18104 - Hydrodynamic atmospheric escape in a benchmark sample of exoplanets in the hot-Neptune desert

Cycle: 33, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*
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Prof. Aline Vidotto (CoI) (ESA Member)	Universiteit Leiden
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Ms. Lakeisha M. Ramos Rosado (CoI)	The Johns Hopkins University
Dr. Shreyas Vissapragada (CoI)	Carnegie Institution of Washington

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(2) WASP-166 WAVE	STIS/CCD STIS/NUV-MAMA	5	03-Mar-2026 17:00:40.0	yes
02	(2) WASP-166 WAVE	STIS/CCD STIS/NUV-MAMA	5	03-Mar-2026 17:00:41.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(3) HD-149026 WAVE	STIS/CCD STIS/NUV-MAMA	5	03-Mar-2026 17:00:45.0	yes
04	(3) HD-149026 WAVE	STIS/CCD STIS/NUV-MAMA	5	03-Mar-2026 17:00:50.0	yes

20 Total Orbits Used

ABSTRACT

The extensive census of transiting exoplanets with the Kepler satellite revealed a robust dearth of highly-irradiated Neptunes, which we think is carved by a combination of photoevaporation driven by high-energy irradiation and high-eccentricity migration. However, this hypothesis has been challenging to test with observations of atmospheric escape because most Kepler planets orbit faint stars, which are not amenable to transmission spectroscopy. The tables have since turned in our favor, as recent transit surveys discovered several planets in the hot-Neptune desert that orbit bright stars. We have identified a benchmark sample of hot planets in the desert with densities and sizes consistent with having a significant H/He primordial atmosphere, and are likely undergoing hydrodynamic escape. With regards to detectability, this key sample is unmatched by any other combination of exoplanetary and host parameters, and provide our best chances at testing photoevaporation of hot Neptunes. In this program, we aim to study signatures of hydrodynamic escape in three hot sub-Jovians worlds using the unique ultraviolet capabilities of HST. We predict that the strong planetary outflow drags heavy species, such as Mg and Fe, to the exosphere of the planet, producing detectable signatures in transmission spectroscopy. Using a suite of modeling tools to interpret these signatures, our observations will provide, for the very first time, mass loss rate constraints for planets within the hot Neptune desert.

OBSERVING DESCRIPTION

We shall observe two transits of two hot Neptunes using STIS/NUV-MAMA. The objective is to detect metals escaping from the planets, and producing in-transit absorption in emission lines between 2400 and 2900 angstrom. This program is time sensitive because it can only be executed when the planet transits. Thus, we set a periodic time constraint. It is imperative to observe as many orbits as possible in a visit to cover the entirety of the transit, as well as obtain out-of-transit baseline observations. UV observations are limited to a maximum of five orbits, so we set the phase constraints to allow five consecutive orbits per visit. There are multiple observing opportunities Cycle 33: WASP-166 is observable between November and February, and HD 149026 is observable between December and July.

We will use the E230M grating centered at 2707 angstrom with the square 0.2x0.2 slit aiming for the best spectrophotometric stability. We will use

the TIME-TAG mode to allow us to break down each exposure into sub-exposures, which in turn is necessary to obtain a precise time series of fluxes. In both visits, The ETC recommends a short buffer time (154 s for HD 149026, STIS.sp.2022272; 393 s for WASP-166, STIS.sp.2022205), but at this value we would require special handling for the program because the number of buffer dumps exceeds 30. No further acquisition exposures are necessary in consecutive orbits within the same visit.

The wavelength calibration was set to happen after the science exposure in order to spend as much time as possible on target. We set schedulability to 100 to maximize the chances of observing our visits within Cycle 33.

Visit

Proposal 18104, WASP-166b Transit 1 (01), implementation Tue Mar 03 22:00:52 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; Period 5.4435397 D AND ZERO-PHASE HJD2458524.40848

Comments: Ephemeris uncertainty by early 2026 using Kokori+2023: 2.4 minutes

Diagnostics

(WASP-166b Transit 1 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(WASP-166b Transit 1 (01)) Warning (Orbit Planner): STIS TIME-TAG EXPOSURE GENERATES HEAVY DATA VOLUME

Fixed Targets

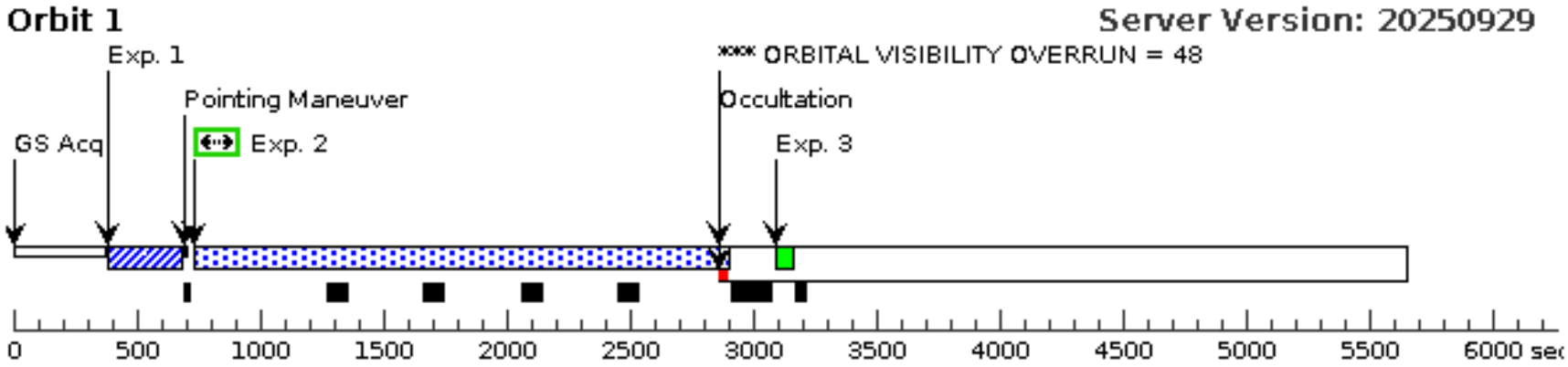
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WASP-166	RA: 09 39 30.0251 (144.8751046d) Dec: -20 58 56.71 (-20.98242d) Equinox: J2000	Proper Motion RA: -0.003934280796720865 sec of time/yr Proper Motion Dec: 0.011151999999999999 arcsec/yr Epoch of Position: 2015.5	V=9.35	Reference Frame: ICRS

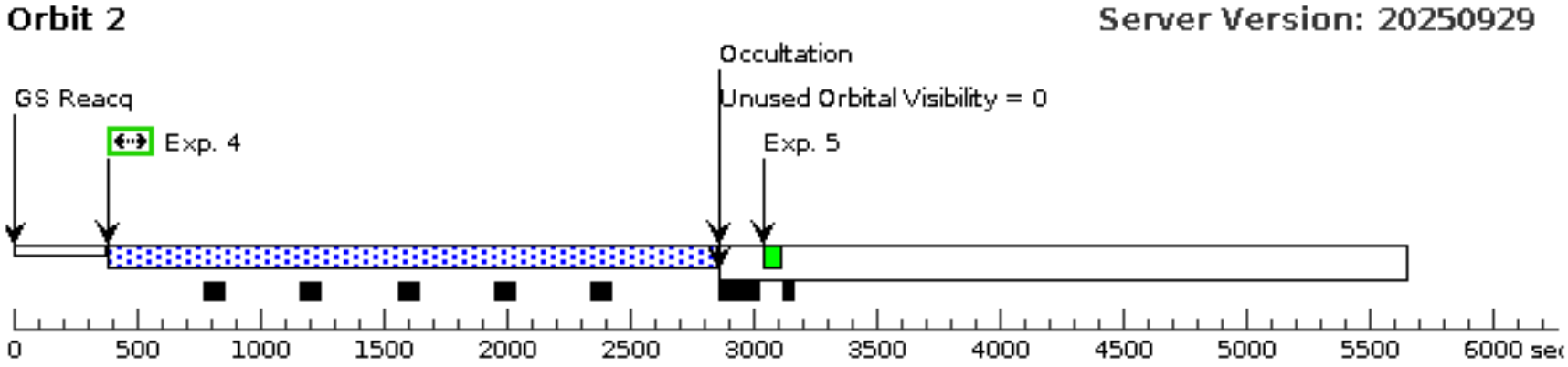
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, F3-F9]
Extended=NO

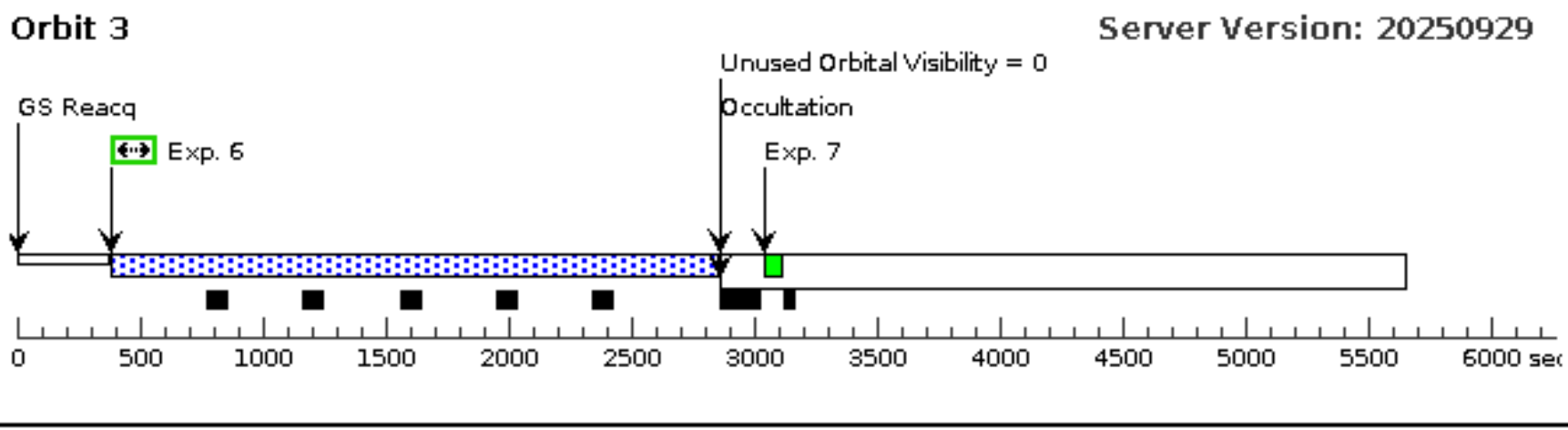
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/WASP-166 (STIS.ta.2022204)	(2) WASP-166	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.96058018 61778671 TO 0.9682345189588638		1 Secs (1 Secs) *[==>]*	***[1]***
2	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 6X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2003 Secs) *[==>2003.0 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[1]***
4	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 6X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[2]***
6	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 6X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	***[3]***
7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[3]***
8	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 6X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	***[4]***
9	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[4]***
10	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 6X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	***[5]***
11	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[5]***

Orbit Structure



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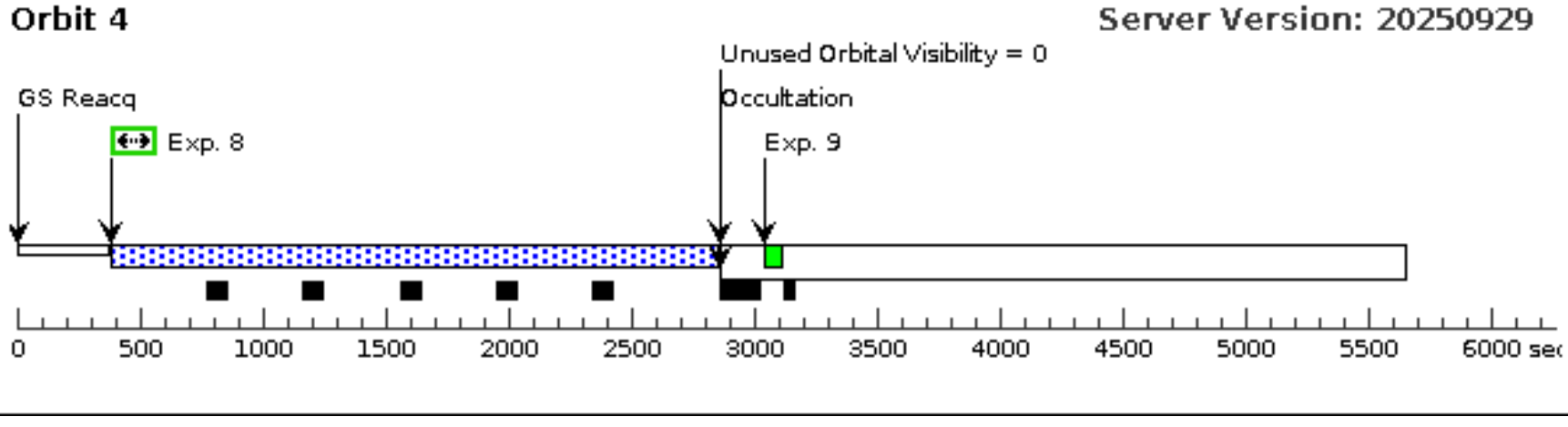
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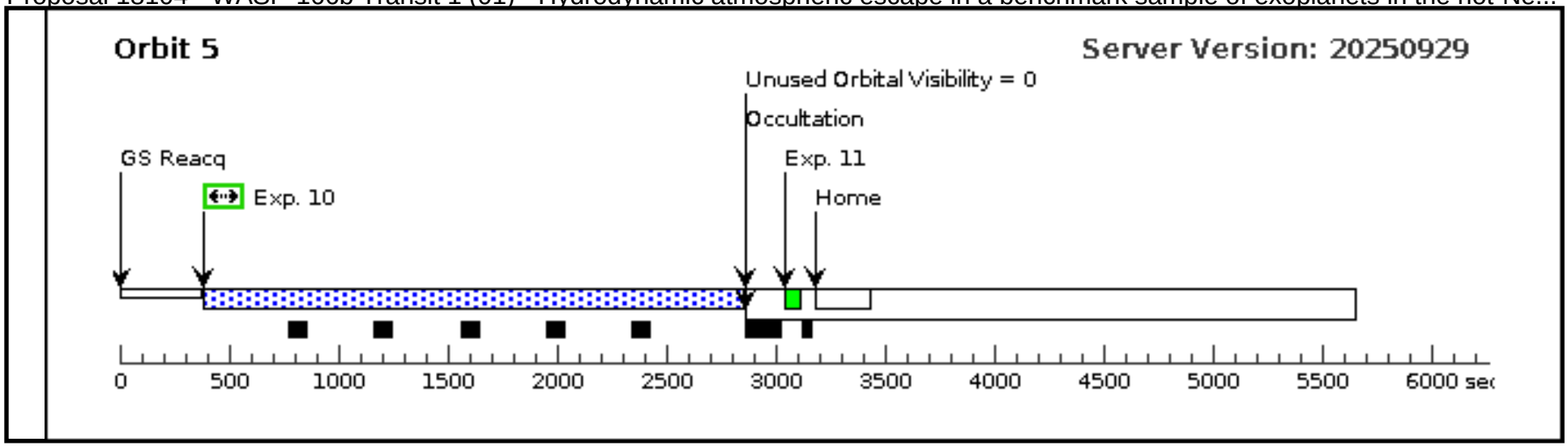
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3000
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4000
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5000
5500
6000 sec

Visit

Proposal 18104, WASP-166b Transit 2 (02), completed Tue Mar 03 22:00:52 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; Period 5.4435397 D AND ZERO-PHASE HJD2458524.40848

Diagnostics

(WASP-166b Transit 2 (02)) Warning (Orbit Planner): STIS TIME-TAG EXPOSURE GENERATES HEAVY DATA VOLUME

Fixed Targets

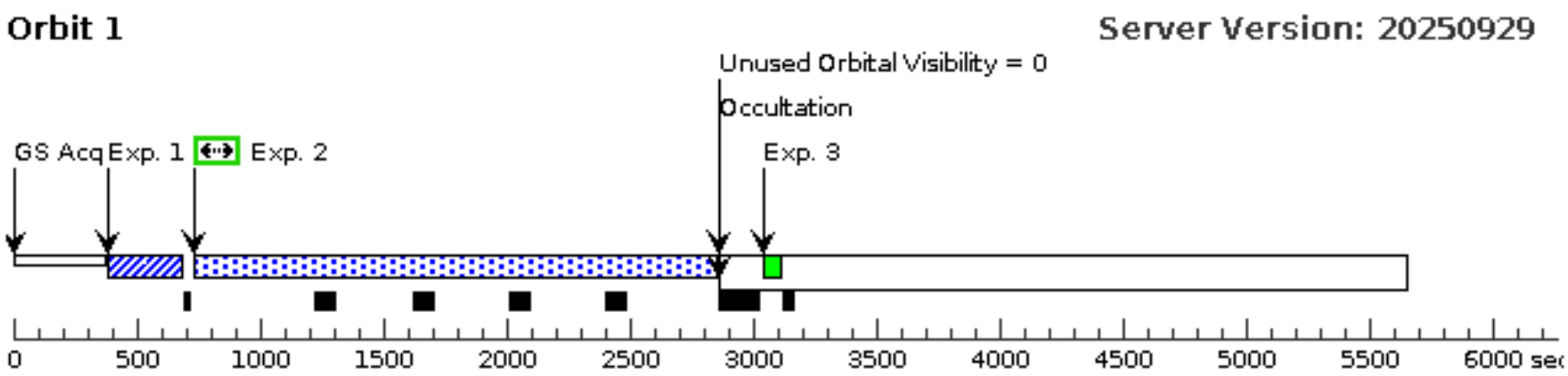
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WASP-166	RA: 09 39 30.0251 (144.8751046d) Dec: -20 58 56.71 (-20.98242d) Equinox: J2000	Proper Motion RA: -0.003934280796720865 sec of time/yr Proper Motion Dec: 0.011151999999999999 arcsec/yr Epoch of Position: 2015.5	V=9.35	Reference Frame: ICRS

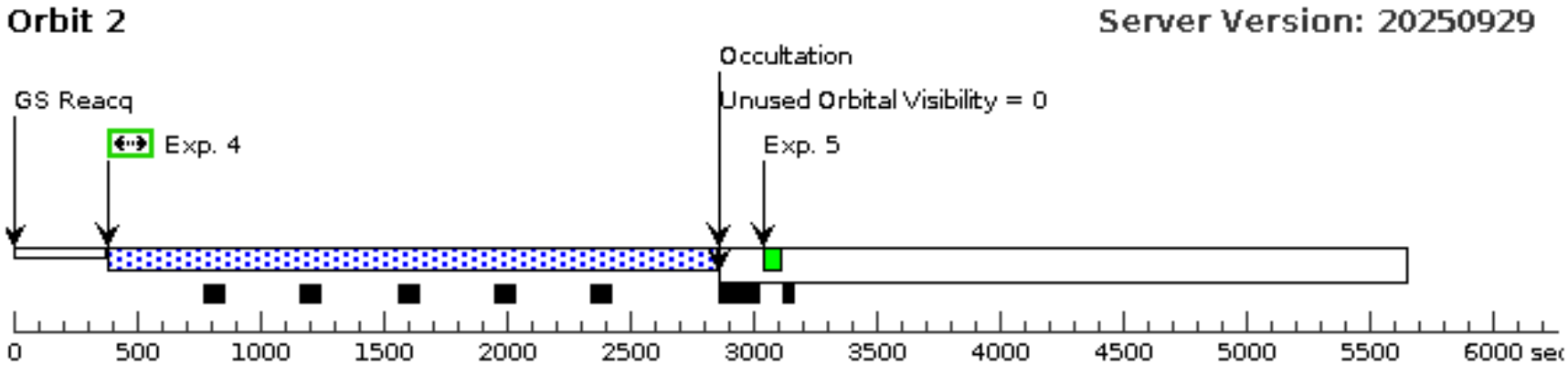
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, F3-F9]
Extended=NO

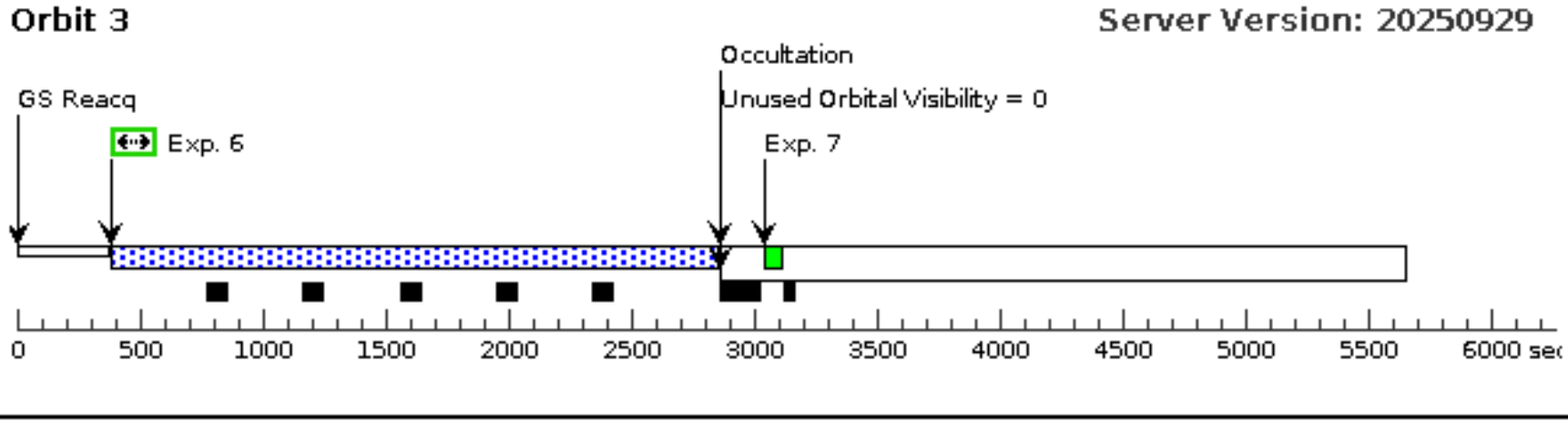
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/WASP-166 (STIS.ta.2022204)	(2) WASP-166	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.96823451 89588638 TO 0.9758 888517398605		1 Secs (1 Secs) *[==>]*	*[1]*
2	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2003 Secs) *[==>2003.0 Secs]*	*[1]*
3	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A				*[==>]*	*[1]*
4	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	*[2]*
5	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A				*[==>]*	*[2]*
6	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	*[3]*
7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A				*[==>]*	*[3]*
8	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	*[4]*
9	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A				*[==>]*	*[4]*
10	SCI/WASP-166b (STIS.sp.2022205)	(2) WASP-166	STIS/NUV-MAMA, TIME-TAG, 0.2X0.2	E230M 2707 A	BUFFER-TIME=393; WAVECAL=NO			3000 Secs (2454 Secs) *[==>2454.0 Secs]*	*[5]*
11	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A				*[==>]*	*[5]*

Orbit Structure



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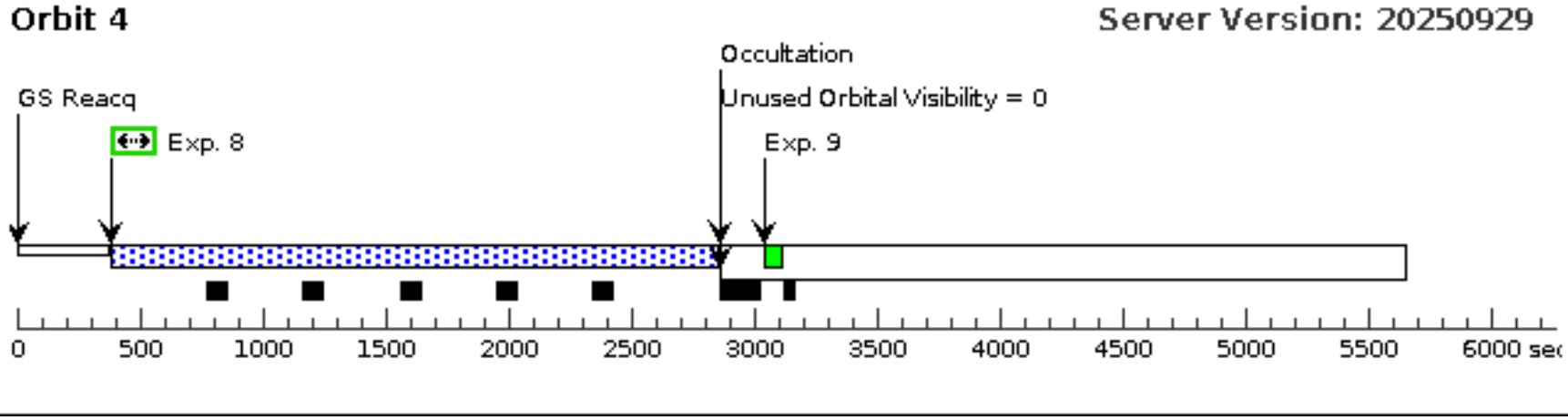
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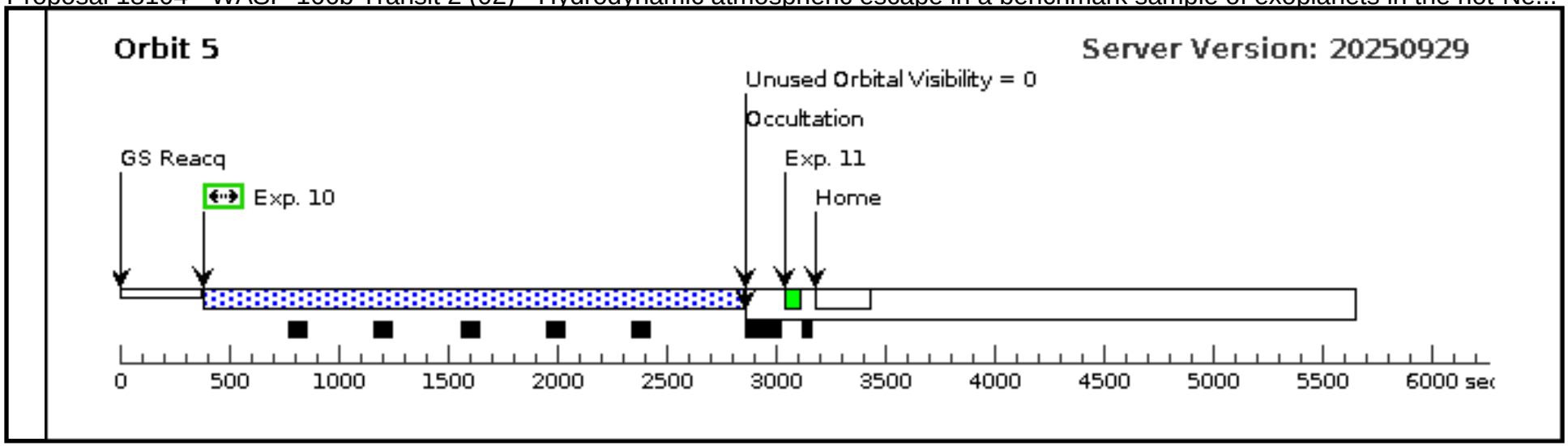
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4000
4500
5000
5500
6000 sec

Visit

Proposal 18104, HD 149026b Transit 1 (03), implementation Tue Mar 03 22:00:52 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; Period 2.87588850 D AND ZERO-PHASE HJD2457217.64141

Comments: Ephemeris uncertainty by early 2026 using Kokori+2023: 0.43 minutes

Diagnostics

(HD 149026b Transit 1 (03)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HD-149026	RA: 16 30 29.5159 (247.6229829d) Dec: +38 20 51.13 (38.34754d) Equinox: J2000	Proper Motion RA: -0.006627292855969457 sec of time/yr Proper Motion Dec: 0.052682 arcsec/yr Epoch of Position: 2015.5	V=8.14	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, F3-F9]
Extended=NO

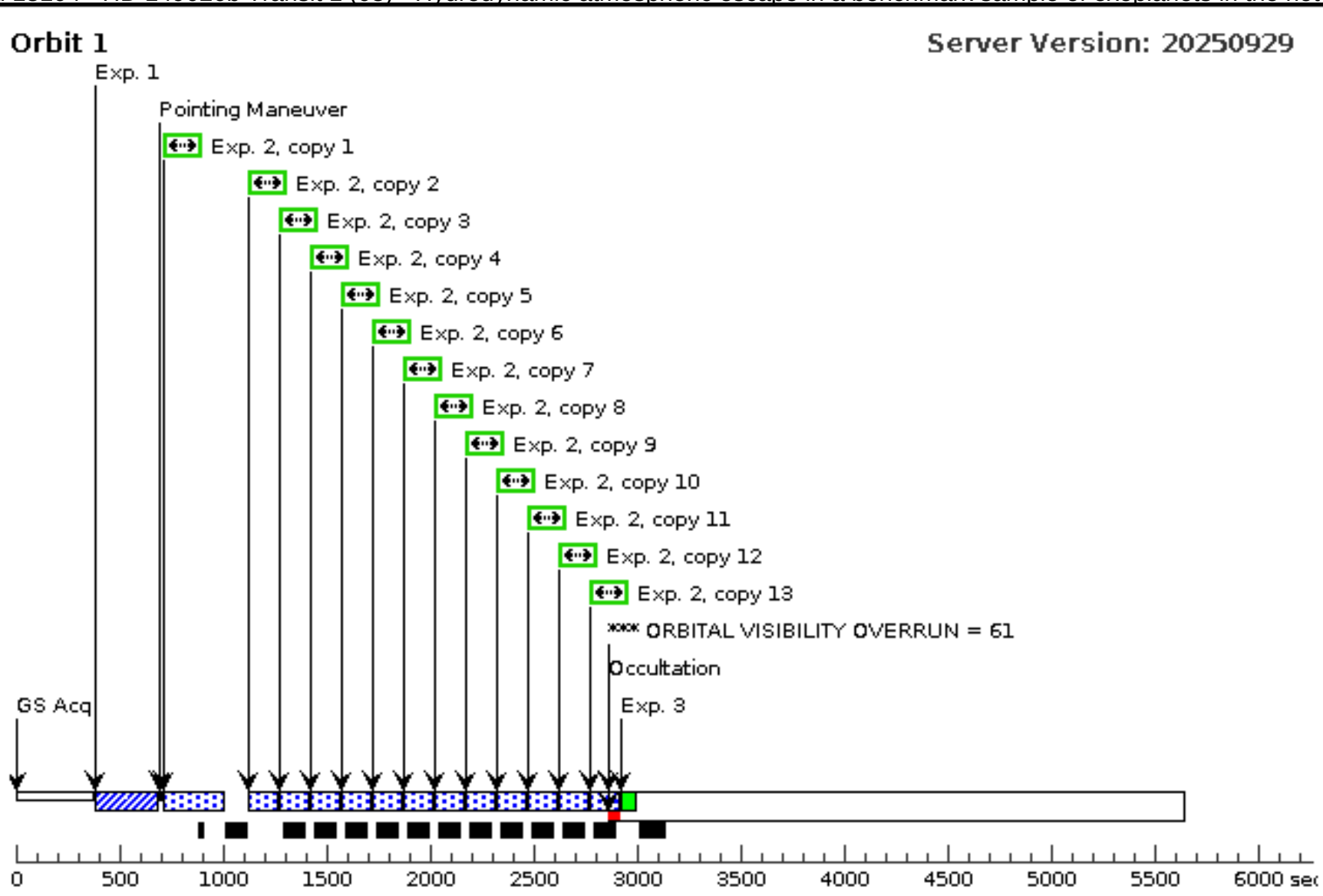
Exposures

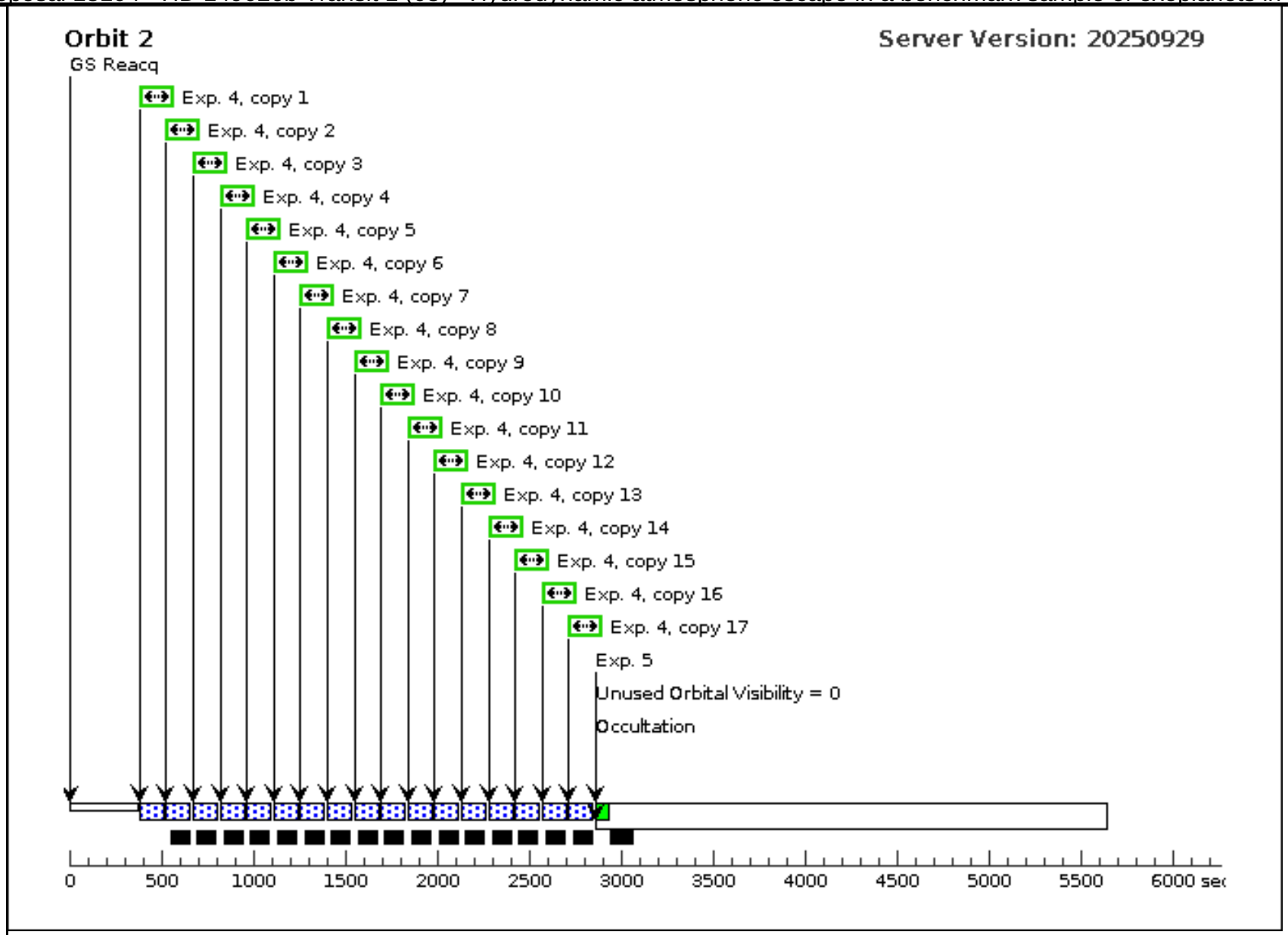
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/HD 149026 (STIS.ta.2022257)	(3) HD-149026	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.92915236 67455988 TO 0.9436 40635304781		1 Secs (1 Secs) *[==>]*	***[1]***
2	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO			120 Secs X 13 (1638 Secs) *[==>126.0 Secs (Copy 1)]* *[==>126.0 Secs (Copy 2)]* *[==>126.0 Secs (Copy 3)]* *[==>126.0 Secs (Copy 4)]* *[==>126.0 Secs (Copy 5)]* *[==>126.0 Secs (Copy 6)]* *[==>126.0 Secs (Copy 7)]* *[==>126.0 Secs (Copy 8)]* *[==>126.0 Secs (Copy 9)]* *[==>126.0 Secs (Copy 10)]* *[==>126.0 Secs (Copy 11)]* *[==>126.0 Secs (Copy 12)]* *[==>126.0 Secs (Copy 13)]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[1]***
4	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO			120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[2]***

	6	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[3]***
	7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[3]***
	8	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[4]***
	9	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[4]***

	10	SCI/HD 149026b (STIS.sp.20 22272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[5]***
	11	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[5]***

Orbit Structure

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Exp. 4, copy 16
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Exp. 5
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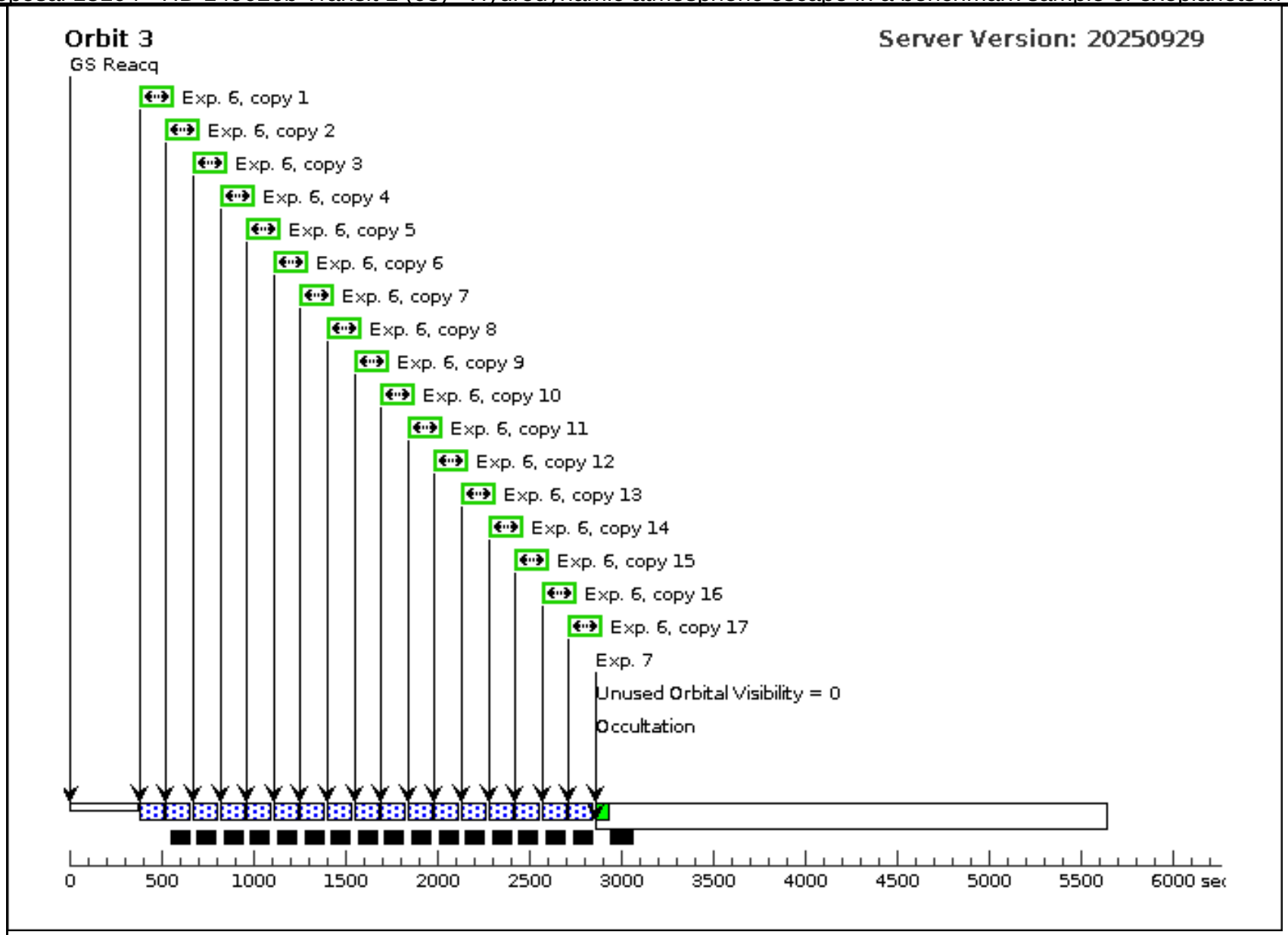
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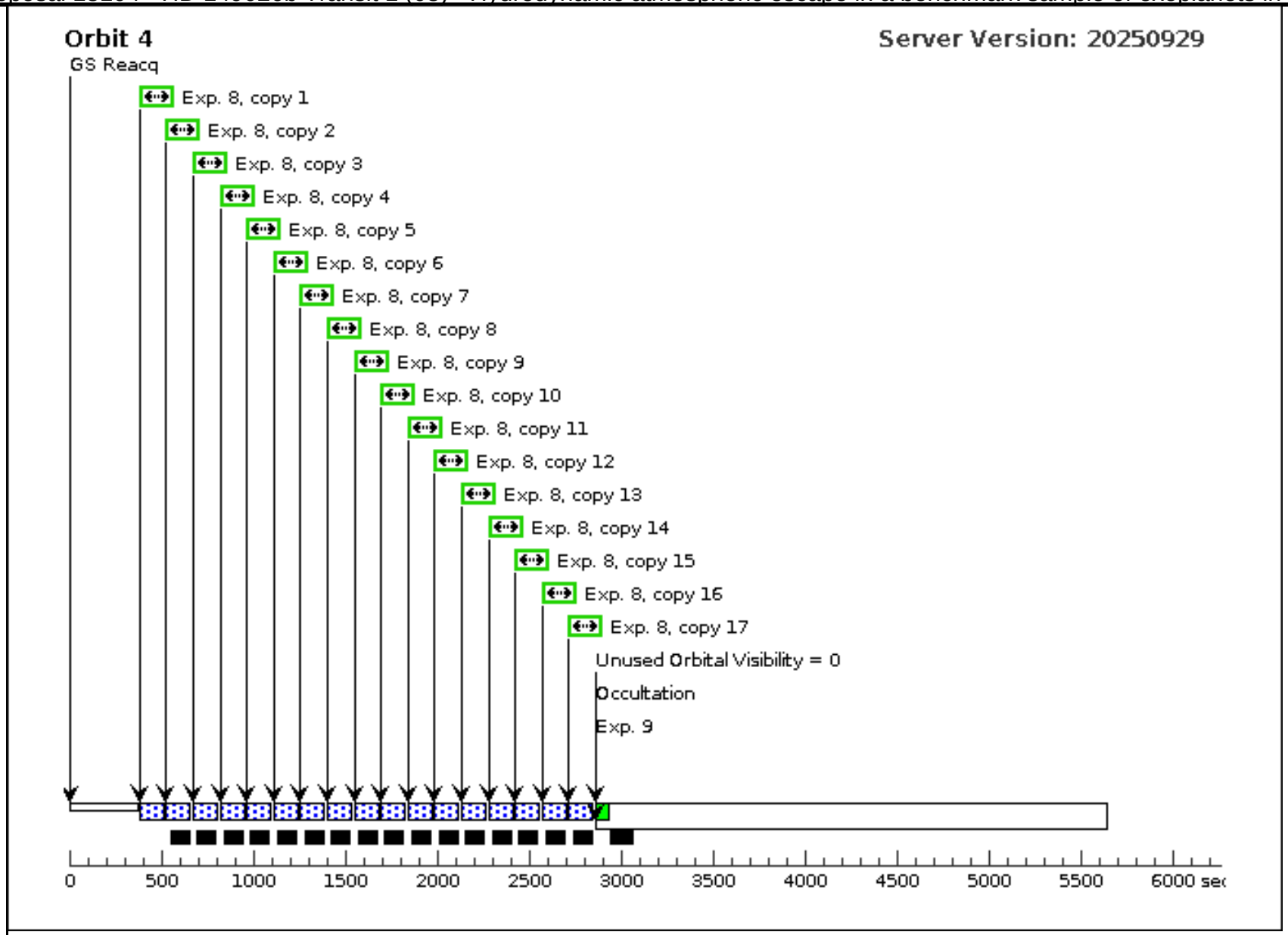
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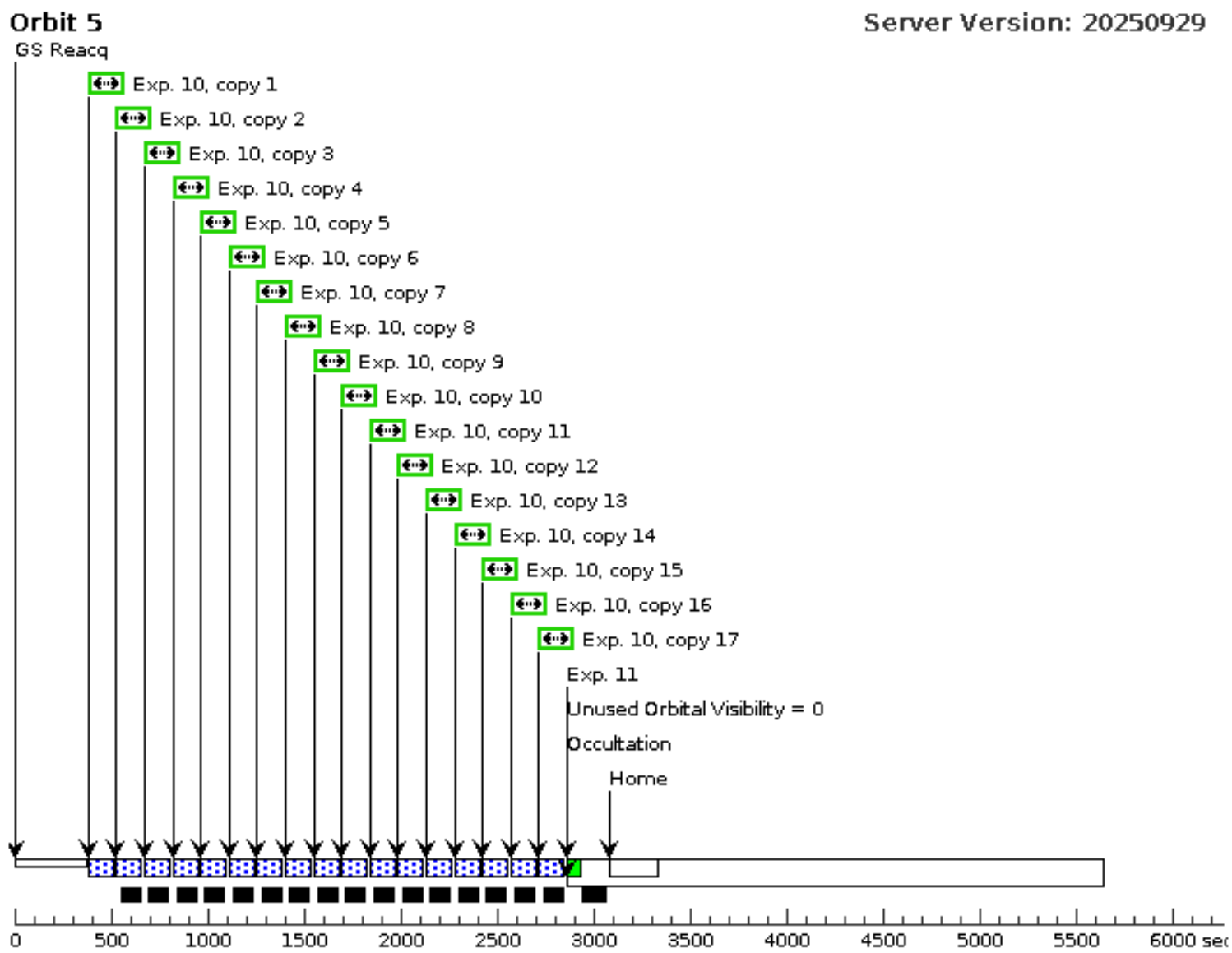
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Exp. 11
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6000 sec

Visit

Proposal 18104, HD 149026b Transit 2 (04), implementation Tue Mar 03 22:00:52 GMT 2026

Diagnostic Status: Warning

Scientific Instruments: STIS/NUV-MAMA, STIS/CCD

Special Requirements: SCHED 100%; Period 2.87588850 D AND ZERO-PHASE HJD2457217.64141

Diagnostics

(HD 149026b Transit 2 (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	HD-149026	RA: 16 30 29.5159 (247.6229829d) Dec: +38 20 51.13 (38.34754d) Equinox: J2000	Proper Motion RA: -0.006627292855969457 sec of time/yr Proper Motion Dec: 0.052682 arcsec/yr Epoch of Position: 2015.5	V=8.14	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=EXT-STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, F3-F9]
Extended=NO

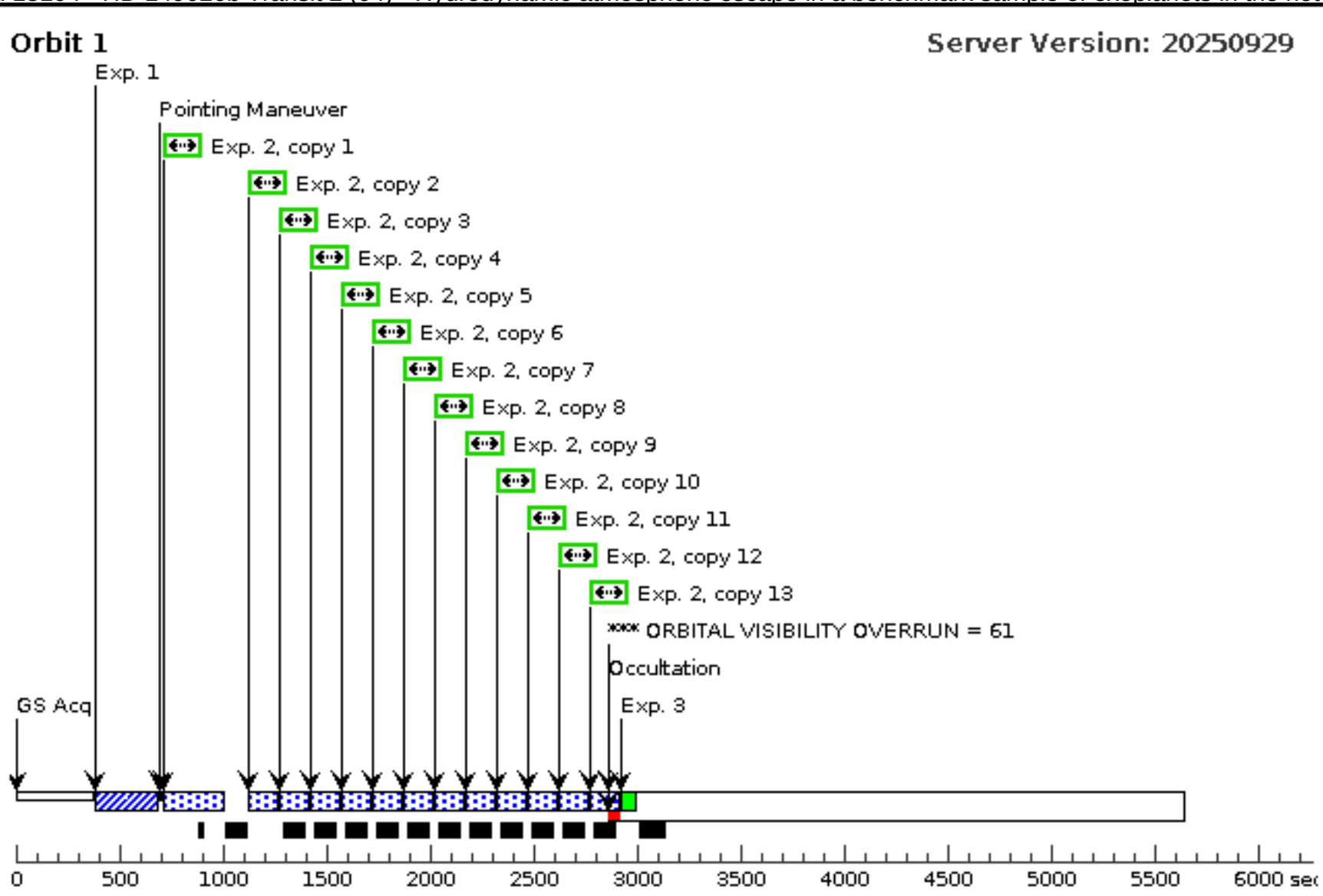
Exposures

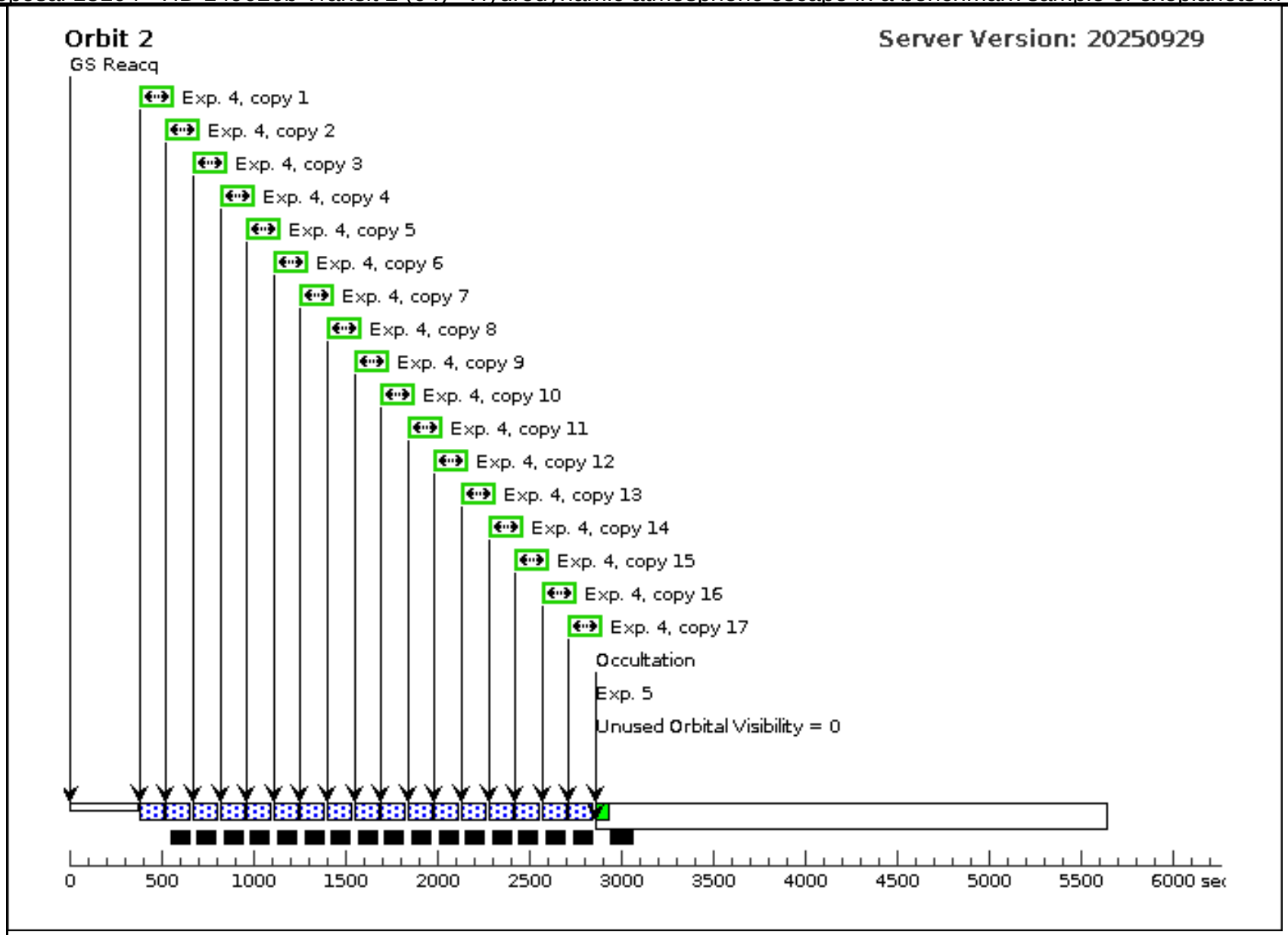
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/HD 149026 (STIS.ta.2022257)	(3) HD-149026	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.94364063 5304781 TO 0.95812 89038639633		1 Secs (1 Secs) *[==>]*	***[1]***
2	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO			120 Secs X 13 (1638 Secs) *[==>126.0 Secs (Copy 1)]* *[==>126.0 Secs (Copy 2)]* *[==>126.0 Secs (Copy 3)]* *[==>126.0 Secs (Copy 4)]* *[==>126.0 Secs (Copy 5)]* *[==>126.0 Secs (Copy 6)]* *[==>126.0 Secs (Copy 7)]* *[==>126.0 Secs (Copy 8)]* *[==>126.0 Secs (Copy 9)]* *[==>126.0 Secs (Copy 10)]* *[==>126.0 Secs (Copy 11)]* *[==>126.0 Secs (Copy 12)]* *[==>126.0 Secs (Copy 13)]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[1]***
4	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO			120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A				*[==>]*	***[2]***

	6	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[3]***
	7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[3]***
	8	SCI/HD 149026b (STIS.sp.2022272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[4]***
	9	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[4]***

	10	SCI/HD 149026b (STIS.sp.20 22272)	(3) HD-149026	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A	WAVECAL=NO	120 Secs X 17 (2074 Secs) *[==>122.0 Secs (Copy 1)]* *[==>122.0 Secs (Copy 2)]* *[==>122.0 Secs (Copy 3)]* *[==>122.0 Secs (Copy 4)]* *[==>122.0 Secs (Copy 5)]* *[==>122.0 Secs (Copy 6)]* *[==>122.0 Secs (Copy 7)]* *[==>122.0 Secs (Copy 8)]* *[==>122.0 Secs (Copy 9)]* *[==>122.0 Secs (Copy 10)]* *[==>122.0 Secs (Copy 11)]* *[==>122.0 Secs (Copy 12)]* *[==>122.0 Secs (Copy 13)]* *[==>122.0 Secs (Copy 14)]* *[==>122.0 Secs (Copy 15)]* *[==>122.0 Secs (Copy 16)]* *[==>122.0 Secs (Copy 17)]*	***[5]***
	11	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 6X0.2	E230M 2707 A		*[==>]*	***[5]***

Orbit Structure

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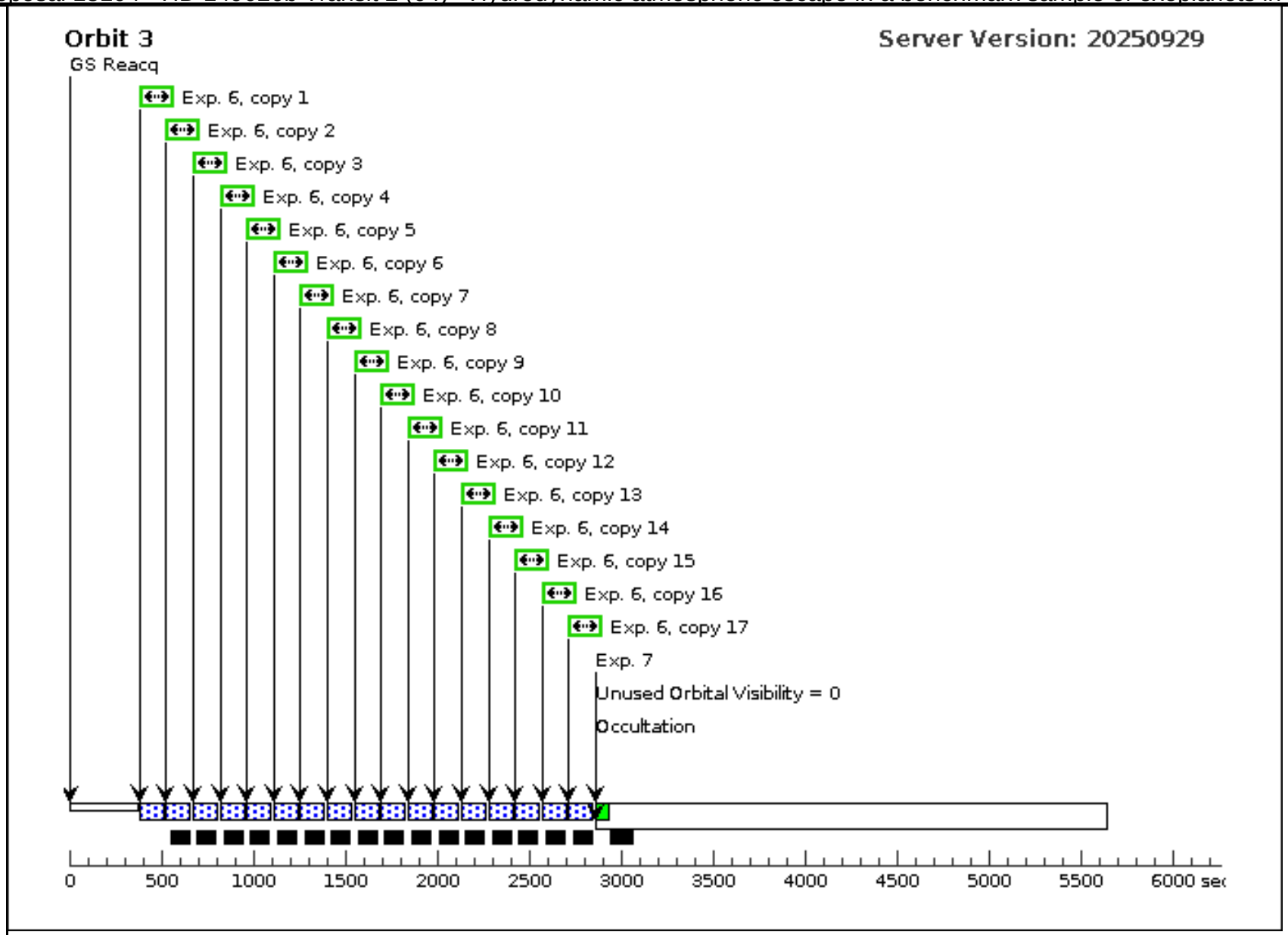
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Exp. 6, copy 17
Exp. 7
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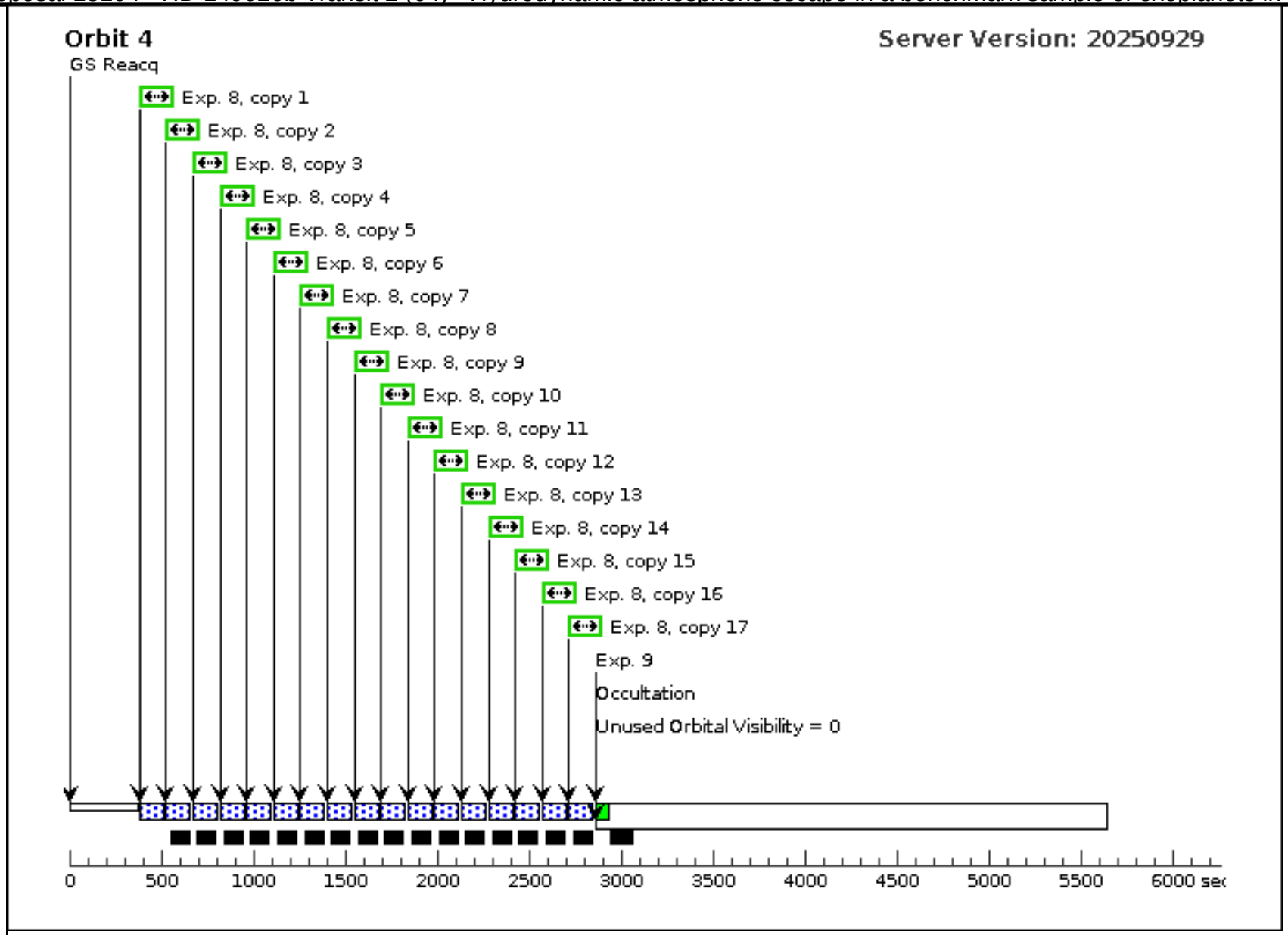
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Exp. 9
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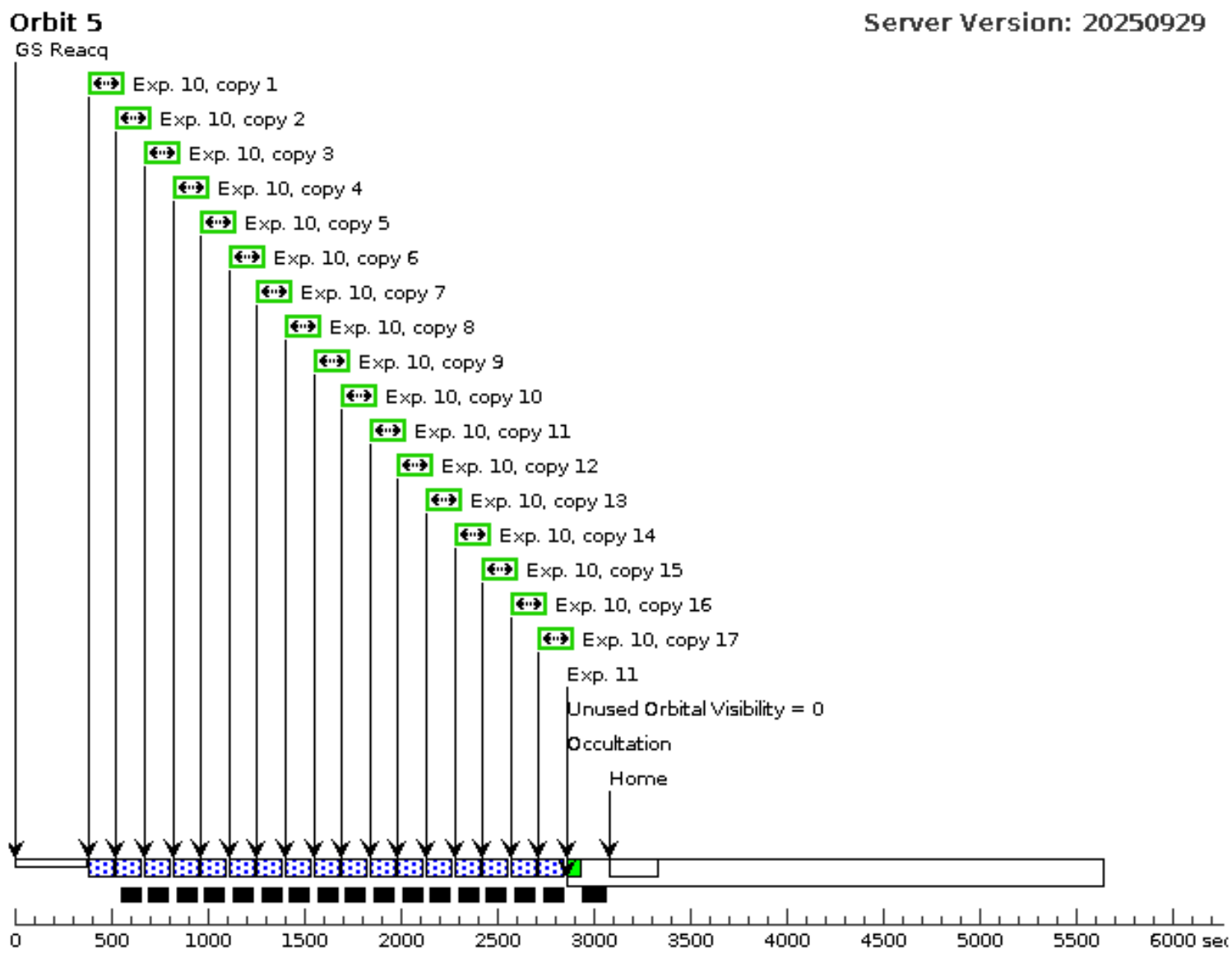
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