



12570 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Cycle: 19, 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) ABELL0478	ACS/SBC	1	17-Jun-2011 21:22:26.0	yes
02	(2) ABELL0496	ACS/SBC	1	17-Jun-2011 21:22:30.0	yes
03	(3) ABELL0780	ACS/SBC	1	17-Jun-2011 21:22:34.0	yes
04	(4) ABELLS1101	ACS/SBC	1	17-Jun-2011 21:22:37.0	yes
05	(5) NGC4325	ACS/SBC	1	17-Jun-2011 21:22:41.0	yes

5 Total Orbits Used

ABSTRACT

We propose to complete an on-going ACS/SBC FUV imaging survey of nearby galaxy cluster cores with the observation of our final 5 targets. This FUV program is the last critical element of a comprehensive investigation of the impact of stellar and AGN feedback on the local galaxy cluster environment. The HST images complement new, high-resolution, H α images obtained with the Maryland-Magellan Tunable Filter (MMTF) on the Baade 6.5m telescope, as well as new optical long-slit spectroscopy from the Magellan and Keck telescopes, Herschel mid-far IR imaging

spectroscopy, CARMA, SMA and IRAM sub-mm imaging spectroscopy, and archival Chandra imaging spectroscopy, GALEX NUV imaging, and VLA 1.4 GHz maps. The MMTF data have revealed unsuspected filamentary complexes in several systems. The GALEX data often show hints of extended NUV and FUV emission on a similar scale, but their poor spatial resolution prevents meaningful comparison with the MMTF data. The ACS/SBC data which we acquired during the 2009 supplemental call have provided this much needed gain in resolution, but several of the most exciting H α filamentary complexes remain unobserved at FUV. The combined X-ray-FUV-H α -IR-radio imaging and X-ray-optical-IR spectra will allow us to derive with unprecedented precision the role of the AGN, hot stars, shocks, and relativistic particles on the excitation and thermodynamics of the multi-phase intracluster and interstellar media in these systems. This is an important question since the formation and evolution of most cluster galaxies have likely been affected by these processes.

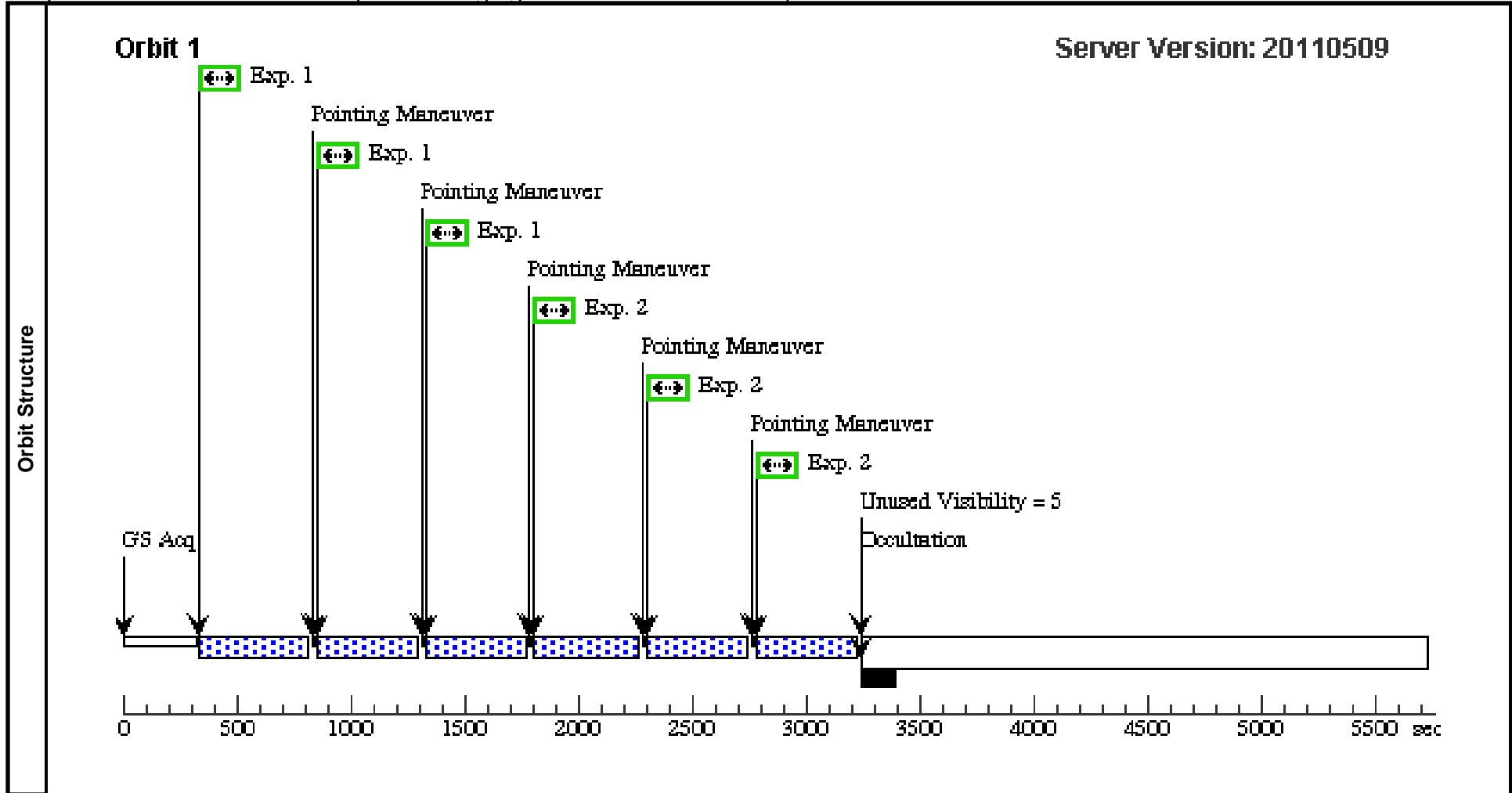
OBSERVING DESCRIPTION

Our objective is to obtain deep FUV images of 5 clusters that were missed due to the last HST service mission. The warm ionized H α -emitting gas in all objects fits within a single SBC field of view. Thus, we choose a single pointing for all clusters in our sample -- yielding a total of 5 pointings. Following the words of advice from the ACS Instrument Handbook, we choose to observe each pointing through two different filters (F140LP & F150LP) to ensure that the SBC "red leak" is properly removed and thus to properly isolate the true FUV flux. The well-known spatial shift between the F140LP and F150LP images will easily be corrected for during data reduction. Standard SBC ACCUM mode and small dither pattern will be used for the observations.

Proposal 12570 - Visit 01 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Sat Jun 18 01:22:44 GMT 2011

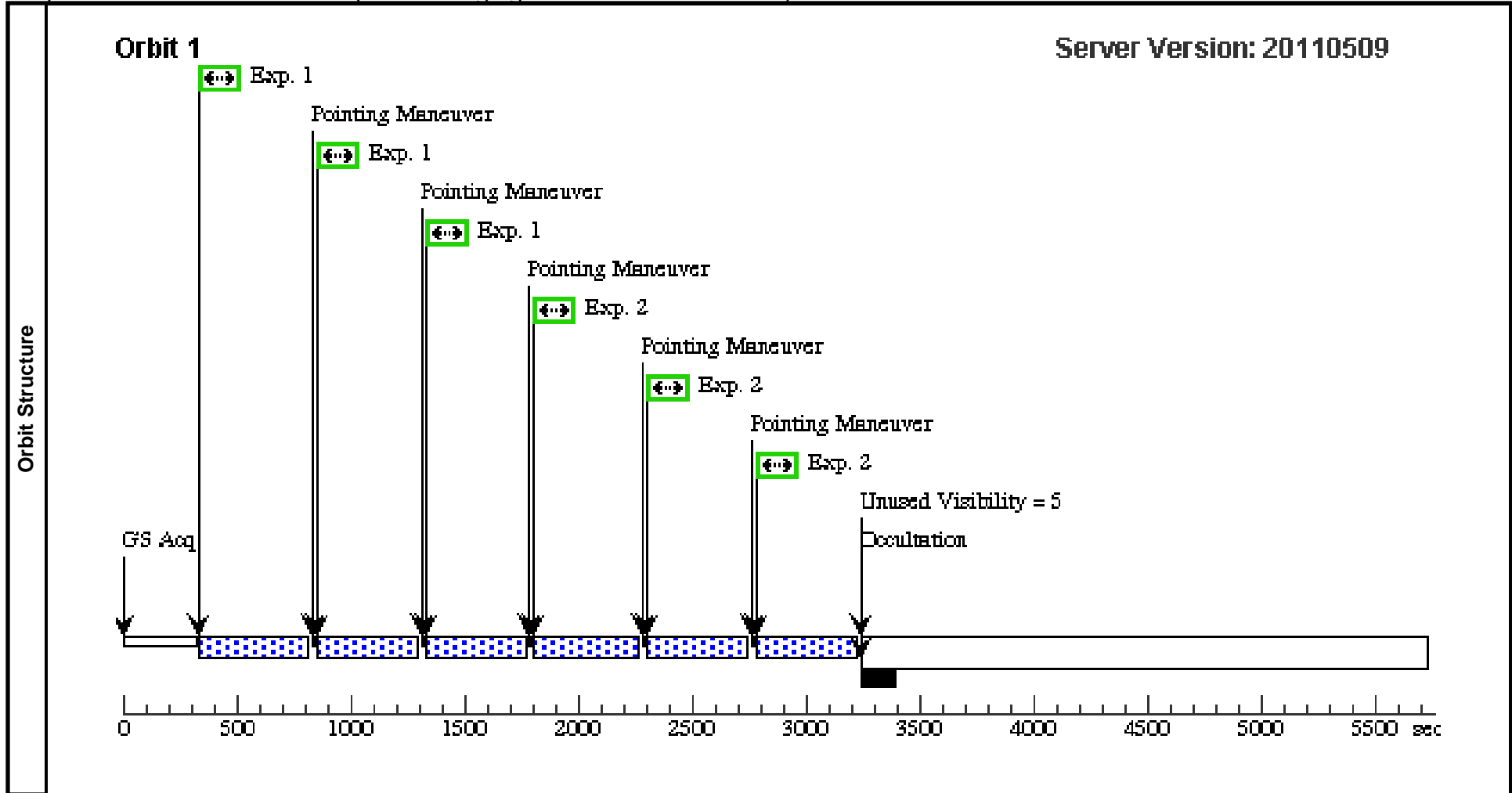
Visit	Proposal 12570, Visit 01 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none) Comments: Abell0478									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.110 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.71 Angle Between Sides= Center Pattern=true					(1), (2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	ABELL0478	RA: 04 13 25.2820 (63.3553417d) Dec: +10 27 56.29 (10.46564d) Equinox: J2000			V=14.8 m_NUV=22.19	Reference Frame: ICRS			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	A0478-140 (ACS.im.18 0448)	(1) ABELL0478	ACS/SBC, ACCUM, SBC-FIX	F140LP			Pattern 1, Exps 1-1 in Visit 01 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	A0478-150 (ACS.im.18 0448)	(1) ABELL0478	ACS/SBC, ACCUM, SBC-FIX	F150LP			Pattern 1, Exps 2-2 in Visit 01 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]



Proposal 12570 - Visit 02 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Sat Jun 18 01:22:45 GMT 2011

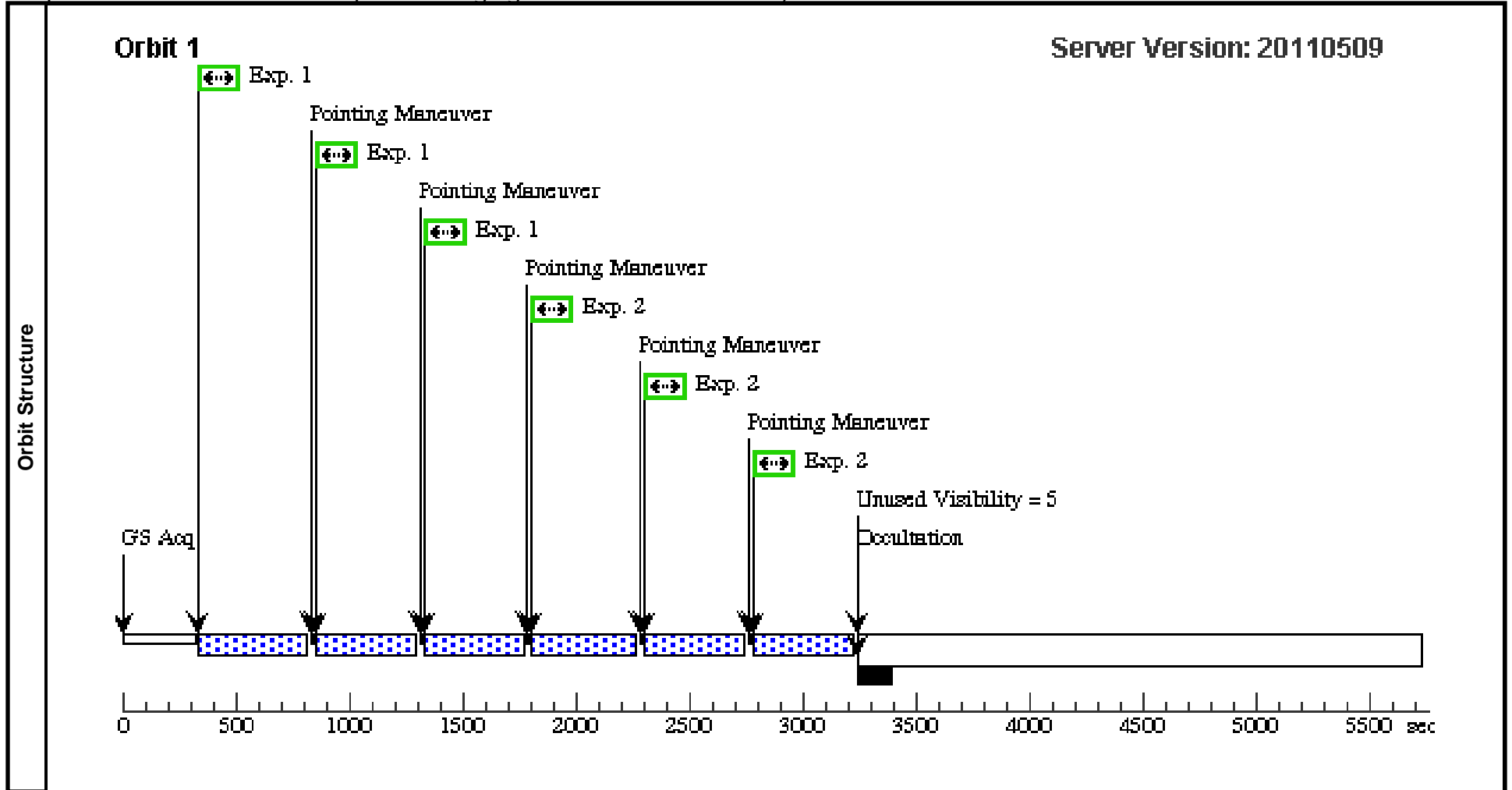
Visit	Proposal 12570, Visit 02 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none) Comments: Abell0496									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.110 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.71 Angle Between Sides= Center Pattern=true						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(2)	ABELL0496	RA: 04 33 38.1380 (68.4089083d) Dec: -13 15 39.12 (-13.26087d) Equinox: J2000				V=13.32 m_NUV=18.30	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	A0496-140 (ACS.im.18 0448)	(2) ABELL0496	ACS/SBC, ACCUM, SBC-FIX	F140LP			Pattern 1, Exps 1-1 in Visit 02 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	A0496-150 (ACS.im.18 0448)	(2) ABELL0496	ACS/SBC, ACCUM, SBC-FIX	F150LP			Pattern 1, Exps 2-2 in Visit 02 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]



Proposal 12570 - Visit 03 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Sat Jun 18 01:22:45 GMT 2011

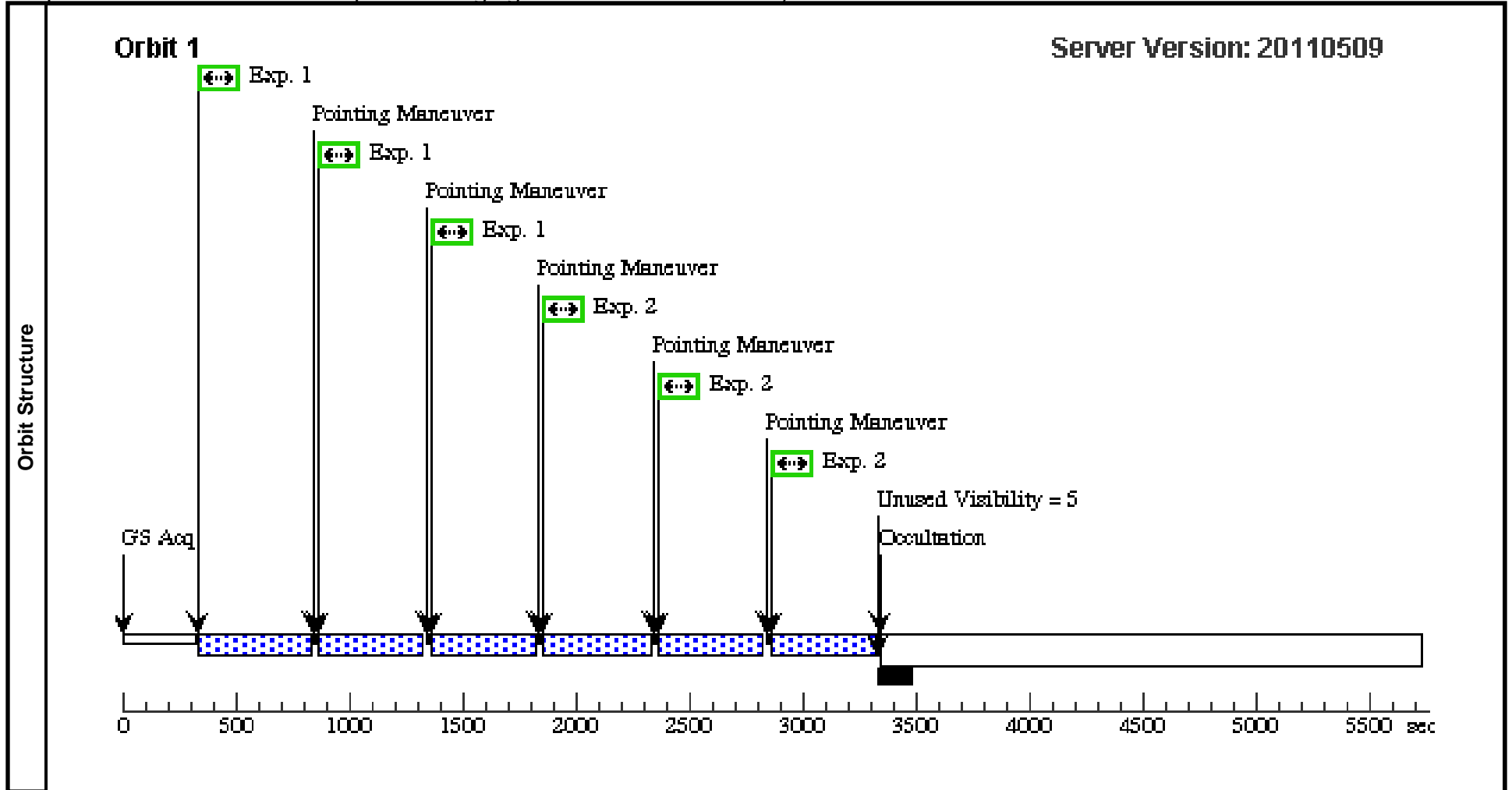
Visit	Proposal 12570, Visit 03 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none) Comments: Abell0780									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.110 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.71 Angle Between Sides= Center Pattern=true						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	ABELL0780	RA: 09 18 5.6820 (139.5236750d) Dec: -12 05 44.68 (-12.09574d) Equinox: J2000		V=13.8 m_NUV=18.03	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	A0780-140 (ACS.im.18 0448)	(3) ABELL0780	ACS/SBC, ACCUM, SBC-FIX	F140LP			Pattern 1, Exps 1-1 in Visit 03 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	A0780-150 (ACS.im.18 0448)	(3) ABELL0780	ACS/SBC, ACCUM, SBC-FIX	F150LP			Pattern 1, Exps 2-2 in Visit 03 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]



Proposal 12570 - Visit 04 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Sat Jun 18 01:22:46 GMT 2011

Visit	Proposal 12570, Visit 04 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none) Comments: Abells1101									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.110 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.71 Angle Between Sides= Center Pattern=true						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(4)	ABELLS1101	RA: 23 13 58.5239 (348.4938496d) Dec: -42 43 30.40 (-42.72511d) Equinox: J2000				V=14.64 m_NUV=19.06	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	S15903-140 (ACS.im.18 0448)	(4) ABELLS1101	ACS/SBC, ACCUM, SBC-FIX	F140LP			Pattern 1, Exps 1-1 in Visit 04 (1)	434 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	S15903-150 (ACS.im.18 0448)	(4) ABELLS1101	ACS/SBC, ACCUM, SBC-FIX	F150LP			Pattern 1, Exps 2-2 in Visit 04 (1)	434 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]



Proposal 12570 - Visit 05 - Deep FUV Imaging of Cool Cores in Galaxy Clusters

Sat Jun 18 01:22:46 GMT 2011

Visit	Proposal 12570, Visit 05 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/SBC Special Requirements: (none) Comments: NGC4325									
	Patterns	#	Primary Pattern			Secondary Pattern			Exposures	
		(1)	Pattern Type=ACS-SBC-DITHER-LINE Purpose=DITHER Number Of Points=3 Point Spacing=0.110 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=44.71 Angle Between Sides= Center Pattern=true					(1), (2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(5)	NGC4325	RA: 12 23 6.7968 (185.7783200d) Dec: +10 37 13.23 (10.62034d) Equinox: J2000			V=14.2 m_NUV=19.16	Reference Frame: ICRS			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	N4325-140 (ACS.im.18 0448)	(5) NGC4325	ACS/SBC, ACCUM, SBC-FIX	F140LP			Pattern 1, Exps 1-1 in Visit 05 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]
	2	N4325-150 (ACS.im.18 0448)	(5) NGC4325	ACS/SBC, ACCUM, SBC-FIX	F150LP			Pattern 1, Exps 2-2 in Visit 05 (1)	418 Secs [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)]	[1]

