10998 - Exoplanet XO-1b: light curve and parallax

Cycle: 15, Proposal Category: GO

(Availability Mode: RESTRICTED)

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) GSC02041-01657	ACS/HRC	4	17-Jan-2008 16:25:04.0	yes
02	(1) GSC02041-01657	ACS/HRC	4	17-Jan-2008 16:26:09.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
11	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:29.0	yes
12	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:34.0	yes
21	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:40.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
22	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:45.0	yes
31	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:51.0	yes
32	(1) GSC02041-01657 (2) X0-REF1 (3) X0-REF2 (4) XO-REF3 (7) X0-REF4 (8) X0-REF5 (9) X0-REF6	FGS	1	17-Jan-2008 16:26:56.0	yes
33	(1) GSC02041-01657	NIC3	5	17-Jan-2008 16:28:53.0	yes
34	(1) GSC02041-01657	NIC3	5	17-Jan-2008 16:31:22.0	yes

24 Total Orbits Used

ABSTRACT

We propose to measure the radius of the recently-discovered transiting extrasolar planet XO-1b. XO-1b's nominal radius is 1.30 times the radius of Jupiter, which is nearly as large as HD 209458b (1.32 R_J). We will use two independent methods to measure XO-1b's radius: 1) precision light curve analysis, and 2) measurement of its trigonometric parallax combined with its spectroscopically-determined effective temperature and its apparent magnitude.

OBSERVING DESCRIPTION

To observe the transit light curve, we propose 8 orbits of HST ACS/HRC observations of X0-1 in two visits.
To determine the distance to X0-1 trigonometrically, we propose 6 orbits of HST FGS observations spread over three epochs.

With ACS we propose to observe XO-1b during two visits with the HRC using the grism G800L.
Observations will be obtained at extremely high S/N in a time-series mode with a cadence of 95 seconds.
The first HST orbit of each visit will be phased to proceed a transit of XO-1b,
orbits 2 and 3 in transit, and the 4th and final orbit provides out-of-transit normalization in combination with
orbit 1.

The science goals for the ACS observations closely parallel
the prime goal of the ``original'' HST program on HD 209458,
the GO/DD 8789 to provide a much cleaner transit light curve,
than possible from the ground, in order to firm up system
parameters. For this prime goal 8789 used STIS with the
G750M grating in place as a ``light bucket'', by dispersing
the light over many pixels it was possible to count over
10E8 e- per exposure, and thus reach time-series S/N of 10,000.
Given the V = 7.64 magnitude of HD 209458, even the 570 \AA\

range of G750M at low-intrinsic efficiency provided 1.55 $\times \,10^8$ e- per 60 s integration. Using the ACS/HRC grism to disperse the light of XO-1 over about 200 pixels allows collection of 5 $\times 10^7$ e- per 60-s exposure while staying 25\% under saturation. Given the much higher efficiency of the G800L on ACS than the medium resolution STIS grating, and that XO-1b is 3.7 (V) magnitudes fainter than HD 209458, it makes perfect sense to switch from STIS to ACS (independent of the STIS loss). Although fainter by $\times$25 in the relevant bandpass, XO-1's count rate with HRC/G800L is only $\times$3.1 lower than the original HD 209458 STIS observations. Adopting an exposure time of 60 s, using the 512 square subarray nearest the readout Amp for HRC provides an overhead of 35 s per read, and still encompasses the full zeroth, and first orders from G800L. With a 95s cycle time it is possible to maintain 63\% observing efficiency on XO-1b, which compares quite favorably to the 75\% with HD 209458. The S/N per HST orbit provided by ACS/HRC will be a factor of $\times$2 times lower than that realized for the much brighter HD 209458. Thus, the overall light curve we will obtain on XO-1b will still be stunning, with $\sim$220 exposures in total over the two, four-orbit visits with each exposure at a S/N of 7,000. The broad bandpass coverage will provide extra constraints via quantifying the color dependence of limb darkening.

From a technical perspective these observations of a V = 11.2 star with transiting planet will provide a major step to outlining

what science can be accomplished for a range of brightness of the
host star. {\bf We can expect more transiting planets to be discovered
in the coming
years in the V = 8 to 12 range and these DD observations, with
no proprietary time as usual, will be of major influence in guiding
future observations by the community.}

Each visit will start with a broadband filter observation of
about 1 second (F555W) to define the wavelength scale;
the grism observations will be taken with autoimages suppressed.
These observations closely follow the successful GO/DD-10441
study of TrES-1 with ACS/HRC and the grism. The stars differ
by only half a magnitude (XO-1b brighter), allowing great confidence
in the technical approach.

Visits 1 and 2 (ACS) were withdrawn following instrument failure and
have been replaced with Visits 33 and 34 (NICMOS). The NICMOS
observations adopt the defocus used previously in GO-9832, but via
the newly preferred style not requiring special commanding that is used
in GO-11335.

ADDITIONAL COMMENTS

IMPLEMENTATION NOTES: the new parameter CAMERA-FOCUS=DEFOCUS
and aperture NIC3-FIXD is used to place NIC3 focus mechanism at -0.5 mm
and adjust the target placement in the aperture for the defocus
respectively.

Review of all potential scheduling windows has resulted in selection of two at 2008:040:21 and 2008:052:16 that yield best phase coverage of the transit event. The Phase II for visits 033 and 034 will contain BETWEENs restricting to these dates respectively, in the event that one or both of these opportunities cannot be used these would need modification.
The two visits above should be conidered and "all or none", if either needs to be changed, then we'll want the option to select both visits. Spacing of 12 days between visits yields optimal phase coverage.

Visit

Proposal 10998, Visit 01, withdrawn Thu Jan 17 21:32:02 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: SCHED 100%; Period 3.941534 D AND ZERO-PHASE JD2453808.917

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657	RA: 16 02 11.8460 (240.5493583d)	Proper Motion RA: -0.0015s/yr	V=11.19+/-0.03	Reference Frame: ICRS
	Alt Name1: XO-1	Dec: +28 10 10.46 (28.16957d)	Proper Motion Dec: 0.015"/yr	B-V = 0.66	
		Equinox: J2000	Parallax: 0.005"		
			Epoch of Position: 2000		

Comments: The parallax is unknown - an approximate value for its distance is 200 pc.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-0165 7	ACS/HRC, ACCUM, HRC-512	F555W	GAIN=4; CR-SPLIT=NO	POS TARG -1.0,0.5; PHASE 0.9615 TO 0 .9785	Sequence 1-2 Non-In t	1.0 Secs *[==>]*	***[1]***

Comments: For HST observations of any two transits separated by three orbital periods of XO-1 (~12 days), the earth-occultation gaps of the first visit are filled in by the second visit. More generally, for N transits separating the two visits, we require that N modulo 6 = 3, so N = 3, 9, 15, ... satisfy our needs. We require out-of-transit observations made at the beginning and end of each visit. This means that the first exposure of a visit must have phase < 0.98 and the last exposure of that visit must have phase > 0.02.

The following was written in May of 2006 as a guide to illustrate the above generic requirement.
Below is a table of pairs of dates (5/24 = May 24) that we believe meet the above requirement.

Visit1 Visit2 comment
5/24 6/05
5/24 6/28 X
5/28 6/09
5/28 7/02 X
6/01 6/13 X
6/01 7/06 X
6/05 6/17 X
6/05 7/10 X
6/09 6/21 X
6/09 7/14

X in the comment field means that we believe the 2nd visit is not allowed in 2-gyro mode (according to our running of APT) but maybe more sophisticated scheduling software will find they are possible. Likewise we believe HST cannot observe this target after 7/18 until 2007.

Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
2		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 1-2 Non-Int	60.0 Secs X 26	
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Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
3		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 3-3 Non-Int	60.0 Secs X 28	
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Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
4		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 4-4 Non-Int	60.0 Secs X 28	
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Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
5		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 5-5 Non-Int	60.0 Secs X 28	
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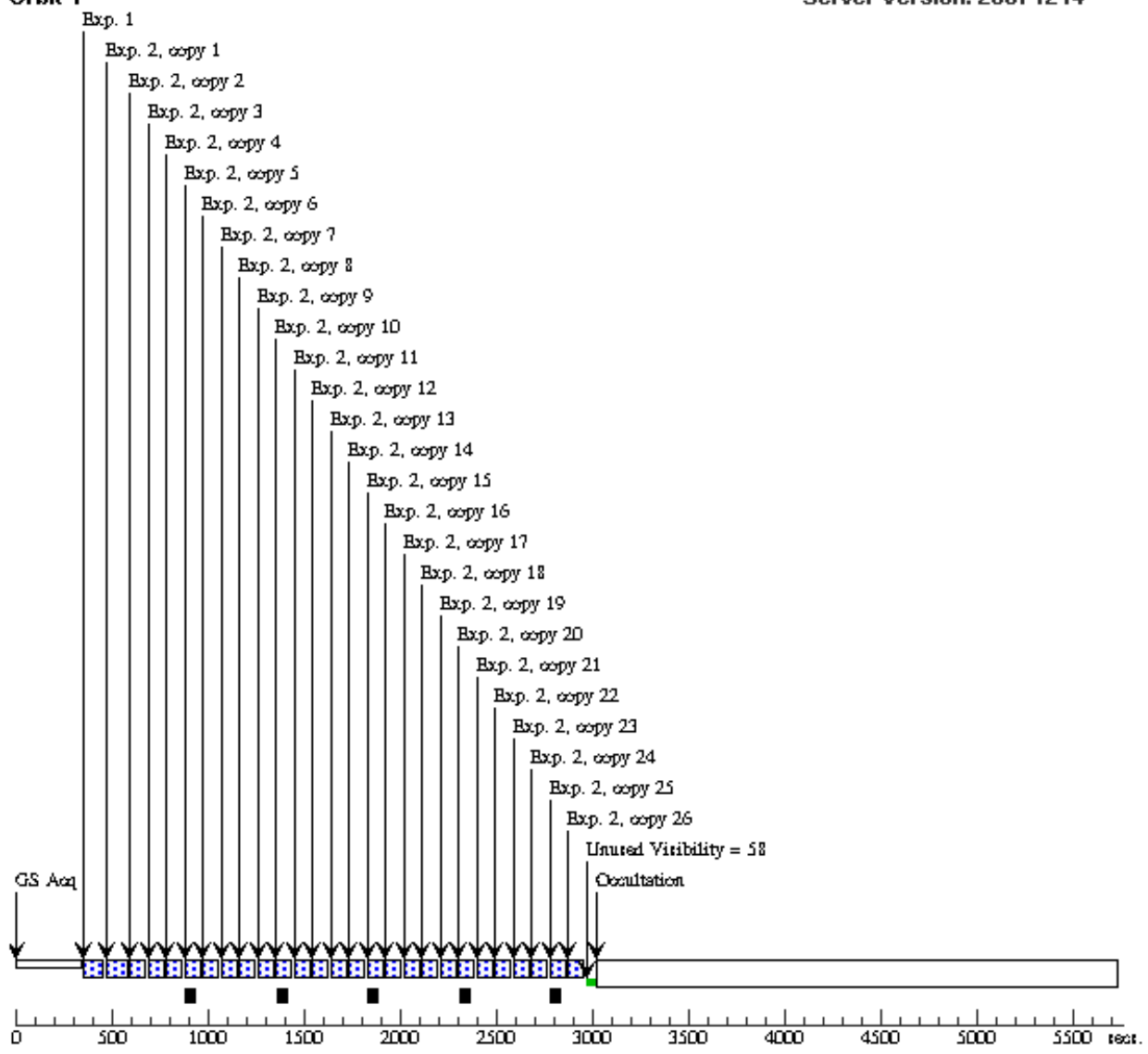
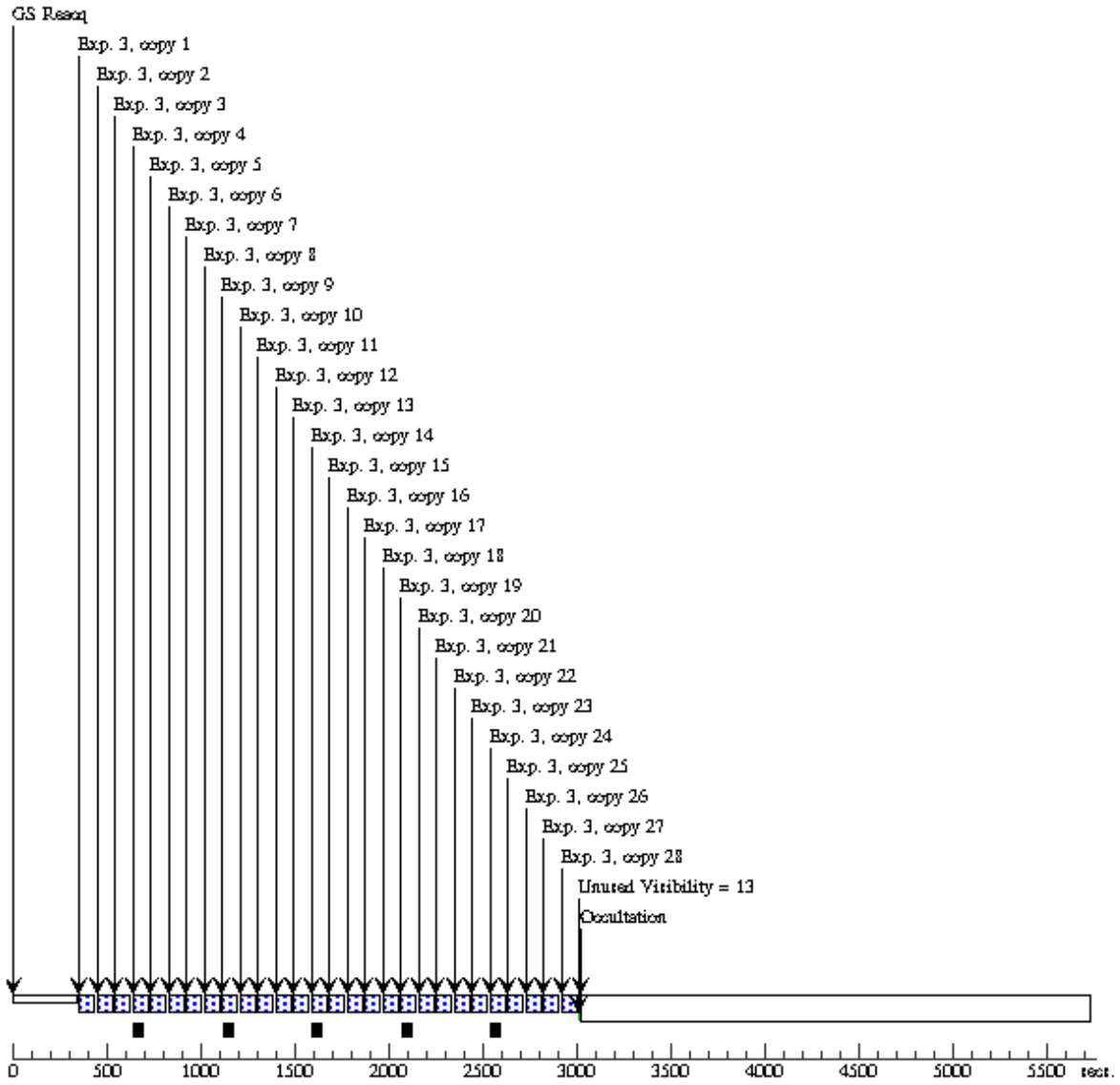
Orbit Structure



Orbit Structure (continued)



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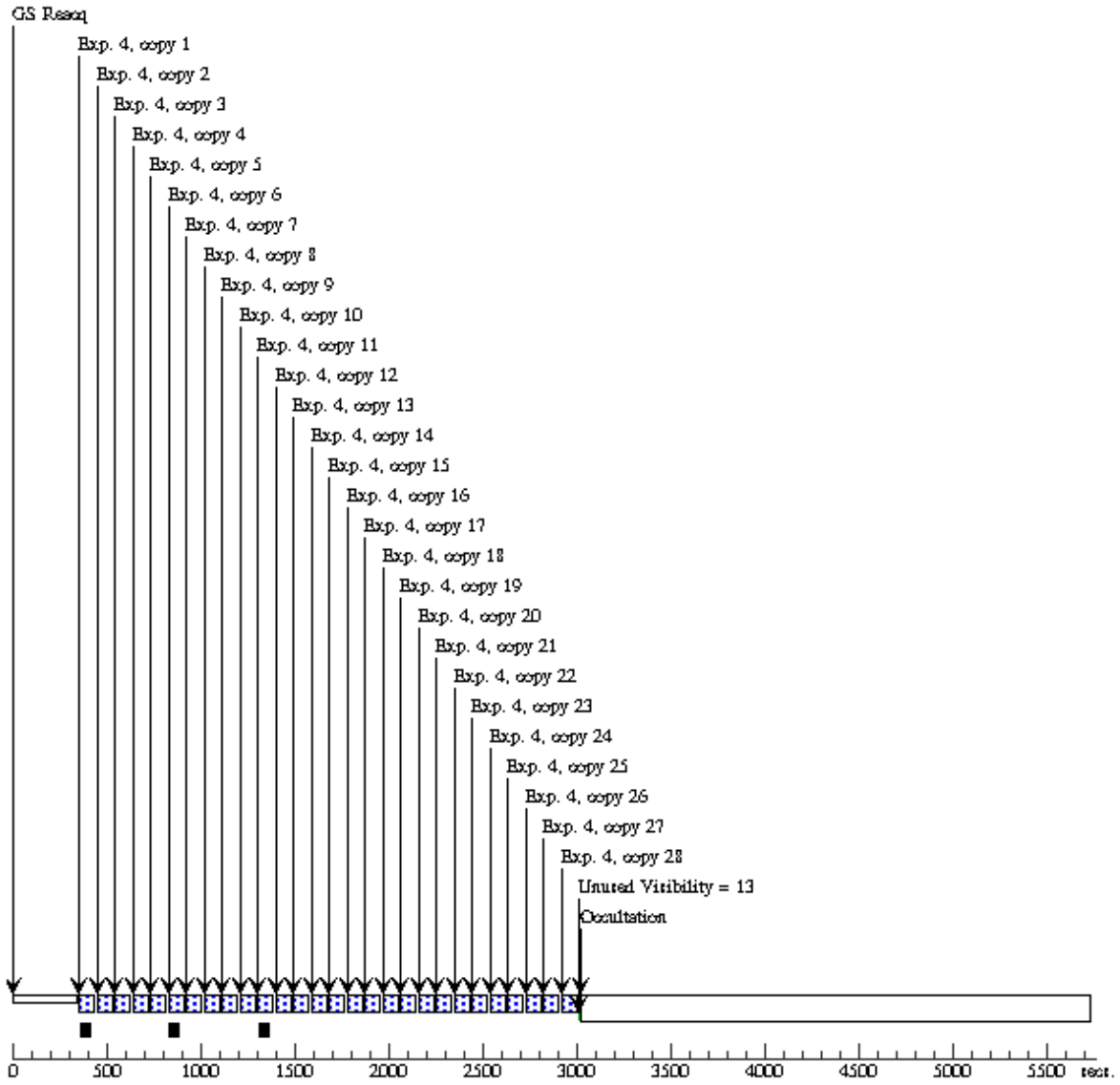
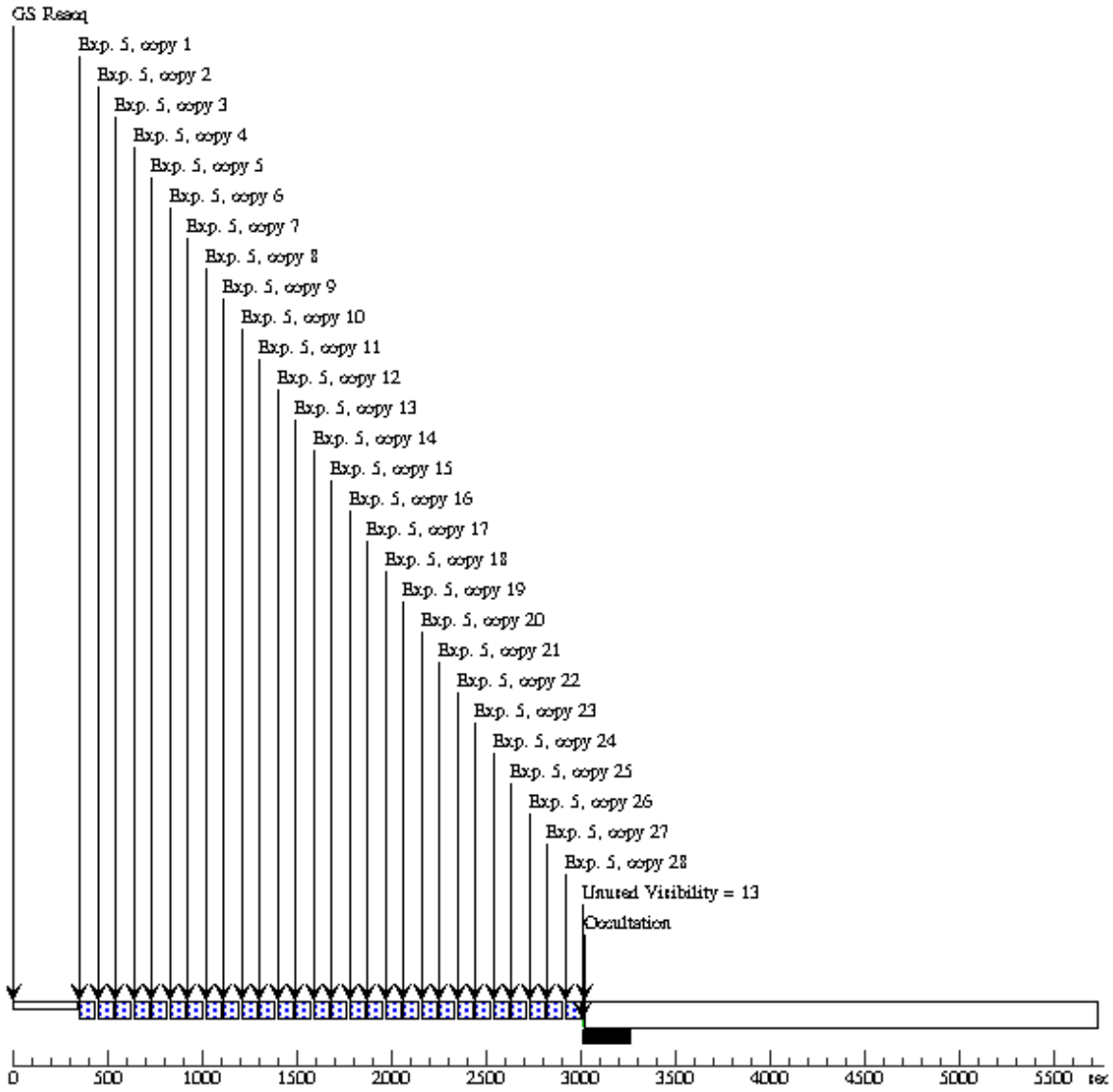


Orbit Structure (continued)



Visit

Proposal 10998, Visit 02, withdrawn Thu Jan 17 21:32:05 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: SCHED 100%; Period 3.941534 D AND ZERO-PHASE JD2453808.917

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		Equinox: J2000	Parallax: 0.005"		
			Epoch of Position: 2000		

Comments: The parallax is unknown - an approximate value for its distance is 200 pc.

Exposures

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1		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	F814W	GAIN=4; CR-SPLIT=NO	POS TARG -1.0,0.5; PHASE 0.9615 TO 0.9785	Sequence 1-2 Non-Int	1.0 Secs *[==>]*	*[1]*

Comments: For HST observations of any two transits separated by three orbital periods of XO-1 (~12 days), the earth-occultation gaps of the first visit are filled in by the second visit. More generally, for N transits separating the two visits, we require that N modulo 6 = 3, so N = 3, 9, 15, ... satisfy our needs.

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5/24 6/28 X
5/28 6/09
5/28 7/02 X
6/01 6/13 X
6/01 7/06 X
6/05 6/17 X
6/05 7/10 X
6/09 6/21 X
6/09 7/14

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Exposures (continued)

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2		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 1-2 Non-Int	60.0 Secs X 26	
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Exposures (continued)

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3		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 3-3 Non-Int	60.0 Secs X 28	
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Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
4		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5	Sequence 4-4 Non-Int	60.0 Secs X 28	
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Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
5		(1) GSC02041-01657	ACS/HRC, ACCUM, HRC-512	G800L	GAIN=4; CR-SPLIT=NO; AUTOIMAGE=NO	POS TARG -1.0,0.5		60.0 Secs X 28	
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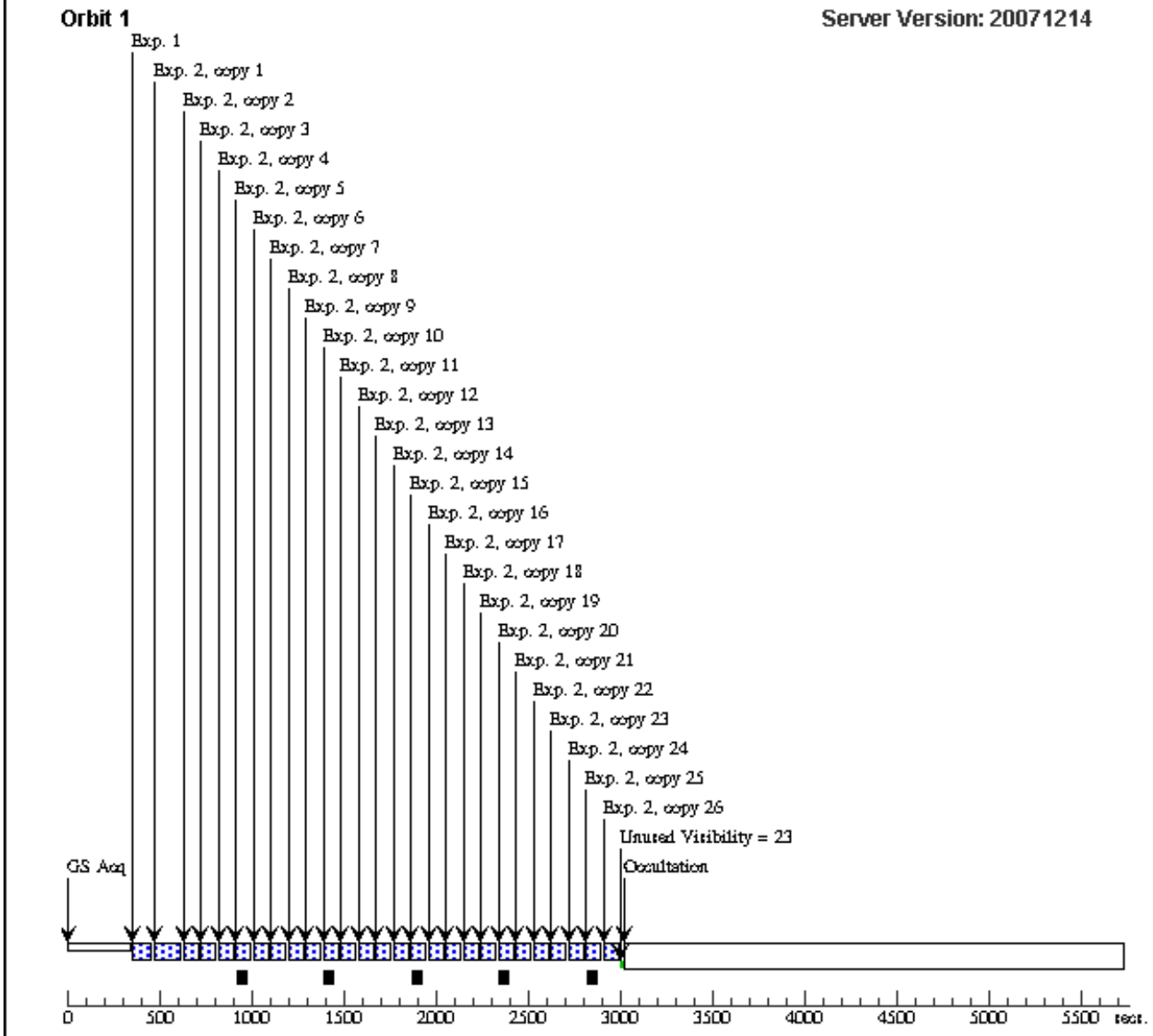
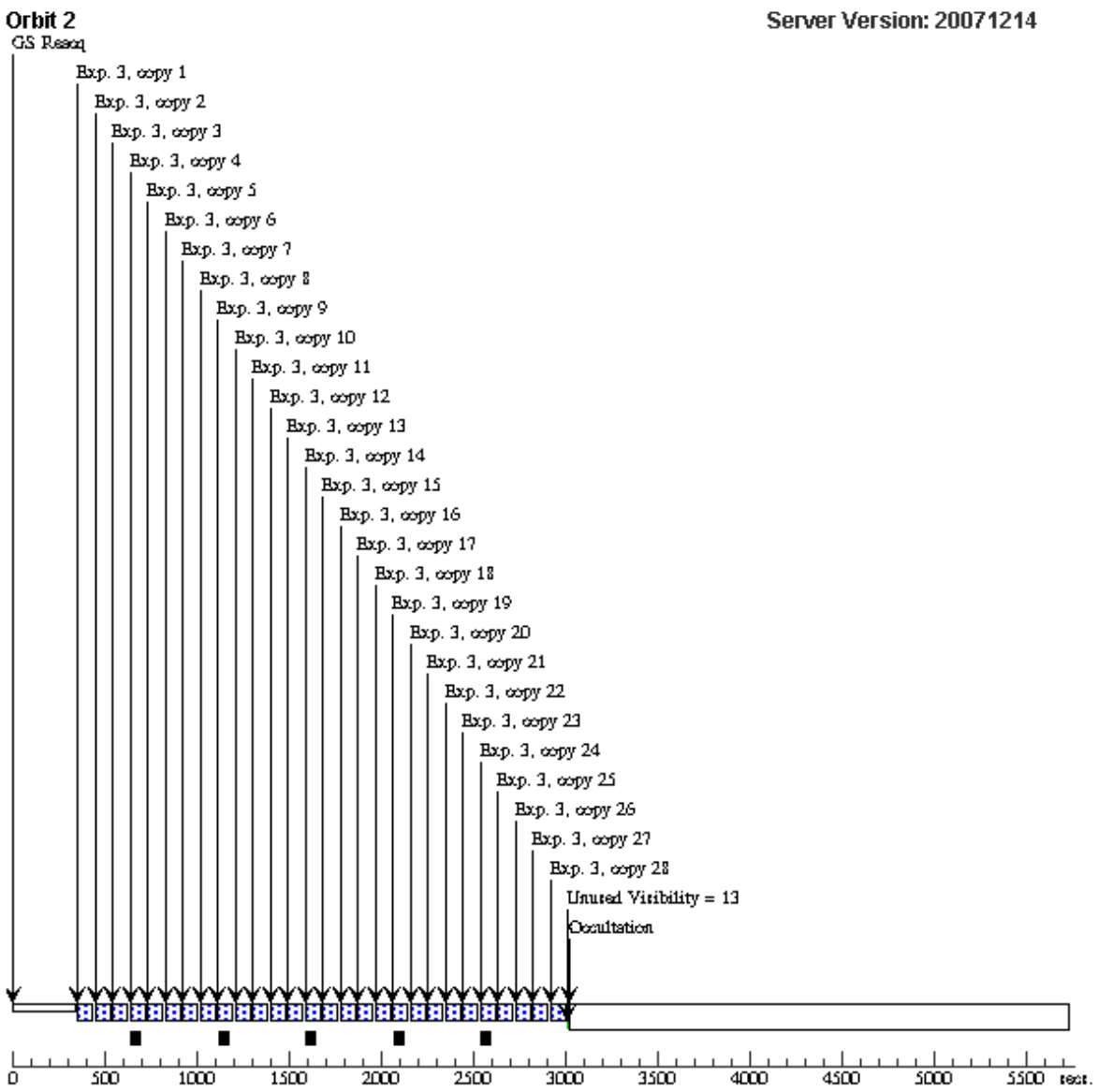
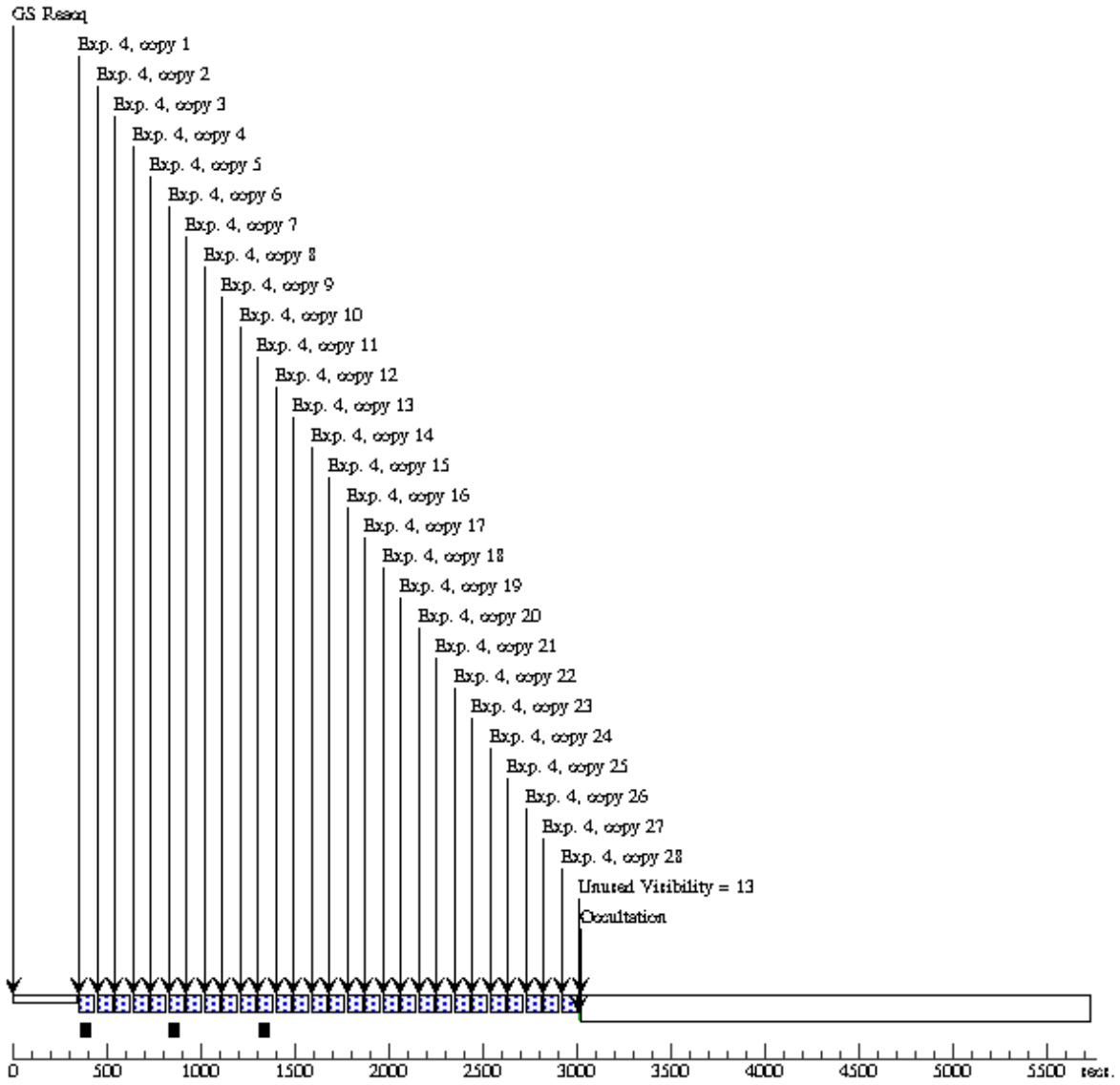
Orbit Structure



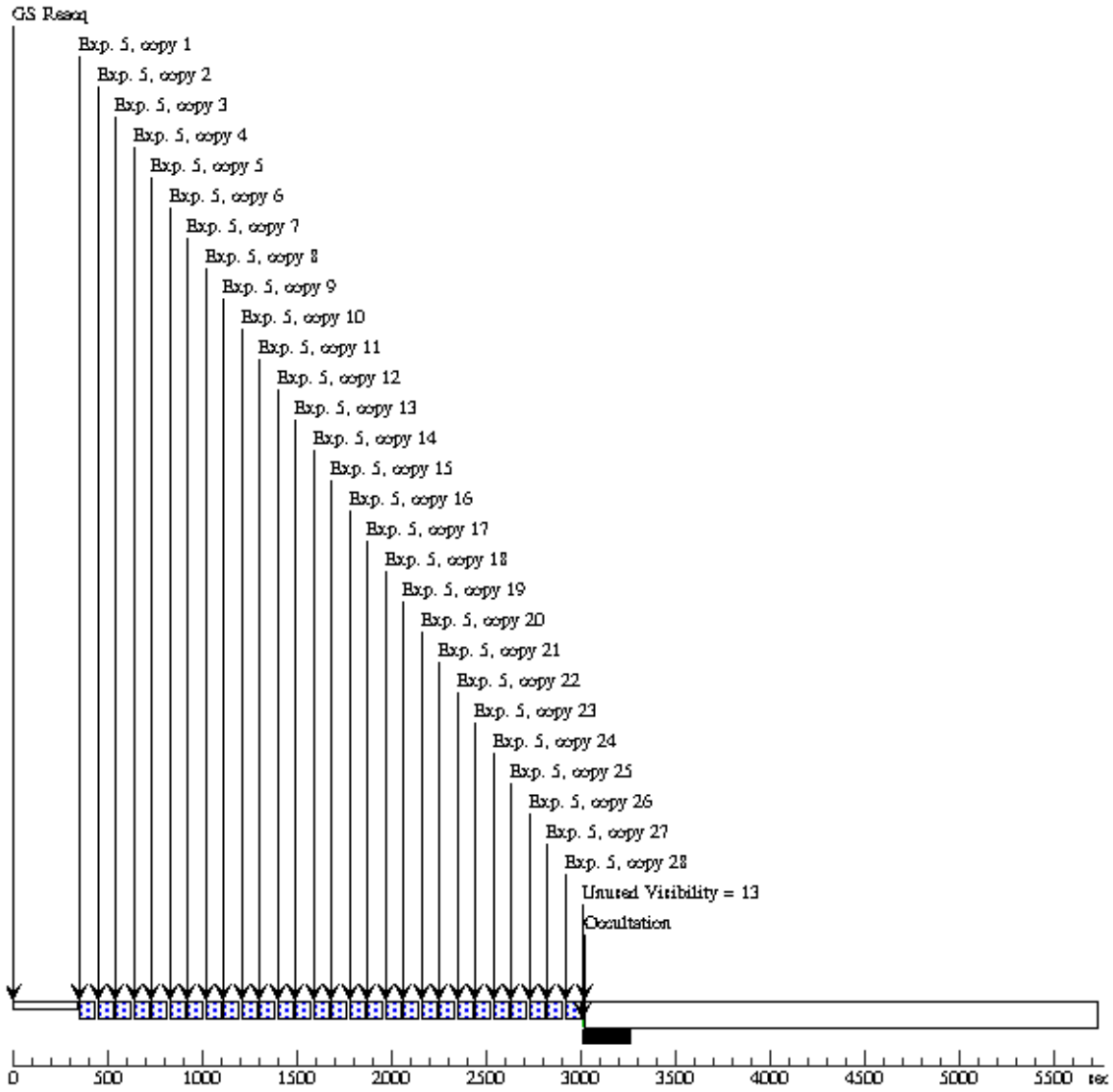
Orbit Structure (continued)



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10998, Visit 11, scheduling Thu Jan 17 21:32:07 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 295.0D TO 300.0 D; BETWEEN 01-JAN-2008:00:00:00 AND 25-JAN-2008:00:00:00

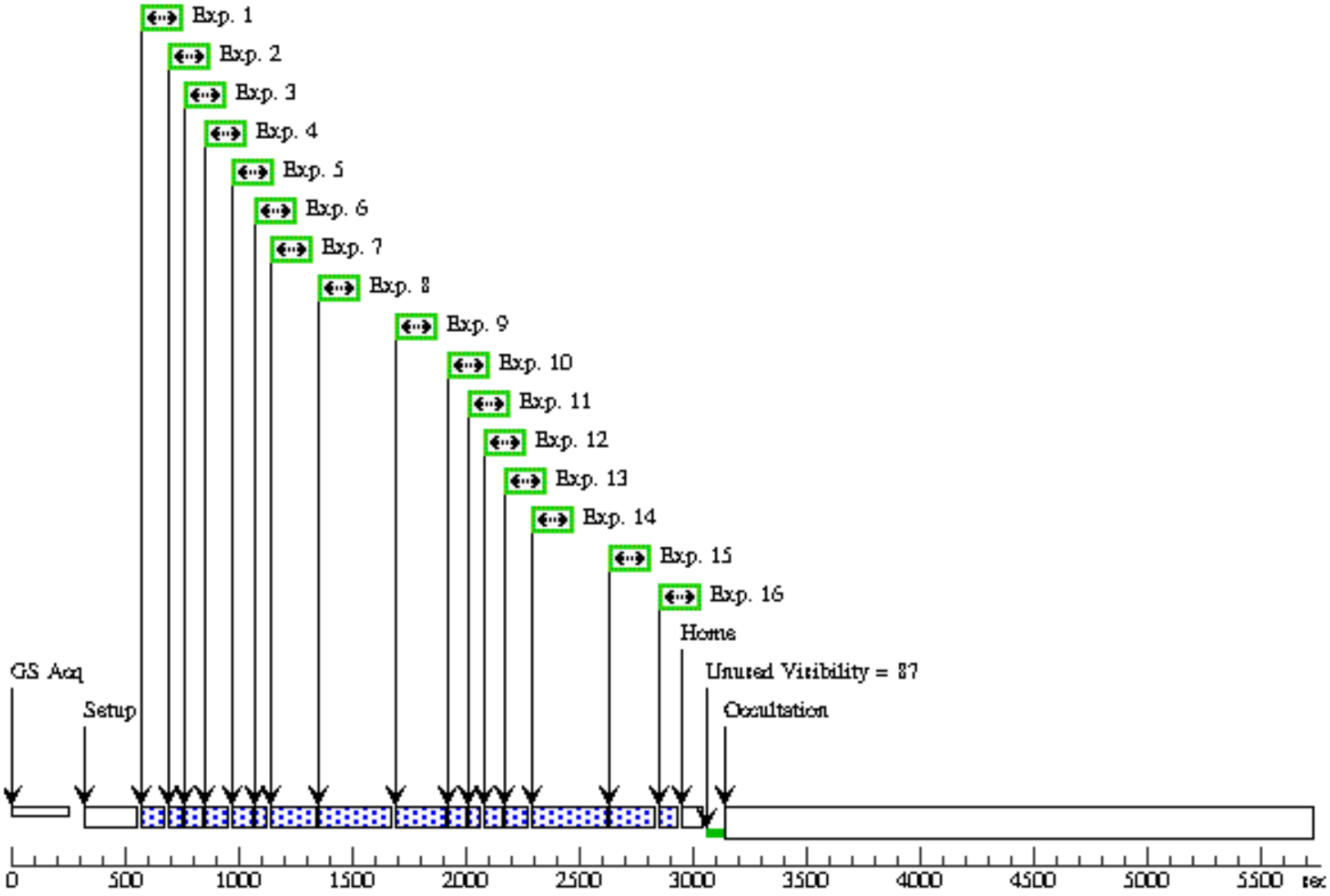
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 120.0,-90.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 12, scheduling Thu Jan 17 21:32:08 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 295.0D TO 300.0 D; BETWEEN 01-JAN-2008:00:00:00 AND 25-JAN-2008:00:00:00

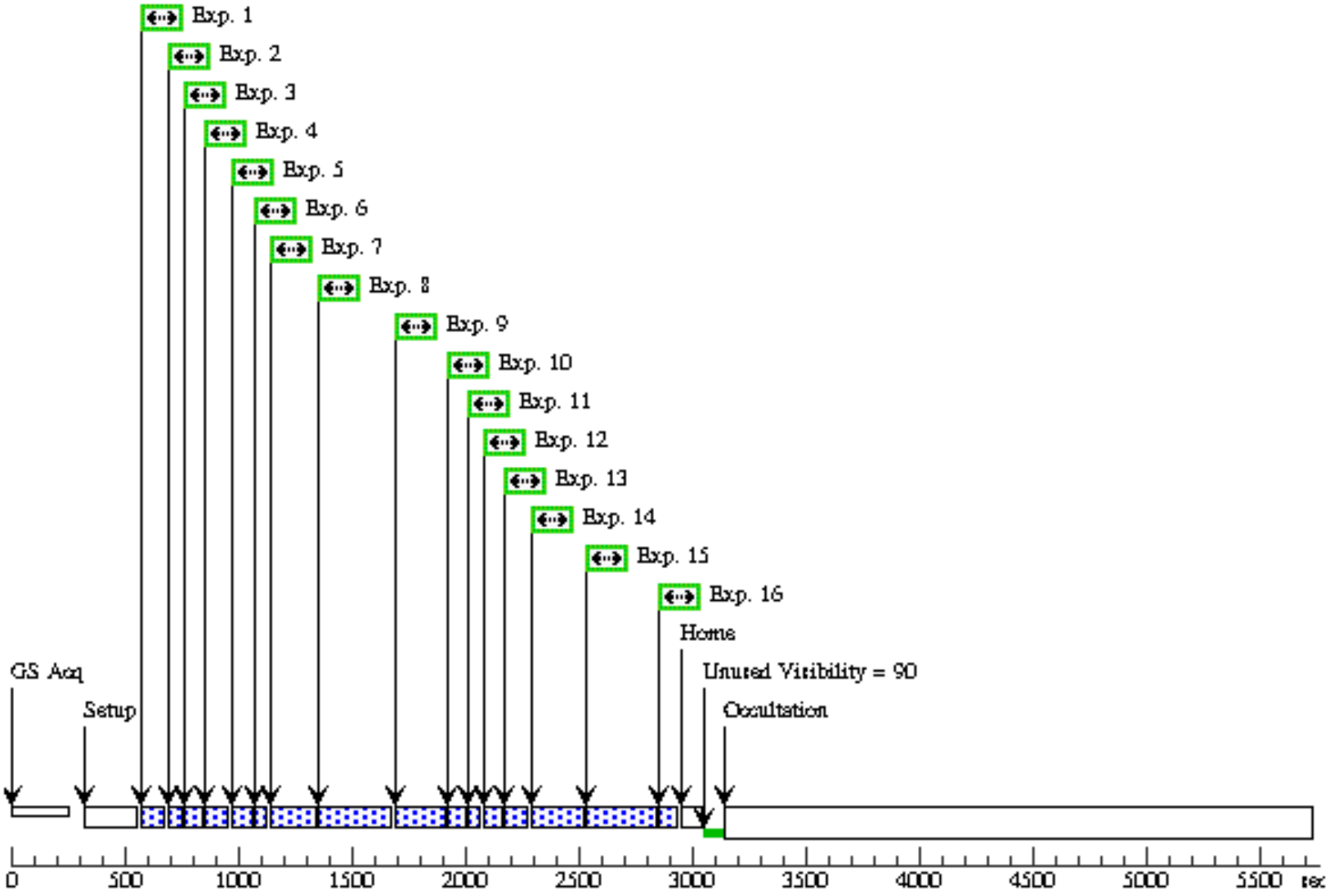
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 120.0,-90.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 21, completed Thu Jan 17 21:32:09 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 295.0D TO 300.0 D; BETWEEN 01-JAN-2007:00:00:00 AND 25-JAN-2007:00:00:00

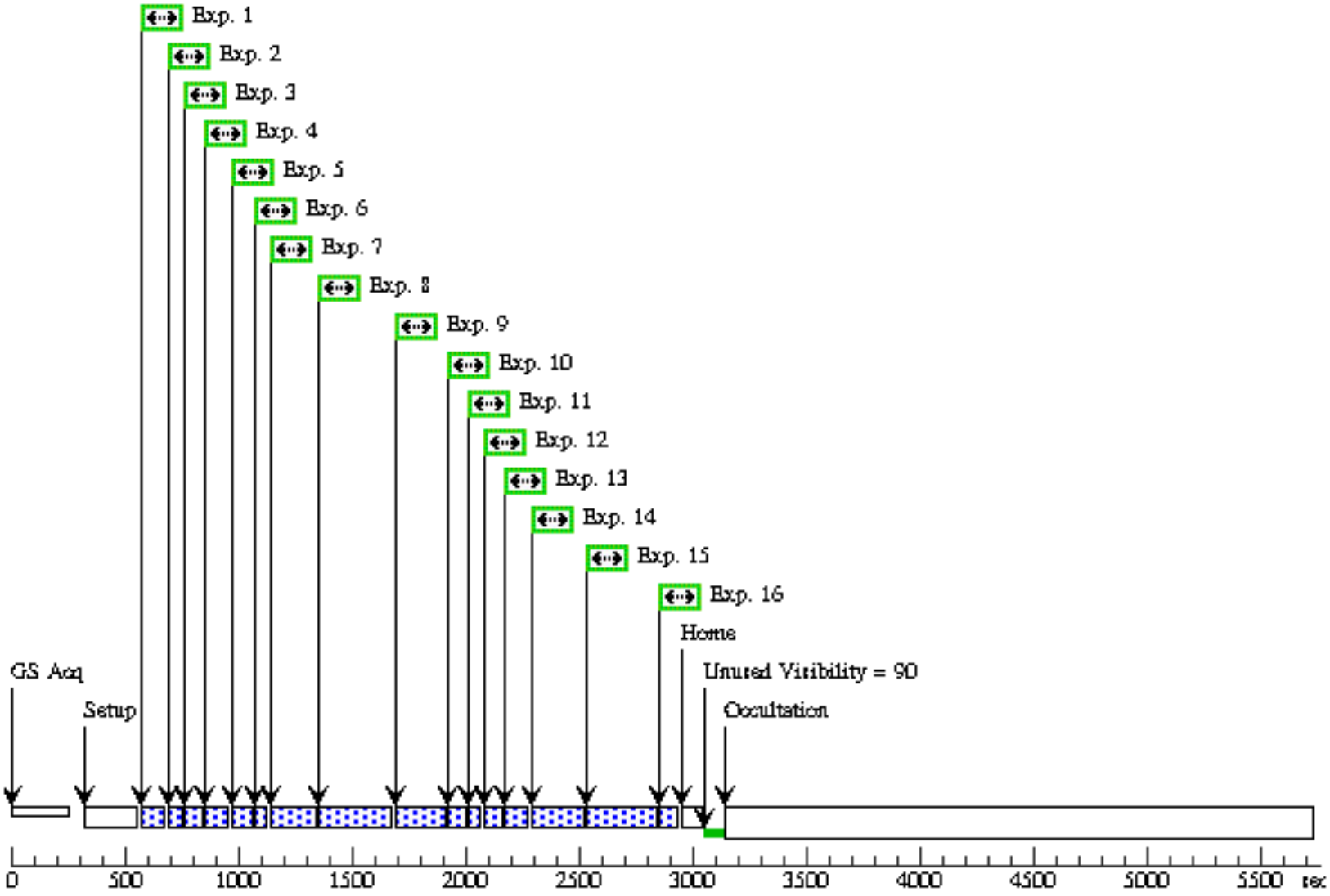
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 120.0,-90.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 22, completed Thu Jan 17 21:32:09 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 295.0D TO 300.0 D; BETWEEN 01-JAN-2007:00:00:00 AND 25-JAN-2007:00:00:00

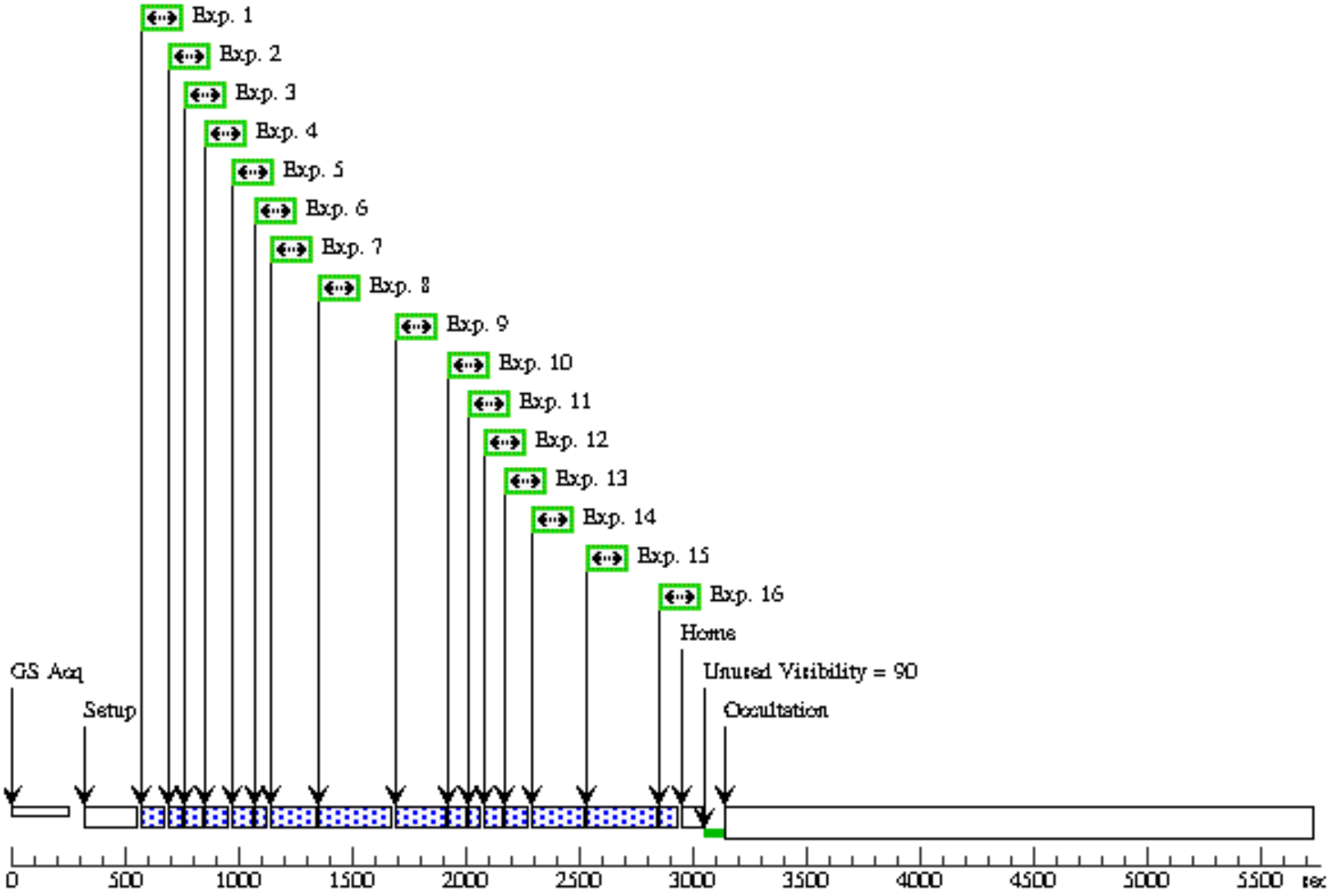
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 120.0,-90.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 31, completed Thu Jan 17 21:32:10 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 127.0D TO 145.0 D

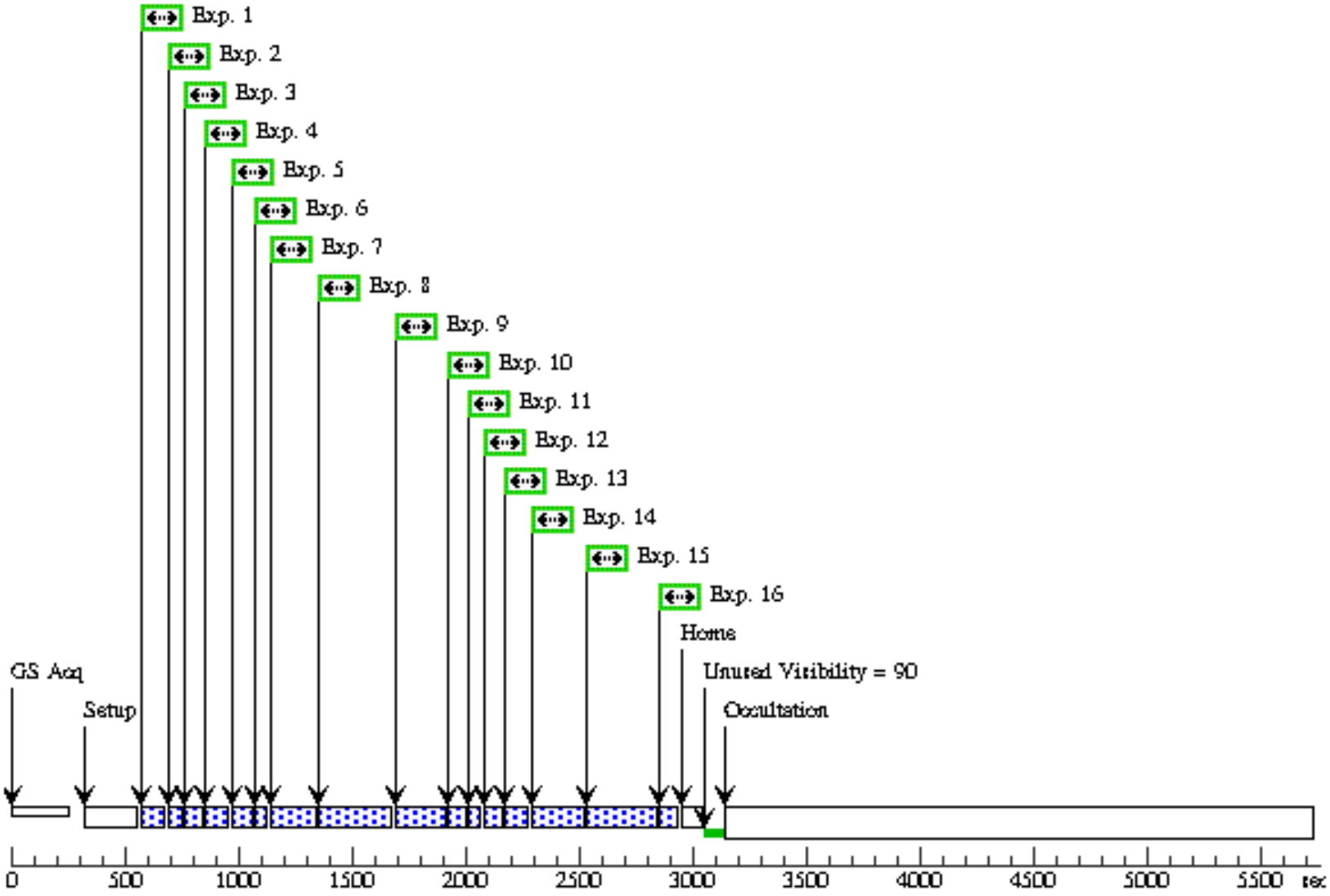
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 0.0,60.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 32, completed Thu Jan 17 21:32:10 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: FGS

Special Requirements: ORIENT 127.0D TO 145.0 D

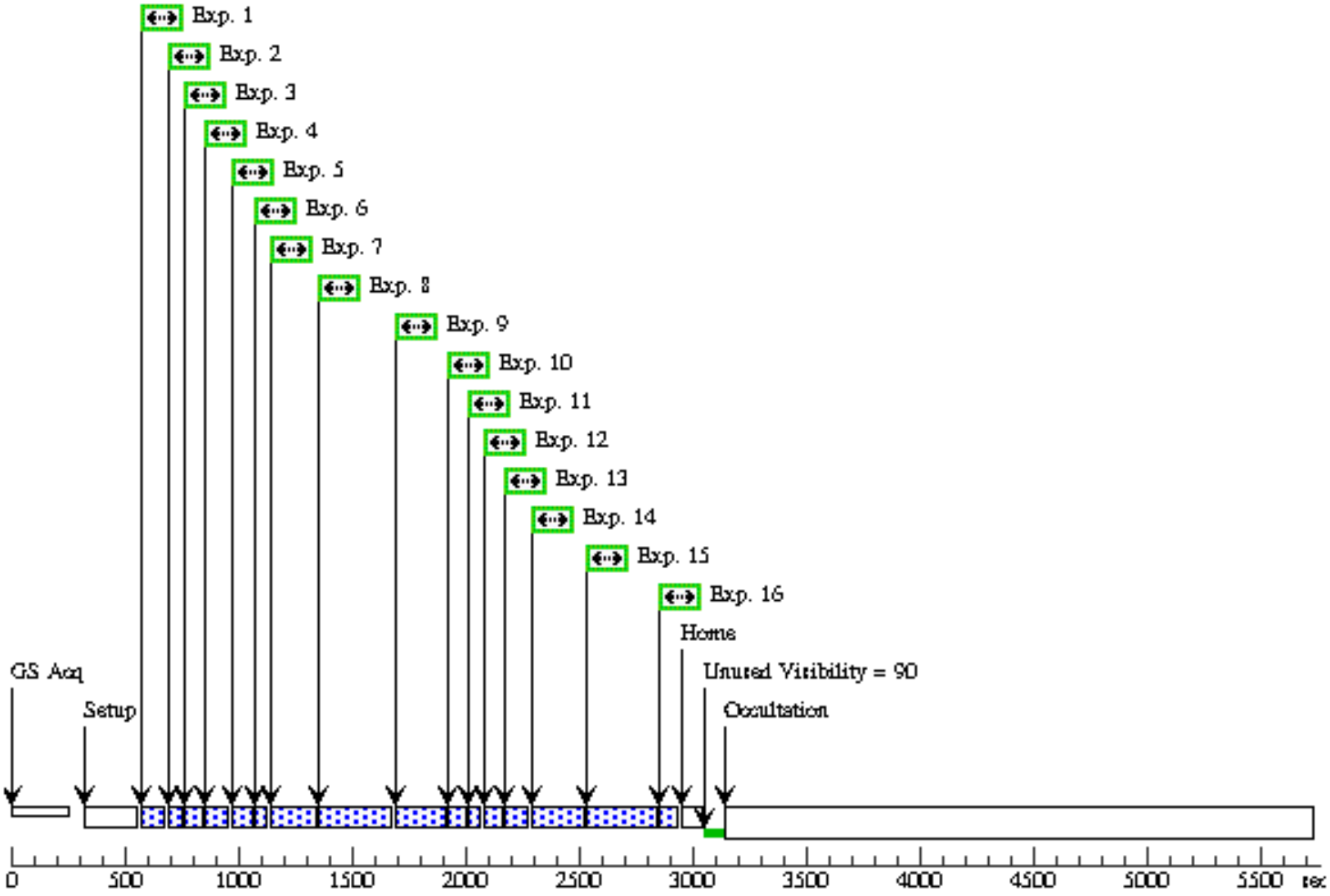
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657 Alt Name1: XO-1	RA: 16 02 11.8460 (240.5493583d) Dec: +28 10 10.46 (28.16957d) Equinox: J2000	Proper Motion RA: -0.0015s/yr Proper Motion Dec: 0.015"/yr Parallax: 0.005" Epoch of Position: 2000	V=11.19+/-0.03 B-V = 0.66	Reference Frame: ICRS
Comments: The parallax is unknown - an approximate value for its distance is 200 pc.					
(2)	X0-REF1 Alt Name1: N64U000307	RA: 16 02 13.1200 (240.5546667d) Dec: +28 09 0.43 (28.15012d) Equinox: J2000		V=12.61+/-0.3 Fpg=12.0, Jpg=13.6, Npg=11.75	Reference Frame: ICRS
(3)	X0-REF2 Alt Name1: N64U000306	RA: 16 02 1.3400 (240.5055833d) Dec: +28 09 26.93 (28.15748d) Equinox: J2000		V=14.44+/-0.26 Fpg=14.0, Jpg=16.0, Npg = 13.5	Reference Frame: ICRS
(4)	XO-REF3 Alt Name1: N64000520	RA: 16 01 45.1900 (240.4382917d) Dec: +28 13 9.90 (28.21942d) Equinox: J2000		V=13.87+/-0.26 Fpg=13.6, Jpg=14.7, Npg=13.3	Reference Frame: ICRS
(7)	X0-REF4 Alt Name1: N64U022297	RA: 16 02 14.9300 (240.5622083d) Dec: +28 08 12.64 (28.13684d) Equinox: J2000		V=15.8+/-0.2 Fpg=15.7, Jpg=16.5, Npg=15.7	Reference Frame: ICRS
Comments: seleted from DSS plate					
(8)	X0-REF5 Alt Name1: N64U022291	RA: 16 02 12.4860 (240.5520250d) Dec: +28 08 11.80 (28.13661d) Equinox: J2000		V=16.3+/-0.3 Fpg=15.7, Jpg=17.46. Npg=15.32	Reference Frame: ICRS
Comments: selected from DSS plate					
(9)	X0-REF6 Alt Name1: N64U022116	RA: 16 02 13.4740 (240.5561417d) Dec: +28 07 15.80 (28.12106d) Equinox: J2000		V=16.16+/-0.2 Fpg=16.03, Jpg=16.74, Npg=16.0	Reference Frame: ICRS
Comments: selected from DSS plate					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	FGS, POS, 1	F583W		POS TARG 0.0,60.0; GS ACQ SCENARIO SINGLE	Sequence 1-16 Non-Int	20.0 Secs *[==>]*	 ***[1]***
2		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
3		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
4		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
5		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
6		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
7		(7) X0-REF4	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
8		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
9		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	40.0 Secs *[==>]*	 ***[1]***
10		(2) X0-REF1	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
11		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
12		(3) X0-REF2	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
13		(4) XO-REF3	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	14.0 Secs *[==>]*	 ***[1]***
14		(9) X0-REF6	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
15		(8) X0-REF5	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	25.0 Secs *[==>]*	 ***[1]***
16		(1) GSC02041-01657	FGS, POS, 1	F583W		SAME POS AS 1	Sequence 1-16 Non-Int	15.0 Secs *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 10998, Visit 33, scheduling Thu Jan 17 21:32:11 GMT 2008

Diagnostic Status: Warning

Scientific Instruments: NIC3

Special Requirements: BETWEEN 08-FEB-2008:00:00:00 AND 11-FEB-2008:00:00:00; Period 3.941534 D AND ZERO-PHASE JD2453808.917

Comments: This visit replaces original V01 -- withdrawn ACS/HRC.
Uses one extra orbit for total of five per award in the
ACS to other instruments switchover award.

Diagnostics

(Visit 33) Warning (OP): VISIBILITY OVERRUN

(Visit 33) Warning (OP): VISIBILITY OVERRUN

(Visit 33) Warning (OP): VISIBILITY OVERRUN

(Visit 33) Warning (OP): VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657	RA: 16 02 11.8460 (240.5493583d)	Proper Motion RA: -0.0015s/yr	V=11.19+/-0.03	Reference Frame: ICRS
	Alt Name1: XO-1	Dec: +28 10 10.46 (28.16957d)	Proper Motion Dec: 0.015"/yr	B-V = 0.66	
		Equinox: J2000	Parallax: 0.005"		
			Epoch of Position: 2000		

Comments: The parallax is unknown - an approximate value for its distance is 200 pc.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	F166N	SAMP-SEQ=STEP8; NSAMP=7; CAMERA-FOCUS=DEFOCUS	POS TARG -8.0,-5.4; PHASE 0.954 TO 0.964		*[==>]*	***[1]***

Comments: Direct image through narrow-band filter used to establish wavelengths of grism exposures.
NSAMP=7 without defocus should just hit saturation, with defocus should be factor of a few below and okay.
The POS TARGs used throughout are intended to place the first order spectrum over x = 86-197, y=63, i.e. on a very clean position in terms of flat field deviations and bad pixels.
This is similar to position used previously for HD 209458 observations with a minor tweak. Expected exposure levels are about half of full well depth in center of spectra.

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
2		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8; NSAMP=10; CAMERA-FOCUS=DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***

Exposures (continued)

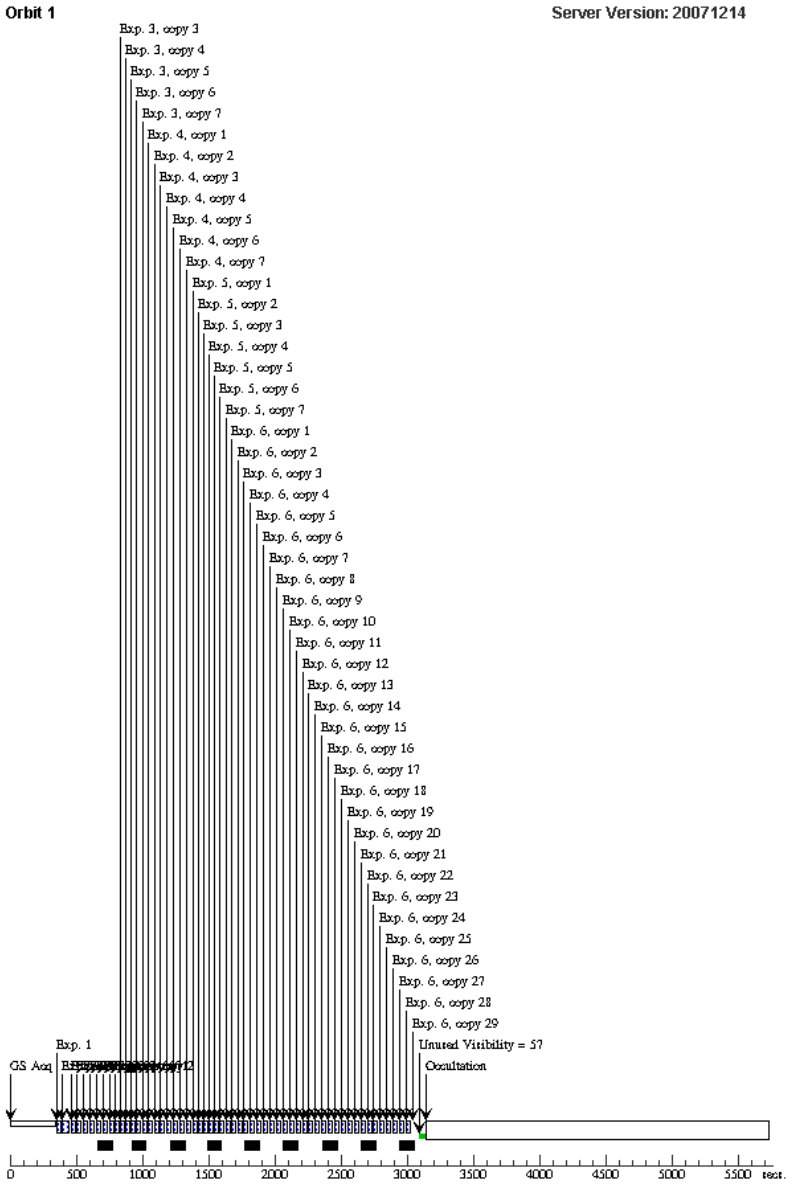
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
3		(1) GSC02041-0165 7	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8 ; NSAMP=9; CAMERA-FOCUS =DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***
Comments: During first orbit we take two alternating sequences with standard 40s exposures, and 32s exposures. Comparing these will allow verification that count level nonlinearity has been properly dealt with.									
4		(1) GSC02041-0165 7	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8 ; NSAMP=10; CAMERA-FOCUS =DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***
5		(1) GSC02041-0165 7	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8 ; NSAMP=9; CAMERA-FOCUS =DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***

Exposures (continued)

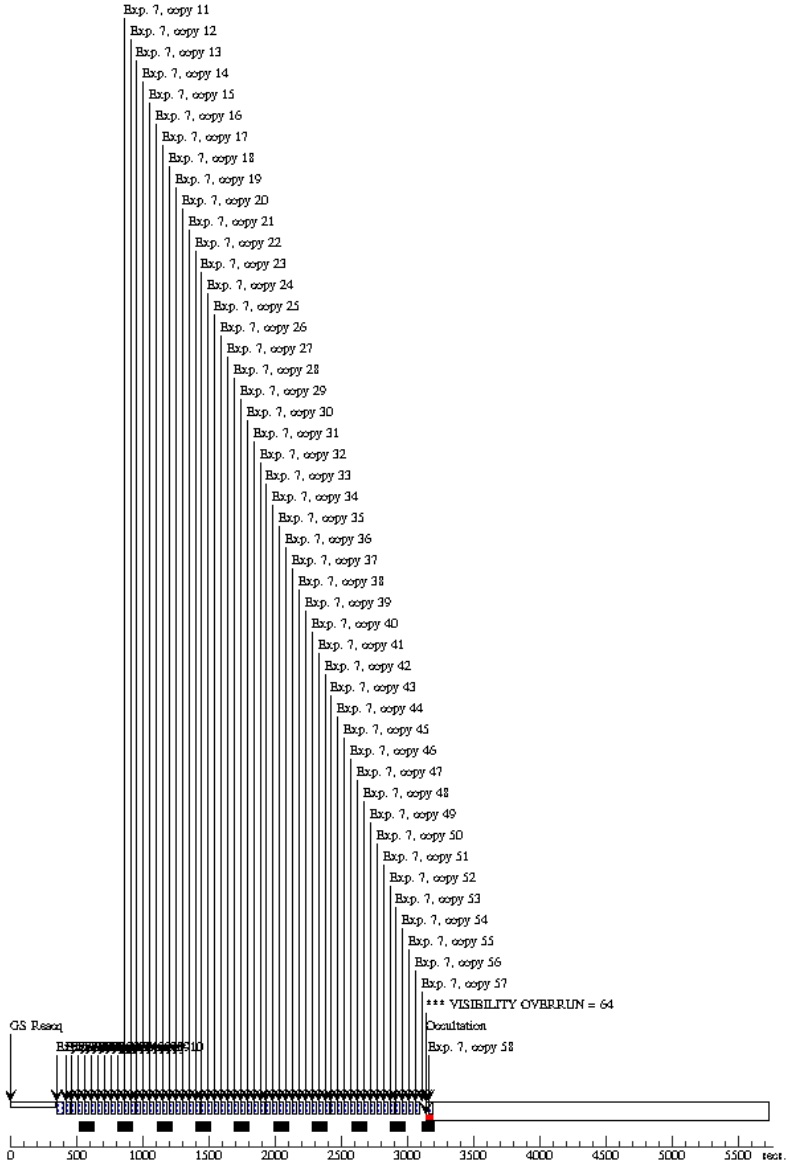
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
6		(1) GSC02041-0165 7	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8 ; NSAMP=10; CAMERA-FOCUS =DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]* *[==>(Copy 21)]* *[==>(Copy 22)]* *[==>(Copy 23)]* *[==>(Copy 24)]* *[==>(Copy 25)]* *[==>(Copy 26)]* *[==>(Copy 27)]* *[==>(Copy 28)]* *[==>(Copy 29)]*	***[1]***

Comments: From here until end of program are identical time series observations of 40 second exposures.

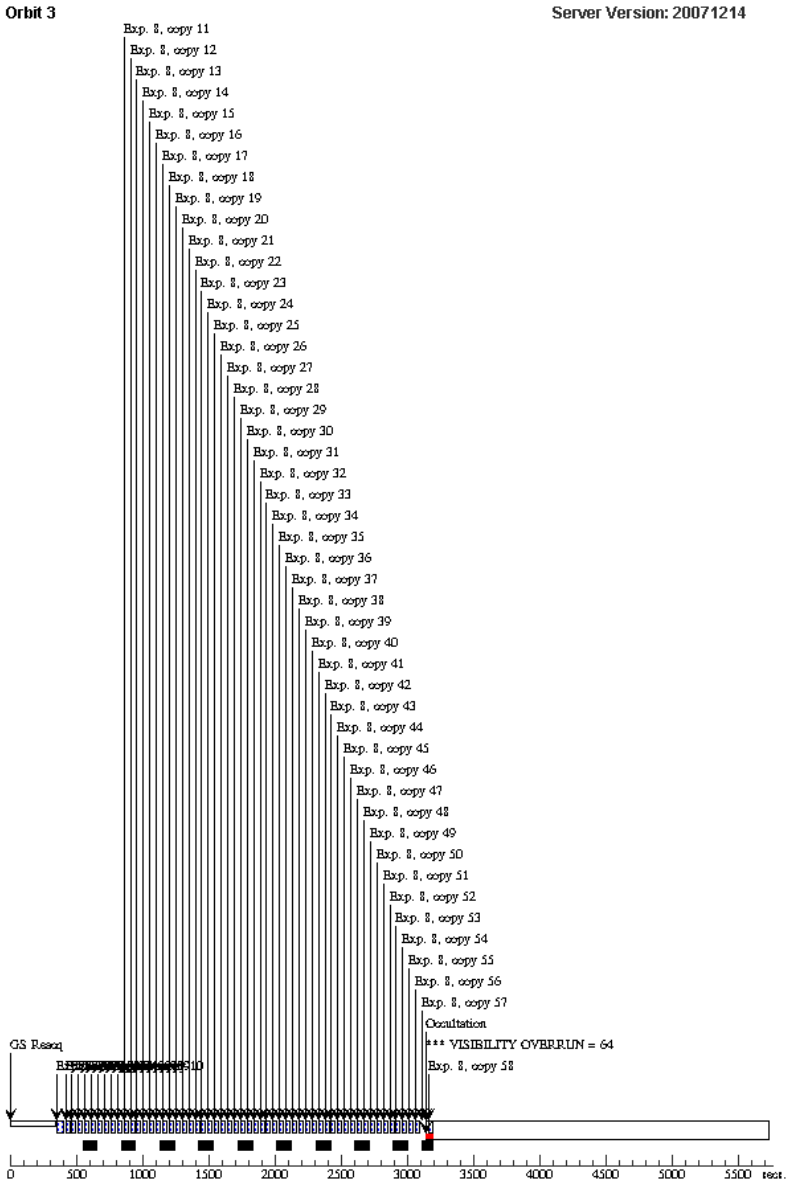
Orbit Structure



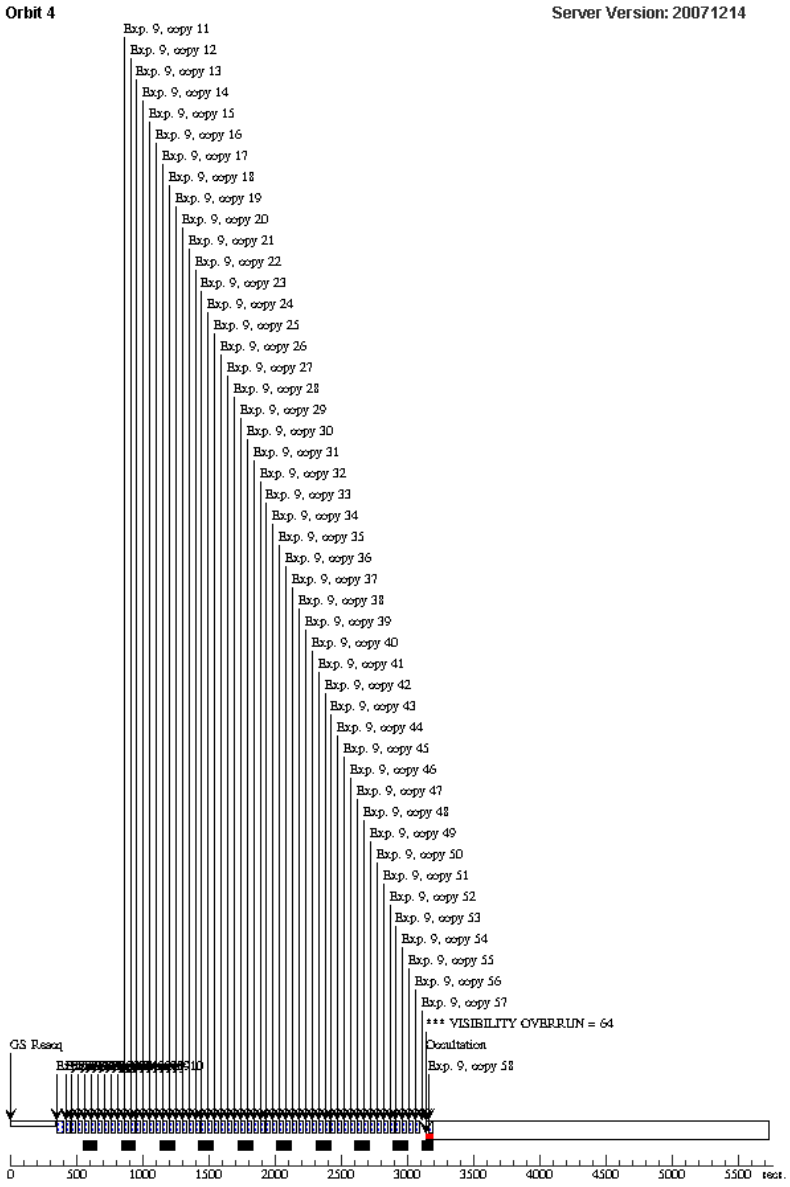
Orbit Structure (continued)



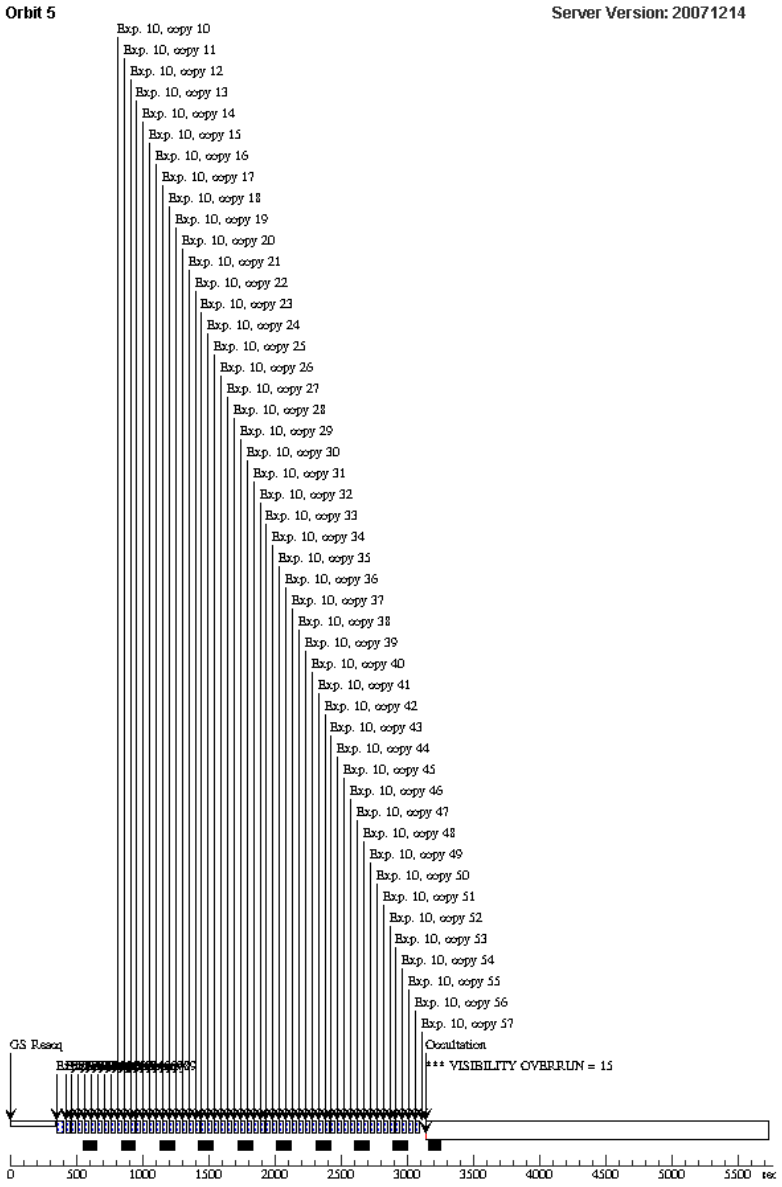
Orbit Structure (continued)



Orbit Structure (continued)



Orbit Structure (continued)



Visit

Proposal 10998, Visit 34, scheduling Thu Jan 17 21:32:14 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: NIC3

Special Requirements: BETWEEN 20-FEB-2008:00:00:00 AND 23-FEB-2008:00:00:00; Period 3.941534 D AND ZERO-PHASE JD2453808.917

Comments: This visit replaces original V02 -- withdrawn ACS/HRC.
Uses one extra orbit for total of five per award in the
ACS to other instruments switchover award.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GSC02041-01657	RA: 16 02 11.8460 (240.5493583d)	Proper Motion RA: -0.0015s/yr	V=11.19+/-0.03	Reference Frame: ICRS
	Alt Name1: XO-1	Dec: +28 10 10.46 (28.16957d)	Proper Motion Dec: 0.015"/yr	B-V = 0.66	
		Equinox: J2000	Parallax: 0.005"		
			Epoch of Position: 2000		

Comments: The parallax is unknown - an approximate value for its distance is 200 pc.

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	F166N	SAMP-SEQ=STEP8; NSAMP=7; CAMERA-FOCUS=DEFOCUS	POS TARG -8.0,-5.4; PHASE 0.9446 TO 0.9546		*[==>]*	***[1]***

Comments: Direct image through narrow-band filter used to establish wavelengths of grism exposures.
NSAMP=7 without defocus should just hit saturation, with defocus should be factor of a few below and okay.

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
2		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8; NSAMP=10; CAMERA-FOCUS=DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***
3		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8; NSAMP=9; CAMERA-FOCUS=DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***

Comments: During first orbit we take two alternating sequences with standard 40s exposures, and 32s exposures.
Comparing these will allow verification that count level nonlinearity has been properly dealt with.

Exposures (continued)

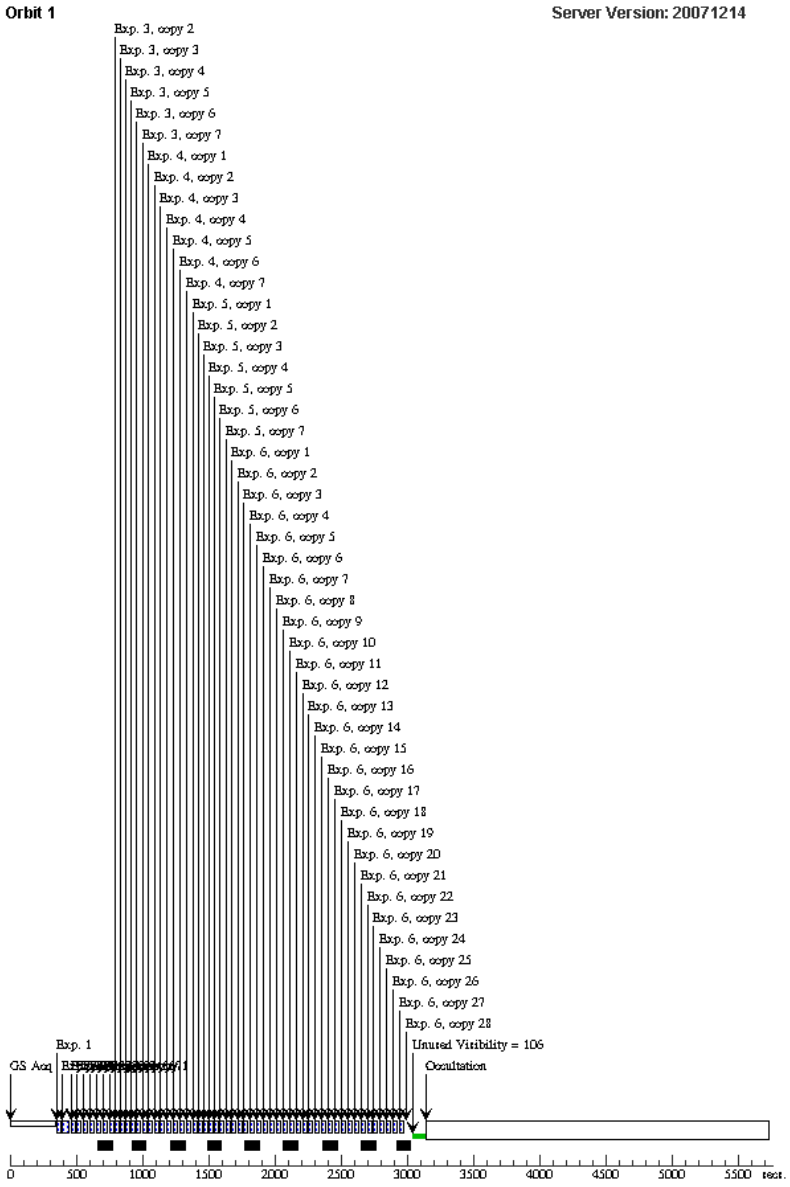
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
4		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8; NSAMP=10; CAMERA-FOCUS=DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***
5		(1) GSC02041-01657	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8; NSAMP=9; CAMERA-FOCUS=DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]*	***[1]***

Exposures (continued)

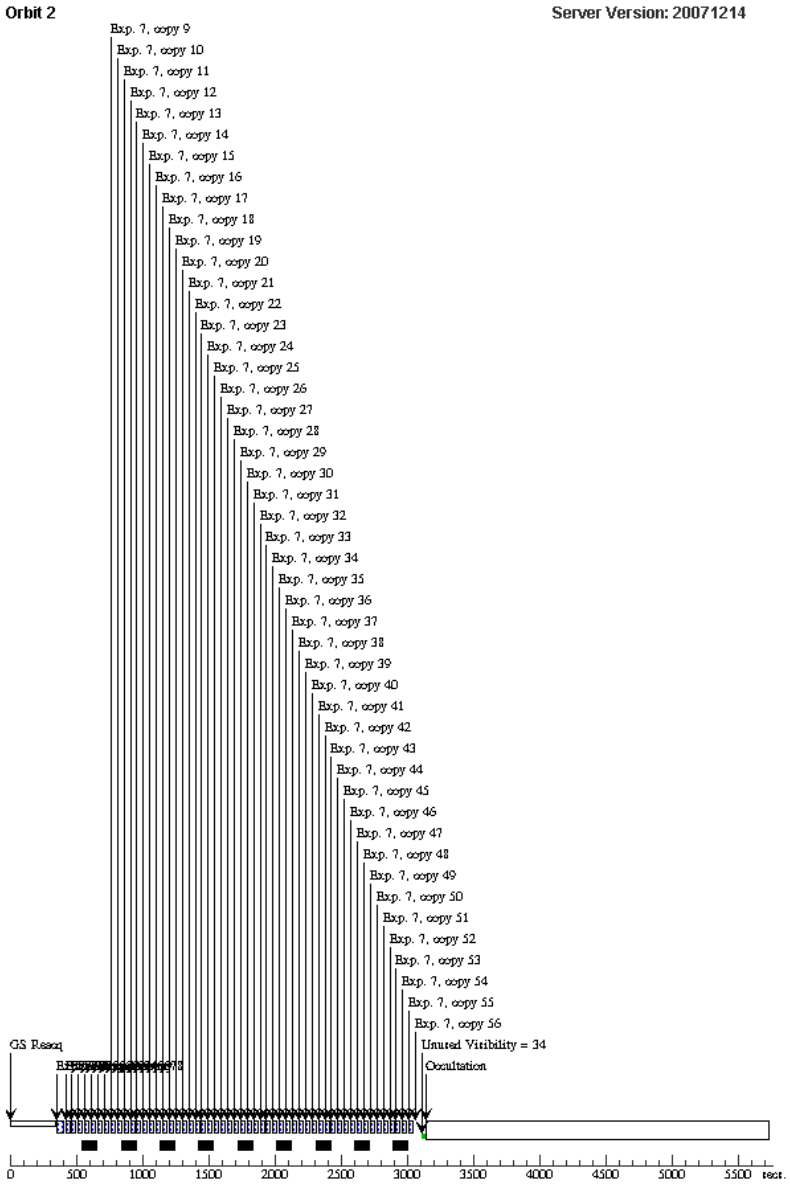
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
6		(1) GSC02041-0165 7	NIC3, MULTIACCUM, NIC3-FIXD	G141	SAMP-SEQ=STEP8 ; NSAMP=10; CAMERA-FOCUS =DEFOCUS	SAME POS AS 1		*[==>(Copy 1)]* *[==>(Copy 2)]* *[==>(Copy 3)]* *[==>(Copy 4)]* *[==>(Copy 5)]* *[==>(Copy 6)]* *[==>(Copy 7)]* *[==>(Copy 8)]* *[==>(Copy 9)]* *[==>(Copy 10)]* *[==>(Copy 11)]* *[==>(Copy 12)]* *[==>(Copy 13)]* *[==>(Copy 14)]* *[==>(Copy 15)]* *[==>(Copy 16)]* *[==>(Copy 17)]* *[==>(Copy 18)]* *[==>(Copy 19)]* *[==>(Copy 20)]* *[==>(Copy 21)]* *[==>(Copy 22)]* *[==>(Copy 23)]* *[==>(Copy 24)]* *[==>(Copy 25)]* *[==>(Copy 26)]* *[==>(Copy 27)]* *[==>(Copy 28)]*	***[1]***

Comments: From here until end of program are identical time series observations of 40 second exposures.

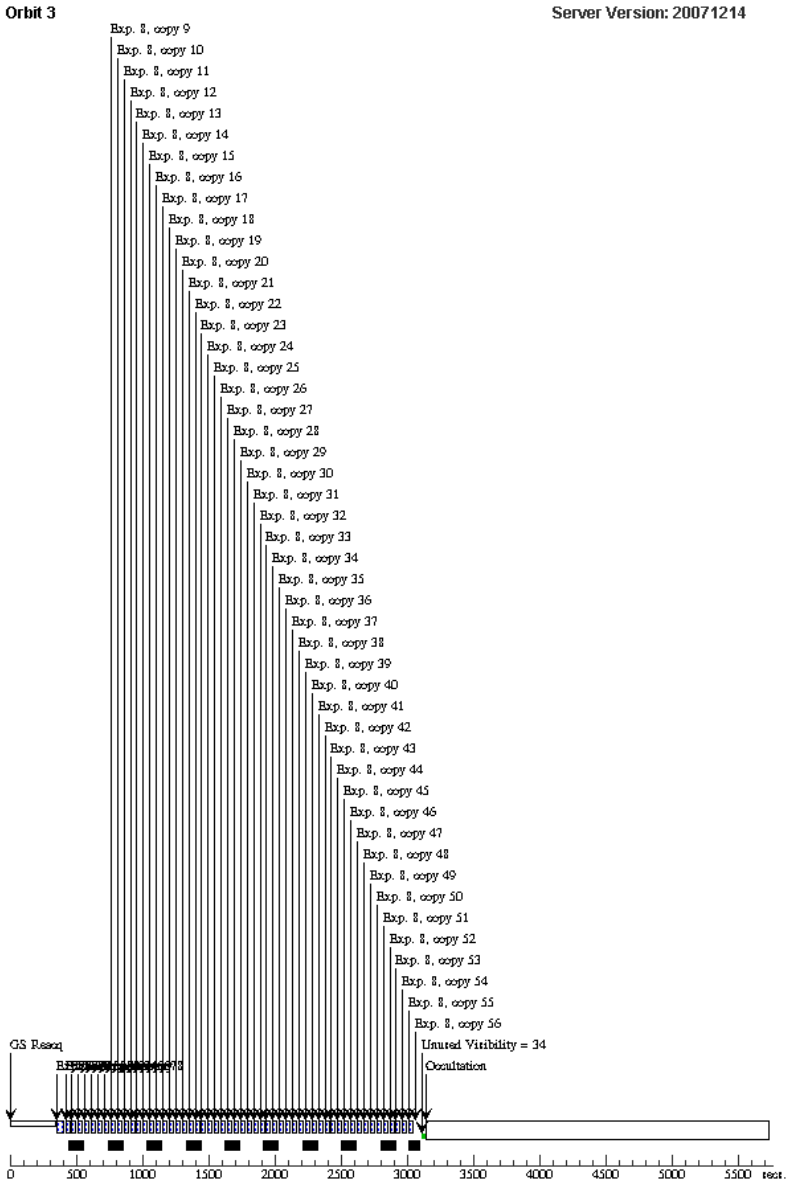
Orbit Structure



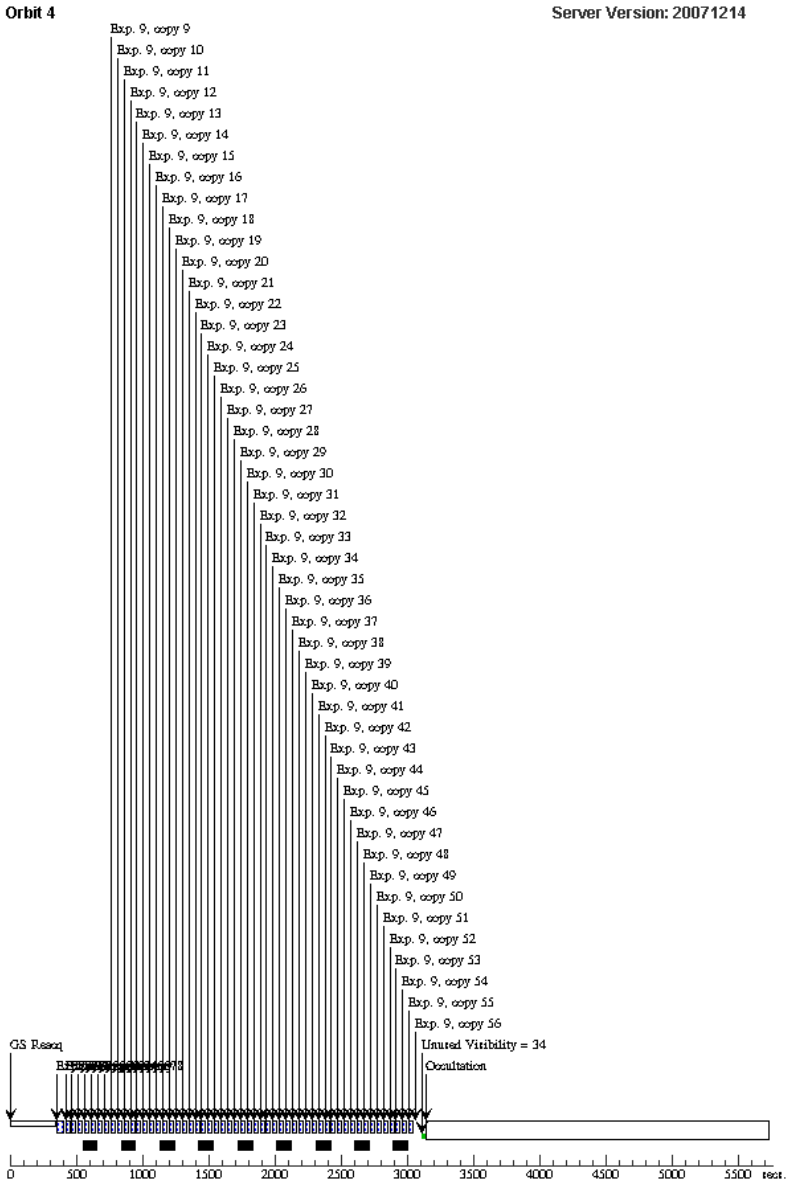
Orbit Structure (continued)



Orbit Structure (continued)



Orbit Structure (continued)



Orbit Structure (continued)