



14628 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Cycle: 24, 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) J223831	COS/FUV COS/NUV	1	03-Jan-2017 21:01:45.0	yes
02	(2) J141851	COS/FUV COS/NUV	1	03-Jan-2017 21:01:46.0	yes
03	(3) J120202	COS/FUV COS/NUV	1	03-Jan-2017 21:01:47.0	yes
04	(4) J121402	COS/FUV COS/NUV	1	03-Jan-2017 21:01:48.0	yes
05	(5) J084236	COS/FUV COS/NUV	1	03-Jan-2017 21:01:49.0	yes
06	(6) J171236	COS/FUV COS/NUV	1	03-Jan-2017 21:01:50.0	yes

Proposal 14628 (STScI Edit Number: 2, Created: Tuesday, January 3, 2017 9:02:01 PM EST) - 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>
07	(7) J113116	COS/FUV COS/NUV	1	03-Jan-2017 21:01:50.0	yes
08	(8) J133126	COS/FUV COS/NUV	1	03-Jan-2017 21:01:51.0	yes
09	(9) J132853	COS/FUV COS/NUV	1	03-Jan-2017 21:01:52.0	yes
10	(10) J095430	COS/FUV COS/NUV	1	03-Jan-2017 21:01:53.0	yes
11	(11) J132347	COS/FUV COS/NUV	1	03-Jan-2017 21:01:53.0	yes
12	(12) J094718	COS/FUV COS/NUV	1	03-Jan-2017 21:01:54.0	yes
13	(13) J150934	COS/FUV COS/NUV	1	03-Jan-2017 21:01:55.0	yes
14	(14) J100348	COS/FUV COS/NUV	1	03-Jan-2017 21:01:56.0	yes
15	(15) J025346	COS/FUV COS/NUV	1	03-Jan-2017 21:01:56.0	yes
16	(16) J015809	COS/FUV COS/NUV	1	03-Jan-2017 21:01:57.0	yes
17	(17) J104654	COS/FUV COS/NUV	1	03-Jan-2017 21:01:58.0	yes
18	(18) J093006	COS/FUV COS/NUV	1	03-Jan-2017 21:01:59.0	yes
19	(19) J092055	COS/FUV COS/NUV	1	03-Jan-2017 21:01:59.0	yes
20	(20) J084956	COS/FUV COS/NUV	1	03-Jan-2017 21:02:01.0	yes

20 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, remains relatively unexplored. Recently, we presented results from HST/COS observations of nebular C/O in low-metallicity dwarf galaxies based solely on simultaneous detections of the UV OIII] and CIII] emission lines. While the data are consistent with a trend for increasing C/O with increasing O/H, there are significant outliers and the small number of observations prevents the identification of a definitive relationship or a secure measurement of the dispersion.

The sensitivity and optimal wavelength coverage of COS and the large pool of spectra available today due to extensive surveys (e.g., the SDSS), allow us to efficiently increase the number of secure C/O measurements in HII regions. We propose to use COS to observe the UV emission lines of carbon and oxygen for 20 high-surface brightness low-metallicity dwarf galaxies. Combining these data with previous studies will triple the sample, allowing a statistical analysis of C/O abundances in nearby dwarf galaxies. Determining the underlying trend of C with O and the scatter in C/O at a given value of O/H provides strong constraints on the nucleosynthetic origin of C. In addition, combining these data with ground-based optical spectra will show to what degree C and N production are coupled. As the number of high redshift galaxies with C/O measurements continues to grow, due to the ease of detecting their rest-frame UV lines in the optical, firm C/O determinations at low redshifts are critical for comparison.

OBSERVING DESCRIPTION

Goal:

We will obtain NUV target acquisition images and FUV COS spectroscopy of 20 nearby, metal-poor, compact dwarf galaxies in order to establish the C/O relationship with O/H in the sparsely measured metal-poor regime.

Targets:

Our targets were chosen for their high [OIII] optical emission line surface brightnesses, large ionizations, low metallicities ($12 + \log(O/H) < 8.2$), and compact morphologies in order to achieve maximum flux through the 2.5" COS aperture. We use the coordinates from our target's SDSS optical spectra, which are in the ICRS reference frame.

Target Acquisition:

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Since all sources have SDSS positions, which are generally accurate to 0.1", we do not do an ACQ/SEARCH routine.

With such excellent input coordinates from the SDSS, we acquire our targets using the ACQ/IMAGE mode with the PSA aperture and MirrorA for the COS/NUV configuration. For these acquisitions, we have determined integration times necessary to reach a $S/N = 25$, which has been demonstrated as sufficient by the execution of the very similar program HST-GO14168 by PI: Dan Stark and our previous C/O program HST-GO13312. We assume a flat spectral distribution normalized by the GALEX FUV surface brightnesses. Each galaxy is compact in the SDSS imaging with a FWHM PSF diameter of $\sim 2''$. We then divide the GALEX FUV fluxes by the area of the 2" PSF to determine the FUV surface brightnesses. Note that Target 18 required us to use Mirror B to ensure safe levels when using the BOT.

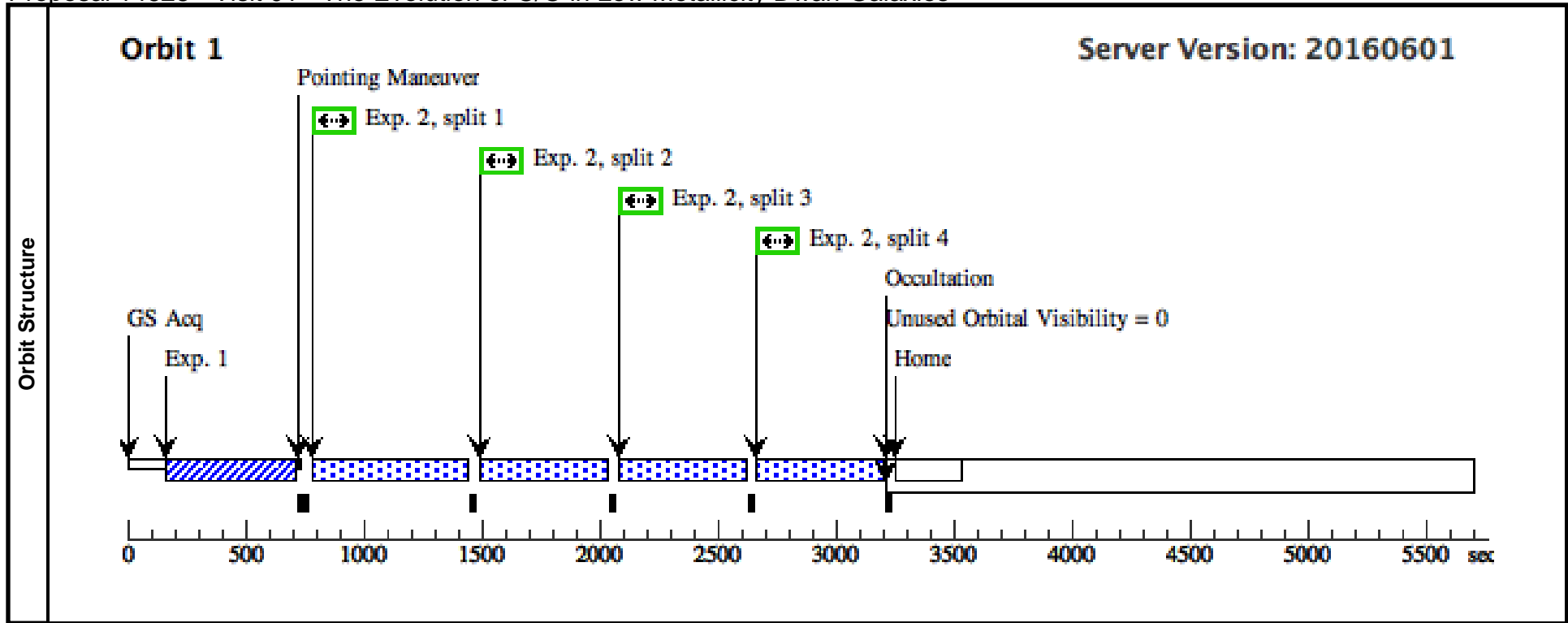
Science Exposures:

We will use COS with the G140L grating with a central wavelength of 1280 angstroms in TIMETAG mode in order to obtain simultaneous measurements of the CIV 1548,1550, HeII 1640, OIII] 1661,1666, and CIII] 1907,1909 emission lines in Detector segment A. We will observe all 20 of our targets for 1 orbit each through the PSA aperture with the COS/FUV configuration. After target acquisition, all remaining time was allocated to science exposures for the remainder of each target's orbit. The resulting total science integration times are sufficient to reach $S/N > \sim 3$ per resolution element in the continuum. This will provide enough signal to measure the equivalent widths of the relevant emission lines. For the 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. These 4 positions allow a flat to be created and cosmic rays to be eliminated.

Proposal 14628 - Visit 01 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Jan 04 02:02:02 GMT 2017

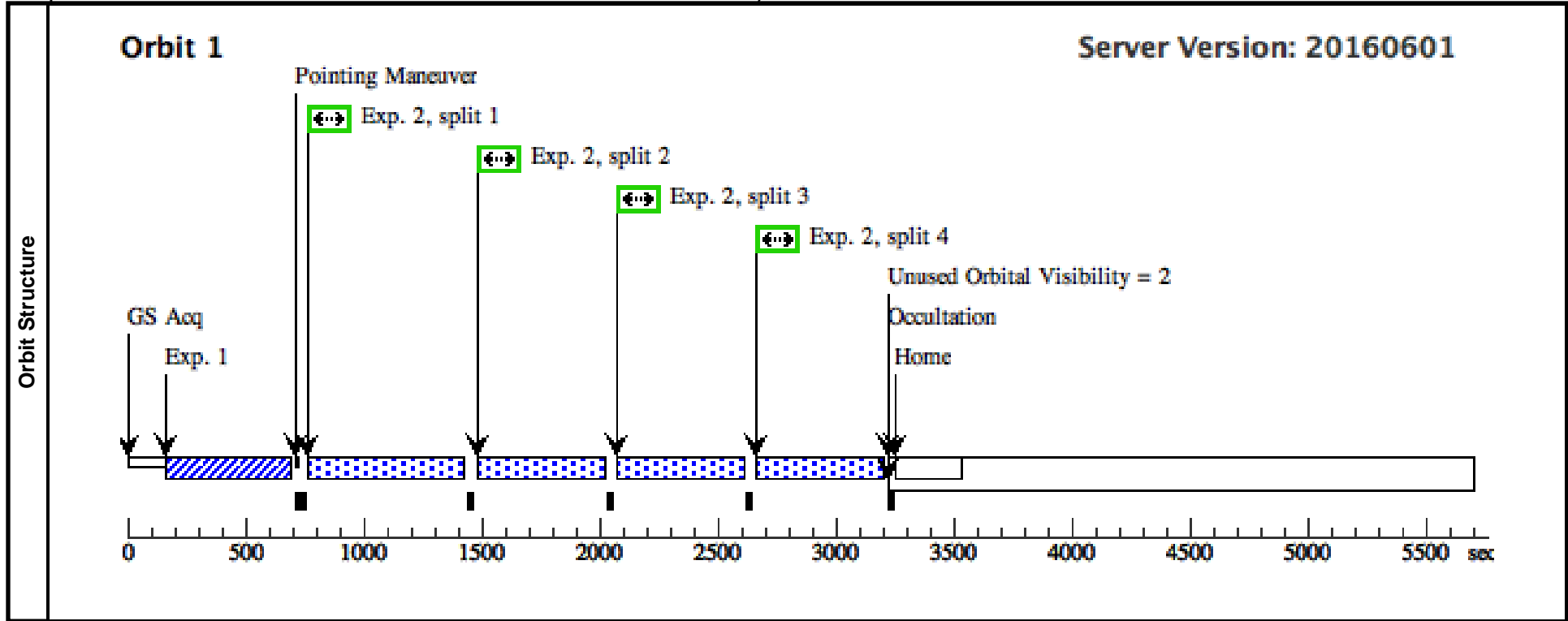
Visit	Proposal 14628, Visit 01, scheduled Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (01.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	J223831	RA: 22 38 31.1110 (339.6296292d) Dec: +14 00 28.29 (14.00786d) Equinox: J2000		V=18.97 GALEX FUV = 18.86, SDSS r-band = 18.91	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 4.3E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828212)	(1) J223831	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				160 Secs (160 Secs) [==>]	[1]
	2	Science (821840)	(1) J223831	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=12 614			1846 Secs (1932 Secs) [==>483.0 Secs (Split 1)] [==>483.0 Secs (Split 2)] [==>483.0 Secs (Split 3)] [==>483.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 02 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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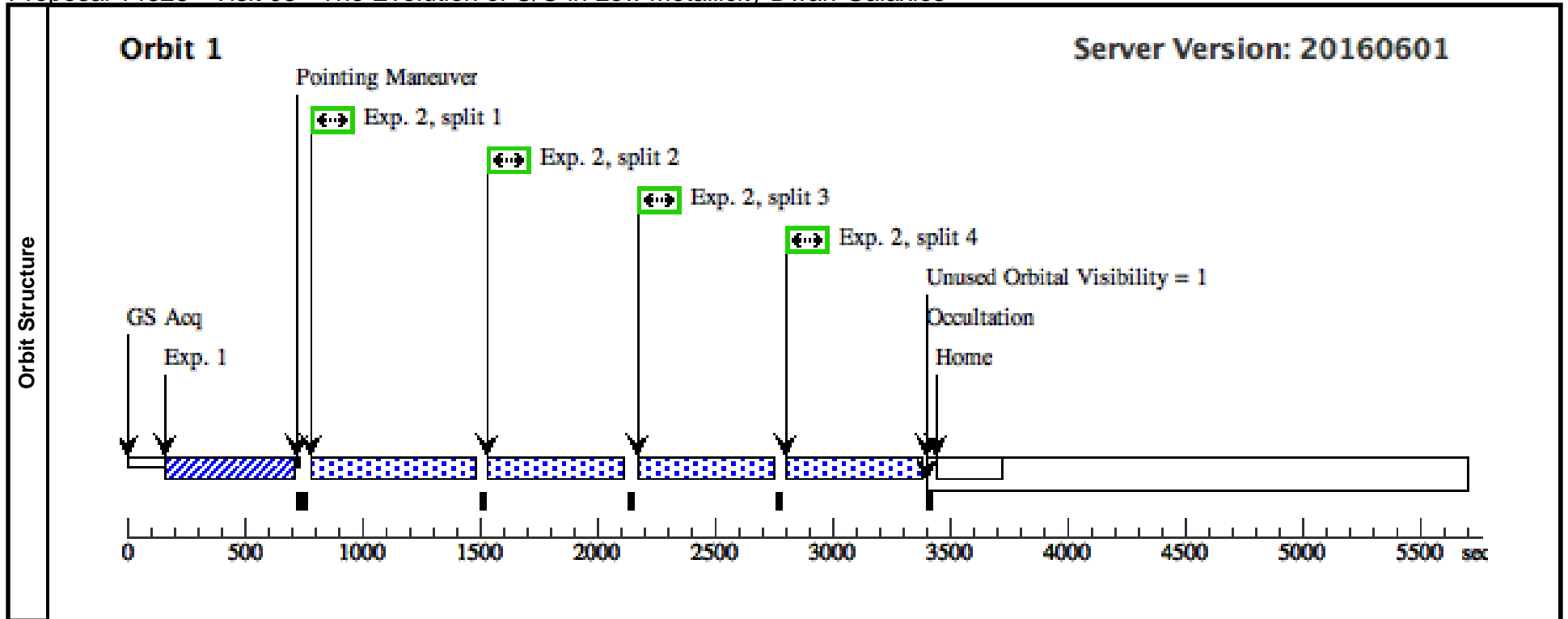
Visit	Proposal 14628, Visit 02, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (02.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	J141851	RA: 14 18 51.1194 (214.7129975d) Dec: +21 02 39.84 (21.04440d) Equinox: J2000		V=17.77 SDSS r-band = 17.65	Reference Frame: ICRS				
<i>Comments: Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (821570)	(2) J141851	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				153 Secs (153 Secs) [==>]	[1]
	2	Science (821841)	(2) J141851	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=15 304			1846 Secs (1948 Secs) [==>487.0 Secs (Split 1)] [==>487.0 Secs (Split 2)] [==>487.0 Secs (Split 3)] [==>487.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 03 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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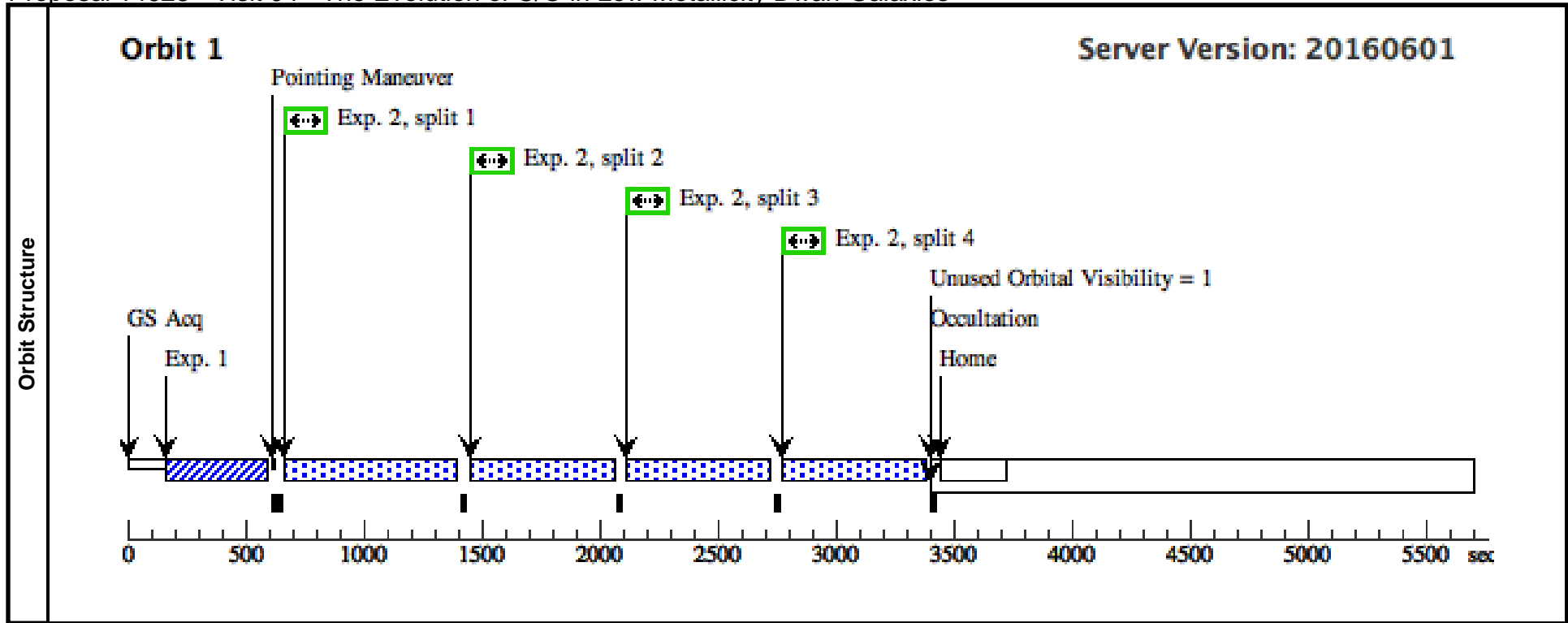
Visit	Proposal 14628, Visit 03, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (03.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	J120202	RA: 12 02 2.4939 (180.5103912d) Dec: +54 15 51.05 (54.26418d) Equinox: J2000		V=18.94 SDSS r-band = 18.86	Reference Frame: ICRS				
<i>Comments: Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828212)	(3) J120202	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				160 Secs (160 Secs) [==>]	[1]
	2	Science (821843)	(3) J120202	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=15 473			1846 Secs (2116 Secs) [==>529.0 Secs (Split 1)] [==>529.0 Secs (Split 2)] [==>529.0 Secs (Split 3)] [==>529.0 Secs (Split 4)]	[1]
	<i>Comments: Galaxy has similar SDSS magnitudes as Target 1: J223831, so use the acquisition estimate from Target 1.</i>									



Proposal 14628 - Visit 04 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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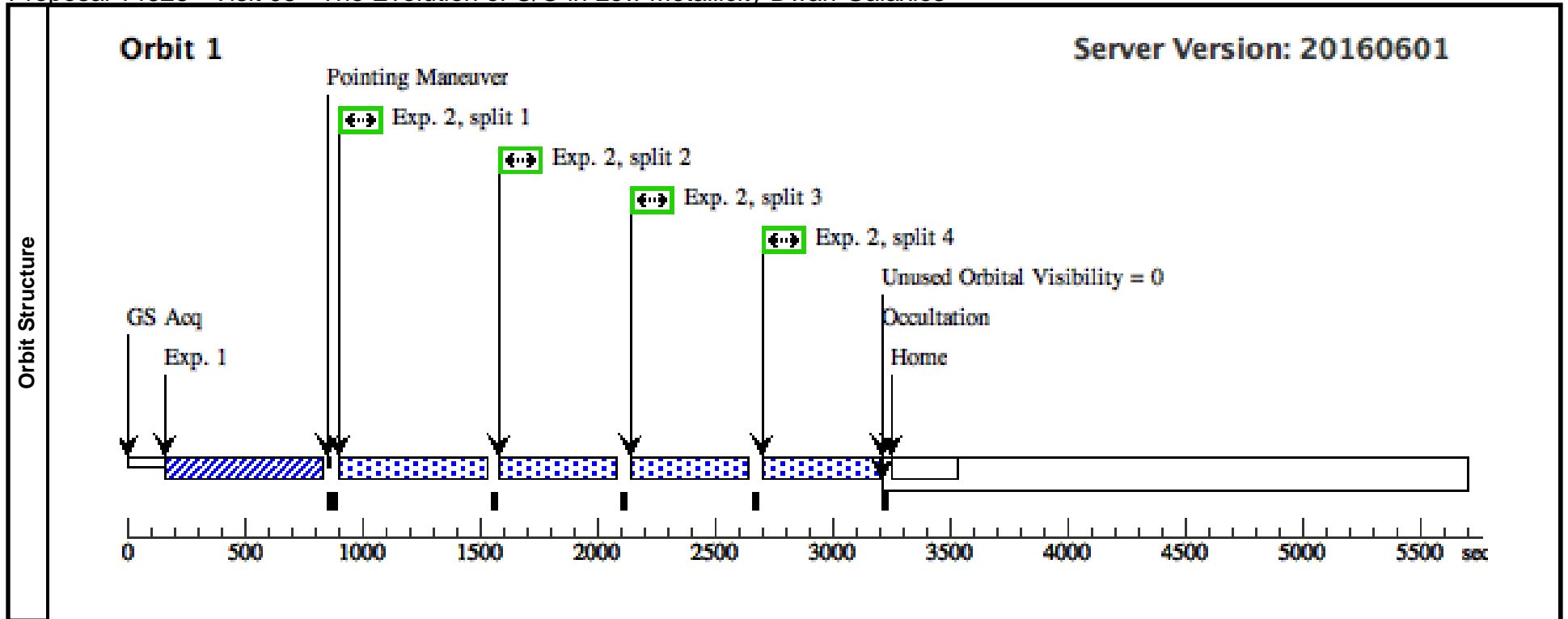
Visit	Proposal 14628, Visit 04, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (04.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(4)	J121402	RA: 12 14 2.3987 (183.5099946d) Dec: +53 45 17.28 (53.75480d) Equinox: J2000		V=17.20 GALEX FUV = 18.40, SDSS r-band = 17.08	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 6.56E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828213)	(4) J121402	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				104 Secs (104 Secs) [==>]	[1]
	2	Science (821788)	(4) J121402	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=11 458			1846 Secs (2228 Secs) [==>557.0 Secs (Split 1)] [==>557.0 Secs (Split 2)] [==>557.0 Secs (Split 3)] [==>557.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 05 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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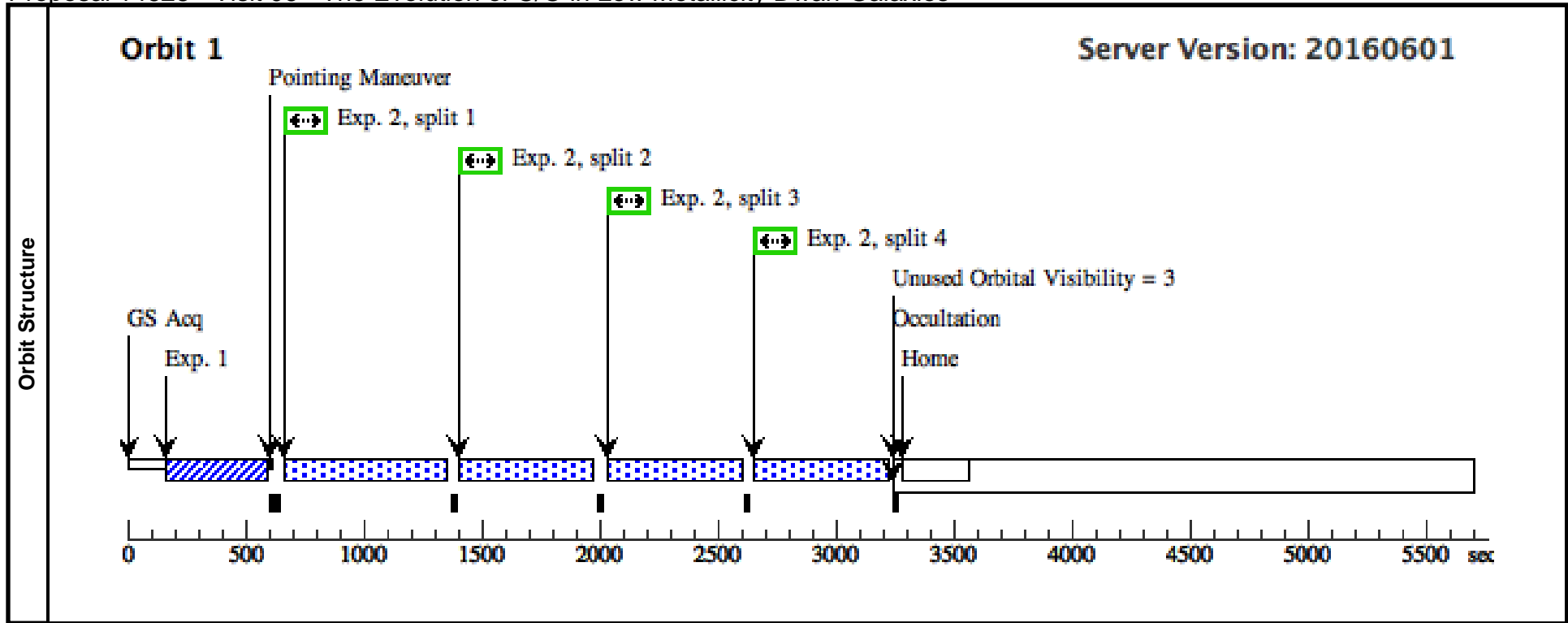
Visit	Proposal 14628, Visit 05, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (05.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	J084236	RA: 08 42 36.4783 (130.6519929d) Dec: +10 33 14.04 (10.55390d) Equinox: J2000		V=17.64 GALEX FUV = 19.21, SDSS r-band = 17.48	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 3.11E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828214)	(5) J084236	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				224 Secs (224 Secs) [==>]	[1]
	2	Science (821844)	(5) J084236	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=90 25			1846 Secs (1804 Secs) [==>451.0 Secs (Split 1)] [==>451.0 Secs (Split 2)] [==>451.0 Secs (Split 3)] [==>451.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 06 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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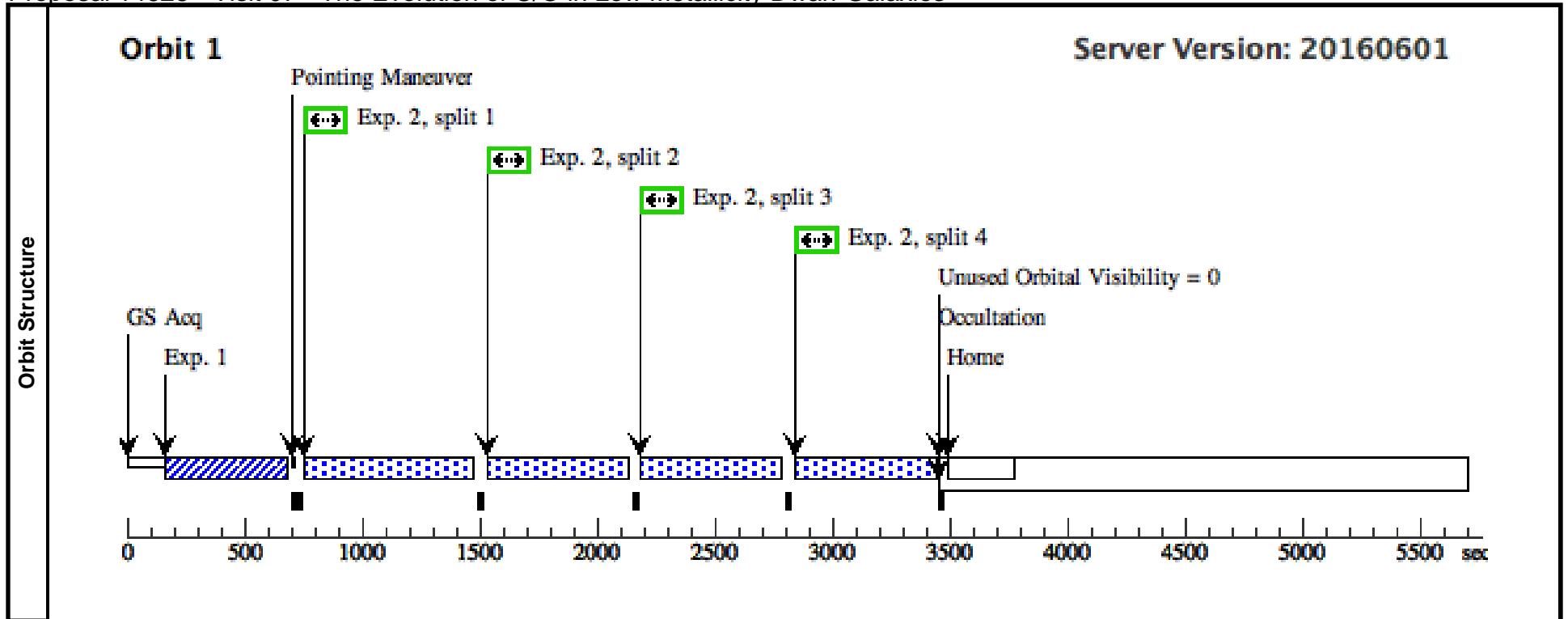
Visit	Proposal 14628, Visit 06, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (06.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(6)	J171236	RA: 17 12 36.7236 (258.1530150d) Dec: +32 16 33.60 (32.27600d) Equinox: J2000		V=17.85 SDSS r-band = 17.72	Reference Frame: ICRS				
<i>Comments: Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (821570)	(6) J171236	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				100 Secs (100 Secs) [==>]	[1]
	2	Science (821850)	(6) J171236	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=15 407			1846 Secs (2076 Secs) [==>519.0 Secs (Split 1)] [==>519.0 Secs (Split 2)] [==>519.0 Secs (Split 3)] [==>519.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 07 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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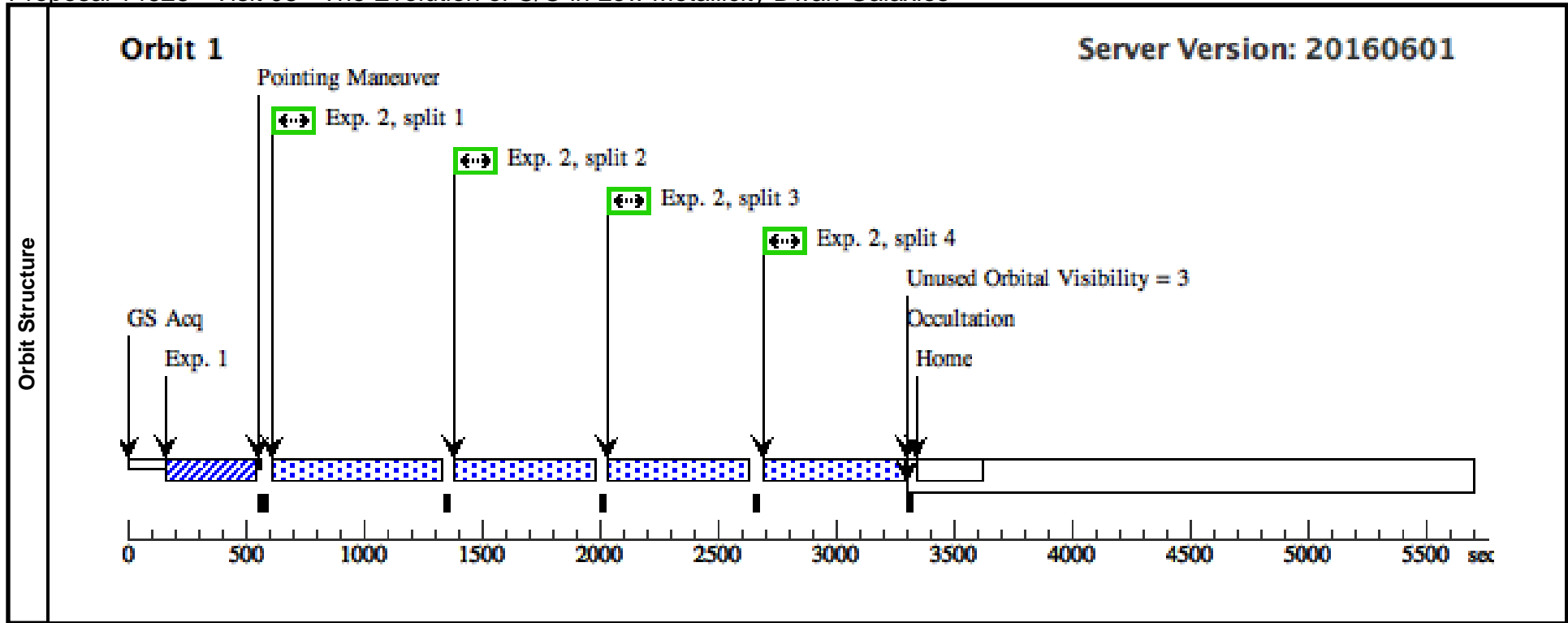
Visit	Proposal 14628, Visit 07, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (07.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(7)	J113116	RA: 11 31 16.3184 (172.8179933d) Dec: +57 03 58.68 (57.06630d) Equinox: J2000		V=17.67 GALEX FUV = 18.78, SDSS r-band = 17.53	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 4.26E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828215)	(7) J113116	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				149 Secs (149 Secs) [==>]	[1]
	2	Science (821853)	(7) J113116	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=12 435			1846 Secs (2192 Secs) [==>548.0 Secs (Split 1)] [==>548.0 Secs (Split 2)] [==>548.0 Secs (Split 3)] [==>548.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 08 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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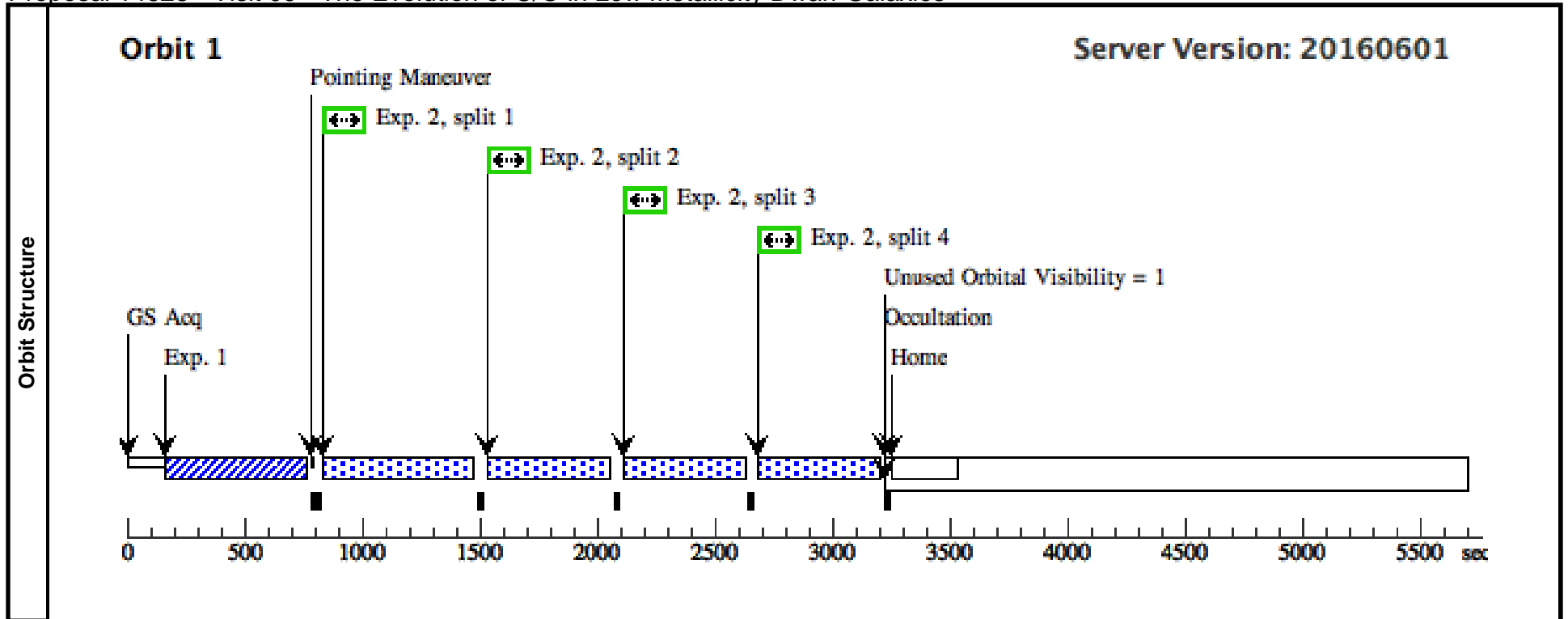
Visit	Proposal 14628, Visit 08, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (08.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(8)	J133126	RA: 13 31 26.8799 (202.8619996d) Dec: +41 51 48.24 (41.86340d) Equinox: J2000		V=17.29 GALEX FUV = 18.04, SDSS r-band = 17.18	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 9.16E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828216)	(8) J133126	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				75 Secs (75 Secs) [==>]	[1]
	2	Science (821854)	(8) J133126	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=10 366			1846 Secs (2188 Secs) [==>547.0 Secs (Split 1)] [==>547.0 Secs (Split 2)] [==>547.0 Secs (Split 3)] [==>547.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 09 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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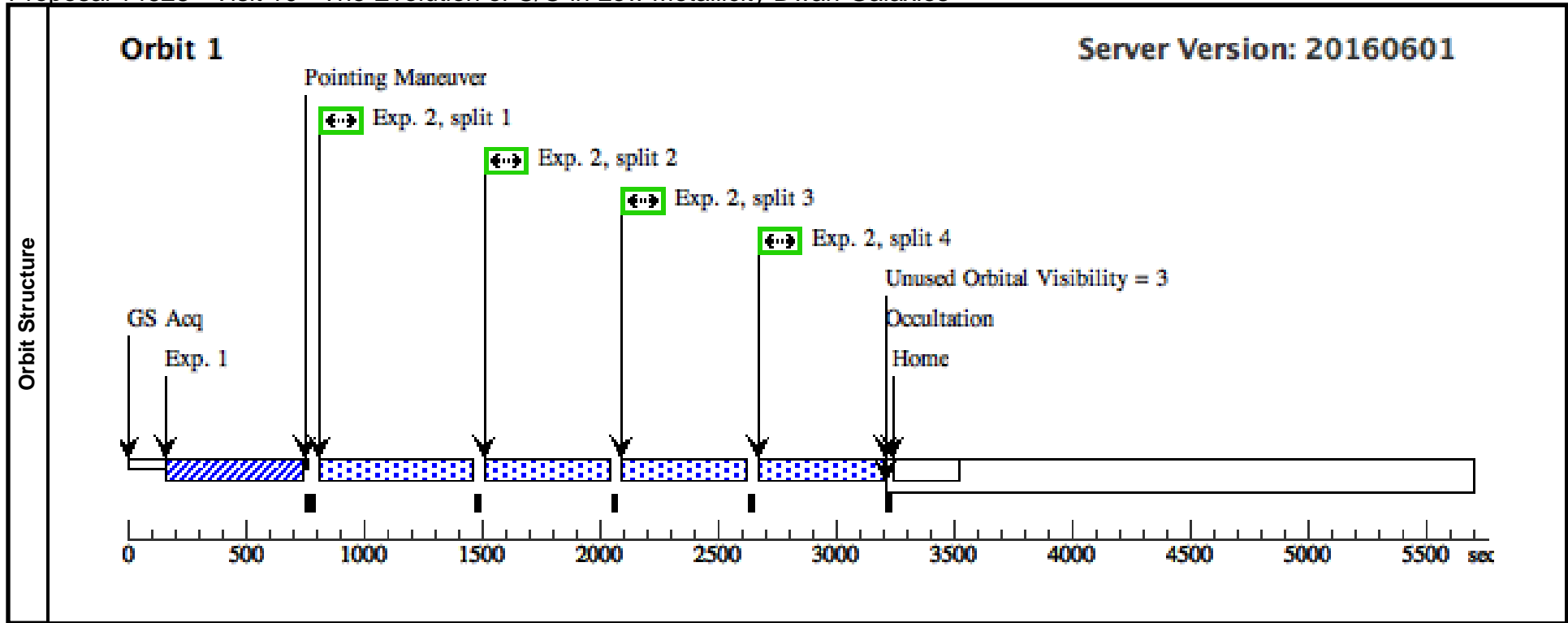
Visit	Proposal 14628, Visit 09, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (09.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	J132853	RA: 13 28 53.0383 (202.2209929d) Dec: +15 59 34.44 (15.99290d) Equinox: J2000		V=18.43 GALEX FUV = 19.03, SDSS r-band =18.37	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 3.66E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828217)	(9) J132853	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				189 Secs (189 Secs) [==>]	[1]
	2	Science (821855)	(9) J132853	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=12 981			1846 Secs (1876 Secs) [==>469.0 Secs (Split 1)] [==>469.0 Secs (Split 2)] [==>469.0 Secs (Split 3)] [==>469.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 10 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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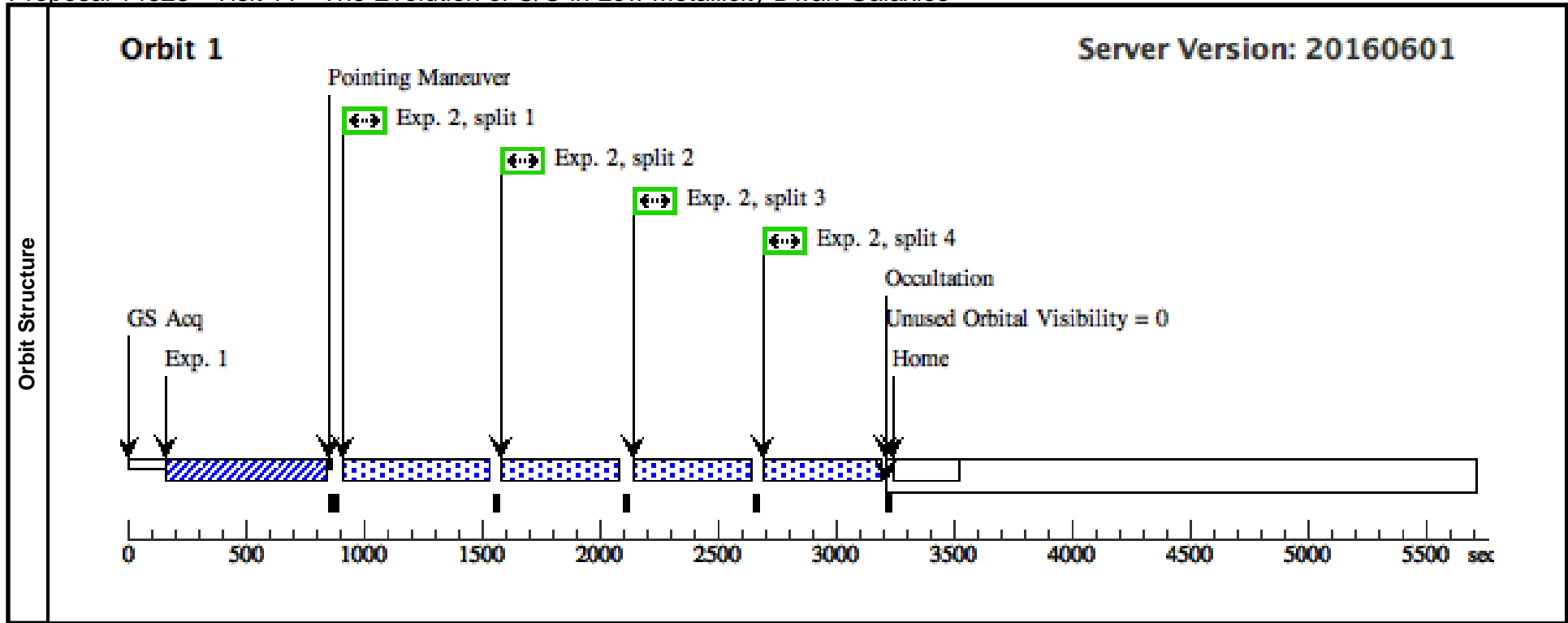
Visit	Proposal 14628, Visit 10, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (10.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(10)	J095430	RA: 09 54 30.4797 (148.6269988d) Dec: +09 52 12.11 (9.87003d) Equinox: J2000		V=18.63 GALEX FUV = 18.96, SDSS r-band = 18.47	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 3.92E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828218)	(10) J095430	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				176 Secs (176 Secs) [==>]	[1]
	2	Science (821856)	(10) J095430	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=12 834			1846 Secs (1892 Secs) [==>473.0 Secs (Split 1)] [==>473.0 Secs (Split 2)] [==>473.0 Secs (Split 3)] [==>473.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 11 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Jan 04 02:02:02 GMT 2017

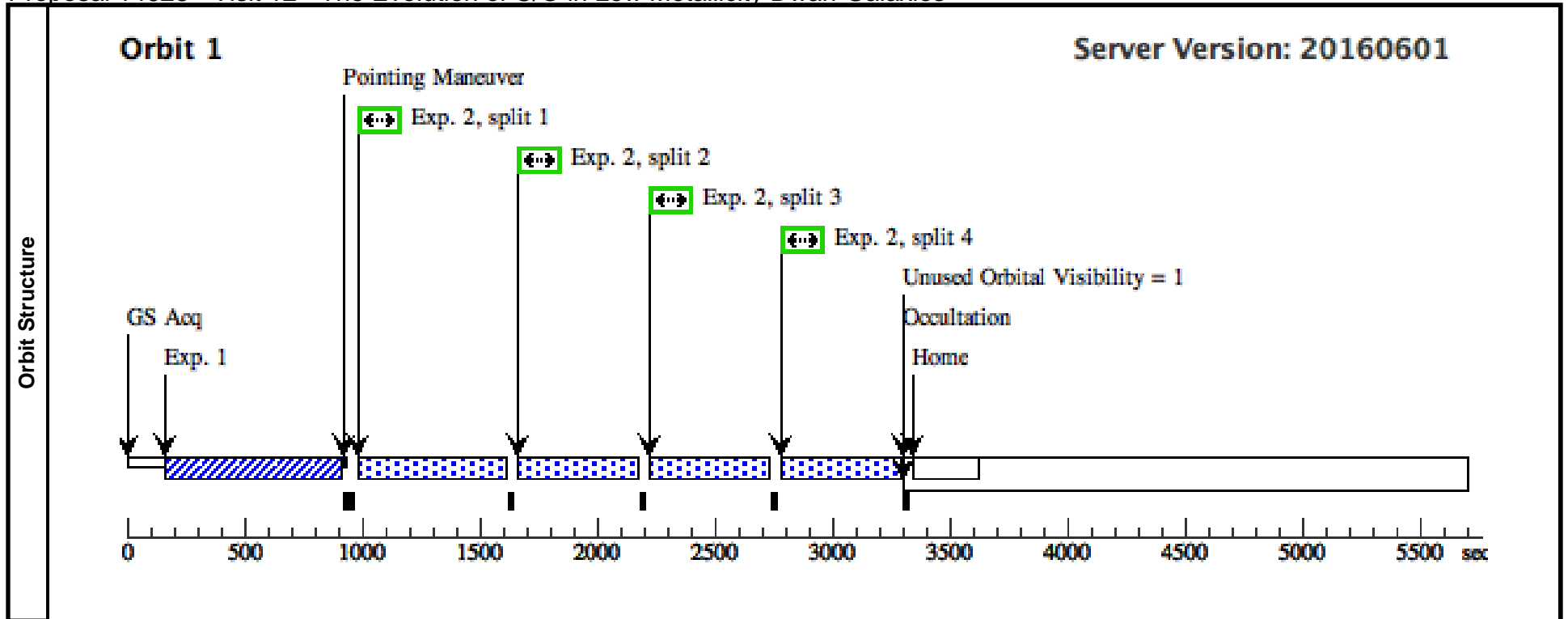
Visit	Proposal 14628, Visit 11, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (11.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(11)	J132347	RA: 13 23 47.5195 (200.9479979d) Dec: -01 32 51.94 (-1.54776d) Equinox: J2000		V=18.88 GALEX FUV = 19.22, SDSS r-band = 18.82	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 3.08E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828211)	(11) J132347	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				226 Secs (226 Secs) [==>]	[1]
	2	Science (821857)	(11) J132347	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=13 341			1846 Secs (1792 Secs) [==>448.0 Secs (Split 1)] [==>448.0 Secs (Split 2)] [==>448.0 Secs (Split 3)] [==>448.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 12 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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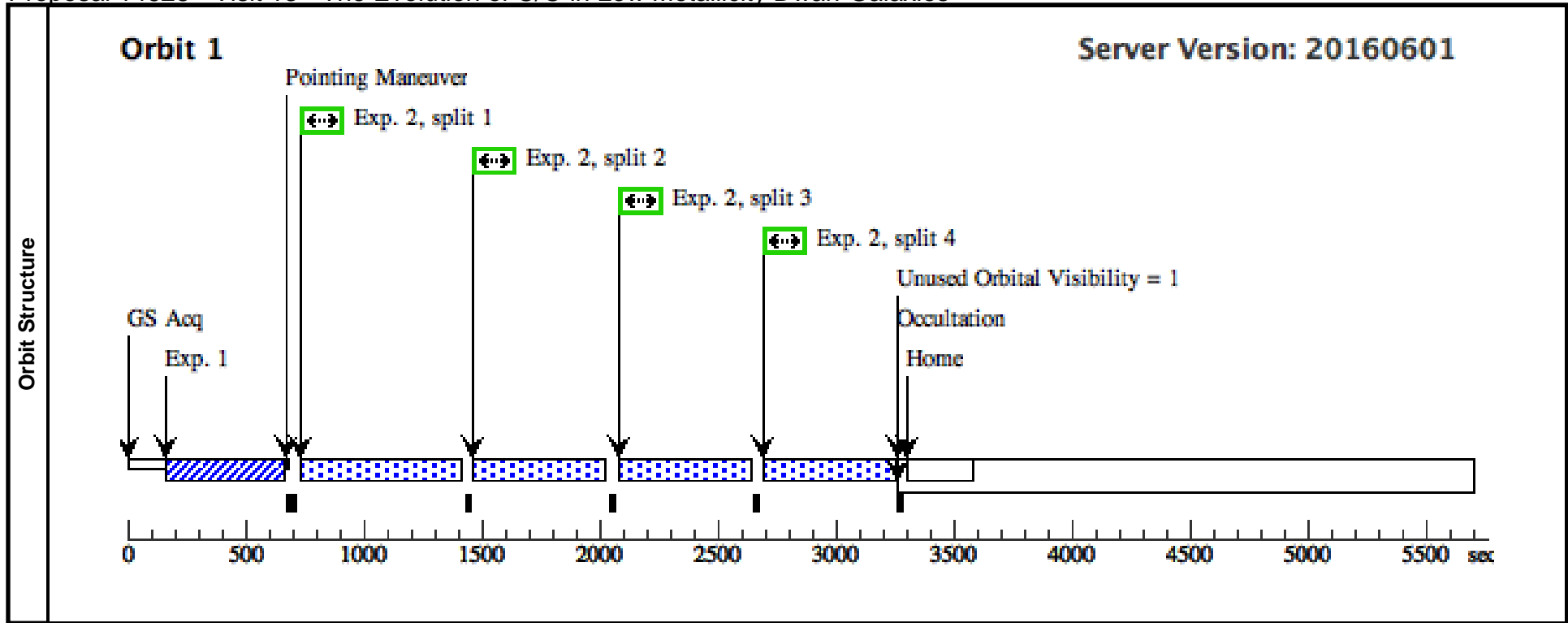
Visit	Proposal 14628, Visit 12, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (12.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(12)	J094718	RA: 09 47 18.2410 (146.8260042d) Dec: +41 38 16.44 (41.63790d) Equinox: J2000		V=17.57 GALEX FUV = 19.37, SDSS r-band = 17.38	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 2.69E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828219)	(12) J094718	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				260 Secs (260 Secs) [==>]	[1]
	2	Science (821858)	(12) J094718	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=13 601			1846 Secs (1820 Secs) [==>455.0 Secs (Split 1)] [==>455.0 Secs (Split 2)] [==>455.0 Secs (Split 3)] [==>455.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 13 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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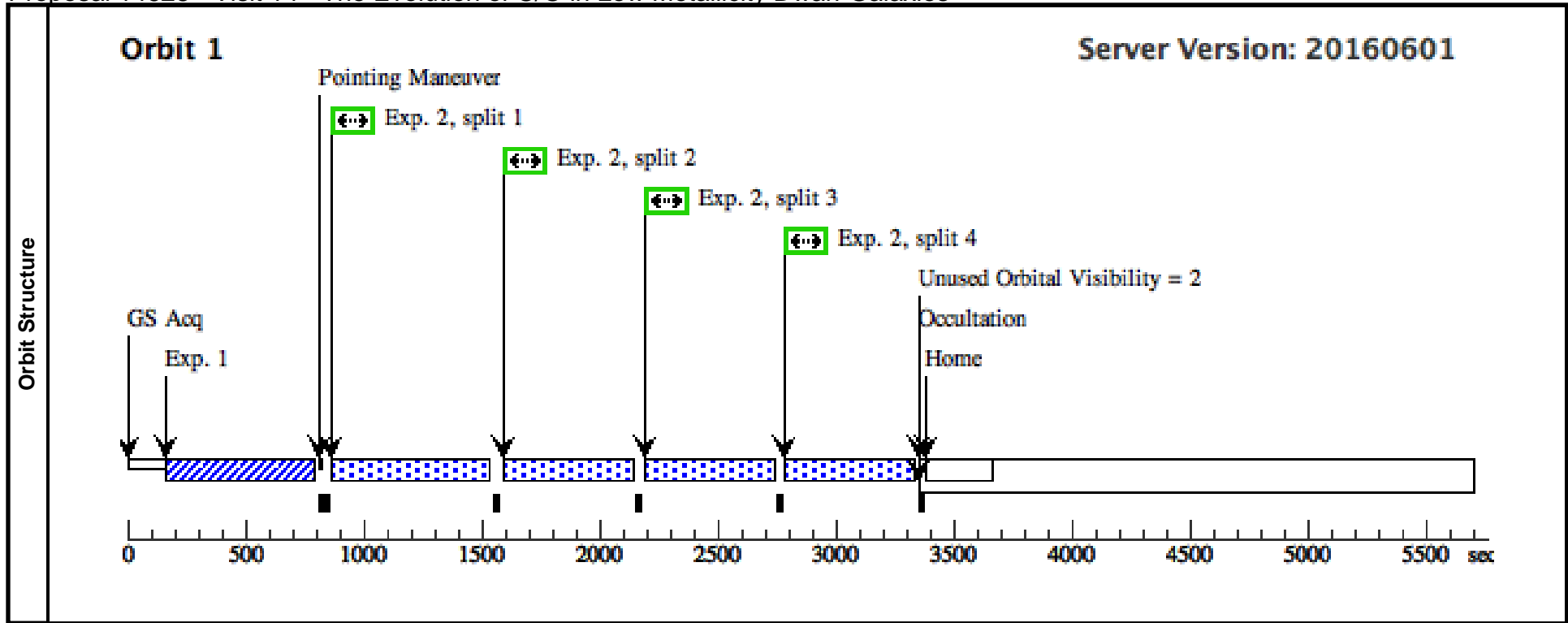
Visit	Proposal 14628, Visit 13, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (13.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(13)	J150934	RA: 15 09 34.0796 (227.3919983d) Dec: +37 31 46.20 (37.52950d) Equinox: J2000				V=18.12 GALEX FUV = 18.68, SDSS r-band = 18.09	Reference Frame: ICRS		
<i>Comments: FUV Flux Surface Brightness = 5.06E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828220)	(13) J150934	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				136 Secs (136 Secs) [==>]	[1]
	2	Science (821859)	(13) J150934	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=12 195			1846 Secs (2028 Secs) [==>507.0 Secs (Split 1)] [==>507.0 Secs (Split 2)] [==>507.0 Secs (Split 3)] [==>507.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 14 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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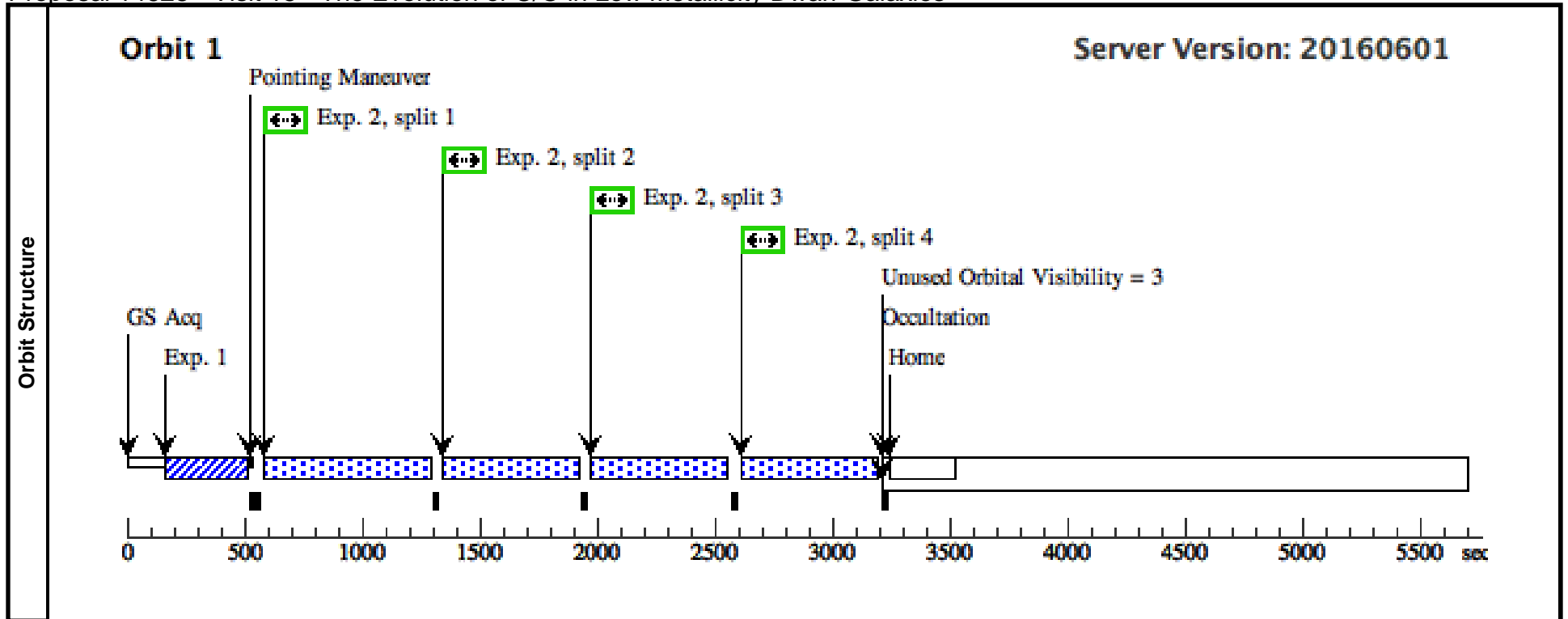
Visit	Proposal 14628, Visit 14, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (14.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(14)	J100348	RA: 10 03 48.7207 (150.9530029d) Dec: +45 04 57.72 (45.08270d) Equinox: J2000		V=17.69 GALEX FUV = 19.11, SDSS r-band = 17.52	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 3.41E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828221)	(14) J100348	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				204 Secs (204 Secs) [==>]	[1]
	2	Science (821863)	(14) J100348	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=13 144			1846 Secs (1976 Secs) [==>494.0 Secs (Split 1)] [==>494.0 Secs (Split 2)] [==>494.0 Secs (Split 3)] [==>494.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 15 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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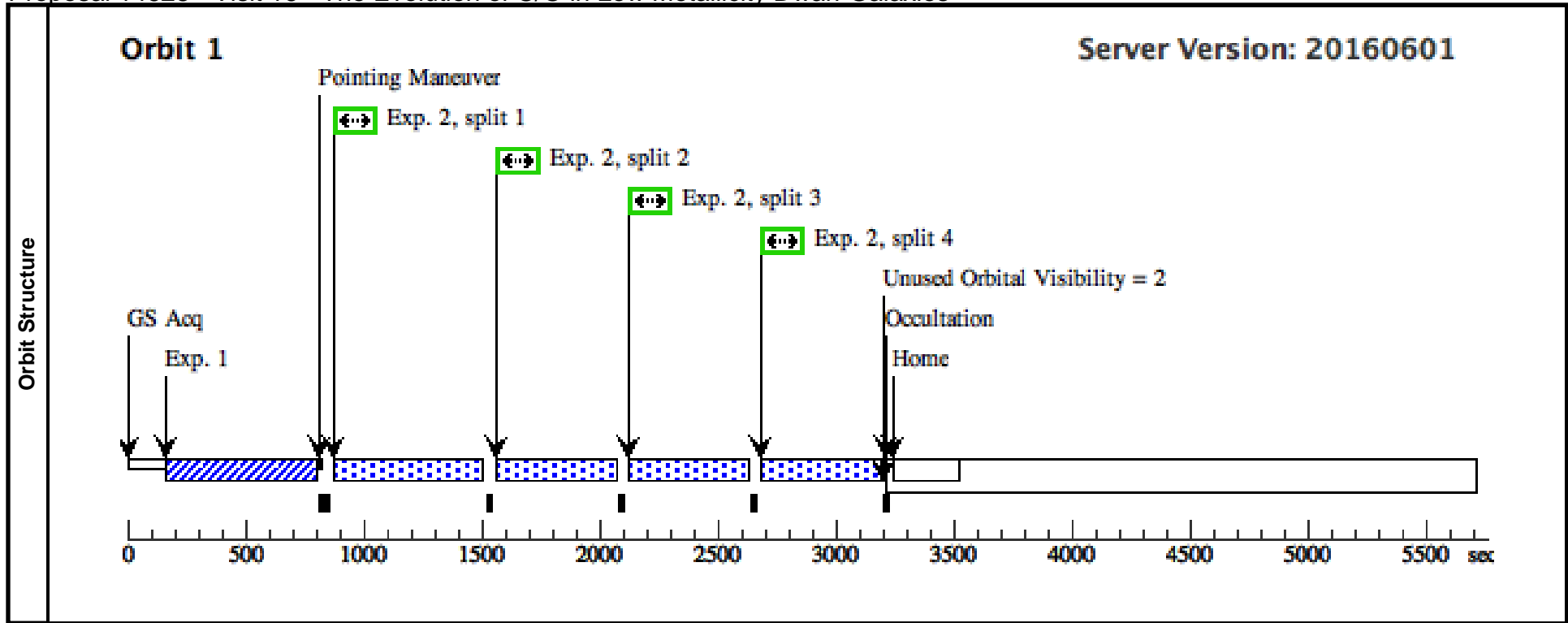
Visit	Proposal 14628, Visit 15, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (15.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(15)	J025346	RA: 02 53 46.7038 (43.4445992d) Dec: -07 23 43.98 (-7.39555d) Equinox: J2000		V=18.03 GALEX FUV = 17.71, SDSS r-band = 17.97	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 1.24E-15 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828222)	(15) J025346	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				60 Secs (60 Secs) [==>]	[1]
	2	Science (821864)	(15) J025346	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=93 21			1846 Secs (2124 Secs) [==>531.0 Secs (Split 1)] [==>531.0 Secs (Split 2)] [==>531.0 Secs (Split 3)] [==>531.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 16 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

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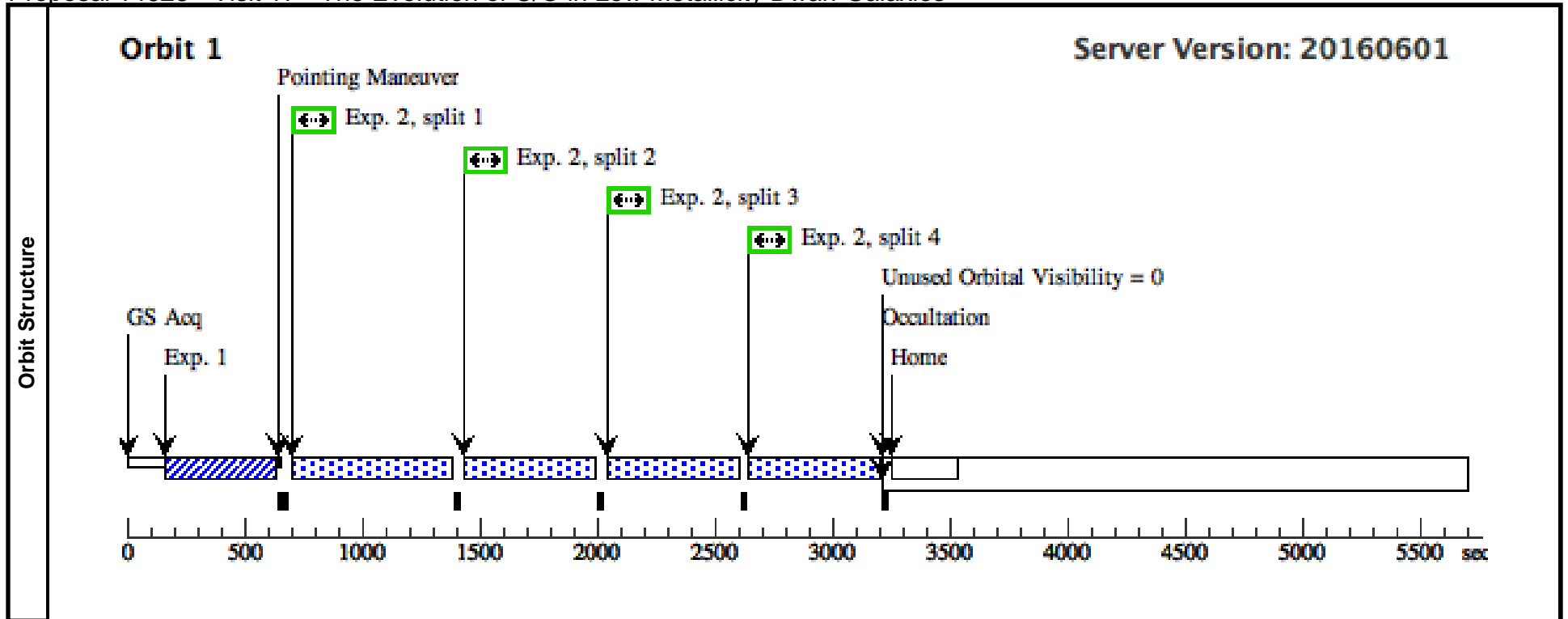
Visit	Proposal 14628, Visit 16, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (16.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(16)	J015809	RA: 01 58 9.3842 (29.5391008d) Dec: -00 06 37.23 (-.11034d) Equinox: J2000		V=18.08 SDSS r-band = 17.87	Reference Frame: ICRS				
<i>Comments: Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (821570)	(16) J015809	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				207 Secs (207 Secs) [==>]	[1]
	2	Science (821867)	(16) J015809	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=15 499			1846 Secs (1828 Secs) [==>457.0 Secs (Split 1)] [==>457.0 Secs (Split 2)] [==>457.0 Secs (Split 3)] [==>457.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 17 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Jan 04 02:02:02 GMT 2017

Visit	Proposal 14628, Visit 17, implementation Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (17.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(17)	J104654	RA: 10 46 54.0015 (161.7250063d) Dec: +13 46 45.84 (13.77940d) Equinox: J2000				V=17.96 GALEX FUV = 18.55, SDSS r-band = 17.85	Reference Frame: ICRS		
<i>Comments: FUV Flux Surface Brightness = 5.73E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828223)	(17) J104654	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				120 Secs (120 Secs) [==>]	[1]
	2	Science (821869)	(17) J104654	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=11 849			1846 Secs (2012 Secs) [==>503.0 Secs (Split 1)] [==>503.0 Secs (Split 2)] [==>503.0 Secs (Split 3)] [==>503.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 18 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

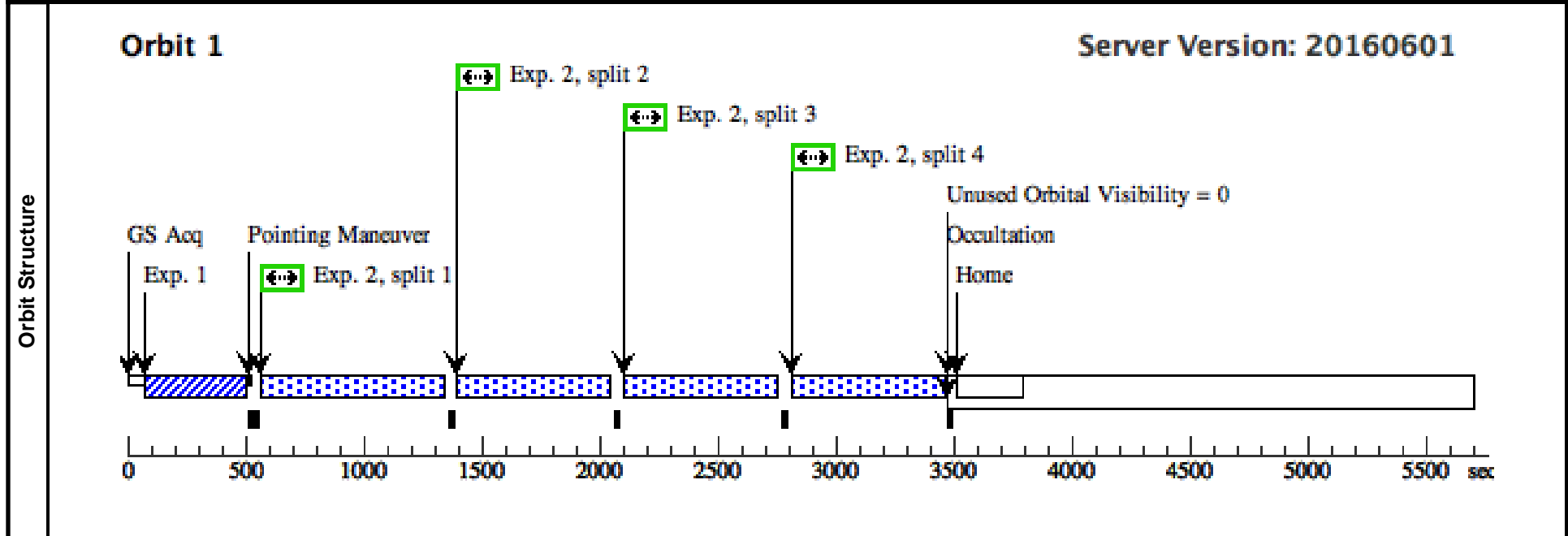
Wed Jan 04 02:02:02 GMT 2017

Visit	Proposal 14628, Visit 18, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)
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Diagnostics	(Science (18.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.
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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>(18)</td> <td>J093006</td> <td>RA: 09 30 6.4783 (142.5269929d) Dec: +60 26 53.52 (60.44820d) Equinox: J2000</td> <td></td> <td>V=17.1 GALEX FUV = 16.82, SDSS r-band = 18.94</td> <td>Reference Frame: ICRS</td> </tr> </tbody> </table> <p><i>Comments: FUV Flux Surface Brightness = 2.81E-15 erg/s/cm^2/A/arcsec^2 Extended=YES</i></p>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(18)	J093006	RA: 09 30 6.4783 (142.5269929d) Dec: +60 26 53.52 (60.44820d) Equinox: J2000		V=17.1 GALEX FUV = 16.82, SDSS r-band = 18.94	Reference Frame: ICRS
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous								
(18)	J093006	RA: 09 30 6.4783 (142.5269929d) Dec: +60 26 53.52 (60.44820d) Equinox: J2000		V=17.1 GALEX FUV = 16.82, SDSS r-band = 18.94	Reference Frame: ICRS								

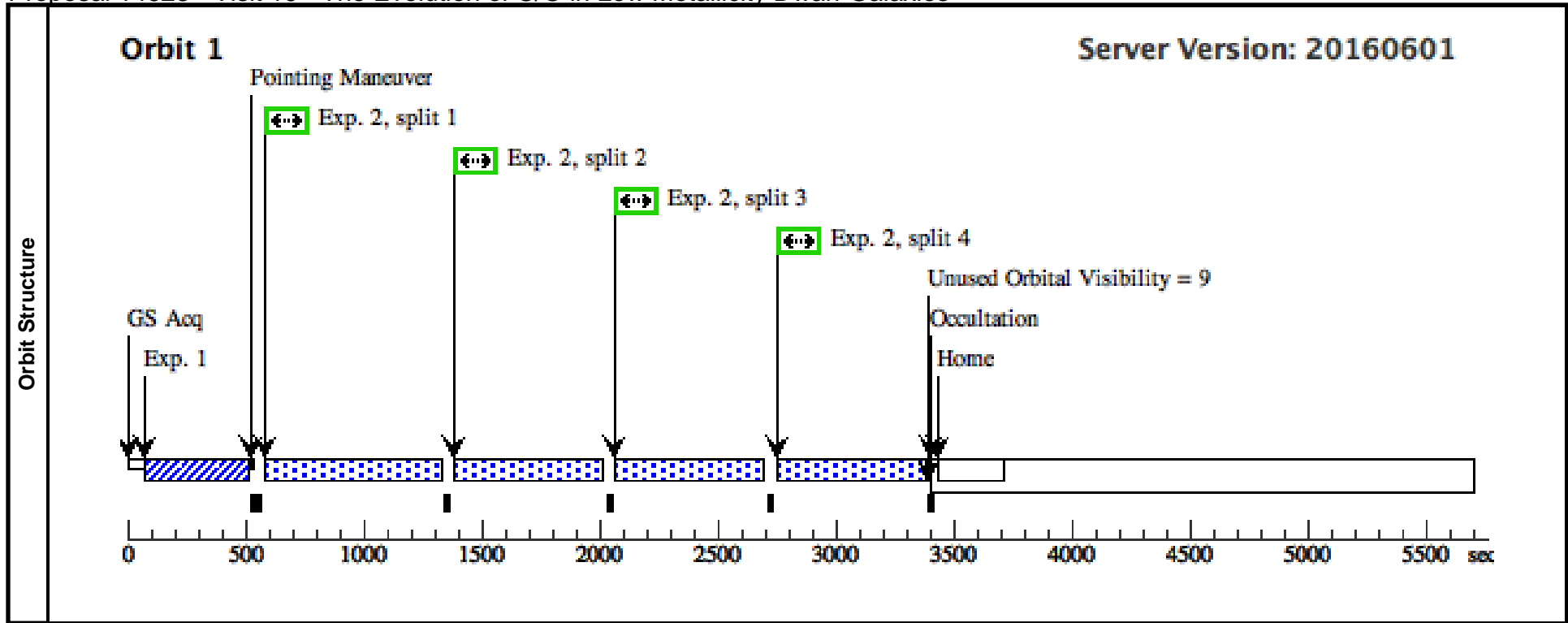
Exposures	<table border="1"> <thead> <tr> <th>#</th> <th>Label (ETC Run)</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ACQ/IMAG E (828265)</td> <td>(18) J093006</td> <td>COS/NUV, ACQ/IMAGE, PSA</td> <td>MIRRORB</td> <td></td> <td></td> <td></td> <td>54 Secs (54 Secs) [==>]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>Science (821872)</td> <td>(18) J093006</td> <td>COS/FUV, TIME-TAG, PSA</td> <td>G140L 1280 A</td> <td>SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=60 99</td> <td></td> <td></td> <td>1846 Secs (2404 Secs) [==>601.0 Secs (Split 1)] [==>601.0 Secs (Split 2)] [==>601.0 Secs (Split 3)] [==>601.0 Secs (Split 4)]</td> <td>[1]</td> </tr> </tbody> </table>	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	1	ACQ/IMAG E (828265)	(18) J093006	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				54 Secs (54 Secs) [==>]	[1]	2	Science (821872)	(18) J093006	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=60 99			1846 Secs (2404 Secs) [==>601.0 Secs (Split 1)] [==>601.0 Secs (Split 2)] [==>601.0 Secs (Split 3)] [==>601.0 Secs (Split 4)]	[1]
	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit																					
	1	ACQ/IMAG E (828265)	(18) J093006	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				54 Secs (54 Secs) [==>]	[1]																					
2	Science (821872)	(18) J093006	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=60 99			1846 Secs (2404 Secs) [==>601.0 Secs (Split 1)] [==>601.0 Secs (Split 2)] [==>601.0 Secs (Split 3)] [==>601.0 Secs (Split 4)]	[1]																						



Proposal 14628 - Visit 19 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Jan 04 02:02:02 GMT 2017

Visit	Proposal 14628, Visit 19, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (19.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(19)	J092055	RA: 09 20 55.9204 (140.2330017d) Dec: +52 34 7.32 (52.56870d) Equinox: J2000		V=16.04 GALEX FUV = 17.48, SDSS r-band = 15.88	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 1.53E-15 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (848646)	(19) J092055	COS/NUV, ACQ/IMAGE, PSA	MIRRORB				60 Secs (60 Secs) [==>]	[1]
	2	Science (821874)	(19) J092055	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=84 47			1846 Secs (2308 Secs) [==>577.0 Secs (Split 1)] [==>577.0 Secs (Split 2)] [==>577.0 Secs (Split 3)] [==>577.0 Secs (Split 4)]	[1]



Proposal 14628 - Visit 20 - The Evolution of C/O in Low Metallicity Dwarf Galaxies

Wed Jan 04 02:02:02 GMT 2017

Visit	Proposal 14628, Visit 20, scheduling Diagnostic Status: Warning Scientific Instruments: COS/FUV, COS/NUV Special Requirements: (none)									
	(Science (20.002)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(20)	J084956	RA: 08 49 56.1584 (132.4839933d) Dec: +10 43 8.76 (10.71910d) Equinox: J2000		V=16.72 GALEX FUV = 18.12, SDSS r-band = 16.62	Reference Frame: ICRS				
<i>Comments: FUV Flux Surface Brightness = 8.50E-16 erg/s/cm^2/A/arcsec^2 Extended=YES</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	ACQ/IMAG E (828226)	(20) J084956	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				100 Secs (100 Secs) [==>]	[1]
	2	Science (821875)	(20) J084956	COS/FUV, TIME-TAG, PSA	G140L 1280 A	SEGMENT=BOTH; FLASH=YES; FP-POS=ALL; BUFFER-TIME=10 612			1846 Secs (2052 Secs) [==>513.0 Secs (Split 1)] [==>513.0 Secs (Split 2)] [==>513.0 Secs (Split 3)] [==>513.0 Secs (Split 4)]	[1]

