12580 - A 'Rosetta Stone' to Interpret the UV-HST Photometry of Multiple Stellar Populations in Globular Clusters

Cycle: 19, 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) NGC5139-TARGETAQ-SGB1 (2) NGC5139-SGB1	ACS/WFC STIS/CCD WFC3/UVIS	3	06-Jul-2011 21:38:38.0	yes
02	(3) NGC5139-TARGETAQ-SGB2 (4) NGC5139-SGB2	ACS/WFC STIS/CCD WFC3/UVIS	3	06-Jul-2011 21:39:07.0	yes
03	(5) NGC104-TARGETAQ-SGB (6) NGC104-SGB	ACS/WFC STIS/CCD WFC3/UVIS	2	06-Jul-2011 21:39:25.0	yes
04	(5) NGC104-TARGETAQ-SGB (8) NGC104-HB	ACS/WFC STIS/CCD STIS/NUV-MAMA WFC3/UVIS	2	06-Jul-2011 21:39:41.0	yes

10 Total Orbits Used

ABSTRACT

In this proposal we intend to firmly identify the chemical species responsible for the UV and UV-optical color differences exhibited by the multiple stellar populations harboured by two Galactic globular clusters: omega Centauri and 47 Tucanae, one with highly helium enriched sub-populations (omega Centauri), the other not.

We plan to collect ultraviolet STIS spectra for stars in the crowded cores of the clusters, where HST photometry is already available for thousands of stars in more than 10 filters, from F225W to F850LP. This WFC3+ACS photometric database has allowed us to show that UV colors are remarkably effective in separating the different cluster sub-populations, and with the proposed STIS spectroscopy we can quantify the chemical abundance differences among such sub-populations, most notably in Nitrogen and Oxygen. The resulting calibration of the UV colors in terms of CNO abundances will provide a new effective tool for the chemical characterization of large numbers of globular cluster stars belonging to the various sub-populations in each cluster, and to better isolate the specific role of the helium abundance.

The plan is to observe at least one star for each of the main principal stellar sub-populations in each of the two clusters. These objects are selected on

the basis of their accurate photometry and astrometry already in hand, based on existing UV-HST images.

OBSERVING DESCRIPTION

Two stars per slit. i.e. tight constrains on the ORIENT.
Two or three dither along the slit.
WFC3/UVIS parallel observations in F438W, F336W, and F275W.
ACS/WFC parallel observations in F475W, and F814W.

Visit

Proposal 12580, Visit 01, implementation Thu Jul 07 01:39:49 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD, WFC3/UVIS, ACS/WFC

Special Requirements: ORIENT 339.6D TO 339.6 D

Comments: wCen(CCD): SGBred + SGBblue

Fixed Targets

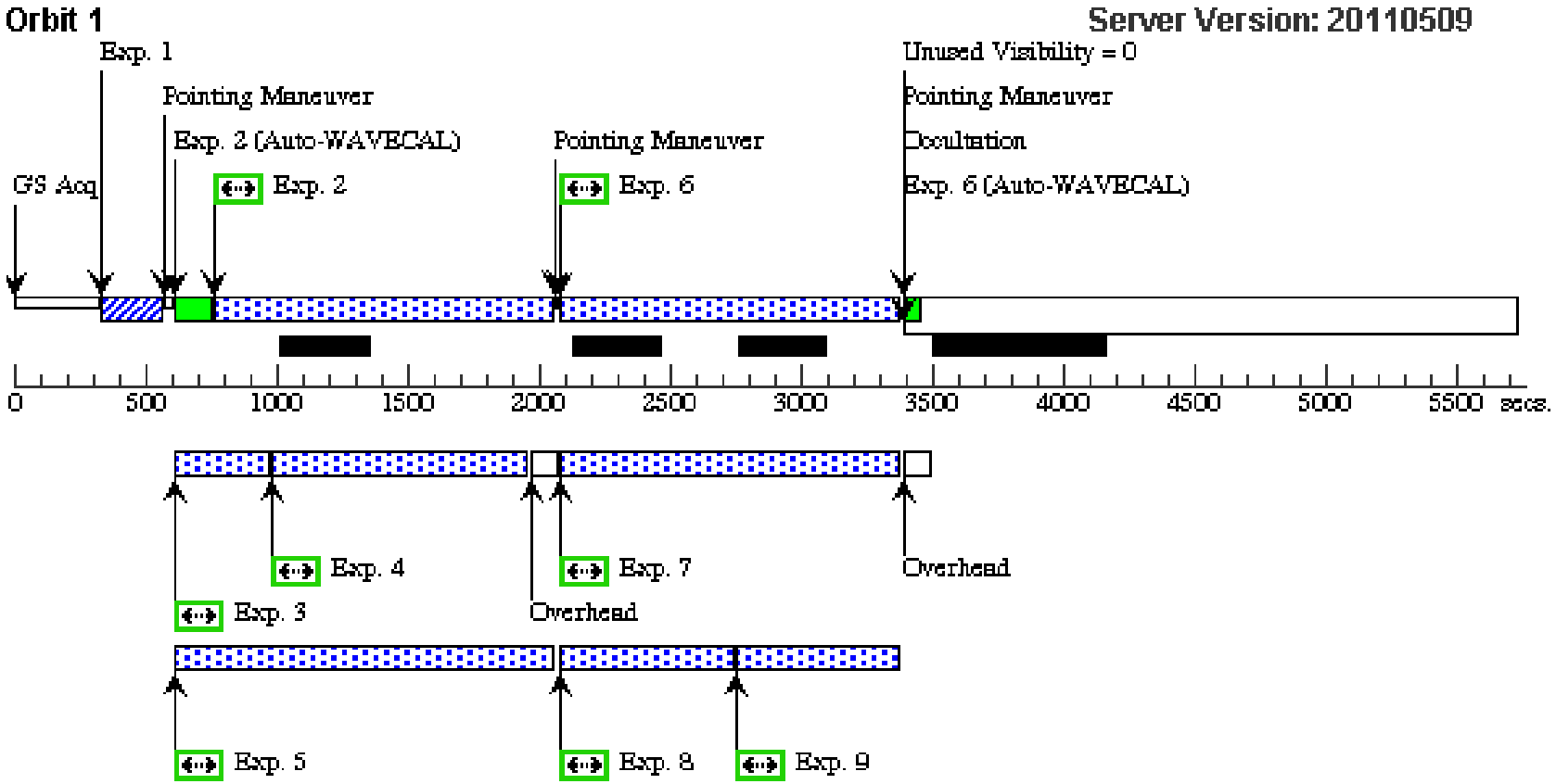
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC5139-TARGETAQ-SGB1	RA: 13 26 39.8900 (201.6662083d) Dec: -47 29 8.68 (-47.48574d) Equinox: J2000		V=11.533+/-0.01	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database and then edited.					
(2)	NGC5139-SGB1	RA: 13 26 40.5470 (201.6689458d) Dec: -47 28 58.03 (-47.48279d) Equinox: J2000		V=18+/-2	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					

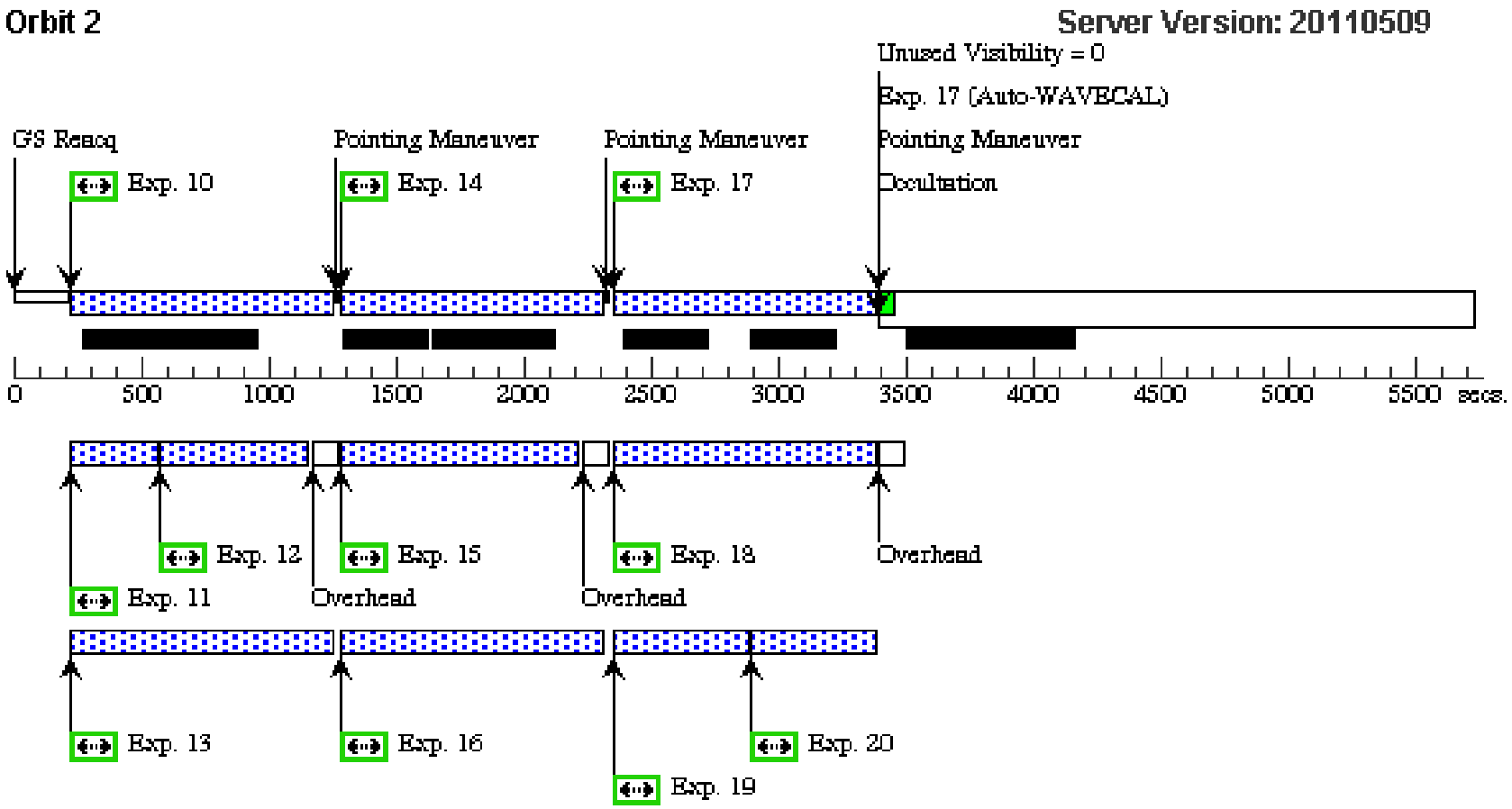
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(1) NGC5139-TARGETAQ-SGB1	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3		0.2 Secs	
								[==>]	***[1]***
2		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO		Prime + Parallel Group up 2-5 in Visit 01	1251 Secs	
								[==>]	***[1]***
3		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 2-5 in Visit 01	210 Secs	
								[==>]	***[1]***
4		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 2-5 in Visit 01	953 Secs	
								[==>]	***[1]***
5		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 2-5 in Visit 01	1234 Secs	
								[==>]	***[1]***
6		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-1	Prime + Parallel Group up 6-9 in Visit 01	1252 Secs	
								[==>]	***[1]***
7		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 6-9 in Visit 01	1267 Secs	
								[==>]	***[1]***
8		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 6-9 in Visit 01	493 Secs	
								[==>]	***[1]***
9		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 6-9 in Visit 01	493 Secs	
								[==>]	***[1]***
10		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,1	Prime + Parallel Group up 10-13 in Visit 01	990 Secs	
								[==>]	***[2]***
11		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 10-13 in Visit 01	200 Secs	
								[==>]	***[2]***
12		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 10-13 in Visit 01	562 Secs	
								[==>]	***[2]***
13		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 10-13 in Visit 01	862 Secs	
								[==>]	***[2]***
14		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-2	Prime + Parallel Group up 14-16 in Visit 01	990 Secs	
								[==>]	***[2]***
15		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 14-16 in Visit 01	914 Secs	
								[==>]	***[2]***
16		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 14-16 in Visit 01	902 Secs	
								[==>]	***[2]***
17		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,2	Prime + Parallel Group up 17-20 in Visit 01	990 Secs	
								[==>]	***[2]***
18		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 17-20 in Visit 01	1028 Secs	
								[==>]	***[2]***
19		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 17-20 in Visit 01	363 Secs	
								[==>]	***[2]***
20		(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 17-20 in Visit 01	362 Secs	
								[==>]	***[2]***
21		(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-3	Prime + Parallel Group up 21-24 in Visit 01	990 Secs	
								[==>]	***[3]***
22		(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 21-24 in Visit 01	200 Secs	
								[==>]	***[3]***

	23	(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group 21-24 in Visit 01	565 Secs *[==>]*	 ***[3]***
	24	(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 21-24 in Visit 01	862 Secs *[==>]*	 ***[3]***
	25	(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,3	Prime + Parallel Group 25-27 in Visit 01	990 Secs *[==>]*	 ***[3]***
	26	(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 25-27 in Visit 01	909 Secs *[==>]*	 ***[3]***
	27	(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 25-27 in Visit 01	902 Secs *[==>]*	 ***[3]***
	28	(2) NGC5139-SGB1	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,4	Prime + Parallel Group 28-31 in Visit 01	992 Secs *[==>]*	 ***[3]***
	29	(2) NGC5139-SGB1	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 28-31 in Visit 01	1030 Secs *[==>]*	 ***[3]***
	30	(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 28-31 in Visit 01	363 Secs *[==>]*	 ***[3]***
	31	(2) NGC5139-SGB1	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 28-31 in Visit 01	363 Secs *[==>]*	 ***[3]***

Orbit Structure

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Server Version: 20110509
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GS Reacq
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Exp. 10
Exp. 14
Exp. 17
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Exp. 12
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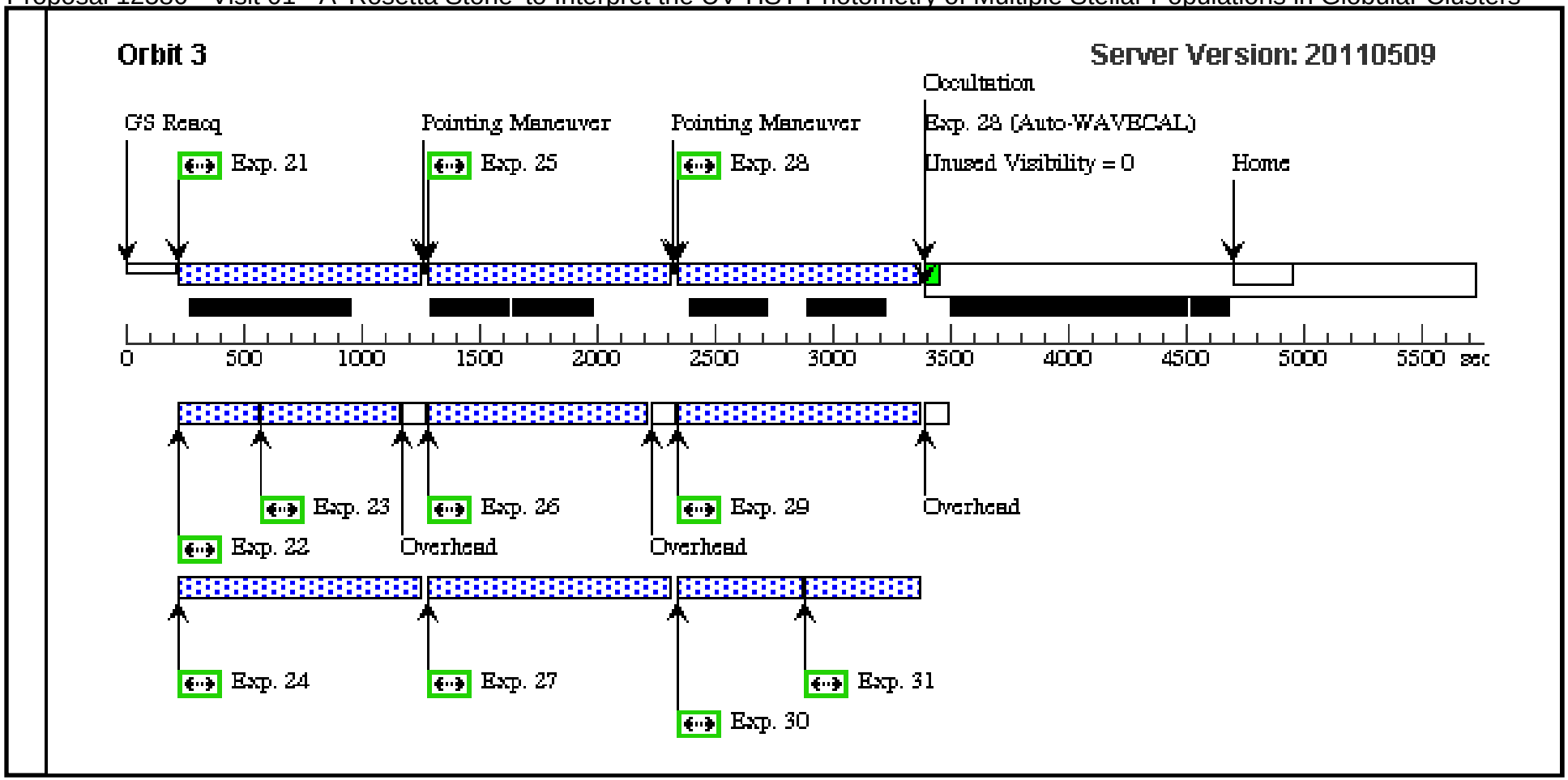
Exp. 18
Overhead
Exp. 11
Overhead
Overhead
Exp. 13
Exp. 16
Exp. 20
Exp. 19


Orbit 3
Server Version: 20110509
Occultation
GS Reacq
Pointing Maneuver
Pointing Maneuver
Exp. 28 (Auto-WAVECAL)
Exp. 21
Exp. 25
Exp. 28
Unused Visibility = 0
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 23
Exp. 26
Exp. 29
Overhead
Exp. 22
Overhead
Overhead
Exp. 24
Exp. 27
Exp. 31
Exp. 30

Visit

Proposal 12580, Visit 02, implementation Thu Jul 07 01:39:51 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD, WFC3/UVIS, ACS/WFC

Special Requirements: ORIENT 9.35D TO 9.35 D

Comments: wCen(CCD): SGBblack + SGBgreen

Fixed Targets

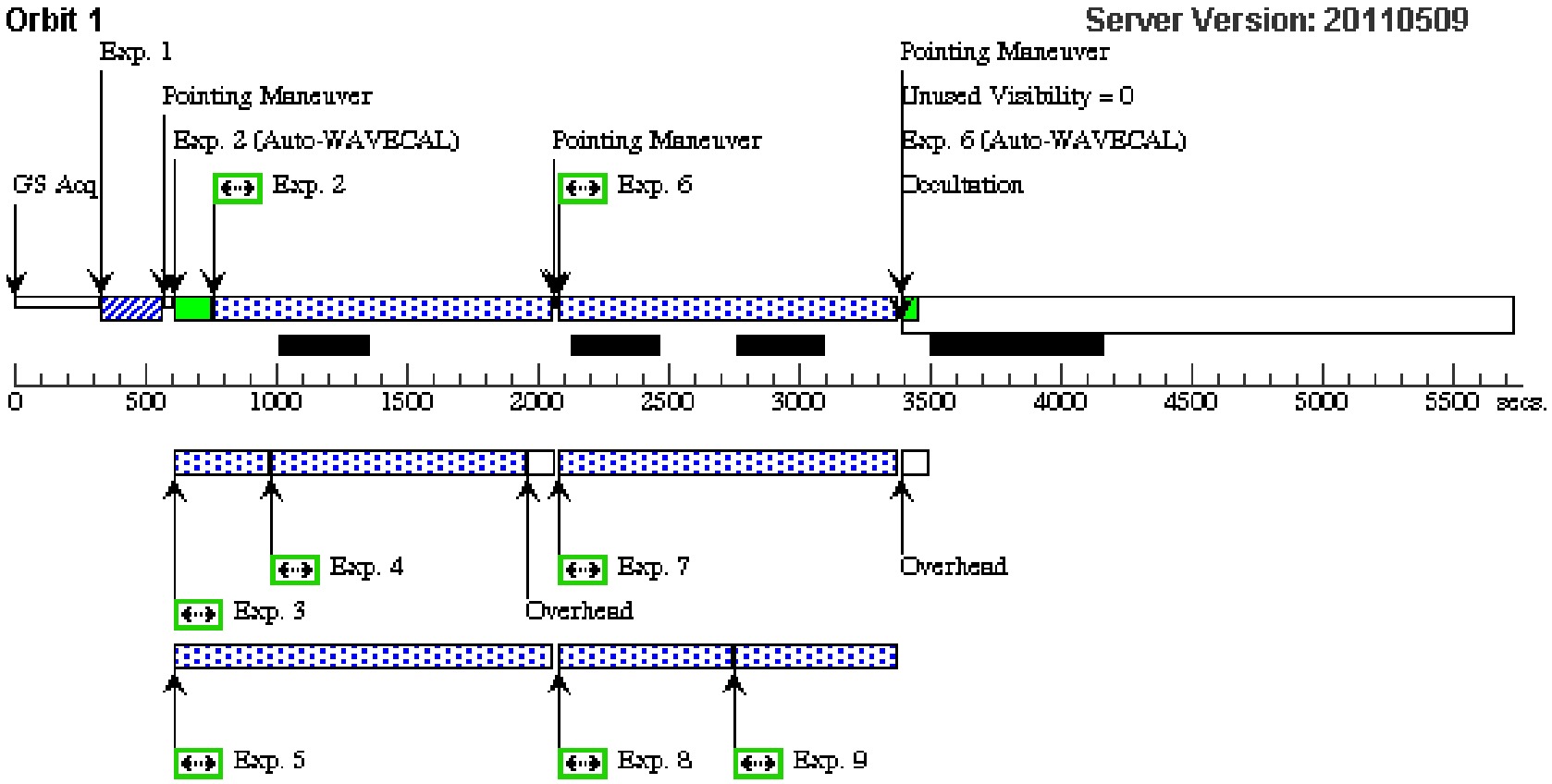
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC5139-TARGETAQ-SGB2	RA: 13 26 51.1420 (201.7130917d) Dec: -47 29 18.41 (-47.48845d) Equinox: J2000		V=11.953+/-0.01	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					
(4)	NGC5139-SGB2	RA: 13 26 51.6760 (201.7153167d) Dec: -47 29 9.87 (-47.48608d) Equinox: J2000		V=5.33	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					

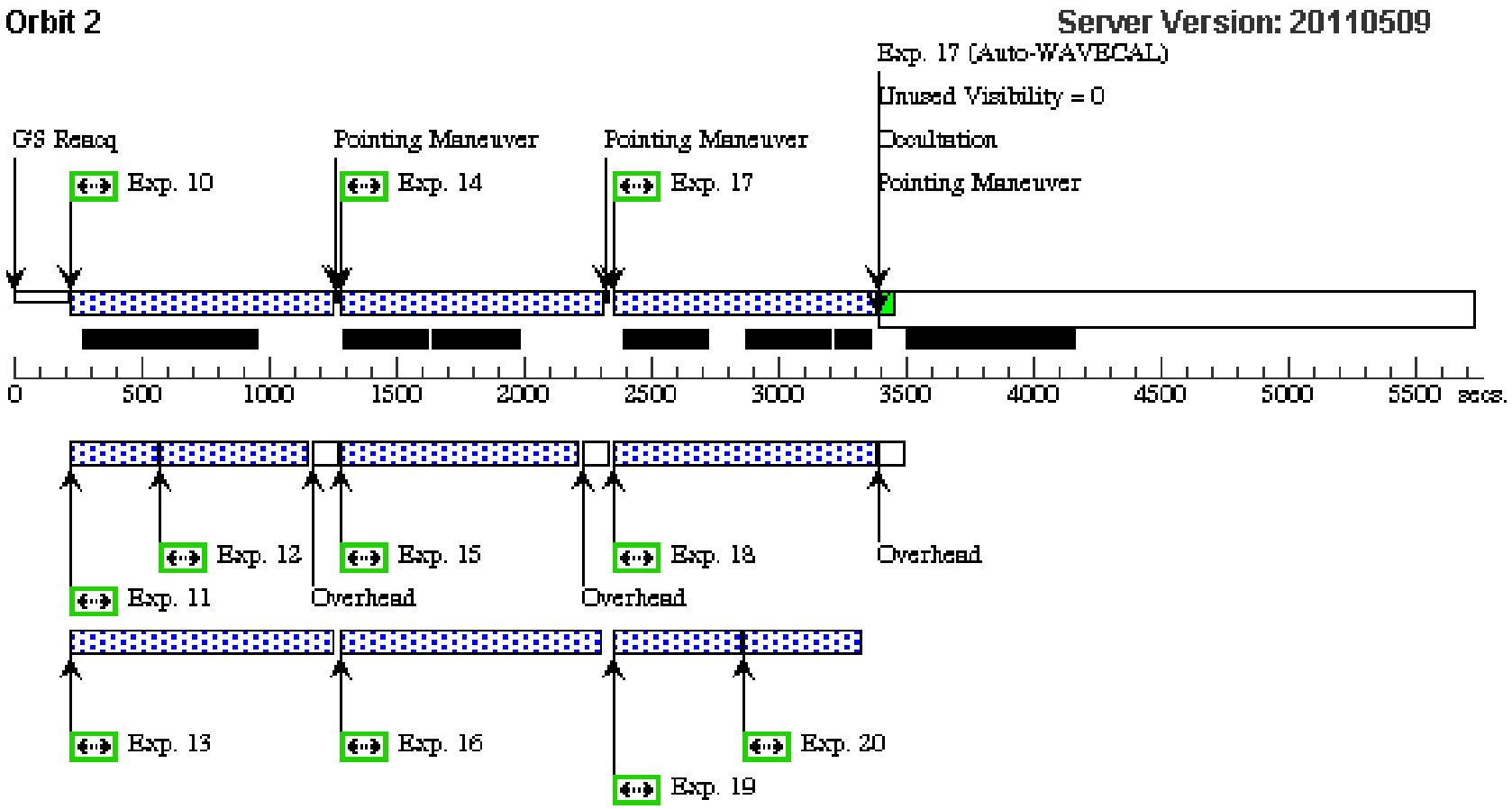
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(3) NGC5139-TARGETAQ-SGB2	STIS/CCD, ACQ, F28X50LP	MIRROR		GS ACQ SCENARIO BASE1B3		0.5 Secs	
								[==>]	***[1]***
2		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO		Prime + Parallel Group up 2-5 in Visit 02	1250 Secs	
								[==>]	***[1]***
3		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 2-5 in Visit 02	210 Secs	
								[==>]	***[1]***
4		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 2-5 in Visit 02	945 Secs	
								[==>]	***[1]***
5		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 2-5 in Visit 02	1233 Secs	
								[==>]	***[1]***
6		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-1	Prime + Parallel Group up 6-9 in Visit 02	1252 Secs	
								[==>]	***[1]***
7		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 6-9 in Visit 02	1267 Secs	
								[==>]	***[1]***
8		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 6-9 in Visit 02	493 Secs	
								[==>]	***[1]***
9		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 6-9 in Visit 02	494 Secs	
								[==>]	***[1]***
10		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,1	Prime + Parallel Group up 10-13 in Visit 02	990 Secs	
								[==>]	***[2]***
11		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 10-13 in Visit 02	200 Secs	
								[==>]	***[2]***
12		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 10-13 in Visit 02	562 Secs	
								[==>]	***[2]***
13		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 10-13 in Visit 02	862 Secs	
								[==>]	***[2]***
14		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-2	Prime + Parallel Group up 14-16 in Visit 02	990 Secs	
								[==>]	***[2]***
15		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 14-16 in Visit 02	914 Secs	
								[==>]	***[2]***
16		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 14-16 in Visit 02	900 Secs	
								[==>]	***[2]***
17		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,2	Prime + Parallel Group up 17-20 in Visit 02	990 Secs	
								[==>]	***[2]***
18		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 17-20 in Visit 02	1028 Secs	
								[==>]	***[2]***
19		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 17-20 in Visit 02	339 Secs	
								[==>]	***[2]***
20		(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 17-20 in Visit 02	339 Secs	
								[==>]	***[2]***
21		(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-3	Prime + Parallel Group up 21-24 in Visit 02	990 Secs	
								[==>]	***[3]***
22		(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 21-24 in Visit 02	200 Secs	
								[==>]	***[3]***

	23	(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group 21-24 in Visit 02	565 Secs *[==>]*	 ***[3]***
	24	(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 21-24 in Visit 02	862 Secs *[==>]*	 ***[3]***
	25	(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,3	Prime + Parallel Group 25-27 in Visit 02	990 Secs *[==>]*	 ***[3]***
	26	(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 25-27 in Visit 02	909 Secs *[==>]*	 ***[3]***
	27	(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 25-27 in Visit 02	902 Secs *[==>]*	 ***[3]***
	28	(4) NGC5139-SGB2	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,4	Prime + Parallel Group 28-31 in Visit 02	992 Secs *[==>]*	 ***[3]***
	29	(4) NGC5139-SGB2	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 28-31 in Visit 02	1030 Secs *[==>]*	 ***[3]***
	30	(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 28-31 in Visit 02	362 Secs *[==>]*	 ***[3]***
	31	(4) NGC5139-SGB2	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 28-31 in Visit 02	362 Secs *[==>]*	 ***[3]***

Orbit Structure




Orbit 2
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Unused Visibility = 0
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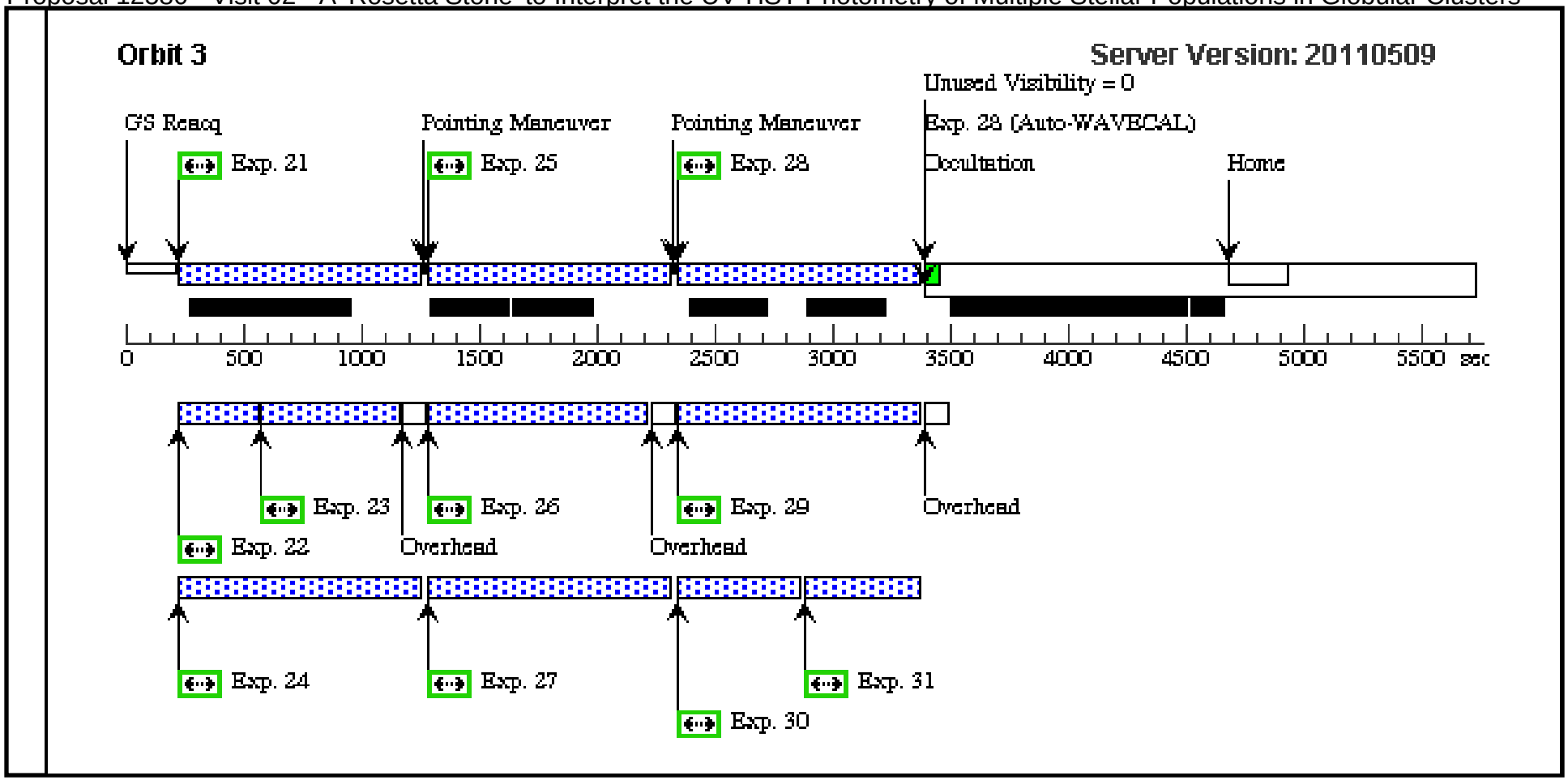
Pointing Maneuver
Pointing Maneuver
Occultation
Exp. 10
Exp. 14
Exp. 17
Pointing Maneuver
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.
Exp. 12
Exp. 15
Exp. 18
Overhead
Exp. 11
Overhead
Overhead
Exp. 13
Exp. 16
Exp. 20
Exp. 19


Orbit 3
Server Version: 20110509
Unused Visibility = 0
GS Reacq
Pointing Maneuver
Pointing Maneuver
Exp. 28 (Auto-WAVECAL)
Exp. 21
Exp. 25
Exp. 28
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 23
Exp. 26
Exp. 29
Overhead
Exp. 22
Overhead
Overhead
Exp. 24
Exp. 27
Exp. 31
Exp. 30

Visit

Proposal 12580, Visit 03, implementation Thu Jul 07 01:39:52 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD, WFC3/UVIS, ACS/WFC

Special Requirements: ORIENT 137.89D TO 137.89 D

Comments: 47Tuc(CCD): SGBb + SGBf + (SGBa)

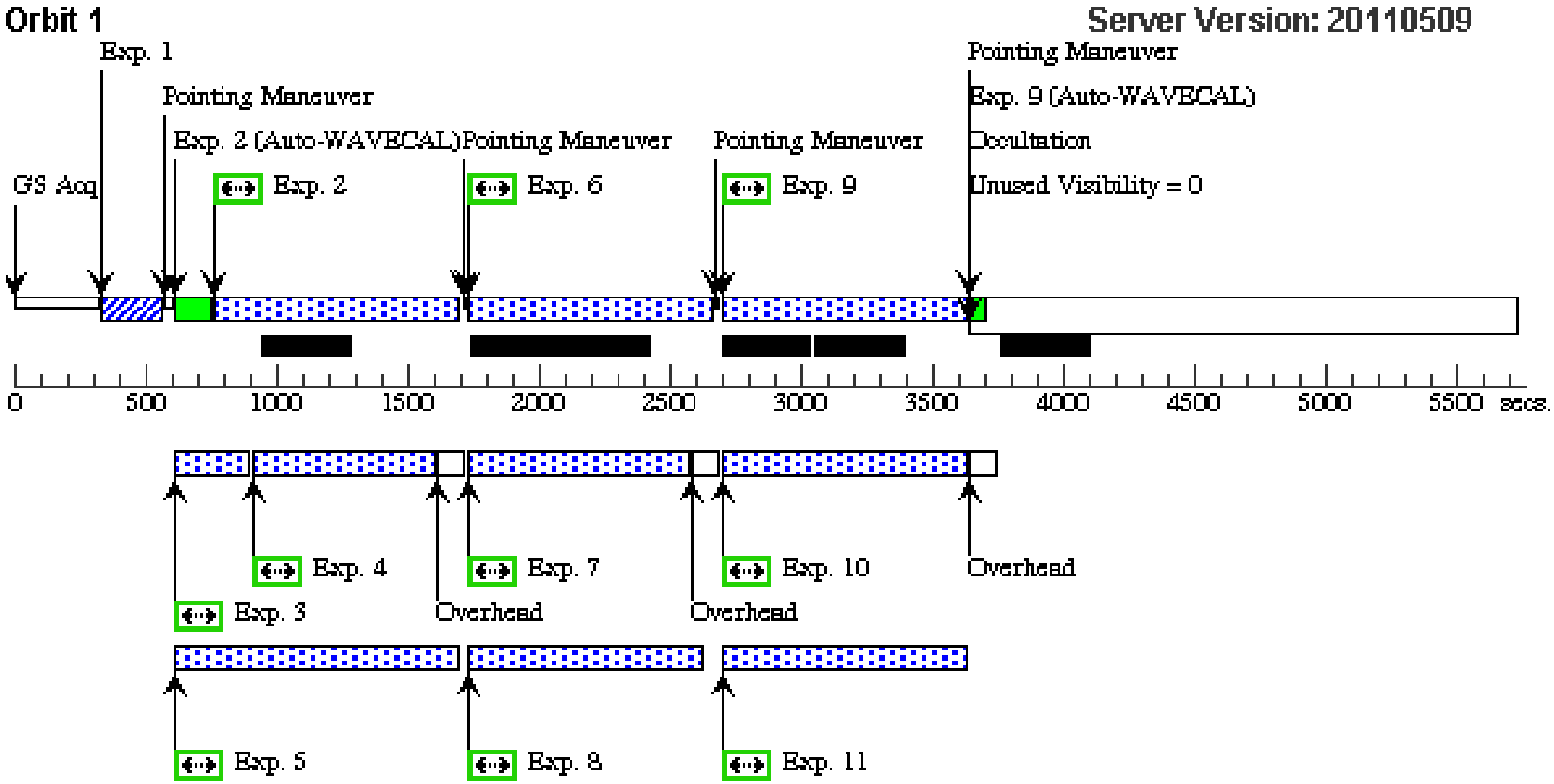
Fixed Targets

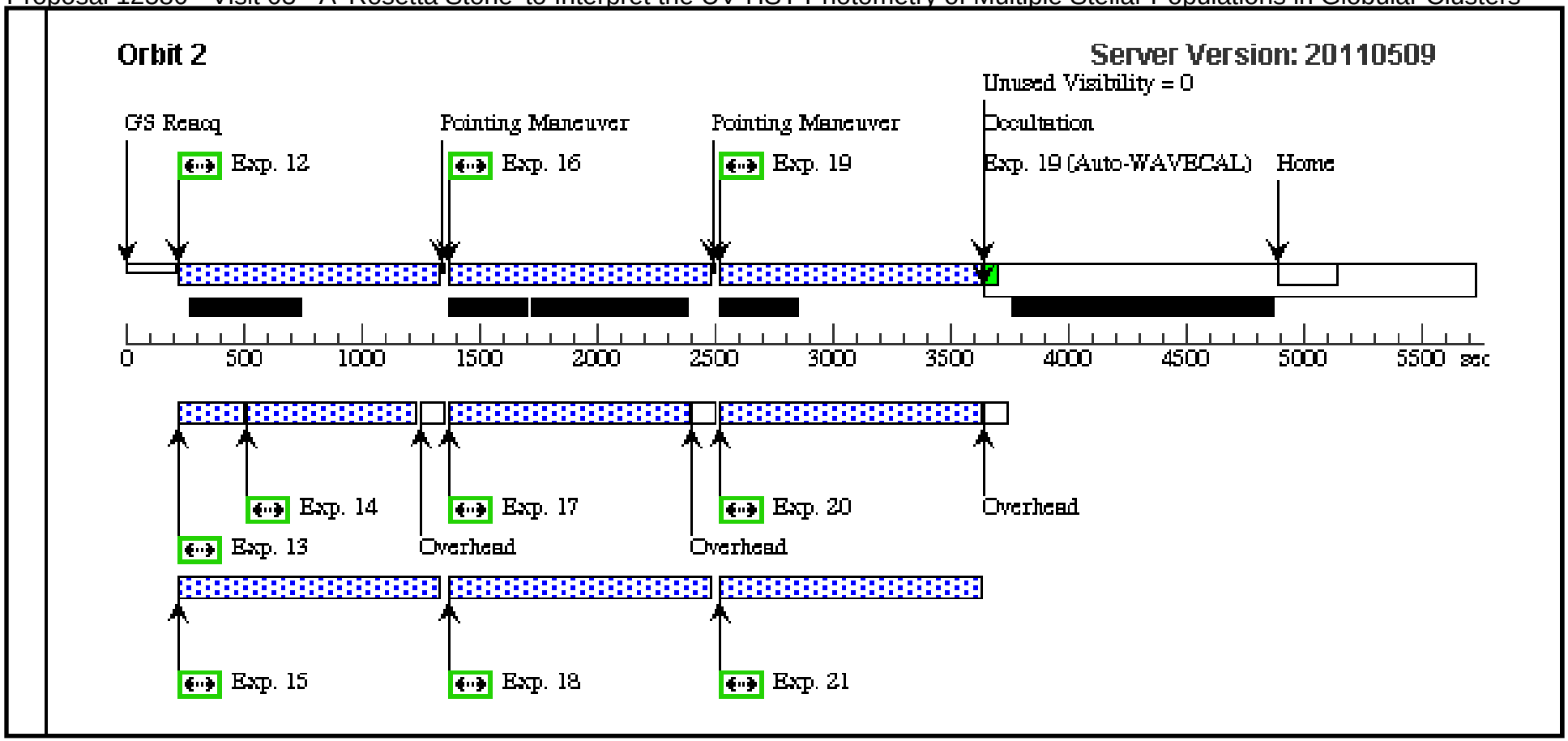
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	NGC104-TARGETAQ-SGB	RA: 00 24 21.6800 (6.0903333d) Dec: -72 04 26.35 (-72.07399d) Equinox: J2000		V=11.045	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					
(6)	NGC104-SGB	RA: 00 24 21.9790 (6.0915792d) Dec: -72 04 37.16 (-72.07699d) Equinox: J2000		V=4.91	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) NGC104-TARGETAQ-SGB	STIS/CCD, ACQ, F28X50LP	MIRROR				0.1 Secs	
								[==>]	***[1]***
2		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO		Prime + Parallel Group 2-5 in Visit 03	894 Secs	
								[==>]	***[1]***
3		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group 2-5 in Visit 03	132 Secs	
								[==>]	***[1]***
4		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group 2-5 in Visit 03	670 Secs	
								[==>]	***[1]***
5		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 2-5 in Visit 03	877 Secs	
								[==>]	***[1]***
6		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-1	Prime + Parallel Group 6-8 in Visit 03	894 Secs	
								[==>]	***[1]***
7		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 6-8 in Visit 03	818 Secs	
								[==>]	***[1]***
8		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 6-8 in Visit 03	767 Secs	
								[==>]	***[1]***
9		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,3	Prime + Parallel Group 9-11 in Visit 03	894 Secs	
								[==>]	***[1]***
10		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 9-11 in Visit 03	932 Secs	
								[==>]	***[1]***
11		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 9-11 in Visit 03	806 Secs	
								[==>]	***[1]***
12		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,1	Prime + Parallel Group 12-15 in Visit 03	1074 Secs	
								[==>]	***[2]***
13		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group 12-15 in Visit 03	140 Secs	
								[==>]	***[2]***
14		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group 12-15 in Visit 03	701 Secs	
								[==>]	***[2]***
15		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 12-15 in Visit 03	947 Secs	
								[==>]	***[2]***
16		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-2	Prime + Parallel Group 16-18 in Visit 03	1074 Secs	
								[==>]	***[2]***
17		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 16-18 in Visit 03	998 Secs	
								[==>]	***[2]***
18		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 16-18 in Visit 03	986 Secs	
								[==>]	***[2]***
19		(6) NGC104-SGB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,2	Prime + Parallel Group 19-21 in Visit 03	1075 Secs	
								[==>]	***[2]***
20		(6) NGC104-SGB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group 19-21 in Visit 03	1112 Secs	
								[==>]	***[2]***
21		(6) NGC104-SGB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 19-21 in Visit 03	986 Secs	
								[==>]	***[2]***

Orbit Structure




Orbit 2
Server Version: 20110509
Unused Visibility = 0
GS Reacq
Pointing Maneuver
Pointing Maneuver
Occultation
Exp. 12
Exp. 16
Exp. 19
Exp. 19 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 14
Exp. 17
Exp. 20
Overhead
Exp. 13
Overhead
Overhead
Exp. 15
Exp. 18
Exp. 21

Visit

Proposal 12580, Visit 04, implementation Thu Jul 07 01:39:52 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD, WFC3/UVIS, STIS/NUV-MAMA, ACS/WFC

Special Requirements: ORIENT 135.1D TO 135.1 D

Comments: 47Tuc(CCD+MAMA): HBb + HBf

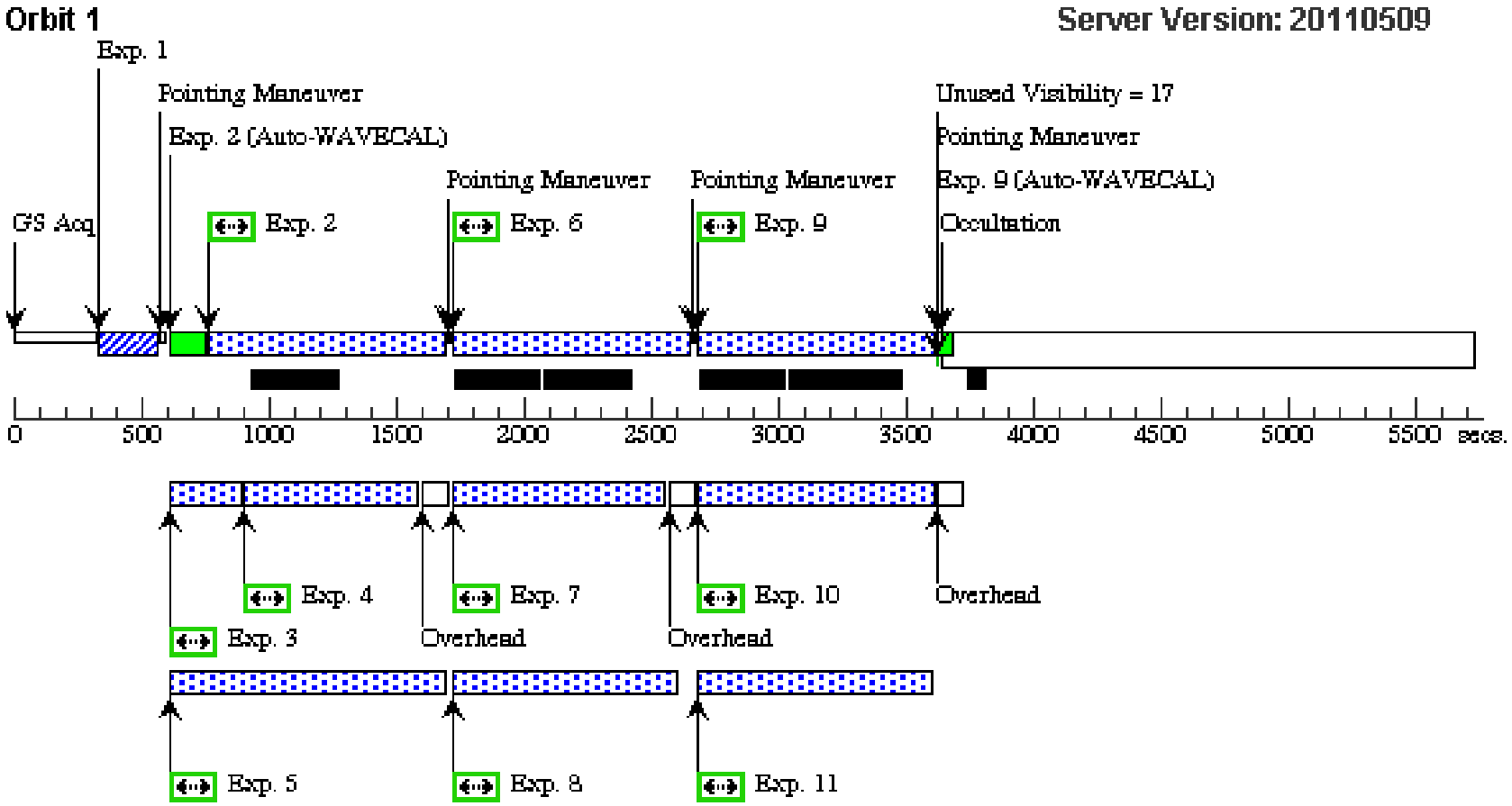
Fixed Targets

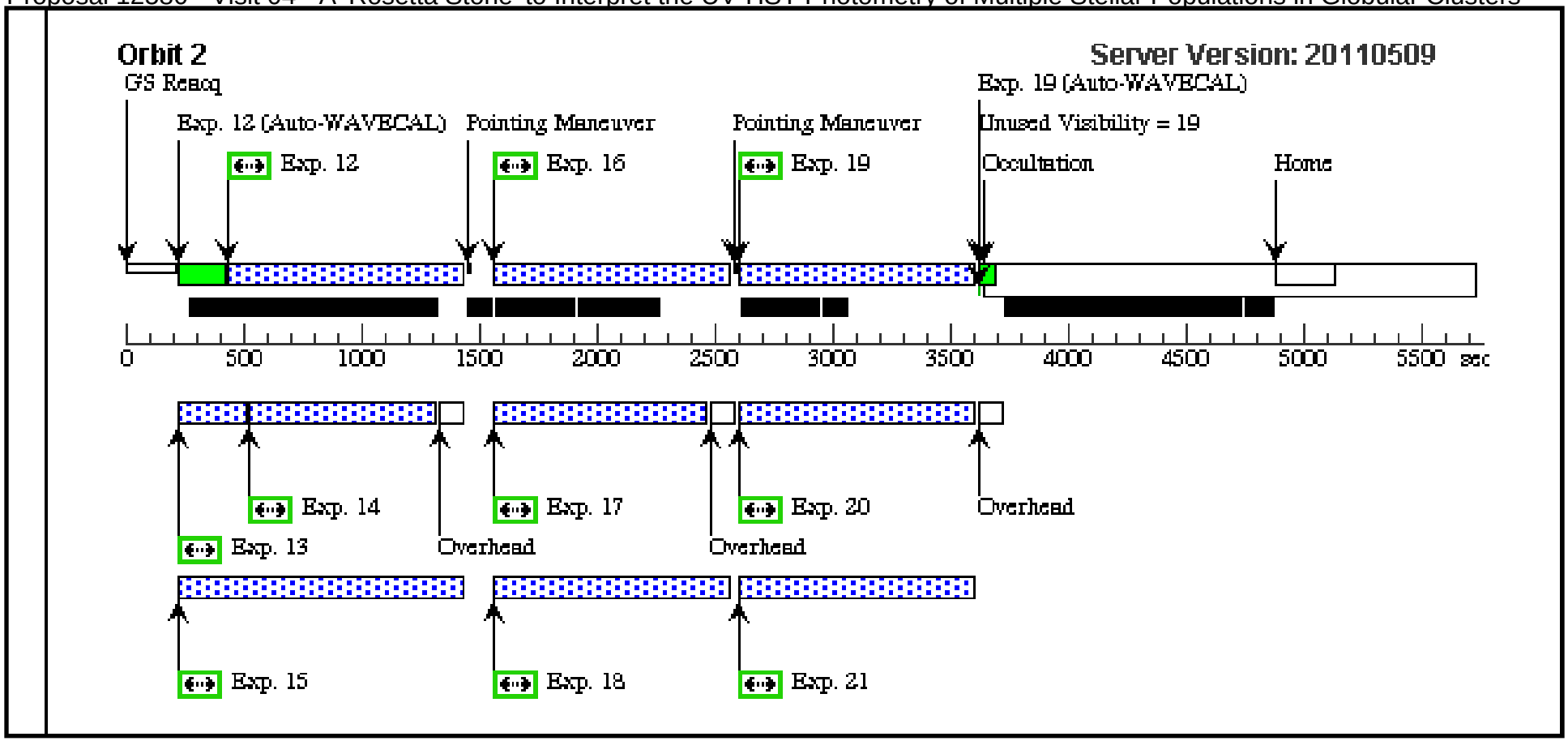
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	NGC104-TARGETAQ-SGB	RA: 00 24 21.6800 (6.0903333d) Dec: -72 04 26.35 (-72.07399d) Equinox: J2000		V=11.045	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					
(8)	NGC104-HB	RA: 00 24 21.2170 (6.0884042d) Dec: -72 04 33.93 (-72.07609d) Equinox: J2000		V=15.4+/-.2	Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. and then edited.					

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1		(5) NGC104-TARGETAQ-SGB	STIS/CCD, ACQ, F28X50LP	MIRROR				0.1 Secs	
								[==>]	***[1]***
2		(8) NGC104-HB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO		Prime + Parallel Group up 2-5 in Visit 04	890 Secs	
								[==>]	***[1]***
3		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 2-5 in Visit 04	130 Secs	
								[==>]	***[1]***
4		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 2-5 in Visit 04	660 Secs	
								[==>]	***[1]***
5		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 2-5 in Visit 04	870 Secs	
								[==>]	***[1]***
6		(8) NGC104-HB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,-1	Prime + Parallel Group up 6-8 in Visit 04	890 Secs	
								[==>]	***[1]***
7		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 6-8 in Visit 04	810 Secs	
								[==>]	***[1]***
8		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 6-8 in Visit 04	760 Secs	
								[==>]	***[1]***
9		(8) NGC104-HB	STIS/CCD, ACCUM, 52X0.2E1	G430L 4300 A	CR-SPLIT=NO	POS TARG 0,1	Prime + Parallel Group up 9-11 in Visit 04	890 Secs	
								[==>]	***[1]***
10		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 9-11 in Visit 04	928 Secs	
								[==>]	***[1]***
11		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group up 9-11 in Visit 04	800 Secs	
								[==>]	***[1]***
12	(STIS.sp.18 3981)	(8) NGC104-HB	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A			Prime + Parallel Group up 12-15 in Visit 04	990 Secs	
								[==>]	***[2]***
13		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F438W			Prime + Parallel Group up 12-15 in Visit 04	150 Secs	
								[==>]	***[2]***
14		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W			Prime + Parallel Group up 12-15 in Visit 04	770 Secs	
								[==>]	***[2]***
15		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 12-15 in Visit 04	1050 Secs	
								[==>]	***[2]***
16	(STIS.sp.18 3981)	(8) NGC104-HB	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A		POS TARG 0,1	Prime + Parallel Group up 16-18 in Visit 04	990 Secs	
								[==>]	***[2]***
17		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 16-18 in Visit 04	880 Secs	
								[==>]	***[2]***
18		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 16-18 in Visit 04	880 Secs	
								[==>]	***[2]***
19	(STIS.sp.18 3981)	(8) NGC104-HB	STIS/NUV-MAMA, ACCUM, 52X0.2	G230L 2376 A		POS TARG 0,-1	Prime + Parallel Group up 19-21 in Visit 04	990 Secs	
								[==>]	***[2]***
20		(8) NGC104-HB	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W			Prime + Parallel Group up 19-21 in Visit 04	1000 Secs	
								[==>]	***[2]***
21		(8) NGC104-HB	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group up 19-21 in Visit 04	880 Secs	
								[==>]	***[2]***

Orbit Structure




Orbit 2
Server Version: 20110509
GS Reacq
Exp. 12 (Auto-WAVECAL)
Pointing Maneuver
Pointing Maneuver
Exp. 19 (Auto-WAVECAL)
Unused Visibility = 19
Exp. 12
Exp. 16
Exp. 19
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Exp. 14
Exp. 17
Exp. 20
Overhead
Exp. 13
Overhead
Overhead
Exp. 15
Exp. 18
Exp. 21