15378 - The Chandra Strong Lens Sample: Revealing Baryonic Physics In Strong Lensing Selected Clusters

Cycle: 25, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(3) SDSSJ1458-0024	WFC3/IR WFC3/UVIS	3	14-Sep-2017 19:01:27.0	yes
02	(2) SDSSJ1429+1202	WFC3/IR WFC3/UVIS	3	14-Sep-2017 19:01:30.0	yes
03	(1) MACSJ1226+2152	WFC3/IR	1	14-Sep-2017 19:01:32.0	yes

7 Total Orbits Used

ABSTRACT

We propose for Chandra imaging of the hot intra-cluster gas in a unique new sample of 29 galaxy clusters selected purely on their strong gravitational lensing signatures. This will be the first program targeting a purely strong lensing selected cluster sample, enabling new comparisons between the ICM properties and scaling relations of strong lensing and mass/ICM selected cluster samples. Chandra imaging, combined with high precision strong lens models, ensures powerful constraints on the distribution and state of matter in the cluster cores. This represents a novel angle from which we can address the role played by baryonic physics, the infamous gastrophysics, in shaping the cores of massive clusters, and opens up an exciting new galaxy cluster discovery space with Chandra.

OBSERVING DESCRIPTION

In this program we will obtain similar HST data for the three strong lensing galaxy clusters. These data will reveal the morphologies of member galaxies in these clusters, while also providing constraints on the strong lensing properties of the clusters by revealing multiply imaged background sources. Observations of two clusters will include two optical and two near-infrared (NIR) imaging bands, while the third cluster will receive two NIR imaging bands (to be used alongside existing archival HST optical imaging). All observations will be performed with the Wide-Field Camera 3 Infrared channel (WFC3/UVIS and WFC3/IR). The objective for each strong lensing galaxy cluster is to select the four broadband filters to optimally span important spectral breaks (i.e., the 4000A break and the Lyman-break) in the spectral energy distributions (SEDs) of both foreground cluster galaxies, and in background strongly lensed sources.

Visit

Proposal 15378, SDSSJ1458-0024 (01), implementation Thu Sep 14 23:01:33 GMT 2017

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: (none)

Diagnostics

(SDSSJ1458-0024 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFC3-UVIS-MOS-DITH-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.4 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.754 Angle Between Sides= Center Pattern=true	Pattern Type=WFC3-UVIS-MOS-DITH-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.119 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=33.606 Angle Between Sides= Center Pattern=false	(3), (4)
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false			(1-2)

Fixed Targets

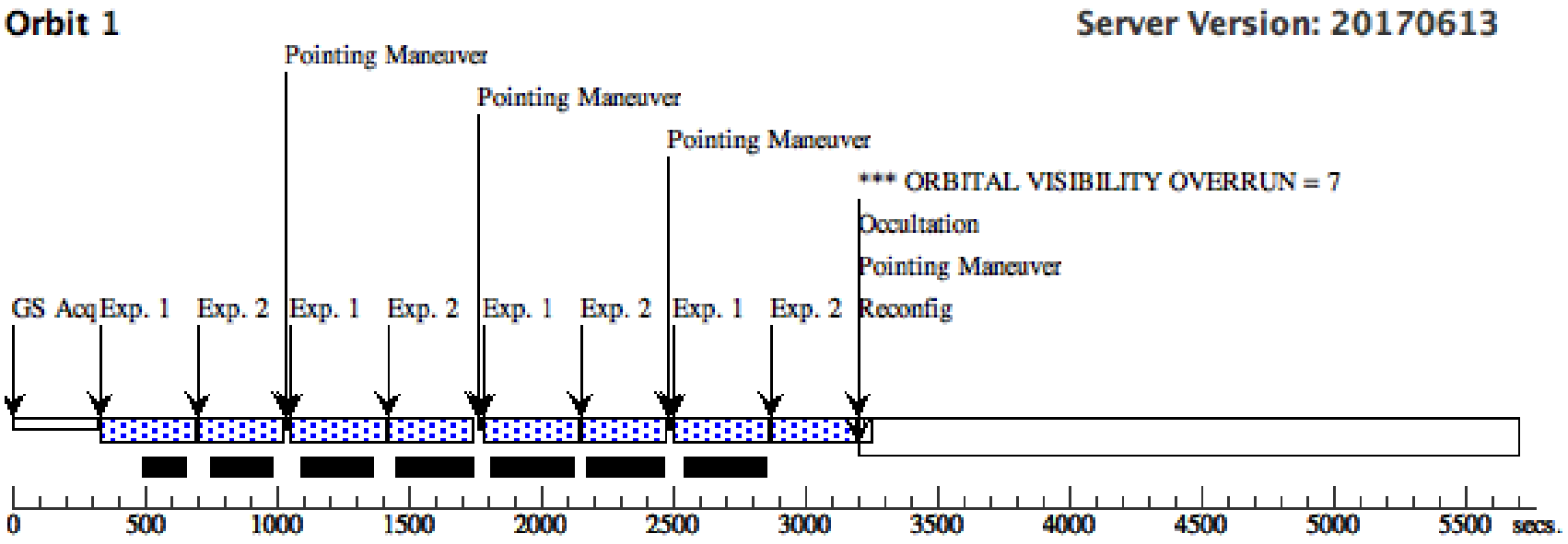
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	SDSSJ1458-0024	RA: 14 58 36.1200 (224.6505000d) Dec: -00 23 57.98 (-.39944d) Equinox: J2000		V=20.0 giant arc has g=22.9, and r, i =22 (AB)	Reference Frame: ICRS

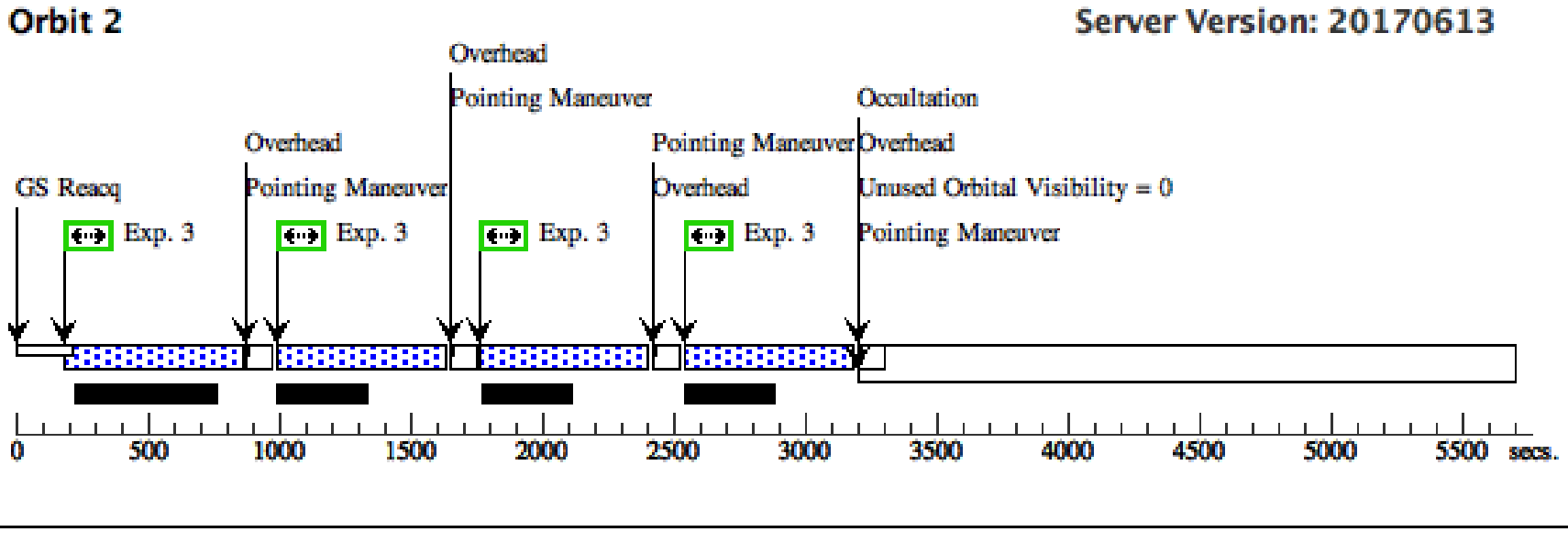
Comments: Extended=YES

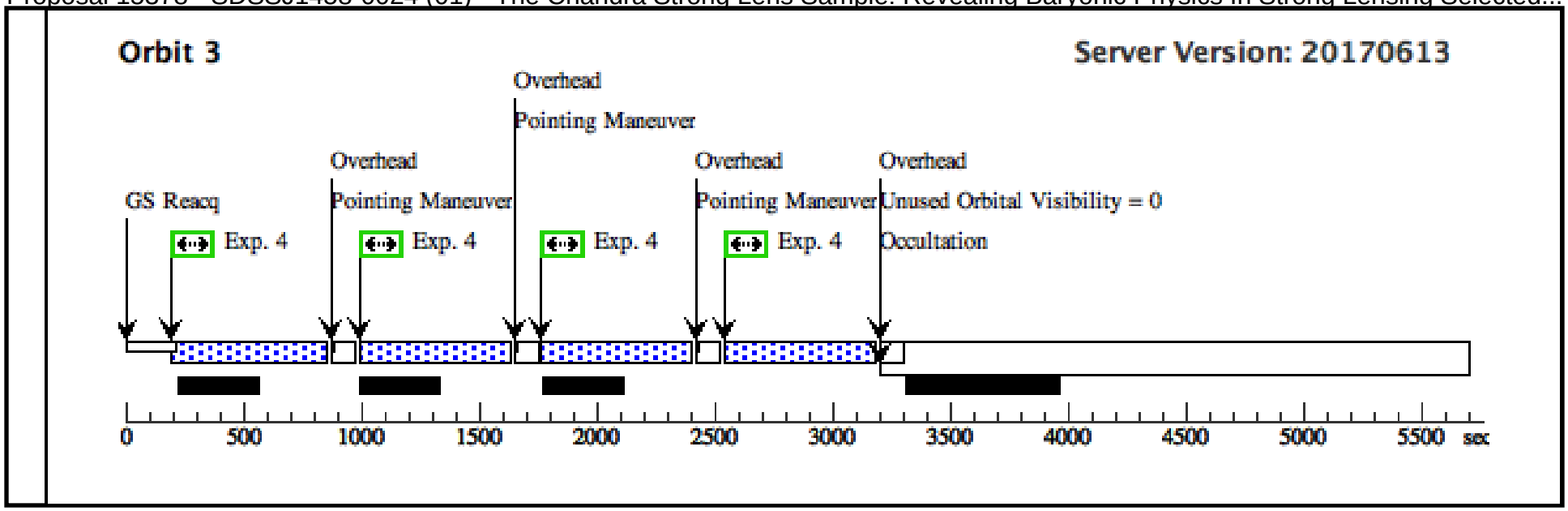
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) SDSSJ1458-0024	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=14; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in SDSSJ1458-0024 (01) (2)	327.938986 Secs (1311.756 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(3) SDSSJ1458-0024	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=13; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in SDSSJ1458-0024 (01) (2)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
3		(3) SDSSJ1458-0024	WFC3/UVIS, ACCUM, UVIS1-FIX	F814W			Pattern 1, Exps 3-3 in SDSSJ1458-0024 (01) (1)	595 Secs (2588 Secs) *[==>647.0 Secs (Pattern 1,1)]* *[==>647.0 Secs (Pattern 1,2)]* *[==>647.0 Secs (Pattern 2,1)]* *[==>647.0 Secs (Pattern 2,2)]*	***[2]***
4		(3) SDSSJ1458-0024	WFC3/UVIS, ACCUM, UVIS1-FIX	F475X			Pattern 1, Exps 4-4 in SDSSJ1458-0024 (01) (1)	595 Secs (2588 Secs) *[==>647.0 Secs (Pattern 1,1)]* *[==>647.0 Secs (Pattern 1,2)]* *[==>647.0 Secs (Pattern 2,1)]* *[==>647.0 Secs (Pattern 2,2)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20170613
GS Reacq
Exp. 4
Overhead
Pointing Maneuver
Exp. 4
Overhead
Pointing Maneuver
Exp. 4
Overhead
Pointing Maneuver
Exp. 4
Overhead
Unused Orbital Visibility = 0
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 15378, SDSSJ1429+1202 (02), implementation Thu Sep 14 23:01:34 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR, WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern		Exposures
(1)	Pattern Type=WFC3-UVIS-MOS-DITH-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.4 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.754 Angle Between Sides= Center Pattern=true	Pattern Type=WFC3-UVIS-MOS-DITH-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.119 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=33.606 Angle Between Sides= Center Pattern=false	(3), (4)
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false			(1-2)

Fixed Targets

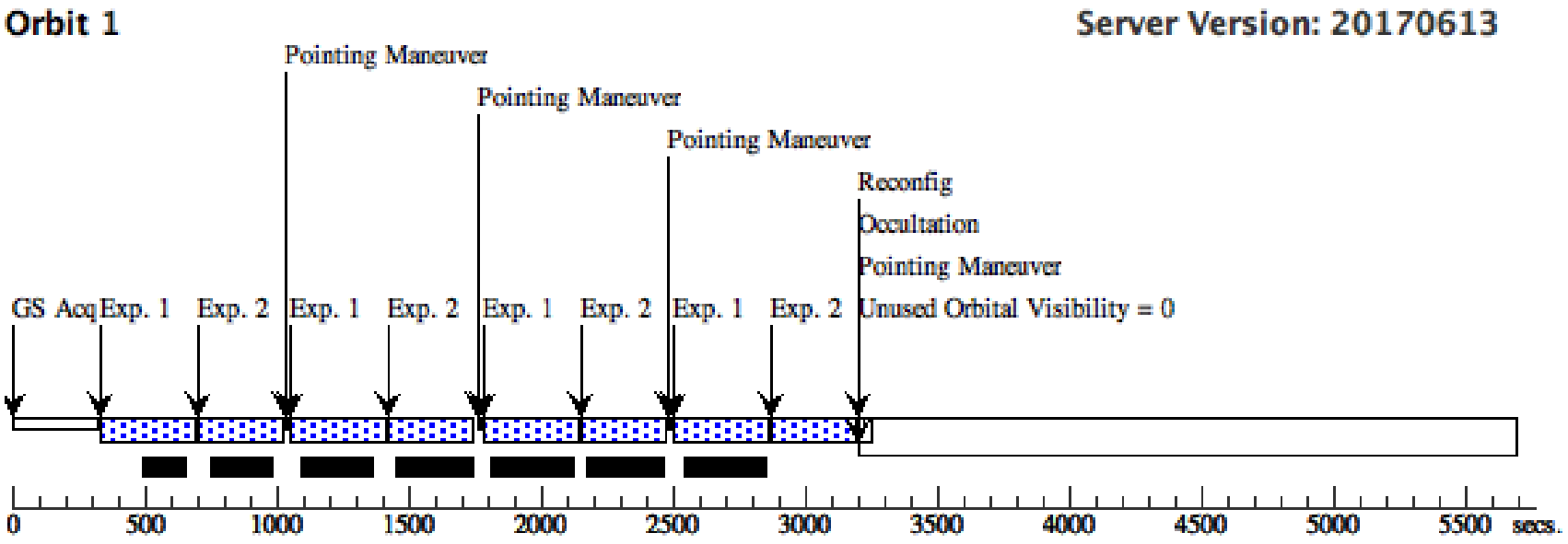
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	SDSSJ1429+1202	RA: 14 29 54.8000 (217.4783333d) Dec: +12 02 35.60 (12.04322d) Equinox: J2000		V=20.5 giant arc has g, r, i ~ 20.7	Reference Frame: ICRS

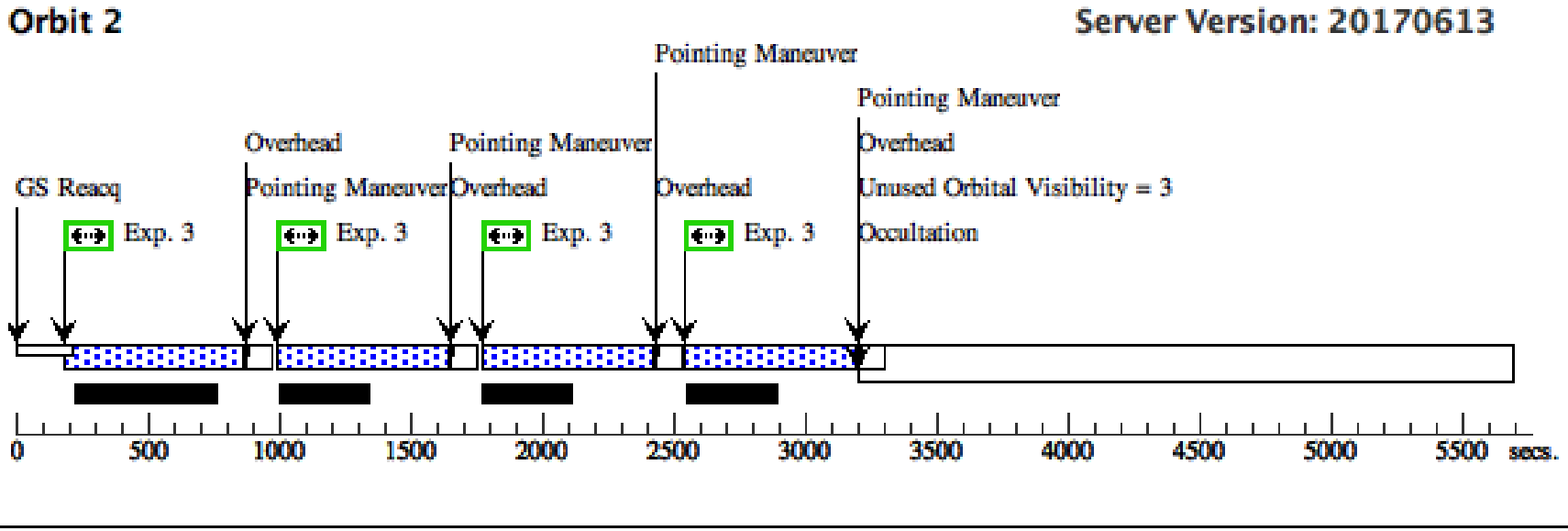
Comments: Extended=YES

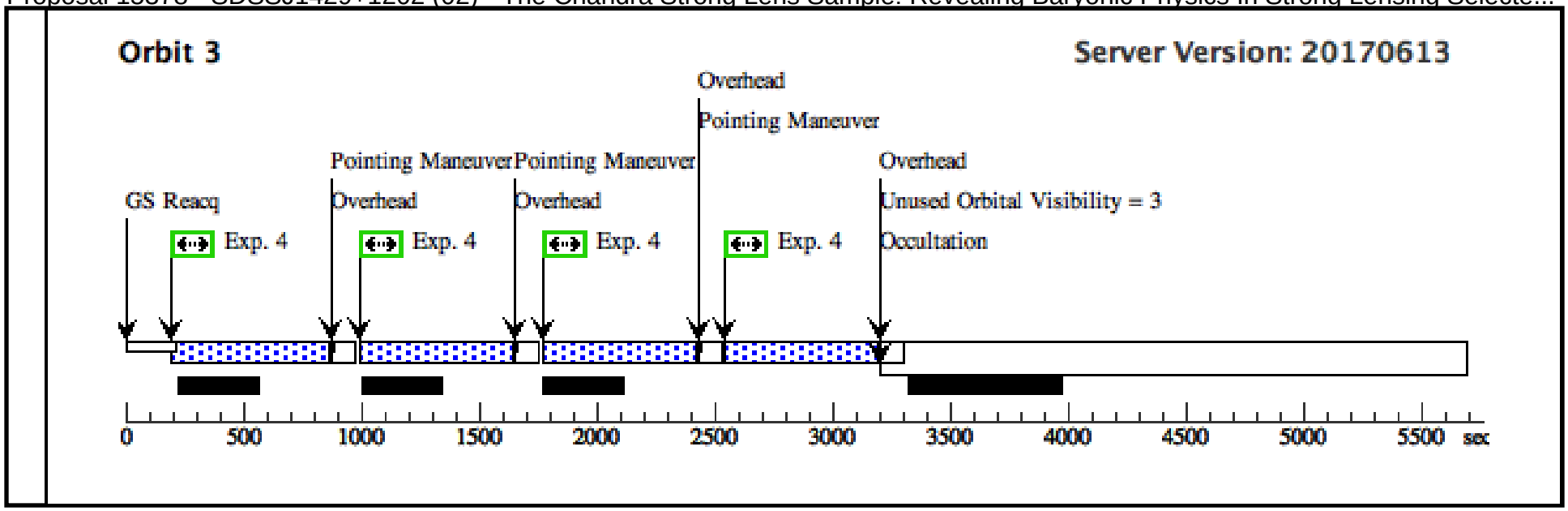
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) SDSSJ1429+1202	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=14; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in SDSSJ1429+1202 (02) (2)	327.938986 Secs (1311.756 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2		(2) SDSSJ1429+1202	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=13; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in SDSSJ1429+1202 (02) (2)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
3		(2) SDSSJ1429+1202	WFC3/UVIS, ACCUM, UVIS1-FIX	F814W			Pattern 1, Exps 3-3 in SDSSJ1429+1202 (02) (1)	595 Secs (2592 Secs) *[==>648.0 Secs (Pattern 1,1)]* *[==>648.0 Secs (Pattern 1,2)]* *[==>648.0 Secs (Pattern 2,1)]* *[==>648.0 Secs (Pattern 2,2)]*	***[2]***
4		(2) SDSSJ1429+1202	WFC3/UVIS, ACCUM, UVIS1-FIX	F475X			Pattern 1, Exps 4-4 in SDSSJ1429+1202 (02) (1)	595 Secs (2592 Secs) *[==>648.0 Secs (Pattern 1,1)]* *[==>648.0 Secs (Pattern 1,2)]* *[==>648.0 Secs (Pattern 2,1)]* *[==>648.0 Secs (Pattern 2,2)]*	***[3]***

Orbit Structure






Orbit 3
Server Version: 20170613
Overhead
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Overhead
GS Reacq
Overhead
Overhead
Unused Orbital Visibility = 3
Exp. 4
Exp. 4
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
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sec

Visit

Proposal 15378, MACSJ1226+2152 (03), implementation Thu Sep 14 23:01:34 GMT 2017

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MACSJ1226+2152	RA: 12 26 50.7000 (186.7112500d) Dec: +21 52 11.00 (21.86972d) Equinox: J2000		V=19.3 giant arc has g=21.1 and r, i = 20.7	Reference Frame: ICRS

Comments: Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) MACSJ1226+2152	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=14; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in MACSJ1226+2152 (03) (2)	327.938986 Secs (1311.756 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***
2		(1) MACSJ1226+2152	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=13; SAMP-SEQ=SPARS25	POS TARG null,23.5	Pattern 2, Exps 1-2 in MACSJ1226+2152 (03) (2)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***

Orbit Structure