



11577 - Opening New Windows on the Antennae with WFC3

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
10	(1) NGC4038-39-1 ANY	ACS/WFC WFC3/UVIS	2	03-Nov-2009 21:25:00.0	yes
12	(2) NGC4038-39-2 ANY	ACS/WFC WFC3/UVIS	2	03-Nov-2009 21:25:12.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
20	(4) NGC4038-39-JH-1 (6) NGC4038-39-ACS1 (11) NGC4038-39-JH-1-RIESS ANY	ACS/WFC WFC3/IR WFC3/UVIS	5	03-Nov-2009 21:25:31.0	yes
91	(4) NGC4038-39-JH-1 ANY	ACS/WFC WFC3/IR	2	03-Nov-2009 21:25:48.0	yes
90	(8) NGC4038-39-WFC2	WFC3/UVIS	2	03-Nov-2009 21:25:54.0	yes
31	(6) NGC4038-39-ACS1 ANY	ACS/WFC WFC3/UVIS	1	03-Nov-2009 21:25:57.0	yes
32	(10) NGC4038-39-SOUTH-DWARF	WFC3/UVIS	1	03-Nov-2009 21:26:00.0	yes
33	(9) NGC4038-S-TAIL	WFC3/UVIS	1	03-Nov-2009 21:26:02.0	yes
34	(5) NGC4038-N-TAIL	ACS/WFC	1	03-Nov-2009 21:26:04.0	yes

17 Total Orbits Used

ABSTRACT

We propose to use WFC3 to provide key observations of young star clusters in "The Antennae" (NGC4038/39). Of prime importance is the WFC3's ability to push the limiting UV magnitude FIVE mag deeper than our previous WFPC2 observations. This corresponds to pushing the limiting cluster mass from $\sim 10^{5.5}$ to $\sim 10^{3.5}$ solar masses for cluster ages $\sim 10^8$ yrs. In addition, the much wider field of view of the WFC3 IR channel will allow us to map out both colliding disks rather than just the Overlap Region between them. This will be especially important for finding the youngest clusters that are still embedded in their placental cocoons. The extensive set of narrow-band filters will provide an effective means for determining the properties of shocks, which are believed to be a primary triggering mechanism for star formation. We will also use ACS in parallel with WFC3 to observe portions of both the northern and southern tails at no additional orbital cost. Finally, one additional primary WFC3 orbit will be used to supplement existing HST observations of the star-forming "dwarf" galaxy at the end of the southern tail. Hence, when completed we will have full UBVI + H_{alpha} coverage (or more for the main galaxy) of four different environments in the Antennae. In conjunction with the extensive multi-

wavelength database we have collected (both HST and ground-based) these observations will provide answers to fundamental questions such as: How do these clusters form and evolve? How is star formation triggered? How do star clusters affect the local and global ISM, and the evolution of the galaxy as a whole? The Antennae galaxies are the nearest example of a major disk--disk merger, and hence may represent our best chance for understanding how mergers form tremendous numbers of clusters and stars, both in the local universe and during galaxy assembly at high redshift.

OBSERVING DESCRIPTION

We are imaging the main body of the Antennae galaxies with WFC3 UV and IR filters, both broad and narrow-band. We are also imaging a portion of the North tail, the South tail, and the tidal dwarf with BVRI and H α filters, in order to sample different environments in this interesting system.

Broad-band exposure times have been set to reach star clusters with ages of a $\sim 10^8$ yr down to $\sim 10^3$ solar masses. Narrow-band exposure times were scaled from our previous HST observations of a metal-rich galaxy.

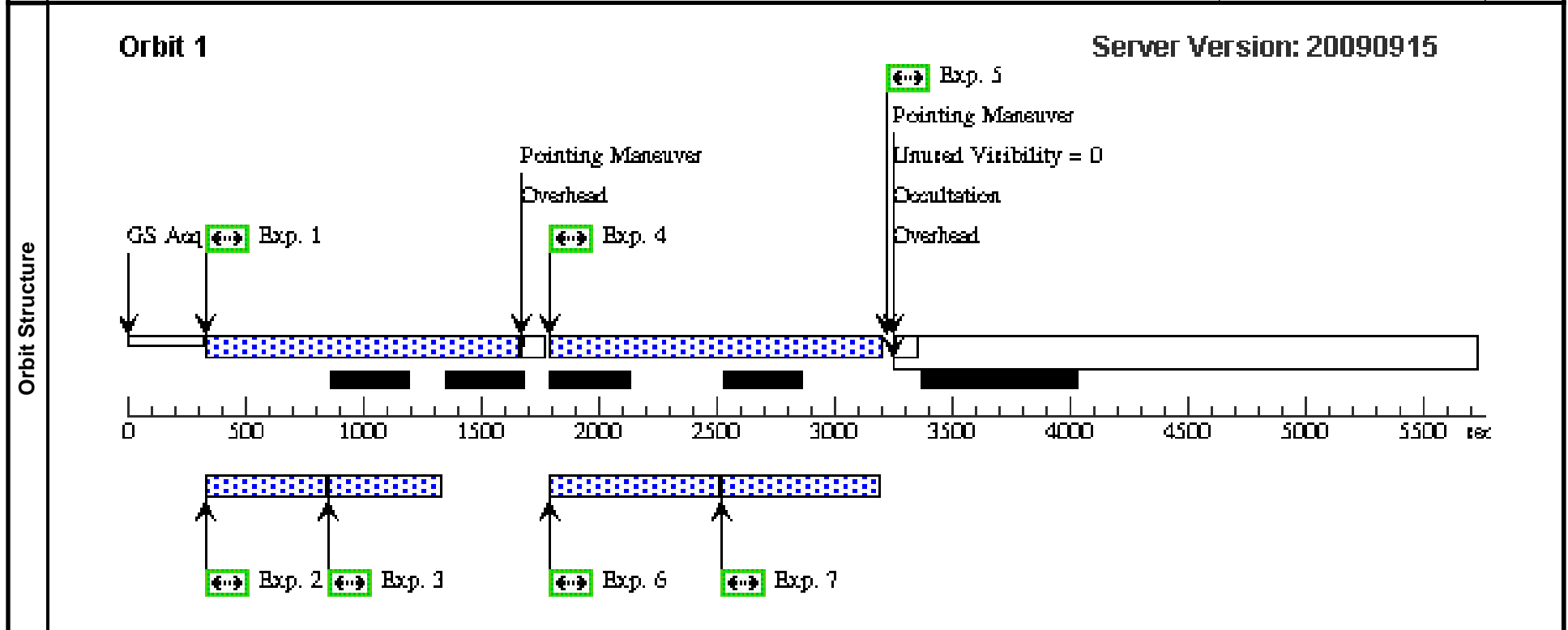
Whenever possible, we use a 4-point dither pattern, although in order to pack the orbits and incorporate parallels, we use 3-point dithers most of the time.

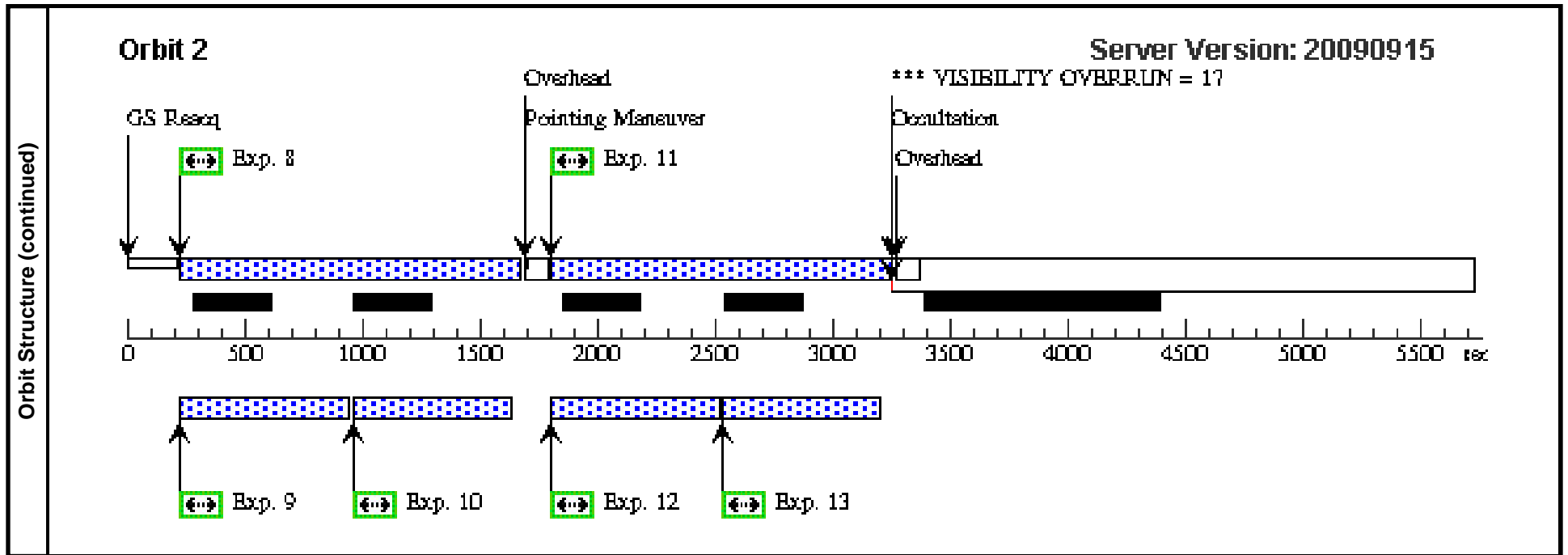
visit	#orbits	instrument/filters	parallels	notes
10	2	WFC3/336 BVIHa	(S tail)	
12	2	WFC3/336 BVIHa	(S tail)	
22	5	WFC3/110,160 VR	(S tail)	
25	2	WFC3/128N, 164N	some para of S tail	
90	2	WFC3/487N+673N	no para	
31	1	ACS/502N WFC3/336W	of N tail -- slightly shorter observing window	
32	1	WFC3/336	S. tidal dwarf	
33	1	WFC3/336	S. tail	
34	1	ACS/435,555,814	N. tail	

Visit	Proposal 11577, Visit 10, implementation Diagnostic Status: Warning Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 318D TO 323. D <i>Comments: WFC3/F336W imaging of NGC 4038 -- pointing 1, S tail BVIHa in parallwl</i>									
	(Visit 10) Warning (Orbit Planner): VISIBILITY OVERRUN									
Diagnostics										
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NGC4038-39-1	RA: 12 01 54.8600 (180.4785833d) Dec: -18 53 14.05 (-18.88724d) Equinox: J2000		V=10	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F336-1-long	(1) NGC4038-39-1	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO		Prime + Parallel Group 1-3	1300 Secs [==>]	[1]
	2		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 1-3	300 Secs [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 1-3	360 Secs [==>]	[1]
	4	F336-2-long	(1) NGC4038-39-1	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.079,0.085	Prime + Parallel Group 4-7	1300 Secs [==>]	[1]
	5	F336-2-short	(1) NGC4038-39-1	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.079,0.085	Prime + Parallel Group 4-7	22 Secs [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 4-7	550 Secs [==>]	[1]
	7		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 4-7	550 Secs [==>]	[1]
	8	F336-3-long	(1) NGC4038-39-1	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.178,2.00	Prime + Parallel Group 8-10	1456 Secs [==>]	[2]
	9		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 8-10	550 Secs [==>]	[2]
	10		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 8-10	550 Secs [==>]	[2]
	11	F336-4-long	(1) NGC4038-39-1	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.257,1.920	Prime + Parallel Group 11-13	1456 Secs [==>]	[2]

Proposal 11577 - Visit 10 - Opening New Windows on the Antennae with WFC3

Exposures (continued)	#	Label	Target	Config, Mode, Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		12		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 11-13	550 Secs [==>]
	13		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 11-13	550 Secs [==>]	[2]





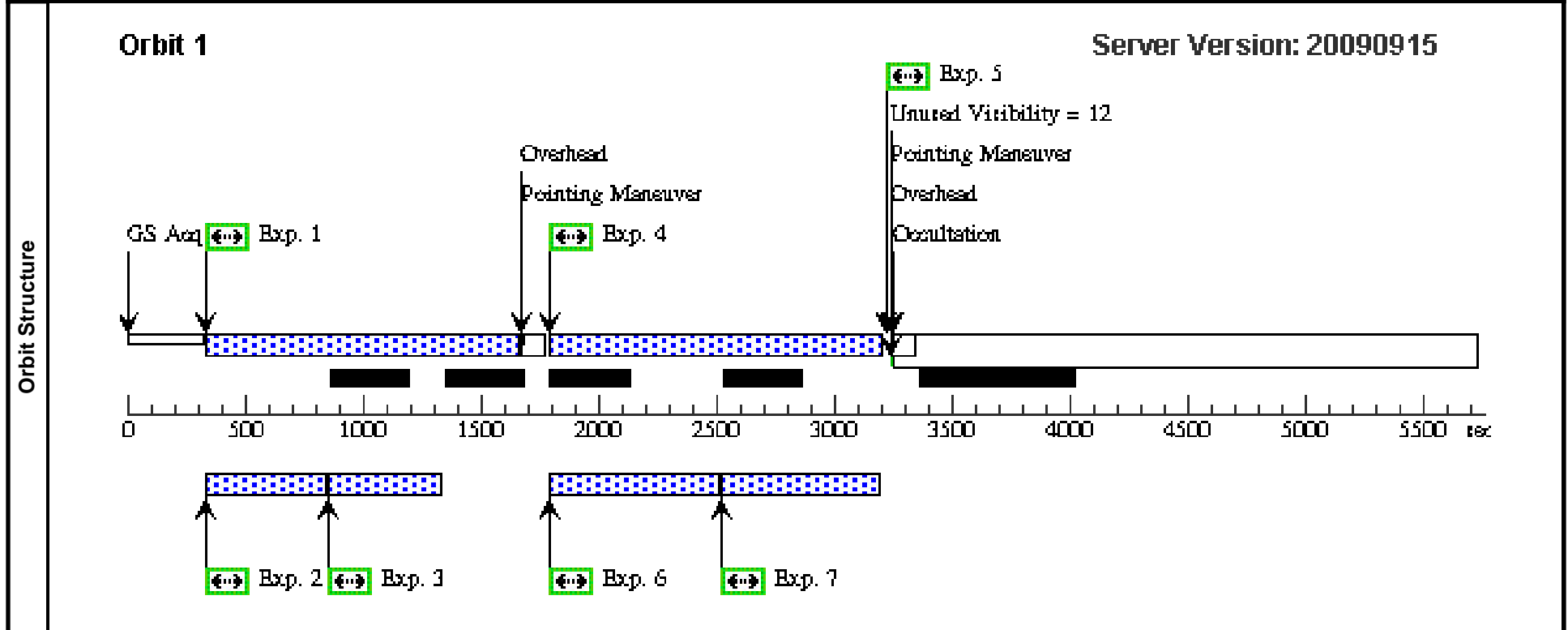
Proposal 11577 - Visit 12 - Opening New Windows on the Antennae with WFC3

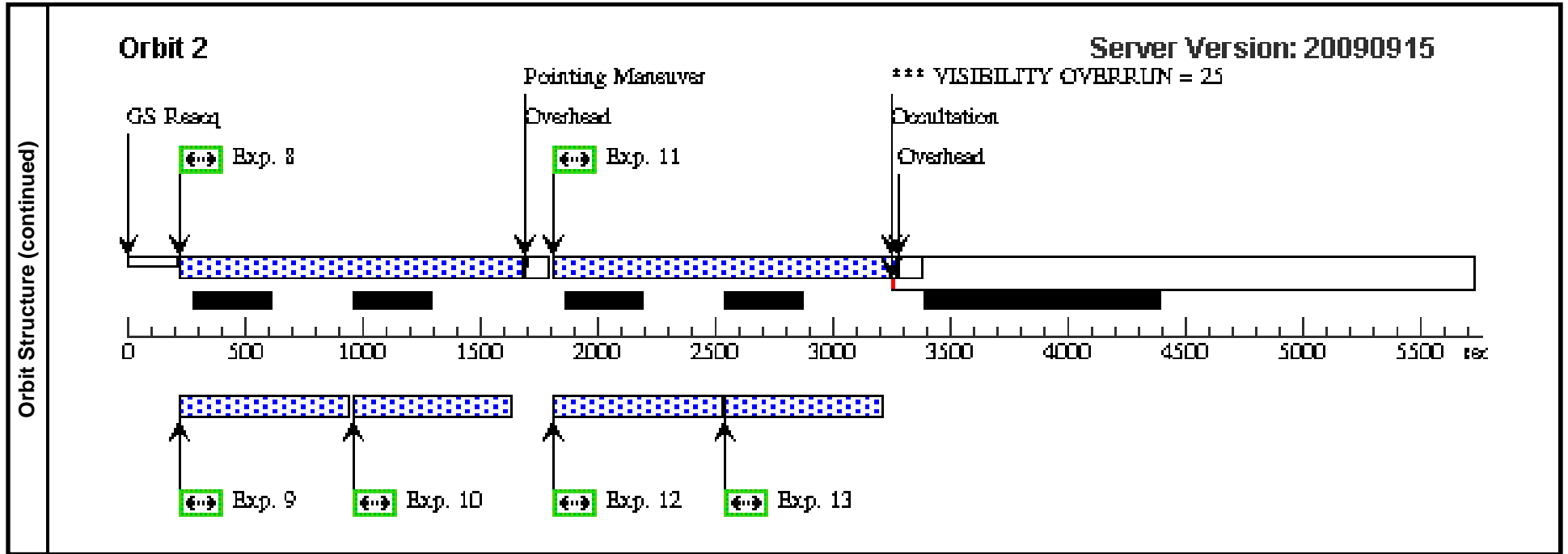
Wed Nov 04 02:26:09 GMT 2009

Visit	Proposal 11577, Visit 12, implementation Diagnostic Status: Warning Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 320.D TO 326. D Comments: WFC3/F336W imaging of NGC 4038 -- pointing 2									
	(Visit 12) Warning (Orbit Planner): VISIBILITY OVERRUN									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	NGC4038-39-2	RA: 12 01 53.2900 (180.4720417d) Dec: -18 52 28.05 (-18.87446d) Equinox: J2000		V=10	Reference Frame: ICRS				
Comments: This object was generated by the targetselector and retrieved from the NED database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F336-1-long	(2) NGC4038-39-2	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO		Prime + Parallel Group 1-3	1300 Secs [==>]	[1]
	2		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 1-3	300 Secs [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 1-3	360 Secs [==>]	[1]
	4	F336-2-long	(2) NGC4038-39-2	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.079,0.085	Prime + Parallel Group 4-7	1300 Secs [==>]	[1]
	5	F336-2-short	(2) NGC4038-39-2	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.079,0.085	Prime + Parallel Group 4-7	10 Secs [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 4-7	550 Secs [==>]	[1]
	7		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 4-7	550 Secs [==>]	[1]
	8	F336-3-long	(2) NGC4038-39-2	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.178,2.00	Prime + Parallel Group 8-10	1460 Secs [==>]	[2]
	9		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 8-10	550 Secs [==>]	[2]
	10		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 8-10	550 Secs [==>]	[2]
	11	F336-4-long	(2) NGC4038-39-2	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.257,1.920	Prime + Parallel Group 11-13	1460 Secs [==>]	[2]

Proposal 11577 - Visit 12 - Opening New Windows on the Antennae with WFC3

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		12		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 11-13	550 Secs [==>]
	13		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 11-13	550 Secs [==>]	[2]





Proposal 11577 - Visit 20 - Opening New Windows on the Antennae with WFC3

Wed Nov 04 02:26:10 GMT 2009

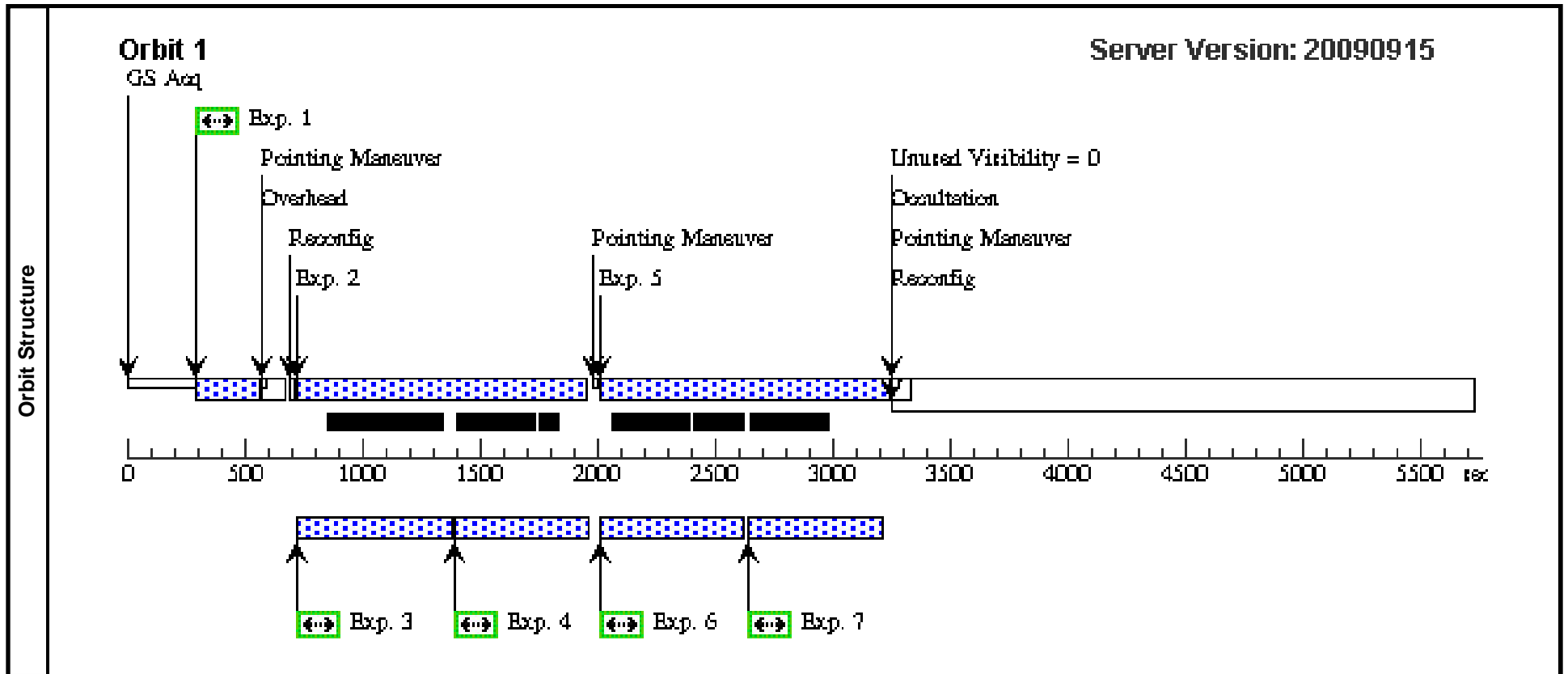
Visit	Proposal 11577, Visit 20, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/IR, ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 315D TO 320.0 D Comments: WFC3/J, H imaging of NGC 4038 -- do parallels of S tail in different filters than BVIHa NOTE: - June 18, 2009) Two orbits were added to this visit due to the duplication issue with 11962 (i.e., added two orbits here and 11962 removed 3 orbits).										
	Diagnosics (Visit 20) Warning (Orbit Planner): VISIBILITY OVERRUN (Visit 20) Warning (Orbit Planner): VISIBILITY OVERRUN (Visit 20) Warning (Orbit Planner): VISIBILITY OVERRUN										
Patterns	#	Primary Pattern				Secondary Pattern			Exposures		
	(5)	Pattern Type=WFC3-UVIS-DITHER- LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(23), (24)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(4)	NGC4038-39-JH-1	RA: 12 01 53.4000 (180.4725000d) Dec: -18 52 25.00 (-18.87361d) Equinox: J2000				V=10	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
	(6)	NGC4038-39-ACS1	RA: 12 01 54.1400 (180.4755833d) Dec: -18 52 40.10 (-18.87781d) Equinox: J2000				V=10	Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>											
(11)	NGC4038-39-JH-1-RIESS	RA: 12 01 53.3000 (180.4720833d) Dec: -18 52 10.60 (-18.86961d) Equinox: J2000				V=10	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	F625_1	(6) NGC4038-39-AC S1	WFC3/UVIS, ACCUM, UVIS-FIX	F625W	CR-SPLIT=NO			236. Secs		
										[==>]	[1]
2	F110-1-long -1	(4) NGC4038-39-JH	WFC3/IR, MULTIACCUM, IR-FIX	F110W		SAMP-SEQ=STEP400; NSAMP=11		Prime + Parallel Group 2-4	[==>]		[1]

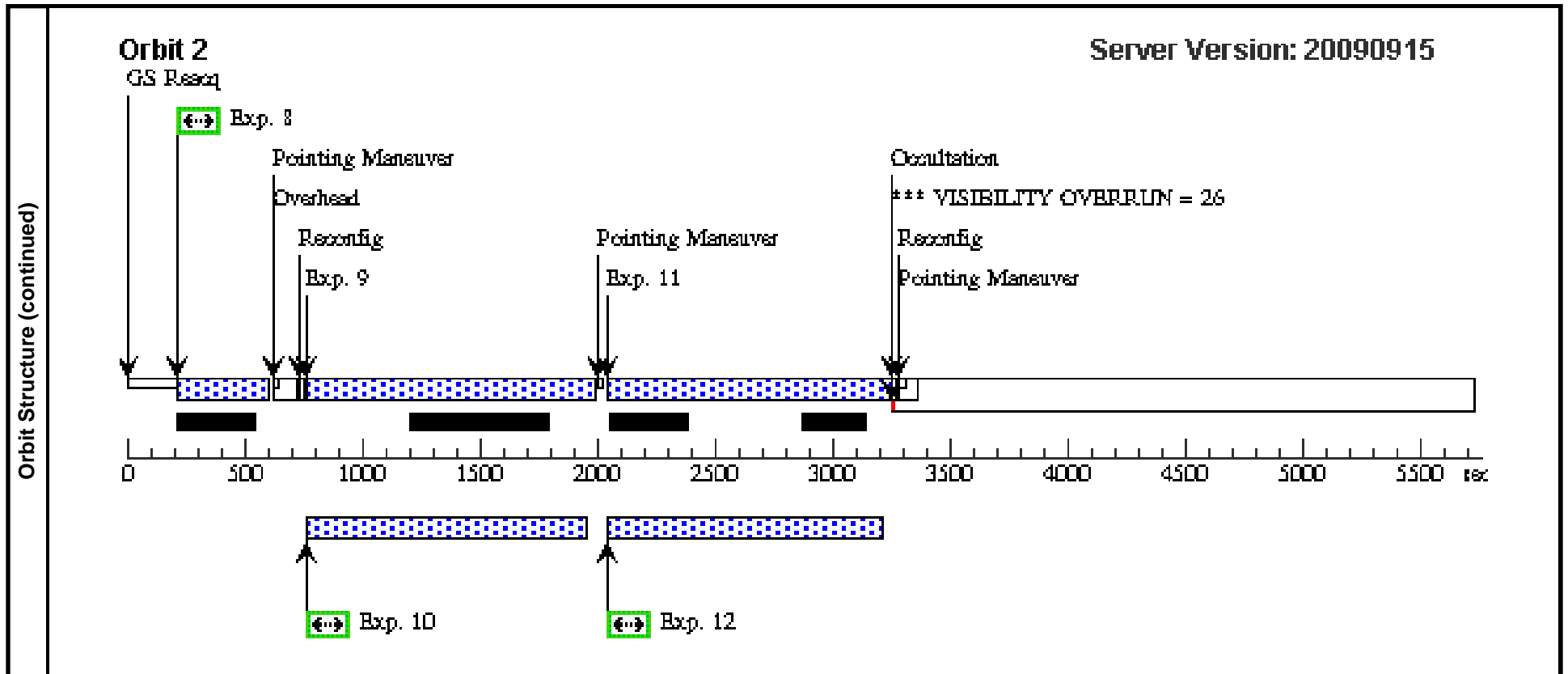
Proposal 11577 - Visit 20 - Opening New Windows on the Antennae with WFC3

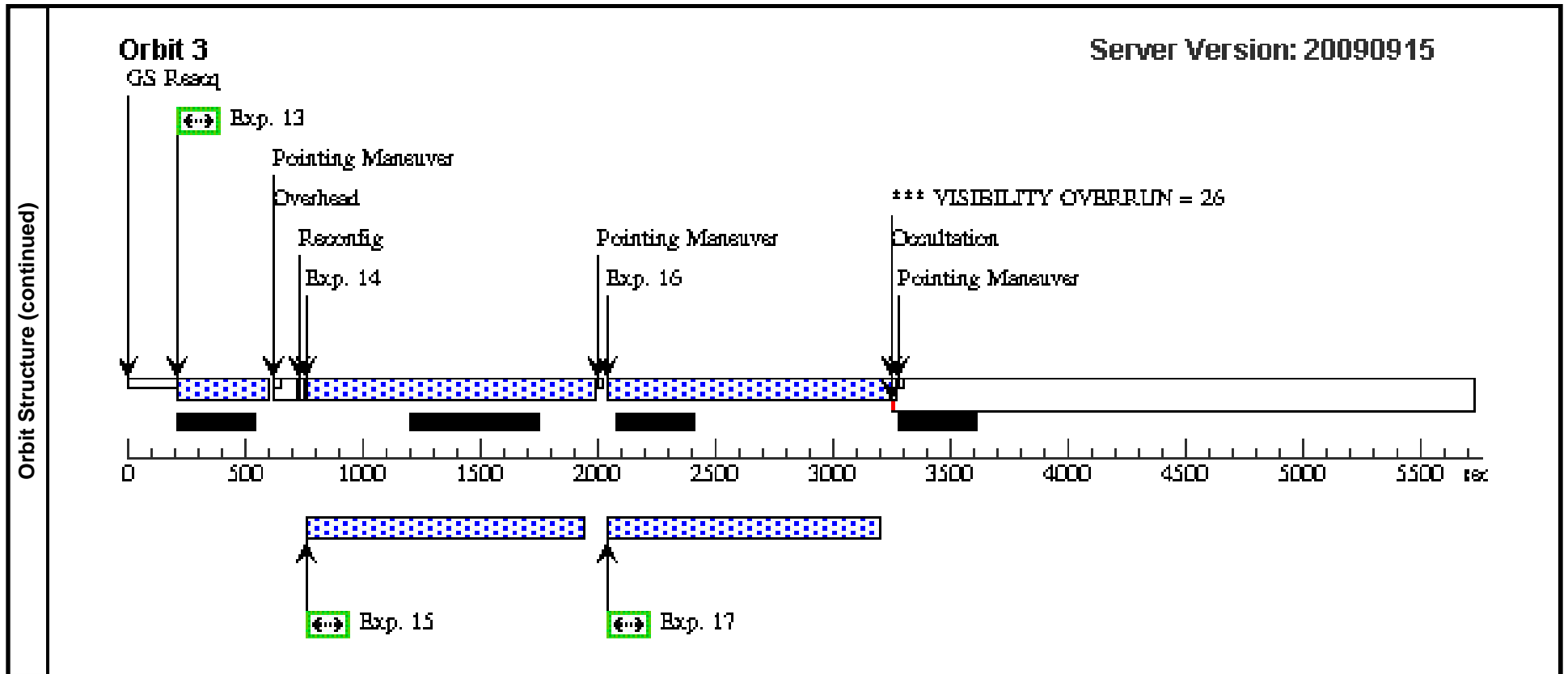
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
Exposures (continued)	3	ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 2-4	450 Secs [==>]	[1]	
	4	ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 2-4	450 Secs [==>]	[1]	
	5	F160-1-long (11) NGC4038-39-J H-1-RIESS	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=11			Prime + Parallel Group 5-7	[==>]	[1]
	6	ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 5-7	450 Secs [==>]	[1]	
	7	ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 5-7	450 Secs [==>]	[1]	
	8	F625-2 S1	(6) NGC4038-39-AC WFC3/UVIS, ACCUM, UVIS-FIX	F625W	CR-SPLIT=NO	POS TARG -.178,-2.00			390. Secs [==>]	[2]
	9	F110-2-long -1	(4) NGC4038-39-JH WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 0.451,0.403		Prime + Parallel Group 9-10	[==>]	[2]
	10	ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 9-10	1050 Secs [==>]	[2]	
	11	F160-2-long H-1-RIESS	(11) NGC4038-39-J WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 0.451,0.403		Prime + Parallel Group 11-12	[==>]	[2]
	12	ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 11-12	1050 Secs [==>]	[2]	
	13	F625-3 S1	(6) NGC4038-39-AC WFC3/UVIS, ACCUM, UVIS-FIX	F625W	CR-SPLIT=NO	POS TARG .178,2.00			390. Secs [==>]	[3]
	14	F110-3-long -1	(4) NGC4038-39-JH WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 0.902,0.807		Prime + Parallel Group 14-15	[==>]	[3]
	15	ANY	ACS/WFC, ACCUM, WFC-FIX	F625W			Prime + Parallel Group 14-15	1000 Secs [==>]	[3]	
	16	F160-3-long H-1-RIESS	(11) NGC4038-39-J WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 0.902,0.807		Prime + Parallel Group 16-17	[==>]	[3]
	17	ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 16-17	1000 Secs [==>]	[3]	
	18	F160-1-south	(4) NGC4038-39-JH WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=9	POS TARG 0,0,0			[==>]	[4]

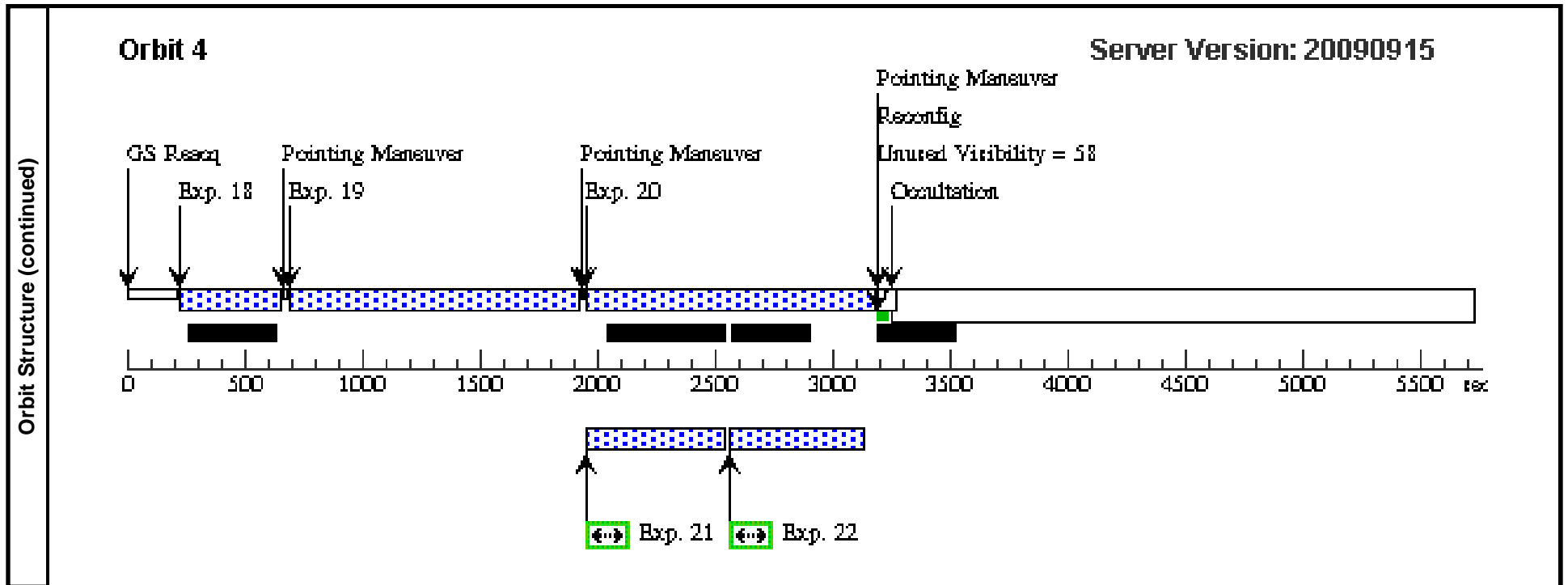
Proposal 11577 - Visit 20 - Opening New Windows on the Antennae with WFC3

	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
Exposures (continued)	19	F160-4-long	(11) NGC4038-39-J H-1-RIESS	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 1.353,1. 21		[==>]	[4]
	20	F160-5-long	(11) NGC4038-39-J H-1-RIESS	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=11	POS TARG 1.804,1. 613	Prime + Parallel Gro up 20-22	[==>]	[4]
	21		ANY	ACS/WFC, ACCUM, WFC-FIX	F502N			Prime + Parallel Gro up 20-22	450 Secs [==>]	[4]
	22		ANY	ACS/WFC, ACCUM, WFC-FIX	F502N			Prime + Parallel Gro up 20-22	450 Secs [==>]	[4]
	23		(6) NGC4038-39-AC S1	WFC3/UVIS, ACCUM, UVIS-FIX	F555W	CR-SPLIT=NO		Pattern 5, Exps 23-2 3 (5)	516 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[5]
	24		(6) NGC4038-39-AC S1	WFC3/UVIS, ACCUM, UVIS-FIX	F814W	CR-SPLIT=NO		Pattern 5, Exps 24-2 4 (5)	516 Secs [==>(Pattern 1)] [==>(Pattern 2)]	[5]
	25	F160-2-sout h	(4) NGC4038-39-JH -1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=STEP4 00; NSAMP=9	POS TARG .451,.40 3		[==>]	[5]











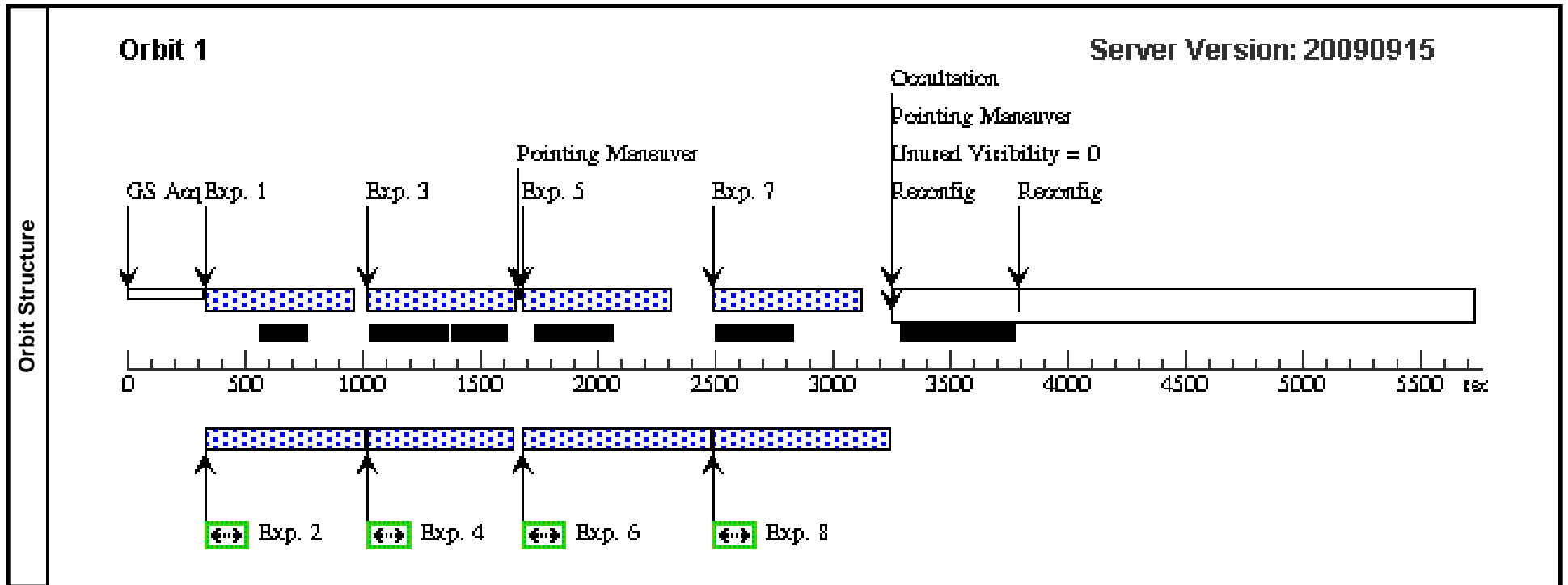
Proposal 11577 - Visit 91 - Opening New Windows on the Antennae with WFC3

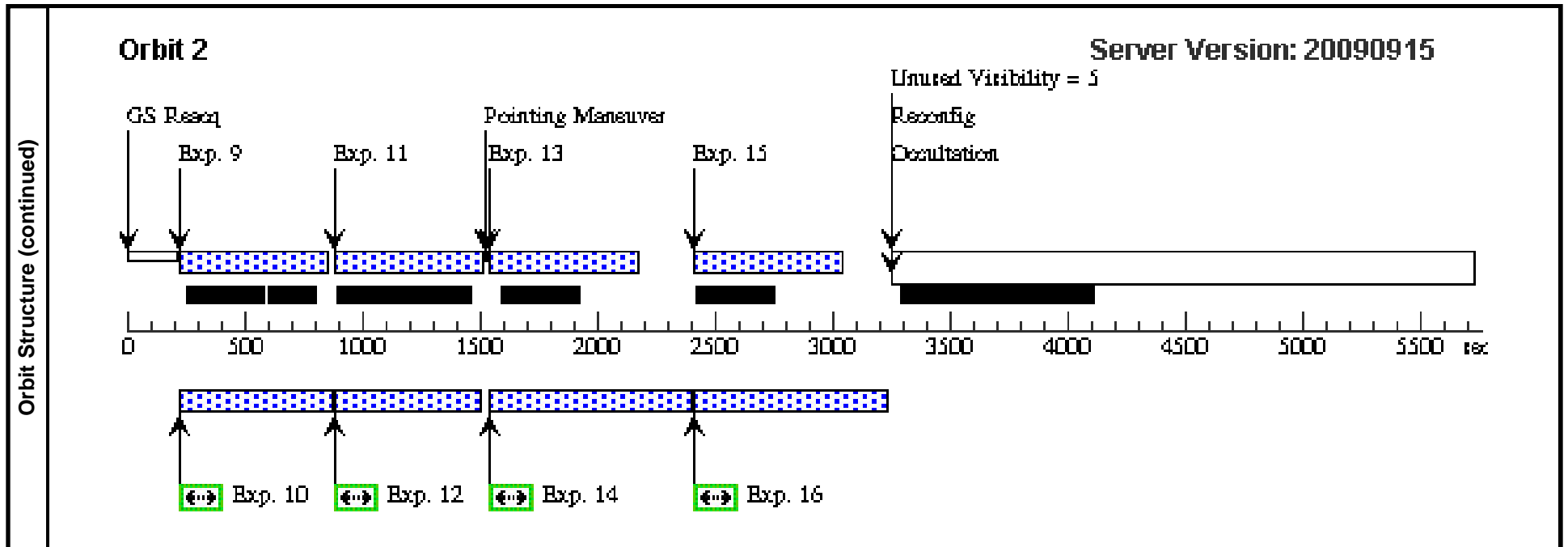
Wed Nov 04 02:26:12 GMT 2009

Visit	Proposal 11577, Visit 91 Diagnostic Status: Warning Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: ORIENT 310D TO 320.0 D <i>Comments: WFC3/128N+164N imaging of NGC 4038 + BVIHa of S tail (overlapping but somewhat different than visits 10 and 12)</i>																																																																																																								
	Diagnosics (Visit 91) Warning (Orbit Planner): PARALLELS SIGNIFICANTLY EXTEND ALIGNMENT TIME (Visit 91) Warning (Orbit Planner): PARALLELS SIGNIFICANTLY EXTEND ALIGNMENT TIME (Visit 91) Warning (Orbit Planner): PARALLELS SIGNIFICANTLY EXTEND ALIGNMENT TIME (Visit 91) Warning (Orbit Planner): PARALLELS SIGNIFICANTLY EXTEND ALIGNMENT TIME																																																																																																								
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(4)</td> <td>NGC4038-39-JH-1</td> <td>RA: 12 01 53.4000 (180.4725000d) Dec: -18 52 25.00 (-18.87361d) Equinox: J2000</td> <td></td> <td>V=10</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(4)	NGC4038-39-JH-1	RA: 12 01 53.4000 (180.4725000d) Dec: -18 52 25.00 (-18.87361d) Equinox: J2000		V=10	Reference Frame: ICRS	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>																																																																																											
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Exposures <table border="1"> <thead> <tr> <th>#</th> <th>Label</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>F128-1</td> <td>(4) NGC4038-39-JH-1</td> <td>WFC3/IR, MULTIACCUM, IR-FIX</td> <td>F128N</td> <td>SAMP-SEQ=STEP2 00; NSAMP=10</td> <td></td> <td>Prime + Parallel Group 1-2</td> <td>[==>]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td></td> <td>ANY</td> <td>ACS/WFC, ACCUM, WFC-FIX</td> <td>F555W</td> <td></td> <td></td> <td>Prime + Parallel Group 1-2</td> <td>470 Secs [==>]</td> <td>[1]</td> </tr> <tr> <td>3</td> <td>F164-1</td> <td>(4) NGC4038-39-JH-1</td> <td>WFC3/IR, MULTIACCUM, IR-FIX</td> <td>F164N</td> <td>SAMP-SEQ=STEP2 00; NSAMP=10</td> <td></td> <td>Prime + Parallel Group 3-4</td> <td>[==>]</td> <td>[1]</td> </tr> <tr> <td>4</td> <td></td> <td>ANY</td> <td>ACS/WFC, ACCUM, WFC-FIX</td> <td>F555W</td> <td></td> <td></td> <td>Prime + Parallel Group 3-4</td> <td>500 Secs [==>]</td> <td>[1]</td> </tr> <tr> <td>5</td> <td>F128-2</td> <td>(4) NGC4038-39-JH-1</td> <td>WFC3/IR, MULTIACCUM, IR-FIX</td> <td>F128N</td> <td>SAMP-SEQ=STEP2 00; NSAMP=10</td> <td>POS TARG .451,.40 3</td> <td>Prime + Parallel Group 5-6</td> <td>[==>]</td> <td>[1]</td> </tr> <tr> <td>6</td> <td></td> <td>ANY</td> <td>ACS/WFC, ACCUM, WFC-FIX</td> <td>F435W</td> <td></td> <td></td> <td>Prime + Parallel Group 5-6</td> <td>625 Secs [==>]</td> <td>[1]</td> </tr> <tr> <td>7</td> <td>F164-2</td> <td>(4) NGC4038-39-JH-1</td> <td>WFC3/IR, MULTIACCUM, IR-FIX</td> <td>F164N</td> <td>SAMP-SEQ=STEP2 00; NSAMP=10</td> <td>POS TARG .451,.40 3</td> <td>Prime + Parallel Group 7-8</td> <td>[==>]</td> <td>[1]</td> </tr> <tr> <td>8</td> <td></td> <td>ANY</td> <td>ACS/WFC, ACCUM, WFC-FIX</td> <td>F435W</td> <td></td> <td></td> <td>Prime + Parallel Group 7-8</td> <td>625 Secs [==>]</td> <td>[1]</td> </tr> <tr> <td>9</td> <td>F128-3</td> <td>(4) NGC4038-39-JH-1</td> <td>WFC3/IR, MULTIACCUM, IR-FIX</td> <td>F128N</td> <td>SAMP-SEQ=STEP2 00; NSAMP=10</td> <td>POS TARG 2.00,2.0 0</td> <td>Prime + Parallel Group 9-10</td> <td>[==>]</td> <td>[2]</td> </tr> </tbody> </table>						#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	1	F128-1	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP2 00; NSAMP=10		Prime + Parallel Group 1-2	[==>]	[1]	2		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 1-2	470 Secs [==>]	[1]	3	F164-1	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F164N	SAMP-SEQ=STEP2 00; NSAMP=10		Prime + Parallel Group 3-4	[==>]	[1]	4		ANY	ACS/WFC, ACCUM, WFC-FIX	F555W			Prime + Parallel Group 3-4	500 Secs [==>]	[1]	5	F128-2	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP2 00; NSAMP=10	POS TARG .451,.40 3	Prime + Parallel Group 5-6	[==>]	[1]	6		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 5-6	625 Secs [==>]	[1]	7	F164-2	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F164N	SAMP-SEQ=STEP2 00; NSAMP=10	POS TARG .451,.40 3	Prime + Parallel Group 7-8	[==>]	[1]	8		ANY	ACS/WFC, ACCUM, WFC-FIX	F435W			Prime + Parallel Group 7-8	625 Secs [==>]	[1]	9	F128-3	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP2 00; NSAMP=10	POS TARG 2.00,2.0 0	Prime + Parallel Group 9-10	[==>]	[2]
#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit																																																																																																
1	F128-1	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP2 00; NSAMP=10		Prime + Parallel Group 1-2	[==>]	[1]																																																																																																
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9	F128-3	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP2 00; NSAMP=10	POS TARG 2.00,2.0 0	Prime + Parallel Group 9-10	[==>]	[2]																																																																																																

Proposal 11577 - Visit 91 - Opening New Windows on the Antennae with WFC3

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	10		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 9-10	500 Secs [==>]	[2]
	11	F164-3	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F164N	SAMP-SEQ=STEP200; NSAMP=10	POS TARG 2.00,2.00	Prime + Parallel Group 11-12	[==>]	[2]
	12		ANY	ACS/WFC, ACCUM, WFC-FIX	F814W			Prime + Parallel Group 11-12	500 Secs [==>]	[2]
	13	F128-4	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F128N	SAMP-SEQ=STEP200; NSAMP=10	POS TARG 2.451,2.403	Prime + Parallel Group 13-14	[==>]	[2]
	14		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 13-14	695 Secs [==>]	[2]
	15	F164-4	(4) NGC4038-39-JH-1	WFC3/IR, MULTIACCUM, IR-FIX	F164N	SAMP-SEQ=STEP200; NSAMP=10	POS TARG 2.451,2.403	Prime + Parallel Group 15-16	[==>]	[2]
16		ANY	ACS/WFC, ACCUM, WFC-FIX	F658N			Prime + Parallel Group 15-16	695 Secs [==>]	[2]	

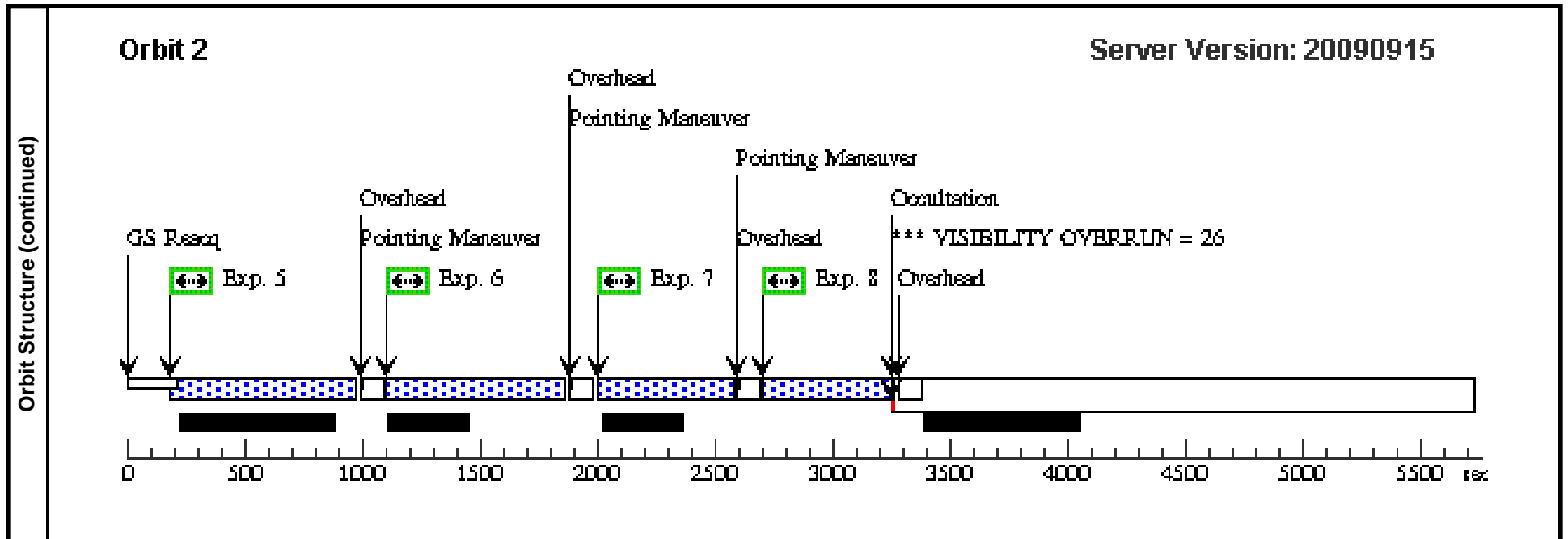




Proposal 11577 - Visit 90 - Opening New Windows on the Antennae with WFC3

Wed Nov 04 02:26:13 GMT 2009

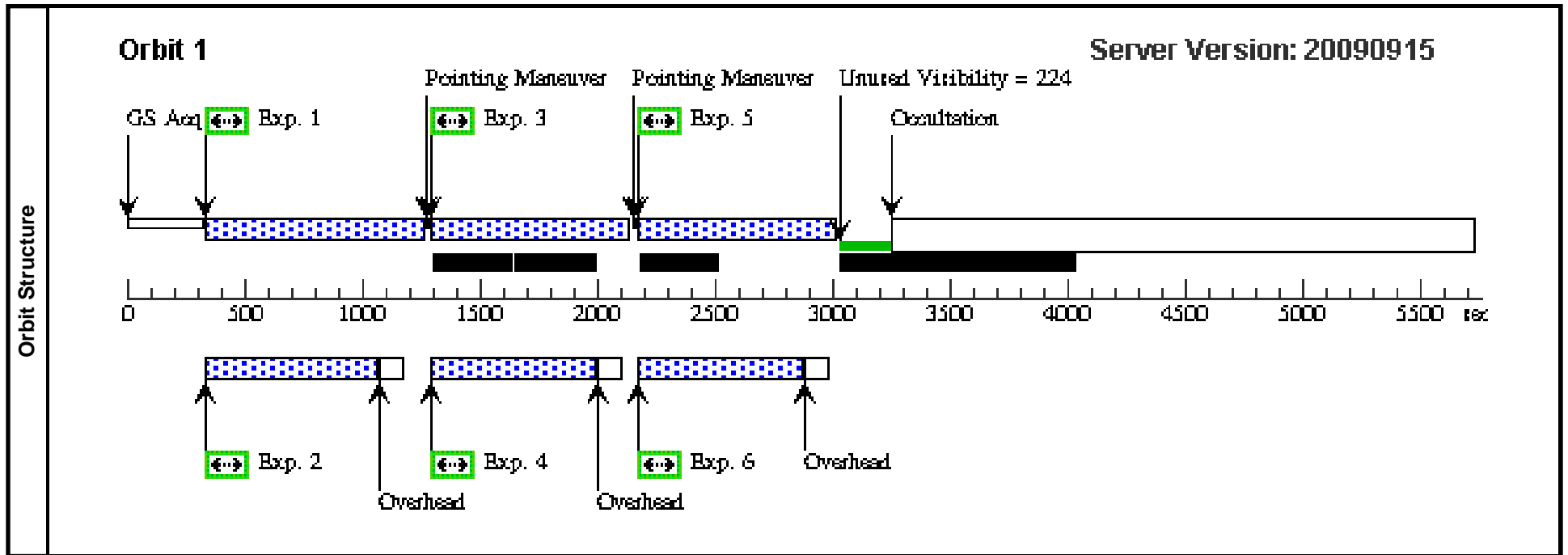
Visit	Proposal 11577, Visit 90, implementation Diagnostic Status: Warning Scientific Instruments: WFC3/UVIS Special Requirements: SCHED 30% <i>Comments: WFC3/487N+673N imaging of NGC 4038 -- no parallels</i>																																																																																														
	Diagnosics (Visit 90) Warning (Orbit Planner): VISIBILITY OVERRUN																																																																																														
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(8)</td> <td>NGC4038-39-WFC2</td> <td>RA: 12 01 52.5800 (180.4690833d) Dec: -18 52 42.00 (-18.87833d) Equinox: J2000</td> <td></td> <td>V=10</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(8)	NGC4038-39-WFC2	RA: 12 01 52.5800 (180.4690833d) Dec: -18 52 42.00 (-18.87833d) Equinox: J2000		V=10	Reference Frame: ICRS	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>																																																																																	
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2	F487-2-long	(8) NGC4038-39-W FC2	WFC3/UVIS, ACCUM, UVIS	F487N	CR-SPLIT=NO	POS TARG .079,.08 5		700 Secs [=>703.0 Secs]	[1]																																																																																						
3	F673-1-long	(8) NGC4038-39-W FC2	WFC3/UVIS, ACCUM, UVIS	F673N	CR-SPLIT=NO			550 Secs [=>553.0 Secs]	[1]																																																																																						
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6	F487-4-long	(8) NGC4038-39-W FC2	WFC3/UVIS, ACCUM, UVIS	F487N	CR-SPLIT=NO	POS TARG 0.257,1. 92		750. Secs [=>763.0 Secs]	[2]																																																																																						
7	F673-3-long	(8) NGC4038-39-W FC2	WFC3/UVIS, ACCUM, UVIS	F673N	CR-SPLIT=NO	POS TARG 0.178,2. 0		550 Secs [=>563.0 Secs]	[2]																																																																																						
8	F673-4-long	(8) NGC4038-39-W FC2	WFC3/UVIS, ACCUM, UVIS	F673N	CR-SPLIT=NO	POS TARG 0.257,1. 92		550 Secs [=>563.0 Secs]	[2]																																																																																						



Proposal 11577 - Visit 31 - Opening New Windows on the Antennae with WFC3

Wed Nov 04 02:26:14 GMT 2009

Visit	Proposal 11577, Visit 31, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 350.D TO 5 D Comments: ACS/502N imaging of NGC 4038 -- parallel of N tail w/WFC3/336									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(6)	NGC4038-39-ACS1	RA: 12 01 54.1400 (180.4755833d) Dec: -18 52 40.10 (-18.87781d) Equinox: J2000		V=10	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the NED database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F502-1-long	(6) NGC4038-39-AC S1	ACS/WFC, ACCUM, WFC-FIX	F502N			Prime + Parallel Group 1-2	720 Secs [==>]	[1]
	2		ANY	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO		Prime + Parallel Group 1-2	700 Secs [==>]	[1]
	3	F502-2-long	(6) NGC4038-39-AC S1	ACS/WFC, ACCUM, WFC-FIX	F502N		POS TARG .9,1.8	Prime + Parallel Group 3-4	720 Secs [==>]	[1]
	4		ANY	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO		Prime + Parallel Group 3-4	700 Secs [==>]	[1]
	5	F502-3-long	(6) NGC4038-39-AC S1	ACS/WFC, ACCUM, WFC-FIX	F502N		POS TARG 1.8,3.6	Prime + Parallel Group 5-6	720 Secs [==>]	[1]
	6		ANY	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO		Prime + Parallel Group 5-6	700 Secs [==>]	[1]



Visit	Proposal 11577, Visit 32, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none) <i>Comments: WFC3/336W imaging of tidal dwarf</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(10)	NGC4038-39-SOUTH-DWARF	RA: 12 01 28.5000 (180.3687500d) Dec: -19 00 40.00 (-19.01111d) Equinox: J2000				V=16	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F336-1-long	(10) NGC4038-39-SOUTH-DWARF	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.0,0.0		800 Secs [=>]	[1]
	2	F336-2-long	(10) NGC4038-39-SOUTH-DWARF	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG -0.178,-2.00		800 Secs [=>]	[1]
	3	F336-3-long	(10) NGC4038-39-SOUTH-DWARF	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.178,2.00		800 Secs [=>]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090915</p> <p>Timeline labels: GS Acq, Exp. 1, Pointing Maneuver, Overhead, Exp. 2, Pointing Maneuver, Overhead, Exp. 3, Pointing Maneuver, Overhead, Occultation, Unused Visibility = 260.</p> <p>X-axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>									

Visit	Proposal 11577, Visit 33, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none) <i>Comments: WFC3/336W imaging of S tail</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(9)	NGC4038-S-TAIL	RA: 12 01 51.4100 (180.4642083d) Dec: -18 58 48.00 (-18.98000d) Equinox: J2000				V=10	Reference Frame: ICRS		
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F336-1-long	(9) NGC4038-S-TAI L	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO			800 Secs [=>886.0 Secs]	[1]
	2	F336-2-long	(9) NGC4038-S-TAI L	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG -.178,-2. 0		800 Secs [=>886.0 Secs]	[1]
	3	F336-3-long	(9) NGC4038-S-TAI L	WFC3/UVIS, ACCUM, UVIS-FIX	F336W	CR-SPLIT=NO	POS TARG 0.178,2. 00		800 Secs [=>886.0 Secs]	[1]
Orbit Structure	Orbit 1 Server Version: 20090915 									
	GS Acq Pointing Maneuver Overhead Pointing Maneuver Overhead Unused Visibility = 2 Overhead Occultation Exp. 1 Exp. 2 Exp. 3 0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec									

Visit	Proposal 11577, Visit 34, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none) <i>Comments: ACS/BVI imaging of N tail</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	NGC4038-N-TAIL	RA: 12 02 10.4100 (180.5433750d) Dec: -18 48 13.20 (-18.80367d) Equinox: J2000		V=10	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	F435-1	(5) NGC4038-N-TAI L	ACS/WFC, ACCUM, WFC-FIX	F435W	CR-SPLIT=NO			422 Secs [==>]	[1]
	2	F435-2	(5) NGC4038-N-TAI L	ACS/WFC, ACCUM, WFC-FIX	F435W	CR-SPLIT=NO			422 Secs [==>]	[1]
	3	F555-1	(5) NGC4038-N-TAI L	ACS/WFC, ACCUM, WFC-FIX	F555W				370 Secs [==>]	[1]
	4	F555-2	(5) NGC4038-N-TAI L	ACS/WFC, ACCUM, WFC-FIX	F555W				370 Secs [==>]	[1]
	5	F814-1	(5) NGC4038-N-TAI L	ACS/WFC, ACCUM, WFC-FIX	F814W				461 Secs [==>]	[1]
Orbit Structure	Orbit 1 Server Version: 20090915 <p>Unused Visibility = 20</p> <p>Occultation</p>									
	<p>Timeline labels: GS Acq, Exp. 1, Exp. 2, Exp. 3, Exp. 4, Exp. 5, Occultation</p> <p>Timeline axis: 0, 500, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500 sec</p>									