



16718 - Atmospheric Structure and Spin Axis Alignment of an Overlooked Planetary-Mass Companion

Cycle: 29, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) W1243+6001B	WFC3/IR	6	05-Nov-2021 11:00:46.0	yes

6 Total Orbits Used

ABSTRACT

Next-generation telescopes such as the James Webb Space Telescope and 30-m telescopes (E-ELT, TMT, GMT) will enable the era of direct exoplanet characterization studies. Based on the handful of studies to date (e.g. Beta Pictoris b, HR8799 bcde, 2M1207B, 51 Eri b), it is clear that the interpretation of future observational data relies on a thorough understanding of complex atmospheric phenomena. Directly-imaged exoplanets such as HR8799 bcde and Beta Pic b are too close to their host star to enable in-depth, time resolved atmospheric characterization, but wide orbit planetary-mass companions can be studied with current facilities in exceptional detail. We propose to obtain HST/WFC3 spectroscopic variability monitoring of a young, newly discovered companion at the planet/brown dwarf boundary to shed light on the atmospheres of young L-type objects. The proposed observations will reveal the atmospheric structures and phenomena as well as the spin axis alignment of the system to test formation mechanism.

OBSERVING DESCRIPTION

This program consists of 6 consecutive, uninterrupted WFC3 G141 observations of a wide planetary-mass companion to a star.

Proposal 16718 - W1243B (01) - Atmospheric Structure and Spin Axis Alignment of an Overlooked Planetary-Mass Companion

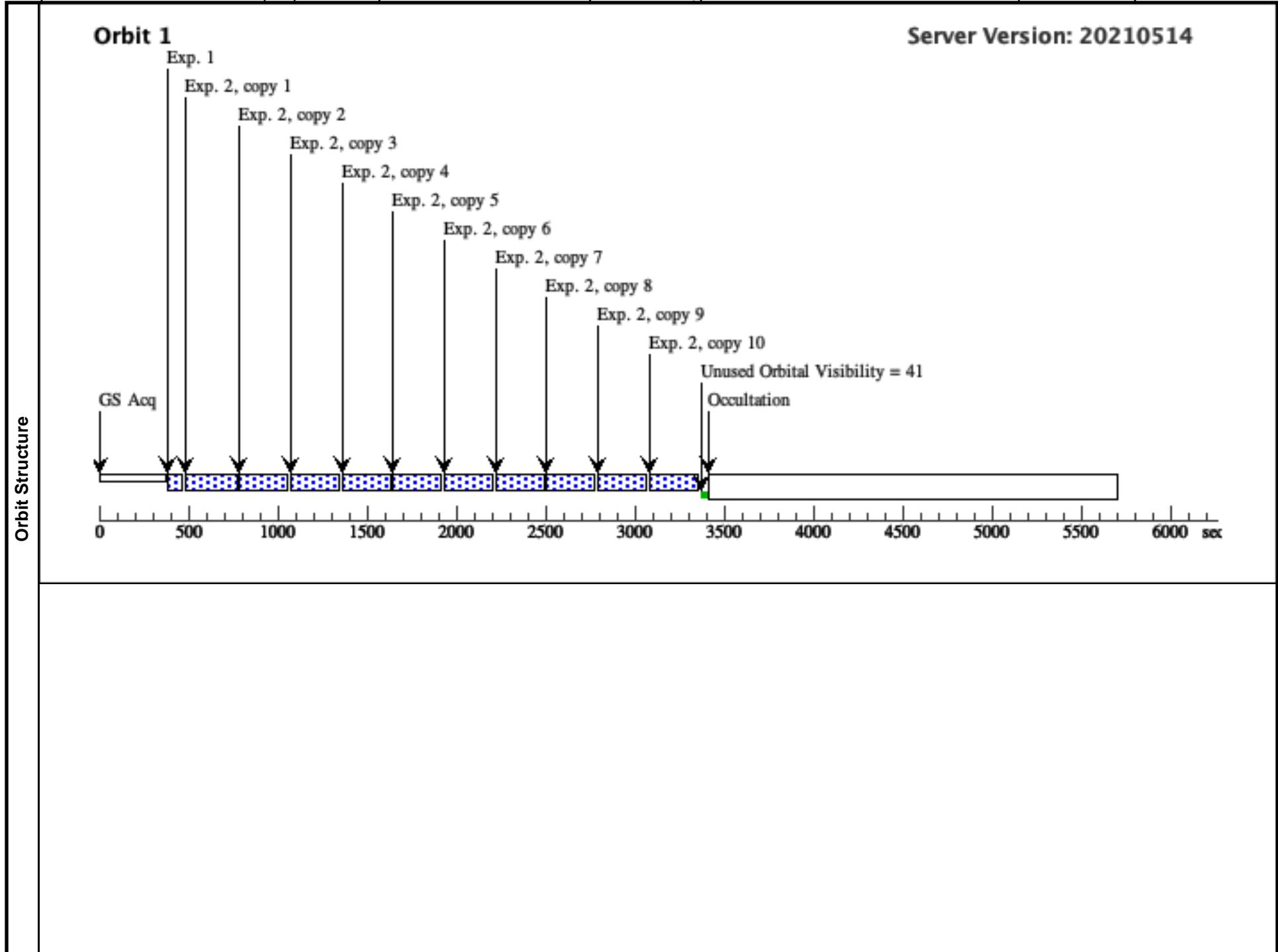
Visit	Proposal 16718, W1243B (01), implementation Fri Nov 05 15:00:48 GMT 2021 Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ORIENT 274D TO 334 D; ORIENT 92D TO 152 D					
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
(1)		W1243+6001B	RA: 12 43 32.1276 (190.8838650d) Dec: +60 01 26.24 (60.02396d) Equinox: J2000	Proper Motion RA: -0.126401 arcsec/yr Proper Motion Dec: -0.064141 arcsec/yr Parallax: .022" Epoch of Position: 2016.0	V=(?) J=18.53, H=16.6, K=15.6	Reference Frame: ICRS
<i>Comments:</i> Category=STAR Description=[BROWN DWARF, EXTRA-SOLAR PLANET] Extended=NO						

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#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=9; SAMP-SEQ=SPAR S10	Sequence 1-2 Non-Int in W1243B (01)	59.049711 Secs (59.05 Secs) [==>]	[1]
	2	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 1-2 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[1]
	3	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=8; SAMP-SEQ=SPAR S10	Sequence 3-4 Non-Int in W1243B (01)	51.703224 Secs (51.703 Secs) [==>]	[2]
	4	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 3-4 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[2]
	5	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=5; SAMP-SEQ=SPAR S10	Sequence 5-6 Non-Int in W1243B (01)	29.663763 Secs (29.664 Secs) [==>]	[3]
	6	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 5-6 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[3]

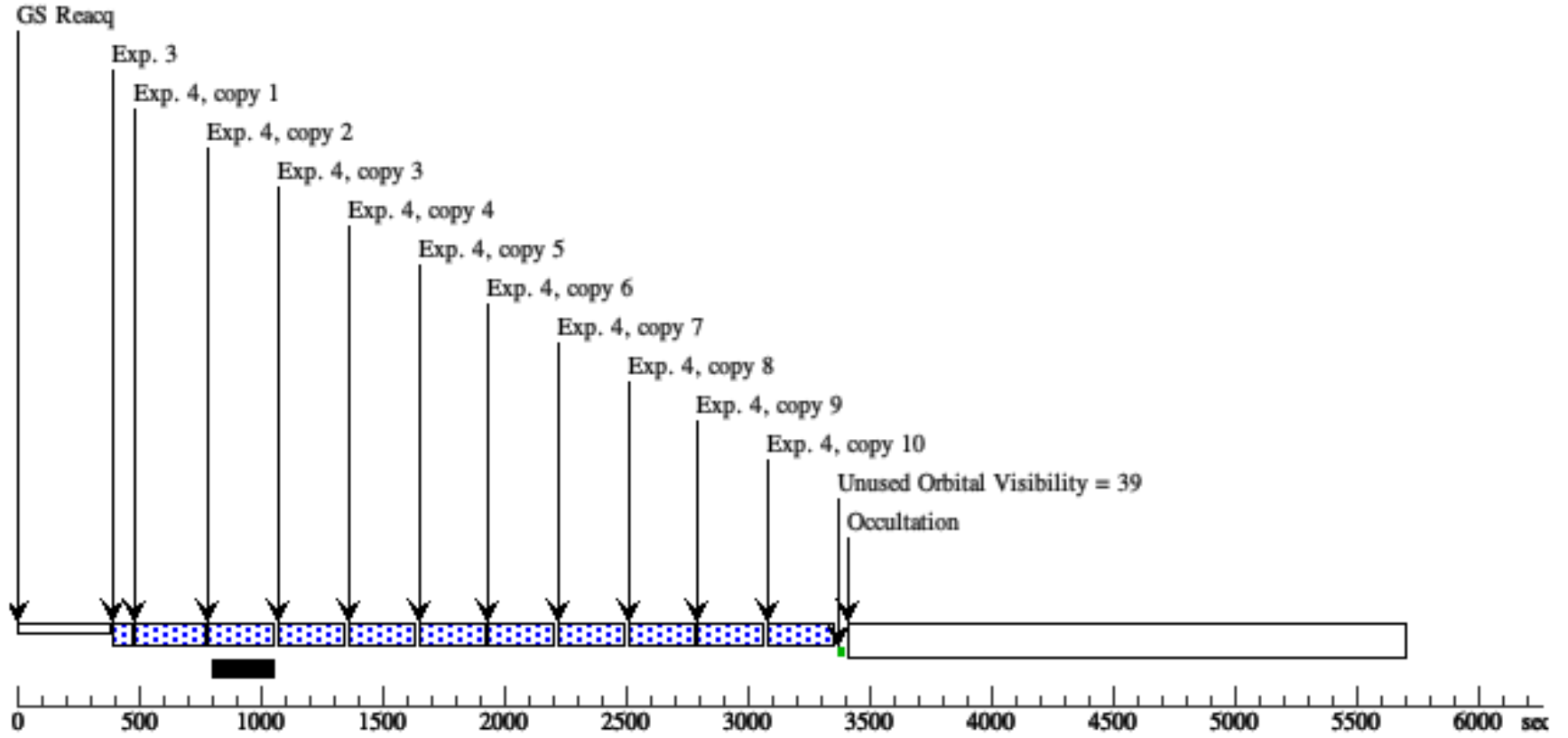
Proposal 16718 - W1243B (01) - Atmospheric Structure and Spin Axis Alignment of an Overlooked Planetary-Mass Companion

7	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=5; SAMP-SEQ=SPAR S10	Sequence 7-8 Non-Int in W1243B (01)	29.663763 Secs (29.664 Secs) [==>]	[4]
8	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 7-8 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[4]
9	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=5; SAMP-SEQ=SPAR S10	Sequence 9-10 Non-Int in W1243B (01)	29.663763 Secs (29.664 Secs) [==>]	[5]
10	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 9-10 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[5]
11	F127M	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	F127M	NSAMP=5; SAMP-SEQ=SPAR S10	Sequence 11-12 Non-Int in W1243B (01)	29.663763 Secs (29.664 Secs) [==>]	[6]
12	G141	(1) W1243+6001B	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=13; SAMP-SEQ=SPAR S25	Sequence 11-12 Non-Int in W1243B (01)	268.430283 Secs X 10 (2684.303 Secs) [==>(Copy 1)] [==>(Copy 2)] [==>(Copy 3)] [==>(Copy 4)] [==>(Copy 5)] [==>(Copy 6)] [==>(Copy 7)] [==>(Copy 8)] [==>(Copy 9)] [==>(Copy 10)]	[6]



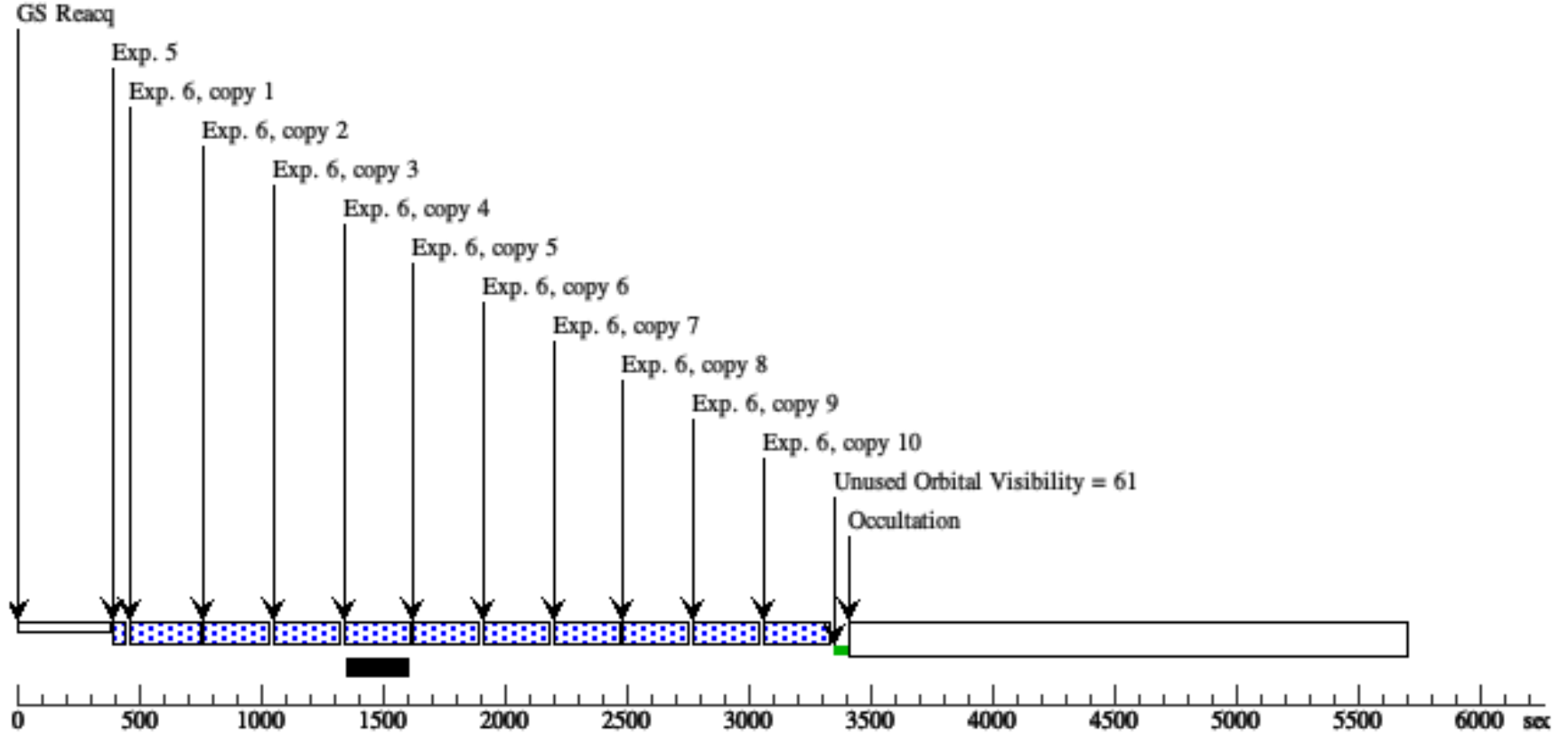
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Orbit 2



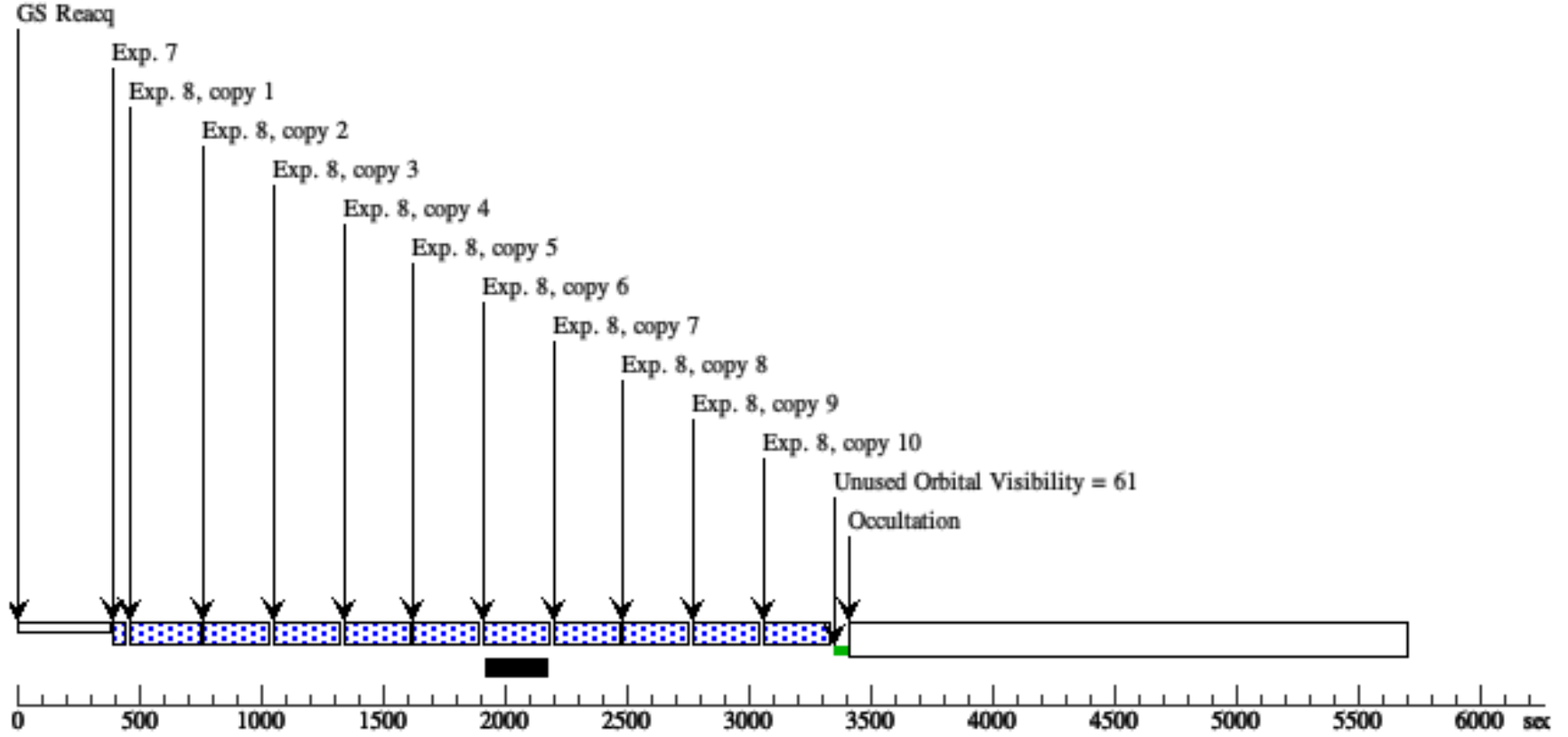
Orbit 3

Server Version: 20210514



Orbit 4

Server Version: 20210514



Orbit 5

Server Version: 20210514

