



11729 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Cycle: 17, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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Dr. Howard E. Bond (CoI)	Space Telescope Science Institute	

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) NGC-6791	WFC3/UVIS	3	13-Jul-2009 21:52:32.0	yes
02	(2) NGC-0104	WFC3/UVIS	3	13-Jul-2009 21:52:48.0	yes
03	(3) NGC-6752	WFC3/UVIS	3	13-Jul-2009 21:52:59.0	yes
04	(4) MESSIER-092	WFC3/UVIS	3	13-Jul-2009 21:53:12.0	yes
05	(5) NGC-5927	WFC3/UVIS	3	13-Jul-2009 21:53:21.0	yes

15 Total Orbits Used

ABSTRACT

The community has chosen to include several filters in the WFC3 filter complement that have been designed to allow fairly precise estimates of stellar metallicities, and many science programs are enabled by this capability. Since these filters do not exactly match those used for this purpose on the ground, however, the mapping of stellar colors to stellar metallicities needs to be calibrated. We propose to achieve this calibration through observations of five stellar clusters with well known metallicities. We will calibrate several different filter calibrations which will allow future users to determine what filter combination best meets their science needs.

OBSERVING DESCRIPTION

We will be observing 5 stellar clusters in multiple filters to determine how best to estimate metallicity from photometric indices. In each cluster, we requested observations in F336W, F390M, F390W, F395N, F410M, F467M, F547M, F555W, and F814W. However, a separate proposal (11664) also received time to observe the same clusters in F390W, F555W, and F814W. We have worked in collaboration with that team, and they will obtain their observations as planned; we will observe in the 6 other filters (and we have added one shorter exposure in F390W to measure the brightest stars).

We have coordinated to use the same pointings to insure comparable coverage in the full filter set. We **STRONGLY** desire that the observations from the two programs (11729 and 11664) in each of our 5 clusters be scheduled as close as possible to each other, to allow the roll angles to be comparable.

In each of our filters, we will take on short exposure, and a long exposure, where the latter will be CR split.

CALIBRATION JUSTIFICATION

These observations are of clusters of known metallicity and as such, are calibration observations to understand how the photometric indices can be used to measure metallicity, as well as determine sensitivities to surface gravity, and reddening.

ADDITIONAL COMMENTS

As noted above, the scientific/calibration value of our observations would be significantly increased if the observations in our program were coordinate with observations of the same targets in program 11664, to insure that comparable roll angles are used, which would yield the same field coverage in both programs; this is important because the two programs are observing with different, complementary filter sets.

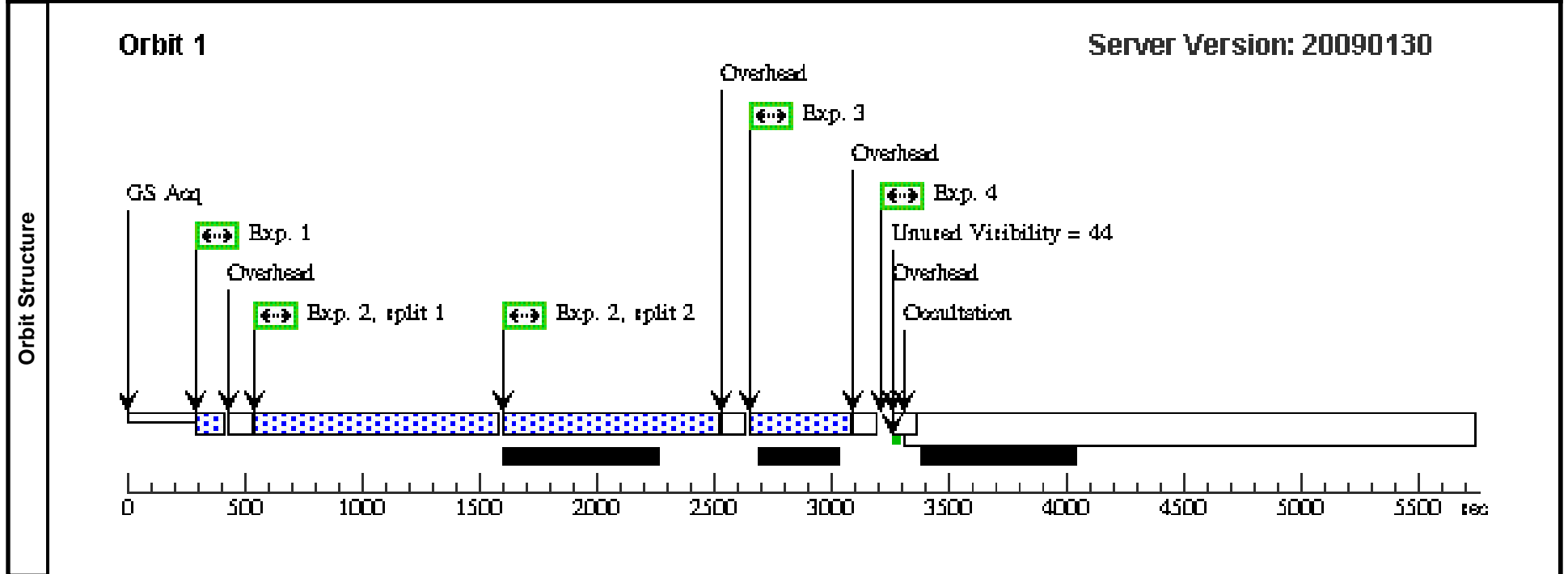
Proposal 11729 - Visit 01 - Photometric Metallicity Calibration with WFC3 Specialty Filters

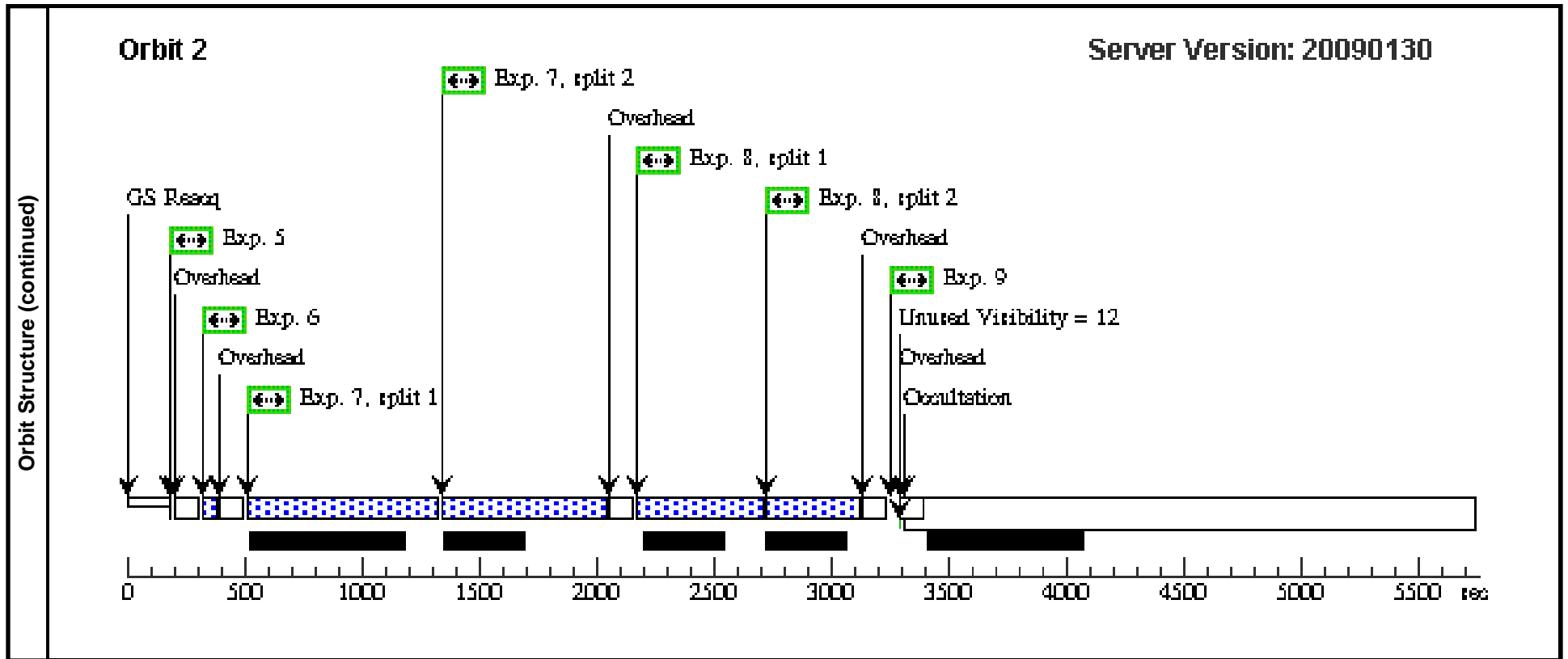
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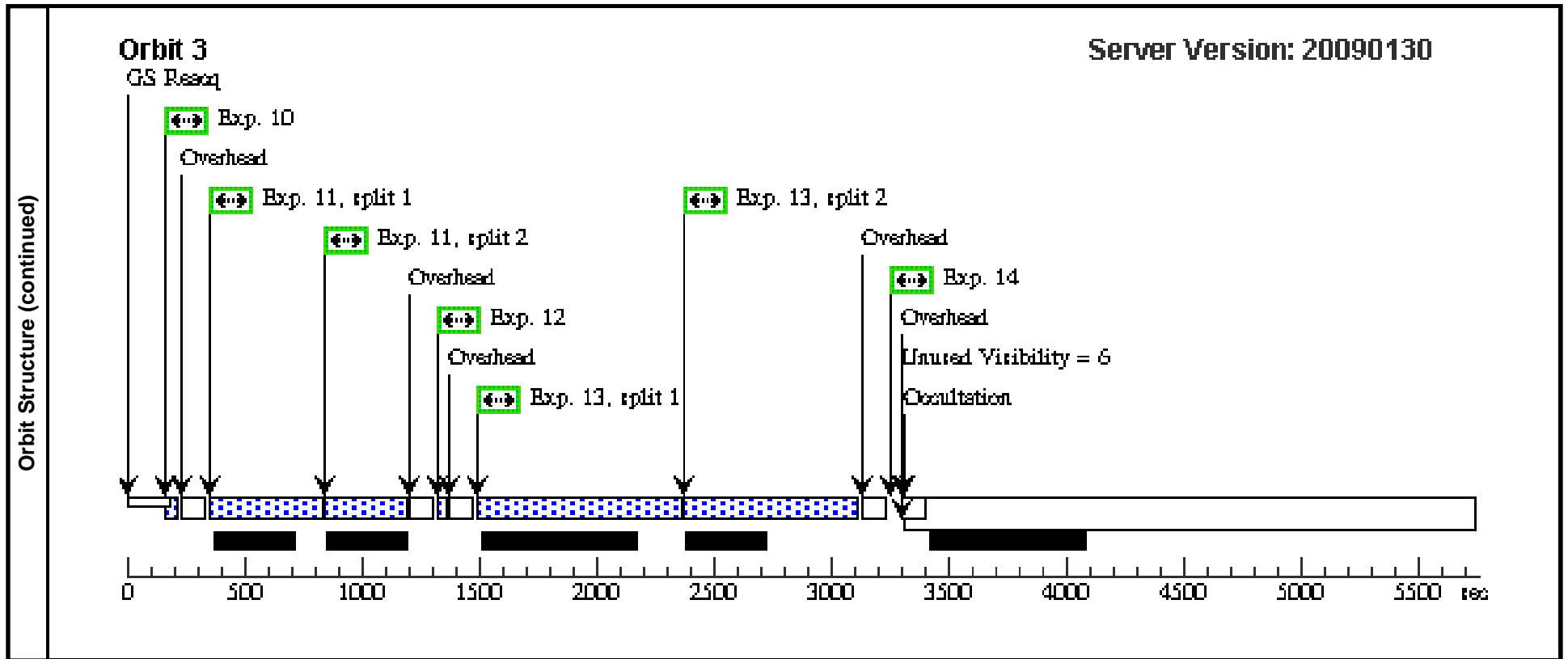
Visit	Proposal 11729, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 0.0D TO 0.0 D; ORIENT 17D TO 17 D; ORIENT 47D TO 47 D; ORIENT 58D TO 58 D; ORIENT 70D TO 70 D; ORIENT 102D TO 102 D; ORIENT 134D TO 134 D; ORIENT 172D TO 172 D; ORIENT 220D TO 220 D; ORIENT 267D TO 267 D; ORIENT 300D TO 300 D; ORIENT 330D TO 330 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(1)	NGC-6791	RA: 19 20 53.0000 (290.2208333d) Dec: +37 46 30.00 (37.77500d) Equinox: J2000		V=12.0	Reference Frame: ICRS				
	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N	CR-SPLIT=NO			90.0 Secs [==>]	[1]
	2		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N				1850.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			400.0 Secs [==>]	[1]
	4		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			40.0 Secs [==>]	[1]
	5		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			5.0 Secs [==>]	[2]
	6		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M	CR-SPLIT=NO			50.0 Secs [==>]	[2]
	7		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M				1400.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	8		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W				800.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	9		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F390W	CR-SPLIT=NO			10.0 Secs [==>]	[2]
	10		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W	CR-SPLIT=NO			30.0 Secs [==>]	[3]
11		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M				700.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]	

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Exposures (continued)	#	Label	Target	Config, Mode, Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		12		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M	CR-SPLIT=NO			40.0 Secs [==>]
	13		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M				1490.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	14		(1) NGC-6791	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M	CR-SPLIT=NO			40.0 Secs [==>]	[3]







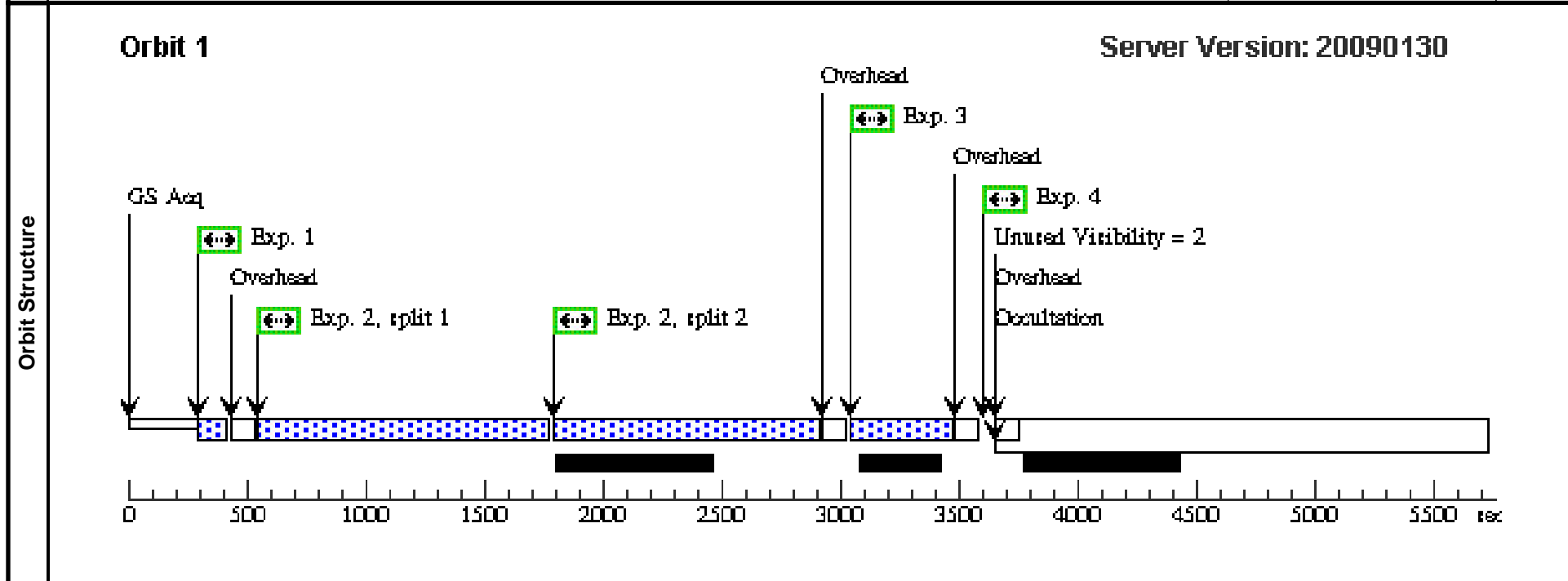
Proposal 11729 - Visit 02 - Photometric Metallicity Calibration with WFC3 Specialty Filters

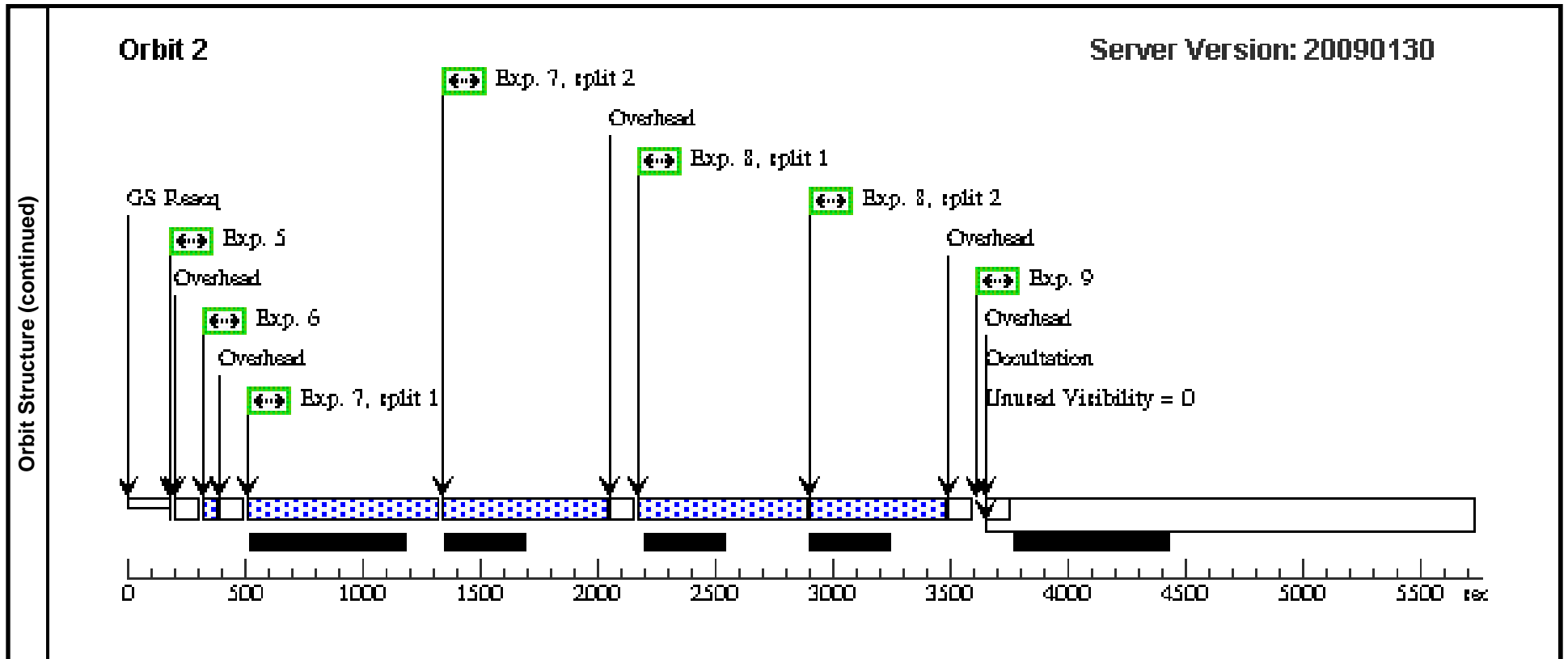
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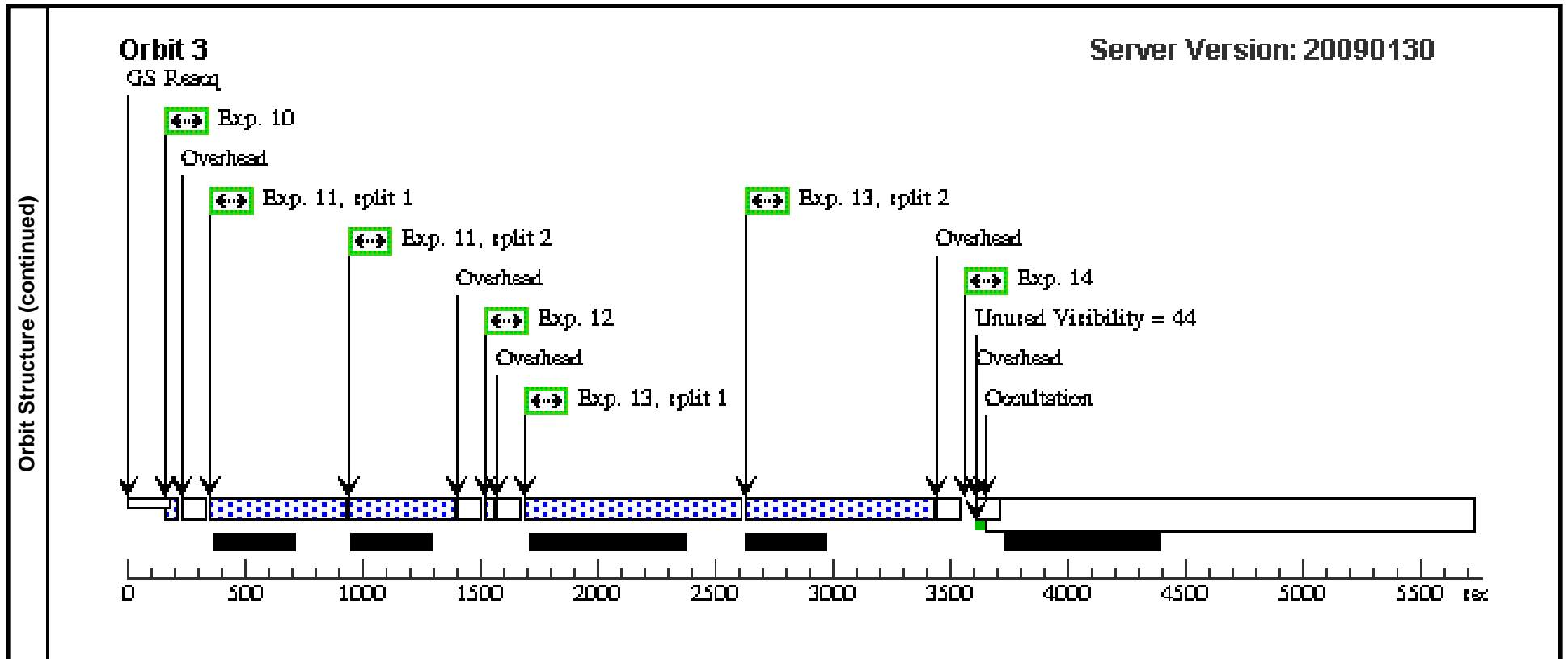
Visit	Proposal 11729, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 0.0D TO 0.0 D; ORIENT 35D TO 35 D; ORIENT 50D TO 50 D; ORIENT 75D TO 75 D; ORIENT 85D TO 85 D; ORIENT 108D TO 108 D; ORIENT 130D TO 130 D; ORIENT 143D TO 143 D; ORIENT 160D TO 160 D; ORIENT 195D TO 195 D; ORIENT 207D TO 207 D; ORIENT 261D TO 261 D; ORIENT 310D TO 310 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(2)	NGC-0104	RA: 00 24 15.2600 (6.0635833d) Dec: -72 05 47.93 (-72.09665d) Equinox: J2000			V=12.0	Reference Frame: ICRS	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>		
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N	CR-SPLIT=NO			90.0 Secs [==>]	[1]
	2	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N				2240.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			400.0 Secs [==>]	[1]
	4	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			40.0 Secs [==>]	[1]
	5	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			5.0 Secs [==>]	[2]
	6	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M	CR-SPLIT=NO			50.0 Secs [==>]	[2]
	7	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M				1400.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	8	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W				1160.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	9	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F390W	CR-SPLIT=NO			10.0 Secs [==>]	[2]
	10	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W	CR-SPLIT=NO			30.0 Secs [==>]	[3]
11	(2) NGC-0104	(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M				900.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]	

Proposal 11729 - Visit 02 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		12		(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M	CR-SPLIT=NO			40.0 Secs [==>]
	13		(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M				1600.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	14		(2) NGC-0104	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M	CR-SPLIT=NO			40.0 Secs [==>]	[3]







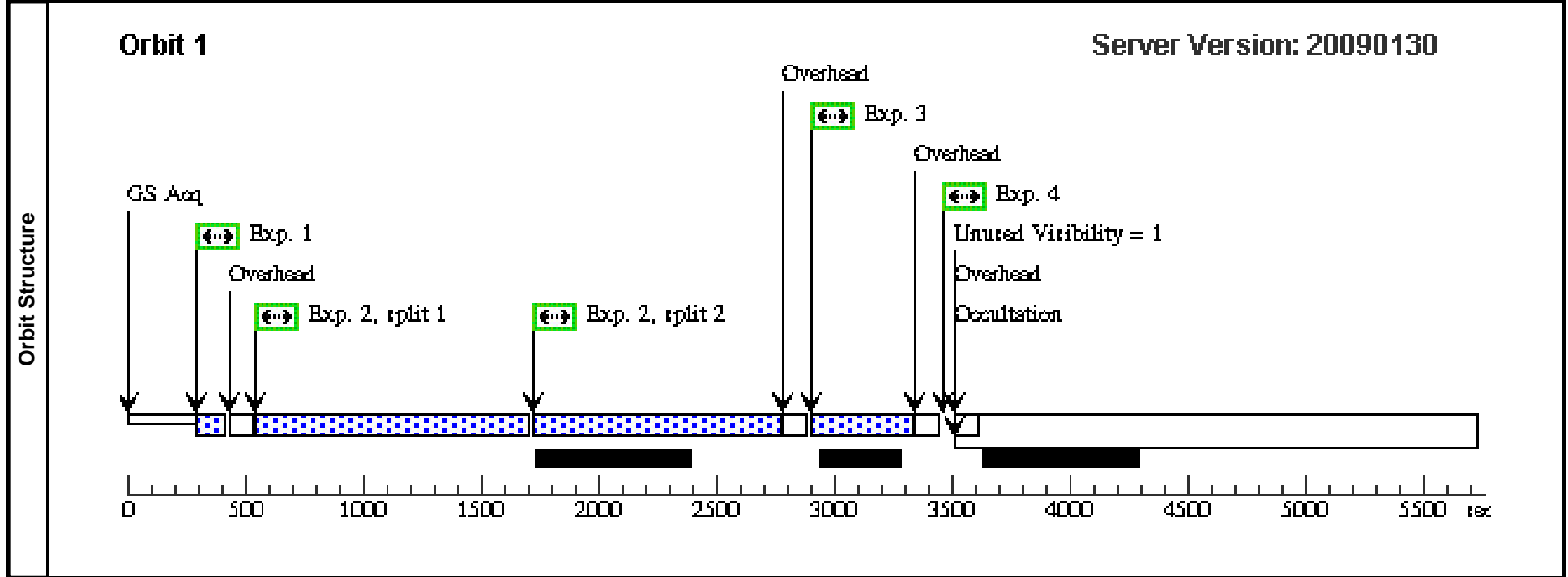
Proposal 11729 - Visit 03 - Photometric Metallicity Calibration with WFC3 Specialty Filters

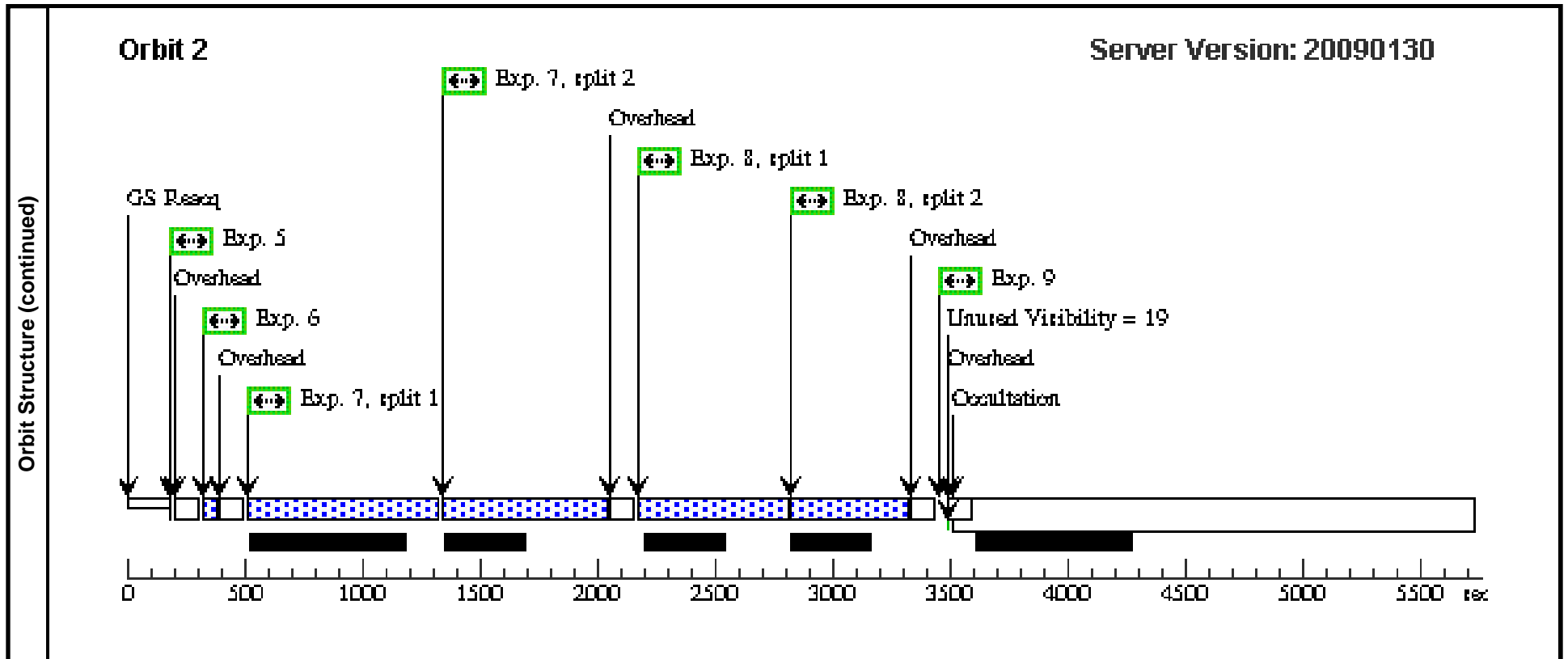
Tue Jul 14 01:53:29 GMT 2009

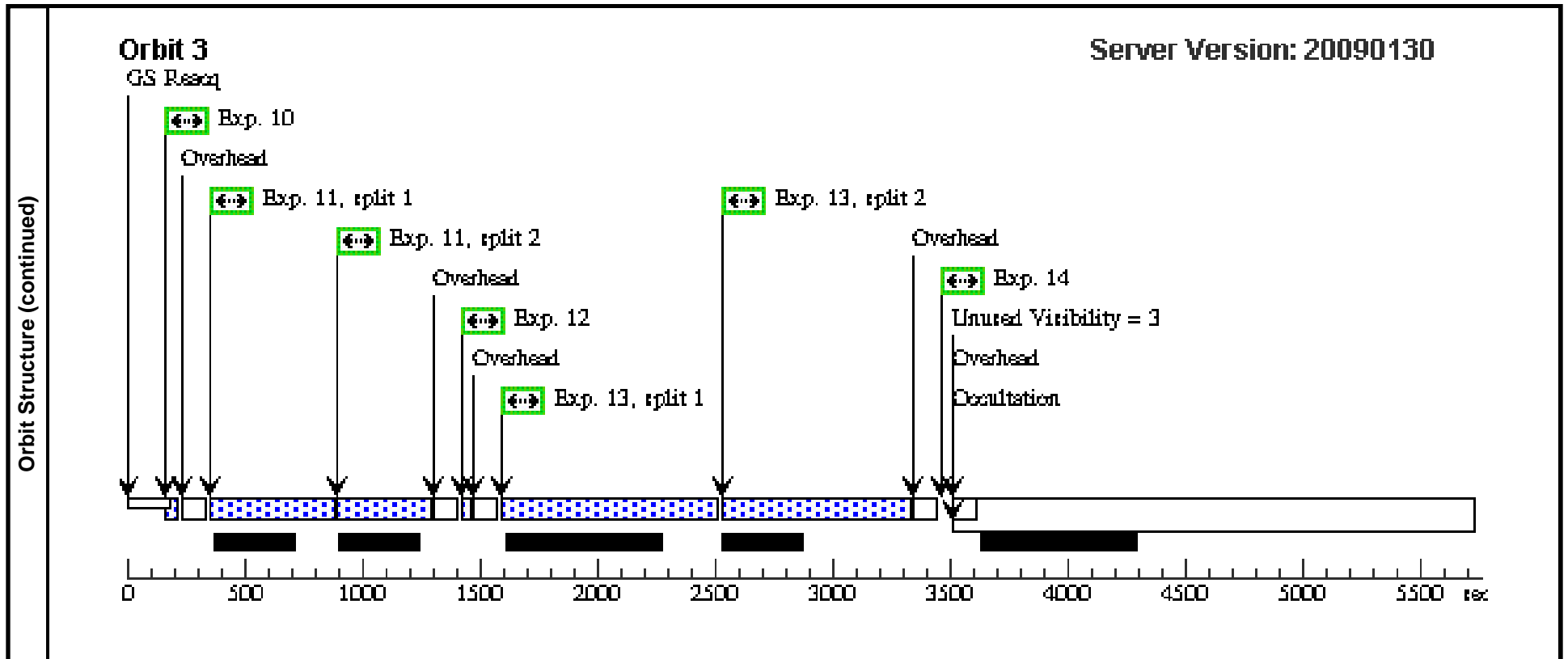
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	Fixed Targets	# Name Target Coordinates Targ. Coord. Corrections Fluxes Miscellaneous (3) NGC-6752 RA: 19 10 54.8600 (287.7285833d) Dec: -59 59 11.15 (-59.98643d) Equinox: J2000 <i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>								
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N	CR-SPLIT=NO			90.0 Secs [==>]	[1]
	2		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N				2100.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			400.0 Secs [==>]	[1]
	4		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			40.0 Secs [==>]	[1]
	5		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			5.0 Secs [==>]	[2]
	6		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M	CR-SPLIT=NO			50.0 Secs [==>]	[2]
	7		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M				1400.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	8		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W				1000.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	9		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F390W	CR-SPLIT=NO			10.0 Secs [==>]	[2]
	10		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W	CR-SPLIT=NO			30.0 Secs [==>]	[3]
	11		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M				800.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]

Proposal 11729 - Visit 03 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
		12		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M	CR-SPLIT=NO			40.0 Secs [==>]
	13		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M				1600.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]
	14		(3) NGC-6752	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M	CR-SPLIT=NO			40.0 Secs [==>]	[3]







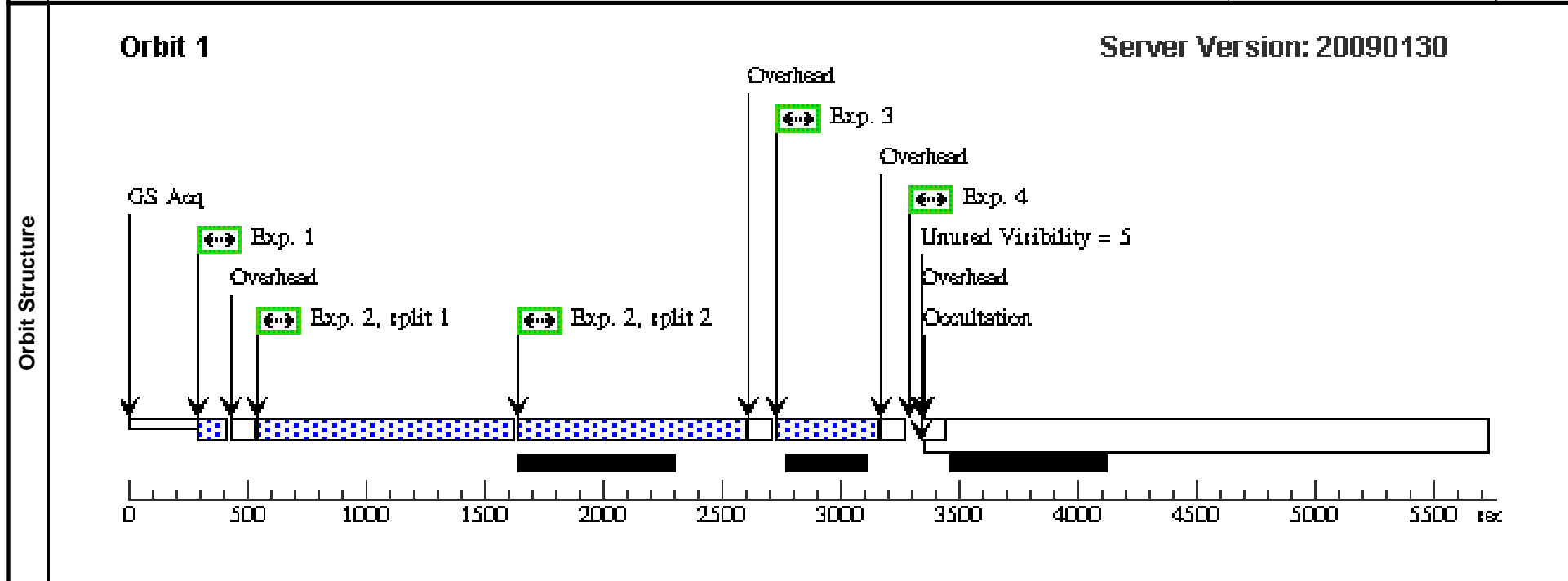
Proposal 11729 - Visit 04 - Photometric Metallicity Calibration with WFC3 Specialty Filters

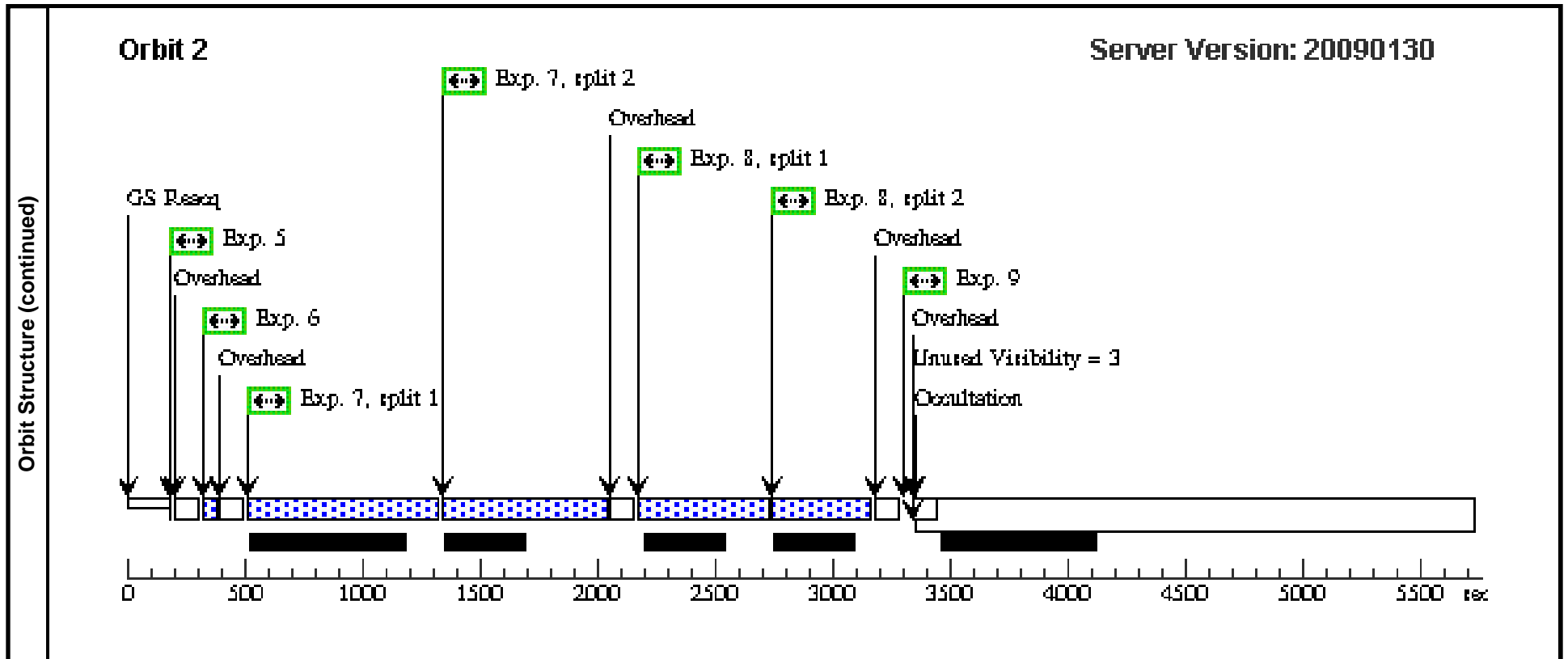
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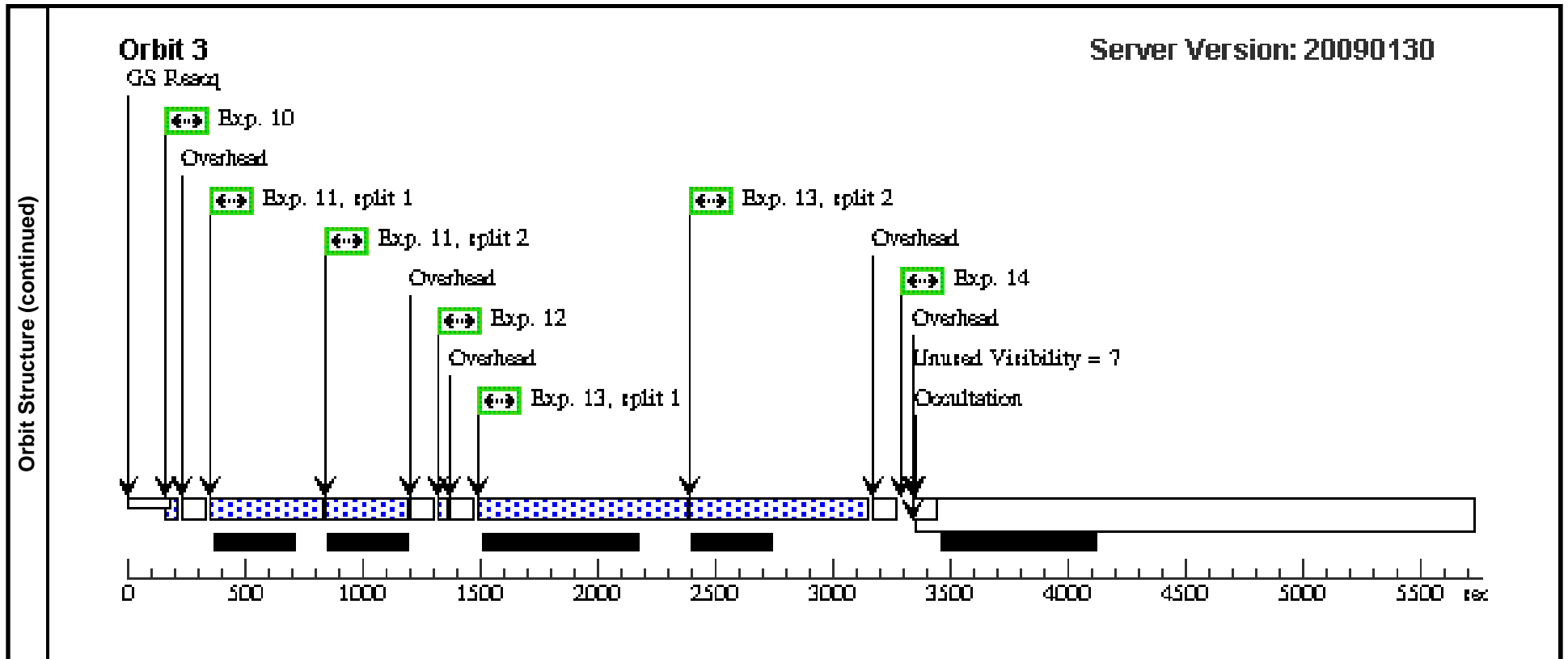
Visit	Proposal 11729, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 16D TO 16 D; ORIENT 41D TO 41 D; ORIENT 53D TO 53 D; ORIENT 64D TO 64 D; ORIENT 75D TO 75 D; ORIENT 95D TO 95 D; ORIENT 140D TO 140 D; ORIENT 244D TO 244 D; ORIENT 330D TO 330 D; ORIENT 348D TO 348 D; ORIENT 359D TO 359 D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
	(4)	MESSIER-092	RA: 17 17 7.0500 (259.2793750d) Dec: +43 07 58.25 (43.13285d) Equinox: J2000			V=12.0	Reference Frame: ICRS			
	<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N	CR-SPLIT=NO			90.0 Secs [==>]	[1]
	2	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F395N				1930.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			400.0 Secs [==>]	[1]
	4	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			40.0 Secs [==>]	[1]
	5	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			5.0 Secs [==>]	[2]
	6	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M	CR-SPLIT=NO			50.0 Secs [==>]	[2]
	7	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F390M				1400.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	8	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W				850.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	9	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F390W	CR-SPLIT=NO			10.0 Secs [==>]	[2]
	10	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F336W	CR-SPLIT=NO			30.0 Secs [==>]	[3]
11	(4) MESSIER-092	(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M				700.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]	

Proposal 11729 - Visit 04 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	12		(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F467M	CR-SPLIT=NO			40.0 Secs [==>]	[3]
13		(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M				1530.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]	
14		(4) MESSIER-092	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M	CR-SPLIT=NO			40.0 Secs [==>]	[3]	







Proposal 11729 - Visit 05 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Tue Jul 14 01:53:30 GMT 2009

Visit		Proposal 11729, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 0.0D TO 0.0 D; ORIENT 77D TO 77 D; ORIENT 111D TO 111 D; ORIENT 130D TO 130 D; ORIENT 270D TO 270 D; ORIENT 281D TO 281 D; ORIENT 310D TO 310 D								
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
		(5)	NGC-5927	RA: 15 28 0.2000 (232.0008333d) Dec: -50 40 26.20 (-50.67394d) Equinox: J2000		V=12.0	Reference Frame: ICRS			
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	1	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F395N	CR-SPLIT=NO			90.0 Secs [==>]	[1]
	2	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F395N				2030.0 Secs [==>(Split 1)] [==>(Split 2)]	[1]
	3	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			400.0 Secs [==>]	[1]
	4	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			40.0 Secs [==>]	[1]
	5	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F547M	CR-SPLIT=NO			5.0 Secs [==>]	[2]
	6	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F390M	CR-SPLIT=NO			50.0 Secs [==>]	[2]
	7	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F390M				1400.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	8	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F336W				950.0 Secs [==>(Split 1)] [==>(Split 2)]	[2]
	9	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F390W	CR-SPLIT=NO			10.0 Secs [==>]	[2]
	10	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F336W	CR-SPLIT=NO			30.0 Secs [==>]	[3]
	11	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F467M				730.0 Secs [==>(Split 1)] [==>(Split 2)]	[3]
12	(5) NGC-5927		WFC3/UVIS, ACCUM, UVIS-CENTER	F467M	CR-SPLIT=NO			40.0 Secs [==>]	[3]	

Proposal 11729 - Visit 05 - Photometric Metallicity Calibration with WFC3 Specialty Filters

Exposures (continued)	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
	13		(5) NGC-5927	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M					1600.0 Secs [==>(Split 1)] [==>(Split 2)]
14		(5) NGC-5927	WFC3/UVIS, ACCUM, UVIS-CENTER	F410M	CR-SPLIT=NO				40.0 Secs [==>]	[3]

