16024 - Continuing a Snapshot Survey of the Sites of Recent, Nearby Supernovae: Cycles 25 & 26

Cycle: 26, Proposal Category: SNAP

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(6) SN1998S	WFC3/UVIS	1	11-Oct-2019 14:02:25.0	yes
08	(8) SN2012AW	WFC3/UVIS	1	11-Oct-2019 14:02:26.0	yes
09	(9) SN2016BAU	WFC3/UVIS	1	11-Oct-2019 14:02:26.0	yes
11	(11) SN2000CH	WFC3/UVIS	1	11-Oct-2019 14:02:27.0	yes
18	(18) MOTJ1204+2659	WFC3/UVIS	1	11-Oct-2019 14:02:28.0	yes
19	(19) SN2012FH	WFC3/UVIS	1	11-Oct-2019 14:02:28.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
20	(20) SN2016BKV	WFC3/UVIS	1	11-Oct-2019 14:02:29.0	yes
22	(22) SN2014DT	WFC3/UVIS	1	11-Oct-2019 14:02:30.0	yes
23	(23) SN2013DF	WFC3/UVIS	1	11-Oct-2019 14:02:30.0	yes
27	(27) SN2008BK	WFC3/UVIS	1	11-Oct-2019 14:02:31.0	yes
28	(28) NGC4559-OT	WFC3/UVIS	1	11-Oct-2019 14:02:32.0	yes
29	(29) SN2016AQT	WFC3/UVIS	1	11-Oct-2019 14:02:32.0	yes
30	(30) SN2015AP	WFC3/UVIS	1	11-Oct-2019 14:02:33.0	yes
31	(31) SN2015AH	WFC3/UVIS	1	11-Oct-2019 14:02:33.0	yes
32	(32) SN2016COK	WFC3/UVIS	1	11-Oct-2019 14:02:34.0	yes
33	(33) SN2016B	WFC3/UVIS	1	11-Oct-2019 14:02:35.0	yes
34	(34) SN2006X	WFC3/UVIS	1	11-Oct-2019 14:02:35.0	yes
35	(35) NGC5775-OT	WFC3/UVIS	1	11-Oct-2019 14:02:36.0	yes
36	(36) SN2006TF	WFC3/UVIS	1	11-Oct-2019 14:02:36.0	yes
38	(38) SN2011DH	WFC3/UVIS	1	11-Oct-2019 14:02:37.0	yes
47	(47) SN2012Z	WFC3/UVIS	1	11-Oct-2019 14:02:38.0	yes
48	(48) SN2017EIN	WFC3/UVIS	1	11-Oct-2019 14:02:38.0	yes
52	(52) SN2012A	WFC3/UVIS	1	11-Oct-2019 14:02:39.0	yes
56	(56) ASASSN-14DQ	WFC3/UVIS	1	11-Oct-2019 14:02:39.0	yes
62	(62) SN1988Z	WFC3/UVIS	1	11-Oct-2019 14:02:40.0	yes
63	(63) SN1991T	WFC3/UVIS	1	11-Oct-2019 14:02:40.0	yes
65	(65) SN2016BDU	WFC3/UVIS	1	11-Oct-2019 14:02:41.0	yes
59	(59) SN2013DZ	WFC3/UVIS	1	11-Oct-2019 14:02:42.0	yes
60	(60) PTF14BDN	WFC3/UVIS	1	11-Oct-2019 14:02:42.0	yes

29 Total Orbits Used

ABSTRACT

During the past two decades, robotic (or highly automated) searches for supernovae (SNe), including our Lick Observatory Supernova Search (LOSS), have found over 1000 SNe, many of them in quite nearby galaxies (cz < 4000 km/s). Most of the objects were discovered before maximum brightness, and have follow-up photometry and spectroscopy; they include some of the best-studied SNe to date. We propose to continue our successful program of imaging the sites of some of these nearby objects, to obtain late-time photometry that will help reveal the origin of their lingering energy. We will also search for possible stellar remnants of Type Iax SNe, an intriguing new possibility. Moreover, the images will provide high-resolution information on the local environments of SNe that are far superior to what we can procure from the ground. For example, we will obtain color-magnitude diagrams of stars in these SN sites, to constrain the reddening and SN progenitor masses. We will search for light echoes around SNe, an important clue to their progenitor systems. We also propose to image some "SN impostors" -- faint SNe IIn with massive progenitors -- to verify whether they are indeed superoutbursts of luminous blue variables and survived the explosions, or a new/weak class of massive-star explosions. Our proposed snapshots in Cycles 25 and 26 will complement and extend the set of targets we imaged in previous Cycles under this program.

OBSERVING DESCRIPTION

We wish to obtain WFC3 images of the sites of nearby, recent SNe discovered or monitored by LOSS. Most of the objects are core-collapse SNe, which have massive, short-lived progenitors (making it also possible to study individual stars in their local environment), but several SNe Ia will also be imaged to obtain late-time measurements in crowded environments and provide statistics on light echoes. The use of standard wide bands will permit direct comparisons with other HST observations. Although there are tradeoffs, we feel that WFC3 is superior to ACS for our purposes, due to its higher resolution and, more importantly, shorter overhead time for the relatively brief snapshot visits. Note that a substantial part of the host galaxies of the SNe will be imaged with WFC3, and the data can be used for many other studies, such as galaxy morphology, stellar populations, variable stars, star clusters, H II regions, and the search for future SN progenitors. We will adjust the pointing coordinates of the telescope to make sure the SN sites and the maximum portion of their host galaxies are imaged.

Accurate astrometry will generally be needed in order to locate the faint SN in its environment. This requires imposing an independent reference grid onto the WFC3 image, using stars that have been measured in deep, ground-based images and tied to the USNO B1 systems. We have access to telescopes at the Lick, Palomar, CFHT, Gemini, Magellan, and Keck Observatories, where we have been obtaining such images of each SN field. We have verified in previous studies that the number of stars typically visible in the HST and ground-based images is sufficient for our purposes.

Given our desire to go fairly deep, and the advantage of having some color information for SNe (and their environments), the use of at least two filters is deemed necessary, and we choose F555W (V) and F814W (I) filters for our proposed visits. The F814W filter is sensitive to massive, evolved stars in the neighborhood of core-collapse SNe, and provides constraints on the possible circumstellar material interaction and dust formation around SNe, while the F555W filter provides color information for the SNe and the stellar content of the environment, and is also more sensitive to possible light echoes. The CR-SPLIT exposures will be dithered, as requested (Call for Proposals, Sec. 4.1.7), to improve data quality. As in previous cycles, we have substituted a number of other WFC3-UVIS broadband filters in the cases of a subset of targets to provide improved measurements tailored for each object, or to provide continuity with early time ground-based photometry.

For a single visit to be ~35 minutes long (the peak of the distribution of snapshot visits has historically been around 30-35 minutes, according to the HST Snapshot document at http://www.stsci.edu/hst/HST overview/documents/), there can be only one filter change and only one CR-SPLIT pair of WFC3 exposures through each filter. Due to a severe overhead of 5.8 min for any short (< 339 s) exposures among the first three exposures in a visit, we design a visit with the first pair of exposures having 390 s integration each, while the second pair of exposures have 390 s and 320 s integrations (the last short exposure does not impose the 5.8 min overhead penalty). This yields a total visit time of 2380 s = 37.66 minutes.
We have verified with existing HST data that uneven integration times (by a factor of 2) in a dithered CR-SPLIT exposure do not pose problems for cosmic-ray removal. The long pair of exposures (totalling 680 s) is used for the F814W filter because it has less sensitivity than the F555W filter. We have chosen 65 nearby SNe/SN impostors as the superset of targets for our snapshot study. We concentrate on the most recent ones (which have the highest probability of being detected in the HST images), as well as on long-lived SNe (as judged from their continually updated ground-based light curves).

Our total request is 65 snapshots in 65 visits (at about 37 minutes per visit). Each visit will target one SN with the F555W and F814W filters (or additional broadband WFC3 UVIS filters).

Visit

Proposal 16024, SN1998S (06), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

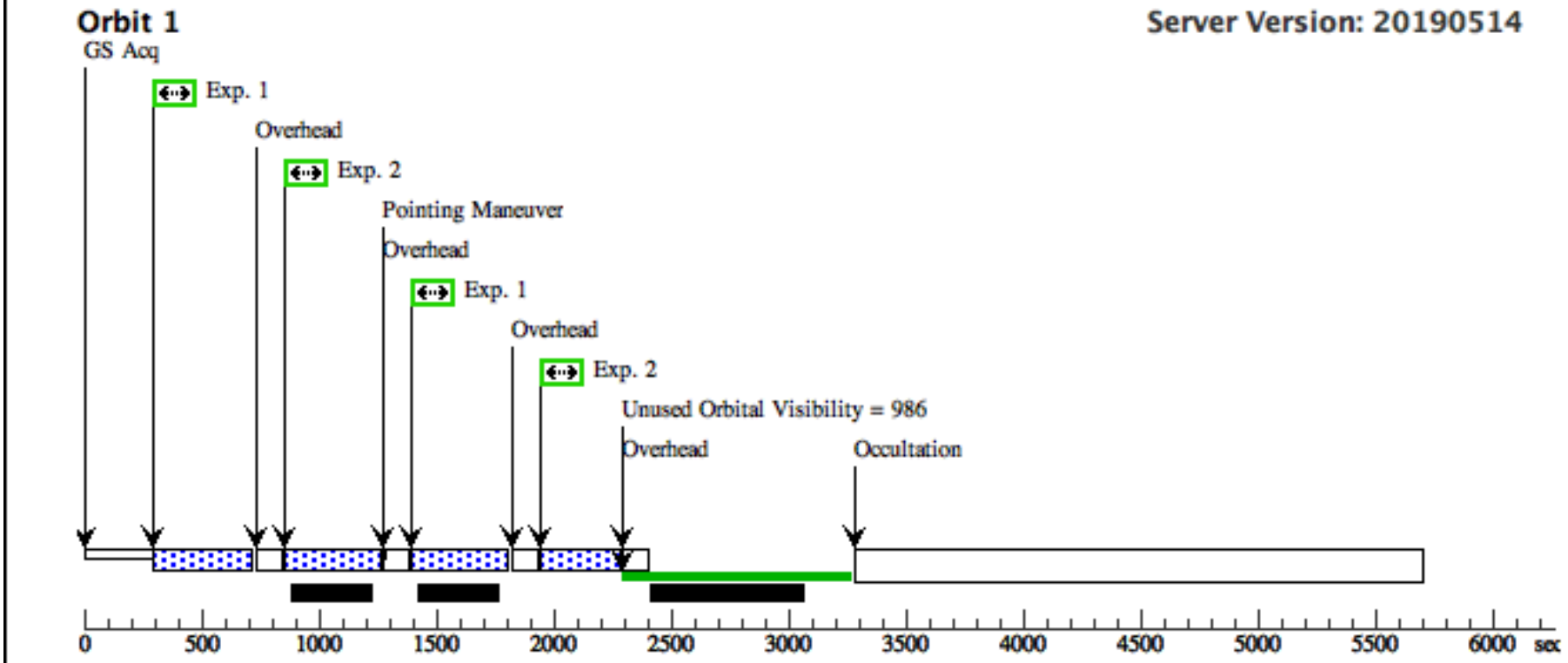
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	SN1998S	RA: 11 46 6.1800 (176.5257500d) Dec: +47 28 55.50 (47.48208d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(6) SN1998S	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN1998S (06) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F625W	(6) SN1998S	WFC3/UVIS, ACCUM, UVIS	F625W	FLASH=4		Pattern 1, Exps 1-2 in SN1998S (06) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, SN2012aw (08), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

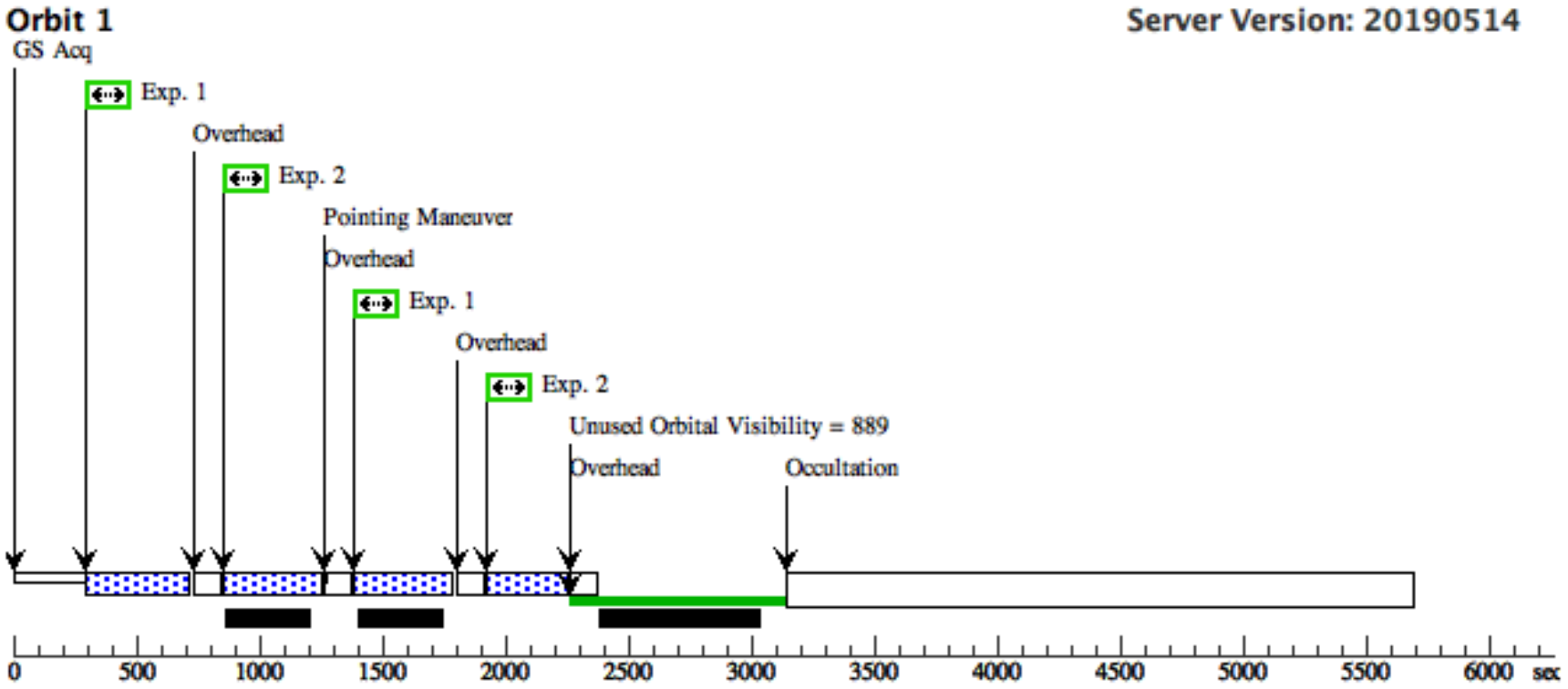
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	SN2012AW	RA: 10 43 53.7600 (160.9740000d) Dec: +11 40 17.90 (11.67164d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(8) SN2012AW	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2012aw (08) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(8) SN2012AW	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2012aw (08) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2016bau (09), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

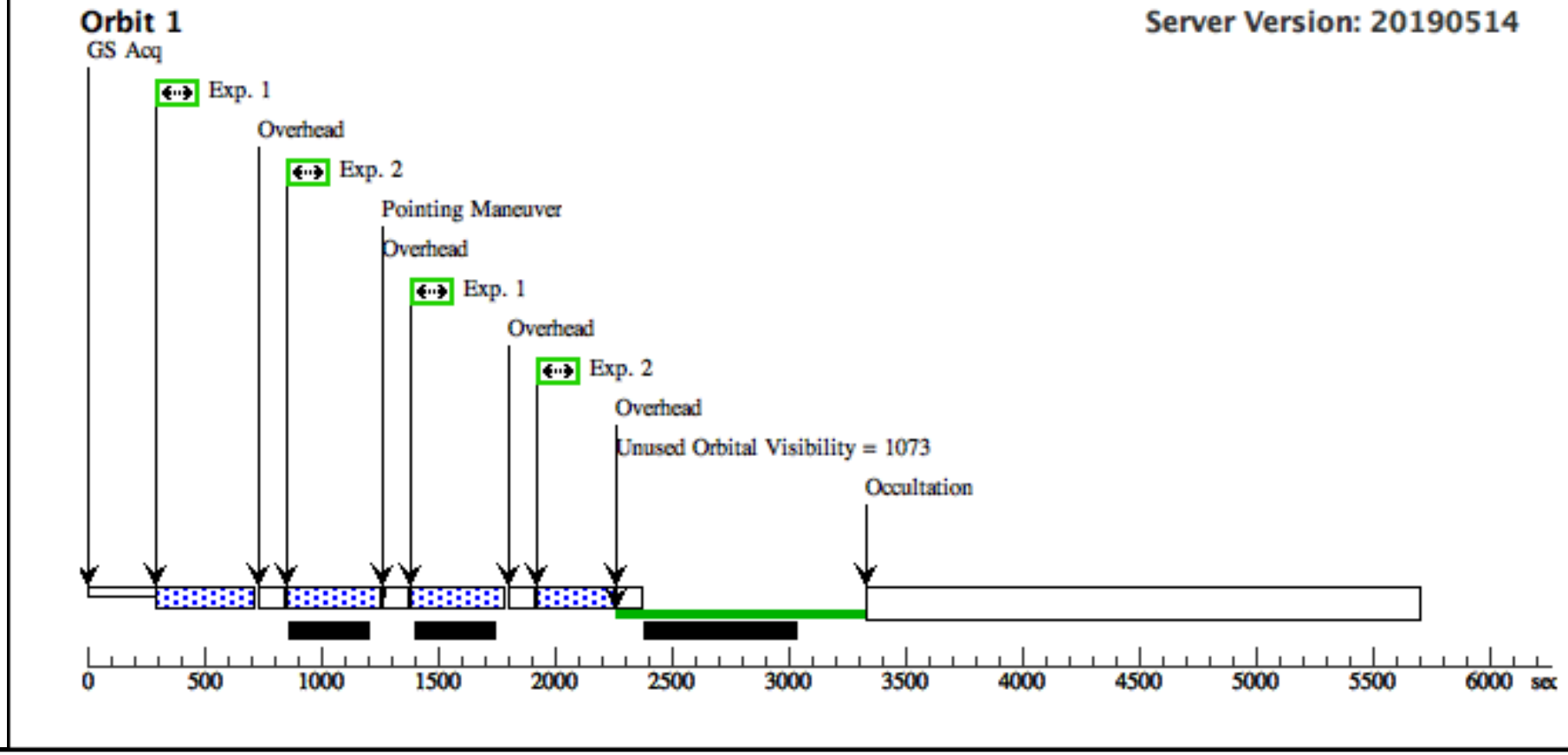
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	SN2016BAU	RA: 11 20 59.0200 (170.2459167d) Dec: +53 10 25.60 (53.17378d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(9) SN2016BAU	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2016bau (09) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(9) SN2016BAU	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2016bau (09) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2000ch (11), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

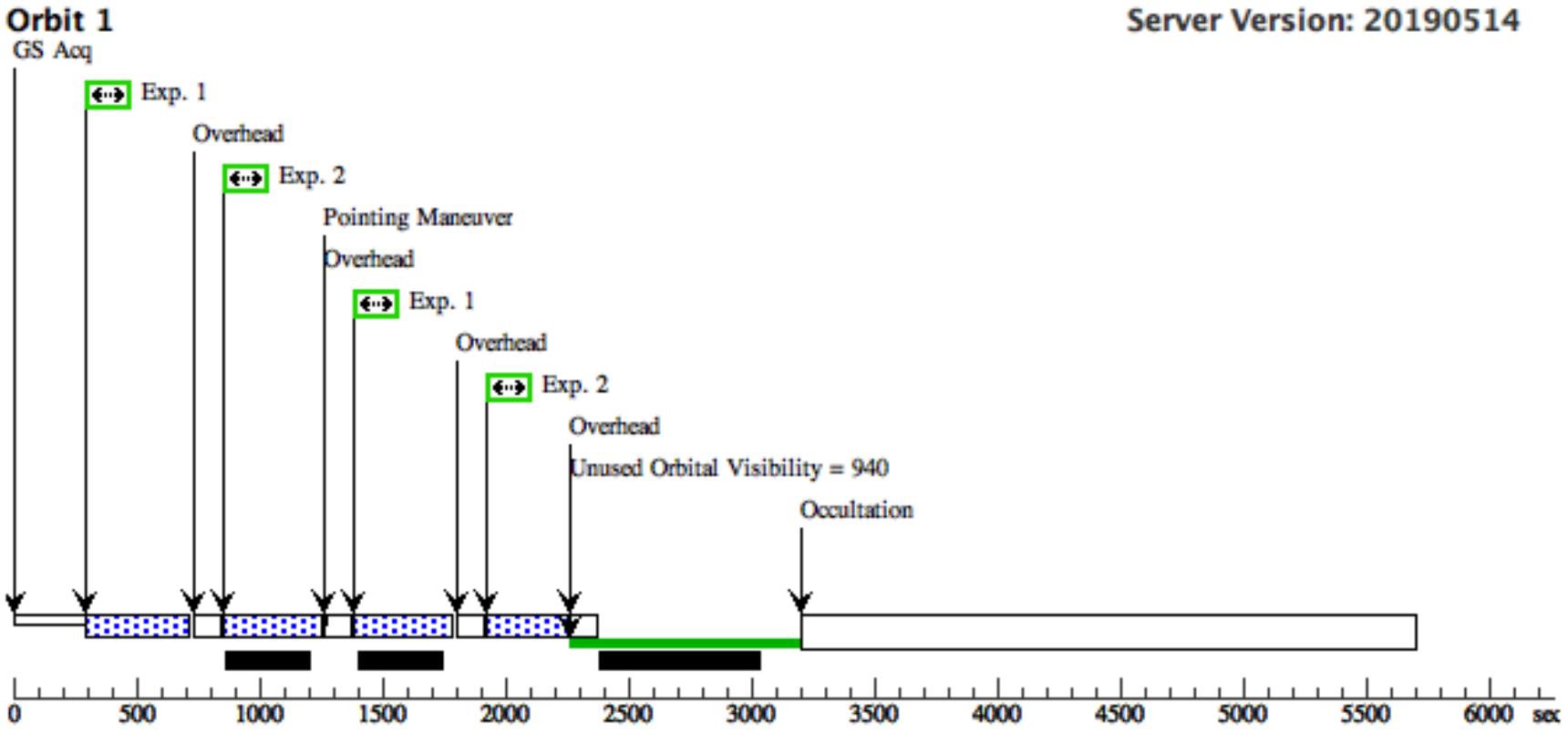
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	SN2000CH	RA: 10 52 41.4000 (163.1725000d) Dec: +36 40 8.50 (36.66903d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(11) SN2000CH	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2000ch (11) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(11) SN2000CH	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2000ch (11) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, MOTJ1204+2659 (18), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

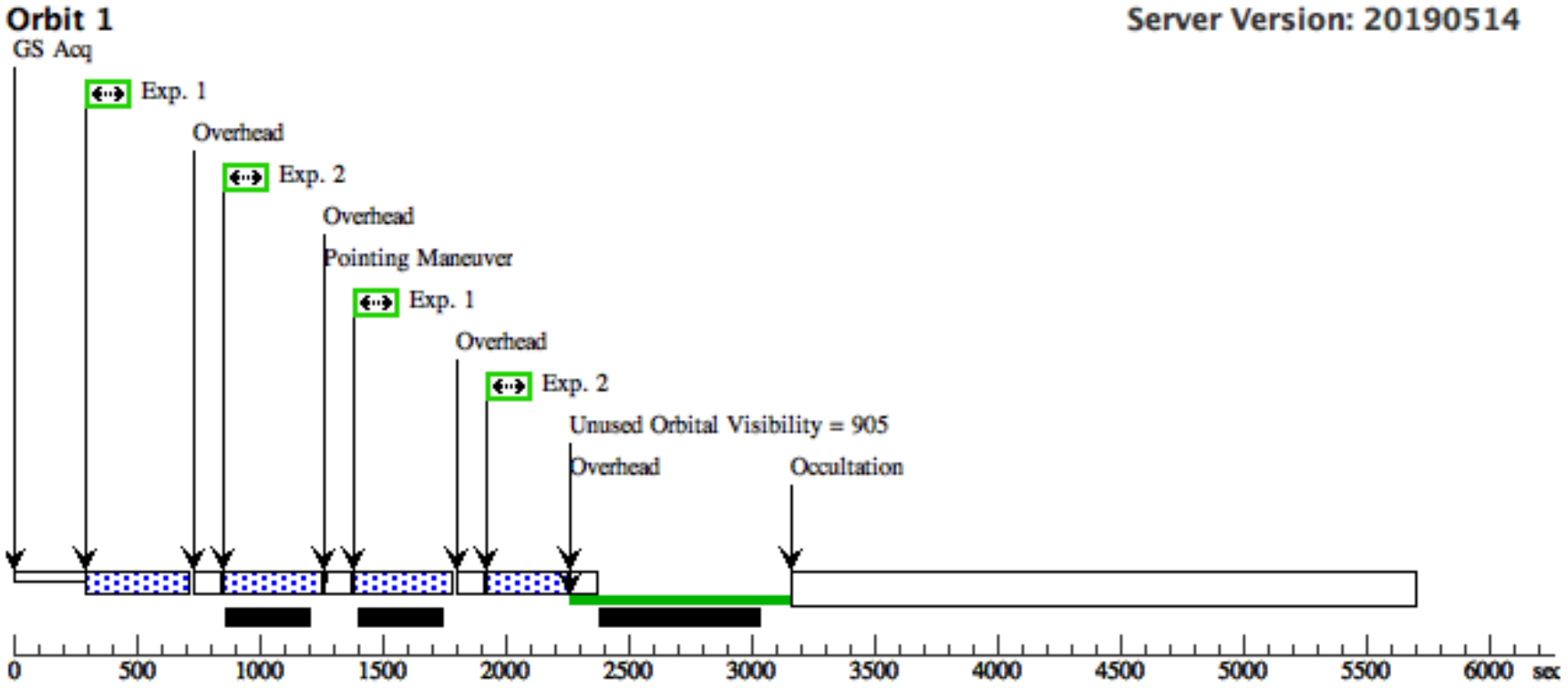
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(18)	MOTJ1204+2659	RA: 12 04 52.0000 (181.2166667d) Dec: +26 59 46.60 (26.99628d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(18) MOTJ1204+2659	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in MOTJ1204+2659 (18) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(18) MOTJ1204+2659	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in MOTJ1204+2659 (18) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2012fh (19), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

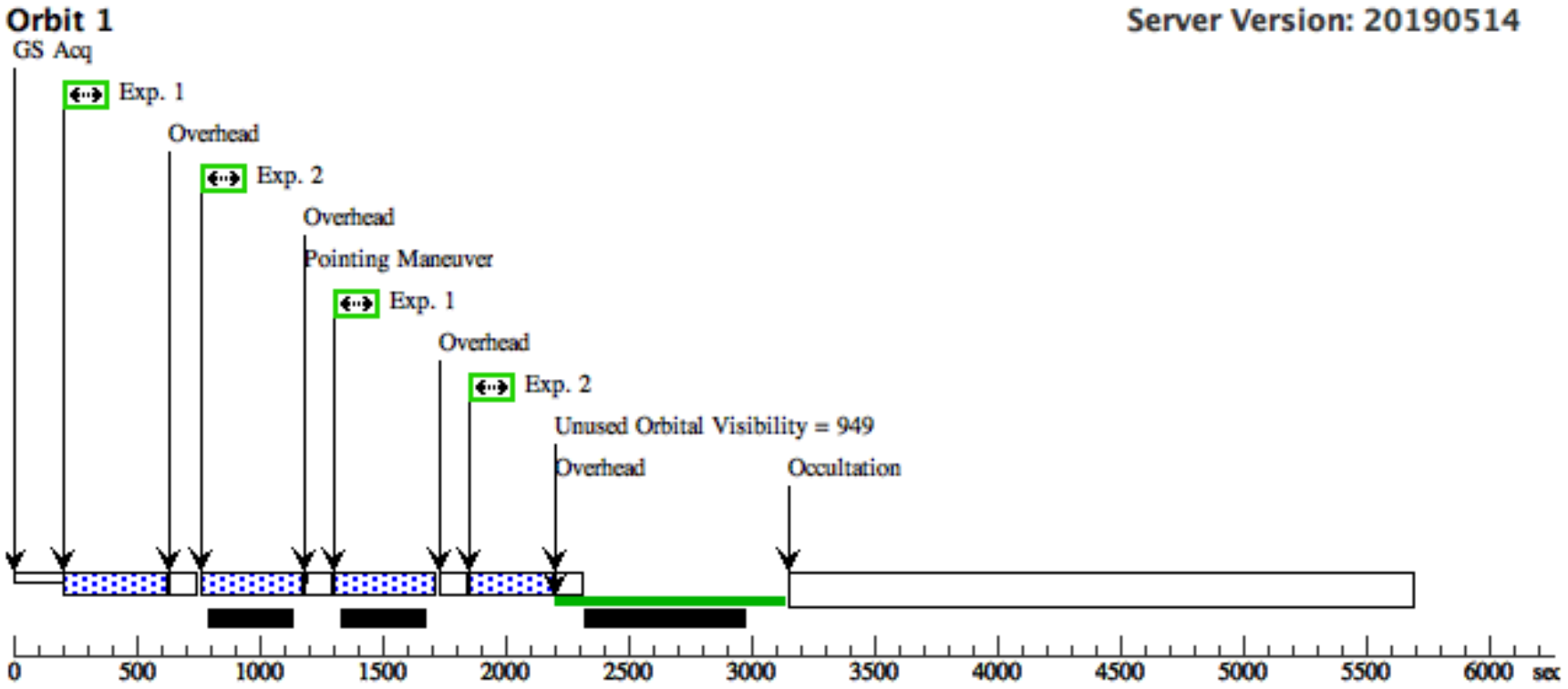
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(19)	SN2012FH	RA: 10 43 34.0500 (160.8918750d) Dec: +24 53 29.00 (24.89139d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F336W	(19) SN2012FH	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=10	GS ACQ SCENARIO SINGLE	Pattern 1, Exps 1-2 in SN2012fh (19) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(19) SN2012FH	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2012fh (19) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2016bkv (20), scheduling Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

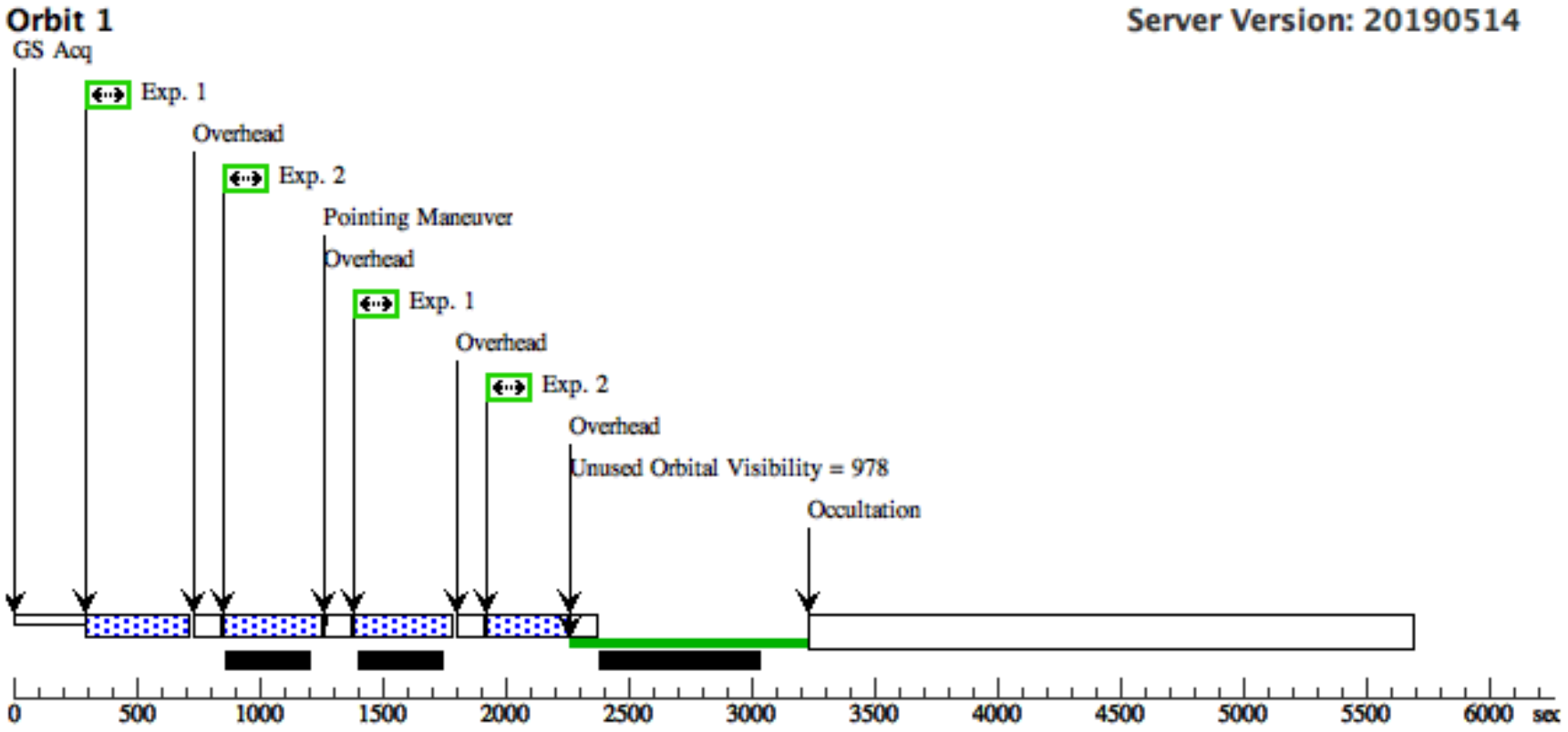
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(20)	SN2016BKV	RA: 10 18 19.3100 (154.5804583d) Dec: +41 25 39.30 (41.42758d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(20) SN2016BKV	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2016bkv (20) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(20) SN2016BKV	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2016bkv (20) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2014dt (22), withdrawn Fri Oct 11 18:02:43 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

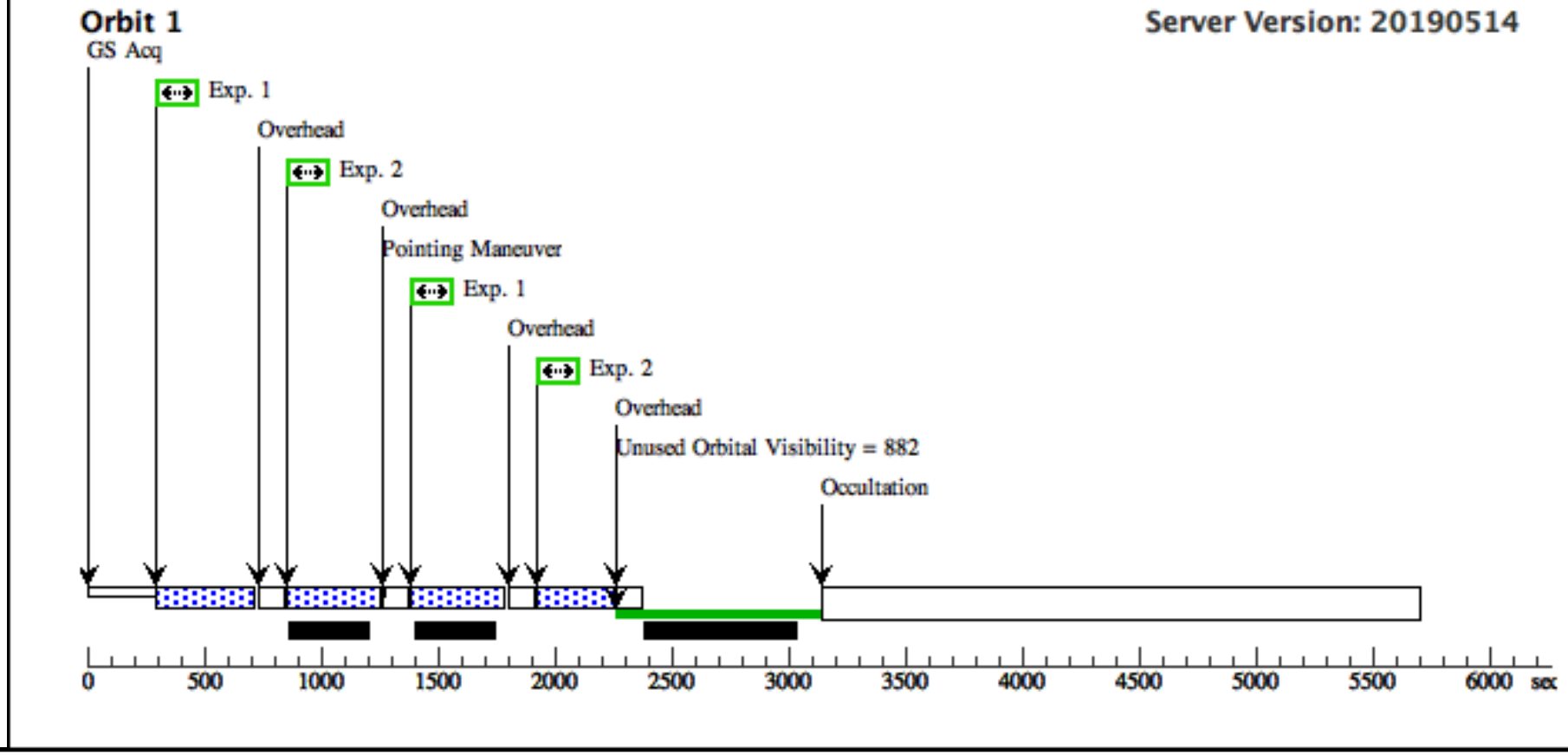
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(22)	SN2014DT	RA: 12 21 57.5700 (185.4898750d) Dec: +04 28 18.50 (4.47181d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(22) SN2014DT	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2014dt (22) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(22) SN2014DT	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2014dt (22) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2013df (23), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

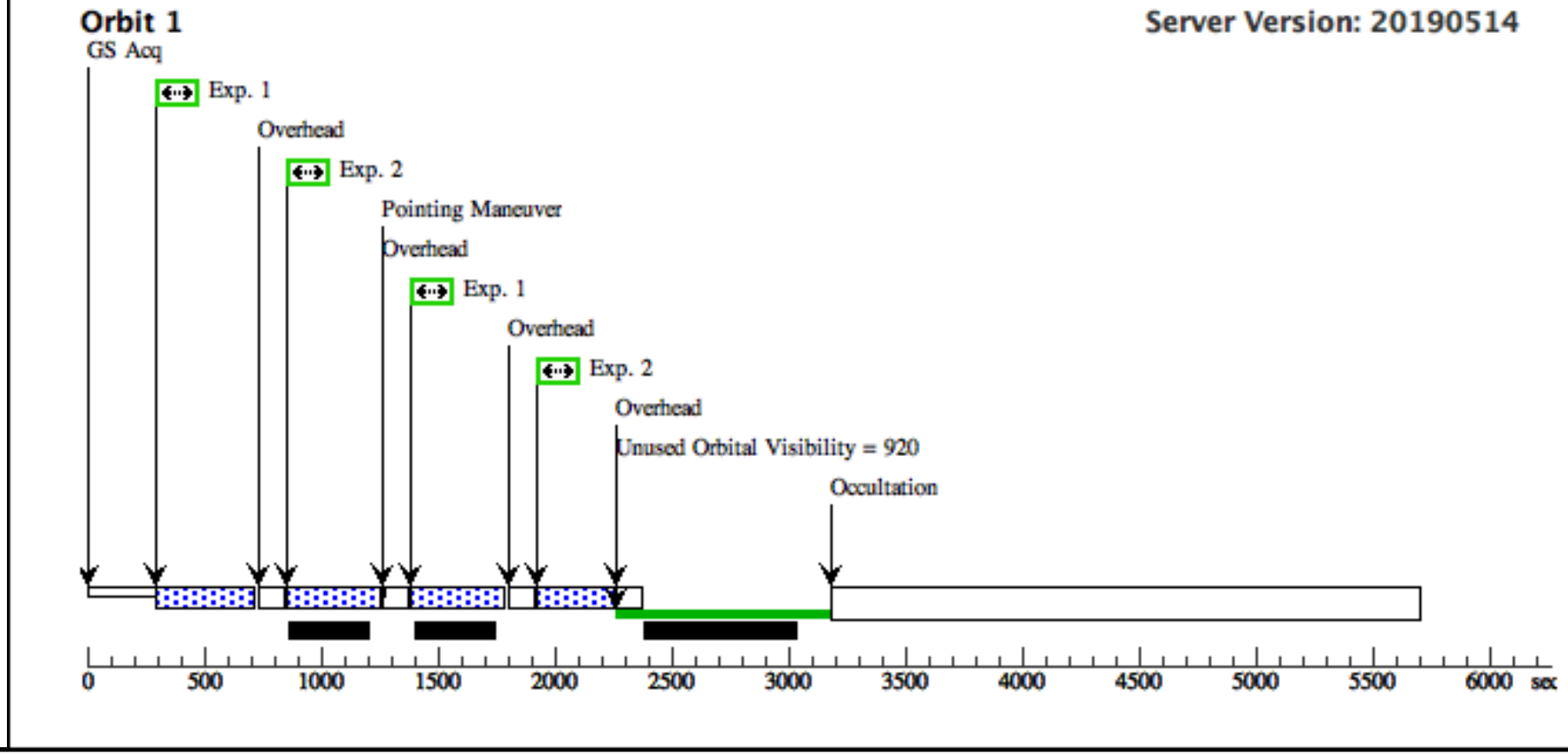
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(23)	SN2013DF	RA: 12 26 29.3300 (186.6222083d) Dec: +31 13 38.30 (31.22731d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(23) SN2013DF	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2013df (23) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(23) SN2013DF	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2013df (23) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2008bk (27), implementation Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

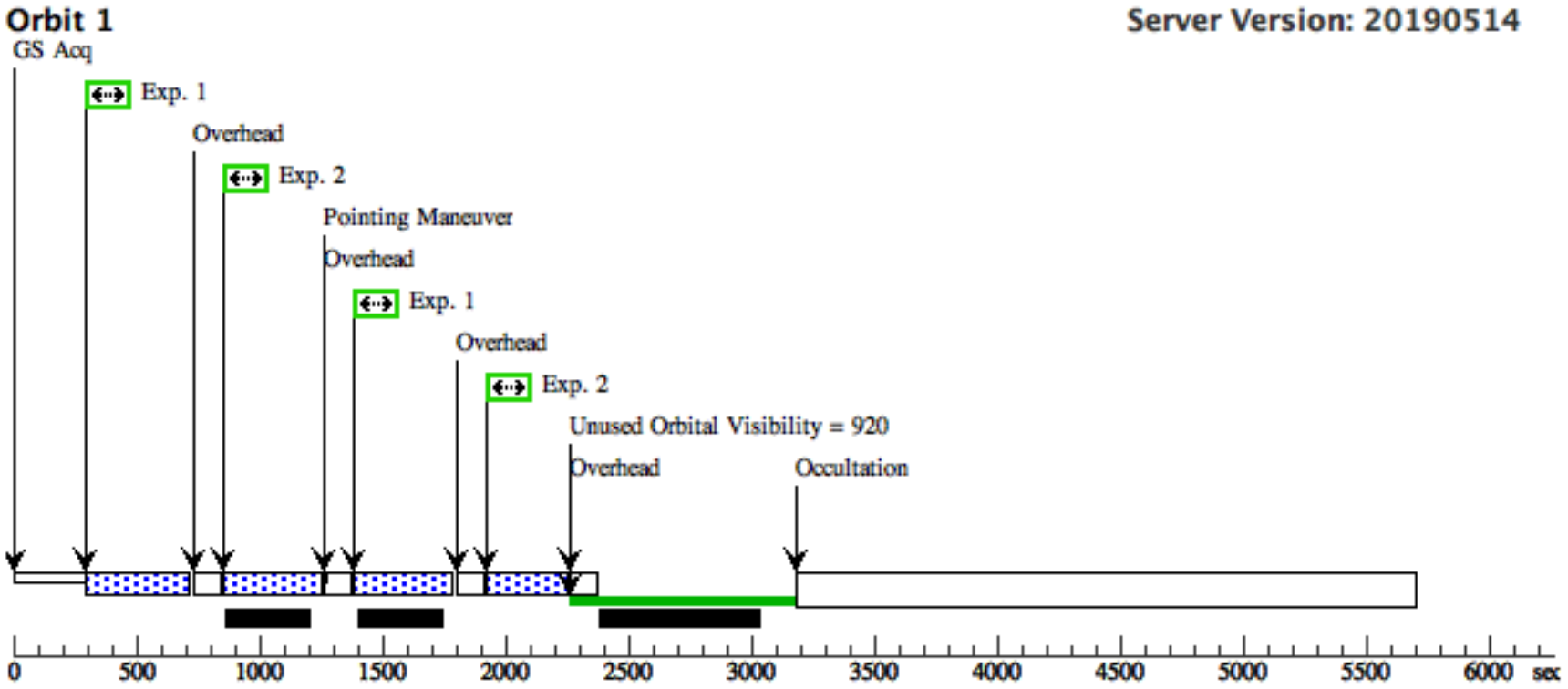
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(27)	SN2008BK	RA: 23 57 50.4200 (359.4600833d) Dec: -32 33 21.50 (-32.55597d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(27) SN2008BK	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2008bk (27) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(27) SN2008BK	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2008bk (27) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, NGC4559-OT (28), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

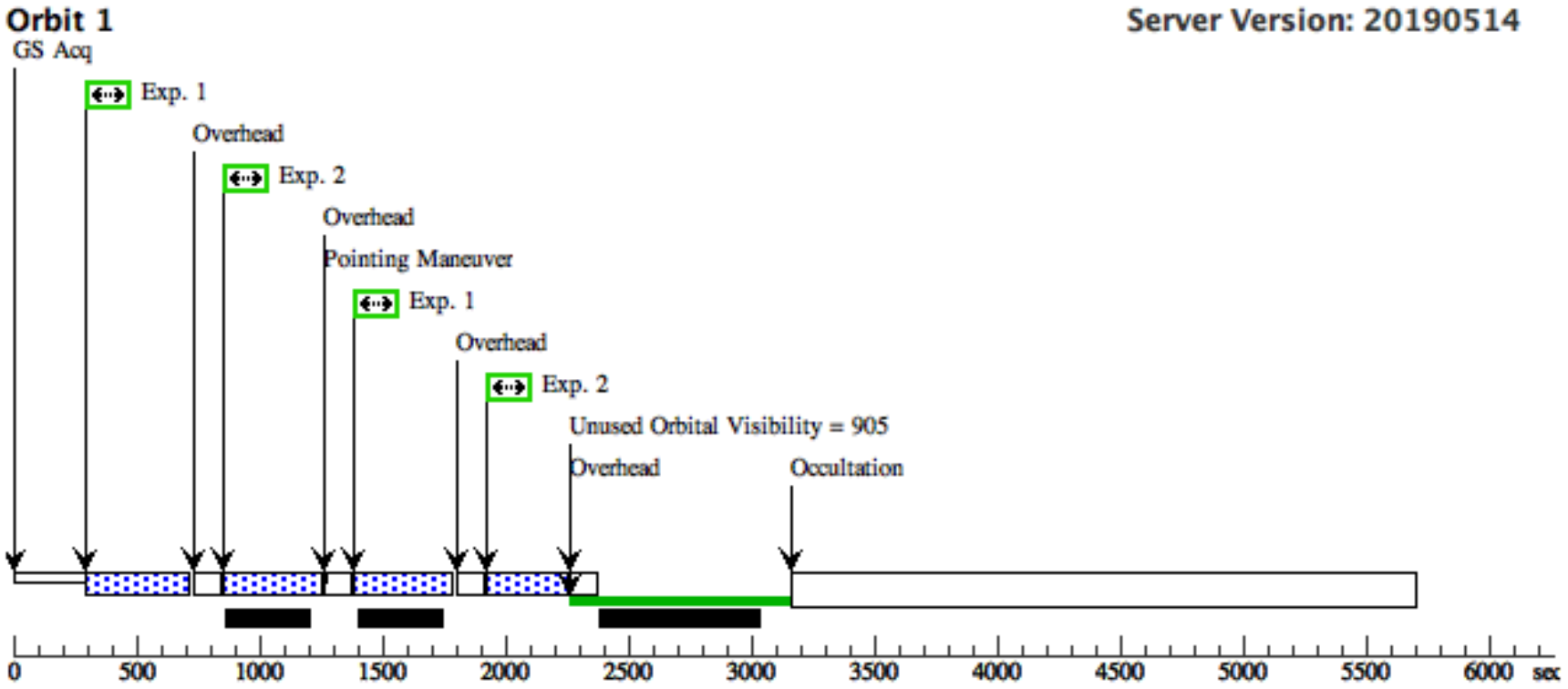
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(28)	NGC4559-OT	RA: 12 35 52.3000 (188.9679167d) Dec: +27 55 55.90 (27.93219d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(28) NGC4559-OT	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in NGC4559-OT (28) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(28) NGC4559-OT	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in NGC4559-OT (28) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2016aqt (29), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

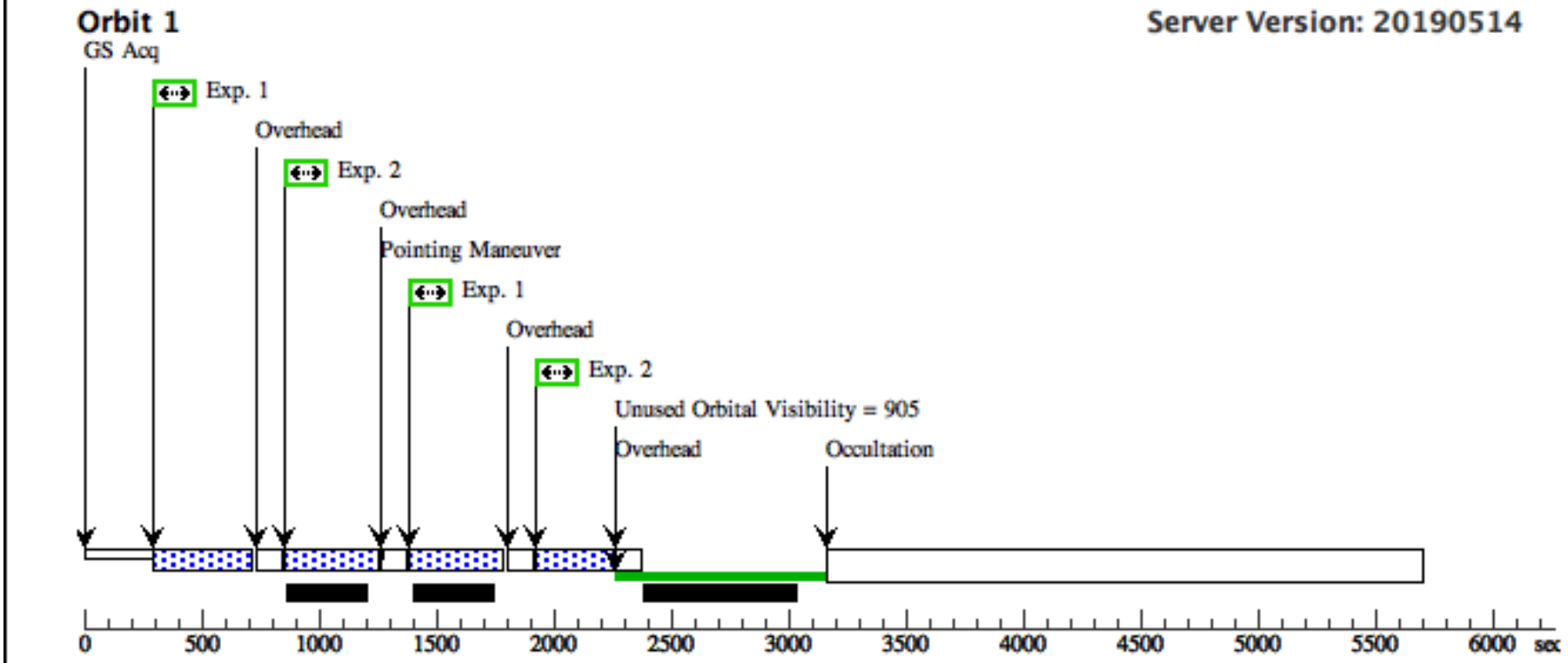
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(29)	SN2016AQT	RA: 13 45 50.7500 (206.4614583d) Dec: +26 47 47.40 (26.79650d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(29) SN2016AQT	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2016aqt (29) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(29) SN2016AQT	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2016aqt (29) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2015ap (30), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

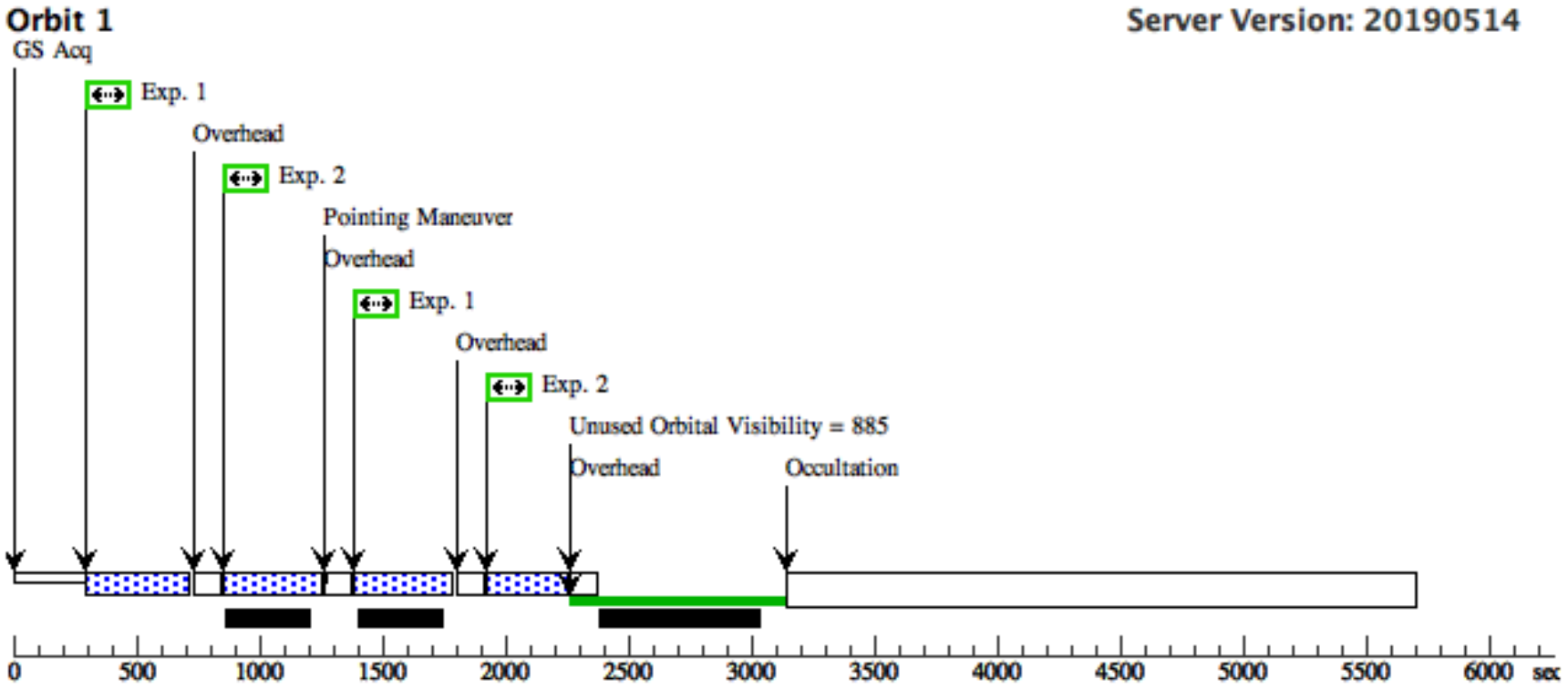
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(30)	SN2015AP	RA: 02 05 13.3200 (31.3055000d) Dec: +06 06 8.40 (6.10233d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(30) SN2015AP	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2015ap (30) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(30) SN2015AP	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2015ap (30) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, SN2015ah (31), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

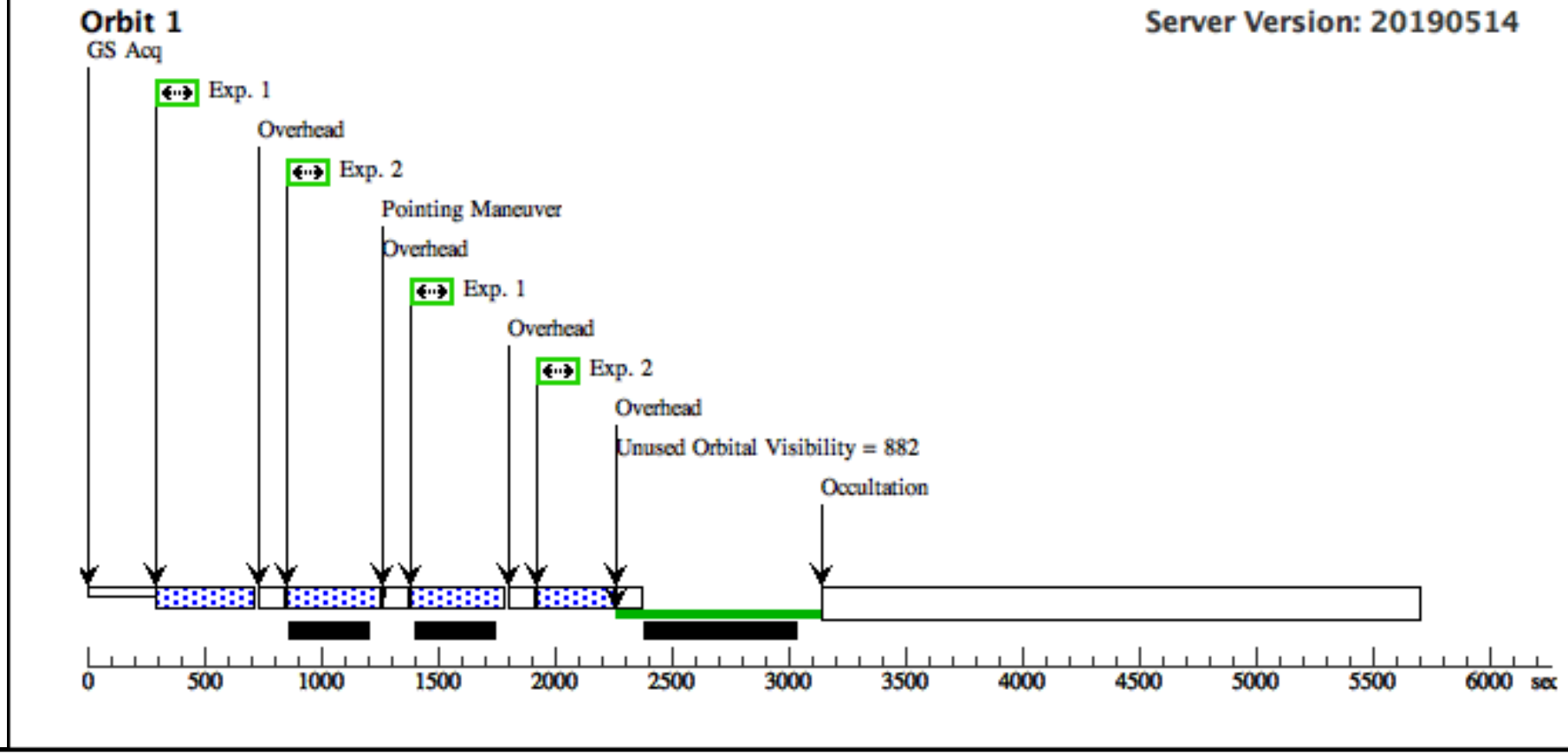
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(31)	SN2015AH	RA: 23 00 24.6300 (345.1026250d) Dec: +01 37 36.80 (1.62689d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(31) SN2015AH	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2015ah (31) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(31) SN2015AH	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2015ah (31) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, SN2016cok (32), withdrawn Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

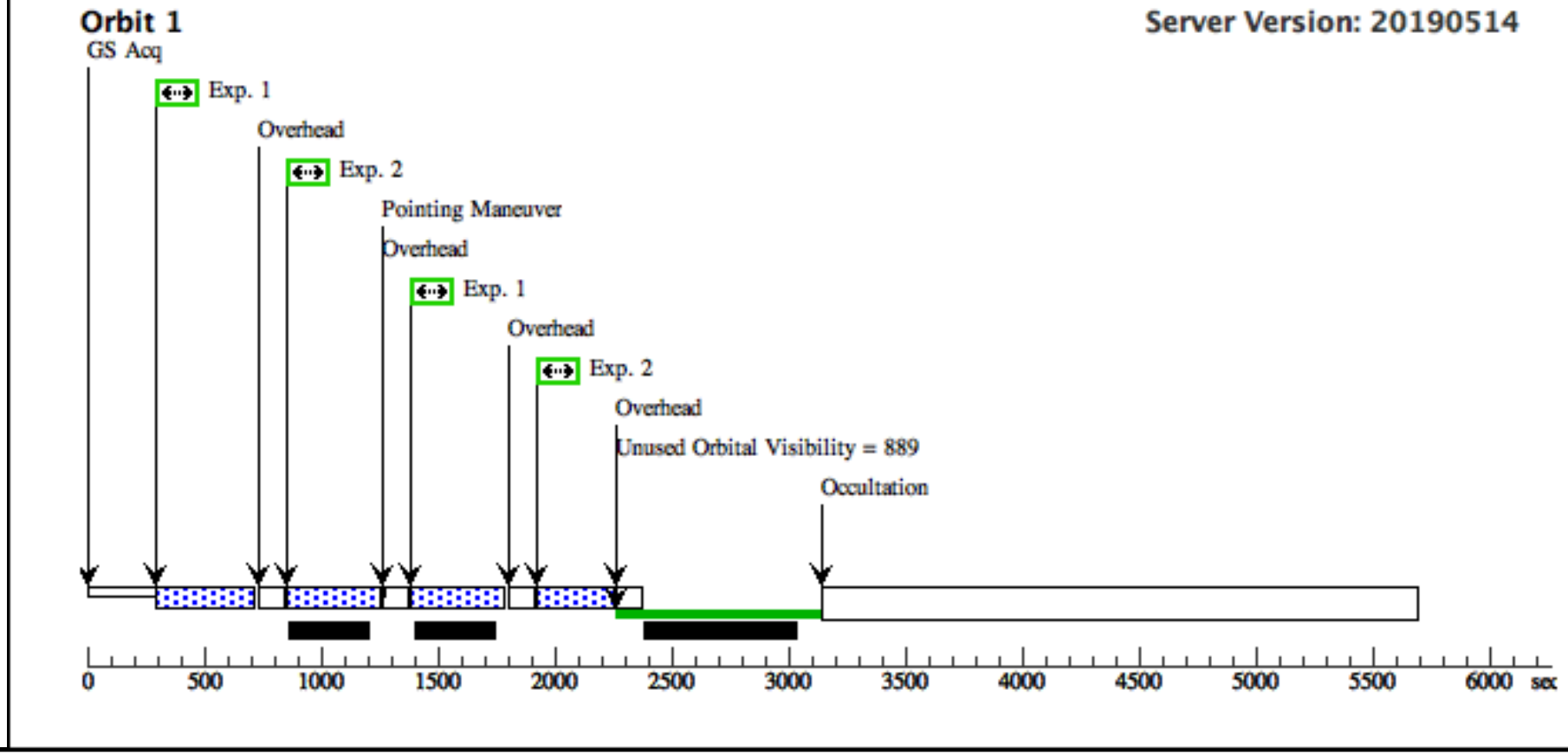
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(32)	SN2016COK	RA: 11 20 19.1000 (170.0795833d) Dec: +12 58 56.01 (12.98222d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(32) SN2016COK	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2016cok (32) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(32) SN2016COK	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2016cok (32) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2016B (33), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

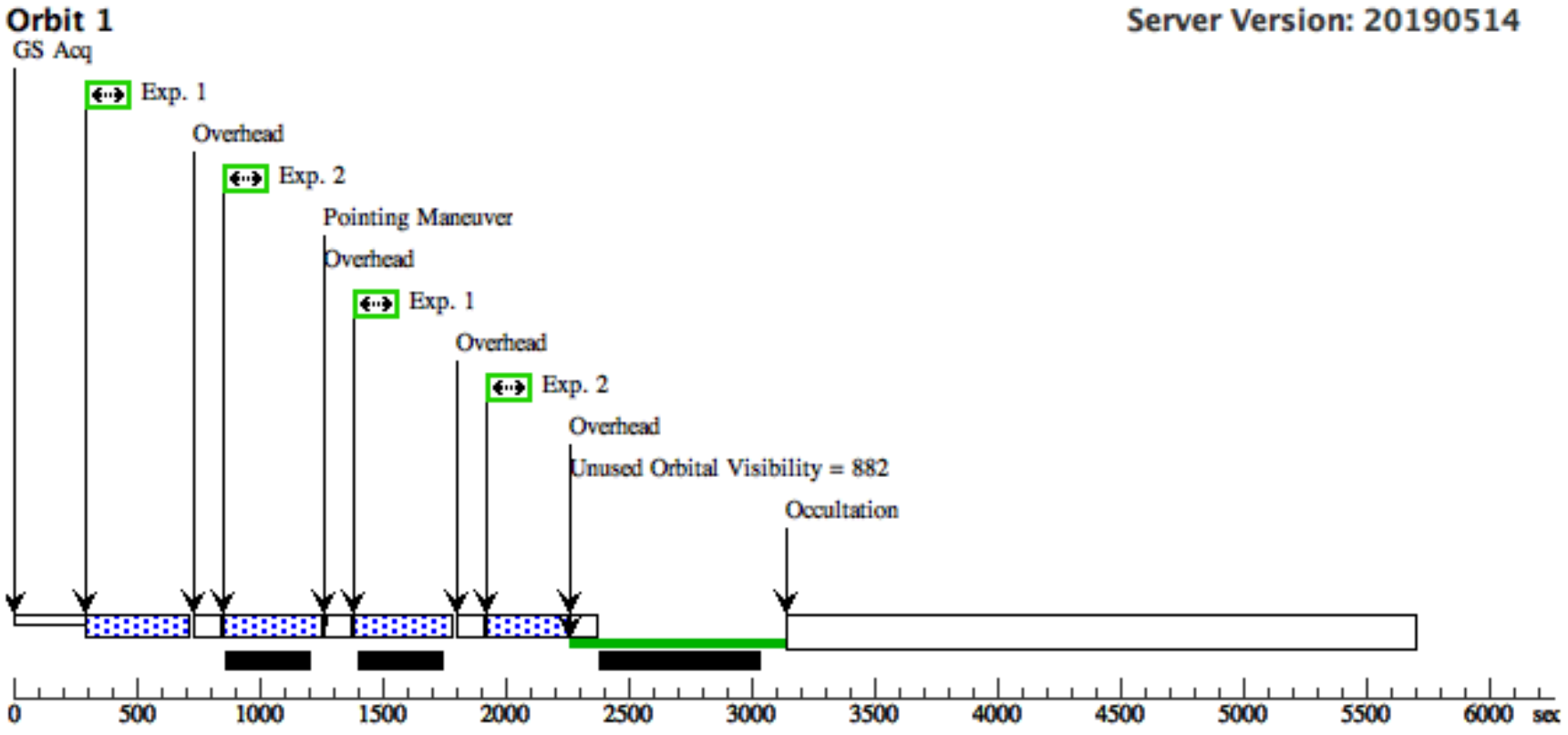
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(33)	SN2016B	RA: 11 55 4.2500 (178.7677083d) Dec: +01 43 6.80 (1.71856d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(33) SN2016B	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2016B (33) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(33) SN2016B	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2016B (33) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2006X (34), withdrawn Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

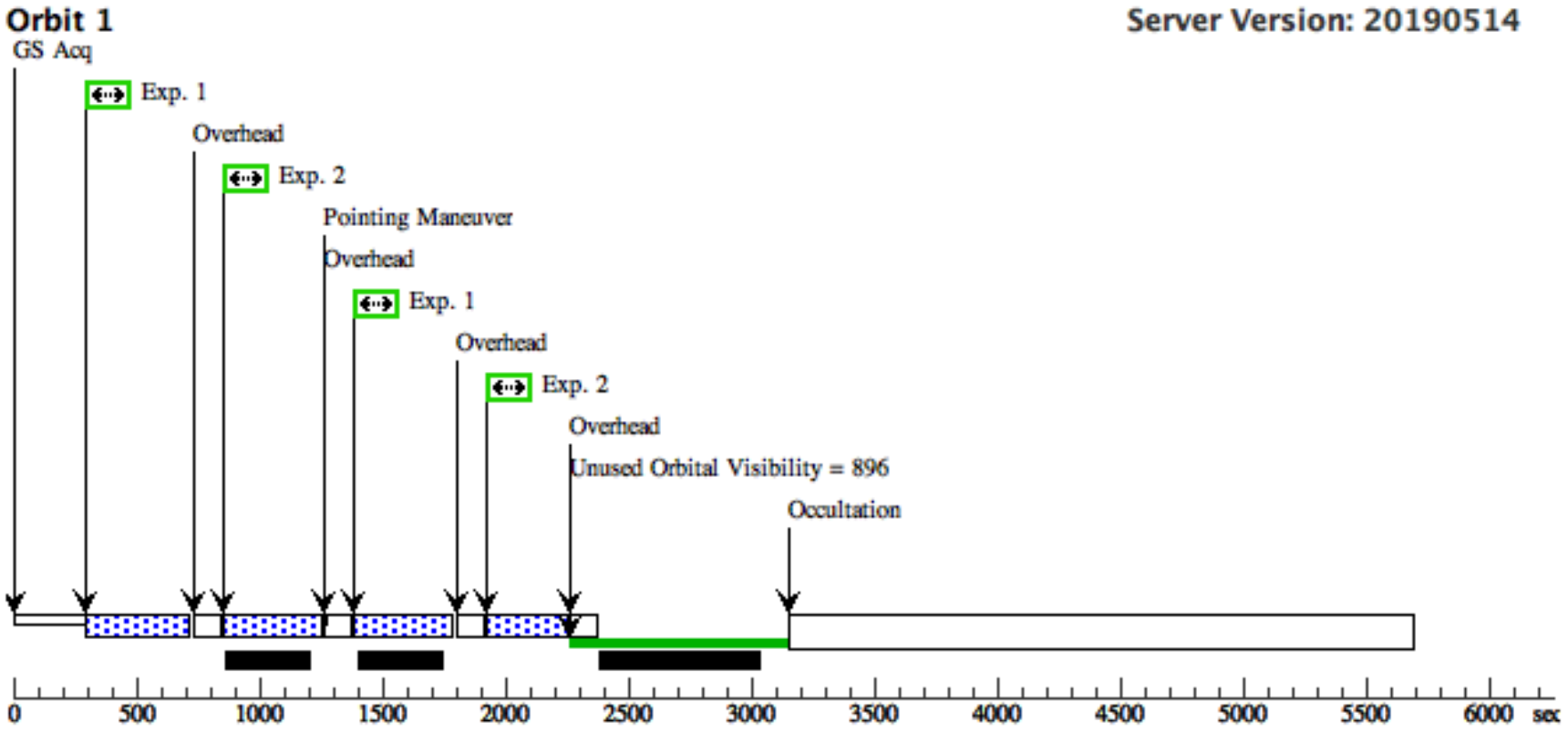
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(34)	SN2006X	RA: 12 22 53.9900 (185.7249583d) Dec: +15 48 33.10 (15.80919d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(34) SN2006X	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2006X (34) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(34) SN2006X	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2006X (34) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, NGC5775-OT (35), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

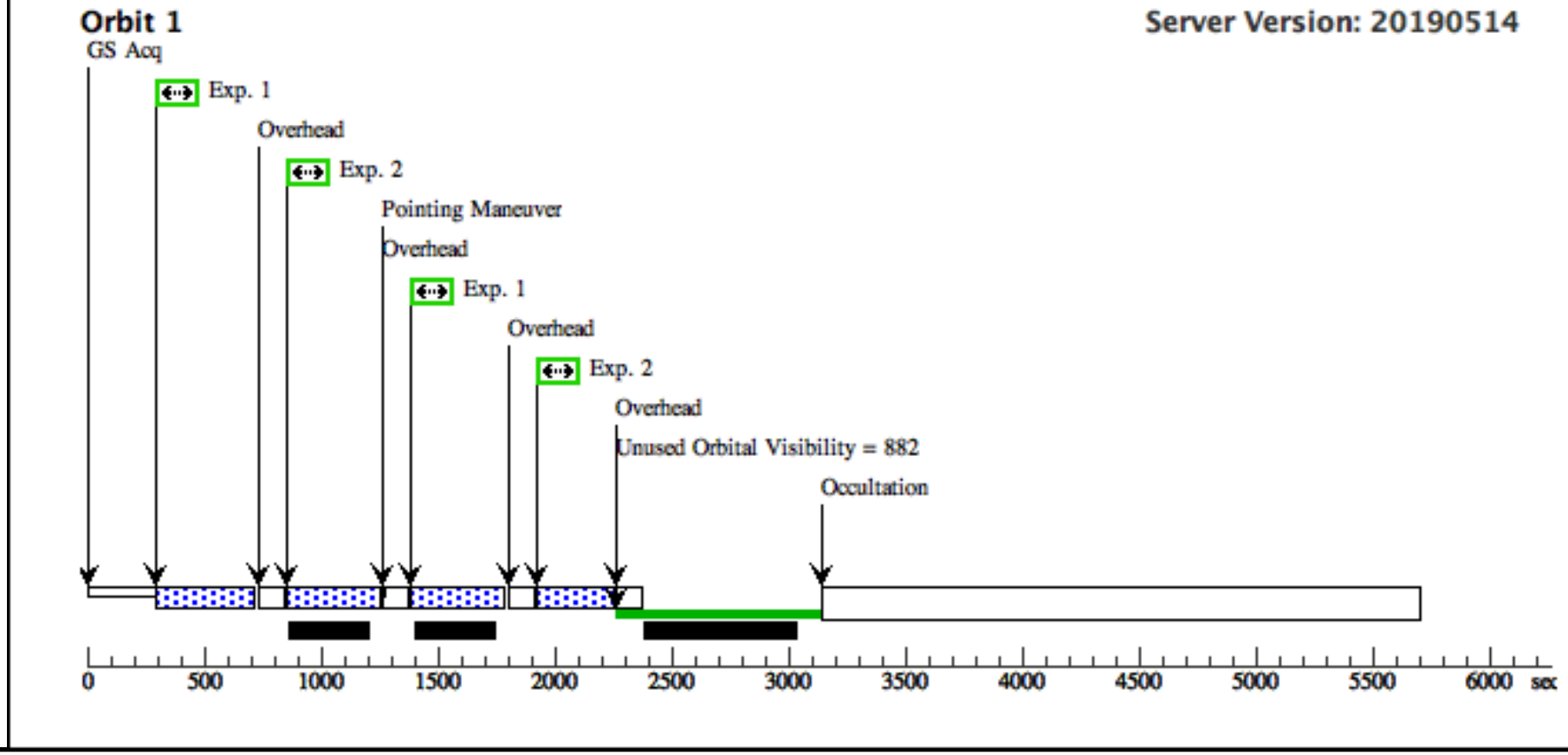
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(35)	NGC5775-OT	RA: 14 53 53.9500 (223.4747917d) Dec: +03 34 4.90 (3.56803d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(35) NGC5775-OT	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in NGC5775-OT (35) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(35) NGC5775-OT	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in NGC5775-OT (35) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2006tf (36), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

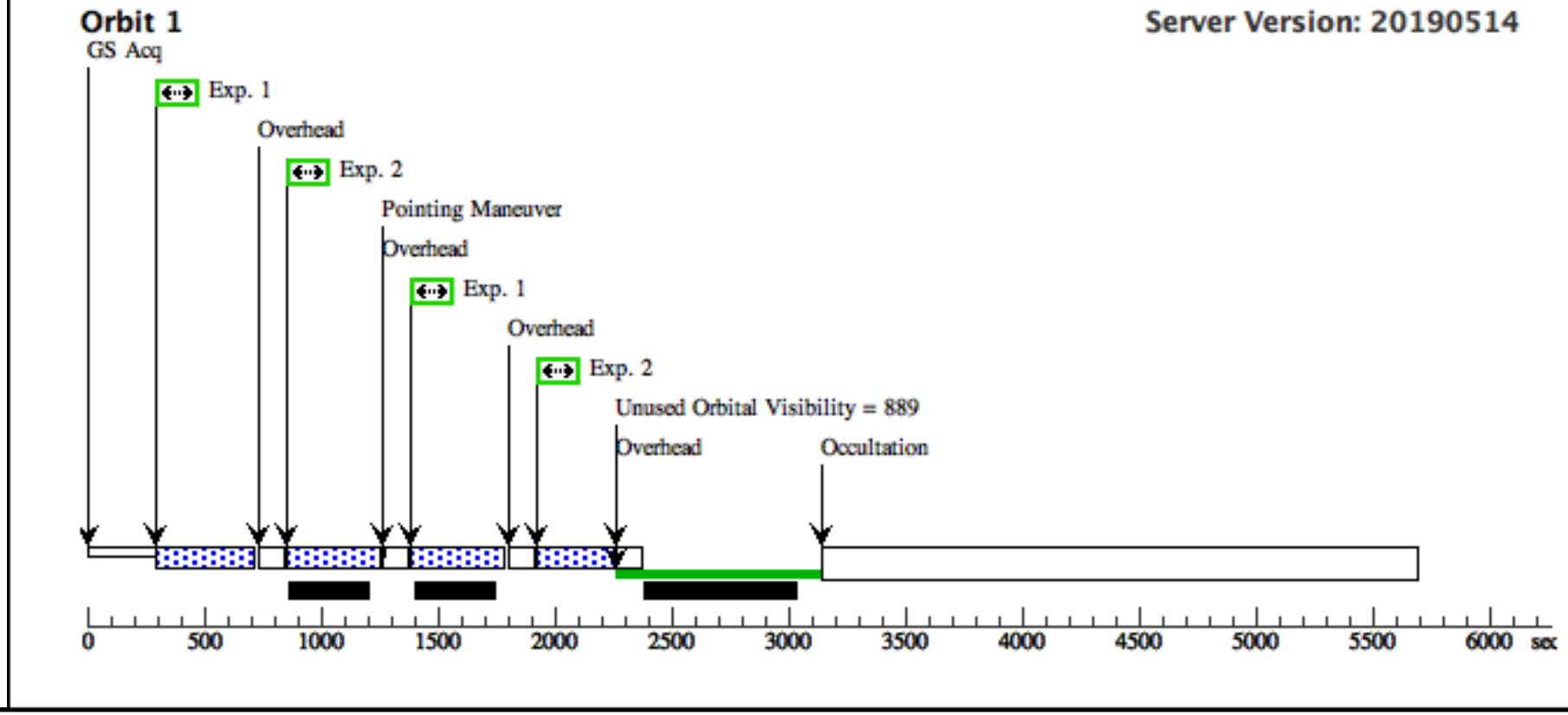
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(36)	SN2006TF	RA: 12 46 15.8200 (191.5659167d) Dec: +11 25 56.32 (11.43231d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(36) SN2006TF	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2006tf (36) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(36) SN2006TF	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2006tf (36) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2011dh (38), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

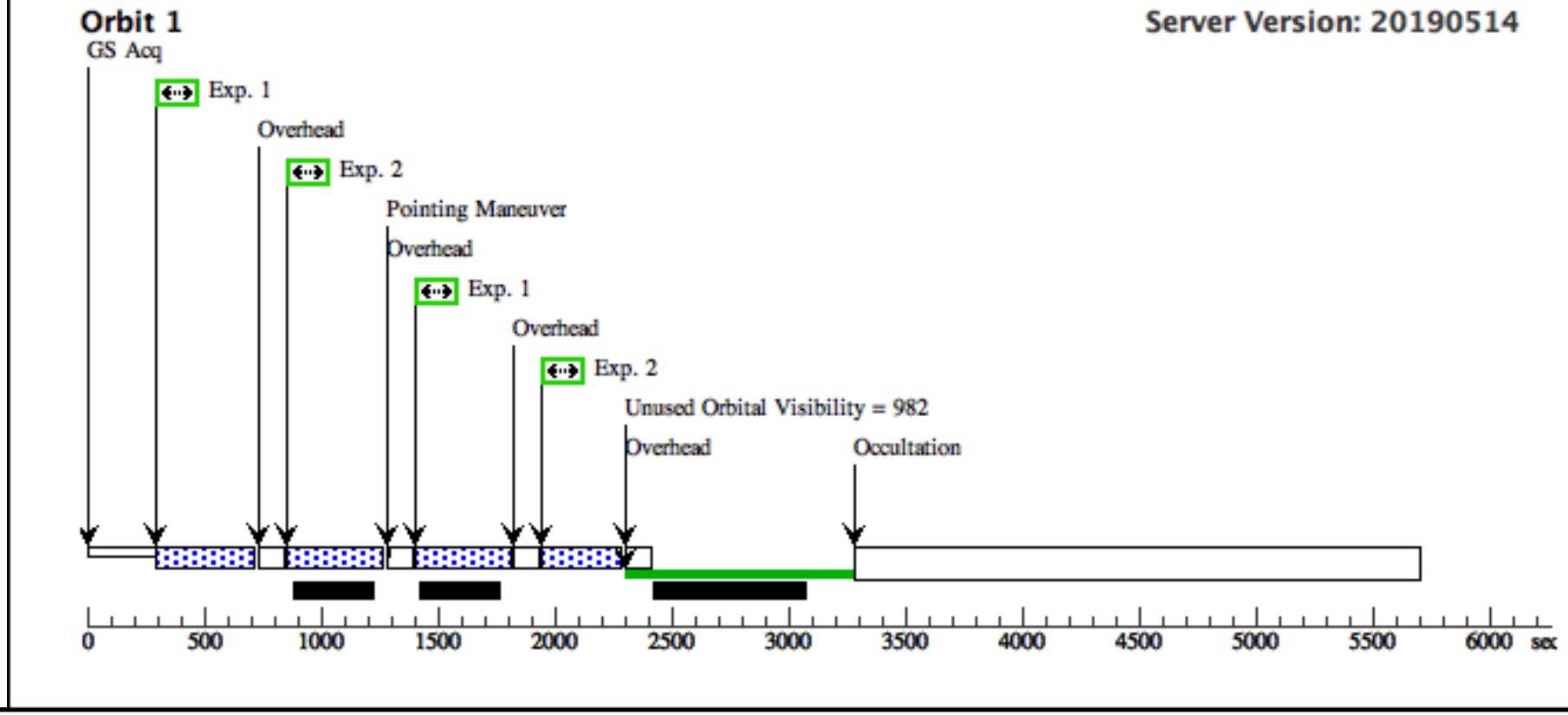
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(38)	SN2011DH	RA: 13 30 5.1200 (202.5213333d) Dec: +47 10 10.81 (47.16967d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F225W	(38) SN2011DH	WFC3/UVIS, ACCUM, UVIS	F225W	FLASH=10		Pattern 1, Exps 1-2 in SN2011dh (38) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(38) SN2011DH	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2011dh (38) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, SN2012Z (47), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

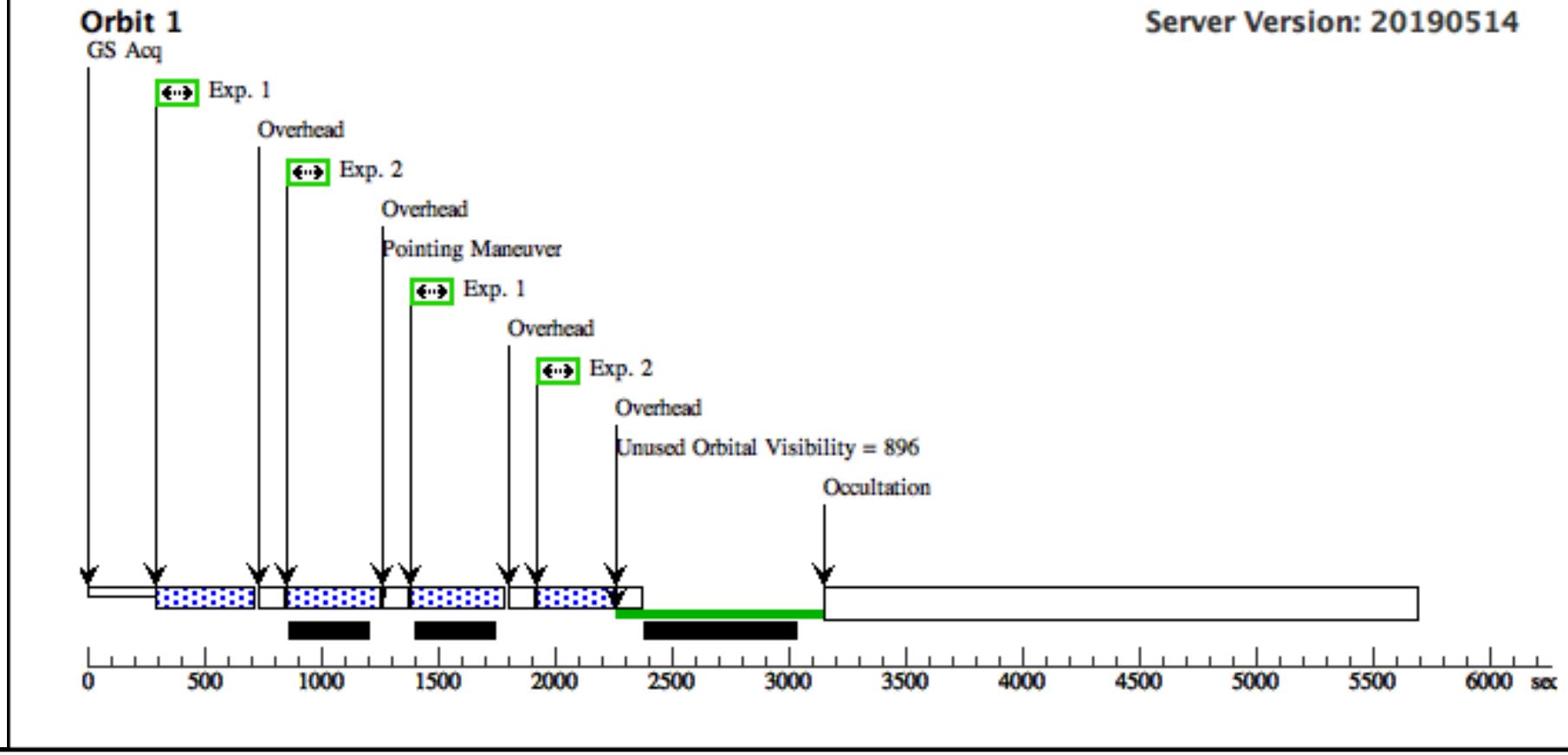
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(47)	SN2012Z	RA: 03 22 5.3500 (50.5222917d) Dec: -15 23 15.61 (-15.38767d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(47) SN2012Z	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2012Z (47) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(47) SN2012Z	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2012Z (47) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, sn2017ein (48), withdrawn Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

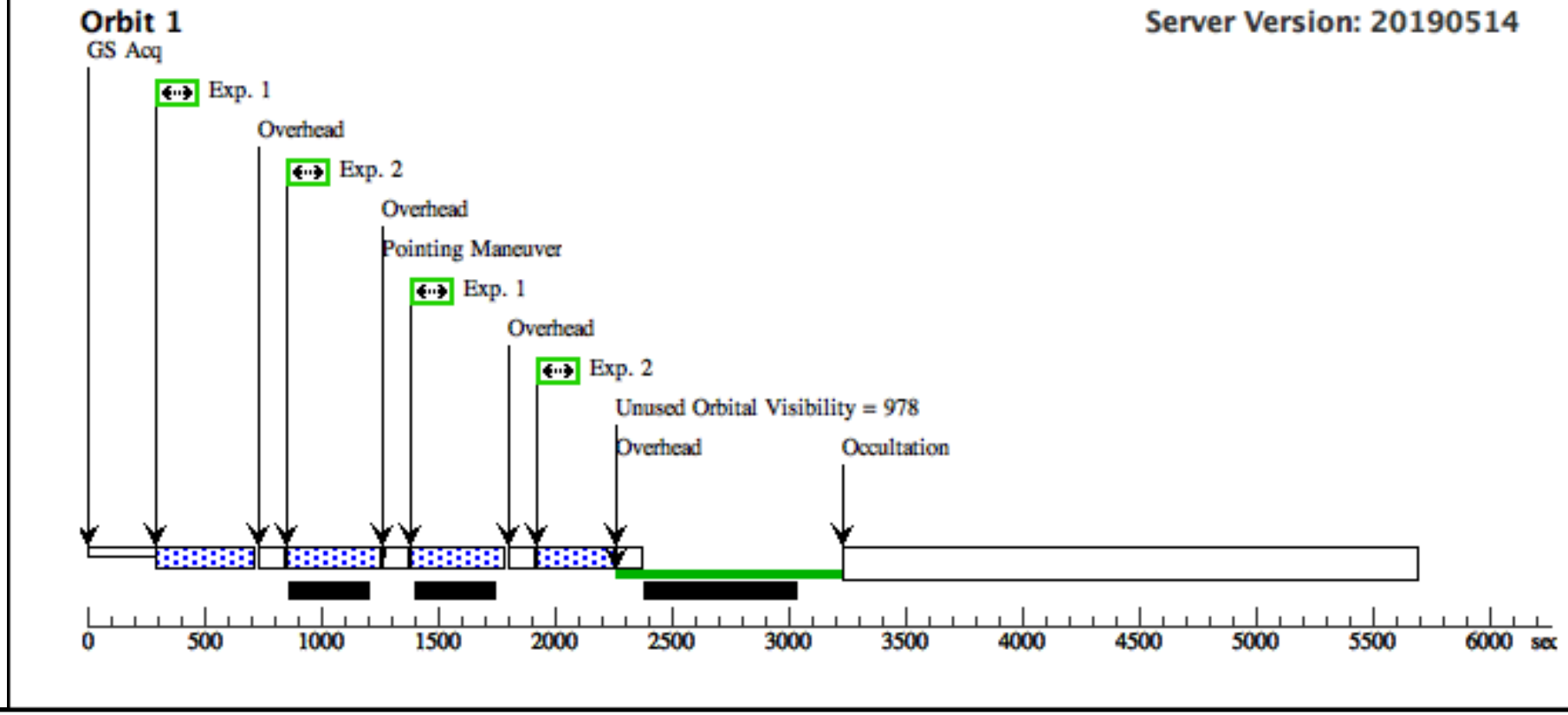
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(48)	SN2017EIN	RA: 11 52 53.2500 (178.2218750d) Dec: +44 07 26.20 (44.12394d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(48) SN2017EIN	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in sn2017ein (48) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(48) SN2017EIN	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in sn2017ein (48) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2012A (52), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

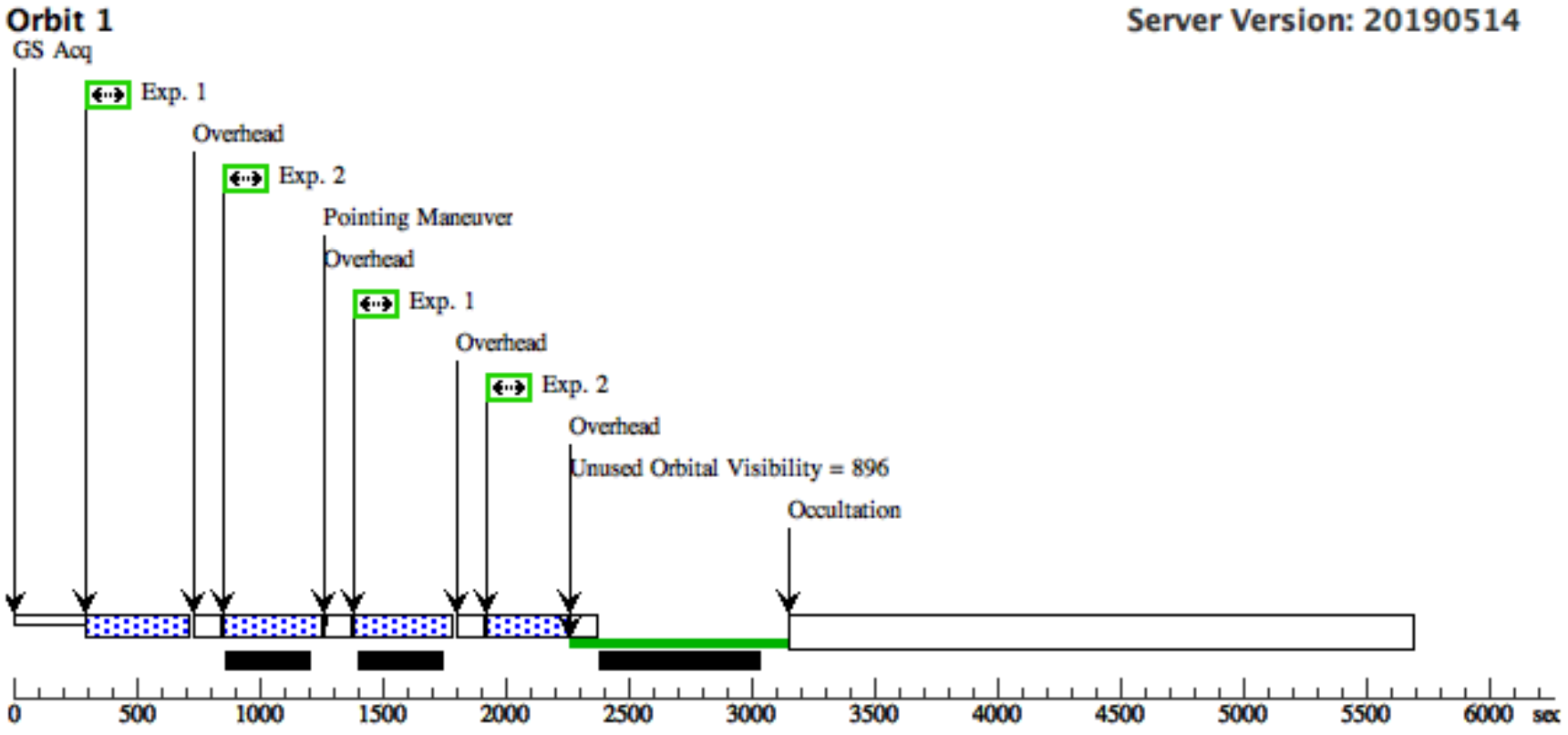
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(52)	SN2012A	RA: 10 25 7.3900 (156.2807917d) Dec: +17 09 14.62 (17.15406d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(52) SN2012A	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2012A (52) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(52) SN2012A	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2012A (52) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, ASASSN-14dq (56), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

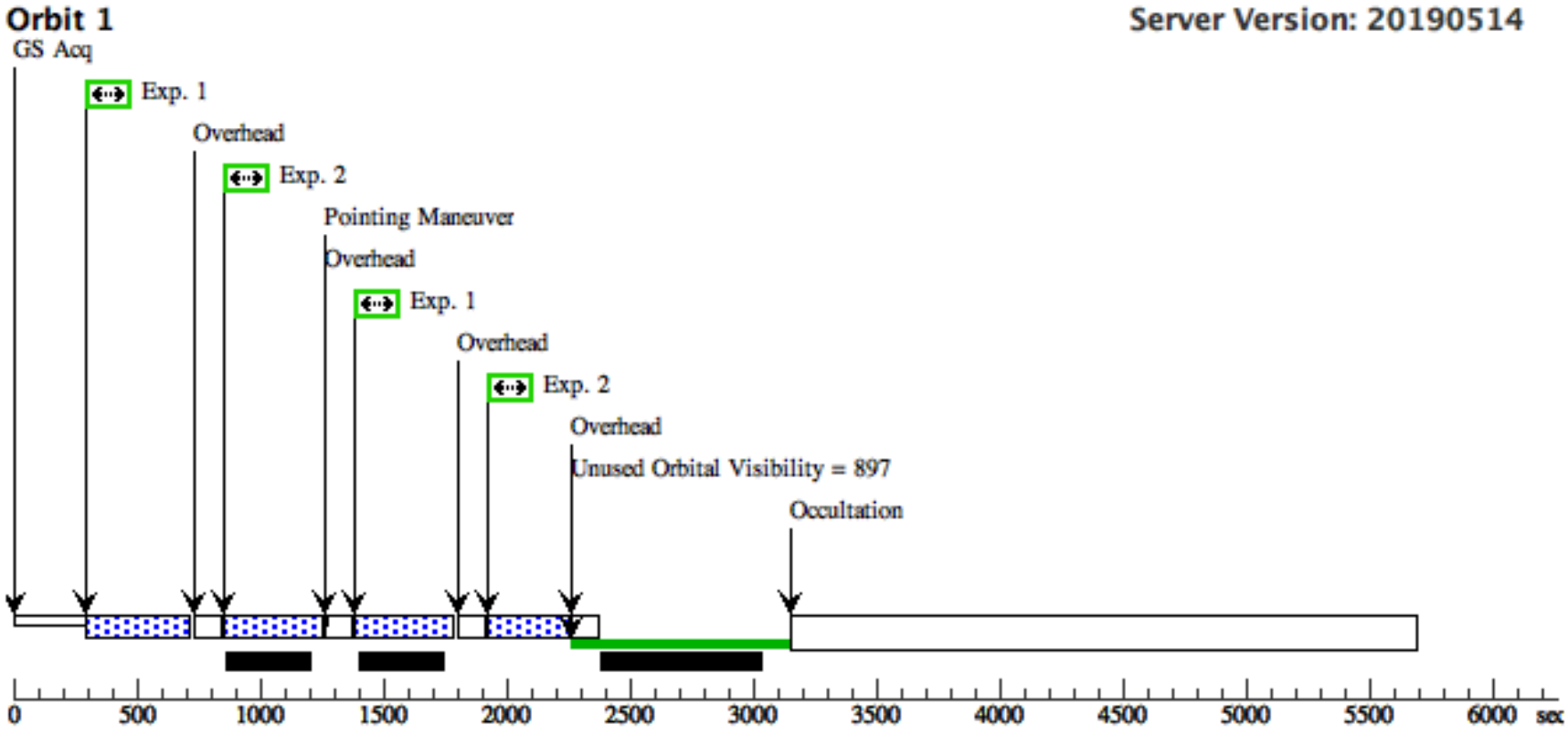
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(56)	ASASSN-14DQ	RA: 21 57 59.9700 (329.4998750d) Dec: +24 16 8.10 (24.26892d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(56) ASASSN-14DQ	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in ASASSN-14dq (56) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(56) ASASSN-14DQ	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in ASASSN-14dq (56) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN1988Z (62), scheduling Fri Oct 11 18:02:44 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

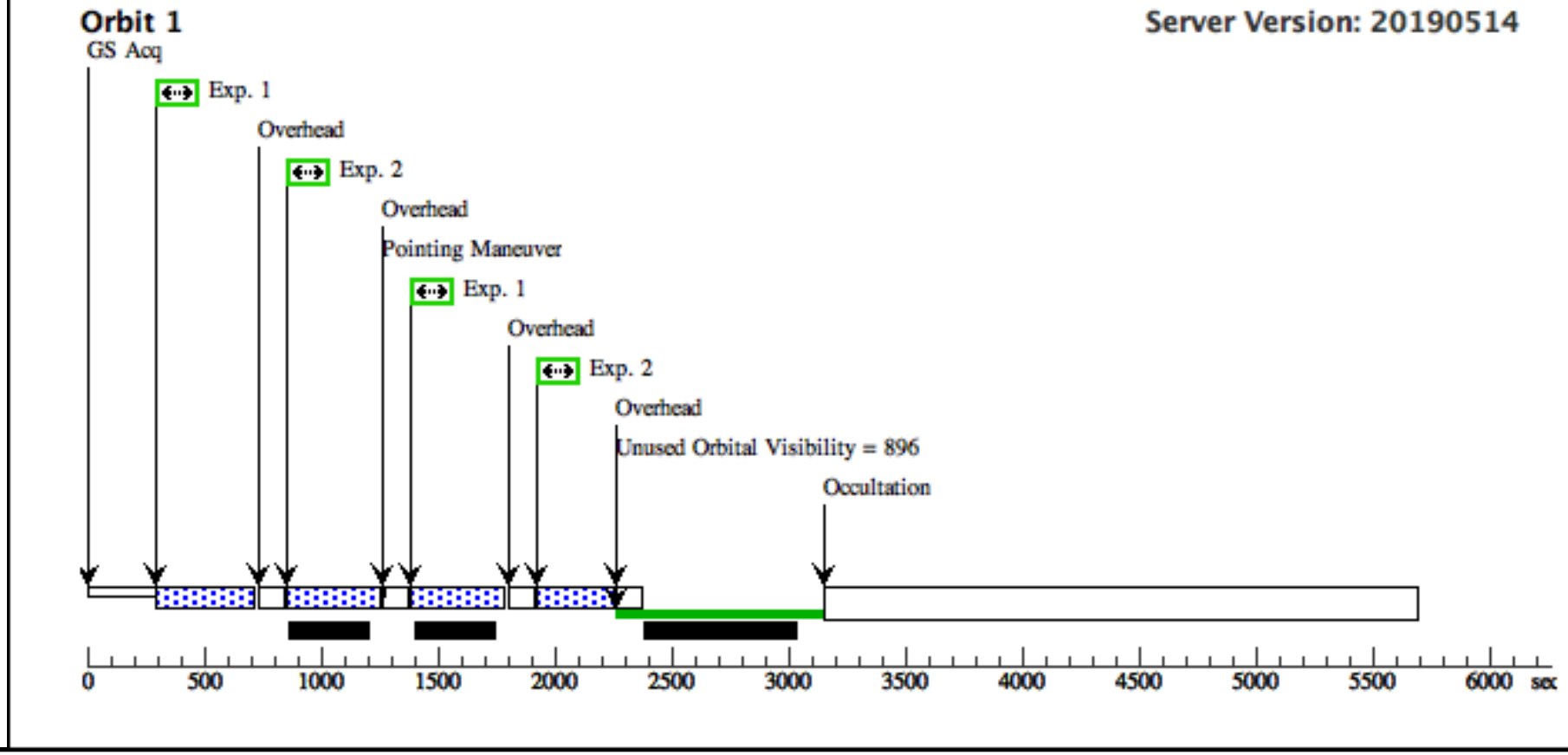
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(62)	SN1988Z	RA: 10 51 50.1000 (162.9587500d) Dec: +16 00 1.01 (16.00028d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(62) SN1988Z	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN1988Z (62) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(62) SN1988Z	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN1988Z (62) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN1991T (63), scheduling Fri Oct 11 18:02:45 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

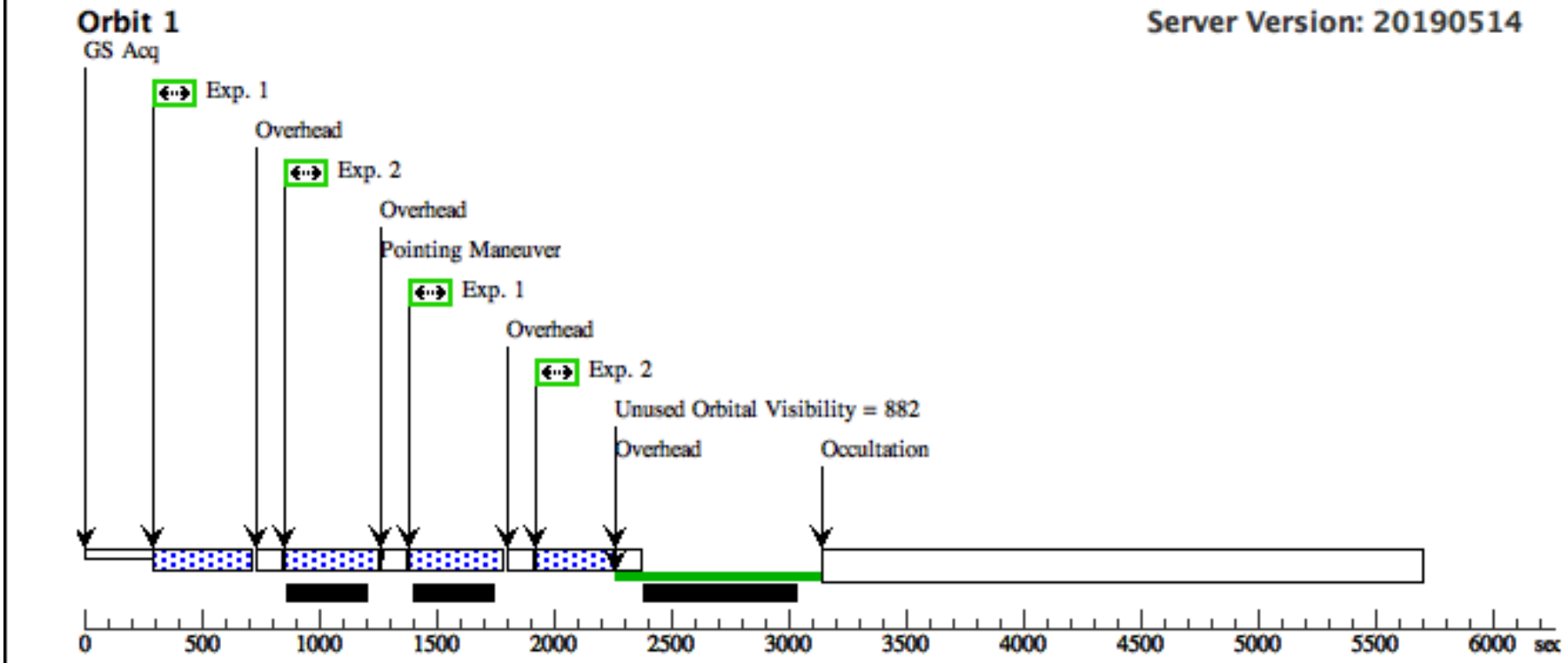
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(63)	SN1991T	RA: 12 34 10.2100 (188.5425417d) Dec: +02 39 56.59 (2.66572d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(63) SN1991T	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN1991T (63) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	 ***[1]***
2	F555W	(63) SN1991T	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN1991T (63) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	 ***[1]***

Orbit Structure



Visit

Proposal 16024, sn2016bdu (65), scheduling Fri Oct 11 18:02:45 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

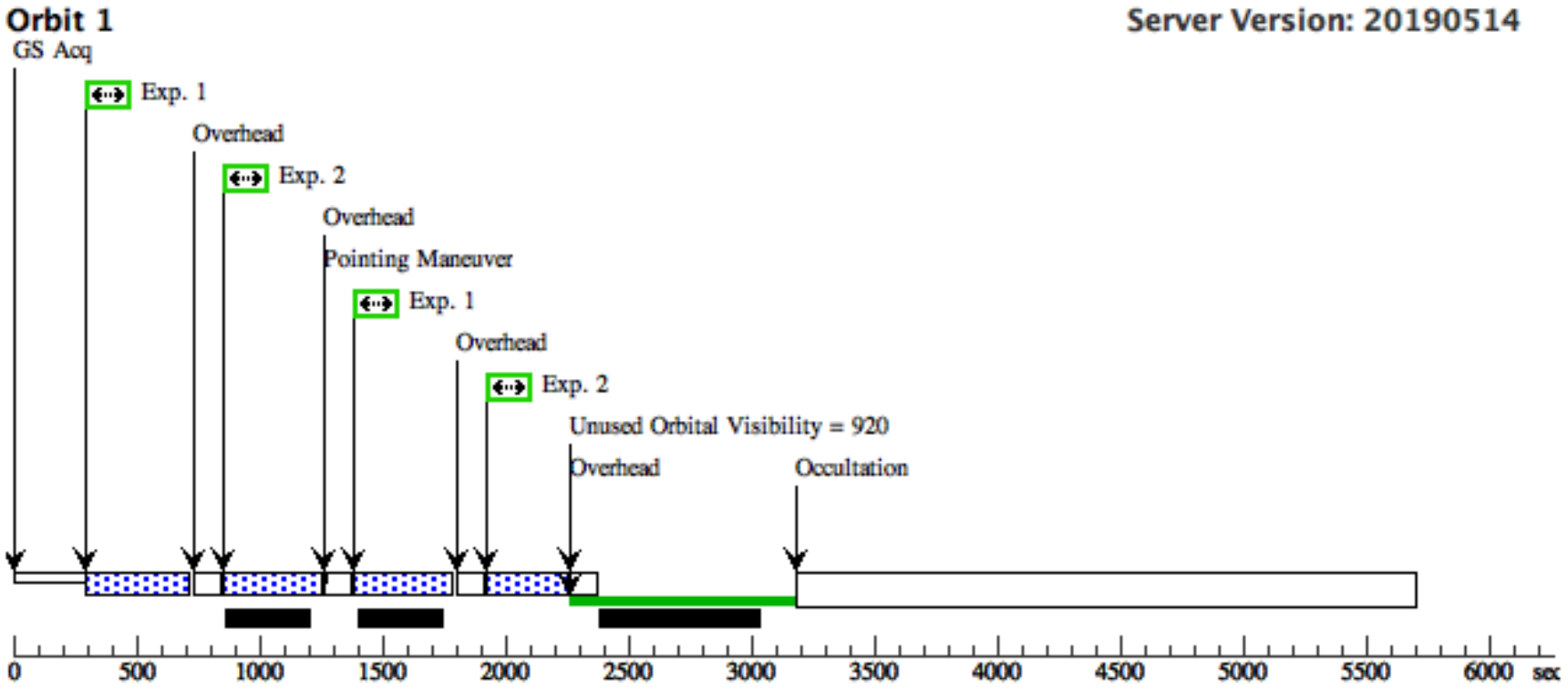
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(65)	SN2016BDU	RA: 13 10 13.9500 (197.5581250d) Dec: +32 31 14.07 (32.52058d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(65) SN2016BDU	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in sn2016bdu (65) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(65) SN2016BDU	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in sn2016bdu (65) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, SN2013dz (59), scheduling Fri Oct 11 18:02:45 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

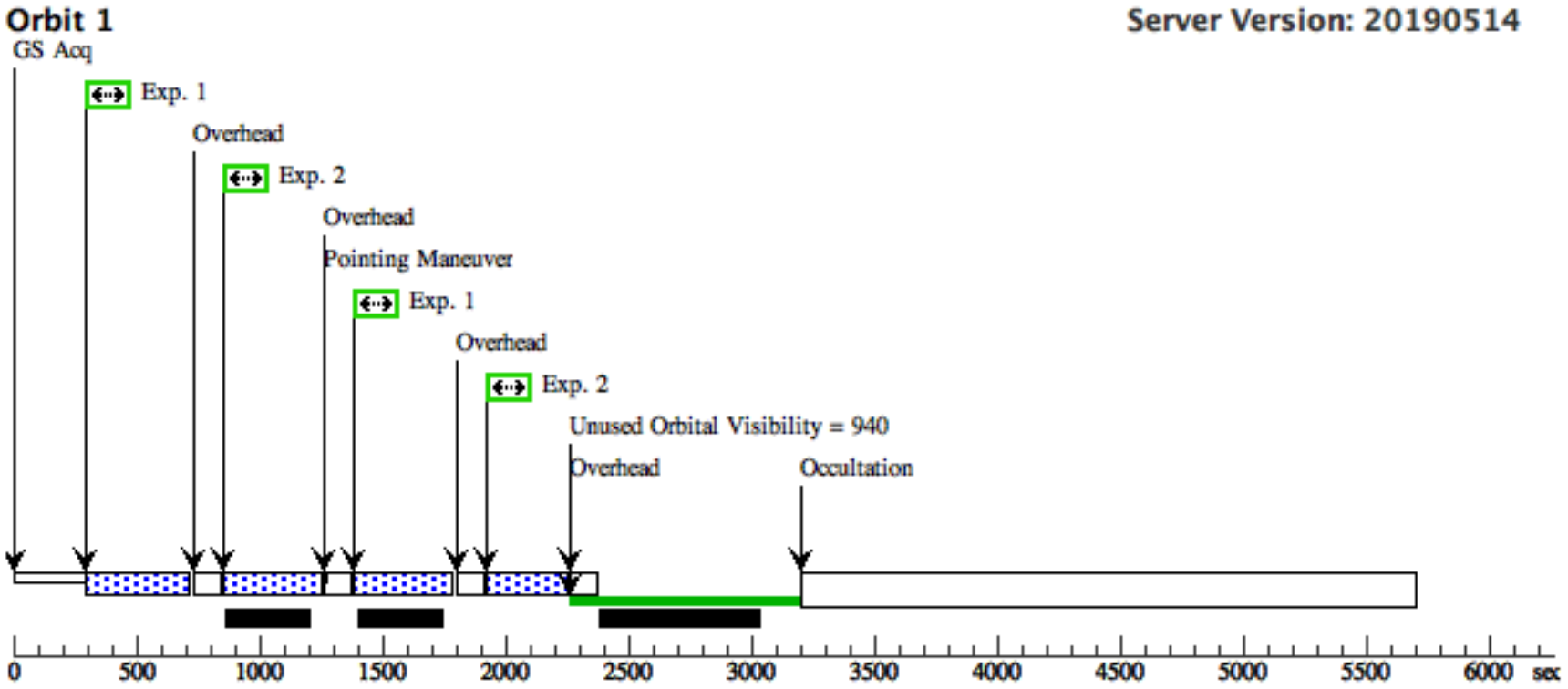
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(59)	SN2013DZ	RA: 02 58 24.4000 (44.6016667d) Dec: +36 17 3.52 (36.28431d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F814W	(59) SN2013DZ	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in SN2013dz (59) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F555W	(59) SN2013DZ	WFC3/UVIS, ACCUM, UVIS	F555W	FLASH=4		Pattern 1, Exps 1-2 in SN2013dz (59) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure



Visit

Proposal 16024, PTF14bdn (60), scheduling Fri Oct 11 18:02:45 GMT 2019

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	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		(1-2)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(60)	PTF14BDN	RA: 13 30 44.8800 (202.6870000d) Dec: +32 45 42.40 (32.76178d) Equinox: J2000		V=25.0	Reference Frame: ICRS

Comments:
Category=STAR
Description=[SUPERNOVA]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F275W	(60) PTF14BDN	WFC3/UVIS, ACCUM, UVIS	F275W	FLASH=12		Pattern 1, Exps 1-2 in PTF14bdn (60) (1)	780 Secs (780 Secs) *[==>390 Secs (Pattern 1)]* *[==>390 Secs (Pattern 2)]*	***[1]***
2	F814W	(60) PTF14BDN	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=4		Pattern 1, Exps 1-2 in PTF14bdn (60) (1)	710 Secs (710 Secs) *[==>390 Secs (Pattern 1)]* *[==>320 Secs (Pattern 2)]*	***[1]***

Orbit Structure