11513 - The afterglow and host galaxy of GRB 080319: the first naked eye burst

Cycle: 16, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:11.0	yes
02	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:17.0	yes
03	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:21.0	yes
04	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:25.0	yes
05	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:29.0	yes
06	(1) GRB080319B	WFPC2	2	09-Apr-2008 21:21:33.0	yes

12 Total Orbits Used

ABSTRACT

The optical flash from GRB 080319 reached a magnitude of about 5.5 within a few seconds of the start of the burst, making it the first "naked eye" GRB. It's redshift has been determined as z=0.94 (about 7 billion light years distance) and hence it is by far the most distant naked eye source known.

HST has a key role to play in helping study this event, by providing the late time monitoring of the light curve and colour of the afterglow. This will allow us to constrain any breaks which may indicate a collimated outflow, to search for an underlying supernova component and to reveal the nature of the host galaxy, and the location of the burst within it.

Not surprisingly this object is attracting considerable attention both in the professional astrophysical community and also in the general public. We believe that HST observations of this GRB would be welcomed by both of these communities.

OBSERVING DESCRIPTION

We request observations with WFPC2 in F606 and F814 filters. These bands have been used in many deep field observations, and in particular in many studies of GRB host galaxies.
We propose two orbits in each filter. This will give us a depth of greater than R=26 at 10 sigma.
The fairly steep decline of the light curve, and possibility of a break, combined with the necessity of good photometry to accurately assess any supernova contribution and detect the (likely) faint host, makes it essential to obtain good S/N, two band imaging at each epoch.

Visit

Proposal 11513, Visit 01, completed Thu Apr 10 01:21:40 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BETWEEN 07-APR-2008:00:00:00 AND 13-APR-2008:00:00:00

Patterns

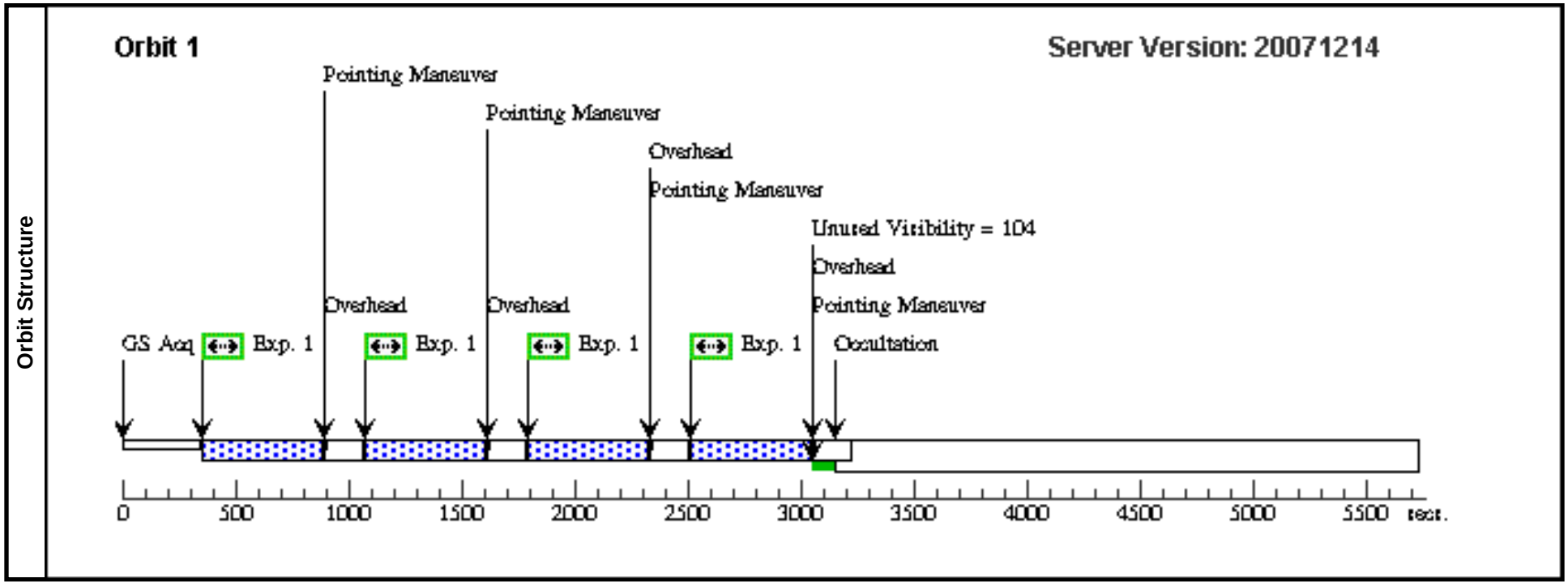
#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.32825 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d) Dec: +36 18 9.00 (36.30250d) Equinox: J2000		V=26+/-1	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F606W			Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)] *[==>(Pattern 1,2)]* *[==>(Pattern 2,1)]* *[==>(Pattern 2,2)]*	***[1]***
								[==>(Pattern 3,1)] *[==>(Pattern 3,2)]* *[==>(Pattern 4,1)]* *[==>(Pattern 4,2)]*	***[2]***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Pointing Maneuver
Unused Visibility = 104
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Pointing Maneuver
Overhead
Overhead
GS Acq
Exp. 1
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Occultation
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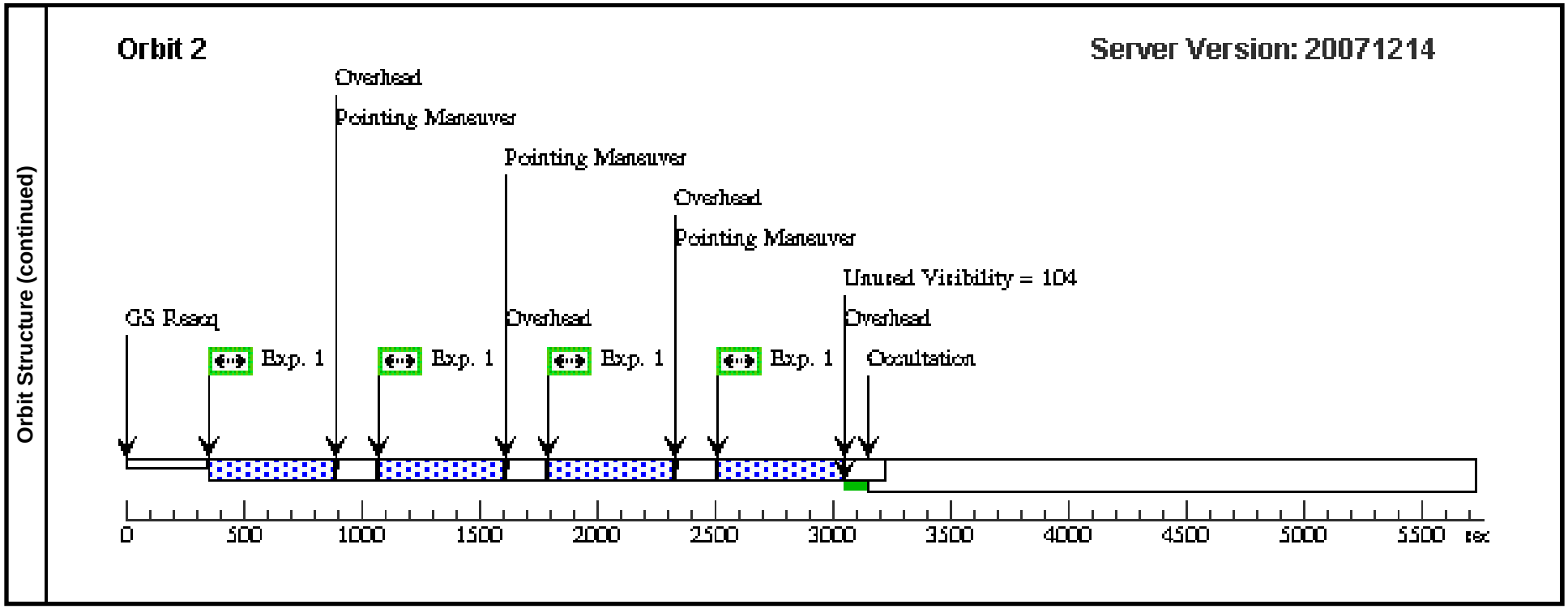
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Pointing Maneuver
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GS Reacq
Overhead
Overhead
Exp. 1
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Occultation
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Visit

Proposal 11513, Visit 02, completed Thu Apr 10 01:21:40 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: SAME ORIENT AS 01; GROUP 02,01 WITHIN 24H

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX	Coordinate Frame=POS-TARG	Pattern Type=LINE	Coordinate Frame=POS-TARG	(1)
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	Point Spacing=0.559017	Center Pattern=false	Point Spacing=0.32825	Center Pattern=false	
	Line Spacing=0.559017		Line Spacing=		

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d)		V=26+/-1	Reference Frame: ICRS
		Dec: +36 18 9.00 (36.30250d)			
		Equinox: J2000			

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F814W			Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)]	***[1]***
								[==>(Pattern 1,2)]	
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								[==>(Pattern 2,2)]	
								[==>(Pattern 3,1)]	***[2]***
								[==>(Pattern 3,2)]	
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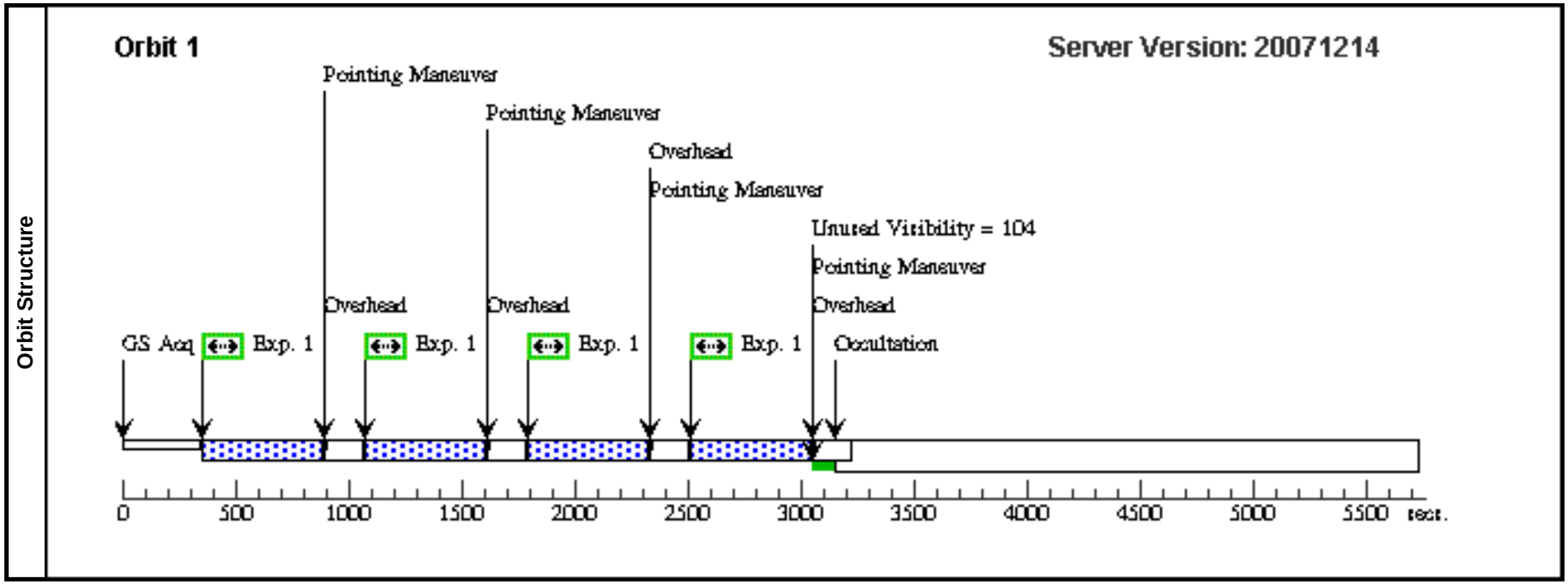
								[==>(Pattern 4,2)]	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Overhead
Overhead
Overhead
GS Acq
Exp. 1
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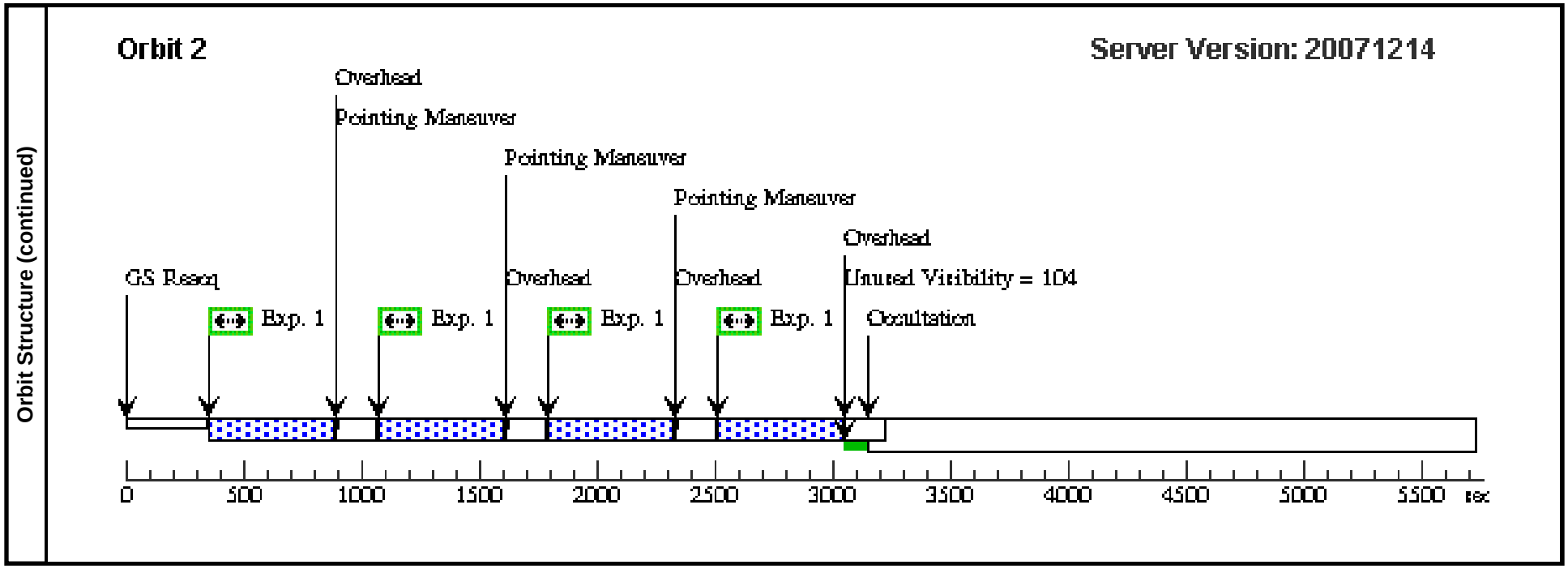
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Overhead
Unused Visibility = 104
Exp. 1
Exp. 1
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Occultation
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Visit

Proposal 11513, Visit 03, scheduling Thu Apr 10 01:21:41 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BETWEEN 08-MAY-2008:00:00:00 AND 12-MAY-2008:00:00:00

Patterns

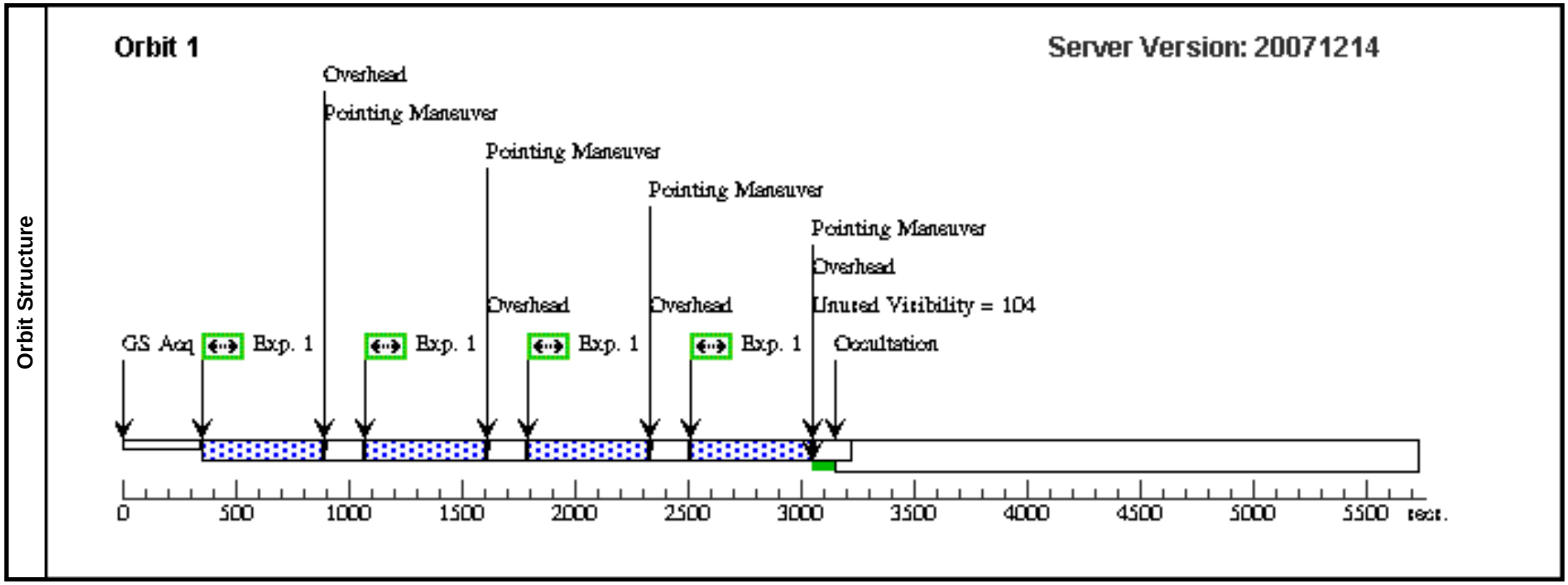
#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.32825 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d) Dec: +36 18 9.00 (36.30250d) Equinox: J2000		V=26+/-1	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F606W		GS ACQ SCENARIO BASE1T3	Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)] *[==>(Pattern 1,2)]* *[==>(Pattern 2,1)]* *[==>(Pattern 2,2)]*	***[1]***
								[==>(Pattern 3,1)] *[==>(Pattern 3,2)]* *[==>(Pattern 4,1)]* *[==>(Pattern 4,2)]*	***[2]***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Overhead
Overhead
Overhead
Unused Visibility = 104
GS Acq
Exp. 1
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Occultation
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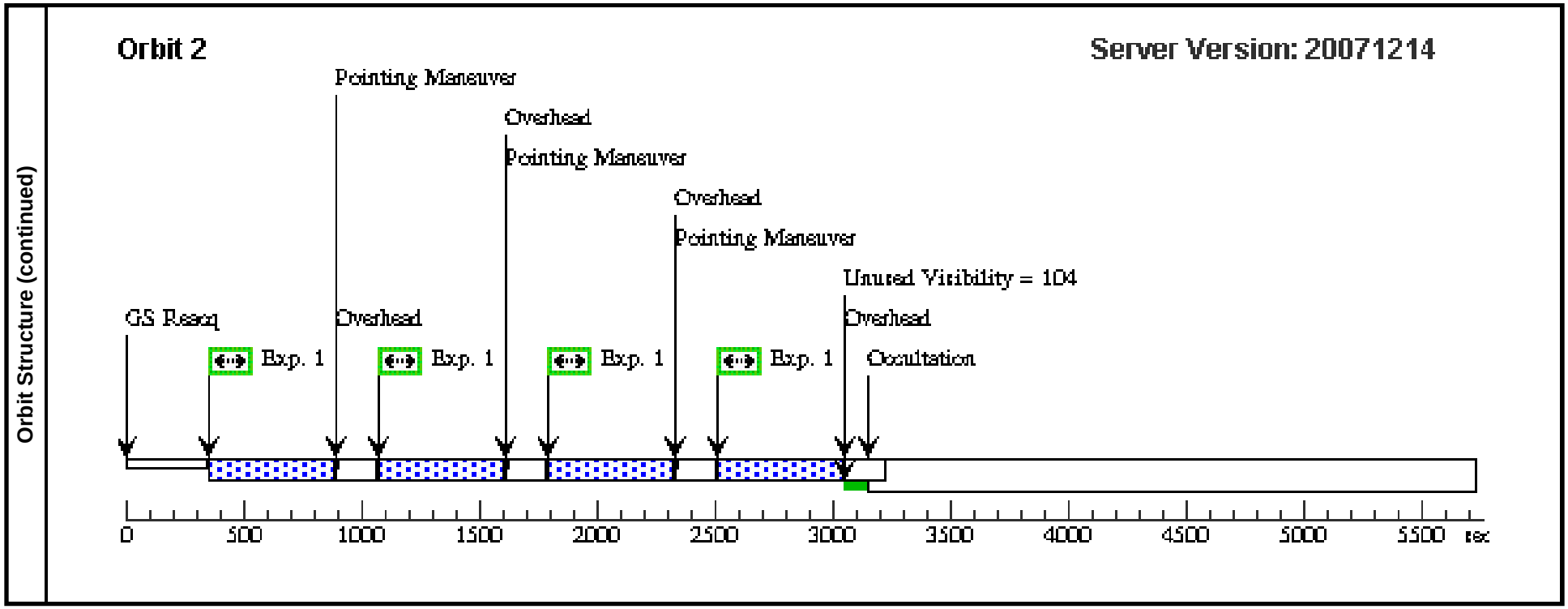
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Pointing Maneuver
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Exp. 1
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Visit

Proposal 11513, Visit 04, scheduling Thu Apr 10 01:21:42 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: SAME ORIENT AS 03; GROUP 04,03 WITHIN 2D

Patterns

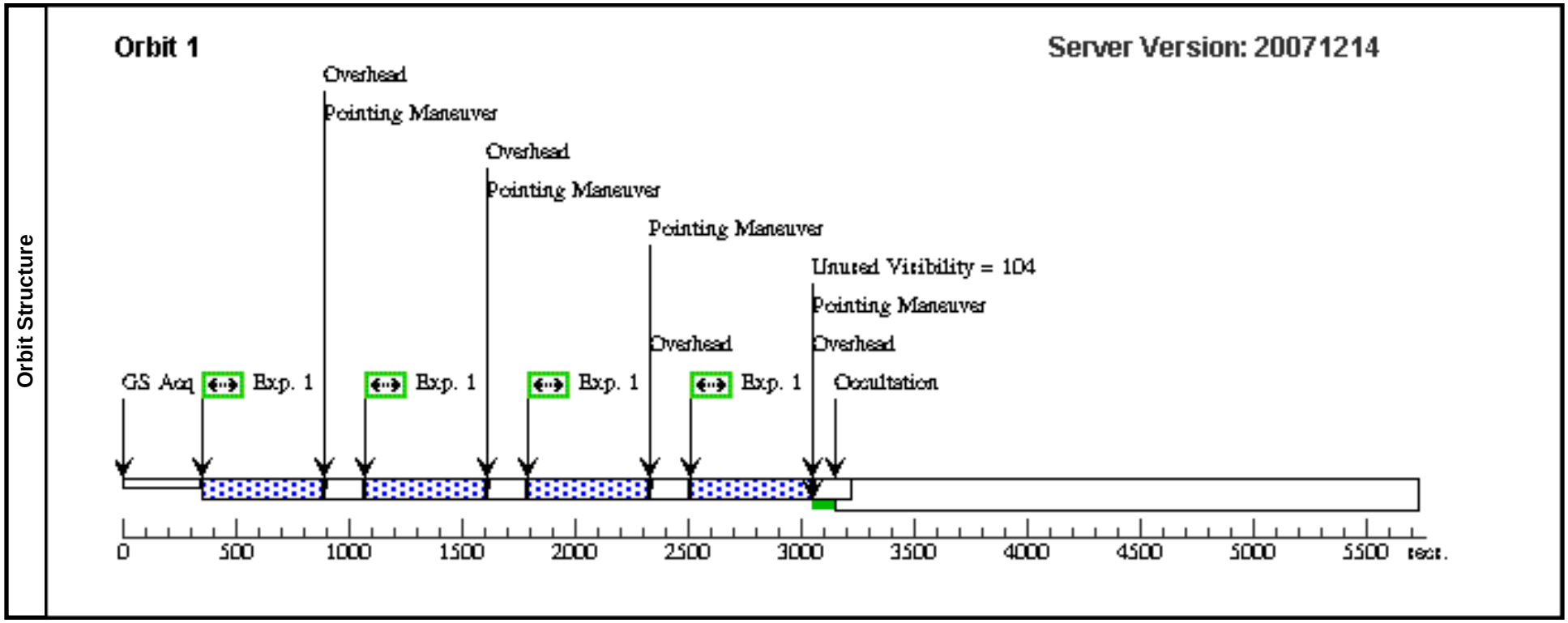
#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.32825 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d) Dec: +36 18 9.00 (36.30250d) Equinox: J2000		V=26+/-1	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F814W		GS ACQ SCENARIO BASE1T3	Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)] *[==>(Pattern 1,2)]* *[==>(Pattern 2,1)]* *[==>(Pattern 2,2)]*	***[1]***
								[==>(Pattern 3,1)] *[==>(Pattern 3,2)]* *[==>(Pattern 4,1)]* *[==>(Pattern 4,2)]*	***[2]***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Unused Visibility = 104
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Overhead
GS Acq
Exp. 1
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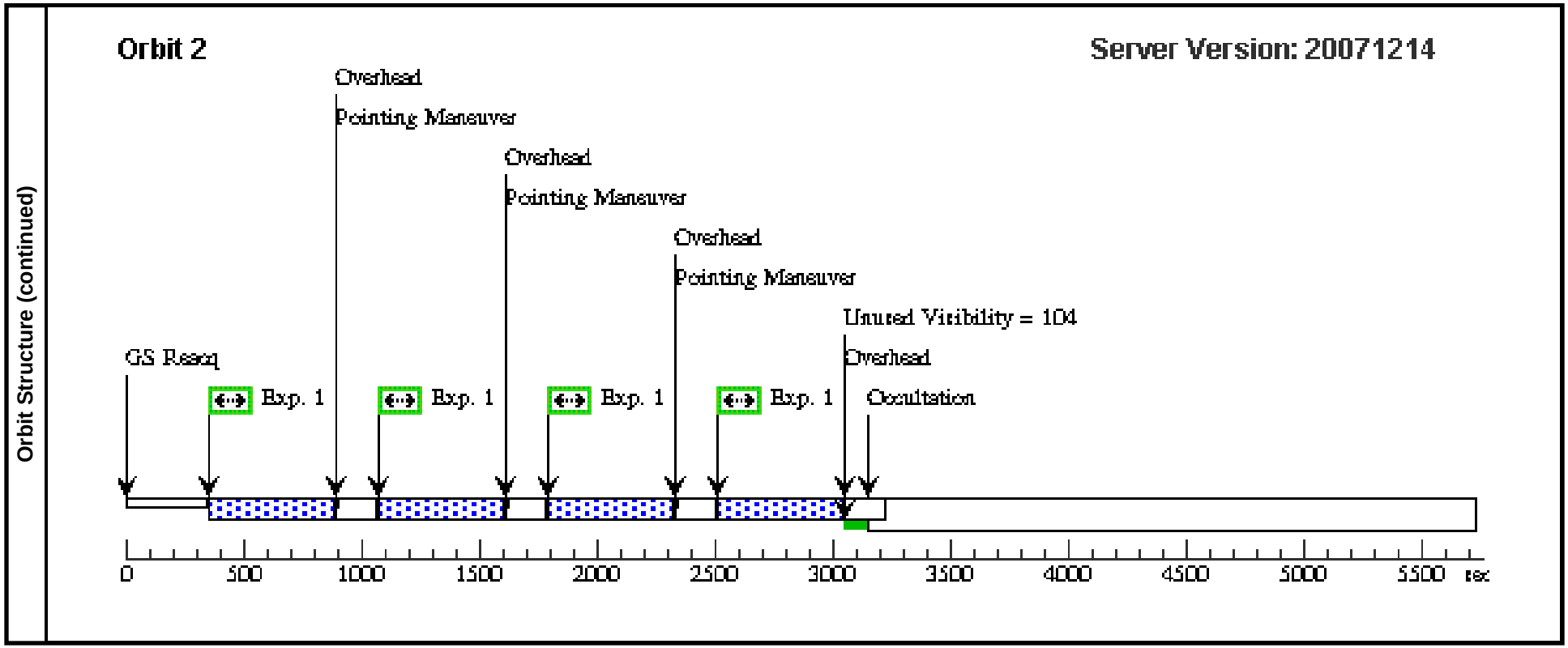
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Pointing Maneuver
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Pointing Maneuver
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GS Reseq
Exp. 1
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Visit

Proposal 11513, Visit 05, implementation Thu Apr 10 01:21:42 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BETWEEN 01-JUL-2008:00:00:00 AND 25-JUL-2008:00:00:00

Patterns

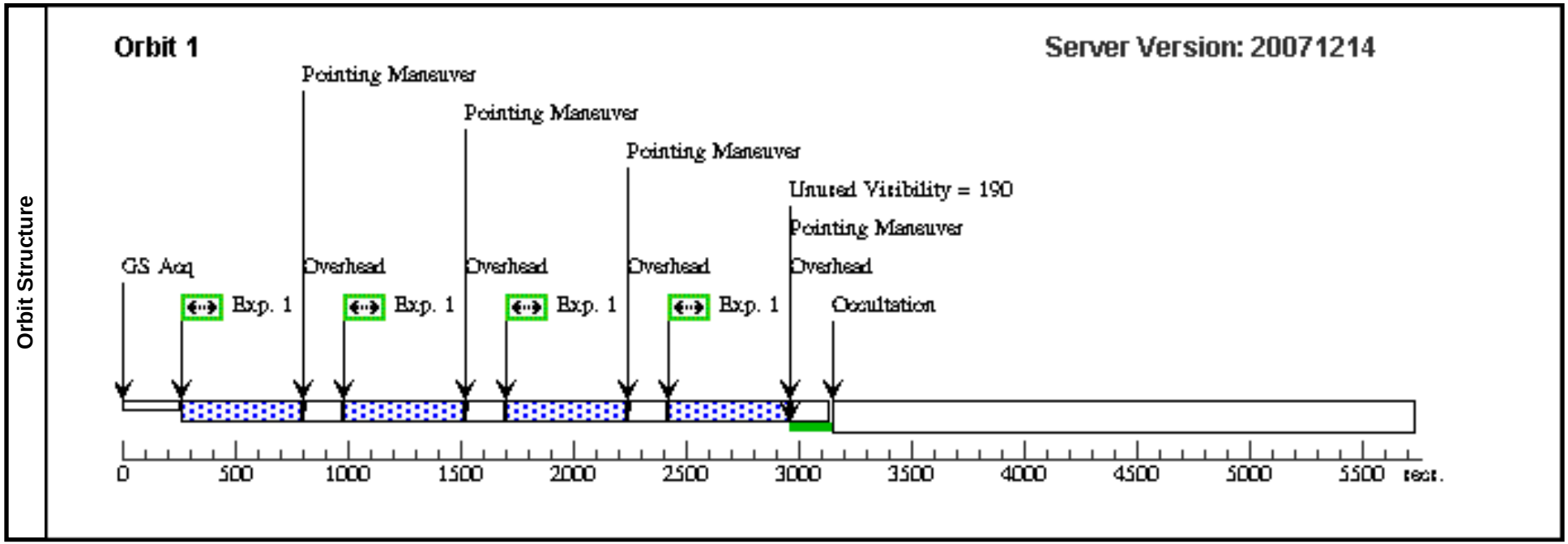
#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.559017 Line Spacing=0.559017	Coordinate Frame=POS-TARG Pattern Orientation=26.56505 Angle Between Sides=143.130102 Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.32825 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=45 Angle Between Sides= Center Pattern=false	(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d) Dec: +36 18 9.00 (36.30250d) Equinox: J2000		V=26+/-1	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F606W		GS ACQ SCENARIO SINGLE	Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)] *[==>(Pattern 1,2)]* *[==>(Pattern 2,1)]* *[==>(Pattern 2,2)]*	***[1]***
								[==>(Pattern 3,1)] *[==>(Pattern 3,2)]* *[==>(Pattern 4,1)]* *[==>(Pattern 4,2)]*	***[2]***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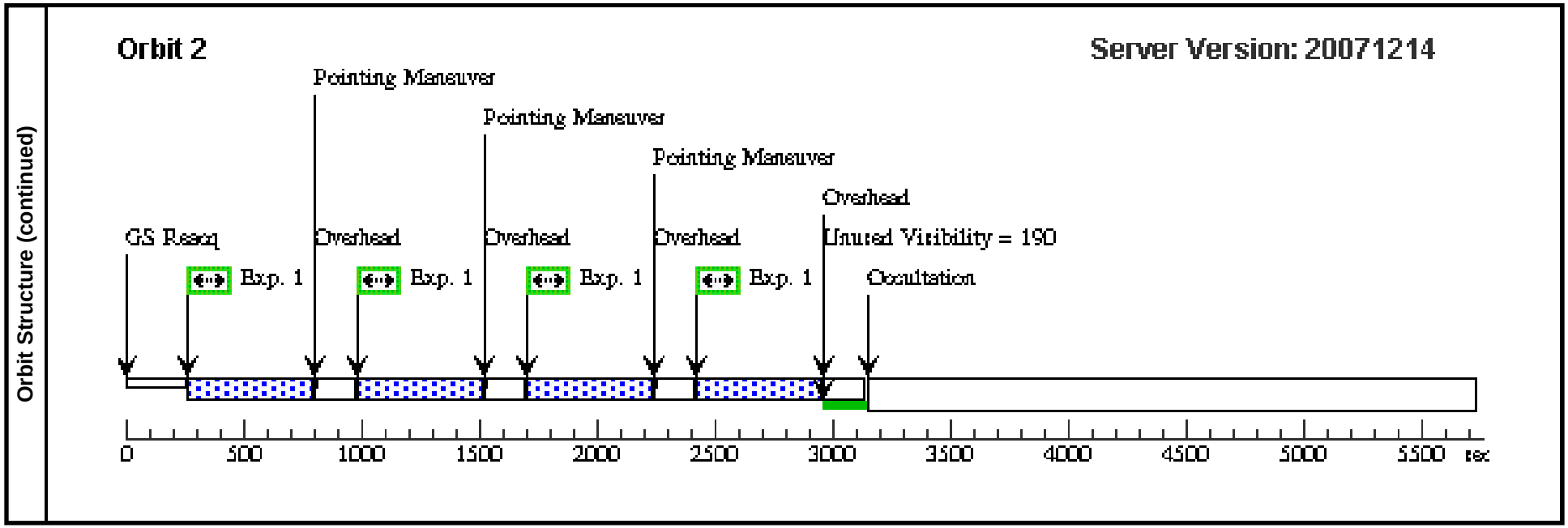
Orbit Structure (continued)
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Overhead
Unused Visibility = 190
Exp. 1
Exp. 1
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Exp. 1
Occultation
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Visit

Proposal 11513, Visit 06, implementation Thu Apr 10 01:21:43 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: SAME ORIENT AS 05; GROUP 06,05 WITHIN 3D

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFPC2-BOX	Coordinate Frame=POS-TARG	Pattern Type=LINE	Coordinate Frame=POS-TARG	(1)
	Purpose=DITHER	Pattern Orientation=26.56505	Purpose=DITHER	Pattern Orientation=45	
	Number Of Points=4	Angle Between Sides=143.130102	Number Of Points=2	Angle Between Sides=	
	Point Spacing=0.559017	Center Pattern=false	Point Spacing=0.32825	Center Pattern=false	
	Line Spacing=0.559017		Line Spacing=		

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GRB080319B	RA: 14 31 41.0000 (217.9208333d)		V=26+/-1	Reference Frame: ICRS
		Dec: +36 18 9.00 (36.30250d)			
		Equinox: J2000			

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GRB080319B	WFPC2, IMAGE, WFALL	F814W		GS ACQ SCENARIO SINGLE	Pattern 1-1 (1)	400 Secs	
								[==>(Pattern 1,1)]	***[1]***
								[==>(Pattern 1,2)]	
								[==>(Pattern 2,1)]	
								[==>(Pattern 2,2)]	
								[==>(Pattern 3,1)]	***[2]***
								[==>(Pattern 3,2)]	
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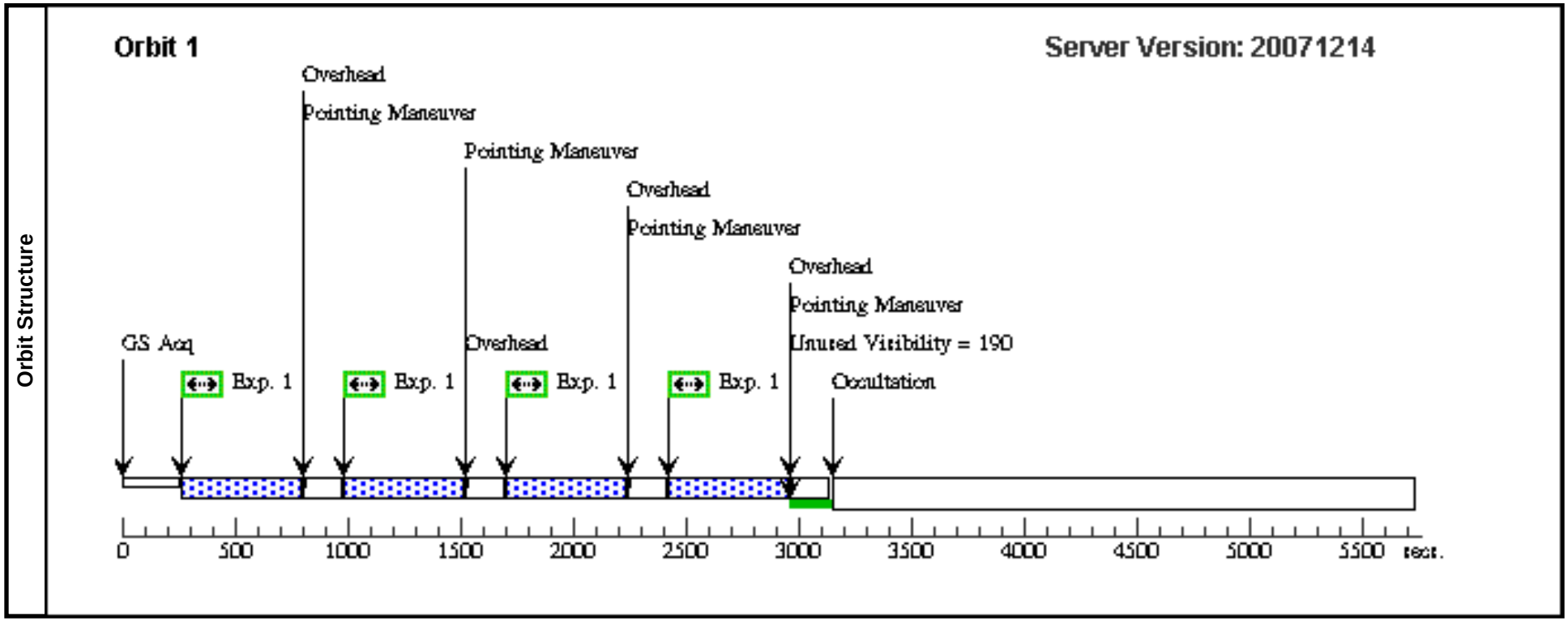
Orbit Structure
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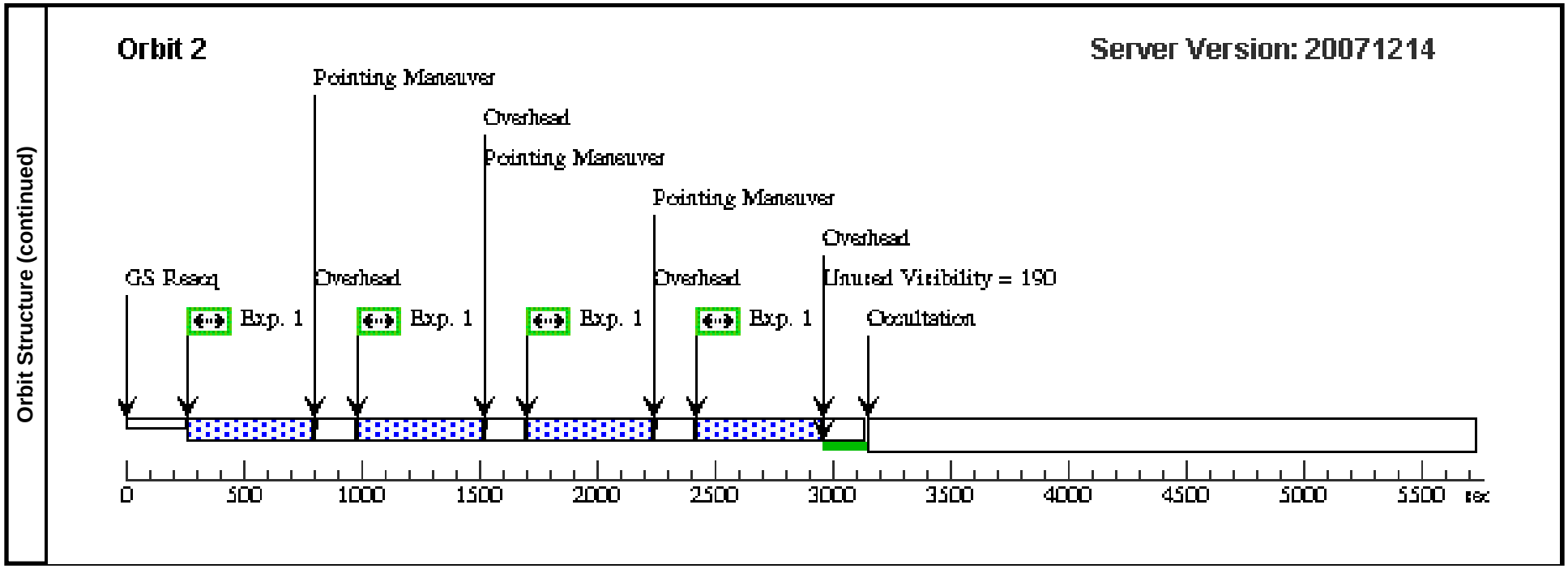
Orbit Structure (continued)
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Pointing Maneuver
Overhead
GS Reseq
Overhead
Overhead
Unused Visibility = 190
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Exp. 1
Exp. 1
Occultation
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