10563 - Accurate dark-matter mass profiles in 3 elliptical galaxies as a test of CDM

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Simon Dye (PI) (ESA Member)	**University of Wales, College of Cardiff (UWCC)**	**s.dye@astro.cf.ac.uk**
Dr. Stephen J. Warren (CoI) (ESA Member)	Imperial College of Science Technology and Medicine	sjw4@ph.ic.ac.uk
Dr. Jon Willis (CoI) (ESA Member)	University of Victoria	jwillis@uvic.ca
Dr. Paul C. Hewett (CoI) (ESA Member)	University of Cambridge	phewett@ast.cam.ac.uk

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) GAL-0047-2808	ACS/HRC	3	12-Mar-2007 21:01:05.0	yes
02	(1) GAL-0047-2808	ACS/HRC	3	12-Mar-2007 21:01:16.0	yes
03	(1) GAL-0047-2808	ACS/HRC	2	12-Mar-2007 21:01:22.0	yes
04	(1) GAL-0047-2808	ACS/HRC	2	12-Mar-2007 21:01:27.0	yes
05	(2) GAL-1459-0055	ACS/HRC	2	12-Mar-2007 21:01:33.0	yes
06	(2) GAL-1459-0055	ACS/HRC	2	12-Mar-2007 21:01:38.0	yes
07	(3) GAL-2309-0039	ACS/HRC	2	12-Mar-2007 21:01:42.0	yes
08	(3) GAL-2309-0039	ACS/HRC	2	12-Mar-2007 21:01:47.0	yes
55	(2) GAL-1459-0055	WFPC2	2	12-Mar-2007 21:01:56.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
56	(2) GAL-1459-0055	WFPC2	2	12-Mar-2007 21:01:59.0	yes
57	(2) GAL-1459-0055	WFPC2	2	12-Mar-2007 21:02:03.0	yes

24 Total Orbits Used

ABSTRACT

A critical test of the successful Lambda-CDM picture for structure formation is the measurement of the power law exponent, gamma, of the centre of dark matter density profiles, predicted to lie in the range 1.0-1.5. Measurements of gamma derived from rotation curves of LSB galaxies appear to contradict CDM, but rely on assumptions that are difficult to verify (e.g. axisymmetry). We have recently demonstrated, using our new `semi-linear' inversion method, how strong gravitational lensing by galaxies can provide a clean and accurate measurement of gamma, free of such ambiguities. HST images of lensed non-AGN galaxies provide hundreds of resolution elements, each a constraint on the mass profile. Such lenses are exceedingly rare, but we have recently discovered new systems. We propose deep ACS-HRC observations of 3 systems to measure gamma in each, accurate to 0.15 (95% confidence) and to obtain an indication of its variation between galaxies. To establish the required number of orbits we have undertaken an end-to-end simulation of the problem, creating and analysing synthetic ACS images. Additionally the semi-linear method simultaneously reconstructs the pixelised source surface brightness distribution. Our simulations demonstrate that the fine sampling and small pixel scattering of the HRC, resolves the morphology of the sources with exquisite detail.

OBSERVING DESCRIPTION

We will use ACS to observe the 3 Einstein ring targets in the F606W filter, for a total of 10 orbits on 0047-2808, 4 orbits on 1459-0055, and 4 orbits on 2309-0039.

The feasibility of the experiment depends on; 1) the S/N of flux in the ring image, 2) PSF and CCD smearing of the image (ie. choice of camera), 3) the efficiency of our inversion algorithm to make optimal use of the information in the image. To properly address these effects, we have undertaken an extensive set of simulations to model the entire end-to-end problem for different integration times using both the HRC and WFC.

The simulations are calibrated by the flux measured in our F555W WFPC2 images of 0047-2808 and verified by the Exposure Time Calculator. We allow for the noise characteristics, improved throughput, image pixel scale and image smearing (CCD+PSF) as given in the ACS handbook. The preferred filter for our deepest image is the F606W which includes the wavelength range covered by F555W, but is twice as broad. In the case of 0047-2808, because of the strong Lyman-alpha redshifted emission (lambda = 5588 Angstrom), we estimate that the ring flux in the broader filter is 1.7 times as great, while the flux from the lens galaxy and from the sky is twice as great.

In order to discriminate between the currently popular competing theoretical dark matter profile models, our simulations show that we need the superior resoltuion of the HRC and the orbit allocations per target given above. With fewer orbits, this error grows relatively quickly whereas increasing the number of orbits does not reduce the uncertainty enough to justify the extra time. In contrast, for 0047-2808, 10 orbits with the WFC will give an error of 0.23 at 95% confidence. Although this is only ~50% larger than with the HRC, the higher resolution of the HRC will reveal far more detail in the reconstructed source.

The Vega R-band brightnesses of the lensed sources of our targets are 0047-2808: 22.3mag, 1459-0055: 21.1mag, and 2309-0039: 21.0mag. On this basis we estimate that 4 orbits for the two brighter sources will provide similar constraints on the dark matter lens profile slope as the computed 10 orbits for 0047-2808. In reality the limits achieved will depend on the detailed structure revealed.

Our inversion algorithm works optimally when pixels in the stacked image are independent of each other. For this reason, we require the same orientation per target. We have no restrictions on the absolute orientation of each target.

We have split our orbits up into visits of 2 and 3 orbits to facilitate scheduling.

Visit

Proposal 10563, Visit 01, completed Tue Mar 13 01:02:05 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE

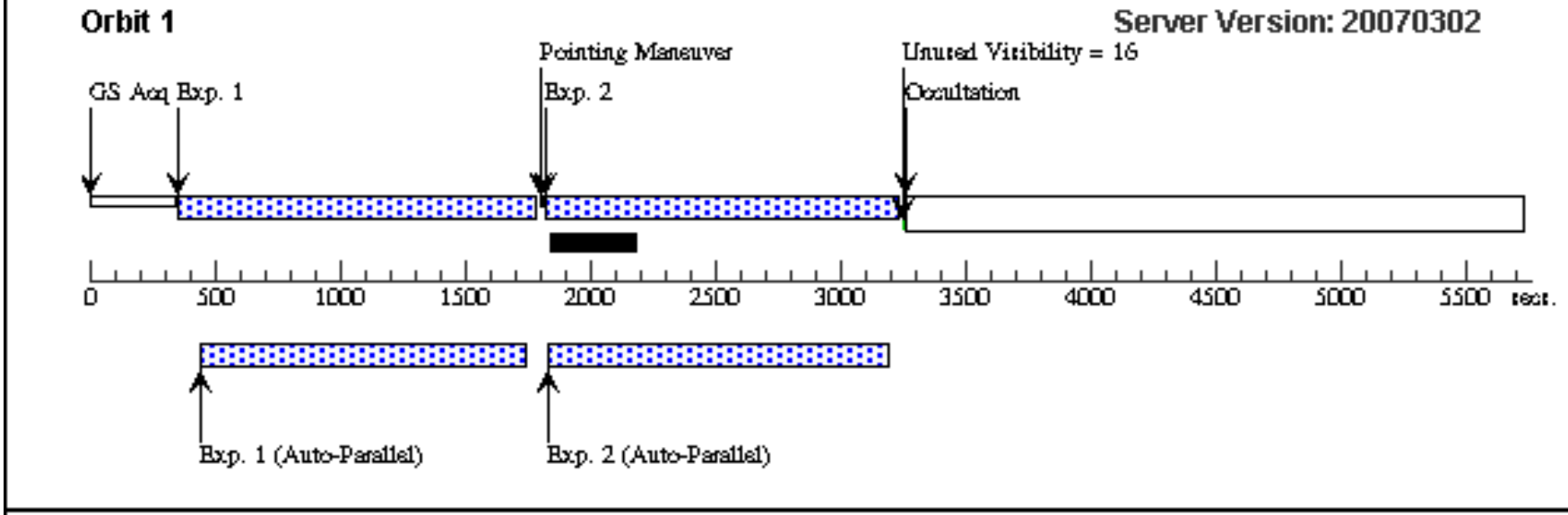
Fixed Targets

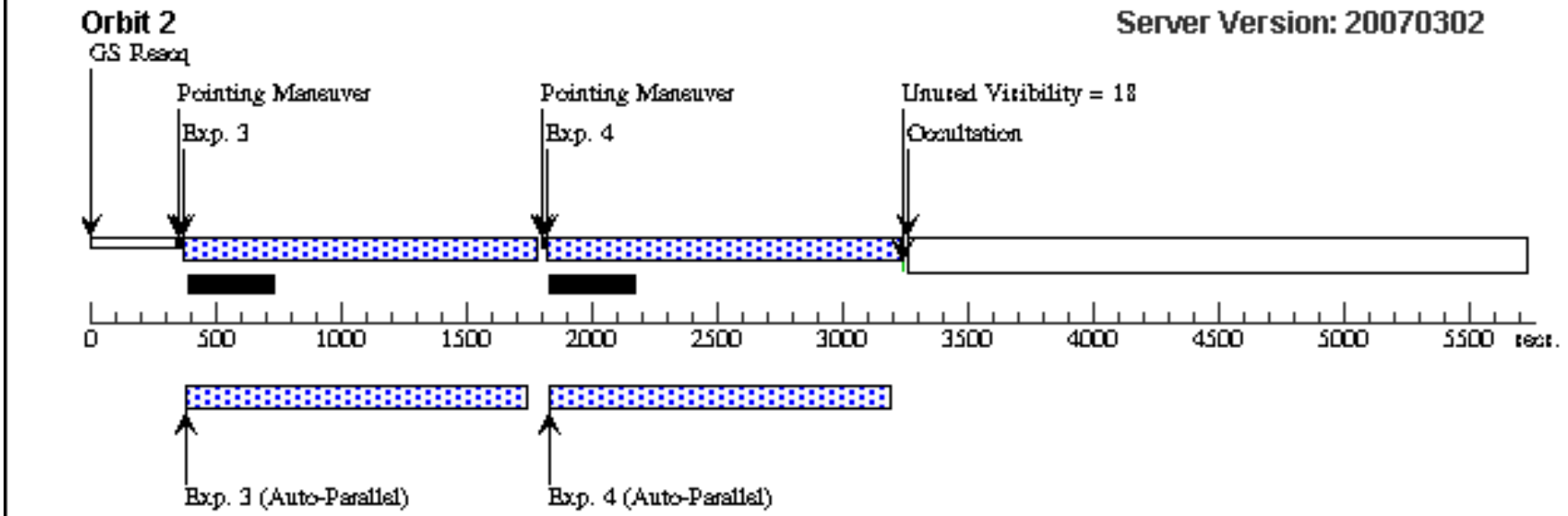
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GAL-0047-2808	RA: 00 49 41.8500 (12.4243750d) Dec: -27 52 25.70 (-27.87381d) Equinox: J2000	Redshift: 0.48	V=20.5+/-0.1 SURF(V) = 20.8 +/- 0.2 mag/sq. arcsec averaged over central disc of radius 0.2arcsec	Coordinate Source: Warren et al., 1996, MNRAS, 278, 139

Exposures

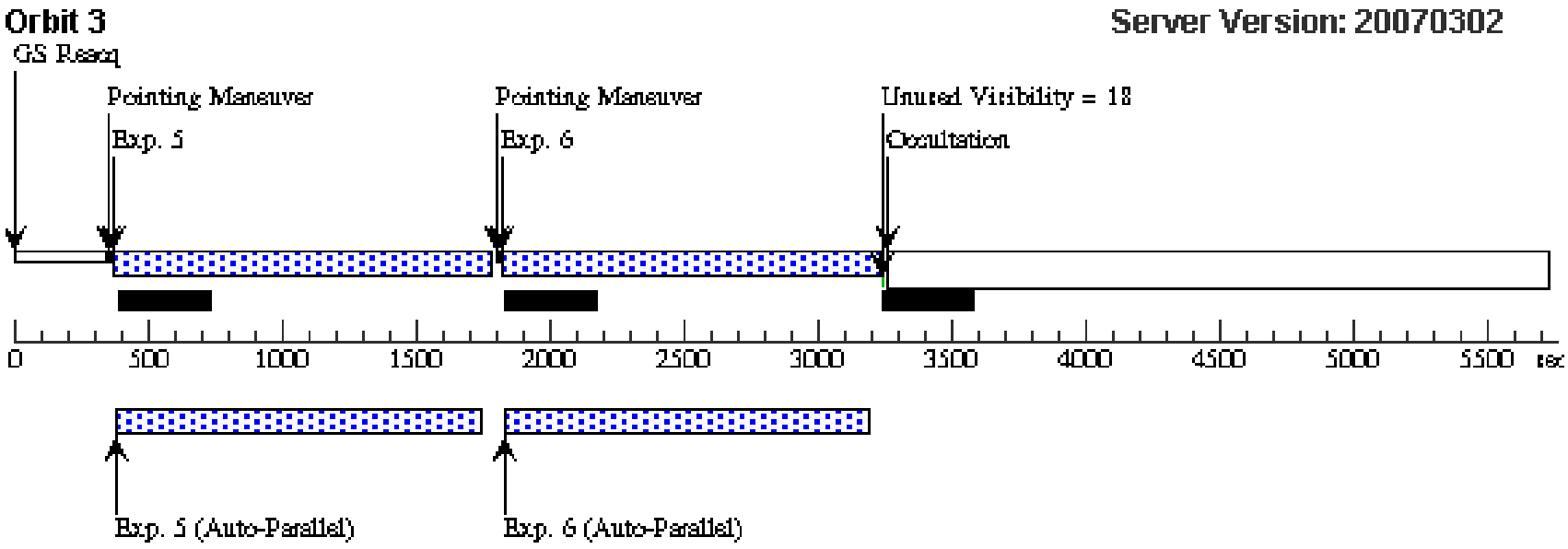
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	0047-1a	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1320.0 Secs	
								[==>]	***[1]***
2	0047-1b	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1380.0 Secs	
								[==>]	***[1]***
3	0047-1c	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1380.0 Secs	
								[==>]	***[2]***
4	0047-1d	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1380.0 Secs	
								[==>]	***[2]***
5	0047-1e	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG -0.113,0.088		1380.0 Secs	
								[==>]	***[3]***
6	0047-1f	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG -0.142,-0.039		1380.0 Secs	
								[==>]	***[3]***

Orbit Structure





Orbit Structure (continued)



Visit

Proposal 10563, Visit 02, completed Tue Mar 13 01:02:06 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 01

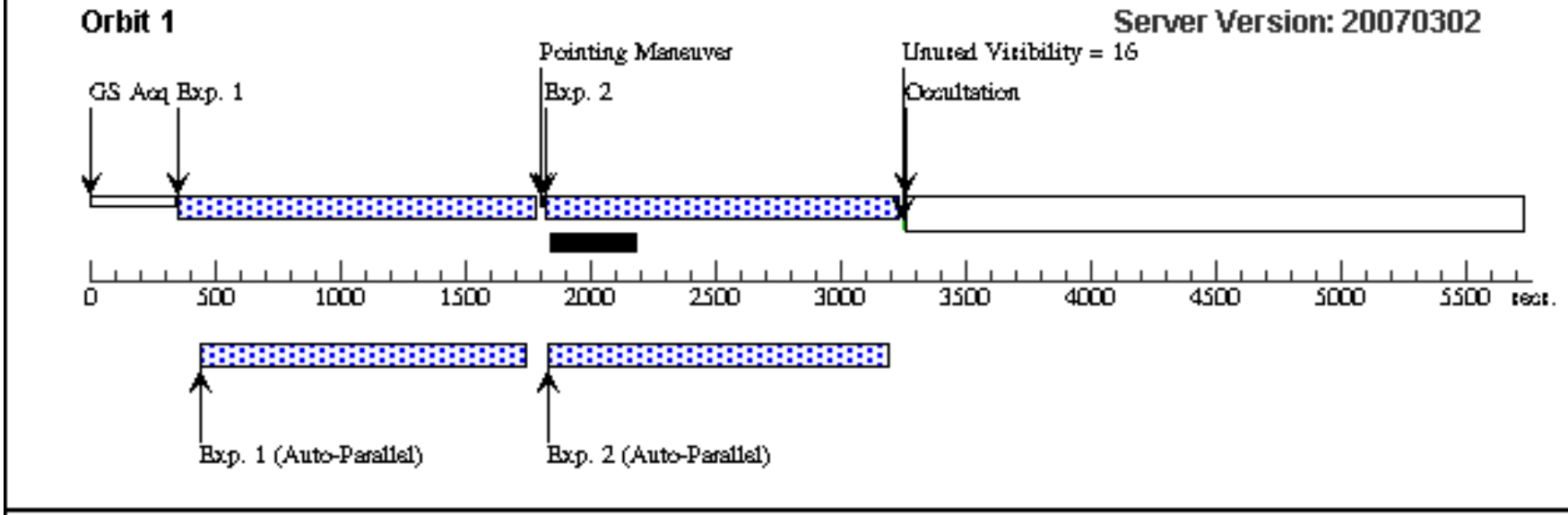
Fixed Targets

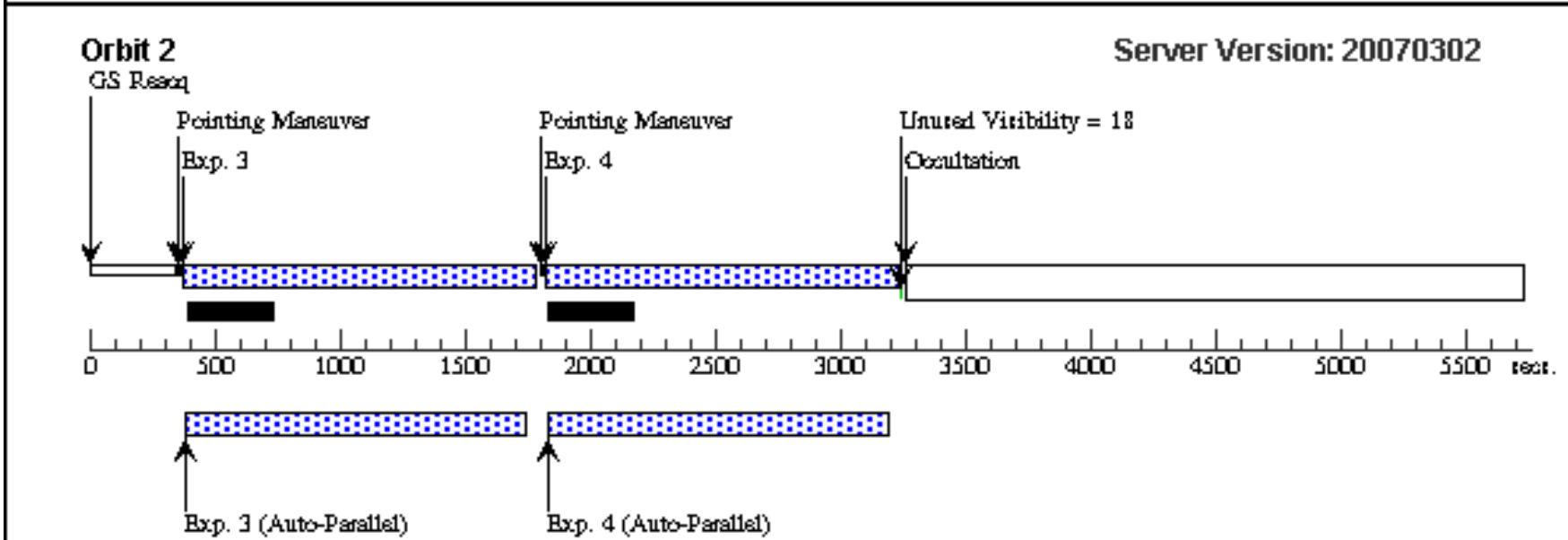
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GAL-0047-2808	RA: 00 49 41.8500 (12.4243750d) Dec: -27 52 25.70 (-27.87381d) Equinox: J2000	Redshift: 0.48	V=20.5+/-0.1 SURF(V) = 20.8 +/- 0.2 mag/sq. arcsec averaged over central disc of radius 0.2arcsec	Coordinate Source: Warren et al., 1996, MNRAS, 278, 139

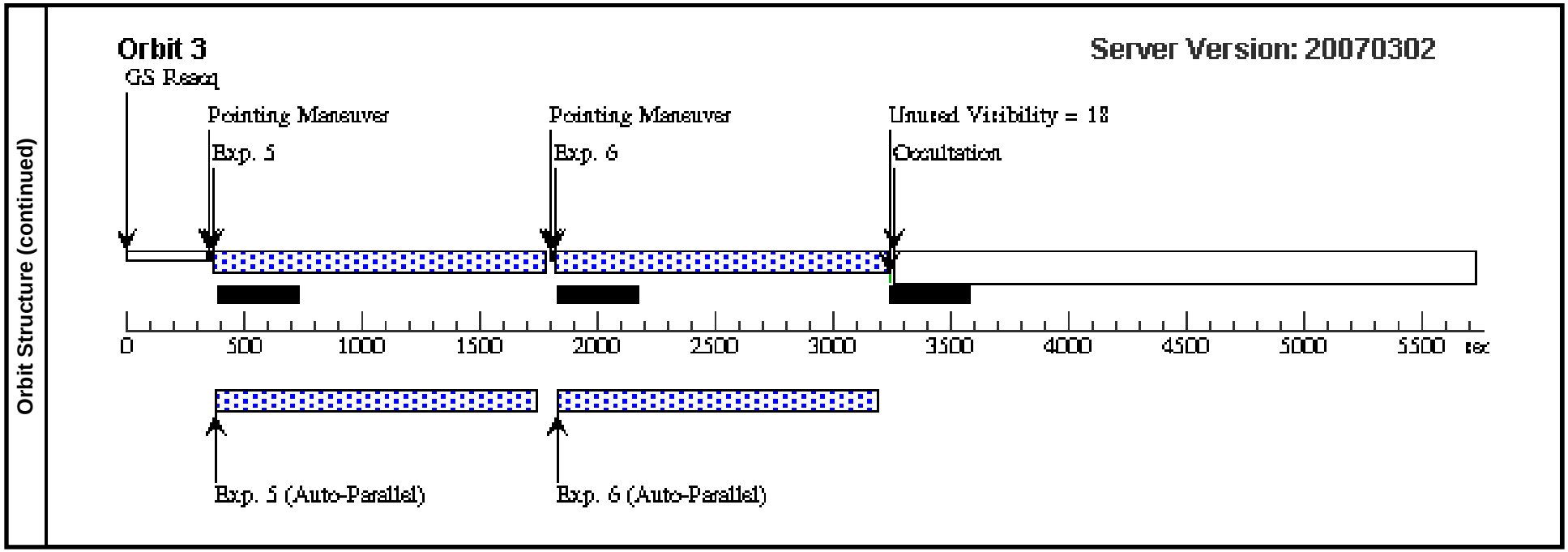
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	0047-2a	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1320.0 Secs	
								[==>]	***[1]***
2	0047-2b	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1380.0 Secs	
								[==>]	***[1]***
3	0047-2c	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1380.0 Secs	
								[==>]	***[2]***
4	0047-2d	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1380.0 Secs	
								[==>]	***[2]***
5	0047-2e	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG -0.113,0.088		1380.0 Secs	
								[==>]	***[3]***
6	0047-2f	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG -0.142,-0.039		1380.0 Secs	
								[==>]	***[3]***

Orbit Structure






Orbit Structure (continued)
Orbit 3
Server Version: 20070302
GS Reacq
Pointing Maneuver
Exp. 5
Pointing Maneuver
Exp. 6
Unused Visibility = 18
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 5 (Auto-Parallel)
Exp. 6 (Auto-Parallel)

Visit

Proposal 10563, Visit 03, completed Tue Mar 13 01:02:07 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 01

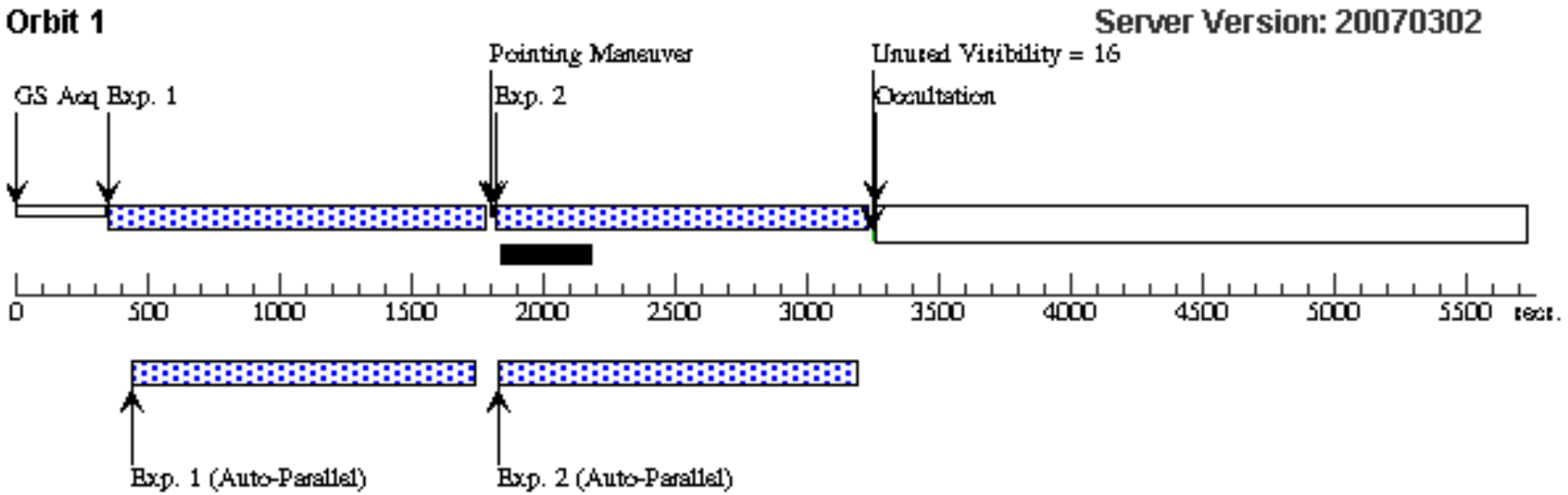
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GAL-0047-2808	RA: 00 49 41.8500 (12.4243750d) Dec: -27 52 25.70 (-27.87381d) Equinox: J2000	Redshift: 0.48	V=20.5+/-0.1 SURF(V) = 20.8 +/- 0.2 mag/sq. arcsec averaged over central disc of radius 0.2arcsec	Coordinate Source: Warren et al., 1996, MNRAS, 278, 139

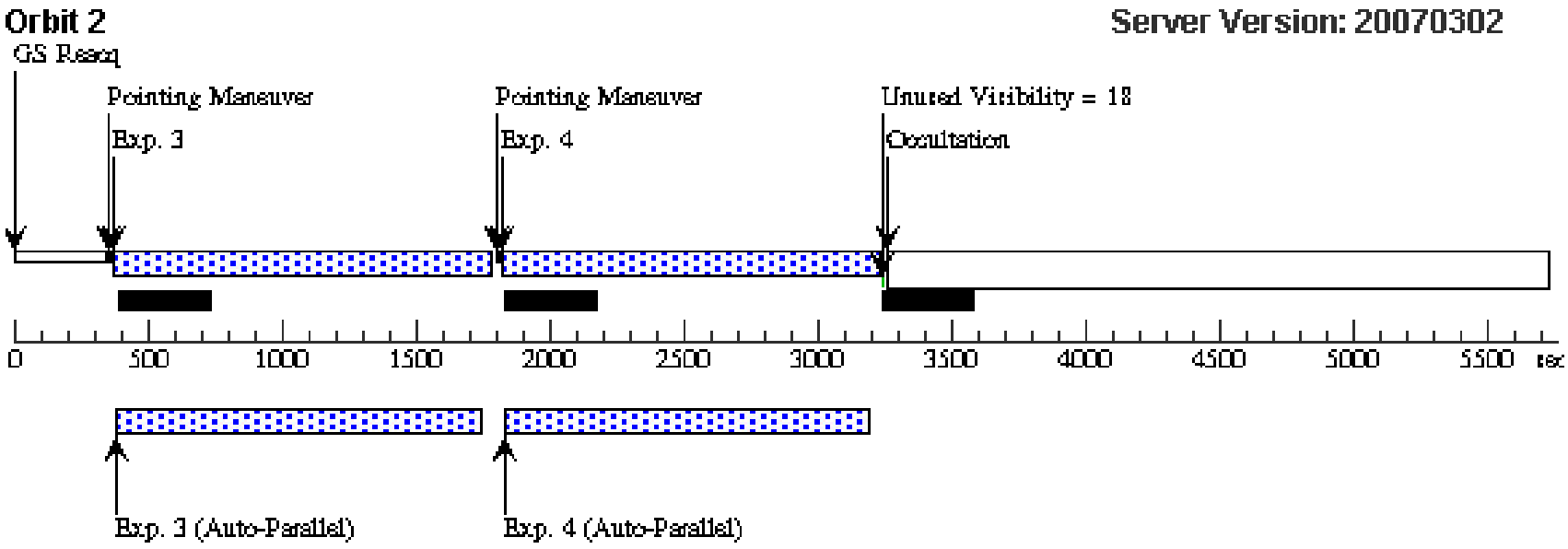
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	0047-3a	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1320.0 Secs	
								[==>]	***[1]***
2	0047-3b	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1380.0 Secs	
								[==>]	***[1]***
3	0047-3c	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1380.0 Secs	
								[==>]	***[2]***
4	0047-3d	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1380.0 Secs	
								[==>]	***[2]***

Orbit Structure



Orbit Structure (continued)



Visit

Proposal 10563, Visit 04, completed Tue Mar 13 01:02:08 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 01

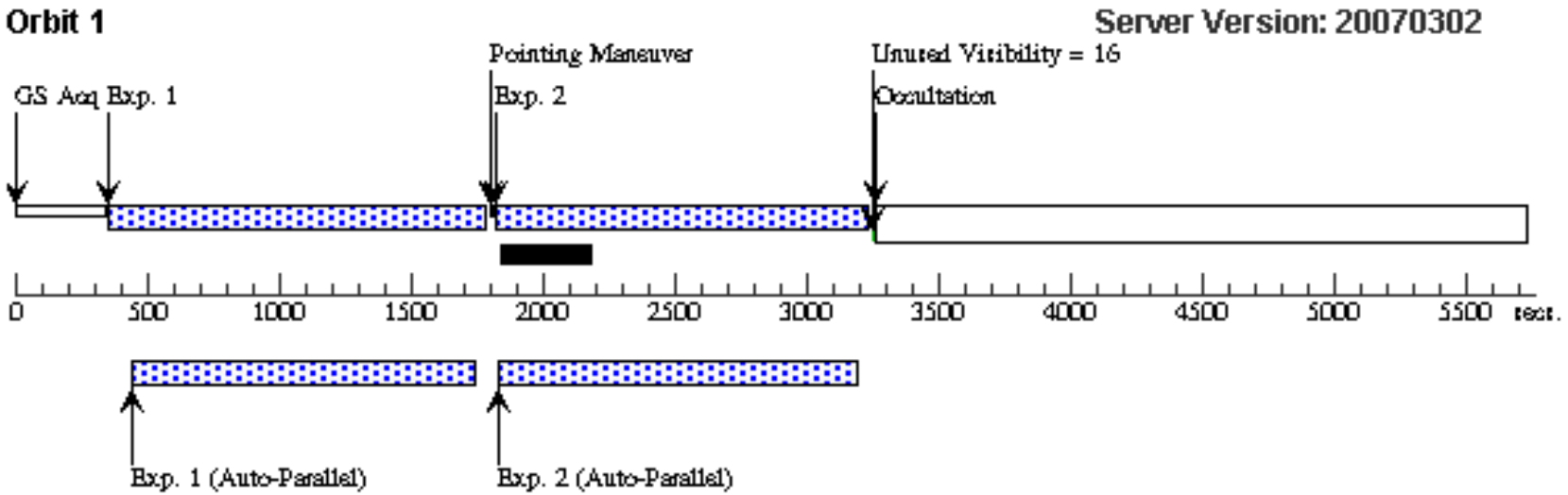
Fixed Targets

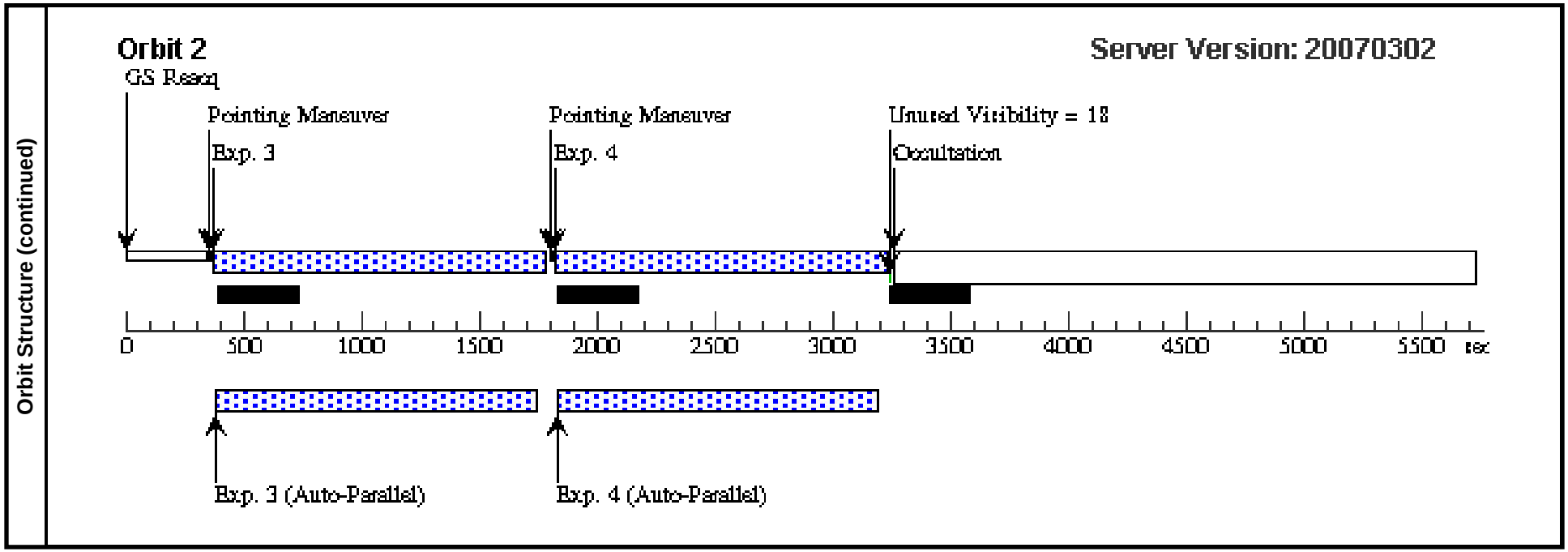
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	GAL-0047-2808	RA: 00 49 41.8500 (12.4243750d) Dec: -27 52 25.70 (-27.87381d) Equinox: J2000	Redshift: 0.48	V=20.5+/-0.1 SURF(V) = 20.8 +/- 0.2 mag/sq. arcsec averaged over central disc of radius 0.2arcsec	Coordinate Source: Warren et al., 1996, MNRAS, 278, 139

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	0047-4a	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1320.0 Secs	
								[==>]	***[1]***
2	0047-4b	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1380.0 Secs	
								[==>]	***[1]***
3	0047-4c	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1380.0 Secs	
								[==>]	***[2]***
4	0047-4d	(1) GAL-0047-2808	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1380.0 Secs	
								[==>]	***[2]***

Orbit Structure




Orbit Structure (continued)
Orbit 2
Server Version: 20070302
GS Reacq
Pointing Maneuver
Exp. 3
Pointing Maneuver
Exp. 4
Unused Visibility = 18
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 3 (Auto-Parallel)
Exp. 4 (Auto-Parallel)

Visit

Proposal 10563, Visit 05, failed Tue Mar 13 01:02:08 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE

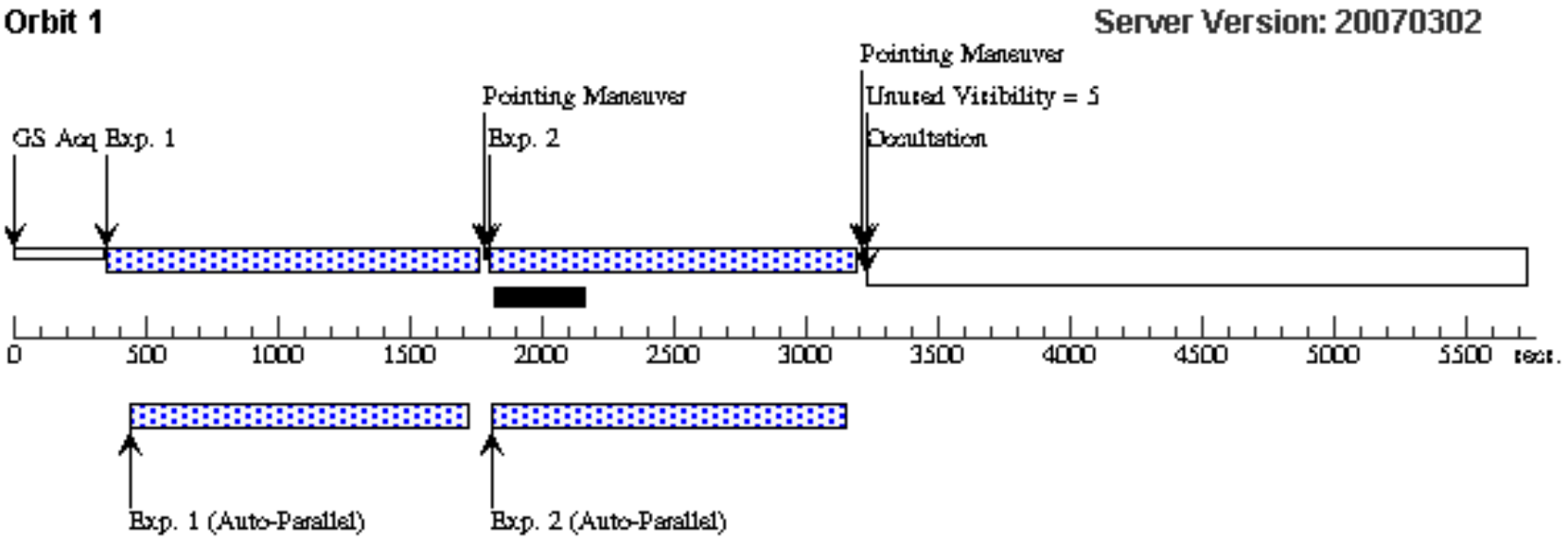
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GAL-1459-0055	RA: 14 59 57.1370 (224.9880708d) Dec: -00 55 22.85 (-.92301d) Equinox: J2000	Redshift: 0.58	V=21.5 SURF(R_vega)=20.9 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582093499417559817

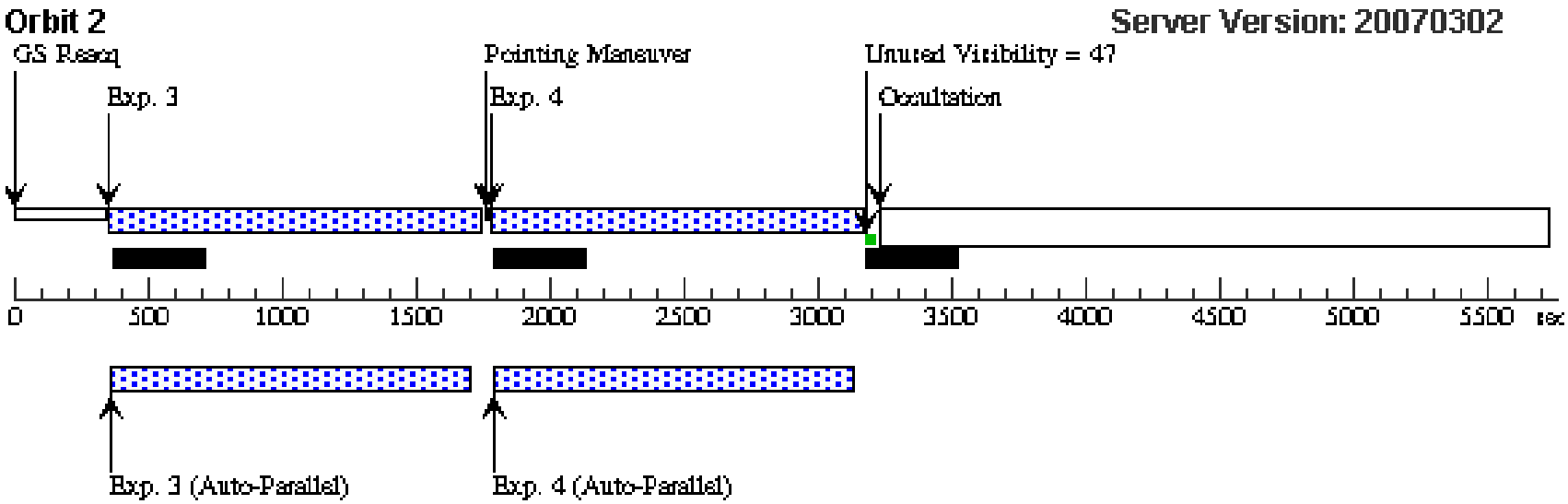
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	1459-5a	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1300.0 Secs	
								[==>]	***[1]***
2	1459-5b	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1360.0 Secs	
								[==>]	***[1]***
3	1459-5c	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1360.0 Secs	
								[==>]	***[2]***
4	1459-5d	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1360.0 Secs	
								[==>]	***[2]***

Orbit Structure



Orbit Structure (continued)



Visit

Proposal 10563, Visit 06, failed Tue Mar 13 01:02:09 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 05

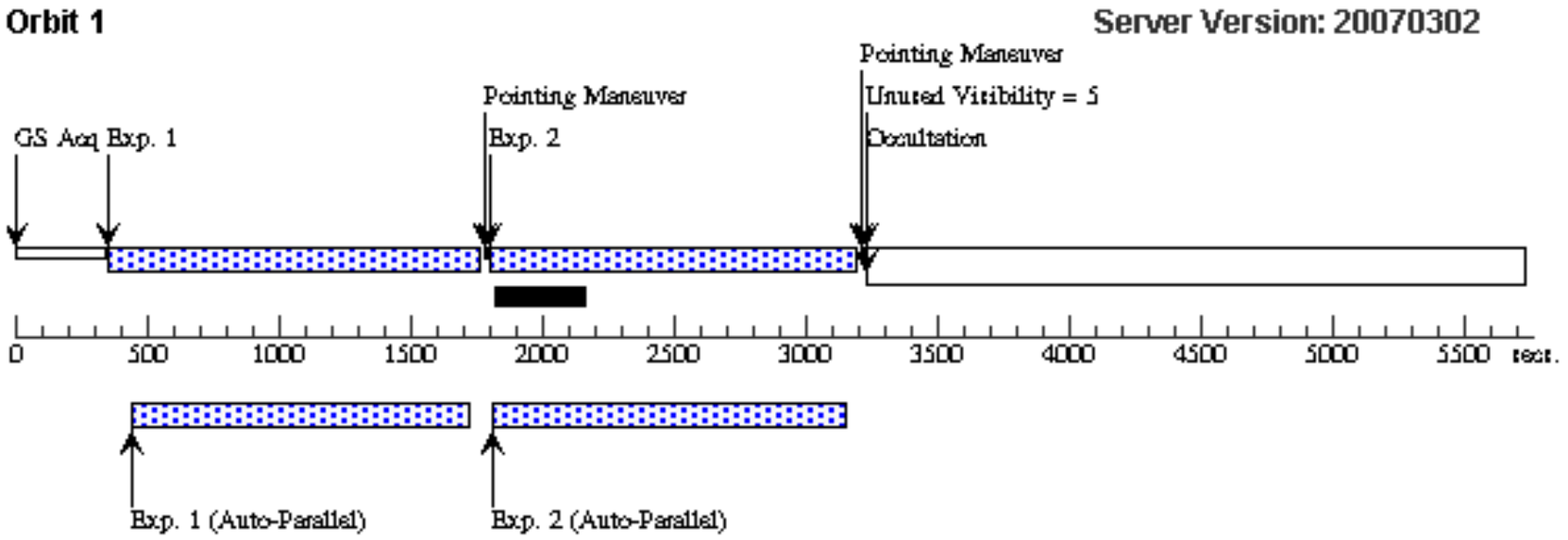
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GAL-1459-0055	RA: 14 59 57.1370 (224.9880708d) Dec: -00 55 22.85 (-.92301d) Equinox: J2000	Redshift: 0.58	V=21.5 SURF(R_vega)=20.9 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582093499417559817

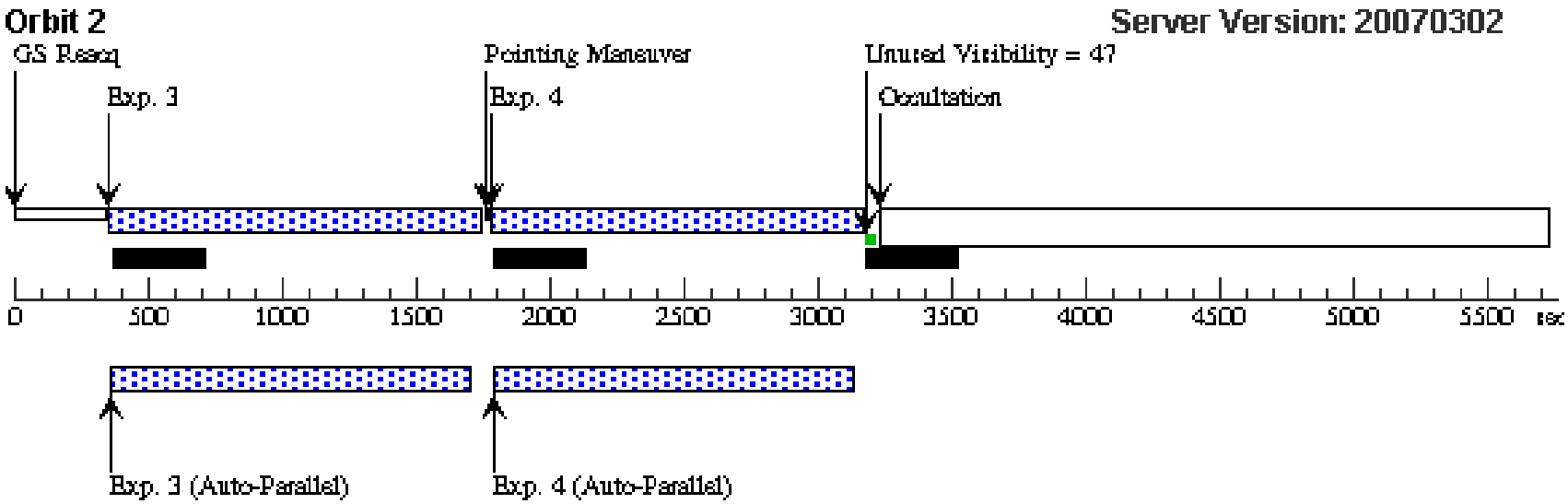
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	1459-6a	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1300.0 Secs	
								[==>]	***[1]***
2	1459-6b	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1360.0 Secs	
								[==>]	***[1]***
3	1459-6c	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1360.0 Secs	
								[==>]	***[2]***
4	1459-6d	(2) GAL-1459-0055	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1360.0 Secs	
								[==>]	***[2]***

Orbit Structure



Orbit Structure (continued)



Visit

Proposal 10563, Visit 07, failed Tue Mar 13 01:02:10 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE

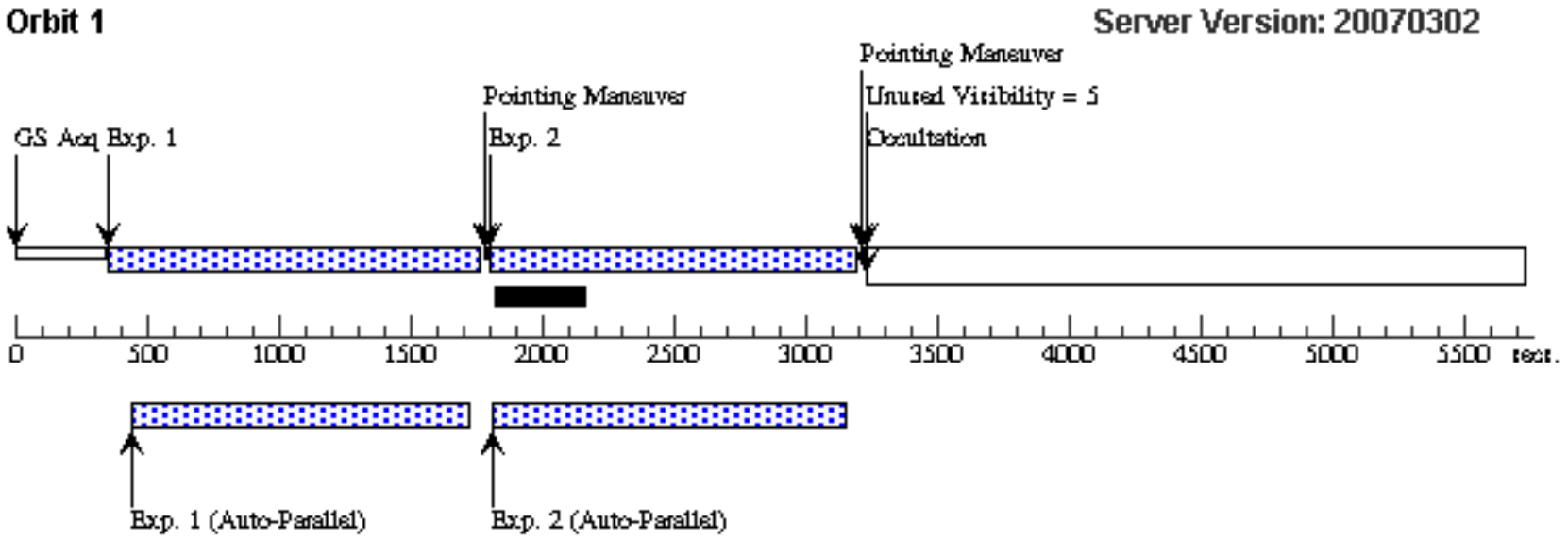
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	GAL-2309-0039	RA: 23 09 46.3580 (347.4431583d) Dec: -00 39 12.93 (-.65359d) Equinox: J2000	Redshift: 0.29	V=19.3 R_vega=21.0, SURF(R_vega)=20.1 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582104533679210687

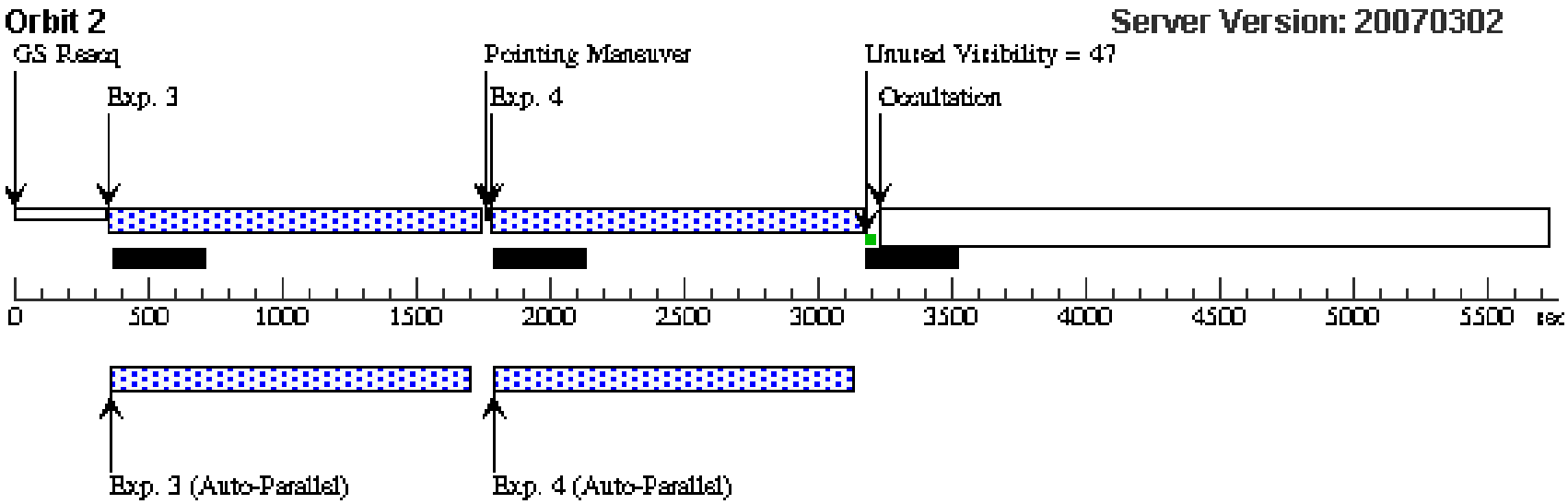
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	2309-7a	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1300.0 Secs	
								[==>]	***[1]***
2	2309-7b	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1360.0 Secs	
								[==>]	***[1]***
3	2309-7c	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1360.0 Secs	
								[==>]	***[2]***
4	2309-7d	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1360.0 Secs	
								[==>]	***[2]***

Orbit Structure



Orbit Structure (continued)



Visit

Proposal 10563, Visit 08, completed Tue Mar 13 01:02:10 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/HRC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 07

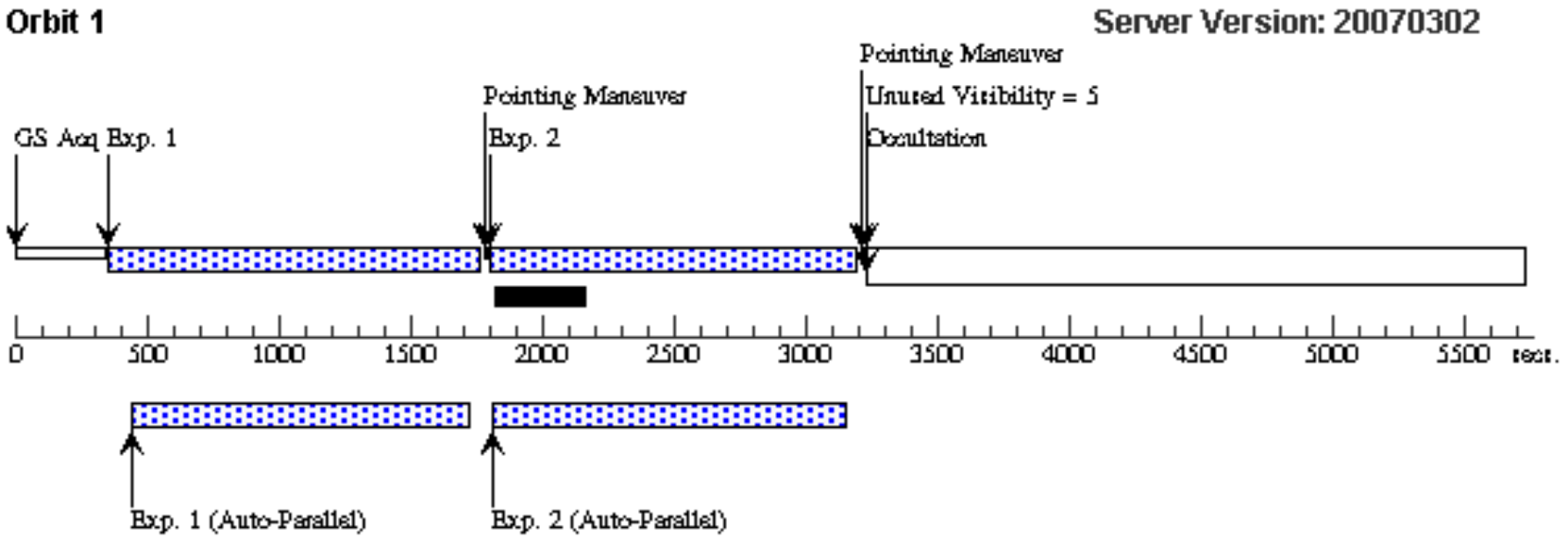
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	GAL-2309-0039	RA: 23 09 46.3580 (347.4431583d) Dec: -00 39 12.93 (-.65359d) Equinox: J2000	Redshift: 0.29	V=19.3 R_vega=21.0, SURF(R_vega)=20.1 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582104533679210687

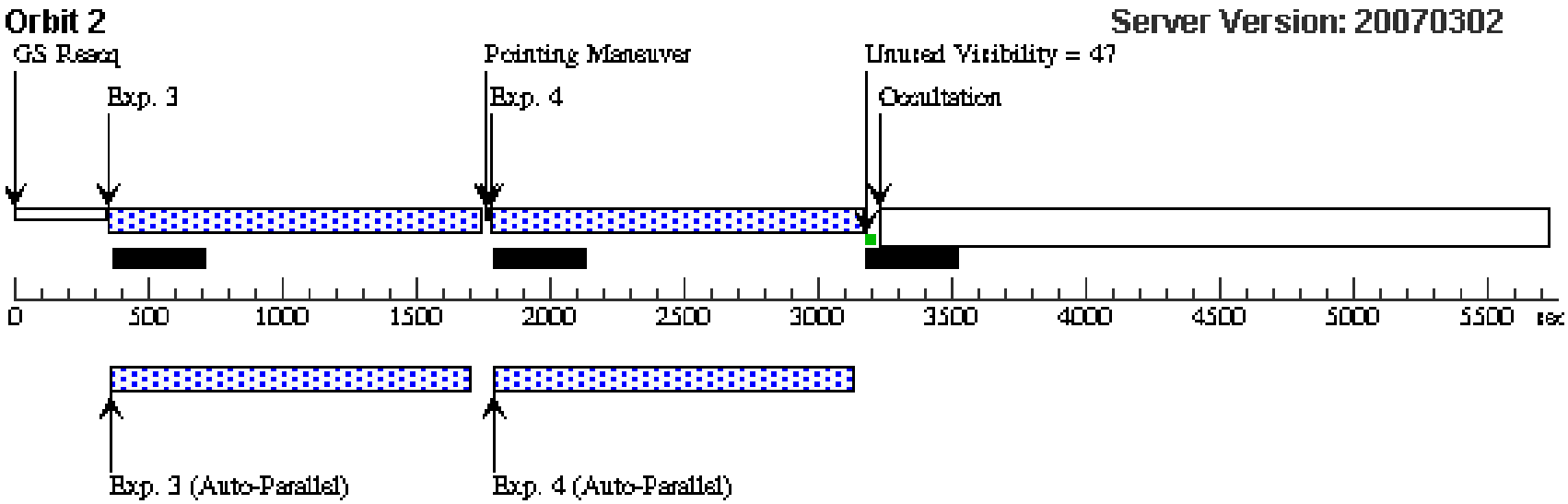
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	2309-8a	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0,0		1300.0 Secs	
								[==>]	***[1]***
2	2309-8b	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.142,0.039		1360.0 Secs	
								[==>]	***[1]***
3	2309-8c	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.17,0.166		1360.0 Secs	
								[==>]	***[2]***
4	2309-8d	(3) GAL-2309-0039	ACS/HRC, ACCUM, HRC	F606W	CR-SPLIT=NO	POS TARG 0.028,0.127		1360.0 Secs	
								[==>]	***[2]***

Orbit Structure



Orbit Structure (continued)



Visit

Proposal 10563, Visit 55, scheduling Tue Mar 13 01:02:11 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: PCS MODE FINE

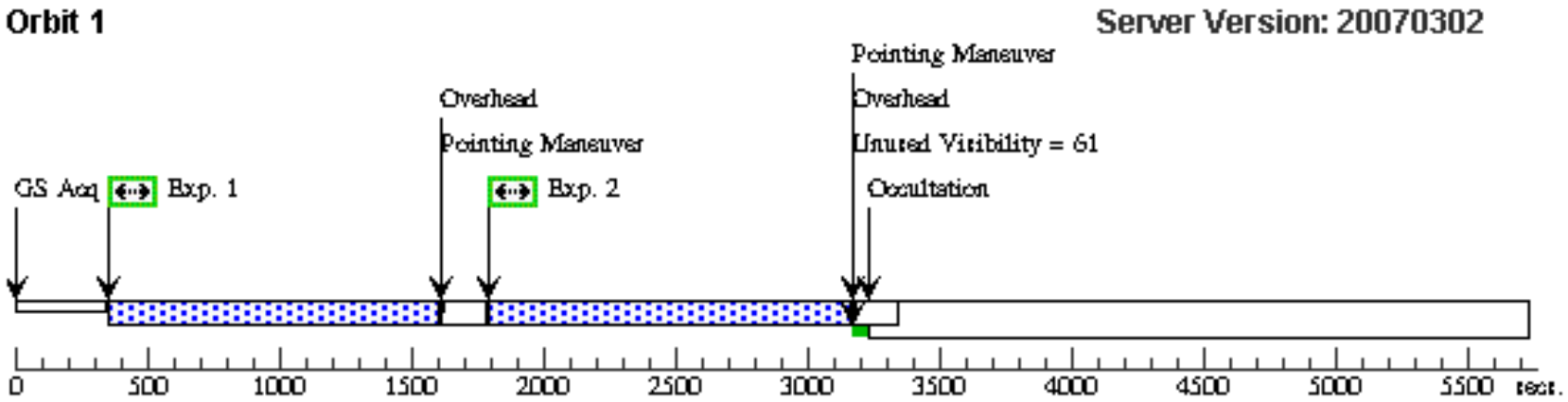
Fixed Targets

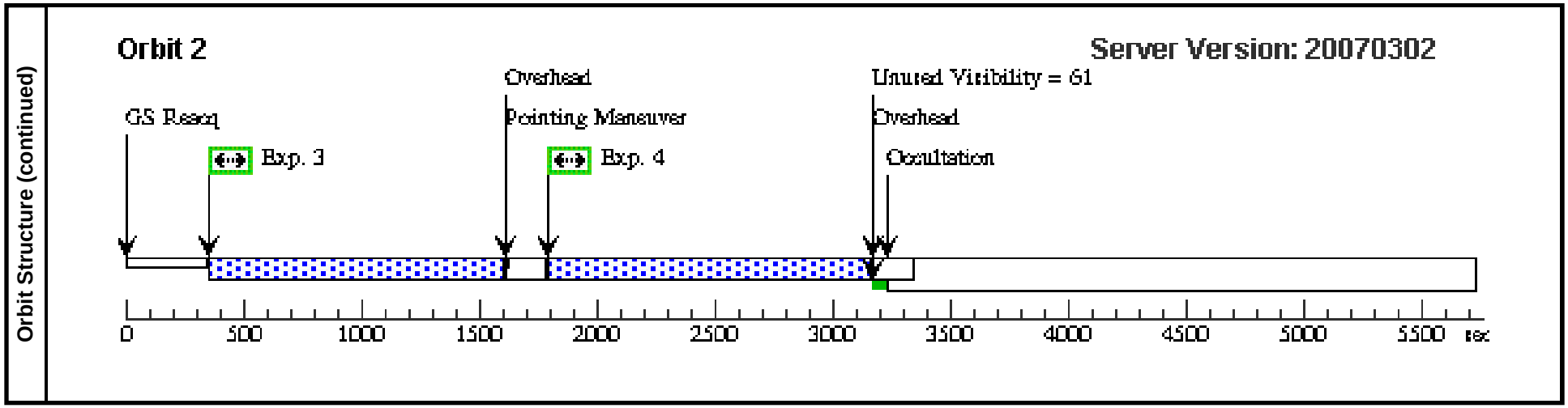
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GAL-1459-0055	RA: 14 59 57.1370 (224.9880708d) Dec: -00 55 22.85 (-.92301d) Equinox: J2000	Redshift: 0.58	V=21.5 SURF(R_vega)=20.9 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582093499417559817

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	1459-55a	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO			1100.0 Secs *[==>1100.0 Secs]*	 ***[1]***
2	1459-55b	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.498,0.249		1200.0 Secs *[==>1200.0 Secs]*	 ***[1]***
3	1459-55c	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.747,0.747		1100.0 Secs *[==>1100.0 Secs]*	 ***[2]***
4	1459-55d	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.249,0.498		1200.0 Secs *[==>1200.0 Secs]*	 ***[2]***

Orbit Structure




Orbit Structure (continued)
Orbit 2
Server Version: 20070302
GS Reacq
Exp. 3
Overhead
Pointing Maneuver
Exp. 4
Untied Visibility = 61
Overhead
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10563, Visit 56, scheduling Tue Mar 13 01:02:11 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: PCS MODE FINE; SAME ORIENT AS 55

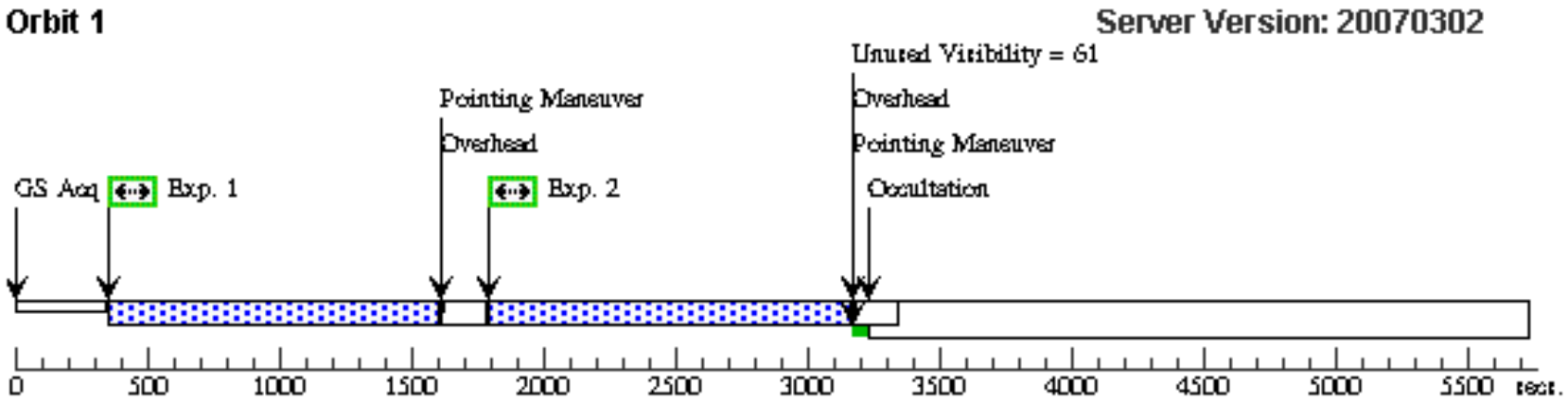
Fixed Targets

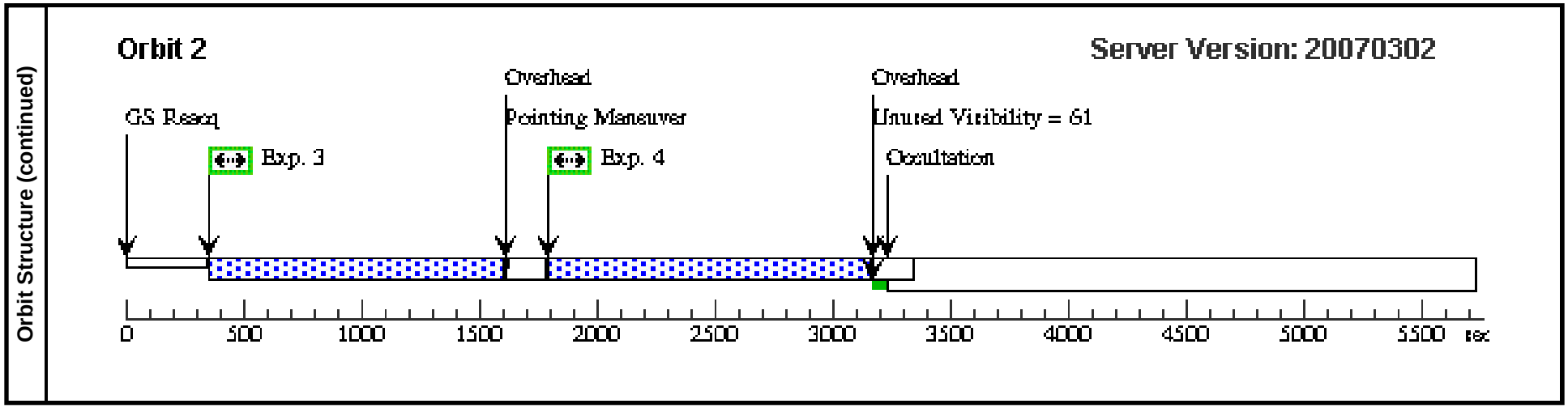
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GAL-1459-0055	RA: 14 59 57.1370 (224.9880708d) Dec: -00 55 22.85 (-.92301d) Equinox: J2000	Redshift: 0.58	V=21.5 SURF(R_vega)=20.9 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582093499417559817

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	1459-56a	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0,0		1100.0 Secs *[==>1100.0 Secs]*	 ***[1]***
2	1459-56b	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.498,0.249		1200.0 Secs *[==>1200.0 Secs]*	 ***[1]***
3	1459-56c	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.747,0.747		1100.0 Secs *[==>1100.0 Secs]*	 ***[2]***
4	1459-56d	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.249,0.498		1200.0 Secs *[==>1200.0 Secs]*	 ***[2]***

Orbit Structure




Orbit Structure (continued)
Orbit 2
Server Version: 20070302
GS Reacq
Exp. 3
Overhead
Pointing Maneuver
Exp. 4
Overhead
Unused Visibility = 61
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 10563, Visit 57, scheduling Tue Mar 13 01:02:12 GMT 2007

Diagnostic Status: No Diagnostics

Scientific Instruments: WFPC2

Special Requirements: PCS MODE FINE; SAME ORIENT AS 55

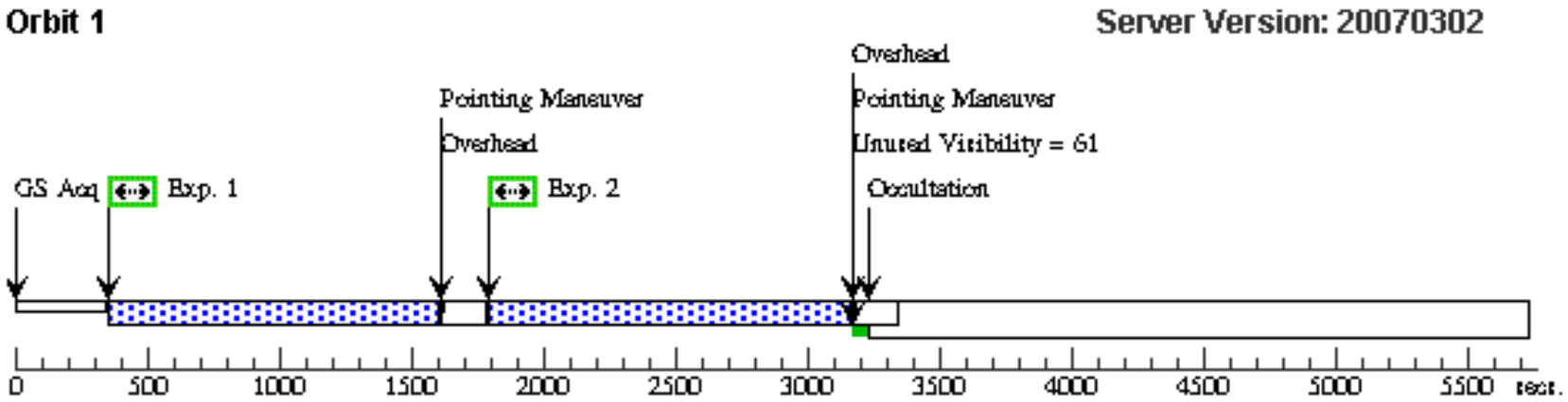
Fixed Targets

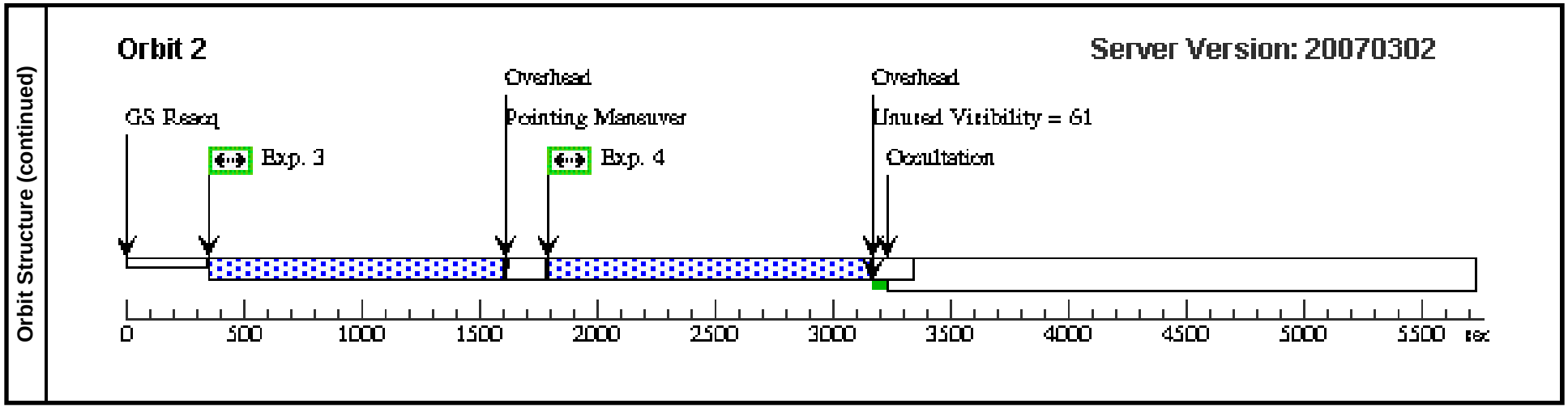
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	GAL-1459-0055	RA: 14 59 57.1370 (224.9880708d) Dec: -00 55 22.85 (-.92301d) Equinox: J2000	Redshift: 0.58	V=21.5 SURF(R_vega)=20.9 +/- 0.2 mag/sq.arcsec averaged over central disc of radius 0.5arcsec	Coordinate Source: SDSS-DR3 (Abazajian et al. 2005 AJ 129, 1755), see also: http://skyserver.sdss.org/dr1/en/tools/explore/obj.asp? id=582093499417559817

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	1459-57a	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0,0		1100.0 Secs *[==>1100.0 Secs]*	 ***[1]***
2	1459-57b	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.498,0.249		1200.0 Secs *[==>1200.0 Secs]*	 ***[1]***
3	1459-57c	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.747,0.747		1100.0 Secs *[==>1100.0 Secs]*	 ***[2]***
4	1459-57d	(2) GAL-1459-0055	WFPC2, IMAGE, WF3	F606W	CR-SPLIT=NO	POS TARG 0.249,0.498		1200.0 Secs *[==>1200.0 Secs]*	 ***[2]***

Orbit Structure




Orbit Structure (continued)
Orbit 2
Server Version: 20070302
GS Reacq
Exp. 3
Overhead
Pointing Maneuver
Exp. 4
Overhead
Unused Visibility = 61
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec