



11720 - Detailed analysis of carbon atmosphere white dwarfs

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) SDSSJ010647.92+151327.8	COS/FUV COS/NUV	1	01-Jul-2009 21:21:59.0	yes
02	(1) SDSSJ010647.92+151327.8	COS/NUV	3	01-Jul-2009 21:22:03.0	yes
03	(1) SDSSJ010647.92+151327.8	COS/NUV	1	01-Jul-2009 21:22:06.0	yes
04	(1) SDSSJ010647.92+151327.8	COS/NUV	2	01-Jul-2009 21:22:08.0	yes
05	(2) SDSSJ115305.54+005646.2	COS/FUV COS/NUV	1	01-Jul-2009 21:22:10.0	yes
06	(2) SDSSJ115305.54+005646.2	COS/NUV	2	01-Jul-2009 21:22:13.0	yes
07	(2) SDSSJ115305.54+005646.2	COS/NUV	1	01-Jul-2009 21:22:15.0	yes
08	(2) SDSSJ115305.54+005646.2	COS/NUV	1	01-Jul-2009 21:22:17.0	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>
09	(3) SDSSJ133710.19-002643.7	COS/FUV COS/NUV	1	01-Jul-2009 21:22:19.0	yes
10	(3) SDSSJ133710.19-002643.7	COS/NUV	2	01-Jul-2009 21:22:21.0	yes
11	(3) SDSSJ133710.19-002643.7	COS/NUV	1	01-Jul-2009 21:22:23.0	yes
12	(3) SDSSJ133710.19-002643.7	COS/NUV	1	01-Jul-2009 21:22:24.0	yes
13	(4) SDSSJ142625.70+575218.4	COS/FUV COS/NUV	5	01-Jul-2009 21:22:28.0	yes
14	(4) SDSSJ142625.70+575218.4	COS/NUV	3	01-Jul-2009 21:22:32.0	yes
15	(4) SDSSJ142625.70+575218.4	COS/NUV	2	01-Jul-2009 21:22:35.0	yes
16	(4) SDSSJ142625.70+575218.4	COS/NUV	2	01-Jul-2009 21:22:37.0	yes
17	(5) SDSSJ220029.09-074121.5	COS/FUV COS/NUV	1	01-Jul-2009 21:22:39.0	yes
18	(5) SDSSJ220029.09-074121.5	COS/NUV	1	01-Jul-2009 21:22:41.0	yes
19	(5) SDSSJ220029.09-074121.5	COS/NUV	1	01-Jul-2009 21:22:43.0	yes
20	(5) SDSSJ220029.09-074121.5	COS/NUV	1	01-Jul-2009 21:22:44.0	yes

33 Total Orbits Used

ABSTRACT

We propose to obtain UV spectra for the newly discovered white dwarf stars with a carbon-dominated atmosphere. Model calculations show that these stars emit most of their light in the UV part of the electromagnetic spectrum and that an accurate determination of the flux in this region is crucial for an accurate determination of the atmospheric parameters. It will also provide a unique opportunity to test the atomic data and broadening theory in stellar conditions never met before. This will play a primordial role in our path to understand the origin of these objects as well to obtain a better understanding of the evolution of stars in general. The principal objective we hope to achieve with these observations are 1) obtain accurate

surface gravity/mass for these stars, 2) constrain/determine the abundance of other elements (O, He, Mg, Ne etc.), especially oxygen, 3) verify the accuracy of the various theoretical atomic data used in the model calculations, 4) understand the origin and evolution of carbon atmosphere white dwarfs, in particular whether progenitor stars as massive as 10.5 solar masses can produce white dwarfs, rather than supernovae. We propose to observe 5 objects chosen carefully to cover the range of observed properties among carbon atmosphere white dwarfs (effective temperature, surface gravity, abundance of hydrogen/helium and magnetic field).

OBSERVING DESCRIPTION

Our goal is to obtain an almost complete spectral energy distribution covering ~ 1200 to 3000 \AA . This would allow to nicely probe the short wavelength region where the flux is starting to rise as well as the region where most of the flux emerges (see Fig. 2). Since most of the carbon lines that dominate the spectra are very broad, low resolution observations with the FUV G140L and NUV G230L gratings will be used. To cover the most of the NUV region, we would use the G230L grating with three different nominal wavelength setting of respectively 2635, 2950 and 3360 \AA . For the G140L grating, the nominal wavelength setting will be at 1230 \AA . Below we present our choice of objects (as well as justification for each of them), the exposure time and number of orbits needed to achieve $S/N = 20$ or more at 1400, 2600 1850 and 2250 \AA ~(these wavelengths correspond to a continuum region of the spectrum for each of the setting described above). Since our objects are relatively far (see Fig. 1), we do the calculation by assuming the full correction for interstellar extinction, as given by the value of $E(B-V)$ on each line of sight from the maps of Schlegel et al. (1998). In some cases, this is probably overcorrecting but since we do not really have a way to know the real value, we assume the worst case scenario. We estimate this program will necessitate a total of thirty three orbits, also allowing for improvement on S/N when completing the respective orbits. These objects were chosen to cover the range of observed properties in our sample (effective temperature, surface gravity, hydrogen/helium abundance, and magnetic field).

1 SDSS J142625.70+575218.4: This star is a very important object since it is the only one that shows pulsations. Asteroseismology studies require accurate atmospheric parameters (T_{eff} and $\log g$) to be able to interpret correctly the pulsations and perhaps determine if the core is made of C and O or O-Mg-Ne. With the help of the COS ETC and using our model fit of this star (Dufour et al. 2008) normalized at the g band, we obtain exposure time of 14,094s for G140L and 7661, 4074 and 4267s for the three G230L settings. The corresponding buffer times are all much longer than

exposure time so we take the later value. It thus requires 12 orbits.

2 SDSS J010647.92+151327.8: This is the only object in our sample to show the HeI 4471 line. It is also the hottest known carbon atmosphere white dwarf and thus a large fraction of the flux should be in the UV. We estimate exposure time of 1835s for G140L and 6457 2503 and 3234s for the three G230L settings. The corresponding buffer times are much longer than exposure time so we take the later value. It thus requires 7 orbits.

3 SDSS J115305.54+005646.2: This star is a typical case among the nine carbon atmosphere white dwarfs discovered so far. Optical spectra show no trace of either hydrogen or helium. We estimate exposure time of 2630s for G140L and 6218, 2567 and 2929s for the three G230L settings. The corresponding buffer times are much longer than exposure time so we take the later value. It thus requires 6 orbits.

4 SDSS J133710.19+002643.7: This object is very similar to SDSS J115305.54+005646.2 with the exception that it has a trace of hydrogen (see H β). We estimate exposure time of 2480s for G140L and 5229, 2228 and 2542s for the three G230L settings. The corresponding buffer times are all much longer than exposure time so we take the later value. It thus requires 5 orbits.

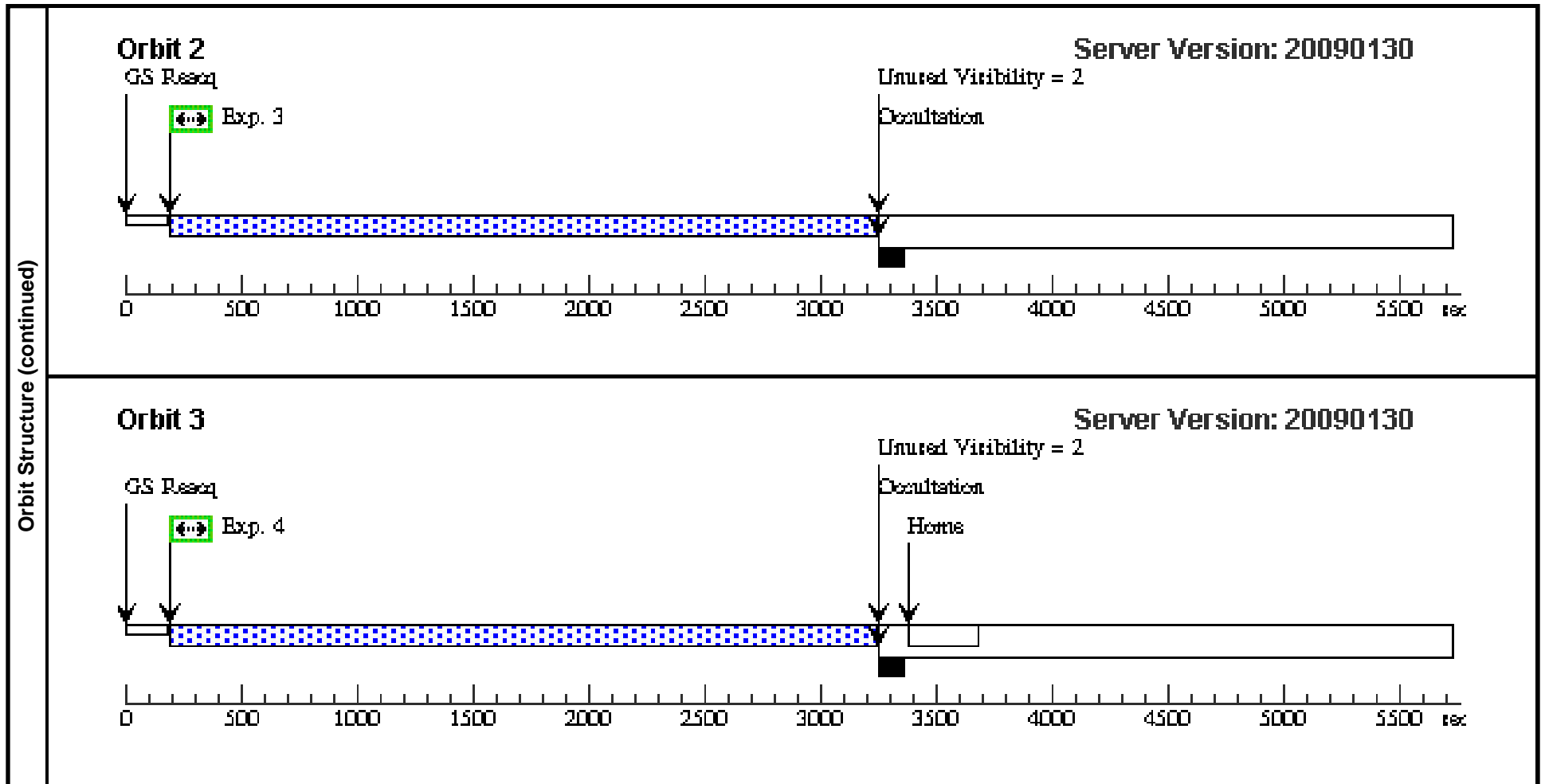
5 SDSS J220029.09-074121.5: This is the brightest object in our sample. The CII line near 4370 is abnormally broad, suggesting that a weak magnetic field slightly splits the line into three unresolved components. We estimate exposure time of 1024s for G140L and 2121, 928 and 1078s for the three G230L settings. The corresponding buffer times are all much longer the exposure time so we take the later value. It thus require 4 orbits.

Visit	Proposal 11720, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	SDSSJ010647.92+151327.8	RA: 01 06 47.9200 (16.6996667d) Dec: +15 13 27.80 (15.22439d) Equinox: J2000		V=18.34 u = 18.34	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) SDSSJ010647.92 +151327.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				46 Secs [==>]	[1]
	2		(1) SDSSJ010647.92 +151327.8	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=18 36; SEGMENT=A			1836 Secs [==>2164.0 Secs]	[1]
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue hatched bar represents the observation period from 0 to approximately 3200 seconds. Key events are marked with vertical arrows: 'Exp. 1 GS Acq' at 0s, 'Reconfig' at 500s, 'Exp. 2' (highlighted with a green box) at 900s, and 'Occultation Home' at 3200s. A note 'Unused Visibility = 0' is placed above the occultation event. The x-axis is labeled 'sec' and has major ticks every 500 units.</p>									

Proposal 11720 - Visit 02 - Detailed analysis of carbon atmosphere white dwarfs

Thu Jul 02 01:22:48 GMT 2009

Visit	Proposal 11720, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	SDSSJ010647.92+151327.8	RA: 01 06 47.9200 (16.6996667d) Dec: +15 13 27.80 (15.22439d) Equinox: J2000		V=18.34 u = 18.34	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) SDSSJ010647.92+151327.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				46 Secs [==>]	[1]
	2		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=30 00			2800 Secs [==>2558.0 Secs]	[1]
	3		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=30 00			2800 Secs [==>3033.0 Secs]	[2]
	4		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=30 00			2800 Secs [==>3033.0 Secs]	[3]
Orbit Structure										
	Server Version: 20090130									

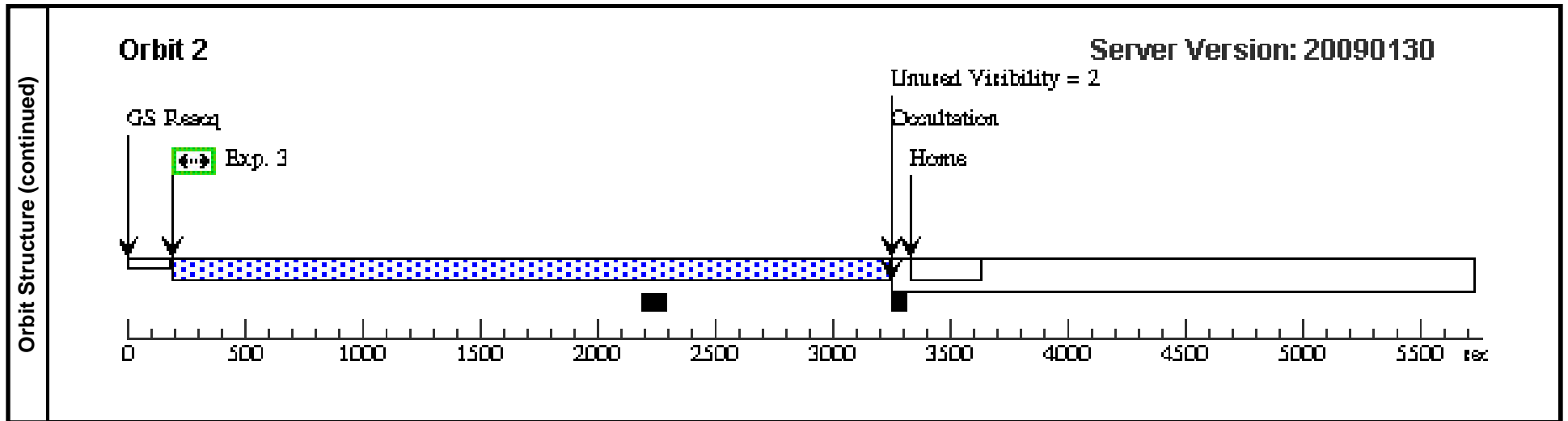


Visit	Proposal 11720, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(1)	SDSSJ010647.92+151327.8	RA: 01 06 47.9200 (16.6996667d) Dec: +15 13 27.80 (15.22439d) Equinox: J2000				V=18.34 u = 18.34	Reference Frame: ICRS		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) SDSSJ010647.92+151327.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				46 Secs	
									[==>]	[1]
	2		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=25 04			2504 Secs	
								[==>2558.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Two exposure periods are indicated: 'Exp. 1' from 0 to 500 seconds (blue diagonal hatching) and 'Exp. 2' from 500 to 3300 seconds (blue checkered pattern). An 'Occultation' event is shown as a solid black bar from approximately 3300 to 3500 seconds, with 'Unused Visibility = 0' and 'Horns' labeled above it. A green box with a double-headed arrow is placed over the start of 'Exp. 2' at 500 seconds.</p>									

Proposal 11720 - Visit 04 - Detailed analysis of carbon atmosphere white dwarfs

Thu Jul 02 01:22:49 GMT 2009

Visit	Proposal 11720, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	SDSSJ010647.92+151327.8	RA: 01 06 47.9200 (16.6996667d) Dec: +15 13 27.80 (15.22439d) Equinox: J2000		V=18.34 u = 18.34	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) SDSSJ010647.92+151327.8	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				46 Secs [=>]	[1]
	2		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=32 34			3235 Secs [=>2558.0 Secs]	[1]
	3		(1) SDSSJ010647.92+151327.8	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=20 00			2000 Secs [=>3033.0 Secs]	[2]
Orbit Structure	<p>Orbit 1 GS Acq</p> <p>Server Version: 20090130 Unused Visibility = 0 Occultation</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>									

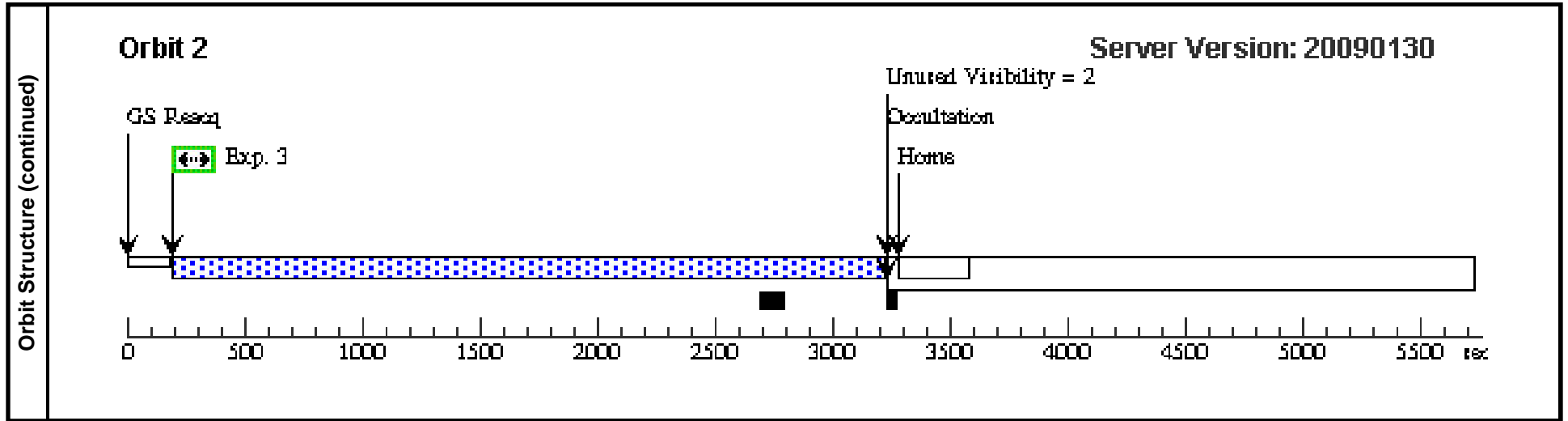


Visit	Proposal 11720, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(2)		SDSSJ115305.54+005646.2	RA: 11 53 5.5400 (178.2730833d) Dec: +00 56 46.20 (.94617d) Equinox: J2000		V=18.41 u = 18.41	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(2) SDSSJ115305.54+005646.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				74 Secs [==>]	[1]	
	2		(2) SDSSJ115305.54+005646.2	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=26 30; SEGMENT=A			2631 Secs [==>2087.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p>										
	<p>Timeline labels: Exp. 1, Reconfig, Exp. 2, Occultation, Home, Unused Visibility = 0</p>										

Proposal 11720 - Visit 06 - Detailed analysis of carbon atmosphere white dwarfs

Thu Jul 02 01:22:49 GMT 2009

Visit	Proposal 11720, Visit 06, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(2)		SDSSJ115305.54+005646.2	RA: 11 53 5.5400 (178.2730833d) Dec: +00 56 46.20 (.94617d) Equinox: J2000		V=18.41 u = 18.41	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(2) SDSSJ115305.54+005646.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				74 Secs [=>]	[1]
	2		(2) SDSSJ115305.54+005646.2	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=25 00			2500 Secs [=>2481.0 Secs]	[1]
	3		(2) SDSSJ115305.54+005646.2	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=25 00			2500 Secs [=>3012.0 Secs]	[2]
Orbit Structure	Server Version: 20090130 									
	The diagram shows a horizontal timeline from 0 to 5500 seconds. - At 0s, 'Orbit 1' begins. - Between 0s and ~500s, there is a blue diagonal hatched segment labeled 'GS Acq' with 'Exp. 1' above it. - Between ~500s and ~3250s, there is a blue checkered segment labeled 'Exp. 2' with a green box around the label. - At ~3250s, an 'Occultation' event occurs, marked with a vertical line and a black square below. - From ~3250s to 5500s, the timeline is white with a black border, labeled 'Unused Visibility = 0'. - The x-axis is labeled 'Sec' and has major ticks every 500 units.									



Visit	Proposal 11720, Visit 07, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(2)		SDSSJ115305.54+005646.2	RA: 11 53 5.5400 (178.2730833d) Dec: +00 56 46.20 (.94617d) Equinox: J2000		V=18.41 u = 18.41	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(2) SDSSJ115305.54+005646.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				74 Secs [=>]	[1]	
	2		(2) SDSSJ115305.54+005646.2	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=25 67			2568 Secs [=>2481.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>Unused Visibility = 0</p> <p>Occultation</p> <p>Home</p> <p>Exp. 1 GS Acq</p> <p>Exp. 2</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>										

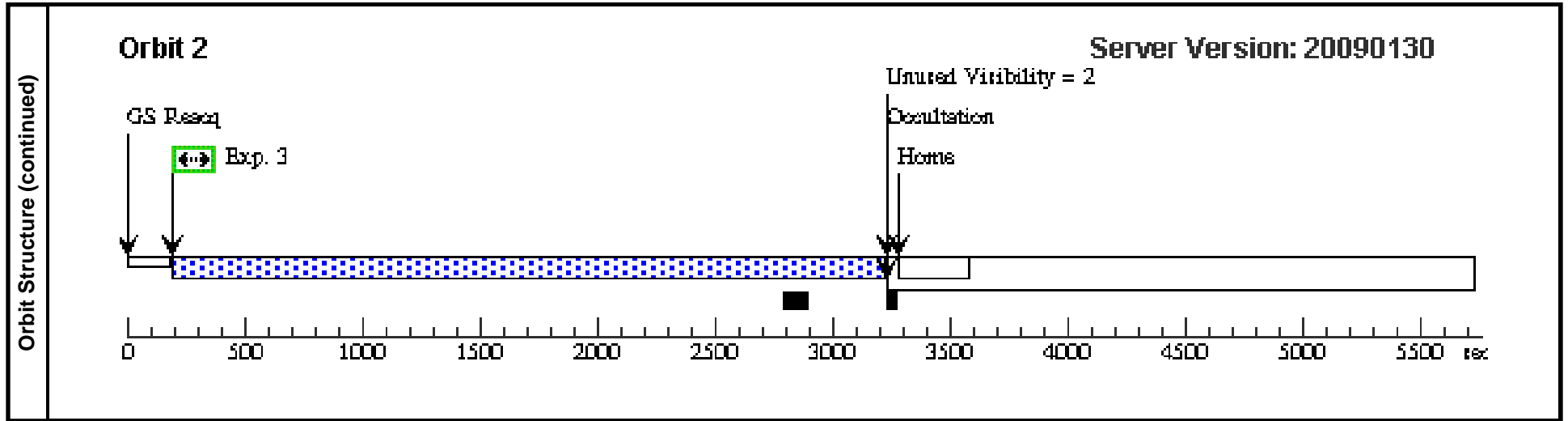
Visit	Proposal 11720, Visit 08, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(2)		SDSSJ115305.54+005646.2	RA: 11 53 5.5400 (178.2730833d) Dec: +00 56 46.20 (.94617d) Equinox: J2000		V=18.41 u = 18.41	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(2) SDSSJ115305.54+005646.2	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				74 Secs [=>]	[1]	
	2		(2) SDSSJ115305.54+005646.2	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=29 29			2930 Secs [=>2481.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>Unused Visibility = 0</p> <p>Occultation</p> <p>Home</p> <p>Exp. 1 GS Acq</p> <p>Exp. 2</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>										

Visit	Proposal 11720, Visit 09, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(3)		SDSSJ133710.19-002643.7	RA: 13 37 10.1900 (204.2924583d) Dec: -00 26 43.70 (-.44547d) Equinox: J2000		V=18.20 u = 18.20	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(3) SDSSJ133710.19-002643.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				55 Secs [==>]	[1]	
	2		(3) SDSSJ133710.19-002643.7	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=24 81			2481 Secs [==>2455.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p>										
	<p>Unused Visibility = 0</p> <p>Occultation</p> <p>Home</p> <p>Exp. 1</p> <p>GS Acq</p> <p>Exp. 2</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>										

Proposal 11720 - Visit 10 - Detailed analysis of carbon atmosphere white dwarfs

Thu Jul 02 01:22:50 GMT 2009

Visit	Proposal 11720, Visit 10, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(3)		SDSSJ133710.19-002643.7	RA: 13 37 10.1900 (204.2924583d) Dec: -00 26 43.70 (-.44547d) Equinox: J2000		V=18.20 u = 18.20	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(3) SDSSJ133710.19-002643.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				55 Secs [=>]	[1]	
	2		(3) SDSSJ133710.19-002643.7	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=26 00			2600 Secs [=>2519.0 Secs]	[1]	
	3		(3) SDSSJ133710.19-002643.7	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=26 00			2600 Secs [=>3012.0 Secs]	[2]	
Orbit Structure	Server Version: 20090130										
	<p>The diagram illustrates the orbit structure over a 5500-second period. It shows three exposure periods: 'Exp. 1' (GS Acq) from 0 to 500 seconds, 'Exp. 2' (indicated by a green box) from 500 to 3250 seconds, and an 'Occultation' period from 3250 to 5500 seconds. The x-axis is labeled 'Sec' and ranges from 0 to 5500. A label 'Unused Visibility = 0' is placed above the occultation period. The text 'Orbit 1' is at the top left, and 'Server Version: 20090130' is at the top right.</p>										



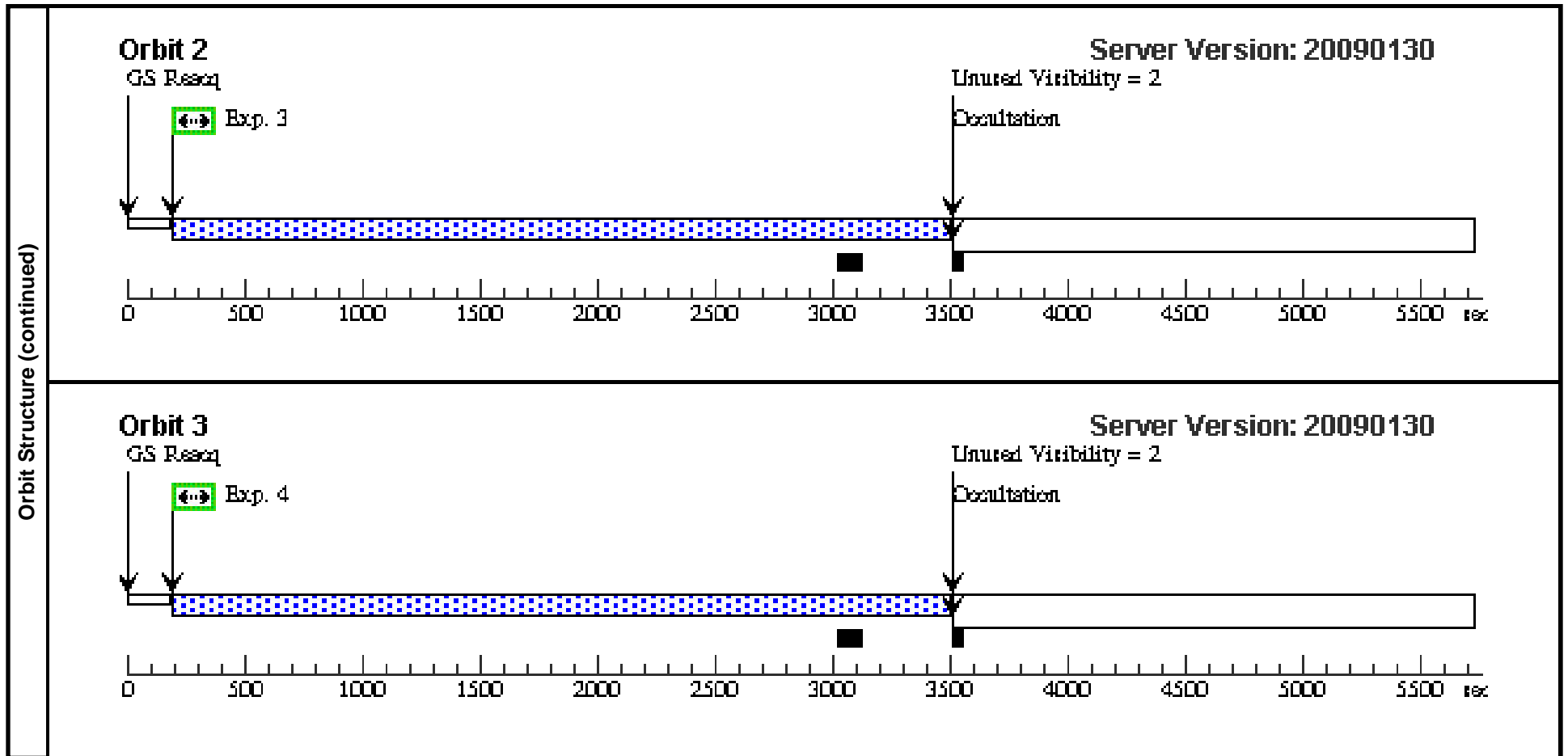
Visit	Proposal 11720, Visit 11, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(3)		SDSSJ133710.19-002643.7	RA: 13 37 10.1900 (204.2924583d) Dec: -00 26 43.70 (-.44547d) Equinox: J2000		V=18.20 u = 18.20	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(3) SDSSJ133710.19-002643.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				55 Secs [=>]	[1]	
	2		(3) SDSSJ133710.19-002643.7	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=22 29			2229 Secs [=>2519.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>The diagram shows a timeline for Orbit 1. Key events include:</p> <ul style="list-style-type: none"> Exp. 1 (GS Acq): Occurs from 0 to 500 seconds. Exp. 2: Occurs from 500 to 3000 seconds, highlighted with a green box. Occultation: Occurs at approximately 3250 seconds, where visibility is zero. Home: A point or event occurring during the occultation period. <p>The x-axis represents time in seconds, ranging from 0 to 5500. A horizontal bar at the bottom of the diagram represents the total duration of the orbit, which ends at approximately 5500 seconds.</p>										

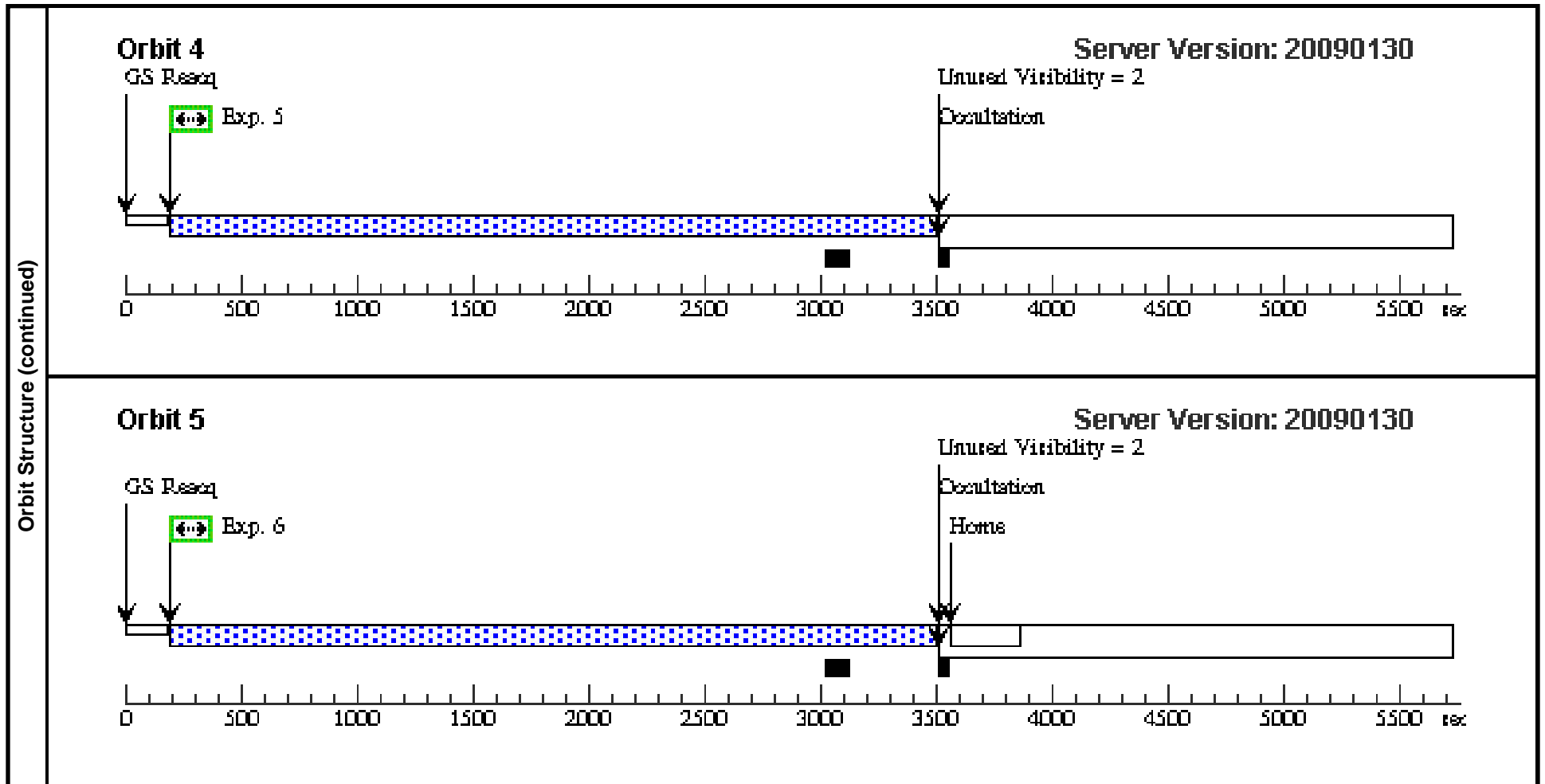
Visit	Proposal 11720, Visit 12, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(3)		SDSSJ133710.19-002643.7	RA: 13 37 10.1900 (204.2924583d) Dec: -00 26 43.70 (-.44547d) Equinox: J2000		V=18.20 u = 18.20	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(3) SDSSJ133710.19-002643.7	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				55 Secs [=>]	[1]	
	2		(3) SDSSJ133710.19-002643.7	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=25 43			2543 Secs [=>2519.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows: 'Exp. 1 GS Acq' at 0s, 'Exp. 2' at 500s, 'Occultation' at ~3200s, and 'Home' at ~3300s. The text 'Unused Visibility = 0' is placed above the occultation event. The timeline is segmented into three main parts: a blue diagonal-hatched segment from 0 to 500s, a blue checkered segment from 500 to 3200s, and a white segment from 3200 to 5500s. A small black square is located at the 500s mark, and another is at the 3200s mark.</p>										

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Visit	Proposal 11720, Visit 13, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	SDSSJ142625.70+575218.4	RA: 14 26 25.7000 (216.6070833d) Dec: +57 52 18.40 (57.87178d) Equinox: J2000		V=18.79 u = 18.79	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) SDSSJ142625.70+575218.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				14 Secs [==>]	[1]
	2		(4) SDSSJ142625.70+575218.4	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=28 00			2800 Secs [==>2847.0 Secs]	[1]
	3		(4) SDSSJ142625.70+575218.4	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=28 00			2800 Secs [==>3256.0 Secs]	[2]
	4		(4) SDSSJ142625.70+575218.4	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=28 00			2800 Secs [==>3256.0 Secs]	[3]
	5		(4) SDSSJ142625.70+575218.4	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=28 00			2800 Secs [==>3256.0 Secs]	[4]
	6		(4) SDSSJ142625.70+575218.4	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=28 00			2800 Secs [==>3256.0 Secs]	[5]
Orbit Structure	<p style="text-align: right;">Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue hatched bar from 0 to 400s is labeled 'GS Acq'. A green checkmark in a box is above the timeline at 400s, labeled 'Exp. 2'. A blue checkered bar from 400 to 3500s represents the main observation period. A black bar from 3500 to 5500s is labeled 'Occultation'. Above the occultation bar, the text 'Unused Visibility = 0' is written. The x-axis has major ticks every 500 seconds.</p>									

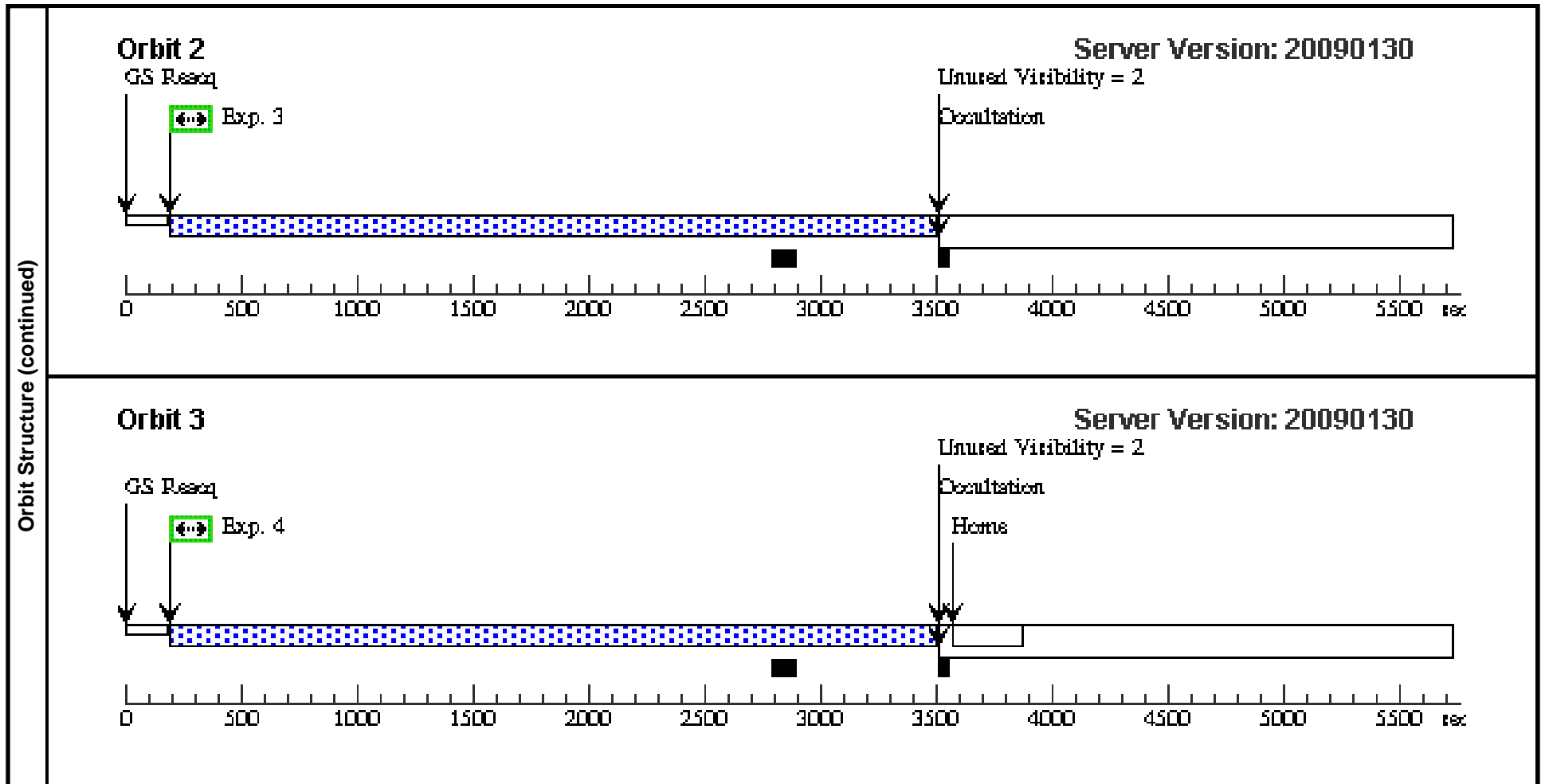




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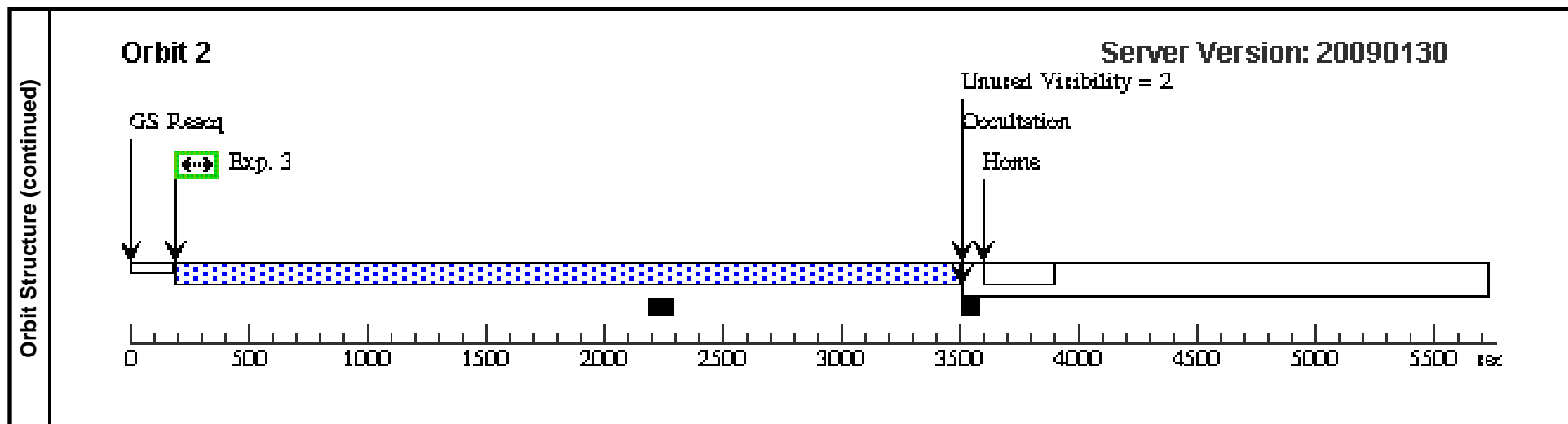
Visit	Proposal 11720, Visit 14, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(4)	SDSSJ142625.70+575218.4	RA: 14 26 25.7000 (216.6070833d) Dec: +57 52 18.40 (57.87178d) Equinox: J2000		V=18.79 u = 18.79	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) SDSSJ142625.70+575218.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				9 Secs [==>]	[1]
	2		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=26 00			2600 Secs [==>2914.0 Secs]	[1]
	3		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=26 00			2600 Secs [==>3293.0 Secs]	[2]
	4		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=26 00			2600 Secs [==>3293.0 Secs]	[3]
Orbit Structure	<p style="text-align: right;">Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. A blue hatched bar from 0 to 400s is labeled 'GS Acq'. A green box with a target icon and 'Exp. 2' is positioned above the timeline from 400 to 3500 seconds. A vertical line at 3500s is labeled 'Occultation'. A note above the occultation line says 'Unused Visibility = 1'. The x-axis has major ticks every 500 seconds.</p>									



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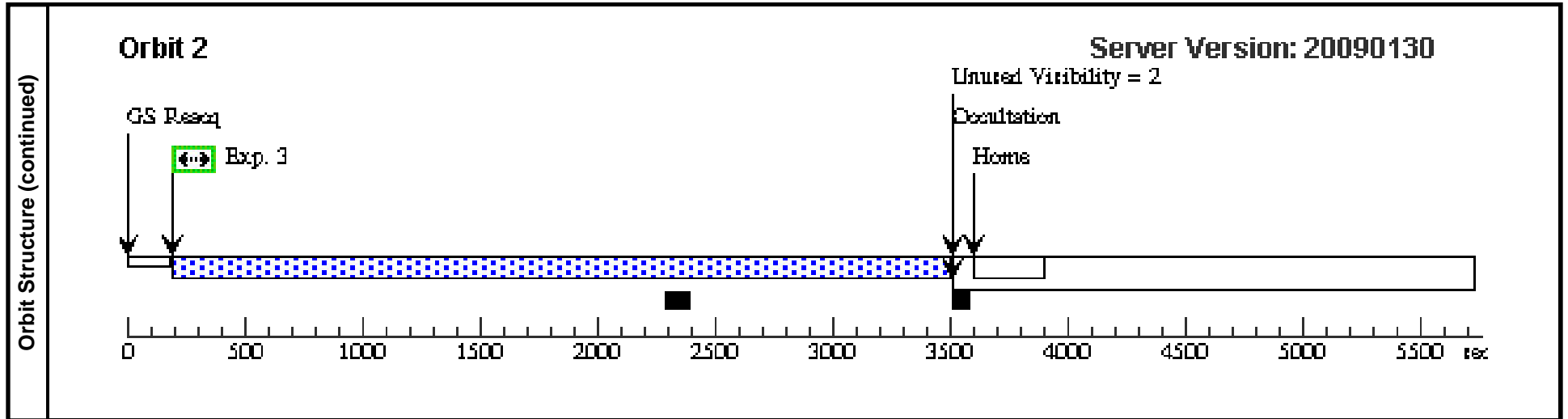
Visit	Proposal 11720, Visit 15, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(4)		SDSSJ142625.70+575218.4	RA: 14 26 25.7000 (216.6070833d) Dec: +57 52 18.40 (57.87178d) Equinox: J2000		V=18.79 u = 18.79	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(4) SDSSJ142625.70+575218.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				14 Secs [=>]	[1]
	2		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=20 00			2000 Secs [=>2905.0 Secs]	[1]
	3		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=20 00			2000 Secs [=>3293.0 Secs]	[2]
Orbit Structure	Server Version: 20090130 <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows: 'GS Acq' at 0s, 'Exp. 2' at 50s, and 'Occultation' at 3500s. A shaded region from 500s to 3500s is labeled 'Unred Visibility = 0'. The timeline is divided into segments with different patterns: blue diagonal lines (0-50s), blue checkered (50-500s), and blue horizontal lines (500-3500s). Small black squares are placed at 500s, 2600s, and 3500s.</p>									
	Orbit 1 Exp. 1 GS Acq Exp. 2 Occultation Unred Visibility = 0									



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Visit	Proposal 11720, Visit 16, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(4)		SDSSJ142625.70+575218.4	RA: 14 26 25.7000 (216.6070833d) Dec: +57 52 18.40 (57.87178d) Equinox: J2000		V=18.79 u = 18.79	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Req.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(4) SDSSJ142625.70+575218.4	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				14 Secs [=>]	[1]	
	2		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=21 00			2100 Secs [=>2905.0 Secs]	[1]	
	3		(4) SDSSJ142625.70+575218.4	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=21 00			2100 Secs [=>3293.0 Secs]	[2]	
Orbit Structure	Server Version: 20090130 <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Key events are marked with vertical arrows: 'GS Acq' from 0 to 400s (blue hatched bar), 'Exp. 2' from 400 to 3500s (blue checkered bar), and 'Occultation' at 3500s. A note 'Unred Visibility = 0' is placed below the occultation arrow. The x-axis is labeled 'Sec' and has major ticks every 500 units.</p>										
	Orbit 1 Exp. 1 Occultation										



Visit	Proposal 11720, Visit 17, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV, COS/FUV Special Requirements: (none)									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	SDSSJ220029.09-074121.5	RA: 22 00 29.0900 (330.1212083d) Dec: -07 41 21.50 (-7.68931d) Equinox: J2000		V=17.27 u = 17.27	Reference Frame: ICRS				
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(5) SDSSJ220029.09-074121.5	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				28 Secs	
									[=>]	[1]
	2		(5) SDSSJ220029.09-074121.5	COS/FUV, TIME-TAG, PSA	G140L 1230 A	BUFFER-TIME=10 25			1025 Secs	
								[=>2515.0 Secs]	[1]	
Orbit Structure	Orbit 1 Server Version: 20090130									
	<p>The diagram shows a timeline from 0 to 5500 seconds. Key events include:</p> <ul style="list-style-type: none"> GS Acq at approximately 100 seconds. Exp. 1 (blue hatched bar) from 0 to 500 seconds. Exp. 2 (green hatched bar) from 500 to 3300 seconds. Occultation starting at approximately 3300 seconds, with Unured Visibility = 0 and Hours indicated. 									

Visit	Proposal 11720, Visit 18, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(5)		SDSSJ220029.09-074121.5	RA: 22 00 29.0900 (330.1212083d) Dec: -07 41 21.50 (-7.68931d) Equinox: J2000		V=17.27 u = 17.27	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(5) SDSSJ220029.09-074121.5	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				28 Secs [==>]	[1]	
	2		(5) SDSSJ220029.09-074121.5	COS/NUV, TIME-TAG, PSA	G230L 2635 A	BUFFER-TIME=21 22			2122 Secs [==>2579.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>The diagram shows a horizontal timeline from 0 to 5500 seconds. Two exposure periods are highlighted: 'Exp. 1' from 0 to 500 seconds (blue hatched) and 'Exp. 2' from 500 to 3200 seconds (blue dotted). A 'GS Acq' event is marked at the beginning of Exp. 1. An 'Occultation' event is marked at approximately 3200 seconds, with 'Unused Visibility = 0' and 'Home' indicated. A 'Home' event is also marked at the end of the timeline around 3500 seconds. The x-axis is labeled 'sec' and has major ticks every 500 units.</p>										

Visit	Proposal 11720, Visit 19, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(5)		SDSSJ220029.09-074121.5	RA: 22 00 29.0900 (330.1212083d) Dec: -07 41 21.50 (-7.68931d) Equinox: J2000		V=17.27 u = 17.27	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(5) SDSSJ220029.09-074121.5	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				28 Secs [=>]	[1]	
	2		(5) SDSSJ220029.09-074121.5	COS/NUV, TIME-TAG, PSA	G230L 2950 A	BUFFER-TIME=92 9			929 Secs [=>2579.0 Secs]	[1]	
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p>										
	<p>GS Acq</p> <p>Exp. 1</p> <p>Exp. 2</p> <p>Occultation</p> <p>Unured Visibility = 0</p> <p>Home</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>										

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Visit	Proposal 11720, Visit 20, implementation Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: (none)										
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
(5)		SDSSJ220029.09-074121.5	RA: 22 00 29.0900 (330.1212083d) Dec: -07 41 21.50 (-7.68931d) Equinox: J2000		V=17.27 u = 17.27	Reference Frame: ICRS					
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit	
	1		(5) SDSSJ220029.09-074121.5	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				28 Secs		
									[==>]	[1]	
	2		(5) SDSSJ220029.09-074121.5	COS/NUV, TIME-TAG, PSA	G230L 3360 A	BUFFER-TIME=10 79			1079 Secs		
								[==>2579.0 Secs]	[1]		
Orbit Structure	<p>Orbit 1 Server Version: 20090130</p> <p>GS Acq Exp. 1 Exp. 2</p> <p>Occultation Unrecovered Visibility = 0 Home</p> <p>0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 sec</p>										