



# 18125 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and JWST

Cycle: 33, Proposal Category: GO  
(Availability Mode: SUPPORTED)

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>
<b>Prof. Antonino Paolo Milone (PI) (ESA Member) (Contact)</b>	<b>Universita degli Studi di Padova</b>
Dr. Emanuele Dondoglio (CoI) (ESA Member)	INAF - Istituto Nazionale di Astrofisica
Dr. Anna Fabiola Marino (CoI) (ESA Member)	INAF - Osservatorio Astronomico di Padova
Dr. Maria Vittoria Legnardi (CoI) (ESA Member)	Universita degli Studi di Padova
Fabrizio Muratore (CoI) (ESA Member)	Universita degli Studi di Padova
Dr. Emanuele Bortolan (CoI) (ESA Member)	Universita degli Studi di Padova
Dr. Marco Tailo (CoI) (ESA Member)	Universita di Bologna
Sofia Lionetto (CoI) (ESA Member)	Universita degli Studi di Padova
Dr. Giacomo Cordoni (CoI)	Australian National University
Prof. E. P. Lagioia (CoI)	Yunnan University
Tuila Ziliotto (CoI) (ESA Member)	Universita degli Studi di Padova
Dr. Alessandra Mastrobuono Battisti (CoI) (ESA Member)	Universita degli Studi di Padova

## 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	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:17.0	yes
02	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:17.0	yes
03	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:18.0	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>
04	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:18.0	yes
05	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:18.0	yes
06	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:18.0	yes
07	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:18.0	yes
08	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes
09	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes
10	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes
11	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes
12	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes
13	(2) NGC-104	WFC3/UVIS	1	02-Dec-2025 14:01:19.0	yes

13 Total Orbits Used

## **ABSTRACT**

Recent JWST photometry has identified a sequence of ultracool stars in 47 Tucanae, potentially representing a population of brown dwarfs. If this hypothesis holds, the abundance of brown dwarfs would significantly exceed predictions based on a standard mass function.

However, JWST's infrared capability alone is insufficient to distinguish between brown dwarfs and potential white dwarfs with debris disks. To investigate this faint stellar population further, we propose deep UVIS/WFC3 observations in the F606W filter, which is the only dataset that, combined with archival NIRCcam data, allows us to examine whether stars in this color-magnitude diagram (CMD) region, traditionally linked to brown dwarfs, may also include white dwarfs with debris disks.

By analyzing the distribution of stars in CMDs generated with the new F606W observations alongside archival JWST data in the F115W and F322W2 bands, we aim to test two scenarios: (1) if these stars are exclusively brown dwarfs, they will remain undetected in F606W due to their low luminosity in this band; (2) if a subset comprises white dwarfs with debris disks, these stars will follow the white dwarf cooling sequence, as debris disk flux primarily enhances F322W2 but has minimal impact on F606W and F115W. This study seeks to refine our understanding of low-mass object distributions in globular clusters and may provide new insights into planetary system remnants around white dwarfs.

## **OBSERVING DESCRIPTION**

Proposal 18125 (STScI Edit Number: 1, Created: Tuesday, December 2, 2025, 2:01:20PM Eastern Standard Time) - Overview

We propose deep HST/UVIS observations in the F606W filter to study faint stellar populations specifically white dwarfs and M-dwarfs, in the Galactic globular cluster 47 Tucanae (NGC 104).

The observations are dithered and distributed across 13 single-orbit visits to maximize scheduling flexibility within HST's constraints.

The field is centered at RA = 00h 20m 58.8s, Dec = -72 -06 -30.6, in the outer regions of 47 Tucanae, and overlaps with JWST/NIRCam data collected as part of Program 2560.

Proposal 18125 - Visit 01 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

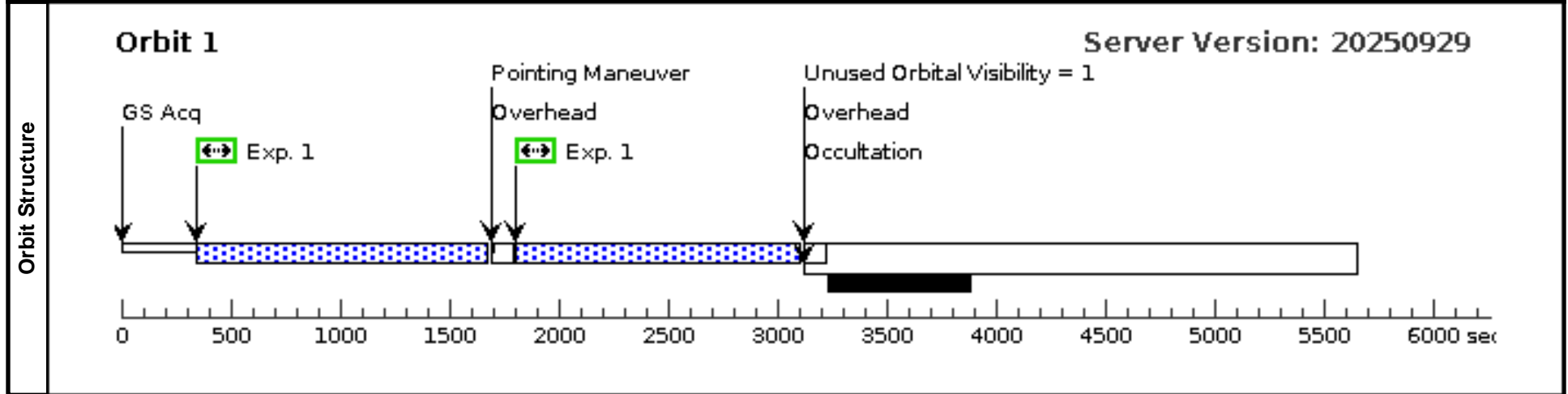
<b>Visit</b>	<b>Proposal 18125, Visit 01, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W				Pattern 1, Exps 1-1 in Visit 01 (1)	1302.0 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]



Proposal 18125 - Visit 02 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

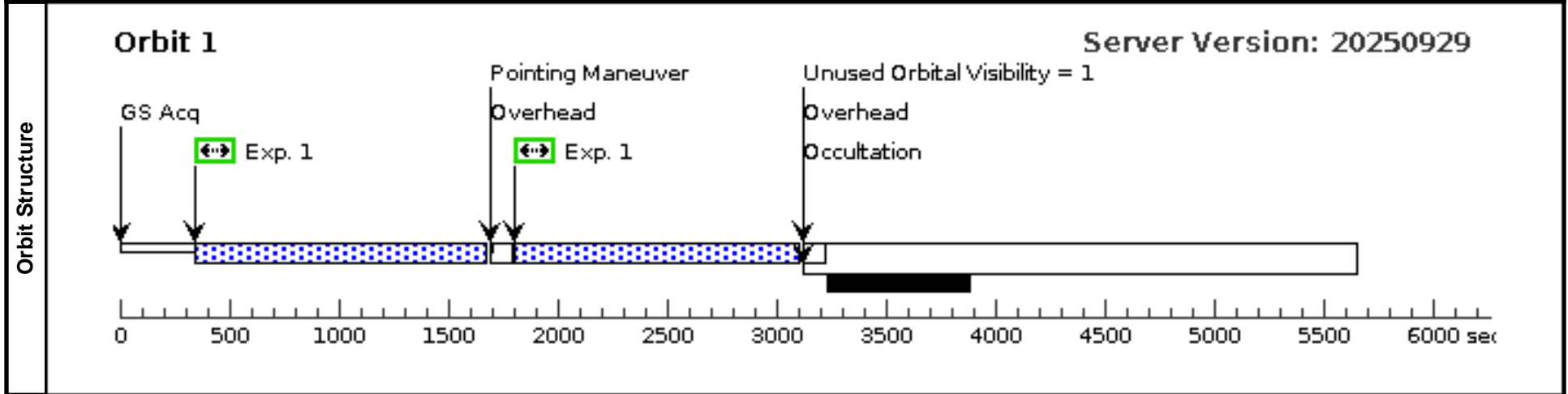
<b>Visit</b>	<b>Proposal 18125, Visit 02, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -3,0	Pattern 1, Exps 1-1 in Visit 02 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 18125 - Visit 03 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

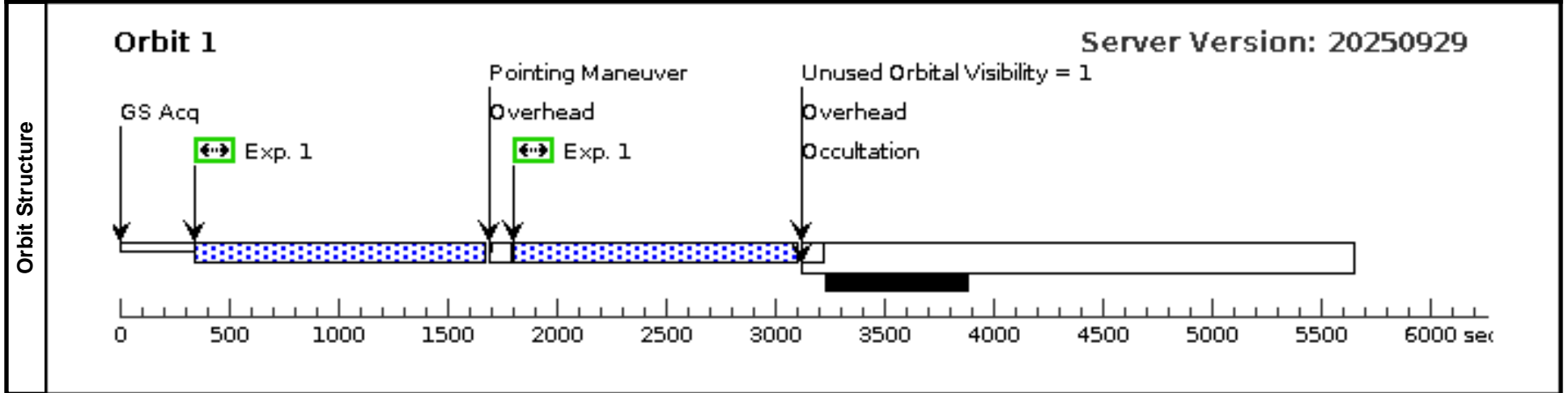
<b>Visit</b>	<b>Proposal 18125, Visit 03, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 3,0	Pattern 1, Exps 1-1 in Visit 03 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



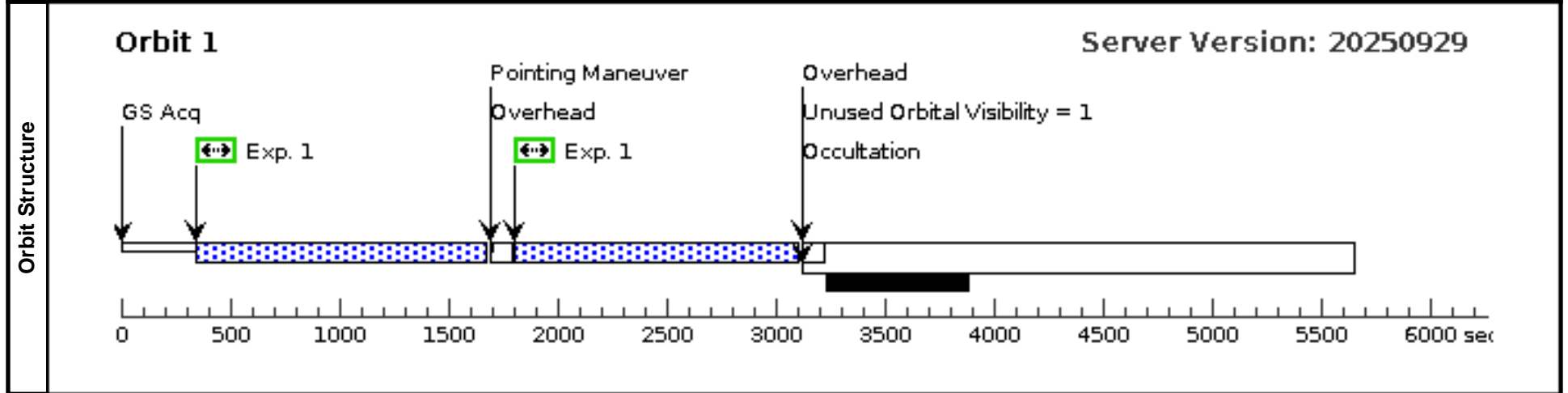
<b>Visit</b>	<b>Proposal 18125, Visit 04, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0,-3	Pattern 1, Exps 1-1 in Visit 04 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 18125 - Visit 05 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

<b>Visit</b>	Proposal 18125, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	# (1)	<b>Primary Pattern</b> Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	<b>Secondary Pattern</b>	<b>Exposures</b> (1)				
<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS				
	Comments: Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0,3	Pattern 1, Exps 1-1 in Visit 05 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
<b>Orbit Structure</b>	<div style="display: flex; justify-content: space-between;"> <span><b>Orbit 1</b></span> <span><b>Server Version: 20250929</b></span> </div> <p>The diagram illustrates the orbit structure over a 6000-second period. It shows the timing of various activities: GS Acq at 0s, the first exposure (Exp. 1) at approximately 400s, a period of overhead and pointing maneuver at 1700s, the second exposure (Exp. 1) at approximately 1800s, another overhead period and occultation starting at 3100s, and a final period of unused orbital visibility from 3100s to 5700s. A blue checkered bar highlights the primary visibility window from 400s to 3100s.</p>									

Proposal 18125 - Visit 06 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

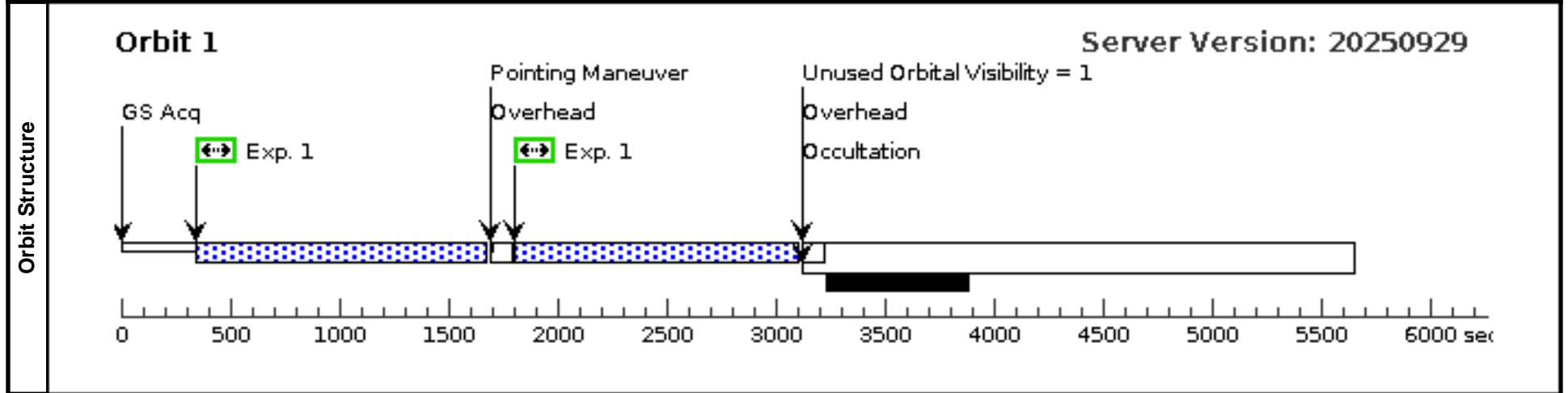
<b>Visit</b>	<b>Proposal 18125, Visit 06, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 3,3	Pattern 1, Exps 1-1 in Visit 06 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 18125 - Visit 07 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

<b>Visit</b>	Proposal 18125, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	# (1)	<b>Primary Pattern</b> Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	<b>Secondary Pattern</b>	<b>Exposures</b> (1)				
<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS				
	Comments: Category=STELLAR CLUSTER Description=[GLOBULAR CLUSTER]									
<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(2) NGC-104		WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -3,-3	Pattern 1, Exps 1-1 in Visit 07 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
<b>Orbit Structure</b>	<div style="display: flex; justify-content: space-between;"> <div> <h3>Orbit 1</h3> <p>GS Acq</p> <p>Exp. 1</p> <p>Overhead</p> <p>Pointing Maneuver</p> <p>Exp. 1</p> <p>Overhead</p> <p>Occultation</p> <p>Unused Orbital Visibility = 1</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec</p> </div> <div> <p>Server Version: 20250929</p> </div> </div>									

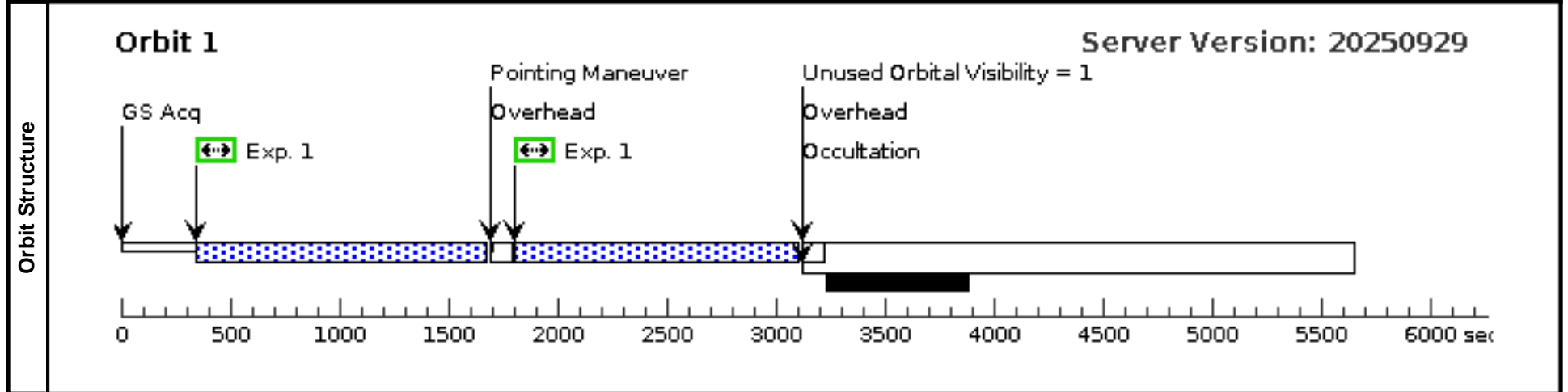
<b>Visit</b>	<b>Proposal 18125, Visit 08, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -6,0	Pattern 1, Exps 1-1 in Visit 08 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 18125 - Visit 09 - Brown dwarfs or white dwarfs with debris disks? Exploring the faintest stars of 47 Tucanae with HST and J...

Tue Dec 02 19:01:20 GMT 2025

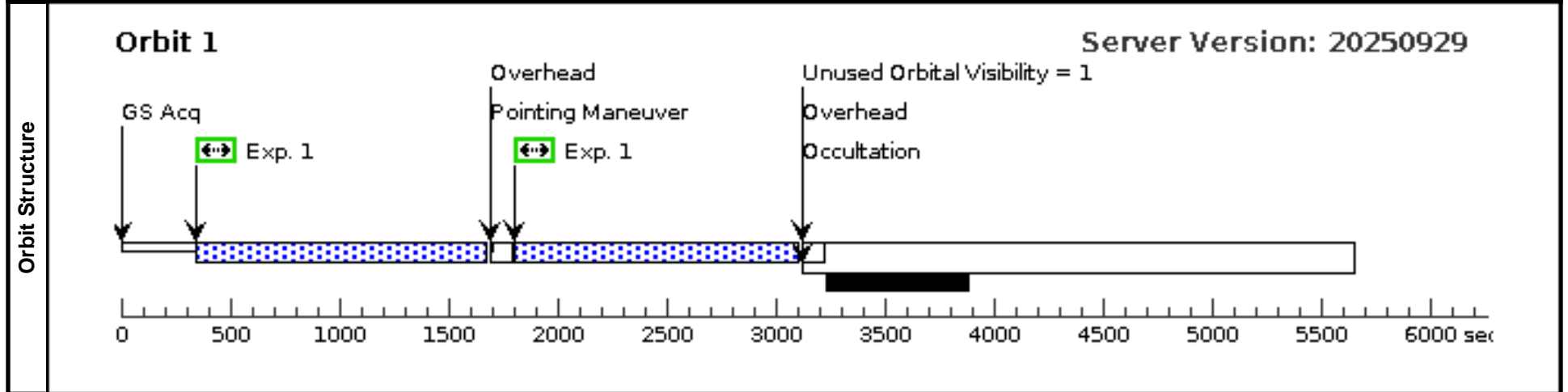
<b>Visit</b>	<b>Proposal 18125, Visit 09, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0,6	Pattern 1, Exps 1-1 in Visit 09 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



<b>Visit</b>	Proposal 18125, Visit 10, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	# (1)	<b>Primary Pattern</b> Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	<b>Secondary Pattern</b>	<b>Exposures</b> (1)				
<b>Fixed Targets</b>	# (2)	<b>Name</b> NGC-104	<b>Target Coordinates</b> RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	<b>Targ. Coord. Corrections</b> Parallax: 2.32E-4" Epoch of Position: 2000	<b>Fluxes</b> V=4.09	<b>Miscellaneous</b> Reference Frame: ICRS				
<b>Exposures</b>	# 1	<b>Label</b> (2) NGC-104	<b>Config, Mode, Aperture</b> WFC3/UVIS, ACCUM, UVIS-CENTER	<b>Spectral Els.</b> F606W	<b>Opt. Params.</b>	<b>Special Reqs.</b> POS TARG 0,-6	<b>Groups</b> Pattern 1, Exps 1-1 i n Visit 10 (1)	<b>Exp. Time (Total)/[Actual Dur.]</b> 1302 Secs (2604 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	<b>Orbit</b> [1]	
<b>Orbit Structure</b>	<div style="display: flex; justify-content: space-between;"> <span><b>Orbit 1</b></span> <span><b>Server Version: 20250929</b></span> </div> <p>The diagram illustrates the orbit structure over a 6000-second period. It shows the timing of various activities: GS Acq (Greenhouse Acquisition) at 0s, the first exposure (Exp. 1) at approximately 400s, a pointing maneuver at 1700s, a second exposure (Exp. 1) at 1800s, an overhead period at 3100s, an occultation (black bar) from 3200s to 3900s, and another overhead period at 3300s. The observation period is marked with a blue checkered bar from 400s to 3100s. The text 'Unused Orbital Visibility = 1' is present during the occultation period.</p>									

<b>Visit</b>	Proposal 18125, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	# (1)	<b>Primary Pattern</b> Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	<b>Secondary Pattern</b>	<b>Exposures</b> (1)				
<b>Fixed Targets</b>	# (2)	<b>Name</b> NGC-104	<b>Target Coordinates</b> RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	<b>Targ. Coord. Corrections</b> Parallax: 2.32E-4" Epoch of Position: 2000	<b>Fluxes</b> V=4.09	<b>Miscellaneous</b> Reference Frame: ICRS				
<b>Exposures</b>	# 1	<b>Label</b> (2) NGC-104	<b>Config, Mode, Aperture</b> WFC3/UVIS, ACCUM, UVIS-CENTER	<b>Spectral Els.</b> F606W	<b>Opt. Params.</b>	<b>Special Reqs.</b> POS TARG 6,0	<b>Groups</b> Pattern 1, Exps 1-1 i n Visit 11 (1)	<b>Exp. Time (Total)/[Actual Dur.]</b> 1302 Secs (2604 Secs) [==>(Pattern 1)] [==>(Pattern 2)]	<b>Orbit</b> [1]	
<b>Orbit Structure</b>	<div style="display: flex; justify-content: space-between;"> <span><b>Orbit 1</b></span> <span><b>Server Version: 20250929</b></span> </div> <p>The diagram illustrates the orbit structure over a 6000-second period. It shows the timing of various activities: GS Acq (Greenhouse Acquisition) at 0s, the first exposure (Exp. 1) at approximately 400s, a pointing maneuver at 1700s, the second exposure (Exp. 1) at 1800s, overhead time at 3100s, an occultation event (black bar) from 3200s to 3900s, and another overhead period at 3300s. A blue checkered bar represents the primary observation window from 400s to 3100s. The text 'Unused Orbital Visibility = 1' is noted on the right side of the diagram.</p>									

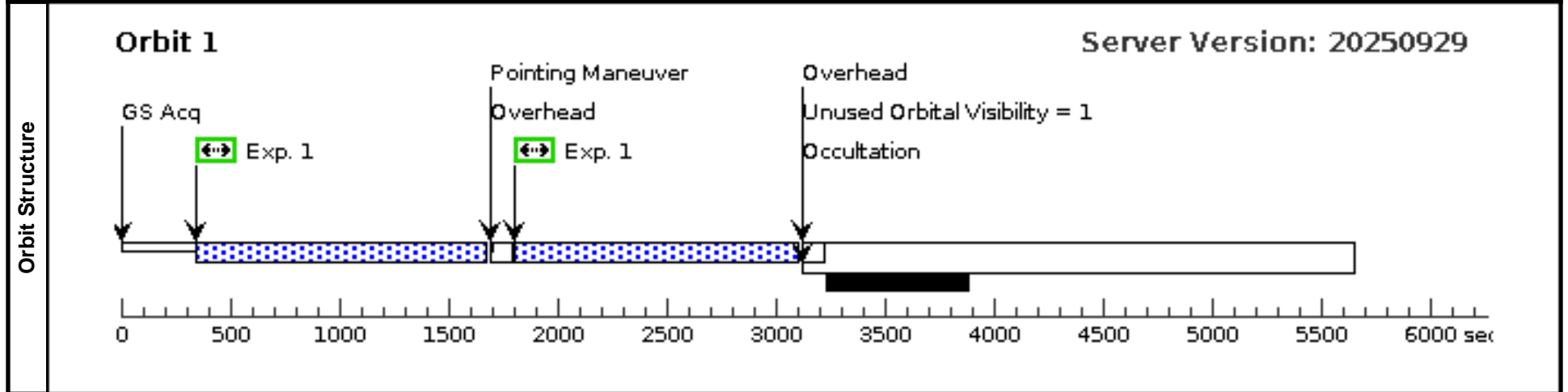
<b>Visit</b>	<b>Proposal 18125, Visit 12, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 6,6	Pattern 1, Exps 1-1 in Visit 12 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



<b>Visit</b>	<b>Proposal 18125, Visit 13, implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=6 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=100 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	NGC-104	RA: 00 20 58.3800 (5.2432500d) Dec: -72 06 30.60 (-72.10850d) Equinox: J2000	Parallax: 2.32E-4" Epoch of Position: 2000	V=4.09	Reference Frame: ICRS

*Comments:*  
 Category=STELLAR CLUSTER  
 Description=[GLOBULAR CLUSTER]

<b>Exposures</b>	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) NGC-104	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG -6,-6	Pattern 1, Exps 1-1 in Visit 13 (1)	1302 Secs (2604 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

