



## 11628 - Globular Cluster Candidates for Hosting a Central Black Hole

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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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) NGC5946	WFC3/UVIS	1	16-Sep-2008 21:16:48.0	yes
02	(2) NGC6139	WFC3/UVIS	1	16-Sep-2008 21:16:53.0	yes
03	(3) NGC6256	WFC3/UVIS	1	16-Sep-2008 21:16:57.0	yes
04	(4) NGC6325	WFC3/UVIS	1	16-Sep-2008 21:17:01.0	yes
05	(5) NGC6342	WFC3/UVIS	1	16-Sep-2008 21:17:04.0	yes
06	(6) NGC6355	WFC3/UVIS	1	16-Sep-2008 21:17:08.0	yes
07	(7) NGC6380	WFC3/UVIS	1	16-Sep-2008 21:17:11.0	yes
08	(8) NGC6453	WFC3/UVIS	1	16-Sep-2008 21:17:14.0	yes
09	(9) NGC6517	WFC3/UVIS	1	16-Sep-2008 21:17:17.0	yes
10	(10) NGC6864	WFC3/UVIS	1	16-Sep-2008 21:17:21.0	yes

10 Total Orbits Used

## **ABSTRACT**

We are continuing our study of the dynamical properties of globular clusters and we propose to obtain surface brightness profiles for high concentration clusters. Our results to date show that the distribution of central surface brightness slopes do not conform to standard models. This has important implications for how they form and evolve, and suggest the possible presence of central intermediate-mass black holes. From our previous archival proposals (AR-9542 and AR-10315), we find that many high concentration globular clusters do not have flat cores or steep central cusps, instead they show weak cusps. Numerical simulations suggest that clusters with weak cusps may harbor intermediate-mass black holes and we have one confirmation of this connection with omega Centauri. This cluster shows a shallow cusp in its surface brightness profile, while kinematical measurements suggest the presence of a black hole in its center. Our goal is to extend these studies to a sample containing 85% of the Galactic globular clusters with concentrations higher than 1.7 and look for objects departing from isothermal behavior. The ACS globular cluster survey (GO-10775) provides enough objects to have an excellent coverage of a wide range of galactic clusters, but it contains only a couple of the ones with high concentration. The proposed sample consists of clusters whose light profile can only be adequately measured from space-based imaging. This would take us close to completeness for the high concentration cases and therefore provide a more complete list of candidates for containing a central black hole. The dataset will also be combined with our existing kinematic measurements and enhanced with future kinematic studies to perform detailed dynamical modeling.

## **OBSERVING DESCRIPTION**

We plan to observe most objects in the F438W and F555W filters, but for the few cases with very faint horizontal branches, for which very long integrations are required in the B-band, we use F555W and F814W instead.

The S/N needed to perform isophotal analysis that would detect flattening is higher than the one required for obtaining an accurate SB profile, so, for the clusters with the brightest horizontal branches, we increased the exposure times for the F555 filter making sure that the observation fits into a single orbit for each object. We will take multiple dither images in order to provide the best spatial resolution possible. All of the observations can be performed under one orbit per object.

**REAL TIME JUSTIFICATION**

N/A

**CALIBRATION JUSTIFICATION**

N/A

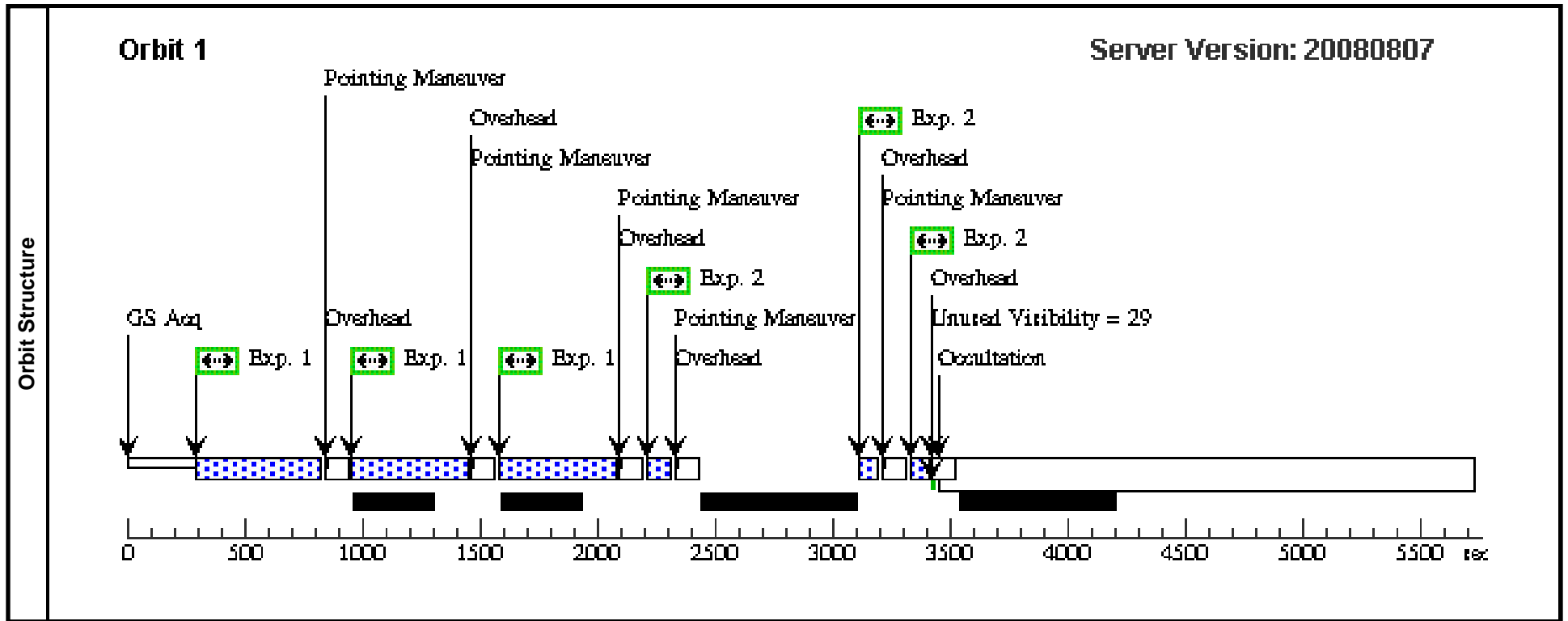
**ADDITIONAL COMMENTS**

N/A

Proposal 11628 - Visit 01 - Globular Cluster Candidates for Hosting a Central Black Hole

Wed Sep 17 01:17:24 GMT 2008

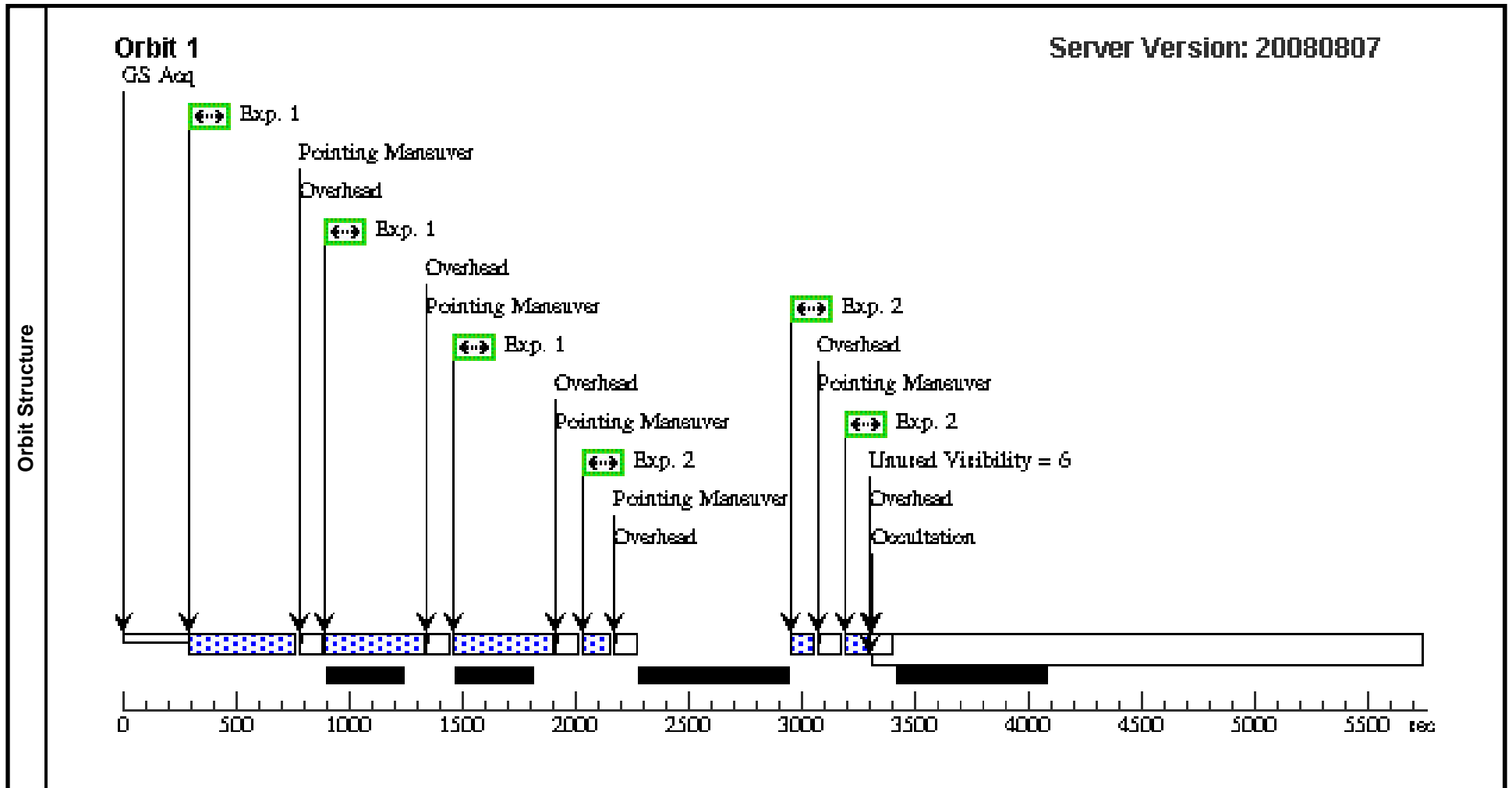
<b>Visit</b>	<b>Proposal 11628, Visit 01, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2)
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>			
	(1)	NGC5946	RA: 15 35 28.6239 (233.8692662d) Dec: -50 39 31.98 (-50.65888d) Equinox: J2000	Radial Velocity: 128.4 km/sec		V=9.61+/-0.0	Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	B	(1) NGC5946	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	500 Secs	
										[1]
	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]									
2	V	(1) NGC5946	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO			Pattern 2-2 (1)	80 Secs	
									[1]	
[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]										



Proposal 11628 - Visit 02 - Globular Cluster Candidates for Hosting a Central Black Hole

Wed Sep 17 01:17:25 GMT 2008

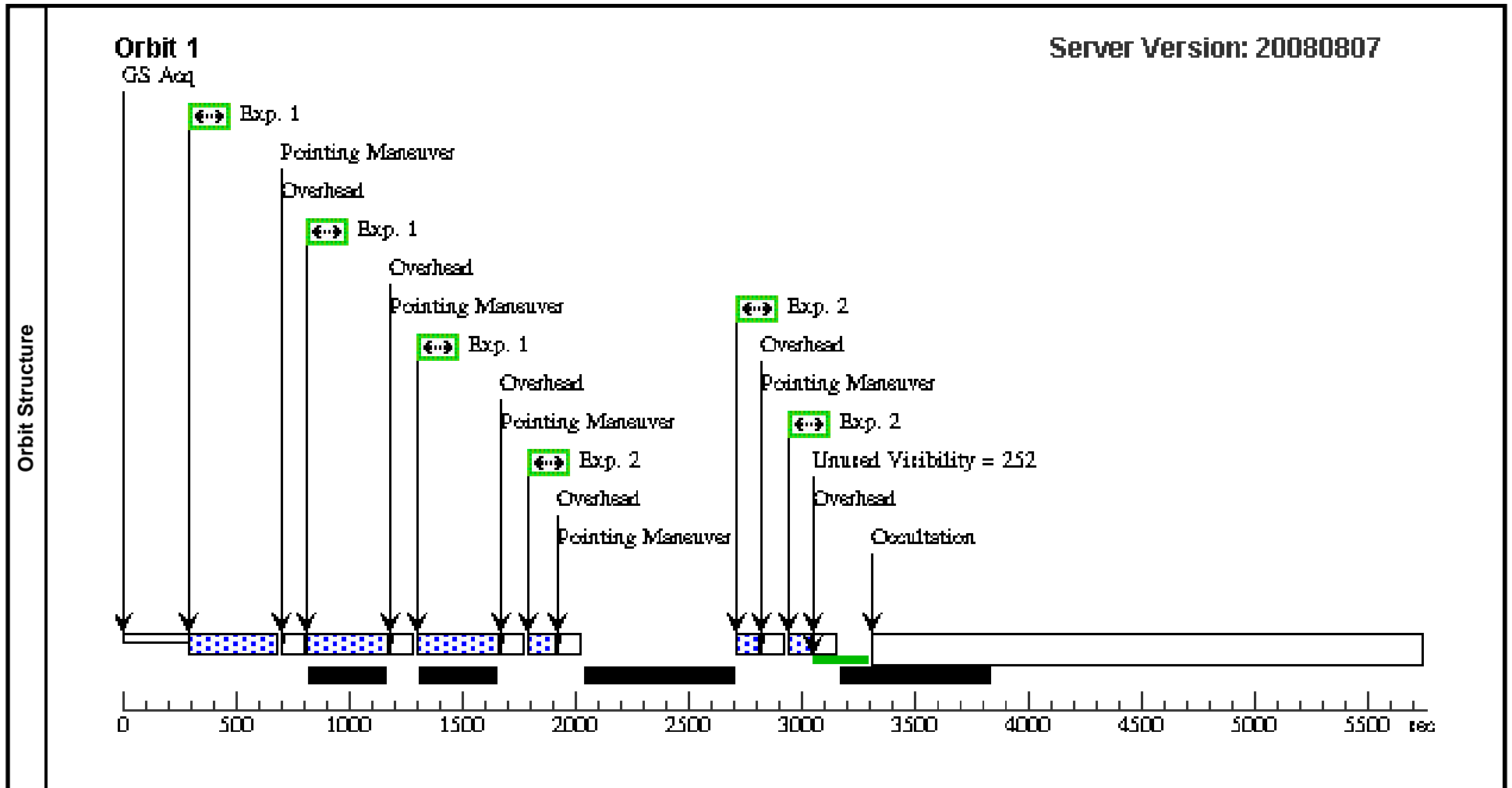
<b>Visit</b>	<b>Proposal 11628, Visit 02, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>			<b>Secondary Pattern</b>			<b>Exposures</b>	
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(1), (2)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(2)	NGC6139	RA: 16 27 40.4000 (246.9183333d) Dec: -38 50 56.00 (-38.84889d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>	Radial Velocity: 6.7 km/sec	V=8.99+/-0.0	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	B	(2) NGC6139	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	440 Secs	
									[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	V	(2) NGC6139	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 2-2 (1)	100 Secs	
								[=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]	



Proposal 11628 - Visit 03 - Globular Cluster Candidates for Hosting a Central Black Hole

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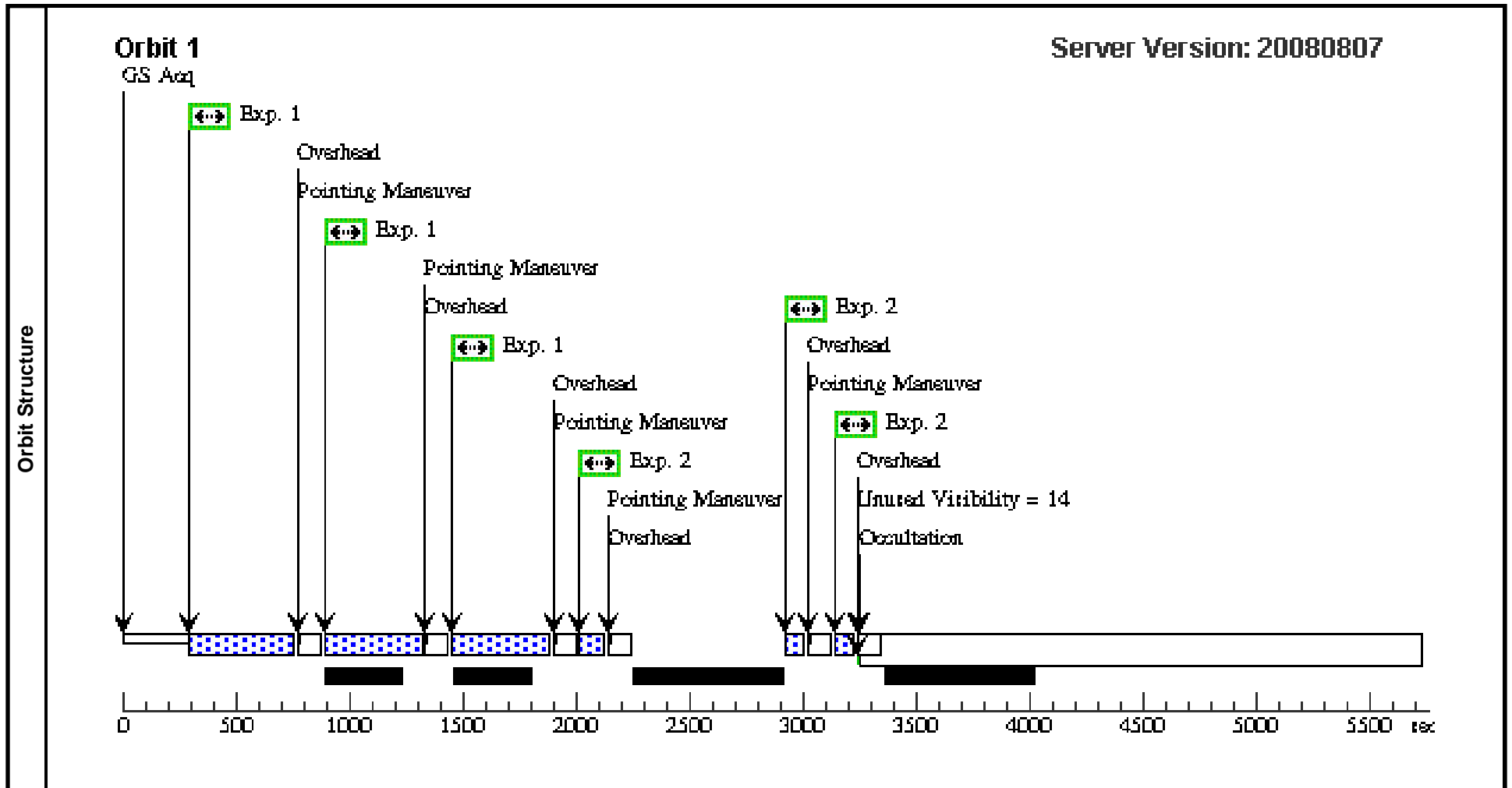
<b>Visit</b>	<b>Proposal 11628, Visit 03, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2)
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(3)	NGC6256	RA: 16 59 32.7000 (254.8862500d) Dec: -37 07 17.00 (-37.12139d) Equinox: J2000		Radial Velocity: -101.4 km/sec		V=11.29+/-0.0	Reference Frame: ICRS		
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	V	(3) NGC6256	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 1-1 (1)	360 Secs	
										[1]
	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]									
2	I	(3) NGC6256	WFC3/UVIS, ACCUM, UVIS1	F814W	CR-SPLIT=NO			Pattern 2-2 (1)	100 Secs	
									[1]	
[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]										



Proposal 11628 - Visit 04 - Globular Cluster Candidates for Hosting a Central Black Hole

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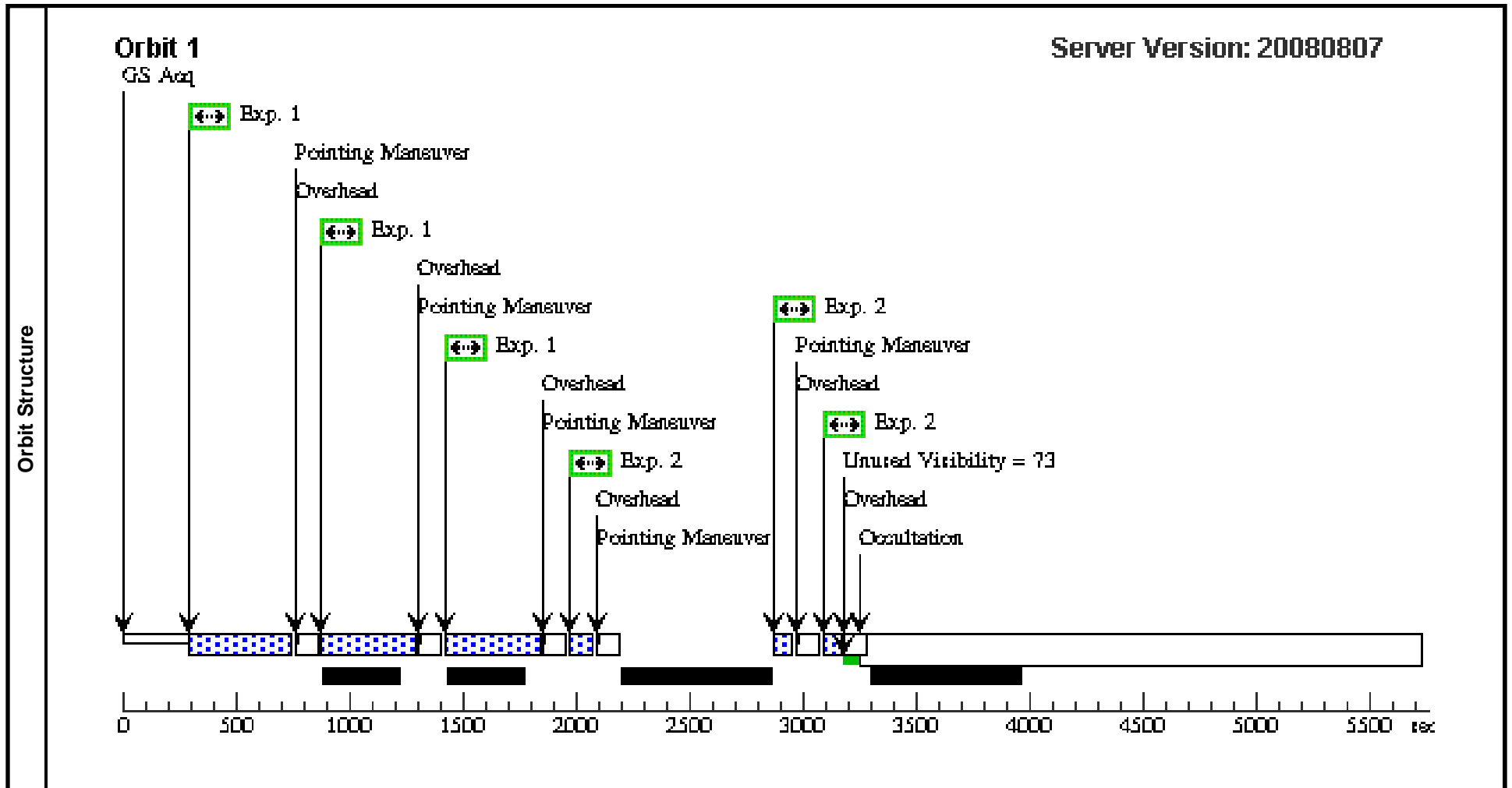
<b>Visit</b>	<b>Proposal 11628, Visit 04, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2)
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(4)	NGC6325	RA: 17 17 59.2085 (259.4967021d) Dec: -23 46 1.02 (-23.76695d) Equinox: J2000		Radial Velocity: 29.8 km/sec		V=10.33+/-0.0	Reference Frame: ICRS		
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	B	(4) NGC6325	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	435 Secs	
										[1]
	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]									
2	V	(4) NGC6325	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO			Pattern 2-2 (1)	85 Secs	
									[1]	
[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]										



Proposal 11628 - Visit 05 - Globular Cluster Candidates for Hosting a Central Black Hole

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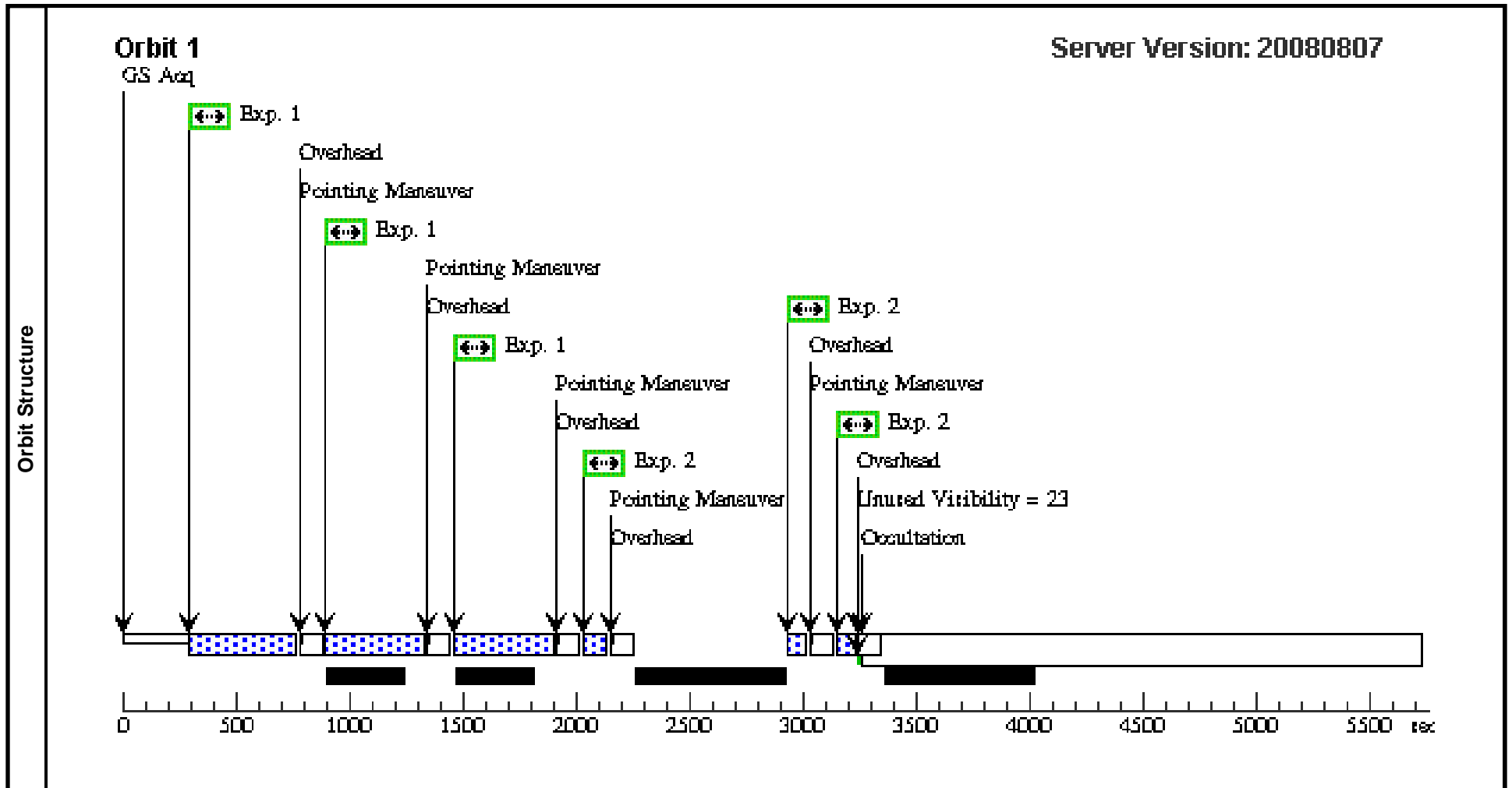
<b>Visit</b>	<b>Proposal 11628, Visit 05, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>	
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>			
	(5)	NGC6342	RA: 17 21 10.1000 (260.2920833d) Dec: -19 35 15.00 (-19.58750d) Equinox: J2000		Radial Velocity: 116.2 km/sec		V=9.66+/-0.0	Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>											
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>		<b>Orbit</b>
	1	B	(5) NGC6342	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	420 Secs		
										[=>(Pattern 1)]	[1]
										[=>(Pattern 2)]	
									[=>(Pattern 3)]		
2	V	(5) NGC6342	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 2-2 (1)	80 Secs			
									[=>(Pattern 1)]	[1]	
									[=>(Pattern 2)]		
									[=>(Pattern 3)]		



Proposal 11628 - Visit 06 - Globular Cluster Candidates for Hosting a Central Black Hole

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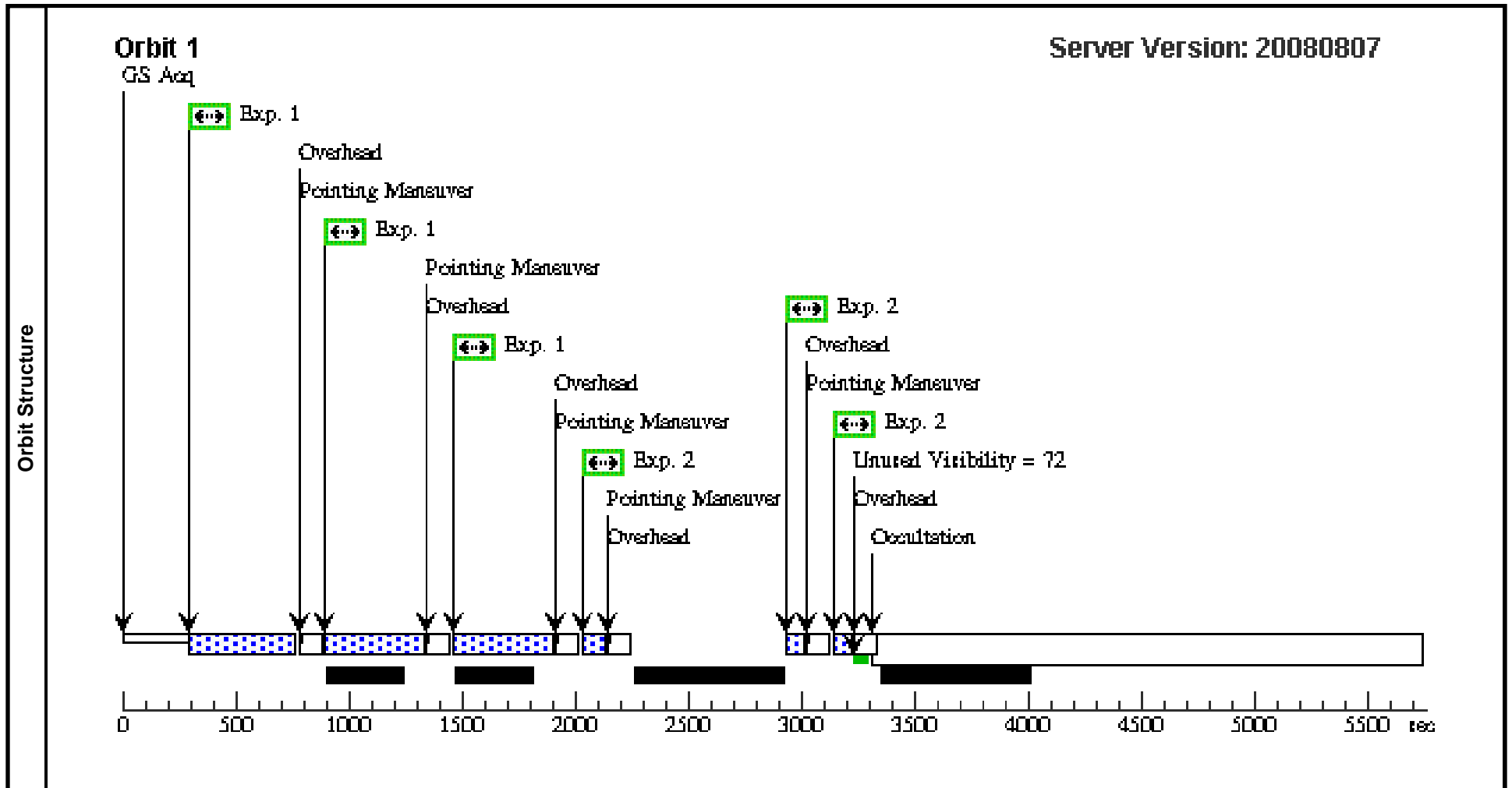
Visit	<b>Proposal 11628, Visit 06, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	NGC6355	RA: 17 23 58.6000 (260.9941667d) Dec: -26 21 12.00 (-26.35333d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>	Radial Velocity: -176.9 km/sec	V=9.14+/-0.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	B	(6) NGC6355	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	440 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	V	(6) NGC6355	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 2-2 (1)	80 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]	



Proposal 11628 - Visit 07 - Globular Cluster Candidates for Hosting a Central Black Hole

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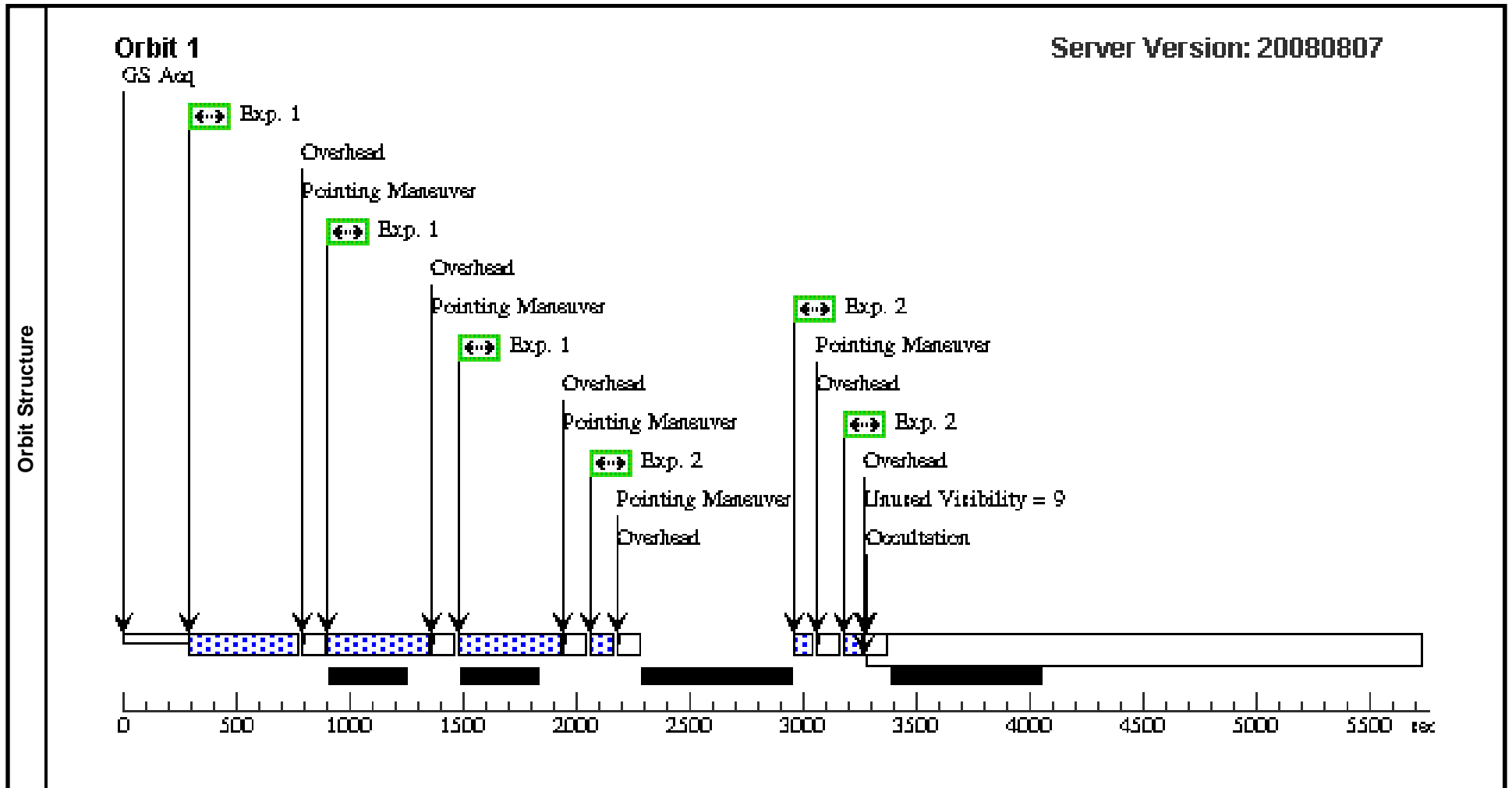
Visit	<b>Proposal 11628, Visit 07, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(1), (2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(7)	NGC6380	RA: 17 34 28.3423 (263.6180929d) Dec: -39 04 13.79 (-39.07050d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>	Radial Velocity: -3.6 km/sec	V=11.31+/-0.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	V	(7) NGC6380	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 1-1 (1)	440 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
2	I	(7) NGC6380	WFC3/UVIS, ACCUM, UVIS1	F814W	CR-SPLIT=NO		Pattern 2-2 (1)	80 Secs [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]	



Proposal 11628 - Visit 08 - Globular Cluster Candidates for Hosting a Central Black Hole

Wed Sep 17 01:17:28 GMT 2008

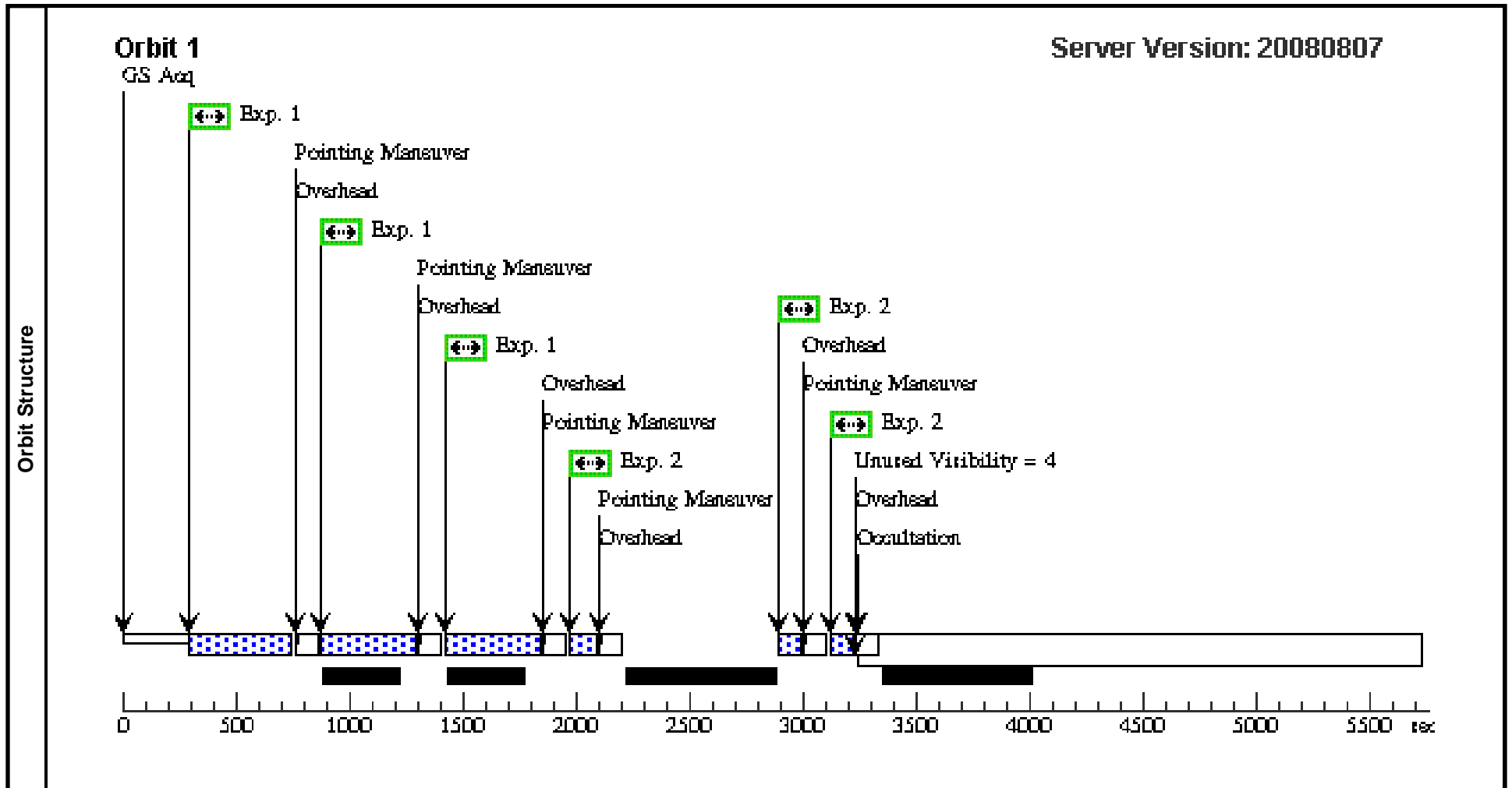
<b>Visit</b>	<b>Proposal 11628, Visit 08, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2)
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(8)	NGC6453	RA: 17 50 51.7752 (267.7157300d) Dec: -34 35 57.20 (-34.59922d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>	Radial Velocity: -83.7 km/sec	V=10.08+/-0.0	Reference Frame: ICRS				
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	B	(8) NGC6453	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	450 Secs	
									[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	
2	V	(8) NGC6453	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO			Pattern 2-2 (1)	80 Secs	
									[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	
									[=>(Pattern 3)]	



Proposal 11628 - Visit 09 - Globular Cluster Candidates for Hosting a Central Black Hole

Wed Sep 17 01:17:28 GMT 2008

<b>Visit</b>	<b>Proposal 11628, Visit 09, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>	
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false			(1), (2)		
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>			
	(9)	NGC6517	RA: 18 01 50.7915 (270.4616312d) Dec: -08 57 32.23 (-8.95895d) Equinox: J2000		Radial Velocity: -39.6 km/sec		V=10.23+/-0.0	Reference Frame: ICRS			
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>											
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>		<b>Orbit</b>
	1	V	(9) NGC6517	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO		Pattern 1-1 (1)	420 Secs		
										[=>(Pattern 1)]	
										[=>(Pattern 2)]	[1]
									[=>(Pattern 3)]		
2	I	(9) NGC6517	WFC3/UVIS, ACCUM, UVIS1	F814W	CR-SPLIT=NO			Pattern 2-2 (1)	100 Secs		
									[=>(Pattern 1)]		
									[=>(Pattern 2)]	[1]	
									[=>(Pattern 3)]		



Proposal 11628 - Visit 10 - Globular Cluster Candidates for Hosting a Central Black Hole

Wed Sep 17 01:17:28 GMT 2008

<b>Visit</b>	<b>Proposal 11628, Visit 10, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			
(1)		Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.145 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(1), (2)
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>		<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>		
	(10)	NGC6864 Alt Name1: M75	RA: 20 06 4.8000 (301.5200000d) Dec: -21 55 20.00 (-21.92222d) Equinox: J2000		Radial Velocity: -189.3 km/sec		V=8.52+/-0.0	Reference Frame: ICRS		
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>										
<b>Exposures</b>	<b>#</b>	<b>Label</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time/[Actual Dur.]</b>	<b>Orbit</b>
	1	B	(10) NGC6864	WFC3/UVIS, ACCUM, UVIS1	F438W	CR-SPLIT=NO		Pattern 1-1 (1)	420 Secs	
										[1]
	[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]									
2	V	(10) NGC6864	WFC3/UVIS, ACCUM, UVIS1	F555W	CR-SPLIT=NO			Pattern 2-2 (1)	100 Secs	
									[1]	
[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]										

