16660 - Inside out: detecting a rock vapor atmosphere on the lava world TOI-2431 b

Cycle: 29, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Samuel Quinn (PI) (Contact)	**Smithsonian Institution Astrophysical Observatory**	**squinn@cfa.harvard.edu**
Mr. Sebastian Zieba (CoI) (ESA Member) (Contact)	Max Planck Institute for Astronomy	zieba@mpia.de
Dr. Laura Kreidberg (CoI) (ESA Member)	Max Planck Institute for Astronomy	kreidberg@mpia.de
Dr. Andrew Vanderburg (CoI)	Massachusetts Institute of Technology	andrewv@mit.edu
Prof. Luca Malavolta (CoI) (ESA Member)	University of Padova	luca.malavolta@unipd.it
Dr. Thomas G. Wilson (CoI) (ESA Member)	University of St. Andrews	tgw1@st-andrews.ac.uk
Dr. Mercedes Lopez-Morales (CoI)	Smithsonian Institution Astrophysical Observatory	mlopez-morales@cfa.harvard.edu
Mantas Zilinskas (CoI) (ESA Member)	Universiteit Leiden	zilinskas@strw.leidenuniv.nl
Giang Nguyen (CoI) (CSA Member)	York University	giang@yorku.ca
Ms. Lisa Dang (CoI) (CSA Member)	McGill University	lisa.dang@physics.mcgill.ca
Dr. Yamila Miguel (CoI) (ESA Member)	Universiteit Leiden	ymiguel@strw.leidenuniv.nl
Prof. Nicolas B Cowan (CoI) (CSA Member)	McGill University	nicolas.cowan@mcgill.ca

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) G4-24	WFC3/IR	11	12-Jan-2022 12:01:29.0	yes

11 Total Orbits Used

ABSTRACT

Existing on the extreme edges of the exoplanet population, ultra short period (USP) rocky planets offer new opportunities to study the physicochemical properties of planetary interiors, surfaces, and atmospheres. The immense irradiation and tidal forces experienced by these planets open observational avenues that remain closed for their long-period counterparts: their primordial atmospheres photoevaporate, opening their surfaces to observation; their tidally locked daysides melt and vaporize, enabling observation of surface material in new phase states; and unless heat is redistributed efficiently, their rock vapor atmospheres may condense on their cold nightsides. We propose for 11 orbits of WFC3 data to measure the phase curve of the lava world TOI-2431b, a rocky planet with a 5.4-hour orbital period, the shortest among planets with a known density. It is the best rocky planet for thermal emission studies using HST/WFC3, and with the majority of the sky now surveyed by TESS, it is likely to remain so. The planet is expected to have lost its primordial atmosphere, but it may well possess a rock vapor atmosphere sustained by its surface magma ocean. These observations will allow us to: 1) determine the Bond albedo of the planet, which can constrain the properties of the surface magma ocean; 2) to detect a rock vapor atmosphere or a thicker volatile atmosphere from its spectrum or the presence of a hotspot offset indicative of heat redistribution; and 3) constrain the interior structure by refining the planetary radius and iron mass fraction of the planet, which will help inform USP planet formation models and the design of future observations.

OBSERVING DESCRIPTION

Our observations will consist of time-series WFC3/G141 spectroscopy covering 3 orbital phases of TOI-2431 b. Because of the short orbital period, this is only 11 HST orbits. We require 3 orbital phases to acquire full phase coverage given the visibility of this equatorial target (52 minutes per orbit). If executed continuously, the ratio of HST to planet orbit will result in good phase coverage; if broken into multiple visits, the planetary orbital phase at start of observations would need to be scheduled carefully. Scheduling will therefore likely be simpler for a single 11-orbit visit, and photon-limited measurement precision has been achieved for past phase-curve observations totalling more than 11 orbits (e.g. Stevenson et al. 2014, Kreidberg et al. 2018). We therefore request a single 11-orbit visit, understanding that the SAA might not be avoided.

To determine the optimal scan rate and readout pattern, we used the open-source PandExo package available on GitHub, which includes both HST and JWST observation planning utilities.
We will use the 512x512 subarray to improve the duty cycle and ensure that there is a sufficient region on the detector to estimate the background. Each orbit will begin with a direct image of the target star for wavelength calibration. The remainder of each orbit will consist of G141 spectroscopy. We will observe in spatial scan mode to keep the maximum per pixel counts below 40000 electrons. We will use the SPARS25/NSAMP=7 readout mode and a scan rate of 0.2226 arcsec/sec. To maximize the duty cycle of the observations, we will alternate between forward and reverse scanning along the detector.

With 3 continuous orbits of the planet corresponding to 11 HST orbits, we will sample the full phase of the planet with the precision required to determine the dayside temperature, bond albedo, and redistribution with high precision. With our observing design, we will be able to distinguish between a thin gas melt equilibrium atmosphere and a range of atmospheric redistributions for the planet. For redistributions greater than 33% the difference will be >3 sigma.

Visit

Proposal 16660, Visit 1 (11 orbits) (01), implementation Wed Jan 12 17:01:33 GMT 2022

Diagnostic Status: Warning

Scientific Instruments: WFC3/IR

Special Requirements: (none)

Diagnostics

(Visit 1 (11 orbits) (01)) Warning (Orbit Planner): LONG SU LIKELY TO INTERSECT THE SAA

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	G4-24	RA: 02 31 3.2801 (37.7636671d)	Proper Motion RA: +374.953 mas/yr	V=10.900+/-0.030	Reference Frame: ICRS
	Alt Name1: HIP11707	Dec: +08 22 55.18 (8.38199d)	Proper Motion Dec: -85.583 mas/yr	J = 8.356; H = 7.729; K = 7.554	
	Alt Name2: TIC258804746	Equinox: J2000	Parallax: 0.0277059"		
			Epoch of Position: 2000.0		
			Radial Velocity: 12.09 km/sec		

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[1]***
2	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
3	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
4	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
5	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
6	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
7	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[1]***
8	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 1-8 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[1]***
9	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[2]***
10	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***
11	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***
12	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***
13	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***

	14	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***
	15	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[2]***
	16	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 9-16 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[2]***
	17	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[3]***
	18	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	19	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	20	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	21	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	22	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	23	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[3]***
	24	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 17-24 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[3]***
	25	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[4]***
	26	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***

	27	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***
	28	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***
	29	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***
	30	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***
	31	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[4]***
	32	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 25-32 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[4]***
	33	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[5]***
	34	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***
	35	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***
	36	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***
	37	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***
	38	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***
	39	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[5]***

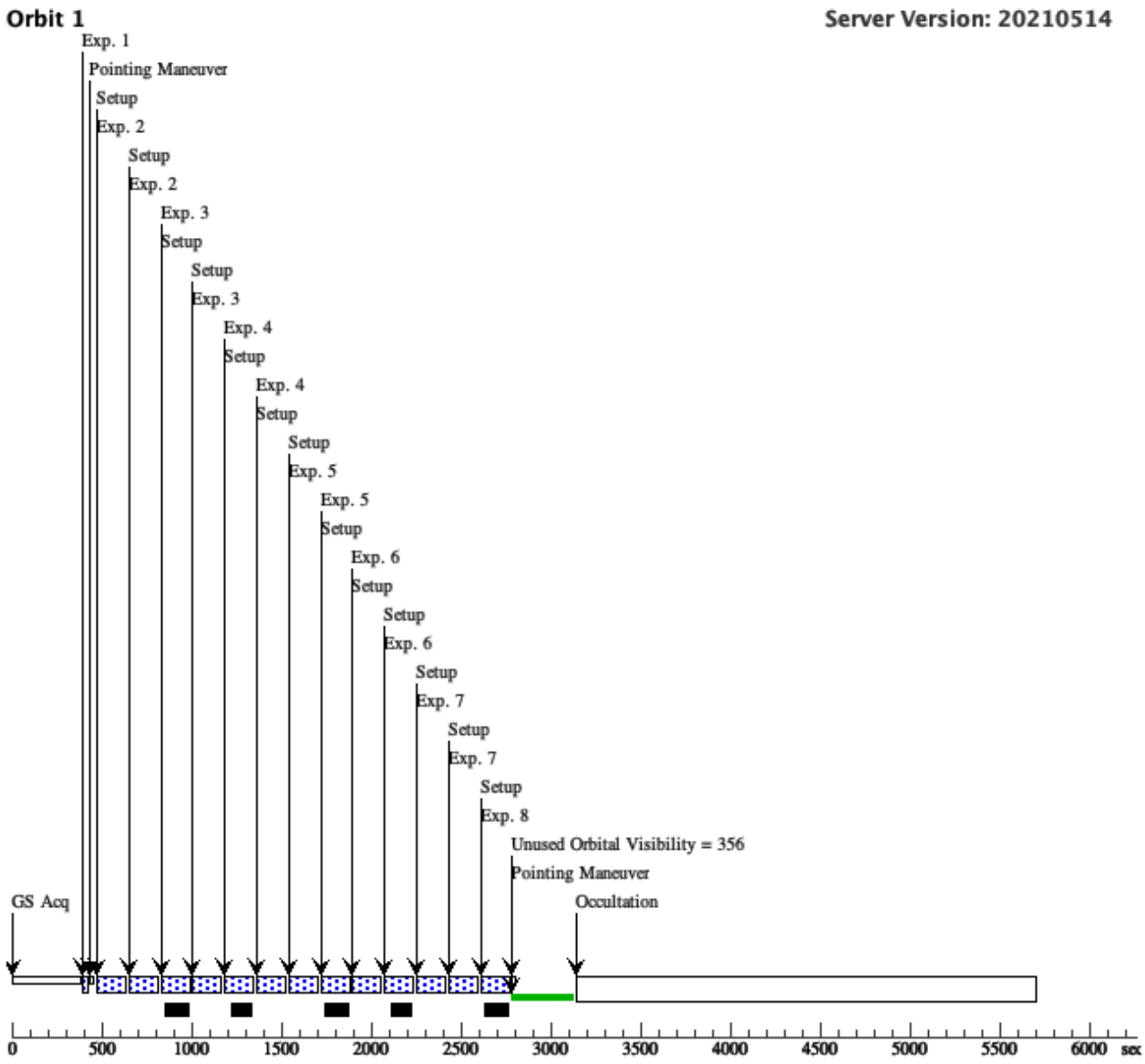
	40	G4-24 forwa rd scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 33-40 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[5]***
	41	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[6]***
	42	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	43	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	44	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	45	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	46	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	47	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[6]***
	48	G4-24 forwa rd scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 41-48 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[6]***
	49	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[7]***
	50	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***
	51	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***
	52	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***

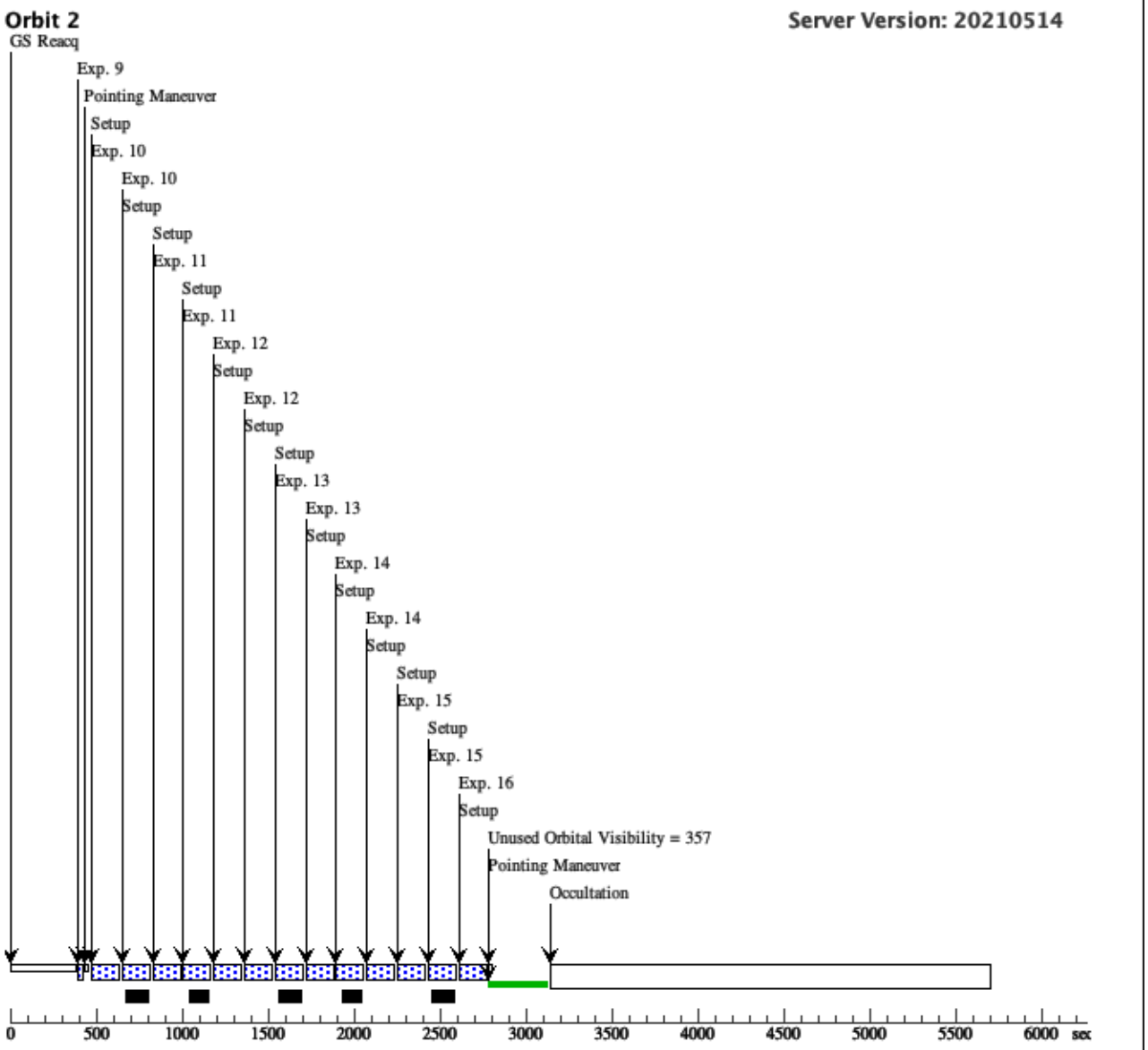
53	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***
54	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***
55	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[7]***
56	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 49-56 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[7]***
57	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[8]***
58	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
59	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
60	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
61	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
62	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
63	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[8]***
64	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 57-64 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[8]***
65	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[9]***

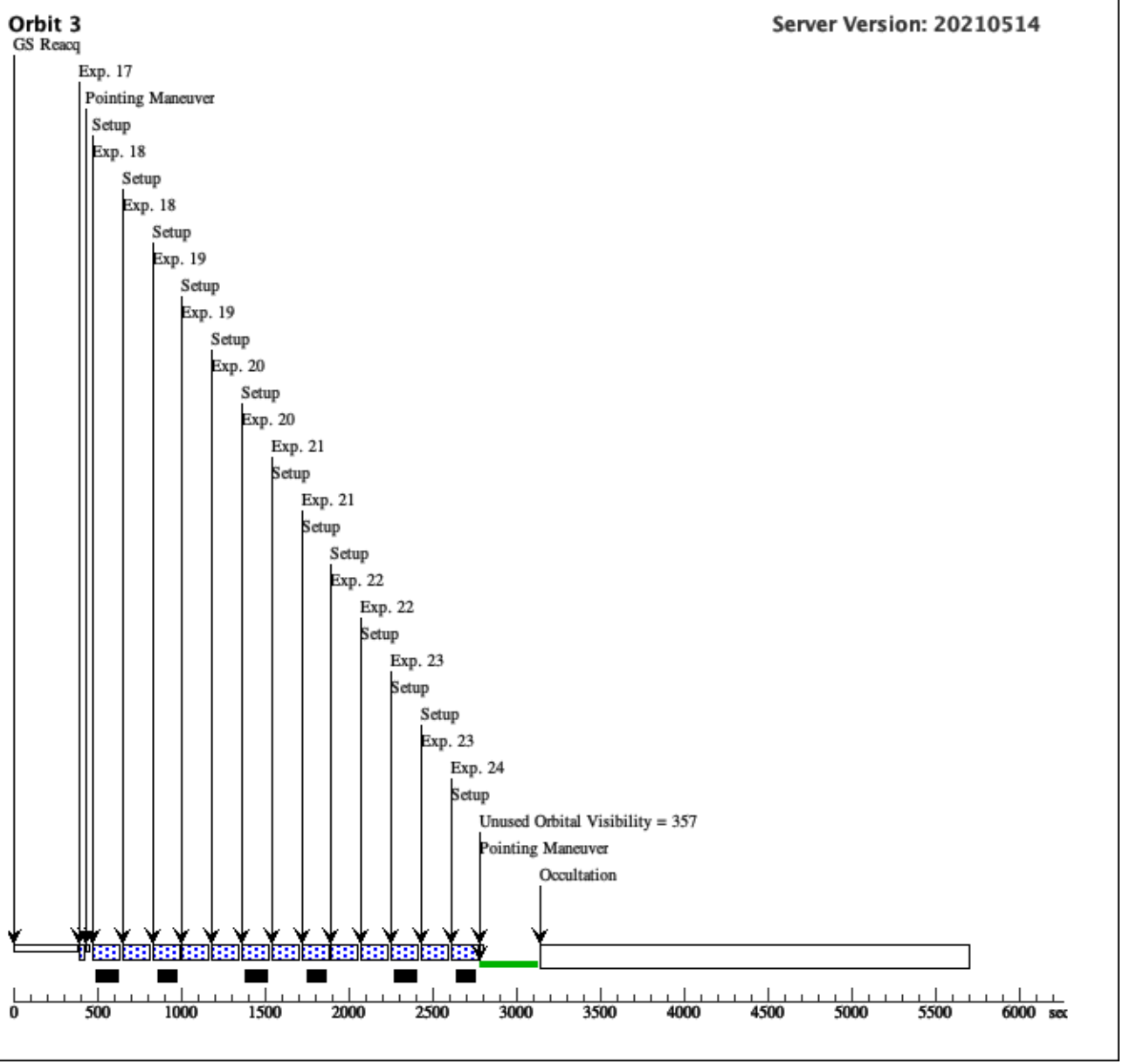
66	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
67	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
68	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
69	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
70	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
71	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[9]***
72	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 65-72 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[9]***
73	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[10]***
74	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***
75	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***
76	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***
77	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***
78	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***

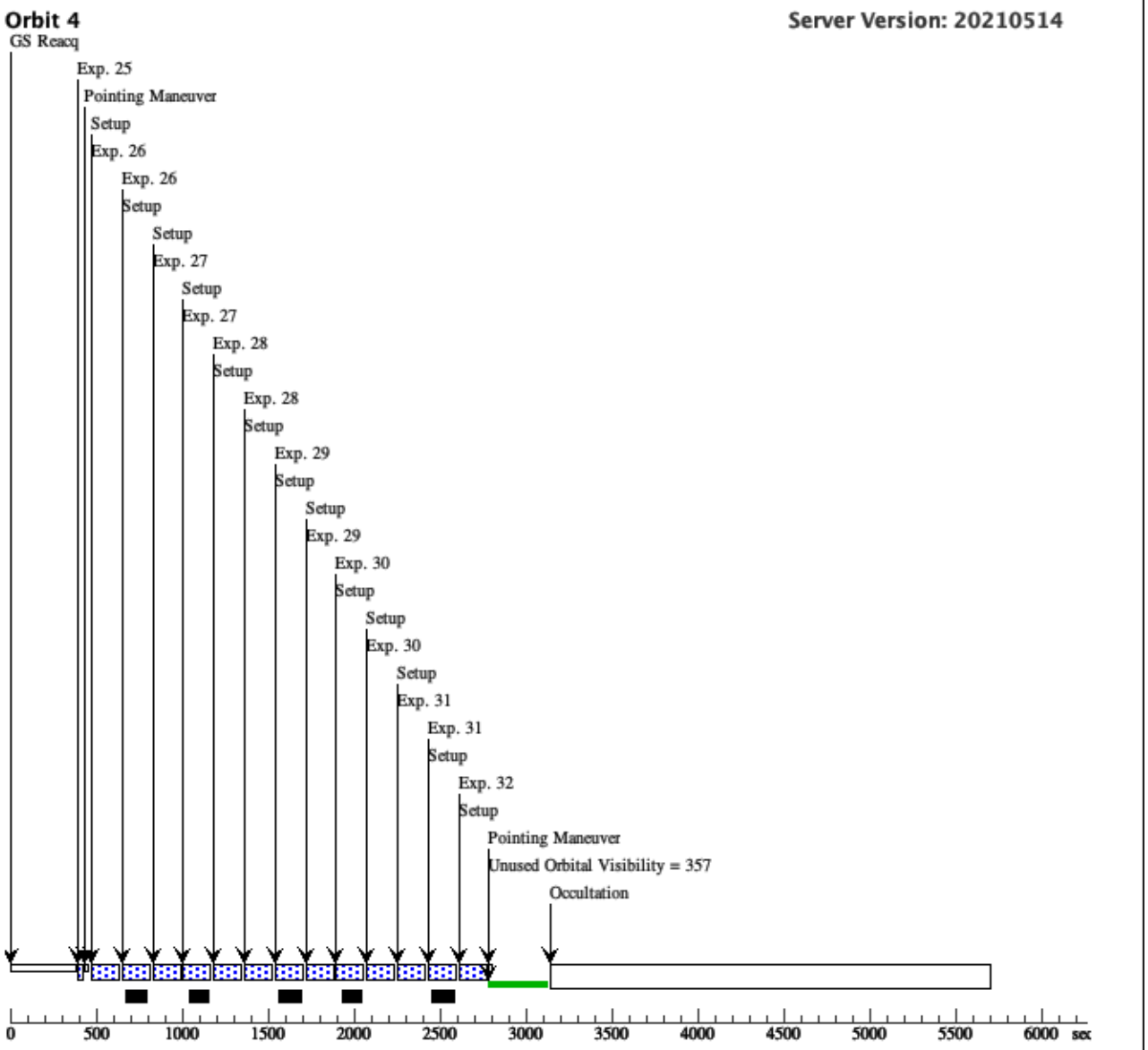
	79	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[10]***
	80	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 73-80 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[10]***
	81	G4-24 direct image	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	F139M	SAMP-SEQ=RAPID; NSAMP=5		Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	4.265135 Secs (4.265 Secs) *[==>]*	***[11]***
	82	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	83	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	84	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	85	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	86	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	87	G4-24 round trip scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Round trip	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (276.761 Secs) *[==>(Forward)]* *[==>(Reverse)]*	***[11]***
	88	G4-24 forward scan	(1) G4-24	WFC3/IR, MULTIACCUM, GRISM512	G141	NSAMP=7; SAMP-SEQ=SPARS25	POS TARG 16,-16; SPATIAL SCAN 0.2 226,90.0 Degrees,Forward	Sequence 81-88 Non-Int in Visit 1 (11 orbits) (01)	138.380533 Secs (138.381 Secs) *[==>]*	***[11]***

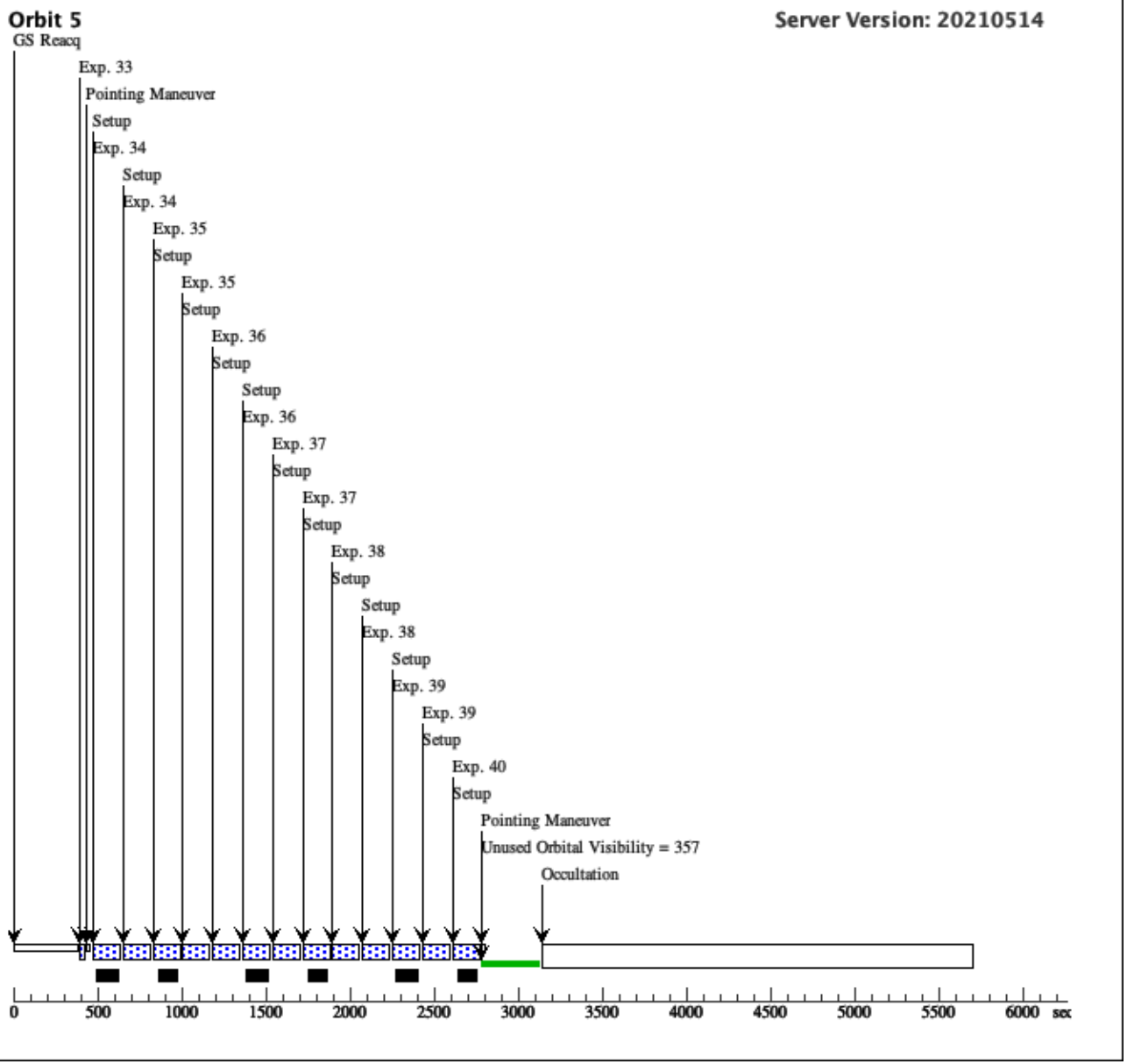
Orbit Structure

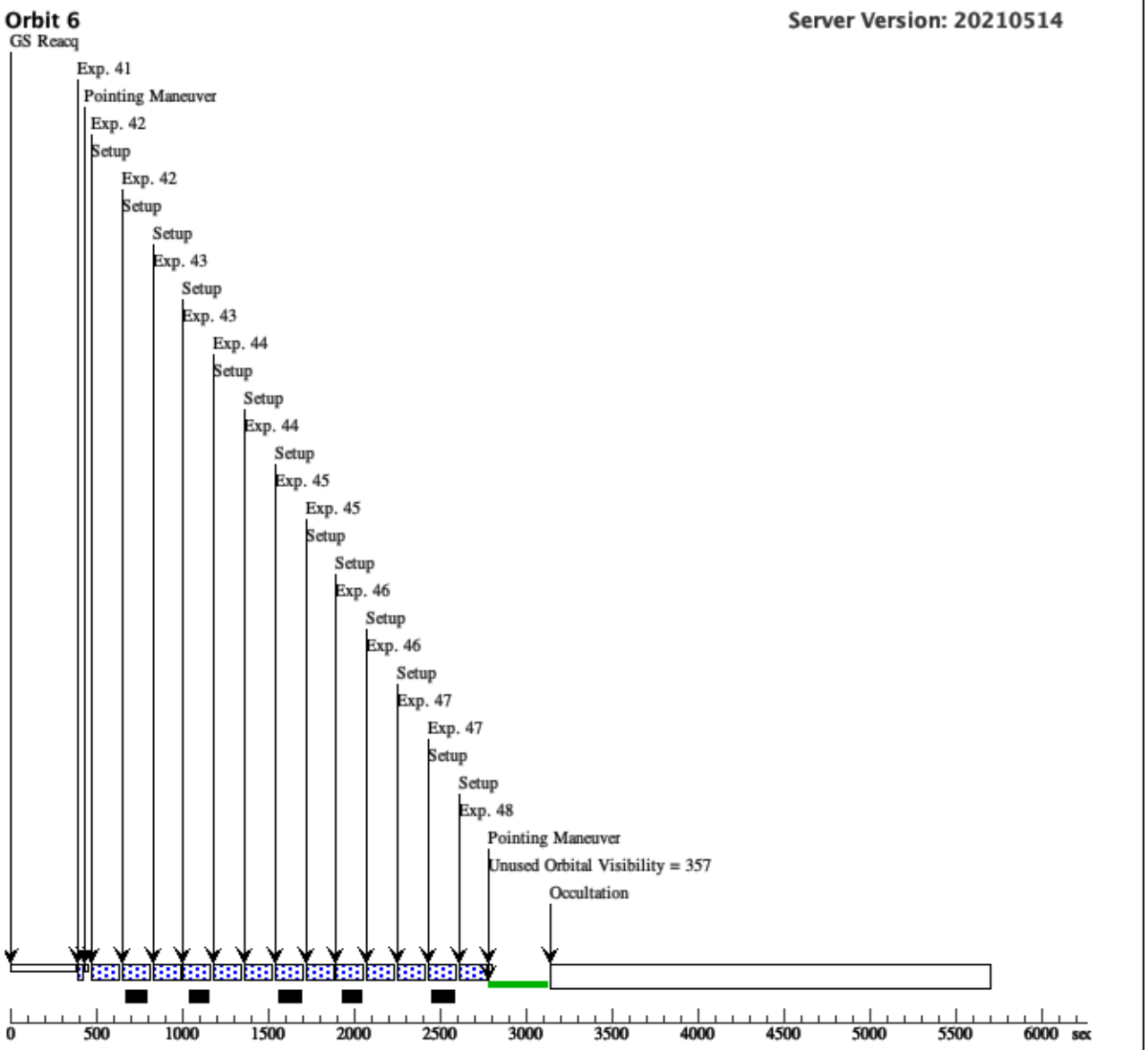


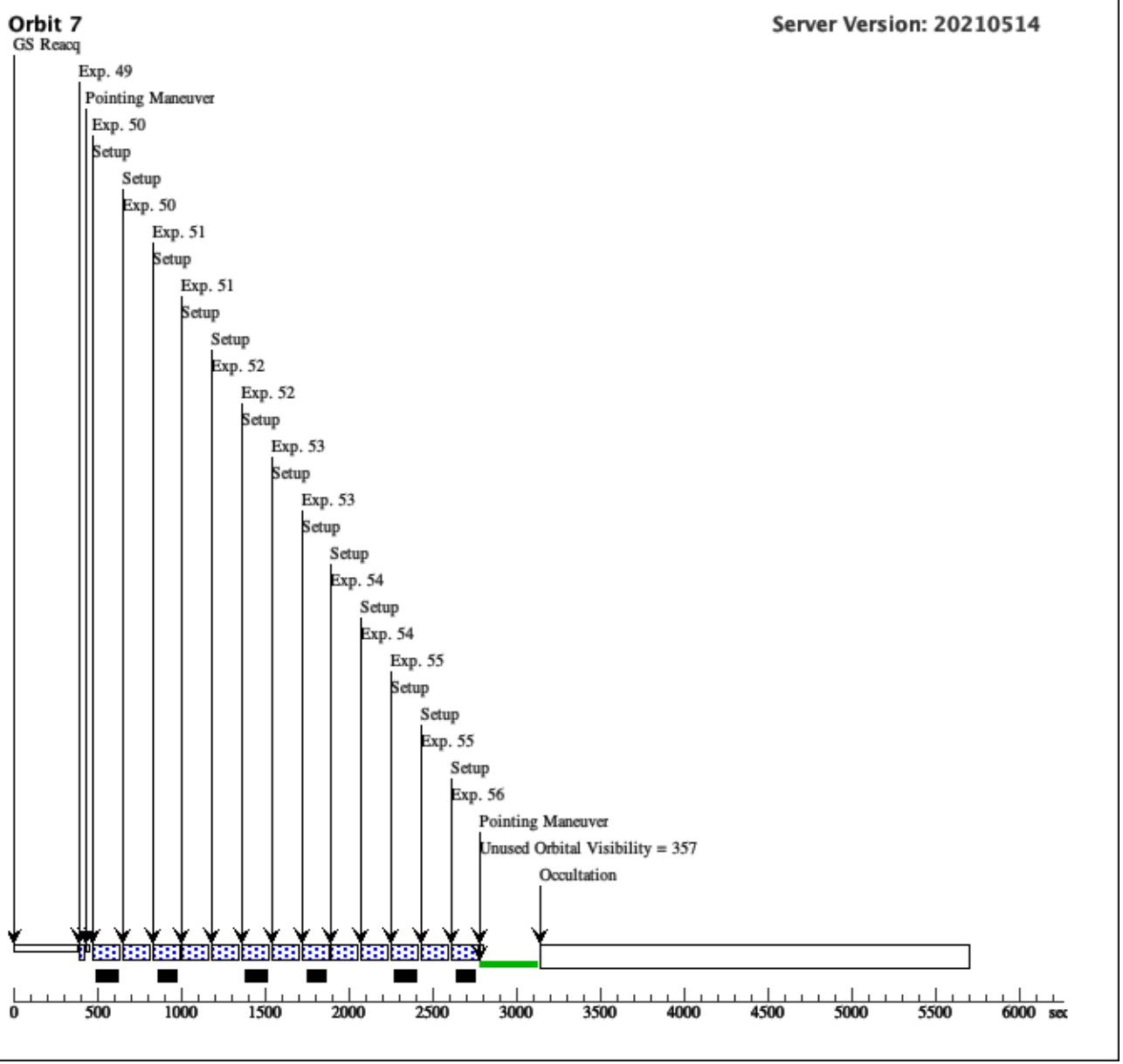

Orbit 2
Server Version: 20210514
GS Reacq
Exp. 9
Pointing Maneuver
Setup
Exp. 10
Exp. 10
Setup
Setup
Exp. 11
Setup
Exp. 11
Exp. 12
Setup
Exp. 12
Setup
Setup
Exp. 13
Exp. 13
Setup
Exp. 14
Setup
Exp. 14
Setup
Setup
Exp. 15
Setup
Exp. 15
Exp. 16
Setup
Unused Orbital Visibility = 357
Pointing Maneuver
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

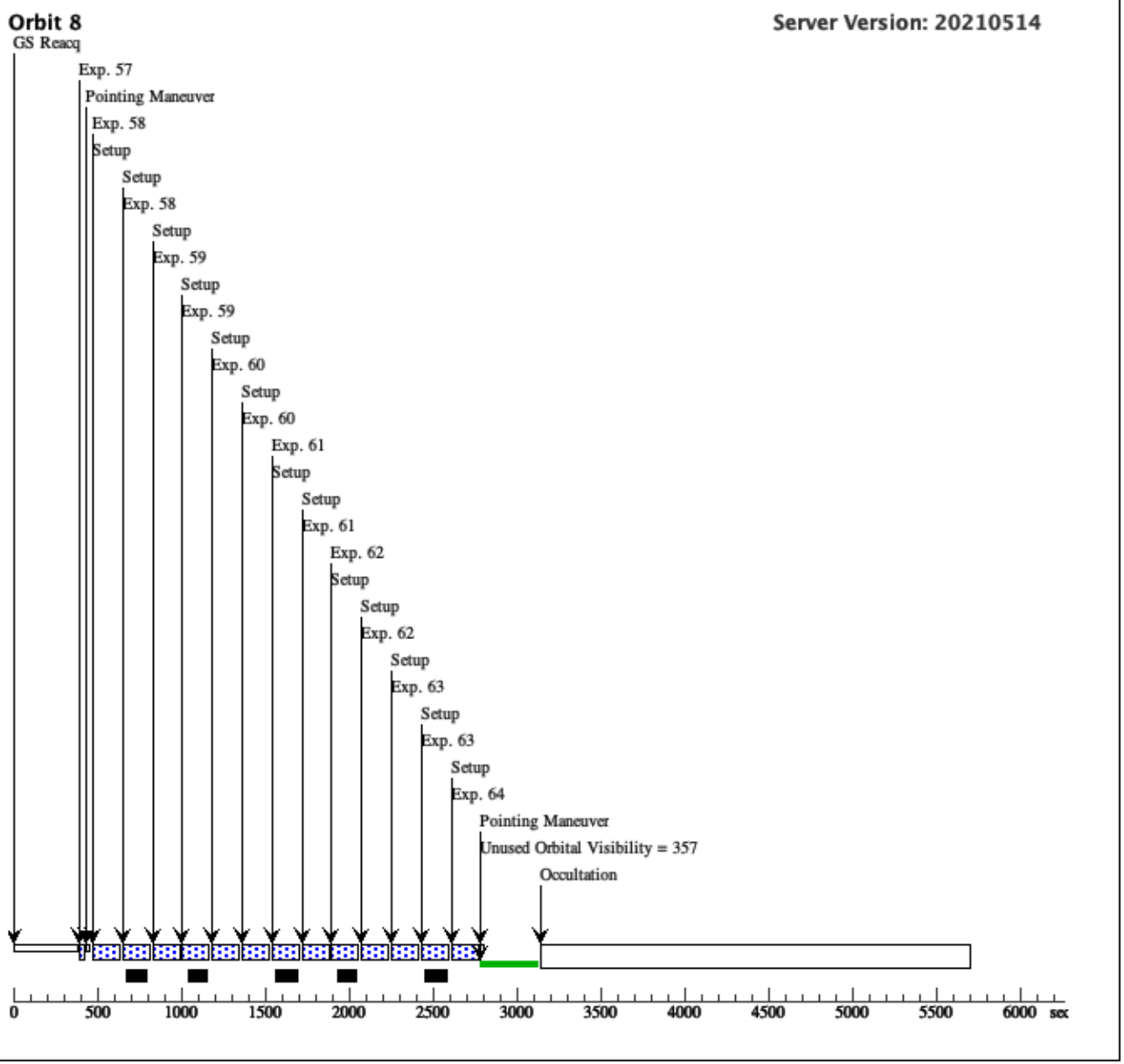

Orbit 3
Server Version: 20210514
GS Reacq
Exp. 17
Pointing Maneuver
Setup
Exp. 18
Setup
Exp. 18
Setup
Exp. 19
Setup
Exp. 19
Setup
Exp. 20
Setup
Exp. 20
Exp. 21
Setup
Exp. 21
Setup
Setup
Exp. 22
Exp. 22
Setup
Exp. 23
Setup
Setup
Exp. 23
Exp. 24
Setup
Unused Orbital Visibility = 357
Pointing Maneuver
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

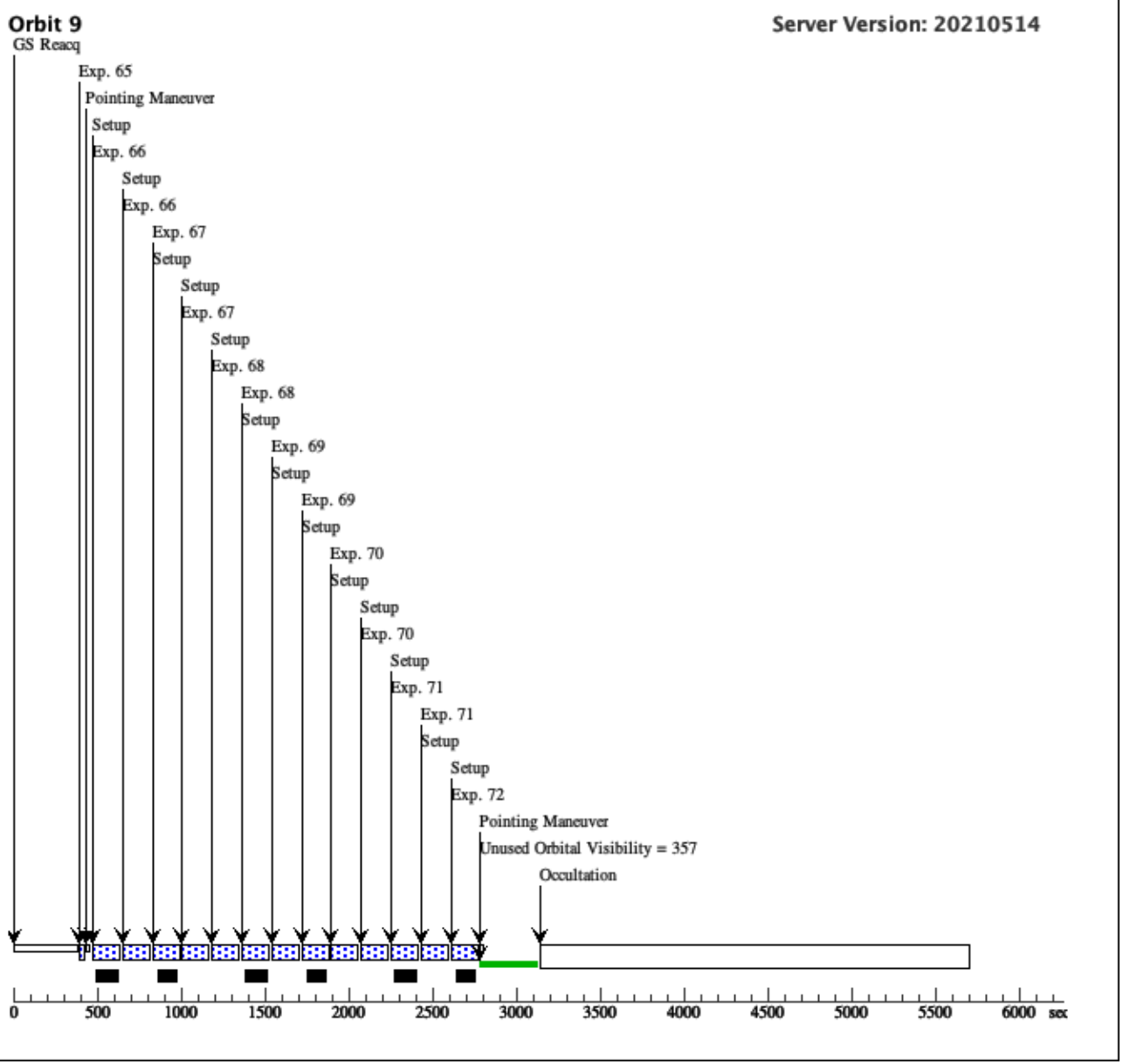

Orbit 4
Server Version: 20210514
GS Reacq
Exp. 25
Pointing Maneuver
Setup
Exp. 26
Exp. 26
Setup
Setup
Exp. 27
Setup
Exp. 27
Exp. 28
Setup
Exp. 28
Setup
Exp. 29
Setup
Setup
Exp. 29
Exp. 30
Setup
Setup
Exp. 30
Setup
Exp. 31
Exp. 31
Setup
Exp. 32
Setup
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

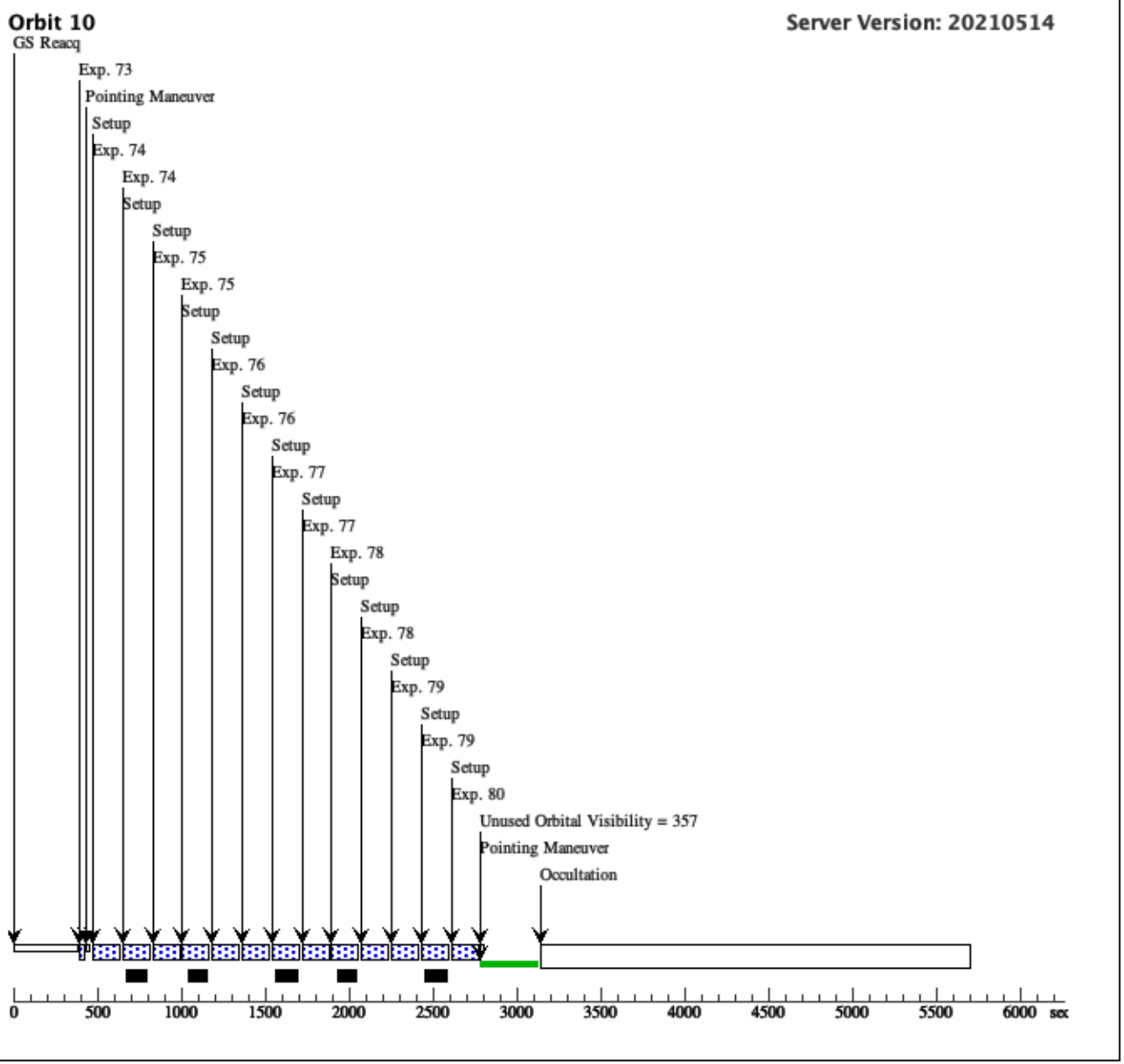

Orbit 5
Server Version: 20210514
GS Reacq
Exp. 33
Pointing Maneuver
Setup
Exp. 34
Setup
Exp. 34
Exp. 35
Setup
Exp. 35
Setup
Exp. 36
Setup
Setup
Exp. 36
Exp. 37
Setup
Exp. 37
Setup
Exp. 38
Setup
Setup
Exp. 38
Setup
Exp. 39
Exp. 39
Setup
Exp. 40
Setup
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

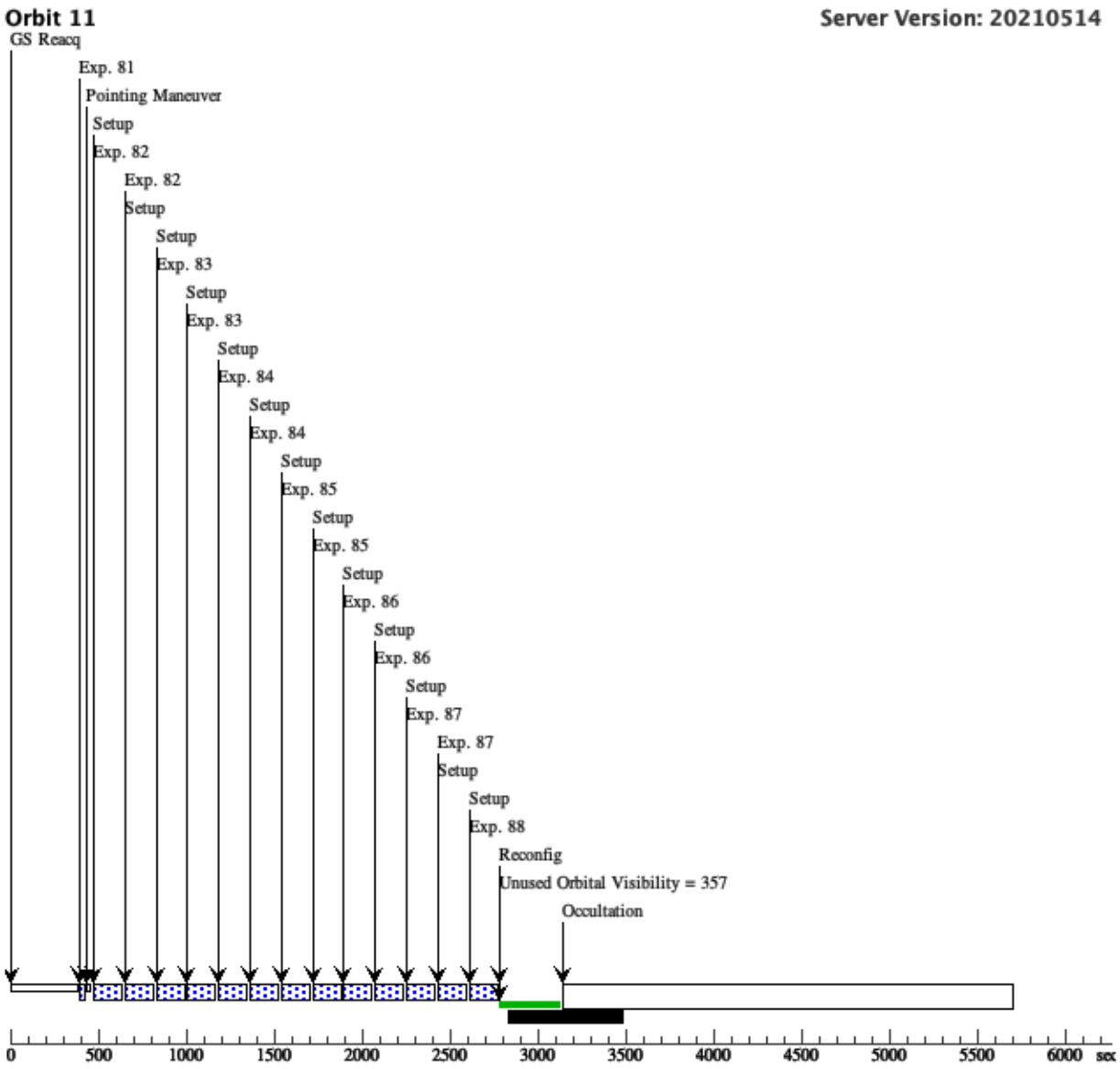

Orbit 6
Server Version: 20210514
GS Reacq
Exp. 41
Pointing Maneuver
Exp. 42
Setup
Exp. 42
Setup
Setup
Exp. 43
Setup
Exp. 43
Exp. 44
Setup
Setup
Exp. 44
Setup
Exp. 45
Exp. 45
Setup
Setup
Exp. 46
Setup
Exp. 46
Setup
Exp. 47
Exp. 47
Setup
Setup
Exp. 48
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 7
Server Version: 20210514
GS Reacq
Exp. 49
Pointing Maneuver
Exp. 50
Setup
Setup
Exp. 50
Exp. 51
Setup
Exp. 51
Setup
Setup
Exp. 52
Exp. 52
Setup
Exp. 53
Setup
Exp. 53
Setup
Setup
Exp. 54
Setup
Exp. 54
Exp. 55
Setup
Setup
Exp. 55
Setup
Exp. 56
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 8
Server Version: 20210514
GS Reacq
Exp. 57
Pointing Maneuver
Exp. 58
Setup
Setup
Exp. 58
Setup
Exp. 59
Setup
Exp. 59
Setup
Exp. 60
Setup
Exp. 60
Exp. 61
Setup
Setup
Exp. 61
Exp. 62
Setup
Setup
Exp. 62
Setup
Exp. 63
Setup
Exp. 63
Setup
Exp. 64
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 9
Server Version: 20210514
GS Reacq
Exp. 65
Pointing Maneuver
Setup
Exp. 66
Setup
Exp. 66
Exp. 67
Setup
Setup
Exp. 67
Setup
Exp. 68
Exp. 68
Setup
Exp. 69
Setup
Exp. 69
Setup
Exp. 70
Setup
Setup
Exp. 70
Setup
Exp. 71
Exp. 71
Setup
Setup
Exp. 72
Pointing Maneuver
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 10
Server Version: 20210514
GS Reacq
Exp. 73
Pointing Maneuver
Setup
Exp. 74
Exp. 74
Setup
Setup
Exp. 75
Exp. 75
Setup
Setup
Exp. 76
Setup
Exp. 76
Setup
Exp. 77
Setup
Exp. 77
Exp. 78
Setup
Setup
Exp. 78
Setup
Exp. 79
Setup
Exp. 79
Setup
Exp. 80
Unused Orbital Visibility = 357
Pointing Maneuver
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec


Orbit 11
Server Version: 20210514
GS Reacq
Exp. 81
Pointing Maneuver
Setup
Exp. 82
Exp. 82
Setup
Setup
Exp. 83
Setup
Exp. 83
Setup
Exp. 84
Setup
Exp. 84
Setup
Exp. 85
Setup
Exp. 85
Setup
Exp. 86
Setup
Exp. 86
Setup
Exp. 87
Exp. 87
Setup
Setup
Exp. 88
Reconfig
Unused Orbital Visibility = 357
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec