10244 - Coronagraphic imaging of Eta Corvus: a newly discovered debris disk at 18 pc

Cycle: 13, Proposal Category: GO

(Availability Mode: AVAILABLE)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Mark Wyatt (PI) (ESA Member)	**Royal Observatory Edinburgh**	**wyatt@roe.ac.uk**
Dr. Mark Clampin (CoI) (AdminUSPI)	NASA Goddard Space Flight Center	mark.clampin@nasa.gov
Dr. Jane Greaves (CoI)	University of St. Andrews	jsg5@st-andrews.co.uk
Dr. William Dent (CoI) (ESA Member)	Royal Observatory Edinburgh	dent@roe.ac.uk
Dr. Wayne Holland (CoI) (ESA Member)	Royal Observatory Edinburgh	wsh@roe.ac.uk

VISITS

Visit	*Targets*	*Configurations*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
10	(1) HD109085	ACS/HRC	3	08-Jun-2005 14:56:43.0	yes
11	(1) HD109085	ACS/HRC	3	08-Jun-2005 14:56:54.0	yes
12	(2) HD105452	ACS/HRC	3	08-Jun-2005 14:57:05.0	yes
13	(1) HD109085	NIC2	2	08-Jun-2005 14:57:11.0	yes
14	(3) HD132052	NIC2	2	08-Jun-2005 14:57:17.0	yes

13 Total Orbits Used

ABSTRACT

Debris disks are one of the final stages in the evolution of planetary systems. High resolution imaging of debris disks has been instrumental to our understanding of the status of planet formation in these systems. The detection of clumps and asymmetries has even led to the detection of unseen planets. However, just six resolved disks exist in the literature. Eta Crv is now the seventh debris disk confirmed with imaging, and was discovered in a recent sub-mm survey of nearby stars. Its proximity (18 pc) and similarity to Beta Pic, one of the "big four" Vega-type disks, makes it an excellent candidate for a high resolution coronagraphic study of its disk structure. Modeling of this structure at many wavelengths will set hard constraints on its unseen planetary system and the distribution of particles from micron to kilometer in size, thus significantly extending our understanding of the planet formation processes in debris disks

OBSERVING DESCRIPTION

Observe with ACS Coronagraph

Visit

Proposal 10244, Visit 10 Wed Jun 08 18:57:19 GMT 2005

Diagnostic Status: Warning

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; ORIENT 135.0D TO 295.0 D; ORIENT 315.0D TO 35.0 D; AFTER 12 BY 2.8 Orbits TO 3.2 Orbits

Comments: Final development and optimization of this proposal need a new version of APT trans which will employ the correct visibility periods and recognize corongraphic observations.

Eta Cor roll #1

Diagnostics

(Visit 10) Warning: VISIBILITY OVERRUN

(Visit 10) Warning: VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD109085	RA: 12 32 4.2100 (188.0175417d) Dec: -16 11 45.88 (-16.19608d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: -0.0297s/yr Proper Motion Dec: -0.064"/yr Epoch of Position: 2000.0	V=4.31	Coordinate Source: PPM_STAR_CATALOGUE

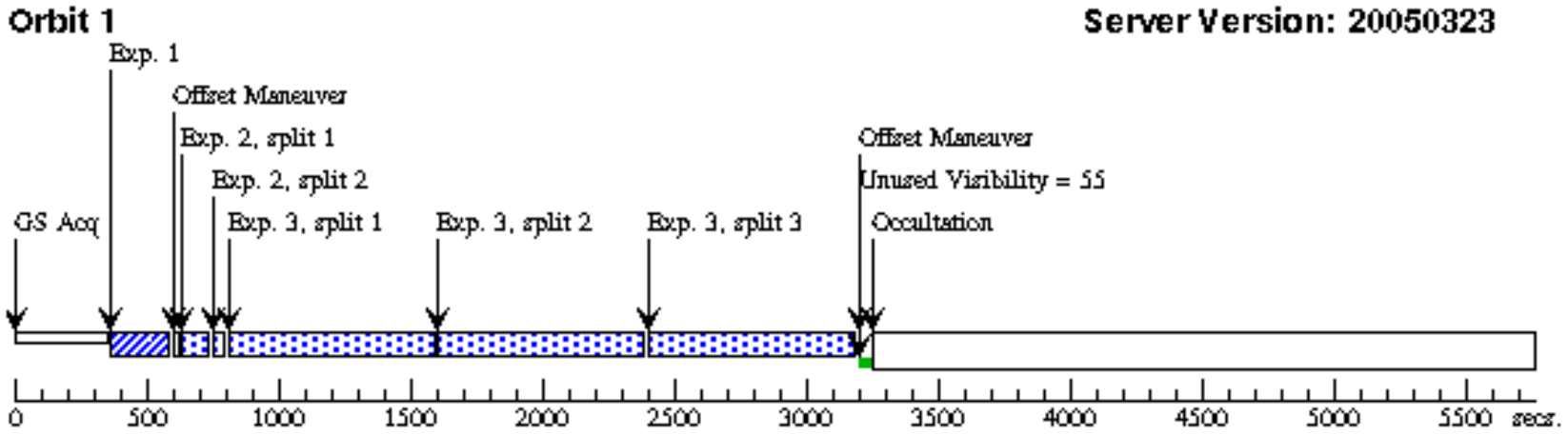
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				30.0 Secs *[==>]*	***[1]***
2		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F814W		USE OFFSET 10244 1		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F814W	CR-SPLIT=3	USE OFFSET 10244 1		2250.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***
4		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				30.0 Secs *[==>]*	***[2]***
5		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F606W		USE OFFSET 10244 2		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
6		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F606W	CR-SPLIT=5	USE OFFSET 10244 2		2275.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[2]***

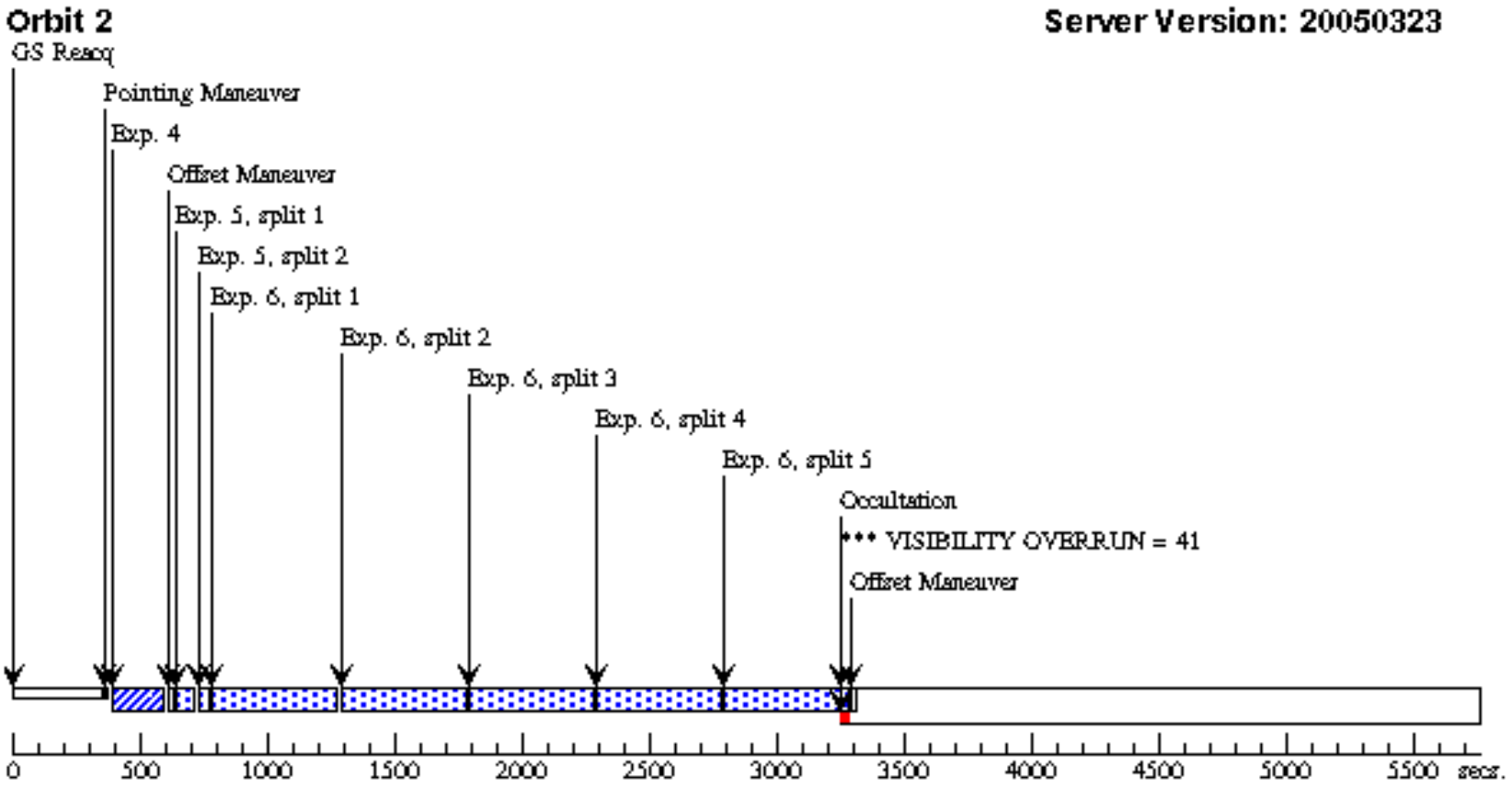
Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
7		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				30.0 Secs *[==>]*	 ***[3]***
8		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F435W		USE OFFSET 10244 3		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	 ***[3]***
9		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F435W	CR-SPLIT=4	USE OFFSET 10244 3		2300.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]***

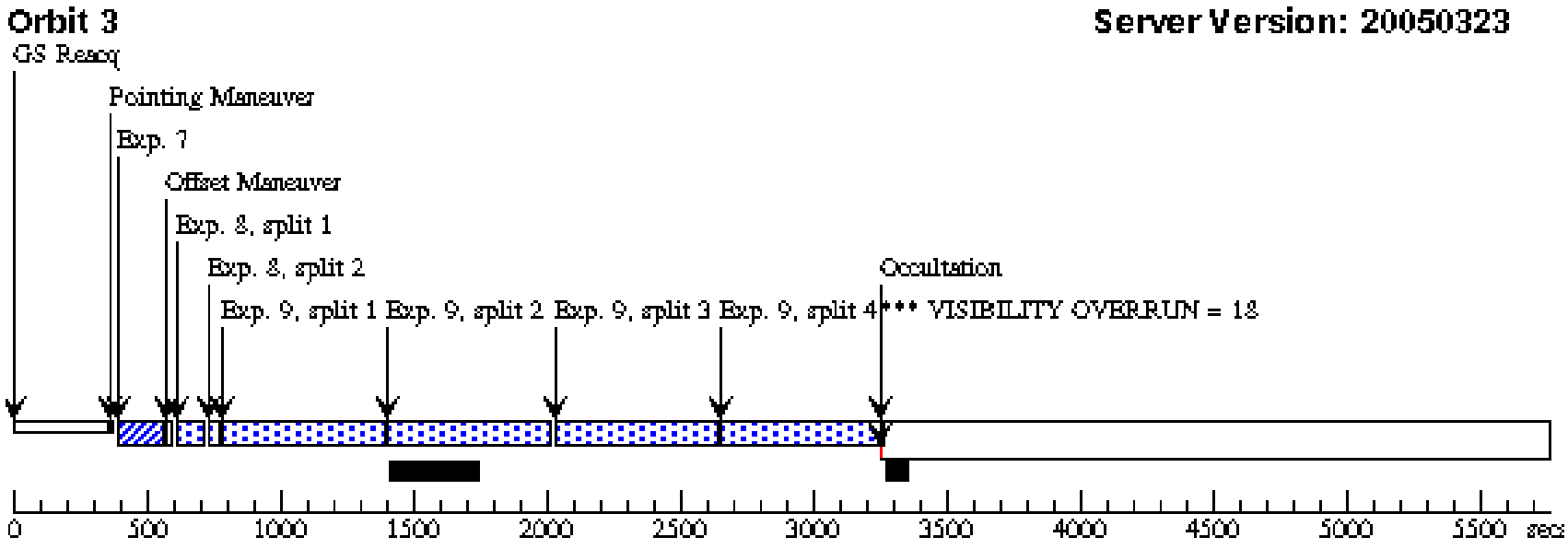
Orbit Structure



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10244, Visit 11 Wed Jun 08 18:57:21 GMT 2005

Diagnostic Status: Warning

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; ORIENT 28.0D TO 32.0D FROM 10; AFTER 10 BY 2.8 Orbits TO 3.2 Orbits

Comments: Eta Cor - Roll #2

Diagnostics

(Visit 11) Warning: VISIBILITY OVERRUN

(Visit 11) Warning: VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD109085	RA: 12 32 4.2100 (188.0175417d) Dec: -16 11 45.88 (-16.19608d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: -0.0297s/yr Proper Motion Dec: -0.064"/yr Epoch of Position: 2000.0	V=4.31	Coordinate Source: PPM_STAR_CATALOGUE

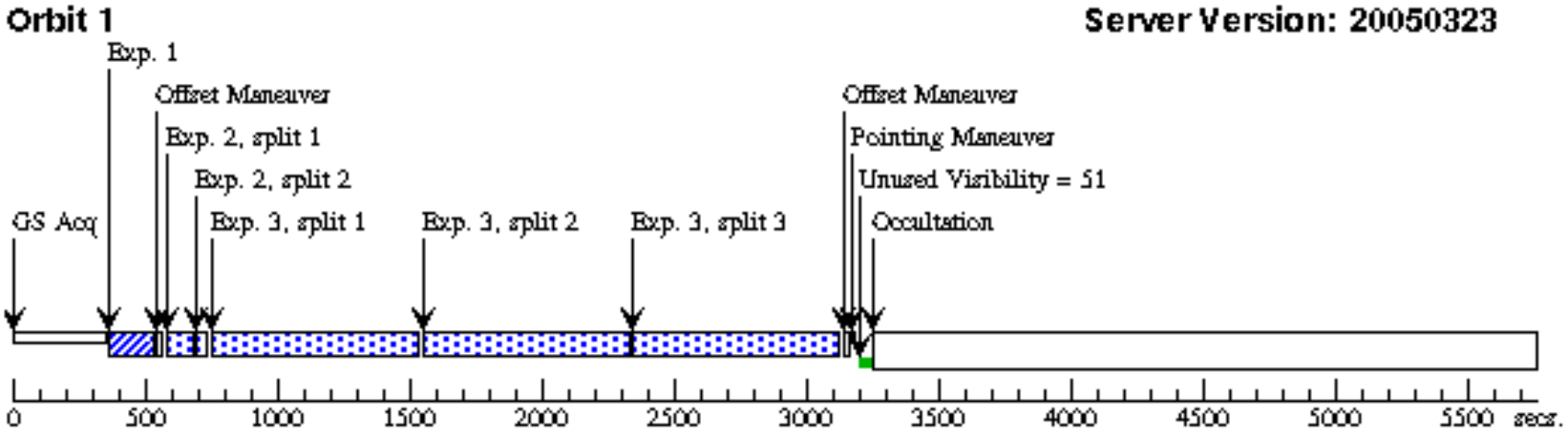
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				2.0 Secs *[==>]*	 ***[1]***
2		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F814W		USE OFFSET 10244 4		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	 ***[1]***
3		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F814W	CR-SPLIT=3	USE OFFSET 10244 4		2250.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	 ***[1]***
4		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				30.0 Secs *[==>]*	 ***[2]***
5		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F606W		USE OFFSET 10244 5		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	 ***[2]***
6		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F606W	CR-SPLIT=5	USE OFFSET 10244 5		2275.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	 ***[2]***
7		(1) HD109085	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				30.0 Secs *[==>]*	 ***[3]***

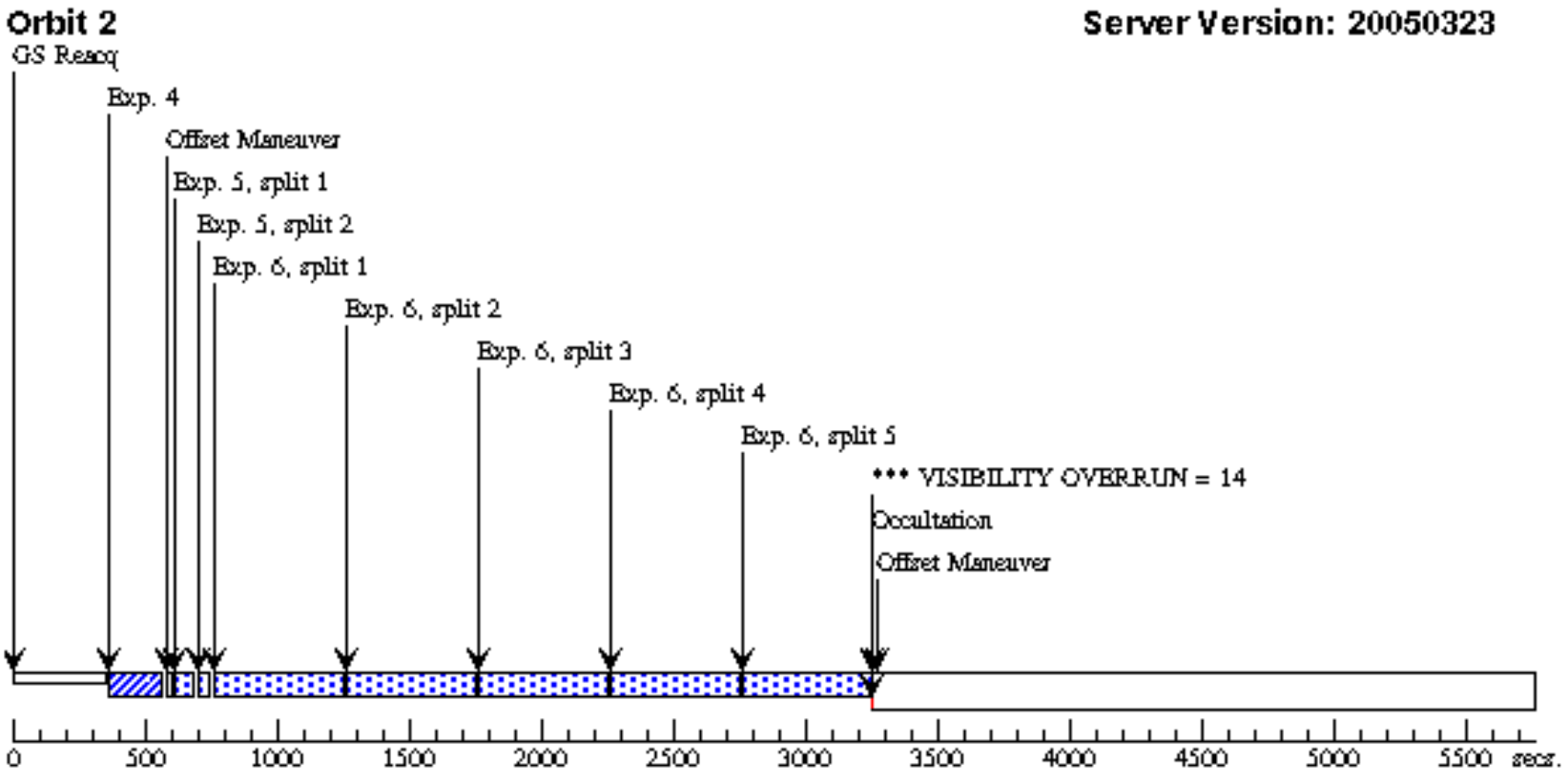
Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
8		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F435W		USE OFFSET 10244 6		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	*[3]*
9		(1) HD109085	ACS/HRC, ACCUM, HRC-CORON1.8	F435W	CR-SPLIT=4	USE OFFSET 10244 6		2300.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]*

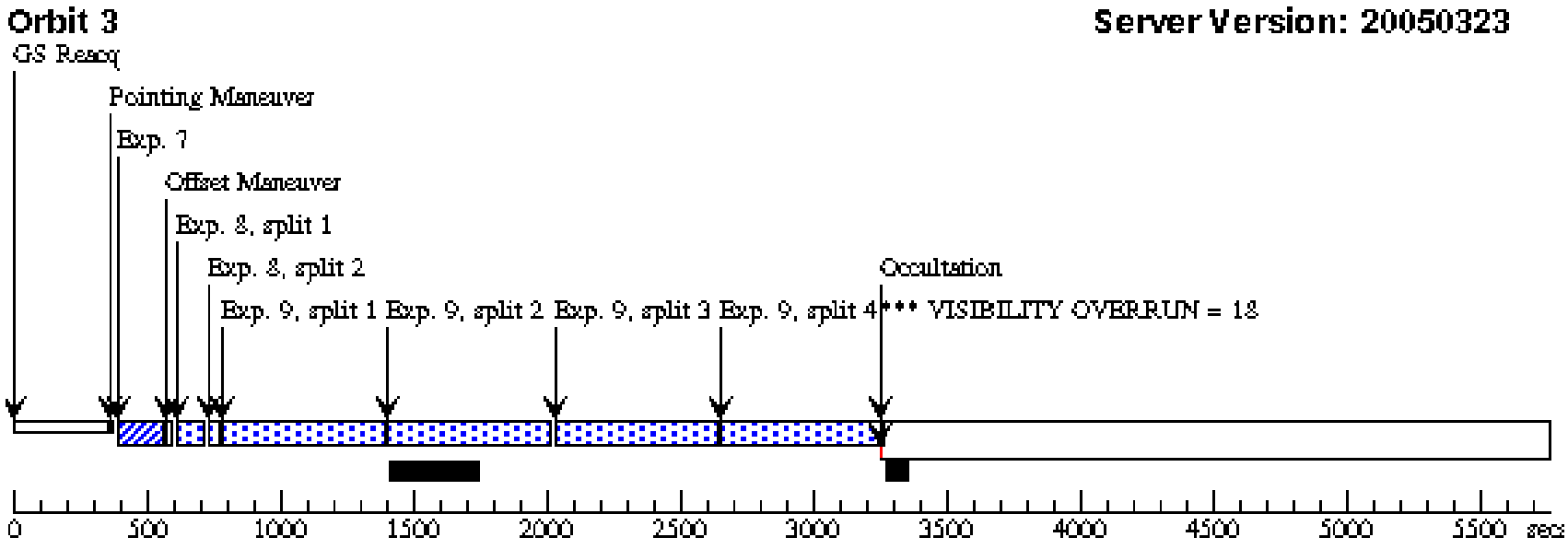
Orbit Structure



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10244, Visit 12 Wed Jun 08 18:57:23 GMT 2005

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE

Comments: Control star for PSF subtraction

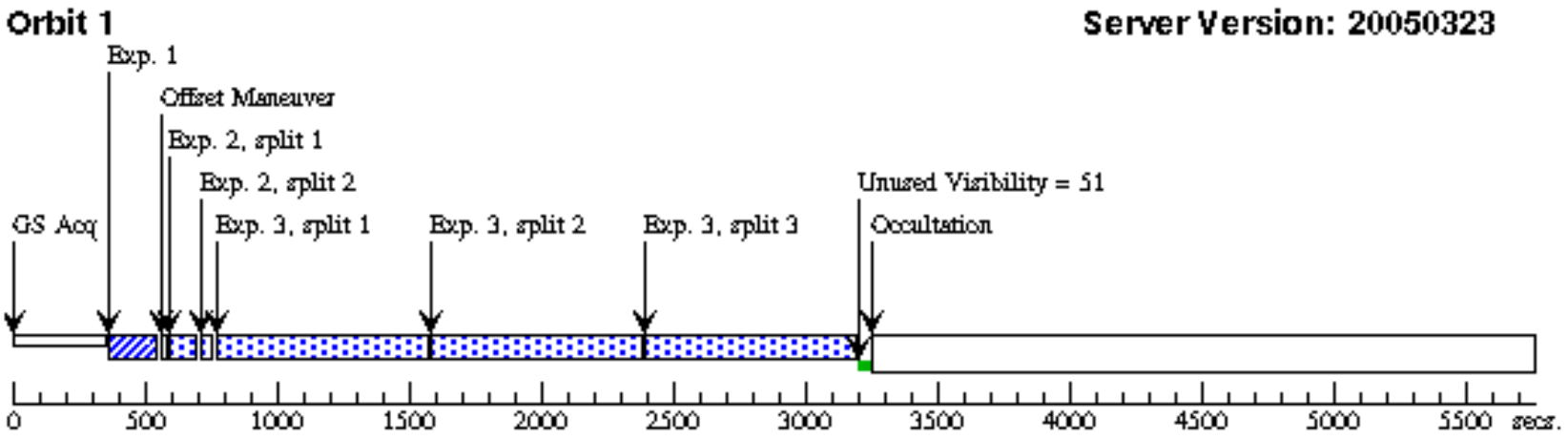
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	HD105452	RA: 12 08 24.8100 (182.1033750d) Dec: -24 43 43.87 (-24.72885d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0068s/yr Proper Motion Dec: -0.039"/yr Epoch of Position: 2000.0	V=4.0	Coordinate Source: PPM_STAR_CATALOGUE

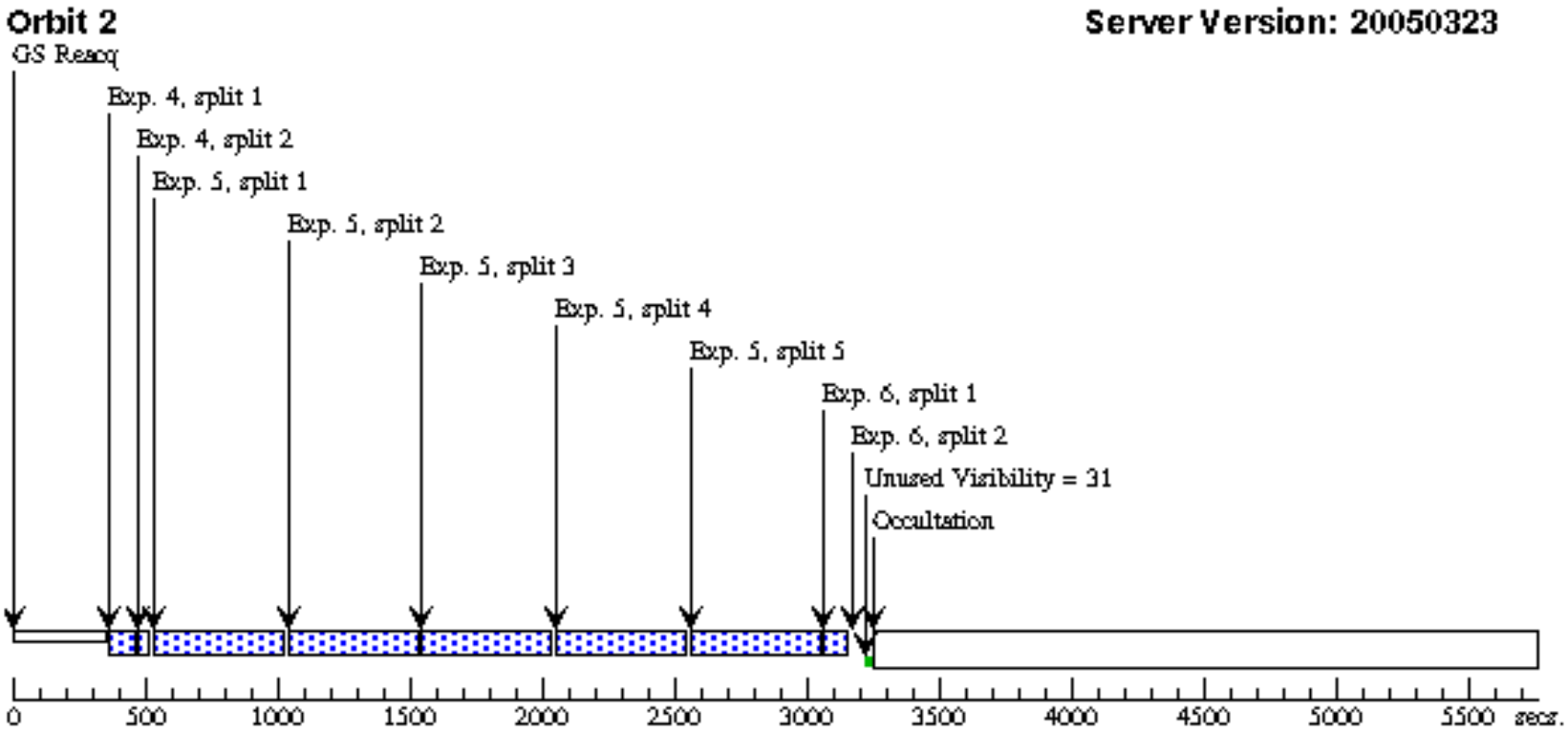
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(2) HD105452	ACS/HRC, ACQ, HRC-ACQ	F220W F606W				10.0 Secs *[==>]*	***[1]***
2		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F814W		USE OFFSET 10244 7		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[1]***
3		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F814W	CR-SPLIT=3	USE OFFSET 10244 7		2295.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]*	***[1]***
4		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F606W		USE OFFSET 10244 7		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
5		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F606W	CR-SPLIT=5	USE OFFSET 10244 7		2300.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]* *[==>(Split 5)]*	***[2]***
6		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F435W		USE OFFSET 10244 7		10.0 Secs *[==>(Split 1)]* *[==>(Split 2)]*	***[2]***
7		(2) HD105452	ACS/HRC, ACCUM, HRC-CORON1.8	F435W	CR-SPLIT=4	USE OFFSET 10244 7		2600.0 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[3]***

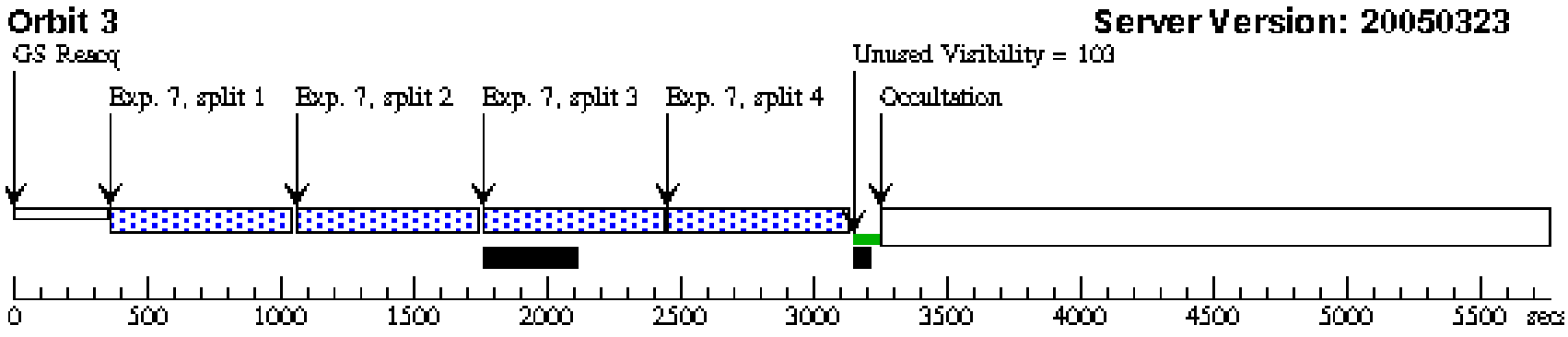
Orbit Structure



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10244, Visit 13 Wed Jun 08 18:57:24 GMT 2005

Diagnostic Status: Error

Scientific Instruments: NIC2

Special Requirements: NUMBER OF GYROS 3; ORIENT 100.0D TO 110.0 D

Comments: We plan to obtain ACS observations first and then optimize NICMOS roll angles based on the ACS Images. NICMOS observations will be on hold pending analysis of ACS images to determine optimum roll angles

Diagnostics

(Visit 13) Error: INVALID GS ACQ SCENARIO SPECIAL REQUIREMENT

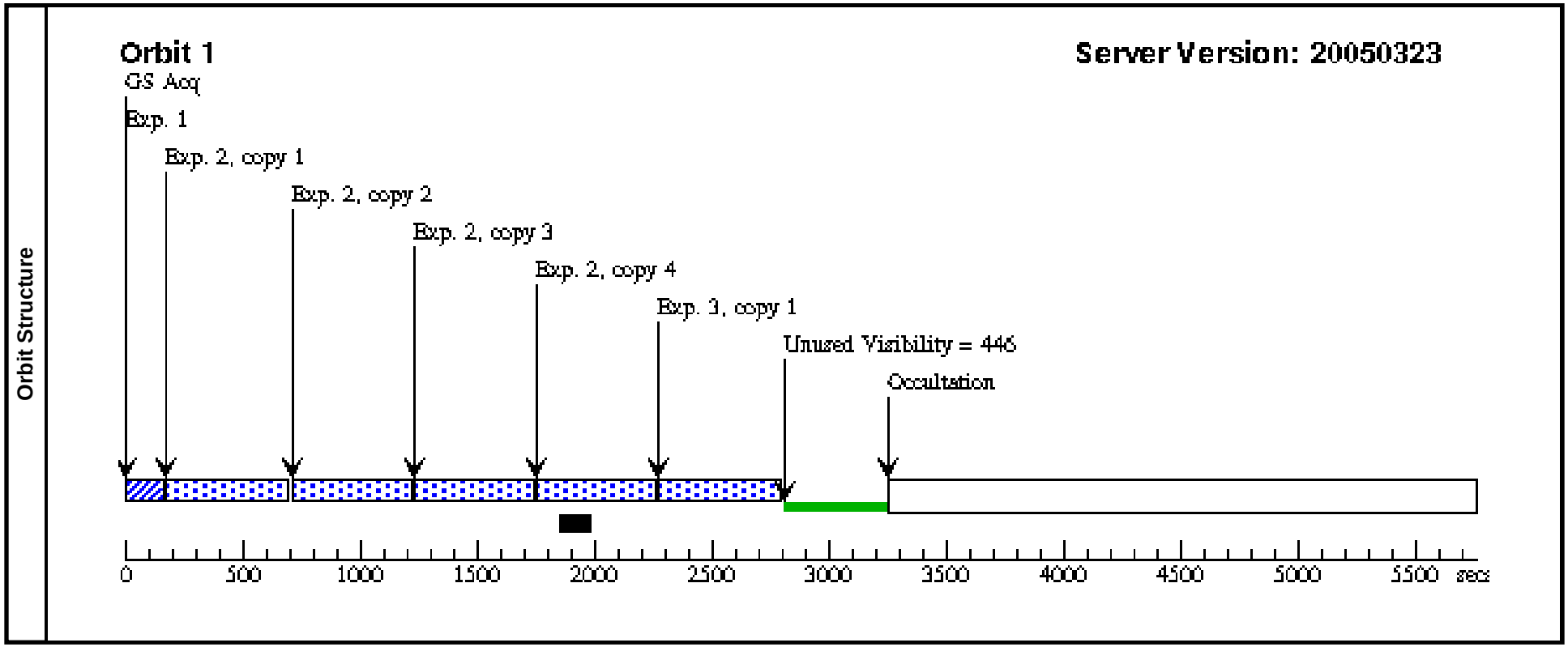
(Visit 13) Warning: Number of Gyros overrides default value.

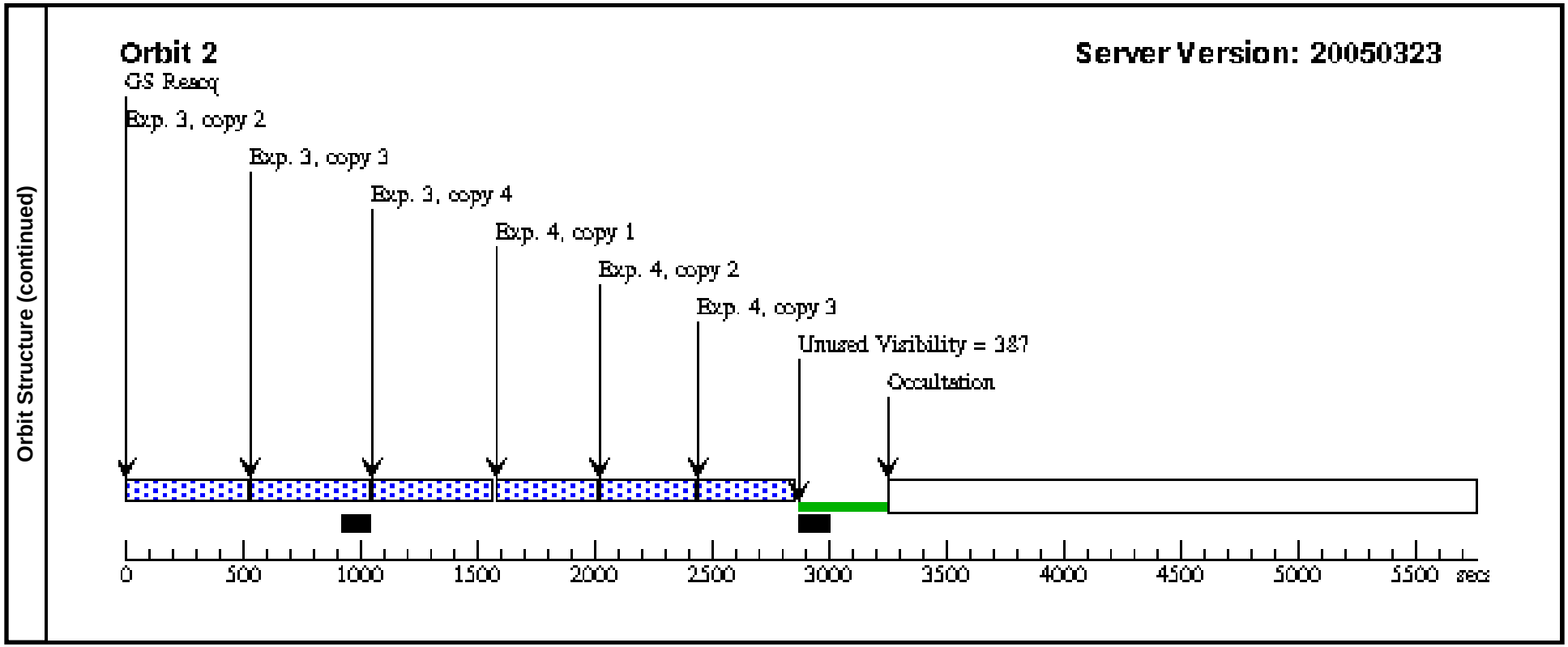
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD109085	RA: 12 32 4.2100 (188.0175417d) Dec: -16 11 45.88 (-16.19608d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: -0.0297s/yr Proper Motion Dec: -0.064"/yr Epoch of Position: 2000.0	V=4.31	Coordinate Source: PPM_STAR_CATALOGUE

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) HD109085	NIC2, ACQ, NIC2-ACQ	F187N		GS ACQ SCENARIO BASE13GO		0.228 Secs *[==>]*	*[1]*
2		(1) HD109085	NIC2, MULTIACCUM, NIC2-CORON	F110W	SAMP-SEQ=STEP32; NSAMP=23			*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]*	*[1]*
3		(1) HD109085	NIC2, MULTIACCUM, NIC2-CORON	F160W	NSAMP=23; SAMP-SEQ=STEP32			*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]*	*[1]* *[2]*
4		(1) HD109085	NIC2, MULTIACCUM, NIC2-CORON	F171M	NSAMP=20; SAMP-SEQ=STEP32			*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]*	*[2]*


Orbit Structure
Orbit 1
Server Version: 20050323
GS Acq
Exp. 1
Exp. 2, copy 1
Exp. 2, copy 2
Exp. 2, copy 3
Exp. 2, copy 4
Exp. 3, copy 1
Unused Visibility = 446
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec


Orbit Structure (continued)
Orbit 2
Server Version: 20050323
GS Reacq
Exp. 3, copy 2
Exp. 3, copy 3
Exp. 3, copy 4
Exp. 4, copy 1
Exp. 4, copy 2
Exp. 4, copy 3
Unused Visibility = 387
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10244, Visit 14 Wed Jun 08 18:57:25 GMT 2005

Diagnostic Status: Error

Scientific Instruments: NIC2

Special Requirements: NUMBER OF GYROS 3

Comments: We plan to obtain ACS observations first and then optimize NICMOS roll angles based on the ACS Images. NICMOS observations will be on hold pending analysis of ACS images to determine optimum roll angles

Diagnostics

(Visit 14) Error: INVALID GS ACQ SCENARIO SPECIAL REQUIREMENT

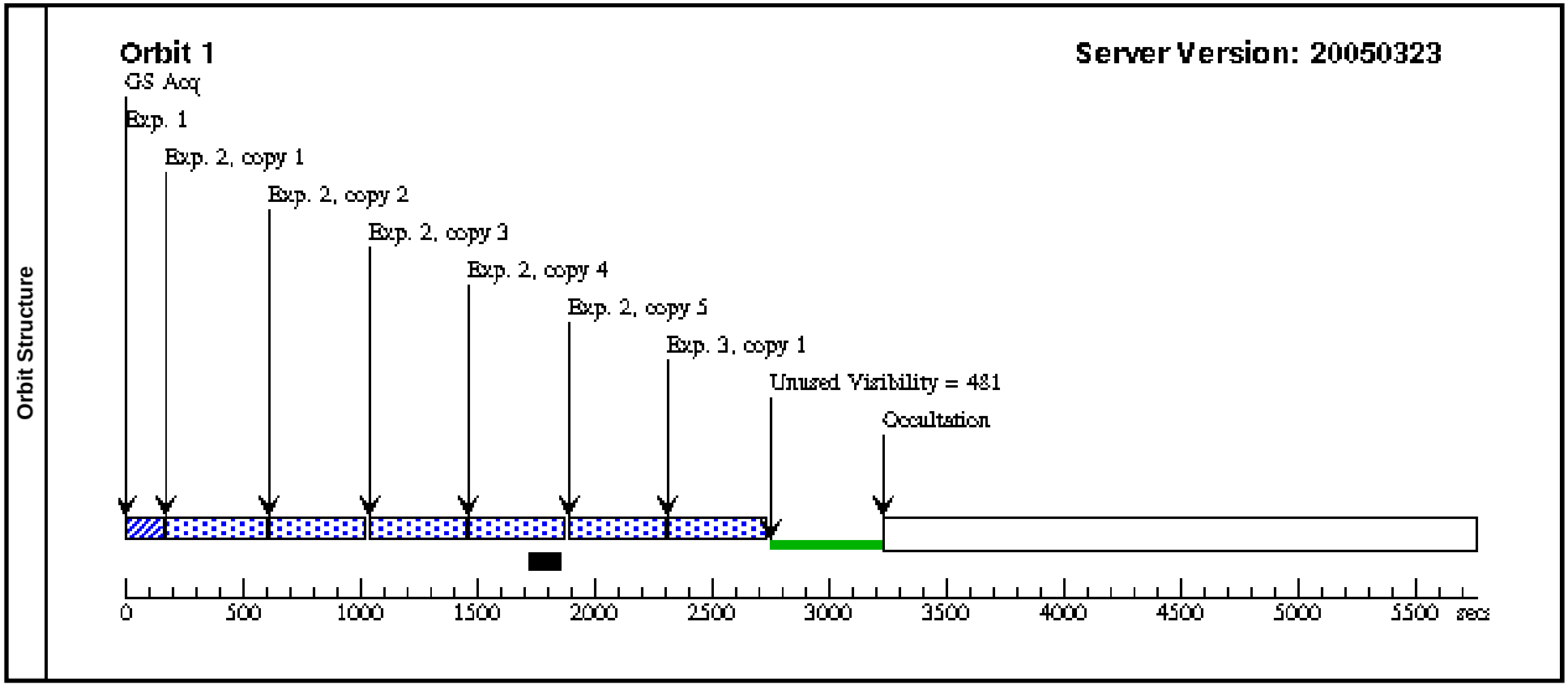
(Visit 14) Warning: Number of Gyros overrides default value.

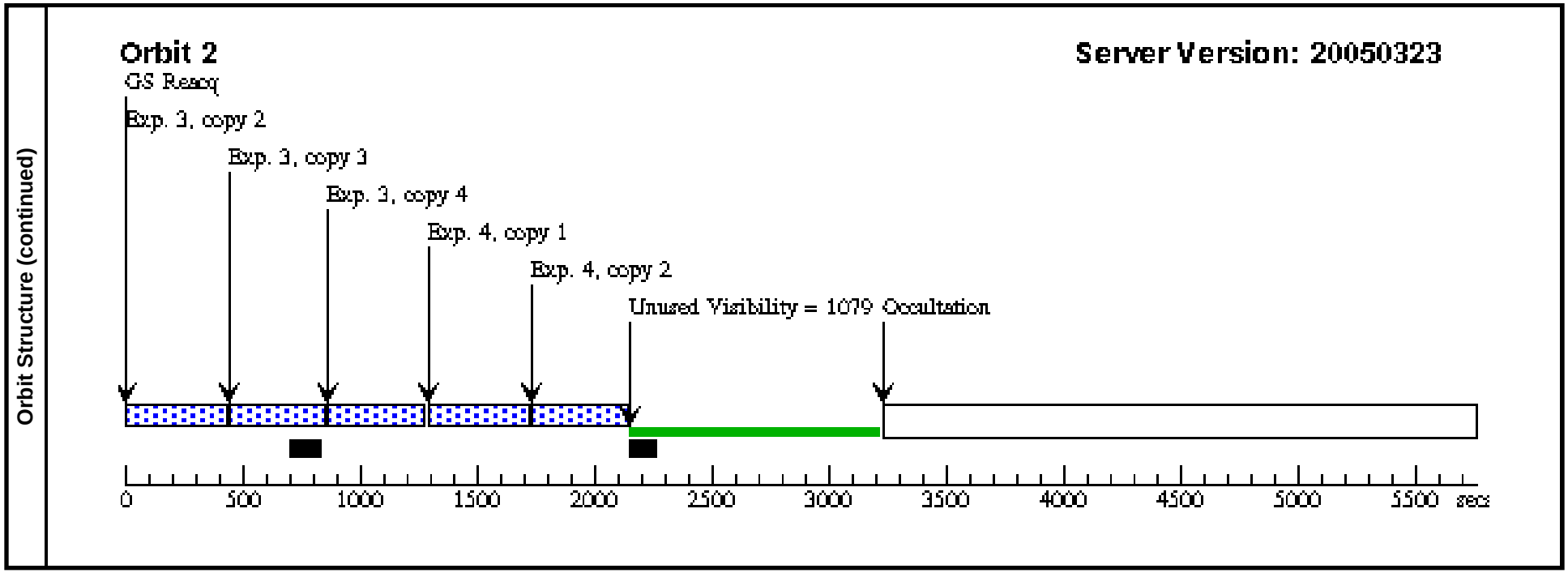
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HD132052	RA: 14 57 10.9900 (224.2957917d) Dec: -04 20 47.30 (-4.34647d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: -0.0069s/yr Proper Motion Dec: -0.151"/yr Epoch of Position: 2000.0	V=4.4	Coordinate Source: PPM_STAR_CATALOGUE

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(3) HD132052	NIC2, ACQ, NIC2-ACQ	F171M		GS ACQ SCENARIO BASE13GO		0.228 Secs *[==>]*	*[1]*
2		(3) HD132052	NIC2, MULTIACCUM, NIC2-CORON	F110W	SAMP-SEQ=STEP32; NSAMP=20			*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]*	*[1]*
3		(3) HD132052	NIC2, MULTIACCUM, NIC2-CORON	F160W	SAMP-SEQ=STEP32; NSAMP=20			*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]*	*[1]* *[2]*
4		(3) HD132052	NIC2, MULTIACCUM, NIC2-CORON	F171M	SAMP-SEQ=STEP32; NSAMP=20			*[==>(Copy 1)]* *[==>(Copy 2)]*	*[2]*


Orbit Structure
Orbit 1
Server Version: 20050323
GS Acq
Exp. 1
Exp. 2, copy 1
Exp. 2, copy 2
Exp. 2, copy 3
Exp. 2, copy 4
Exp. 2, copy 5
Exp. 3, copy 1
Unused Visibility = 481
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs


Orbit Structure (continued)
Orbit 2
Server Version: 20050323
GS Reacq
Exp. 3, copy 2
Exp. 3, copy 3
Exp. 3, copy 4
Exp. 4, copy 1
Exp. 4, copy 2
Unused Visibility = 1079 Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec