



14189 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

Cycle: 23, 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) SDSSJ002927.38+254401.7	WFC3/UVIS	1	31-Oct-2015 21:10:14.0	yes
02	(2) SDSSJ005409.97+294450.8	WFC3/UVIS	1	31-Oct-2015 21:10:16.0	yes
03	(3) SDSSJ011300.57+025046.2	WFC3/UVIS	1	31-Oct-2015 21:10:17.0	yes
04	(4) SDSSJ020121.39+322829.6	WFC3/UVIS	1	31-Oct-2015 21:10:18.0	yes
05	(5) SDSSJ023740.63-064112.9	WFC3/UVIS	1	31-Oct-2015 21:10:18.0	yes

Proposal 14189 (STScI Edit Number: 6, Created: Saturday, October 31, 2015 8:10:33 PM EST) - Overview

<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) SDSSJ074249.68+334148.9	WFC3/UVIS	1	31-Oct-2015 21:10:19.0	yes
07	(7) SDSSJ075523.52+344539.5	WFC3/UVIS	1	31-Oct-2015 21:10:20.0	yes
08	(8) SDSSJ085621.59+201040.5	WFC3/UVIS	1	31-Oct-2015 21:10:21.0	yes
09	(9) SDSSJ091807.86+451856.7	WFC3/UVIS	1	31-Oct-2015 21:10:22.0	yes
10	(10) SDSSJ091859.21+510452.5	WFC3/UVIS	1	31-Oct-2015 21:10:23.0	yes
11	(11) SDSSJ111027.11+280838.4	WFC3/UVIS	1	31-Oct-2015 21:10:23.0	yes
12	(12) SDSSJ111040.42+364924.3	WFC3/UVIS	1	31-Oct-2015 21:10:24.0	yes
13	(13) SDSSJ111634.55+091503.0	WFC3/UVIS	1	31-Oct-2015 21:10:25.0	yes
14	(14) SDSSJ114154.71+221628.8	WFC3/UVIS	1	31-Oct-2015 21:10:26.0	yes
15	(15) SDSSJ120159.02+474323.1	WFC3/UVIS	1	31-Oct-2015 21:10:27.0	yes
16	(16) SDSSJ122656.45+545739.0	WFC3/UVIS	1	31-Oct-2015 21:10:28.0	yes
17	(17) SDSSJ151641.22+495440.7	WFC3/UVIS	1	31-Oct-2015 21:10:28.0	yes
18	(18) SDSSJ152926.41+401548.8	WFC3/UVIS	1	31-Oct-2015 21:10:29.0	yes
19	(19) SDSSJ222825.76+120503.9	WFC3/UVIS	1	31-Oct-2015 21:10:30.0	yes
20	(20) SDSSJ224505.93+004018.3	WFC3/UVIS	1	31-Oct-2015 21:10:31.0	yes
21	(21) SDSSJ234248.68-012032.5	WFC3/UVIS	1	31-Oct-2015 21:10:32.0	yes

21 Total Orbits Used

ABSTRACT

We propose WFC3 UVIS imaging of a new sample of 21 gravitationally lensed Lyman-alpha emitting galaxies (LAEs) discovered within the million-galaxy spectroscopic database of the Baryon Oscillation Spectroscopic Survey (BOSS) of the third Sloan Digital Sky Survey (SDSS-III). These systems consist of massive galaxies at redshifts of approximately 0.55 strongly lensing LAEs at redshifts from 2 to 3. Monte Carlo simulation of our survey selection function indicates that these LAEs will all be strongly lensed and highly magnified. This represents the first statistically significant sample of strong galaxy-galaxy lenses with high-redshift LAEs as their background sources. Viewed in rest-frame far-UV continuum light with WFC3 imaging, these LAEs have much more compact sizes than the lower-redshift lensed galaxies discovered by previous surveys (few 100 parsec versus few kiloparsec). This compactness makes lensed LAEs an ideal probe of dark substructures within the halos of the lensing galaxies,

through observable perturbations to the predictions of smooth lensing mass models. We will use the constraints from substructure lensing in this new sample to make the most precise experimental measurement yet of the mass function and overall abundance of sub-halos in galaxy-scale parent halos, which will test a fundamental and robust prediction of the Lambda-CDM model on subgalactic scales. We request zero proprietary period in order to make these important data available immediately to all scientists pursuing lensing measurements of dark-matter substructure.

OBSERVING DESCRIPTION

Targets are relatively small. Each one is to be observed with one orbit of WFC3-UVIS imaging through the F606W filter.

For all observations, I want to center the target in one of the two WFC3-UVIS apertures and execute a 4-position dither box.

Proposal 14189 - Visit 01 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

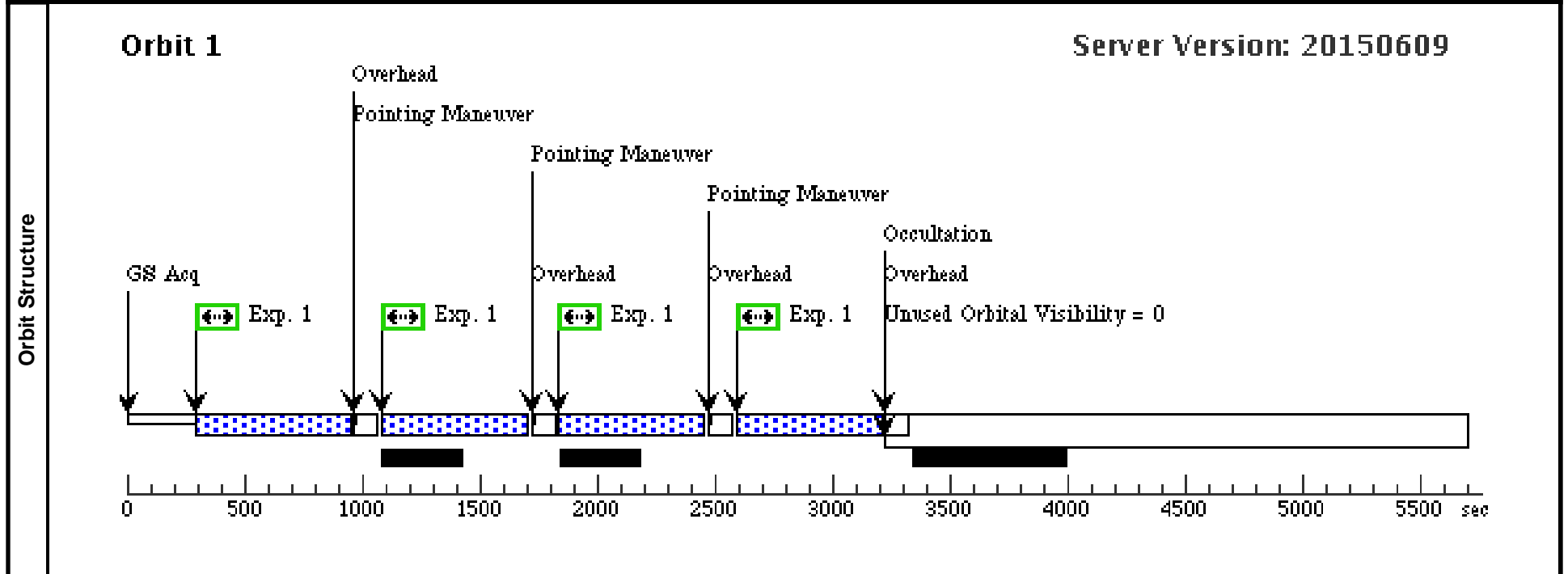
Sun Nov 01 01:10:33 GMT 2015

Visit	Proposal 14189, Visit 01, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	SDSSJ002927.38+254401.7	RA: 00 29 27.3883 (7.3641179d) Dec: +25 44 1.78 (25.73383d) Equinox: J2000		V=(?) i = 19.2	Reference Frame: ICRS

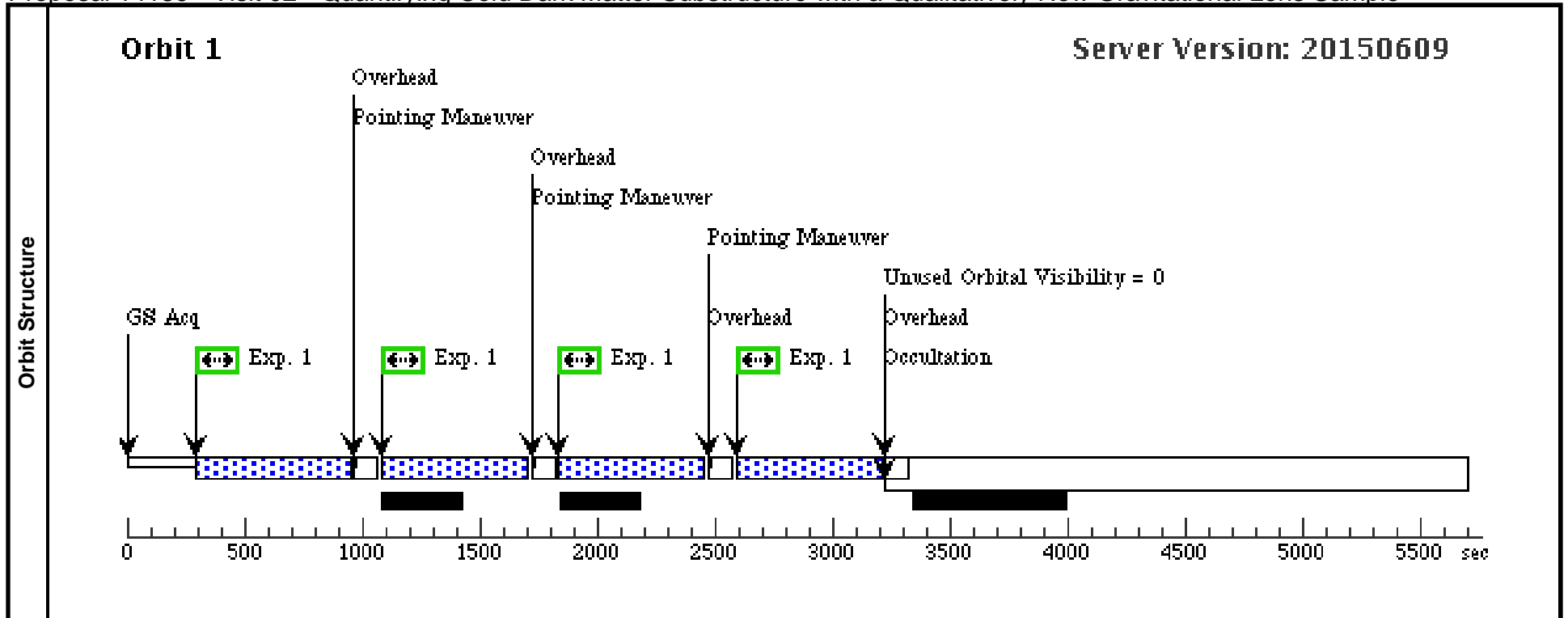
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) SDSSJ002927.38+254401.7	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 01 (1)	500 Secs (2504 Secs) [=>626.0 Secs (Pattern 1)] [=>626.0 Secs (Pattern 2)] [=>626.0 Secs (Pattern 3)] [=>626.0 Secs (Pattern 4)]



Proposal 14189 - Visit 02 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

Sun Nov 01 01:10:33 GMT 2015

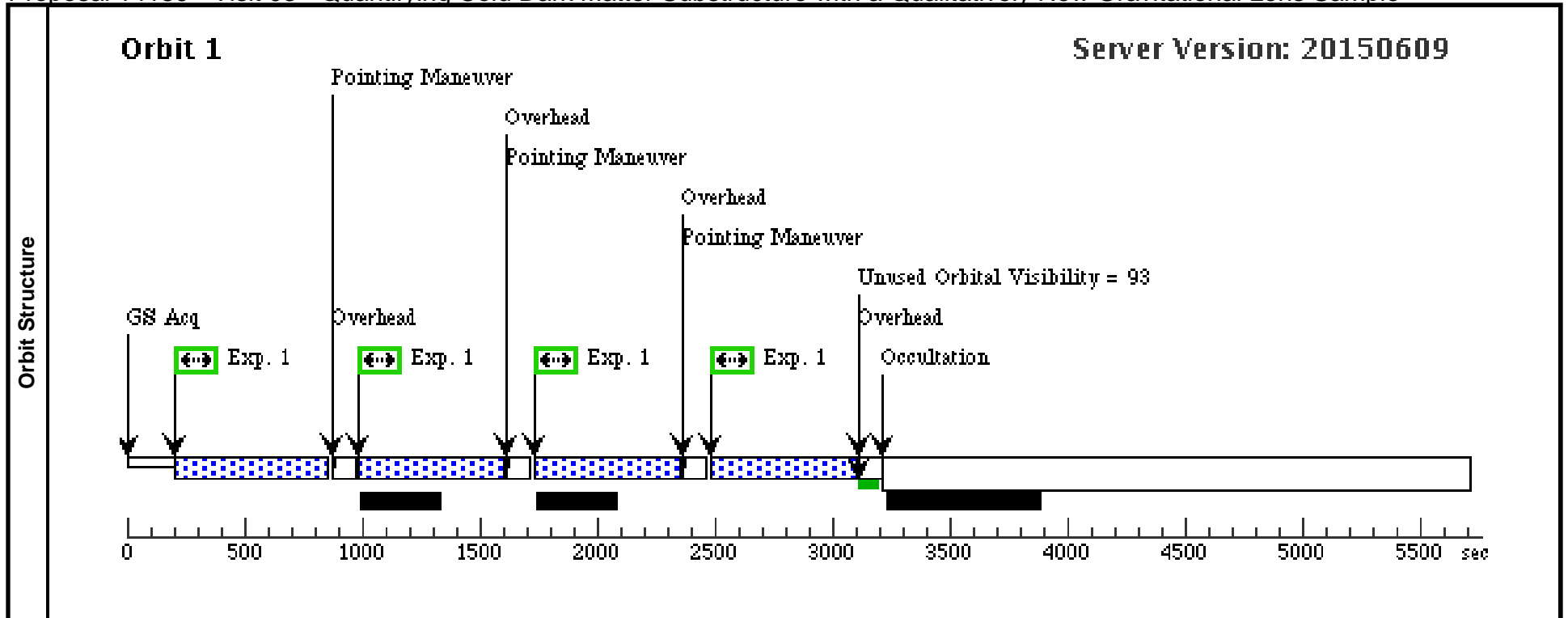
Visit	Proposal 14189, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(2)	SDSSJ005409.97+294450.8	RA: 00 54 9.9754 (13.5415642d)	Dec: +29 44 50.89 (29.74747d)	Equinox: J2000		V=? i = 19.5		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(2) SDSSJ005409.97+294450.8	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W			Pattern 1, Exps 1-1 in Visit 02 (1)	500 Secs (2504 Secs)	[=>626.0 Secs (Pattern 1)] [=>626.0 Secs (Pattern 2)] [=>626.0 Secs (Pattern 3)] [=>626.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 03 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

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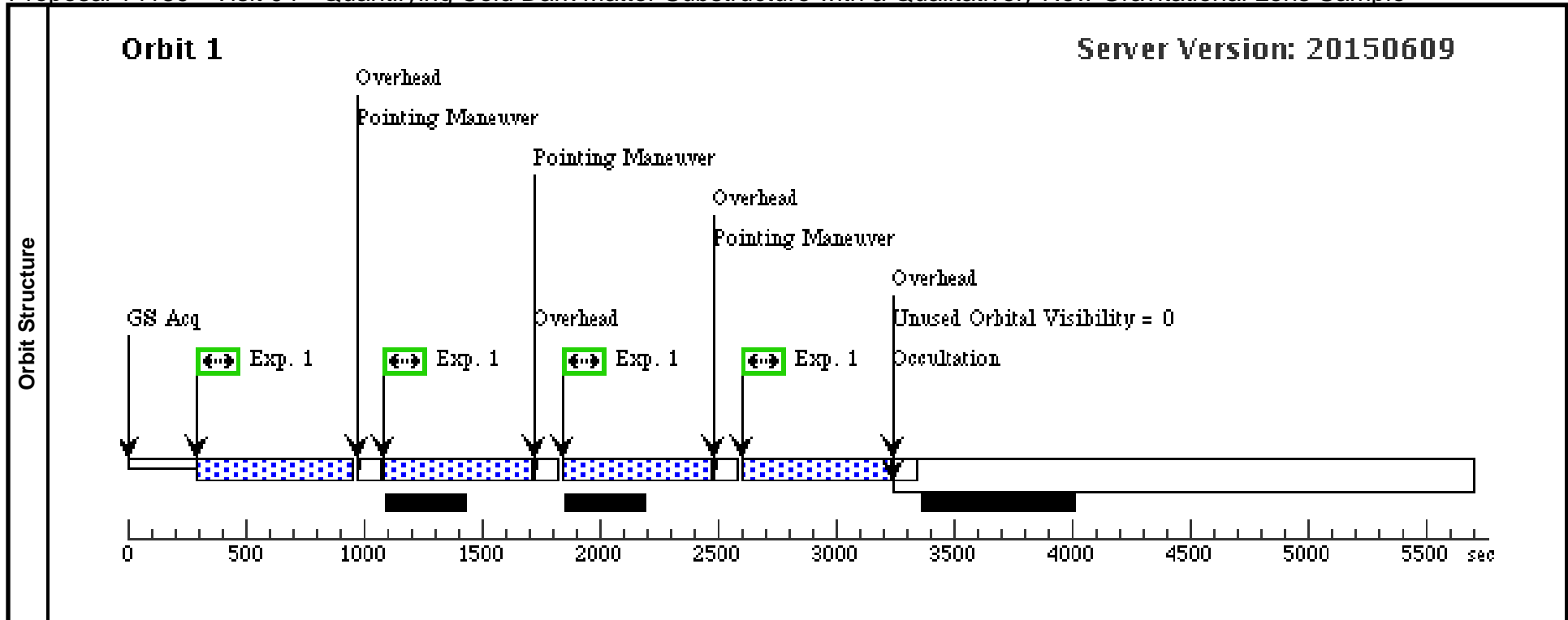
Visit	Proposal 14189, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(3)	SDSSJ011300.57+025046.2	RA: 01 13 0.5750 (18.2523958d)	Dec: +02 50 46.20 (2.84617d)	Equinox: J2000		V=? i = 19.4		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(3) SDSSJ011300.57+025046.2	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W		GS ACQ SCENARIO ONEB1B3	Pattern 1, Exps 1-1 in Visit 03 (1)	500 Secs (2484 Secs)	[=>621.0 Secs (Pattern 1)] [=>621.0 Secs (Pattern 2)] [=>621.0 Secs (Pattern 3)] [=>621.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 04 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

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Visit	Proposal 14189, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false						
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(4)	SDSSJ020121.39+322829.6	RA: 02 01 21.3955 (30.3391479d)	Dec: +32 28 29.67 (32.47491d)	Equinox: J2000		V=?	i = 18.3	Reference Frame: ICRS	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) SDSSJ020121.39+322829.6	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W			Pattern 1, Exps 1-1 in Visit 04 (1)	500 Secs (2520 Secs) [==>630.0 Secs (Pattern 1)] [==>630.0 Secs (Pattern 2)] [==>630.0 Secs (Pattern 3)] [==>630.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 05 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

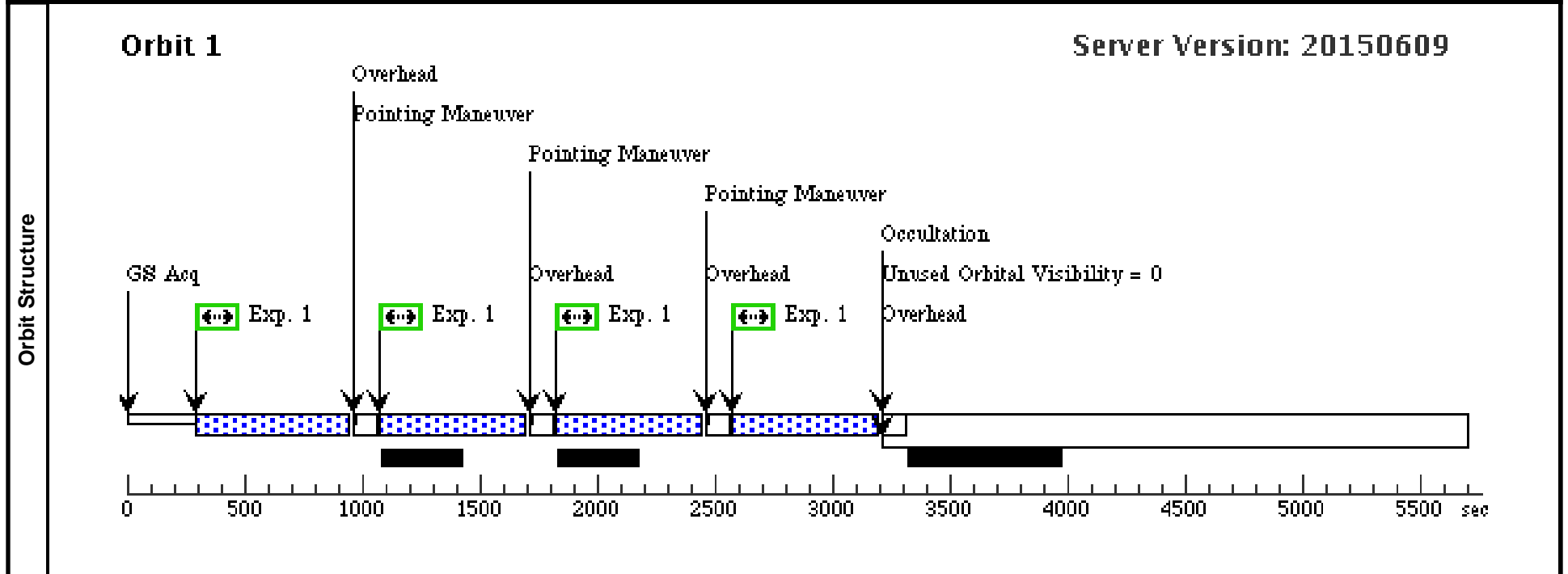
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 05, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(5)	SDSSJ023740.63-064112.9	RA: 02 37 40.6394 (39.4193308d) Dec: -06 41 12.99 (-6.68694d) Equinox: J2000		V=(?) i = 19.2	Reference Frame: ICRS

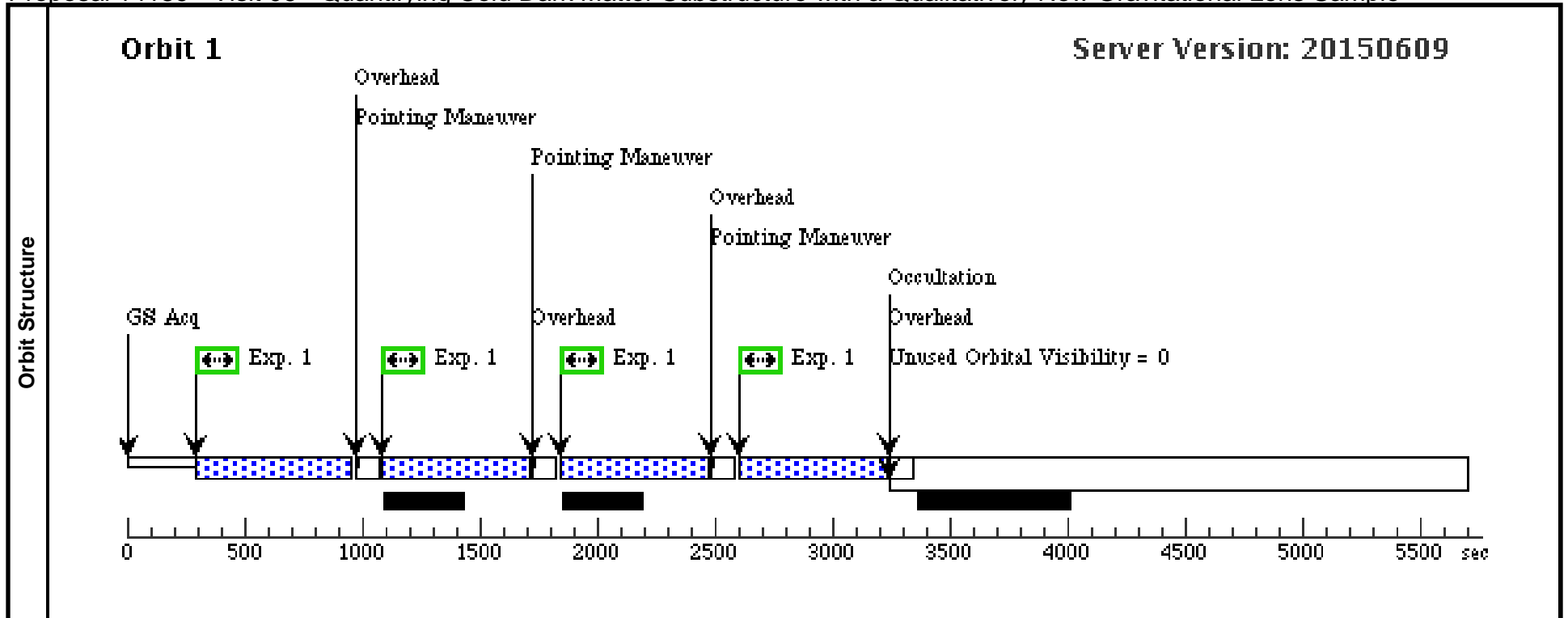
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) SDSSJ023740.63-064112.9	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 05 (1)	500 Secs (2488 Secs) [=>622.0 Secs (Pattern 1)] [=>622.0 Secs (Pattern 2)] [=>622.0 Secs (Pattern 3)] [=>622.0 Secs (Pattern 4)]



Proposal 14189 - Visit 06 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

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Visit	Proposal 14189, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)										
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures	
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false							(1)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(6)	SDSSJ074249.68+334148.9	RA: 07 42 49.6858 (115.7070242d)	Dec: +33 41 48.99 (33.69694d)	Equinox: J2000		V=(?) i = 19.5		Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(6) SDSSJ074249.68+334148.9	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 06 (1)	500 Secs (2520 Secs)	
									[=>630.0 Secs (Pattern 1)]		[1]
									[=>630.0 Secs (Pattern 2)]		
									[=>630.0 Secs (Pattern 3)]		
									[=>630.0 Secs (Pattern 4)]		



Proposal 14189 - Visit 07 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

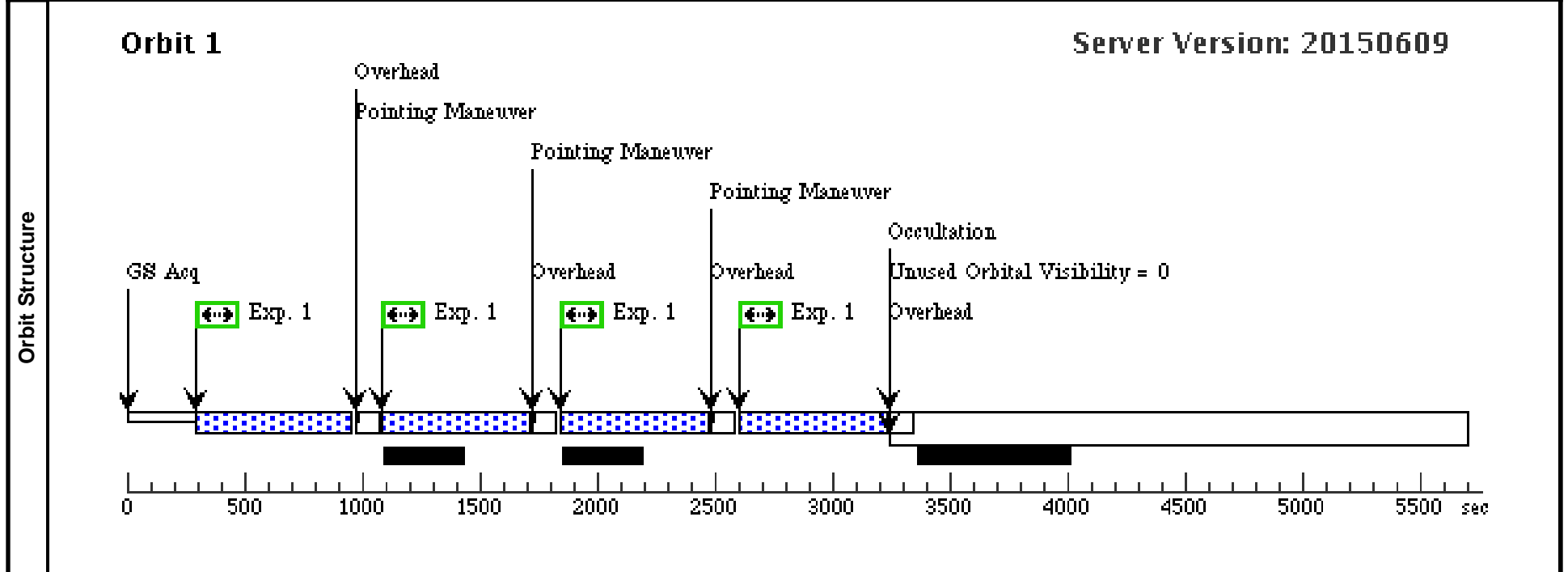
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 07, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(7)	SDSSJ075523.52+344539.5	RA: 07 55 23.5253 (118.8480221d) Dec: +34 45 39.59 (34.76100d) Equinox: J2000			V=(?) i = 20.5

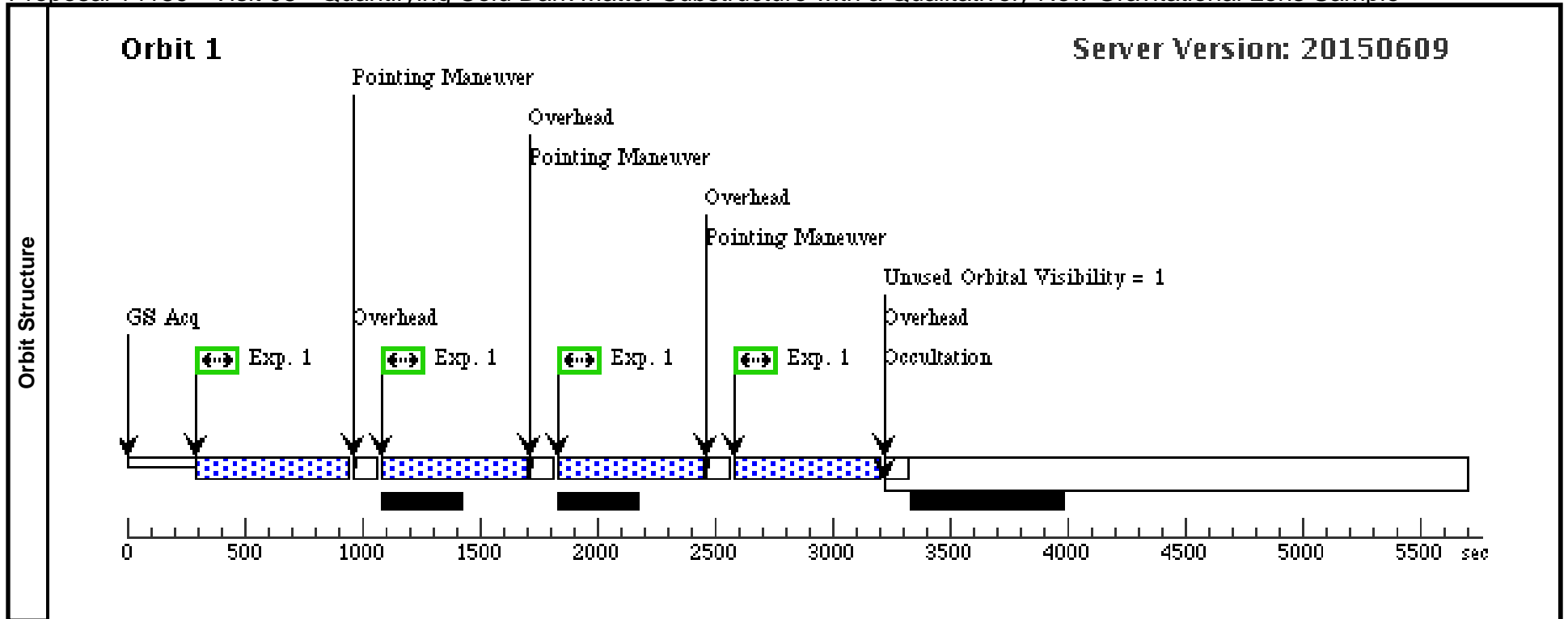
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) SDSSJ075523.52+344539.5	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 07 (1)	500 Secs (2520 Secs) [=>630.0 Secs (Pattern 1)] [=>630.0 Secs (Pattern 2)] [=>630.0 Secs (Pattern 3)] [=>630.0 Secs (Pattern 4)]



Proposal 14189 - Visit 08 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

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Visit	Proposal 14189, Visit 08, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
	Patterns	#	Primary Pattern				Secondary Pattern			Exposures
		(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false						
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous	
	(8)	SDSSJ085621.59+201040.5	RA: 08 56 21.5918 (134.0899658d)	Dec: +20 10 40.55 (20.17793d)	Equinox: J2000		V=? i = 19.4	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(8) SDSSJ085621.59+201040.5	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W			Pattern 1, Exps 1-1 in Visit 08 (1)	500 Secs (2496 Secs) [==>624.0 Secs (Pattern 1)] [==>624.0 Secs (Pattern 2)] [==>624.0 Secs (Pattern 3)] [==>624.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 09 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

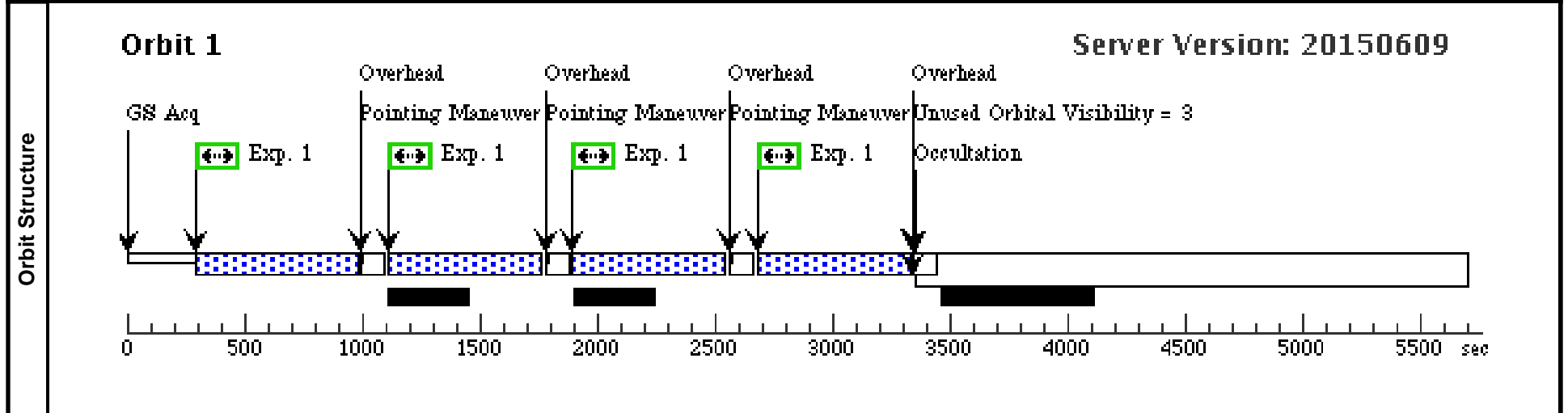
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 09, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(9)	SDSSJ091807.86+451856.7	RA: 09 18 7.8662 (139.5327758d) Dec: +45 18 56.77 (45.31577d) Equinox: J2000		V=(?) i = 19.4	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(9) SDSSJ091807.86+451856.7	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W			Pattern 1, Exps 1-1 in Visit 09 (1)	500 Secs (2624 Secs) [=>656.0 Secs (Pattern 1)] [=>656.0 Secs (Pattern 2)] [=>656.0 Secs (Pattern 3)] [=>656.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 10 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

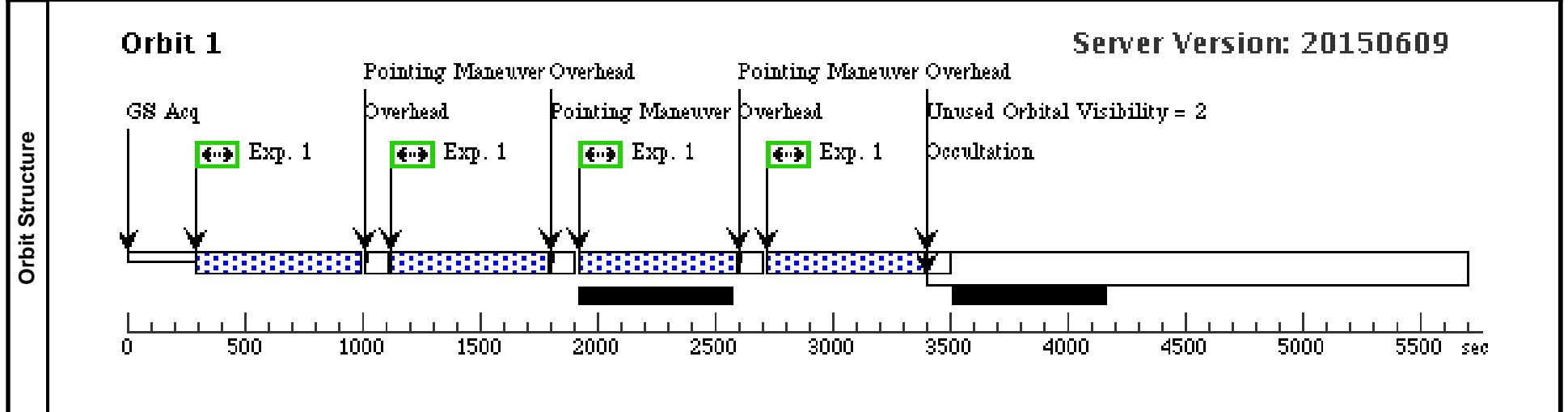
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 10, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(10)	SDSSJ091859.21+510452.5	RA: 09 18 59.2126 (139.7467192d) Dec: +51 04 52.59 (51.08128d) Equinox: J2000		V=(?) i = 19.7	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(10) SDSSJ091859.21+510452.5	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 10 (1)	500 Secs (2676 Secs) [=>669.0 Secs (Pattern 1)] [=>669.0 Secs (Pattern 2)] [=>669.0 Secs (Pattern 3)] [=>669.0 Secs (Pattern 4)]



Proposal 14189 - Visit 11 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

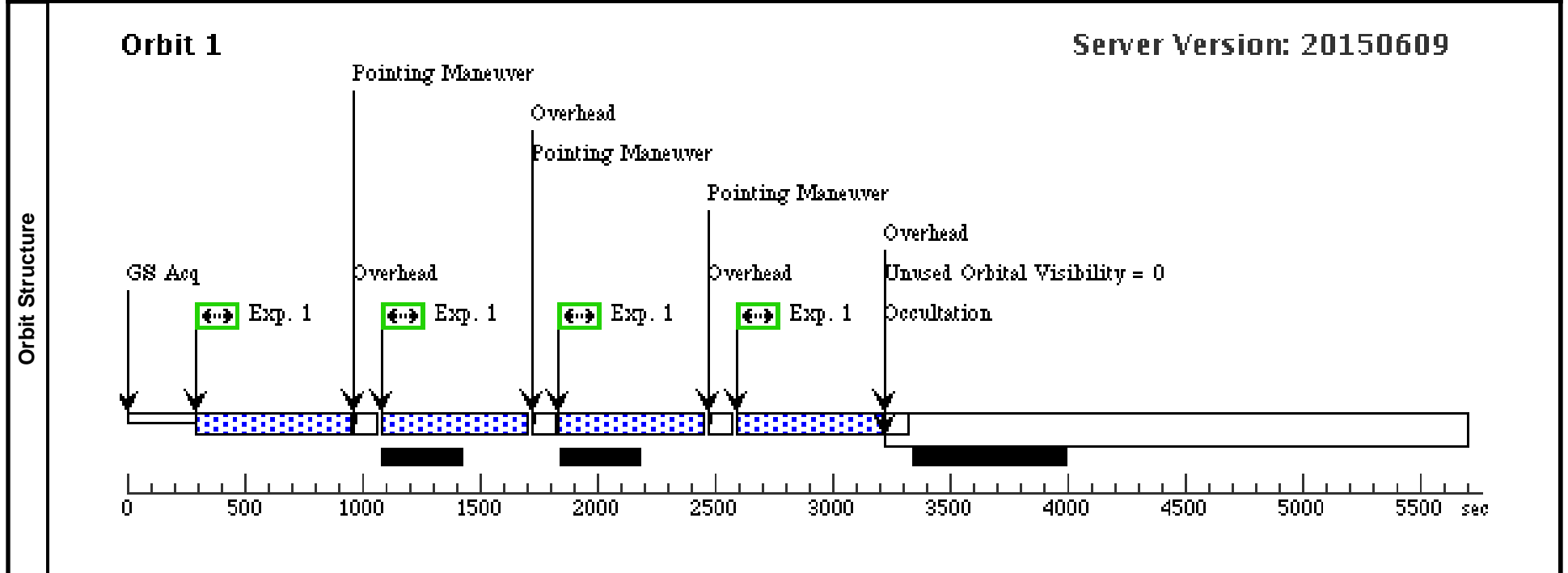
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 11, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(11)	SDSSJ111027.11+280838.4	RA: 11 10 27.1106 (167.6129608d) Dec: +28 08 38.46 (28.14402d) Equinox: J2000		V=(?) i = 19.9	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(11) SDSSJ111027.1+280838.4	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in Visit 11 (1)	500 Secs (2504 Secs) [=>626.0 Secs (Pattern 1)] [=>626.0 Secs (Pattern 2)] [=>626.0 Secs (Pattern 3)] [=>626.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 12 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

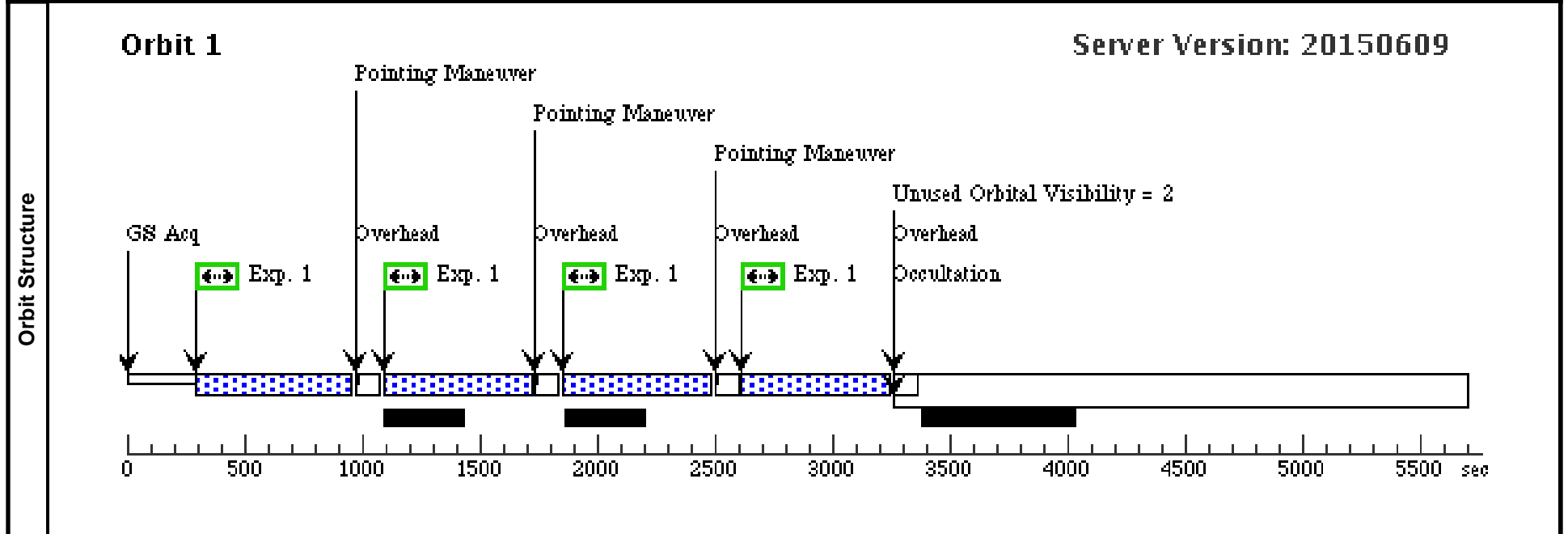
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 12, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(12)	SDSSJ111040.42+364924.3	RA: 11 10 40.4261 (167.6684421d) Dec: +36 49 24.40 (36.82344d) Equinox: J2000			V=(?) i = 19.9

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(12) SDSSJ111040.4+364924.3	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 12 (1)	500 Secs (2540 Secs) [=>635.0 Secs (Pattern 1)] [=>635.0 Secs (Pattern 2)] [=>635.0 Secs (Pattern 3)] [=>635.0 Secs (Pattern 4)]



Proposal 14189 - Visit 13 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

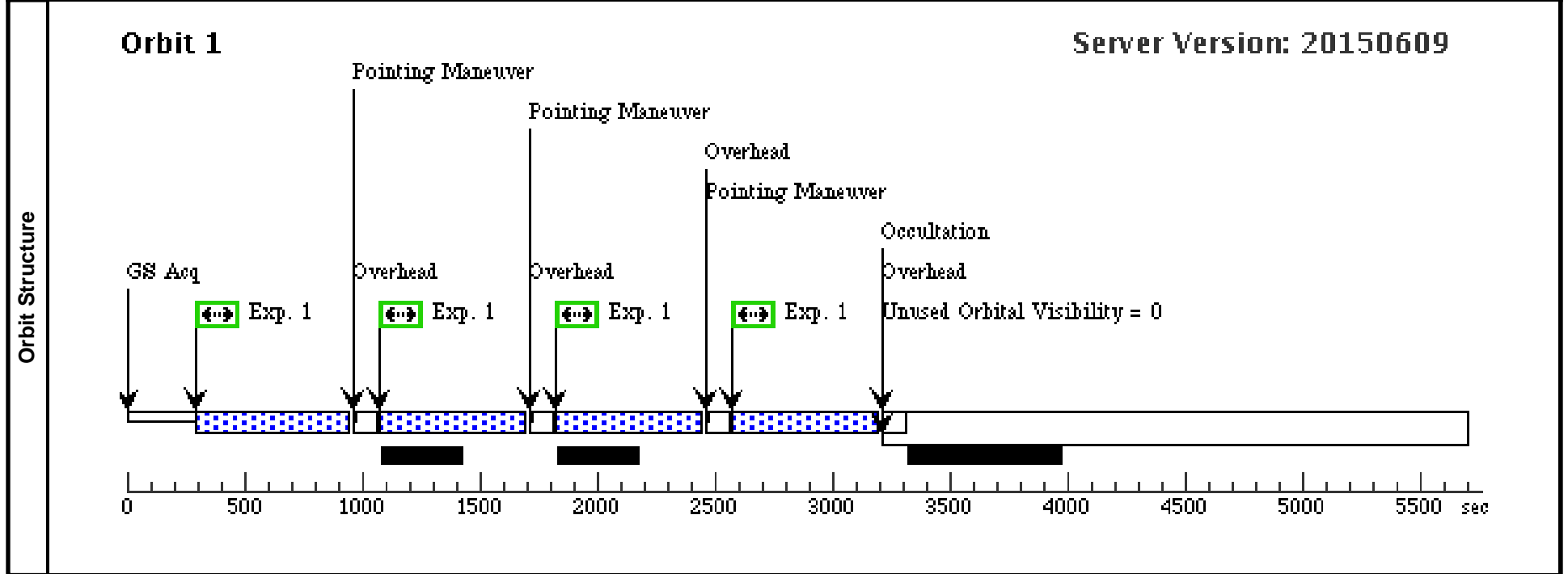
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 13, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(13)	SDSSJ111634.55+091503.0	RA: 11 16 34.5593 (169.1439971d) Dec: +09 15 3.05 (9.25085d) Equinox: J2000		V=(?) i = 19.4	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(13) SDSSJ111634.55+091503.0	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in Visit 13 (1)	500 Secs (2488 Secs) [=>622.0 Secs (Pattern 1)] [=>622.0 Secs (Pattern 2)] [=>622.0 Secs (Pattern 3)] [=>622.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 14 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

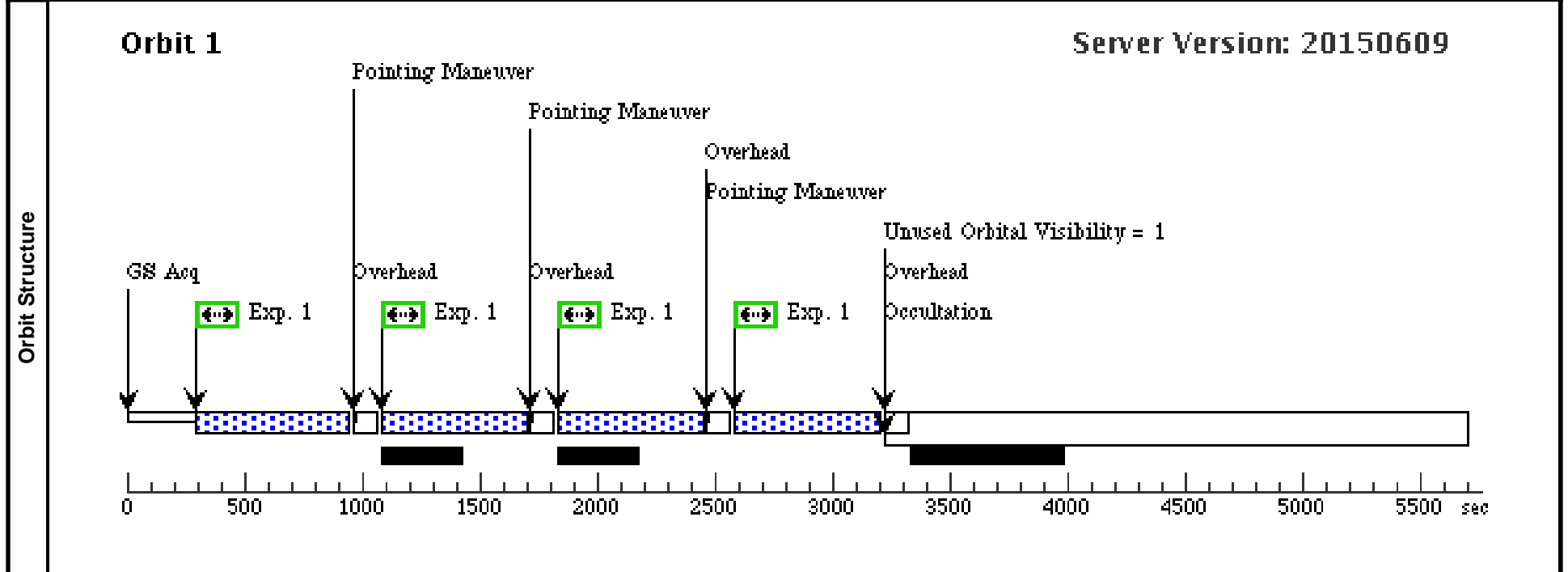
Sun Nov 01 01:10:34 GMT 2015

Visit	Proposal 14189, Visit 14, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(14)	SDSSJ114154.71+221628.8	RA: 11 41 54.7118 (175.4779658d) Dec: +22 16 28.89 (22.27469d) Equinox: J2000		V=(?) i = 19.7	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(14) SDSSJ114154.71+221628.8	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in Visit 14 (1)	500 Secs (2496 Secs) [=>624.0 Secs (Pattern 1)] [=>624.0 Secs (Pattern 2)] [=>624.0 Secs (Pattern 3)] [=>624.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 15 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

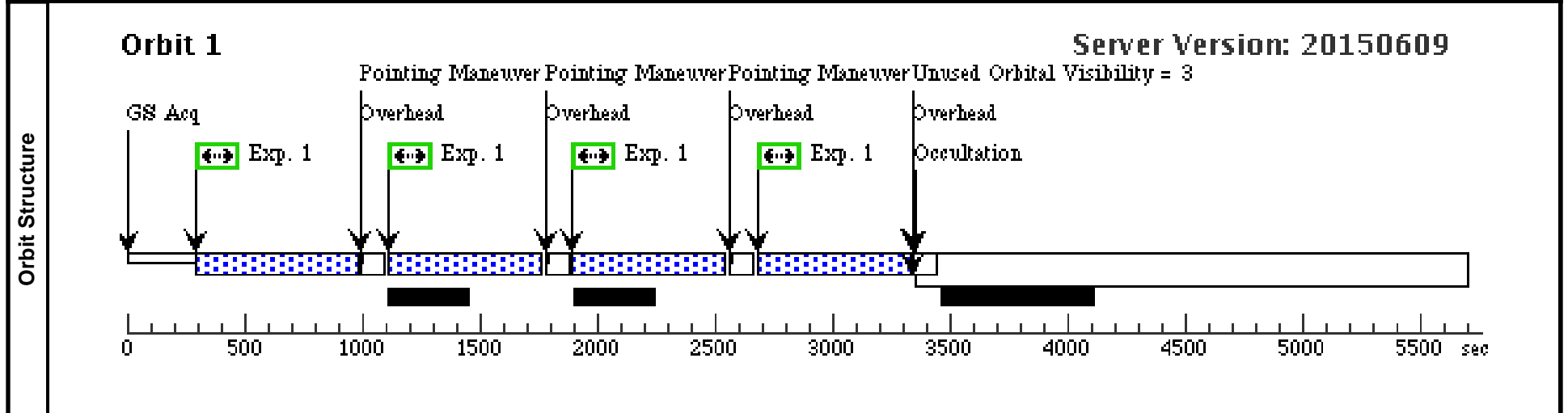
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 15, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(15)	SDSSJ120159.02+474323.1	RA: 12 01 59.0258 (180.4959408d) Dec: +47 43 23.20 (47.72311d) Equinox: J2000			V=(?) i = 19.3

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(15) SDSSJ120159.02+474323.1	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 15 (1)	500 Secs (2624 Secs) [=>656.0 Secs (Pattern 1)] [=>656.0 Secs (Pattern 2)] [=>656.0 Secs (Pattern 3)] [=>656.0 Secs (Pattern 4)]



Proposal 14189 - Visit 16 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

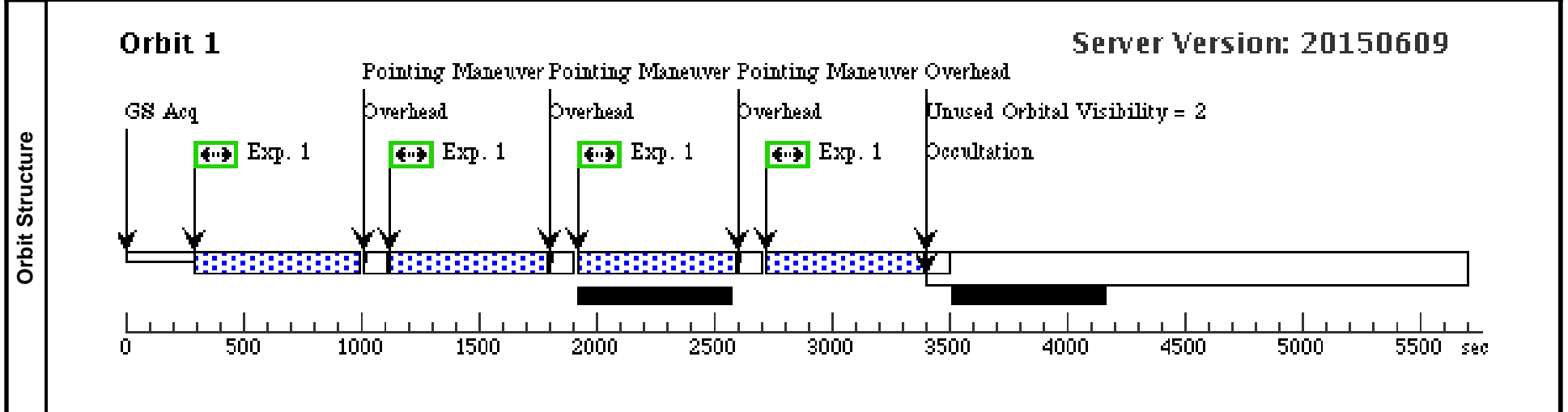
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 16, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(16)	SDSSJ122656.45+545739.0	RA: 12 26 56.4588 (186.7352450d) Dec: +54 57 39.05 (54.96085d) Equinox: J2000			V=(?) i = 18.9

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(16) SDSSJ122656.45+545739.0	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 16 (1)	500 Secs (2676 Secs) [=>669.0 Secs (Pattern 1)] [=>669.0 Secs (Pattern 2)] [=>669.0 Secs (Pattern 3)] [=>669.0 Secs (Pattern 4)]



Proposal 14189 - Visit 17 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

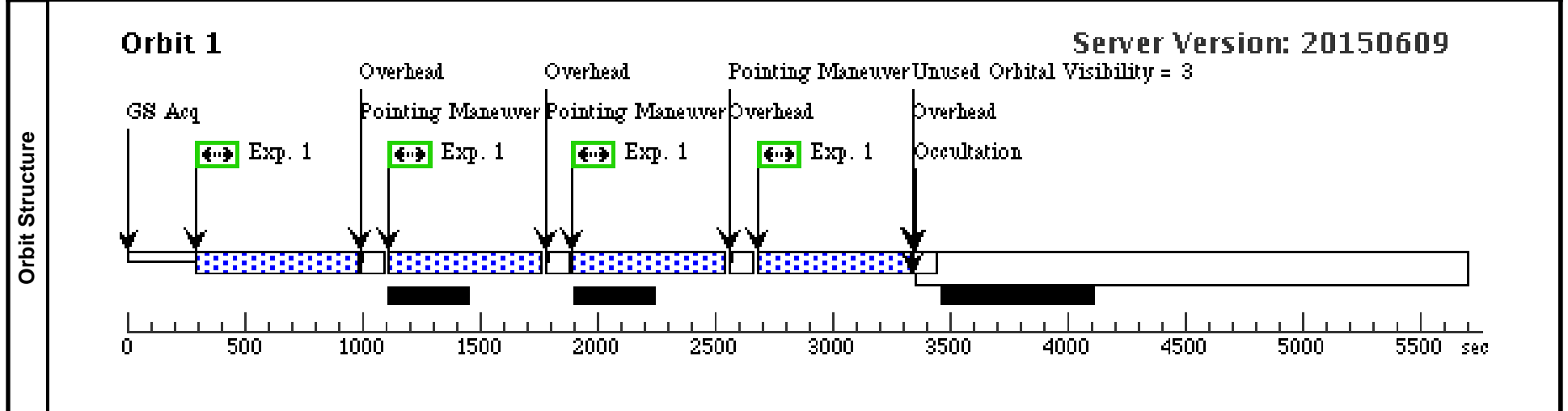
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 17, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(17)	SDSSJ151641.22+49544.07	RA: 15 16 41.2207 (229.1717529d) Dec: +49 54 40.78 (49.91133d) Equinox: J2000		V=(?) i = 19.0	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(17) SDSSJ151641.22+49544.07	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W			Pattern 1, Exps 1-1 in Visit 17 (1)	500 Secs (2624 Secs) [=>656.0 Secs (Pattern 1)] [=>656.0 Secs (Pattern 2)] [=>656.0 Secs (Pattern 3)] [=>656.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 18 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

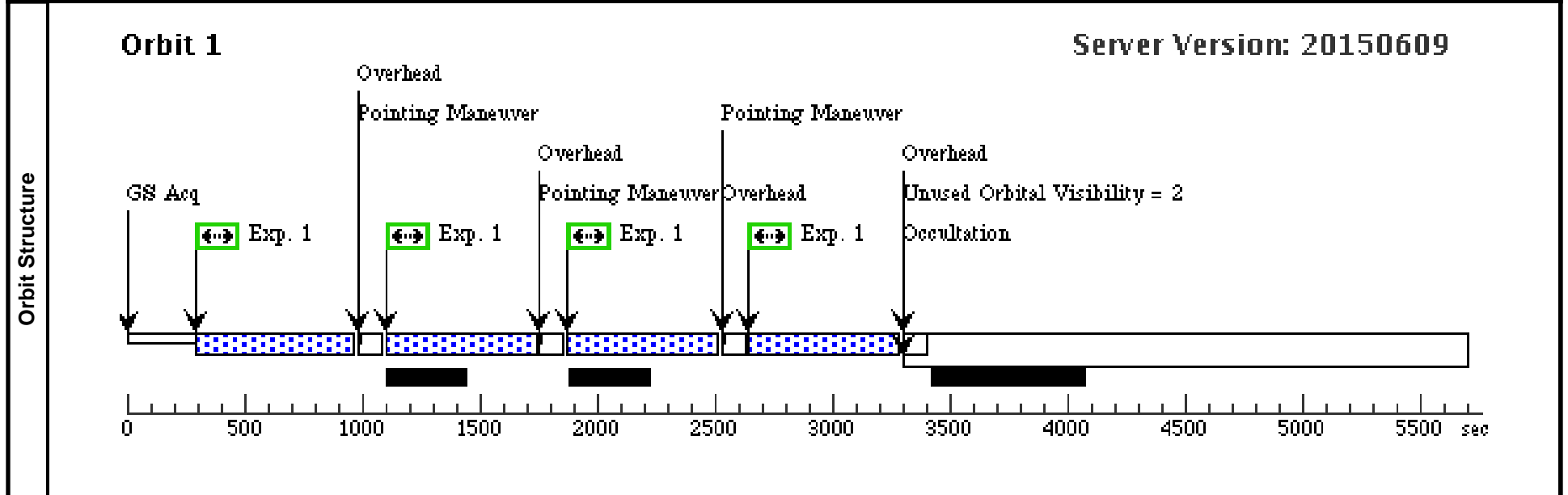
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 18, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(18)	SDSSJ152926.41+401548.8	RA: 15 29 26.4149 (232.3600621d) Dec: +40 15 48.85 (40.26357d) Equinox: J2000			V=(?) i = 19.4

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(18) SDSSJ152926.41+401548.8	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 18 (1)	500 Secs (2580 Secs) [=>645.0 Secs (Pattern 1)] [=>645.0 Secs (Pattern 2)] [=>645.0 Secs (Pattern 3)] [=>645.0 Secs (Pattern 4)]



Proposal 14189 - Visit 19 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

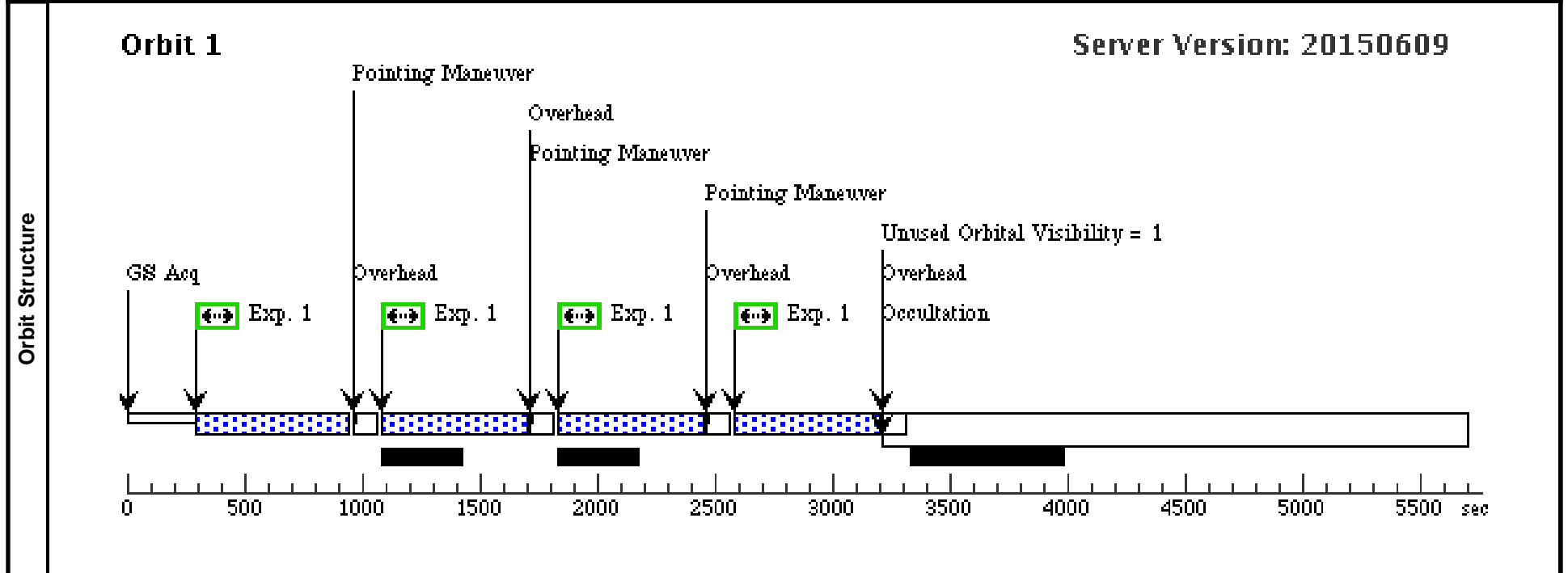
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 19, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(19)	SDSSJ222825.76+120503.9	RA: 22 28 25.7666 (337.1073608d) Dec: +12 05 3.95 (12.08443d) Equinox: J2000			V=(?) i = 19.9

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(19) SDSSJ222825.76+120503.9	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 19 (1)	500 Secs (2492 Secs) [=>623.0 Secs (Pattern 1)] [=>623.0 Secs (Pattern 2)] [=>623.0 Secs (Pattern 3)] [=>623.0 Secs (Pattern 4)]



Proposal 14189 - Visit 20 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

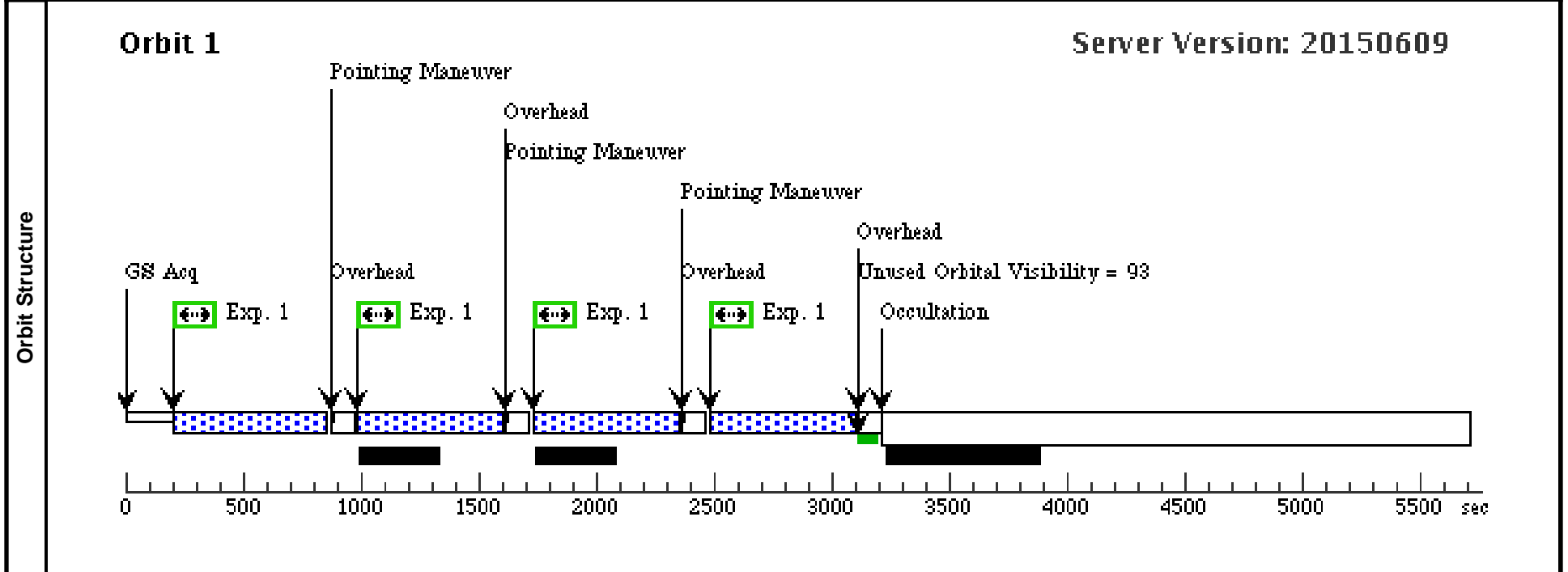
Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 20, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(20)	SDSSJ224505.93+004018.3	RA: 22 45 5.9326 (341.2747192d) Dec: +00 40 18.35 (.67176d) Equinox: J2000		V=(?) i = 19.6	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(20) SDSSJ224505.93+004018.3	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W		GS ACQ SCENARI ONEB1B3	Pattern 1, Exps 1-1 in Visit 20 (1)	500 Secs (2484 Secs) [==>621.0 Secs (Pattern 1)] [==>621.0 Secs (Pattern 2)] [==>621.0 Secs (Pattern 3)] [==>621.0 Secs (Pattern 4)]	[1]



Proposal 14189 - Visit 21 - Quantifying Cold Dark Matter Substructure with a Qualitatively New Gravitational Lens Sample

Sun Nov 01 01:10:35 GMT 2015

Visit	Proposal 14189, Visit 21, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)		
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Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.173 Line Spacing=0.112	Coordinate Frame=POS-TARG Pattern Orientation=23.884 Angle Between Sides=81.785 Center Pattern=false	(1)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(21)	SDSSJ234248.68-012032.5	RA: 23 42 48.6840 (355.7028500d) Dec: -01 20 32.54 (-1.34237d) Equinox: J2000		V=(?) i = 19.6	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(21) SDSSJ234248.68-012032.5	WFC3/UVIS, ACCUM, UVIS2-C1K1C-CTE	F606W				Pattern 1, Exps 1-1 in Visit 21 (1) [==>621.0 Secs (Pattern 1)] [==>621.0 Secs (Pattern 2)] [==>621.0 Secs (Pattern 3)] [==>621.0 Secs (Pattern 4)]	[1]

