18419 - Anchoring Mira Distance Ladder: Bridging Ground-Based, Optical, and Next-Generation Observations with WFC3/IR

Cycle: 34, 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) NGC4258-INNER	WFC3/IR	1	19-Aug-2026 07:00:16.0	yes
02	(1) NGC4258-INNER	WFC3/IR	1	19-Aug-2026 07:00:16.0	yes
03	(1) NGC4258-INNER	WFC3/IR	1	19-Aug-2026 07:00:17.0	yes
04	(1) NGC4258-INNER	WFC3/IR	1	19-Aug-2026 07:00:17.0	yes
05	(1) NGC4258-INNER	WFC3/IR	1	19-Aug-2026 07:00:17.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
06	(2) CEN-A-F1	WFC3/IR	1	19-Aug-2026 07:00:18.0	yes
07	(2) CEN-A-F1	WFC3/IR	1	19-Aug-2026 07:00:18.0	yes
08	(2) CEN-A-F1	WFC3/IR	1	19-Aug-2026 07:00:19.0	yes
09	(2) CEN-A-F1	WFC3/IR	1	19-Aug-2026 07:00:20.0	yes
10	(2) CEN-A-F1	WFC3/IR	1	19-Aug-2026 07:00:20.0	yes
11	(3) CEN-A-F2	WFC3/IR	1	19-Aug-2026 07:00:21.0	yes
12	(3) CEN-A-F2	WFC3/IR	1	19-Aug-2026 07:00:22.0	yes
13	(3) CEN-A-F2	WFC3/IR	1	19-Aug-2026 07:00:22.0	yes
14	(3) CEN-A-F2	WFC3/IR	1	19-Aug-2026 07:00:23.0	yes
15	(3) CEN-A-F2	WFC3/IR	1	19-Aug-2026 07:00:23.0	yes
16	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:24.0	yes
17	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:24.0	yes
18	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:24.0	yes
19	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:25.0	yes
20	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:25.0	yes
21	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:25.0	yes
22	(4) M-51	WFC3/IR	1	19-Aug-2026 07:00:26.0	yes

22 Total Orbits Used

ABSTRACT

The discrepancy between the local and early-Universe measurements of the Hubble constant (H0) remains a key unresolved issue in cosmology. The tension has grown even more robust in recent joint analysis from the Local Distance Network collaboration, with a baseline result 7.1sigma from the early Universe + LambdaCDM value, hinting at missing physics beyond the standard model. In this networked approach, reducing reliance on any single method requires robust cross-checks between independent indicators. Luminous, oxygen-rich Mira variables are uniquely positioned to provide these vital cross-checks across all distances and host environments.

To maximize the utility of HST's archival WFC3/IR data before the instrument's eventual decommissioning, we propose new, multi-epoch observations of three nearby galaxies: NGC 4258, NGC 5128, and M51. Combined with archival data, this program will 1) extend and improve the absolute calibration of the Mira Period-Luminosity Relation, 2) bridge HST and ground-based IR filter systems, 3) demonstrate the feasibility of obtaining Mira distances across diverse galaxy environments, and 4) conduct a novel cross-checks against Cepheids, TRGB, and the Type IIP supernova expanding photosphere method. Because neither JWST nor Roman can replicate Hubble's observational flexibility and cadence for nearby resolved stellar populations, this program represents an essential, time-sensitive investment to finalize the Mira distance scale.

OBSERVING DESCRIPTION

This program consists of a total of 33 orbits divided between Cycle 34 (22 orbits) and Cycle 35 (11 orbits). We will target 3 galaxies: M51, Cen A, and NGC 4258. The observations are designed to synergize with the existing archival observations while allowing as large of visibility windows as possible. In order to recover periods precisely, we have designated the necessary timing requirements in the observation setups. All observations will be made with WFC3/IR and do not have any orientation angle constraints. Targets are resolved stellar populations in nearby galaxies.

NGC 4258 and M51 are located at ~ 7 Mpc, and thus we will observe only F160W to increase the recovery of fainter, shorter-period stars. Cen A, which is at ~3.5 Mpc will be observed in both F160W and F110W to add broadband color information.

Cycle 34 Observations

NGC 4258: 1 field which will be observed in 5 epochs, each consisting of 1 orbit. Observations will utilize a four-point dither pattern and F160W filter. Observations will have a semi-logarithmic spacing to reduce potential aliasing, while also recovering shorter periods more accurately.

Cen A: 2 fields (F1 and F2, based on the designations from Rejkuba+2003a,b and 2004), each with 5 epochs, consisting of 1 orbit (a total of 10 epochs/orbits). Observations will utilize a four-point dither pattern and F160W and F110W filters. Observations will be spaced approximately monthly over the course of the year during visibility windows.

M51: 1 field which will be observed in 7 epochs each consisting of 1 orbit. Observations will utilize a four-point dither pattern and F160W filter. Observations will have roughly monthly spacing over the course of a year.

Cycle 35 Observations

NGC 4258: No observations in Cycle 35.

Cen A: 2 fields observed in 3 epochs consisting of 1 orbit each (a total of 6 orbits). Observations will utilize a four-point dither pattern and F160W and F110W filters. Observing over Cycle 34 and 35 will improve the baseline for long-period variables.

M51: 1 field observed in 5 epochs, consisting of 1 orbit each for a total of 5 orbits. Observations will utilize a four-point dither pattern and F160W filter. Combined with Cycle 34 observations these will result in an improved long-period variable baseline.

Visit

Proposal 18419, Visit 1, NGC 4258 (01) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BEFORE 01-DEC-2026:00:00:00

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

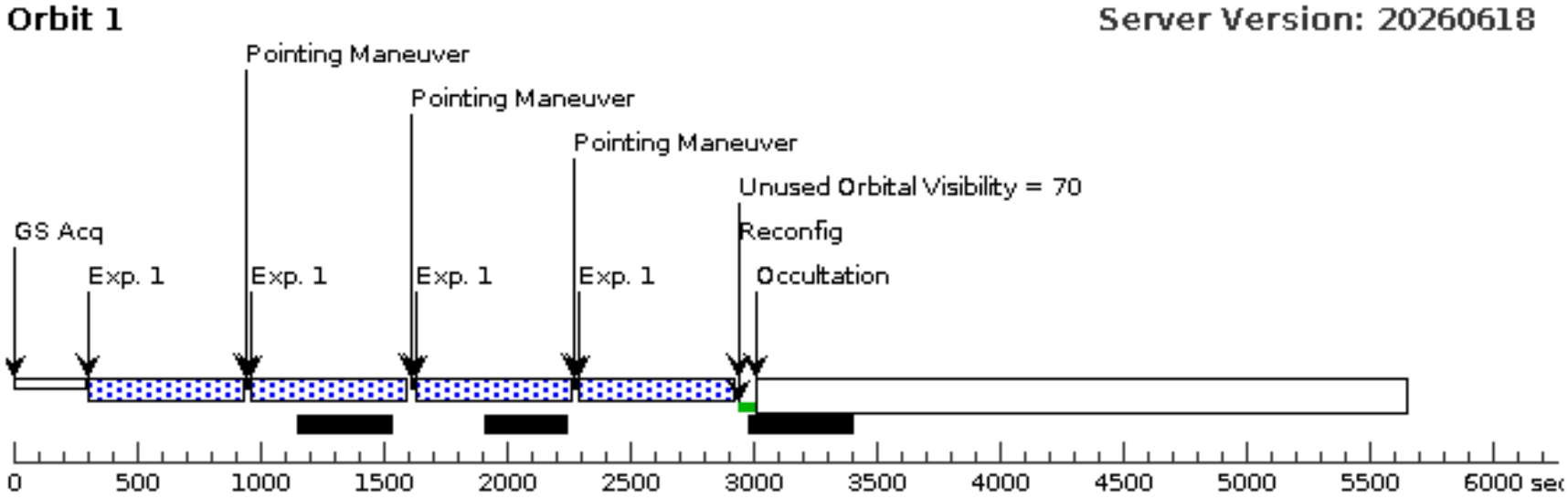
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC4258-INNER	RA: 12 18 47.5140 (184.6979750d) Dec: +47 20 20.25 (47.33896d) Equinox: J2000		V=8.41	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(1) NGC4258-INNER	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 1, NGC 4258 (01) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 2, NGC 4258 (02) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER_01 BY 20 D TO 40 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

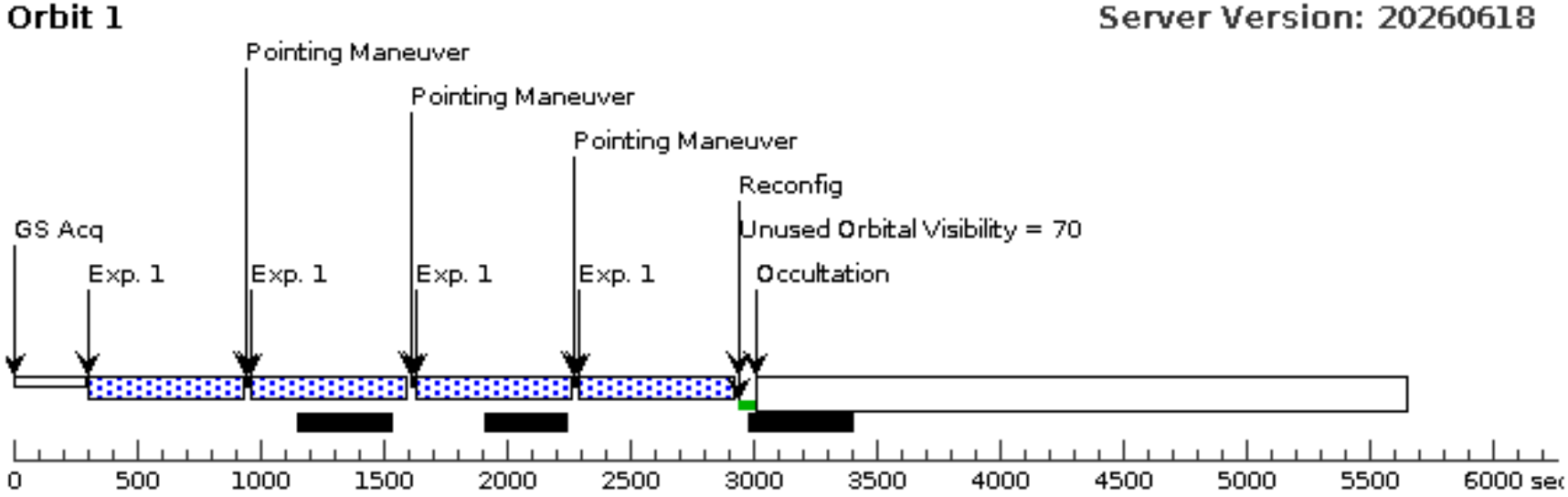
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC4258-INNER	RA: 12 18 47.5140 (184.6979750d) Dec: +47 20 20.25 (47.33896d) Equinox: J2000		V=8.41	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(1) NGC4258-INNER	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 2, NGC 4258 (02) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 3, NGC 4258 (03) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER_01 BY 100 D TO 120 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

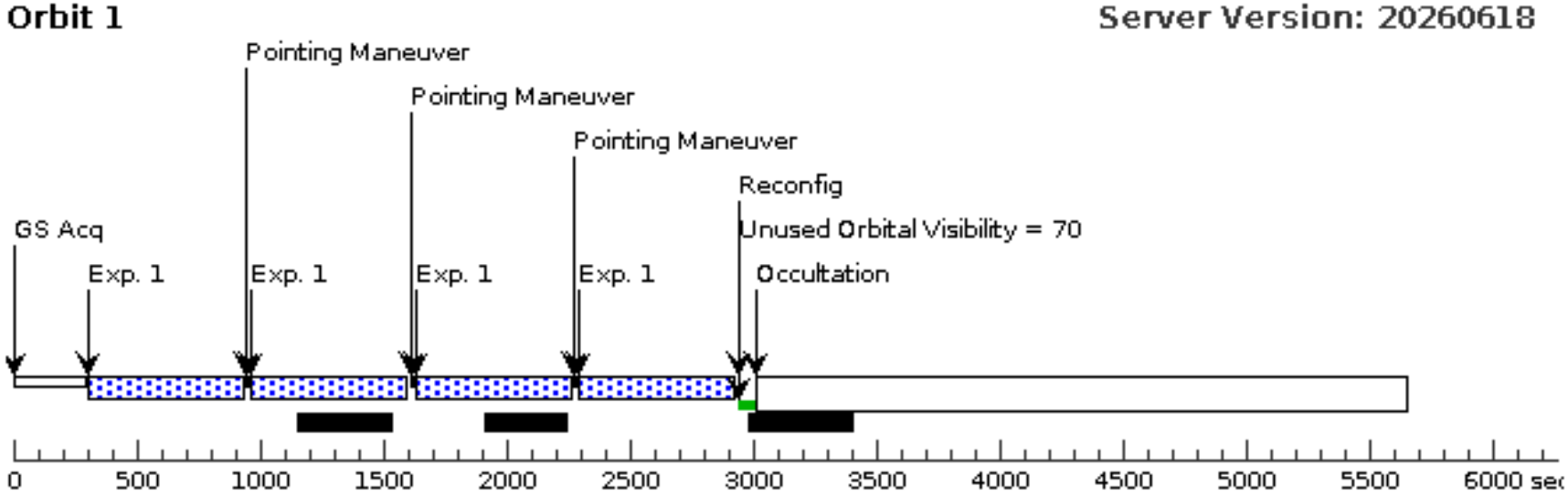
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC4258-INNER	RA: 12 18 47.5140 (184.6979750d) Dec: +47 20 20.25 (47.33896d) Equinox: J2000		V=8.41	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(1) NGC4258-INNER	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 3, NGC 4258 (03) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 4, NGC 4258 (04) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER_01 BY 170 D TO 220 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

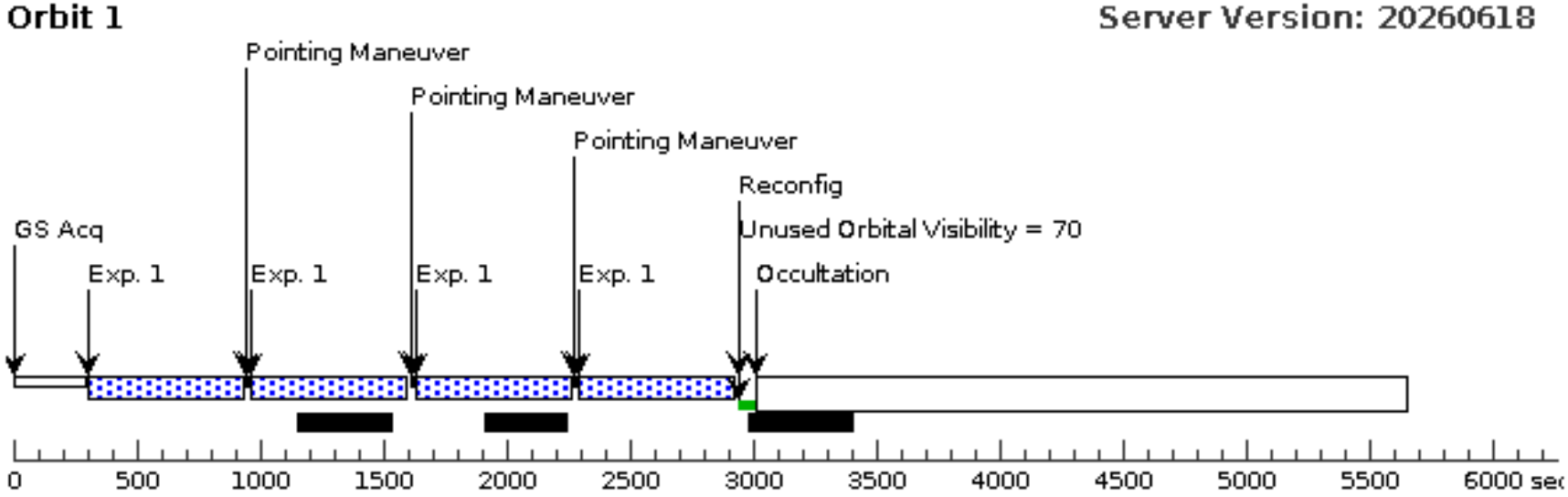
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC4258-INNER	RA: 12 18 47.5140 (184.6979750d) Dec: +47 20 20.25 (47.33896d) Equinox: J2000		V=8.41	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(1) NGC4258-INNER	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 4, NGC 4258 (04) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 5, NGC 4258 (05) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER_01 BY 300 D TO 365 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

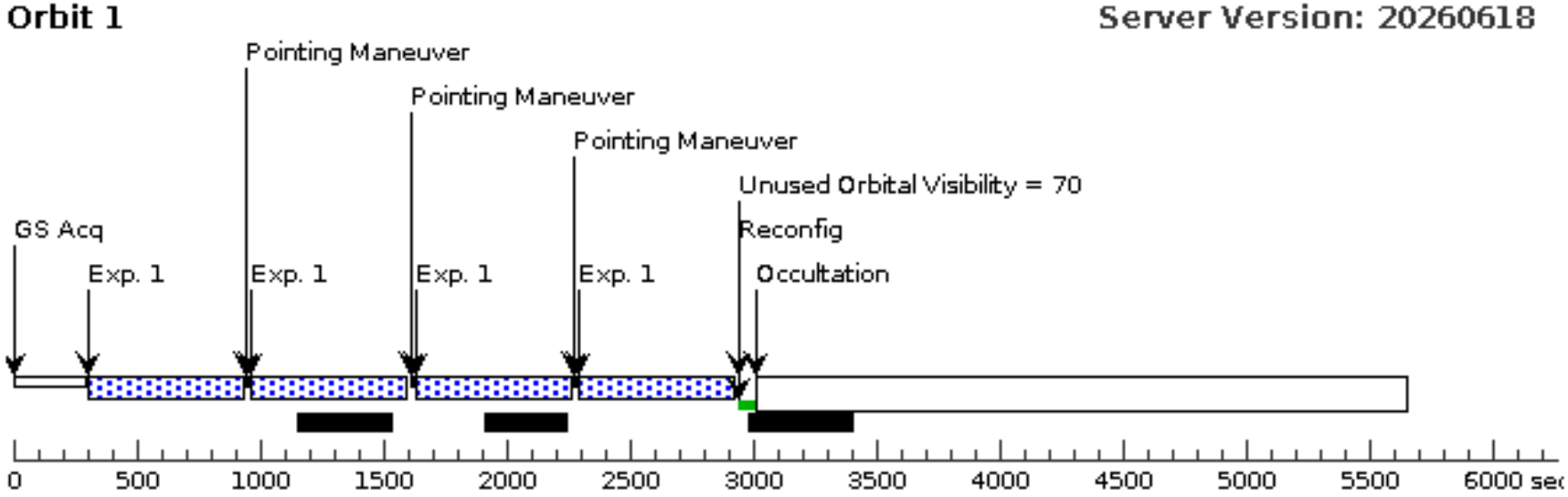
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC4258-INNER	RA: 12 18 47.5140 (184.6979750d) Dec: +47 20 20.25 (47.33896d) Equinox: J2000		V=8.41	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(1) NGC4258-INNER	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 5, NGC 4258 (05) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 1, Cen A F1 (06) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BEFORE 31-DEC-2026:00:00:00

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

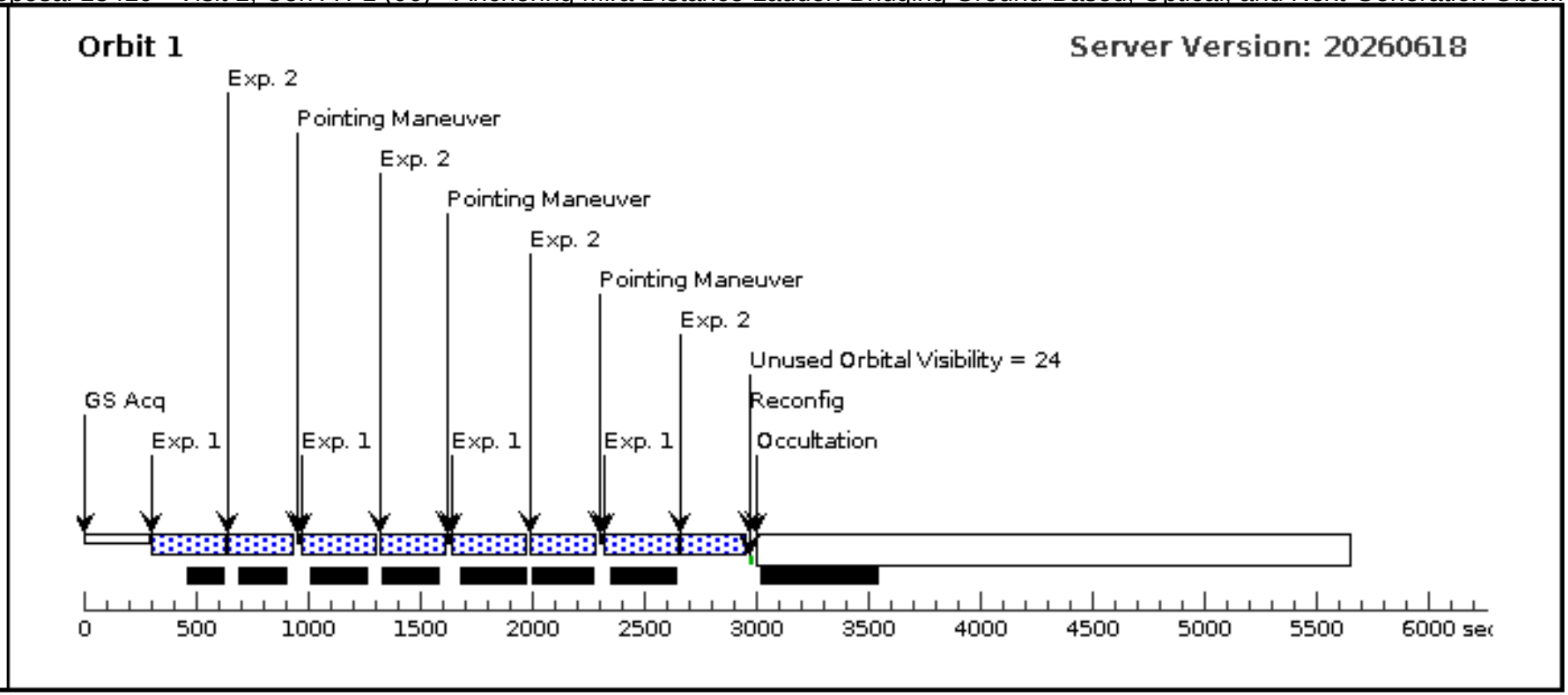
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CEN-A-F1	RA: 13 26 23.5000 (201.5979167d) Dec: -42 52 0.00 (-42.86667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 1, Cen A F1 (06) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 1, Cen A F1 (06) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 2, Cen A F1 (07) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 06 BY 5 D TO 30 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

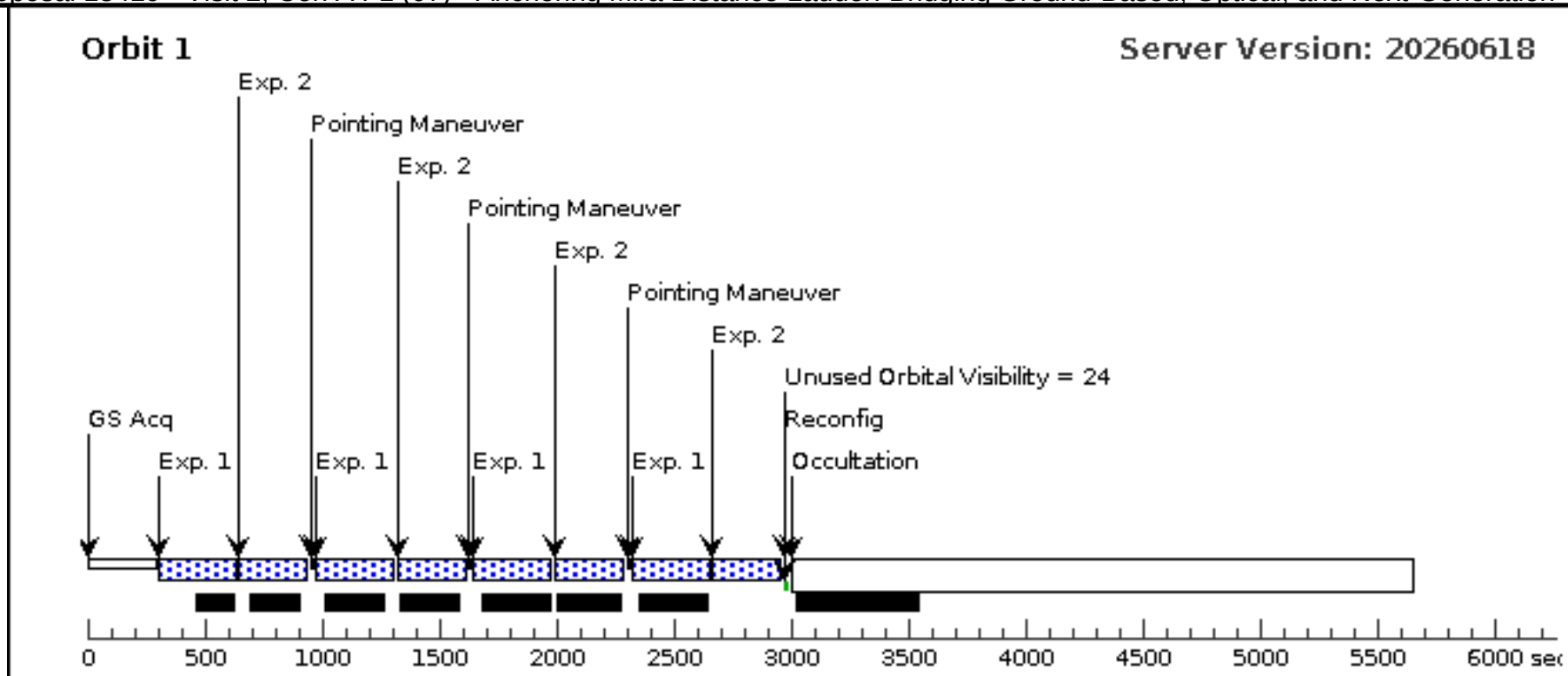
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CEN-A-F1	RA: 13 26 23.5000 (201.5979167d) Dec: -42 52 0.00 (-42.86667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 2, Cen A F1 (07) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 2, Cen A F1 (07) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 3, Cen A F1 (08) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER_07 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

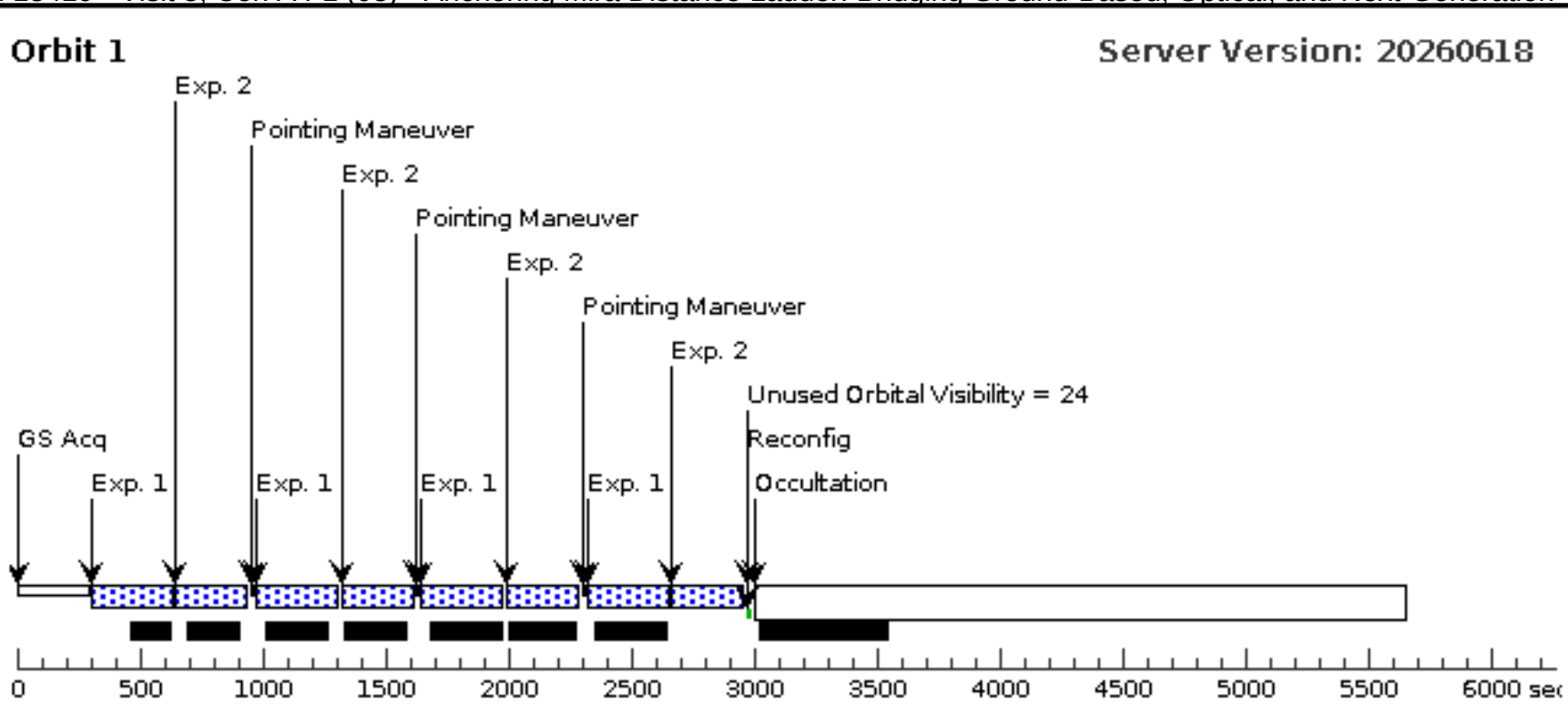
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CEN-A-F1	RA: 13 26 23.5000 (201.5979167d) Dec: -42 52 0.00 (-42.86667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 3, Cen A F1 (08) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 3, Cen A F1 (08) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 4, Cen A F1 (09) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 08 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

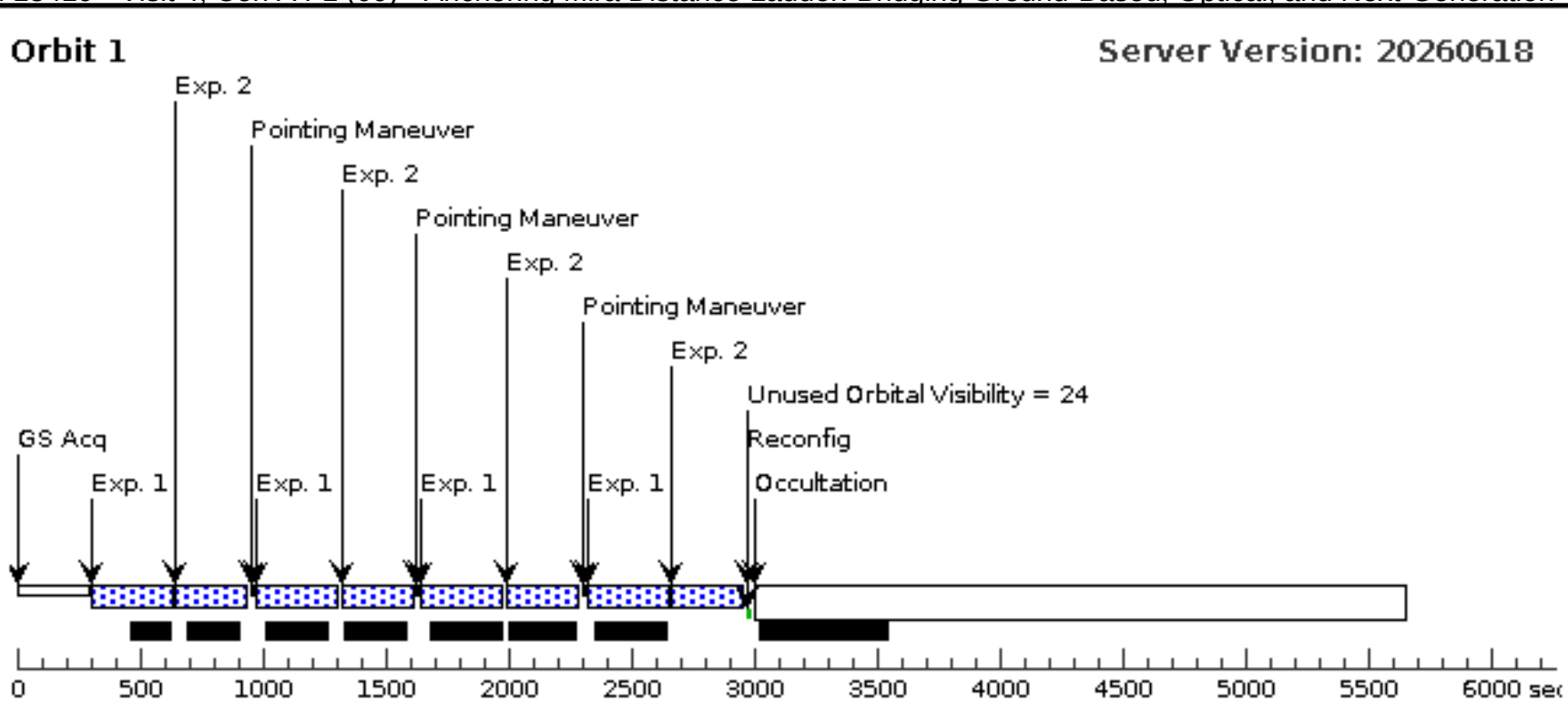
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CEN-A-F1	RA: 13 26 23.5000 (201.5979167d) Dec: -42 52 0.00 (-42.86667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 4, Cen A F1 (09) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 4, Cen A F1 (09) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 5, Cen A F1 (10) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 09 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

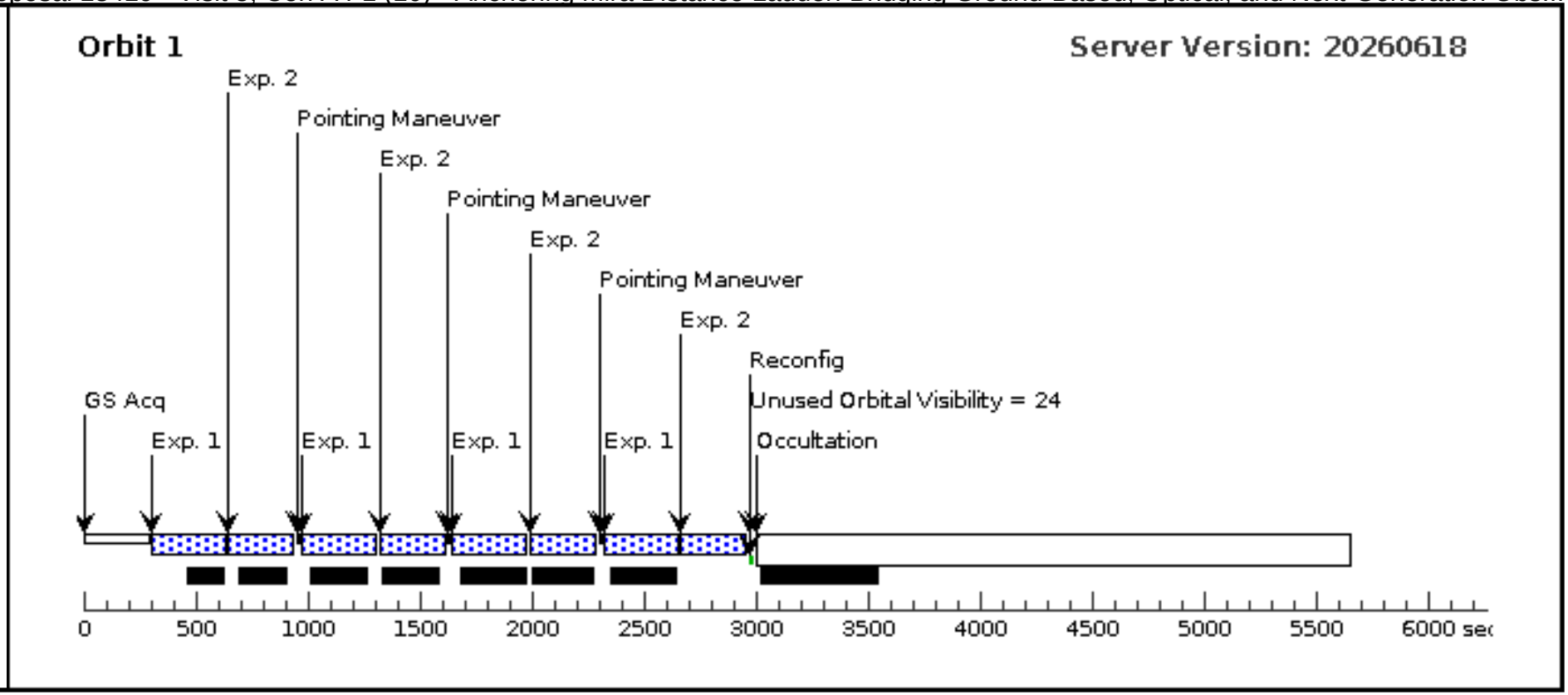
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	CEN-A-F1	RA: 13 26 23.5000 (201.5979167d) Dec: -42 52 0.00 (-42.86667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 5, Cen A F1 (10) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***
2	F110W	(2) CEN-A-F1	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 5, Cen A F1 (10) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 1, Cen A F2 (11) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BEFORE 31-DEC-2026:00:00:00

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

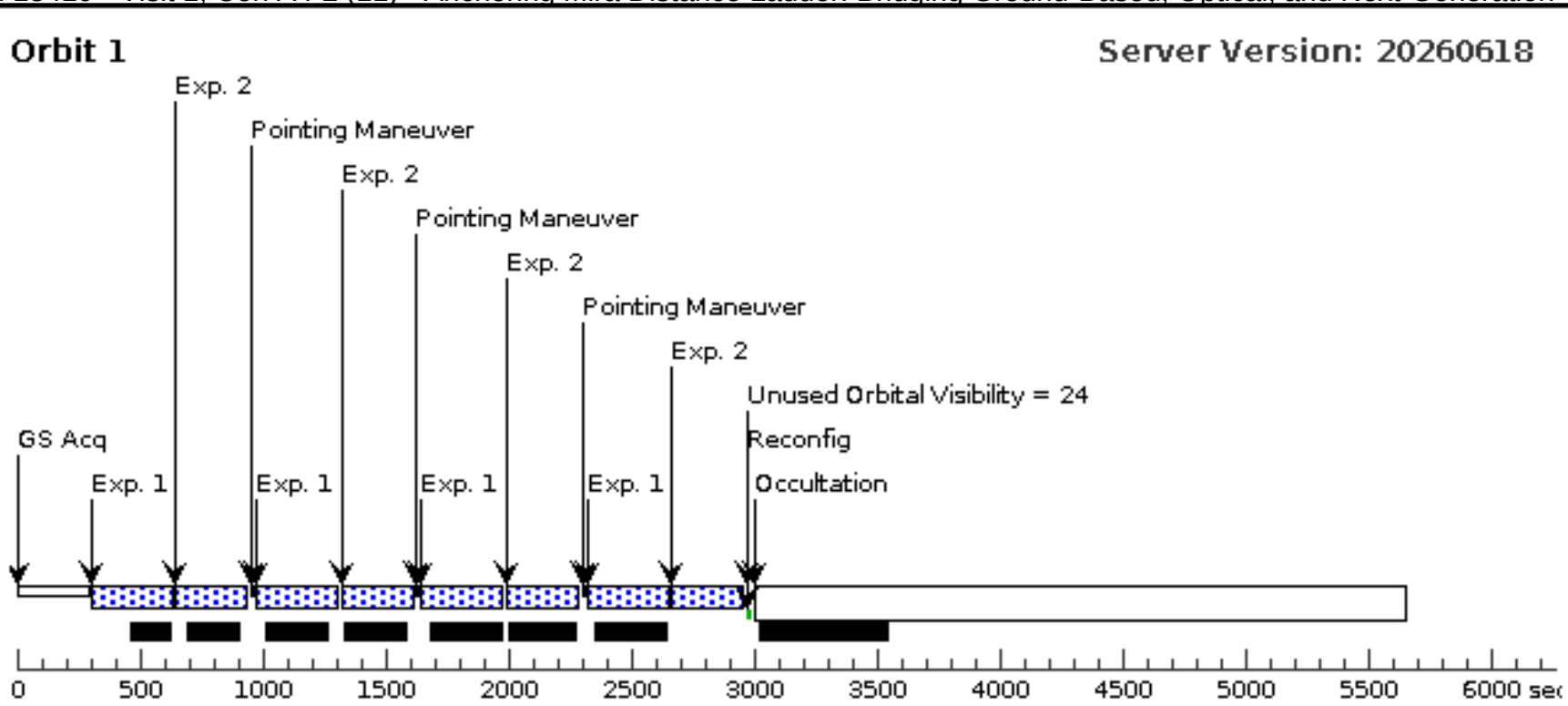
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	CEN-A-F2	RA: 13 25 24.0000 (201.3500000d) Dec: -43 10 0.00 (-43.16667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 1, Cen A F2 (11) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 1, Cen A F2 (11) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 2, Cen A F2 (12) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 11 BY 5 D TO 30 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

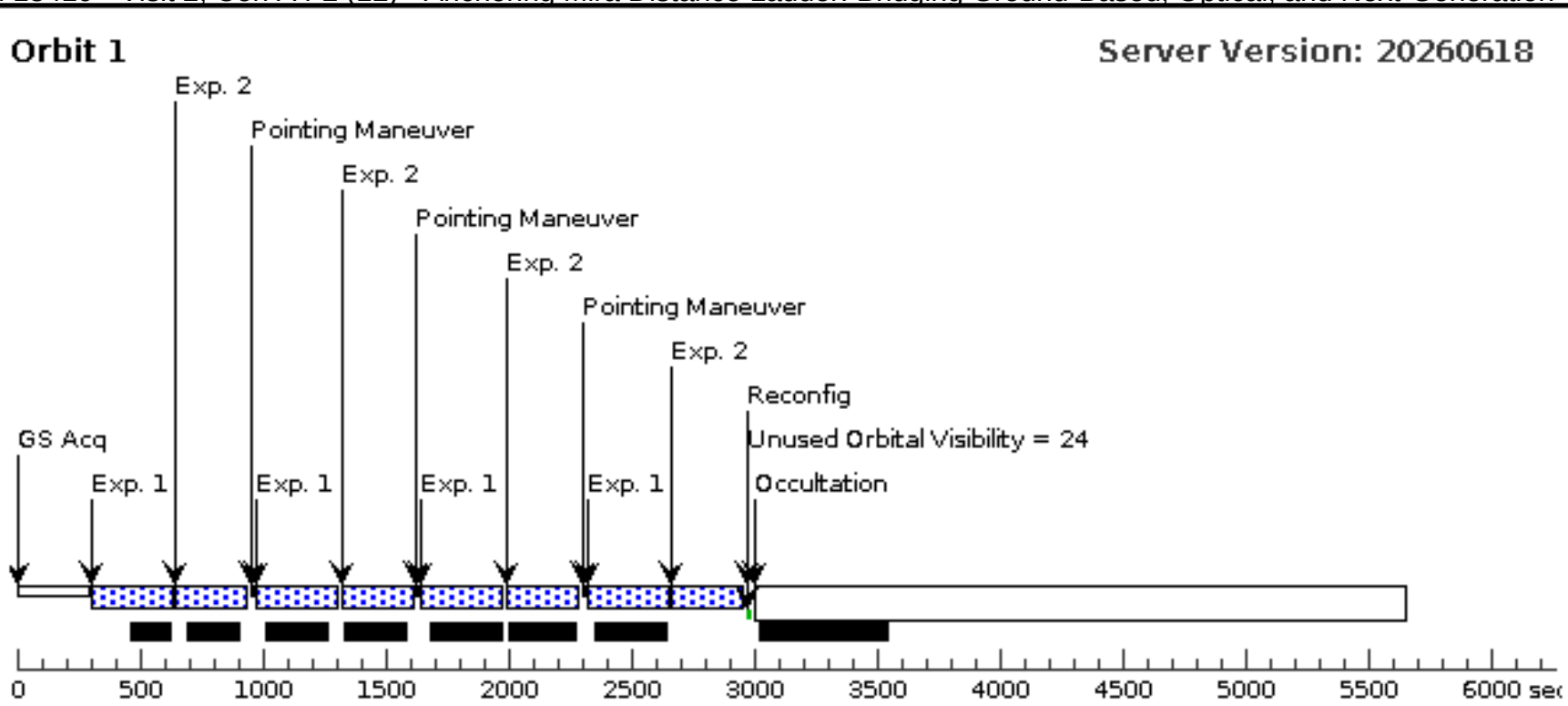
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	CEN-A-F2	RA: 13 25 24.0000 (201.3500000d) Dec: -43 10 0.00 (-43.16667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 2, Cen A F2 (12) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***
2	F110W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 2, Cen A F2 (12) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 3, Cen A F2 (13) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 12 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

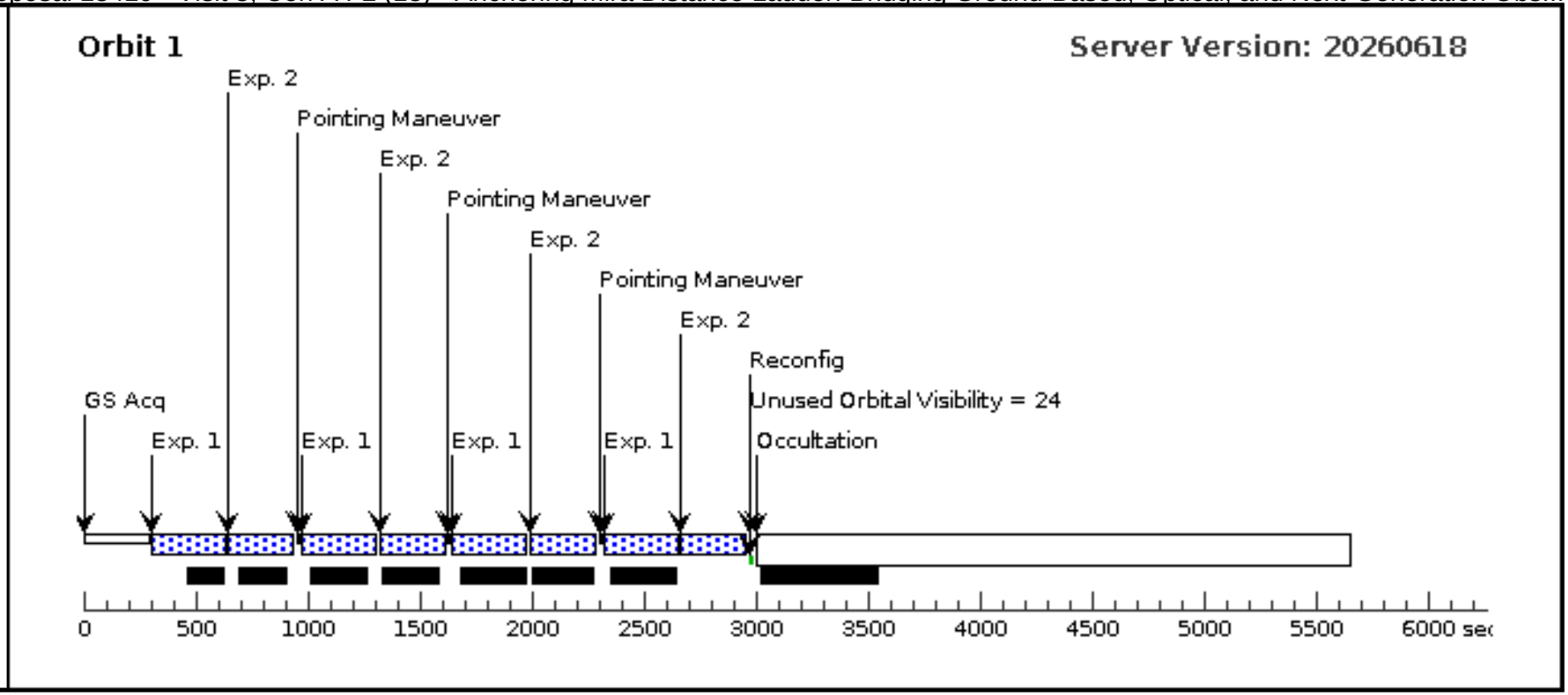
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	CEN-A-F2	RA: 13 25 24.0000 (201.3500000d) Dec: -43 10 0.00 (-43.16667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 3, Cen A F2 (13) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***
2	F110W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 3, Cen A F2 (13) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 4, Cen A F2 (14) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 13 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

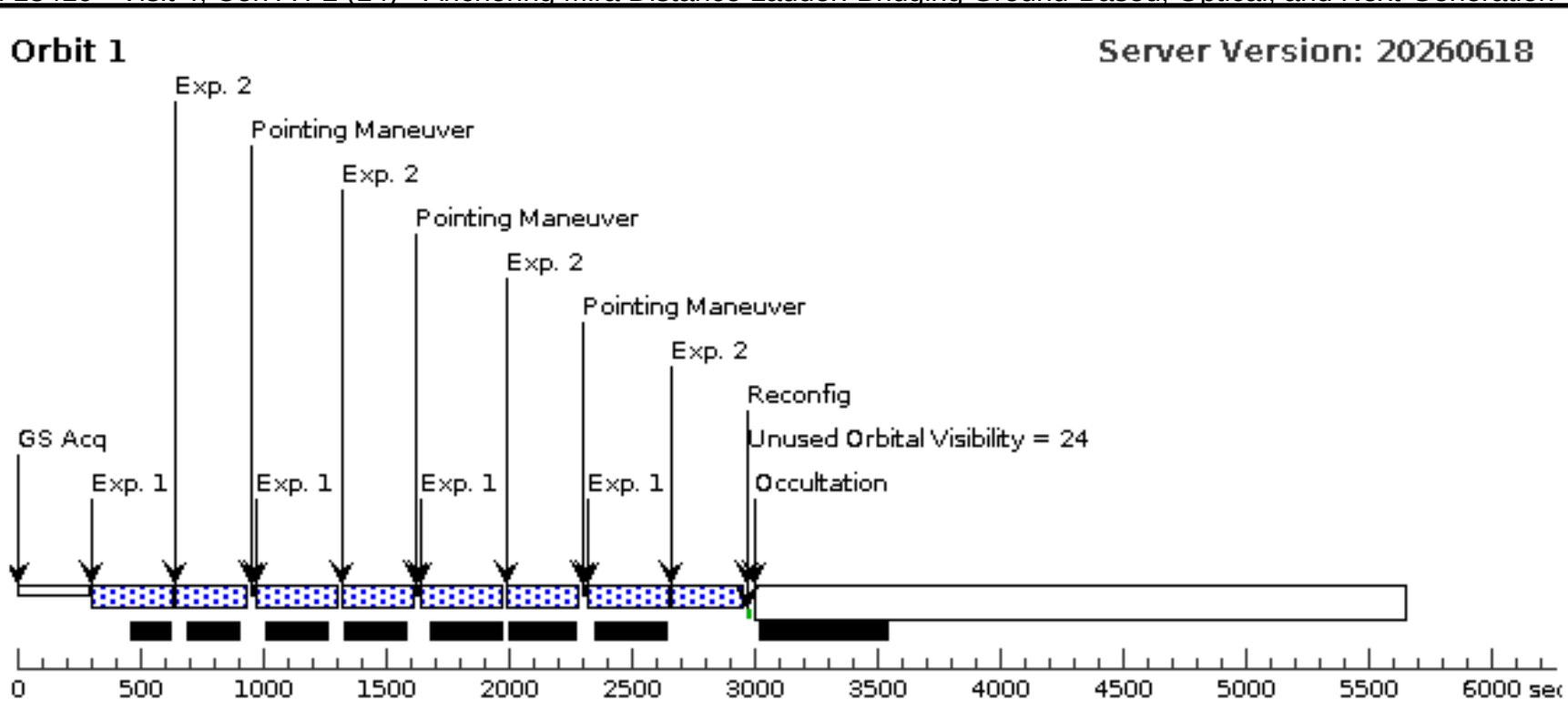
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	CEN-A-F2	RA: 13 25 24.0000 (201.3500000d) Dec: -43 10 0.00 (-43.16667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 4, Cen A F2 (14) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***
2	F110W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 4, Cen A F2 (14) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 5, Cen A F2 (15) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 14 BY 20 D TO 110 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1-2)

Fixed Targets

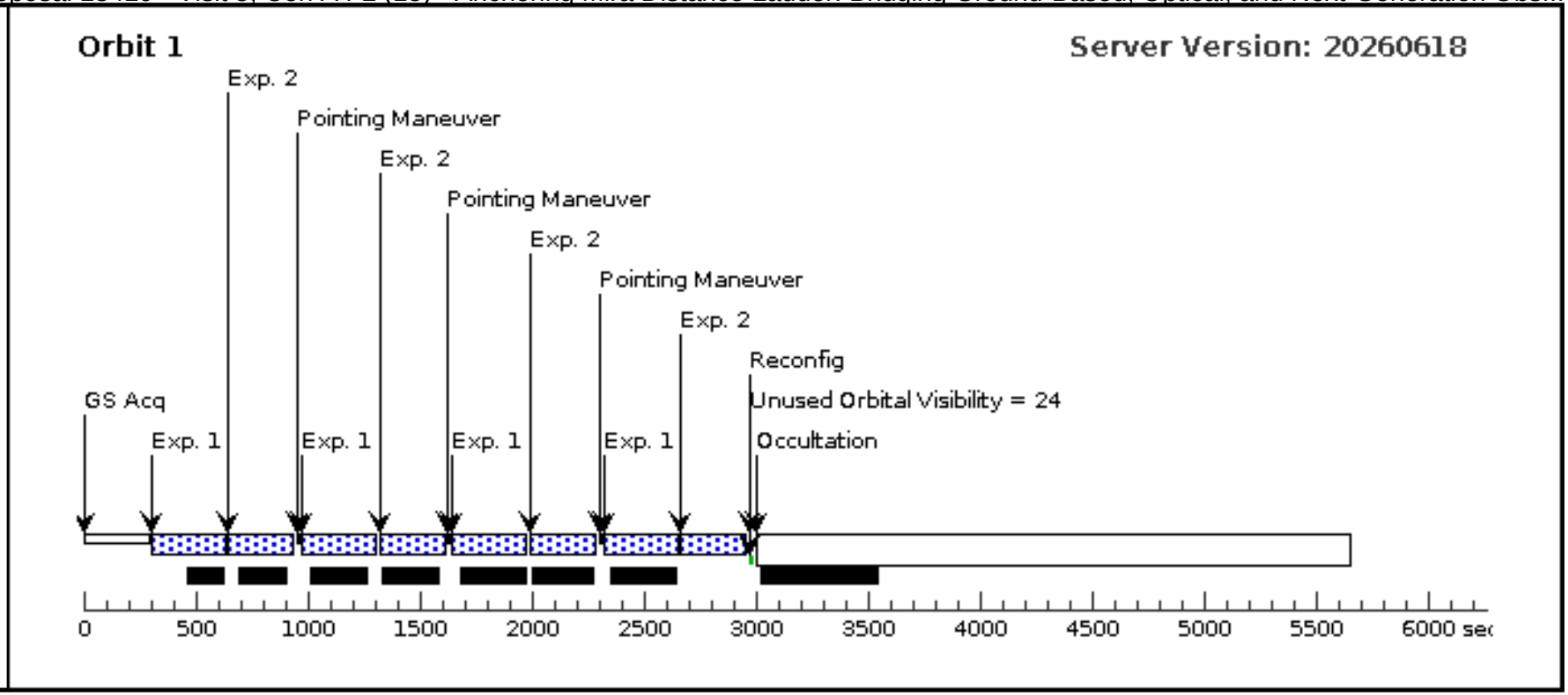
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	CEN-A-F2	RA: 13 25 24.0000 (201.3500000d) Dec: -43 10 0.00 (-43.16667d) Equinox: J2000		V=6.84	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[ELLIPTICAL, LENTICULAR]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS25; NSAMP=13		Pattern 1, Exps 1-2 in Visit 5, Cen A F2 (15) (1)	302.938471 Secs (1211.754 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***
2	F110W	(3) CEN-A-F2	WFC3/IR, MULTIACCUM, IR-FIX	F110W	SAMP-SEQ=SPARS25; NSAMP=12		Pattern 1, Exps 1-2 in Visit 5, Cen A F2 (15) (1)	277.937956 Secs (1111.752 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	 ***[1]***

Orbit Structure



Visit

Proposal 18419, Visit 1, M51 (16) Wed Aug 19 11:00:26 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: BEFORE 01-DEC-2026:00:00:00

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

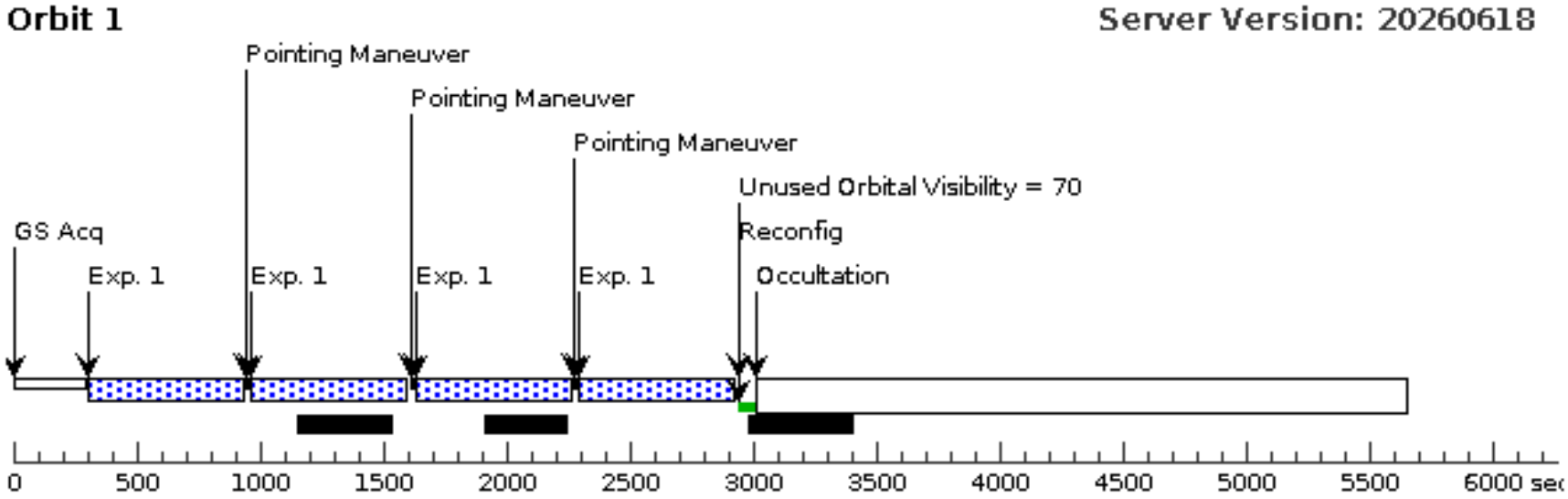
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 1, M51 (16) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 2, M51 (17) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 16 BY 20 D TO 70 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

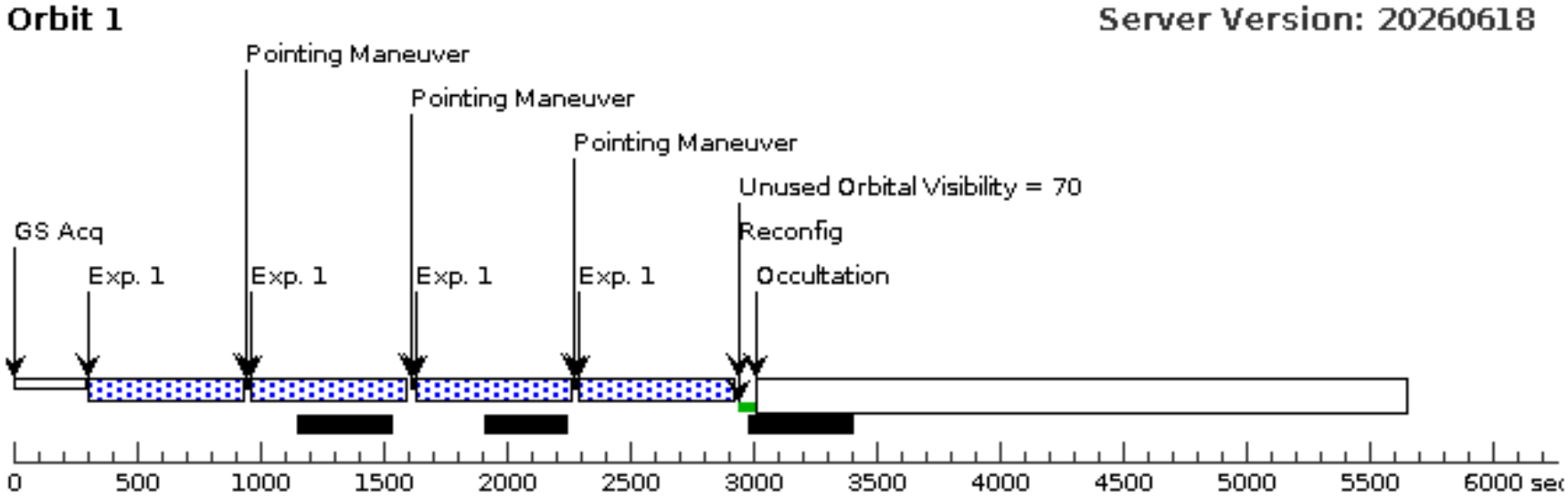
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 2, M51 (17) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 3, M51 (18) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 17 BY 20 D TO 90 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

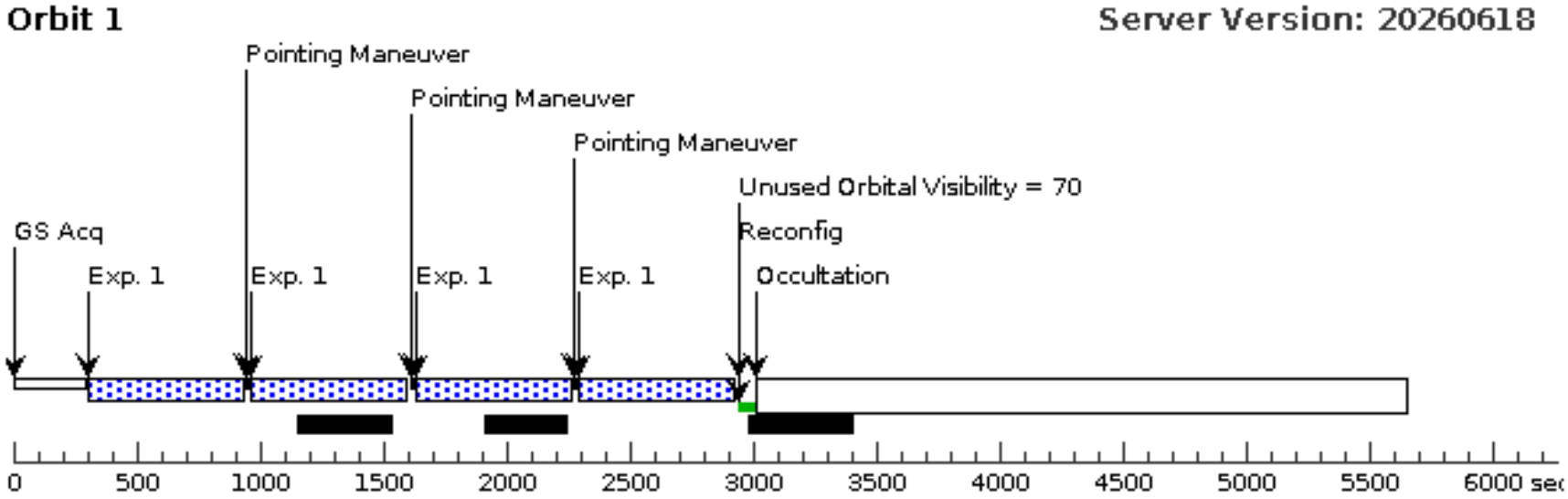
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 3, M51 (18) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 4, M51 (19) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 18 BY 20 D TO 90 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

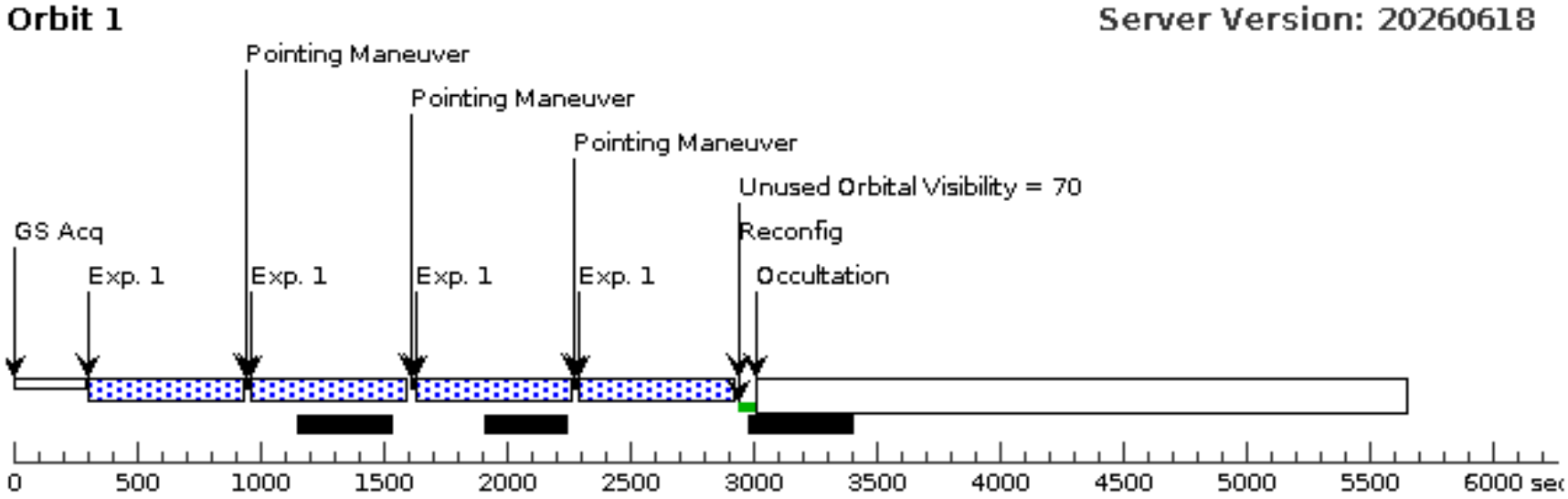
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 4, M51 (19) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 5, M51 (20) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 19 BY 20 D TO 70 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

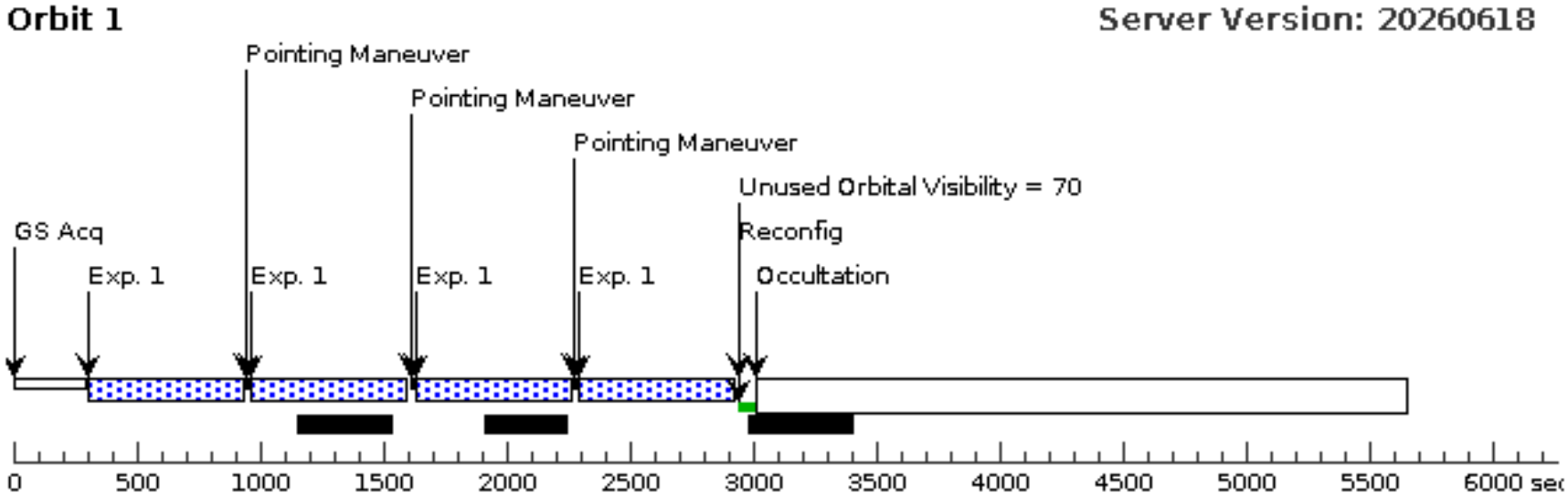
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 5, M51 (20) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 6, M51 (21) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 20 BY 25 D TO 70 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

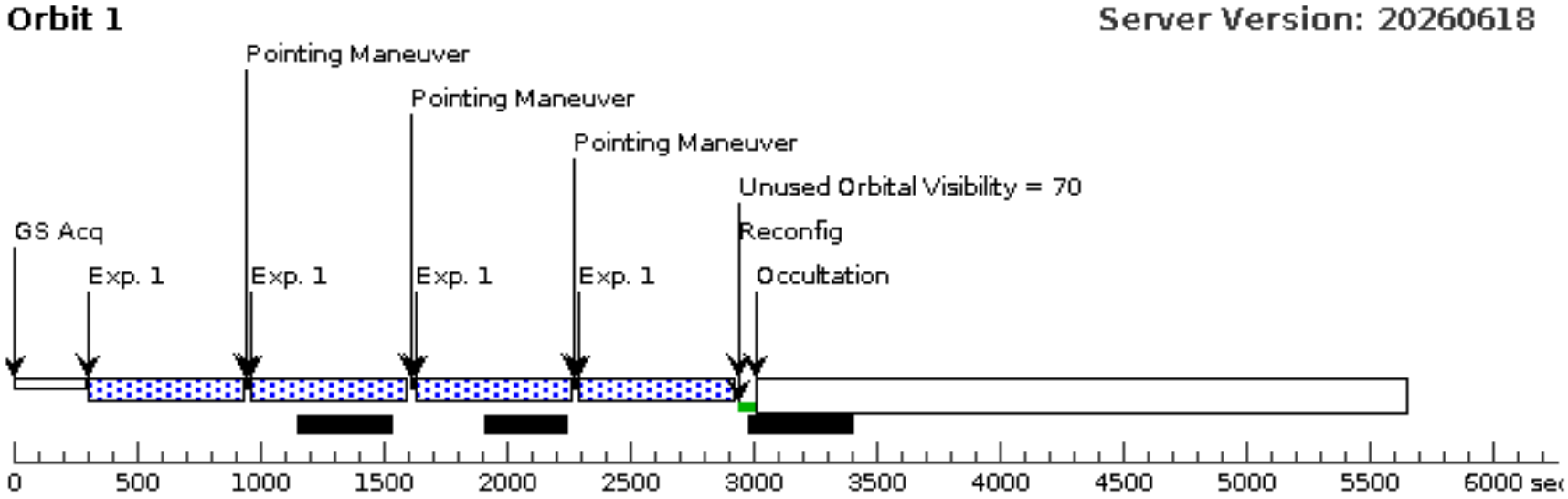
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 6, M51 (21) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure



Visit

Proposal 18419, Visit 7, M51 (22) Wed Aug 19 11:00:27 GMT 2026

Diagnostic Status: No Diagnostics

Scientific Instruments: WFC3/IR

Special Requirements: AFTER 21 BY 20 D TO 120 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=WFC3-IR-DITHER-BOX-MIN Purpose=DITHER Number Of Points=4 Point Spacing=0.572 Line Spacing=0.365	Coordinate Frame=POS-TARG Pattern Orientation=18.528 Angle Between Sides=74.653 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	M-51	RA: 13 29 59.0000 (202.4958333d) Dec: +47 11 12.69 (47.18686d) Equinox: J2000		V=8.36	Reference Frame: ICRS

Comments:
Category=GALAXY
Description=[DISK, SPIRAL, SPIRAL ARM]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	F160W	(4) M-51	WFC3/IR, MULTIACCUM, IR-FIX	F160W	SAMP-SEQ=SPARS50; NSAMP=13		Pattern 1, Exps 1-1 in Visit 7, M51 (22) (1)	602.937703 Secs (2411.751 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]* *[==>(Pattern 3)]* *[==>(Pattern 4)]*	*[1]*

Orbit Structure