



17235 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at $z=2.9$

Cycle: 30, Proposal Category: GO
(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) HS1549A	WFC3/IR	1	11-Nov-2022 13:00:33.0	yes
02	(2) HS1549B	WFC3/IR	1	11-Nov-2022 13:00:34.0	yes
03	(3) HS1549C	WFC3/IR	1	11-Nov-2022 13:00:34.0	yes
04	(4) HS1549D	WFC3/IR	1	11-Nov-2022 13:00:35.0	yes
05	(1) HS1549A	WFC3/IR	1	11-Nov-2022 13:00:36.0	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>
06	(2) HS1549B	WFC3/IR	1	11-Nov-2022 13:00:37.0	yes
07	(3) HS1549C	WFC3/IR	1	11-Nov-2022 13:00:38.0	yes
08	(4) HS1549D	WFC3/IR	1	11-Nov-2022 13:00:39.0	yes

8 Total Orbits Used

ABSTRACT

The HS1549+19 proto-cluster at $z=2.9$ represents potentially the most massive structure known at this epoch, traced spectroscopically over a degree scale, showing an extreme phase of star formation in a centrally concentrated region. This is one of the best examples of the precursor to today's massive galaxy clusters and has been studied to unprecedented depth with Subaru, ALMA, and Keck, and is now a legacy survey field, in which we are working to observe and characterize the galaxy star formation properties. Chandra is the missing piece of the puzzle in understanding this structure is the role of SMBHs in the excitation of the ALMA and optical sources. We request 210 ks Chandra exposure with ACIS-I (a total resource usage of 281ks) to probe AGN luminosities of $\sim 1e44$.

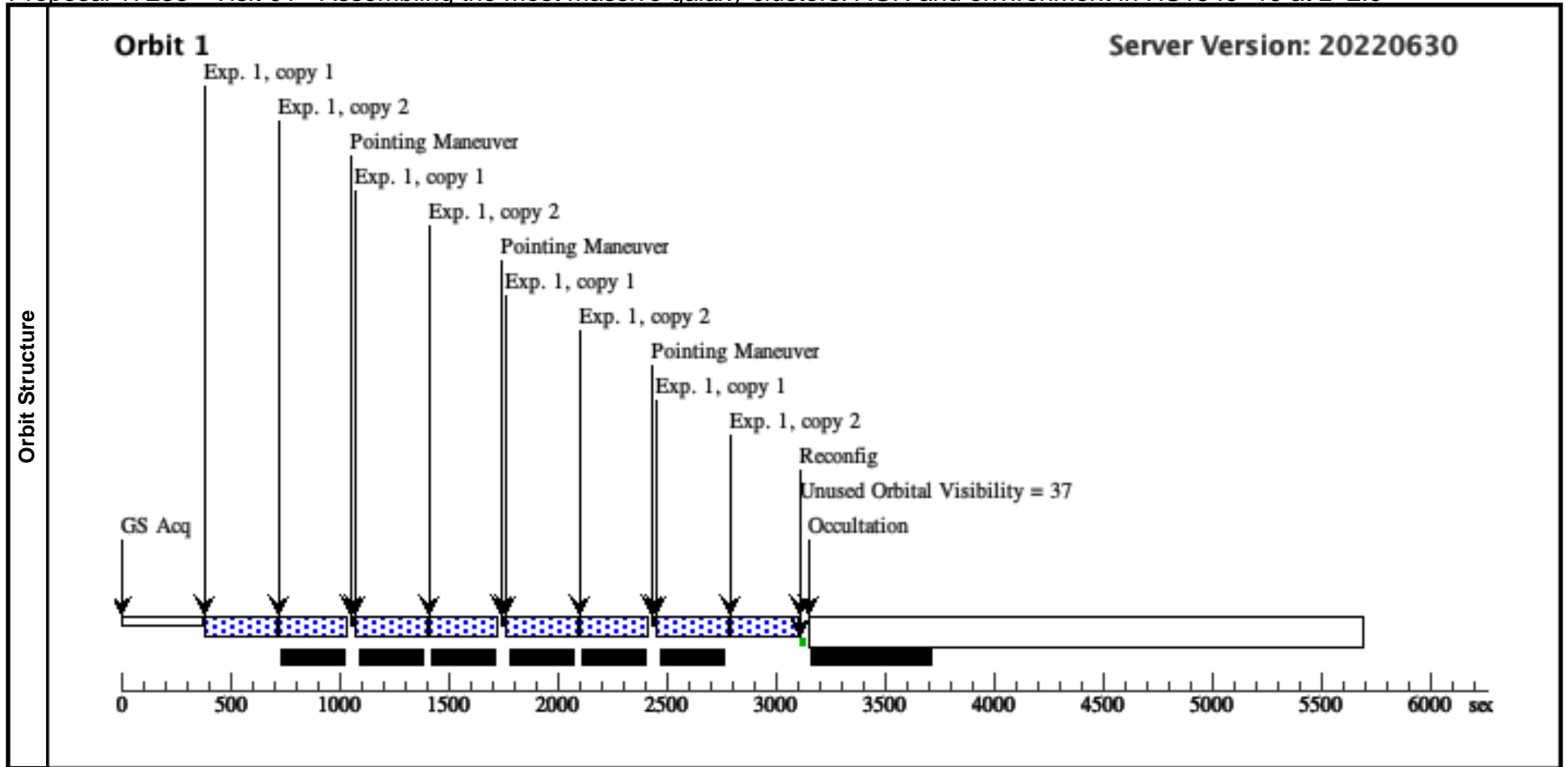
OBSERVING DESCRIPTION

2 filter (160W and 125W) imaging of the $z=2.85$ galaxy cluster core, covering an ALMA mosaic image. Goal is morphology and colour analysis of Chandra AGN and ALMA starburst galaxies.

Proposal 17235 - Visit 01 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

Fri Nov 11 18:00:39 GMT 2022

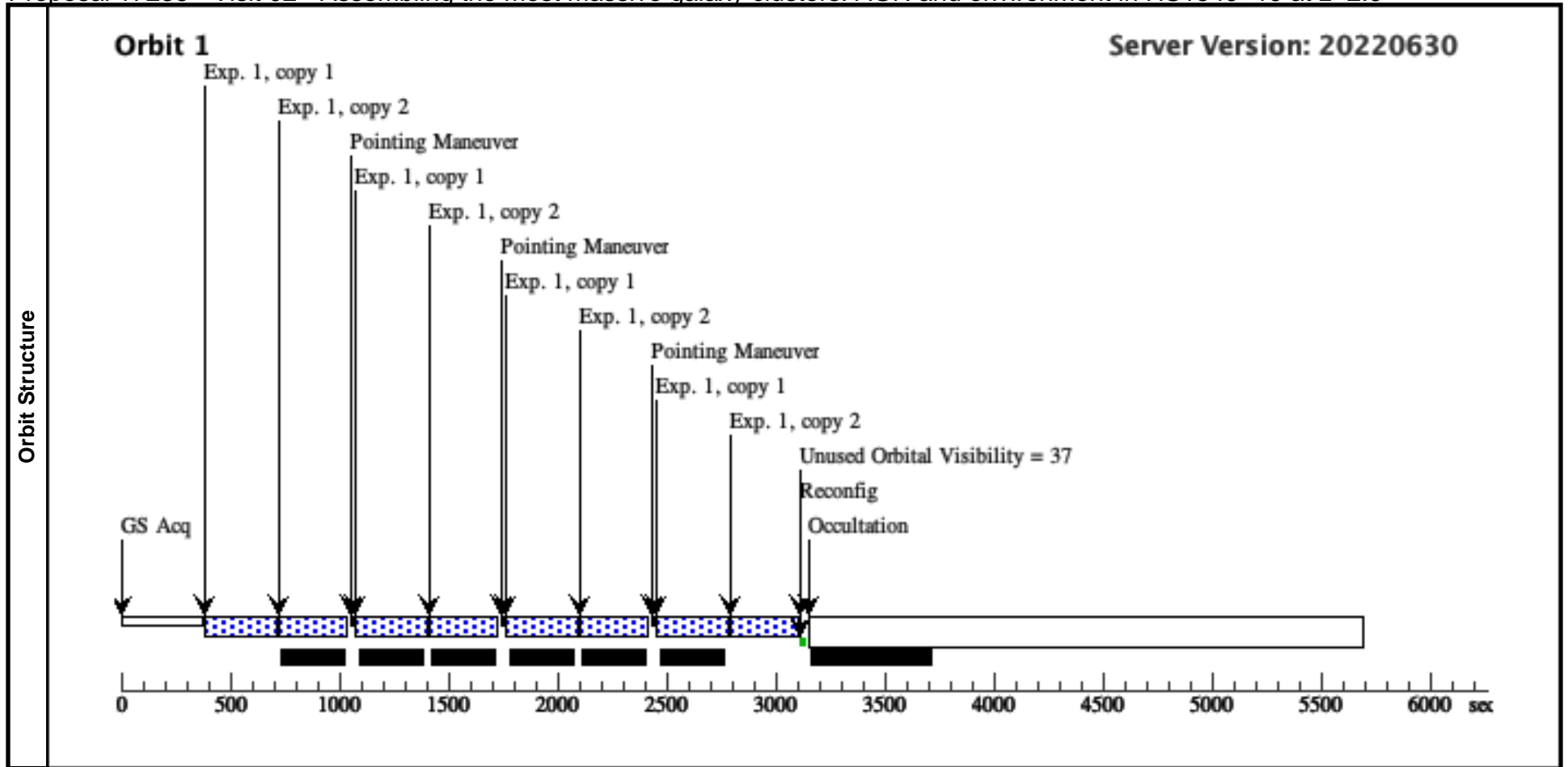
Visit	Proposal 17235, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)										
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365		Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false						(1)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	HS1549A	RA: 15 52 3.4000 (238.0141667d) Dec: +19 09 42.70 (19.16186d) Equinox: J2000		Redshift: 2.85		V=28		Reference Frame: ICRS		
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) HS1549A	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 01 (2)	302.938471 Secs X 2 (2423.508 Secs)		
									[==>(Pattern 1, Copy 1)] [==>(Pattern 1, Copy 2)] [==>(Pattern 2, Copy 1)] [==>(Pattern 2, Copy 2)] [==>(Pattern 3, Copy 1)] [==>(Pattern 3, Copy 2)] [==>(Pattern 4, Copy 1)] [==>(Pattern 4, Copy 2)]		[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>										



Proposal 17235 - Visit 02 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

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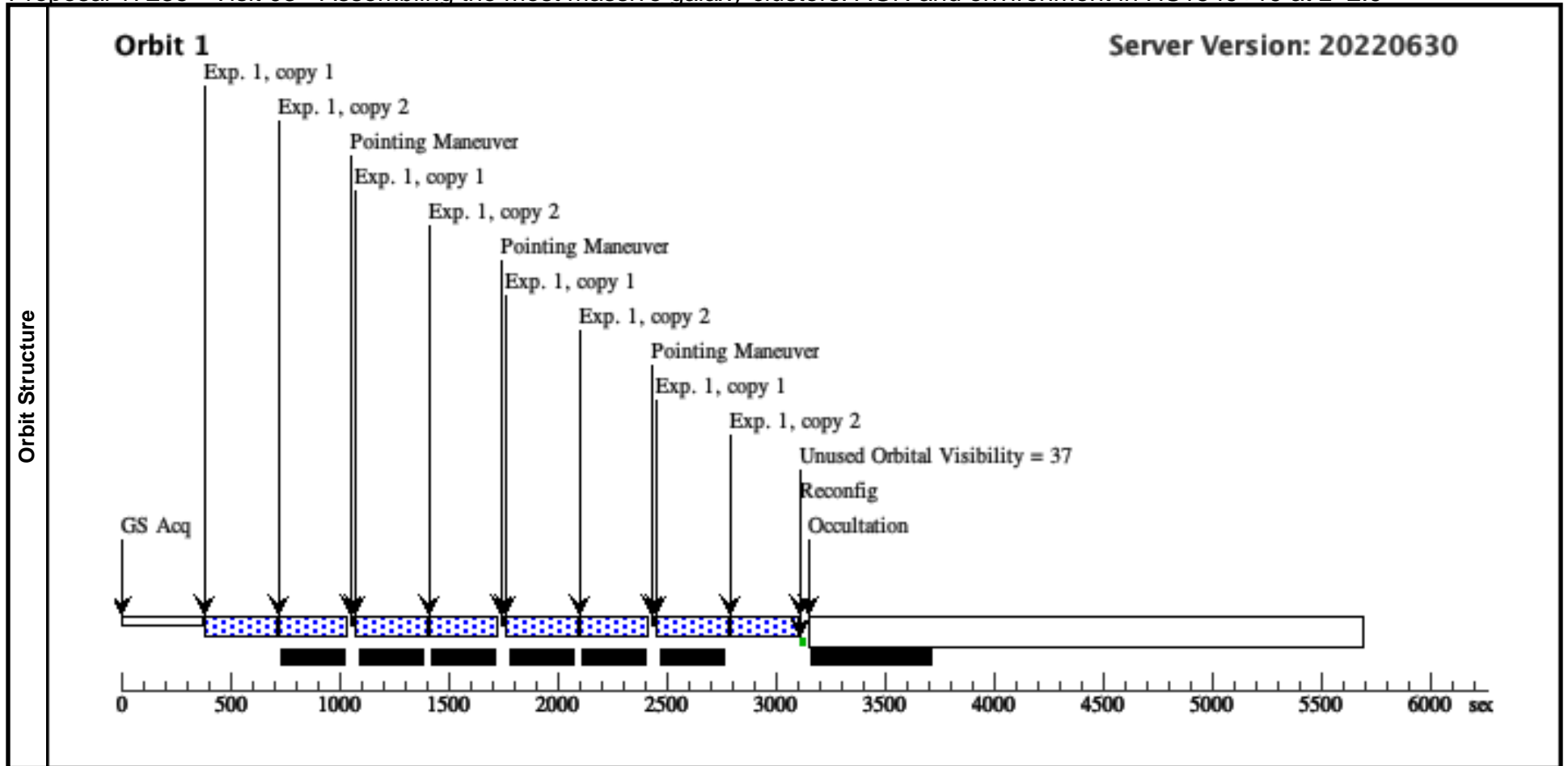
Visit	Proposal 17235, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
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		(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	HS1549B	RA: 15 51 55.3000 (237.9804167d) Dec: +19 09 22.70 (19.15631d) Equinox: J2000	Redshift: 2.85	V=28	Reference Frame: ICRS				
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) HS1549B	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 02 (2)	302.938471 Secs X 2 (2423.508 Secs)	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 03 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

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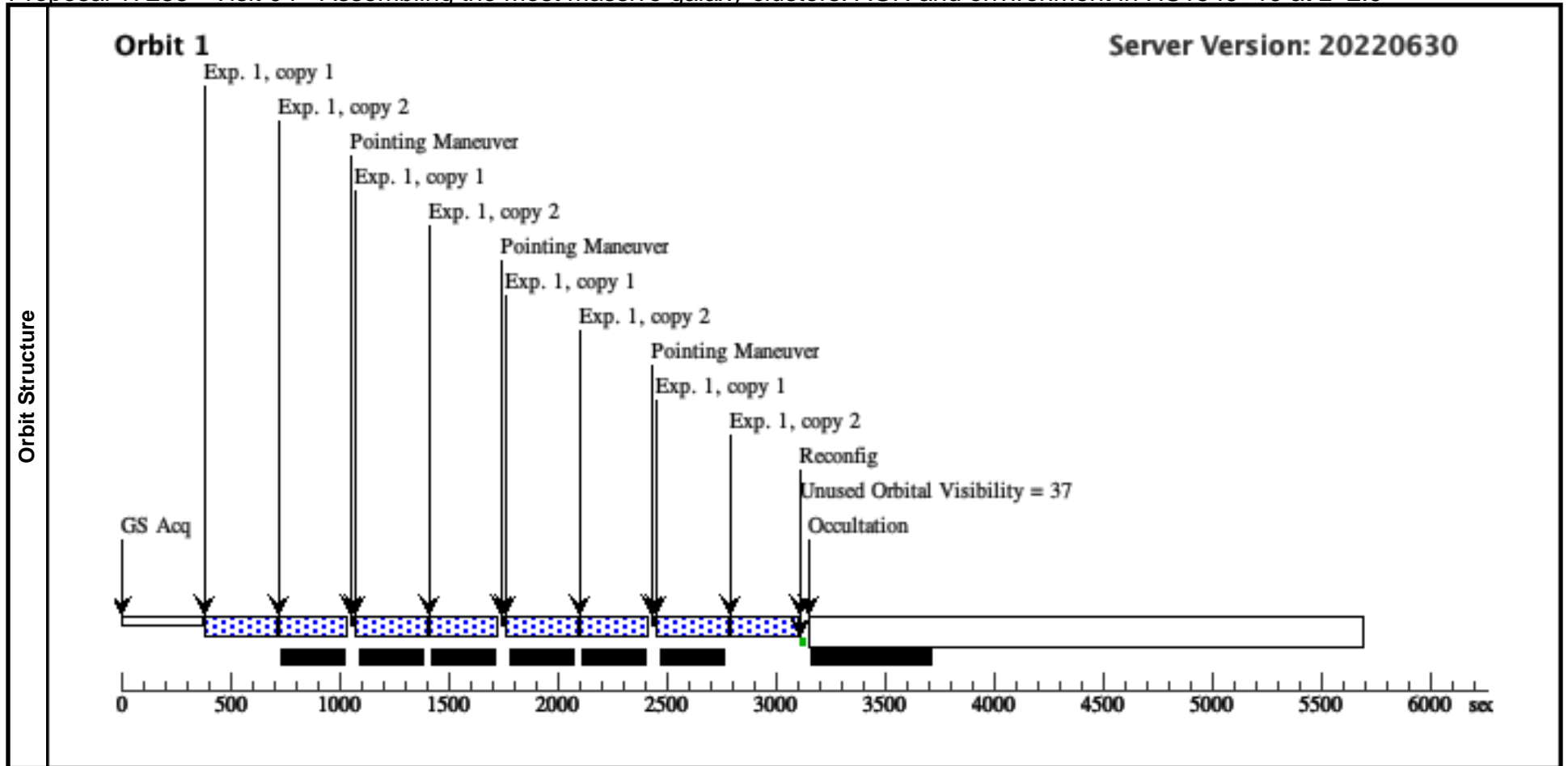
Visit	Proposal 17235, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	HS1549C	RA: 15 51 43.5000 (237.9312500d) Dec: +19 12 21.30 (19.20592d) Equinox: J2000	Redshift: 2.85	V=28	Reference Frame: ICRS				
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) HS1549C	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 03 (2)	302.938471 Secs X 2 (2423.508 Secs)	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 04 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

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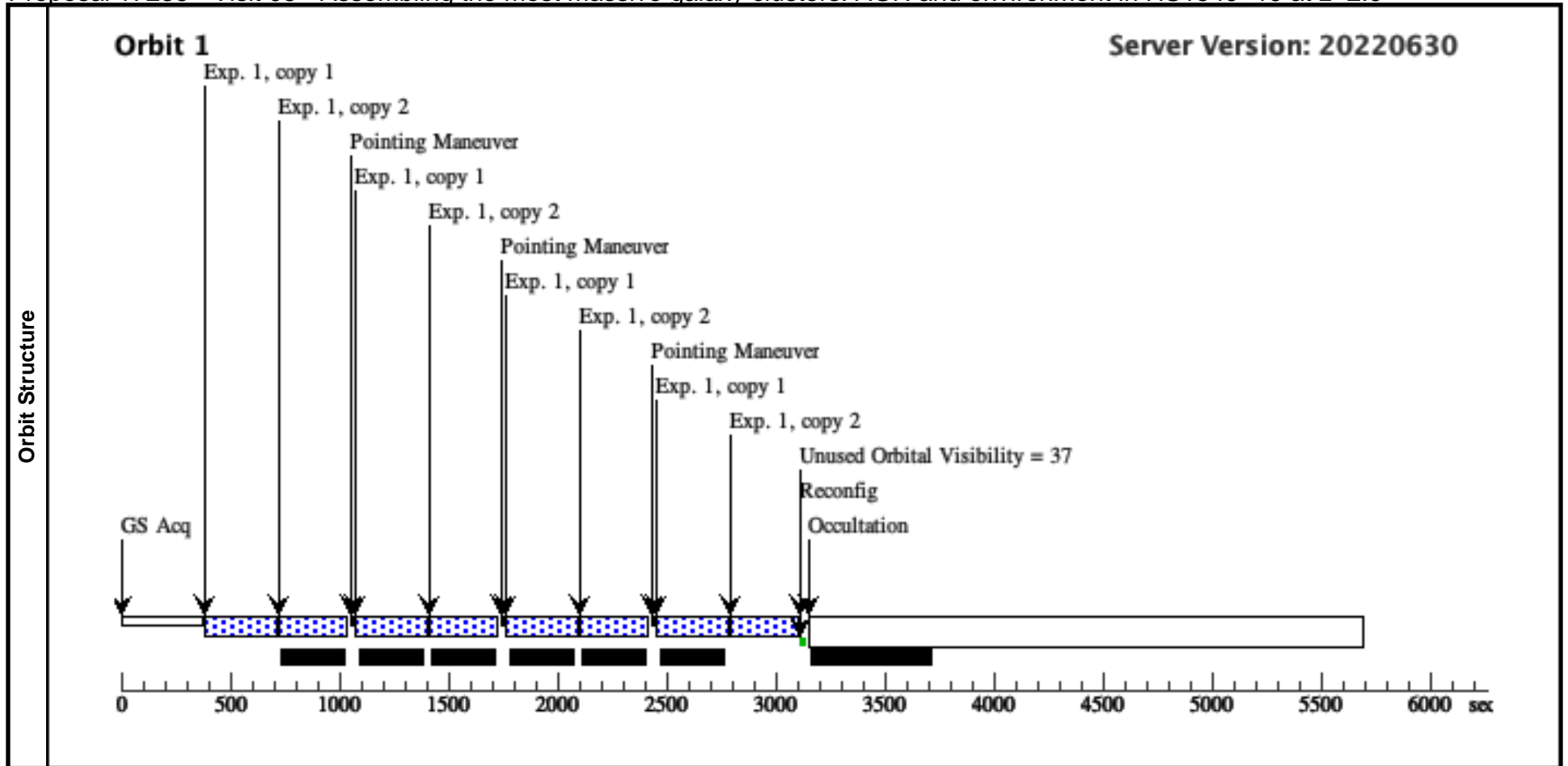
Visit	Proposal 17235, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	HS1549D	RA: 15 51 55.9000 (237.9829167d) Dec: +19 12 42.70 (19.21186d) Equinox: J2000	Redshift: 2.85	V=28	Reference Frame: ICRS				
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) HS1549D	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 17999999997	Pattern 2, Exps 1-1 i n Visit 04 (2)	302.938471 Secs X 2 (2423.508 Secs)	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 05 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

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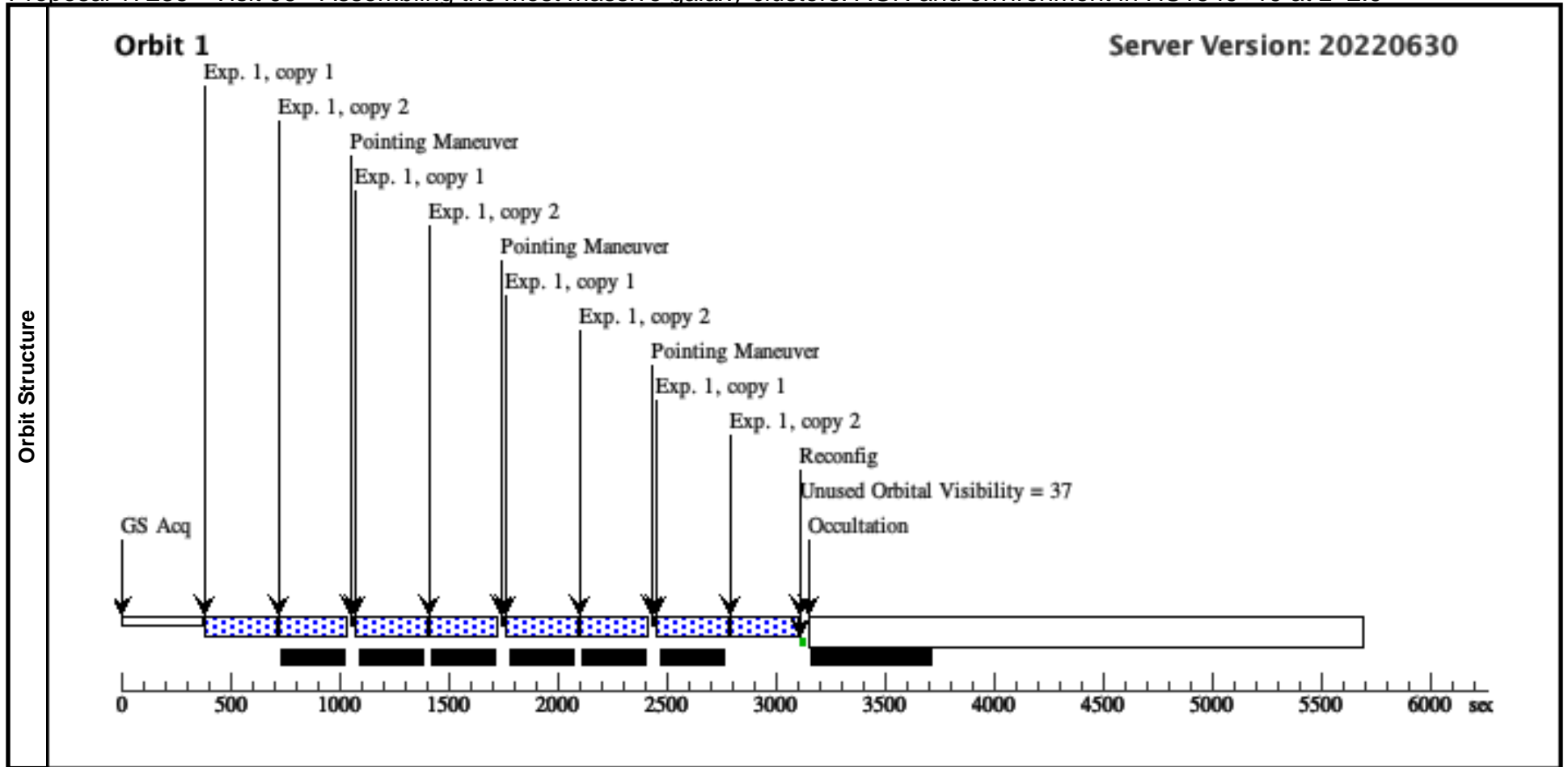
Visit	Proposal 17235, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	HS1549A	RA: 15 52 3.4000 (238.0141667d) Dec: +19 09 42.70 (19.16186d) Equinox: J2000	Redshift: 2.85	V=28	Reference Frame: ICRS				
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) HS1549A	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 05 (2)	302.938471 Secs X 2 (2423.508 Secs)	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 06 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

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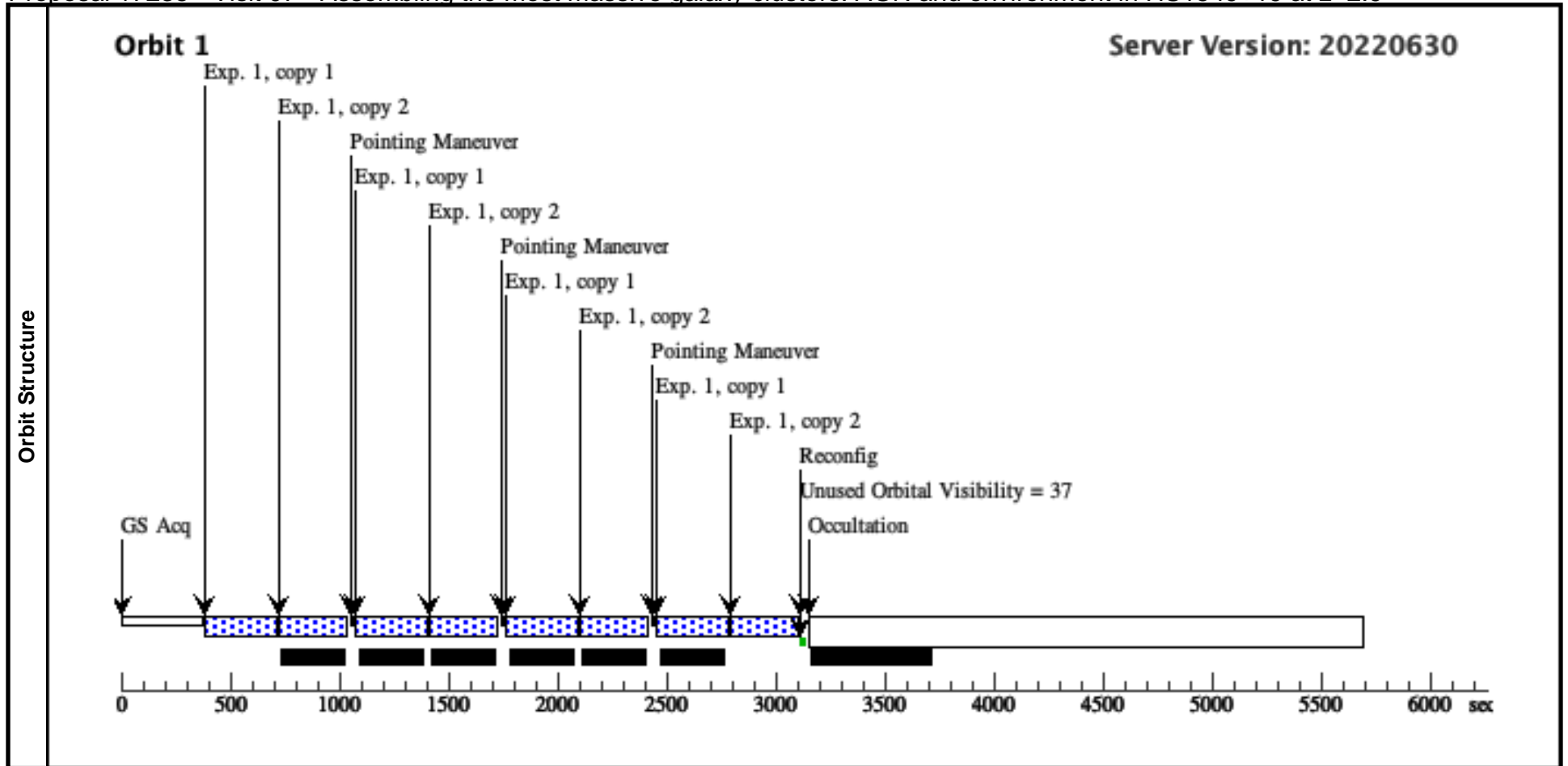
Visit	Proposal 17235, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
	(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365		Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false					(1)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(2)	HS1549B	RA: 15 51 55.3000 (237.9804167d) Dec: +19 09 22.70 (19.15631d) Equinox: J2000	Redshift: 2.85		V=28	Reference Frame: ICRS			
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) HS1549B	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 06 (2)	302.938471 Secs X 2 (2423.508 Secs) [==>(Pattern 1, Copy 1)] [==>(Pattern 1, Copy 2)] [==>(Pattern 2, Copy 1)] [==>(Pattern 2, Copy 2)] [==>(Pattern 3, Copy 1)] [==>(Pattern 3, Copy 2)] [==>(Pattern 4, Copy 1)] [==>(Pattern 4, Copy 2)]	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 07 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

Fri Nov 11 18:00:40 GMT 2022

Visit	Proposal 17235, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)									
Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
	(2)	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)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(3)	HS1549C	RA: 15 51 43.5000 (237.9312500d) Dec: +19 12 21.30 (19.20592d) Equinox: J2000	Redshift: 2.85		V=28	Reference Frame: ICRS			
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) HS1549C	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 179999999997	Pattern 2, Exps 1-1 i n Visit 07 (2)	302.938471 Secs X 2 (2423.508 Secs) [==>(Pattern 1, Copy 1)] [==>(Pattern 1, Copy 2)] [==>(Pattern 2, Copy 1)] [==>(Pattern 2, Copy 2)] [==>(Pattern 3, Copy 1)] [==>(Pattern 3, Copy 2)] [==>(Pattern 4, Copy 1)] [==>(Pattern 4, Copy 2)]	[1]
	<i>Comments: 5000s on-source in F160W filter targeting HS1549a</i>									



Proposal 17235 - Visit 08 - Assembling the most massive galaxy clusters: AGN and environment in HS1549+19 at z=2.9

Fri Nov 11 18:00:40 GMT 2022

Visit	Proposal 17235, Visit 08, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
(2)		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)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(4)	HS1549D	RA: 15 51 55.9000 (237.9829167d) Dec: +19 12 42.70 (19.21186d) Equinox: J2000		Redshift: 2.85		V=28	Reference Frame: ICRS			
Comments: Category=CLUSTER OF GALAXIES Description=[ACCRETION DISK, INTERACTING GALAXY, RICH CLUSTER, STAR FORMING REGION]											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(4) HS1549D	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=13; SAMP-SEQ=SPAR S25	POS TARG 61.8712 42499999994,-54.84 17999999997	Pattern 2, Exps 1-1 i n Visit 08 (2)	302.938471 Secs X 2 (2423.508 Secs)		[1]
Comments: 5000s on-source in F160W filter targeting HS1549a											

