



16275 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Cycle: 28, Proposal Category: GO

(Availability Mode: SUPPORTED)

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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>
U1	(2) GRB210704A	WFC3/UVIS	1	01-Oct-2021 11:00:42.0	yes
U2	(2) GRB210704A	WFC3/UVIS	1	01-Oct-2021 11:00:43.0	yes
U3	(1) KN+SGRB	WFC3/UVIS	1	01-Oct-2021 11:00:44.0	yes
U4	(1) KN+SGRB	WFC3/UVIS	1	01-Oct-2021 11:00:44.0	yes
U5	(2) GRB210704A	WFC3/UVIS	1	01-Oct-2021 11:00:45.0	yes
U6	(1) KN+SGRB	WFC3/UVIS	1	01-Oct-2021 11:00:45.0	yes
U7	(2) GRB210704A	WFC3/UVIS	1	01-Oct-2021 11:00:46.0	yes
U8	(1) KN+SGRB	WFC3/UVIS	1	01-Oct-2021 11:00:46.0	yes
M1	(1) KN+SGRB	WFC3/UVIS	1	01-Oct-2021 11:00:47.0	yes
G1	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:48.0	yes
R1	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:49.0	yes
I1	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:50.0	yes
I2	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:50.0	yes
I3	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:51.0	yes
I4	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:51.0	yes
I5	(1) KN+SGRB	WFC3/IR	1	01-Oct-2021 11:00:52.0	yes
G2	(1) KN+SGRB	WFC3/IR	3	01-Oct-2021 11:00:53.0	yes
R2	(1) KN+SGRB	WFC3/IR	3	01-Oct-2021 11:00:54.0	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>
M2	(1) KN+SGRB	WFC3/IR WFC3/UVIS	1	01-Oct-2021 11:00:55.0	yes
M3	(2) GRB210704A	WFC3/IR	1	01-Oct-2021 11:00:56.0	yes

24 Total Orbits Used

ABSTRACT

The discovery of a gamma-ray flash and kilonova (KN; aka. macronova), AT2017gfo, associated with the first binary neutron star (BNS) merger detected by aLIGO/AdV, GW170817, heralded the era of GW+EM multi-messenger astronomy. This landmark event confirmed both the association of short GRBs with binary mergers, and that neutron star material can be ejected in sufficient quantities to power a detectable radioactive transient. It opened a new window on several long-standing problems in astrophysics, cosmology and fundamental physics, including the possibility that BNS and NSBH compact binary mergers represent the dominant source of heavy r-process elements in the universe. However, the lack of success in identifying similar events in the O3 run of the gravitational wave detector network so far has highlighted that their rate is low in the nearby universe (e.g. $d < 200$ Mpc), thus opportunities for intensive study of kilonovae, crucial to understanding their heavy element yields, for example, will be infrequent. Here we propose a ToO campaign targeting a kilonova discovered during cycle 28. This is between the GW network science runs, but KNe may still be found in blind surveys, accompanying short-GRBs, or during GW engineering runs. HST has already made unique contributions to the follow-up of AT2017gfo and its off-axis relativistic jet, and also provided the primary evidence for the most compelling cases of KNe following SGRBs. Our program is flexible to adapt for different possible scenarios, and will be crucial for understanding the diversity of EM signatures from neutron star compact binary mergers, and providing the data to test increasingly sophisticated KN models.

OBSERVING DESCRIPTION

We intend to conduct comprehensive UV to IR observations of a kilonova. This will include early UV imaging and IR spectroscopic observations with both G102 and G141. As the source becomes too faint for ground based optical observations we will include optical (F475W/F606W/F814W) observations which will map the late time behaviour of the associated kilonova and the emergence of any afterglow component.

Given the uncertainty in the field due to the limited number of detections we specify a range of possible observations which are described below. However, it may be necessary to update the phaseII at the time of the submission. To avoid a very crowded phaseII we do not include copies of our individual observations, may be request multiple repeats of the same one (which we will copy to a new phaseII at the time of submisison).

The observations specified are:

U1 - 1 orbit F336W

U2 - 1 orbit F438W

U3 - 1 orbit F475W

U4 - 1 orbit F555W

U5 - 1 orbit F606W

U6 - 1 orbit F625W

U7 - 1 orbit F775W

U8 - 1 orbit F814W

M1 - 1 orbit F475W/F606W/F814W

M2 - 1 orbit F606W/F140W

M3 - 1 orbit F105W/F160W

G1- 1orbit F110W/G102

R1 - 1 orbit F160W/G141

I1 - 1 orbit F105W

I2 - 1 orbit F110W

I3 - 1 orbit F125W

I4 - 1 orbit F140W

I5 - 1 orbit F160W

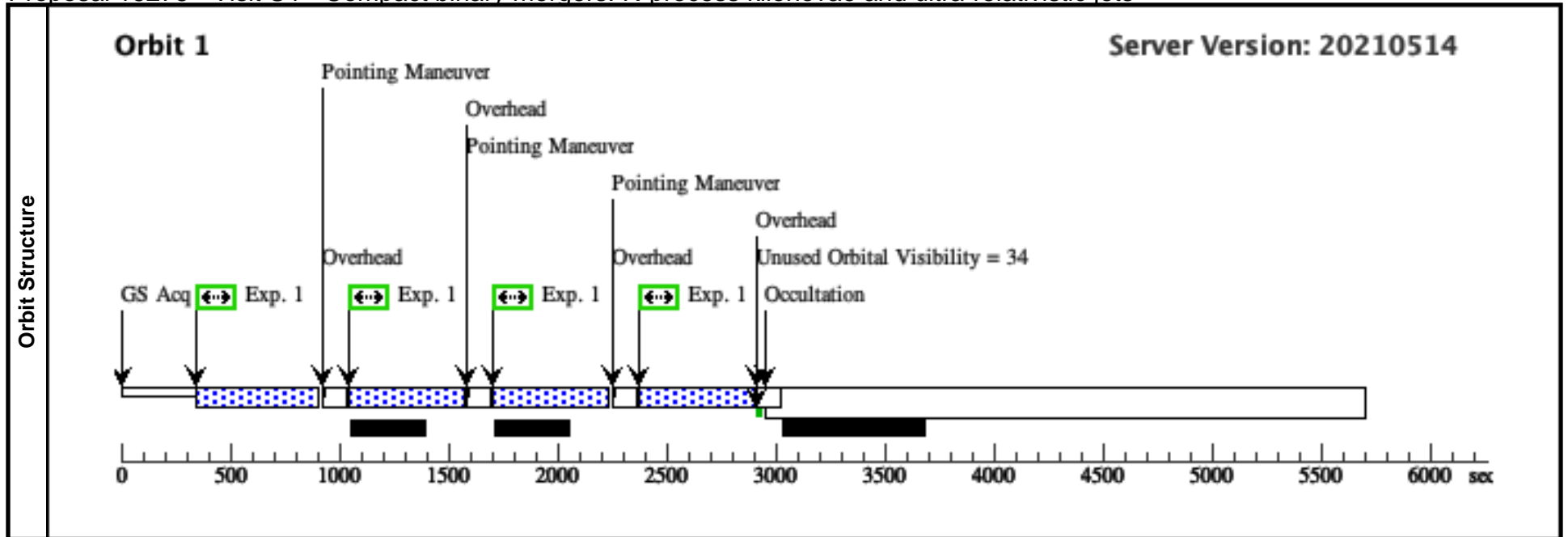
G2 - 3 orbit F110W/G102

R2 - 3 orbit F160W/G141

Proposal 16275 - Visit U1 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

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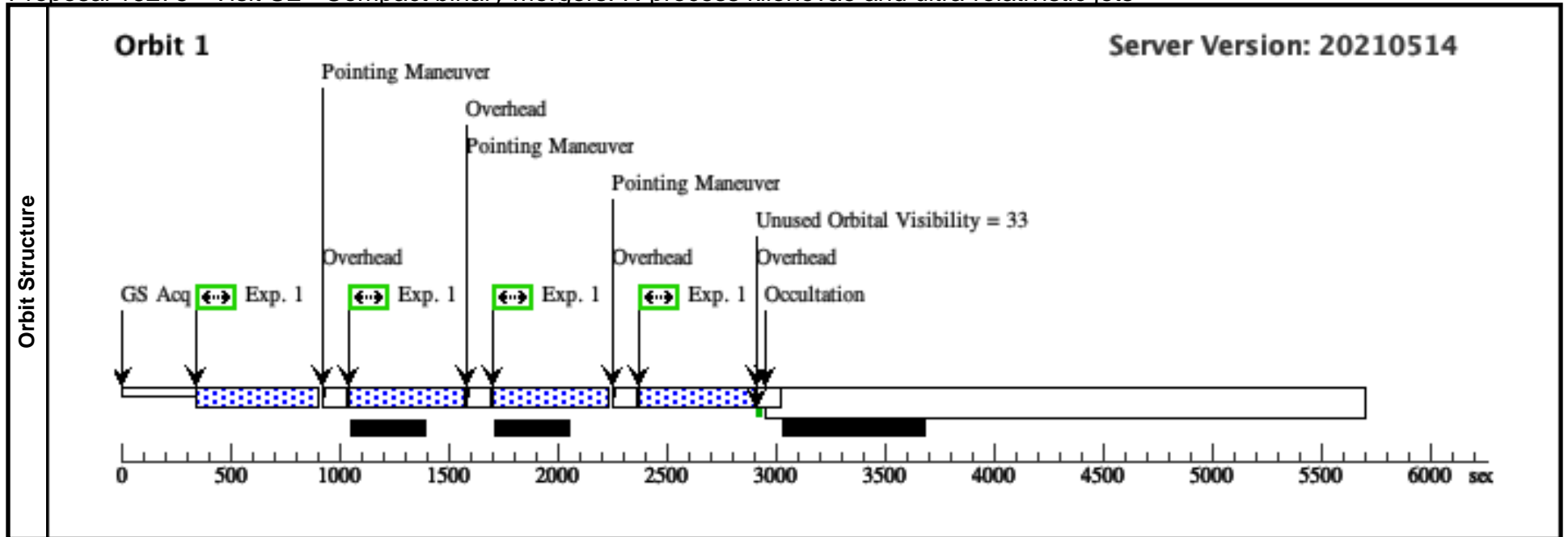
Visit	Proposal 16275, Visit U1, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ORIENT 180D TO 220 D									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U1)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern	Secondary Pattern			Exposures				
	(2)	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)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	GRB210704A	RA: 10 36 4.8800 (159.0203333d) Dec: +57 12 58.50 (57.21625d) Equinox: J2000		V=24+/-1	Reference Frame: ICRS				
<i>Comments:</i> Category=EXT-STAR Description=[GAMMA RAY BURSTER, NEUTRON STAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) GRB210704A	WFC3/UVIS, ACCUM, UVIS2	F336W	CR-SPLIT=NO; FLASH=11	POS TARG -60,-30	Pattern 2, Exps 1-1 in Visit U1 (2)	370 Secs (2120 Secs) [=>530.0 Secs (Pattern 1)] [=>530.0 Secs (Pattern 2)] [=>530.0 Secs (Pattern 3)] [=>530.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U2 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

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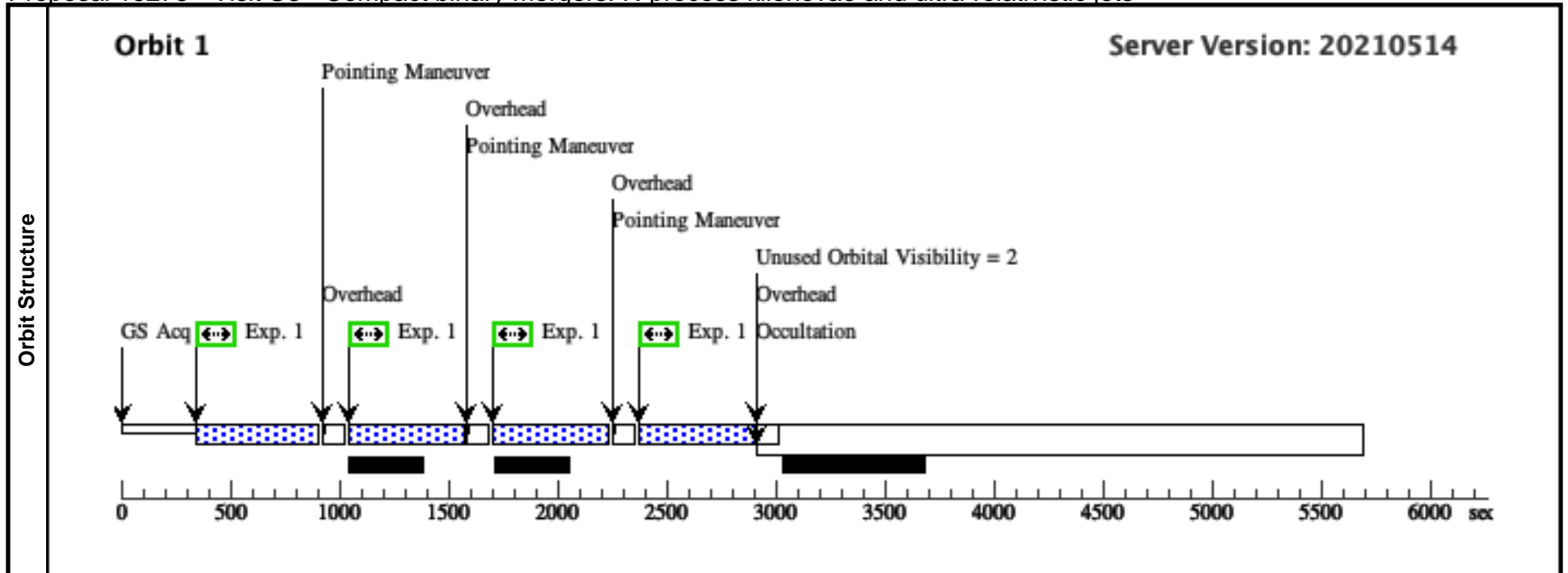
Visit	Proposal 16275, Visit U2, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; SAME ORIENT AS U1; ON HOLD ; TOO RESPONSE TIME 72.0H <i>On Hold Comments: Awaiting KN trigger</i>									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U2)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern	Secondary Pattern			Exposures				
	(2)	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)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	GRB210704A	RA: 10 36 4.8800 (159.0203333d) Dec: +57 12 58.50 (57.21625d) Equinox: J2000		V=24+/-1	Reference Frame: ICRS				
<i>Comments:</i> Category=EXT-STAR Description=[GAMMA RAY BURSTER, NEUTRON STAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) GRB210704A	(2) GRB210704A	WFC3/UVIS, ACCUM, UVIS2	F438W	CR-SPLIT=NO; FLASH=8	POS TARG -60,-30	Pattern 2, Exps 1-1 in Visit U2 (2)	370 Secs (2124 Secs) [=>531.0 Secs (Pattern 1)] [=>531.0 Secs (Pattern 2)] [=>531.0 Secs (Pattern 3)] [=>531.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U3 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

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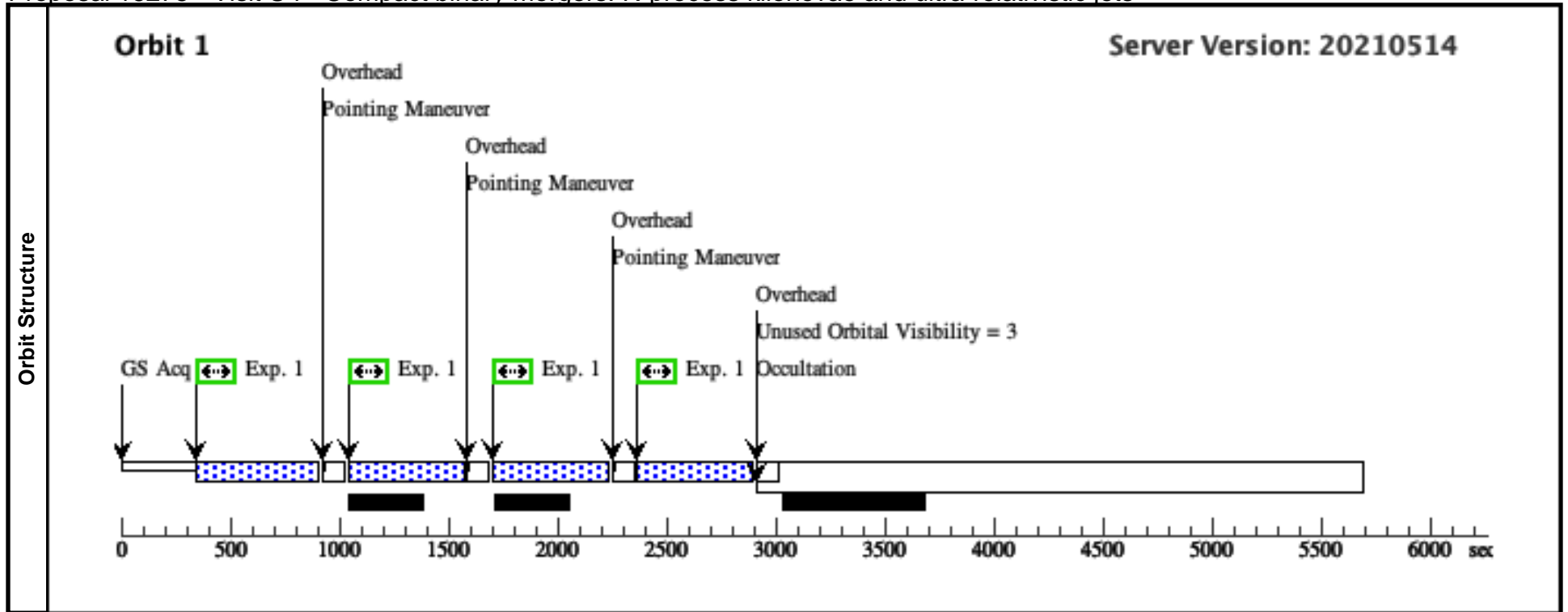
Visit	Proposal 16275, Visit U3, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 72.0H <i>On Hold Comments: Awaiting KN trigger</i>									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U3)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
	(2)	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)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS	F475W	CR-SPLIT=NO; FLASH=2			Pattern 2, Exps 1-1 in Visit U3 (2)	370 Secs (2132 Secs) [=>533.0 Secs (Pattern 1)] [=>533.0 Secs (Pattern 2)] [=>533.0 Secs (Pattern 3)] [=>533.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U4 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

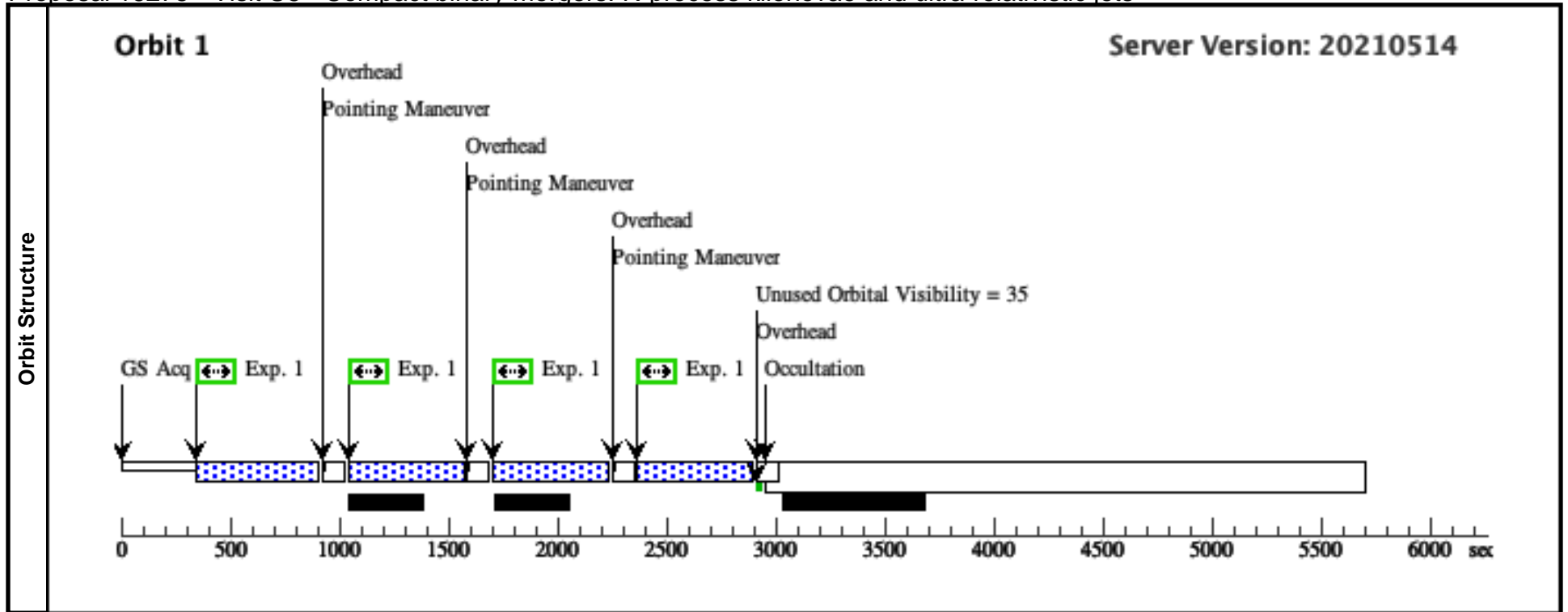
Visit	Proposal 16275, Visit U4, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ORIENT 180D TO 220 D; ON HOLD <i>On Hold Comments: Awaiting KN</i>									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U4)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern	Secondary Pattern				Exposures			
	(2)	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)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS	F555W	CR-SPLIT=NO			Pattern 2, Exps 1-1 in Visit U4 (2)	370 Secs (2140 Secs) [=>535.0 Secs (Pattern 1)] [=>535.0 Secs (Pattern 2)] [=>535.0 Secs (Pattern 3)] [=>535.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U5 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

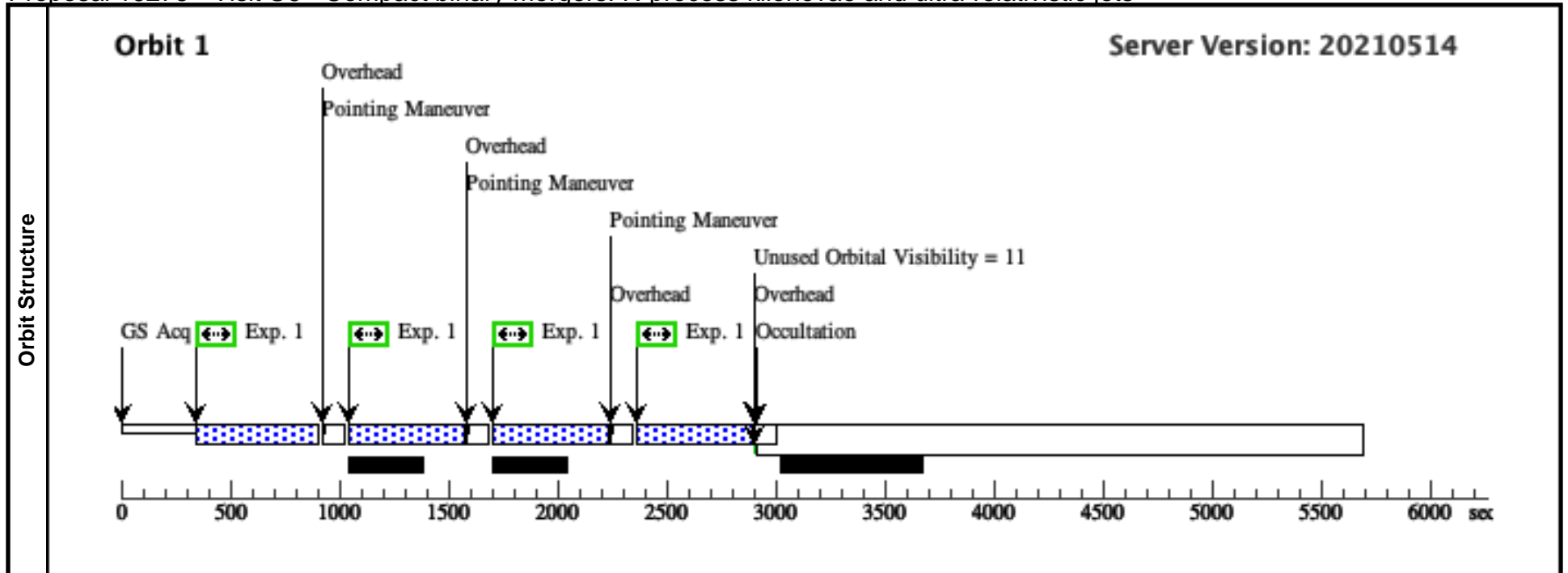
Visit	Proposal 16275, Visit U5, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; SAME ORIENT AS U1; GROUP U5,U2 WITHIN 0.5D										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-UVIS-DITHER-BOX 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)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(2)	GRB210704A	RA: 10 36 4.8800 (159.0203333d) Dec: +57 12 58.50 (57.21625d) Equinox: J2000				V=24+/-1		Reference Frame: ICRS		
	<i>Comments:</i> Category=EXT-STAR Description=[GAMMA RAY BURSTER, NEUTRON STAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(2) GRB210704A	WFC3/UVIS, ACCUM, UVIS2	F606W	CR-SPLIT=NO	POS TARG -60,-30	Pattern 2, Exps 1-1 i n Visit U5 (2)	370 Secs (2140 Secs) [=>535.0 Secs (Pattern 1)] [=>535.0 Secs (Pattern 2)] [=>535.0 Secs (Pattern 3)] [=>535.0 Secs (Pattern 4)]		[1]



Proposal 16275 - Visit U6 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

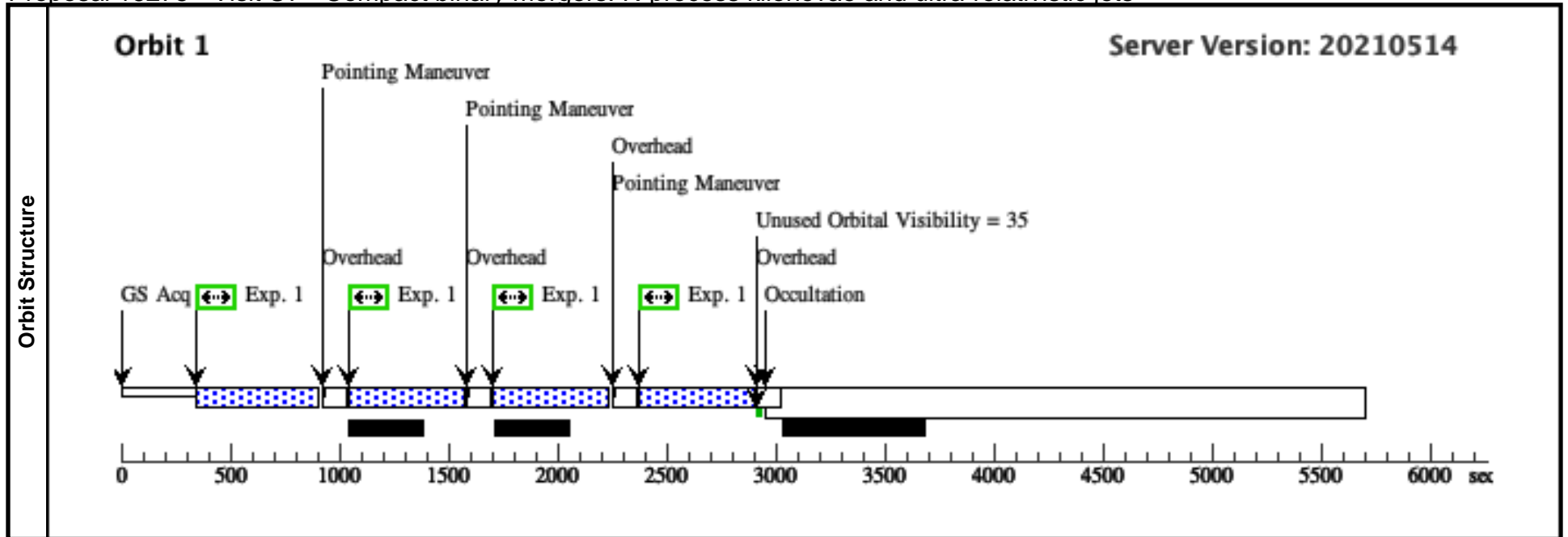
Visit	Proposal 16275, Visit U6, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U6)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
	(2)	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)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS	F625W	CR-SPLIT=NO	Pattern 2, Exps 1-1 in Visit U6 (2)	370 Secs (2132 Secs)		[=>533.0 Secs (Pattern 1)] [=>533.0 Secs (Pattern 2)] [=>533.0 Secs (Pattern 3)] [=>533.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U7 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

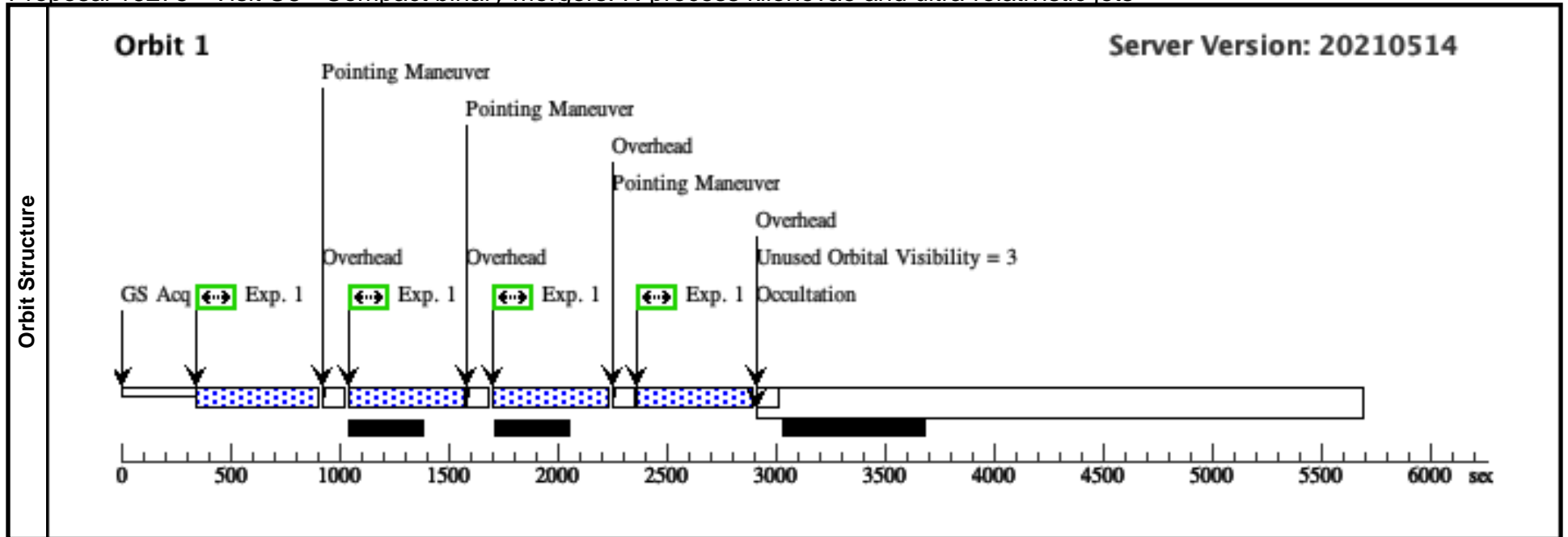
Visit	Proposal 16275, Visit U7, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ORIENT 180D TO 220 D; ON HOLD <i>On Hold Comments: Awaiting KN</i>									
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U7)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser									
Diagnosics										
Patterns	#	Primary Pattern	Secondary Pattern			Exposures				
	(2)	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)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	GRB210704A	RA: 10 36 4.8800 (159.0203333d) Dec: +57 12 58.50 (57.21625d) Equinox: J2000		V=24+/-1	Reference Frame: ICRS				
<i>Comments:</i> Category=EXT-STAR Description=[GAMMA RAY BURSTER, NEUTRON STAR]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) GRB210704A	WFC3/UVIS, ACCUM, UVIS	F775W	CR-SPLIT=NO; FLASH=3		Pattern 2, Exps 1-1 in Visit U7 (2)	370 Secs (2128 Secs) [=>532.0 Secs (Pattern 1)] [=>532.0 Secs (Pattern 2)] [=>532.0 Secs (Pattern 3)] [=>532.0 Secs (Pattern 4)]	[1]



Proposal 16275 - Visit U8 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

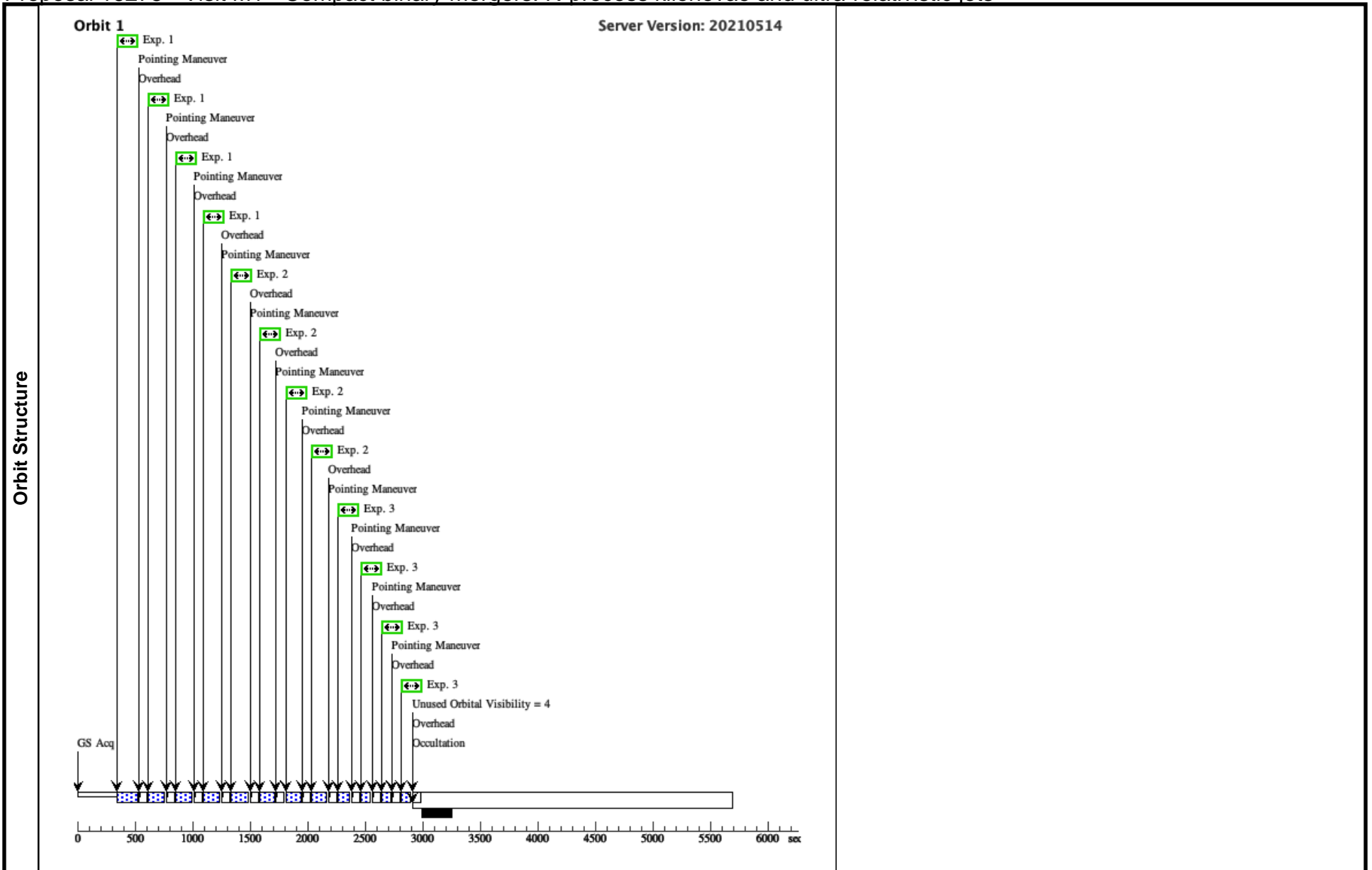
Visit	Proposal 16275, Visit U8, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>										
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit U8)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser										
Diagnosics											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	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)	KN+SGRB		KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS	F814W	CR-SPLIT=NO	Pattern 2, Exps 1-1 in Visit U8 (2)	370 Secs (2140 Secs)		[=>535.0 Secs (Pattern 1)] [=>535.0 Secs (Pattern 2)] [=>535.0 Secs (Pattern 3)] [=>535.0 Secs (Pattern 4)]	[1]	



Proposal 16275 - Visit M1 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit M1, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>										
	(Exposure 1 (Pattern 2, Exps 1-1 in Visit M1)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 2 (Pattern 2, Exps 2-2 in Visit M1)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser (Exposure 3 (Pattern 2, Exps 3-3 in Visit M1)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser										
Diagnosics											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	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), (2), (3)	
Generic Targets	#	Name		Criteria		Description					
	(1)	KN+SGRB		KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	(1) KN+SGRB	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F475W	CR-SPLIT=NO; FLASH=9	POS TARG 0,0	Pattern 2, Exps 1-1 in Visit M1 (2)	148 Secs (576 Secs)		
									[==>144.0 Secs (Pattern 1)]		
									[==>144.0 Secs (Pattern 2)]		
								[==>144.0 Secs (Pattern 3)]			
								[==>144.0 Secs (Pattern 4)]		[1]	
2	(1) KN+SGRB	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F814W	CR-SPLIT=NO; FLASH=9		Pattern 2, Exps 2-2 in Visit M1 (2)	135 Secs (524 Secs)			
								[==>131.0 Secs (Pattern 1)]			
								[==>131.0 Secs (Pattern 2)]			
								[==>131.0 Secs (Pattern 3)]			
								[==>131.0 Secs (Pattern 4)]		[1]	
3	(1) KN+SGRB	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS2-C1K1C-SUB	F606W	FLASH=9		Pattern 2, Exps 3-3 in Visit M1 (2)	85 Secs (324 Secs)			
								[==>81.0 Secs (Pattern 1)]			
								[==>81.0 Secs (Pattern 2)]			
								[==>81.0 Secs (Pattern 3)]			
								[==>81.0 Secs (Pattern 4)]		[1]	



Proposal 16275 - Visit G1 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

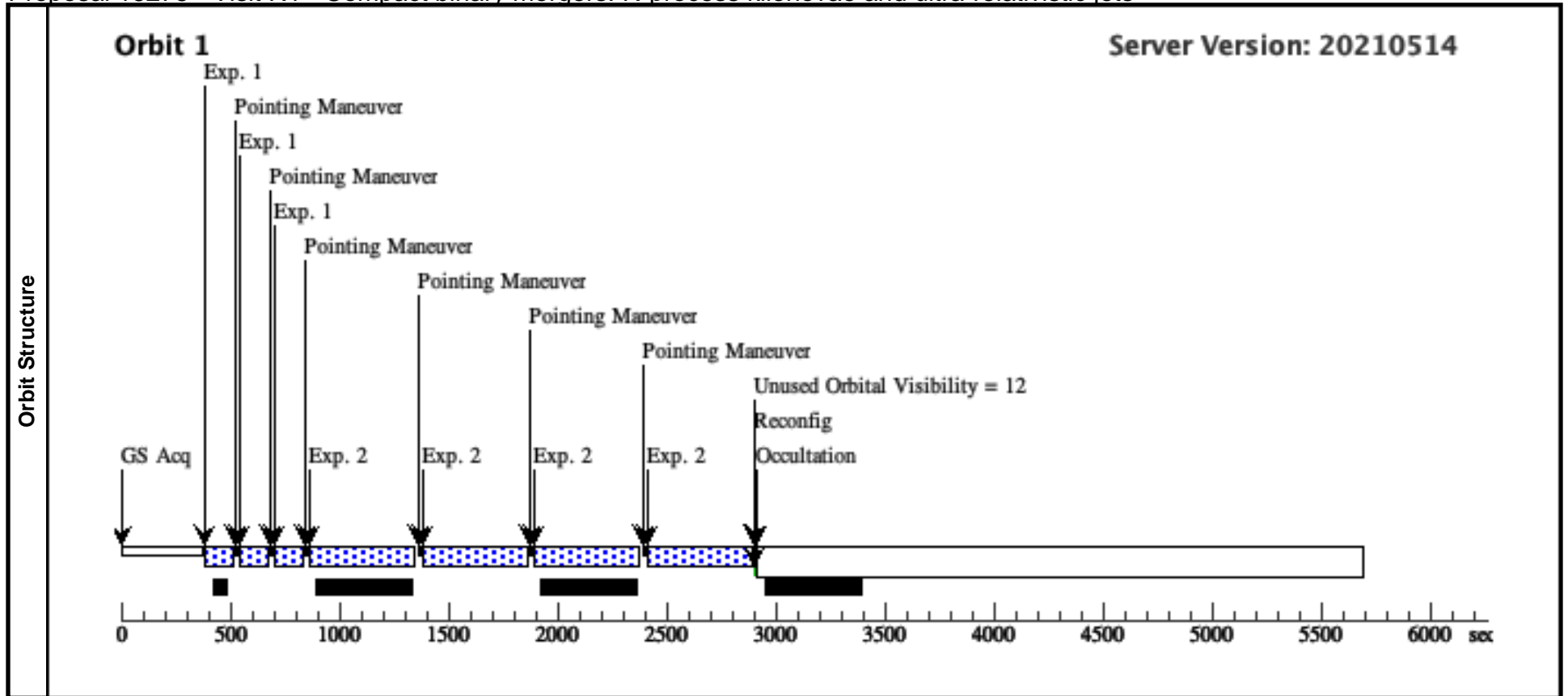
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit G1, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ORIENT 125D TO 135 D; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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					(2)	
	(7)	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false					(1)		
Generic Targets	#	Name	Criteria	Description						
	(1)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=7; SAMP-SEQ=STEP5 0			Pattern 7, Exps 1-1 in Visit G1 (7)	99.230677 Secs (297.692 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
2	(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=10; SAMP-SEQ=SPAR S50			Pattern 1, Exps 2-2 in Visit G1 (1)	452.93635 Secs (1811.745 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]	

Proposal 16275 - Visit R1 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit R1, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>									
	#	Primary Pattern			Secondary Pattern			Exposures		
Patterns	(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							(2)
	(7)	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false							(1)
Generic Targets	#	Name	Criteria	Description						
	(1)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=7; SAMP-SEQ=STEP5 0			Pattern 7, Exps 1-1 in Visit R1 (7)	99.230677 Secs (297.692 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
2	(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=10; SAMP-SEQ=SPAR S50			Pattern 1, Exps 2-2 in Visit R1 (1)	452.93635 Secs (1811.745 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]	



Proposal 16275 - Visit I1 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

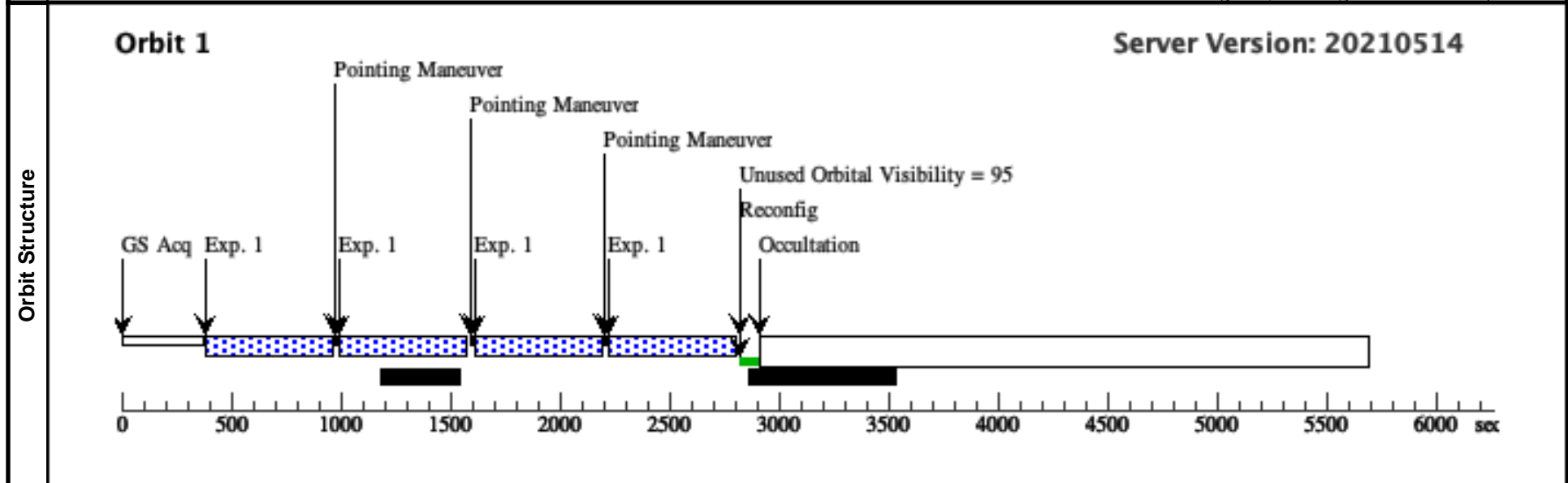
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit II, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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)	KN+SGRB	KN discovered from GW or otherwise	

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F105W	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 1-1 in Visit II (1)	552.937252 Secs (2211.749 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 16275 - Visit I2 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

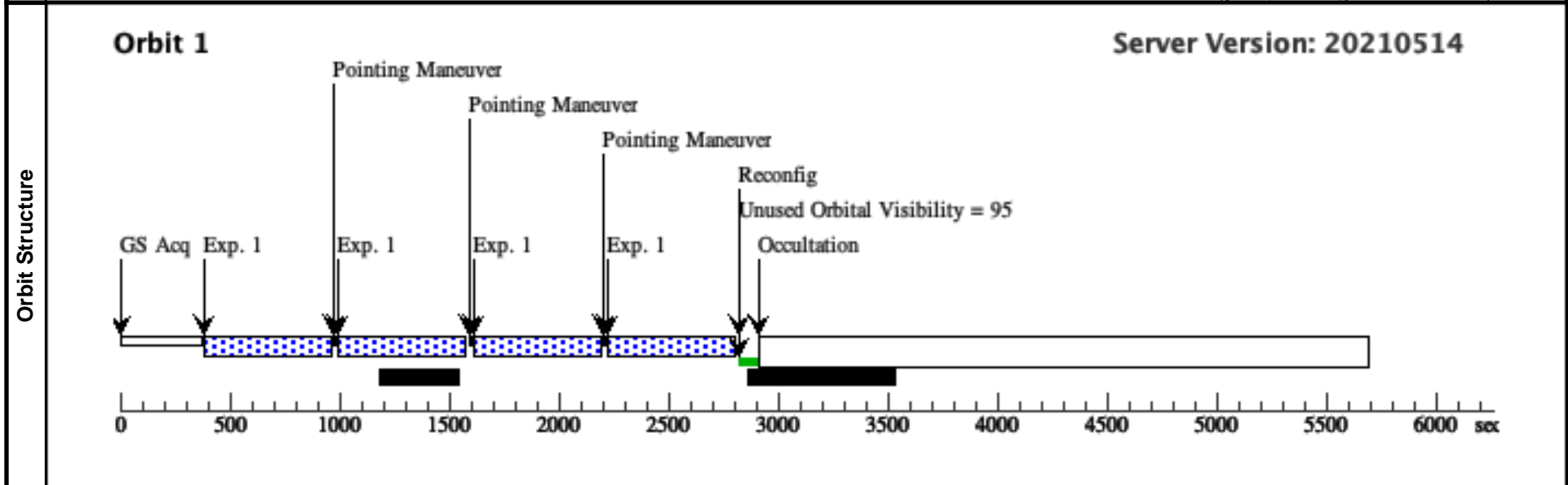
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit I2, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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)	KN+SGRB	KN discovered from GW or otherwise	

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F110W	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 1-1 in Visit I2 (1)	552.937252 Secs (2211.749 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 16275 - Visit I3 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

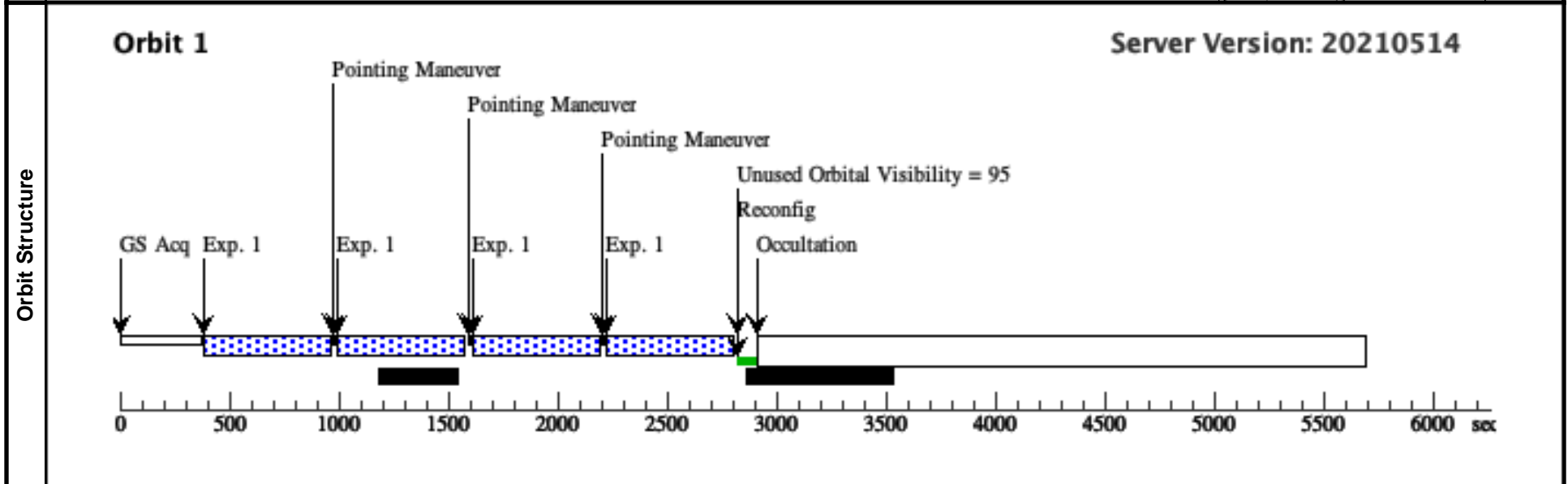
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit I3, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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)	KN+SGRB	KN discovered from GW or otherwise	

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F125W	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 1-1 in Visit I3 (1)	552.937252 Secs (2211.749 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 16275 - Visit I4 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

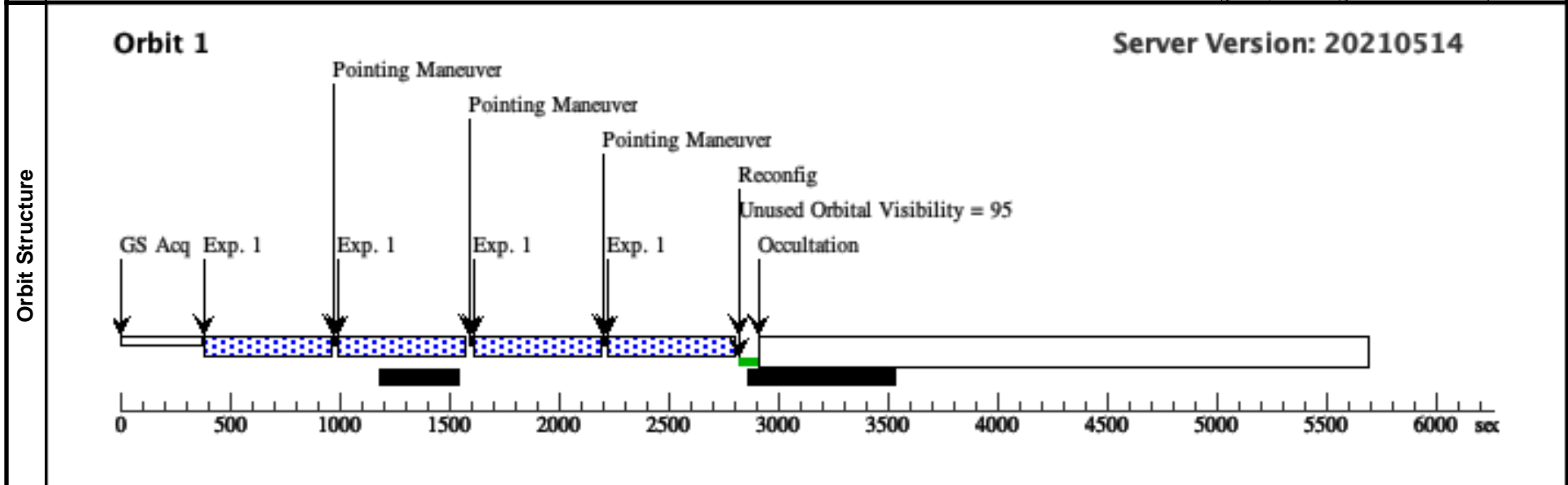
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit I4, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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)	KN+SGRB	KN discovered from GW or otherwise	

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F140W	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 1-1 in Visit I4 (1)	552.937252 Secs (2211.749 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]



Proposal 16275 - Visit I5 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

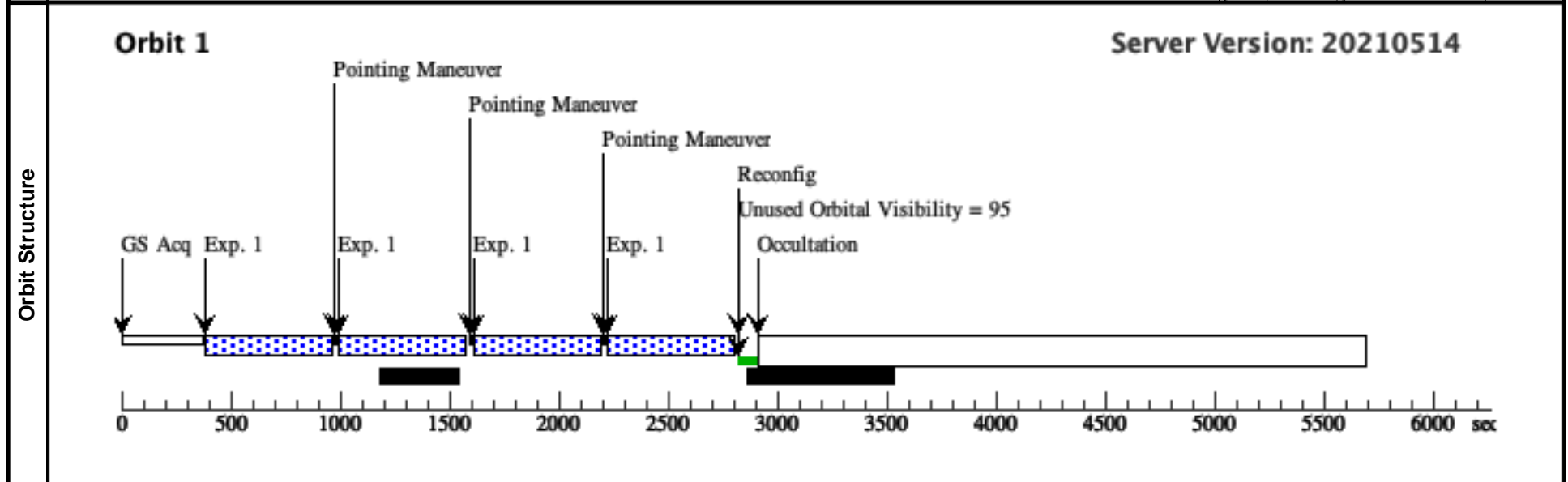
Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit I5, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN 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)	KN+SGRB	KN discovered from GW or otherwise	

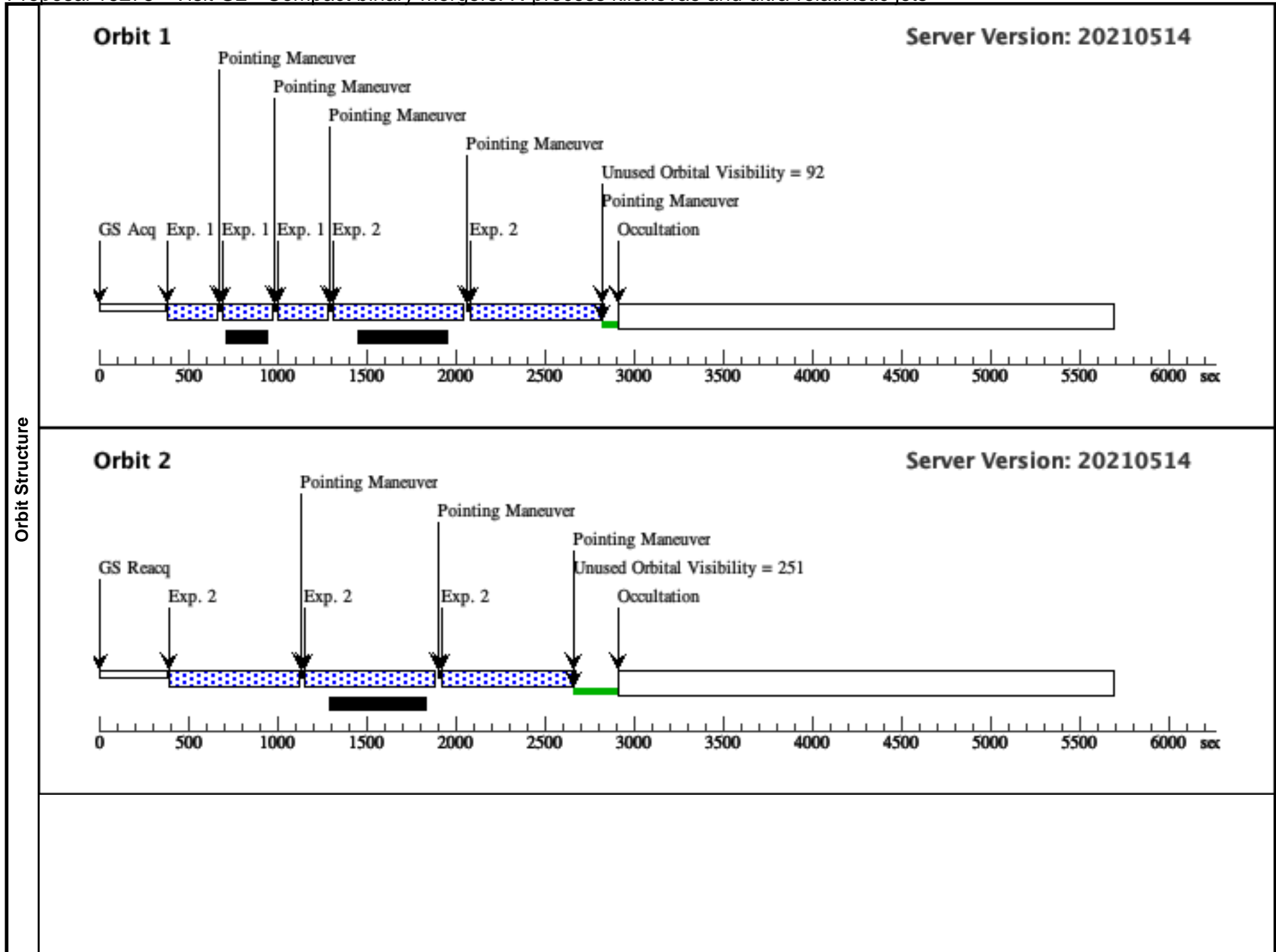
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F160W	SAMP-SEQ=SPARS 50; NSAMP=12		Pattern 1, Exps 1-1 in Visit I5 (1)	552.937252 Secs (2211.749 Secs) [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1]

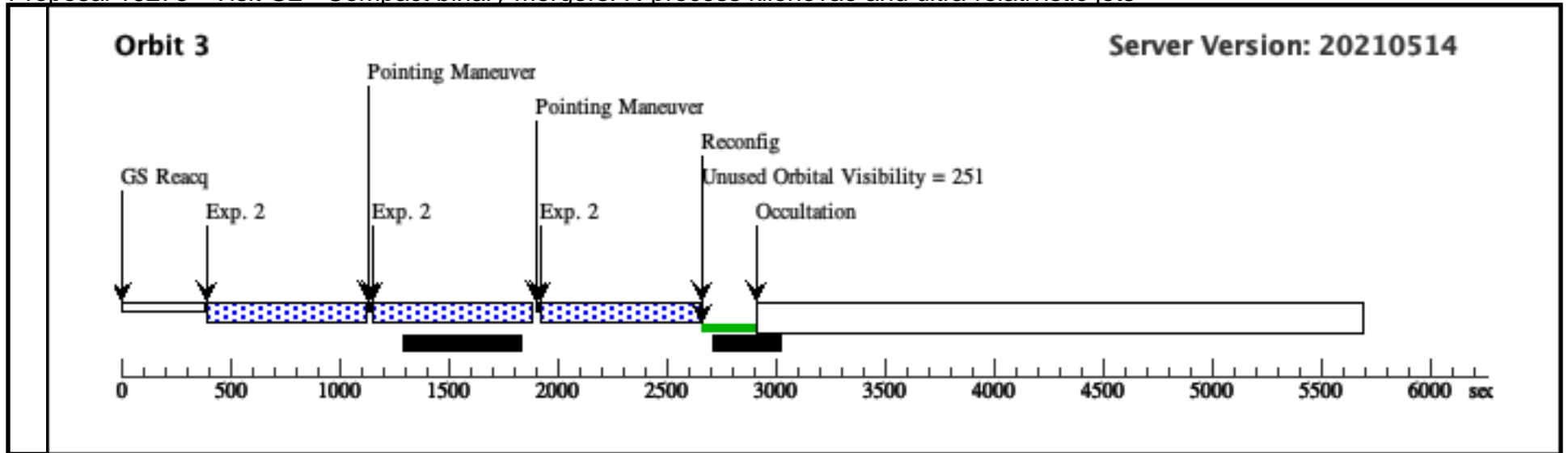


Proposal 16275 - Visit G2 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:57 GMT 2021

Visit	Proposal 16275, Visit G2, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>									
	#	Primary Pattern	Secondary Pattern	Exposures						
Patterns	(7)	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1)						
	(8)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.788 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	(2)						
Generic Targets	#	Name	Criteria	Description						
	(1)	KN+SGRB		KN discovered from GW or otherwise						
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	F110W	NSAMP=10; SAMP-SEQ=STEP50		Pattern 7, Exps 1-1 in Visit G2 (7)	249.23203 Secs (747.696 Secs)	
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	2		(1) KN+SGRB	WFC3/IR, MULTIACCUM, GRISM1024	G102	NSAMP=8; SAMP-SEQ=SPAR S100		Pattern 8, Exps 2-2 in Visit G2 (8)	702.934552 Secs (5623.476 Secs)	
									[==>(Pattern 1,1)] [==>(Pattern 1,2)]	[1]
									[==>(Pattern 1,3)] [==>(Pattern 1,4)] [==>(Pattern 2,1)]	[2]
								[==>(Pattern 2,2)] [==>(Pattern 2,3)] [==>(Pattern 2,4)]	[3]	

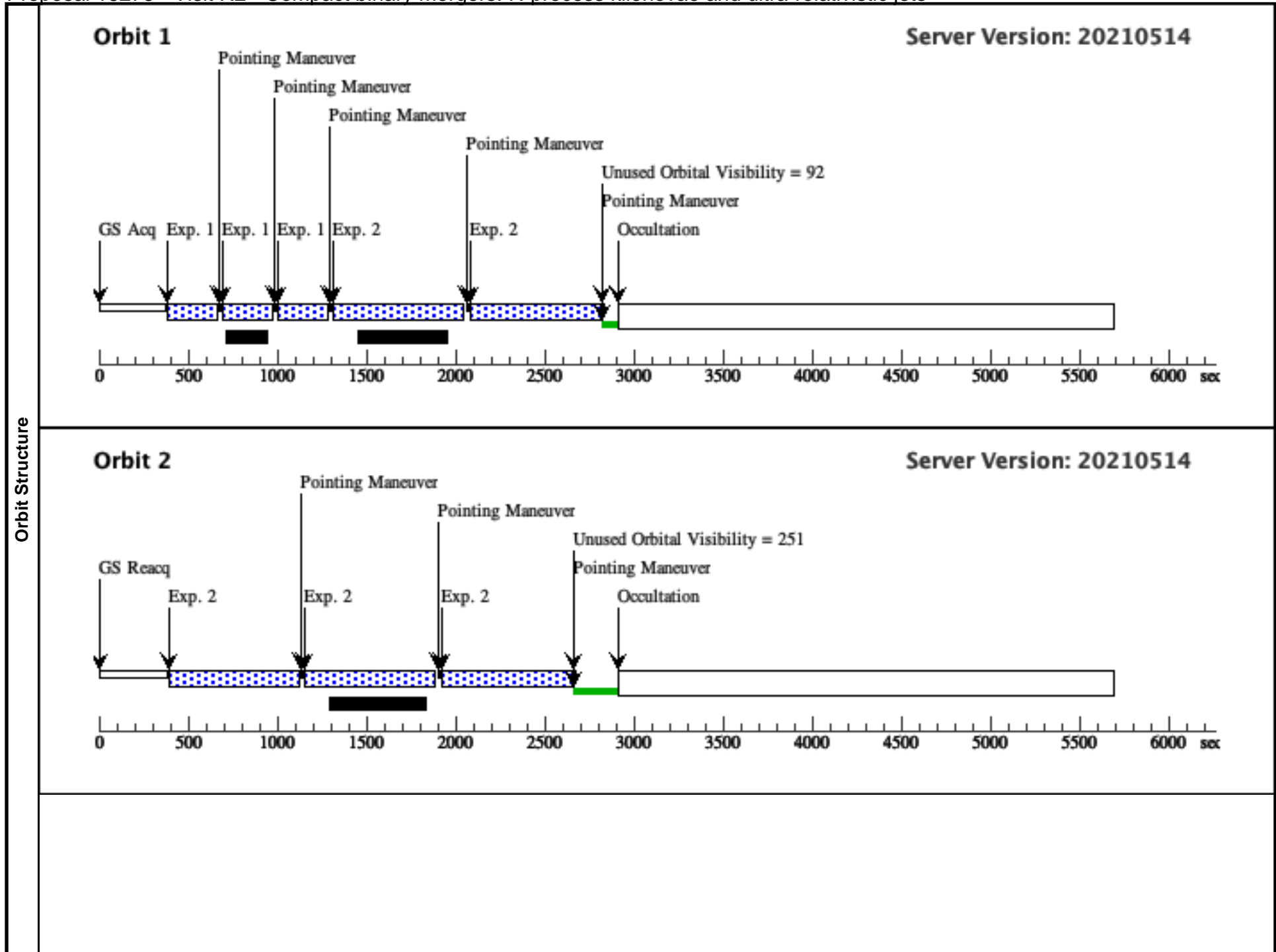


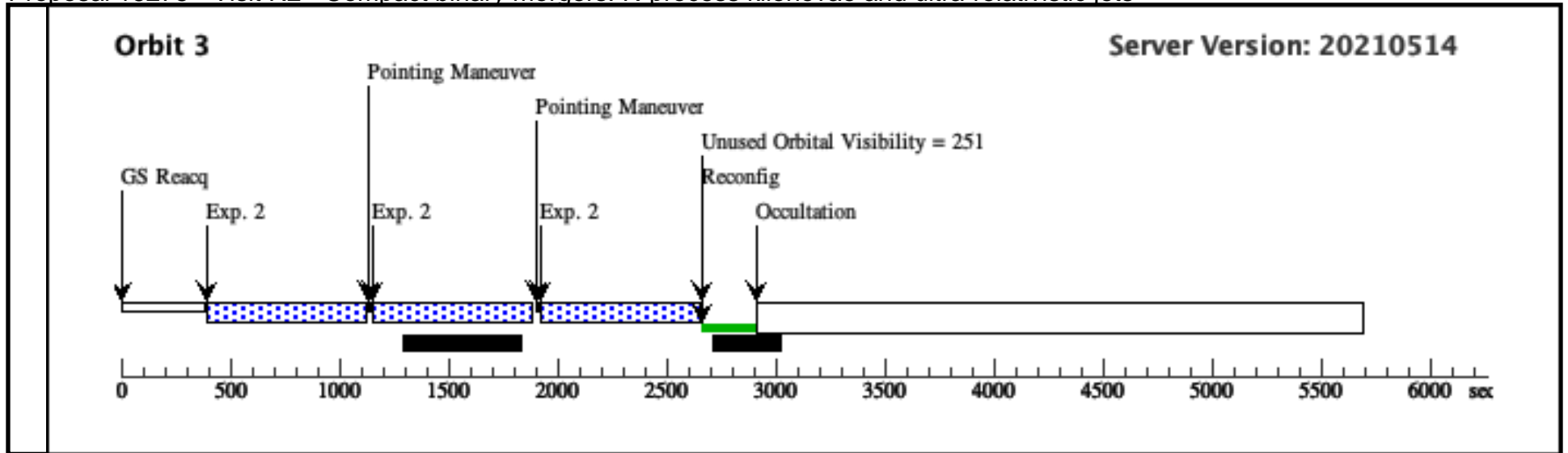


Proposal 16275 - Visit R2 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:58 GMT 2021

Visit	Proposal 16275, Visit R2, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SCHED 100%; ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN trigger</i>									
	#	Primary Pattern	Secondary Pattern	Exposures						
Patterns	(7)	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1)						
	(8)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.788 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	(2)						
Generic Targets	#	Name	Criteria	Description						
	(1)	KN+SGRB	KN discovered from GW or otherwise							
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(1) KN+SGRB		WFC3/IR, MULTIACCUM, GRISM1024	F160W	NSAMP=10; SAMP-SEQ=STEP5 0		Pattern 7, Exps 1-1 in Visit R2 (7)	249.23203 Secs (747.696 Secs)	
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	2	(1) KN+SGRB		WFC3/IR, MULTIACCUM, GRISM1024	G141	NSAMP=8; SAMP-SEQ=SPAR S100		Pattern 8, Exps 2-2 in Visit R2 (8)	702.934552 Secs (5623.476 Secs)	
									[==>(Pattern 1,1)] [==>(Pattern 1,2)] [==>(Pattern 1,3)] [==>(Pattern 1,4)] [==>(Pattern 2,1)]	[1] [2]
									[==>(Pattern 2,2)] [==>(Pattern 2,3)] [==>(Pattern 2,4)]	[3]

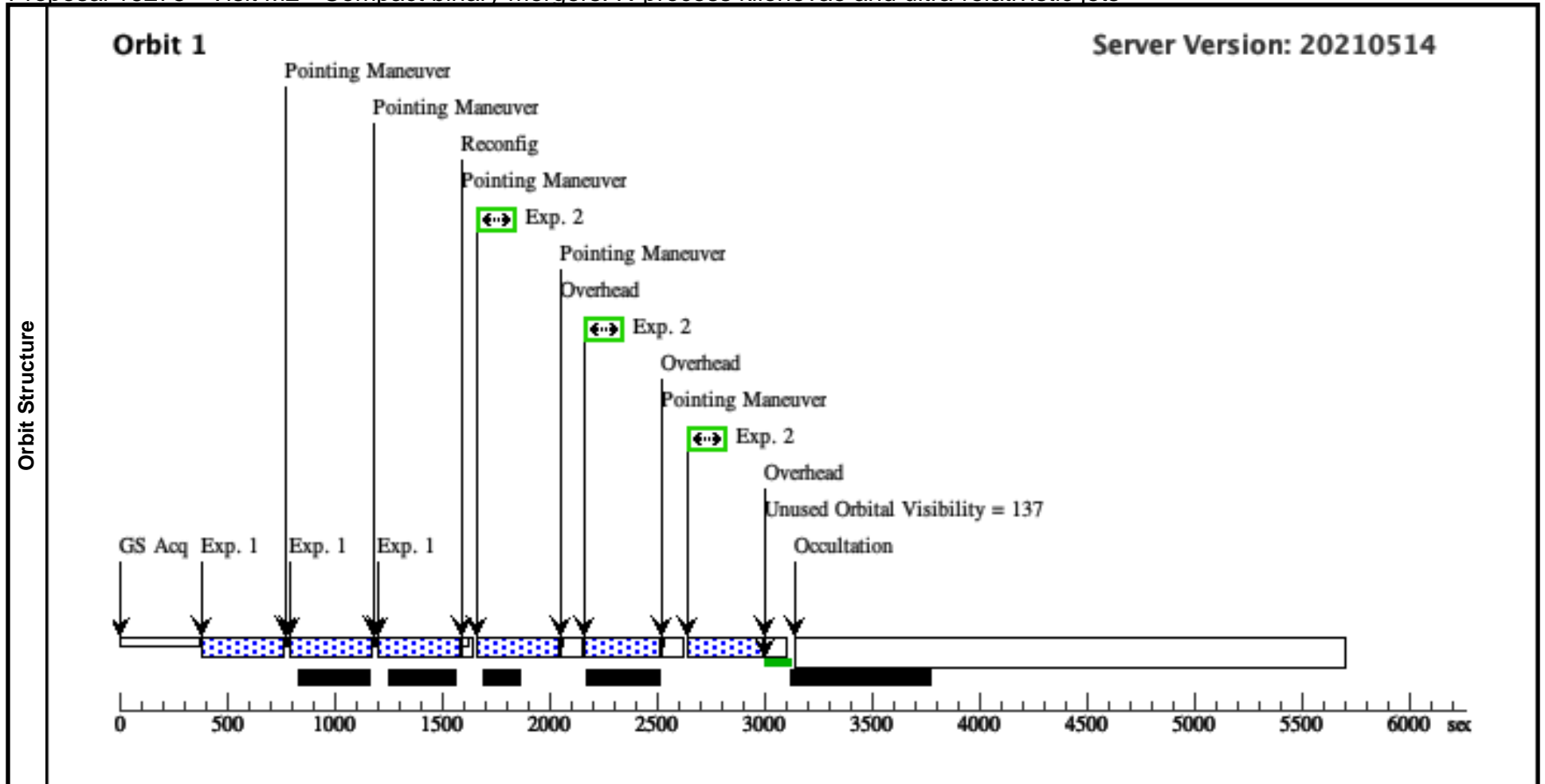




Proposal 16275 - Visit M2 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:58 GMT 2021

Visit	Proposal 16275, Visit M2, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: ON HOLD ; TOO RESPONSE TIME 3.0D <i>On Hold Comments: Awaiting KN discovery</i>										
	(Exposure 2 (Pattern 3, Exps 2-2 in Visit M2)) Warning (Form): FLASH level may be too low for this exposure or a short subexposure. See extended explanation in the diagnostic browser										
Diagnosics											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(3)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false								(2)	
(7)	Pattern Type=WFC3-IR-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.605 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false								(1)		
Generic Targets	#	Name	Criteria			Description					
	(1)	KN+SGRB	KN discovered from GW or otherwise								
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	(1) KN+SGRB	WFC3/IR, MULTIACCUM, IR	F140W	NSAMP=12; SAMP-SEQ=STEP5 0			Pattern 7, Exps 1-1 in Visit M2 (7)	349.232932 Secs (1047.699 Secs)		[1]
2	(1) KN+SGRB	WFC3/UVIS, ACCUM, UVIS2	F606W				Pattern 3, Exps 2-2 in Visit M2 (3)	348 Secs (1044 Secs)		[1]	



Proposal 16275 - Visit M3 - Compact binary mergers: R-process kilonovae and ultra-relativistic jets

Fri Oct 01 15:00:58 GMT 2021

Visit	Proposal 16275, Visit M3, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(2)	GRB210704A	RA: 10 36 4.8800 (159.0203333d) Dec: +57 12 58.50 (57.21625d) Equinox: J2000		V=24+/-1	Reference Frame: ICRS				
	<i>Comments:</i> Category=EXT-STAR Description=[GAMMA RAY BURSTER, NEUTRON STAR]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=STEP5 0				449.233834 Secs (449.234 Secs) [==>]	[1]
	2	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=13; SAMP-SEQ=STEP5 0				399.233383 Secs (399.233 Secs) [==>]	[1]
	3	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=13; SAMP-SEQ=STEP5 0	POS TARG 0.451,0. 403			399.233383 Secs (399.233 Secs) [==>]	[1]
	4	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=13; SAMP-SEQ=STEP5 0	POS TARG 0.902,0. 806			399.233383 Secs (399.233 Secs) [==>]	[1]
	5	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=STEP5 0	POS TARG 0.451,0. 403			449.233834 Secs (449.234 Secs) [==>]	[1]
	6	(2) GRB210704A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=14; SAMP-SEQ=STEP5 0	POS TARG 0.902,0. 806			449.233834 Secs (449.234 Secs) [==>]	[1]

