



14199 - Refsdal Redux: Precise Measurements of the Reappearance of the First Supernova with Multiple Resolved Images

Cycle: 23, 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) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:17:58.0	yes
13	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:00.0	yes
14	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:01.0	yes
15	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:03.0	yes
22	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:04.0	yes
30	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	2	29-Jul-2016 13:18:06.0	yes
31	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	2	29-Jul-2016 13:18:08.0	yes
23	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:10.0	yes
17	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:11.0	yes
24	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:13.0	yes
18	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:15.0	yes
25	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:16.0	yes
19	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:17.0	yes

Proposal 14199 (STScI Edit Number: 20, Created: Friday, July 29, 2016 12:18:44 PM EST) - Overview

<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>
35	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	2	29-Jul-2016 13:18:19.0	yes
34	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:21.0	yes
36	(1) REFSDALREAPPEARANCE	WFC3/IR WFC3/UVIS	1	29-Jul-2016 13:18:22.0	yes
37	(1) REFSDALREAPPEARANCE	WFC3/IR WFC3/UVIS	1	29-Jul-2016 13:18:22.0	yes
38	(1) REFSDALREAPPEARANCE	WFC3/IR WFC3/UVIS	1	29-Jul-2016 13:18:23.0	yes
39	(1) REFSDALREAPPEARANCE	WFC3/IR WFC3/UVIS	1	29-Jul-2016 13:18:24.0	yes
41	(1) REFSDALREAPPEARANCE	WFC3/IR WFC3/UVIS	2	29-Jul-2016 13:18:25.0	yes
40	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:26.0	yes
45	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:27.0	yes
46	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:29.0	yes
47	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:30.0	yes
49	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:31.0	yes
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<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>
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50	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:38.0	yes
51	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:39.0	yes
52	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:40.0	yes
53	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:42.0	yes
54	(1) REFSDALREAPPEARANCE ANY	ACS/WFC WFC3/IR	1	29-Jul-2016 13:18:43.0	yes

38 Total Orbits Used

ABSTRACT

In 1964, Refsdal first considered the possibility that a powerful gravitational lens could create multiple images of a well-aligned background supernova (SN) explosion. For such a system, the time delays between the SN images depend on both the matter distribution in the lens, and the cosmic expansion rate. In HST exposures of the MACSJ1149 cluster taken in November 2014, we discovered the first multiply imaged SN, which we have named 'Refsdal.' Four images of the SN create an Einstein Cross around an early-type cluster member. SN Refsdal is expected to reappear during Cycle 23 in a different image of the host galaxy (offset by 8") created by the cluster's potential. Our HST imaging and spectroscopy now show that SN Refsdal is a peculiar Type IIP SN similar to 1987A at redshift $z=1.5$.

We propose a WFC3 imaging program to detect the reappearance (10 orbits) and a follow-up ToO program to construct near-IR light curves in two bands (up to 28 orbits). Comparing the new light curve to the current four images, we will measure precise relative magnifications and time delays. This will make SN Refsdal into a powerful probe of the cluster mass distribution and lay a foundation for the future use of SN time delays for constraints on cosmological parameters. Comparison among the five light curves will also allow us to measure microlensing fluctuations, which can

constrain the elliptical lens' and intracluster stellar populations. Finally, this Cycle 23 imaging will provide late-time light curves for the four highly magnified images (~ 15 - $20\times$) in the Einstein Cross. These will enable an improved comparison to the low-redshift 87A-like population and an estimate of the ^{56}Ni mass.

OBSERVING DESCRIPTION

In early November 2014, we discovered the first multiply imaged supernova (SN) in a search of near-infrared WFC3 exposures of the MACS1149 galaxy cluster ($z=0.54$). The SN, which we named 'Refsdal' appeared as four highly magnified (by a factor of about 20) images in an Einstein cross surrounding an elliptical cluster galaxy. From WFC3 G141 grism spectra taken about 1.5 months after discovery, we now have classified the SN as a Type IIP, and a light curve constructed from FrontierSN imaging is similar to that of the slowly evolving SN 1987A.

This program will monitor the MACS1149 galaxy-cluster field for the expected appearance of SN Refsdal in a different image of the host galaxy, offset by ~ 8 arcseconds from the four images that appeared in Cycle 22. After detecting the new appearance, we will trigger a 28-orbit long-term Target-of-Opportunity program to construct near-infrared light curves in F125W and F160W.

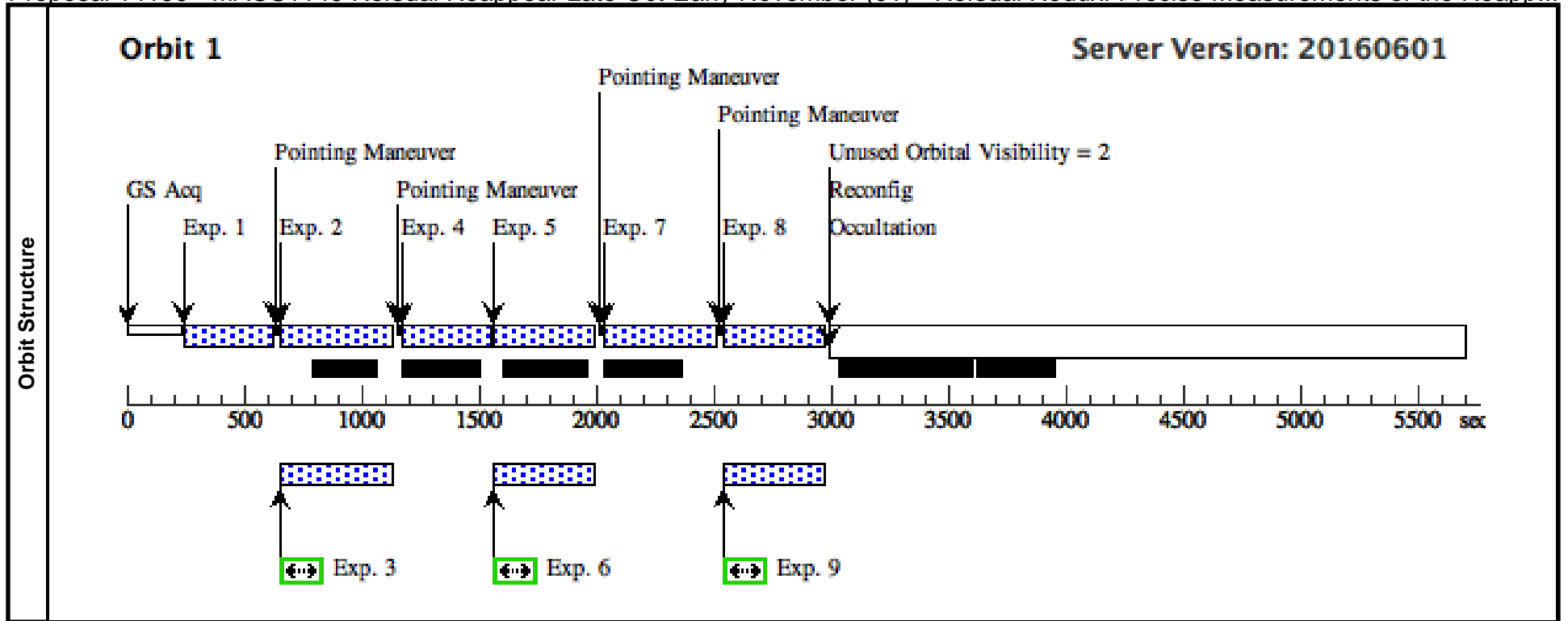
Monitoring Orbits: A total of 10 orbits of WFC3-IR F125W and F160W imaging will be evenly distributed across the period from 30 October 2015 through 23 July 2016 when the MACS1149 field is visible.

Reappearance Follow-up Orbits: After the reappearance is detected, twenty-eight orbits of near-infrared WFC3-IR follow-up imaging will be used to construct light curves in the F125W and F160W bandpasses.

Proposal 14199 - MACS1149 Refsdal Reappear Late Oct-Early November (01) - Refsdal Redux: Precise Measurements of the Reapp...

Fri Jul 29 17:18:44 GMT 2016

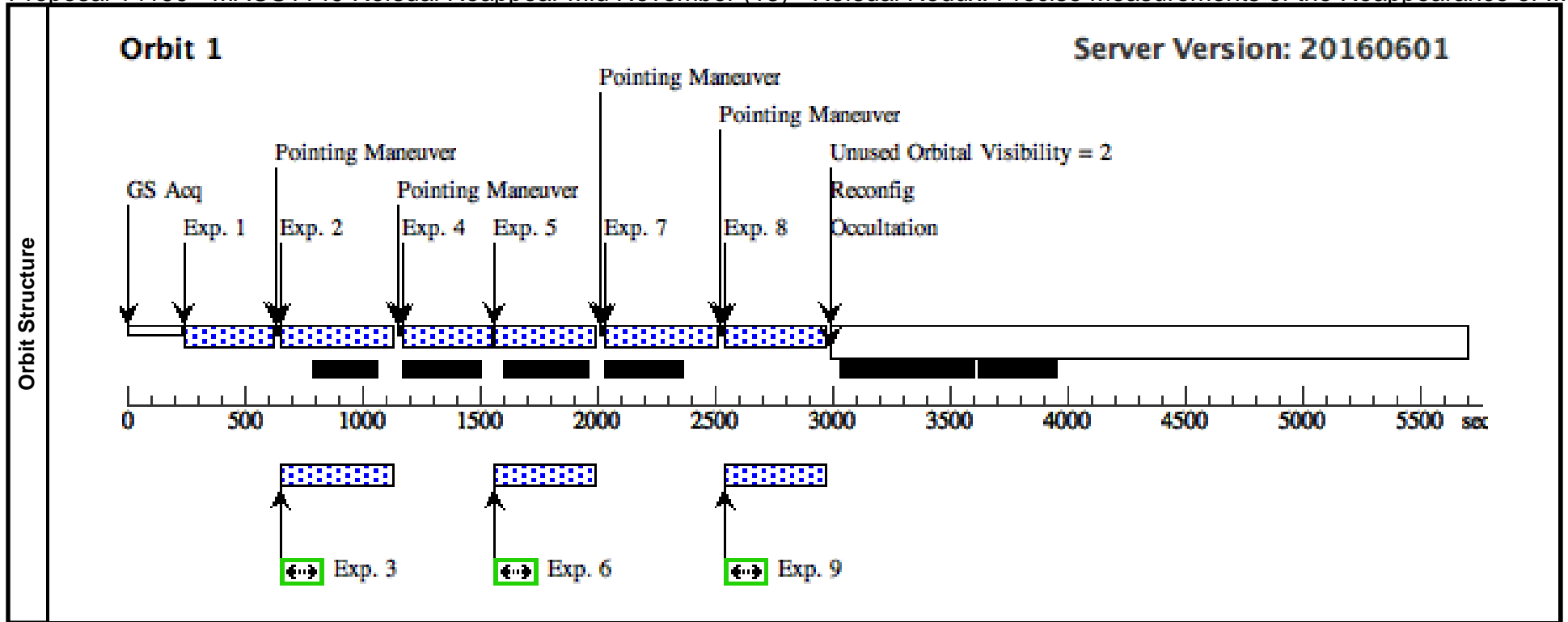
Visit	Proposal 14199, MACS1149 Refsdal Reappear Late Oct-Early November (01), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 306D TO 308 D; ORIENT 315D TO 315 D; BETWEEN 30-OCT-2015:00:00:00 AND 01-NOV-2015:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 307												
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> Comments: Extended=NO	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous								
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS								
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit			
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARIO ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]			
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	452.93635 Secs (452.936 Secs) [==>]	[1]			
	3	ANY		ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	275 Secs (275 Secs) [==>]	[1]			
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]			
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	6	ANY		ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	307 Secs (307 Secs) [==>]	[1]			
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		452.93635 Secs (452.936 Secs) [==>]	[1]			
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	9	ANY		ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late Oct-Early November (01)	321 Secs (307 Secs) [==>307.0 Secs]	[1]			



Proposal 14199 - MACS1149 Refsdal Reappear Mid November (13) - Refsdal Redux: Precise Measurements of the Reappearance of ...

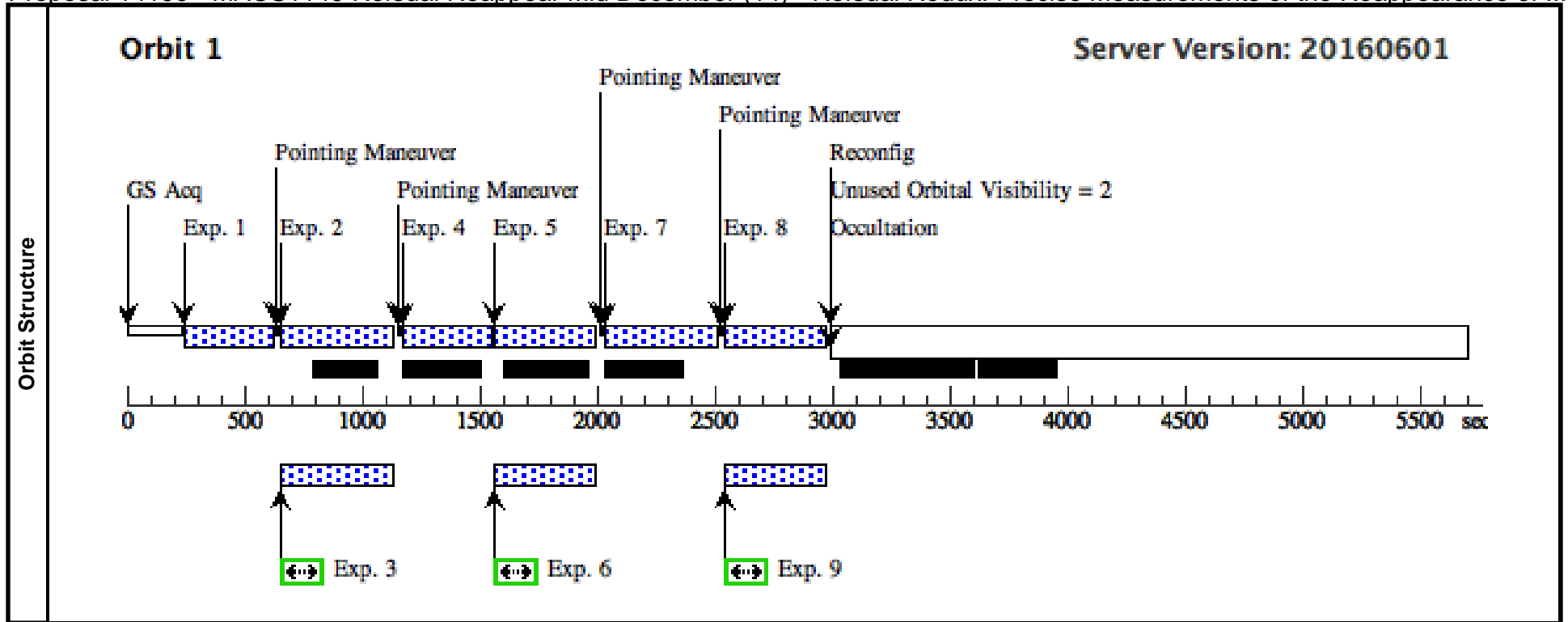
Fri Jul 29 17:18:45 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid November (13), completed									
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 305D TO 308 D; BETWEEN 13-NOV-2015:00:00:00 AND 15-NOV-2015:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 307									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
Comments: Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARIO ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid November (13)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid November (13)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid November (13)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid November (13)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		452.93635 Secs (452.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid November (13)	402.935899 Secs (402.936 Secs) [==>]	[1]
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Proposal 14199 - MACS1149 Refsdal Reappear Mid December (14) - Refsdal Redux: Precise Measurements of the Reappearance of ...

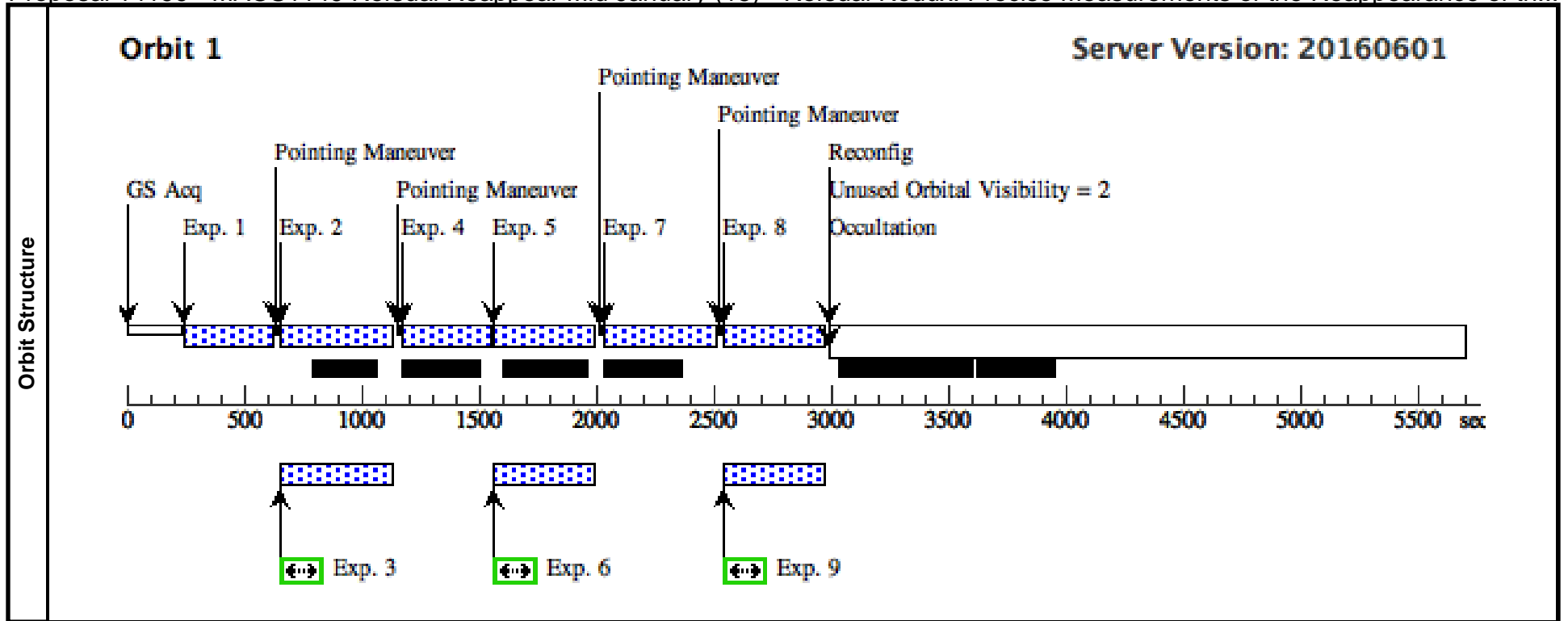
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Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]									
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	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid December (14)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]									
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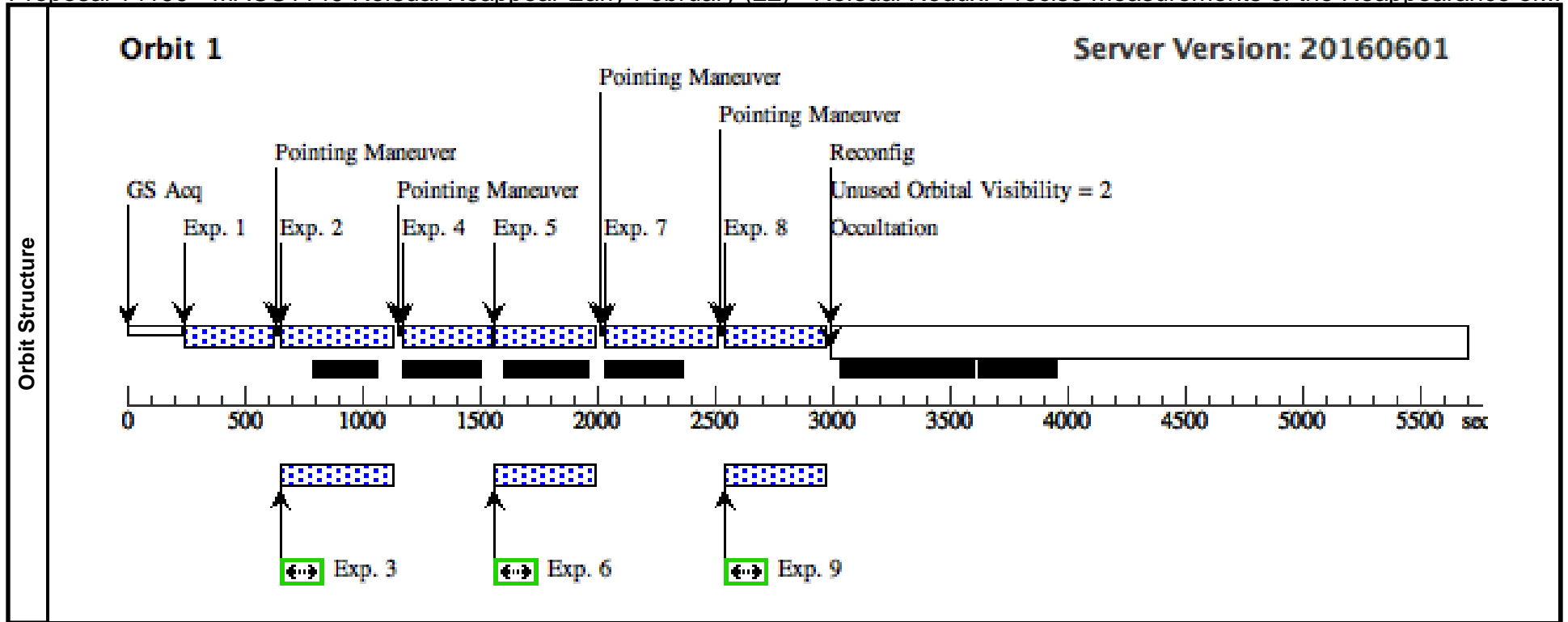
Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid January (15), completed									
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	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid January (15)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid January (15)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid January (15)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid January (15)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209		452.93635 Secs (452.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1. 612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid January (15)	402.935899 Secs (402.936 Secs) [==>]	[1]
9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid January (15)	321 Secs (307 Secs) [==>307.0 Secs]	[1]	



Proposal 14199 - MACS1149 Refsdal Reappear Early February (22) - Refsdal Redux: Precise Measurements of the Reappearance of...

Fri Jul 29 17:18:45 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Early February (22), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 260D TO 266 D; BETWEEN 08-FEB-2016:00:00:00 AND 10-FEB-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 260																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
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Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early February (22)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early February (22)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early February (22)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early February (22)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		452.93635 Secs (452.936 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early February (22)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early February (22)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									



Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F125W (30) - Refsdal Redux: Precise Measurements of the Reappearance...

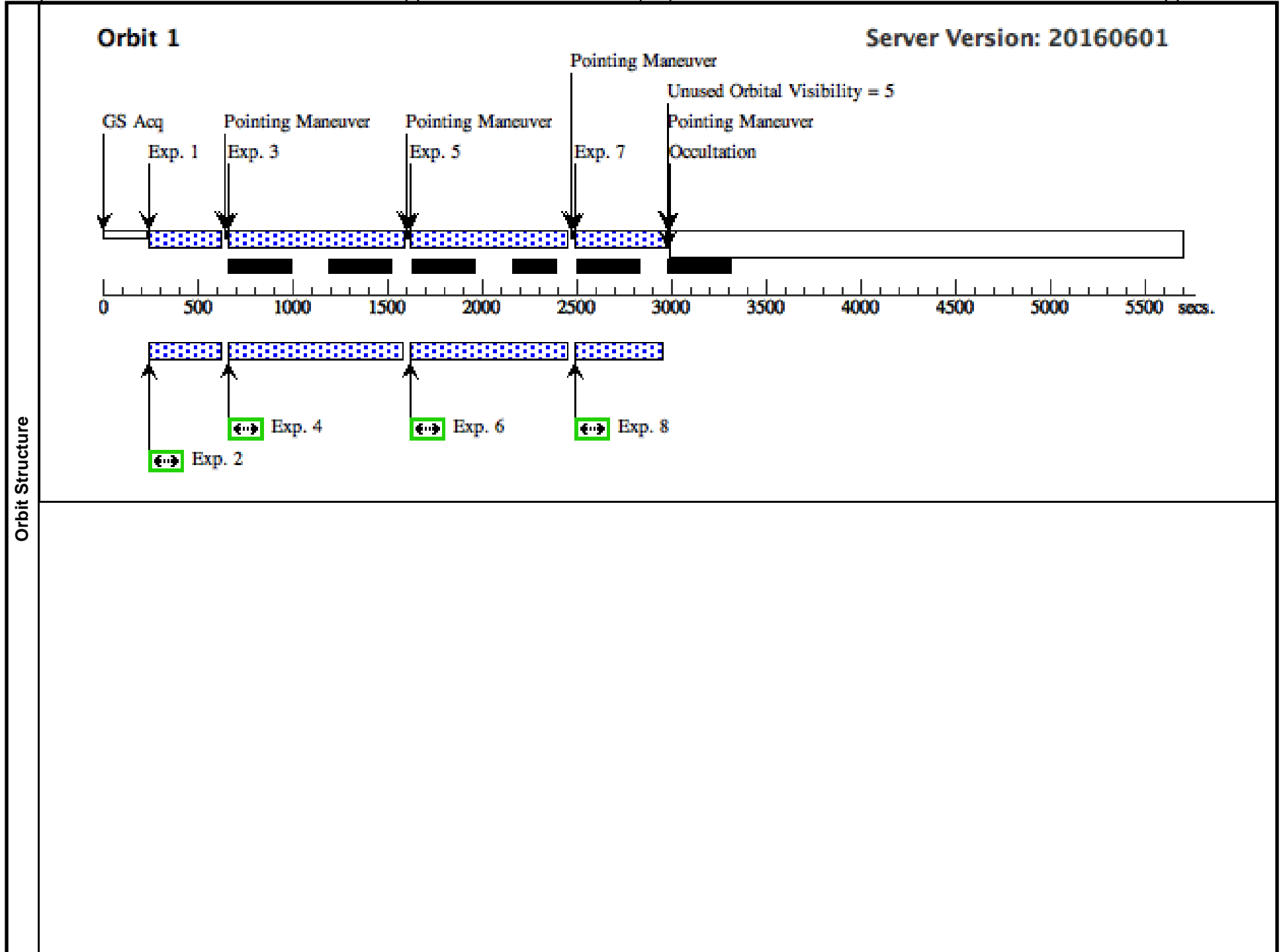
Visit	<p>Proposal 14199, MACS1149 Refsdal Reappear: F105W + F125W (30), completed Fri Jul 29 17:18:45 GMT 2016</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/IR, ACS/WFC</p> <p>Special Requirements: SCHED 100%; ORIENT 260D TO 266 D; BETWEEN 11-FEB-2016:00:00:00 AND 15-FEB-2016:00:00:00; GROUP 30,31 WITHIN 3D</p> <p><i>Comments: 4 prime near-IR of coordinates of Refsdal's expected reappearance and 4 ACS parallel observations.</i></p> <p><i>Preferred orient = 260</i></p>																
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEAR NCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: Extended=NO</i></p>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEAR NCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30
#		Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous											
(1)	REFSDALREAPPEAR NCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS												

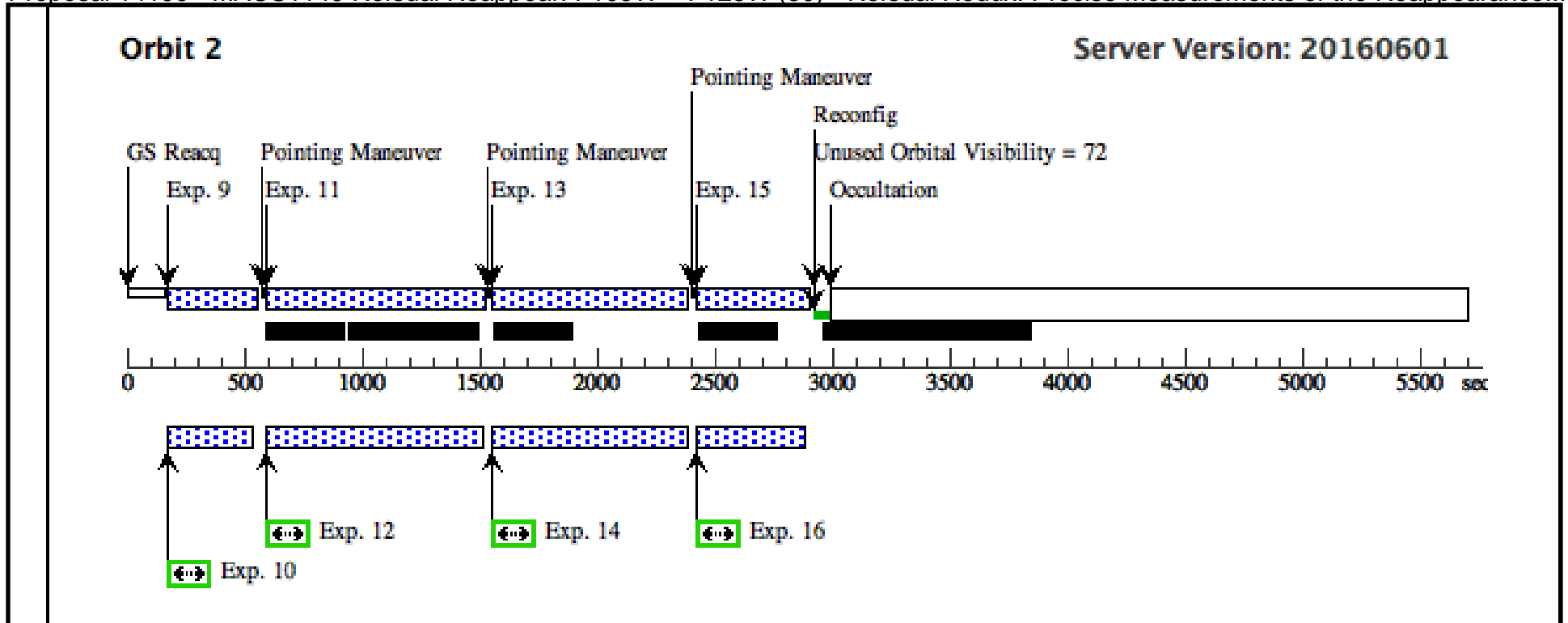
Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F125W (30) - Refsdal Redux: Precise Measurements of the Reappearance...

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0,0; GS ACQ SCENARI O ONEB1B3	Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	352.935448 Secs (352.935 Secs) [==>]	[1]
	2		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	175 Secs (175 Secs) [==>]	[1]
	3	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=10; SAMP-SEQ=SPAR S100	POS TARG 0.451,0. 403	Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	902.935198 Secs (902.935 Secs) [==>]	[1]
	4		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	800 Secs (800 Secs) [==>]	[1]
	5	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=9; SAMP-SEQ=SPAR S100	POS TARG 0.902,0. 806	Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	802.934875 Secs (802.935 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	710 Secs (710 Secs) [==>]	[1]
	7	F125W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209	Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	452.93635 Secs (452.936 Secs) [==>]	[1]
	8		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear: F105W + F125W (3 0)	337 Secs (337 Secs) [==>]	[1]
	9	F125W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappear: F105W + F125W (3 0)	352.935448 Secs (352.935 Secs) [==>]	[2]
	10		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappear: F105W + F125W (3 0)	175 Secs (175 Secs) [==>]	[2]
	11	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=10; SAMP-SEQ=SPAR S100	POS TARG 0,0	Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	902.935198 Secs (902.935 Secs) [==>]	[2]
12		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	800 Secs (800 Secs) [==>]	[2]	

Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F125W (30) - Refsdal Redux: Precise Measurements of the Reappearance...

13	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=9; SAMP-SEQ=SPAR S100	POS TARG 1.353,1. 209	Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	802.934875 Secs (802.935 Secs) [==>]	[2]
14		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	710 Secs (710 Secs) [==>]	[2]
15	F125W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	452.93635 Secs (452.936 Secs) [==>]	[2]
16		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r: F105W + F125W (30)	337 Secs (337 Secs) [==>]	[2]





Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F160W (31) - Refsdal Redux: Precise Measurements of the Reappearance...

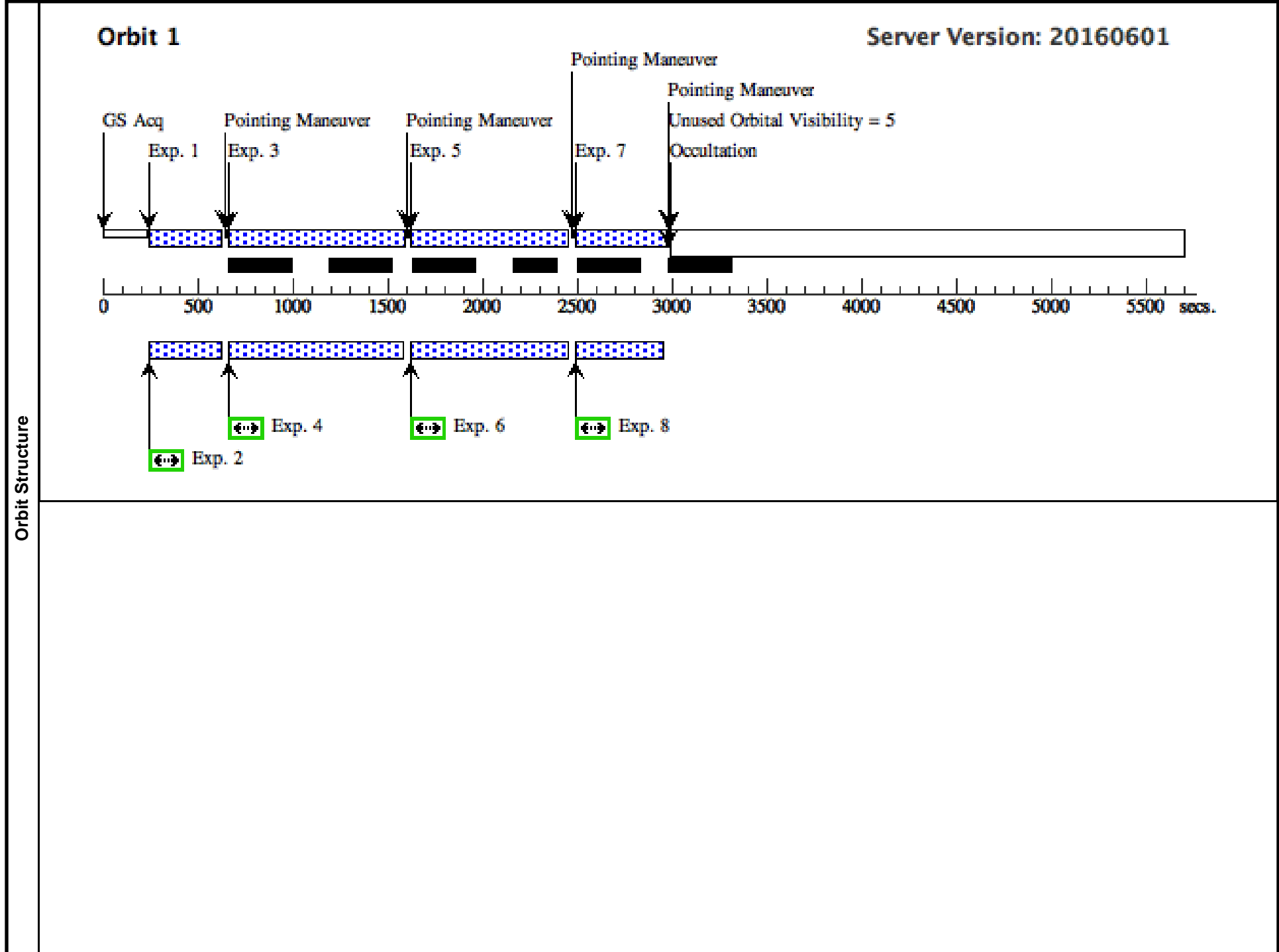
Visit	<p>Proposal 14199, MACS1149 Refsdal Reappear: F105W + F160W (31), completed Fri Jul 29 17:18:45 GMT 2016</p> <p>Diagnostic Status: No Diagnostics</p> <p>Scientific Instruments: WFC3/IR, ACS/WFC</p> <p>Special Requirements: SCHED 100%; ORIENT 260D TO 266 D; BETWEEN 11-FEB-2016:00:00:00 AND 15-FEB-2016:00:00:00; GROUP 31,30 WITHIN 3D</p> <p><i>Comments: 4 prime near-IR of coordinates of Refsdal's expected reappearance and 4 ACS parallel observations.</i></p> <p><i>Preferred orient = 260</i></p>					
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
(1)		REFSDALREAPPEARA NCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS
	<i>Comments: Extended=NO</i>					

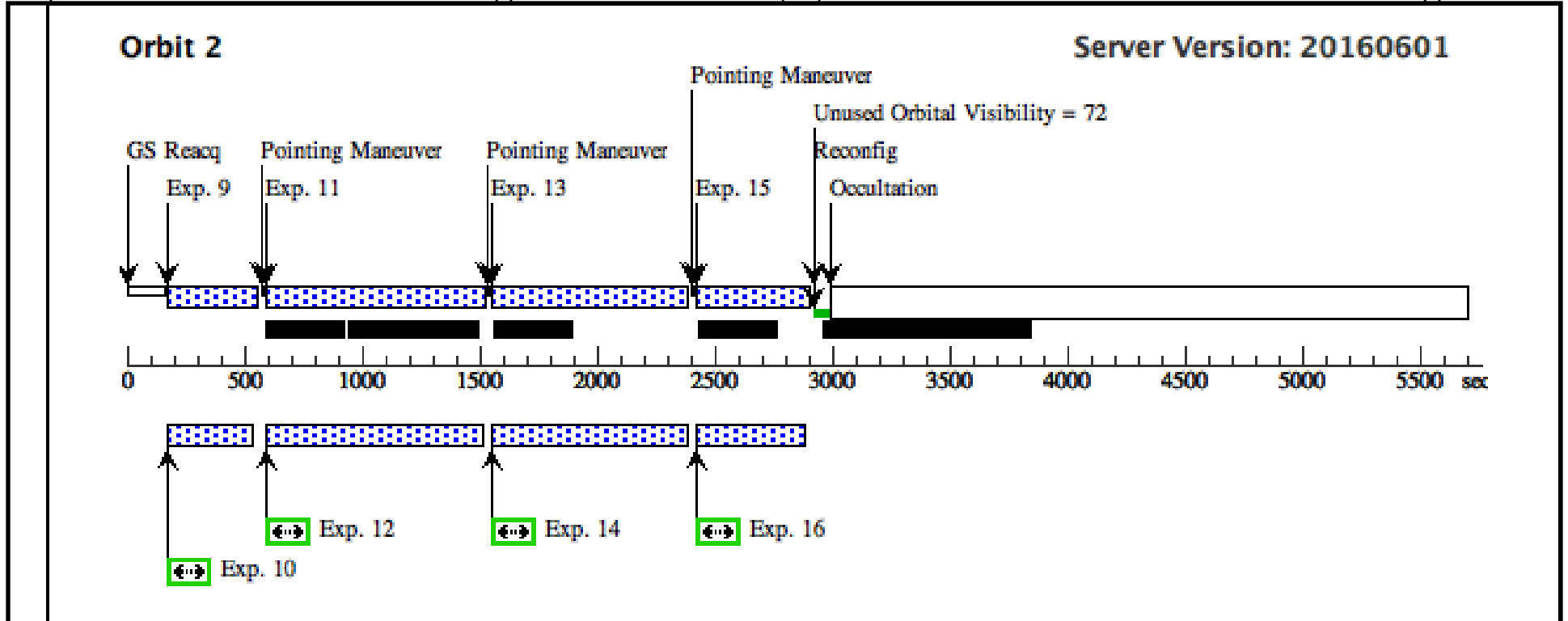
Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F160W (31) - Refsdal Redux: Precise Measurements of the Reappearance...

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F160W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0,0; GS ACQ SCENARI O ONEB1B3	Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	352.935448 Secs (352.935 Secs) [==>]	[1]
	2		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	175 Secs (175 Secs) [==>]	[1]
	3	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=10; SAMP-SEQ=SPAR S100	POS TARG 0.451,0. 403	Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	902.935198 Secs (902.935 Secs) [==>]	[1]
	4		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	800 Secs (800 Secs) [==>]	[1]
	5	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=9; SAMP-SEQ=SPAR S100	POS TARG 0.902,0. 806	Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	802.934875 Secs (802.935 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	710 Secs (710 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209	Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	452.93635 Secs (452.936 Secs) [==>]	[1]
	8		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear: F105W + F160W (3 1)	337 Secs (337 Secs) [==>]	[1]
	9	F160W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappea r: F105W + F160W (3 1)	352.935448 Secs (352.935 Secs) [==>]	[2]
	10		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappea r: F105W + F160W (3 1)	175 Secs (175 Secs) [==>]	[2]
	11	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=10; SAMP-SEQ=SPAR S100	POS TARG 0,0	Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r: F105W + F160W (3 1)	902.935198 Secs (902.935 Secs) [==>]	[2]
12		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r: F105W + F160W (3 1)	800 Secs (800 Secs) [==>]	[2]	

Proposal 14199 - MACS1149 Refsdal Reappear: F105W + F160W (31) - Refsdal Redux: Precise Measurements of the Reappearance...

13	F105W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F105W	NSAMP=9; SAMP-SEQ=SPAR S100	POS TARG 1.353,1. 209	Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r: F105W + F160W (31)	802.934875 Secs (802.935 Secs) [==>]	[2]
14	ANY		ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r: F105W + F160W (31)	710 Secs (710 Secs) [==>]	[2]
15	F160W	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r: F105W + F160W (31)	452.93635 Secs (452.936 Secs) [==>]	[2]
16	ANY		ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r: F105W + F160W (31)	337 Secs (337 Secs) [==>]	[2]

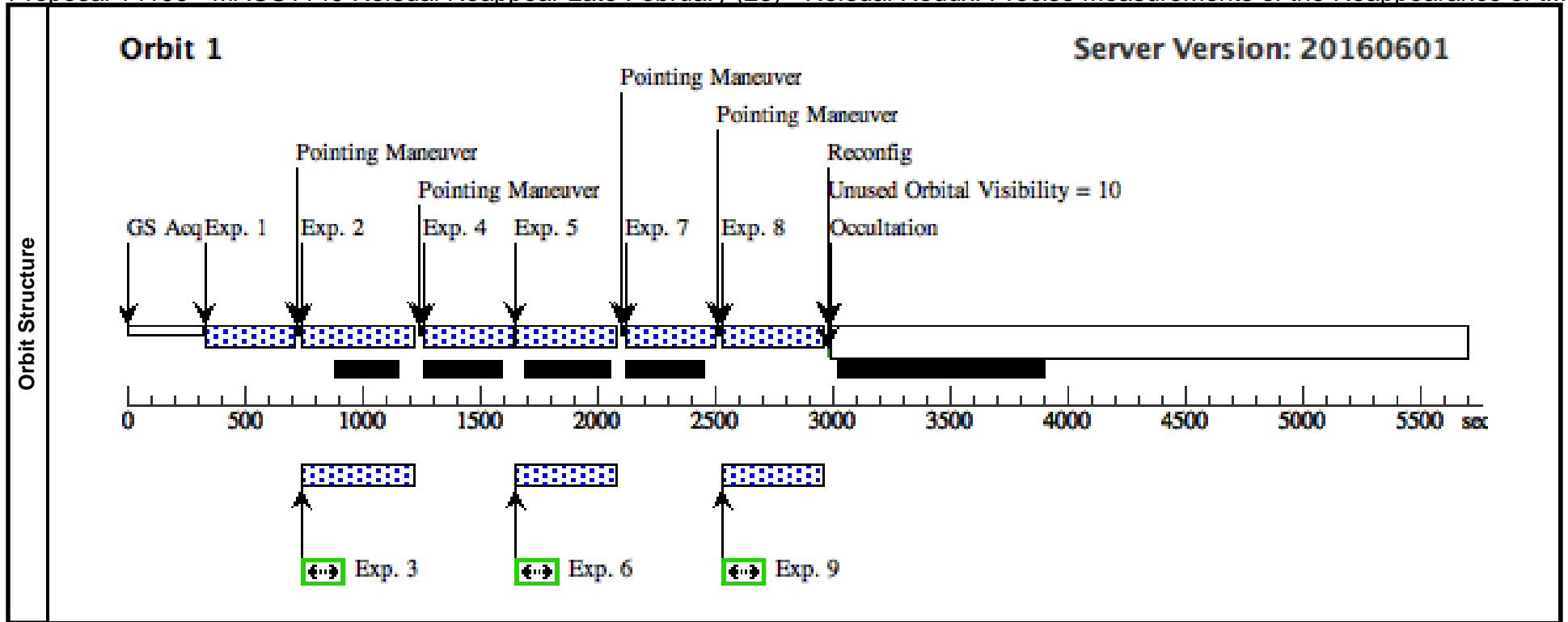




Proposal 14199 - MACS1149 Refsdal Reappear Late February (23) - Refsdal Redux: Precise Measurements of the Reappearance of t...

Fri Jul 29 17:18:45 GMT 2016

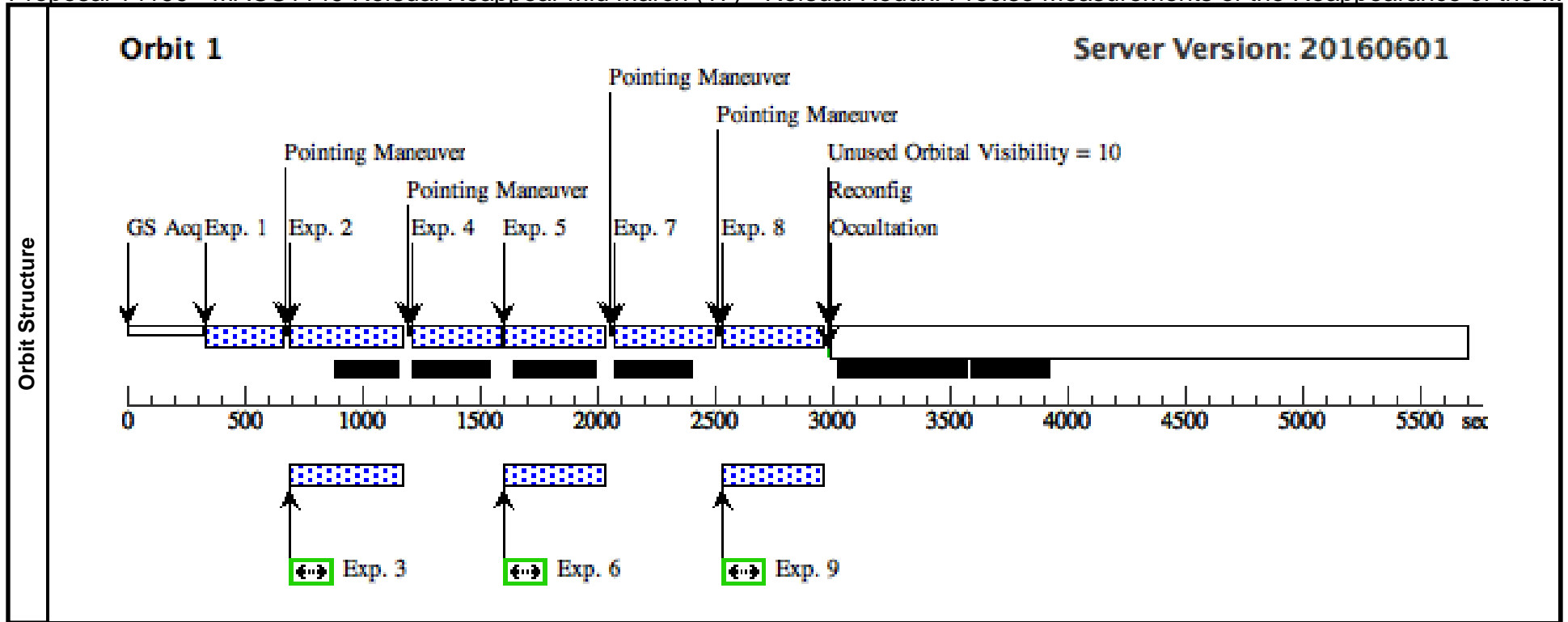
Visit	Proposal 14199, MACS1149 Refsdal Reappear Late February (23), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 259D TO 261 D; ORIENT 215D TO 218 D; BETWEEN 26-FEB-2016:00:00:00 AND 28-FEB-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 260																		
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#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
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Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		352.935448 Secs (352.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late February (23)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late February (23)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806		352.935448 Secs (352.935 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late February (23)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late February (23)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209		352.935448 Secs (352.935 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1. 612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late February (23)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late February (23)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									



Proposal 14199 - MACS1149 Refsdal Reappear Mid March (17) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

Fri Jul 29 17:18:45 GMT 2016

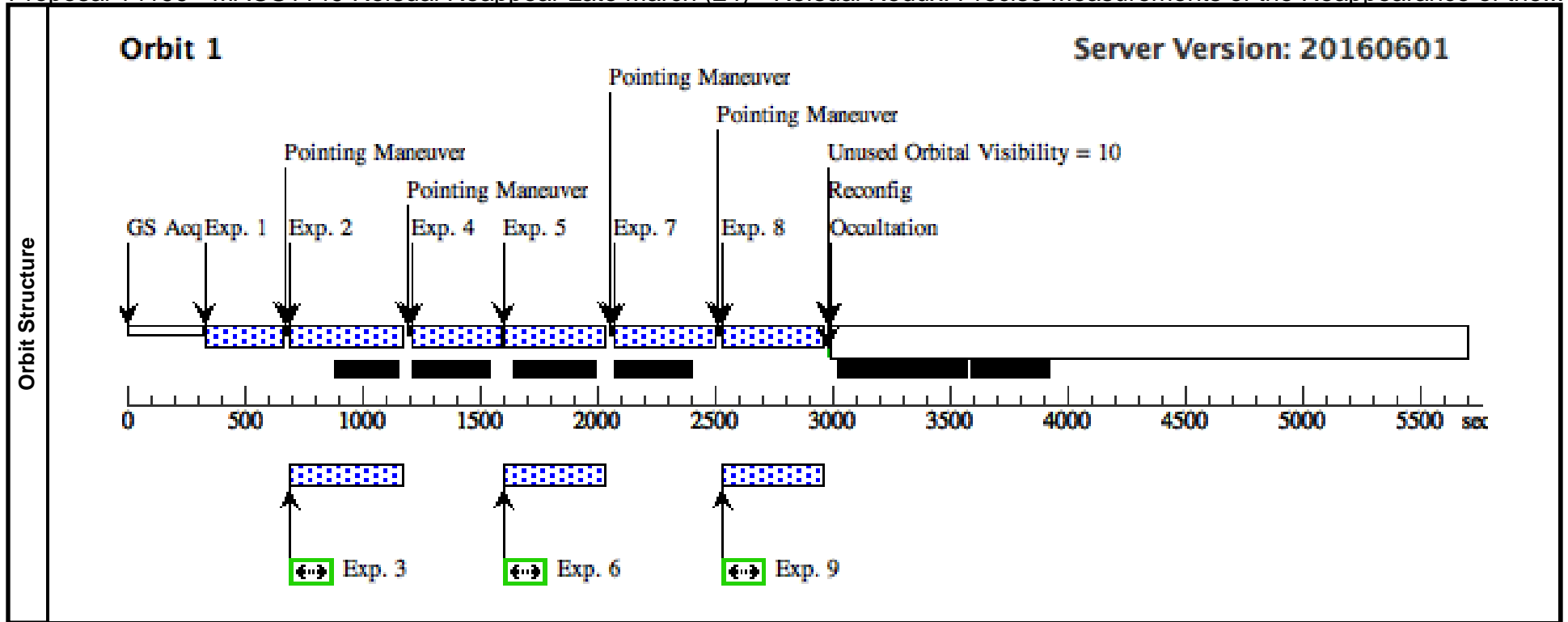
Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid March (17), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 169D TO 175 D; ORIENT 215D TO 218 D; BETWEEN 11-MAR-2016:00:00:00 AND 13-MAR-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 217																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
Comments: Extended=NO																			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		302.934997 Secs (302.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid March (17)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid March (17)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806		352.935448 Secs (352.935 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid March (17)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid March (17)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209		402.935899 Secs (402.936 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1. 612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid March (17)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid March (17)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									



Proposal 14199 - MACS1149 Refsdal Reappear Late March (24) - Refsdal Redux: Precise Measurements of the Reappearance of the...

Fri Jul 29 17:18:45 GMT 2016

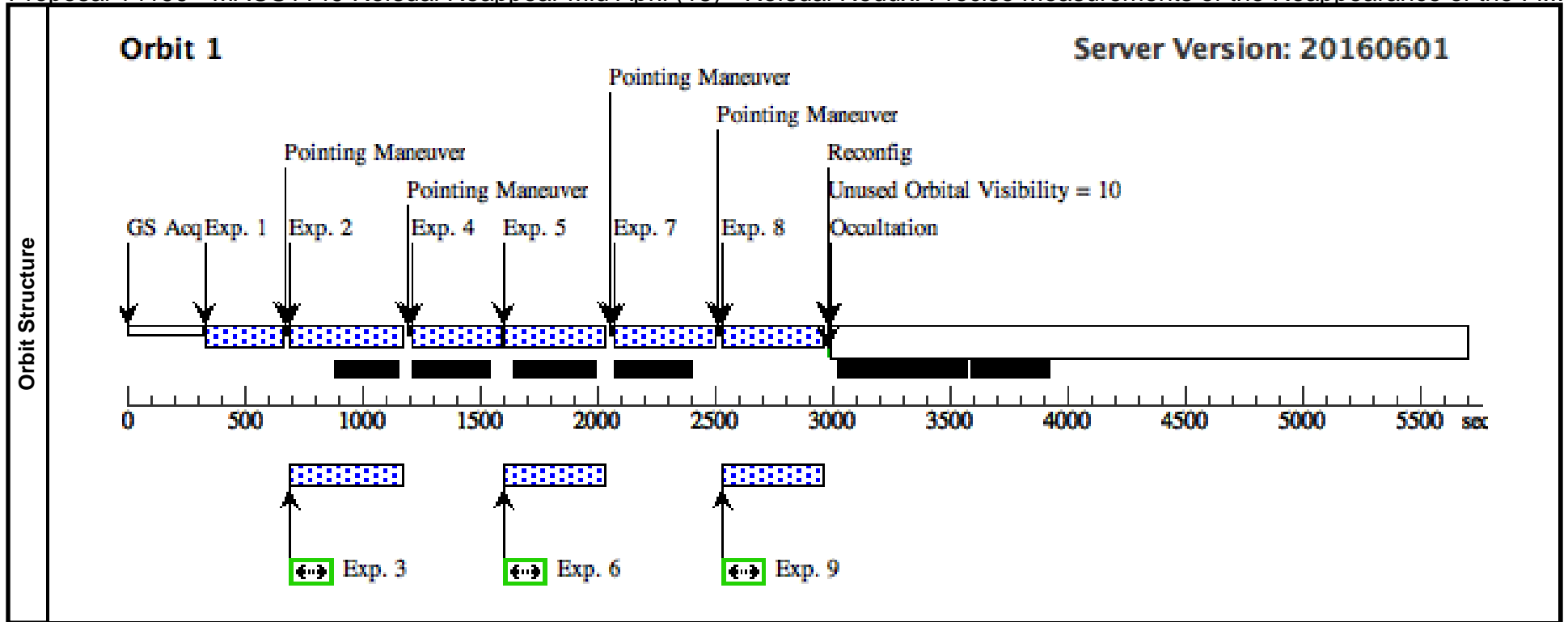
Visit	Proposal 14199, MACS1149 Refsdal Reappear Late March (24), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 169D TO 175 D; ORIENT 147D TO 157 D; BETWEEN 25-MAR-2016:00:00:00 AND 27-MAR-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 150												
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> Comments: Extended=NO	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous								
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS								
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit			
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		302.934997 Secs (302.935 Secs) [==>]	[1]			
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0. 403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late March (24)	452.93635 Secs (452.936 Secs) [==>]	[1]			
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late March (24)	275 Secs (275 Secs) [==>]	[1]			
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806		352.935448 Secs (352.935 Secs) [==>]	[1]			
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0. 806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late March (24)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late March (24)	307 Secs (307 Secs) [==>]	[1]			
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1. 209		402.935899 Secs (402.936 Secs) [==>]	[1]			
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1. 612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late March (24)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late March (24)	321 Secs (307 Secs) [==>307.0 Secs]	[1]			



Proposal 14199 - MACS1149 Refsdal Reappear Mid April (18) - Refsdal Redux: Precise Measurements of the Reappearance of the Fi...

Fri Jul 29 17:18:45 GMT 2016

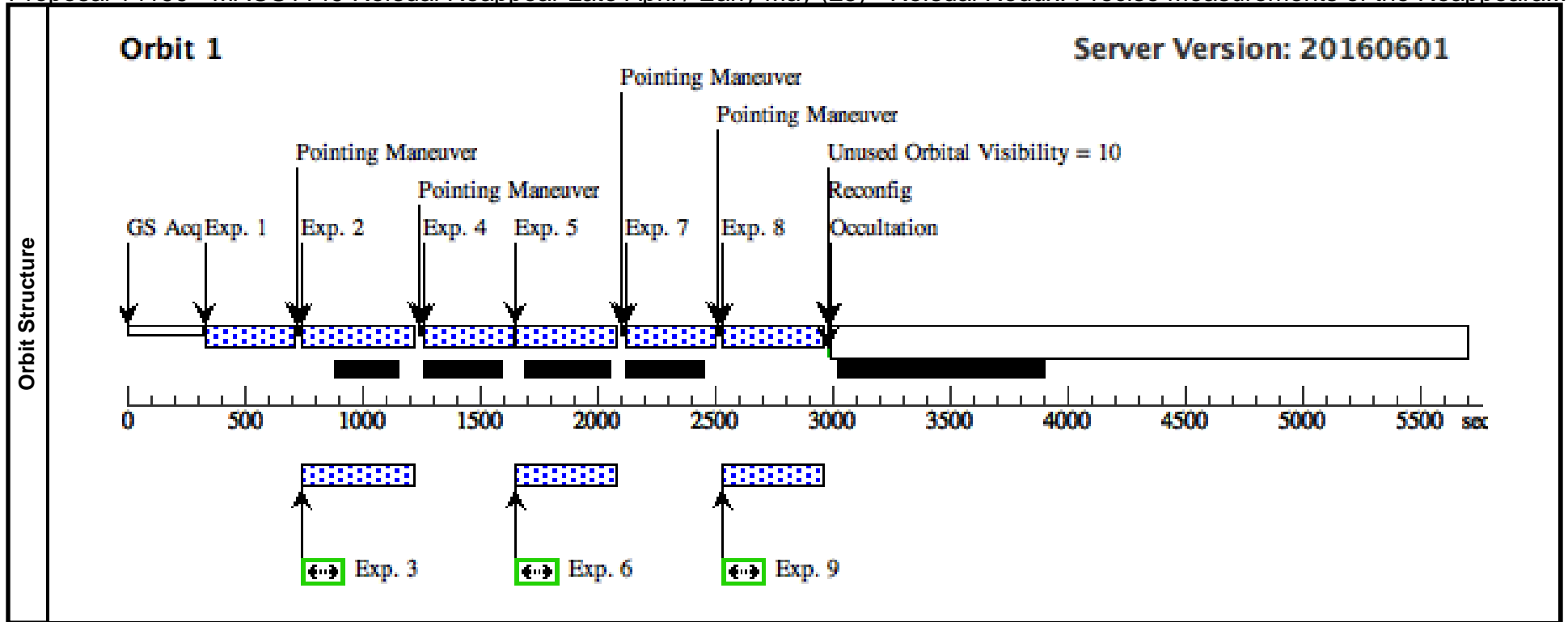
Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid April (18), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 125D TO 128 D; ORIENT 135D TO 142 D; ORIENT 147D TO 157 D; BETWEEN 15-APR-2016:00:00:00 AND 17-APR-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		302.934997 Secs (302.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid April (18)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid April (18)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid April (18)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid April (18)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid April (18)	402.935899 Secs (402.936 Secs) [==>]	[1]
9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid April (18)	321 Secs (307 Secs) [==>307.0 Secs]	[1]	



Proposal 14199 - MACS1149 Refsdal Reappear Late April / Early May (25) - Refsdal Redux: Precise Measurements of the Reappear...

Fri Jul 29 17:18:45 GMT 2016

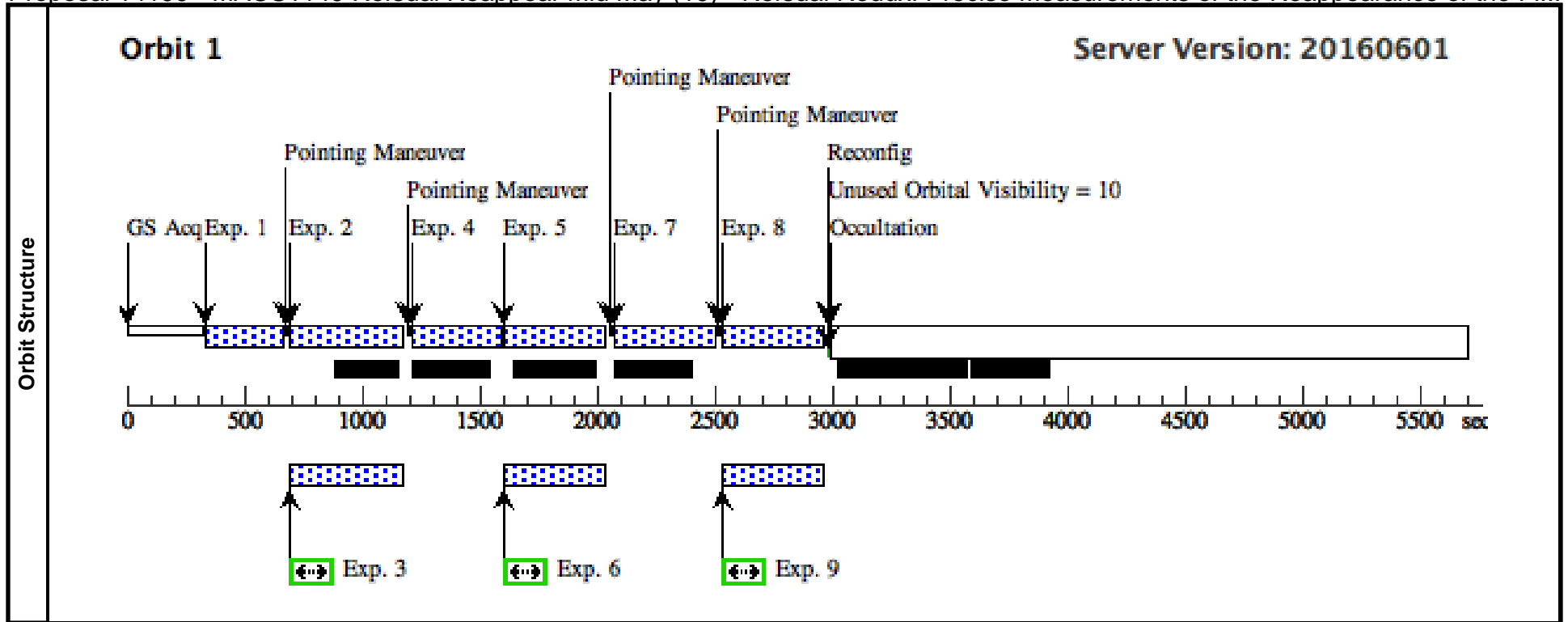
Visit	Proposal 14199, MACS1149 Refsdal Reappear Late April / Early May (25), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 125D TO 128 D; ORIENT 135D TO 142 D; ORIENT 147D TO 150 D; BETWEEN 29-APR-2016:00:00:00 AND 02-MAY-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
Comments: Extended=NO																			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		352.935448 Secs (352.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late April / Early May (25)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late April / Early May (25)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late April / Early May (25)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late April / Early May (25)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		352.935448 Secs (352.935 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late April / Early May (25)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late April / Early May (25)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									



Proposal 14199 - MACS1149 Refsdal Reappear Mid May (19) - Refsdal Redux: Precise Measurements of the Reappearance of the Fi...

Fri Jul 29 17:18:45 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid May (19), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 125D TO 128 D; ORIENT 135D TO 147 D; BETWEEN 13-MAY-2016:00:00:00 AND 15-MAY-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
	Comments: Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		302.934997 Secs (302.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid May (19)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid May (19)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid May (19)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid May (19)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid May (19)	402.935899 Secs (402.936 Secs) [==>]	[1]
9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid May (19)	321 Secs (307 Secs) [==>307.0 Secs]	[1]	



Proposal 14199 - MACS1149 Refsdal Reappear Mid May (2 orbits) (35) - Refsdal Redux: Precise Measurements of the Reappearanc...

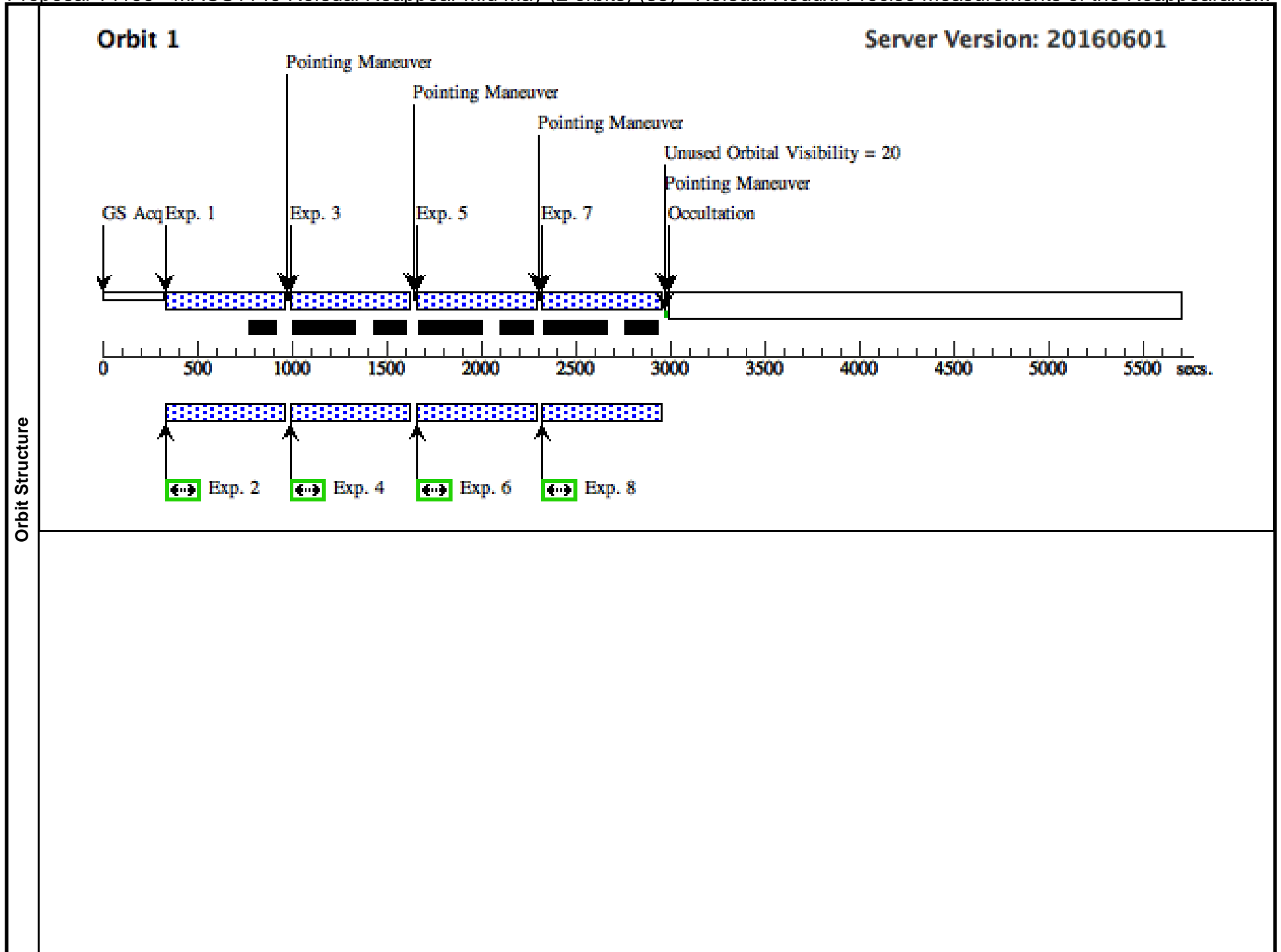
Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid May (2 orbits) (35), completed Fri Jul 29 17:18:45 GMT 2016					
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 125D TO 128 D; ORIENT 135D TO 147 D; BETWEEN 13-MAY-2016:00:00:00 AND 17-MAY-2016:00:00:00 <i>Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125</i>					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	REFSDALREAPPEARA NCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS
<i>Comments: Extended=NO</i>						

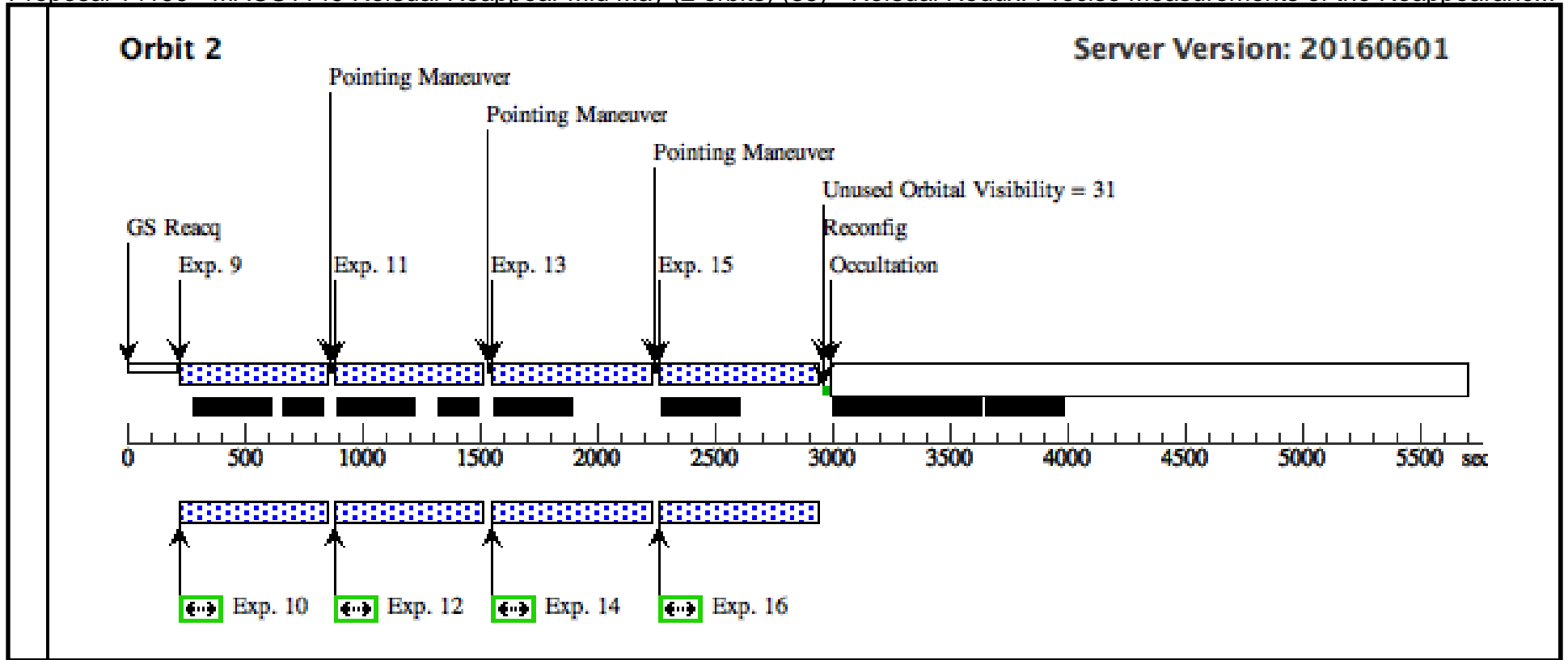
Proposal 14199 - MACS1149 Refsdal Reappear Mid May (2 orbits) (35) - Refsdal Redux: Precise Measurements of the Reappearanc...

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG 0.273,0. 302; GS ACQ SCENARI O BASE1B3	Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[1]
	2	ANY	ACS/WFC, ACCUM, WFCENTER	F606W	CR-SPLIT=NO		Prime + Parallel Gro up 1-2 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	425 Secs (425 Secs) [==>]	[1]
	3	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG 0.540,-0 .243	Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[1]
	4	ANY	ACS/WFC, ACCUM, WFCENTER	F606W	CR-SPLIT=NO		Prime + Parallel Gro up 3-4 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	507 Secs (507 Secs) [==>]	[1]
	5	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG -0.340,- 0.301	Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[1]
	6	ANY	ACS/WFC, ACCUM, WFCENTER	F606W	CR-SPLIT=NO		Prime + Parallel Gro up 5-6 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	507 Secs (507 Secs) [==>]	[1]
	7	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG -0.608,0 .244	Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[1]
	8	ANY	ACS/WFC, ACCUM, WFCENTER	F606W	CR-SPLIT=NO		Prime + Parallel Gro up 7-8 in MACS114 9 Refsdal Reappear Mid May (2 orbits) (35)	555 Secs (507 Secs) [==>507.0 Secs]	[1]
	9	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG 0.273,0. 302	Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappear Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[2]
	10	ANY	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=NO		Prime + Parallel Gro up 9-10 in MACS11 49 Refsdal Reappear Mid May (2 orbits) (35)	461 Secs (452 Secs) [==>452.0 Secs]	[2]
	11	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S100	POS TARG 0.540,-0 .243	Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	602.934229 Secs (602.934 Secs) [==>]	[2]
	12	ANY	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=NO		Prime + Parallel Gro up 11-12 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	507 Secs (507 Secs) [==>]	[2]

Proposal 14199 - MACS1149 Refsdal Reappear Mid May (2 orbits) (35) - Refsdal Redux: Precise Measurements of the Reappearanc...

13	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=14; SAMP-SEQ=SPAR S50	POS TARG -0.340,- 0.301	Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	652.938154 Secs (652.938 Secs) [==>]	[2]
14	ANY	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=NO		Prime + Parallel Gro up 13-14 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	557 Secs (557 Secs) [==>]	[2]
15	(1) REFSDALREAP PEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=14; SAMP-SEQ=SPAR S50	POS TARG -0.608,0 .244	Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	652.938154 Secs (652.938 Secs) [==>]	[2]
16	ANY	ACS/WFC, ACCUM, WFCENTER	F814W	CR-SPLIT=NO		Prime + Parallel Gro up 15-16 in MACS1 149 Refsdal Reappea r Mid May (2 orbits) (35)	607 Secs (557 Secs) [==>557.0 Secs]	[2]

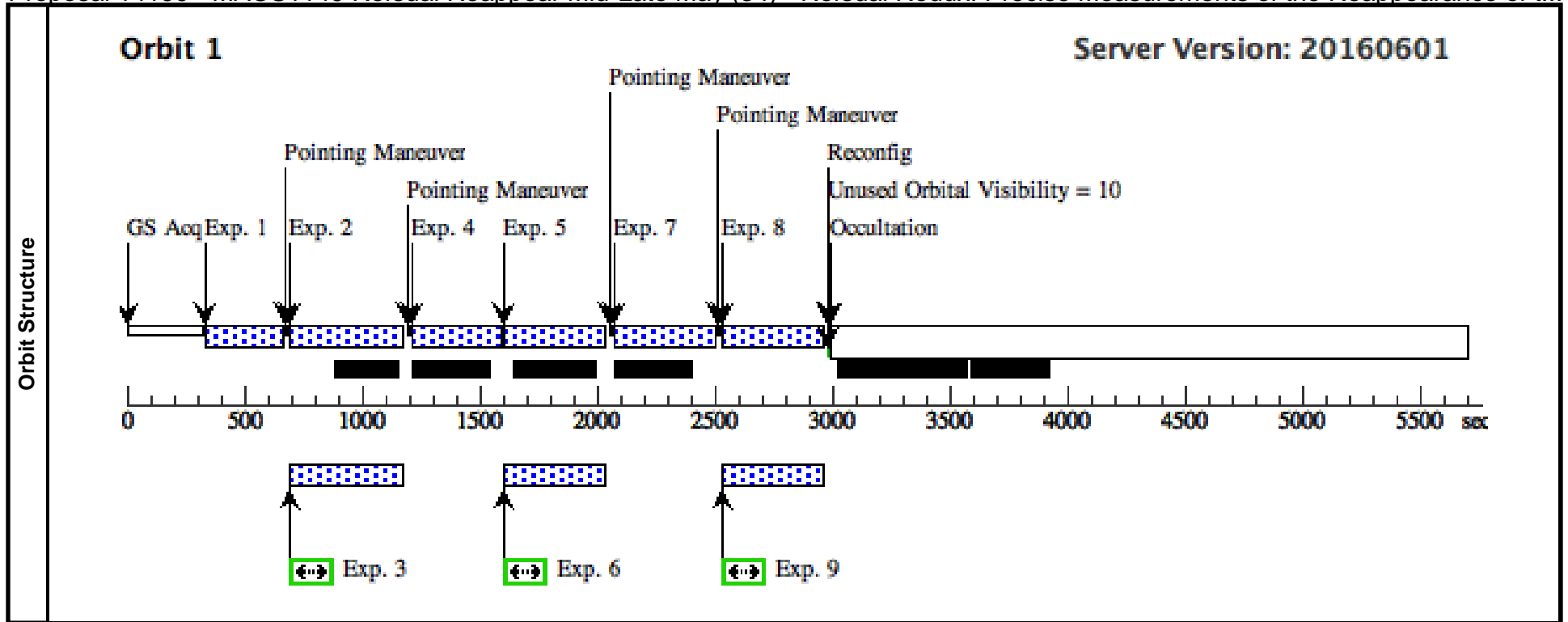




Proposal 14199 - MACS1149 Refsdal Reappear Mid-Late May (34) - Refsdal Redux: Precise Measurements of the Reappearance of t...

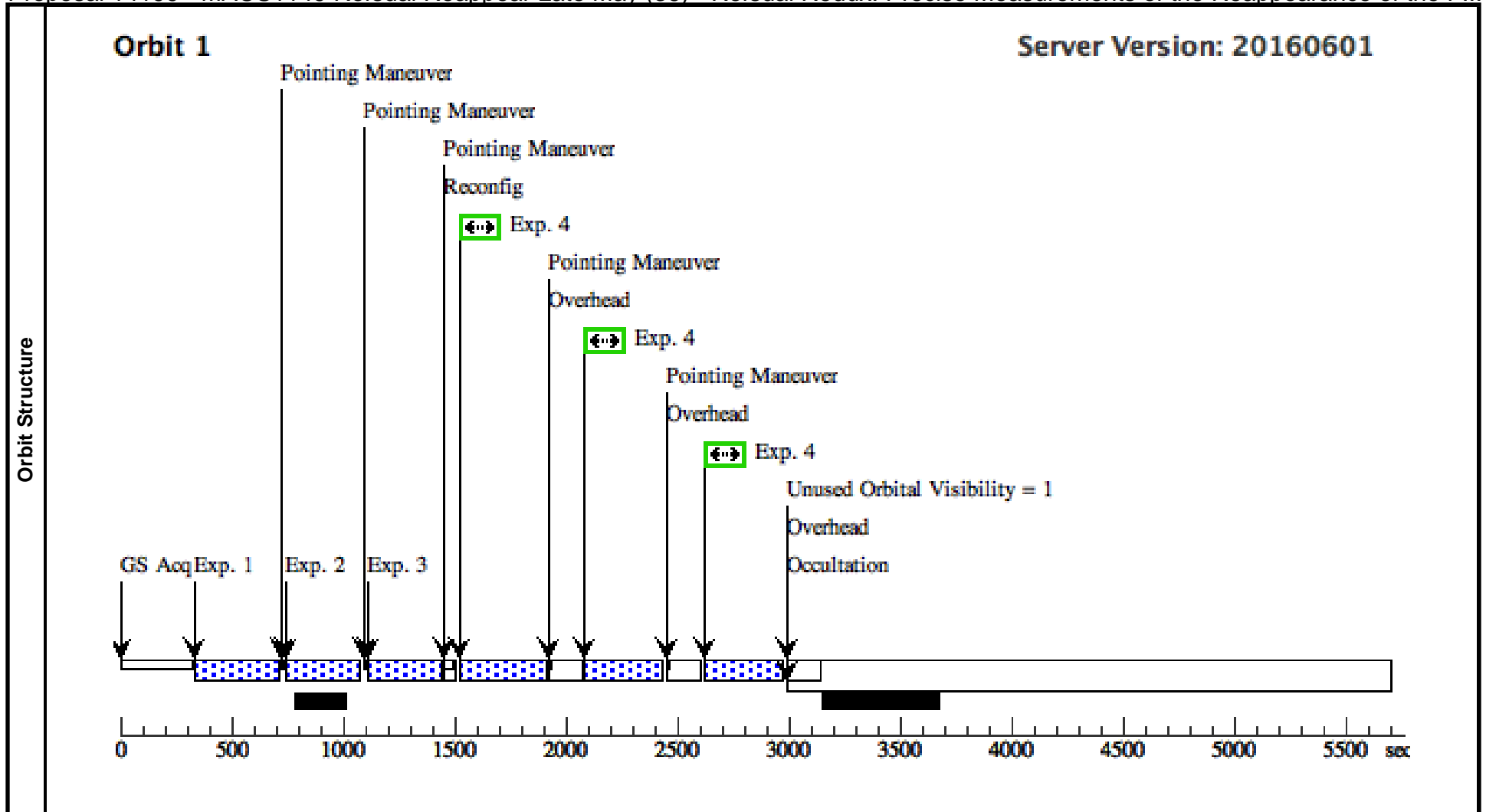
Fri Jul 29 17:18:45 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid-Late May (34), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 125D TO 128 D; ORIENT 135D TO 141 D; BETWEEN 19-MAY-2016:00:00:00 AND 23-MAY-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125																					
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> Comments: Extended=NO										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																	
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS																	
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit												
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O BASE1B3		302.934997 Secs (302.935 Secs) [==>]	[1]												
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid-Late May (34)	452.93635 Secs (452.936 Secs) [==>]	[1]												
	3		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid-Late May (34)	275 Secs (275 Secs) [==>]	[1]												
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]												
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid-Late May (34)	402.935899 Secs (402.936 Secs) [==>]	[1]												
	6		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid-Late May (34)	307 Secs (307 Secs) [==>]	[1]												
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]												
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid-Late May (34)	402.935899 Secs (402.936 Secs) [==>]	[1]												
	9		ANY	ACS/WFC, ACCUM, WFC	F606W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid-Late May (34)	321 Secs (307 Secs) [==>307.0 Secs]	[1]												



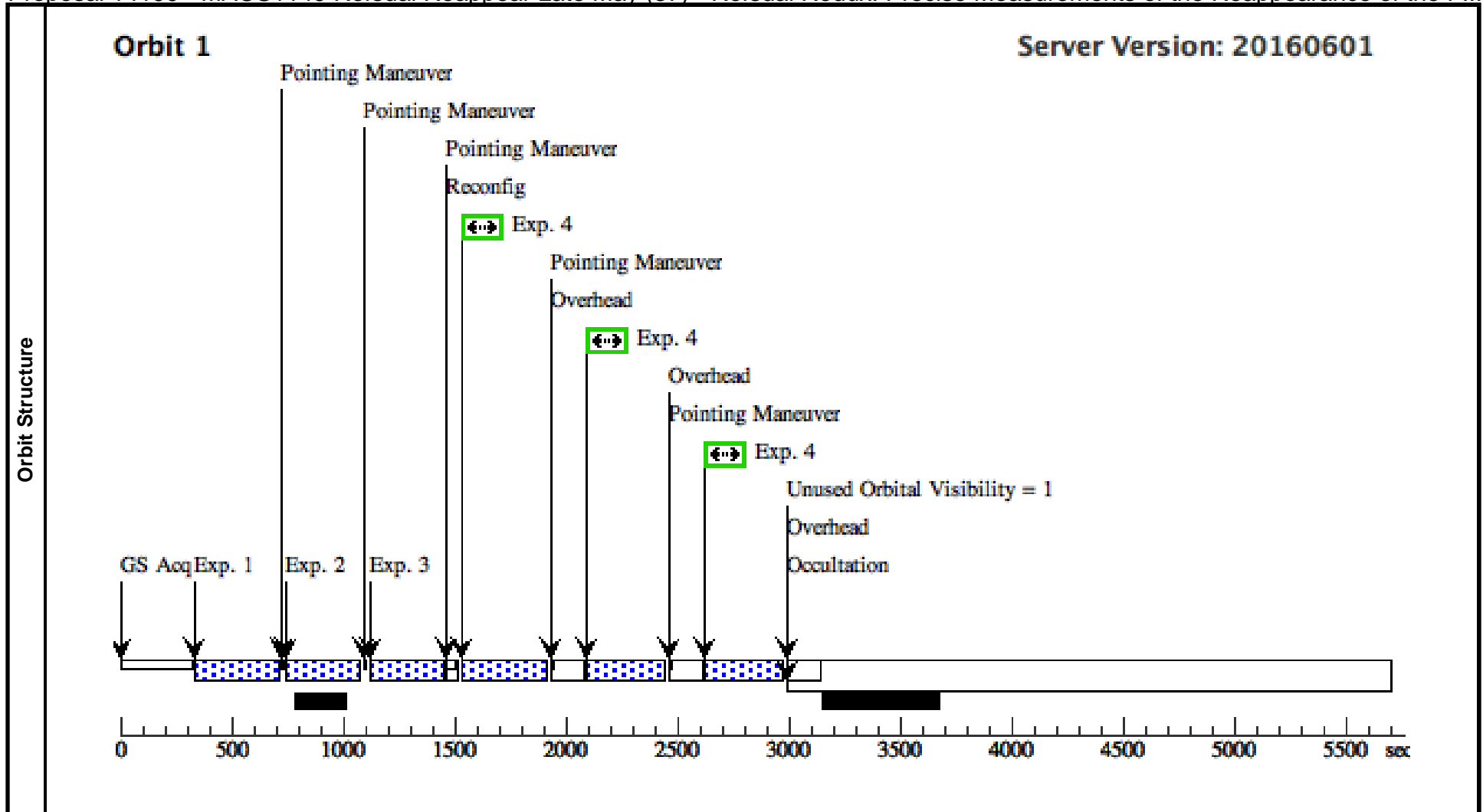
Proposal 14199 - MACS1149 Refsdal Reappear Late May (36) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

Visit	Proposal 14199, MACS1149 Refsdal Reappear Late May (36), completed Fri Jul 29 17:18:45 GMT 2016 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: SCHED 100%; BETWEEN 24-MAY-2016:00:00:00 AND 25-MAY-2016:00:00:00 Comments: 3 short prime WFC3-IR F125W images of coordinates of Refsdal's expected reappearance and 4 short WFC3-UVIS F606W images to monitor transient preferred orient = 125										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(4)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000				V=30	Reference Frame: ICRS			
Comments: Extended=NO											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8;	POS TARG 0,0;		352.935448 Secs (352.935 Secs)		
						SAMP-SEQ=SPAR S50	GS ACQ SCENARIO BASE1B3		[==>]		[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.451,0.403		302.934997 Secs (302.935 Secs)		
						SAMP-SEQ=SPAR S50			[==>]		[1]
3	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.902,0.806		302.934997 Secs (302.935 Secs)			
					SAMP-SEQ=SPAR S50			[==>]		[1]	
4		(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB		F606W			Pattern 2, Exps 4-4 in MACS1149 Refsdal Reappear Late May (36) (2)	370 Secs (1071 Secs)		
									[==>357.0 Secs (Pattern 1)]		
									[==>357.0 Secs (Pattern 2)]		
									[==>357.0 Secs (Pattern 3)]		[1]



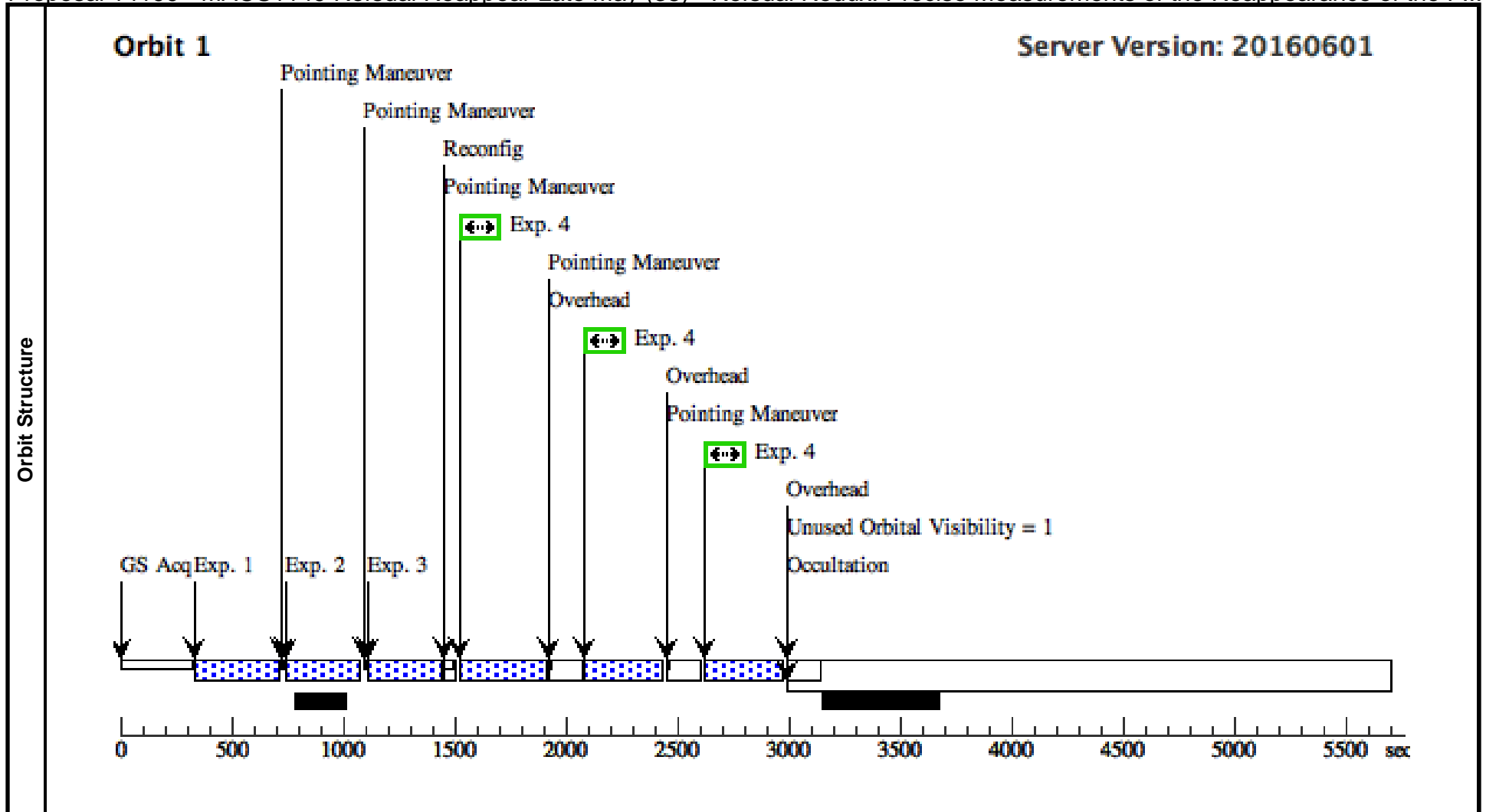
Proposal 14199 - MACS1149 Refsdal Reappear Late May (37) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

Visit	Proposal 14199, MACS1149 Refsdal Reappear Late May (37), completed Fri Jul 29 17:18:45 GMT 2016									
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: SCHED 100%; BETWEEN 26-MAY-2016:00:00:00 AND 27-MAY-2016:00:00:00 Comments: 3 short prime WFC3-IR F125W images of coordinates of Refsdal's expected reappearance and 4 short WFC3-UVIS F606W images to monitor transient preferred orient = 125									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false	(4)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
Comments: Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8;	POS TARG 0,0;		352.935448 Secs (352.935 Secs)	
						SAMP-SEQ=SPAR S50	GS ACQ SCENARIO BASE1B3		[==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.451,0.403		302.934997 Secs (302.935 Secs)	
						SAMP-SEQ=SPAR S50			[==>]	[1]
3	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.902,8.806		302.934997 Secs (302.935 Secs)		
					SAMP-SEQ=SPAR S50			[==>]	[1]	
4		(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB		F606W			Pattern 2, Exps 4-4 in MACS1149 Refsdal Reappear Late May (37) (2)	370 Secs (1062 Secs) [==>354.0 Secs (Pattern 1)] [==>354.0 Secs (Pattern 2)] [==>354.0 Secs (Pattern 3)]	[1]



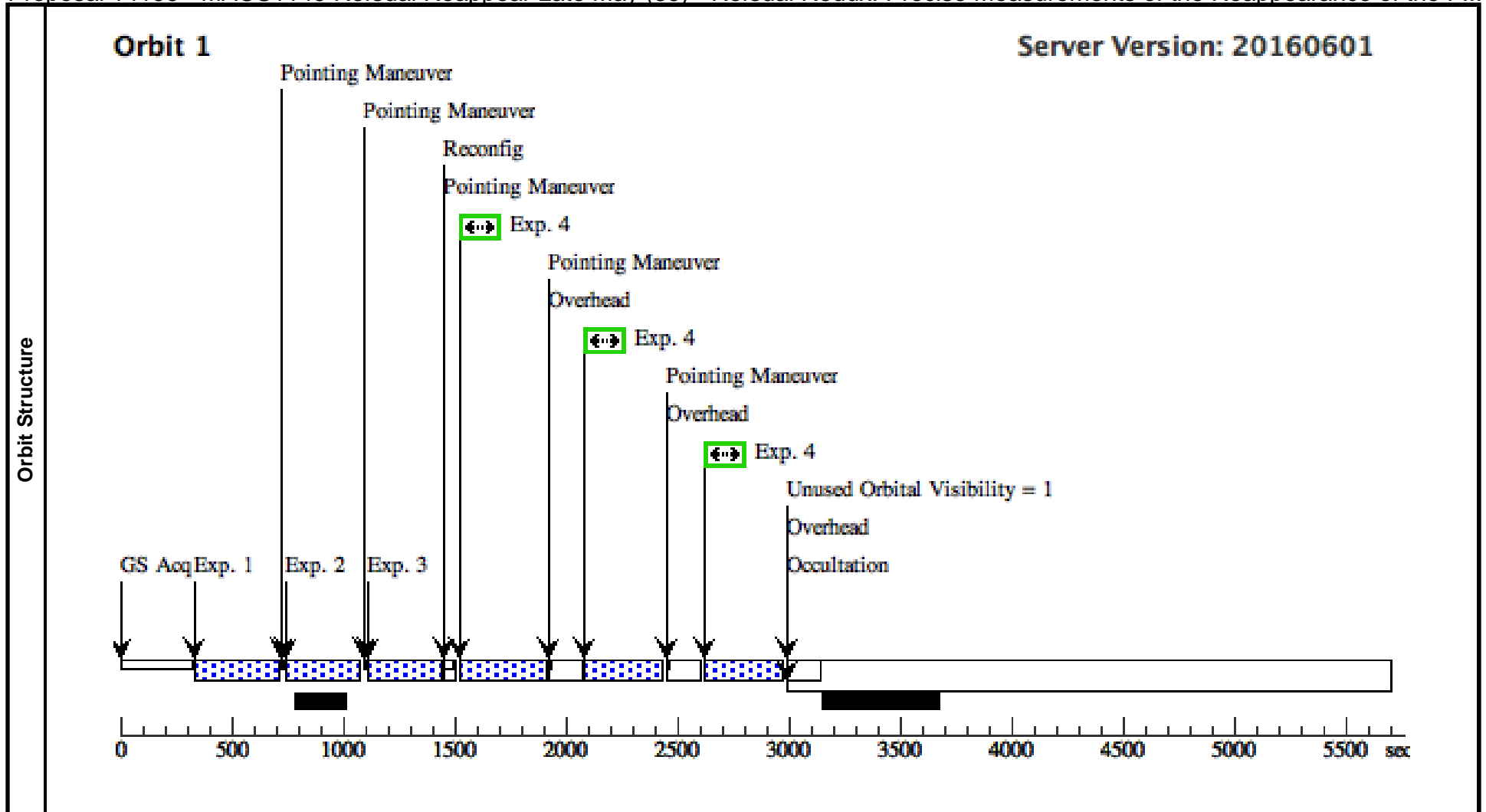
Proposal 14199 - MACS1149 Refsdal Reappear Late May (38) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

Visit	Proposal 14199, MACS1149 Refsdal Reappear Late May (38), completed Fri Jul 29 17:18:45 GMT 2016 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: SCHED 100%; BETWEEN 28-MAY-2016:00:00:00 AND 29-MAY-2016:00:00:00 Comments: 3 short prime WFC3-IR F125W images of coordinates of Refsdal's expected reappearance and 4 short WFC3-UVIS F606W images to monitor transient preferred orient = 125									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false	(4)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
	Comments: Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8;	POS TARG 0,0;		352.935448 Secs (352.935 Secs)	
						SAMP-SEQ=SPAR S50	GS ACQ SCENARIO BASE1B3		[==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.451,0.403		302.934997 Secs (302.935 Secs)	
						SAMP-SEQ=SPAR S50			[==>]	[1]
	3	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.902,0.806		302.934997 Secs (302.935 Secs)	
						SAMP-SEQ=SPAR S50			[==>]	[1]
	4		(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F606W			Pattern 2, Exps 4-4 in MACS1149 Refsdal Reappear Late May (38) (2)	370 Secs (1071 Secs)	
									[==>357.0 Secs (Pattern 1)]	
									[==>357.0 Secs (Pattern 2)]	[1]
									[==>357.0 Secs (Pattern 3)]	



Proposal 14199 - MACS1149 Refsdal Reappear Late May (39) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

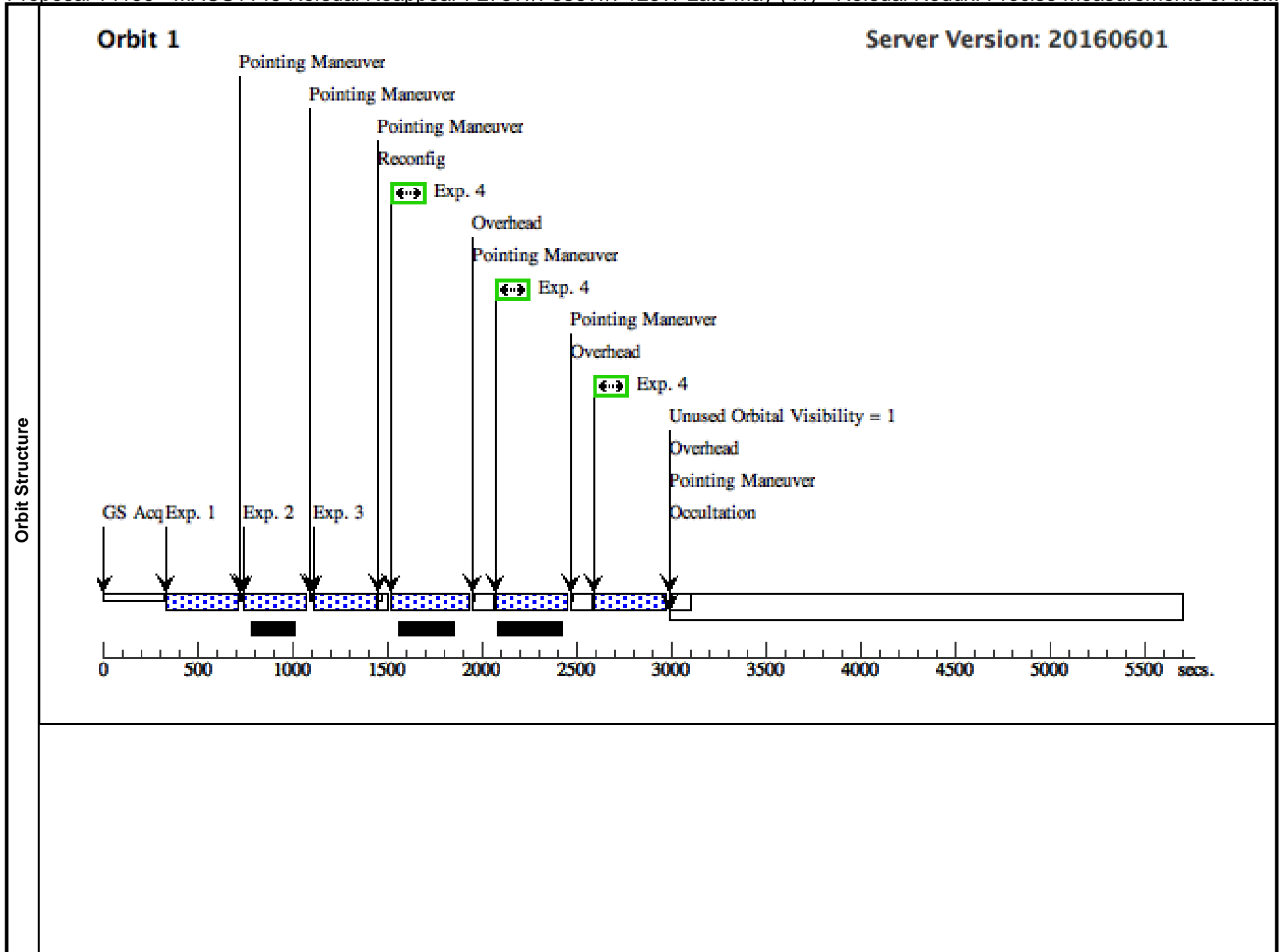
Visit	Proposal 14199, MACS1149 Refsdal Reappear Late May (39), completed Fri Jul 29 17:18:45 GMT 2016									
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: SCHED 100%; BETWEEN 29-MAY-2016:00:00:00 AND 31-MAY-2016:00:00:00 Comments: 3 short prime WFC3-IR F125W images of coordinates of Refsdal's expected reappearance and 4 short WFC3-UVIS F606W images to monitor transient preferred orient = 125									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(4)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
Comments: Extended=NO										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8;	POS TARG 0,0;		352.935448 Secs (352.935 Secs)	
						SAMP-SEQ=SPAR S50	GS ACQ SCENARIO BASE1B3		[==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.451,0.403		302.934997 Secs (302.935 Secs)	
						SAMP-SEQ=SPAR S50			[==>]	[1]
3	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.902,0.806		302.934997 Secs (302.935 Secs)		
					SAMP-SEQ=SPAR S50			[==>]	[1]	
4		(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB		F606W			Pattern 2, Exps 4-4 in MACS1149 Refsdal Reappear Late May (39) (2)	370 Secs (1071 Secs) [==>357.0 Secs (Pattern 1)] [==>357.0 Secs (Pattern 2)] [==>357.0 Secs (Pattern 3)]	[1]

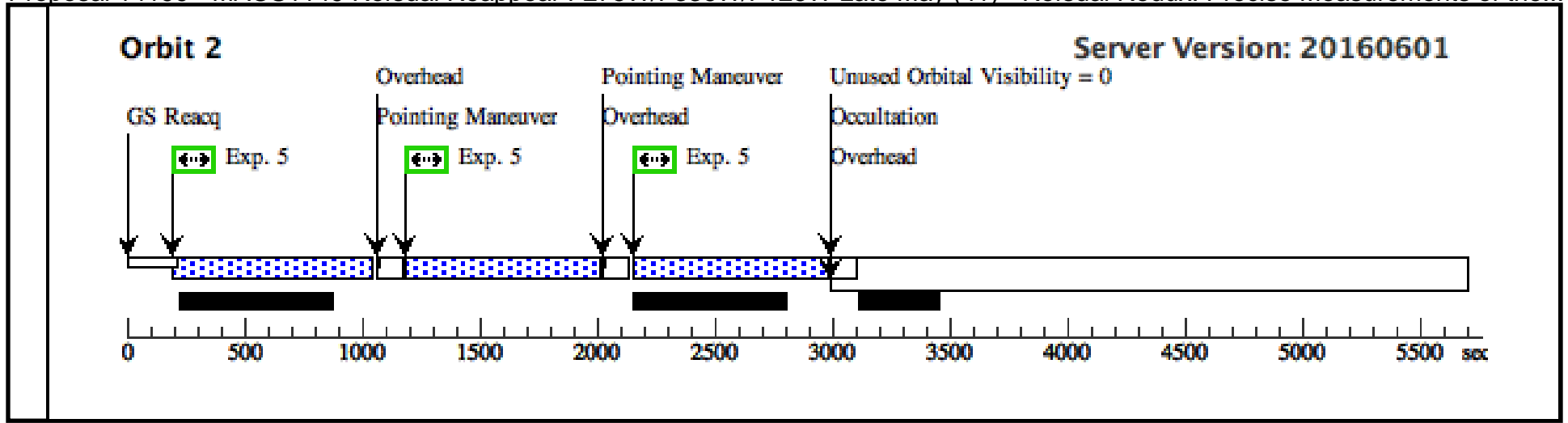


Proposal 14199 - MACS1149 Refsdal Reappear F275W/F336W/F125W Late May (41) - Refsdal Redux: Precise Measurements of the...

Fri Jul 29 17:18:46 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear F275W/F336W/F125W Late May (41), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, WFC3/UVIS Special Requirements: SCHED 100%; ORIENT 100D TO 107 D; ORIENT 120D TO 128 D; BETWEEN 29-MAY-2016:00:00:00 AND 31-MAY-2016:00:00:00 Comments: 3 short prime WFC3-IR F125W images, and 3 short WFC3-UVIS F336W and 3 WFC3-UVIS F275W images to monitor transient (2 orbits) preferred orient = 125										
	Patterns	#	Primary Pattern				Secondary Pattern				Exposures
(2)		Pattern Type=WFC3-UVIS-DITHER- LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.135 Line Spacing=				Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false				(4), (5)	
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000				V=30	Reference Frame: ICRS			
Comments: Extended=NO											
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8;	POS TARG 0,0;		352.935448 Secs (352.935 Secs)		
						SAMP-SEQ=SPAR S50	GS ACQ SCENARIO BASE1B3		[==>]		[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.451,0.403		302.934997 Secs (302.935 Secs)		
						SAMP-SEQ=SPAR S50			[==>]		[1]
	3	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7;	POS TARG 0.902,0.806		302.934997 Secs (302.935 Secs)		
					SAMP-SEQ=SPAR S50			[==>]		[1]	
4		(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=11		Pattern 2, Exps 4-4 in MACS1149 Refsdal Reappear F275W/F336W/F125W Late May (41) (2)	370 Secs (1155 Secs)			
								[==>385.0 Secs (Pattern 1)]			
								[==>385.0 Secs (Pattern 2)]		[1]	
								[==>385.0 Secs (Pattern 3)]			
5	F275W	(1) REFSDALREAPPEARANCE	WFC3/UVIS, ACCUM, UVIS	F275W	FLASH=11		Pattern 2, Exps 5-5 in MACS1149 Refsdal Reappear F275W/F336W/F125W Late May (41) (2)	780 Secs (2493 Secs)			
								[==>831.0 Secs (Pattern 1)]			
								[==>831.0 Secs (Pattern 2)]		[2]	
								[==>831.0 Secs (Pattern 3)]			

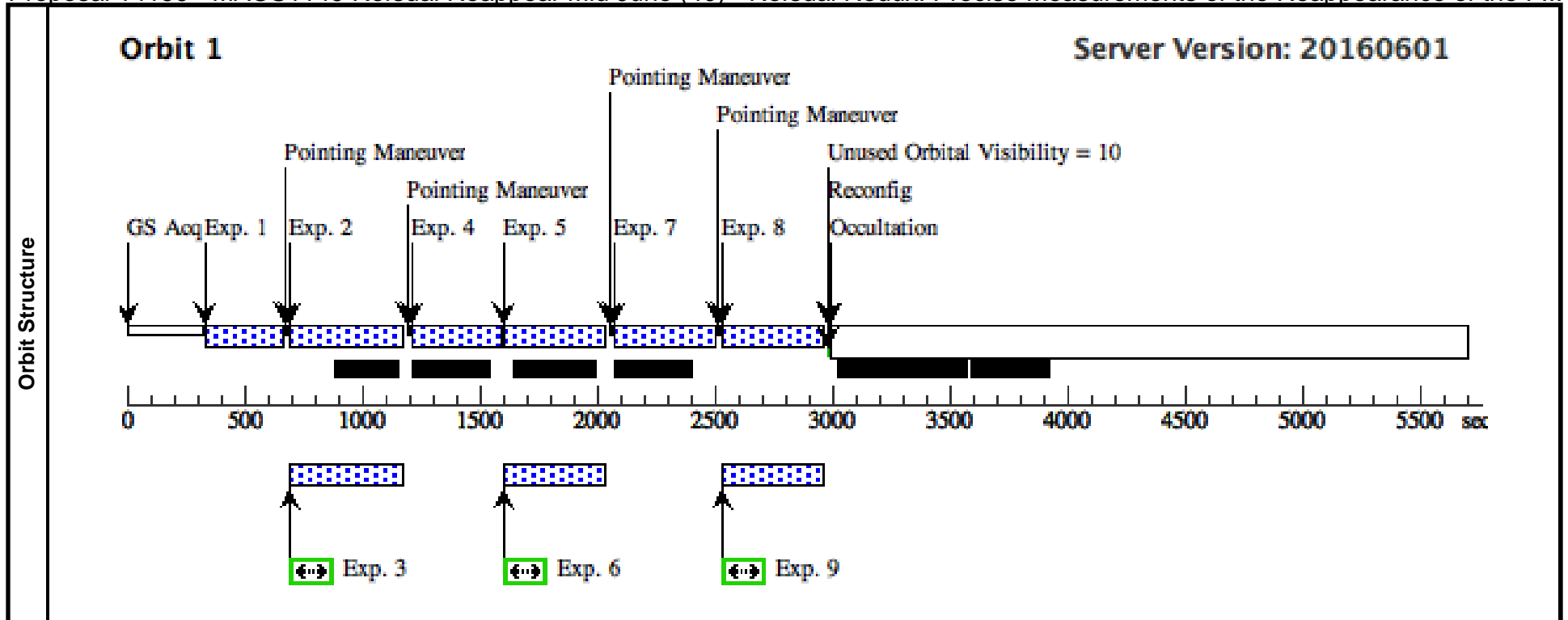




Proposal 14199 - MACS1149 Refsdal Reappear Mid June (40) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

Fri Jul 29 17:18:46 GMT 2016

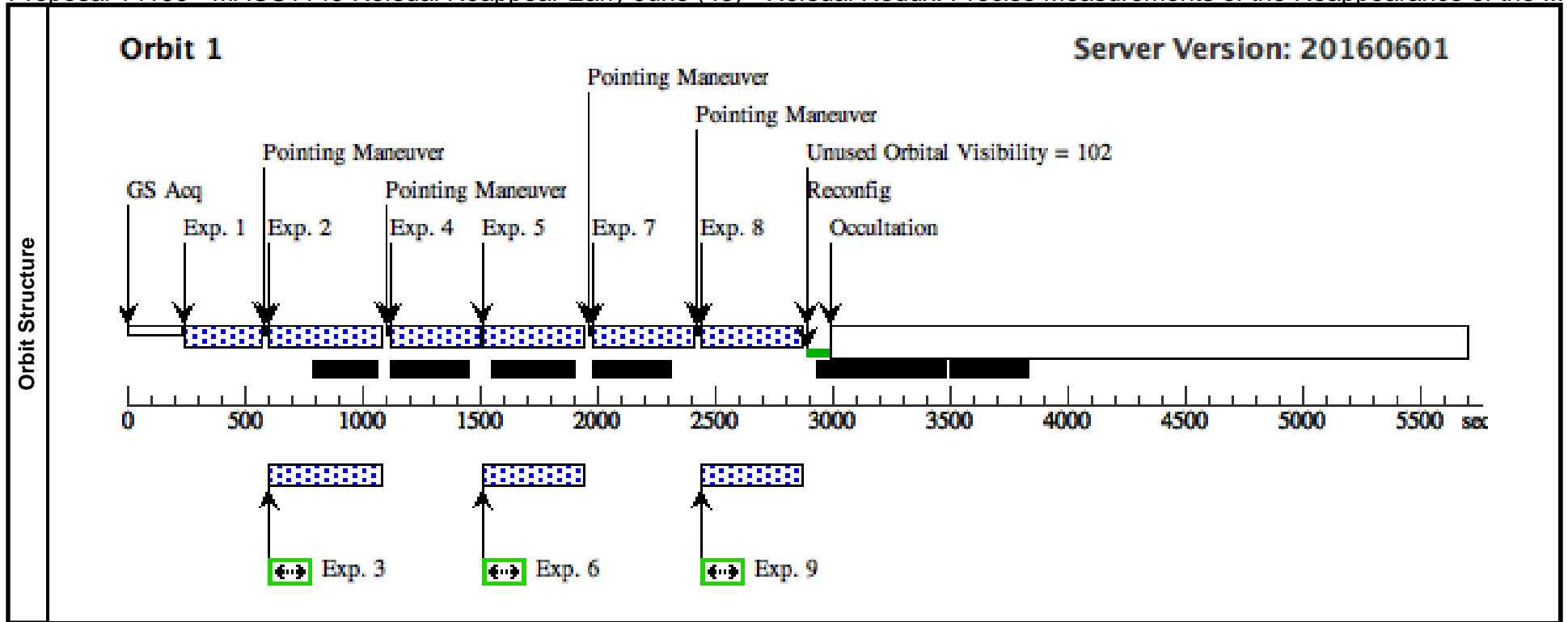
Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid June (40), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 113D TO 115 D; ORIENT 107D TO 107 D; ORIENT 125D TO 125 D; BETWEEN 02-JUN-2016:00:00:00 AND 04-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 125																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
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	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid June (40)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid June (40)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]									
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	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid June (40)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid June (40)	402.935899 Secs (402.936 Secs) [==>]	[1]									
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Proposal 14199 - MACS1149 Refsdal Reappear Early June (45) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

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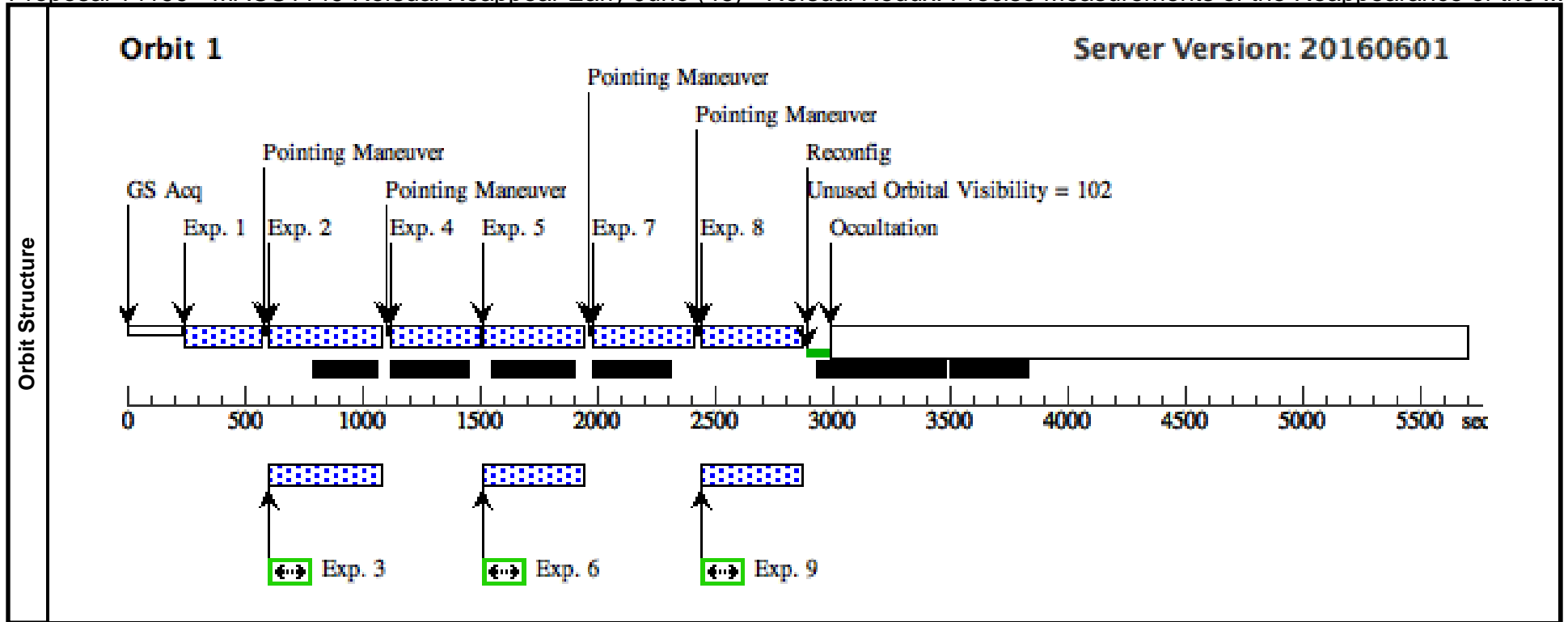
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early June (45), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 110 D; BETWEEN 06-JUN-2016:00:00:00 AND 13-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109 ideally scheduled on the day of June 6th																		
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Proposal 14199 - MACS1149 Refsdal Reappear Early June (46) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

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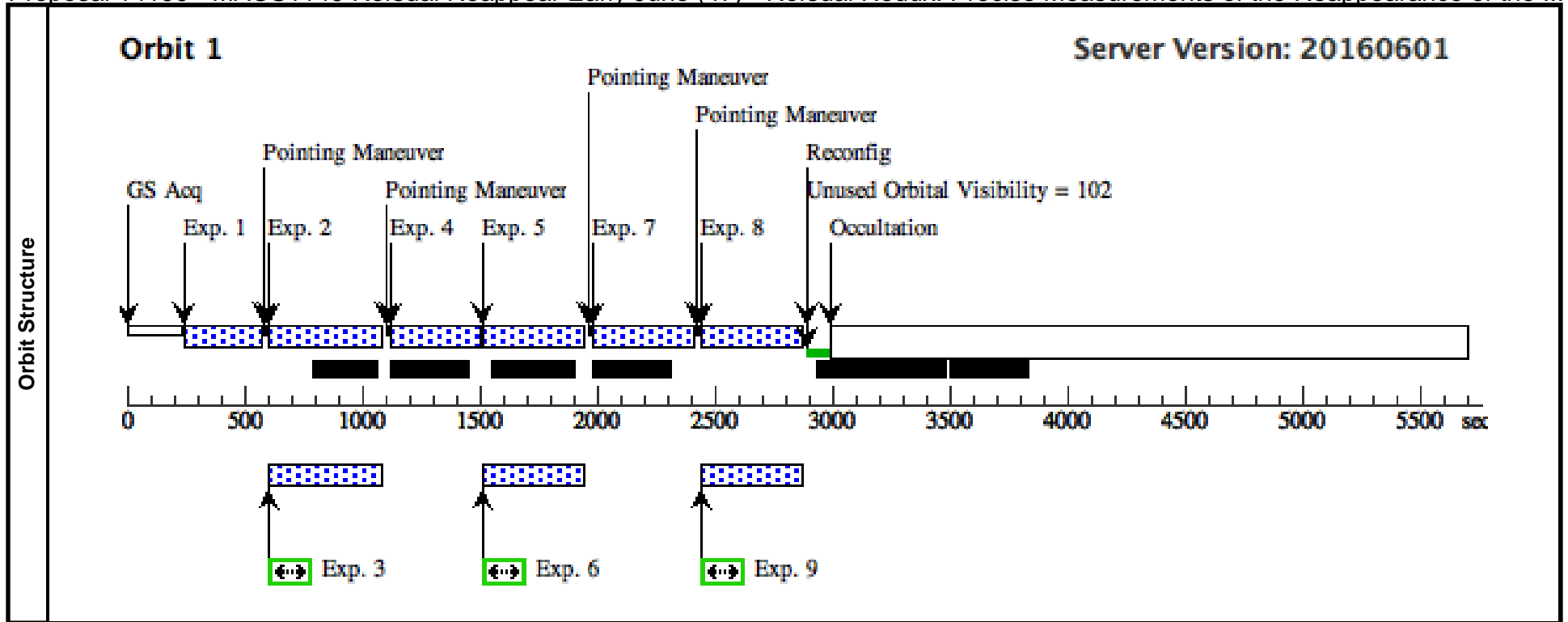
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early June (46), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 110 D; BETWEEN 06-JUN-2016:00:00:00 AND 13-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109 during the week of June 6th																											
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Proposal 14199 - MACS1149 Refsdal Reappear Early June (47) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

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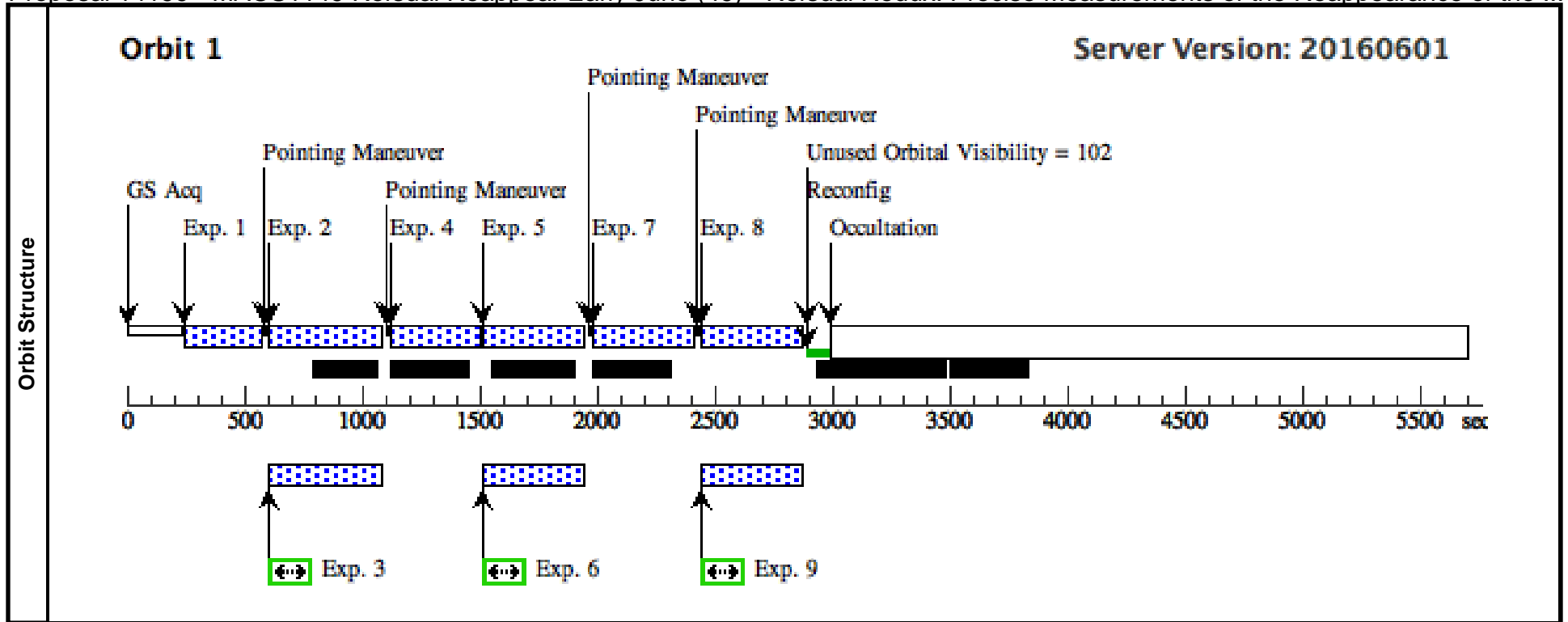
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early June (47), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 110 D; BETWEEN 06-JUN-2016:00:00:00 AND 13-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109 during the week of June 6th																		
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	9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early June (47)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									



Proposal 14199 - MACS1149 Refsdal Reappear Early June (49) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

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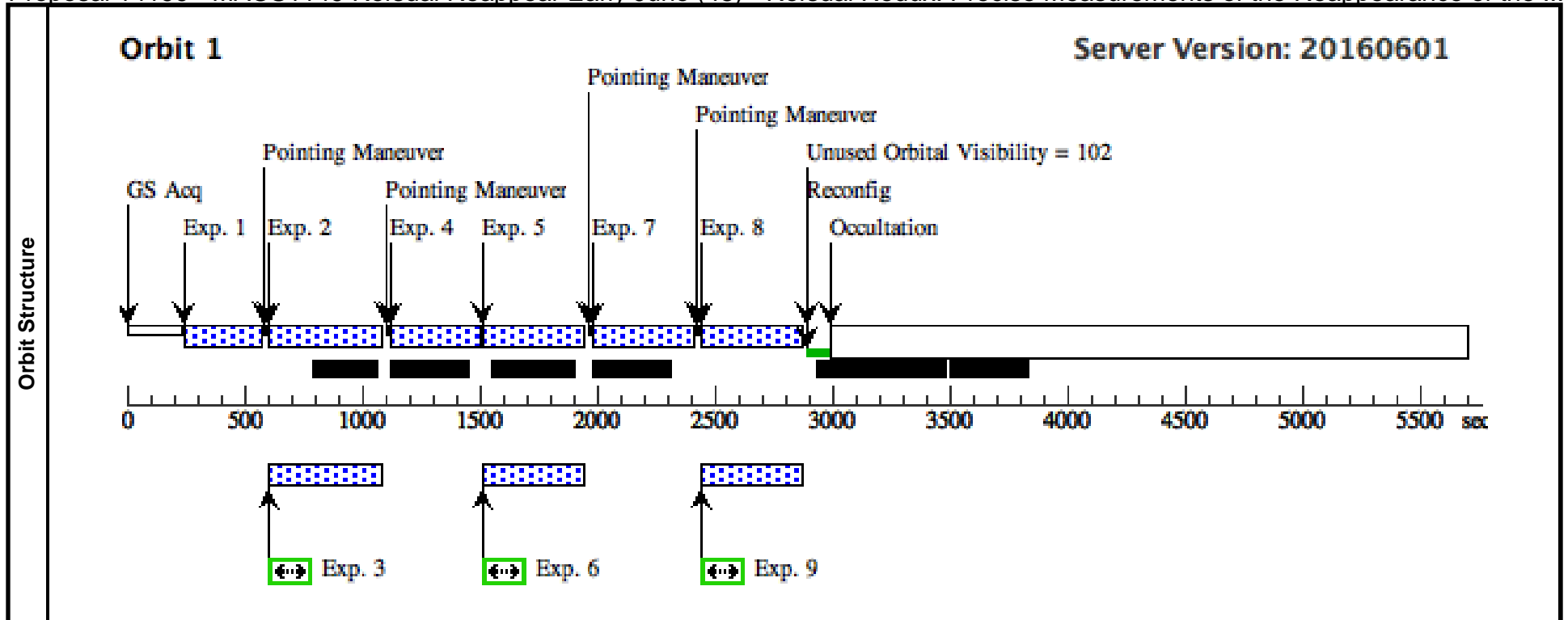
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early June (49), completed									
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 110 D; BETWEEN 06-JUN-2016:00:00:00 AND 13-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109 during the week of June 6th									
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9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early June (49)	321 Secs (307 Secs) [=>307.0 Secs]	[1]	



Proposal 14199 - MACS1149 Refsdal Reappear Early June (48) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

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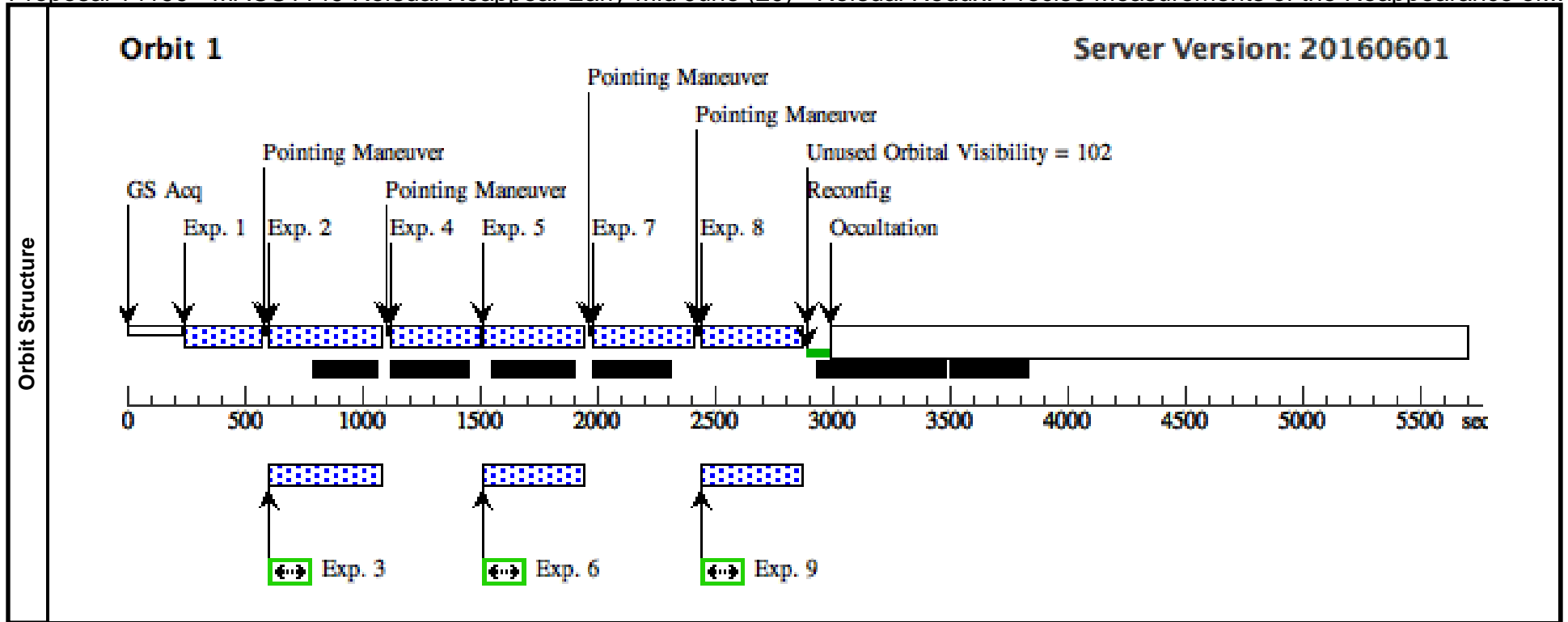
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early June (48), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 110 D; BETWEEN 06-JUN-2016:00:00:00 AND 13-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109 Ideally scheduled the day of June 12th												
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> Comments: Extended=NO	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous								
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS								
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit			
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARIO ONEB1B3		302.934997 Secs (302.935 Secs) [==>]	[1]			
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early June (48)	452.93635 Secs (452.936 Secs) [==>]	[1]			
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early June (48)	275 Secs (275 Secs) [==>]	[1]			
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]			
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early June (48)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early June (48)	307 Secs (307 Secs) [==>]	[1]			
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]			
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early June (48)	402.935899 Secs (402.936 Secs) [==>]	[1]			
	9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early June (48)	321 Secs (307 Secs) [==>307.0 Secs]	[1]			



Proposal 14199 - MACS1149 Refsdal Reappear Early-Mid June (20) - Refsdal Redux: Precise Measurements of the Reappearance of...

Fri Jul 29 17:18:46 GMT 2016

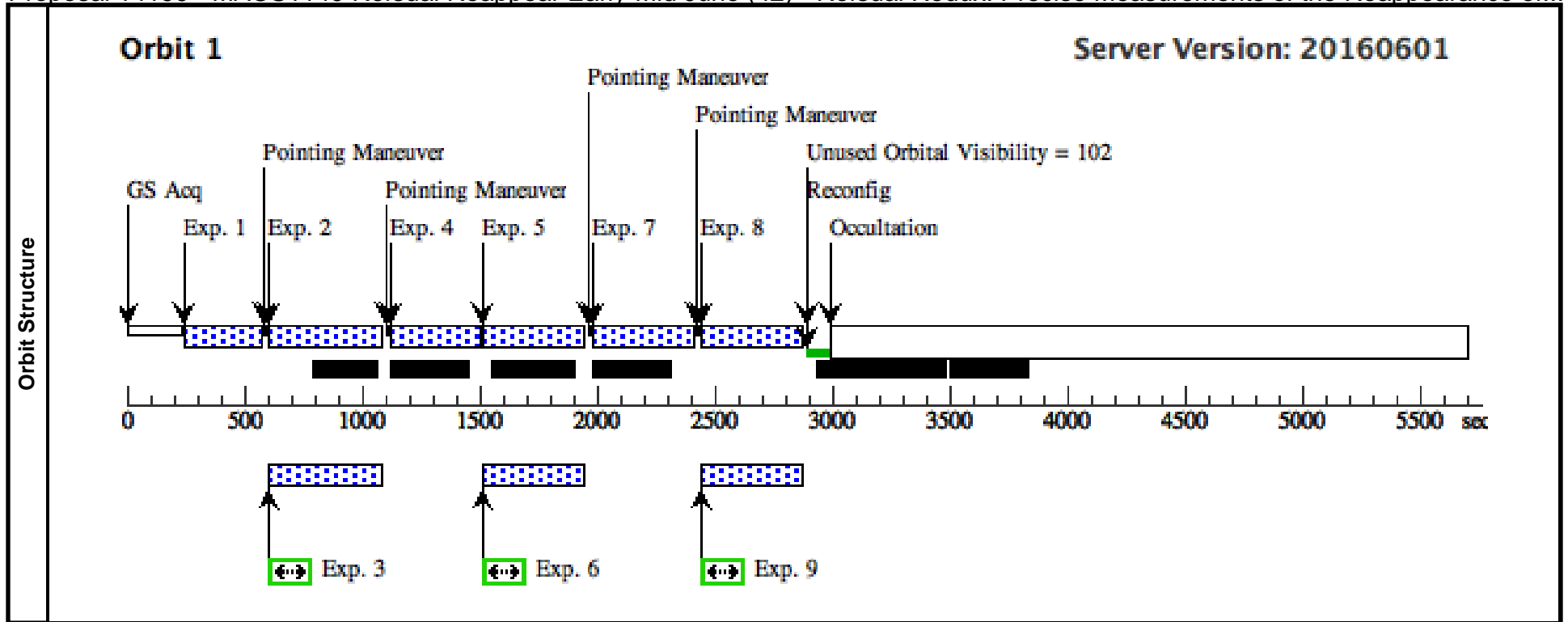
Visit	Proposal 14199, MACS1149 Refsdal Reappear Early-Mid June (20), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 109 D; BETWEEN 14-JUN-2016:00:00:00 AND 15-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
	Comments: Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		302.934997 Secs (302.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early-Mid June (20)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early-Mid June (20)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early-Mid June (20)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early-Mid June (20)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early-Mid June (20)	402.935899 Secs (402.936 Secs) [==>]	[1]
9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early-Mid June (20)	321 Secs (307 Secs) [==>307.0 Secs]	[1]	

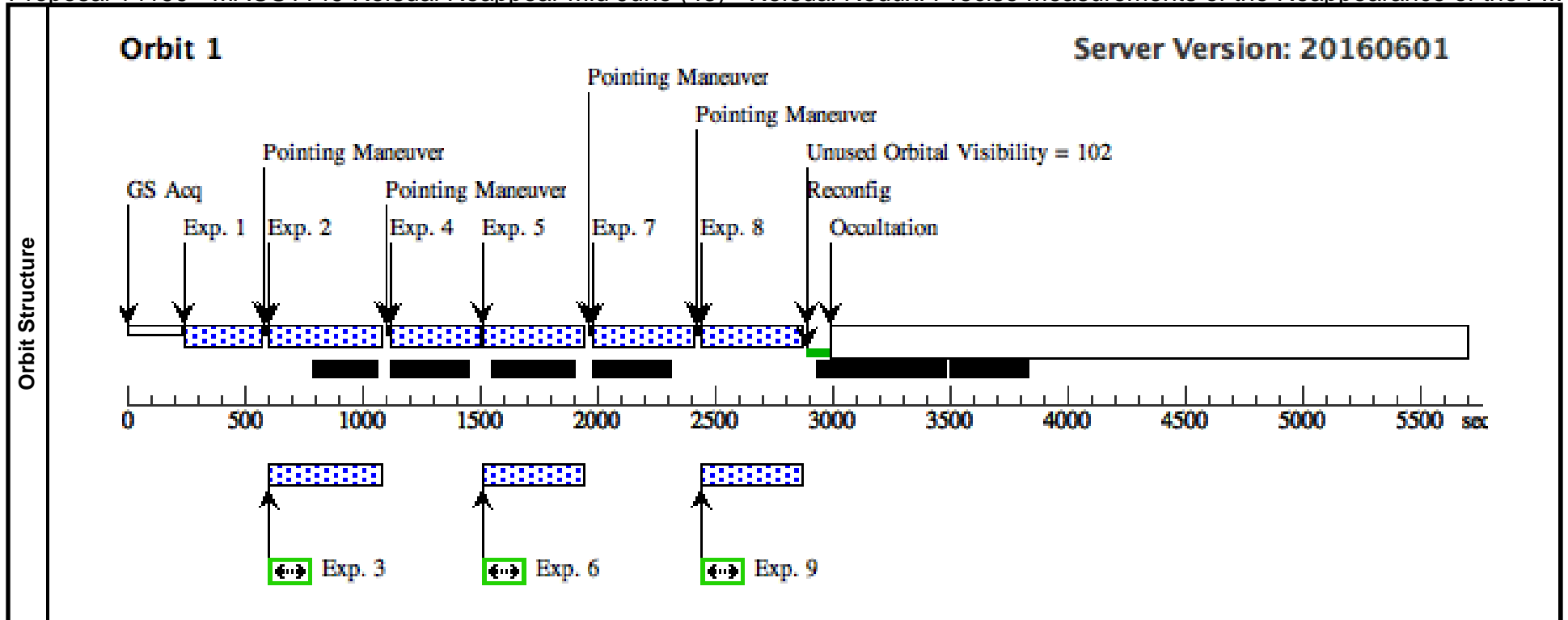


Proposal 14199 - MACS1149 Refsdal Reappear Early-Mid June (42) - Refsdal Redux: Precise Measurements of the Reappearance of...

Fri Jul 29 17:18:46 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Early-Mid June (42), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 109 D; BETWEEN 16-JUN-2016:00:00:00 AND 17-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 109									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
	Comments: Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARIO ONEB1B3		302.934997 Secs (302.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early-Mid June (42)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early-Mid June (42)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early-Mid June (42)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early-Mid June (42)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early-Mid June (42)	402.935899 Secs (402.936 Secs) [==>]	[1]
	9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early-Mid June (42)	321 Secs (307 Secs) [==>307.0 Secs]	[1]

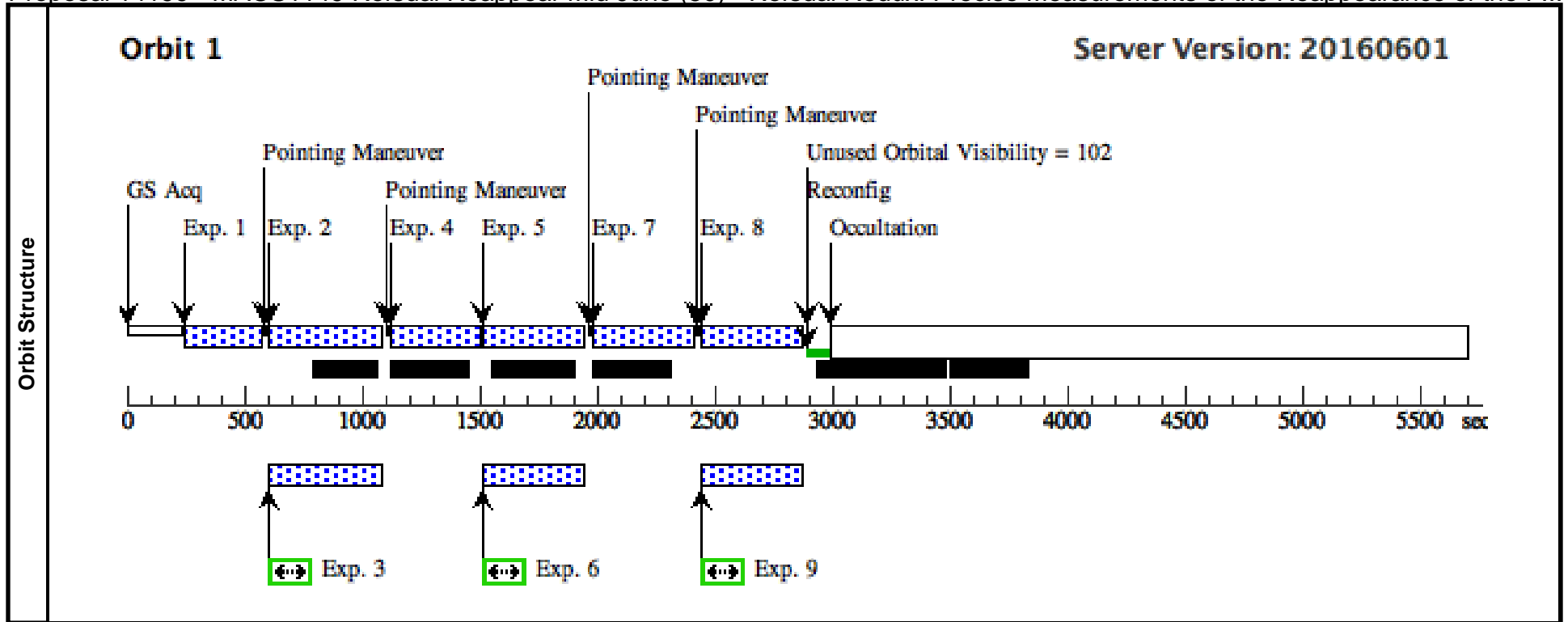


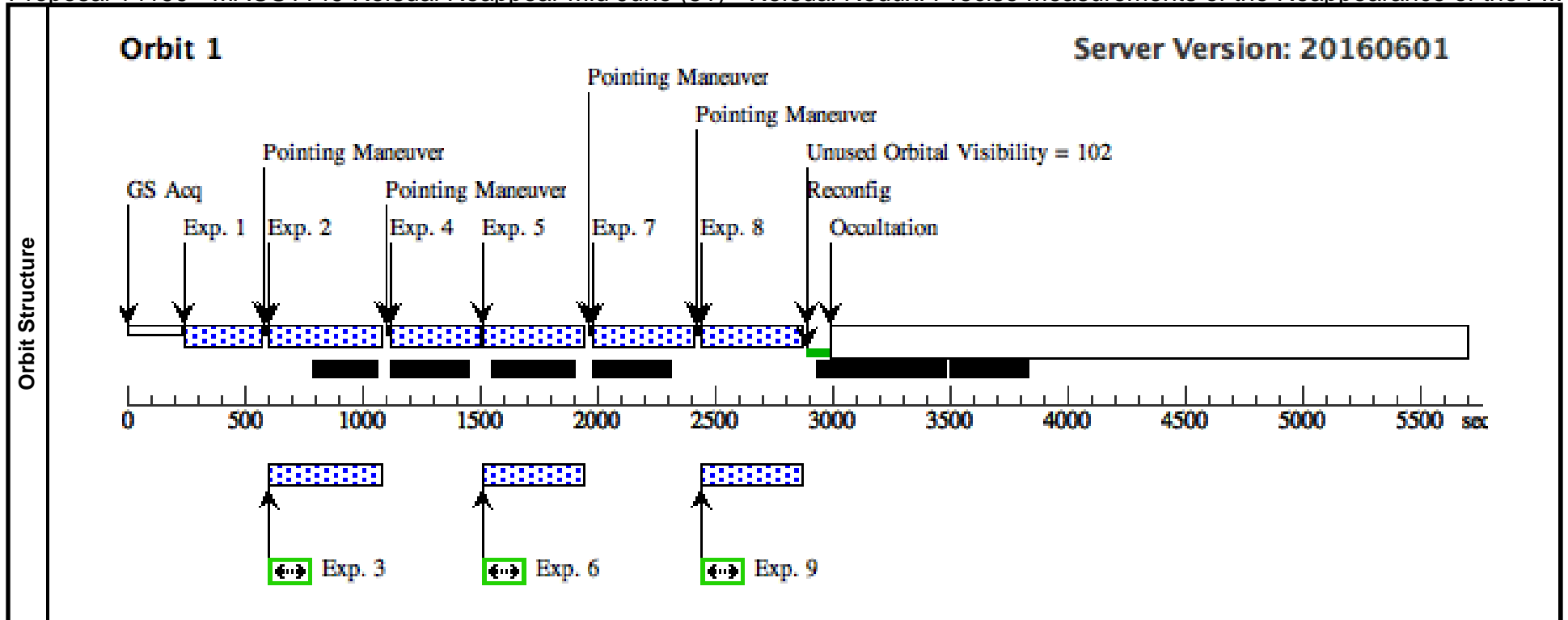


Proposal 14199 - MACS1149 Refsdal Reappear Mid June (50) - Refsdal Redux: Precise Measurements of the Reappearance of the F...

Fri Jul 29 17:18:46 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Mid June (50), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 109 D; BETWEEN 27-JUN-2016:00:00:00 AND 28-JUN-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 107 or 109																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
Comments: Extended=NO																			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=7; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		302.934997 Secs (302.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid June (50)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Mid June (50)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		352.935448 Secs (352.935 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid June (50)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Mid June (50)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid June (50)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Mid June (50)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									

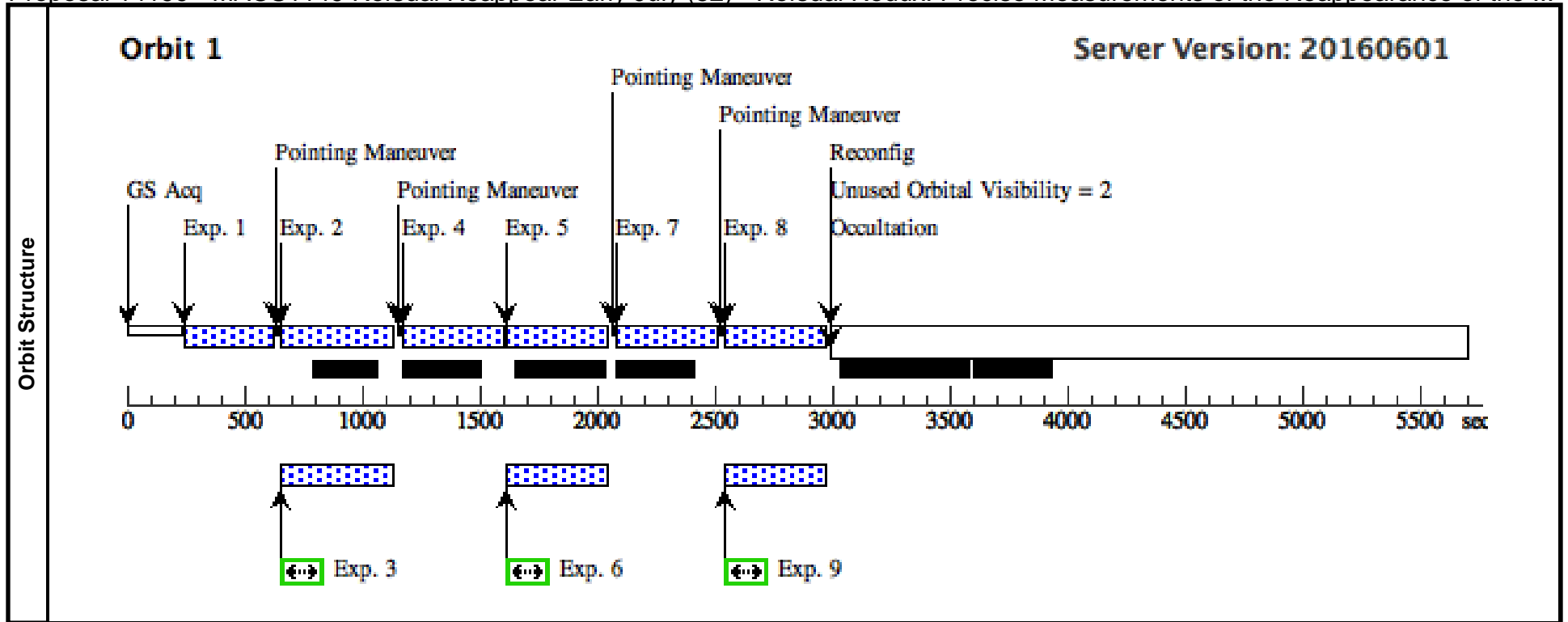


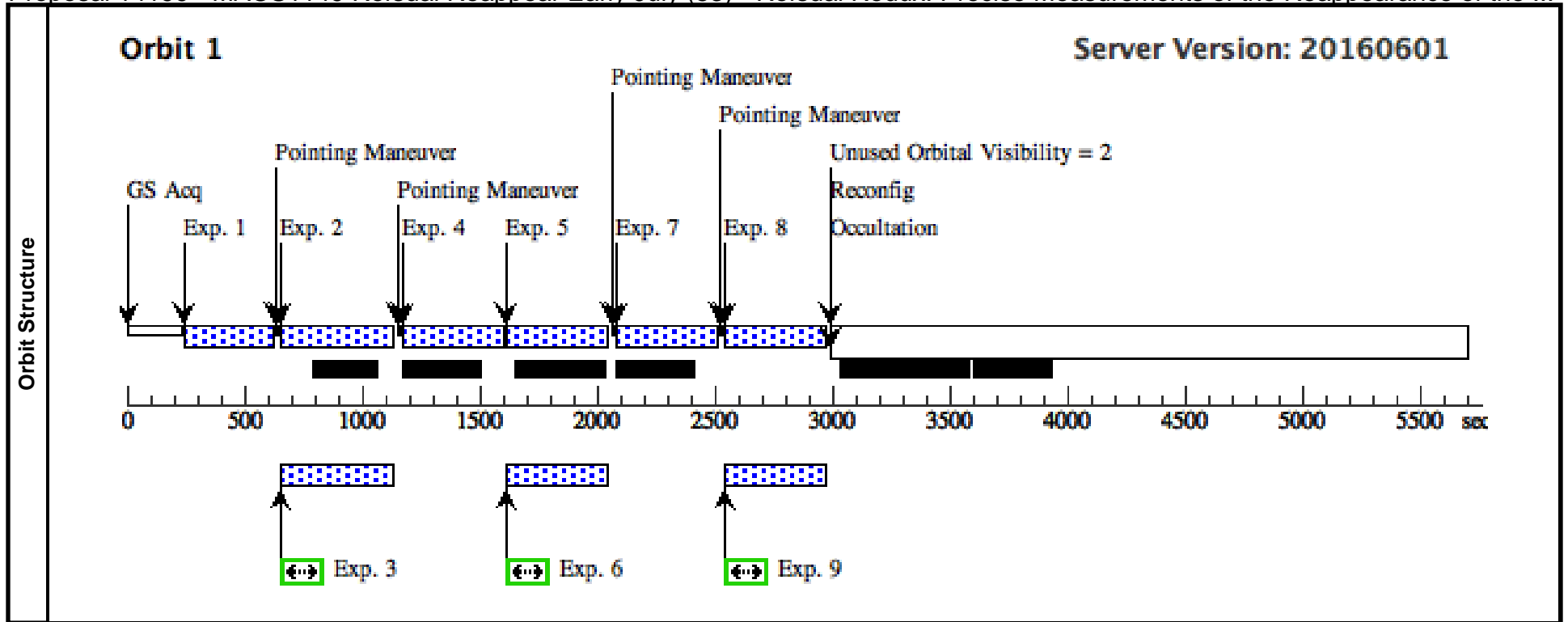


Proposal 14199 - MACS1149 Refsdal Reappear Early July (52) - Refsdal Redux: Precise Measurements of the Reappearance of the ...

Fri Jul 29 17:18:46 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Early July (52), completed Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 107D TO 109 D; BETWEEN 04-JUL-2016:00:00:00 AND 05-JUL-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 107 or 109									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS				
	Comments: Extended=NO									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early July (52)	452.93635 Secs (452.936 Secs) [==>]	[1]
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Early July (52)	275 Secs (275 Secs) [==>]	[1]
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		402.935899 Secs (402.936 Secs) [==>]	[1]
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early July (52)	402.935899 Secs (402.936 Secs) [==>]	[1]
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Early July (52)	307 Secs (307 Secs) [==>]	[1]
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early July (52)	402.935899 Secs (402.936 Secs) [==>]	[1]
9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Early July (52)	321 Secs (307 Secs) [==>307.0 Secs]	[1]	





Proposal 14199 - MACS1149 Refsdal Reappear Late October / Early November 2016 (54) - Refsdal Redux: Precise Measurements of...

Fri Jul 29 17:18:46 GMT 2016

Visit	Proposal 14199, MACS1149 Refsdal Reappear Late October / Early November 2016 (54) Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 100%; ORIENT 306D TO 308 D; BETWEEN 29-OCT-2016:00:00:00 AND 10-NOV-2016:00:00:00 Comments: 6 short prime near-IR of coordinates of Refsdal's expected reappearance and 3 ACS parallel observations. preferred orient = 307																		
	Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>REFSDALREAPPEARANCE</td> <td>RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000</td> <td></td> <td>V=30</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td colspan="6">Comments: Extended=NO</td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS	Comments: Extended=NO				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous														
(1)	REFSDALREAPPEARANCE	RA: 11 49 36.0100 (177.4000417d) Dec: +22 23 48.13 (22.39670d) Equinox: J2000		V=30	Reference Frame: ICRS														
Comments: Extended=NO																			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit									
	1	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=8; SAMP-SEQ=SPAR S50	GS ACQ SCENARI O ONEB1B3		352.935448 Secs (352.935 Secs) [==>]	[1]									
	2	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=10; SAMP-SEQ=SPAR S50	POS TARG 0.451,0.403	Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	452.93635 Secs (452.936 Secs) [==>]	[1]									
	3		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 2-3 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	275 Secs (275 Secs) [==>]	[1]									
	4	F125W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F125W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806		402.935899 Secs (402.936 Secs) [==>]	[1]									
	5	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.902,0.806	Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	6		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 5-6 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	307 Secs (307 Secs) [==>]	[1]									
	7	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.353,1.209		402.935899 Secs (402.936 Secs) [==>]	[1]									
	8	F160W	(1) REFSDALREAPPEARANCE	WFC3/IR, MULTIACCUM, IR	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 1.804,1.612	Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	402.935899 Secs (402.936 Secs) [==>]	[1]									
	9		ANY	ACS/WFC, ACCUM, WFC	F814W			Prime + Parallel Group 8-9 in MACS1149 Refsdal Reappear Late October / Early November 2016 (54)	321 Secs (307 Secs) [==>307.0 Secs]	[1]									

