



## 14765 - The Unexplored Domains of the s-Process

Cycle: 24, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Ian U. Roederer (PI) (Contact)</b>	<b>University of Michigan</b>	<b>iur@umich.edu</b>
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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) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:51.0	yes
02	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:53.0	yes
03	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:54.0	yes
04	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:56.0	yes
05	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:57.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
06	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:19:58.0	yes
07	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:00.0	yes
08	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:01.0	yes
09	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:02.0	yes
10	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:03.0	yes
11	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:05.0	yes
12	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:06.0	yes
13	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	3	29-Jul-2016 15:20:08.0	yes
14	(1) HD-196944	STIS/CCD STIS/NUV-MAMA	1	29-Jul-2016 15:20:08.0	yes

40 Total Orbits Used

## **ABSTRACT**

Understanding the origin of the elements is one of the major challenges of modern astrophysics. Abundance measurements in late-type stars are used to test nucleosynthesis models, and the models in turn reveal the nature of the progenitor star(s) that produced the metals observed today. Elements listed along the bottom two-thirds of the periodic table are produced by neutron-capture reactions, such as the r-process or s-process. Previous studies have expanded the chemical inventory of individual r-process-enhanced stars to >50 elements per star. Here, we propose to do the same for an s-process-enhanced star.

We propose new high-resolution STIS/E230H observations (2024-2301 Angstroms) of the star HD 196944, the UV-brightest s-process-enhanced

## Proposal 14765 (STScI Edit Number: 0, Created: Friday, July 29, 2016 2:20:09 PM EST) - Overview

metal-poor star in the sky. Lines of Se I, Mo II, Cd I, Cd II, Sn I, Sb I, Te I, Yb II, W II, Re II, Os II, Pt I, Pb II, and Bi I should be detectable in these observations because of the high spectral resolution and S/N. No star offers the opportunity to simultaneously detect all of these elements, and several of them could be detected for the first time. We will combine these NUV detections with optical detections to test many specific predictions of the s-process nucleosynthesis models in a way that has not been possible until now. This is particularly timely, for example, because s-process models have recently been shown to be uncertain at the termination point around Pb-Bi.

### **OBSERVING DESCRIPTION**

The goal of these observations is to collect as much S/N on one star as possible in 40 orbits using the STIS/E230H grating (R~110,000) centered at  $\lambda = 2163$  ( $\rightarrow 2024-2301$  Angstroms).

There are 13 visits of 3 orbits each. In each visit, there should be five exposures. Orbit 1: ACQ, ACQ/PEAK, and SCIENCE. Orbit 2: SCIENCE. Orbit 3: SCIENCE.

In the remaining 1 orbit, there should be three exposures: ACQ, ACQ/PEAK, SCIENCE.

This is the orbit combination that should maximize time on target for SCIENCE observations. This assumes that there are two guide stars available to minimize drift. If only one guide star is available, the drift could be enough to move the star off the  $0.2 \times 0.09$  slit. (See STIS handbook, 8.1.4.) If that's the case, then use 2-orbit visits instead.

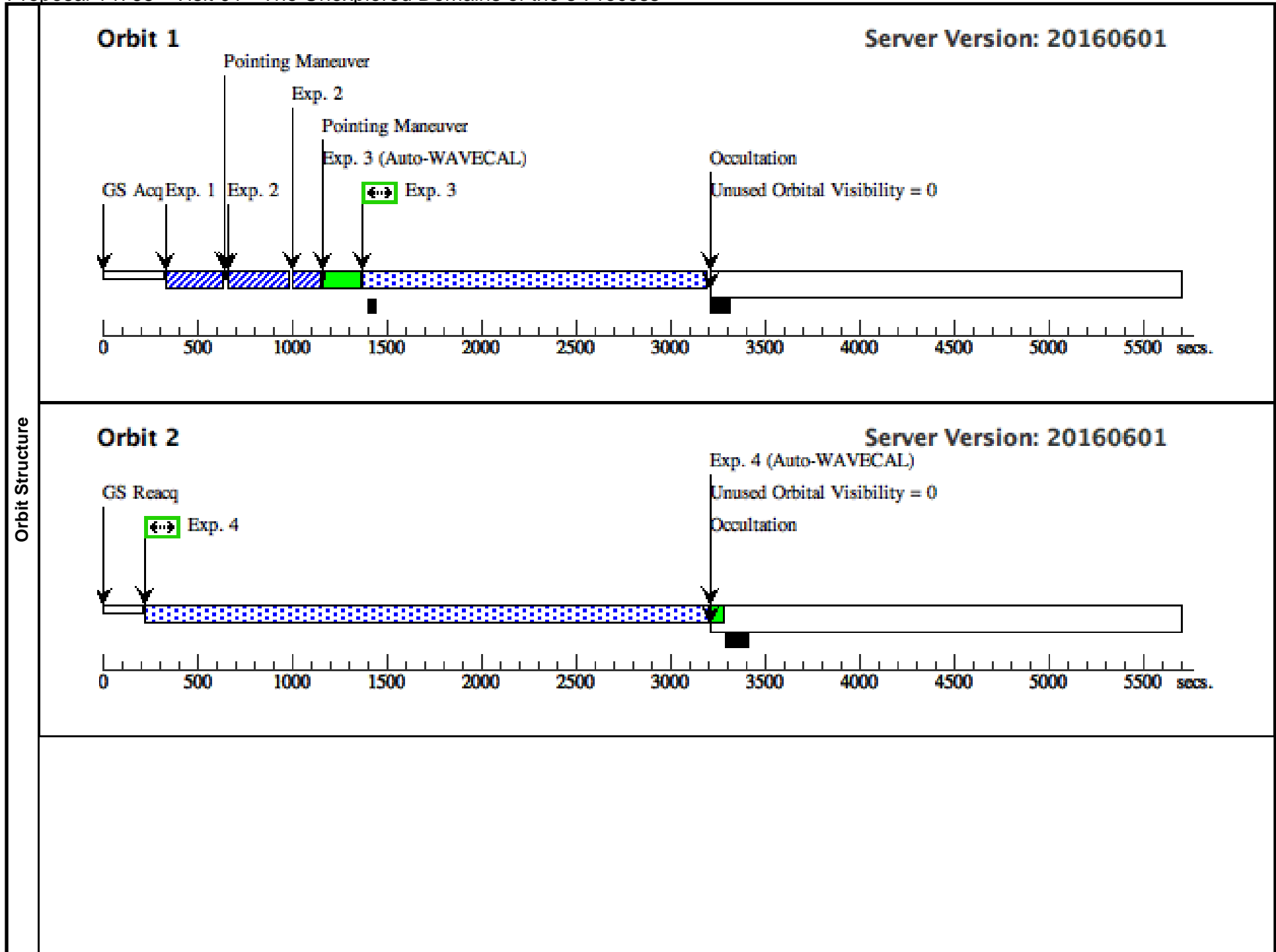
Time on target:  $3 \times 13 + 1 = (1806 + 2961 + 2961) \times 13 + 1806 = 102,270$  seconds

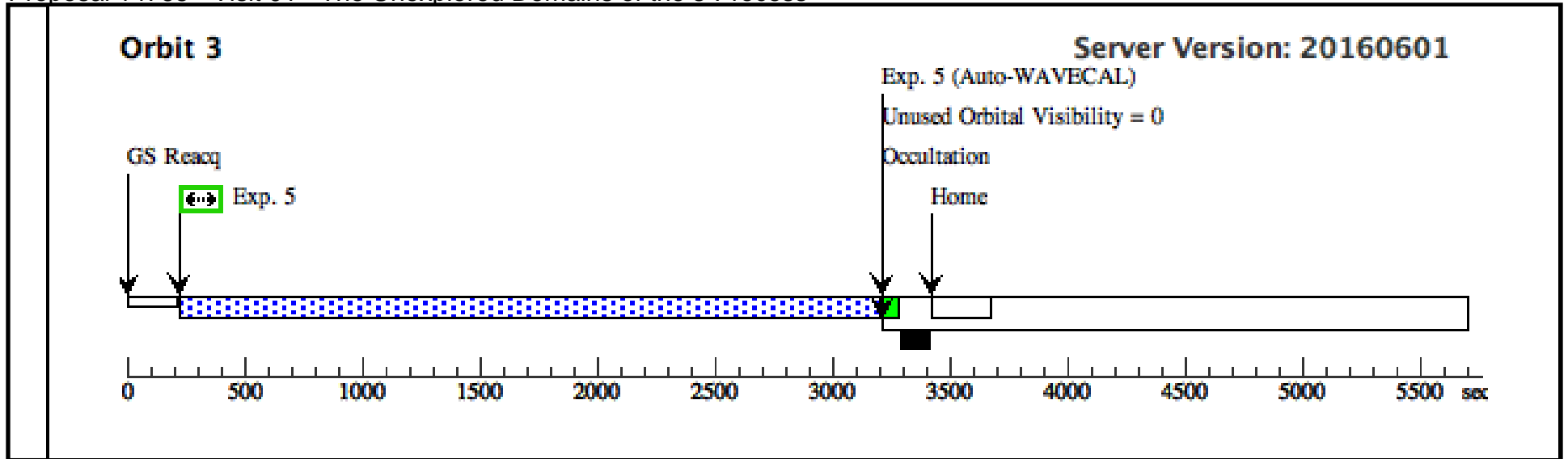
Time on target:  $2 \times 20 = (1806 + 2961) \times 20 = 95,340$  seconds

Proposal 14765 - Visit 01 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:09 GMT 2016

Visit	<b>Proposal 14765, Visit 01</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs) [==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs) [==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs) [==>1806.0 Secs ]	[1]
	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

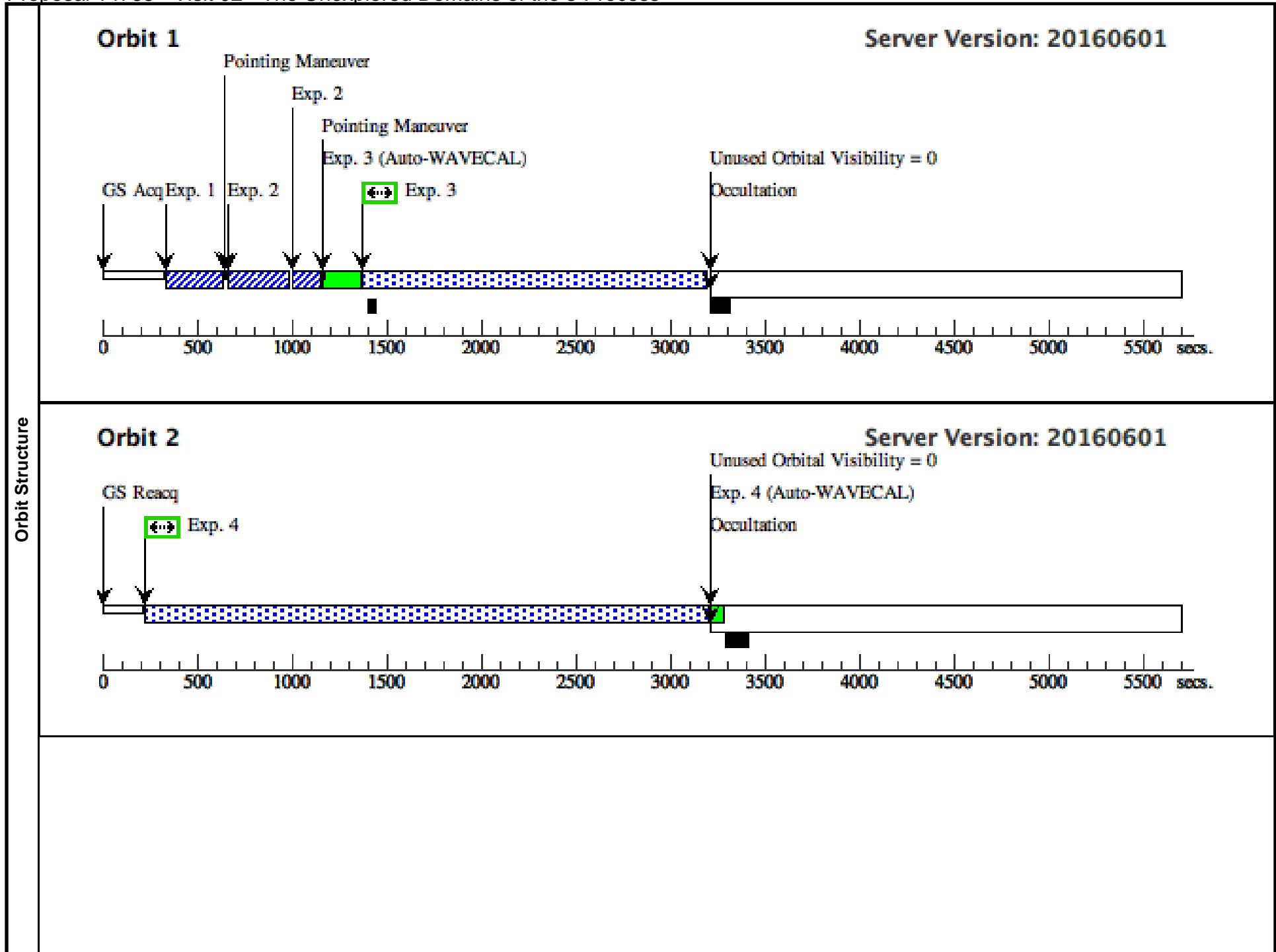


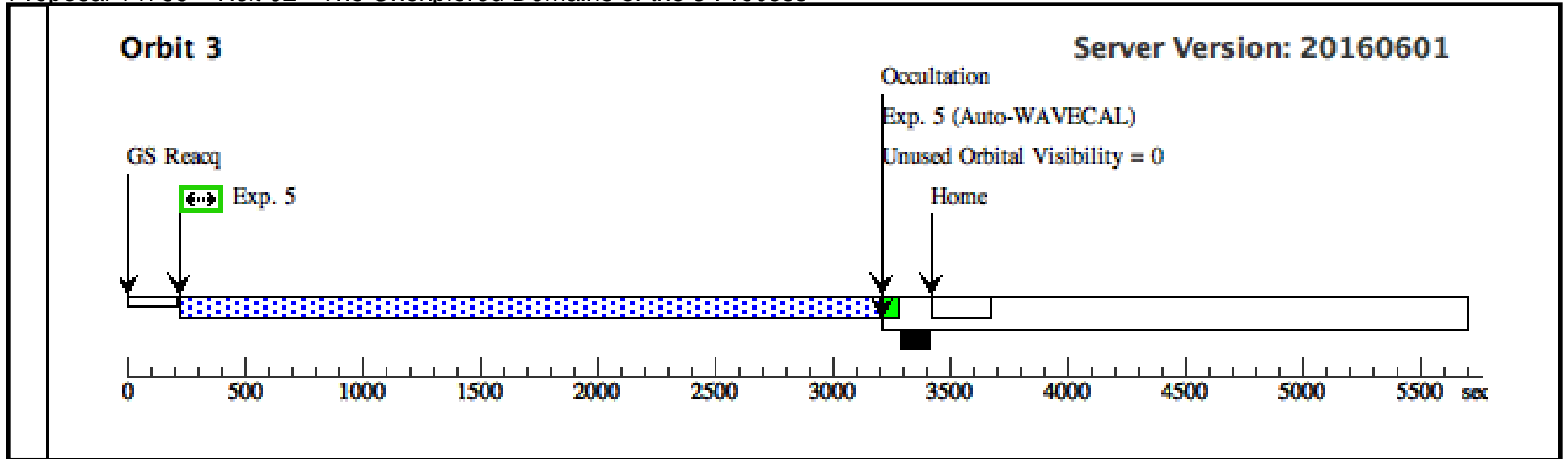


Proposal 14765 - Visit 02 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 02</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs) [==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs) [==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs) [==>1806.0 Secs ]	[1]
	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

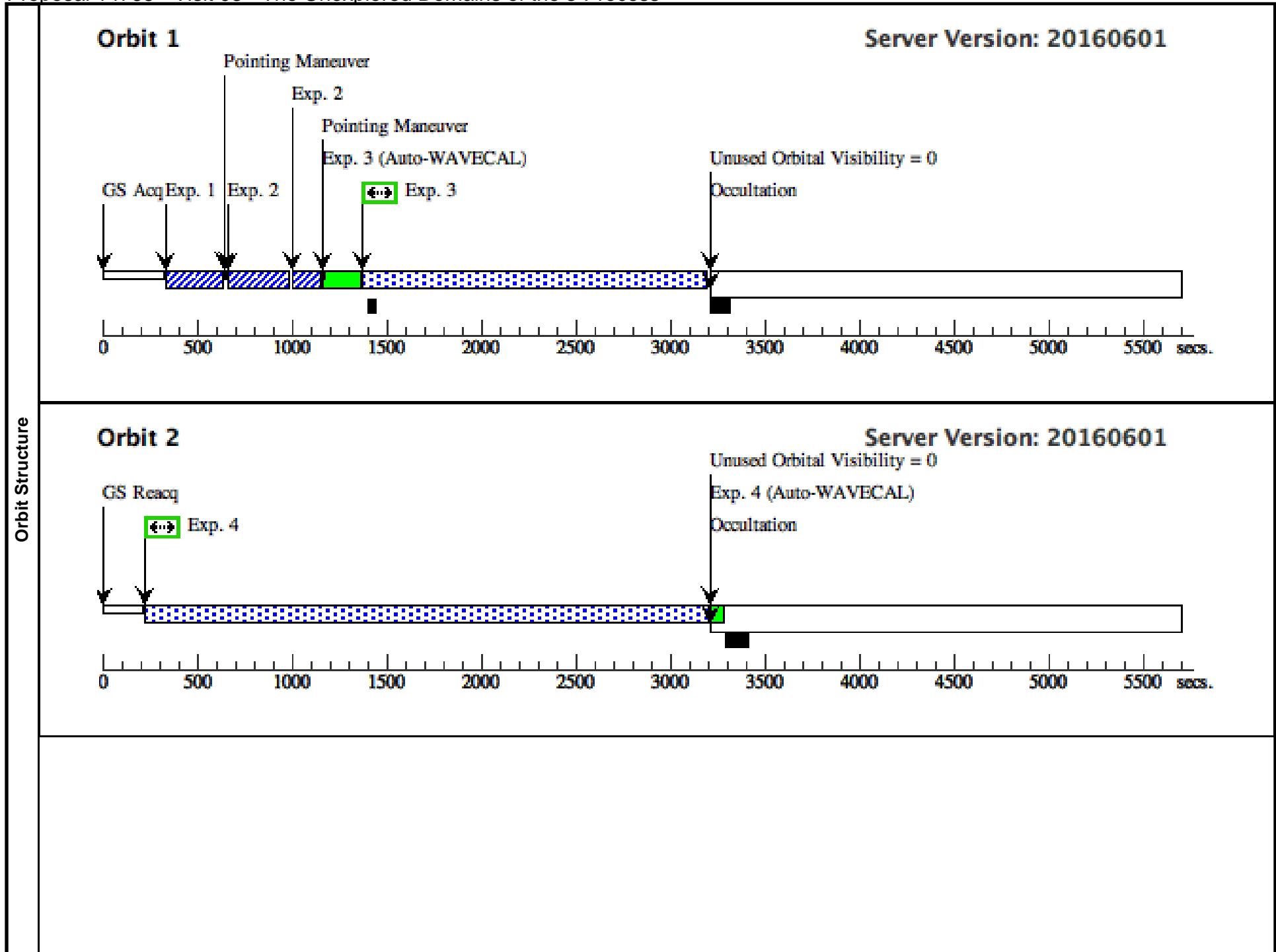


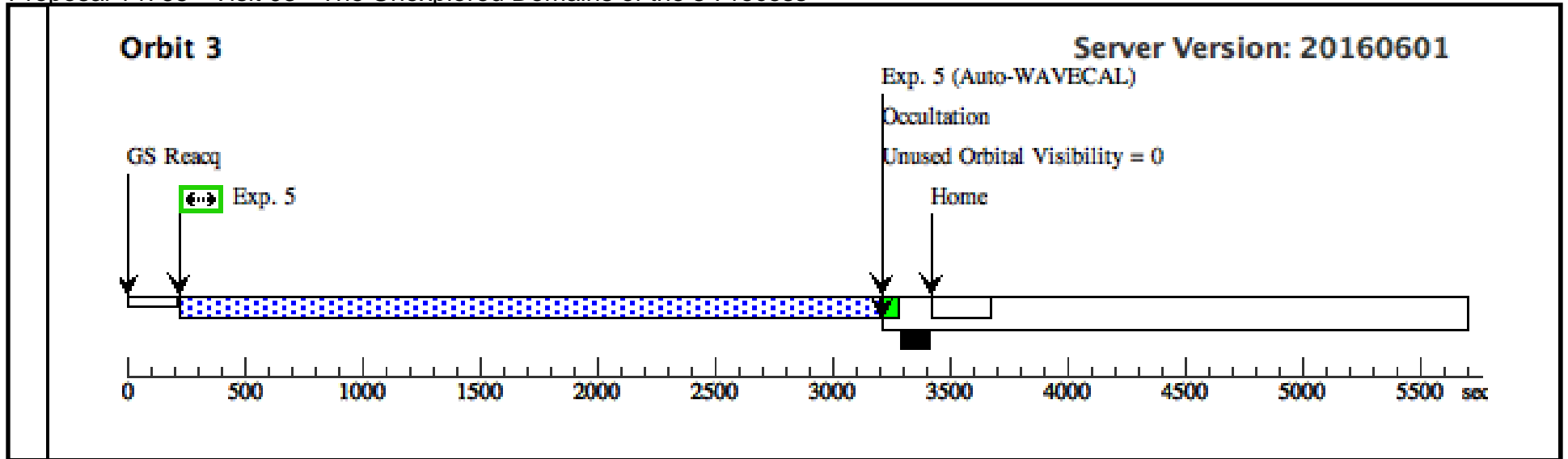


Proposal 14765 - Visit 03 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 03</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)																																																																																																																							
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>HD-196944</td> <td>RA: 20 40 46.0860 (310.1920250d)</td> <td>Proper Motion RA: 41.88 mas/yr</td> <td>V=8.38+/-0.02</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td>Alt Name1: HIP-102042</td> <td>Dec: -06 47 50.63 (-6.79740d)</td> <td>Proper Motion Dec: -27.45 mas/yr</td> <td>E(B-V)=0.03</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Parallax: 0.00205"</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i></p> <p><i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i></p> <p><i>Extended=NO</i></p>										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HD-196944	RA: 20 40 46.0860 (310.1920250d)	Proper Motion RA: 41.88 mas/yr	V=8.38+/-0.02	Reference Frame: ICRS		Alt Name1: HIP-102042	Dec: -06 47 50.63 (-6.79740d)	Proper Motion Dec: -27.45 mas/yr	E(B-V)=0.03				Equinox: J2000	Parallax: 0.00205"						Epoch of Position: 1991.25																																																																																		
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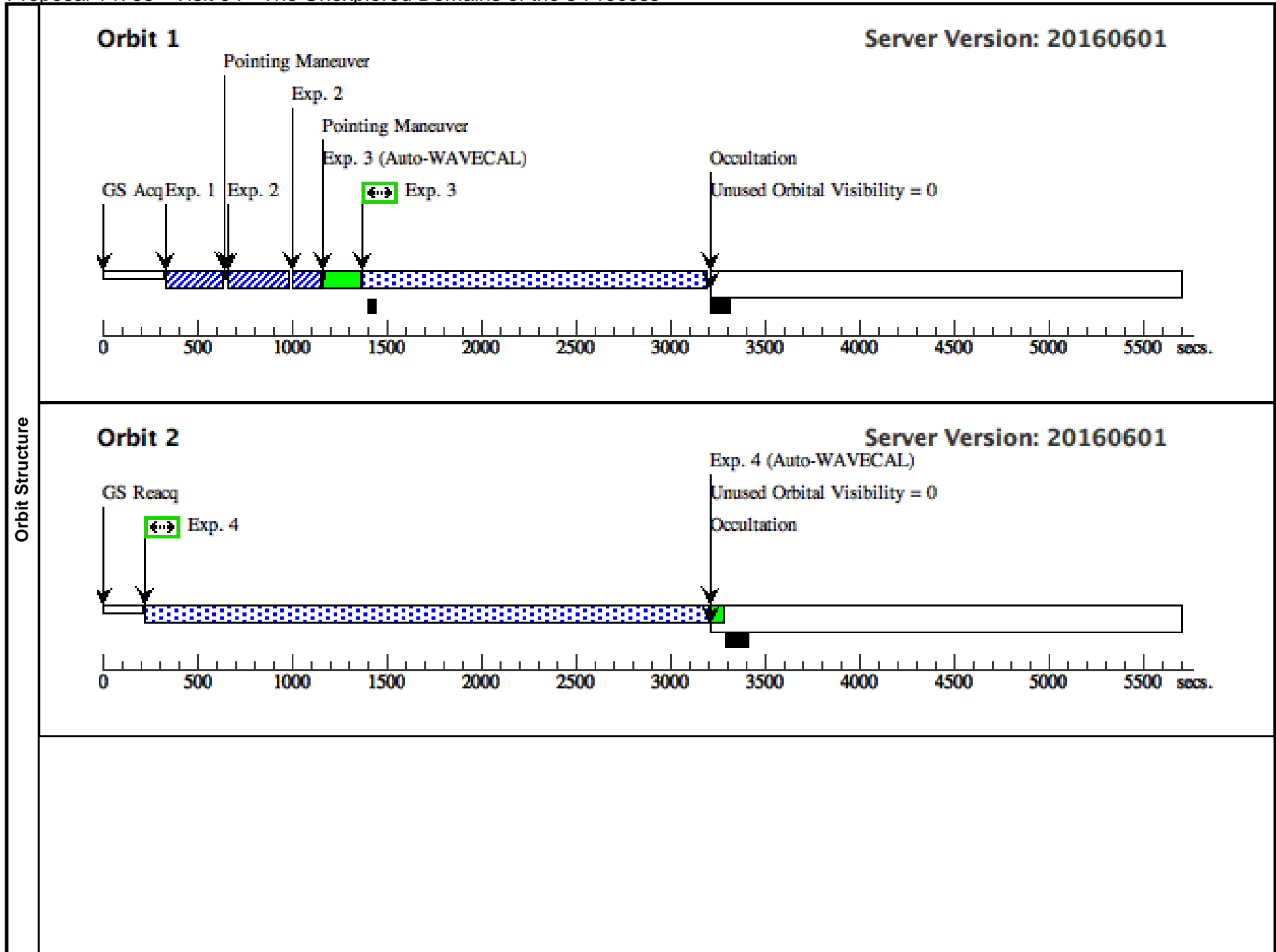


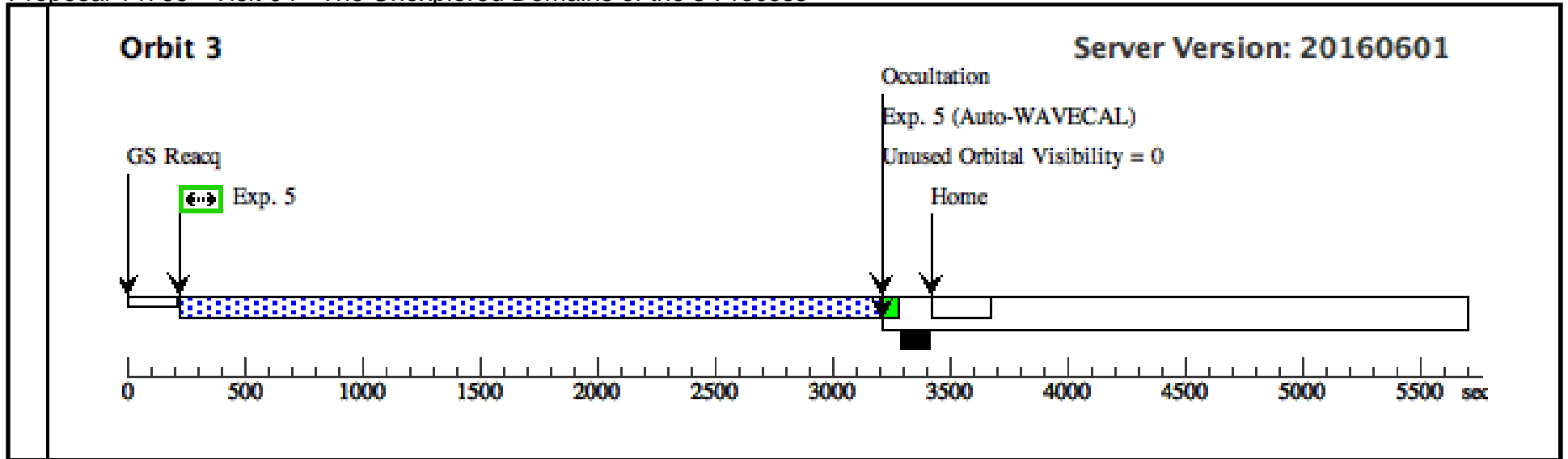


Proposal 14765 - Visit 04 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 04</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
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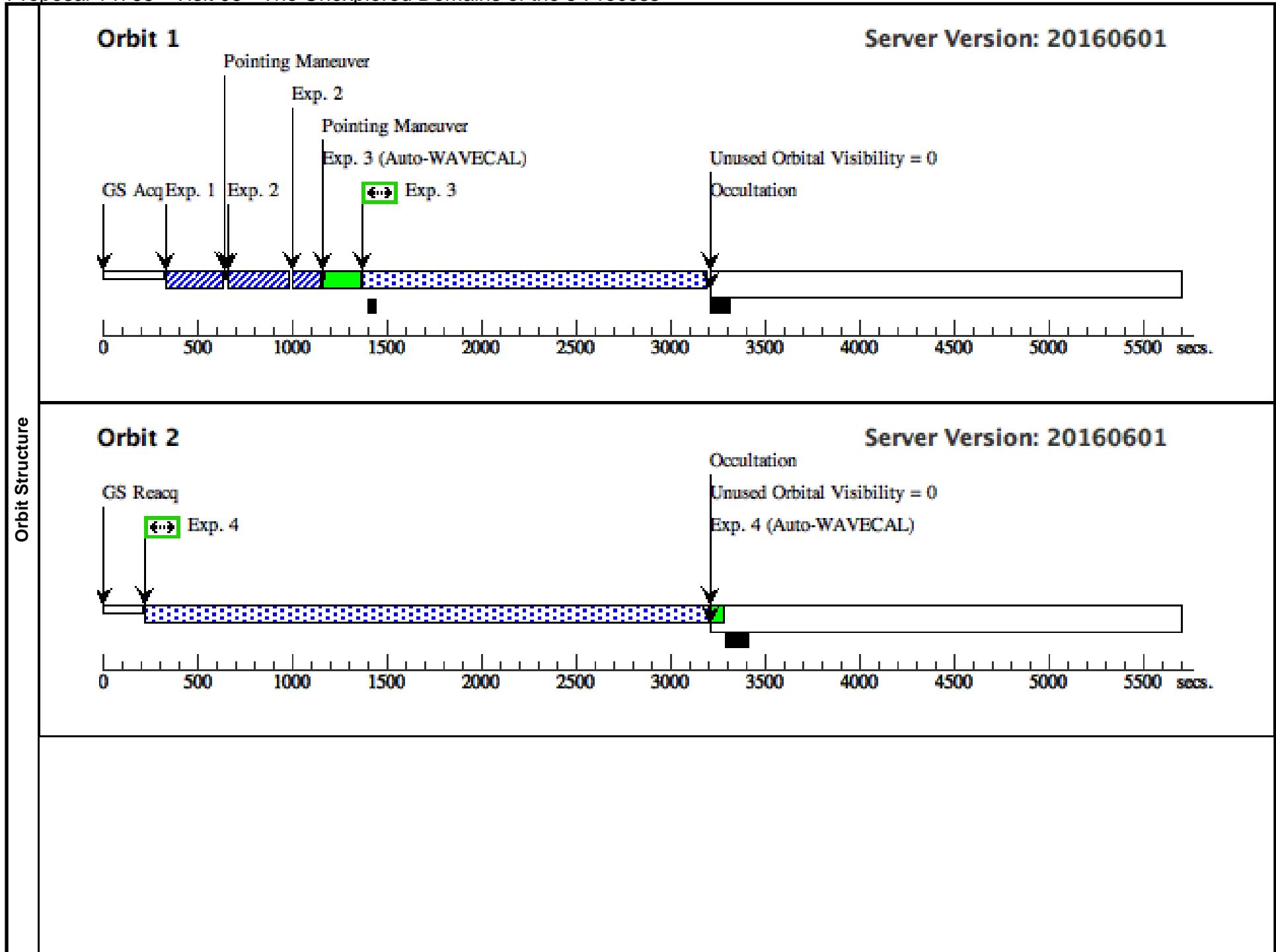


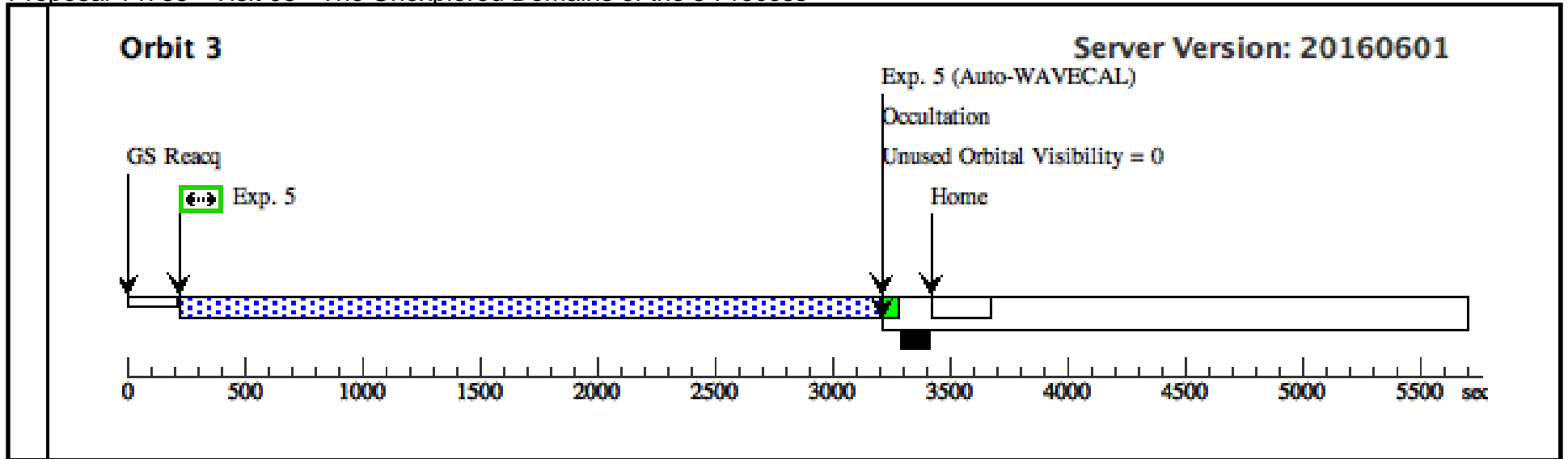


Proposal 14765 - Visit 05 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 05</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs)	
									[==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs)	
									[==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs)	
								[==>1806.0 Secs ]	[1]	
4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
								[==>2961.0 Secs ]	[2]	
5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
								[==>2961.0 Secs ]	[3]	

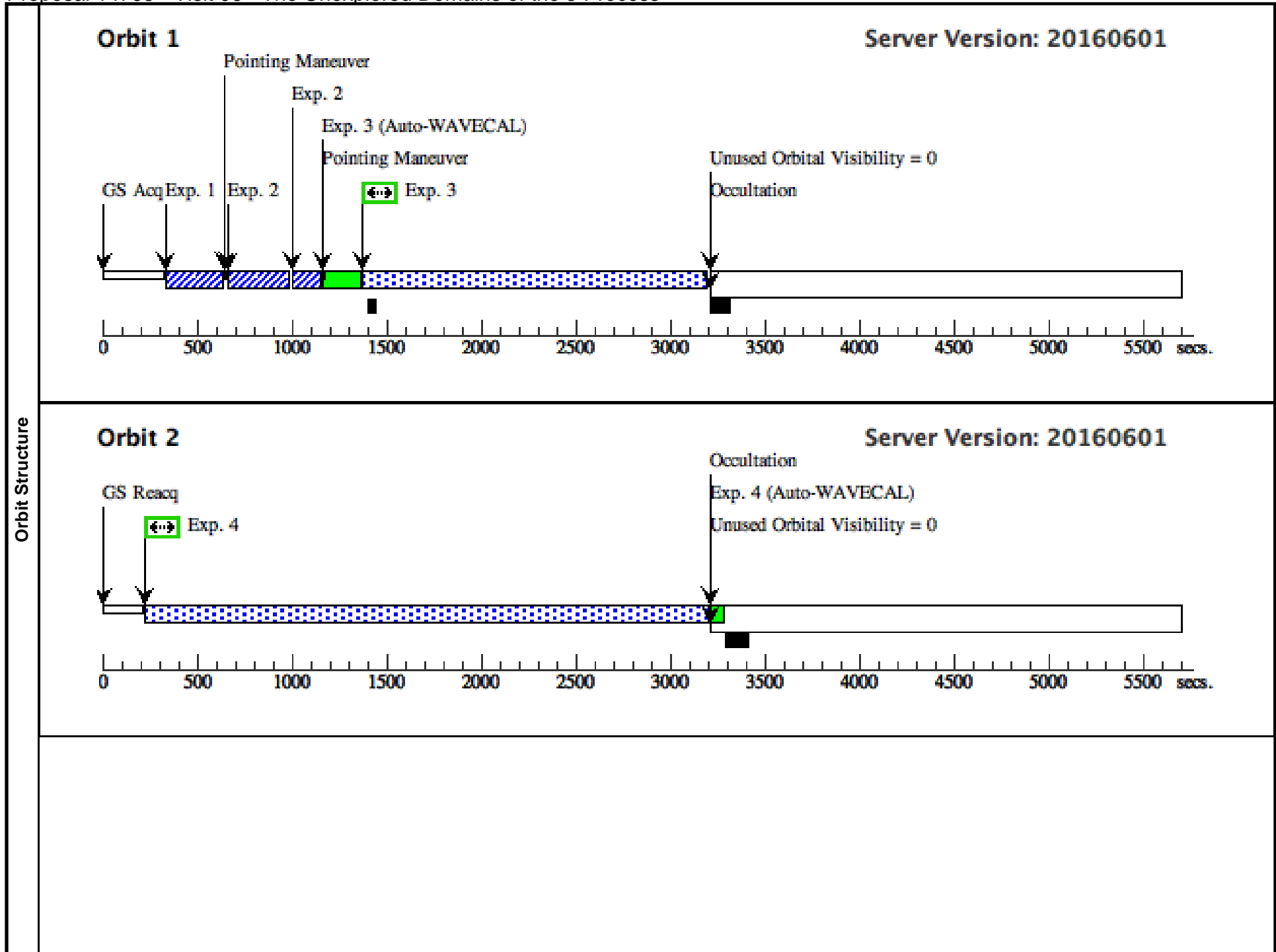


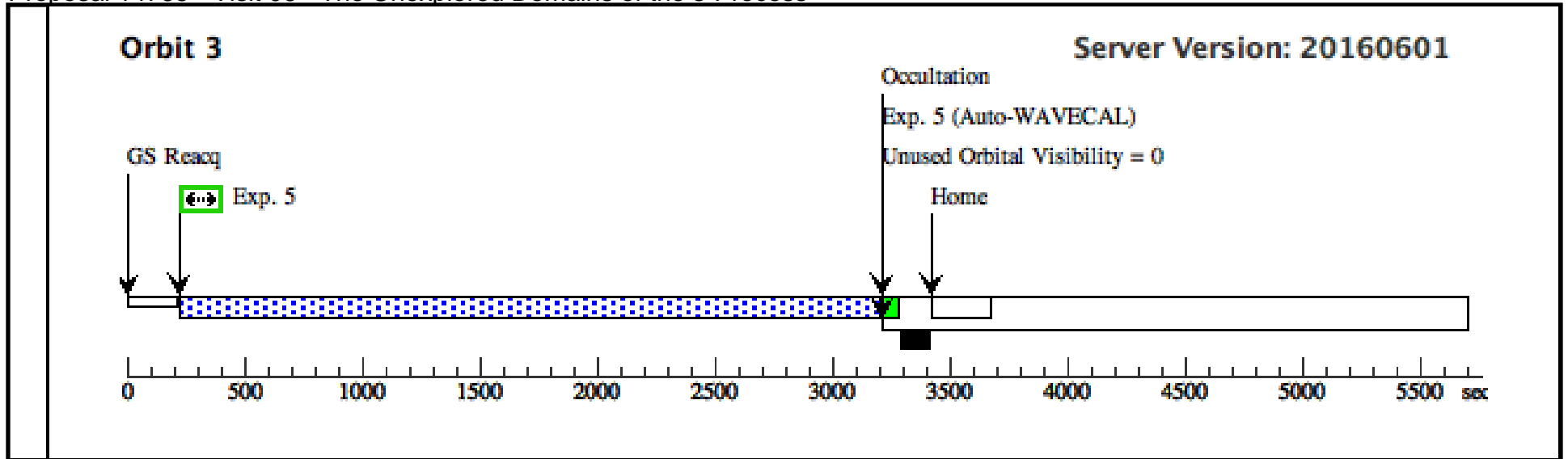


Proposal 14765 - Visit 06 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 06</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs) [==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs) [==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs) [==>1806.0 Secs ]	[1]
	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

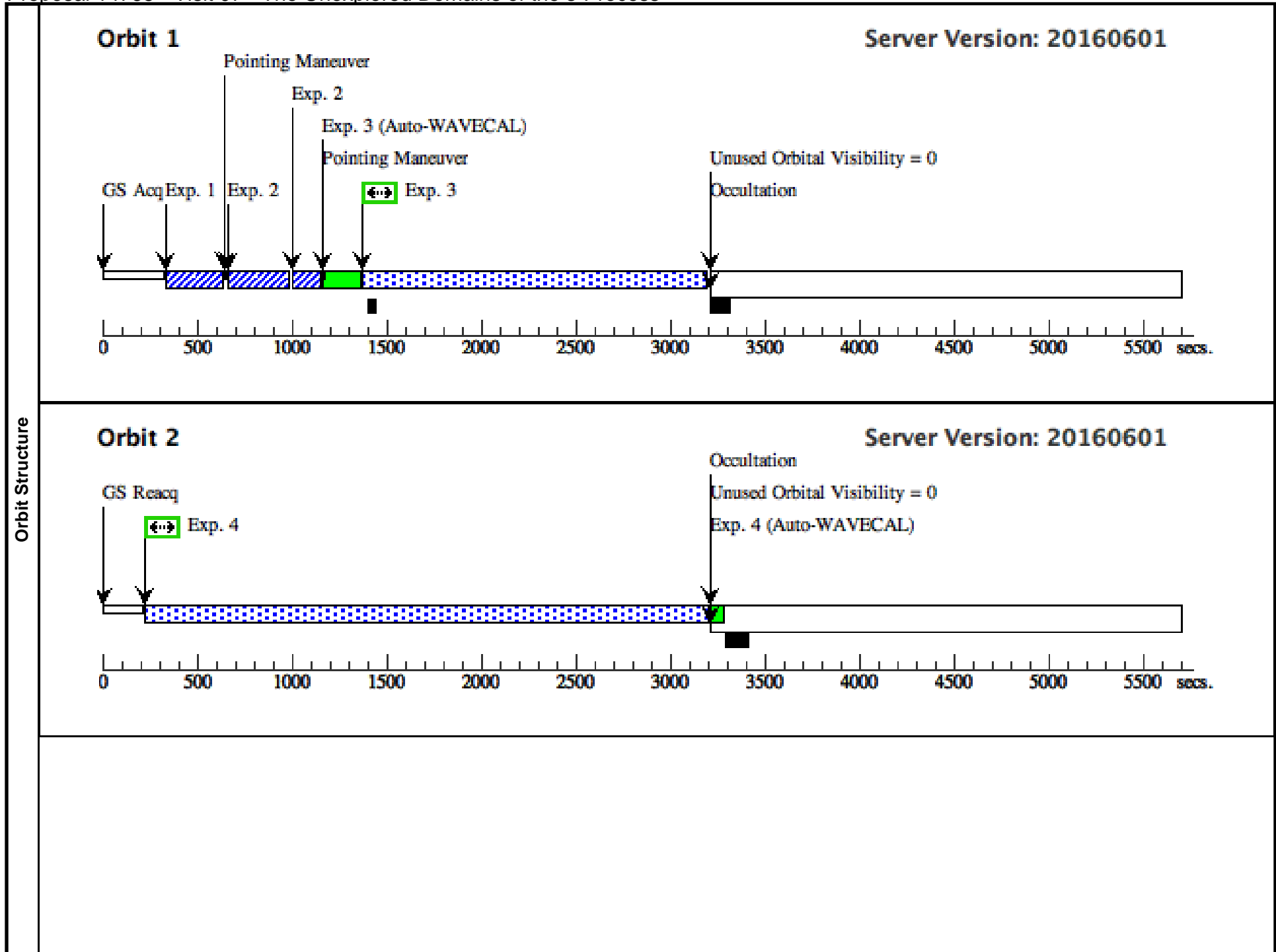


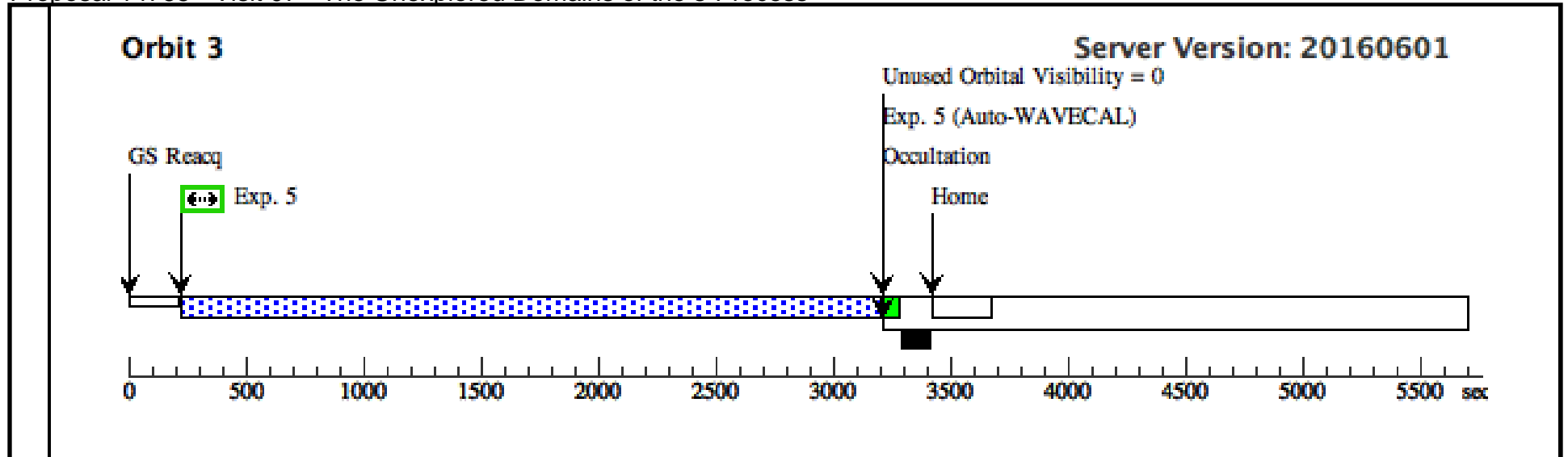


Proposal 14765 - Visit 07 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 07</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)																																																																																																																							
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>HD-196944</td> <td>RA: 20 40 46.0860 (310.1920250d)</td> <td>Proper Motion RA: 41.88 mas/yr</td> <td>V=8.38+/-0.02</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td>Alt Name1: HIP-102042</td> <td>Dec: -06 47 50.63 (-6.79740d)</td> <td>Proper Motion Dec: -27.45 mas/yr</td> <td>E(B-V)=0.03</td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Parallax: 0.00205"</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i></p> <p><i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i></p> <p><i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i></p> <p><i>Extended=NO</i></p>										#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HD-196944	RA: 20 40 46.0860 (310.1920250d)	Proper Motion RA: 41.88 mas/yr	V=8.38+/-0.02	Reference Frame: ICRS		Alt Name1: HIP-102042	Dec: -06 47 50.63 (-6.79740d)	Proper Motion Dec: -27.45 mas/yr	E(B-V)=0.03				Equinox: J2000	Parallax: 0.00205"						Epoch of Position: 1991.25																																																																																		
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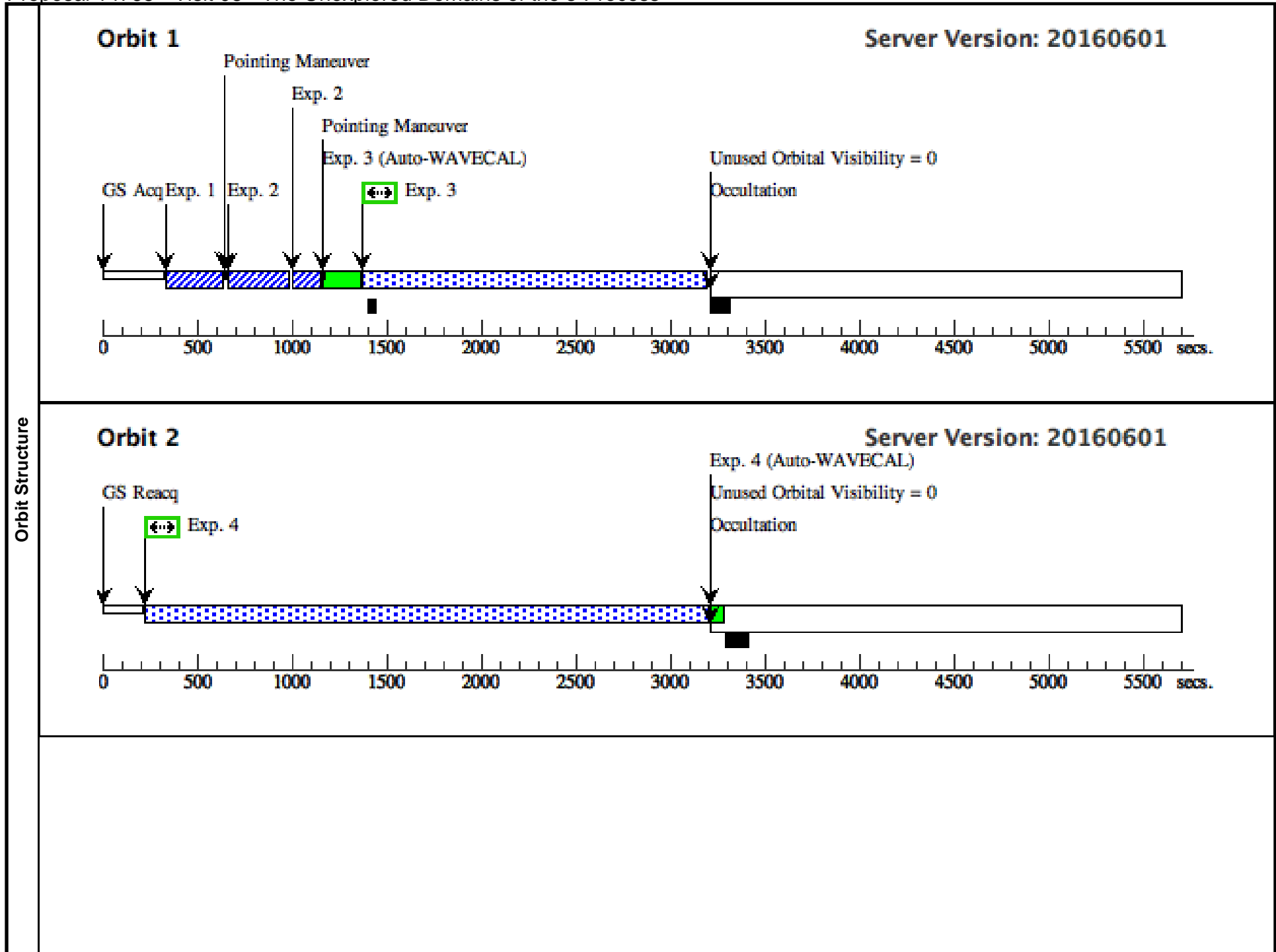


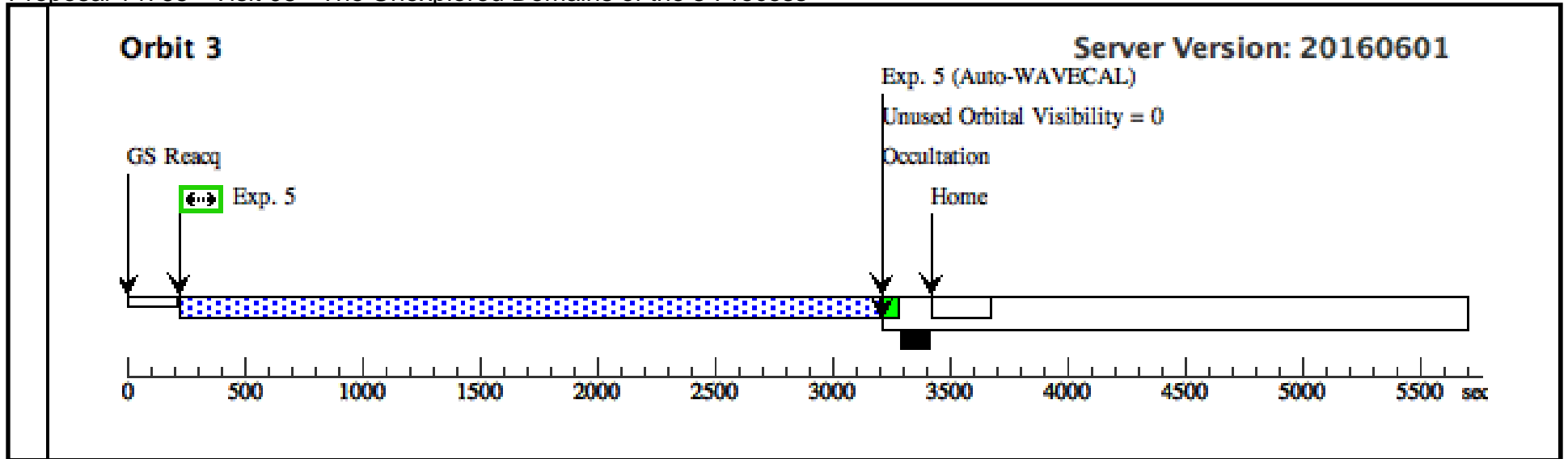


Proposal 14765 - Visit 08 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 08</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
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	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs)	
									[==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs)	
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	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs)	
								[==>1806.0 Secs ]	[1]	
4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
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5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
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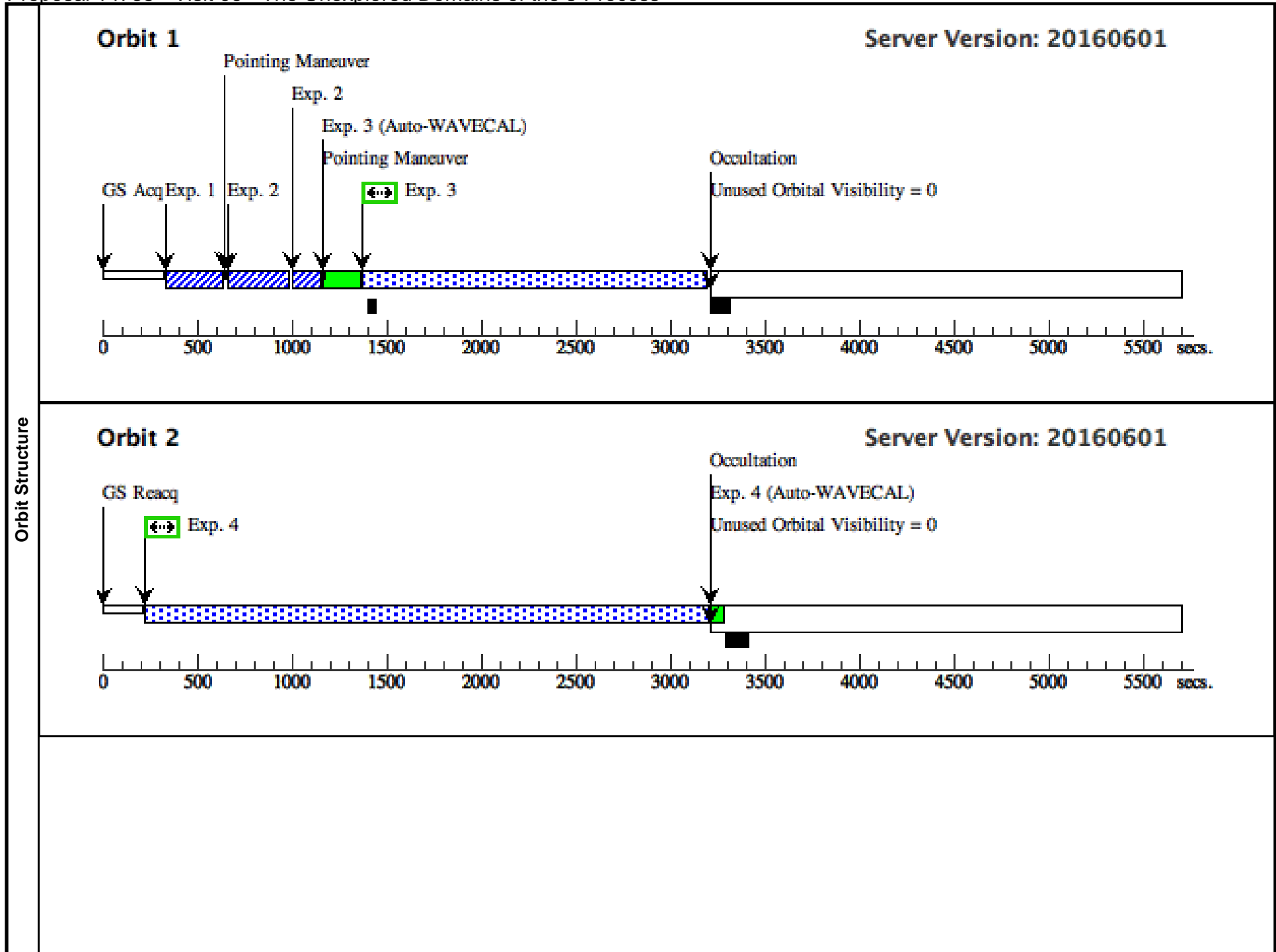


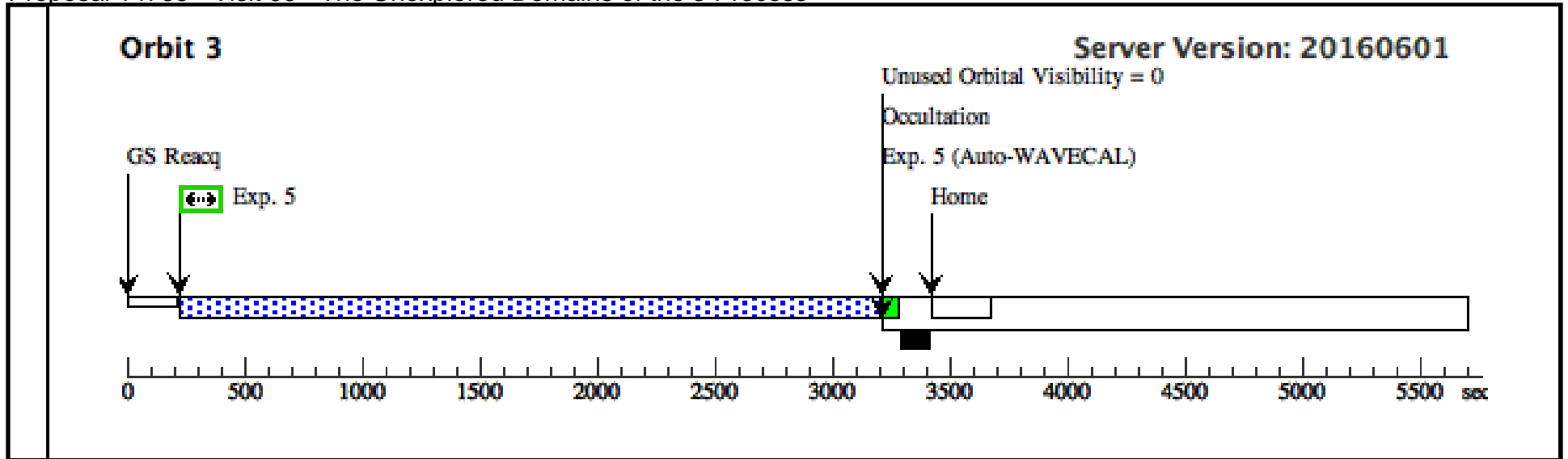


Proposal 14765 - Visit 09 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 09</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
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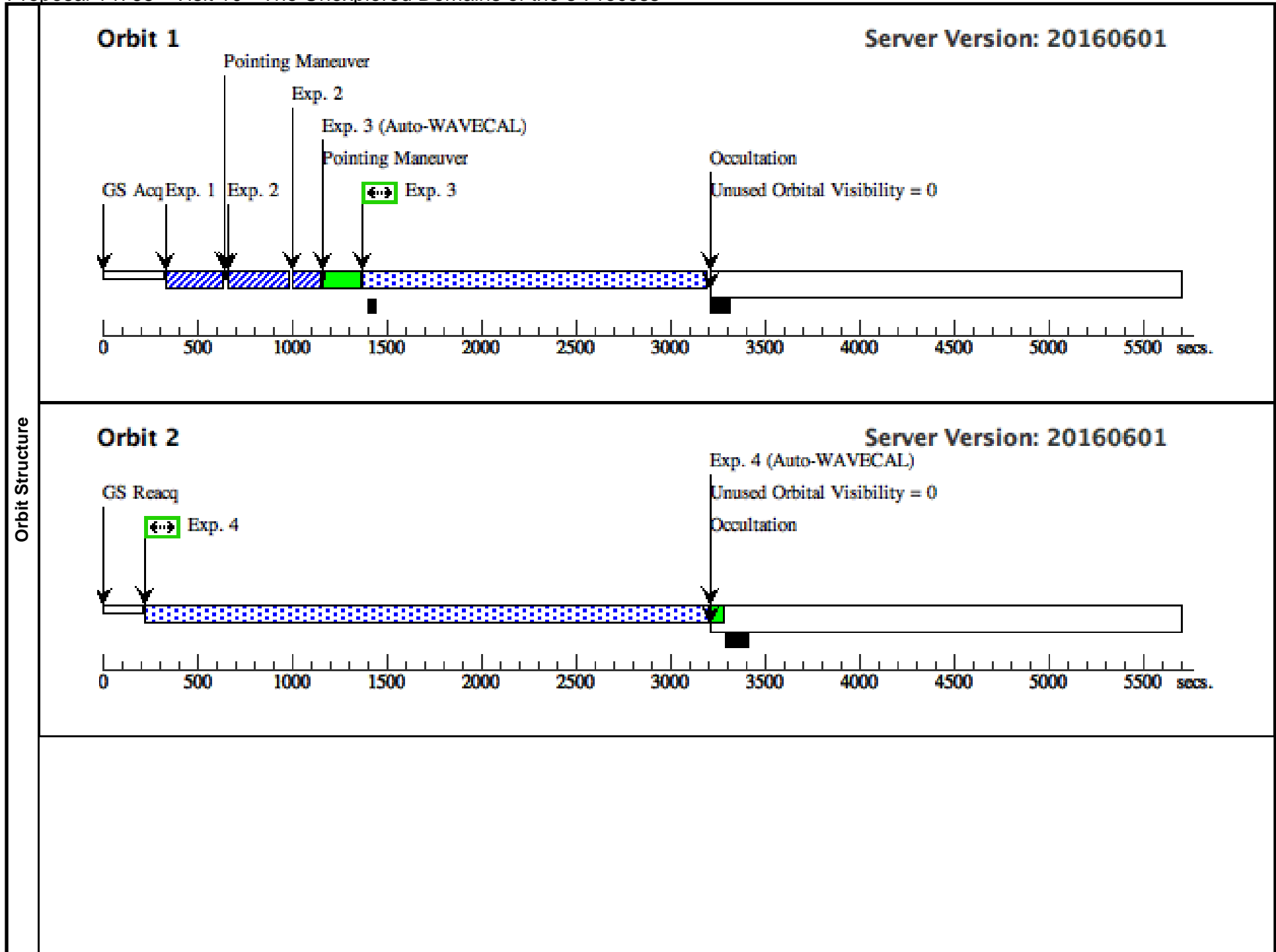


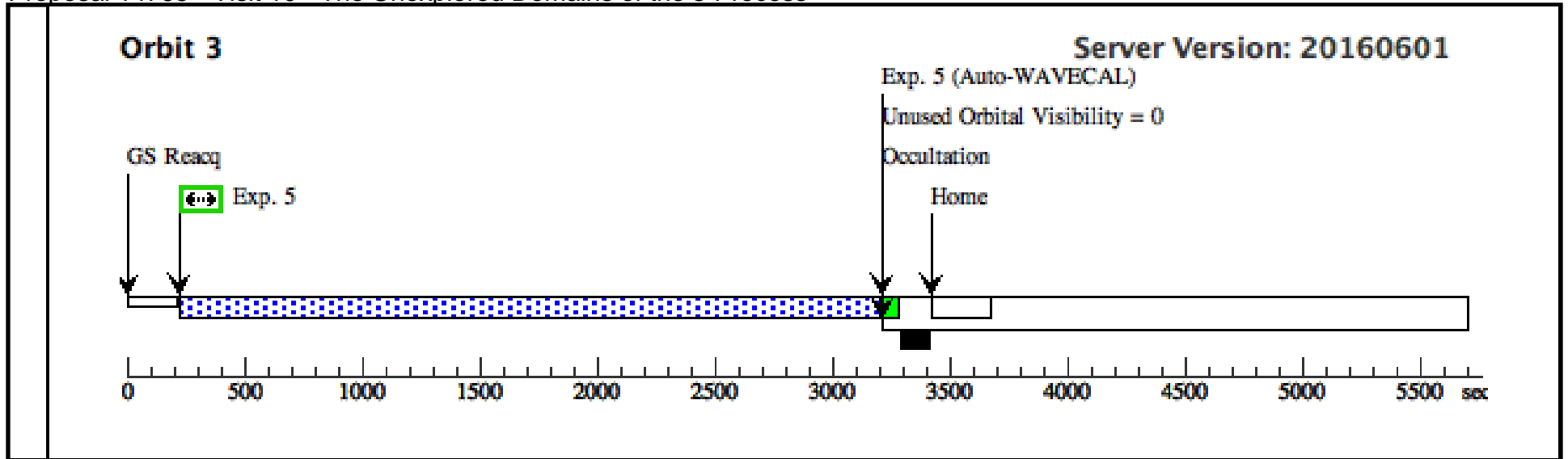


Proposal 14765 - Visit 10 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 10</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
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	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

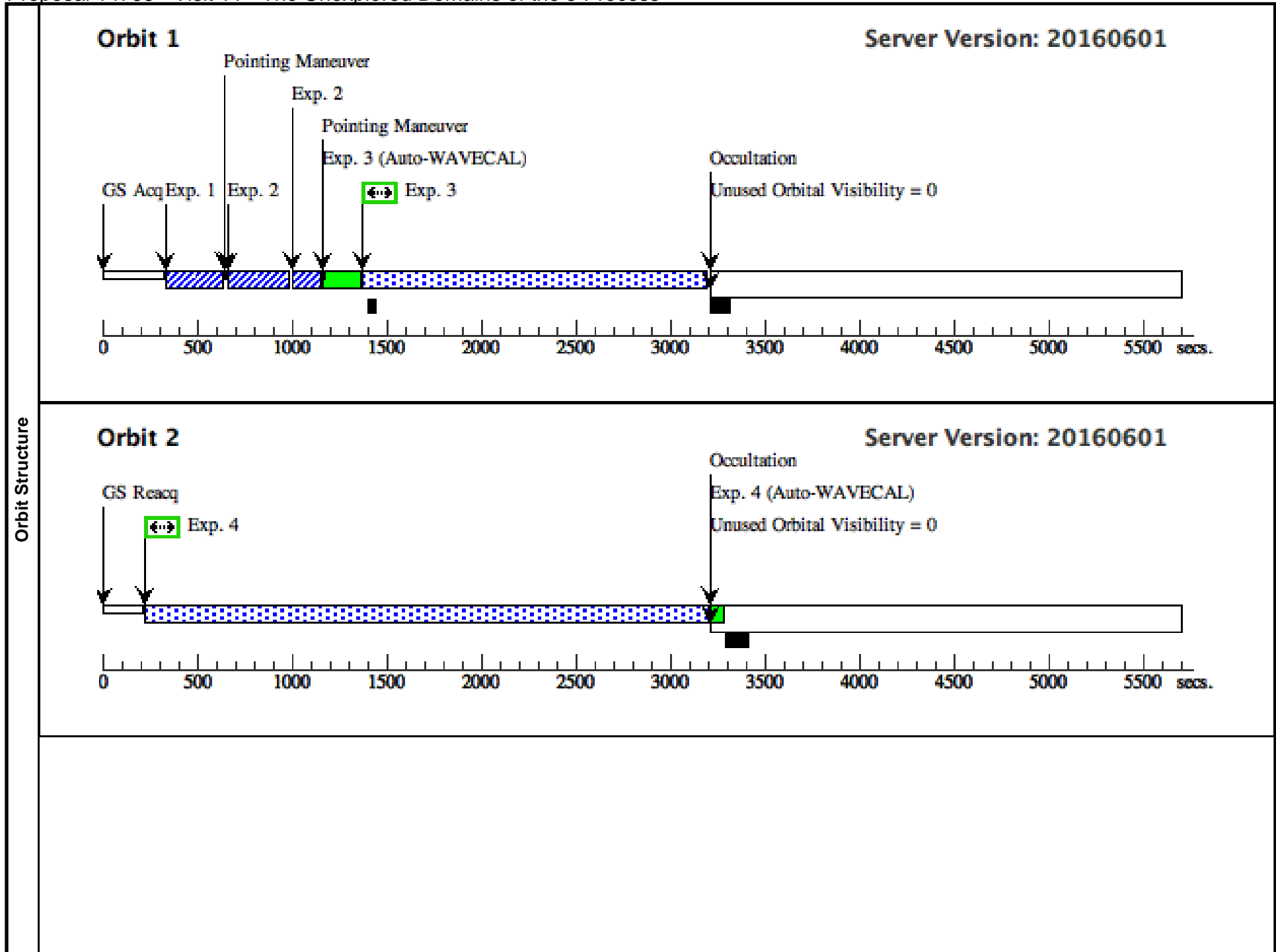


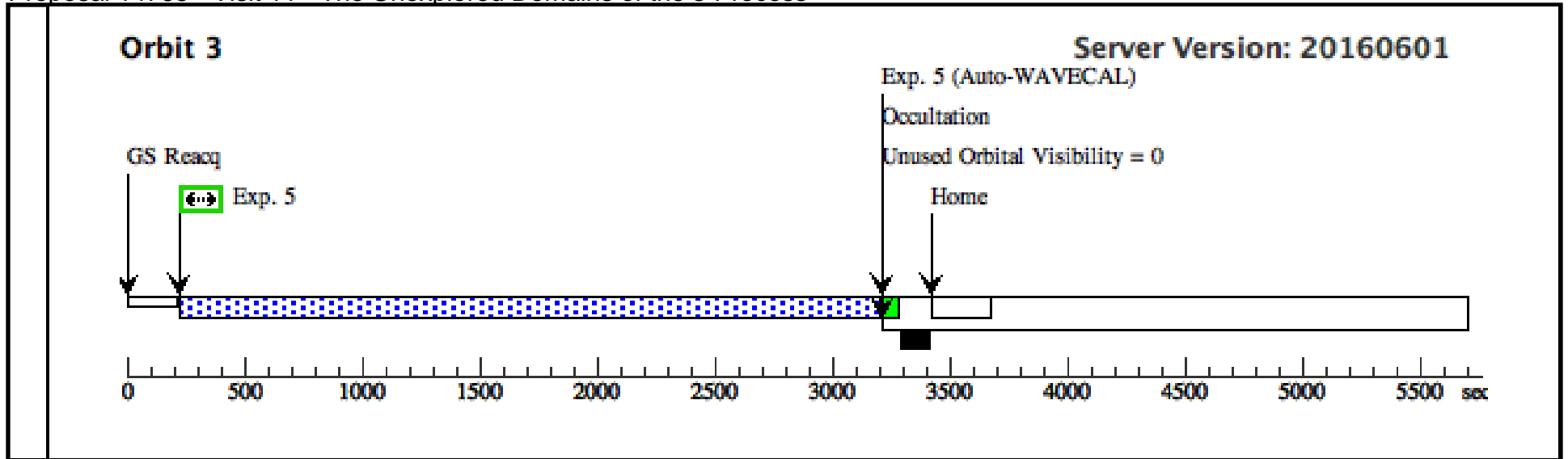


Proposal 14765 - Visit 11 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 11</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> Extended=NO									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs) [==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs) [==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs) [==>1806.0 Secs ]	[1]
	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

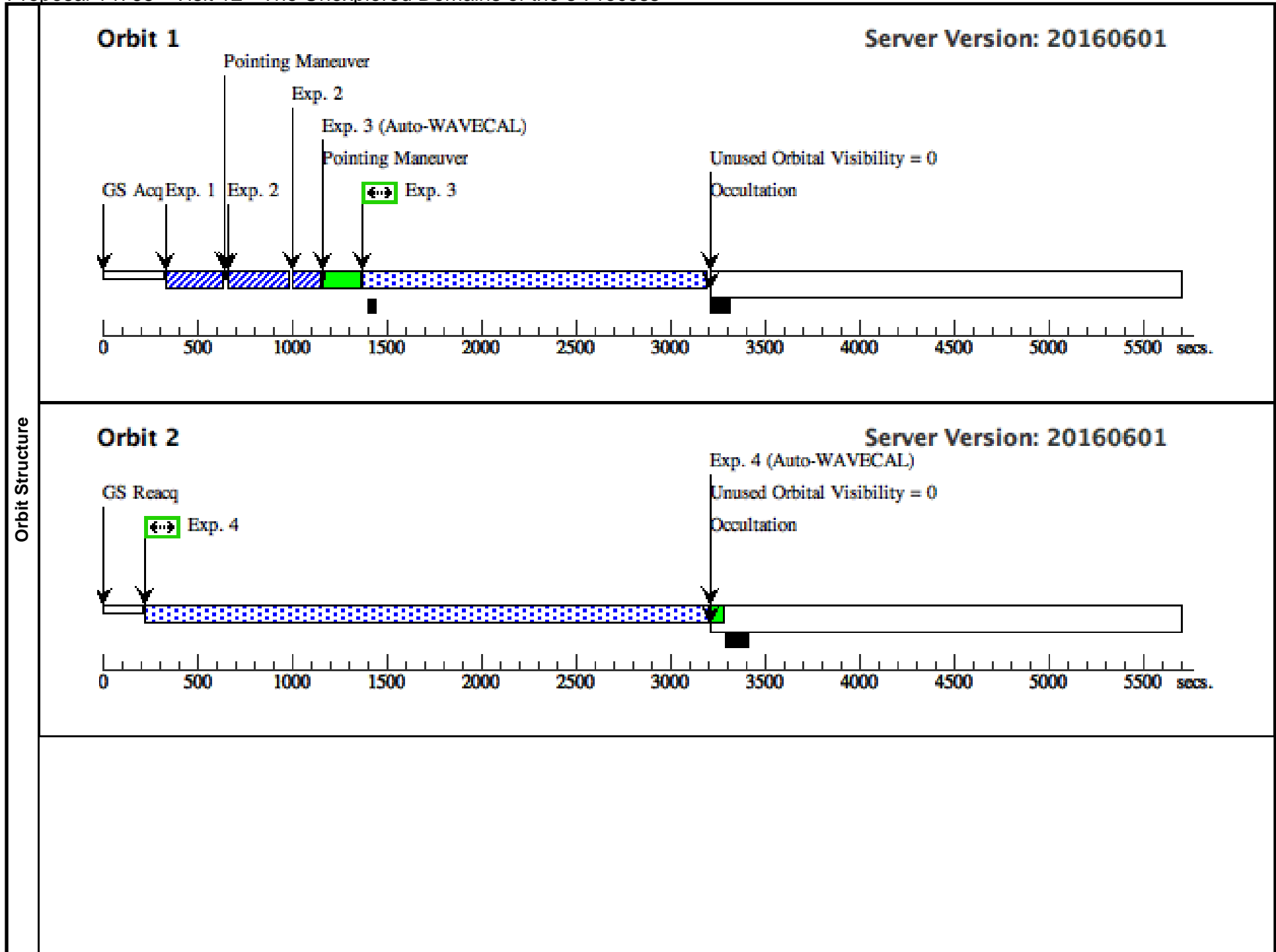


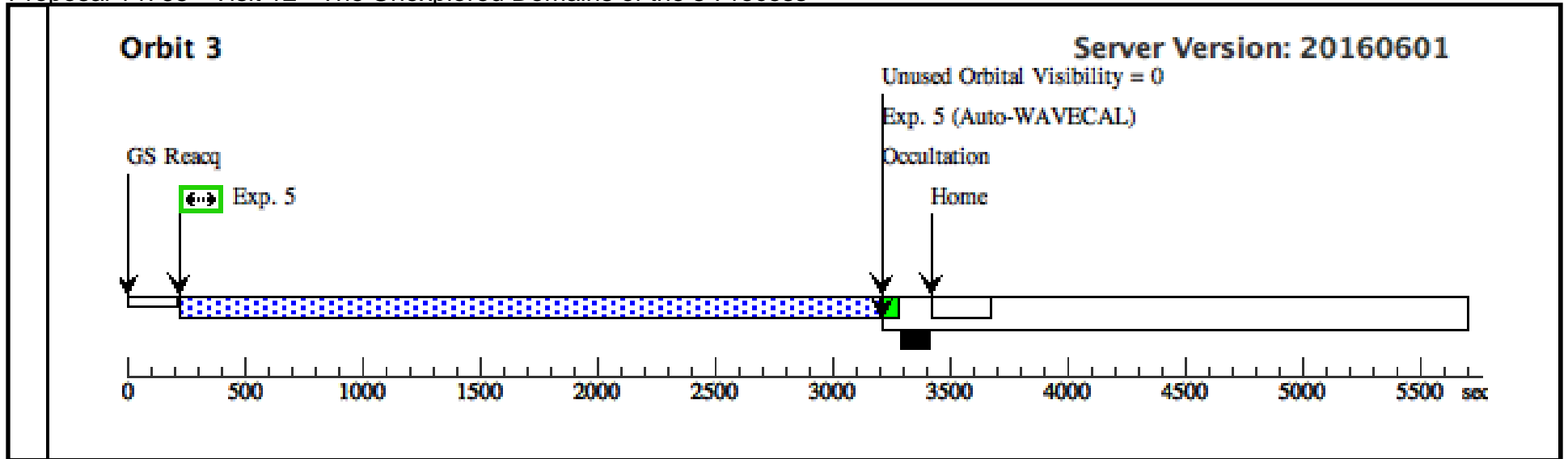


Proposal 14765 - Visit 12 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:10 GMT 2016

Visit	<b>Proposal 14765, Visit 12</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs) [==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs) [==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs) [==>1806.0 Secs ]	[1]
	4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[2]
	5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs) [==>2961.0 Secs ]	[3]

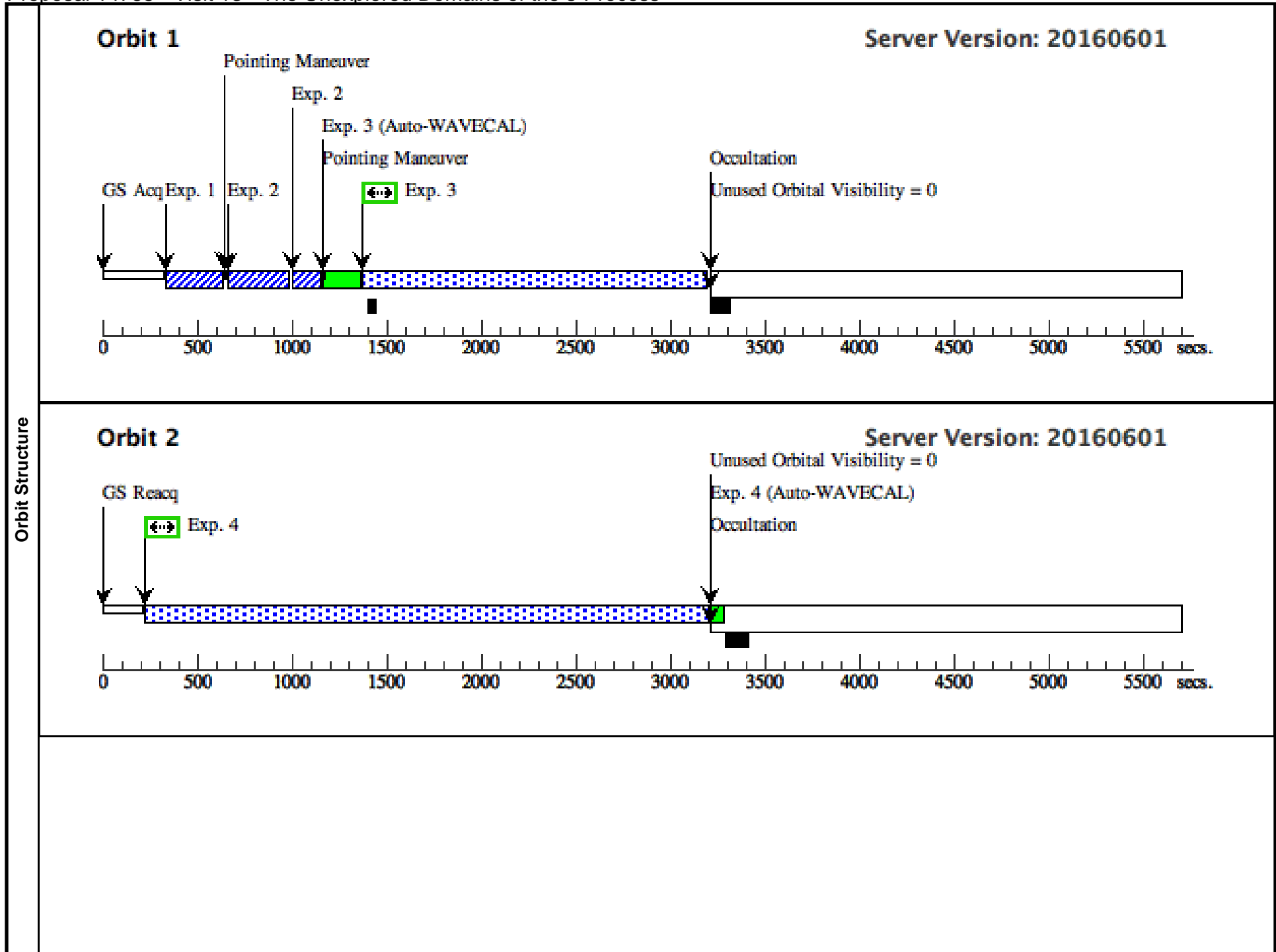


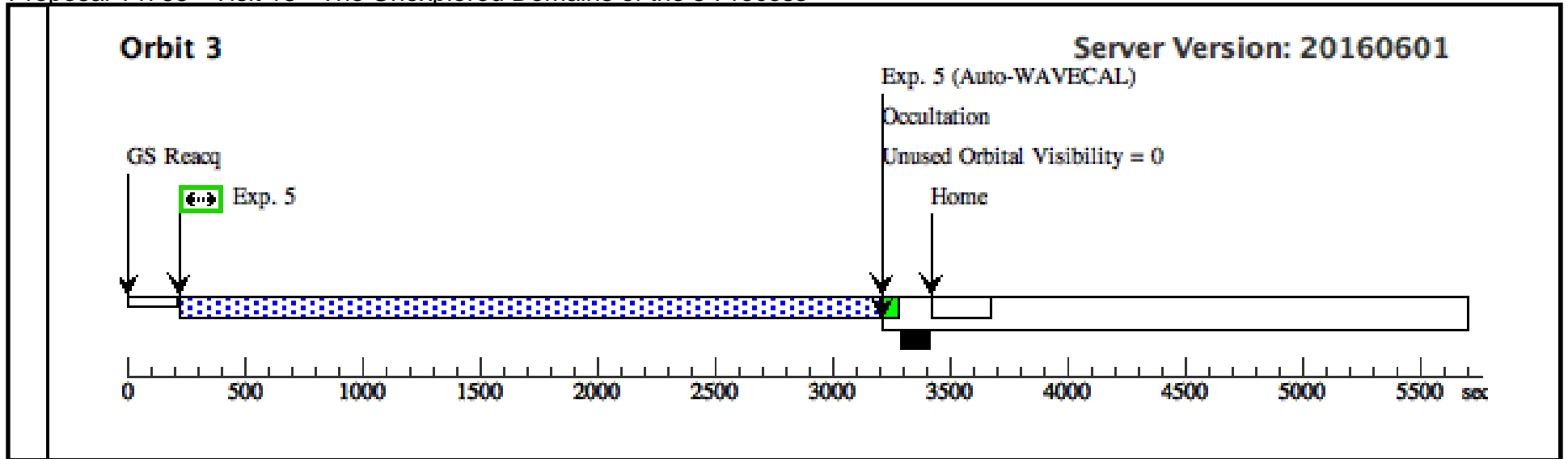


Proposal 14765 - Visit 13 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:11 GMT 2016

Visit	<b>Proposal 14765, Visit 13</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i> <i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i> <i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i> <i>Extended=NO</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR				3 Secs (3 Secs)	
									[==>]	[1]
	2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR				1.5 Secs (1.5 Secs)	
									[==>]	[1]
	3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				2200 Secs (1806 Secs)	
								[==>1806.0 Secs ]	[1]	
4	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
								[==>2961.0 Secs ]	[2]	
5	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A				3000 Secs (2961 Secs)		
								[==>2961.0 Secs ]	[3]	





Proposal 14765 - Visit 14 - The Unexplored Domains of the s-Process

Fri Jul 29 19:20:11 GMT 2016

<b>Visit</b>	<b>Proposal 14765, Visit 14</b>				
	<b>Diagnostic Status: No Diagnostics</b>				
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD				
	Special Requirements: (none)				

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	HD-196944 Alt Name1: HIP-102042	RA: 20 40 46.0860 (310.1920250d) Dec: -06 47 50.63 (-6.79740d) Equinox: J2000	Proper Motion RA: 41.88 mas/yr Proper Motion Dec: -27.45 mas/yr Parallax: 0.00205" Epoch of Position: 1991.25	V=8.38+/-0.02 E(B-V)=0.03	Reference Frame: ICRS
<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>						
<i>RA and DEC from the GSC 2.3.2, VIZIER catalog I/305. PM and parallax data from Hipparcos re-reduction by van Leeuwen (2007); retrieved from VIZIER catalog I/311 on 01 July 2016 by IUR.</i>						
<i>Checked target confirmation chart, and pink cross-hairs line up on the star diffraction spikes to within 1 DSS pixel. These same PM and parallax values were used to successfully observe the same star in program GO-12554 with STIS/E230M. The target confirmation chart there looks indistinguishable from the one generated now.</i>						
<i>Extended=NO</i>						

<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.821 161)	(1) HD-196944	STIS/CCD, ACQ, F25ND3	MIRROR					3 Secs (3 Secs) [==>]
2	(STIS.ta.821 163)	(1) HD-196944	STIS/CCD, ACQ/PEAK, 0.2X0.05ND	MIRROR					1.5 Secs (1.5 Secs) [==>]	[1]
3	(STIS.sp.78 1135)	(1) HD-196944	STIS/NUV-MAMA, ACCUM, 0.2X0.09	E230H 2163 A					2200 Secs (1806 Secs) [==>1806.0 Secs]	[1]

