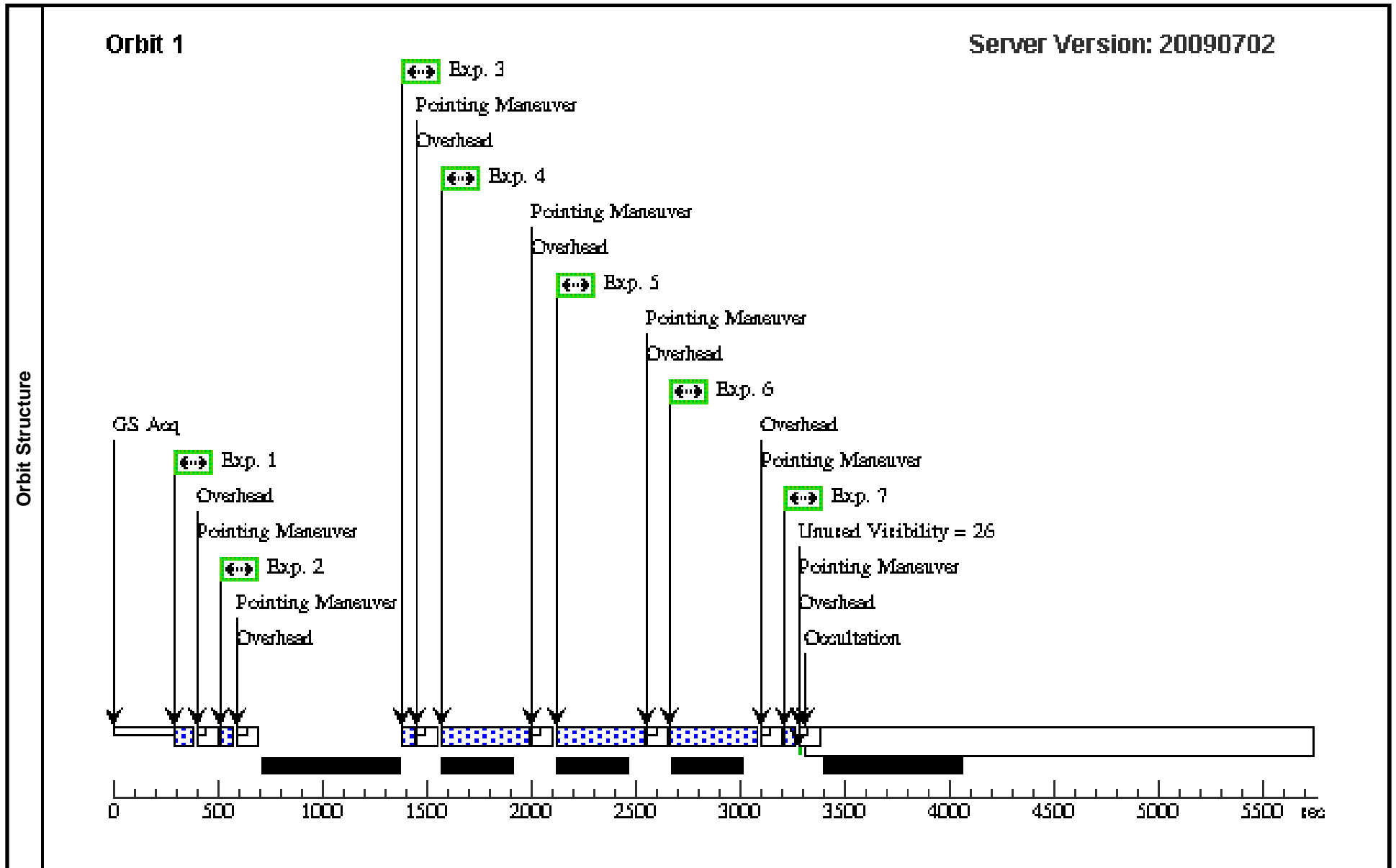
Proposal 11924 - Visit 02 - WFC3/UVIS external and internal CTE monitor

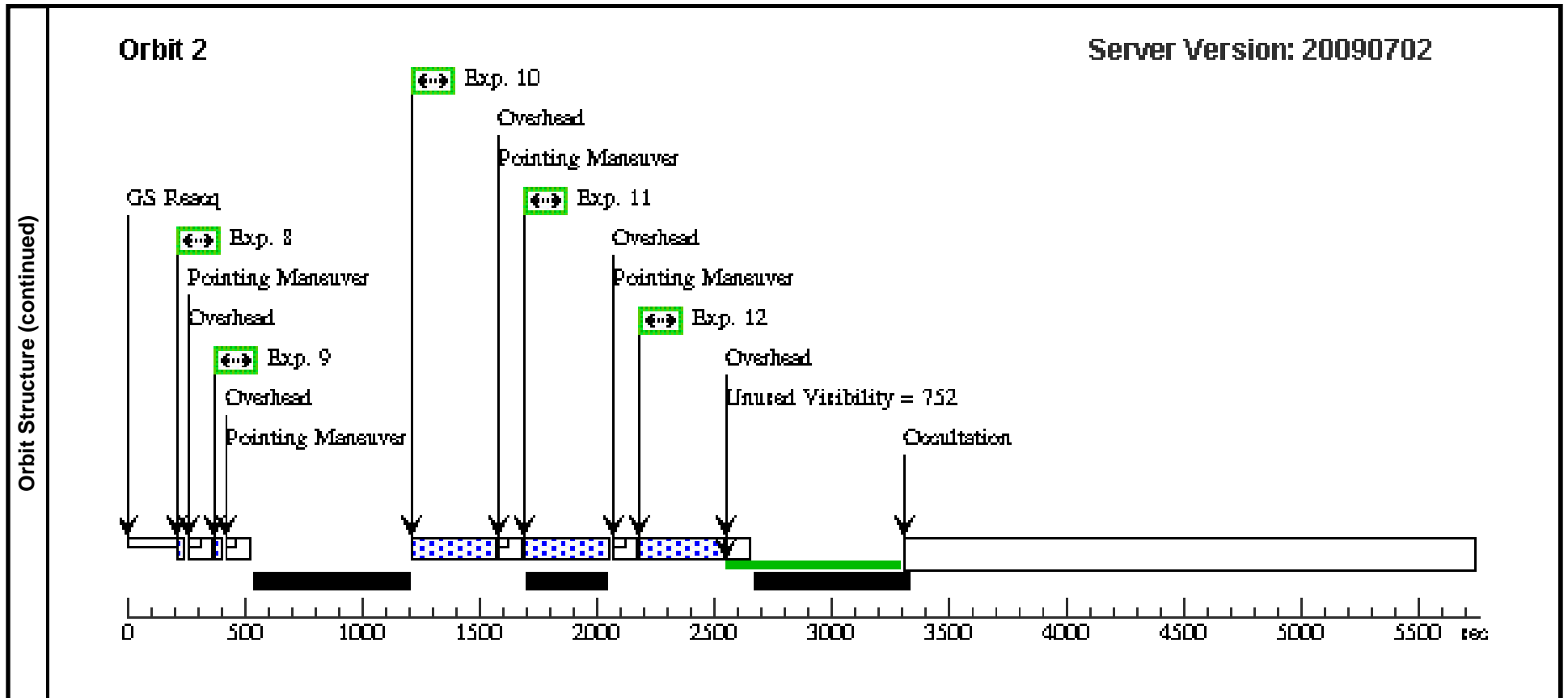
Sat Aug 15 01:22:25 GMT 2009

Visit	Proposal 11924, Visit 02, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-MAR-2010:00:00:59 AND 01-APR-2010:00:00:59 <i>Comments: USE SAME GUIDE STAR THROUGHOUT VISIT. SAME ORIENTATION THROUGHOUT VISIT</i>									
	(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NGC6791	RA: 19 20 53.9500 (290.2247917d) Dec: +37 48 9.60 (37.80267d) Equinox: J2000		V=16.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	f502n-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			60.0 Secs [==>]	[1]
	2	f502n-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		60.0 Secs [==>]	[1]
	3	f502n-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		60.0 Secs [==>]	[1]
	4	f502n-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			420.0 Secs [==>]	[1]
	5	f502n-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		420.0 Secs [==>]	[1]
	6	f502n-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		420.0 Secs [==>]	[1]
	7	f606w-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			30.0 Secs [==>]	[1]
	8	f606w-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		30.0 Secs [==>]	[2]
	9	f606w-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		30.0 Secs [==>]	[2]
	10	f606w-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			360.0 Secs [==>]	[2]

Proposal 11924 - Visit 02 - WFC3/UVIS external and internal CTE monitor

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		11	f606w-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		360.0 Secs [==>]
	12	f606w-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		360.0 Secs [==>]	[2]





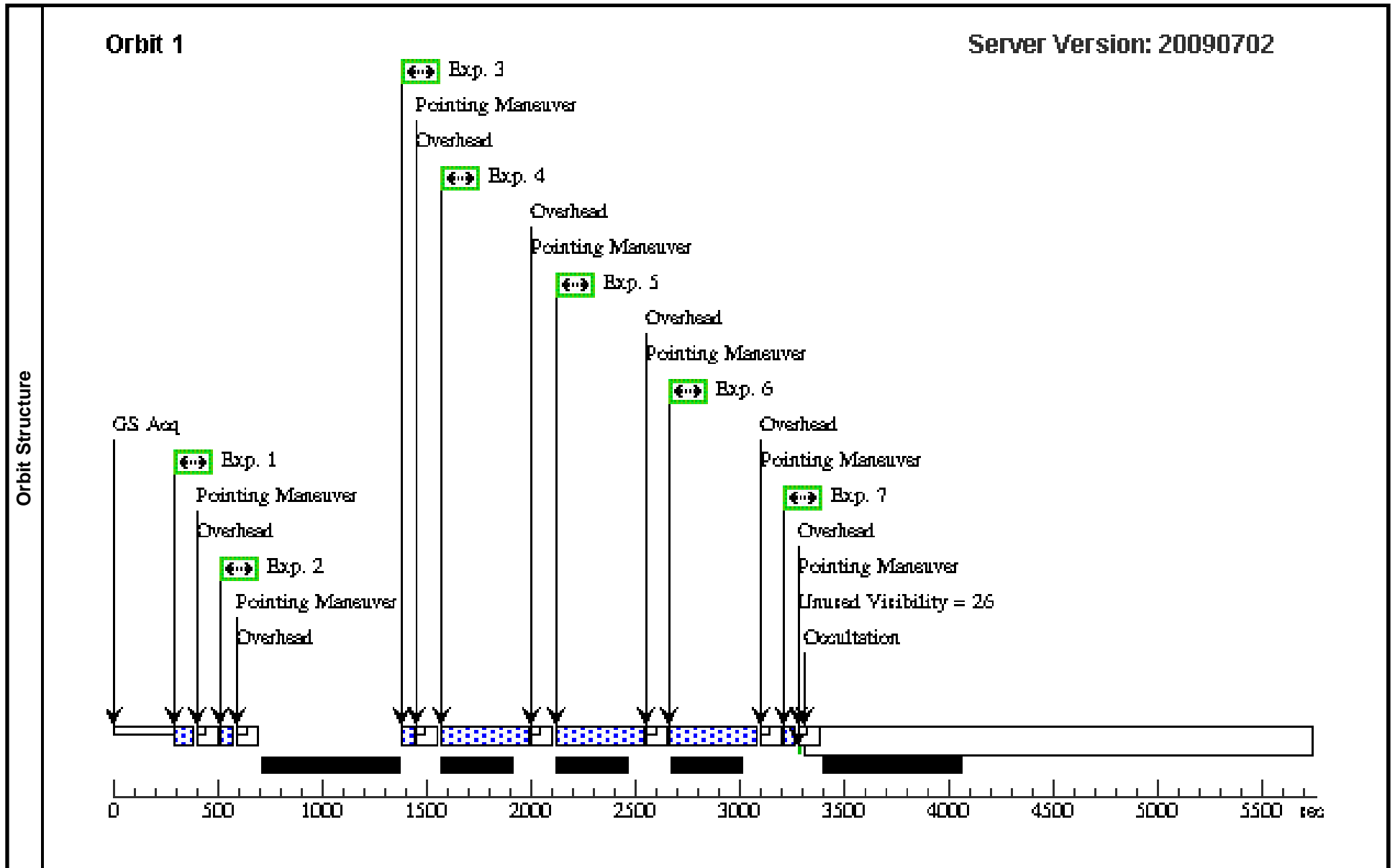
Proposal 11924 - Visit 03 - WFC3/UVIS external and internal CTE monitor

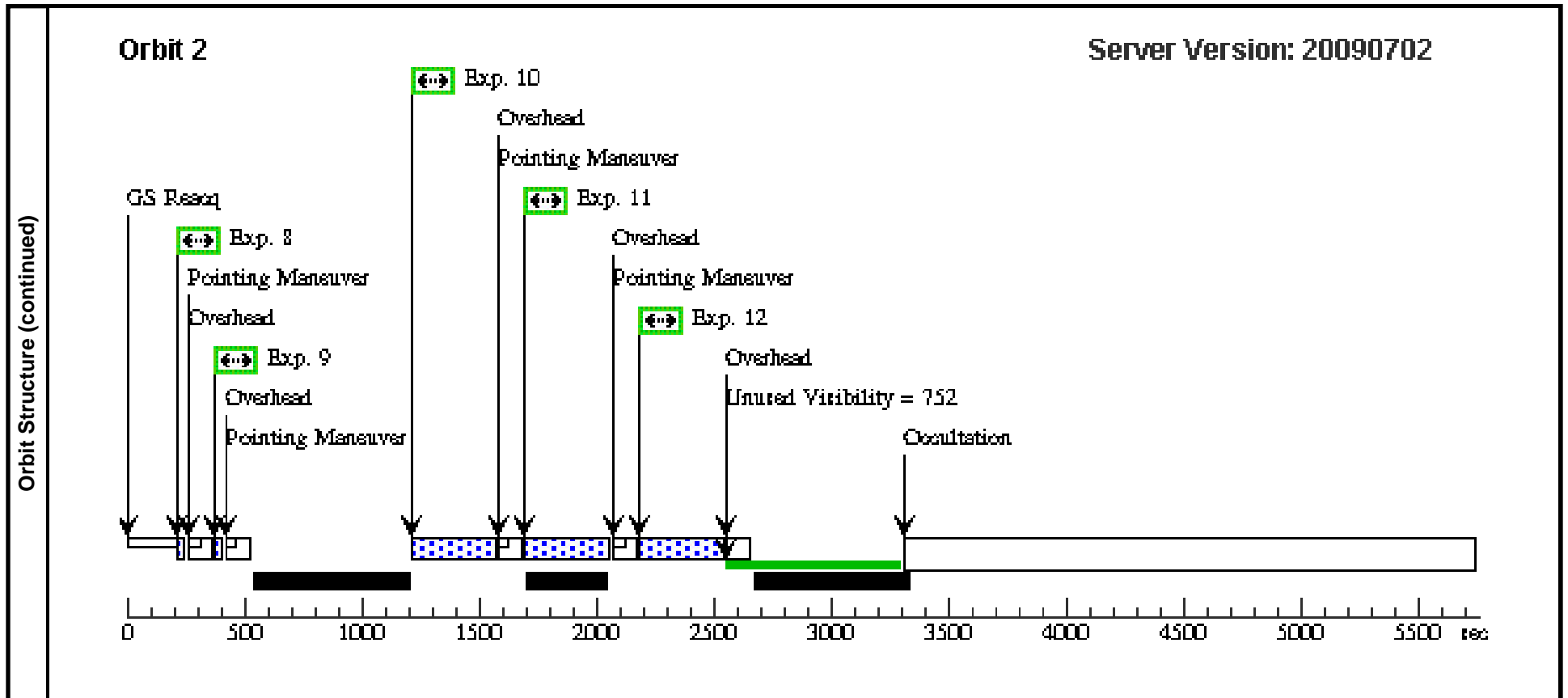
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Visit	Proposal 11924, Visit 03, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-SEP-2010:00:00:59 AND 01-OCT-2010:00:00:59 <i>Comments: USE SAME GUIDE STAR THROUGHOUT VISIT. SAME ORIENTATION THROUGHOUT VISIT</i>									
	(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE									
Diagnosics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NGC6791	RA: 19 20 53.9500 (290.2247917d) Dec: +37 48 9.60 (37.80267d) Equinox: J2000		V=16.5	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	f502n-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			60.0 Secs [==>]	[1]
	2	f502n-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		60.0 Secs [==>]	[1]
	3	f502n-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		60.0 Secs [==>]	[1]
	4	f502n-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO			420.0 Secs [==>]	[1]
	5	f502n-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 0,81.6		420.0 Secs [==>]	[1]
	6	f502n-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F502N	CR-SPLIT=NO	POS TARG 81,6.1		420.0 Secs [==>]	[1]
	7	f606w-sh-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			30.0 Secs [==>]	[1]
	8	f606w-sh-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		30.0 Secs [==>]	[2]
	9	f606w-sh-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		30.0 Secs [==>]	[2]
10	f606w-ln-00	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO			360.0 Secs [==>]	[2]	

Proposal 11924 - Visit 03 - WFC3/UVIS external and internal CTE monitor

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		11	f606w-ln-02	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 0,81.6		360.0 Secs
									[==>]	[2]
	12	f606w-ln-03	(1) NGC6791	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO	POS TARG 81,6.1		360.0 Secs	
									[==>]	[2]





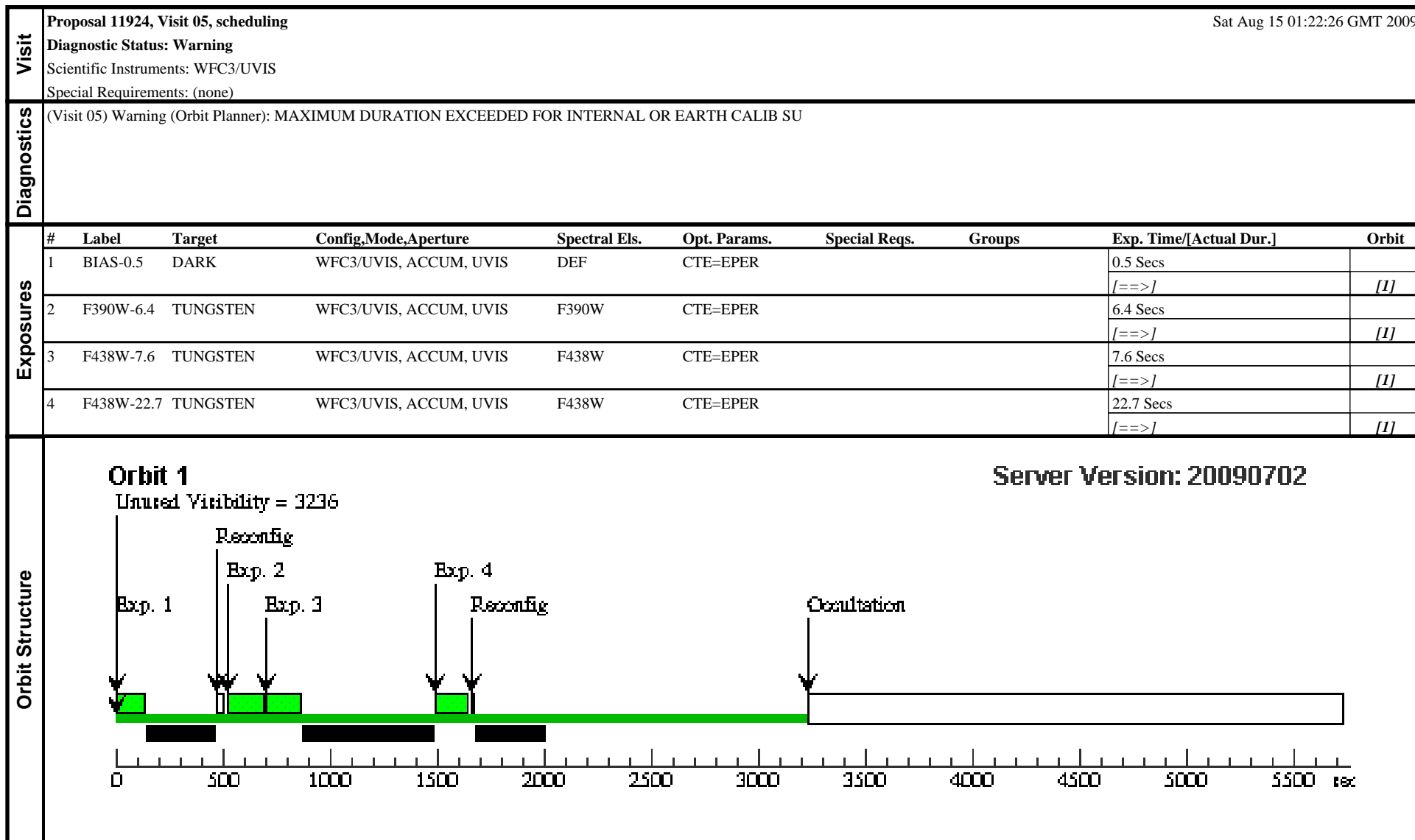
Visit	Proposal 11924, Visit 04, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 01-AUG-2009:00:00:00 AND 12-SEP-2009:00:00:00; GROUP 04,05 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1

Unused Visibility = 3236

The diagram shows a timeline from 0 to 5500 seconds. At the start (0s), there is a small green bar for 'Exp. 1'. This is followed by a black bar for occultation. Then, a green bar for 'Exp. 2' is shown, with a 'Reconfig' arrow pointing to it. This is followed by another black bar for occultation. Then, a green bar for 'Exp. 3' is shown, with a 'Reconfig' arrow pointing to it. This is followed by a final black bar for occultation. A long green bar extends from approximately 3200s to 5500s, labeled 'Occultation' with a downward arrow. The x-axis is labeled 'sec' and has major ticks every 500 units.

Server Version: 20090702



Visit	Proposal 11924, Visit 06, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 12-SEP-2009:00:00:00 AND 24-OCT-2009:00:00:00; GROUP 06,07 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1
Unused Visibility = 3236

The diagram shows a horizontal timeline from 0 to 5500 seconds. A green bar at the bottom represents the total observation time. Three exposure periods are shown as green rectangles: Exp. 1 (0-100s), Exp. 2 (500-550s), and Exp. 3 (700-750s). Vertical arrows labeled 'Reconfig' point to the gaps between these exposures. A long white rectangle labeled 'Occultation' starts at approximately 3200 seconds and ends at 5500 seconds. The x-axis is labeled 'sec' with major ticks every 500 units.

Server Version: 20090702

Visit	Proposal 11924, Visit 07, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 07) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Unused Visibility = 3236</p> <p>The timeline shows a green bar representing visibility, with black bars below it representing occultations. Key events are marked with arrows: Exp. 1 at ~100s, Reconfig at ~400s, Exp. 2 at ~500s, Exp. 3 at ~700s, Reconfig at ~1600s, Exp. 4 at ~1650s, and Occultation starting at ~3200s.</p>									
	<p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11924, Visit 08, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 24-OCT-2009:00:00:00 AND 28-NOV-2009:00:00:00; GROUP 08,09 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1

Unused Visibility = 3236

The diagram shows a horizontal timeline from 0 to 5500 seconds. A green bar at the bottom represents visibility. Three exposures are shown as green rectangles: Exp. 1 (0-100s), Exp. 2 (500-550s), and Exp. 3 (700-750s). Reconfiguration events are marked with vertical lines and arrows at approximately 500s and 850s. An occultation event is marked with a vertical line and arrow at approximately 3200s, where the green bar ends. The x-axis is labeled 'sec' and has major ticks every 500 units.

Server Version: 20090702

Visit	Proposal 11924, Visit 09, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 09) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Unused Visibility = 3236</p> <p>The timeline shows a green bar representing visibility, with black bars below it representing occultations. Key events are marked with arrows: Exp. 1 at ~100s, Reconfig at ~400s, Exp. 2 at ~500s, Exp. 3 at ~700s, Reconfig at ~1600s, Exp. 4 at ~1650s, and Occultation starting at ~3200s.</p>									
	<p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11924, Visit 10, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 28-NOV-2009:00:00:00 AND 09-JAN-2010:00:00:00; GROUP 10.11 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1 **Server Version: 20090702**

Exp. 1
Unused Visibility = 3236

The diagram illustrates the orbit structure for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with arrows and labels: Exp. 1 (a small green bar at the start), Reconfig (a black bar), Exp. 2 (a green bar), Reconfig (a black bar), Exp. 3 (a green bar), Reconfig (a black bar), and Occultation (a long black bar starting at approximately 3200 seconds). The text 'Unused Visibility = 3236' is shown at the top left.

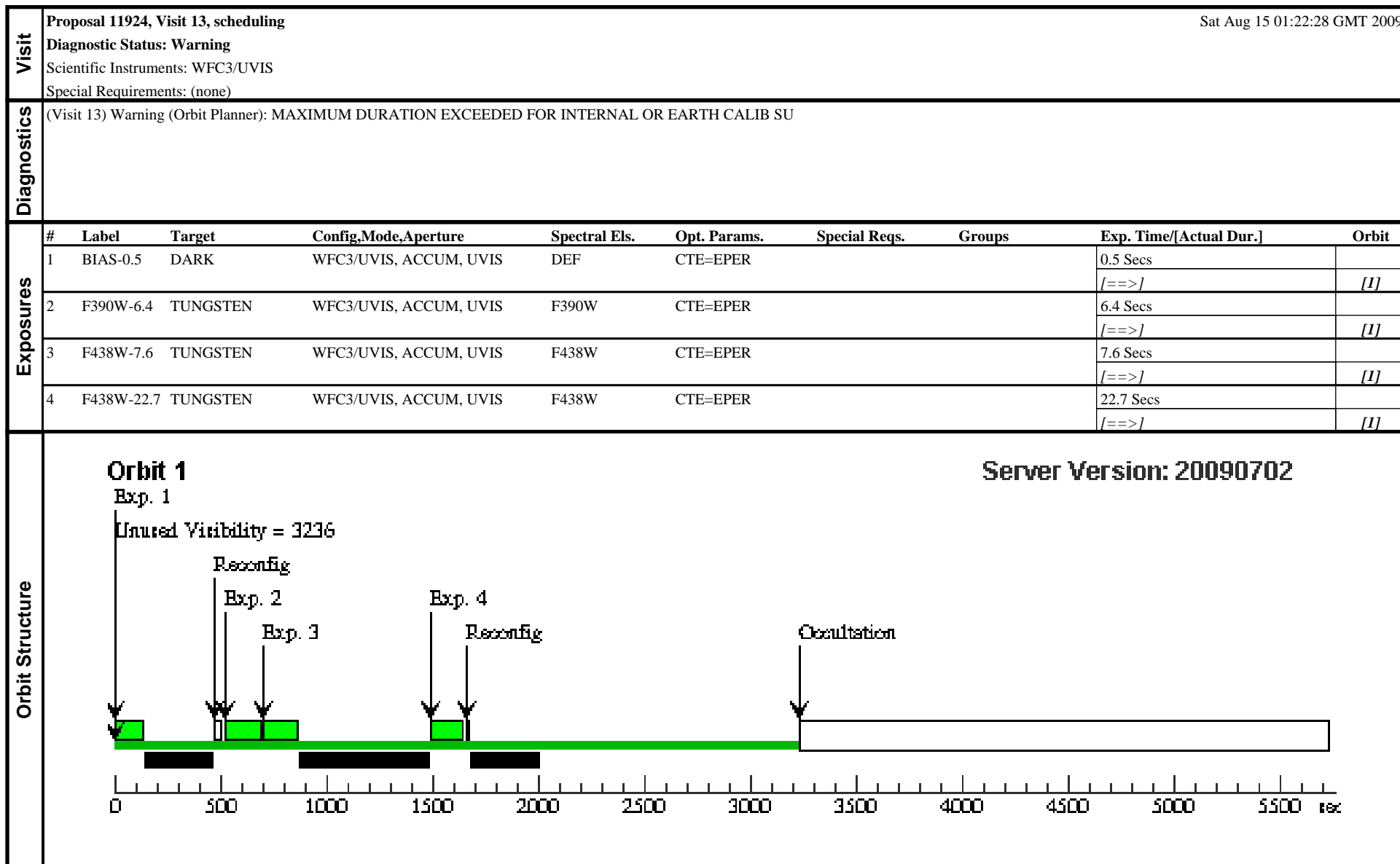
Visit	Proposal 11924, Visit 11, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 11) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Exp. 1 Unused Visibility = 3236</p>									
	<p>Reconfig</p> <p>Exp. 2</p> <p>Exp. 3</p> <p>Exp. 4</p> <p>Reconfig</p> <p>Occultation</p>									

Visit	Proposal 11924, Visit 12, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 09-JAN-2010:00:00:00 AND 13-FEB-2010:00:00:00; GROUP 12,13 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1
Unused Visibility = 3236

The diagram shows a horizontal timeline from 0 to 5500 seconds. At the beginning, there is a small green bar. This is followed by a black bar. Then, three vertical lines mark the start of 'Exp. 1', 'Exp. 2', and 'Exp. 3'. Above each exposure is a 'Reconfig' label with a downward arrow. A long green bar spans from approximately 500 to 3200 seconds. At 3200 seconds, a vertical line marks the start of 'Occultation', which is represented by a white bar extending to the end of the timeline at 5500 seconds.

Server Version: 20090702

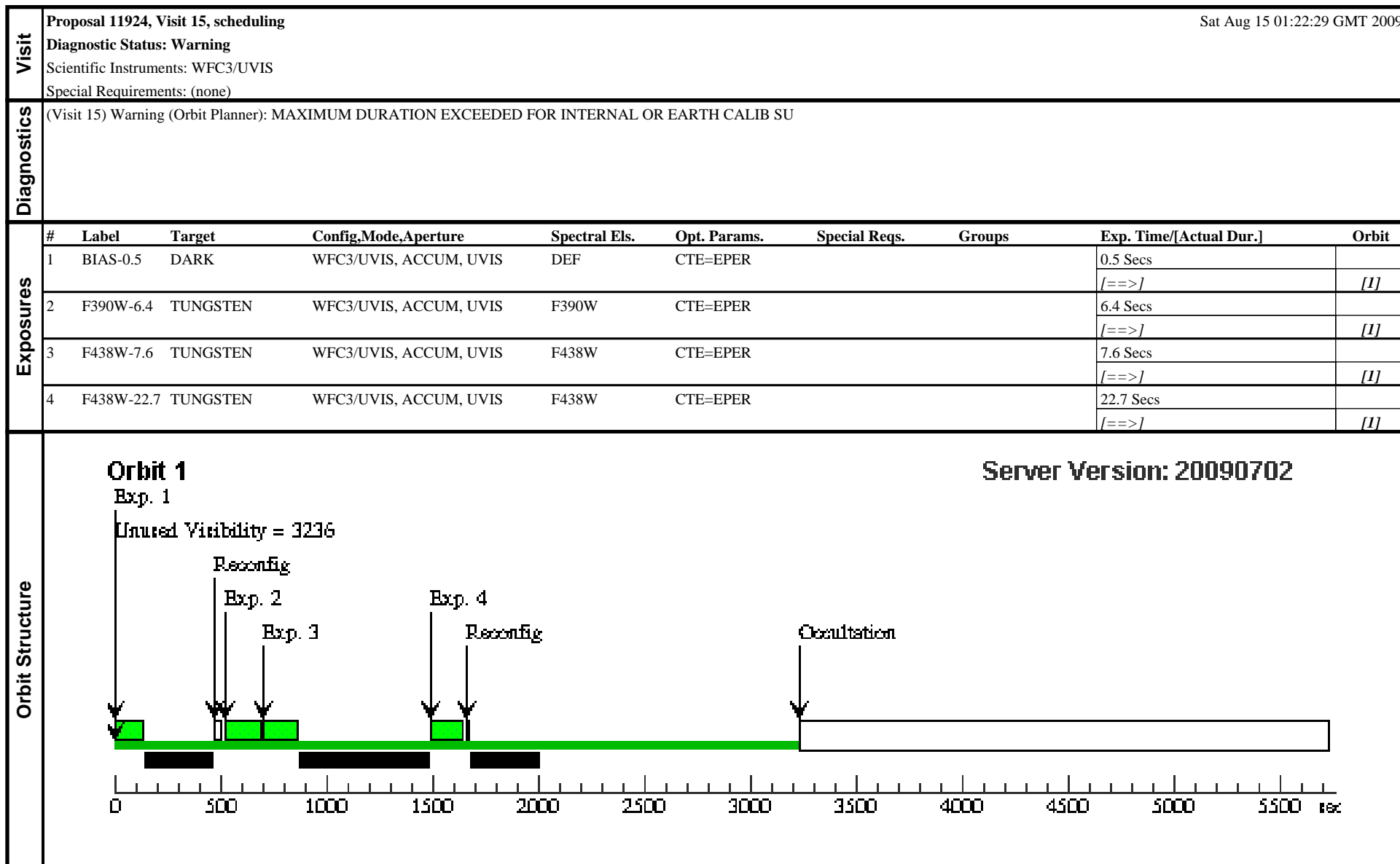


Visit	Proposal 11924, Visit 14, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 13-FEB-2010:00:00:00 AND 27-MAR-2010:00:00:00; GROUP 14,15 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1
Unused Visibility = 3236

The diagram shows a horizontal timeline from 0 to 5500 seconds. A green bar at the bottom represents the total visibility. Three small green bars represent exposures: Exp. 1 (0-100s), Exp. 2 (500-510s), and Exp. 3 (700-720s). Vertical arrows labeled 'Reconfig' point to the start of each exposure. A long white bar starting at ~3200s and ending at ~5500s is labeled 'Occultation'. Black bars below the green bar indicate periods of no visibility.

Server Version: 20090702



Visit	Proposal 11924, Visit 16, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 27-MAR-2010:00:00:00 AND 08-MAY-2010:00:00:00; GROUP 16,17 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1 **Server Version: 20090702**

Unused Visibility = 3236

The diagram illustrates the orbit structure for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with vertical arrows: Exp. 1 at ~100s, Reconfig at ~450s, Exp. 2 at ~550s, Exp. 3 at ~750s, and Reconfig at ~900s. A long occultation period is shown as a white bar starting at ~3200s and ending at 5500s. Green bars represent exposure durations, and black bars represent reconfiguration times. The total unused visibility is 3236 seconds.

Visit	Proposal 11924, Visit 17, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 17) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Unused Visibility = 3236</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows: Exp. 1 at ~100s, Reconfig at ~450s, Exp. 2 at ~550s, Exp. 3 at ~750s, Reconfig at ~1650s, Exp. 4 at ~1550s, and Occultation at ~3200s. Green bars represent exposure durations, and black bars represent occultation periods. The occultation period is the longest, extending from approximately 3200s to 5500s.</p>									
	<p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11924, Visit 18, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 08-MAY-2010:00:00:00 AND 19-JUN-2010:00:00:00; GROUP 18,19 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [=>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [=>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [=>]	[1]

Orbit 1 **Server Version: 20090702**

Unused Visibility = 3236

The diagram illustrates the orbit structure for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked with vertical arrows: Exp. 1 at ~100s, Reconfig at ~450s, Exp. 2 at ~550s, Exp. 3 at ~750s, and Reconfig at ~900s. A long occultation event is shown as a horizontal bar from ~3200s to 5500s. Green bars represent exposure durations, and black bars represent reconfiguration periods. The total unused visibility is noted as 3236 seconds.

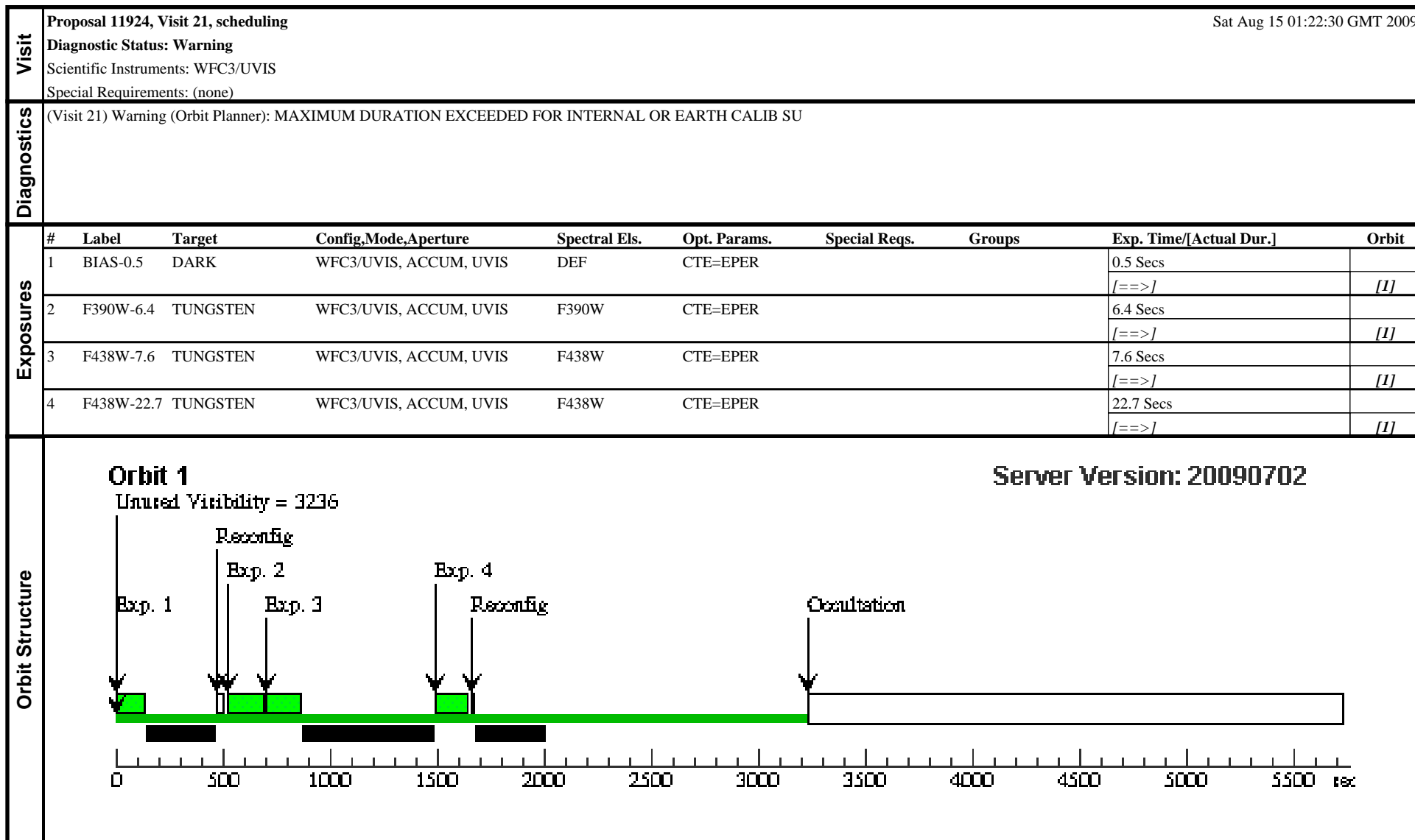
Visit	Proposal 11924, Visit 19, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 19) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Exp. 1 Unused Visibility = 3236</p>									
	<p>Reconfig</p> <p>Exp. 2</p> <p>Exp. 3</p> <p>Exp. 4</p> <p>Reconfig</p> <p>Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11924, Visit 20, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 19-JUN-2010:00:00:00 AND 31-JUL-2010:00:00:00; GROUP 20,21 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1 **Server Version: 20090702**

Unused Visibility = 3236

The diagram illustrates the orbit structure for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked: Exp. 1 (green bar) at ~100s, Reconfig (black bar) at ~400s, Exp. 2 (green bar) at ~500s, Exp. 3 (green bar) at ~700s, Reconfig (black bar) at ~900s, and Occultation (white bar) starting at ~3200s and ending at 5500s. A large green bar at the bottom indicates the total visibility period.



Visit	Proposal 11924, Visit 22, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 31-JUL-2010:00:00:00 AND 11-SEP-2010:00:00:00; GROUP 22.23 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1 **Server Version: 20090702**

Unused Visibility = 3236

The diagram illustrates the orbit structure for Orbit 1. The x-axis represents time in seconds, ranging from 0 to 5500. Key events are marked: Exp. 1 (green bar) at ~100s, Reconfig (black bar) at ~400s, Exp. 2 (green bar) at ~500s, Exp. 3 (green bar) at ~700s, Reconfig (black bar) at ~900s, and Occultation (white bar) starting at ~3200s and ending at 5500s. A green line at the bottom indicates the total visibility period.

Visit	Proposal 11924, Visit 23, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 23) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Unused Visibility = 3236</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows: Exp. 1 at ~100s, Reconfig at ~450s, Exp. 2 at ~550s, Exp. 3 at ~750s, Reconfig at ~1650s, Exp. 4 at ~1550s, and Occultation at ~3200s. Green bars represent exposure durations, and black bars represent occultation periods. The occultation period is the longest, extending from approximately 3200s to 5500s.</p>									
	<p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

Visit	Proposal 11924, Visit 24, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 11-SEP-2010:00:00:00 AND 16-OCT-2010:00:00:00; GROUP 24,25 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [==>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [==>]	[1]

Orbit 1
Exp. 1
Unused Visibility = 3236

The diagram shows a timeline from 0 to 5500 seconds. Key events include:

- Exp. 1 (BIAS-0.5) at approximately 100s.
- Reconfig at approximately 450s.
- Exp. 2 (F390M-9.2) at approximately 550s.
- Reconfig at approximately 750s.
- Exp. 3 (F390M-22.9) at approximately 850s.
- Reconfig at approximately 950s.
- Occultation starting at approximately 3200s.

 A green bar at the bottom represents the total observation time, which ends at the start of the occultation. Black bars below the green bar indicate periods of unused visibility.

Server Version: 20090702

Visit	Proposal 11924, Visit 25, scheduling Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	(Visit 25) Warning (Orbit Planner): MAXIMUM DURATION EXCEEDED FOR INTERNAL OR EARTH CALIB SU									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [==>]	[1]
	2	F390W-6.4	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390W	CTE=EPER			6.4 Secs [==>]	[1]
	3	F438W-7.6	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			7.6 Secs [==>]	[1]
	4	F438W-22.7	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F438W	CTE=EPER			22.7 Secs [==>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090702</p> <p>Unused Visibility = 3236</p>									
	<p>Exp. 1 Reconfig Exp. 2 Exp. 3 Exp. 4 Reconfig Occultation</p>									

Visit	Proposal 11924, Visit 26, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: BETWEEN 16-OCT-2010:00:00:00 AND 01-NOV-2010:00:00:00; GROUP 26.27 WITHIN 1D									
	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures	1	BIAS-0.5	DARK	WFC3/UVIS, ACCUM, UVIS	DEF	CTE=EPER			0.5 Secs [=>]	[1]
	2	F390M-9.2	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			9.2 Secs [=>]	[1]
	3	F390M-22.9	TUNGSTEN	WFC3/UVIS, ACCUM, UVIS	F390M	CTE=EPER			22.9 Secs [=>]	[1]

Orbit 1
Exp. 1

Unused Visibility = 3236

Reconfig
Exp. 2
Exp. 3
Reconfig
Occultation

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec

Server Version: 20090702

