16246 - Are Narrow Line Region Outflows an Effective Mode of AGN Feedback?

Cycle: 28, Proposal Category: GO

(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?*
01	(1) UGC-01395	WFC3/UVIS	1	07-Oct-2020 14:00:20.0	yes
02	(2) NGC-788	WFC3/UVIS	1	07-Oct-2020 14:00:21.0	yes
03	(3) NGC-1358	WFC3/UVIS	1	07-Oct-2020 14:00:22.0	yes
04	(4) NGC-1667	WFC3/UVIS	1	07-Oct-2020 14:00:22.0	yes
05	(7) IC-3639	WFC3/UVIS	1	07-Oct-2020 14:00:23.0	yes
06	(8) NGC-5135	WFC3/UVIS	1	07-Oct-2020 14:00:24.0	yes
07	(10) NGC-5427	WFC3/UVIS	1	07-Oct-2020 14:00:25.0	yes
08	(11) NGC-5695	WFC3/UVIS	1	07-Oct-2020 14:00:25.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
09	(13) NGC-7682	WFC3/UVIS	1	07-Oct-2020 14:00:26.0	yes
10	(9) NGC-5283	WFC3/UVIS	2	07-Oct-2020 14:00:27.0	yes
11	(5) MRK-78	WFC3/UVIS	1	07-Oct-2020 14:00:27.0	yes
12	(6) NGC-3227	WFC3/UVIS	1	07-Oct-2020 14:00:28.0	yes
13	(12) NGC-6300	WFC3/UVIS	1	07-Oct-2020 14:00:29.0	yes

14 Total Orbits Used

ABSTRACT

The ionizing radiation generated by accreting supermassive black holes can drive powerful outflows that may play a key role in galaxy evolution by evacuating the galactic bulge of gas. These outflows are observed in the narrow line regions (NLRs) of AGN and can only be accurately characterized using the high spatial-resolution imaging and spectroscopy afforded by HST. We will build a sample of 22 nearby AGN to determine the spatially-resolved extents, mass outflow rates, and kinetic luminosities of their NLR outflows. We will do this efficiently by obtaining new [O III] plus continuum images of 13 Seyfert galaxies and combining them with MAST archival long-slit STIS spectra and photoionization models to increase the current sample of 3 AGN by a factor of ~7. The mass outflow rates will provide direct measures of the removal of potential star-forming gas and the kinetic luminosities will identify the locations and amounts of energy deposited into the gas to disrupt star formation. We will then model the enclosed mass profiles of the host galaxies to find their bulge radii and determine the extent to which radiation can drive outflows in the gravitational potential of the galaxy. The sample spans a significant range in luminosity, black hole mass, and Eddington ratio, allowing us to map the dependence of these outflow parameters on AGN properties and thereby determine the effectiveness of NLR outflows as a feedback mechanism in nearby AGN. This study will provide a baseline for interpreting outflows in AGN at higher redshifts, particularly with JWST, and increase the legacy value of the archival STIS spectra by providing matching [O III] images for future NLR studies.

OBSERVING DESCRIPTION

The observations for this program consist of WFC3 UVIS imaging of 13 Seyfert AGN.

The goal is to obtain continuum-subtracted [O III] 5007A emission-line images of each AGN.

Abbreviated Summary from Phase I Proposal:

At the low redshifts of our targets (z < 0.02), WFC3/UVIS and its filters provide the best sensitivities for deep [O III] imaging at the high spatial resolution that is essential for meeting our science goals. For ten of our targets we select the FQ508N filter that is centered on the [O III] 5007 emission line at low redshifts. For the remaining targets, NGC 3227 and NGC 6300, we select the F502N filter that is most appropriate for sampling the [O III] 5007 emission line at z < 0.005.

We will also obtain short F547M images for each target in the same orbit as the [O III] images for proper continuum subtraction. The F547M images will also be helpful at small angular scales in combination with deep ground-based continuum images to determine the host galaxies enclosed mass profiles. Mrk 78 and NGC 5283 have small angular sizes and each also requires a deeper, single-orbit F547M image. While ground-based continuum images will be used for the remaining targets, the small angular sizes of these two AGN make accurate bulge-mass profile decomposition impossible even with adaptive-optics imaging.

We split the images into two exposures for the continuum and three exposures for the [O III] images to remove cosmic rays, bad pixels, and improve the image quality by sampling the PSF. While three exposures for the continuum images would allow for further improvement, the increased overheads reduce the resulting S/N in the faint regions below acceptable levels for determining precise ionized gas masses and would require an additional orbit per target due to buffer dump limitations. Thus we opt for two F547M exposures, which is sufficient to correct for cosmic rays with exposure times of < 1000s (Dahlen+ 2010). Finally, we will post-flash the images to obtain the desired 20e- per pixel background (Biretta+ 2013) in order to mitigate charge transfer efficiency losses.

The observations consist of WFC3 UVIS imaging of 13 Seyfert AGN, each using one of four visit setups:

Visit Setup #1 - (9 Targets: UGC 01395, NGC 788, NGC 1358, NGC 1667, IC 3639, NGC 5135, NGC 5427, NGC 5695, NGC 7682)
These AGN will be observed for 1 orbit each using the FQ508N and F547M filters for [O III] and continuum images, respectively.
The visit has two F547M and three FQ508N exposures using two and three point dither patterns with three times the default spacing.
The F547M exposures are 350s in duration, with the FQ508N exposures filling the orbit, typically each ~ 460-510s.

Visit Setup #2 - (1 Target: NGC 5283)
This AGN will be observed over 2 orbits using the FQ508N and F547M filters for [O III] and continuum images, respectively.
The first orbit consists of three F547M exposures filling the orbit using a WFC3-UVIS-DITHER-LINE-3PT pattern.
The second orbit consits of three FQ508N exposures filling the orbit using a WFC3-UVIS-DITHER-LINE-3PT pattern.
The F547M and FQ508N exposures are ~ 940s in duration, filling two orbits, with three times the default point spacing.

Visit Setup #3 - (1 Target: MRK 78)
This AGN will be observed for 1 orbit using the F547M filter for continuum imaging and there is archival FOC [O III] imaging.
The visit has three exposures using a WFC3-UVIS-DITHER-LINE-3PT pattern with three times the default point spacing.
The F547M exposures are ~ 940s in duration, fully filling the orbit.

Visit Setup #4 - (2 Targets: NGC 3227, NGC 6300)
These AGN will be observed for 1 orbit each using the F502N and F547M filters for [O III] and continuum images, respectively.
The visit has two F547M and three FQ508N exposures using WFC3-UVIS-GAP-LINE patterns to encompass these low-redshift, extended objects.
For NGC 3227, a short ~ 20s F547M exposure is included to account for saturation near the bright Type I AGN nucleus.
The F547M exposures are 350s in duration, with the FQ508N exposures filling the orbit, typically each ~ 440-580s.

Requested Statement on the Impact of Reduced Gyro Operations: None of the observations in this program have orientation requirements and should be schedulable in 2 or even 1 gyro-modes. If required, the exposure times could be reduced by tens of seconds with a negligible impact on the signal-to-noise of the images if additional time is required for guide star acquisition and related orbital maneuvers.

Visit

Proposal 16246, UGC-01395 (01), implementation Wed Oct 07 18:00:29 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (01.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (01.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (01.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

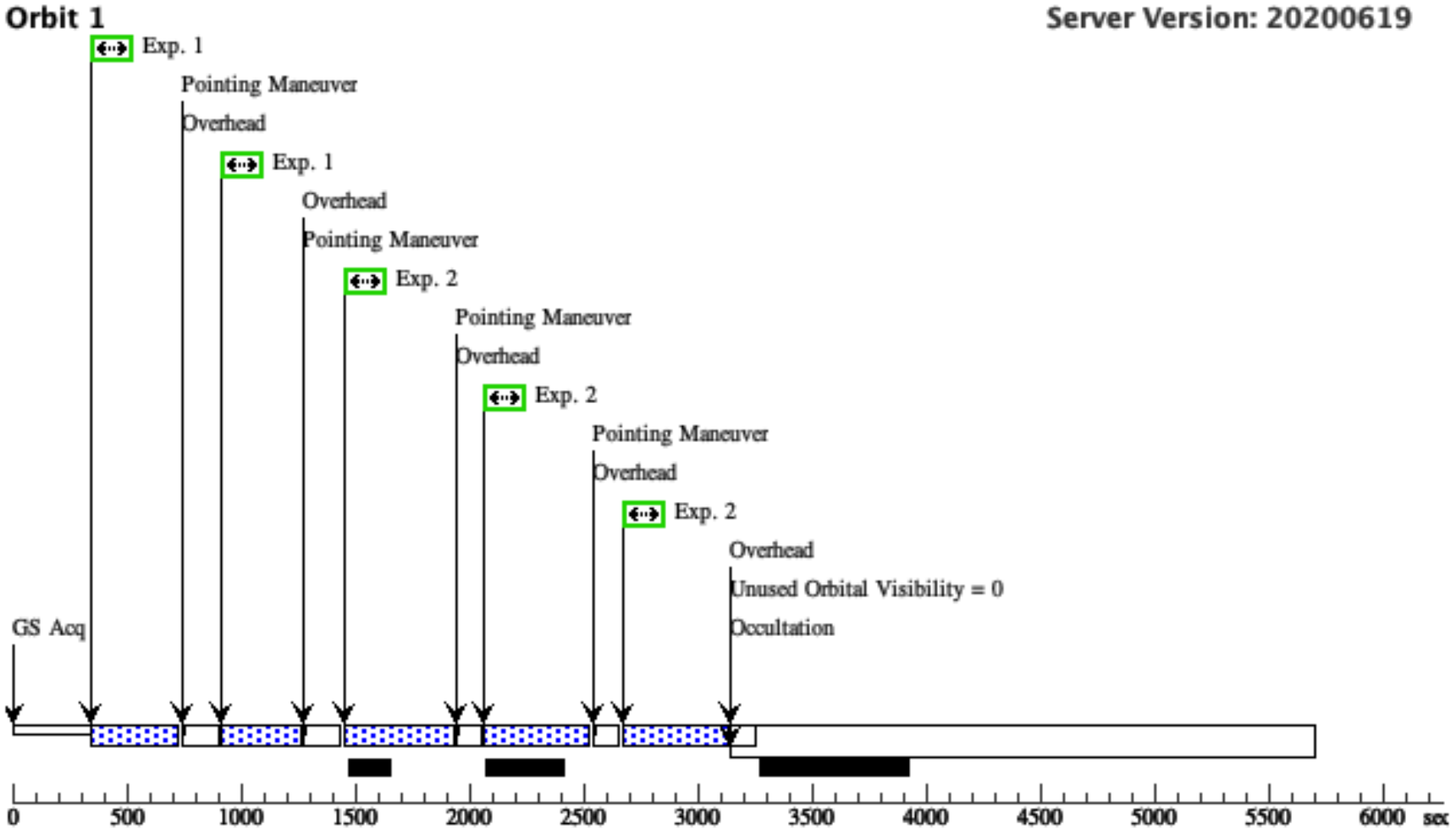
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	UGC-01395	RA: 01 55 22.0392 (28.8418300d) Dec: +06 36 42.66 (6.61185d) Equinox: J2000		V=13.62	Reference Frame: NED

Comments: This object was generated by the targetselector and retrieved from the NED database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(1) UGC-01395	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in UGC-01395 (01) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(1) UGC-01395	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in UGC-01395 (01) (2)	463 Secs (1389 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-788 (02), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (02.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (02.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (02.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

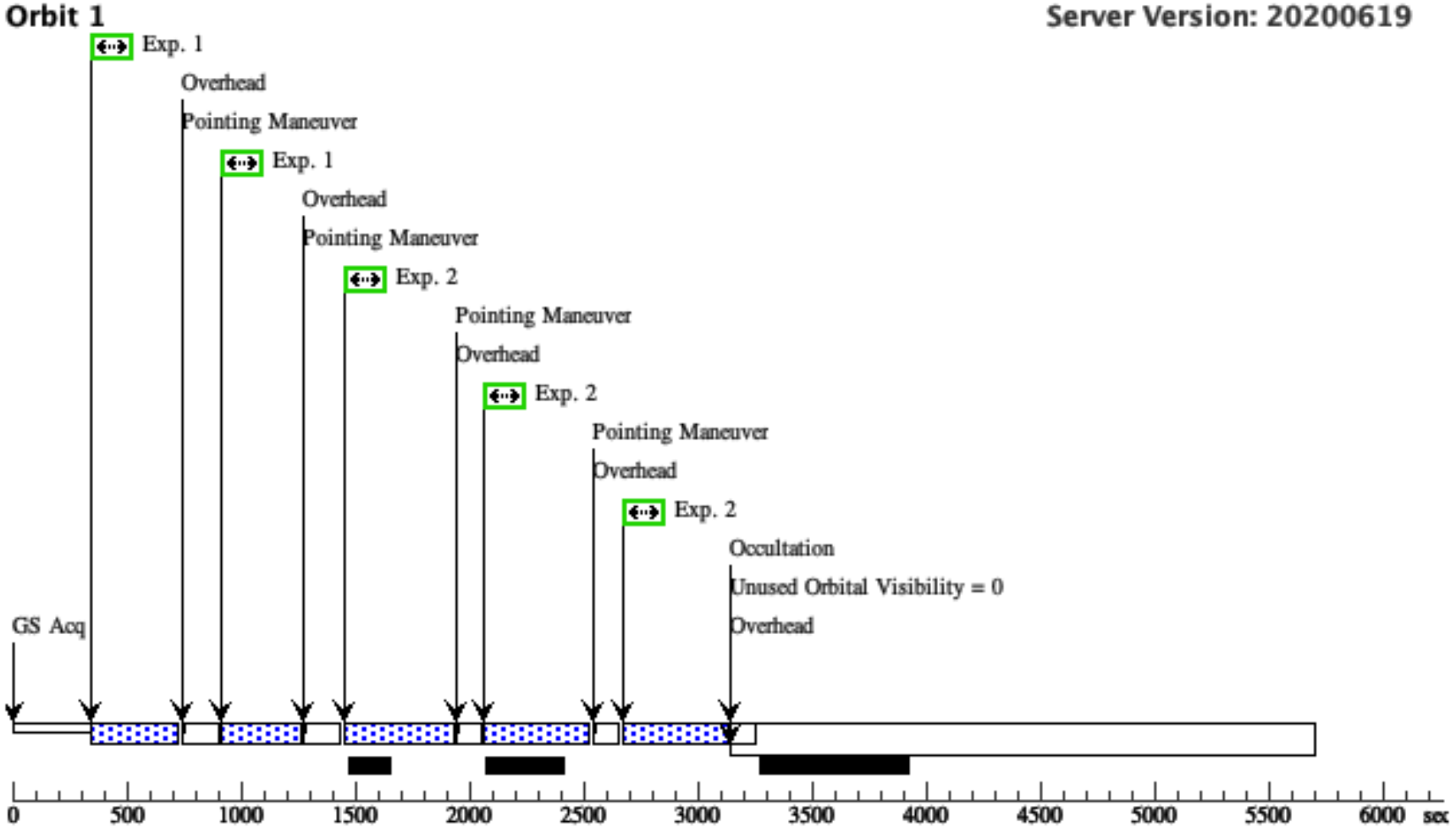
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC-788	RA: 02 01 6.4623 (30.2769262d) Dec: -06 48 57.15 (-6.81588d) Equinox: J2000	Epoch of Position: 2015.5	V=12.76	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(2) NGC-788	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-788 (02) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(2) NGC-788	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-788 (02) (2)	463 Secs (1389 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-1358 (03), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 350D TO 150 D; ORIENT 190D TO 320 D

Diagnostics

(F547M (03.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (03.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (03.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

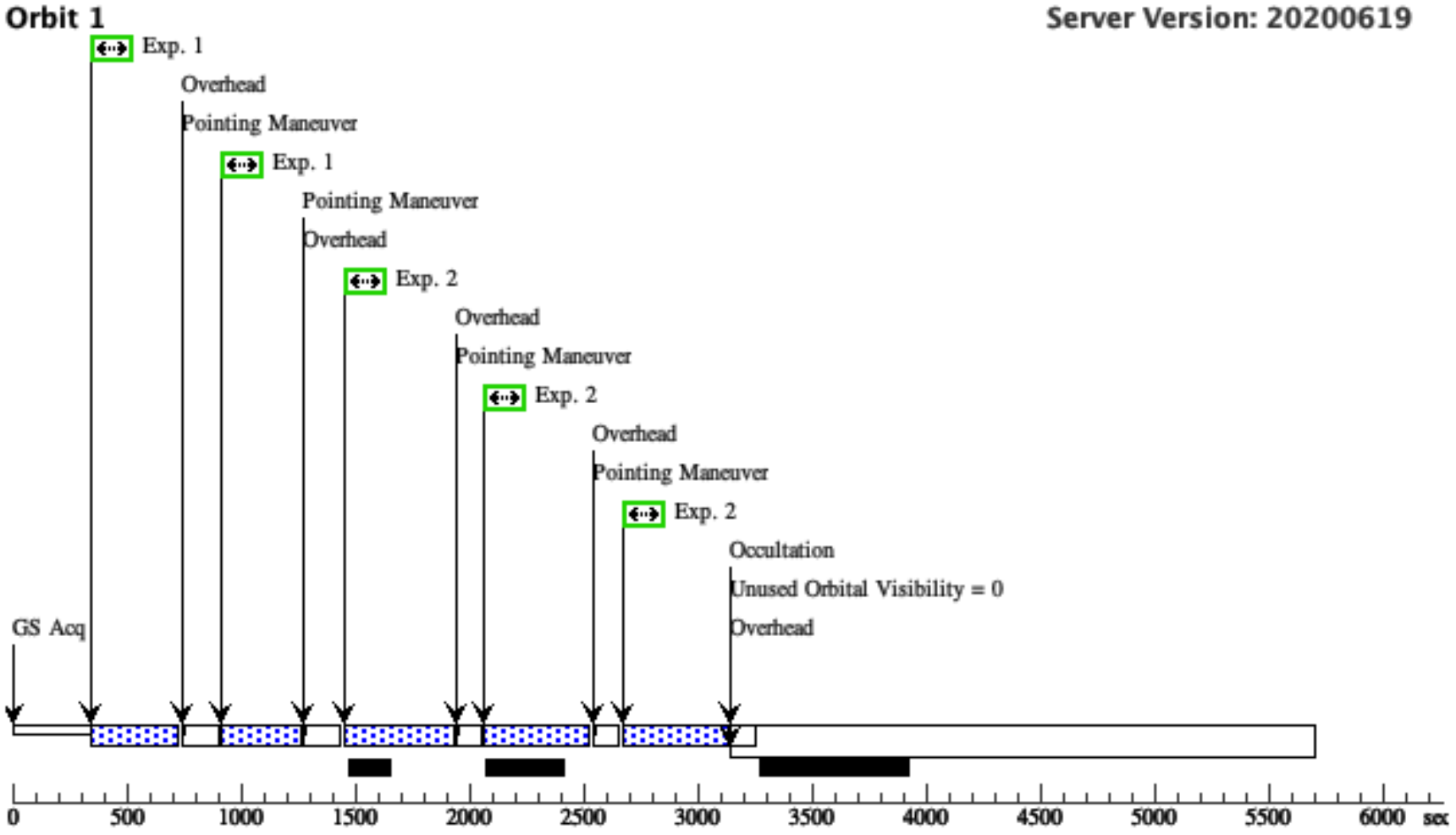
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC-1358	RA: 03 33 39.6845 (53.4153521d) Dec: -05 05 22.23 (-5.08951d) Equinox: J2000	Epoch of Position: 2015.5	V=13.05	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(3) NGC-1358	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-1358 (03) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(3) NGC-1358	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-1358 (03) (2)	463 Secs (1389 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-1667 (04), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (04.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (04.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (04.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

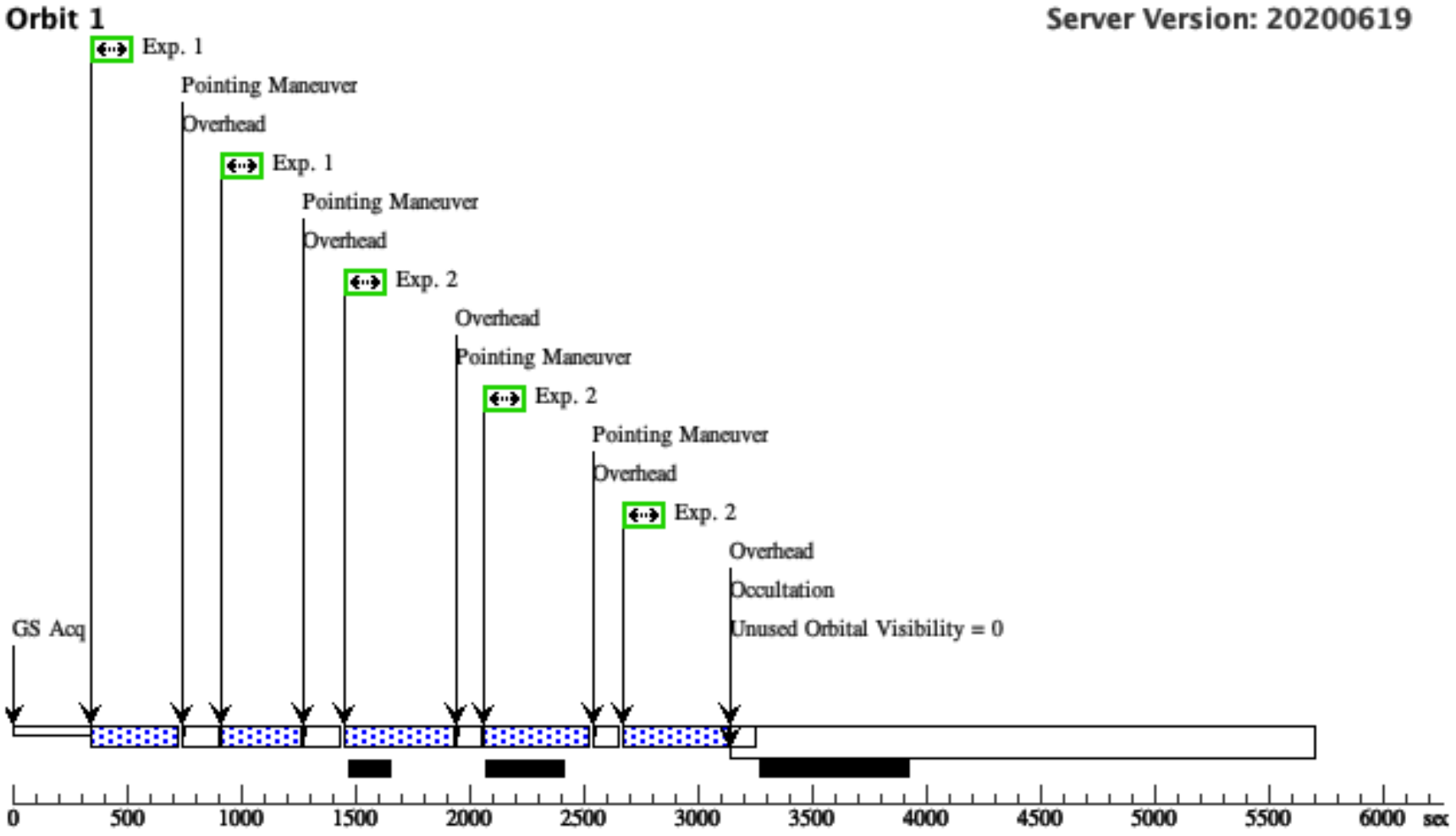
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	NGC-1667	RA: 04 48 37.2050 (72.1550208d) Dec: -06 19 11.47 (-6.31985d) Equinox: J2000	Epoch of Position: 2015.5	V=12.86	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(4) NGC-1667	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-1667 (04) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(4) NGC-1667	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-1667 (04) (2)	463 Secs (1389 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, IC-3639 (05), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 340D TO 275 D

Diagnostics

(F547M (05.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (05.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (05.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

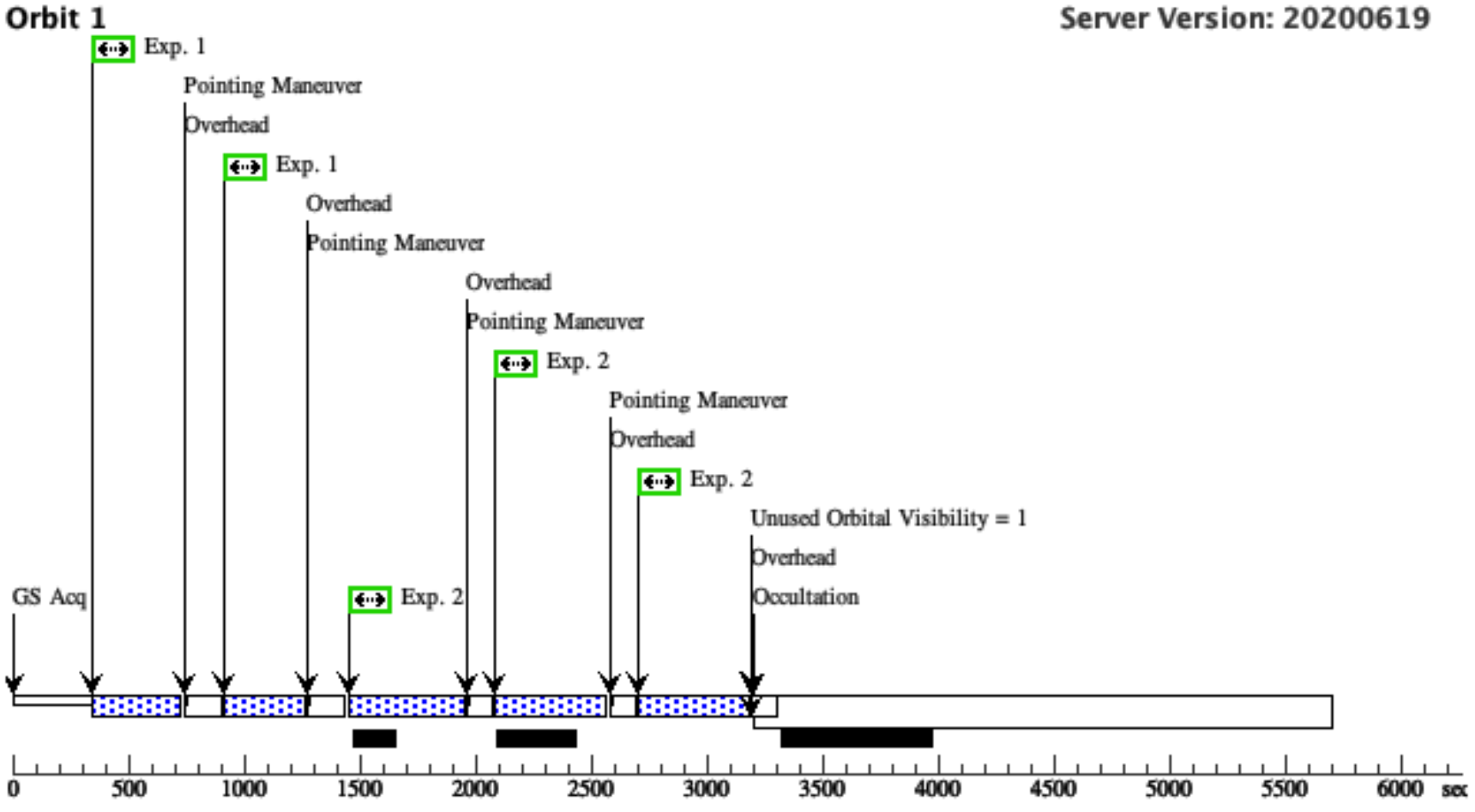
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	IC-3639	RA: 12 40 52.8358 (190.2201492d) Dec: -36 45 21.05 (-36.75585d) Equinox: J2000	Epoch of Position: 2015.5	V=13.5	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(7) IC-3639	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in IC-3639 (05) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(7) IC-3639	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in IC-3639 (05) (2)	481 Secs (1443 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-5135 (06), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 100D TO 85 D

Diagnostics

(F547M (06.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (06.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (06.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

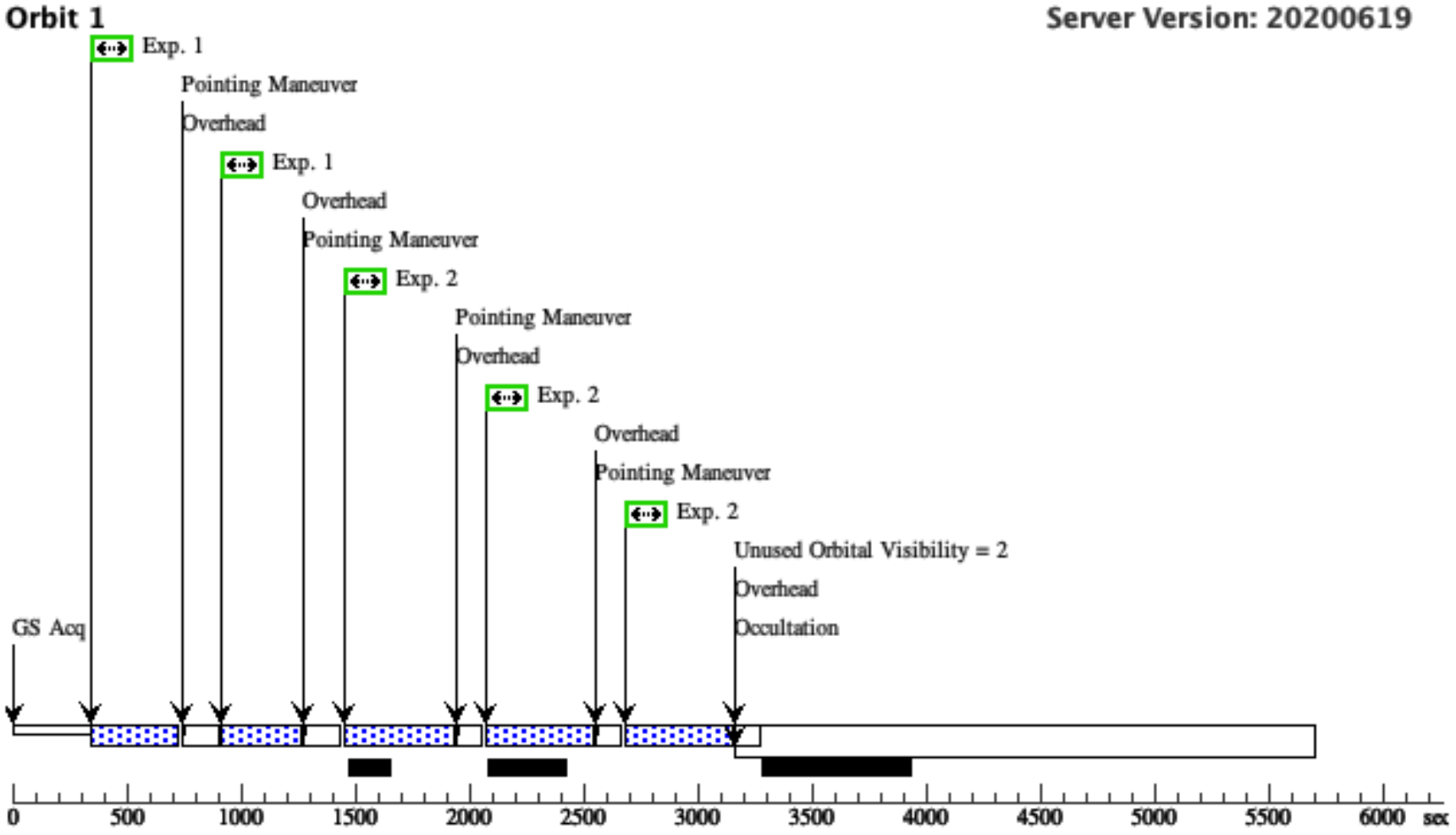
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	NGC-5135	RA: 13 25 44.0590 (201.4335792d) Dec: -29 50 1.24 (-29.83368d) Equinox: J2000	Epoch of Position: 2015.5	V=13.35	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(8) NGC-5135	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-5135 (06) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(8) NGC-5135	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-5135 (06) (2)	469 Secs (1407 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-5427 (07), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 110D TO 70 D

Diagnostics

(F547M (07.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (07.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (07.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

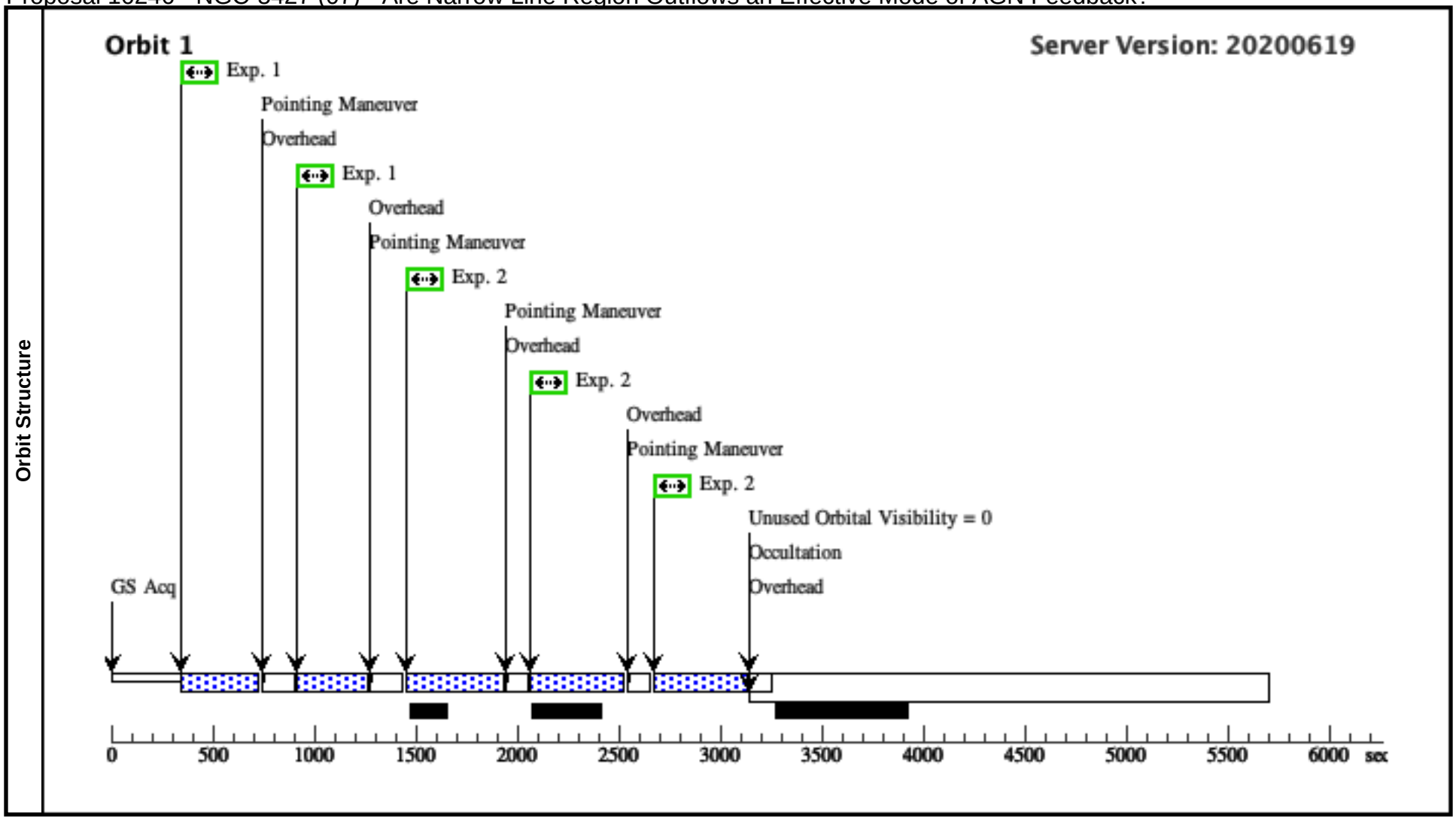
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	NGC-5427	RA: 14 03 26.0408 (210.8585033d) Dec: -06 01 50.69 (-6.03075d) Equinox: J2000	Epoch of Position: 2015.5	V=13.96	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(10) NGC-5427	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-5427 (07) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(10) NGC-5427	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-5427 (07) (2)	463 Secs (1389 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20200619
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Overhead
Pointing Maneuver
Exp. 2
Pointing Maneuver
Overhead
Exp. 2
Overhead
Pointing Maneuver
Exp. 2
Unused Orbital Visibility = 0
Occultation
Overhead
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16246, NGC-5695 (08), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (08.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (08.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (08.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

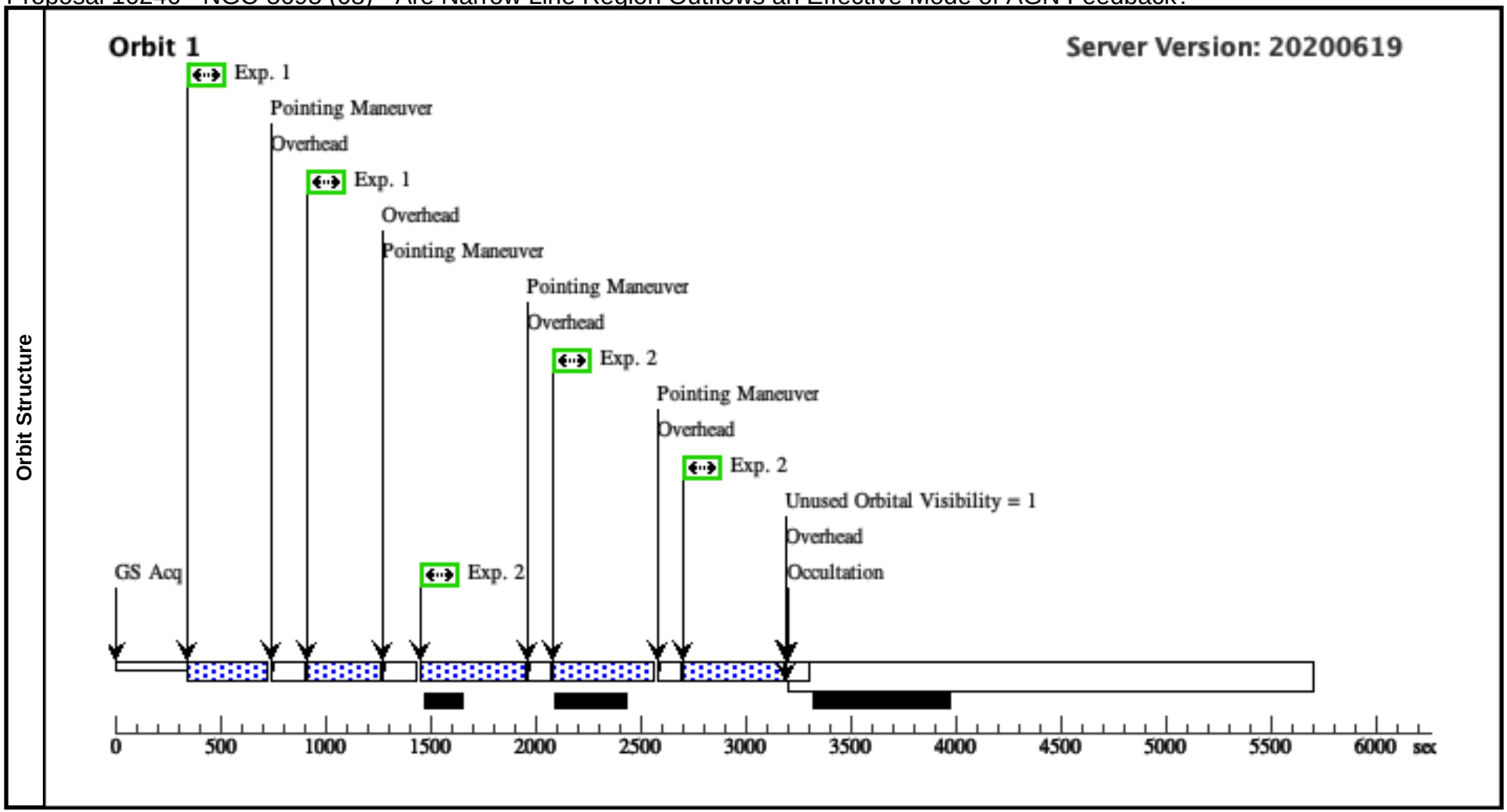
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(11)	NGC-5695	RA: 14 37 22.1345 (219.3422271d) Dec: +36 34 4.19 (36.56783d) Equinox: J2000	Epoch of Position: 2015.5	V=13.6	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(11) NGC-5695	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-5695 (08) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(11) NGC-5695	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-5695 (08) (2)	481 Secs (1443 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***


Orbit Structure
Orbit 1
Server Version: 20200619
Exp. 1
Pointing Maneuver
Overhead
Exp. 1
Overhead
Pointing Maneuver
Pointing Maneuver
Overhead
Exp. 2
Pointing Maneuver
Overhead
Exp. 2
Unused Orbital Visibility = 1
Overhead
Occultation
GS Acq
Exp. 2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16246, NGC-7682 (09), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (09.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (09.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (09.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-UVIS-DITHER-LINE Purpose=DITHER Number Of Points=2 Point Spacing=0.435 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(2)

Fixed Targets

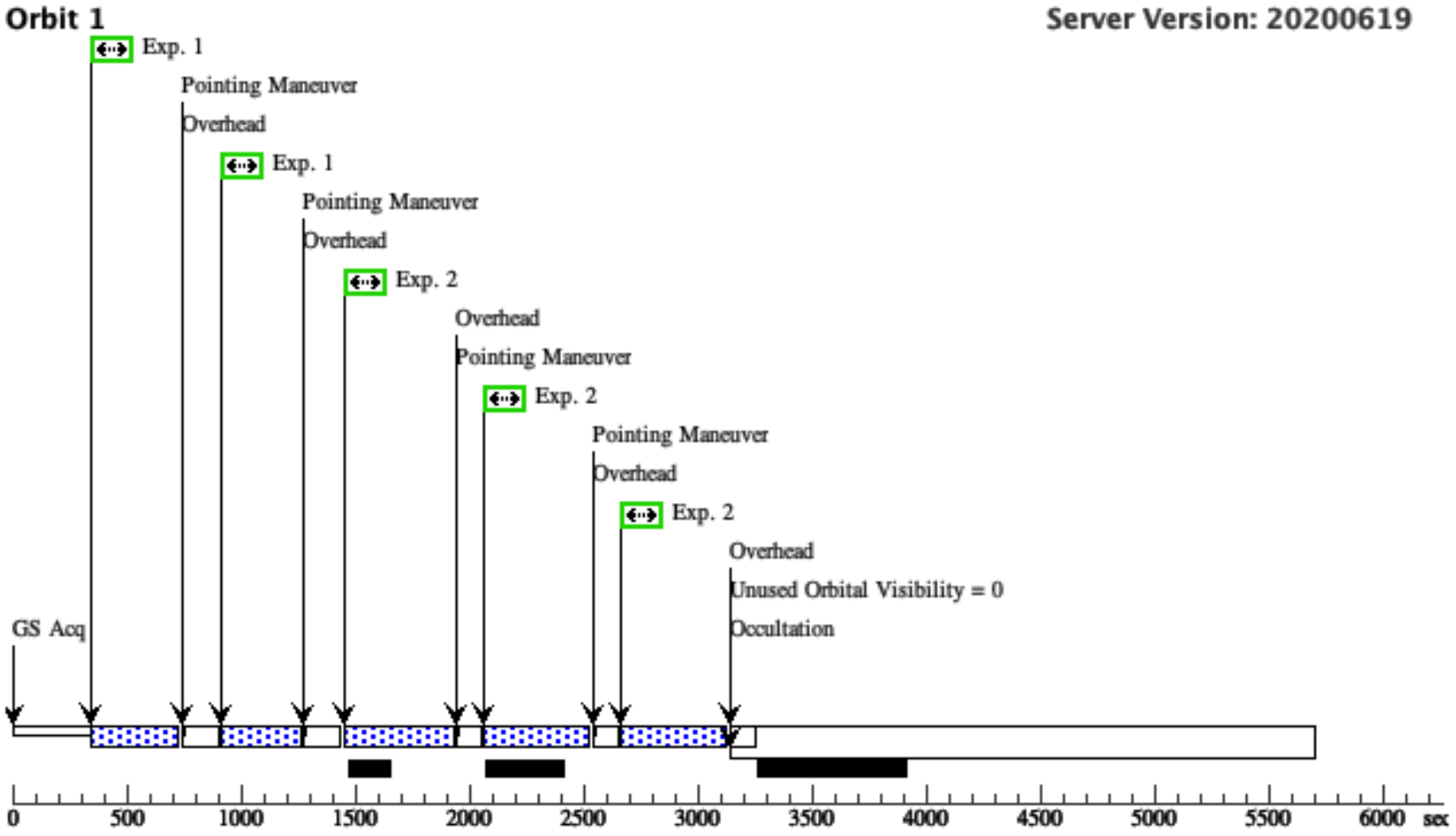
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(13)	NGC-7682	RA: 23 29 3.8960 (352.2662333d) Dec: +03 32 0.00 (3.53333d) Equinox: J2000	Epoch of Position: 2015.5	V=14.1	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(13) NGC-7682	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=16		Pattern 1, Exps 1-1 in NGC-7682 (09) (1)	350 Secs (700 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
2	FQ508N	(13) NGC-7682	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=18		Pattern 2, Exps 2-2 in NGC-7682 (09) (2)	462 Secs (1386 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	***[1]***

Orbit Structure



Visit

Proposal 16246, NGC-5283 (10), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (10.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (10.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(FQ508N (10.002)) Warning (Form): POS TARG & PATTERN should be used carefully with WFC3 quad filters to avoid placing the target on the vignetted part of the field of view or moving it to another quadrant.

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1), (2)

Fixed Targets

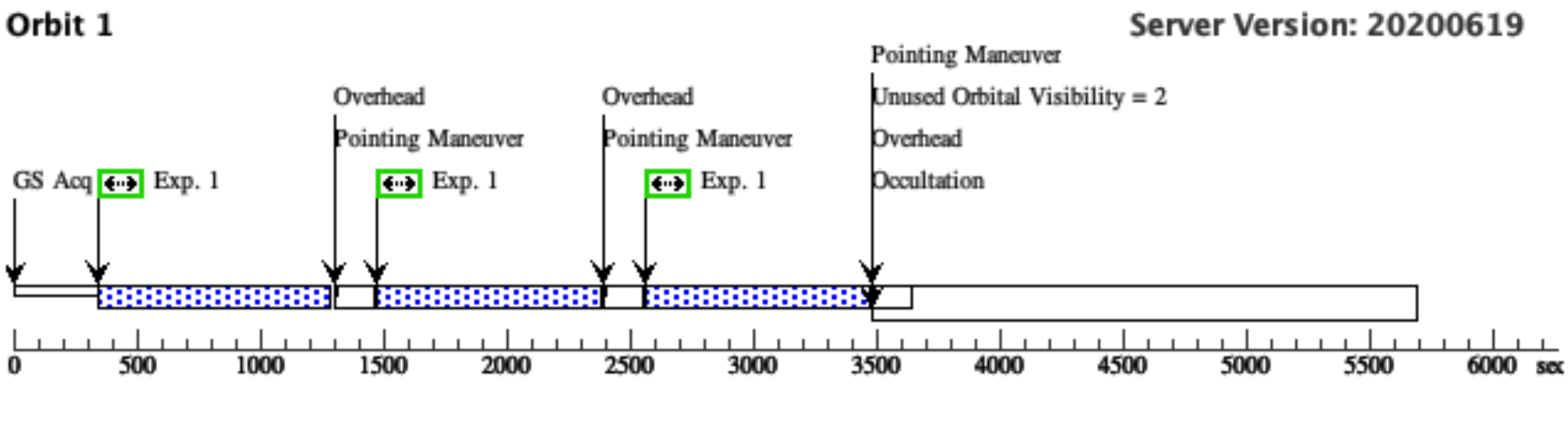
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(9)	NGC-5283	RA: 13 41 5.7488 (205.2739533d) Dec: +67 40 20.00 (67.67222d) Equinox: J2000	Epoch of Position: 2015.5	V=14.05	Reference Frame: SIMBAD

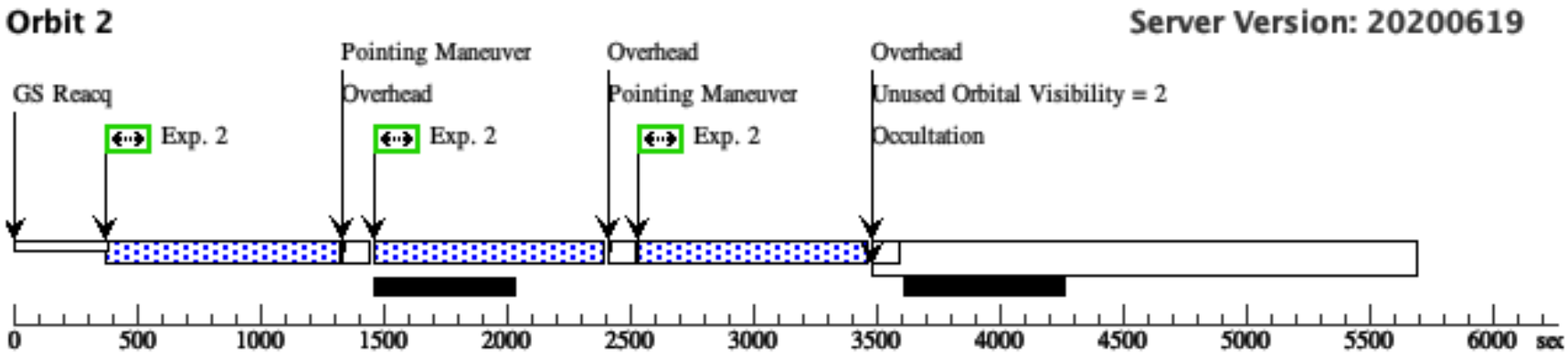
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(9) NGC-5283	WFC3/UVIS, ACCUM, UVIS1-2K2A-SUB	F547M	FLASH=9		Pattern 2, Exps 1-1 in NGC-5283 (10) (2)	909 Secs (2727 Secs)	
								[==>(Pattern 1)]	
								[==>(Pattern 2)]	***[1]***
								[==>(Pattern 3)]	
2	FQ508N	(9) NGC-5283	WFC3/UVIS, ACCUM, UVIS-QUAD	FQ508N	FLASH=17		Pattern 2, Exps 2-2 in NGC-5283 (10) (2)	936 Secs (2808 Secs)	
								[==>(Pattern 1)]	
								[==>(Pattern 2)]	***[2]***
								[==>(Pattern 3)]	

Orbit Structure





Visit

Proposal 16246, MRK-78 (11), implementation Wed Oct 07 18:00:30 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(F547M (11.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=WFC3-UVIS-DITHER-LINE-3PT Purpose=DITHER Number Of Points=3 Point Spacing=0.405 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=46.84 Angle Between Sides= Center Pattern=false		(1)

Fixed Targets

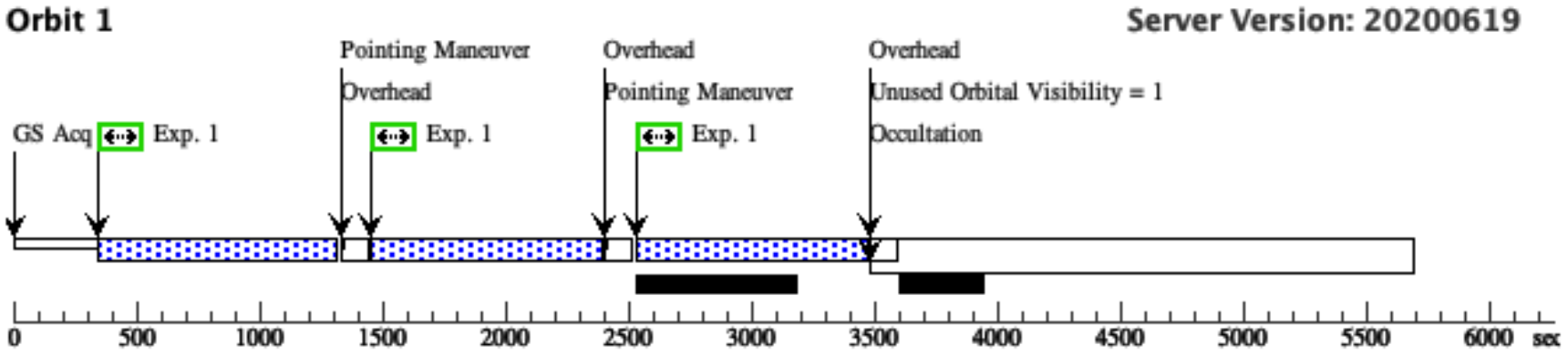
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	MRK-78	RA: 07 42 41.7031 (115.6737629d) Dec: +65 10 37.43 (65.17706d) Equinox: J2000	Epoch of Position: 2015.5	V=14.58	Reference Frame: SIMBAD

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(5) MRK-78	WFC3/UVIS, ACCUM, UVIS2	F547M	FLASH=9		Pattern 2, Exps 1-1 in MRK-78 (11) (2)	942 Secs (2826 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]*	*[1]*

Orbit Structure



Visit

Proposal 16246, NGC-3227 (12), implementation Wed Oct 07 18:00:31 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: ORIENT 260D TO 240 D

Diagnostics

(F547M Short (12.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(F547M (12.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(F502N (12.003)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=85.759		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=false		
	Line Spacing=			
(4)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(3)
	Purpose=DITHER	Pattern Orientation=85.759		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=false		
	Line Spacing=			

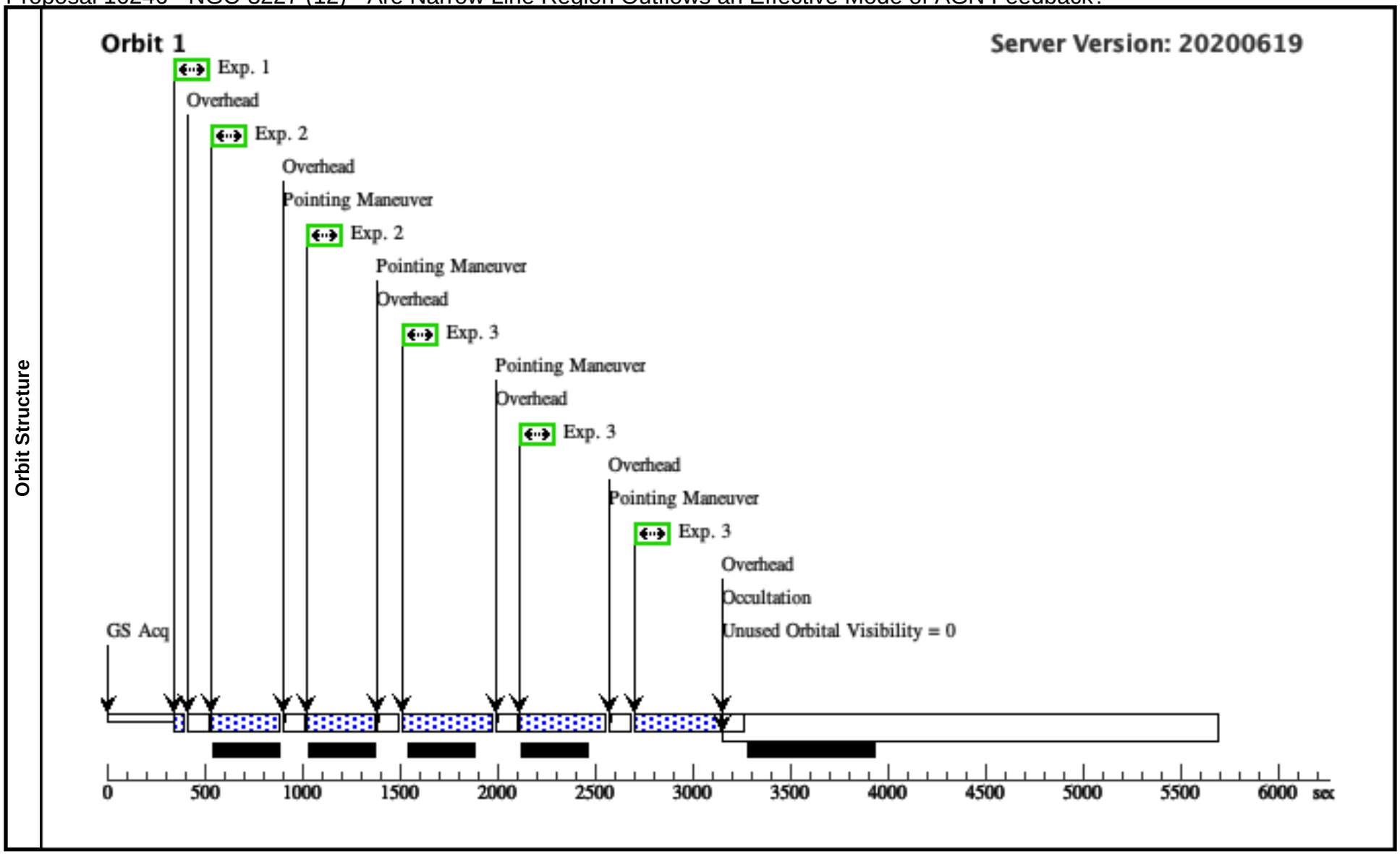
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	NGC-3227	RA: 10 23 30.5700 (155.8773750d)	Epoch of Position: 2015.5	V=11.79	Reference Frame: SIMBAD
		Dec: +19 51 54.30 (19.86508d)			
		Equinox: J2000			

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M Short	(6) NGC-3227	WFC3/UVIS, ACCUM, UVIS	F547M	FLASH=19			20 Secs (20 Secs)	
								[==>]	***[1]***
2	F547M	(6) NGC-3227	WFC3/UVIS, ACCUM, UVIS	F547M	FLASH=16		Pattern 3, Exps 2-2 in NGC-3227 (12) (3)	350 Secs (700 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
3	F502N	(6) NGC-3227	WFC3/UVIS, ACCUM, UVIS	F502N	FLASH=18		Pattern 4, Exps 3-3 in NGC-3227 (12) (4)	444 Secs (1332 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
								[==>(Pattern 3)]	


Orbit Structure
Orbit 1
Server Version: 20200619
Exp. 1
Overhead
Exp. 2
Overhead
Pointing Maneuver
Exp. 2
Pointing Maneuver
Overhead
Exp. 3
Pointing Maneuver
Overhead
Exp. 3
Overhead
Pointing Maneuver
Exp. 3
Overhead
Occultation
Unused Orbital Visibility = 0
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16246, NGC-6300 (13), implementation Wed Oct 07 18:00:31 GMT 2020

Diagnostic Status: Warning

Scientific Instruments: WFC3/UVIS

Special Requirements: (none)

Diagnostics

(NGC-6300 (13)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(F547M (13.001)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

(F502N (13.002)) Warning (Form): FLASH level may be too high for this exposure or a long subexposure. See extended explanation in the diagnostic browser

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(3)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=85.759		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=false		
	Line Spacing=			
(4)	Pattern Type=WFC3-UVIS-GAP-LINE	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=85.759		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=2.414	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	NGC-6300	RA: 17 16 59.4730 (259.2478042d)	Epoch of Position: 2015.5	V=13.08	Reference Frame: SIMBAD
		Dec: -62 49 13.98 (-62.82055d)			
		Equinox: J2000			

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=GALAXY
Description=[SEYFERT]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F547M	(12) NGC-6300	WFC3/UVIS, ACCUM, UVIS	F547M	FLASH=16		Pattern 3, Exps 1-1 in NGC-6300 (13) (3)	350 Secs (700 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
2	F502N	(12) NGC-6300	WFC3/UVIS, ACCUM, UVIS	F502N	FLASH=18		Pattern 4, Exps 2-2 in NGC-6300 (13) (4)	583 Secs (1749 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
								[==>(Pattern 3)]	

Orbit Structure