15661 - Testing the Limits of AGN Feedback in Starburst and QSO Central Cluster Galaxies

Cycle: 26, 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?*
81	(1) H1821+643	ACS/WFC	2	15-May-2019 15:50:45.0	yes
91	(1) H1821+643	ACS/WFC	2	15-Jul-2019 13:00:19.0	yes
82	(1) H1821+643	ACS/WFC	2	15-Jul-2019 13:00:20.0	yes
92	(1) H1821+643	ACS/WFC	2	15-Jul-2019 13:00:20.0	yes
03	(1) H1821+643	ACS/WFC	2	15-Jul-2019 13:00:21.0	yes
84	(2) IRAS09104+4109	ACS/WFC	2	15-Jul-2019 13:00:22.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
94	(2) IRAS09104+4109	ACS/WFC	2	15-Jul-2019 13:00:22.0	yes
05	(2) IRAS09104+4109	ACS/WFC	2	15-Jul-2019 13:00:23.0	yes
06	(2) IRAS09104+4109	ACS/WFC	2	15-Jul-2019 13:00:23.0	yes
87	(3) ABELL1835	ACS/WFC	2	15-Jul-2019 13:00:24.0	yes
97	(3) ABELL1835	ACS/WFC	2	15-Jul-2019 13:00:24.0	yes
08	(3) ABELL1835	ACS/WFC	2	15-Jul-2019 13:00:25.0	yes
58	(3) ABELL1835	ACS/WFC	1	15-Jul-2019 13:00:25.0	yes
09	(3) ABELL1835	ACS/WFC	2	15-Jul-2019 13:00:26.0	yes
0A	(5) RXJ1532.9+3021	ACS/WFC	3	15-Jul-2019 13:00:26.0	yes
0B	(5) RXJ1532.9+3021	ACS/WFC	3	15-Jul-2019 13:00:27.0	yes
0C	(5) RXJ1532.9+3021	ACS/WFC	2	15-Jul-2019 13:00:28.0	yes
0D	(5) RXJ1532.9+3021	ACS/WFC	3	15-Jul-2019 13:00:28.0	yes
13	(4) MACS1931.8-2634	ACS/WFC	3	15-Jul-2019 13:00:29.0	yes

41 Total Orbits Used

ABSTRACT

In the cores of galaxy clusters, the hot intracluster medium should cool rapidly, leading to "cooling flows" of order ~100-1000 Msun/yr. Our current picture is that AGN feedback is responsible for preventing these runaway cooling events, leading to more typical star formation rates of ~1-10 Msun/yr in the centers of relaxed, cool core clusters. However, recent work suggests that feedback may saturate in the most massive clusters, leading to a cooling imbalance in the most extreme systems. In this proposal, we target five of the six most star-forming central cluster galaxies (the sixth has sufficient quality existing data), all of which are forming stars at nearly the original cooling flow prediction. We will obtain narrow-band [O II] imaging using the ACS ramp filter on each of these clusters, allowing us to probe the development of thermal instabilities as gas condenses out of the hot phase and ultimately forms stars. This total sample of six massive clusters provides an opportunity to test the limits of AGN feedback, where cooling does not appear to be significantly suppressed. Three of the six clusters also harbor central QSOs, allowing us to probe the different effects of mechanical (radio-mode) and radiative (quasar-mode) feedback in the inner regions of clusters. As the six most star-forming central cluster galaxies, these will make stunning and inspiring images and have tremendous legacy value, as recent Chandra+ALMA and future JWST targets.

OBSERVING DESCRIPTION

Our goal is to obtain deep, high-angular resolution maps of [O II]3726,3729 for five galaxies, following in methodology from HST Proposal 15315. This is possible using the ramp filters on ACS, which provide narrow-band filters over the range 3700-10700A. At the redshift of our targets the filter width is ~120A. The width of this filter means that we will (easily) obtain both lines in the [O II] doublet, while avoiding any other strong lines. Given the inherent challenge in flux calibrating and flat fielding HST ramp filter data, achieving a reliable flux map would be challenging even with perfect knowledge of the intrinsic extinction.

In addition, we require a pair of broadband observations in order to subtract continuum emission, which will contribute significantly to the narrow bandpass. These two filters have been chosen for each galaxy to bracket the 4000A break and avoid emission from Balmer lines and [O III] (5007A). These broadband filters are a factor of ~10x wider than the narrow-band filter, providing similar sensitivity to the continuum in a single orbit as we achieve over 8 exposures in the narrow band. Combining the two bands bracketing the [OII] line, we will have a factor of 5x deeper exposure in the continuum, compared to the narrow-band exposure. Without these deep continuum images, we would add significant amounts of noise during the continuum-subtraction procedure, reducing the effective depth of our narrow-band images.

Visit

Proposal 15661, H1821-OII (81), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 2 (H1821-OII (81))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	H1821+643	RA: 18 21 57.3144 (275.4888100d) Dec: +64 20 36.38 (64.34344d) Equinox: J2000		V=14.1	Reference Frame: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) H1821+643	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 4833.9 A				2000 Secs (2858 Secs) *[==>2858.0 Secs]*	 ***[1]***
2		(1) H1821+643	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 4833.9 A		POS TARG 0.247,0.094		2000 Secs (2971 Secs) *[==>2971.0 Secs]*	 ***[2]***

Visit

Proposal 15661, H1821-OII (91), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (H1821-OII (91))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (H1821-OII (91))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

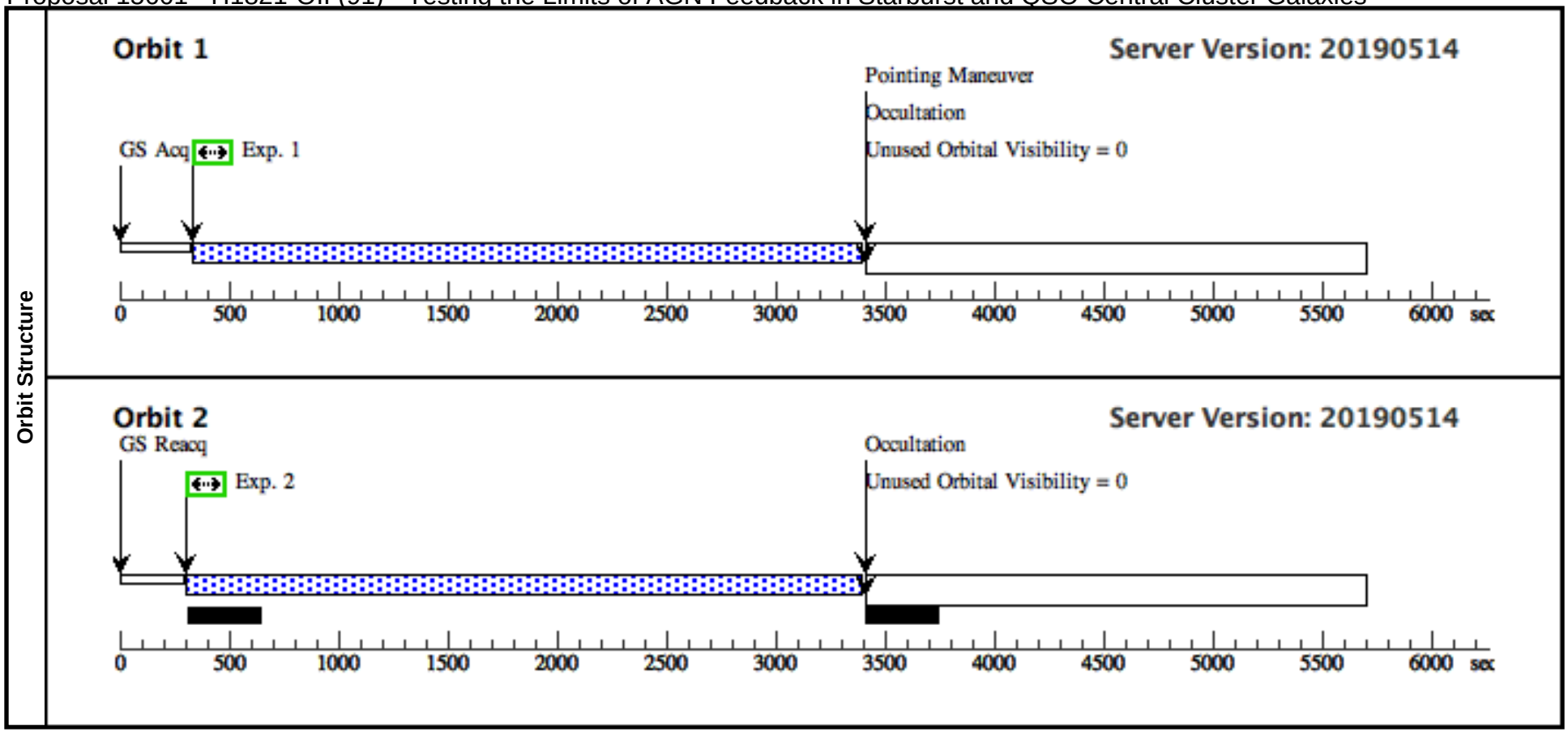
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	H1821+643	RA: 18 21 57.3144 (275.4888100d) Dec: +64 20 36.38 (64.34344d) Equinox: J2000		V=14.1	Reference Frame: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) H1821+643	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 4833.9 A		POS TARG 0.124,0.232		2000 Secs (2858 Secs) *[==>2858.0 Secs]*	 ***[1]***
2		(1) H1821+643	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 4833.9 A		POS TARG -0.124,0.138		2000 Secs (2971 Secs) *[==>2971.0 Secs]*	 ***[2]***


Orbit Structure
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Server Version: 20190514
Pointing Maneuver
Occultation
Unused Orbital Visibility = 0
GS Acq
Exp. 1
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6000
sec
Orbit 2
Server Version: 20190514
GS Reacq
Occultation
Exp. 2
Unused Orbital Visibility = 0
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5500
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sec

Visit

Proposal 15661, H1821-blue (82), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Fixed Targets

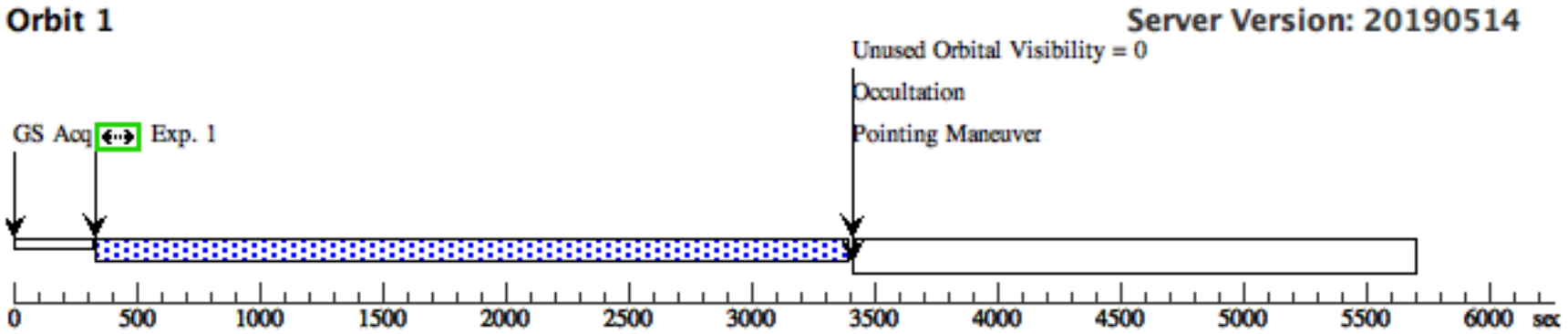
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	H1821+643	RA: 18 21 57.3144 (275.4888100d) Dec: +64 20 36.38 (64.34344d) Equinox: J2000		V=14.1	Reference Frame: NED

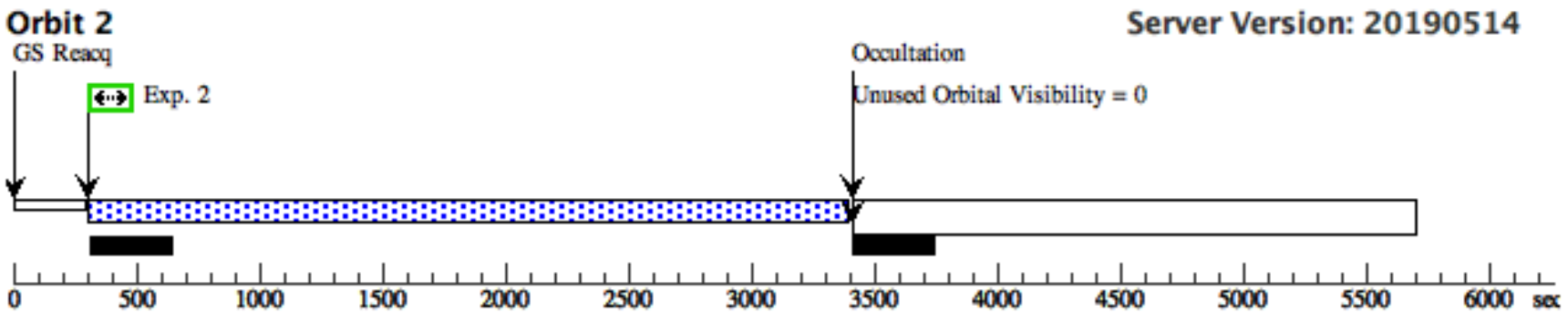
Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) H1821+643	ACS/WFC, ACCUM, WFC2	F550M				2000 Secs (2858 Secs) *[==>2858.0 Secs]*	 ***[1]***
2		(1) H1821+643	ACS/WFC, ACCUM, WFC2	F550M		POS TARG 0.247,0.094		2000 Secs (2971 Secs) *[==>2971.0 Secs]*	 ***[2]***

Orbit Structure





Visit

Proposal 15661, H1821-blue (92), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Fixed Targets

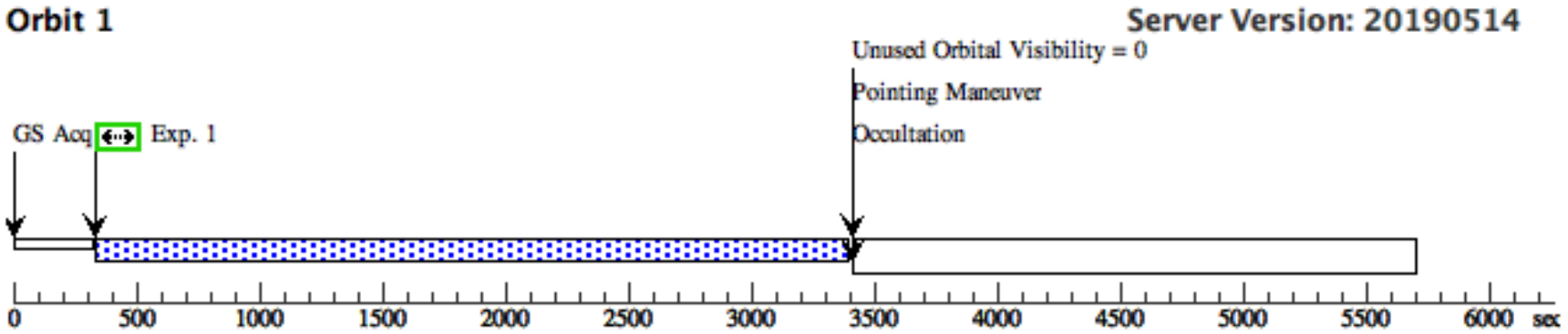
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	H1821+643	RA: 18 21 57.3144 (275.4888100d) Dec: +64 20 36.38 (64.34344d) Equinox: J2000		V=14.1	Reference Frame: NED

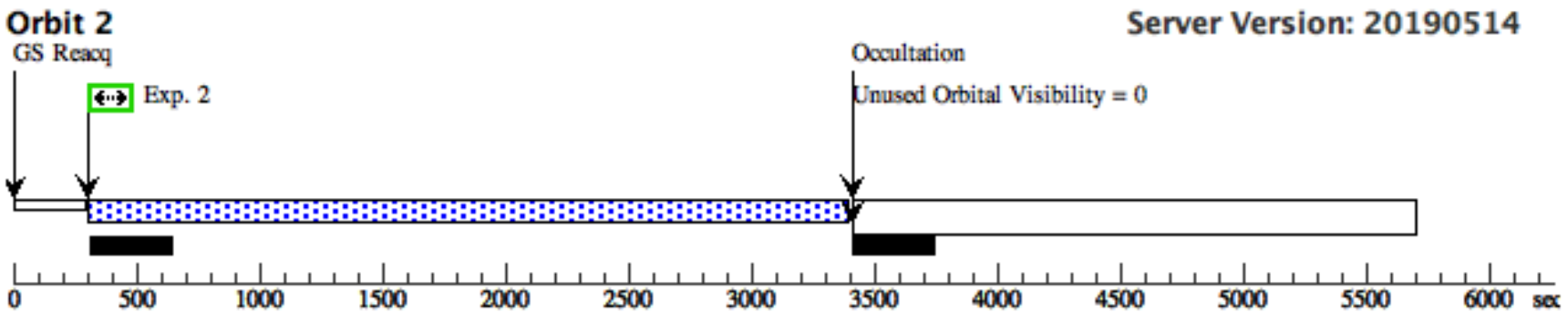
Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) H1821+643	ACS/WFC, ACCUM, WFC2	F550M		POS TARG 0.124,0.232		2000 Secs (2858 Secs) *[==>2858.0 Secs]*	 ***[1]***
2		(1) H1821+643	ACS/WFC, ACCUM, WFC2	F550M		POS TARG -0.124,0.138		2000 Secs (2971 Secs) *[==>2971.0 Secs]*	 ***[2]***

Orbit Structure





Visit

Proposal 15661, H1821-red (03), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=18.39		
	Number Of Points=4	Angle Between Sides=68.14		
	Point Spacing=0.262	Center Pattern=false		
	Line Spacing=0.192			

Fixed Targets

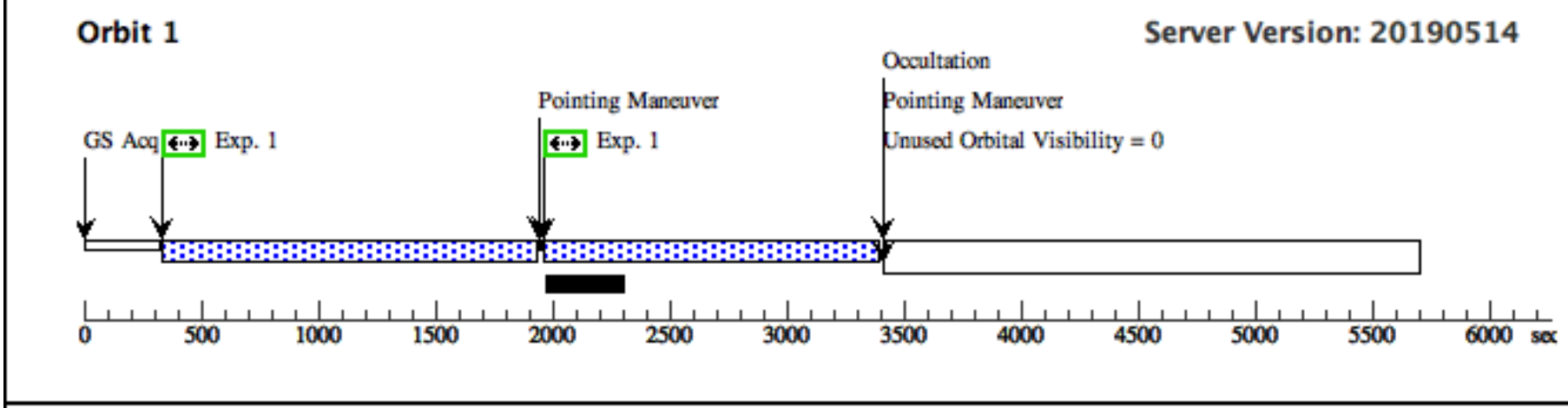
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	H1821+643	RA: 18 21 57.3144 (275.4888100d)		V=14.1	Reference Frame: NED
		Dec: +64 20 36.38 (64.34344d)			
		Equinox: J2000			

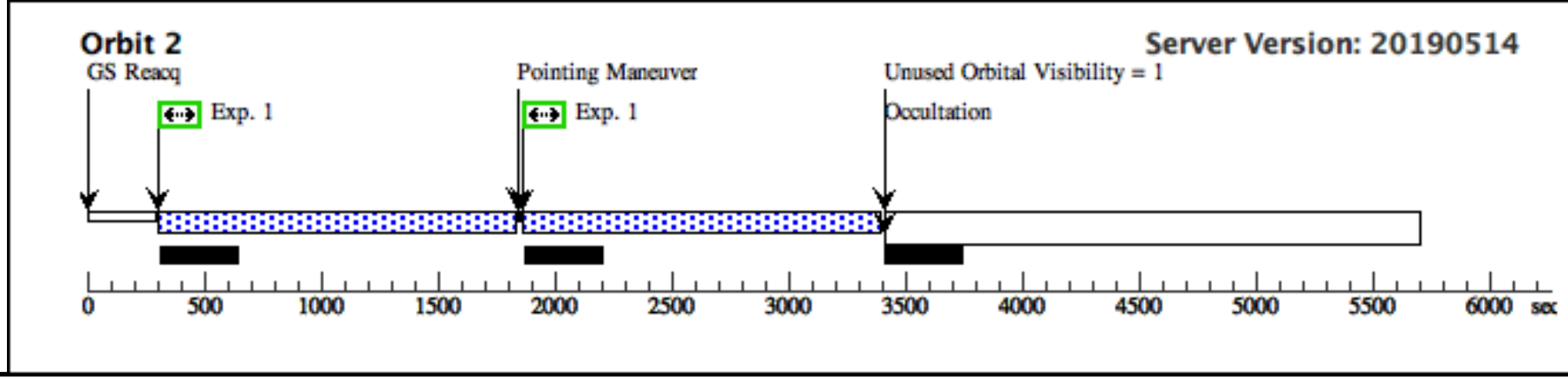
Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) H1821+643	ACS/WFC, ACCUM, WFC2	F850LP			Pattern 2, Exps 1-1 in H1821-red (03) (2)	1000 Secs (5512 Secs)	
								[==>1395.0 Secs (Pattern 1)]	***[1]***
								[==>1305.0 Secs (Pattern 2)]	
								[==>1406.0 Secs (Pattern 3)]	***[2]***
								[==>1406.0 Secs (Pattern 4)]	

Orbit Structure





Visit

Proposal 15661, IRAS09104-OII (84), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 2 (IRAS09104-OII (84))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

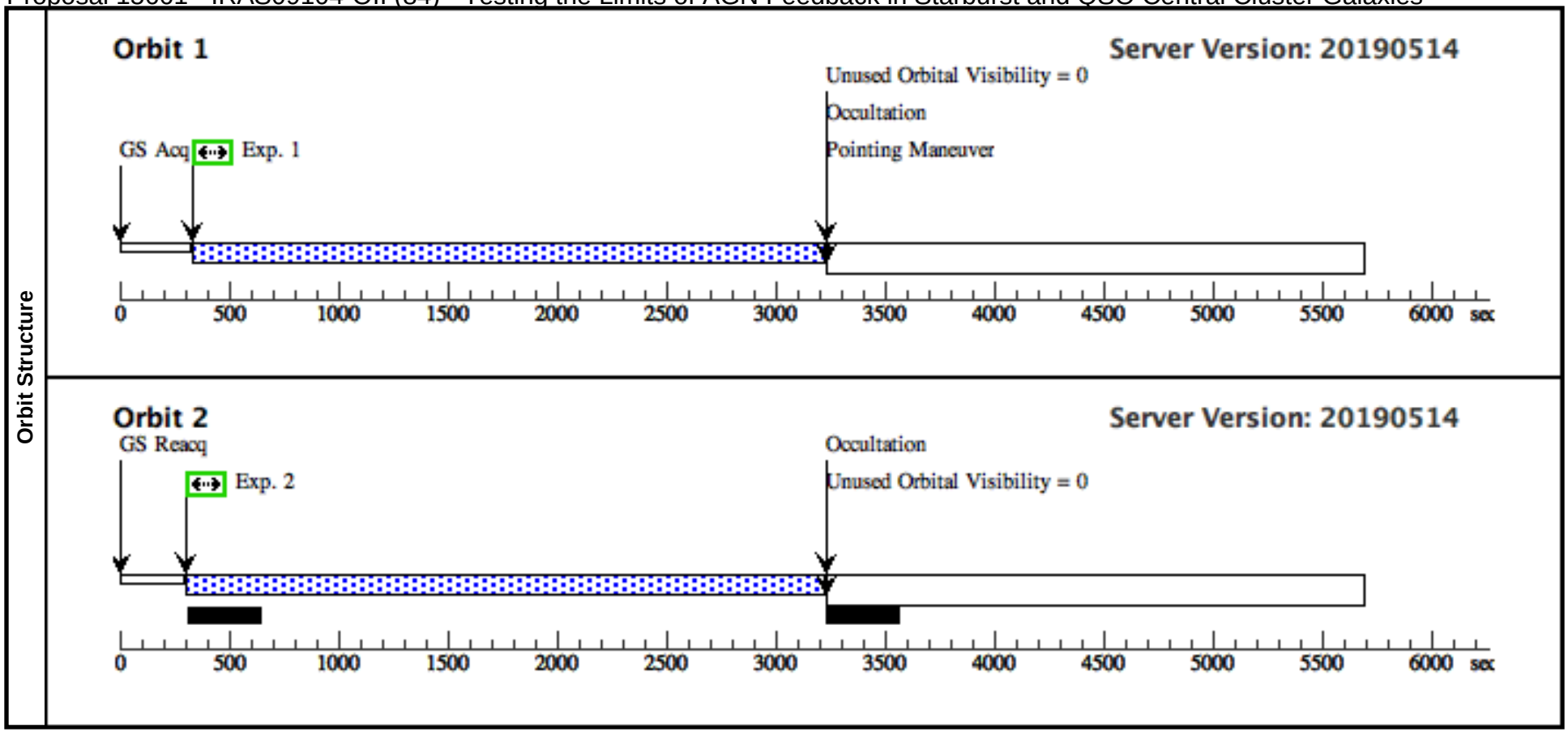
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	IRAS09104+4109	RA: 09 13 45.4896 (138.4395400d) Dec: +40 56 28.21 (40.94117d) Equinox: J2000		V=18.8	Reference Frame: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5375.1 A				2000 Secs (2685 Secs) *[==>2685.0 Secs]*	 ***[1]***
2		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5375.1 A		POS TARG 0.247,0.094		2000 Secs (2798 Secs) *[==>2798.0 Secs]*	 ***[2]***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Pointing Maneuver
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Exp. 1
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Orbit 2
Server Version: 20190514
GS Reacq
Occultation
Exp. 2
Unused Orbital Visibility = 0
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sec

Visit

Proposal 15661, IRAS09104-OII (94), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (IRAS09104-OII (94))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (IRAS09104-OII (94))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

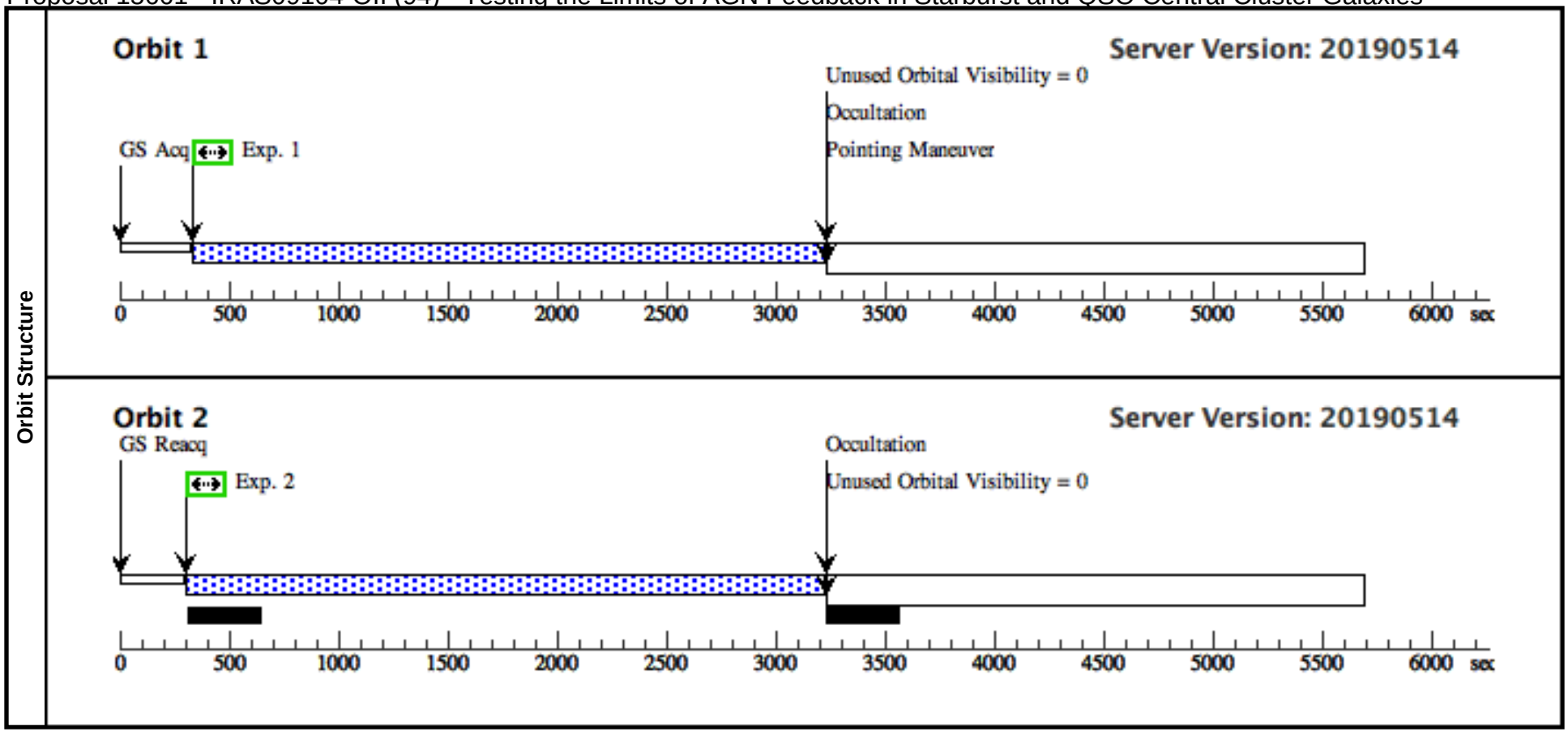
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	IRAS09104+4109	RA: 09 13 45.4896 (138.4395400d) Dec: +40 56 28.21 (40.94117d) Equinox: J2000		V=18.8	Reference Frame: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5375.1 A		POS TARG 0.124,0.232		2000 Secs (2685 Secs) *[==>2685.0 Secs]*	 ***[1]***
2		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC1-IRAMP	FR551N 5375.1 A		POS TARG -0.124,0.138		2000 Secs (2798 Secs) *[==>2798.0 Secs]*	 ***[2]***


Orbit Structure
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Unused Orbital Visibility = 0
Occultation
Pointing Maneuver
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sec
Orbit 2
Server Version: 20190514
GS Reacq
Occultation
Exp. 2
Unused Orbital Visibility = 0
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sec

Visit

Proposal 15661, IRAS09104-blue (05), scheduling Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=18.39		
	Number Of Points=4	Angle Between Sides=68.14		
	Point Spacing=0.262	Center Pattern=false		
	Line Spacing=0.192			

Fixed Targets

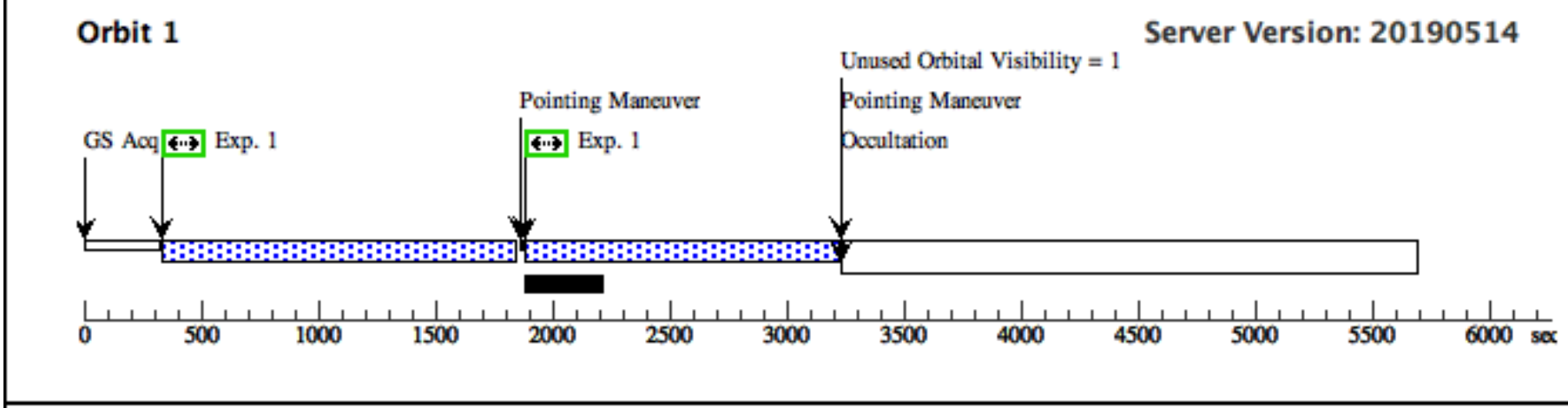
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	IRAS09104+4109	RA: 09 13 45.4896 (138.4395400d)		V=18.8	Reference Frame: NED
		Dec: +40 56 28.21 (40.94117d)			
		Equinox: J2000			

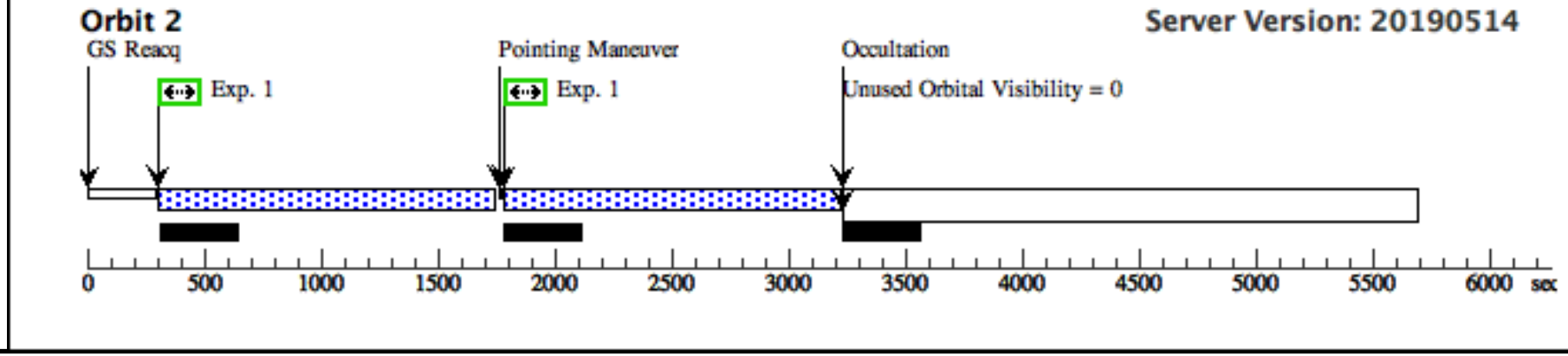
Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC2	F435W			Pattern 2, Exps 1-1 in IRAS09104-blue (05) (2)	1000 Secs (5166 Secs)	
								[==>1308.0 Secs (Pattern 1)] *[==>1218.0 Secs (Pattern 2)]*	***[1]***
								[==>1320.0 Secs (Pattern 3)] *[==>1320.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 15661, IRAS09104-red (06), scheduling Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)

Fixed Targets

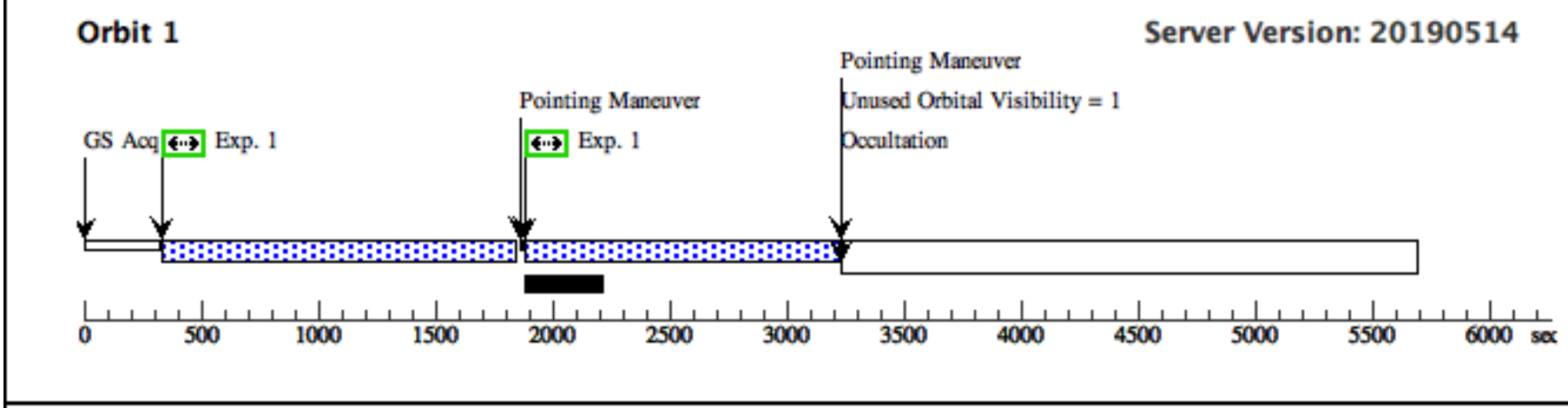
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	IRAS09104+4109	RA: 09 13 45.4896 (138.4395400d) Dec: +40 56 28.21 (40.94117d) Equinox: J2000		V=18.8	Reference Frame: NED

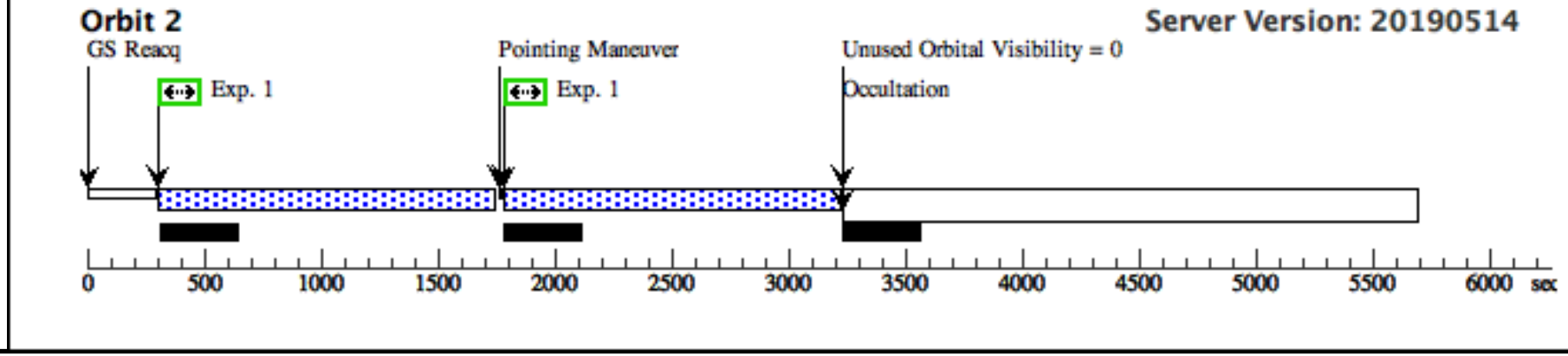
Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) IRAS09104+4109	ACS/WFC, ACCUM, WFC2	F625W			Pattern 2, Exps 1-1 in IRAS09104-red (06) (2)	1000 Secs (5166 Secs)	
								[==>1308.0 Secs (Pattern 1)] *[==>1218.0 Secs (Pattern 2)]*	***[1]***
								[==>1320.0 Secs (Pattern 3)] *[==>1320.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 15661, A1835-OII (87), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 2 (A1835-OII (87))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

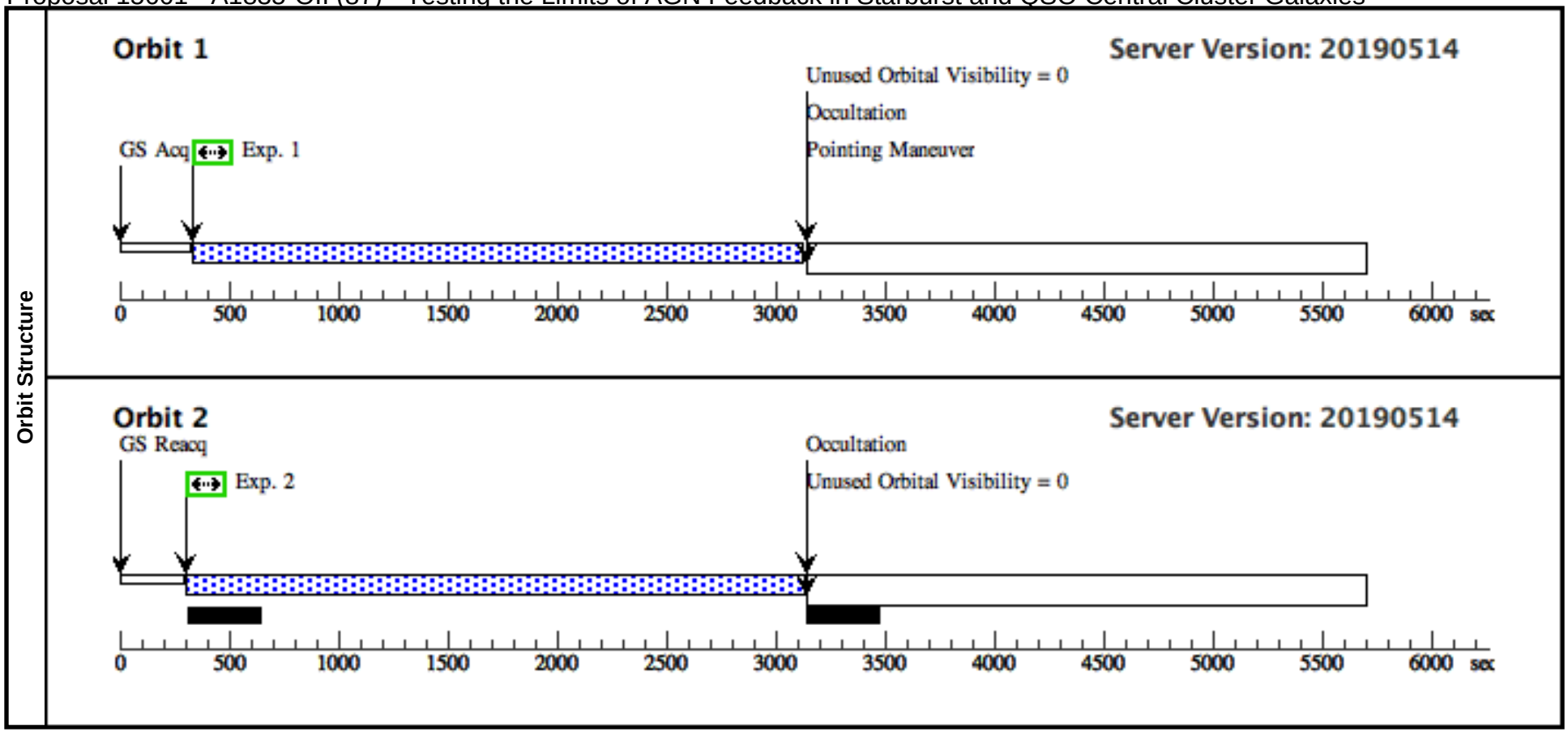
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ABELL1835	RA: 14 01 2.0714 (210.2586308d) Dec: +02 52 42.48 (2.87847d) Equinox: J2000		V=17.6	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) ABELL1835	ACS/WFC, ACCUM, WFC2-ORAMP	FR462N 4671 A		GS ACQ SCENARIO BASE1B3		2000 Secs (2589 Secs) *[==>2589.0 Secs]*	 ***[1]***
2		(3) ABELL1835	ACS/WFC, ACCUM, WFC2-ORAMP	FR462N 4671 A		POS TARG 0.247,0.094		2000 Secs (2702 Secs) *[==>2702.0 Secs]*	 ***[2]***


Orbit Structure
Orbit 1
Server Version: 20190514
Unused Orbital Visibility = 0
Occultation
Pointing Maneuver
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 2
Server Version: 20190514
GS Reacq
Occultation
Exp. 2
Unused Orbital Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 15661, A1835-OII (97), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (A1835-OII (97))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (A1835-OII (97))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

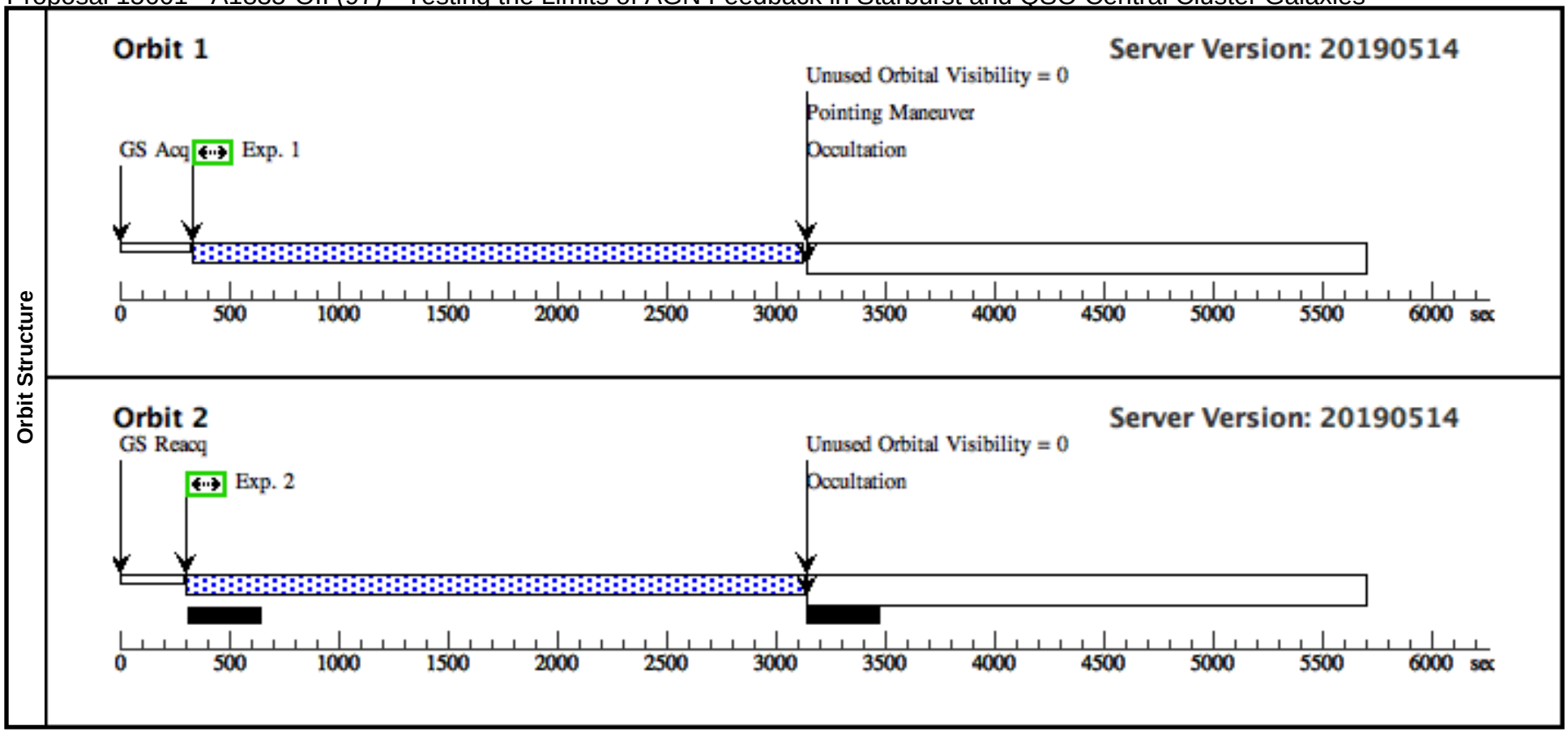
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ABELL1835	RA: 14 01 2.0714 (210.2586308d) Dec: +02 52 42.48 (2.87847d) Equinox: J2000		V=17.6	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) ABELL1835	ACS/WFC, ACCUM, WFC2-ORAMP	FR462N 4671 A		POS TARG 0.124,0.232; GS ACQ SCENARIO BASE1B3		2000 Secs (2589 Secs) *[==>2589.0 Secs]*	 ***[1]***
2		(3) ABELL1835	ACS/WFC, ACCUM, WFC2-ORAMP	FR462N 4671 A		POS TARG -0.124,0.138		2000 Secs (2702 Secs) *[==>2702.0 Secs]*	 ***[2]***


Orbit Structure
Orbit 1
Server Version: 20190514
Unused Orbital Visibility = 0
Pointing Maneuver
Occultation
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 2
Server Version: 20190514
GS Reacq
Unused Orbital Visibility = 0
Occultation
Exp. 2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 15661, A1835-blue (08), failed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)

Fixed Targets

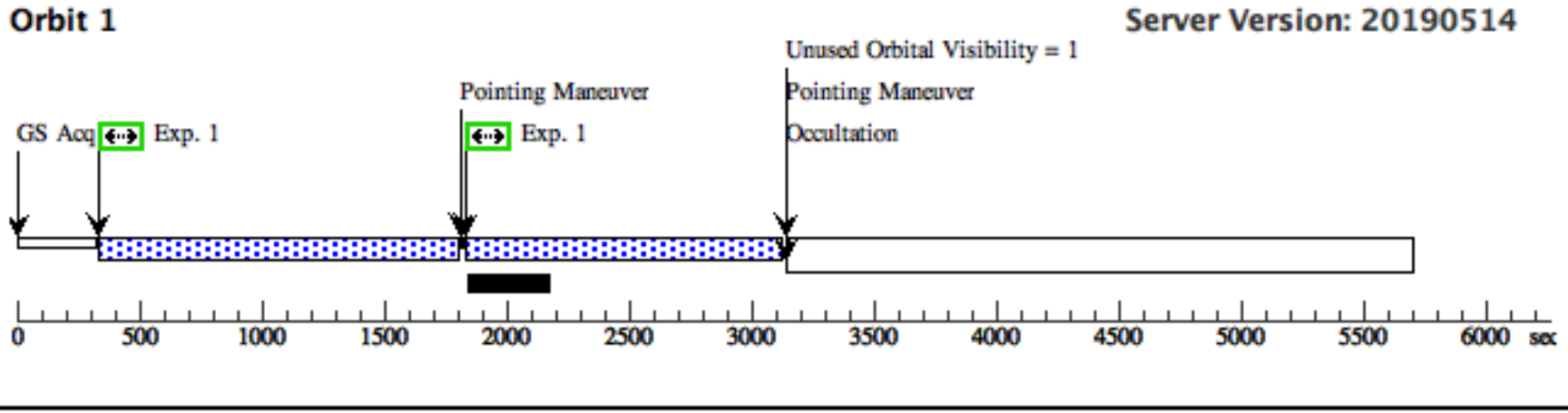
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ABELL1835	RA: 14 01 2.0714 (210.2586308d) Dec: +02 52 42.48 (2.87847d) Equinox: J2000		V=17.6	Reference Frame: NED

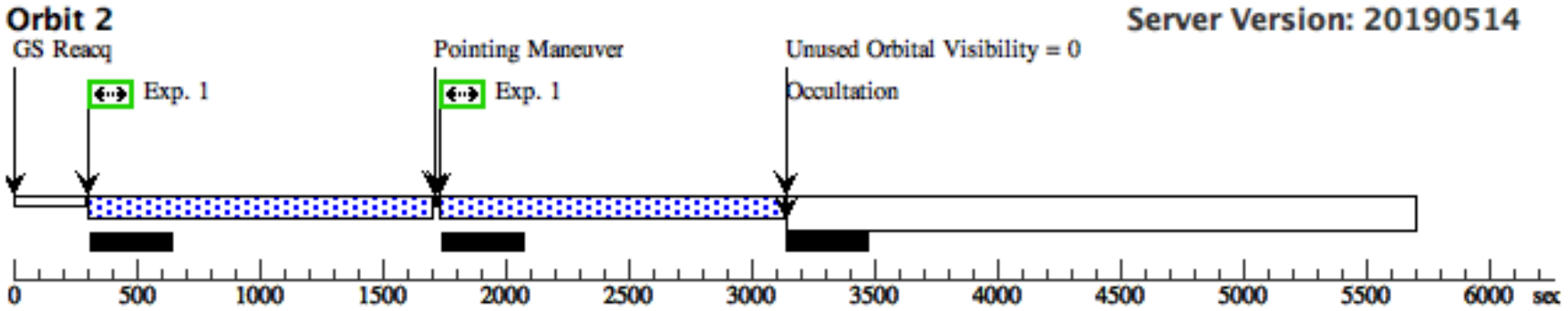
Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) ABELL1835	ACS/WFC, ACCUM, WFC2	F555W		GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in A1835-blue (08) (2)	1000 Secs (4974 Secs)	
								[==>1260.0 Secs (Pattern 1)] *[==>1170.0 Secs (Pattern 2)]*	***[1]***
								[==>1272.0 Secs (Pattern 3)] *[==>1272.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 15661, A1835-blue (58), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=LINE	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=18.39		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=0.262	Center Pattern=false		
	Line Spacing=			

Fixed Targets

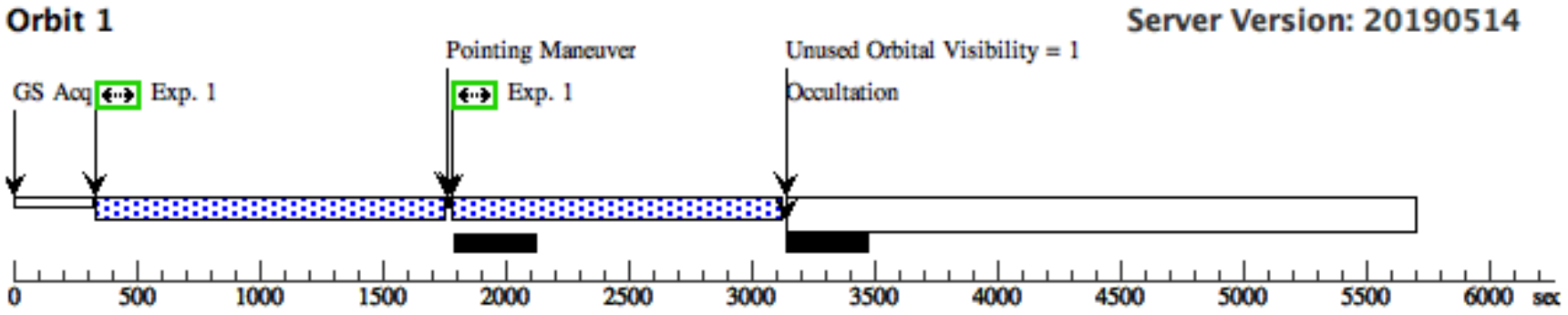
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ABELL1835	RA: 14 01 2.0714 (210.2586308d) Dec: +02 52 42.48 (2.87847d) Equinox: J2000		V=17.6	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) ABELL1835	ACS/WFC, ACCUM, WFC2	F555W		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in A1835-blue (58) (1)	1000 Secs (2430 Secs) *[==>1215.0 Secs (Pattern 1)]* *[==>1215.0 Secs (Pattern 2)]*	*[1]*

Orbit Structure



Visit

Proposal 15661, A1835-red (09), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.262 Line Spacing=0.192	Coordinate Frame=POS-TARG Pattern Orientation=18.39 Angle Between Sides=68.14 Center Pattern=false		(1)

Fixed Targets

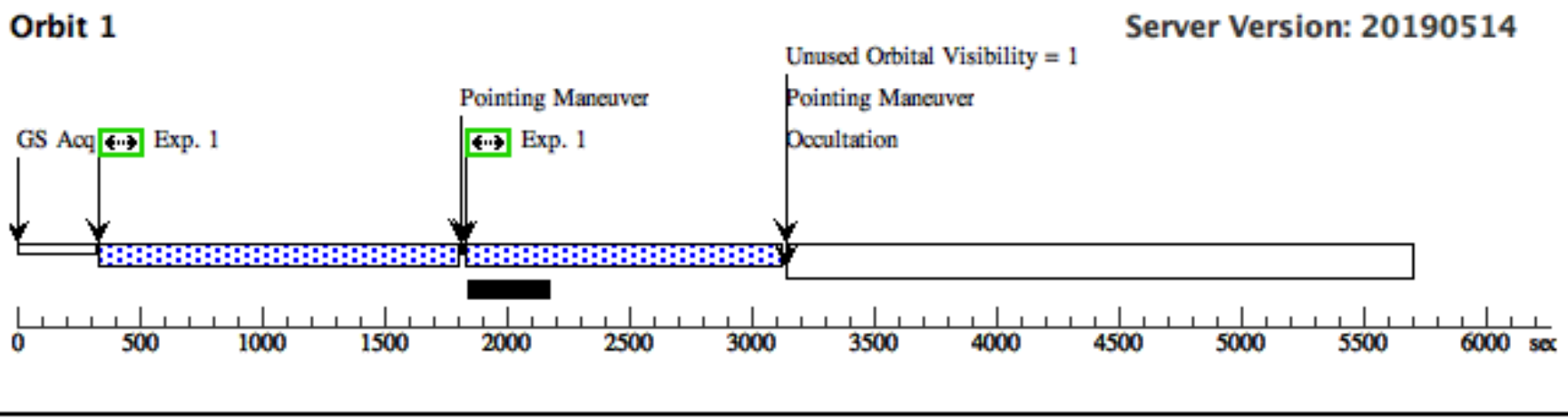
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	ABELL1835	RA: 14 01 2.0714 (210.2586308d) Dec: +02 52 42.48 (2.87847d) Equinox: J2000		V=17.6	Reference Frame: NED

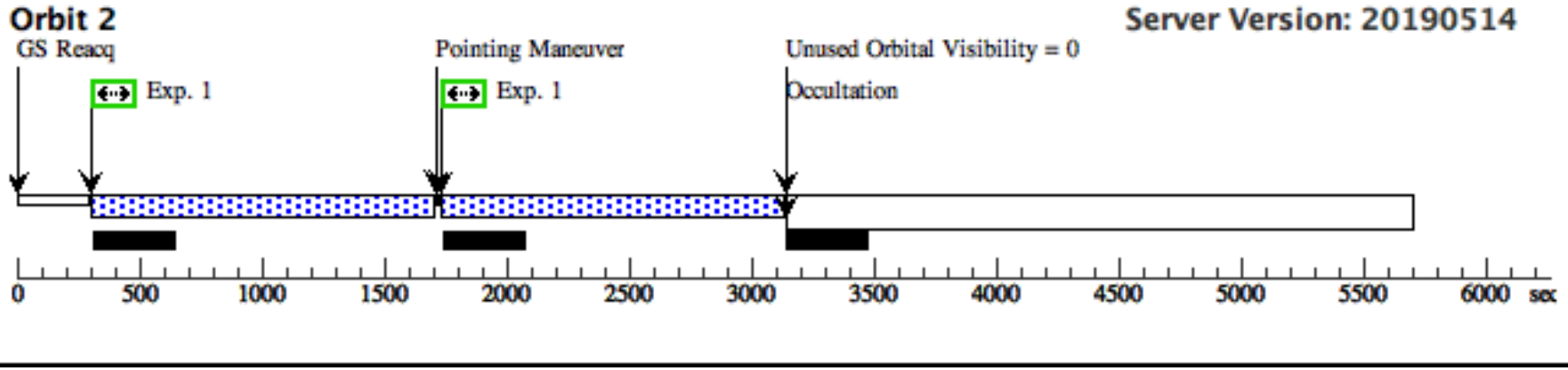
Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]
Extended=YES

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) ABELL1835	ACS/WFC, ACCUM, WFC2	F850LP		GS ACQ SCENARIO BASE1B3	Pattern 2, Exps 1-1 in A1835-red (09) (2)	1000 Secs (4974 Secs)	
								[==>1260.0 Secs (Pattern 1)] *[==>1170.0 Secs (Pattern 2)]*	***[1]***
								[==>1272.0 Secs (Pattern 3)] *[==>1272.0 Secs (Pattern 4)]*	***[2]***

Orbit Structure





Visit

Proposal 15661, RXJ1532-OII-v1 (0A), completed Mon Jul 15 17:00:30 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 2 (RXJ1532-OII-v1 (0A))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 3 (RXJ1532-OII-v1 (0A))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

Fixed Targets

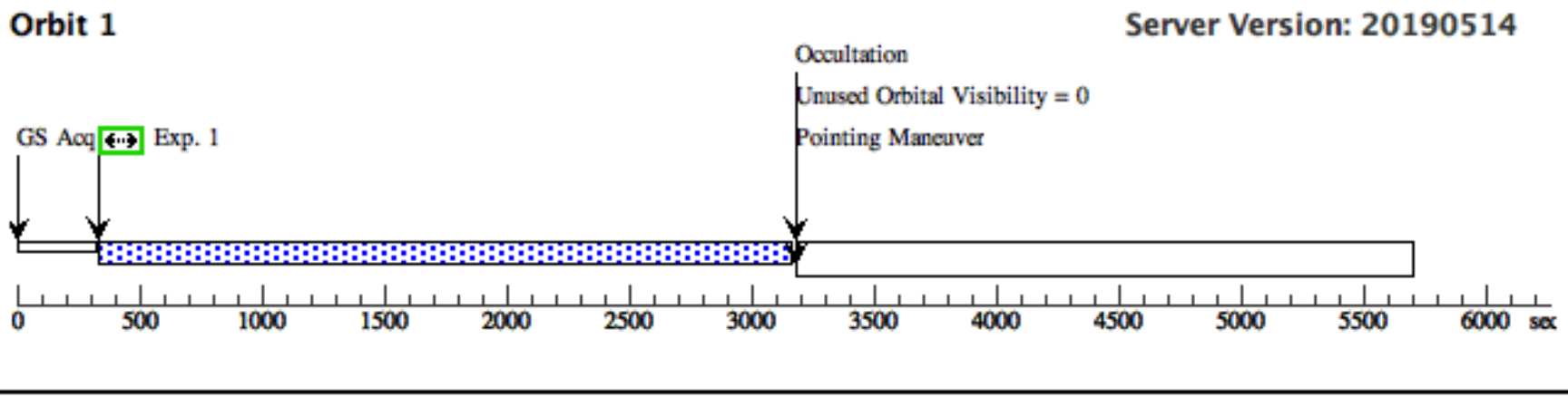
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXJ1532.9+3021	RA: 15 32 53.7777 (233.2240738d) Dec: +30 20 59.37 (30.34982d) Equinox: J2000		V=18.7	Reference Frame: NED

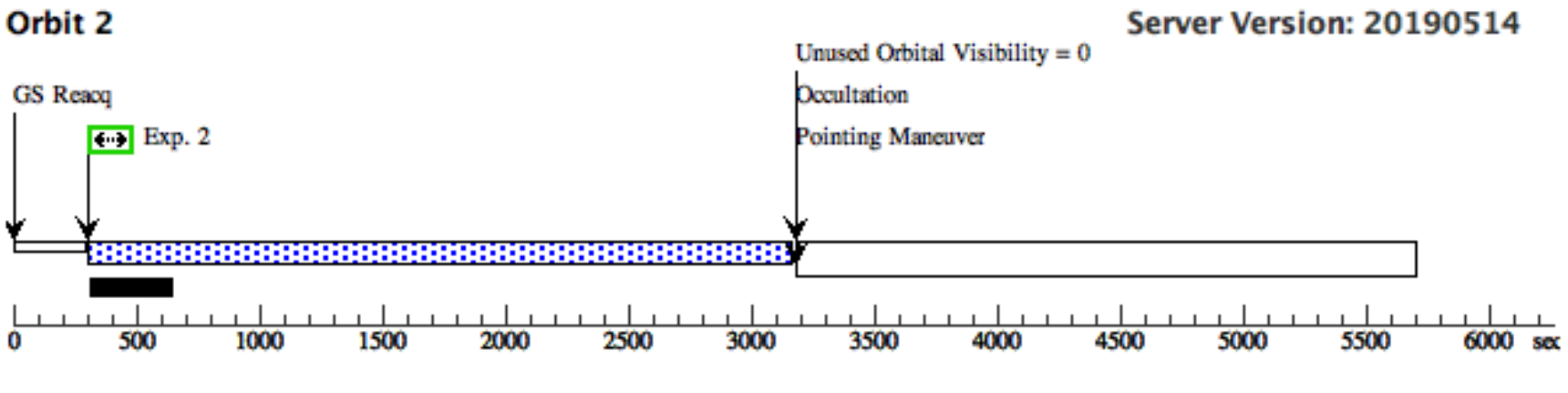
Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]

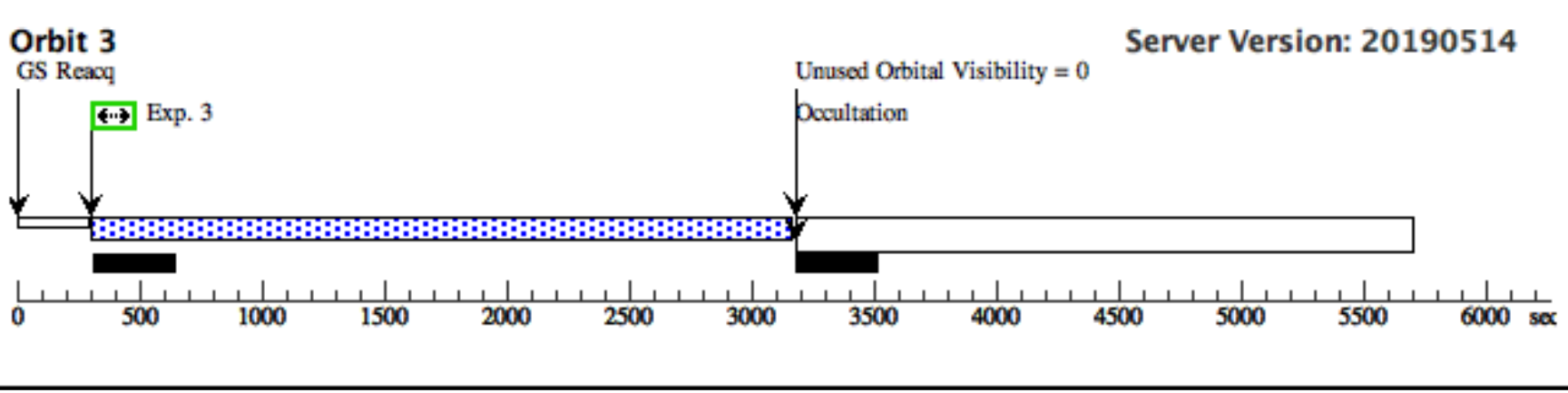
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A				2000 Secs (2627 Secs) *[==>2627.0 Secs]*	 ***[1]***
2		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG 0.247,0.094		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	 ***[2]***
3		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG 0.124,0.232		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	 ***[3]***

Orbit Structure







Visit

Proposal 15661, RXJ1532-OII-v2 (0B), completed Mon Jul 15 17:00:31 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (RXJ1532-OII-v2 (0B))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (RXJ1532-OII-v2 (0B))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 3 (RXJ1532-OII-v2 (0B))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

Fixed Targets

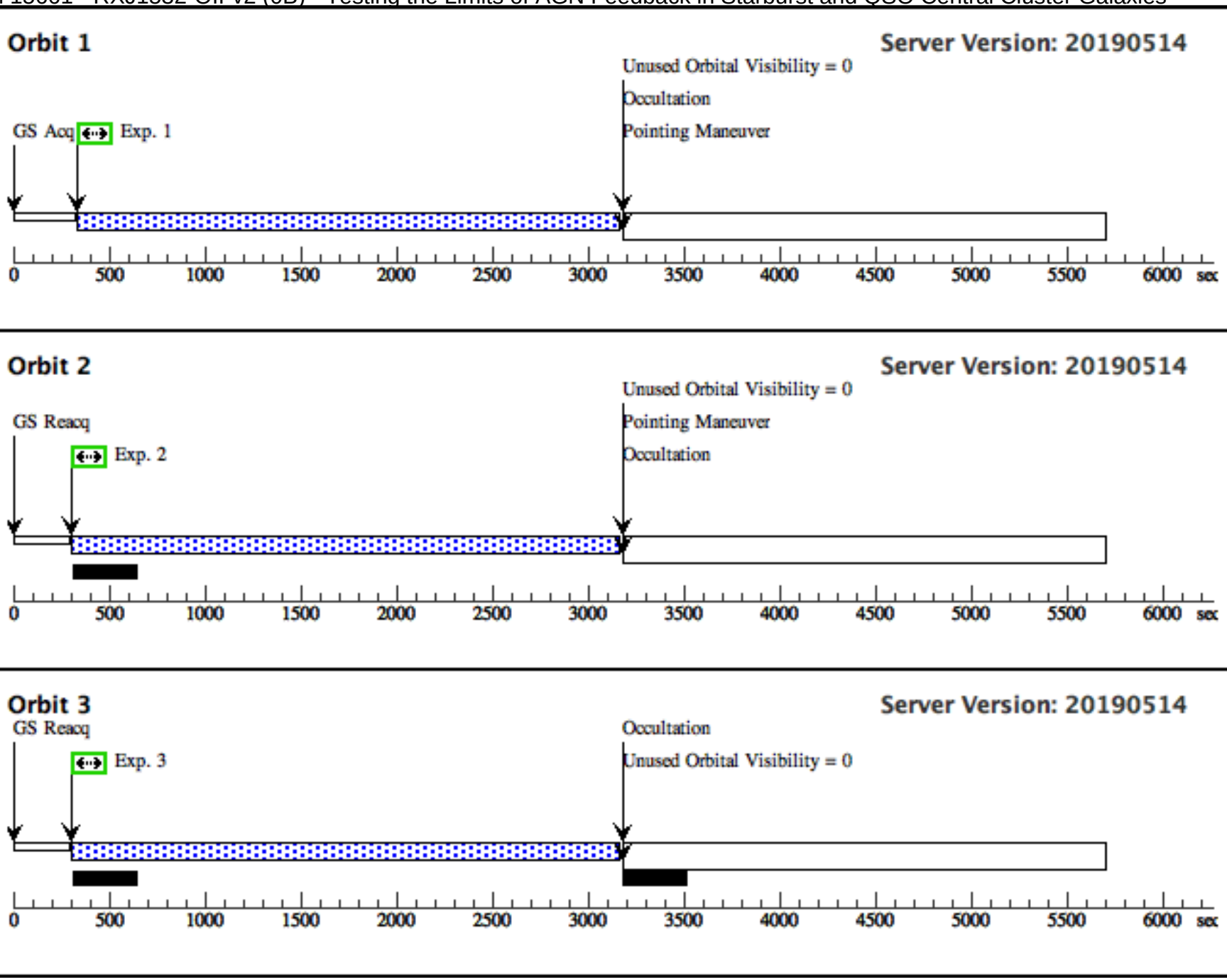
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXJ1532.9+3021	RA: 15 32 53.7777 (233.2240738d) Dec: +30 20 59.37 (30.34982d) Equinox: J2000		V=18.7	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG -0.124,0 .138		2000 Secs (2627 Secs) *[==>2627.0 Secs]*	 ***[1]***
2		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG -0.124,0 .232		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	 ***[2]***
3		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG 0.124,0. 139		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	 ***[3]***

Orbit Structure



Visit

Proposal 15661, RXJ1532-OII-v3 (0C), completed Mon Jul 15 17:00:31 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (RXJ1532-OII-v3 (0C))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (RXJ1532-OII-v3 (0C))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

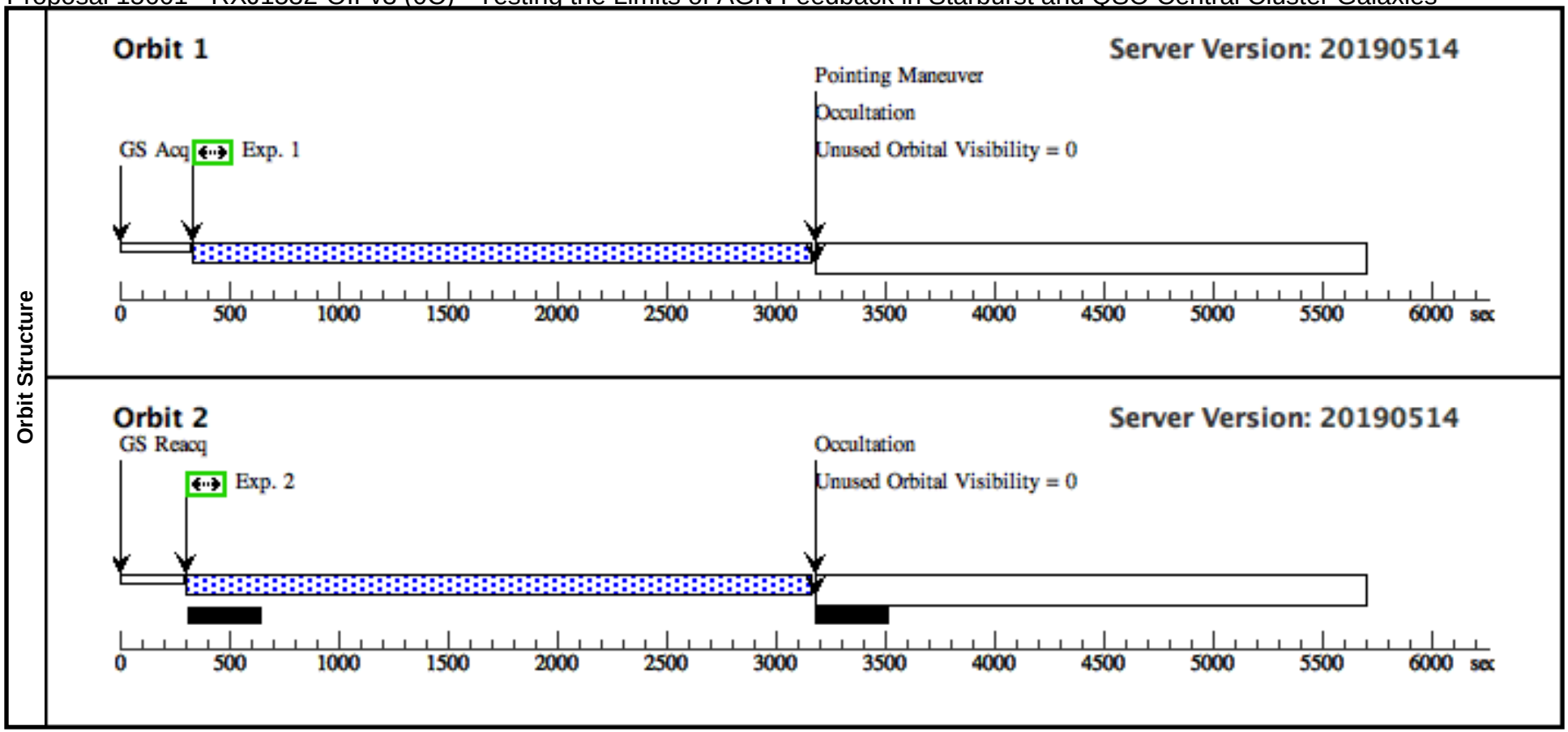
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXJ1532.9+3021	RA: 15 32 53.7777 (233.2240738d) Dec: +30 20 59.37 (30.34982d) Equinox: J2000		V=18.7	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG 0.247,0.139		2000 Secs (2627 Secs) *[==>2627.0 Secs]*	 ***[1]***
2		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG 0.237,0.232		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	 ***[2]***


Orbit Structure
Orbit 1
Server Version: 20190514
Pointing Maneuver
Occultation
Unused Orbital Visibility = 0
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 2
Server Version: 20190514
GS Reacq
Occultation
Exp. 2
Unused Orbital Visibility = 0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 15661, RXJ1532-OII-v4 (0D), scheduling Mon Jul 15 17:00:31 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (RXJ1532-OII-v4 (0D))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (RXJ1532-OII-v4 (0D))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 3 (RXJ1532-OII-v4 (0D))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

Fixed Targets

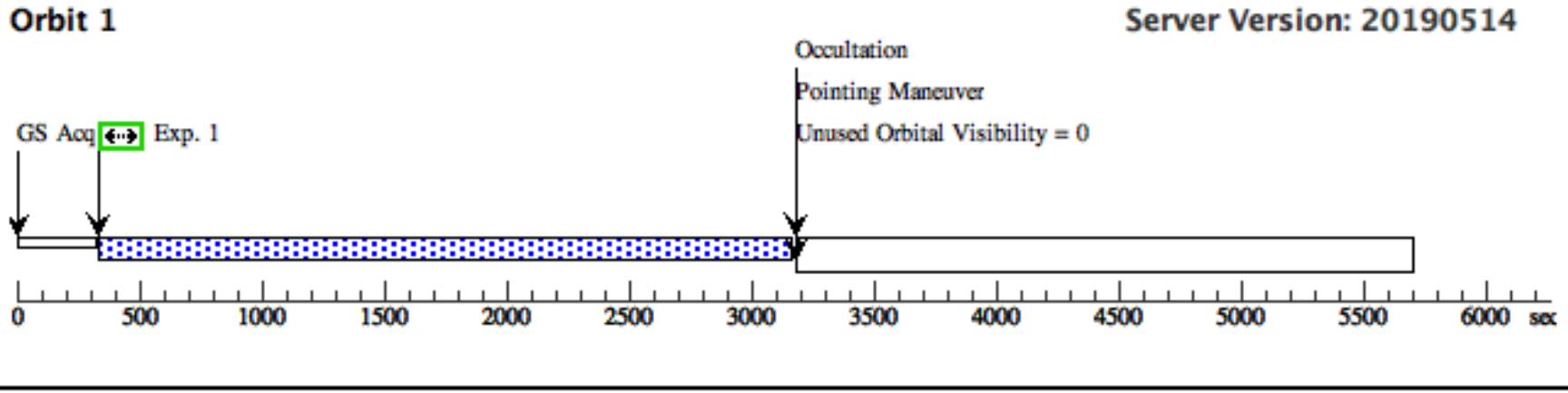
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	RXJ1532.9+3021	RA: 15 32 53.7777 (233.2240738d) Dec: +30 20 59.37 (30.34982d) Equinox: J2000		V=18.7	Reference Frame: NED

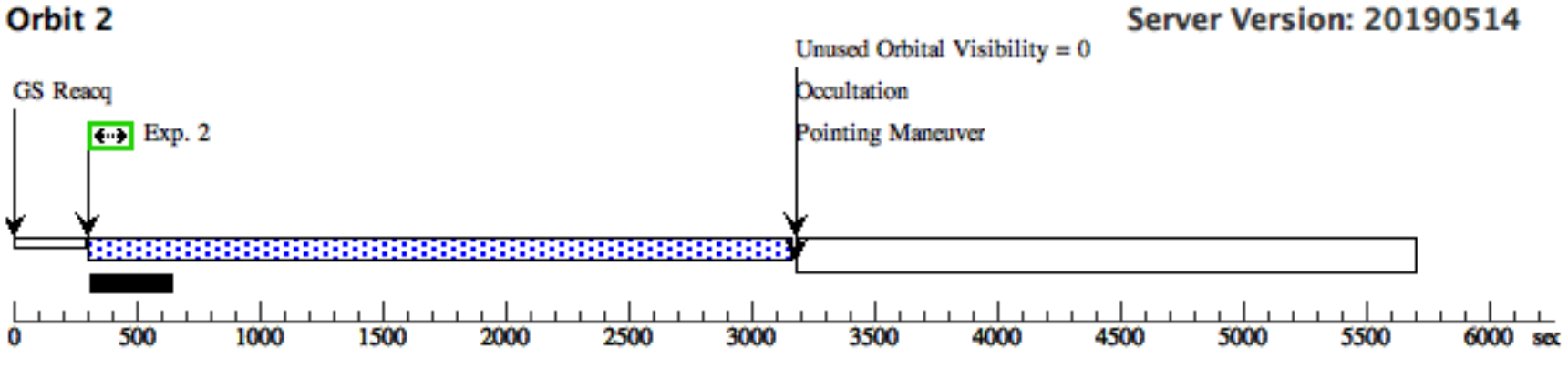
Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]

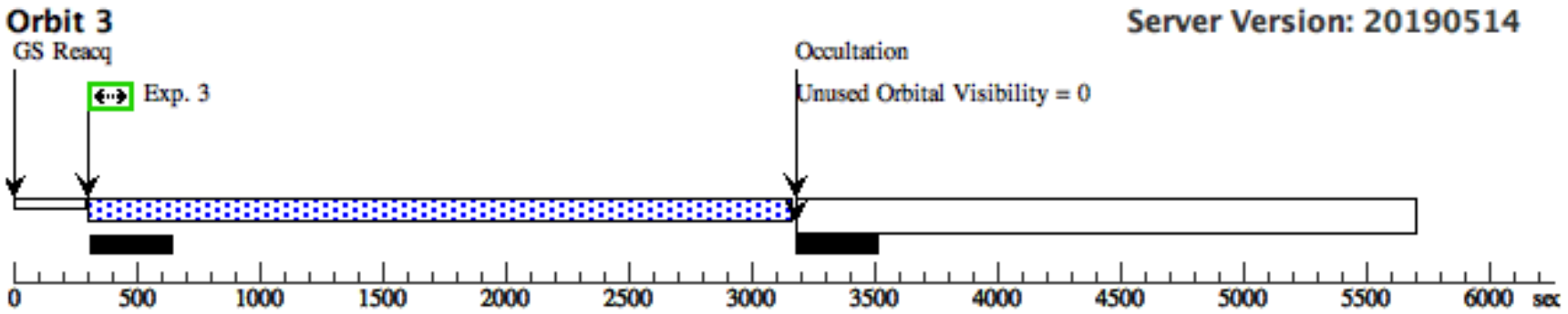
Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG -0.247,0.094; GS ACQ SCENARIO BASE1B3		2000 Secs (2627 Secs) *[==>2627.0 Secs]*	***[1]***
2		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG -0.247,0.139		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	***[2]***
3		(5) RXJ1532.9+3021	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5013 A		POS TARG -0.247,0.232		2000 Secs (2740 Secs) *[==>2740.0 Secs]*	***[3]***

Orbit Structure







Visit

Proposal 15661, MACS1931-OII (13), scheduling Mon Jul 15 17:00:31 GMT 2019

Diagnostic Status: Warning

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Diagnostics

(Exposure 1 (Pattern 1, Exps 1-1 in MACS1931-OII (13))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 2 (Pattern 1, Exps 2-2 in MACS1931-OII (13))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

(Exposure 3 (Pattern 1, Exps 3-3 in MACS1931-OII (13))) Warning (Form): POS TARG & PATTERN should be used carefully with ACS ramp filters as central wavelengths & transmission efficiencies vary within the apertures.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=LINE	Coordinate Frame=POS-TARG		(1), (2), (3)
	Purpose=DITHER	Pattern Orientation=18.39		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=0.262	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	MACS1931.8-2634	RA: 19 31 49.6379 (292.9568246d) Dec: -26 34 33.17 (-26.57588d) Equinox: J2000		V=18.0	Reference Frame: NED

Comments:
Category=CLUSTER OF GALAXIES
Description=[COOLING FLOW, EMISSION LINE NEBULA, NUCLEUS, STAR FORMING REGION]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(4) MACS1931.8-2634	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5039 A			Pattern 1, Exps 1-1 in MACS1931-OII (13) (1)	2000 Secs (2454 Secs) *[==>1227.0 Secs (Pattern 1)]* *[==>1227.0 Secs (Pattern 2)]*	***[1]***
2		(4) MACS1931.8-2634	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5039 A		POS TARG 0.247,0.094	Pattern 1, Exps 2-2 in MACS1931-OII (13) (1)	2000 Secs (2566 Secs) *[==>1283.0 Secs (Pattern 1)]* *[==>1283.0 Secs (Pattern 2)]*	***[2]***
3		(4) MACS1931.8-2634	ACS/WFC, ACCUM, WFC1-MRAMP	FR505N 5039 A		POS TARG 0.124,0.232	Pattern 1, Exps 3-3 in MACS1931-OII (13) (1)	2000 Secs (2566 Secs) *[==>1283.0 Secs (Pattern 1)]* *[==>1283.0 Secs (Pattern 2)]*	***[3]***

Orbit Structure