



11902 - Different responses in interacting galaxies

Cycle: 16, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Mario Livio (PI)	Space Telescope Science Institute	mlivio@stsci.edu
Dr. Keith S. Noll (CoI)	Space Telescope Science Institute	noll@stsci.edu
Mr. Max Mutchler (CoI) (Contact)	Space Telescope Science Institute	mutchler@stsci.edu
Ms. Lisa Frattare (CoI)	Space Telescope Science Institute	frattare@stsci.edu
Mr. Zolt Levay (CoI)	Space Telescope Science Institute	levay@stsci.edu
Mr. William Januszewski (CoI)	Space Telescope Science Institute	williamj@stsci.edu

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) ARP-273	WFPC2	6	23-Oct-2008 21:19:40.0	yes
02	(1) ARP-273	WFPC2	4	23-Oct-2008 21:19:48.0	yes
51	(1) ARP-273	WFPC2	6	23-Oct-2008 21:19:58.0	yes
52	(1) ARP-273	WFPC2	4	23-Oct-2008 21:20:05.0	yes
71	(2) ARP-147	WFPC2	4	23-Oct-2008 21:20:09.0	yes
72	(2) ARP-147	WFPC2	2	23-Oct-2008 21:20:13.0	yes
73	(2) ARP-147	WFPC2	2	23-Oct-2008 21:20:15.0	yes
74	(2) ARP-147	WFPC2	2	23-Oct-2008 21:20:17.0	yes

30 Total Orbits Used

ABSTRACT

We propose WFPC2 observations of the interacting spiral galaxies Arp 273 or Arp 147. Arp 273 is our first choice, and is a fascinating object in its own right, in that the two interacting galaxies exhibit different behaviors due to the interaction. The disk of the larger galaxy is extremely disturbed, but its nucleus shows few signs of activity (it is a LINER). In the smaller (nearly edge-on) galaxy on the other hand, the disk appears to be almost intact, but its nucleus experiences a starburst. The proposed observations are also intended to demonstrate that WFPC2 can produce outstanding science (and images) after the transition to Side B.

OBSERVING DESCRIPTION

For Arp 273, we perform a large mosaic shift since the galaxy pair does not fit within one WFPC2 pointing. At each mosaic pointing, we perform a small dither too. For the broadband B,V,I filters we do a 3-step dither which will primarily help to reject cosmic rays and CCD artifacts. For the longer F673N exposures (where we expect to detect redshifted H-alpha emission), a subsampling 4-point dither box pattern is used. The 4 exposures will ensure good cleaning of these long narrowband exposures, and also allow for the resolution of the H-alpha image to be enhanced via drizzling. For Arp 147, we use the subsampling dither box pattern for all filters. There is no good narrowband filter to isolate redshifted H-alpha at the distance of this target. The proposal is split into multiple visits to avoid SAA impacts, but we'd like the visits scheduled as close together as possible, and as soon as possible.

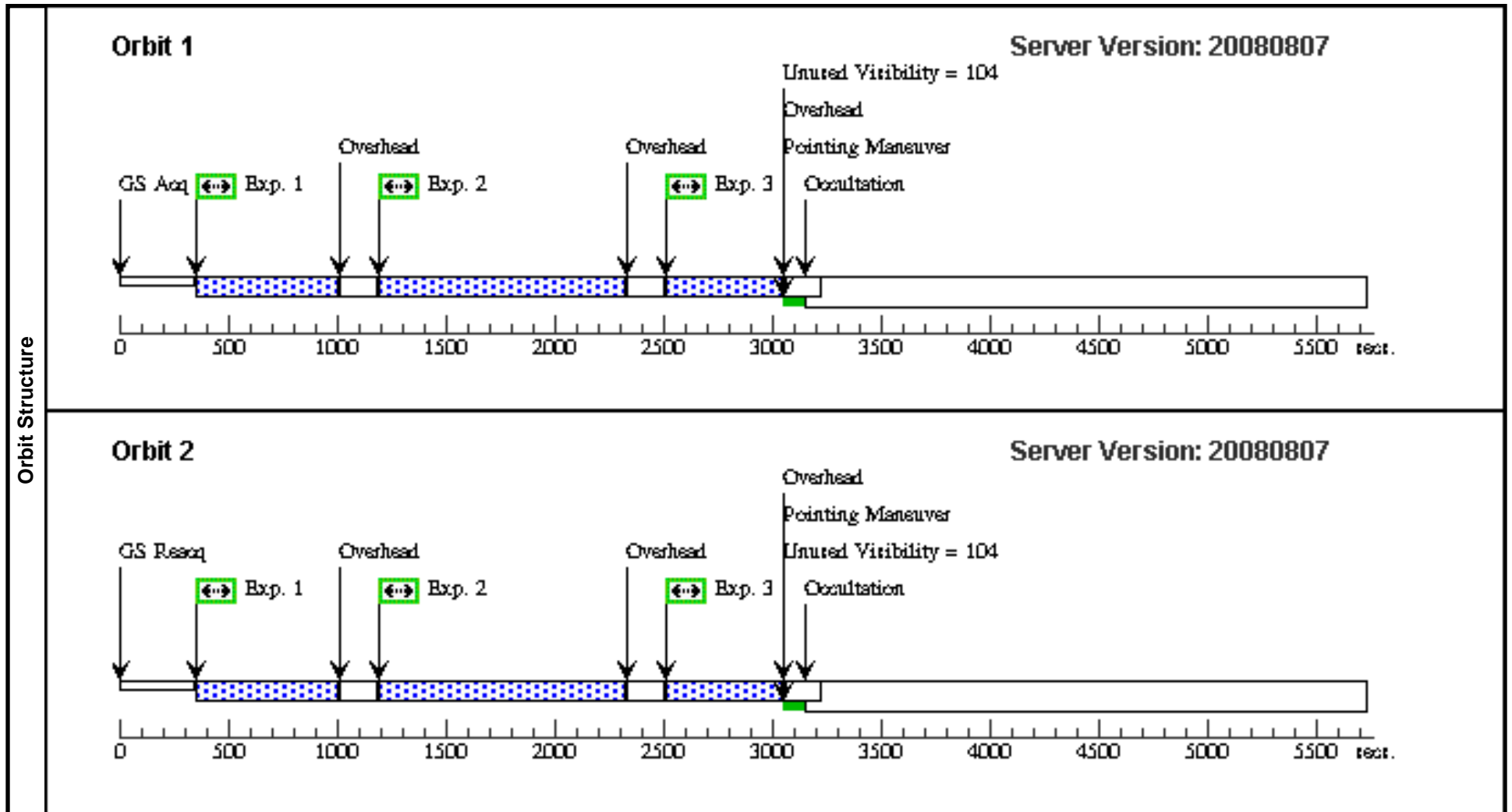
ADDITIONAL COMMENTS

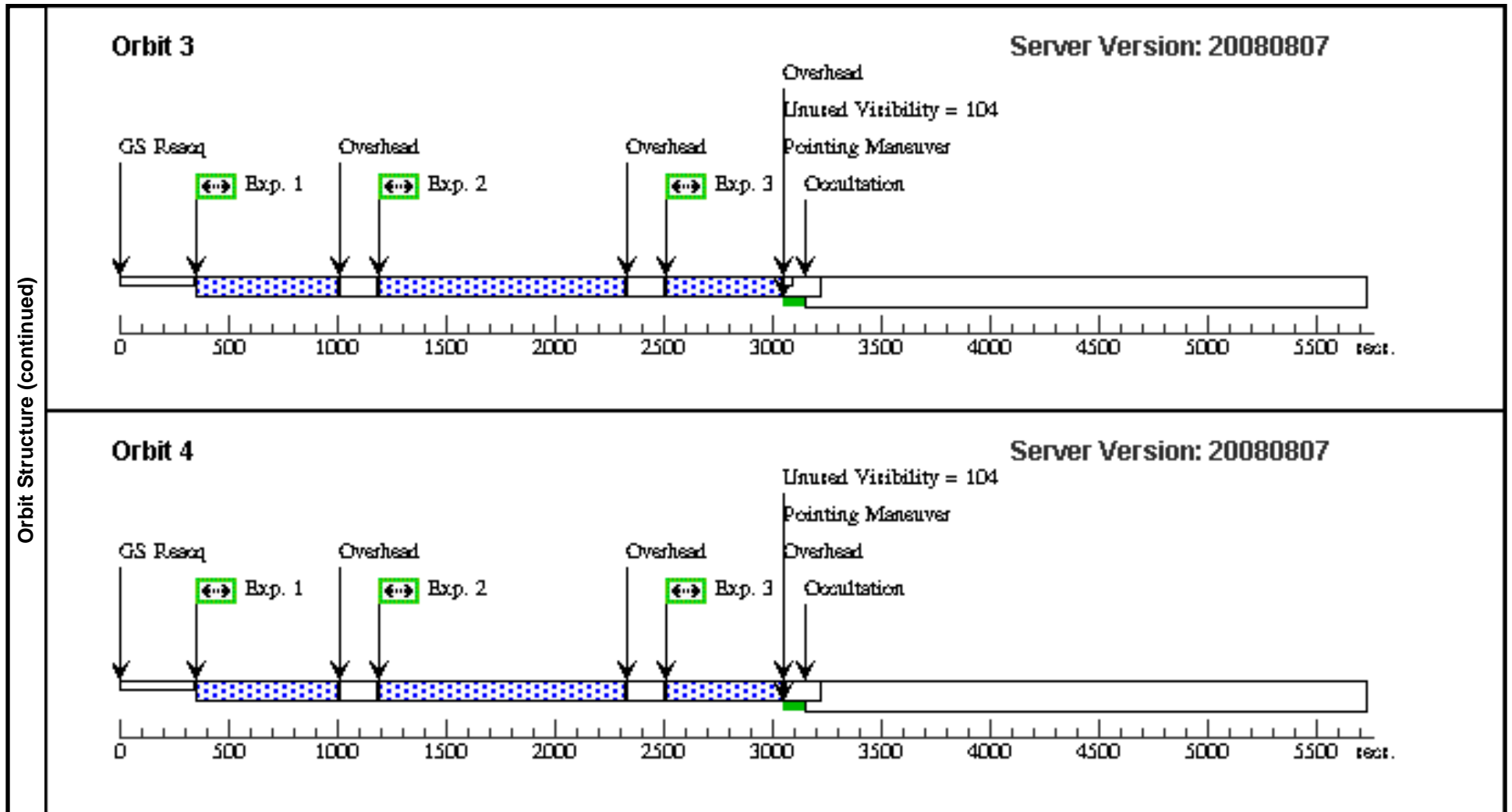
Please use the same guide stars for all visits, and schedule a TDRSS dump as soon as possible following the completion of this program. Visits 01 and 02 were scheduled but never executed due to the unexpected anomalies arising during the side B switch. The repeat visits 51 and 52 are identical, but ON HOLD since Arp 147 now becomes a more feasible target. If the side B switch experiences any further delay, we might revert back to Arp 273, which becomes feasible again on 20 Nov 2008.

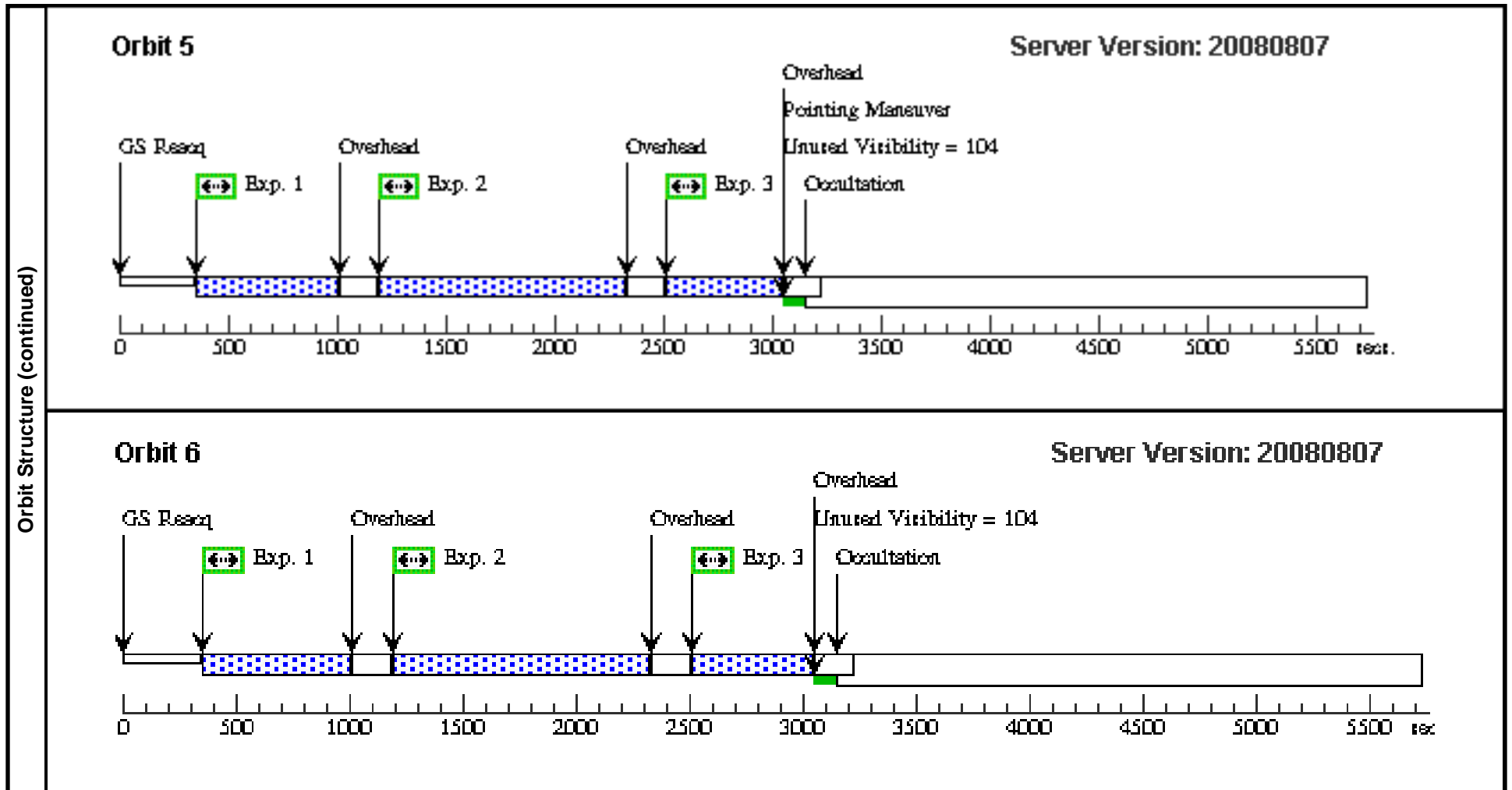
Proposal 11902 - Visit 01 - Different responses in interacting galaxies

Fri Oct 24 01:20:20 GMT 2008

Visit	Proposal 11902, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 190D TO 200 D; SEQ 01,02 WITHIN 1 D <i>Comments: Please get the data from these observations to the ground as quickly has possible.</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(2)		Pattern Type=LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=74 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.4 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1-3)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	ARP-273	RA: 02 21 33.5792 (35.3899133d) Dec: +39 21 48.01 (39.36334d) Equinox: J2000		V=13.7	Reference Frame: ICRS <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) ARP-273	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F814W	CR-SPLIT=NO		Pattern 1-3 (2)	500 Secs	
									[==>(Pattern 1,1)]	[1]
									[==>(Pattern 1,2)]	[2]
									[==>(Pattern 1,3)]	[3]
									[==>(Pattern 2,1)]	[4]
									[==>(Pattern 2,2)]	[5]
									[==>(Pattern 2,3)]	[6]
	2	(1) ARP-273	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F439W	CR-SPLIT=NO		Pattern 1-3 (2)	1000 Secs	
									[==>(Pattern 1,1)]	[1]
								[==>(Pattern 1,2)]	[2]	
								[==>(Pattern 1,3)]	[3]	
								[==>(Pattern 2,1)]	[4]	
								[==>(Pattern 2,2)]	[5]	
								[==>(Pattern 2,3)]	[6]	
3	(1) ARP-273	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-3 (2)	400 Secs		
								[==>(Pattern 1,1)]	[1]	
								[==>(Pattern 1,2)]	[2]	
								[==>(Pattern 1,3)]	[3]	
								[==>(Pattern 2,1)]	[4]	
								[==>(Pattern 2,2)]	[5]	
								[==>(Pattern 2,3)]	[6]	



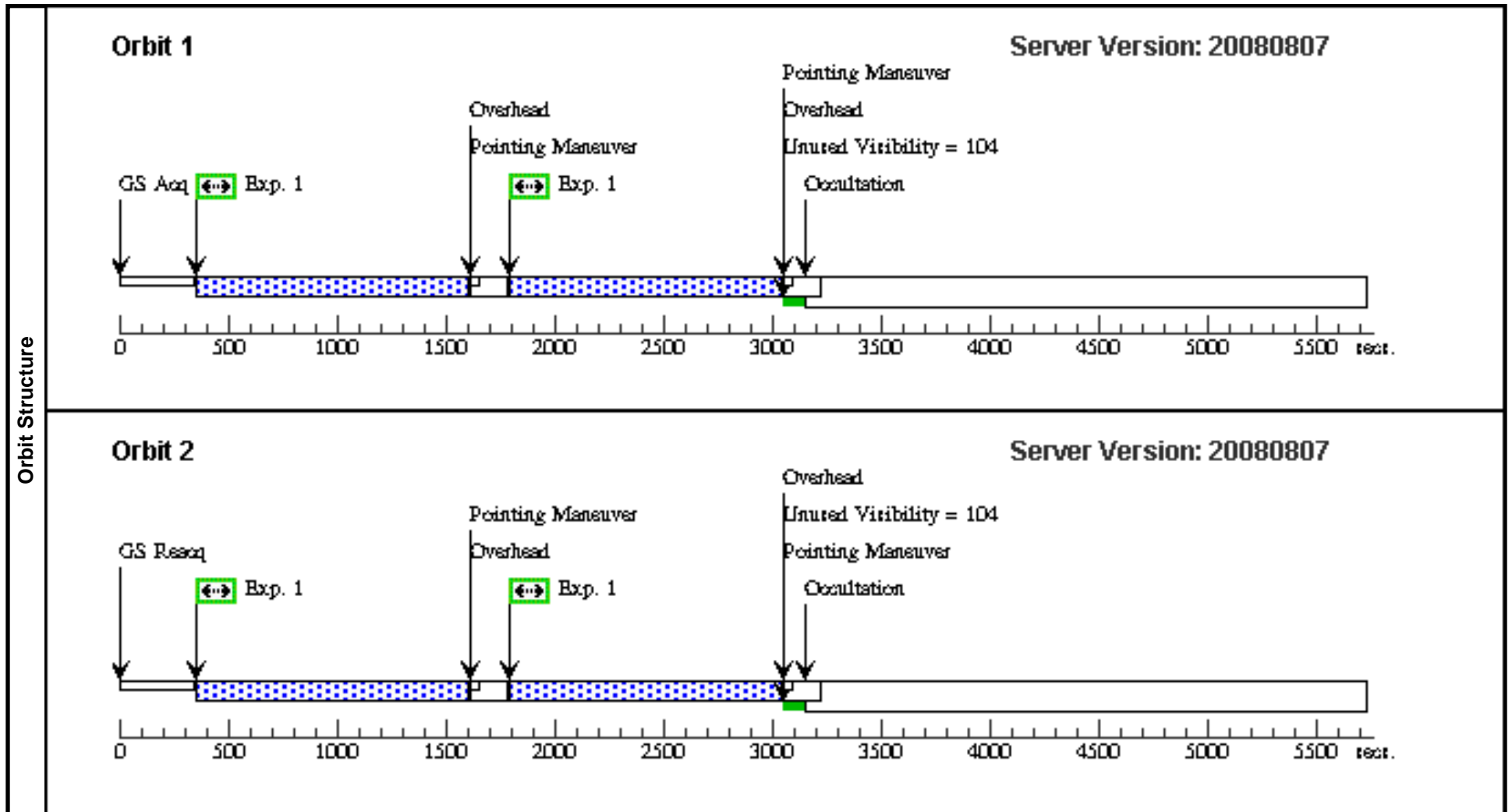


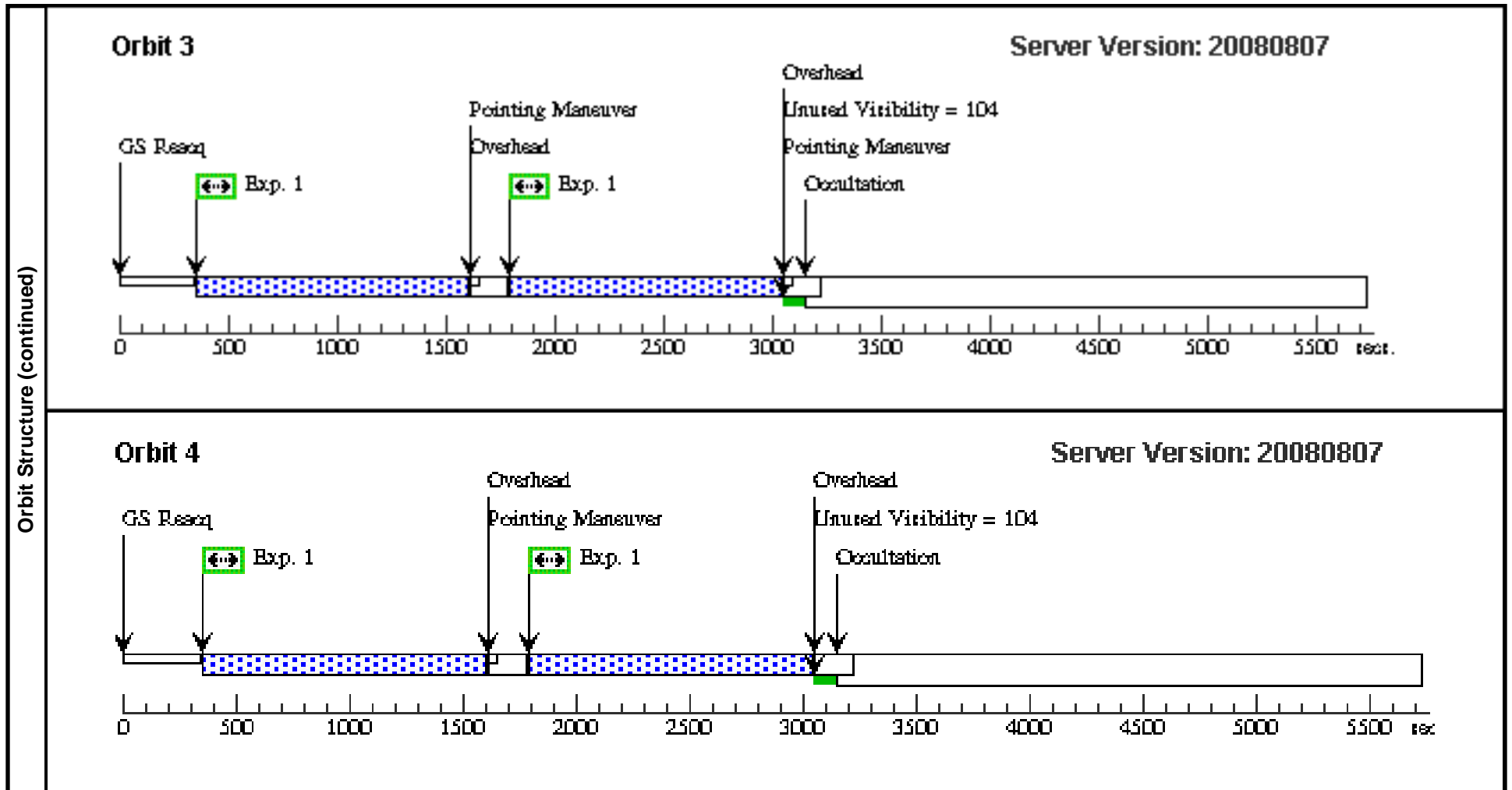


Proposal 11902 - Visit 02 - Different responses in interacting galaxies

Fri Oct 24 01:20:21 GMT 2008

Visit	Proposal 11902, Visit 02, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: SAME ORIENT AS 01 <i>Comments: Using the same guide stars for visits 01 and 02 would make assembling the mosaic easier, but is not a requirement.</i> <i>Please get the data from these observations to the ground as quickly has possible.</i>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(3)		Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=74 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	ARP-273	RA: 02 21 33.5792 (35.3899133d) Dec: +39 21 48.01 (39.36334d) Equinox: J2000		V=13.7	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F673N	CR-SPLIT=NO		Pattern 1-1 (3)	1100 Secs	
									[==>(Pattern 1,1)]	[1]
									[==>(Pattern 1,2)]	
									[==>(Pattern 2,1)]	[2]
									[==>(Pattern 2,2)]	
									[==>(Pattern 3,1)]	[3]
								[==>(Pattern 3,2)]		
								[==>(Pattern 4,1)]	[4]	
								[==>(Pattern 4,2)]		





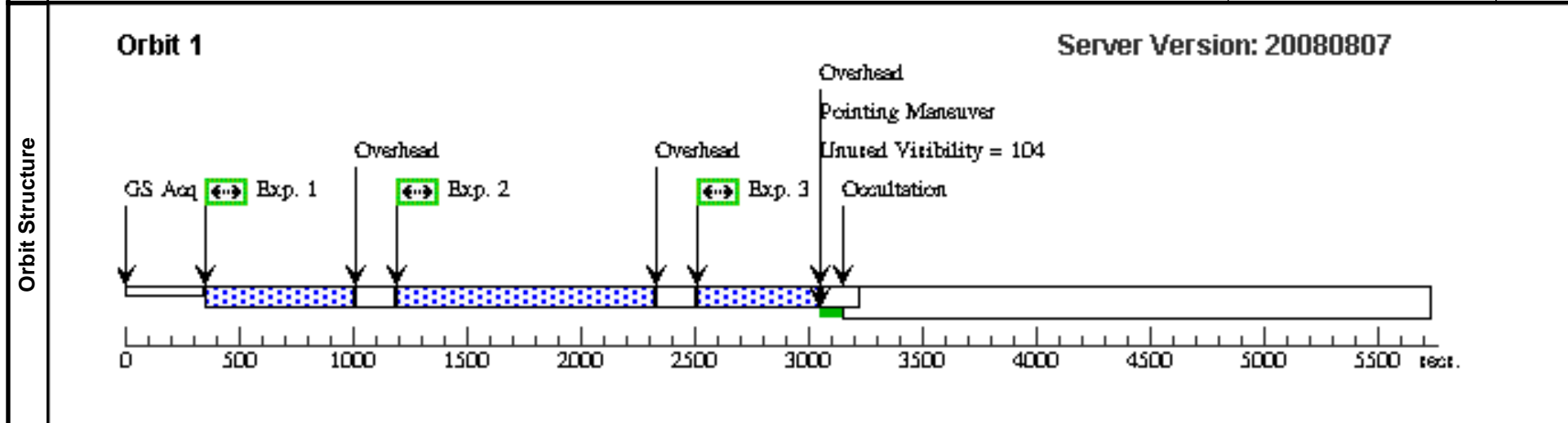
Proposal 11902 - Visit 51 - Different responses in interacting galaxies

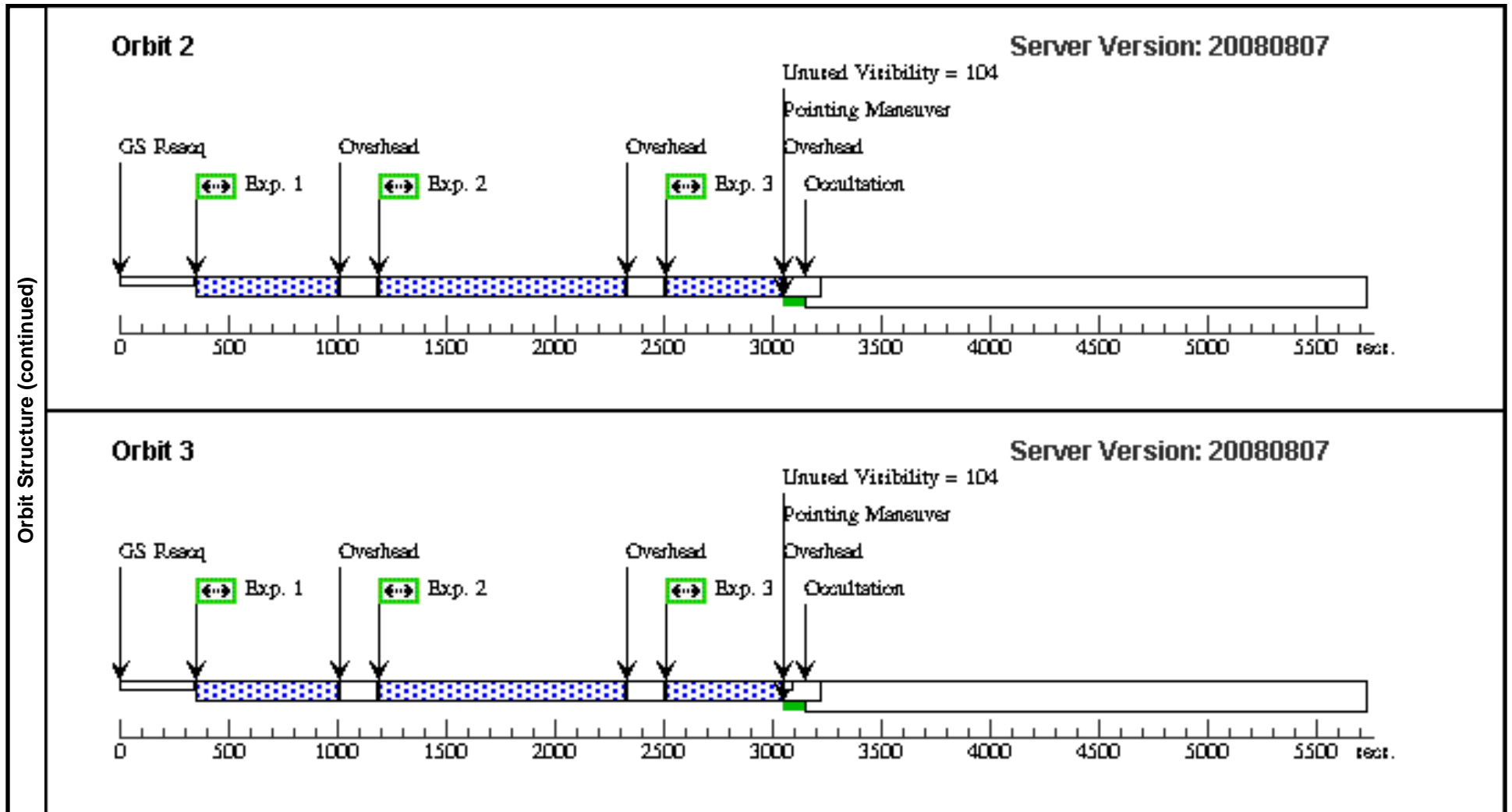
Fri Oct 24 01:20:22 GMT 2008

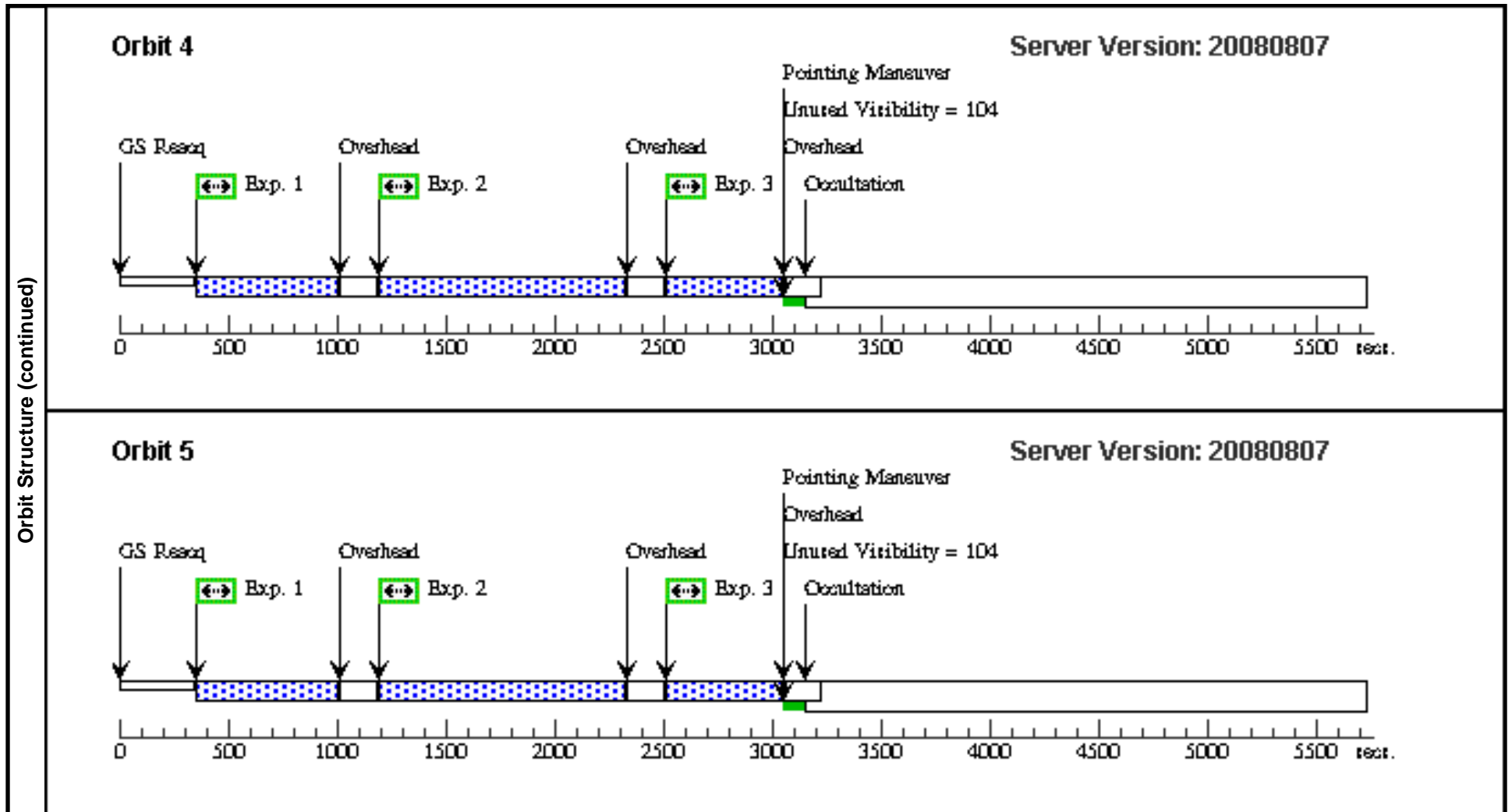
Visit	Proposal 11902, Visit 51, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: ORIENT 190D TO 200 D; SEQ 51,52 WITHIN 1 D; ON HOLD Comments: Please get the data from these observations to the ground as quickly has possible. This is a copy of visit 01. On Hold Comments: This target was our first choice, but it became infeasible due to the delay in the side B switch. We leave it ON HOLD because it becomes feasible again on Nov 20, and we may revert to it if the side B switch is delayed further.									
	Patterns	#	Primary Pattern				Secondary Pattern			
(2)		Pattern Type=LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=74 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.4 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1-3)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	ARP-273	RA: 02 21 33.5792 (35.3899133d) Dec: +39 21 48.01 (39.36334d) Equinox: J2000		V=13.7	Reference Frame: ICRS				
Comments: This object was generated by the targetselector and retrieved from the NED database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F814W	CR-SPLIT=NO		Pattern 1-3 (2)	500 Secs		
								[=>(Pattern 1,1)]	[1]	
								[=>(Pattern 1,2)]	[2]	
								[=>(Pattern 1,3)]	[3]	
								[=>(Pattern 2,1)]	[4]	
								[=>(Pattern 2,2)]	[5]	
								[=>(Pattern 2,3)]	[6]	
	2	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F450W	CR-SPLIT=NO		Pattern 1-3 (2)	1000 Secs		
								[=>(Pattern 1,1)]	[1]	
							[=>(Pattern 1,2)]	[2]		
							[=>(Pattern 1,3)]	[3]		
							[=>(Pattern 2,1)]	[4]		
							[=>(Pattern 2,2)]	[5]		
							[=>(Pattern 2,3)]	[6]		

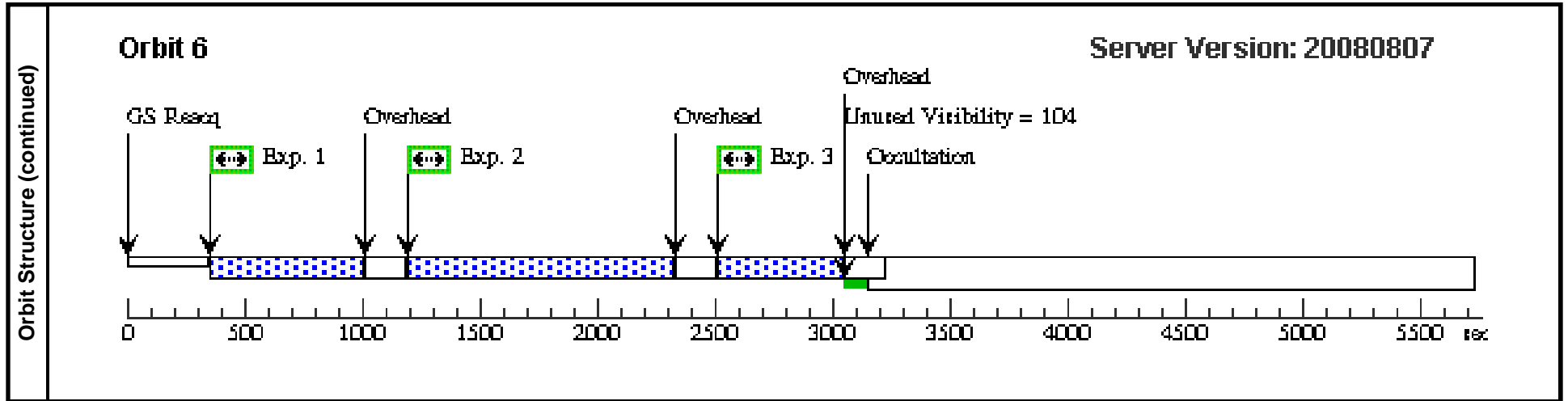
Proposal 11902 - Visit 51 - Different responses in interacting galaxies

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	3		(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO		Pattern 1-3 (2)	400 Secs	
									[==>(Pattern 1,1)]	[1]
									[==>(Pattern 1,2)]	[2]
									[==>(Pattern 1,3)]	[3]
									[==>(Pattern 2,1)]	[4]
									[==>(Pattern 2,2)]	[5]
								[==>(Pattern 2,3)]	[6]	





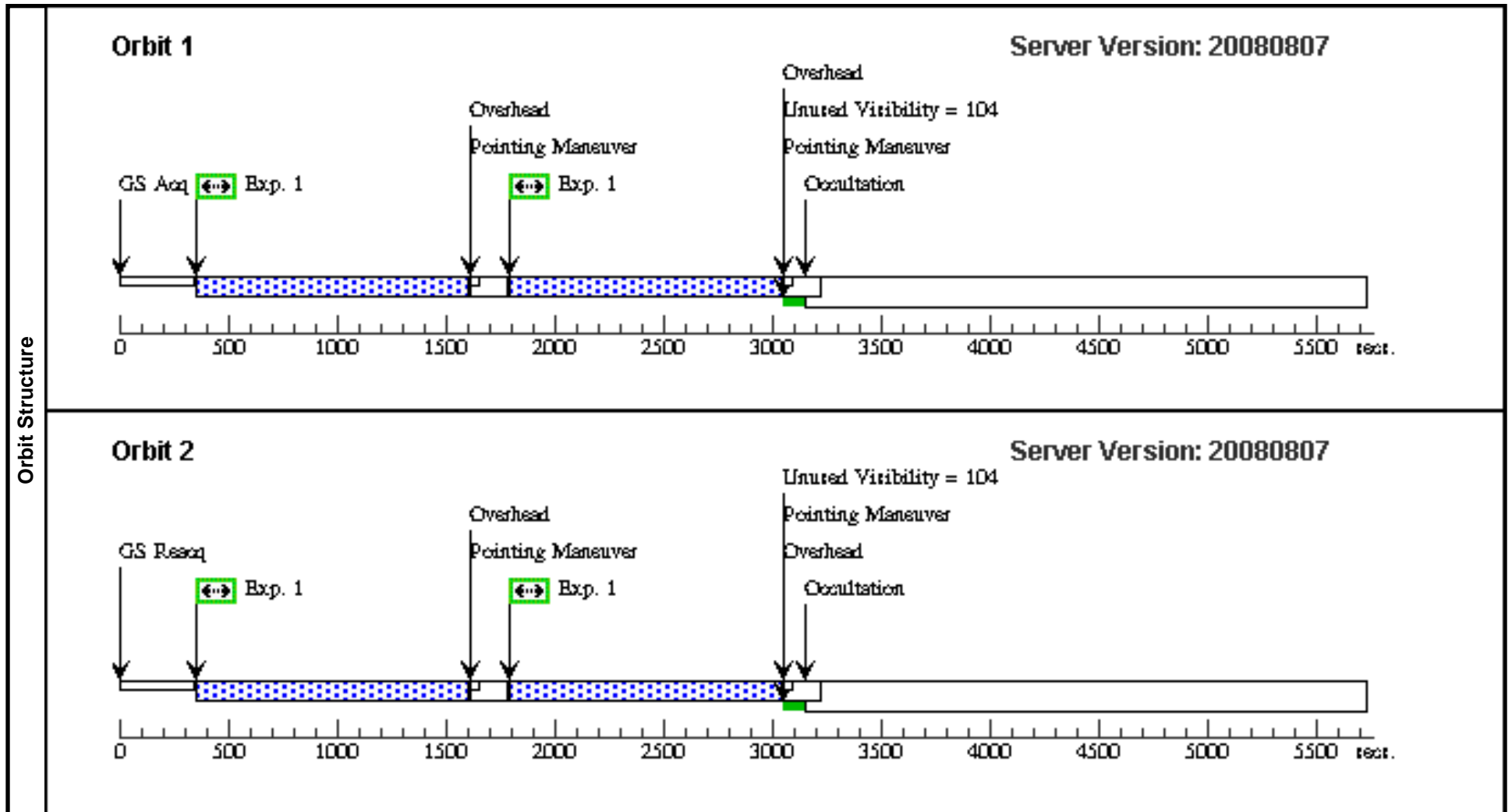


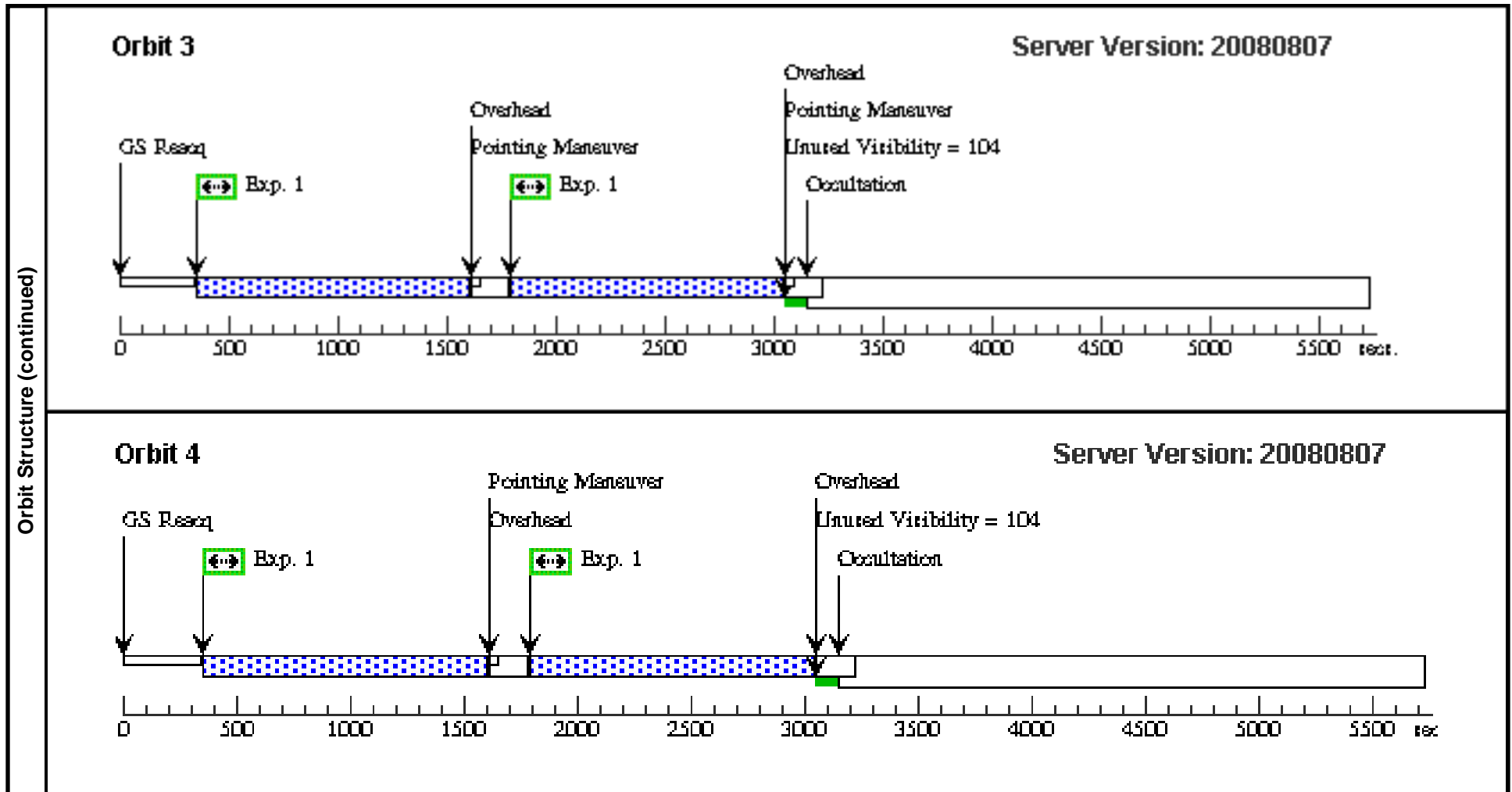


Proposal 11902 - Visit 52 - Different responses in interacting galaxies

Fri Oct 24 01:20:23 GMT 2008

Visit	<p>Proposal 11902, Visit 52, implementation</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFPC2</p> <p>Special Requirements: SAME ORIENT AS 51; ON HOLD</p> <p><i>Comments: Using the same guide stars for visits 51 and 52 would make assembling the mosaic easier, but is not a requirement.</i></p> <p><i>Please get the data from these observations to the ground as quickly has possible. This is a copy of visit 02.</i></p> <p><i>On Hold Comments: This target was our first choice, but it became infeasible due to the delay in the side B switch. We leave it ON HOLD because it becomes feasible again on Nov 20, and we may revert to it if the side B switch is delayed further.</i></p>									
	Patterns	#	Primary Pattern				Secondary Pattern			
(3)		Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=74 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=0 Angle Between Sides= Center Pattern=false	(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	ARP-273	RA: 02 21 33.5792 (35.3899133d) Dec: +39 21 48.01 (39.36334d) Equinox: J2000		V=13.7	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) ARP-273	WFPC2, IMAGE, WF3-FIX	F673N	CR-SPLIT=NO			Pattern 1-1 (3)	1100 Secs	
									[=>(Pattern 1,1)]	
									[=>(Pattern 1,2)]	[1]
									[=>(Pattern 2,1)]	
									[=>(Pattern 2,2)]	[2]
									[=>(Pattern 3,1)]	
								[=>(Pattern 3,2)]	[3]	
								[=>(Pattern 4,1)]		
								[=>(Pattern 4,2)]	[4]	

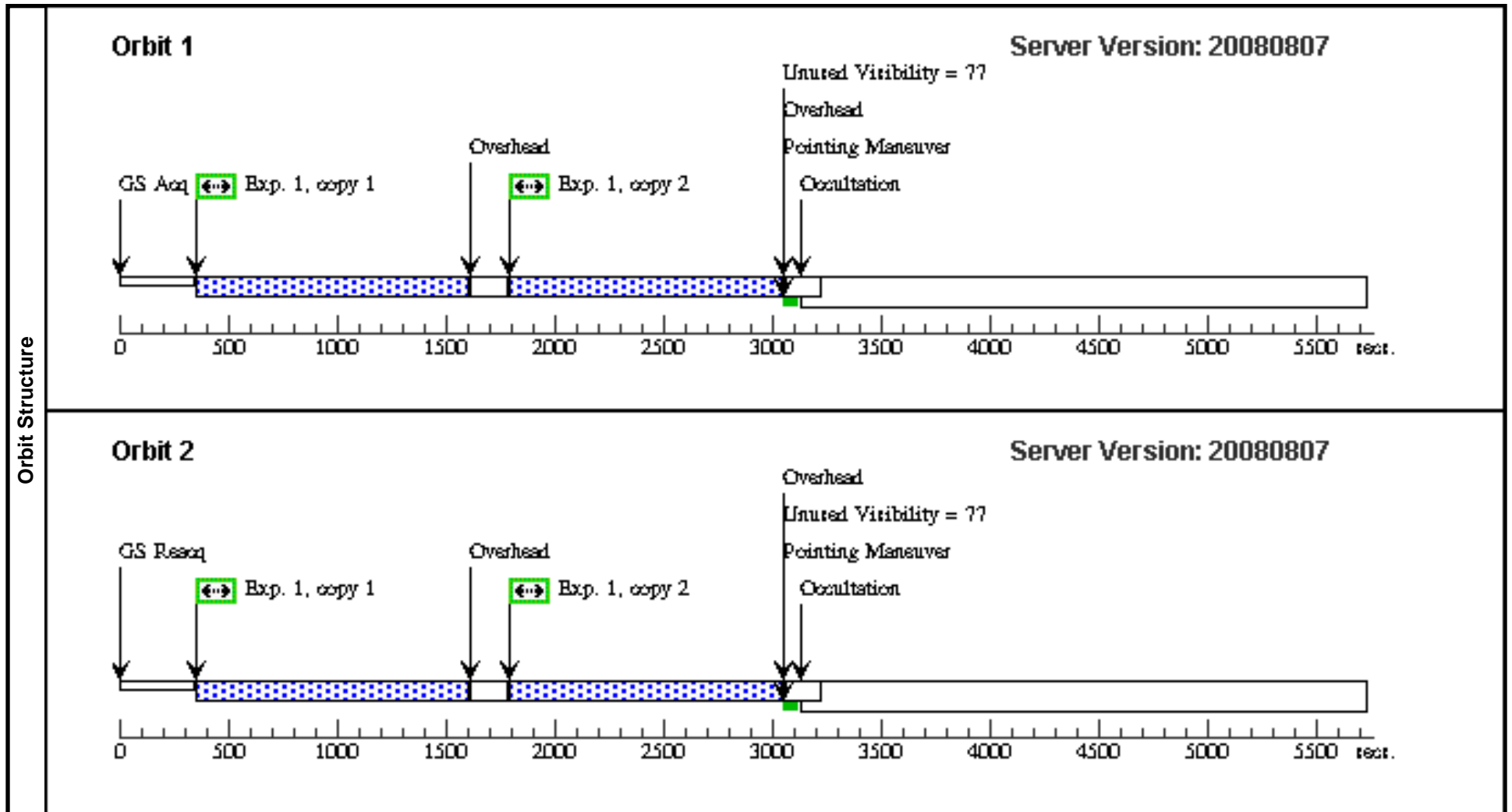


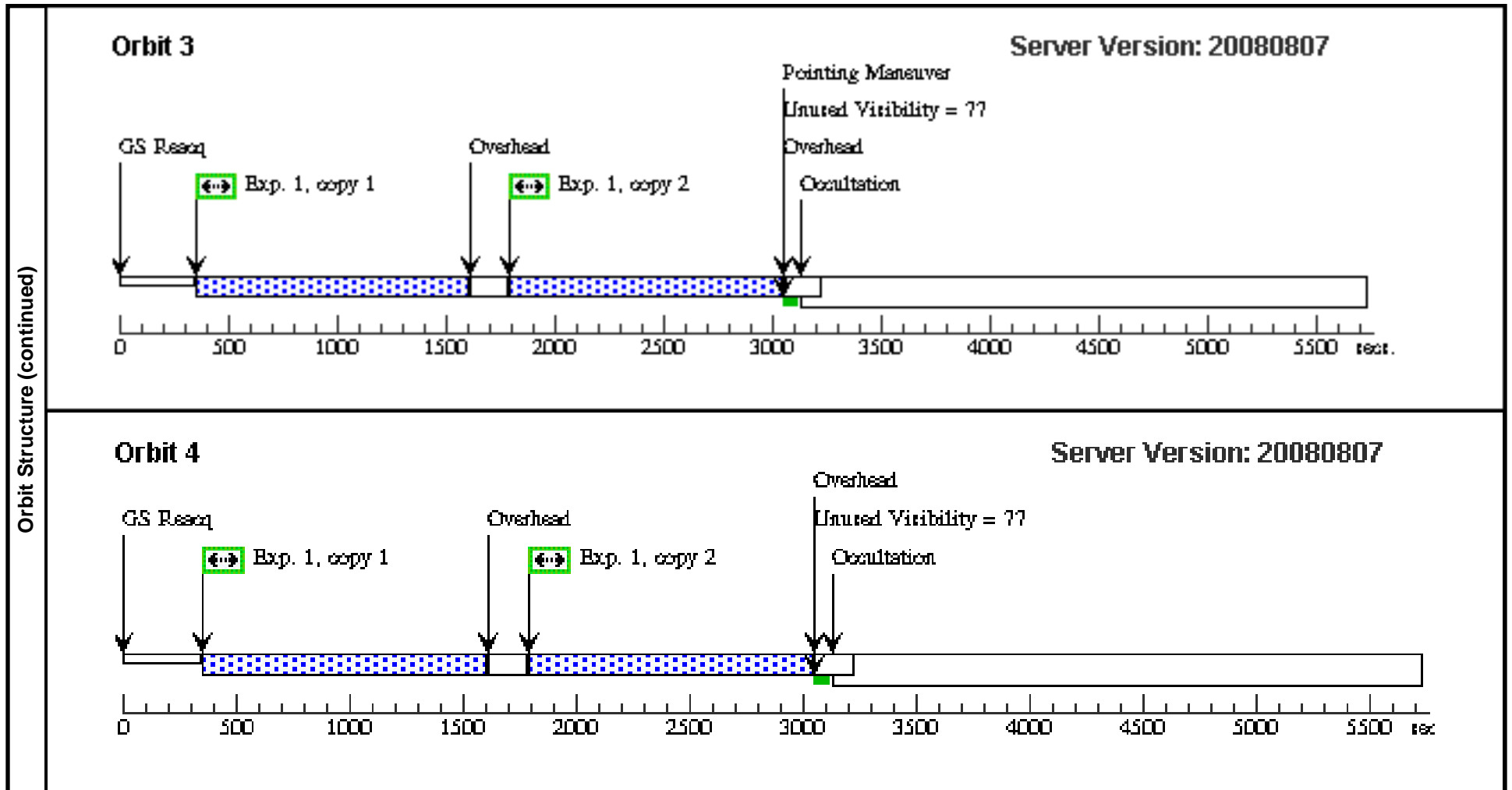


Proposal 11902 - Visit 71 - Different responses in interacting galaxies

Fri Oct 24 01:20:24 GMT 2008

Visit	Proposal 11902, Visit 71, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: SEQ 71,72,73,74 WITHIN 7 D <i>Comments: All of the Arp 147 exposures have the same POS TARG offset (in addition to the dither pattern) to move this smallish target a bit closer to the WFPC2 apex for better positioning in the overall field-of-view, and also to minimize CTE degradation.</i>									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
(4)		Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false					(1)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	ARP-147 Alt Name1: IC-0298	RA: 03 11 18.9000 (47.8287500d) Dec: +01 18 53.00 (1.31472d) Equinox: J2000		V=14+/-2 B=15.1, E(B-V) = 0.095	Reference Frame: ICRS <i>Comments: This object was generated by the targetselector and retrieved from the NED database. It is a replacement target, since Arp 273 became infeasible due to the delay in the side B switch.</i>				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(2) ARP-147	WFPC2, IMAGE, WF3-FIX	F450W	CR-SPLIT=NO	POS TARG 10,10	Pattern 1-1 (4)	1100 Secs X 2		
								[==>(Pattern 1, Copy 1)]	[1]	
								[==>(Pattern 1, Copy 2)]	[2]	
								[==>(Pattern 2, Copy 1)]	[3]	
								[==>(Pattern 2, Copy 2)]	[4]	
								[==>(Pattern 3, Copy 1)]	[5]	
								[==>(Pattern 3, Copy 2)]	[6]	
							[==>(Pattern 4, Copy 1)]	[7]		
							[==>(Pattern 4, Copy 2)]	[8]		

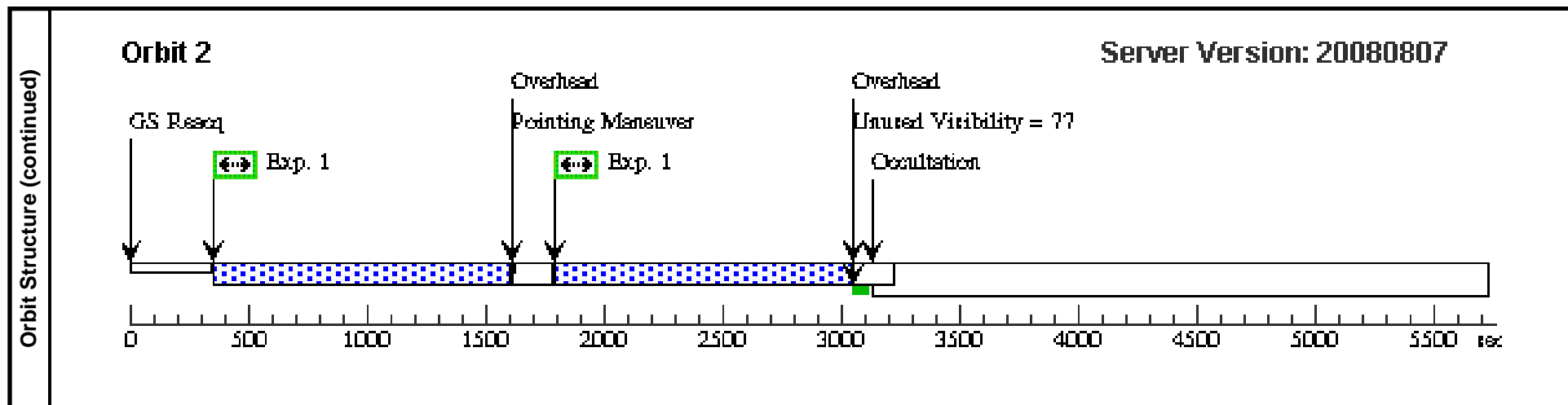




Proposal 11902 - Visit 72 - Different responses in interacting galaxies

Fri Oct 24 01:20:24 GMT 2008

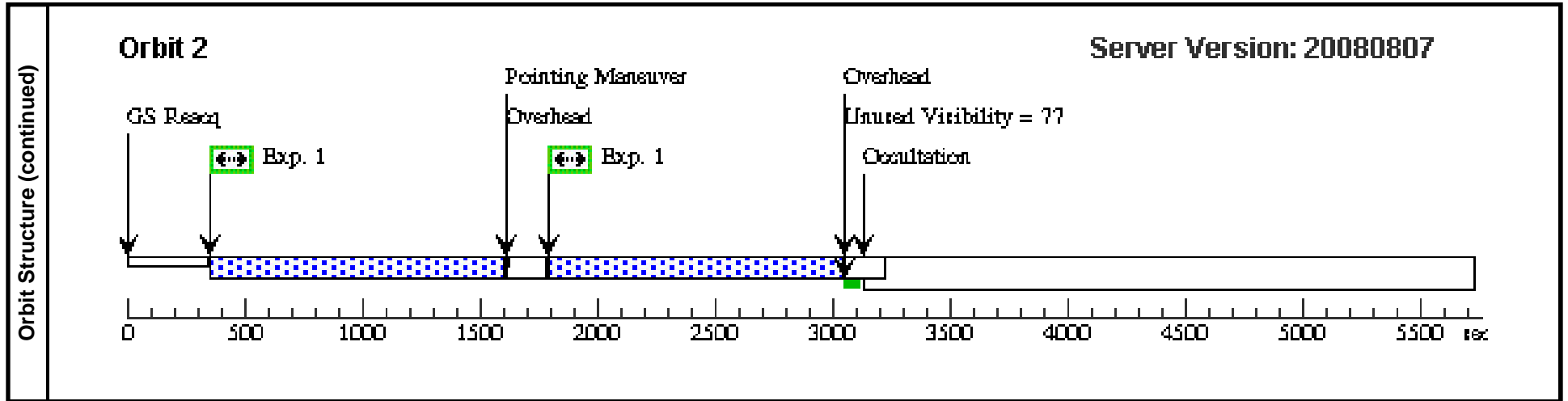
Visit	Proposal 11902, Visit 72, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
(4)		Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017		Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false					(1)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections	Fluxes		Miscellaneous			
	(2)	ARP-147 Alt Name1: IC-0298	RA: 03 11 18.9000 (47.8287500d) Dec: +01 18 53.00 (1.31472d) Equinox: J2000			V=14+/-2 B=15.1, E(B-V) = 0.095		Reference Frame: ICRS			
Comments: This object was generated by the targetselector and retrieved from the NED database. It is a replacement target, since Arp 273 became infeasible due to the delay in the side B switch.											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(2) ARP-147	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO	POS TARG 10,10	Pattern 1-1 (4)	1100 Secs		
									[=>(Pattern 1)]		[1]
									[=>(Pattern 2)]		[2]
Exposures									[=>(Pattern 3)]		
									[=>(Pattern 4)]		
	Orbit 1										
	Server Version: 20080807										
Orbit Structure											
	The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue dotted bar indicates the observation period from approximately 400s to 3000s. Key events are marked with arrows: GS Acq at ~200s, Exp. 1 at ~400s, Overhead and Pointing Maneuver at ~1600s, another Exp. 1 at ~1800s, Overhead, Pointing Maneuver, Unused Visibility = ??, and Occultation at ~3000s.										



Proposal 11902 - Visit 73 - Different responses in interacting galaxies

Fri Oct 24 01:20:25 GMT 2008

Visit	Proposal 11902, Visit 73, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)									
	Patterns	#	Primary Pattern				Secondary Pattern			
(4)		Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017		Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false						(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(2)	ARP-147 Alt Name1: IC-0298	RA: 03 11 18.9000 (47.8287500d) Dec: +01 18 53.00 (1.31472d) Equinox: J2000				V=14+/-2 B=15.1, E(B-V) = 0.095		Reference Frame: ICRS	
Comments: This object was generated by the targetselector and retrieved from the NED database. It is a replacement target, since Arp 273 became infeasible due to the delay in the side B switch.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(2) ARP-147		WFPC2, IMAGE, WF3-FIX	F814W	CR-SPLIT=NO	POS TARG 10,10	Pattern 1-1 (4)	1100 Secs	
									[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	
									[=>(Pattern 3)]	[2]
									[=>(Pattern 4)]	
Orbit Structure	Orbit 1 Server Version: 20080807									
	<p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows: GS Acq at ~300s, Exp. 1 (green box) at ~400s, Pointing Maneuver at ~1600s, another Exp. 1 (green box) at ~1800s, another Pointing Maneuver at ~3000s, Occultation at ~3100s, and a final Overhead period. A bar at the bottom indicates Unused Visibility = 77%.</p>									



Proposal 11902 - Visit 74 - Different responses in interacting galaxies

Fri Oct 24 01:20:25 GMT 2008

Visit	Proposal 11902, Visit 74, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
(5)		Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.3535 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(1-2)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections	Fluxes		Miscellaneous			
	(2)	ARP-147 Alt Name1: IC-0298	RA: 03 11 18.9000 (47.8287500d) Dec: +01 18 53.00 (1.31472d) Equinox: J2000			V=14+/-2 B=15.1, E(B-V) = 0.095		Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the NED database. It is a replacement target, since Arp 273 became infeasible due to the delay in the side B switch.</i>											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	(2) ARP-147	(2) ARP-147	WFPC2, IMAGE, WF3-FIX	F606W	CR-SPLIT=NO	POS TARG 10,10	Pattern 1-2 (5)	1100 Secs		
									[=>(Pattern 1)]		[1]
									[=>(Pattern 2)]		[2]
2	(2) ARP-147	(2) ARP-147	WFPC2, IMAGE, WF3-FIX	F814W	CR-SPLIT=NO	POS TARG 10,10	Pattern 1-2 (5)	1100 Secs			
								[=>(Pattern 1)]		[1]	
								[=>(Pattern 2)]		[2]	
Orbit Structure	<p>Orbit 1 Server Version: 20080807</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with arrows and labels: GS Acq at ~100s, Exp. 1 (green box) at ~400s, Exp. 2 (green box) at ~1800s, and Occultation at ~3000s. Overhead and Pointing Maneuver periods are shown as vertical bars above the timeline. Unused Visibility = ?? is noted near the occultation. A blue dotted bar represents the primary observation period from ~400s to ~3000s.</p>										
	<p>Timeline labels: GS Acq, Exp. 1, Exp. 2, Occultation, Overhead, Pointing Maneuver, Unused Visibility = ??</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec.</p>										

