10913 - The Light Echoes around V838 Monocerotis

Cycle: 15, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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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) V838-MON-ECHO	ACS/WFC	4	06-Feb-2007 21:03:26.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:03:35.0	yes
04	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:03:41.0	yes
05	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:03:47.0	yes
06	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:03:53.0	yes
07	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:04:02.0	yes
08	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:04:08.0	yes
09	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:04:14.0	yes
10	(2) V838-MON-ECHO-COPY	WFPC2	4	06-Feb-2007 21:04:19.0	yes

36 Total Orbits Used

ABSTRACT

V838 Monocerotis, which burst upon the astronomical scene in early 2002, is a completely unanticipated new object. It underwent a large-amplitude and very luminous outburst, during which its spectrum remained that of an extremely cool supergiant. A rapidly evolving set of light echoes around V838 Mon was discovered soon after the outburst, and quickly became the most spectacular display of the phenomenon ever seen. These light echoes provide the means to accomplish four unique types of measurements based on continued HST imaging during the event: (1) Study effects of MHD turbulence at high resolution and in 3 dimensions; (2) Construct the first unambiguous and fully 3-D map of a circumstellar dust envelope in the Milky Way; (3) Study dust physics in a unique setting where the spectrum and light curve of the illumination, and the scattering angle, are unambiguously known; and (4) Determine the distance to V838 Mon through direct geometric techniques.

Because of the extreme rarity of light echoes, this is almost certainly the only opportunity to achieve such results during the lifetime of HST. We propose two visits during Cycle 15, in order to continue the mapping of the circumstellar dust and to achieve the other goals listed above.

OBSERVING DESCRIPTION

This program contains two visits, 4 orbits each, for imaging of the light echo around V838 Mon with the ACS/WFC. Images will be taken in V (F606W) and I (F814W). We will use a 3-point dither to remove the gap between the chips, with 2 exposures in each filter at each of the 3 points. The I exposures are always 2x409 sec at each dither position, and the V exposure times are then adjusted to fill each orbit. The total exposure times achieve the desired result of a ratio of 2.7 between the total V and total I exposure times, based on the average surface brightnesses seen in previous HST images of the light echo.

The two visits during Cycle 15 are placed as far apart as possible, at the beginning and end of the target visibility season. One visit will be in September 2006, and the other in February 2007.

Visit

Proposal 10913, Visit 01, completed Wed Feb 07 02:04:23 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: PCS MODE FINE; BETWEEN 01-SEP-2006:00:00:00 AND 15-SEP-2006:00:00:00

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=2.994 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.3 Angle Between Sides= Center Pattern=true		(1-2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V838-MON-ECHO	RA: 07 04 5.4000 (106.0225000d) Dec: -03 50 41.40 (-3.84483d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

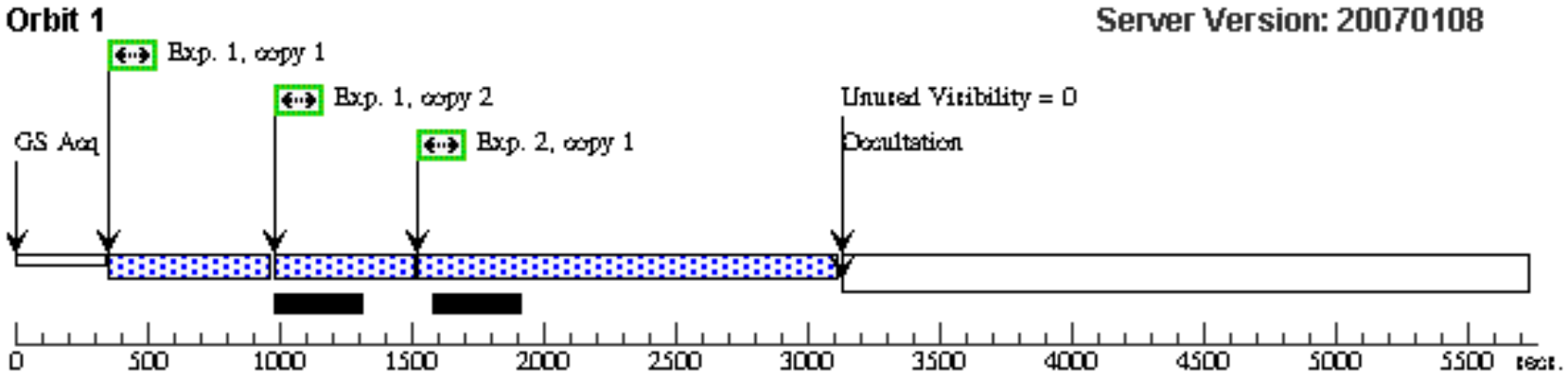
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) V838-MON-ECHO	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=NO		Pattern 1-2 (1)	340.0 Secs X 2	
								[==>409.0 Secs (Pattern 1, Copy 1)] *[==>409.0 Secs (Pattern 1, Copy 2)]*	***[1]***
								[==>409.0 Secs (Pattern 2, Copy 1)] *[==>409.0 Secs (Pattern 2, Copy 2)]*	***[2]***
								[==>409.0 Secs (Pattern 3, Copy 1)]	***[3]***
								[==>409.0 Secs (Pattern 3, Copy 2)]	***[4]***

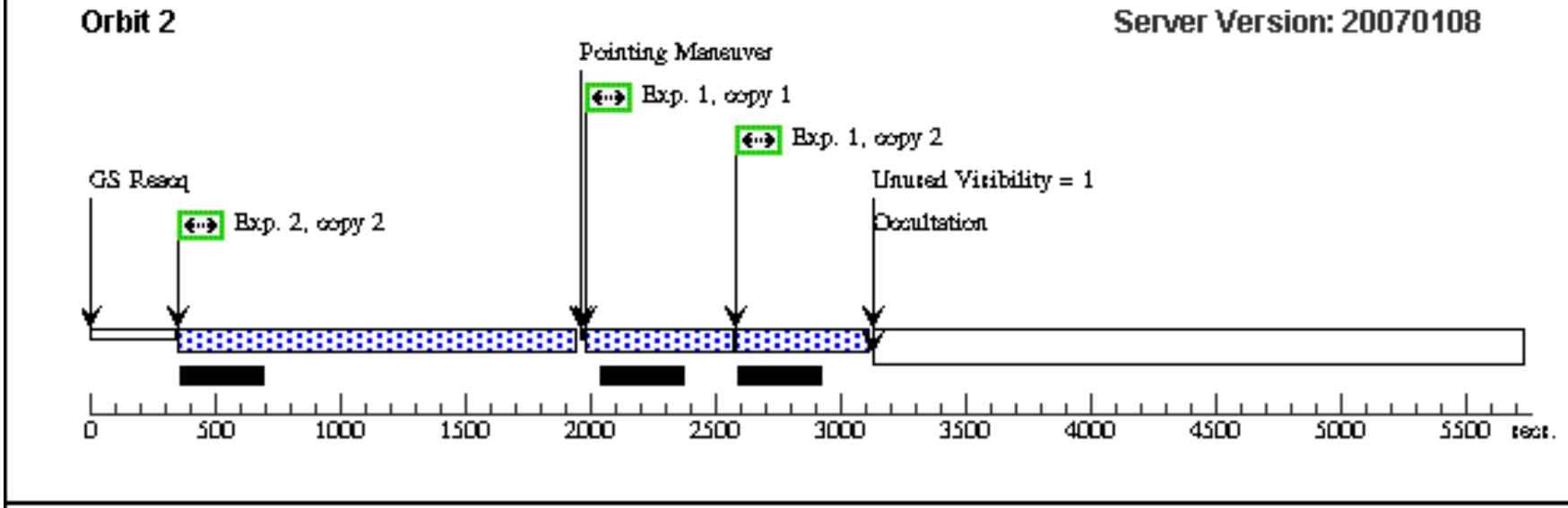
Exposures (continued)

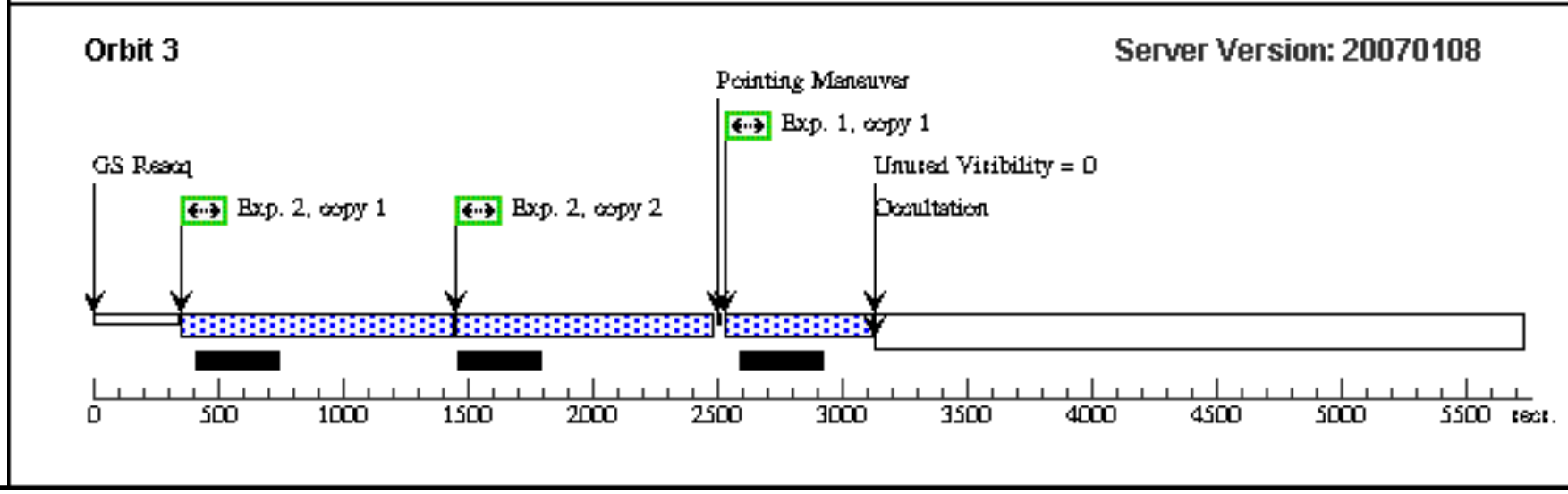
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
2		(1) V838-MON-ECHO	ACS/WFC, ACCUM, WFCENTER	F606W	CR-SPLIT=NO		Pattern 1-2 (1)	925.0 Secs X 2	
								[==>1414.0 Secs (Pattern 1, Copy 1)]	***[1]***
								[==>1471.0 Secs (Pattern 1, Copy 2)]	***[2]***
								[==>913.0 Secs (Pattern 2, Copy 1)] *[==>913.0 Secs (Pattern 2, Copy 2)]*	***[3]***
								[==>952.0 Secs (Pattern 3, Copy 1)] *[==>952.0 Secs (Pattern 3, Copy 2)]*	***[4]***

Orbit Structure

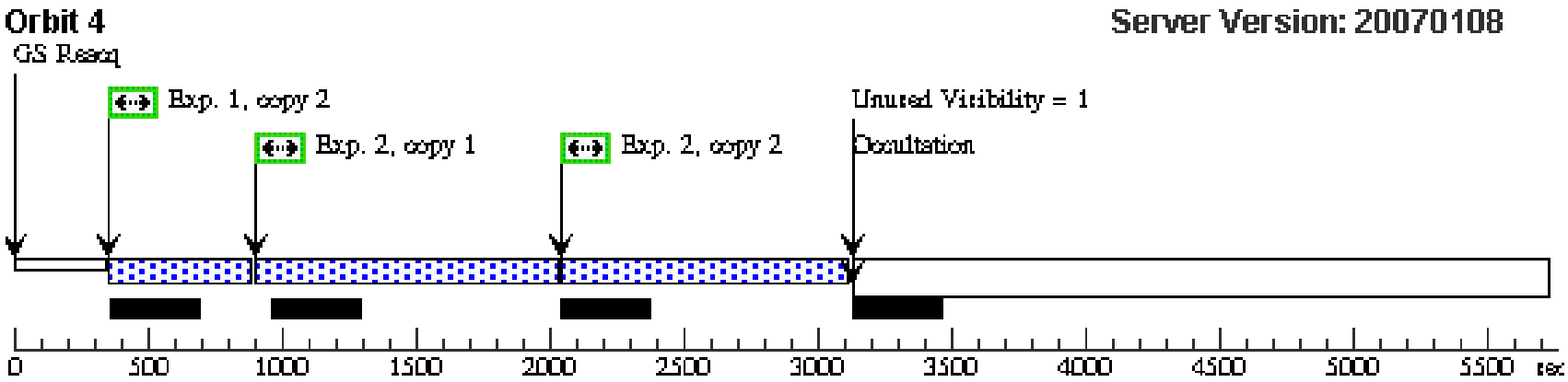


Orbit Structure (continued)





Orbit Structure (continued)



Visit

Proposal 10913, Visit 03, scheduling Wed Feb 07 02:04:24 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

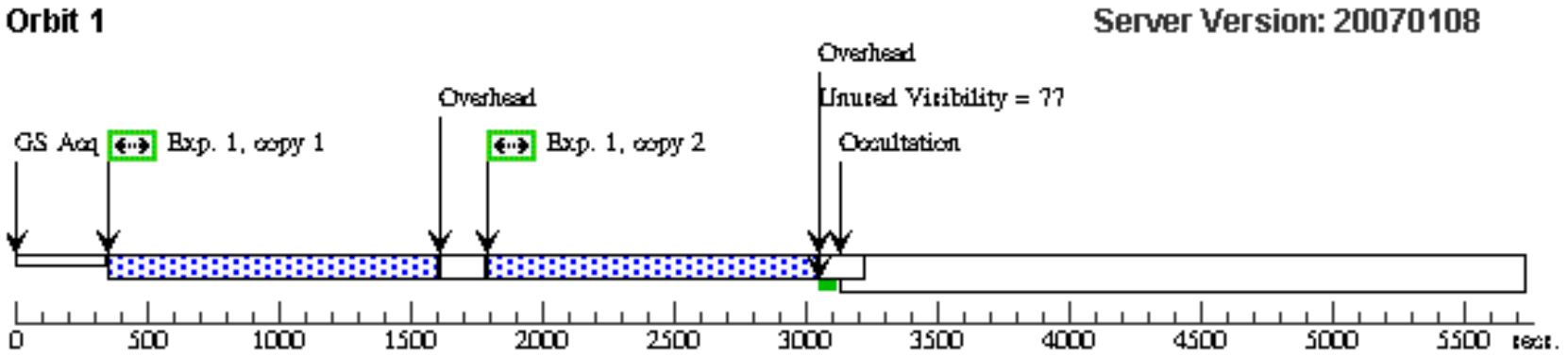
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

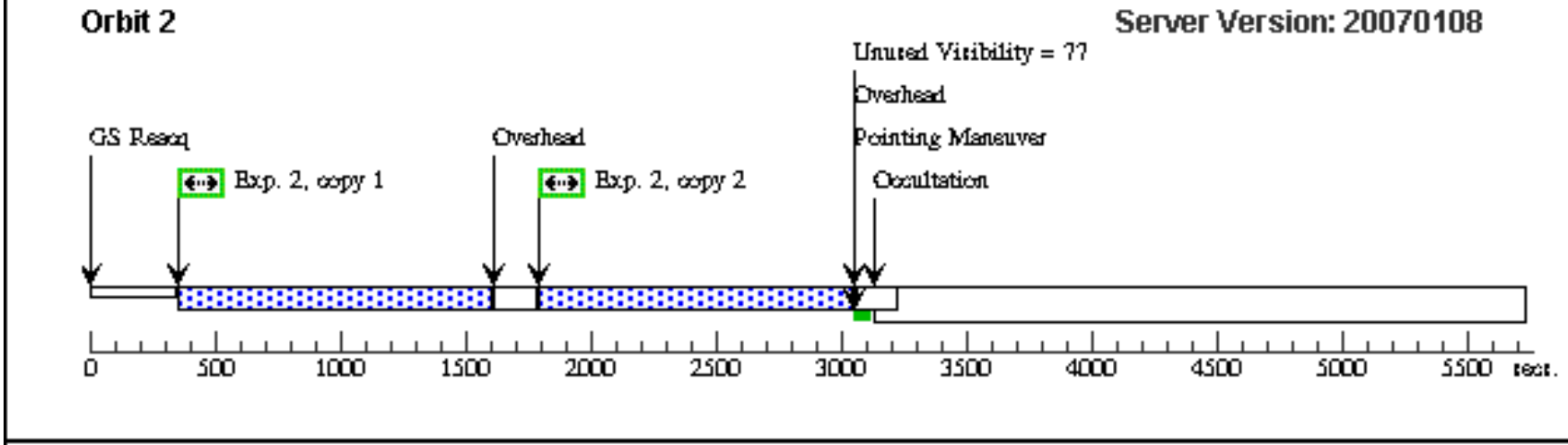
Exposures

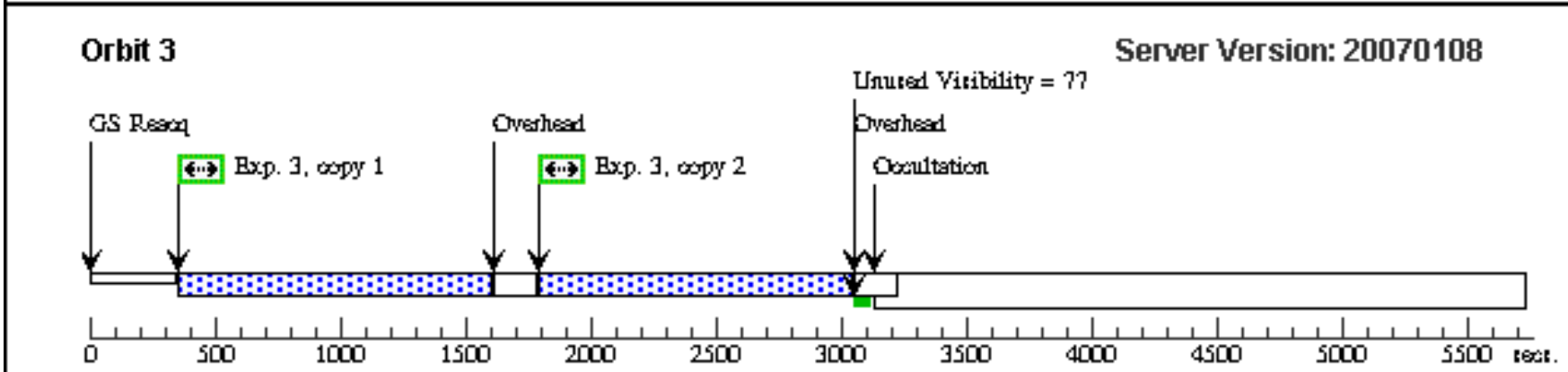
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.34,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.34,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.838,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.838,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

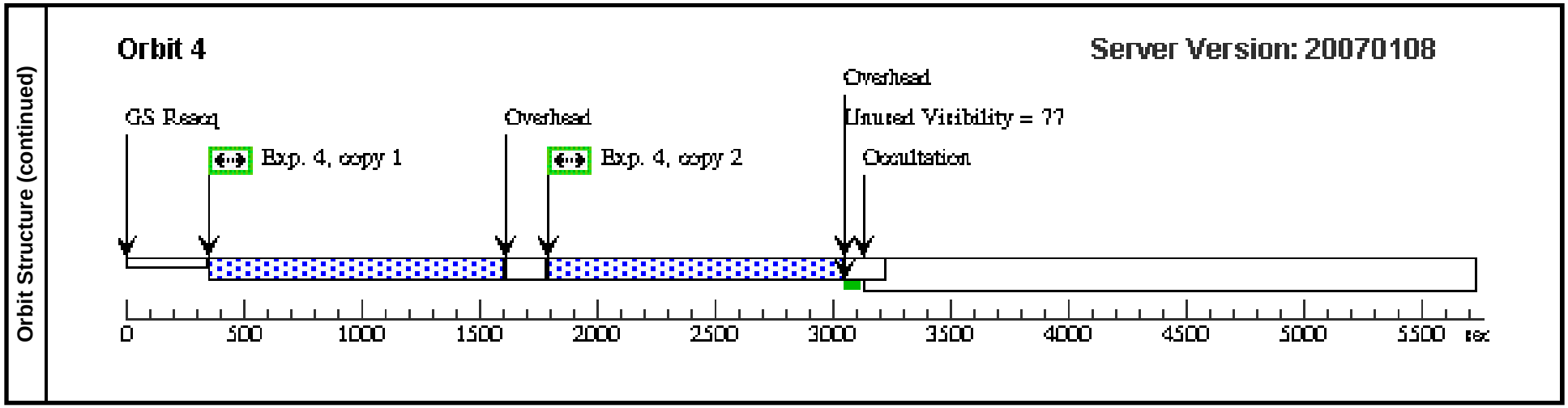
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Unused Visibility = ??
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10913, Visit 04, scheduling Wed Feb 07 02:04:25 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

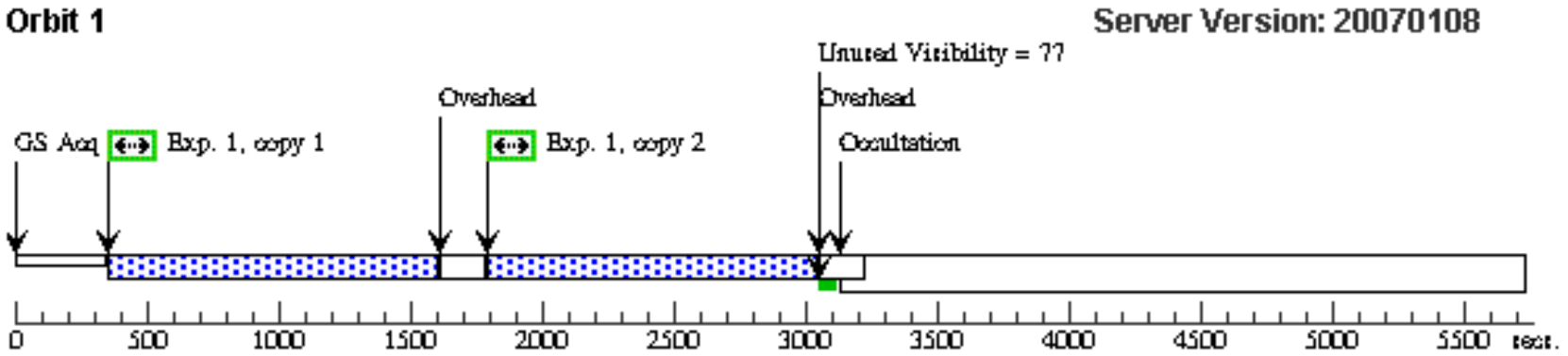
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

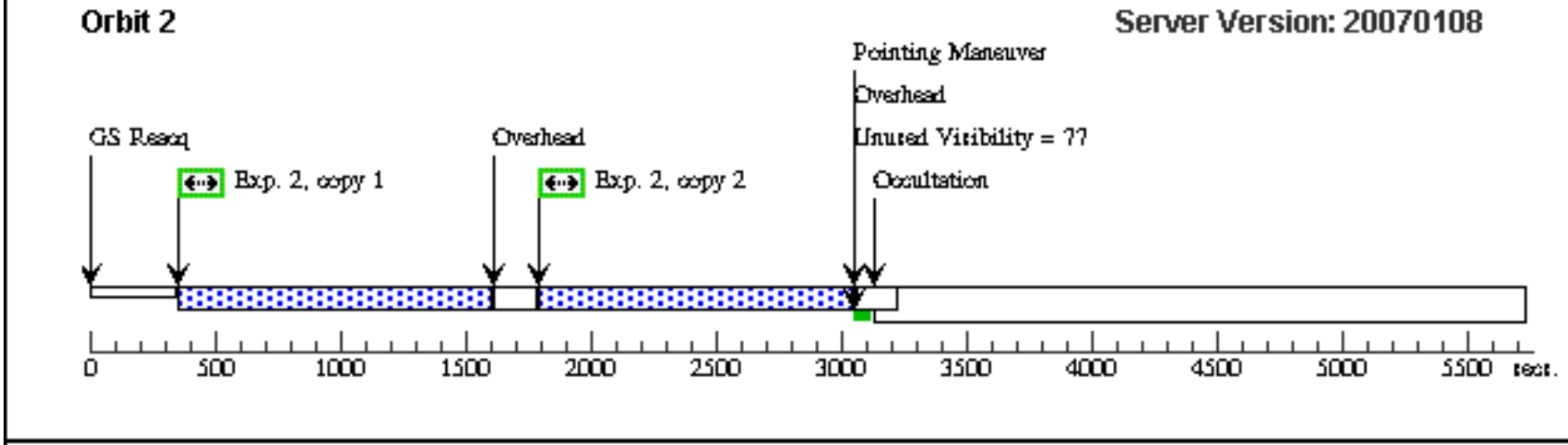
Exposures

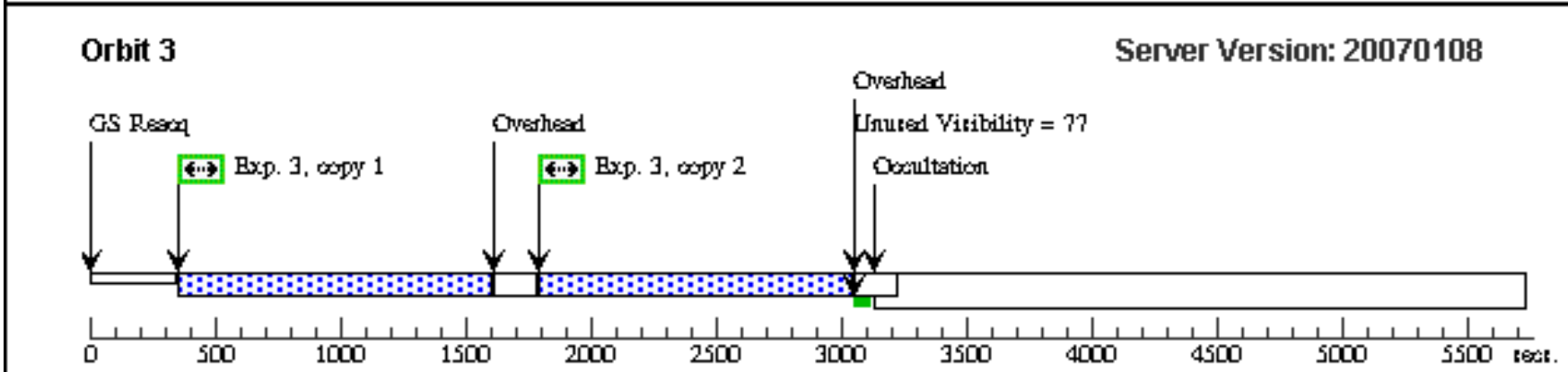
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 9.087,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 9.087,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.589,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.589,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

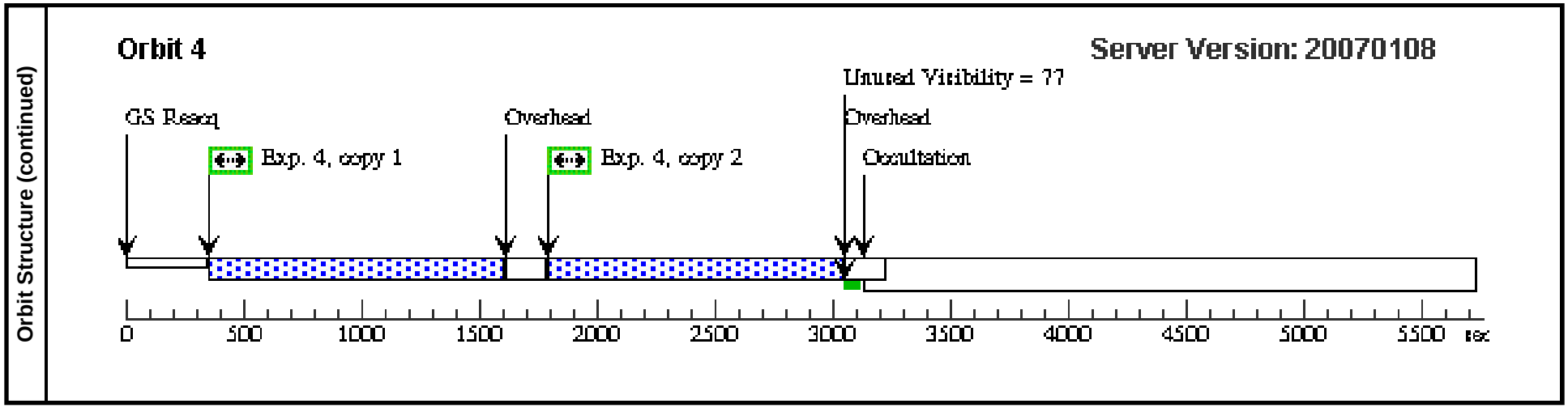
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
Unused Visibility = 77
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10913, Visit 05, scheduling Wed Feb 07 02:04:26 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

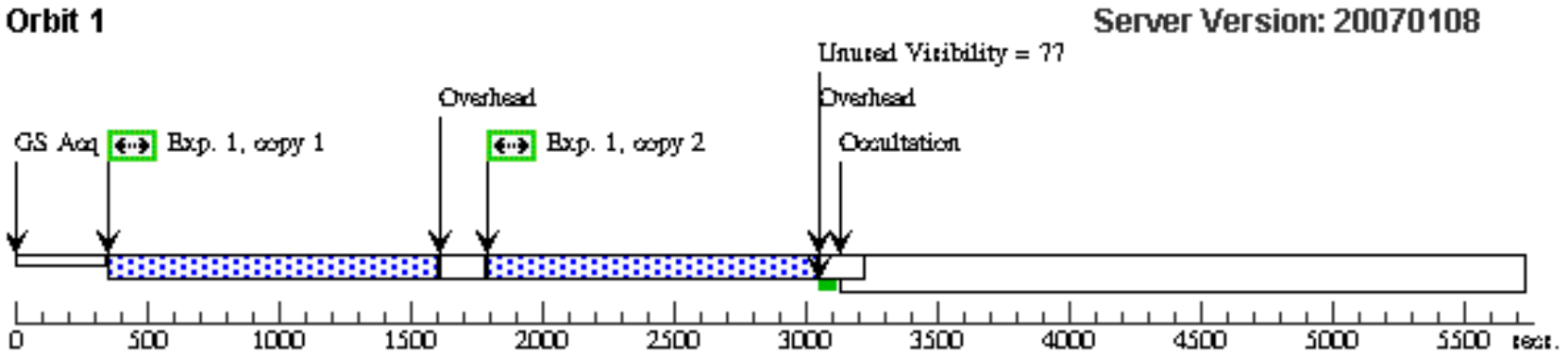
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

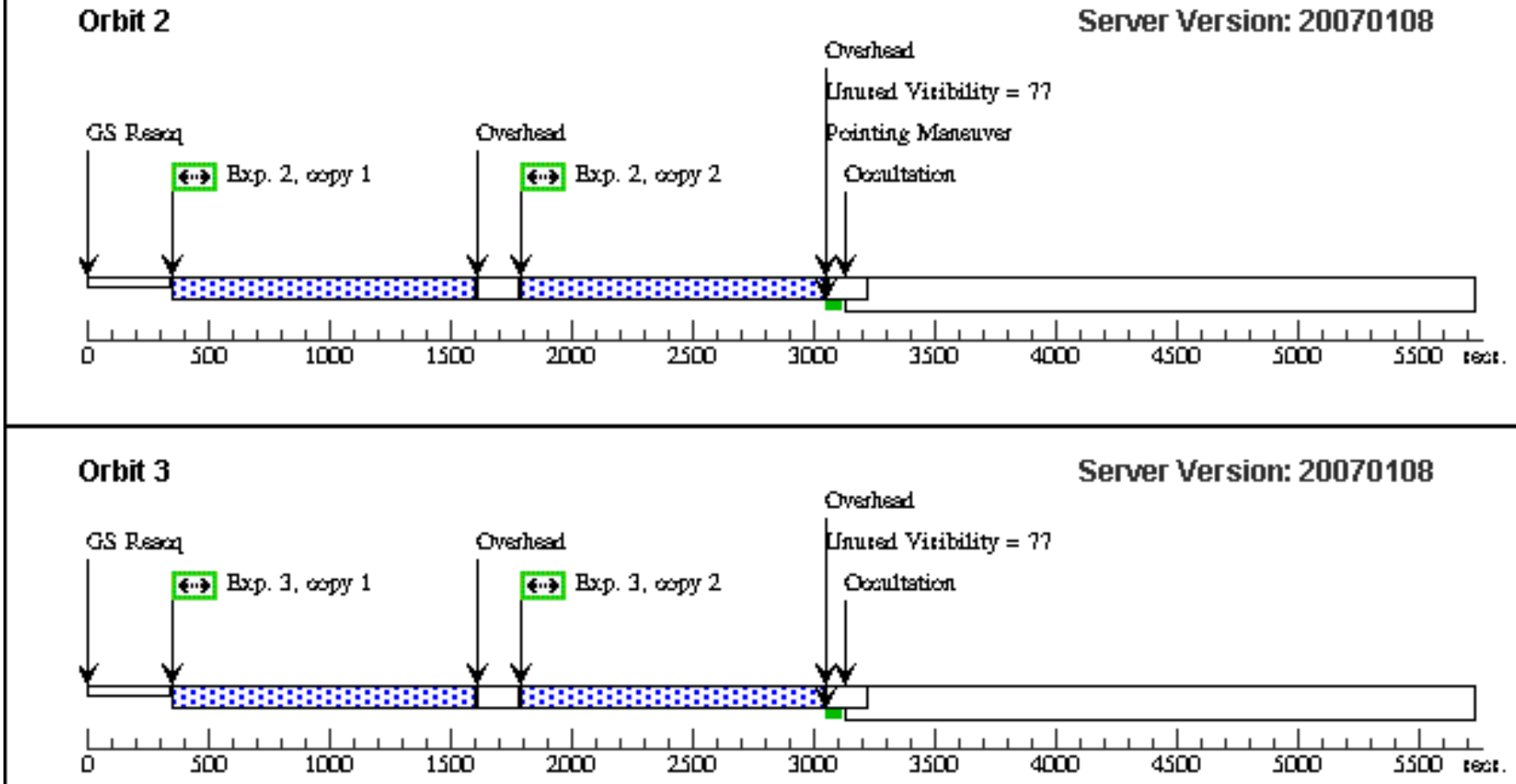
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -66.36,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -66.36,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[2]*
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -65.862,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[3]*
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -65.862,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[4]*

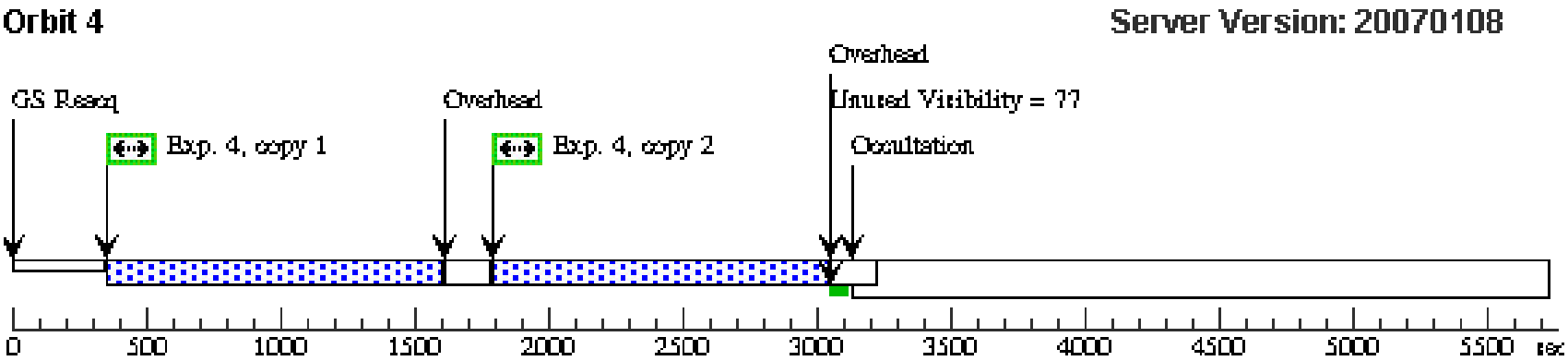
Orbit Structure



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10913, Visit 06, scheduling Wed Feb 07 02:04:27 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

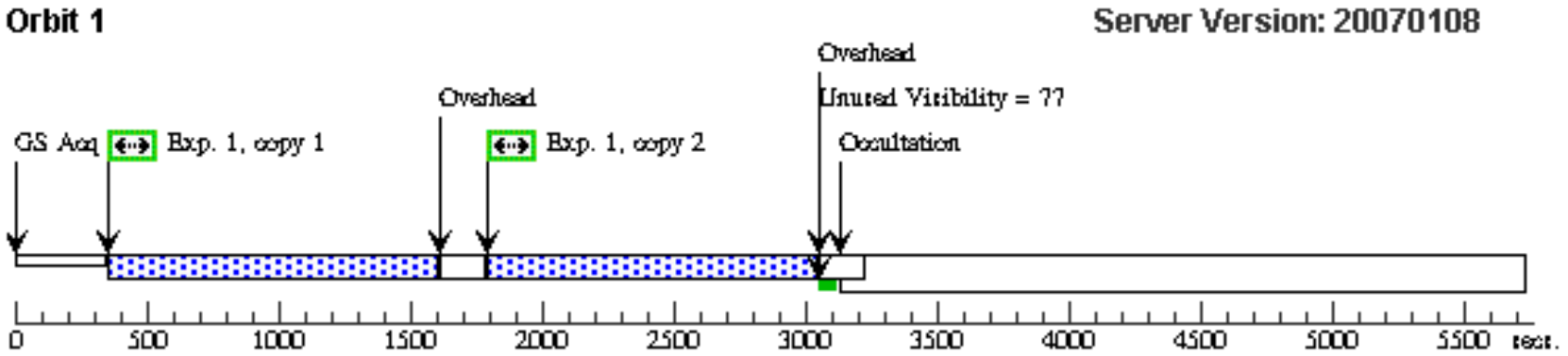
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

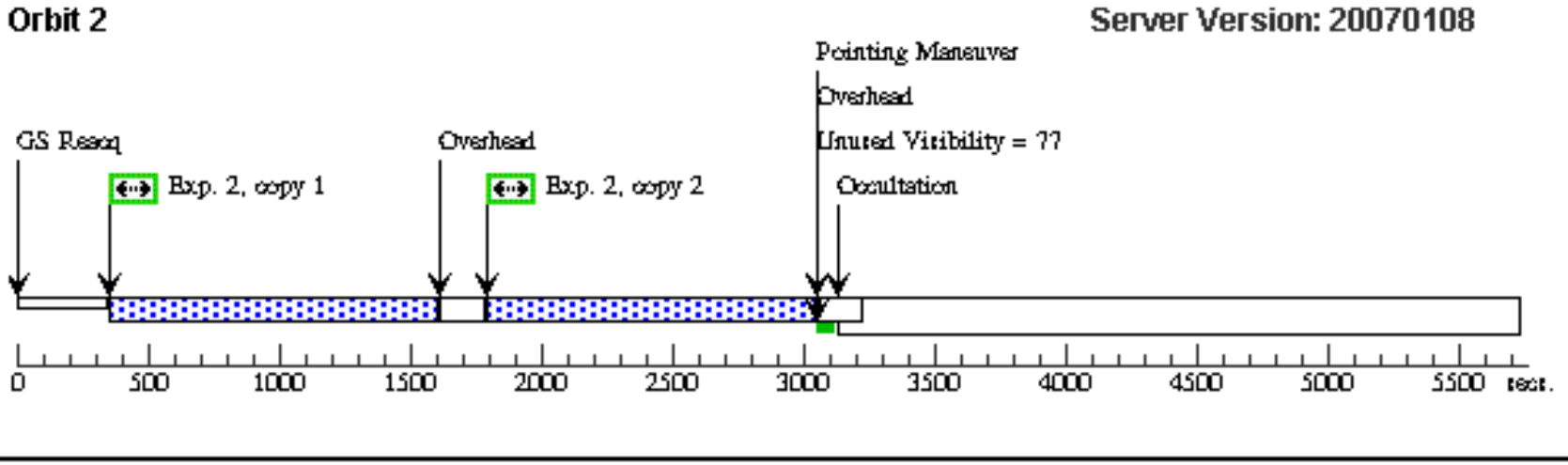
Exposures

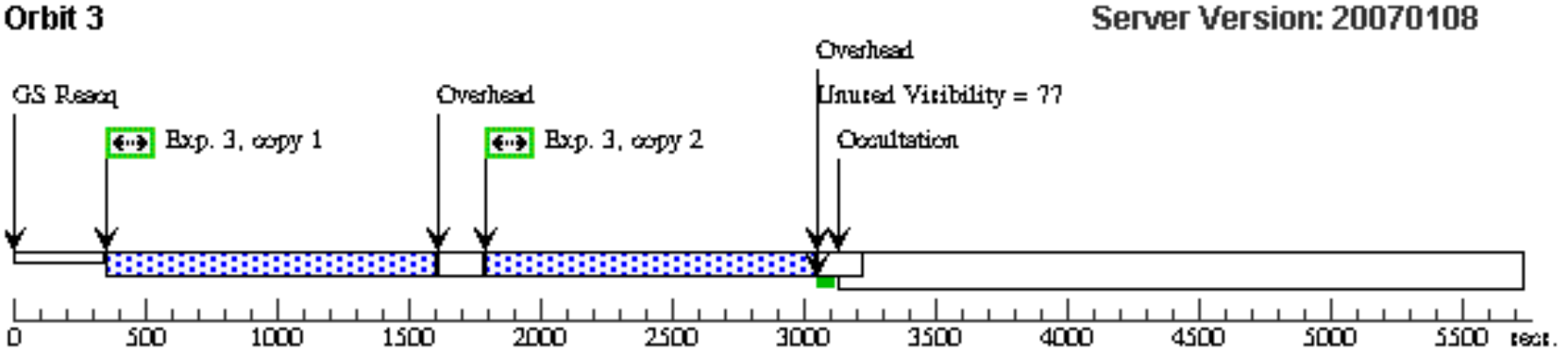
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -65.613, 14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[1]*
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -65.613, 14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[2]*
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -66.111, 14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[3]*
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -66.111, 14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	*[4]*

Orbit Structure

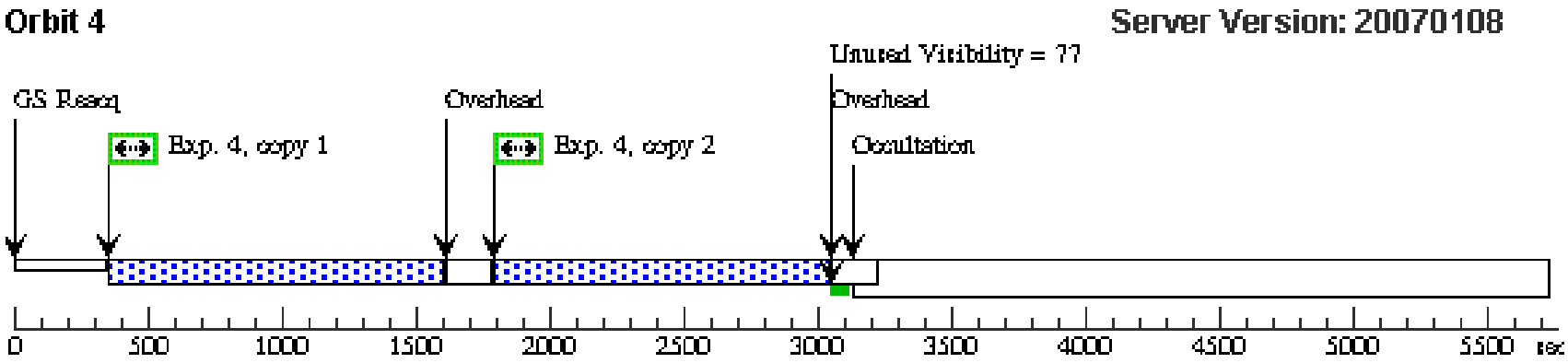


Orbit Structure (continued)





Orbit Structure (continued)



Visit

Proposal 10913, Visit 07, scheduling Wed Feb 07 02:04:28 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

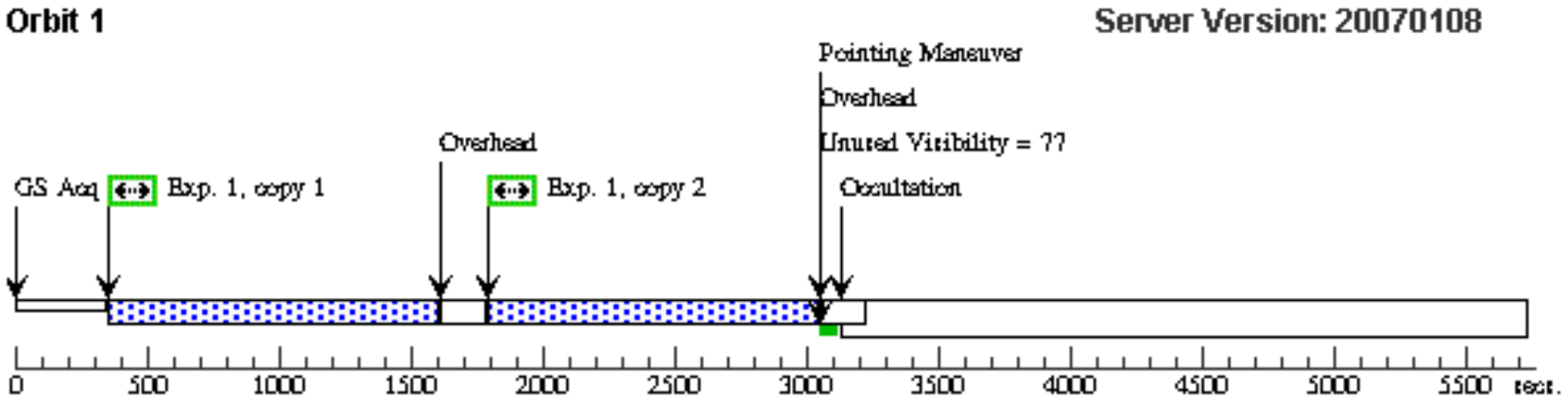
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

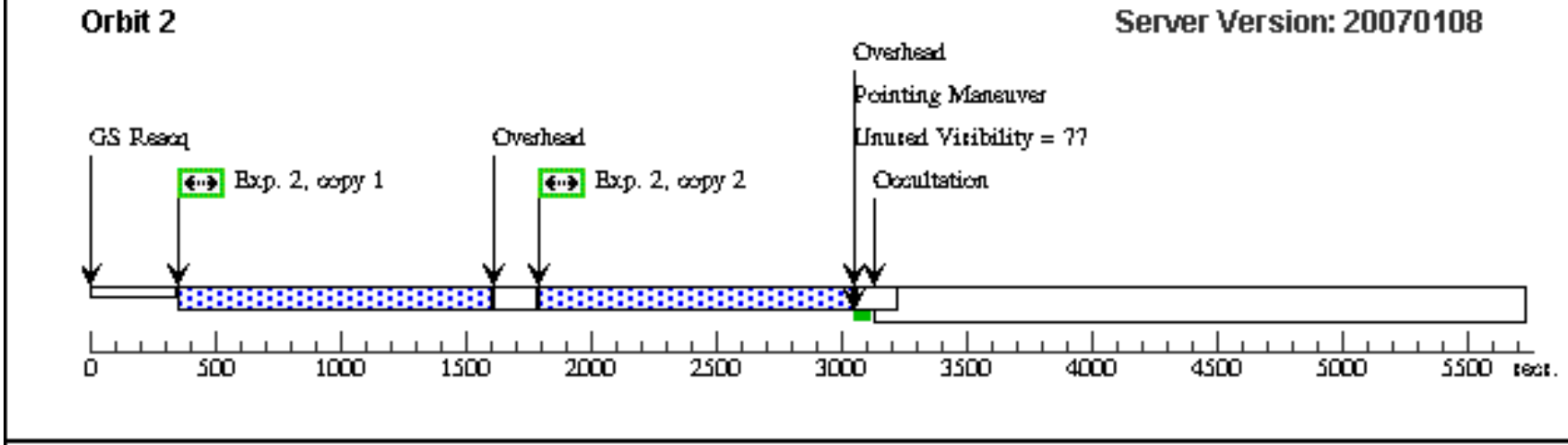
Exposures

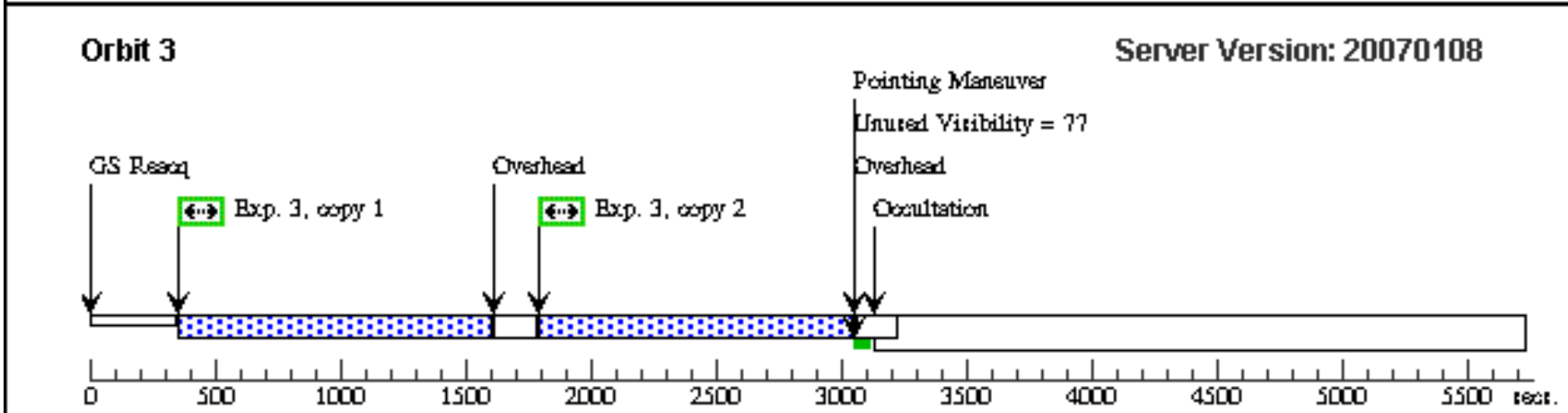
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.34,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.838,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 9.087,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG 8.589,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

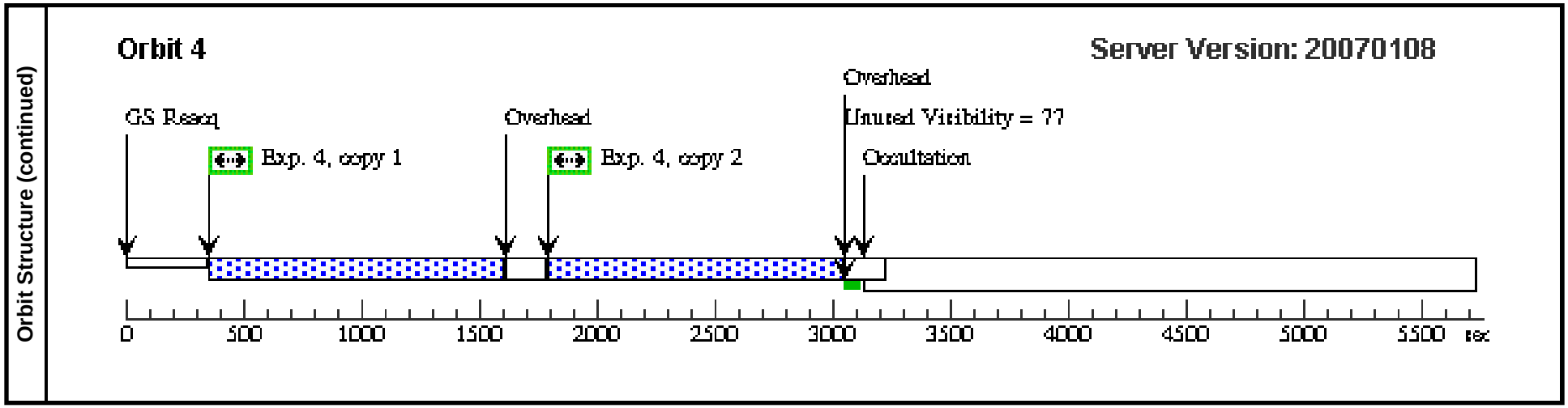
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Unused Visibility = ??
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10913, Visit 08, scheduling Wed Feb 07 02:04:28 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: SAME ORIENT AS 07; BEFORE 01-MAR-2007:00:00:00

Fixed Targets

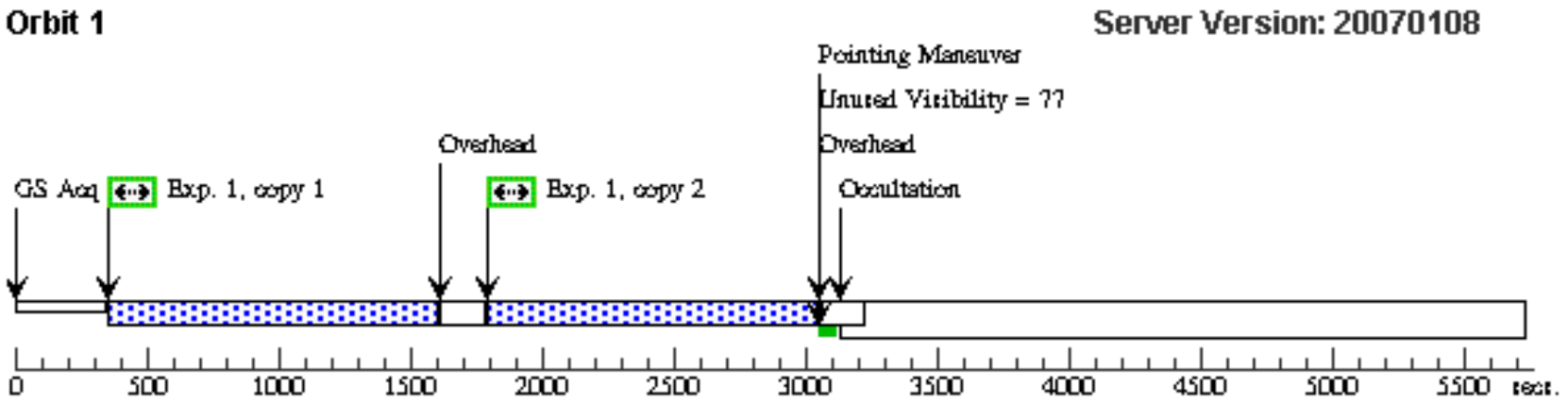
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

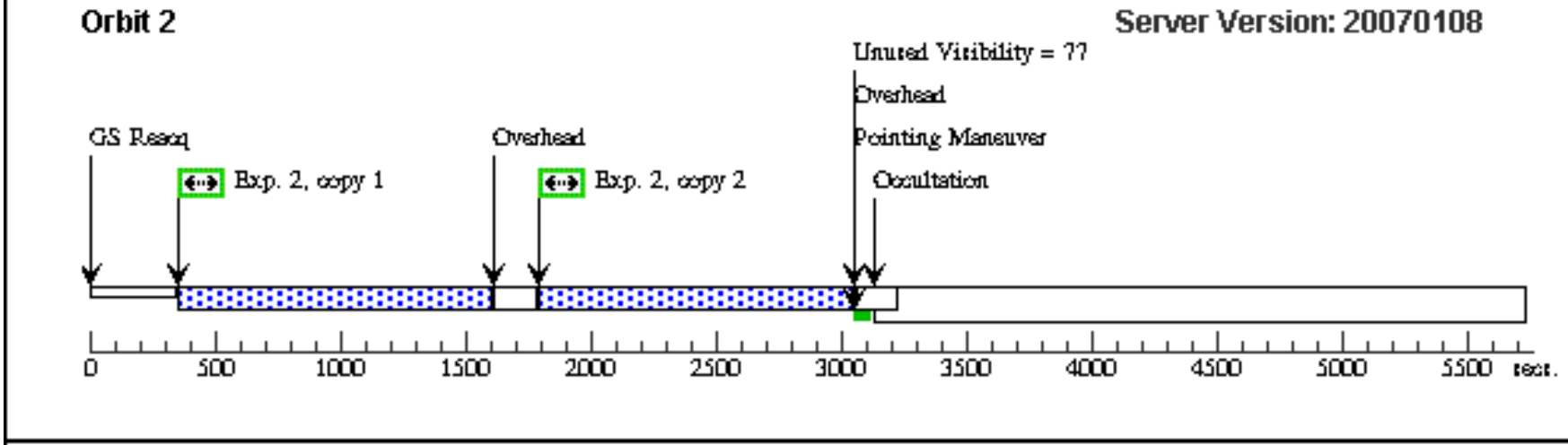
Exposures

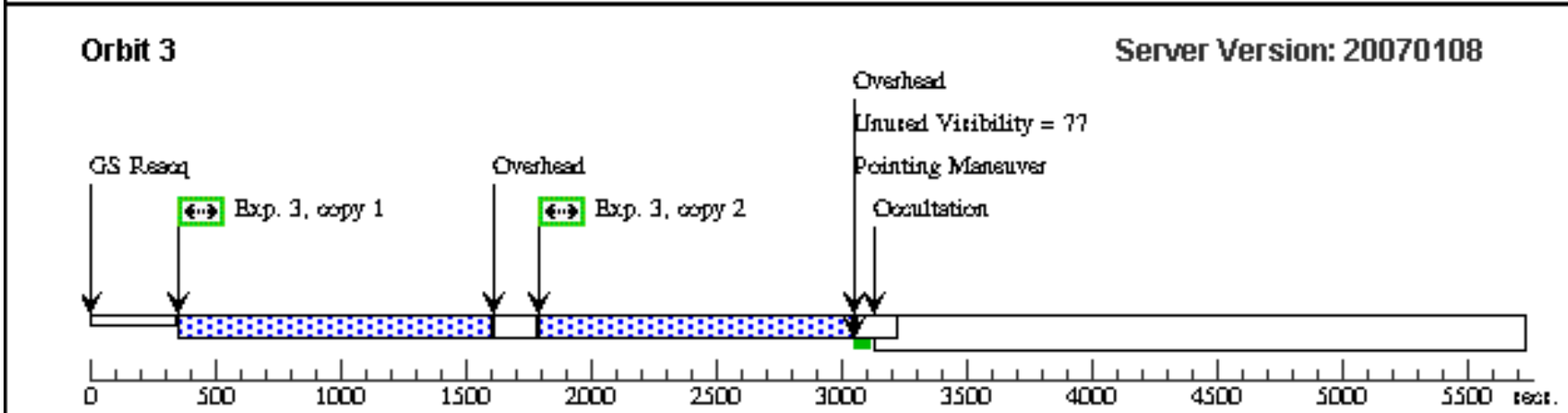
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -66.36,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -65.862,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -65.613,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F606W	CR-SPLIT=NO	POS TARG -66.111,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

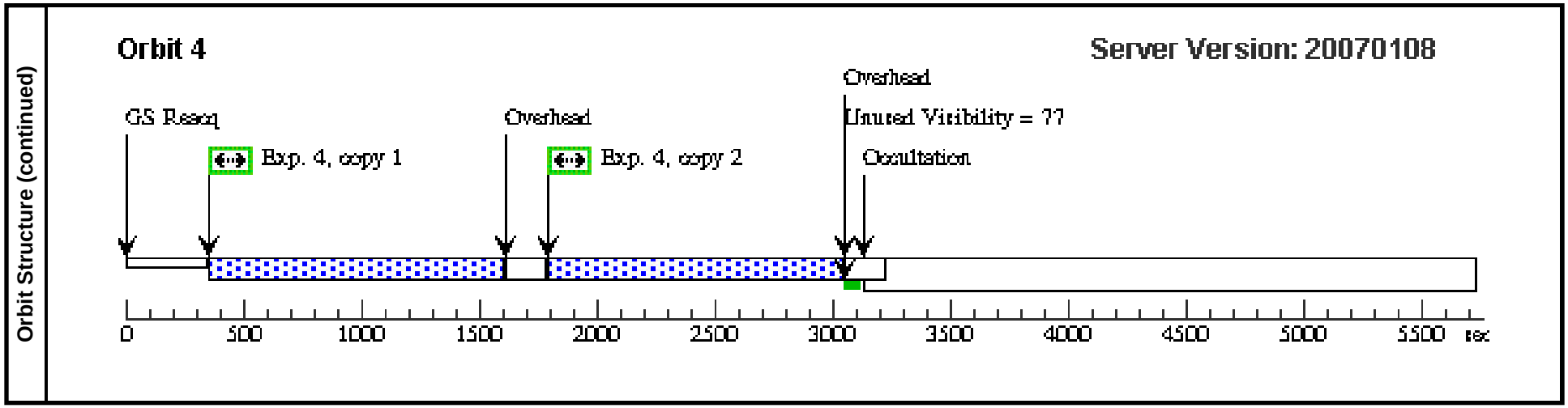
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Unused Visibility = ??
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10913, Visit 09, withdrawn Wed Feb 07 02:04:29 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: BEFORE 01-MAR-2007:00:00:00

Fixed Targets

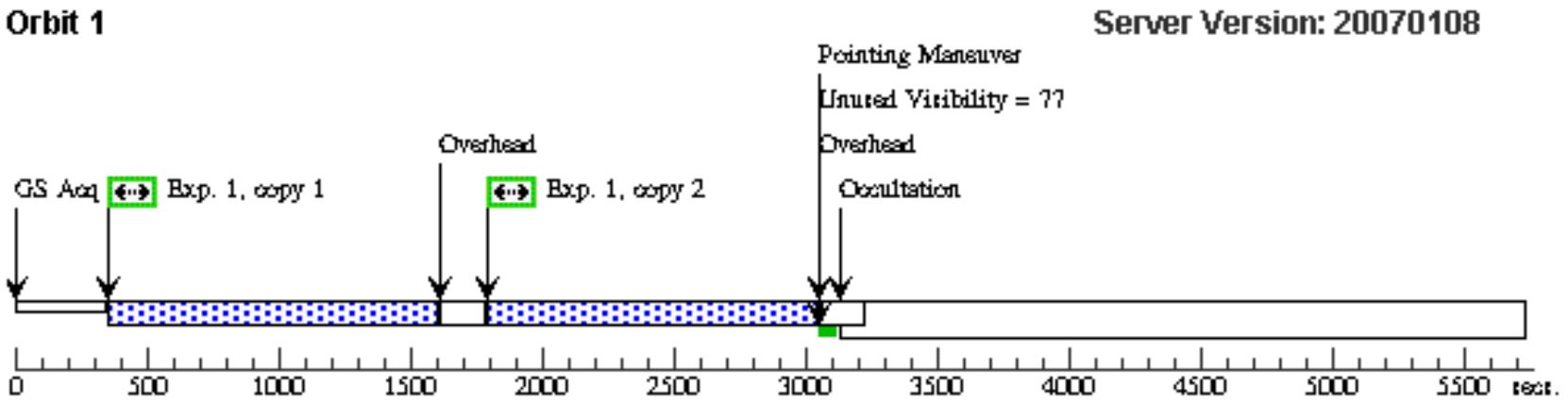
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

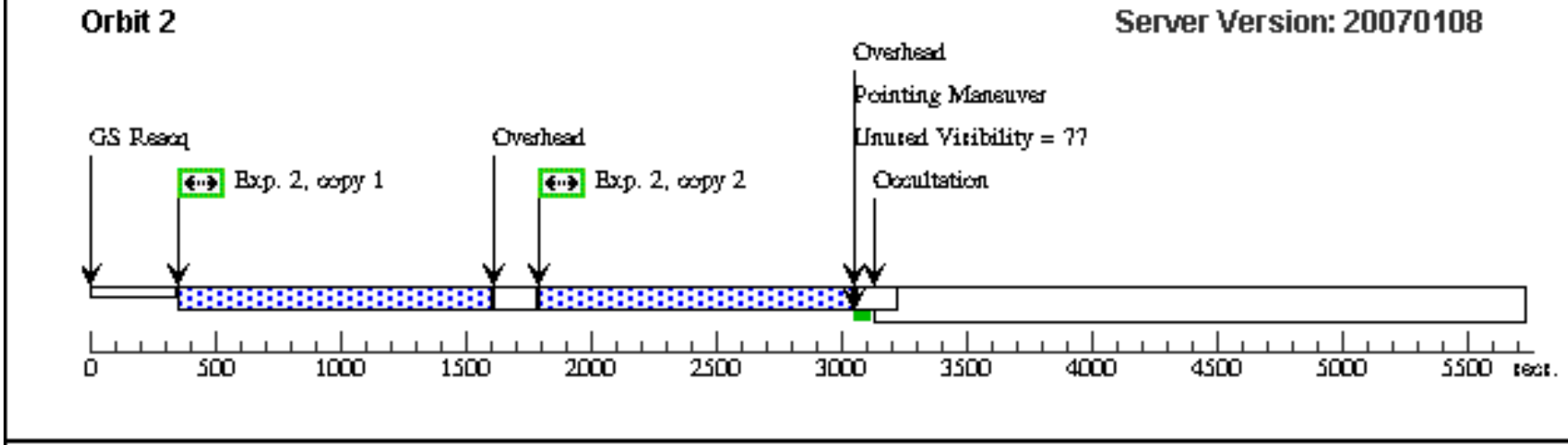
Exposures

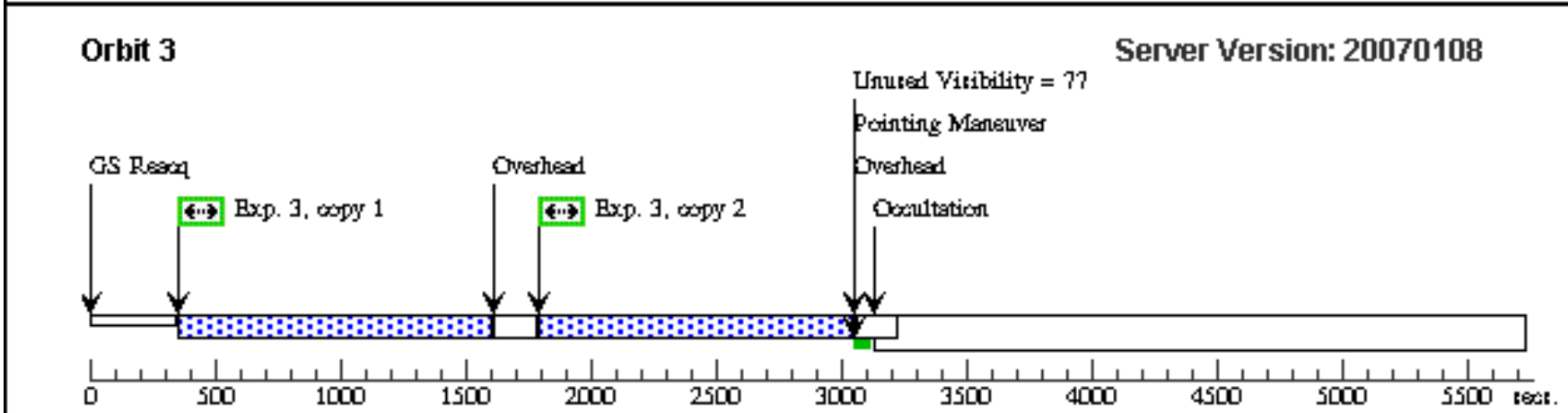
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.34,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.838,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 9.087,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG 8.589,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

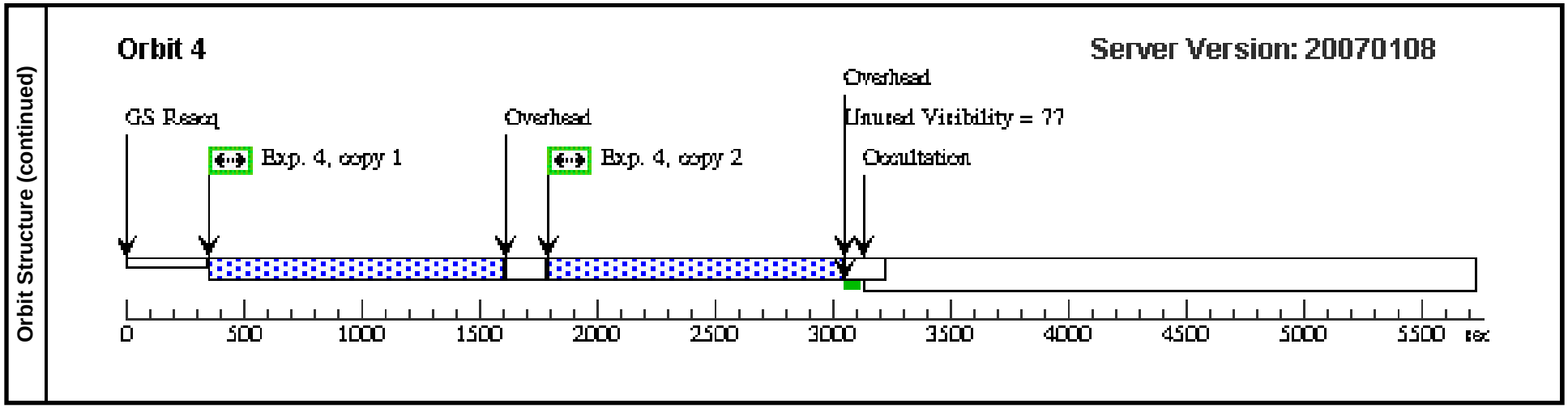
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Unused Visibility = ??
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10913, Visit 10, withdrawn Wed Feb 07 02:04:30 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: SAME ORIENT AS 09; BEFORE 01-MAR-2007:00:00:00

Fixed Targets

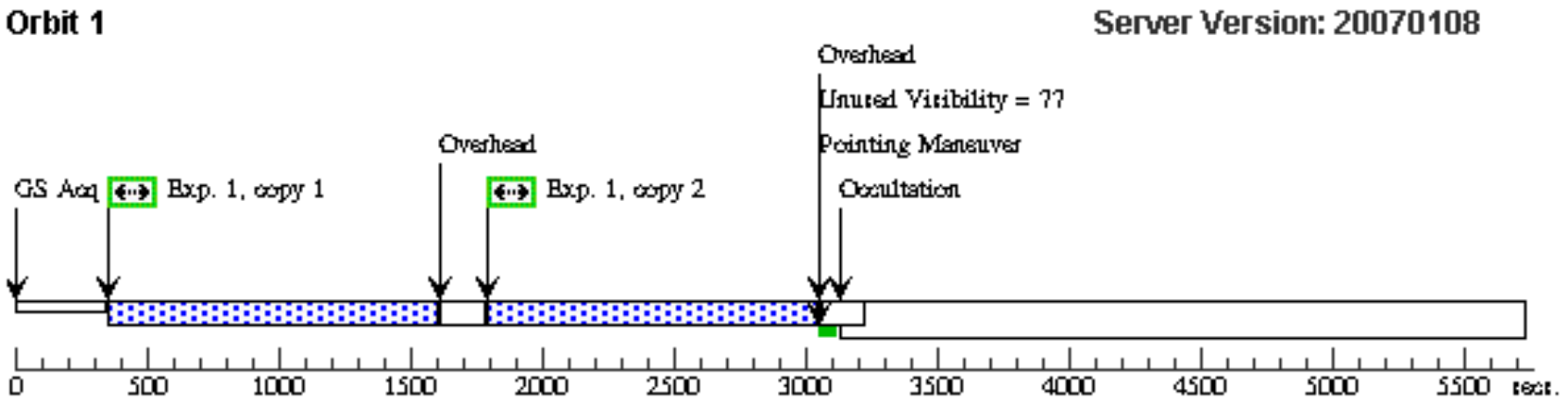
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	V838-MON-ECHO-COPY	RA: 07 04 5.8200 (106.0242500d) Dec: -03 50 40.00 (-3.84444d) Equinox: J2000		V=15.5	Reference Frame: ICRS

Comments: Geometric center of light echo, based on data from Cycle 14. 6/14/06: updated to ICRS reference frame, using galex website.

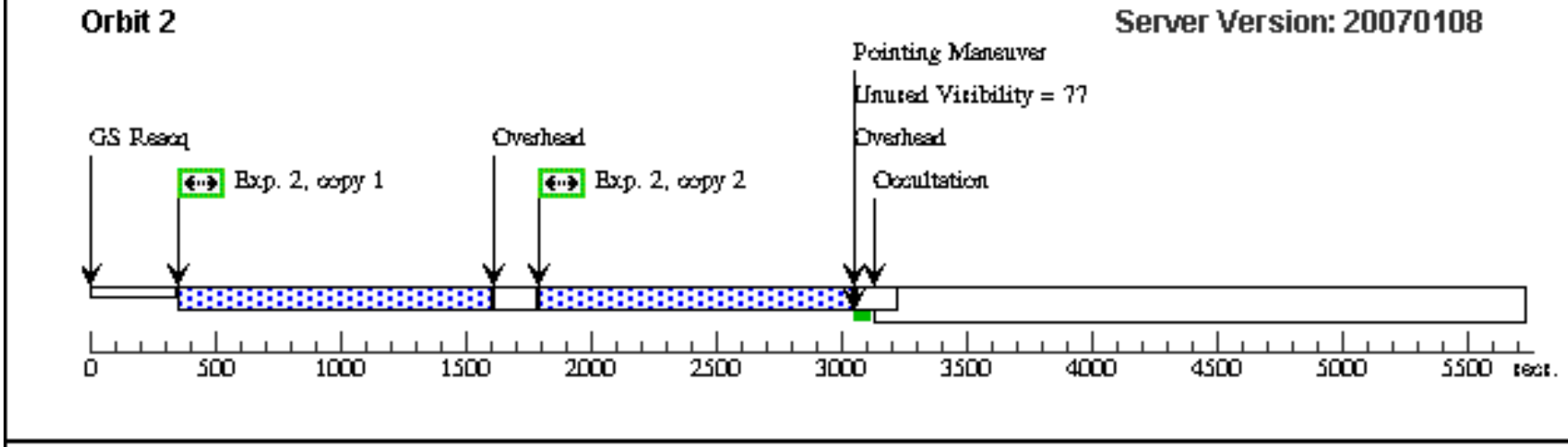
Exposures

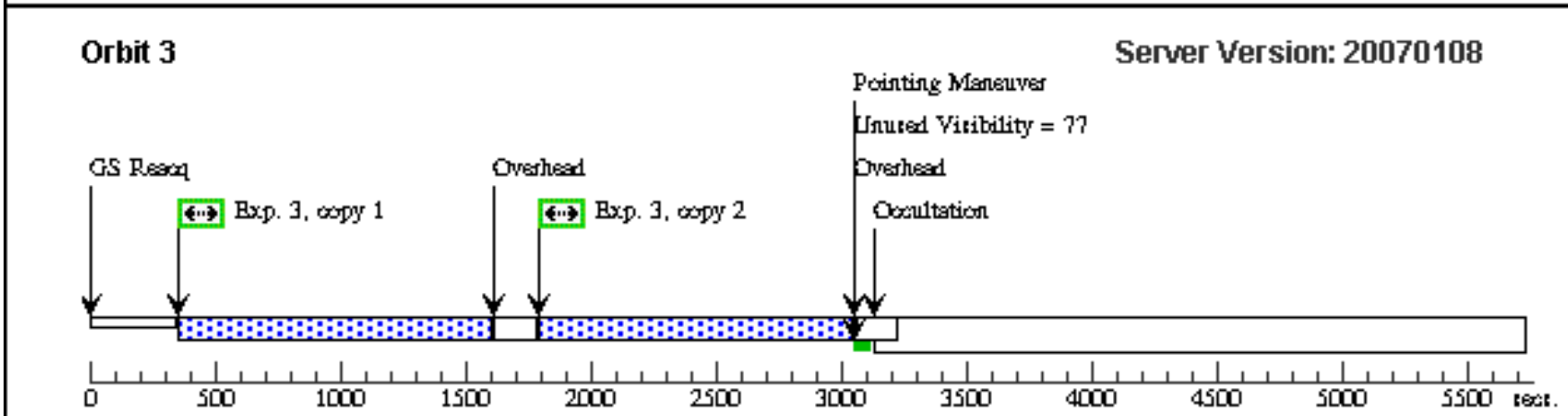
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -66.36,13.99		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
2		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -65.862,14.239		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
3		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -65.613,14.737		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
4		(2) V838-MON-ECHO-COPY	WFPC2, IMAGE, WFALL-FIX	F814W	CR-SPLIT=NO	POS TARG -66.111,14.488		1100.0 Secs X 2 *[==>(Copy 1)]* *[==>(Copy 2)]*	***[4]***

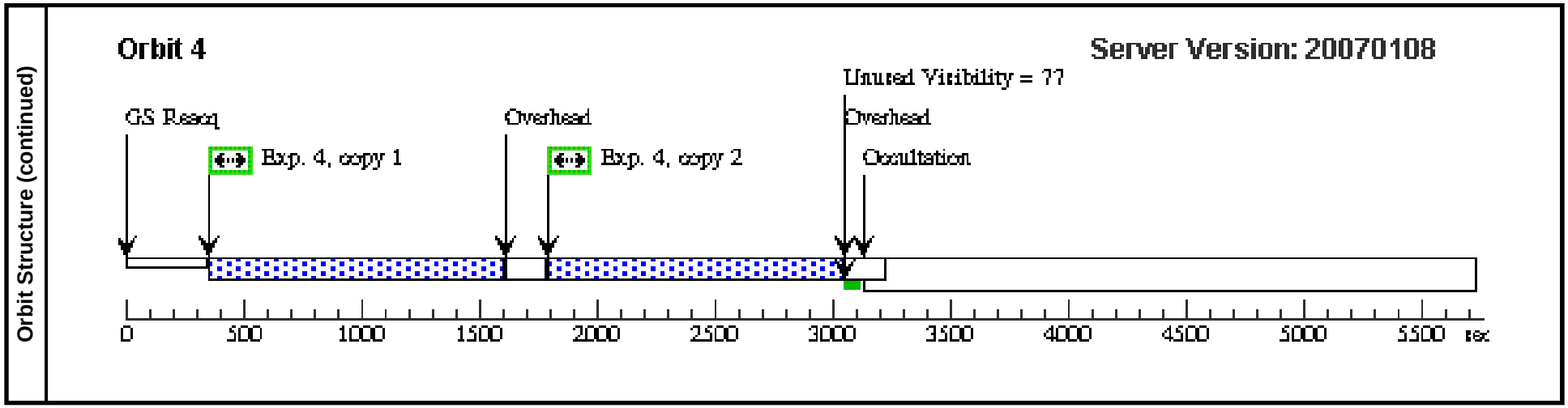
Orbit Structure



Orbit Structure (continued)






Orbit Structure (continued)
Orbit 4
Server Version: 20070108
Unused Visibility = 77
GS Reacq
Exp. 4, copy 1
Overhead
Exp. 4, copy 2
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec