



18020 - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Cycle: 33, 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	(1) NAME-M31-EC1	WFC3/UVIS	2	08-Aug-2025 14:01:22.0	yes
07	(2) NAME-M31-EC2	WFC3/UVIS	2	08-Aug-2025 14:01:23.0	yes
13	(3) NAME-M31-EC4	WFC3/UVIS	2	08-Aug-2025 14:01:23.0	yes
14	(3) NAME-M31-EC4	WFC3/UVIS	2	08-Aug-2025 14:01:24.0	yes
08	(2) NAME-M31-EC2	WFC3/UVIS	2	08-Aug-2025 14:01:25.0	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>
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02	(1) NAME-M31-EC1	WFC3/UVIS	2	08-Aug-2025 14:01:26.0	yes
04	(1) NAME-M31-EC1	WFC3/UVIS	2	08-Aug-2025 14:01:27.0	yes
05	(1) NAME-M31-EC1	WFC3/UVIS	2	08-Aug-2025 14:01:27.0	yes
09	(2) NAME-M31-EC2	WFC3/UVIS	2	08-Aug-2025 14:01:28.0	yes
10	(2) NAME-M31-EC2	WFC3/UVIS	2	08-Aug-2025 14:01:28.0	yes
11	(2) NAME-M31-EC2	WFC3/UVIS	2	08-Aug-2025 14:01:28.0	yes
12	(2) NAME-M31-EC2	WFC3/UVIS	1	08-Aug-2025 14:01:29.0	yes
15	(3) NAME-M31-EC4	WFC3/UVIS	2	08-Aug-2025 14:01:29.0	yes
16	(3) NAME-M31-EC4	WFC3/UVIS	2	08-Aug-2025 14:01:30.0	yes
17	(3) NAME-M31-EC4	WFC3/UVIS	2	08-Aug-2025 14:01:30.0	yes
18	(3) NAME-M31-EC4	WFC3/UVIS	1	08-Aug-2025 14:01:31.0	yes
06	(1) NAME-M31-EC1	WFC3/UVIS	1	08-Aug-2025 14:01:31.0	yes

33 Total Orbits Used

ABSTRACT

New survey data continues to blur the boundary between Globular Clusters (GCs), thought to be single stellar populations devoid of dark matter, and dwarf galaxies. The extended clusters (ECs) of Andromeda were first discovered in 2005 and sit right in the gap between these two populations. Given their sizes (half light radii of ~ 30 pc) and brightnesses ($M_v \sim -6$), it was unclear whether these were puffed up globular star clusters, or faint dwarf galaxies. In the nearly two decades since, we are still unsure of their nature. Spectroscopic data have shown they could be either dark matter dominated or dark matter free, while shallow HST imaging to their horizontal branches have shown them to have stellar populations consistent with either population. One clear method to break this frustrating degeneracy is to measure their star formation histories. GCs form their stars essentially in a single burst, while even the faintest dSphs have star formation that extends over a Gyr or more. By measuring their star formation histories we can determine which class ECs belong to for the first time,

offering a unique opportunity to refine our definition of GCs and dwarfs, test GC formation models and refine using galaxy counts of the faintest dwarfs as a cosmological probe. To achieve our goals, we request 33 orbits of WFC3 observations to image three bright ECs down to their oldest main sequence turn-offs.

OBSERVING DESCRIPTION

We propose one field of WFC3 imaging for three ECs in M31. We have selected three bright ECs in Andromeda with reliable existing shallow HST data. Our strategy follows previous campaigns that measure SFHs from the oldest MSTO of faint objects in the Local Group. These include the ISLAndS (Skillman et al. 2017) and M31 dSph multi-cycle treasury programs (Savino et al. 2025). We select the F606W-F814W filter combination, and aim to reach a $S/N = 10$ at the oldest MSTO ($MI = +3.0$ for ages of 12.5 Gyr or $F814W \sim 27.4$ for all our objects.). This is the benchmark required for high fidelity recovery of the SFH at ancient ages (e.g. Savino et al 2023, 2025). As we use the same filter set as for all other M31 dwarf galaxies, we can compare directly with the CMDs and SFHs for the full M31 satellite population (Skillman et al 2017; Savino et al. 2022, 2023).

The ECs are compact ($\sim 30''$), fitting easily within the field-of-view of WFC3. This leaves a significant area around the EC in the WFC3 field, allowing us to well-sample the foreground population and clean our observations of contaminants. Our proposed depth means we reliably distinguish between stellar and galaxy sources even at the oldest MSTO (Radburn-Smith 2011) as the photometric uncertainties do not dominate the observations.

Ground based telescopes cannot reach the oldest MSTO stars in the M31 ECs. HST is therefore essential in unlocking the nature of Extended Clusters. While JWST would allow a determination of the SFHs, HST allows us to compare directly with the previous EC observations, and the full M31 satellite system. To reach our precision of $S/N = 10$ at the MSTO, we require exposure times of 9,051 sec in F606W and 19,640-sec in F814W for each EC. Including standard overheads, this results in 11 orbits per EC, giving a total request of 33 orbits. We will use 4-point dither patterns to achieve 0.5 pixel sampling. The data will be reduced and analyzed with standard well-tested methods. The DOLPHOT

stellar photometry package will measure the point spread function photometry (e.g. Dolphin et al. 2000; Monelli et al. 2010) using a similar setup to the Panchromatic Hubble Andromeda Treasury survey (PHAT, Williams et al. 2014). We will perform artificial star tests on our final images to accurately determine photometric errors and incompleteness in each band. We exploit the excellent S/N at the oldest MSTO to compute detailed SFHs and measure the duration of star formation with a precision of < 500 Myr. The difference in the stellar populations at the MSTO will clearly be seen in our data, as shown in Fig. 2 where we show model CMDs for a GC and dSph with the brightness of our targets, as well as the difference between them in the Hess diagram.

The SFHs will be derived using CMD fitting software MATCH, which has been previously used to obtain SFHs from comparably deep HST imaging for M31 dwarf galaxies (e.g. Savino et al. 2025). As stellar evolution models are the key systematic uncertainty in CMD modeling, we plan to run SFHs using at least two different stellar evolution models (PARSEC, Bressan et al. 2012 and BASTI, Pietrinferni et al. 2004, Hidalgo et al. 2018) and to obtain mock stellar models that include systematic shifts in the stellar evolutionary tracks, luminosities and temperatures.

We will position our ECs in the center of one of the two WFC3 chips. Once the first observations begin, we require the same orient to be used throughout so that we can sample the faint background and foreground contaminating populations well, without the need for parallel observations.

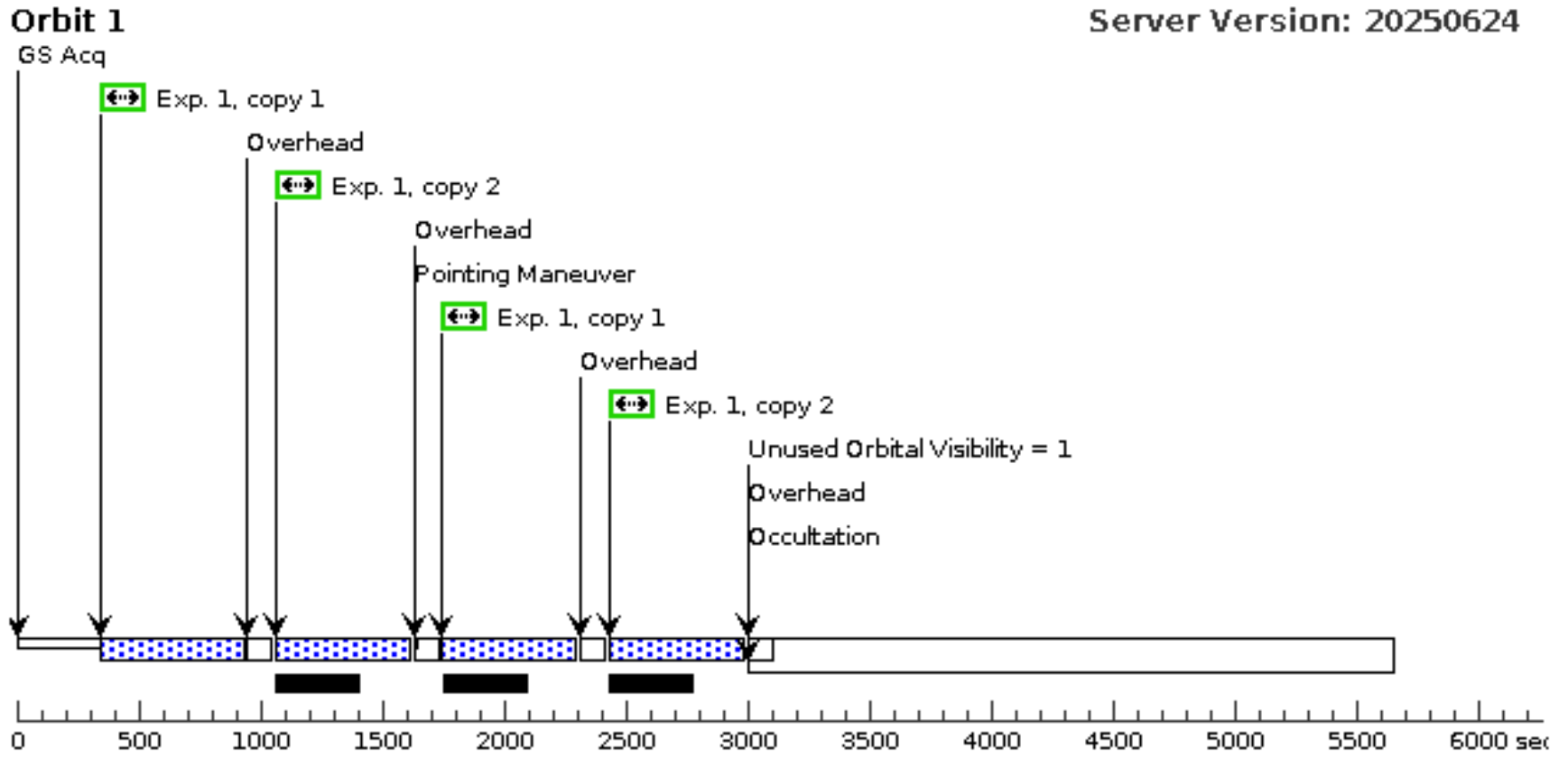
All of our objects have been observed with HST ACS/WFC before as part of program 10394. However, these shallow observations (2 orbits) only reach the RGB and HB, features common to both old clusters and dwarf galaxies, and thus insufficient for SFH analysis

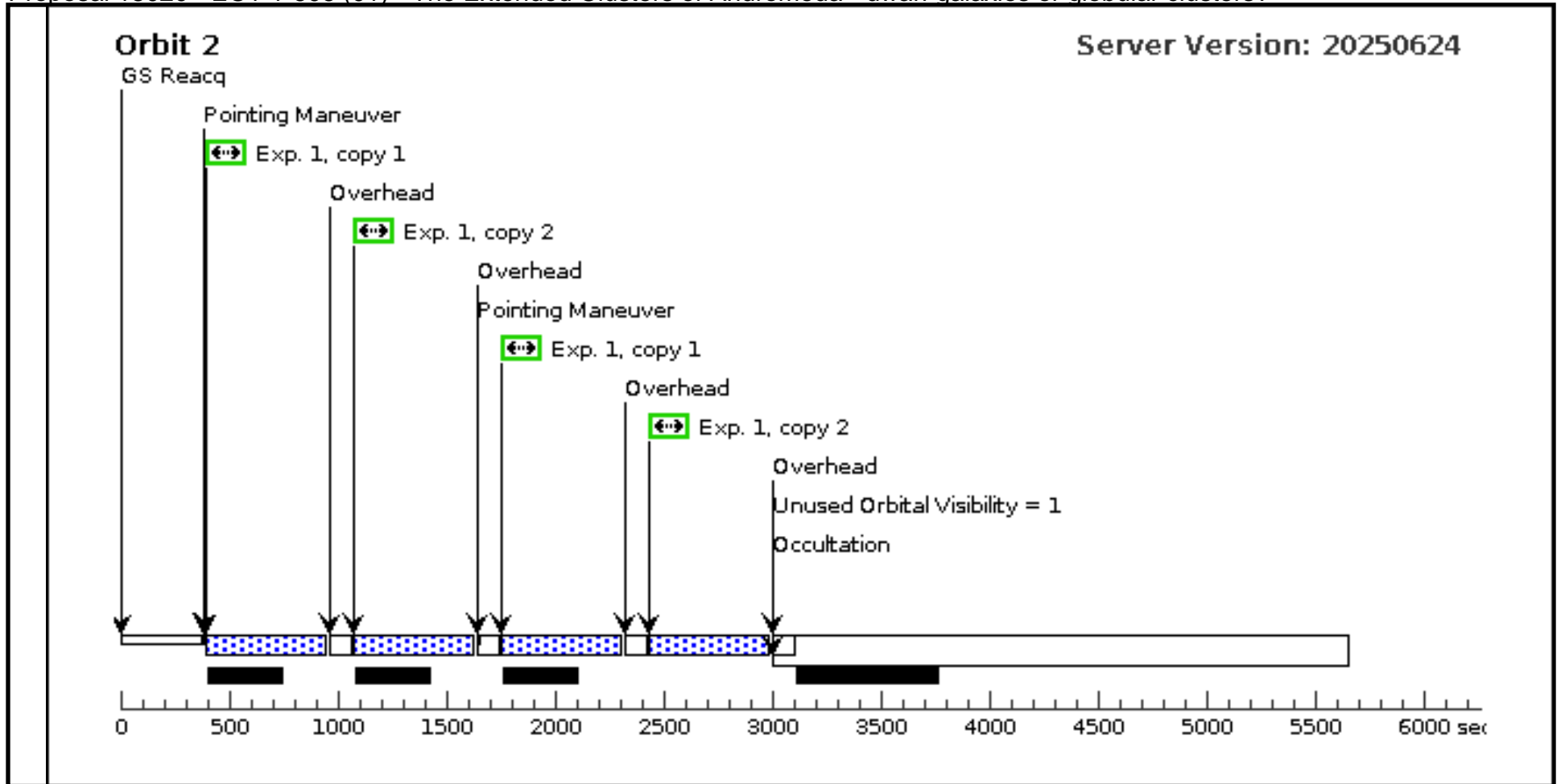
Proposal 18020 - EC1-1-606 (01) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:31 GMT 2025

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Orbit Structure



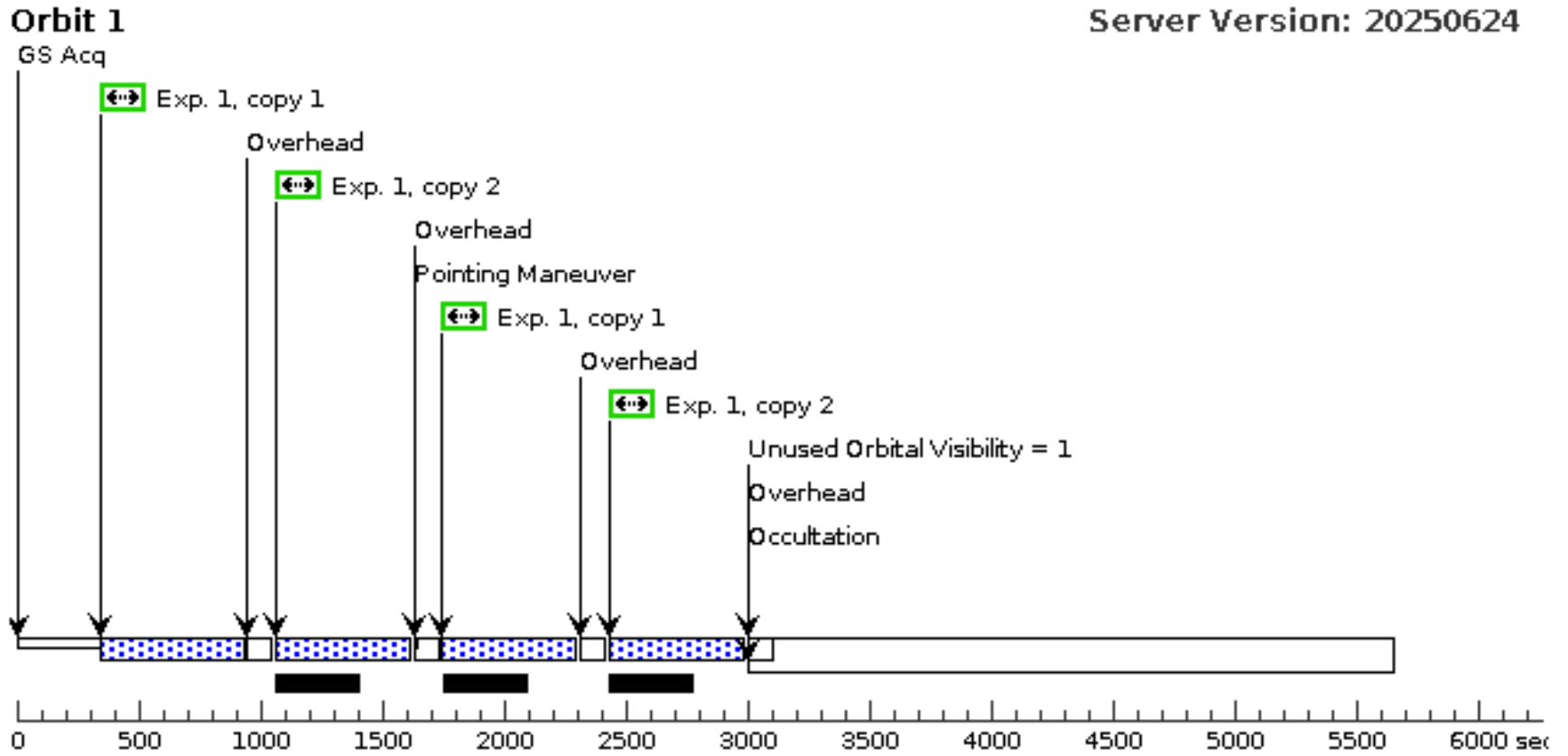


Proposal 18020 - EC2-1-606 (07) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

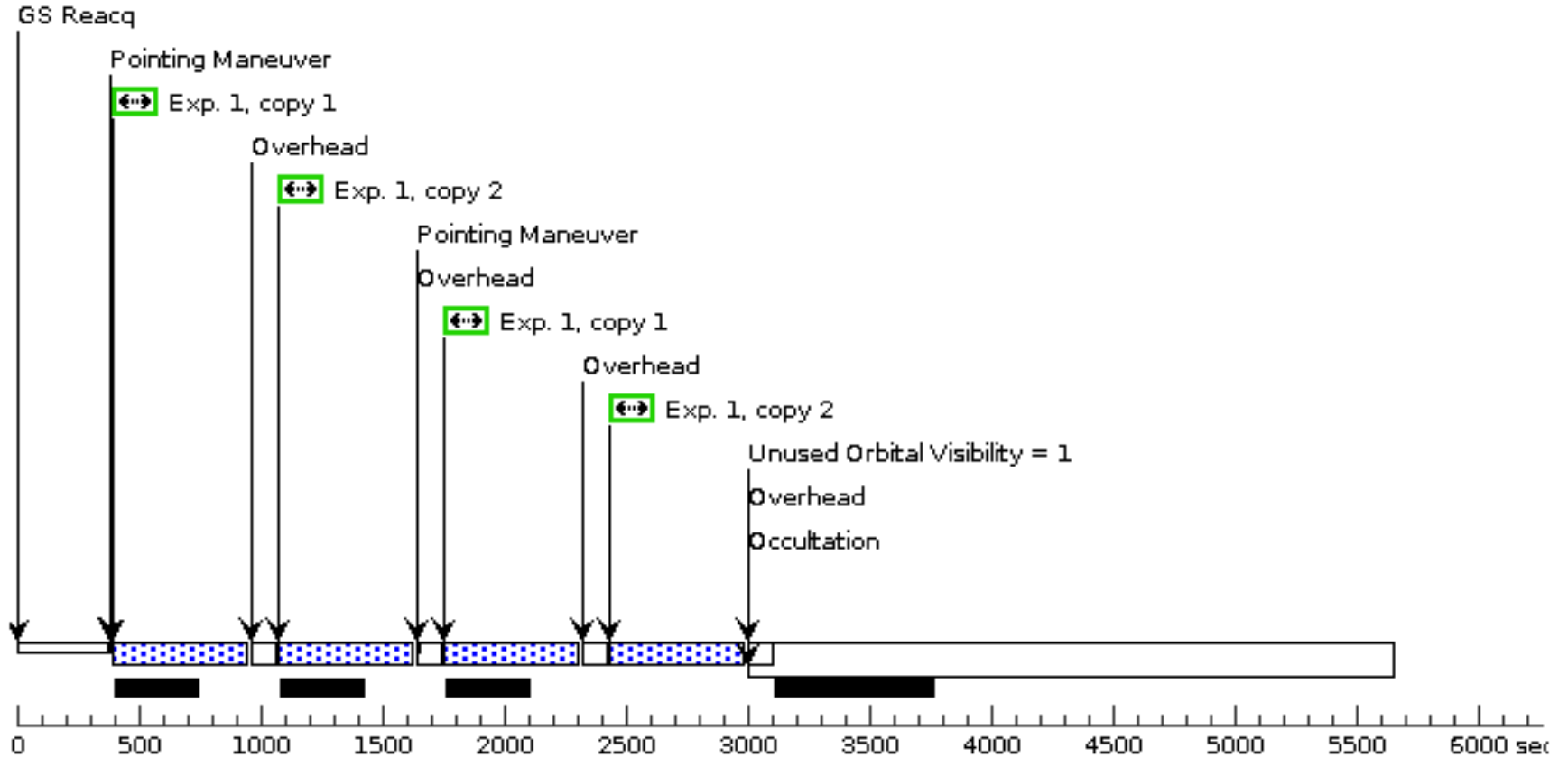
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Orbit Structure



Orbit 2

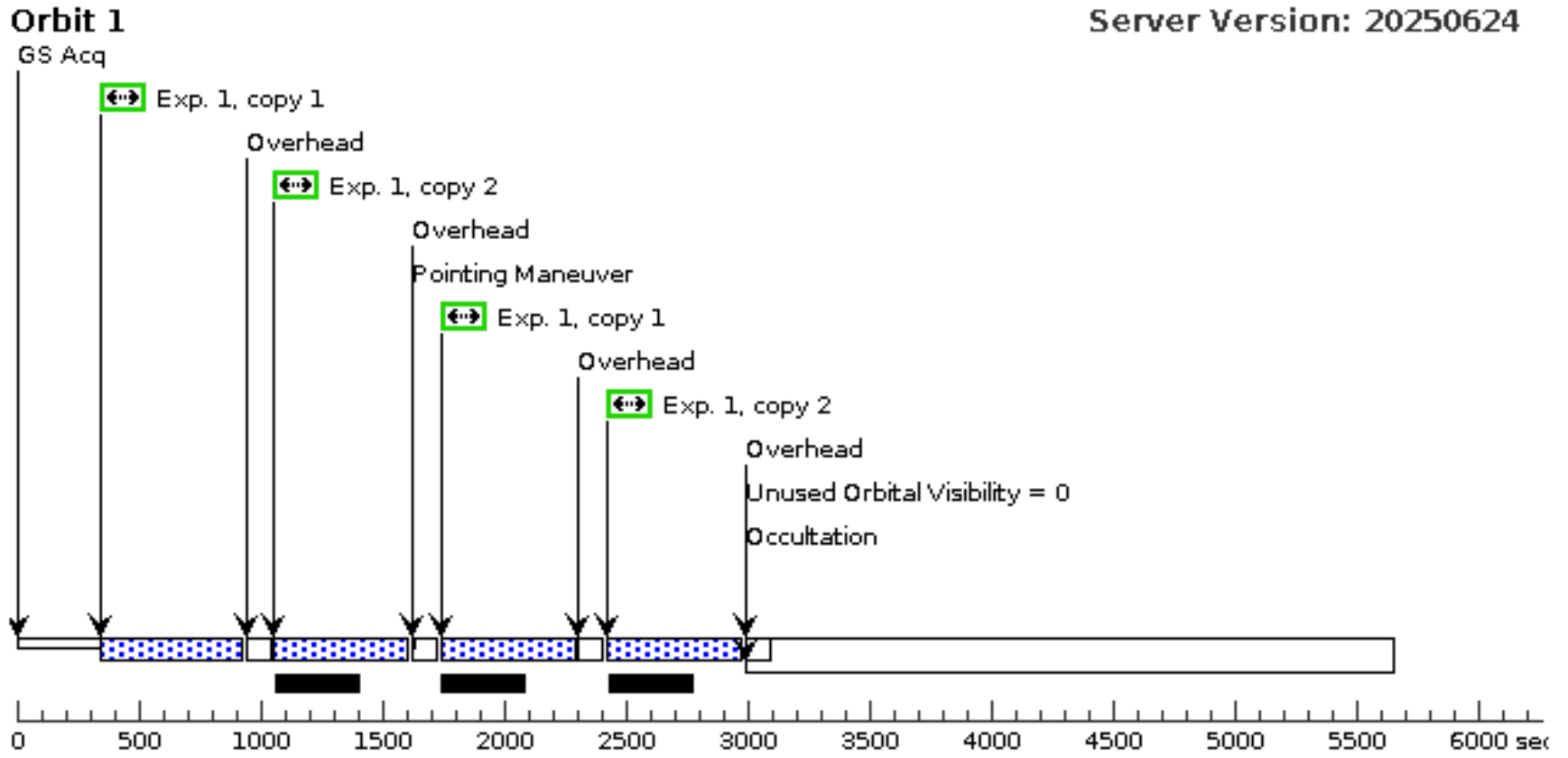


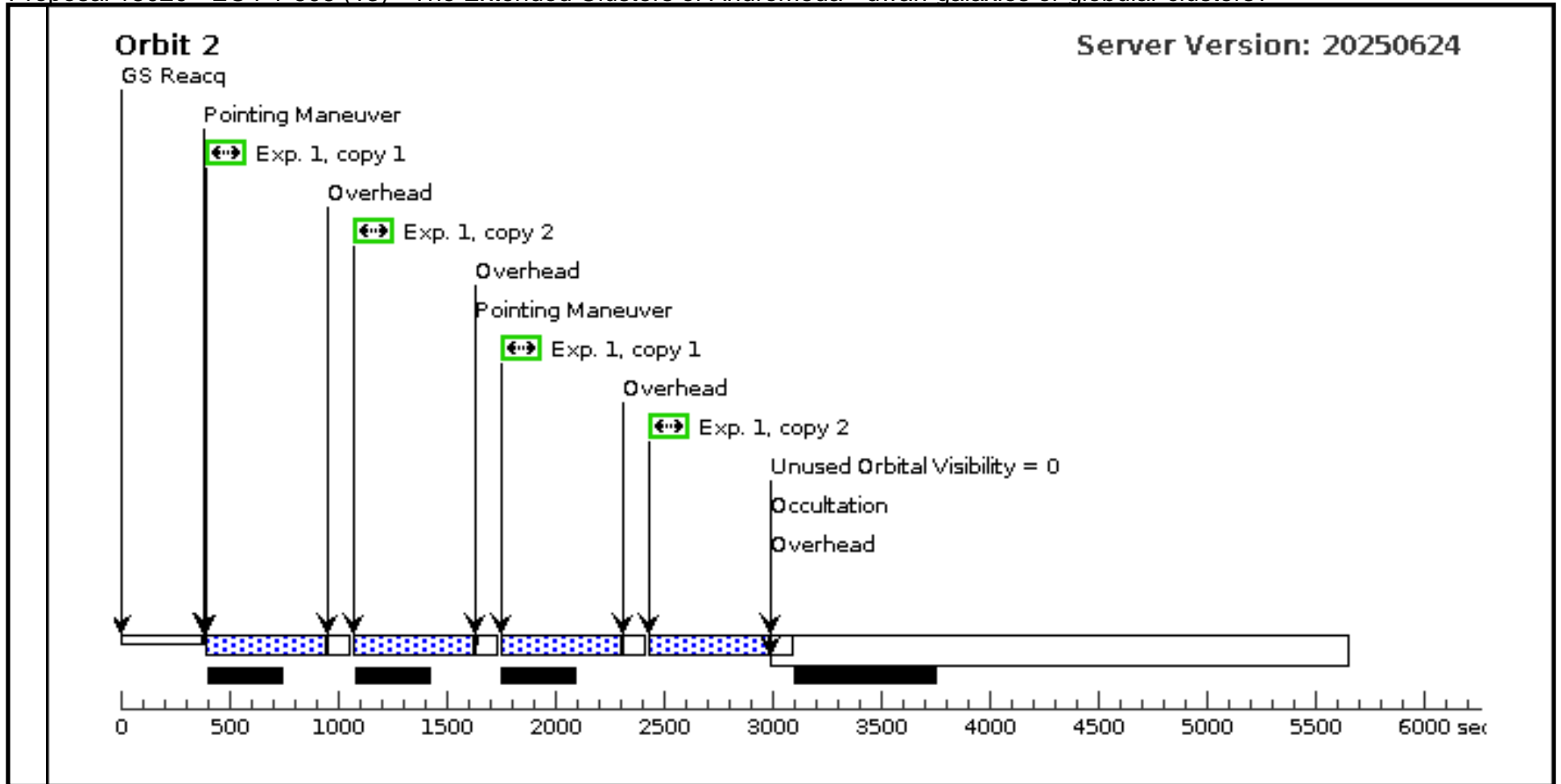
Proposal 18020 - EC4-1-606 (13) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

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Orbit Structure



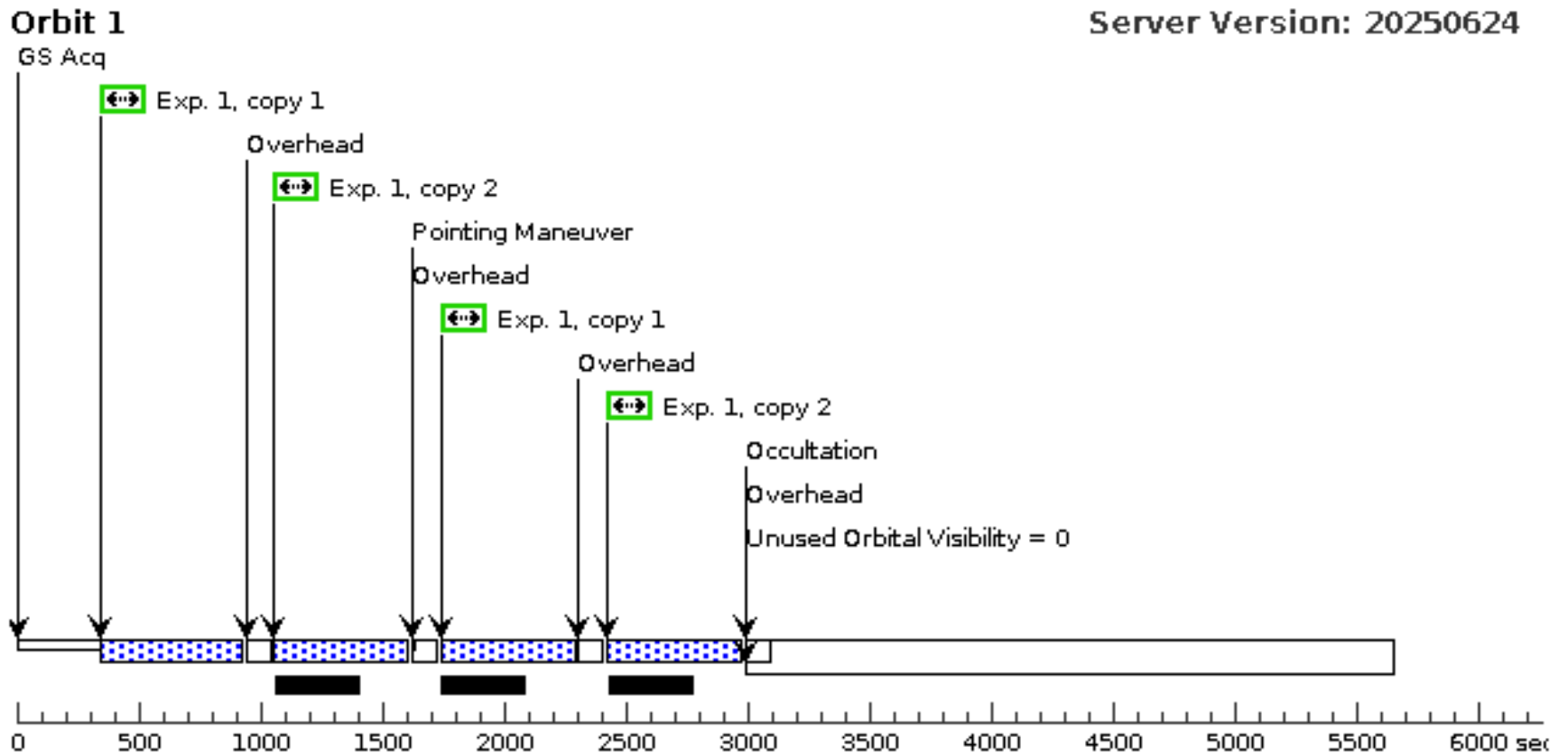


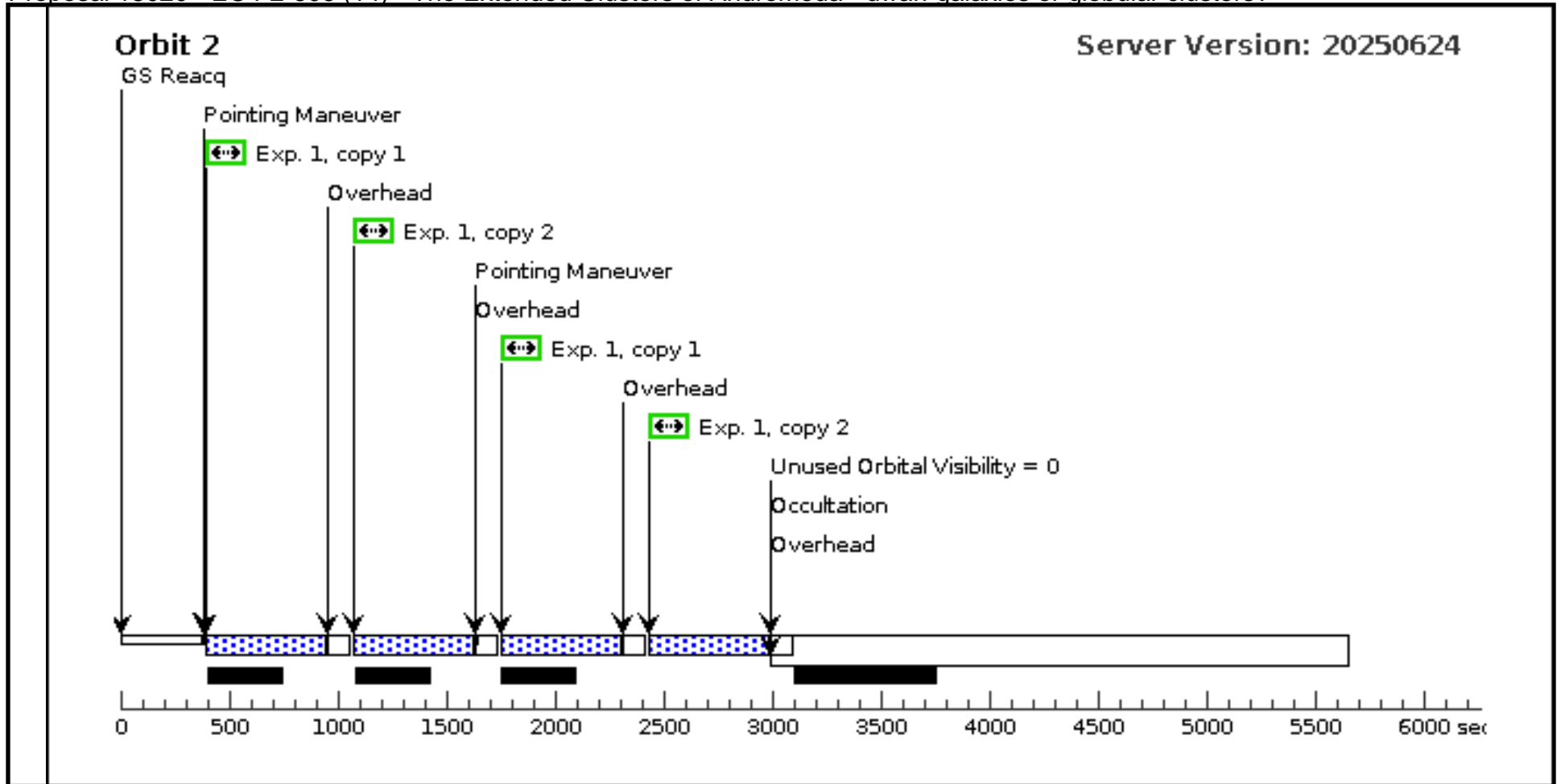
Proposal 18020 - EC4-2-606 (14) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

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Orbit Structure



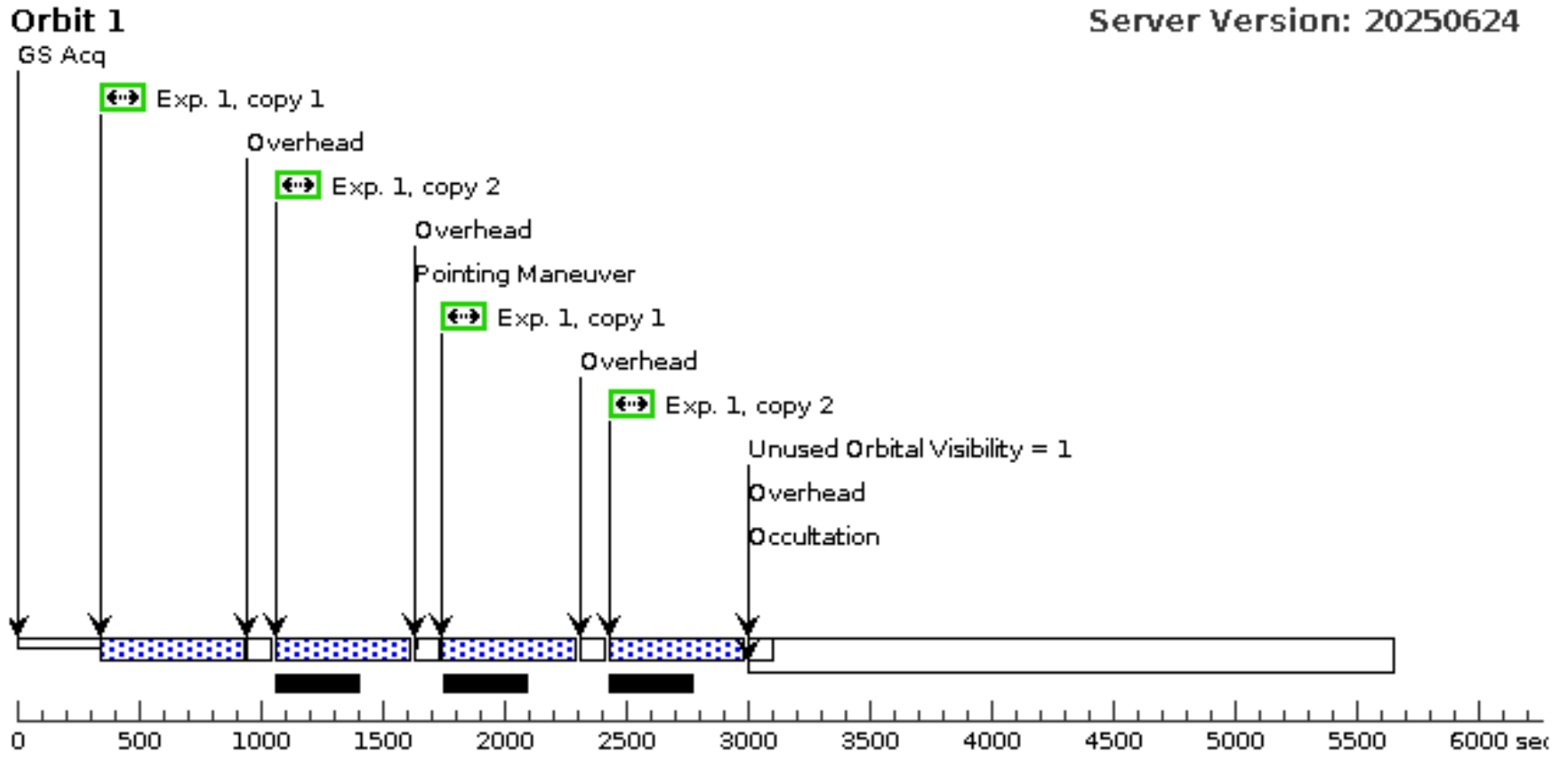


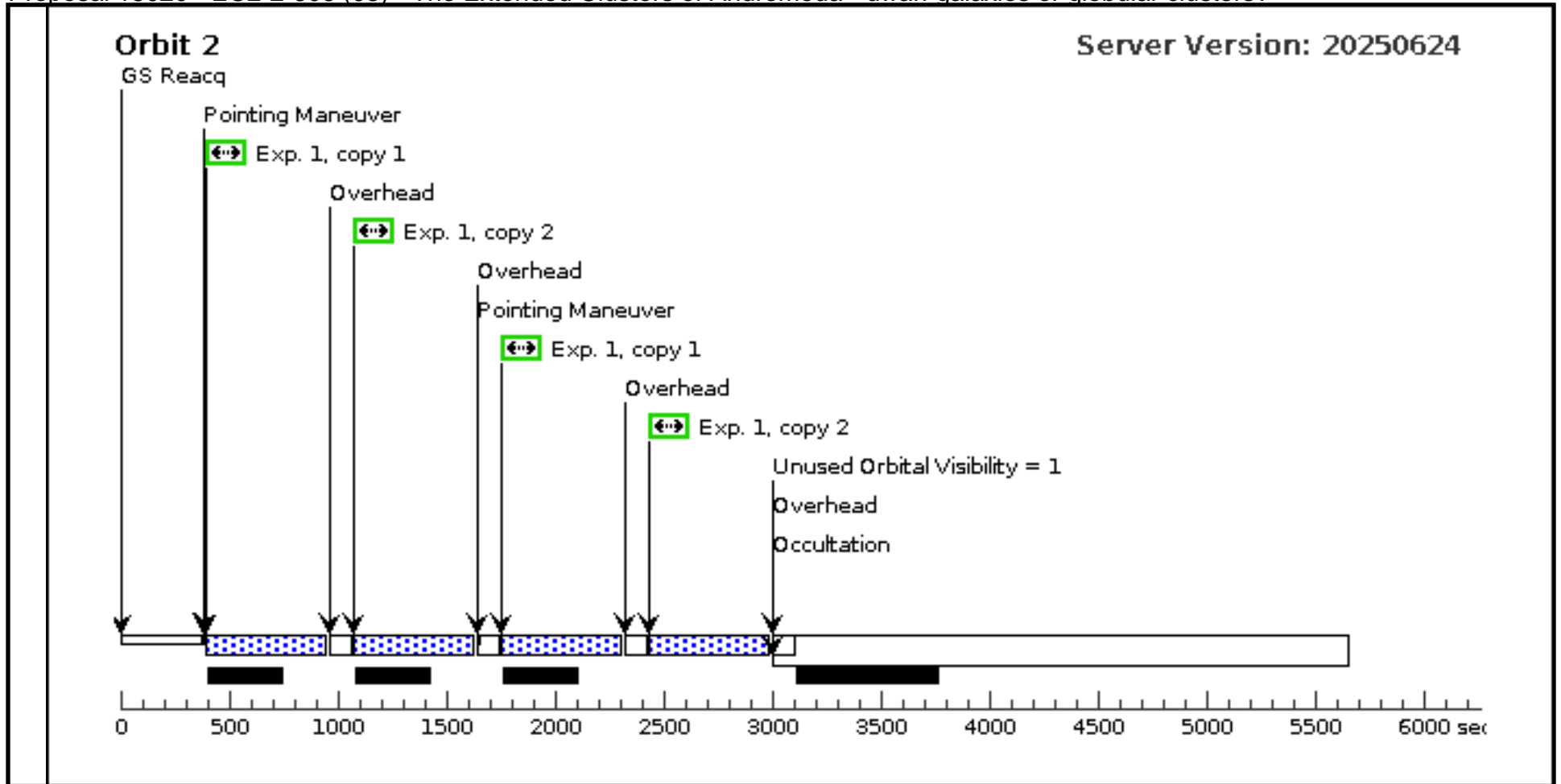
Proposal 18020 - EC2-2-606 (08) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

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Orbit Structure



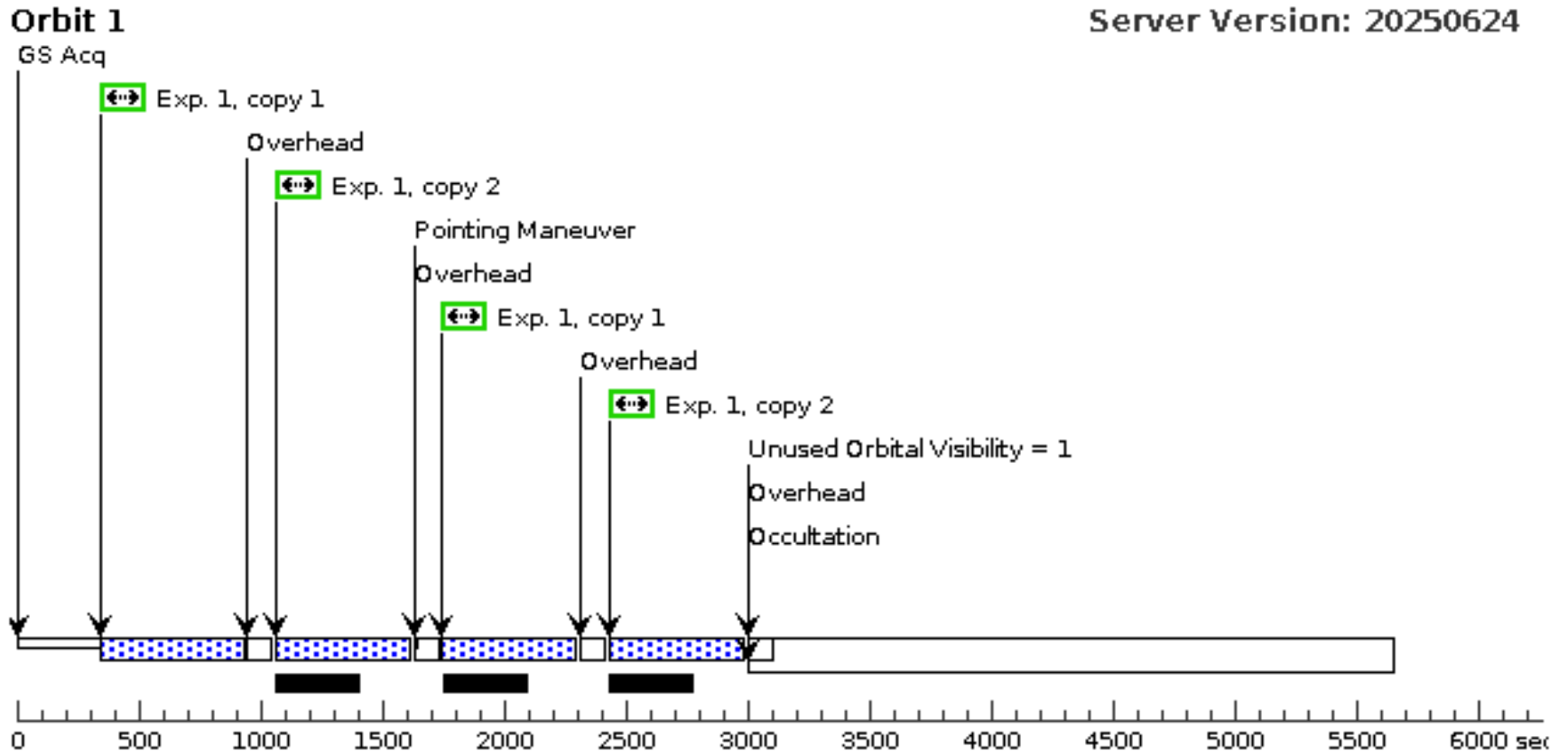


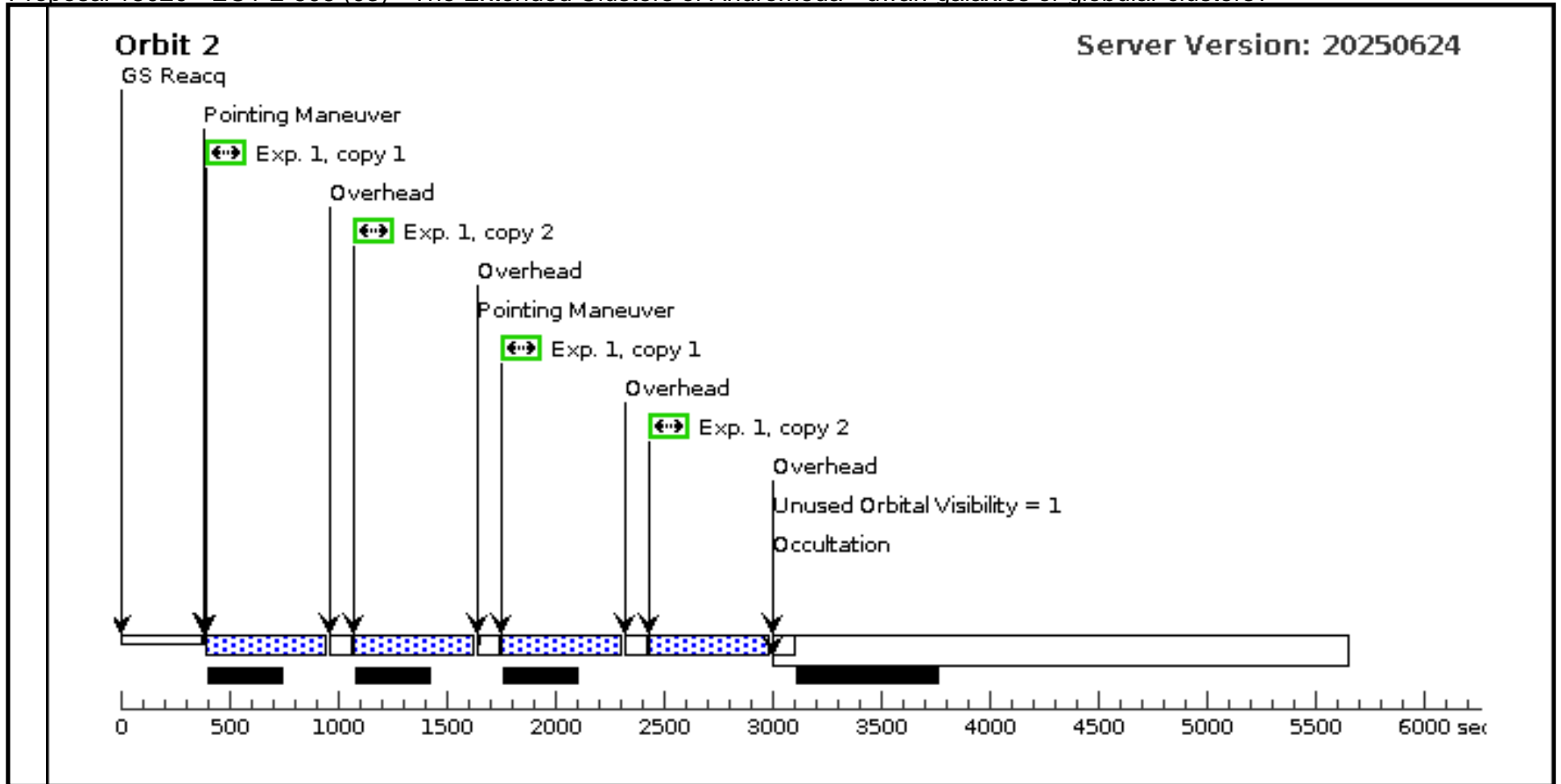
Proposal 18020 - EC1-2-606 (03) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

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Orbit Structure

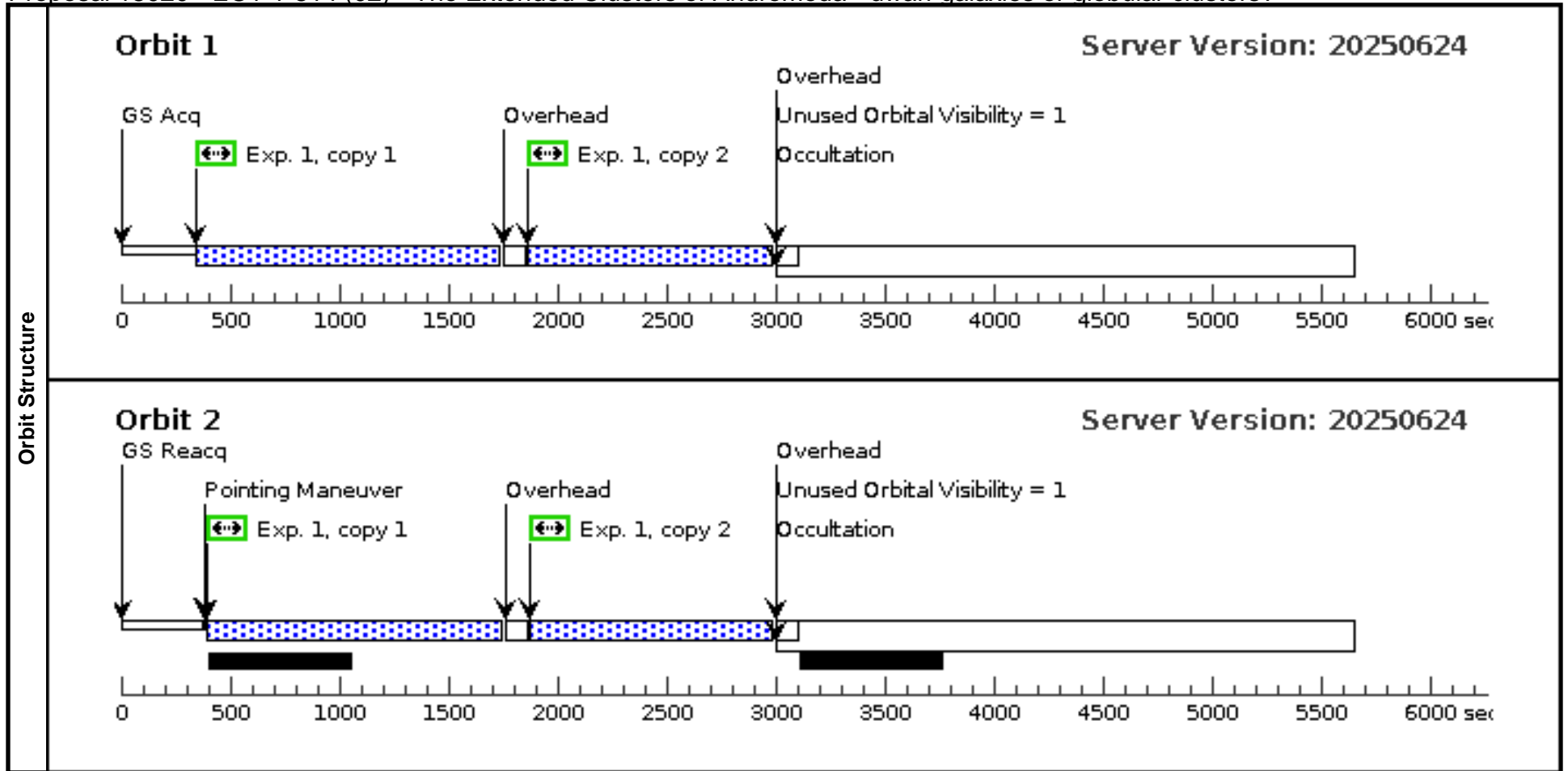




Proposal 18020 - EC1-1-814 (02) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

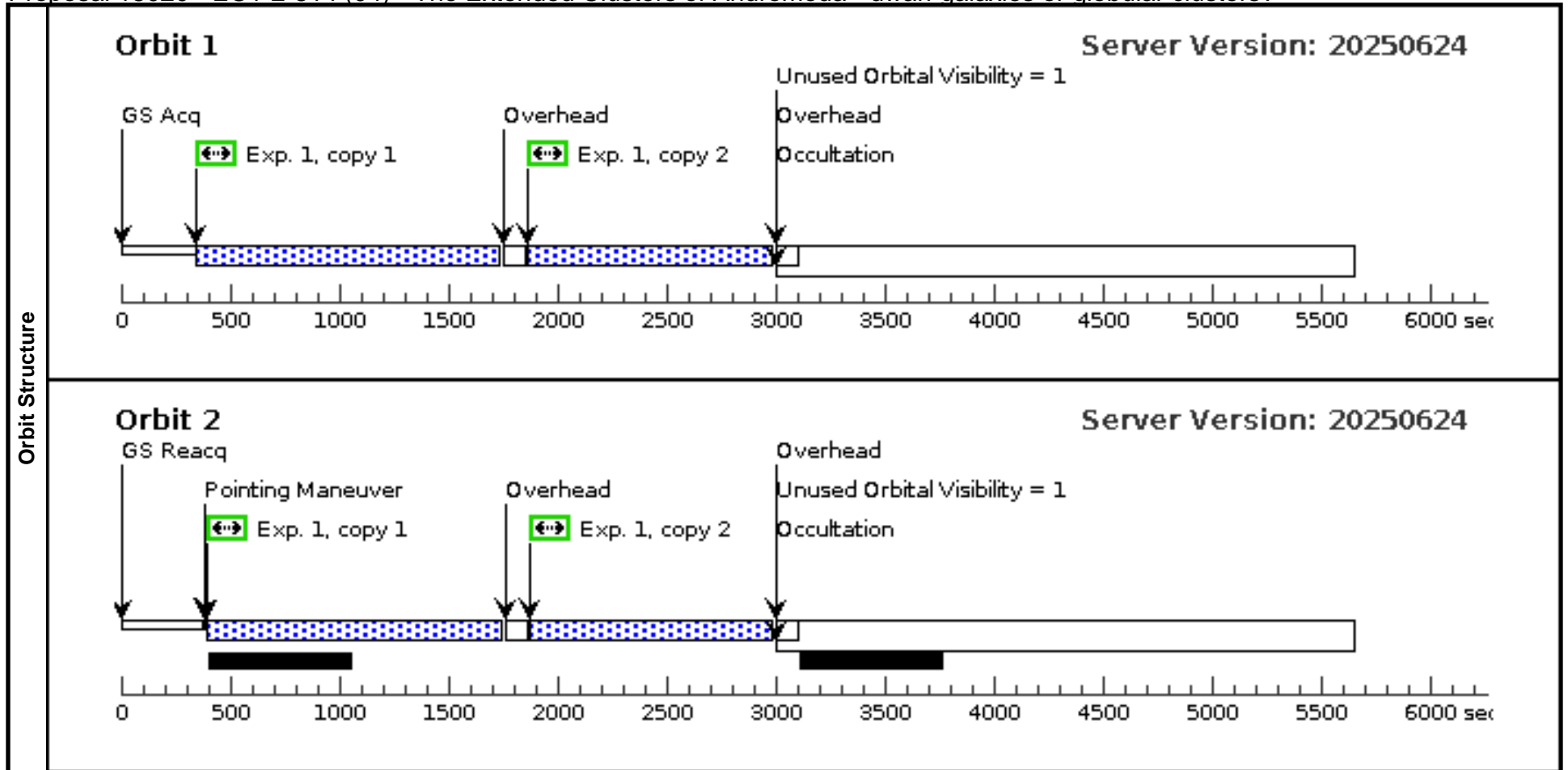
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Proposal 18020 - EC1-2-814 (04) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

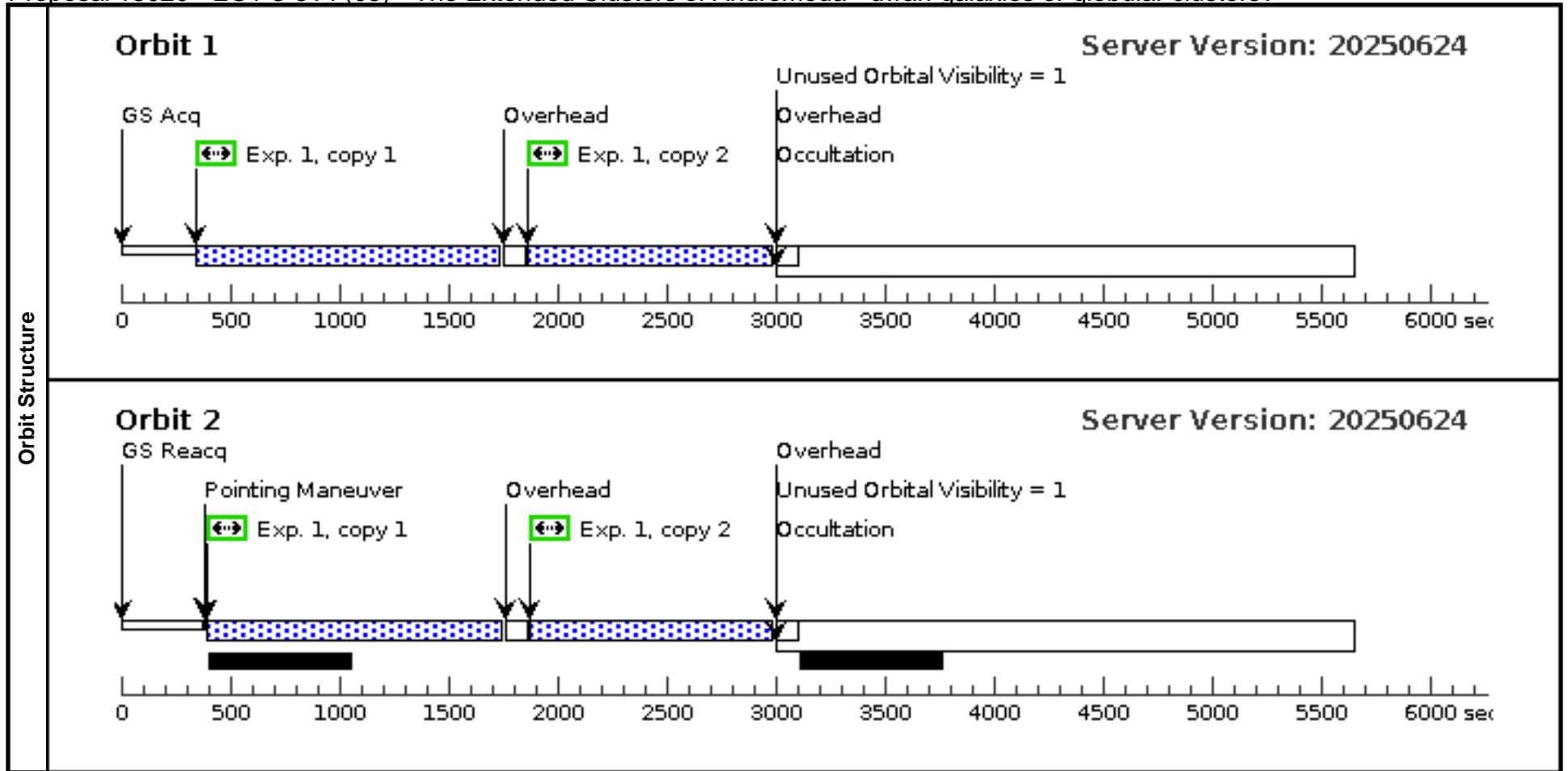
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	(1)	NAME-M31-EC1	RA: 00 38 19.4900 (9.5812083d) Dec: +41 47 14.90 (41.78747d) Equinox: J2000	Epoch of Position: 2000	V=17.6	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) NAME-M31-EC1	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC1-2-814 (04) (2)	1000 Secs X 2 (4948 Secs) [==>1363.0 Secs (Pattern 1, Copy 1)] [==>1121.0 Secs (Pattern 1, Copy 2)]	[1]
									[==>1353.0 Secs (Pattern 2, Copy 1)] [==>1111.0 Secs (Pattern 2, Copy 2)]	[2]



Proposal 18020 - EC1-3-814 (05) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

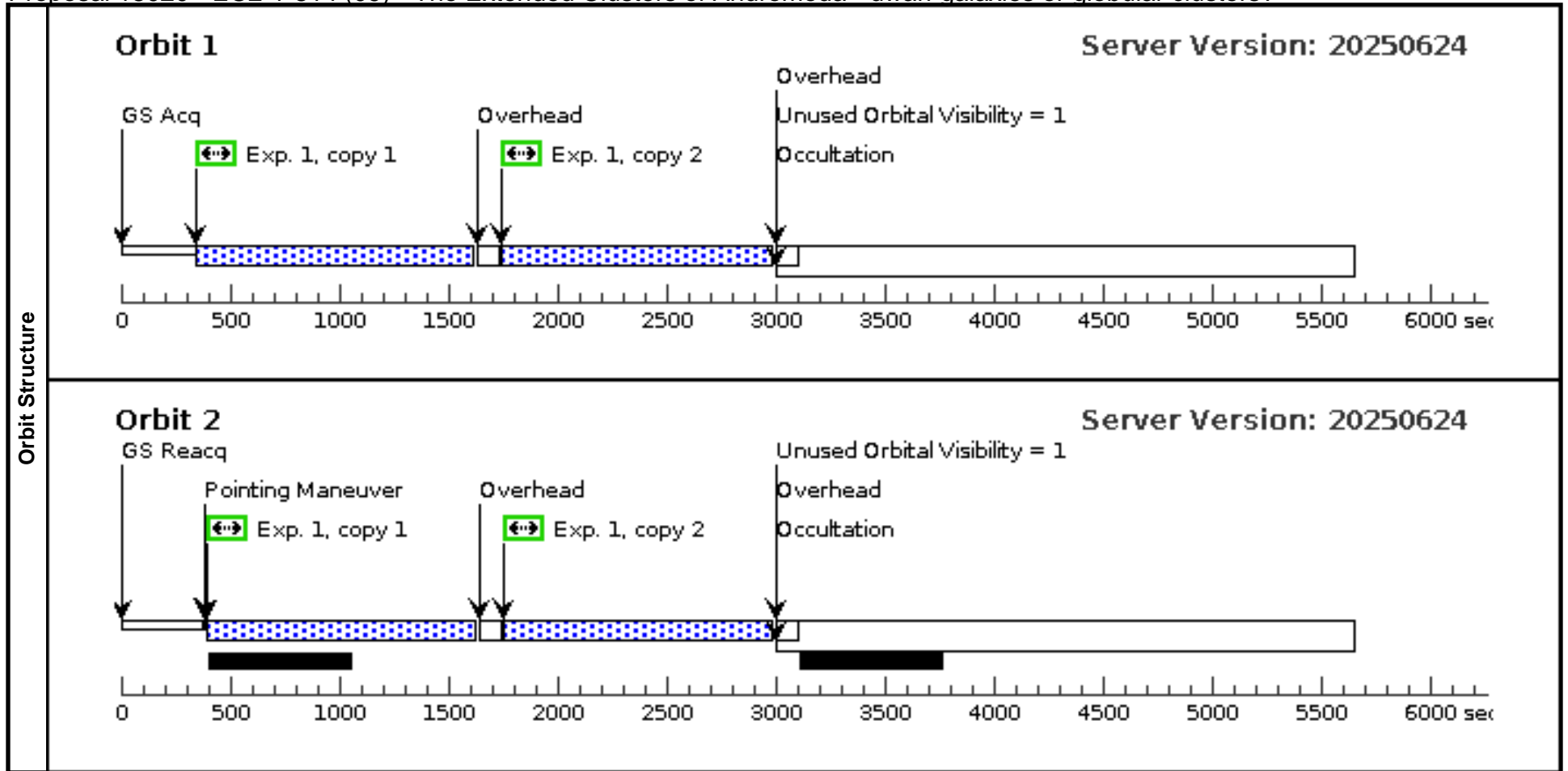
Visit	Proposal 18020, EC1-3-814 (05) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 01										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(1)		
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	NAME-M31-EC1	RA: 00 38 19.4900 (9.5812083d) Dec: +41 47 14.90 (41.78747d) Equinox: J2000		Epoch of Position: 2000		V=17.6	Reference Frame: ICRS			
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NAME-M31-EC1	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC1-3-814 (05) (2)	1000 Secs X 2 (4948 Secs) [==>1363.0 Secs (Pattern 1, Copy 1)] [==>1121.0 Secs (Pattern 1, Copy 2)]		[1]
									[==>1353.0 Secs (Pattern 2, Copy 1)] [==>1111.0 Secs (Pattern 2, Copy 2)]		[2]



Proposal 18020 - EC2-1-814 (09) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

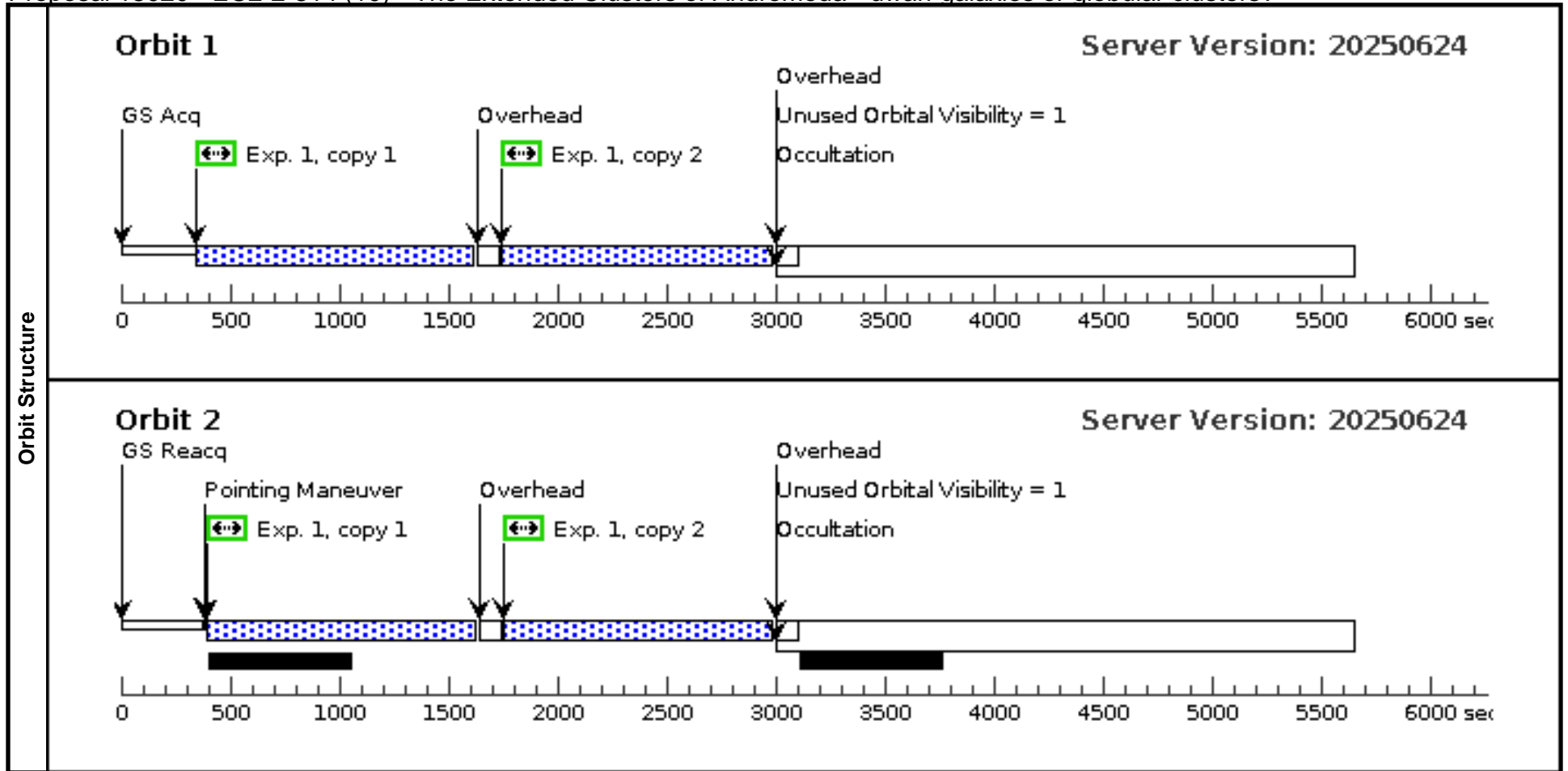
Visit	Proposal 18020, EC2-1-814 (09) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 07									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=		Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(1)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(2)	NAME-M31-EC2	RA: 00 42 55.0000 (10.7291667d) Dec: +43 57 28.00 (43.95778d) Equinox: J2000	Epoch of Position: 2000		V=17.1	Reference Frame: ICRS			
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER] Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NAME-M31-EC2	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC2-1-814 (09) (2)	1000 Secs X 2 (4948 Secs)	
		2							[==>1242.0 Secs (Pattern 1, Copy 1)]	[1]
								[==>1242.0 Secs (Pattern 1, Copy 2)]		
								[==>1232.0 Secs (Pattern 2, Copy 1)]		[2]
								[==>1232.0 Secs (Pattern 2, Copy 2)]		



Proposal 18020 - EC2-2-814 (10) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

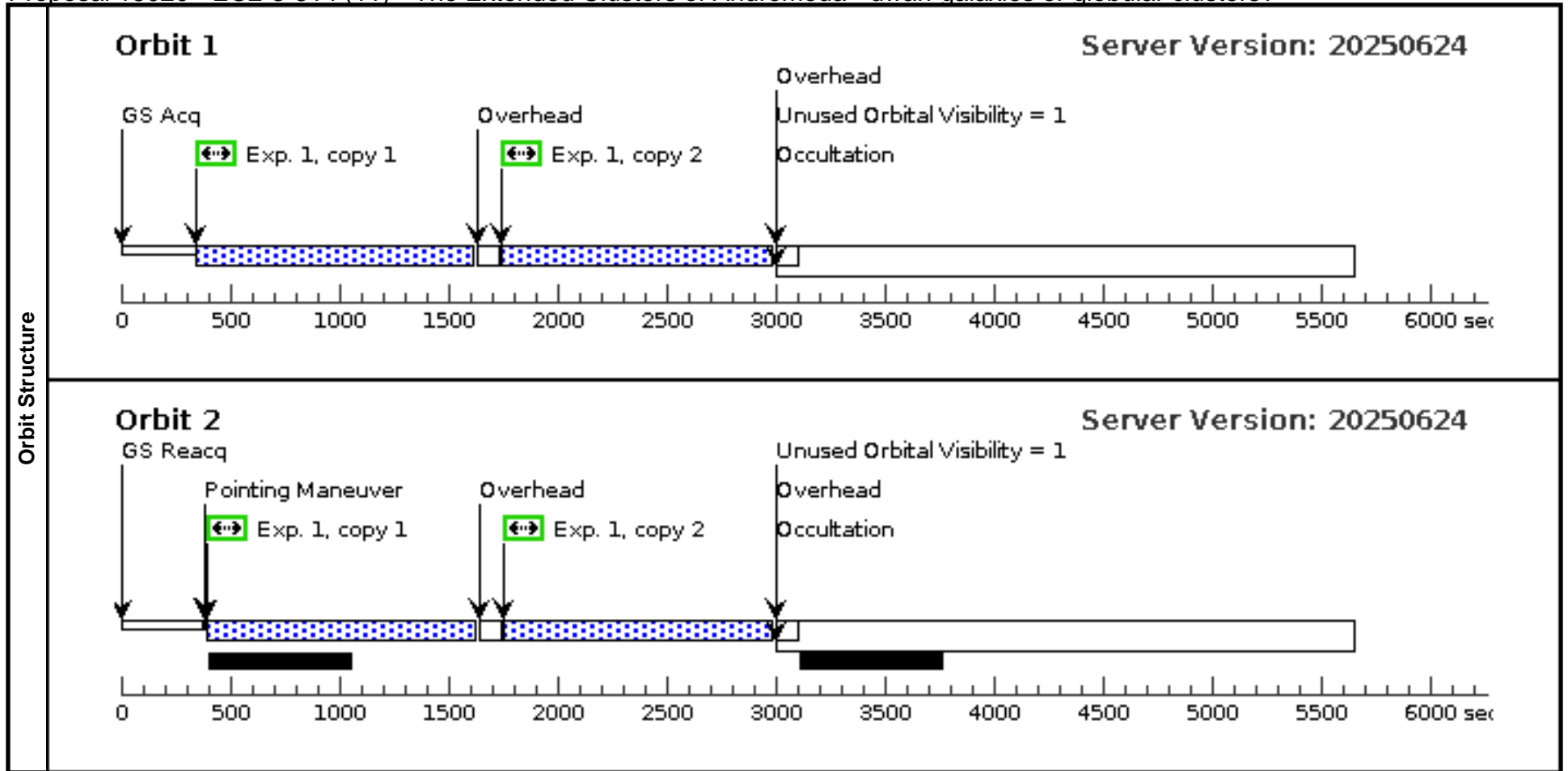
Visit	Proposal 18020, EC2-2-814 (10) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 07									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	NAME-M31-EC2	RA: 00 42 55.0000 (10.7291667d) Dec: +43 57 28.00 (43.95778d) Equinox: J2000	Epoch of Position: 2000	V=17.1	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NAME-M31-EC2	WFC3/UVIS, ACCUM, UVIS1	F814W				Pattern 2, Exps 1-1 in EC2-2-814 (10) (2) 1000 Secs X 2 (4948 Secs) [==>1242.0 Secs (Pattern 1, Copy 1)] [==>1242.0 Secs (Pattern 1, Copy 2)]	[1]
								[==>1232.0 Secs (Pattern 2, Copy 1)] [==>1232.0 Secs (Pattern 2, Copy 2)]	[2]	



Proposal 18020 - EC2-3-814 (11) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

Visit	Proposal 18020, EC2-3-814 (11) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 07									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(2)	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		(1)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	NAME-M31-EC2	RA: 00 42 55.0000 (10.7291667d) Dec: +43 57 28.00 (43.95778d) Equinox: J2000	Epoch of Position: 2000	V=17.1	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER] Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NAME-M31-EC2	WFC3/UVIS, ACCUM, UVIS1	F814W				Pattern 2, Exps 1-1 in EC2-3-814 (11) (2) 1000 Secs X 2 (4948 Secs) [==>1242.0 Secs (Pattern 1, Copy 1)] [==>1242.0 Secs (Pattern 1, Copy 2)]	[1]
								[==>1232.0 Secs (Pattern 2, Copy 1)] [==>1232.0 Secs (Pattern 2, Copy 2)]	[2]	



Proposal 18020 - EC2-4-814 (12) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

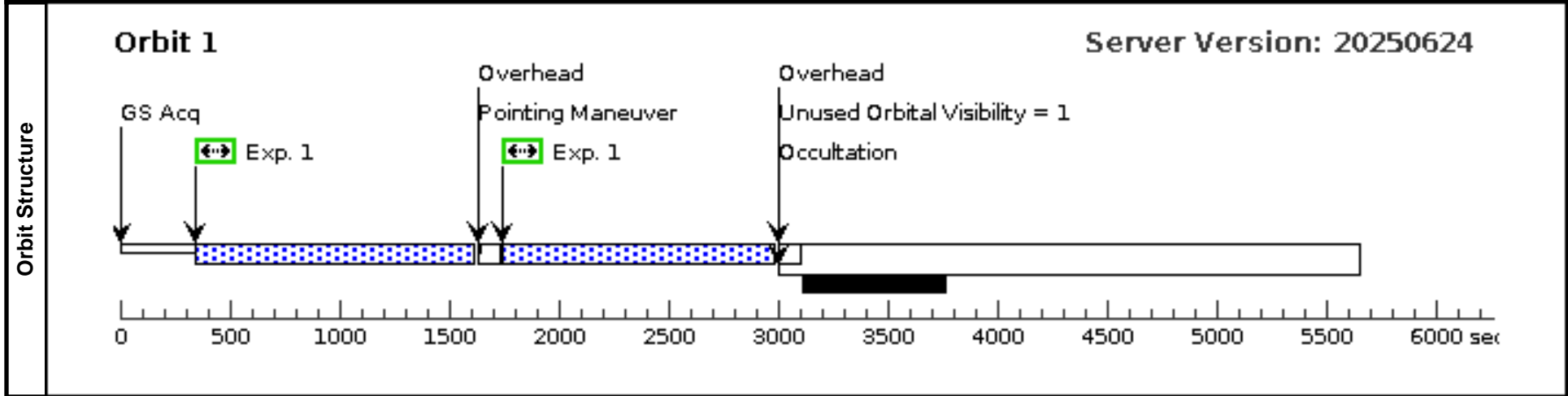
Fri Aug 08 18:01:32 GMT 2025

Visit	Proposal 18020, EC2-4-814 (12) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 07		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	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		(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NAME-M31-EC2	RA: 00 42 55.0000 (10.7291667d) Dec: +43 57 28.00 (43.95778d) Equinox: J2000	Epoch of Position: 2000	V=17.1	Reference Frame: ICRS
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER] Extended=NO					

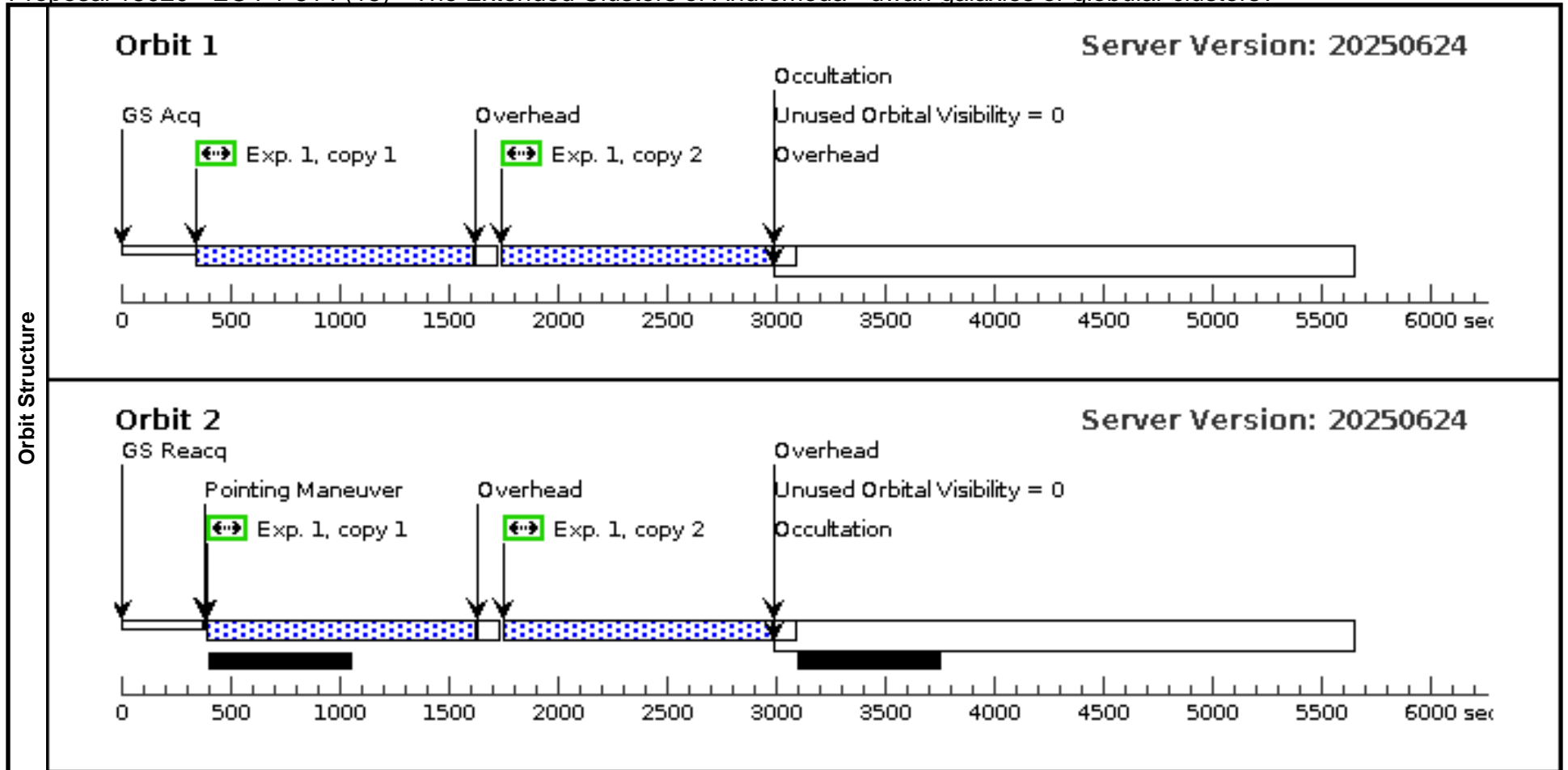
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) NAME-M31-EC2	NAME-M31-EC	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC2-4-814 (12) (2)	1000 Secs (2484 Secs)	
									[==>1242.0 Secs (Pattern 1)]	
									[==>1242.0 Secs (Pattern 2)]	[1]



Proposal 18020 - EC4-1-814 (15) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

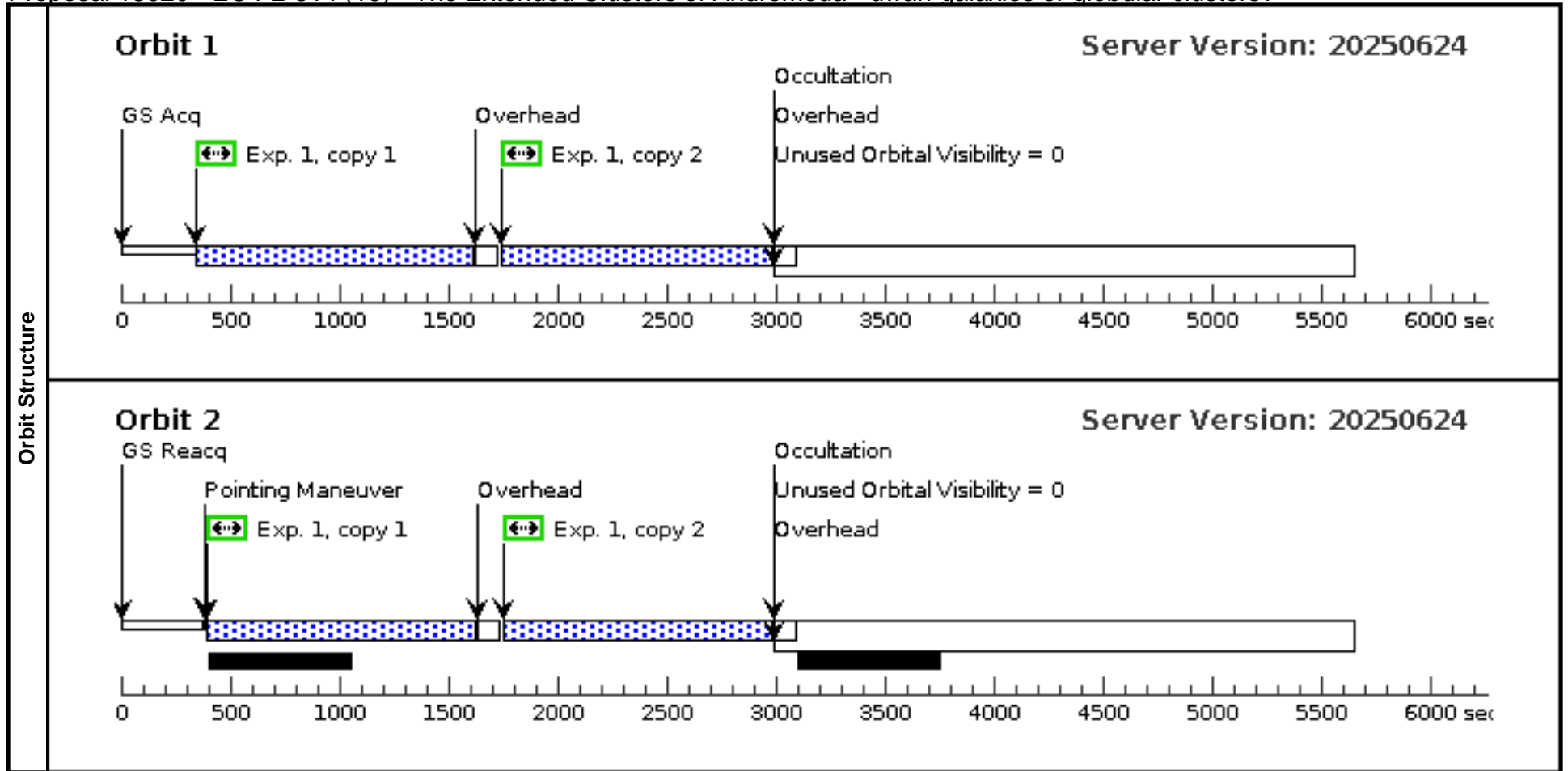
Visit	Proposal 18020, EC4-1-814 (15) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 13									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	NAME-M31-EC4	RA: 00 58 15.4200 (14.5642500d) Dec: +38 03 2.00 (38.05056d) Equinox: J2000	Epoch of Position: 2000	V=18.84	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) NAME-M31-EC4	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC4-1-814 (15) (2)	1000 Secs X 2 (4932 Secs) [==>1238.0 Secs (Pattern 1, Copy 1)] [==>1238.0 Secs (Pattern 1, Copy 2)] [==>1228.0 Secs (Pattern 2, Copy 1)] [==>1228.0 Secs (Pattern 2, Copy 2)]	[1] [2]



Proposal 18020 - EC4-2-814 (16) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

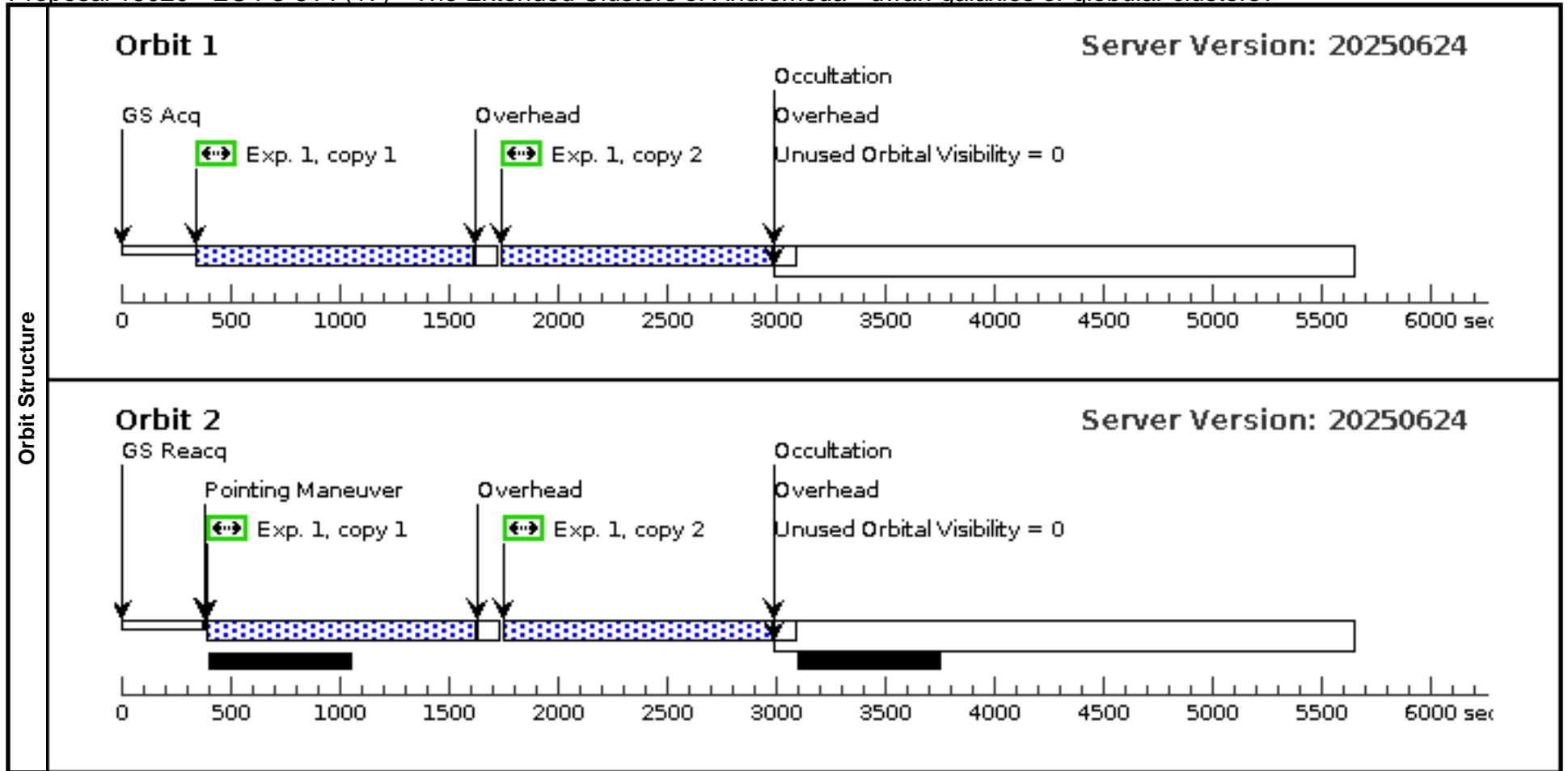
Visit	Proposal 18020, EC4-2-814 (16) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 13									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	NAME-M31-EC4	RA: 00 58 15.4200 (14.5642500d) Dec: +38 03 2.00 (38.05056d) Equinox: J2000	Epoch of Position: 2000	V=18.84	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) NAME-M31-EC4	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC4-2-814 (16) (2)	1000 Secs X 2 (4932 Secs) [==>1238.0 Secs (Pattern 1, Copy 1)] [==>1238.0 Secs (Pattern 1, Copy 2)] [==>1228.0 Secs (Pattern 2, Copy 1)] [==>1228.0 Secs (Pattern 2, Copy 2)]	[1] [2]



Proposal 18020 - EC4-3-814 (17) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

Visit	Proposal 18020, EC4-3-814 (17) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 13										
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures		
		(2)	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							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(3)	NAME-M31-EC4	RA: 00 58 15.4200 (14.5642500d)	Dec: +38 03 2.00 (38.05056d)	Epoch of Position: 2000		V=18.84		Reference Frame: ICRS		
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(3) NAME-M31-EC4	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC4-3-814 (17) (2)	1000 Secs X 2 (4932 Secs)		
									[=>1238.0 Secs (Pattern 1, Copy 1)]		[1]
									[=>1238.0 Secs (Pattern 1, Copy 2)]		
									[=>1228.0 Secs (Pattern 2, Copy 1)]		
									[=>1228.0 Secs (Pattern 2, Copy 2)]		[2]



Proposal 18020 - EC4-4-814 (18) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

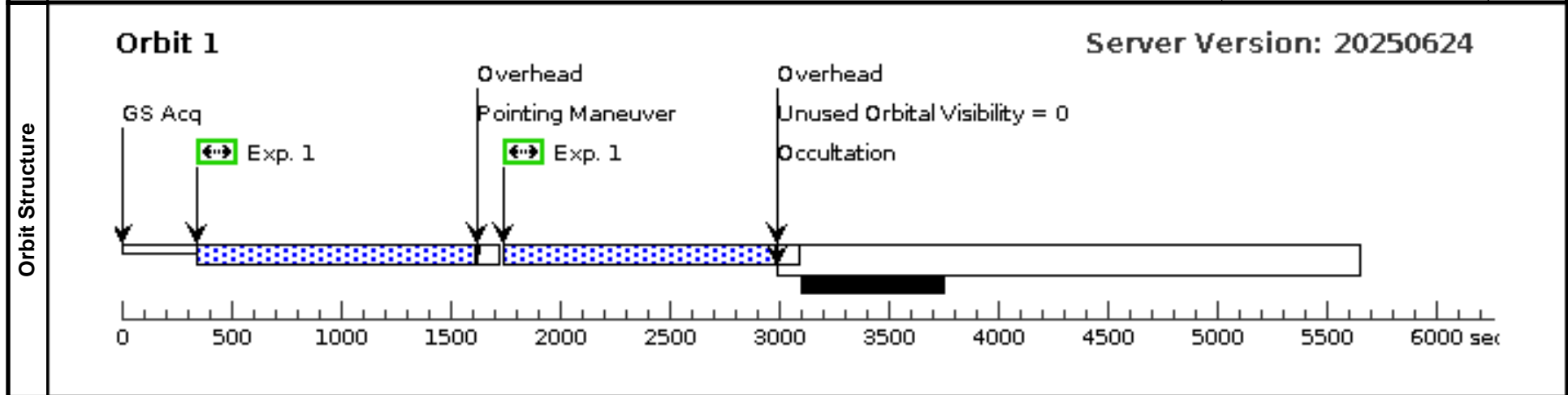
Fri Aug 08 18:01:32 GMT 2025

Visit	Proposal 18020, EC4-4-814 (18) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 13		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	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		(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	NAME-M31-EC4	RA: 00 58 15.4200 (14.5642500d) Dec: +38 03 2.00 (38.05056d) Equinox: J2000	Epoch of Position: 2000	V=18.84	Reference Frame: ICRS
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) NAME-M31-EC4	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC4-4-814 (18) (2)	1000 Secs (2476 Secs)	
									[=>1238.0 Secs (Pattern 1)]	
									[=>1238.0 Secs (Pattern 2)]	[1]



Proposal 18020 - EC1-4-814 (06) - The Extended Clusters of Andromeda - dwarf galaxies or globular clusters?

Fri Aug 08 18:01:32 GMT 2025

Visit	Proposal 18020, EC1-4-814 (06) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT -10D TO +10D FROM 01		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	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		(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NAME-M31-EC1	RA: 00 38 19.4900 (9.5812083d) Dec: +41 47 14.90 (41.78747d) Equinox: J2000	Epoch of Position: 2000	V=17.6	Reference Frame: ICRS
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> Category=EXT-CLUSTER Description=[GLOBULAR CLUSTER]					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) NAME-M31-EC1	WFC3/UVIS, ACCUM, UVIS1	F814W			Pattern 2, Exps 1-1 in EC1-4-814 (06) (2)	1000 Secs (2484 Secs)	
									[==>1242.0 Secs (Pattern 1)]	
									[==>1242.0 Secs (Pattern 2)]	[1]

