



12658 - Fundamental Parameters of the SHIELD Galaxies

Cycle: 19, Proposal Category: GO

(Availability Mode: SUPPORTED)

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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) AGC748778	ACS/WFC	1	11-Jul-2011 23:06:35.0	yes
02	(2) AGC112521	ACS/WFC	1	11-Jul-2011 23:06:42.0	yes
03	(3) AGC110482	ACS/WFC	1	11-Jul-2011 23:06:46.0	yes
04	(4) AGC111946	ACS/WFC	1	11-Jul-2011 23:06:52.0	yes
05	(5) AGC111977	ACS/WFC	1	11-Jul-2011 23:06:56.0	yes
06	(6) AGC111164	ACS/WFC	1	11-Jul-2011 23:07:01.0	yes

<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>
07	(7) AGC174585	ACS/WFC	1	11-Jul-2011 23:07:04.0	yes
08	(8) AGC174605	ACS/WFC	1	11-Jul-2011 23:07:11.0	yes
09	(9) AGC182595	ACS/WFC	1	11-Jul-2011 23:07:17.0	yes
10	(10) AGC731457	ACS/WFC	1	11-Jul-2011 23:07:22.0	yes
11	(11) AGC749237	ACS/WFC	1	11-Jul-2011 23:07:27.0	yes
12	(12) AGC749241	ACS/WFC	1	11-Jul-2011 23:07:31.0	yes

12 Total Orbits Used

ABSTRACT

The "Survey of HI in Extremely Low-mass Dwarfs" ("SHIELD") is an ongoing EVLA multi-configuration study of the neutral ISM of 12 extremely low-mass (HI mass <10 million M_{Sun}) galaxies discovered by the Arecibo Legacy Fast ALFA (ALFALFA) survey. The SHIELD galaxies are among the lowest-mass gas-rich objects that harbor stellar populations. These systems span the critical mass range that connects the comparatively massive dwarfs of the local universe to the lowest-mass candidate "minihalos" and "Leo-T" type objects. Further, the halos in this dynamical mass range are predicted to differentiate between systems that are readily destroyed and systems with typical baryon fractions. These galaxies thus constitute a cosmologically important, but unexplored, population. We propose a holistic HST imaging study of the fundamental parameters and characteristics of these extremely low-mass galaxies. The primary science goal is the derivation of TRGB distances; the distance dependence of many fundamental parameters makes HST observations critical for the success of SHIELD. Additional science goals include an accurate census of the dark matter contents of these galaxies, a detailed spatial and temporal study of star formation within them, and a characterization of the nature of star formation in local conditions that differ markedly from those found in more massive galaxies. In order to complement our HST observations we also propose coordinated Spitzer imaging that will accurately constrain the total stellar masses of the SHIELD galaxies. This program will explore the stellar populations at the faint end of the HI mass function for the first time.

OBSERVING DESCRIPTION

A CMD that reaches 1.5-2 mag below the TRGB feature ($MI = 4.0$) not only enables an excellent measurement of the distance but also allows a robust reconstruction of the recent SFH and constrains the long-term average SFH of a galaxy; we expect this photometric depth for all galaxies in our sample. We assume a maximum distance of 8 Mpc for the sample members, and run calculations for the maximum Galactic foreground of any

Proposal 12658 (STScI Edit Number: 0, Created: Monday, July 11, 2011 10:07:36 PM EST) - Overview

sample member ($E(B-V) = 0.09$ for AGC 110482). The ACS exposure time calculator shows that we can reach this photometric depth with 1 orbit split between the F606W and F814W filters. We will CRSPLIT these into two images per filter to remove cosmic rays and facilitate bad pixel removal.

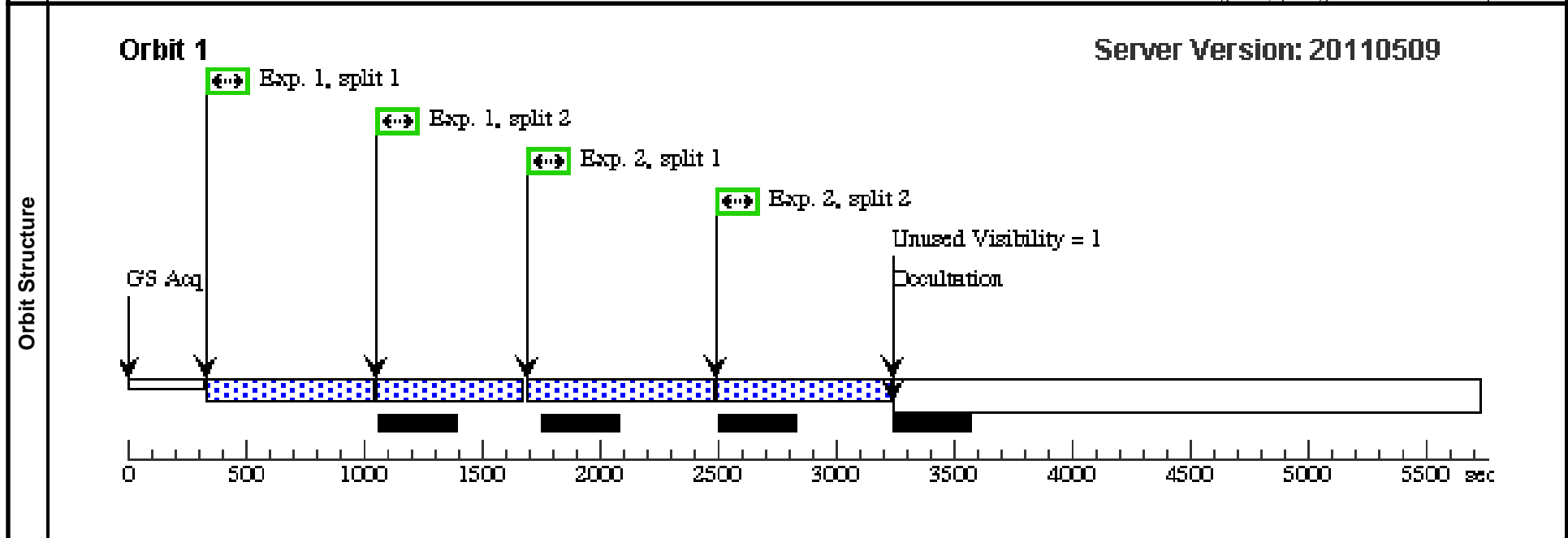
Proposal 12658 - Visit 01 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:37 GMT 2011

Visit	Proposal 12658, Visit 01				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 200.0D TO 230.0 D; ORIENT 25.0D TO 50.0 D				
<i>Comments: AGC748778</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	AGC748778	RA: 00 06 34.3000 (1.6429167d) Dec: +15 30 39.00 (15.51083d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC748778 _F606W	(1) AGC748778	ACS/WFC, ACCUM, WFC1	F606W	CR-SPLIT=2			1000 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC748778 _F814W	(1) AGC748778	ACS/WFC, ACCUM, WFC1	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



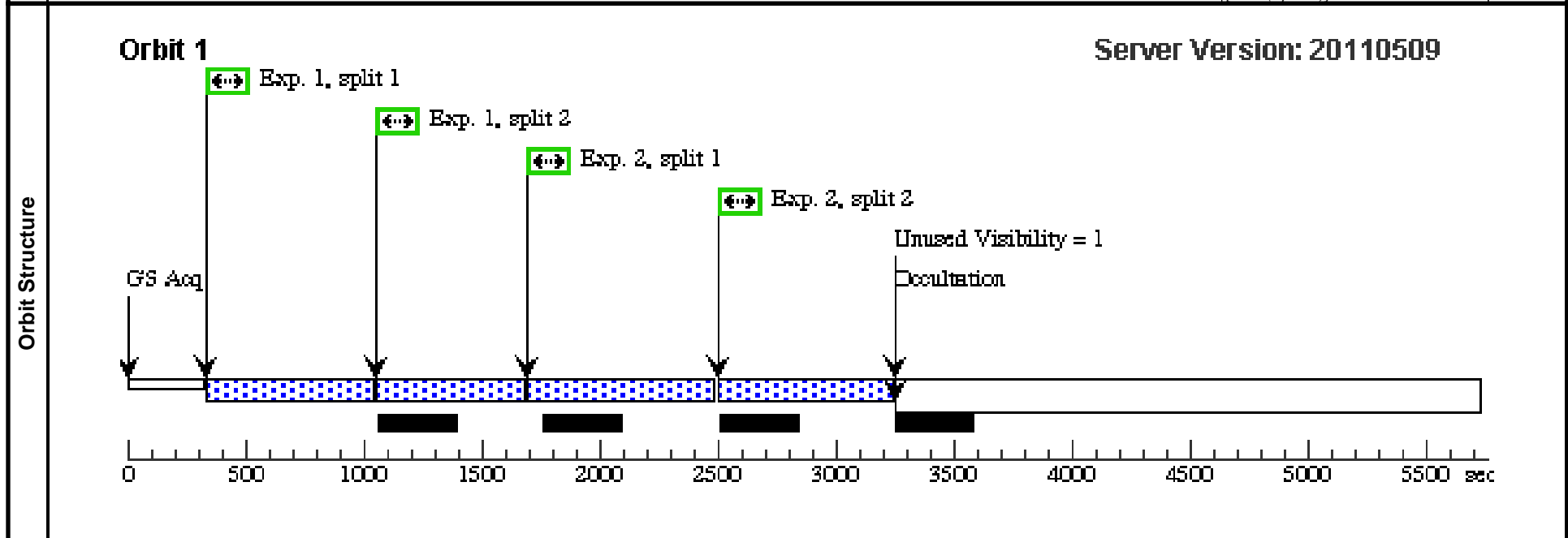
Proposal 12658 - Visit 02 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:38 GMT 2011

Visit	Proposal 12658, Visit 02				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 0.0D TO 75 D; ORIENT 90.0D TO 105.0 D; ORIENT 115.0D TO 130.0 D; ORIENT 155.0D TO 340.0 D				
<i>Comments: AGC112521</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	AGC112521	RA: 01 41 7.6000 (25.2816667d) Dec: +27 19 24.00 (27.32333d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC112521 (2) AGC112521 _F606W	(2) AGC112521	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC112521 (2) AGC112521 _F814W	(2) AGC112521	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



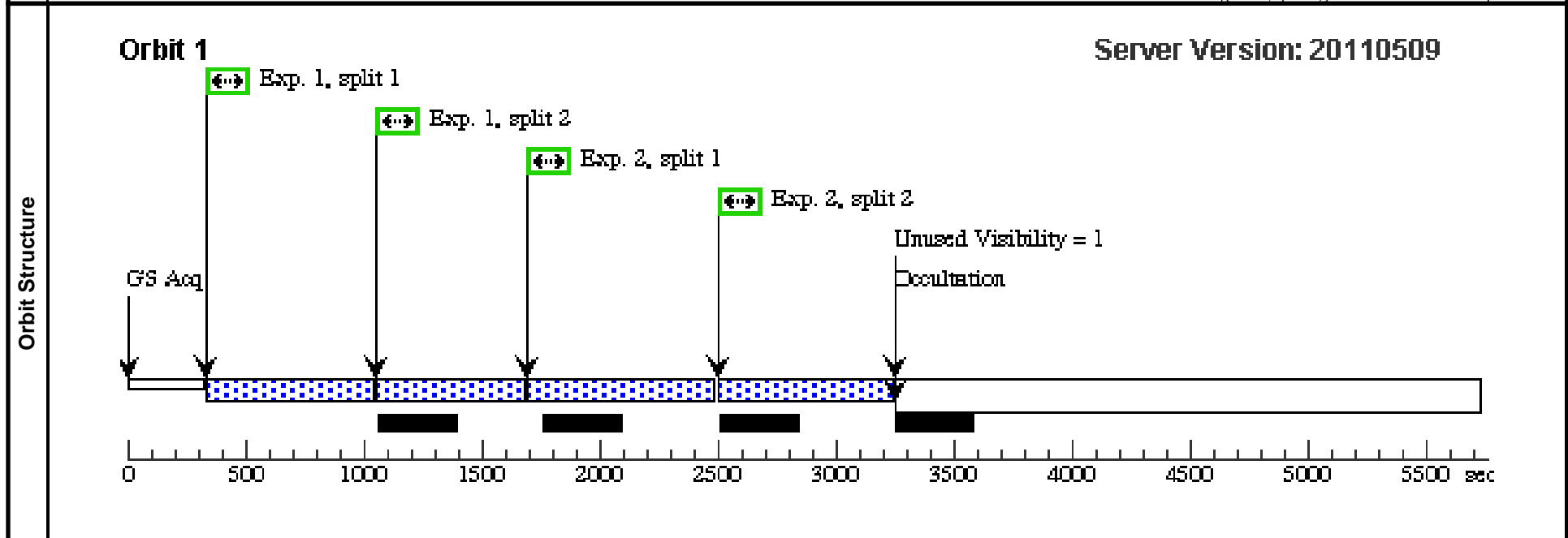
Proposal 12658 - Visit 03 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:38 GMT 2011

Visit	Proposal 12658, Visit 03				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 350.0D TO 150.0 D; ORIENT 165.0D TO 200.0 D				
<i>Comments: AGC110482</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	AGC110482	RA: 01 42 17.4000 (25.5725000d) Dec: +26 22 0.00 (26.36667d) Equinox: J2000		V=10	Reference Frame: ICRS

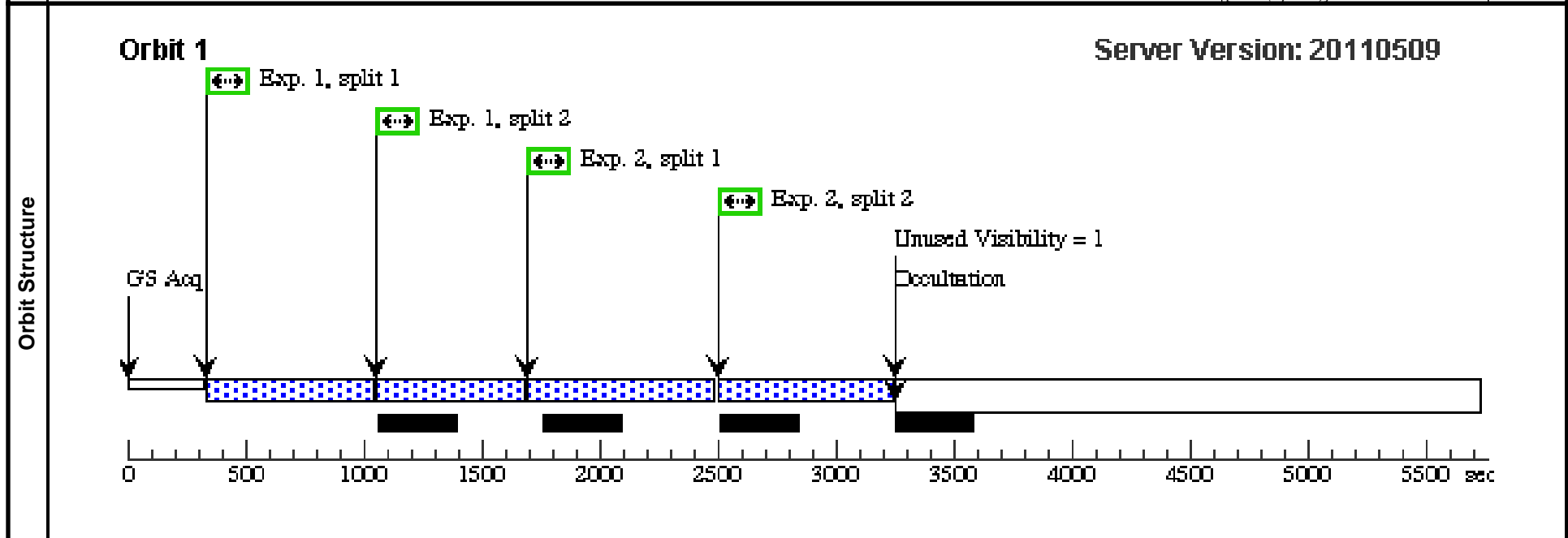
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC110482 (3) AGC110482_F606W	(3) AGC110482	ACS/WFC, ACCUM, WFC1	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC110482 (3) AGC110482_F814W	(3) AGC110482	ACS/WFC, ACCUM, WFC1	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



Visit	Proposal 12658, Visit 04				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 50.0D TO 140.0 D; ORIENT 232.0D TO 320.0 D				
<i>Comments: AGC111946</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	AGC111946	RA: 01 46 42.2000 (26.6758333d) Dec: +26 48 5.00 (26.80139d) Equinox: J2000		V=10	Reference Frame: ICRS

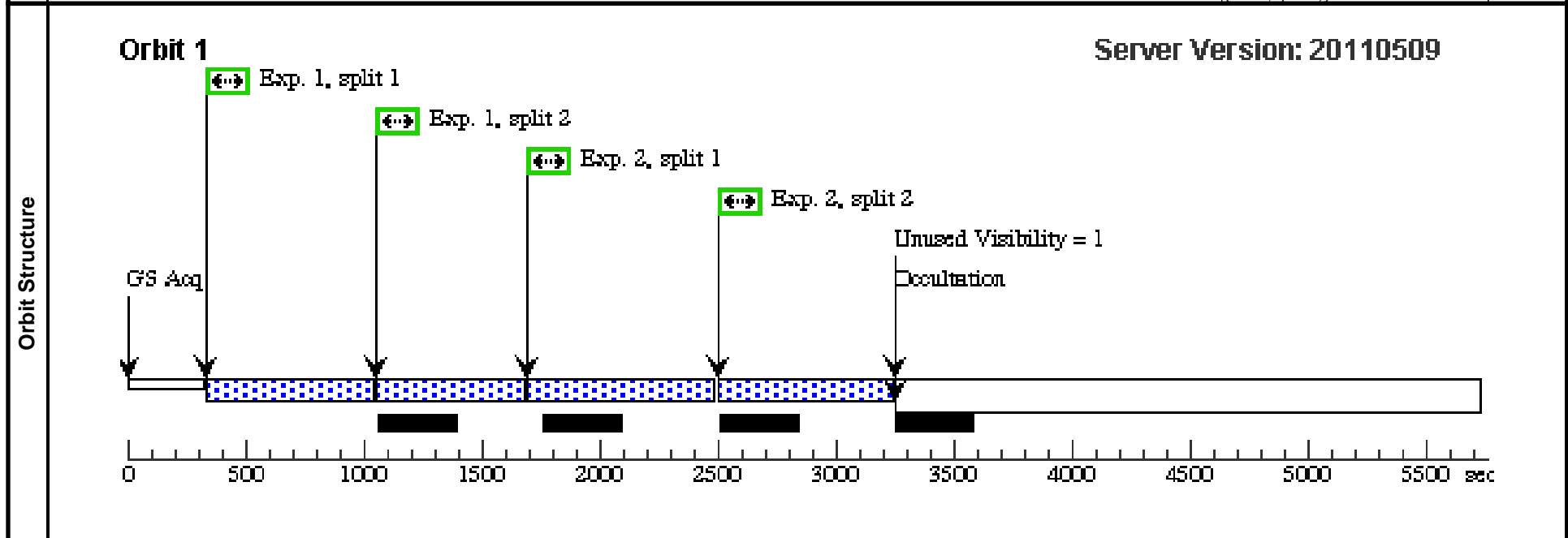
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC111946 _F606W	(4) AGC111946	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC111946 _F814W	(4) AGC111946	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



Visit	Proposal 12658, Visit 05				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: (none)				
<i>Comments: AGC111977</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(5)	AGC111977	RA: 01 55 20.2000 (28.8341667d) Dec: +27 57 14.00 (27.95389d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC111977 _F606W	(5) AGC111977	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC111977 _F814W	(5) AGC111977	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



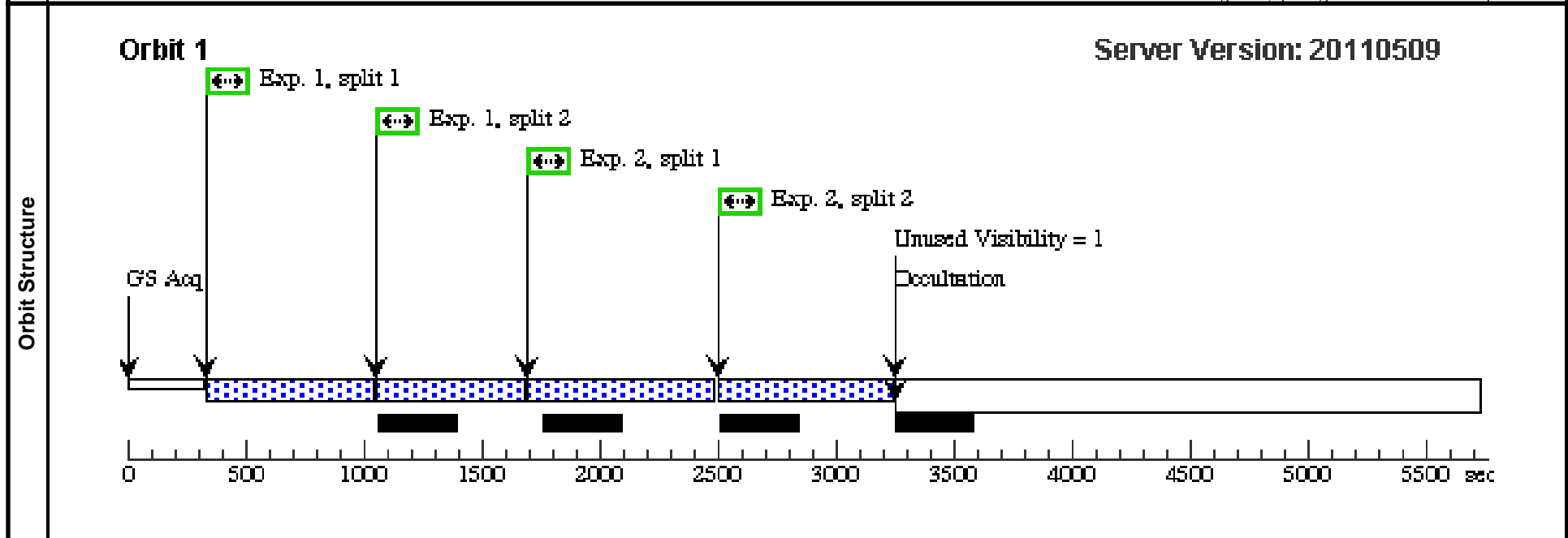
Proposal 12658 - Visit 06 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:40 GMT 2011

Visit	Proposal 12658, Visit 06 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: ORIENT 25.0D TO 35.0 D; ORIENT 301.0D TO 312.0 D; ORIENT 123.0D TO 133.0 D; ORIENT 203.0D TO 214.0 D; ORIENT 348.0D TO 360.0 D Comments: AGC111164				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(6)	AGC111164	RA: 02 00 10.1000 (30.0420833d) Dec: +28 49 52.00 (28.83111d) Equinox: J2000		V=10	Reference Frame: ICRS

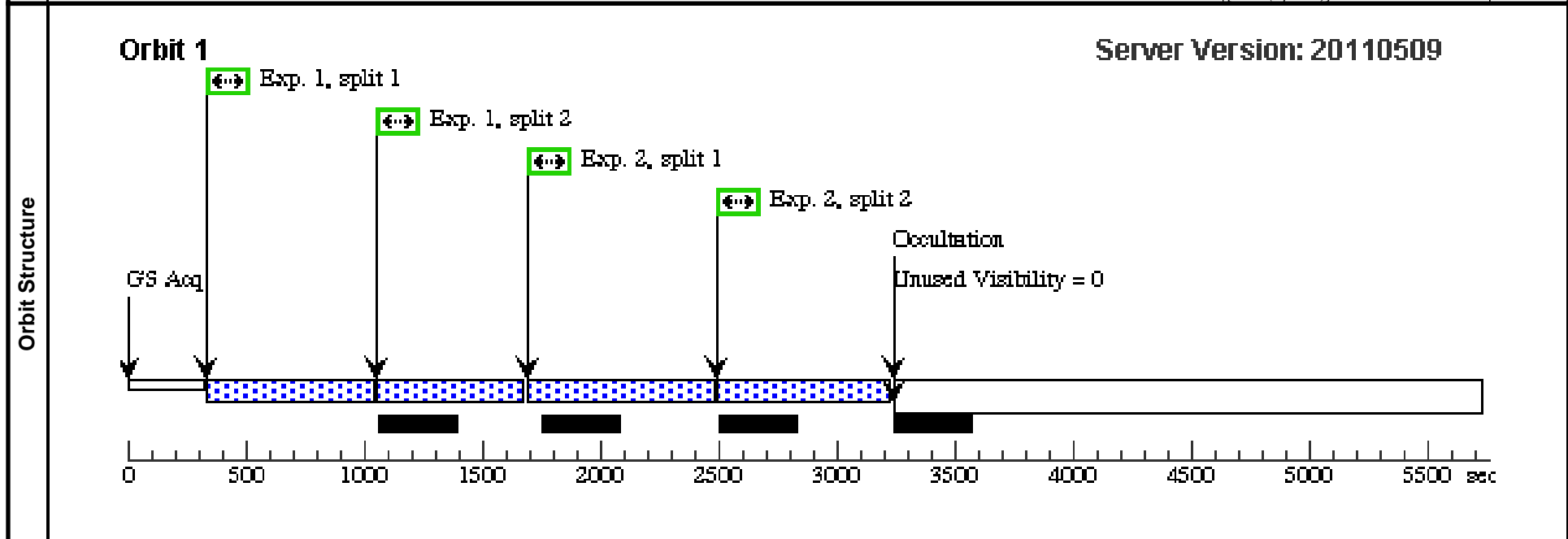
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC111164 (6) AGC111164_F606W	(6) AGC111164	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC111164 (6) AGC111164_F814W	(6) AGC111164	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



Visit	Proposal 12658, Visit 07 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: ORIENT 137.0D TO 306.0 D; ORIENT 314.0D TO 125.0 D <i>Comments: AGC174585</i>				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(7)	AGC174585	RA: 07 36 10.3000 (114.0429167d) Dec: +09 59 11.00 (9.98639d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC174585 (7) AGC174585_F606W	(7) AGC174585	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1000 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC174585 (7) AGC174585_F814W	(7) AGC174585	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1220 Secs [=>(Split 1)] [=>(Split 2)]	[1]



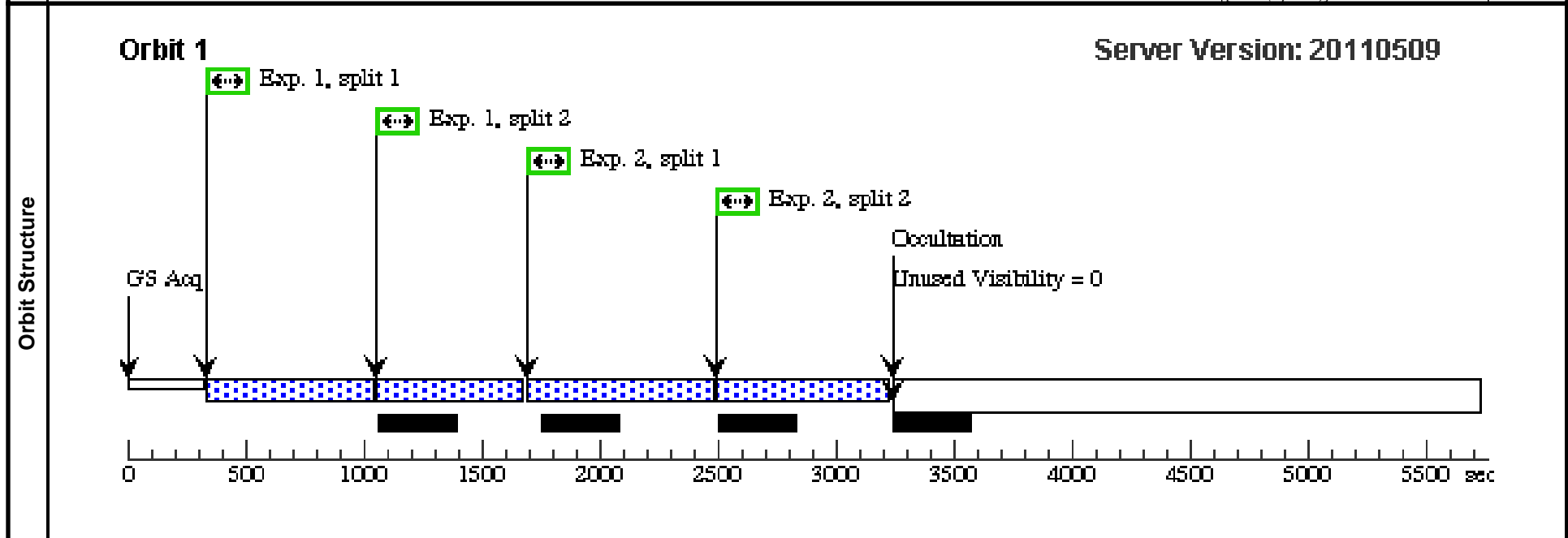
Proposal 12658 - Visit 08 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:41 GMT 2011

Visit	Proposal 12658, Visit 08				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 102.0D TO 160.0 D; ORIENT 280.0D TO 340.0 D				
<i>Comments: AGC174605</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	AGC174605	RA: 07 50 21.7000 (117.5904167d) Dec: +07 47 40.00 (7.79444d) Equinox: J2000		V=10	Reference Frame: ICRS

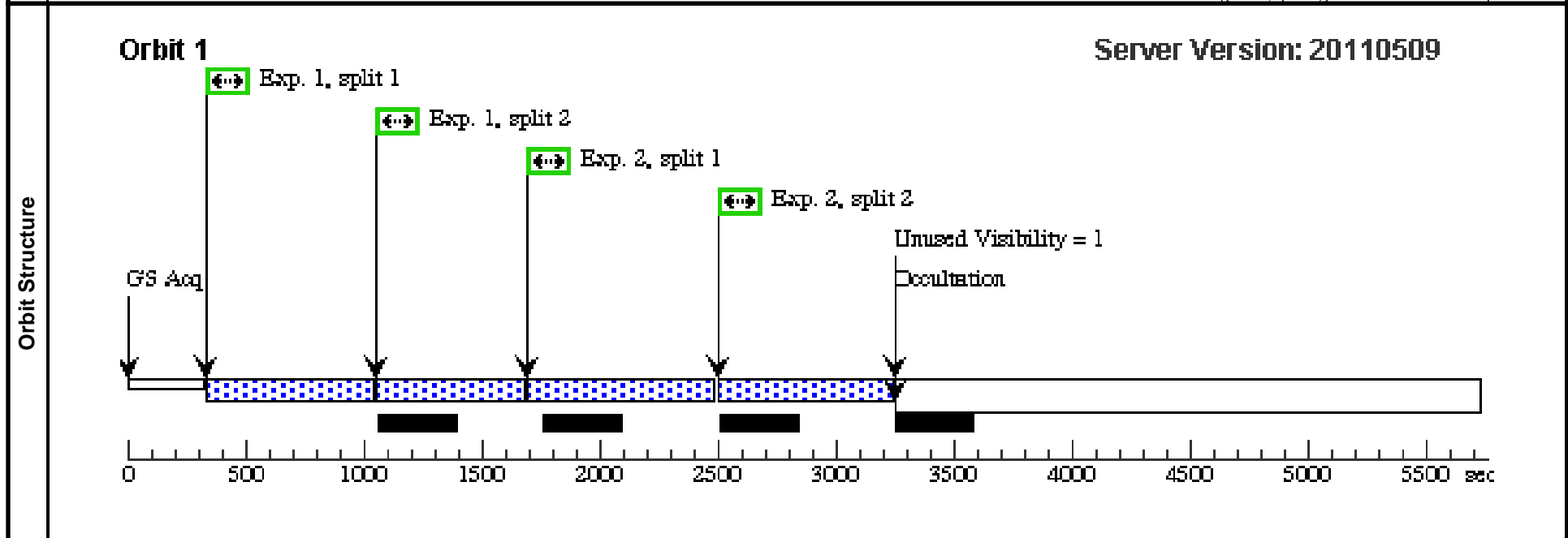
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC174605 _F606W	(8) AGC174605	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1000 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC174605 _F814W	(8) AGC174605	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1220 Secs [=>(Split 1)] [=>(Split 2)]	[1]



Visit	Proposal 12658, Visit 09				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 232.0D TO 344.0 D; ORIENT 50D TO 164.0 D				
<i>Comments: AGC182595</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(9)	AGC182595	RA: 08 51 12.1000 (132.8004167d) Dec: +27 52 48.00 (27.88000d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC182595 (9) AGC182595_F606W	(9) AGC182595	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC182595 (9) AGC182595_F814W	(9) AGC182595	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



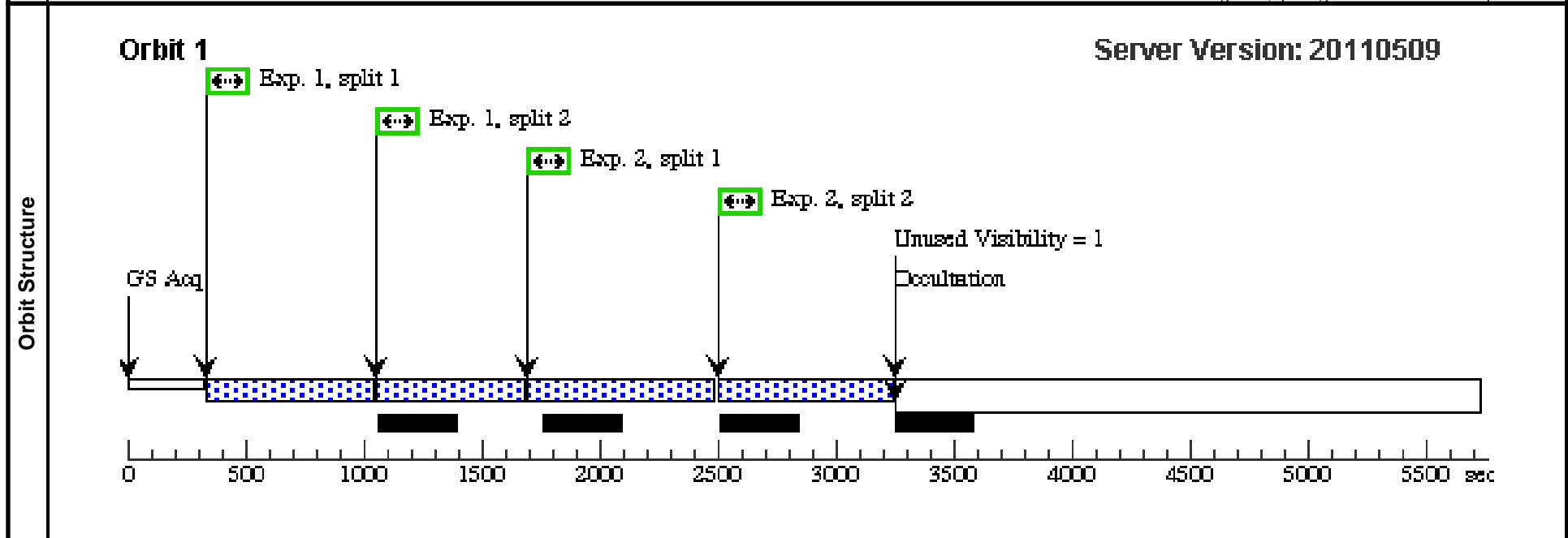
Proposal 12658 - Visit 10 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:41 GMT 2011

Visit	Proposal 12658, Visit 10				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 5.0D TO 32.0 D; ORIENT 43.0D TO 163.0 D; ORIENT 180.0D TO 212.0 D; ORIENT 225.0D TO 343.0 D				
<i>Comments: AGC731457</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(10)	AGC731457	RA: 10 31 55.8000 (157.9825000d) Dec: +28 01 33.00 (28.02583d) Equinox: J2000		V=10	Reference Frame: ICRS

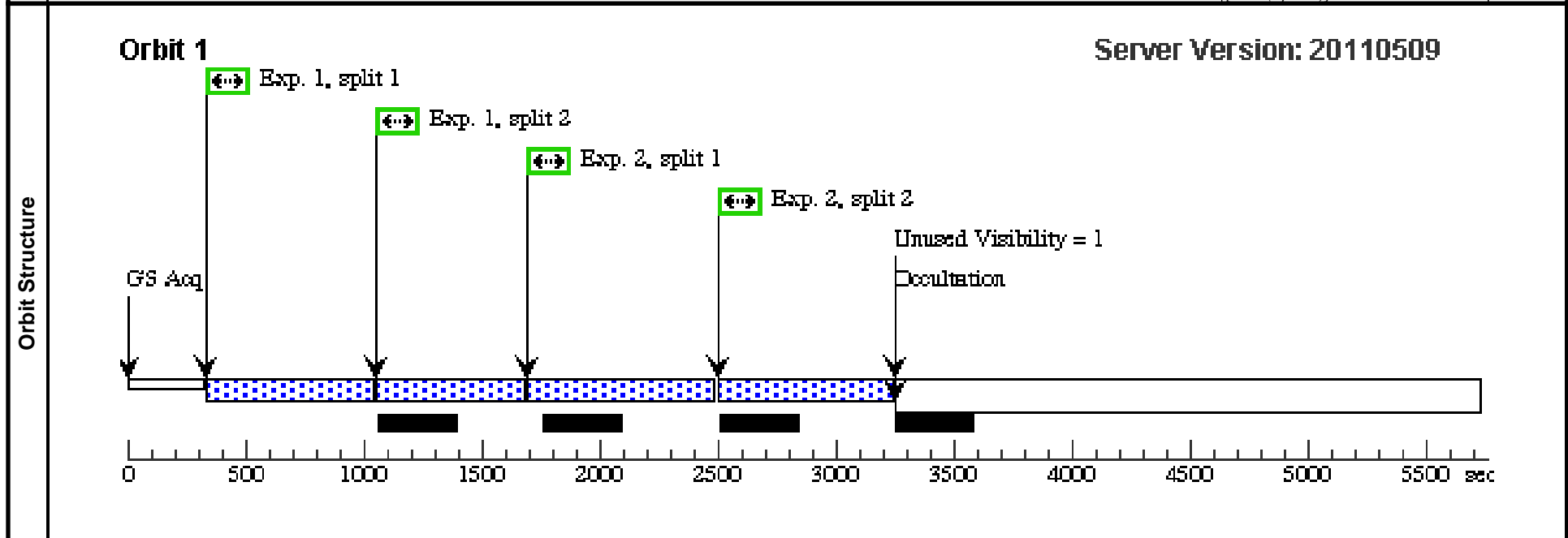
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC731457 _F606W	(10) AGC731457	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC731457 _F814W	(10) AGC731457	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]



Visit	Proposal 12658, Visit 11 Diagnostic Status: No Diagnostics Scientific Instruments: ACS/WFC Special Requirements: ORIENT 287.0D TO 327.0 D; ORIENT 219.0D TO 221.0 D; ORIENT 105.0D TO 147.0 D Comments: AGC749237				

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(11)	AGC749237	RA: 12 26 23.4000 (186.5975000d) Dec: +27 44 44.00 (27.74556d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC749237_F606W	(11) AGC749237	ACS/WFC, ACCUM, WFC2	F606W	CR-SPLIT=2			1008 Secs	
									[==>(Split 1)]	[1]
									[==>(Split 2)]	
2	AGC749237_F814W	(11) AGC749237	ACS/WFC, ACCUM, WFC2	F814W	CR-SPLIT=2			1226 Secs		
								[==>(Split 1)]	[1]	
								[==>(Split 2)]		



Proposal 12658 - Visit 12 - Fundamental Parameters of the SHIELD Galaxies

Tue Jul 12 03:07:42 GMT 2011

Visit	Proposal 12658, Visit 12				
	Diagnostic Status: No Diagnostics				
	Scientific Instruments: ACS/WFC				
	Special Requirements: ORIENT 12.0D TO 75.0 D; ORIENT 197.0D TO 254.0 D				
<i>Comments: AGC749241</i>					

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(12)	AGC749241	RA: 12 40 1.7000 (190.0070833d) Dec: +26 19 19.00 (26.32194d) Equinox: J2000		V=10	Reference Frame: ICRS

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	AGC749241_F606W	(12) AGC749241	ACS/WFC, ACCUM, WFC1	F606W	CR-SPLIT=2			1008 Secs [=>(Split 1)] [=>(Split 2)]	[1]
	2	AGC749241_F814W	(12) AGC749241	ACS/WFC, ACCUM, WFC1	F814W	CR-SPLIT=2			1226 Secs [=>(Split 1)] [=>(Split 2)]	[1]

