14456 - Determining the Role of Merging in the Growth of the Galaxy Cluster Population in the Massive and Distant Clusters of WISE Survey

Cycle: 23, 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	(1) MOO-J0012+1602	WFC3/IR	1	09-Nov-2016 11:01:23.0	yes
02	(2) MOO-J0037+3306	WFC3/IR	1	09-Nov-2016 11:01:24.0	yes
03	(3) MOO-J0105+1323	WFC3/IR	1	09-Nov-2016 11:01:26.0	yes
04	(4) MOO-J0123+2545	WFC3/IR	1	09-Nov-2016 11:01:27.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(5) MOO-J0319-0025	WFC3/IR	1	09-Nov-2016 11:01:28.0	yes
06	(6) MOO-J1111+1503	WFC3/IR	1	09-Nov-2016 11:01:30.0	yes
07	(7) MOO-J1155+3901	WFC3/IR	1	09-Nov-2016 11:01:31.0	yes
08	(8) MOO-J1335+3004	WFC3/IR	1	09-Nov-2016 11:01:32.0	yes
09	(9) MOO-J1514+1346	WFC3/IR	1	09-Nov-2016 11:01:34.0	yes
10	(10) MOO-J1521+0452	WFC3/IR	1	09-Nov-2016 11:01:35.0	yes
11	(11) MOO-J2206+0906	WFC3/IR	1	09-Nov-2016 11:01:37.0	yes
12	(12) MOO-J2342+1301	WFC3/IR	1	09-Nov-2016 11:01:38.0	yes

12 Total Orbits Used

ABSTRACT

We propose to obtain deep Spitzer/IRAC imaging of 14 distant (z ~ 1), stellar mass-selected galaxy clusters from the Massive and Distant Clusters of WISE Survey (MaDCoWS) for which robust Sunyaev-Zel'dovich (SZ)-based masses spanning ~2-10 x 10^14 Msun have been measured. These proposed IRAC data, along with joint HST imaging, will allow us to directly test key predictions of current models of cluster formation. These models posit that galaxy-galaxy merging drives the bursts of star formation and AGN activity seen in high redshift Spitzer studies of low-mass clusters, and predict the rate of such activity should be a function of total cluster mass. As clusters grow in mass (and hence velocity dispersion), the merging efficiency drops and the growth of the galaxy population, via both mergers and star formation, should cease. By measuring the cluster stellar mass function, as a function of both mass and morphological type, we will directly confirm or refute this model. We will also identify, on the basis of IRAC colors and HST morphologies, the AGN content in these clusters. We will thus test the prediction that the incidence of AGN should be higher in the lower mass clusters. Finally, we will measure the stellar mass fraction as a function of total mass, a crucial quantity in calibrating numerical cluster simulations that are key for cluster abundance cosmology.

OBSERVING DESCRIPTION

The scientific utility of the joint HST observations is described in the primary Technical Justification section above. The main advantage HST brings is its high spatial resolution, which we will use to (a) morphologically classify the cluster galaxy population and split it into early- and late-type galaxies, (b) deblend the IRAC data in the cluster cores, and (c) identify unresolved AGN. These tasks are best accomplished in the near IR, redward

of the rest-frame 4000 A break, where morphological designations are unaffected by recent bursts of star formation, and where the "morphological K-correction" - a difference in morphologies in IRAC and HST bands due to color gradients - is minimal.

We require 10 sigma photometry to obtain robust morphological classifications (see, e.g., Snyder et al. 2012) down to M*+ 3 to match our IRAC depth. Adopting a standard zf = 3 passive evolution model that describes cluster evolution at z < 1.3, we find M* = 20.4 (Vega) in the very sensitive, wide WFC3/F110W band. This corresponds to a surface brightness of 20.9 mag/arcsec2 within a half-light effective radius of re = 0.5", appropriate for z > 1 galaxies. We model our clusters in the WFC3 ETC as 2.5 Gyr old Bruzual and Charlot (2003) tau = 0.6 stellar populations observed at z = 1.2, which is consistent with the adopted value of M*. The cluster galaxies are assumed to have extended source diameters of 1", and photometry is extracted within circular regions of 0.5". With a 4-dither observation we find that reaching SNR = 10 at F110W = 23.9 requires an exposure time of 520s. To cover the full cluster out to r200 ~ 1 Mpc, we require a 2 x 2 map, which will also fully cover the IRAC footprint. The total request is therefore 1 orbit per cluster. The required data is already in-hand or scheduled for two clusters (MOO J1014+0038 and MOO J1142+1527) from the Perlmutter et al. supernova program (HST PID 13677). Our total HST/WFC3 request is therefore 12 orbits.

No coordination between Spitzer and HST is needed, nor are there any special HST constraints. We will design our 2 x 2 map at any ORIENT permitted by available guide stars, and we can offset the centering by several arcseconds if required.

Visit

Proposal 14456, MOO-J0012+1602 (01), completed Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 120D TO 150 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

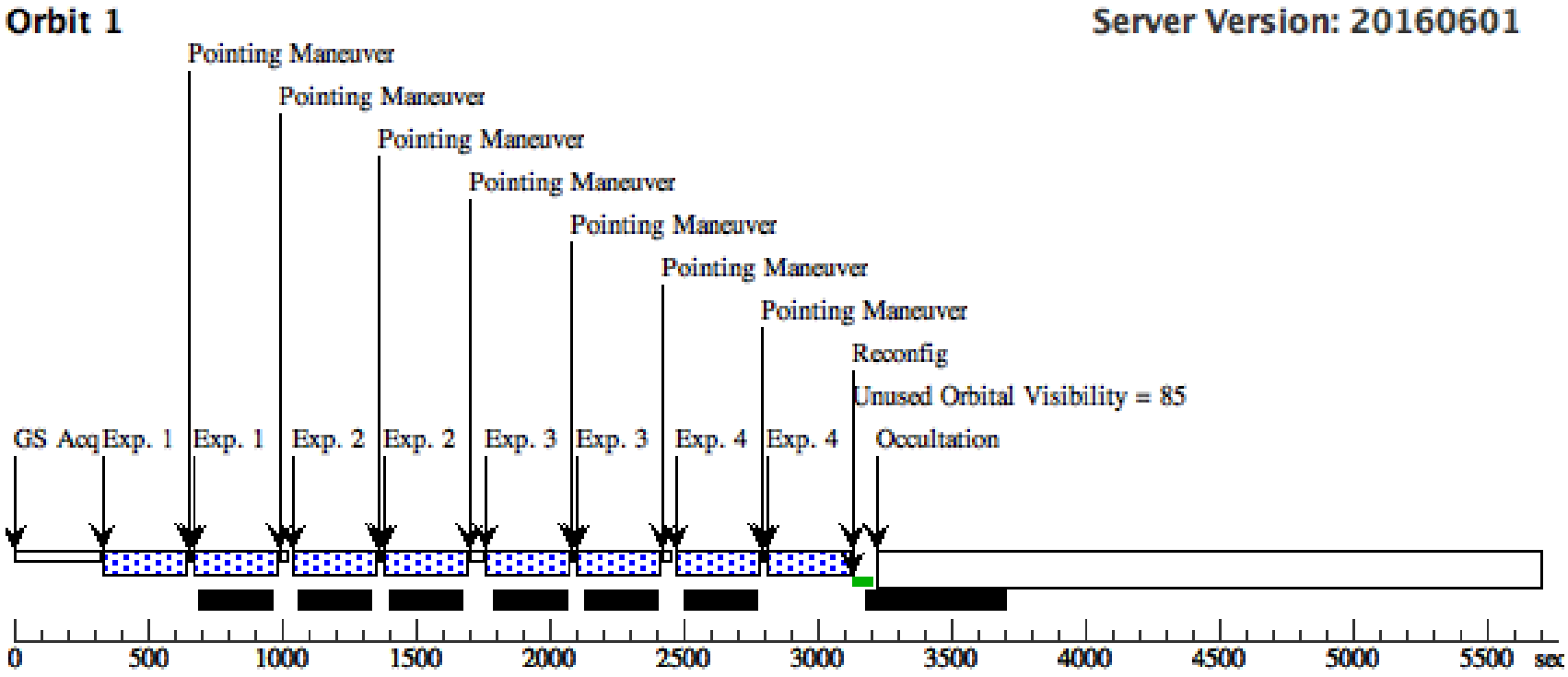
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MOO-J0012+1602	RA: 00 12 13.3747 (3.0557279d) Dec: +16 02 13.20 (16.03700d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) MOO-J0012+1602	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Pattern 2, Exps 1-1 in MOO-J0012+1602 (01) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(1) MOO-J0012+1602	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Pattern 2, Exps 2-2 in MOO-J0012+1602 (01) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(1) MOO-J0012+1602	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Pattern 2, Exps 3-3 in MOO-J0012+1602 (01) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(1) MOO-J0012+1602	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Pattern 2, Exps 4-4 in MOO-J0012+1602 (01) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 14456, MOO-J0037+3306 (02), completed Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 122D TO 152 D

Patterns

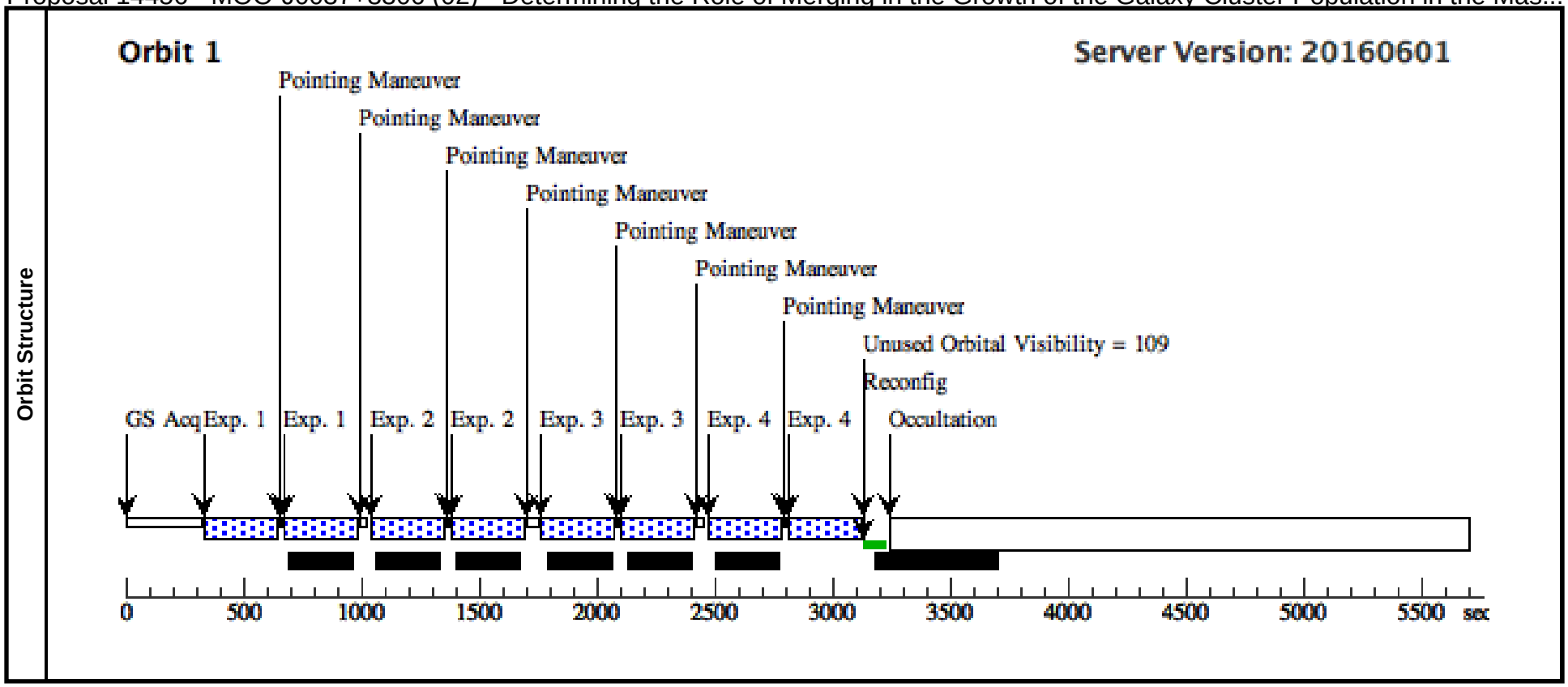
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MOO-J0037+3306	RA: 00 37 45.8512 (9.4410467d) Dec: +33 06 39.38 (33.11094d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(2) MOO-J0037+3306	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Pattern 2, Exps 1-1 in MOO-J0037+3306 (02) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
2		(2) MOO-J0037+3306	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Pattern 2, Exps 2-2 in MOO-J0037+3306 (02) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
3		(2) MOO-J0037+3306	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Pattern 2, Exps 3-3 in MOO-J0037+3306 (02) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
4		(2) MOO-J0037+3306	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Pattern 2, Exps 4-4 in MOO-J0037+3306 (02) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*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Unused Orbital Visibility = 109
Reconfig
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
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500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J0105+1323 (03), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 55D TO 65 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

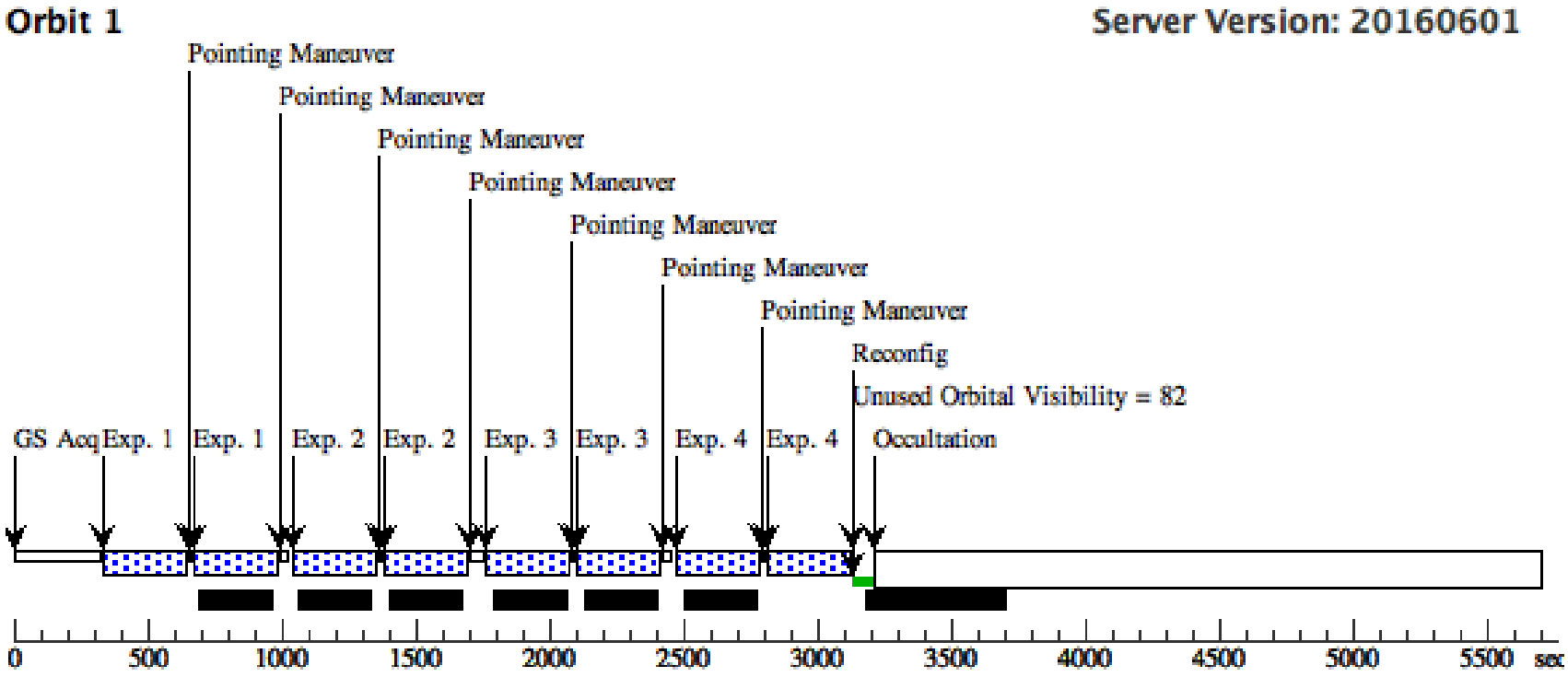
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	MOO-J0105+1323	RA: 01 05 32.1991 (16.3841629d) Dec: +13 23 50.20 (13.39728d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(3) MOO-J0105+1323	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J0105+1323 (03) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J0105+1323 (03) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(3) MOO-J0105+1323	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J0105+1323 (03) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J0105+1323 (03) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(3) MOO-J0105+1323	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J0105+1323 (03) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J0105+1323 (03) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(3) MOO-J0105+1323	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J0105+1323 (03) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J0105+1323 (03) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 14456, MOO-J0123+2545 (04), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 120D TO 150 D

Patterns

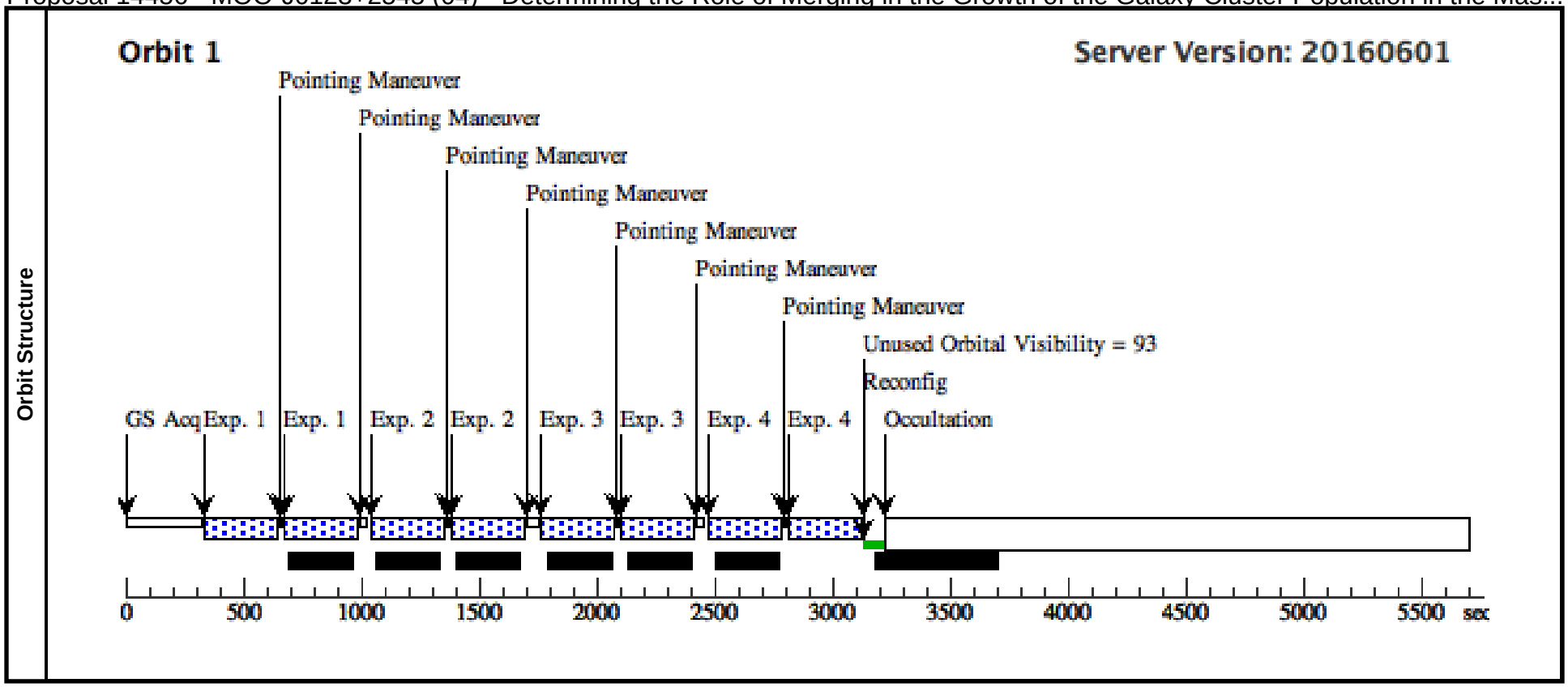
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	MOO-J0123+2545	RA: 01 23 50.3000 (20.9595833d) Dec: +25 45 31.00 (25.75861d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(4) MOO-J0123+2545	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J0123+2545 (04) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J0123+2545 (04) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(4) MOO-J0123+2545	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J0123+2545 (04) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J0123+2545 (04) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(4) MOO-J0123+2545	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J0123+2545 (04) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J0123+2545 (04) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(4) MOO-J0123+2545	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J0123+2545 (04) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J0123+2545 (04) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***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Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
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1500
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2500
3000
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sec

Visit

Proposal 14456, MOO-J0319-0025 (05), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 46D TO 49 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

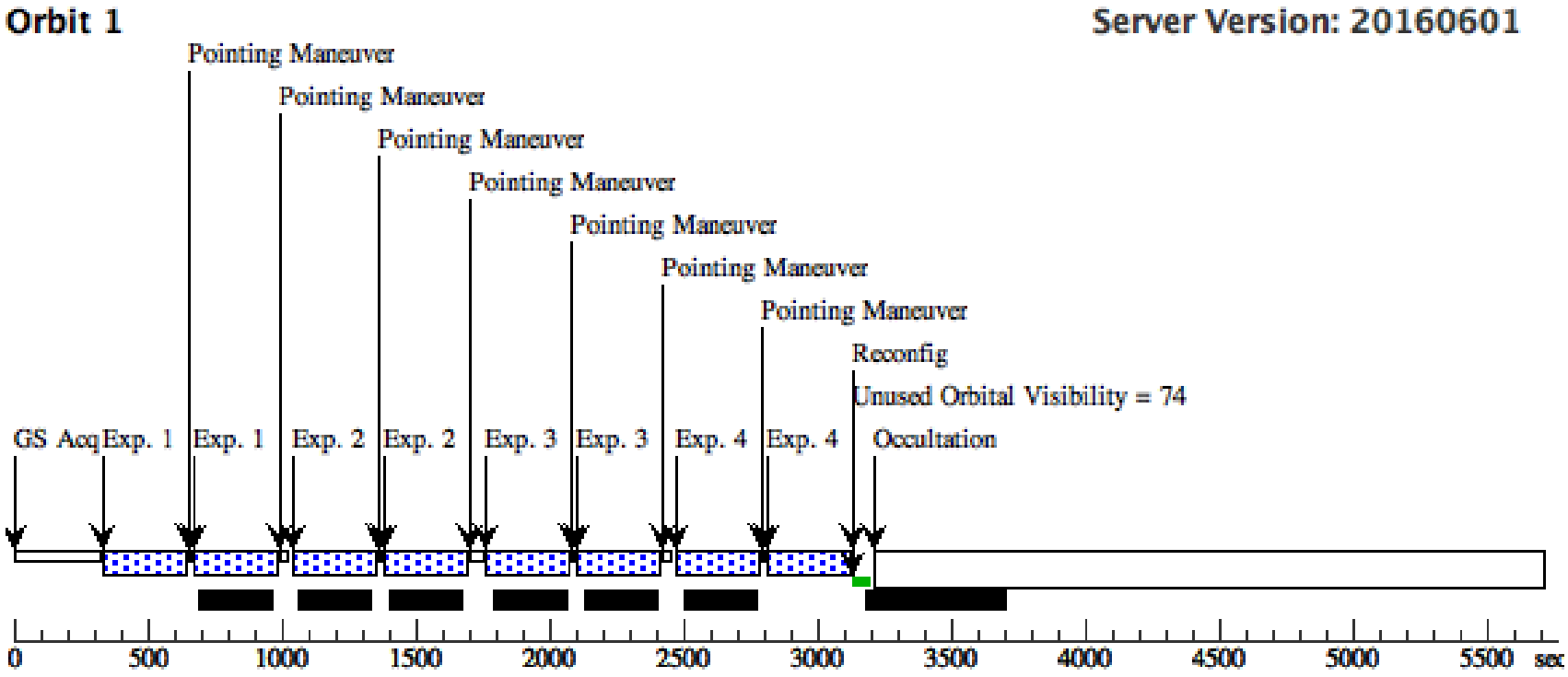
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	MOO-J0319-0025	RA: 03 19 26.8005 (49.8616687d) Dec: -00 25 28.20 (-.42450d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(5) MOO-J0319-0025	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J0319-0025 (05) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J0319-0025 (05) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(5) MOO-J0319-0025	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J0319-0025 (05) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J0319-0025 (05) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(5) MOO-J0319-0025	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J0319-0025 (05) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J0319-0025 (05) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(5) MOO-J0319-0025	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J0319-0025 (05) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J0319-0025 (05) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 14456, MOO-J1111+1503 (06), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 180D TO 210 D

Patterns

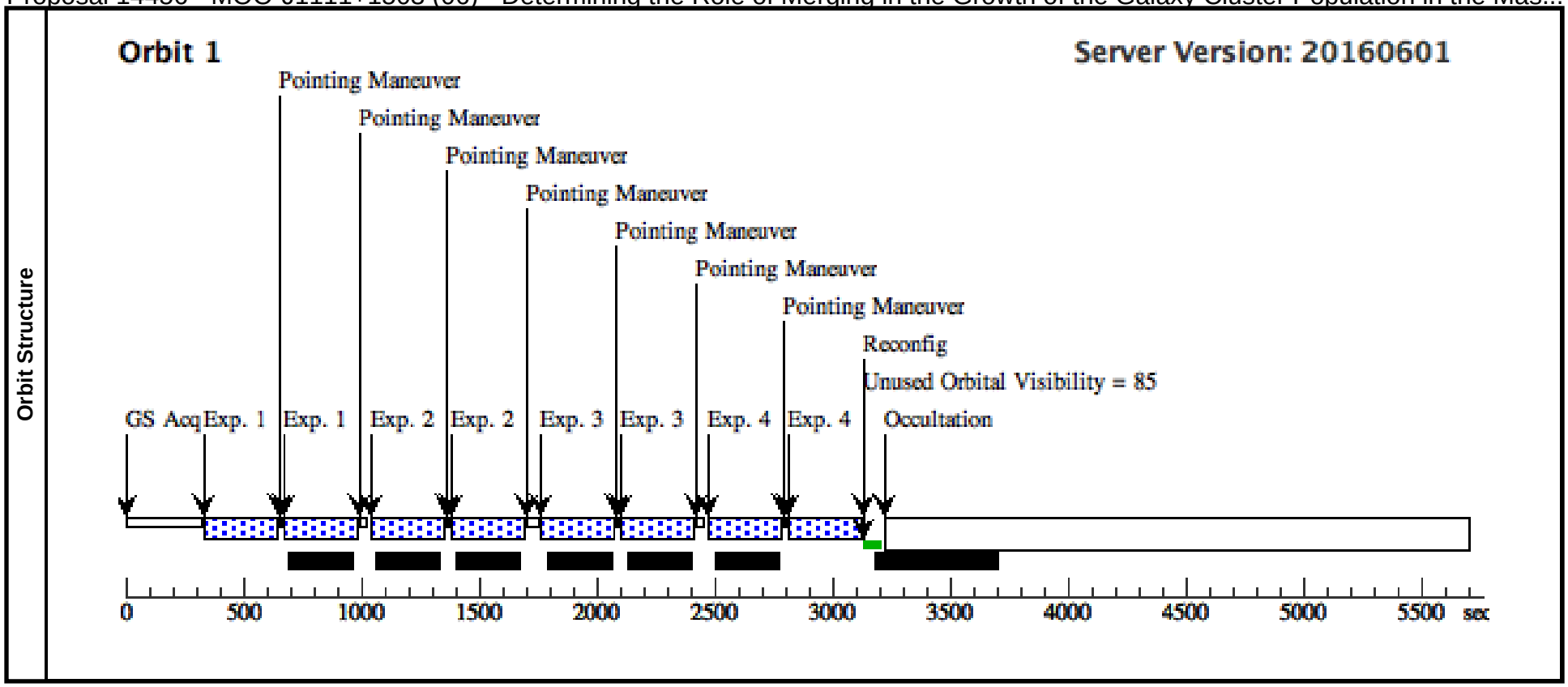
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	MOO-J1111+1503	RA: 11 11 41.8542 (167.9243925d) Dec: +15 03 54.80 (15.06522d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(6) MOO-J1111+1503	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J1111+1503 (06) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J1111+1503 (06) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(6) MOO-J1111+1503	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J1111+1503 (06) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J1111+1503 (06) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(6) MOO-J1111+1503	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J1111+1503 (06) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J1111+1503 (06) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(6) MOO-J1111+1503	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J1111+1503 (06) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J1111+1503 (06) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Reconfig
Unused Orbital Visibility = 85
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J1155+3901 (07), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 260D TO 260 D

Patterns

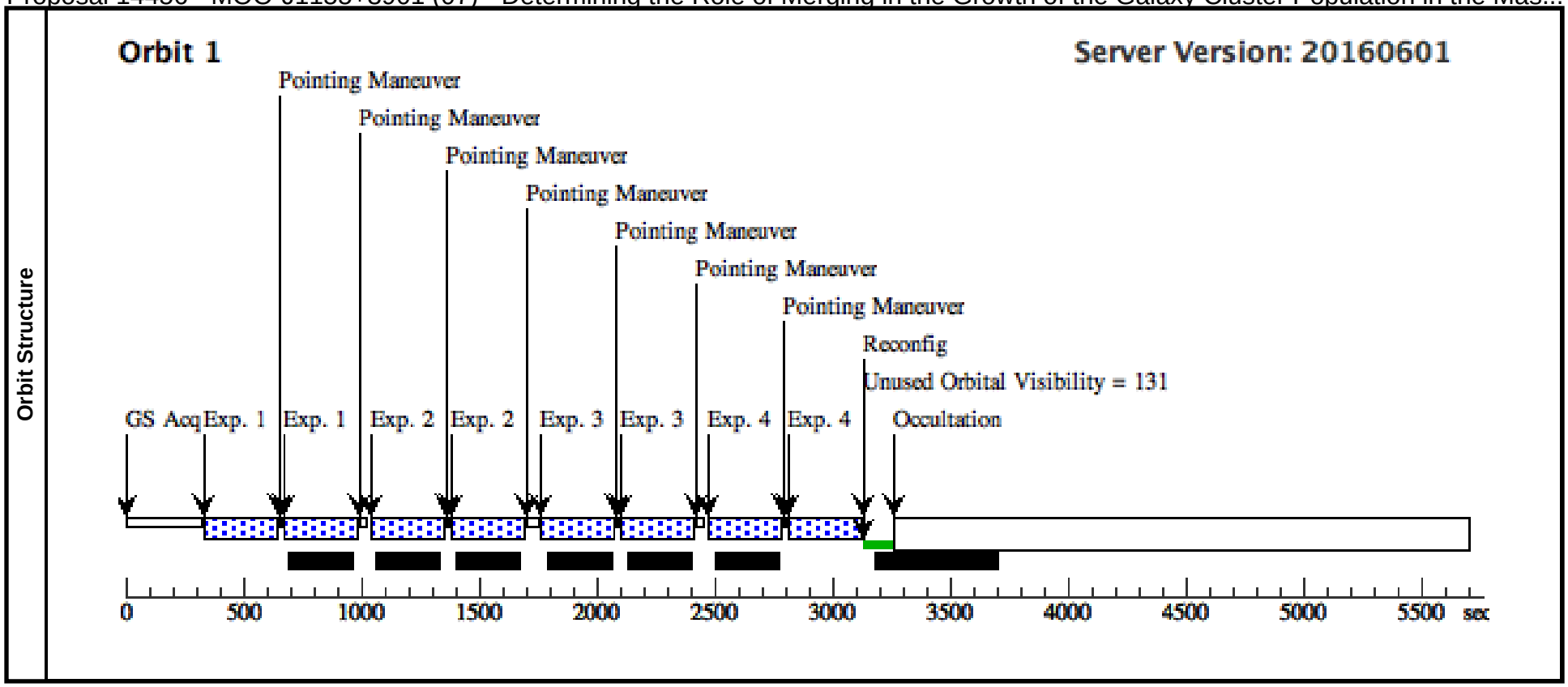
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	MOO-J1155+3901	RA: 11 55 44.6990 (178.9362458d) Dec: +39 01 16.00 (39.02111d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(7) MOO-J1155+3901	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J1155+3901 (07) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J1155+3901 (07) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(7) MOO-J1155+3901	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J1155+3901 (07) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J1155+3901 (07) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(7) MOO-J1155+3901	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J1155+3901 (07) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J1155+3901 (07) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(7) MOO-J1155+3901	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J1155+3901 (07) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J1155+3901 (07) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
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Pointing Maneuver
Reconfig
Unused Orbital Visibility = 131
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J1335+3004 (08), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 241D TO 310 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

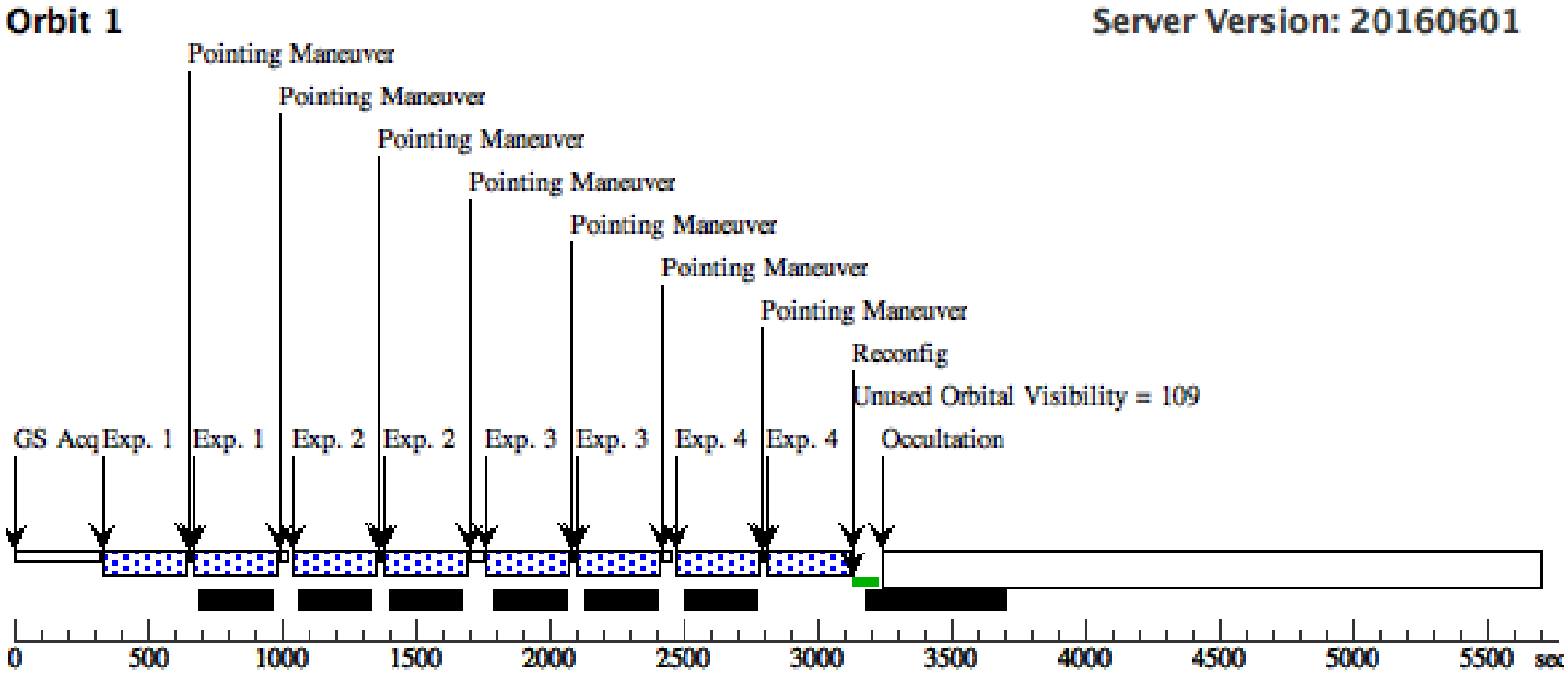
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	MOO-J1335+3004	RA: 13 35 42.5321 (203.9272171d) Dec: +30 04 24.40 (30.07344d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(8) MOO-J1335+3004	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J1335+3004 (08) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J1335+3004 (08) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(8) MOO-J1335+3004	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J1335+3004 (08) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J1335+3004 (08) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(8) MOO-J1335+3004	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J1335+3004 (08) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J1335+3004 (08) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(8) MOO-J1335+3004	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J1335+3004 (08) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J1335+3004 (08) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 14456, MOO-J1514+1346 (09), completed Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 120D TO 150 D

Patterns

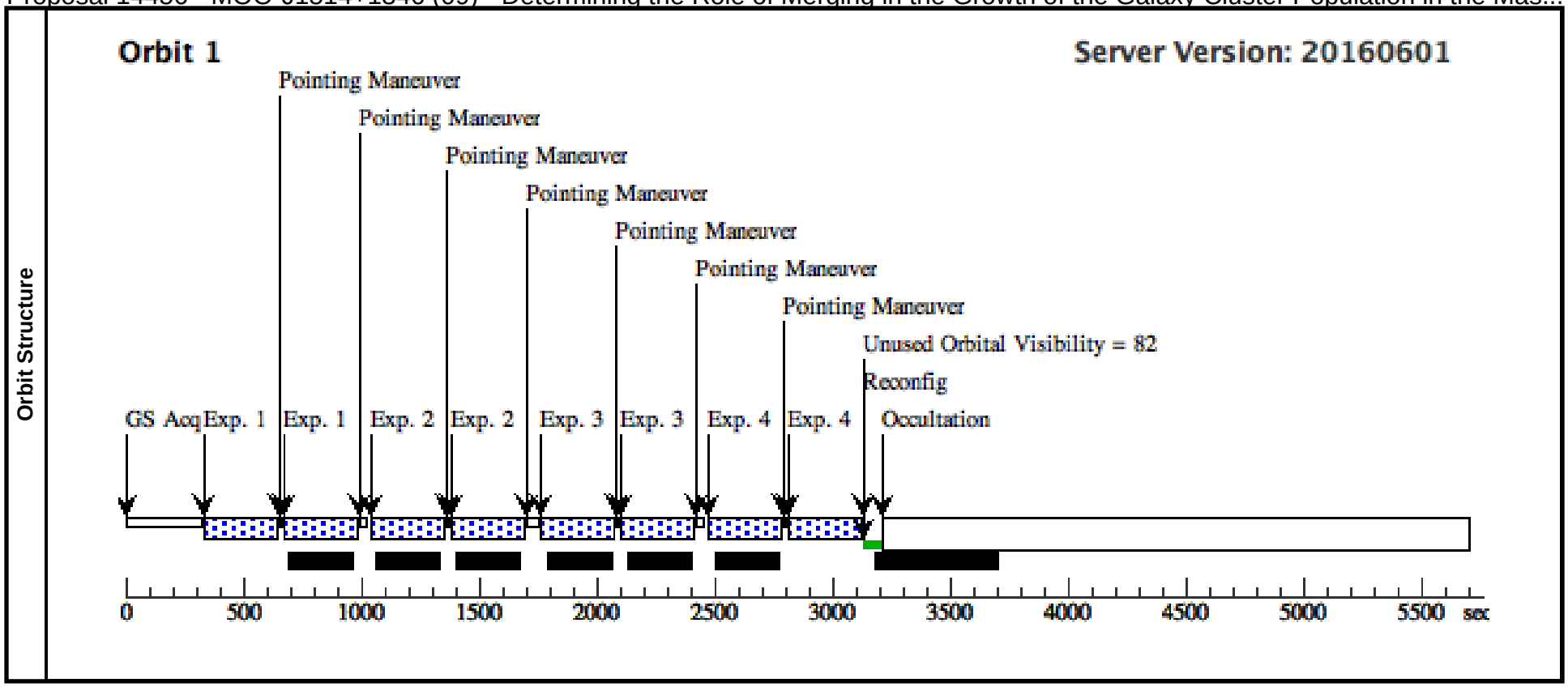
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	MOO-J1514+1346	RA: 15 14 42.7618 (228.6781742d) Dec: +13 46 27.10 (13.77419d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(9) MOO-J1514+1346	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Pattern 2, Exps 1-1 in MOO-J1514+1346 (09) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(9) MOO-J1514+1346	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Pattern 2, Exps 2-2 in MOO-J1514+1346 (09) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(9) MOO-J1514+1346	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Pattern 2, Exps 3-3 in MOO-J1514+1346 (09) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(9) MOO-J1514+1346	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Pattern 2, Exps 4-4 in MOO-J1514+1346 (09) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
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Pointing Maneuver
Unused Orbital Visibility = 82
Reconfig
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J1521+0452 (10), scheduling Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 210D TO 240 D

Patterns

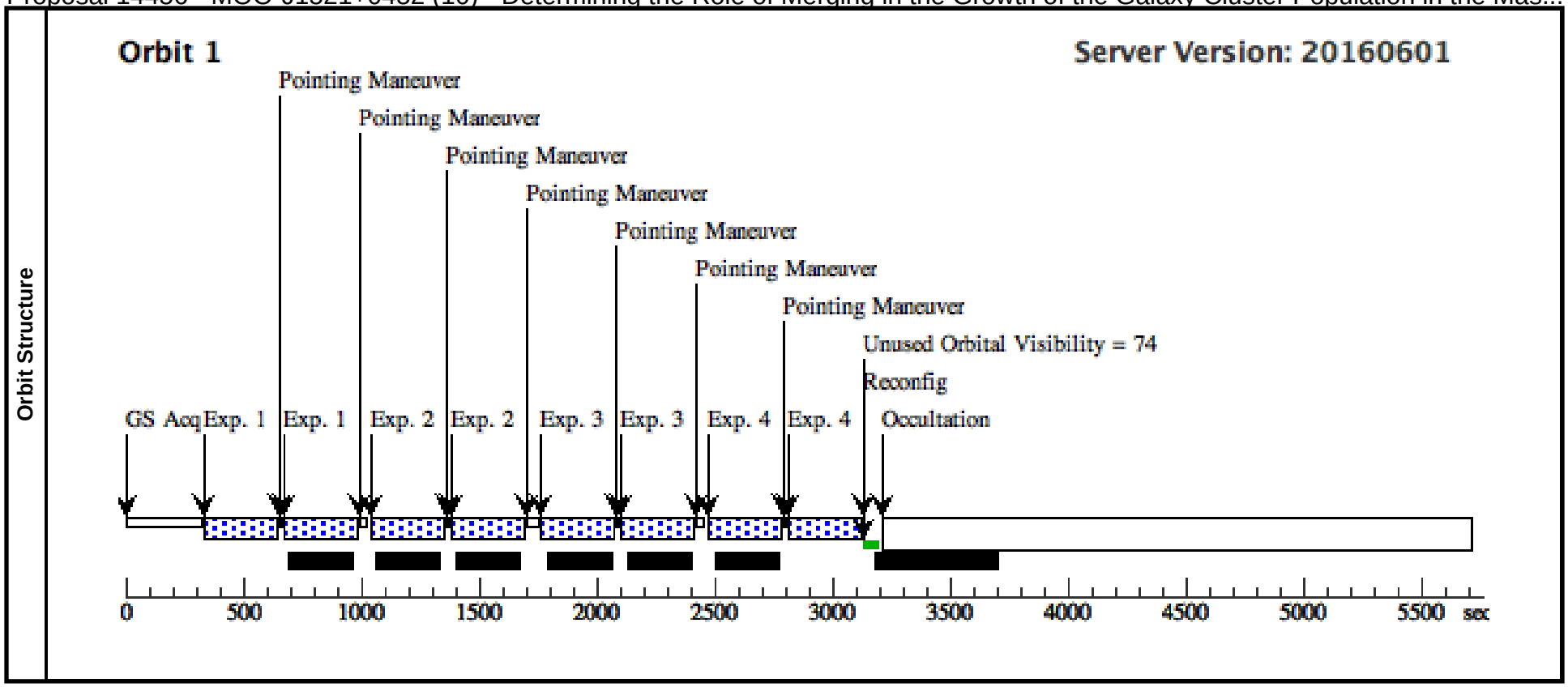
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	MOO-J1521+0452	RA: 15 21 3.9978 (230.2666575d) Dec: +04 52 8.00 (4.86889d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(10) MOO-J1521+0452	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Sequence 1-4 Non-Int in MOO-J1521+0452 (10) Pattern 2, Exps 1-1 in Sequence 1-4 Non-Int in MOO-J1521+0452 (10) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(10) MOO-J1521+0452	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Sequence 1-4 Non-Int in MOO-J1521+0452 (10) Pattern 2, Exps 2-2 in Sequence 1-4 Non-Int in MOO-J1521+0452 (10) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(10) MOO-J1521+0452	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Sequence 1-4 Non-Int in MOO-J1521+0452 (10) Pattern 2, Exps 3-3 in Sequence 1-4 Non-Int in MOO-J1521+0452 (10) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(10) MOO-J1521+0452	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Sequence 1-4 Non-Int in MOO-J1521+0452 (10) Pattern 2, Exps 4-4 in Sequence 1-4 Non-Int in MOO-J1521+0452 (10) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
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Pointing Maneuver
Unused Orbital Visibility = 74
Reconfig
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J2206+0906 (11), completed Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 198D TO 218 D

Patterns

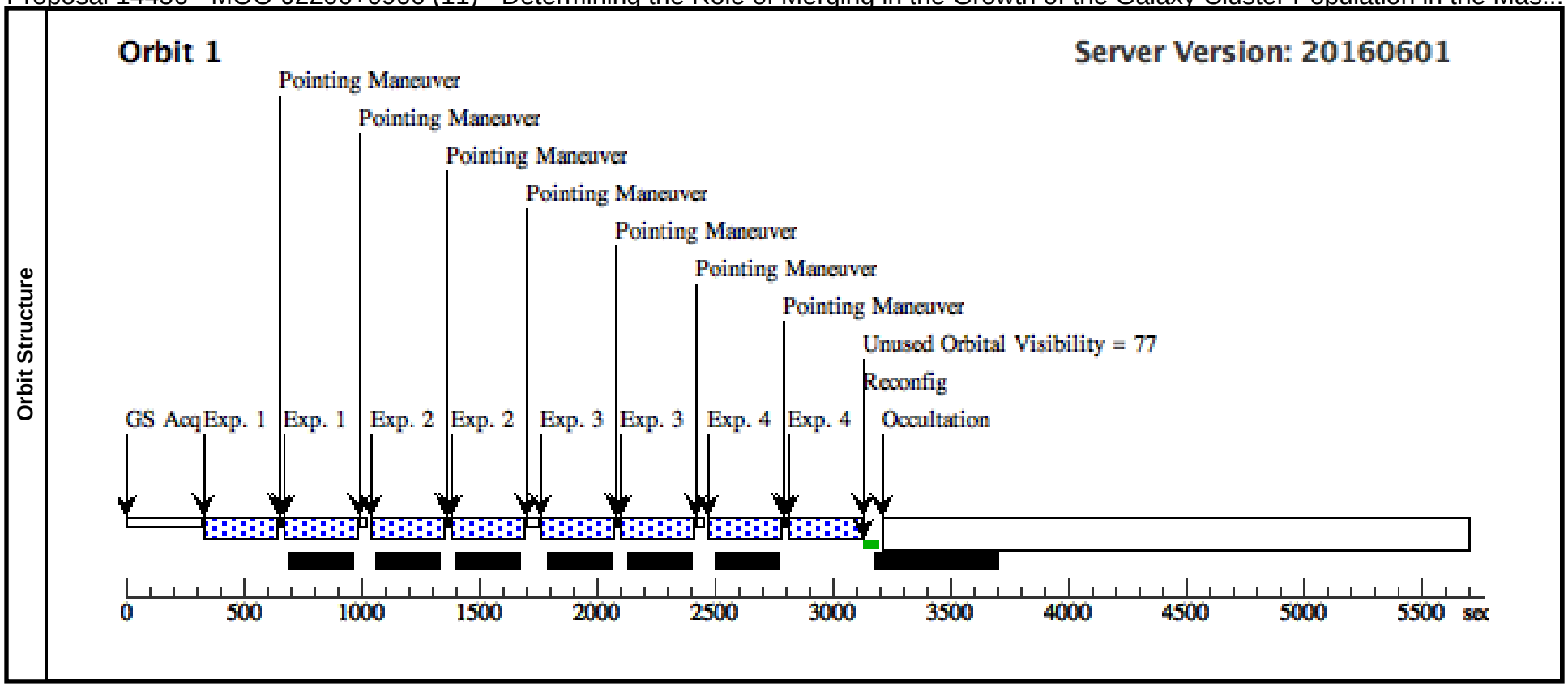
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	MOO-J2206+0906	RA: 22 06 28.1948 (331.6174783d) Dec: +09 06 34.40 (9.10956d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(11) MOO-J2206+0906	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137 1881317907,14.0306 32771997135	Pattern 2, Exps 1-1 in MOO-J2206+0906 (11) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2		(11) MOO-J2206+0906	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873 61638936974,-38.65 233232018617	Pattern 2, Exps 2-2 in MOO-J2206+0906 (11) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
3		(11) MOO-J2206+0906	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680 241287463396,14.37 7581386465561	Pattern 2, Exps 3-3 in MOO-J2206+0906 (11) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
4		(11) MOO-J2206+0906	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.220 11186975055,-39.05 9586985230474	Pattern 2, Exps 4-4 in MOO-J2206+0906 (11) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
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Pointing Maneuver
Pointing Maneuver
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Unused Orbital Visibility = 77
Reconfig
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14456, MOO-J2342+1301 (12), completed Wed Nov 09 16:01:39 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: ORIENT 210D TO 240 D

Patterns

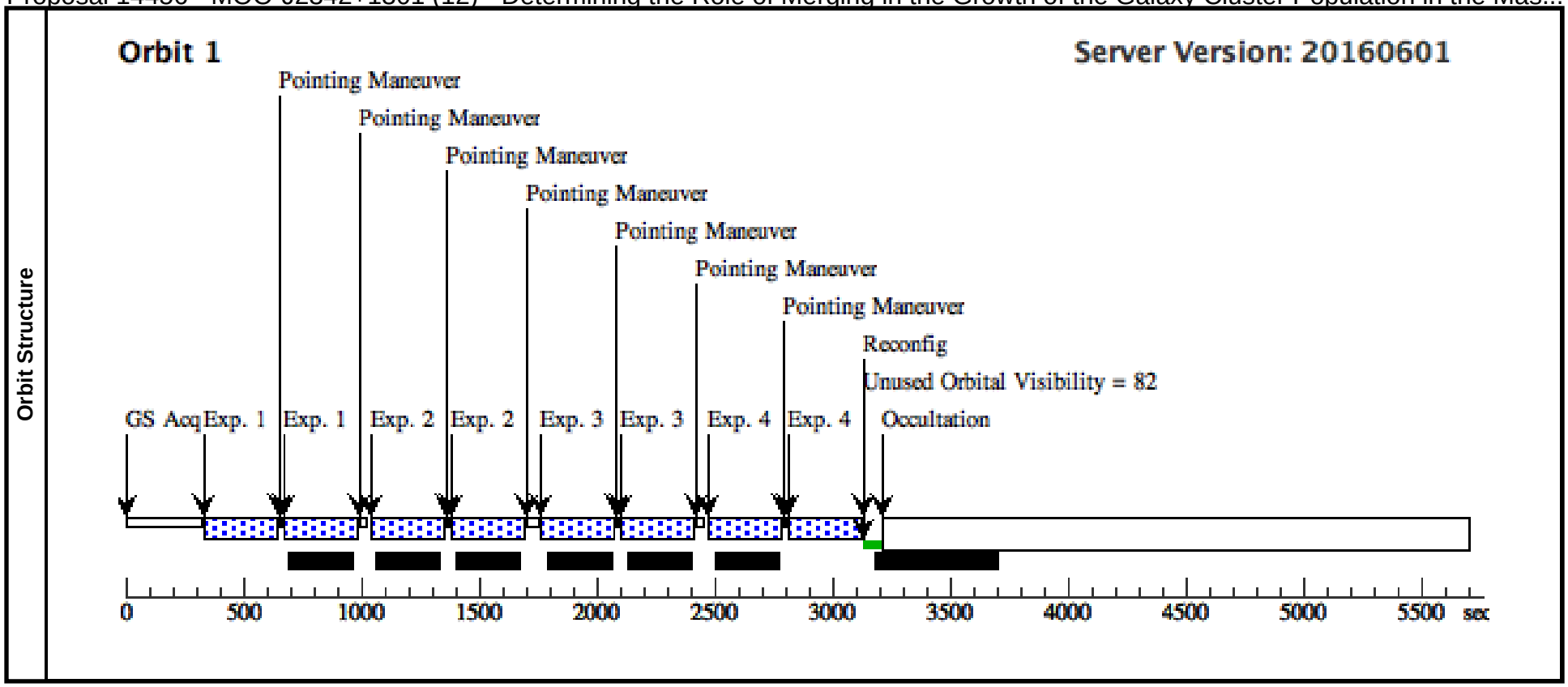
#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false		(1), (2), (3), (4)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	MOO-J2342+1301	RA: 23 42 4.2555 (355.5177312d) Dec: +13 01 33.80 (13.02606d) Equinox: J2000		V=28	Reference Frame: ICRS

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(12) MOO-J2342+1301	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.7137188131 7907,14.030632771997135	Pattern 2, Exps 1-1 in MOO-J2342+1301 (12) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
2		(12) MOO-J2342+1301	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG 55.9873616389 36974,-38.65233232018617	Pattern 2, Exps 2-2 in MOO-J2342+1301 (12) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
3		(12) MOO-J2342+1301	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -60.680241287463396,14.377581386465561	Pattern 2, Exps 3-3 in MOO-J2342+1301 (12) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*
4		(12) MOO-J2342+1301	WFC3/IR, MULTIACCUM, IR-FIX	F110W	NSAMP=12; SAMP-SEQ=SPARS25	POS TARG -61.22011186975055,-39.059586985230474	Pattern 2, Exps 4-4 in MOO-J2342+1301 (12) (2)	277.937956 Secs (555.876 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	*[1]*


Orbit Structure
Orbit 1
Server Version: 20160601
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
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Pointing Maneuver
Reconfig
Unused Orbital Visibility = 82
GS Acq
Exp. 1
Exp. 1
Exp. 2
Exp. 2
Exp. 3
Exp. 3
Exp. 4
Exp. 4
Occultation
0
500
1000
1500
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3000
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4500
5000
5500
sec