11584 - Resolving the Smallest Galaxies with ACS

Cycle: 17, 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) D0944+69 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:16:51.0	yes
02	(2) D0959+68 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:16:57.0	yes
03	(3) D0939+71 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:02.0	yes
04	(4) D0944+71 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:10.0	yes
05	(5) D1012+64 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:16.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(6) D1013+68 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:20.0	yes
07	(7) D1015+69 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:25.0	yes
08	(8) D1019+69 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:29.0	yes
09	(9) D1020+69 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:34.0	yes
10	(10) D0916+52 ANY	ACS/WFC WFC3/IR	1	01-Jul-2008 21:17:38.0	yes

10 Total Orbits Used

ABSTRACT

An order of magnitude more dwarf galaxies are expected to inhabit the Local Group, based on currently accepted galaxy formation models, than have been observed. This discrepancy has been noted in environments ranging from the field to rich clusters, with evidence emerging that lower density regions contain fewer dwarfs per giant than higher density regions, in further contrast to model predictions. However, there is no complete census of the faintest dwarf galaxies in any environment. The discovery of the smallest and faintest dwarfs is hampered by the limitations in detecting such compact or low surface brightness galaxies, and this is compounded by the great difficulty in determining accurate distances to, or ascertaining group membership for, such faint objects. The M81 group provides a powerful means for establishing membership for faint galaxies in a low density region. With a distance modulus of 27.8, the tip of the red giant branch (TRGB) appears at I ~ 24, just within the reach of ground based surveys. We have completed a 65 square degree survey in the region around M81 with the CFHT/MegaCam. Half of our survey was completed before Cycle 16 and we were awarded time with WFPC2 to observe 15 new candidate dwarf galaxy group members in F606W and F814W bands in order to construct color-magnitude diagrams from which to measure accurate TRGB distances and determine star formation and metallicity histories. The data obtained show that 8 - 9 of these objects are galaxies at the same distance as M81. In completing our survey, we have discovered an additional 8

candidate galaxies we propose to image with ACS in order to measure TRGB distances and establish membership. We also wish to re-observe our smallest candidate group member and a tidal dwarf candidate with deeper observations made possible with ACS. Once membership has been established for this second set of candidates, we will have a complete census of the dwarf galaxy population in the M81 group to M_r ~ -10, allowing us to obtain a firm measurement of the luminosity function faint-end slope, and, combined with previous HST data, to provide a complete inventory of the age and abundance properties for the collapsed core of the M81 group.

OBSERVING DESCRIPTION

We propose to obtain imaging observations in F606W and F814W (broad V and I) filters in order to construct a color-magnitude diagram appropriate for measuring TRGB distances. We will use the ACS for its combined superior field of view, sensitivity, and spatial resolution over WFC3 in the wavelength range 6000-8000\AA. Johnson-Cousins V and I-band filters are traditionally used to obtain TRGB distances. The F814W filter transforms well to Cousins I while the broad F606W filter provides acceptable transformation to Johnson V and is chosen over the F555W for its greater throughput.

Using the ETC for imaging point sources, we find that we can reach 27.5 mag in F606W in a total of 1250s with 2 exposures to achieve a minimum S/N of 5. Assuming (V-I)_{TRGB} ~ 1.0, we expect to reach 26.5 mag in F814W in 1200s to a S/N ~ 5. At the expected location of the tip of the red giant branch (I_{tip} ~ 23.8), the S/N with these exposure times will be greater than 30. We have previous experience observing M81 dwarf galaxies with HST/ACS. Using the ACS with F606W and F814W filters observed together in a single orbit (exposure times 1200s and 900s respectively) our CMDs reach the limit of I=27. We expect to reach more than 2.5 magnitudes below the tip, assuring a firm detection of the TRGB. From a comparison of the CMD in Figs 2 and 3, it is seen that data from ACS is vastly superior to data from WFPC2.

For 3 gyro mode, we expect orbit visibility of 59 minutes for each of our targets. Accounting for guide star acquisition (6min) and instrument overheads (4min + 3 x 2.5min), this will allow for observations of 1200s in F814W and 1250s in F606W. Therefore, each target can be observed within a single orbit. For 10 target candidates, we request 10 orbits.

Parallel observations will be made of blank fields with WFC3/IR using the F105W and F160W filters. If there are free floating RGB stars between

galaxies in the M81 group, they will be detected in these exposures. Known interactions between the large galaxies M81 - M82 - NGC3077, which have produced HI tidal bridges and potential tidal dwarfs in this dynamically young group, lead to the expectation of the existence of intragroup stars. These parallel observations will test whether a large free floating population exists.

Visit

Proposal 11584, Visit 01 Wed Jul 02 01:17:42 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

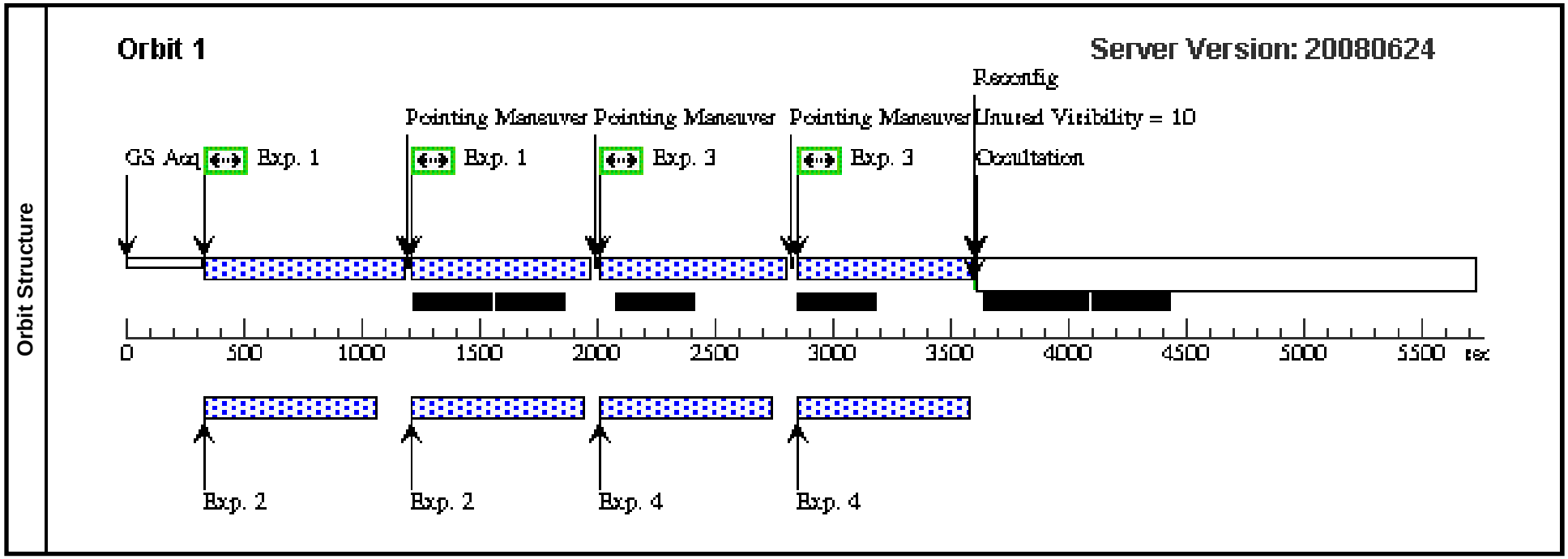
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	D0944+69	RA: 09 44 22.5000 (146.0937500d) Dec: +69 12 40.00 (69.21111d) Equinox: J2000		V=24.0+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D0944_F606	(1) D0944+69	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D0944_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D0944_F814	(1) D0944+69	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D0944_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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Reconfig
Pointing Maneuver
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Pointing Maneuver
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GS Acq
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Exp. 1
Exp. 3
Exp. 3
Occultation
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4000
4500
5000
5500
sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 02 Wed Jul 02 01:17:43 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

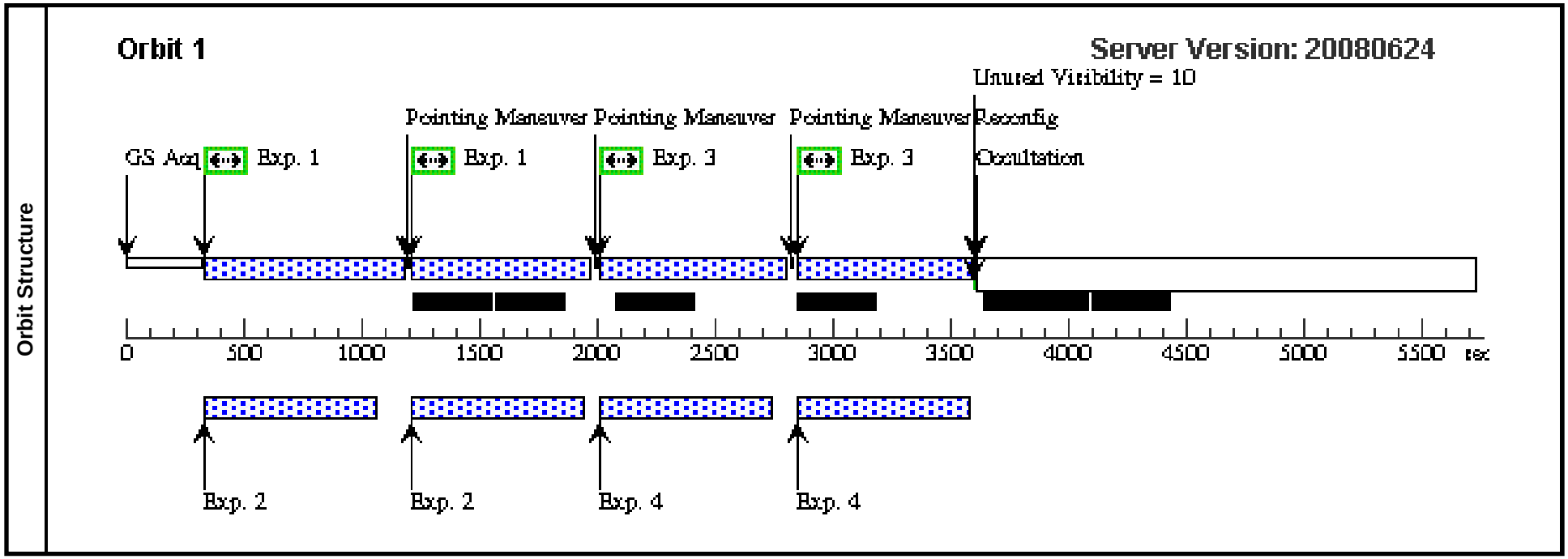
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	D0959+68	RA: 09 59 33.1000 (149.8879167d) Dec: +68 39 25.00 (68.65694d) Equinox: J2000		V=22.5+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D0959_F606	(2) D0959+68	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D0959_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D0959_F814	(2) D0959+68	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D0959_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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Reconfig
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Occultation
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4500
5000
5500
sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 03 Wed Jul 02 01:17:44 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

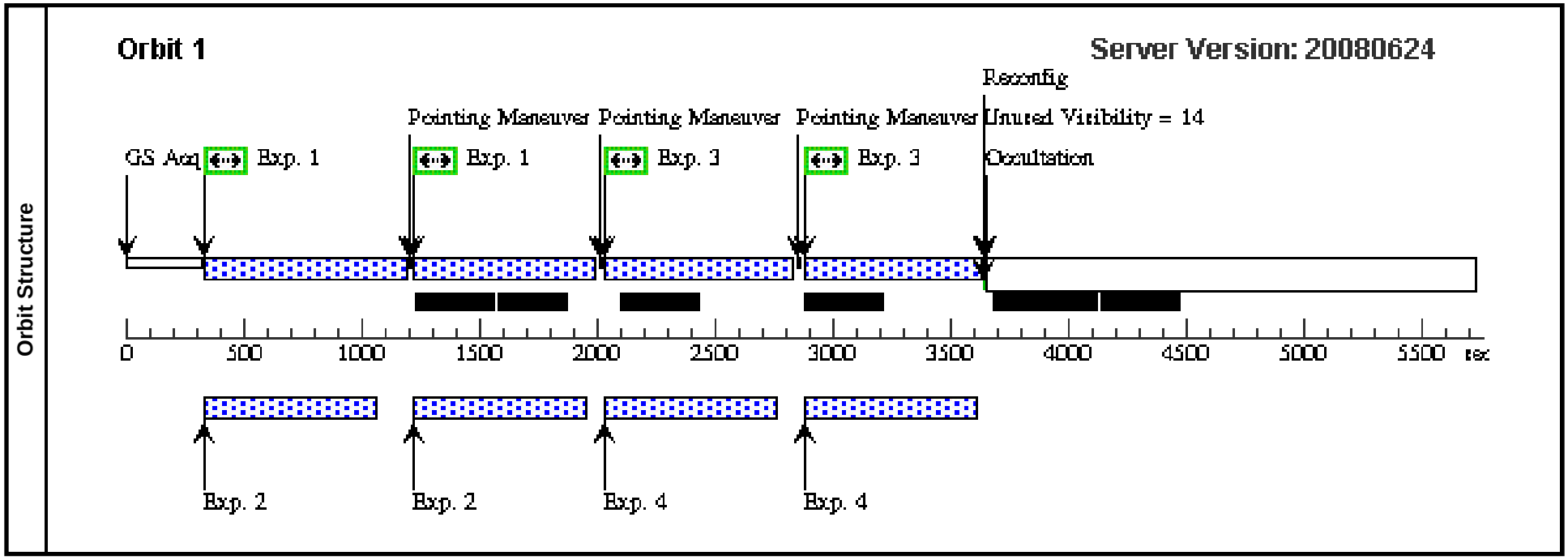
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	D0939+71	RA: 09 39 15.9000 (144.8162500d) Dec: +71 18 42.00 (71.31167d) Equinox: J2000		V=22.5+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D0939_F606	(3) D0939+71	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	650 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D0939_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D0939_F814	(3) D0939+71	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	625 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D0939_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 04 Wed Jul 02 01:17:44 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

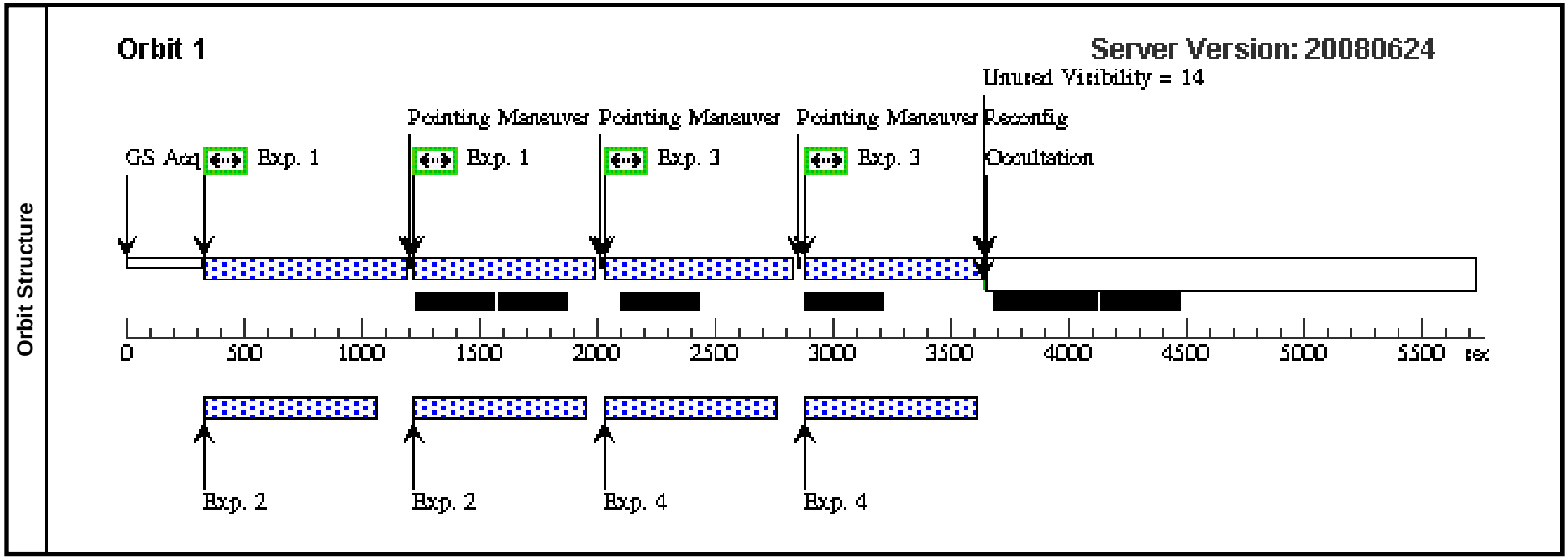
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	D0944+71	RA: 09 44 34.4000 (146.1433333d) Dec: +71 28 57.00 (71.48250d) Equinox: J2000		V=16.3+/-0.4	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D0944_71_F606	(4) D0944+71	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	650 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D0944_71_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D0944_71_F814	(4) D0944+71	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	625 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D0944_71_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 05 Wed Jul 02 01:17:45 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

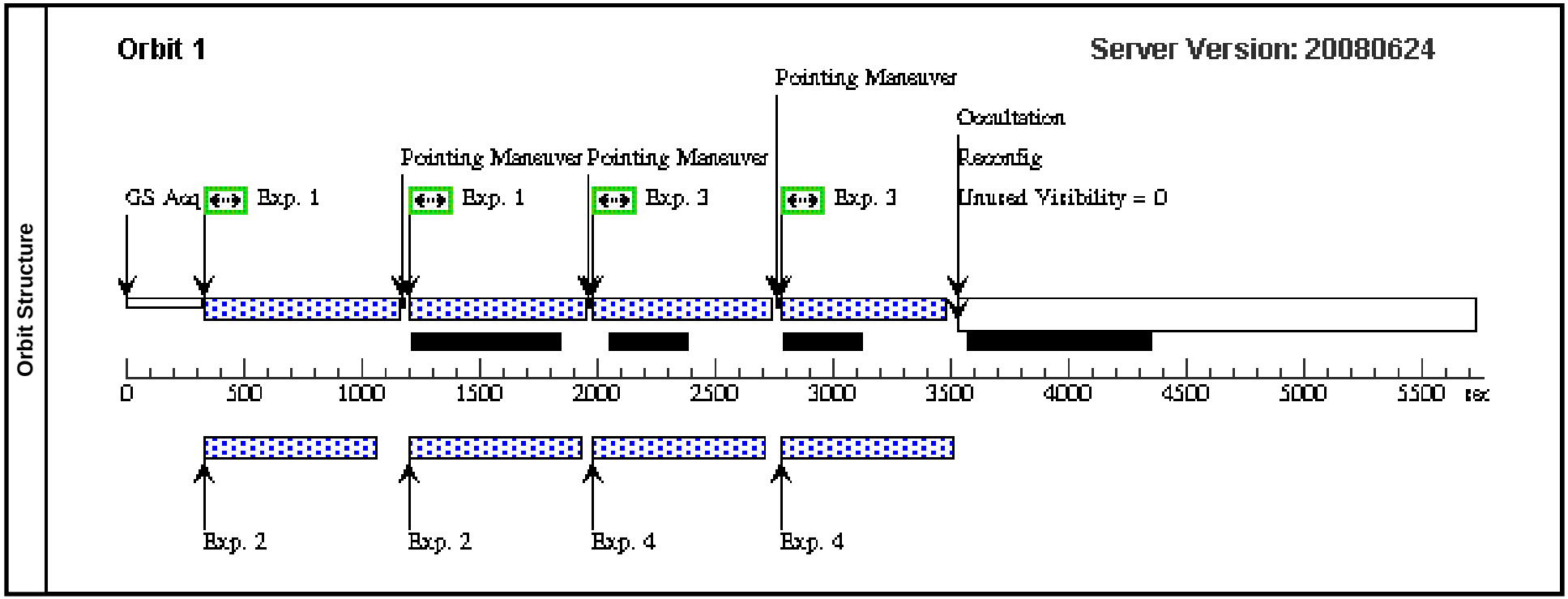
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	D1012+64	RA: 10 12 48.4000 (153.2016667d) Dec: +64 06 27.00 (64.10750d) Equinox: J2000		V=14.8+/-0.3	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D1012_F606	(5) D1012+64	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	625 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D1012_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D1012_F814	(5) D1012+64	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	580 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D1012_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 06 Wed Jul 02 01:17:46 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

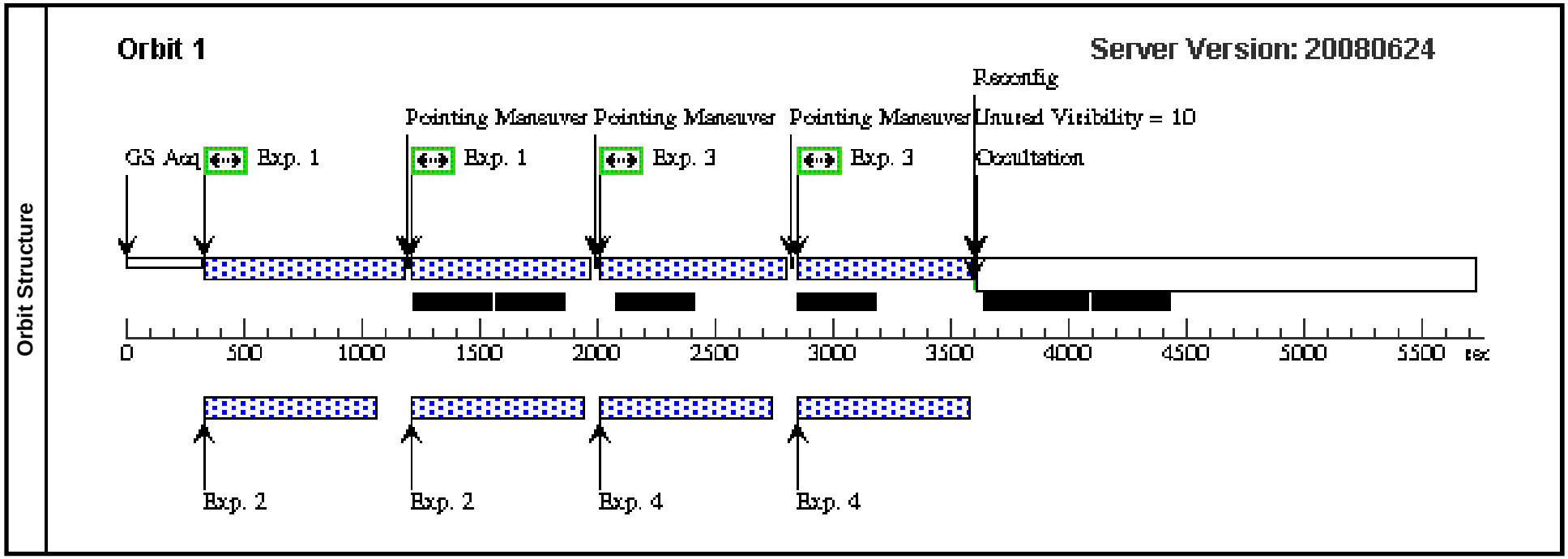
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	D1013+68	RA: 10 13 11.7000 (153.2987500d) Dec: +68 43 45.00 (68.72917d) Equinox: J2000		V=22.5+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D1013_F606	(6) D1013+68	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D1013_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D1013_F814	(6) D1013+68	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D1013_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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Server Version: 20080624
Reconfig
Pointing Maneuver
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Unused Visibility = 10
GS Acq
Exp. 1
Exp. 1
Exp. 3
Exp. 3
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Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 07 Wed Jul 02 01:17:46 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
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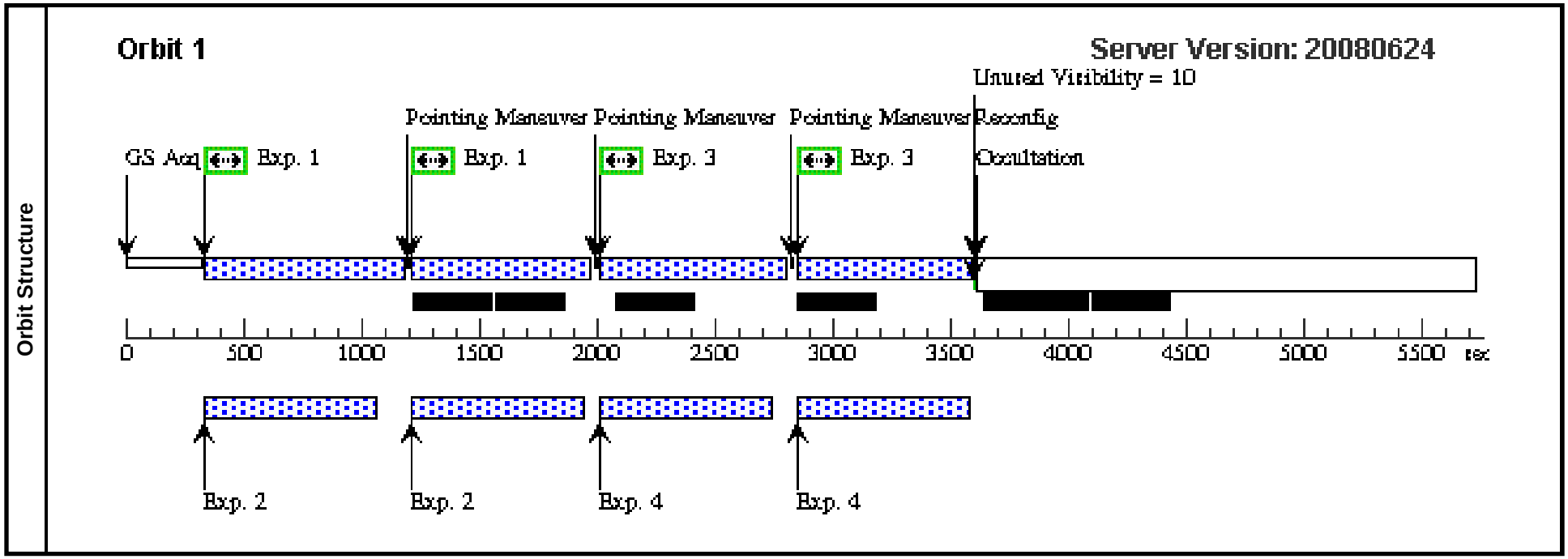
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	D1015+69	RA: 10 15 6.9000 (153.7787500d) Dec: +69 02 15.00 (69.03750d) Equinox: J2000		V=22.5+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D1015_F606	(7) D1015+69	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D1015_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D1015_F814	(7) D1015+69	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D1015_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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Pointing Maneuver
Reconfig
GS Acq
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Occultation
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3500
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sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 08 Wed Jul 02 01:17:46 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

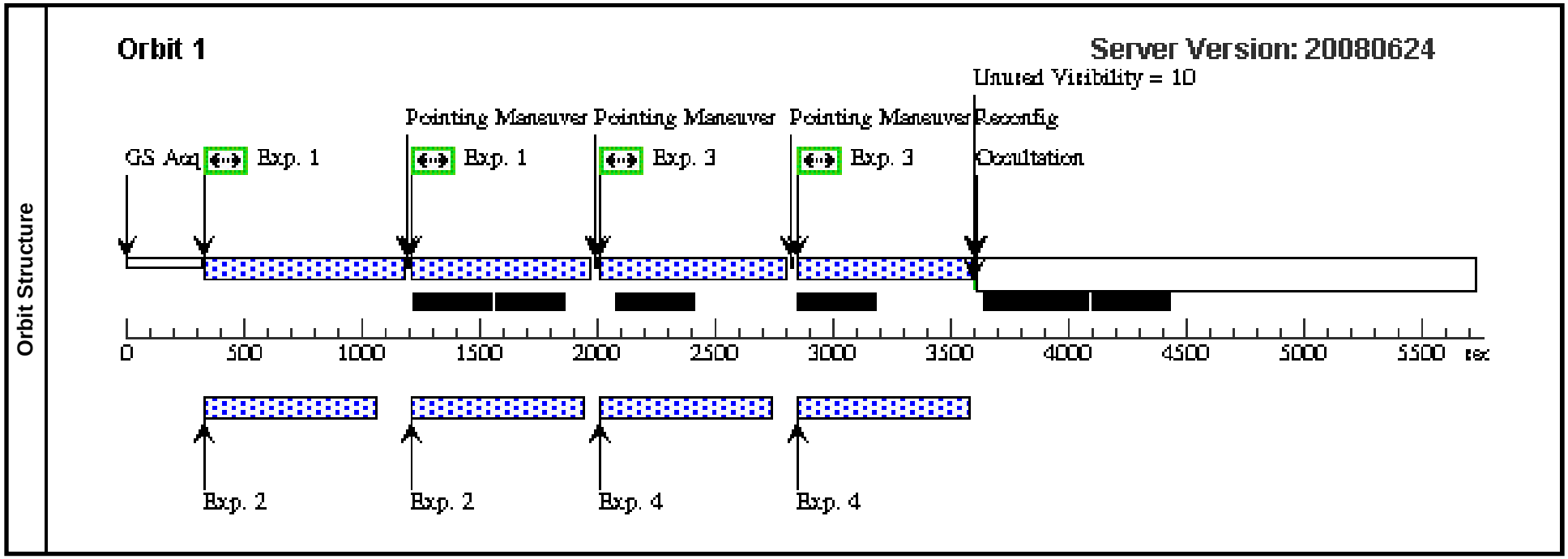
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	D1019+69	RA: 10 19 52.9000 (154.9704167d) Dec: +69 11 19.00 (69.18861d) Equinox: J2000		V=18.4+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D1019_F606	(8) D1019+69	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D1019_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D1019_F814	(8) D1019+69	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D1019_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20080624
Unused Visibility = 10
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Reconfig
GS Acq
Exp. 1
Exp. 1
Exp. 3
Exp. 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 09 Wed Jul 02 01:17:47 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

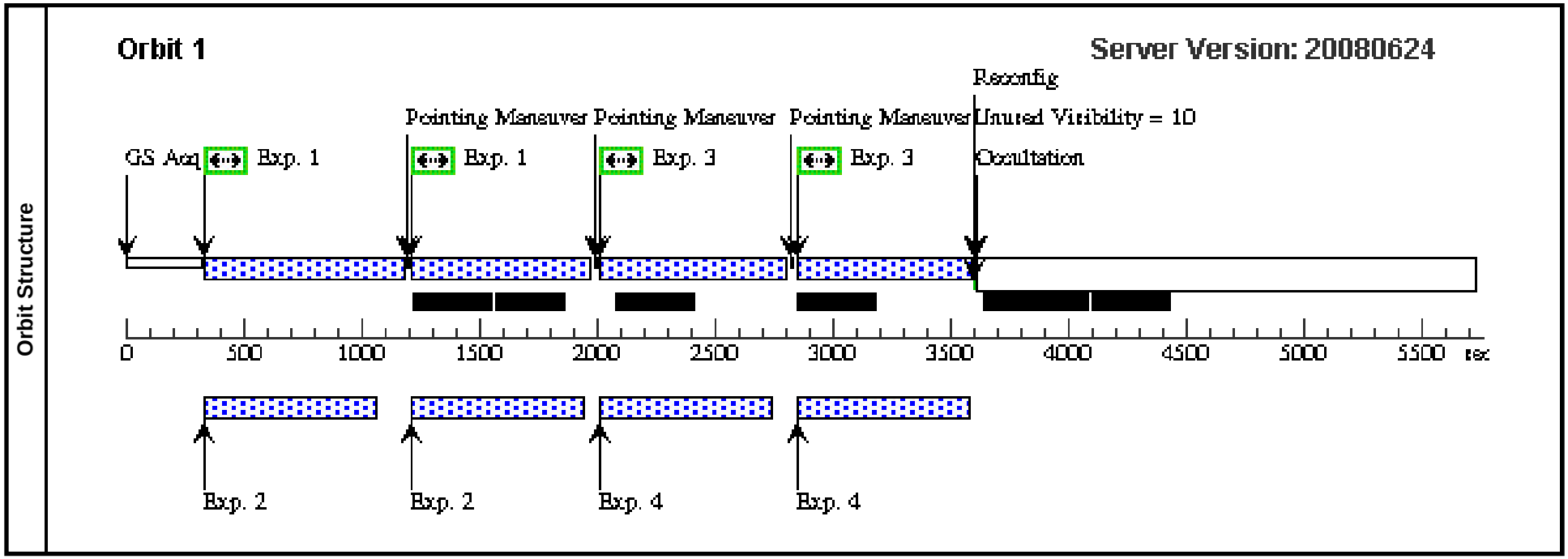
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	D1020+69	RA: 10 20 25.0000 (155.1041667d) Dec: +69 11 50.00 (69.19722d) Equinox: J2000		V=22.5+/-0.5	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D1020_F606	(9) D1020+69	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	640 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D1020_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D1020_F814	(9) D1020+69	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	615 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D1020_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20080624
Reconfig
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 10
GS Acq
Exp. 1
Exp. 1
Exp. 3
Exp. 3
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4

Visit

Proposal 11584, Visit 10 Wed Jul 02 01:17:47 GMT 2008

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, ACS/WFC

Special Requirements: (none)

Patterns

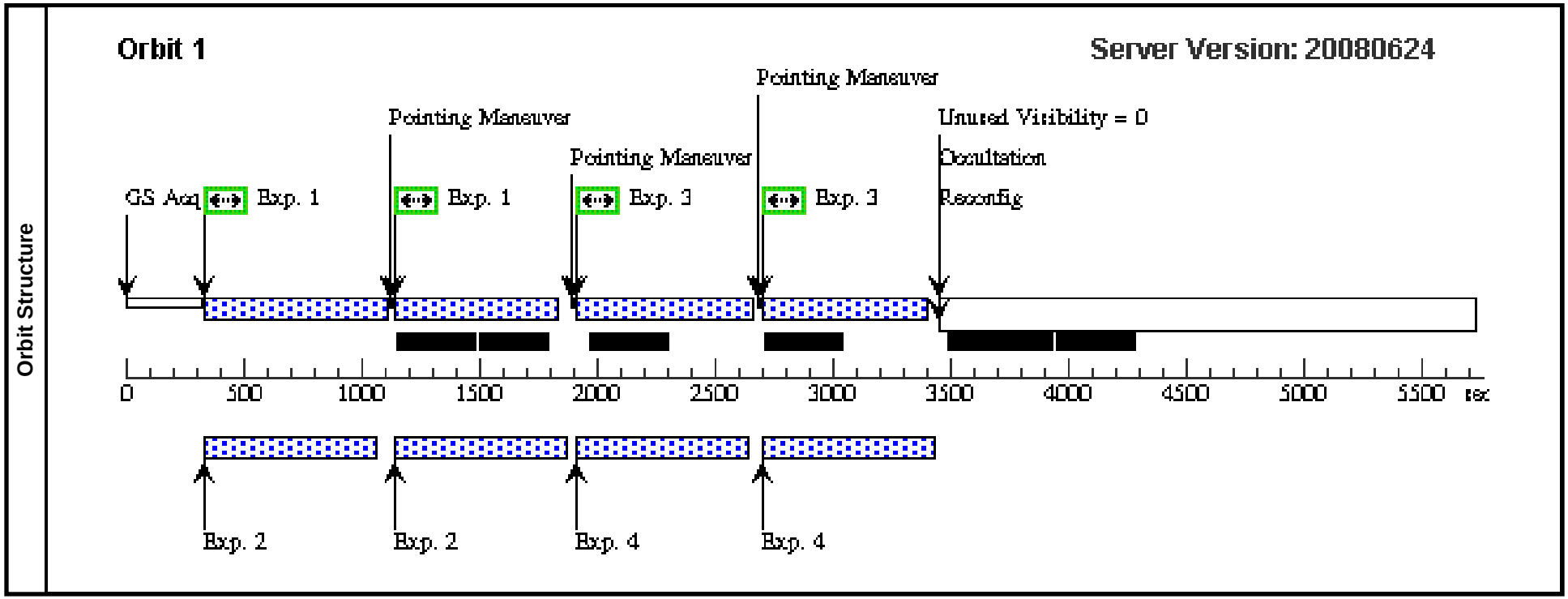
#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.011 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.28 Angle Between Sides= Center Pattern=false		(1-2), (3-4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	D0916+52	RA: 09 16 2.7300 (139.0113750d) Dec: +52 50 28.10 (52.84114d) Equinox: J2000		V=13.1+/-0.1	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	D0916_F606	(10) D0916+52	ACS/WFC, ACCUM, WFC1	F606W			Pattern 1-2 (1) Prime + Parallel Group 1-2	570 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	D0916_F105	ANY	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 1-2 (1) Prime + Parallel Group 1-2	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3	D0916_F814	(10) D0916+52	ACS/WFC, ACCUM, WFC1	F814W			Pattern 3-4 (1) Prime + Parallel Group 3-4	575 Secs *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4	D0916_F160	ANY	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100		Pattern 3-4 (1) Prime + Parallel Group 3-4	*[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
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Server Version: 20080624
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 0
Pointing Maneuver
Occultation
GS Acq
Exp. 1
Exp. 1
Exp. 3
Exp. 3
Reconfig
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3000
3500
4000
4500
5000
5500
sec
Exp. 2
Exp. 2
Exp. 4
Exp. 4