



12311 - Multiple Stellar Populations in Galactic Globular Clusters

Cycle: 18, Proposal Category: GO

(Availability Mode: SUPPORTED)

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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>
01	(6) M4FROMGO10146	WFC3/UVIS	1	10-Jul-2010 04:01:06.0	yes
02	(6) M4FROMGO10146	WFC3/UVIS	1	10-Jul-2010 04:01:13.0	yes
03	(3) NGC-104	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:19.0	yes

Proposal 12311 (STScI Edit Number: 0, Created: Saturday, July 10, 2010 3:02:24 AM EST) - Overview

<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>
04	(3) NGC-104	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:26.0	yes
05	(8) NGC-6752	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:33.0	yes
06	(8) NGC-6752	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:38.0	yes
07	(1) M-22	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:42.0	yes
08	(1) M-22	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:46.0	yes
09	(1) M-22	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:50.0	yes
10	(1) M-22	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:53.0	yes
11	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:01:57.0	yes
12	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:01.0	yes
13	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:05.0	yes
14	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:09.0	yes
15	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:13.0	yes
16	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:17.0	yes
17	(5) NGC-1851	ACS/WFC WFC3/UVIS	1	10-Jul-2010 04:02:20.0	yes

17 Total Orbits Used

ABSTRACT

This is a proposal to bring the unique new properties of WFC3 to bear on the most exciting recent development in stellar populations: multiple generations of stars in globular clusters.

From our vantage point in the midst of these developments, we feel that the present-day situation merits a concentration on increasing the depth of knowledge in clusters that are already known to have multiple populations, rather than merely increasing the list of clusters with perplexing peculiarities.

We are therefore proposing to look for a clear splitting of the main sequence (and other sequences) of 47 Tuc, M4, M22, NGC 1851, and NGC 6752, and quantify them. The main-sequence study will cast particular light on the question of helium enrichment. Coupling the requested F275W data with F814W images available from the archive will allow us to follow the multiple sequences in the color magnitude diagram from the main sequence to the horizontal branch and asymptotic giant branch, and therefore constrain the effects of enhanced He and CNO on their evolution.

OBSERVING DESCRIPTION

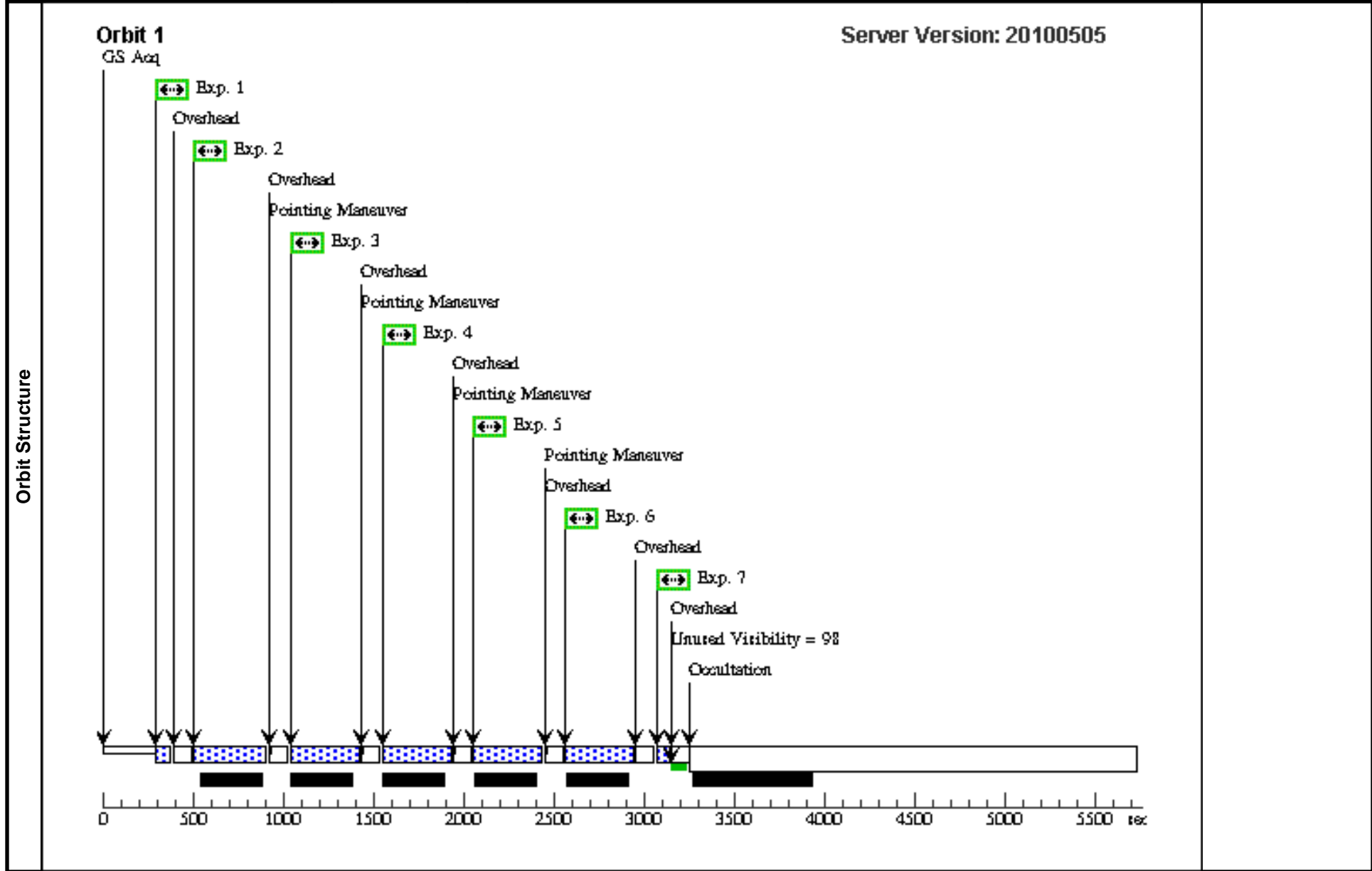
The goal of this program is to observe the central regions of these five Galactic globular clusters through F275W with a minimum of systematic errors. We took short F814W to supplement the archive when it would cost us little time in F275W. We dither to step the WFC3 gap across the field, so that a given star will fall in the gap in at most one exposure per visit. When we cover the same field at the same orientation with different visits, we offset the dither pattern to prevent the same star from landing on the same pixels. This dithering also serves to randomize any L-flat errors that may be present.

Our observing strategy was focused on the science return from the primary observations, but we took as many parallels as possible, subject to the buffer-dump needs. Unfortunately,

in many cases, this limited us to one parallel exposure per orbit. Where possible, we chose an orientation that placed the parallel ACS/WFC footprint on an outer field that had been observed previously by HST, so that it will be possible to do proper-motion cleaning for these stars.

Our considerations, cluster by cluster were as follows. For M4 we took a slightly off-center field to optimize coverage with previous photometry (for the purpose of getting the best possible red colors against which we would compare our F275W photometry). There were not good fields for parallels in this cluster, and furthermore the need for shorter exposures made parallels hard to take, given buffer dumps. For 47 Tuc, the primary observations are centered on the cluster, and the parallels are in F475W, to improve the deep blue coverage of the outer calibration field. For NGC6752, the crowded cluster center is placed on one side of the detector so that we can observe more of the radial trends in the primary UVIS observations. The parallel field covers the deepest possible archival data set. For M22, the parallels cover the only deep archival data set. For NGC1851, we found two orientations with good archival coverage, so we split up our 7 visits among them.

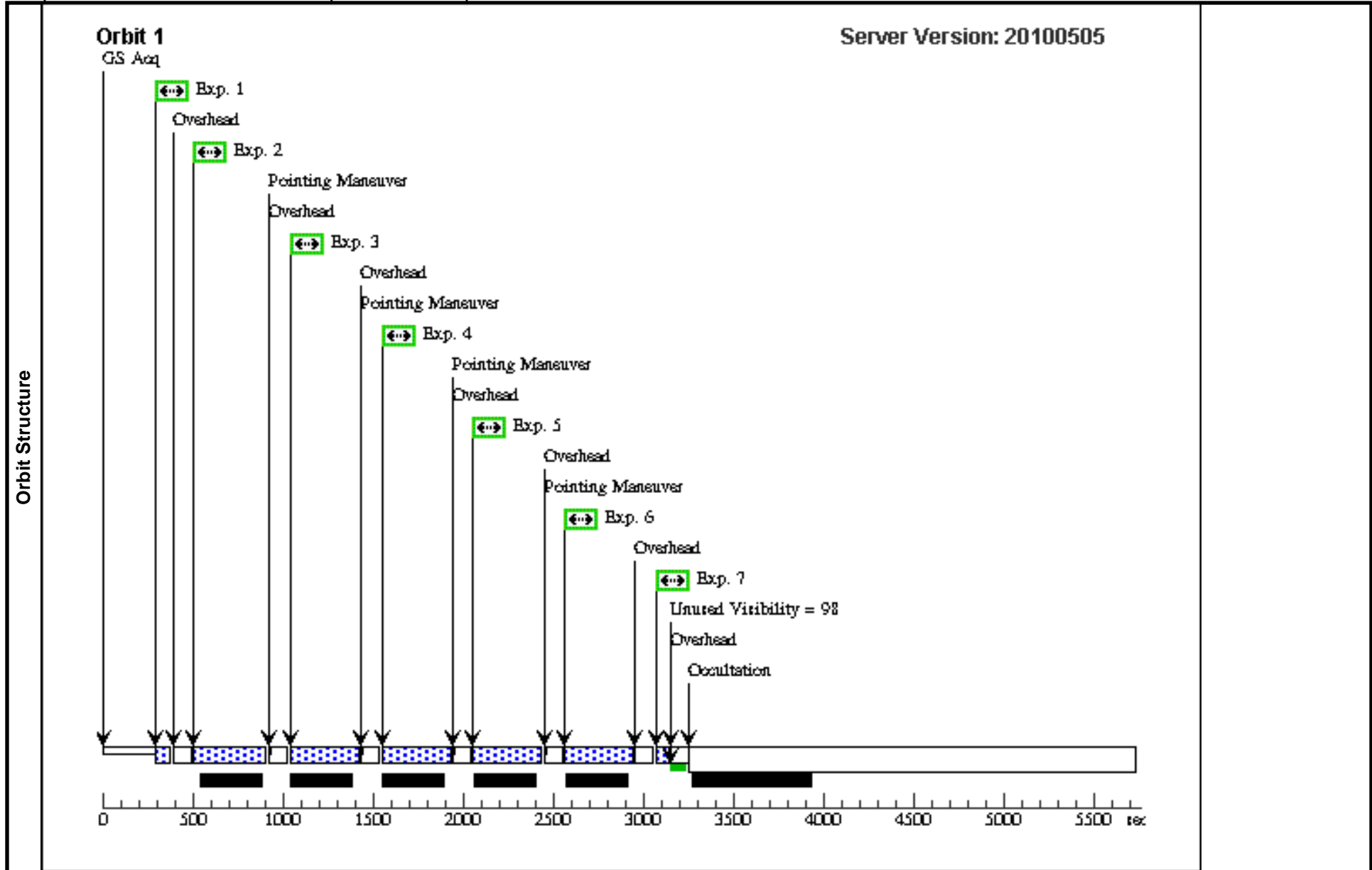
Visit	Proposal 12311, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 270D TO 290 D; BETWEEN 21-FEB-2011:00:00:00 AND 28-FEB-2011:00:00:00 Comments: M4									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(6)	M4FROMGO10146	RA: 16 23 41.8900 (245.9245417d) Dec: -26 30 50.00 (-26.51389d) Equinox: J2000		V=15.6+/-0.3	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		380 Secs [==>]	[1]
	3	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		380 Secs [==>]	[1]
	4	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		380 Secs [==>]	[1]
	5	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		380 Secs [==>]	[1]
	6	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		380 Secs [==>]	[1]
	7	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 2.8,1.4		50 Secs [==>]	[1]



Proposal 12311 - Visit 01 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:26 GMT 2010

Visit	Proposal 12311, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 80D TO 100 D; BETWEEN 27-AUG-2011:00:00:00 AND 02-SEP-2011:00:00:00 Comments: M4									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(6)	M4FROMGO10146	RA: 16 23 41.8900 (245.9245417d) Dec: -26 30 50.00 (-26.51389d) Equinox: J2000		V=15.6+/-0.3	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		380 Secs [==>]	[1]
	3	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		380 Secs [==>]	[1]
	4	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		380 Secs [==>]	[1]
	5	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		380 Secs [==>]	[1]
	6	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		380 Secs [==>]	[1]
	7	(6) M4FROMGO10146	(6) M4FROMGO10146	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 2.8,1.4		50 Secs [==>]	[1]

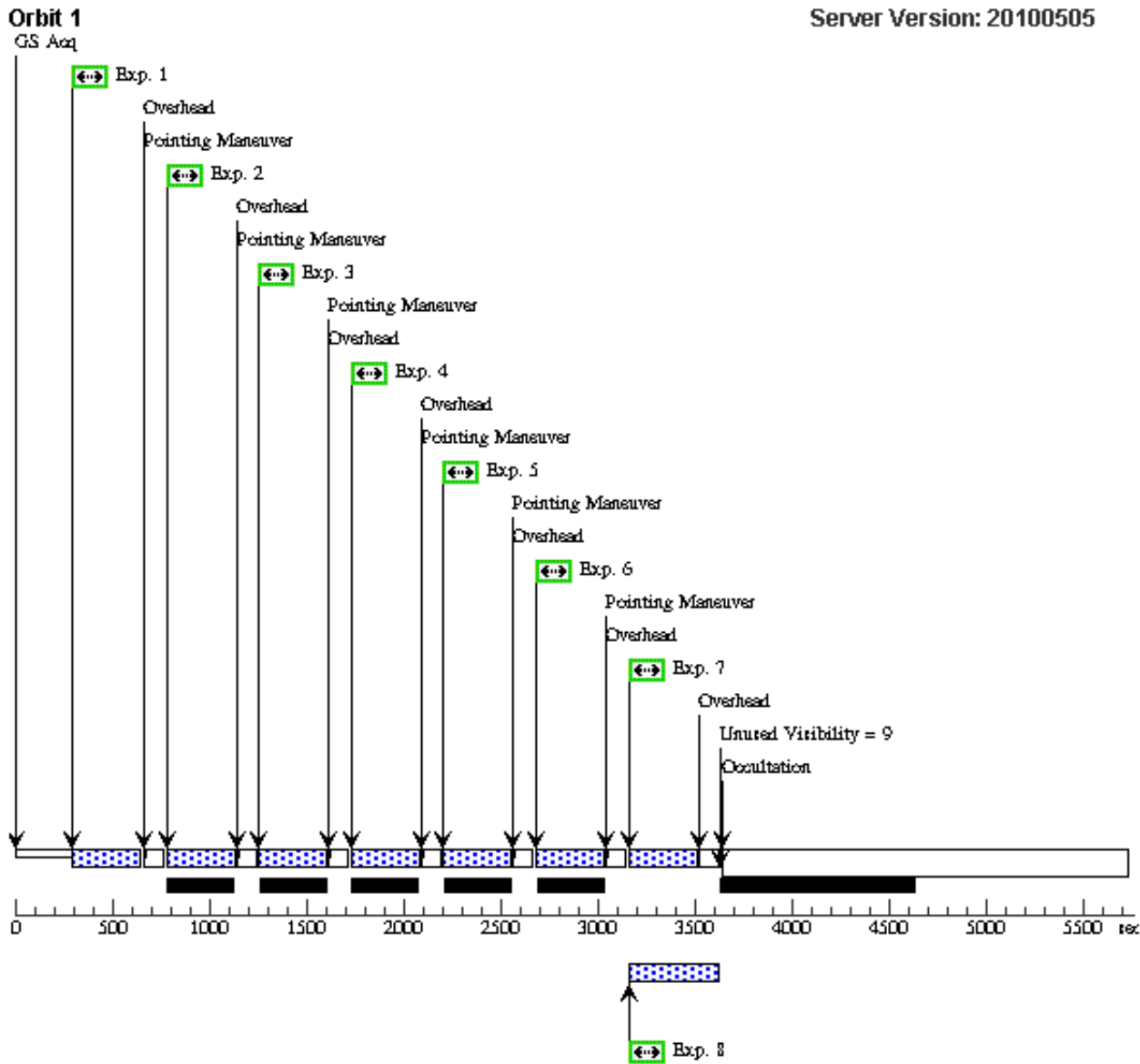


Proposal 12311 - Visit 02 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:26 GMT 2010

Visit	Proposal 12311, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 55D TO 55 D Comments: 47Tuc									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(3)	NGC-104	RA: 00 24 5.6700 (6.0236250d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=4.91	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -4.2,-5.6		323 Secs [==>]	[1]
	2	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		348 Secs [==>]	[1]
	3	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		348 Secs [==>]	[1]
	4	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		348 Secs [==>]	[1]
	5	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		348 Secs [==>]	[1]
	6	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		348 Secs [==>]	[1]
	7	(3) NGC-104	(3) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 7-8	348 Secs [==>]	[1]
	8	(3) NGC-104	(3) NGC-104	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 7-8	265 Secs [==>256.0 Secs]	[1]

Orbit Structure

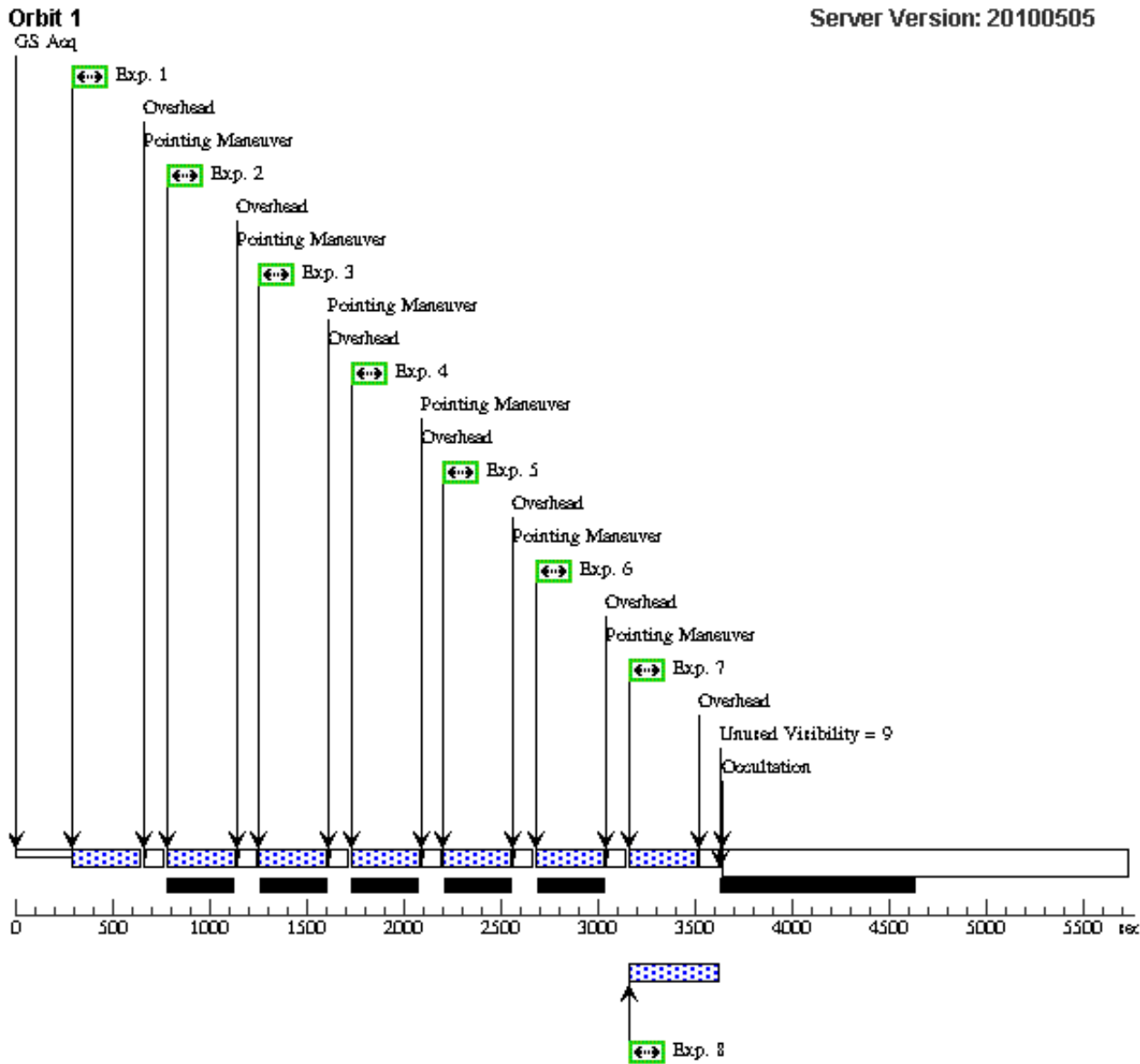


Proposal 12311 - Visit 03 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:27 GMT 2010

Visit	Proposal 12311, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 50D TO 50 D Comments: 47Tuc									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(3)	NGC-104	RA: 00 24 5.6700 (6.0236250d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=4.91	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -4.2,-5.6		323 Secs [==>]	[1]
	2	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		348 Secs [==>]	[1]
	3	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		348 Secs [==>]	[1]
	4	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		348 Secs [==>]	[1]
	5	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		348 Secs [==>]	[1]
	6	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		348 Secs [==>]	[1]
	7	(3) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 7-8	348 Secs [==>]	[1]
	8	(3) NGC-104		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 7-8	265 Secs [==>256.0 Secs]	[1]

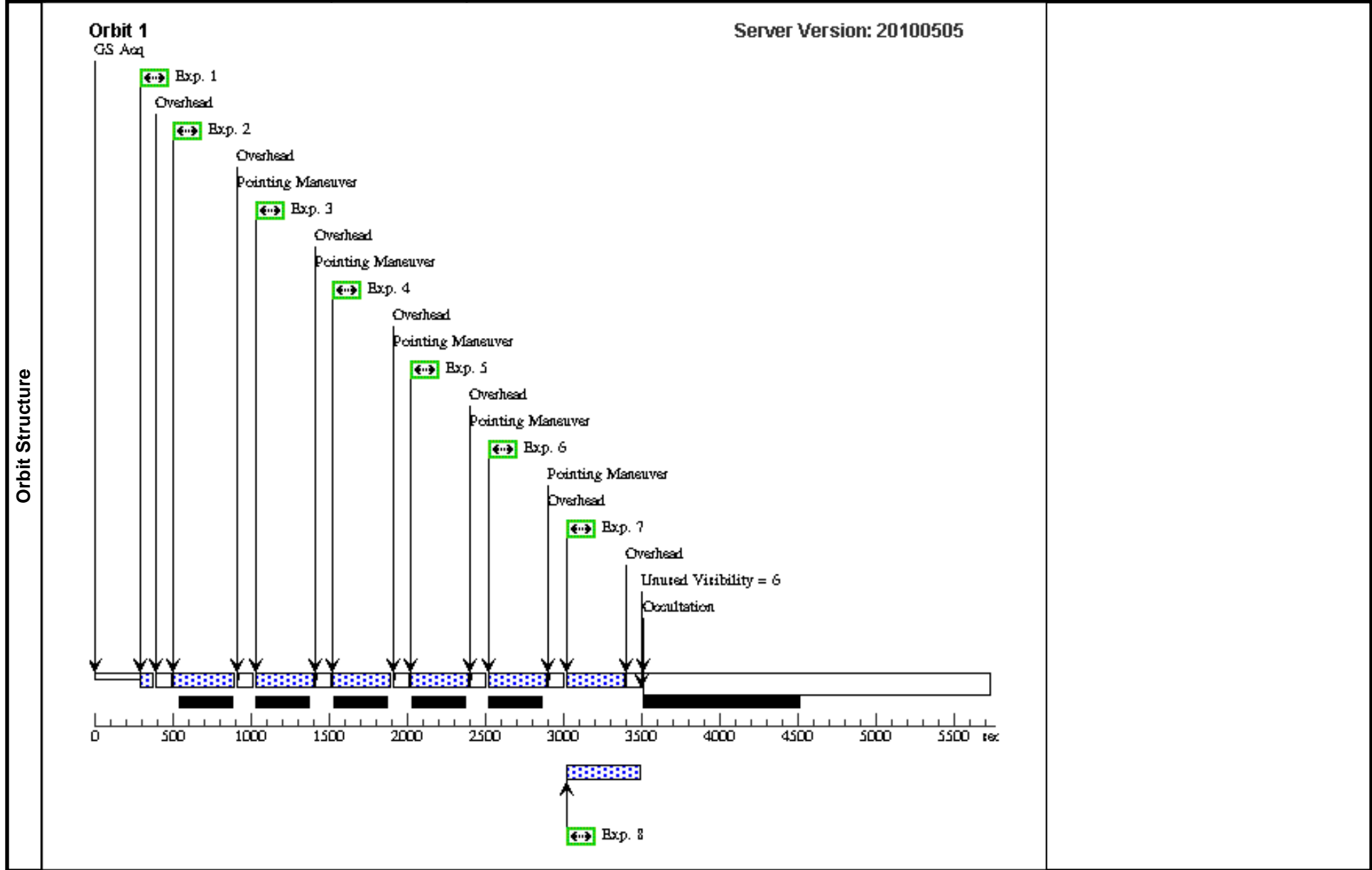
Orbit Structure



Proposal 12311 - Visit 04 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:28 GMT 2010

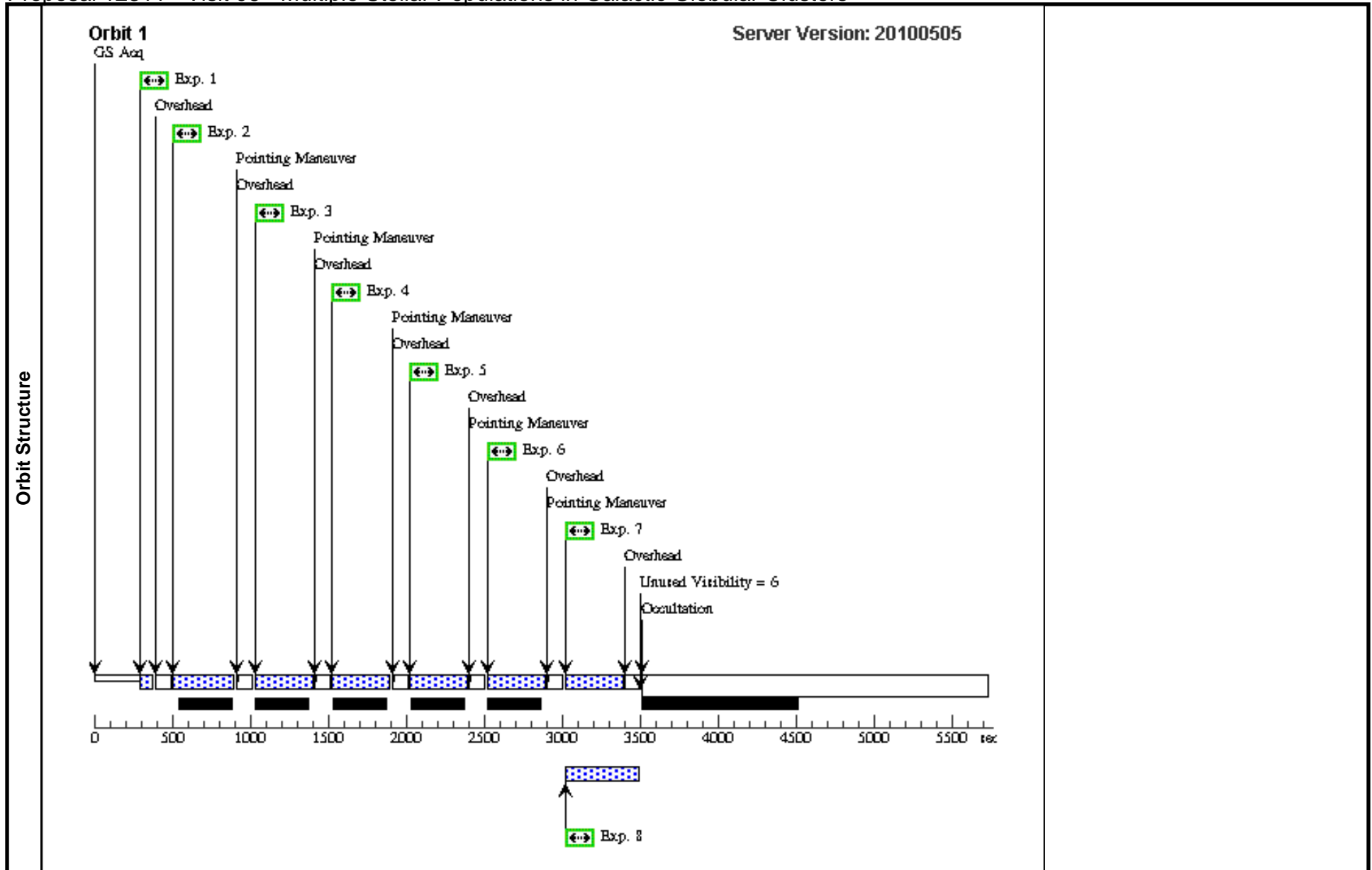
Visit	Proposal 12311, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 234D TO 244 D Comments: NGC6752									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(8)	NGC-6752	RA: 19 10 54.8600 (287.7285833d) Dec: -59 59 11.15 (-59.98643d) Equinox: J2000		V=12.0	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		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		360 Secs [==>369.0 Secs]	[1]
	3		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		360 Secs [==>369.0 Secs]	[1]
	4		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		360 Secs [==>369.0 Secs]	[1]
	5		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		360 Secs [==>369.0 Secs]	[1]
	6		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		360 Secs [==>369.0 Secs]	[1]
	7		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 7-8	360 Secs [==>369.0 Secs]	[1]
	8		(8) NGC-6752	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 7-8	265 Secs [==>]	[1]



Proposal 12311 - Visit 05 - Multiple Stellar Populations in Galactic Globular Clusters

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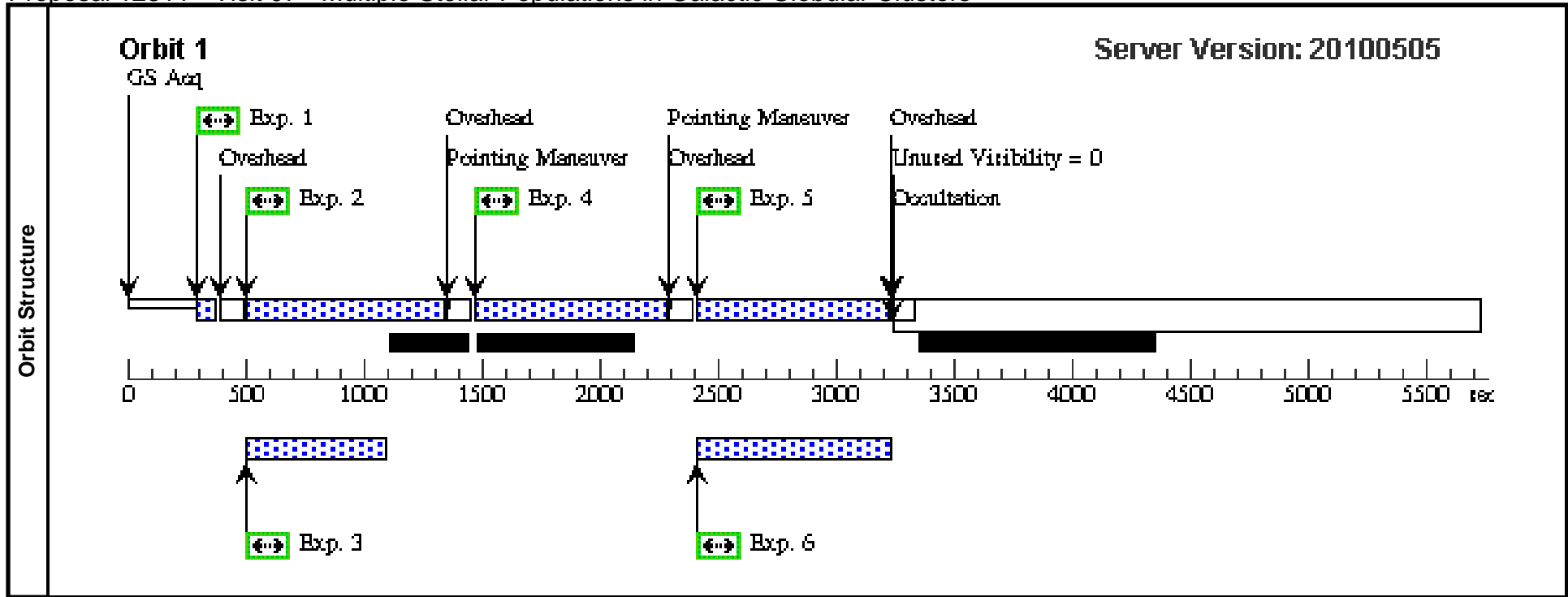
Visit	Proposal 12311, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 246D TO 255 D Comments: NGC6752									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(8)	NGC-6752	RA: 19 10 54.8600 (287.7285833d) Dec: -59 59 11.15 (-59.98643d) Equinox: J2000		V=12.0	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		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2		360 Secs [==>369.0 Secs]	[1]
	3		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		360 Secs [==>369.0 Secs]	[1]
	4		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4		360 Secs [==>369.0 Secs]	[1]
	5		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0		360 Secs [==>369.0 Secs]	[1]
	6		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		360 Secs [==>369.0 Secs]	[1]
	7		(8) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 7-8	360 Secs [==>369.0 Secs]	[1]
	8		(8) NGC-6752	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 7-8	265 Secs [==>]	[1]



Proposal 12311 - Visit 06 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:29 GMT 2010

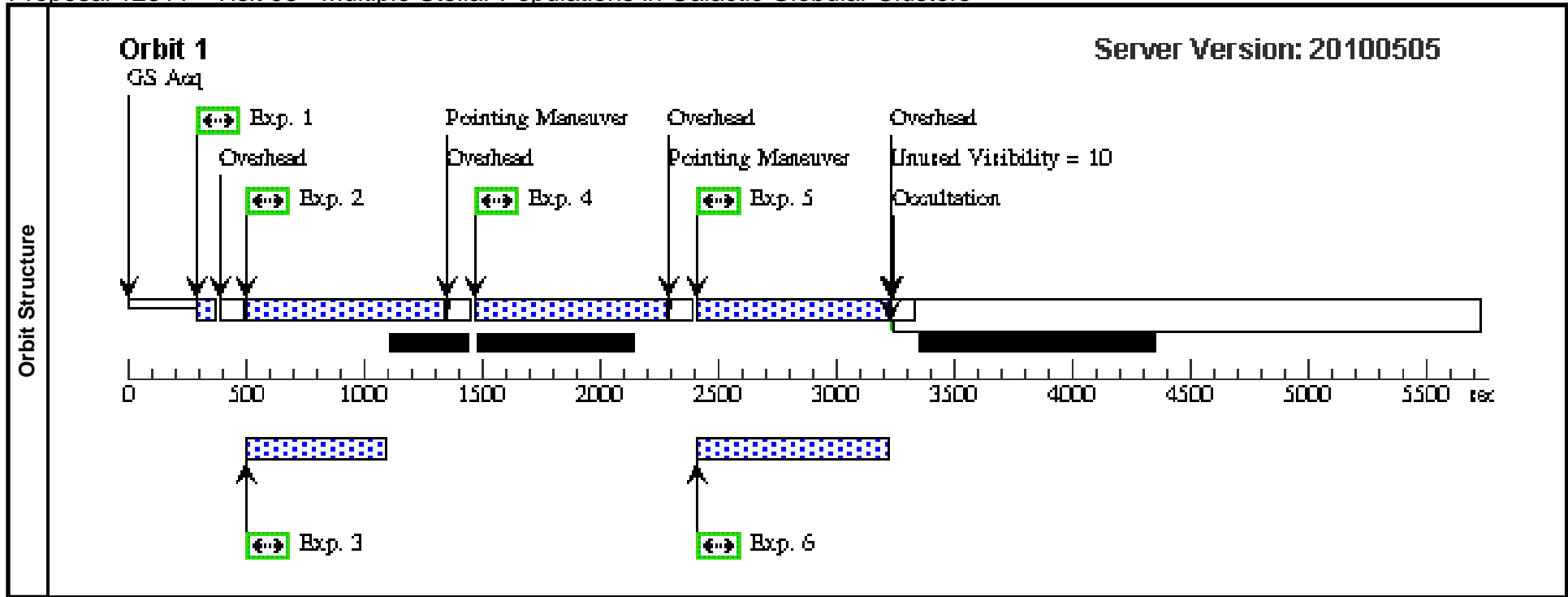
Visit	Proposal 12311, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 85D TO 90 D Comments: M22									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	M-22	RA: 18 36 24.2100 (279.1008750d) Dec: -23 54 12.20 (-23.90339d) Equinox: J2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.		V=6.17	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2	Prime + Parallel Group 2-3	800 Secs [==>812.0 Secs]	[1]
	3	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 2-3	339 Secs [==>389.0 Secs]	[1]
	4	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		800 Secs [==>812.0 Secs]	[1]
	5	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4	Prime + Parallel Group 5-6	800 Secs [==>812.0 Secs]	[1]
	6	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 5-6	644 Secs [==>656.0 Secs]	[1]



Proposal 12311 - Visit 07 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:29 GMT 2010

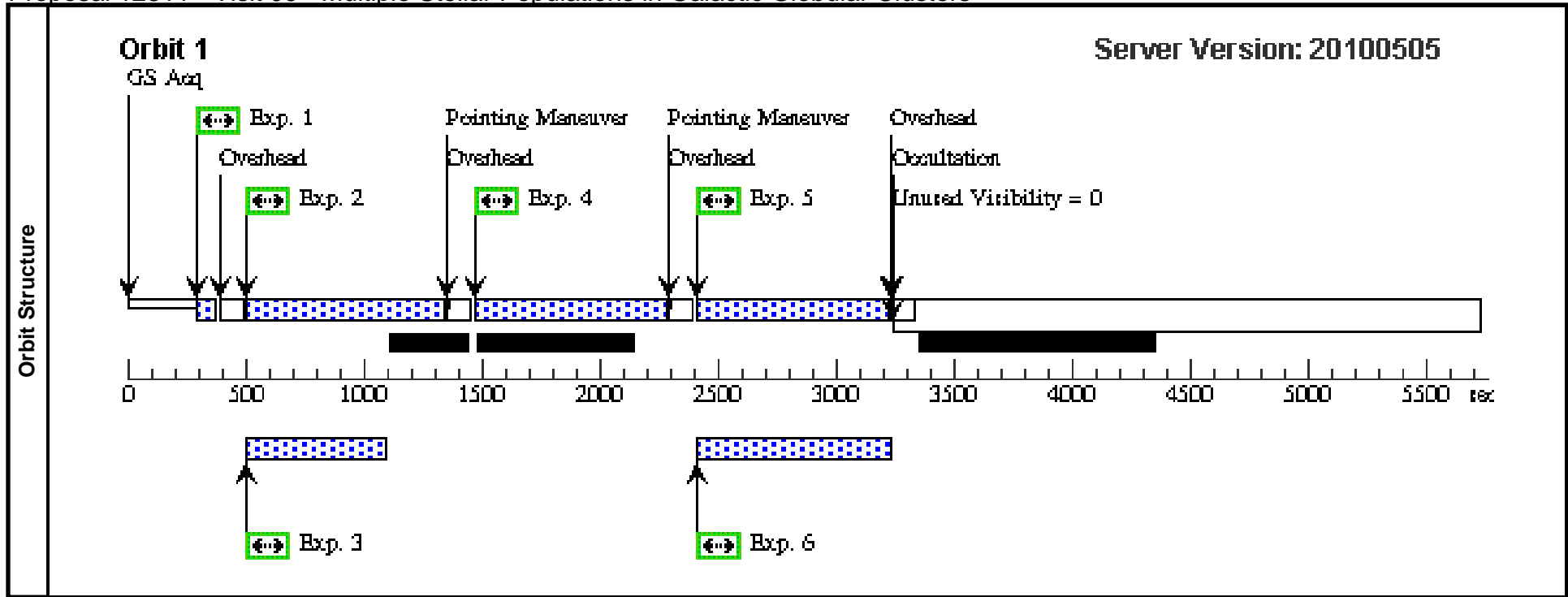
Visit	Proposal 12311, Visit 08, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 07 Comments: M22									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	M-22	RA: 18 36 24.2100 (279.1008750d) Dec: -23 54 12.20 (-23.90339d) Equinox: J2000		V=6.17	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 1.4,0		50 Secs [==>]	[1]
	2	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0	Prime + Parallel Group 2-3	800 Secs [==>812.0 Secs]	[1]
	3	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 2-3	339 Secs [==>389.0 Secs]	[1]
	4	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		800 Secs [==>812.0 Secs]	[1]
	5	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 5-6	800 Secs [==>812.0 Secs]	[1]
	6	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 5-6	644 Secs [==>644.0 Secs]	[1]



Proposal 12311 - Visit 08 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:29 GMT 2010

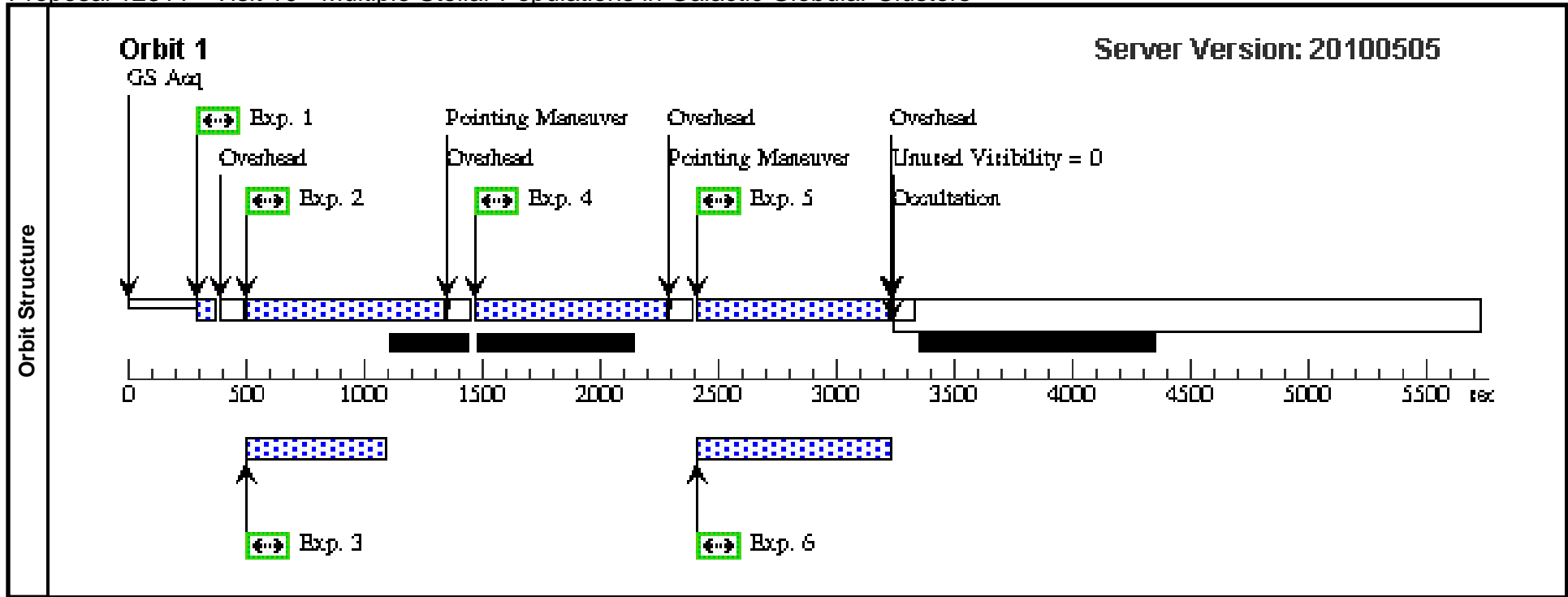
Visit	Proposal 12311, Visit 09, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 265D TO 270 D Comments: M22									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	M-22	RA: 18 36 24.2100 (279.1008750d) Dec: -23 54 12.20 (-23.90339d) Equinox: J2000		V=6.17	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2		50 Secs [==>]	[1]
	2	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2	Prime + Parallel Group 2-3	800 Secs [==>812.0 Secs]	[1]
	3	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 2-3	339 Secs [==>389.0 Secs]	[1]
	4	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8		800 Secs [==>812.0 Secs]	[1]
	5	(1) M-22	(1) M-22	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4	Prime + Parallel Group 5-6	800 Secs [==>812.0 Secs]	[1]
	6	(1) M-22	(1) M-22	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 5-6	644 Secs [==>656.0 Secs]	[1]



Proposal 12311 - Visit 09 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:30 GMT 2010

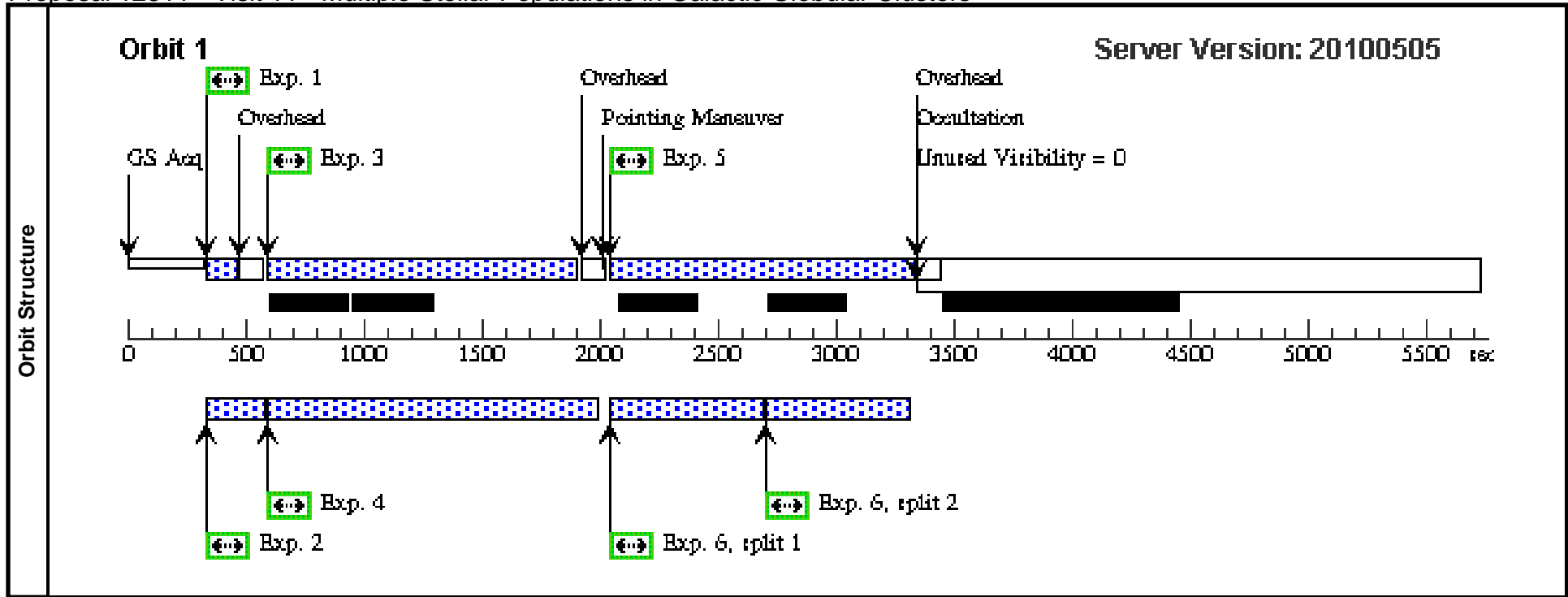
Visit	Proposal 12311, Visit 10, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 09 Comments: M22									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	M-22	RA: 18 36 24.2100 (279.1008750d) Dec: -23 54 12.20 (-23.90339d) Equinox: J2000		V=6.17	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(1) M-22		WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 1.4,0		50 Secs [==>]	[1]
	2	(1) M-22		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0	Prime + Parallel Group 2-3	800 Secs [==>812.0 Secs]	[1]
	3	(1) M-22		ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 2-3	339 Secs [==>389.0 Secs]	[1]
	4	(1) M-22		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4		800 Secs [==>812.0 Secs]	[1]
	5	(1) M-22		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 5-6	800 Secs [==>812.0 Secs]	[1]
	6	(1) M-22		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 5-6	644 Secs [==>656.0 Secs]	[1]



Proposal 12311 - Visit 10 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:30 GMT 2010

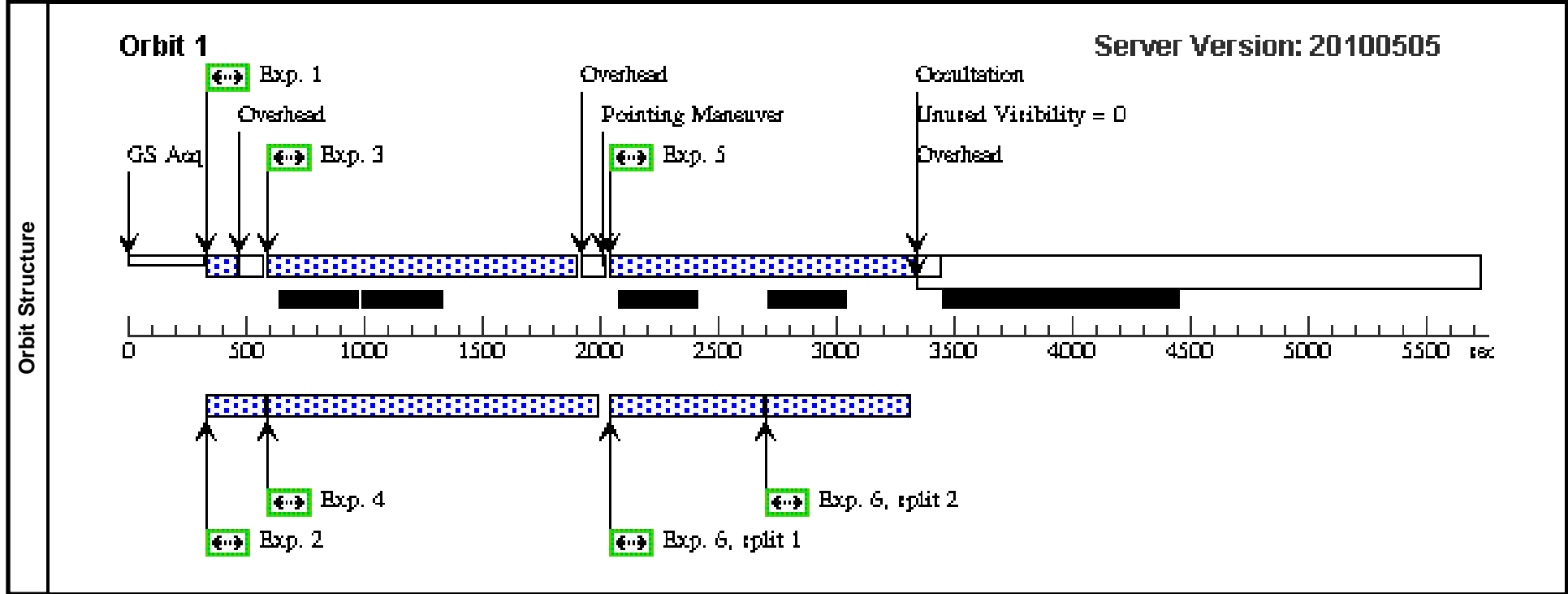
Visit	Proposal 12311, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 15D TO 15.0 D Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -2.8,-4.2	Prime + Parallel Group 1-2	100 Secs [==>]	[1]	
	2	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]	
	3	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]	
	4	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1277.0 Secs]	[1]	
	5	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]	
	6	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]	



Proposal 12311 - Visit 11 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:31 GMT 2010

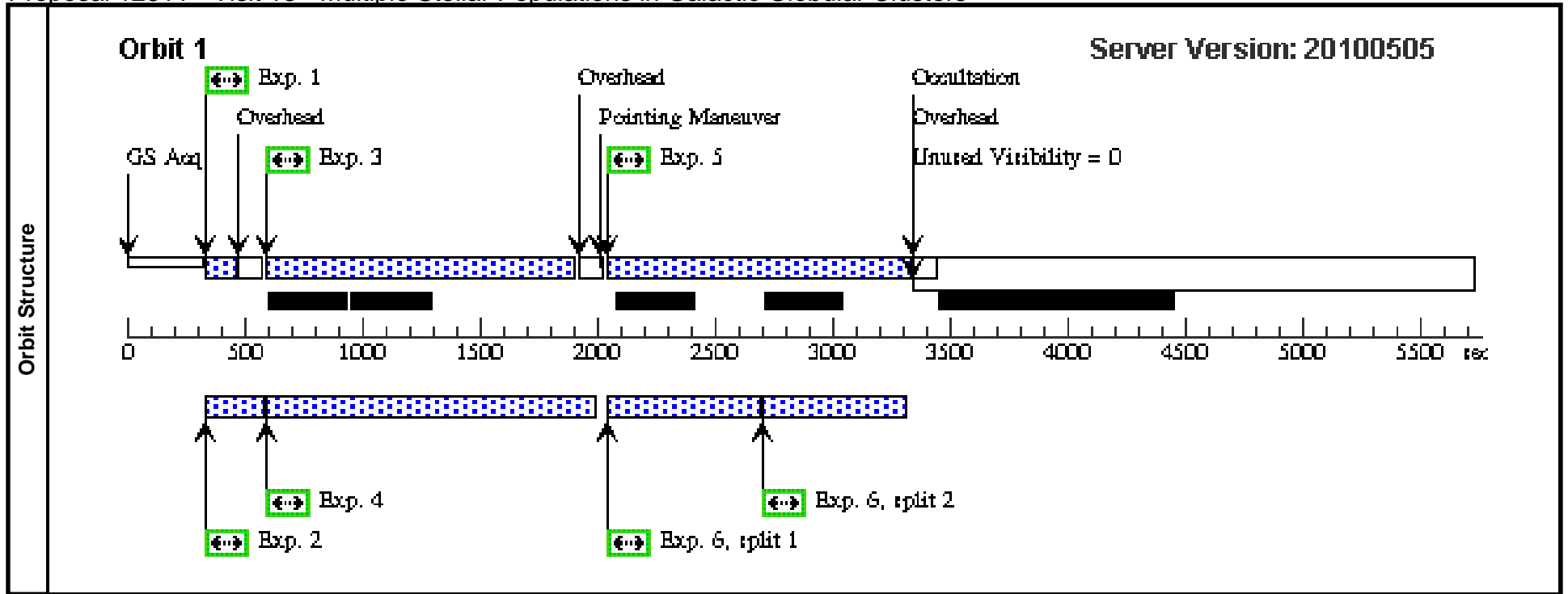
Visit	Proposal 12311, Visit 12, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 11 Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 0,-1.4	Prime + Parallel Group 1-2	100 Secs [==>]	[1]	
	2	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]	
	3	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]	
	4	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1237.0 Secs]	[1]	
	5	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]	
	6	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]	



Proposal 12311 - Visit 12 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:31 GMT 2010

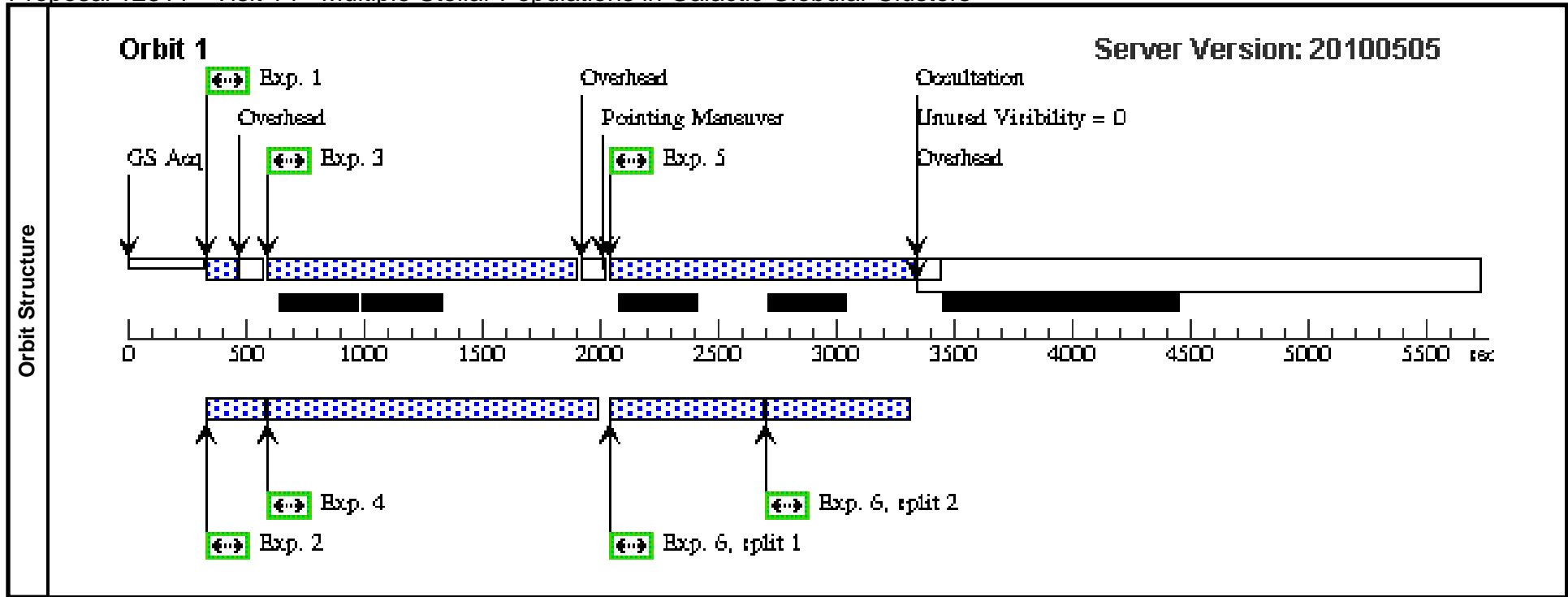
Visit	Proposal 12311, Visit 13, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 11 Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 2.8,1.4	Prime + Parallel Group 1-2	100 Secs [==>]	[1]
	2	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]
	3	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]
	4	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1277.0 Secs]	[1]
	5	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]
	6	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]



Proposal 12311 - Visit 13 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:32 GMT 2010

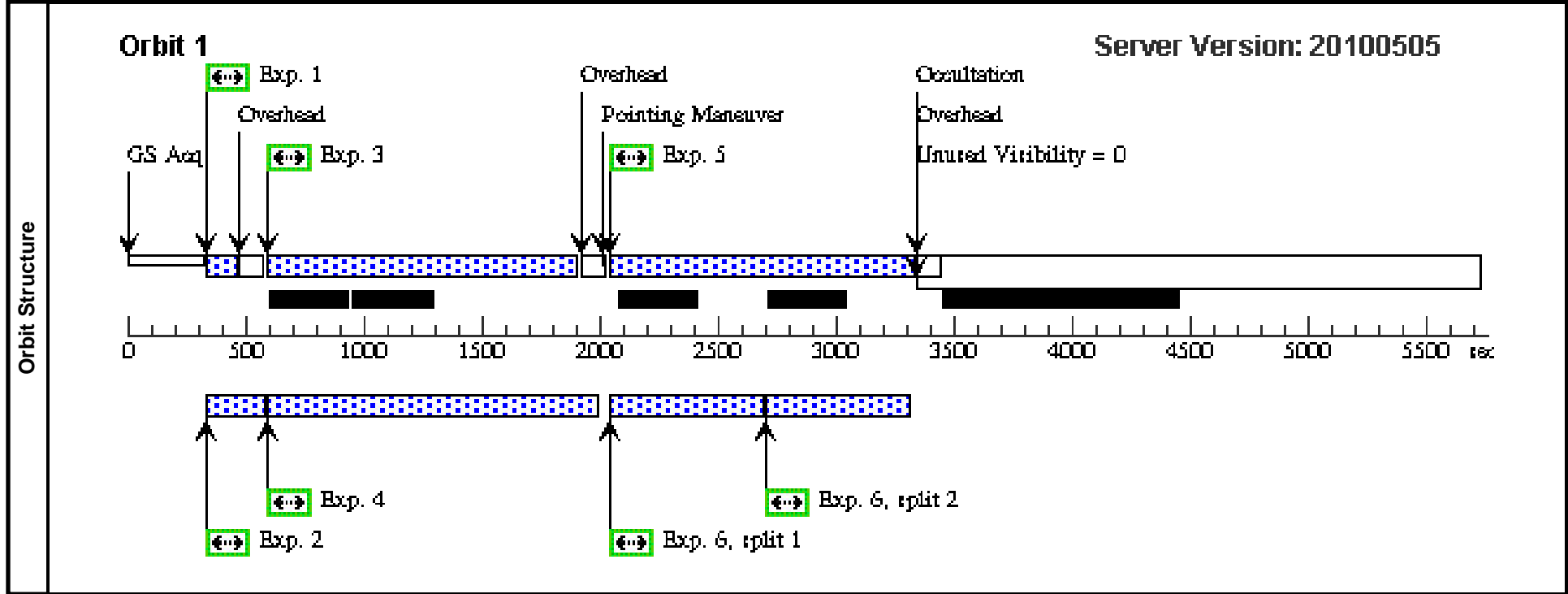
Visit	Proposal 12311, Visit 14, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: ORIENT 345D TO 345.0 D Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -4.2,-5.6	Prime + Parallel Group 1-2	100 Secs [==>]	[1]	
	2	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]	
	3	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -4.2,-5.6	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]	
	4	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1237.0 Secs]	[1]	
	5	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -2.8,-4.2	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]	
	6	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]	



Proposal 12311 - Visit 14 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:32 GMT 2010

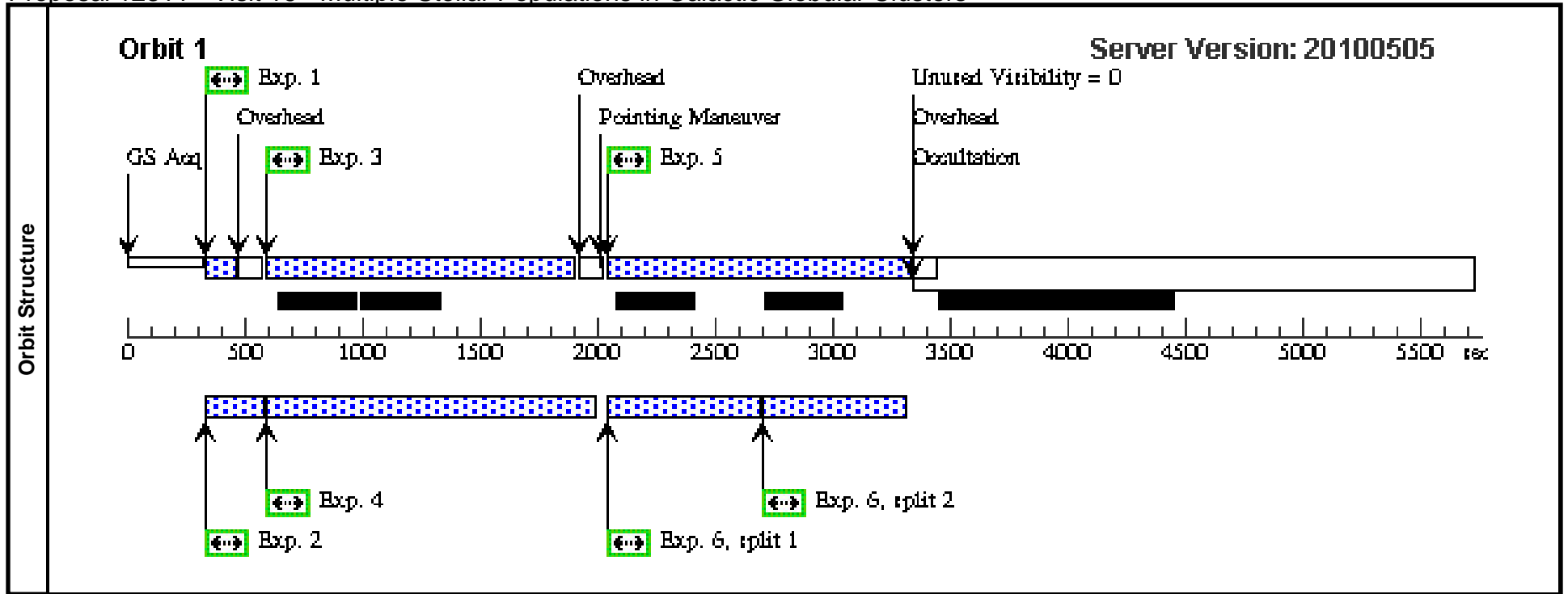
Visit	Proposal 12311, Visit 15, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 14 Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG -1.4,-2.8	Prime + Parallel Group 1-2	100 Secs [==>]	[1]
	2	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]
	3	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG -1.4,-2.8	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]
	4	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1277.0 Secs]	[1]
	5	(5) NGC-1851		WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 0,-1.4	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]
	6	(5) NGC-1851		ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]



Proposal 12311 - Visit 15 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:32 GMT 2010

Visit	Proposal 12311, Visit 16, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 14 Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 1.4,0	Prime + Parallel Group 1-2	100 Secs [==>]	[1]	
	2	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]	
	3	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 1.4,0	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]	
	4	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1237.0 Secs]	[1]	
	5	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 2.8,1.4	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]	
	6	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]	



Proposal 12311 - Visit 16 - Multiple Stellar Populations in Galactic Globular Clusters

Sat Jul 10 08:02:33 GMT 2010

Visit	Proposal 12311, Visit 17, implementation Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC, WFC3/UVIS Special Requirements: SAME ORIENT AS 14 Comments: NGC1851									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(5)	NGC-1851	RA: 05 14 6.3100 (78.5262917d) Dec: -40 02 50.20 (-40.04728d) Equinox: J2000		V=8.05	Reference Frame: ICRS				
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W		POS TARG 4.2,2.8	Prime + Parallel Group 1-2	100 Secs [==>]	[1]	
	2	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 1-2	40 Secs [==>]	[1]	
	3	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 4.2,2.8	Prime + Parallel Group 3-4	1280 Secs [==>1288.0 Secs]	[1]	
	4	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F475W			Prime + Parallel Group 3-4	947 Secs [==>1277.0 Secs]	[1]	
	5	(5) NGC-1851	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W		POS TARG 5.6,4.2	Prime + Parallel Group 5-6	1280 Secs [==>1288.0 Secs]	[1]	
	6	(5) NGC-1851	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=2		Prime + Parallel Group 5-6	976 Secs [==>(Split 1)] [==>(Split 2)]	[1]	

