



## 13312 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Cycle: 21, Proposal Category: GO

(UV Initiative)

(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) SDSSJ141454	COS/FUV	2	01-Apr-2014 21:05:52.0	yes
02	(2) SDSSJ082555	COS/FUV	1	01-Apr-2014 21:06:01.0	yes
03	(3) SDSSJ104457	COS/FUV	1	01-Apr-2014 21:06:10.0	yes
13	(3) SDSSJ104457	COS/FUV	1	01-Apr-2014 21:06:18.0	yes
04	(4) SDSSJ120122	COS/FUV	1	01-Apr-2014 21:06:26.0	yes
05	(5) SDSSJ085103	COS/FUV	1	01-Apr-2014 21:06:33.0	yes
06	(6) SDSSJ124159	COS/FUV	1	01-Apr-2014 21:06:41.0	yes
07	(7) SDSSJ115441	COS/FUV	1	01-Apr-2014 21:06:48.0	yes
08	(8) SDSSJ122622	COS/FUV	1	01-Apr-2014 21:06:56.0	yes
09	(9) SDSSJ122436	COS/FUV	1	01-Apr-2014 21:07:03.0	yes
10	(10) SDSSJ124827	COS/FUV	1	01-Apr-2014 21:07:10.0	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>
11	(11) SDSSJ025426	COS/FUV	1	01-Apr-2014 21:07:17.0	yes
12	(12) SDSSJ095137	COS/FUV	1	01-Apr-2014 21:07:24.0	yes

14 Total Orbits Used

## ABSTRACT

While oxygen and nitrogen have been widely observed in spiral and dwarf galaxies, the study of the next most abundant element, carbon, resides in a state of relative infancy. We propose to use COS on the HST to observe UV emission lines of carbon and oxygen for a sample of high-surface brightness low-metallicity dwarf galaxies. Combining these data with the observations of Garnett et al. (1995), we will produce the first statistically significant sample of C/O abundances in nearby dwarf galaxies. The upgrade in UV efficiency from FOS to COS and the large pool of spectra available today due to extensive surveys (e.g., the SDSS), allow us to efficiently triple the number of secure measurements. Determining the underlying trend of C with O and the scatter in C/O at a given value of O/H provide strong constraints on the nucleosynthetic origin of C. In addition, combining these data with ground-based optical spectra will show how carbon and nitrogen production are coupled, providing key insights as to the degree that carbon is a primary product of intermediate-mass stars. Given the recent interest in possibilities of non-universal initial mass functions in low-mass (low-metallicity) galaxies, a secure characterization of the behavior of C/O is vital.

## OBSERVING DESCRIPTION

We will use COS with the G140L grating and a central wavelength of 1280 angstroms in order to obtain new measurements of the emission lines OIII] 1661,1666 and CIII] 1907,1909 over the wavelength range of 1282 to 2148 angstroms for detector segment A in a sample of extragalactic HII regions. Detector segment B extends down to lower wavelengths, but provides limited sensitivity, so any lines detected in this wavelength range will be a bonus. We will observe 11 of our targets for 1 orbit and 1 additional target for 2 orbits with the FUV channel G140L grating through the PSA. This allows us to maximize science per orbit by fitting most target observations into a single orbit.

In order to establish the C/O relationship with O/H in the sparsely measured metal poor regime, our targets were chosen for their high emission line surface brightnesses, high optical ionizations, and low metallicities ( $12+\log(\text{O}/\text{H}) < 8.2$ ). Further, we chose only the most compact of these targets in order to achieve maximum flux through the 2.5" COS aperture. The additional target that requires 2 orbits was chosen because it greatly increases the significance of our sample by extending the O abundance range 0.14 dex down to  $12+\log(\text{O}/\text{H}) = 7.28$ .

## Proposal 13312 (STScI Edit Number: 2, Created: Tuesday, April 1, 2014 8:07:34 PM EST) - Overview

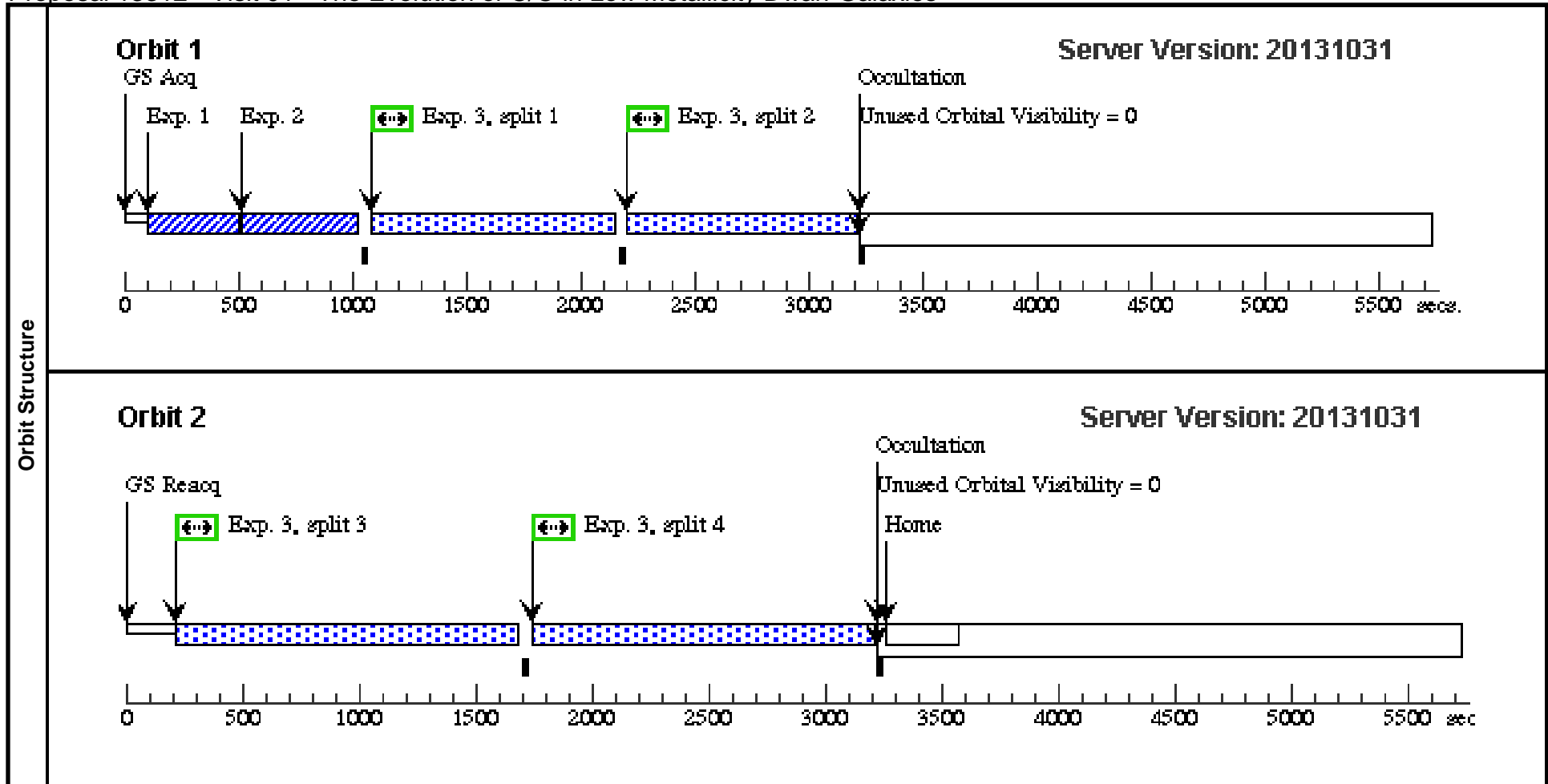
We have chosen to use COS in TIMETAG mode since our targets do not reach count rate limits, and TIMETAG mode provides higher data quality. We will use the G140L grating at the central wavelength position of 1280 angstroms for all exposures because this setup provides excellent wavelength coverage, which allows simultaneous observations of all the necessary UV emission lines. With excellent input coordinates for our sample from the SDSS, our observing plan is to center on our targets using the ACQ/PEAKXD and ACQ/PEAKD mode in the FUV G130M grating at a center wavelength of 1291 angstroms. The spatial resolution of the COS FUV G130M grating is 0.5-1.5", and so more closely mimicks the resolution of previous measurements with the SDSS. We use SCAN-SIZE=3, STEP-SIZE=1.3, and CENTER=FLUX-WT for the ACQ/PEAKD mode assuming an extended source, which is recommended in the COS Handbook when a faster TA is required and lower centering accuracy can be tolerated.

To keep acquisition exposure times short, each acquisition was determined using a flat continuum, GALEX FUV magnitudes, and a relaxed requirement of  $S/N=25$ . Then, all remaining time was allocated to observing each target for the remainder of the orbit. Input GALEX FUV magnitudes/arcsec<sup>2</sup> were determined by first subtracting the diffuse emission of extended sources from the central aperture of  $\sim 5''$ , where  $5''$  is approximately the FWHM PSF of GALEX. We then assumed the flux within the GALEX  $5''$  aperture is equivalent to the  $\sim 2''$  FWHM PSF of the SDSS. Since our targets all appear to be compact objects with sizes of  $\sim 2''$  in SDSS images, this is a reasonable assumption. We then divided the GALEX FUV magnitudes by the area of the  $2''$  PSF to determine the FUV magnitude/arcsec<sup>2</sup>. For acquisition images, no diffuse emission was subtracted, as we only care about finding the brightest region to center our observation on, and would like to reduce acquisition exposure time. For our FUV G140L configuration, no flats are available and so we use FP-POS=ALL, which takes 4 images offset from one another in the dispersion direction and increases  $S/N$ . This 4 positions also allow a flat to be created and cosmic rays to be eliminated.

Proposal 13312 - Visit 01 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:34 GMT 2014

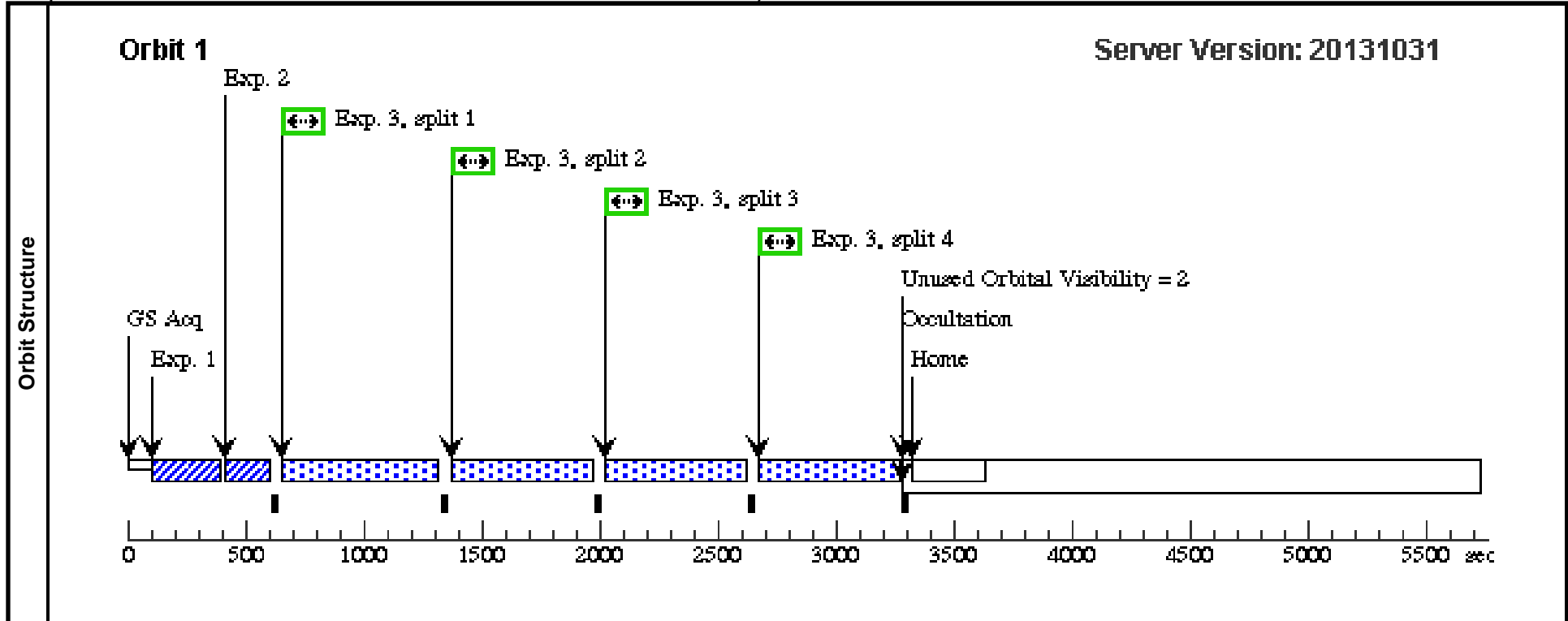
Visit	<b>Proposal 13312, Visit 01, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(1)	SDSSJ141454	RA: 14 14 54.1400 (213.7255833d) Dec: -02 08 22.90 (-2.13969d) Equinox: J2000	Redshift: 0.0053	V=17.78 g = 17.97, r = 17.82	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 19.32</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 22.55 mag/arcsec<sup>2</sup>; 22.03 mag/arcsec<sup>2</sup> if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0587</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 351)	(1) SDSSJ141454	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	SEGMENT=BOTH			139.2 Secs (139.2 Secs)	
									[==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 351)	(1) SDSSJ141454	COS/FUV, ACQ/PEAKD, PSA	G140L 1280 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			139.2 Secs (139.2 Secs)	
								[==>]	[1]	
	3	Science (COS.sp.512 233)	(1) SDSSJ141454	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=13 543; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			100 Secs (4746 Secs)	
								[==>954.0 Secs (Split 1)]		[1]
								[==>954.0 Secs (Split 2)]		[1]
								[==>1419.0 Secs (Split 3)]		[2]
								[==>1419.0 Secs (Split 4)]		[2]



Proposal 13312 - Visit 02 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:37 GMT 2014

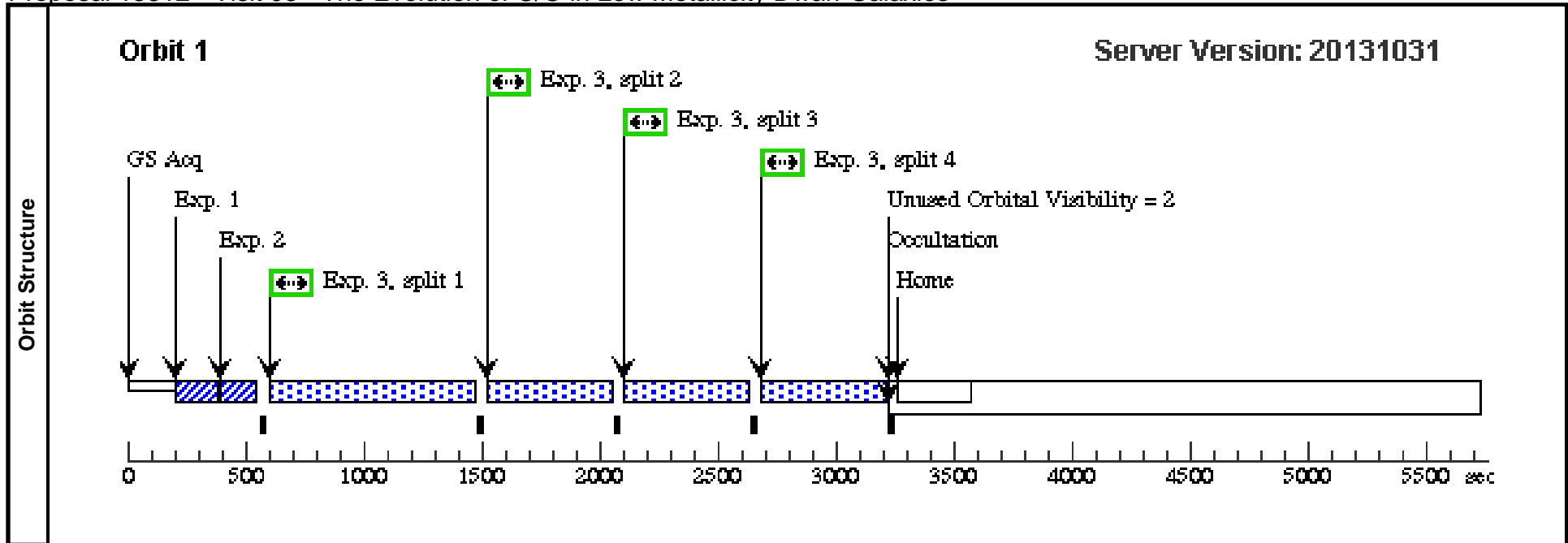
Visit	<b>Proposal 13312, Visit 02, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(2)	SDSSJ082555	RA: 08 25 55.5200 (126.4813333d) Dec: +35 32 31.90 (35.54219d) Equinox: J2000	Redshift: 0.0030	V=17.57 g = 17.63, r = 17.70	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.8</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 21.14 mag/arcsec^2; 20.88 mag/arcsec^2 if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0455</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 356)	(2) SDSSJ082555	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	SEGMENT=BOTH			33.0 Secs (33 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 356)	(2) SDSSJ082555	COS/FUV, ACQ/PEAKD, PSA	G140L 1280 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			33.0 Secs (33 Secs) [==>]	[1]
	3	Science (COS.sp.513 913)	(2) SDSSJ082555	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=12 505; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			410 Secs (2180 Secs) [==>545.0 Secs (Split 1)] [==>545.0 Secs (Split 2)] [==>545.0 Secs (Split 3)] [==>545.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 03 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:38 GMT 2014

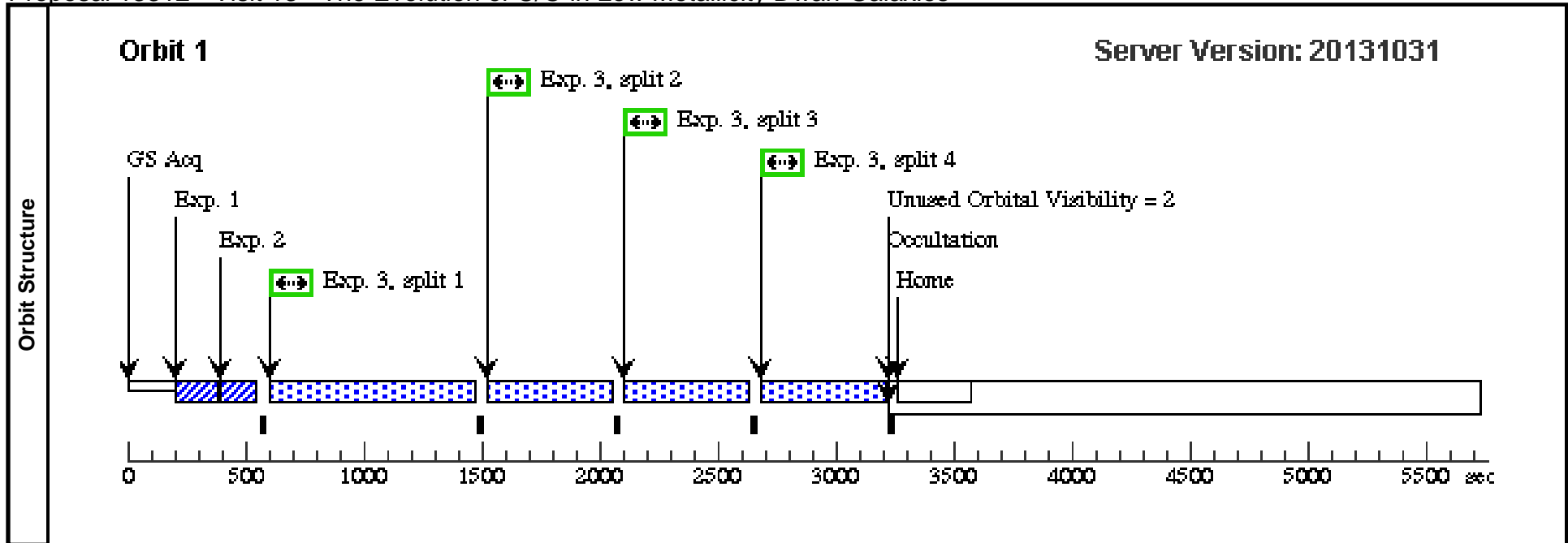
Visit	<b>Proposal 13312, Visit 03, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(3)	SDSSJ104457	RA: 10 44 57.7900 (161.2407917d) Dec: +03 53 13.10 (3.88697d) Equinox: J2000	Redshift: 0.0127	V=17.55 g = 17.49, r = 17.76	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.28</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.60 mag/arcsec<sup>2</sup>; 20.35 mag/arcsec<sup>2</sup> if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0425</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 357)	(3) SDSSJ104457	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			18.4 Secs (18.4 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 357)	(3) SDSSJ104457	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			18.4 Secs (18.4 Secs) [==>]	[1]
	3	Science (COS.sp.513 915)	(3) SDSSJ104457	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=11 707; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			598 Secs (2066 Secs) [==>641.0 Secs (Split 1)] [==>475.0 Secs (Split 2)] [==>475.0 Secs (Split 3)] [==>475.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 13 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:39 GMT 2014

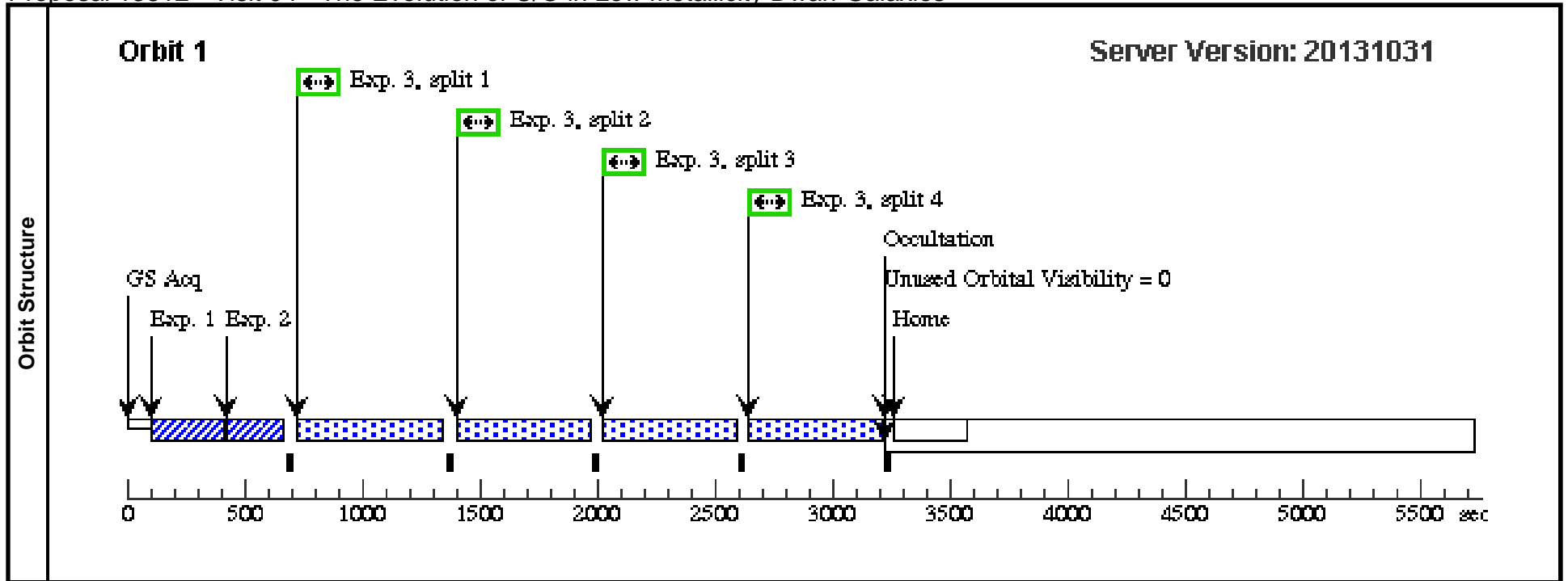
Visit	<b>Proposal 13312, Visit 13</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30% <i>Comments: This visit is a repeat of visit 3 which was lost due to a COS suspend.</i>									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(3)	SDSSJ104457	RA: 10 44 57.7900 (161.2407917d) Dec: +03 53 13.10 (3.88697d) Equinox: J2000	Redshift: 0.0127	V=17.55 g = 17.49, r = 17.76	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.28</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.60 mag/arcsec<sup>2</sup>; 20.35 mag/arcsec<sup>2</sup> if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0425</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 357)	(3) SDSSJ104457	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			18.4 Secs (18.4 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 357)	(3) SDSSJ104457	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			18.4 Secs (18.4 Secs) [==>]	[1]
	3	Science (COS.sp.513 915)	(3) SDSSJ104457	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=11 707; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			598 Secs (2066 Secs) [==>641.0 Secs (Split 1)] [==>475.0 Secs (Split 2)] [==>475.0 Secs (Split 3)] [==>475.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 04 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:39 GMT 2014

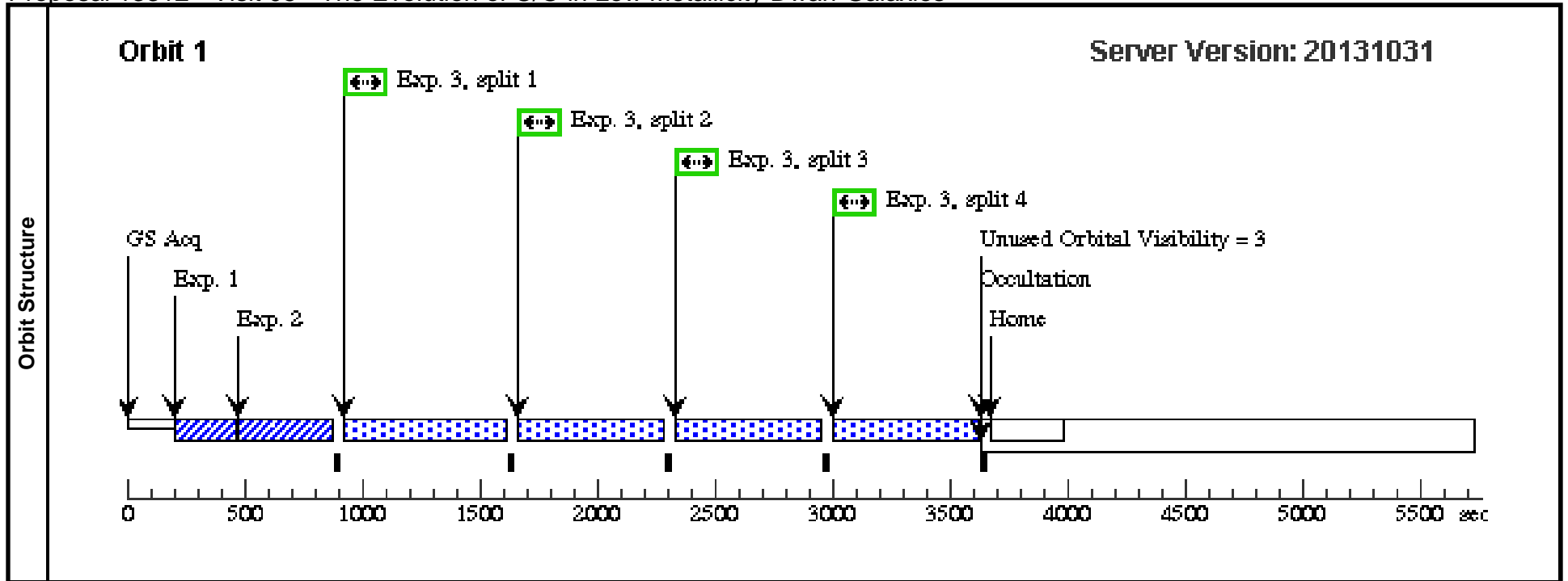
Visit	<b>Proposal 13312, Visit 04, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(4)	SDSSJ120122	RA: 12 01 22.3100 (180.3429583d) Dec: +02 11 8.20 (2.18561d) Equinox: J2000	Redshift: 0.0033	V=17.61 g = 17.72, r = 17.7	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.64</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 21.59 mag/arcsec^2; 21.28 mag/arcsec^2 if no diffuse emission is subtracted.</i> E(B-V) = 0.0245									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 358)	(4) SDSSJ120122	COS/FUV, ACQ/PEAKXD, PSA	G140L 1280 A	SEGMENT=BOTH			49.9 Secs (49.9 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 358)	(4) SDSSJ120122	COS/FUV, ACQ/PEAKD, PSA	G140L 1280 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			49.9 Secs (49.9 Secs) [==>]	[1]
	3	Science (COS.sp.513 916)	(4) SDSSJ120122	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=12 949; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			638 Secs (2056 Secs) [==>505.0 Secs (Split 1)] [==>517.0 Secs (Split 2)] [==>517.0 Secs (Split 3)] [==>517.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 05 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:40 GMT 2014

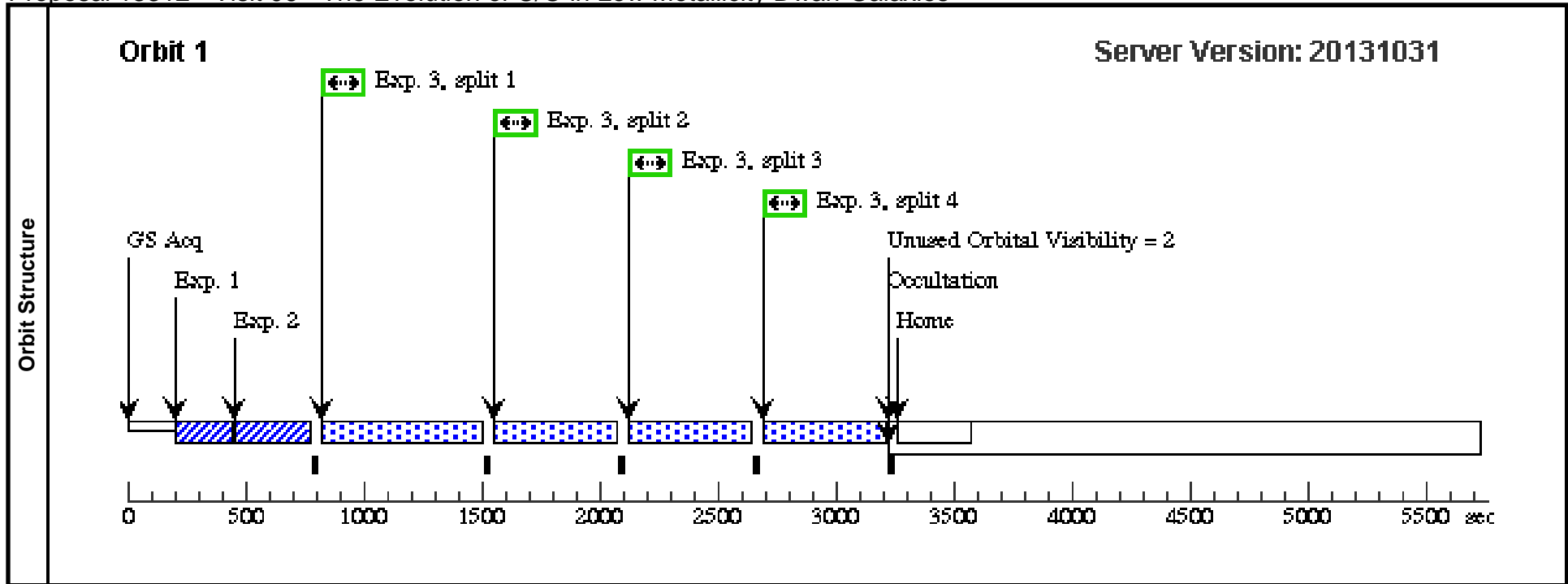
Visit	Proposal 13312, Visit 05, completed Diagnostic Status: No Diagnostics Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(5)	SDSSJ085103	RA: 08 51 3.6400 (132.7651667d) Dec: +84 16 13.80 (84.27050d) Equinox: J2000	Redshift: 0.0061	V=19.41 g = 19.11, r = 19.79	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 17.01</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 22.61 mag/arcsec<sup>2</sup>; 21.80 mag/arcsec<sup>2</sup> if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0431</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 362)	(5) SDSSJ085103	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			99.00 Secs (99 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 362)	(5) SDSSJ085103	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			99.00 Secs (99 Secs) [==>]	[1]
	3	Science (COS.sp.514 292)	(5) SDSSJ085103	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=13 560; EXTENDED=YES; FP-POS=ALL; FLASH=YES; SEGMENT=BOTH			859 Secs (2154 Secs) [==>462.0 Secs (Split 1)] [==>564.0 Secs (Split 2)] [==>564.0 Secs (Split 3)] [==>564.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 06 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:41 GMT 2014

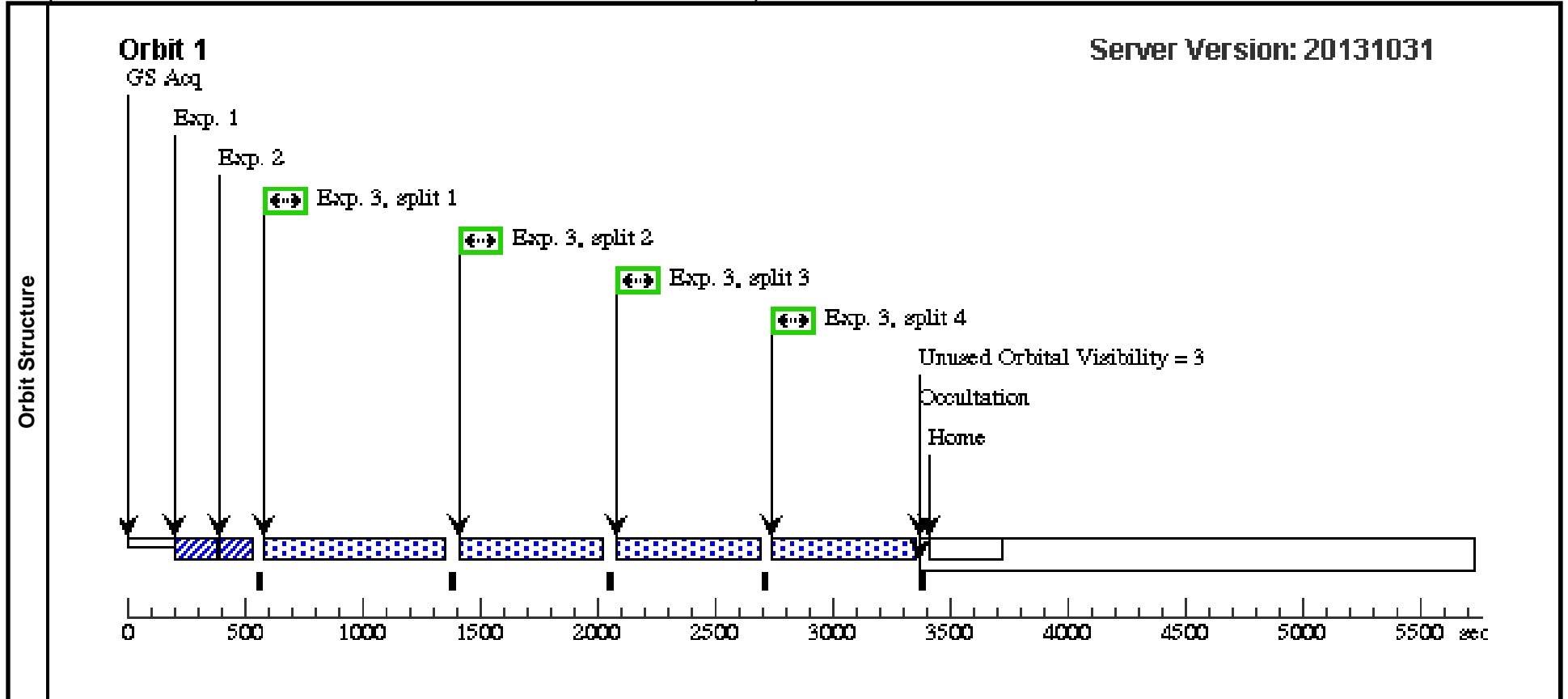
Visit	<b>Proposal 13312, Visit 06, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(6)	SDSSJ124159	RA: 12 41 59.3400 (190.4972500d) Dec: -03 40 2.40 (-3.66733d) Equinox: J2000	Redshift: 0.0094	V=18.00 g = 18.06, r = 18.13	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 19.44</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 21.85 mag/arcsec<sup>2</sup>; 21.60 mag/arcsec<sup>2</sup> if no diffuse emission is subtracted.</i> E(B-V) = 0.023									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 364)	(6) SDSSJ124159	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			73.3 Secs (73.3 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 364)	(6) SDSSJ124159	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			73.3 Secs (73.3 Secs) [==>]	[1]
	3	Science (COS.sa.514 318)	(6) SDSSJ124159	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=10 000; EXTENDED=YES; FLASH=YES; FP-POS=ALL; SEGMENT=BOTH			729 Secs (1847 Secs) [==>449.0 Secs (Split 1)] [==>466.0 Secs (Split 2)] [==>466.0 Secs (Split 3)] [==>466.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 07 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:42 GMT 2014

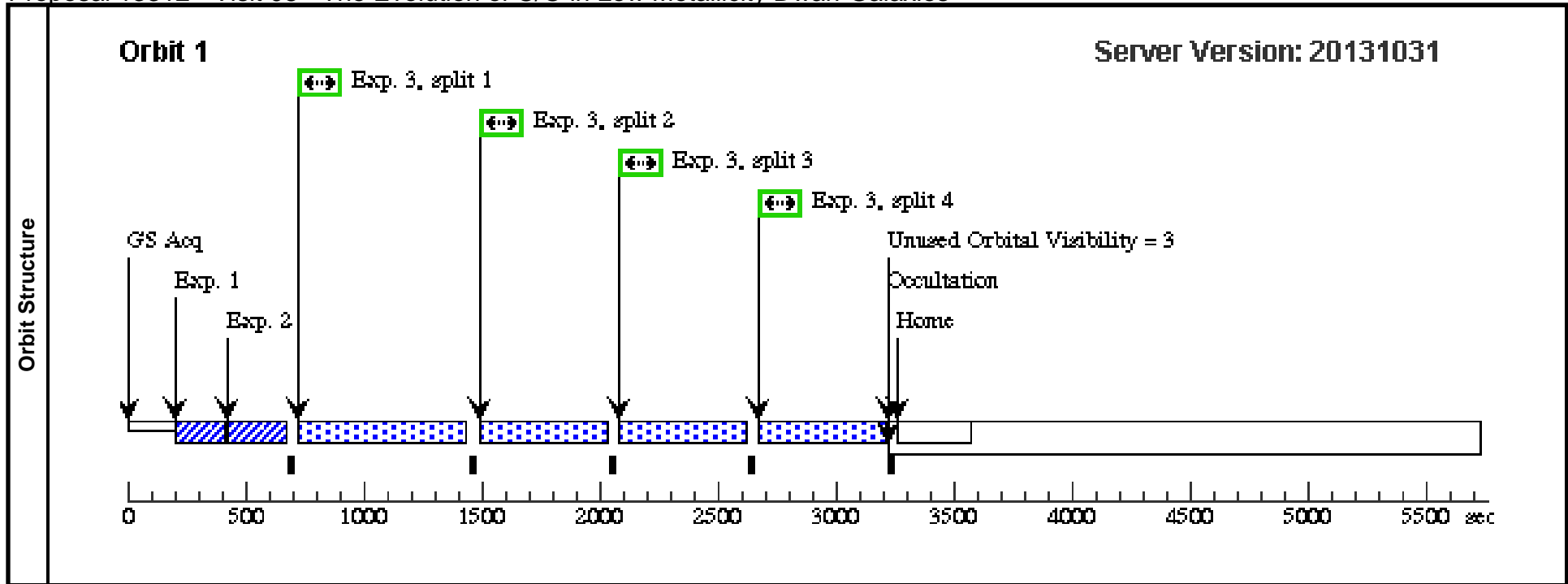
Visit	<b>Proposal 13312, Visit 07, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(7)	SDSSJ115441	RA: 11 54 41.2200 (178.6717500d) Dec: +46 36 36.20 (46.61006d) Equinox: J2000	Redshift: 0.0036	V=17.09 g = 17.24, r = 17.16	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 17.98</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.49 mag/arcsec^2; 20.15 mag/arcsec^2 if no diffuse emission is subtracted.</i> E(B-V) = 0.0262									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 377)	(7) SDSSJ115441	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			14.5 Secs (14.5 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 377)	(7) SDSSJ115441	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			14.5 Secs (14.5 Secs) [==>]	[1]
	3	Science (COS.sa.514 325)	(7) SDSSJ115441	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=85 34; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (2229 Secs) [==>546.0 Secs (Split 1)] [==>561.0 Secs (Split 2)] [==>561.0 Secs (Split 3)] [==>561.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 08 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:42 GMT 2014

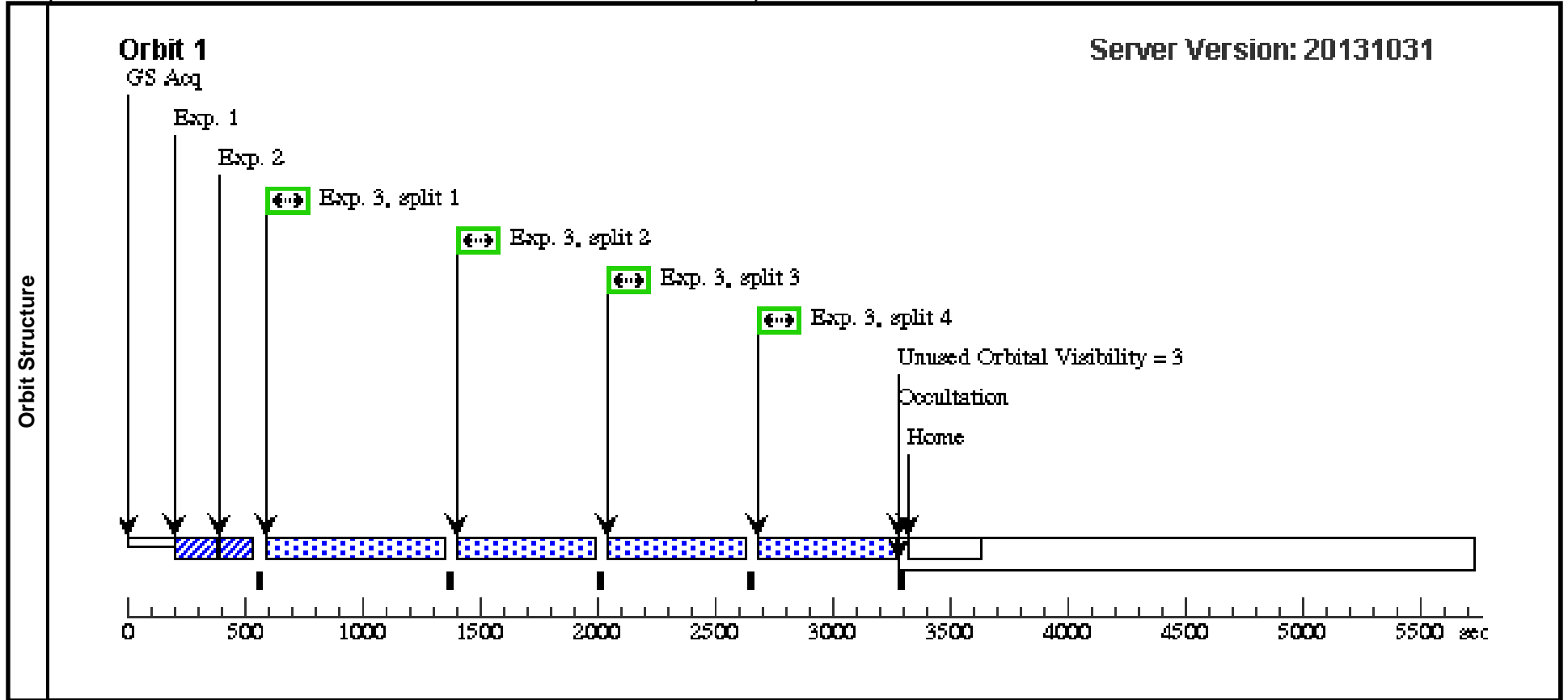
Visit	<b>Proposal 13312, Visit 08, scheduling</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(8)	SDSSJ122622	RA: 12 26 22.7100 (186.5946250d) Dec: -01 15 12.20 (-1.25339d) Equinox: J2000	Redshift: 0.0066	V=16.09 g = 16.27, r = 16.13	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 17.67</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 22.07 mag/arcsec^2; 21.26 mag/arcsec^2 if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0235</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 375)	(8) SDSSJ122622	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH	GS ACQ SCENARI O BASE1B3		48.7 Secs (48.7 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 375)	(8) SDSSJ122622	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			48.7 Secs (48.7 Secs) [==>]	[1]
	3	Science (COS.sp.514 414)	(8) SDSSJ122622	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=13 296; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (1944 Secs) [==>486.0 Secs (Split 1)] [==>486.0 Secs (Split 2)] [==>486.0 Secs (Split 3)] [==>486.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 09 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:43 GMT 2014

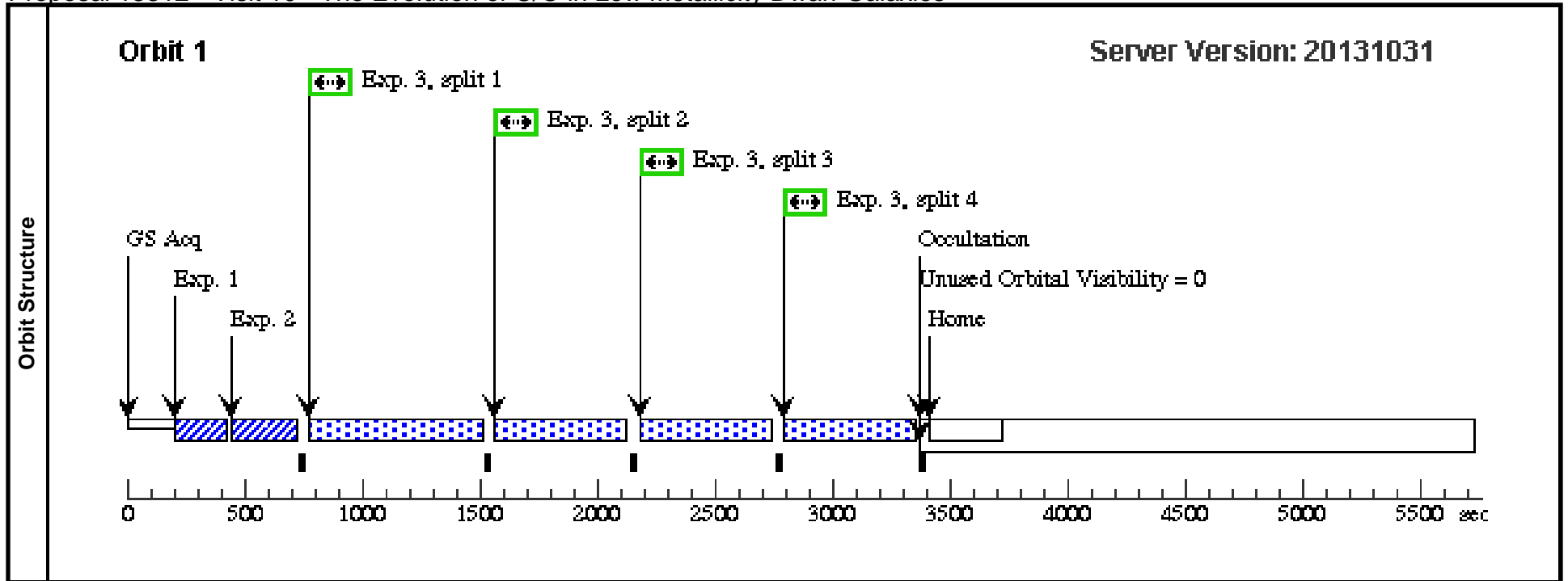
Visit	<b>Proposal 13312, Visit 09, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(9)	SDSSJ122436	RA: 12 24 36.7100 (186.1529583d) Dec: +37 24 36.50 (37.41014d) Equinox: J2000	Redshift: 0.0404	V=18.17 g = 17.91, r = 18.51	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.41</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.37 mag/arcsec^2; 20.23 mag/arcsec^2 if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0107</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 372)	(9) SDSSJ122436	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			15.2 Secs (15.2 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 372)	(9) SDSSJ122436	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			15.2 Secs (15.2 Secs) [==>]	[1]
	3	Science (COS.sp.514 442)	(9) SDSSJ122436	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=11 211; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (2136 Secs) [==>534.0 Secs (Split 1)] [==>534.0 Secs (Split 2)] [==>534.0 Secs (Split 3)] [==>534.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 10 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:44 GMT 2014

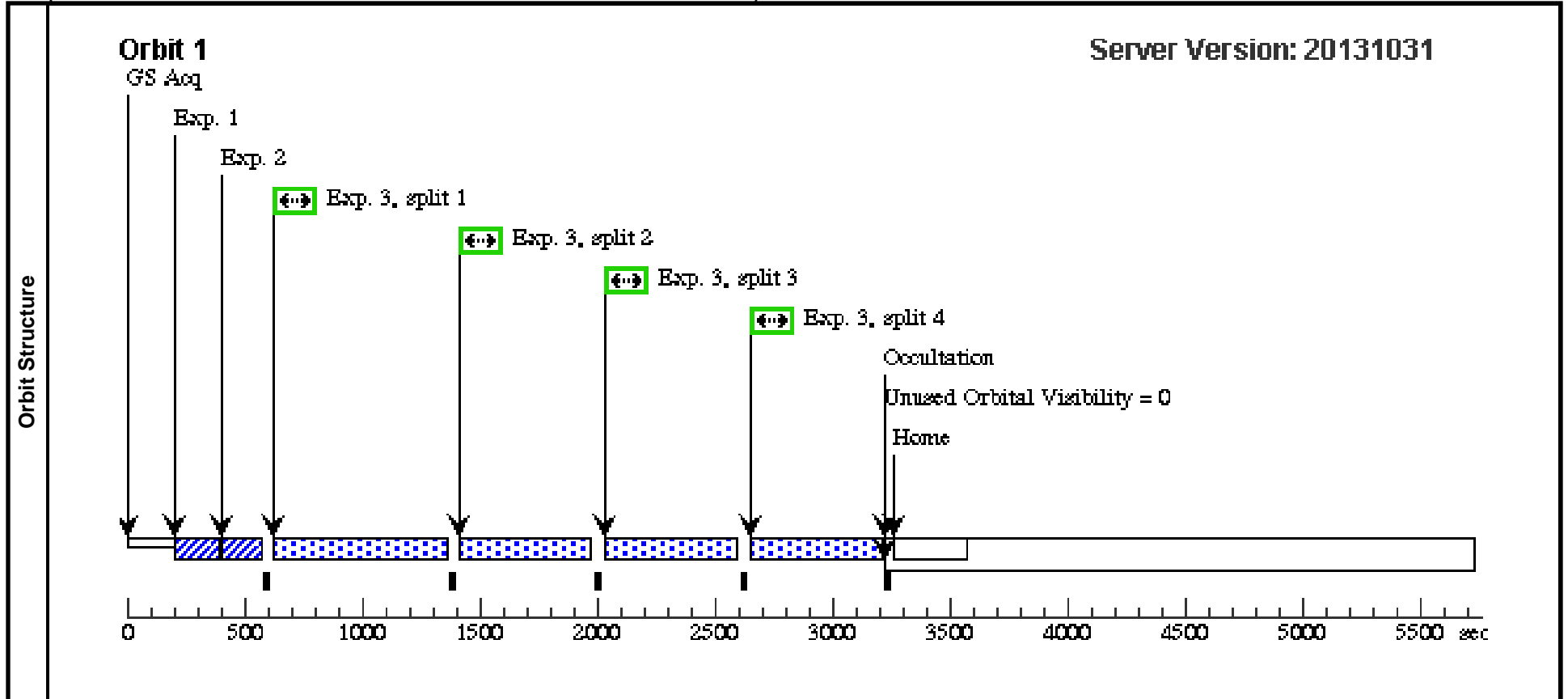
Visit	<b>Proposal 13312, Visit 10, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(10)	SDSSJ124827	RA: 12 48 27.7900 (192.1157917d) Dec: +48 23 3.30 (48.38425d) Equinox: J2000	Redshift: 0.0296	V=18.21 g = 18.10, r = 18.47	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 19.44</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 21.67 mag/arcsec^2; 21.48 mag/arcsec^2 if no diffuse emission is subtracted.</i> E(B-V) = 0.012									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 371)	(10) SDSSJ124827	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			61.6 Secs (61.6 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 371)	(10) SDSSJ124827	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			61.6 Secs (61.6 Secs) [==>]	[1]
	3	Science (COS.sp.514 443)	(10) SDSSJ124827	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=13 004; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (2044 Secs) [==>511.0 Secs (Split 1)] [==>511.0 Secs (Split 2)] [==>511.0 Secs (Split 3)] [==>511.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 11 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:44 GMT 2014

Visit	<b>Proposal 13312, Visit 11, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(11)	SDSSJ025426	RA: 02 54 26.1200 (43.6088333d) Dec: -00 41 22.60 (-.68961d) Equinox: J2000	Redshift: 0.015	V=17.17 g = 17.34, r = 17.22	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 18.54</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.78 mag/arcsec^2; 20.54 mag/arcsec^2 if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0641</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 370)	(11) SDSSJ025426	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			23.6 Secs (23.6 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 370)	(11) SDSSJ025426	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			23.6 Secs (23.6 Secs) [==>]	[1]
	3	Science (COS.sp.514 443)	(11) SDSSJ025426	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=12 037; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (2048 Secs) [==>512.0 Secs (Split 1)] [==>512.0 Secs (Split 2)] [==>512.0 Secs (Split 3)] [==>512.0 Secs (Split 4)]	[1]



Proposal 13312 - Visit 12 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Apr 02 01:07:45 GMT 2014

Visit	<b>Proposal 13312, Visit 12, completed</b> <b>Diagnostic Status: No Diagnostics</b> Scientific Instruments: COS/FUV Special Requirements: PCS MODE FINE; SCHED 30%									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
		(12)	SDSSJ095137	RA: 09 51 37.4700 (147.9061250d) Dec: +48 39 41.20 (48.66144d) Equinox: J2000	Redshift: 0.1349	V=18.59 g = 18.79, r = 18.62	Reference Frame: ICRS			
	<i>Comments: GALEX FUV magnitude: 19.1</i> <i>Acquisition: ACQ/IMAGE: Used GALEX data to measure flux within the typical GALEX 5" FWHM, and also within a 10" FWHM, which allowed us to subtract diffuse emission for more extended objects. Since the object is approximately a pt source in SDSS images, which have a FWHM ~2", we assume that GALEX flux can be assumed to lie within a 2" FWHM distribution. This gives a surface brightness of 20.99 mag/arcsec^2; 20.87 mag/arcsec^2 if no diffuse emission is subtracted.</i> <i>E(B-V) = 0.0105</i>									
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/PEAK XD (COS.sa.516 369)	(12) SDSSJ095137	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A	SEGMENT=BOTH			30.3 Secs (30.3 Secs) [==>]	[1]
	2	ACQ/PEAK D (COS.sa.516 369)	(12) SDSSJ095137	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-W T; NUM-POS=3; SEGMENT=BOTH; STEP-SIZE=1.3			30.3 Secs (30.3 Secs) [==>]	[1]
	3	Science (COS.sp.514 445)	(12) SDSSJ095137	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=18 397; EXTENDED=YES; FLASH=YES; FP-POS=ALL			718 Secs (2168 Secs) [==>542.0 Secs (Split 1)] [==>542.0 Secs (Split 2)] [==>542.0 Secs (Split 3)] [==>542.0 Secs (Split 4)]	[1]

