14094 - Characterization of the extended atmosphere and the nature of the hot super-Earth 55 Cnc e and the warm Jupiter 55 Cnc b

Cycle: 23, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

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) -RHO-CNC WAVE	STIS/CCD STIS/NUV-MAMA	4	12-Aug-2015 21:05:46.0	yes
02	(1) -RHO-CNC	COS/FUV COS/NUV	4	12-Aug-2015 21:05:53.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(1) -RHO-CNC WAVE	STIS/CCD STIS/NUV-MAMA	5	12-Aug-2015 21:06:00.0	yes

13 Total Orbits Used

ABSTRACT

The super-Earth 55 Cnc e transits an extremely bright star (V=6) at a very short separation (a=0.016 au). The mean density of this planet suggests it is surrounded by a thick gaseous envelope, yet our observations at Lyman-alpha detected no significant amounts of hydrogen or water. Located within a carbon-rich system, 55 Cnc e might be a 'Super-Venus' with a carbon-dioxyde envelop containing metals such as Mg. We propose to further constrain the nature of this planet through COS observations in the CII line, to assess the presence of an extended cloud rich in ionized carbon produced by the photodissociation of the irradiated CO2 envelope. We will further characterize the structure of this cloud through observations in the MgI line, recently revealed as a sensitive probe of extended atmospheres.

We also detected significant Ly-alpha absorption at the inferior conjunction of the warm giant 55 Cnc b, suggesting that we witnessed the partial transit of an extended hydrogen envelope around a non-transiting planet grazing the star. The planet lies beyond 0.1 au and is thus in a lower regime of irradiation than hot Jupiters. We propose to use absorption lines to confirm the presence of an extended atmosphere around 55 Cnc b, and to investigage its regime of evaporation.

We will observe simultaneously the atmospheric transits of 55 Cnc e and b in the third visit. Both STIS and COS proposed spectral ranges will allow us to look for many additional species in the upper atmospheres of these two planets, in completely different regimes of mass and irradiation.

OBSERVING DESCRIPTION

This program consists in 3 visits for a total of 13 HST orbits, dedicated to the observations of the transits of two exoplanets (55 Cancri 'e' and 'b') in front of their host-star. Following the difficulty identified by the TAC to disentangle between the signatures of 55 Cancri 'e' and 'b', we selected the same settings for the transit of 55 Cancri e (Visit #2) and the transit of both 55 Cancri 'e' and 'b' (Visit #3).

In 2 visit of 4 orbits each (Visits #1 and #2) we will observe the transit of 55 Cancri 'e'. For planet 'e', transits occur every 17.7 hours (the orbital period of the planet) and last for about 1.5 hours

In 1 visit of 5 orbits (Visit #3) we will observe at the same time the transits of 55 Cancri 'e' and 'b'. There are about 6 favorable configurations per year for this. Note that 55 Cnc b is not refered to as a transiting planet because its planetary disk (as seen in the optical) does not cross in front of the

star. We refer here to the partial transit of its atmosphere when the planet is at inferior conjunction with the star, that is expected to last for about 4 hours and to occur every 14.65 days.

For Visits #1 and #2 the timing requirements are set as phase constraints on the first ACQ exposure of the first orbit in a visit. The goal is to observe the star during two HST orbits before the transit, one HST orbit during the transit, and one HST orbit after the transit. The allowed start phase range is ~26 min.

For Visit #3 the goal is to cover the transits of both planets 'e' and 'b'. We indicate in the timing requirements the specific dates when the transits of both planets can be observed at about the same time (these dates cover the next two years until June 2017). For each of these dates, the phase constraints are the same, and are set on the first ACQ exposure of the first orbit (using the period and zero phase of planet 55 Cancri 'e').

Visit

Proposal 14094, Visit 01, implementation Thu Aug 13 01:06:03 GMT 2015

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; Period 0.7365417 D AND ZERO-PHASE HJD2455733.008

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	-RHO-CNC	RA: 08 52 35.8109 (133.1492121d)	Proper Motion RA: -485.80 mas/yr	V=5.95	Reference Frame: ICRS
	Alt Name1: HR3522	Dec: +28 19 50.95 (28.33082d)	Proper Motion Dec: -234.05 mas/yr	U=7.45,	
	Alt Name2: GJ324A	Equinox: J2000	Parallax: 0.08103"	B=6.82,	
			Epoch of Position: 2000	R=5.4,	
			Radial Velocity: 27.36 km/sec	I=5.0,	
				J=4.59,	
				H=4.14,	
				K=4.015	

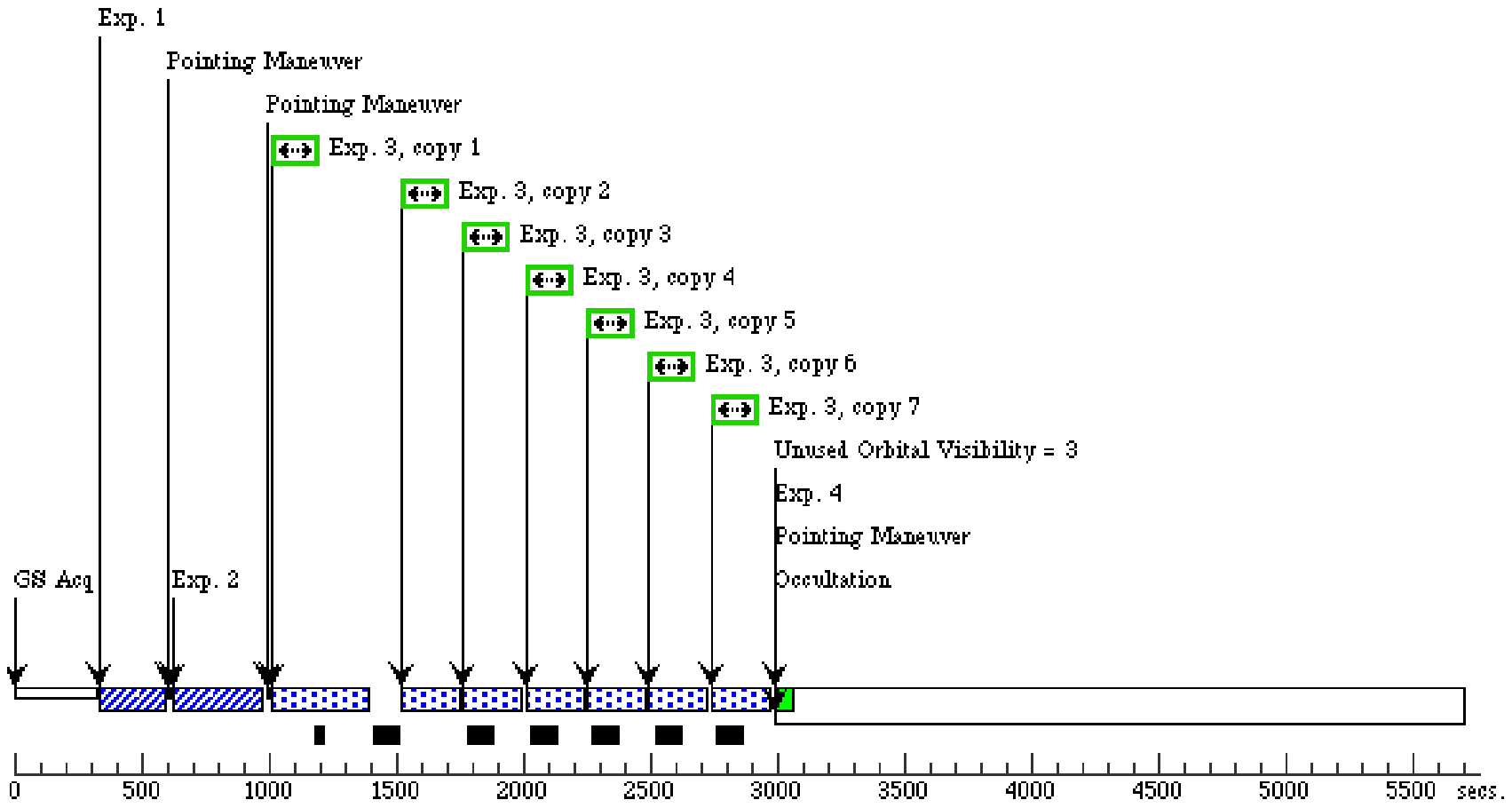
Comments: This star is in a double system (common proper motions) with 55 Cancri B (GJ 324B), a much fainter (V=13) M4 dwarf that is 1.4-arcmin away. It also 4.6-arcmin away from the similarly bright (V=6.3) star 53 Cancri (BO Cancri)
Extended=NO

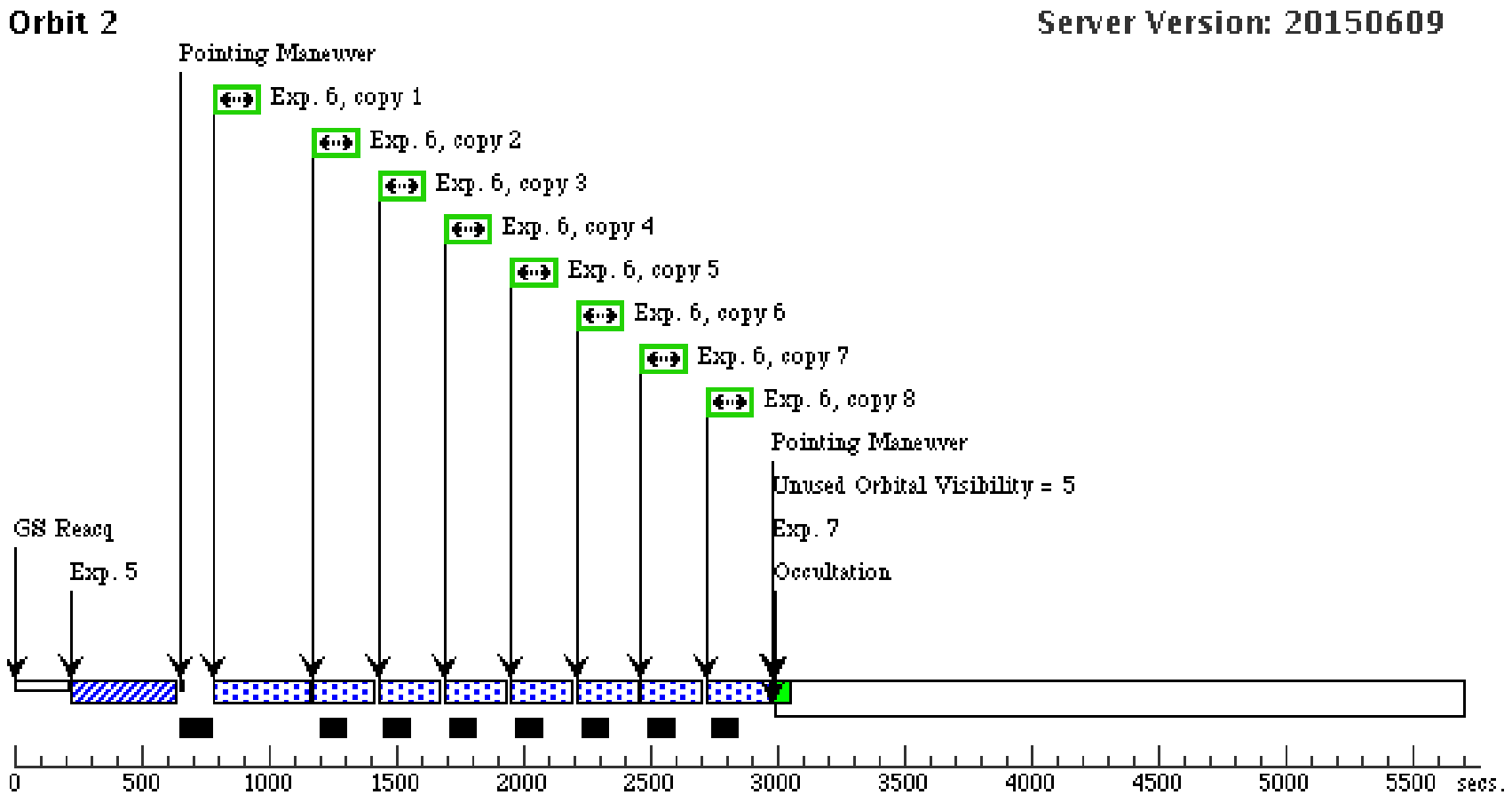
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.715432)	(1) -RHO-CNC	STIS/CCD, ACQ, F28X50OII	MIRROR		PHASE 0.785 TO 0.81	Sequence 1-4 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	 ***[1]***
Comments: For the ACQ and ACQ/PEAK exposures, we selected the same settings as in Program #12681 which consisted of STIS observations of the same star. We checked these settings by running the ETC.									
2	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 1-4 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	 ***[1]***
3	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	WAVECAL=NO		Sequence 1-4 Non-Int in Visit 01	250 Secs X 7 (1540 Secs) *[==>220.0 Secs (Copy 1)]* *[==>220.0 Secs (Copy 2)]* *[==>220.0 Secs (Copy 3)]* *[==>220.0 Secs (Copy 4)]* *[==>220.0 Secs (Copy 5)]* *[==>220.0 Secs (Copy 6)]* *[==>220.0 Secs (Copy 7)]*	 ***[1]***
Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the optimal combination between time resolution, SNR, and buffer dumps.									
4	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 1-4 Non-Int in Visit 01	*[==>]*	***[1]***
5	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 5-7 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	 ***[2]***
6	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 5-7 Non-Int in Visit 01	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	 ***[2]***
7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 5-7 Non-Int in Visit 01	*[==>]*	***[2]***
8	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 8-10 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	 ***[3]***

	9	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	Sequence 8-10 Non-Int in Visit 01	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[3]***
	Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.							
	10	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	Sequence 8-10 Non-Int in Visit 01	*[==>]*	***[3]***
	11	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A	Sequence 11-13 Non-Int in Visit 01	1 Secs (1 Secs) *[==>]*	***[4]***
	12	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	Sequence 11-13 Non-Int in Visit 01	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[4]***
	Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.							
	13	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	Sequence 11-13 Non-Int in Visit 01	*[==>]*	***[4]***

Orbit Structure

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Pointing Maneuver
Unused Orbital Visibility = 5
Exp. 7
Occultation
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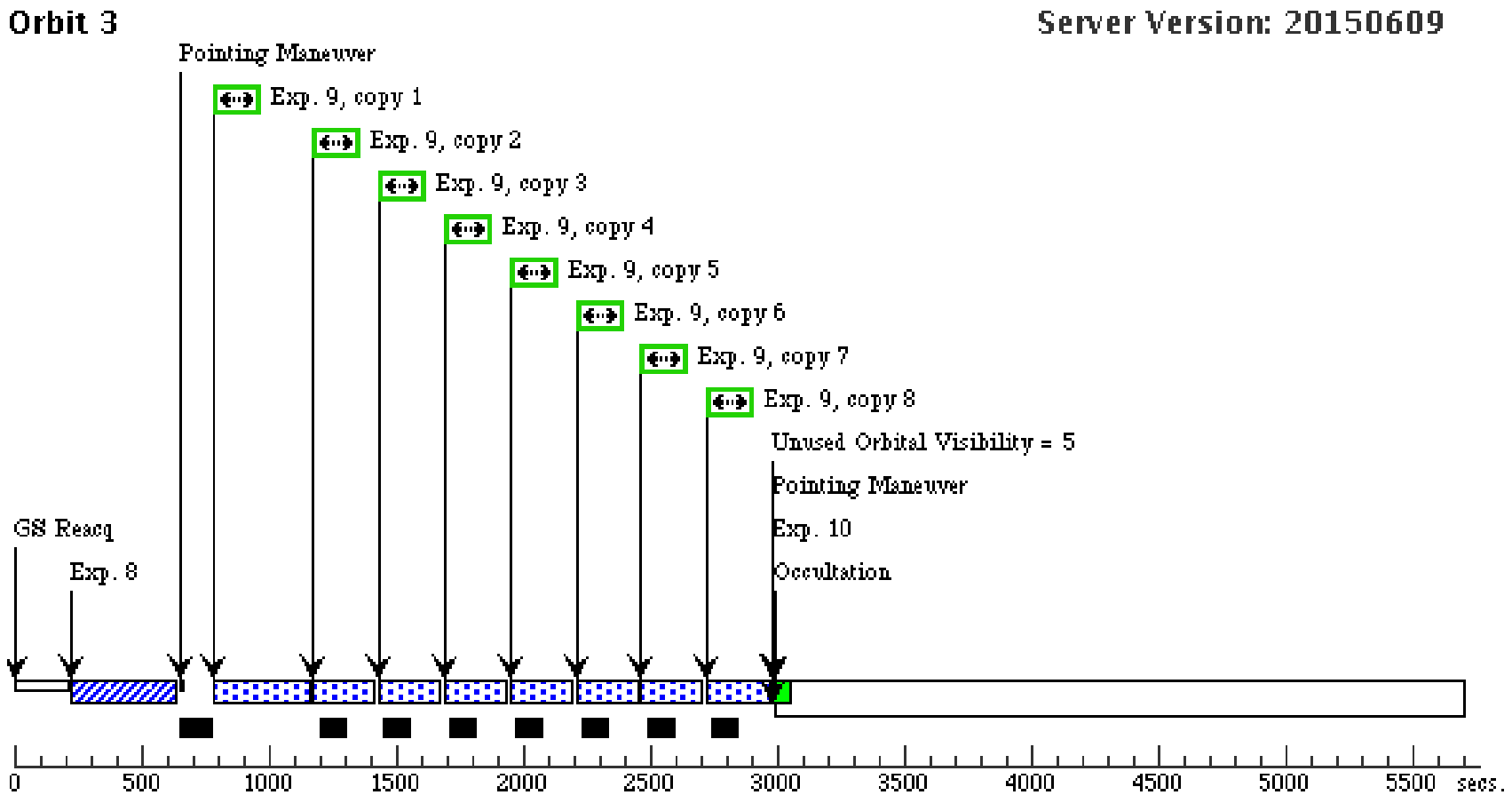
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Pointing Maneuver
Exp. 10
Occultation
GS Reacq
Exp. 8
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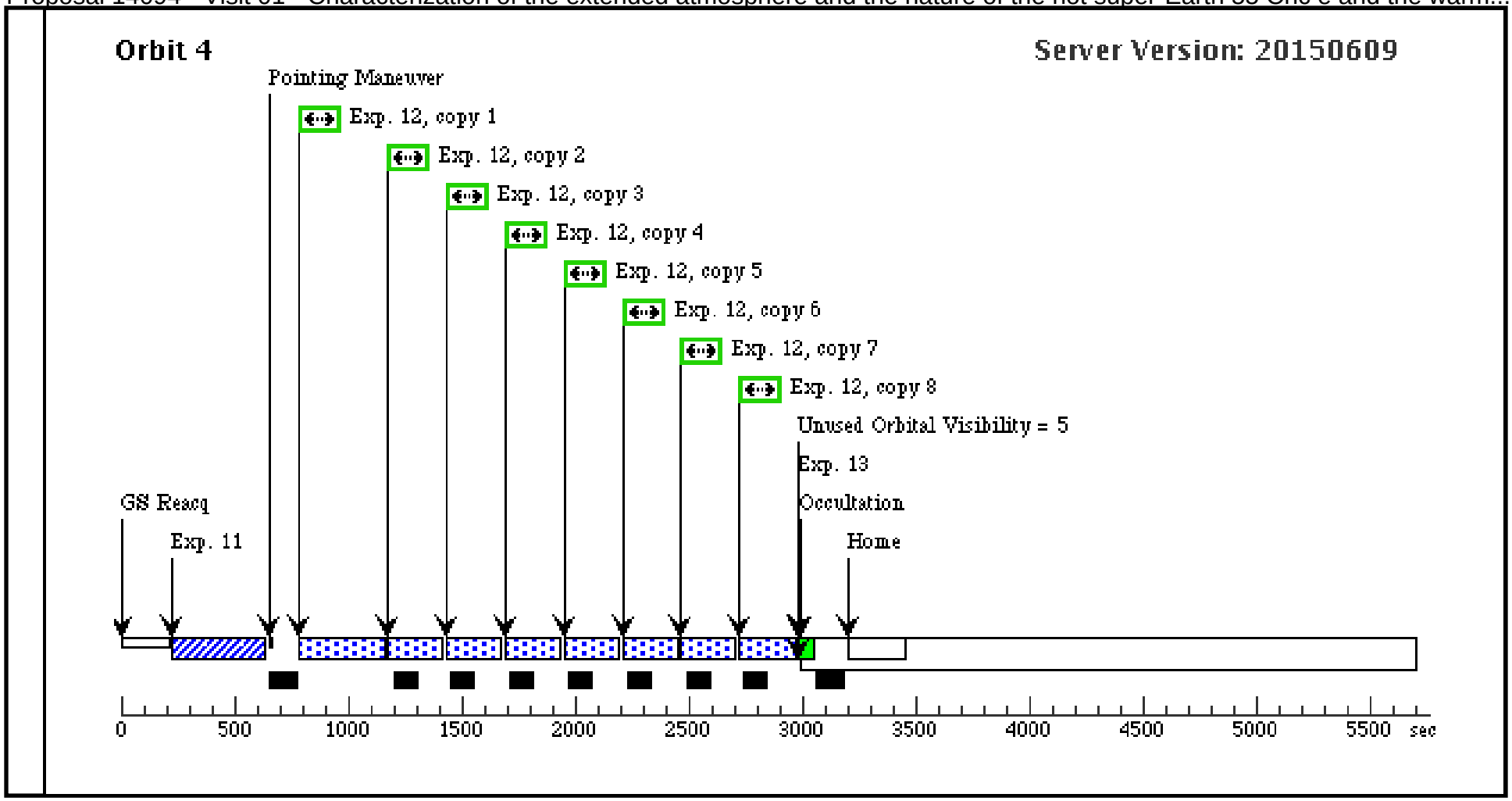
secs.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Server Version: 20150609
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Exp. 12, copy 6
Exp. 12, copy 7
Exp. 12, copy 8
Unused Orbital Visibility = 5
Exp. 13
Occultation
Home
GS Reacq
Exp. 11
0
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2000
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3500
4000
4500
5000
5500
sec

Visit

Proposal 14094, Visit 02, implementation Thu Aug 13 01:06:04 GMT 2015

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV, COS/FUV

Special Requirements: SCHED 100%; Period 0.7365417 D AND ZERO-PHASE HJD2455733.008

Fixed Targets

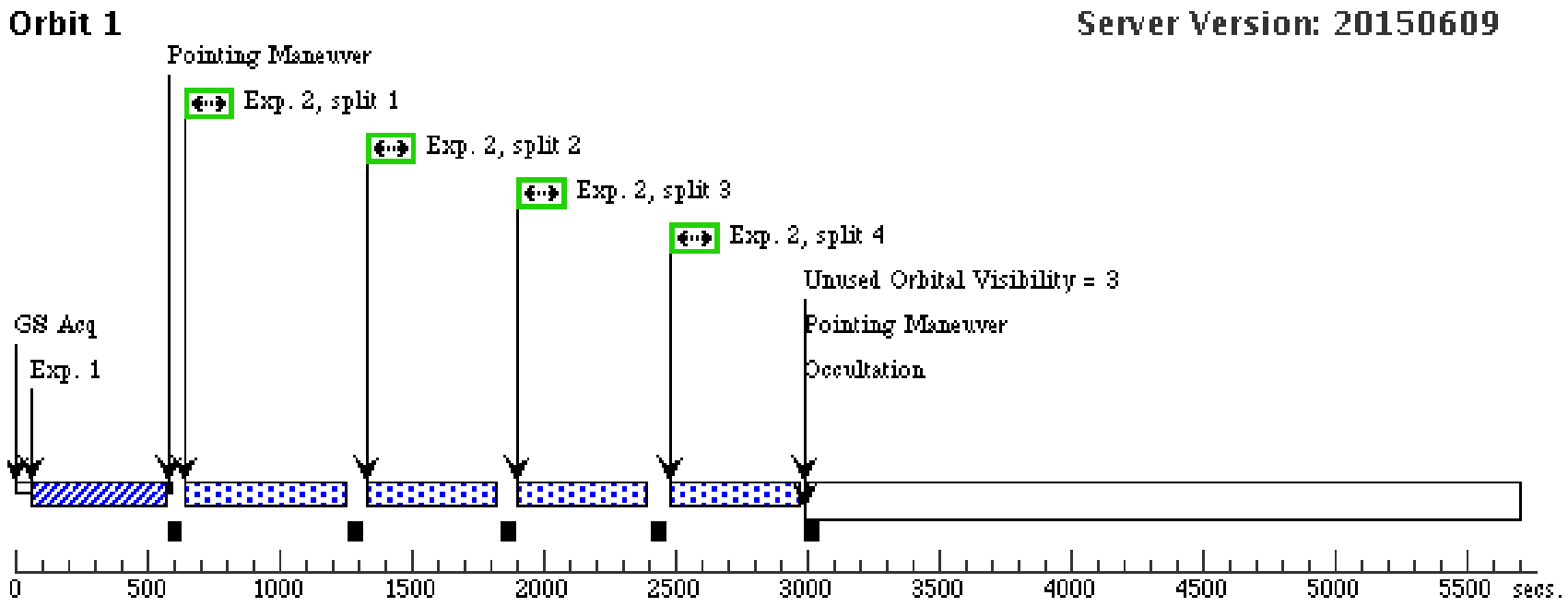
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	-RHO-CNC	RA: 08 52 35.8109 (133.1492121d)	Proper Motion RA: -485.80 mas/yr	V=5.95	Reference Frame: ICRS
	Alt Name1: HR3522	Dec: +28 19 50.95 (28.33082d)	Proper Motion Dec: -234.05 mas/yr	U=7.45,	
	Alt Name2: GJ324A	Equinox: J2000	Parallax: 0.08103"	B=6.82,	
			Epoch of Position: 2000	R=5.4,	
			Radial Velocity: 27.36 km/sec	I=5.0,	
				J=4.59,	
				H=4.14,	
				K=4.015	

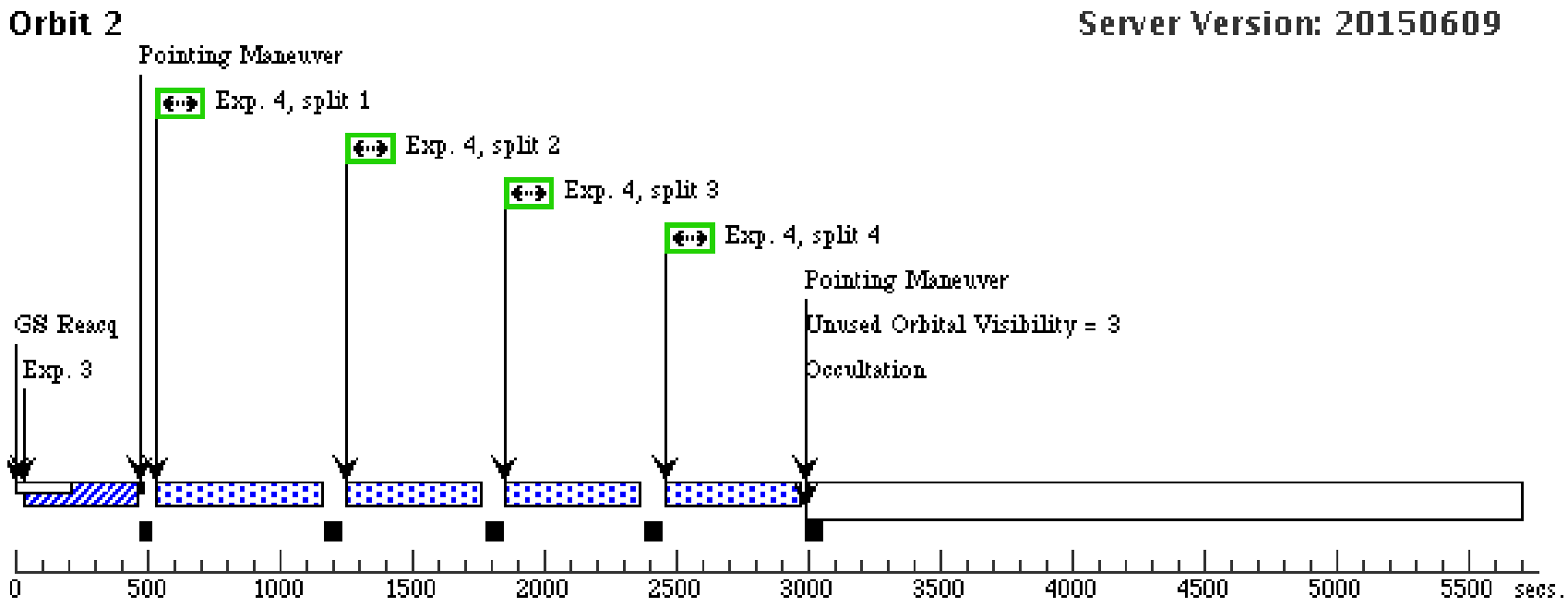
Comments: This star is in a double system (common proper motions) with 55 Cancri B (GJ 324B), a much fainter (V=13) M4 dwarf that is 1.4-arcmin away. It also 4.6-arcmin away from the similarly bright (V=6.3) star 53 Cancri (BO Cancri)
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/Image (COS.ta.715843)	(1) -RHO-CNC	COS/NUV, ACQ/IMAGE, BOA	MIRRORB		PHASE 0.785 TO 0.81	Sequence 1-2 Non-Int in Visit 02	90 Secs (90 Secs) *[==>]*	***[1]***
Comments: We followed the recommandation of the STScI for the settings.									
2	SCI (COS.sp.715790)	(1) -RHO-CNC	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FLASH=YES; FP-POS=ALL; BUFFER-TIME=1000		Sequence 1-2 Non-Int in Visit 02	535 Secs (1760 Secs) *[==>440.0 Secs (Split 1)]* *[==>440.0 Secs (Split 2)]* *[==>440.0 Secs (Split 3)]* *[==>440.0 Secs (Split 4)]*	***[1]***
Comments: In the ETC run, the strength of the stellar Lyman-alpha line has been set to an extremely conservative value, and the airglow as set to its higher value, in order to calculate the buffer-time.									
3	ACQ/Image (COS.ta.715843)	(1) -RHO-CNC	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 3-4 Non-Int in Visit 02	90 Secs (90 Secs) *[==>]*	***[2]***
Comments: We followed the recommandation of the STScI for the settings.									
4	SCI (COS.sp.715790)	(1) -RHO-CNC	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FLASH=YES; FP-POS=ALL; BUFFER-TIME=1000		Sequence 3-4 Non-Int in Visit 02	535 Secs (1844 Secs) *[==>461.0 Secs (Split 1)]* *[==>461.0 Secs (Split 2)]* *[==>461.0 Secs (Split 3)]* *[==>461.0 Secs (Split 4)]*	***[2]***
Comments: In the ETC run, the strength of the stellar Lyman-alpha line has been set to an extremely conservative value, and the airglow as set to its higher value, in order to calculate the buffer-time.									
5	ACQ/Image (COS.ta.715843)	(1) -RHO-CNC	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 5-6 Non-Int in Visit 02	90 Secs (90 Secs) *[==>]*	***[3]***
Comments: We followed the recommandation of the STScI for the settings.									
6	SCI (COS.sp.715790)	(1) -RHO-CNC	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FLASH=YES; FP-POS=ALL; BUFFER-TIME=1000		Sequence 5-6 Non-Int in Visit 02	535 Secs (1844 Secs) *[==>461.0 Secs (Split 1)]* *[==>461.0 Secs (Split 2)]* *[==>461.0 Secs (Split 3)]* *[==>461.0 Secs (Split 4)]*	***[3]***
Comments: In the ETC run, the strength of the stellar Lyman-alpha line has been set to an extremely conservative value, and the airglow as set to its higher value, in order to calculate the buffer-time.									
7	ACQ/Image (COS.ta.715843)	(1) -RHO-CNC	COS/NUV, ACQ/IMAGE, BOA	MIRRORB			Sequence 7-8 Non-Int in Visit 02	90 Secs (90 Secs) *[==>]*	***[4]***
Comments: We followed the recommandation of the STScI for the settings.									
8	SCI (COS.sp.715790)	(1) -RHO-CNC	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FLASH=YES; FP-POS=ALL; BUFFER-TIME=1000		Sequence 7-8 Non-Int in Visit 02	535 Secs (1844 Secs) *[==>461.0 Secs (Split 1)]* *[==>461.0 Secs (Split 2)]* *[==>461.0 Secs (Split 3)]* *[==>461.0 Secs (Split 4)]*	***[4]***
Comments: In the ETC run, the strength of the stellar Lyman-alpha line has been set to an extremely conservative value, and the airglow as set to its higher value, in order to calculate the buffer-time.									

Orbit Structure

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Server Version: 20150609
Pointing Maneuver
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Exp. 4, split 3
Exp. 4, split 4
Pointing Maneuver
GS Reacq
Exp. 3
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Occultation
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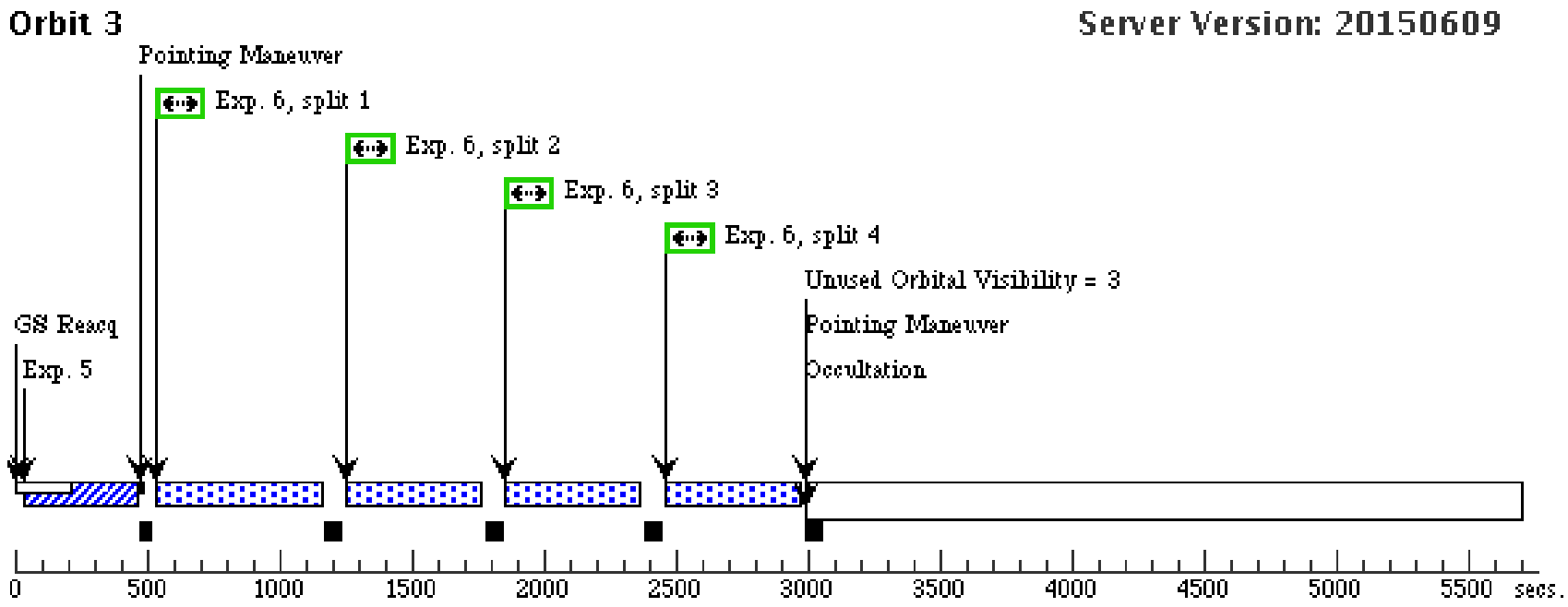
secs.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Server Version: 20150609
Pointing Maneuver
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Pointing Maneuver
Occultation
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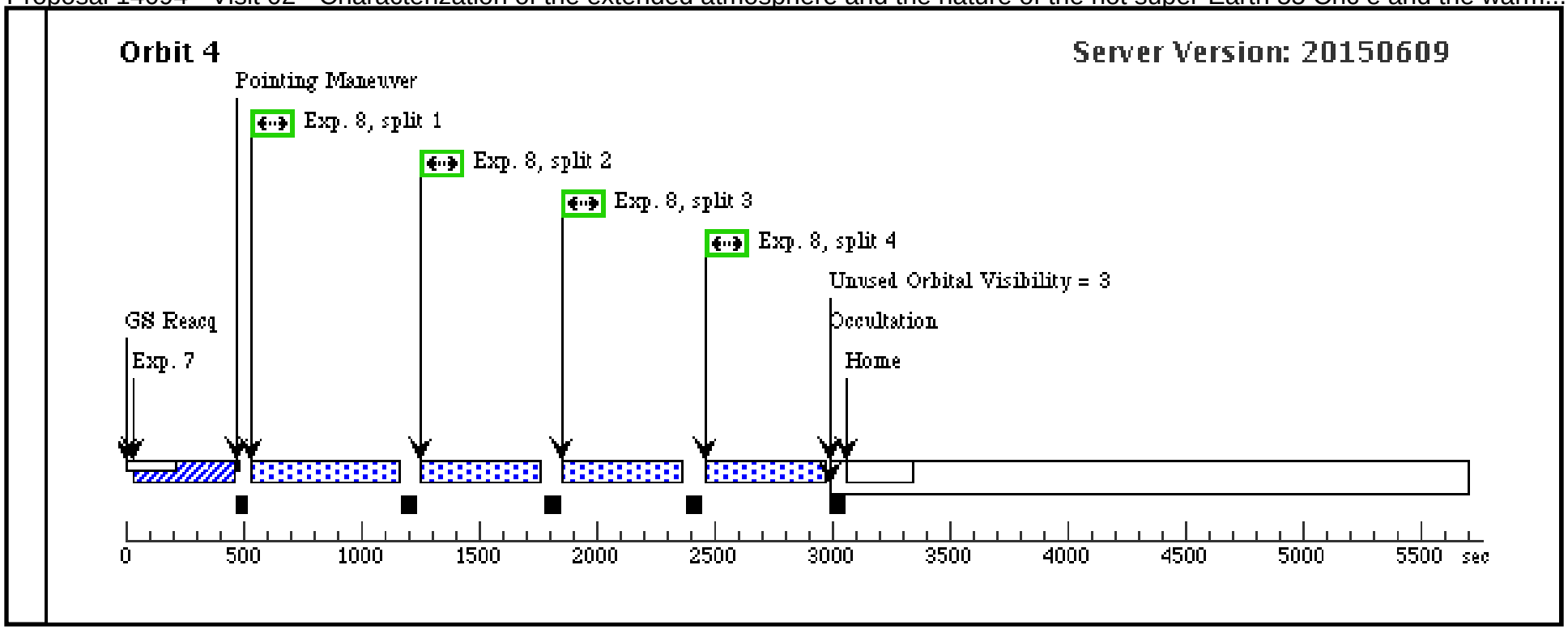
secs.


Orbit 4
Server Version: 20150609
Pointing Maneuver
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GS Reacq
Exp. 7
Occultation
Home
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1000
1500
2000
2500
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3500
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4500
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5500
sec

Visit

Proposal 14094, Visit 03, implementation Thu Aug 13 01:06:04 GMT 2015

Diagnostic Status: No Diagnostics

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

Special Requirements: SCHED 100%; BETWEEN 14-NOV-2015:21:46:00 AND 15-NOV-2015:07:47:00; BETWEEN 29-NOV-2015:15:20:00 AND 30-NOV-2015:01:20:00; BETWEEN 14-DEC-2015:08:53:00 AND 14-DEC-2015:18:53:00; BETWEEN 09-APR-2016:11:30:00 AND 09-APR-2016:21:30:00; BETWEEN 24-APR-2016:05:00:00 AND 24-APR-2016:15:00:00; BETWEEN 19-AUG-2016:07:36:00 AND 19-AUG-2016:17:36:00; BETWEEN 03-SEP-2016:01:10:00 AND 03-SEP-2016:11:10:00; BETWEEN 29-DEC-2016:03:55:00 AND 29-DEC-2016:13:55:00; BETWEEN 12-JAN-2017:21:27:00 AND 13-JAN-2017:07:27:00; BETWEEN 24-MAY-2017:17:32:00 AND 25-MAY-2017:03:32:00; BETWEEN 08-JUN-2017:11:04:00 AND 08-JUN-2017:21:04:00; Period 0.7365417 D AND ZERO-PHASE HJD2455733.008

Comments: For Visit #3 the goal is to cover the transits of both planets 'e' and 'b'. We indicate in the timing requirements the specific dates when the transits of both planets can be observed at about the same time (these dates cover the next two years until June 2017). We give for each date (in UTC) a time interval of +-5h around the transit of planet 'e', which should allow to identify it with certainty. For each date the phase constraints are the same and defined using the period and zero phase of planet 55 Cancri 'e'. They are set on the first ACQ exposure of the first orbit.

With these phase constraints, the 5 HST orbits in Visit #3 allow to cover the transits of both planets at all selected dates. However, experience in analyzing HST observations of atmospheric transits taught us it is better to have at least one HST orbit made before the transit, which is not the case in three of the selected dates (14 Dec. 2015; 24 April 2016; 8 June 2017). If possible (ie, unless it postpones the visit after June 2017), it would thus be better to avoid schedulind Visit #3 at one of these three dates.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	-RHO-CNC	RA: 08 52 35.8109 (133.1492121d)	Proper Motion RA: -485.80 mas/yr	V=5.95	Reference Frame: ICRS
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	Alt Name2: GJ324A	Equinox: J2000	Parallax: 0.08103"	B=6.82,	
			Epoch of Position: 2000	R=5.4,	
			Radial Velocity: 27.36 km/sec	I=5.0,	
				J=4.59,	
				H=4.14,	
				K=4.015	

Comments: This star is in a double system (common proper motions) with 55 Cancri B (GJ 324B), a much fainter (V=13) M4 dwarf that is 1.4-arcmin away. It also 4.6-arcmin away from the similarly bright (V=6.3) star 53 Cancri (BO Cancri)
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 (STIS.ta.715432)	(1) -RHO-CNC	STIS/CCD, ACQ, F28X50OII	MIRROR		PHASE 0.785 TO 0.81	Sequence 1-4 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[1]***
	Comments: For the ACQ and ACQ/PEAK exposures, we selected the same settings as in Program #12681 which consisted of STIS observations of the same star. We checked these settings by running the ETC.								
2	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 1-4 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[1]***
3	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A	WAVECAL=NO		Sequence 1-4 Non-Int in Visit 03	250 Secs X 7 (1540 Secs) *[==>220.0 Secs (Copy 1)]* *[==>220.0 Secs (Copy 2)]* *[==>220.0 Secs (Copy 3)]* *[==>220.0 Secs (Copy 4)]* *[==>220.0 Secs (Copy 5)]* *[==>220.0 Secs (Copy 6)]* *[==>220.0 Secs (Copy 7)]*	***[1]***
	Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.								
4	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 1-4 Non-Int in Visit 03	*[==>]*	***[1]***
5	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 5-7 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[2]***
6	SCI (STIS.sp.716764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 5-7 Non-Int in Visit 03	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[2]***
	Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.								
7	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A			Sequence 5-7 Non-Int in Visit 03	*[==>]*	***[2]***
8	ACQ/PEAK (STIS.sp.715444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A			Sequence 8-10 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[3]***

9	SCI (STIS.sp.71 6764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 8-10 Non-Int in Visit 03	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[3]***
Comments: The count rate estimated from the ETC run is just above 2e4 counts/s. We thus set the buffer-time to its minimal value of 99, but the data loss should be negligible for our scientific purpose.								
10	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 8-10 Non-Int in Visit 03	*[==>]*	***[3]***
11	ACQ/PEAK (STIS.sp.71 5444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A		Sequence 11-13 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[4]***
12	SCI (STIS.sp.71 6764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 11-13 Non-Int in Visit 03	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[4]***
Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.								
13	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 11-13 Non-Int in Visit 03	*[==>]*	***[4]***
14	ACQ/PEAK (STIS.sp.71 5444)	(1) -RHO-CNC	STIS/CCD, ACQ/PEAK, 52X0.05	G430L 4300 A		Sequence 14-16 Non-Int in Visit 03	1 Secs (1 Secs) *[==>]*	***[5]***
15	SCI (STIS.sp.71 6764)	(1) -RHO-CNC	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 14-16 Non-Int in Visit 03	200 Secs X 8 (1872 Secs) *[==>234.0 Secs (Copy 1)]* *[==>234.0 Secs (Copy 2)]* *[==>234.0 Secs (Copy 3)]* *[==>234.0 Secs (Copy 4)]* *[==>234.0 Secs (Copy 5)]* *[==>234.0 Secs (Copy 6)]* *[==>234.0 Secs (Copy 7)]* *[==>234.0 Secs (Copy 8)]*	***[5]***
Comments: The count-rate estimated in time-tag mode results in too many buffer dumps. As an alternative for our scientific purpose, we use instead a series of ACCUM mode exposures with the same time resolution as the one we usually use our time-tag data.								
16	GO-WAVE CAL	WAVE	STIS/NUV-MAMA, ACCUM, 0.2X0.2	E230M 2707 A		Sequence 14-16 Non-Int in Visit 03	*[==>]*	***[5]***

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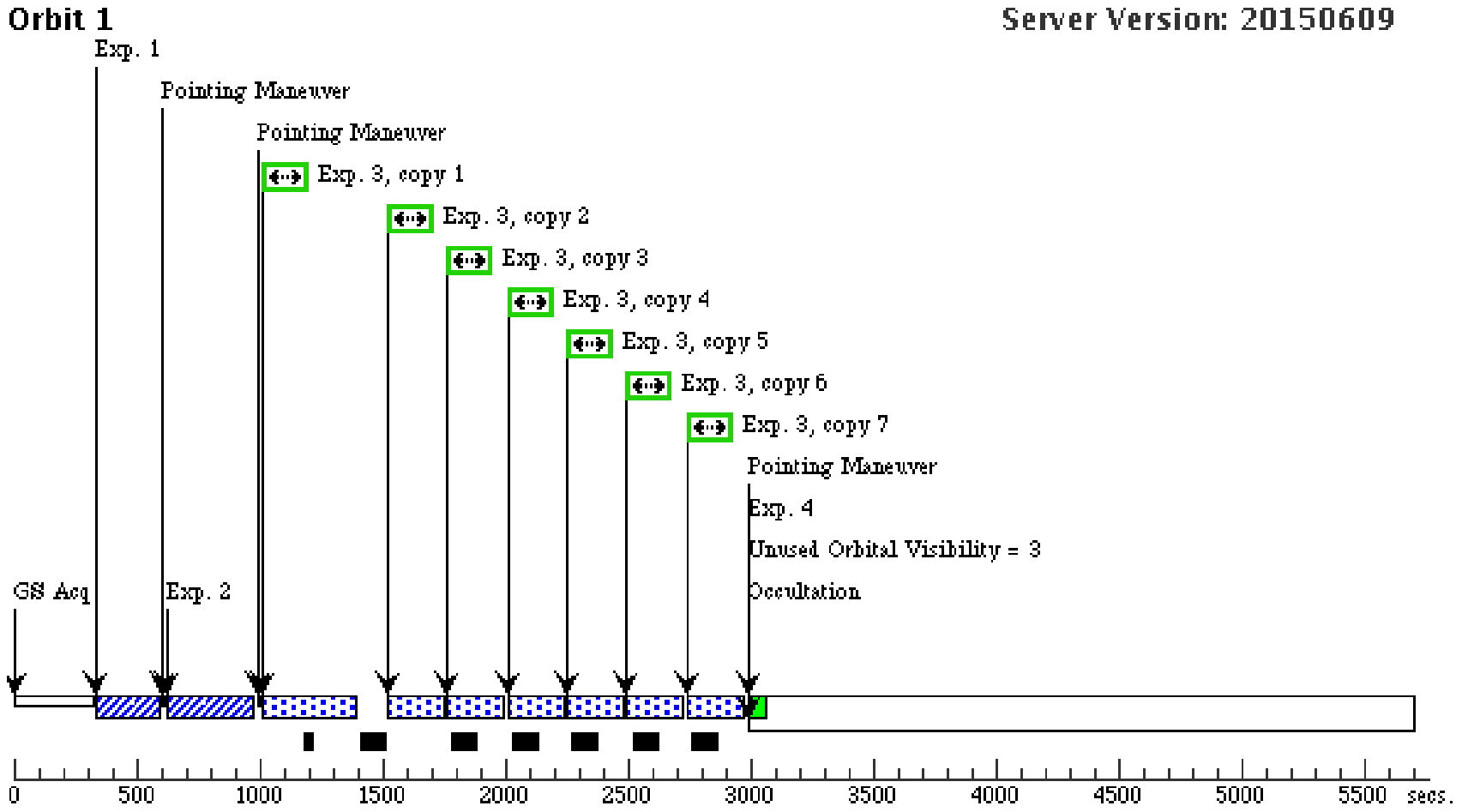

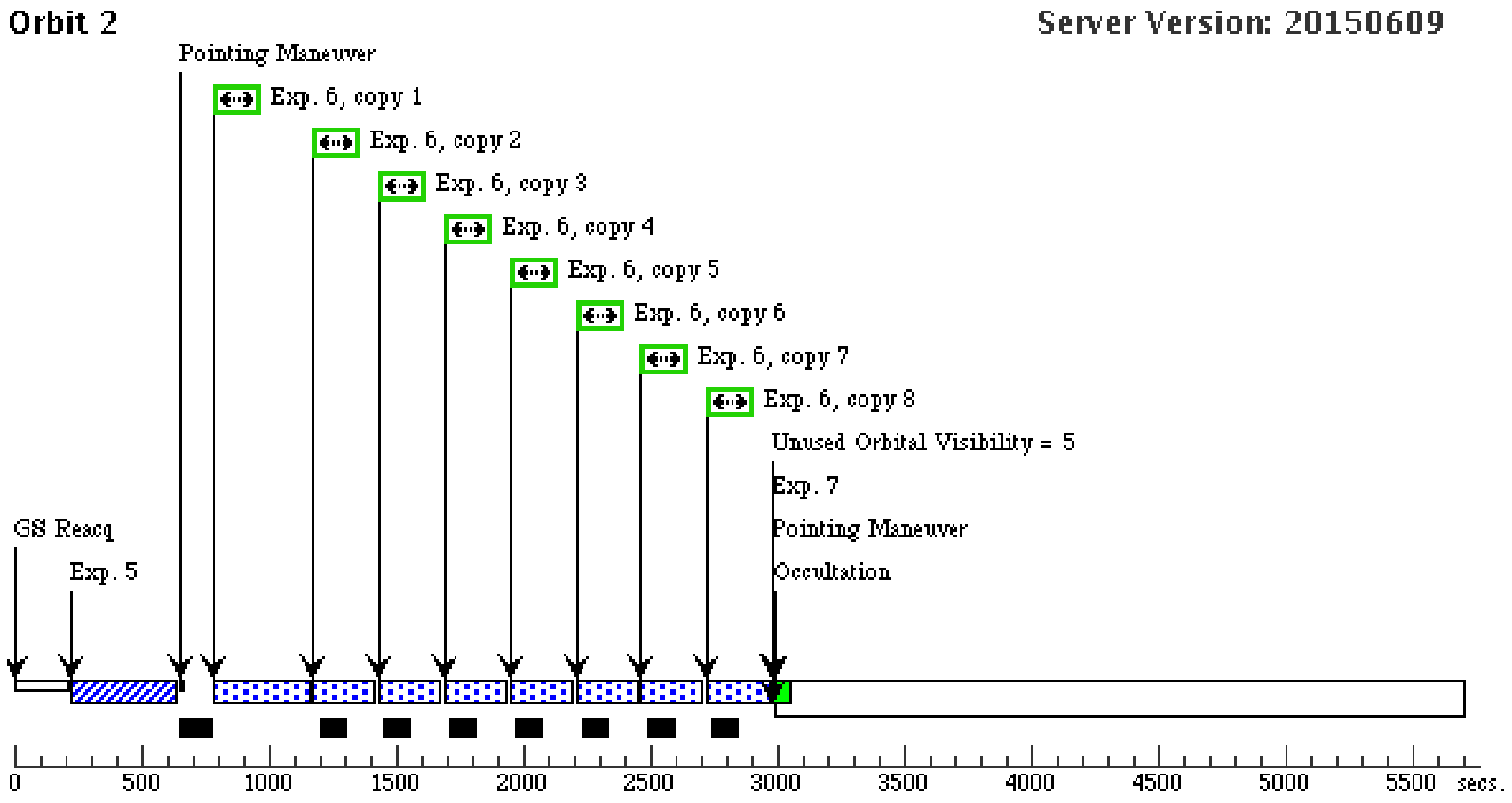
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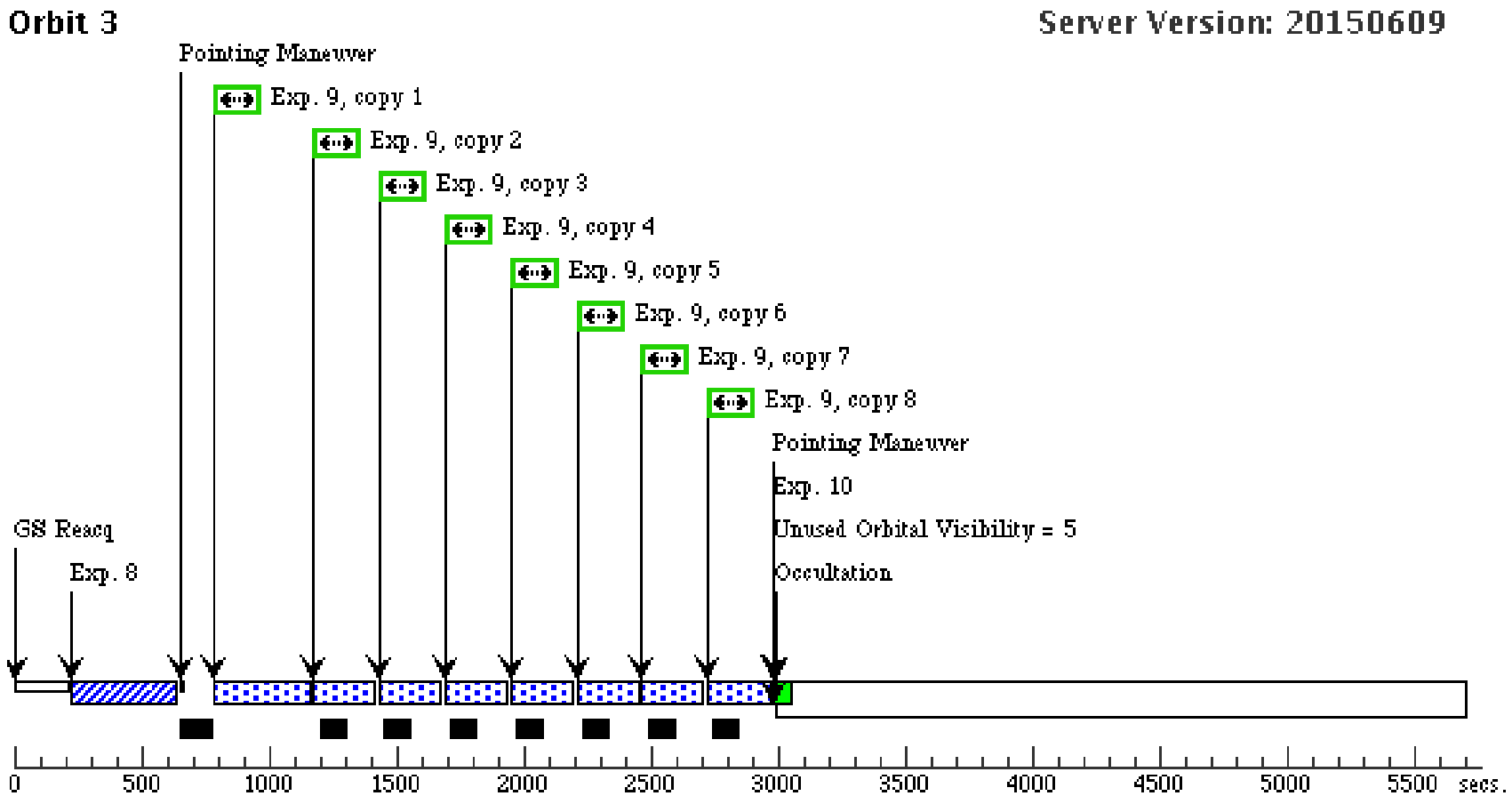
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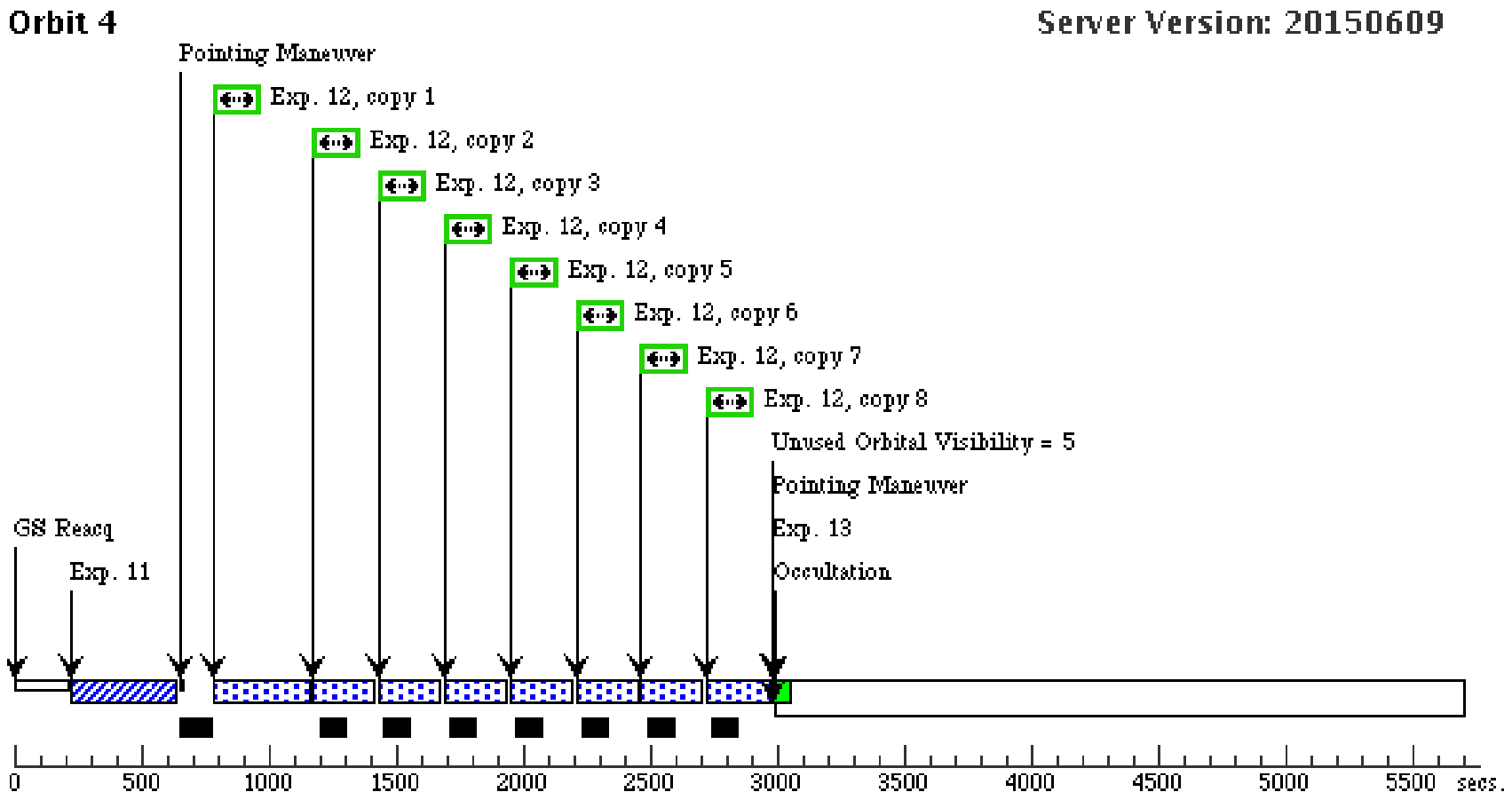
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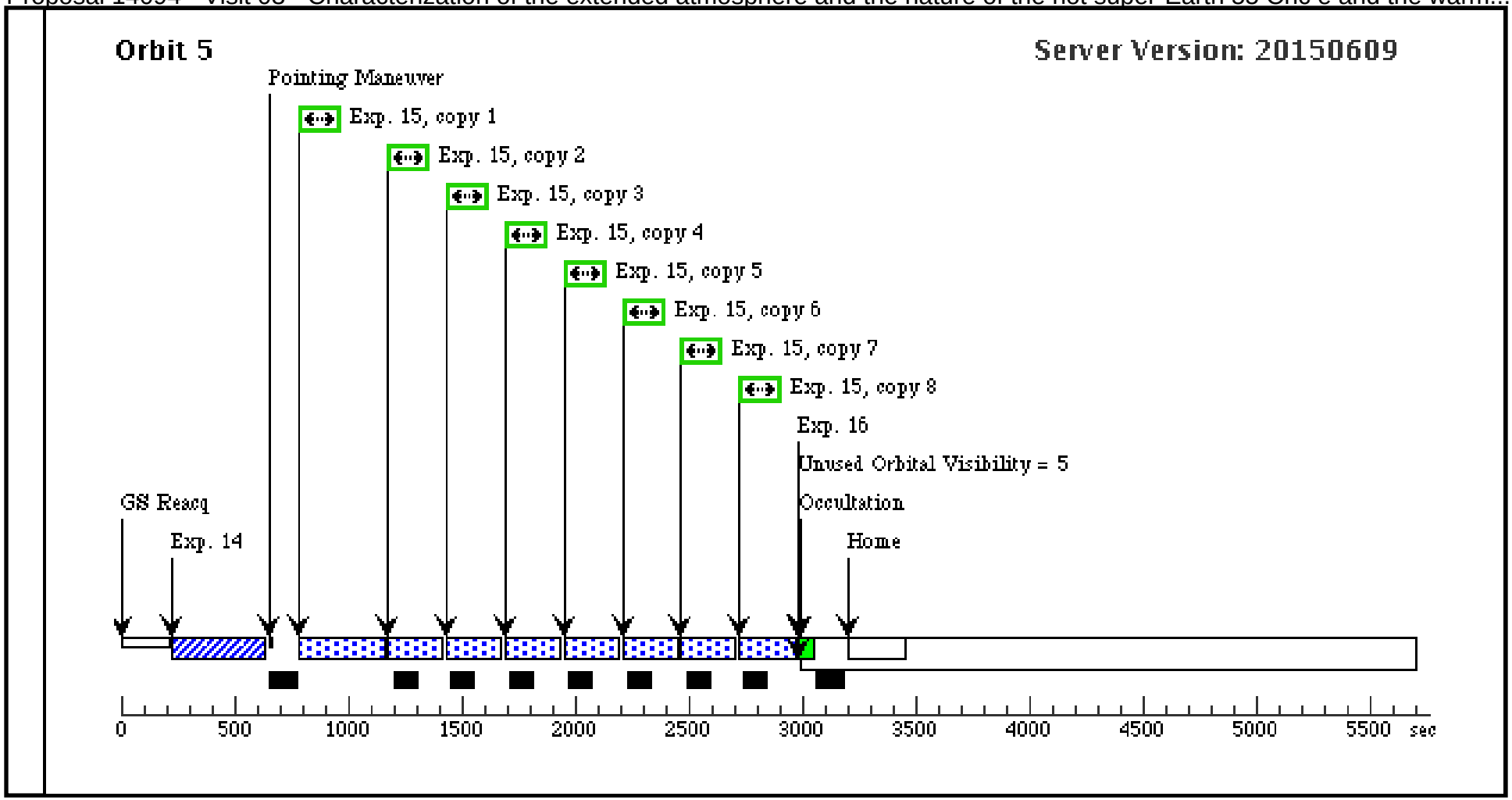
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