



11551 - When degenerate stars collide: Understanding A New Explosion Phenomena

Cycle: 16, Proposal Category: GO/DD

(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>
01	(1) GRB080503	WFPC2	4	16-Jun-2008 21:58:35.0	yes
02	(1) GRB080503	WFPC2	4	16-Jun-2008 21:58:42.0	yes
03	(1) GRB080503	WFPC2	4	16-Jun-2008 21:58:48.0	yes

12 Total Orbits Used

ABSTRACT

Explosive events seen at extragalactic distances mark the end-state of violent and catastrophic physical processes. Most supernovae and gamma-ray bursts (GRBs), in particular, are thought to herald the death of massive stars and the birth of solar-mass black holes. A minority fraction of GRBs, however, have been circumstantially associated with the merger of degenerate systems (such as black holes and neutron stars). These short-duration

bursts are rare and difficult to localize, with only about 2 dozen studied to any degree of detail to date. We believe that we have finally discovered, in the last few days, one of the tell-tale signatures of degenerate merger products --- a "mini-supernova" from the non-relativistic ejecta left over after merger. If true, this long-theorized phenomenon would be an entirely new sort of explosion in the universe. In several rapidly executed visits, HST, coupled with a recently approved Chandra DD proposal to search for underlying afterglow, could make a substantial contribution to our understanding of this phenomena by honing the physical parameters of the event and helping to rule out alternatives. If we are correct in our hypothesis, we have found the first clear cut observational signature in the electromagnetic spectrum of what are expected to be the dominant sources of gravitational waves for advanced LIGO.

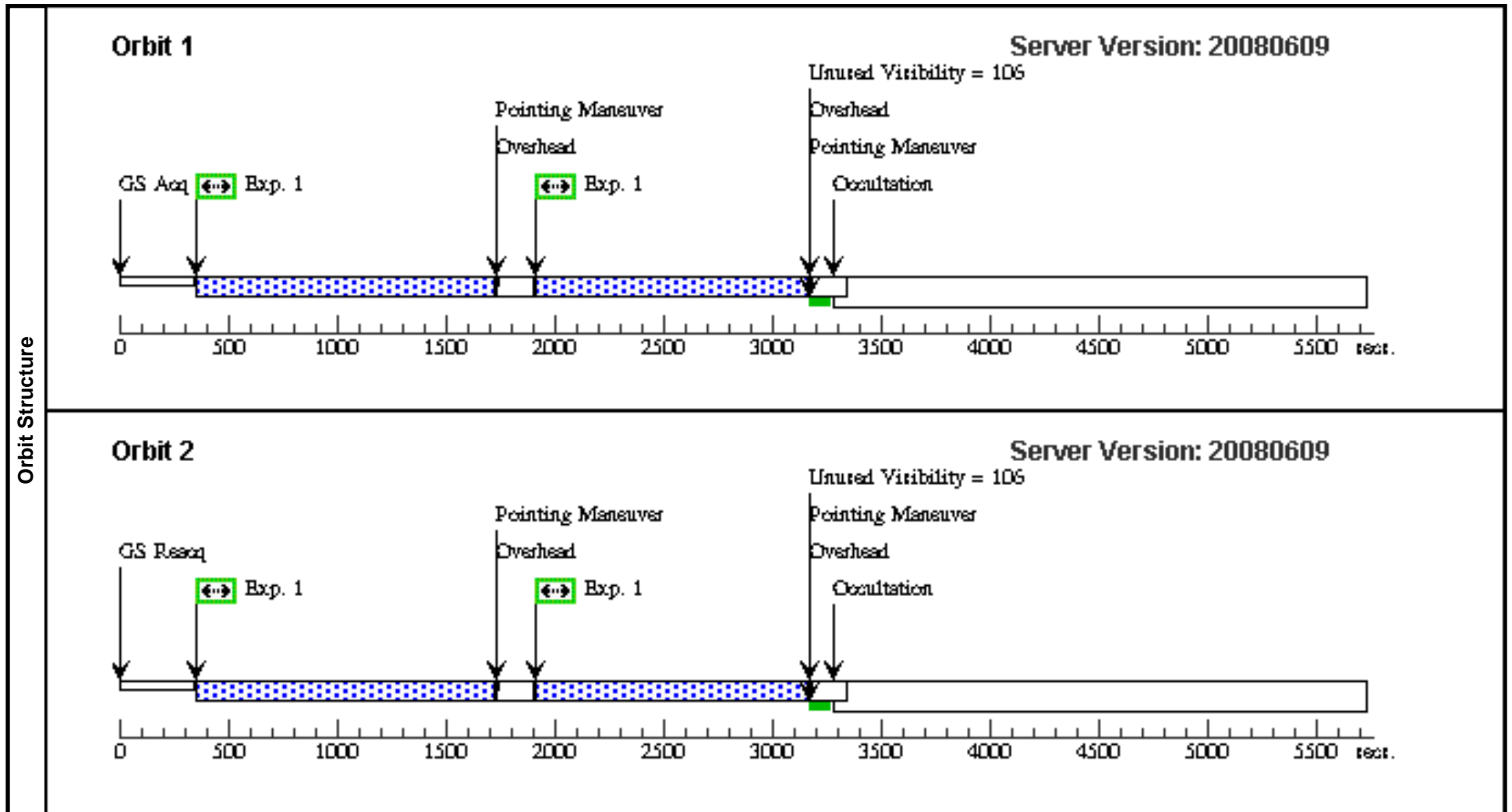
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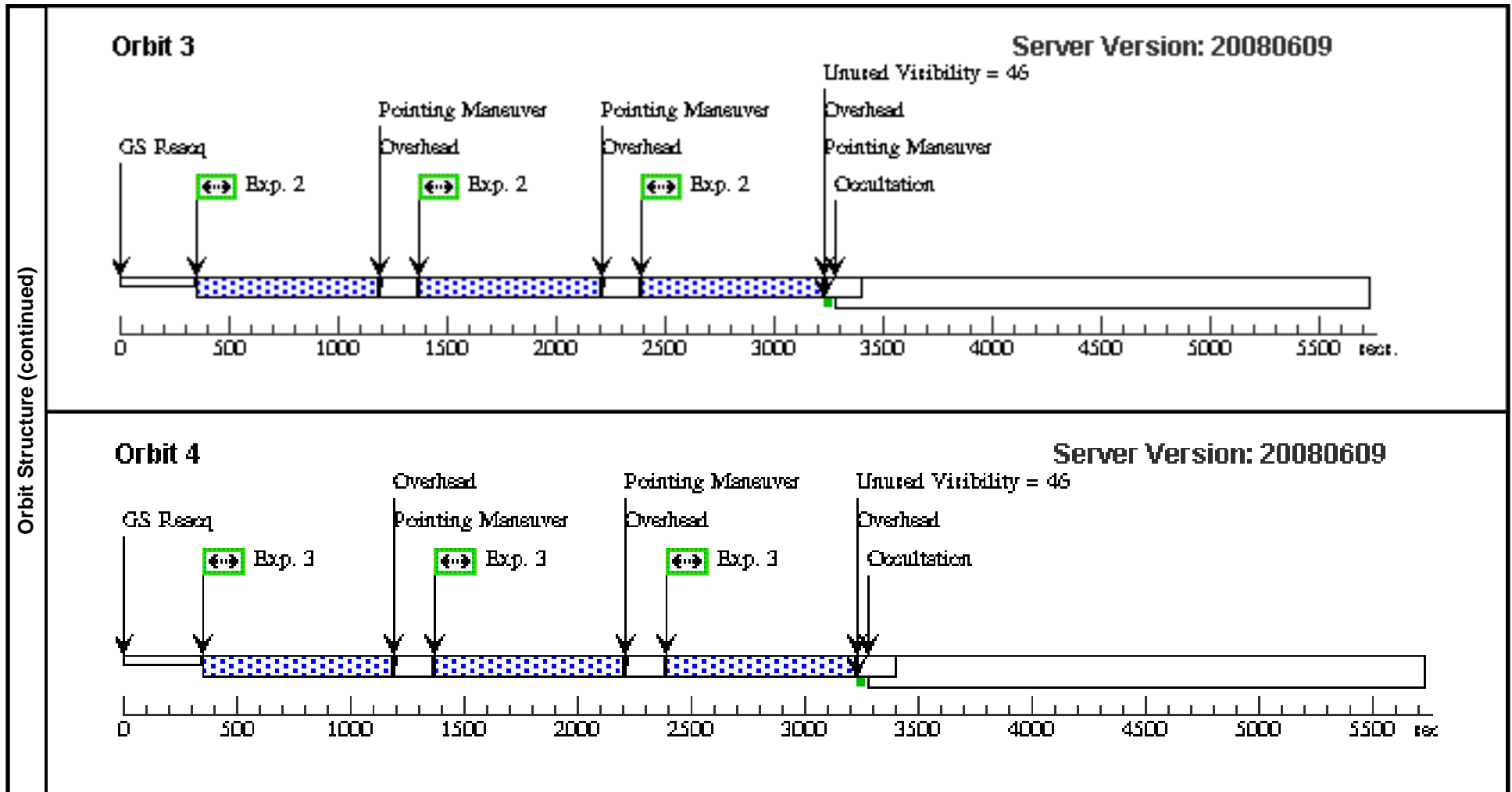
see PDF

Proposal 11551 - Visit 01 - When degenerate stars collide: Understanding A New Explosion Phenomena

Tue Jun 17 01:58:52 GMT 2008

Visit	Proposal 11551, Visit 01, completed Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: GYRO MODE 2G										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(1)	Pattern Type=WFPC2-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.3535 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45.0 Angle Between Sides= Center Pattern=false						(2), (3)	
	(2)	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				
	(1)	GRB080503	RA: 19 06 28.7750 (286.6198958d) Dec: +68 47 35.50 (68.79319d) Equinox: J2000			V=25+/-3	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	F606W	(1) GRB080503	WFPC2, IMAGE, WFALL	F606W	CR-SPLIT=1		Pattern 1-1 (2)	1300 Secs		
									[==>1200.0 Secs (Pattern 1)]	[1]	
									[==>1100.0 Secs (Pattern 2)]	[2]	
									[==>1200.0 Secs (Pattern 3)]		
									[==>1100.0 Secs (Pattern 4)]		
	2	F814W	(1) GRB080503	WFPC2, IMAGE, WFALL	F814W	CR-SPLIT=1		Pattern 2-2 (1)	700 Secs		
									[==>700.0 Secs (Pattern 1)]	[3]	
									[==>700.0 Secs (Pattern 2)]		
									[==>700.0 Secs (Pattern 3)]		
	3	F450W	(1) GRB080503	WFPC2, IMAGE, WFALL	F450W	CR-SPLIT=1		Pattern 3-3 (1)	700 Secs		
									[==>700.0 Secs (Pattern 1)]	[4]	
									[==>700.0 Secs (Pattern 2)]		
									[==>700.0 Secs (Pattern 3)]		

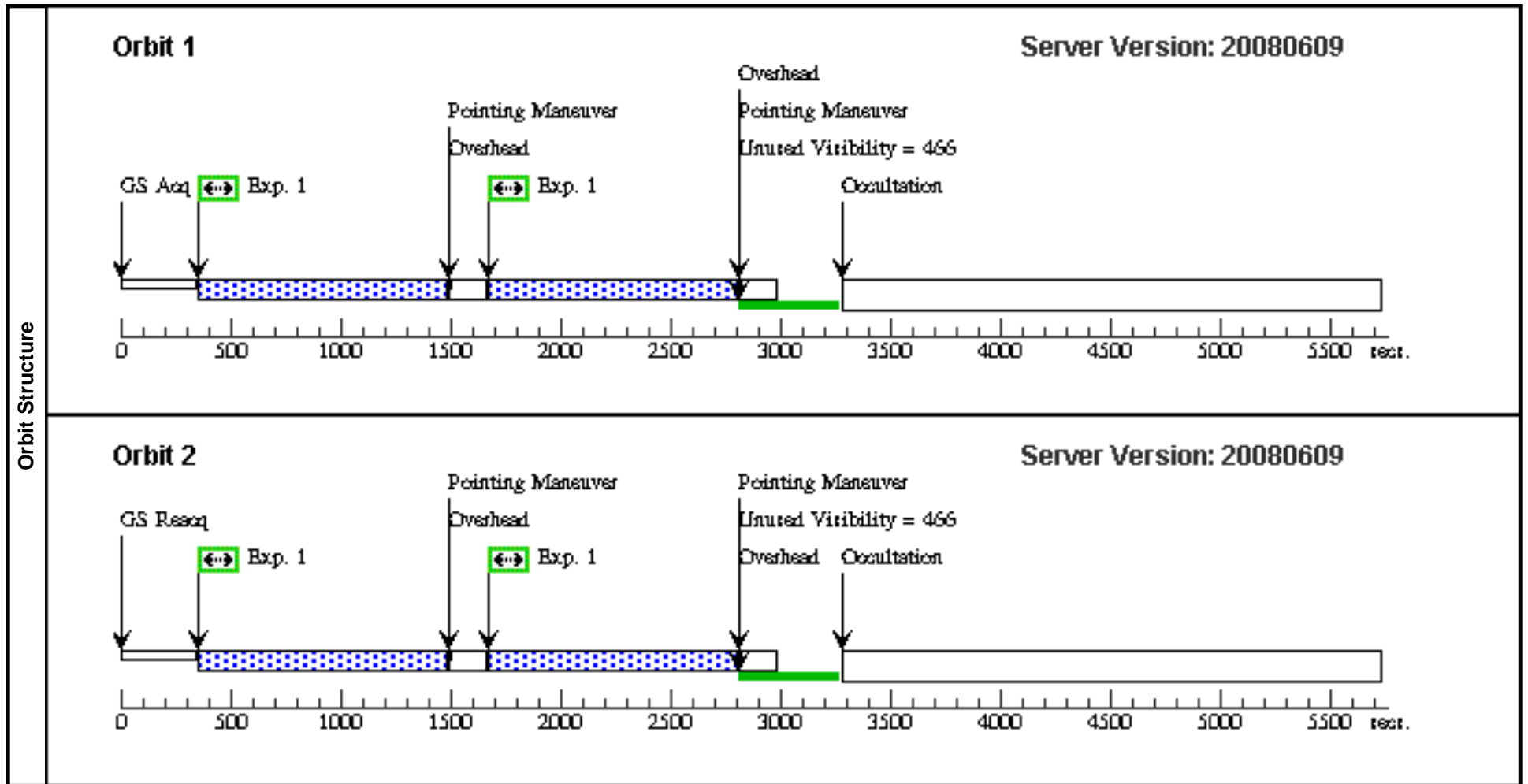


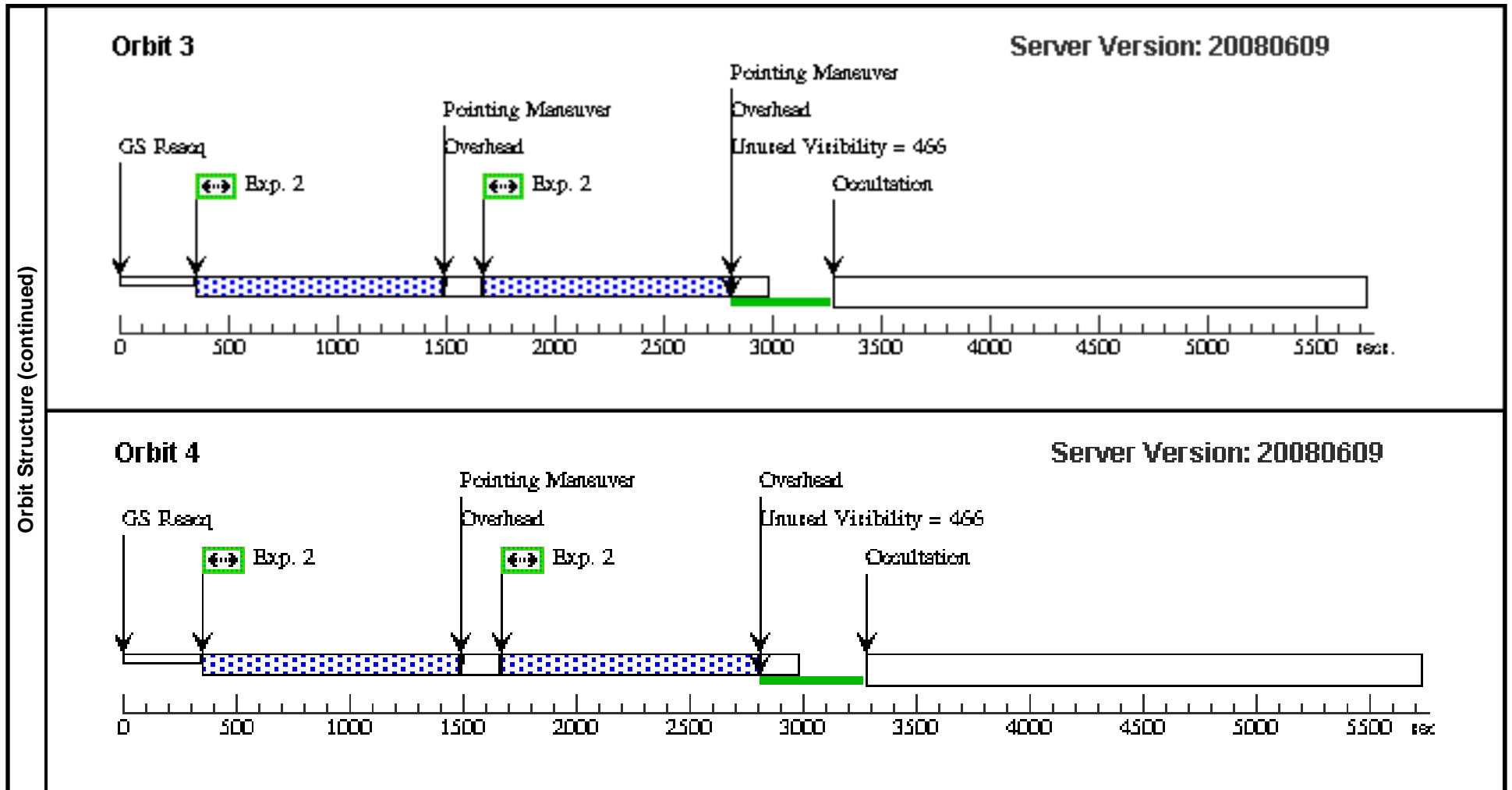


Proposal 11551 - Visit 02 - When degenerate stars collide: Understanding A New Explosion Phenomena

Tue Jun 17 01:58:53 GMT 2008

Visit	Proposal 11551, Visit 02, completed Diagnostic Status: Warning Scientific Instruments: WFPC2 Special Requirements: SAME ORIENT AS 01										
	(Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC (Visit 02) Warning (Orbit Planner): EXPOSURE TIME DECREASED FOR WFPC										
Diagnosics											
Patterns	#	Primary Pattern				Secondary Pattern				Exposures	
	(2)	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), (2)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	GRB080503	RA: 19 06 28.7750 (286.6198958d) Dec: +68 47 35.50 (68.79319d) Equinox: J2000				V=25+/-3		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	F814W	(1) GRB080503	WFPC2, IMAGE, WFALL	F814W	CR-SPLIT=1		Pattern 1-1 (2)	1080 Secs		
									[=>(Pattern 1)]		[1]
									[=>(Pattern 2)]		[2]
									[=>(Pattern 3)]		[3]
									[=>(Pattern 4)]		[4]
2	F606W	(1) GRB080503	WFPC2, IMAGE, WFALL	F606W	CR-SPLIT=1		Pattern 2-2 (2)	1080 Secs			
								[=>(Pattern 1)]		[3]	
								[=>(Pattern 2)]		[4]	
								[=>(Pattern 3)]		[4]	
								[=>(Pattern 4)]		[4]	





Proposal 11551 - Visit 03 - When degenerate stars collide: Understanding A New Explosion Phenomena

Tue Jun 17 01:58:54 GMT 2008

Visit	Proposal 11551, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFPC2 Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(2)	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), (2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous					
	(1)	GRB080503	RA: 19 06 28.7750 (286.6198958d) Dec: +68 47 35.50 (68.79319d) Equinox: J2000		V=25+/-3	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	F606W	(1) GRB080503	WFPC2, IMAGE, WFALL	F606W	CR-SPLIT=1		Pattern 1-1 (2)	1200 Secs		
									[=>1200.0 Secs (Pattern 1)]		
									[=>1100.0 Secs (Pattern 2)]		
									[=>1200.0 Secs (Pattern 3)]		
	[=>1100.0 Secs (Pattern 4)]										
2	F606W	(1) GRB080503	WFPC2, IMAGE, WFALL	F606W	CR-SPLIT=1		Pattern 2-2 (2)	1200 Secs			
								[=>1200.0 Secs (Pattern 1)]			
								[=>1100.0 Secs (Pattern 2)]			
								[=>1200.0 Secs (Pattern 3)]			
[=>1100.0 Secs (Pattern 4)]											

