



11015 - The Proper Motion of Supernova Remnant E0509-67.5

Cycle: 15, 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) SNR0509-67.5	ACS/WFC	2	05-Sep-2007 21:00:54.0	yes
02	(1) SNR0509-67.5	WFPC2	6	05-Sep-2007 21:01:04.0	yes

8 Total Orbits Used

ABSTRACT

We propose to measure independently the proper motion expansions of the ejecta and forward shock in E0509-67.5. The metal-enriched reverse-shock-heated ejecta emits only in X-rays, while the forward shock is traced to high precision by H alpha emission. The proposed measurements require the unique high resolution imaging capabilities of Chandra and Hubble. The optical (forward shock) and X-ray (ejecta) results will yield

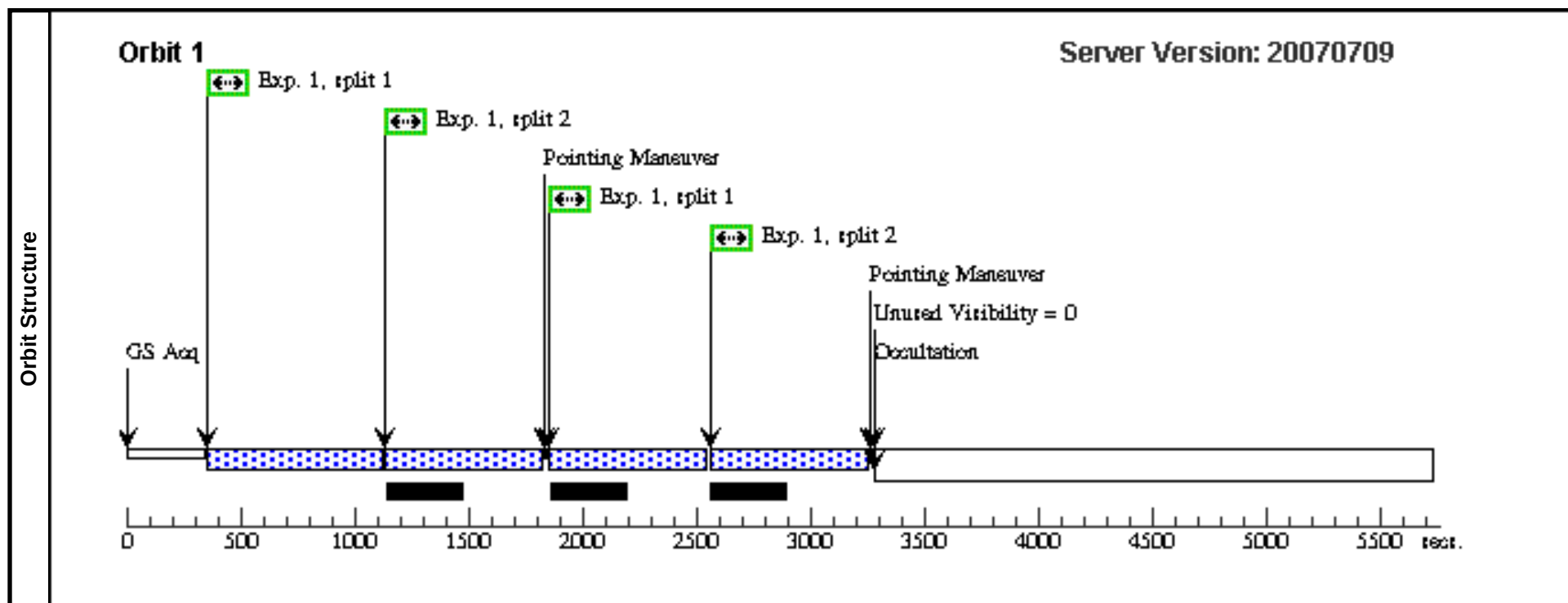
important constraints on the remnant's evolutionary state; we will search in particular for evidence of cosmic-ray modified dynamics. An important component of this project is an integrated theoretical investigation using realistic models of SN Ia explosions evolved to the remnant stage.

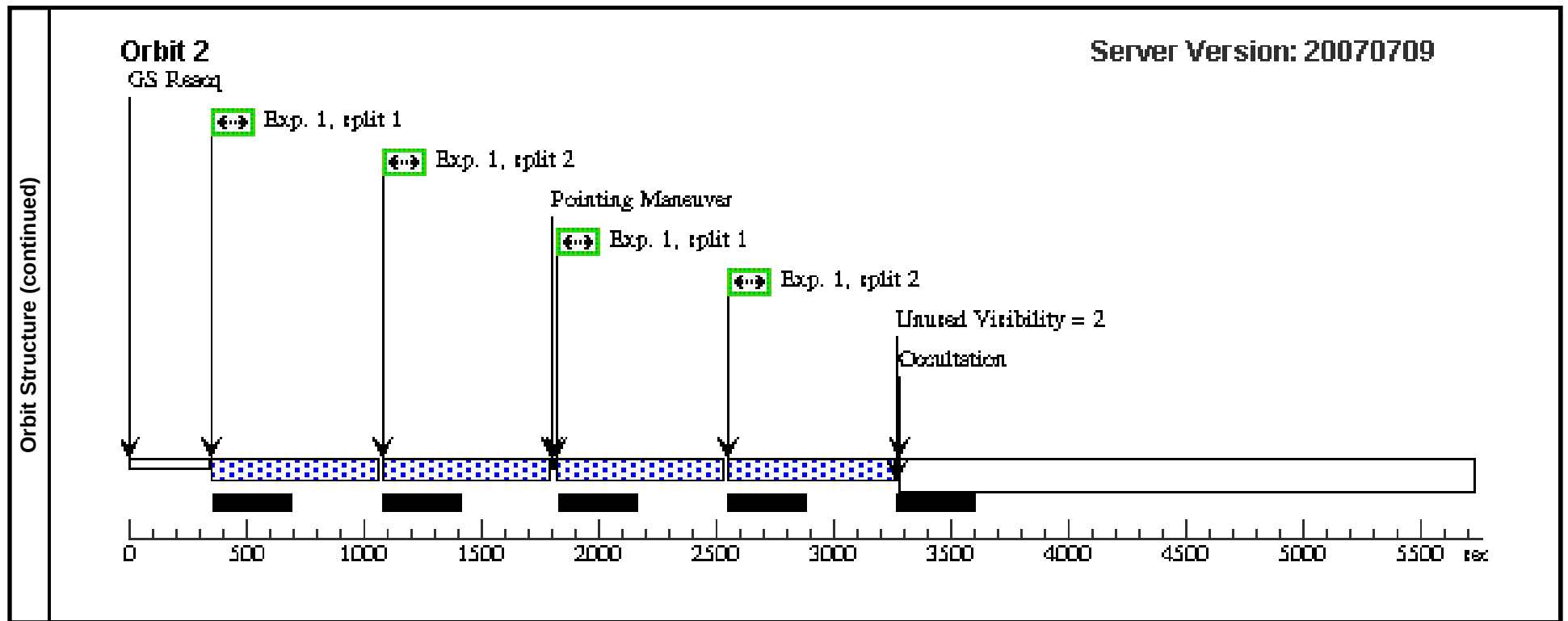
OBSERVING DESCRIPTION

This is a program to image a small (approx. 30 arcsec diameter), nearly round supernova remnant in H alpha in order to accurately locate, and measure the expansion rate of, the forward shock. The radial expansion rate of the rim of the remnant is estimated to be 0.03 arcsec per year. We will use the ACS WFC with the F658N filter. The expansion measurement requires that the observation be split in two with a time interval between exposures of roughly 1 year and the same observation orientation.

Proposal 11015 - Visit 01 - The Proper Motion of Supernova Remnant E0509-67.5

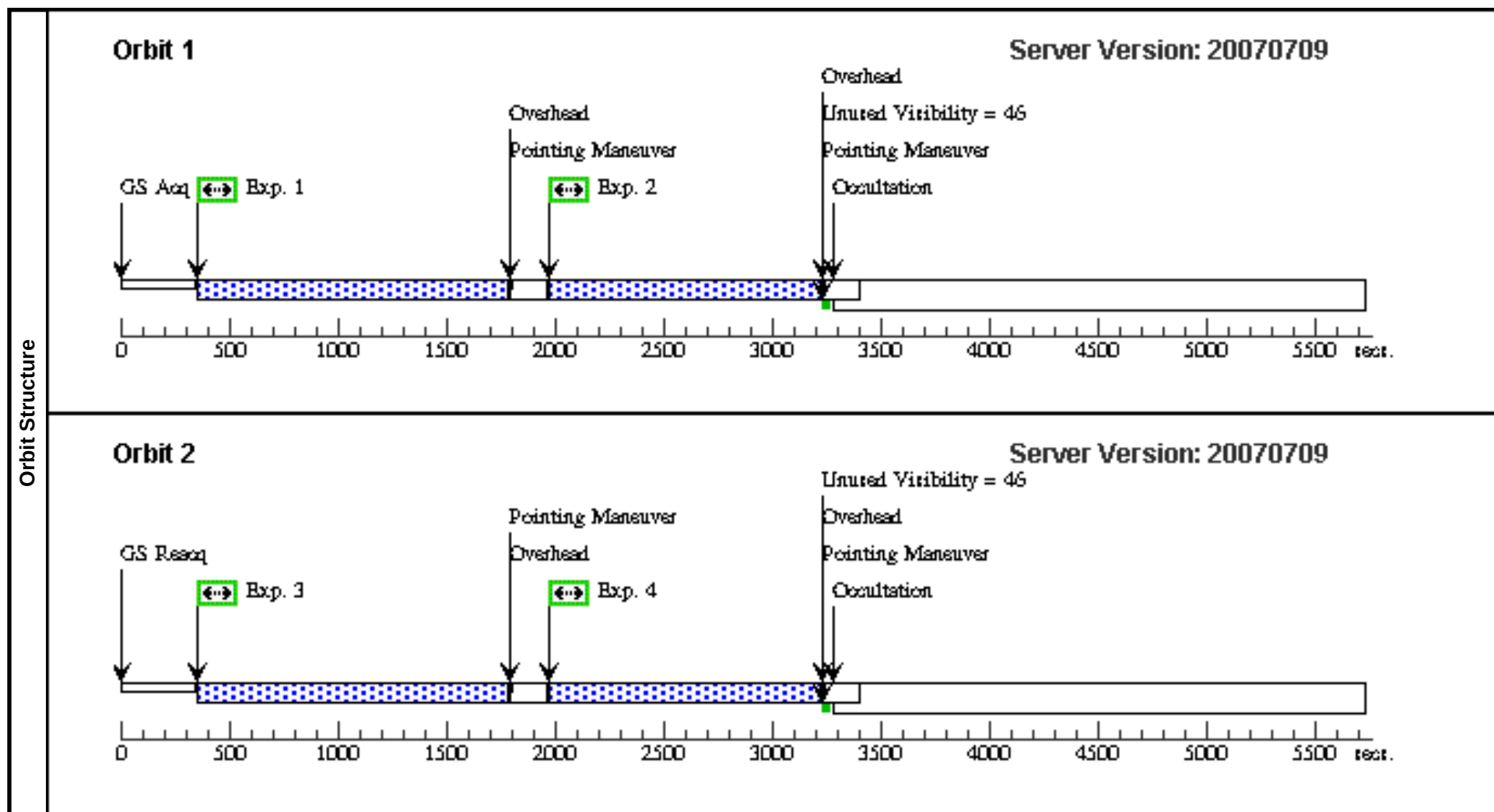
Visit	Proposal 11015, Visit 01, completed											Thu Sep 06 01:01:09 GMT 2007
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: ACS/WFC											
	Special Requirements: (none)											
Patterns	#	Primary Pattern					Secondary Pattern					Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-BOX Coordinate Frame=POS-TARG Pattern Orientation=20.67 Purpose=DITHER Angle Between Sides=69.05 Number Of Points=4 Center Pattern=false Point Spacing=0.265 Line Spacing=0.187										(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(1)	SNR0509-67.5	RA: 05 09 31.2000 (77.3800000d) Dec: -67 31 16.70 (-67.52131d) Equinox: J2000				V=(?) 1.2e-16 erg/cm^2/s/arcsec^2; measured H alpha surface brightness of target		Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	first epoch	(1) SNR0509-67.5	ACS/WFC, ACCUM, WFC2		F658N			Pattern 1-1 (1)	1100.0 Secs		
										[==>565.0 Secs (Pattern 1, Split 1)]	[1]	
										[==>565.0 Secs (Pattern 1, Split 2)]		
										[==>565.0 Secs (Pattern 2, Split 1)]		
										[==>565.0 Secs (Pattern 2, Split 2)]		
										[==>590.0 Secs (Pattern 3, Split 1)]	[2]	
										[==>590.0 Secs (Pattern 3, Split 2)]		
									[==>590.0 Secs (Pattern 4, Split 1)]			
									[==>590.0 Secs (Pattern 4, Split 2)]			





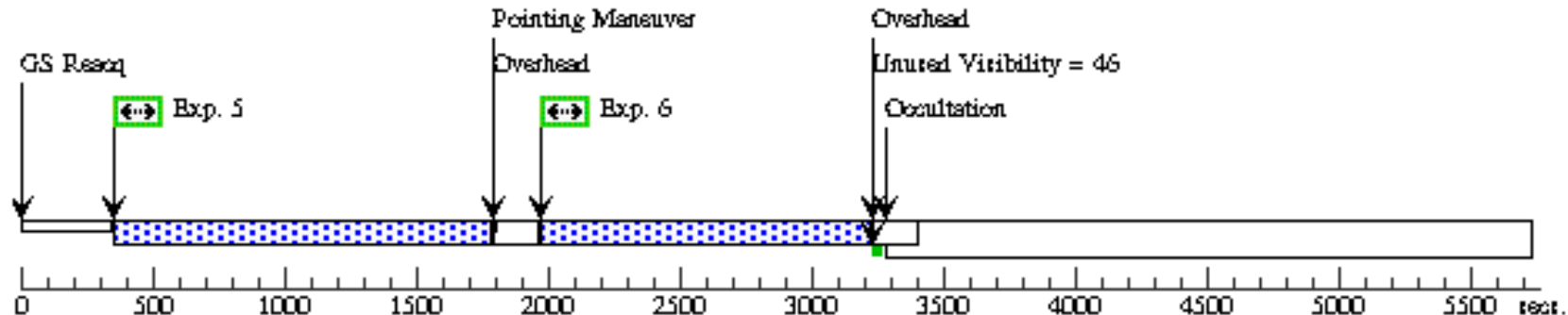
Proposal 11015 - Visit 02 - The Proper Motion of Supernova Remnant E0509-67.5

Visit	Proposal 11015, Visit 02, implementation										Thu Sep 06 01:01:10 GMT 2007
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFPC2										
	Special Requirements: AFTER 01 BY 365 D TO 560 D										
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	SNR0509-67.5	RA: 05 09 31.2000 (77.3800000d) Dec: -67 31 16.70 (-67.52131d) Equinox: J2000				V=(?) 1.2e-16 erg/cm^2/s/arcsec^2; me an H alpha surface brightness of target		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 13.253,1 3.253		1300.0 Secs		
									[==>]		[1]
	2		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 13.751,1 3.502		1100.0 Secs		
									[==>]		[1]
	3		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 14,14		1300.0 Secs		
									[==>]		[2]
	4		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 13.502,1 3.751		1100.0 Secs		
									[==>]		[2]
	5		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 13.004,1 3.502		1300.0 Secs		
									[==>]		[3]
	6		(1) SNR0509-67.5	WFPC2, IMAGE, WF3-FIX	F656N	CR-SPLIT=NO	POS TARG 12.755,1 3.004		1100.0 Secs		
									[==>]		[3]
7		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 15.753,- 12.751		1200.0 Secs			
								[==>]		[4]	
8		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 16.251,- 12.502		1100.0 Secs			
								[==>]		[4]	
9		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 16.5,-12 .004		1300.0 Secs			
								[==>]		[5]	
10		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 16.002,- 12.253		1100.0 Secs			
								[==>]		[5]	
11		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 15.504,- 12.502		1300.0 Secs			
								[==>]		[6]	
12		(1) SNR0509-67.5	WFPC2, IMAGE, WF2-FIX	F656N	CR-SPLIT=NO	POS TARG 15.255,- 13		1100.0 Secs			
								[==>]		[6]	



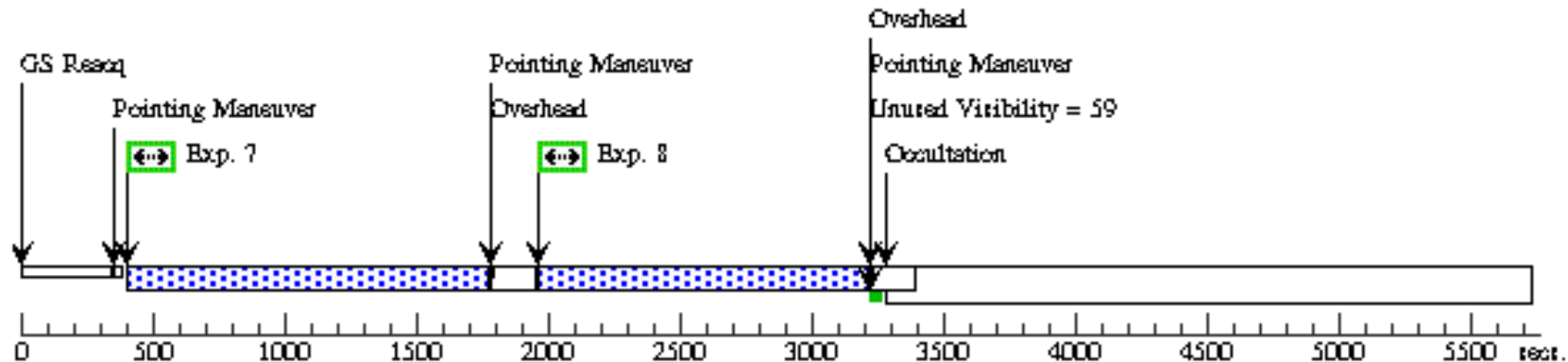
Orbit 3

Server Version: 20070709



Orbit 4

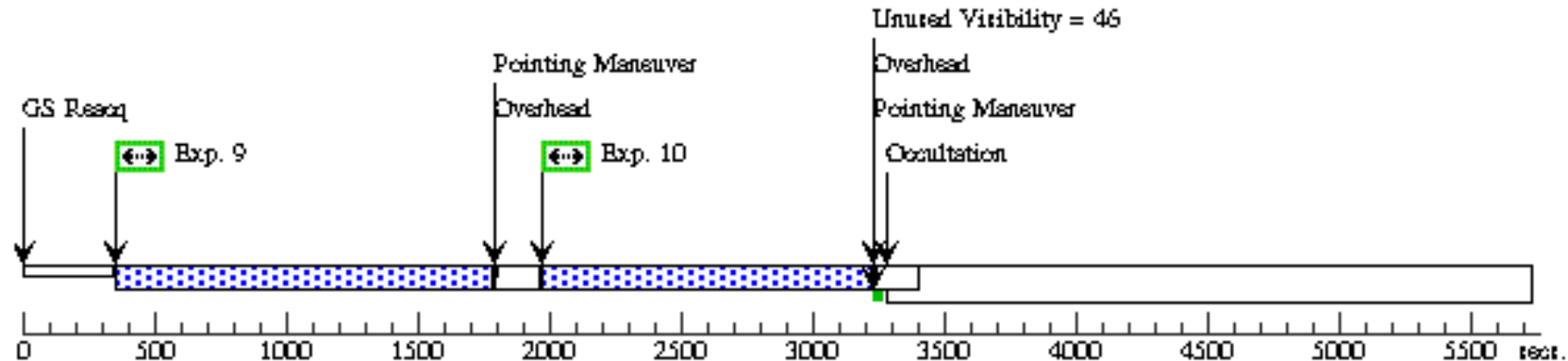
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Orbit Structure (continued)

Orbit 5

Server Version: 20070709



Orbit 6

Server Version: 20070709

