



17233 - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Cycle: 30, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Eleonora Troja (PI) (ESA Member) (Contact)	Universita di Roma Tor Vergata
Brendan O'Connor (CoI)	Carnegie Mellon University
Simone Dichiara (CoI)	The Pennsylvania State University
Dr. Stephen Bradley Cenko (CoI)	NASA Goddard Space Flight Center
Geoffrey Ryan (CoI)	University of Maryland
Hendrik J VanEerten (CoI) (ESA Member)	University of Bath
Dr. Ori Dosovitz Fox (CoI)	Space Telescope Science Institute
Dr. Nathaniel Butler (CoI)	Arizona State University
Dr. Roberto Ricci (CoI) (ESA Member)	INAF, Istituto di Fisica Spaziale e Fisica Cosmica-Bologna
Dr. Jamie Kennea (CoI)	The Pennsylvania State University
Dr. William H. Lee (CoI)	Universidad Nacional Autonoma de Mexico (UNAM)
Dr. Alan Watson (CoI)	Universidad Nacional Autonoma de Mexico (UNAM)
Dr. Taka Sakamoto (CoI)	Aoyama Gakuin University
Dr. Amy Lien (CoI)	University of Tampa
Josefa Becerra-Gonzalez (CoI) (ESA Member)	Instituto de Astrofisica de Canarias
Dr. Alexander Kutyrav (CoI)	University of Maryland
Dr. L. Piro (CoI) (ESA Member)	CNR, Istituto di Astrofisica Spaziale
Dr. Gabriele Bruni (CoI) (ESA Member)	Istit. di Astro. Spaziale e Fisica Cosmica-Roma, INAF

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) GWAFTERGLOW1	WFC3/UVIS	1	19-Sep-2023 17:00:22.0	yes
02	(1) GWAFTERGLOW1	WFC3/IR	1	19-Sep-2023 17:00:23.0	yes
03	(1) GWAFTERGLOW1	WFC3/IR	1	19-Sep-2023 17:00:24.0	yes
04	(1) GWAFTERGLOW1	WFC3/UVIS	1	19-Sep-2023 17:00:24.0	yes
05	(1) GWAFTERGLOW1	WFC3/UVIS	2	19-Sep-2023 17:00:25.0	yes
06	(1) GWAFTERGLOW1	WFC3/IR	2	19-Sep-2023 17:00:26.0	yes
07	(2) GWAFTERGLOW2	WFC3/IR	1	19-Sep-2023 17:00:26.0	yes
08	(2) GWAFTERGLOW2	WFC3/UVIS	1	19-Sep-2023 17:00:27.0	yes

10 Total Orbits Used

ABSTRACT

During the next science run (O4), planned to start in late 2022, the GW detectors will operate with an increased sensitivity, leading to routine detections of GW sources and their electromagnetic counterparts. We propose to exploit the unique capabilities of Chandra in conjunction with HST and the VLA to map out the diversity of these sources, probe their surrounding environment, and constrain the structure of their outflows. The next few detections of electromagnetic counterparts will shape our knowledge of GW sources for years to come, and the proposed observations will lead to seminal results in the nascent field of multi-messenger astronomy.

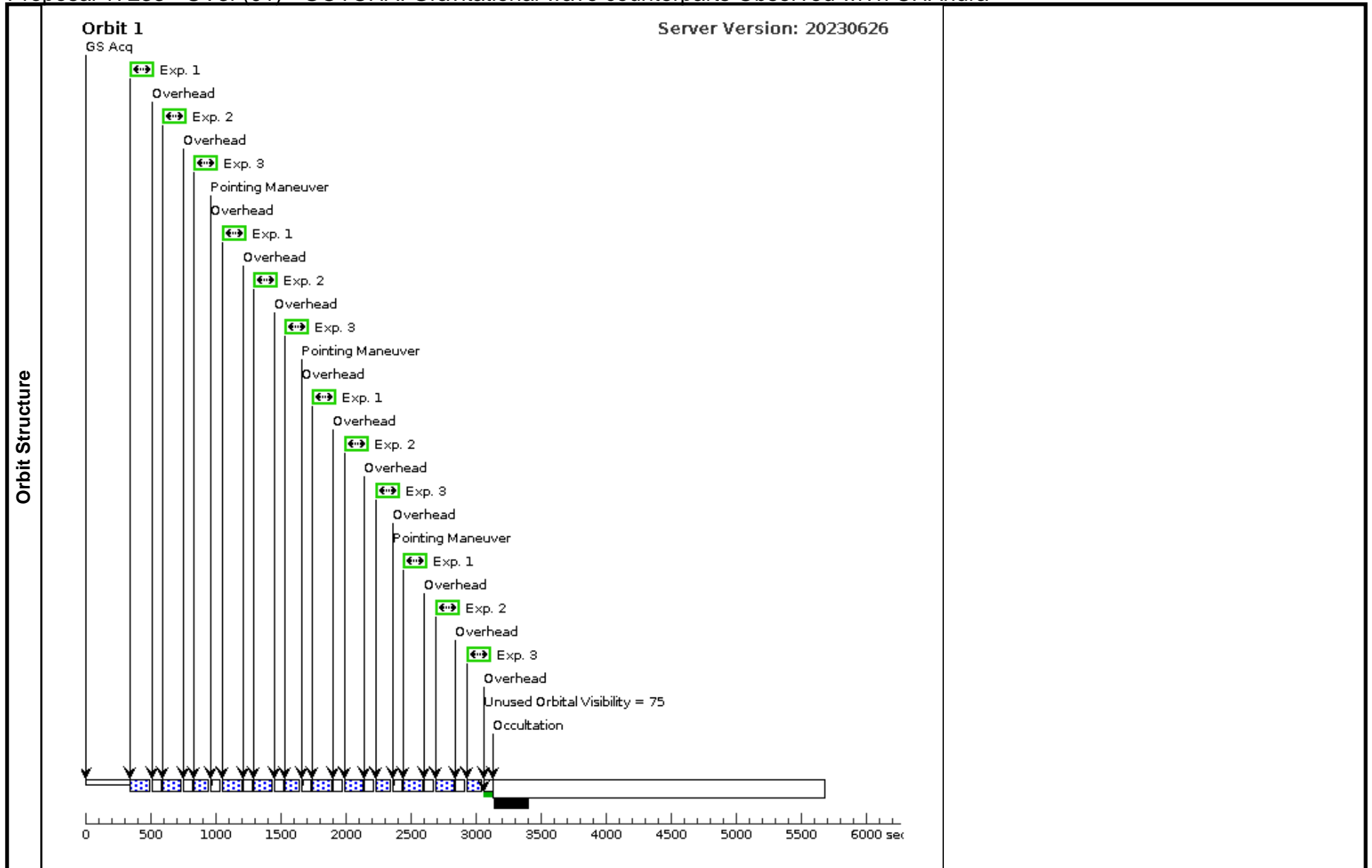
OBSERVING DESCRIPTION

Each non-disruptive HST visit will consist of two orbits with the WFC3 camera, one split between optical filters (e.g. F435W, F606W, F814W) and the other one between IR filters (e.g. F125W, F160W) for a total of 8 orbits per target, and a total request of 16 orbits.

Proposal 17233 - UV3f (01) - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Tue Sep 19 21:00:27 GMT 2023

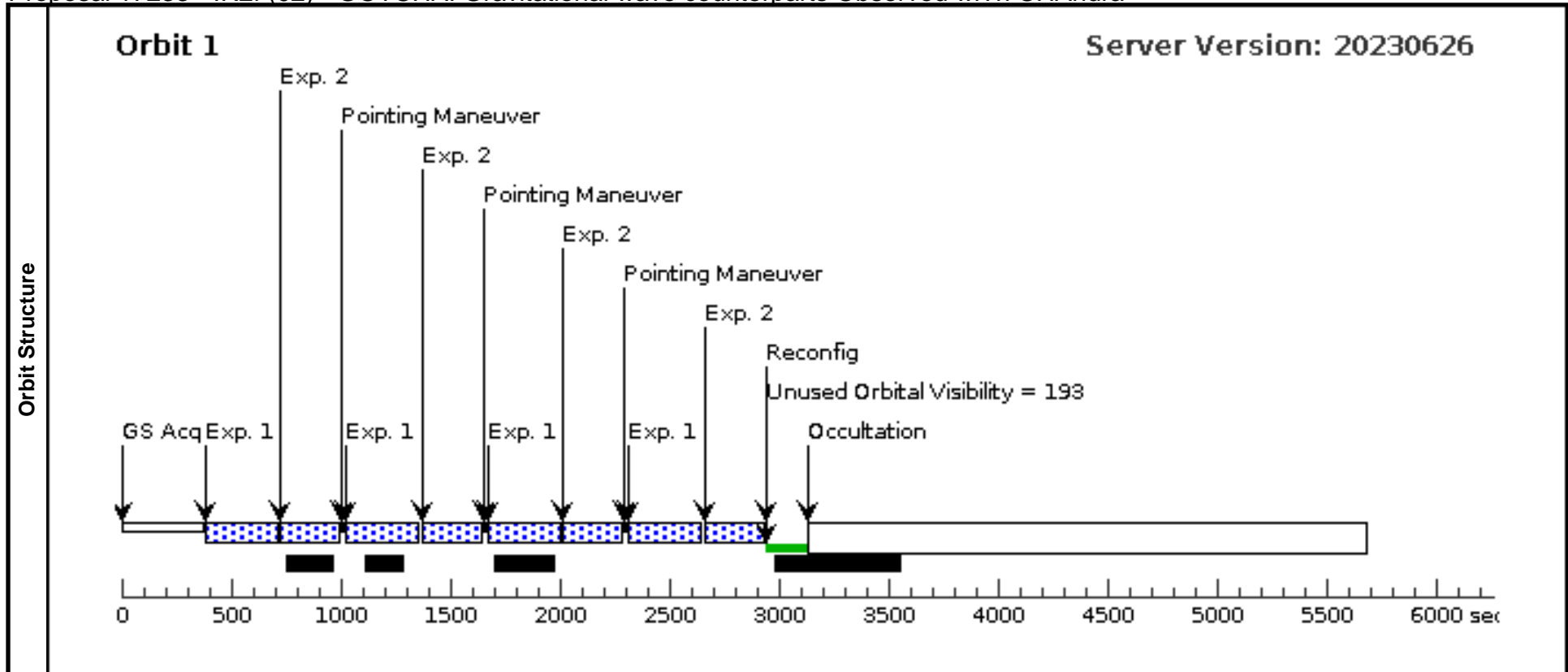
Visit	Proposal 17233, UV3f (01) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D On Hold Comments: GW trigger									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
(3)		Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112				Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false			(1-3)	
Generic Targets	#	Name	Criteria		Description					
	(1)	GWAFTERGLOW1	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) GWAFTERGLOW1	(1) GWAFTERGLOW1	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F438W	FLASH=19; CR-SPLIT=NO		Pattern 3, Exps 1-3 in UV3f (01) (3)	120 Secs (480 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]
	2	(1) GWAFTERGLOW1	(1) GWAFTERGLOW1	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	FLASH=19; CR-SPLIT=NO		Pattern 3, Exps 1-3 in UV3f (01) (3)	120 Secs (480 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]
	3	(1) GWAFTERGLOW1	(1) GWAFTERGLOW1	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	FLASH=19; CR-SPLIT=NO		Pattern 3, Exps 1-3 in UV3f (01) (3)	90 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 17233 - IR2f (02) - GOTCHA! Gravitational wave counterparts Observed wiTh CHAndra

Tue Sep 19 21:00:27 GMT 2023

Visit	Proposal 17233, IR2f (02) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(1)		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false							(1-2)
Generic Targets	#	Name	Criteria	Description						
	(1)	GWAFTERGLOW1	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GWAFTERGLOW1	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50		Pattern 1, Exps 1-2 in IR2f (02) (1)	302.934997 Secs (1211.74 Secs)	
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]
	2		(1) GWAFTERGLOW1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=6; SAMP-SEQ=SPAR S50		Pattern 1, Exps 1-2 in IR2f (02) (1)	252.934546 Secs (1011.738 Secs)	
								[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[1]	

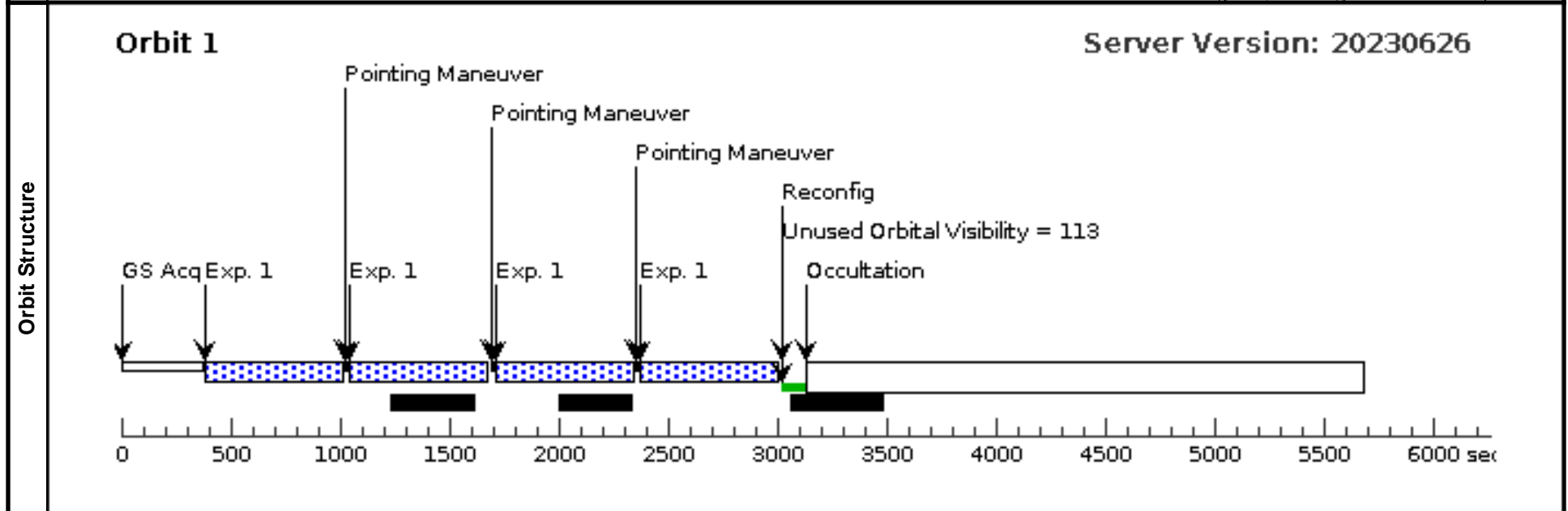


Visit	Proposal 17233, IR1f (03) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false	(1)

Generic Targets	#	Name	Criteria	Description
	(1)	GWAFTERGLOW1	GW counterpart	

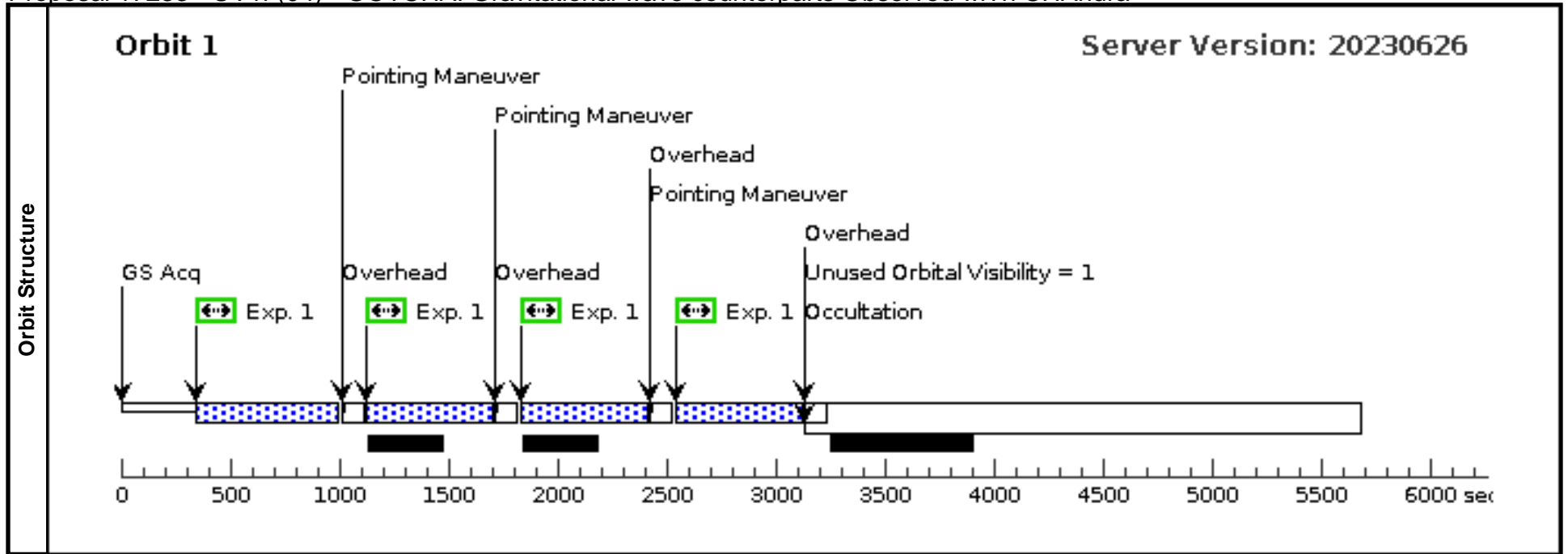
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GWAFTERGLOW1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S50		Pattern 1, Exps 1-1 in IR1f (03) (1)	602.937703 Secs (2411.751 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 17233 - UV1f (04) - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Tue Sep 19 21:00:27 GMT 2023

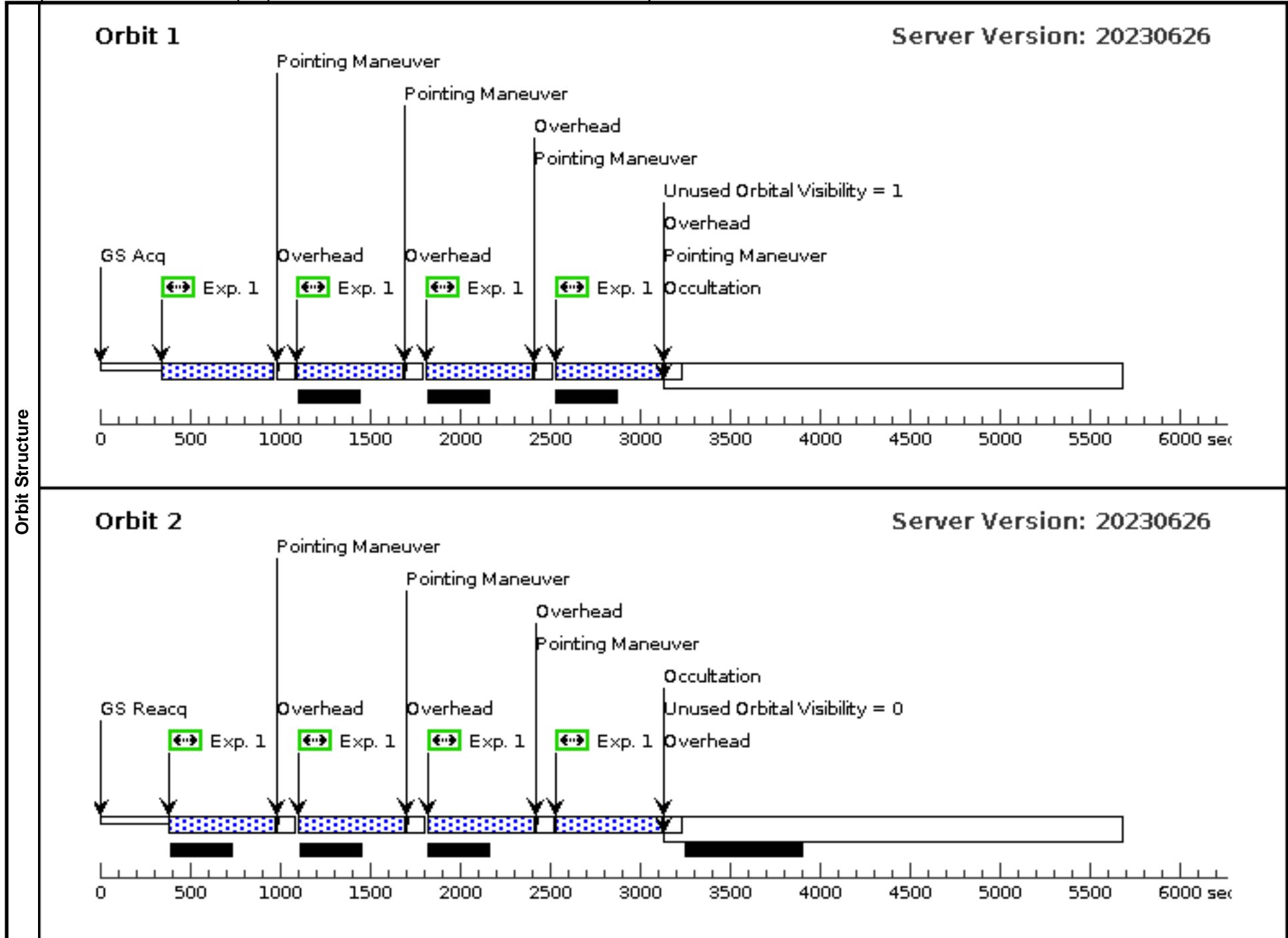
Visit	Proposal 17233, UV1f (04) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(3)		Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112				Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false				(1)
Generic Targets	#	Name	Criteria		Description					
	(1)	GWAFTERGLOW1	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GWAFTERGLOW1	WFC3/UVIS, ACCUM, UVIS	F606W			Pattern 3, Exps 1-1 in UV1f (04) (3)	550 Secs (2360 Secs) [==>620.0 Secs (Pattern 1)] [==>580.0 Secs (Pattern 2)] [==>580.0 Secs (Pattern 3)] [==>580.0 Secs (Pattern 4)]	[1]



Proposal 17233 - UV2o (05) - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Tue Sep 19 21:00:27 GMT 2023

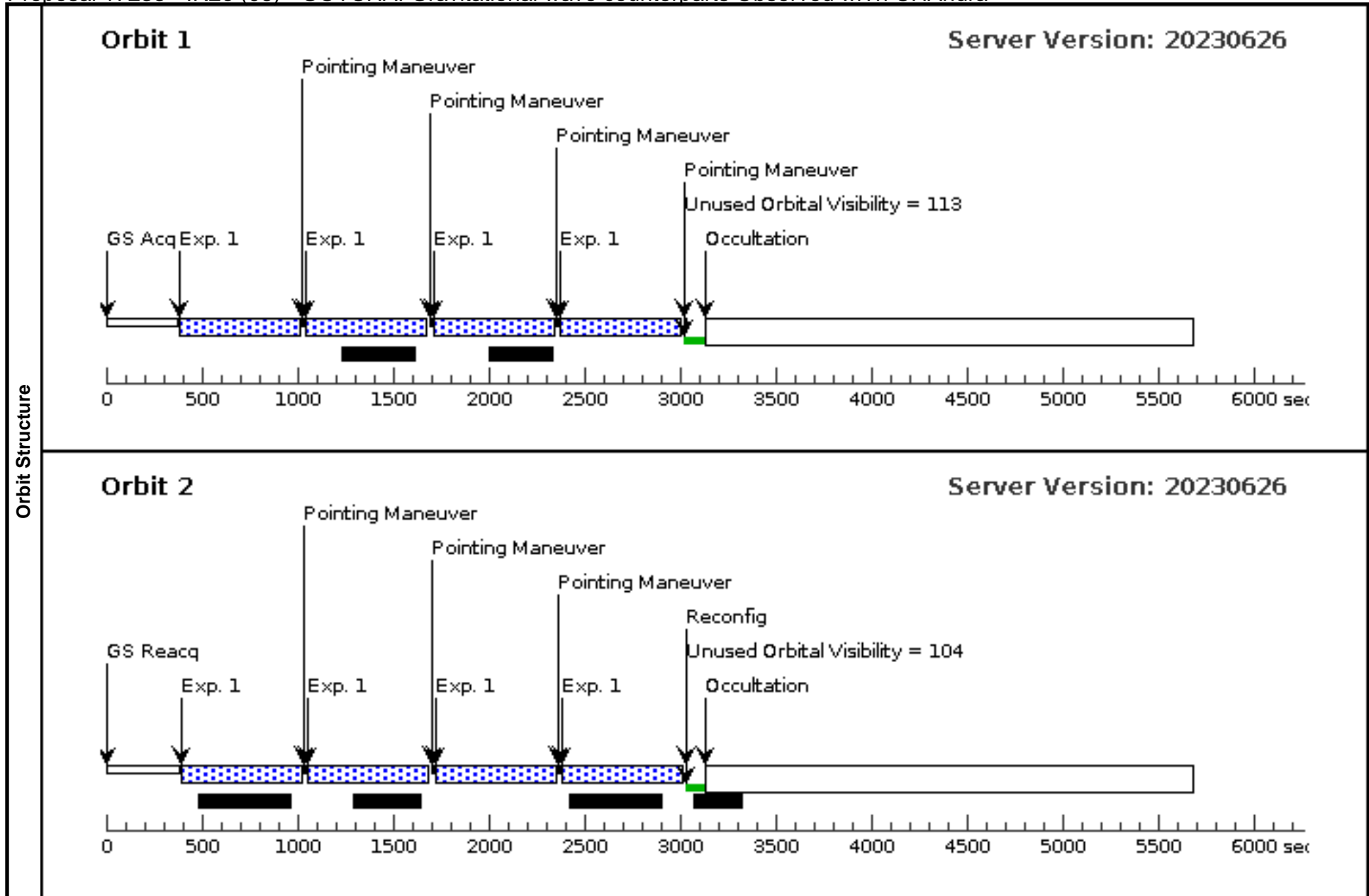
Visit	Proposal 17233, UV2o (05) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(4)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)				
Generic Targets	#	Name	Criteria		Description					
	(1)	GWAFTERGLOW1	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GWAFTERGLOW1	WFC3/UVIS, ACCUM, UVIS	F606W	CR-SPLIT=NO		Pattern 4, Exps 1-1 in UV2o (05) (4)	500 Secs (4712 Secs)	
									[==>590.0 Secs (Pattern 1,1)] [==>590.0 Secs (Pattern 1,2)] [==>590.0 Secs (Pattern 1,3)] [==>590.0 Secs (Pattern 1,4)]	[1]
									[==>588.0 Secs (Pattern 2,1)] [==>588.0 Secs (Pattern 2,2)] [==>588.0 Secs (Pattern 2,3)] [==>588.0 Secs (Pattern 2,4)]	[2]



Proposal 17233 - IR2o (06) - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Tue Sep 19 21:00:27 GMT 2023

Visit	Proposal 17233, IR2o (06) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(2)		Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.7 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=42 Angle Between Sides= Center Pattern=false		Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)		
Generic Targets	#	Name	Criteria	Description						
	(1)	GWAFTERGLOW1	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GWAFTERGLOW1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S50		Pattern 2, Exps 1-1 in IR2o (06) (2)	602.937703 Secs (4823.502 Secs) [=>(Pattern 1,1)] [=>(Pattern 1,2)] [=>(Pattern 1,3)] [=>(Pattern 1,4)]	[1]
								[=>(Pattern 2,1)] [=>(Pattern 2,2)] [=>(Pattern 2,3)] [=>(Pattern 2,4)]	[2]	

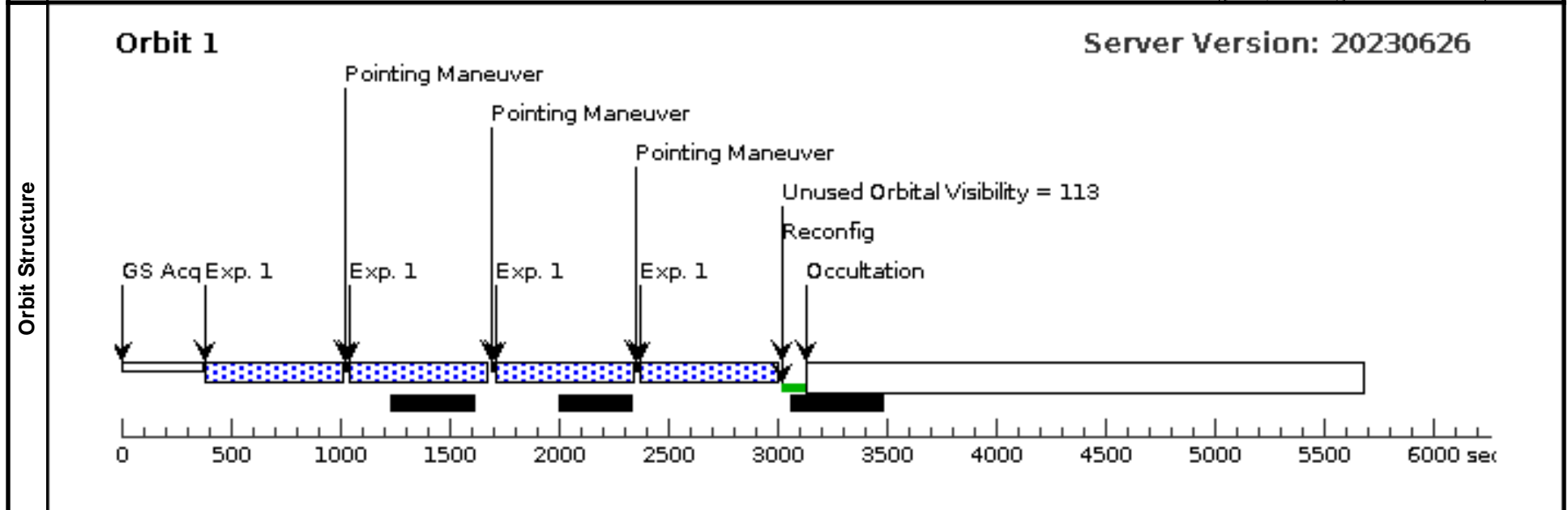


Visit	Proposal 17233, IR1f (07)		
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false	

Generic Targets	#	Name	Criteria	Description
	(2)	GWAFTERGLOW2	GW counterpart	

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) GWAFTERGLOW2	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S50			Pattern 1, Exps 1-1 in IR1f (07) (1)	602.937703 Secs (2411.751 Secs)
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	



Proposal 17233 - UV1f (08) - GOTCHA! Gravitational wave counterparts Observed with CHAndra

Tue Sep 19 21:00:27 GMT 2023

Visit	Proposal 17233, UV1f (08) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ON HOLD ; TOO RESPONSE TIME 21.0D <i>On Hold Comments: GW trigger</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
(3)		Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112		Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false					(1)	
Generic Targets	#	Name	Criteria		Description					
	(2)	GWAFTERGLOW2	GW counterpart							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) GWAFTERGLOW2	WFC3/UVIS, ACCUM, UVIS	F606W			Pattern 3, Exps 1-1 in UV1f (08) (3)	550 Secs (2360 Secs) [=>620.0 Secs (Pattern 1)] [=>580.0 Secs (Pattern 2)] [=>580.0 Secs (Pattern 3)] [=>580.0 Secs (Pattern 4)]	[1]

