15875 - Securing the Absolute Scale for the IR-TRGB Distance Ladder

Cycle: 27, Proposal Category: GO

(Pure Parallel)

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	ANY	WFC3/IR	1	31-Dec-2020 13:00:29.0	yes
02	ANY	WFC3/IR	1	31-Dec-2020 13:00:29.0	yes
03	ANY	WFC3/IR	1	31-Dec-2020 13:00:30.0	yes
04	ANY	WFC3/IR	1	31-Dec-2020 13:00:30.0	yes
05	ANY	WFC3/IR	1	31-Dec-2020 13:00:31.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	ANY	WFC3/IR	1	31-Dec-2020 13:00:31.0	yes
07	ANY	WFC3/IR	1	31-Dec-2020 13:00:32.0	yes
08	ANY	WFC3/IR	1	31-Dec-2020 13:00:33.0	yes
15	ANY	WFC3/IR	1	31-Dec-2020 13:00:33.0	yes
16	ANY	WFC3/IR	1	31-Dec-2020 13:00:34.0	yes
10	ANY	WFC3/IR	1	31-Dec-2020 13:00:34.0	yes
11	ANY	WFC3/IR	1	31-Dec-2020 13:00:35.0	yes
12	ANY	WFC3/IR	1	31-Dec-2020 13:00:35.0	yes
13	ANY	WFC3/IR	1	31-Dec-2020 13:00:35.0	yes
14	ANY	WFC3/IR	1	31-Dec-2020 13:00:36.0	yes
17	ANY	WFC3/IR	1	31-Dec-2020 13:00:37.0	yes
18	ANY	WFC3/IR	1	31-Dec-2020 13:00:37.0	yes
19	ANY	WFC3/IR	1	31-Dec-2020 13:00:37.0	yes
20	ANY	WFC3/IR	1	31-Dec-2020 13:00:38.0	yes
21	ANY	WFC3/IR	1	31-Dec-2020 13:00:38.0	yes
22	ANY	WFC3/IR	1	31-Dec-2020 13:00:39.0	yes
23	ANY	WFC3/IR	1	31-Dec-2020 13:00:39.0	yes
24	ANY	WFC3/IR	1	31-Dec-2020 13:00:40.0	yes
26	ANY	WFC3/IR	1	31-Dec-2020 13:00:40.0	yes
28	ANY	WFC3/IR	1	31-Dec-2020 13:00:41.0	yes
29	ANY	WFC3/IR	1	31-Dec-2020 13:00:41.0	yes

26 Total Orbits Used

ABSTRACT

The tension in the value of the Hubble constant as derived from the distance scale in the local universe and modeled from the anisotropies in the Cosmic Microwave Background continues to grow. While theoretical reasons for the tension are being explored, determining if systematics within

rungs of the distance scale is the cause of the tension requires the use of independent techniques. Of late the tip of the red giant branch (TRGB) has provided a key test of the calibration of type supernova Ia by Cepheids and has not yet revealed a systematic effect at this stage. Another concern is both expanding the Supernova Ia calibration sample, itself, and expanding the sample beyond star-forming hosts due to variance in the supernova with host properties. The TRGB applied in the infrared is poised to be a powerful tool to probe ever larger volumes and reach a wider set of supernova Ia hosts. However, anchoring the IR-TRGB is challenging because the two primary systems, the Milky Way and the Large Magellanic Cloud, only have observations in the 2MASS filter system. Comparison of IR-TRGB calibrations from the ground suggests that there are strong differences between the WFC3/IR and 2MASS filter system that are hard to reconcile at distance-ladder required precision. Here pure parallel orbits in Large and Small Magellanic Cloud are proposed to produce a robust filter-calibration to secure the foundation for the IR-TRGB distance scale. The proposal uses a combination of IR imaging and spectroscopy to enable a broader set of calibrations for other facilities where the IR-TRGB can be applied.

OBSERVING DESCRIPTION

This proposal observes with WFC3/IR in pure parallel mode. It will attempt to obtain 3-band photometry using the shortest exposures possible and 2-grisms for a set of fields in the LMC and SMC. The observations will have multiple reads to help with random errors and multi-visit fields will be used to constrain systematic errors. The specifications of MULTIACCUM are set to keep the targets from saturating and, if possible, minimize the systematics due to persistence and non-linearity.

Visit

Proposal 15875, Orbit1 (01), completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

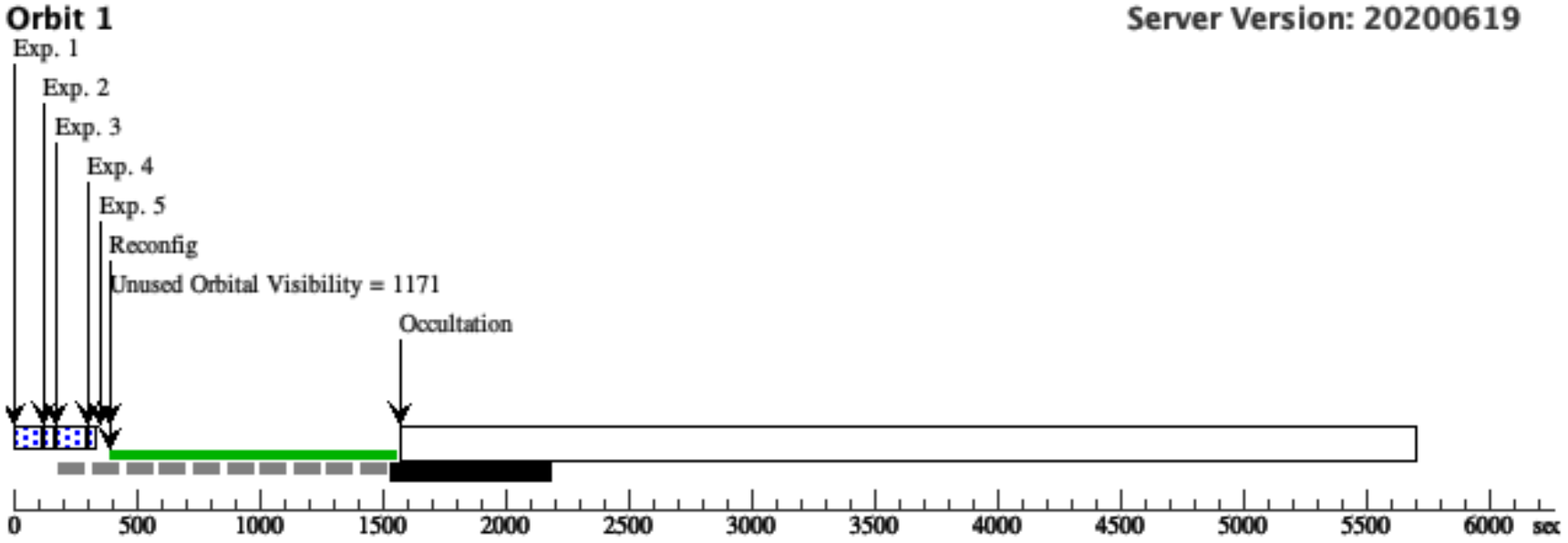
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (02), completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

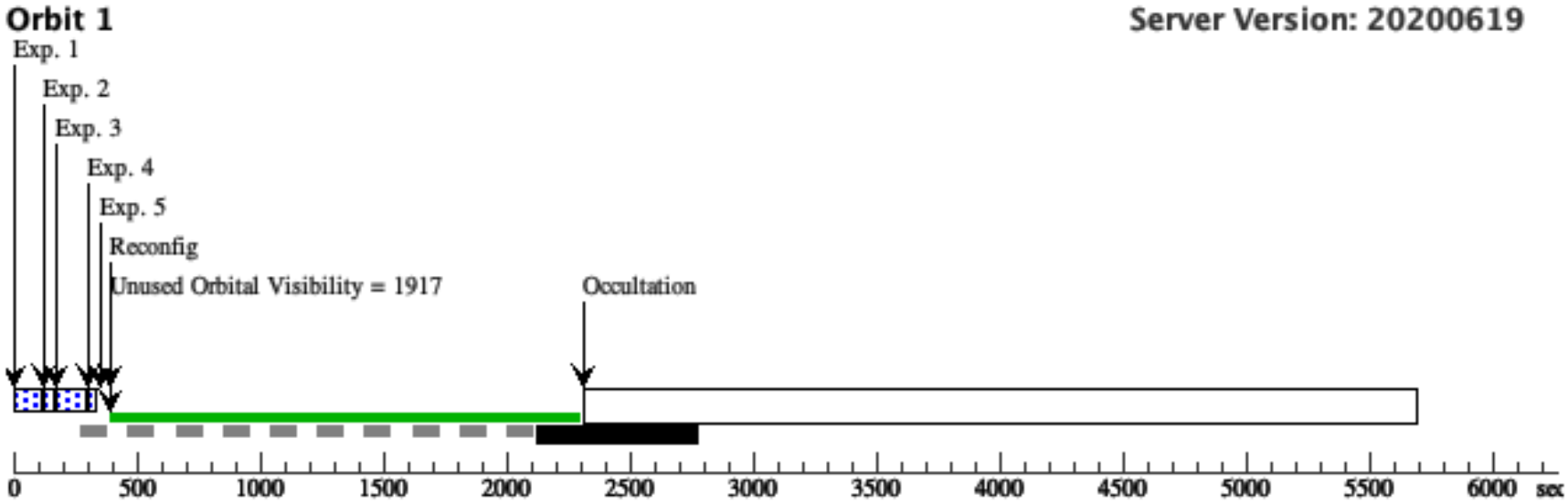
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (03), completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

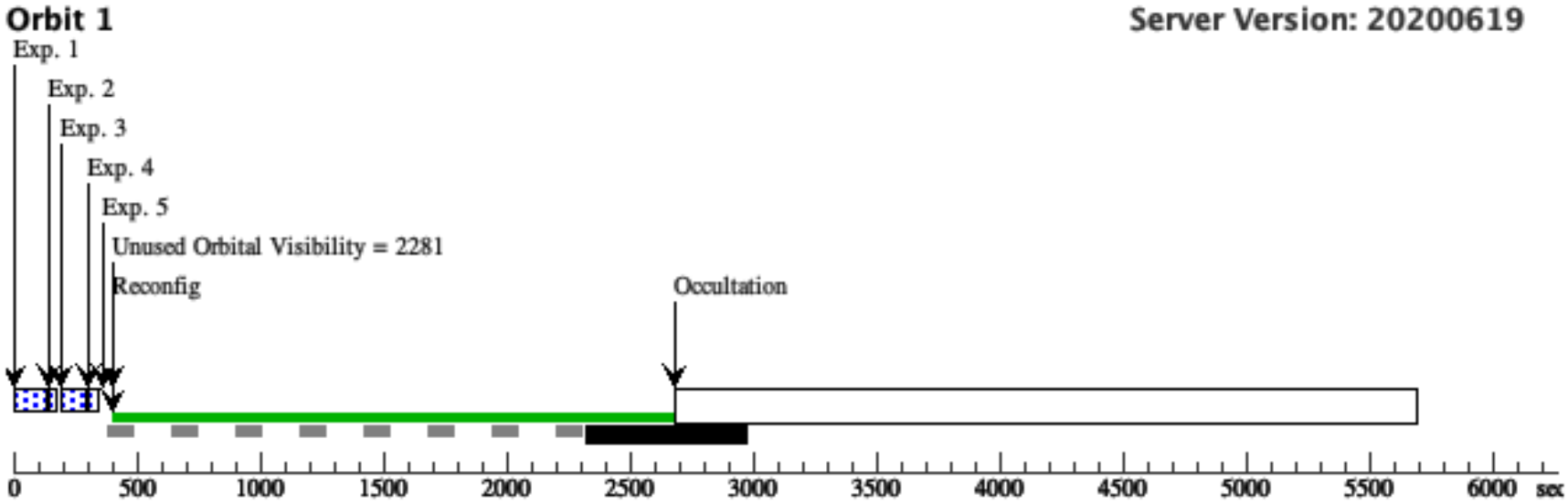
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (04), completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

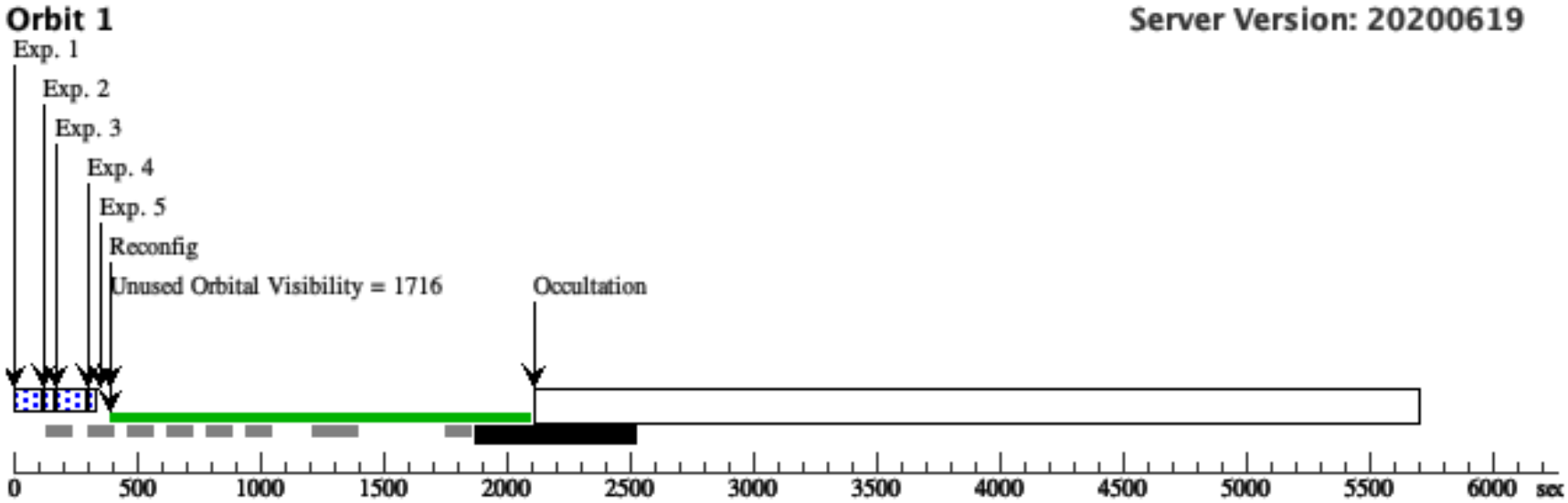
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (05), completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

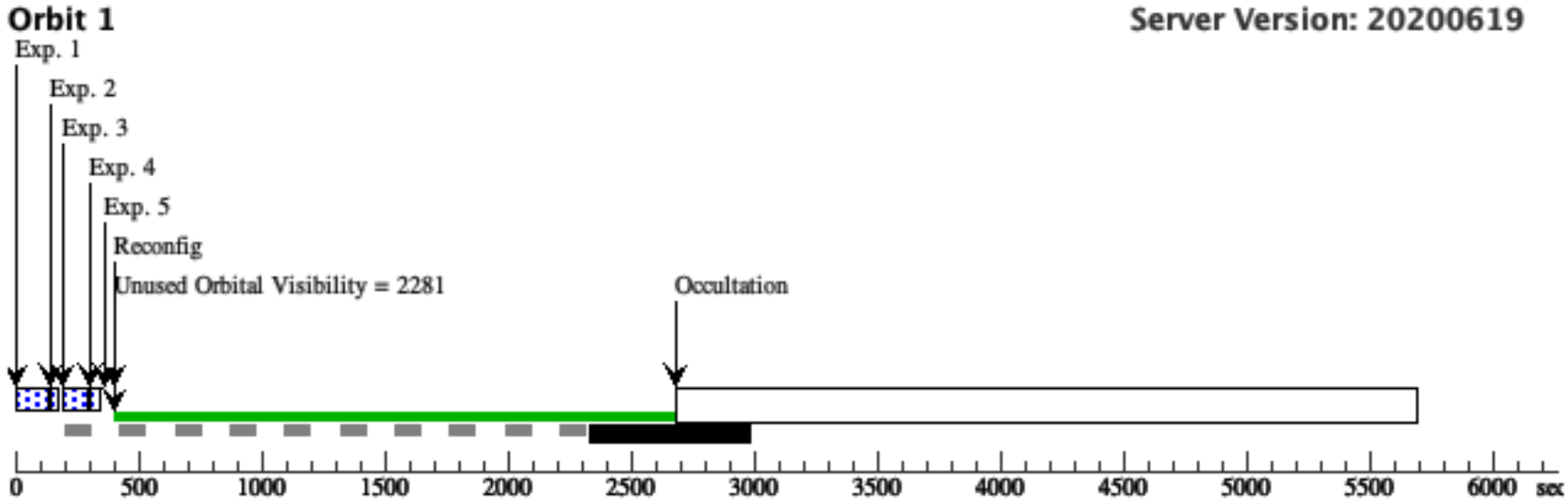
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 06, completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

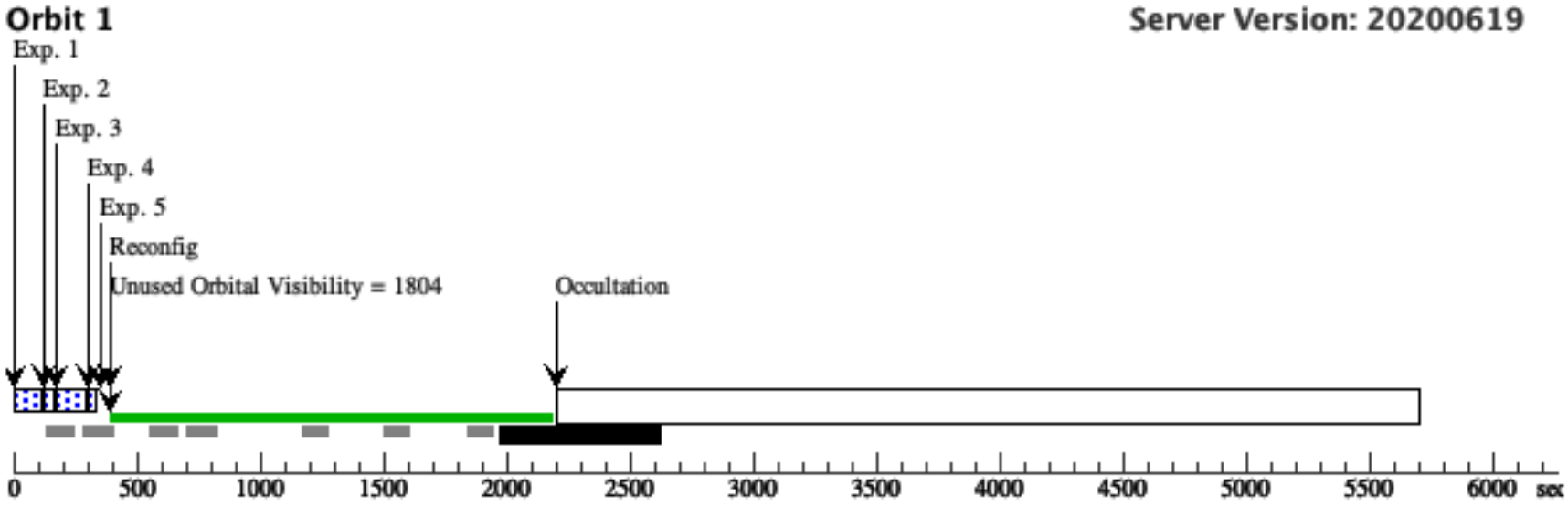
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 07, completed

Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

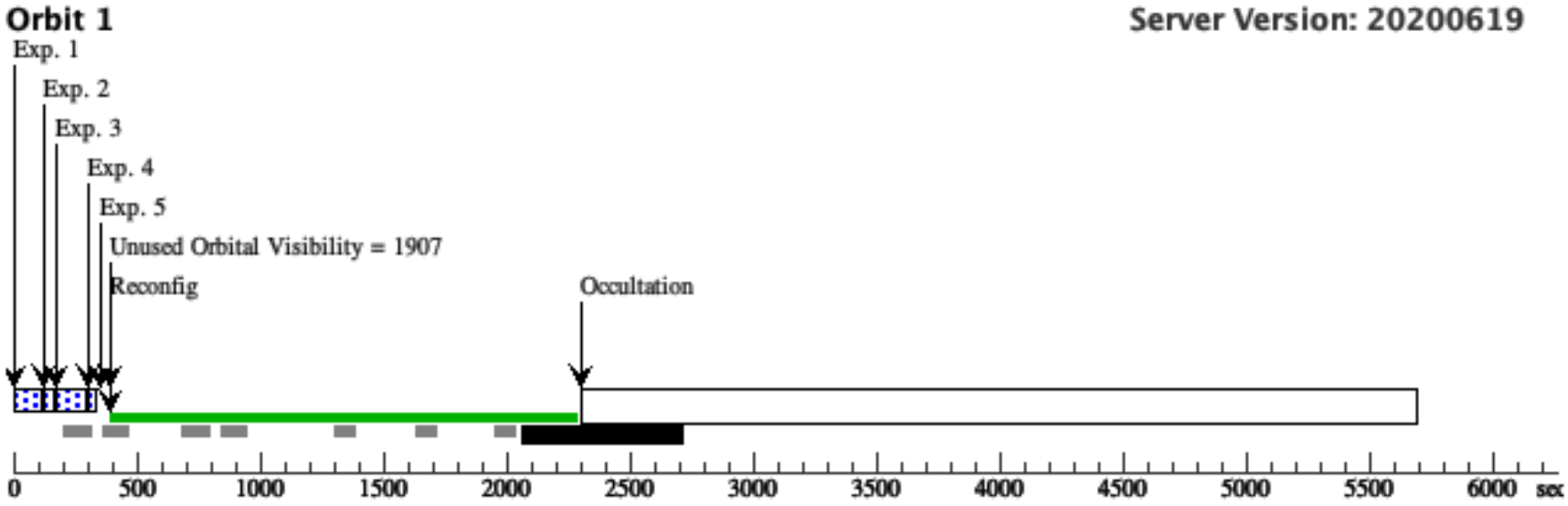
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 08, completed Thu Dec 31 18:00:42 GMT 2020

Diagnostic Status: No Diagnostics

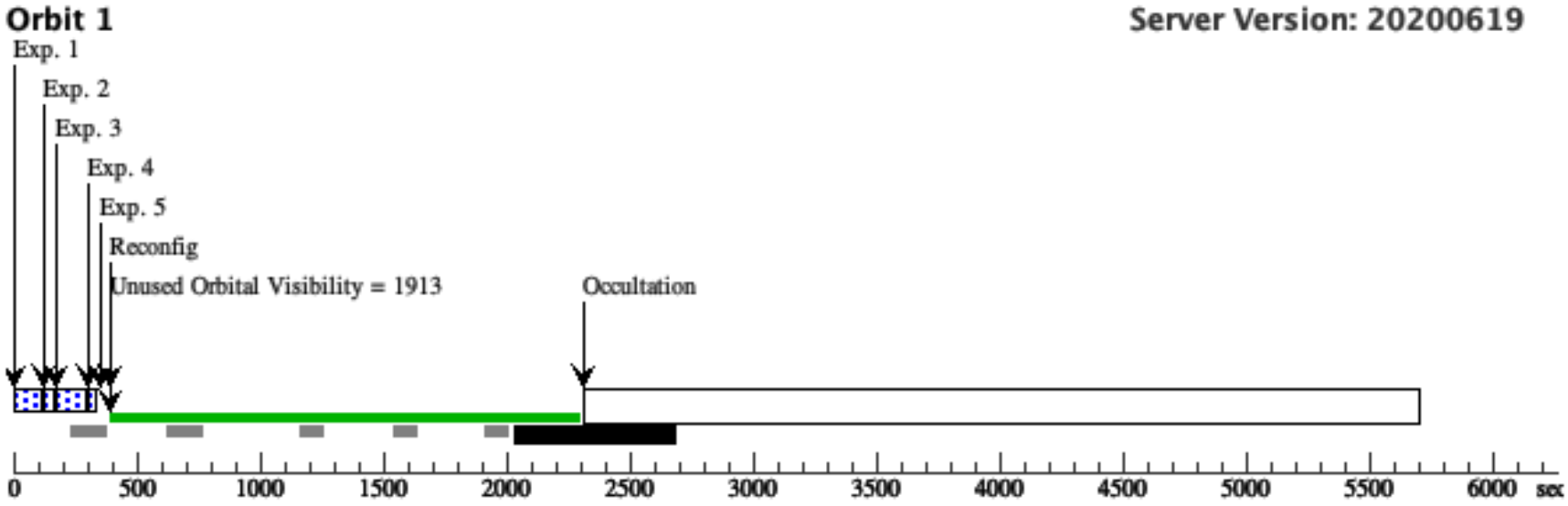
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (15), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

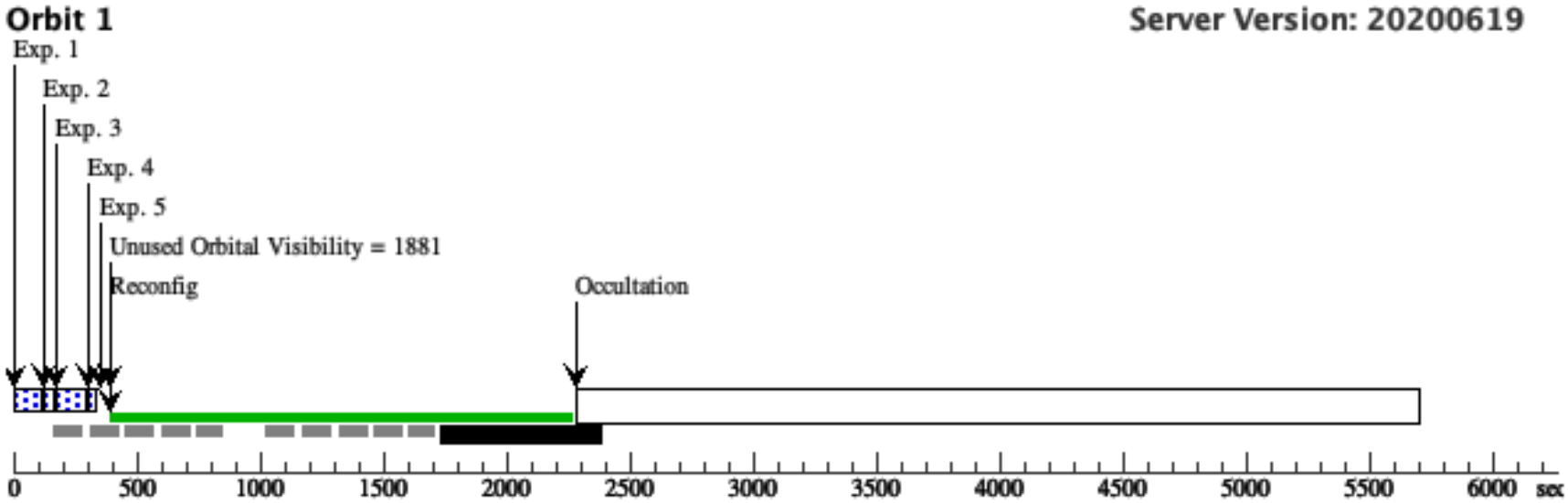
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (16), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

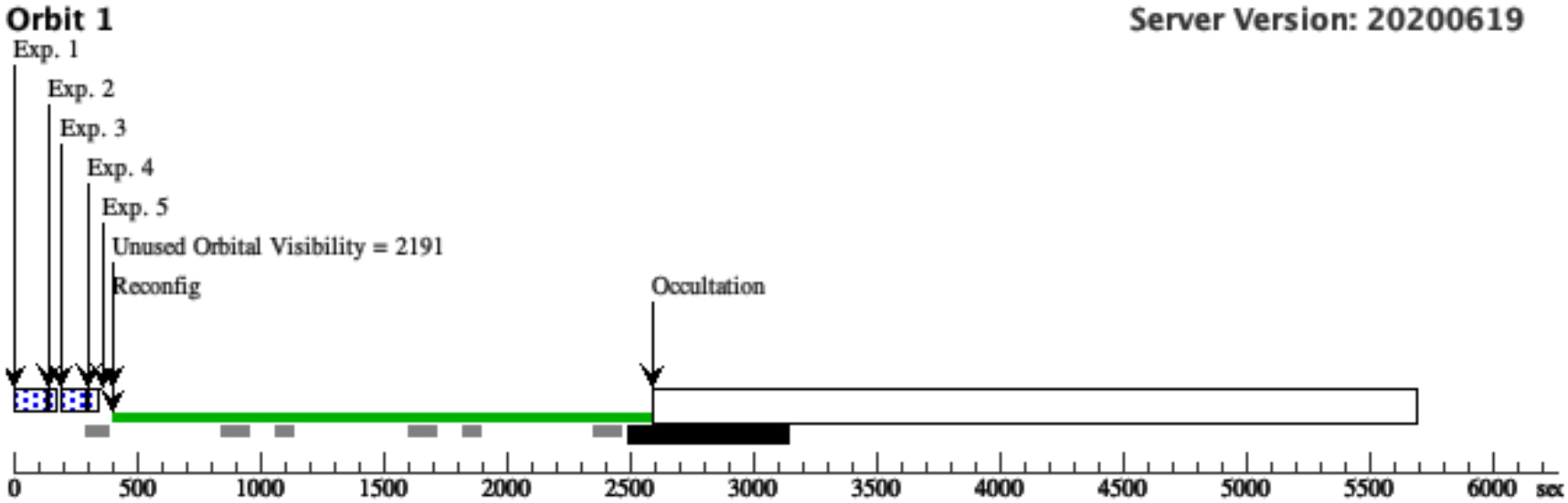
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 10, completed

Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

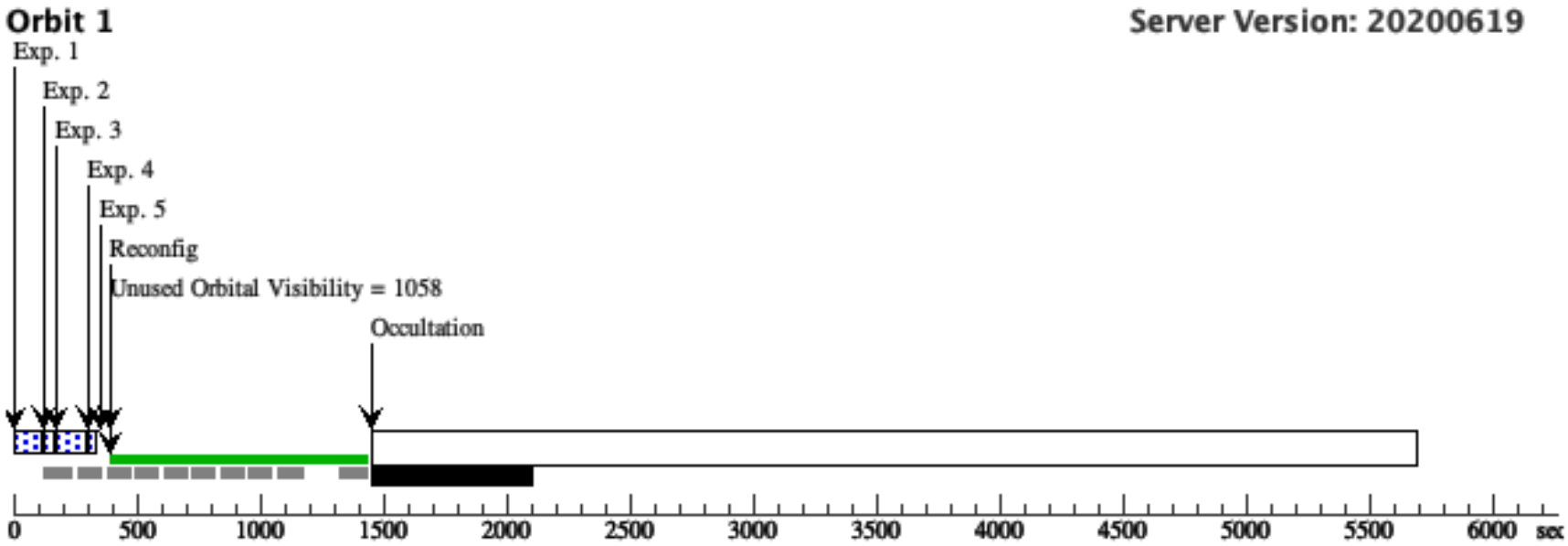
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 11, completed

Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

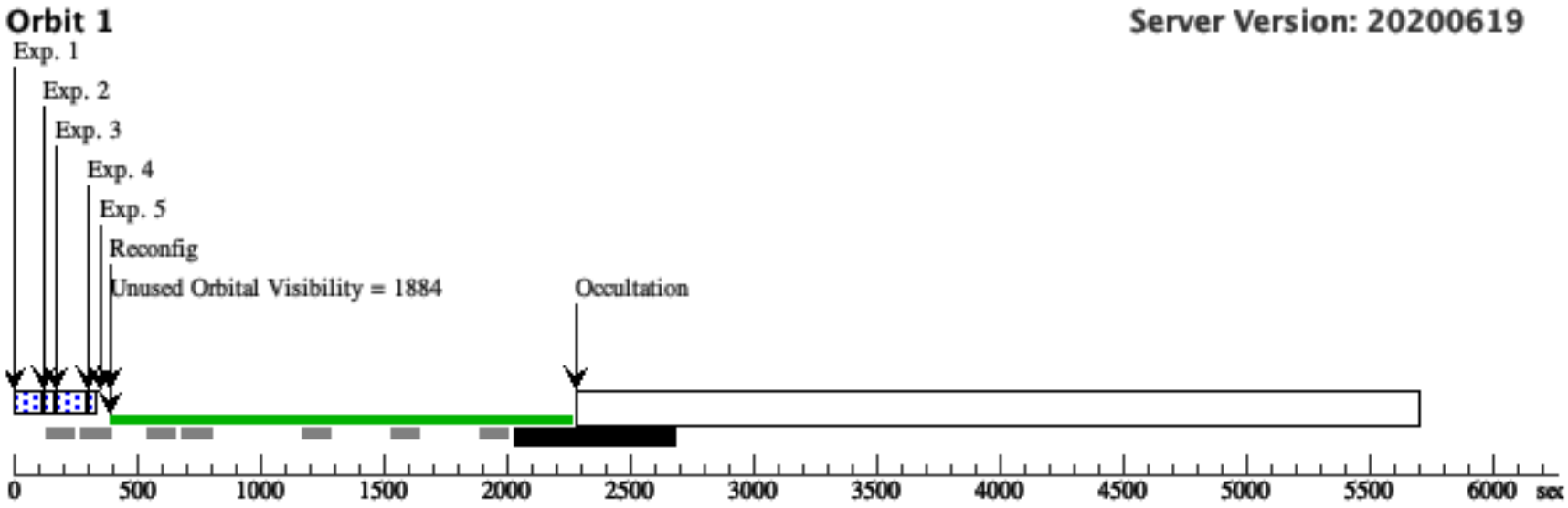
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 12, completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

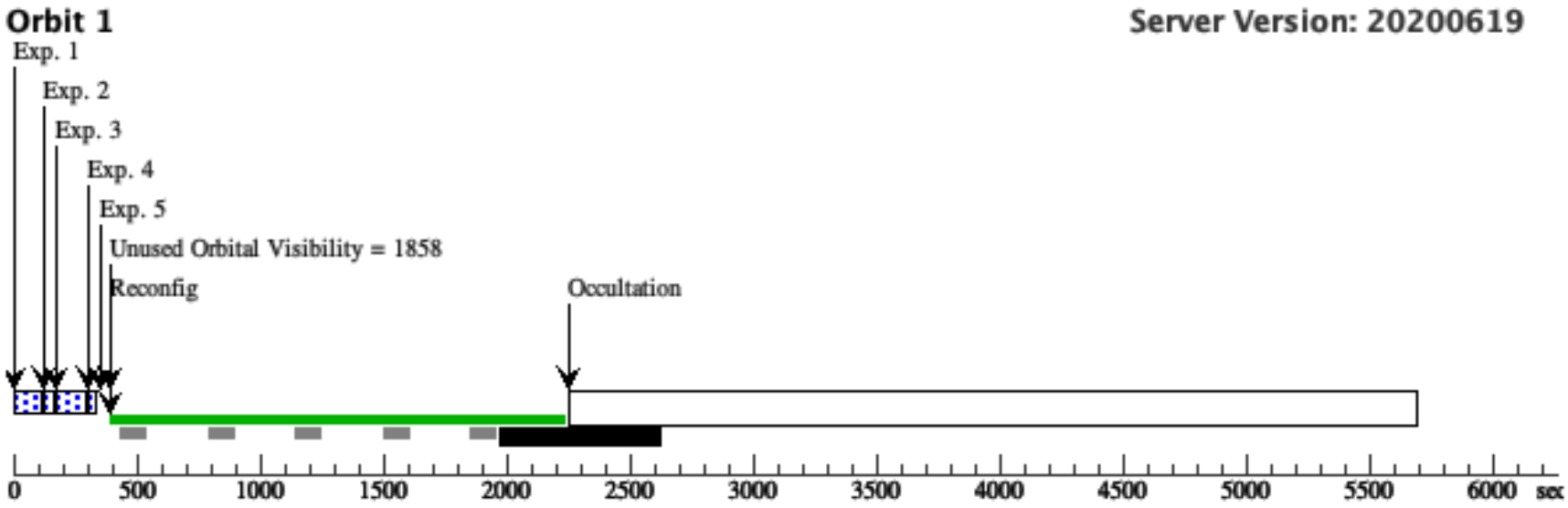
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 13, completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

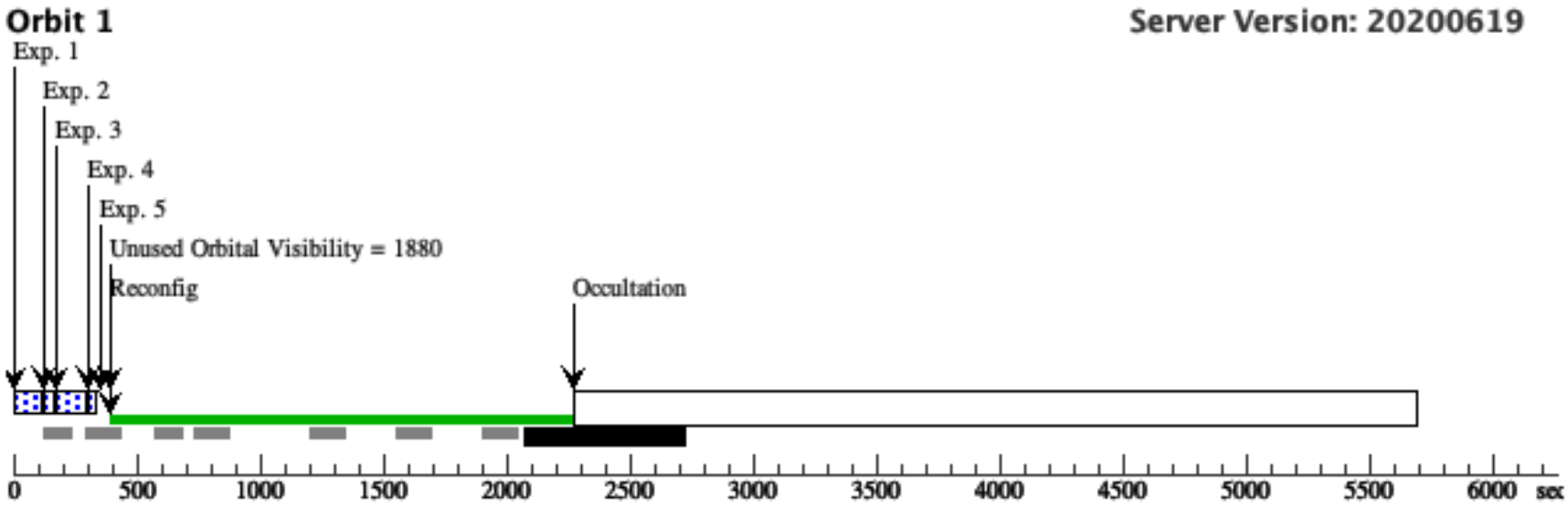
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 14, completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

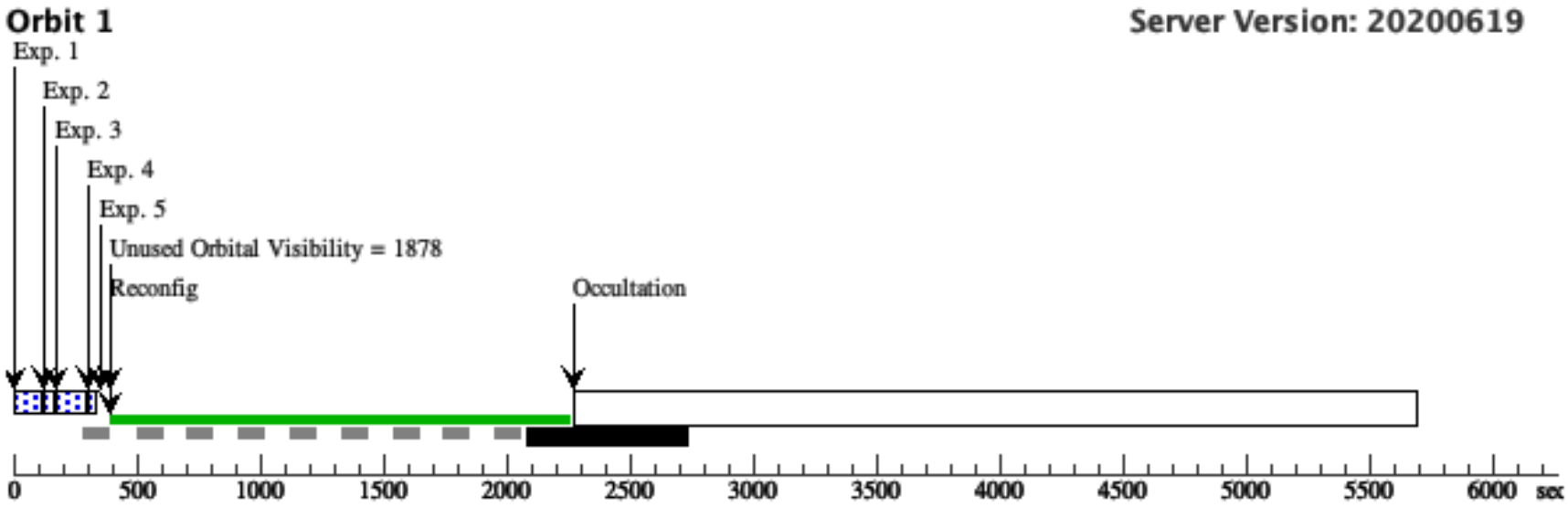
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 17, completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

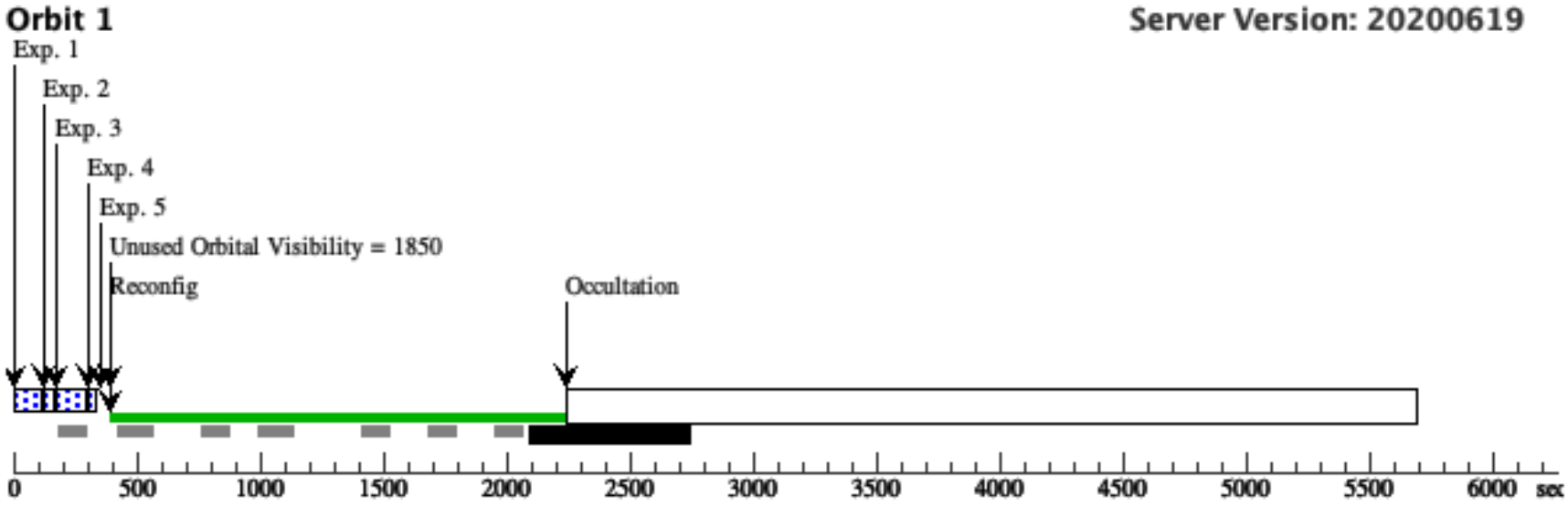
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (18), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

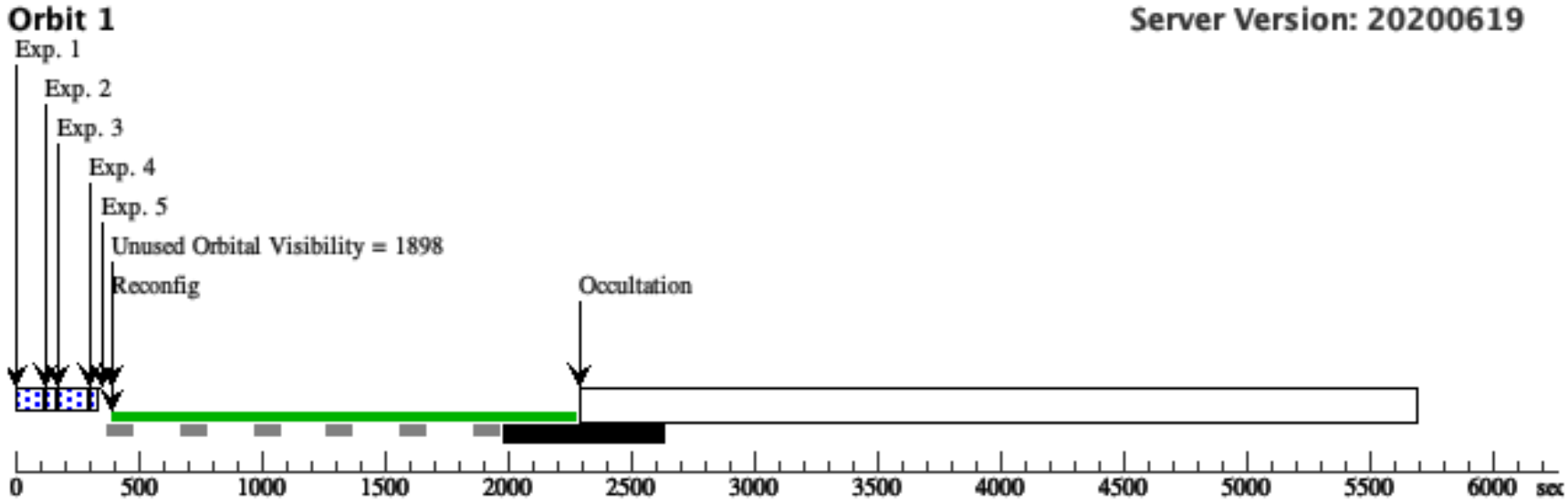
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (19), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

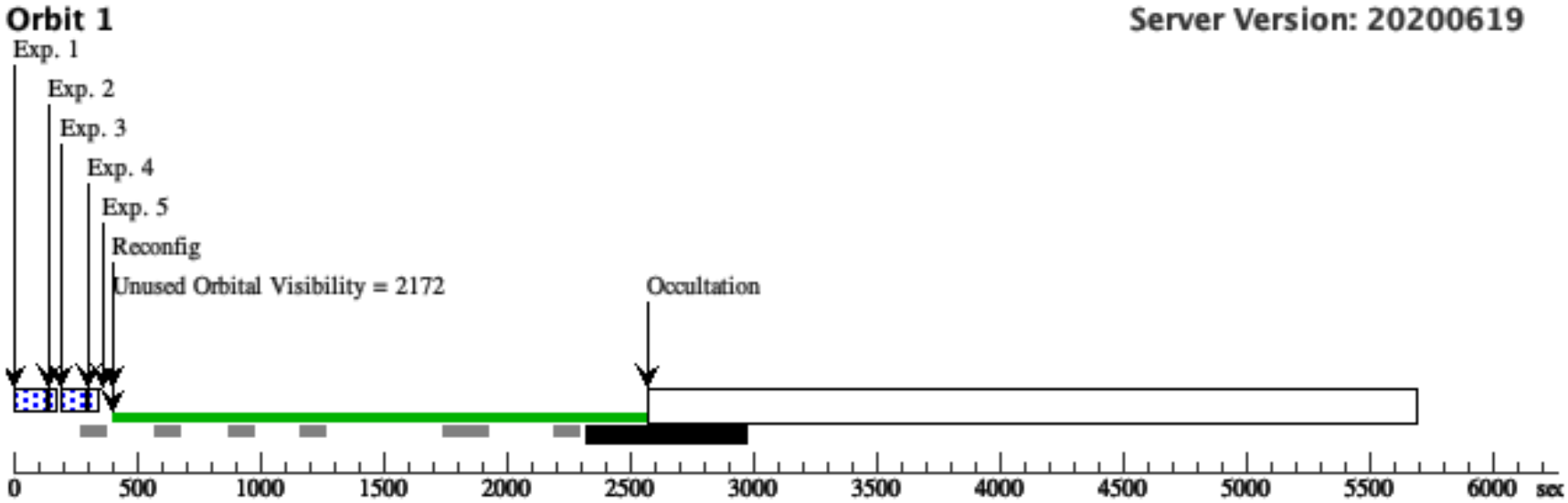
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 20, completed

Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

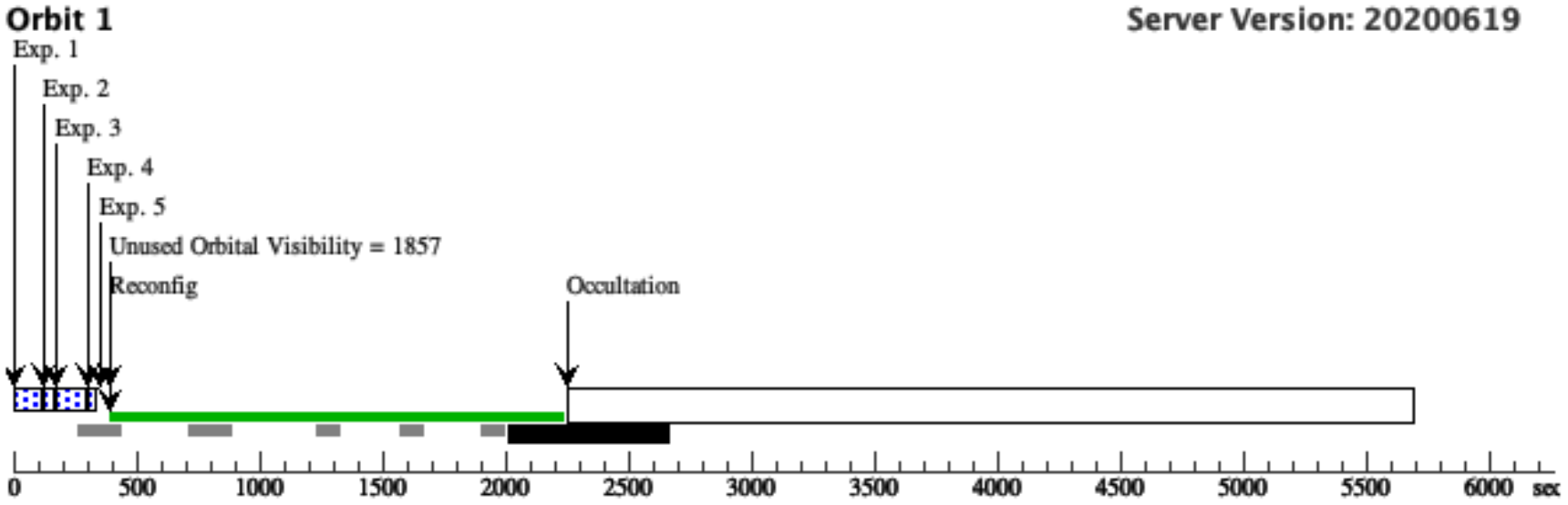
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (21), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

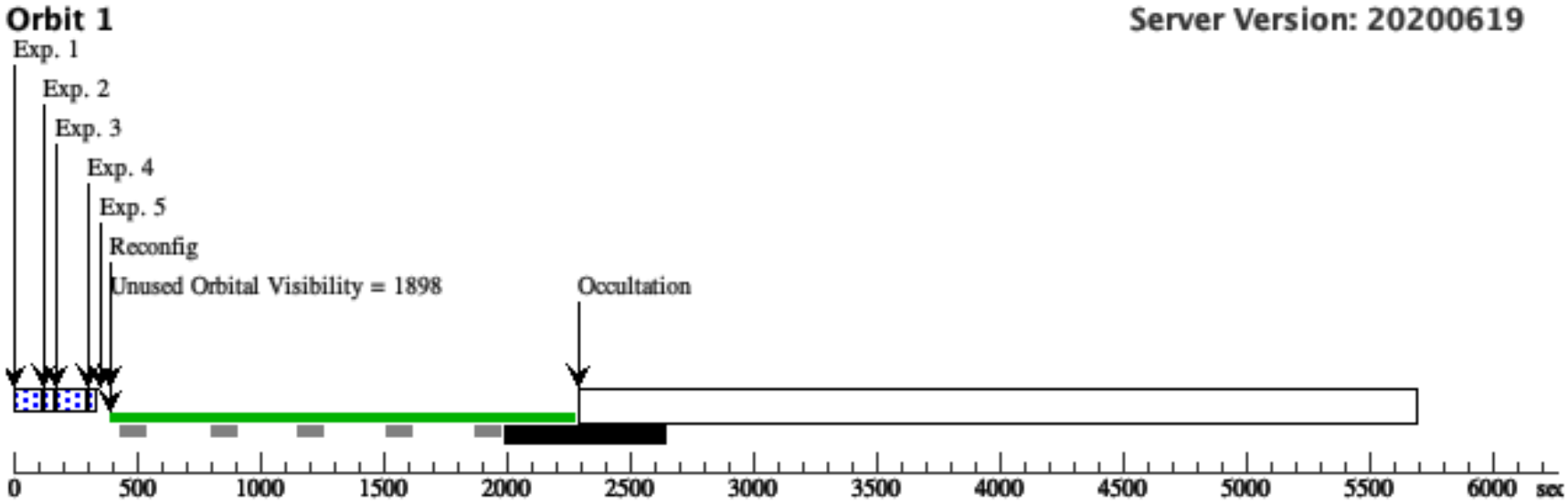
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (22), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

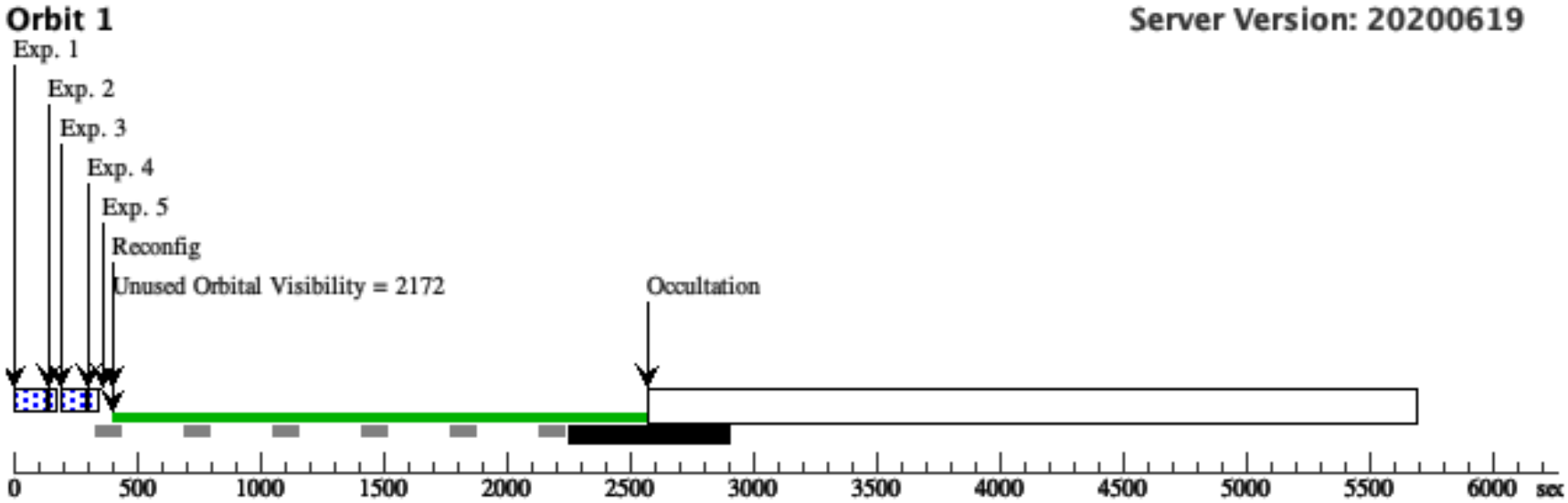
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (23), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

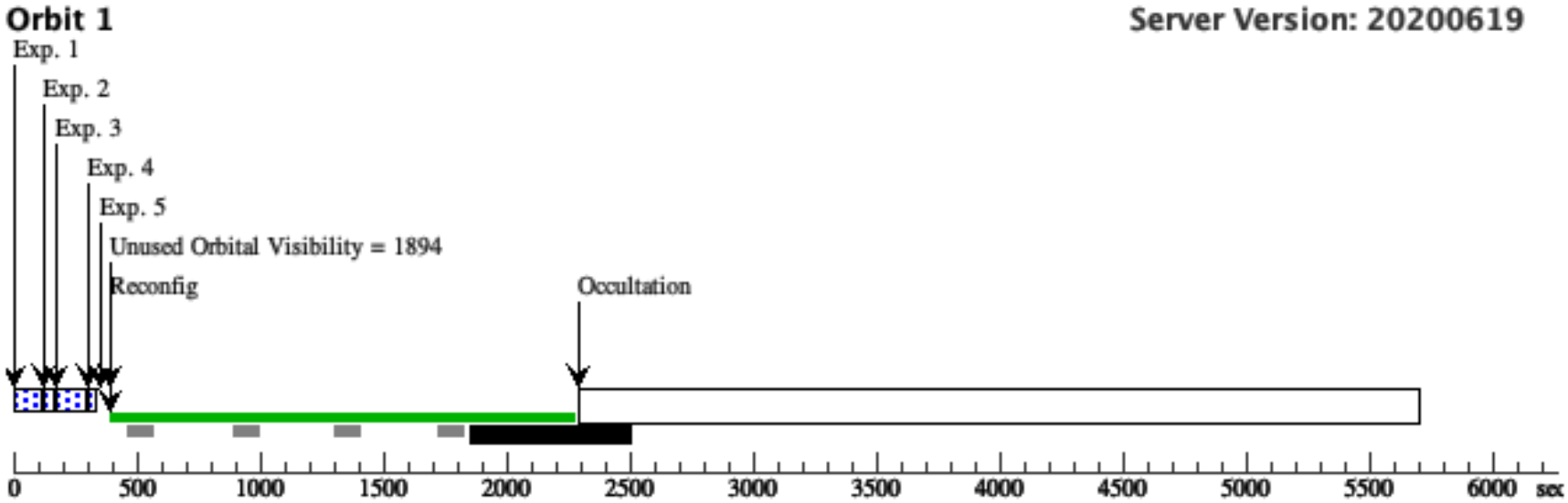
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (24), completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

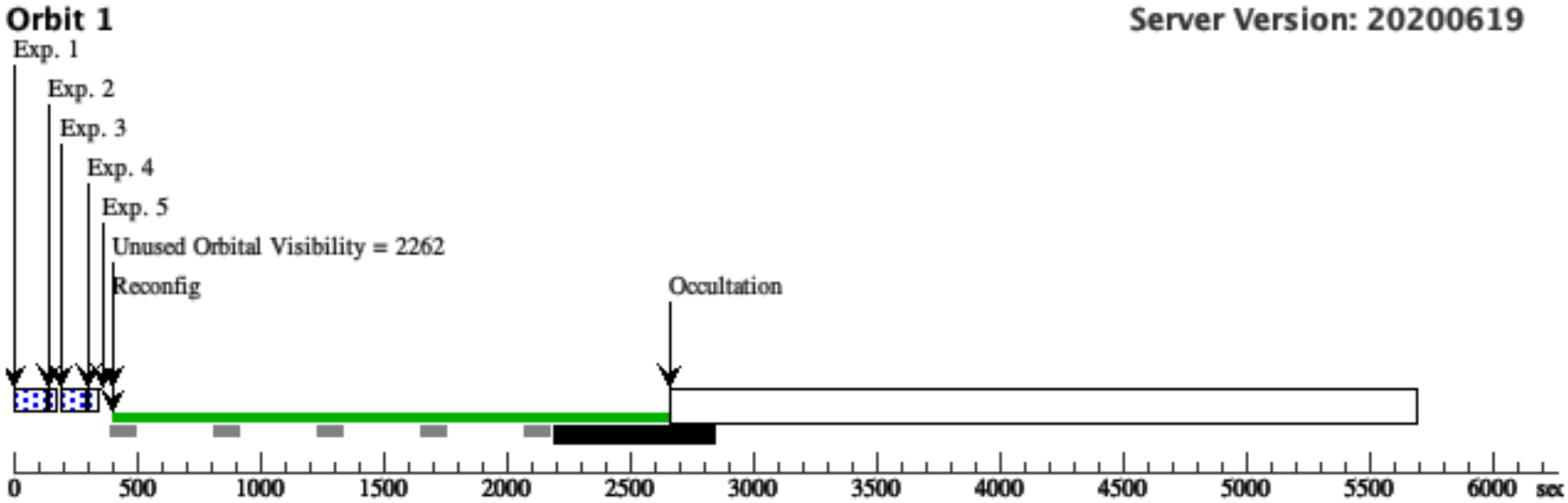
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Visit 26, completed Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

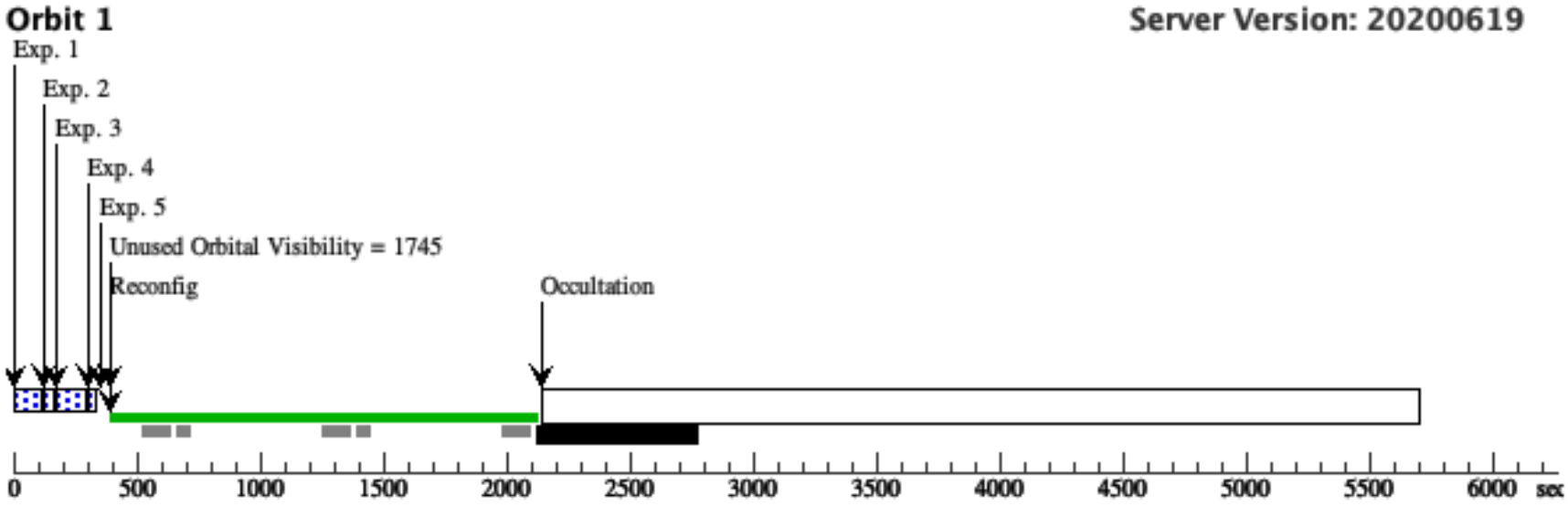
Scientific Instruments: WFC3/IR

Special Requirements: (none)

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit1 (28) Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

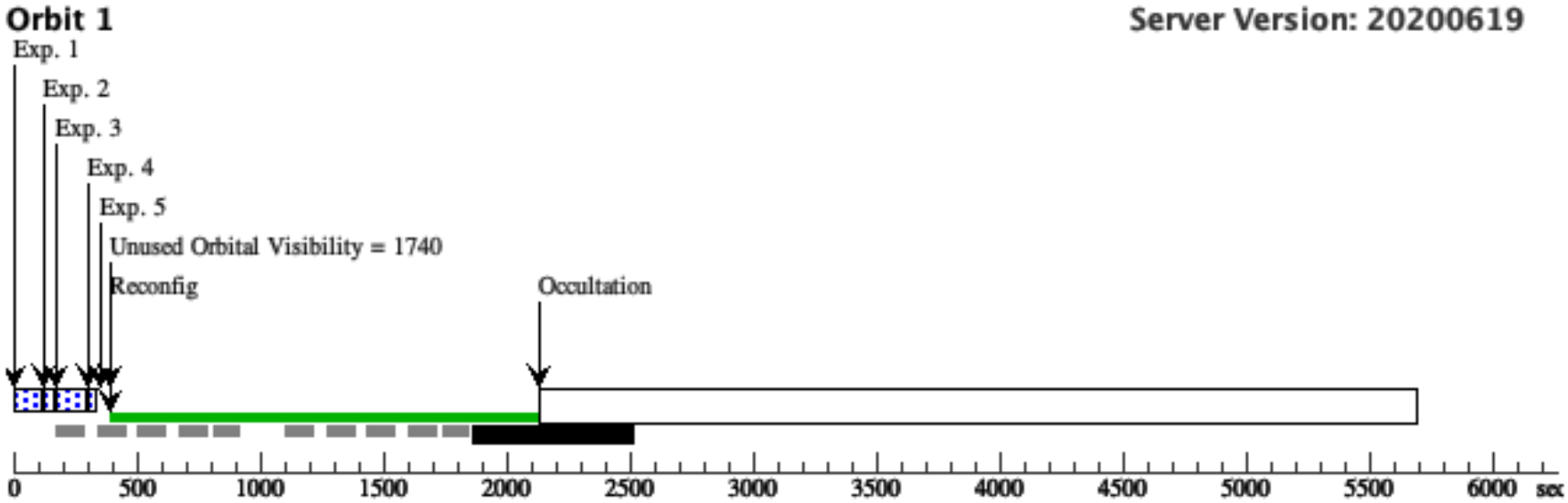
Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
2	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
4	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure



Visit

Proposal 15875, Orbit2 (29) Thu Dec 31 18:00:43 GMT 2020

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: This orbit is broken into 5 exposures that sum up to 30 full frame reads. This means that the buffer can hold the data until the end and dump onces the primary is complete. The F110W (wJ_img) is the most likely to be saturated and thus it comes last. The timing of the H and J img+grism is flipped in the 2nd visit to test for sub-orbit systematics.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	H_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=5; SAMP-SEQ=SPARS25			102.934351 Secs (102.934 Secs)	
								[==>]	***[?]***
2	H_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
3	J_spec	ANY	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=4; SAMP-SEQ=SPARS25			77.933836 Secs (77.934 Secs)	
								[==>]	***[?]***
4	J_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F125W	NSAMP=7; SAMP-SEQ=RAPID			20.526037 Secs (20.526 Secs)	
								[==>]	***[?]***
5	wJ_img	ANY	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=5; SAMP-SEQ=RAPID			14.661455 Secs (14.661 Secs)	
								[==>]	***[?]***

Orbit Structure