



17194 - Local Environments of Low-redshift Type Ia Supernova Siblings

Cycle: 30, Proposal Category: SNAP

(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) SN1957A-SN1999BY-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:28.0	yes
02	(2) SN1963J-SN1979B-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:29.0	yes
03	(3) SN1939A-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:29.0	yes
04	(4) SN2020UE-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:30.0	yes
05	(5) SN1965I-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:30.0	yes
06	(6) SN1983G-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:31.0	yes
07	(7) SN2002BO-SN2002CV-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:31.0	yes
08	(8) SN2001EL-SN2021PIT-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:32.0	yes

Proposal 17194 (STScI Edit Number: 0, Created: Wednesday, July 13, 2022 at 11:02:45 AM Eastern Standard Time) - 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>
09	(9) SN2013AA-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:32.0	yes
10	(10) SN2017CBV-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:33.0	yes
11	(11) SN1971L-SN2017DRH-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:33.0	yes
12	(12) SN1980N-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:34.0	yes
13	(13) SN1981D-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:34.0	yes
14	(14) SN2006DD-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:35.0	yes
15	(15) SN2000CX-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:35.0	yes
16	(16) SN2008Q-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:36.0	yes
17	(17) SN1997BQ-SN2008FV-SN2021HPR-H	WFC3/UVIS	1	13-Jul-2022 12:02:36.0	yes
18	(18) SN1999CP-SN2002CR-SN2005P-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:37.0	yes
19	(19) ASASSN13DD-SN2008HV-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:37.0	yes
20	(20) SN2005BO-SN2016CVN-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:38.0	yes
21	(21) SN2013FA-PSNJ204353141230304-H	WFC3/UVIS	1	13-Jul-2022 12:02:39.0	yes
22	(22) SN2006LE-SN2011M-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:39.0	yes
23	(23) SN2001E-SN2009DS-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:40.0	yes
24	(24) SN1994M-SN2004BR-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:40.0	yes
25	(25) SN2010GP-PS114XW-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:41.0	yes
26	(26) SN2001GB-SN2019DFA-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:42.0	yes
27	(27) SN2007SW-SN2012BH-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:42.0	yes
28	(28) PTF11BUI-PTF11HUB-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:43.0	yes
29	(29) PS15AOT-SN2009EU-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:43.0	yes
30	(30) SN2017ETS-SN2020KYX-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:44.0	yes
31	(31) SN2020UK-SN2020ROV-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:44.0	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>
32	(32) SN2011IV-SN2007ON-HOST	WFC3/UVIS	1	13-Jul-2022 12:02:45.0	yes

32 Total Orbits Used

ABSTRACT

Type Ia supernovae (SNe Ia) have a low intrinsic magnitude dispersion, therefore are highly standardisable and make excellent cosmological distance indicators. After correcting for light-curve properties, such as width (stretch) and intrinsic colour, this dispersion is further reduced. However, an intriguing dependence on SN host galaxy properties remains: SNe Ia associated with high mass hosts are brighter than those in low mass hosts. If the remaining brightness dispersion is entirely due to global host galaxy properties, SNe Ia associated with the same galaxy (siblings) should be cosmologically similar, with comparable intrinsic colours, stretches and Hubble residuals. However, prior studies have shown that this is not the case, and they are as different as any other pair of SN. With the high quality images we will obtain with this proposal, we will investigate the local environments of a sample of low redshift (low- z) siblings, by measuring rest-frame U-R photometry within small apertures around each SN, to see if sub-galactic differences in environmental properties are the answer to improving SNe Ia standardisation.

Prior sibling analyses have typically been limited to the duration of individual surveys, meaning that their sibling samples have primarily been found in high mass, elliptical galaxies, which are associated with higher rates of SNe Ia. Our proposed sample of archival low- z siblings differ in explosion times by an average of 14 years allowing for an increased understanding of the rates of sibling SNe Ia, detailed investigation of a diverse variety of host galaxy morphologies, and thus a diverse range of local environments within those galaxies.

OBSERVING DESCRIPTION

WFC3/UVIS snapshot program to observe the local environments of multiple SNe Ia associated with the same host galaxies (SNe Ia siblings). Each location will be observed in both F336W and F625W, with a total exposure time of 360 seconds for each filter. As we require the full field of view, we use the WFC3-UVIS-GAP-LINE dither pattern with 2 points to account for the chip gap. We also require preflashing (FLASH=16 for F336W and FLASH=12 for F625W).

Given that the orientation of a SNAP proposal cannot be defined, for SNe that are within 100 arcseconds of their sibling, the given coordinates are the midpoint between siblings associated with the same galaxy. This means that no matter the orientation, multiple SN environments will always be covered by a single SNAP pointing. In a few cases, the siblings are separated by more than 100 arcseconds, so for these situations we observe centred

Proposal 17194 (STScI Edit Number: 0, Created: Wednesday, July 13, 2022 at 11:02:45 AM Eastern Standard Time) - Overview on each SN.

Proposal 17194 - Visit 01 - Local Environments of Low-redshift Type Ia Supernova Siblings

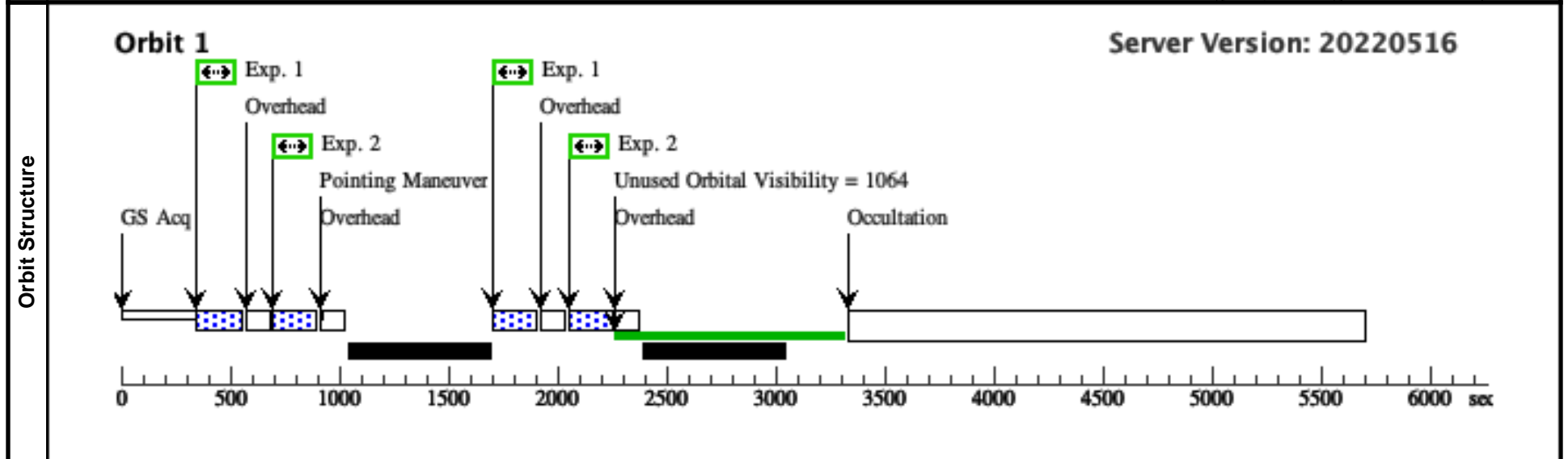
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 01, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	SN1957A-SN1999BY-HOST	RA: 09 21 51.2352 (140.4634800d) Dec: +50 59 54.79 (50.99855d) Alt Name1: NGC2841 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN1957A and SN1999by.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(1) SN1957A-SN1999BY-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 01 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(1) SN1957A-SN1999BY-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 01 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 02 - Local Environments of Low-redshift Type Ia Supernova Siblings

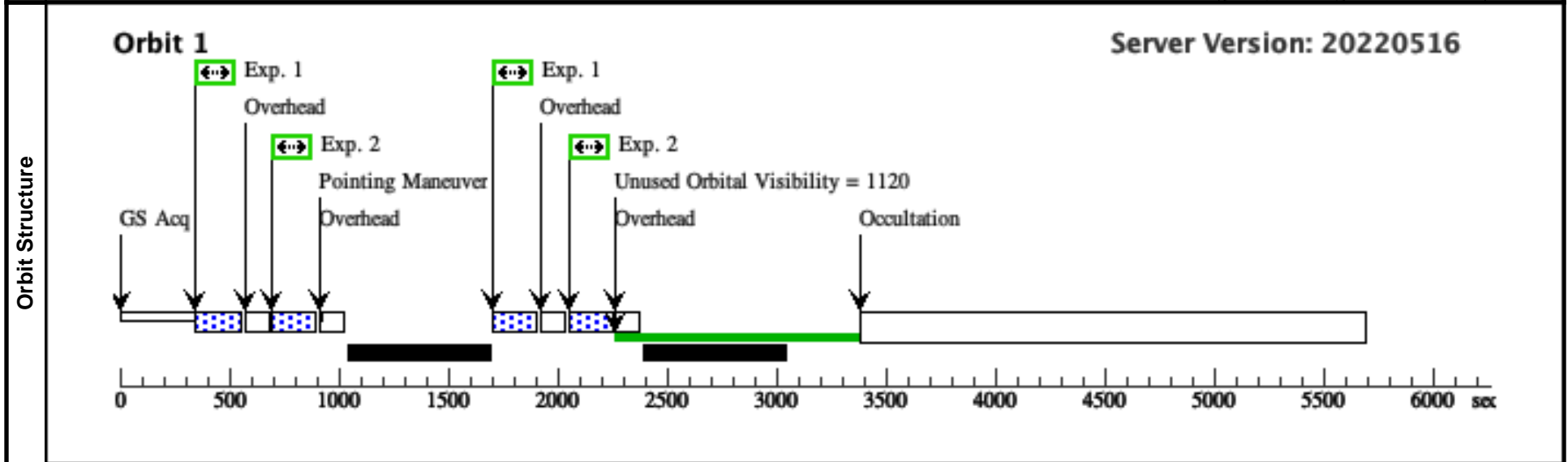
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 02, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	SN1963J-SN1979B-HOST	RA: 11 50 40.8492 (177.6702050d) Dec: +55 21 20.15 (55.35560d) Alt Name1: NGC3913 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN1963J and SN1979B. Category=GALAXY Description=[SPIRAL] Extended=YES</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(2) SN1963J-SN1979B-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 02 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(2) SN1963J-SN1979B-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 02 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

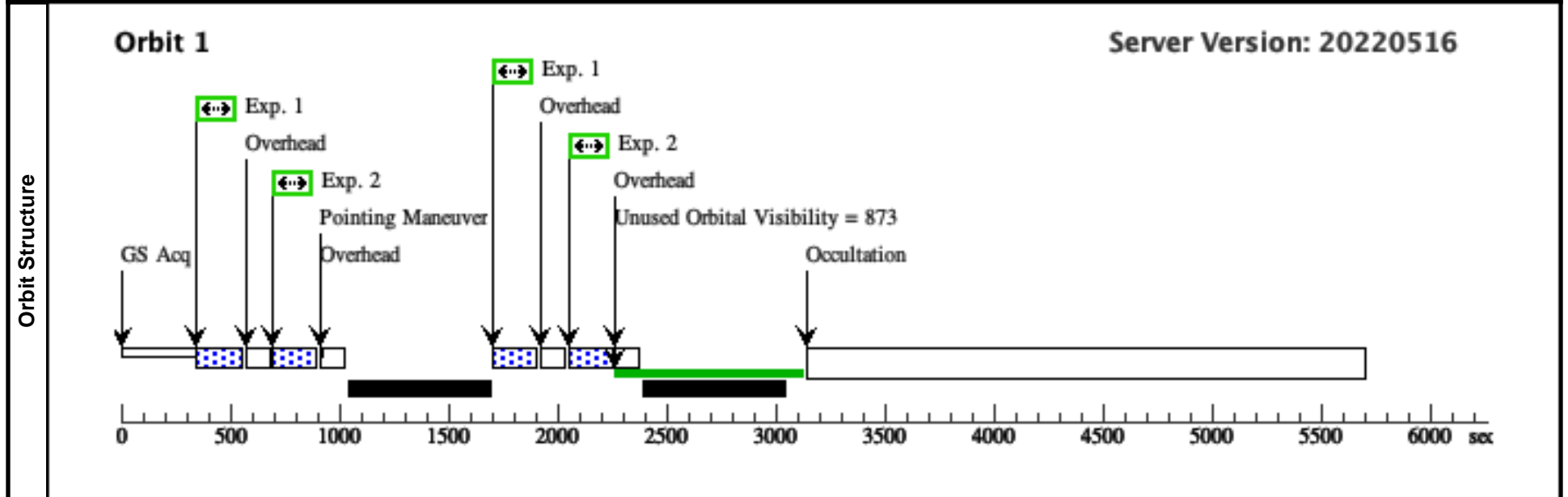


Visit	Proposal 17194, Visit 03, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(3)	SN1939A-HOST	RA: 12 42 48.7001 (190.7029171d)		V=19	Reference Frame: ICRS
		Alt Name1: NGC4636	Dec: +02 41 36.00 (2.69333d)			
			Equinox: J2000			
	<i>Comments: Siblings >100arcseconds apart.</i> <i>Category=GALAXY</i> <i>Description=[ELLIPTICAL]</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(3) SN1939A-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 03 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(3) SN1939A-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 03 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 04 - Local Environments of Low-redshift Type Ia Supernova Siblings

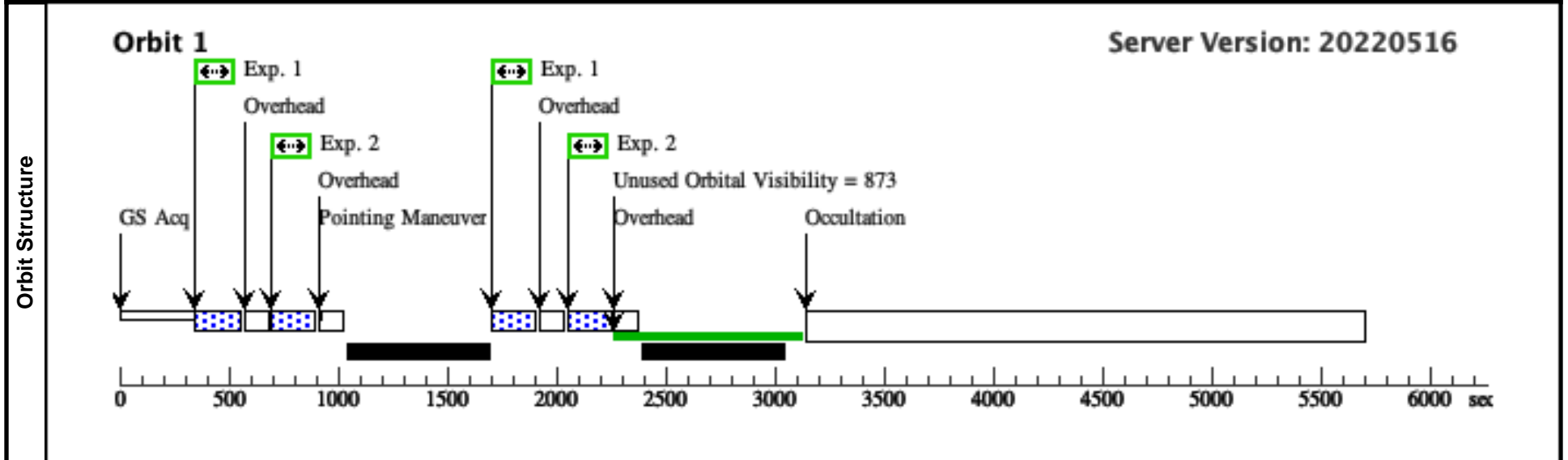
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 04, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing= Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	SN2020UE-HOST	RA: 12 42 46.7801 (190.6949171d)		V=19	Reference Frame: ICRS
		Alt Name1: NGC4636	Dec: +02 39 34.13 (2.65948d)			
			Equinox: J2000			
	<i>Comments: Siblings >100arcseconds apart.</i> <i>Category=GALAXY</i> <i>Description=[ELLIPTICAL]</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(4) SN2020UE-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 04 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(4) SN2020UE-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 04 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 05 - Local Environments of Low-redshift Type Ia Supernova Siblings

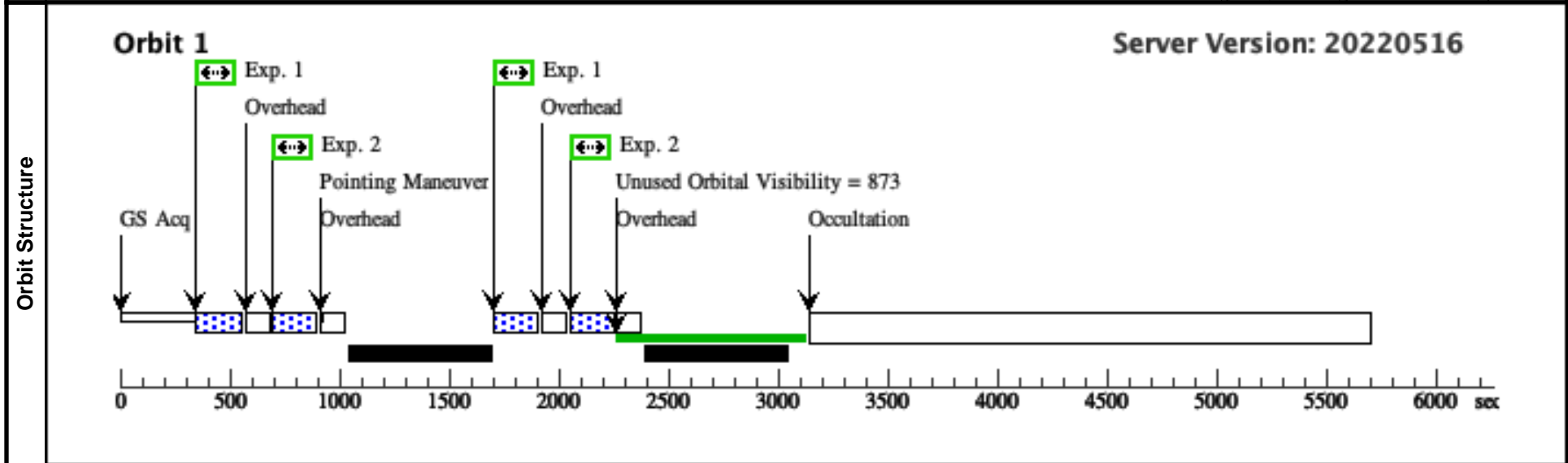
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 05, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(5)	SN1965I-HOST	RA: 12 52 15.4001 (193.0641671d) Dec: -01 10 52.00 (-1.18111d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(5) SN1965I-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 05 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(5) SN1965I-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 05 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 06 - Local Environments of Low-redshift Type Ia Supernova Siblings

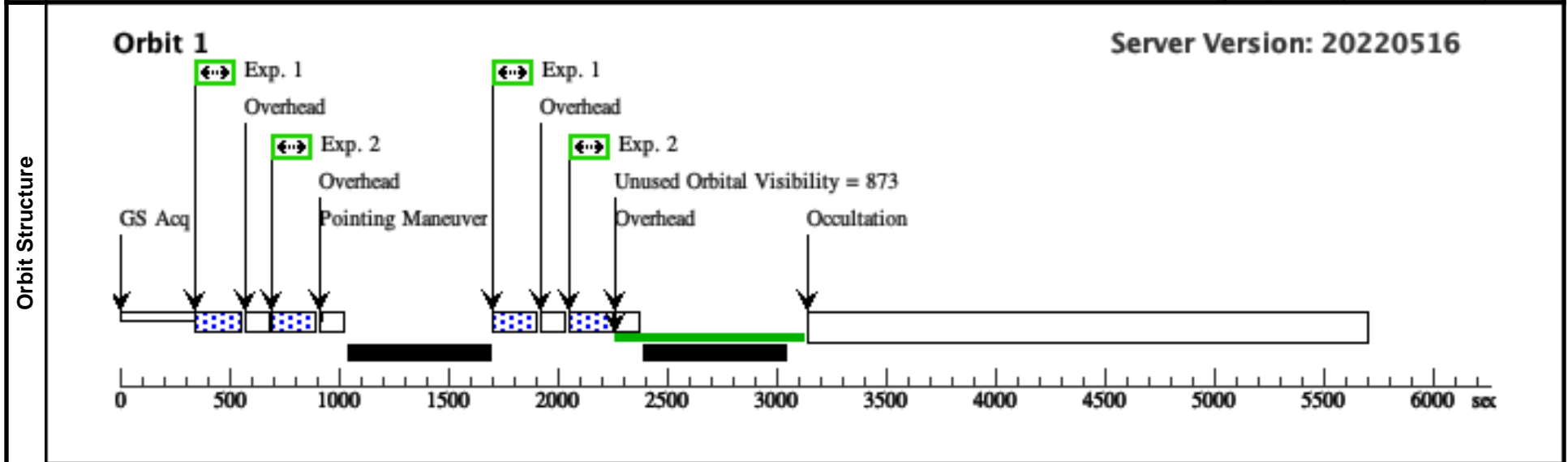
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 06, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(6)	SN1983G-HOST	RA: 12 52 20.9496 (193.0872900d) Dec: -01 12 12.31 (-1.20342d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(6) SN1983G-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 06 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(6) SN1983G-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 06 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 07 - Local Environments of Low-redshift Type Ia Supernova Siblings

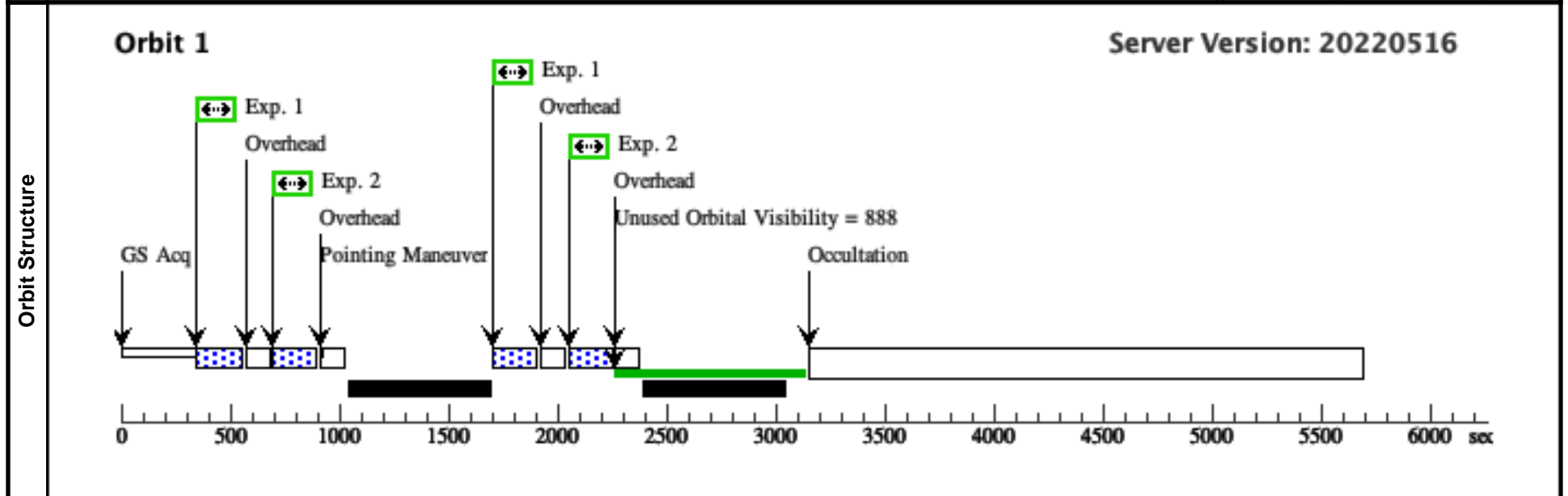
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 07, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(7)	SN2002BO-SN2002CV-HOST	RA: 10 18 5.0952 (154.5212300d) Dec: +21 49 53.85 (21.83162d) Alt Name1: NGC3190 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN2002bo and SN2002cv. Category=GALAXY Description=[SPIRAL] Extended=YES</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(7) SN2002BO-SN2002CV-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 07 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(7) SN2002BO-SN2002CV-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 07 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 08 - Local Environments of Low-redshift Type Ia Supernova Siblings

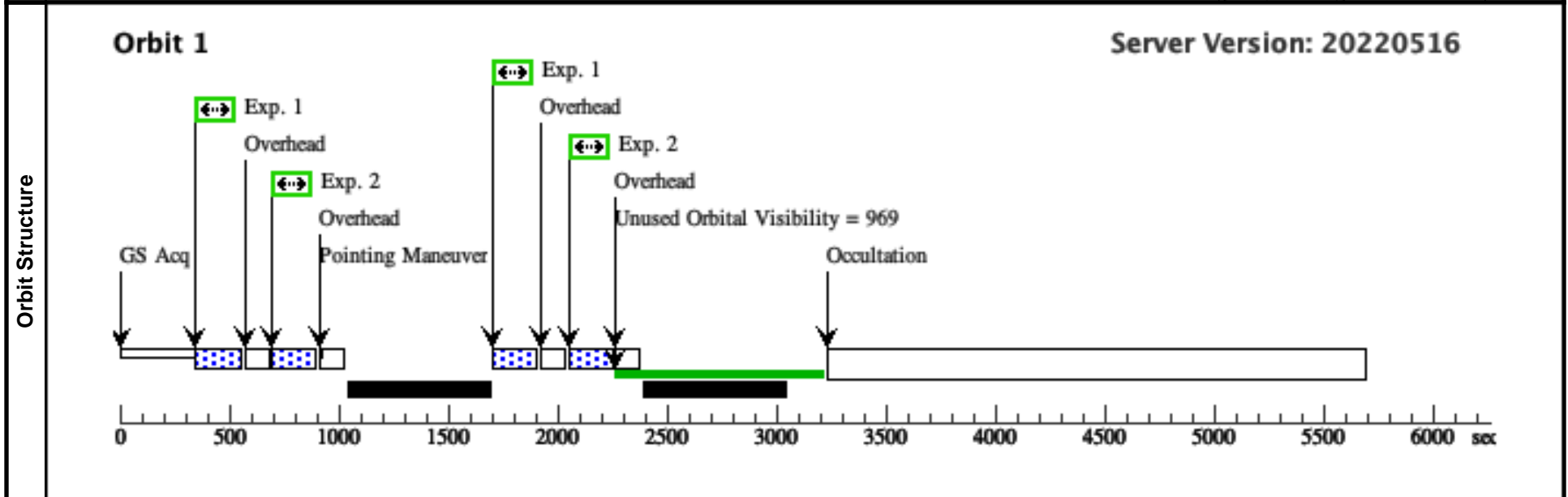
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 08, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	SN2001EL-SN2021PIT-HOST	RA: 03 44 30.4029 (56.1266787d) Dec: -44 38 10.32 (-44.63620d) Alt Name1: NGC1448 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN2001el and SN2021pit. Category=GALAXY Description=[SPIRAL] Extended=YES</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(8) SN2001EL-SN2021PIT-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 08 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(8) SN2001EL-SN2021PIT-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 08 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 09 - Local Environments of Low-redshift Type Ia Supernova Siblings

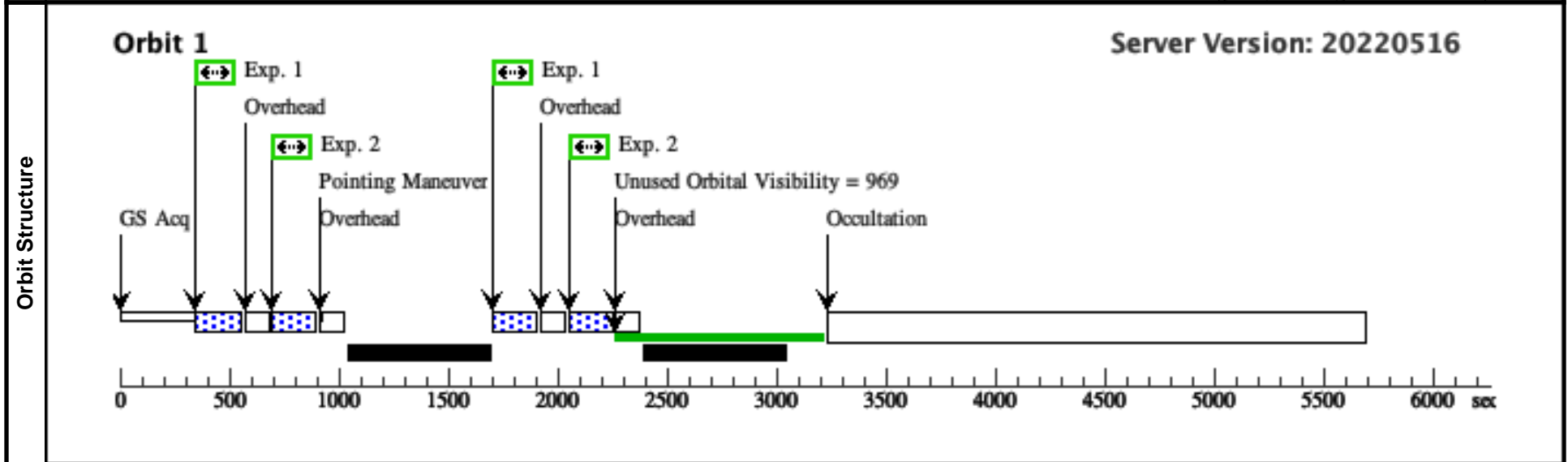
Wed Jul 13 16:02:45 GMT 2022

Visit	Proposal 17194, Visit 09, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(9)	SN2013AA-HOST	RA: 14 32 33.8801 (218.1411671d) Dec: -44 13 27.80 (-44.22439d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(9) SN2013AA-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 09 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(9) SN2013AA-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 09 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 10 - Local Environments of Low-redshift Type Ia Supernova Siblings

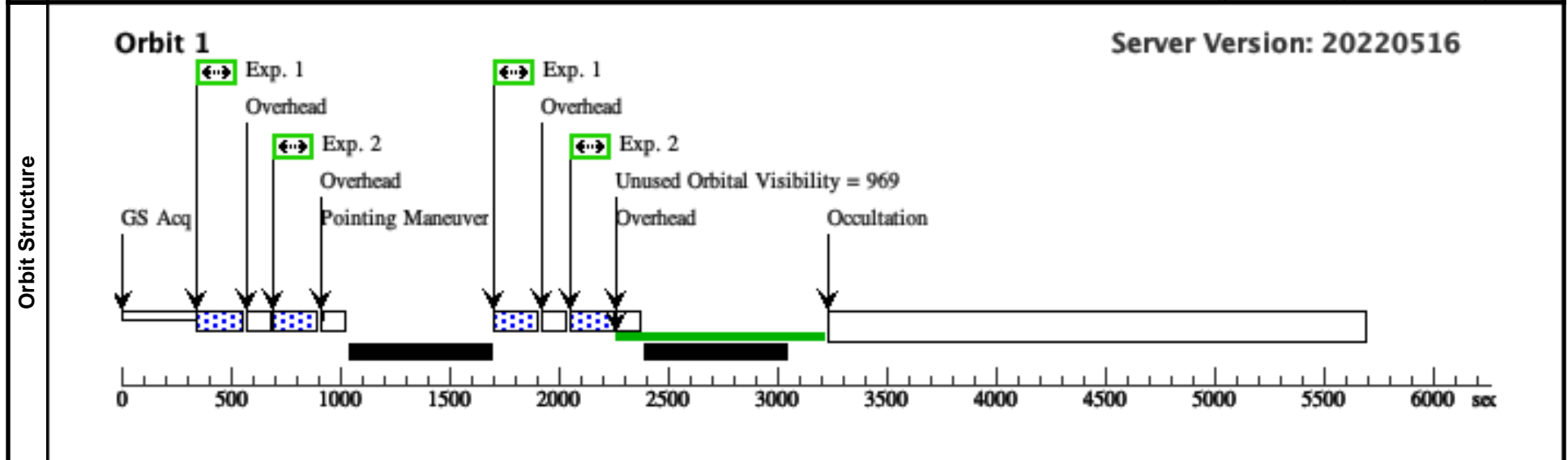
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 10, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(10)	SN2017CBV-HOST	RA: 14 32 34.4201 (218.1434171d) Dec: -44 08 2.74 (-44.13409d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(10) SN2017CBV-H OST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 10 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(10) SN2017CBV-H OST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 10 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 11 - Local Environments of Low-redshift Type Ia Supernova Siblings

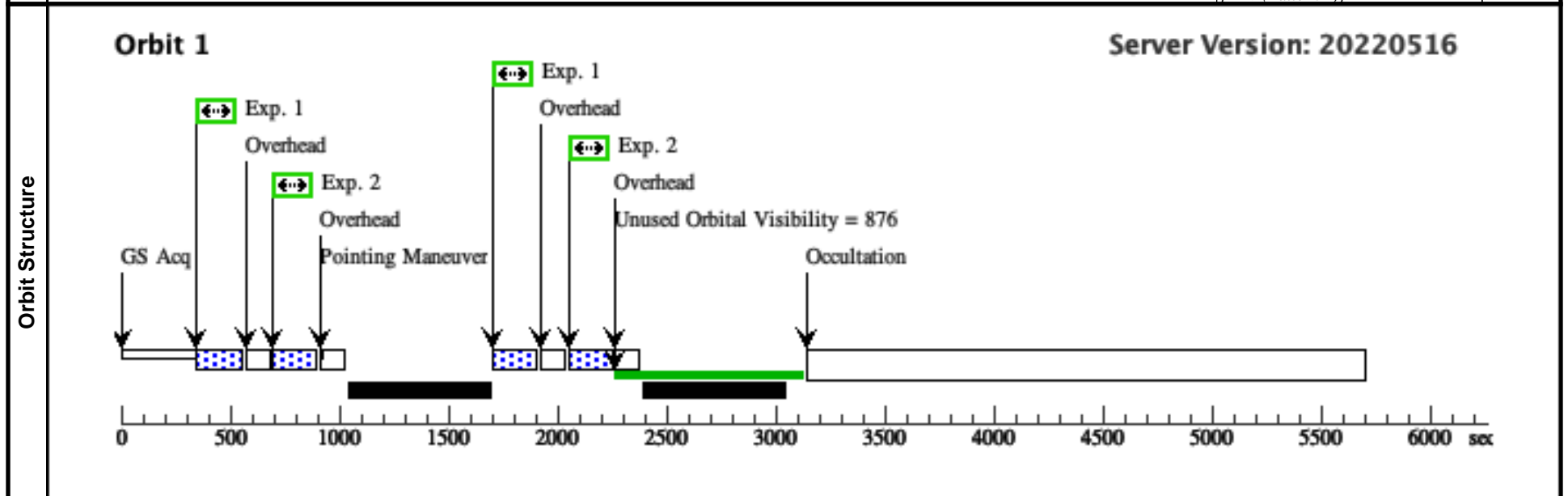
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 11, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(11)	SN1971L-SN2017DRH-HOST	RA: 17 32 26.0800 (263.1086667d) Dec: +07 03 54.69 (7.06519d) Alt Name1: NGC6384 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN1971L and SN2017drh.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(11) SN1971L-SN2017DRH-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 11 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(11) SN1971L-SN2017DRH-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 11 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 12 - Local Environments of Low-redshift Type Ia Supernova Siblings

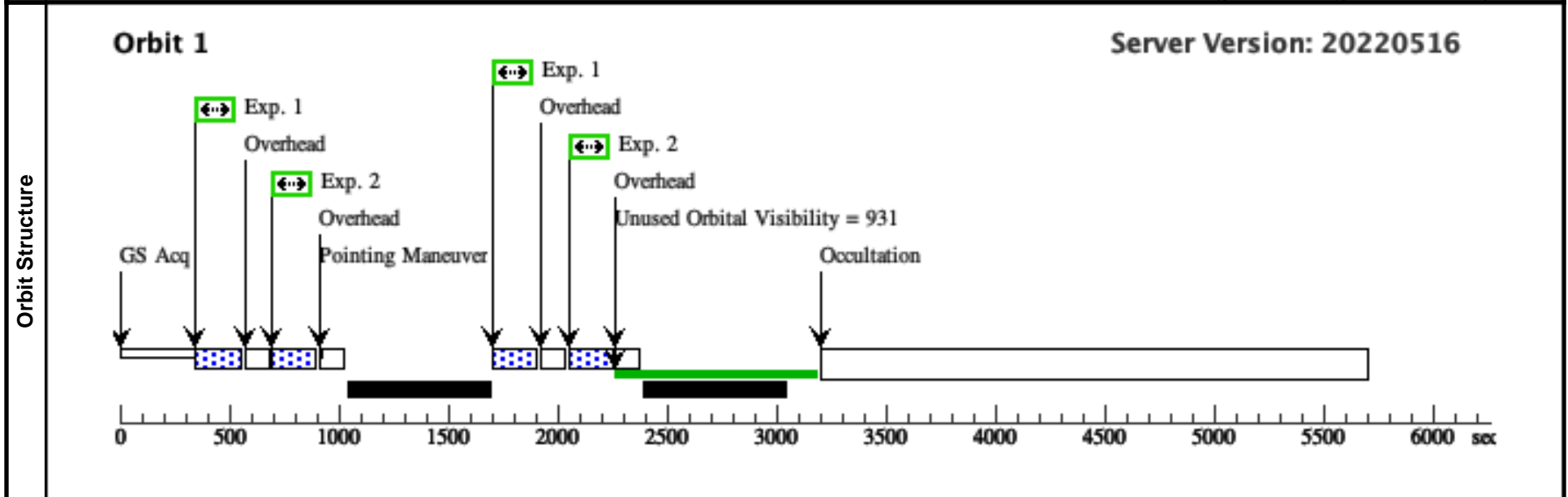
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 12, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(12)	SN1980N-HOST	RA: 03 22 58.9999 (50.7458329d) Dec: -37 12 48.00 (-37.21333d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(12) SN1980N-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 12 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(12) SN1980N-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 12 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 13 - Local Environments of Low-redshift Type Ia Supernova Siblings

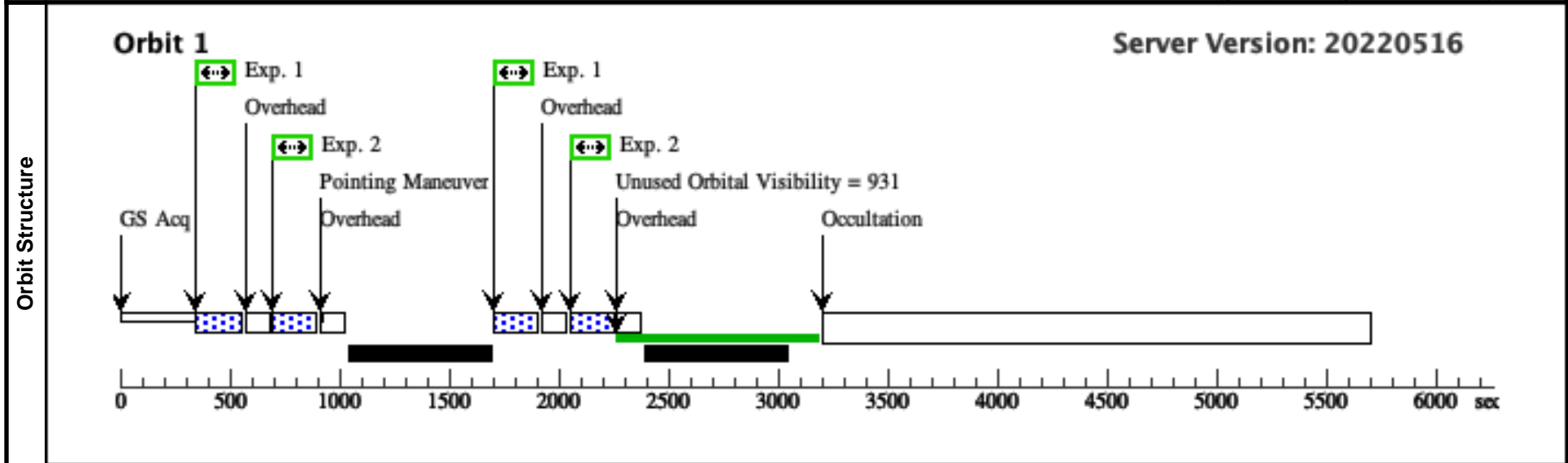
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 13, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(13)	SN1981D-HOST	RA: 03 22 39.0000 (50.6625000d) Dec: -37 14 6.00 (-37.23500d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(13) SN1981D-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 13 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(13) SN1981D-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 13 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 14 - Local Environments of Low-redshift Type Ia Supernova Siblings

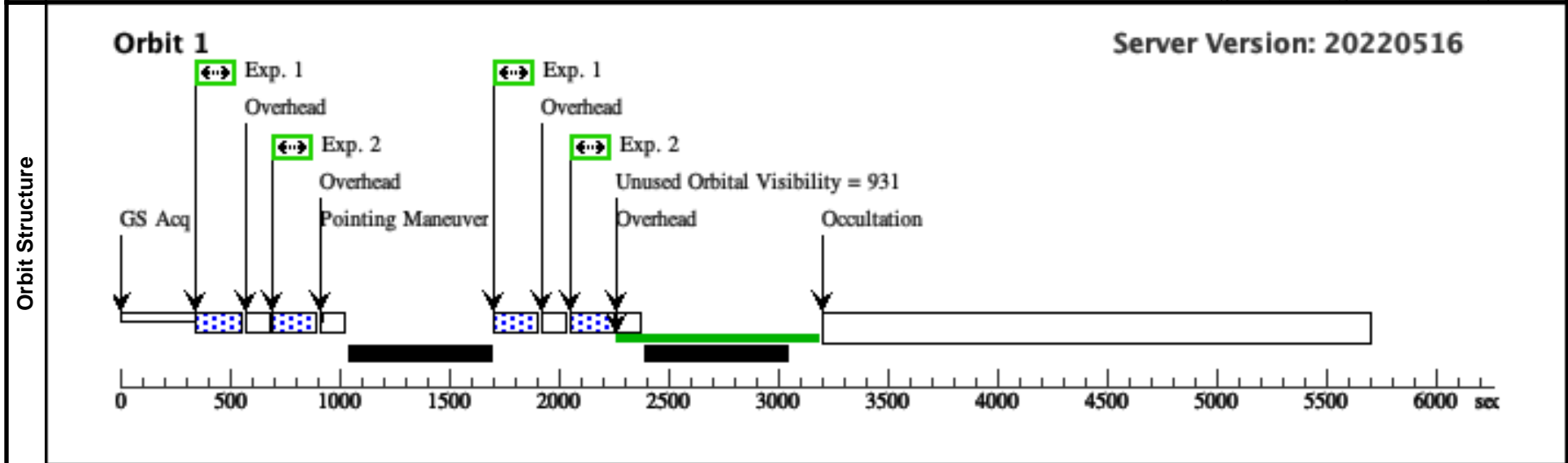
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 14, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(14)	SN2006DD-HOST	RA: 03 22 41.6400 (50.6735000d) Dec: -37 12 13.20 (-37.20367d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Siblings >100arcseconds apart. This pointing will also cover the 91bg-like SN2006mr.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(14) SN2006DD-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 14 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(14) SN2006DD-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 14 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 15 - Local Environments of Low-redshift Type Ia Supernova Siblings

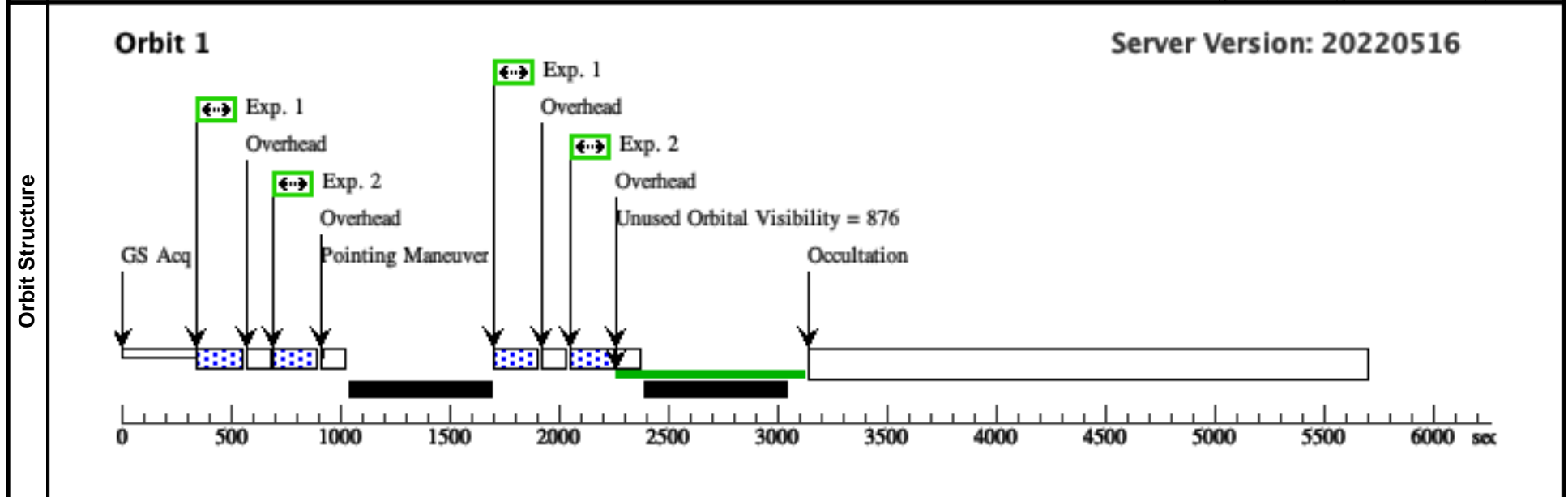
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 15, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(15)	SN2000CX-HOST	RA: 01 24 46.1496 (21.1922900d)		V=19	Reference Frame: ICRS
		Alt Name1: NGC524	Dec: +09 30 30.89 (9.50858d)			
			Equinox: J2000			
		<i>Comments: Siblings >100arcseconds apart.</i>				
		<i>Category=GALAXY</i>				
		<i>Description=[LENTICULAR]</i>				
		<i>Extended=YES</i>				

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(15) SN2000CX-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 15 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	
	2		(15) SN2000CX-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 15 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)]	[1]
									[=>(Pattern 2)]	



Proposal 17194 - Visit 16 - Local Environments of Low-redshift Type Ia Supernova Siblings

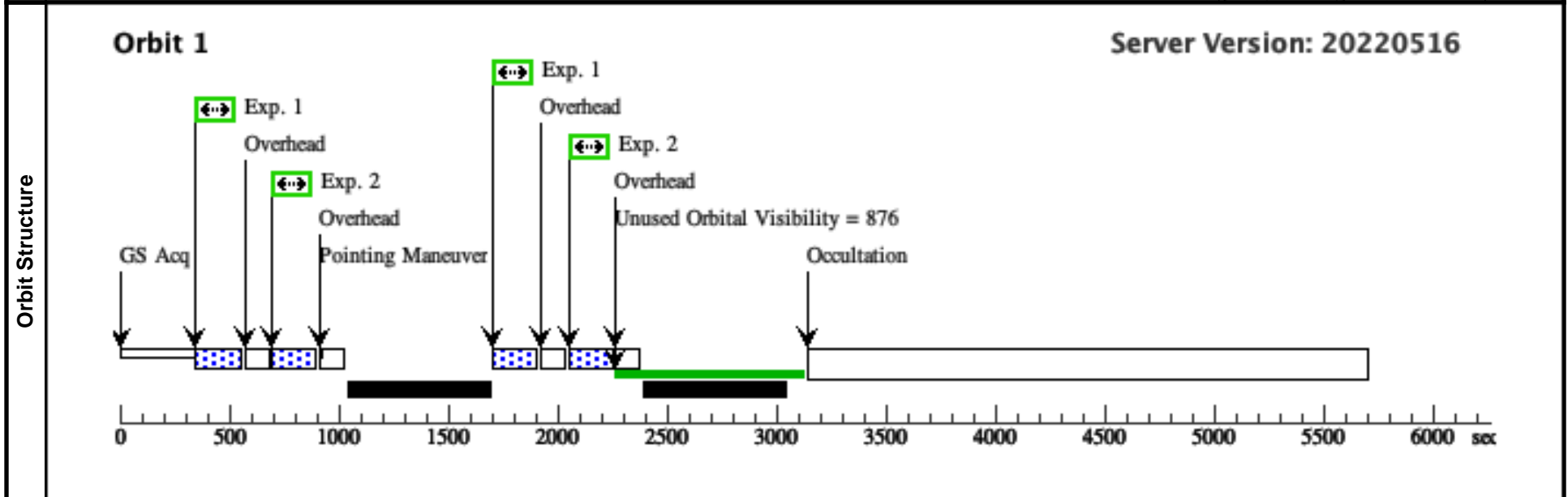
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 16, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true	(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(16)	SN2008Q-HOST	RA: 01 24 57.2304 (21.2384600d)		V=19	Reference Frame: ICRS
		Alt Name1: NGC524	Dec: +09 33 1.51 (9.55042d)			
			Equinox: J2000			
		<i>Comments: Siblings >100arcseconds apart.</i>				
		<i>Category=GALAXY</i>				
		<i>Description=[LENTICULAR]</i>				
		<i>Extended=YES</i>				

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(16) SN2008Q-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 16 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(16) SN2008Q-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 16 (1)	180 Secs (360 Secs)	
		T							[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 17 - Local Environments of Low-redshift Type Ia Supernova Siblings

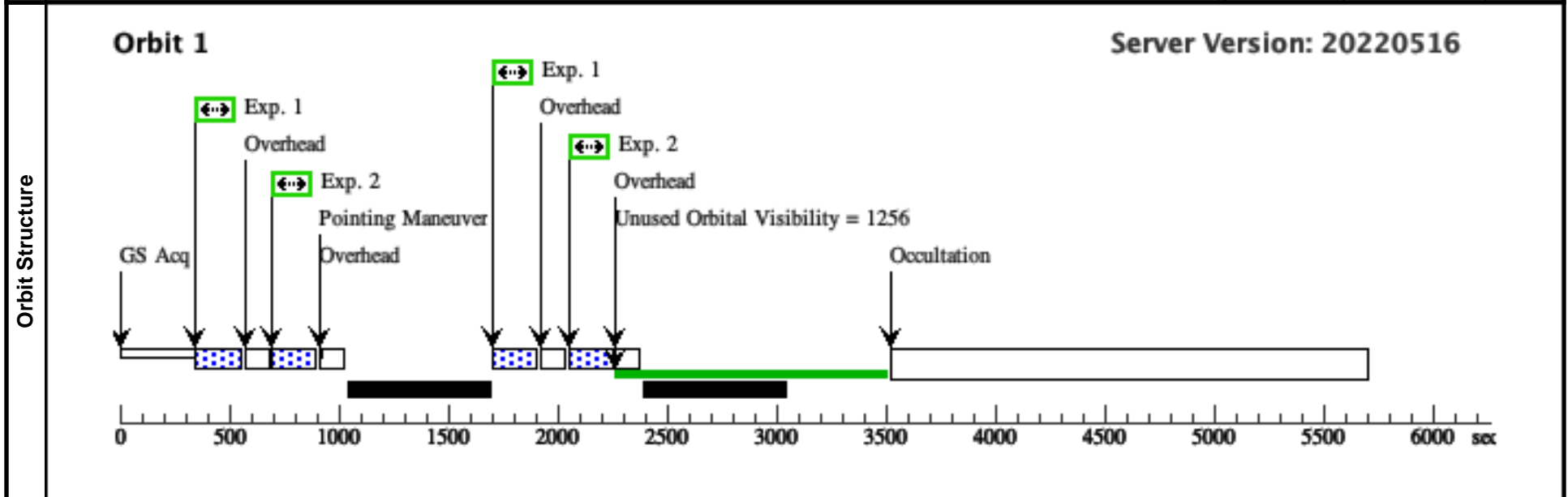
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 17, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(17)	SN1997BQ-SN2008FV-SN2021HPR-H	RA: 10 16 53.7461 (154.2239421d) Dec: +73 23 53.45 (73.39818d) Alt Name1: NGC3147 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for midpoint between the three siblings: SN1997bq, SN2008fv, SN2021hpr.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(17) SN1997BQ-SN2008FV-SN2021HPR-H	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 17 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(17) SN1997BQ-SN2008FV-SN2021HPR-H	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 17 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 18 - Local Environments of Low-redshift Type Ia Supernova Siblings

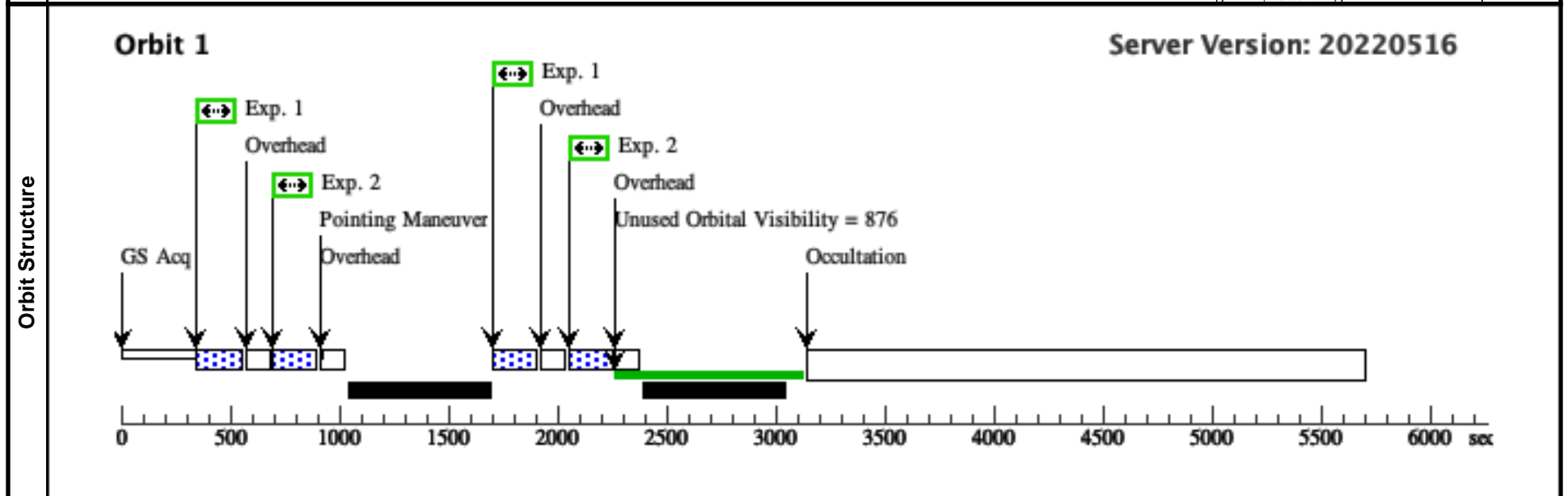
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 18, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true	(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(18)	SN1999CP-SN2002CR-SN2005P-HOST	RA: 14 06 34.3002 (211.6429175d) Dec: -05 26 57.83 (-5.44940d) Alt Name1: NGC5468 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for midpoint between the three siblings: SN1999cp, SN2002cr, SN2005P.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(18) SN1999CP-SN2002CR-SN2005P-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 18 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(18) SN1999CP-SN2002CR-SN2005P-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 18 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 19 - Local Environments of Low-redshift Type Ia Supernova Siblings

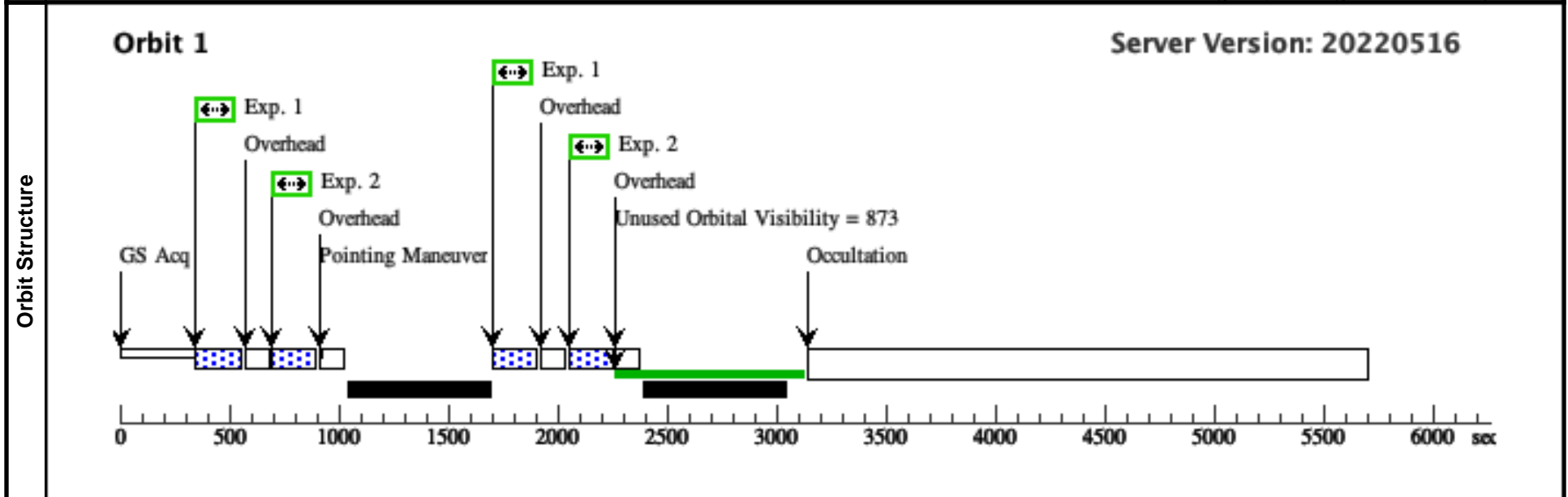
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 19, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(19)	ASASSN13DD-SN2008HV-HOST	RA: 09 07 35.4048 (136.8975200d) Dec: +03 23 35.90 (3.39331d) Alt Name1: NGC2765 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between ASASSN13dd and SN2008hv.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(19) ASASSN13DD-SN2008HV-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 19 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(19) ASASSN13DD-SN2008HV-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 19 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 20 - Local Environments of Low-redshift Type Ia Supernova Siblings

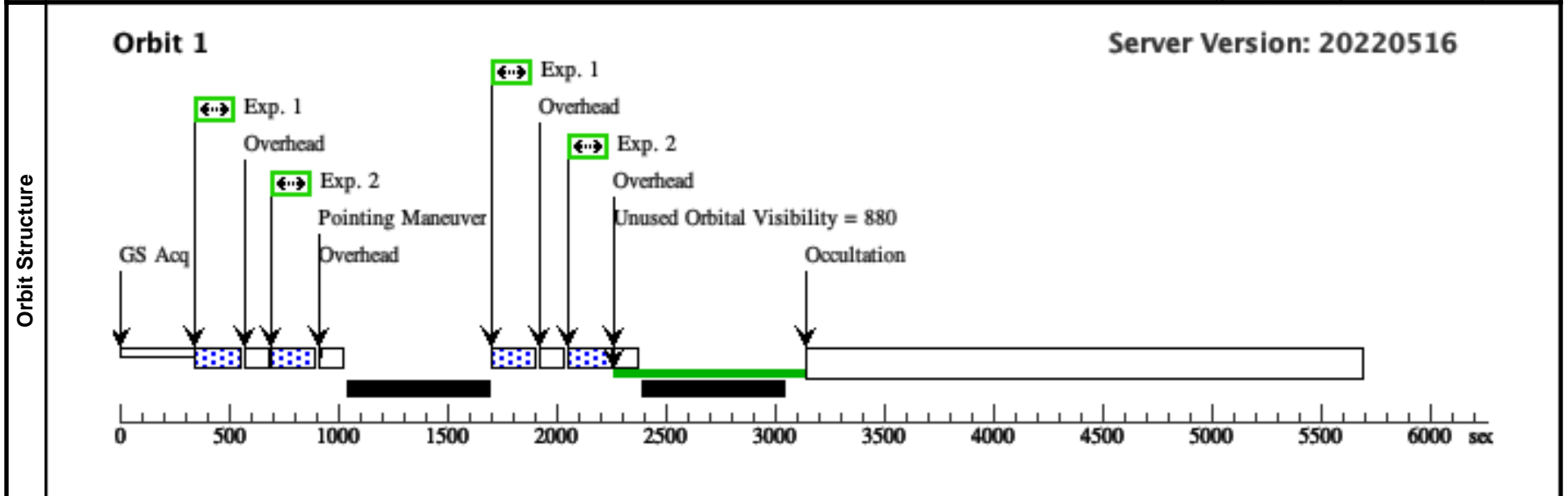
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 20, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(20)	SN2005BO-SN2016CVN-HOST	RA: 12 49 41.1972 (192.4216550d) Dec: -11 05 40.85 (-11.09468d) Alt Name1: NGC4708 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given halfway between SN2005bo and SN2016cvn.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(20) SN2005BO-SN2016CVN-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 20 (1)	180 Secs (360 Secs)	
									[==>(Pattern 1)] [==>(Pattern 2)]	[1]
	2		(20) SN2005BO-SN2016CVN-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 20 (1)	180 Secs (360 Secs)	
									[==>(Pattern 1)] [==>(Pattern 2)]	[1]



Proposal 17194 - Visit 21 - Local Environments of Low-redshift Type Ia Supernova Siblings

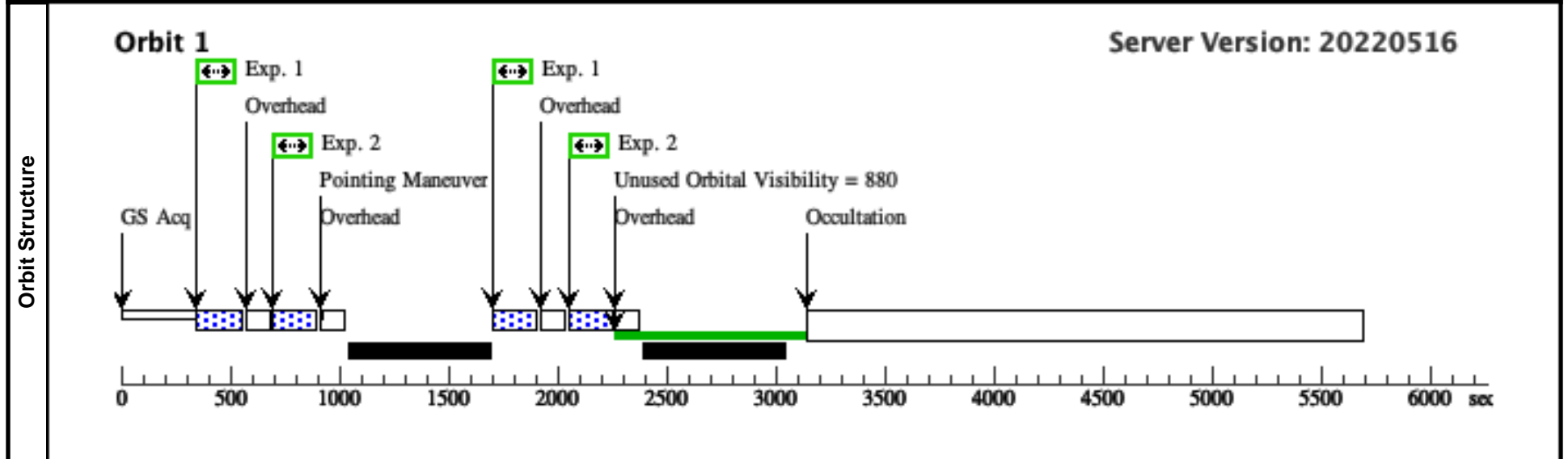
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 21, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true	(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(21)	SN2013FA-PSNJ204353141230304-H	RA: 20 43 53.3550 (310.9723125d) Dec: +12 30 41.05 (12.51140d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN2013fa and PSN J20435314+1230304.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(21) SN2013FA-PSNJ204353141230304-H	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 21 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(21) SN2013FA-PSNJ204353141230304-H	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 21 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 22 - Local Environments of Low-redshift Type Ia Supernova Siblings

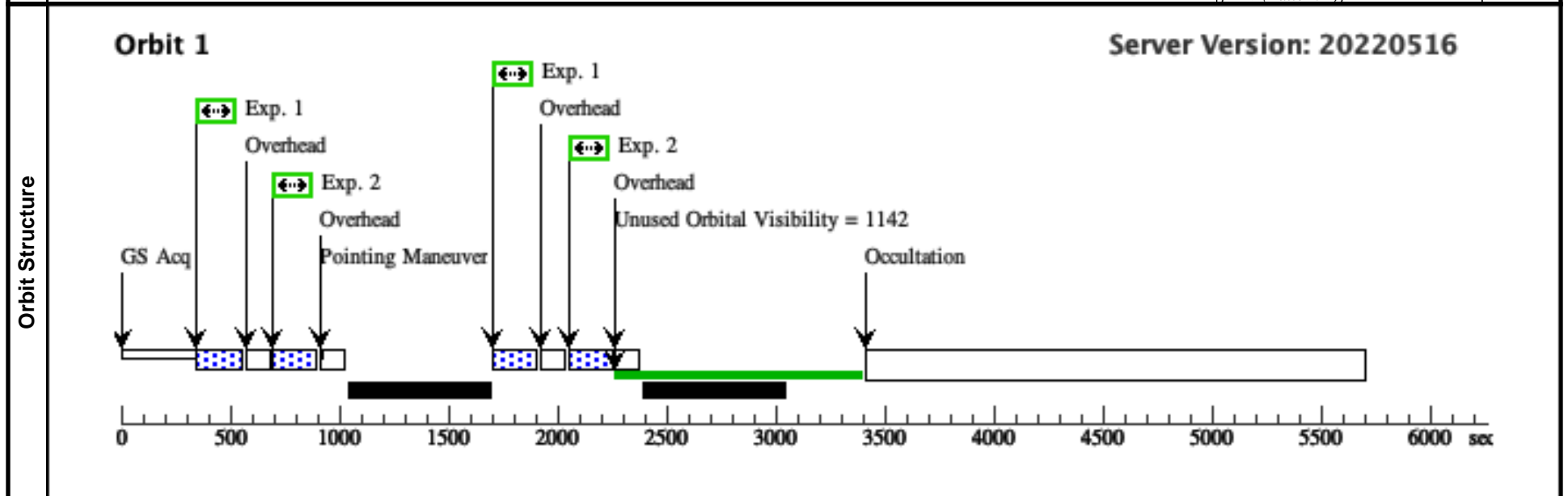
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 22, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(22)	SN2006LE-SN2011M-HOST	RA: 05 00 41.7696 (75.1740400d) Dec: +62 14 58.81 (62.24967d) Alt Name1: UGC3218 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN2006le and SN2011M.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(22) SN2006LE-SN2011M-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 22 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(22) SN2006LE-SN2011M-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 22 (1)	180 Secs (360 Secs)	
									[=>(Pattern 1)] [=>(Pattern 2)]	[1]

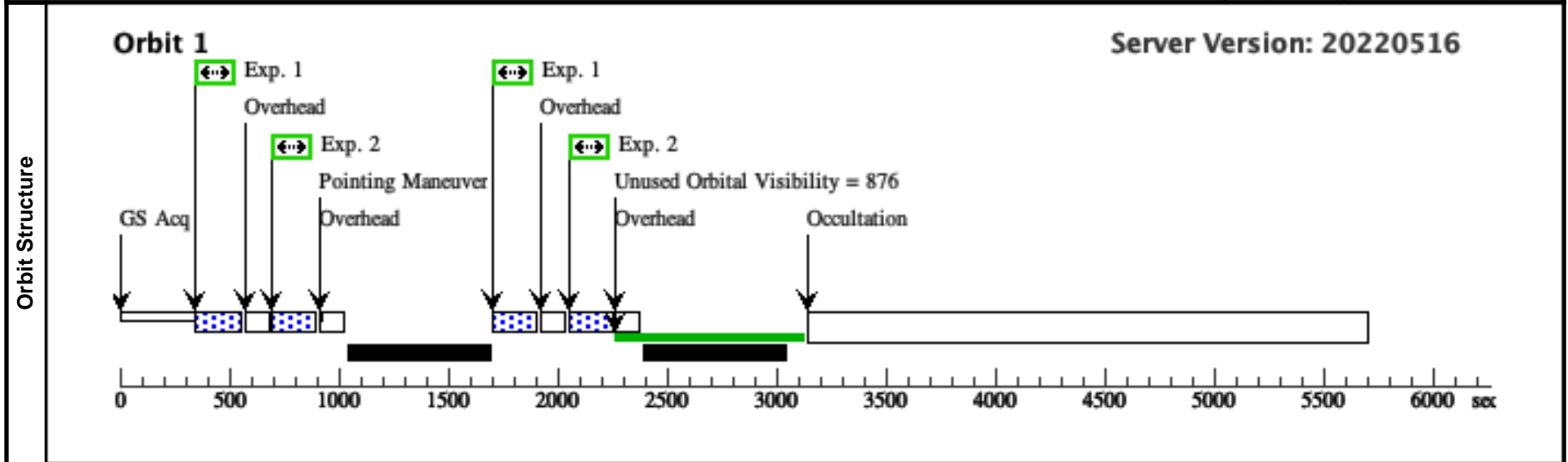


Visit	Proposal 17194, Visit 23, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(23)	SN2001E-SN2009DS-HOST	RA: 11 49 4.5540 (177.2689750d) Dec: -09 43 57.90 (-9.73275d) Alt Name1: NGC3905 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN2001E and SN2009ds. Category=GALAXY Description=[SPIRAL] Extended=YES</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(23) SN2001E-SN2009DS-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 23 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(23) SN2001E-SN2009DS-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 23 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 24 - Local Environments of Low-redshift Type Ia Supernova Siblings

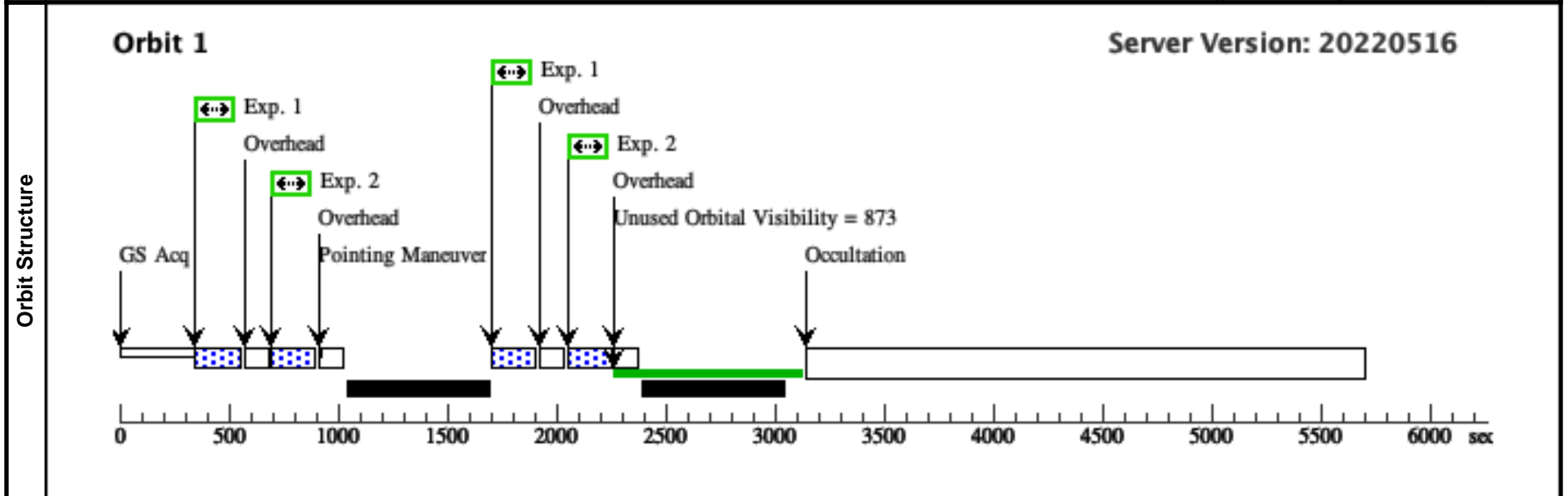
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 24, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(24)	SN1994M-SN2004BR-HOST	RA: 12 31 8.2050 (187.7841875d) Dec: +00 36 33.60 (.60933d) Alt Name1: NGC4493 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN1994M and SN2004br.</i> Category=GALAXY Description=[LENTICULAR] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(24) SN1994M-SN2004BR-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 24 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(24) SN1994M-SN2004BR-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 24 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 25 - Local Environments of Low-redshift Type Ia Supernova Siblings

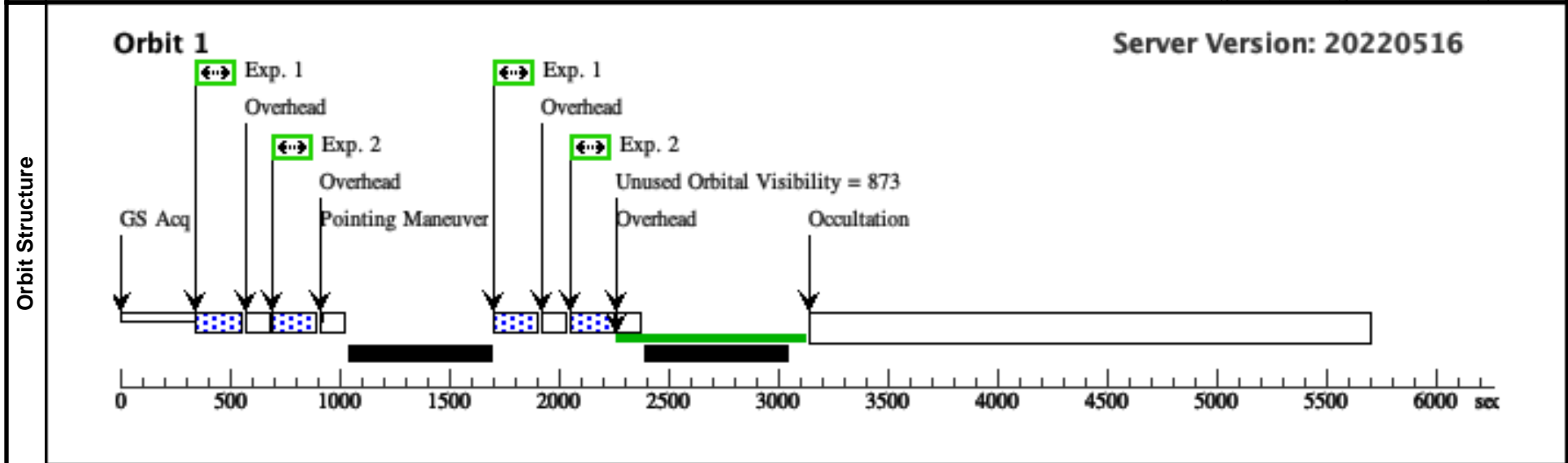
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 25, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(25)	SN2010GP-PS114XW-HOST	RA: 16 52 57.5100 (253.2396250d) Dec: +02 23 26.45 (2.39068d) Alt Name1: NGC6240 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN2010gp and PS1-14xw.</i> Category=GALAXY Description=[INTERACTING GALAXY, ULTRALUMINOUS IR GAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(25) SN2010GP-PS114XW-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 25 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(25) SN2010GP-PS114XW-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 25 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]

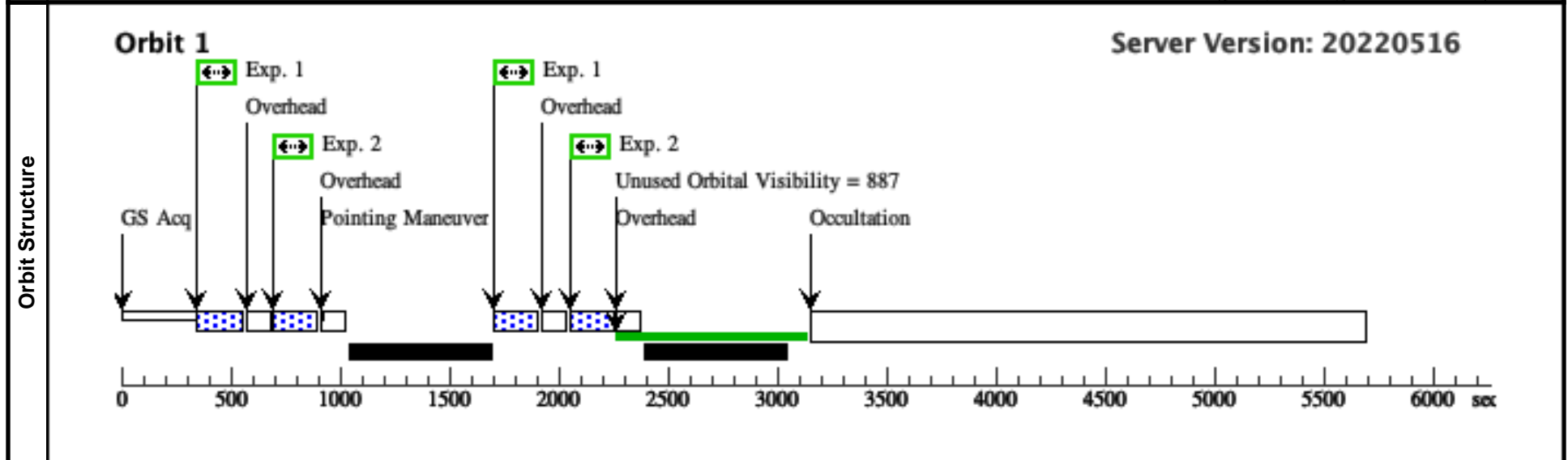


Visit	Proposal 17194, Visit 26, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(26)	SN2001GB- SN2019DFA-HOST	RA: 09 59 0.4050 (149.7516875d) Dec: +17 49 9.89 (17.81941d)		V=19	Reference Frame: ICRS
		Alt Name1: IC582	Equinox: J2000			
	<i>Comments: Coordinates given for halfway between SN2001gb and SN2019dfa.</i> Category=GALAXY Description=[SPIRAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(26) SN2001GB-SN 2019DFA-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 i n Visit 26 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(26) SN2001GB-SN 2019DFA-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 i n Visit 26 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



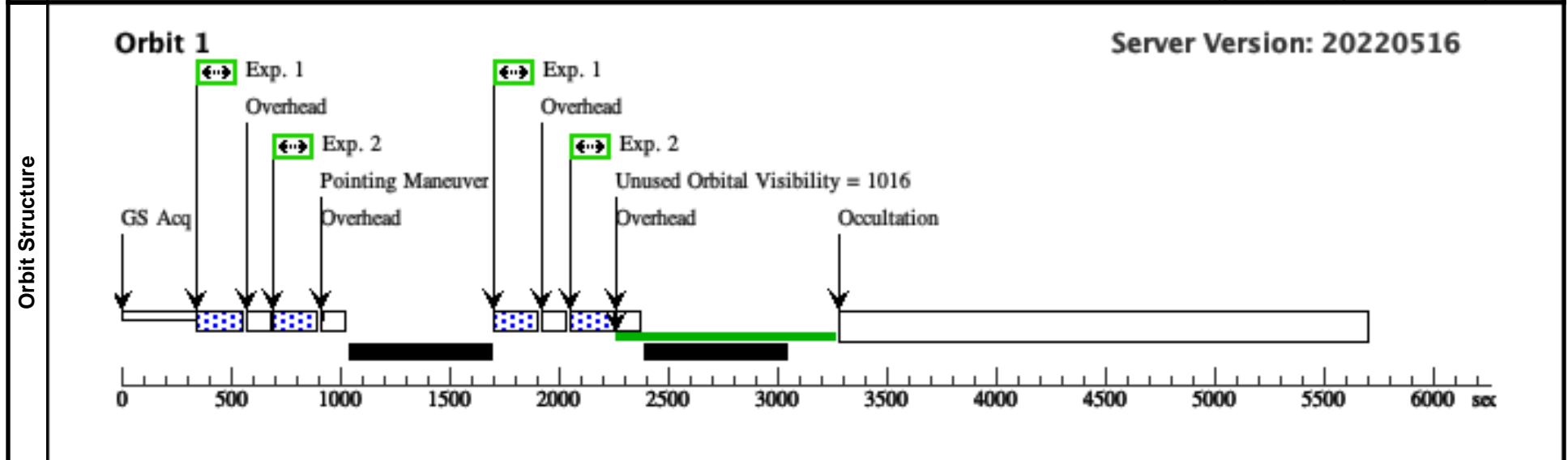
Visit	Proposal 17194, Visit 27, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(27)	SN2007SW-SN2012BH-HOST	RA: 12 13 37.0945 (183.4045604d) Dec: +46 29 18.29 (46.48841d) Alt Name1: UGC7228 Equinox: J2000		V=19	Reference Frame: ICRS

*Comments: Coordinates given for halfway between SN2007sw and SN2012bh.
 Category=GALAXY
 Description=[SPIRAL]
 Extended=YES*

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(27) SN2007SW-SN2012BH-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 27 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
2		(27) SN2007SW-SN2012BH-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 27 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]	



Visit	Proposal 17194, Visit 28, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: (none)									
Patterns	#	Primary Pattern	Secondary Pattern	Exposures						
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(28)	PTF11BUI-PTF11HUB-HOST	RA: 13 12 57.9695 (198.2415396d) Dec: +47 27 26.41 (47.45734d) Alt Name1: CGCG245-033 Equinox: J2000		V=19	Reference Frame: ICRS				
Comments: Coordinates given for halfway between PTF11bui and PTF11hub. Category=GALAXY Description=[SPIRAL] Extended=YES										
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(28) PTF11BUI-PTF11HUB-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 28 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
2		(28) PTF11BUI-PTF11HUB-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 28 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]	
Orbit Structure	<div style="display: flex; justify-content: space-between;"> Orbit 1 Server Version: 20220516 </div> <p>The diagram illustrates the orbit structure for Orbit 1, spanning from 0 to 6000 seconds. Key events and durations are as follows:</p> <ul style="list-style-type: none"> GS Acq: Occurs at approximately 200 seconds. Exp. 1: Two exposures, each 180 seconds long, occurring at approximately 400 and 1800 seconds. Overhead: Periods between exposures and during pointing maneuvers. Exp. 2: Two exposures, each 180 seconds long, occurring at approximately 700 and 2100 seconds. Pointing Maneuver: Occurs between 1000 and 1500 seconds. Unused Orbital Visibility = 1016: A period of 1016 seconds where the target is not visible. Occultation: A long period of non-observation starting at approximately 3300 seconds and ending at 5500 seconds. 									

Proposal 17194 - Visit 29 - Local Environments of Low-redshift Type Ia Supernova Siblings

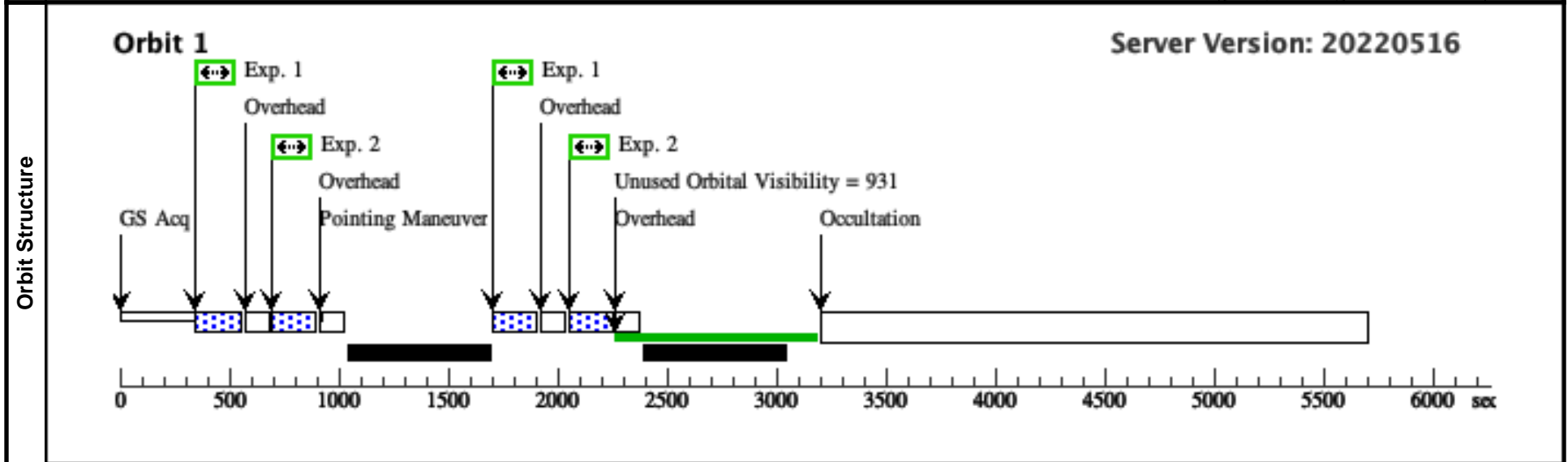
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 29, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(29)	PS15AOT-SN2009EU-HOST	RA: 16 28 39.7440 (247.1656000d) Dec: +39 33 3.85 (39.55107d) Alt Name1: NGC6166 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between PS15aot and SN2009eu.</i> Category=GALAXY Description=[ELLIPTICAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(29) PS15AOT-SN2009EU-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 29 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(29) PS15AOT-SN2009EU-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 29 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 30 - Local Environments of Low-redshift Type Ia Supernova Siblings

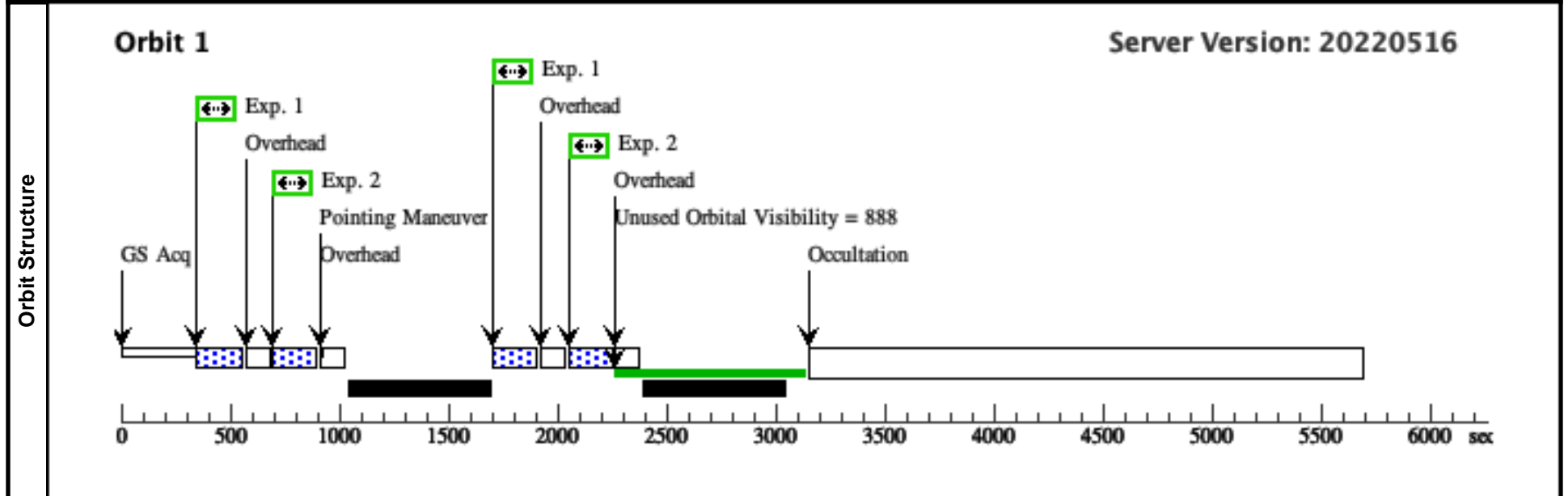
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 30, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(30)	SN2017ETS- SN2020KYX-HOST	RA: 16 13 45.8318 (243.4409658d) Dec: +22 55 6.85 (22.91857d) Alt Name1: CGCG137-064 Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between SN2017ets and SN2020kyx. Category=GALAXY Description=[SPIRAL] Extended=YES</i>					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(30) SN2017ETS-SN 2020KYX-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 30 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(30) SN2017ETS-SN 2020KYX-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 30 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 31 - Local Environments of Low-redshift Type Ia Supernova Siblings

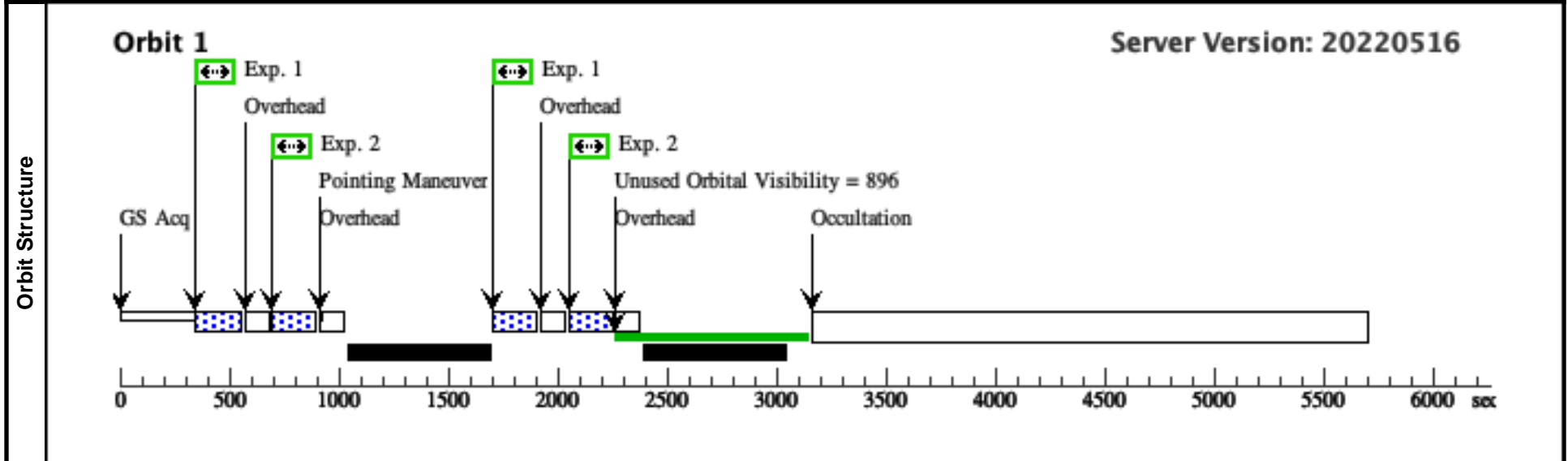
Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 31, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Coordinate Frame=POS-TARG Purpose=MOSAIC Pattern Orientation=85.759 Number Of Points=2 Angle Between Sides= Point Spacing=2.414 Center Pattern=true Line Spacing=		(1-2)

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(31)	SN2020UK- SN2020ROV-HOST Alt Name1: WISEA- J035941.85263519.8 Alt Name2: ZTF20AAESZSM- ZTF20ABUJOYA-HOST	RA: 03 59 41.8036 (59.9241817d) Dec: +26 35 21.28 (26.58924d) Equinox: J2000		V=19	Reference Frame: ICRS
	<i>Comments: Coordinates given for halfway between ZTF20aaeszm and ZTF20abujoya (SN2020uk and SN2020rov).</i> Category=GALAXY Description=[ELLIPTICAL] Extended=YES					

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(31) SN2020UK-SN 2020ROV-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 31 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
	2		(31) SN2020UK-SN 2020ROV-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 31 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]



Proposal 17194 - Visit 32 - Local Environments of Low-redshift Type Ia Supernova Siblings

Wed Jul 13 16:02:46 GMT 2022

Visit	Proposal 17194, Visit 32, implementation		
	Diagnostic Status: No Diagnostics		
	Scientific Instruments: WFC3/UVIS		
	Special Requirements: (none)		

Patterns	#	Primary Pattern	Secondary Pattern	Exposures
	(1)	Pattern Type=WFC3-UVIS-GAP-LINE Purpose=MOSAIC Number Of Points=2 Point Spacing=2.414 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.759 Angle Between Sides= Center Pattern=true	

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(32)	SN2011IV-SN2007ON-HOST	RA: 03 38 51.1248 (54.7130200d) Dec: -35 35 1.00 (-35.58361d) Alt Name1: NGC1404 Equinox: J2000		V=19	Reference Frame: ICRS

*Comments: Coordinates given for halfway between SN2011iv and SN2007on.
Category=GALAXY
Description=[ELLIPTICAL]
Extended=YES*

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1		(32) SN2011IV-SN2007ON-HOST	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=16		Pattern 1, Exps 1-2 in Visit 32 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]
2		(32) SN2011IV-SN2007ON-HOST	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=12		Pattern 1, Exps 1-2 in Visit 32 (1)	180 Secs (360 Secs) [=>(Pattern 1)] [=>(Pattern 2)]	[1]	

