13618 - Optimization of COS/FUV spectrum placement at lifetime position 3 (LOP2)

Cycle: 21, Proposal Category: CAL/COS

(Availability Mode: RESTRICTED)

INVESTIGATORS

Name	*Institution*	*E-Mail*
Dr. John Henry Debes (PI) (Contact)	**Space Telescope Science Institute**	**debes@stsci.edu**
Justin Ely (CoI)	Space Telescope Science Institute	ely@stsci.edu
Dr. Derck L. Massa (CoI)	Space Science Institute	dmassa@spacescience.org
Dr. Cristina Oliveira (CoI)	Space Telescope Science Institute	oliveira@stsci.edu
Dr. Charles R. Proffitt (CoI)	Computer Sciences Corporation	proffitt@stsci.edu
Dr. Julia Christine Roman-Duval (CoI) (ESA Member)	Space Telescope Science Institute - ESA	duval@stsci.edu
Dr. David J. Sahnow (CoI)	Space Telescope Science Institute	sahnow@stsci.edu

VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(2) WD0308-565 DARK NONE	COS COS/FUV COS/NUV S/C	3	15-Jan-2014 21:28:23.0	yes
02	(2) WD0308-565 DARK NONE	COS COS/FUV COS/NUV S/C	5	15-Jan-2014 21:29:06.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
03	(2) WD0308-565 NONE	COS COS/FUV COS/NUV	4	15-Jan-2014 21:29:54.0	yes

12 Total Orbits Used

ABSTRACT

Predictions for the gain sag at the second lifetime position of COS require a move to the third lifetime position within a year. Recently, new extraction strategies are being tested to decrease the required space between lifetime positions, which require high S/N knowledge of the cross-dispersion profile for various FUV modes. This program will obtain such profiles at two distinct detector locations that initial work suggests are far enough away to be successfully extracted with our new techniques. It will also test our understanding of the plate scale over this part of the detector, while verifying that for even the broadest and highest FUV profiles we can still successfully extract spectra. The data obtained from these observations will determine the final location of LP3.

OBSERVING DESCRIPTION

Testing two positions at -2.33" and -2.06" (cross-dispersion) and +0" (dispersion) to determine optimal placement of the spectrum. Under the assumption of typical pointing uncertainties of 0.3", we seek to determine the closest point the G130M/1291, G130M/1222, and G140L/1280 cenwaves successfully can be extracted against the expected gain sagged regions. Thus, success at -2.06" translates to a recommended LP3 position of -2.4", while success only at -2.33" corresponds to a recommended LP3 position of -2.6". We enact two orbits in this visit at HV (FUVA/B)=167,163 to determine which position works better for G130M/1291. A second visit will use G140L/1280 and G130M/1222 at HV (FUVA/B)=171,167 to ensure good profiles given the broader reach of both of these modes into gain sagged regions. This data will also provide updated cross-dispersion profiles and aperture traces, and test current extraction strategies.

For these visits we assume a plate scale of 1"/21 motor steps in the XAPER (cross-dispersion) direction and 1"/19 motor steps in the YAPER (dispersion) direction, following Table 1 of TIR 2013-03, and we set the home position to LP1 so XAPER and YAPER are relative to that position. For POS-TARG offsets of the target, we assume a plate scale of 0.083"/pixel. Extraction tests with LP2 data and extrapolated gain maps suggest that extraction can successfully occur as close as 67 pixels on the detector away from LP2 (corresponding to a position of -2.06" from LP1). Our chosen detector positions are ~67 and ~70 pixels below LP2, accounting for quanitzation of APM motor steps we will be taking spectra at -2.06" and -2.33" respectively.

Our target is a total S/N of ~60 across all FP-POS at 1210 Angstroms for G130M/1291, at 1130 Angstroms for G130M/1222, and 1343 Angstroms for G140L/1280 to ensure adequate tests of spectral extraction techniques near sagged regions of both FUVB (1222, 1291) and FUVA (1280).

The rough location of the worst Lyman-alpha sagged regions are at >~7000 pixels on FUVB, whereas sagged continuum at LP1 is the main cause of concern on FUVA.

ADDITIONAL COMMENTS

Since non-default FUV HV settings are being specified, the FUV cannot be allowed to transition out of HVNOM until the exposures requiring that setting have completed. For these multi-orbit visits this requirement is enforced via the noted special guide star acquisition scenario.

Visit

Proposal 13618, G130M/1291 (01), scheduling Thu Jan 16 02:30:11 GMT 2014

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, S/C, COS/FUV, COS

Special Requirements: SCHED 100%

Comments: Use Nominal HV levels for this mode and take external exposures of WD 0308-565 at aperture positions -2.33" and -2.06" away from LP1. Ensure that POS TARG of target exposures matches the aperture location commanded by ALIGN/APER exposures.

First exposure is an ACQ/IMAGE, which should provide very good acquisition and positioning of the spectrum. This is followed by a short science exposure to define the reference point for subsequent ALIGN/APER exposures. The first ALIGN/APER moves the AM by -2.33", assuming 21 motor steps/". We also assume a plate scale of 0.08303"/pixel for POS-TARGs, based on analysis of program 12678.

Buffer times are equivalent to the ETC returned values multiplied by 0.9 as a safety margin. Based on the FUV monitoring programs, we do not use the 2/3 safety margin based on the fact that the target has been observed before and its SED is well characterized.

Disallow FUV transitions out of HVNOM until the end of the visit.

Diagnostics

(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(G130M/1291 (01)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WD0308-565 Alt Name1: GSC08495-00951 Alt Name2: 3UC068-006526	RA: 03 09 47.9200 (47.4496667d) Dec: -56 23 49.41 (-56.39706d) Equinox: J2000	Proper Motion RA: 150.6 mas/yr Proper Motion Dec: 64.3 mas/yr Epoch of Position: 2000 Radial Velocity: -68 km/sec	V=14.07+/-0.02	Reference Frame: ICRS

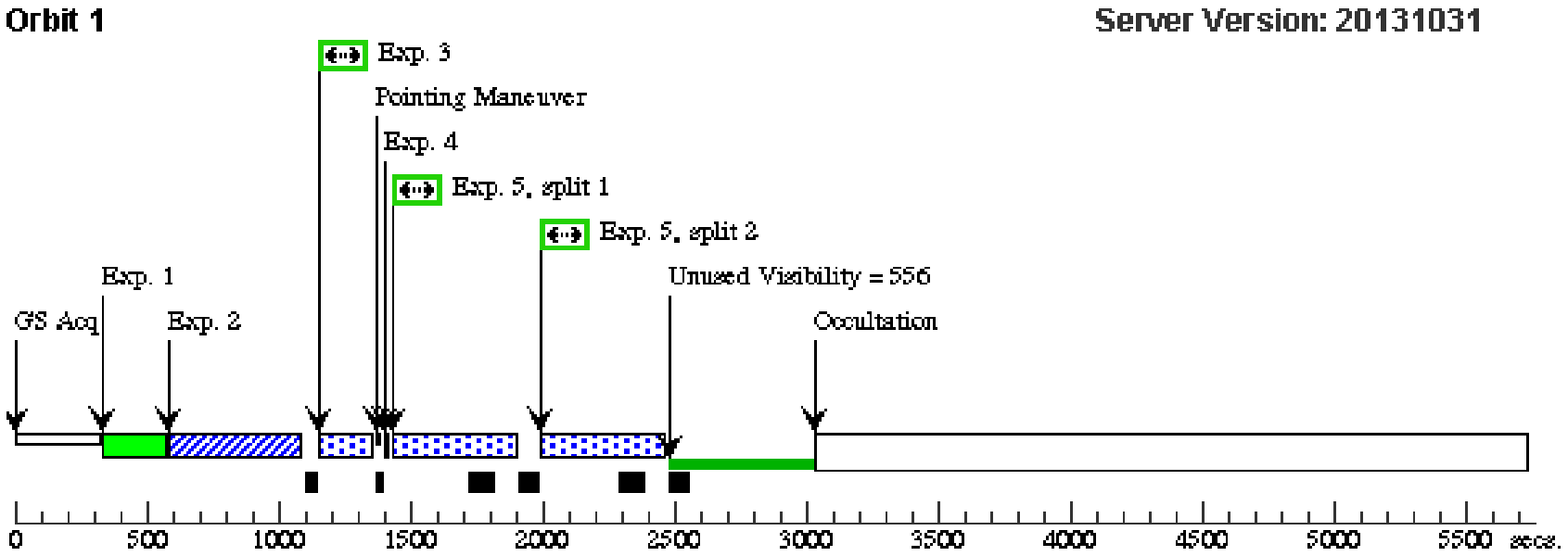
Comments: Position and proper motions from the Third U.S. Naval Observatory CCD Astrograph Catalog (UCAC3) Zacharias et al. 2009

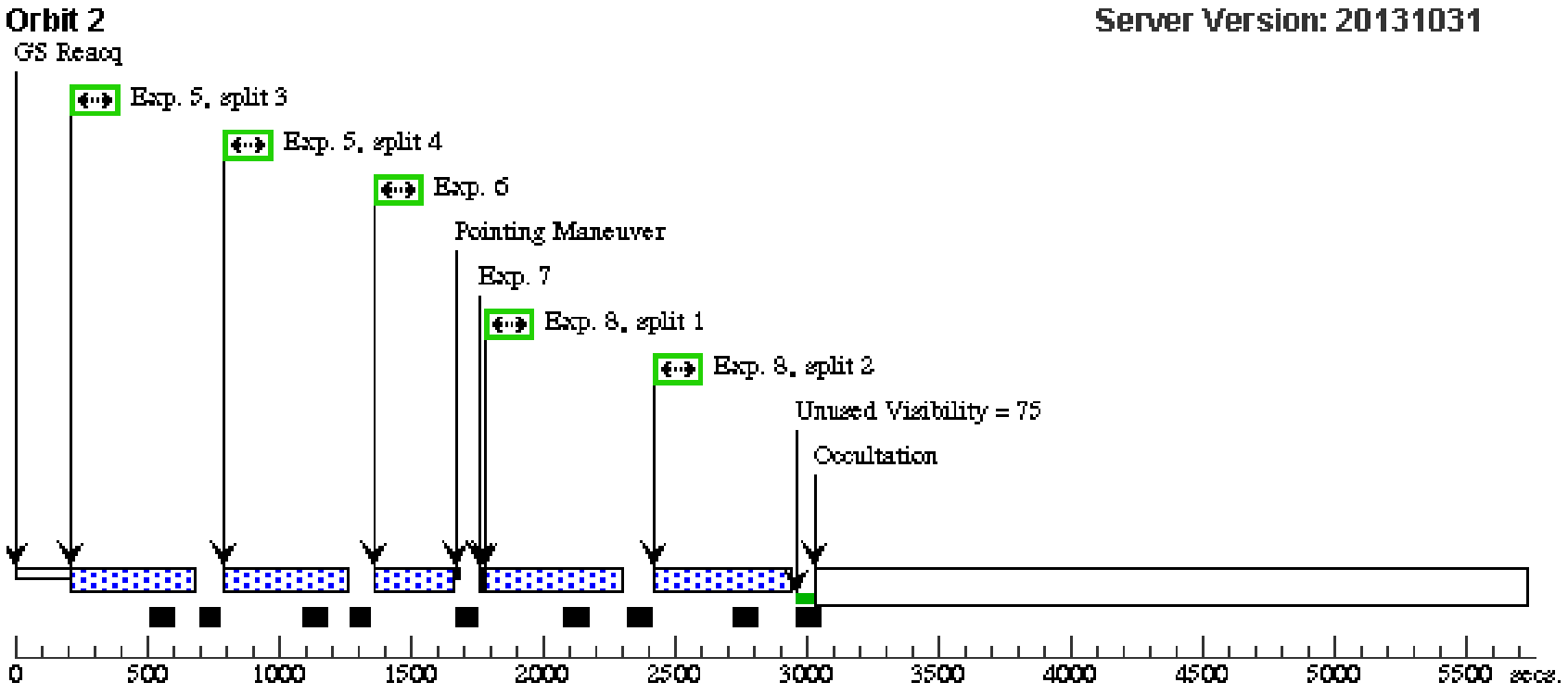
Exposures

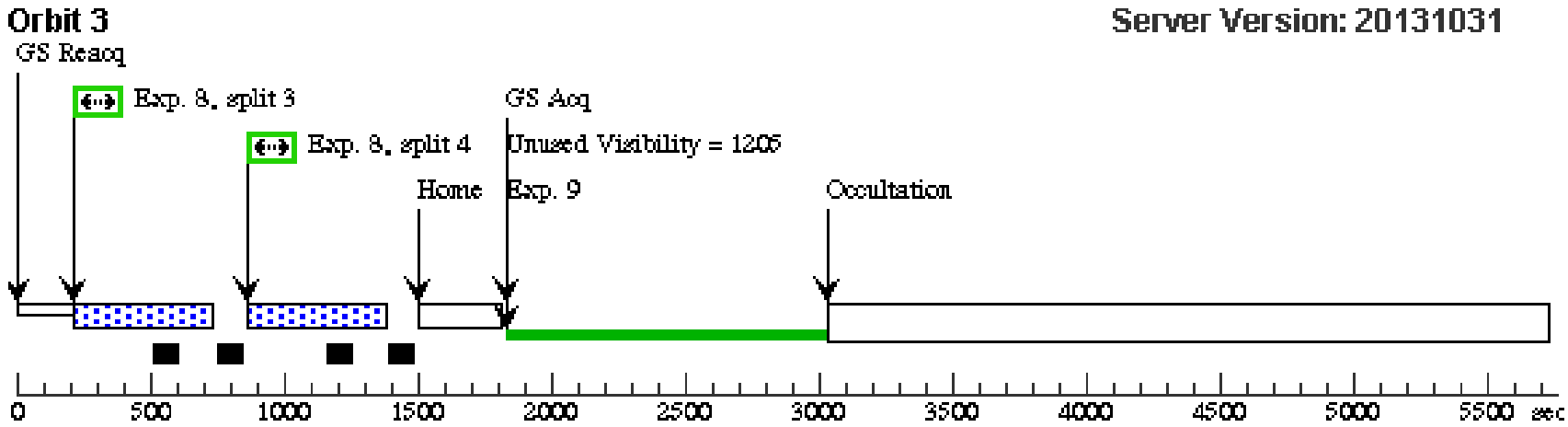
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HVA 167; HVB 163	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; QASISTATES COS FUV HVLOW HVNOM; QESIPARM ENDCTSB 163; QESIPARM ENDCTSA 167		256 Secs (256 Secs) *[==>]*	***[1]***
	Comments: SQL required for qexposure to specify the si_used = "COS" *The overhead on this exposure can actually be hidden under the guide star exposure and the previous occultation, but this is not reflected by APT and so the visits do not appear to fit within the allocated orbits.* *Overhead on the ramp-up is calculated per Alan Welty's stated formula for the timing:* *exptime=55+SECPERCT x (MAX(ENDCTSA,ENDCTSB)-100)* *SECPERCT=3 s* *MAX(ENDCTSA,ENDCTSB)= 167* *exptime=256*								
2	ACQ/IM (396029)	(2) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARIO BASE1BN3		45 Secs (45 Secs) *[==>]*	***[1]***
3	G130M/1291 Setup (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=264; LIFETIME-POS=ORIGINAL			12 Secs (12 Secs) *[==>]*	***[1]***
4	move -2.33 arcsec (XD) +0 arcsec(D) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=49; YAPER=0			0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Assume 21 motor steps/" for XAPER (X-Dispersion) *Assume 19 motor steps/" for YAPER (Dispersion)*								
5	G130M/1291 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=264; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33		418 Secs (1672 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]*** ***[2]***
6	G130M/1291 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=1; BUFFER-TIME=263; LIFETIME-POS=ORIGINAL	SAME POS AS 5		176 Secs (176 Secs) *[==>]*	***[2]***

	7	move aperture to -2.06 arcsec (XD) + 0 arcsec (D) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=43; YAPER=0		0.0 Secs (0 Secs) *[==>]*	 ***[2]***
		Comments: Assume 21 motor steps/" for XAPER (X-Dispersion) *Assume 19 motor steps/" for YAPER (Dispersion)*							
	8	G130M/1291 (COS.sp.54343 4)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=ALL; BUFFER-TIME=2663; LIFETIME-POS=ORIGINAL	POS TARG null,-2.06	470 Secs (1880 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[2]*** ***[3]***
	9	Restore HV	DARK	S/C, DATA, NONE			NEW OBSET; QASISTATES COS FUV HVLOW HVLOW; QASISTATES COS SI OPERATE OPERATE; QASISTATES COS NUV HVSAA HVSAA	1 Secs (1 Secs) *[==>]*	 ***[3]***
		Comments: Force the FUV to to its nominal rest state (HVLOW) to ensure appropriate HV settings will be used by any following COS FUV observation. *SQL required for qexposure to specify the si_used = "COS"* *New obset SR necessary to force this exposure to be the very last exposure after Home.*							

Orbit Structure




Orbit 2
Server Version: 20131031
GS Reacq
Exp. 5, split 3
Exp. 5, split 4
Exp. 6
Pointing Maneuver
Exp. 7
Exp. 8, split 1
Exp. 8, split 2
Unused Visibility = 75
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20131031
GS Reacq
Exp. 8, split 3
Exp. 8, split 4
Home
GS Acq
Unused Visibility = 1205
Exp. 9
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13618, G130M/1222, G140L/1280 (02), implementation Thu Jan 16 02:30:14 GMT 2014

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, S/C, COS/FUV, COS

Special Requirements: SCHED 100%

Comments: Use slightly higher than nominal HV levels for this mode and take external exposures of WD 0308-565 at aperture positions -2.33" and -2.06" away from LP1 for G130M/1222, G140L/1280. Ensure that POS TARG of target exposures matches the aperture location commanded by ALIGN/APER exposures.

At the beginning we raise the HV, then move to defining the Aperture through G130M/1222. We take G130M/1222 exposures with a target of 3300s total at -2.33" then another 3300s at -2.06", trying to distribute amongst FP-POS as much as possible. The final orbit also includes a switch to G140L/1280 for total exposure times of 420s at -2.06" and then at -2.33".

Disallow FUV transitions out of HVNOM until the end of the visit.

Diagnostics

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

(G130M/1222, G140L/1280 (02)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WD0308-565 Alt Name1: GSC08495-00951 Alt Name2: 3UC068-006526	RA: 03 09 47.9200 (47.4496667d) Dec: -56 23 49.41 (-56.39706d) Equinox: J2000	Proper Motion RA: 150.6 mas/yr Proper Motion Dec: 64.3 mas/yr Epoch of Position: 2000 Radial Velocity: -68 km/sec	V=14.07+/-0.02	Reference Frame: ICRS

Comments: Position and proper motions from the Third U.S. Naval Observatory CCD Astrograph Catalog (UCAC3) Zacharias et al. 2009

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	HVA 171; HVB 167	DARK	S/C, DATA, NONE			SAA CONTOUR 31; SPEC COM INSTR ELHLTHVF; QASISTATES COS FUV HVLOW HVNOM; QESIPARM ENDCTSB 167; QESIPARM ENDCTSA 171		268 Secs (268 Secs) *[==>]*	***[1]***
	Comments: SQL required for qexposure to specify the si_used = "COS" *The overhead on this exposure can actually be hidden under the guide star exposure and the previous occultation, but this is not reflected by APT and so the visits do not appear to fit within the allocated orbits.* *Overhead on the ramp-up is calculated per Alan Welty's stated formula for the timing:* *exptime=55+SECPERCT x (MAX(ENDCTSA,ENDCTSB)-100)* *SECPERCT=3 s* *MAX(ENDCTSA,ENDCTSB)= 171* *exptime=268*								
2	ACQ/IM (396029)	(2) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA		GS ACQ SCENARIO BASE1BN3		45 Secs (45 Secs) *[==>]*	***[1]***
3	G130M/1222 Setup (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=1; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL			52 Secs (52 Secs) *[==>]*	***[1]***
4	move -2.33 arcsec (XD) +0 arcsec(D) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=49; YAPER=0			0.0 Secs (0 Secs) *[==>]*	***[1]***
	Comments: Assume 21 motor steps/" for XAPER (X-Dispersion) *Assume 19 motor steps/" for YAPER (Dispersion)*								
5	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33		420 Secs (1680 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[1]*** ***[2]***
	Comments: Buffer Time=313								
6	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=297; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33		397 Secs (1588 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[2]*** ***[3]***
	Comments: Buffer Time=313, but changed to 297 to manage buffer overheads								

	7	move aperture to -2.06 arcsec (XD) + 0 arcsec (AD) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=43; YAPER=0		0.0 Secs (0 Secs) *[==>]*	 ***[3]***
	Comments: Assume 21 motor steps/"								
	8	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=1; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	POS TARG null,-2.06	532 Secs (532 Secs) *[==>]*	 ***[3]***
	9	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	SAME POS AS 8	559 Secs (2236 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[3]*** ***[4]***
	10	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=3; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	SAME POS AS 8	532 Secs (532 Secs) *[==>]*	 ***[4]***
	11	G140L/1280 (COS.sp.549587)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=339; FP-POS=ALL; LIFETIME-POS=ORIGINAL	SAME POS AS 8	105 Secs (420 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[4]*** ***[5]***
	12	move aperture to -2.33 arcsec (XD) + 0 arcsec (AD) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=49; YAPER=0		0.0 Secs (0 Secs) *[==>]*	 ***[5]***
	Comments: Assume 21 motor steps/"								
	13	G140L/1280 (COS.sp.549587)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=339; FP-POS=ALL; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33	105 Secs (420 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[5]***

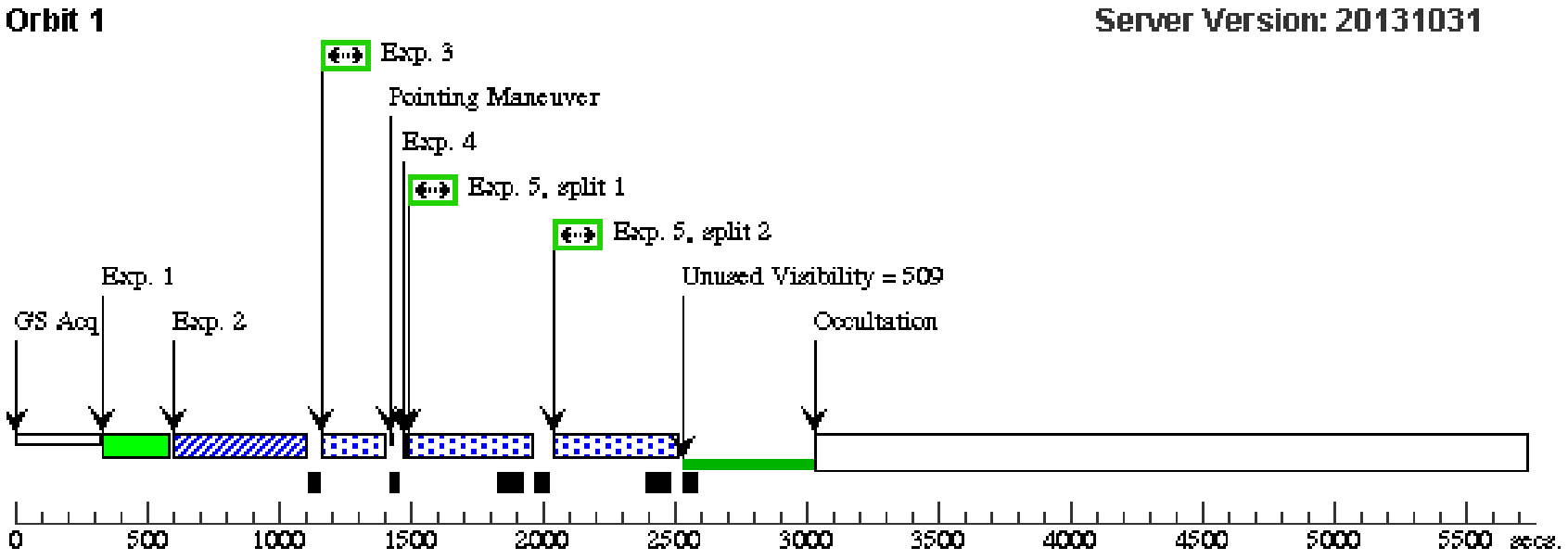
	14	Restore HV	DARK	S/C, DATA, NONE	NEW OBSET; QASISTATES COS FUV HVLOW HVLOW; QASISTATES COS SI OPERATE OPERATE; QASISTATES COS NUV HVSAA HVSAA	1 Secs (1 Secs) *[==>]*	***[5]***

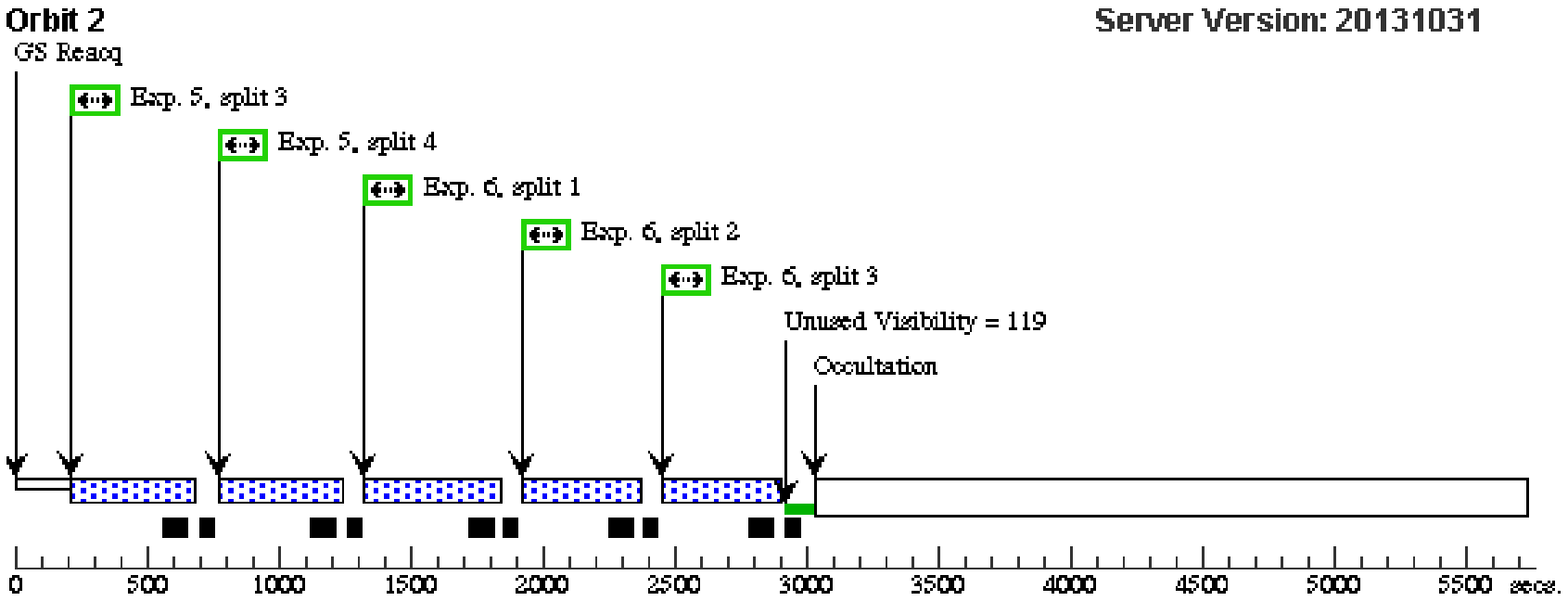
Comments: Force the FUV to to its nominal rest state (HVLOW) to ensure appropriate HV settings will be used by any following COS FUV observation.

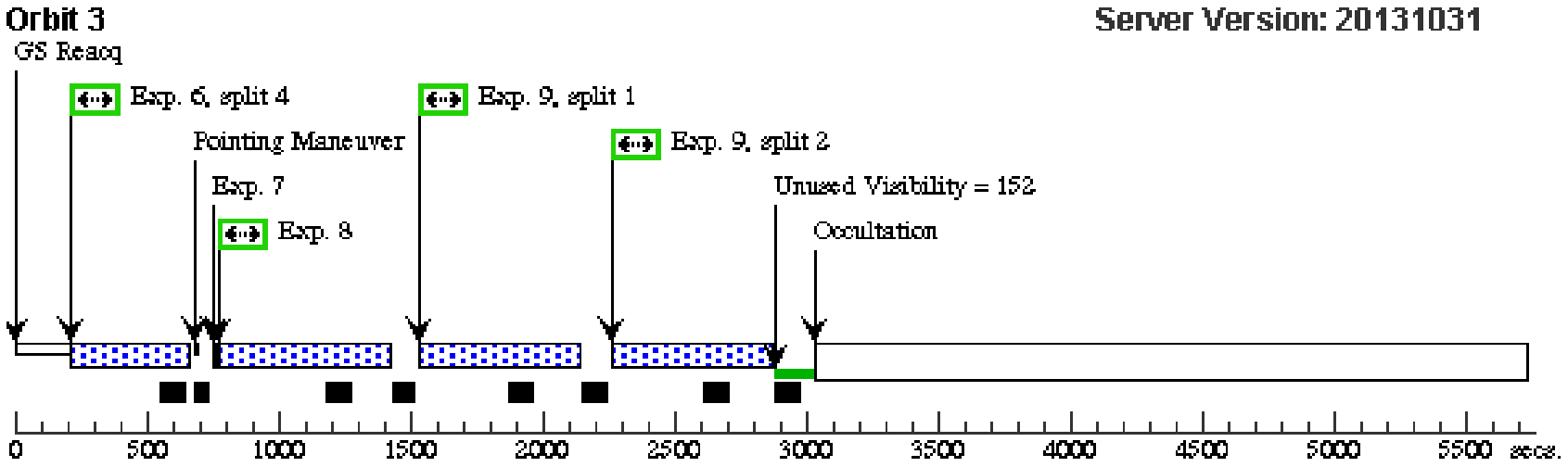
SQL required for qexposure to specify the si_used = "COS"

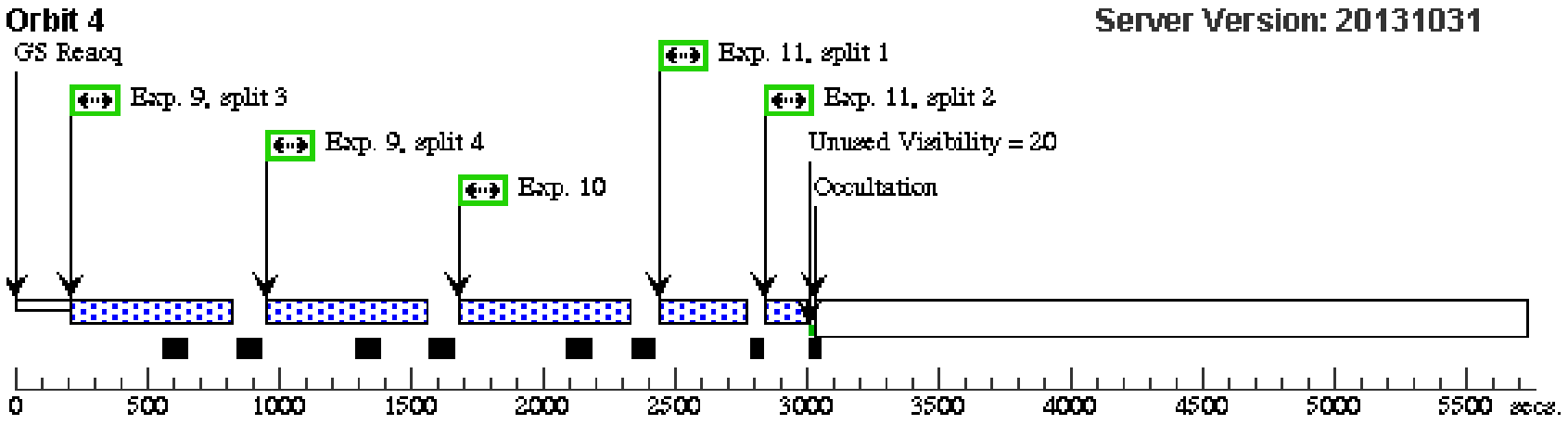
New obset SR necessary to force this exposure to be the very last exposure after Home.

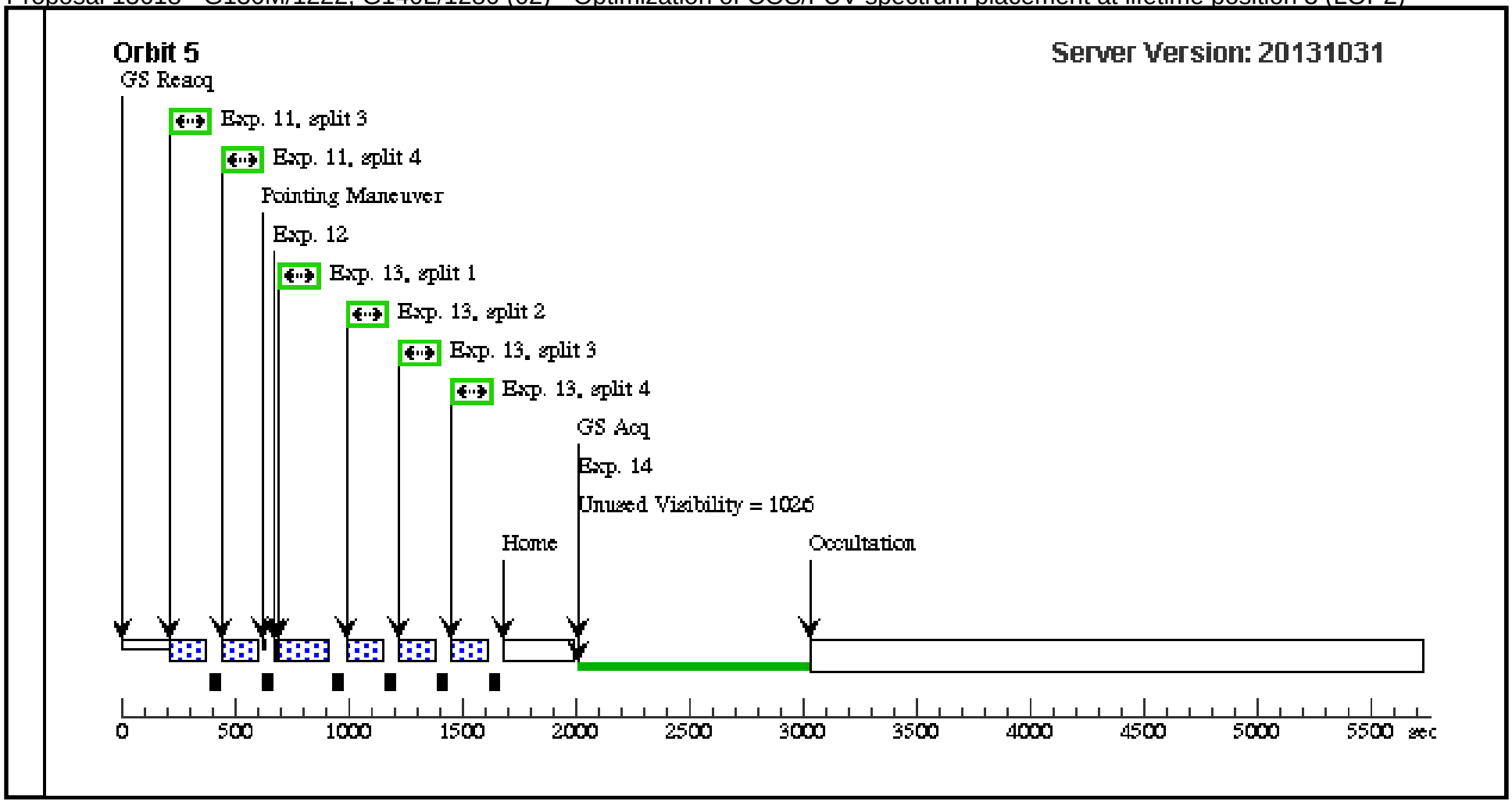
Orbit Structure




Orbit 2
Server Version: 20131031
GS Reacq
Exp. 5, split 3
Exp. 5, split 4
Exp. 6, split 1
Exp. 6, split 2
Exp. 6, split 3
Unused Visibility = 119
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20131031
GS Reacq
Exp. 6, split 4
Pointing Maneuver
Exp. 7
Exp. 8
Exp. 9, split 1
Exp. 9, split 2
Unused Visibility = 152
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 4
Server Version: 20131031
GS Reacq
Exp. 9, split 3
Exp. 9, split 4
Exp. 10
Exp. 11, split 1
Exp. 11, split 2
Unused Visibility = 20
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 5
Server Version: 20131031
GS Reacq
Exp. 11, split 3
Exp. 11, split 4
Pointing Maneuver
Exp. 12
Exp. 13, split 1
Exp. 13, split 2
Exp. 13, split 3
Exp. 13, split 4
GS Acq
Exp. 14
Unused Visibility = 1026
Home
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 13618, No HVG-130M/1222, G140L/1280 (03), withdrawn Thu Jan 16 02:30:18 GMT 2014

Diagnostic Status: Warning

Scientific Instruments: COS/NUV, COS/FUV, COS

Special Requirements: SCHED 100%

Comments: This Visit is an exact duplicate of Visit 2, but without the HV changes to allow for accurate accounting of orbits used.

Diagnostics

(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): COS EXPOSURE TIME ADJUSTED TO WAVECAL LAMP FLASH DURATION
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): INEFFICIENT ORDERING OF FP-POS POSITIONS
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(No HVG-130M/1222, G140L/1280 (03)) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	WD0308-565 Alt Name1: GSC08495-00951 Alt Name2: 3UC068-006526	RA: 03 09 47.9200 (47.4496667d) Dec: -56 23 49.41 (-56.39706d) Equinox: J2000	Proper Motion RA: 150.6 mas/yr Proper Motion Dec: 64.3 mas/yr Epoch of Position: 2000 Radial Velocity: -68 km/sec	V=14.07+/-0.02	Reference Frame: ICRS

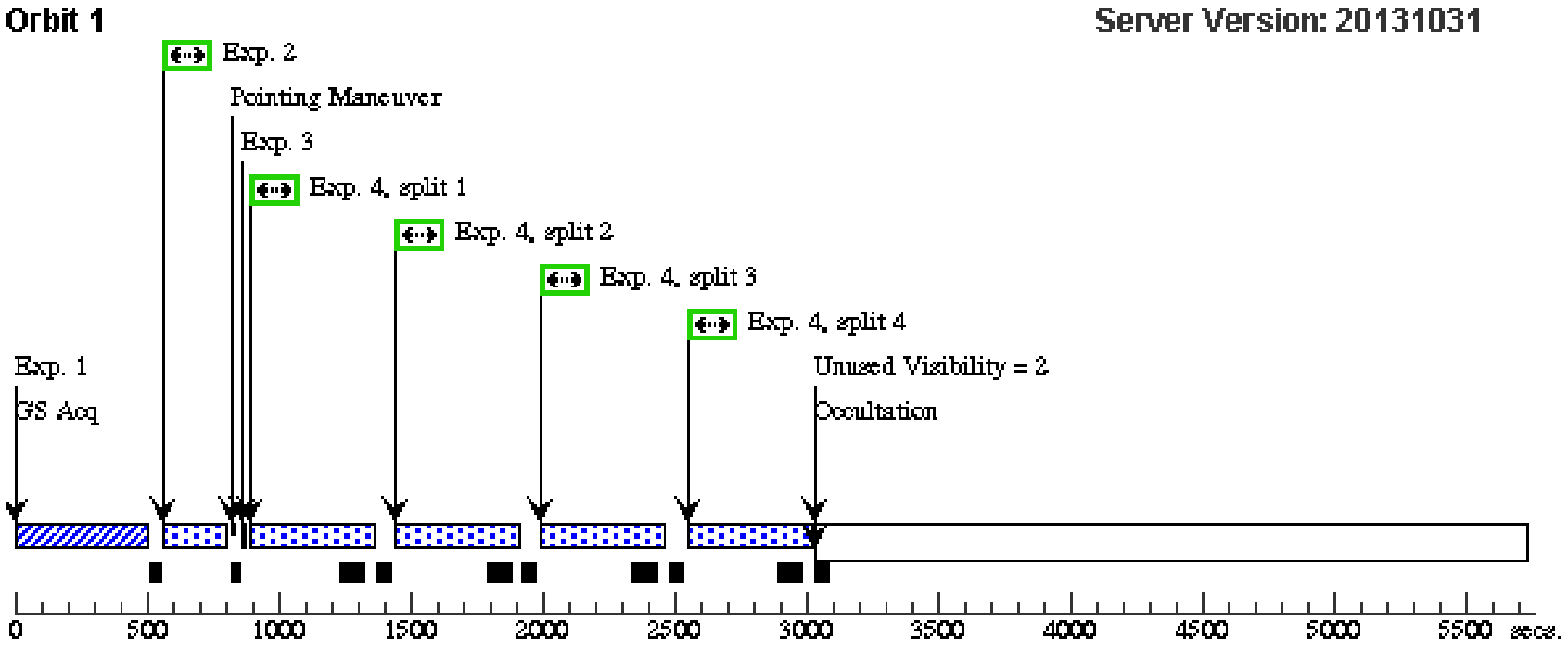
Comments: Position and proper motions from the Third U.S. Naval Observatory CCD Astrograph Catalog (UCAC3) Zacharias et al. 2009

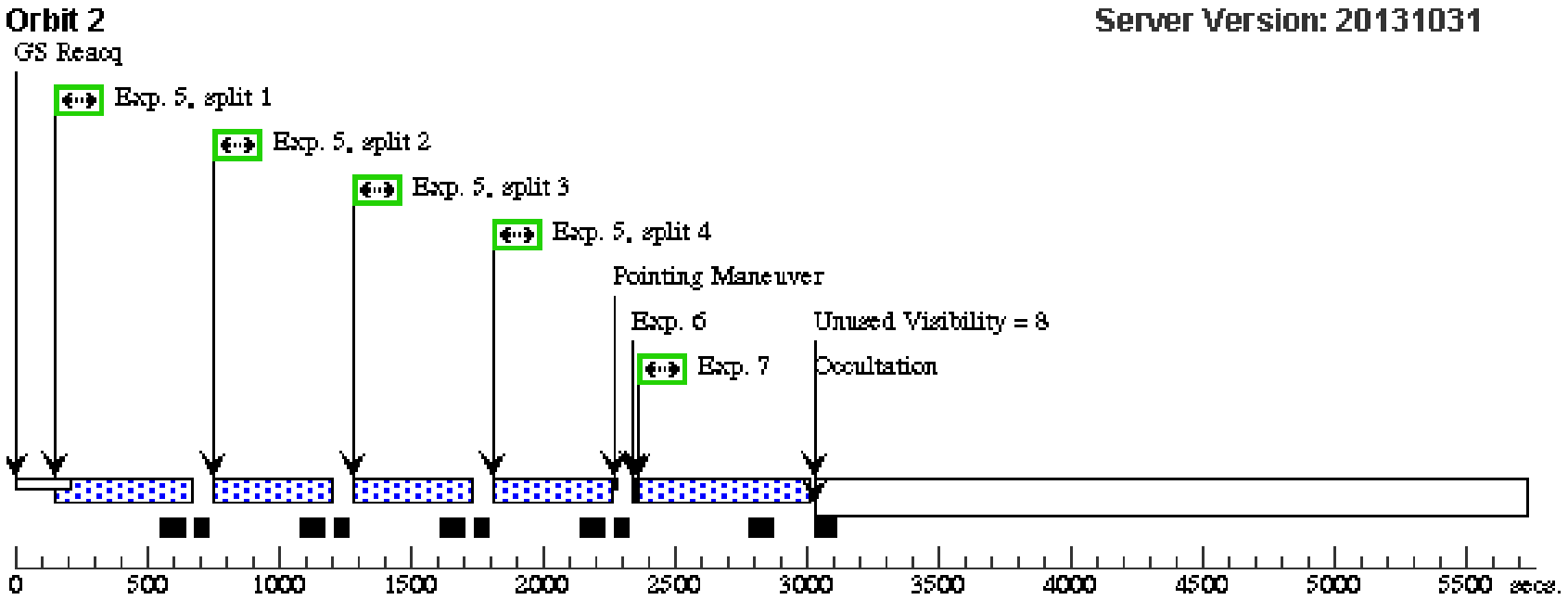
Exposures

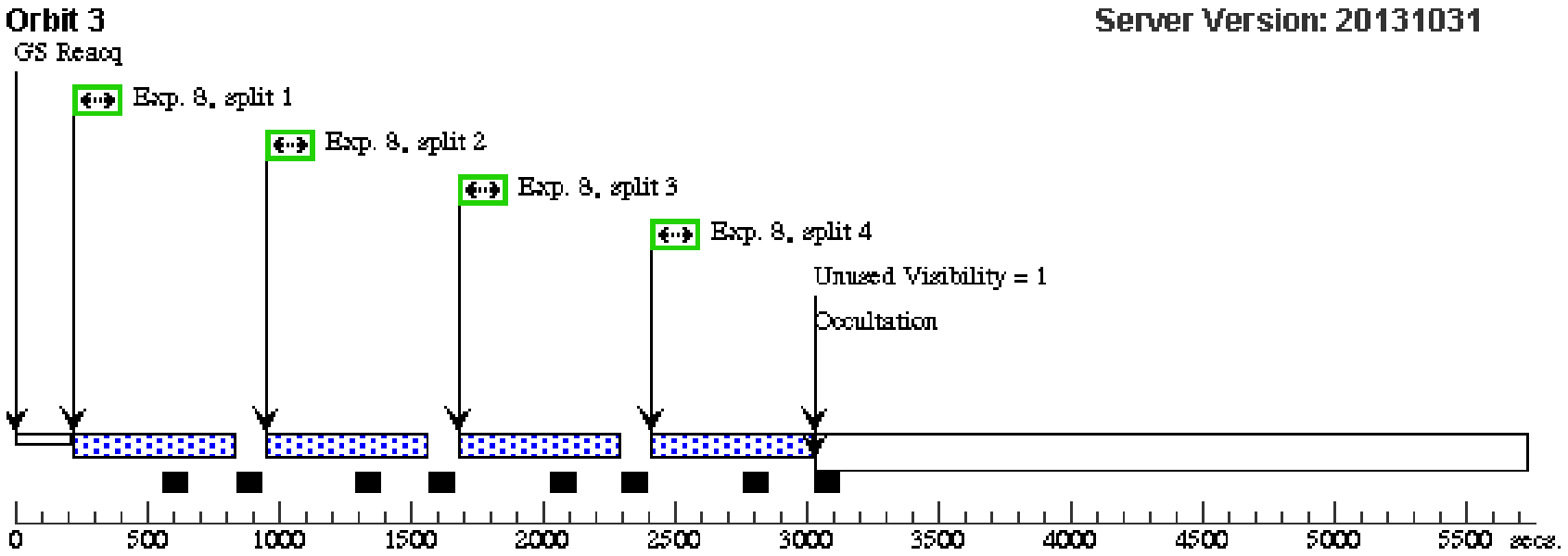
#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ/IM (396029)	(2) WD0308-565	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				45 Secs (45 Secs) *[==>]*	*[1]*
2	G130M/1222 Setup (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=1; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL			1 Secs (1 Secs) *[==>]*	*[1]*
3	move -2.33 arcsec (XD) +0 arcsec(D) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=49; YAPER=0			0.0 Secs (0 Secs) *[==>]*	*[1]*
Comments: Assume 21 motor steps/" for XAPER (X-Dispersion) Assume 19 motor steps/" for YAPER (Dispersion)									
4	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33		420 Secs (1680 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*
Comments: Buffer Time=313									
5	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=297; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33		397 Secs (1588 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[2]*
Comments: Buffer Time=313, but changed to 297 to manage buffer overheads									
6	move aperture to -2.06 arcsec (XD) + 0 arcsec (AD) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=43; YAPER=0			0.0 Secs (0 Secs) *[==>]*	*[2]*
Comments: Assume 21 motor steps/"									
7	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=1; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	POS TARG null,-2.06		532 Secs (532 Secs) *[==>]*	*[2]*
8	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	SAME POS AS 7		559 Secs (2236 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[3]*
9	G130M/1222 (COS.sp.543434)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=3; BUFFER-TIME=313; LIFETIME-POS=ORIGINAL	SAME POS AS 7		532 Secs (532 Secs) *[==>]*	*[4]*

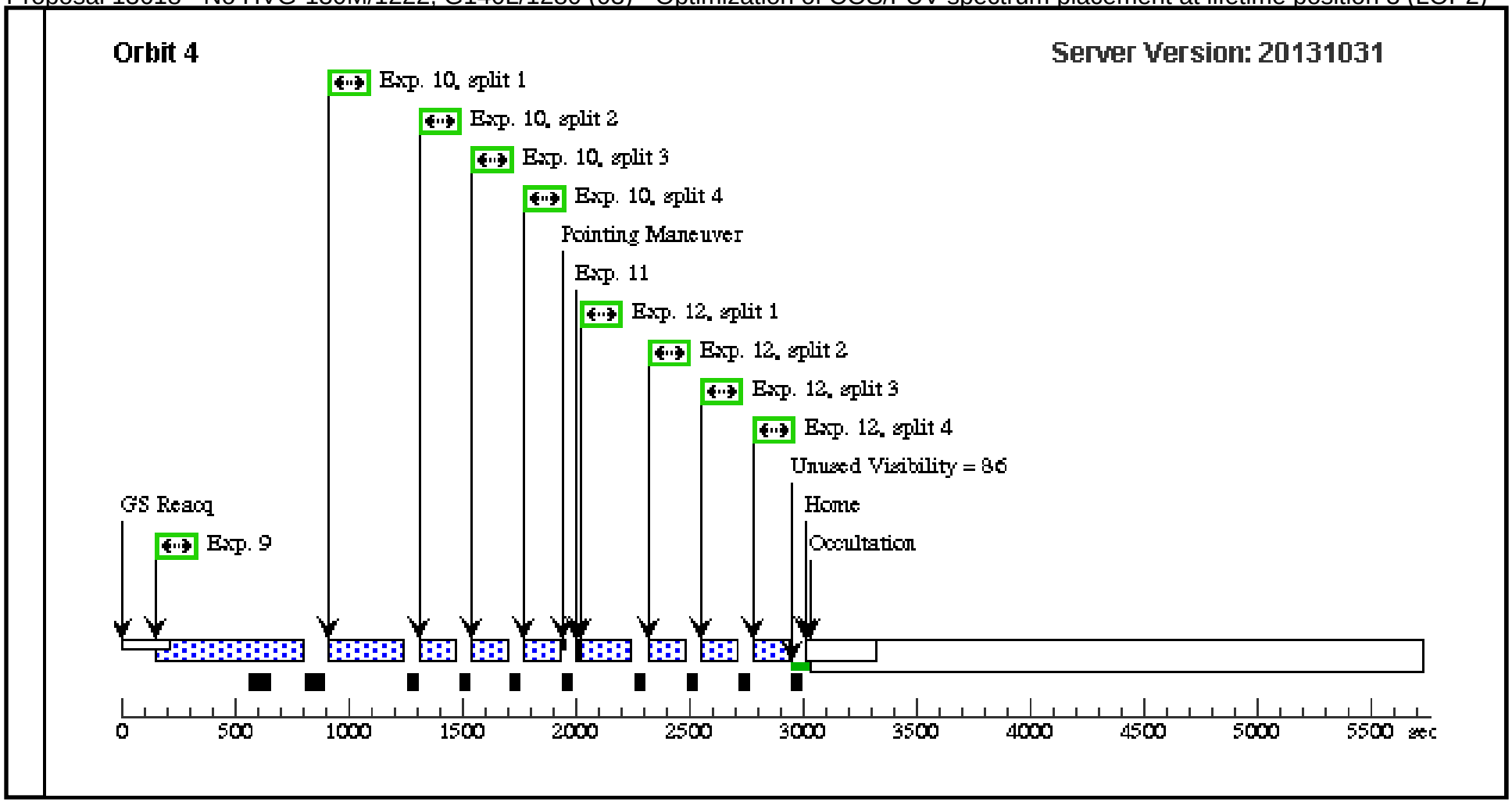
	10	G140L/1280 (COS.sp.549587)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=339; FP-POS=ALL; LIFETIME-POS=ORIGINAL	SAME POS AS 7	105 Secs (420 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[4]***
	11	move aperture to -2.33 arcsec (XD) + 0 arcsec (AD) from LP1 (0)	NONE	COS, ALIGN/APER		XAPER=49; YAPER=0		0.0 Secs (0 Secs) *[==>]*	***[4]***
	Comments: Assume 21 motor steps/"								
	12	G140L/1280 (COS.sp.549587)	(2) WD0308-565	COS/FUV, TIME-TAG, PSA	G140L 1280 A	BUFFER-TIME=339; FP-POS=ALL; LIFETIME-POS=ORIGINAL	POS TARG null,-2.33	105 Secs (420 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	***[4]***

Orbit Structure




Orbit 2
Server Version: 20131031
GS Reacq
Exp. 5, split 1
Exp. 5, split 2
Exp. 5, split 3
Exp. 5, split 4
Pointing Maneuver
Exp. 6
Unused Visibility = 8
Exp. 7
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 3
Server Version: 20131031
GS Reacq
Exp. 8, split 1
Exp. 8, split 2
Exp. 8, split 3
Exp. 8, split 4
Unused Visibility = 1
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
secs.


Orbit 4
Server Version: 20131031
Exp. 10, split 1
Exp. 10, split 2
Exp. 10, split 3
Exp. 10, split 4
Pointing Maneuver
Exp. 11
Exp. 12, split 1
Exp. 12, split 2
Exp. 12, split 3
Exp. 12, split 4
Unused Visibility = 86
GS Reacq
Exp. 9
Home
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec