



16461 - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Cycle: 28, Proposal Category: GO
(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) GGS2018-93	ACS/WFC	1	20-Aug-2021 18:00:15.0	yes
R1	(1) GGS2018-93	ACS/WFC	1	20-Aug-2021 18:00:16.0	yes
02	(2) GGS2018-292	ACS/WFC	1	20-Aug-2021 18:00:17.0	yes
03	(3) GGS2018-318	ACS/WFC	1	20-Aug-2021 18:00:17.0	yes
04	(4) GGS2018-365	ACS/WFC	1	20-Aug-2021 18:00:18.0	yes
R4	(4) GGS2018-365	ACS/WFC	1	20-Aug-2021 18:00:19.0	yes
05	(5) GGS2018-490	ACS/WFC	1	20-Aug-2021 18:00:19.0	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>
06	(6) GGS2018-748	ACS/WFC	1	20-Aug-2021 18:00:20.0	yes
56	(6) GGS2018-748	ACS/WFC	1	20-Aug-2021 18:00:21.0	yes
07	(7) GGS2018-749	ACS/WFC	1	20-Aug-2021 18:00:21.0	yes

10 Total Orbits Used

ABSTRACT

Interest in low surface brightness galaxies (LSBGs) has experienced a renaissance in recent years. Intriguingly, a number of ultra diffuse galaxies, which are LSBGs with dwarf-like stellar masses spread over Milky Way-size areas, have been observed in the Coma cluster with extraordinarily large numbers (>40) of globular clusters (GCs). Since GC abundance correlates with galaxy dark matter halo mass for many galaxies, these LSBGs may have extremely high mass-to-light ratios. However, such GC-rich LSBGs have only been observed in high density, galaxy cluster environments. Can LSBGs in group environments have such extremely large GC systems? We have just completed the first wide-field search for GC-rich LSBGs in Hyper Suprime-Cam data, with a focus on early-type, low-mass LSBGs. We request seven orbits of HST time to study the LSBGs with the largest GC-like point source excesses with imaging from the Advanced Camera for Surveys. With these data, we will be able to tightly constrain the GC abundances in our galaxies to determine whether they are truly the counterparts of the GC-rich LSBGs found in clusters. We will also constrain the GC luminosity functions of our LSBGs to compare to the most likely distances to our LSBGs. Finally, this HST data will provide verification of our ground-based GC search, which will provide invaluable insight for analyzing data from future telescopes like the Vera C. Rubin Observatory.

OBSERVING DESCRIPTION

We will spend each full orbit on the F814W band, dividing the exposure into four dithers. After guide-star acquisition (6 min), read-out (6.5 min), and one dither (0.5 min), we are left with 40 min of exposure time, assuming a typical 53 min orbit. We will divide that time evenly into four 500 sec exposures, using the ACS-WFC-DITHER-LINE pattern combined with a subpattern.

Proposal 16461 - GGS2018-93 (01) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

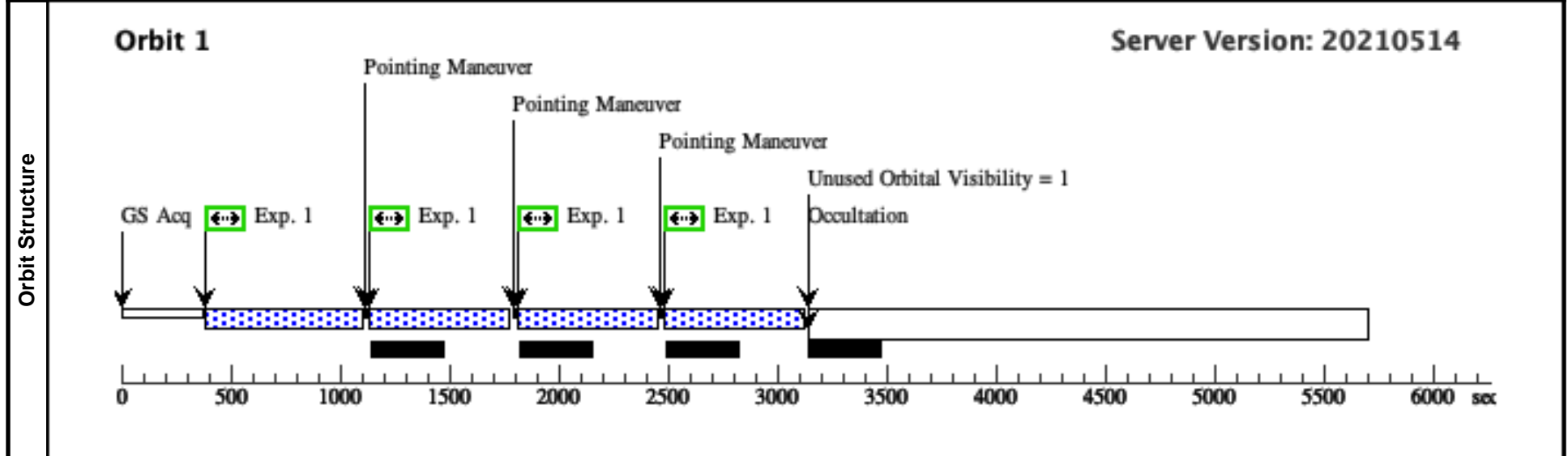
Visit	Proposal 16461, GGS2018-93 (01), failed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=false

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	GG2018-93	RA: 22 53 29.9400 (343.3747500d) Dec: +00 54 19.30 (.90536d) Equinox: J2000	Epoch of Position: 2015.5	V=19.47+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GGS2018-93	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-93 (01) (1)	1200 Secs (2060 Secs) [==>515.0 Secs (Pattern 1,1)] [==>515.0 Secs (Pattern 1,2)] [==>515.0 Secs (Pattern 2,1)] [==>515.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-93 (R1) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

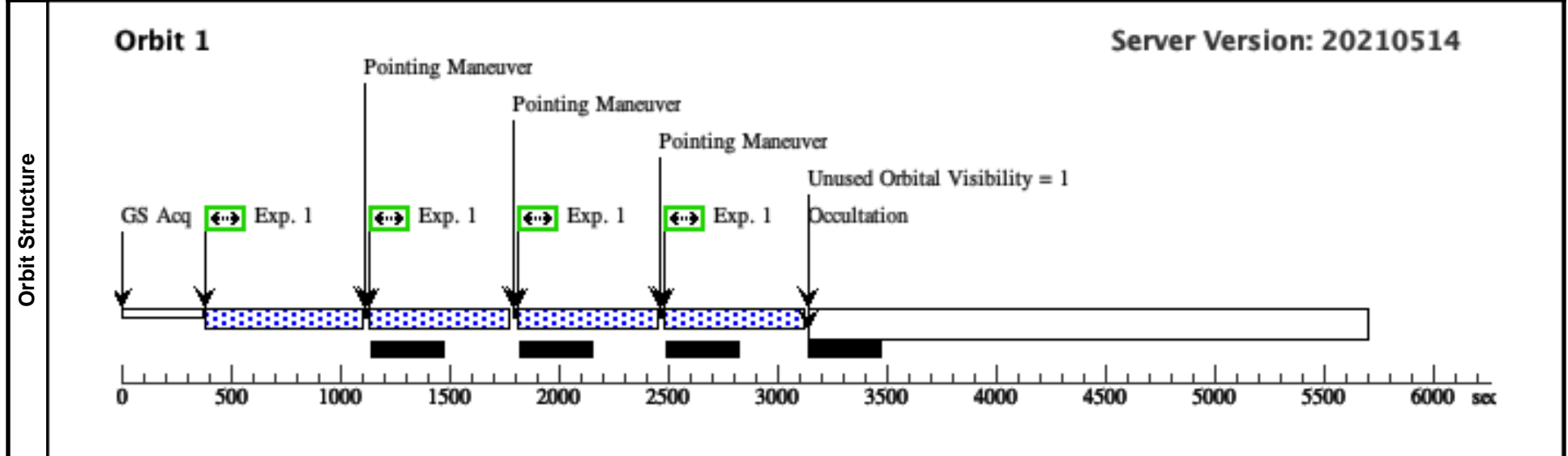
Visit	Proposal 16461, GGS2018-93 (R1) Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	GG2018-93	RA: 22 53 29.9400 (343.3747500d) Dec: +00 54 19.30 (.90536d) Equinox: J2000	Epoch of Position: 2015.5	V=19.47+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) GGS2018-93	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-93 (R1) (1)	1200 Secs (2060 Secs) [=>515.0 Secs (Pattern 1,1)] [=>515.0 Secs (Pattern 1,2)] [=>515.0 Secs (Pattern 2,1)] [=>515.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-292 (02) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

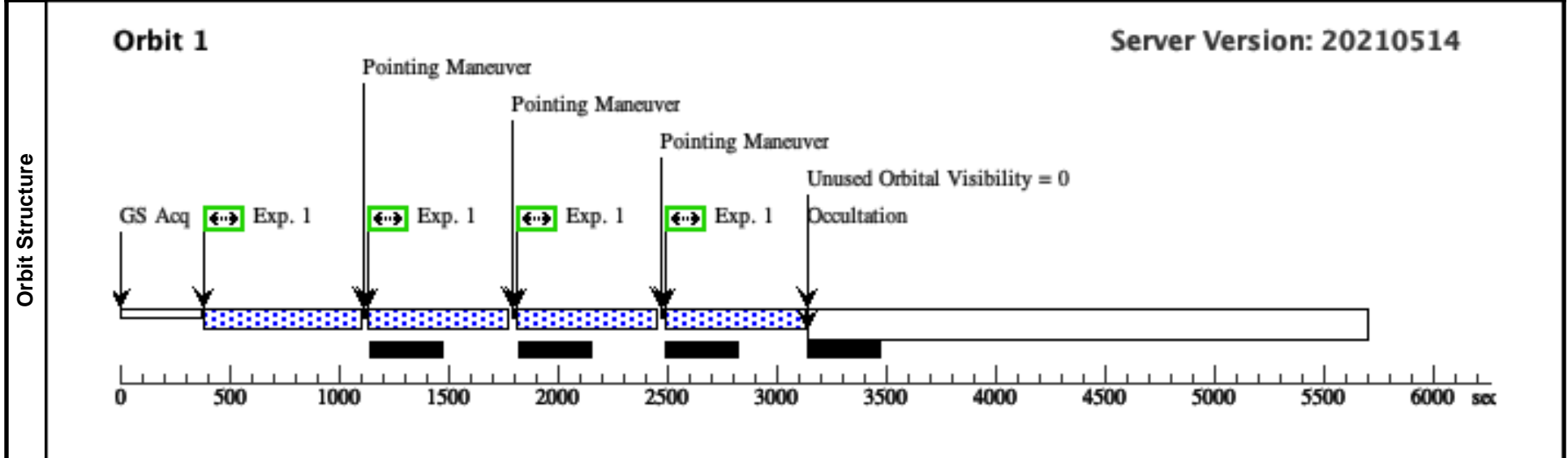
Visit	Proposal 16461, GGS2018-292 (02), completed		
	Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	GGG2018-292	RA: 02 38 46.8300 (39.6951250d) Dec: -06 14 12.10 (-6.23669d) Equinox: J2000	Epoch of Position: 2015.5	V=18.87+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) GGS2018-292	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-292 (02) (1)	1200 Secs (2064 Secs) [==>516.0 Secs (Pattern 1,1)] [==>516.0 Secs (Pattern 1,2)] [==>516.0 Secs (Pattern 2,1)] [==>516.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-318 (03) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

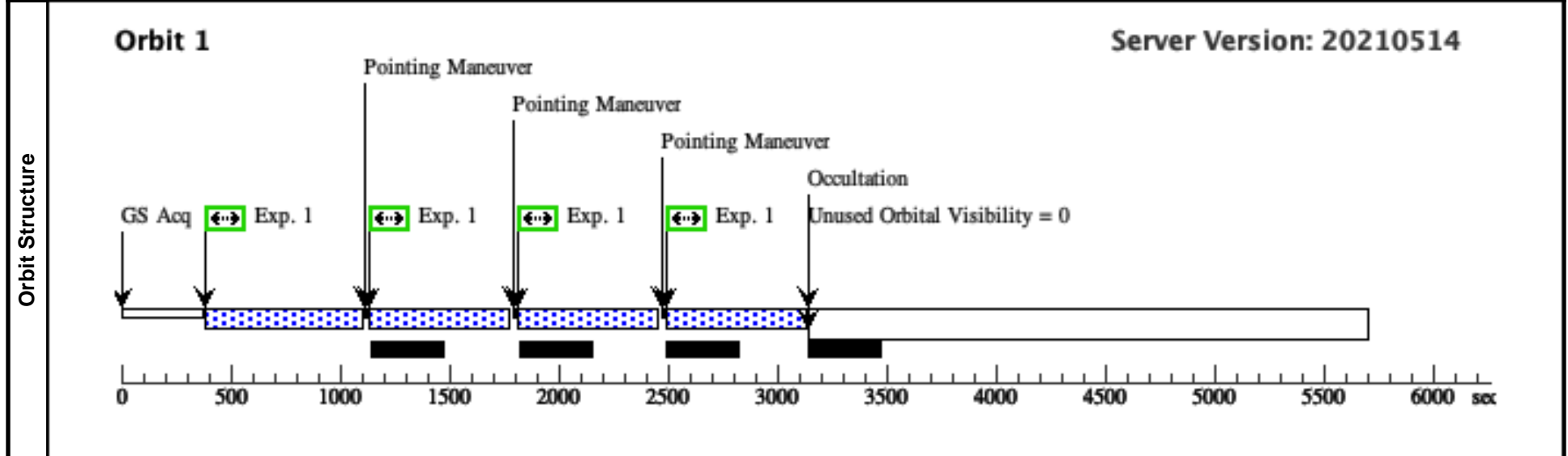
Visit	Proposal 16461, GGS2018-318 (03), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)				
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	GGS2018-318	RA: 02 21 24.9000 (35.3537500d) Dec: -05 43 58.10 (-5.73281d) Equinox: J2000	Epoch of Position: 2015.5	V=18.40+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) GGS2018-318	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-318 (03) (1) [==>516.0 Secs (Pattern 1,1)] [==>516.0 Secs (Pattern 1,2)] [==>516.0 Secs (Pattern 2,1)] [==>516.0 Secs (Pattern 2,2)]	[1]



Proposal 16461 - GGS2018-365 (04) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

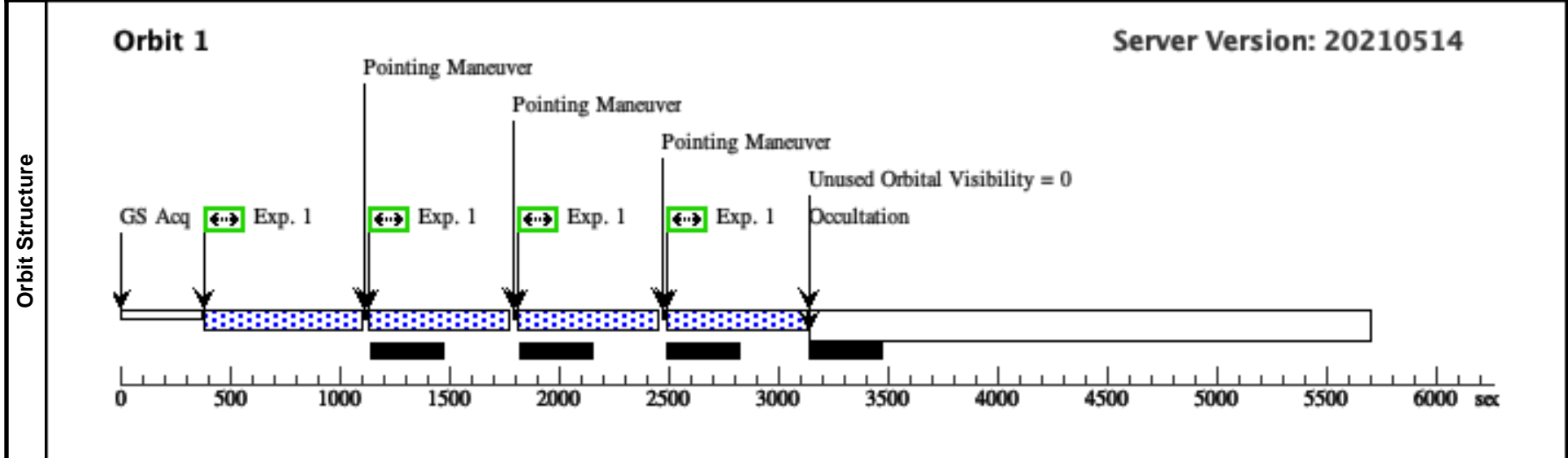
Visit	Proposal 16461, GGS2018-365 (04), failed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	GGS2018-365	RA: 02 01 13.3900 (30.3057917d) Dec: -05 26 44.60 (-5.44572d) Equinox: J2000	Epoch of Position: 2015.5	V=20.41+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) GGS2018-365	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-365 (04) (1)	1200 Secs (2064 Secs) [=>516.0 Secs (Pattern 1,1)] [=>516.0 Secs (Pattern 1,2)] [=>516.0 Secs (Pattern 2,1)] [=>516.0 Secs (Pattern 2,2)]



Proposal 16461 - Repeat of GGS2018-365 (R4) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

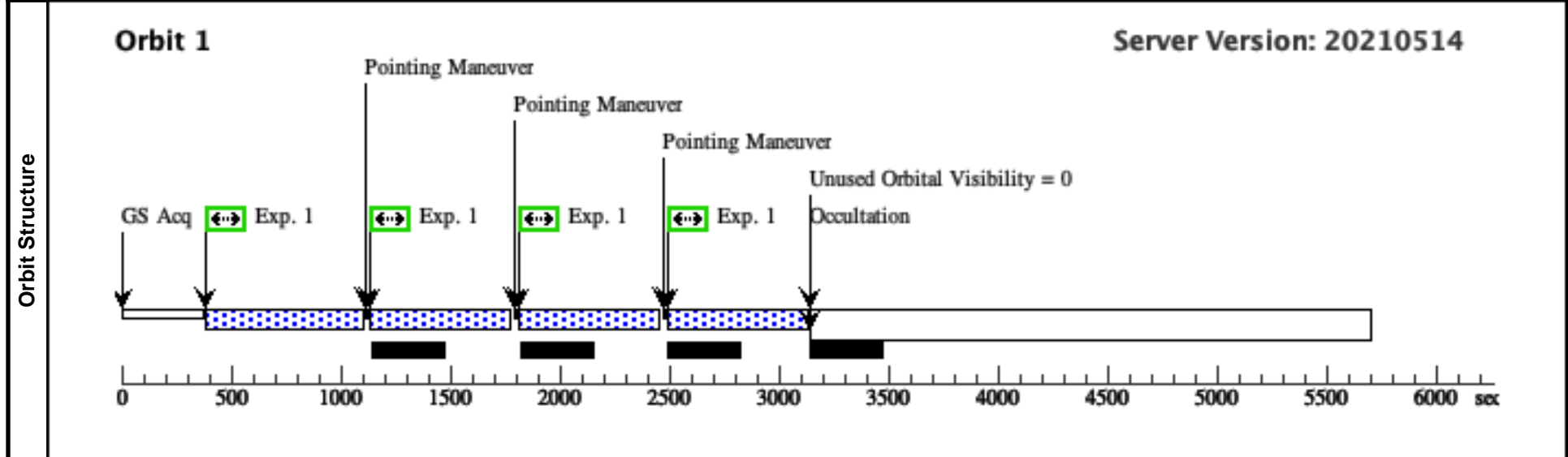
Visit	Proposal 16461, Repeat of GGS2018-365 (R4), completed				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: (none)				

Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=false

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	GG2018-365	RA: 02 01 13.3900 (30.3057917d) Dec: -05 26 44.60 (-5.44572d) Equinox: J2000	Epoch of Position: 2015.5	V=20.41+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) GGS2018-365	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in Repeat of GGS2018-365 (R4) (1)	1200 Secs (2064 Secs) [=>516.0 Secs (Pattern 1,1)] [=>516.0 Secs (Pattern 1,2)] [=>516.0 Secs (Pattern 2,1)] [=>516.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-490 (05) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

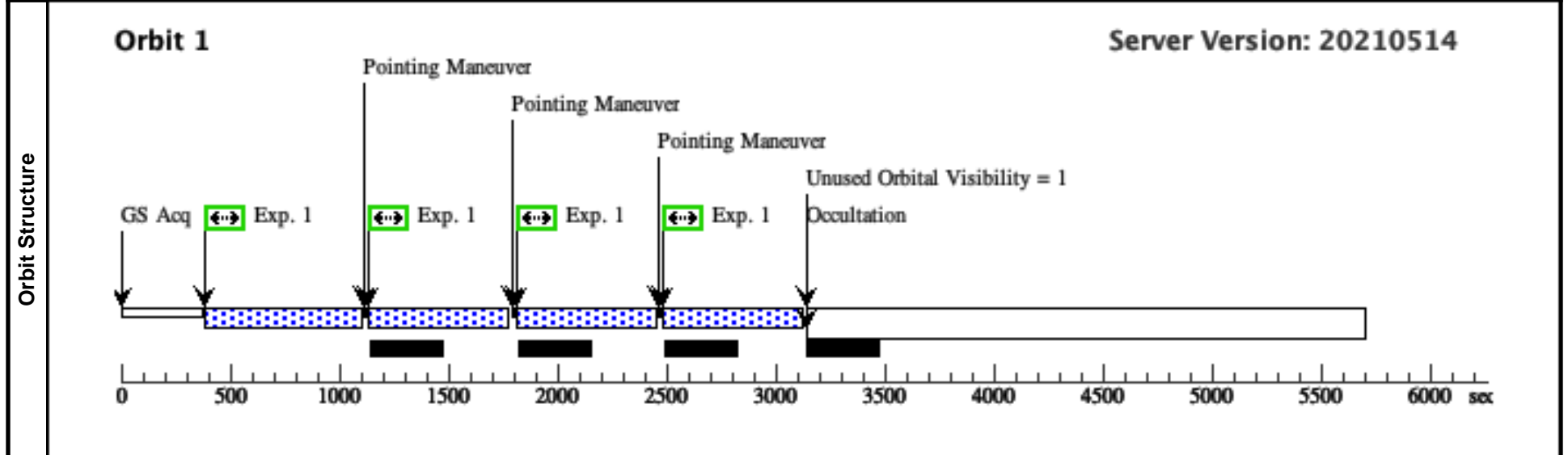
Visit	Proposal 16461, GGS2018-490 (05), completed				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: (none)				

Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(5)	GGS2018-490	RA: 12 07 43.8100 (181.9325417d) Dec: +01 10 19.60 (1.17211d) Equinox: J2000	Epoch of Position: 2015.5	V=19.49+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) GGS2018-490	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-490 (05) (1)	1200 Secs (2060 Secs) [==>515.0 Secs (Pattern 1,1)] [==>515.0 Secs (Pattern 1,2)] [==>515.0 Secs (Pattern 2,1)] [==>515.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-748 (06) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

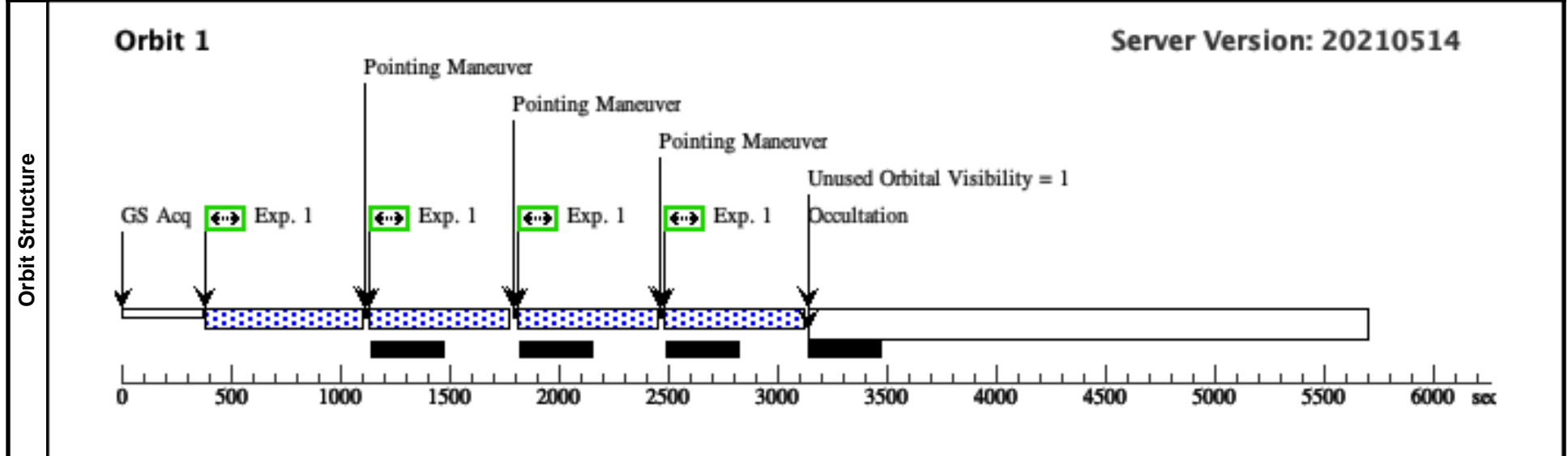
Visit	Proposal 16461, GGS2018-748 (06), failed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
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Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(6)	GGS2018-748	RA: 11 58 16.7200 (179.5696667d) Dec: -01 29 21.20 (-1.48922d) Equinox: J2000	Epoch of Position: 2015.5	V=20.68+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(6) GGS2018-748	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-748 (06) (1)	1200 Secs (2060 Secs) [==>515.0 Secs (Pattern 1,1)] [==>515.0 Secs (Pattern 1,2)] [==>515.0 Secs (Pattern 2,1)] [==>515.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-748 (56) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

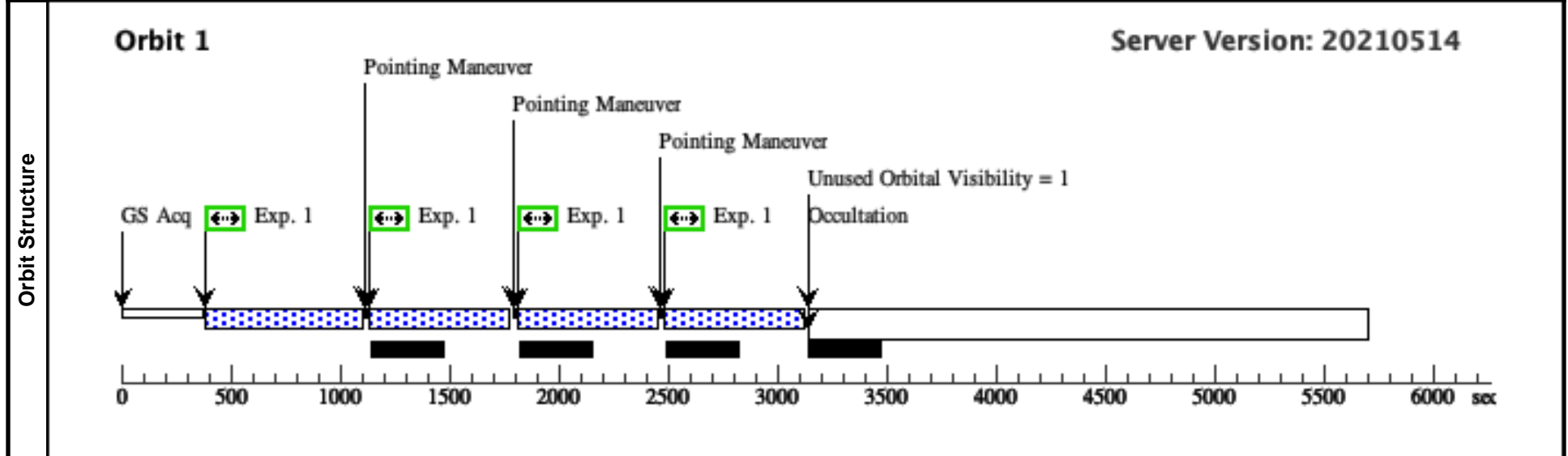
Visit	Proposal 16461, GGS2018-748 (56), completed				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: (none)				

Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=false

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(6)	GGS2018-748	RA: 11 58 16.7200 (179.5696667d) Dec: -01 29 21.20 (-1.48922d) Equinox: J2000	Epoch of Position: 2015.5	V=20.68+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(6) GGS2018-748	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-748 (56) (1)	1200 Secs (2060 Secs) [==>515.0 Secs (Pattern 1,1)] [==>515.0 Secs (Pattern 1,2)] [==>515.0 Secs (Pattern 2,1)] [==>515.0 Secs (Pattern 2,2)]



Proposal 16461 - GGS2018-749 (07) - The Most Extreme Globular Cluster Systems in Low Surface Brightness Galaxies

Fri Aug 20 22:00:22 GMT 2021

Visit	Proposal 16461, GGS2018-749 (07), completed Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: (none)		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false	Pattern Type=LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=47.23 Angle Between Sides= Center Pattern=false

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(7)	GGS2018-749	RA: 11 58 32.0400 (179.6335000d) Dec: -01 51 28.40 (-1.85789d) Equinox: J2000	Epoch of Position: 2015.5	V=20.37+/-0.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
 Category=GALAXY
 Description=[DWARF ELLIPTICAL, LSB]

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) GGS2018-749	ACS/WFC, ACCUM, WFC1-FIX	F814W				Pattern 1, Exps 1-1 in GGS2018-749 (07) (1)	1200 Secs (2060 Secs) [=>515.0 Secs (Pattern 1,1)] [=>515.0 Secs (Pattern 1,2)] [=>515.0 Secs (Pattern 2,1)] [=>515.0 Secs (Pattern 2,2)]

