10628 - Determining the Lifetime of Planetary Nebula Knots from Observations of the Core of the Helix Nebula.

Cycle: 14, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. C. Robert O'Dell (PI)	**Vanderbilt University**	**cr.odell@vanderbilt.edu**
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VISITS

Visit	*Targets*	*Configurations*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	ANY (1) NGC7293-OFFSET (2) NGC7293-POS2 (3) NGC7293-POS3	ACS/WFC NIC3 WFPC2	3	20-Jun-2005 21:24:57.0	yes
02	(4) NGC7293-POS4 ANY (1) NGC7293-OFFSET (2) NGC7293-POS2	ACS/WFC NIC3 WFPC2	3	20-Jun-2005 21:25:15.0	yes
03	(4) NGC7293-POS4 ANY (3) NGC7293-POS3	ACS/WFC NIC3 WFPC2	2	20-Jun-2005 21:25:25.0	yes

8 Total Orbits Used

ABSTRACT

Knots within the Planetary Nebulae (PN) are ubiquitous components and form at the interface of the expanding ionized zone and the surrounding dusty and molecule-rich neutral layers. About half of the total mass ejected by the precursor star becomes trappped in the Knots, which will join the Interstellar Medium (ISM) within a few tens of thousands of years. If they survive, they may be the source of the micro-structures that appear to be common in the ISM, a result that would be important in understanding the exchange of matter between stars and the ISM. We propose observations that will characterize the Knots over a wider ionization range and ages than has been done before, which should yield the best model for the Knots and therefore the best prediction of their fates.

Knots are not seen within a well defined distance from the central star. We don't know if this is because they are being destroyed by photoevaporation (since the inner Knots would be the youngest), an important factor in our modeling. However, the inner core of the Helix Nebula has not been imaged in the HeII emission that dominates the region. We propose eight orbits of observations that will search the inner core of the Helix for undetected knots using the WFPC2 HeII F469N filter and the ACS-WFC F502N filter that isolates [OIII] emission. Our WFPC2 pointing will also allow imaging the best studied knot in HeII, giving us the best possible data for that Knot. These combined results will be modeled with the new Hydro-Cloudy code, allowing us to determine if they will survive the PN stage and become components of the ISM. At no additional cost of observing time we will be able to derive a calibration of the WFPC2 F469N filter, to make unprecedented quality parallel images in molecular hydrogen, and to extended the coverage of high resolution emission-line images of the Helix Nebula.

OBSERVING DESCRIPTION

We will make eight orbits of observations using four close pointings within the same object, the Helix Nebula-NGC 7293.The primary instrument will be the WFPC2, where all of the observations will be made using the F469N filter, a new pointing will be made for each orbit.
Coordinated parallel observations will be made with at each WFPC2 setting. The NIC3 observations will be made with the F212N and F215N filters at each pointing. The ACS observations will be made with the F502N and F658N filters, alternating with the pointings.Orientation is very important in this program. ORIENT=240 is the best value for the Two-Gyro-Mode. If this value cannot be scheduled, I would want to substitute new pointing coordinates for the ORIENT value that is available.

ADDITIONAL COMMENTS

In the event that these observations are scheduled early in Cycle 14 and the Three-Gyro-Mode is available, I would want to use a new ORIENT value (060) and to using a different set of pointings. Please keep me apprised of this possibility.

Visit

Proposal 10628, Visit 01 Tue Jun 21 01:25:27 GMT 2005

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC, WFPC2, NIC3

Special Requirements: ORIENT 259.8D TO 260.2 D; GROUP 01,02,03 WITHIN 60.0D

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC7293-OFFSET	RA: 22 29 25.2400 (337.3551667d) Dec: -20 52 30.50 (-20.87514d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position:	V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(2)	NGC7293-POS2	Offset from NGC7293-OFFSET by RA Offset: 0.2 Dec Offset: 0.0		V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS2) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(3)	NGC7293-POS3	Offset from NGC7293-OFFSET by RA Offset: -0.2 Dec Offset: 0.0	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position:	V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS3) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Visit1Orbit1PrimePtgFirstExpWFPC2F469N	(1) NGC7293-OFFSET	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1100.0 Secs]*	***[1]***
2	Visit1Orbit1PrimePtgFirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 1-3	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
3	Visit1Orbit1PrimePtgFirstExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1162.0 Secs]*	***[1]***
4	Visit1Orbit1PrimePtgSecondExpWFPC2F469N	(1) NGC7293-OFFSET	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1100.0 Secs]*	***[1]***
5	Visit1Orbit1PrimePtgSecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	NSAMP=12; SAMP-SEQ=SPARS64		Prime + Parallel Group 4-6	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***

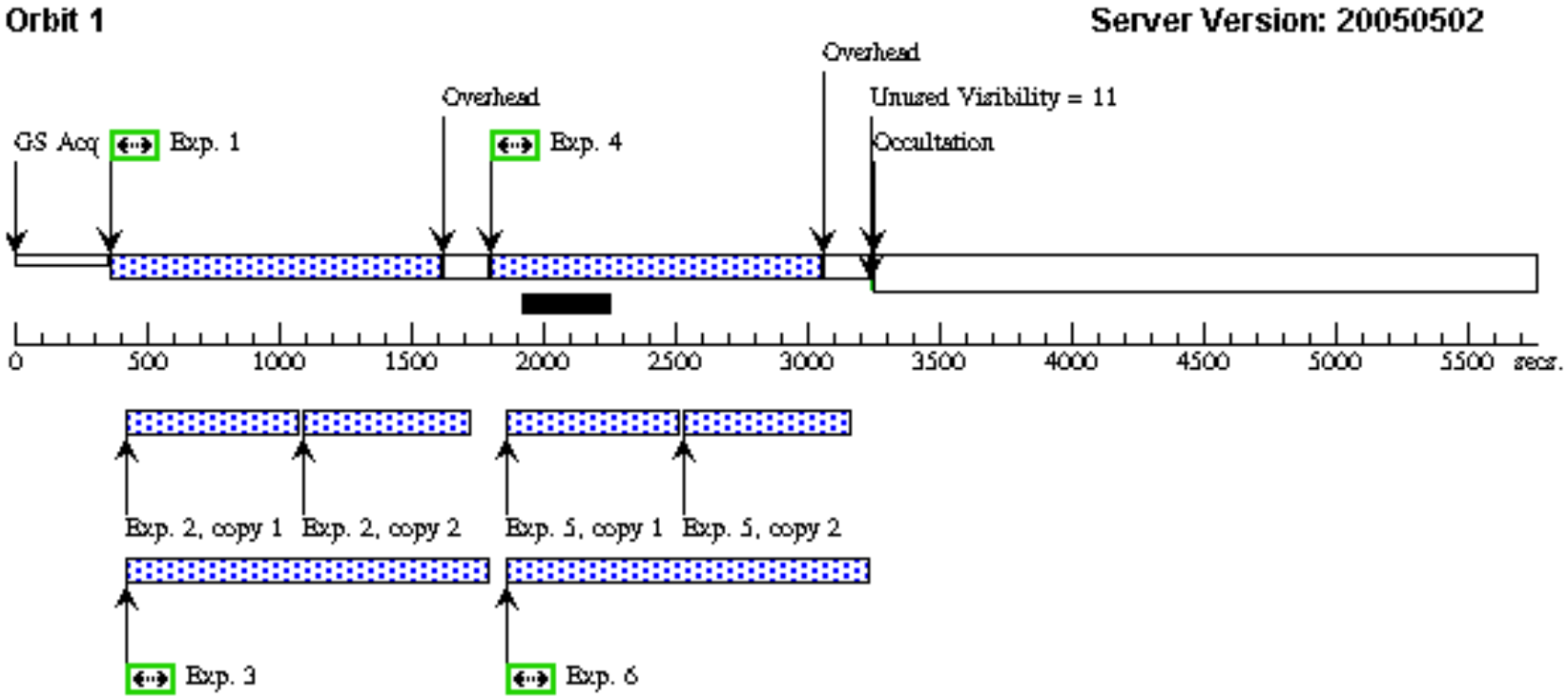
Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
6	Visit1Orbit1PrimePtgSecondExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1244.0 Secs]*	***[1]***
7	Visit1Orbit2Pos2FirstExpWFPC2F469N	(2) NGC7293-POS2	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1100.0 Secs]*	***[2]***
8	Visit1Orbit2Pos2FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 7-9	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
9	Visit1Orbit2Pos2FirstExpACSparallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1223.0 Secs]*	***[2]***
10	Visit1Orbit2Pos2SecondExpWFPC2F469N	(2) NGC7293-POS2	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1100.0 Secs]*	***[2]***
11	Visit1Orbit2Pos2SecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 10-12	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
12	Visit1Orbit2Pos2SecondExpACSparrallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1231.0 Secs]*	***[2]***
13	Visit1Orbit3Pos3FirstExp1WFPC2F469N	(3) NGC7293-POS3	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 13-15	1200.0 Secs *[==>1100.0 Secs]*	***[3]***
14	Visit1Orbit3Pos3FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 13-15	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
15	Visit1Orbit3Pos3FirstExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 13-15	1200.0 Secs *[==>1222.0 Secs]*	***[3]***
16	Visit1Orbit3Pos3SecondExpWFPC2F469N	(3) NGC7293-POS3	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 16-18	1200.0 Secs *[==>1100.0 Secs]*	***[3]***
17	Visit1Orbit3Pos3SecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 16-18	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***

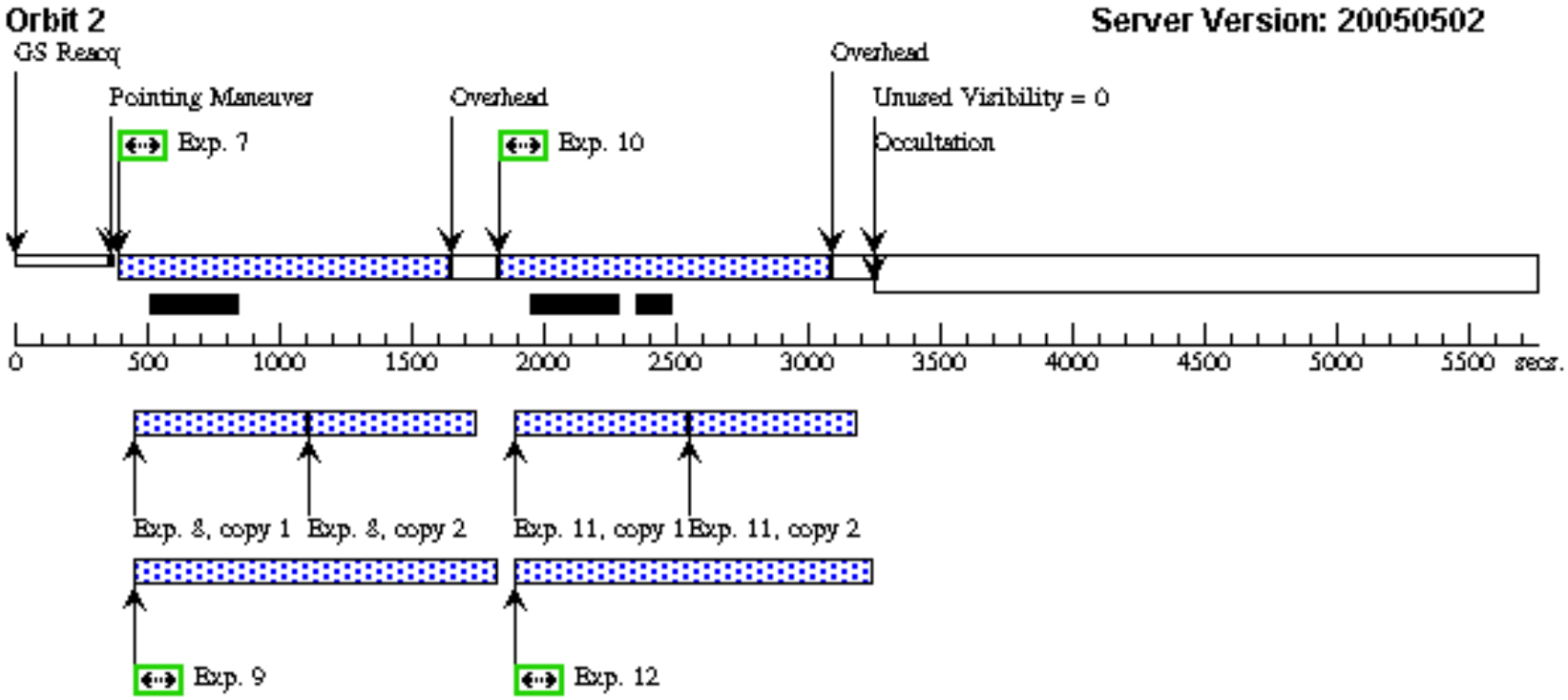
Exposures (continued)

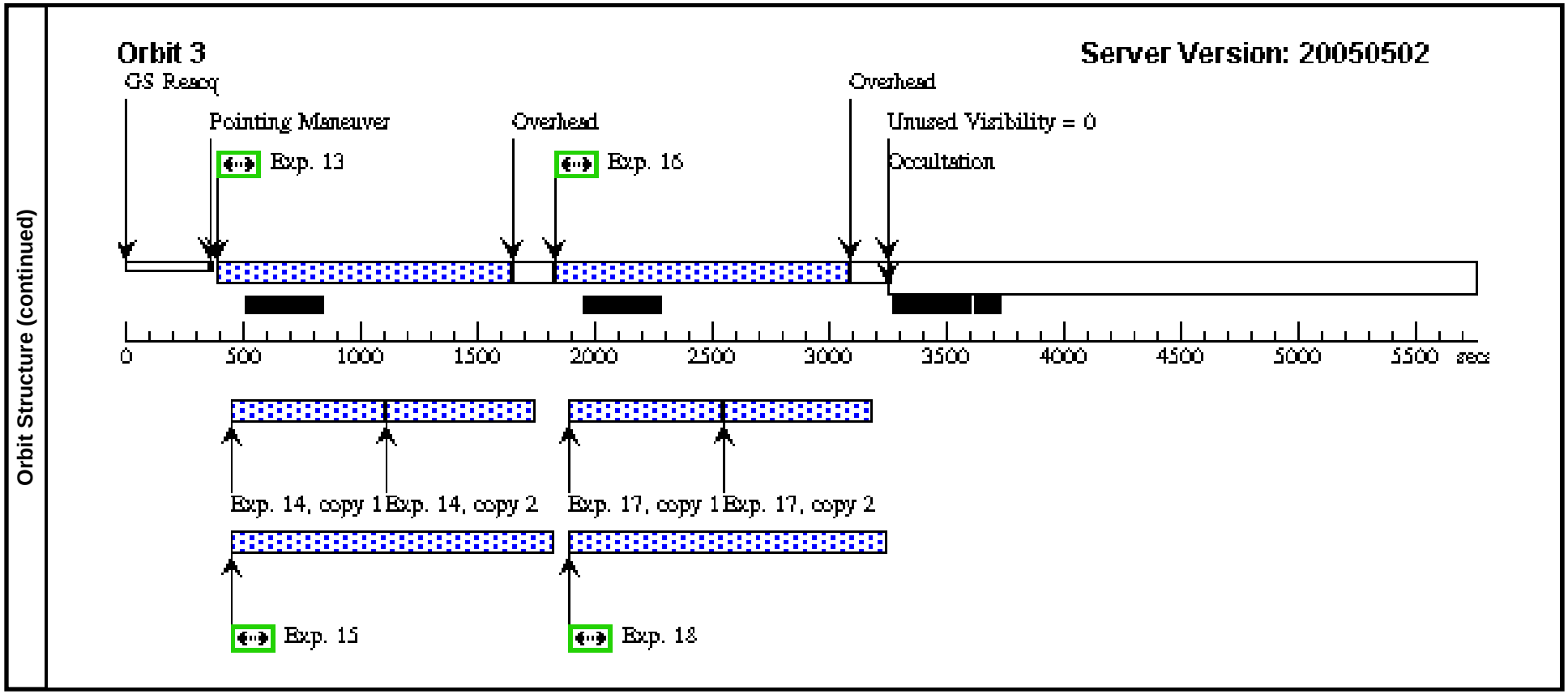
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
18	Visit1Orbit3Pos3SecondExpACSparrallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 16-18	1200.0 Secs *[==>1228.0 Secs]*	*[3]*

Orbit Structure



Orbit Structure (continued)




Orbit Structure (continued)
Orbit 3
Server Version: 20050502
GS Reacq
Pointing Maneuver
Overhead
Overhead
Unused Visibility = 0
Exp. 13
Exp. 16
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 14, copy 1
Exp. 14, copy 2
Exp. 17, copy 1
Exp. 17, copy 2
Exp. 15
Exp. 18

Visit

Proposal 10628, Visit 02 Tue Jun 21 01:25:29 GMT 2005

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC, WFPC2, NIC3

Special Requirements: SAME ORIENT AS 01

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC7293-OFFSET	RA: 22 29 25.2400 (337.3551667d) Dec: -20 52 30.50 (-20.87514d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position:	V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(2)	NGC7293-POS2	Offset from NGC7293-OFFSET by RA Offset: 0.2 Dec Offset: 0.0		V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS2) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(4)	NGC7293-POS4	Offset from NGC7293-OFFSET by RA Offset: 0.0 Dec Offset: -3.0		V=(?) Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS4) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					

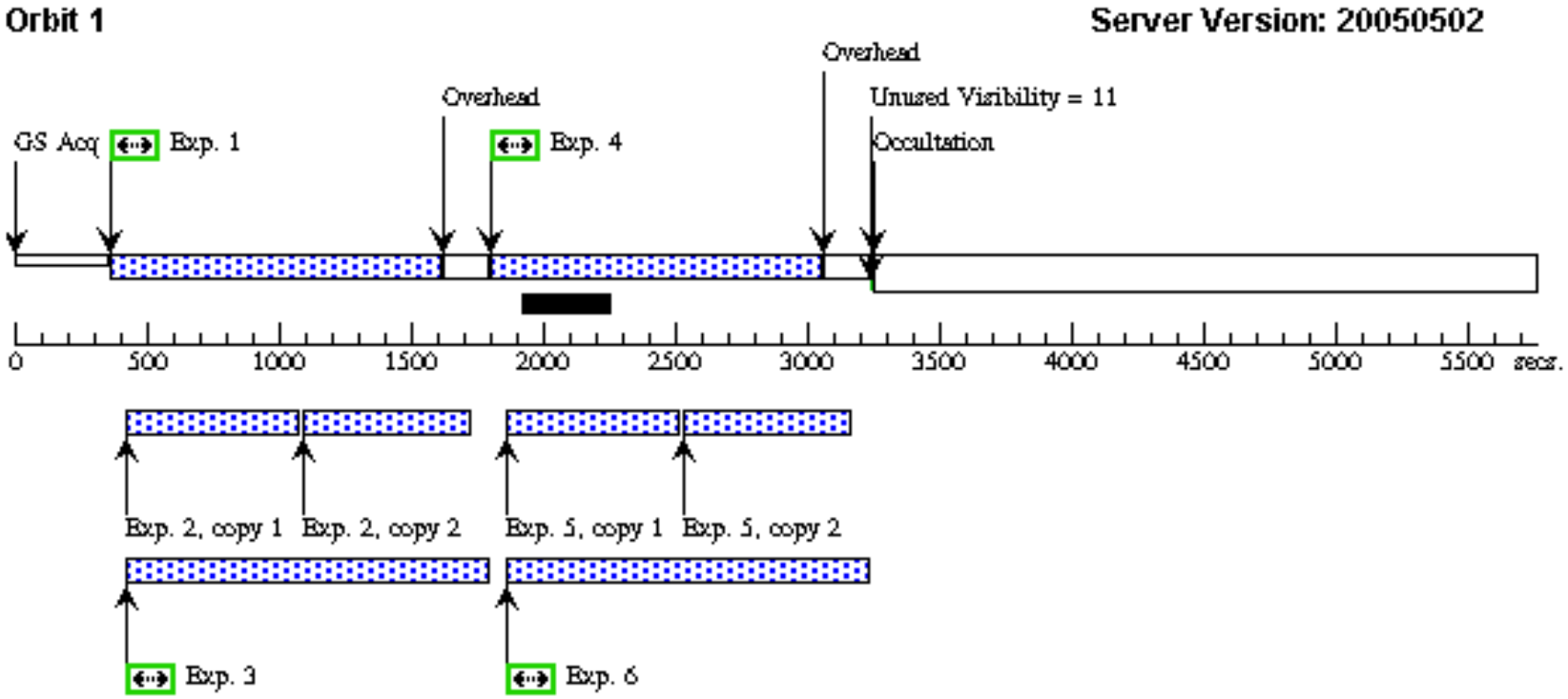
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Visit2Orbit1Pos4FirstExpWFPC2F469N	(4) NGC7293-POS4	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1100.0 Secs]*	***[1]***
2	Visit2Orbit1Pos4FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 1-3	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
3	Visit2Orbit1Pos4FirstExpACSparallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1162.0 Secs]*	***[1]***
4	Visit2Orbit1Pos4SecondExpWFPC2F469N	(4) NGC7293-POS4	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1100.0 Secs]*	***[1]***
5	Visit2Orbit1Pos4ExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 4-6	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
6	Visit2Orbit1Pos4SecondExpACSparrallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1244.0 Secs]*	***[1]***

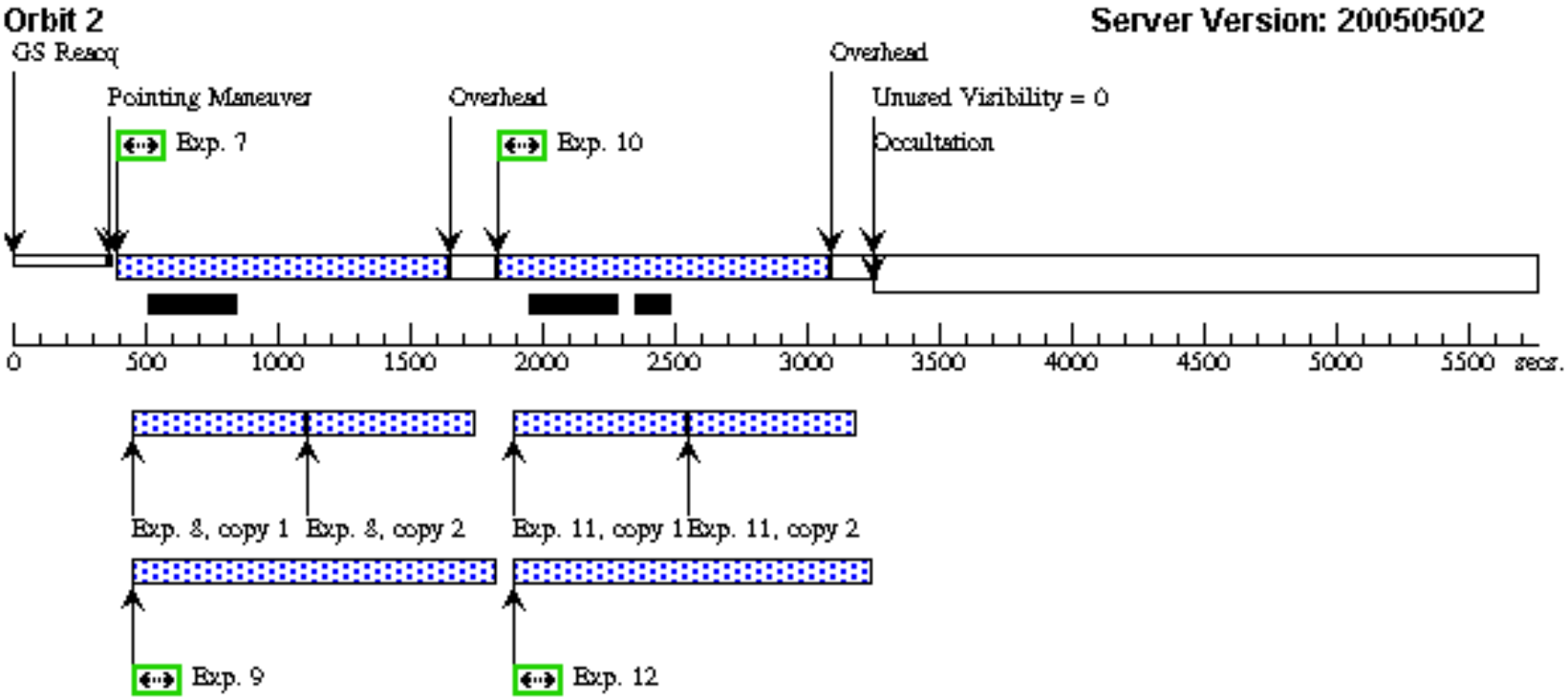
Exposures (continued)

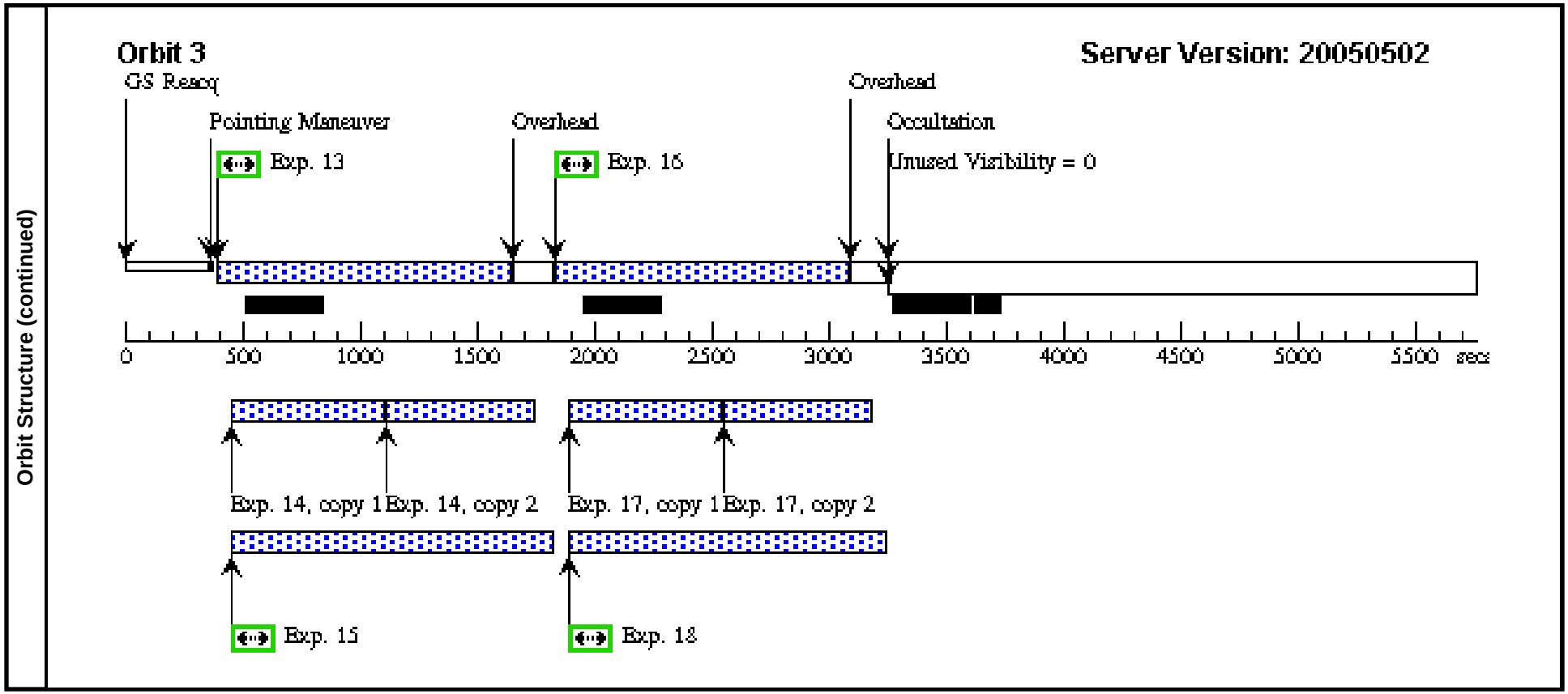
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
7	Visit2Orbit2PrimePtgFirstExpWFPC2F469N	(1) NGC7293-OFFSET	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1100.0 Secs]*	***[2]***
8	Visit2Orbit2PrimePtgFirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 7-9	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
9	Visit2Orbit2PrimePtgFirstExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1222.0 Secs]*	***[2]***
10	Visit2Orbit2PrimePtgSecondExpWFPC2F469N	(1) NGC7293-OFFSET	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1100.0 Secs]*	***[2]***
11	Visit2Orbit2PrimePtgSecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 10-12	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
12	Visit2Orbit2PrimePtgSecondExpACSparrallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1231.0 Secs]*	***[2]***
13	Visit2Orbit3Pos2FirstExp1WFPC2F469N	(2) NGC7293-POS2	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 13-15	1200.0 Secs *[==>1100.0 Secs]*	***[3]***
14	Visit2Orbit3Pos2FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 13-15	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
15	Visit2Orbit3Pos2FirstExpACSparallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 13-15	1200.0 Secs *[==>1223.0 Secs]*	***[3]***
16	Visit2Orbit3Pos2SecondExpWFPC2F469N	(2) NGC7293-POS2	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 16-18	1200.0 Secs *[==>1100.0 Secs]*	***[3]***
17	Visit2Orbit2Pos2SecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 16-18	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[3]***
18	Visit2Orbit3Pos2SecondExpACSparrallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 16-18	1200.0 Secs *[==>1231.0 Secs]*	***[3]***

Orbit Structure



Orbit Structure (continued)




Orbit Structure (continued)
Orbit 3
Server Version: 20050502
GS Reacq
Pointing Maneuver
Exp. 13
Overhead
Exp. 16
Overhead
Occultation
Unused Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 14, copy 1
Exp. 14, copy 2
Exp. 17, copy 1
Exp. 17, copy 2
Exp. 15
Exp. 18

Visit

Proposal 10628, Visit 03 Tue Jun 21 01:25:31 GMT 2005

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC, WFPC2, NIC3

Special Requirements: SAME ORIENT AS 01

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC7293-OFFSET	RA: 22 29 25.2400 (337.3551667d) Dec: -20 52 30.50 (-20.87514d) Equinox: J2000 Plate Id: (?)	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position:	V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Coordinate Source: IMAGE_TIED_TO_GSC_FRAME
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(3)	NGC7293-POS3	Offset from NGC7293-OFFSET by RA Offset: -0.2 Dec Offset: 0.0	Proper Motion RA: 0.0s/yr Proper Motion Dec: 0.0"/yr Epoch of Position:	V=10.0 Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS3) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					
(4)	NGC7293-POS4	Offset from NGC7293-OFFSET by RA Offset: 0.0 Dec Offset: -3.0		V=(?) Total flux from object is log F(Hb)=-9.35 (ergs/cmsq/sec	Offset Position (NGC7293-POS4) Coordinate Source: HST_IMAGE
Comments: Coordinates taken from an earlier HST WFPC2 image. V magnitude is a dummy as there are no bright stars in the FOV.					

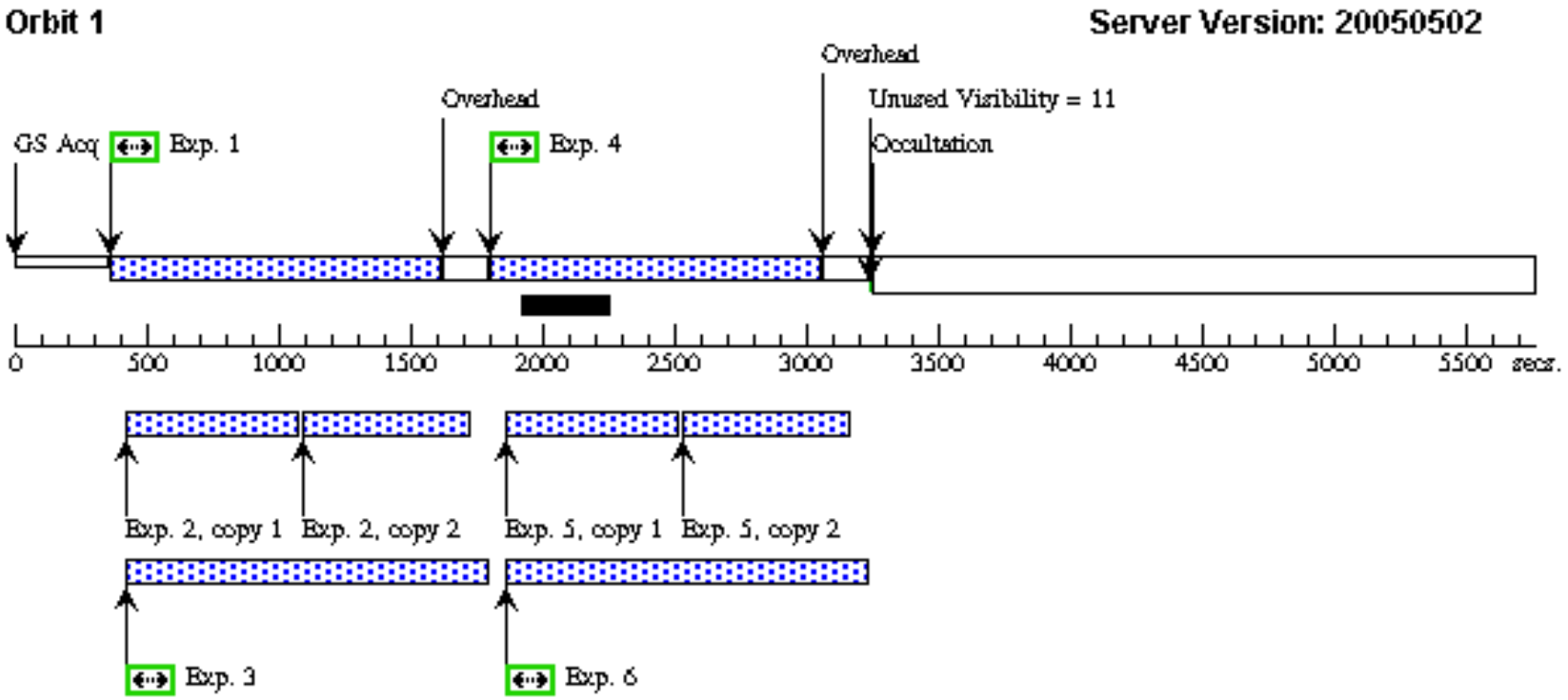
Exposures

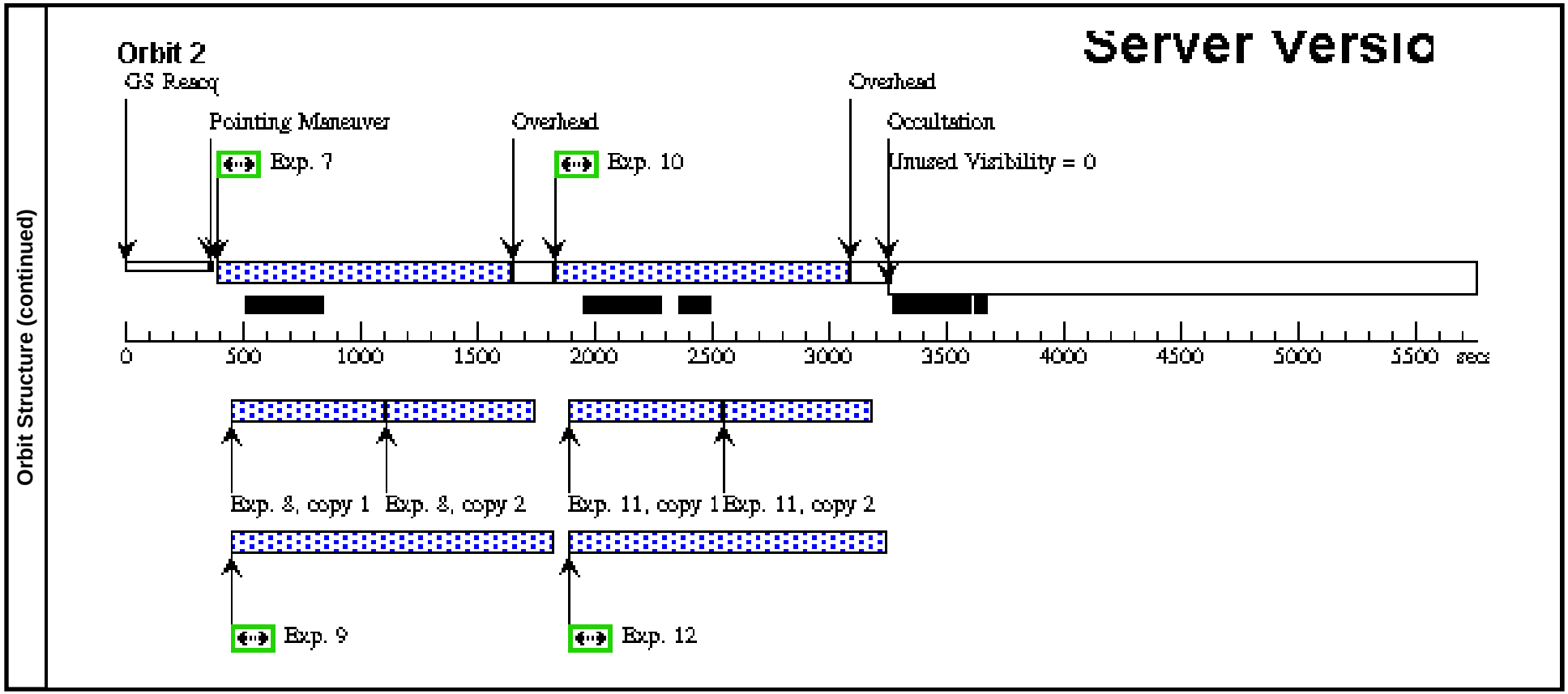
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	Visit3Orbit1Pos3FirstExpWFPC2F469N	(3) NGC7293-POS3	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1100.0 Secs]*	 ***[1]***
2	Visit2Orbit1Pos4FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 1-3	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
3	Visit2Orbit1Pos4FirstExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 1-3	1200.0 Secs *[==>1162.0 Secs]*	 ***[1]***
4	Visit3Orbit1Pos3SecondExpWFPC2F469N	(3) NGC7293-POS3	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1100.0 Secs]*	 ***[1]***
5	Visit3Orbit1Pos4ExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 4-6	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[1]***
6	Visit2Orbit1Pos4SecondExpACSparrallelF658N	ANY	ACS/WFC, ACCUM, WFC	F658N	CR-SPLIT=NO		Prime + Parallel Group 4-6	1200.0 Secs *[==>1244.0 Secs]*	 ***[1]***

Exposures (continued)

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
7	Visit3Orbit2Pos4FirstExpWFPC2F469N	(4) NGC7293-POS4	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1100.0 Secs]*	 ***[2]***
8	Visit3Orbit2Pos4FirstExpNIC3parallelF212N	ANY	NIC3, MULTIACCUM, NIC3	F212N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 7-9	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
9	Visit3Orbit2Pos4FirstExpACSparallelF502N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 7-9	1200.0 Secs *[==>1223.0 Secs]*	 ***[2]***
10	Visit3Orbit2Pos4SecondExpWFPC2F469N	(4) NGC7293-POS4	WFPC2, IMAGE, WFALL	F469N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1100.0 Secs]*	 ***[2]***
11	Visit3Orbit2Pos4SecondExpNIC3parallelF215N	ANY	NIC3, MULTIACCUM, NIC3	F215N	SAMP-SEQ=SPARS64; NSAMP=12		Prime + Parallel Group 10-12	*[==>(Copy 1)]* *[==>(Copy 2)]*	***[2]***
12	Visit3Orbit2Pos4SecondExpACSparallelF658N	ANY	ACS/WFC, ACCUM, WFC	F502N	CR-SPLIT=NO		Prime + Parallel Group 10-12	1200.0 Secs *[==>1230.0 Secs]*	 ***[2]***

Orbit Structure




Orbit Structure (continued)
Server Versio
Orbit 2
GS Reacq
Pointing Maneuver
Overhead
Occultation
Overhead
Exp. 7
Exp. 10
Unused Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 8, copy 1
Exp. 8, copy 2
Exp. 11, copy 1
Exp. 11, copy 2
Exp. 9
Exp. 12