



11135 - Extreme makeovers: Tracing the transformation of massive galaxies at $z \sim 2.5$

Cycle: 16, 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) 1030-807	NIC2	3	12-Aug-2008 21:01:00.0	yes
02	(2) 1030-1531	NIC2	3	12-Aug-2008 21:01:05.0	yes
03	(3) 1030-2026	NIC2	3	12-Aug-2008 21:01:09.0	yes
04	(4) 1030-2329	NIC2	3	12-Aug-2008 21:01:16.0	yes
05	(5) 1030-2728	NIC2	3	12-Aug-2008 21:01:20.0	yes
06	(6) ECDFS-3662	NIC2	3	12-Aug-2008 21:01:24.0	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>
56	(11) ECDFS-3662-HOPR	NIC2	2	12-Aug-2008 21:01:27.0	yes
07	(7) ECDFS-3694	NIC2	3	12-Aug-2008 21:01:30.0	yes
08	(8) ECDFS-5754	NIC2	3	12-Aug-2008 21:01:33.0	yes
09	(9) ECDFS-3896	NIC2	3	12-Aug-2008 21:01:37.0	yes
10	(10) ECDFS-10525	NIC2	3	12-Aug-2008 21:01:40.0	yes

32 Total Orbits Used

ABSTRACT

To obtain a full spectroscopic census of the universe at $z \sim 2.5$ we have conducted a near-infrared spectroscopic survey for K-selected galaxies. We found that, in contrast to the local universe, massive high-redshift galaxies span a wide range of properties, varying from (dusty) star burst to "red and dead" galaxies. This may imply that massive galaxies transform from star-forming to quiescent galaxies in the targeted redshift range. To understand whether the 9 quiescent galaxies in our sample are the progenitors of local elliptical, we are observing them in the current cycle with NIC2. For cycle 16 we propose to complete our sample of massive $z \sim 2.5$ galaxies and image the remaining 10 galaxies, which all have emission lines. Based on emission-line diagnostics, 6 of these galaxies are identified as star-forming objects and 4 harbor an active galactic nucleus. The goals are to 1) determine whether star formation in massive $z \sim 2.5$ galaxies takes place in disks or is triggered by merger activity, 2) derive the contribution of AGNs to the rest-frame optical emission, and 3) test whether the morphologies are consistent with the idea that the star-forming galaxies, AGNs, and quiescent galaxies represent subsequent phases of an evolutionary sequence. The combination of both programs will provide the first morphological study of a spectroscopically confirmed massive galaxy sample at $z \sim 2.5$.

OBSERVING DESCRIPTION

We image 10 faint near-IR selected galaxies with NIC2 in the F160W filter. All galaxies are observed for 3 orbits each. An integer pixel dither pattern is used, with 36 pixels in x and 4 pixels in y, with two MULTIACCUM exposures per orbit. The dither pattern is a compromise between

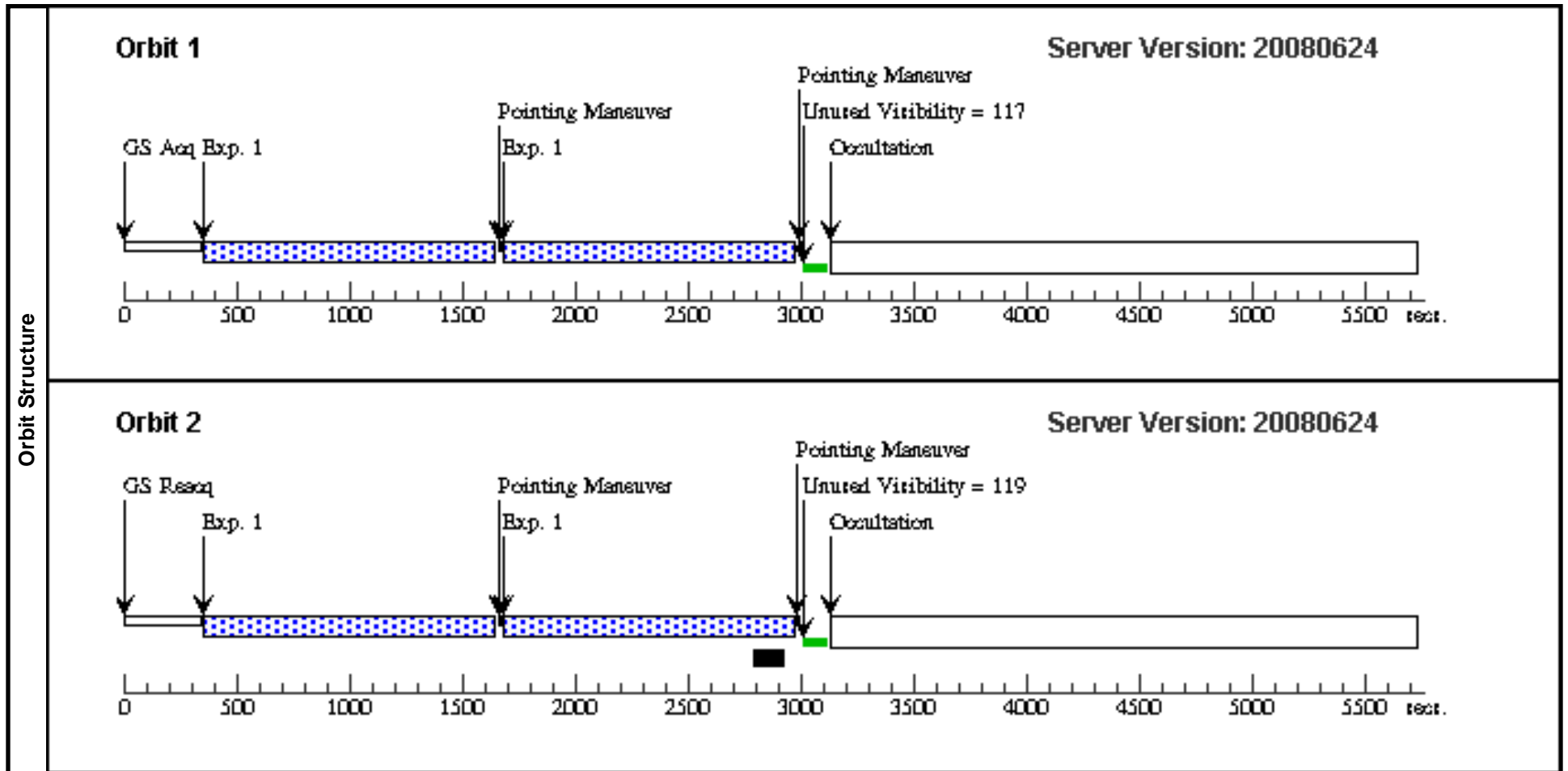
minimizing read noise and maximizing bad pixel rejection and background subtraction.

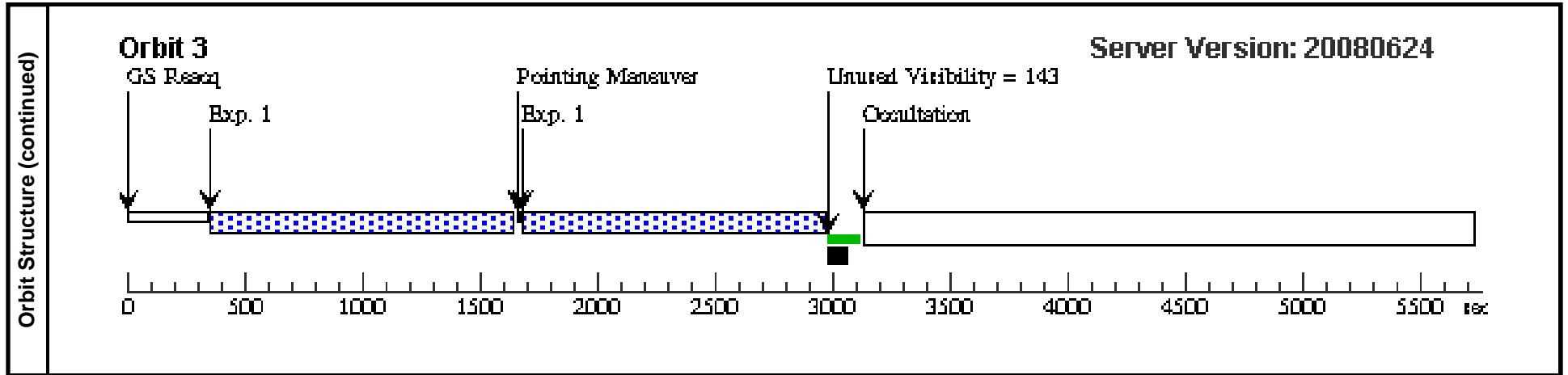
PLEASE DO NOT SCHEDULE SHORTLY AFTER SAA PASSAGE: these are faint objects and the science will be compromised if the observations are scheduled right after an SAA passage.

Proposal 11135 - Visit 01 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:43 GMT 2008

Visit	Proposal 11135, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	1030-807	RA: 10 30 20.0000 (157.5833333d) Dec: +05 22 32.80 (5.37578d) Equinox: J2000			V=(?) H=20.7	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) 1030-807	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
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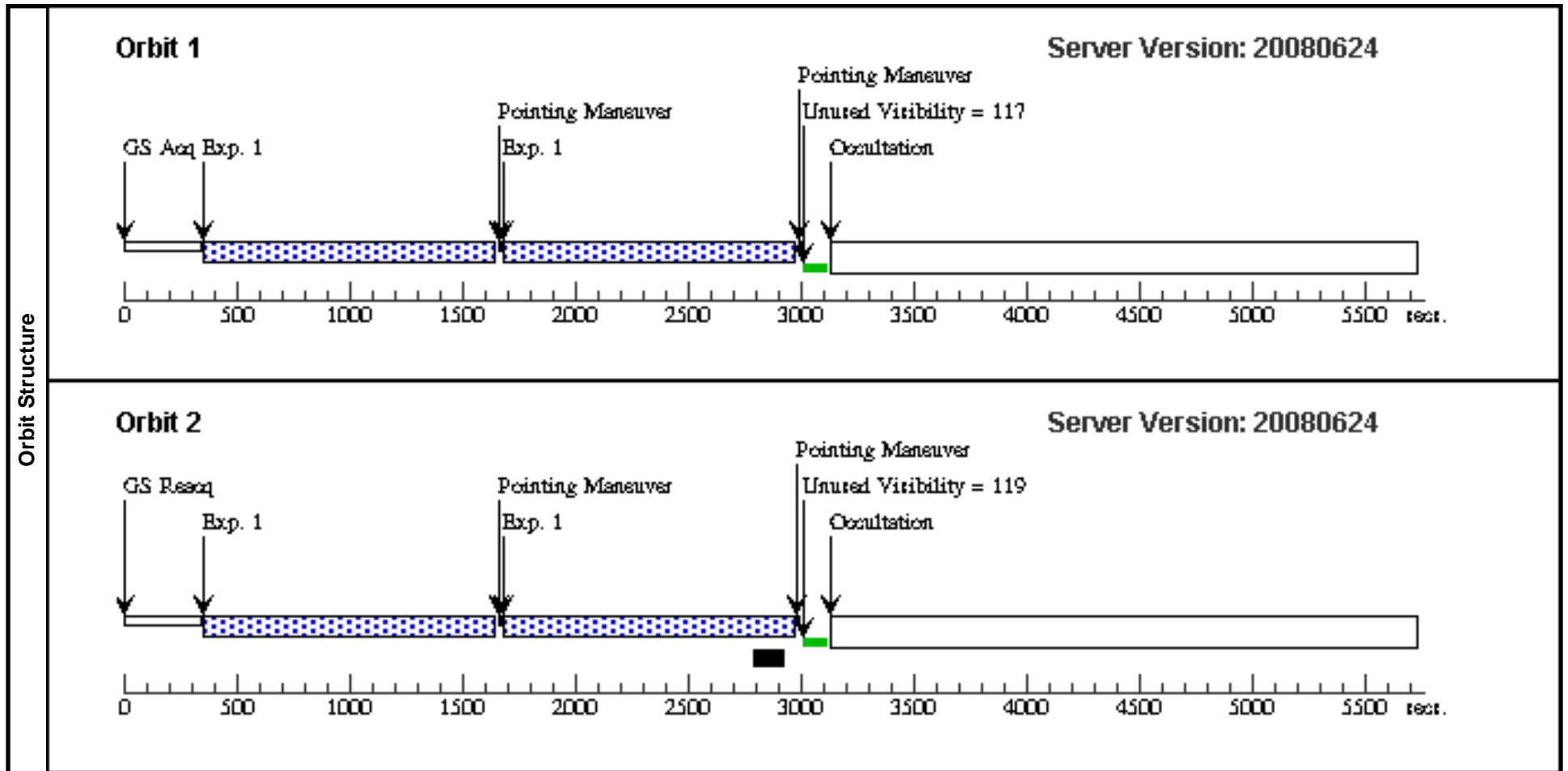


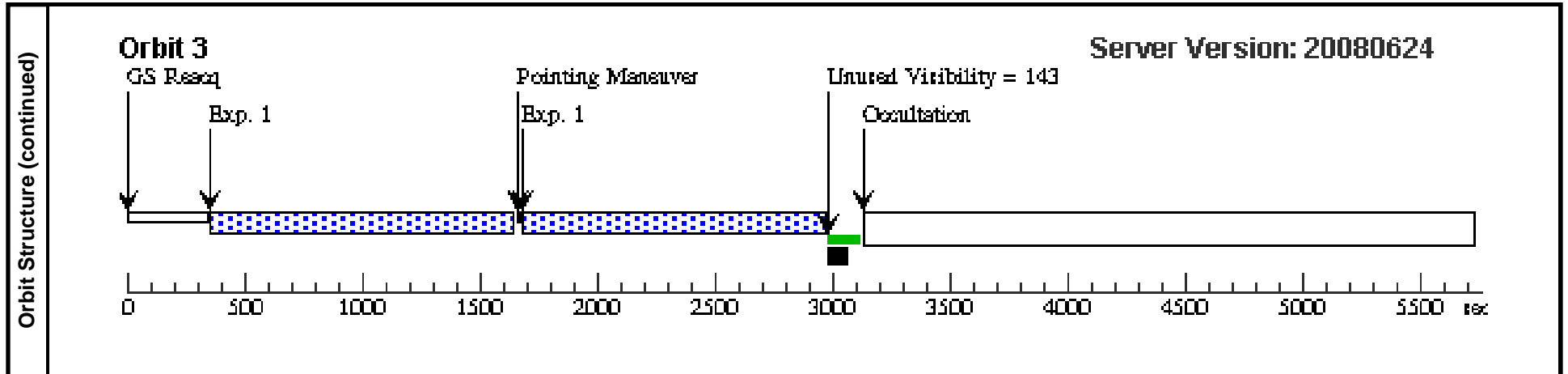


Proposal 11135 - Visit 02 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:44 GMT 2008

Visit	Proposal 11135, Visit 02, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	1030-1531	RA: 10 30 38.9000 (157.6620833d) Dec: +05 24 52.00 (5.41444d) Equinox: J2000		V=(?) H=20.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) 1030-1531	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
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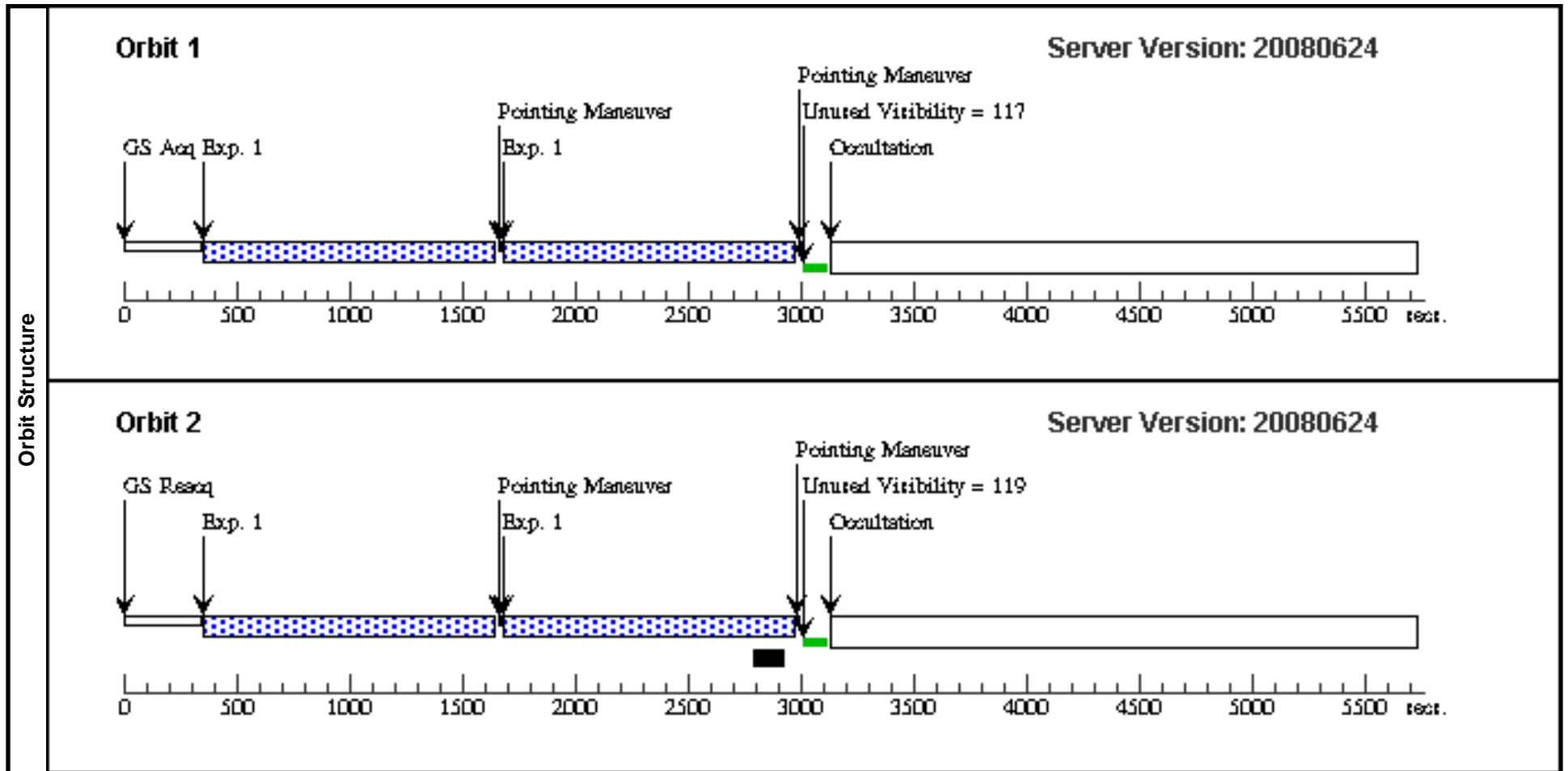


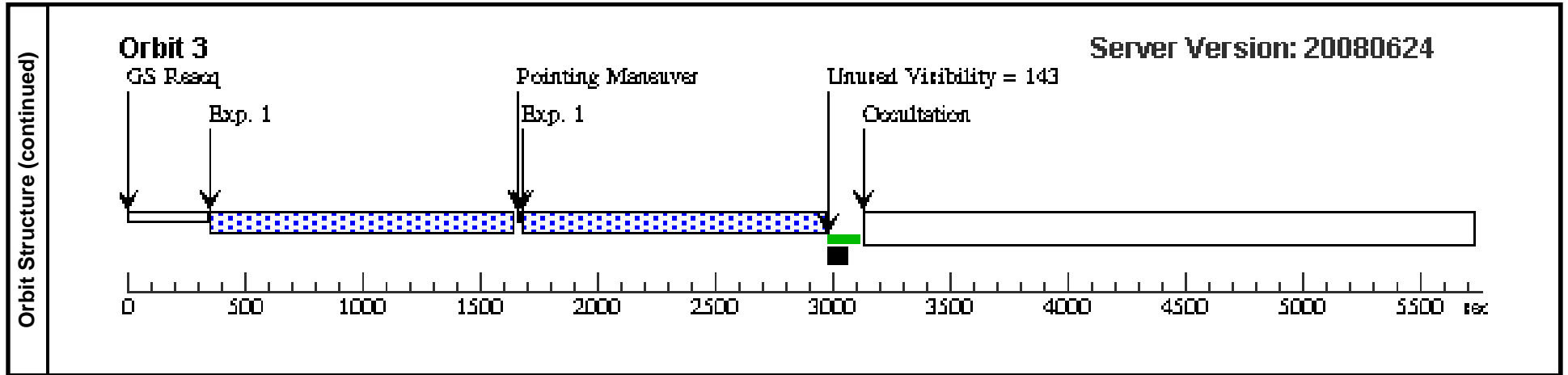


Proposal 11135 - Visit 03 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:45 GMT 2008

Visit	Proposal 11135, Visit 03, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(3)	1030-2026	RA: 10 30 22.7000 (157.5945833d) Dec: +05 28 26.30 (5.47397d) Equinox: J2000			V=(?) H=20.5	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(3) 1030-2026	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
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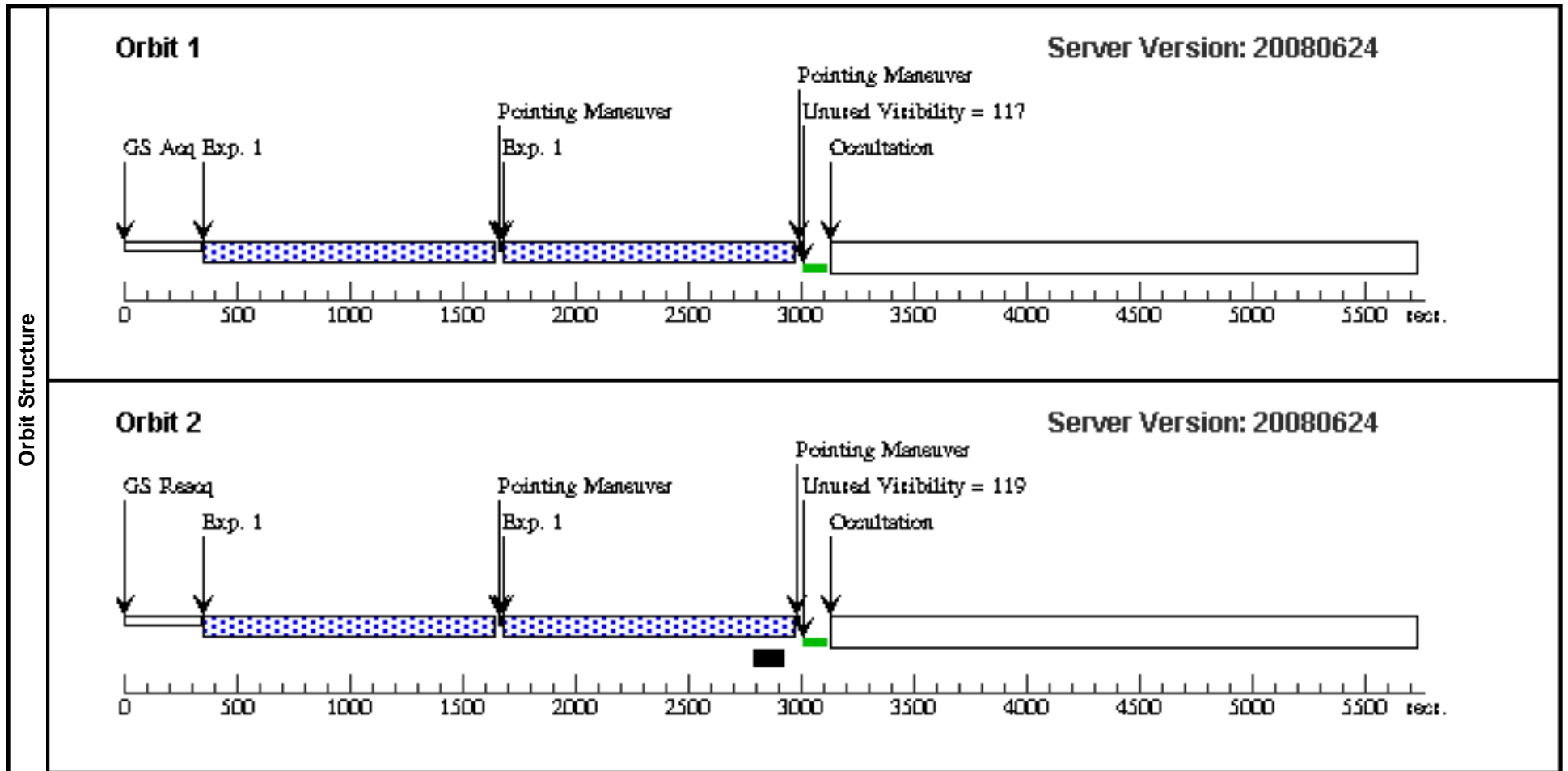


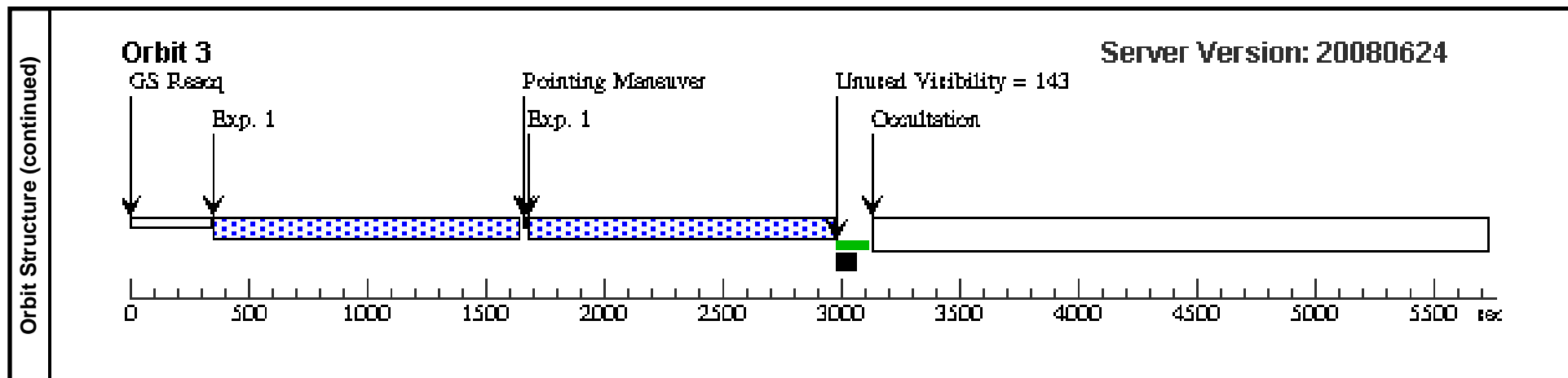


Proposal 11135 - Visit 04 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:45 GMT 2008

Visit	Proposal 11135, Visit 04, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	1030-2329	RA: 10 30 16.2000 (157.5675000d) Dec: +05 27 31.60 (5.45878d) Equinox: J2000		V=(?) H=20.8	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) 1030-2329	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
								[==>(Pattern 6)]	[6]	

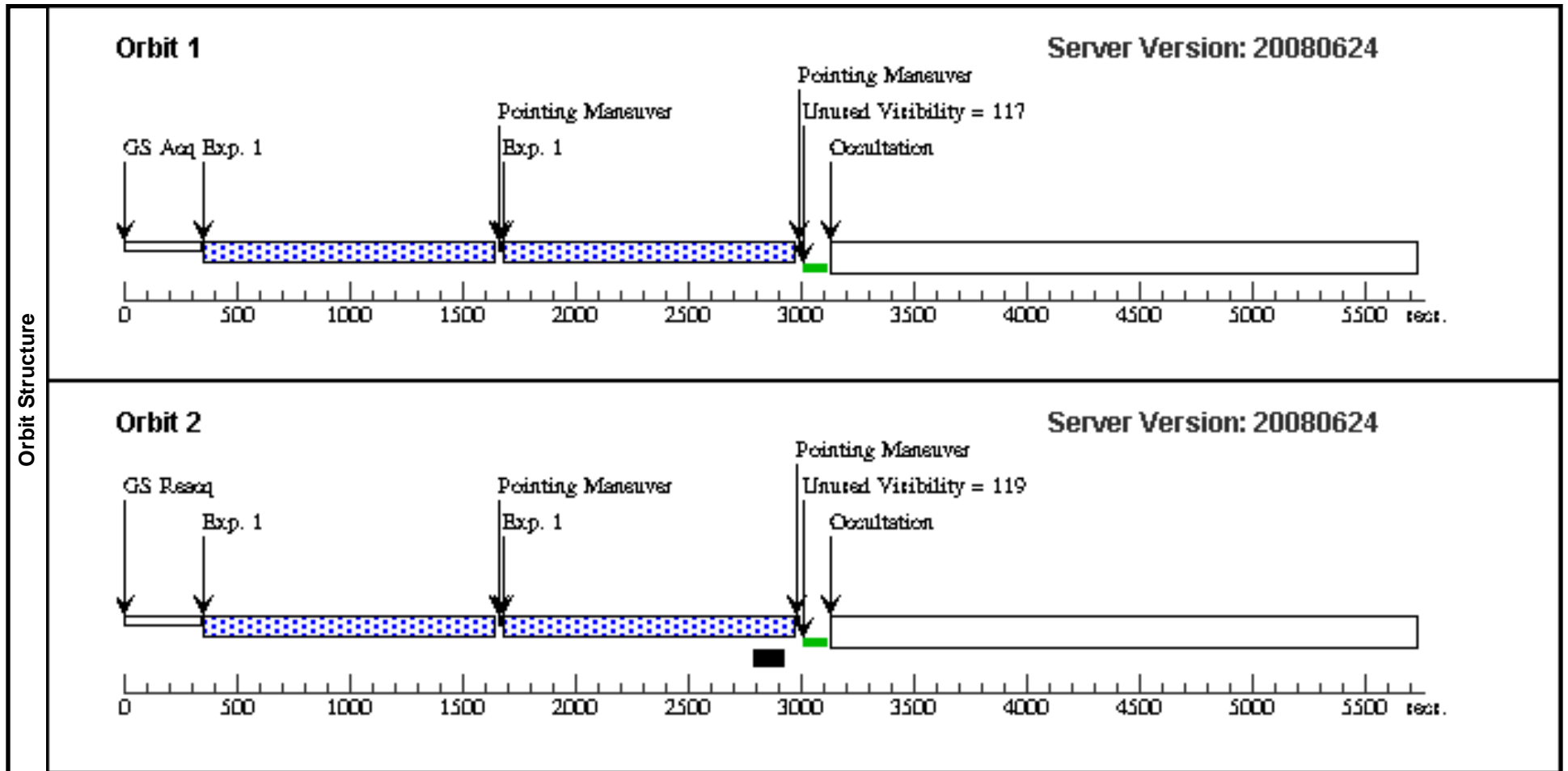


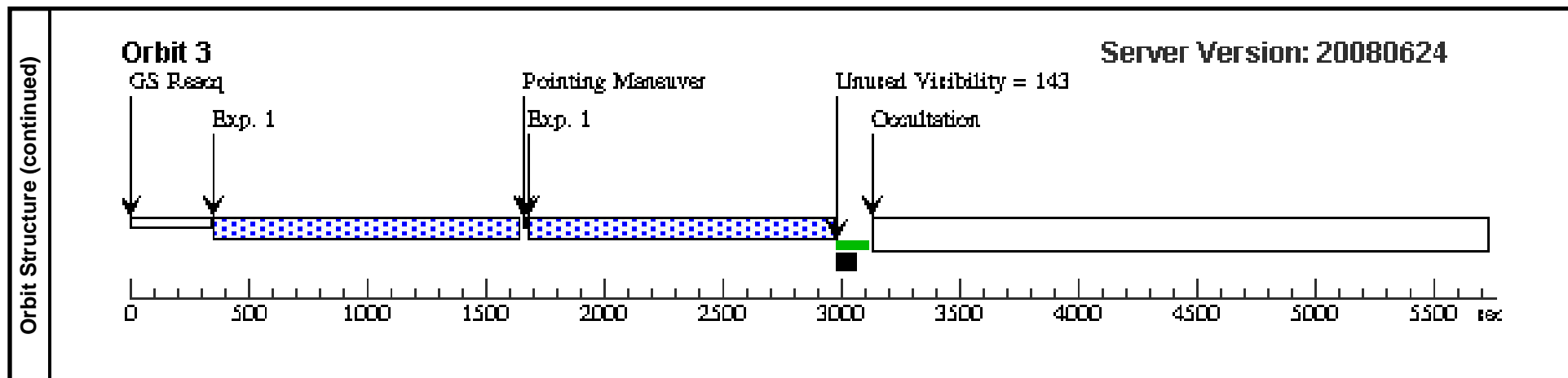


Proposal 11135 - Visit 05 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:46 GMT 2008

Visit	Proposal 11135, Visit 05, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	1030-2728	RA: 10 30 18.4000 (157.5766667d) Dec: +05 26 4.70 (5.43464d) Equinox: J2000		V=(?) H=20.6	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(5) 1030-2728	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
								[==>(Pattern 6)]	[6]	

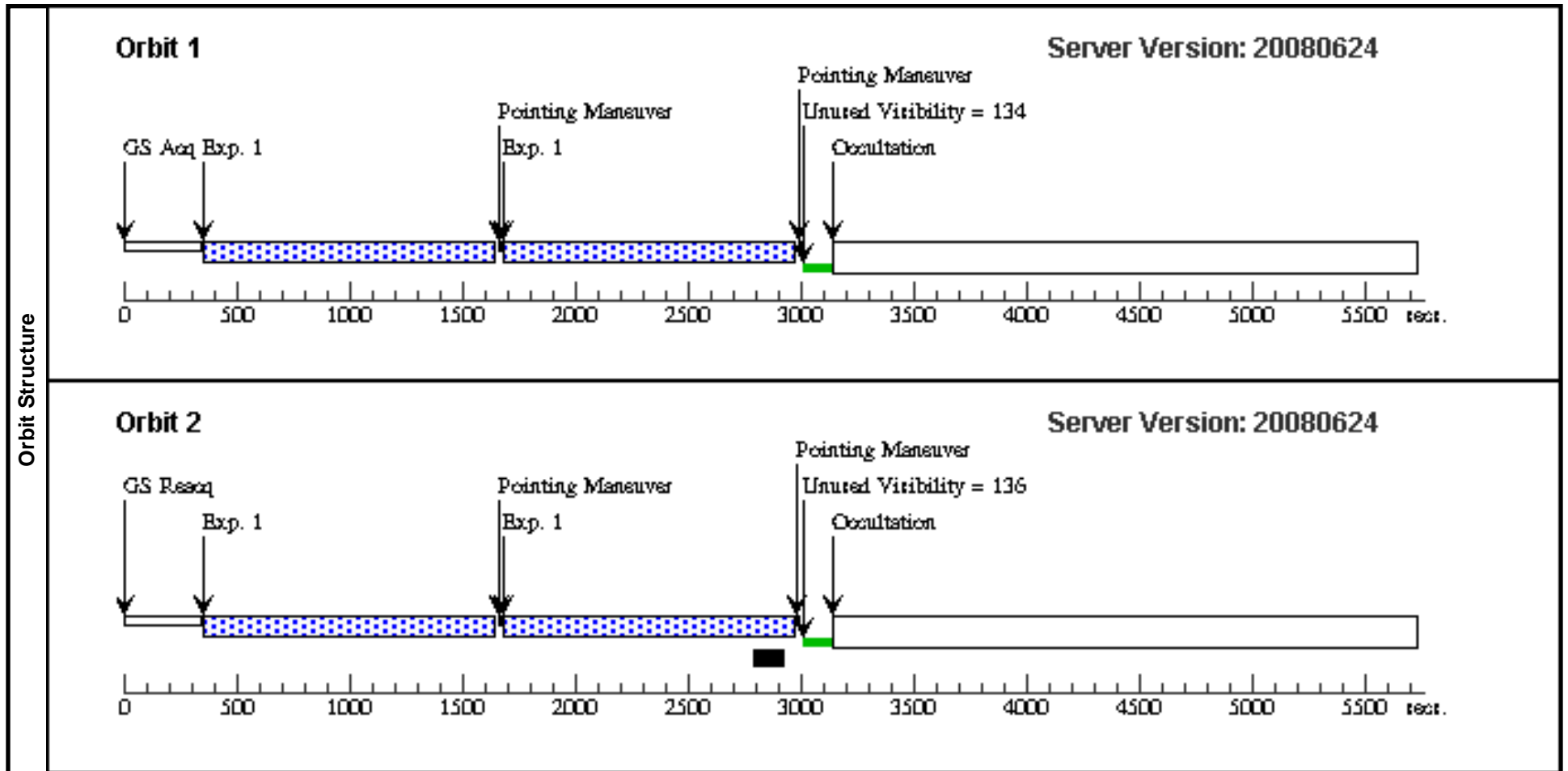


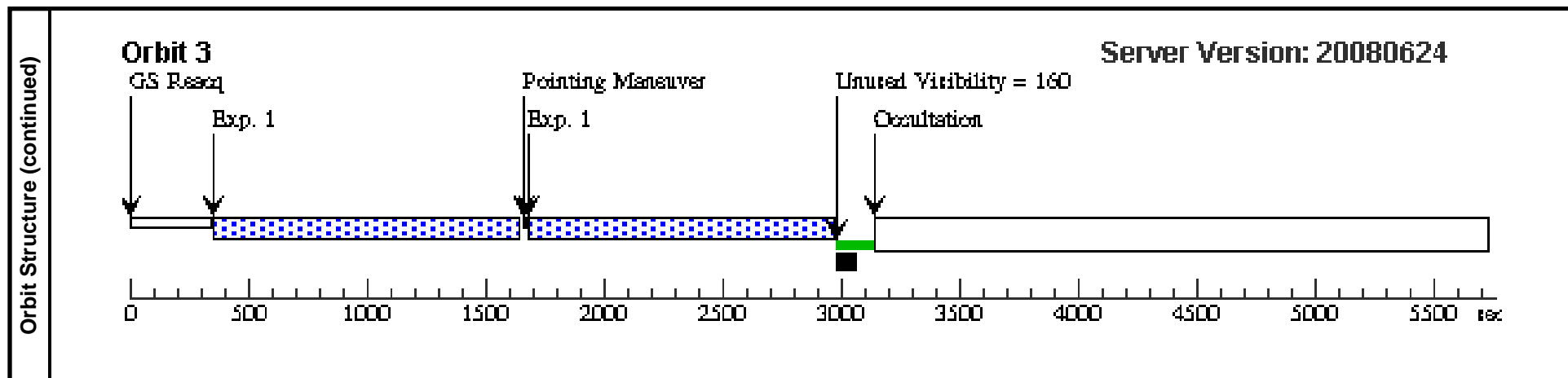


Proposal 11135 - Visit 06 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:47 GMT 2008

Visit	Proposal 11135, Visit 06, failed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
(1)		Pattern Type=NIC-SPIRAL-DITH	Coordinate Frame=POS-TARG							(1)
		Purpose=DITHER	Pattern Orientation=96.34							
		Number Of Points=6	Angle Between Sides=							
		Point Spacing=3.039	Center Pattern=true							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(6)	ECDFS-3662	RA: 03 32 11.5000 (53.0479167d) Dec: -27 55 22.50 (-27.92292d) Equinox: J2000				V=(?) H=20.2	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) ECDFS-3662	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22			Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	
									[==>(Pattern 5)]	
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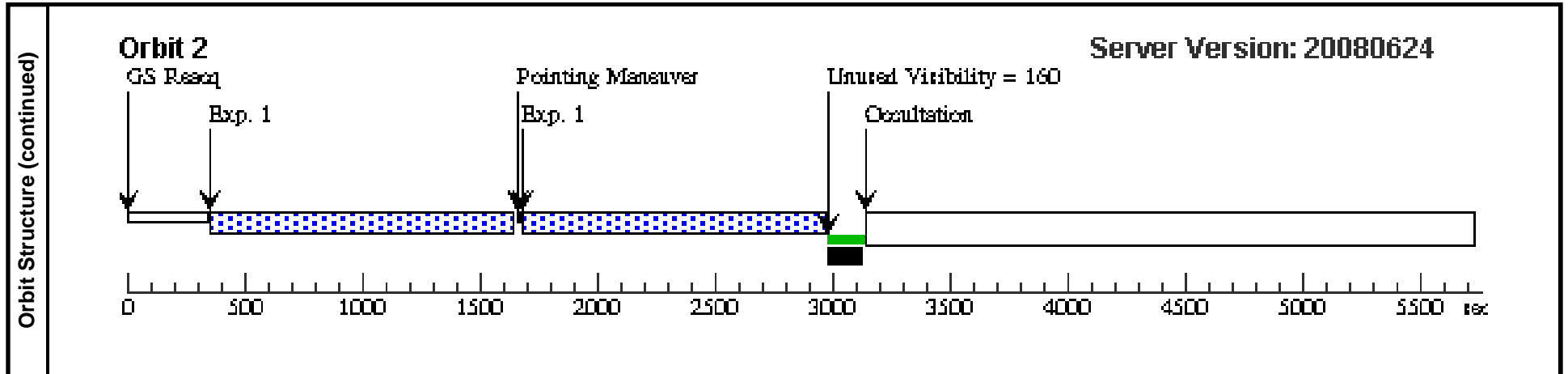




Proposal 11135 - Visit 56 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:47 GMT 2008

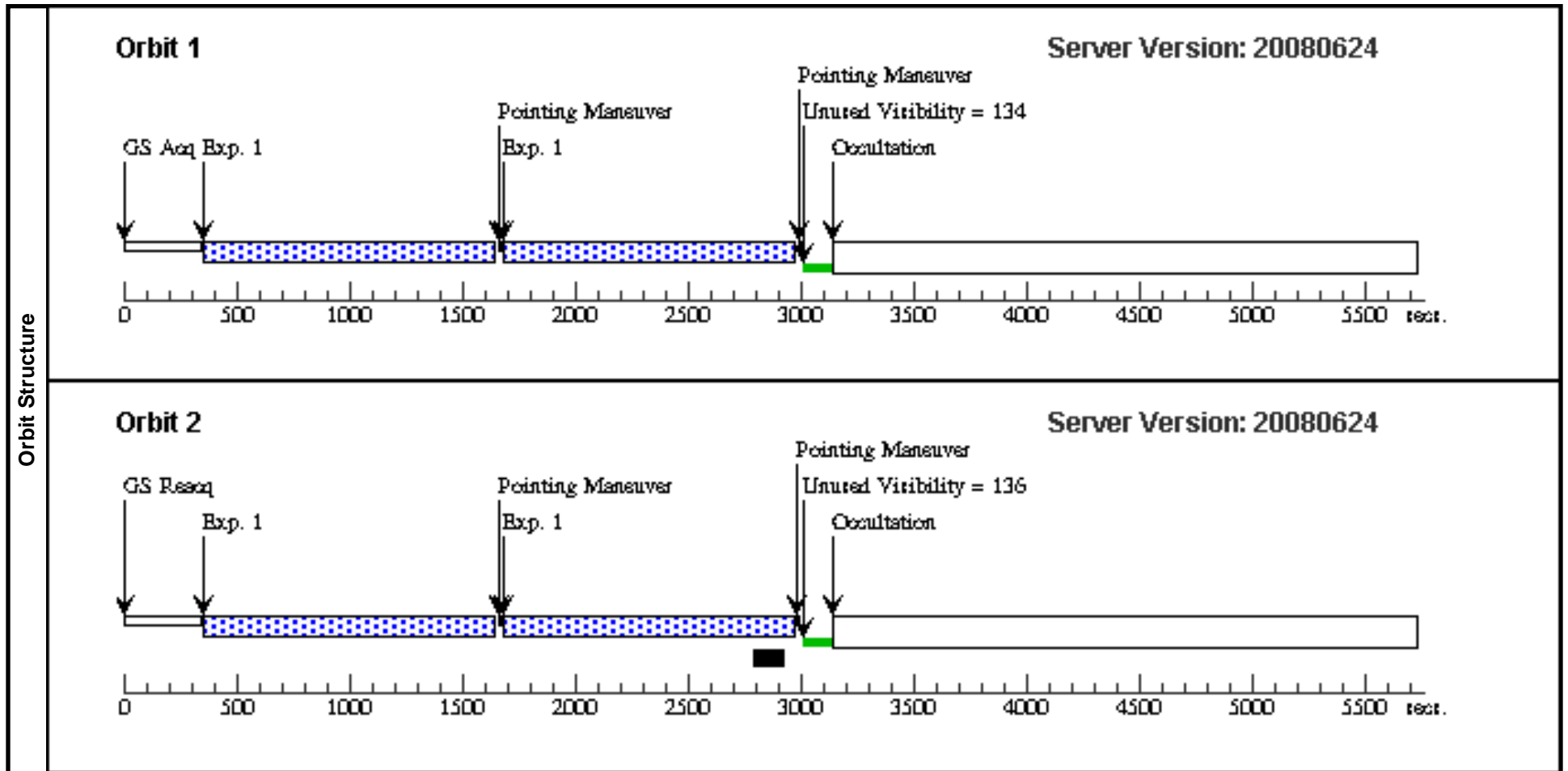
Visit	Proposal 11135, Visit 56 Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(2)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=4 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous		
	(11)	ECDFS-3662-HOPR	RA: 03 32 11.6600 (53.0485833d) Dec: -27 55 24.90 (-27.92358d) Equinox: J2000					V=(?) H=20.2	Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(11) ECDFS-3662-H OPR	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (2)	[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)]	[1] [2]	
Orbit Structure	Orbit 1 Server Version: 20080624									
	<p>Timeline of Orbit 1 (0 to 5500 seconds):</p> <ul style="list-style-type: none"> GS Acq Exp. 1: ~300s Pointing Maneuver Exp. 1: ~1700s Pointing Maneuver: ~3000s Occultation: ~3100s Unused Visibility = 134s: ~3100s to ~3234s 									

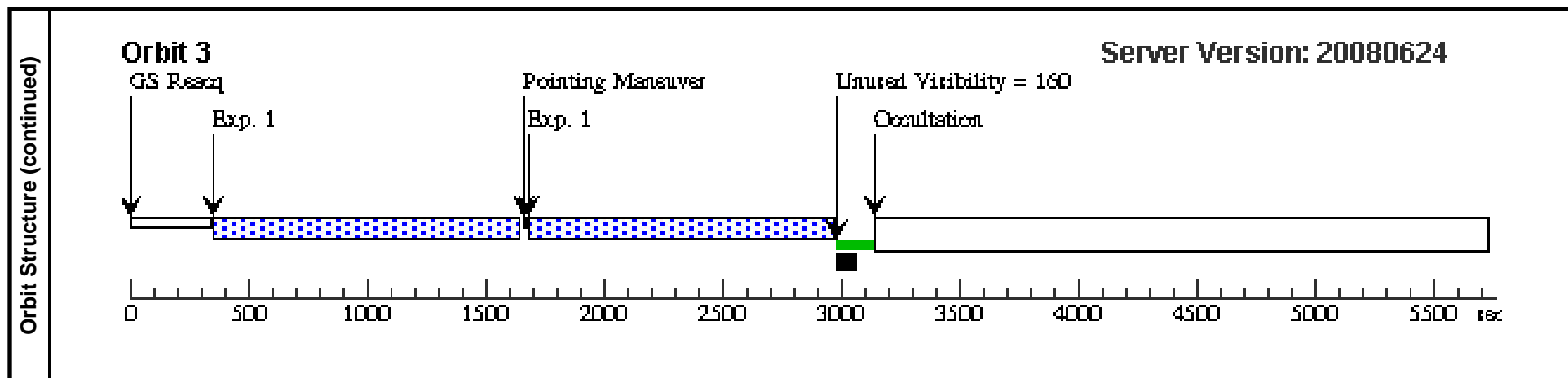


Proposal 11135 - Visit 07 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:48 GMT 2008

Visit	Proposal 11135, Visit 07, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(7)	ECDFS-3694	RA: 03 32 43.2000 (53.1800000d) Dec: -27 55 14.50 (-27.92069d) Equinox: J2000		V=(?) H=20.1	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(7) ECDFS-3694	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
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								[==>(Pattern 5)]	[5]	
								[==>(Pattern 6)]	[6]	

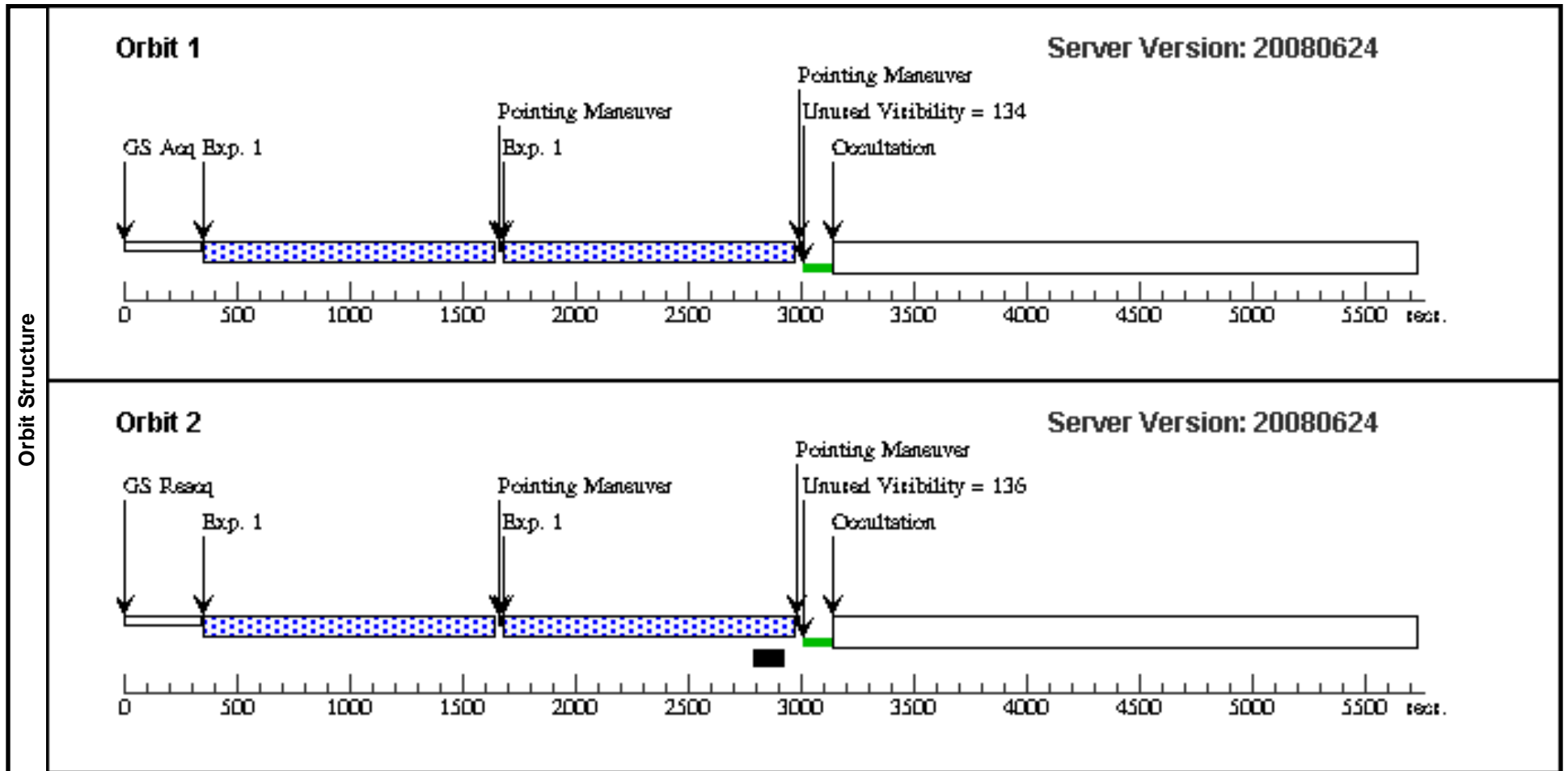


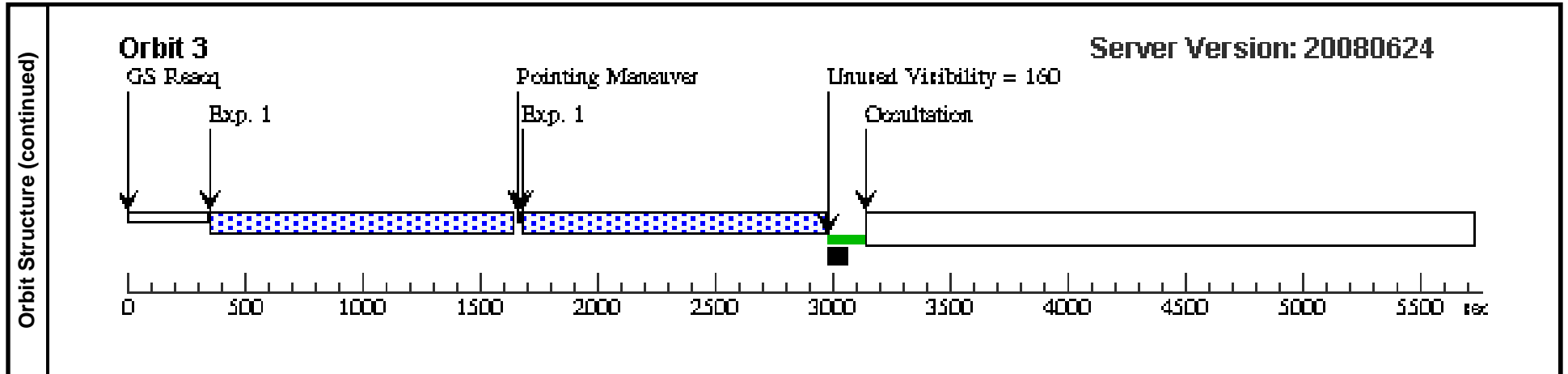


Proposal 11135 - Visit 08 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:48 GMT 2008

Visit	Proposal 11135, Visit 08, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(8)	ECDFS-5754	RA: 03 32 2.5000 (53.0104167d) Dec: -27 50 45.60 (-27.84600d) Equinox: J2000			V=(?) H=20.1	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(8) ECDFS-5754	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22			Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
								[==>(Pattern 6)]	[6]	

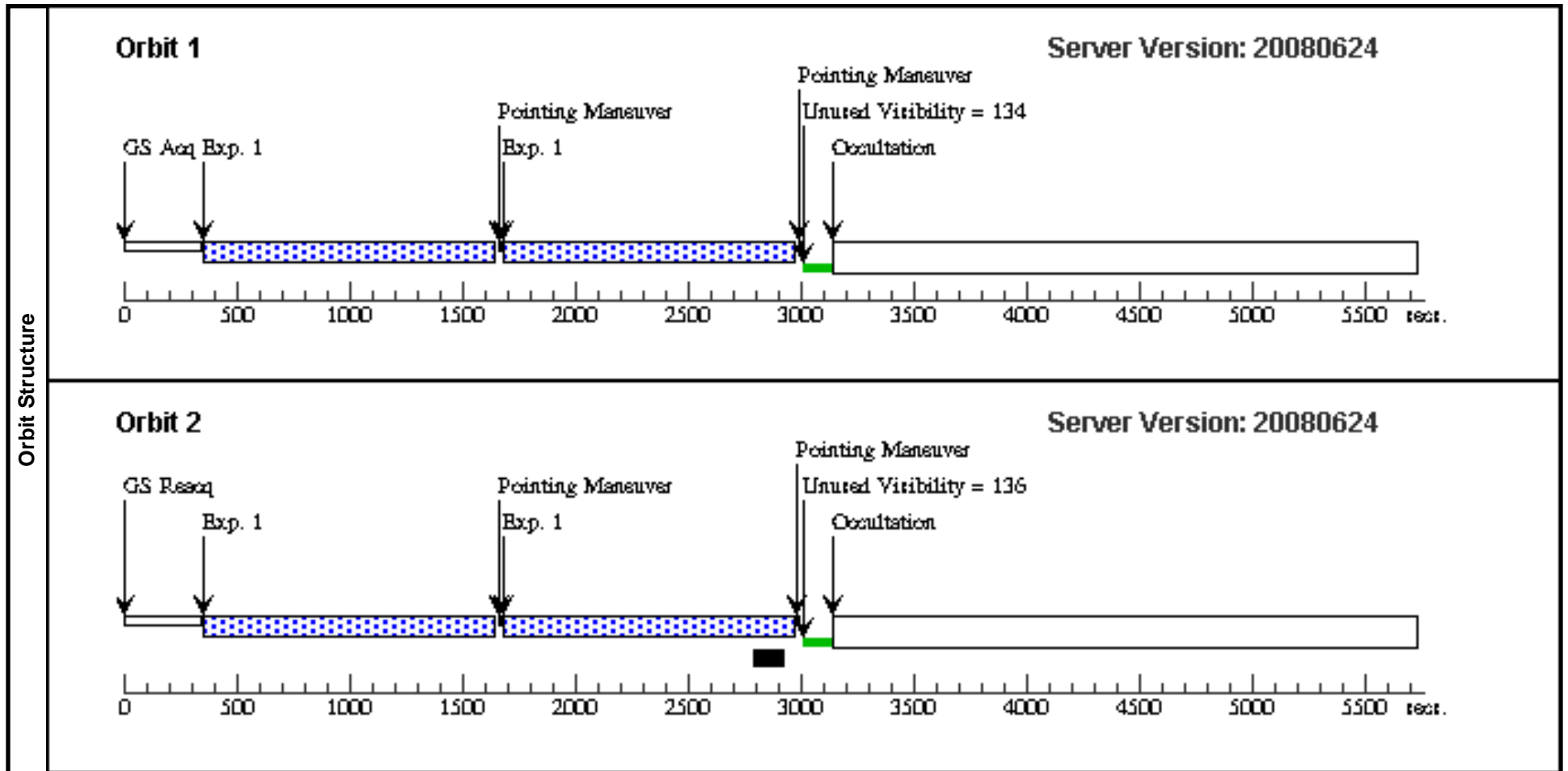


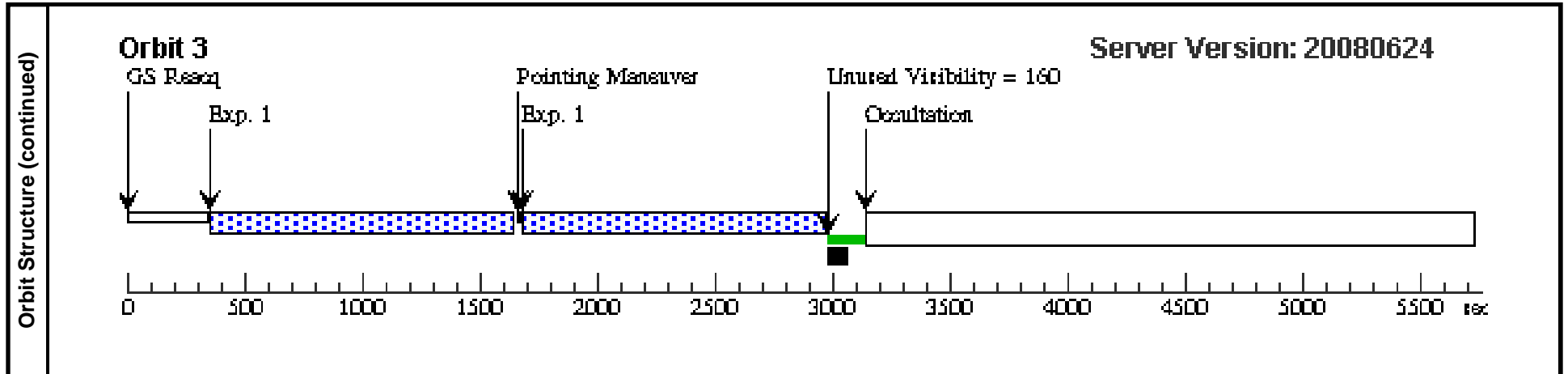


Proposal 11135 - Visit 09 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:48 GMT 2008

Visit	Proposal 11135, Visit 09, completed Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH Purpose=DITHER Number Of Points=6 Point Spacing=3.039 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=96.34 Angle Between Sides= Center Pattern=true					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	ECDFS-3896	RA: 03 31 52.5000 (52.9687500d) Dec: -27 54 47.60 (-27.91322d) Equinox: J2000		V=(?) H=19.6	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(9) ECDFS-3896	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22			Pattern 1-1 (1)	[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	[2]
									[=>(Pattern 3)]	[3]
									[=>(Pattern 4)]	[4]
									[=>(Pattern 5)]	[5]
								[=>(Pattern 6)]	[6]	





Proposal 11135 - Visit 10 - Extreme makeovers: Tracing the transformation of massive galaxies at z~2.5

Wed Aug 13 01:01:49 GMT 2008

Visit	Proposal 11135, Visit 10, scheduling Diagnostic Status: No Diagnostics Scientific Instruments: NIC2 Special Requirements: (none) <i>Comments: Please do NOT schedule right after passage through South Atlantic Anomaly. This produces nasty residuals in the images.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(1)		Pattern Type=NIC-SPIRAL-DITH	Coordinate Frame=POS-TARG					(1)		
		Purpose=DITHER	Pattern Orientation=96.34							
		Number Of Points=6	Angle Between Sides=							
		Point Spacing=3.039	Center Pattern=true							
		Line Spacing=								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(10)	ECDFS-10525	RA: 03 31 39.5000 (52.9145833d) Dec: -27 41 19.50 (-27.68875d) Equinox: J2000			V=(?) H=19.6	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(10) ECDFS-10525	NIC2, MULTIACCUM, NIC2-FIX	F160W	SAMP-SEQ=SPARS 64; NSAMP=22		Pattern 1-1 (1)	[==>(Pattern 1)]	[1]
									[==>(Pattern 2)]	[2]
									[==>(Pattern 3)]	[3]
									[==>(Pattern 4)]	[4]
								[==>(Pattern 5)]	[5]	
								[==>(Pattern 6)]	[6]	

