17699 - Can Lyman-alpha transits quantitatively test atmospheric escape models?

Cycle: 32, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

INVESTIGATORS

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Dr. Jessica Spake (CoI)	Carnegie Institution of Washington

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:12.0	yes
02	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	3	13-May-2025 13:00:13.0	yes
03	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:14.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
04	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	3	13-May-2025 13:00:15.0	yes
05	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:15.0	yes
06	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	3	13-May-2025 13:00:16.0	yes
07	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:17.0	yes
08	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	3	13-May-2025 13:00:18.0	yes
09	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:18.0	yes
10	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	2	13-May-2025 13:00:19.0	yes
11	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:20.0	yes
12	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	2	13-May-2025 13:00:20.0	yes
13	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	1	13-May-2025 13:00:21.0	yes
14	(1) HD-15337 WAVE	STIS/CCD STIS/FUV-MAMA	2	13-May-2025 13:00:22.0	yes

25 Total Orbits Used

ABSTRACT

The loss of sub Neptune H/He envelopes is believed to be a key mechanism for forming super Earths and producing the bimodal radius distribution of small planets. The two leading hypotheses, photoevaporation (PE) and core powered mass loss (CPML), both produce results consistent with the observed exoplanet population, yet imply dramatically different atmospheric histories of small planets. Thus, escape models need to be validated with

direct observations. Recently, it has been suggested that Lyman-alpha tail lengths provide such a test. Before they can be used to analyze escape processes across a large population of planets, these tail models must be validated. In this framework, the Lyman-alpha tail length decreases with increasing EUV flux. We will test this hypothesis by extending the range of EUV flux probed by full-duration Lyman-alpha transits with an additional planet.

OBSERVING DESCRIPTION

We will conduct all observations with STIS G140M/1222, a configuration with extensive heritage that limits contamination by geocoronal Lya airglow. HD 15337 has been previosuly observed with STIS G140L. To measure the tail, we stagger five 4-orbit visits. To guard against evolution in the out-of-transit Lya flux between these sets, we will conduct one-orbit pre-transit visit approximately 17-24~h (again, timing limited by SAA passages) ahead of each 4-orbit transit visit.

Visit

Proposal 17699, Pre-transit 1 (01), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

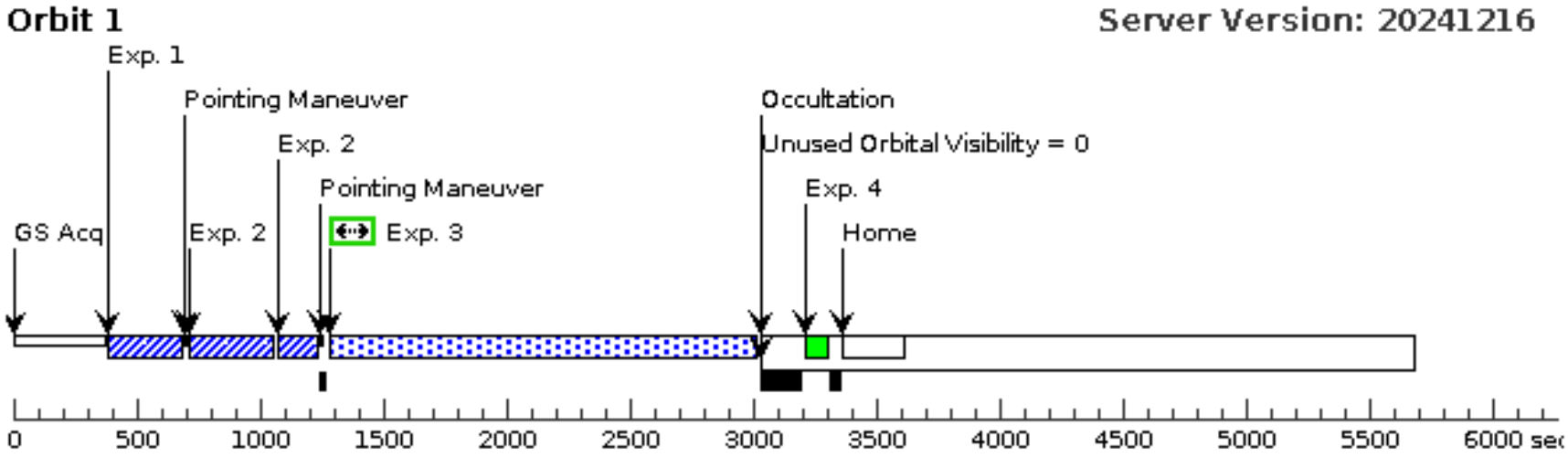
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	 ***[1]***
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	 ***[1]***
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	 ***[1]***
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 17699, Transit 1 (02), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER_01 BY 0.5 D TO 2.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

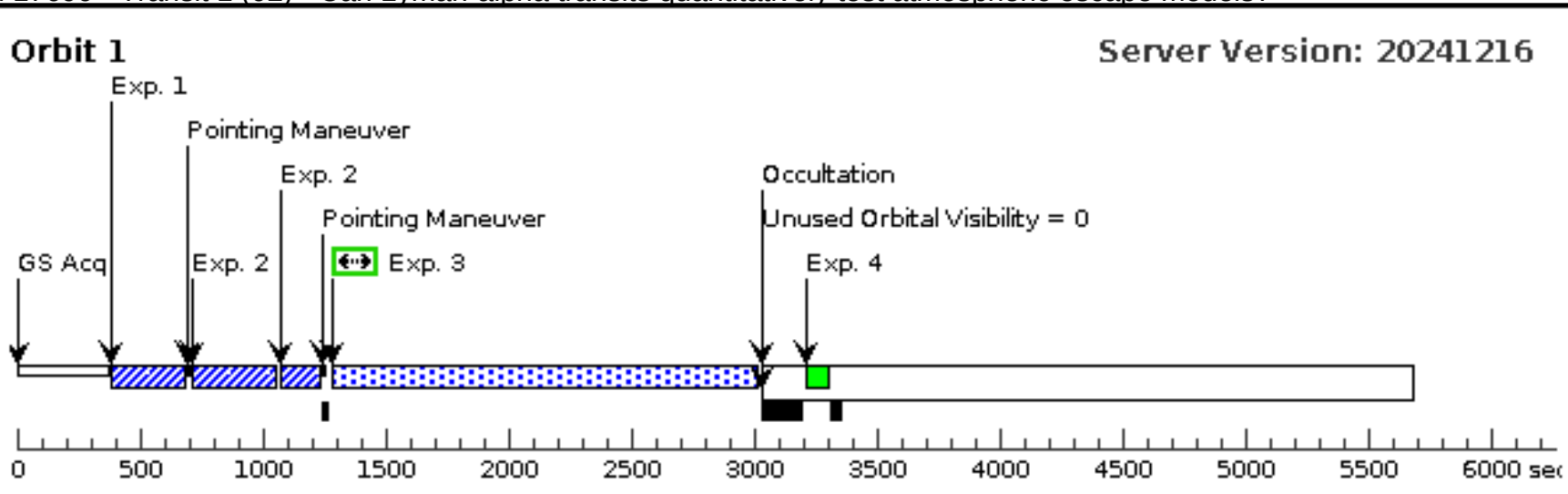
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

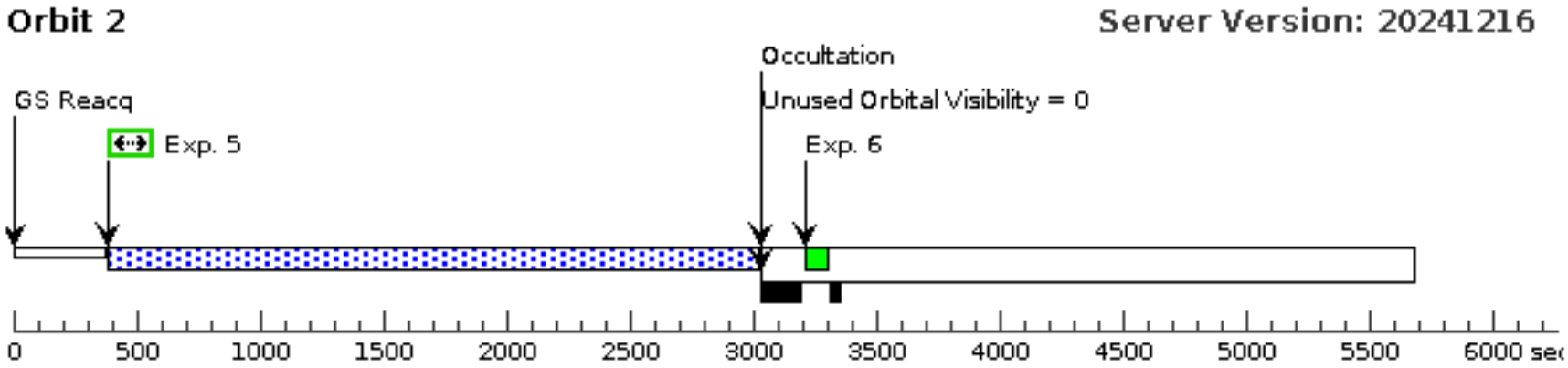
Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

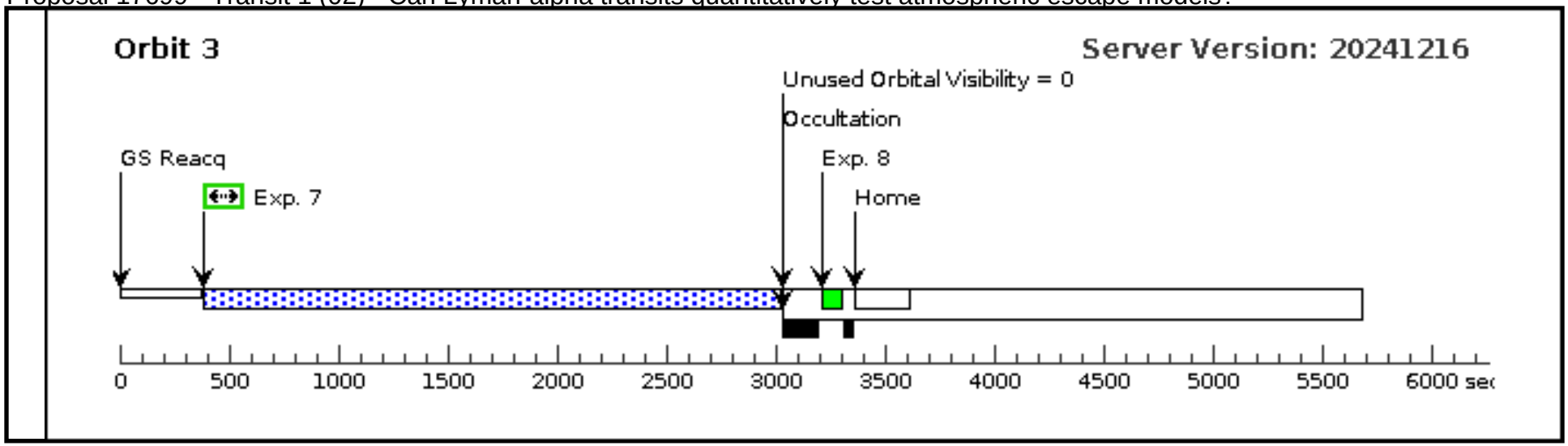
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.99151172 TO 0.99878739; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			2000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*
7	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[3]*
8	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[3]*

Orbit Structure



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GS Reacq
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Home
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5500
6000 sec

Visit

Proposal 17699, Pre-transit 2 (03), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

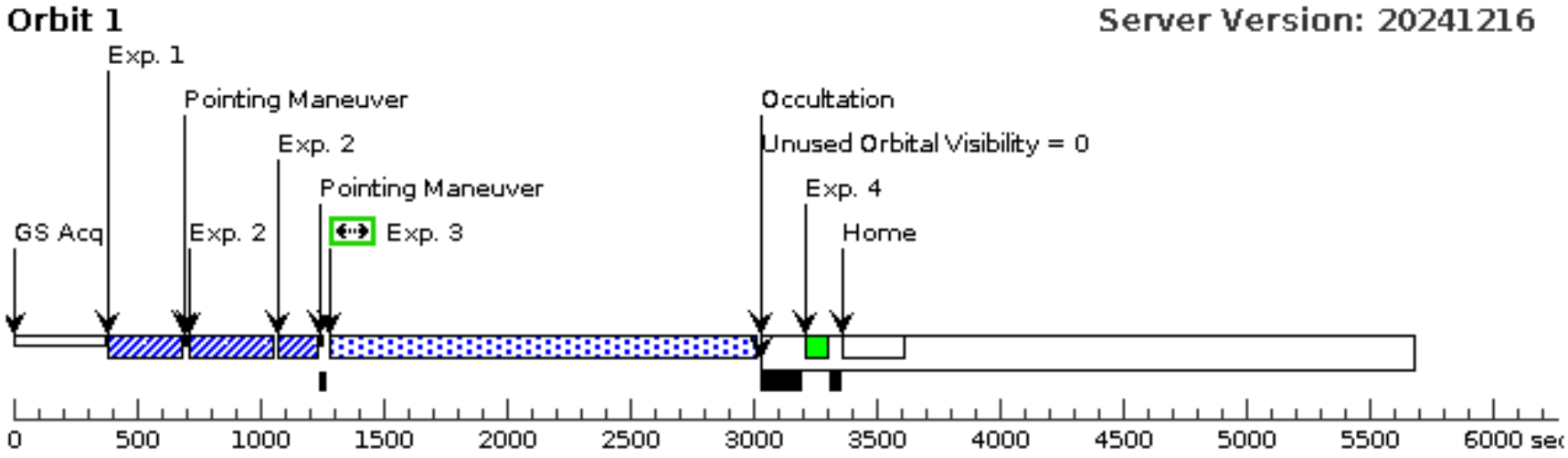
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	 ***[1]***
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	 ***[1]***
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	 ***[1]***
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 17699, Transit 2 (04), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER_03 BY 0.5 D TO 2.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

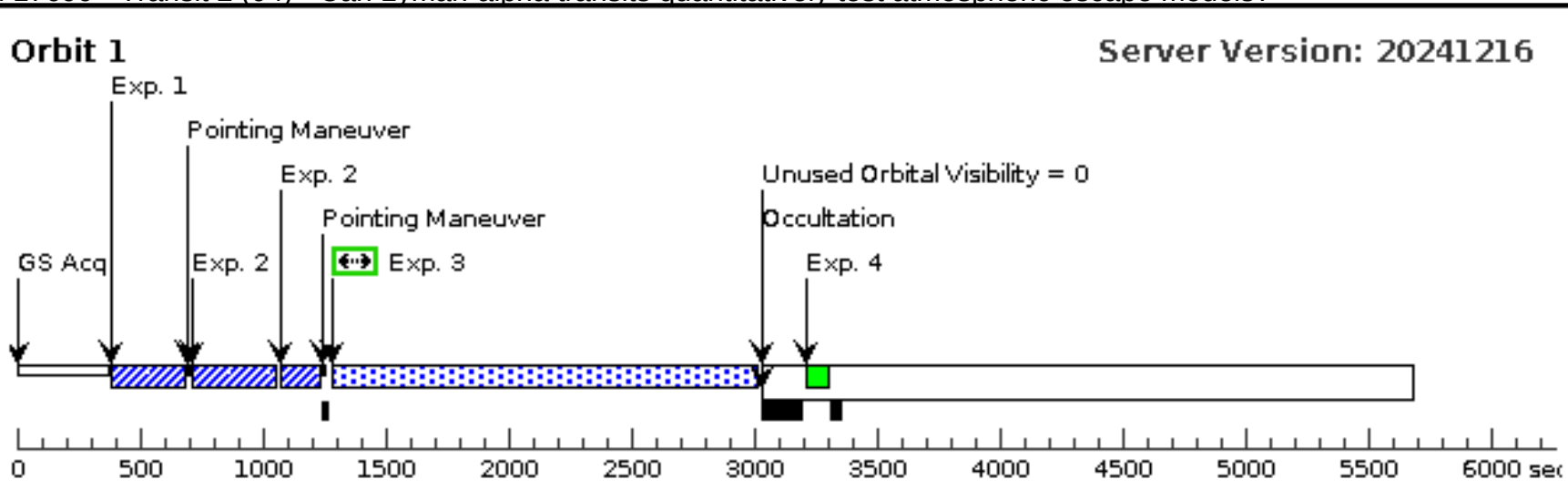
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

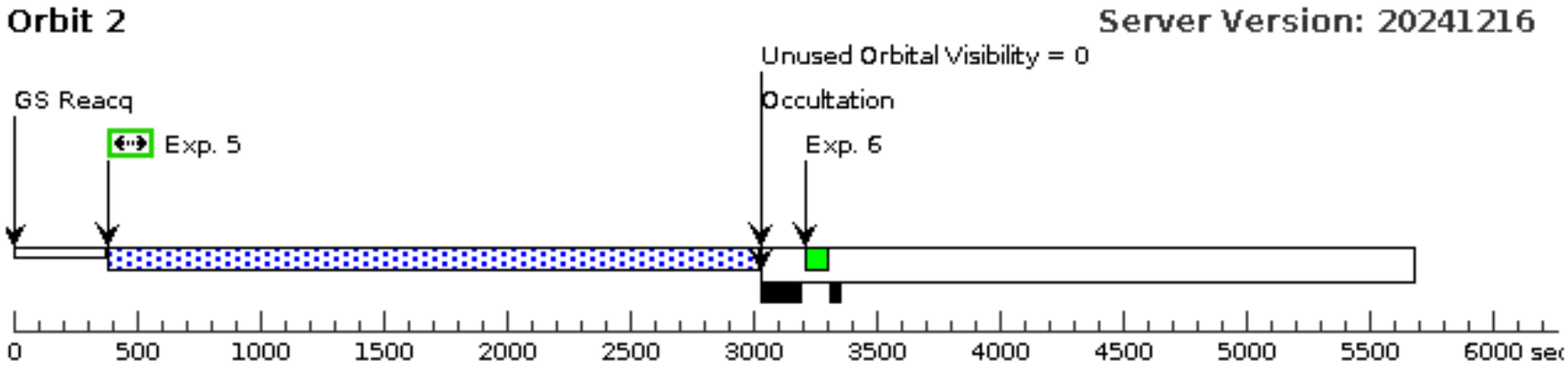
Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

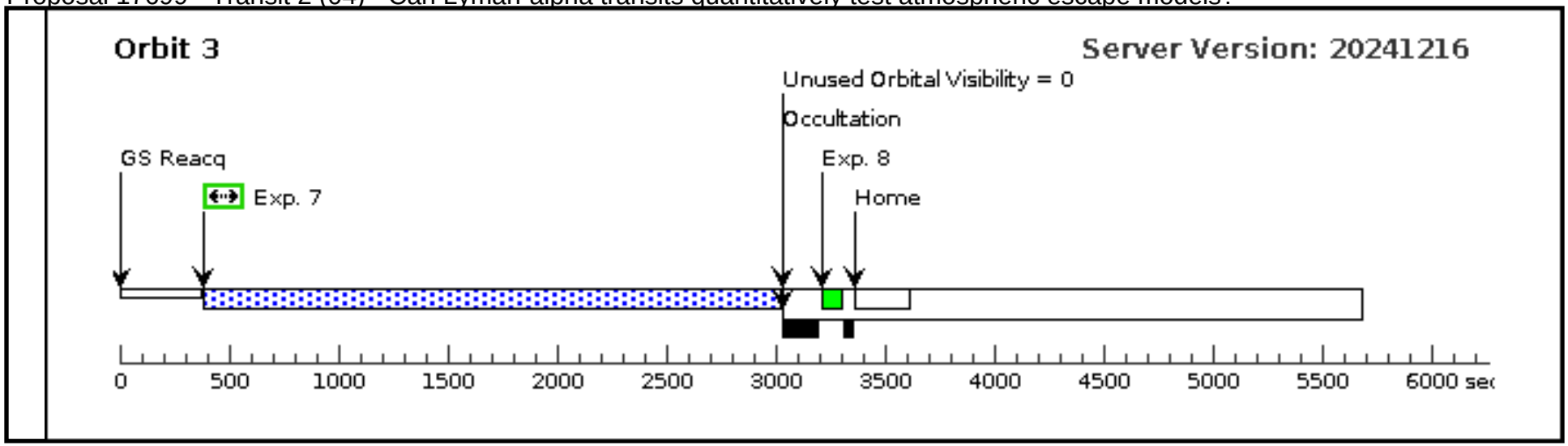
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.00000 TO 0.00848828; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*
7	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[3]*
8	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[3]*

Orbit Structure



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Occultation
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Visit

Proposal 17699, Pre-transit 3 (05), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

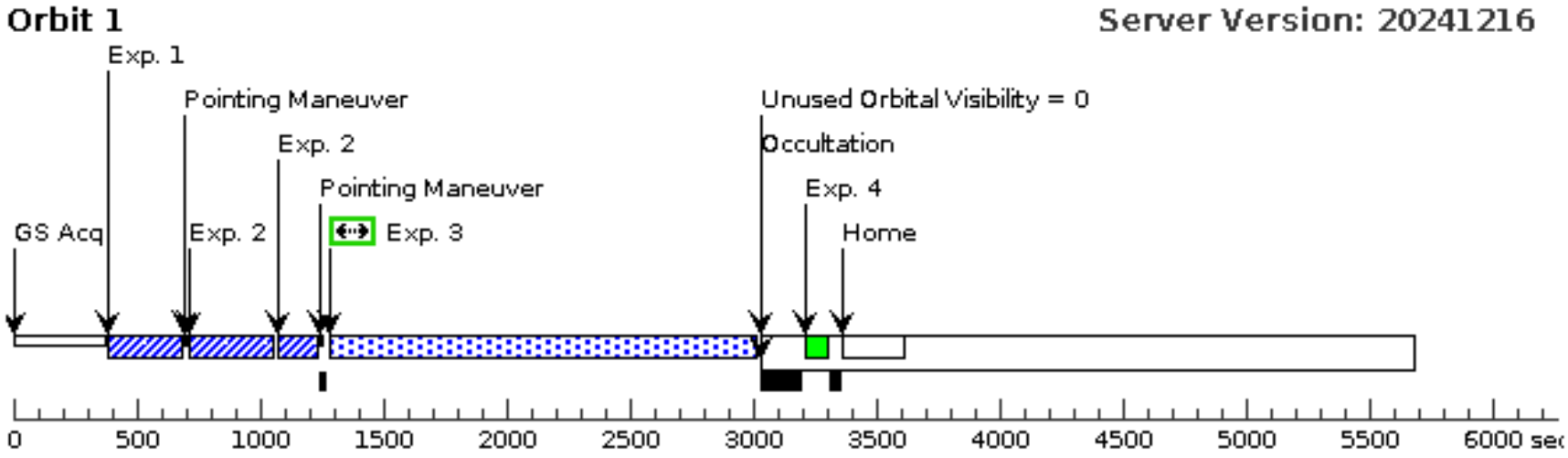
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17699, Transit 3 (06), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER_05 BY 0.75 D TO 2.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

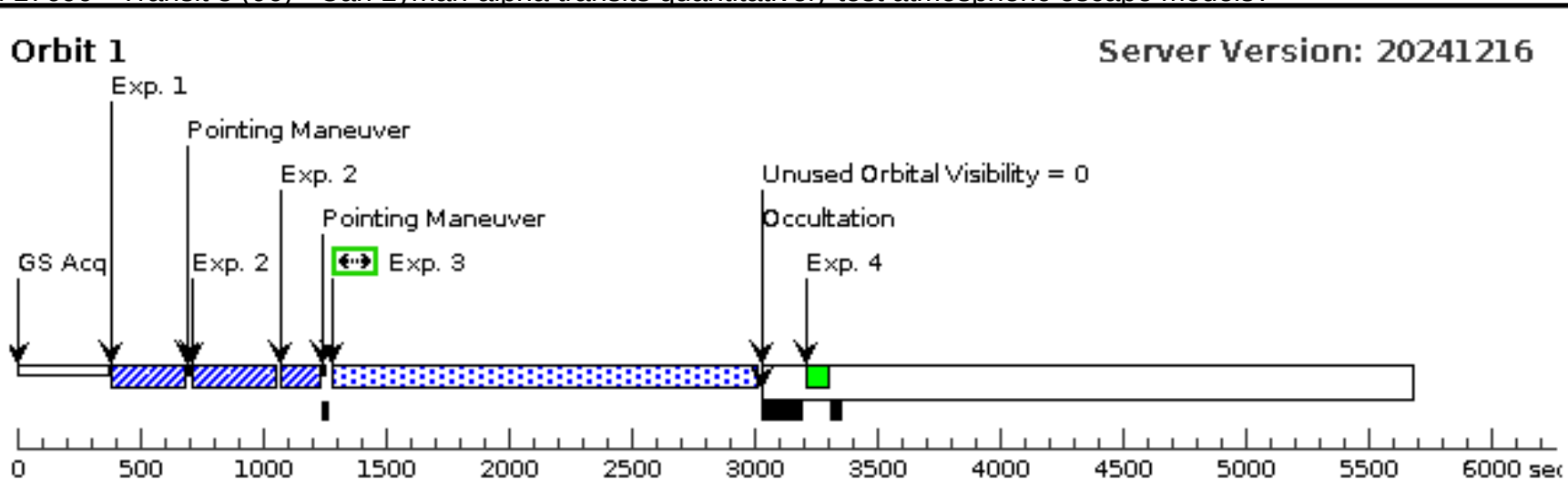
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

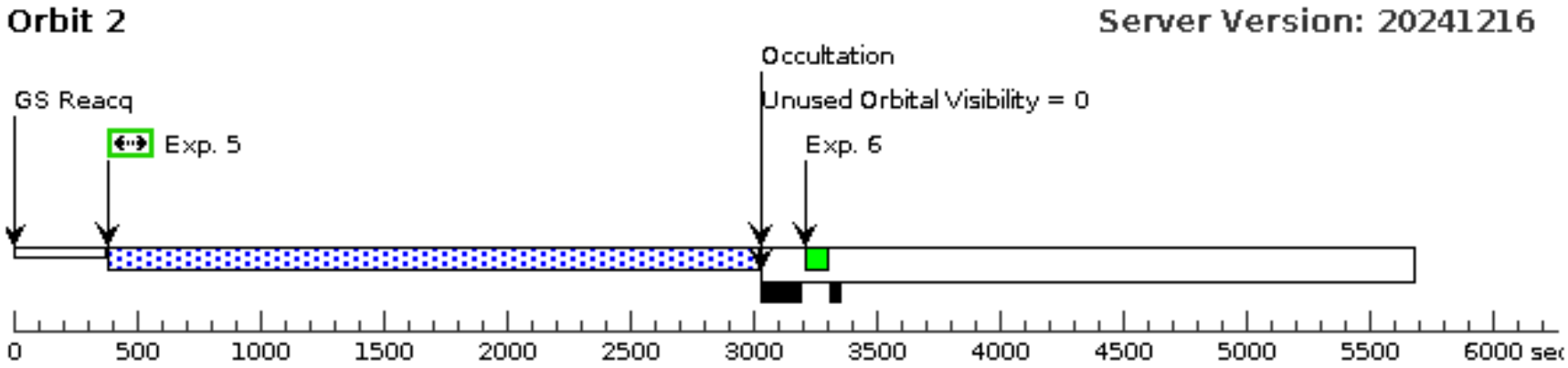
Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

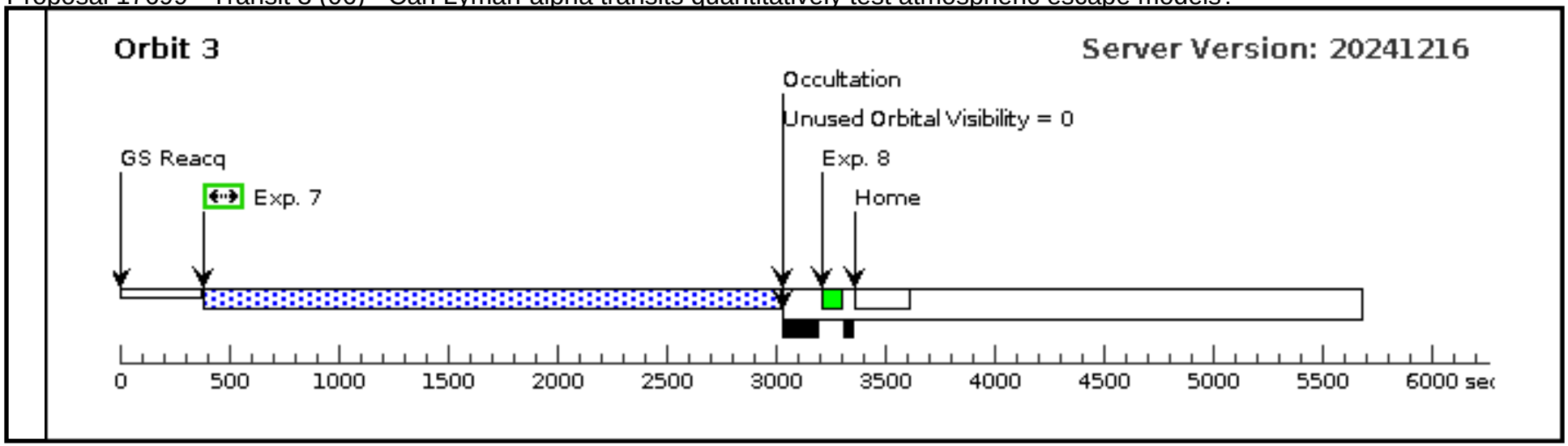
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.00970089 TO 0.01818918; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*
7	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (2622 Secs) *[==>2622.0 Secs]*	*[3]*
8	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[3]*

Orbit Structure



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Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 7
Exp. 8
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2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17699, Pre-transit 4 (07), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

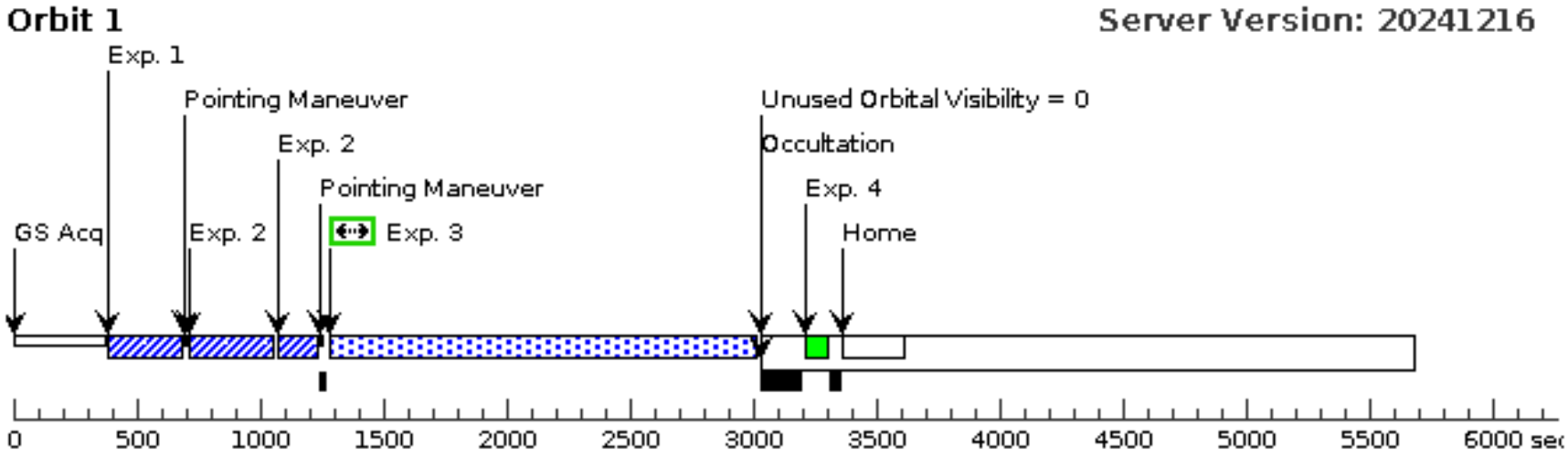
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17699, Transit 4 (08), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER_07 BY 22 H TO 2.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

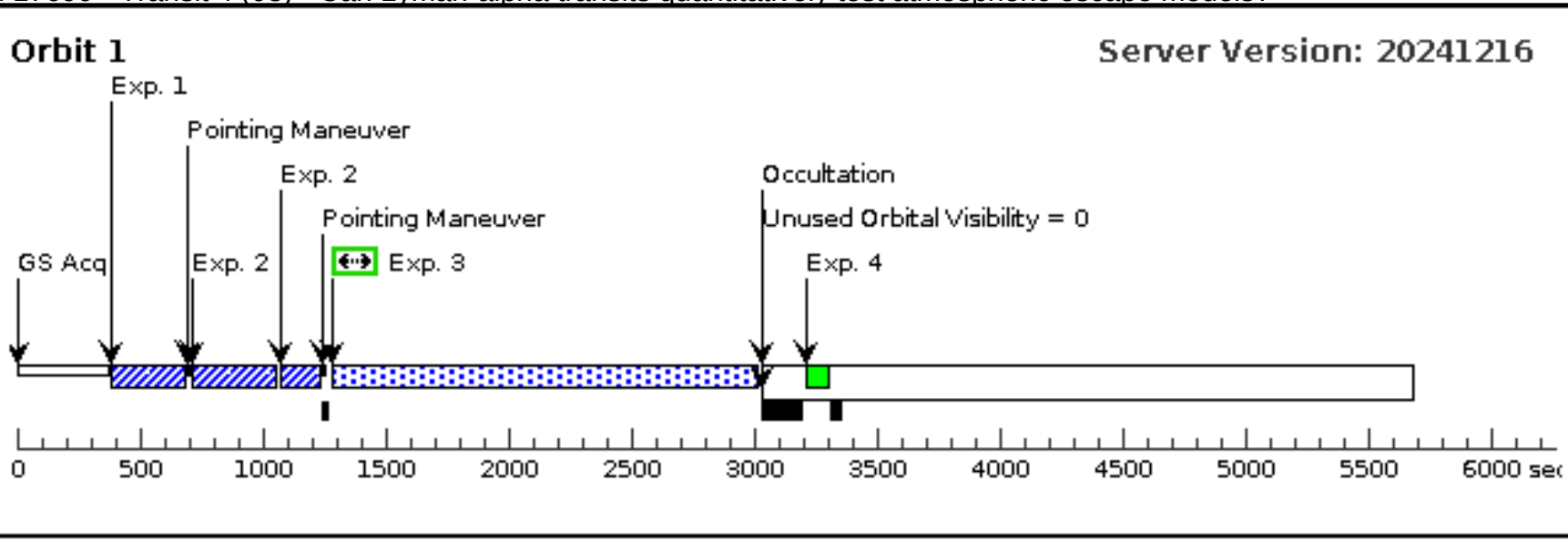
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

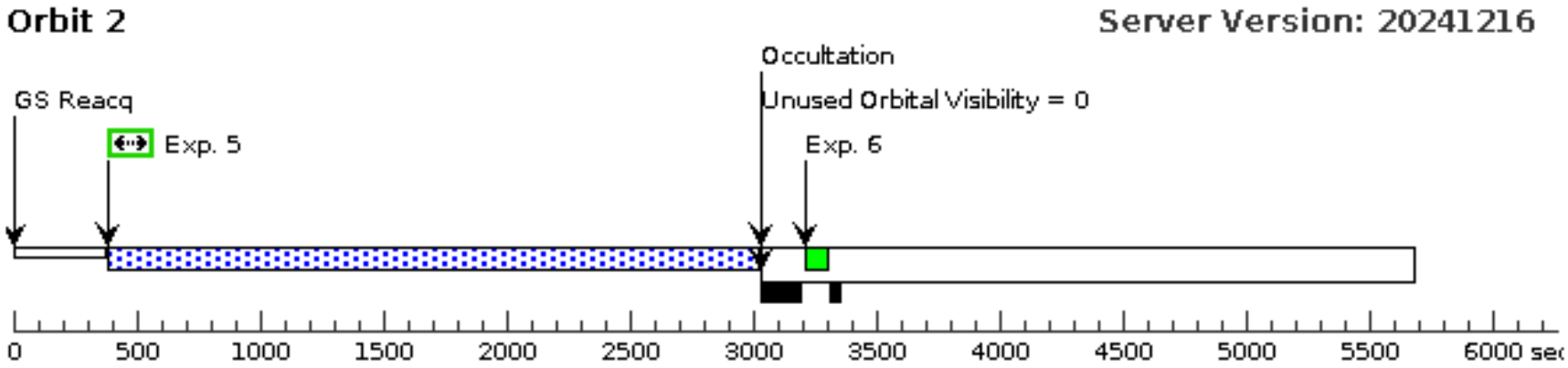
Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

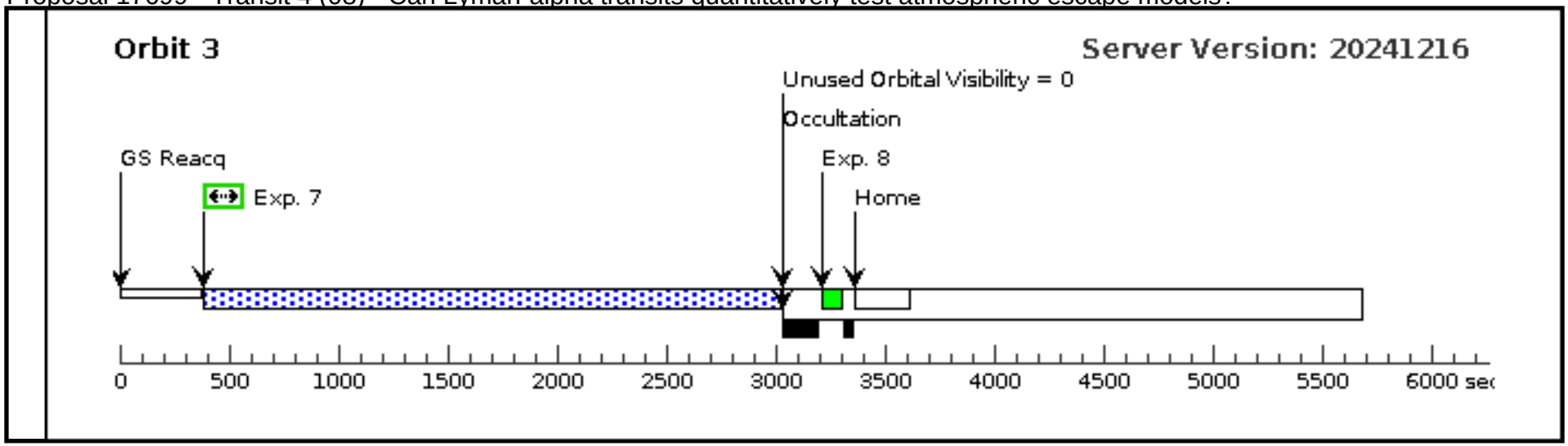
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.01940179 TO 0.02789007; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*
7	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (2622 Secs) *[==>2622.0 Secs]*	*[3]*
8	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[3]*

Orbit Structure



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Exp. 7
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3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17699, Pre-transit 5 (09), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

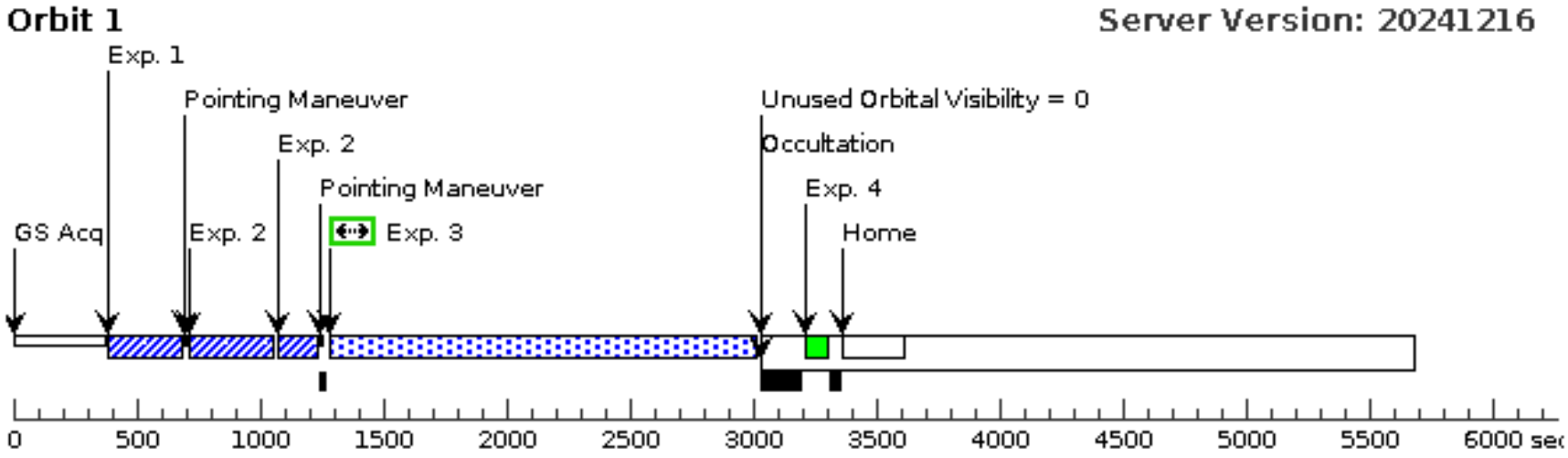
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17699, Transit 5 (10), implementation Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 09 BY 22 H TO 60 H; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

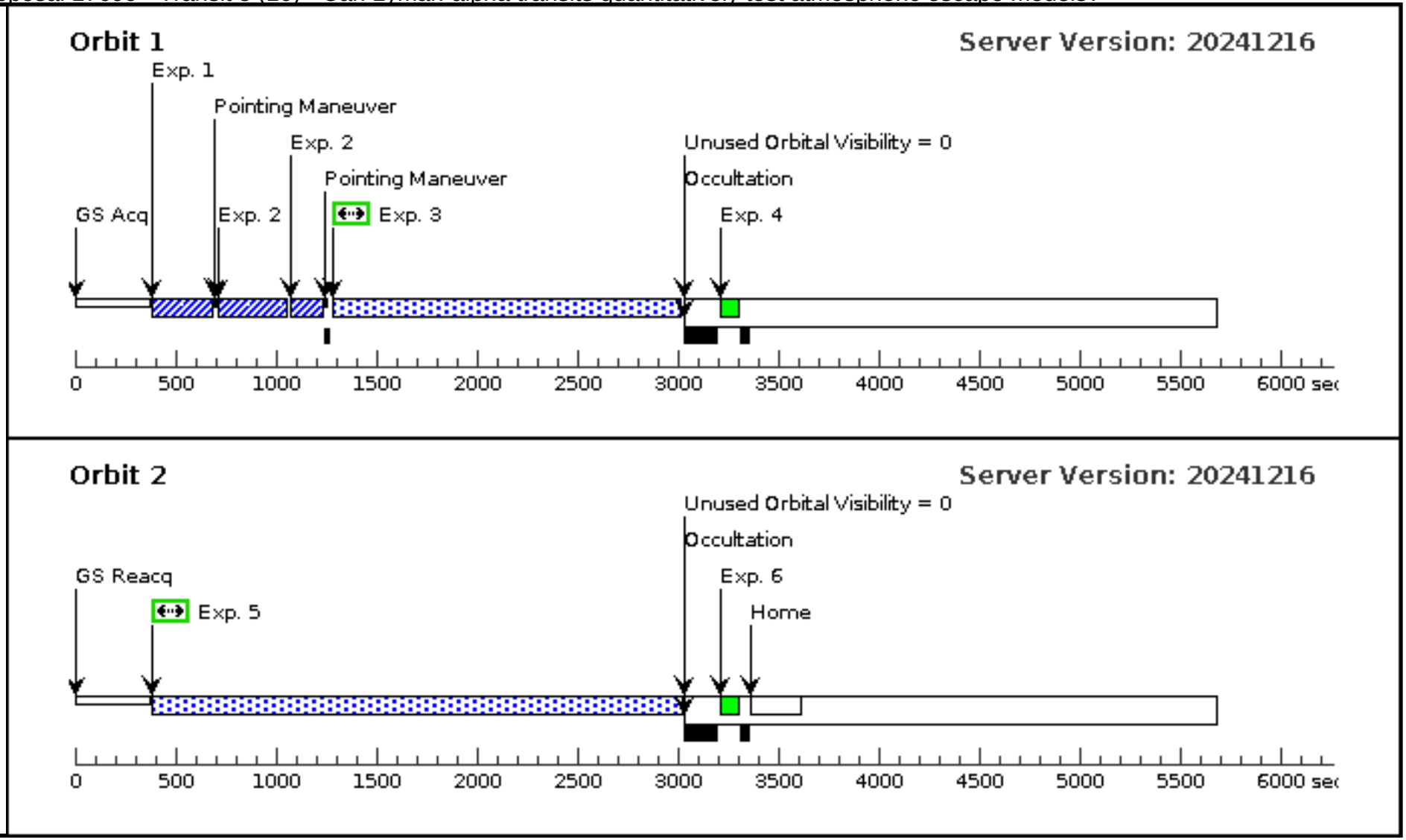
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.02910268 TO 0.03516574; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	***[1]***
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	***[1]***
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (1571 Secs) *[==>1571.0 Secs]*	***[1]***
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	***[1]***
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (2622 Secs) *[==>2622.0 Secs]*	***[2]***
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	***[2]***

Orbit Structure



Visit

Proposal 17699, Pre-transit 6 (11) Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

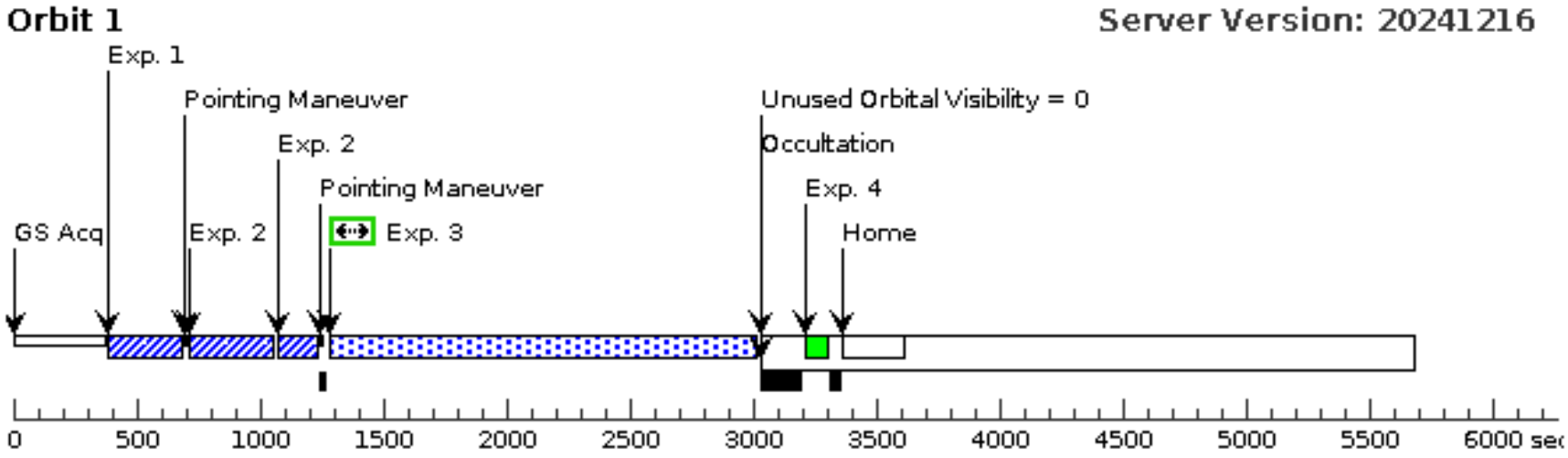
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17699, Transit 6 (12) Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 11 BY 1 D TO 3.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

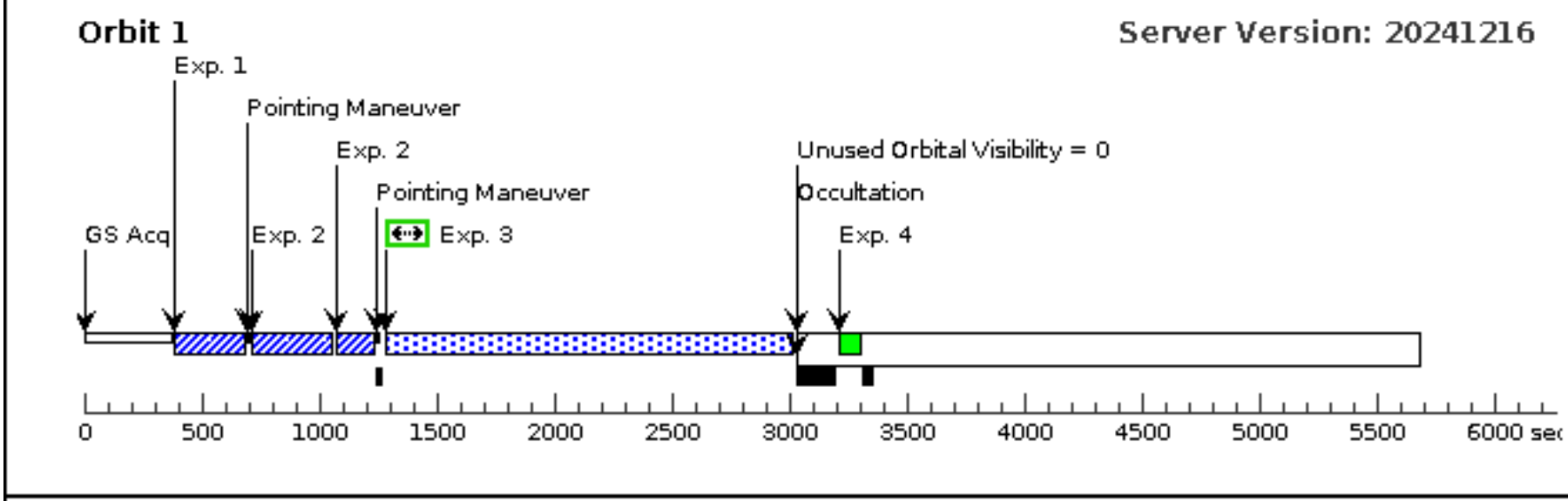
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

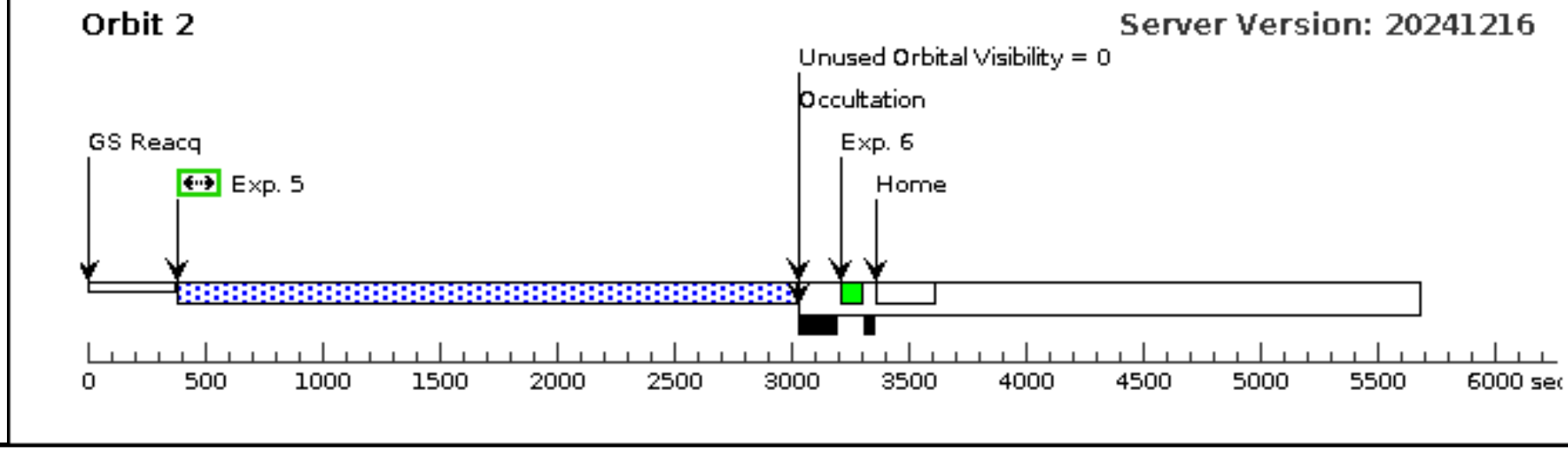
Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.03637835 TO 0.04244141; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*

Orbit Structure





Visit

Proposal 17699, Pre-transit 7 (13) Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: As a primary scientific goal is to measure the length of the Lyman-alpha tail, we need to observe the egress of the Lyman-alpha transit. Therefore, we require the Transit 5 (10) (which is our furthest post-optical transit exposure) to be observed before Transit 1 (02), Transit 2 (04), Transit 3 (06) and Transit 4 (08). This will allow us to adjust the phases of these observations accordingly if we do not see the egress in Transit 5.

Fixed Targets

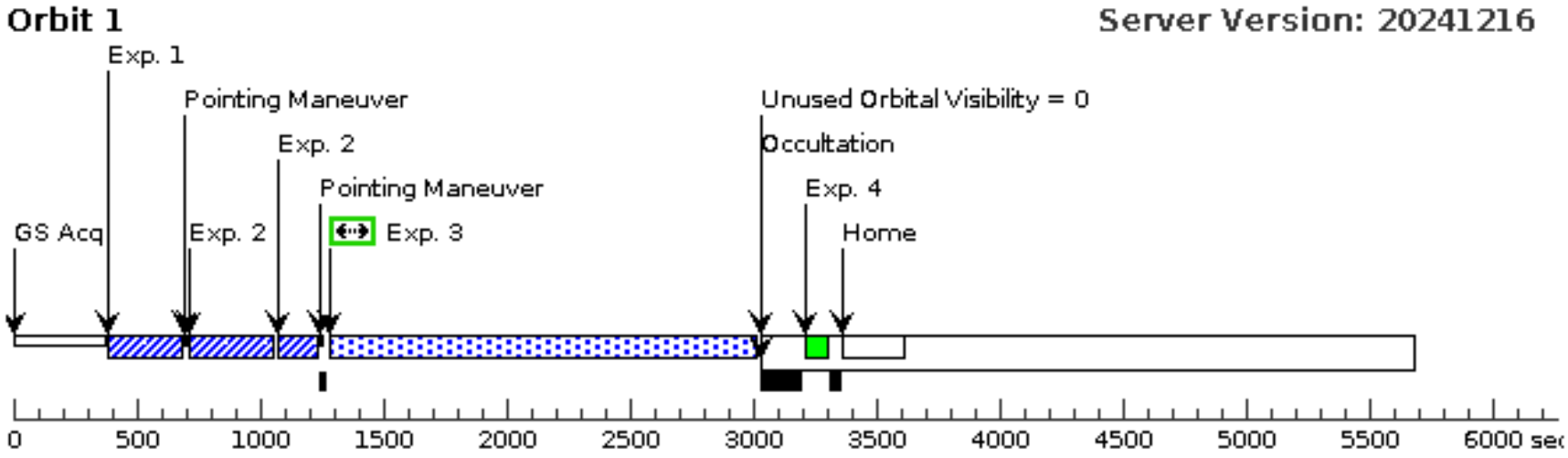
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	 ***[1]***
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	 ***[1]***
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1000 Secs (1571 Secs) *[==>1571.0 Secs]*	 ***[1]***
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	 ***[1]***

Orbit Structure



Visit

Proposal 17699, Transit 7 (14) Tue May 13 17:00:22 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 13 BY 26 H TO 3.5 D; Period 17.180546 D AND ZERO-PHASE HJD2458414.55162

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-15337	RA: 02 27 28.3781 (36.8682421d) Dec: -27 38 6.74 (-27.63521d) Equinox: J2000	Proper Motion RA: -0.073581 arcsec/yr Proper Motion Dec: -0.211935 arcsec/yr Parallax: 0.0222922" Epoch of Position: 2000 Radial Velocity: -3.882 km/sec	V=9.09	Reference Frame: ICRS

Comments:
Category=STAR
Description=[EXTRA-SOLAR PLANET, EXTRA-SOLAR PLANETARY SYSTEM, K V-IV]

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Acquisition (STIS.ta.1932792)	(1) HD-15337	STIS/CCD, ACQ, F25ND3	MIRROR		PHASE 0.04365403 TO 0.04971709; GS ACQ SCENARIO BASE1O3		3.0 Secs (3 Secs) *[==>]*	*[1]*
2	Acquisition Peak (STIS.ta.1932793)	(1) HD-15337	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				3.0 Secs (3 Secs) *[==>]*	*[1]*
3	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (1571 Secs) *[==>1571.0 Secs]*	*[1]*
4	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[1]*
5	Science (STIS.sp.1931112)	(1) HD-15337	STIS/FUV-MAMA, TIME-TAG, 52X0.2	G140M 1222 A	BUFFER-TIME=1e4 ; WAVECAL=NO			1500 Secs (2622 Secs) *[==>2622.0 Secs]*	*[2]*
6	Wavecal	WAVE	STIS/FUV-MAMA, ACCUM, 52X0.2	G140M 1222 A				40 Secs (40 Secs) *[==>]*	*[2]*

Orbit Structure