



12955 - Comparing Planet Formation Signatures in two Systems

Cycle: 20, 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) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:03:50.0	yes
04	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:04:10.0	yes
05	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:04:27.0	yes
06	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:04:44.0	yes
07	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:05:04.0	yes
08	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:05:18.0	yes
09	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:05:30.0	yes
02	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:05:44.0	yes
10	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:06:01.0	yes
11	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:06:18.0	yes
12	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:06:35.0	yes
13	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:06:55.0	yes

Visit	Targets used in Visit	Configurations used in Visit	Orbits Used	Last Orbit Planner Run	OP Current with Visit?
14	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:07:11.0	yes
15	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:07:25.0	yes
03	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:07:41.0	yes
16	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:07:58.0	yes
17	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:08:14.0	yes
18	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:08:34.0	yes
19	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:08:51.0	yes
20	(1) KEPLER-11	WFC3/IR	1	20-Aug-2013 21:09:08.0	yes

20 Total Orbits Used

ABSTRACT

Following the discovery of exoplanet systems with multiple transiting planets - unique laboratories for studying planet formation and evolution - we propose to characterize and compare the exoplanet atmospheric composition in the compact solar system analog Kepler-11. We propose WFC3/G141 transmission spectroscopy of three low-density super-Earth/Neptune planets in the six-planet system. The proposed grism spectroscopy targets the strong 1.4-micron water band and the distinct 1.6-micron methane features, thus probing the principal thermochemical reservoirs of oxygen and carbon for the planets we will observe. The carbon and oxygen abundance and their ratio are key diagnostics of planet formation and evolution, and the proposed observations will provide a unique observational constraint because comparing planets in the same exoplanet system removes the variables that influence inter-system comparative exoplanetology. Together with the only other multi-planet system observation (PI Desert), the proposed observations aim at starting the process of observationally differentiating inter-system and intra-system parameters that influence the composition of individual planets. In so doing, we will improve our understanding of whether our own solar system is typical or exceptional.

OBSERVING DESCRIPTION

We will observe the spectroscopic time series of the transit [aka primary eclipse] of three super-Earth planets in the Kepler-11 system. Each of the different transits is implemented as a separate visit [3 visits in total]. Each visit targets a different planet, respectively Kepler-11d, Kepler-11e, and Kepler-11f. For each of the transits, we use the WFC3/G141 setup and the light output of the Kepler-11 system will be monitored over 7, 6, and 7 Hubble orbits respectively, to be executed continuously per transit event. The objective is to measure the spectroscopic change in the amount of light

during transit versus out-of-transit for each of the targeted planets.

The observations are time sensitive because they have to measure the transit events. The timing of the transits is well known with minute precision and the transit timing is implemented with a period and zero phase. Each visit starts with a wavelength calibration direct image followed by a series of G141 spectra. Except for the first direct image, the 7, 6 and 7 Hubble orbits are filled with continuous time series of G141 spectroscopy. To time the observations correctly, the first image of the series [the wavelength calibration image] is timed such that the remainder orbits cover the transit and sufficient out of transit data to make a robust difference. The timing is implemented by providing a phase range. For APT reasons, the visits got split up in different sub-visits, one per Hubble orbit. Trying to put all observations in one visit did not work with the APT because the computing time required grew exponentially to beyond capability. Each visit now has 7, 6 and 7 sub-visits respectively. Each of the sub-visits is timed to start immediately after the startup visit (name Kepler11d, Kepler11e, and Kepler11f respectively). The sub-visits are named with Kepler11d_X with X being the orbit number. We request no roll angle moves during a visit to optimize the stability.

Proposal 12955 - Kepler11d (01) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d (01), implementation					Wed Aug 21 01:09:20 GMT 2013
	Diagnostic Status: No Diagnostics					
	Scientific Instruments: WFC3/IR					
	Special Requirements: SCHED 100%; ORIENT 0D TO 43.5 D; ORIENT 53.5D TO 165 D; ORIENT 175D TO 223.5 D; ORIENT 233.5D TO 345.0 D; BETWEEN 02-JUL-2012:00:00:00 AND 12-MAR-2013:00:00:00; BETWEEN 13-JUN-2013:00:00:00 AND 31-DEC-2013:00:00:00; BETWEEN 14-MAR-2013:00:00:00 AND 11-JUN-2013:00:00:00; Period 22.68719 D AND ZERO-PHASE HJD2454981.4550					
Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)						
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d)	Proper Motion RA: -0.7 mas/yr	V=13.7	Reference Frame: ICRS
			Dec: +41 54 32.87 (41.90913d)	Proper Motion Dec: -4.1 mas/yr	J = 12.55,	
			Equinox: J2000	Epoch of Position: 2000	H = 12.24,	
					K = 12.18	
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.						

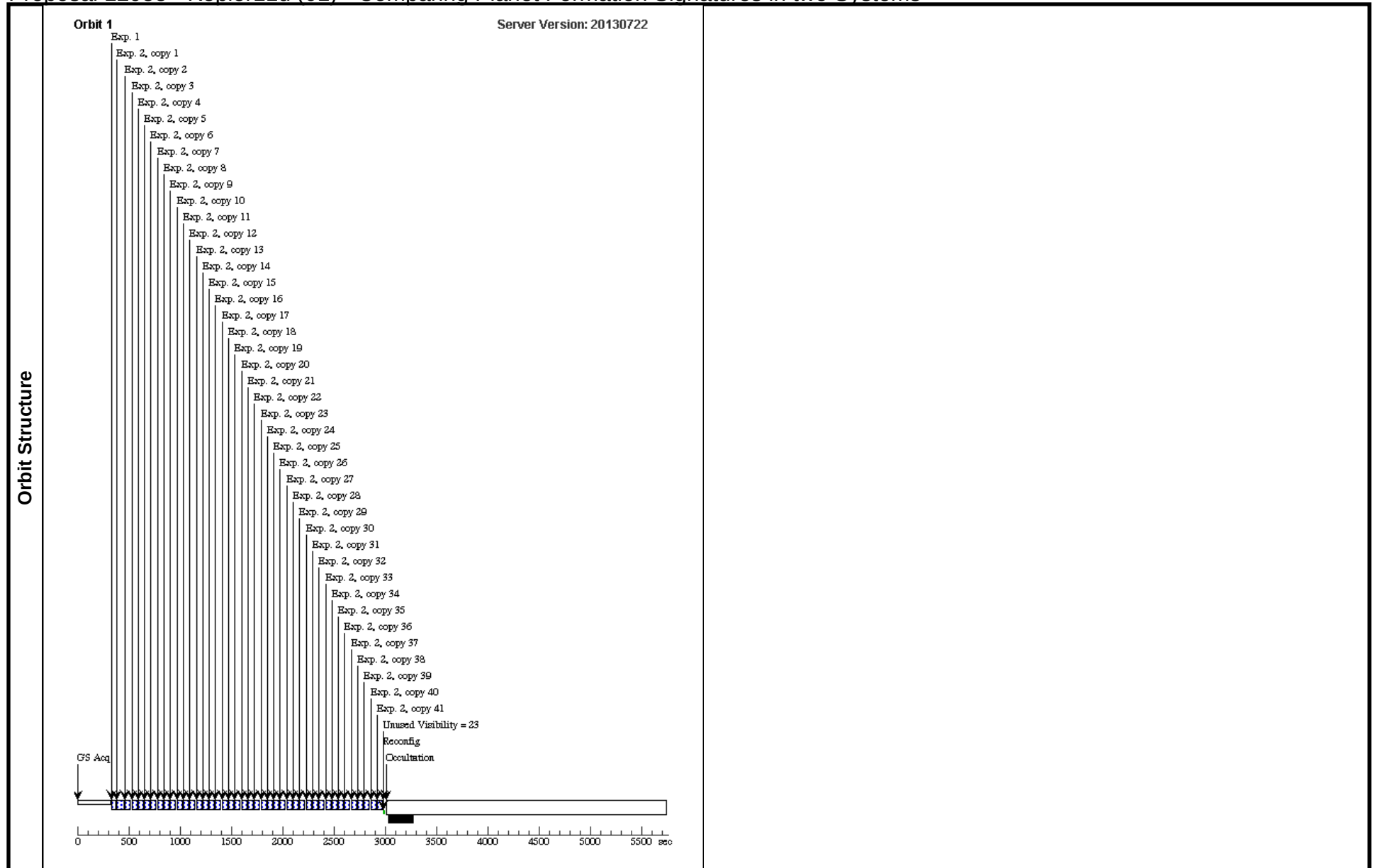
Proposal 12955 - Kepler11d (01) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	wave_cal_k epler11d (WFC3IR.i m.413114)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	F132N	SAMP-SEQ=SPARS 10; NSAMP=3	PHASE 0.988 TO 0. 9916		14.970789 Secs (14.971 Secs) [==>]	[1]

Proposal 12955 - Kepler11d (01) - Comparing Planet Formation Signatures in two Systems

2	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 41 (1843.766 Secs)	
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Proposal 12955 - Kepler11d (01) - Comparing Planet Formation Signatures in two Systems

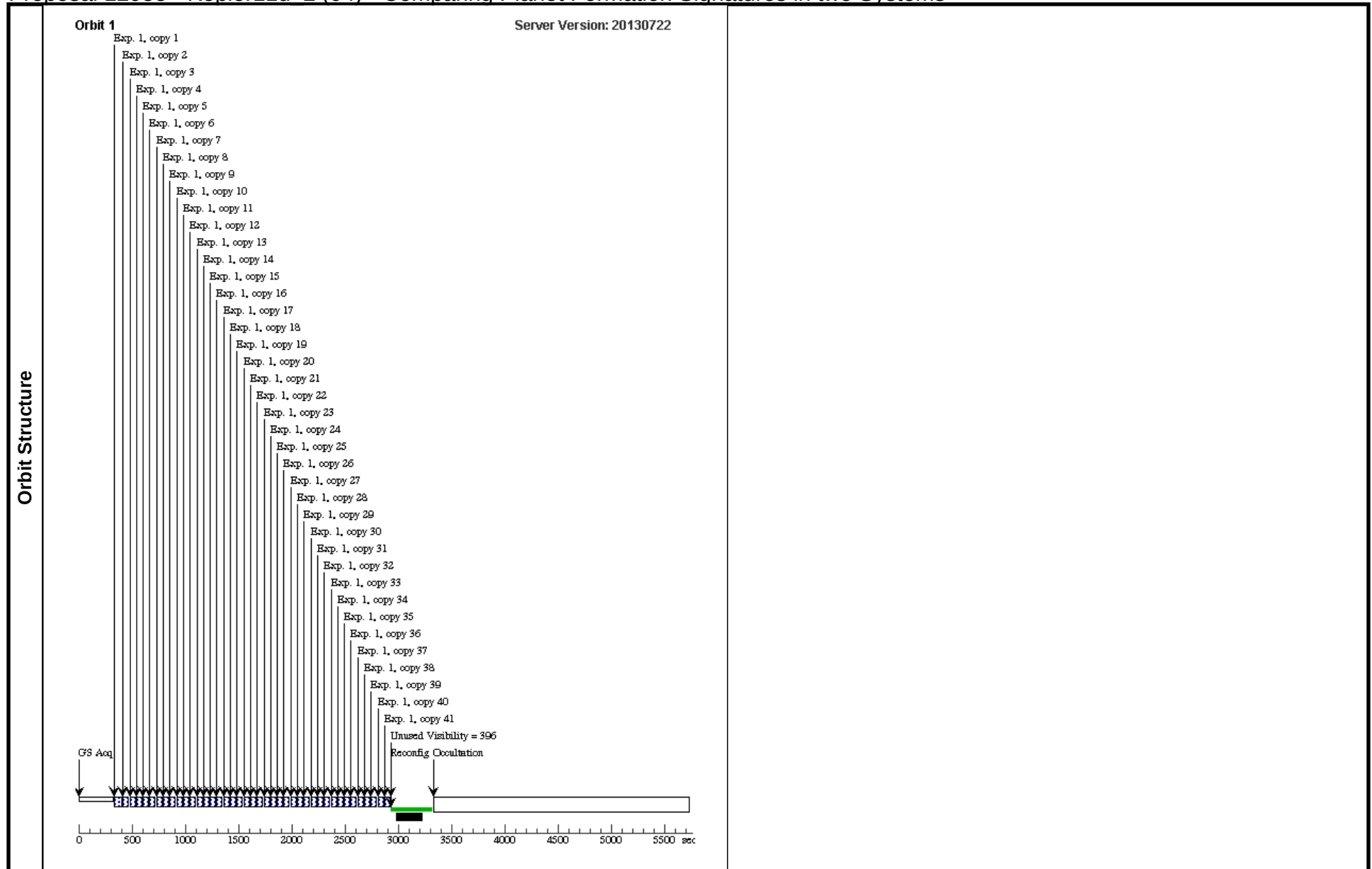


Proposal 12955 - Kepler11d 2 (04) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_2 (04), implementation Wed Aug 21 01:09:23 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 01 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 2 (04) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 41 (1843.766 Sec s)	
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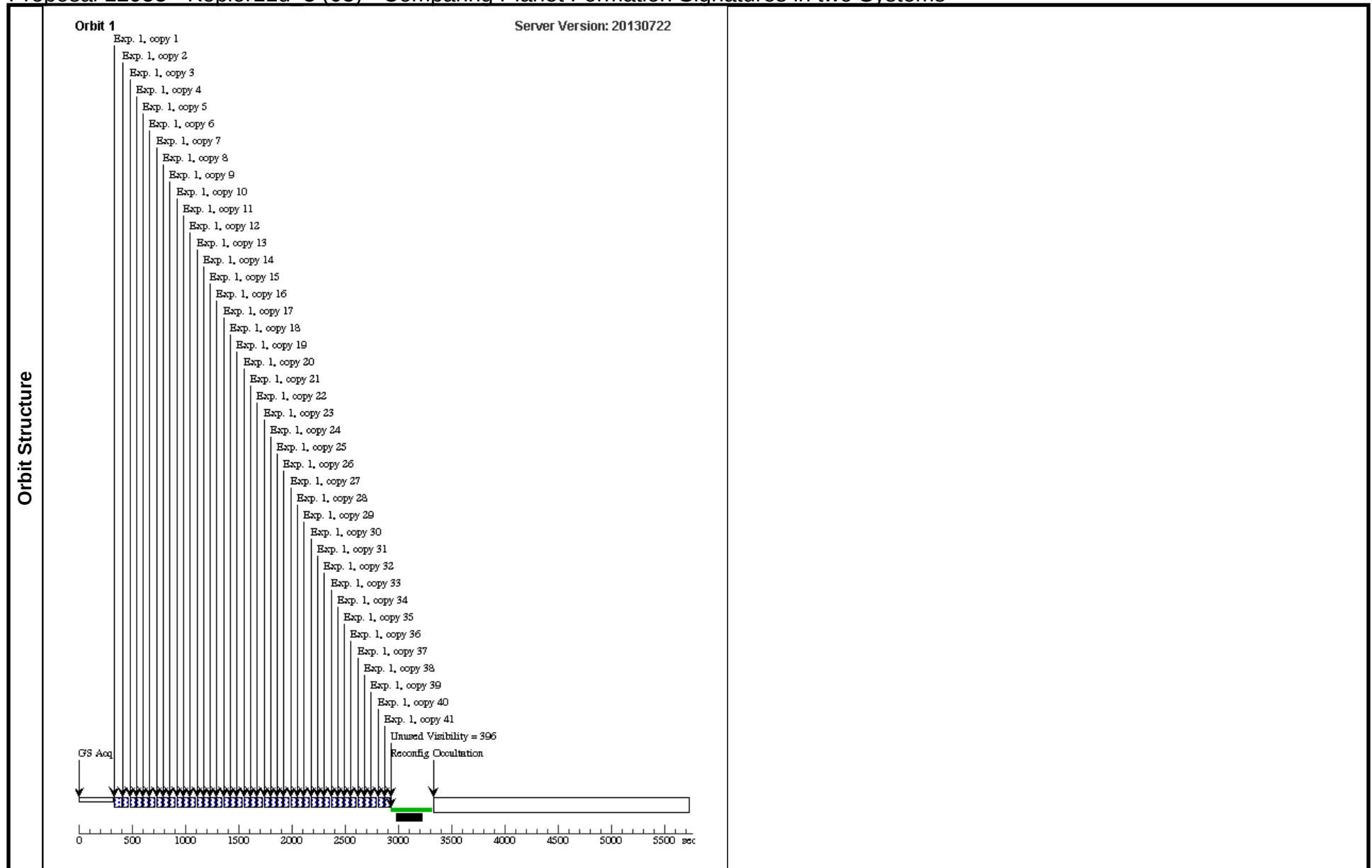


Proposal 12955 - Kepler11d 3 (05) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_3 (05), implementation Wed Aug 21 01:09:25 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 04 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 3 (05) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 41 (1843.766 Secs)	
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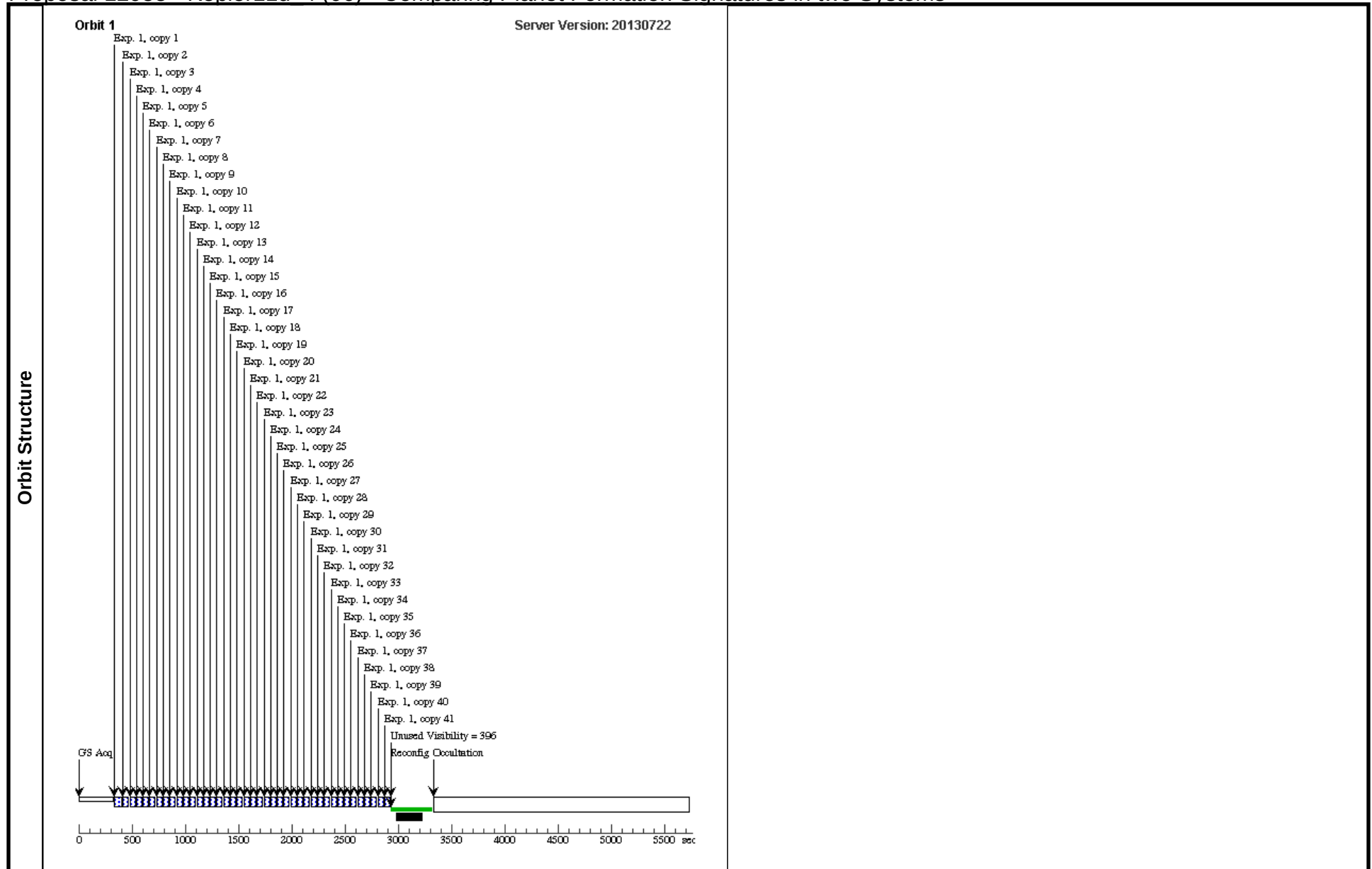


Proposal 12955 - Kepler11d 4 (06) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_4 (06), implementation Wed Aug 21 01:09:26 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 05 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 4 (06) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 41 (1843.766 Sec s)	
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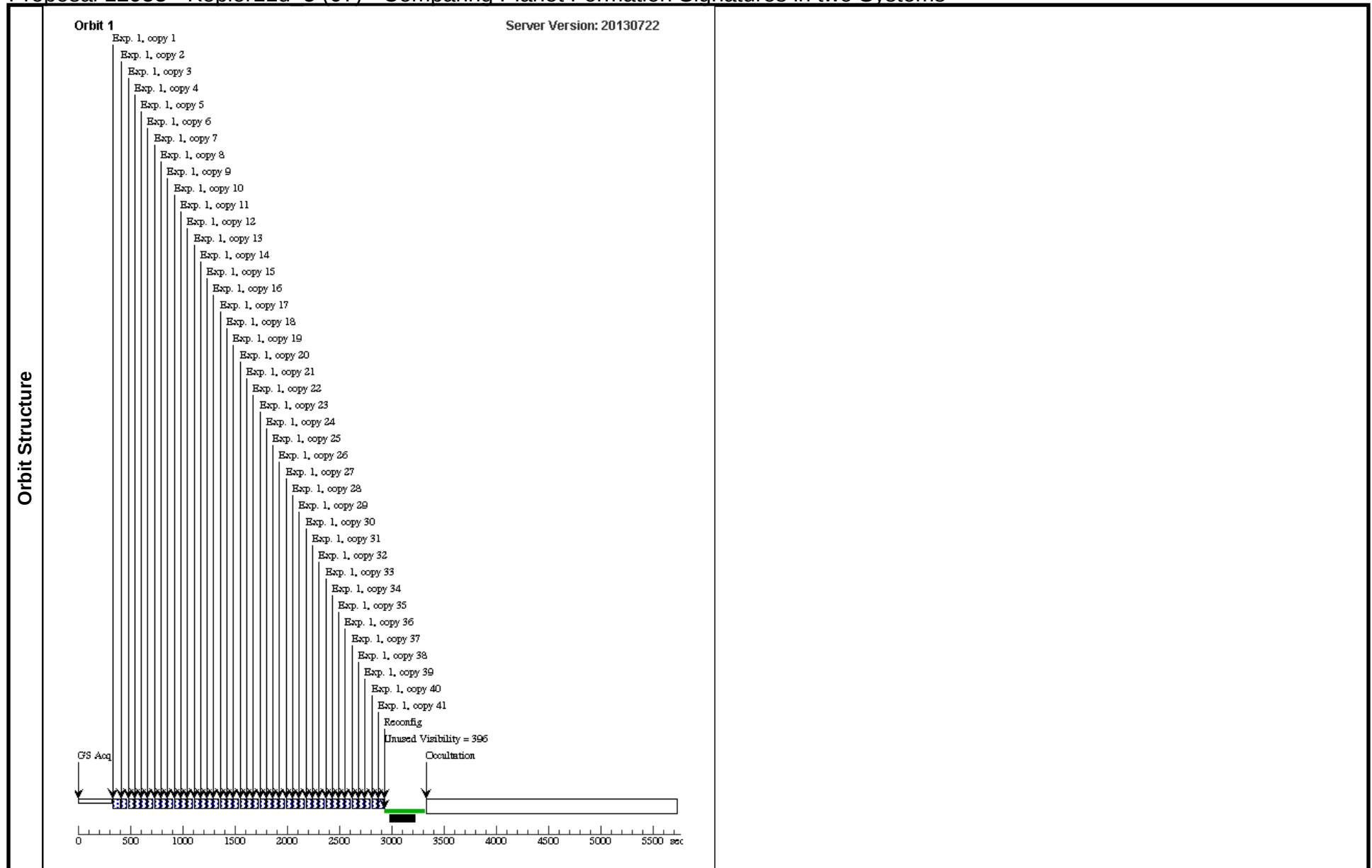


Proposal 12955 - Kepler11d 5 (07) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_5 (07), implementation Wed Aug 21 01:09:27 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 06 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 5 (07) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 41 (1843.766 Sec s)	
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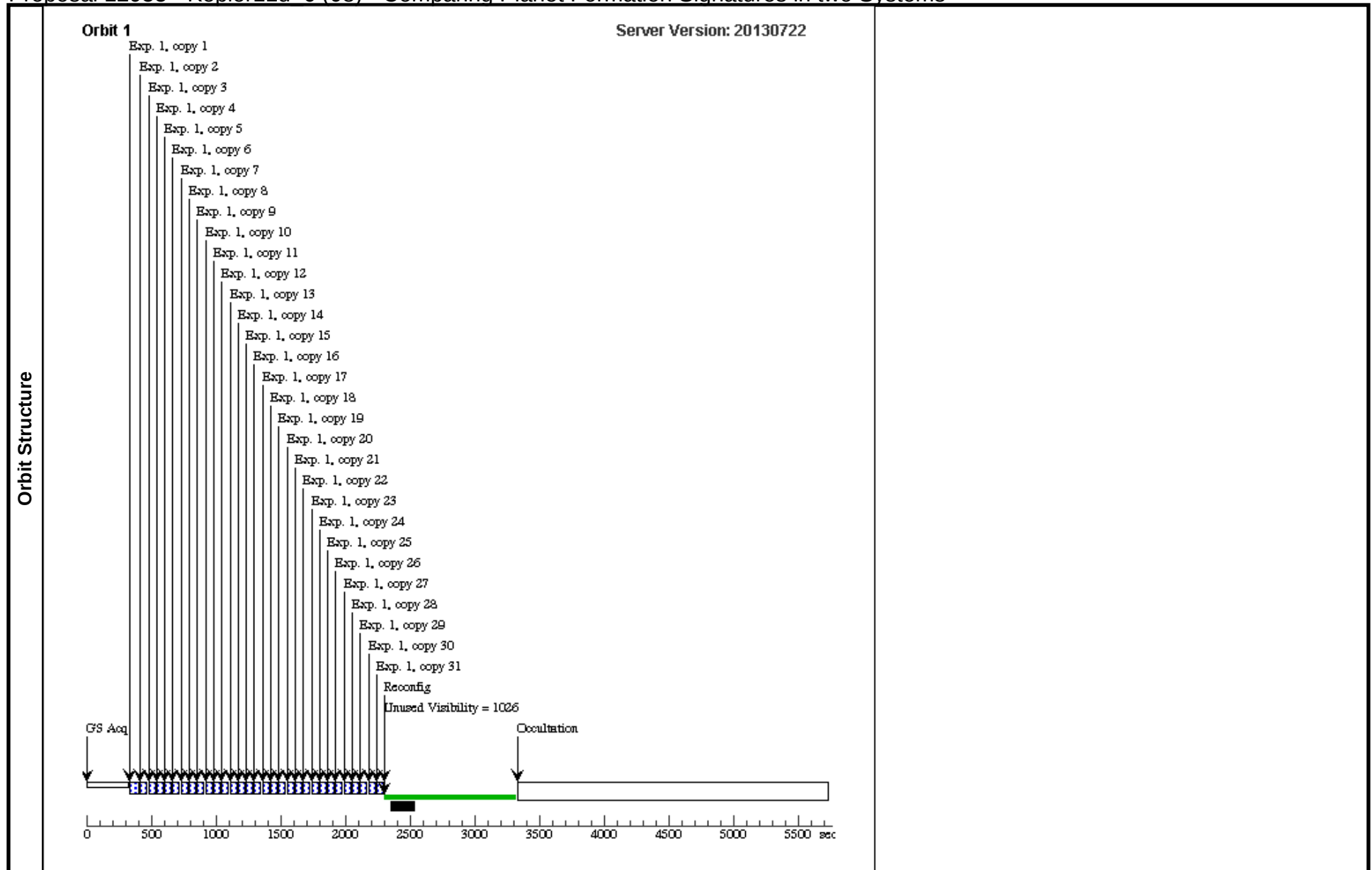


Proposal 12955 - Kepler11d 6 (08) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_6 (08), implementation Wed Aug 21 01:09:29 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 07 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 6 (08) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 31 (1394.067 Sec s)	
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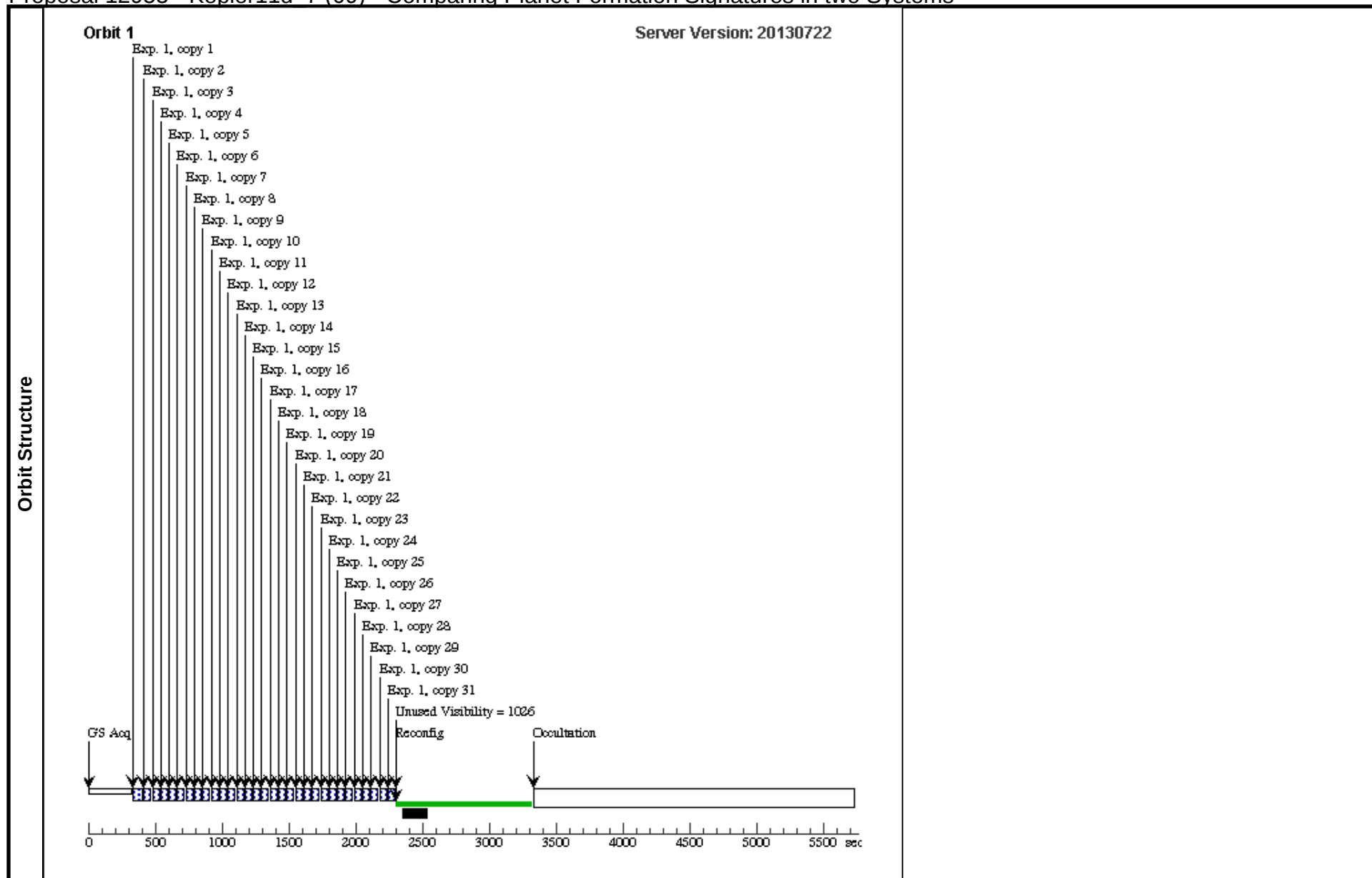


Proposal 12955 - Kepler11d 7 (09) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11d_7 (09), implementation Wed Aug 21 01:09:30 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 01; AFTER 08 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11d (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11d 7 (09) - Comparing Planet Formation Signatures in two Systems

	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
Exposures	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 31 (1394.067 Sec s)	
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Proposal 12955 - Kepler11f (02) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f (02), implementation Wed Aug 21 01:09:31 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ORIENT 0D TO 43.5 D; ORIENT 53.5D TO 165 D; ORIENT 175D TO 223.5 D; ORIENT 233.5D TO 345.0 D; BETWEEN 01-JUL-2012:00:00:00 AND 12-MAR-2013:00:00:00; BETWEEN 14-MAR-2013:00:00:00 AND 14-JUN-2013:00:00:00; BETWEEN 16-JUN-2013:00:00:00 AND 31-DEC-2013:00:00:00; Period 46.68876 D AND ZERO-PHASE HJD2454964.6487 Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					

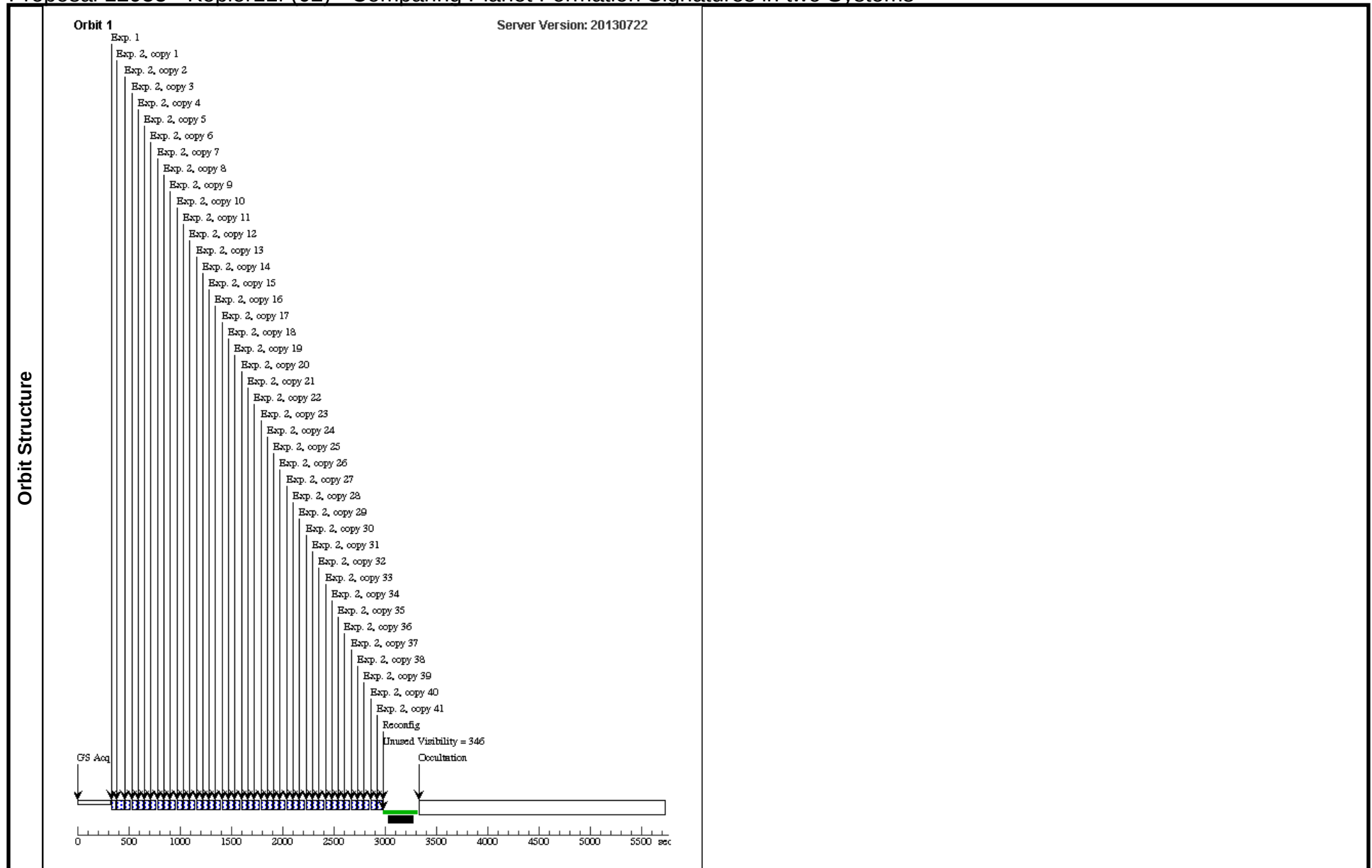
Proposal 12955 - Kepler11f (02) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	wave_cal_k epler11d (WFC3IR.i m.413114)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	F132N	SAMP-SEQ=SPARS 10; NSAMP=3	PHASE 0.9948 TO 0 .9960		14.970789 Secs (14.971 Secs) [==>]	[1]

Proposal 12955 - Kepler11f (02) - Comparing Planet Formation Signatures in two Systems

2	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 41 (1843.766 Secs)	
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Proposal 12955 - Kepler11f (02) - Comparing Planet Formation Signatures in two Systems



Proposal 12955 - Kepler11f 2 (10) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_2 (10), implementation Wed Aug 21 01:09:32 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 02 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

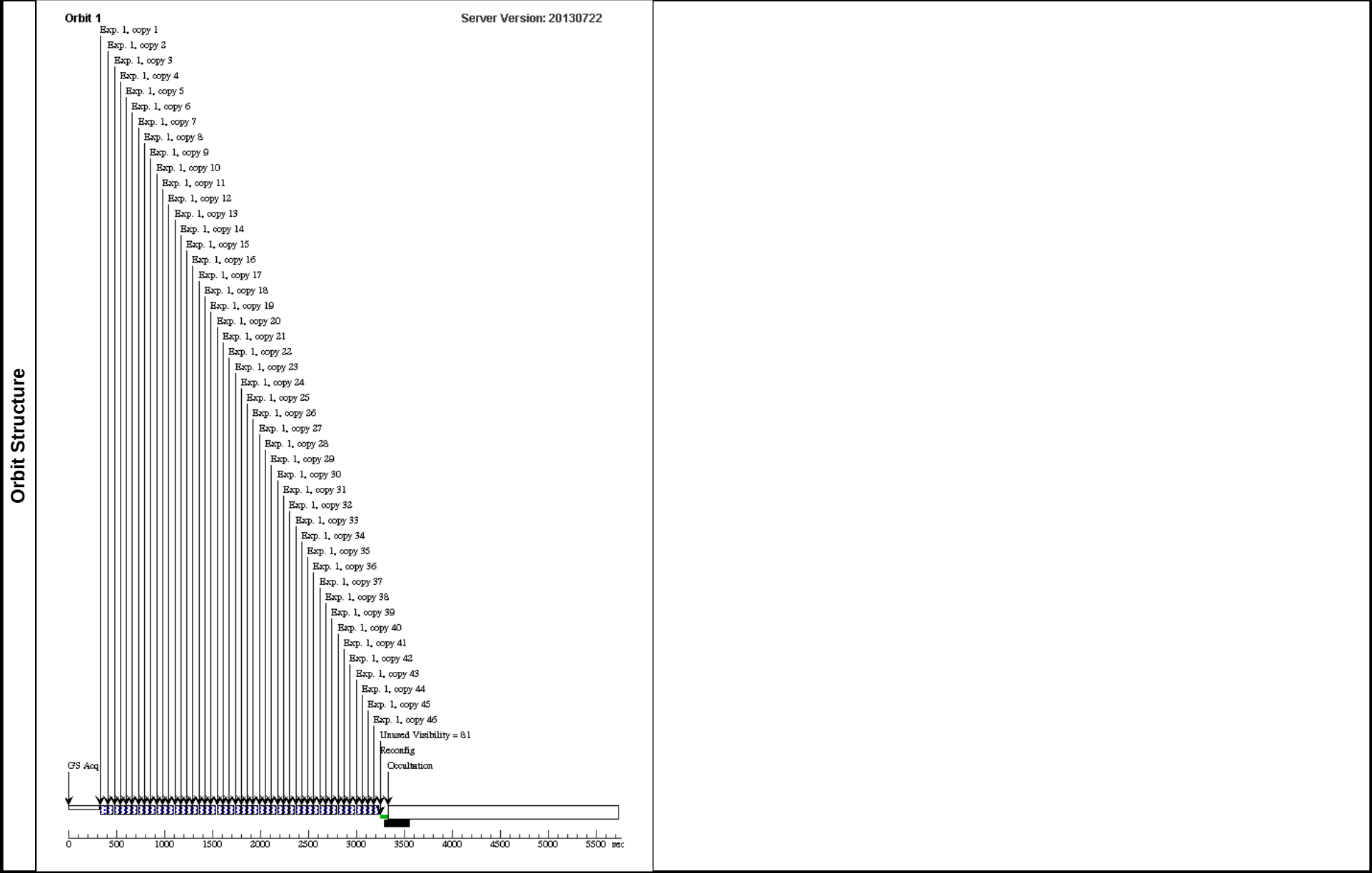
Proposal 12955 - Kepler11f 2 (10) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11f 2 (10) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11f 3 (11) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_3 (11), implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 10 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>					Wed Aug 21 01:09:35 GMT 2013
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18	Reference Frame: ICRS
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>						

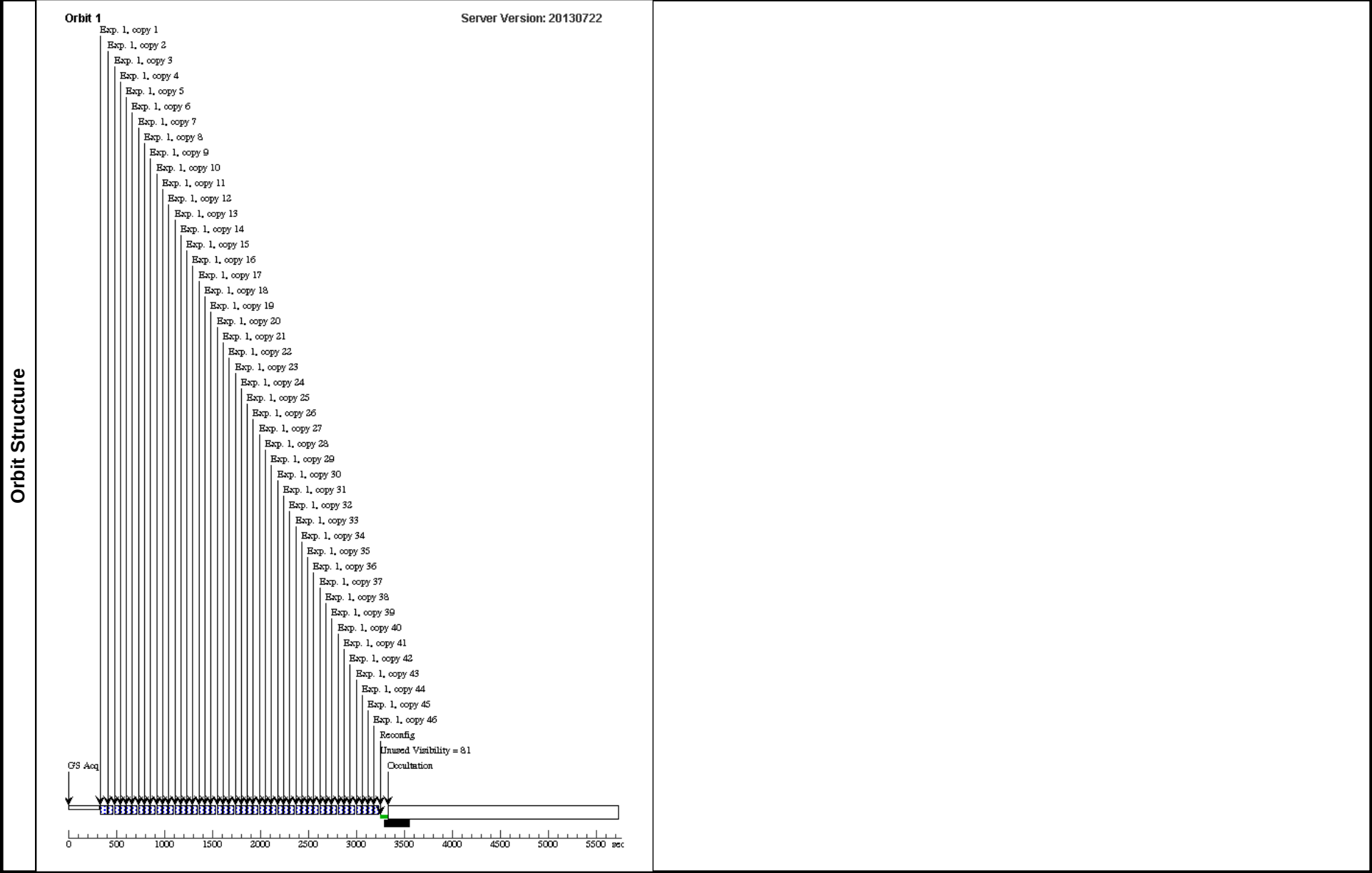
Proposal 12955 - Kepler11f 3 (11) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11f 3 (11) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11f 4 (12) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_4 (12), implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 11 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>					Wed Aug 21 01:09:37 GMT 2013
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18	Reference Frame: ICRS
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>						

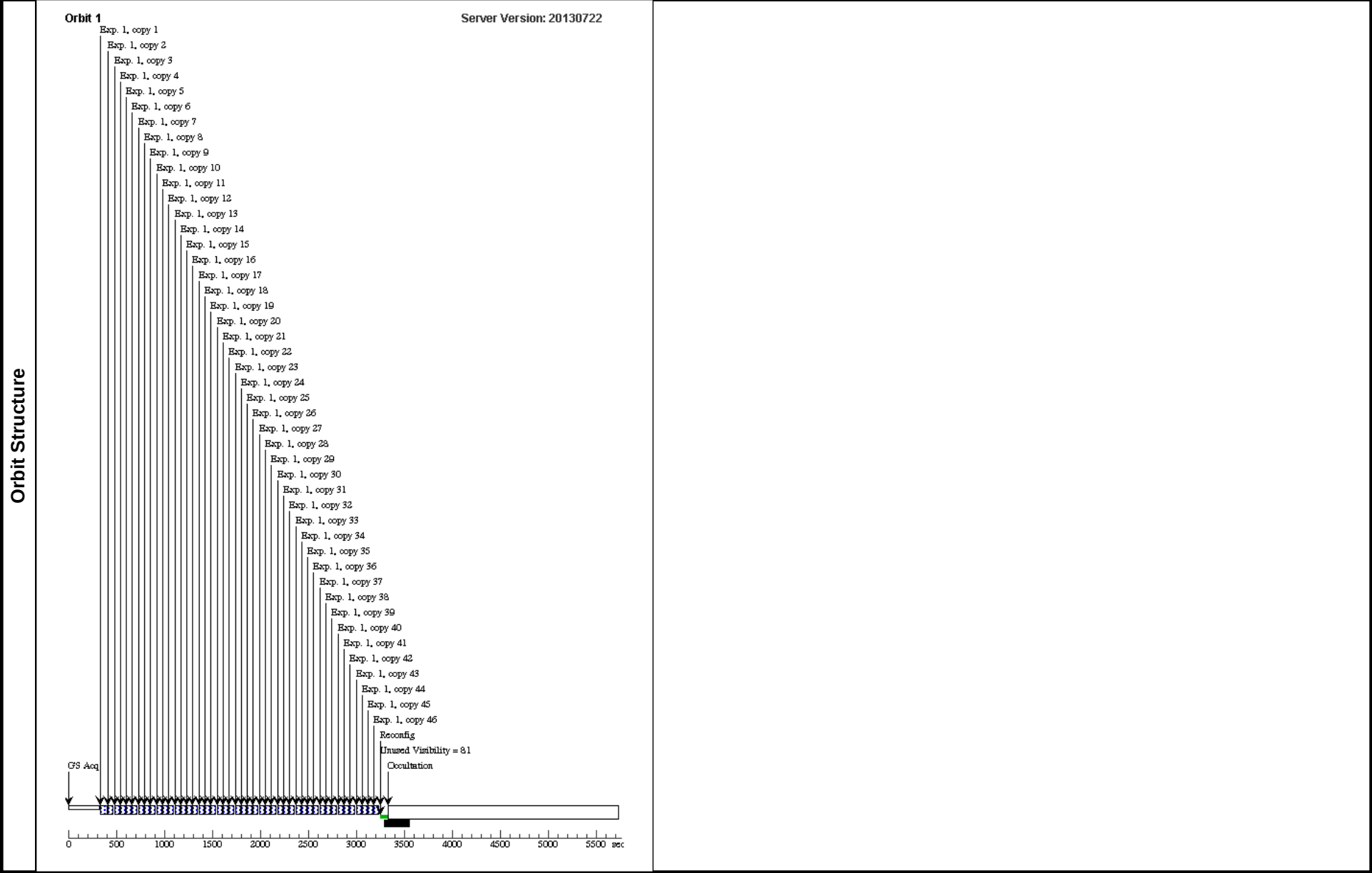
Proposal 12955 - Kepler11f 4 (12) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11f 4 (12) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11f 5 (13) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_5 (13), implementation Wed Aug 21 01:09:39 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 12 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11f 5 (13) - Comparing Planet Formation Signatures in two Systems

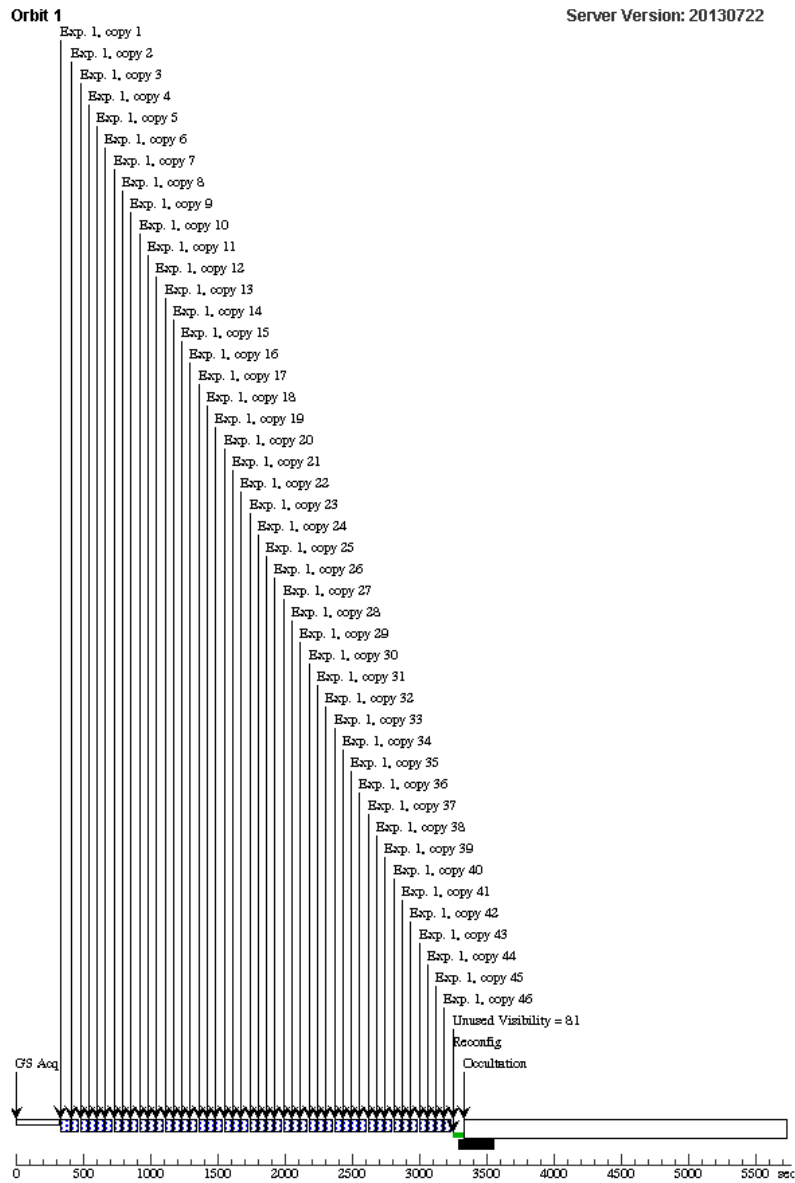
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11f 5 (13) - Comparing Planet Formation Signatures in two Systems

1	grism_keple (1) KEPLER-11 r11d (WFC3IR.sp .413115)	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Orbit Structure



Proposal 12955 - Kepler11f 6 (14) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_6 (14), implementation Wed Aug 21 01:09:41 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 13 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

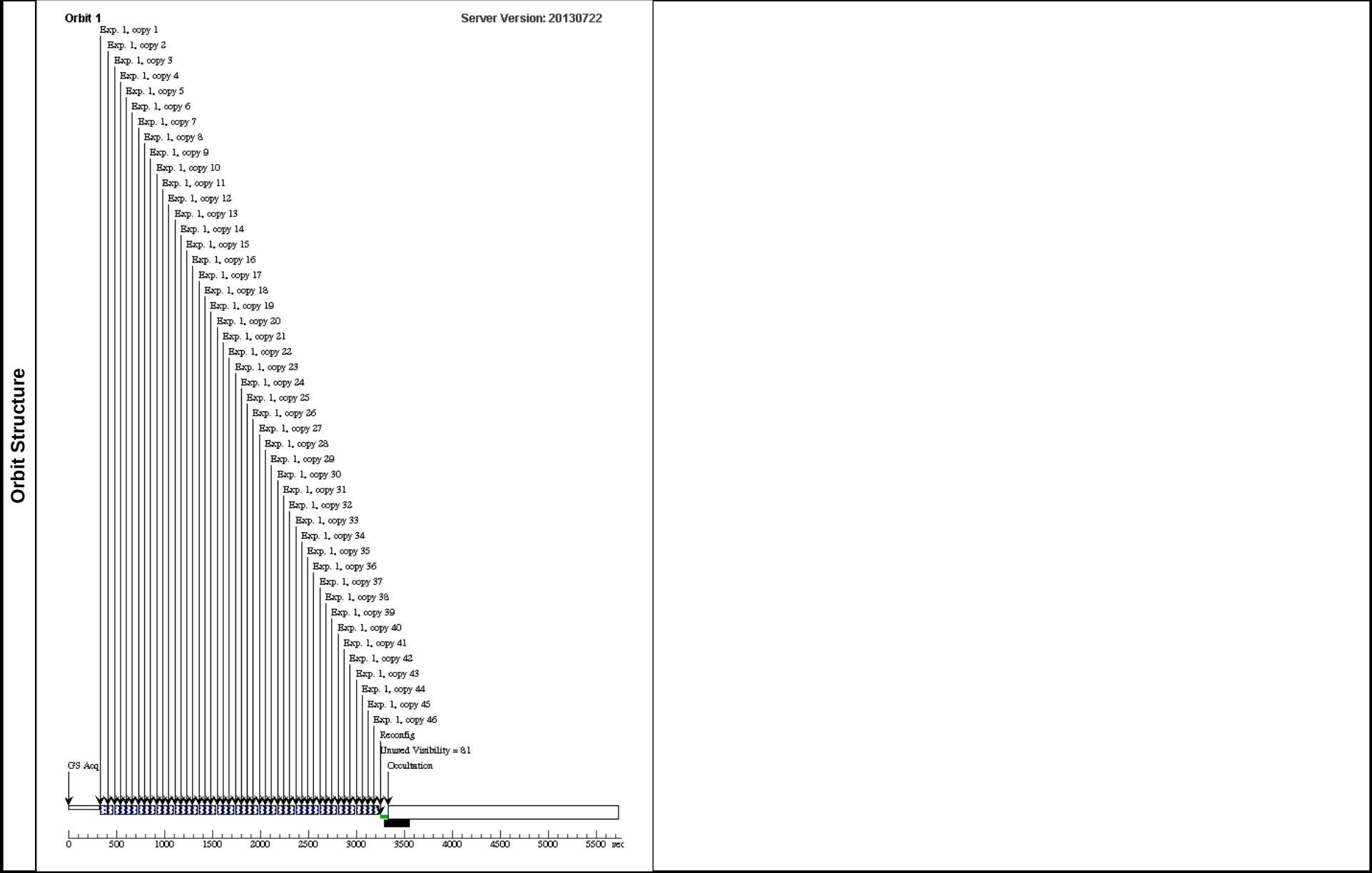
Proposal 12955 - Kepler11f 6 (14) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11f 6 (14) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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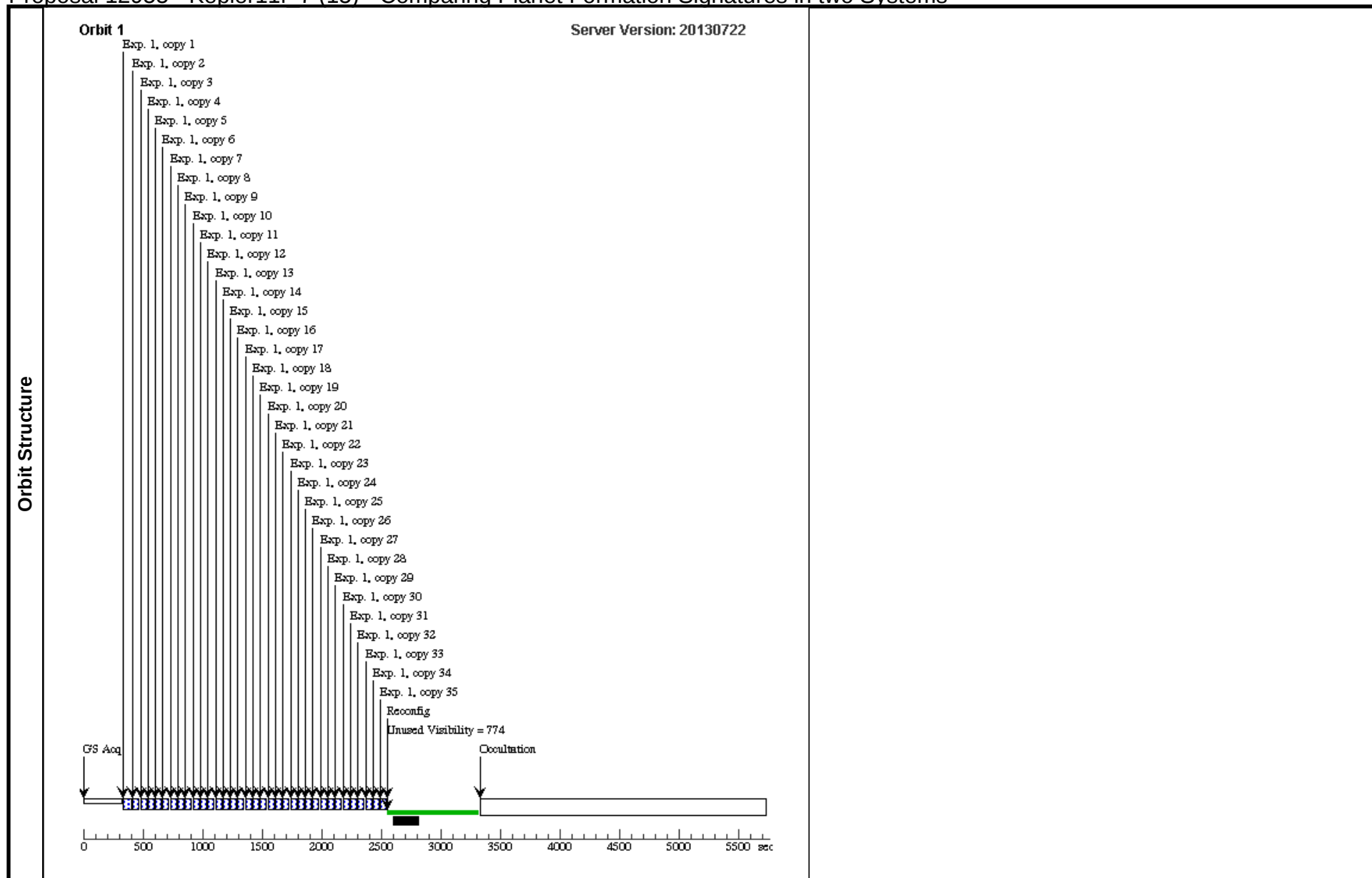


Proposal 12955 - Kepler11f 7 (15) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11f_7 (15), implementation Wed Aug 21 01:09:42 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 02; AFTER 14 BY 0 Orbits TO 1.5 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11f (7 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Proposal 12955 - Kepler11f 7 (15) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25			44.969893 Secs X 35 (1573.946 Sec s)	
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Proposal 12955 - Kepler11e (03) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11e (03), implementation Wed Aug 21 01:09:43 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: ORIENT 0D TO 43.5 D; ORIENT 53.5D TO 165 D; ORIENT 175D TO 223.5 D; ORIENT 233.5D TO 345.0 D; BETWEEN 01-JUL-2012:00:00:00 AND 14-JUN-2013:00:00:00; BETWEEN 16-JUN-2013:00:00:00 AND 23-DEC-2013:00:00:00; BETWEEN 25-DEC-2013:00:00:00 AND 31-DEC-2013:00:00:00; Period 31.99590 D AND ZERO-PHASE HJD2454987.1590 Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					

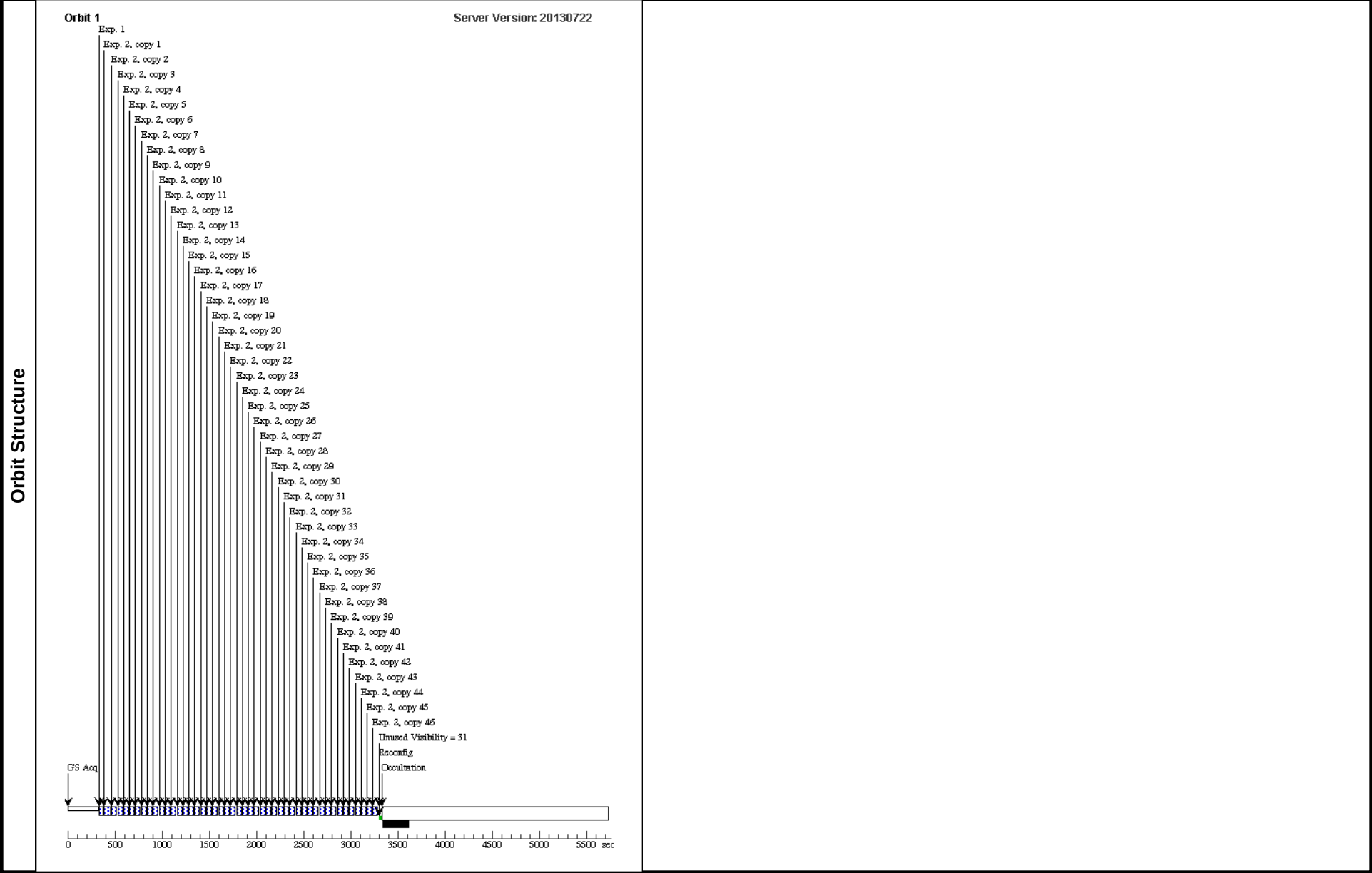
Proposal 12955 - Kepler11e (03) - Comparing Planet Formation Signatures in two Systems

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	wave_cal_k epler11d (WFC3IR.i m.413114)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	F132N	SAMP-SEQ=SPARS 10; NSAMP=3	PHASE 0.993 TO 0. 9945		14.970789 Secs (14.971 Secs) [==>]	[1]

Proposal 12955 - Kepler11e (03) - Comparing Planet Formation Signatures in two Systems

2	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11e 2 (16) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11e_2 (16), implementation Wed Aug 21 01:09:45 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 03; AFTER 03 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

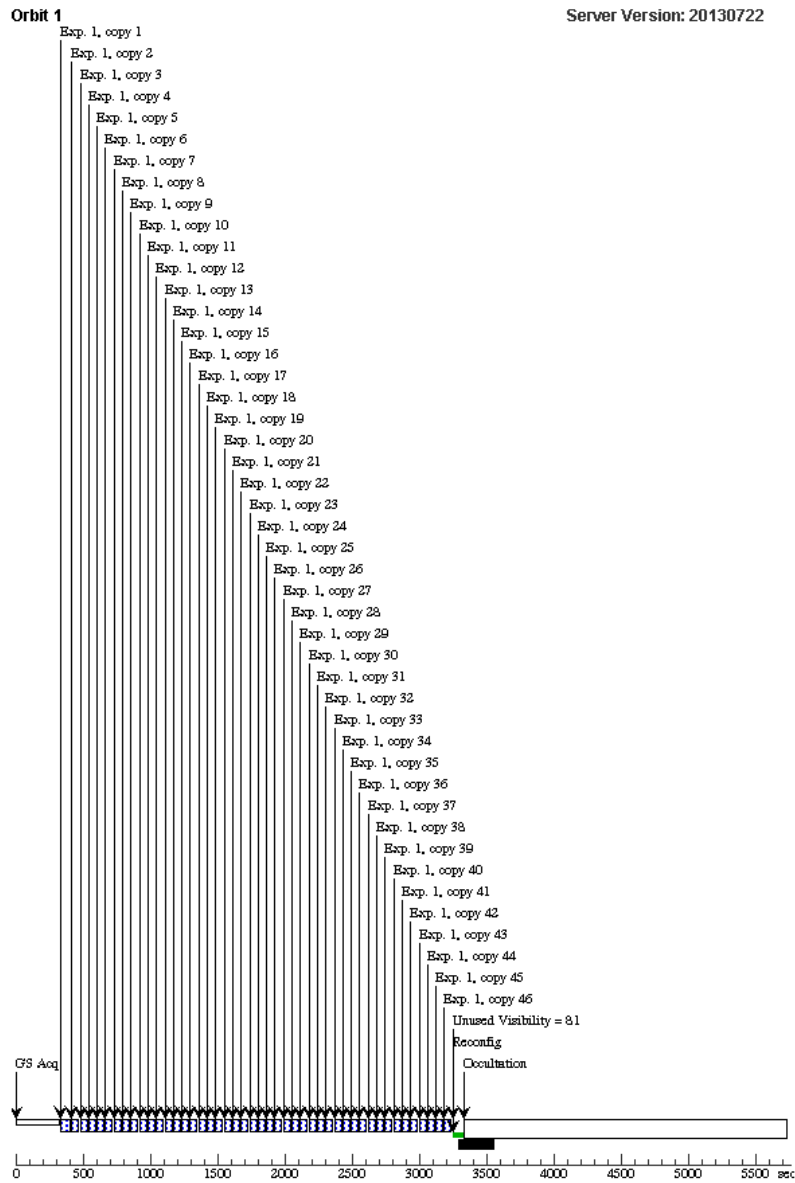
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11e 2 (16) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Orbit Structure



Proposal 12955 - Kepler11e 3 (17) - Comparing Planet Formation Signatures in two Systems

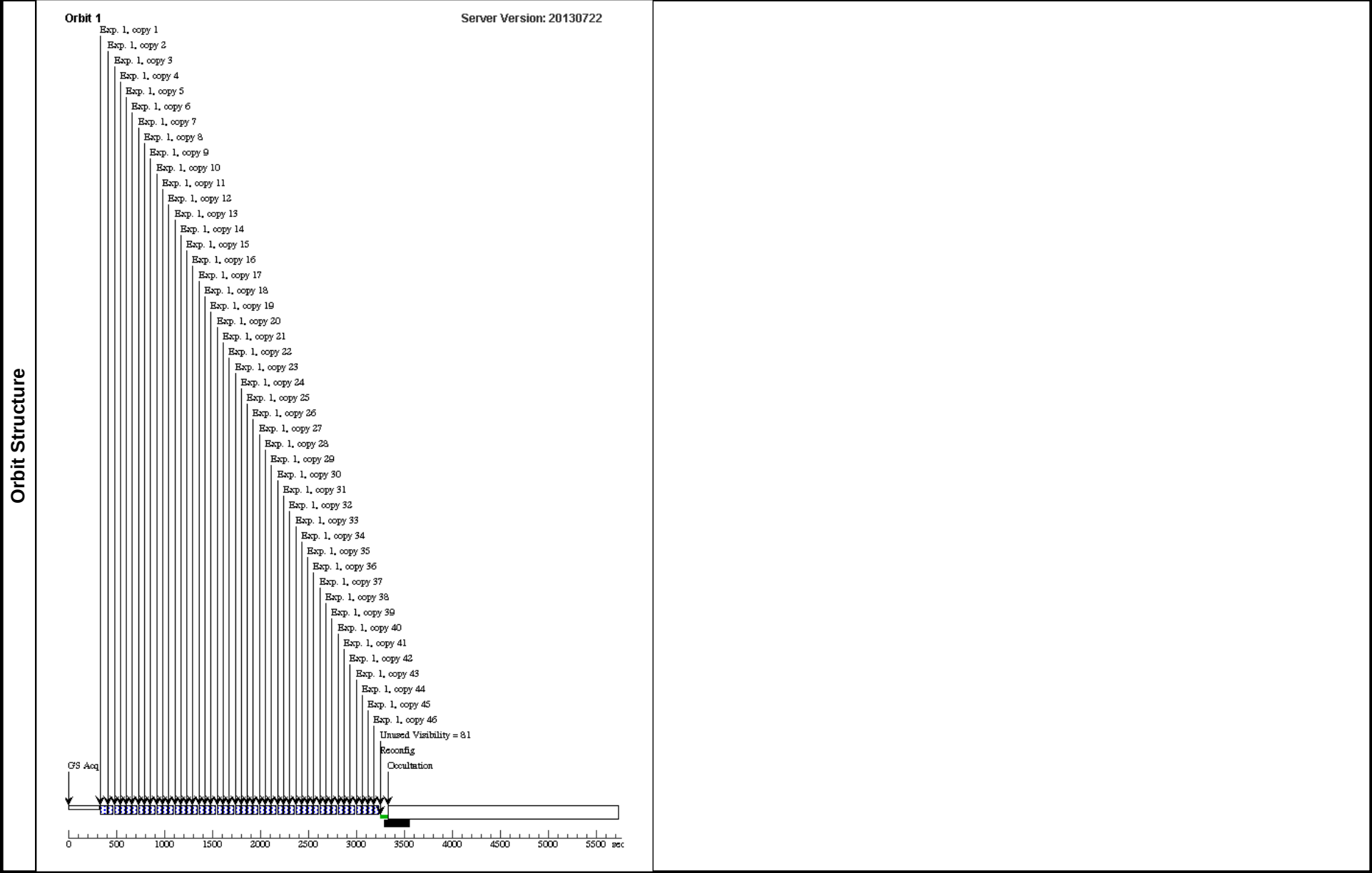
Visit	Proposal 12955, Kepler11e_3 (17), implementation Wed Aug 21 01:09:46 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 03; AFTER 16 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11e 3 (17) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11e 4 (18) - Comparing Planet Formation Signatures in two Systems

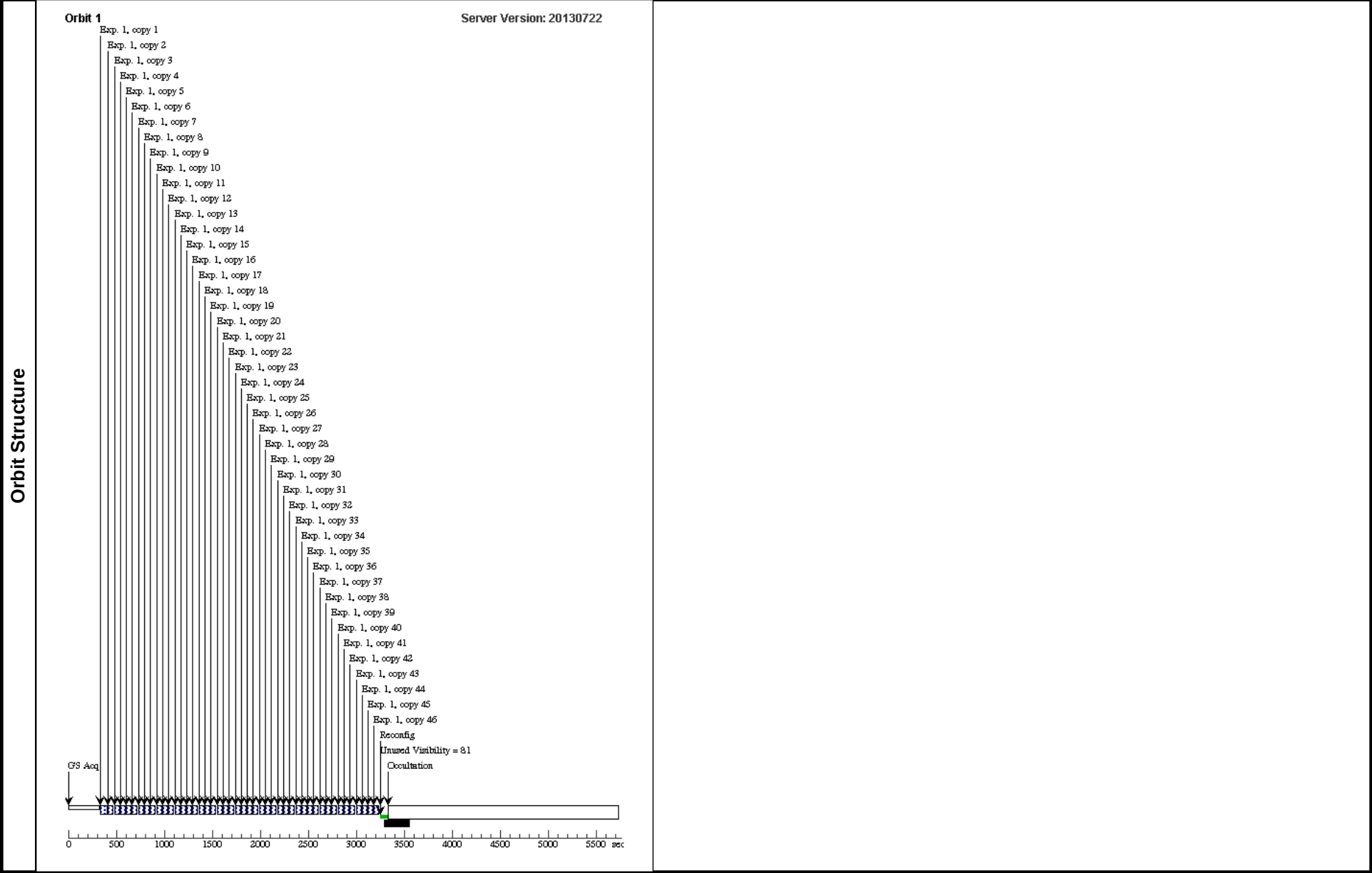
Visit	Proposal 12955, Kepler11e_4 (18), implementation Wed Aug 21 01:09:48 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 03; AFTER 17 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11e 4 (18) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11e 5 (19) - Comparing Planet Formation Signatures in two Systems

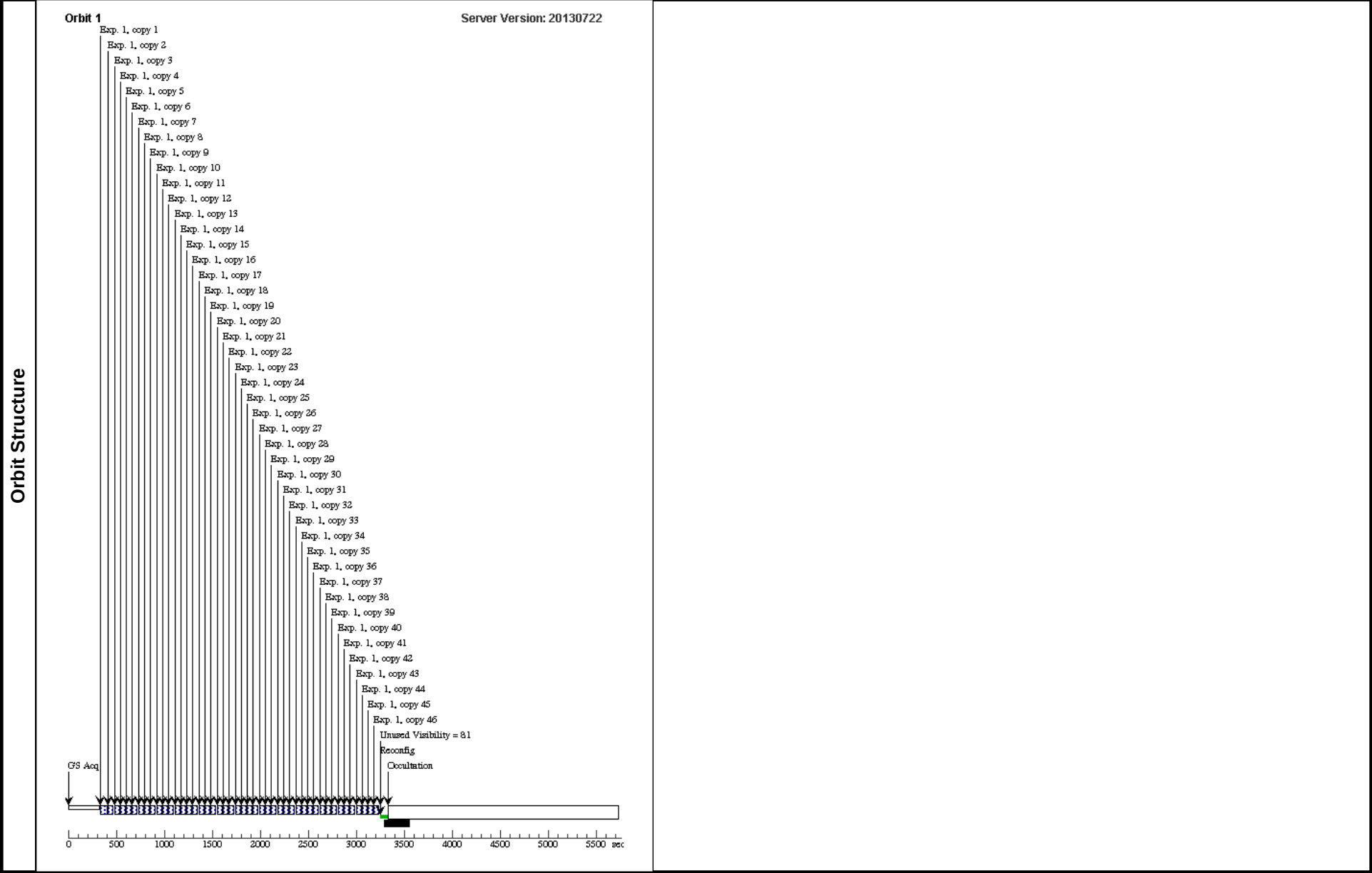
Visit	Proposal 12955, Kepler11e_5 (19), implementation Wed Aug 21 01:09:50 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 03; AFTER 18 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11e 5 (19) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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Proposal 12955 - Kepler11e 6 (20) - Comparing Planet Formation Signatures in two Systems

Visit	Proposal 12955, Kepler11e_6 (20), implementation Wed Aug 21 01:09:51 GMT 2013				
	Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR Special Requirements: SAME ORIENT AS 03; AFTER 19 BY 0 Orbits TO 1.1 Orbits <i>Comments: observe the primary eclipse [aka transit] of Kepler-11e (6 orbits total)</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	KEPLER-11	RA: 19 48 27.6220 (297.1150917d) Dec: +41 54 32.87 (41.90913d) Equinox: J2000	Proper Motion RA: -0.7 mas/yr Proper Motion Dec: -4.1 mas/yr Epoch of Position: 2000	V=13.7 J = 12.55, H = 12.24, K = 12.18
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>					

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit

Proposal 12955 - Kepler11e 6 (20) - Comparing Planet Formation Signatures in two Systems

1	grism_keple r11d (WFC3IR.sp .413115)	(1) KEPLER-11	WFC3/IR, MULTIACCUM, GRISM256	G141	NSAMP=3; SAMP-SEQ=SPAR S25	44.969893 Secs X 46 (2068.615 Sec s)	
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