



## 16692 - [CII], a High-z Diagnostic Diamond in the Rough

Cycle: 29, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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### VISITS

Proposal 16692 (STScI Edit Number: 2, Created: Friday, December 9, 2022 at 2:01:25 PM Eastern Standard Time) - Overview

<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) J0127-0619	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:16.0	yes
02	(2) J0337-0502	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:17.0	yes
03	(3) J0944-0038	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:18.0	yes
04	(4) J1044+0353	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:19.0	yes
05	(5) J1148+2546	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:19.0	yes
06	(6) J1253-0312	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:20.0	yes
07	(7) J1314+3452	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:21.0	yes
08	(8) J1323-0132	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:21.0	yes
09	(9) J1359+5726	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:22.0	yes
10	(10) J1418+2102	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:23.0	yes
Z1	(10) J1418+2102	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:23.0	yes
11	(11) J1448-0110	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:24.0	yes
12	(12) J1545+0858	STIS/CCD STIS/NUV-MAMA	1	09-Dec-2022 14:01:25.0	yes

13 Total Orbits Used

## **ABSTRACT**

In order to fully characterize the high- $z$  systems probed by JWST, it is essential that we prepare a robust rest-UV diagnostic toolkit to determine their physical and chemical properties. Crucially, such diagnostics must incorporate the element that emits strongest in the UV: carbon. Despite now having a suite of CIII], HeII, OIII], and CIV UV emission lines from high- $z$  analogue systems at our fingertips from CLASSY, we are prevented from deriving accurate diagnostics because we lack a thorough understanding of the conditions affecting carbon emission in high- $z$  environments. One key species is missing: [CII]. Here we propose to observe the [CII] 2325A multiplet in a sample of 12 CLASSY galaxies using STIS/G230L spectroscopy, thus building on pre-existing HST/COS spectroscopy to deliver essential insight into the diagnostic utility, production, and abundance of carbon. Our carefully chosen UV-emitting sample spans a wide range of high- $z$  properties, including low-metallicity, high SFRs, and high ionization parameters. Using this important multiplet we will (i) provide the first empirical calibration of a highly-promising UV-based metallicity diagnostic, C23/HeII; (ii) decipher the ionization structure of C in each system by harnessing all of carbon's ionization stages (C+, C2+, C3+); (iii) derive highly accurate C/O abundances that do not rely on ionization correction factors (ICF); (iv) construct ICF grids for C to enable future C/O measurements in high- $z$  systems. This study provides the first opportunity to thoroughly explore the origin of carbon in a range of high- $z$  environments, thus exploiting its full potential as a chemical and physical diagnostic in the JWST era.

## **OBSERVING DESCRIPTION**

We require STIS G230L MAMA observations in order to cover the 1570 - 3180 Å wavelength range, fully encompassing the [C ii] 2325 multiplet (a blend of emission at 2323.50Å, 2324.69Å, 2325.40Å, 2326.93Å, and 2328.12Å).

The prime science goals of this data involve the line ratios between several UV emission lines, several of which are in pre-existing COS data from the CLASSY program. As such, aperture matching between the STIS and COS data is imperative, especially for sources that are extended and/or show multi-component light profiles in the UV. To achieve this we match the position angle of the STIS slit to that of the COS observations (when achievable wrt the visibility of the object). If the objects are definitively point sources, no orient restriction is in place. We calculate ORIENT as PA+45deg, as stated in the STIS IHB. ORIENT restrictions for some targets have been significantly widened for some targets to enable schedulability.

In order to mitigate any issues with aperture losses we will match the width of the STIS slit (2" x 52") to the size of light profiles as measured from the COS NUV acquisition images,

thereby fully encompassing all of the NUV emission in each target.

2 point dither patterns along the slit are used to remove effects of hot pixels. We choose 0.3 arcsec spacing.

ETCs:

The STIS ETC was used to estimate exposure times necessary to reach a  $S/N \sim 10$  in the [C ii] 2325 multiplet using G230L. Previous emission line studies have shown

that this  $S/N$  is sufficient to secure  $> 3$  measurements. The [C ii] flux was estimated for each galaxy by using our (spatially matched) in-hand COS/FUV and optical SDSS data.

The predicted line strengths are given for each target to assist the CS in their ETC calculations, along with the continuum flux at 1900Å observed in COS data.

For objects that are considered to be extended sources (i.e., light profiles with  $> 0.6$  GFWHM), we estimate the surface brightness of [C ii] using the [C iii] and [O iii] fluxes averaged over the 2.5" aperture area of COS. ETC simulations were performed using a flat continuum normalized to the 1900 Å continuum flux observed by COS, superimposed with a [C ii] emission multiplet corresponding to the line flux (or surface brightness for extended sources) of each target at its observed wavelength.

We perform a standard target acquisition to obtain  $S/N=40$  using CCD. Given that our science requirements can be achieved using the 52" STIS aperture, there is no need

to include an acquisition peak-up exposure. V-band magnitudes were used to normalize the SED for ACQ ETCs.

BOT Check:

GALEX clears for all exposures with coverage.

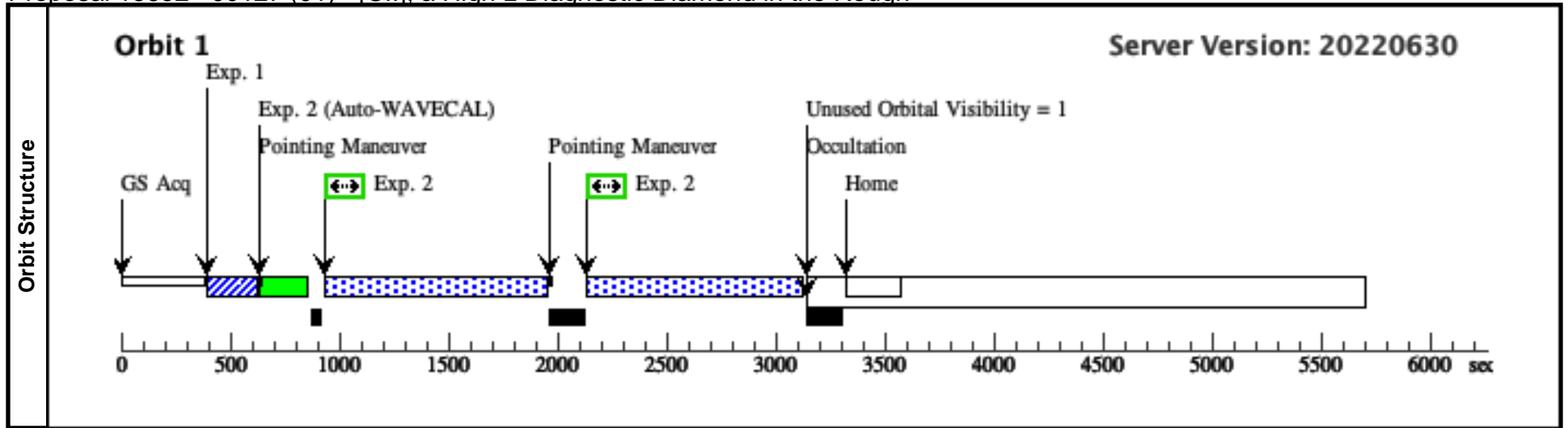
GSC2 reports violation for Visit 01 NUV MAMA - same field clears with Galex.

All targets have been previously observed with COS FUV+NUV and are deemed safe.

Proposal 16692 - J0127 (01) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:25 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J0127 (01), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none) <i>Comments: Point source object, so no orientation constraints needed wrt COS observations (taken at PA=107 -&gt; orient = 152,332)</i>									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
(2)		Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						(2)	
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=2	Angle Between Sides=							
		Point Spacing=0.3	Center Pattern=false							
		Line Spacing=								
<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)	J0127-0619	RA: 01 27 35.5110 (21.8979625d)			V=15.03	Reference Frame: ICRS			
		Alt Name1: MRK996	Dec: -06 19 36.06 (-6.32668d)							
			Equinox: J2000							
		<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.1"</i>								
		<i>Predicted [CII] flux at 2325A = 3.22e-15 erg/s/cm^2</i>								
		<i>Category=GALAXY</i>								
		<i>Description=[EMISSION LINE NEBULA, STAR FORMING REGION]</i>								
		<i>Extended=NO</i>								
<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	(STIS.ta.166 6356)	(1) J0127-0619	STIS/CCD, ACQ, F28X50LP	MIRROR				1 Secs (1 Secs)	
								[==>]	[1]	
		<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.1"</i>								
		<i>Predicted [CII] flux at 2325A = 3.22e-15 erg/s/cm^2</i>								
	2	(STIS.sp.15 30324)	(1) J0127-0619	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J0127 (01) (2)	500 Secs (1954 Secs)	
								[==>977.0 Secs (Pattern 1)]	[1]	
								[==>977.0 Secs (Pattern 2)]		
		<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.1"</i>								
		<i>Predicted [CII] flux at 2325A = 3.22e-15 erg/s/cm^2</i>								



Proposal 16692 - J0337 (02) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:25 GMT 2022

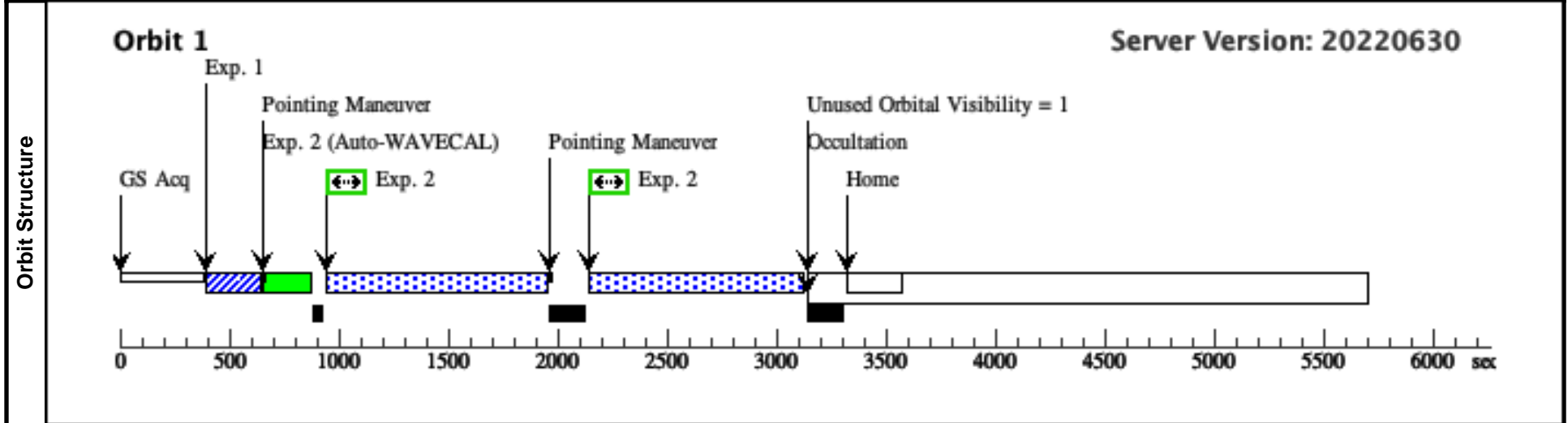
<b>Visit</b>	<b>Proposal 16692, J0337 (02), completed</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD		
	Special Requirements: ORIENT 206D TO 206 D; ORIENT 26D TO 26 D		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=2 Point Spacing=0.3 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false	

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(2)	J0337-0502	RA: 03 37 43.9800 (54.4332500d) Dec: -05 02 38.90 (-5.04414d) Equinox: J2000		V=16.7	Reference Frame: ICRS

*Comments: The coordinates for this target were obtained from a HLA image which is based on GSC2.3 astrometry. NUV continuum is 4e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5", multi-component light profile Predicted [CII] flux at 2325A = 0.36e-15 erg/s/cm^2 Category=GALAXY Description=[STARBURST] Extended=NO*

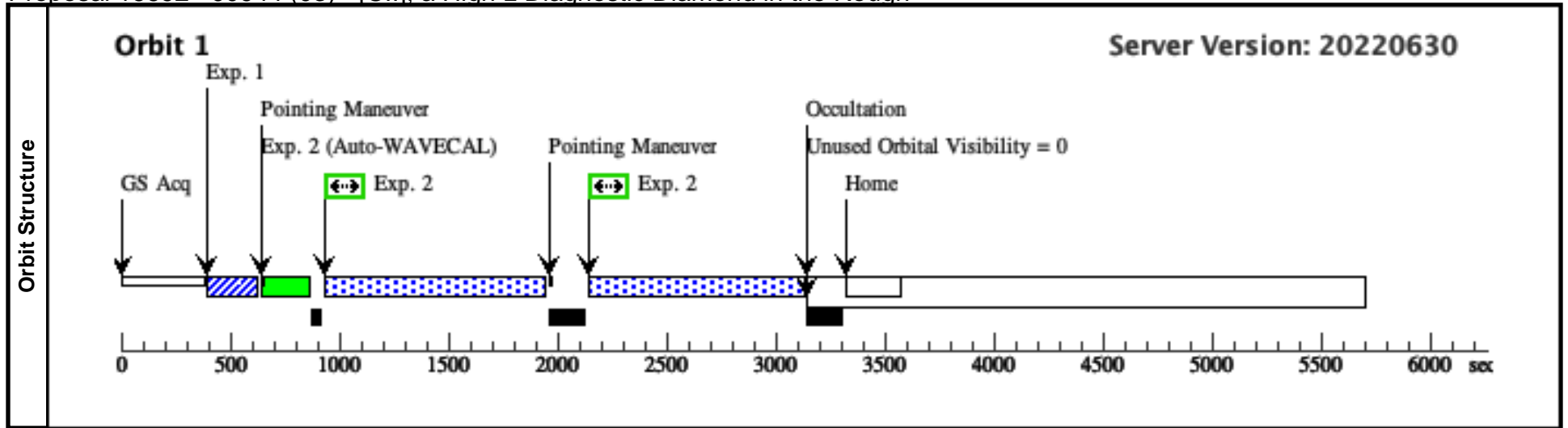
<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.166 6355)	(2) J0337-0502	STIS/CCD, ACQ, F28X50LP	MIRROR					5 Secs (5 Secs) [==>]
<i>Comments: NUV continuum is 4e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5", multi-component light profile Predicted [CII] flux at 2325A = 0.36e-15 erg/s/cm^2</i>										
2	(STIS.sp.15 30324)	(2) J0337-0502	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0			Pattern 2, Exps 2-2 in J0337 (02) (2)	500 Secs (1938 Secs) [==>969.0 Secs (Pattern 1)] [==>969.0 Secs (Pattern 2)]	[1]
<i>Comments: NUV continuum is 4e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5", multi-component light profile Predicted [CII] flux at 2325A = 0.36e-15 erg/s/cm^2</i>										



Proposal 16692 - J0944 (03) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:25 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J0944 (03), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: ORIENT 0D TO 25 D; ORIENT 180D TO 205 D <i>Comments: Point source object, so no orientation constraints needed wrt COS observations (taken at PA=326 -&gt; orient = 11,191)</i>									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
(2)		Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG						(2)	
		Purpose=DITHER	Pattern Orientation=90.0							
		Number Of Points=2	Angle Between Sides=							
		Point Spacing=0.3	Center Pattern=false							
		Line Spacing=								
<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)	J0944-0038	RA: 09 44 1.8700 (146.0077917d)	Dec: -00 38 32.18 (-.64227d)			V=15.69	Reference Frame: ICRS		
			Equinox: J2000							
		<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.05e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] 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	(STIS.ta.166 6346)	(3) J0944-0038	STIS/CCD, ACQ, F28X50LP	MIRROR				2 Secs (2 Secs)	
									[==>]	[1]
		<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.05e-15 erg/s/cm^2</i>								
2	(STIS.sp.15 30324)	(3) J0944-0038	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A		BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J0944 (03) (2)	500 Secs (1948 Secs)	
									[==>974.0 Secs (Pattern 1)]	[1]
									[==>974.0 Secs (Pattern 2)]	
	<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.05e-15 erg/s/cm^2</i>									



Proposal 16692 - J1044 (04) - [CII], a High-z Diagnostic Diamond in the Rough

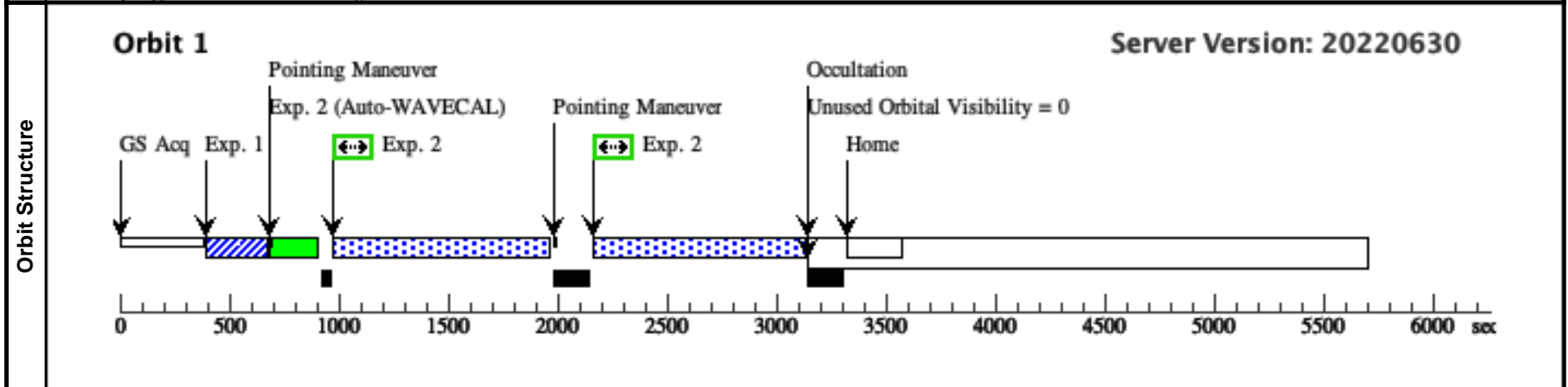
Fri Dec 09 19:01:25 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1044 (04), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: ORIENT 330D TO 30 D; ORIENT 130D TO 210 D Comments: Adding a series of orient restraints to align with archival COS data		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(4)	J1044+0353 Alt Name1: J104457	RA: 10 44 57.7900 (161.2407917d) Dec: +03 53 13.10 (3.88697d) Equinox: J2000		V=17.86	Reference Frame: ICRS
	Comments: NUV continuum is 1.25e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile Predicted [CII] flux at 2325A = 0.26e-15 erg/s/cm^2 Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] 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	(STIS.ta.166 6347)	(4) J1044+0353	STIS/CCD, ACQ, F28X50LP	MIRROR				13 Secs (13 Secs)	
	Comments: NUV continuum is 1.25e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile Predicted [CII] flux at 2325A = 0.26e-15 erg/s/cm^2									
	2	(STIS.sp.15 30324)	(4) J1044+0353	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1044 (04) (2)	500 Secs (1904 Secs)	
										[1]
	Comments: NUV continuum is 1.25e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile Predicted [CII] flux at 2325A = 0.26e-15 erg/s/cm^2									



Proposal 16692 - J1148 (05) - [CII], a High-z Diagnostic Diamond in the Rough

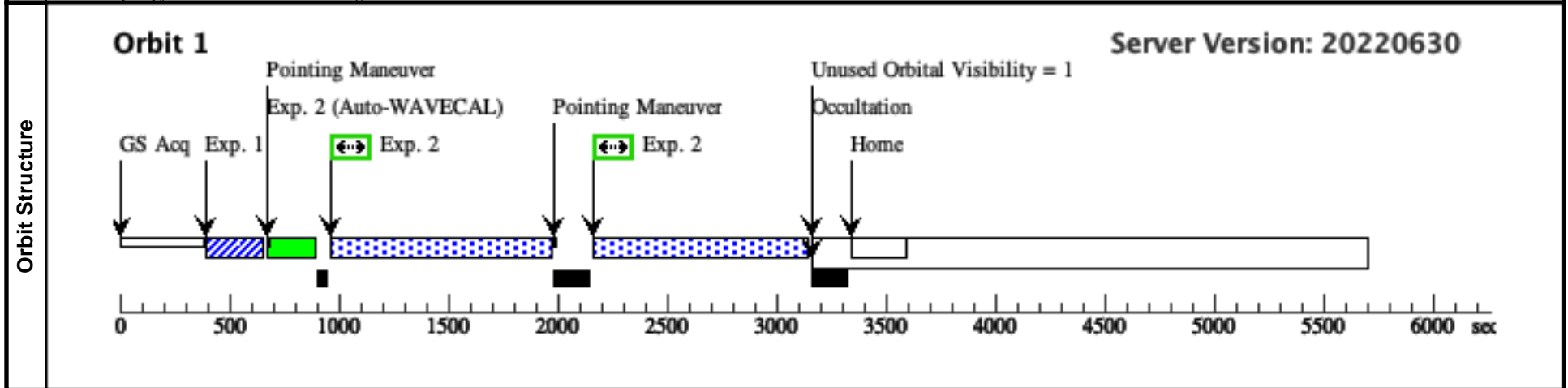
Fri Dec 09 19:01:25 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1148 (05), completed</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD		
	Special Requirements: ORIENT 46D TO 46 D; ORIENT 226D TO 226 D		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(5)	J1148+2546	RA: 11 48 27.3400 (177.1139167d) Dec: +25 46 11.77 (25.76994d) Equinox: J2000		V=17.51	Reference Frame: ICRS
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.13e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] 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	(STIS.ta.166 6352)	(5) J1148+2546	STIS/CCD, ACQ, F28X50LP	MIRROR				9 Secs (9 Secs)	
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.13e-15 erg/s/cm^2</i>									
	2	(STIS.sp.15 30324)	(5) J1148+2546	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1148 (05) (2)	500 Secs (1942 Secs)	
										[1]
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.13e-15 erg/s/cm^2</i>									



Proposal 16692 - J1253 (06) - [CII], a High-z Diagnostic Diamond in the Rough

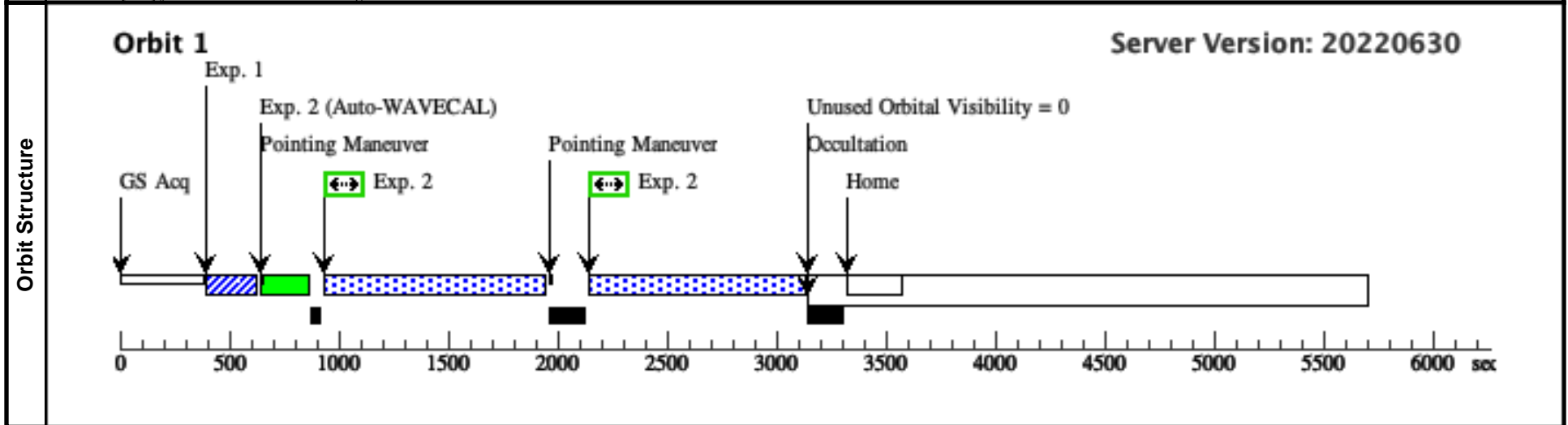
Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1253 (06), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: ORIENT 350D TO 80 D; ORIENT 170D TO 260 D		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(6)	J1253-0312	RA: 12 53 5.9600 (193.2748333d) Dec: -03 12 58.84 (-3.21634d) Equinox: J2000		V=15.85	Reference Frame: ICRS
	<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.7", extended source</i> <i>Predicted [CII] flux at 2325A = 0.07e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] Extended=YES					

<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.166 6357)	(6) J1253-0312	STIS/CCD, ACQ, F28X50LP	MIRROR				2 Secs (2 Secs)	
	<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.7", extended source</i> <i>Predicted [CII] flux at 2325A = 0.07e-15 erg/s/cm^2</i>									
	2	(STIS.sp.15 30324)	(6) J1253-0312	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1253 (06) (2)	500 Secs (1948 Secs)	
										[1]
	<i>Comments: NUV continuum is 5e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.7", extended source</i> <i>Predicted [CII] flux at 2325A = 0.07e-15 erg/s/cm^2</i>									[1]



Proposal 16692 - J1314 (07) - [CII], a High-z Diagnostic Diamond in the Rough

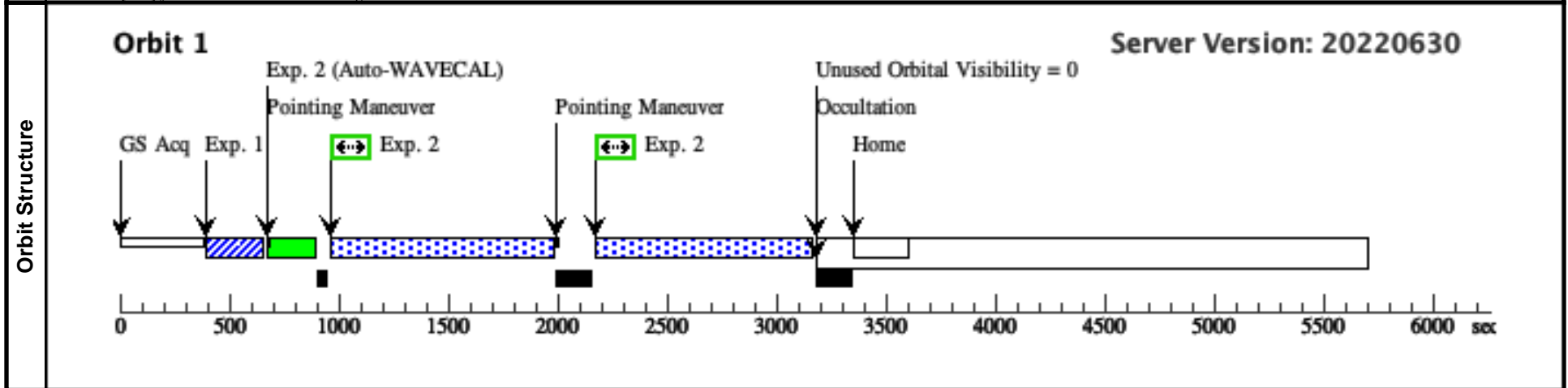
Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1314 (07), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: ORIENT 166D TO 166 D; ORIENT 346D TO 346 D		
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<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>	<b>Secondary Pattern</b>	<b>Exposures</b>
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                    Angle Between Sides= Point Spacing=0.3                      Center Pattern=false Line Spacing=		(2)

<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)	J1314+3452	RA: 13 14 47.3700 (198.6973750d) Dec: +34 52 59.81 (34.88328d) Equinox: J2000 <i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5"</i> <i>Predicted [CII] flux at 2325A = 0.02e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] Extended=NO		V=17.49	Reference Frame: ICRS

<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	(STIS.ta.166 6358)	(7) J1314+3452	STIS/CCD, ACQ, F28X50LP	MIRROR				9 Secs (9 Secs) [==>]	[1]
<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5"</i> <i>Predicted [CII] flux at 2325A = 0.02e-15 erg/s/cm^2</i>										
2	(STIS.sp.15 30324)	(7) J1314+3452	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0			Pattern 2, Exps 2-2 in J1314 (07) (2)	500 Secs (1958 Secs) [==>979.0 Secs (Pattern 1)] [==>979.0 Secs (Pattern 2)]	[1]
<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.5"</i> <i>Predicted [CII] flux at 2325A = 0.02e-15 erg/s/cm^2</i>										



Proposal 16692 - J1323 (08) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1323 (08), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none) <i>Comments: No orient constraints required to align with COS observations since object is considered point source</i>		
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<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(8)	J1323-0132 Alt Name1: J132347	RA: 13 23 47.5200 (200.9480000d) Dec: -01 32 51.94 (-1.54776d) Equinox: J2000		V=18.88	Reference Frame: ICRS

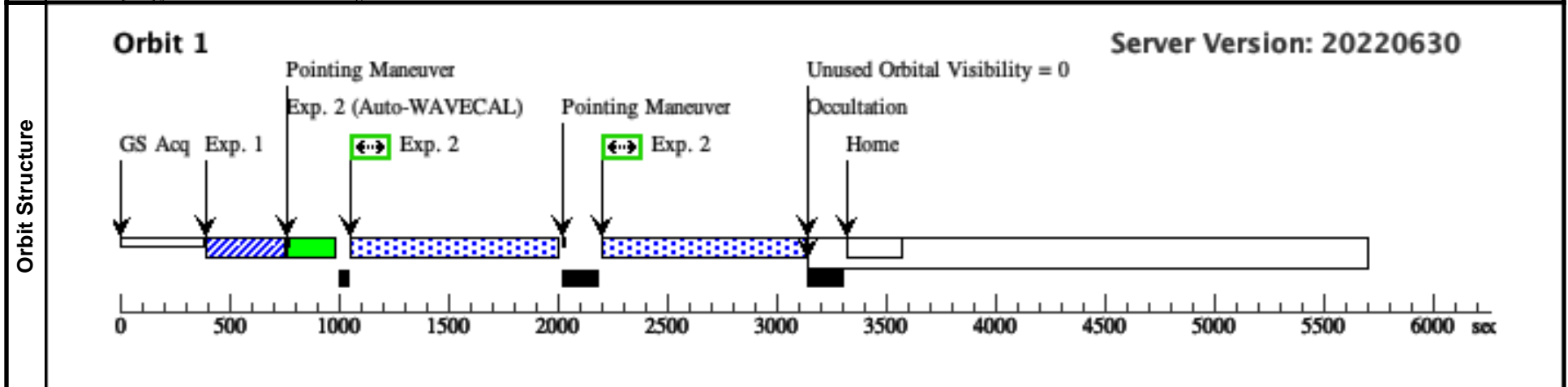
*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"*  
*Predicted [CII] flux at 2325A = 0.06e-15 erg/s/cm^2*  
 Category=GALAXY  
 Description=[EMISSION LINE NEBULA, STAR FORMING REGION]  
 Extended=NO

<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.166 6353)	(8) J1323-0132	STIS/CCD, ACQ, F28X50LP	MIRROR					33 Secs (33 Secs) [==>]

*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"*  
*Predicted [CII] flux at 2325A = 0.06e-15 erg/s/cm^2*

2	(STIS.sp.15 30324)	(8) J1323-0132	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0			Pattern 2, Exps 2-2 in J1323 (08) (2)	500 Secs (1824 Secs) [==>912.0 Secs (Pattern 1)] [==>912.0 Secs (Pattern 2)]	[1]
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*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"*  
*Predicted [CII] flux at 2325A = 0.06e-15 erg/s/cm^2*



Proposal 16692 - J1359 (09) - [CII], a High-z Diagnostic Diamond in the Rough

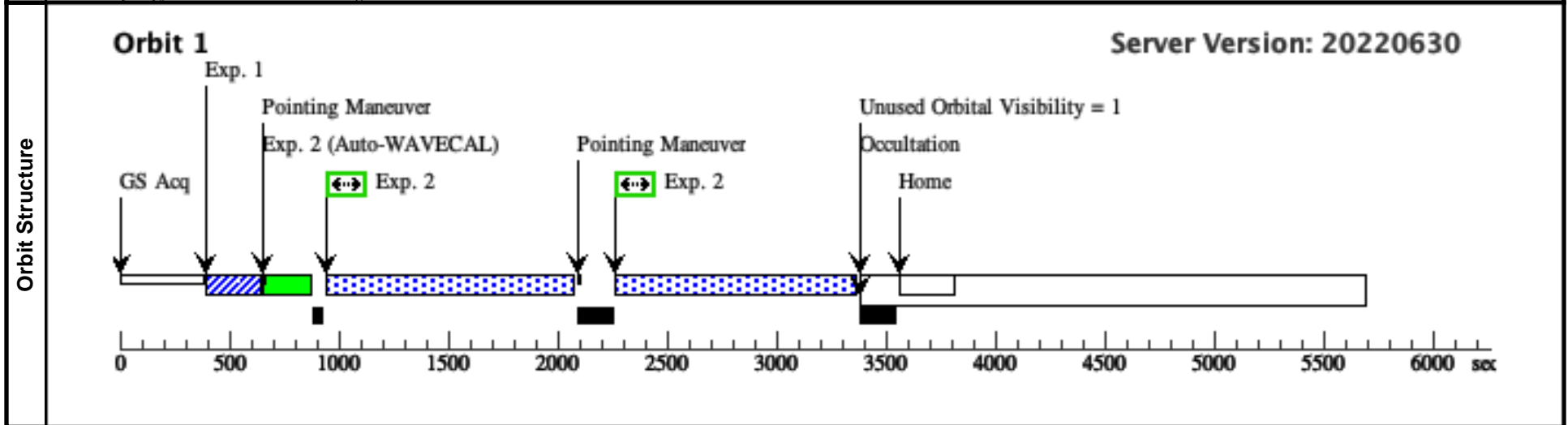
Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1359 (09), implementation</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD		
	Special Requirements: ORIENT 100D TO 105 D; ORIENT 279D TO 285 D		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=2 Point Spacing=0.3 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false	(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(9)	J1359+5726 Alt Name1: LY52	RA: 13 59 50.8800 (209.9620000d) Dec: +57 26 22.92 (57.43970d) Equinox: J2000		V=16.65	Reference Frame: ICRS
	<i>Comments: NUV continuum is 3e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile</i> <i>Predicted [CII] flux at 2325A = 0.11e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] 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	(STIS.ta.166 6359)	(9) J1359+5726	STIS/CCD, ACQ, F28X50LP	MIRROR				5 Secs (5 Secs)	
	<i>Comments: NUV continuum is 3e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile</i> <i>Predicted [CII] flux at 2325A = 0.11e-15 erg/s/cm^2</i>									
	2	(STIS.sp.15 30324)	(9) J1359+5726	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1359 (09) (2)	500 Secs (2182 Secs)	
	<i>Comments: NUV continuum is 3e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3", multi-component light profile</i> <i>Predicted [CII] flux at 2325A = 0.11e-15 erg/s/cm^2</i>									
									[==>]	[1]
									[==>1091.0 Secs (Pattern 1)] [==>1091.0 Secs (Pattern 2)]	[1]



Proposal 16692 - J1418 (10) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1418 (10), failed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none) <i>Comments: No orient constraints required to align with COS observations since object is considered point source</i>		
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<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(10)	J1418+2102 Alt Name1: J141851	RA: 14 18 51.1190 (214.7129958d) Dec: +21 02 39.84 (21.04440d) Equinox: J2000		V=17.74	Reference Frame: ICRS

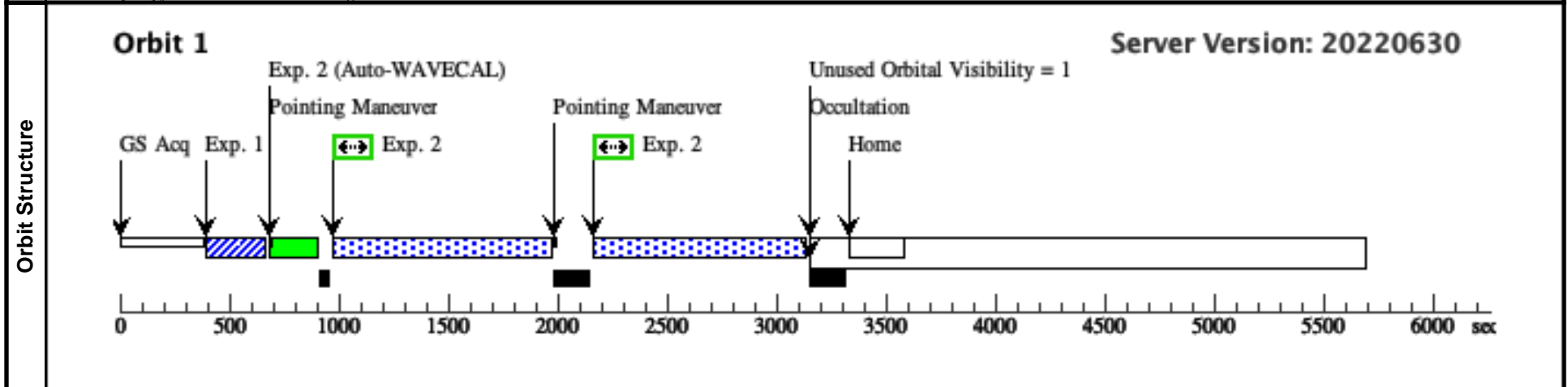
*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"*  
*Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2*  
 Category=GALAXY  
 Description=[EMISSION LINE NEBULA, STAR FORMING REGION]  
 Extended=NO

<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.166 6354)	(10) J1418+2102	STIS/CCD, ACQ, F28X50LP	MIRROR				12 Secs (12 Secs) [==>]	[1]

*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"*  
*Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2*

2	(STIS.sp.15 30324)	(10) J1418+2102	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1418 (10) (2)	500 Secs (1922 Secs) [==>961.0 Secs (Pattern 1)] [==>961.0 Secs (Pattern 2)]	[1]
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*Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"*  
*Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2*



Proposal 16692 - J1418\_HOPR (Z1) - [CII], a High-z Diagnostic Diamond in the Rough

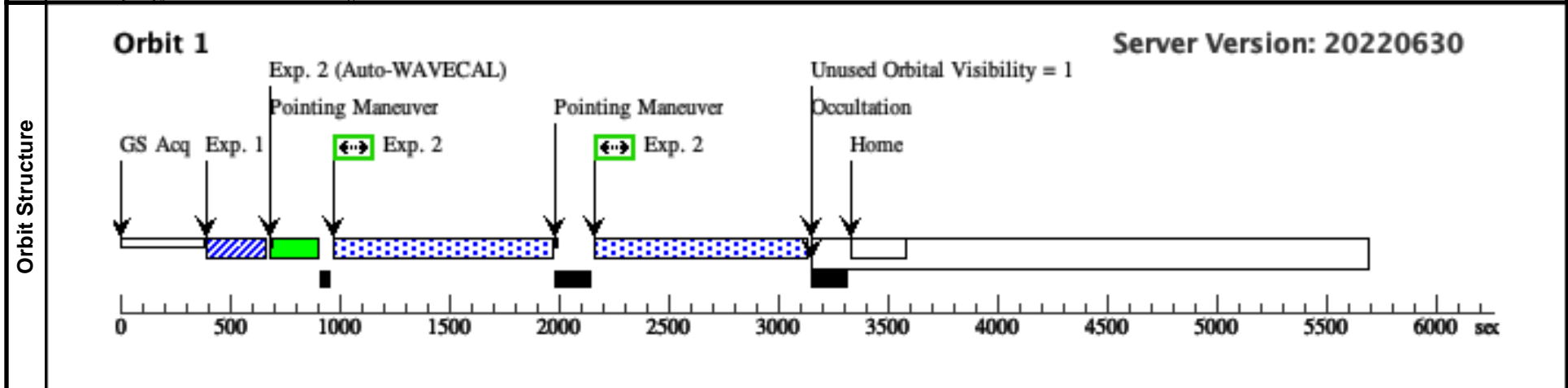
Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1418_HOPR (Z1), implementation</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none) <i>Comments: No orient constraints required to align with COS observations since object is considered point source</i>		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(10)	J1418+2102	RA: 14 18 51.1190 (214.7129958d)		V=17.74	Reference Frame: ICRS
		Alt Name1: J141851	Dec: +21 02 39.84 (21.04440d)			
			Equinox: J2000			
	<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] Extended=NO					

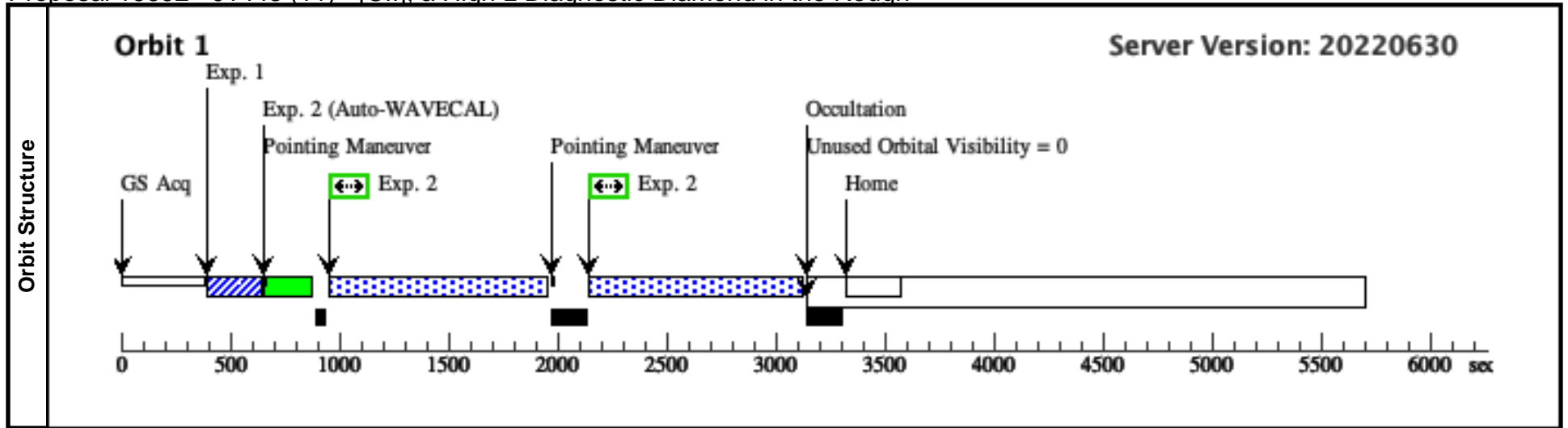
<b>Exposures</b>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.166 6354)	(10) J1418+2102	STIS/CCD, ACQ, F28X50LP	MIRROR				12 Secs (12 Secs)	
									[==>]	[1]
	<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2</i>									
	2	(STIS.sp.15 30324)	(10) J1418+2102	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1418_HOPR (Z1) (2)	500 Secs (1922 Secs)	
									[==>961.0 Secs (Pattern 1)]	[1]
									[==>961.0 Secs (Pattern 2)]	
	<i>Comments: NUV continuum is 1e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.3"</i> <i>Predicted [CII] flux at 2325A = 0.2e-15 erg/s/cm^2</i>									



Proposal 16692 - J1448 (11) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1448 (11), completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none) <i>Comments: No orient constraints required to align with COS observations since object is considered point source</i>									
	<b>Patterns</b>	<b>#</b>	<b>Primary Pattern</b>				<b>Secondary Pattern</b>			<b>Exposures</b>
(2)		Pattern Type=STIS-ALONG-SLIT Purpose=DITHER Number Of Points=2 Point Spacing=0.3 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=90.0 Angle Between Sides= Center Pattern=false						(2)	
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>	<b>Miscellaneous</b>				
	(11)	J1448-0110	RA: 14 48 5.3800 (222.0224167d) Dec: -01 10 57.72 (-1.18270d) Equinox: J2000 <i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"</i> <i>Predicted [CII] flux at 2325A = 0.04e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] Extended=NO		V=16.96	Reference Frame: ICRS				
<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	(STIS.ta.166 6360)	(11) J1448-0110	STIS/CCD, ACQ, F28X50LP	MIRROR				6 Secs (6 Secs) [==>]	[1]
<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"</i> <i>Predicted [CII] flux at 2325A = 0.04e-15 erg/s/cm^2</i>										
2	(STIS.sp.15 30324)	(11) J1448-0110	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A		BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1448 (11) (2)	500 Secs (1932 Secs) [==>966.0 Secs (Pattern 1)] [==>966.0 Secs (Pattern 2)]	[1]
<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.2"</i> <i>Predicted [CII] flux at 2325A = 0.04e-15 erg/s/cm^2</i>										



Proposal 16692 - J1545 (12) - [CII], a High-z Diagnostic Diamond in the Rough

Fri Dec 09 19:01:26 GMT 2022

<b>Visit</b>	<b>Proposal 16692, J1545 (12), completed</b>		
	<b>Diagnostic Status: No Diagnostics</b>		
	Scientific Instruments: STIS/NUV-MAMA, STIS/CCD		
	Special Requirements: ORIENT 160D TO 230 D; ORIENT 340D TO 50 D		

<b>Patterns</b>	#	Primary Pattern	Secondary Pattern	Exposures
	(2)	Pattern Type=STIS-ALONG-SLIT      Coordinate Frame=POS-TARG Purpose=DITHER                      Pattern Orientation=90.0 Number Of Points=2                  Angle Between Sides= Point Spacing=0.3                    Center Pattern=false Line Spacing=		(2)

<b>Fixed Targets</b>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(12)	J1545+0858	RA: 15 45 43.4400 (236.4310000d) Dec: +08 58 1.34 (8.96704d) Equinox: J2000		V=17.78	Reference Frame: ICRS
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.1e-15 erg/s/cm^2</i> Category=GALAXY Description=[EMISSION LINE NEBULA, STAR FORMING REGION] Extended=YES					

<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.166 6362)	(12) J1545+0858	STIS/CCD, ACQ, F28X50LP	MIRROR				12 Secs (12 Secs)	
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.1e-15 erg/s/cm^2</i>									
	2	(STIS.sp.15 30324)	(12) J1545+0858	STIS/NUV-MAMA, TIME-TAG, 52X2	G230L 2376 A	BUFFER-TIME=60 0		Pattern 2, Exps 2-2 in J1545 (12) (2)	500 Secs (1910 Secs)	
	<i>Comments: NUV continuum is 2e-15 erg/s/cm^2/A at 1900A from COS observations, FWHM=0.4", multi-component light profile in UV</i> <i>Predicted [CII] flux at 2325A = 0.1e-15 erg/s/cm^2</i>									[1]

