



16217 - Identifying Double White Dwarf Binaries in Globular Clusters

Cycle: 28, Proposal Category: GO

(UV Initiative)

(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>
01	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:03.0	yes
02	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:04.0	yes
03	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:05.0	yes
04	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:06.0	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>
05	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:07.0	yes
06	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:08.0	yes
07	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:09.0	yes
08	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:10.0	yes
09	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:10.0	yes
10	(1) NGC-104 ANY	ACS/WFC WFC3/UVIS	1	16-Sep-2022 16:02:11.0	yes

10 Total Orbits Used

ABSTRACT

Double white dwarf binaries (aka AM CVns) are systems with orbital periods ~5-65 mins. Because of their short orbits, they are important sources of low-frequency gravitational waves. They are also candidates for progenitors of SN Ia through the double degenerate path. In globular clusters (GCs) they are predicted to exist in large amounts due to stellar interactions. However, no single AM CVn has yet been confirmed in any GC. We propose to carry out the first multi-epoch UV study of the low extinction, relatively massive Galactic GC 47 Tuc to identify the missing population of AM CVns through their outbursts. Using this novel technique we will test dynamical formation and evolutionary models of these binaries in clusters. We will also refine predictions of AM CVns as potential gravitational wave sources to be detected with LISA. Finding an upper limit on the rate of identifications that is lower than expected would change the current paradigm of GCs as efficient factories of compact binaries, especially those harboring white dwarfs. That would mean that the double degenerate path for SN Ia is negligible, which ultimately has cosmological implications.

OBSERVING DESCRIPTION

Our goal is to identify blue transients in the cluster. We have 9 visits of 1 orbit each. For the primaries we use the F225W and F275W filters on the UVIS channel of WFC3 in order to overcome the stellar crowding. We point at the center of the cluster. In order to remove cosmic rays and other

artifacts we obtain 2 images per filter for a total of 4 per orbit. Each F225W observation has an exposure of approximately 715s and the F275W observations have 600s, optimized to obtain the same signal-to-noise. For the primaries, the strategy is the same for each of the 9 visits.

We simultaneously obtain parallel observations with the WFC on the ACS. We are using 3 filters: F435W, F635W and F658N. Due to dumping and maneuver times to cover the chip gaps, we accommodate 4 parallel images per orbit. Our strategy is to obtain 2 images in 2 different filters every orbit, alternating between the F435W and F658N filters between visits. This helps us to remove cosmic rays and other artifacts each orbit, giving us reliable colors of the sources identified. For the first parallel visit we use the combination F625W and F435W, with longer exposures in F435W because it is the bluer filter. The total exposure times per orbit are 873s for F625W and 1150s for F435W, each divided in 2 observations.

For the second parallel visit we use the combination F625W and F658N. In this case we give more weight to the narrow filter. Total exposure times are 474s in F625W and 1240s in F658N, divided in 2 observations each. Our third and fourth observations are similar to our first and second one, respectively. The rest repeat the pattern.

We set up our dithers as POS-TARGS. We use similar values to the ones given by the WFC3-UVIS-MOSAIC-LINE strategy, which according to the documentation (section "C.2 WFC3 Patterns" of the WFC3 handbook) steps the gap on both detectors and it is used for full-frame WFC3-UVIS with ACS-WFC in parallel. The values used are $X=1.446$ arcsec, $Y=2.926$ arcsec and were set after the second primary observation in each visit.

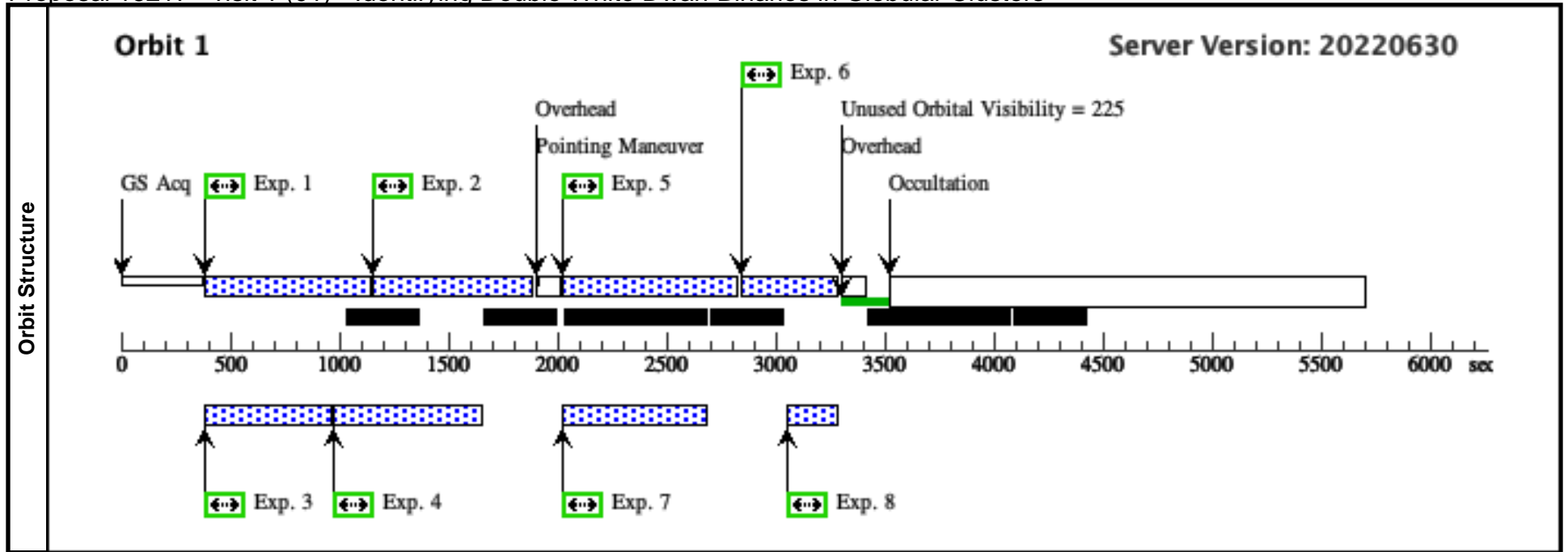
No timing restrictions for the first visit are placed. However, subsequent visits must be scheduled between 10-30 days from the previous one.

We give a post flash of 20 e-/pix for each WFC3-UVIS images to account for the increasing CTE losses on the detector, as was recommended by our CS and the documentation (ISR 2020-08: Strategies for Mitigation of CTE Losses in WFC3/UVIS). We give similar post flash values to our ACS observations to ensure good detections in the narrow and wide filters.

Proposal 16217 - visit 1 (01) - Identifying Double White Dwarf Binaries in Globular Clusters

Fri Sep 16 20:02:12 GMT 2022

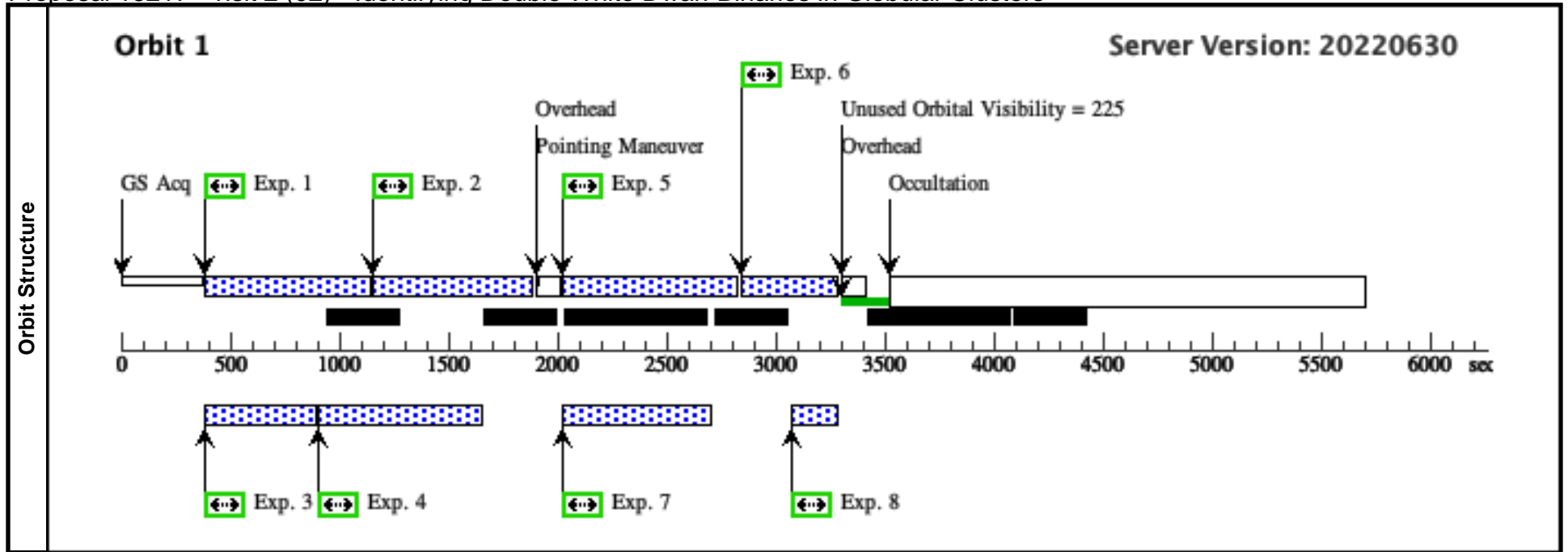
Visit	Proposal 16217, visit 1 (01), failed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category= <i>STELLAR CLUSTER</i> Description= <i>[GLOBULAR CLUSTER]</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 1 (01)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17		Prime + Parallel Group 1-4 in visit 1 (01)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 1 (01)	370 Secs (370 Secs) [==>]	[1]
	4	F435W	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 1-4 in visit 1 (01)	500 Secs (500 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 1 (01)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 1 (01)	418 Secs (418 Secs) [==>]	[1]
	7	F435W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 5-8 in visit 1 (01)	540 Secs (540 Secs) [==>]	[1]
	8	F625W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 1 (01)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 2 (02) - Identifying Double White Dwarf Binaries in Globular Clusters

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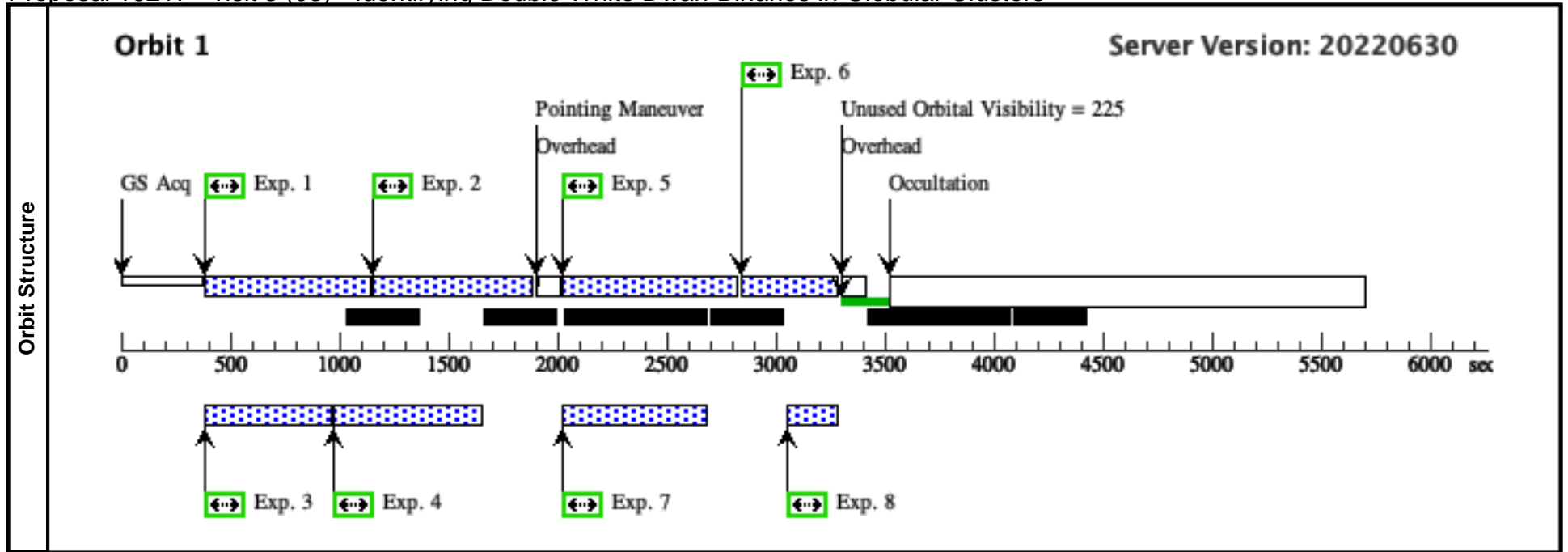
Visit	Proposal 16217, visit 2 (02), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 01 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 0.158,0.070; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 2 (02)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 0.158,0.070	Prime + Parallel Group 1-4 in visit 2 (02)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 2 (02)	300 Secs (300 Secs) [==>]	[1]
	4	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 1-4 in visit 2 (02)	590 Secs (590 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 2 (02)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 2 (02)	418 Secs (418 Secs) [==>]	[1]
	7	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 5-8 in visit 2 (02)	560 Secs (560 Secs) [==>]	[1]
	8	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 2 (02)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 3 (03) - Identifying Double White Dwarf Binaries in Globular Clusters

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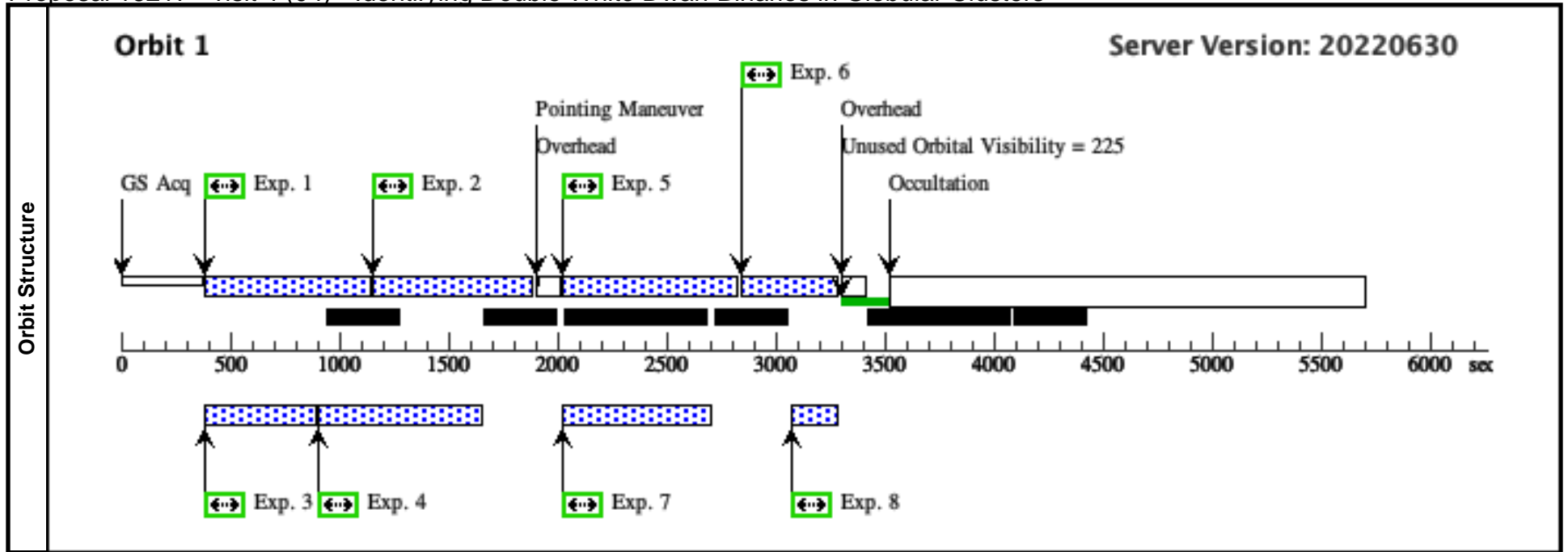
Visit	Proposal 16217, visit 3 (03), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 02 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 0.099,0.165; GS ACQ SCENARIO BASE1B3	Prime + Parallel Group 1-4 in visit 3 (03)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 0.099,0.165	Prime + Parallel Group 1-4 in visit 3 (03)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 3 (03)	370 Secs (370 Secs) [==>]	[1]
	4	F435W	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 1-4 in visit 3 (03)	500 Secs (500 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 3 (03)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 3 (03)	418 Secs (418 Secs) [==>]	[1]
	7	F435W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 5-8 in visit 3 (03)	540 Secs (540 Secs) [==>]	[1]
	8	F625W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 3 (03)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 4 (04) - Identifying Double White Dwarf Binaries in Globular Clusters

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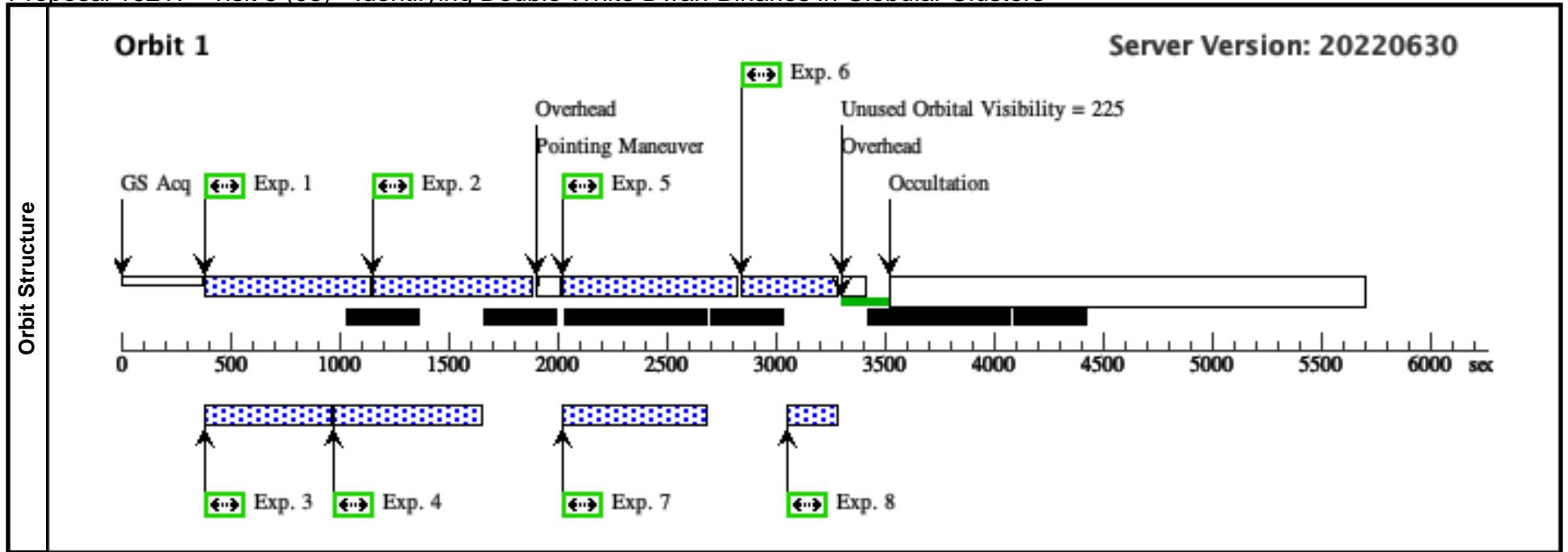
Visit	Proposal 16217, visit 4 (04), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 03 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG -0.060,0 .095; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 4 (04)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG -0.060,0 .095	Prime + Parallel Group 1-4 in visit 4 (04)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 4 (04)	300 Secs (300 Secs) [==>]	[1]
	4	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 1-4 in visit 4 (04)	590 Secs (590 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 4 (04)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 4 (04)	418 Secs (418 Secs) [==>]	[1]
	7	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 5-8 in visit 4 (04)	560 Secs (560 Secs) [==>]	[1]
	8	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 4 (04)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 5 (05) - Identifying Double White Dwarf Binaries in Globular Clusters

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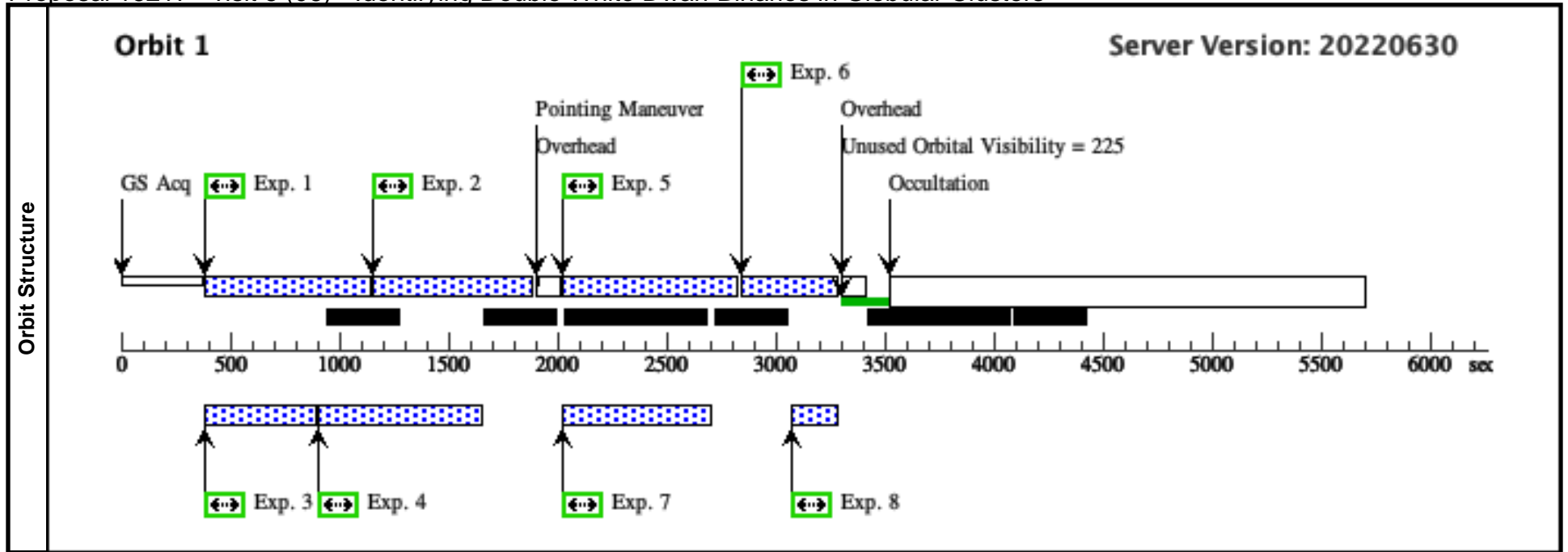
Visit	Proposal 16217, visit 5 (05), scheduled Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 04 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000			V=3.95	Reference Frame: SIMBAD			
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Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 5 (05)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17		Prime + Parallel Group 1-4 in visit 5 (05)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 5 (05)	370 Secs (370 Secs) [==>]	[1]
	4	F435W	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 1-4 in visit 5 (05)	500 Secs (500 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 5 (05)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 5 (05)	418 Secs (418 Secs) [==>]	[1]
	7	F435W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 5-8 in visit 5 (05)	540 Secs (540 Secs) [==>]	[1]
	8	F625W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 5 (05)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 6 (06) - Identifying Double White Dwarf Binaries in Globular Clusters

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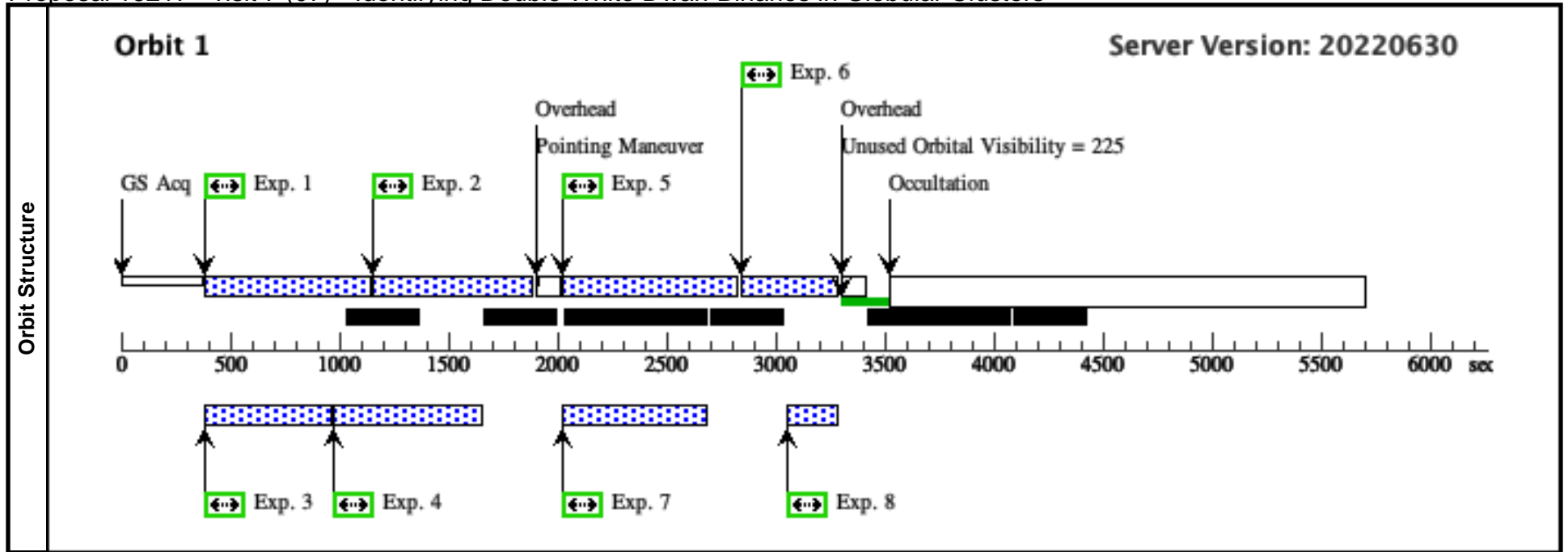
Visit	Proposal 16217, visit 6 (06), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 05 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 0.158,0.070; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 6 (06)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 0.158,0.070	Prime + Parallel Group 1-4 in visit 6 (06)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 6 (06)	300 Secs (300 Secs) [==>]	[1]
	4	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 1-4 in visit 6 (06)	590 Secs (590 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 6 (06)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 6 (06)	418 Secs (418 Secs) [==>]	[1]
	7	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 5-8 in visit 6 (06)	560 Secs (560 Secs) [==>]	[1]
	8	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 6 (06)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 7 (07) - Identifying Double White Dwarf Binaries in Globular Clusters

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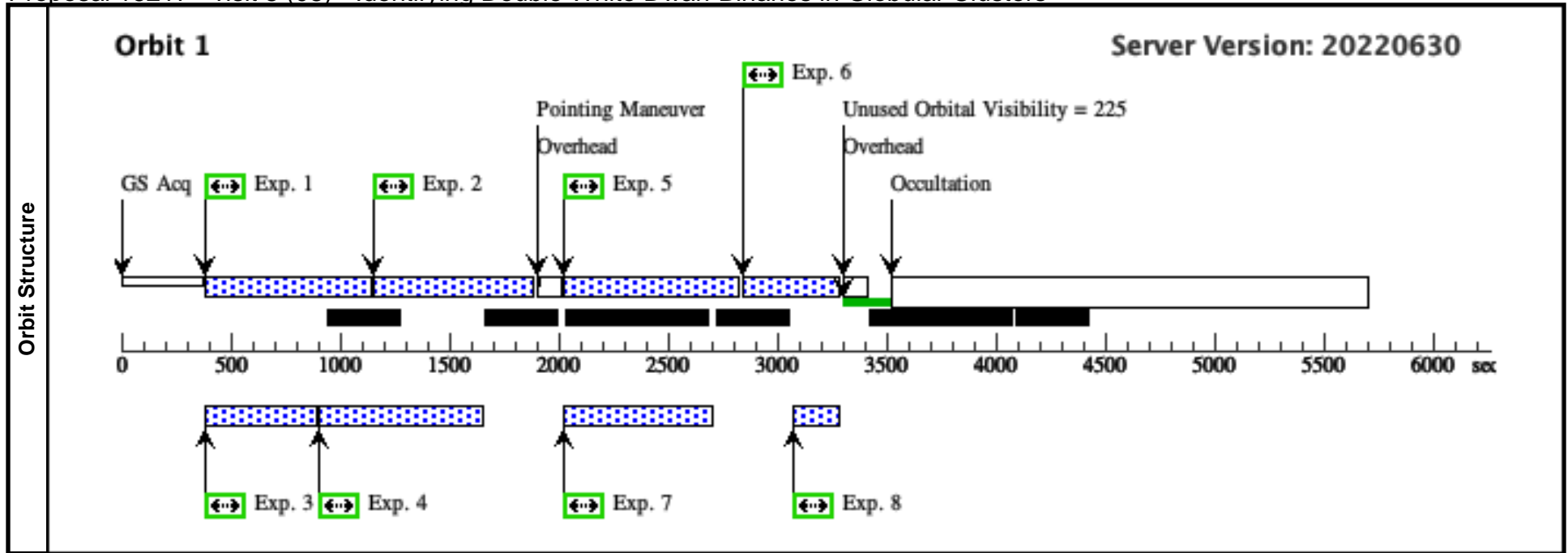
Visit	Proposal 16217, visit 7 (07), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 06 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 0.099,0.165; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 7 (07)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 0.099,0.165	Prime + Parallel Group 1-4 in visit 7 (07)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 7 (07)	370 Secs (370 Secs) [==>]	[1]
	4	F435W	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 1-4 in visit 7 (07)	500 Secs (500 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 7 (07)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 7 (07)	418 Secs (418 Secs) [==>]	[1]
	7	F435W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 5-8 in visit 7 (07)	540 Secs (540 Secs) [==>]	[1]
	8	F625W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 7 (07)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 8 (08) - Identifying Double White Dwarf Binaries in Globular Clusters

Fri Sep 16 20:02:12 GMT 2022

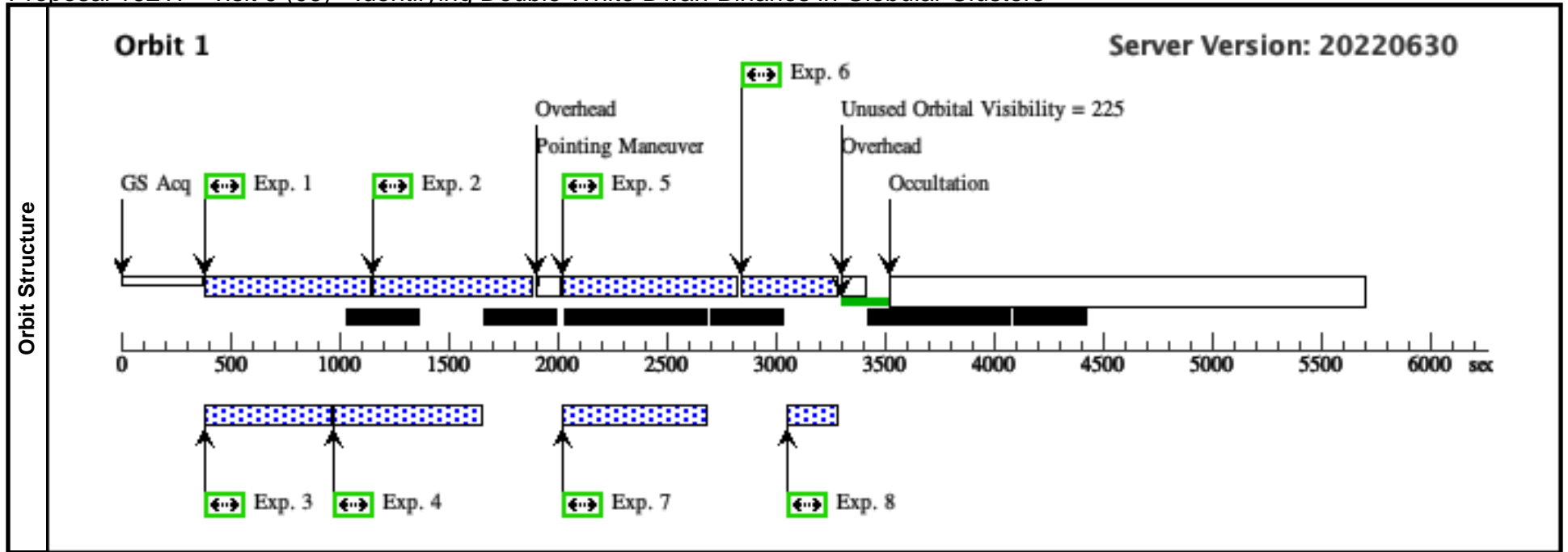
Visit	Proposal 16217, visit 8 (08), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 07 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000			V=3.95	Reference Frame: SIMBAD			
	Comments: Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG -0.060,0 .095; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 8 (08)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG -0.060,0 .095	Prime + Parallel Group 1-4 in visit 8 (08)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 8 (08)	300 Secs (300 Secs) [==>]	[1]
	4	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 1-4 in visit 8 (08)	590 Secs (590 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 8 (08)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 8 (08)	418 Secs (418 Secs) [==>]	[1]
	7	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 5-8 in visit 8 (08)	560 Secs (560 Secs) [==>]	[1]
	8	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 8 (08)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 9 (09) - Identifying Double White Dwarf Binaries in Globular Clusters

Fri Sep 16 20:02:12 GMT 2022

Visit	Proposal 16217, visit 9 (09), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: AFTER 08 BY 10 D TO 30 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	<i>Comments:</i> Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 9 (09)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17		Prime + Parallel Group 1-4 in visit 9 (09)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 9 (09)	370 Secs (370 Secs) [==>]	[1]
	4	F435W	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 1-4 in visit 9 (09)	500 Secs (500 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 9 (09)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 9 (09)	418 Secs (418 Secs) [==>]	[1]
	7	F435W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F435W			Prime + Parallel Group 5-8 in visit 9 (09)	540 Secs (540 Secs) [==>]	[1]
	8	F625W-2nd	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 9 (09)	51 Secs (51 Secs) [==>]	[1]



Proposal 16217 - visit 10 (10) - Identifying Double White Dwarf Binaries in Globular Clusters

Fri Sep 16 20:02:12 GMT 2022

Visit	Proposal 16217, visit 10 (10), implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: BETWEEN 29-OCT-2022:00:00:00 AND 04-NOV-2022:00:00:00; BETWEEN 08-NOV-2022:00:00:00 AND 14-NOV-2022:00:00:00 Comments: This visit is a repeat. Visit 01 in the program failed. This visit (10) is a copy of visit 02 in order to maintain the correct alternating coordinated parallels.									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-104	RA: 00 24 5.7600 (6.0240000d) Dec: -72 04 52.60 (-72.08128d) Equinox: J2000		V=3.95	Reference Frame: SIMBAD				
	Comments: Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 0.158,0.070; GS ACQ SCENARI O BASE1B3	Prime + Parallel Group 1-4 in visit 10 (10)	600 Secs (600 Secs) [==>]	[1]
	2	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 0.158,0.070	Prime + Parallel Group 1-4 in visit 10 (10)	715 Secs (715 Secs) [==>]	[1]
	3	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 1-4 in visit 10 (10)	300 Secs (300 Secs) [==>]	[1]
	4	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 1-4 in visit 10 (10)	590 Secs (590 Secs) [==>]	[1]
	5	F225W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F225W	FLASH=17	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 10 (10)	680 Secs (680 Secs) [==>]	[1]
	6	F275W	(1) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F275W	FLASH=18	POS TARG 1.446,2.926	Prime + Parallel Group 5-8 in visit 10 (10)	418 Secs (418 Secs) [==>]	[1]
	7	F658N	ANY	ACS/WFC, ACCUM, WFCENTER	F658N			Prime + Parallel Group 5-8 in visit 10 (10)	560 Secs (560 Secs) [==>]	[1]
	8	F625W	ANY	ACS/WFC, ACCUM, WFCENTER	F625W			Prime + Parallel Group 5-8 in visit 10 (10)	51 Secs (51 Secs) [==>]	[1]

