



13004 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Cycle: 20, Proposal Category: GO

(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) AZV-327	COS/NUV	1	17-Apr-2013 21:06:18.0	yes
02	(2) SK-143	COS/NUV	1	17-Apr-2013 21:06:30.0	yes
03	(3) AZV-388	COS/NUV	1	17-Apr-2013 21:06:41.0	yes
04	(4) AZV-47	COS/NUV	1	17-Apr-2013 21:06:53.0	yes
05	(5) AZV-238	COS/NUV	1	17-Apr-2013 21:07:06.0	yes
06	(6) AZV-95	COS/NUV	1	17-Apr-2013 21:07:17.0	yes
07	(7) SK-116	COS/NUV	1	17-Apr-2013 21:07:28.0	yes

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
08	(8) SK-9	COS/NUV	1	17-Apr-2013 21:07:43.0	yes
09	(9) AZV-476	COS/NUV	1	17-Apr-2013 21:07:54.0	yes
10	(10) SK-65-22	COS/NUV	1	17-Apr-2013 21:08:05.0	yes
11	(11) SK-67-5	COS/NUV	1	17-Apr-2013 21:08:17.0	yes
12	(12) SK-71-45	COS/NUV	1	17-Apr-2013 21:08:28.0	yes
13	(13) SK-66-172	COS/NUV	1	17-Apr-2013 21:08:39.0	yes
14	(14) SK-70-115	COS/NUV	1	17-Apr-2013 21:08:50.0	yes
15	(15) BI-173	COS/NUV	1	17-Apr-2013 21:09:05.0	yes
16	(16) LH10-3223	COS/NUV	1	17-Apr-2013 21:09:16.0	yes
17	(17) SK-68-135	COS/NUV	1	17-Apr-2013 21:09:27.0	yes

17 Total Orbits Used

ABSTRACT

Using the COS spectrograph on HST, we propose to measure the interstellar medium (ISM) abundances of Zn and Cr along 17 lines-of-sight across the Large Magellanic Cloud (LMC) and Small Magellanic Cloud (SMC) with the Zn II and Cr II lines (2026 to 2066 Å). The targets are all well studied O stars, selected to sample different total hydrogen columns and molecular hydrogen fractions. By comparing the abundances of the non-refractory element, Zn with the refractory element, Cr, we can derive a metallicity ([Zn/H]), and a relative measure of dust-to-gas mass ratios ([Cr/Zn] ratio) for each line-of-sight. Our current knowledge of the LMC and SMC dust-to-gas mass ratios is based on estimates from dust emission and gas line emission in the far-infrared to radio wavelength ranges and have uncertainties of factors of >3 because of our imprecise knowledge of the dust composition and total molecular hydrogen gas mass. In comparison, we propose to measure the gas-phase abundances of Zn and Cr to directly calibrate the relative dust-to-gas mass ratio, with an estimated uncertainty of <25%. Moreover, the abundances of Si, Ni, Ti, and Co, determined with no added time, in addition to Zn and Cr, will provide insight on the dust-to-metal ratios for different phases of the ISM across the LMC and SMC. Our results provide crucial constraints for dust evolution models of these galaxies. The 17 Milky Way lines-of-sight that come for free will be an important comparison set. Finally, our experiment provides an important reference point for high-redshift ($z > 1-2$) observations of Zn and Cr in damped Ly-alpha systems, for which they are used to estimate metallicities and dust-to-gas mass ratios.

OBSERVING DESCRIPTION

OVERVIEW: Our program consists of observing 17 O-type stars in the Magellanic Clouds using two different grating settings with COS. We will target the absorption lines from Cr II at 2056.257, 2062.236 and 2066.164 Å and Zn II at 2026.137 and 2062.660 Å using the COS G185M grating at $\lambda_c = 1921$ and 1953 Å. Observations with each grating configuration will be conducted in succession such that each source can be observed in a single orbit at both central wavelengths. To observe the 17 targets, there are a total of 17 orbits, each containing a target acquisition followed by science observations with the G185M grating at the two different central wavelengths.

TARGET ACQUISITION: We will perform target acquisition on our targets using both the ACQ/PEAKXD and ACQ/PEAKD modes. The use of ACQ/IMAGE mode is not efficient because our targets' fields are too bright to pass the bright object checks with MIRRORA, requiring the use of MIRRORB. However using MIRRORB requires significant exposure times of 10-20 minutes per source. It is therefore more efficient to use the PEAKXD and PEAKD modes. In the PEAK modes, each source requires only 2-3 seconds of exposure time to attain a SNR of at least 40. Because the coordinates of our targets are known to better than 0.4 arcsec, ACQ/SEARCH is not required. Each target acquisition will begin with ACQ/PEAKXD, followed by ACQ/PEAKD. For ACQ/PEAKD, we have adopted the recommended step size of 0.9 arcsec and will use the default number of positions (NUM-POS) of 5 and centering algorithm (CENTER) FLUX-WT-FLR.

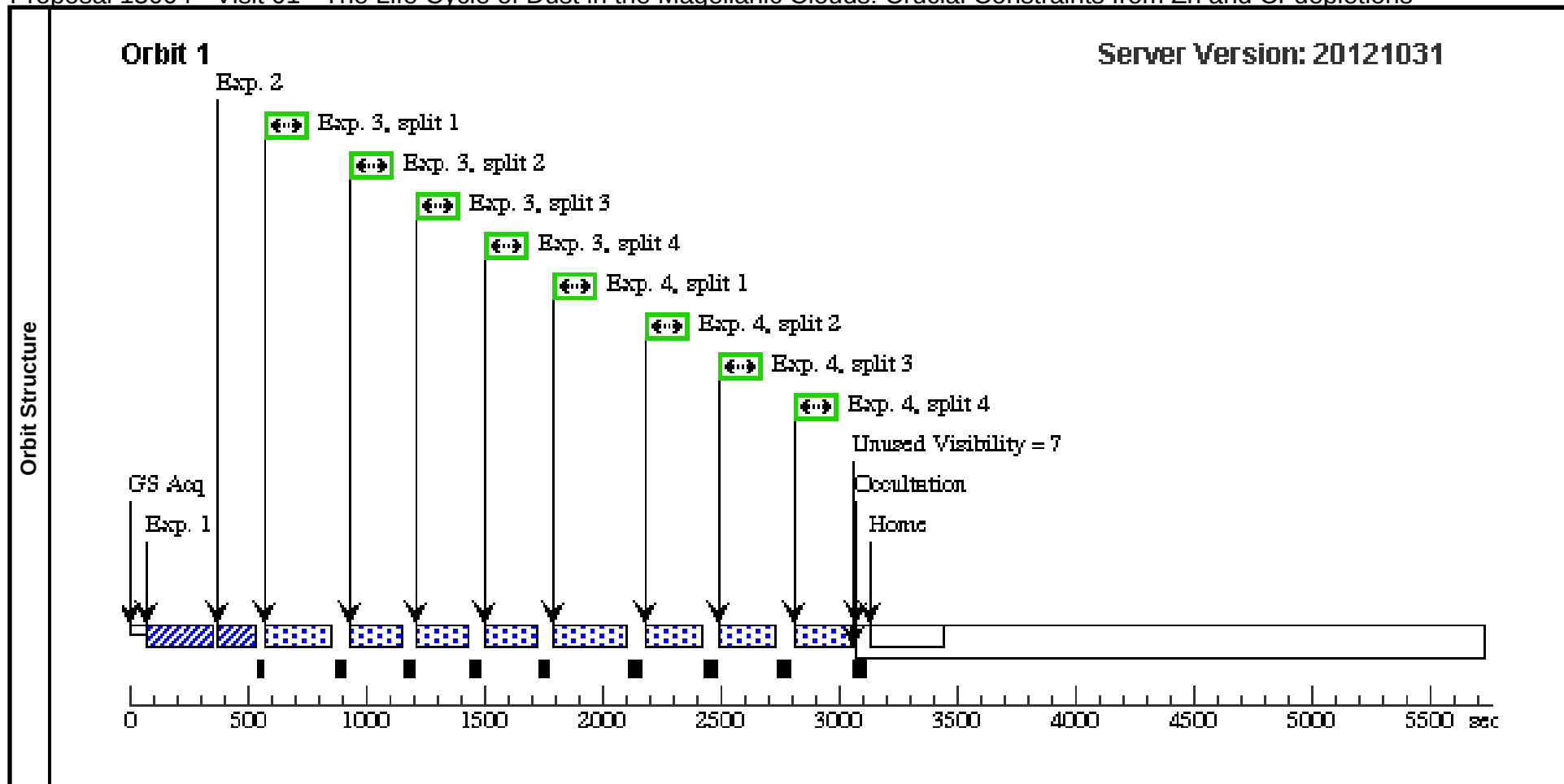
SCIENCE EXPOSURES: To achieve our required continuum S/N of >20 requires on-source exposure times of several minutes per source in both grating settings. For each target, we have used the online exposure time calculator for COS using the spectral type, V-band apparent magnitude, and color excess of the target. Required exposure times range between ~ 2 minutes for the brightest source to ~ 18 minutes for the dimmest. Therefore target acquisition and both science exposures can be executed in a single orbit. For each target, we will execute target acquisition and use the rest of the orbit for the two grating settings. We include 4 FP-POS positions (ALL) to mitigate fixed pattern noise and to improve the signal-to-noise. To maximize the exposure time (and thus improve signal-to-noise), we will use only 2 FP-POS (positions 1 and 2) for the dimmest source, Sk-143.

BUFFER TIMES: Buffer times have been chosen to most efficiently observe our targets and prevent any loss of data. For dim sources with ETC-supplied buffer times of >1000 seconds, we have adopted buffer times of 600 seconds. Because individual exposures last for approximately 200 secs, readout will only occur after each exposure. For relatively brighter targets with ETC-supplied buffer times of <1000 secs, we have adopted the COS-handbook suggested buffer time of 60% the ETC-supplied buffer time. As with the dimmer sources, individual exposure times exceed the adopted buffer times, and readout will only occur after each exposure.

BRIGHT OBJECT CHECKS: For each target, we have used the Bright Object Tool in APT to clear the region for bright objects. When necessary, we have constrained the orient to avoid bright objects. BOT indicates all known objects within the field are safe. For unknown objects, we have independently verified they are not too bright. See the comments section for each exposure for a detailed description of the bright object check for the exposure.

Proposal 13004 - Visit 01 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

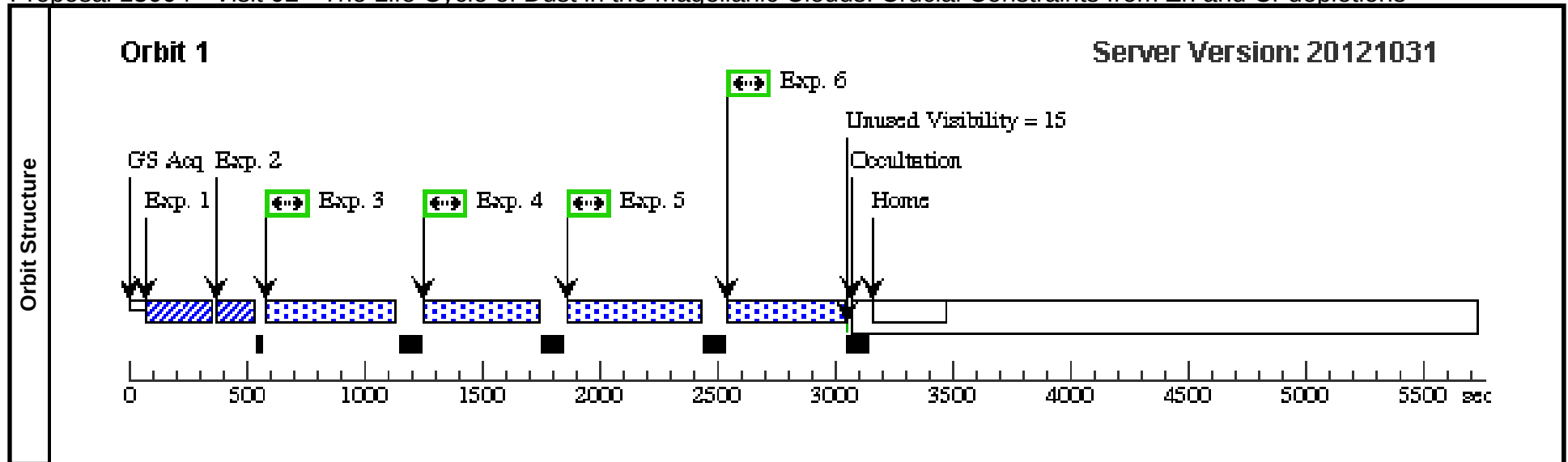
Visit	Proposal 13004, Visit 01, completed									Thu Apr 18 01:09:36 GMT 2013
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: COS/NUV									
	Special Requirements: SCHED 100%									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(1)	AZV-327	RA: 01 03 10.5300 (15.7938750d) Dec: -72 02 14.30 (-72.03731d) Equinox: J2000			V=13.03		Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 715)	(1) AZV-327	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	 [1]
	Comments: The brightest source in the field is the target, which form 2MASS has a J-band magnitude of 13.7. The ETC suggests all sources are safe, even for an O5 star.									
	2	Target Acq (COS.sa.408 714)	(1) AZV-327	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	 [1]
	Comments: The brightest source in the field is the target, which form 2MASS has a J-band magnitude of 13.7. The ETC suggests all sources are safe, even for an O5 star.									
	3	Science Exp 1921 (COS.sp.408 999)	(1) AZV-327	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=30									
	The BOT does not identify stellar types of stars near our target. However, 2MASS data indicates our target is the brightest source in the field with a J-band magnitude of 13.7. The COS ETC indicates this magnitude is safe, even for an O5 star.									
	4	Science Exp 1953 (COS.sp.408 999)	(1) AZV-327	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=30									
	The BOT does not identify stellar types of stars near our target. However, 2MASS data indicates our target is the brightest source in the field with a J-band magnitude of 13.7. The COS ETC indicates this magnitude is safe, even for an O5 star.									



Proposal 13004 - Visit 02 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

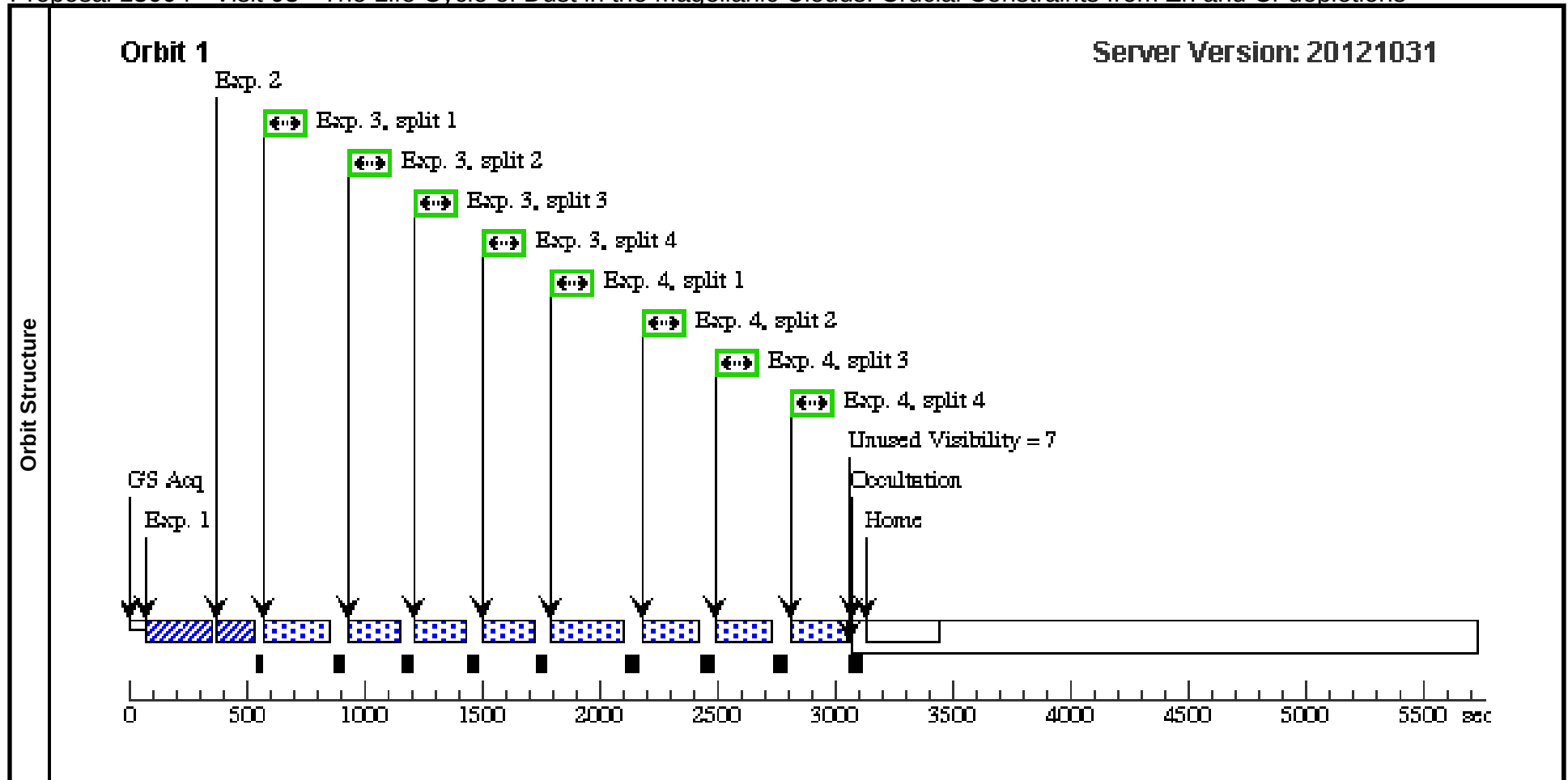
Thu Apr 18 01:09:38 GMT 2013

Visit	Proposal 13004, Visit 02, completed Diagnostic Status: Warning Scientific Instruments: COS/NUV Special Requirements: SCHED 100%									
	(Visit 02) Warning (Form): For the best data quality, it is strongly recommended that all four FP-POS positions be used when observing at a given COS CENWAVE setting.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(2)	SK-143 Alt Name1: AVZ-456	RA: 01 10 55.7700 (17.7323750d) Dec: -72 42 56.30 (-72.71564d) Equinox: J2000		V=12.83	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq2 (COS.ta.407 087)	(2) SK-143	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				3 Secs [==>]	[1]
	Comments: Must use MIRRORB. All sources are safe.									
	2	Target Acq1 (COS.ta.407 087)	(2) SK-143	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			3 Secs [==>]	[1]
	Comments: Two unknown sources are in the field. The brightest has a V-band magnitude of 17.45, safe even for an O5 star.									
	3	Science Exp 1921 (COS.sp.409 005)	(2) SK-143	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=1; BUFFER-TIME=60 0			470 Secs [==>]	[1]
	Comments: SNR=18									
	All sources safe.									
	4	Science Exp 1921 (COS.sp.409 005)	(2) SK-143	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=3; BUFFER-TIME=60 0			470 Secs [==>]	[1]
	Comments: SNR=18									
	All sources safe.									
	5	Science Exp 1953 (COS.sp.409 006)	(2) SK-143	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=2; BUFFER-TIME=60 0			480 Secs [==>]	[1]
	Comments: SNR=17									
	6	Science Exp 1953 (COS.sp.409 006)	(2) SK-143	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=3; BUFFER-TIME=60 0			480 Secs [==>]	[1]
	Comments: SNR=17									



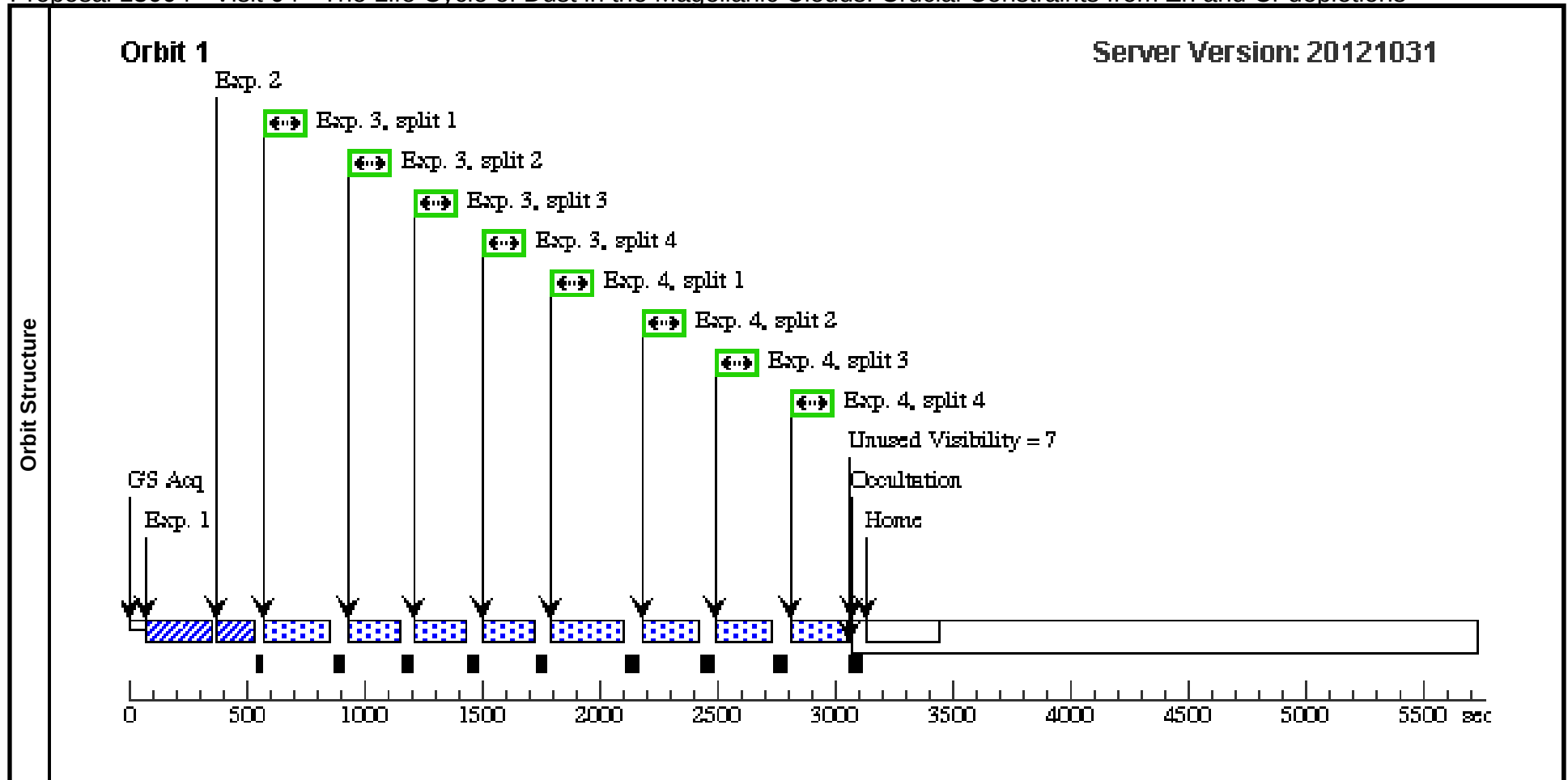
Proposal 13004 - Visit 03 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 03, completed Thu Apr 18 01:09:39 GMT 2013 Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ORIENT 270D TO 140 D									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(3)	AZV-388	RA: 01 05 39.5200 (16.4146667d) Dec: -72 29 27.00 (-72.49083d) Equinox: J2000		V=14.09	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 719)	(3) AZV-388	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	Comments: We have restricted the orient to avoid a bright unknown source. There are 2 other unknown sources in the field. The brightest has a V-band mag of 18.37. This source is safe even if it is a O5 star.									
	2	Target Acq (COS.sa.408 719)	(3) AZV-388	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	Comments: We have restricted the orient to avoid a bright unknown source. There are 2 other unknown sources in the field. The brightest has a V-band mag of 18.37. This source is safe even if it is a O5 star.									
	3	Science Exp 1921 (COS.sp.409 008)	(3) AZV-388	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=25									
	The brightest of the 2 unknown sources in the field have a V band magitude of 18.37. This is safe even if it is an O5 star.									
	4	Science Exp 1953 (COS.sp.409 008)	(3) AZV-388	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=25									



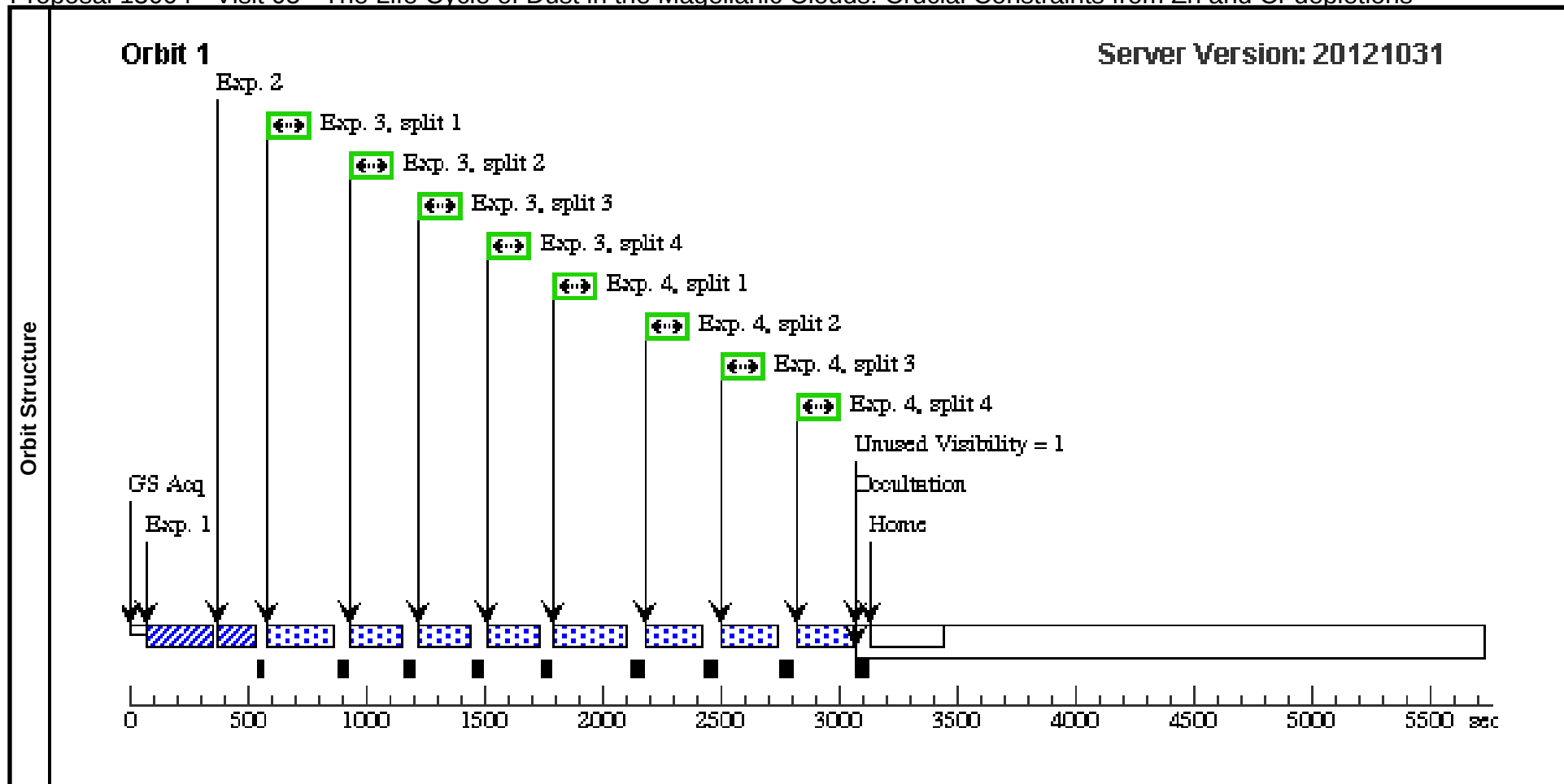
Proposal 13004 - Visit 04 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 04, completed										Thu Apr 18 01:09:40 GMT 2013	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: COS/NUV											
	Special Requirements: SCHED 100%											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections		Fluxes	Miscellaneous			
	(4)	AZV-47	RA: 00 48 51.4900 (12.2145417d) Dec: -73 25 58.50 (-73.43292d) Equinox: J2000					V=13.44	Reference Frame: ICRS			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Target Acq (COS.sa.408 721)	(4) AZV-47	COS/NUV, ACQ/PEAKXD, PSA		G185M 1921 A				2 Secs [==>]		
	Comments: The brightest source in the region, our target has a V-band magnitude of 13, safe for an O5-type star.											
	2	Target Acq (COS.sa.408 721)	(4) AZV-47	COS/NUV, ACQ/PEAKD, PSA		G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]	
	Comments: The brightest source in the region, our target has a V-band magnitude of 13, safe for an O5-type star.											
	3	Science Exp 1921 (COS.sp.409 009)	(4) AZV-47	COS/NUV, TIME-TAG, PSA		G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]	
	Comments: SNR=31											
	Our target is the only source unknown to the BOT. It is a O8-type star of magnitude 13.4, and is safe according to the ETC.											
	4	Science Exp 1953 (COS.sp.409 009)	(4) AZV-47	COS/NUV, TIME-TAG, PSA		G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]	
	Comments: SNR=31											
	Our target is the only source unknown to the BOT. It is a O8-type star of magnitude 13.4, and is safe according to the ETC.											



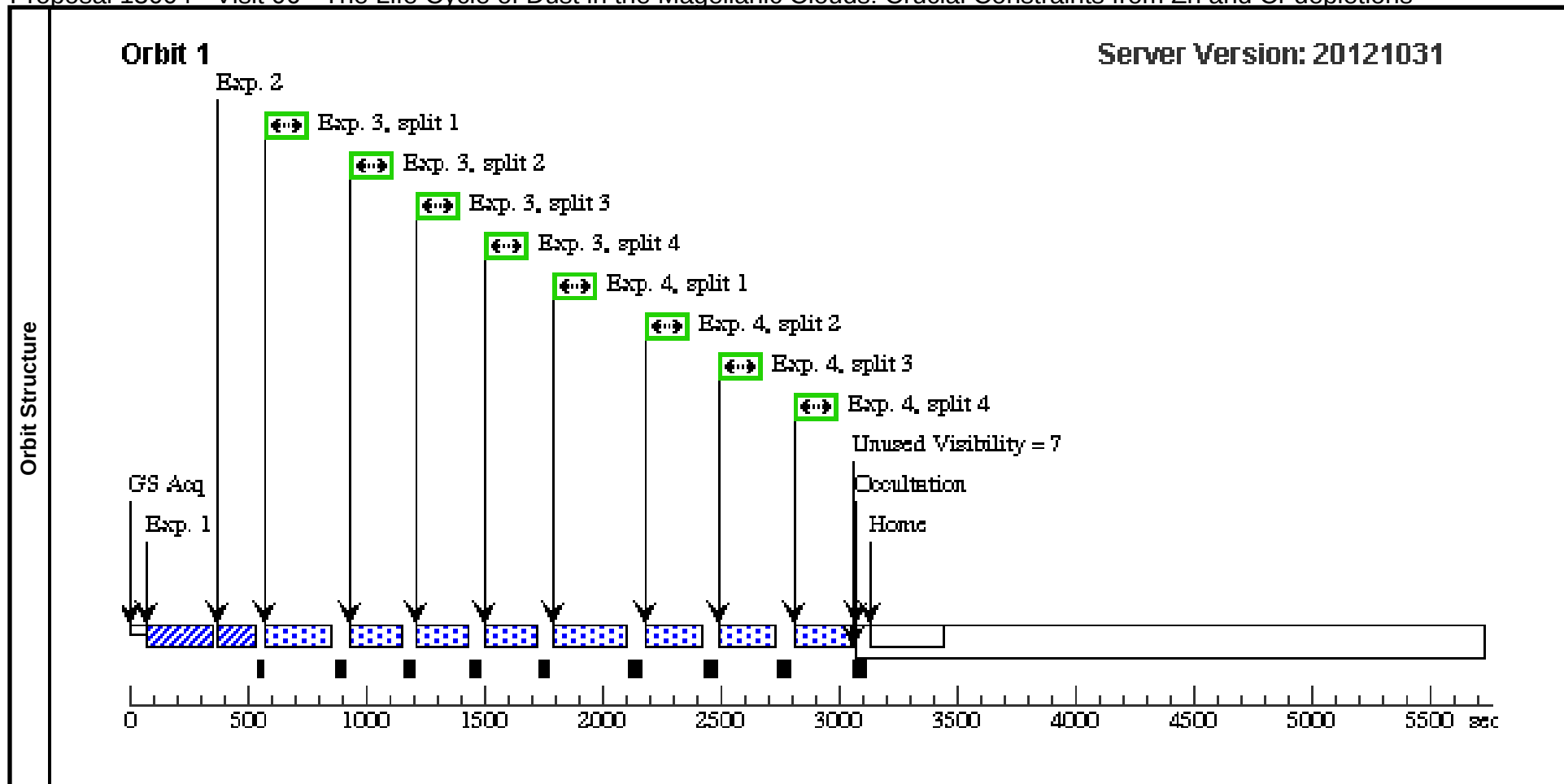
Proposal 13004 - Visit 05 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 05, implementation Thu Apr 18 01:09:41 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(5)	AZV-238	RA: 00 59 55.5000 (14.9812500d) Dec: -72 13 37.80 (-72.22717d) Equinox: J2000		V=13.64	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 723)	(5) AZV-238	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				3 Secs [==>]	[1]
	<i>Comments: All sources are safe.</i>									
	2	Target Acq (COS.sa.408 723)	(5) AZV-238	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			3 Secs [==>]	[1]
	<i>Comments: All sources are safe.</i>									
	3	Science Exp 1921 (COS.sp.409 010)	(5) AZV-238	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=22</i>									
	<i>All sources are known and safe.</i>									
	4	Science Exp 1953 (COS.sp.409 010)	(5) AZV-238	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=22</i>									
	<i>All sources are known and safe.</i>									



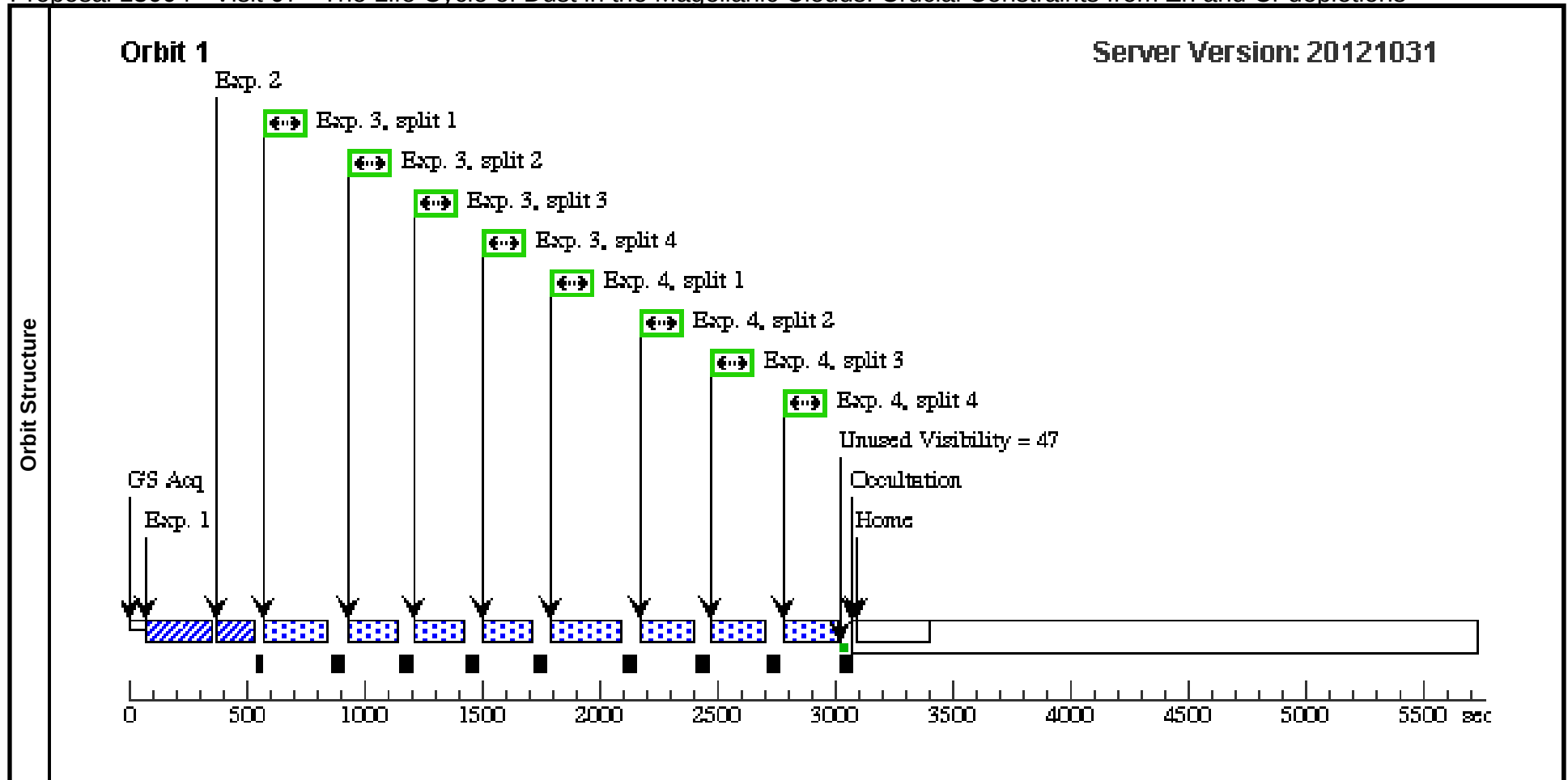
Proposal 13004 - Visit 06 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 06, completed										Thu Apr 18 01:09:42 GMT 2013	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: COS/NUV											
	Special Requirements: SCHED 100%											
Fixed Targets	#	Name		Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous		
	(6)	AZV-95		RA: 00 51 21.5900 (12.8399583d) Dec: -72 44 14.90 (-72.73747d) Equinox: J2000				V=13.78		Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Target Acq (COS.sa.408 724)	(6) AZV-95	COS/NUV, ACQ/PEAKXD, PSA		G185M 1921 A				2 Secs [==>]		[1]
	Comments: All sources are safe.											
	2	Target Acq (COS.sa.408 724)	(6) AZV-95	COS/NUV, ACQ/PEAKD, PSA		G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]		[1]
	Comments: All sources are safe.											
	3	Science Exp 1921 (COS.sp.409 011)	(6) AZV-95	COS/NUV, TIME-TAG, PSA		G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[1]
	Comments: SNR=27											
	All sources are safe.											
	4	Science Exp 1953 (COS.sp.409 011)	(6) AZV-95	COS/NUV, TIME-TAG, PSA		G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		[1]
	Comments: SNR=27											
	All sources are safe.											



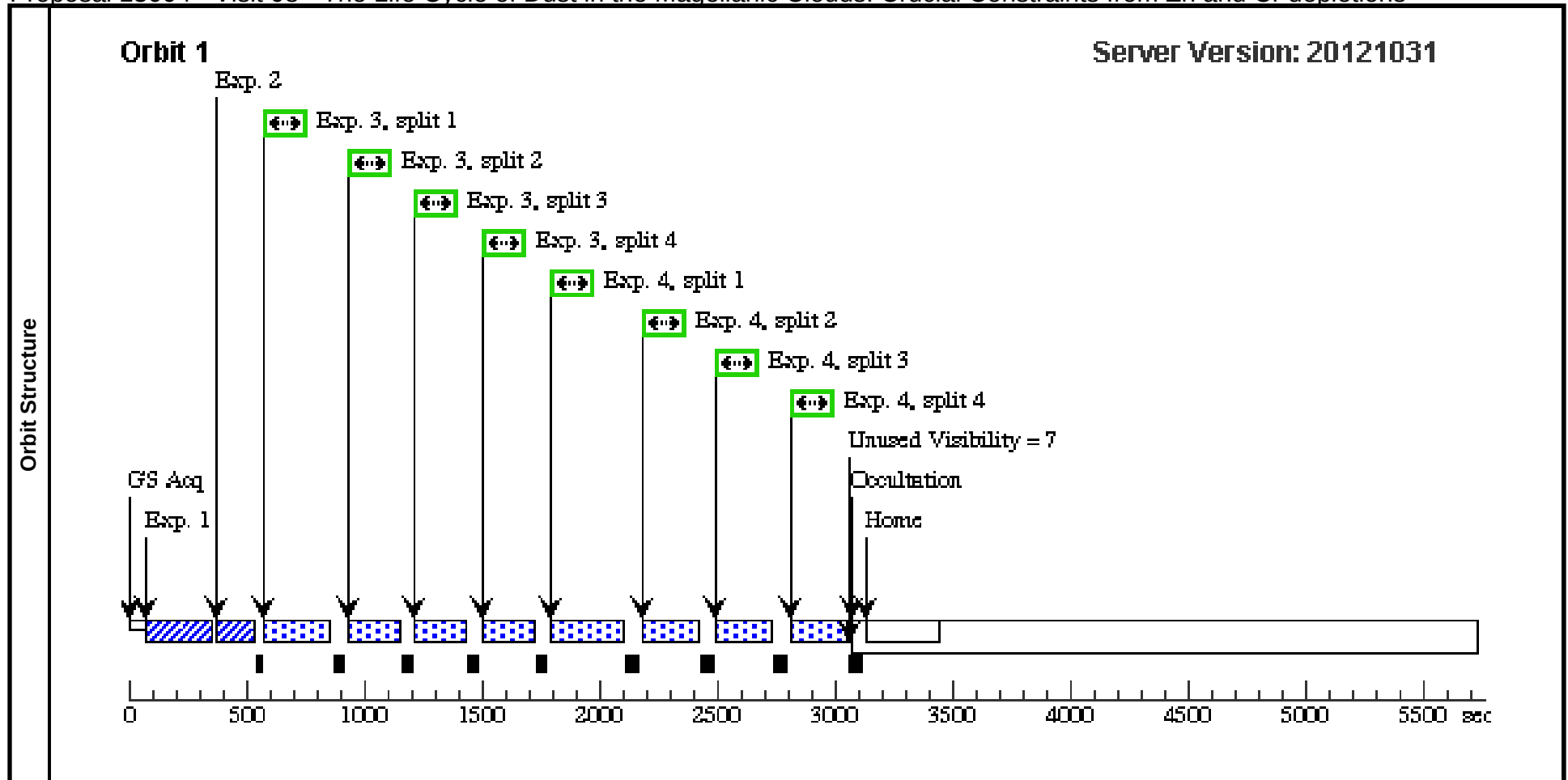
Proposal 13004 - Visit 07 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 07, implementation Thu Apr 18 01:09:43 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ORIENT 290D TO 160 D; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(7)	SK-116 Alt Name1: AVZ-372	RA: 01 04 55.7300 (16.2322083d) Dec: -72 46 48.10 (-72.78003d) Equinox: J2000		V=12.59	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 725)	(7) SK-116	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	<i>Comments: We have restricted the orient to avoid a bright source. Our target is the brightest object in the field and is safe.</i>									
	2	Target Acq (COS.sa.408 725)	(7) SK-116	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	<i>Comments: We have restricted the orient to avoid a bright source. Our target is the brightest object in the field and is safe.</i>									
	3	Science Exp 1921 (COS.sp.408 756)	(7) SK-116	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=48 0			190 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=33</i>									
	<i>We have restricted the orient to avoid a bright source. Our target is the brightest object in the field and is safe.</i>									
	4	Science Exp 1953 (COS.sp.408 756)	(7) SK-116	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=48 0			210 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=33</i>									
	<i>We have restricted the orient to avoid a bright source. Our target is the brightest object in the field and is safe.</i>									



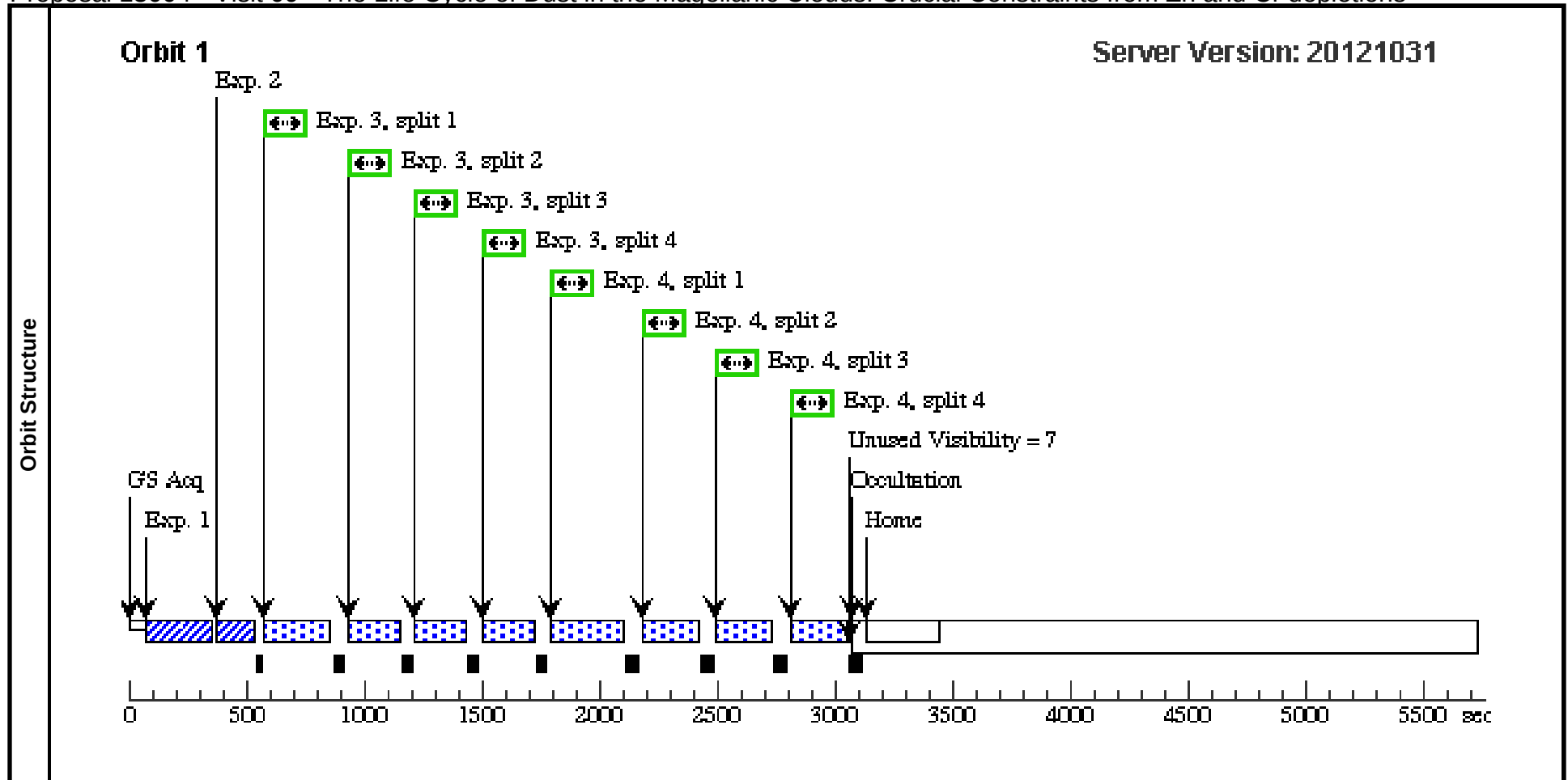
Proposal 13004 - Visit 08 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 08, completed									Thu Apr 18 01:09:44 GMT 2013
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: COS/NUV									
	Special Requirements: SCHED 100%									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(8)	SK-9 Alt Name1: AVZ-14	RA: 00 46 32.6300 (11.6359583d) Dec: -73 06 5.70 (-73.10158d) Equinox: J2000				V=13.55	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 728)	(8) SK-9	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	 [1]
	Comments: There are 3 unknown sources in the region. The brightest source in the region has a J-band magnitude of 14.1. This source is safe even if it is an O5 star.									
	2	Target Acq (COS.sa.408 728)	(8) SK-9	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	 [1]
	Comments: There are 3 unknown sources in the region. The brightest source in the region has a J-band magnitude of 14.1. This source is safe even if it is an O5 star.									
	3	Science Exp 1921 (COS.sp.408 757)	(8) SK-9	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=27									
	All sources are safe. There is an unknown source in the field, but the brightest source (our target) is safe, indicating all others are as well.									
	4	Science Exp 1953 (COS.sp.408 757)	(8) SK-9	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=27									
	All sources are safe. There is an unknown source in the field, but the brightest source (our target) is safe, indicating all others are as well.									



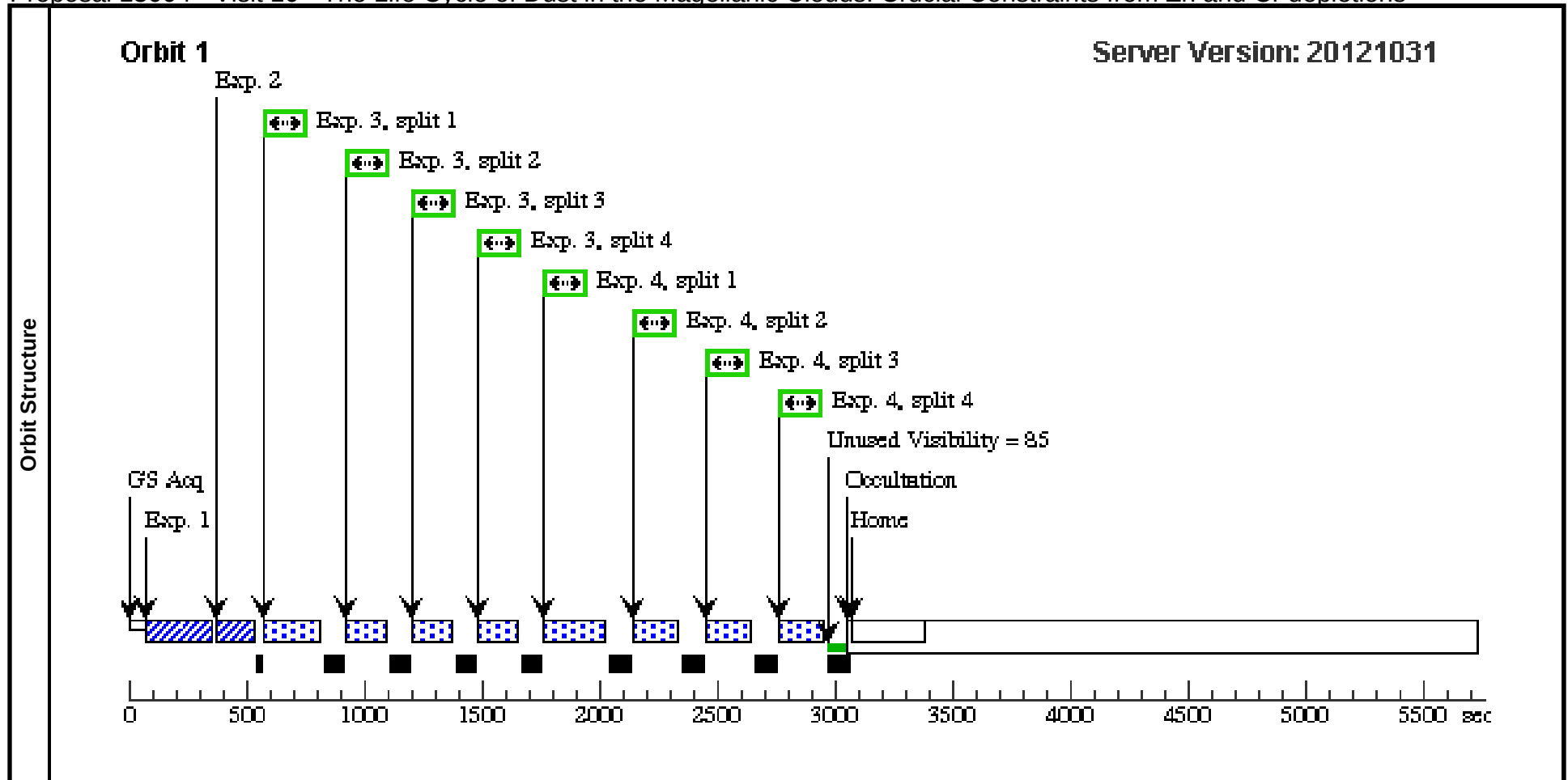
Proposal 13004 - Visit 09 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 09, implementation Thu Apr 18 01:09:45 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(9)	AZV-476	RA: 01 13 42.4500 (18.4268750d) Dec: -73 17 29.50 (-73.29153d) Equinox: J2000		V=13.52	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.ta.407 095)	(9) AZV-476	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	<i>Comments: The brightest source in the field has a J-band magnitude of 12.6. Even if it is an O5-type star it is safe with MIRRORB.</i>									
	2	Target Acq (COS.ta.407 095)	(9) AZV-476	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	<i>Comments: The brightest source in the field has a J-band magnitude of 12.6. Even if it is an O5-type star it is safe with MIRRORB.</i>									
	3	Science Exp 1921 (COS.sp.408 758)	(9) AZV-476	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=60 0			200 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=21</i>									
	<i>The brightest source in the field has a J-band magnitude of 12.6. Even if it is an O5-type star it is safe.</i>									
	4	Science Exp 1953 (COS.sp.408 758)	(9) AZV-476	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=60 0			220 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=21</i>									



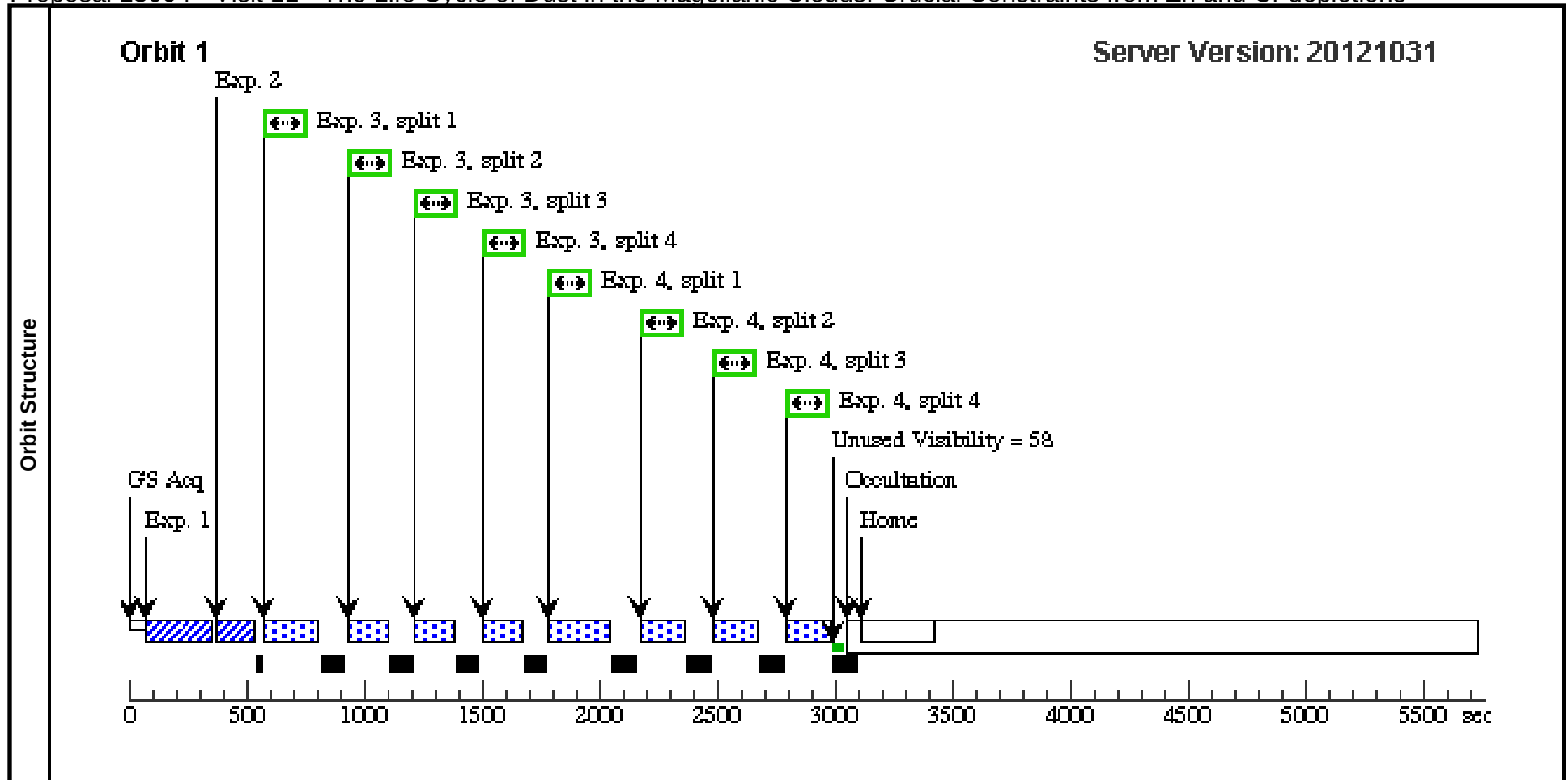
Proposal 13004 - Visit 10 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 10, completed Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100% Thu Apr 18 01:09:46 GMT 2013									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(10)	SK-65-22 Alt Name1: HD270952	RA: 05 01 23.0800 (75.3461667d) Dec: -65 52 33.20 (-65.87589d) Equinox: J2000		V=12.08	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 729)	(10) SK-65-22	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	Comments: The only unknown source in the region is our target, an O7 star of V-band magnitude 12.08. It is safe according to the ETC.									
	2	Target Acq (COS.sa.408 729)	(10) SK-65-22	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	Comments: The only unknown source in the region is our target, an O7 star of V-band magnitude 12.08. It is safe according to the ETC.									
	3	Science Exp 1921 (COS.sp.408 759)	(10) SK-65-22	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=20 0			155 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=59									
	The only unknown source in the region is our target, an O7 star of V-band magnitude 12.08. The source is safe according to the ETC. All other sources are safe.									
	4	Science Exp 1953 (COS.sp.408 759)	(10) SK-65-22	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=20 0			175 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=59									
	The only unknown source in the region is our target, an O7 star of V-band magnitude 12.08. The source is safe according to the ETC. All other sources are safe.									



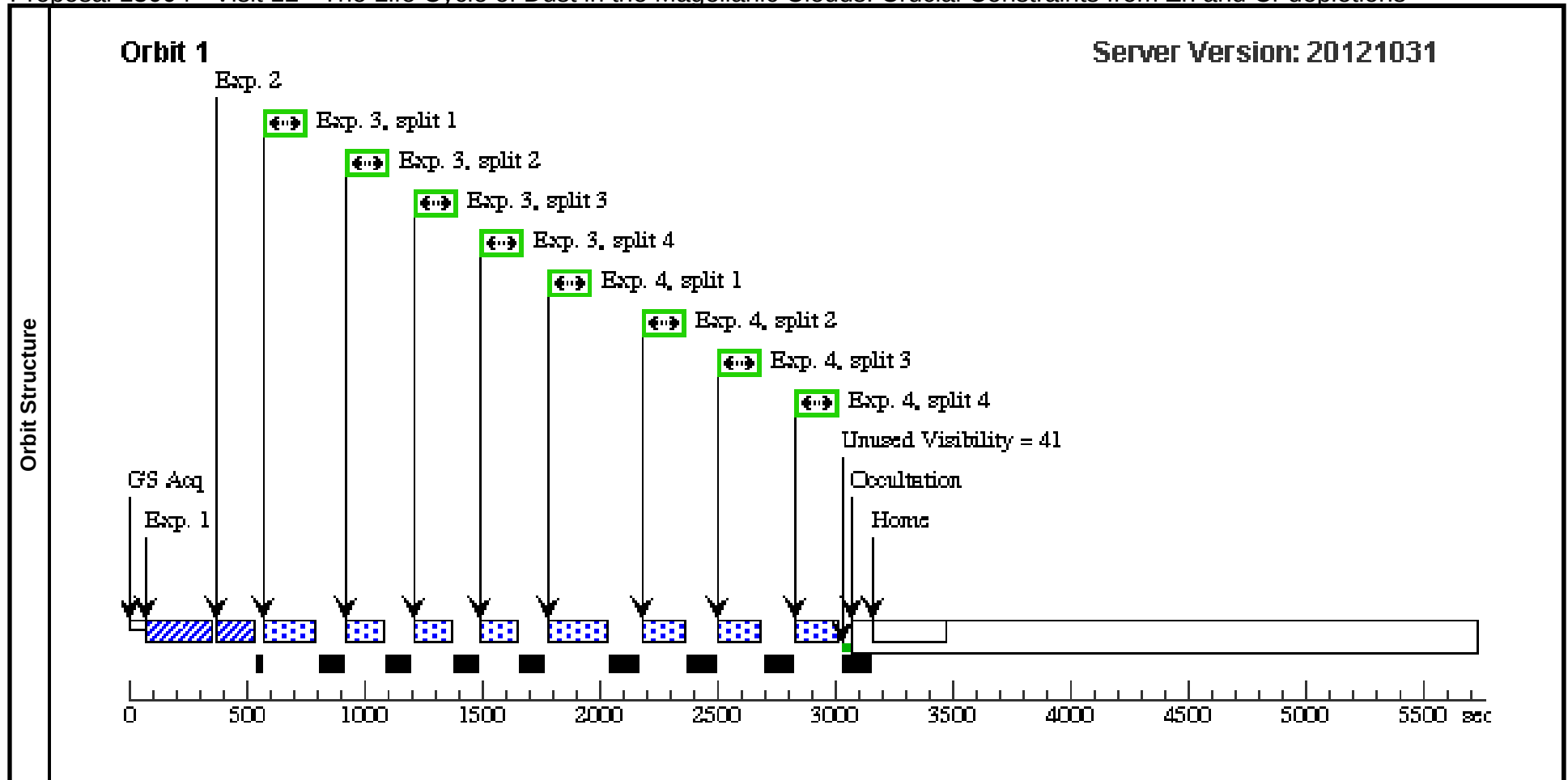
Proposal 13004 - Visit 11 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 11, completed									Thu Apr 18 01:09:47 GMT 2013
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: COS/NUV									
	Special Requirements: SCHED 100%									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(11)	SK-67-5 Alt Name1: HD268605	RA: 04 50 18.9200 (72.5788333d) Dec: -67 39 38.00 (-67.66056d) Equinox: J2000				V=11.34	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 733)	(11) SK-67-5	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	 [1]
	Comments: All known sources are safe. The 1 unknown source has a V-band magnitude of 17.6, safe even for a O5-type star.									
	2	Target Acq (COS.sa.408 733)	(11) SK-67-5	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	 [1]
	Comments: All known sources are safe. The 1 unknown source has a V-band magnitude of 17.6, safe even for a O5-type star.									
	3	Science Exp 1921 (COS.sp.408 761)	(11) SK-67-5	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=17 0			150 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=59									
	All known sources are safe. The 1 unknown source has a V-band magnitude of 17.6, safe even for an O5-type star.									
	4	Science Exp 1953 (COS.sp.408 761)	(11) SK-67-5	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=17 0			170 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=59									
	All known sources are safe. The 1 unknown source has a V-band magnitude of 17.6, safe even for an O5-type star.									



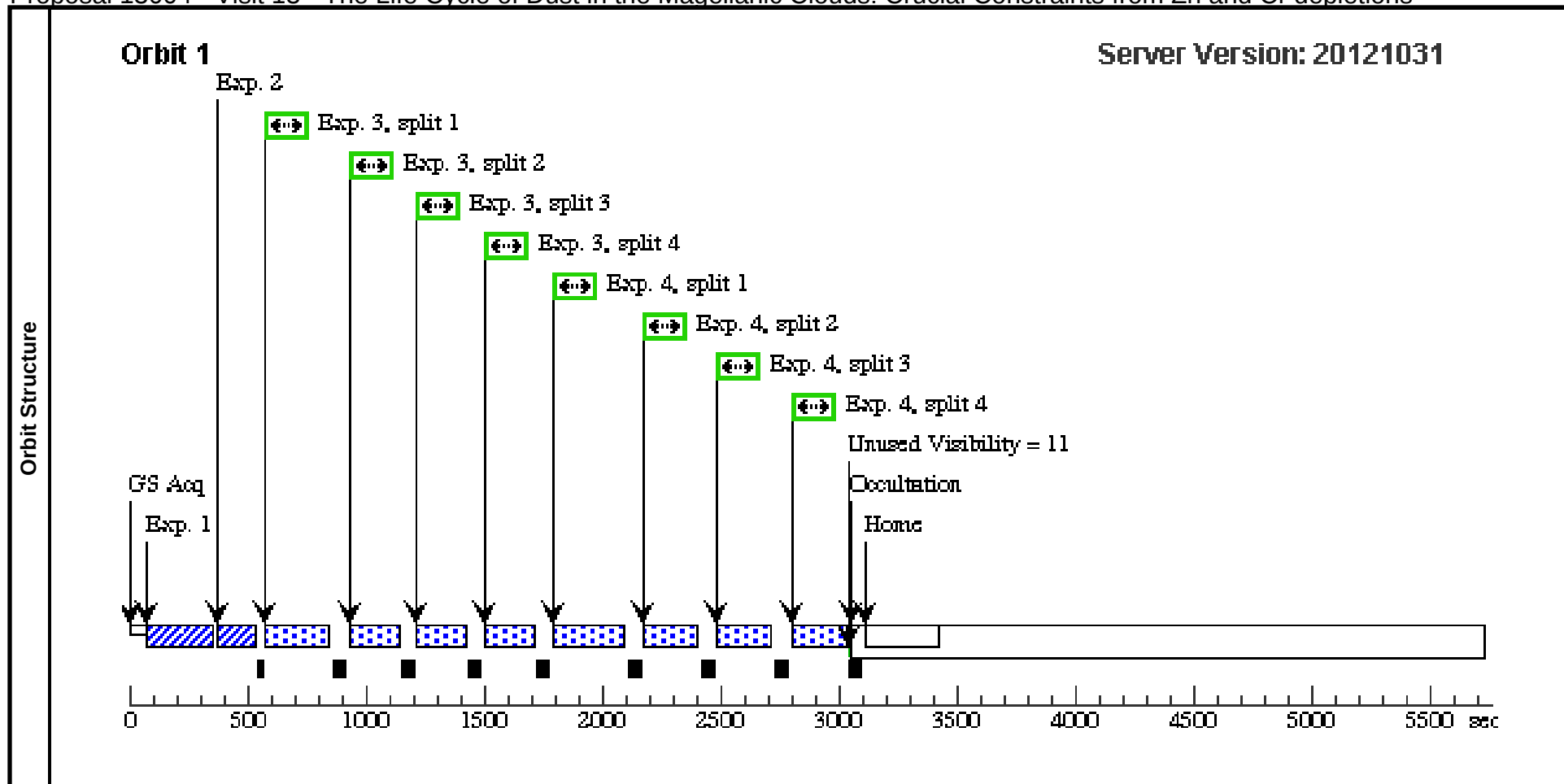
Proposal 13004 - Visit 12 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 12, implementation Thu Apr 18 01:09:48 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(12)	SK-71-45 Alt Name1: HD269676	RA: 05 31 15.7000 (82.8154167d) Dec: -71 04 10.10 (-71.06947d) Equinox: J2000		V=11.54	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 739)	(12) SK-71-45	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	<i>Comments: There is a bright, unknown source in the region with a V-band magnitude of 11.99. This is safe even for an O5-type star. The target, an O5-star of magnitude 11.54, is also safe.</i>									
	2	Target Acq (COS.sa.408 739)	(12) SK-71-45	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	<i>Comments: There is a bright, unknown source in the region with a V-band magnitude of 11.99. This is safe even for an O5-type star. The target, an O5-star of magnitude 11.54, is also safe.</i>									
	3	Science Exp 1921 (COS.sp.408 762)	(12) SK-71-45	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=14 0			140 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=68</i>									
	<i>There is a bright, unknown source in the region with a V-band magnitude of 11.99. This is safe even for an O5-type star. The target, an O5-star of magnitude 11.54, is also safe.</i>									
	4	Science Exp 1953 (COS.sp.408 762)	(12) SK-71-45	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=14 0			165 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=68</i>									
	<i>There is a bright, unknown source in the region with a V-band magnitude of 11.99. This is safe even for an O5-type star. The target, an O5-star of magnitude 11.54, is also safe.</i>									



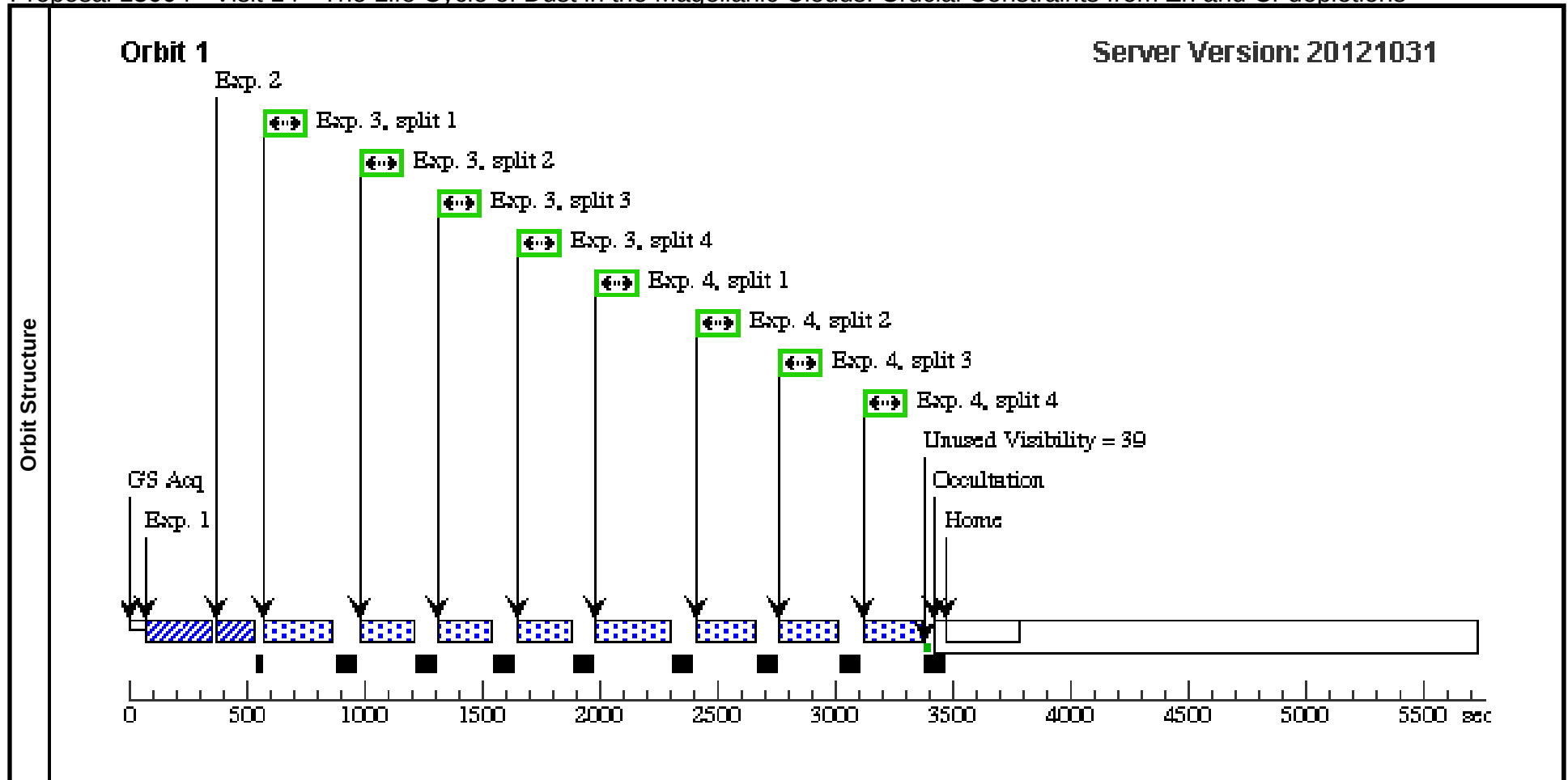
Proposal 13004 - Visit 13 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 13, completed									Thu Apr 18 01:09:49 GMT 2013
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: COS/NUV									
	Special Requirements: SCHED 100%									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(13)	SK-66-172 Alt Name1: UCAC2-2674369	RA: 05 37 5.3900 (84.2724583d) Dec: -66 21 35.10 (-66.35975d) Equinox: J2000				V=13.13	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 743)	(13) SK-66-172	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	 [1]
	Comments: The brightest star in the region is our target, an O3 star with a V-and magnitude of 13.1. The ETC indicates this is safe with MIRRORB.									
	2	Target Acq (COS.sa.408 743)	(13) SK-66-172	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	 [1]
	Comments: The brightest star in the region is our target, an O3 star with a V-and magnitude of 13.1. The ETC indicates this is safe with MIRRORB.									
	3	Science Exp 1921 (COS.sp.408 763)	(13) SK-66-172	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=50 0			190 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=31									
	The brightest star in the region is our target, an O3 star with a V-and magnitude of 13.1. The ETC indicates this is safe with MIRRORB.									
	4	Science Exp 1953 (COS.sp.408 763)	(13) SK-66-172	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=50 0			215 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=31									
	The brightest star in the region is our target, an O3 star with a V-and magnitude of 13.1. The ETC indicates this is safe with MIRRORB.									



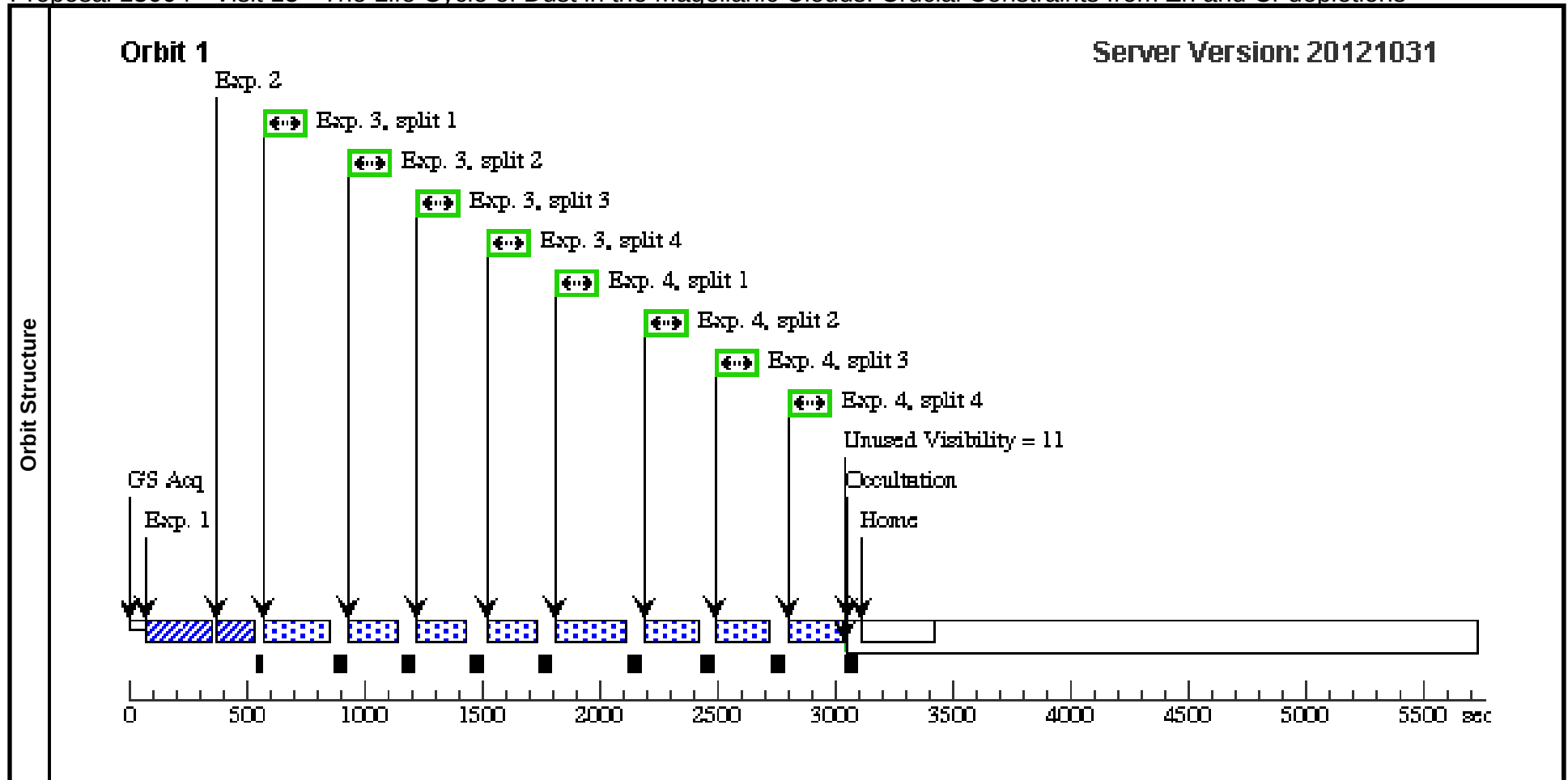
Proposal 13004 - Visit 14 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 14, implementation Thu Apr 18 01:09:50 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 50%; ORIENT 150D TO 20 D; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(14)	SK-70-115 Alt Name1: HD270145	RA: 05 48 49.6500 (87.2068750d) Dec: -70 03 57.80 (-70.06606d) Equinox: J2000		V=12.24	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 745)	(14) SK-70-115	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	Comments: The brightest source in the field is our target, an O7 star with a V-band magnitude of 12.2. The ETC indicates this star is safe. There is a region of bright, extended emission that we restrict the orient to avoid as a precaution.									
	2	Target Acq (COS.sa.408 745)	(14) SK-70-115	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	Comments: The brightest source in the field is our target, an O7 star with a V-band magnitude of 12.2. The ETC indicates this star is safe. There is a region of bright, extended emission that we restrict the orient to avoid as a precaution.									
	3	Science Exp 1921 (COS.sp.408 764)	(14) SK-70-115	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=30 0			210 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=43 The brightest source in the field is our target, an O7 star with a V-band magnitude of 12.2. The ETC indicates this star is safe.									
	4	Science Exp 1953 (COS.sp.408 764)	(14) SK-70-115	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=30 0			230 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	Comments: SNR=43 The brightest source in the field is our target, an O7 star with a V-band magnitude of 12.2. The ETC indicates this star is safe.									



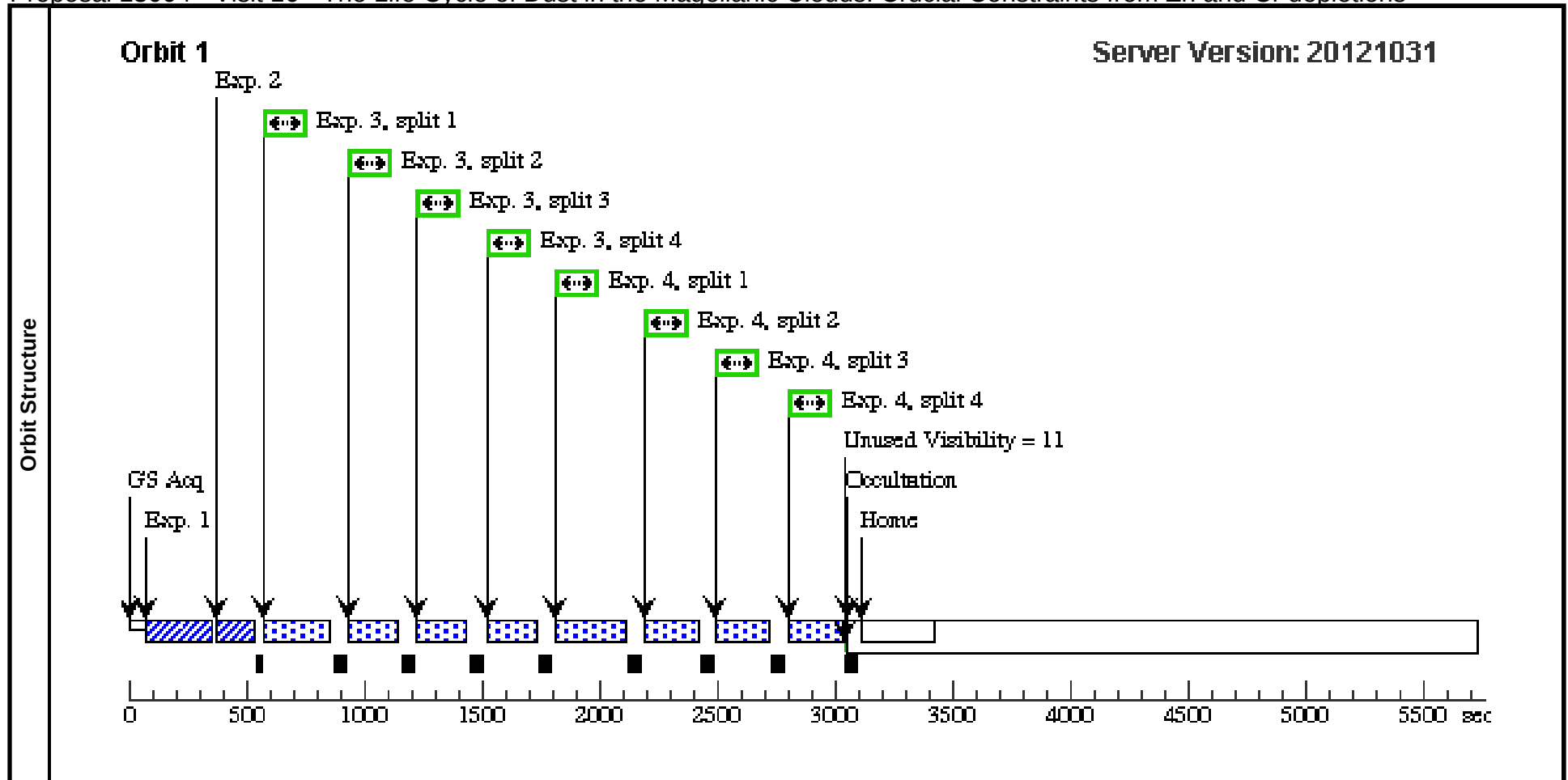
Proposal 13004 - Visit 15 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 15, implementation									Thu Apr 18 01:09:51 GMT 2013
	Diagnostic Status: No Diagnostics									
	Scientific Instruments: COS/NUV									
	Special Requirements: SCHED 100%; ON HOLD									
	On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections			Fluxes	Miscellaneous		
	(15)	BI-173 Alt Name1: GSC09162-00609	RA: 05 27 9.9400 (81.7914167d) Dec: -69 07 56.50 (-69.13236d) Equinox: J2000				V=12.96	Reference Frame: ICRS		
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 746)	(15) BI-173	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	 [1]
	Comments: We have restricted the orient to avoid an unkonwn bright source.									
	2	Target Acq (COS.sa.408 746)	(15) BI-173	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	 [1]
	Comments: We have restricted the orient to avoid an unkonwn bright source.									
	3	Science Exp 1921 (COS.sp.408 765)	(15) BI-173	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=55 0			195 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=27									
	All sources are safe.									
	4	Science Exp 1953 (COS.sp.408 765)	(15) BI-173	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=55 0			210 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	 [1]
	Comments: SNR=27									
	All sources are safe.									



Proposal 13004 - Visit 16 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 16, implementation Thu Apr 18 01:09:52 GMT 2013									
	Diagnostic Status: No Diagnostics Scientific Instruments: COS/NUV Special Requirements: SCHED 100%; ORIENT 240D TO 110 D; ON HOLD <i>On Hold Comments: Due to flight software LV50 bug, all COS NUV target acquisitions using dispersed light fail to acquire the desired targets.</i>									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(16)	LH10-3223 Alt Name1: GSC08889-00600 Alt Name2: BI42	RA: 04 57 0.8600 (74.2535833d) Dec: -66 24 25.10 (-66.40697d) Equinox: J2000		V=12.95	Reference Frame: ICRS				
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	Target Acq (COS.sa.408 747)	(16) LH10-3223	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs [==>]	[1]
	<i>Comments: We have restricted the orient to avoid a bright nearby source. The target, an O8 star of 12.95 V-band magnitude is safe.</i>									
	2	Target Acq (COS.sa.408 747)	(16) LH10-3223	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]	[1]
	<i>Comments: We have restricted the orient to avoid a bright nearby source. The target, an O8 star of 12.95 V-band magnitude is safe.</i>									
	3	Science Exp 1921 (COS.sp.408 766)	(16) LH10-3223	COS/NUV, TIME-TAG, PSA	G185M 1921 A	FP-POS=ALL; BUFFER-TIME=50 0			195 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=31</i>									
	<i>We have restricted the orient to avoid a bright nearby source. The target, an O8 star of 12.95 V-band magnitude is safe.</i>									
	4	Science Exp 1953 (COS.sp.408 766)	(16) LH10-3223	COS/NUV, TIME-TAG, PSA	G185M 1953 A	FP-POS=ALL; BUFFER-TIME=50 0			210 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[1]
	<i>Comments: SNR=31</i>									
	<i>We have restricted the orient to avoid a bright nearby source. The target, an O8 star of 12.95 V-band magnitude is safe.</i>									



Proposal 13004 - Visit 17 - The Life Cycle of Dust in the Magellanic Clouds: Crucial Constraints from Zn and Cr depletions

Visit	Proposal 13004, Visit 17, completed										Thu Apr 18 01:09:53 GMT 2013	
	Diagnostic Status: No Diagnostics											
	Scientific Instruments: COS/NUV											
	Special Requirements: SCHED 100%											
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections		Fluxes		Miscellaneous			
	(17)	SK-68-135 Alt Name1: HD269896	RA: 05 37 49.1300 (84.4547083d) Dec: -68 55 1.70 (-68.91714d) Equinox: J2000				V=11.36		Reference Frame: ICRS			
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture		Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]		Orbit
	1	Target Acq (COS.sa.408 748)	(17) SK-68-135	COS/NUV, ACQ/PEAKXD, PSA		G185M 1921 A				2 Secs [==>]		 [1]
	Comments: There is one unknown source in the region, our target, an 09 star with a V-band magnitude of 11.36. The ETC indicates this is safe.											
	2	Target Acq (COS.sa.408 748)	(17) SK-68-135	COS/NUV, ACQ/PEAKD, PSA		G185M 1921 A	STEP-SIZE=0.9			2 Secs [==>]		 [1]
	Comments: There are two unknown sources in the region. The brightest, our target, is an 09 star with a V-band magnitude of 11.36. The ETC indicates this is safe.											
	3	Science Exp 1921 (COS.sp.408 767)	(17) SK-68-135	COS/NUV, TIME-TAG, PSA		G185M 1921 A	FP-POS=ALL; BUFFER-TIME=27 0			170 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		 [1]
	Comments: SNR=42											
	All known sources are safe. The one unknown source is the target, an 09 star with a V-band magnitude of 11.36. The ETC indicates this is safe.											
	4	Science Exp 1953 (COS.sp.408 767)	(17) SK-68-135	COS/NUV, TIME-TAG, PSA		G185M 1953 A	FP-POS=ALL; BUFFER-TIME=27 0			190 Secs [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]		 [1]
	Comments: SNR=42											
	All known sources are safe. The one unknown source is the target, an 09 star with a V-band magnitude of 11.36. The ETC indicates this is safe.											

