13718 - The nature and environment of the earliest dusty starburst galaxies

Cycle: 22, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Julie Wardlow (PI) (ESA Member) (Contact)	**University of Copenhagen, Niels Bohr Institute**	**jwardlow@dark-cosmology.dk**
Jae Alyson Calanog (CoI)	University of California - Irvine	jacalanog@gmail.com
Dr. Dave Clements (CoI) (ESA Member)	Imperial College of Science Technology and Medicine	d.clements@imperial.ac.uk
Dr. Alexander Conley (CoI)	University of Colorado at Boulder	alexander.conley@colorado.edu
Prof. Asantha Cooray (CoI) (AdminUSPI)	University of California - Irvine	acooray@uci.edu
Dr. Duncan Farrah (CoI)	Virginia Polytechnic Institute and State University	farrah@vt.edu
Dr. Hai Fu (CoI)	University of Iowa	hai-fu@uiowa.edu
Prof. Rob Ivison (CoI) (ESA Member)	Royal Observatory Edinburgh	rji@roe.ac.uk
Dr. Nicolas Laporte (CoI)	Pontificia Universidad Catolica de Chile	nlaporte@astro.puc.cl
Rui Marques-Chaves (CoI) (ESA Member)	Instituto de Astrofisica de Canarias	rmarques@iac.es
Paloma Martinez-Navajas (CoI) (ESA Member)	Instituto de Astrofisica de Canarias	paloma@iac.es
Dr. Ismael Perez-Fournon (CoI) (ESA Member)	Instituto de Astrofisica de Canarias	ipf@iac.es
Dr. Dominik A. Riechers (CoI)	Cornell University	riechers@astro.cornell.edu
Dr. Alina Streblyanska (CoI) (ESA Member)	Instituto de Astrofisica de Canarias	alina@iac.es

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) RARE-LSW-102	WFC3/IR	1	21-Aug-2014 21:01:19.0	yes
02	(2) RARE-FLS-1	WFC3/IR	2	21-Aug-2014 21:01:21.0	yes
03	(3) RARE-HELMS-10	WFC3/IR	1	21-Aug-2014 21:01:22.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
04	(4) RARE-HELMS-28	WFC3/IR	1	21-Aug-2014 21:01:24.0	yes
05	(1) RARE-LSW-102	ACS/WFC	1	21-Aug-2014 21:01:25.0	yes
06	(3) RARE-HELMS-10	ACS/WFC	1	21-Aug-2014 21:01:25.0	yes
07	(4) RARE-HELMS-28	ACS/WFC	1	21-Aug-2014 21:01:26.0	yes

8 Total Orbits Used

ABSTRACT

We propose HST ACS and WFC3 imaging of four of the brightest spectroscopically confirmed dusty starburst galaxies at z=4.2 to z=5.3. Theoretically the existence of dusty, massive startbursts at such early epochs is difficult to explain and thorough observational constraints on their properties provides a stringent test of galaxy formation models. Our targets were selected from the Herschel-HerMES survey and have a multitude of far-infrared follow-up data, including the CO spectroscopy that revealed their extreme redshifts. However, deep optical and near-IR observations are currently lacking and we require the resolution and sensitivity of HST at these wavelengths to completely reveal these rare galaxies. We will use the proposed data to measure the physical properties of four z>4 dusty starbursts, including their sizes, stellar masses, and the scale and mode of the star-formation. There is also evidence of gravitational lensing and the HST data are crucial for accurately measuring the lensing amplification and reconstructing the source plane. The wider field data will be used to investigate the environments of these galaxies and determine whether they are protocluster members, as often expected of massive high-redshift galaxies and similarly to some other z>4 starbursts. We will be able to measure the dark matter halo mass scale and thereby consider the evolution and descendent of these galaxies, particularly in comparison with lower redshift dusty starbursts.

OBSERVING DESCRIPTION

Observing_Description:

We require WFC3 observations with the F105W and F160W filters of four dusty z>4 target galaxies. For three of the targets WFC3 observations in both filters will be completed in a single orbit per target. The final target requires two WFC3 orbits. (Total = 5 WFC3 orbits)

We also require ACS F435W observations for three of the four targets to definitively identify any foreground galaxies, which may be gravitationally lensing the z>4 starburst galaxies. These observations require one orbit per target. (Total = 3 ACS orbits).

For the WFC3 observations we calculate predicted F105W and F160W fluxes of our targets by scaling the SED of Arp220 to the observed far-infrared fluxes, fixed to the CO redshifts. As described in the proposal, there is some exvidence of the targets being marginally resolved in existing low SNR data, and therefore the required WFC3 exposure times are ~4x those calculated from the fluxes alone, and ~4x those in each of the ETC references.

The z>4 SMGs will be undeteced in the ACS observations (due to the redshift and the lyman limit), instead those observations aim to characterise any foreground lensing galaxies. Therefore, the predicted fluxes in the ACS/F435W images are estimated based on non-dusty galaxy SEDs at z = 2, scaled to the flux of the faintest detected stellar components. As described in the proposal, the possible foreground galaxy in exisiting RARE-LSW-102 observations is also marginally resolved and therefore also requires ~4x the exposure calculated from the fluxes alone and in the ETC reference.

There are no constraints on observing date or orientation.

Visit

Proposal 13718, LSW102-WFC3 (01), implementation Fri Aug 22 01:01:27 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: WFC3/F105W and F160W observations of RARE-LSW-102

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(3)

Fixed Targets

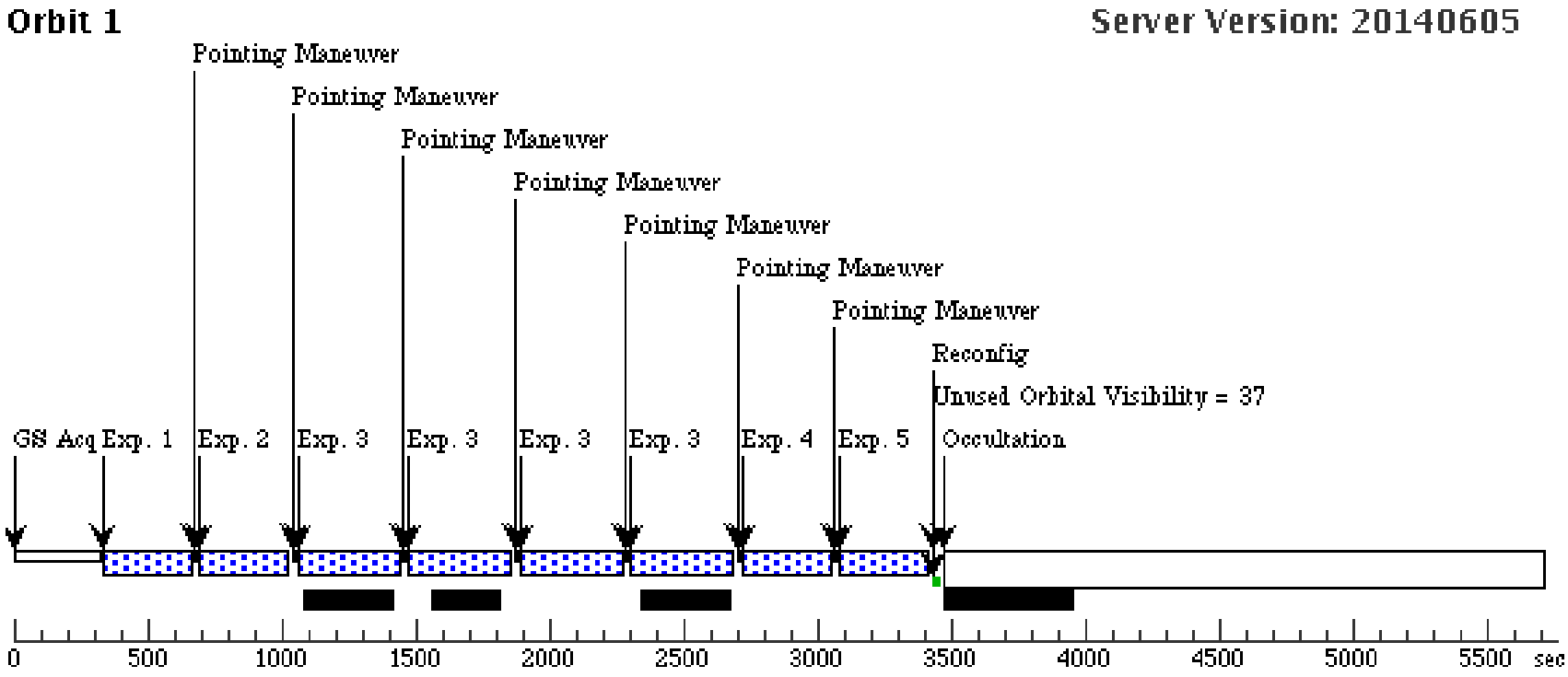
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	RARE-LSW-102 Alt Name1: HLOCK02 Alt Name2: 1HERMES-S250-J104050.5+560652	RA: 10 40 50.6160 (160.2109000d) Dec: +56 06 53.88 (56.11497d) Equinox: J2000	Redshift: 5.29	V=25.0+/-1 F435W expected =25.5 ABmag, F105W expected=24.1 ABmag, F160W expected =23.4 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	LSW102-F160Wa (WFC3IR.im.601919)	(1) RARE-LSW-102	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPARS50	POS TARG 0,0	Sequence 1-5 Non-Int in LSW102-WFC3 (01)	302.934997 Secs (302.935 Secs) *[==>]*	*[1]*
2	LSW102-F160Wb (WFC3IR.im.601919)	(1) RARE-LSW-102	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPARS50	POS TARG 0.542,0.182	Sequence 1-5 Non-Int in LSW102-WFC3 (01)	302.934997 Secs (302.935 Secs) *[==>]*	*[1]*
3	LSW102-F105W (WFC3IR.im.601930)	(1) RARE-LSW-102	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS50		Sequence 1-5 Non-Int in LSW102-WFC3 (01) Pattern 2, Exps 3-3 in Sequence 1-5 Non-Int in LSW102-WFC3 (01) (2)	352.935448 Secs (1411.742 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*
4	LSW102-F160Wc (WFC3IR.im.601919)	(1) RARE-LSW-102	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPARS50	POS TARG 0.339,0.485	Sequence 1-5 Non-Int in LSW102-WFC3 (01)	302.934997 Secs (302.935 Secs) *[==>]*	*[1]*
5	LSW102-F160Wd (WFC3IR.im.601919)	(1) RARE-LSW-102	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPARS50	POS TARG -0.203,0.303	Sequence 1-5 Non-Int in LSW102-WFC3 (01)	302.934997 Secs (302.935 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 13718, FLS1-WFC3 (02), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Comments: WFC3/F105W and F160W observations of RARE-FLS-1

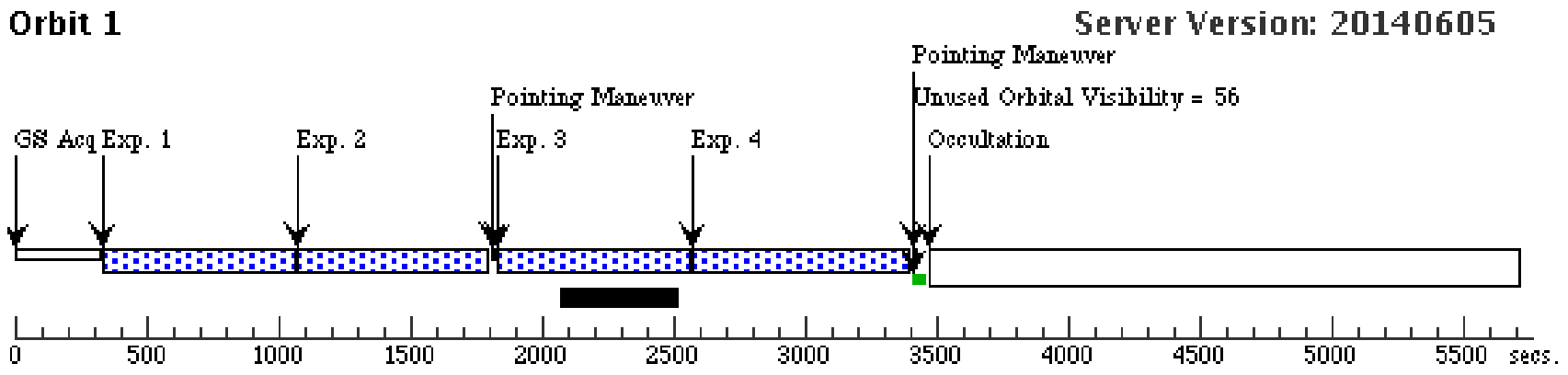
Fixed Targets

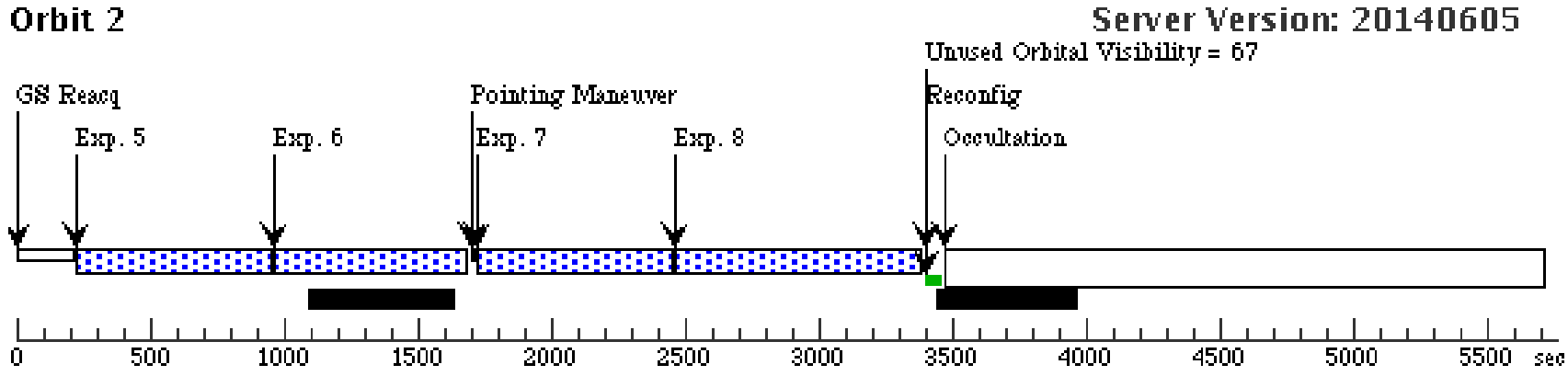
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	RARE-FLS-1	RA: 17 08 17.5872 (257.0732800d)	Redshift: 4.29	V=26.7+/-1	Reference Frame: ICRS
	Alt Name1: FLS107	Dec: +58 28 40.46 (58.47791d)		F105W expected = 24.6 ABmag,	
	Alt Name2: 1HERMES-S250-J170817.6+582845	Equinox: J2000		F160W expected = 23.9 ABmag	

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	FLS1-F160Wa	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG 0,0	Sequence 1-4 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[1]***
2	FLS1-F105Wa (WFC3IR.im.601952)	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG 0,0	Sequence 1-4 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[1]***
3	FLS1-F105Wb (WFC3IR.im.601952)	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG 0.542,0.182	Sequence 1-4 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[1]***
4	FLS1-F160Wb	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPARS100	POS TARG 0.542,0.182	Sequence 1-4 Non-Int in FLS1-WFC3 (02)	802.934875 Secs (802.935 Secs)	
								[==>]	***[1]***
5	FLS1-F160Wc	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG 0.339,0.485	Sequence 5-8 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[2]***
6	FLS1-F105Wc (WFC3IR.im.601952)	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG 0.339,0.485	Sequence 5-8 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[2]***
7	FLS1-F105Wd (WFC3IR.im.601952)	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS100	POS TARG -0.203,0.303	Sequence 5-8 Non-Int in FLS1-WFC3 (02)	702.934552 Secs (702.935 Secs)	
								[==>]	***[2]***
8	FLS1-F160Wd	(2) RARE-FLS-1	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS100	POS TARG -0.203,0.303	Sequence 5-8 Non-Int in FLS1-WFC3 (02)	902.935198 Secs (902.935 Secs)	
								[==>]	***[2]***

Orbit Structure





Visit

Proposal 13718, HELMS10-WFC3 (03), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BETWEEN 01-OCT-2014 AND 03-FEB-2015; BETWEEN 05-JUN-2015 AND 03-FEB-2016

Comments: WFC3/F105W and F160W observations of RARE-HELMS-10

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(3)

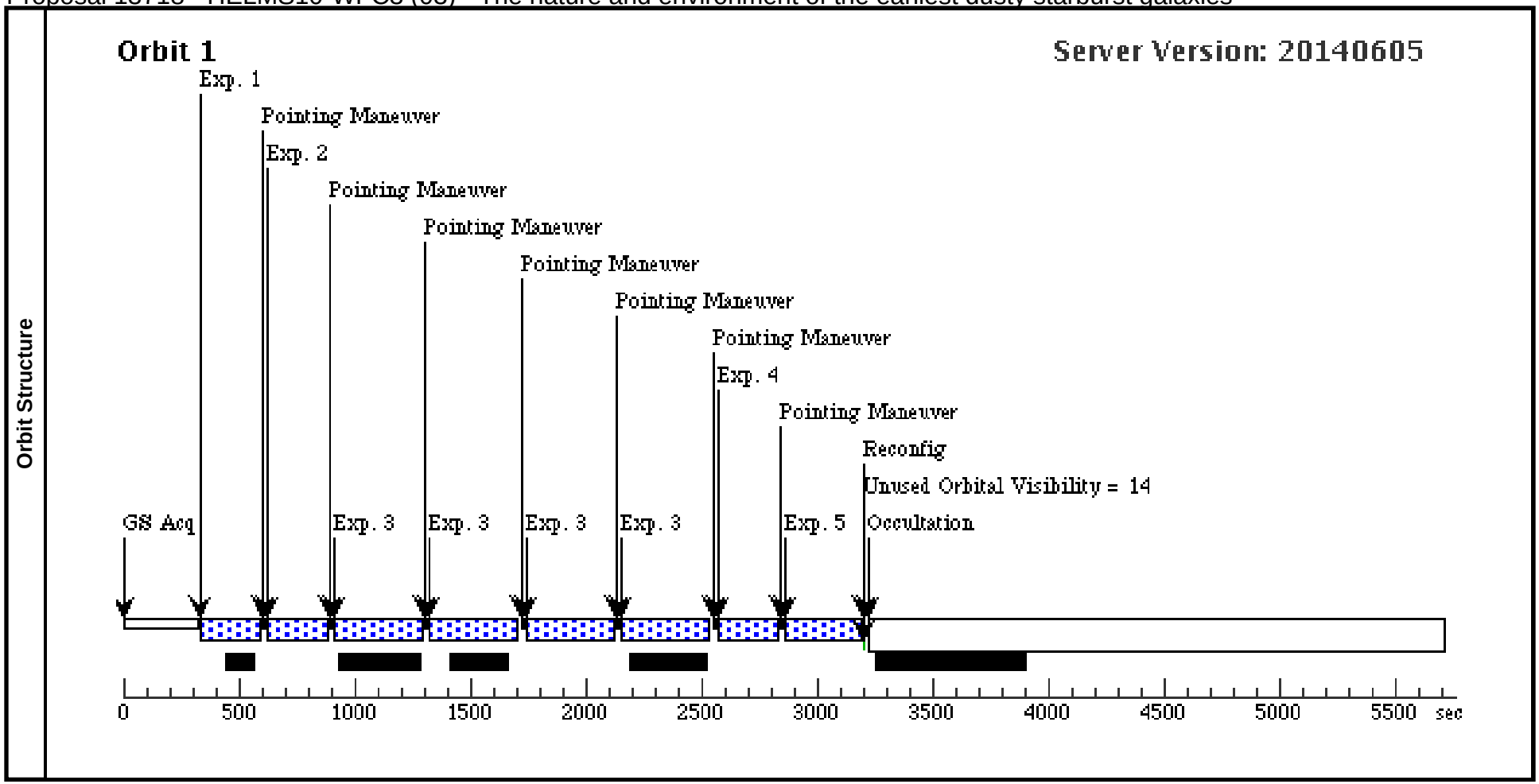
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	RARE-HELMS-10	RA: 00 52 58.5401 (13.2439171d) Dec: +06 13 19.20 (6.22200d) Equinox: J2000	Redshift: 4.37	V=26.2+/-0.5 F435W expected = 26.7 ABmag, F105W expected = 24.0 ABmag, F160W expected= 23.2 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HELMS10-F160Wa (WFC3IR.im.597128)	(3) RARE-HELMS-10	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0,0	Sequence 1-5 Non-Int in HELMS10-WFC3 (03)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
2	HELMS10-F160Wb (WFC3IR.im.597128)	(3) RARE-HELMS-10	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0.542,0.182	Sequence 1-5 Non-Int in HELMS10-WFC3 (03)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
3	HELMS10-F105W (WFC3IR.im.597137)	(3) RARE-HELMS-10	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS50		Sequence 1-5 Non-Int in HELMS10-WFC3 (03) Pattern 2, Exps 3-3 in Sequence 1-5 Non-Int in HELMS10-WFC3 (03) (2)	352.935448 Secs (1411.742 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
4	HELMS10-F160Wc (WFC3IR.im.597128)	(3) RARE-HELMS-10	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0.339,0.485	Sequence 1-5 Non-Int in HELMS10-WFC3 (03)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
5	HELMS10-F160Wd (WFC3IR.im.597128)	(3) RARE-HELMS-10	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPARS25	POS TARG -0.203,0.303	Sequence 1-5 Non-Int in HELMS10-WFC3 (03)	302.938471 Secs (302.938 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20140605
Exp. 1
Pointing Maneuver
Exp. 2
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Exp. 4
Pointing Maneuver
Reconfig
Unused Orbital Visibility = 14
GS Acq
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Exp. 5
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13718, HELMS28-WFC3 (04), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BETWEEN 01-OCT-2014 AND 30-JAN-2015; BETWEEN 01-JUN-2015 AND 30-JAN-2016

Comments: WFC3/F105W and F160W observations of RARE-HELMS-28

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(3)

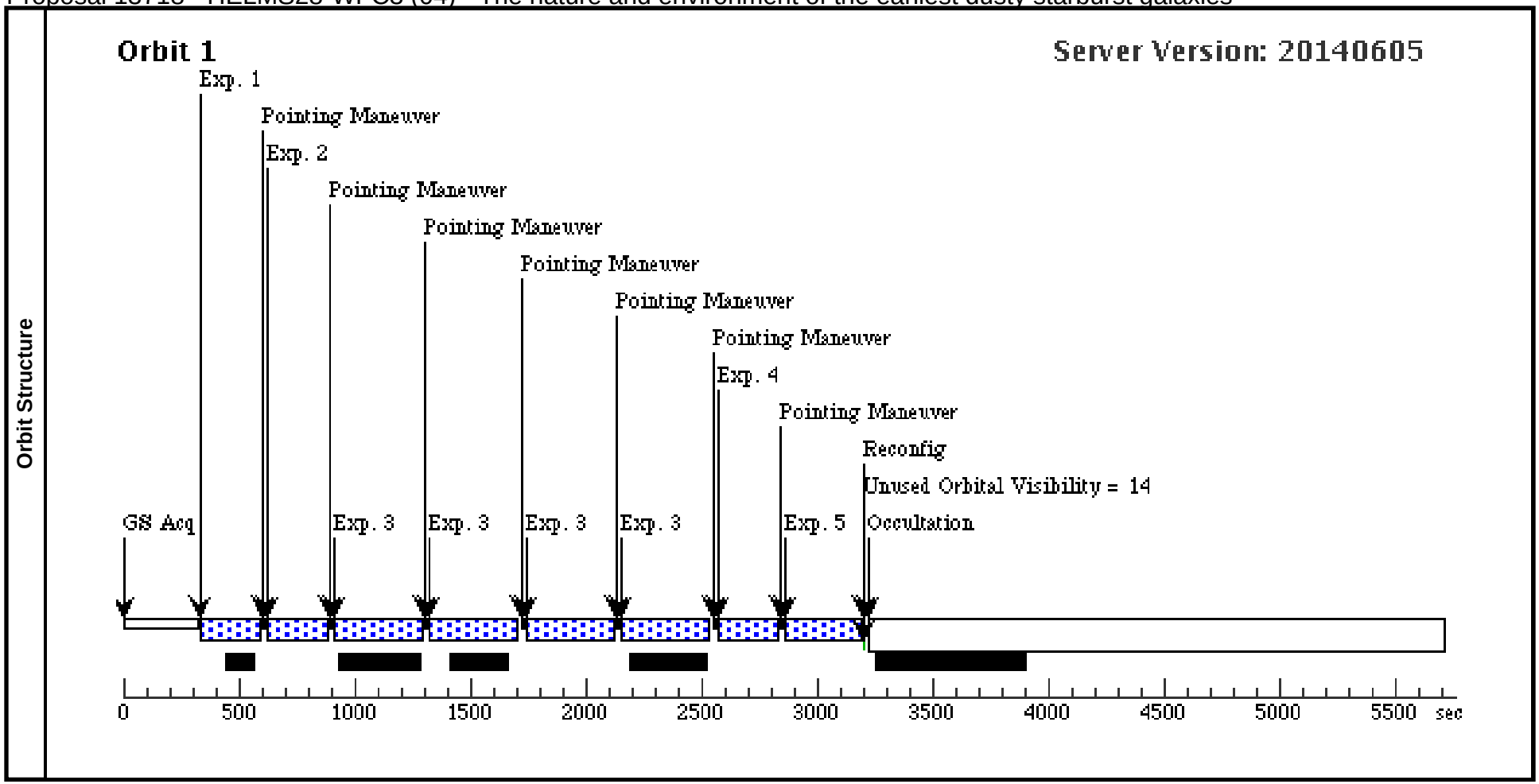
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	RARE-HELMS-28	RA: 00 44 10.2799 (11.0428329d) Dec: +01 18 22.30 (1.30619d) Equinox: J2000		V=26.2+/-1 F435W expected = 26.7 ABmag, F105W expected = 24.0 ABmag, F160W expected = 23.2 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HELMS28-F160Wa (WFC3IR.im.597128)	(4) RARE-HELMS-28	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0,0	Sequence 1-5 Non-Int in HELMS28-WFC3 (04)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
2	HELMS28-F160Wb (WFC3IR.im.597128)	(4) RARE-HELMS-28	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0.542,0.182	Sequence 1-5 Non-Int in HELMS28-WFC3 (04)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
3	HELMS28-F105W (WFC3IR.im.597137)	(4) RARE-HELMS-28	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=8; SAMP-SEQ=SPARS50		Sequence 1-5 Non-Int in HELMS28-WFC3 (04) Pattern 2, Exps 3-3 in Sequence 1-5 Non-Int in HELMS28-WFC3 (04) (2)	352.935448 Secs (1411.742 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
4	HELMS28-F160Wc (WFC3IR.im.597128)	(4) RARE-HELMS-28	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPARS25	POS TARG 0.339,0.485	Sequence 1-5 Non-Int in HELMS28-WFC3 (04)	227.936926 Secs (227.937 Secs) *[==>]*	***[1]***
5	HELMS28-F160Wd (WFC3IR.im.597128)	(4) RARE-HELMS-28	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=13; SAMP-SEQ=SPARS25	POS TARG -0.203,0.303	Sequence 1-5 Non-Int in HELMS28-WFC3 (04)	302.938471 Secs (302.938 Secs) *[==>]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20140605
Exp. 1
Pointing Maneuver
Exp. 2
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Exp. 4
Pointing Maneuver
Reconfig
Unused Orbital Visibility = 14
GS Acq
Exp. 3
Exp. 3
Exp. 3
Exp. 3
Exp. 5
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13718, LSW102-ACS (05), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Comments: ACS/F435W observations of RARE-LSW-102

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)

Fixed Targets

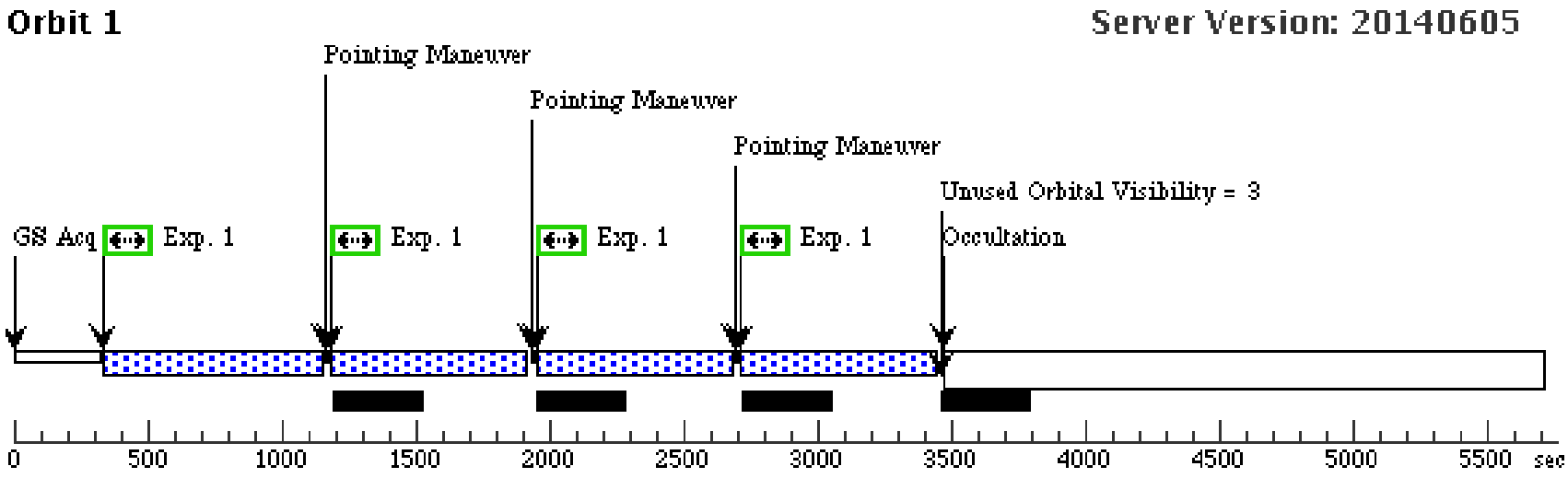
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	RARE-LSW-102 Alt Name1: HLOCK02 Alt Name2: 1HERMES-S250-J104050.5+560652	RA: 10 40 50.6160 (160.2109000d) Dec: +56 06 53.88 (56.11497d) Equinox: J2000	Redshift: 5.29	V=25.0+/-1 F435W expected =25.5 ABmag, F105W expected=24.1 ABmag, F160W expected =23.4 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	LS102-F435W (ACS.im.589340)	(1) RARE-LSW-102	ACS/WFC, ACCUM, WFC	F435W	GAIN=2.0		Pattern 1, Exps 1-1 in LSW102-ACS (05) (1)	610 Secs (2440 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 13718, HELMS10-ACS (06), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Comments: ACS/F435W observations of RARE-HELMS-10

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)

Fixed Targets

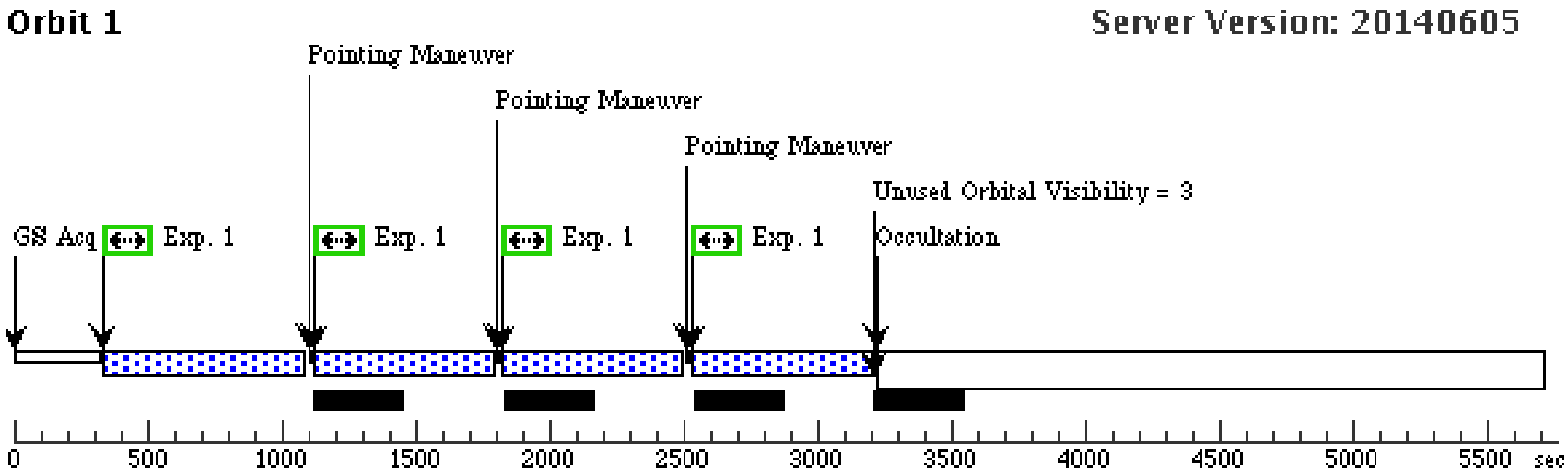
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	RARE-HELMS-10	RA: 00 52 58.5401 (13.2439171d) Dec: +06 13 19.20 (6.22200d) Equinox: J2000	Redshift: 4.37	V=26.2+/-0.5 F435W expected = 26.7 ABmag, F105W expected = 24.0 ABmag, F160W expected= 23.2 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HELMS10-F435W (ACS.im.596718)	(3) RARE-HELMS-10	ACS/WFC, ACCUM, WFC	F435W	GAIN=2.0		Pattern 1, Exps 1-1 in HELMS10-ACS (06) (1)	548 Secs (2192 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 13718, HELMS28-ACS (07), implementation Fri Aug 22 01:01:28 GMT 2014

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/WFC

Special Requirements: (none)

Comments: ACS/F435W observations of RARE-HELMS-28

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-WFC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.265 Line Spacing=0.187	Coordinate Frame=POS-TARG Pattern Orientation=20.67 Angle Between Sides=69.05 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	RARE-HELMS-28	RA: 00 44 10.2799 (11.0428329d) Dec: +01 18 22.30 (1.30619d) Equinox: J2000		V=26.2+/-1 F435W expected = 26.7 ABmag, F105W expected = 24.0 ABmag, F160W expected = 23.2 ABmag	Reference Frame: ICRS

Comments: F435W flux is estimated for a foreground lens (z=2 assumed) rather than the z~5 target.

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HELMS28-F435W (ACS.im.589340)	(4) RARE-HELMS-28	ACS/WFC, ACCUM, WFC	F435W	GAIN=2.0	GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in HELMS28-ACS (07) (1)	548 Secs (2192 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure