



## 15733 - WFC3 Astrometric Scale Monitoring

Cycle: 27, 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) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:39.0	yes
02	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:40.0	yes
03	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:40.0	yes
04	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:40.0	yes
05	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:41.0	yes
06	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:41.0	yes
07	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:41.0	yes
08	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:42.0	yes
09	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:42.0	yes
10	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:42.0	yes
11	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:43.0	yes
12	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:43.0	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>
13	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:43.0	yes
14	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:43.0	yes
15	(1) OMEGACEN	WFC3/UVIS	1	23-Jan-2020 17:00:44.0	yes
16	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:44.0	yes
17	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:44.0	yes
18	(1) OMEGACEN	WFC3/IR	1	23-Jan-2020 17:00:44.0	yes

18 Total Orbits Used

## **ABSTRACT**

The standard astrometric catalog in the field of globular cluster Omega Cen has been used to examine the geometric distortion of WFC3 UVIS and IR as function of wavelength in multicycle calibration programs over last 10 years of WFC3 on HST board. All observations from these programs have been reduced and provided the multi-wavelength geometric distortion in UVIS and IR detector. The derived geometric distortion coefficients implemented in the IDCTAB format are used in the HST pipe-line to correct for a ~7% distortion in WFC3/UVIS and IR images down to 1%.

Additional to multi-wavelength WFC3 geometric distortion, all observations of Omega Cen taken through F606W and F160W UVIS and IR filters respectively during the last 10 years (all together 20 epochs) were used to look for time dependency of UVIS and IR geometric distortion and the effect of the scale change due to the thermal breathing. The results of the stability WFC3 geometric distortion published in WFC3-ISR-02-15 (Kozhurina-Platais & Anderson, Martlin et.al 2019) have show that the UVIS geometric distortion is stable over 10 years on-orbit within 0.05 pixels or 2 mas in UVIS. The results of WFC3/IR published in WFC3-ISR-09-18 (M. McKay et al) have show that the IR geometric distortion is stable over 10 years on orbits within 0.1 pixel or 2 mas.

The purpose of this calibration proposal is to continue the monitor of the WFC3 geometric distortion stability of over time. The observations of Omega Cen through the UVIS F606W filter and the F160W IR filter will be used to derive the skew and scale terms of the geometric distortion and look for any secular changes over time.

## **OBSERVING DESCRIPTION**

Observing\_Description:

The observation of Omega Cen through F606W and F160W is used as a standard filter in UVIS and IR, respectively. They are observed with the same pointing but with different roll-angle of the OTA in three time periods - between December 2019 and February 2020; between March 2020 and April 2020; and between June 2020 and August 2020.

The set of 6 exposures in F606W and F160W filters are sampled in the allowed full range of roll-angles at the ecliptic latitude of Omega Cen, and ranged approximately from 270 to 280 degree in December 2019 - February 2020. Three UVIS exposures in 1 orbit will be observed in the following sequence of off-nominal (~270 degree) roll-angles: Orbit #1 +5, and +10degree. Three IR exposures in 1 orbit will be observed in the following sequence of off-nominal (~270 degree) roll-angles: Orbit #2 +5, and +10degree.

The set of 6 exposures in F606W and F160W filters are allowed full range of roll-angles at the ecliptic latitude of Omega Cen, and ranged approximately from 290 to 320 degree in the March 2020 to April 2020 timeframe. Three UVIS exposures in 1 orbit will be observed in the following sequence of off-nominal (~320 degree) roll-angles: Orbit #3 +/-5 degree off-nominal degree. Three IR exposures in 1 orbit will be observed in the following sequence of off-nominal (~320 degree) roll-angles: Orbit #4 +/-5degree.

The set of 6 exposures in F606W and F160W filters are the allowed full range of roll-angles at the ecliptic latitude of Omega Cen, and ranged approximately from 50 to 100 degree in the June 2020 to September 2020 timeframe. Three UVIS exposures in 1 orbit will be observed in the following sequence of off-nominal (~100 degree) roll-angles: Orbit #5 +5 degree. Three IR exposures in 1 orbit will be observed in the following sequence of off-nominal (~100 degree) roll-angles: Orbit #6 +/-5 degree.

In order to improve the schedule, a small range of roll is allowed at each specific roll angle. The order of the exposures in each orbit is specified by a SEQUENTIAL Special Requirement and the order of the orbits is specified by AFTER Special Requirements. To maintain accurate pointing control, 2-guide star acquisitions are used. If suitable guide stars can be found, the same pair of guide stars are used for all 18 exposures.

The geometric distortion of WFC3 in 13 UVIS and 8 IR filters were calibrated using the standard astrometric catalog of Omega Cen (Anderson & van der Martel, 2010). A more recent set of updated distortions were obtained for 20 UVIS filters using the same standard astrometric catalog of Omega Cen in 2019 (Martlin et al. WFC3-ISR-2019-10). The goal of this proposal is to monitor the geometric distortion of both the UVIS and IR detectors. The skew parameter in the ACS/WFC case, is changing with time in the level of 40 mas over 15 years on board of HST. The skew parameter is the non-perpendicularity of coordinate axes and is the major parameter in the geometric distortion model.

As it has show by Kozhurina-Platais et.al (WFC3-ISR -2015-02), the skew in UVIS geometric distortion model during 7 years of WFC3 on board is stable and in the range of +/-4 mas which gives the offest at << +/-0.1 pixels at the far edges of UVIS frames. Thus, the goal of this calibration proposal is to continue the monitor the UVIS and IR skew as a function of time.

The 3 exposures in UVIS with steps of roll-angles +/-5 degree of off-nominal roll-angles require 3 orbits, the same 3 exposures in IR with the steps of roll-angles +/-5 degree of nominal roll-angles, also require 3 orbits. However, APT requires each Visit to begin at the start of an orbit and therefore calculates that this proposal requires 18 orbits, which APT indicates is mostly unused. Accordingly, APT generates a Warning that the Visits will not fit within the required 2 orbits and 10 Warnings that the SEQUENTIAL sets cannot fit within one orbit. However, based upon known overheads for the moderate roll-slews used and overheads for full guide star acquisitions, these indicated VISITS (1,2,3, with UVIS and 4,5,6 with IR) should be be schedule in 2 orbits. The exposures with UVIS are: Orbit #1, Visits 1,2,3 off-nominal roll +/-15,0,+/-5 degree; Orbit #2, Visit 7,8,9 off-nominal roll +15/-15,0,+/-5 degree; Orbit #3, Visits 13,14,15 off-nominal roll +15/-15,0,+/-5 degree. The exposures with IR are: Orbit #1, Visits 3,4,5 off-nominal roll +15/-15,0,+/-5 degree; Orbit #2, Visits 10,11,12 off-nominal roll +15/-15,0,+/-5 degree; and Orbit #3, Visits 16,17,18 off-nominal roll +15/-15,0,+/-5 degree.

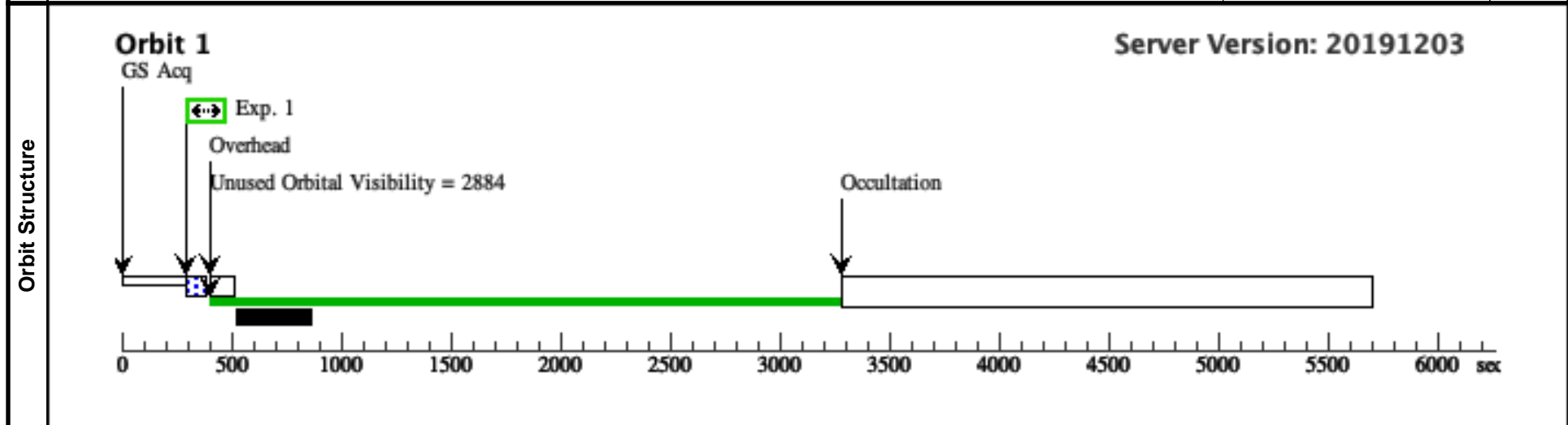
Proposal 15733 - Visit 01 F606W (01) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 01 F606W (01), scheduled				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 312.4D TO 312.4 D; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 01,02,03 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



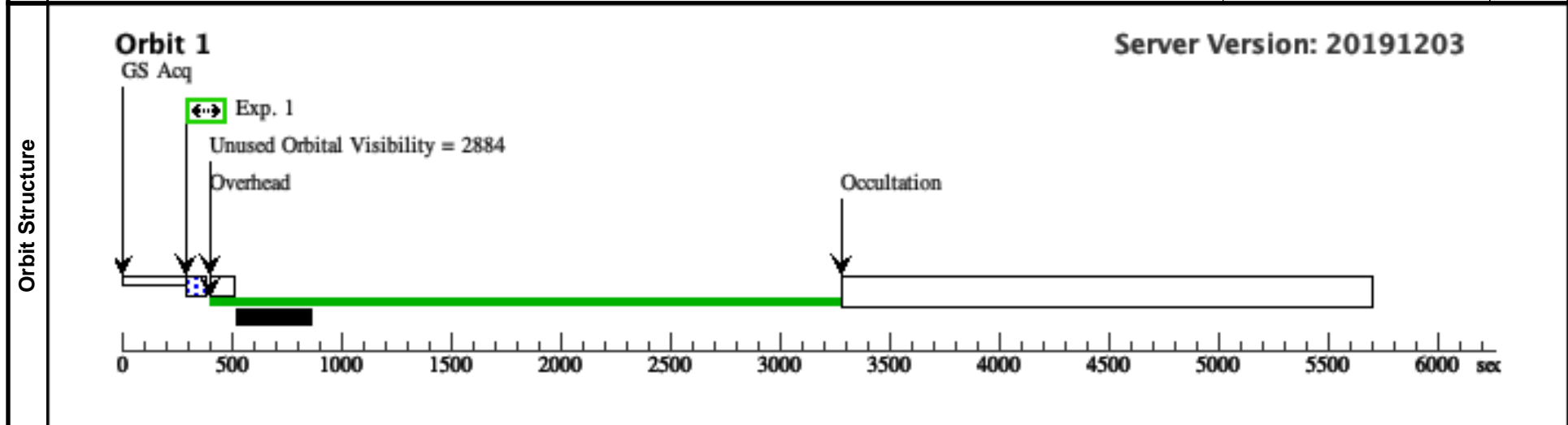
Proposal 15733 - Visit 02 F606W (02) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 02 F606W (02), scheduled				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 315.8D TO 315.8 D; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 01,02,03 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



Proposal 15733 - Visit 03 F606W (03) - WFC3 Astrometric Scale Monitoring

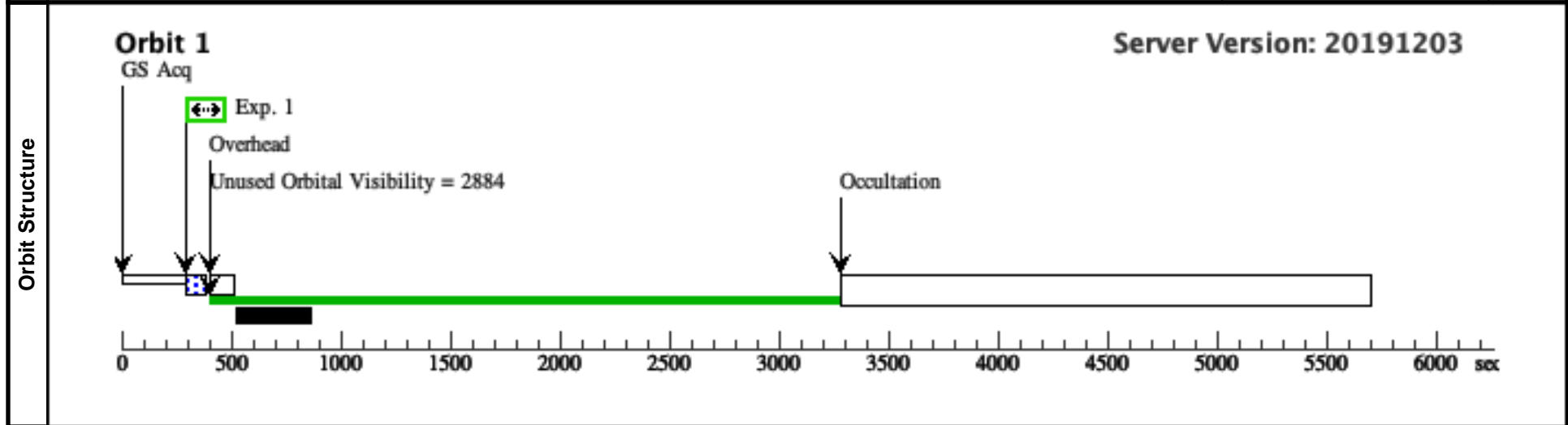
Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 03 F606W (03), scheduled				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 319.2D TO 319.2 D; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 01,02,03 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS

*Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals*  
 Category=CALIBRATION  
 Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



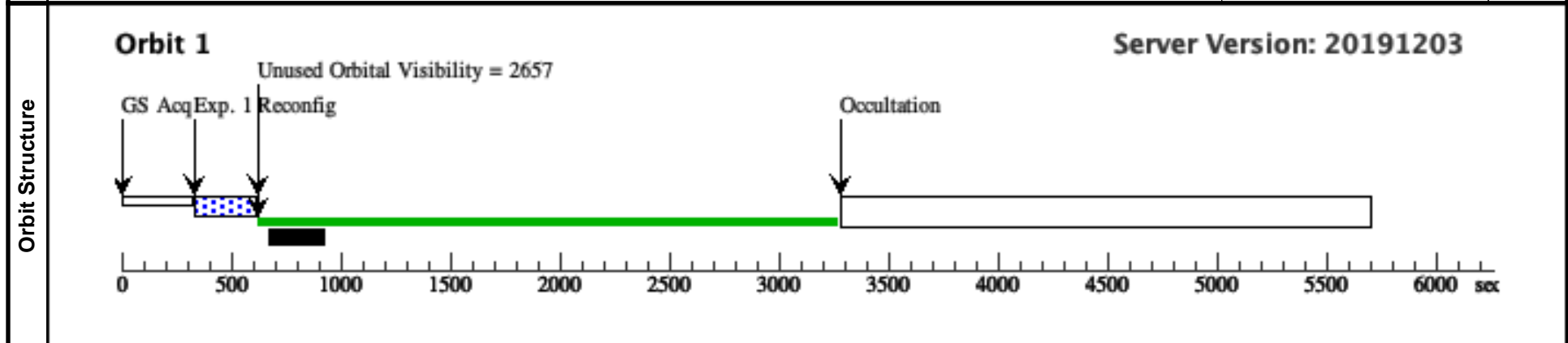
Proposal 15733 - Visit 04 F160W (04) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 04 F160W (04), completed				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 04,05,06 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
	Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals					
	Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]					

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]





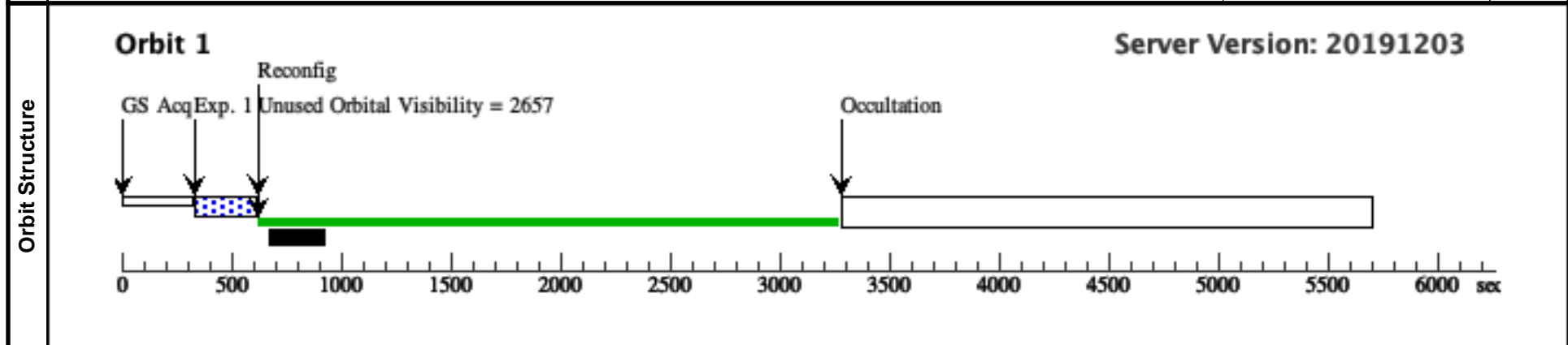
Proposal 15733 - Visit 05 F160W (05) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 05 F160W (05), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: PCS MODE FINE; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 04,05,06 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
	Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]					

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]



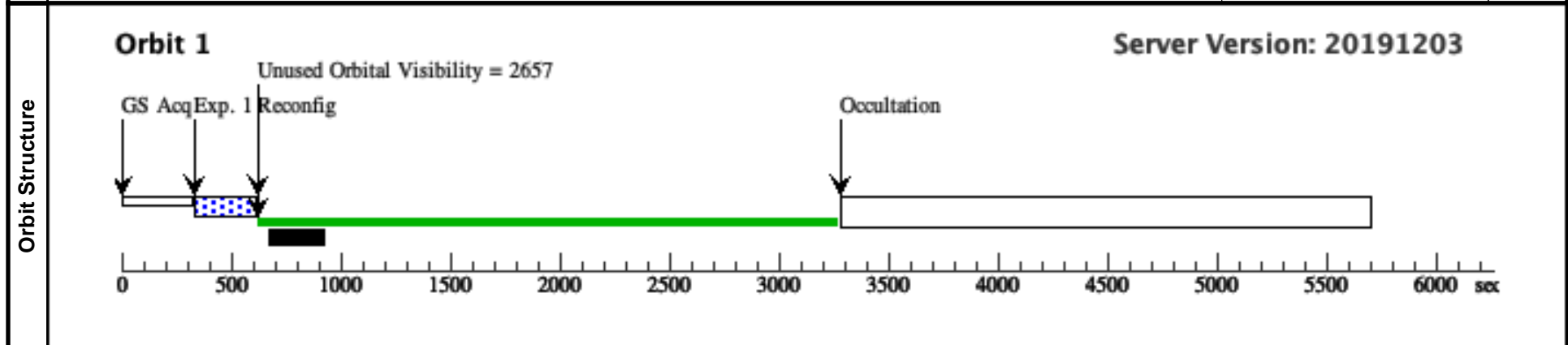
Proposal 15733 - Visit 06 F160W (06) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 06 F160W (06), completed				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; BETWEEN 01-DEC-2019:00:00:00 AND 01-FEB-2020:00:00:00; SEQ 04,05,06 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
	Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals					
	Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]					

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]



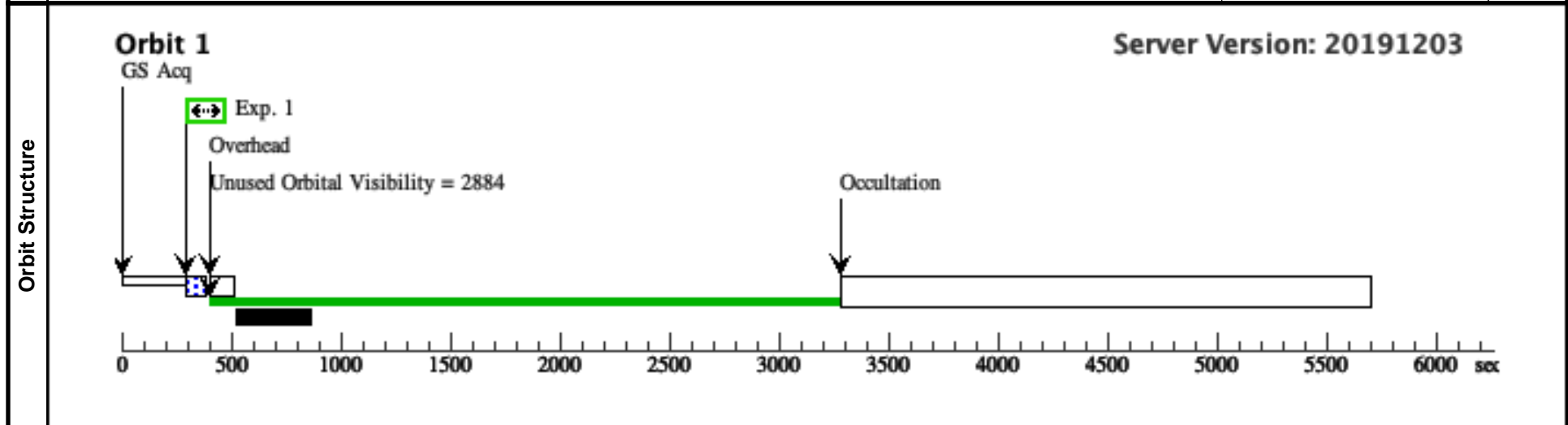
Proposal 15733 - Visit 07 F606W (07) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 07 F606W (07), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 312.4D TO 312.4 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 07.08.09 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



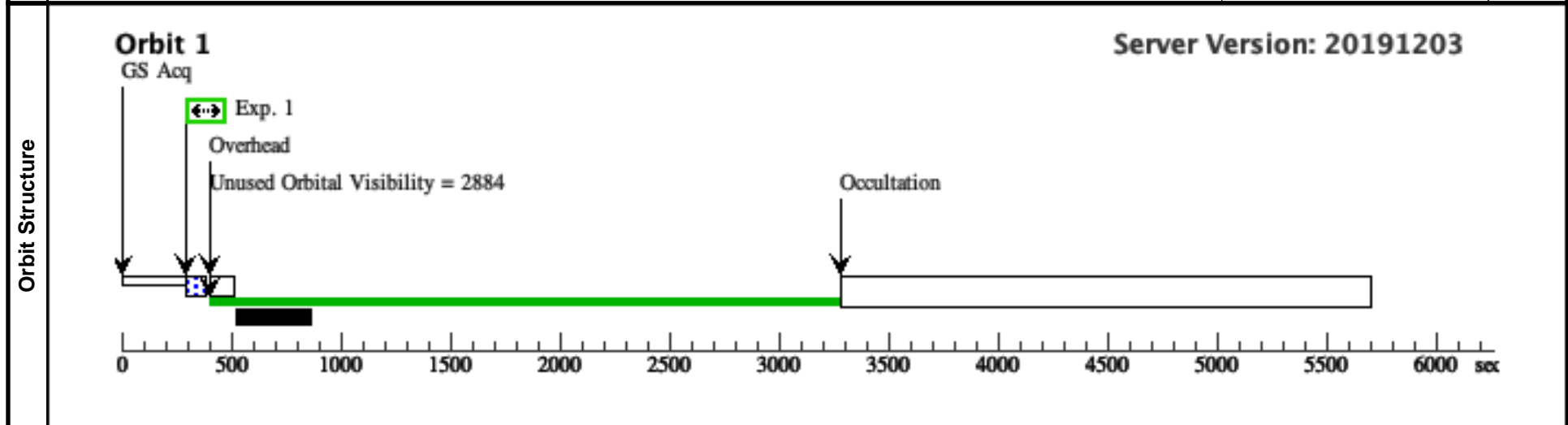
Proposal 15733 - Visit 08 F606W (08) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 08 F606W (08), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 317.4D TO 317.4 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 07,08,09 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



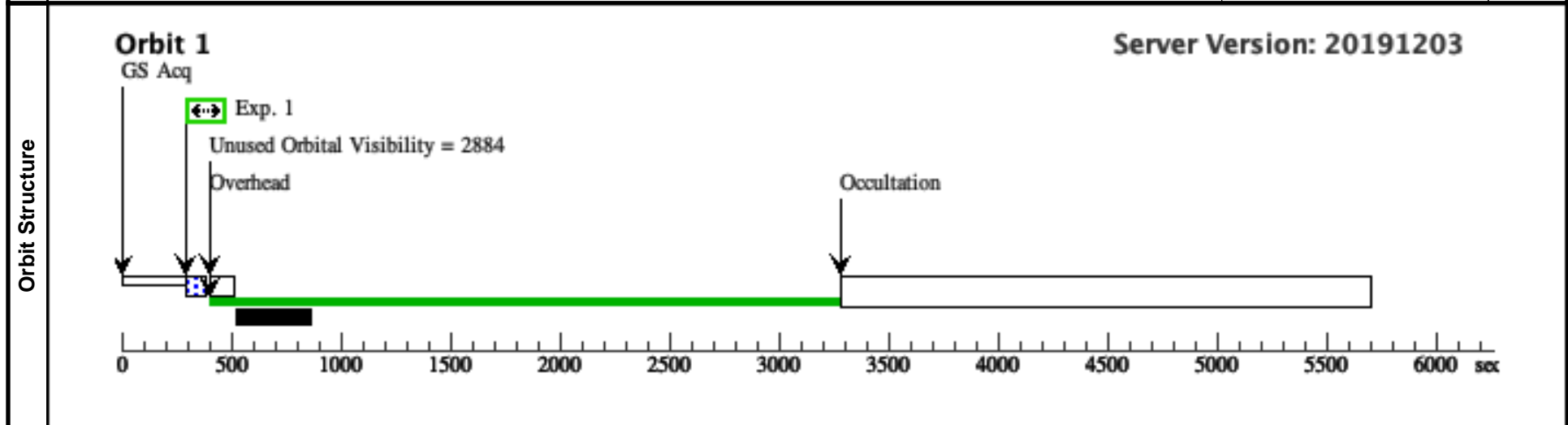
Proposal 15733 - Visit 09 F606W (09) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 09 F606W (09), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 322.4D TO 322.4 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 07,08,09 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12	GS ACQ SCENARI O BASE1B3		60.0 Secs (60 Secs) [==>]	[1]



Proposal 15733 - Visit 10 F160W (10) - WFC3 Astrometric Scale Monitoring

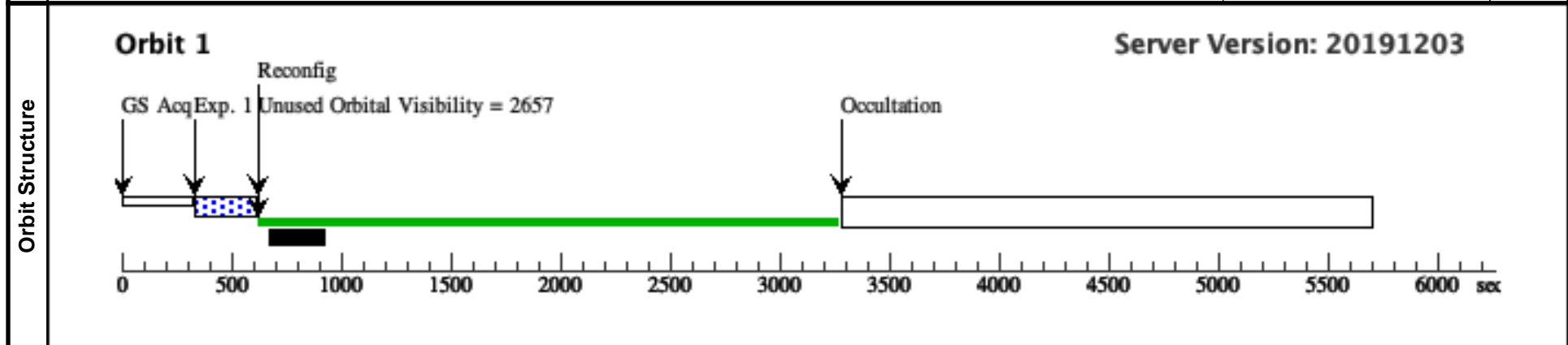
Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 10 F160W (10), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; ORIENT 310D TO 311 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 10,11,12 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS

*Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals*  
 Category=CALIBRATION  
 Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]



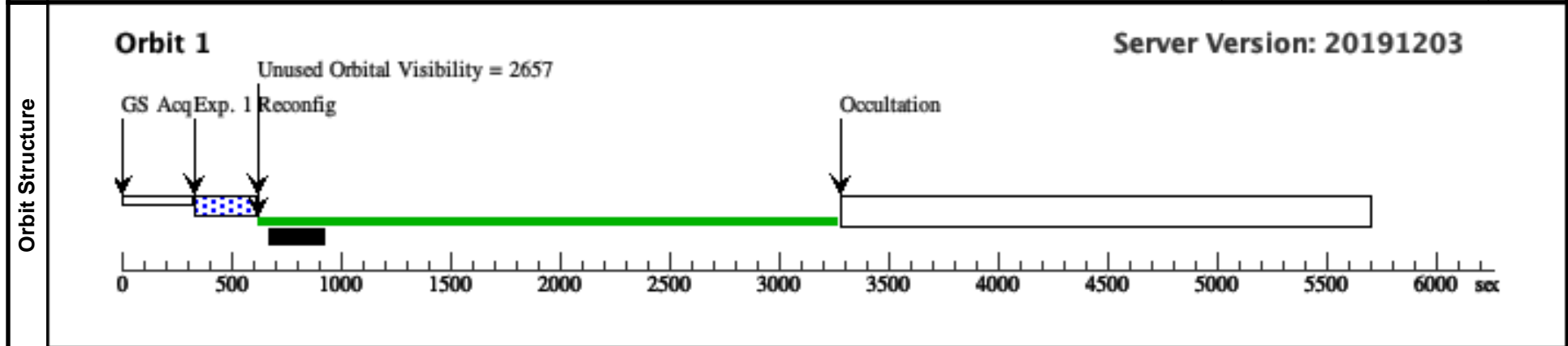
Proposal 15733 - Visit 11 F160W (11) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 11 F160W (11), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; ORIENT 315D TO 315 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 10,11,12 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3			252.937441 Secs (252.937 Secs) [==>]



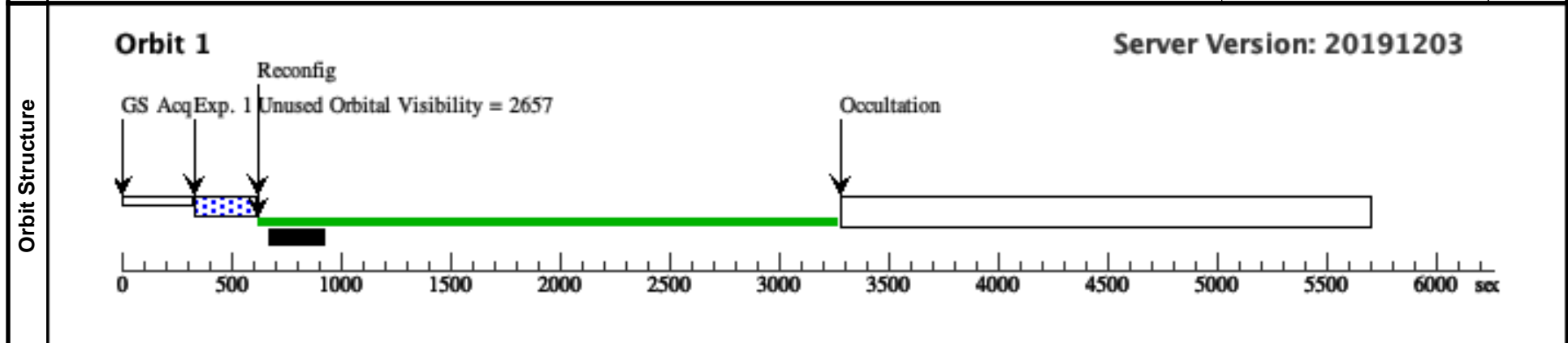
Proposal 15733 - Visit 12 F160W (12) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 12 F160W (12), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; ORIENT 305D TO 306 D; BETWEEN 01-MAR-2020:00:00:00 AND 01-APR-2020:00:00:00; SEQ 10,11,12 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]





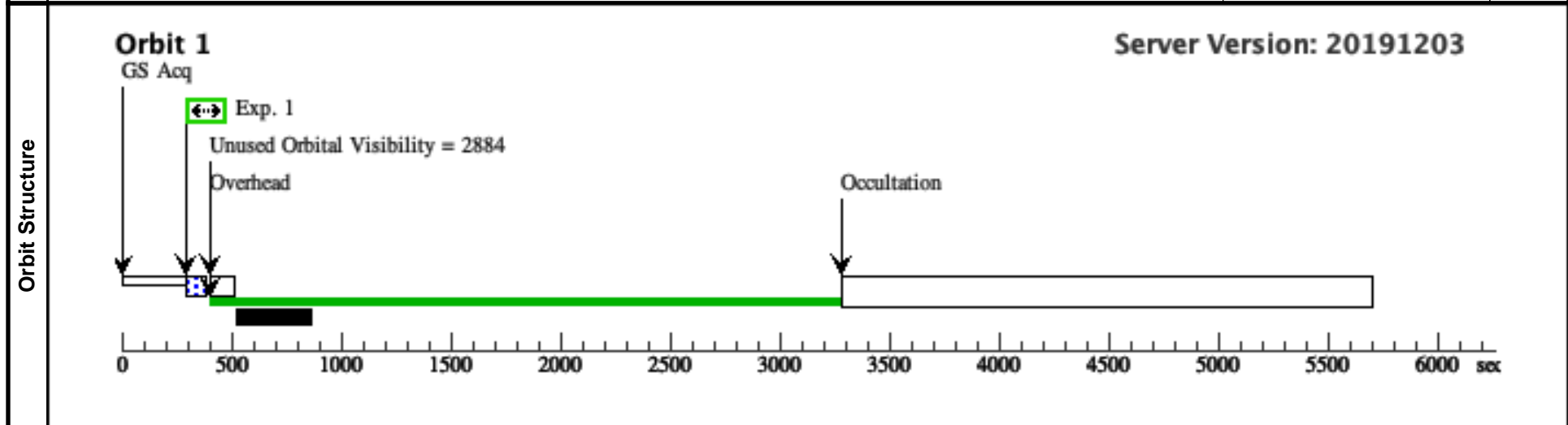
Proposal 15733 - Visit 13 F606W (13) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 13 F606W (13), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 110D TO 110 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-SEP-2020:00:00:00; SEQ 13,14,15 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
	Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals					
	Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]					

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12			60.0 Secs (60 Secs) [==>]	[1]



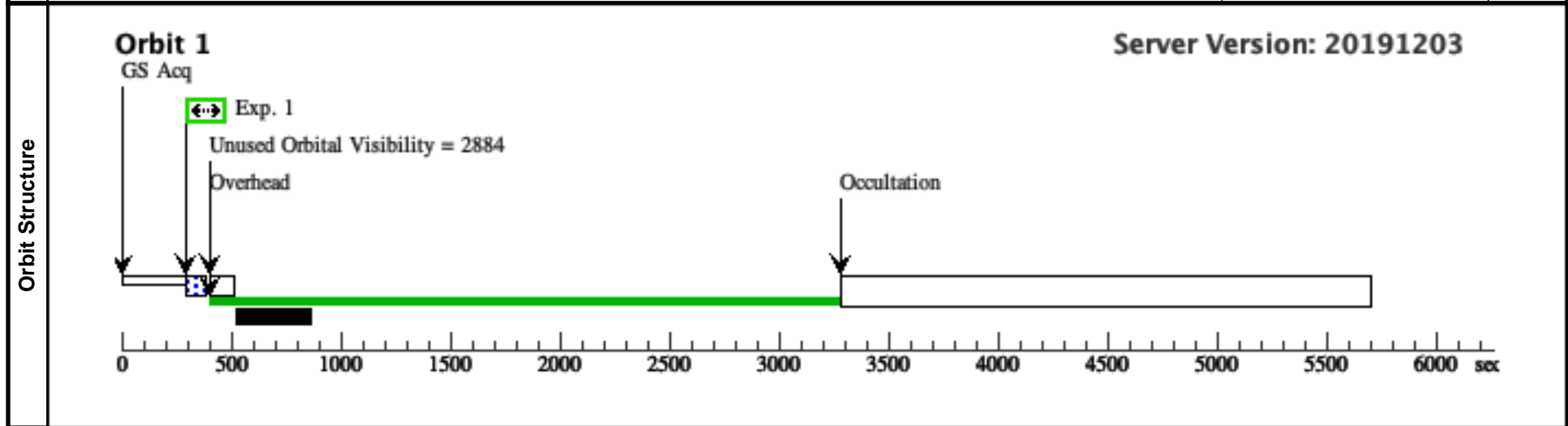
Proposal 15733 - Visit 14 F606W (14) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 14 F606W (14), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 95D TO 95 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-SEP-2020:00:00:00; SEQ 13,14,15 WITHIN 1 D				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12			60.0 Secs (60 Secs) [==>]	[1]



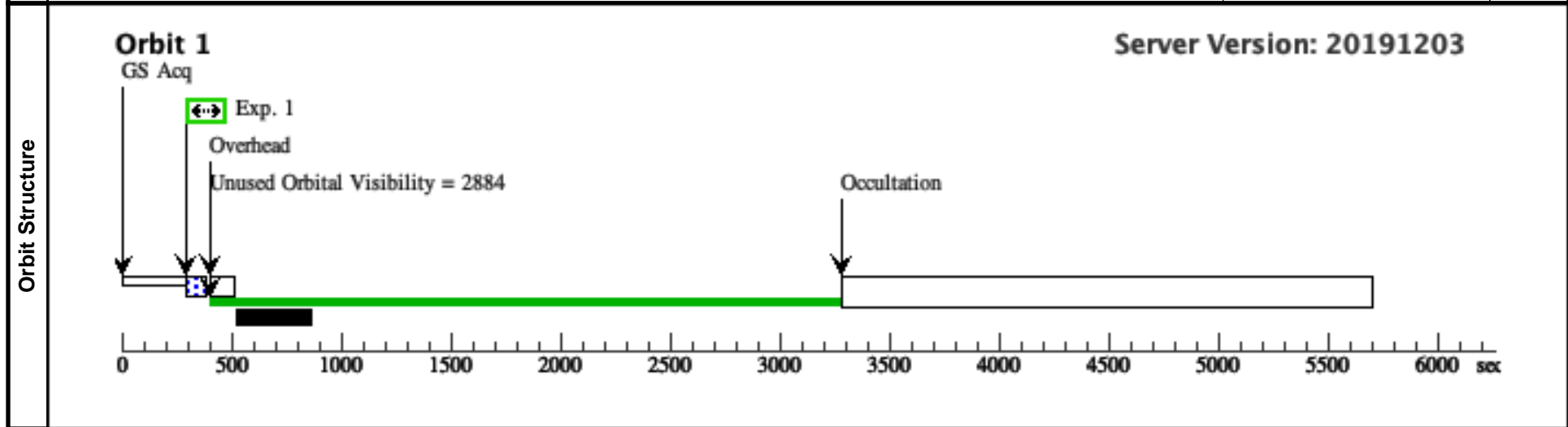
Proposal 15733 - Visit 15 F606W (15) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 15 F606W (15), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/UVIS				
	Special Requirements: ORIENT 90D TO 90 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-SEP-2020:00:00:00; SEQ 13,14,15 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) OMEGACEN	WFC3/UVIS, ACCUM, UVIS	F606W	FLASH=12				60.0 Secs (60 Secs) [==>]



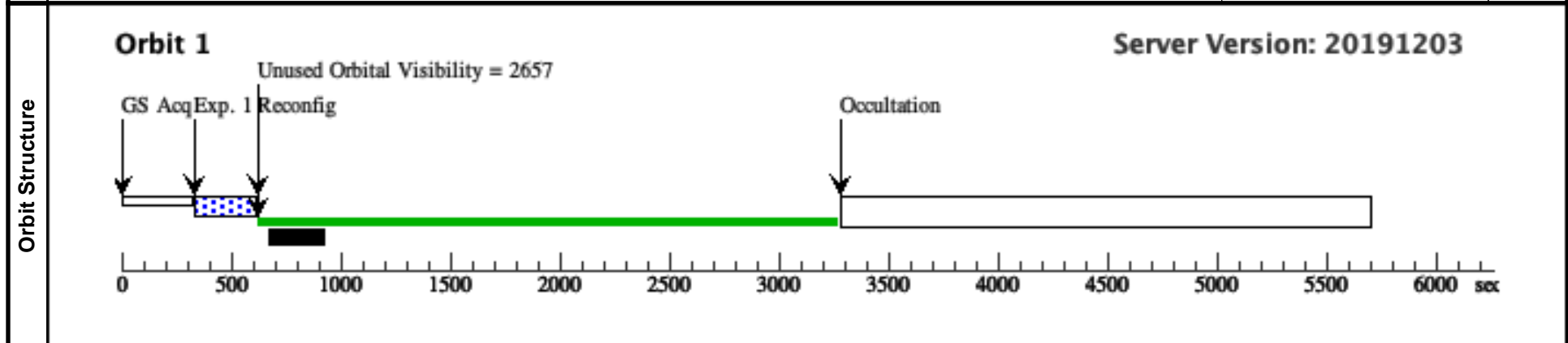
Proposal 15733 - Visit 16 F160W (16) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 16 F160W (16), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; ORIENT 105D TO 105 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-AUG-2020:00:00:00; SEQ 16,17,18 WITHIN 1 Orbits				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]



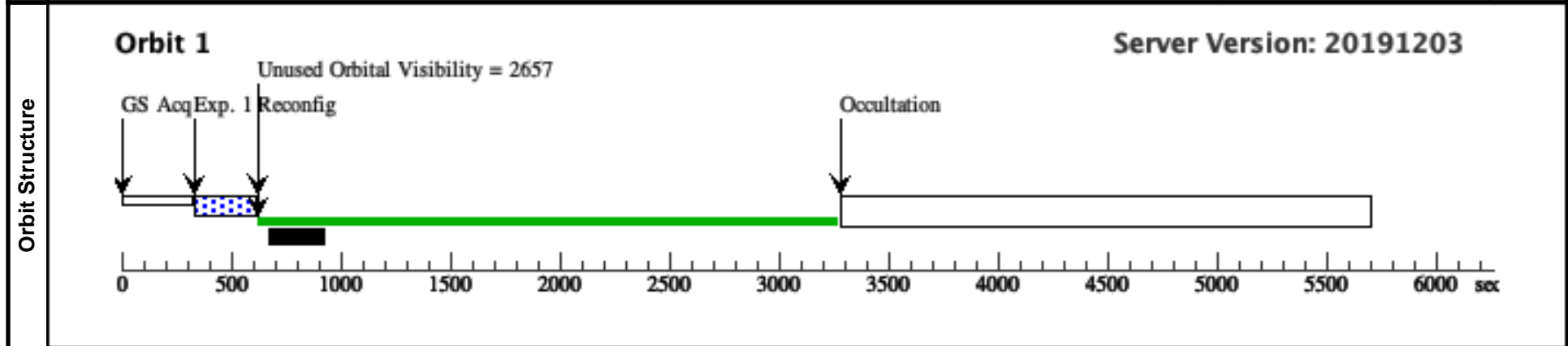
Proposal 15733 - Visit 17 F160W (17) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:45 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 17 F160W (17), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; ORIENT 90D TO 90 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-AUG-2020:00:00:00				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
	Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals					
	Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]					

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]



Proposal 15733 - Visit 18 F160W (18) - WFC3 Astrometric Scale Monitoring

Thu Jan 23 22:00:46 GMT 2020

<b>Visit</b>	Proposal 15733, Visit 18 F160W (18), implementation				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: WFC3/IR				
	Special Requirements: PCS MODE FINE; CVZ: ORIENT 95D TO 95 D; BETWEEN 01-JUN-2020:00:00:00 AND 01-AUG-2020:00:00:00; SEQ 16,17,18 WITHIN 1 D				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	OMEGACEN	RA: 13 26 46.2800 (201.6928333d) Dec: -47 28 44.60 (-47.47906d) Equinox: J2000		V=16.8+/-0.1	Reference Frame: ICRS
<i>Comments: This is the same target (and coordinates) as used in CAL/WFC3 11911, UVIS L-Flats and Geometric Distortion and in other multi-cycles calibration proposals</i> Category=CALIBRATION Description=[ASTROMETRIC, SPATIAL DISTORTION TEST]						

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) OMEGACEN	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 25; NSAMP=11	EXP PCS MODE FI NE; GS ACQ SCENARI O BASE1B3		252.937441 Secs (252.937 Secs) [==>]	[1]

