



# 15866 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Cycle: 27, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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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) J085215.34+171143.8	COS/FUV COS/NUV	4	23-Jul-2020 15:00:12.0	yes
02	(2) J091954.28+291408.3	COS/FUV COS/NUV	2	23-Jul-2020 15:00:13.0	yes
03	(3) J103640.74+565125.9	COS/FUV COS/NUV	3	23-Jul-2020 15:00:14.0	yes
04	(4) J123317.75+103538.1	COS/FUV COS/NUV	2	23-Jul-2020 15:00:15.0	yes
54	(4) J123317.75+103538.1	COS/FUV COS/NUV	2	23-Jul-2020 15:00:15.0	yes
09	(4) J123317.75+103538.1	COS/FUV COS/NUV	2	23-Jul-2020 15:00:16.0	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>
59	(4) J123317.75+103538.1	COS/FUV COS/NUV	2	23-Jul-2020 15:00:16.0	yes
05	(5) J135522.89+303324.7	COS/FUV COS/NUV	3	23-Jul-2020 15:00:17.0	yes
06	(6) J142501.46+382100.5	COS/FUV COS/NUV	3	23-Jul-2020 15:00:18.0	yes
07	(7) J154741.88+343357.3	COS/FUV COS/NUV	2	23-Jul-2020 15:00:19.0	yes
08	(8) J160951.81+353843.7	COS/FUV COS/NUV	2	23-Jul-2020 15:00:19.0	yes
10	(8) J160951.81+353843.7	COS/FUV COS/NUV	2	23-Jul-2020 15:00:20.0	yes

29 Total Orbits Used

## **ABSTRACT**

How much of the circumgalactic medium around nearby galaxies is rotating? Quasar sightline observations reveal that the Doppler shift of low-ionization-state gas shares the sign expected from gas rotation in the disk plane. The projected velocities are lower than predicted for gas on circular orbits in a thin disk, suggesting that this cool gas will spiral towards the galactic disk. This result raises important questions about the kinematics of the warm-hot circumgalactic medium which must be rapidly cooling given its temperature near the peak of the radiative cooling curve. If this warm-hot phase is also corotating with the galactic disks, then it would seem likely that both phases of corotating gas are dynamically related. A number of HST/COS programs have established the prevalence of substantial column densities of O+5 ions in the halos of star-forming galaxies. These OVI absorbers are widely believed to trace the warm-hot phase, although alternative scenarios where the gas is photoionized instead of collisionally ionized imply different conditions. Several known examples of corotating OVI absorbers exist; yet a recent analysis of a small sample of galaxy -- quasar pairs did not detect net corotation. We propose new Cosmic Origins Spectrograph observations of eight quasars paired with galaxies for which we have measured rotation curves. We will combine these results with ground-based rotation curves for 15 galaxies having OVI detections in their existing COS spectra. If most of the OVI systems turn out to be corotating, then 23 pairs will be sufficient to obtain a statistically significant result.

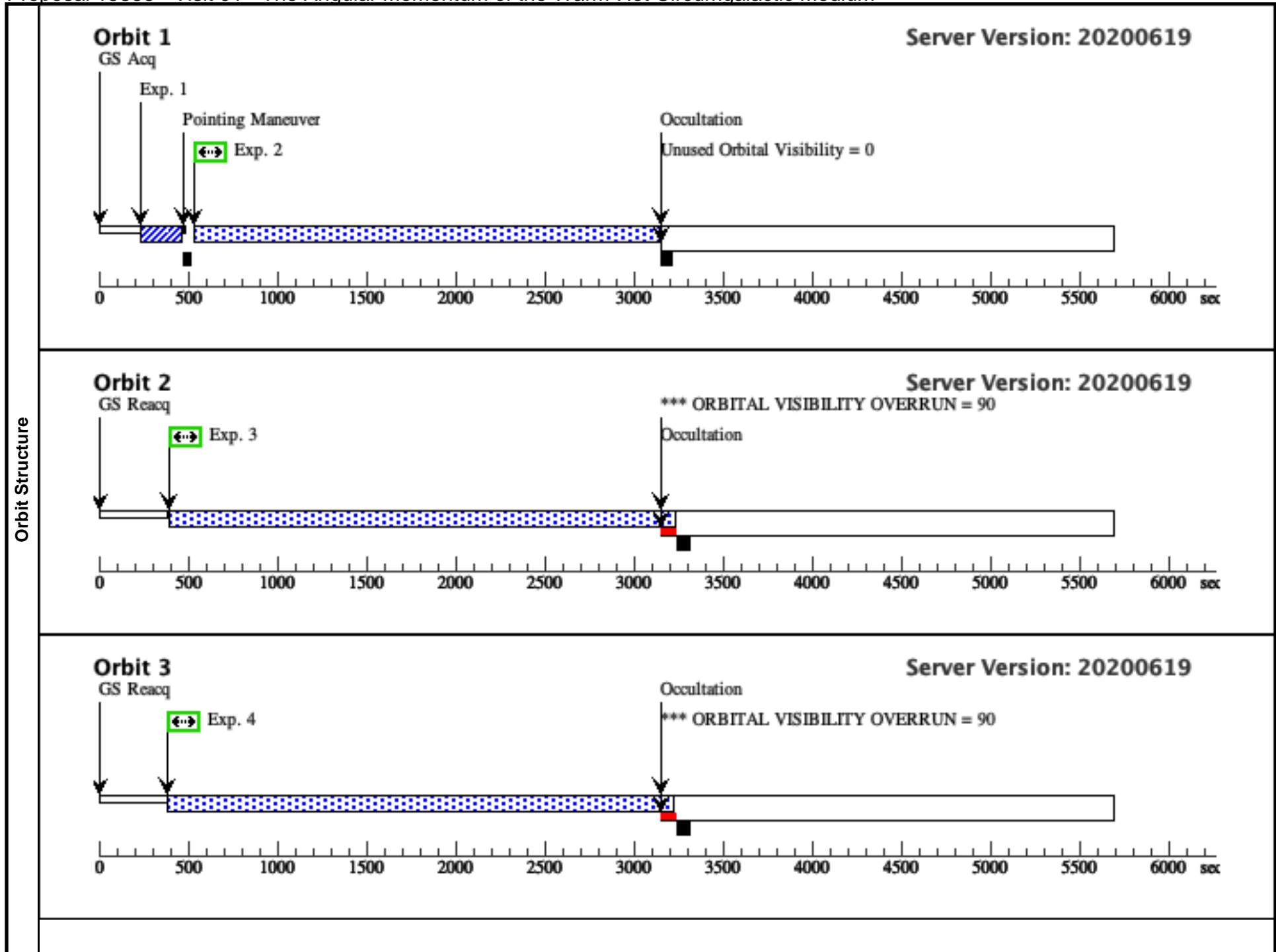
## **OBSERVING DESCRIPTION**

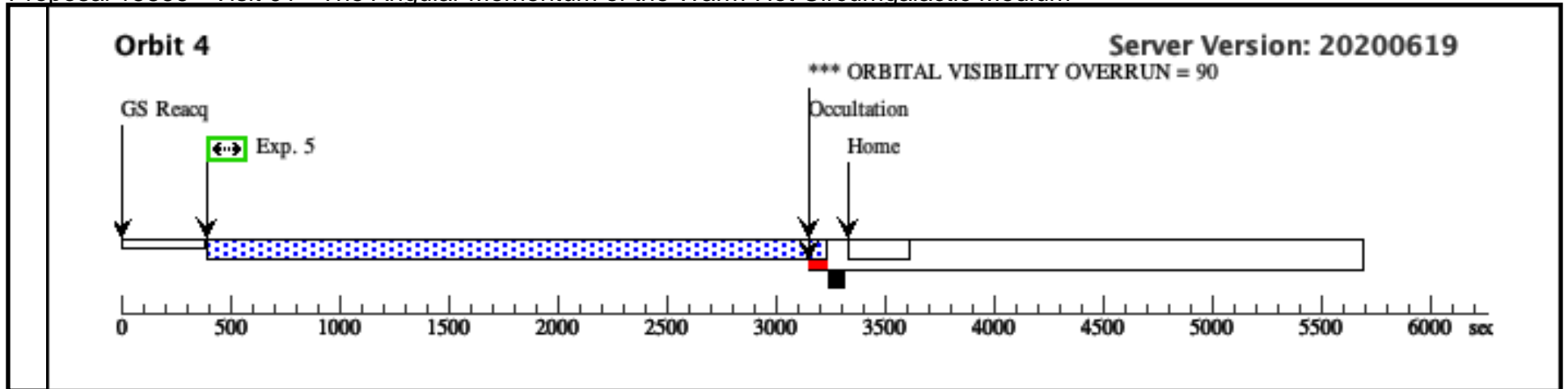
Using the BOT/GALEX tool, we find that all the fields are safe. The BOT/GSCII tool flags four of the target quasars (#1, #3, #7, and #8), but the GALEX photometry indicates these targets are safe. Seven of the quasars will be acquired using NUV ACQ/IMAGE mode with MIRRORA; the NUV brightest target requires MIRRORB. No ACQ/SEARCH should be necessary because the targets are point sources at ultraviolet wavelengths, and coordinates are known to an accuracy better than 0.4 arcseconds. We used the TA ETC to calculate the exposure time required to reach SNR of 20; the GALEX NUV magnitudes were used to normalize a power law SED of slope  $F_{\lambda} \sim \lambda^{-0.59}$ . A non-interruptible sequence links the spectroscopic exposures to the target acquisition. The G130M spectra need to cover the intervening O VI 1032, 38 Å absorption lines from foreground galaxies. The galaxy redshifts (0.13629 to 0.28940) place the observed doublet at 1175 to 1335 Å. The 1291 central wavelength provides the highest throughput at these wavelengths, and following COS2025 Policy, we observe at FP-POS3 and FP-POS4. We observe one target, J0919+2914, with CWL 1222 because the OVI absorption from the CGM of the target galaxy ( $z=0.23288$ ) would fall in the detector gap with CWL 1291, and we use all the FP-POS positions for this observation. With one exception, we structured the visits to contain 2 to 3 orbits to facilitate scheduling. We request 4 consecutive orbits for J0852+1711 because it is more challenging to obtain the desired SNR for this target.

Proposal 15866 - Visit 01 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:20 GMT 2020

<b>Visit</b>	<b>Proposal 15866, Visit 01, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(1)	J085215.34+171143.8	RA: 08 52 15.3450 (133.0639375d) Dec: +17 11 43.85 (17.19551d) Equinox: J2000		V=18.23 GALEX FUV = 19.61 GALEX _NUV = 18.70	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.136 8290)	(1) J085215.34+171 143.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5.9 Secs (5.9 Secs) [==>]	[1]
	2	(COS.sp.136 8306)	(1) J085215.34+171 143.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2439 Secs (2439 Secs) [==>]	[1]
	3	(COS.sp.136 8306)	(1) J085215.34+171 143.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2790 Secs (2790 Secs) [==>]	[2]
	4	(COS.sp.136 8306)	(1) J085215.34+171 143.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2790 Secs (2790 Secs) [==>]	[3]
	5	(COS.sp.136 8306)	(1) J085215.34+171 143.8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2790 Secs (2790 Secs) [==>]	[4]

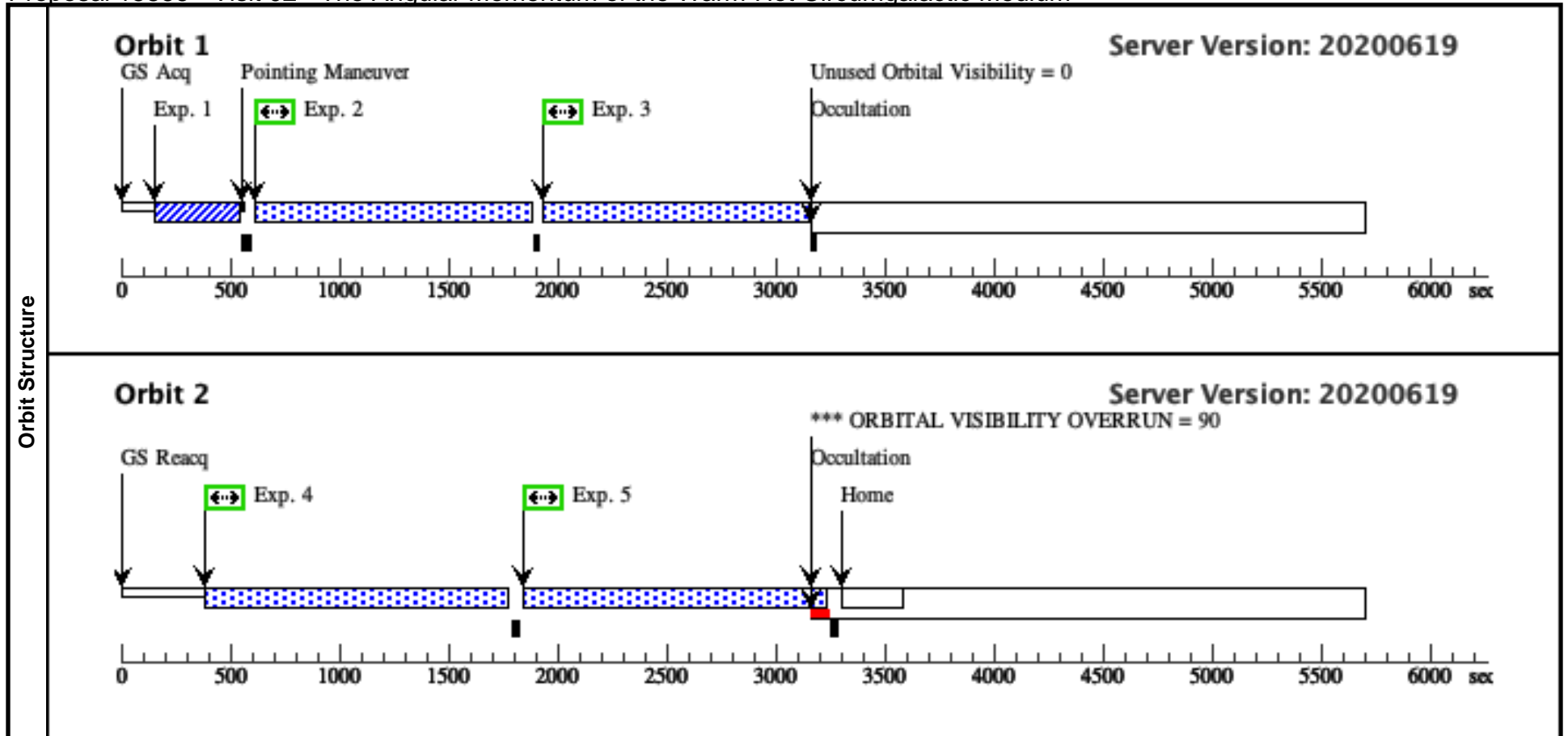




Proposal 15866 - Visit 02 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:20 GMT 2020

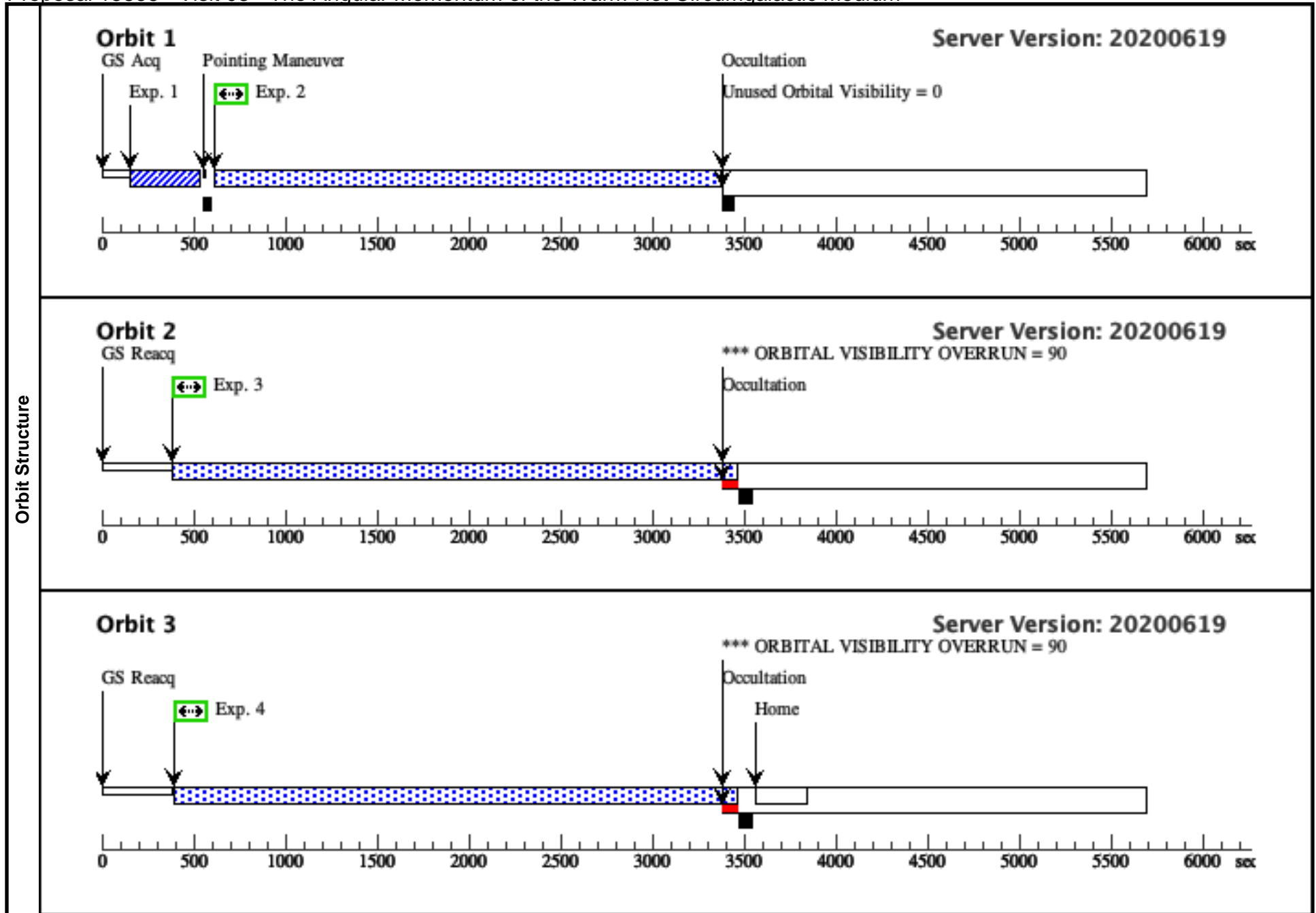
<b>Visit</b>	Proposal 15866, Visit 02, completed <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(2)	J091954.28+291408.3	RA: 09 19 54.2820 (139.9761750d) Dec: +29 14 8.36 (29.23566d) Equinox: J2000		V=17.56 GALEX FUV = 18.60 _NUV =17.87	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.139 4826)	(2) J091954.28+291 408.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				45.6 Secs (45.6 Secs) [==>]	[1]
	2	(COS.sp.136 9174)	(2) J091954.28+291 408.3	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=1; BUFFER-TIME=11 210			1083 Secs (1083 Secs) [==>]	[1]
	3	(COS.sp.136 9174)	(2) J091954.28+291 408.3	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=2; BUFFER-TIME=11 210			1165 Secs (1165 Secs) [==>]	[1]
	4	(COS.sp.136 9175)	(2) J091954.28+291 408.3	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=3; BUFFER-TIME=11 210			1342 Secs (1342 Secs) [==>]	[2]
	5	(COS.sp.136 9175)	(2) J091954.28+291 408.3	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=4; BUFFER-TIME=11 210			1342 Secs (1342 Secs) [==>]	[2]



Proposal 15866 - Visit 03 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:20 GMT 2020

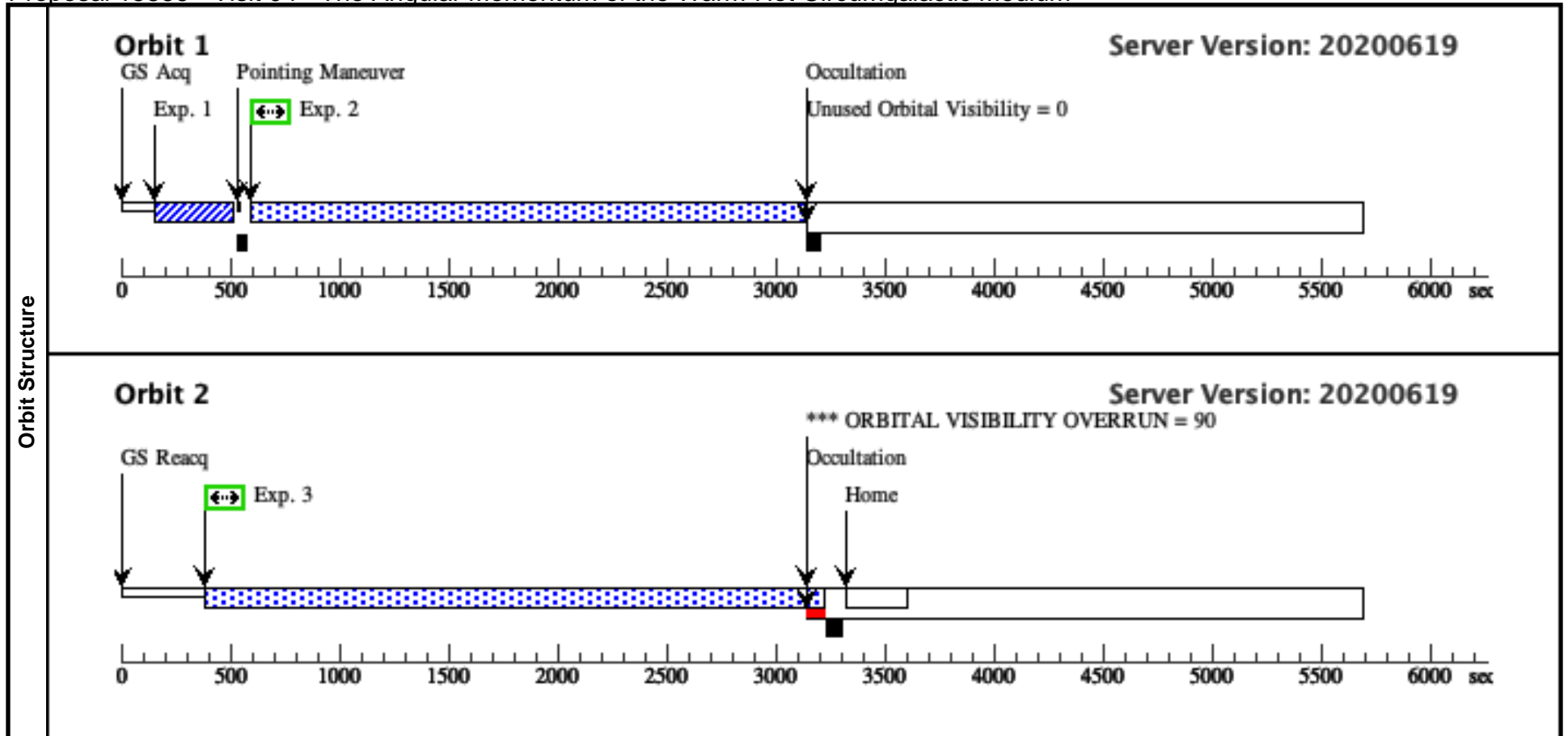
<b>Visit</b>	<b>Proposal 15866, Visit 03, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(3)	J103640.74+565125.9	RA: 10 36 40.7430 (159.1697625d) Dec: +56 51 25.98 (56.85722d) Equinox: J2000		V=17.11 GALEX FUV = 18.89 _NUV =17.84	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.139 4693)	(3) J103640.74+565 125.9	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				44.8 Secs (44.8 Secs) [==>]	[1]
	2	(COS.sp.136 8328)	(3) J103640.74+565 125.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=46 70			2594 Secs (2594 Secs) [==>]	[1]
	3	(COS.sp.136 8328)	(3) J103640.74+565 125.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=46 70			3023 Secs (3023 Secs) [==>]	[2]
	4	(COS.sp.136 8328)	(3) J103640.74+565 125.9	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=46 70			3023 Secs (3023 Secs) [==>]	[3]



Proposal 15866 - Visit 04 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:21 GMT 2020

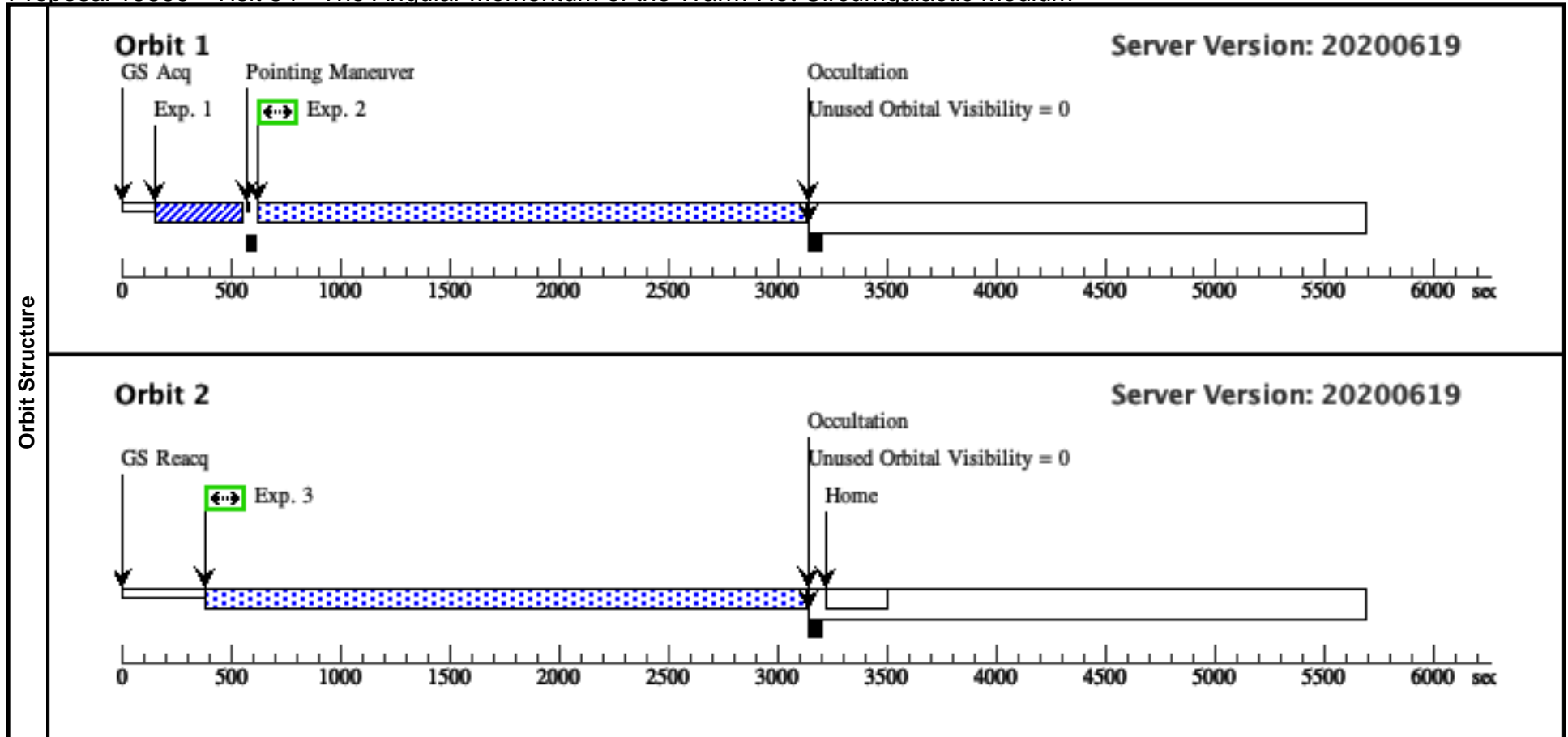
<b>Visit</b>	<b>Proposal 15866, Visit 04, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	J123317.75+103538.1	RA: 12 33 17.7590 (188.3239958d) Dec: +10 35 38.19 (10.59394d) Equinox: J2000		V=17.03 GALEX FUV = 19.61 GALEX _NUV =18.20	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(COS.ta.139 4697)	(4) J123317.75+103 538.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				33.1 Secs (33.1 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2376 Secs (2376 Secs)	
								[==>]	[1]	
3	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2783 Secs (2783 Secs)		
								[==>]	[2]	



Proposal 15866 - Visit 54 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:21 GMT 2020

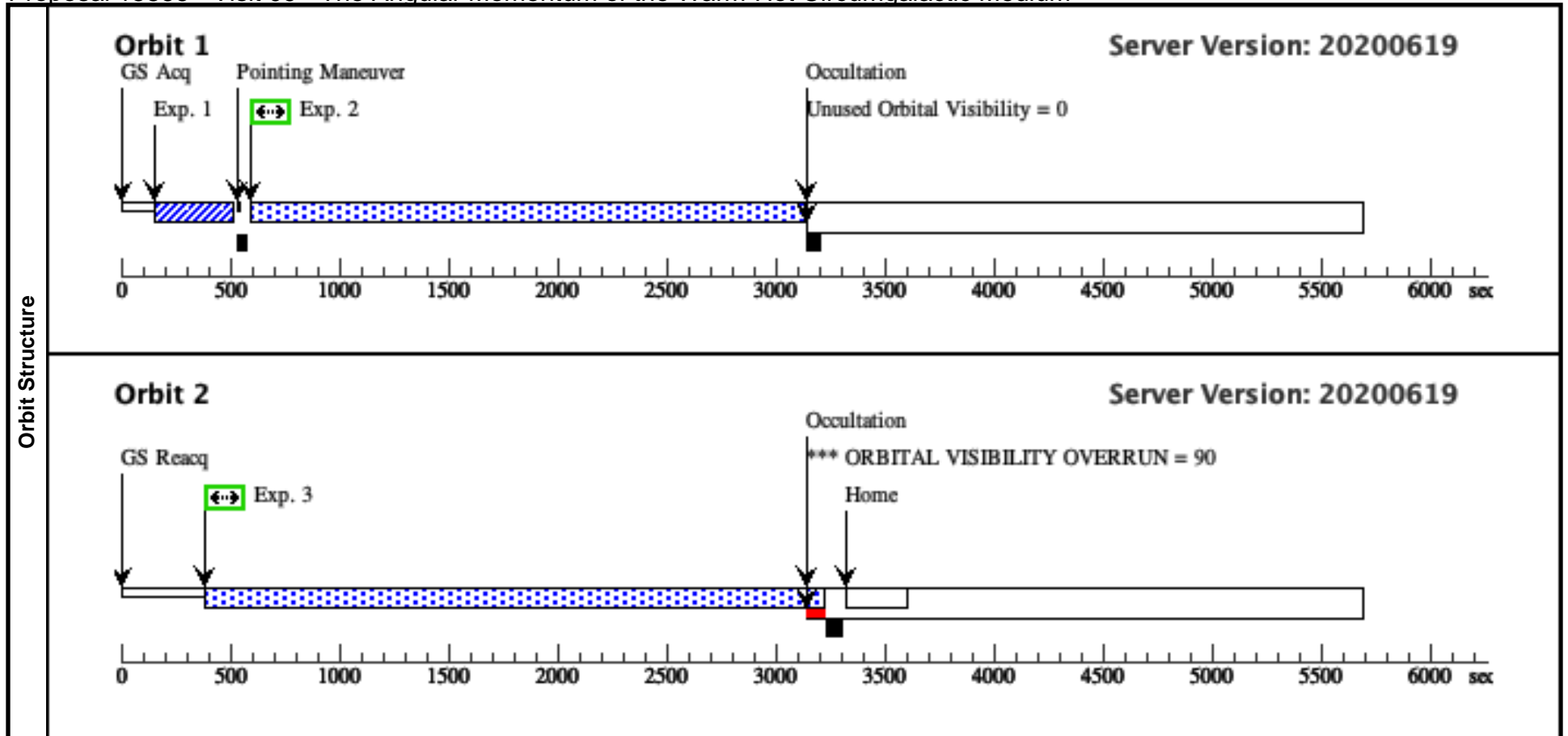
Visit	<b>Proposal 15866, Visit 54, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none) <i>Comments: Repeat of failed visit 04</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(4)	J123317.75+103538.1	RA: 12 33 17.7590 (188.3239958d) Dec: +10 35 38.19 (10.59394d) Equinox: J2000		V=17.03 GALEX FUV = 19.61 _NUV =18.20	Reference Frame: ICRS			
	<i>Comments:</i> Category=GALAXY Description=[QSO, QUASAR] Extended=NO									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(COS.ta.145 6606)	(4) J123317.75+103 538.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				51.9 Secs (51.9 Secs) [==>]	[1]
	2	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2376 Secs (2340 Secs) [==>2340.0 Secs ]	[1]
	3	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2783 Secs (2693 Secs) [==>2693.0 Secs ]	[2]



Proposal 15866 - Visit 09 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:21 GMT 2020

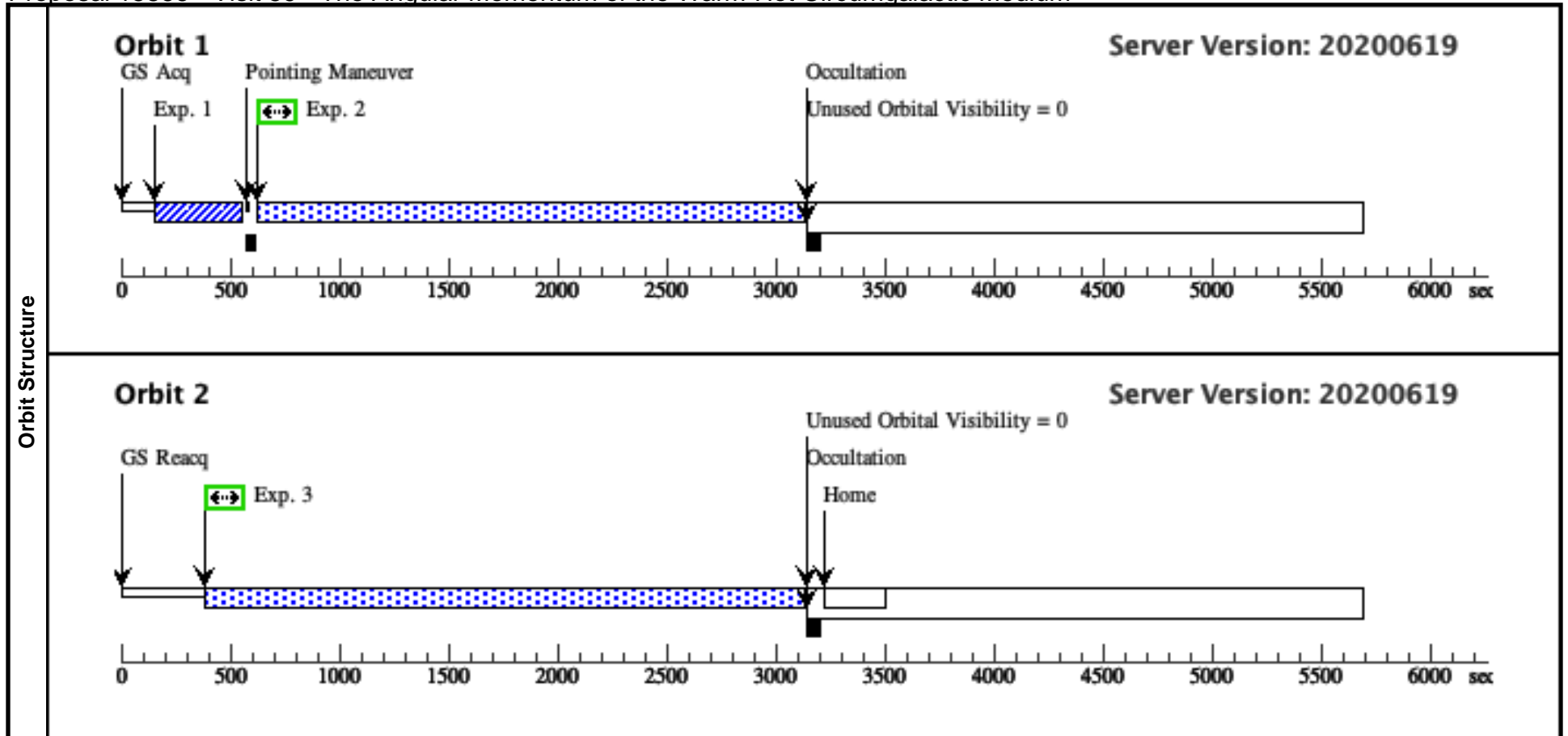
<b>Visit</b>	<b>Proposal 15866, Visit 09, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 09) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(4)	J123317.75+103538.1	RA: 12 33 17.7590 (188.3239958d) Dec: +10 35 38.19 (10.59394d) Equinox: J2000		V=17.03 GALEX FUV = 19.61 GALEX _NUV =18.20	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.139 4697)	(4) J123317.75+103 538.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				33.1 Secs (33.1 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2376 Secs (2376 Secs)	
								[==>]	[1]	
3	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2783 Secs (2783 Secs)		
								[==>]	[2]	



Proposal 15866 - Visit 59 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

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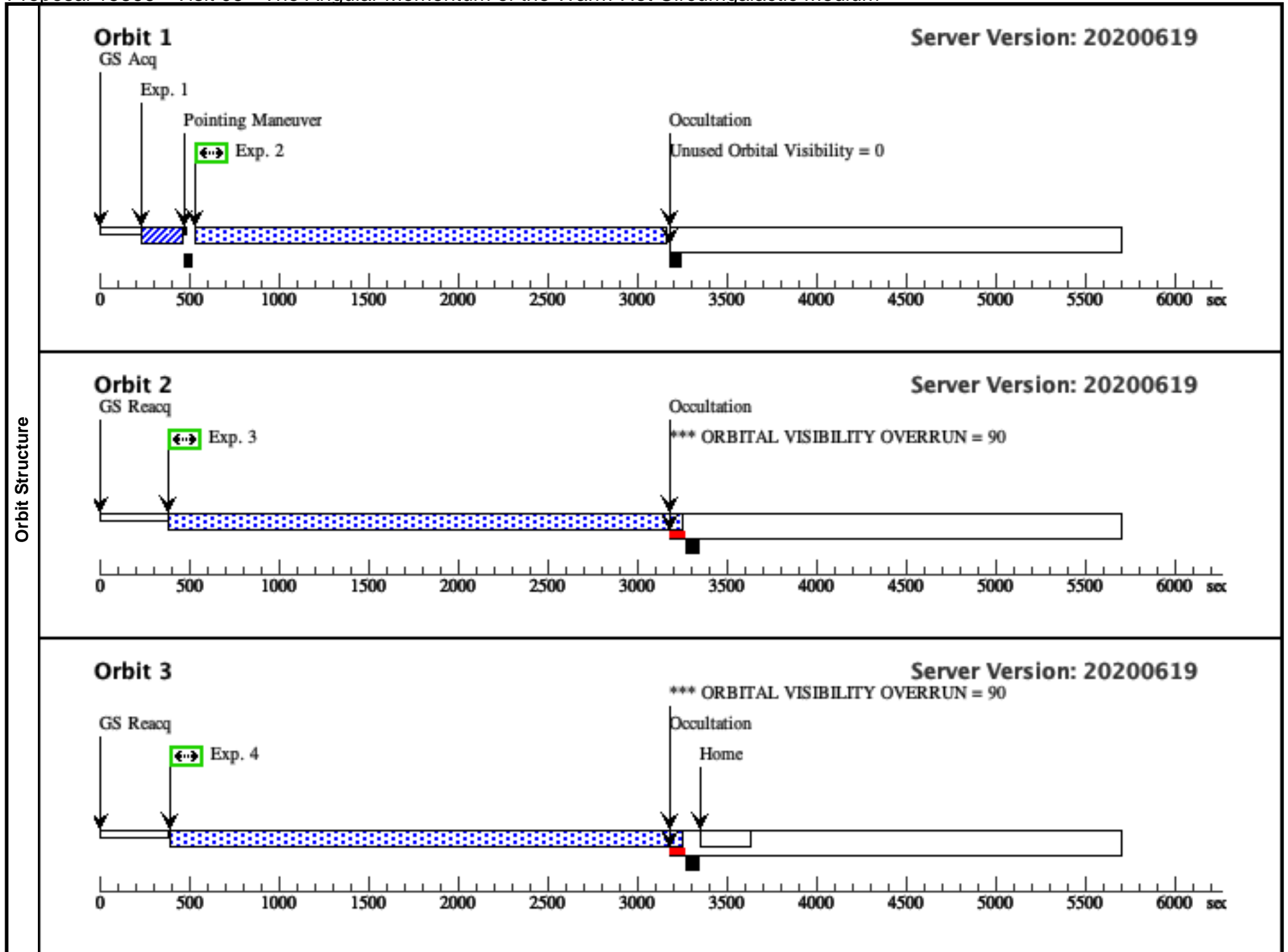
Visit	<b>Proposal 15866, Visit 59, implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: AFTER 54 BY 25 D TO 40 D Comments: Repeat of failed visit 09									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(4)	J123317.75+103538.1	RA: 12 33 17.7590 (188.3239958d) Dec: +10 35 38.19 (10.59394d) Equinox: J2000		V=17.03 GALEX FUV = 19.61 _NUV =18.20	Reference Frame: ICRS			
	Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(COS.ta.140 6606)	(4) J123317.75+103 538.1	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				51.9 Secs (51.9 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 01			2376 Secs (2340 Secs)	
								[==>2340.0 Secs ]	[1]	
3	(COS.sp.136 8329)	(4) J123317.75+103 538.1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 01			2783 Secs (2693 Secs)		
								[==>2693.0 Secs ]	[2]	



Proposal 15866 - Visit 05 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:21 GMT 2020

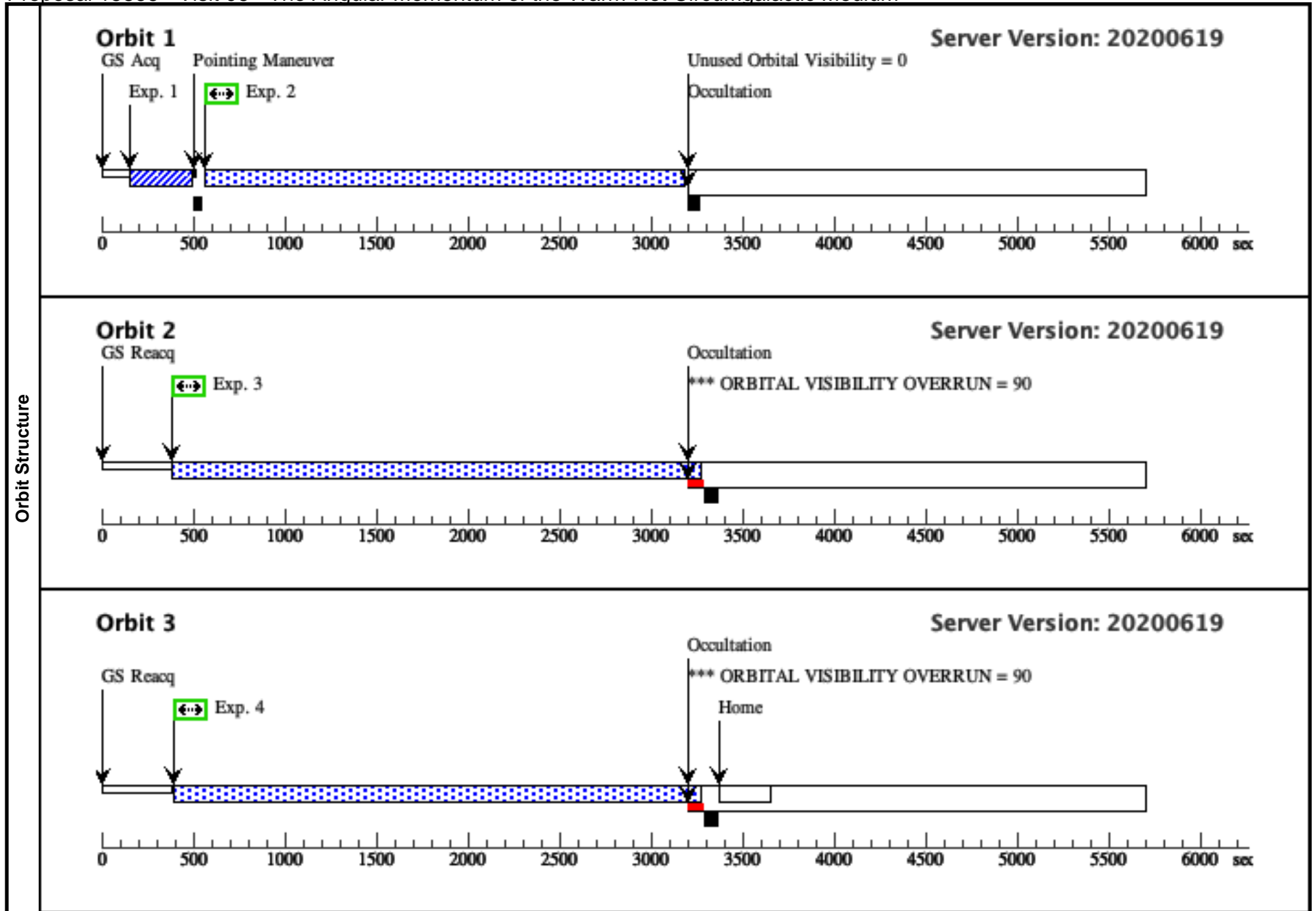
<b>Visit</b>	<b>Proposal 15866, Visit 05, scheduled</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>			<b>Fluxes</b>	<b>Miscellaneous</b>		
	(5)	J135522.89+303324.7	RA: 13 55 22.8960 (208.8454000d) Dec: +30 33 24.76 (30.55688d) Equinox: J2000				V=18.28 GALEX FUV = 19.25 GALEX_ NUV =18.54	Reference Frame: ICRS		
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.136 8312)	(5) J135522.89+303 324.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				5.5 Secs (5.5 Secs) [==>]	[1]
	2	(COS.sp.136 8330)	(5) J135522.89+303 324.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=48 57			2463 Secs (2463 Secs) [==>]	[1]
	3	(COS.sp.136 8330)	(5) J135522.89+303 324.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=48 57			2814 Secs (2814 Secs) [==>]	[2]
	4	(COS.sp.136 8330)	(5) J135522.89+303 324.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=48 57			2814 Secs (2814 Secs) [==>]	[3]



Proposal 15866 - Visit 06 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

Thu Jul 23 19:00:21 GMT 2020

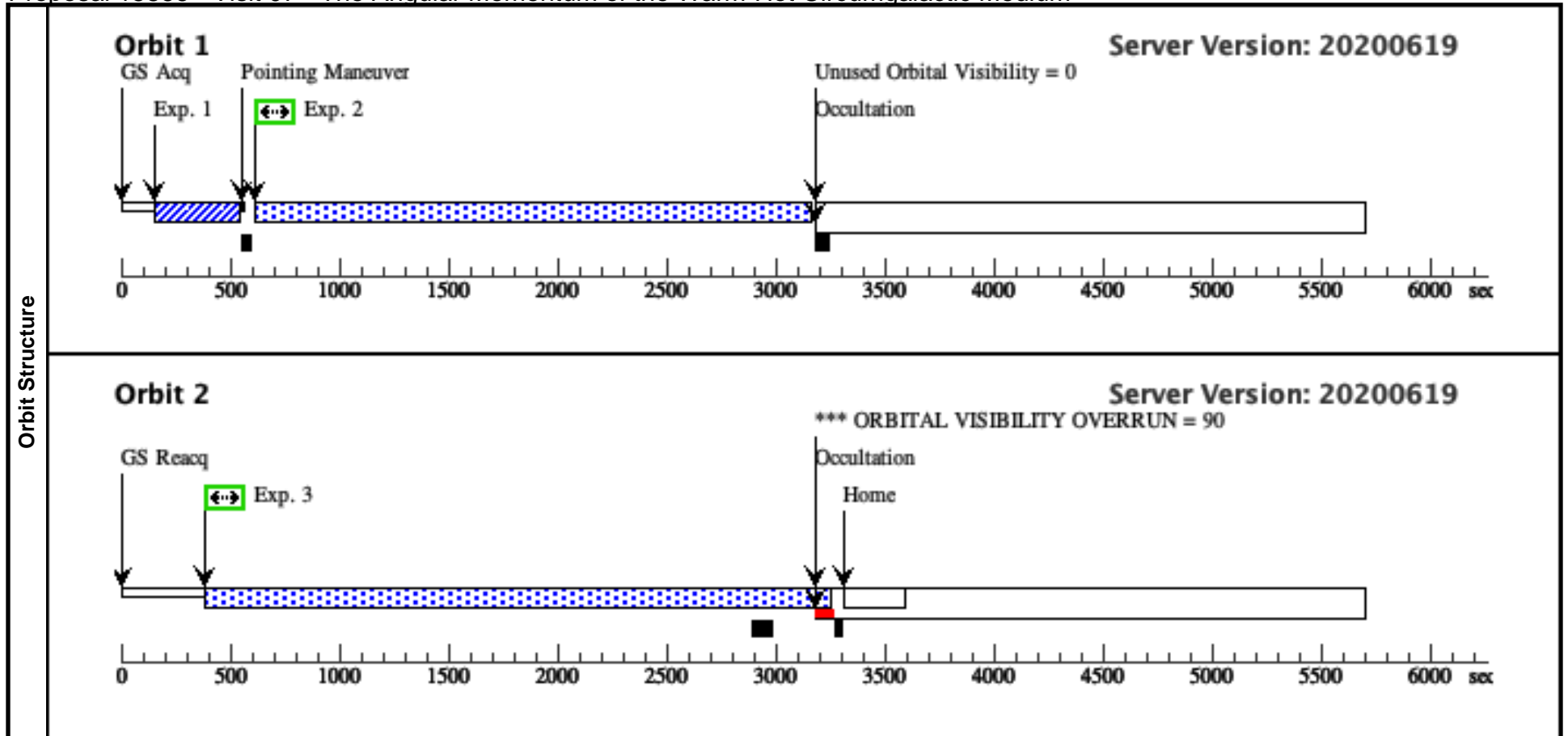
<b>Visit</b>	<b>Proposal 15866, Visit 06, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(6)	J142501.46+382100.5	RA: 14 25 1.4610 (216.2560875d) Dec: +38 21 0.52 (38.35014d) Equinox: J2000		V=16.63 GALEX FUV = 19.01 GALEX _NUV =17.43	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.136 8314)	(6) J142501.46+382 100.5	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				20.3 Secs (20.3 Secs) [==>]	[1]
	2	(COS.sp.136 8333)	(6) J142501.46+382 100.5	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=47 37			2453 Secs (2453 Secs) [==>]	[1]
	3	(COS.sp.136 8333)	(6) J142501.46+382 100.5	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=47 37			2834 Secs (2834 Secs) [==>]	[2]
	4	(COS.sp.136 8333)	(6) J142501.46+382 100.5	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=47 37			2834 Secs (2834 Secs) [==>]	[3]



Proposal 15866 - Visit 07 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

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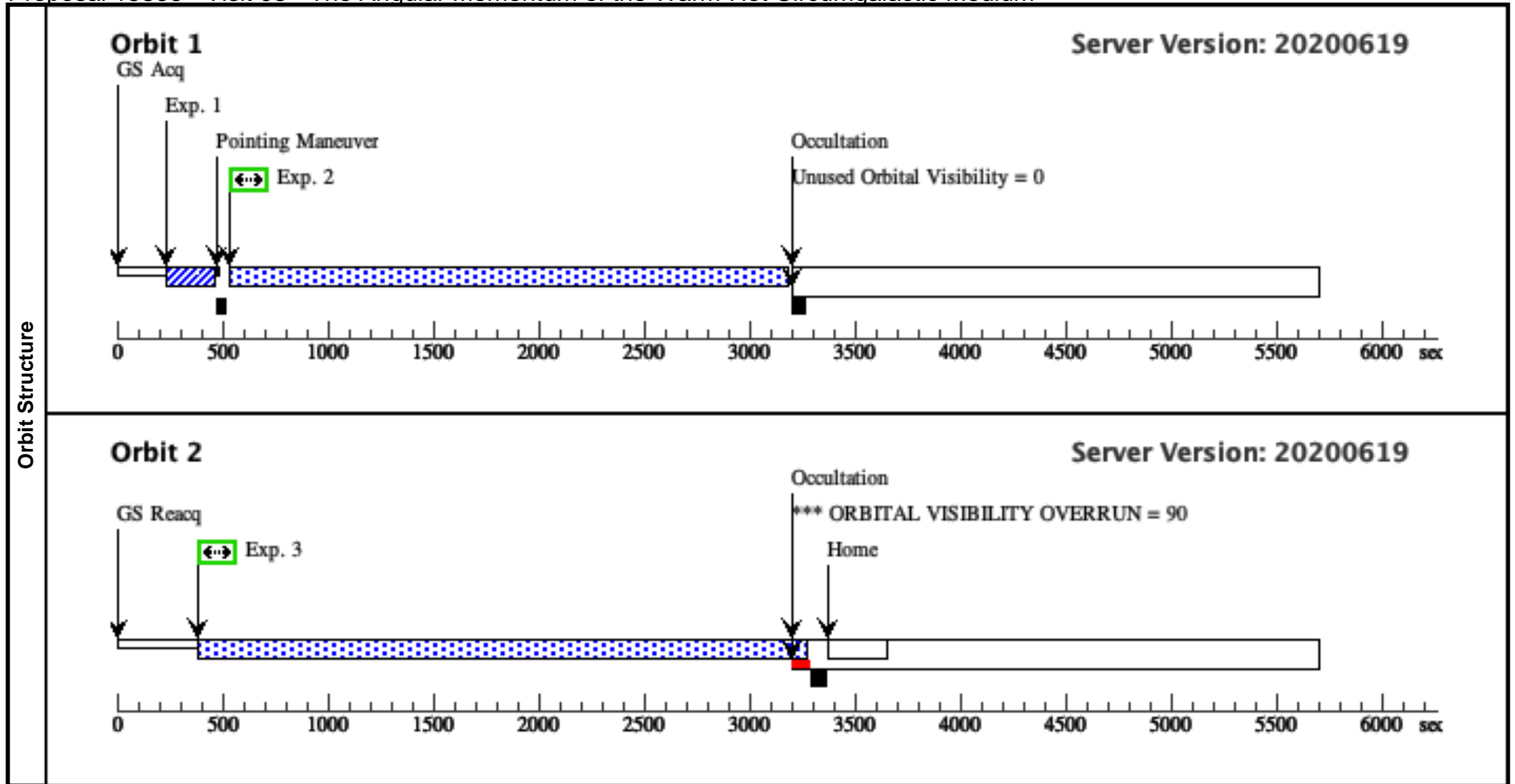
<b>Visit</b>	<b>Proposal 15866, Visit 07, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(7)	J154741.88+343357.3	RA: 15 47 41.8820 (236.9245083d) Dec: +34 33 57.32 (34.56592d) Equinox: J2000		V=17.59 GALEX FUV = 18.89 GALEX _NUV =17.89	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.139 4698)	(7) J154741.88+343 357.3	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				45.3 Secs (45.3 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8336)	(7) J154741.88+343 357.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=46 70			2383 Secs (2383 Secs)	
									[==>]	[1]
3	(COS.sp.136 8336)	(7) J154741.88+343 357.3	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=24 71			2814 Secs (2814 Secs)		
								[==>]	[2]	



Proposal 15866 - Visit 08 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

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<b>Visit</b>	Proposal 15866, Visit 08, completed <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>			<b>Fluxes</b>	<b>Miscellaneous</b>		
	(8)	J160951.81+353843.7	RA: 16 09 51.8130 (242.4658875d) Dec: +35 38 43.79 (35.64550d) Equinox: J2000				V=17.82 GALEX FUV = 19.18 GALEX _NUV =18.18	Reference Frame: ICRS		
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.136 8316)	(8) J160951.81+353 843.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				4.8 Secs (4.8 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8339)	(8) J160951.81+353 843.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=48 25			2485 Secs (2485 Secs)	
								[==>]	[1]	
3	(COS.sp.136 8339)	(8) J160951.81+353 843.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=48 25			2834 Secs (2834 Secs)		
								[==>]	[2]	



Proposal 15866 - Visit 10 - The Angular Momentum of the Warm-Hot Circumgalactic Medium

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<b>Visit</b>	Proposal 15866, Visit 10, completed <b>Diagnostic Status: Warning</b> Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Visit 10) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(8)	J160951.81+353843.7	RA: 16 09 51.8130 (242.4658875d) Dec: +35 38 43.79 (35.64550d) Equinox: J2000		V=17.82 GALEX FUV = 19.18 GALEX _NUV =18.18	Reference Frame: ICRS				
Comments: Category=GALAXY Description=[QSO, QUASAR] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	(COS.ta.136 8316)	(8) J160951.81+353 843.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				4.8 Secs (4.8 Secs)	
									[==>]	[1]
	2	(COS.sp.136 8339)	(8) J160951.81+353 843.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=48 25			2485 Secs (2485 Secs)	
									[==>]	[1]
3	(COS.sp.136 8339)	(8) J160951.81+353 843.7	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=48 25			2834 Secs (2834 Secs)		
								[==>]	[2]	

