17534 - A young burping planet: characterizing the variable atmospheric escape of the exciting AU Mic b

Cycle: 31, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	2	17-Apr-2025 11:02:22.0	yes
51	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	2	17-Apr-2025 11:02:22.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
02	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	5	17-Apr-2025 11:02:23.0	yes
03	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	2	17-Apr-2025 11:02:24.0	yes
04	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	5	17-Apr-2025 11:02:25.0	yes
05	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	1	17-Apr-2025 11:02:25.0	yes
06	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	5	17-Apr-2025 11:02:26.0	yes
55	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	1	17-Apr-2025 11:02:27.0	yes
56	(1) V-AU-MIC WAVE	STIS/CCD STIS/FUV-MAMA	5	17-Apr-2025 11:02:28.0	yes

28 Total Orbits Used

ABSTRACT

Atmospheric escape is the prevailing evolutionary theory that explains current exoplanet demographics - pertaining to the most common exoplanet types, short-period sub-Neptunes and super-Earths, in particular. Two planets have been detected around the 23 Myr pre-main sequence M dwarf AU Mic; their known age makes them good probes for early stages of exoplanet evolution. AU Mic b is the 4.2 Earth radius inner planet orbiting with a period of 8 days. The planet's youth, high levels of X-ray and UV radiation, and proximity to its bright host indicate this planet is likely experiencing atmospheric mass loss. Previous STIS UV observations of this planet show a highly variable Lyman-alpha transit, going from no detected planetary outflow to detected. Even more strange, the detection occurs before the white-light transit of the planet, meaning the neutral hydrogen outflow is moving ahead of the planet. This could be explained by 1) variable photoionization of the outflow, or 2) turbulent interactions with the stellar wind environment that cause a "burping" of the outflow. We propose for two additional transits of this planet to test this hypothesis. Observing the extreme behavior of this young planet will provide critical constraints on atmospheric escape models.

OBSERVING DESCRIPTION

We will observe 2 AU Mic b transits with STIS FUV-MAMA E140M. Each transit will comprise 2 HST visits of 3 and 5 orbits each (8 orbits per transit). An example transit is shown in Figure 3. Five back-to-back orbits in a single visit can be scheduled to avoid crossings of the South Atlantic Anomaly, and a single visit provides improved stability when compared to re-acquiring the target over multiple visits. The first visit of each transit will comprise 3 orbits 8-12 hours before the white-light mid-transit, capturing the extent of a leading arm of planetary material. The second visit will comprise 5 orbits capturing six hours centered on the white-light mid-transit. We will also observe 2 orbits loosely scheduled over 24 hours before each of the 2 transits. This will provide a baseline observation of the unocculted host star to assess whether there have been long-term changes in the stellar activity. Our entire observing plan consists of 20 orbits.

Visit

Proposal 17534, Pre-transit 1 (01), failed Thu Apr 17 15:02:28 GMT 2025

Diagnostic Status: Warning

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

Special Requirements: (none)

Comments: Two exposures 24 hours before transit to observe the unocculted star.

Diagnostics

(Pre-transit 1 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Pre-transit 1 (01)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

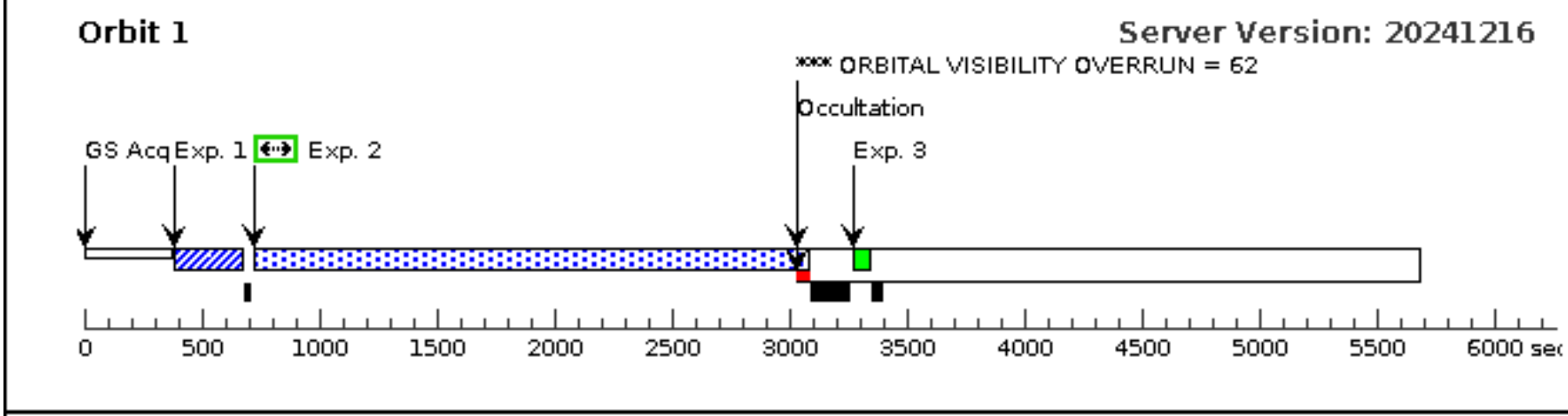
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

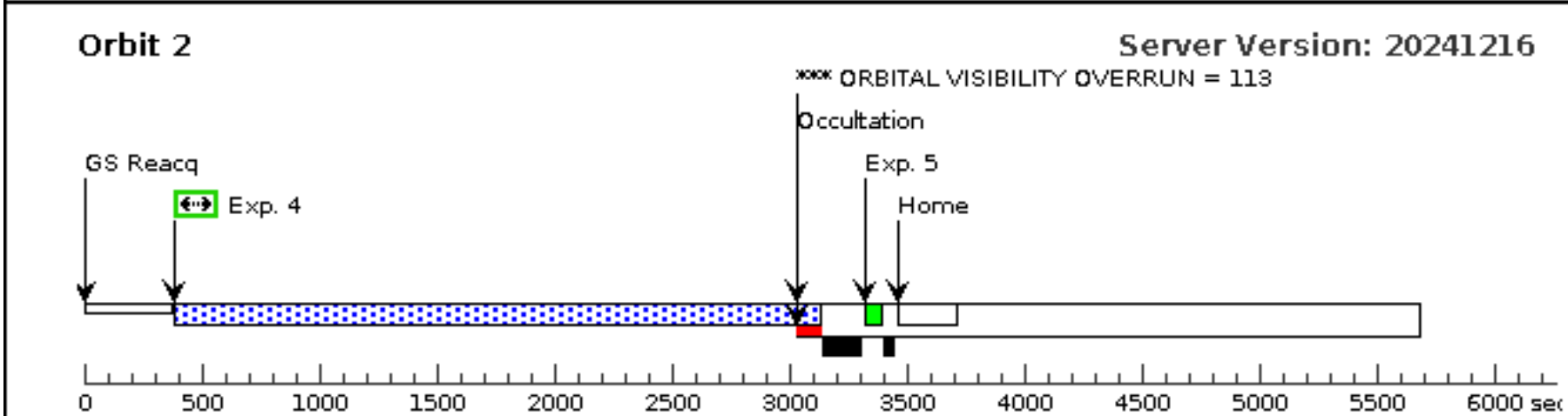
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

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.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT		Sequence 1-3 Non-Int in Pre-transit 1 (01)	0.1 Secs (0.1 Secs) *[==>]*	***[1]***
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=1321; WAVECAL=NO		Sequence 1-3 Non-Int in Pre-transit 1 (01)	3000 Secs (2269 Secs) *[==>2269.0 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Pre-transit 1 (01)	*[==>]*	***[1]***
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=1321; WAVECAL=NO		Sequence 4-5 Non-Int in Pre-transit 1 (01)	3000 Secs (2737 Secs) *[==>2737.0 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in Pre-transit 1 (01)	*[==>]*	***[2]***

Orbit Structure





Visit

Proposal 17534, Pre-transit 1 (51), implementation Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: Two exposures 24 hours before transit to observe the unocculted star.

Fixed Targets

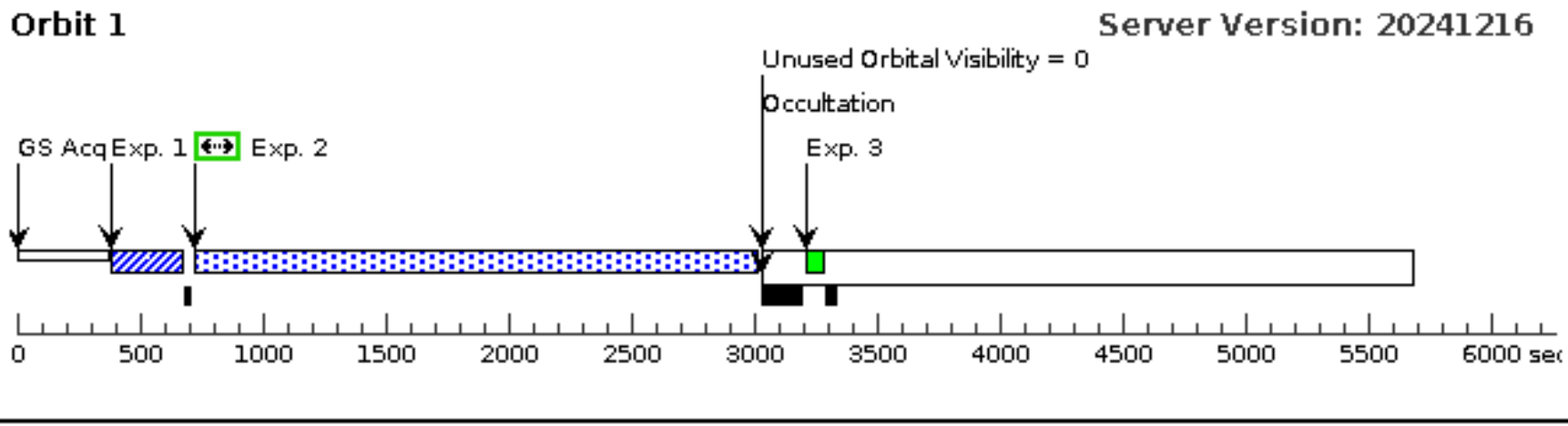
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

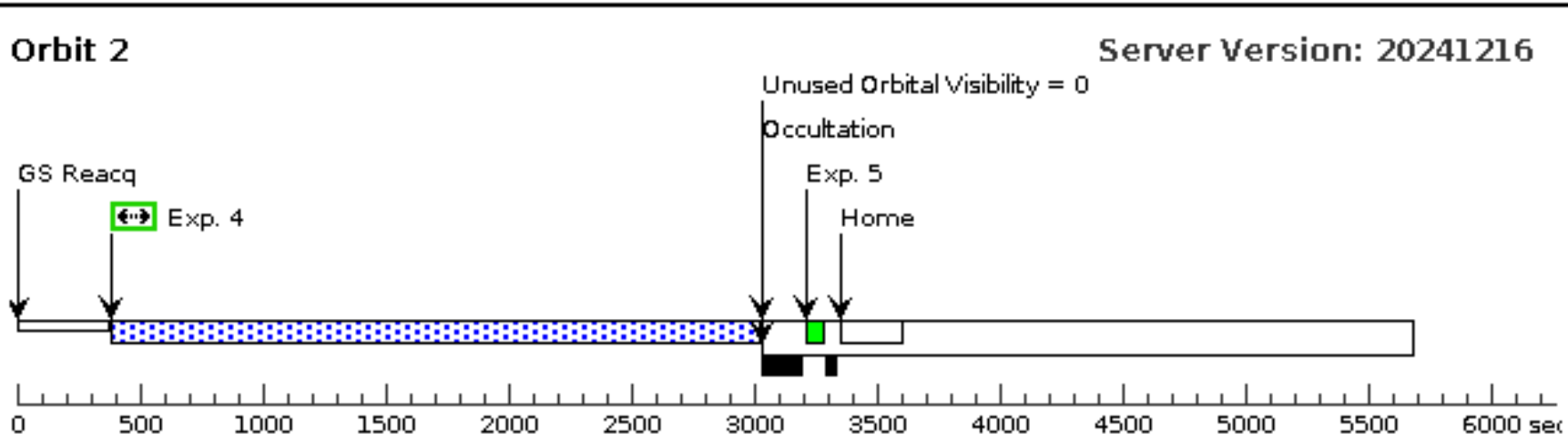
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

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.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT		Sequence 1-3 Non-Int in Pre-transit 1 (51)	0.1 Secs (0.1 Secs) *[==>]*	*[1]*
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Pre-transit 1 (51)	3000 Secs (2207 Secs) *[==>2207.0 Secs]*	*[1]*
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Pre-transit 1 (51)	*[==>]*	*[1]*
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in Pre-transit 1 (51)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	*[2]*
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in Pre-transit 1 (51)	*[==>]*	*[2]*

Orbit Structure





Visit

Proposal 17534, In-transit 1 (02), implementation Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 51 BY 12 H TO 36 H; Period 8.4629991 D AND ZERO-PHASE HJD2458330.39051

Comments: 5 consecutive exposures that start somewhere between 3 hours before and mid-transit.

Fixed Targets

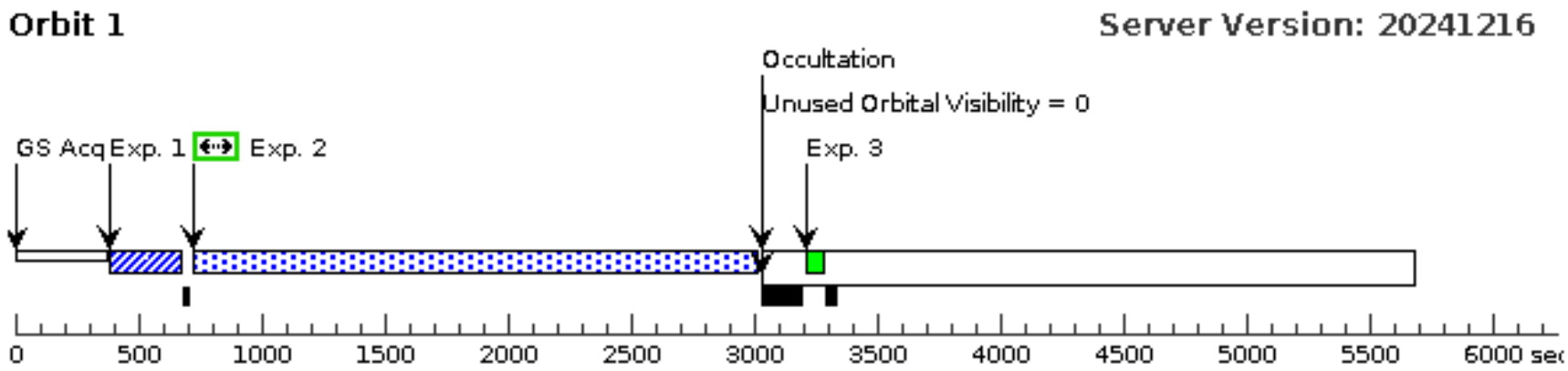
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

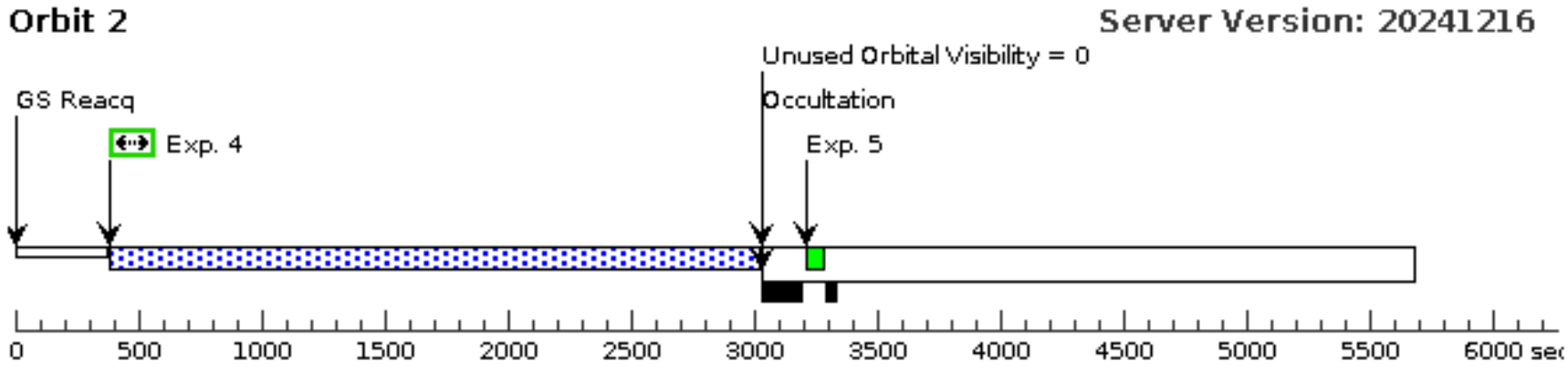
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

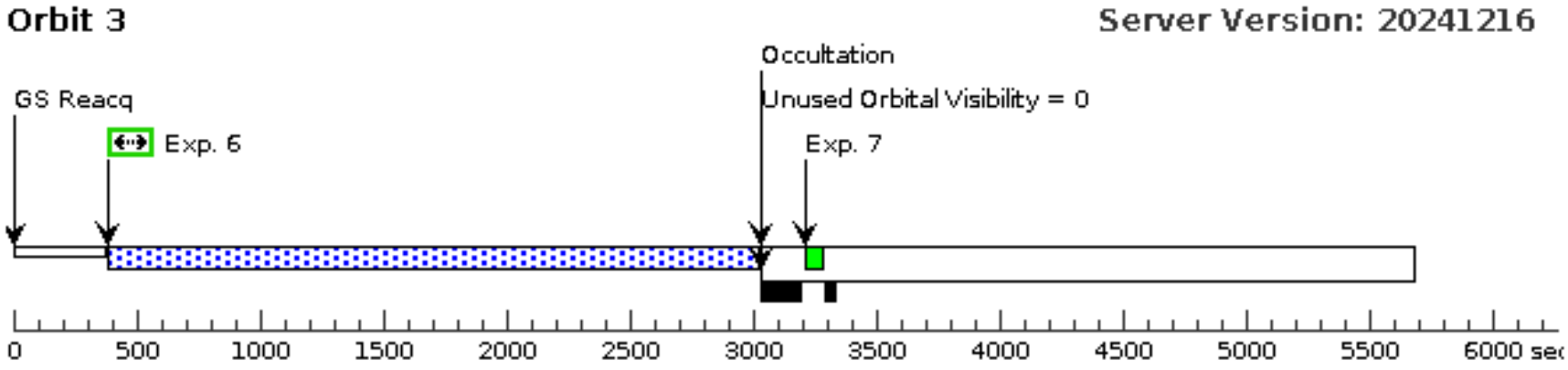
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.9852298223687629 TO 0	Sequence 1-3 Non-Int in In-transit 1 (02)	0.1 Secs (0.1 Secs) *[==>]*	***[1]***
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in In-transit 1 (02)	3000 Secs (2207 Secs) *[==>2207.0 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in In-transit 1 (02)	*[==>]*	***[1]***
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in In-transit 1 (02)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in In-transit 1 (02)	*[==>]*	***[2]***
6	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 6-7 Non-Int in In-transit 1 (02)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[3]***
7	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 6-7 Non-Int in In-transit 1 (02)	*[==>]*	***[3]***
8	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 8-9 Non-Int in In-transit 1 (02)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[4]***
9	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 8-9 Non-Int in In-transit 1 (02)	*[==>]*	***[4]***
10	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 10-11 Non-Int in In-transit 1 (02)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[5]***
11	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 10-11 Non-Int in In-transit 1 (02)	*[==>]*	***[5]***

Orbit Structure



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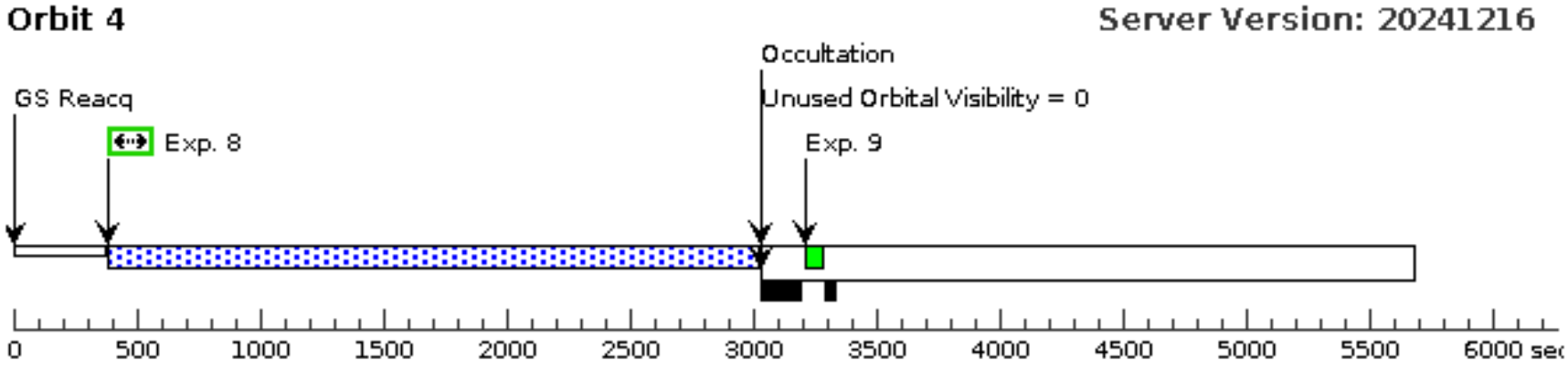
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Occultation
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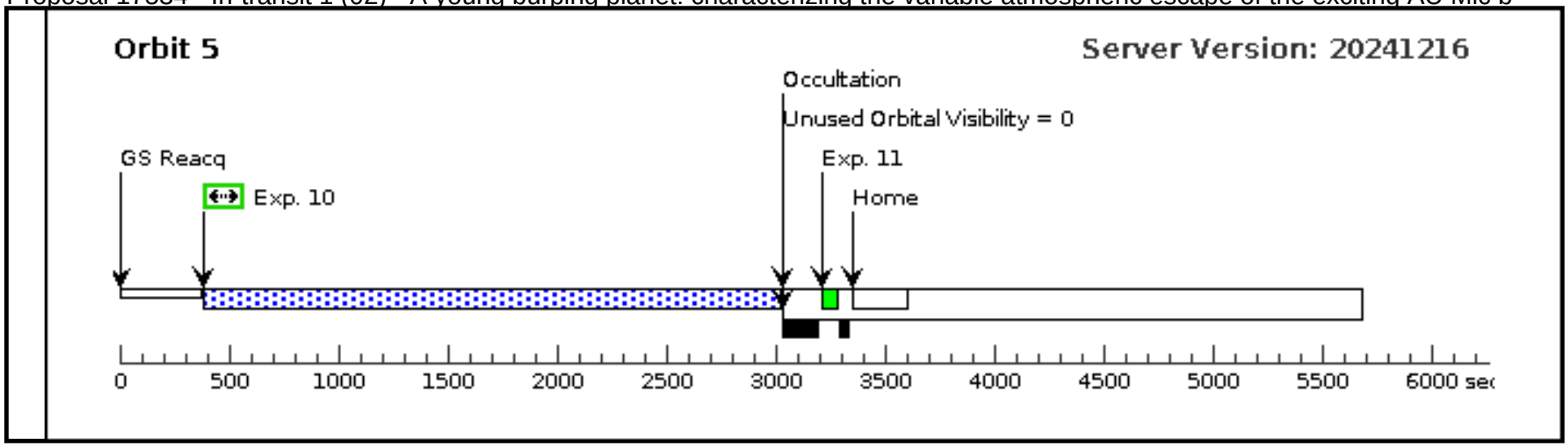
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Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 10
Exp. 11
Home
0
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17534, Pre-transit 2 (03), implementation Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: Two exposures >24 hours before transit to observe the unocculted star.

Fixed Targets

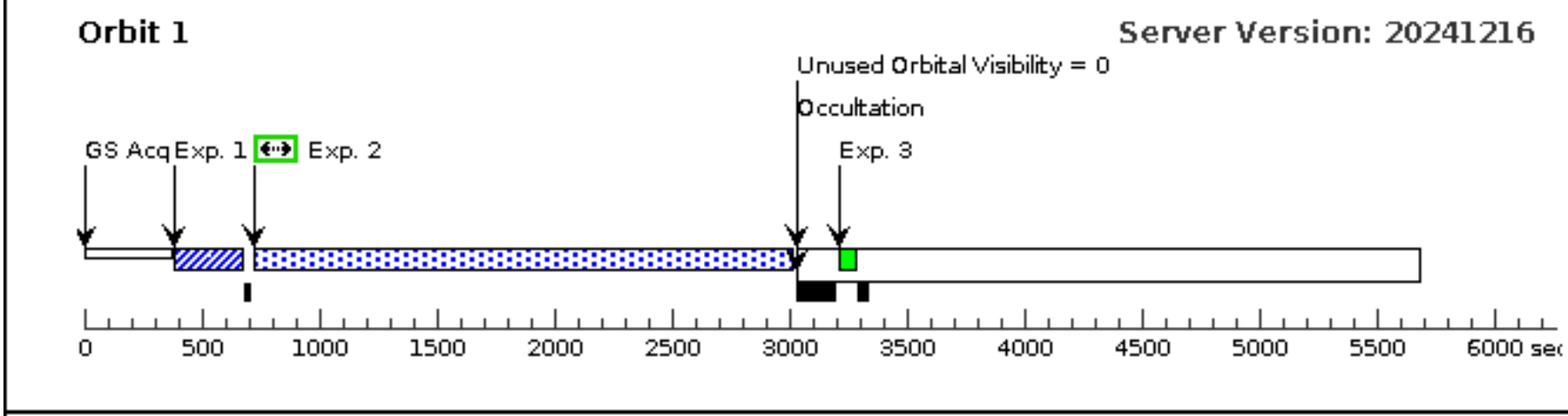
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

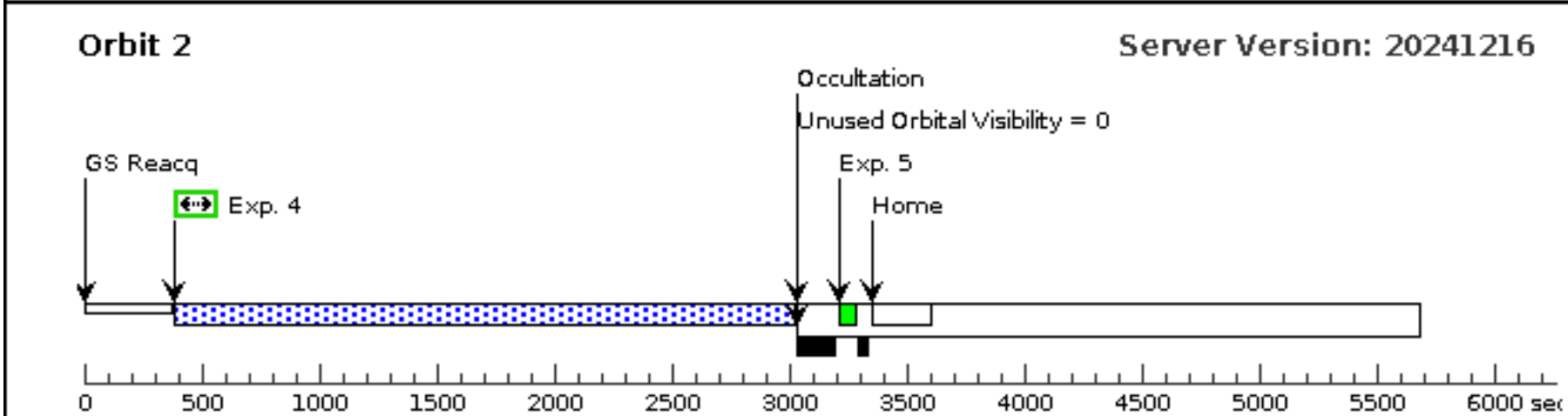
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

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.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT		Sequence 1-3 Non-Int in Pre-transit 2 (03)	0.1 Secs (0.1 Secs) *[==>]*	***[1]***
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Pre-transit 2 (03)	3000 Secs (2207 Secs) *[==>2207.0 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Pre-transit 2 (03)	*[==>]*	***[1]***
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in Pre-transit 2 (03)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in Pre-transit 2 (03)	*[==>]*	***[2]***

Orbit Structure





Visit

Proposal 17534, In-transit 2 (04), implementation Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 03 BY 12 H TO 36 H; Period 8.4629991 D AND ZERO-PHASE HJD2458330.39051

Comments: 5 consecutive exposures that start somewhere between 3 hours before and mid-transit.

Fixed Targets

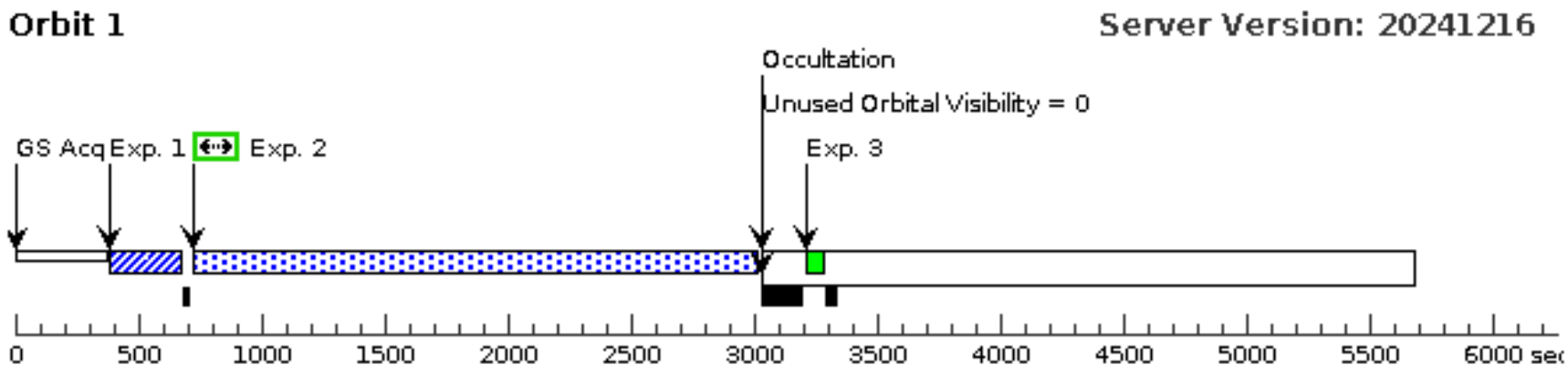
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

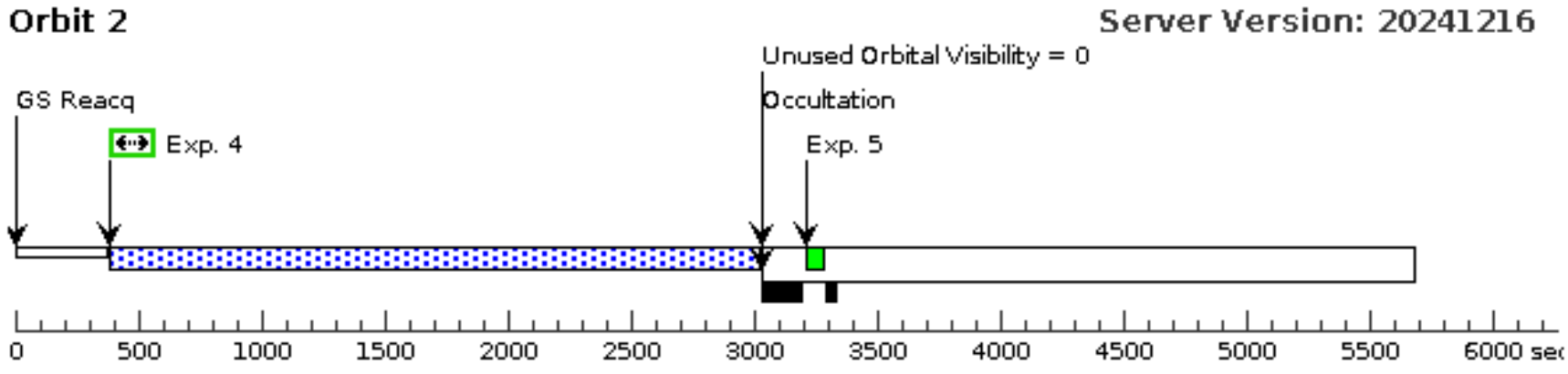
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

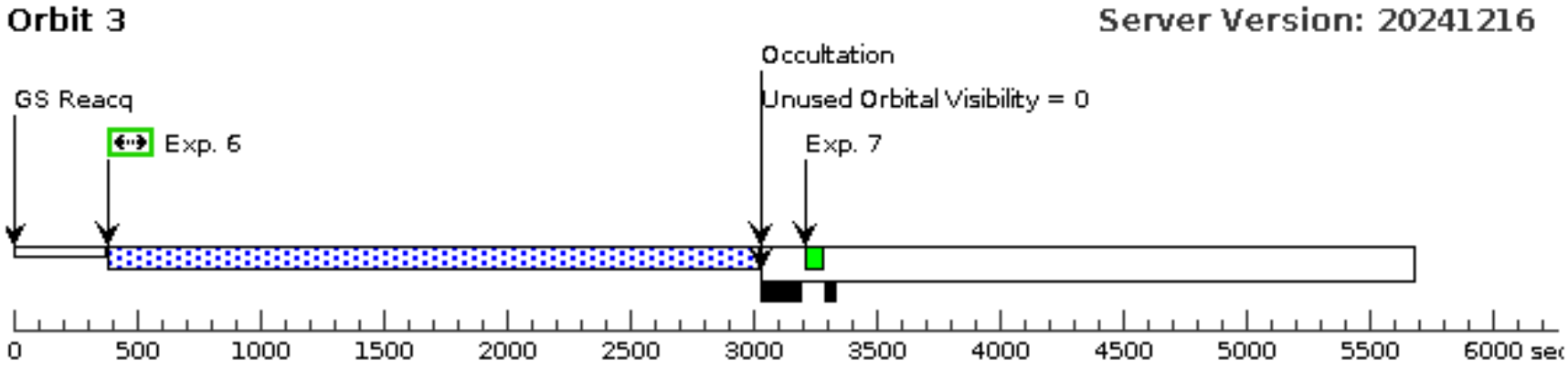
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.9852298223687629 TO 0	Sequence 1-3 Non-Int in In-transit 2 (04)	0.1 Secs (0.1 Secs) *[==>]*	***[1]***
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in In-transit 2 (04)	3000 Secs (2207 Secs) *[==>2207.0 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in In-transit 2 (04)	*[==>]*	***[1]***
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in In-transit 2 (04)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in In-transit 2 (04)	*[==>]*	***[2]***
6	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 6-7 Non-Int in In-transit 2 (04)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[3]***
7	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 6-7 Non-Int in In-transit 2 (04)	*[==>]*	***[3]***
8	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 8-9 Non-Int in In-transit 2 (04)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[4]***
9	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 8-9 Non-Int in In-transit 2 (04)	*[==>]*	***[4]***
10	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 10-11 Non-Int in In-transit 2 (04)	3000 Secs (2624 Secs) *[==>2624.0 Secs]*	***[5]***
11	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 10-11 Non-Int in In-transit 2 (04)	*[==>]*	***[5]***

Orbit Structure






Orbit 3
Server Version: 20241216
Occultation
GS Reacq
Unused Orbital Visibility = 0
Exp. 6
Exp. 7
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1500
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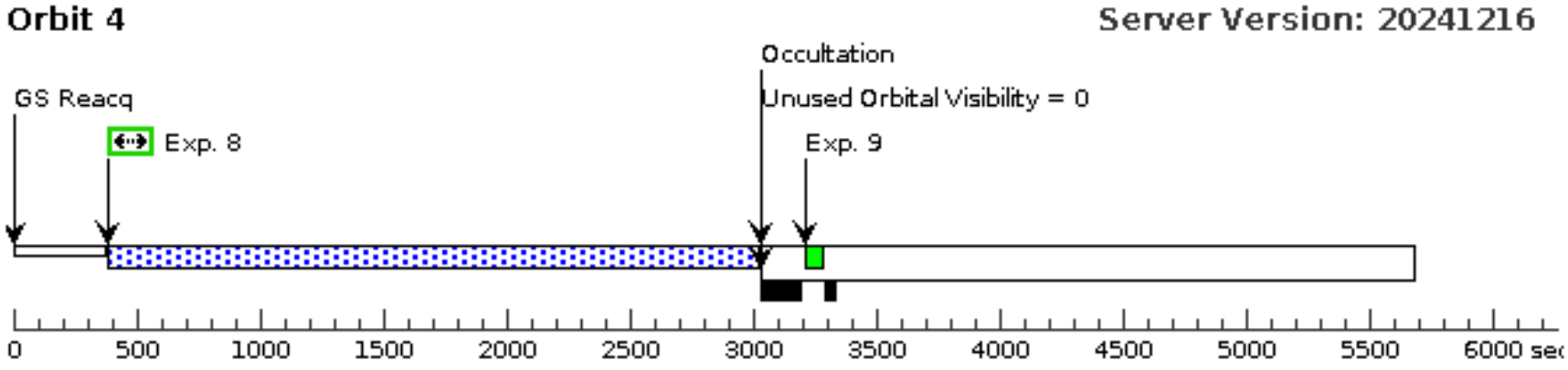
2500
3000
3500
4000
4500
5000
5500
6000 sec


Orbit 4
Server Version: 20241216
Occultation
GS Reacq
Unused Orbital Visibility = 0
Exp. 8
Exp. 9
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1500
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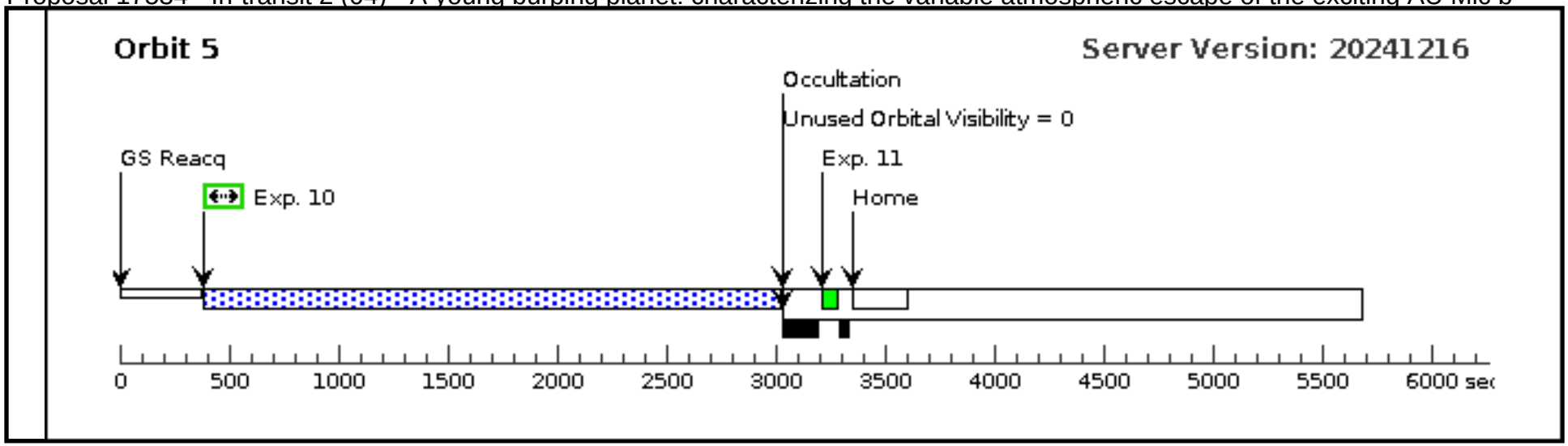
3000
3500
4000
4500
5000
5500
6000 sec


Orbit 5
Server Version: 20241216
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 10
Exp. 11
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17534, Pre-transit 3 (05), failed Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: Warning

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

Special Requirements: (none)

Comments: One exposure 24 hours before transit to observe the unocculted star.

Diagnostics

(Pre-transit 3 (05)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

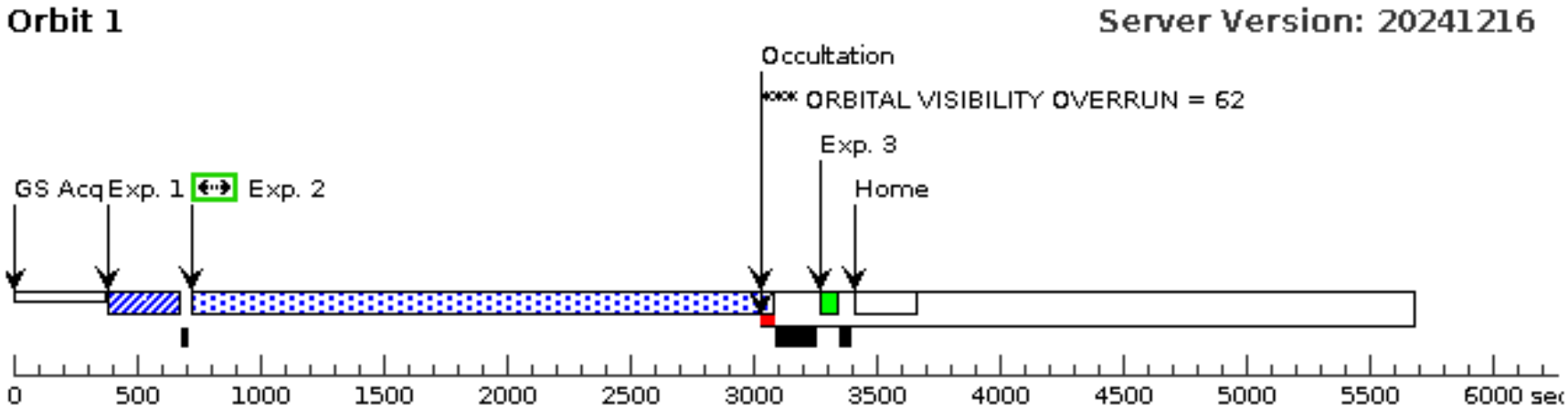
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

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.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT		Sequence 1-3 Non-Int in Pre-transit 3 (05)	0.1 Secs (0.1 Secs) *[==>]*	*[1]*
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Pre-transit 3 (05)	3000 Secs (2269 Secs) *[==>2269.0 Secs]*	*[1]*
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Pre-transit 3 (05)	*[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17534, Early transit 1 (06), failed Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: Warning

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

Special Requirements: AFTER 05 BY 12 H TO 36 H; Period 8.4629991 D AND ZERO-PHASE HJD2458330.39051

Comments: 5 exposures ending at mid-transit to capture potential early transit structure.

Diagnostics

(Early transit 1 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Early transit 1 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Early transit 1 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Early transit 1 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

(Early transit 1 (06)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN

Fixed Targets

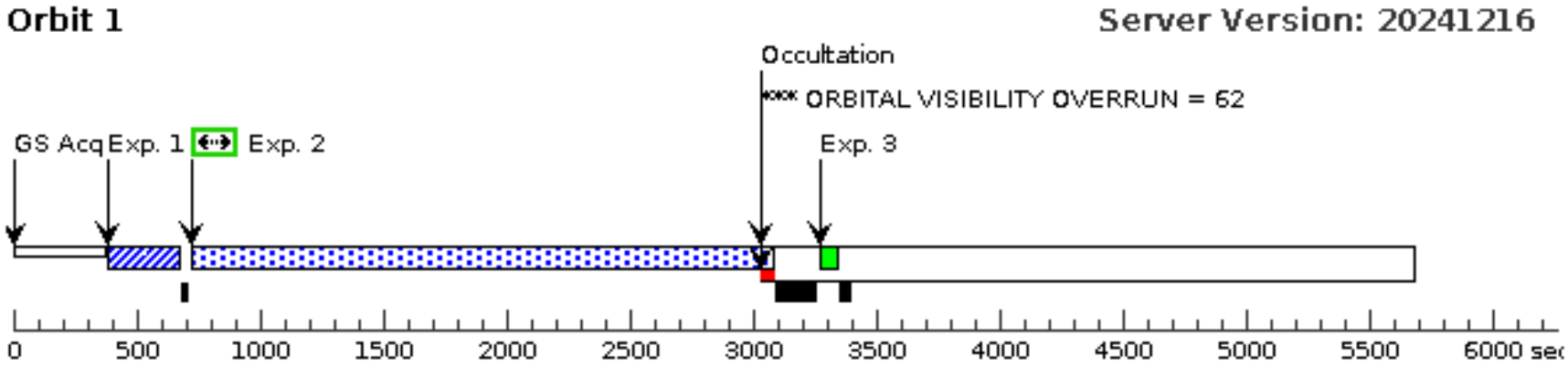
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d)	Proper Motion RA: 281.319 mas/yr	V=8.627	Reference Frame: ICRS
		Dec: -31 20 27.24 (-31.34090d)	Proper Motion Dec: -360.148 mas/yr		
		Equinox: J2000	Epoch of Position: 2000		

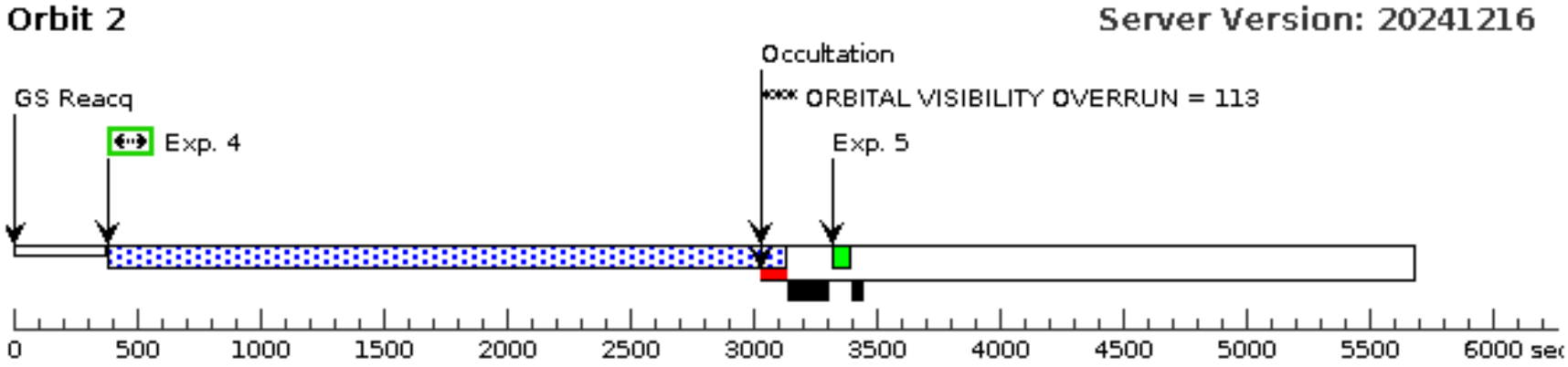
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

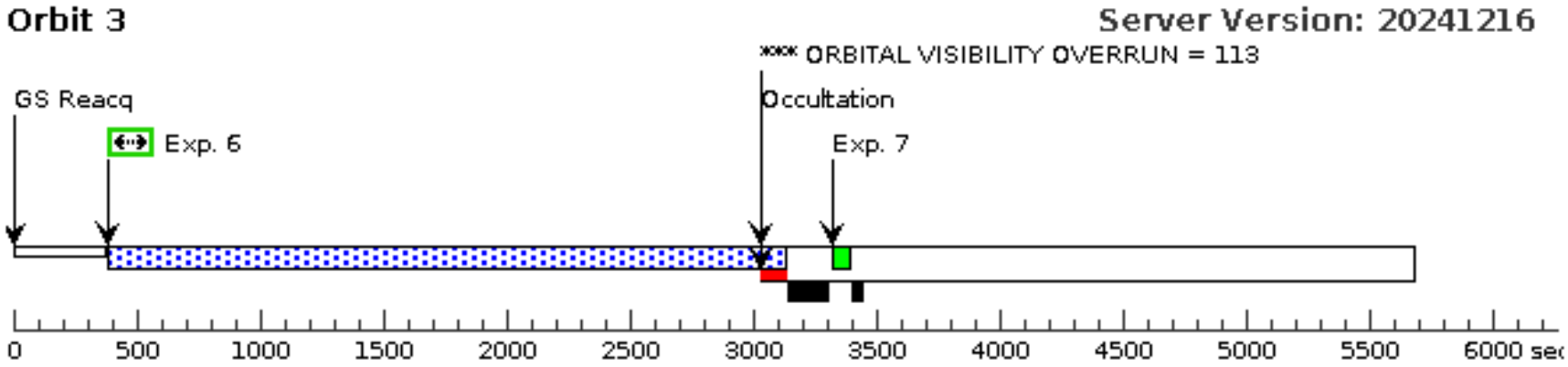
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.96553625219378 TO 0.9704596447375258	Sequence 1-3 Non-Int in Early transit 1 (06)	0.1 Secs (0.1 Secs) *[==>]*	*[1]*
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Early transit 1 (06)	3000 Secs (2269 Secs) *[==>2269.0 Secs]*	*[1]*
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Early transit 1 (06)	*[==>]*	*[1]*
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in Early transit 1 (06)	3000 Secs (2737 Secs) *[==>2737.0 Secs]*	*[2]*
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in Early transit 1 (06)	*[==>]*	*[2]*
6	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 6-7 Non-Int in Early transit 1 (06)	3000 Secs (2737 Secs) *[==>2737.0 Secs]*	*[3]*
7	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 6-7 Non-Int in Early transit 1 (06)	*[==>]*	*[3]*
8	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 8-9 Non-Int in Early transit 1 (06)	3000 Secs (2737 Secs) *[==>2737.0 Secs]*	*[4]*
9	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 8-9 Non-Int in Early transit 1 (06)	*[==>]*	*[4]*
10	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 10-11 Non-Int in Early transit 1 (06)	3000 Secs (2737 Secs) *[==>2737.0 Secs]*	*[5]*
11	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 10-11 Non-Int in Early transit 1 (06)	*[==>]*	*[5]*

Orbit Structure



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Server Version: 20241216
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GS Reacq
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Occultation
Exp. 7
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1000
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3500
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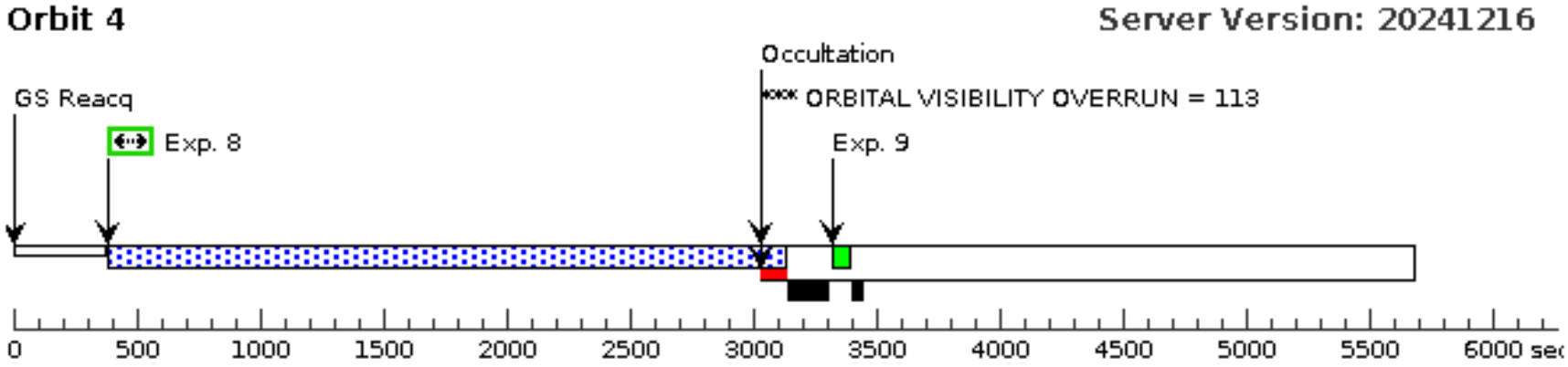
4500
5000
5500
6000 sec


Orbit 4
Server Version: 20241216
Occultation
*** ORBITAL VISIBILITY OVERRUN = 113
GS Reacq
Exp. 8
Exp. 9
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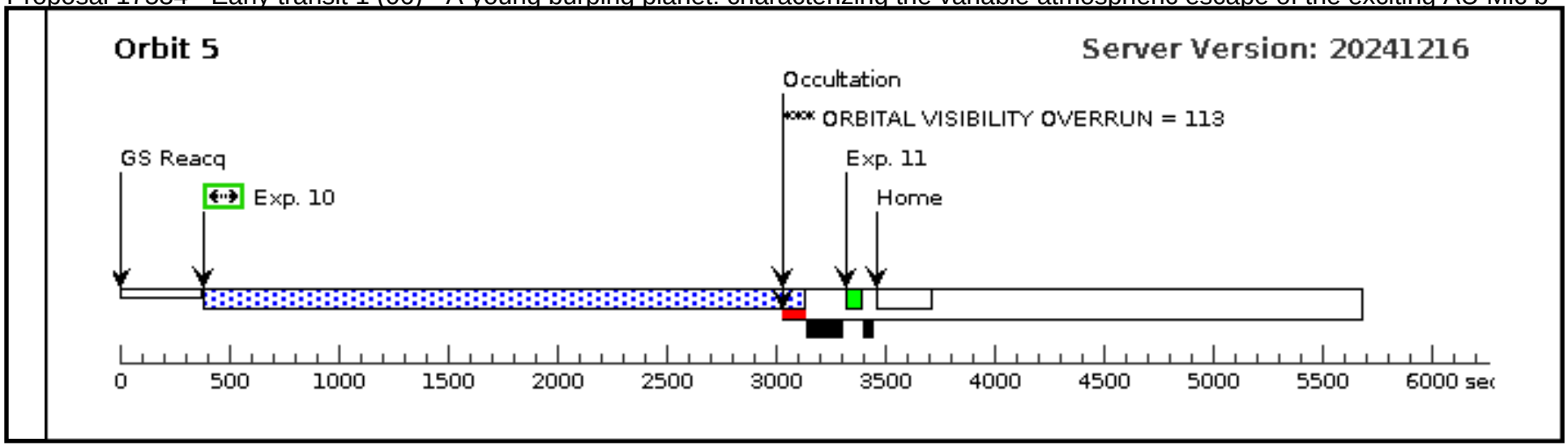
4500
5000
5500
6000 sec


Orbit 5
Server Version: 20241216
Occultation
*** ORBITAL VISIBILITY OVERRUN = 113
GS Reacq
Exp. 10
Exp. 11
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000 sec

Visit

Proposal 17534, Pre-transit 3 (55), completed Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: (none)

Comments: One exposure 24 hours before transit to observe the unocculted star.
HOPR repeat of visit 5

Fixed Targets

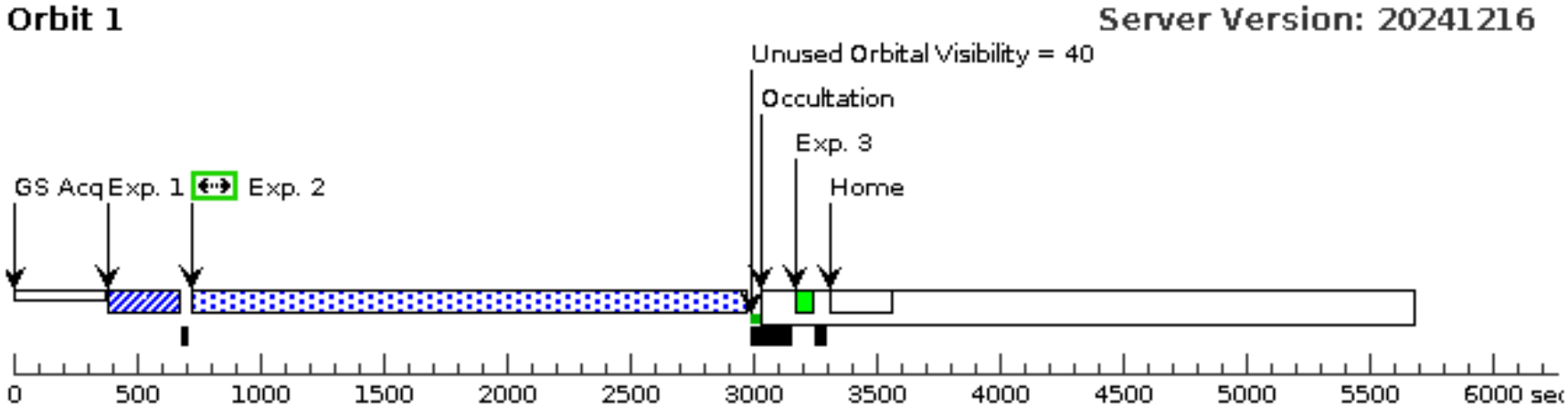
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

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.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT		Sequence 1-3 Non-Int in Pre-transit 3 (55)	0.1 Secs (0.1 Secs) *[==>]*	*[1]*
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Pre-transit 3 (55)	3000 Secs (2167 Secs) *[==>2167 Secs]*	*[1]*
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Pre-transit 3 (55)	*[==>]*	*[1]*

Orbit Structure



Visit

Proposal 17534, Early transit 1 (56), completed Thu Apr 17 15:02:29 GMT 2025

Diagnostic Status: No Diagnostics

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

Special Requirements: AFTER 55 BY 12 H TO 36 H; Period 8.4629991 D AND ZERO-PHASE HJD2458330.39051

Comments: 5 exposures ending at mid-transit to capture potential early transit structure.

Fixed Targets

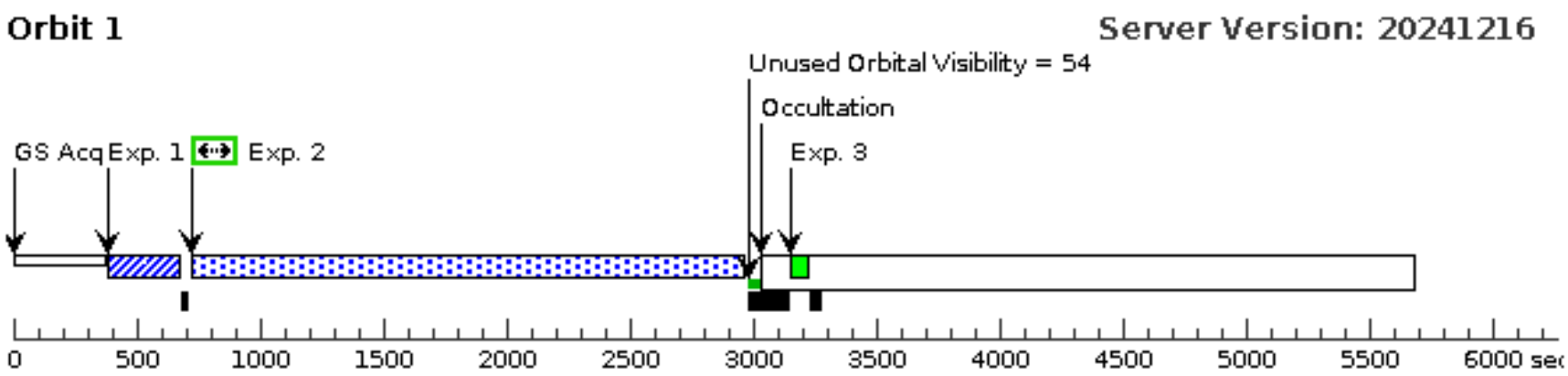
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	V-AU-MIC	RA: 20 45 9.5325 (311.2897188d) Dec: -31 20 27.24 (-31.34090d) Equinox: J2000	Proper Motion RA: 281.319 mas/yr Proper Motion Dec: -360.148 mas/yr Epoch of Position: 2000	V=8.627	Reference Frame: ICRS

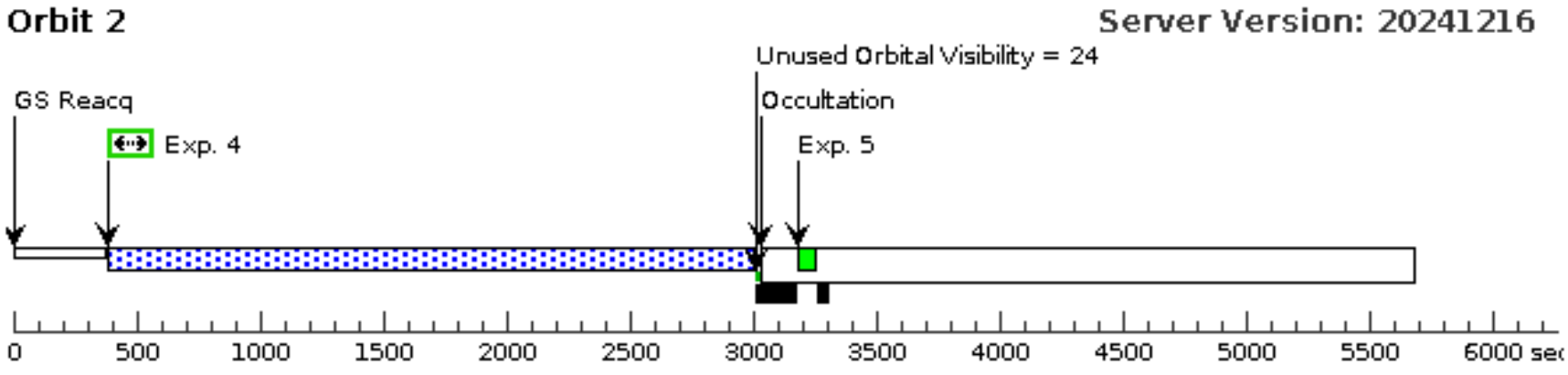
Comments:
Category=STAR
Description=[M V-IV, PRE-MAIN SEQUENCE STAR]

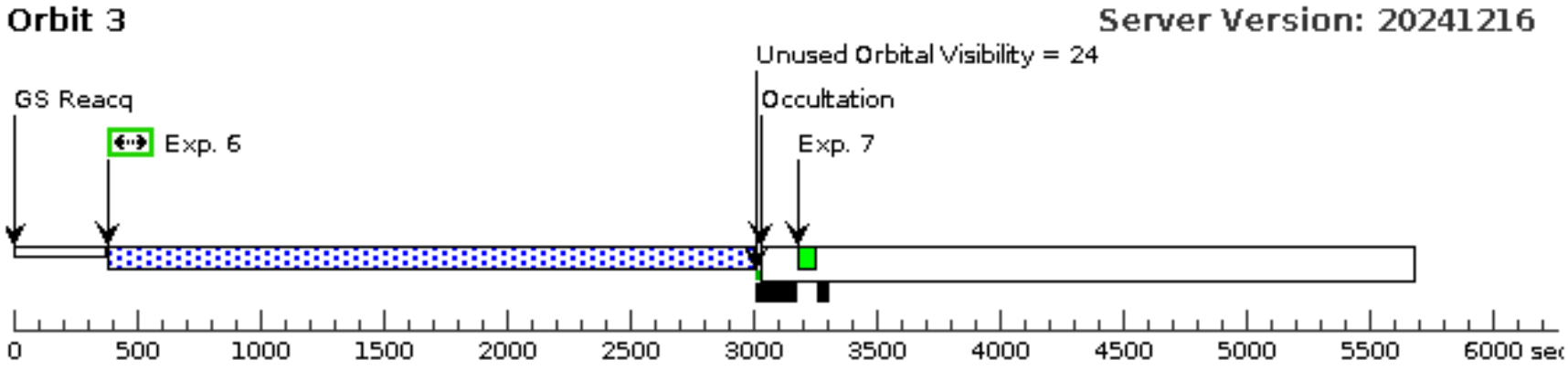
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.1893165)	(1) V-AU-MIC	STIS/CCD, ACQ, F25ND3	MIRROR	ACQTYPE=POINT	PHASE 0.96553625219378 TO 0.9704596447375258	Sequence 1-3 Non-Int in Early transit 1 (56)	0.1 Secs (0.1 Secs) *[==>]*	***[1]***
2	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 1-3 Non-Int in Early transit 1 (56)	3000 Secs (2153 Secs) *[==>2153 Secs]*	***[1]***
3	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 1-3 Non-Int in Early transit 1 (56)	*[==>]*	***[1]***
4	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 4-5 Non-Int in Early transit 1 (56)	3000 Secs (2600 Secs) *[==>2600 Secs]*	***[2]***
5	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 4-5 Non-Int in Early transit 1 (56)	*[==>]*	***[2]***
6	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 6-7 Non-Int in Early transit 1 (56)	3000 Secs (2600 Secs) *[==>2600 Secs]*	***[3]***
7	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 6-7 Non-Int in Early transit 1 (56)	*[==>]*	***[3]***
8	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 8-9 Non-Int in Early transit 1 (56)	3000 Secs (2600 Secs) *[==>2600 Secs]*	***[4]***
9	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 8-9 Non-Int in Early transit 1 (56)	*[==>]*	***[4]***
10	SCIENCE (STIS.sp.1895341)	(1) V-AU-MIC	STIS/FUV-MAMA, TIME-TAG, 0.2X0.2	E140M 1425 A	BUFFER-TIME=13241; WAVECAL=NO		Sequence 10-11 Non-Int in Early transit 1 (56)	3000 Secs (2600 Secs) *[==>2600 Secs]*	***[5]***
11	GO-WAVE CAL	WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A			Sequence 10-11 Non-Int in Early transit 1 (56)	*[==>]*	***[5]***

Orbit Structure



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GS Reacq
Occultation
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Exp. 7
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3500
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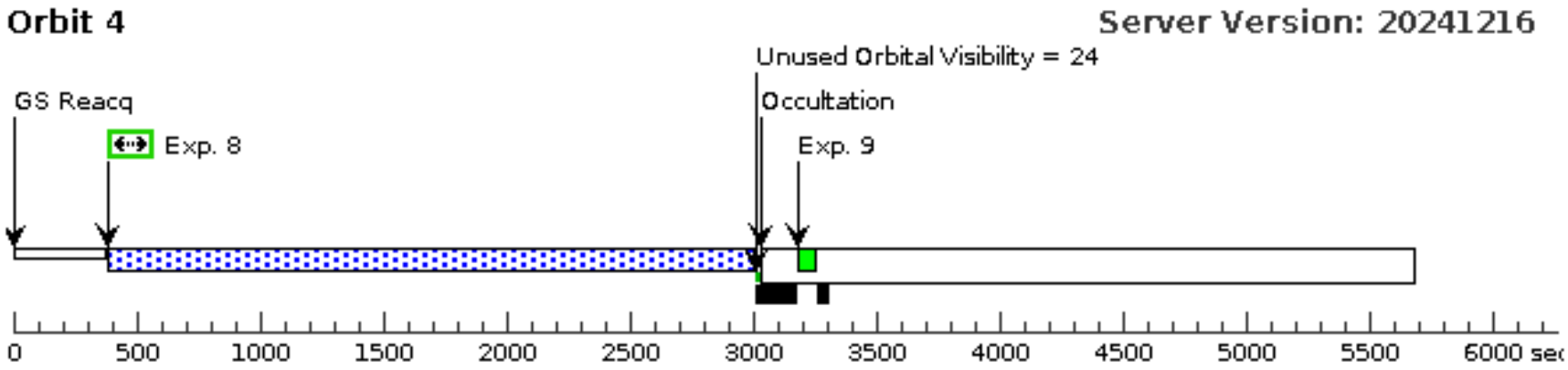
4500
5000
5500
6000 sec


Orbit 4
Server Version: 20241216
Unused Orbital Visibility = 24
GS Reacq
Occultation
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Exp. 9
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3500
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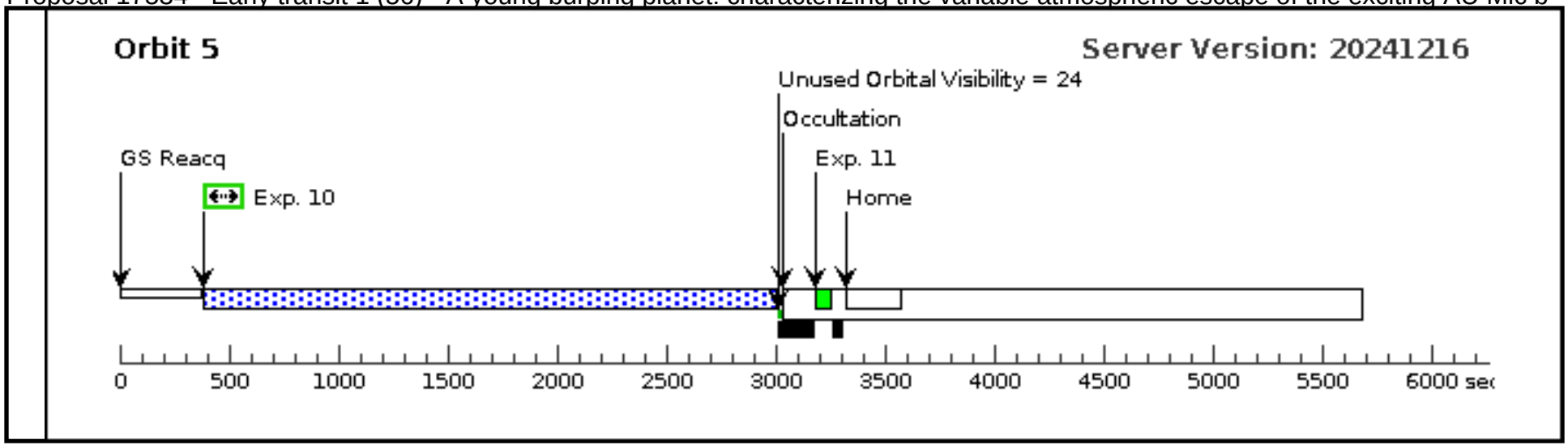
4500
5000
5500
6000 sec


Orbit 5
Server Version: 20241216
Unused Orbital Visibility = 24
Occultation
GS Reacq
Exp. 10
Exp. 11
Home
0
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1000
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2500
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5500
6000 sec