



14652 - Super-Eight: The brightest z~8 Galaxies

Cycle: 24, Proposal Category: GO

(JWST Initiative)

(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) SUPER-8-1	ACS/WFC	2	09-Nov-2016 11:34:14.0	yes
02	(2) SUPER-8-2	ACS/WFC	2	09-Nov-2016 11:34:15.0	yes
03	(3) SUPER-8-3	ACS/WFC	2	09-Nov-2016 11:34:16.0	yes
04	(4) SUPER-8-4	ACS/WFC	2	09-Nov-2016 11:34:17.0	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>
05	(5) BORG-0116+1425-747	ACS/WFC	2	09-Nov-2016 11:34:17.0	yes
06	(6) BORG-2229-0945-548	ACS/WFC	2	09-Nov-2016 11:34:18.0	yes
07	(7) BORG-1152+3402-912	ACS/WFC	2	09-Nov-2016 11:34:19.0	yes
08	(8) BORG-0853+0310-145	ACS/WFC	2	09-Nov-2016 11:34:19.0	yes

16 Total Orbits Used

ABSTRACT

What are the properties of the most massive $z\sim 8$ galaxies ("Super-Eights") and how luminous can these galaxies become at that epoch? Answering these questions is challenging due to the rarity of luminous $z\sim 8$ galaxies and the large field-to-field variations in their volume densities. Indeed, the full wide-area CANDELS program only shows 3 $z\sim 8$ galaxy candidates brighter than 25.5 mag and all of these candidates conspicuously lie in the same CANDELS field (EGS).

One of our strongest new probes for particularly luminous $z\sim 8$ galaxies are the WFC3 Pure-Parallel (PP) programs. Particularly intriguing are 8 bright $z\sim 8$ candidates in these observations. These candidates have similar luminosities as the 3 brightest $z\sim 8$ candidates from CANDELS (all spectroscopically confirmed). However, the uncertain contamination levels at extreme bright end of $z\sim 8$ selection mean that follow-up observations are critical. We propose highly-efficient pointed HST and Spitzer/IRAC observations to determine if these candidates are indeed at $z\sim 8$. We estimate that anywhere from 50 to 100% of the targeted sources will be confirmed to be at $z\sim 8$ based on our results from CANDELS. The estimate is very uncertain due to very large cosmic variance in the CANDELS result and contamination from rare low-redshift sources.

When combined with CANDELS, our observations would provide us the strongest current constraints on the volume density of bright, massive galaxies in the early Universe (serving as a guide to models of their build-up) and also provide valuable targets for future spectroscopy (e.g. with JWST), useful for probing the ionization state of the IGM.

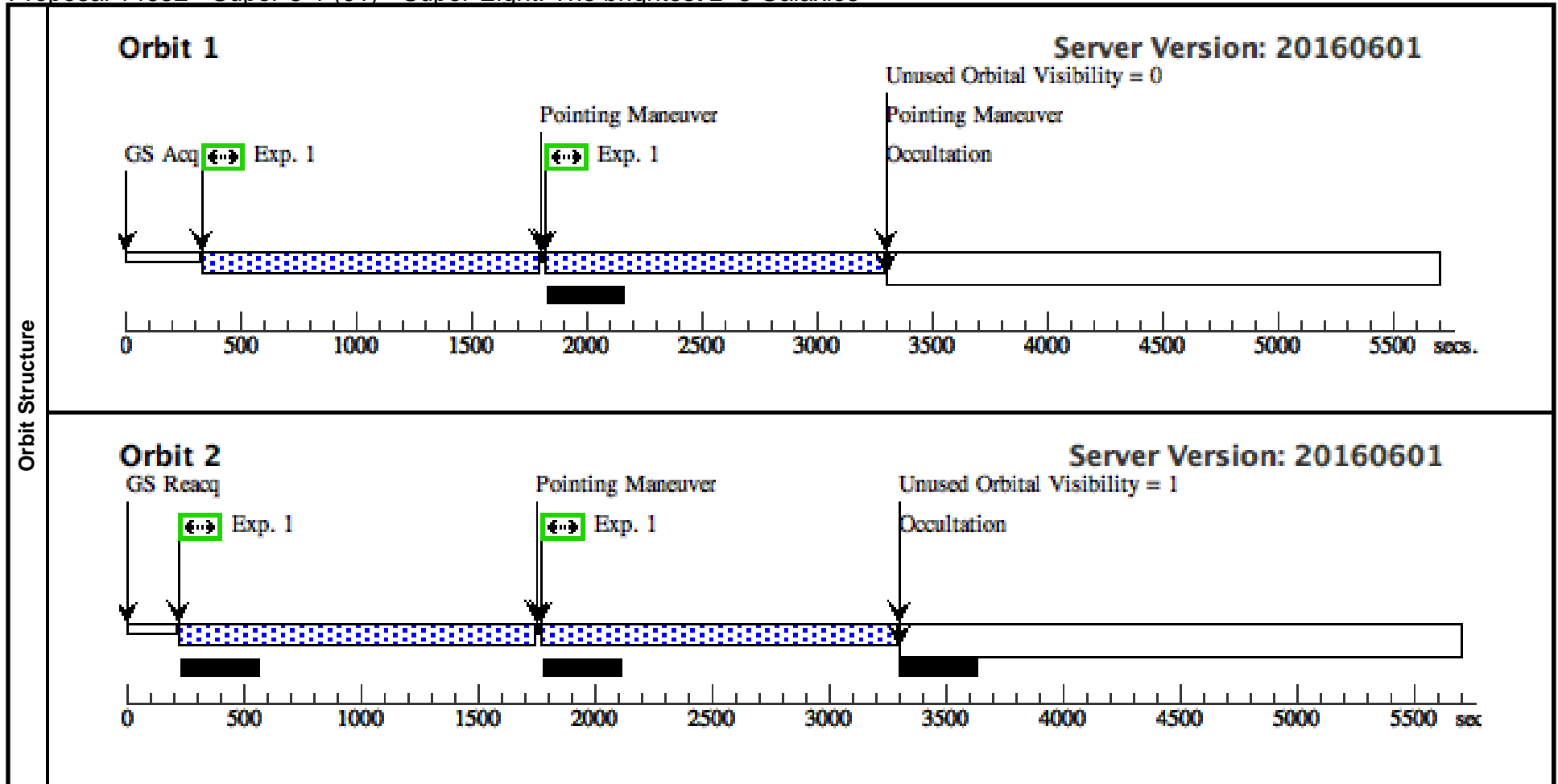
OBSERVING DESCRIPTION

ACS F814W observations

Proposal 14652 - Super-8-1 (01) - Super-Eight: The brightest z~8 Galaxies

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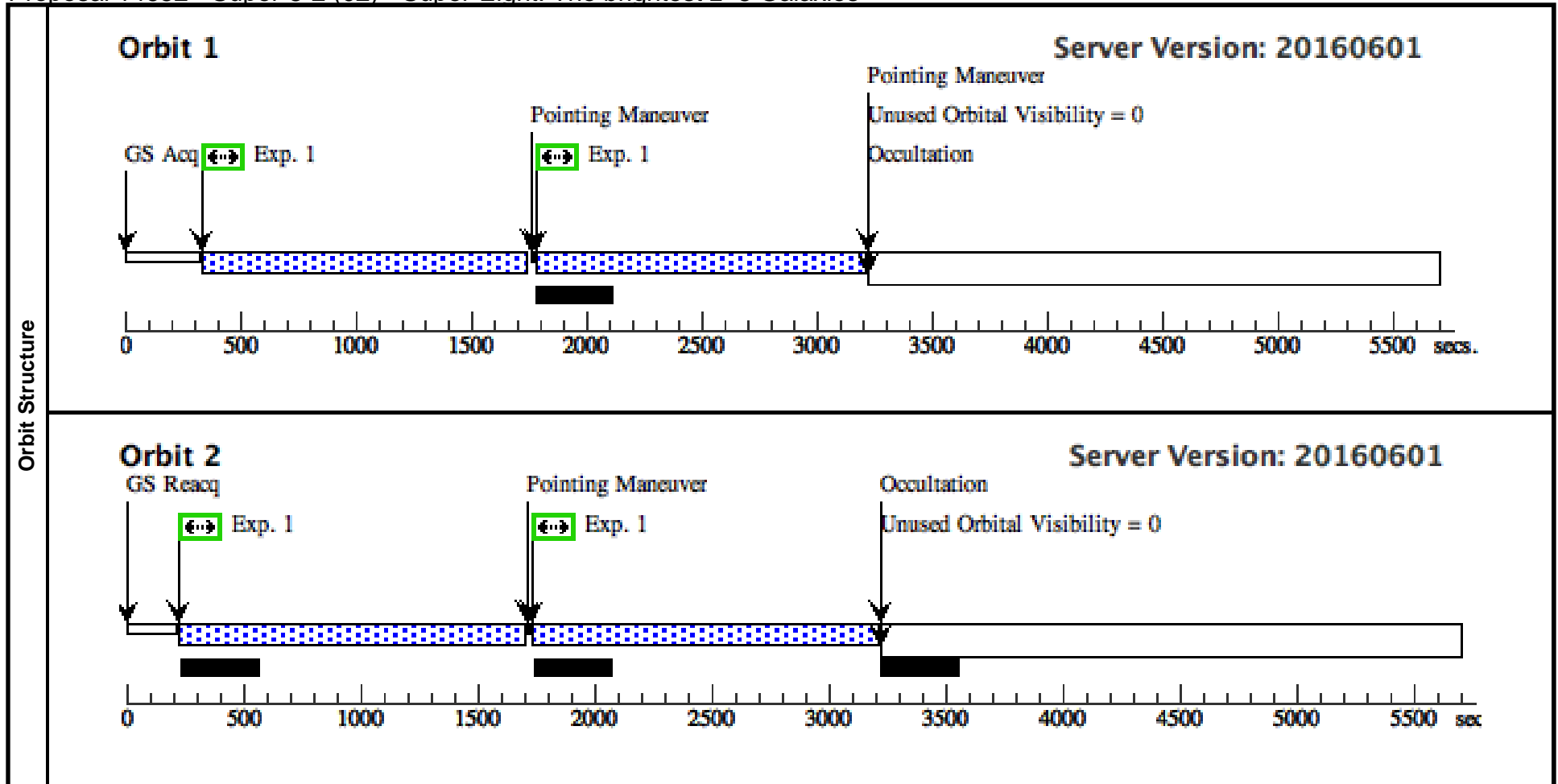
Visit	Proposal 14652, Super-8-1 (01), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	SUPER-8-1	RA: 23 50 34.6600 (357.6444167d) Dec: -43 32 32.50 (-43.54236d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
	<i>Comments: Extended=NO</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) SUPER-8-1	ACS/WFC, ACCUM, WFC1-CTE	F814W				Pattern 1, Exps 1-1 in Super-8-1 (01) (1) [==>1250.0 Secs (Pattern 1)] [==>1346.0 Secs (Pattern 2)] [==>1394.0 Secs (Pattern 3)] [==>1394.0 Secs (Pattern 4)]	[1] [2]



Proposal 14652 - Super-8-2 (02) - Super-Eight: The brightest z~8 Galaxies

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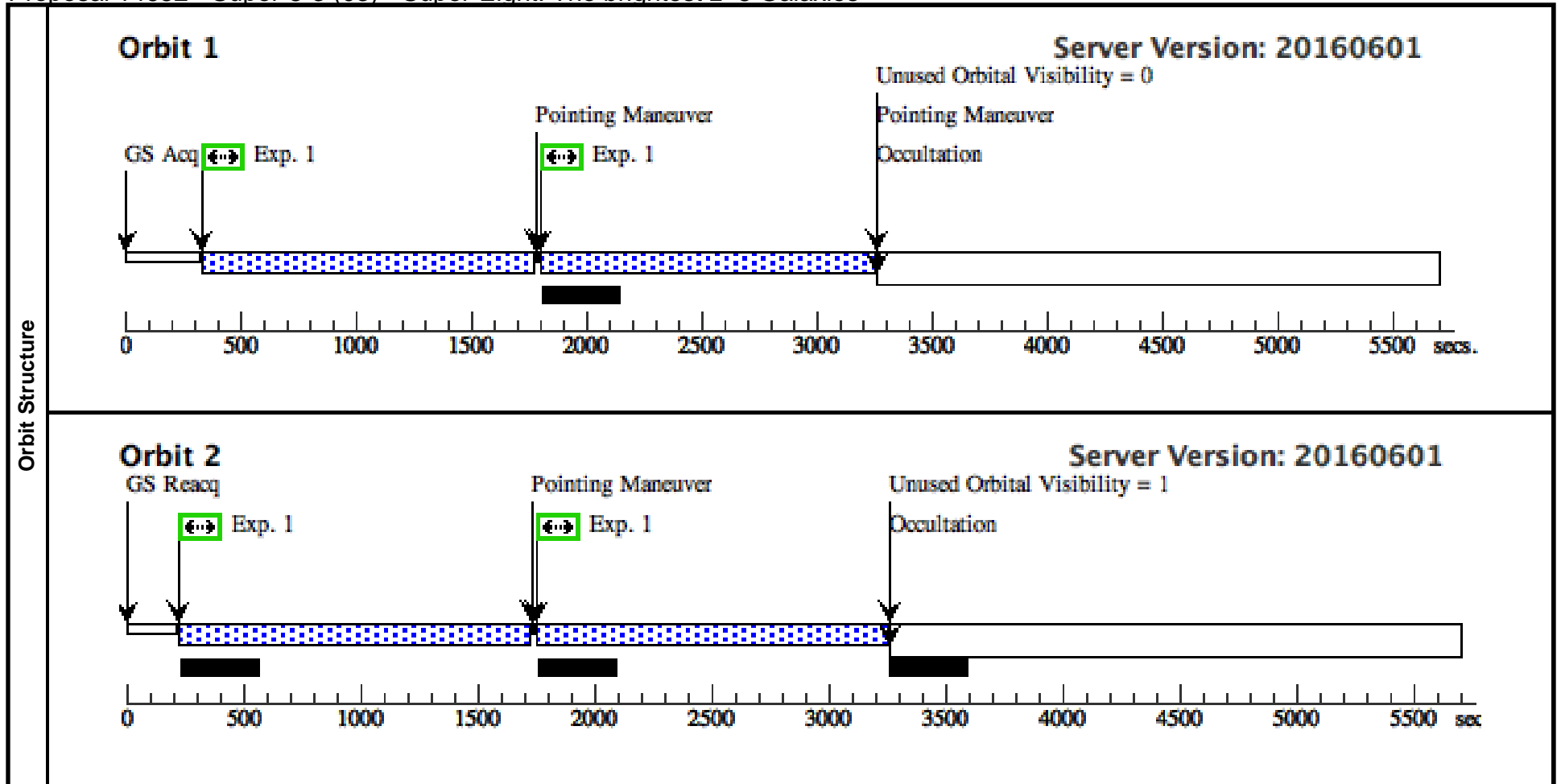
Visit	Proposal 14652, Super-8-2 (02), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)										
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		(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(2)	SUPER-8-2	RA: 08 35 13.1000 (128.8045833d) Dec: +24 55 38.10 (24.92725d) Equinox: J2000				V=28.0			Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(2) SUPER-8-2	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 i n Super-8-2 (02) (1)	1300 Secs (5215 Secs)		
									[==>1207.0 Secs (Pattern 1)]		[1]
									[==>1304.0 Secs (Pattern 2)]		
								[==>1352.0 Secs (Pattern 3)]		[2]	
								[==>1352.0 Secs (Pattern 4)]			



Proposal 14652 - Super-8-3 (03) - Super-Eight: The brightest z~8 Galaxies

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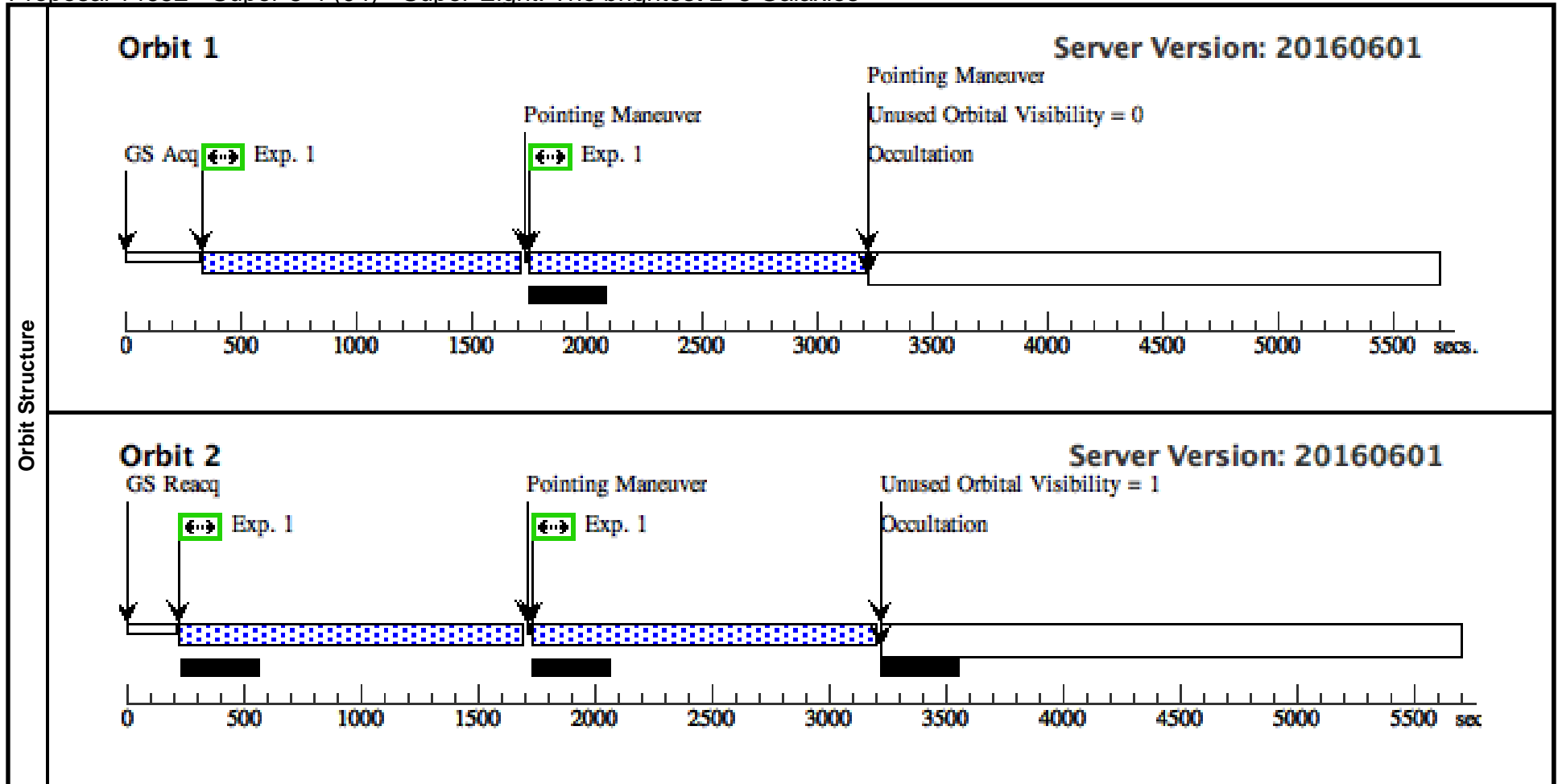
Visit	Proposal 14652, Super-8-3 (03), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	SUPER-8-3	RA: 15 57 5.7000 (239.2737500d) Dec: -37 46 55.50 (-37.78208d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) SUPER-8-3	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 i n Super-8-3 (03) (1)	1300 Secs (5304 Secs) [==>1230.0 Secs (Pattern 1)] [==>1326.0 Secs (Pattern 2)] [==>1374.0 Secs (Pattern 3)] [==>1374.0 Secs (Pattern 4)]	[1] [2]



Proposal 14652 - Super-8-4 (04) - Super-Eight: The brightest z~8 Galaxies

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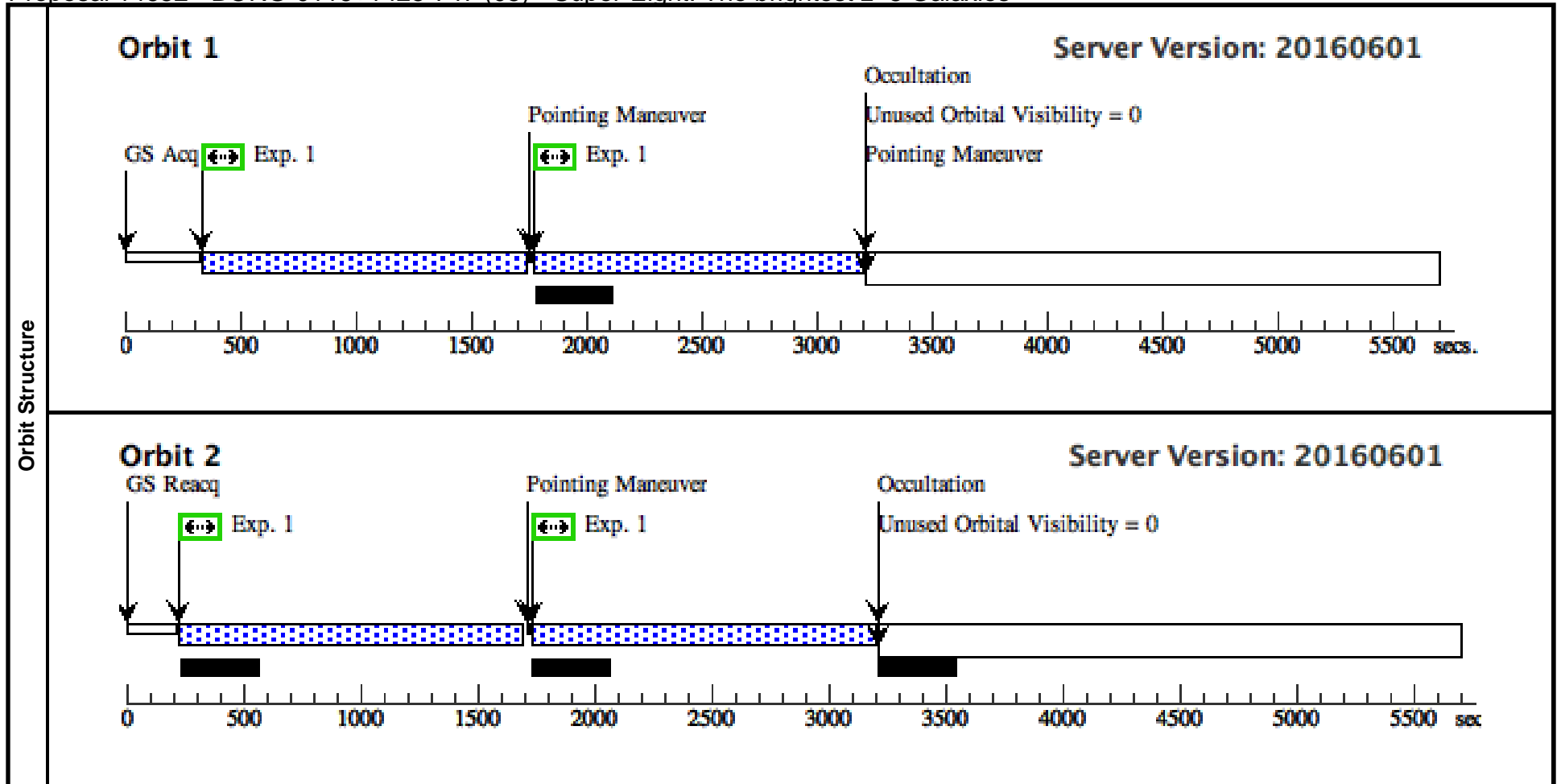
Visit	Proposal 14652, Super-8-4 (04), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	SUPER-8-4	RA: 22 02 50.0000 (330.7083333d) Dec: +18 51 0.20 (18.85006d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) SUPER-8-4	ACS/WFC, ACCUM, WFC1-CTE	F814W				Pattern 1, Exps 1-1 i n Super-8-4 (04) (1)	1300 Secs (5212 Secs) [==>1178.0 Secs (Pattern 1)] [==>1332.0 Secs (Pattern 2)] [==>1351.0 Secs (Pattern 3)] [==>1351.0 Secs (Pattern 4)]



Proposal 14652 - BORG-0116+1425-747 (05) - Super-Eight: The brightest z~8 Galaxies

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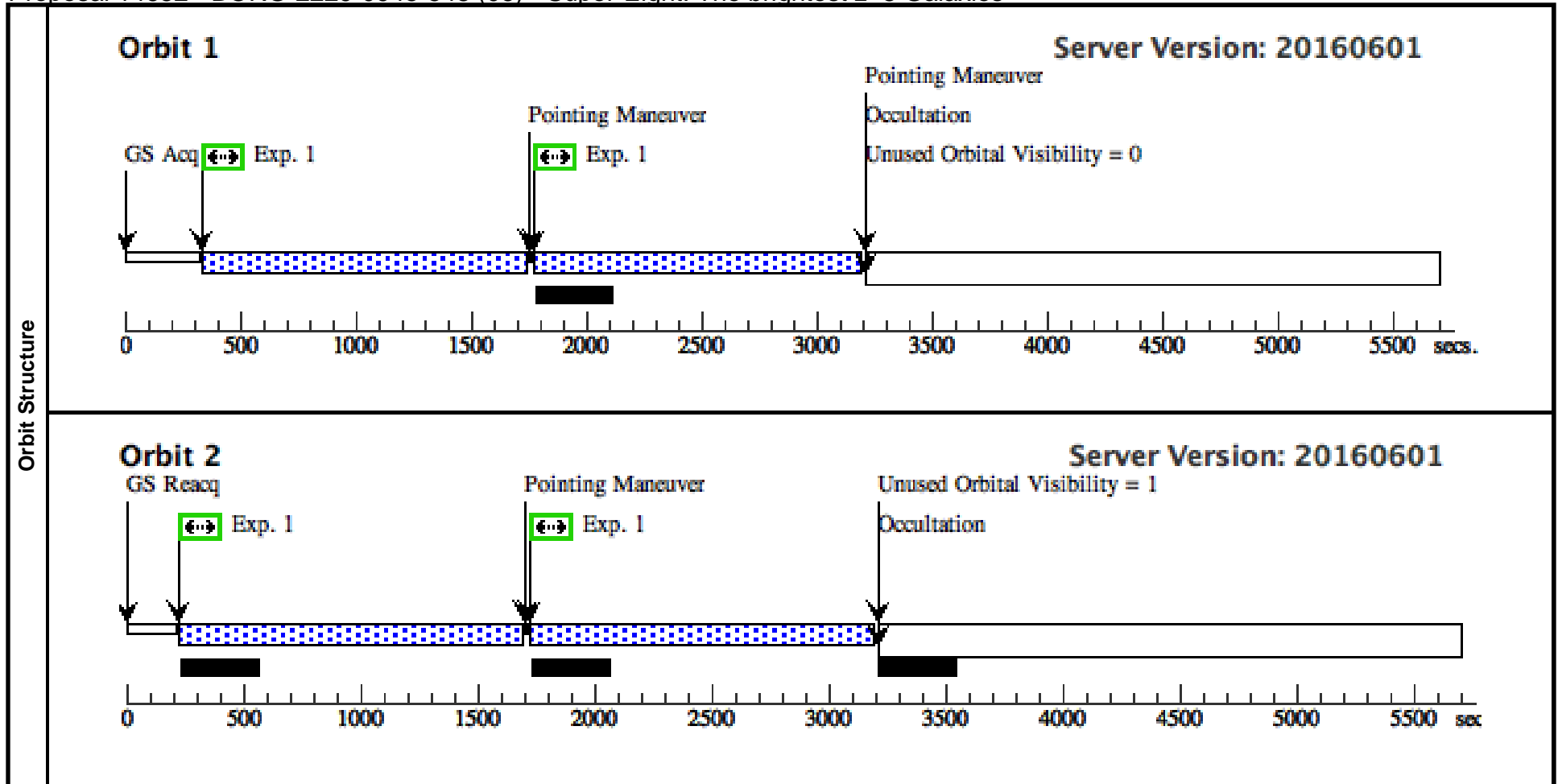
Visit	Proposal 14652, BORG-0116+1425-747 (05), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	BORG-0116+1425-747	RA: 01 16 8.9300 (19.0372083d) Dec: +14 24 24.50 (14.40681d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(5) BORG-0116+1425-747	BORG-0116+1425-747	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 in BORG-0116+1425-747 (05) (1)	1300 Secs (5207 Secs)	
									[==>1205.0 Secs (Pattern 1)]	[1]
									[==>1302.0 Secs (Pattern 2)]	
								[==>1350.0 Secs (Pattern 3)]		
								[==>1350.0 Secs (Pattern 4)]	[2]	



Proposal 14652 - BORG-2229-0945-548 (06) - Super-Eight: The brightest z~8 Galaxies

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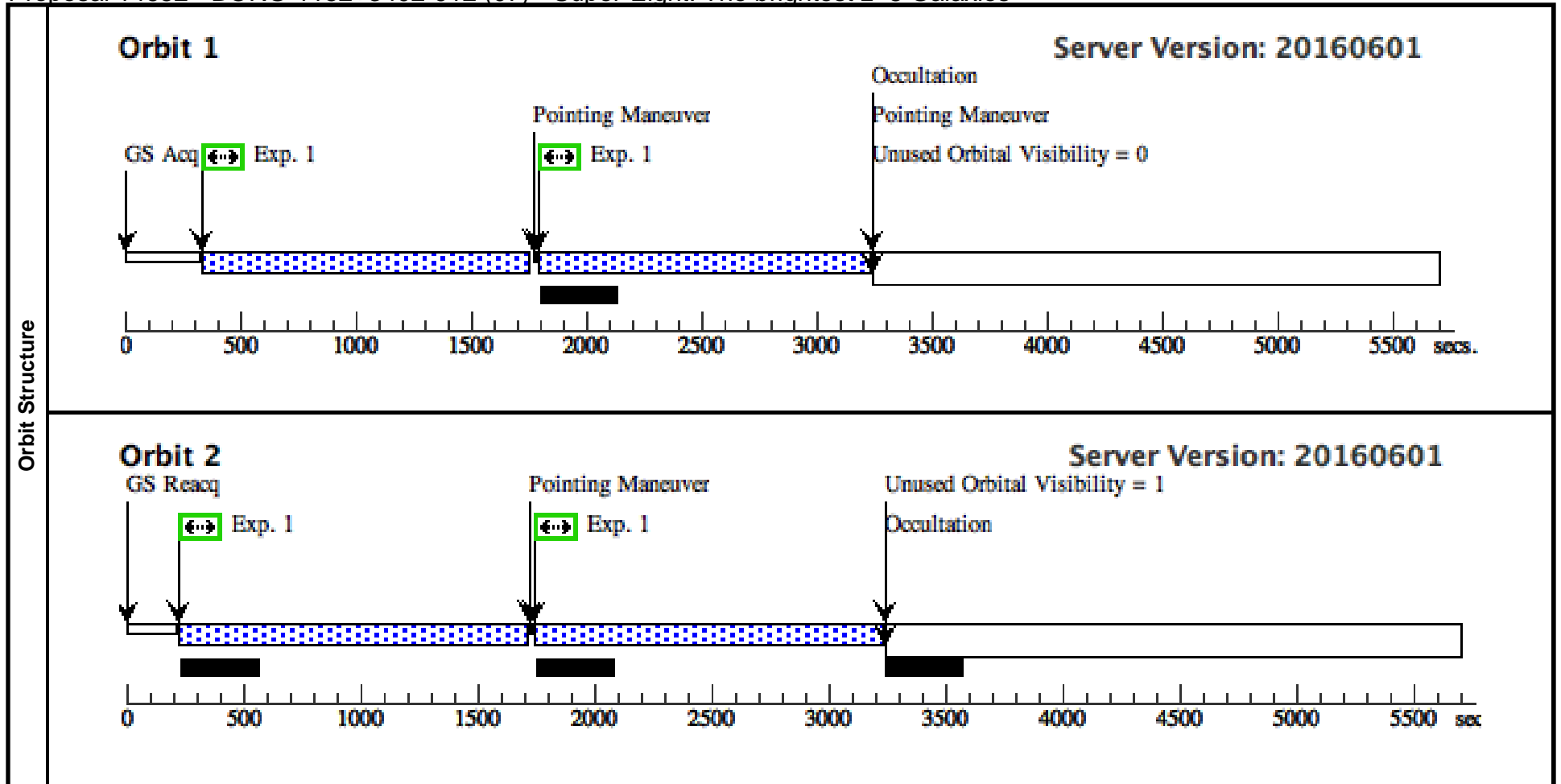
Visit	Proposal 14652, BORG-2229-0945-548 (06), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	BORG-2229-0945-548	RA: 22 28 45.6700 (337.1902917d) Dec: -09 44 56.80 (-9.74911d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(6) BORG-2229-0945-548	BORG-2229-0945-548	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 in BORG-2229-0945-548 (06) (1)	1300 Secs (5196 Secs)	
									[==>1203.0 Secs (Pattern 1)]	[1]
									[==>1299.0 Secs (Pattern 2)]	
								[==>1347.0 Secs (Pattern 3)]		
								[==>1347.0 Secs (Pattern 4)]	[2]	



Proposal 14652 - BORG-1152+3402-912 (07) - Super-Eight: The brightest z~8 Galaxies

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Visit	Proposal 14652, BORG-1152+3402-912 (07), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(7)	BORG-1152+3402-912	RA: 11 51 37.8500 (177.9077083d) Dec: +34 02 22.90 (34.03969d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) BORG-1152+3402-912	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 in BORG-1152+3402-912 (07) (1)	1300 Secs (5260 Secs) [==>1219.0 Secs (Pattern 1)] [==>1315.0 Secs (Pattern 2)] [==>1363.0 Secs (Pattern 3)] [==>1363.0 Secs (Pattern 4)]	[1] [2]



Proposal 14652 - BORG-0853+0310-145 (08) - Super-Eight: The brightest z~8 Galaxies

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Visit	Proposal 14652, BORG-0853+0310-145 (08), implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(8)	BORG-0853+0310-145	RA: 08 52 44.5200 (133.1855000d) Dec: +03 08 48.10 (3.14669d) Equinox: J2000		V=28.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(8) BORG-0853+0310-145	ACS/WFC, ACCUM, WFC1-CTE	F814W			Pattern 1, Exps 1-1 in BORG-0853+0310-145 (08) (1)	1300 Secs (5191 Secs) [==>1201.0 Secs (Pattern 1)] [==>1298.0 Secs (Pattern 2)] [==>1346.0 Secs (Pattern 3)] [==>1346.0 Secs (Pattern 4)]	[1] [2]

