14081 - Probing Supernovae Chemical Yields in Low Metallicity Environments with UV Spectroscopy of Magellanic Cloud B-type Stars

Cycle: 23, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. Thierry Lanz (PI) (ESA Member) (Contact)	**Observatoire de la Cote d'Azur**	**thierry.lanz@oca.eu**
Dr. Geraldine J. Peters (CoI) (AdminUSPI)	University of Southern California	gpeters@usc.edu
Dr. Saul J. Adelman (CoI)	The Citadel, The Military College of South Carolina	saul.adelman@citadel.edu
Dr. Austin F. Gulliver (CoI) (CSA Member)	Brandon University	gulliver@brandonu.ca
Dr. Graham Hill (CoI) (CSA Member)	Brandon University	hill@brandonu.ca
Dr. Ivan Hubeny (CoI)	University of Arizona	hubeny@as.arizona.edu
Dr. Juliet C. Pickering (CoI) (ESA Member)	Imperial College of London	j.pickering@ic.ac.uk
Dr. Charles R. Proffitt (CoI)	Space Telescope Science Institute	proffitt@stsci.edu
Dr. Jean-Claude Bouret (CoI) (ESA Member)	CNRS, Laboratoire d'Astrophysique de Marseille	jean-claude.bouret@lam.fr

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
N1	(1) NGC346-11	COS/FUV	4	29-Jul-2016 12:59:53.0	yes
N2	(1) NGC346-11	COS/FUV COS/NUV	4	29-Jul-2016 13:00:01.0	yes
A1	(2) AV304	COS/FUV	3	29-Jul-2016 13:00:04.0	yes
A2	(2) AV304	COS/FUV	4	29-Jul-2016 13:00:06.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
A3	(2) AV304	COS/NUV	5	29-Jul-2016 13:00:11.0	yes
D1	(3) NGC1818-D1	COS/FUV	4	29-Jul-2016 13:00:15.0	yes
D2	(3) NGC1818-D1	COS/NUV	1	29-Jul-2016 13:00:17.0	yes
D3	(3) NGC1818-D1	COS/NUV	1	29-Jul-2016 13:00:18.0	yes
D4	(3) NGC1818-D1	COS/NUV	4	29-Jul-2016 13:00:20.0	yes
B1	(4) NGC2004-B15	COS/FUV	3	29-Jul-2016 13:00:23.0	yes
B2	(4) NGC2004-B15	COS/NUV	2	29-Jul-2016 13:00:27.0	yes

35 Total Orbits Used

ABSTRACT

Spectrum synthesis studies of the UV spectra of sharp-lined main sequence B stars provide astronomers with some of the best determinations of the abundances of the light, Fe group, and neutron capture elements. B stars are therefore best-suited to study the chemical evolution of the Magellanic Clouds. But the HST archive is virtually devoid of high resolution spectra of such objects. We propose FUV and NUV observations with the COS G130M, G160M, G185M, and G225M gratings. The four program stars have been observed with the FUSE spacecraft, hence this project will produce continuous high-resolution spectral coverage from 950 to 2400 A and provide a permanent archive of fundamental spectra from which ground-breaking studies of the Magellanic Clouds can be performed in the decades to come. This limited program aims at producing an extragalactic, low-metallicity counterpart to the bright star library of early B stars that is currently being obtained as part of the HST Cycle 21 Treasury program "Advanced Spectral Library II: Hot Stars" (GO 13346, PI T. Ayres).

Spectral lines from most Fe group and s-process elements are found only in the UV region in B stars and information on their abundances is important for studying the chemical evolution of a galaxy, computing opacities for stellar evolution calculations, and assessing the validity of theoretical calculations of explosive nucleosynthesis. Comparing the derived abundances of iron-peak and heavier elements in galactic and Magellanic Cloud B main sequence stars will provide an empirical probe of chemical yields ejected by evolved stars and supernovae in different environments.

OBSERVING DESCRIPTION

Objective. We aim to cover the spectral region 1150-2400 A where most of the lines from the Fe-peak and heavy elements reside. The strongest and least blended lines from the Fe-peak elements (Ti III, V III, Cr III, Mn III, Fe III, Co III, Ni II, and Ni III) are found in this region. The useful lines for the neutron capture elements include Ga II (1414.4 A), Ga III (1495.0, 1534.4 A), Ge IV (1189.0, 1229.8 A), Sn III (1251.4 A), Sn IV (1314.4, 1437.5 A), Pb IV (1313.072 A), and Pb III (1553.0 A). To take advantage of the information that is contained in the spectral lines of a sharp-lined B star, high spectral resolution is essential. There is always a trade-off between spectroscopic dispersion, spectral coverage, and exposure times. We have decided to use COS for both FUV and NUV exposures. COS will provide spectra of higher SNR but at a slightly lower spectral resolution than STIS. The resolution of a typical COS spectrum is 15 km/s. Since our program stars have values of V sin i from 10-30 km/s, COS is suitable for a spectrum synthesis investigation. In fact a simulation of COS and STIS spectra for a typical star in the SMC reveals only a slightly deeper line with STIS for the slowest rotator and no difference for the star with a V sin i of 30 km/s. There is no difference in the ability to resolve closely-spaced lines.

Choice of Spectrograph. We chose a target SNR that will provide a 2-3 sigma detection of the weakest observable lines (EW ~ 10-20 mA) in stars with rotational velocities similar to those in our program stars. SNR values of 30-40 and 20 for the COS FUV and COS NUV satisfy the latter criterion. To cover the FUV region observations with both COS gratings (G130M and G160M) are necessary. But the presence of a 14-18A gap between the grating segments in the COS FUV necessitates acquiring two exposures with each grating at different central wavelengths. Each FUV exposure contains four FP-POS settings to reduce fixed-pattern noise (FPN). For the NUV seven COS settings are necessary (G185M and G225M), but the overall exposure time is about 40% less than with the STIS E230M. Two FP-POS settings are sufficient in the NUV, as it is less sensitive to FPN.

Exposure Times.The exposure times for the four FUV and seven NUV COS grating settings were calculated using the COS Exposure Time Calculator (ETC) v.23.1. Since FUSE spectra are available for our four target stars, we used the flux at 1185A in addition to fluxes from IUE LORES spectra.

CVZ Usage:
For target NGC1818-D1 only 22-Dec 2015 comes up as schedulable in Cycle 23 for full CVZ orbits. For target NGC2004-B15 there is only 30-Oct-2015. So we'll assume 5 full CVZ orbits are avaialble for each of these targets during cycle 23.
However, there exist additional scheduling opportunities for short "near-CVZ" visits. We will use two additional short one orbit CVZ visits for the NUV observations of NGC1818-D2. The orbit planner shows several days of scheduling opportunites for each of these.

Visit

Proposal 14081, NGC346-11 FUV (N1), scheduled Fri Jul 29 17:00:29 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: (none)

Fixed Targets

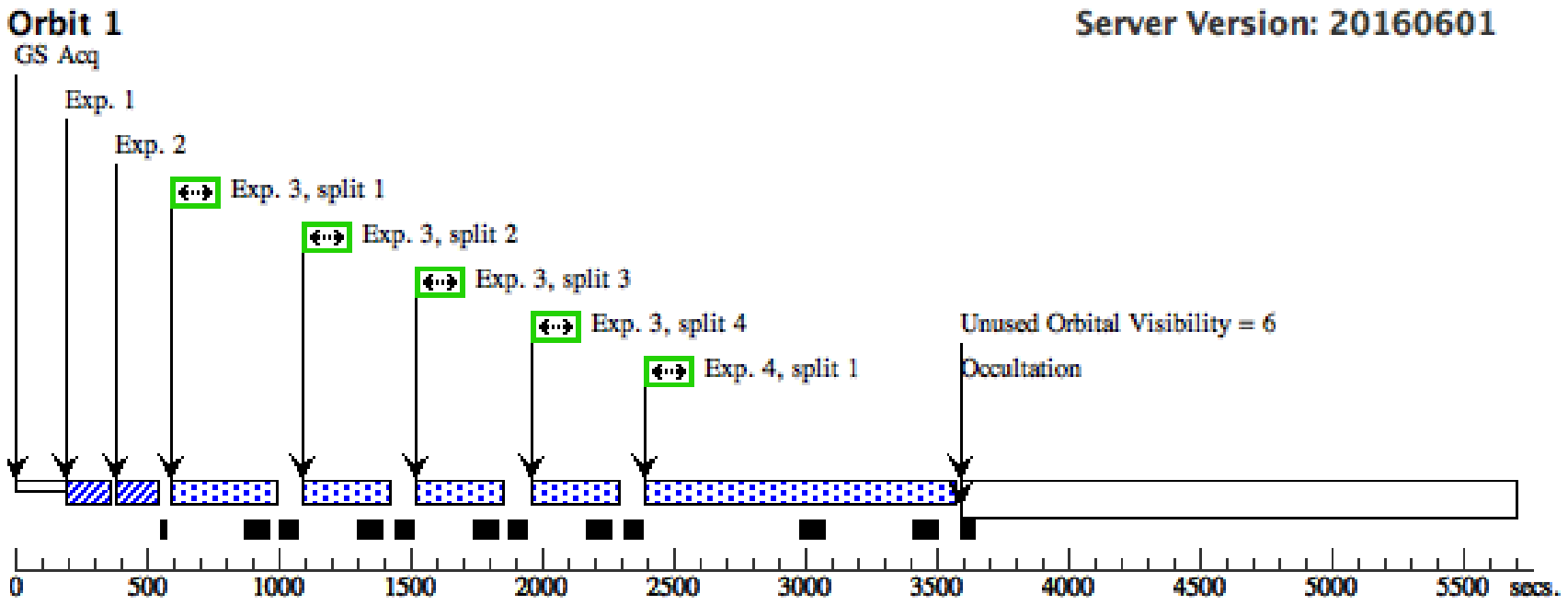
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC346-11	RA: 00 58 13.9290 (14.5580375d) Dec: -72 09 19.26 (-72.15535d) Equinox: J2000		V=15.27+/-0.1 1.5E-13 erg/cm2/s/A (FUSE, 1185A)	Reference Frame: ICRS

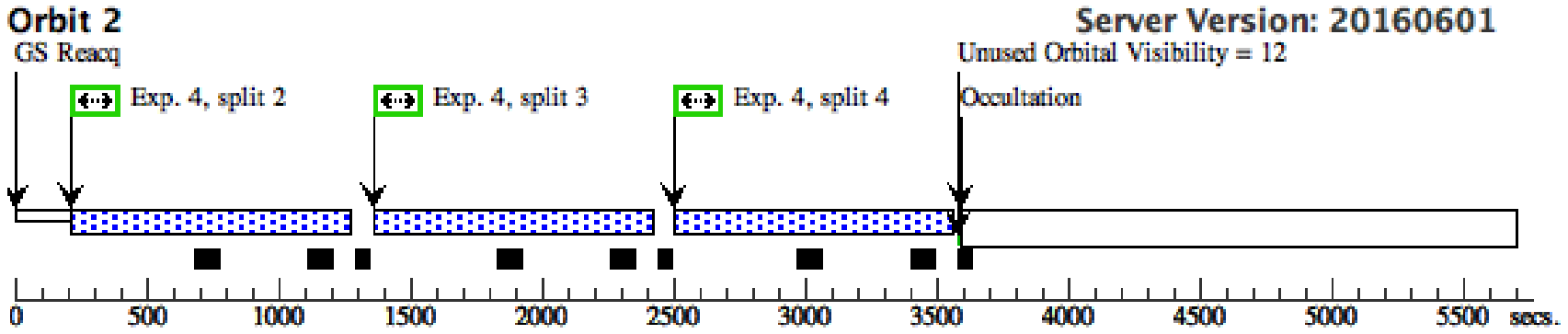
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

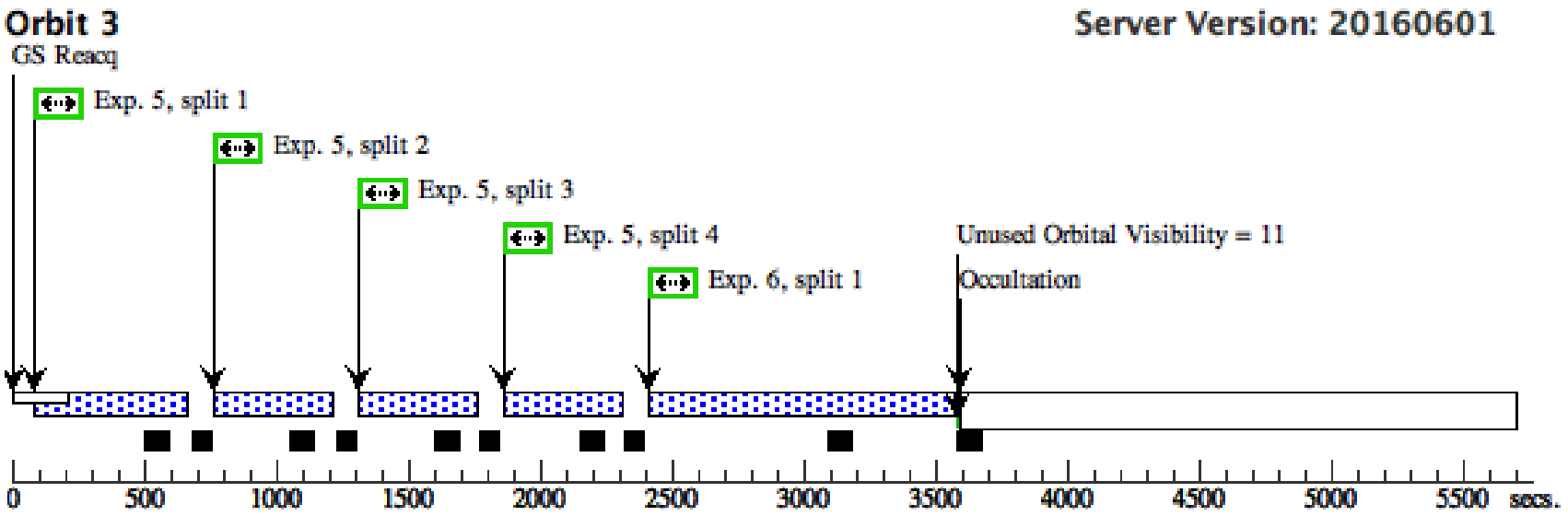
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727662)	(1) NGC346-11	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs (2 Secs) *[==>]*	*[1]*
2	PEAKD (727662)	(1) NGC346-11	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			2 Secs (2 Secs) *[==>]*	*[1]*
3	1291 (716636)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=176			281 Secs (1124 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*
4	1577 (716646)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; BUFFER-TIME=431			1010 Secs (4040 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]* *[2]*
5	1327 (716641)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=ALL; BUFFER-TIME=252			395 Secs (1580 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]*
6	1623 (716650)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=524			988 Secs (3952 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]* *[4]*

Orbit Structure



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Exp. 5, split 3
Exp. 5, split 4
Exp. 6, split 1
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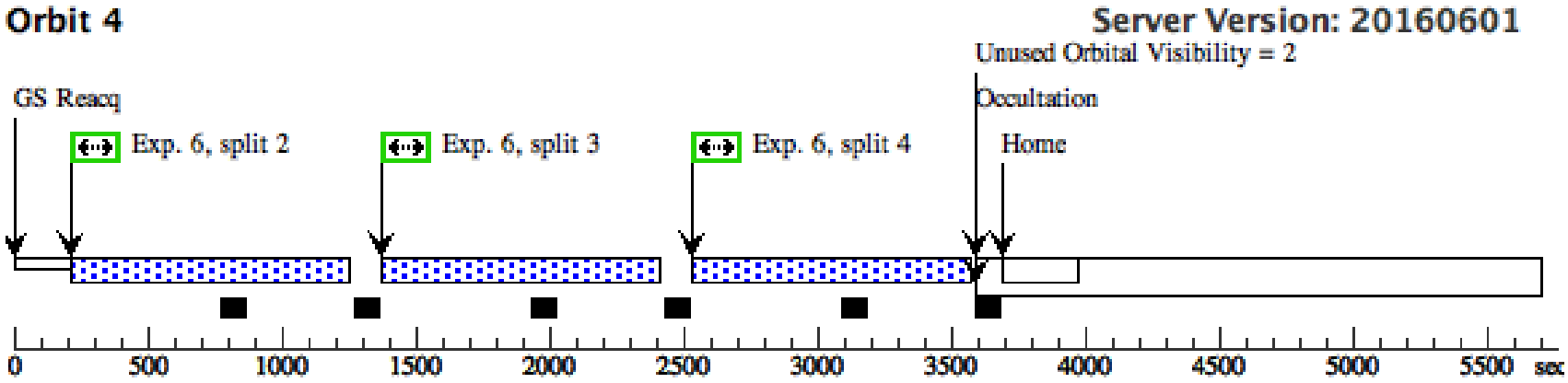
secs.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Exp. 6, split 4
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500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, NGC346-11 NUV (N2), scheduled Fri Jul 29 17:00:29 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	NGC346-11	RA: 00 58 13.9290 (14.5580375d) Dec: -72 09 19.26 (-72.15535d) Equinox: J2000		V=15.27+/-0.1 1.5E-13 erg/cm2/s/A (FUSE, 1185A)	Reference Frame: ICRS

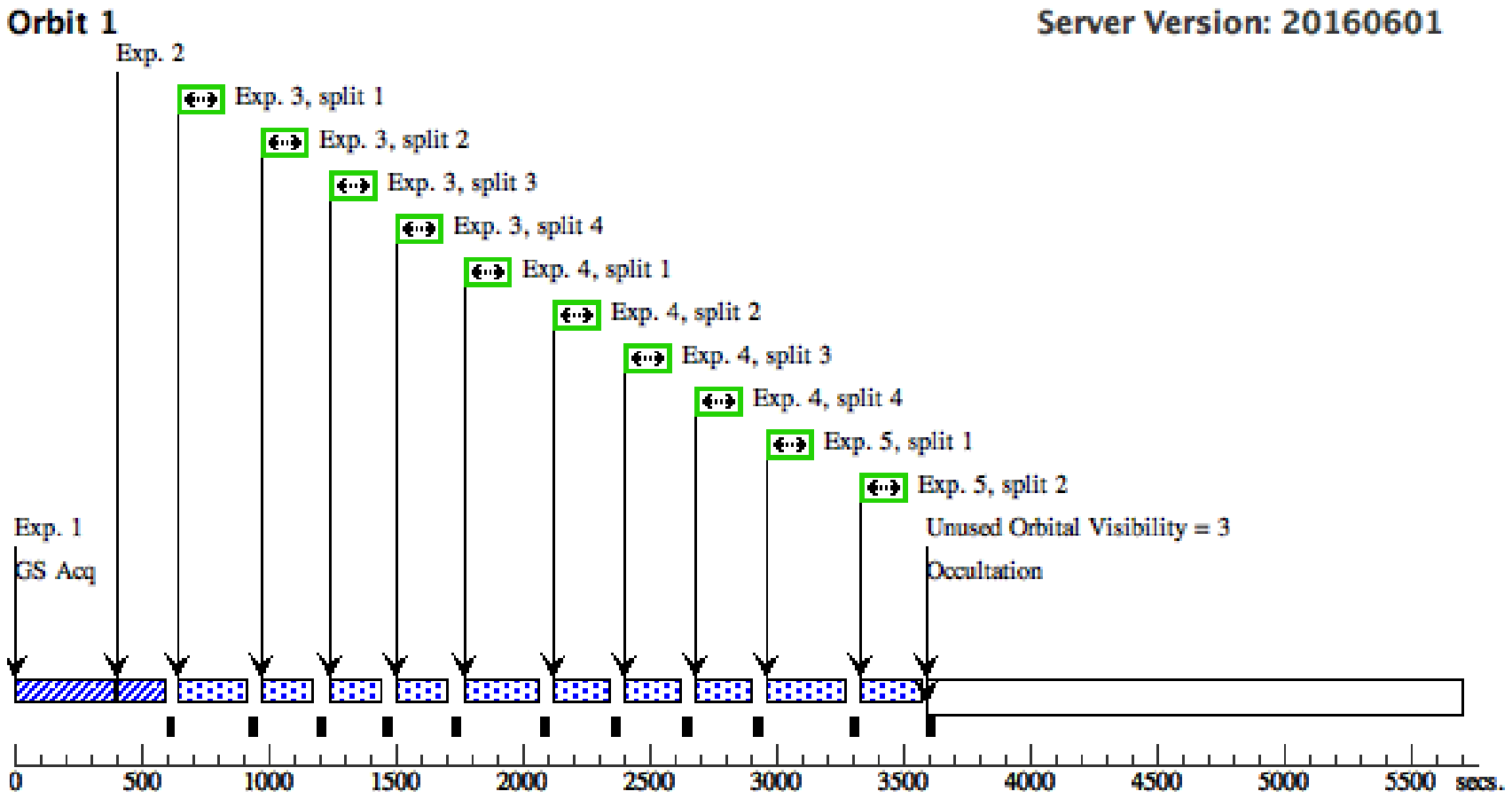
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

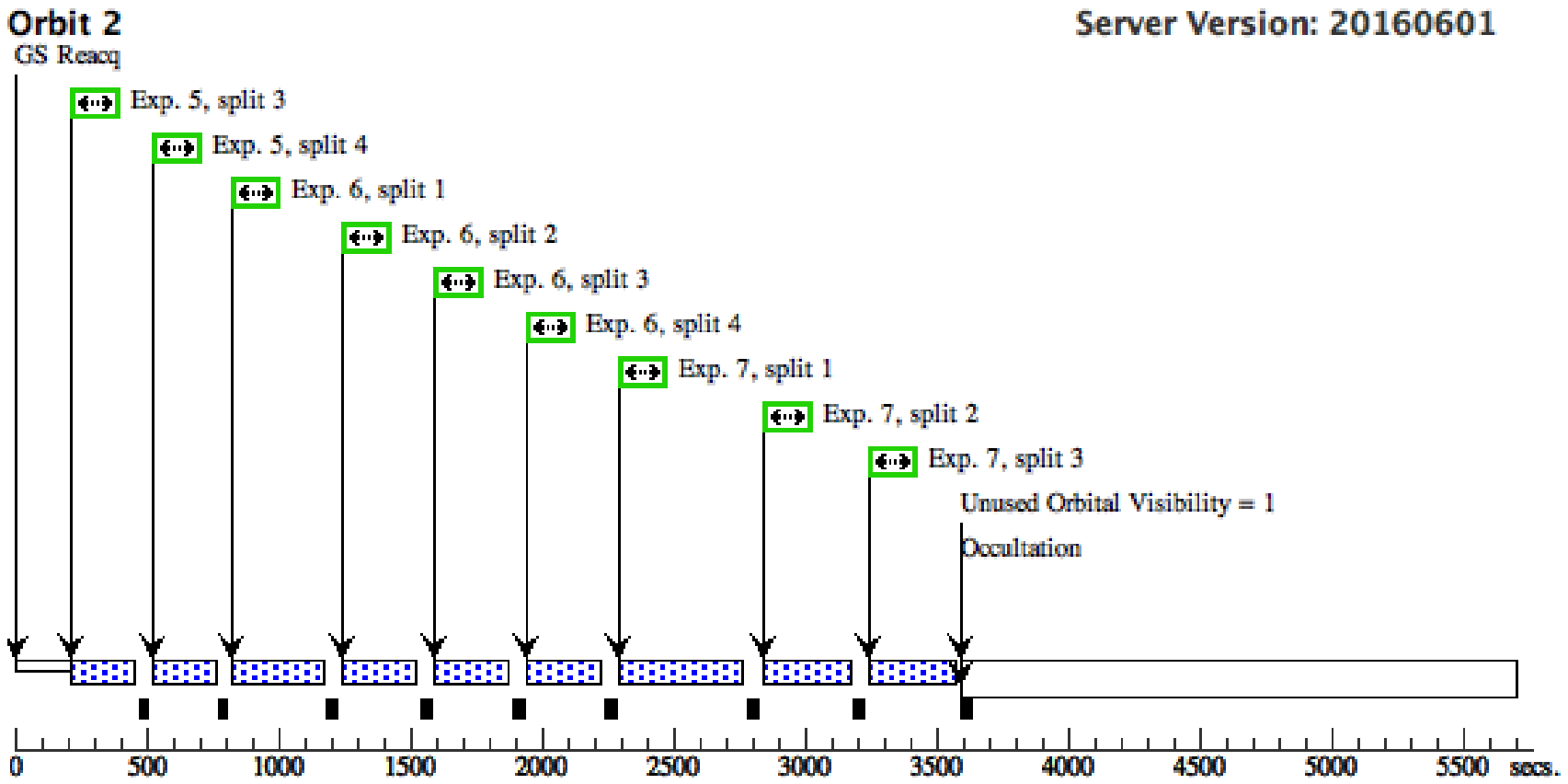
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727672)	(1) NGC346-11	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				16 Secs (16 Secs) *[==>]*	 ***[1]***
2	PEAKD (727671)	(1) NGC346-11	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			8 Secs (8 Secs) *[==>]*	 ***[1]***
3	1913 (716654)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G185M 1913 A	BUFFER-TIME=1043; FP-POS=ALL			188 Secs (752 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***
4	1941 (716658)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G185M 1941 A	BUFFER-TIME=1058; FP-POS=ALL			202 Secs (808 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***
5	1971 (716662)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=1072; FP-POS=ALL			224 Secs (896 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]*** ***[2]***
6	2010 (716665)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=1091; FP-POS=ALL			264 Secs (1056 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[2]***
7	2233 (716668)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=1210; FP-POS=ALL			319 Secs (1276 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[2]*** ***[3]***
8	2268 (716671)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G225M 2268 A	BUFFER-TIME=1179; FP-POS=ALL			283 Secs (1132 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]***
9	2306 (716675)	(1) NGC346-11	COS/NUV, TIME-TAG, PSA	G225M 2306 A	BUFFER-TIME=1154; FP-POS=ALL			263 Secs (1052 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]***

	10	1623 (716650)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=218	318 Secs (1272 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[4]***
	11	1291 (716636)	(1) NGC346-11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=100	200 Secs (800 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[4]***

Orbit Structure

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Exp. 6, split 4
Exp. 7, split 1
Exp. 7, split 2
Exp. 7, split 3
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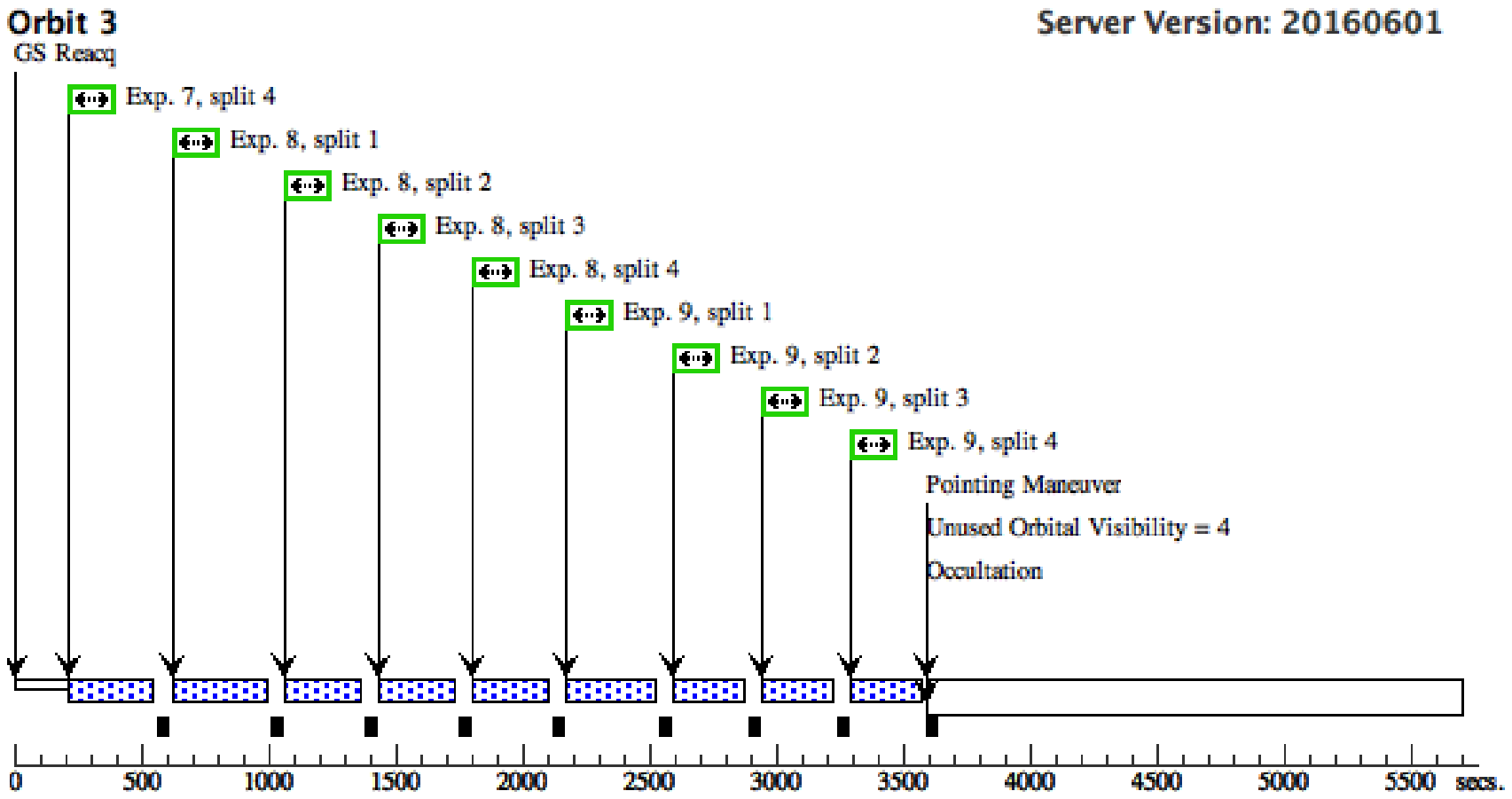
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Exp. 8, split 2
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Exp. 9, split 1
Exp. 9, split 2
Exp. 9, split 3
Exp. 9, split 4
Pointing Maneuver
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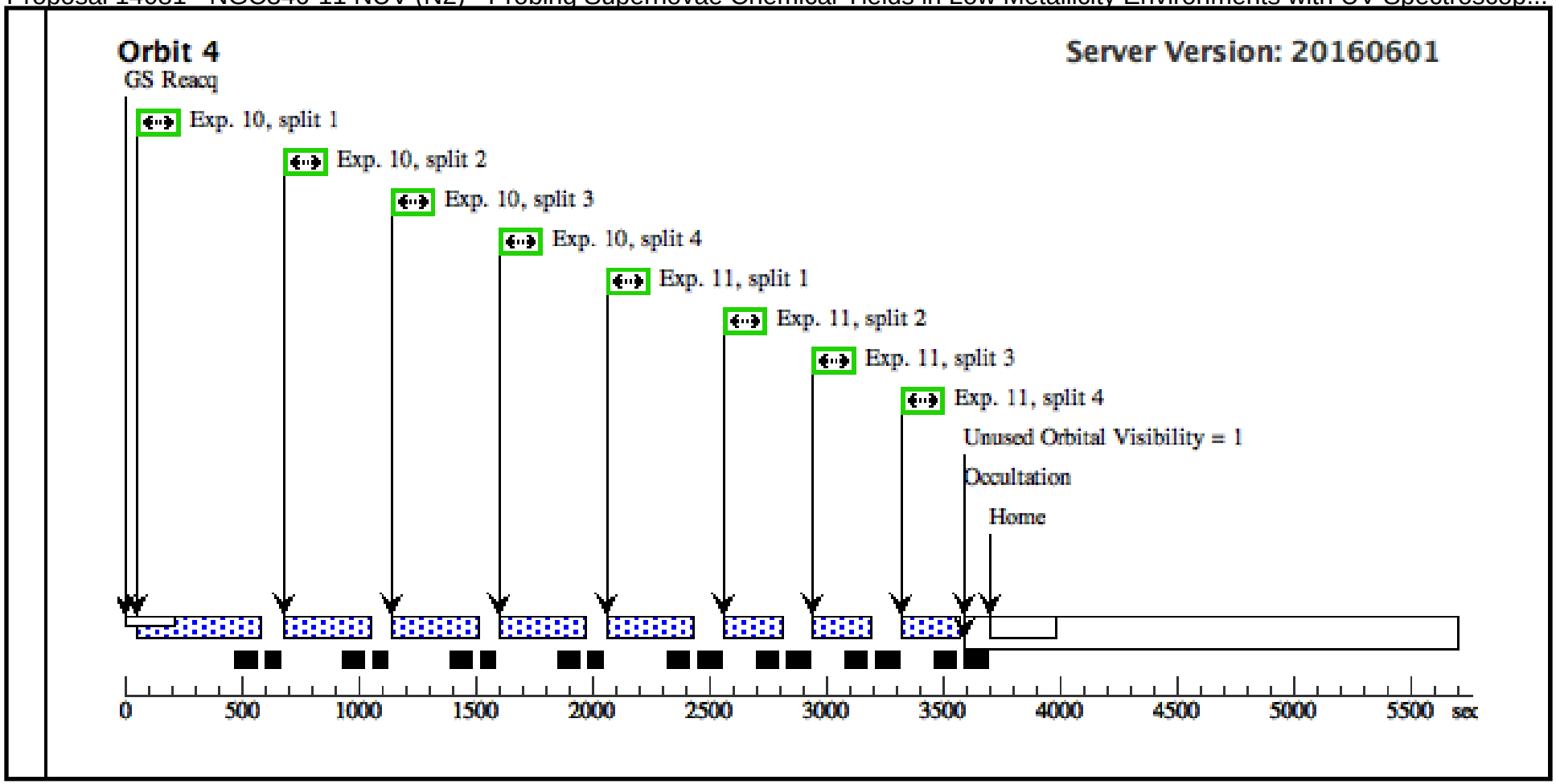
secs.


Orbit 4
Server Version: 20160601
GS Reacq
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Exp. 10, split 2
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Exp. 11, split 2
Exp. 11, split 3
Exp. 11, split 4
Unused Orbital Visibility = 1
Occultation
Home
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1000
1500
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sec

Visit

Proposal 14081, AV304 FUV (A1), scheduled Fri Jul 29 17:00:29 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: (none)

Fixed Targets

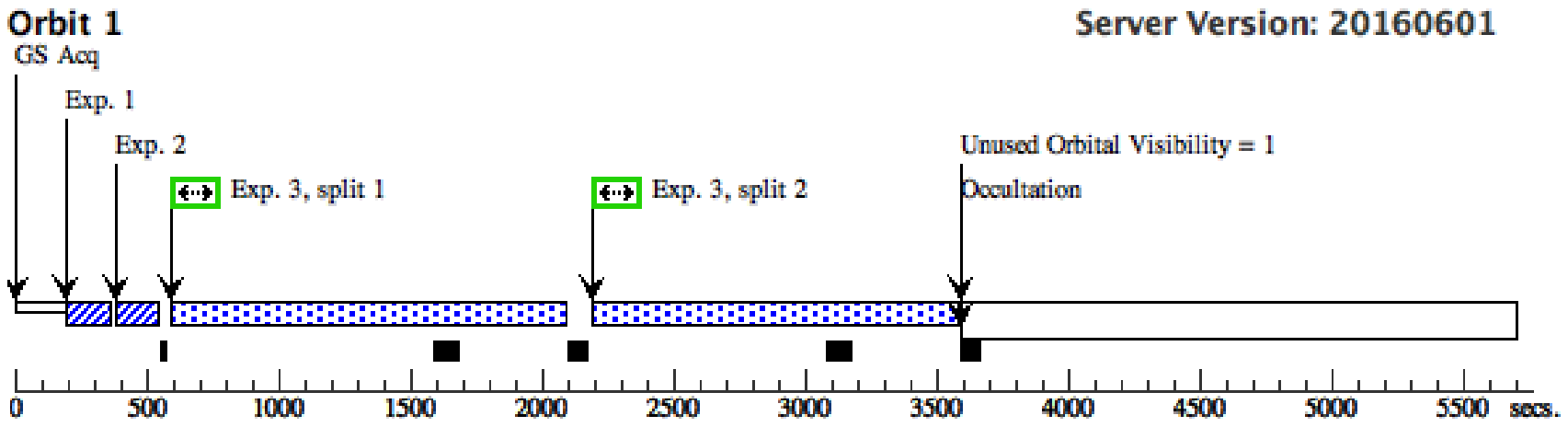
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	AV304	RA: 01 02 21.4780 (15.5894917d) Dec: -72 39 14.67 (-72.65408d) Equinox: J2000		V=14.77+/-0.1 1.3E-13 erg/cm2/s/A (IUE 1300 A)	Reference Frame: ICRS

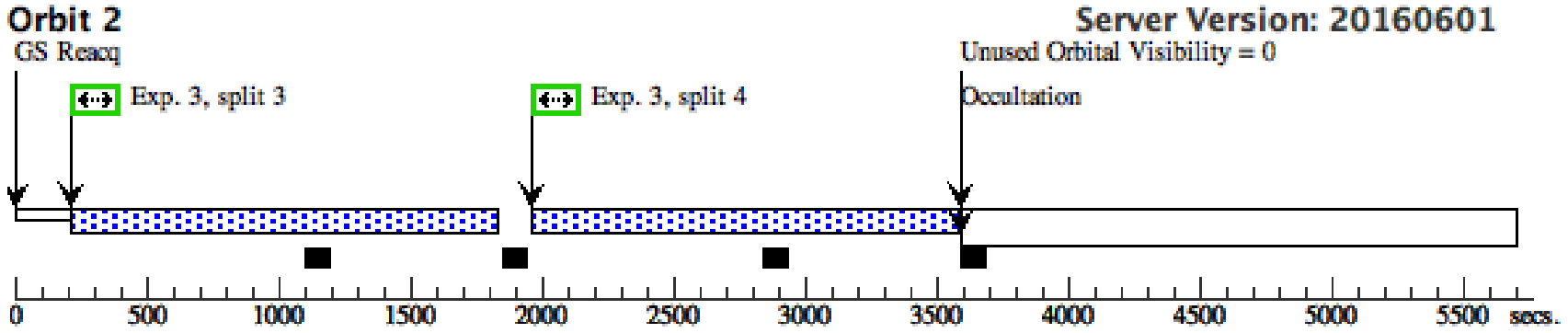
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

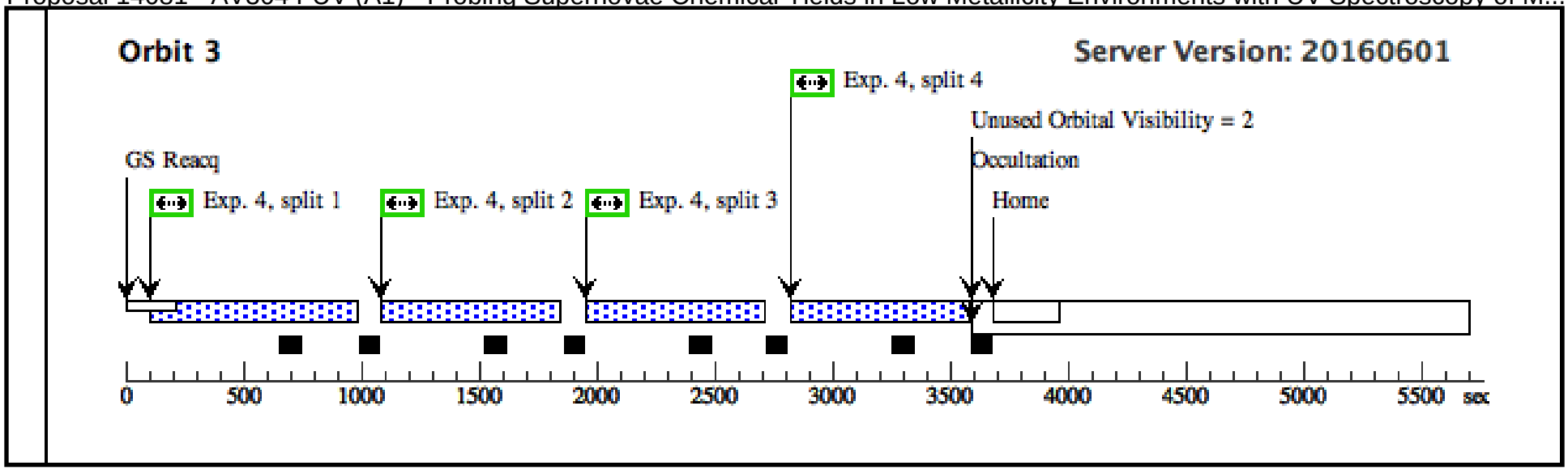
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727661)	(2) AV304	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (727661)	(2) AV304	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			2 Secs (2 Secs) *[==>]*	 ***[1]***
3	1623 (716651)	(2) AV304	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=850			1334 Secs (5806 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>1569.0 Secs (Split 3)]* *[==>1569.0 Secs (Split 4)]*	 ***[1]*** ***[2]***
4	1291 (716637)	(2) AV304	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=400			705 Secs (2820 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]***

Orbit Structure



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GS Reacq
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Exp. 4, split 3
Home
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sec

Visit

Proposal 14081, AV304 FUV (A2), scheduled Fri Jul 29 17:00:29 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: (none)

Fixed Targets

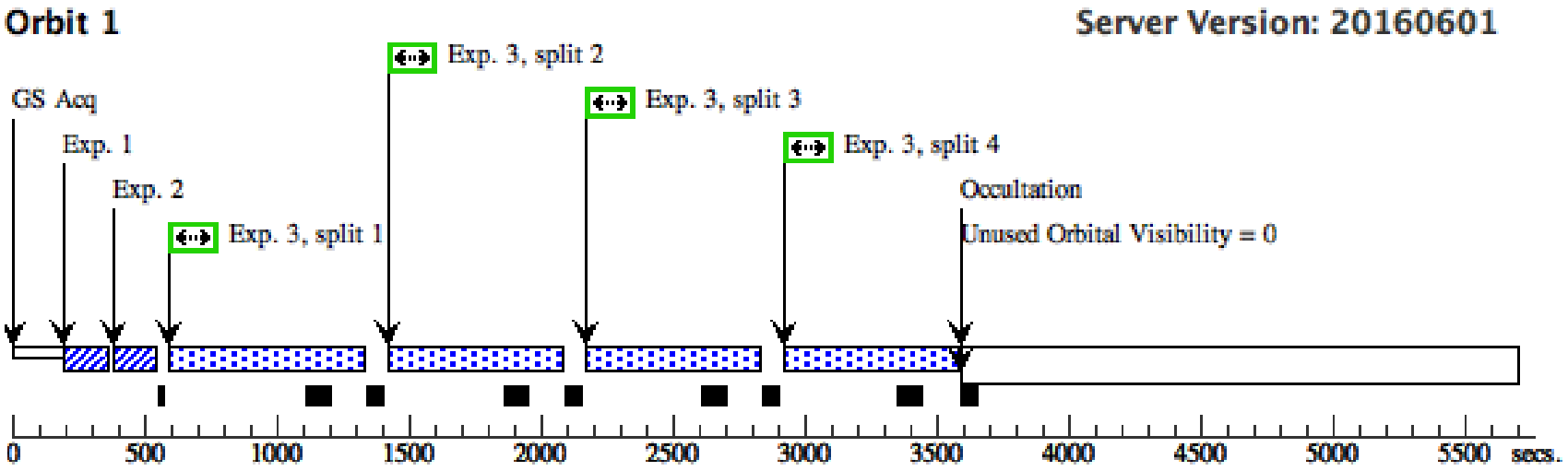
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	AV304	RA: 01 02 21.4780 (15.5894917d) Dec: -72 39 14.67 (-72.65408d) Equinox: J2000		V=14.77+/-0.1 1.3E-13 erg/cm2/s/A (IUE 1300 A)	Reference Frame: ICRS

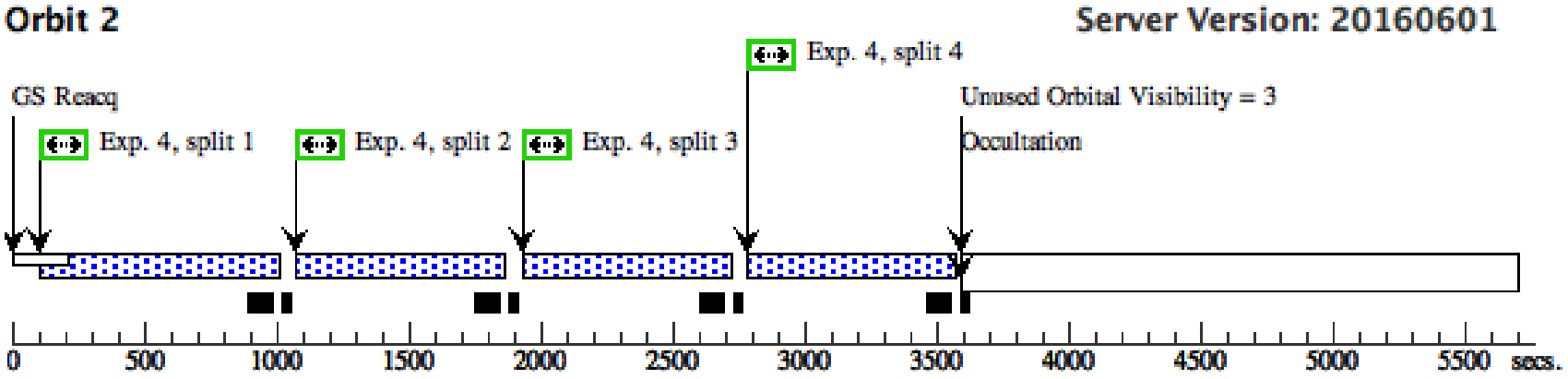
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

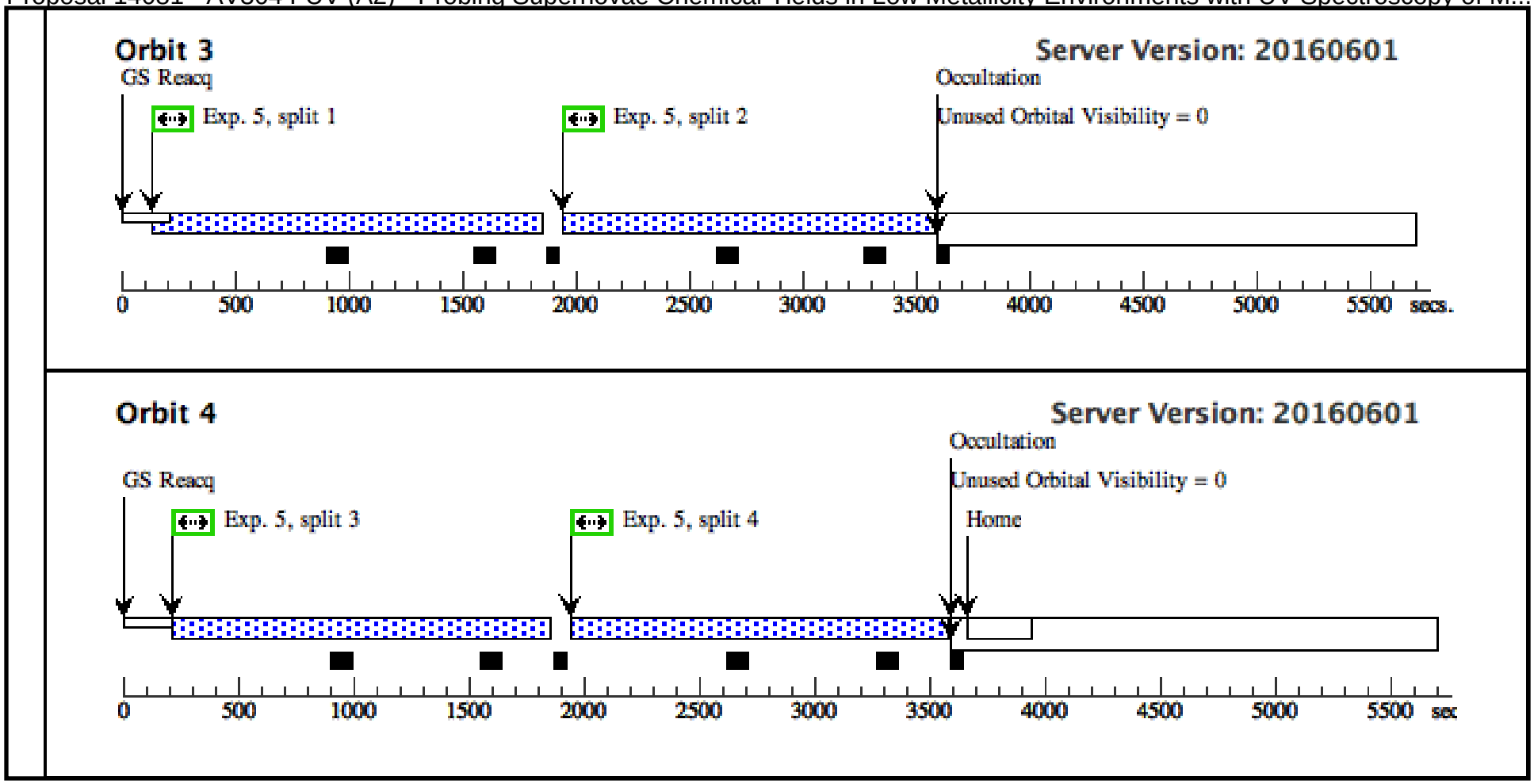
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727661)	(2) AV304	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs (2 Secs) *[==>]*	*[1]*
2	PEAKD (727661)	(2) AV304	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			2 Secs (2 Secs) *[==>]*	*[1]*
3	1327 (716642)	(2) AV304	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=ALL; BUFFER-TIME=400			606 Secs (2424 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*
4	1623 (716651)	(2) AV304	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=640			740 Secs (2960 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[2]*
5	1577 (716647)	(2) AV304	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; BUFFER-TIME=650			1588 Secs (6352 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]* *[4]*

Orbit Structure



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Server Version: 20160601
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3000
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4000
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5000
5500
secs.
Orbit 4
Server Version: 20160601
Occultation
GS Reacq
Unused Orbital Visibility = 0
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Exp. 5, split 4
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1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, AV304 NUV (A3), scheduled Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Fixed Targets

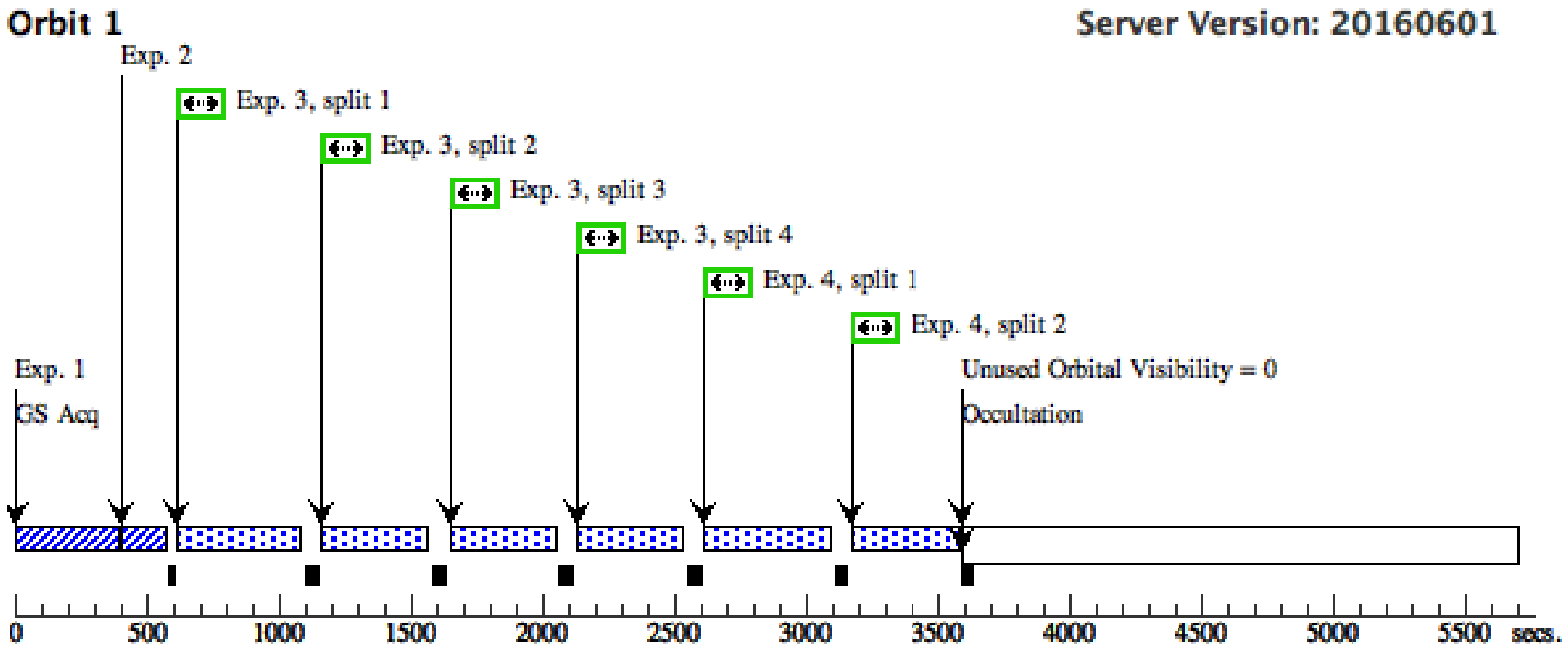
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	AV304	RA: 01 02 21.4780 (15.5894917d) Dec: -72 39 14.67 (-72.65408d) Equinox: J2000		V=14.77+/-0.1 1.3E-13 erg/cm2/s/A (IUE 1300 A)	Reference Frame: ICRS

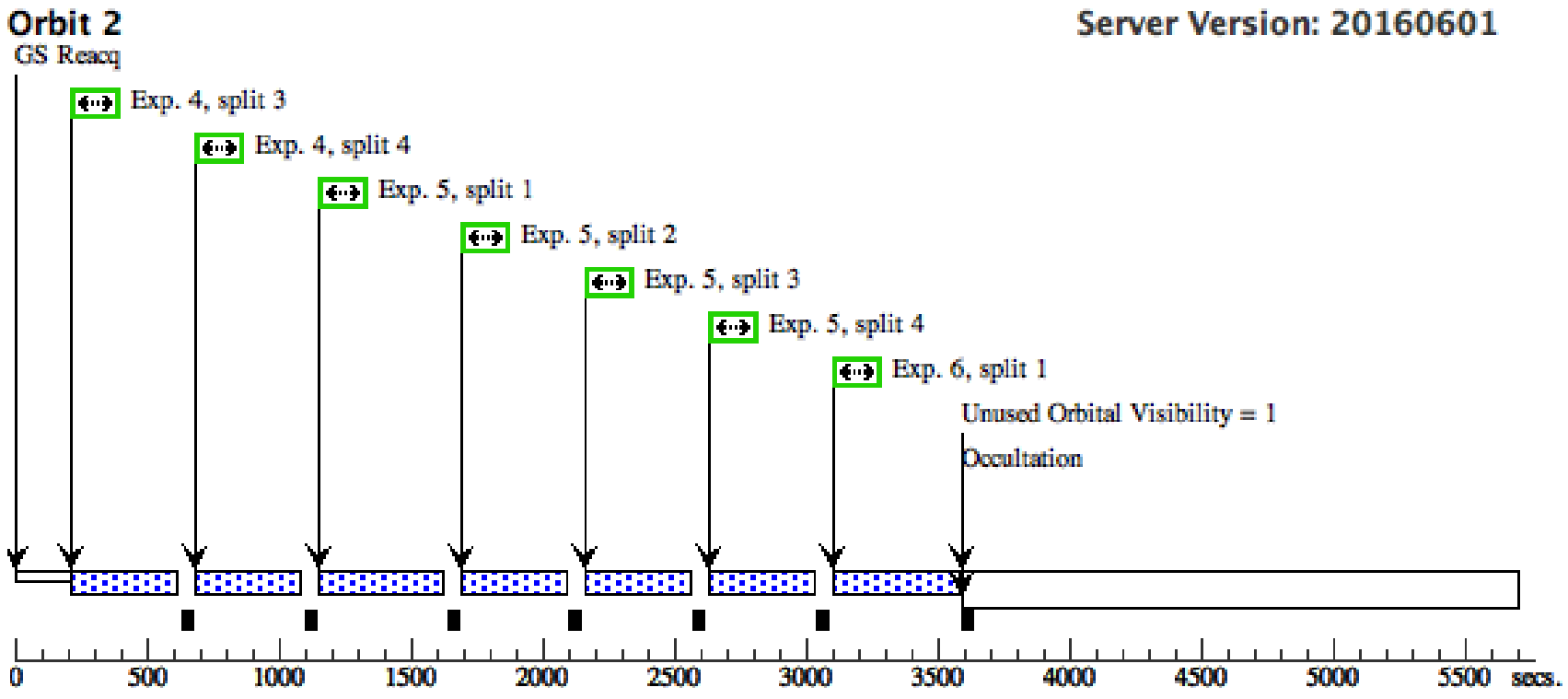
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727676)	(2) AV304	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				12 Secs (12 Secs)	
								[==>]	***[1]***
2	PEAKD (727671)	(2) AV304	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			4 Secs (4 Secs)	
								[==>]	***[1]***
3	1913 (716665)	(2) AV304	COS/NUV, TIME-TAG, PSA	G185M 1913 A	BUFFER-TIME=1091; FP-POS=ALL			369 Secs (1544 Secs)	
								[==>386.0 Secs (Split 1)]	***[1]***
								[==>386.0 Secs (Split 2)]	
								[==>386.0 Secs (Split 3)]	
								[==>386.0 Secs (Split 4)]	
4	1941 (716659)	(2) AV304	COS/NUV, TIME-TAG, PSA	G185M 1941 A	BUFFER-TIME=1201; FP-POS=ALL			378 Secs (1554 Secs)	
								[==>395.0 Secs (Split 1)]	***[1]***
								[==>395.0 Secs (Split 2)]	
								[==>382.0 Secs (Split 3)]	***[2]***
								[==>382.0 Secs (Split 4)]	
5	1971 (716472)	(2) AV304	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=1211; FP-POS=ALL			377 Secs (1524 Secs)	
								[==>381.0 Secs (Split 1)]	***[2]***
								[==>381.0 Secs (Split 2)]	
								[==>381.0 Secs (Split 3)]	
								[==>381.0 Secs (Split 4)]	
6	2010 (716473)	(2) AV304	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=1225; FP-POS=ALL			388 Secs (1859 Secs)	
								[==>392.0 Secs (Split 1)]	***[2]***
								[==>489.0 Secs (Split 2)]	***[3]***
								[==>489.0 Secs (Split 3)]	
								[==>489.0 Secs (Split 4)]	
7	2233 (716474)	(2) AV304	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=1353; FP-POS=ALL			572 Secs (2516 Secs)	
								[==>673.0 Secs (Split 1)]	***[3]***
								[==>673.0 Secs (Split 2)]	
								[==>585.0 Secs (Split 3)]	***[4]***
								[==>585.0 Secs (Split 4)]	
8	2268 (716475)	(2) AV304	COS/NUV, TIME-TAG, PSA	G225M 2268 A	BUFFER-TIME=1338; FP-POS=ALL			558 Secs (2282 Secs)	
								[==>571.0 Secs (Split 1)]	***[4]***
								[==>571.0 Secs (Split 2)]	
								[==>571.0 Secs (Split 3)]	
								[==>569.0 Secs (Split 4)]	***[5]***
9	2306 (716476)	(2) AV304	COS/NUV, TIME-TAG, PSA	G225M 2306 A	BUFFER-TIME=1328; FP-POS=ALL			568 Secs (2316 Secs)	
								[==>579.0 Secs (Split 1)]	***[5]***
								[==>579.0 Secs (Split 2)]	
								[==>579.0 Secs (Split 3)]	
								[==>579.0 Secs (Split 4)]	

Orbit Structure

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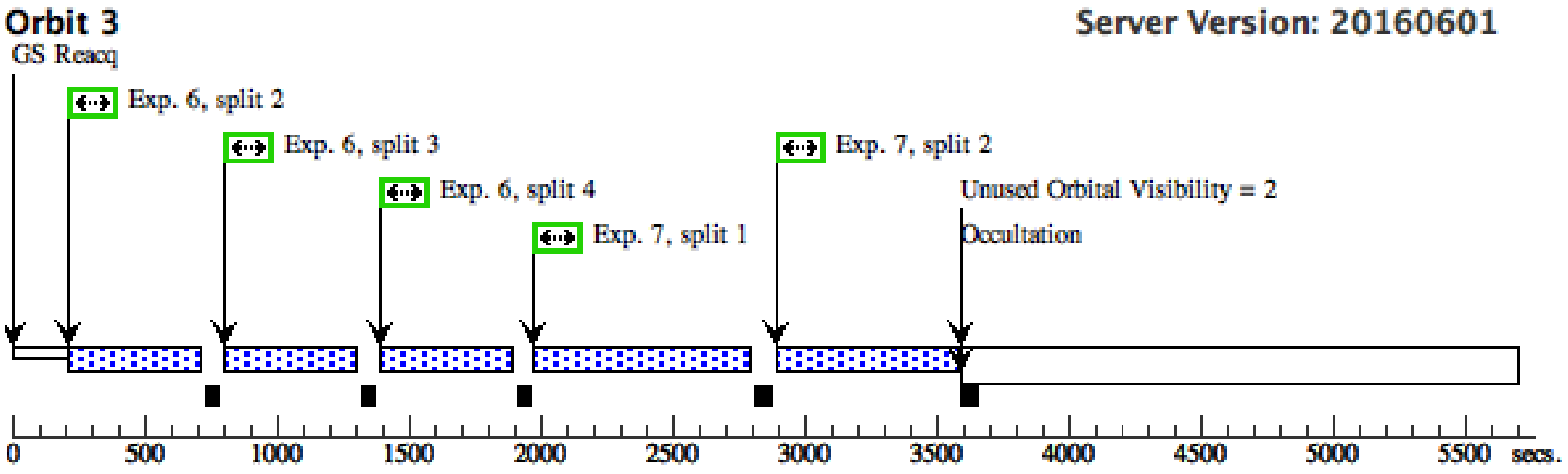
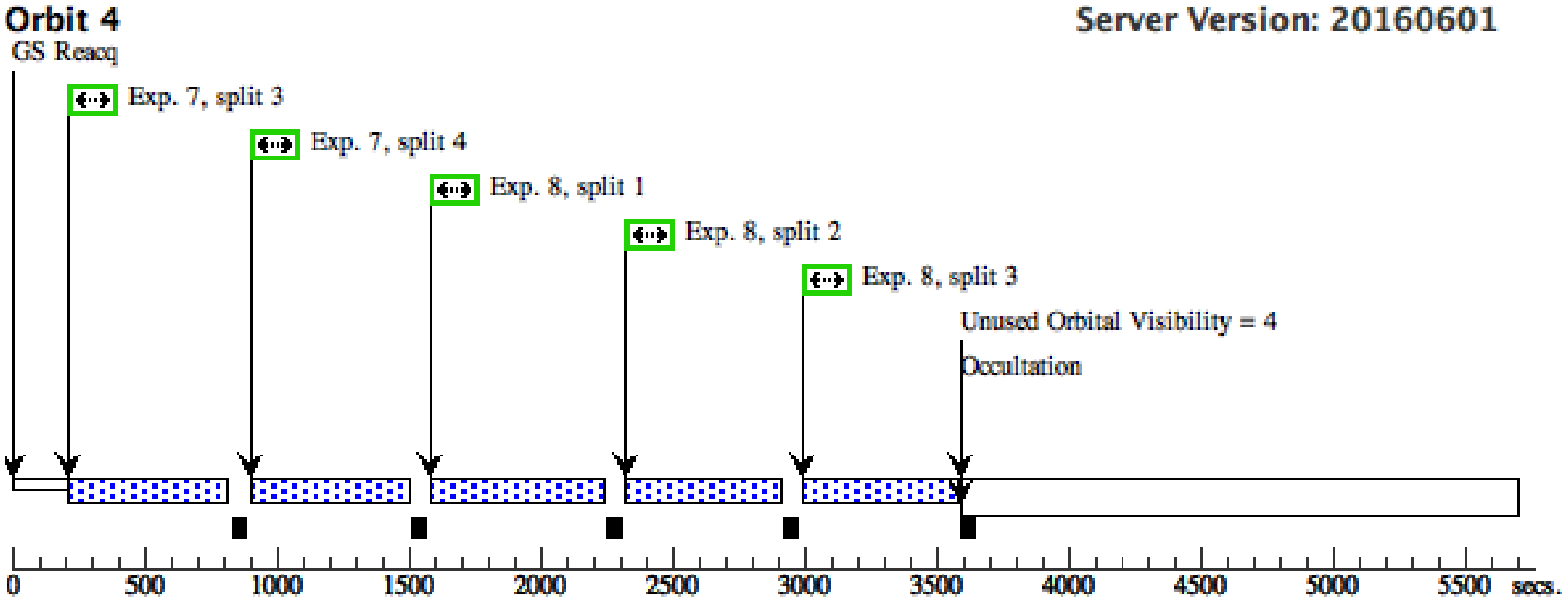
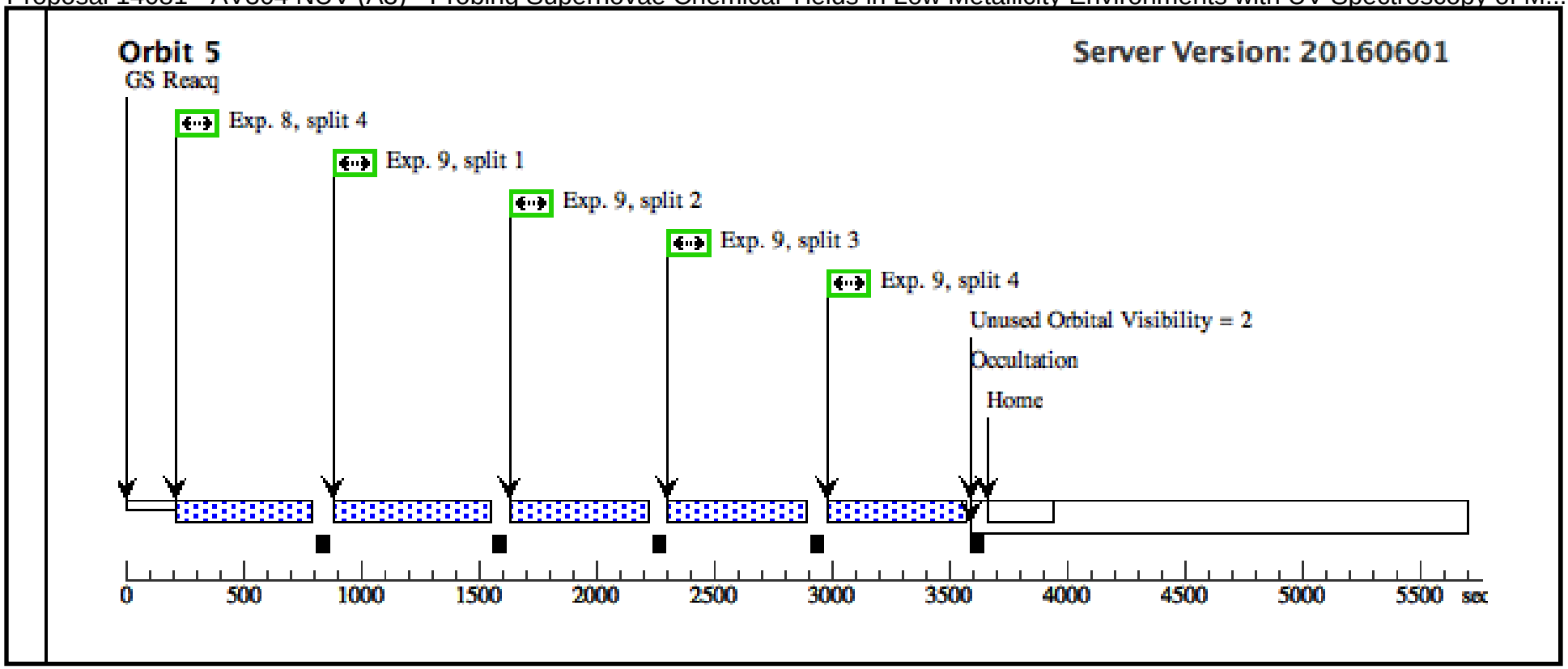
GS Reacq
Exp. 4, split 3
Exp. 4, split 4
Exp. 5, split 1
Exp. 5, split 2
Exp. 5, split 3
Exp. 5, split 4
Exp. 6, split 1
Unused Orbital Visibility = 1
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20160601
GS Reacq
Exp. 6, split 2
Exp. 6, split 3
Exp. 6, split 4
Exp. 7, split 1
Exp. 7, split 2
Unused Orbital Visibility = 2
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 4
Server Version: 20160601
GS Reacq
Exp. 7, split 3
Exp. 7, split 4
Exp. 8, split 1
Exp. 8, split 2
Exp. 8, split 3
Unused Orbital Visibility = 4
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 5
Server Version: 20160601
GS Reacq
Exp. 8, split 4
Exp. 9, split 1
Exp. 9, split 2
Exp. 9, split 3
Exp. 9, split 4
Unused Orbital Visibility = 2
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, N1818-D1 FUV (D1), implementation Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: CVZ

Fixed Targets

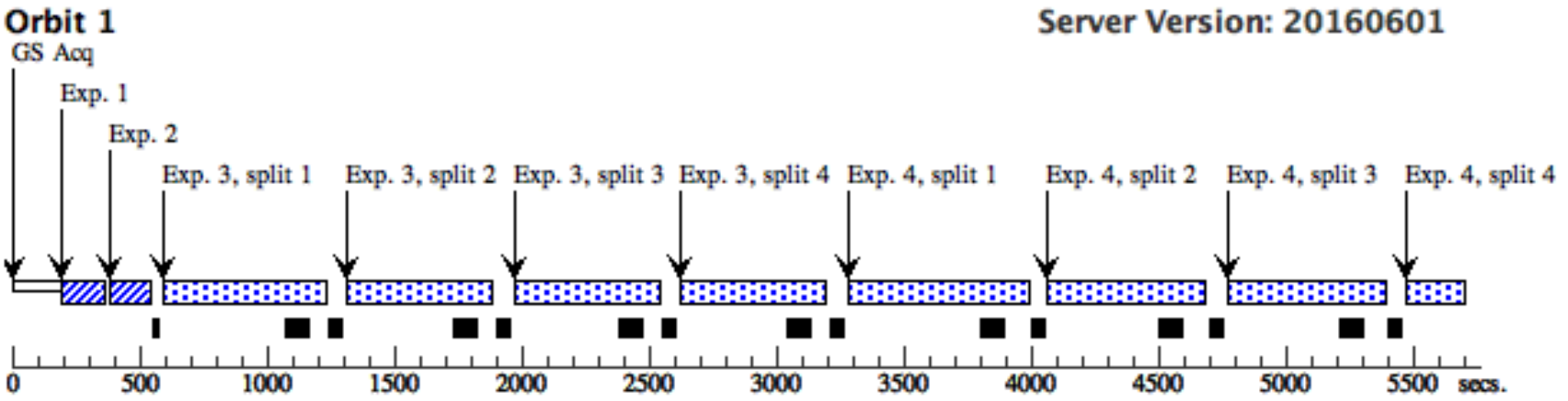
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC1818-D1	RA: 05 04 32.3130 (76.1346375d) Dec: -66 24 47.47 (-66.41319d) Equinox: J2000		V=15.0+/-0.1 1.7E-13 erg/cm2/s/A (FUSE 1185A)	Reference Frame: ICRS

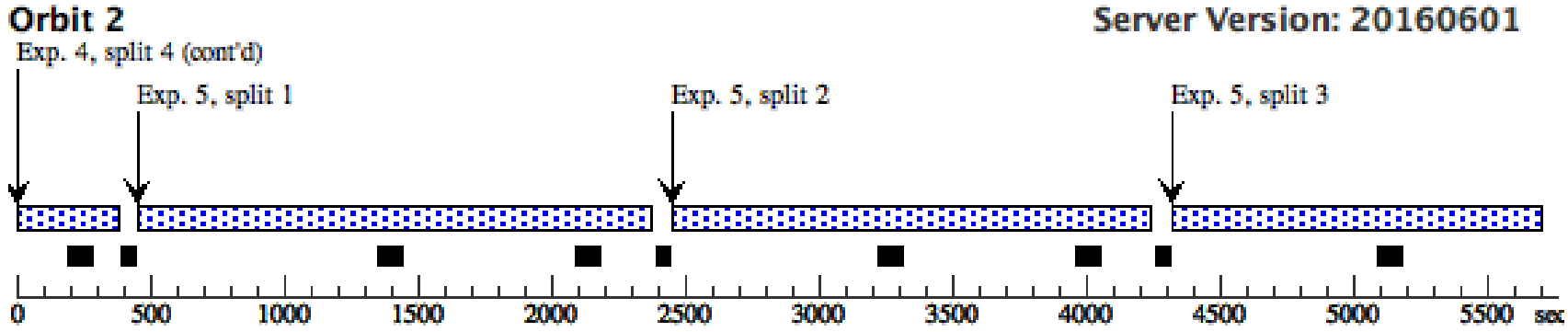
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

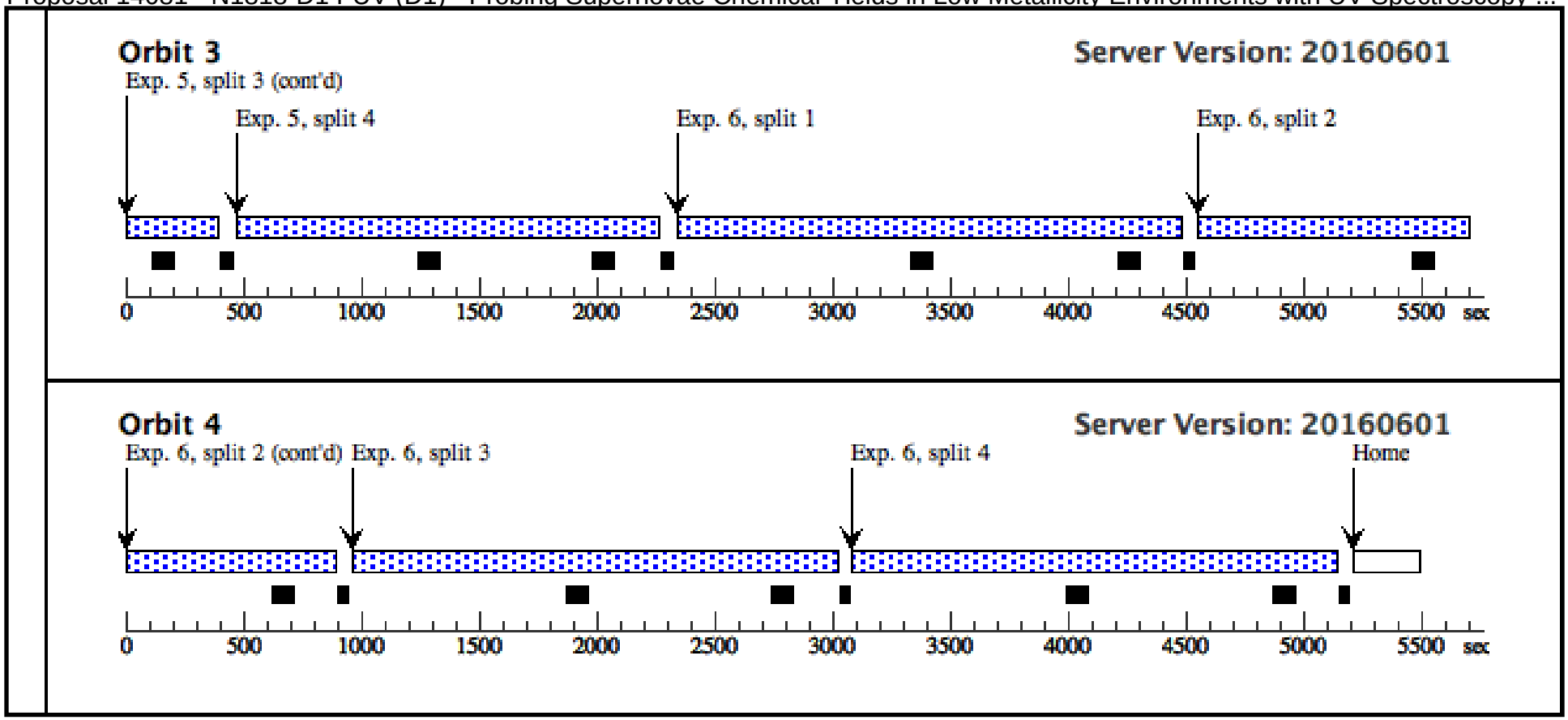
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727665)	(3) NGC1818-D1	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A		GS ACQ SCENARIO BASE1B3		2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (727665)	(3) NGC1818-D1	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	CENTER=FLUX-WT-FLR; NUM-POS=5; STEP-SIZE=0.9			2 Secs (2 Secs) *[==>]*	 ***[1]***
3	1291 (716638)	(3) NGC1818-D1	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=381			521 Secs (2084 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***
4	1327 (716643)	(3) NGC1818-D1	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=ALL; BUFFER-TIME=406			570 Secs (2280 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***
5	1577 (716648)	(3) NGC1818-D1	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; BUFFER-TIME=733			1735 Secs (6940 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[2]*** ***[3]***
6	1623 (716652)	(3) NGC1818-D1	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=874			2003 Secs (8012 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]*** ***[4]***

Orbit Structure






Orbit 3
Server Version: 20160601
Exp. 5, split 3 (cont'd)
Exp. 5, split 4
Exp. 6, split 1
Exp. 6, split 2
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec
Orbit 4
Server Version: 20160601
Exp. 6, split 2 (cont'd)
Exp. 6, split 3
Exp. 6, split 4
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, N1818-D1 NUV1 CVZ (D2), completed Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: CVZ

Fixed Targets

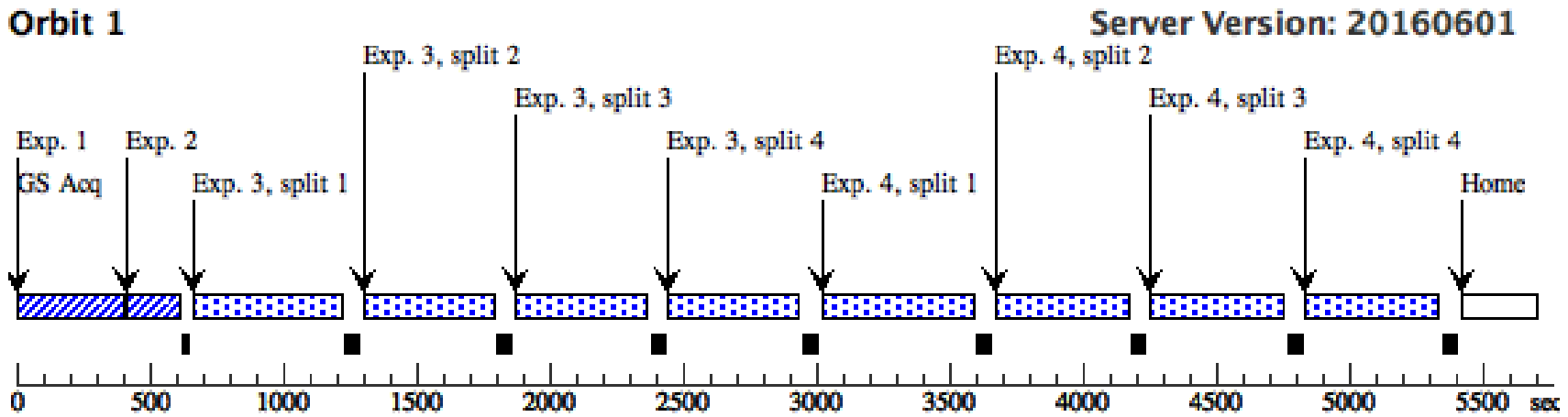
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC1818-D1	RA: 05 04 32.3130 (76.1346375d) Dec: -66 24 47.47 (-66.41319d) Equinox: J2000		V=15.0+/-0.1 1.7E-13 erg/cm2/s/A (FUSE 118 5A)	Reference Frame: ICRS

Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727681)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				29 Secs (29 Secs) *[==>]*	*[1]*
2	PEAKD (727680)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	NUM-POS=5; STEP-SIZE=0.9; CENTER=FLUX-WT-FLR			10 Secs (10 Secs) *[==>]*	*[1]*
3	1913 (716656)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G185M 1913 A	FP-POS=ALL; BUFFER-TIME=1275			475 Secs (1900 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*
4	1941 (716340)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G185M 1941 A	BUFFER-TIME=1290; FP-POS=ALL			485 Secs (1940 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*

Orbit Structure



Visit

Proposal 14081, N1818-D1 NUV2 CVZ (D3), completed Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: CVZ

Fixed Targets

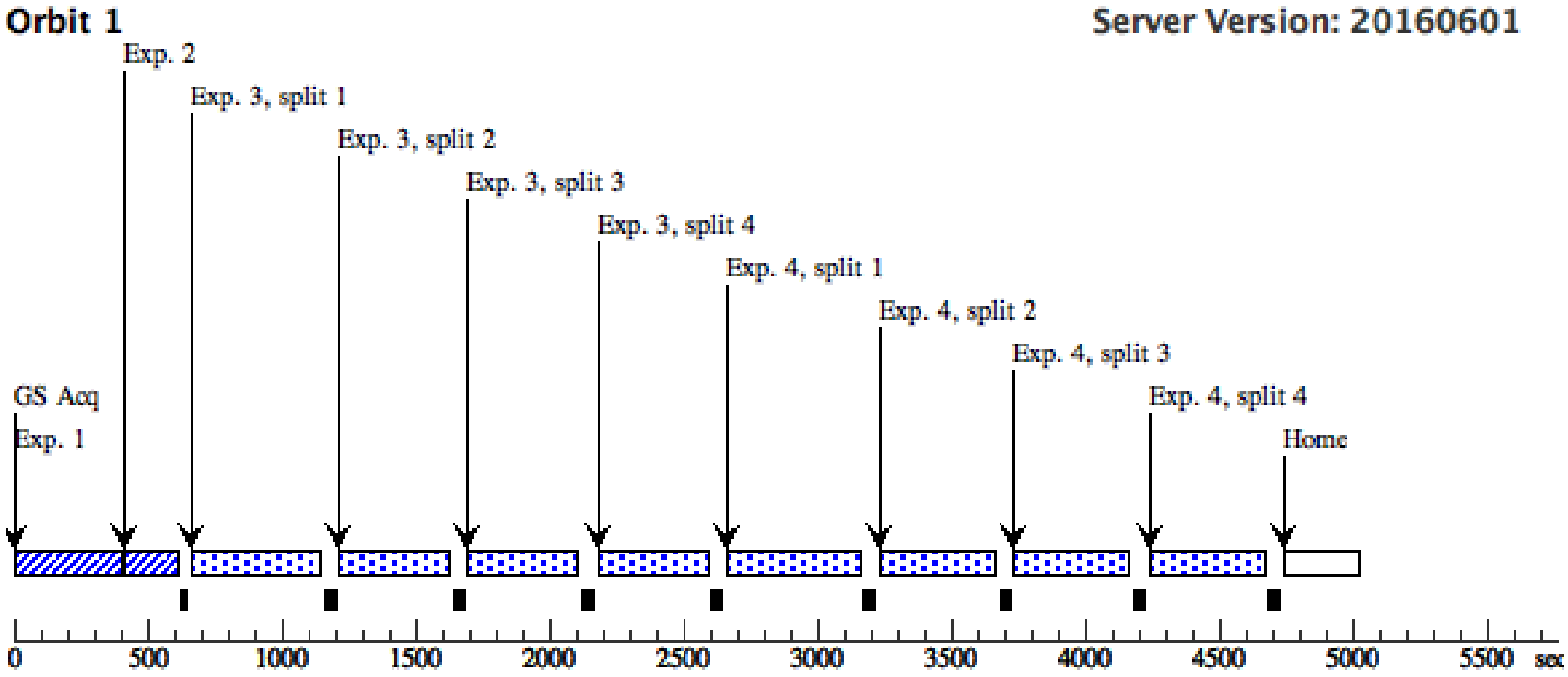
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC1818-D1	RA: 05 04 32.3130 (76.1346375d) Dec: -66 24 47.47 (-66.41319d) Equinox: J2000		V=15.0+/-0.1 1.7E-13 erg/cm2/s/A (FUSE 118 5A)	Reference Frame: ICRS

Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727681)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				29 Secs (29 Secs) *[==>]*	***[1]***
2	PEAKD (727680)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	NUM-POS=5; STEP-SIZE=0.9; CENTER=FLUX-WT-FLR			10 Secs (10 Secs) *[==>]*	***[1]***
3	1971 (716663)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=1299; FP-POS=ALL			394 Secs (1576 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
4	2010 (716667)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=1307; FP-POS=ALL			416 Secs (1664 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***

Orbit Structure



Visit

Proposal 14081, N1818-D1 NUV3 (D4), completed Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Fixed Targets

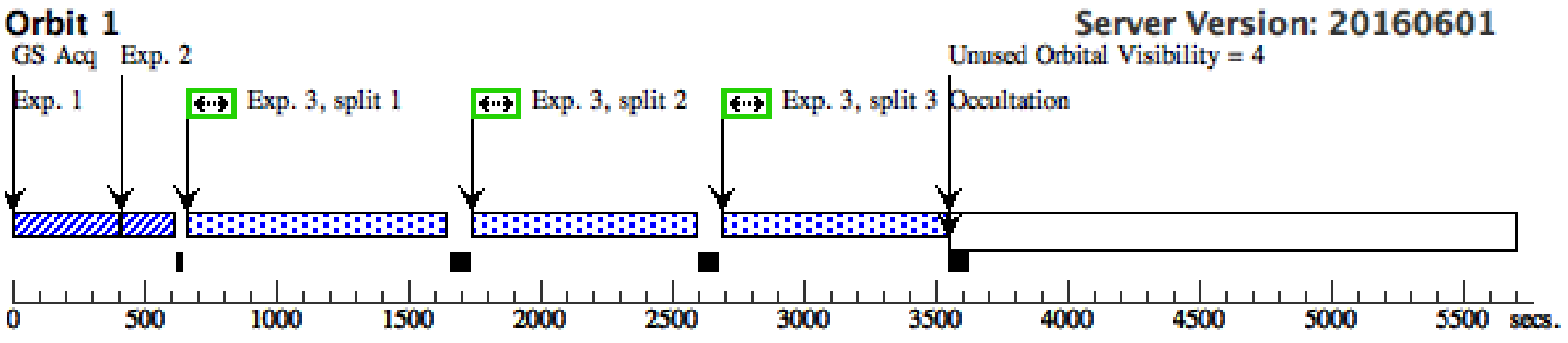
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC1818-D1	RA: 05 04 32.3130 (76.1346375d) Dec: -66 24 47.47 (-66.41319d) Equinox: J2000		V=15.0+/-0.1 1.7E-13 erg/cm2/s/A (FUSE 1185A)	Reference Frame: ICRS

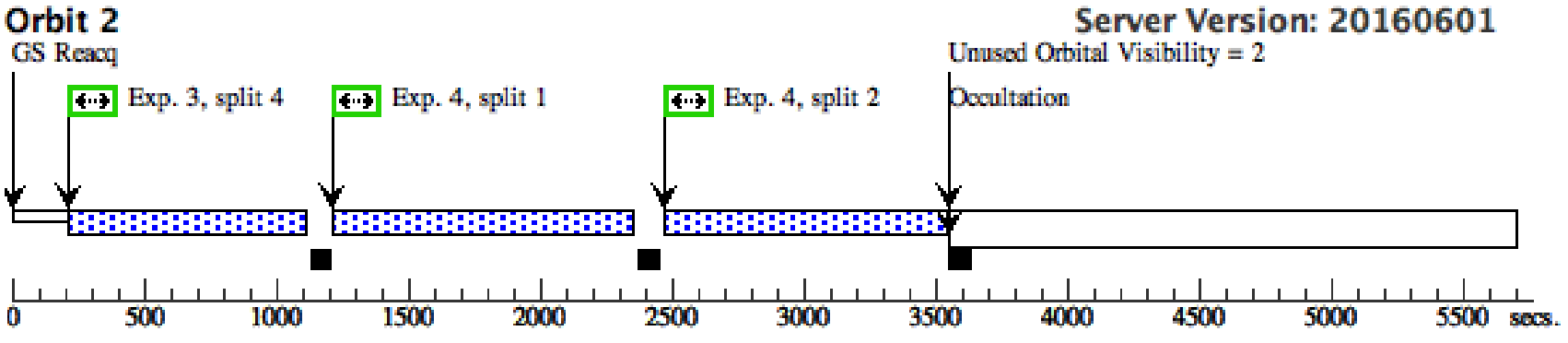
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

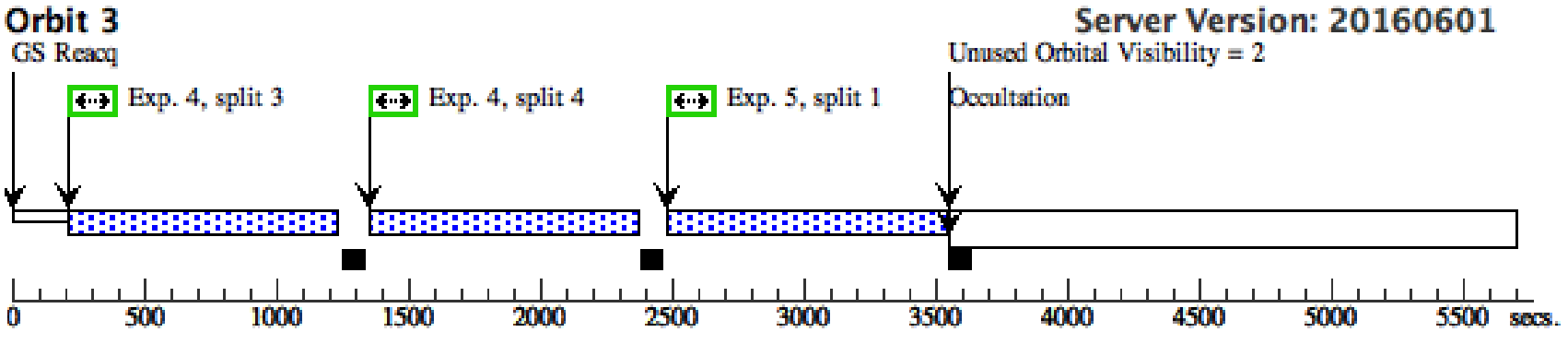
Exposures

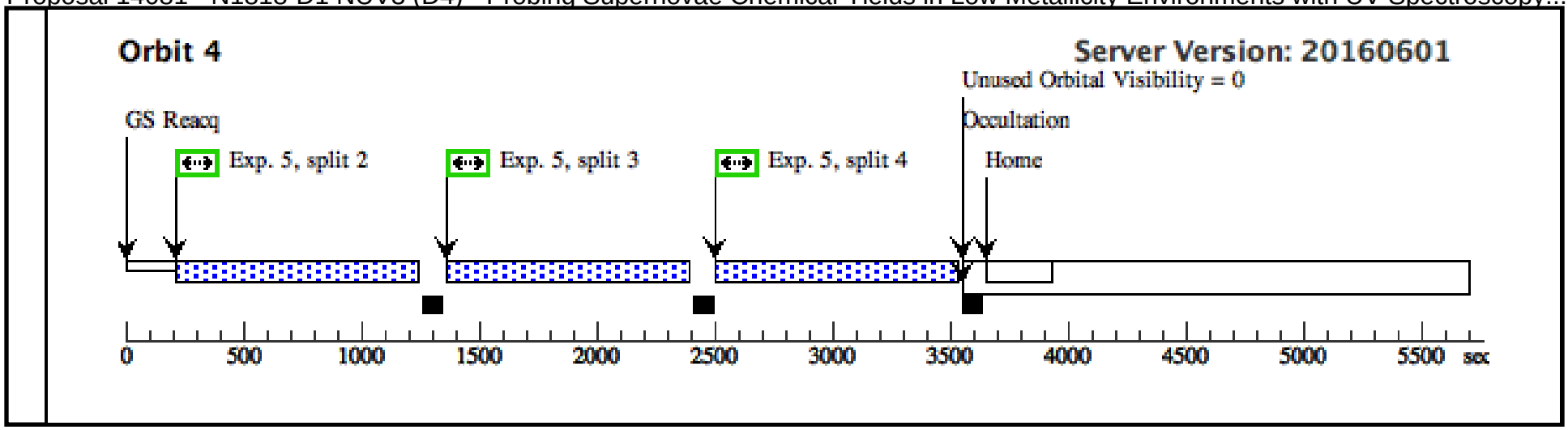
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727681)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				29 Secs (29 Secs) *[==>]*	 ***[1]***
2	PEAKD (727680)	(3) NGC1818-D1	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	NUM-POS=5; STEP-SIZE=0.9; CENTER=FLUX-WT-FLR			10 Secs (10 Secs) *[==>]*	 ***[1]***
3	2233 (716670)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G225M 2233 A	FP-POS=ALL; BUFFER-TIME=1434			830 Secs (3374 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>884.0 Secs (Split 4)]*	 ***[1]*** ***[2]***
4	2268 (716673)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G225M 2268 A	FP-POS=ALL; BUFFER-TIME=1422			1000 Secs (4120 Secs) *[==>1054.0 Secs (Split 1)]* *[==>1054.0 Secs (Split 2)]* *[==>1006.0 Secs (Split 3)]* *[==>1006.0 Secs (Split 4)]*	 ***[2]*** ***[3]***
5	2306 (716676)	(3) NGC1818-D1	COS/NUV, TIME-TAG, PSA	G225M 2306 A	FP-POS=ALL; BUFFER-TIME=1405			965 Secs (4028 Secs) *[==>971.0 Secs (Split 1)]* *[==>1019.0 Secs (Split 2)]* *[==>1019.0 Secs (Split 3)]* *[==>1019.0 Secs (Split 4)]*	 ***[3]*** ***[4]***

Orbit Structure








Orbit 4
Server Version: 20160601
Unused Orbital Visibility = 0
GS Reacq
Exp. 5, split 2
Exp. 5, split 3
Exp. 5, split 4
Occultation
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, NGC2004-B15 FUV CVZ (B1), implementation Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV

Special Requirements: CVZ

Fixed Targets

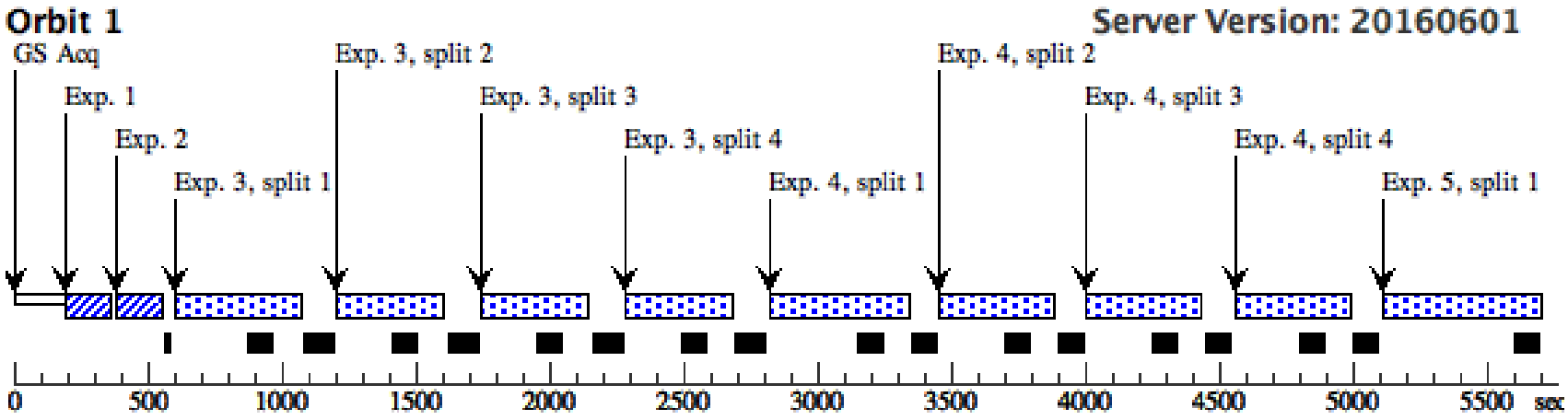
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	NGC2004-B15 Alt Name1: CLSTAR-NGC2004-ROB-B14 Alt Name2: W61-18-3	RA: 05 30 36.3640 (82.6515167d) Dec: -67 17 42.87 (-67.29524d) Equinox: J2000		V=14.18+/-0.1 2.5E-13 erg/cm2/s/A (FUSE 11 85A)	Reference Frame: ICRS

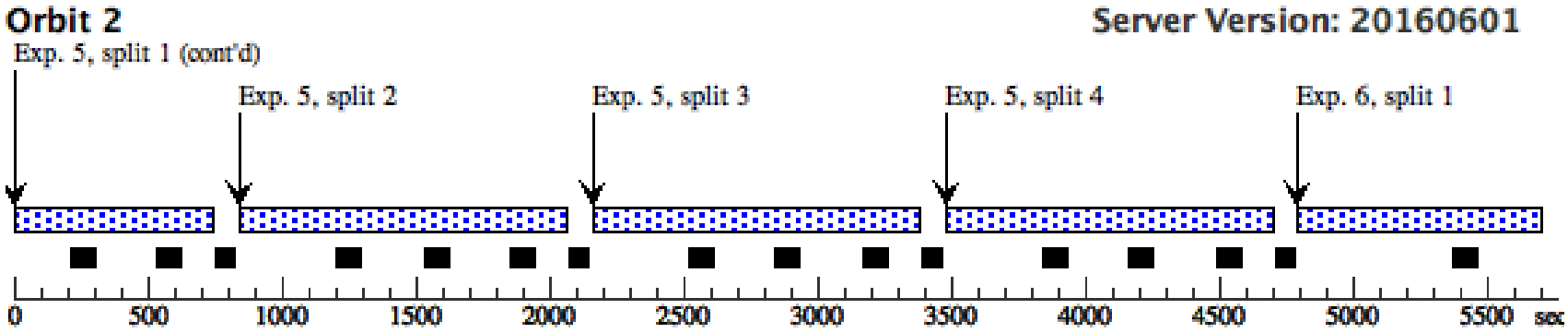
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

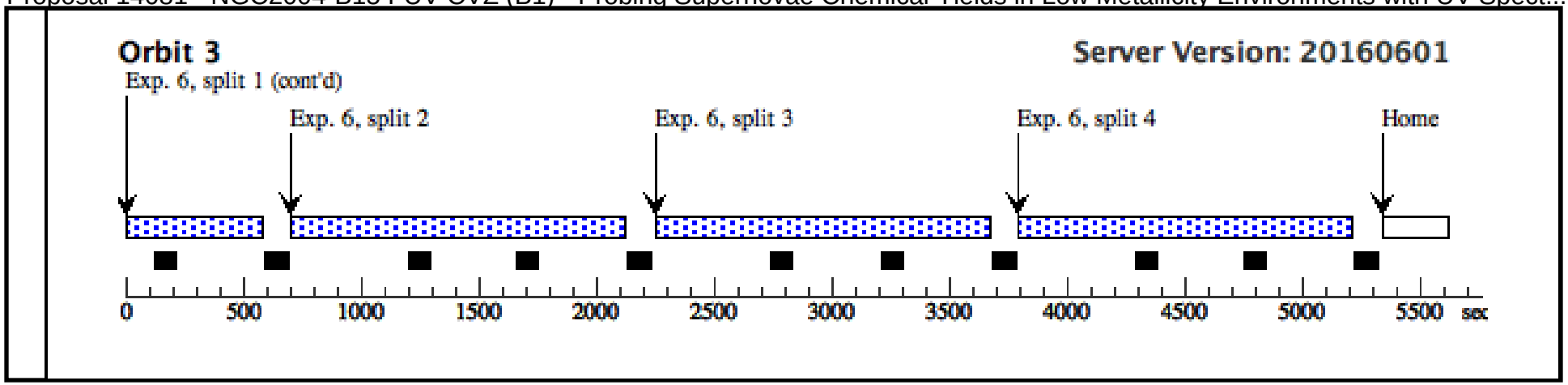
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (716387)	(4) NGC2004-B15	COS/FUV, ACQ/PEAKXD, PSA	G130M 1291 A				2 Secs (2 Secs) *[==>]*	***[1]***
Comments: Field too crowded for BOA imaging acquisition, so use dispersed light									
2	PEAKD (727683)	(4) NGC2004-B15	COS/FUV, ACQ/PEAKD, PSA	G130M 1291 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			4 Secs (4 Secs) *[==>]*	***[1]***
3	1291 (716639)	(4) NGC2004-B15	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=173			347 Secs (1388 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
4	1327 (716644)	(4) NGC2004-B15	COS/FUV, TIME-TAG, PSA	G130M 1327 A	FP-POS=ALL; BUFFER-TIME=211			380 Secs (1520 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
5	1577 (716649)	(4) NGC2004-B15	COS/FUV, TIME-TAG, PSA	G160M 1577 A	FP-POS=ALL; BUFFER-TIME=325			1166 Secs (4664 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]*** ***[2]***
6	1623 (716653)	(4) NGC2004-B15	COS/FUV, TIME-TAG, PSA	G160M 1623 A	FP-POS=ALL; BUFFER-TIME=460			1364 Secs (5456 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]*** ***[3]***

Orbit Structure






Orbit 3
Server Version: 20160601
Exp. 6, split 1 (cont'd)
Exp. 6, split 2
Exp. 6, split 3
Exp. 6, split 4
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14081, NGC2004-B15 NUV CVZ (B2), implementation Fri Jul 29 17:00:30 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: CVZ

Fixed Targets

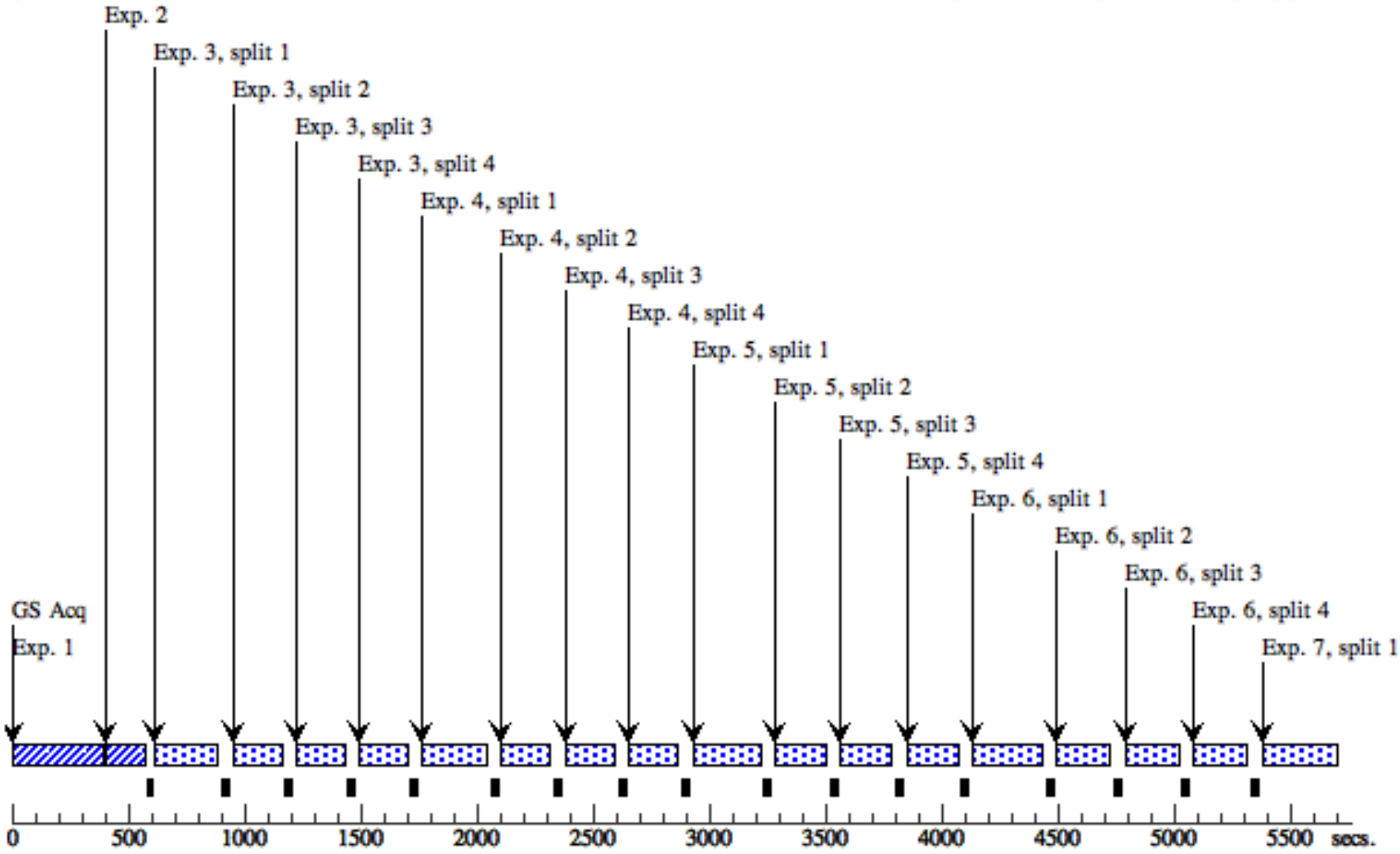
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	NGC2004-B15 Alt Name1: CLSTAR-NGC2004-ROB-B14 Alt Name2: W61-18-3	RA: 05 30 36.3640 (82.6515167d) Dec: -67 17 42.87 (-67.29524d) Equinox: J2000		V=14.18+/-0.1 2.5E-13 erg/cm2/s/A (FUSE 1185A)	Reference Frame: ICRS

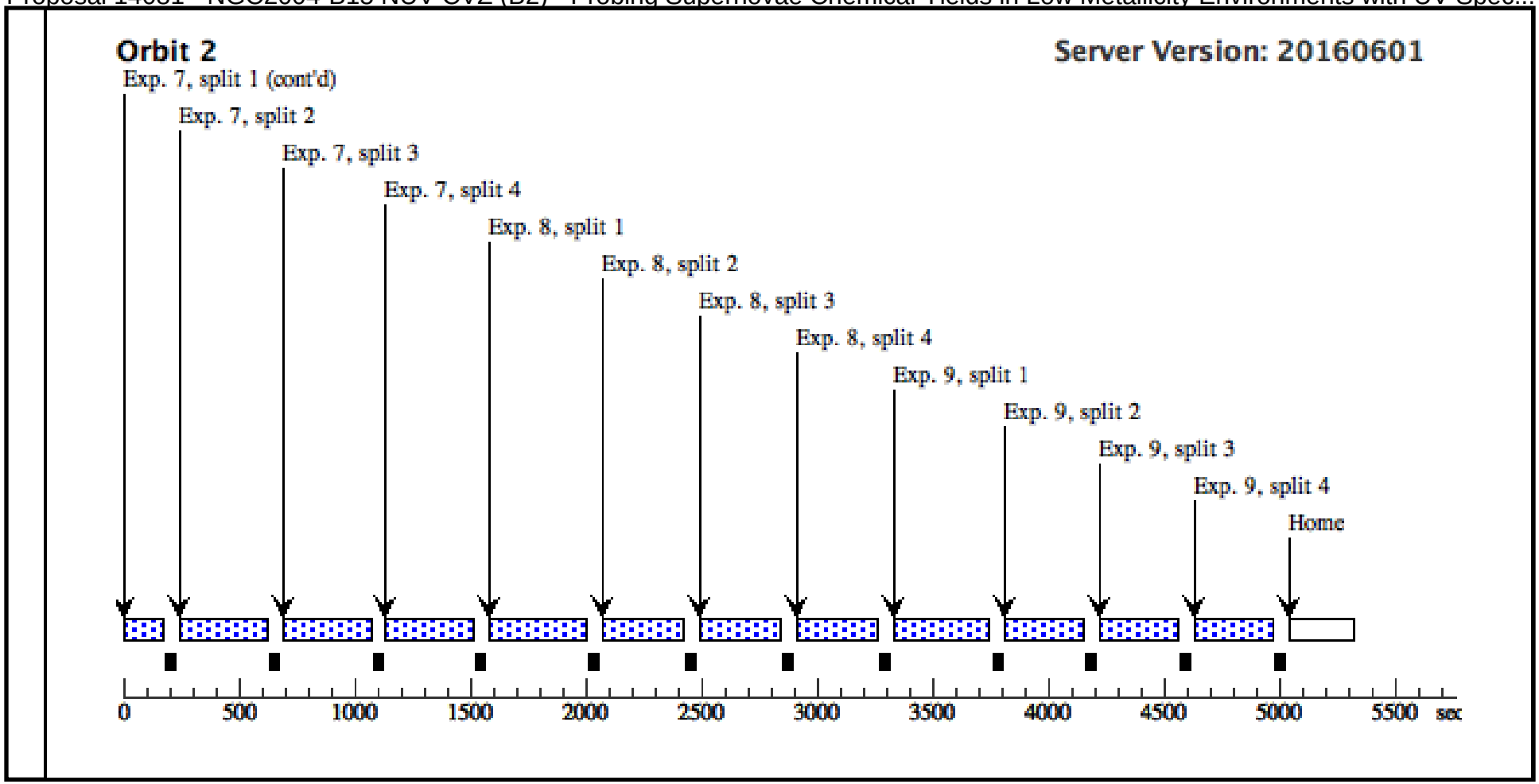
Comments: Coordinates from 2MASS 6X Point Source Working Database / Catalog (Cutri+ 2006) II/281/2mass6x Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (727684)	(4) NGC2004-B15	COS/NUV, ACQ/PEAKXD, PSA	G185M 1913 A				12 Secs (12 Secs)	
								[==>]	***[1]***
Comments: Field too crowded for BOA imaging acquisition, so use dispersed light									
2	PEAKD (727683)	(4) NGC2004-B15	COS/NUV, ACQ/PEAKD, PSA	G185M 1913 A	NUM-POS=5; STEP-SIZE=0.9; CENTER=FLUX-WT-FLR			4 Secs (4 Secs)	
								[==>]	***[1]***
3	1913 (716657)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G185M 1913 A	BUFFER-TIME=1051; FP-POS=ALL			191 Secs (764 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
4	1941 (716661)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G185M 1941 A	BUFFER-TIME=1067; FP-POS=ALL			197 Secs (788 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
5	1971 (716664)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=1083; FP-POS=ALL			204 Secs (816 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
6	2010 (716667)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G185M 2010 A	BUFFER-TIME=1111; FP-POS=ALL			216 Secs (864 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]***
7	2233 (716670)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G225M 2233 A	BUFFER-TIME=1328; FP-POS=ALL			360 Secs (1440 Secs)	
								[==>(Split 1)]	***[1]***
								[==>(Split 2)] *[==>(Split 3)]* *[==>(Split 4)]*	***[2]***
8	2268 (716674)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G225M 2268 A	BUFFER-TIME=1261; FP-POS=ALL			333 Secs (1332 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]***
9	2306 (716677)	(4) NGC2004-B15	COS/NUV, TIME-TAG, PSA	G225M 2306 A	BUFFER-TIME=1261; FP-POS=ALL			322 Secs (1288 Secs)	
								[==>(Split 1)] *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]***

Orbit Structure




Orbit 2
Server Version: 20160601
Exp. 7, split 1 (cont'd)
Exp. 7, split 2
Exp. 7, split 3
Exp. 7, split 4
Exp. 8, split 1
Exp. 8, split 2
Exp. 8, split 3
Exp. 8, split 4
Exp. 9, split 1
Exp. 9, split 2
Exp. 9, split 3
Exp. 9, split 4
Home
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1500
2000
2500
3000
3500
4000
4500
5000
5500
sec