



# 13308 - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

Cycle: 21, Proposal Category: GO  
(Availability Mode: SUPPORTED)

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Ming Zhao (PI) (Contact)</b>	<b>The Pennsylvania State University</b>	<b>mingzhao@psu.edu</b>
Dr. Heather A. Knutson (CoI)	California Institute of Technology	hknutson@caltech.edu
Dr. Ronald L Gilliland (CoI)	The Pennsylvania State University	rlg27@psu.edu
Dr. Nikku Madhusudhan (CoI) (ESA Member)	University of Cambridge	nmadhu@ast.cam.ac.uk
Dr. Jason T Wright (CoI)	The Pennsylvania State University	astrowright@gmail.com
Dr. Avi Shporer (CoI)	California Institute of Technology	shporer@gps.caltech.edu

## 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) KOI-13	WFC3/IR	5	06-Jun-2014 19:41:34.0	yes
02	(1) KOI-13	WFC3/IR	5	06-Jun-2014 19:42:57.0	yes

10 Total Orbits Used

## ABSTRACT

We propose to use the WFC3 IR-G141 grism to measure the near-IR dayside emission spectrum of the highly inflated, hottest known Jupiter KOI-13.01 via secondary eclipses. The A-type host star of KOI-13.01 has the highest temperature among all known hot Jupiter hosts, producing extreme irradiation and making the planet's atmosphere probably quite different from others'. It is therefore an extreme and unique target to test exoplanetary atmosphere models and observed correlation between thermal inversion and irradiation. The host star of KOI-13.01 has a companion of same

brightness and spectral type at 1.2 arcsec. Because the two stars will be well-resolved by WFC3, the stellar companion provides a unique advantage to calibrate the common-mode systematics of the eclipse light curves, enabling high precision and high fidelity spectroscopy of the planet's dayside emission. The WFC3 observations will definitively determine the presence or absence of a thermal inversion in the planet's upper atmosphere by probing the water bands between 1.1 - 1.7 microns. When combined with the Kepler nightside thermal emission measurement in visible light, the near-IR spectroscopy from WFC3 will also help tightly constrain its albedo and heat transport efficiency. Furthermore, resolving the binary and measuring the secondary eclipses will allow us to definitively verify whether the brighter star is indeed the host of the planet. This study can only be done with HST because of the ultra-high precision requisite and the coverage of water bands unavailable from ground.

## **OBSERVING DESCRIPTION**

We will use the WFC3 IR camera and the G141 grism to provide slitless spectroscopy at wavelengths from 1.1 to 1.7 microns. We will use the 256x256 pixel subarray mode to reduce both readout time and data volume to minimize overhead and the time loss due to serial buffer dumps.

To well separate the two stellar spectra on the detector, we will orient the roll angle of the spacecraft so that the Y axis (the direction perpendicular to the dispersion of the WFC3 IR camera) to lie within 15 degree of the maximum separation of the two stars, PA=100.45 degree. This will allow a 4-month window for scheduling each year since the +/-180 degree options will work too.

We will conduct observations of KOI-13 under "staring" mode without dithering or scanning to minimize systematics caused by imperfect flat fielding. We will follow the recommendation by STScI to apply a wavelength-dependent flat field correction later on in our data analysis.

Due to the constraints of available multiaccum readout modes and the nonlinearity limit of the WFC3 detector, we carefully selected SPARS10 with two sample images (NSAMP=2) per exposure (t=7.624s) to readout the detector, based on estimates from the WFC3 IR Exposure Time Calculator (ETC). This mode allows us to maximize the S/N of each exposure and the overall duty cycle of our observations. Cosmic rays will be rejected using adjacent exposures instead of the samples within each exposure - an approach widely used in CCD spectroscopy.

Since the eclipse duration of KOI-13.01 is 3.1 hours, we will require 3 orbits to fully cover the ingress, full-eclipse, and the egress part of each secondary eclipse. One orbit is required to cover the pre-eclipse baseline, and another orbit is required to cover the post-eclipse baseline.

**REAL TIME JUSTIFICATION**

Due to the nature of planetary transits and eclipses, our proposed observations are only available at certain time windows when the planet passes behind its host star ( $P \sim 1.76$  days). To achieve our science goal, we require 1 orbit to cover the pre-eclipse baseline, and 1 orbit to cover the post-eclipse baseline. We also require 3 orbits to fully cover the ingress, full-eclipse, and the egress part of each secondary eclipse. Therefore, our observations are time critical.

Each visit should consist of 5 SAA-free (or hidden) and consecutive HST orbits.

To put the two stellar spectra close to their maximum separation on the detector, we will need to constrain the roll angle of the spacecraft in a  $\pm 15$  degree window relative to an ORIENT angle of 235.82 degrees. This will add additional constraints and will allow a scheduling window of 4 months each year.

Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

<b>Visit</b>	<p><b>Proposal 13308, Visit 1 (01), completed</b> <span style="float: right;">Fri Jun 06 23:43:07 GMT 2014</span></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFC3/IR</p> <p>Special Requirements: SCHED 100%; ORIENT 227.82D TO 243.82 D; ORIENT 47.82D TO 63.82 D; Period 1.76358799 D AND ZERO-PHASE HJD2454953.56498</p> <p><i>Comments: Our observations are time critical. To reach our science goal, we require 1 orbit to cover the pre-eclipse baseline, and another 1 orbit to cover the post-eclipse baseline. We will need 3 orbits to fully cover both the ingress, full-eclipse, and egress part of the light curve. The eclipse duration of KOI-13.01 is 3.1 hours.</i></p> <p><i>Each visit must consist of 5 SAA-free (or hidden) and consecutive HST orbits.</i></p> <p><i>For wavelength calibration purpose, we require one direct, un-dispersed image to be taken at the beginning of each visit, followed by consecutive grism exposures throughout the visit. The position of the targets in the un-dispersed image should be the same as the grism exposures.</i></p>					
	<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(1)	KOI-13	RA: 19 07 53.1072 (286.9712800d)		V=9.95	Reference Frame: ICRS
		Alt Name1: BD+46-2629	Dec: +46 52 5.95 (46.86832d)			
		Alt Name2: 2MASS-J19075308+4652061	Equinox: J2000			
	<i>Comments: This object was generated by the target selector and retrieved from the SIMBAD database. This is a double star system, with a separation of about 1.2 arcsecond.</i>					

Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	F130N	NSAMP=2; SAMP-SEQ=RAPID	PHASE 0.406 TO 0.437; GS ACQ SCENARIO BASE1BN3	Sequence 1-2 Non-Instant in Visit 1 (01)	0.55563 Secs (0.556 Secs) [==>]	[1]
<p><i>Comments: All exposures in a visit must be conducted consecutively and SAA-free (or hidden).</i></p>									

Exposures

Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

2	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	Sequence 1-2 Non-Int in Visit 1 (01)	7.624302 Secs X 100 (762.43 Secs)
---	------------	----------------------------------	------	----------------------------------	---	-----------------------------------

[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[1]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]

*Comments: Exposure 2 & 3 must be conducted consecutively following Exposure 1.*



[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[2]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

*Comments: Exposure 2 & 3 must be conducted consecutively following Exposure 1.*



[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[3]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

*Comments: Exposure 2 & 3 must be conducted consecutively following Exposure 1.*

Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

5	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	NEW OBSET; GS ACQ SCENARI O BASE1BN3	Sequence 5-5 Non-Int in Visit 1 (01)	7.624302 Secs X 101 (770.055 Secs)
---	------------	----------------------------------	------	----------------------------------	--	---	------------------------------------

[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[4]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

6	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	NEW OBSET; GS ACQ SCENARI O BASE1BN3	Sequence 6-6 Non-Int in Visit 1 (01)	7.624302 Secs X 101 (770.055 Secs)
---	------------	----------------------------------	------	----------------------------------	--	---	------------------------------------

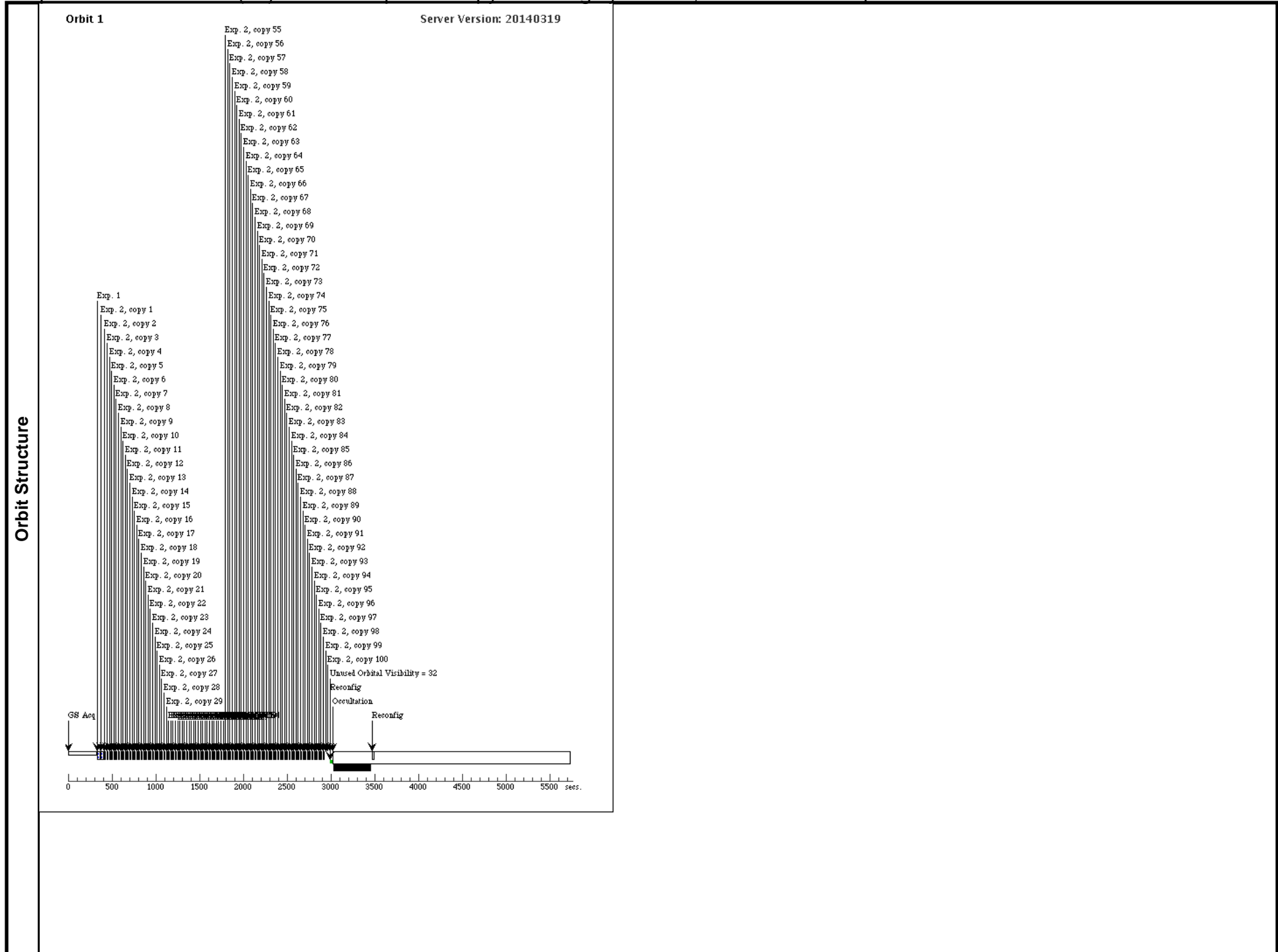
[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[5]

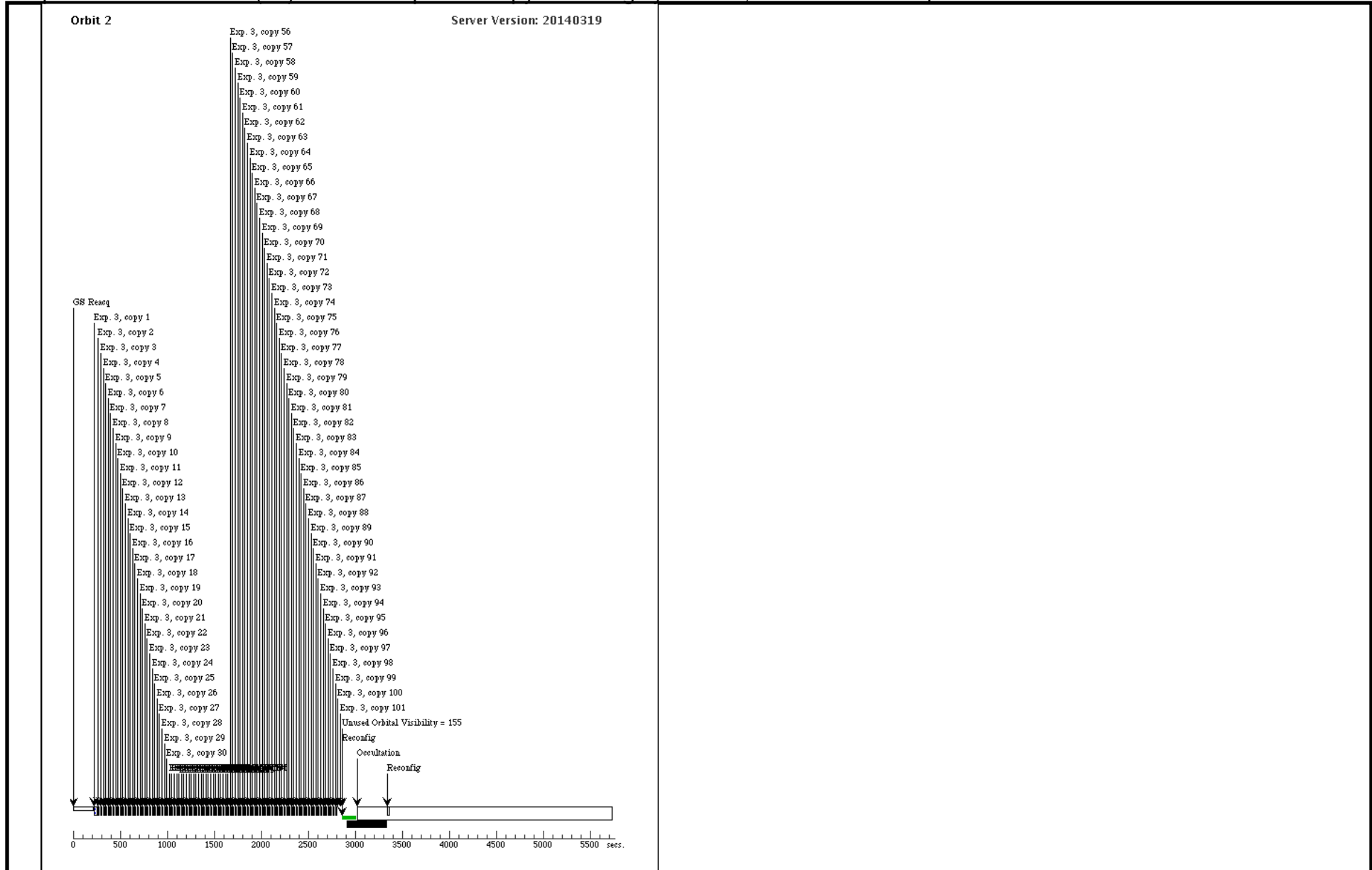
[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

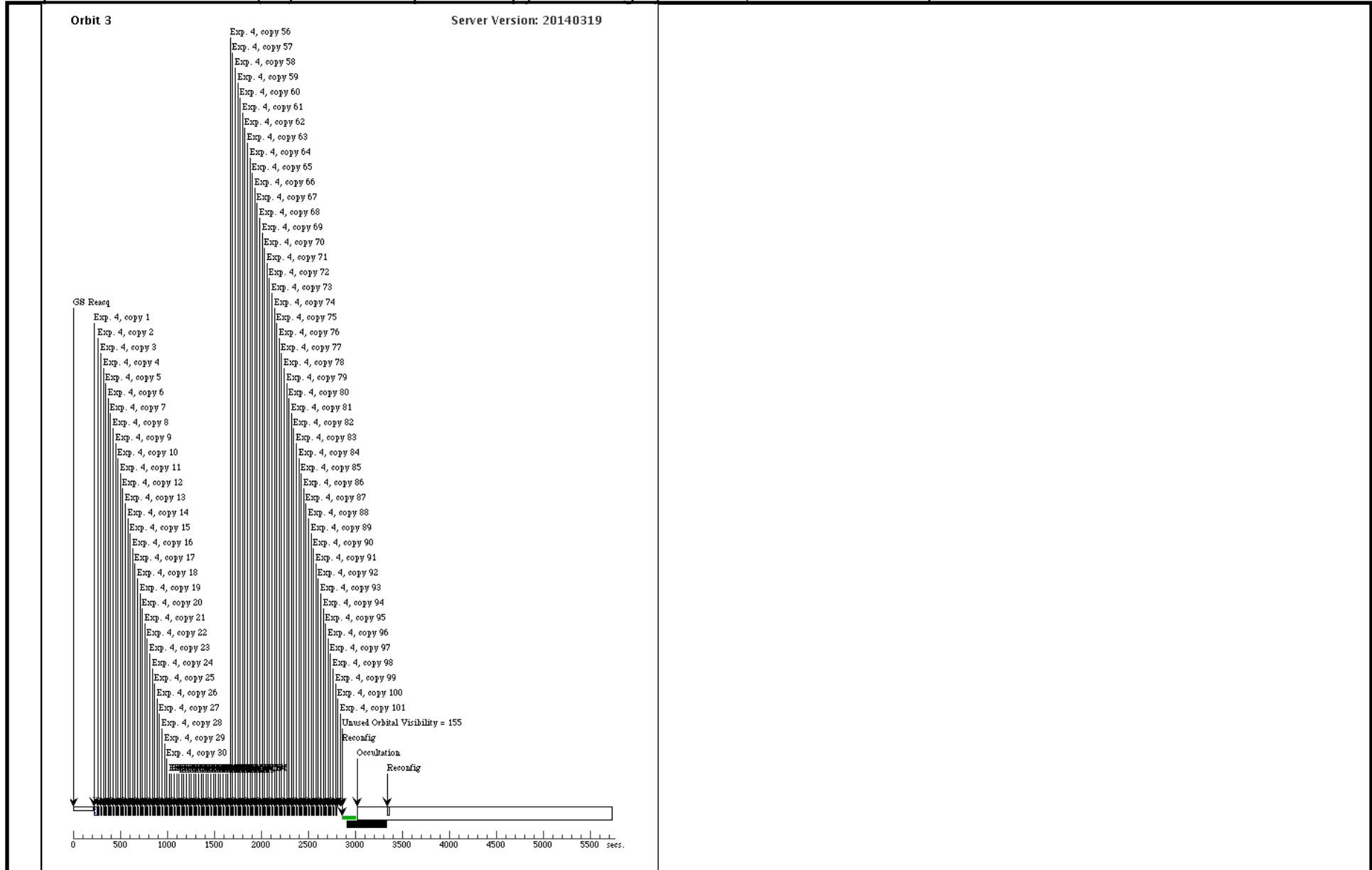
Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

		[==>(Copy 91)] [==>(Copy 92)] [==>(Copy 93)] [==>(Copy 94)] [==>(Copy 95)] [==>(Copy 96)] [==>(Copy 97)] [==>(Copy 98)] [==>(Copy 99)] [==>(Copy 100)] [==>(Copy 101)]	
--	--	--	--

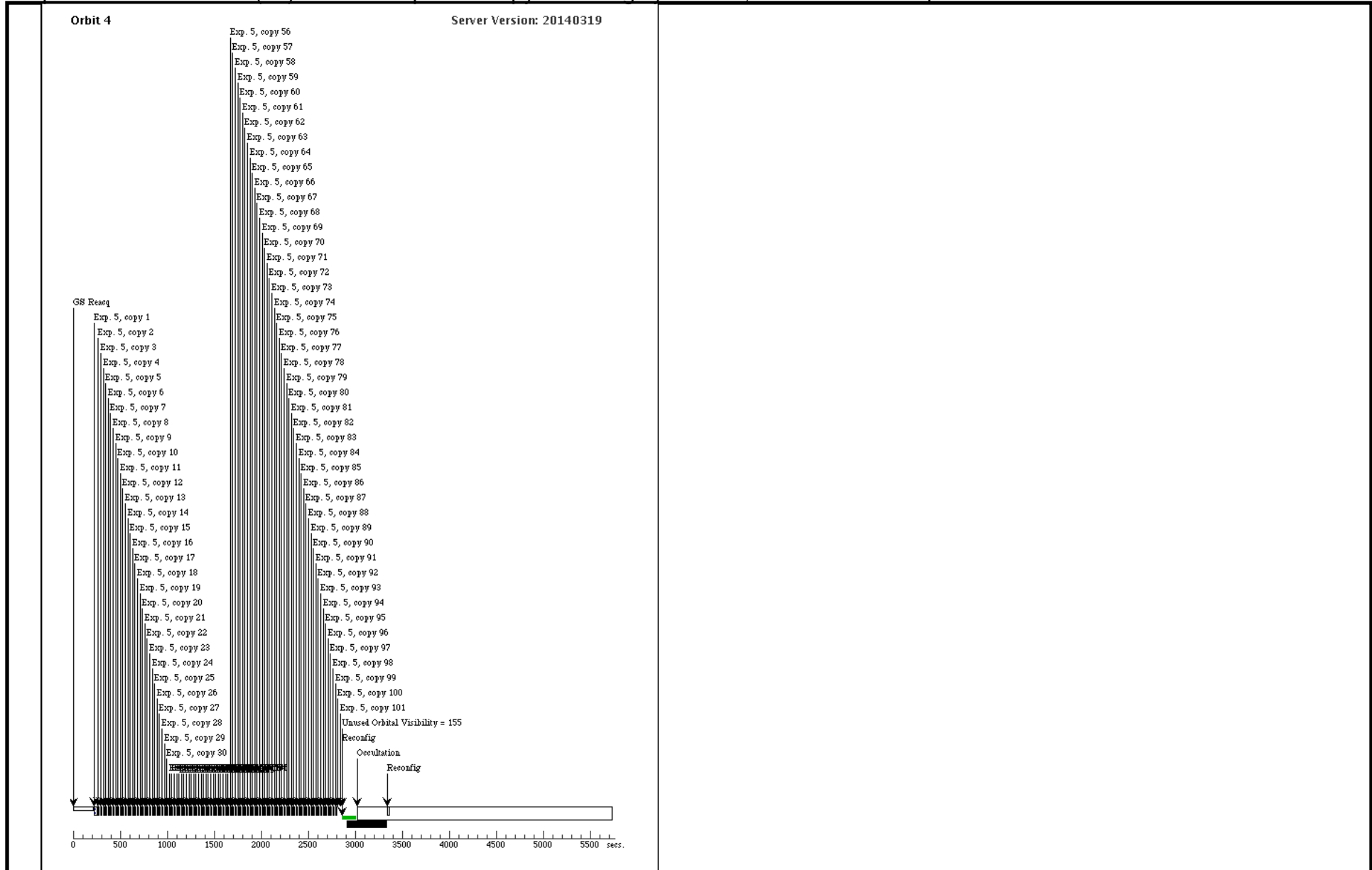


Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

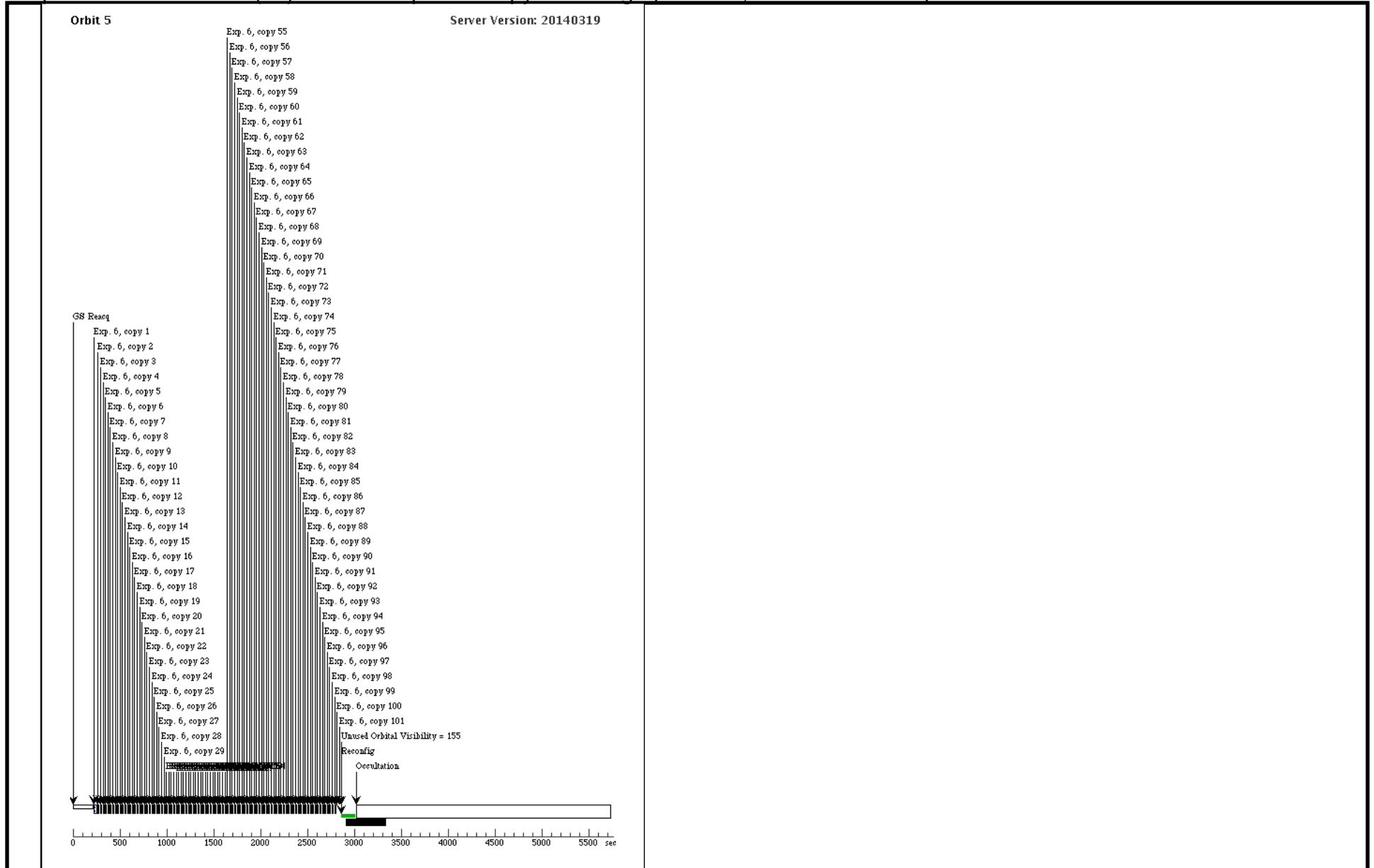




Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01



Proposal 13308 - Visit 1 (01) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01



Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

<b>Visit</b>	<p><b>Proposal 13308, Visit 2 (02), implementation</b> <span style="float: right;">Fri Jun 06 23:43:10 GMT 2014</span></p> <p><b>Diagnostic Status: No Diagnostics</b></p> <p>Scientific Instruments: WFC3/IR</p> <p>Special Requirements: SCHED 100%; ORIENT 227.82D TO 243.82 D; ORIENT 47.82D TO 63.82 D; Period 1.76358799 D AND ZERO-PHASE HJD2454953.56498</p> <p><i>Comments: Our observations are time critical. To reach our science goal, we require 1 orbit to cover the pre-eclipse baseline, and another 1 orbit to cover the post-eclipse baseline. We will need 3 orbits to fully cover both the ingress, full-eclipse, and egress part of the light curve. The the eclipse duration of KOI-13.01 is 3.1 hours.</i></p> <p><i>Each visit must consist of 5 SAA-free (or hidden) and consecutive HST orbits.</i></p> <p><i>For wavelength calibration purpose, we require one direct, un-dispersed image to be taken at the beginning of each visit, followed by consecutive grism exposures throughout the visit. The position of the targets in the un-dispersed image should be the same as the grism exposures.</i></p>					
	<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(1)	KOI-13	RA: 19 07 53.1072 (286.9712800d)		V=9.95	Reference Frame: ICRS
		Alt Name1: BD+46-2629	Dec: +46 52 5.95 (46.86832d)			
		Alt Name2: 2MASS-J19075308+4652061	Equinox: J2000			
	<i>Comments: This object was generated by the target selector and retrieved from the SIMBAD database. This is a double star system, with a separation of about 1.2 arcsecond.</i>					

Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1		(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	F130N	NSAMP=2; SAMP-SEQ=RAPID	PHASE 0.387 TO 0.430; GS ACQ SCENARIO BASE1BN3	Sequence 1-2 Non-Instant in Visit 2 (02)	0.55563 Secs (0.556 Secs) [==>]	[1]
<p>Comments: All exposures in a visit must be conducted consecutively and SAA-free (or hidden).</p>									

Exposures



[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[1]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]

*Comments: Exposure 2 & 3 must be executed consecutively following Exposure 1.*



[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[2]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

*Comments: Exposure 2 & 3 must be executed consecutively following Exposure 1.*

Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

4	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	Sequence 4-4 Non-Int in Visit 2 (02)	7.624302 Secs X 101 (770.055 Secs)
---	------------	----------------------------------	------	----------------------------------	---	------------------------------------

[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[3]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

*Comments: Exposure 2 & 3 must be executed consecutively following Exposure 1.*

Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

5	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	NEW OBSET; GS ACQ SCENARI O BASE1BN3	Sequence 5-5 Non-Int in Visit 2 (02)	7.624302 Secs X 101 (770.055 Secs)
---	------------	----------------------------------	------	----------------------------------	--	---	------------------------------------

[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[4]

[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

[==>(Copy 91)]  
[==>(Copy 92)]  
[==>(Copy 93)]  
[==>(Copy 94)]  
[==>(Copy 95)]  
[==>(Copy 96)]  
[==>(Copy 97)]  
[==>(Copy 98)]  
[==>(Copy 99)]  
[==>(Copy 100)]  
[==>(Copy 101)]

Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

6	(1) KOI-13	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=2; SAMP-SEQ=SPAR S10	NEW OBSET; GS ACQ SCENARI O BASE1BN3	Sequence 6-6 Non-Int in Visit 2 (02)	7.624302 Secs X 101 (770.055 Secs)
---	------------	----------------------------------	------	----------------------------------	--	---	------------------------------------

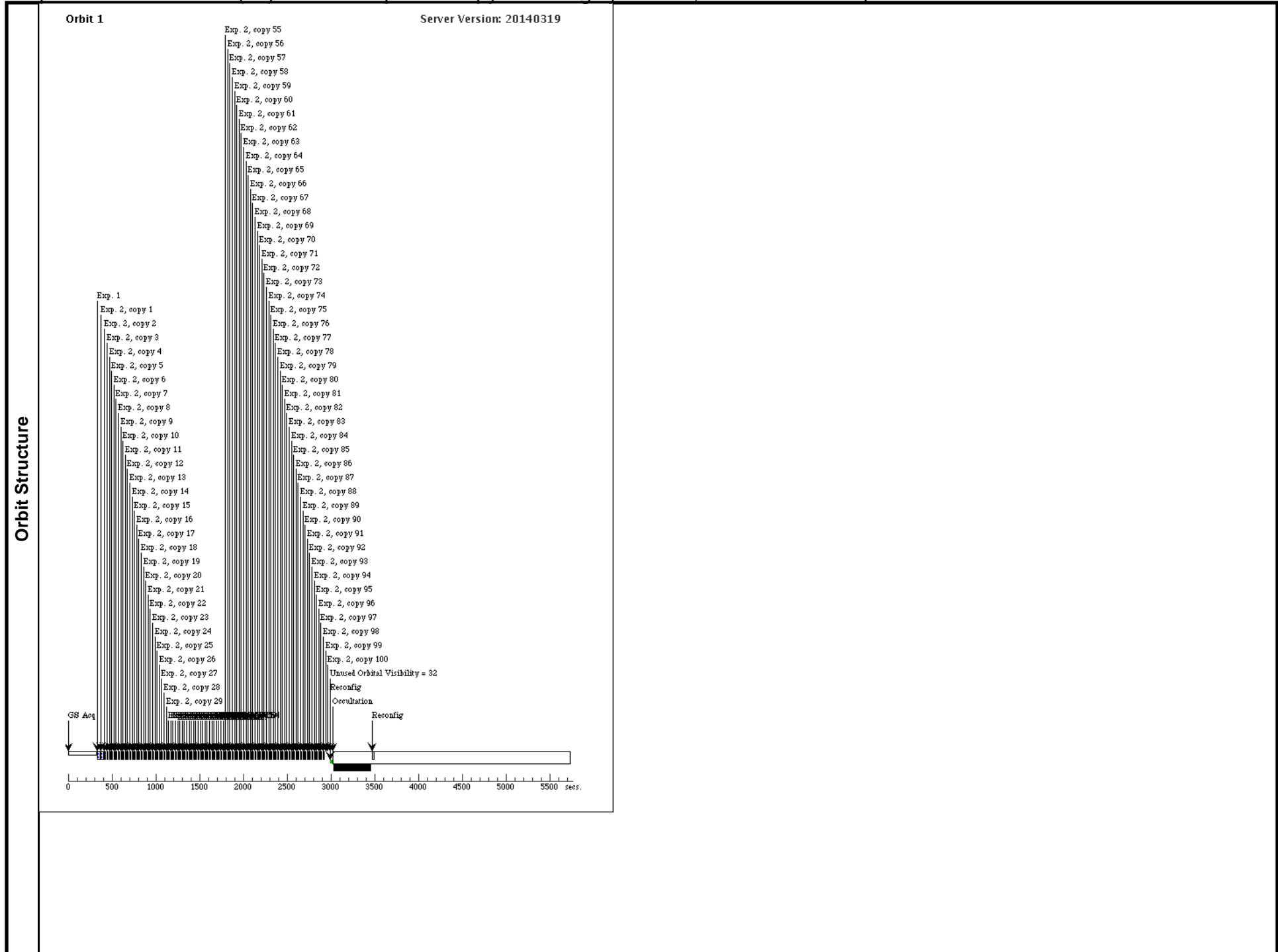
[==>(Copy 1)]  
[==>(Copy 2)]  
[==>(Copy 3)]  
[==>(Copy 4)]  
[==>(Copy 5)]  
[==>(Copy 6)]  
[==>(Copy 7)]  
[==>(Copy 8)]  
[==>(Copy 9)]  
[==>(Copy 10)]  
[==>(Copy 11)]  
[==>(Copy 12)]  
[==>(Copy 13)]  
[==>(Copy 14)]  
[==>(Copy 15)]  
[==>(Copy 16)]  
[==>(Copy 17)]  
[==>(Copy 18)]  
[==>(Copy 19)]  
[==>(Copy 20)]  
[==>(Copy 21)]  
[==>(Copy 22)]  
[==>(Copy 23)]  
[==>(Copy 24)]  
[==>(Copy 25)]  
[==>(Copy 26)]  
[==>(Copy 27)]  
[==>(Copy 28)]  
[==>(Copy 29)]  
[==>(Copy 30)]  
[==>(Copy 31)]  
[==>(Copy 32)]  
[==>(Copy 33)]  
[==>(Copy 34)]  
[==>(Copy 35)]  
[==>(Copy 36)]  
[==>(Copy 37)]  
[==>(Copy 38)]  
[==>(Copy 39)]  
[==>(Copy 40)]  
[==>(Copy 41)]  
[==>(Copy 42)]  
[==>(Copy 43)]  
[==>(Copy 44)]  
[==>(Copy 45)]

[5]

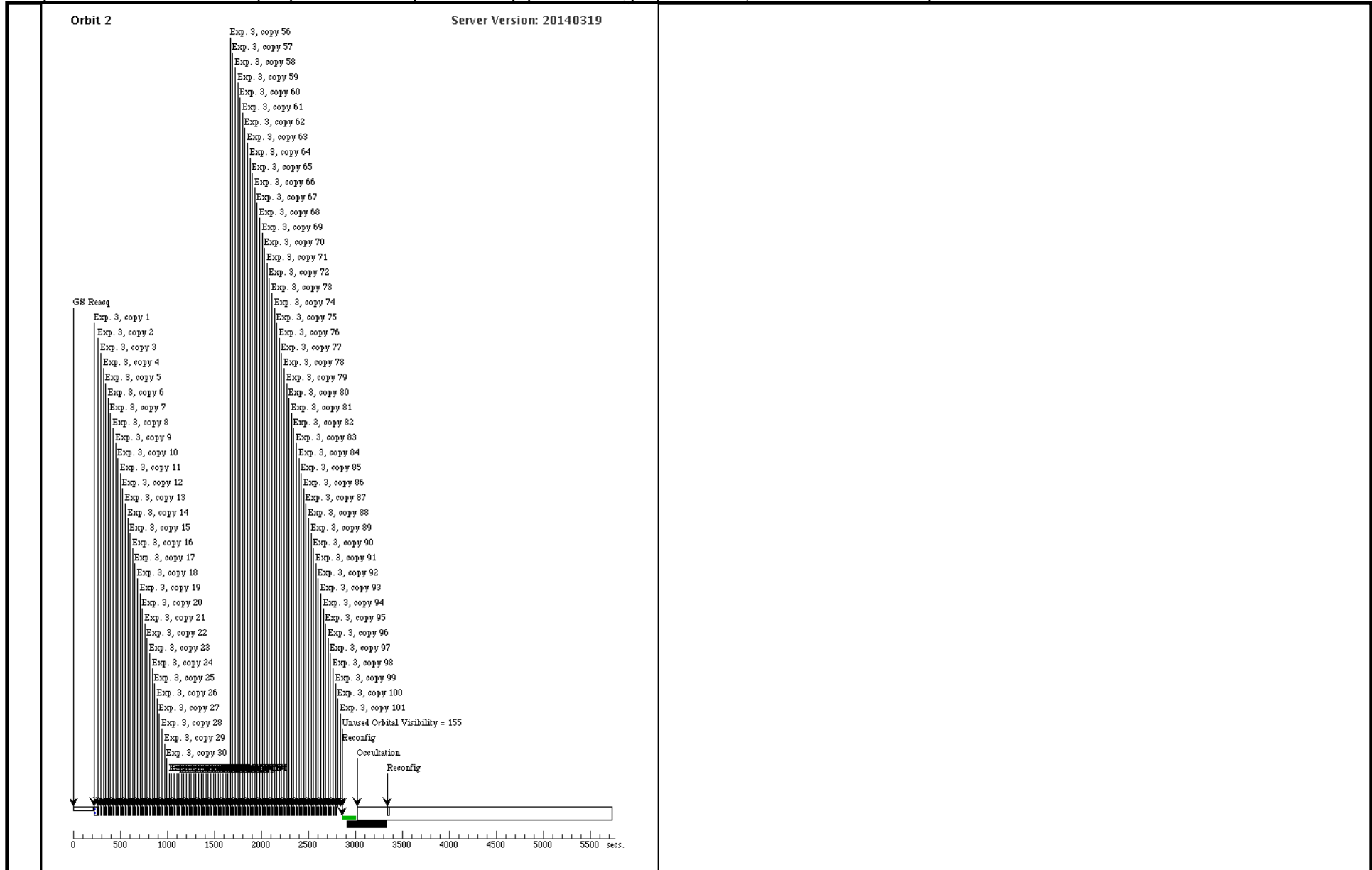
[==>(Copy 46)]  
[==>(Copy 47)]  
[==>(Copy 48)]  
[==>(Copy 49)]  
[==>(Copy 50)]  
[==>(Copy 51)]  
[==>(Copy 52)]  
[==>(Copy 53)]  
[==>(Copy 54)]  
[==>(Copy 55)]  
[==>(Copy 56)]  
[==>(Copy 57)]  
[==>(Copy 58)]  
[==>(Copy 59)]  
[==>(Copy 60)]  
[==>(Copy 61)]  
[==>(Copy 62)]  
[==>(Copy 63)]  
[==>(Copy 64)]  
[==>(Copy 65)]  
[==>(Copy 66)]  
[==>(Copy 67)]  
[==>(Copy 68)]  
[==>(Copy 69)]  
[==>(Copy 70)]  
[==>(Copy 71)]  
[==>(Copy 72)]  
[==>(Copy 73)]  
[==>(Copy 74)]  
[==>(Copy 75)]  
[==>(Copy 76)]  
[==>(Copy 77)]  
[==>(Copy 78)]  
[==>(Copy 79)]  
[==>(Copy 80)]  
[==>(Copy 81)]  
[==>(Copy 82)]  
[==>(Copy 83)]  
[==>(Copy 84)]  
[==>(Copy 85)]  
[==>(Copy 86)]  
[==>(Copy 87)]  
[==>(Copy 88)]  
[==>(Copy 89)]  
[==>(Copy 90)]

Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

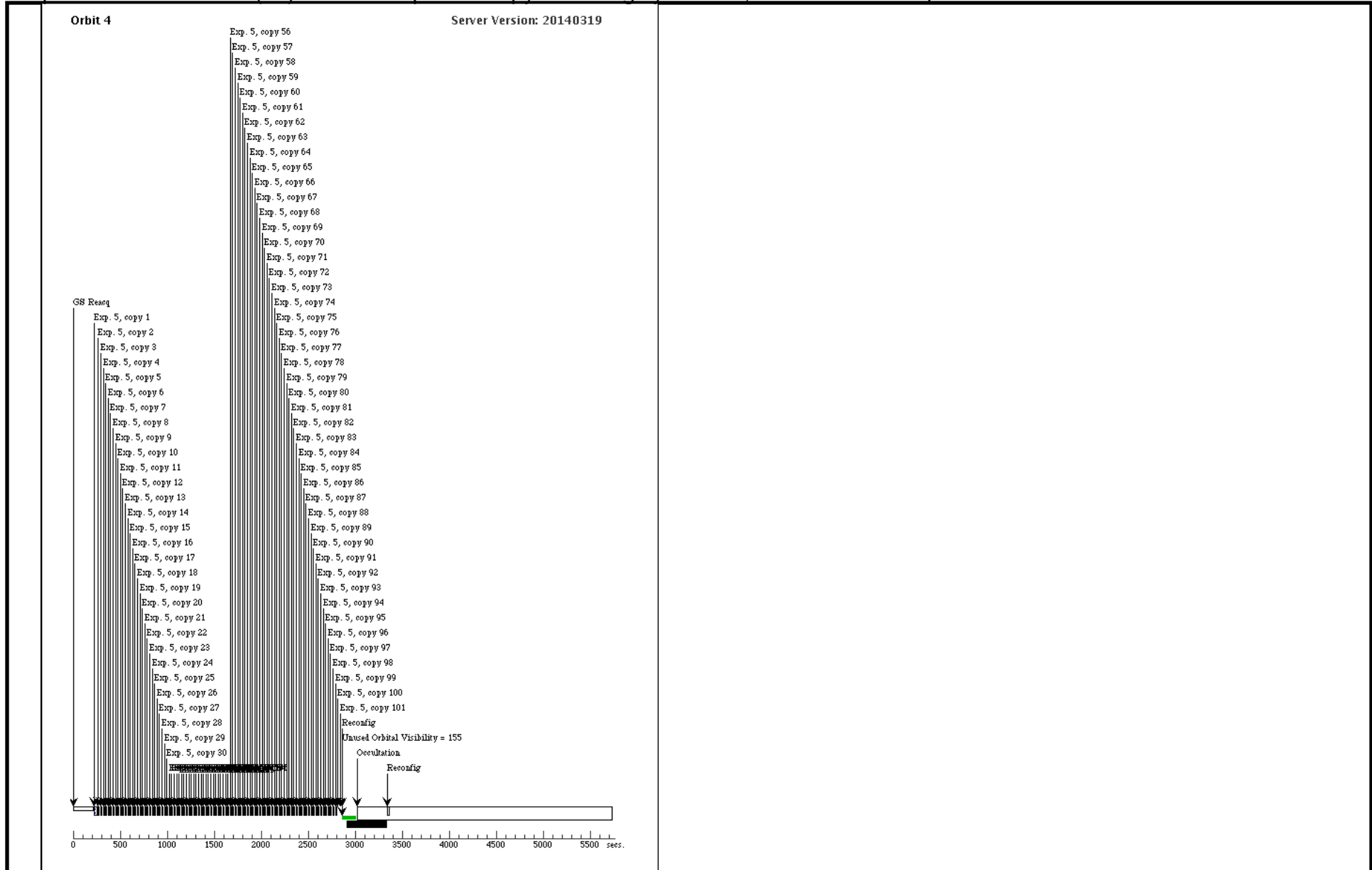
		[==>(Copy 91)] [==>(Copy 92)] [==>(Copy 93)] [==>(Copy 94)] [==>(Copy 95)] [==>(Copy 96)] [==>(Copy 97)] [==>(Copy 98)] [==>(Copy 99)] [==>(Copy 100)] [==>(Copy 101)]	
--	--	--	--



Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01







Proposal 13308 - Visit 2 (02) - Near-IR spectroscopy of the highly inflated, hottest known Jupiter KOI-13.01

