



13647 - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Cycle: 22, 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) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:10:52.0	yes
02	(1) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:10:54.0	yes
03	(1) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:10:56.0	yes
04	(1) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:10:57.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
05	(1) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:10:59.0	yes
06	(1) NGC3972	WFC3/IR WFC3/UVIS	1	17-Jun-2015 08:11:01.0	yes
07	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:02.0	yes
08	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:04.0	yes
09	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:05.0	yes
10	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:06.0	yes
11	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:08.0	yes
12	(1) NGC3972	WFC3/UVIS	1	17-Jun-2015 08:11:09.0	yes

12 Total Orbits Used

ABSTRACT

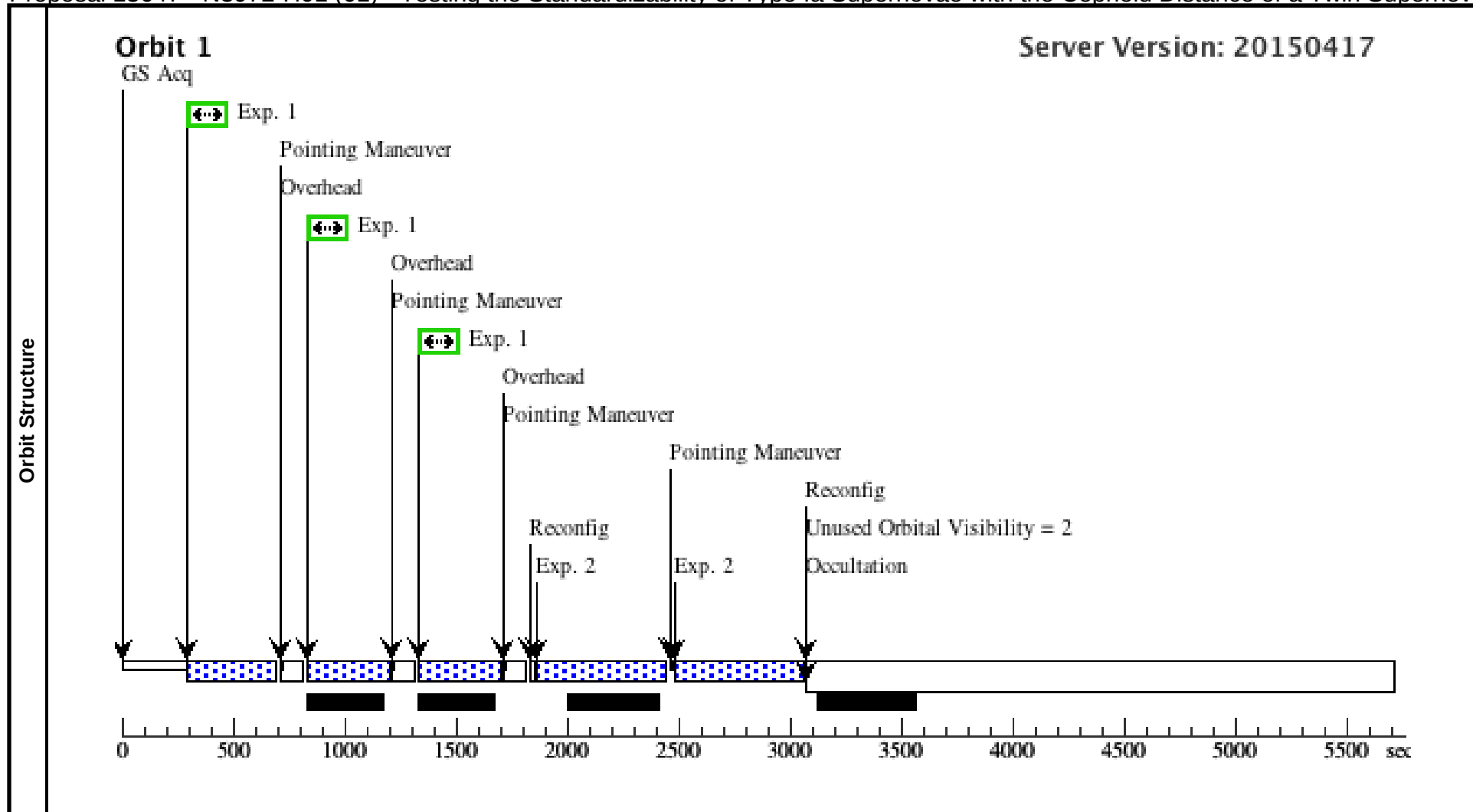
Having nearly identical optical light-curve shapes, colors, and spectra, SN 2011by and 2011fe are "twin" Type Ia supernovae (SN Ia). As such, these "standardizable candles" should have identical luminosities. But using independent distance measurements to these SN, their peak luminosity differs by 0.6 mag --- significantly larger than the typical scatter amongst all SN Ia. Differences in their UV spectra indicate that the SN have different metallicities, which could account for the luminosity difference. On the other hand, the distance to SN 2011by, from a Tully-Fisher measurement, may be wrong. We propose to measure a Cepheid distance to SN 2011by to determine if metallicity or an imprecise measurement is causing this large difference.

The implications are far reaching for SN cosmology. If the current distance is correct, changing progenitor metallicity could cause large distance biases with redshift. If the distance is revised to bring SN 2011by in line with SN 2011fe, we will infer that metallicity differences are not a large bias for SN cosmology.

In the latter case, these data will also provide an additional SN with which we can measure the Hubble constant. Since the number of SN calibrators (only 8 published) limits the precision of our measurement of the Hubble constant, these observations can have a large impact on this measurement.

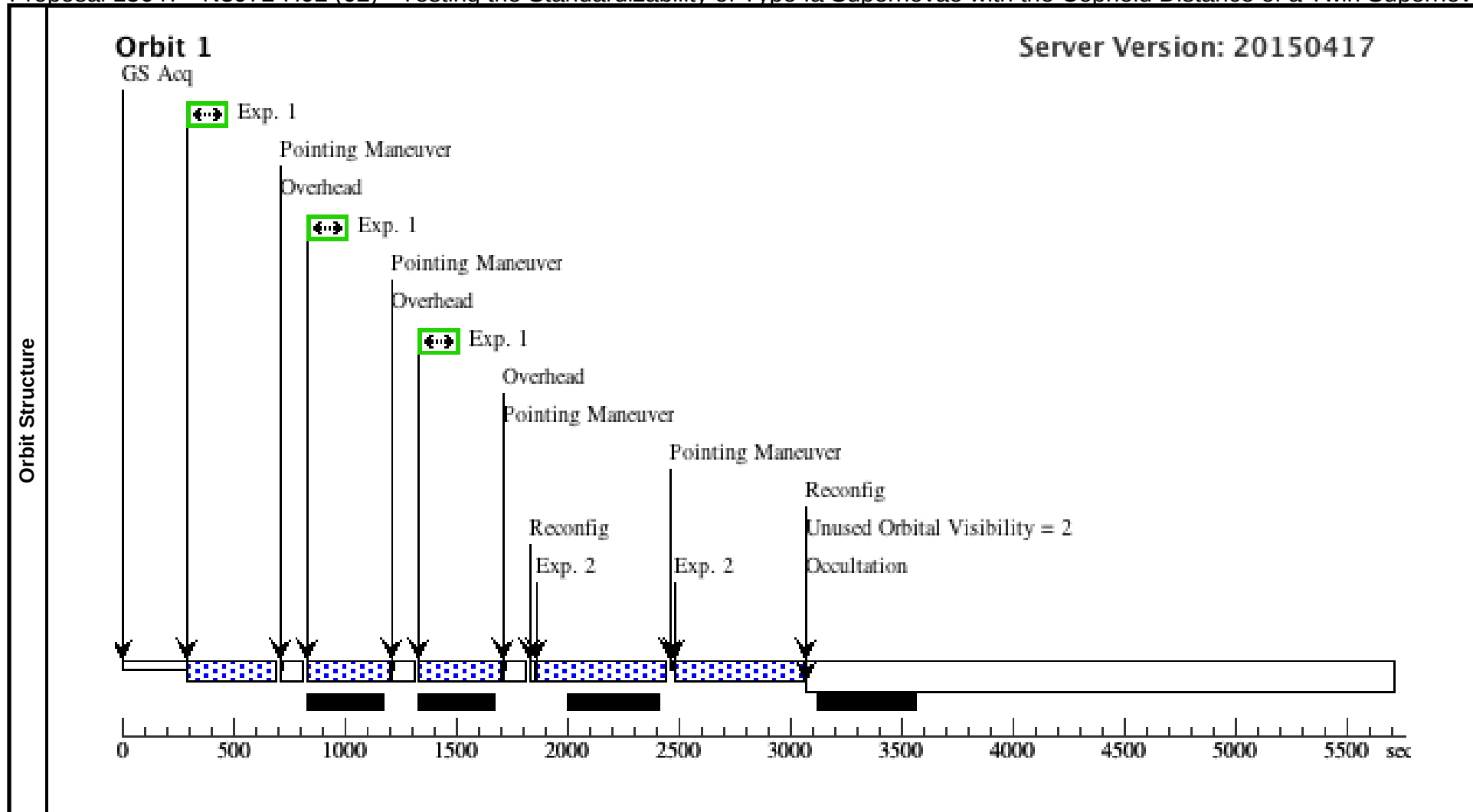
Proposal 13647 - N3972-H01 (01) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H01 (01), completed										Wed Jun 17 12:11:11 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; ORIENT 126D TO 128.5 D; BEFORE 15-NOV-2015:00:00:00										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H01 (01) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H01 (01) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



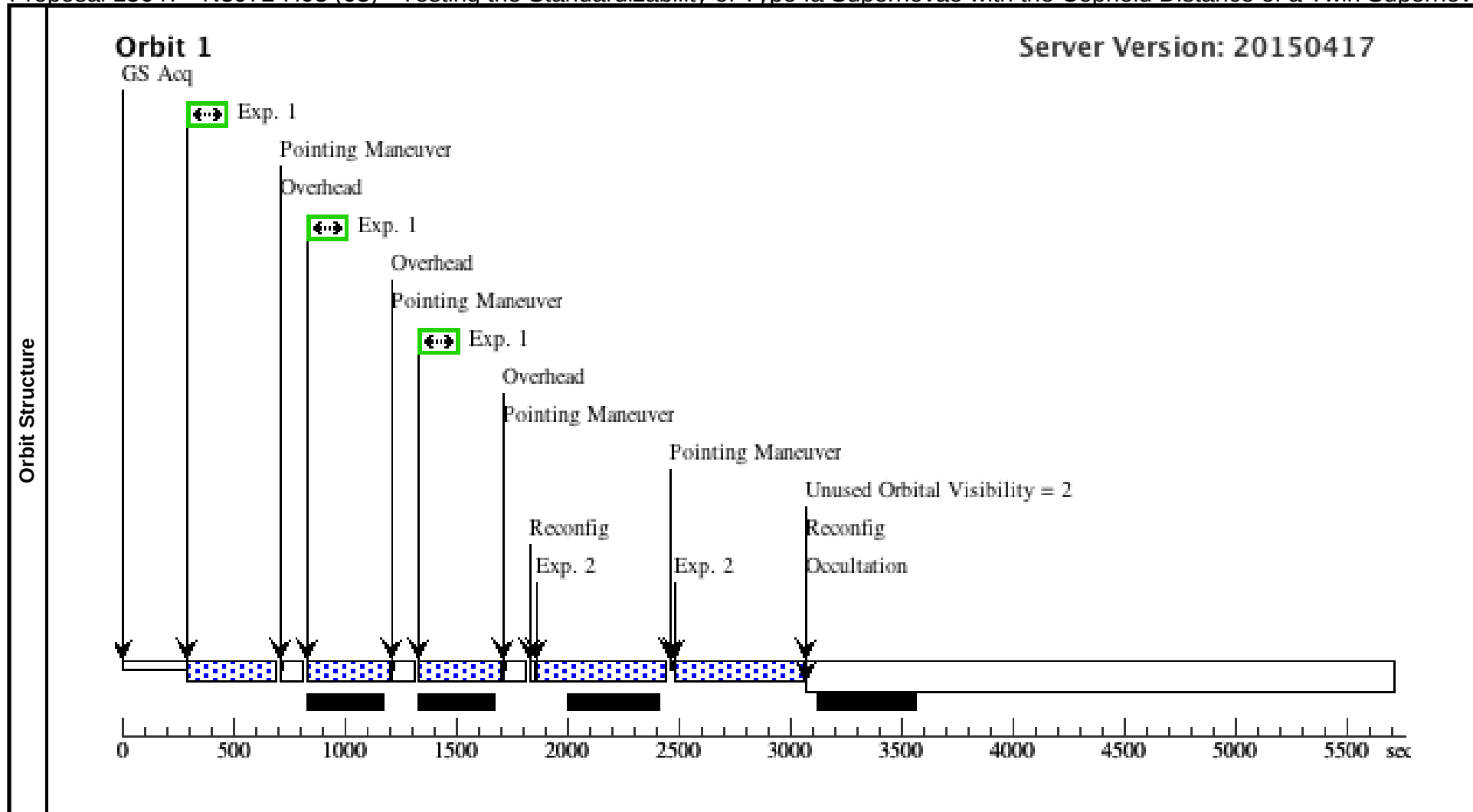
Proposal 13647 - N3972-H02 (02) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H02 (02), completed										Wed Jun 17 12:11:11 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 01; AFTER 01 BY 9.95 D TO 10.95 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H02 (02) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H02 (02) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



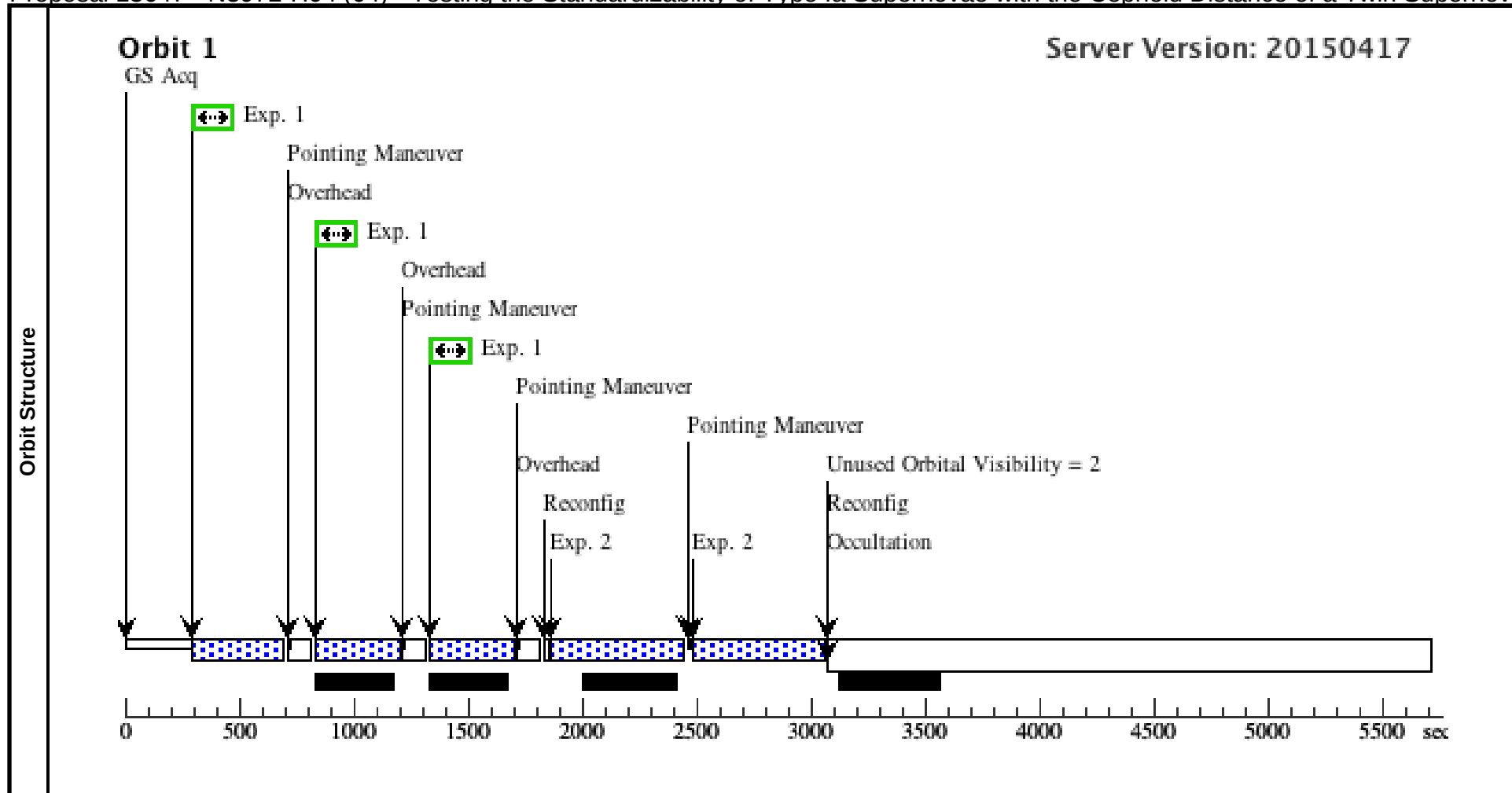
Proposal 13647 - N3972-H03 (03) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H03 (03), completed										Wed Jun 17 12:11:11 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 01; AFTER 01 BY 18.84 D TO 19.84 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H03 (03) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H03 (03) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



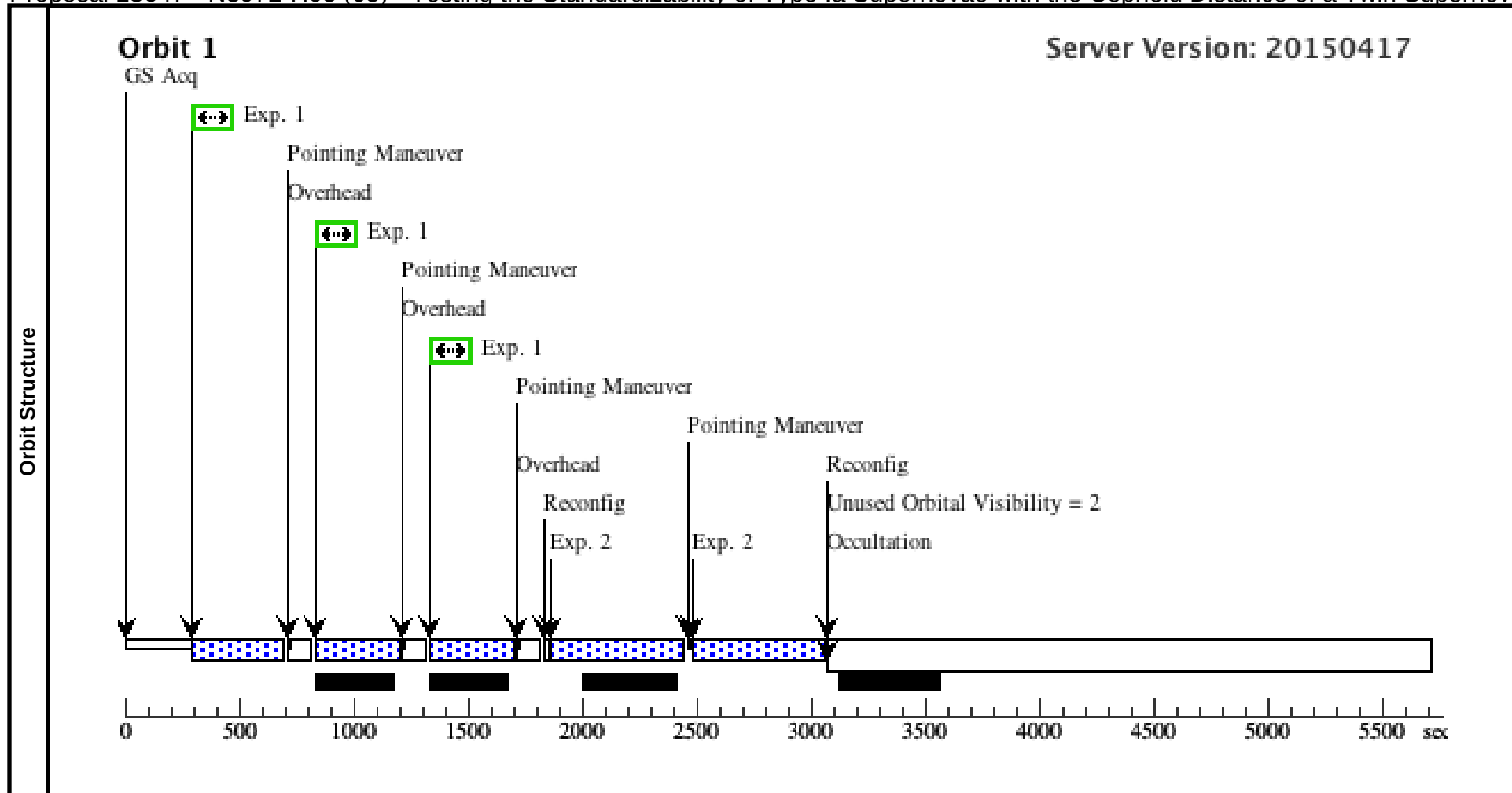
Proposal 13647 - N3972-H04 (04) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H04 (04), completed										Wed Jun 17 12:11:11 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; ORIENT 123D TO 125 D; AFTER 01 BY 26.94 D TO 27.94 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H04 (04) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H04 (04) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



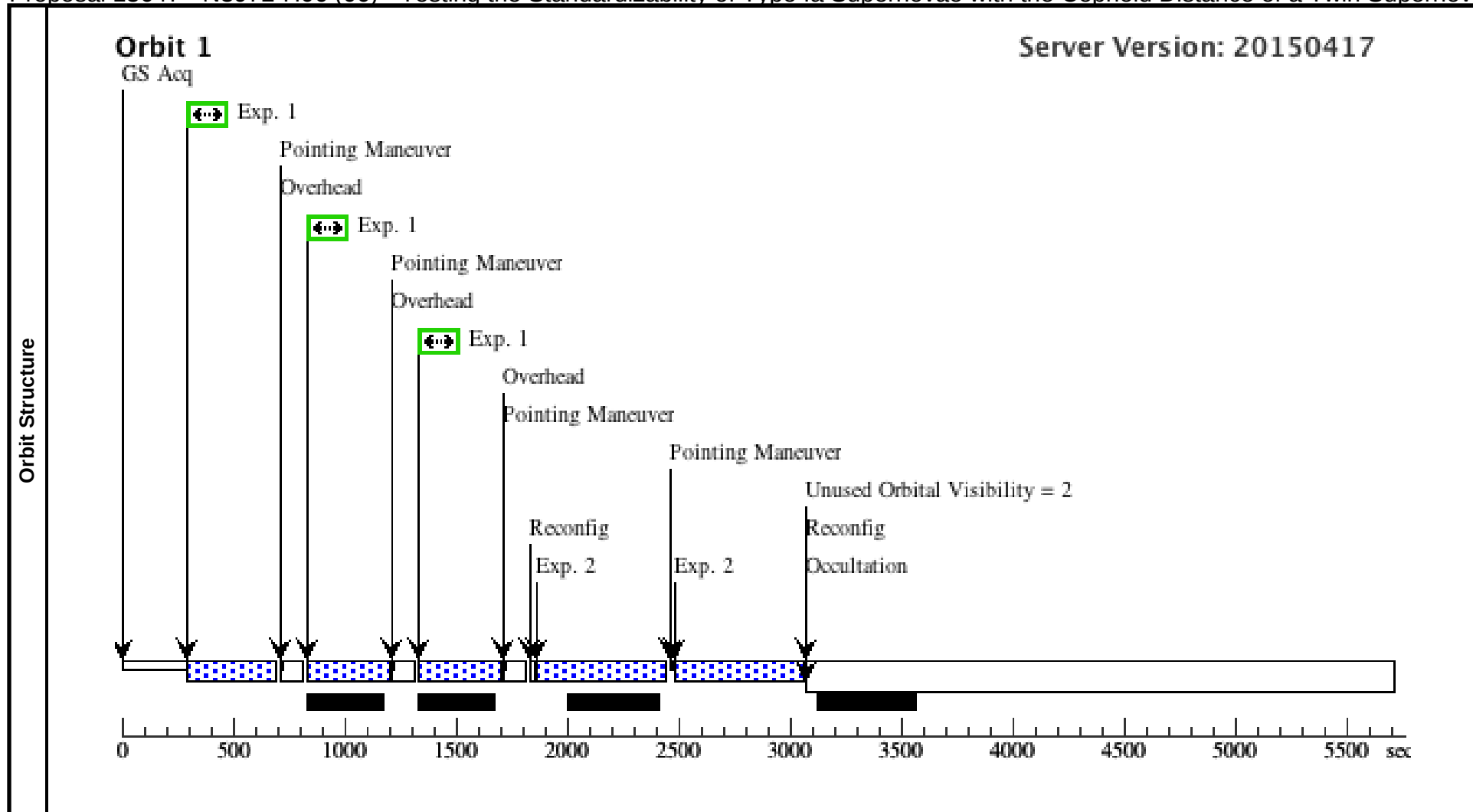
Proposal 13647 - N3972-H05 (05) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H05 (05), completed										Wed Jun 17 12:11:12 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 04; AFTER 01 BY 33.14 D TO 34.14 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H05 (05) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H05 (05) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



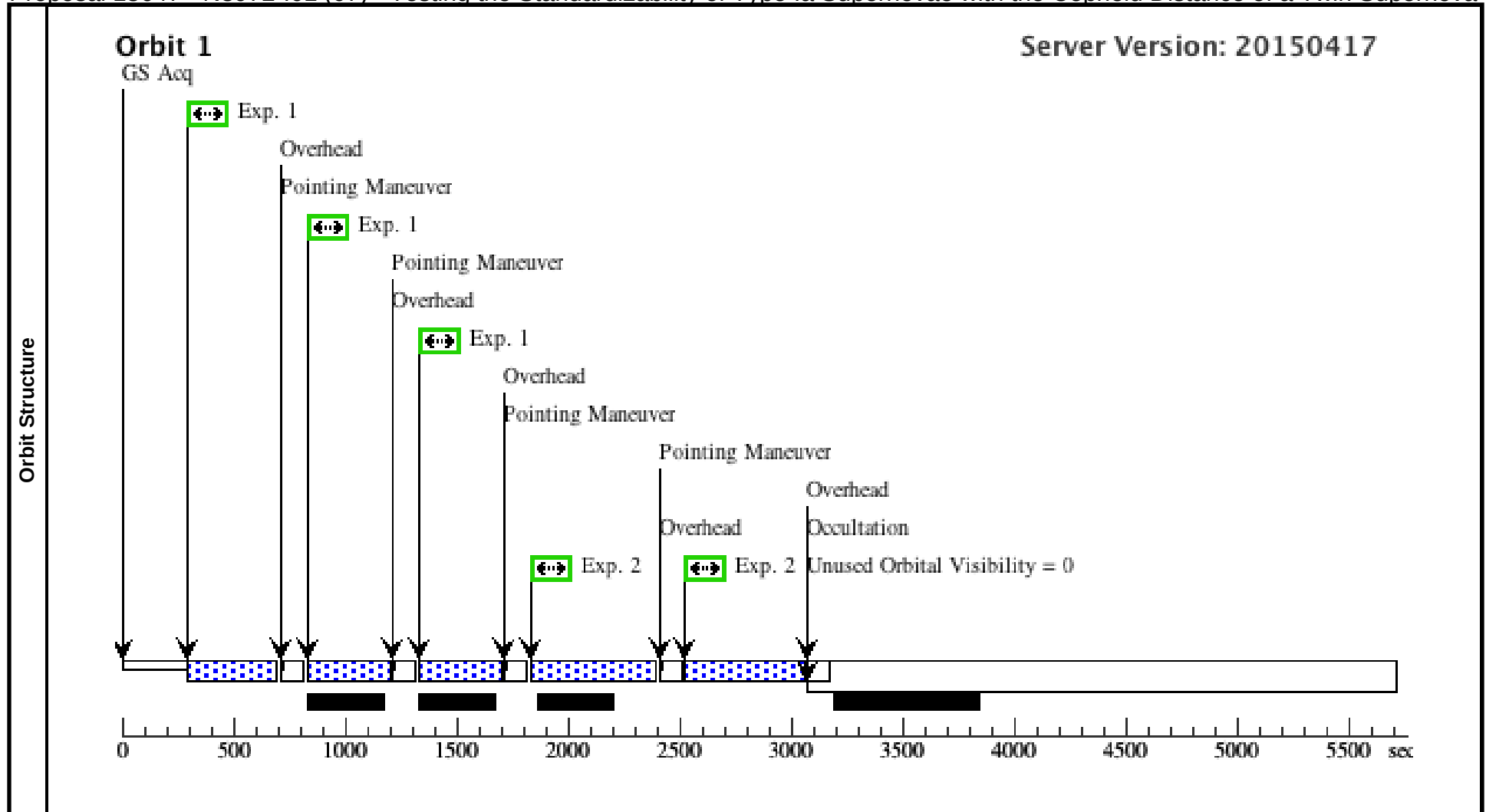
Proposal 13647 - N3972-H06 (06) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-H06 (06), completed										Wed Jun 17 12:11:12 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/IR, WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 04; AFTER 01 BY 38 D TO 39 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(3)	Pattern Type=WFC3-IR-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.636 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=41.788 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-H06 (06) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/IR, MULTIACCUM, IR-UVIS-CENTER	F160W	NSAMP=12; SAMP-SEQ=SPAR S50		Pattern 3, Exps 2-2 in N3972-H06 (06) (3)	552.937252 Secs (1105.875 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



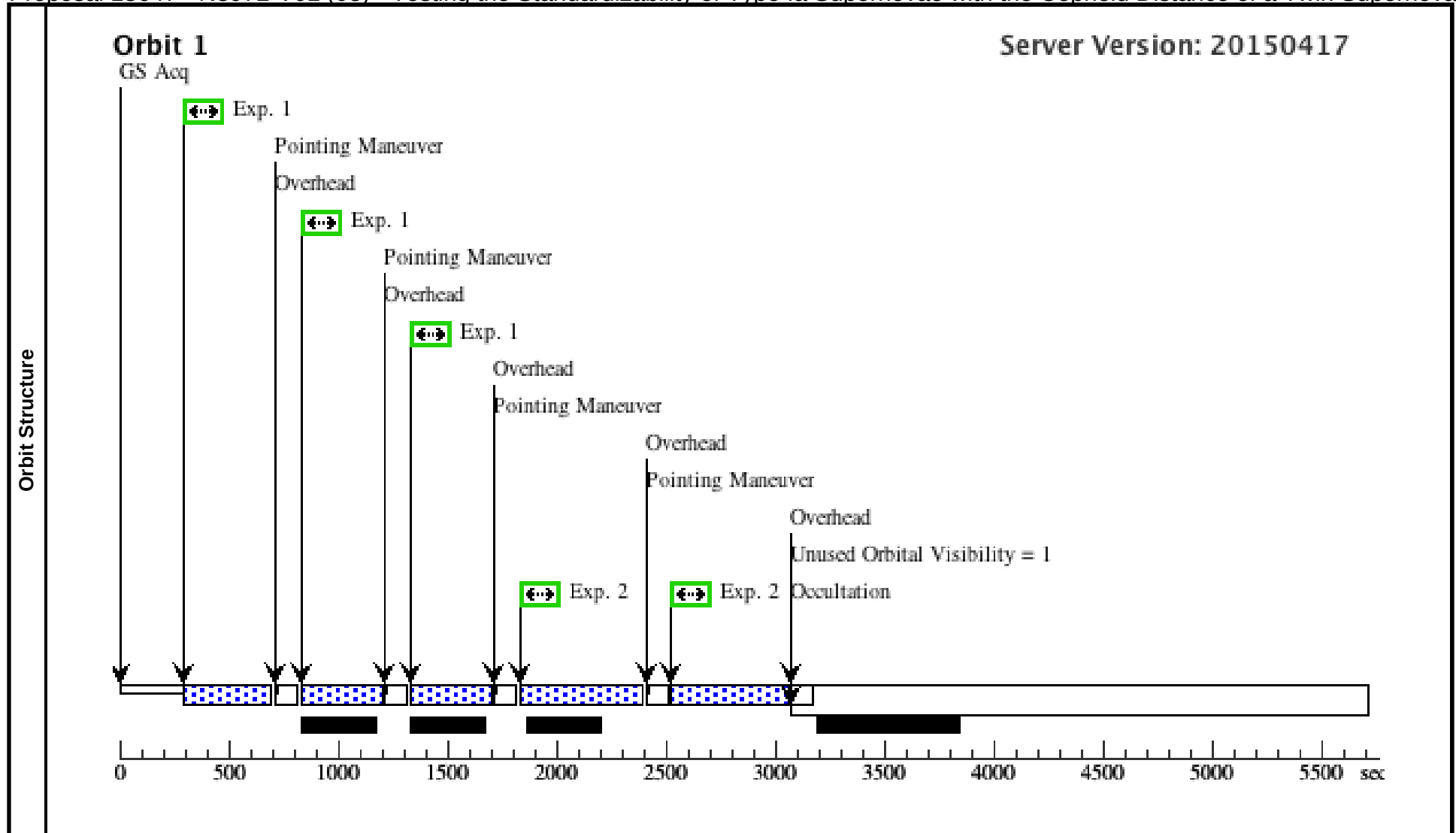
Proposal 13647 - N3972-I01 (07) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-I01 (07), completed										Wed Jun 17 12:11:12 GMT 2015	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: WFC3/UVIS											
	Special Requirements: SCHED 90%; AFTER 01 BY 42.03 D TO 43.03 D											
Patterns	#	Primary Pattern					Secondary Pattern				Exposures	
	(1)	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						(1)	
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						(2)	
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000					V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.											
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER		F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-I01 (07) (1)	374 Secs (1122 Secs)		
										[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER		F814W			Pattern 2, Exps 2-2 in N3972-I01 (07) (2)	540 Secs (1080 Secs)		
										[==>(Pattern 1)] [==>(Pattern 2)]		[1]



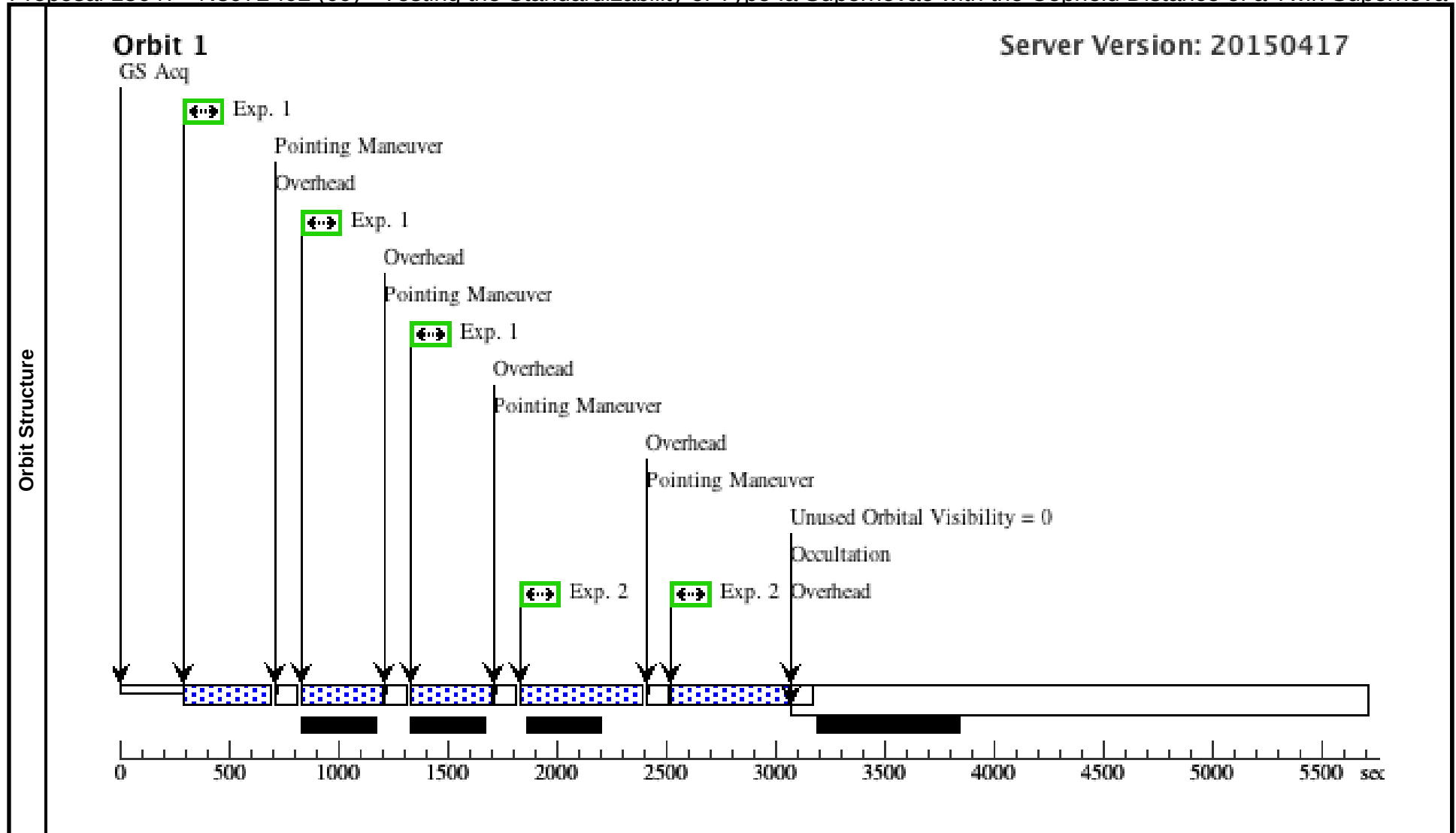
Proposal 13647 - N3972-V01 (08) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-V01 (08), completed										Wed Jun 17 12:11:12 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 07; AFTER 01 BY 48.96 D TO 49.96 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-V01 (08) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W			Pattern 2, Exps 2-2 in N3972-V01 (08) (2)	538 Secs (1076 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



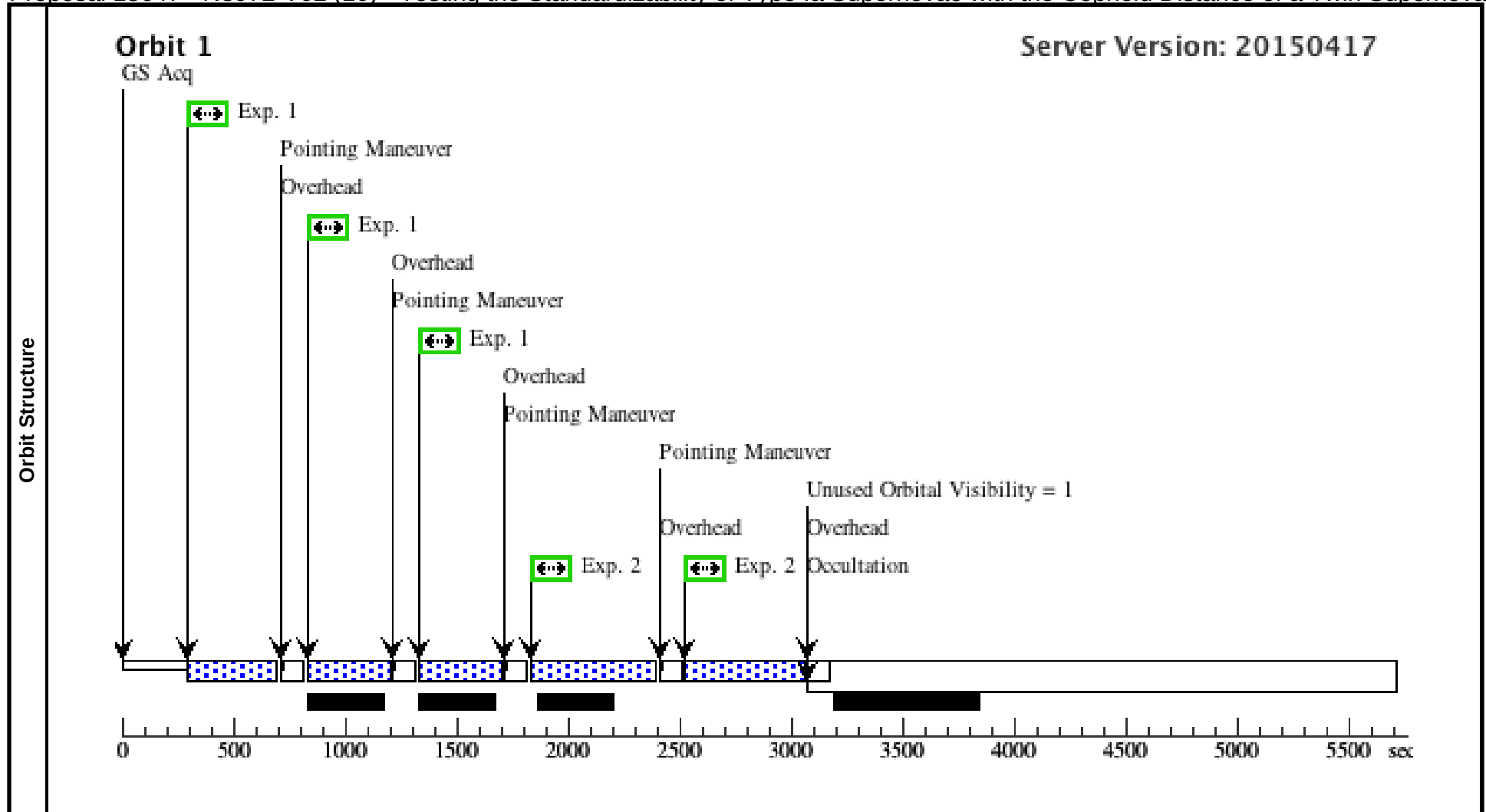
Proposal 13647 - N3972-I02 (09) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-I02 (09), scheduled										Wed Jun 17 12:11:12 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: SCHED 90%; AFTER 01 BY 54.06 D TO 55.06 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-I02 (09) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 2, Exps 2-2 in N3972-I02 (09) (2)	540 Secs (1080 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



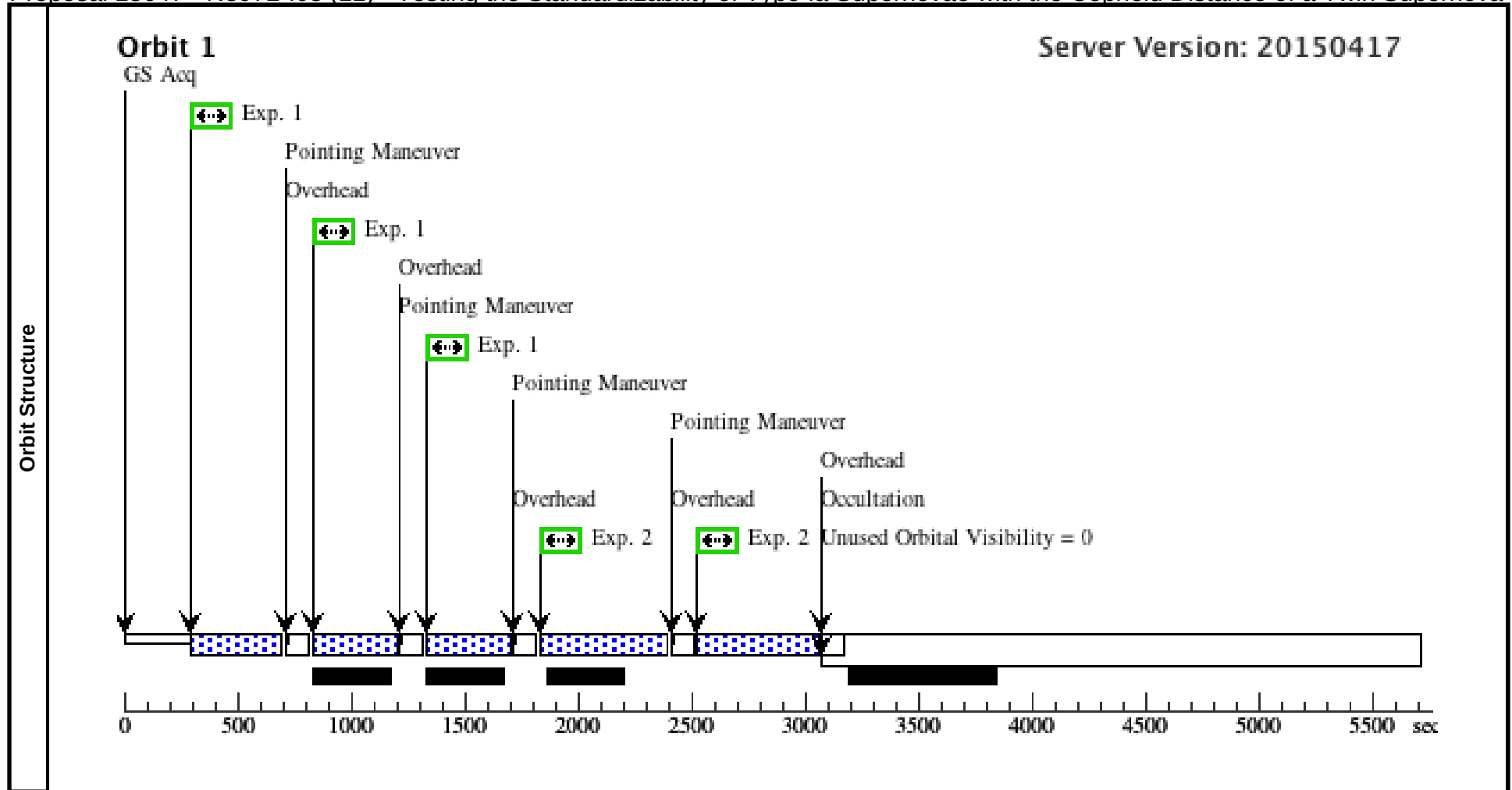
Proposal 13647 - N3972-V02 (10) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-V02 (10), scheduled										Wed Jun 17 12:11:12 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: SCHED 90%; SAME ORIENT AS 09; AFTER 01 BY 59.79 D TO 60.79 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-V02 (10) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F555W			Pattern 2, Exps 2-2 in N3972-V02 (10) (2)	538 Secs (1076 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



Proposal 13647 - N3972-I03 (11) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-I03 (11), implementation										Wed Jun 17 12:11:13 GMT 2015
	Diagnostic Status: No Diagnostics										
	Scientific Instruments: WFC3/UVIS										
	Special Requirements: SCHED 90%; AFTER 01 BY 68.29 D TO 69.29 D										
Patterns	#	Primary Pattern					Secondary Pattern				Exposures
	(1)	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						(1)
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=			Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false						(2)
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	NGC3972	RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000				V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-I03 (11) (1)	374 Secs (1122 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER	F814W			Pattern 2, Exps 2-2 in N3972-I03 (11) (2)	540 Secs (1080 Secs)		
									[==>(Pattern 1)] [==>(Pattern 2)]		[1]



Proposal 13647 - N3972-V03 (12) - Testing the Standardizability of Type Ia Supernovae with the Cepheid Distance of a Twin Supernova

Visit	Proposal 13647, N3972-V03 (12), implementation										Wed Jun 17 12:11:13 GMT 2015		
	Diagnostic Status: No Diagnostics												
	Scientific Instruments: WFC3/UVIS												
	Special Requirements: SCHED 90%; ORIENT -2D TO 2D FROM 11; AFTER 01 BY 79.5 D TO 80.50 D												
Patterns	#	Primary Pattern					Secondary Pattern					Exposures	
	(1)	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					(1)	
	(2)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.145 Line Spacing=					Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false					(2)	
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections			Fluxes		Miscellaneous		
	(1)	NGC3972		RA: 11 55 45.1170 (178.9379875d) Dec: +55 19 14.42 (55.32067d) Equinox: J2000					V=23		Reference Frame: SIMBAD		
	Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.												
Exposures	#	Label	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]		Orbit	
	1		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER		F350LP		GS ACQ SCENARIO BASE1B3	Pattern 1, Exps 1-1 in N3972-V03 (12) (1)	374 Secs (1122 Secs)			
										[==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)]		[1]	
	2		(1) NGC3972	WFC3/UVIS, ACCUM, UVIS-CENTER		F555W			Pattern 2, Exps 2-2 in N3972-V03 (12) (2)	538 Secs (1076 Secs)			
										[==>(Pattern 1)] [==>(Pattern 2)]		[1]	

