



14175 - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Cycle: 23, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Paul Goudfrooij (PI) (Contact)	Space Telescope Science Institute	goudfroo@stsci.edu
Dr. Rupali Chandar (CoI)	University of Toledo	rupali.chandar@utoledo.edu
Dr. Oleg Y. Gnedin (CoI)	University of Michigan	ognedin@umich.edu
Dr. William E. Harris (CoI)	McMaster University	harris@physics.mcmaster.ca
Dr. Dimitri Gadotti (CoI) (ESA Member)	European Southern Observatory - Chile	dgadotti@eso.org
Dr. Thomas H. Puzia (CoI)	Pontificia Universidad Catolica de Chile	tpuzia@astro.puc.cl
Dr. Ruben Sanchez-Janssen (CoI)	NRC Herzberg Institute of Astrophysics	ruben.sanchez-janssen@nrc-cnrc.gc.ca
Mr. Matthew A. Taylor (CoI)	Pontificia Universidad Catolica de Chile	mtaylor@astro.puc.cl
Dr. Matteo Correnti (CoI)	Space Telescope Science Institute	correnti@stsci.edu

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) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:30.0	yes
02	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	1	25-Jul-2015 21:25:32.0	yes
03	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:35.0	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	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:38.0	yes
05	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:41.0	yes
06	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:44.0	yes
07	(1) NGC4594-DEEP17 ANY	ACS/WFC WFC3/UVIS	3	25-Jul-2015 21:25:47.0	yes

19 Total Orbits Used

ABSTRACT

Early-type spiral galaxies lie at the apex of the Hubble sequence of galaxies between spirals and ellipticals, and likely play a key role in the morphological and dynamical evolution of galaxies. At a distance of 9 Mpc, the Sombrero (NGC 4594) is the nearest giant early-type spiral galaxy. As such, it is a keystone object for understanding the evolution and early star formation history of such galaxies.

Metallicity distribution functions (MDFs) of galaxy halos place important constraints on the hierarchical formation and assembly histories of galaxies. We therefore propose to obtain deep V- and I-band imaging of halo fields in the Sombrero galaxy using WFC3 and ACS in parallel to determine MDFs of individual red giant stars, extending in radius from the outer bulge to the limits of the halo. These data will enable us to address fundamental questions regarding early-type spiral galaxy assembly such as: At what galactocentric radius does the metal-poor field star component start dominating the metal-rich one? How do the radial distributions of metal-poor and metal-rich globular cluster subpopulations compare with those of the halo field stars at the same metallicities? What is the number of massive globular clusters per unit field star for populations of different metallicity? Is there a stellar metallicity gradient in the halo? This is the first such study for any early-type spiral galaxy, and it will provide a new window on the early star formation history of such galaxies, providing unique constraints on the hierarchical assembly scenario.

OBSERVING DESCRIPTION

The goal is to measure the metallicity distribution function of RGB stars in the Sombrero galaxy in two fields along the minor axis of its spheroid (bulge), using WFC3/UVIS and ACS/WFC in parallel. Metallicities will be derived from F606W and F814W images. Exposure times were calculated to yield the following at the distance of the Sombrero galaxy: (1) a SNR of 10 for the V-I color at 1 mag beyond the tip of the RGB, and

Proposal 14175 (STScI Edit Number: 0, Created: Saturday, July 25, 2015 8:25:49 PM EST) - Overview

(2) a 5-sigma detection of RGB stars with $[Z/H] = -0.2$ at the tip of the RGB. We constructed 6 visits of 3 HST orbits each plus one 1-orbit visit. All visits should be performed at the same roll angle, which is chosen to sample a wide range of galactocentric radii with the two cameras. Dithering is performed with several dither points for each filter.

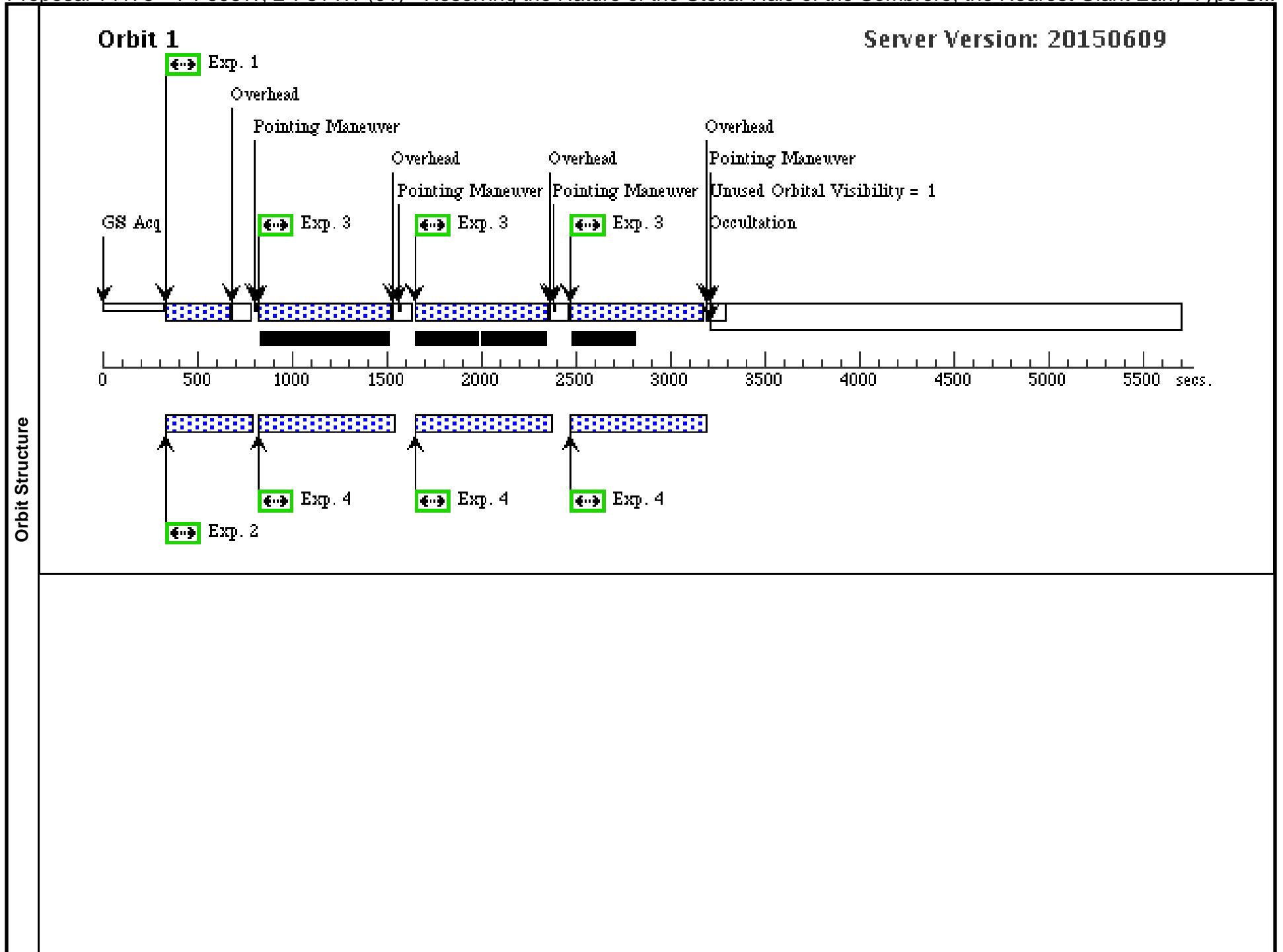
Proposal 14175 - 1*F606W, 2*F814W (01) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type S...

Sun Jul 26 01:25:49 GMT 2015

Visit	Proposal 14175, 1*F606W, 2*F814W (01) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; ORIENT 105D TO 120 D <i>Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1390 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)	
(3)		Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163	Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

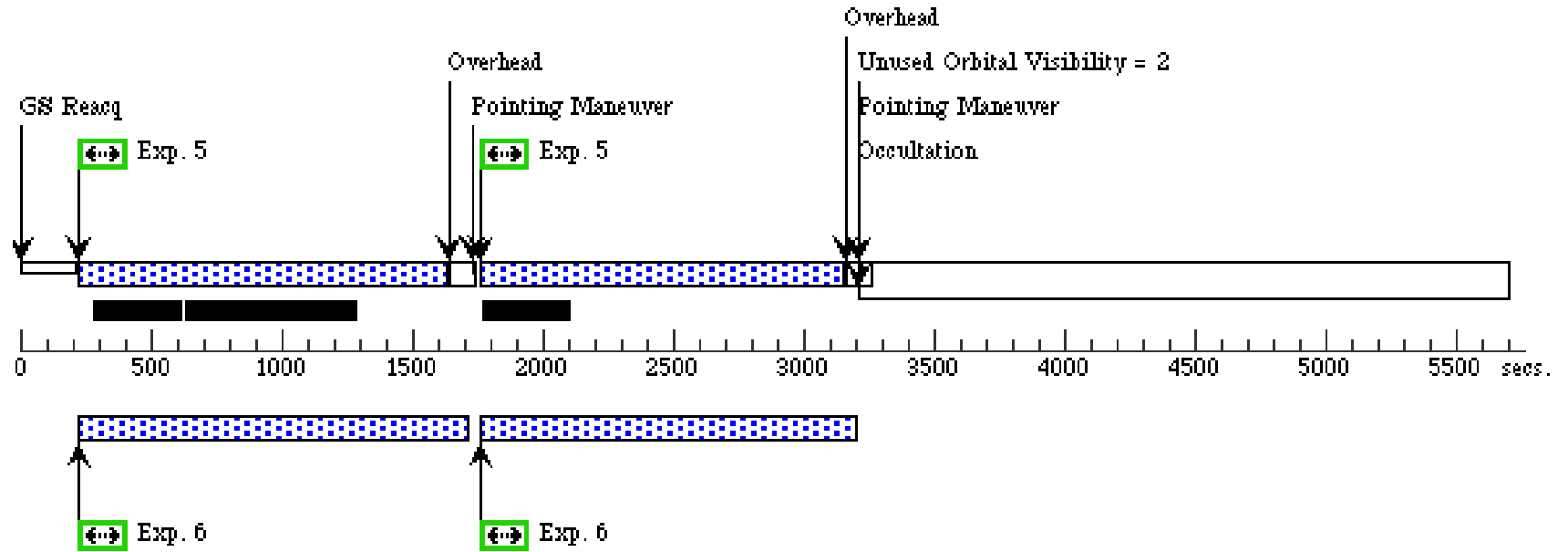
Proposal 14175 - 1*F606W, 2*F814W (01) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type S...

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 1*F606W, 2*F814W (01)	310 Secs (310 Secs) [==>]	[1]
	2	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Prime + Parallel Group 1-2 in 1*F606W, 2*F814W (01)	250 Secs (250 Secs) [==>]	[1]
	3	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 2, Exps 3-4 in 1*F606W, 2*F814W (01) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 1*F606W, 2*F814W (01)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 2, Exps 3-4 in 1*F606W, 2*F814W (01) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 1*F606W, 2*F814W (01)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 3, Exps 5-6 in 1*F606W, 2*F814W (01) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 1*F606W, 2*F814W (01)	1390 Secs (5560 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 3, Exps 5-6 in 1*F606W, 2*F814W (01) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 1*F606W, 2*F814W (01)	1315 Secs (5260 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]



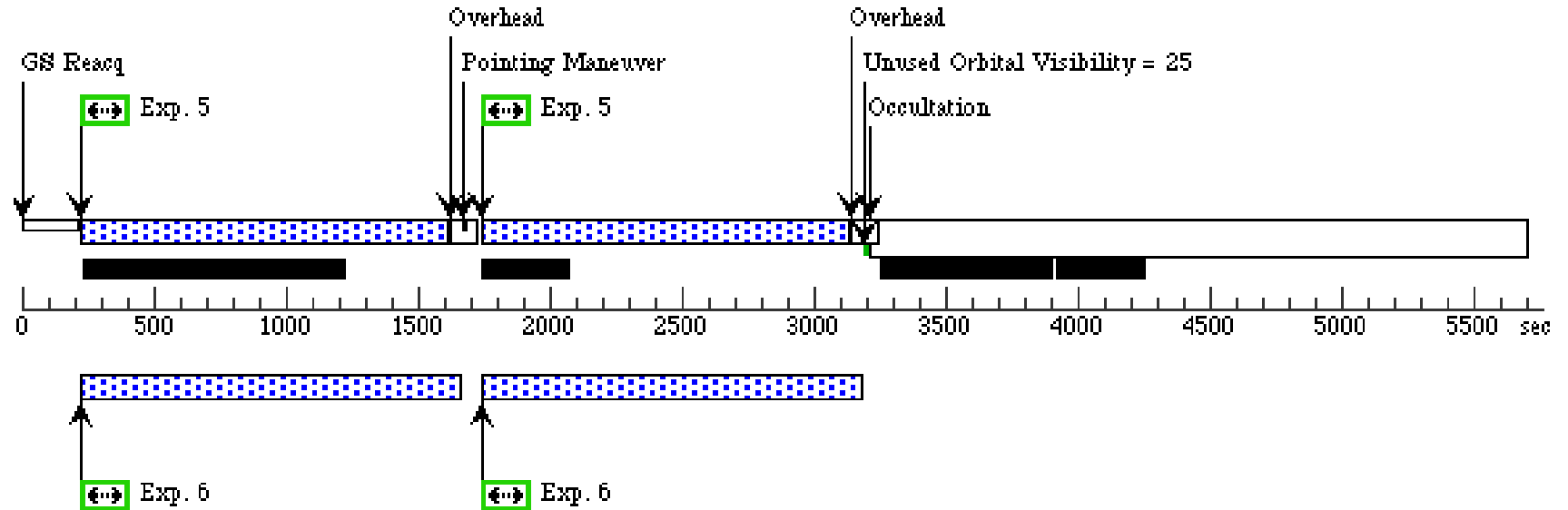
Orbit 2

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Orbit 3

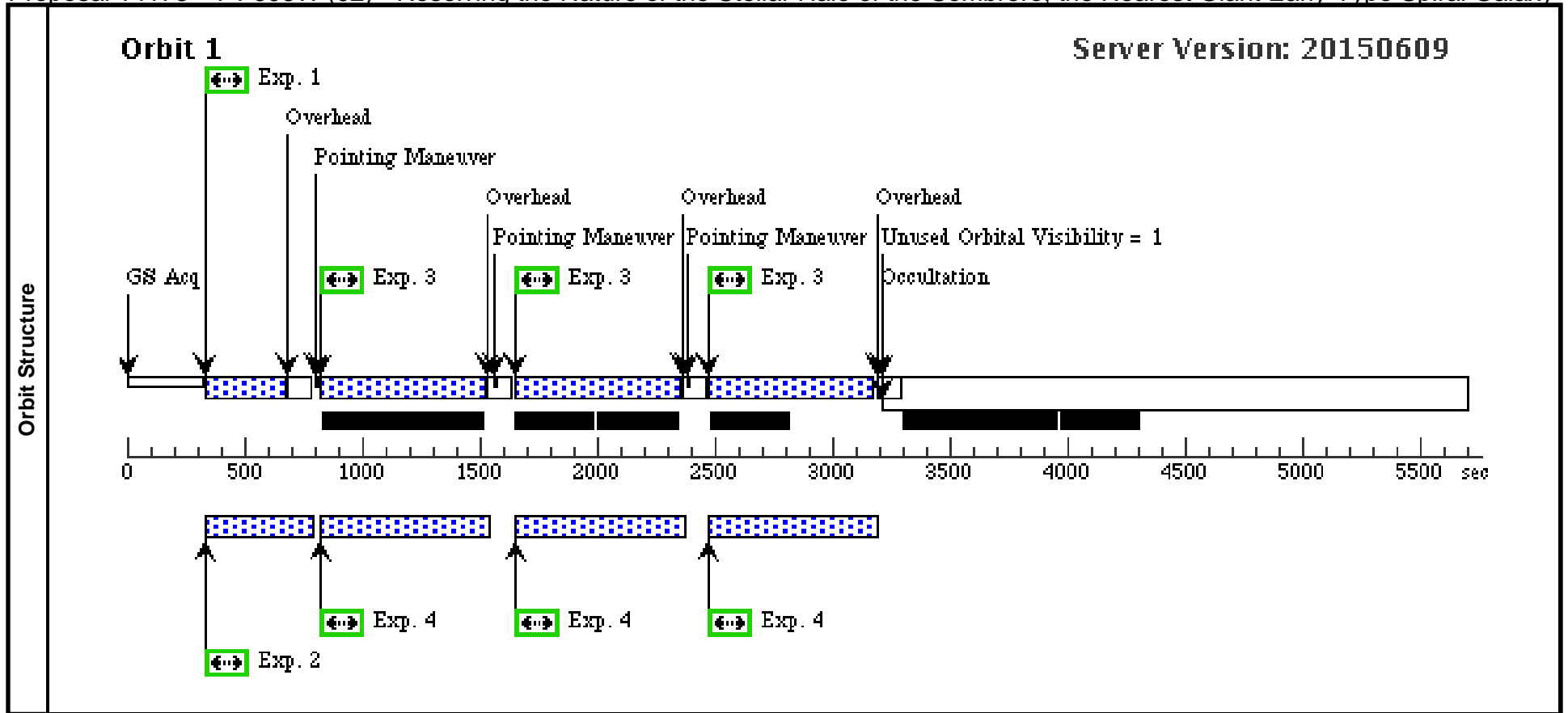
Server Version: 20150609



Proposal 14175 - 1*F606W (02) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:50 GMT 2015

Visit	Proposal 14175, 1*F606W (02) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
		(2)	Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 1*F606W (02)	310 Secs (310 Secs) [==>]	[1]
	2	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Prime + Parallel Group 1-2 in 1*F606W (02)	250 Secs (250 Secs) [==>]	[1]
	3	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 2, Exps 3-4 in 1*F606W (02) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 1*F606W (02)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
4	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 2, Exps 3-4 in 1*F606W (02) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 1*F606W (02)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]	



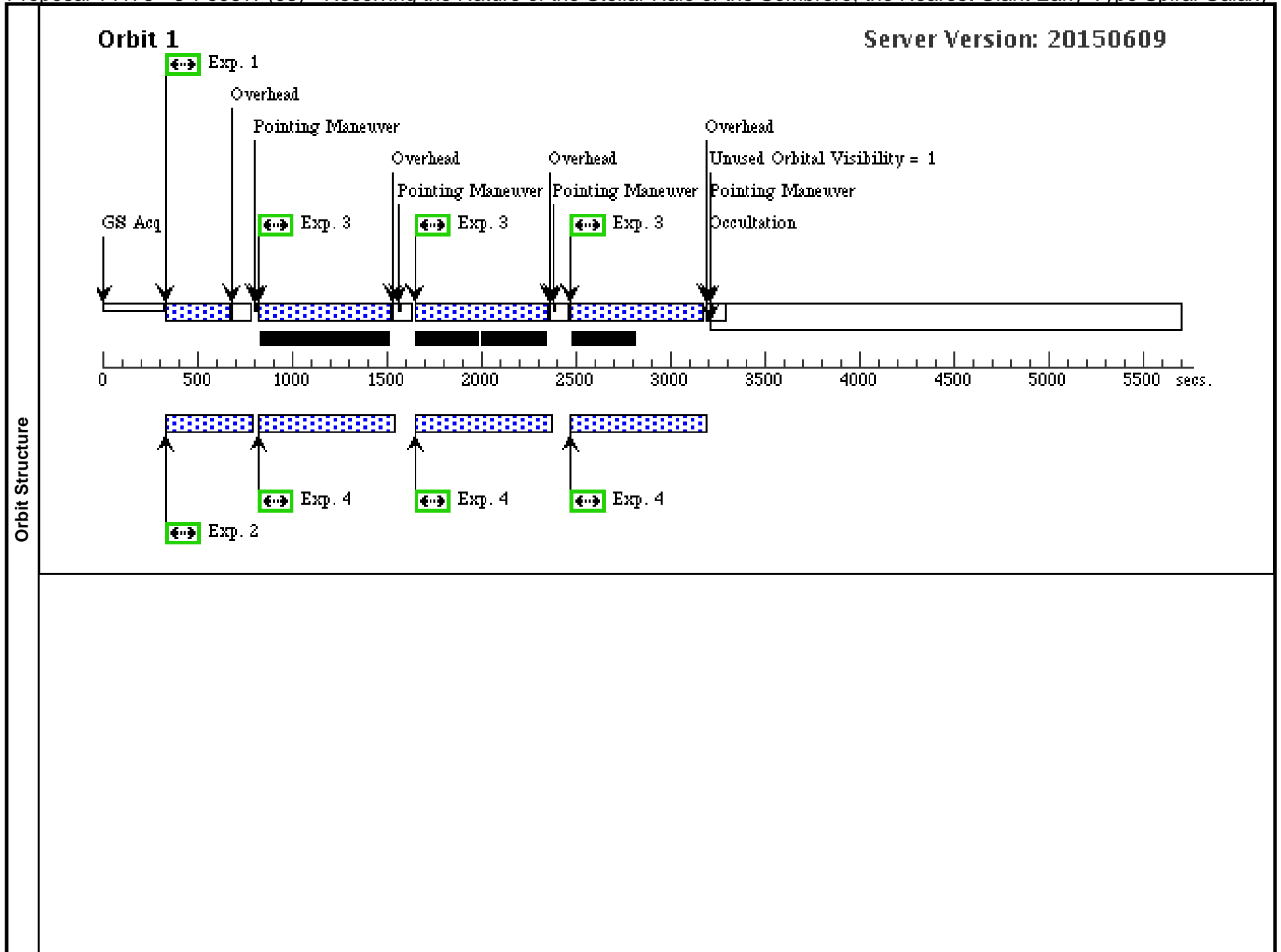
Proposal 14175 - 3*F606W (03) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:50 GMT 2015

Visit	Proposal 14175, 3*F606W (03) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 <i>Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1400 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC.</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)		
(3)	Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163 Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

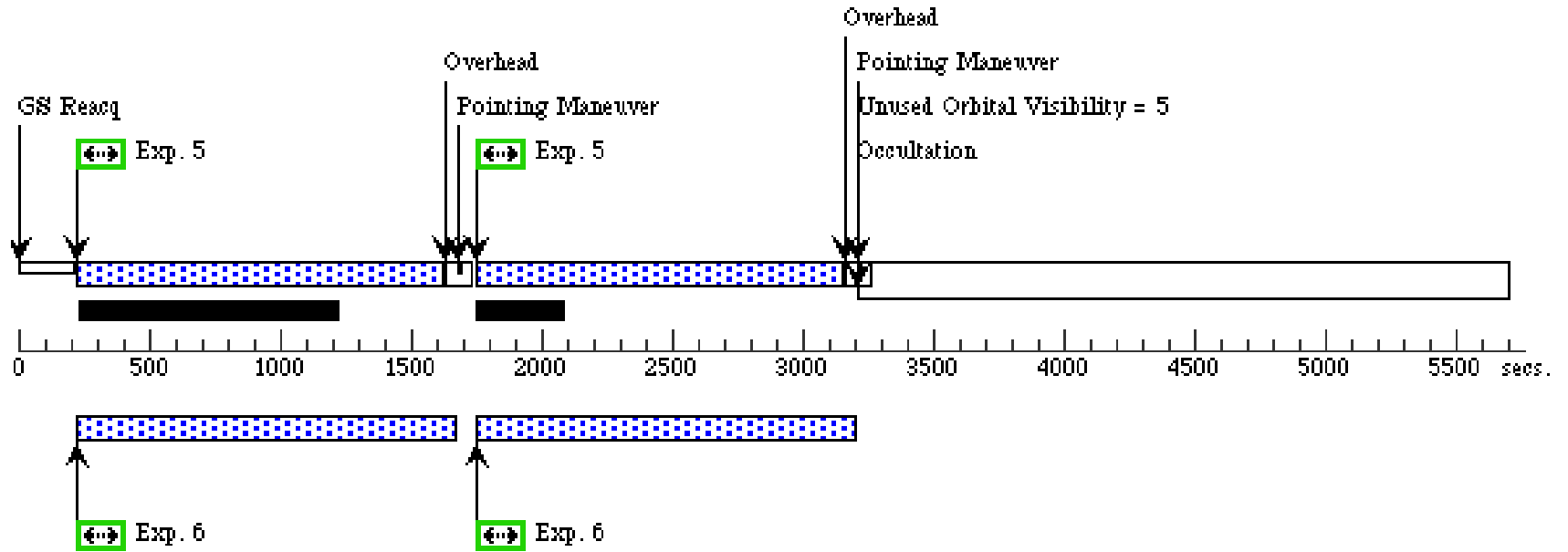
Proposal 14175 - 3*F606W (03) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 3*F606W (03)	310 Secs (310 Secs) [==>]	[1]
	2	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Prime + Parallel Group 1-2 in 3*F606W (03)	250 Secs (250 Secs) [==>]	[1]
	3	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (03) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (03)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (03) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (03)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (03) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (03)	1400 Secs (5600 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (03) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (03)	1325 Secs (5300 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]



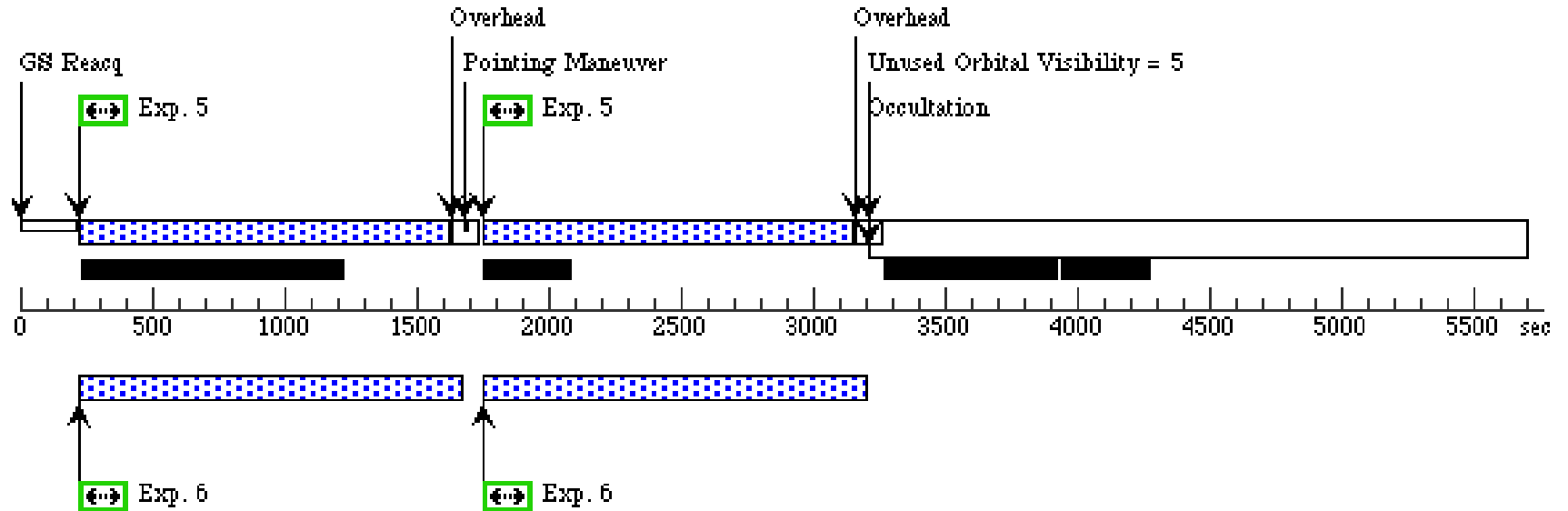
Orbit 2

Server Version: 20150609



Orbit 3

Server Version: 20150609



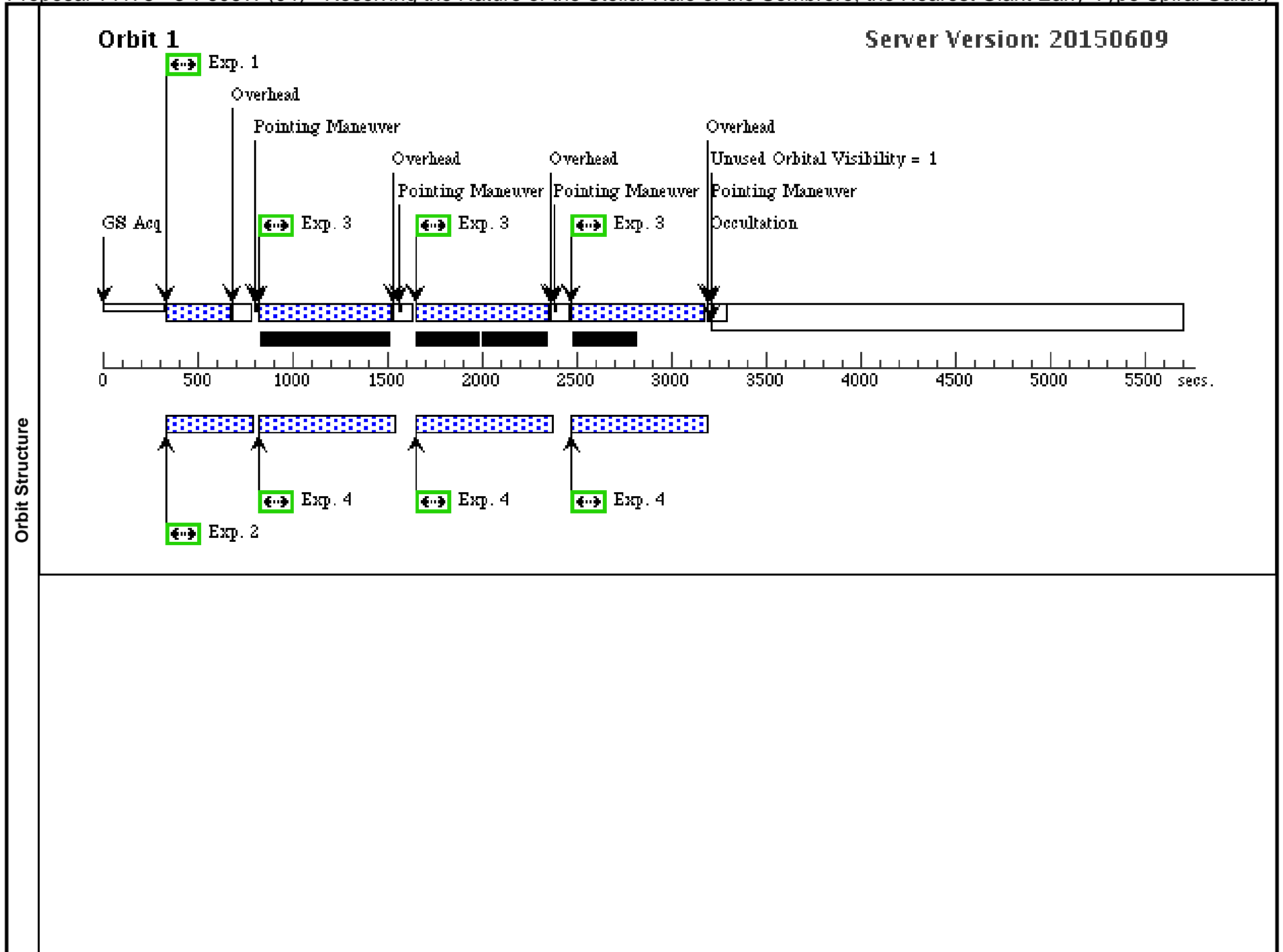
Proposal 14175 - 3*F606W (04) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:50 GMT 2015

Visit	Proposal 14175, 3*F606W (04) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 <i>Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1400 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC.</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)		
(3)	Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163 Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)			
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

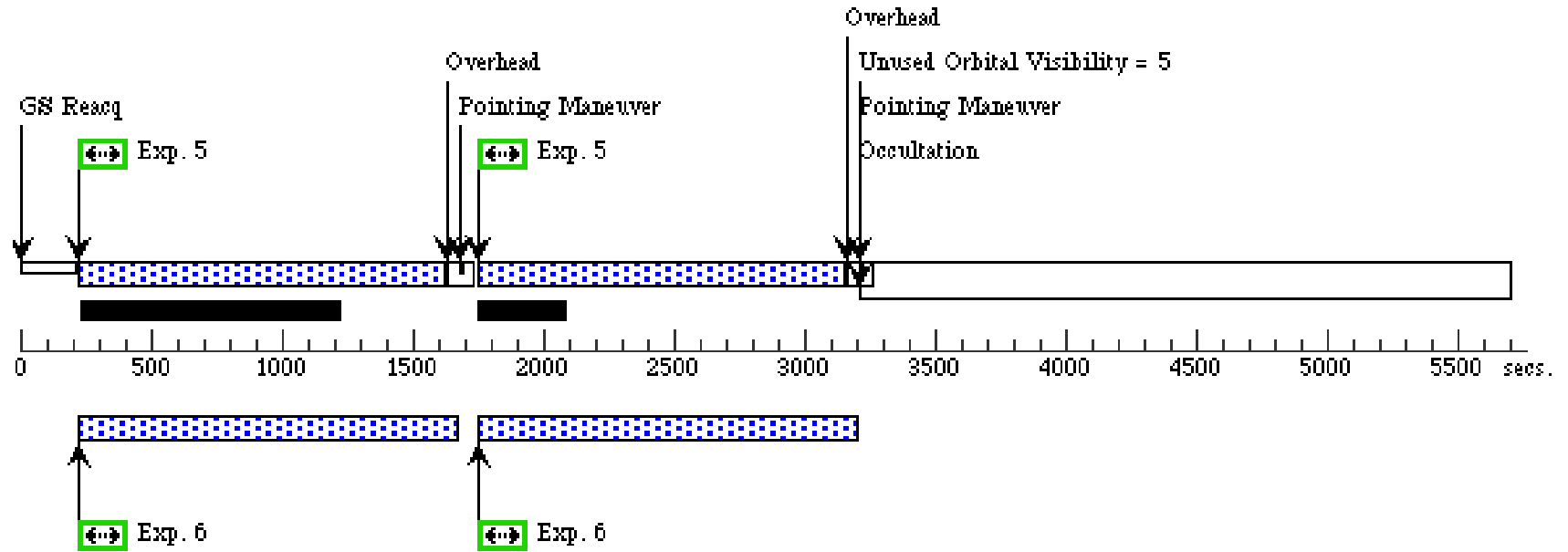
Proposal 14175 - 3*F606W (04) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 3*F606W (04)	310 Secs (310 Secs) [==>]	[1]
	2	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Prime + Parallel Group 1-2 in 3*F606W (04)	250 Secs (250 Secs) [==>]	[1]
	3	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (04) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (04)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (04) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (04)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (04) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (04)	1400 Secs (5600 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (04) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (04)	1325 Secs (5300 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]



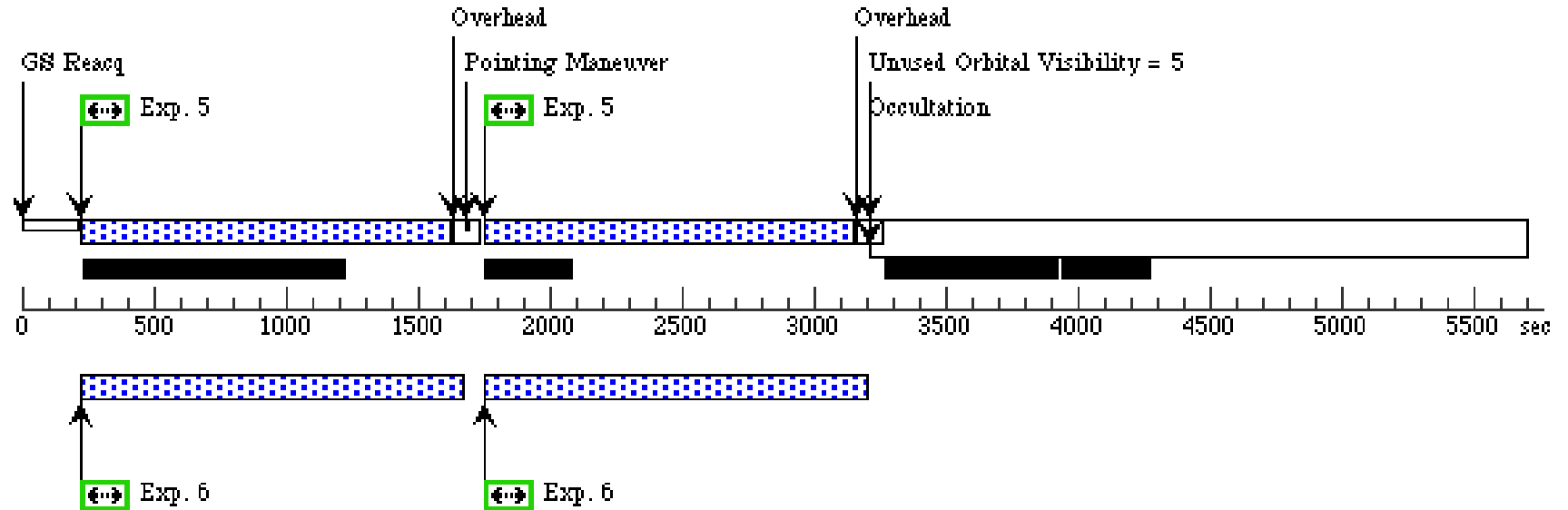
Orbit 2

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Orbit 3

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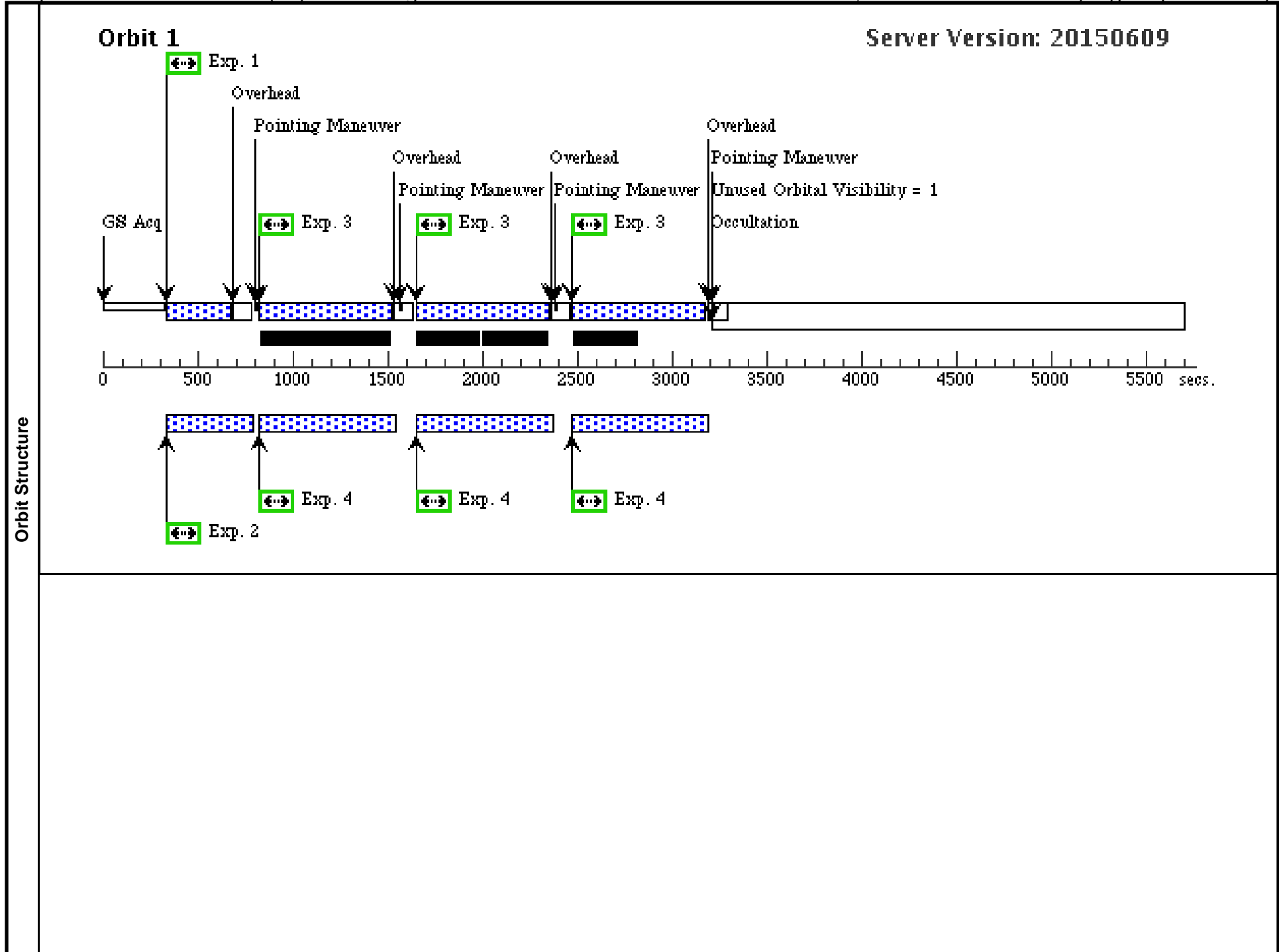
Proposal 14175 - 3*F606W (05) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:50 GMT 2015

Visit	Proposal 14175, 3*F606W (05) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 <i>Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1400 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC.</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)	
(3)	Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163	Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

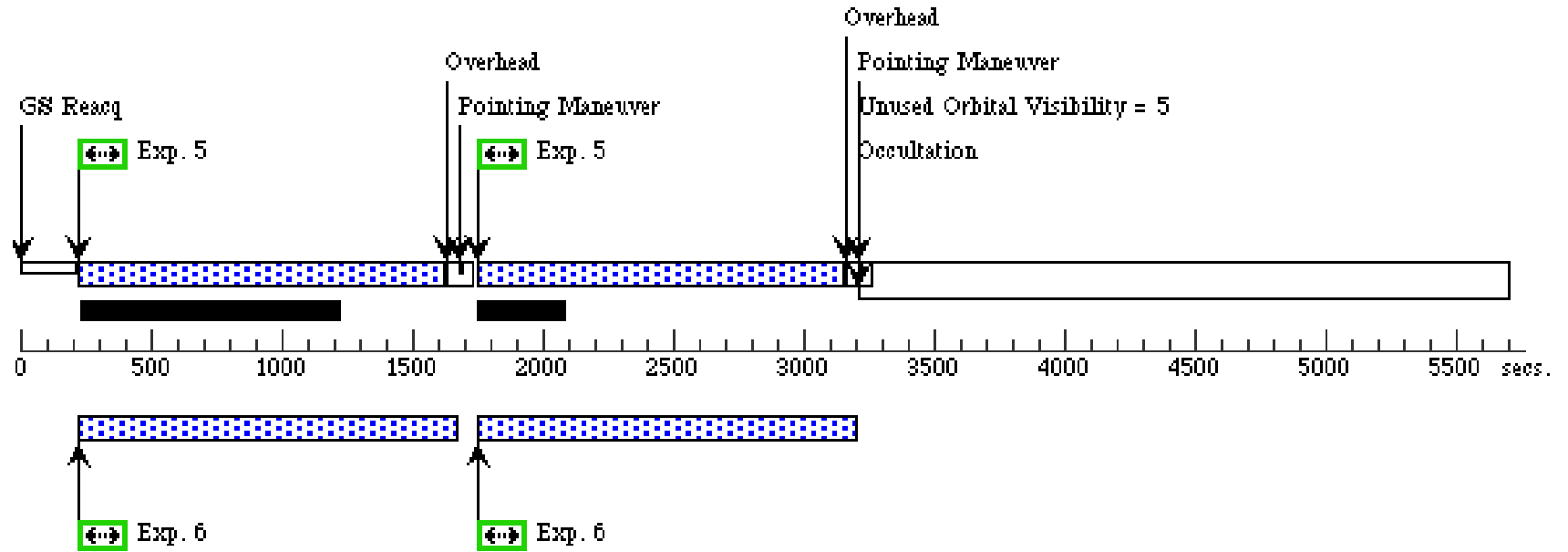
Proposal 14175 - 3*F606W (05) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W		POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 3*F606W (05)	310 Secs (310 Secs) [==>]	[1]
	2	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Prime + Parallel Group 1-2 in 3*F606W (05)	250 Secs (250 Secs) [==>]	[1]
	3	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (05) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (05)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 2, Exps 3-4 in 3*F606W (05) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F606W (05)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F606W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (05) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (05)	1400 Secs (5600 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F606W	ANY	ACS/WFC, ACCUM, WFCENTER	F606W			Pattern 3, Exps 5-6 in 3*F606W (05) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F606W (05)	1325 Secs (5300 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]



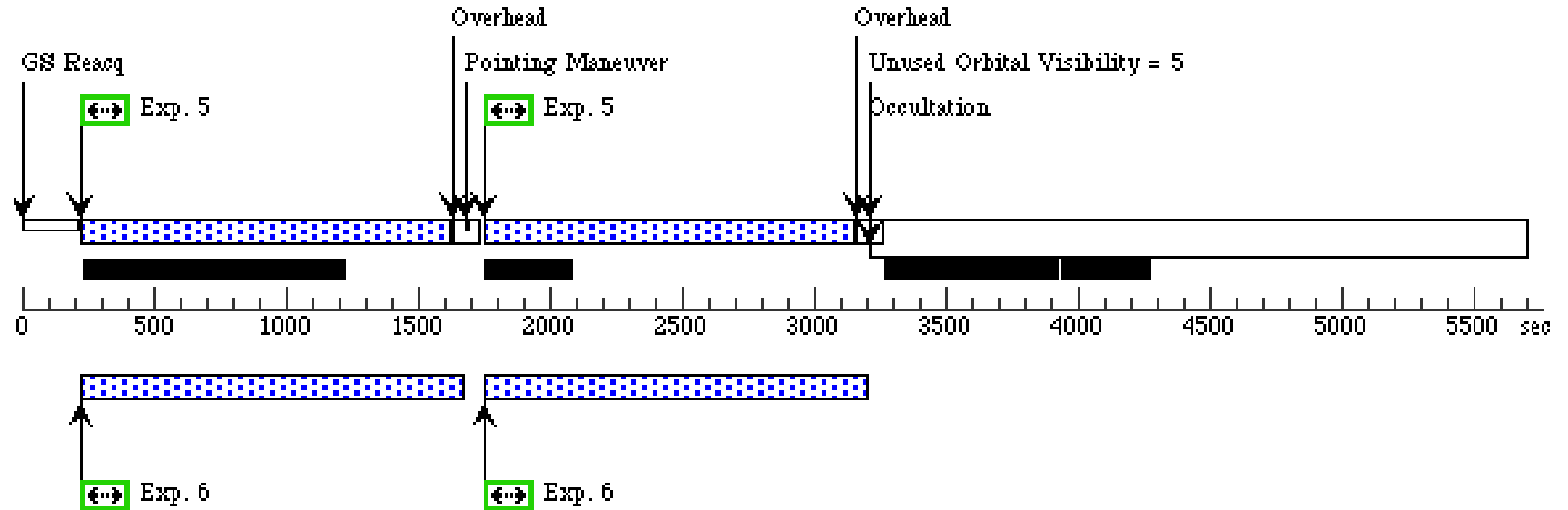
Orbit 2

Server Version: 20150609



Orbit 3

Server Version: 20150609



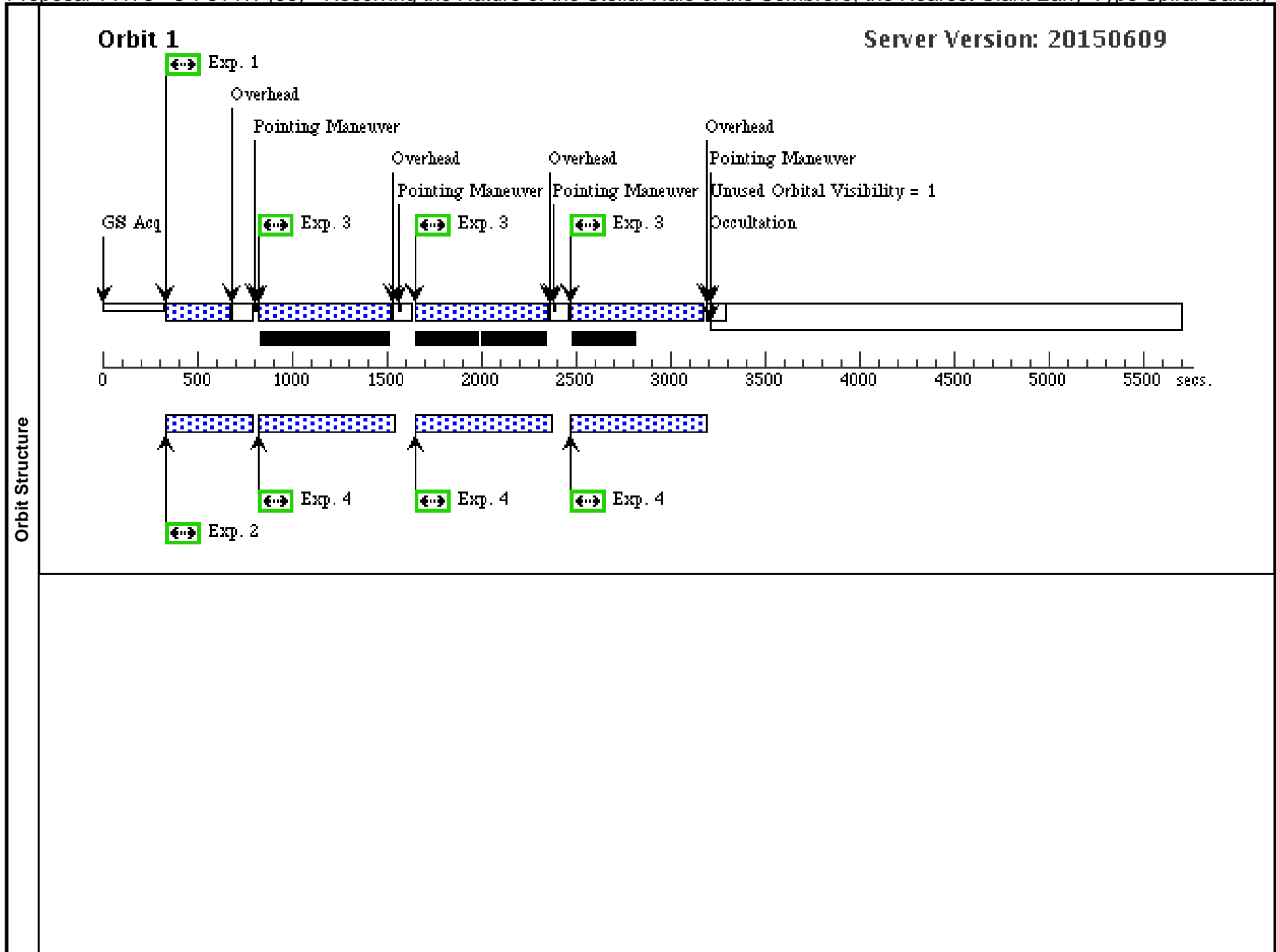
Proposal 14175 - 3*F814W (06) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:50 GMT 2015

Visit	Proposal 14175, 3*F814W (06) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 <i>Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1400 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC.</i>					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)	
(3)	Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163	Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

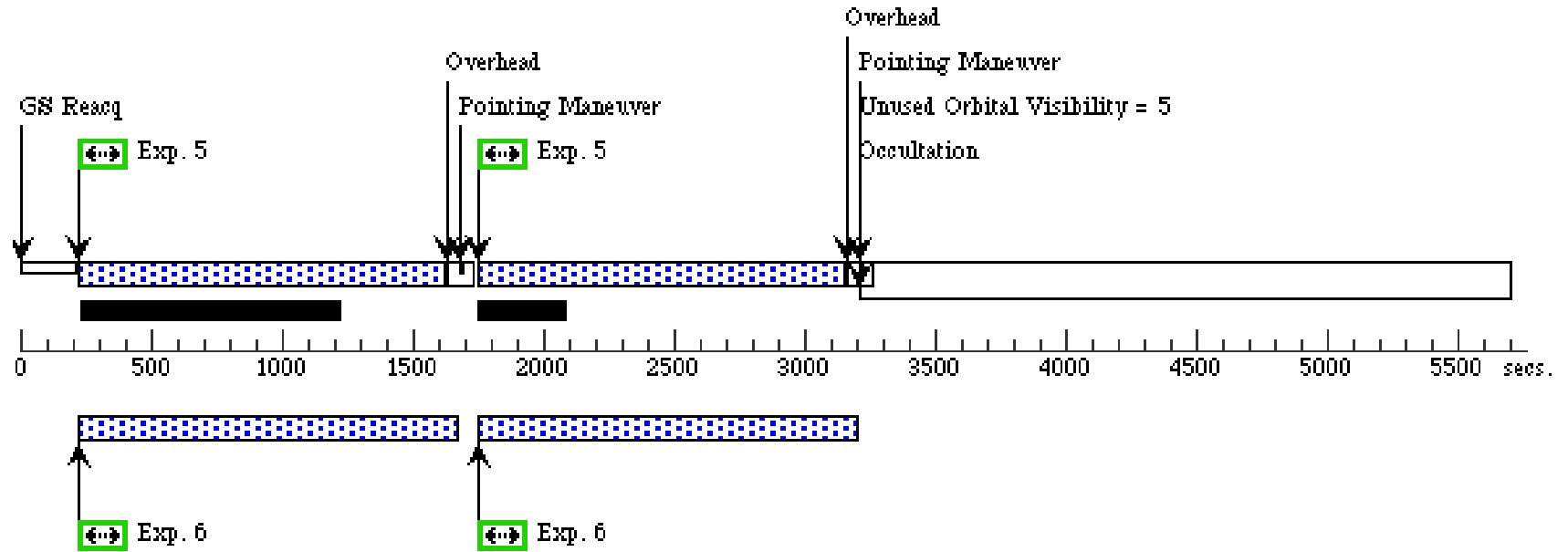
Proposal 14175 - 3*F814W (06) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=6	POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 3*F814W (06)	310 Secs (310 Secs) [==>]	[1]
	2	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 1-2 in 3*F814W (06)	250 Secs (250 Secs) [==>]	[1]
	3	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 2, Exps 3-4 in 3*F814W (06) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F814W (06)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 2, Exps 3-4 in 3*F814W (06) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F814W (06)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 3, Exps 5-6 in 3*F814W (06) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F814W (06)	1400 Secs (5600 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 3, Exps 5-6 in 3*F814W (06) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F814W (06)	1325 Secs (5300 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]



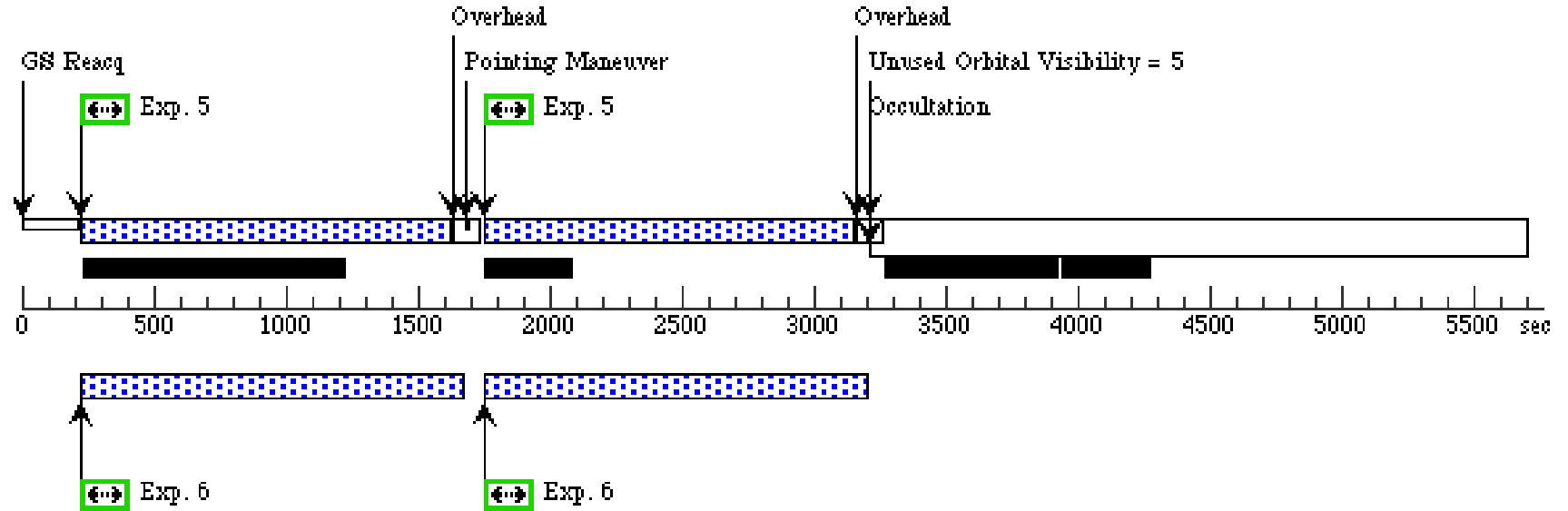
Orbit 2

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Orbit 3

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Proposal 14175 - 3*F814W (07) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

Sun Jul 26 01:25:51 GMT 2015

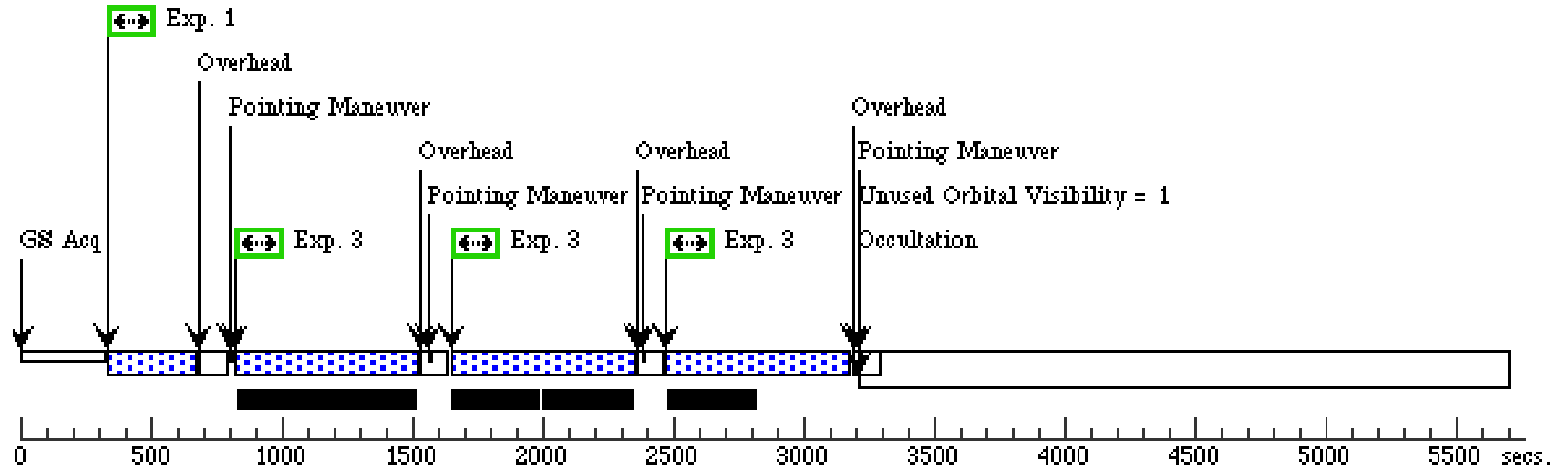
Visit	Proposal 14175, 3*F814W (07) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS, ACS/WFC Special Requirements: SCHED 30%; SAME ORIENT AS 01 Comments: Visit of 3 orbits so as to enhance scheduling flexibility - 1st orbit 3x700 + 310 s, orbit 2 & 3 are 2*1400 s. Using 4-pt dither pattern that works for both WFC3/UVIS and ACS/WFC.					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.308891 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.83994 Angle Between Sides= Center Pattern=false		(3-4)	
(3)	Pattern Type=BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.4461326 Line Spacing=0.2718163	Coordinate Frame=POS-TARG Pattern Orientation=27.3674389 Angle Between Sides=79.5438757 Center Pattern=false		(5-6)		
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	NGC4594-DEEP17	RA: 12 39 56.6893 (189.9862054d) Dec: -11 31 48.34 (-11.53009d) Equinox: J2000		V=9.0	Reference Frame: ICRS

Proposal 14175 - 3*F814W (07) - Resolving the Nature of the Stellar Halo of the Sombrero, the Nearest Giant Early-Type Spiral Galaxy

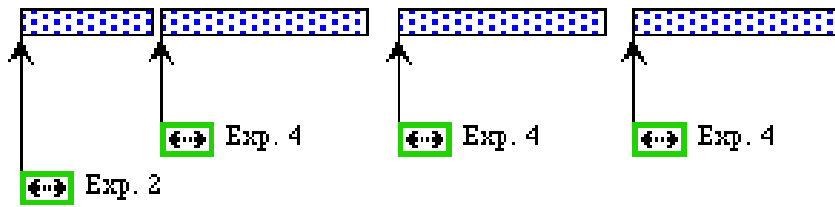
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W	FLASH=6	POS TARG 0.18,-0.18	Prime + Parallel Group 1-2 in 3*F814W (07)	310 Secs (310 Secs) [==>]	[1]
	2	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Prime + Parallel Group 1-2 in 3*F814W (07)	250 Secs (250 Secs) [==>]	[1]
	3	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 2, Exps 3-4 in 3*F814W (07) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F814W (07)	700 Secs (2100 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	4	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 2, Exps 3-4 in 3*F814W (07) (2) Prime + Parallel Group 3-4 in Pattern 2, Exps 3-4 in 3*F814W (07)	600 Secs (1800 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]	[1]
	5	F814W	(1) NGC4594-DEEP 17	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 3, Exps 5-6 in 3*F814W (07) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F814W (07)	1400 Secs (5600 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]
	6	F814W	ANY	ACS/WFC, ACCUM, WFCENTER	F814W			Pattern 3, Exps 5-6 in 3*F814W (07) (3) Prime + Parallel Group 5-6 in Pattern 3, Exps 5-6 in 3*F814W (07)	1325 Secs (5300 Secs) [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)]	[2] [3]

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Orbit 1

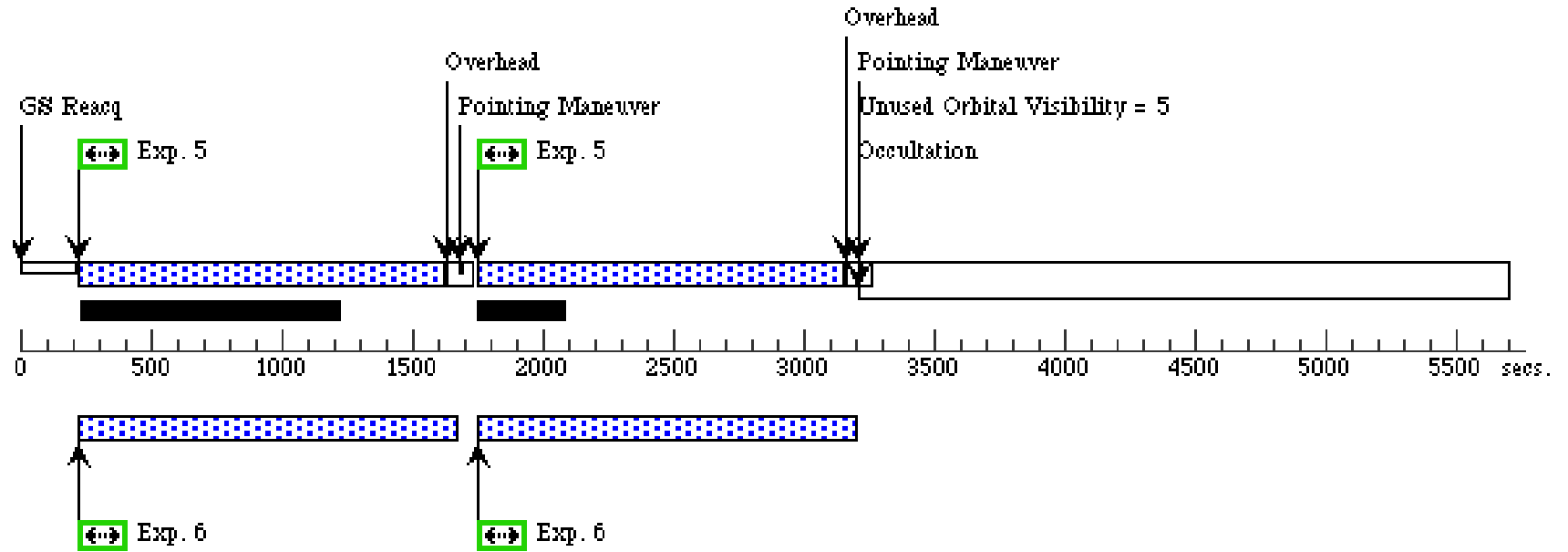


Orbit Structure



Orbit 2

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Orbit 3

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