



14615 - The Evaporating Exosphere of a Young Planet

Cycle: 24, Proposal Category: GO

(UV Initiative)

(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) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	3	07-Sep-2016 17:40:25.0	yes
02	(1) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	3	07-Sep-2016 17:40:28.0	yes
03	(1) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	2	07-Sep-2016 17:40:30.0	yes
04	(1) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	2	07-Sep-2016 17:40:31.0	yes
05	(1) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	3	07-Sep-2016 17:40:33.0	yes

<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>
06	(1) K2-25 WAVE	STIS/CCD STIS/FUV-MAMA	3	07-Sep-2016 17:40:36.0	yes

16 Total Orbits Used

ABSTRACT

Young planetary systems offer the opportunity to study the early stages of planetary and atmospheric evolution. Exoplanets in young stellar clusters, which have known ages, provide a valuable benchmark for models of these processes. K2-25b is a Neptune-sized exoplanet recently found to transit a mid M dwarf member of the Hyades open cluster (625 Myr from isochrone fitting). Atmospheric escape is thought to play an important role in sculpting the final compositions of low-mass planets like K2-25b. At 3.7 Earth-radii, K2-25b may represent the puffy precursor to the close-in super-Earths and mini-Neptunes found around older mid M dwarfs. This star's youth, proximity and high levels of activity offer a unique opportunity to study atmospheric evaporation. We propose to observe two transits of K2-25b at Lyman alpha wavelengths in order to determine the size of the planetary exosphere. We have simulated the expected Lyman alpha spectrum of this star using representative a stellar profile and interstellar absorption, and considered the intrinsic stellar variability. We estimate that we will obtain a S/N of 14.7 in the integrated flux in the blue wing of the Lyman alpha line, where the transit signal is expected. A 50% Lyman alpha transit depth was recently observed for Gl 436b, which is a Neptune-sized planet in orbit around an old, inactive M dwarf. Our observations will result in a 10.6 sigma detection of the planetary exosphere if the transit is the same depth as for Gl 436b.

OBSERVING DESCRIPTION

With this program, we will observe the exoplanet host K2-25 (an M dwarf) with STIS/G140M at Lyman-alpha wavelengths. We want to measure the transit of the planetary exosphere (escaping gas from the planet), which is expected to result in very deep, long-duration Lyman-alpha eclipses of the star. The expected eclipses are significantly longer than the white-light transit, and are expected to last around 10 hours. The goal of this program is to conclusively detect the Lyman-alpha eclipse and its shape, thereby constraining mass-loss from the planet.

We will observe two eclipses, with 8 HST orbits per eclipse over a +-10 hour baseline to either side of the white-light transit. HST orbits should be spread as evenly as possible over the 20-hour duration (see figure in phase 1 proposal). To avoid South Atlantic Anomaly crossings and aid scheduling, our nominal observing strategy is for each eclipse to be sampled by 3 blocks of 2-3 HST orbits each (pre-transit, in-transit, and post-transit). A pre-transit baseline of 2-3 HST orbits occurring roughly 10 hours before white-light transit is important to understand the intrinsic Lyman-

Proposal 14615 (STScI Edit Number: 1, Created: Wednesday, September 7, 2016 4:40:37 PM EST) - Overview

alpha variability. Ideally one HST orbit for each eclipse will occur during the white-light transit window. Extended coverage of roughly 10 hours pre- and post-transit is necessary to capture the full predicted behavior of the Lyman-alpha eclipse.

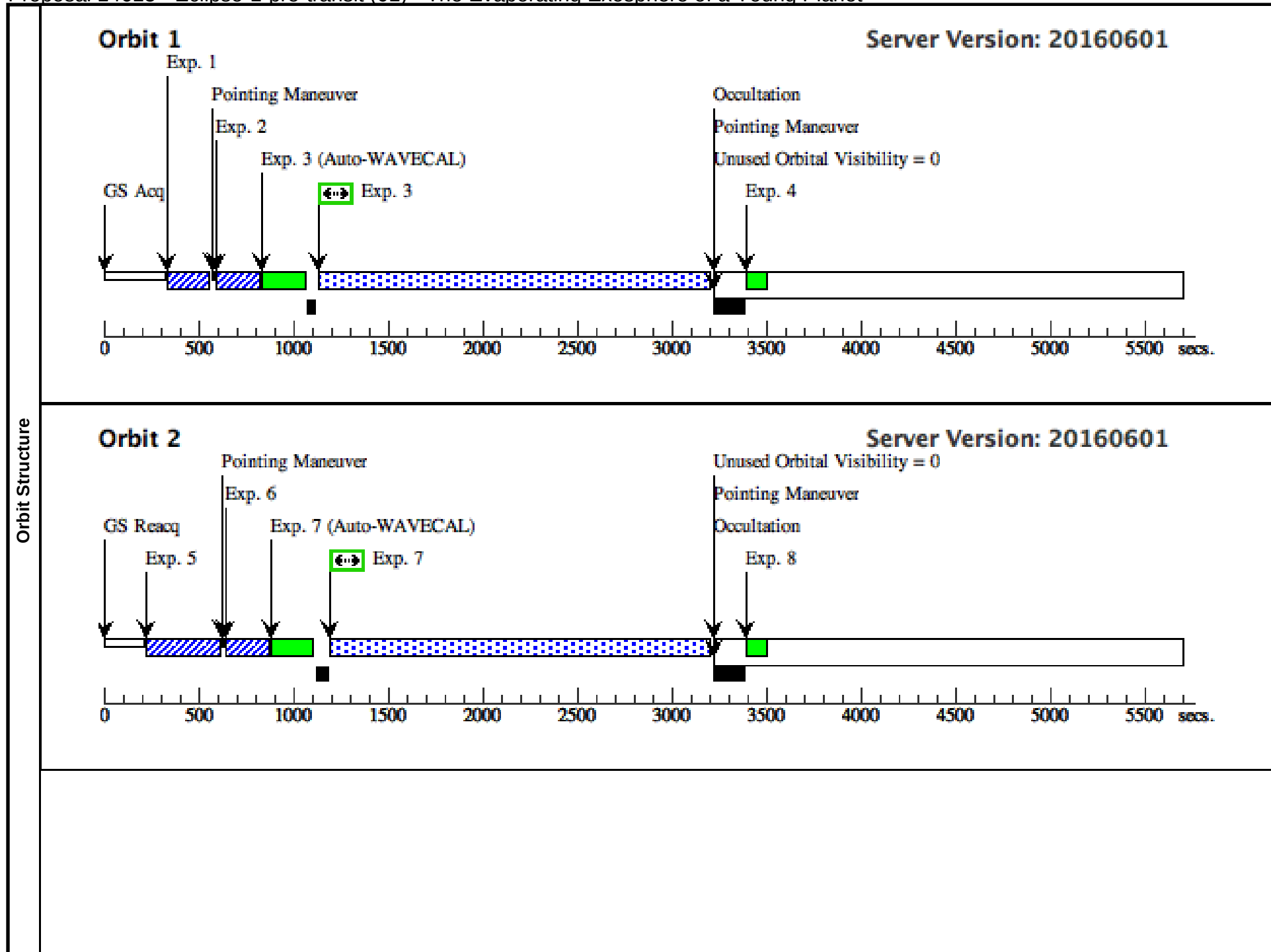
The instrument settings are similar to those in GO14462, however we will use the 52X0.1 aperture. The aperture will be centered on 1222 Angstroms and we will use TIME-TAG mode. We request an additional GO-WAVECAL after the conclusion of the science observation, during Earth-occultation.

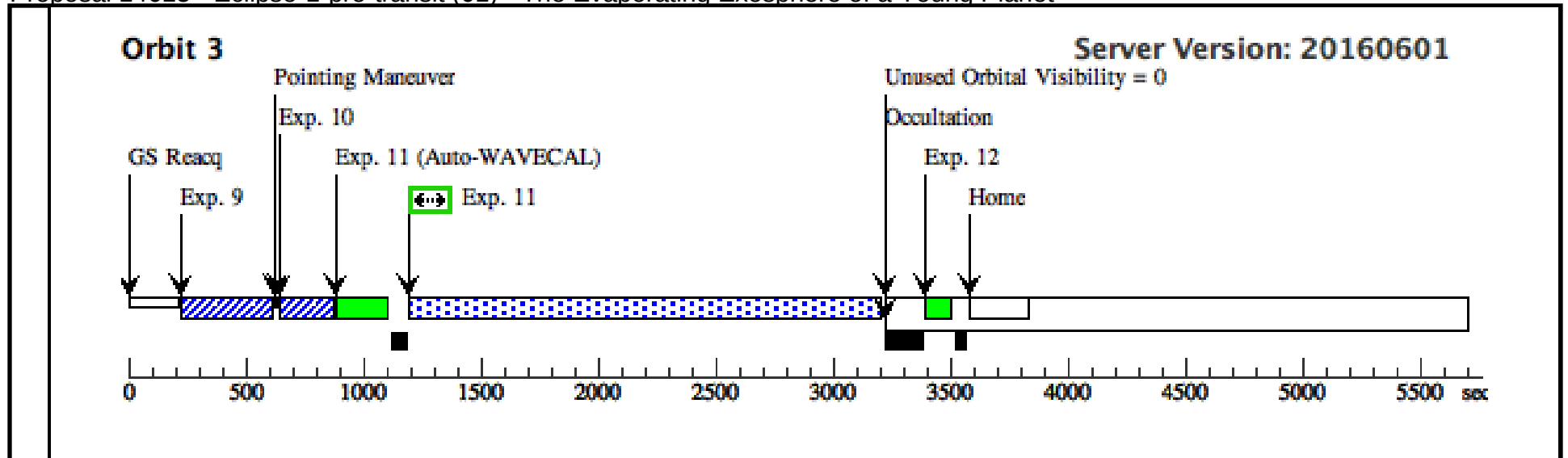
Proposal 14615 - Eclipse-1-pre-transit (01) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-1-pre-transit (01), implementation					Wed Sep 07 21:40:37 GMT 2016
	Diagnostic Status: No Diagnostics					
	Scientific Instruments: STIS/CCD, STIS/FUV-MAMA					
	Special Requirements: (none)					
	Comments: This visit corresponds to Eclipse 1, and is the first of three visits associated with this eclipse event. This visit should occur roughly 10-15 hours prior to the white-light transit event (specified by the period and phase entries for the "in transit" visit) in order provide a baseline Lyman-alpha flux level. The visit consists of 3 HST orbits.					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	K2-25	RA: 04 13 5.6200 (63.2734167d)	Proper Motion RA: 120.6 mas/yr	V=15.881+/-0.03	Reference Frame: ICRS
		Alt Name1:	Dec: +15 14 52.00 (15.24778d)	Proper Motion Dec: -21.1 mas/yr	B=17.76,	
		EPIC210490365	Equinox: J2000	Epoch of Position: 2000	g=16.73,	
		Alt Name2:		Radial Velocity: 38.64 km/sec	r=15.23,	
		2MASSJ04130560+1514			i=13.76,	
		520			z=12.82,	
					J=11.30,	
					H=10.73,	
					Ks=10.44	
	Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). Extended=NO					

Proposal 14615 - Eclipse-1-pre-transit (01) - The Evaporating Exosphere of a Young Planet

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.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 1-4 Non-Int in Eclipse-1-pre-transit (01)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK (STIS.ta.825 440)	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-1-pre-transit (01)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 1-4 Non-Int in Eclipse-1-pre-transit (01)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-1-pre-transit (01)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-1-pre-transit (01)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-1-pre-transit (01)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 5-8 Non-Int in Eclipse-1-pre-transit (01)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-1-pre-transit (01)	[==>]	[2]
	9	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 9-12 Non-Int in Eclipse-1-pre-transit (01)	0.2 Secs (0.2 Secs) [==>]	[3]
	10	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 9-12 Non-Int in Eclipse-1-pre-transit (01)	1.0 Secs (1 Secs) [==>]	[3]
	11	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 9-12 Non-Int in Eclipse-1-pre-transit (01)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[3]
	12	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 9-12 Non-Int in Eclipse-1-pre-transit (01)	[==>]	[3]



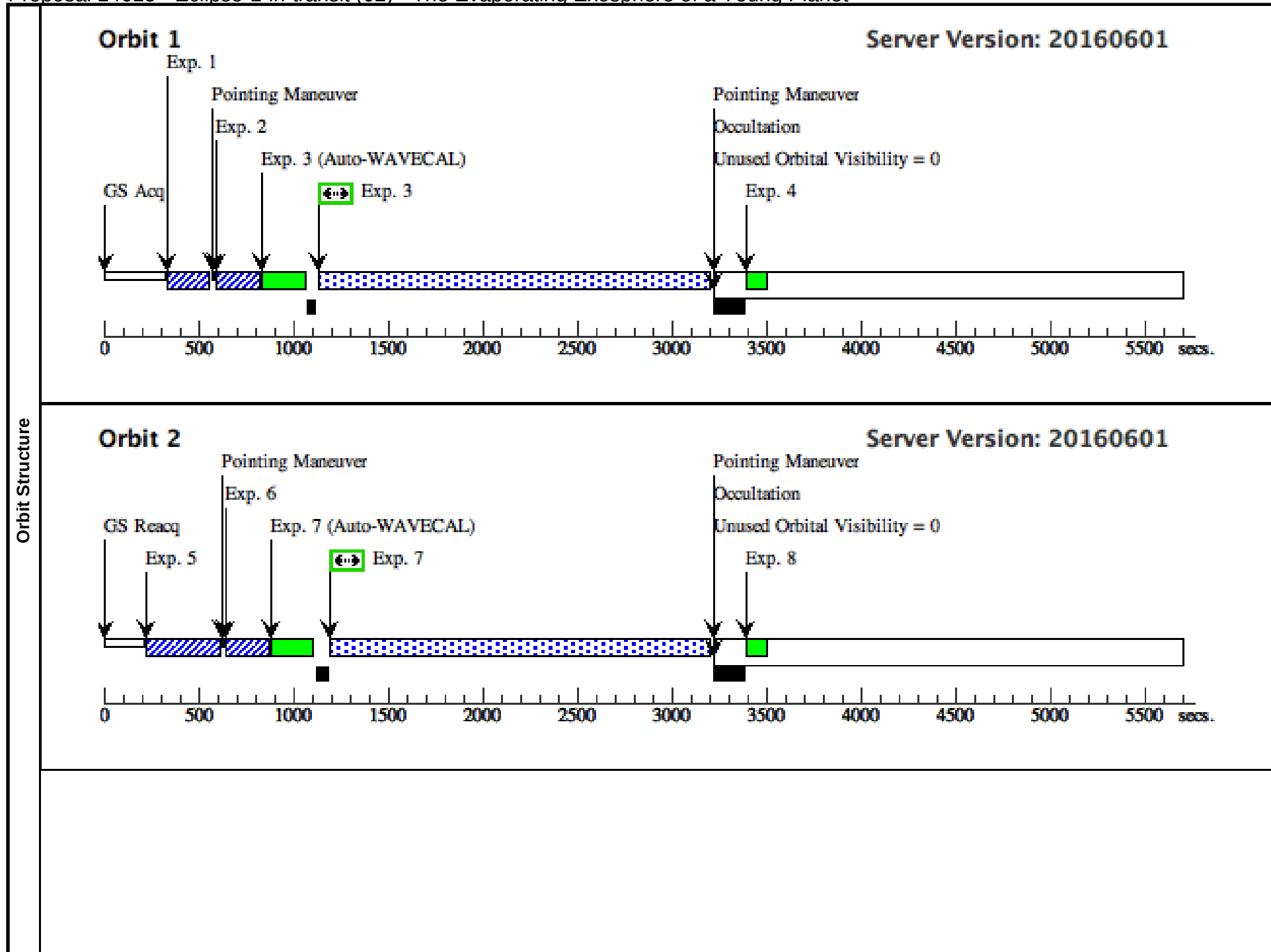


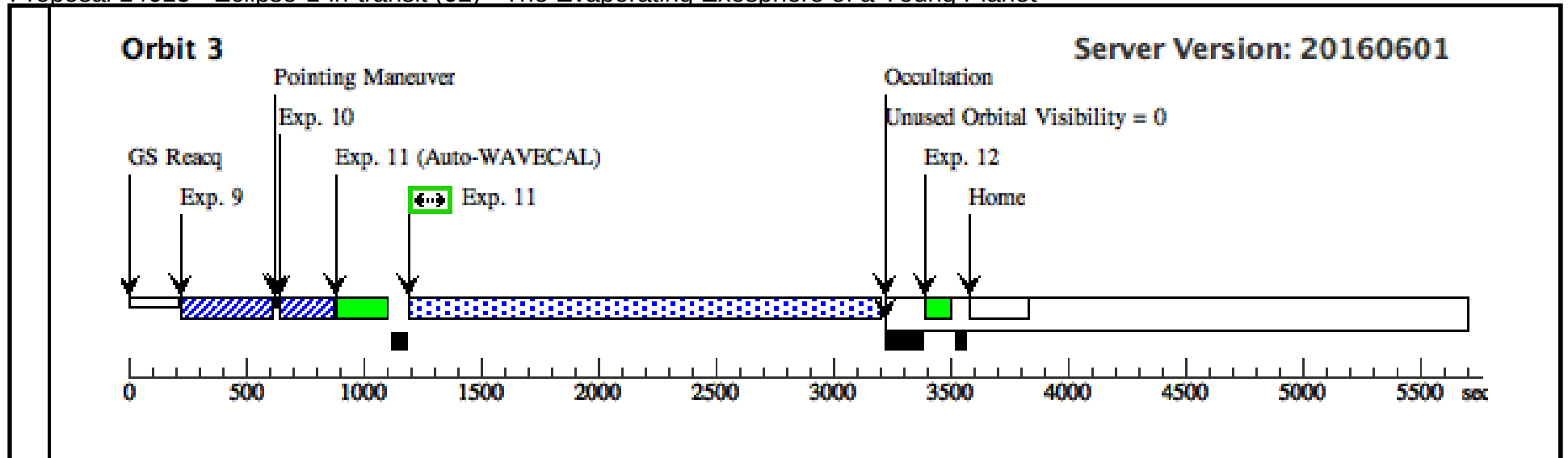
Proposal 14615 - Eclipse-1-in-transit (02) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-1-in-transit (02), implementation Wed Sep 07 21:40:38 GMT 2016				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: AFTER 01 BY 19 H TO 21 H; Period 3.484564 D AND ZERO-PHASE HJD2457062.57964 <i>Comments: This visit corresponds to Eclipse 1, and is the middle of three visits associated with this eclipse event. This visit corresponds to the white-light transit event specified by the period and phase. In the ideal case, one of the orbits should actually coincide to within 30min of phase=1. The visit consists of 3 HST orbits.</i>				
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	K2-25 Alt Name1: EPIC210490365 Alt Name2: 2MASSJ04130560+1514520	RA: 04 13 5.6200 (63.2734167d) Dec: +15 14 52.00 (15.24778d) Equinox: J2000	Proper Motion RA: 120.6 mas/yr Proper Motion Dec: -21.1 mas/yr Epoch of Position: 2000 Radial Velocity: 38.64 km/sec	V=15.881+/-0.03 B=17.76, g=16.73, r=15.23, i=13.76, z=12.82, J=11.30, H=10.73, Ks=10.44
<i>Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). Extended=NO</i>					

Proposal 14615 - Eclipse-1-in-transit (02) - The Evaporating Exosphere of a Young Planet

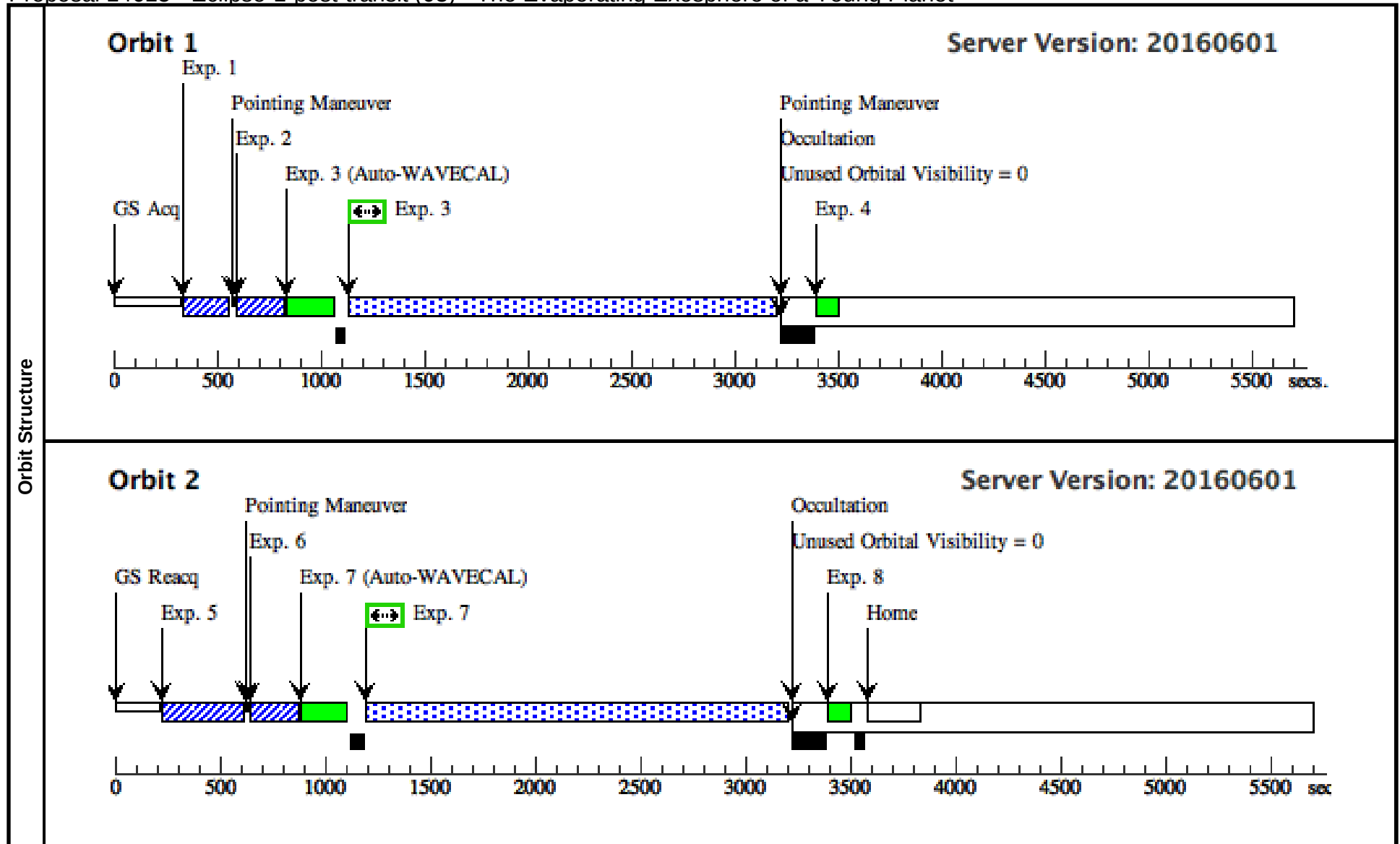
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT	PHASE 0.97 TO 0.9 95	Sequence 1-4 Non-Int in Eclipse-1-in-transit (02)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-1-in-transit (02)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 1-4 Non-Int in Eclipse-1-in-transit (02)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-1-in-transit (02)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-1-in-transit (02)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-1-in-transit (02)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 5-8 Non-Int in Eclipse-1-in-transit (02)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-1-in-transit (02)	[==>]	[2]
	9	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 9-12 Non-Int in Eclipse-1-in-transit (02)	0.2 Secs (0.2 Secs) [==>]	[3]
	10	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 9-12 Non-Int in Eclipse-1-in-transit (02)	1.0 Secs (1 Secs) [==>]	[3]
	11	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 9-12 Non-Int in Eclipse-1-in-transit (02)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[3]
	12	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 9-12 Non-Int in Eclipse-1-in-transit (02)	[==>]	[3]





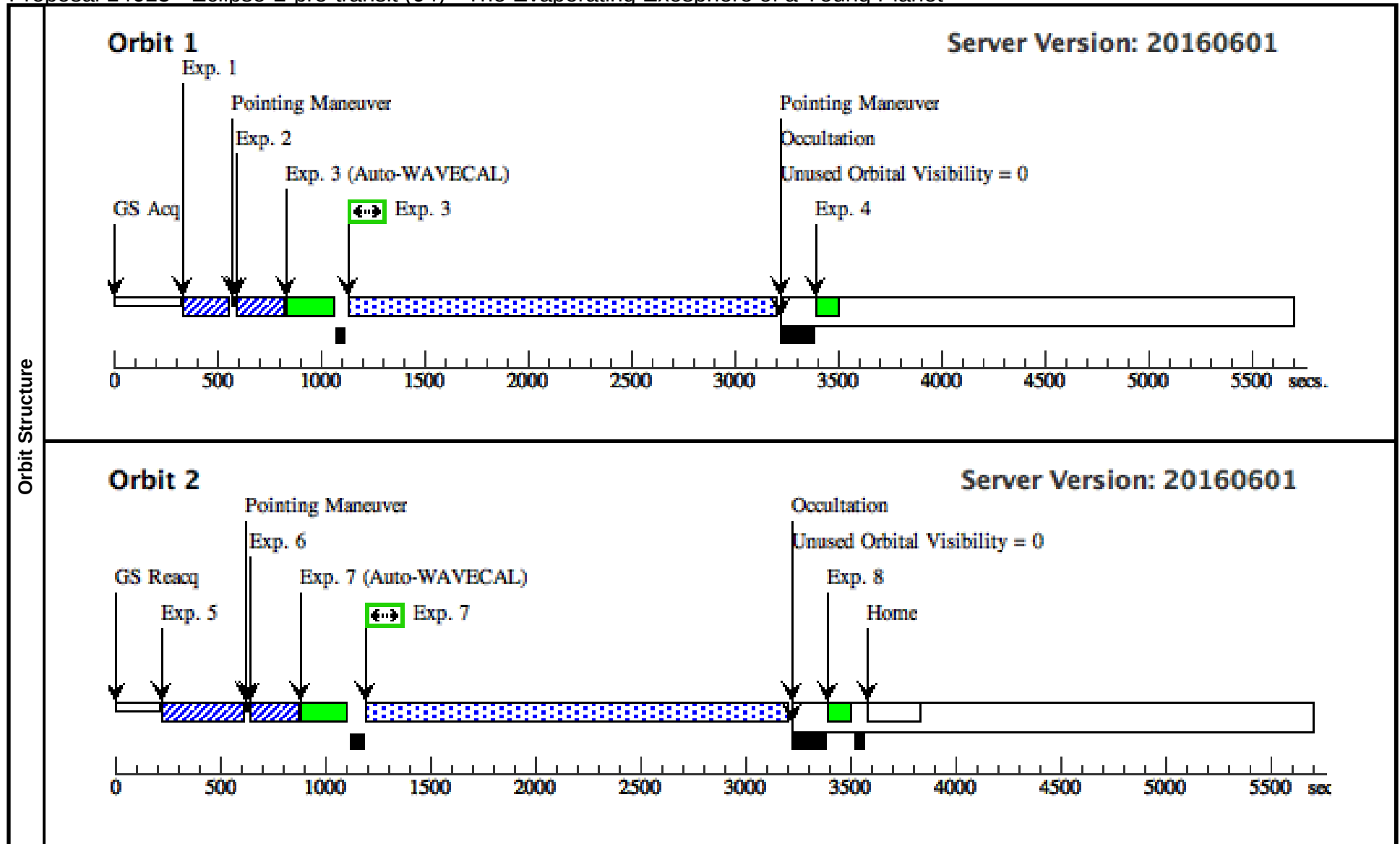
Proposal 14615 - Eclipse-1-post-transit (03) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-1-post-transit (03), implementation							Wed Sep 07 21:40:38 GMT 2016		
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: AFTER 02 BY 5 H TO 7 H Comments: This visit corresponds to Eclipse 1, and is the last of three visits associated with this eclipse event. This visit should occur roughly 10 hours after to the white-light transit event. The visit consists of 2 HST orbits.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	K2-25 Alt Name1: EPIC210490365 Alt Name2: 2MASSJ04130560+1514520	RA: 04 13 5.6200 (63.2734167d) Dec: +15 14 52.00 (15.24778d) Equinox: J2000	Proper Motion RA: 120.6 mas/yr Proper Motion Dec: -21.1 mas/yr Epoch of Position: 2000 Radial Velocity: 38.64 km/sec	V=15.881+/-0.03 B=17.76, g=16.73, r=15.23, i=13.76, z=12.82, J=11.30, H=10.73, Ks=10.44	Reference Frame: ICRS				
Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). 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.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 1-4 Non-Int in Eclipse-1-post-tr ansit (03)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-1-post-tr ansit (03)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 1-4 Non-Int in Eclipse-1-post-tr ansit (03)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-1-post-tr ansit (03)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-1-post-tr ansit (03)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-1-post-tr ansit (03)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 5-8 Non-Int in Eclipse-1-post-tr ansit (03)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-1-post-tr ansit (03)	[==>]	[2]



Proposal 14615 - Eclipse-2-pre-transit (04) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-2-pre-transit (04), implementation						Wed Sep 07 21:40:38 GMT 2016			
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: (none) <i>Comments: This visit corresponds to Eclipse 2 and is the first of three visits associated with this eclipse event. This visit should occur roughly 10 hours prior to the white-light transit event (specified by the period and phase entries for the "in transit" visit) in order provide a baseline Lyman-alpha flux level. The visit consists of 2 HST orbits.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	K2-25 Alt Name1: EPIC210490365 Alt Name2: 2MASSJ04130560+1514520	RA: 04 13 5.6200 (63.2734167d) Dec: +15 14 52.00 (15.24778d) Equinox: J2000	Proper Motion RA: 120.6 mas/yr Proper Motion Dec: -21.1 mas/yr Epoch of Position: 2000 Radial Velocity: 38.64 km/sec	V=15.881+/-0.03 B=17.76, g=16.73, r=15.23, i=13.76, z=12.82, J=11.30, H=10.73, Ks=10.44	Reference Frame: ICRS				
<i>Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). Extended=NO</i>										
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.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 1-4 Non-Int in Eclipse-2-pre-transit (04)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK (STIS.ta.825 440)	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-2-pre-transit (04)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=2000		Sequence 1-4 Non-Int in Eclipse-2-pre-transit (04)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-2-pre-transit (04)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-2-pre-transit (04)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-2-pre-transit (04)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=2000		Sequence 5-8 Non-Int in Eclipse-2-pre-transit (04)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-2-pre-transit (04)	[==>]	[2]

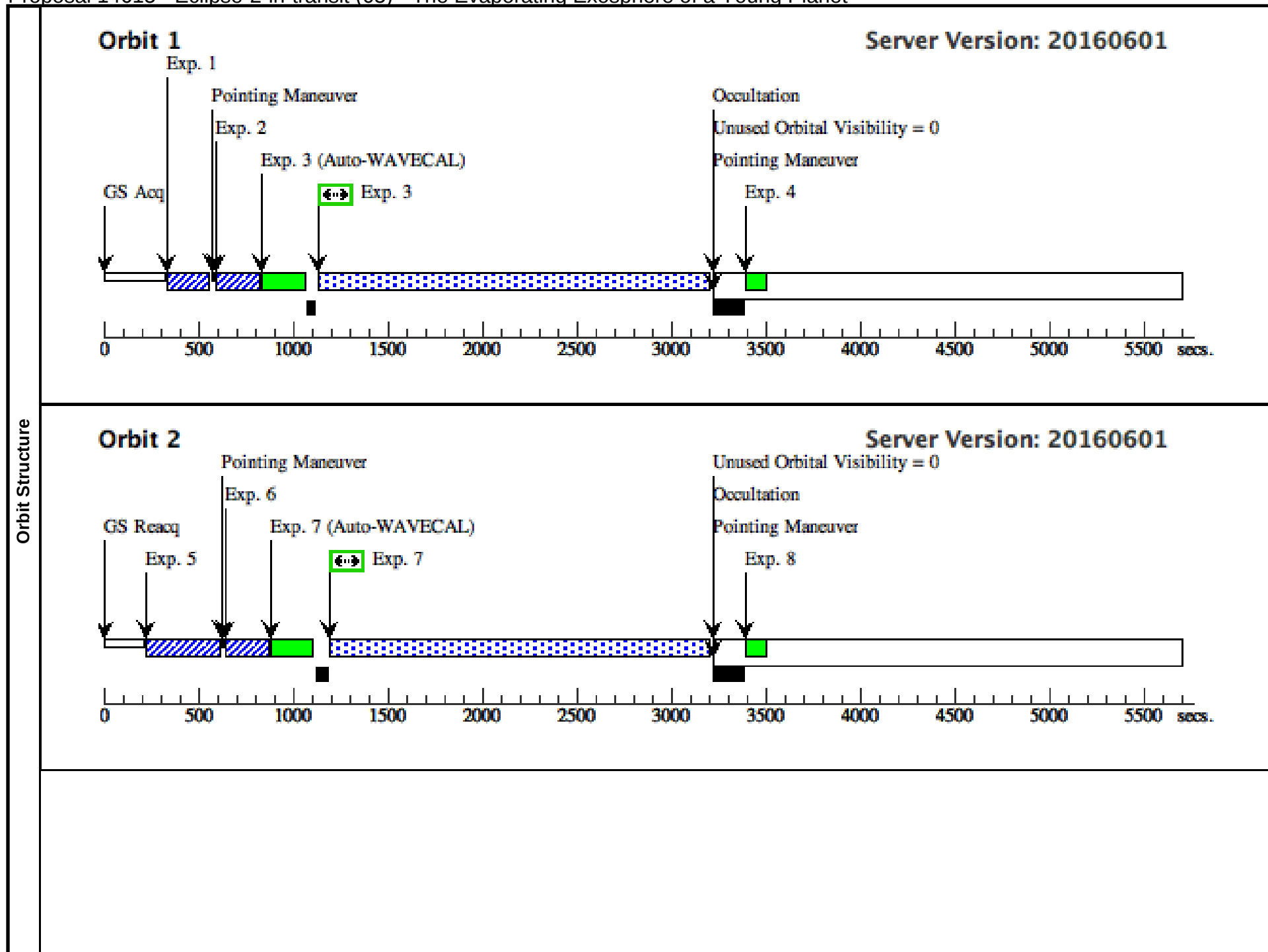


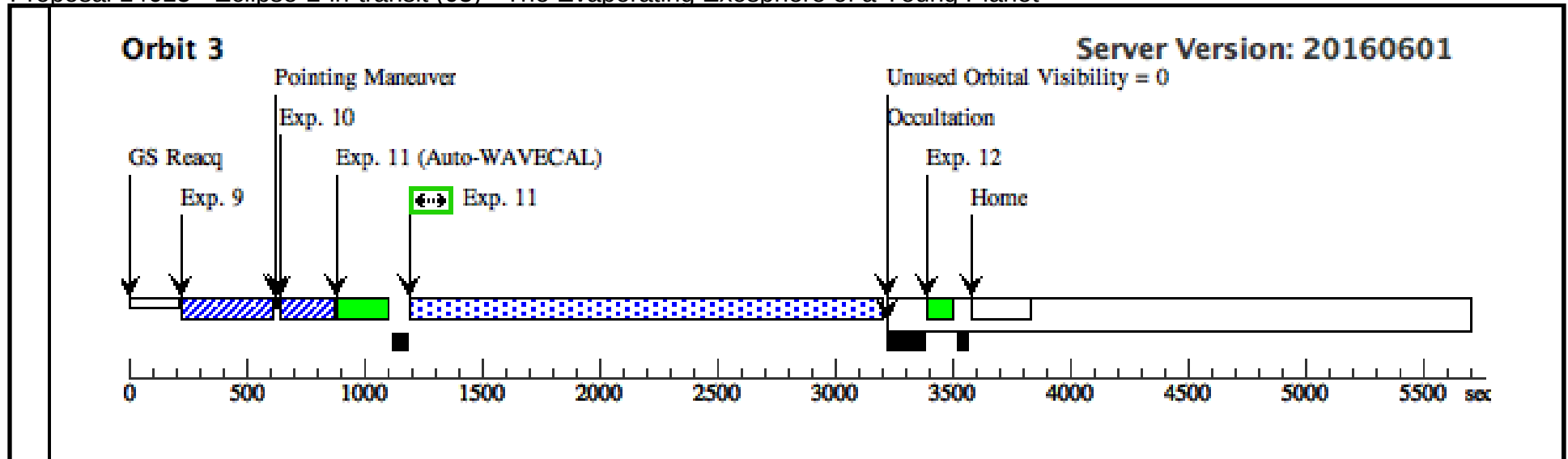
Proposal 14615 - Eclipse-2-in-transit (05) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-2-in-transit (05), implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: AFTER 04 BY 6 H TO 8 H; Period 3.484564 D AND ZERO-PHASE HJD2457062.57964 <i>Comments: This visit corresponds to Eclipse 2, and is the middle of three visits associated with this eclipse event. This visit should occur during the white-light transit event specified by the period and phase. The visit consists of 3 HST orbits.</i>					Wed Sep 07 21:40:38 GMT 2016
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	K2-25 Alt Name1: EPIC210490365 Alt Name2: 2MASSJ04130560+1514520	RA: 04 13 5.6200 (63.2734167d) Dec: +15 14 52.00 (15.24778d) Equinox: J2000	Proper Motion RA: 120.6 mas/yr Proper Motion Dec: -21.1 mas/yr Epoch of Position: 2000 Radial Velocity: 38.64 km/sec	V=15.881+/-0.03 B=17.76, g=16.73, r=15.23, i=13.76, z=12.82, J=11.30, H=10.73, Ks=10.44	Reference Frame: ICRS
<i>Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). Extended=NO</i>						

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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.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT	PHASE 0.95 TO 0.9 7	Sequence 1-4 Non-Int in Eclipse-2-in-transit (05)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-2-in-transit (05)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 1-4 Non-Int in Eclipse-2-in-transit (05)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-2-in-transit (05)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-2-in-transit (05)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-2-in-transit (05)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 5-8 Non-Int in Eclipse-2-in-transit (05)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-2-in-transit (05)	[==>]	[2]
	9	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 9-12 Non-Int in Eclipse-2-in-transit (05)	0.2 Secs (0.2 Secs) [==>]	[3]
	10	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 9-12 Non-Int in Eclipse-2-in-transit (05)	1.0 Secs (1 Secs) [==>]	[3]
	11	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 9-12 Non-Int in Eclipse-2-in-transit (05)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[3]
	12	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 9-12 Non-Int in Eclipse-2-in-transit (05)	[==>]	[3]





Proposal 14615 - Eclipse-2-post-transit (06) - The Evaporating Exosphere of a Young Planet

Visit	Proposal 14615, Eclipse-2-post-transit (06), implementation					Wed Sep 07 21:40:38 GMT 2016
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: AFTER 05 BY 16 H TO 18 H <i>Comments: This visit corresponds to Eclipse 2, and is the last of three visits associated with this eclipse event. This visit should commence roughly 5 hours after the white-light transit event. The visit consists of 3 HST orbits.</i>					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	K2-25 Alt Name1: EPIC210490365 Alt Name2: 2MASSJ04130560+1514520	RA: 04 13 5.6200 (63.2734167d) Dec: +15 14 52.00 (15.24778d) Equinox: J2000	Proper Motion RA: 120.6 mas/yr Proper Motion Dec: -21.1 mas/yr Epoch of Position: 2000 Radial Velocity: 38.64 km/sec	V=15.881+/-0.03 B=17.76, g=16.73, r=15.23, i=13.76, z=12.82, J=11.30, H=10.73, Ks=10.44	Reference Frame: ICRS
<i>Comments: RA and Dec from 2MASS coordinates corrected to epoch 2000 using the measured proper motions. Proper motion in RA and Dec were entered by hand using the values from Roser et al. (2011) as quoted by Mann et al. (2016). V magnitude from APASS as quoted by Mann et al. (2016), remaining magnitudes also reported in that work. RV from Mann et al. (2016). Errors in RA and Dec include the errors on the proper motion (+-3mas/yr*17yrs) added in quadrature to the uncertainties on the 2MASS positions (+-0.06as). Extended=NO</i>						

Proposal 14615 - Eclipse-2-post-transit (06) - The Evaporating Exosphere of a Young Planet

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.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 1-4 Non-Int in Eclipse-2-post-transit (06)	0.2 Secs (0.2 Secs) [==>]	[1]
	2	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 1-4 Non-Int in Eclipse-2-post-transit (06)	1.0 Secs (1 Secs) [==>]	[1]
	3	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 1-4 Non-Int in Eclipse-2-post-transit (06)	3000 Secs (2054 Secs) [==>2054.0 Secs]	[1]
	4	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 1-4 Non-Int in Eclipse-2-post-transit (06)	[==>]	[1]
	5	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 5-8 Non-Int in Eclipse-2-post-transit (06)	0.2 Secs (0.2 Secs) [==>]	[2]
	6	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 5-8 Non-Int in Eclipse-2-post-transit (06)	1.0 Secs (1 Secs) [==>]	[2]
	7	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 5-8 Non-Int in Eclipse-2-post-transit (06)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[2]
	8	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 5-8 Non-Int in Eclipse-2-post-transit (06)	[==>]	[2]
	9	ACQ (STIS.ta.825 423)	(1) K2-25	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT		Sequence 9-12 Non-Int in Eclipse-2-post-transit (06)	0.2 Secs (0.2 Secs) [==>]	[3]
	10	ACQ/PEAK	(1) K2-25	STIS/CCD, ACQ/PEAK, 52X0.1	MIRROR			Sequence 9-12 Non-Int in Eclipse-2-post-transit (06)	1.0 Secs (1 Secs) [==>]	[3]
	11	SCIENCE (STIS.sp.82 5364)	(1) K2-25	STIS/FUV-MAMA, TIME-TAG, 52X0.1	G140M 1222 A	BUFFER-TIME=20 00		Sequence 9-12 Non-Int in Eclipse-2-post-transit (06)	3000 Secs (1993 Secs) [==>1993.0 Secs]	[3]
	12	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140M 1222 A			Sequence 9-12 Non-Int in Eclipse-2-post-transit (06)	[==>]	[3]

