



## 16240 - Pinning down multi-phase mixing of metals within star-forming galaxies

Cycle: 28, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

### INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
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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) NGC5253-1+2+3+4 (3) NGC5253-8	COS/FUV COS/NUV	2	28-Oct-2022 11:01:50.0	yes
02	(2) NGC5253-5+11 (3) NGC5253-8	COS/FUV COS/NUV	3	28-Oct-2022 11:01:51.0	yes
06	(2) NGC5253-5+11 (3) NGC5253-8	COS/FUV COS/NUV	3	28-Oct-2022 11:01:52.0	yes
03	(2) NGC5253-5+11 (3) NGC5253-8	COS/FUV COS/NUV	3	28-Oct-2022 11:01:53.0	yes
04	(3) NGC5253-8	COS/FUV COS/NUV	4	28-Oct-2022 11:01:54.0	yes

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05	(3) NGC5253-8 (4) NGC5253-9+10	COS/FUV COS/NUV	3	28-Oct-2022 11:01:55.0	yes

18 Total Orbits Used

## **ABSTRACT**

Treating metals as homogeneous distributions throughout star-forming galaxies (SFGs) is no longer acceptable. Chemical inhomogeneities have been detected in the ionized gas of numerous SFGs via spatially resolved studies, with large implications for the flow of metals within and around galaxies. However, metals exist in multiple phases and, at present, the spatial distribution of metals throughout the neutral gas in SFGs remains unknown. Recent high-resolution galaxy-scale hydrodynamical simulations have made significant advancements, opening up crucial questions concerning mixing timescales and the presence of localized enrichment between the two gas phases. Answers can only be found by measuring both the neutral and ionized gas abundances along multiple identical sightlines throughout a nearby SFG. Here we propose COS G130M spectroscopy of 6 sightlines in NGC5253 (4 new, 2 archival), to measure the neutral gas abundances towards clusters ranging between 1-15Myr. When combined with ionized gas abundances of spatially matched spectra from VLT/MUSE, this unique dataset will provide the first spatially resolved study of metals both within and between two phases within a galaxy. Determining whether metal abundance offsets exist between the two phases, both globally and locally across a range of HII region properties, enables an exceptionally detailed sampling of chemical mixing scenarios and enrichment mechanisms experienced in SFGs. NGC5253's low-metallicity and high SFR make our findings applicable to both nearby and high-z SFGs. This remarkable study will provide the first observational test of multi-phase abundance patterns in cosmological simulations of dwarf galaxies.

## **OBSERVING DESCRIPTION**

Science overview: We propose to perform COS/FUV G130M/1291 and G130M/1222 spectroscopy of 4 pointings throughout a nearby, low-metallicity, star forming galaxy, NGC 5253. By combining this data with 2 pointings towards NGC 5253 from archival data (PIDs 11579, 15193), this dataset will allow us to map the neutral gas abundances towards 6 HII regions throughout NGC 5253. Furthermore, via in-hand optical integral field spectroscopic observations of NGC 5253 from VLT-MUSE, this unique dataset will offer the first spatially matched UV+optical spectroscopic study of a nearby SFG - enabling us to accurately compare the neutral and ionized gas abundances along the same sightline for a variety of stellar properties.

Proposal 16240 (STScI Edit Number: 7, Created: Friday, October 28, 2022 at 10:01:56 AM Eastern Standard Time) - Overview

Settings: We require G130M/1291 observations in order to cover the 1132-1433Å spectral range. This provides access to a wide selection of ISM lines, required to determine the column densities of CII, NI, OI, SII, SiII, FeII, PII, while also covering the Ly $\alpha$  region - essential in computing the neutral hydrogen column density (N(HI)) required for neutral gas abundances. We additionally request coverage of the 1070-1363Å range using G130M/1222. This allows us to cover the FeIII 1122 line, required to calculate the ionization state of the gas via the FeIII/FeII line ratio.

Sources:

All targets are considered to be extended sources, with the exception of Cluster 8

For the pointings with multiple resolved clusters in the aperture (C9+10, C5+11) we have chosen an orient such that the clusters are separated in the cross-dispersion direction. Details are given in visit description boxes.

For the pointing covering clusters 1+2+3+4, we will orient along 1+2+4, excluding cluster 3, to allow for the minimal amount of blending.

For pointing coordinates, please use the HLSP data of NGC5253 (aligned to Gaia astrometry), which can be found at <http://archive.stsci.edu/hlsp/ngc5253-dr2>

ETCs: The COS spectroscopic ETC was used to estimate exposure times necessary to reach a S/N 7 at 1150Å for G130M/1222 and G130M/1291. The flux of each target was normalized to the total observed flux that resides within the COS aperture, as measured on the HST/ACS/SBC/F125LP image (Table 1). For those pointings where several clusters are covered by the COS aperture, the flux corresponds to the average flux density across the aperture.

BOP: The ETC reported no warnings for violations of the local and/or global bright object limits, so we expect the targets to be safe to observe.

APT/BOT/GALEX gives local rate violation for one point (in PSA), global B exceeded with 1.86e4 counts/s. All counts rates are for GALEX GII magnitudes. All stars within the field are safe, as shown via ETCs for SCI, ACQ, and NUV imaging. A document with supporting information can be supplied to the CS. The same violation point was safely observed by Visit 06 of 15193 and in 11579.

The spectroscopic exposures in each pointing will be executed with FP-split.

TACQ: We will use the standard target acquisition (TA) strategy and perform ACQ/IMAGE TA with an ETC estimate to provide the (recommended) S/N 20. For pointings with multiple resolved clusters within the aperture, we will use affixed offset target acquisition from a nearby FUV-bright source, followed by a NUV image.

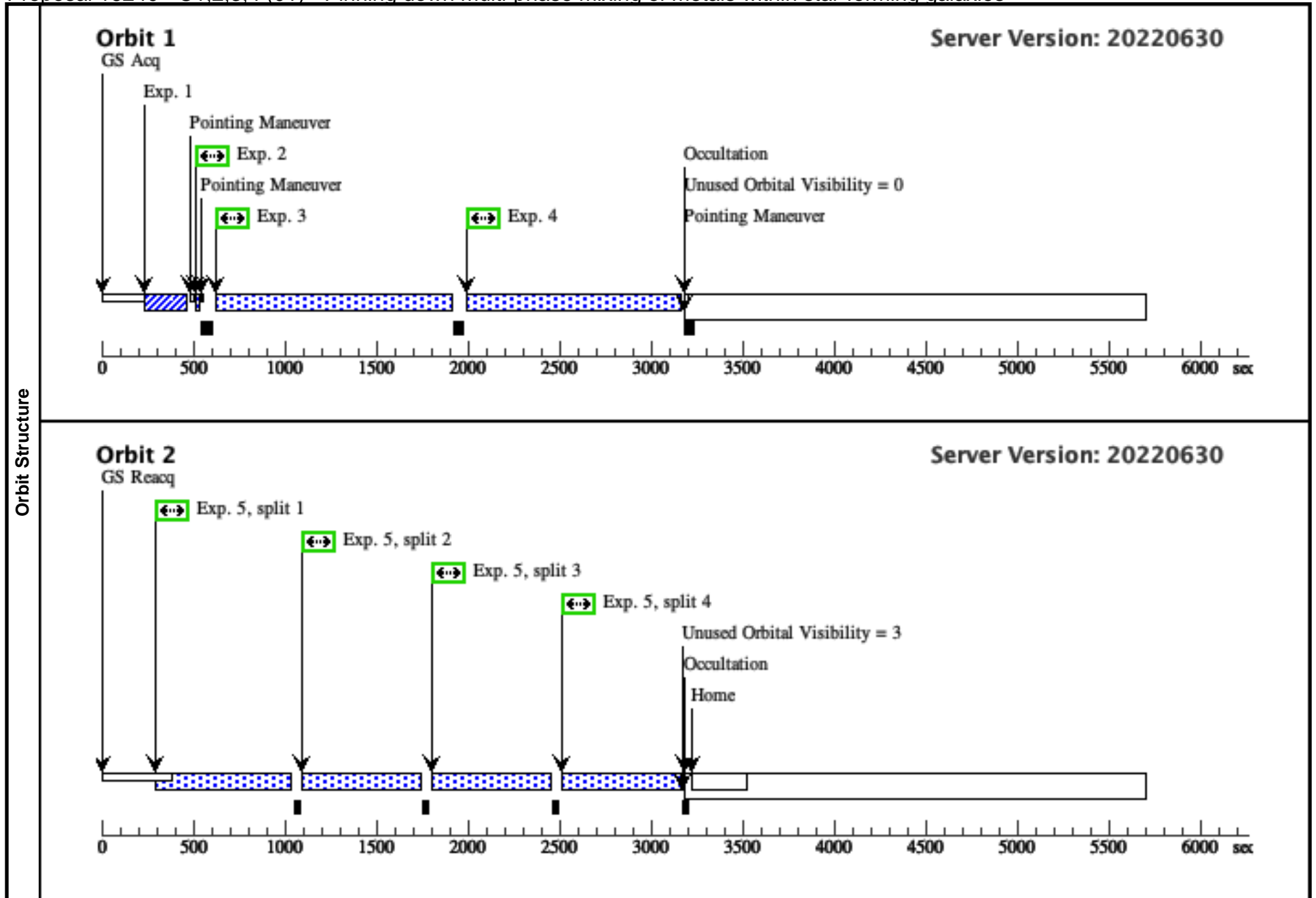
Proposal 16240 - C1,2,3,4 (01) - Pinning down multi-phase mixing of metals within star-forming galaxies

Fri Oct 28 15:01:56 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C1,2,3,4 (01), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: ORIENT 0D TO 40 D; ORIENT 180D TO 220 D</p> <p><i>Comments: Require PA of Cross-Dispersion axis of COS ~65 deg, 135deg offset from U3 axis</i>  <i>Relaxed PA requirements by +/- 20 deg to allow for schedulability</i></p>																																		
	<b>Diagnostics</b>	<p>(C1,2,3,4 (01)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C1,2,3,4 (01)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(1291-FP3 (01.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p> <p>(1291-FP4 (01.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p> <p>(1222-FPALL (01.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p>																																	
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Proposal 16240 - C1,2,3,4 (01) - Pinning down multi-phase mixing of metals within star-forming galaxies

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	TACQ - C8 Offset (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			GS ACQ SCENARI O BASE1BE		10 Secs (10 Secs) [==>]	[1]
	2	NUV Image C1,2,3,4 (COS.im.14 50243)	(1) NGC5253-1+2+3 +4	COS/NUV, ACCUM, PSA	MIRRORA					20 Secs (7.1 Secs) [==>7.1 Secs ]	[1]
	3	1291-FP3 (COS.sp.144 5382)	(1) NGC5253-1+2+3 +4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=26 00				1150 Secs (1120 Secs) [==>1120.0 Secs ]	[1]
	4	1291-FP4 (COS.sp.144 5382)	(1) NGC5253-1+2+3 +4	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=26 00				1150 Secs (1120 Secs) [==>1120.0 Secs ]	[1]
	5	1222-FPAL L (COS.sp.144 5388)	(1) NGC5253-1+2+3 +4	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=46 20				560 Secs (2376 Secs) [==>594.0 Secs (Split 1)] [==>594.0 Secs (Split 2)] [==>594.0 Secs (Split 3)] [==>594.0 Secs (Split 4)]	[2]



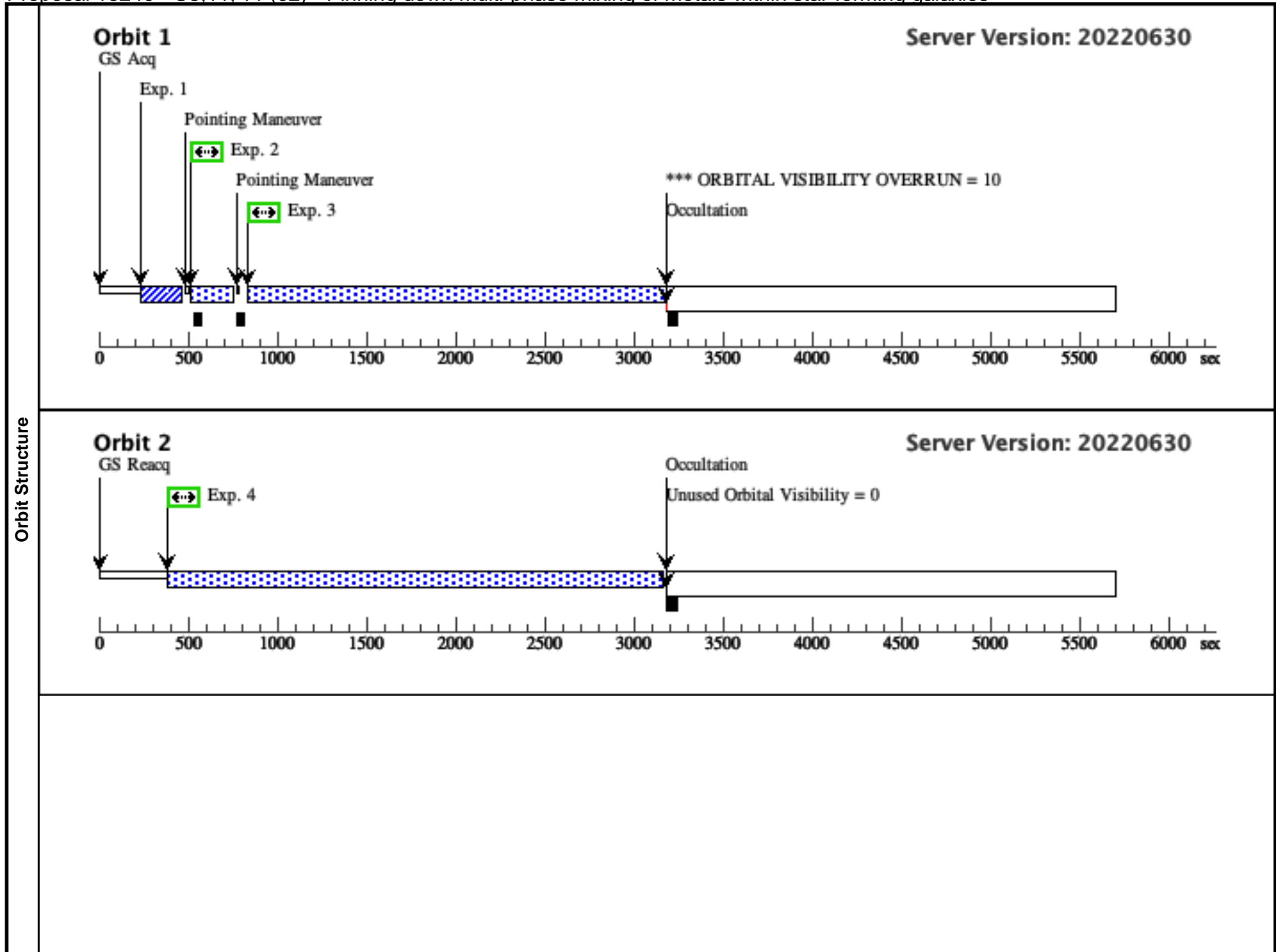
Proposal 16240 - C5,11, v1 (02) - Pinning down multi-phase mixing of metals within star-forming galaxies

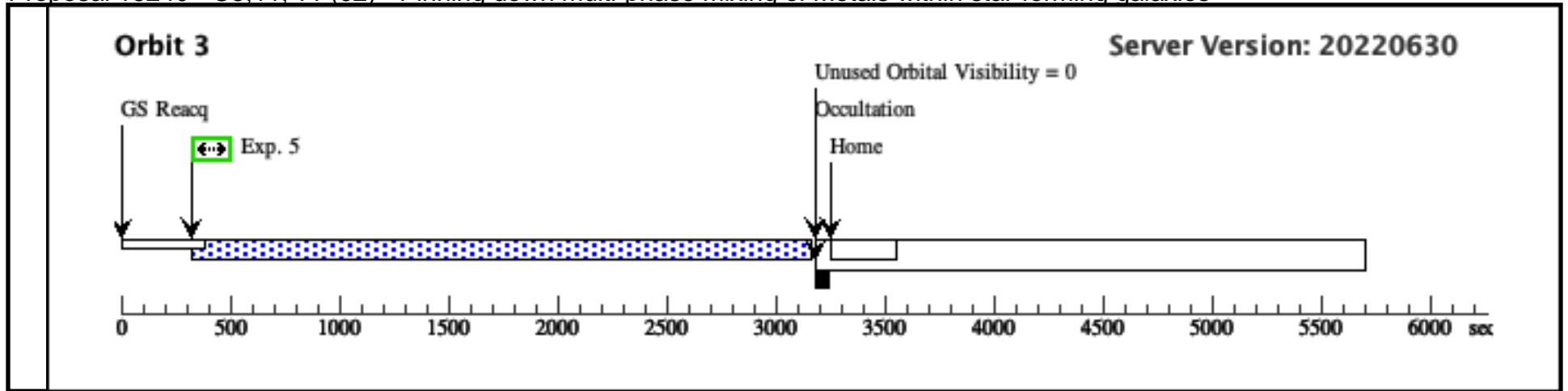
Fri Oct 28 15:01:56 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C5,11, v1 (02), failed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: ORIENT 225D TO 235 D; ORIENT 45D TO 55 D</p> <p><i>Comments: Require PA of X-Disp axis of COS ~95 deg, 135deg offset from U3 axis</i></p>																																		
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Proposal 16240 - C5.11, v1 (02) - Pinning down multi-phase mixing of metals within star-forming galaxies

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	1	TACQ - C8 Offset (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			GS ACQ SCENARI O BASE1BE		10 Secs (10 Secs) [==>]	[1]
	2	NUV Image C5,11 (COS.im.14 50243)	(2) NGC5253-5+11	COS/NUV, ACCUM, PSA	MIRRORA					20 Secs (233 Secs) [==>233.0 Secs ]	[1]
	3	1291-FP3-1 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 00				1963 Secs (2176 Secs) [==>2176.0 Secs ]	[1]
	4	1291-FP4-1 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 00				2700 Secs (2724 Secs) [==>2724.0 Secs ]	[2]
	5	1291-FP3-2 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 00				2700 Secs (2724 Secs) [==>2724.0 Secs ]	[3]





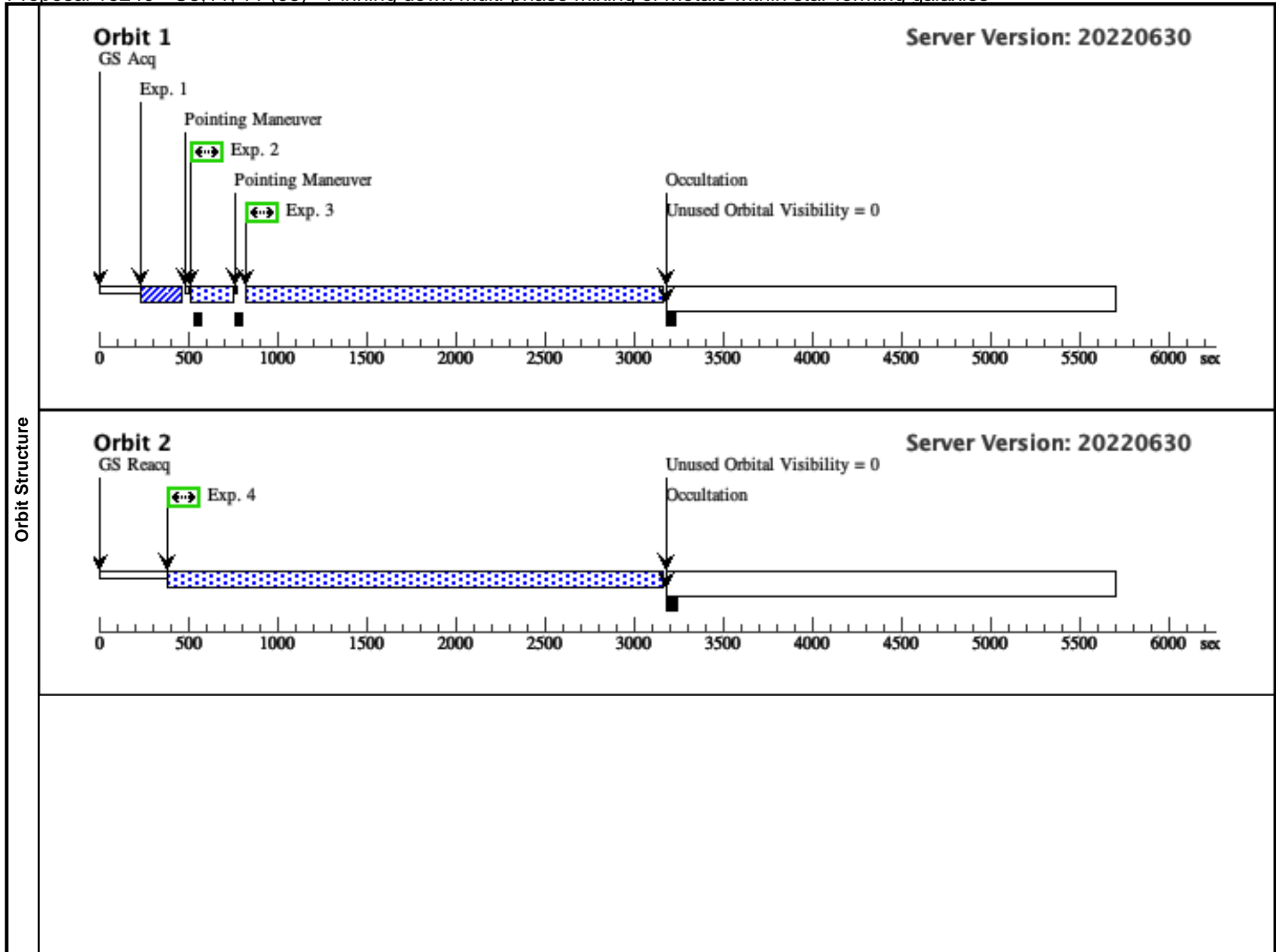
Proposal 16240 - C5,11, v1 (06) - Pinning down multi-phase mixing of metals within star-forming galaxies

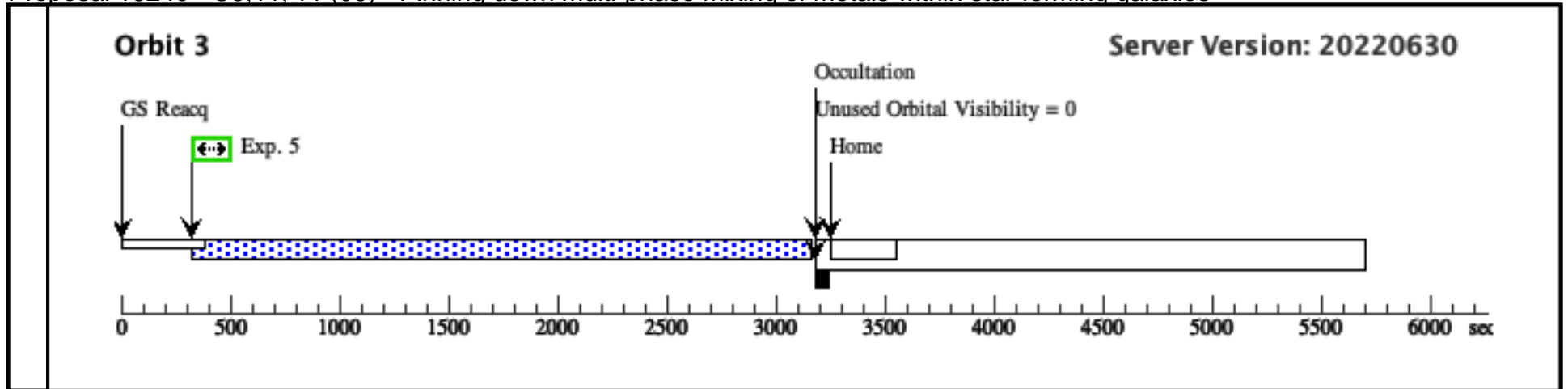
Fri Oct 28 15:01:56 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C5,11, v1 (06), implementation</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: ORIENT 225D TO 235 D; ORIENT 45D TO 55 D</p> <p><i>Comments: Require PA of X-Disp axis of COS ~95 deg, 135deg offset from U3 axis</i></p>																																		
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Proposal 16240 - C5.11, v1 (06) - Pinning down multi-phase mixing of metals within star-forming galaxies

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	TACQ - C8 Offset (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			GS ACQ SCENARI O BASE1BE		10 Secs (10 Secs) [==>]	[1]
	2	NUV Image C5,11 (COS.im.14 50243)	(2) NGC5253-5+11	COS/NUV, ACCUM, PSA	MIRRORA					20 Secs (228 Secs) [==>228.0 Secs ]	[1]
	3	1291-FP3-1 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 00				1963 Secs (2171 Secs) [==>2171.0 Secs ]	[1]
	4	1291-FP4-1 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 00				2700 Secs (2724 Secs) [==>2724.0 Secs ]	[2]
	5	1291-FP3-2 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=50 00				2700 Secs (2724 Secs) [==>2724.0 Secs ]	[3]





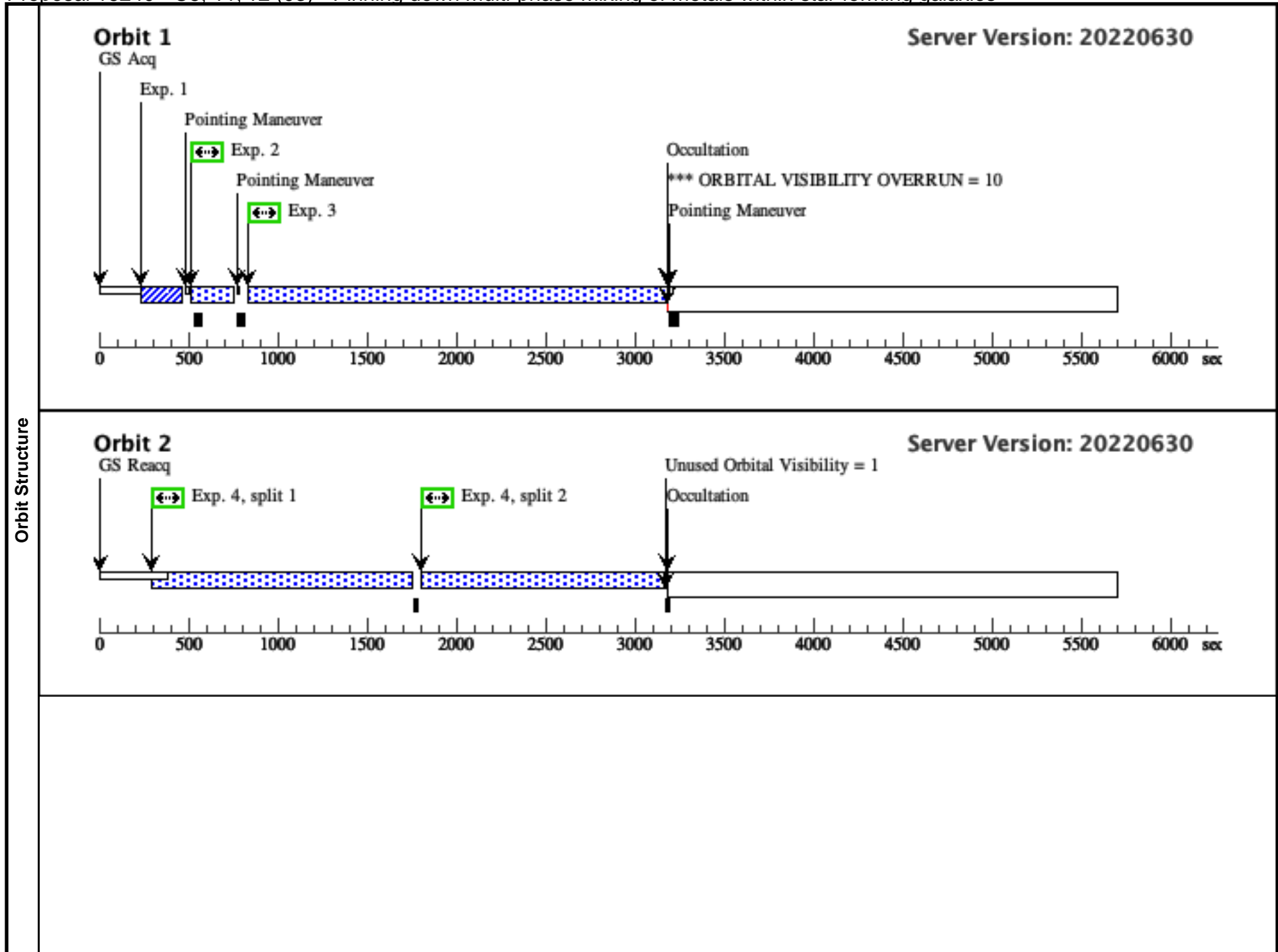
Proposal 16240 - C5, 11, v2 (03) - Pinning down multi-phase mixing of metals within star-forming galaxies

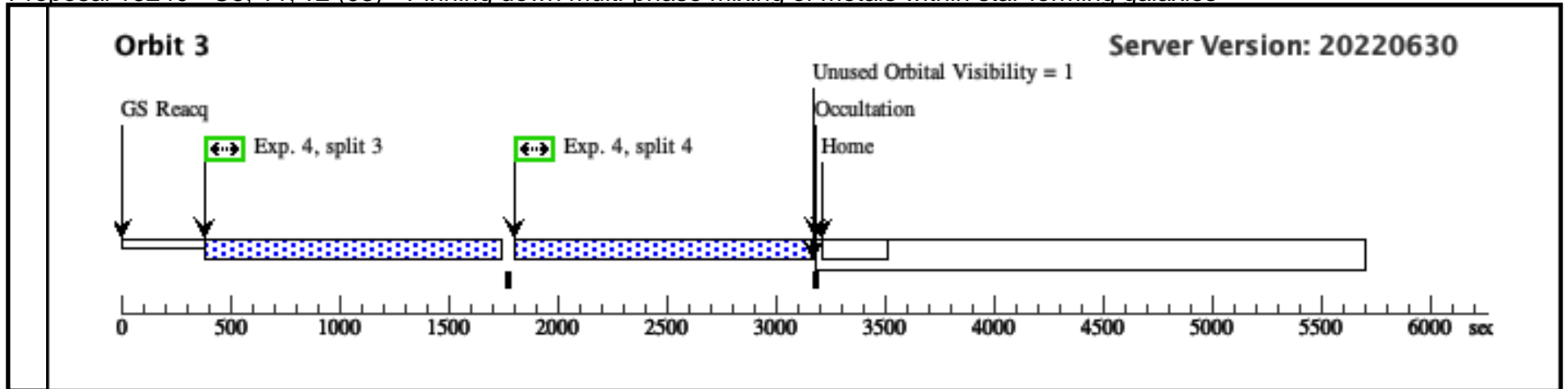
Fri Oct 28 15:01:56 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C5, 11, v2 (03), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: (none)</p>																																		
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Proposal 16240 - C5, 11, v2 (03) - Pinning down multi-phase mixing of metals within star-forming galaxies

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	TACQ - C8 Offset (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			GS ACQ SCENARI O BASE1BE		10 Secs (10 Secs) [==>]	[1]
	2	NUV Image C5,11 (COS.im.14 50243)	(2) NGC5253-5+11	COS/NUV, ACCUM, PSA	MIRRORA					20 Secs (233 Secs) [==>233.0 Secs ]	[1]
	3	1291-FP4-2 (COS.sp.144 6529)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=50 00				1963 Secs (2176 Secs) [==>2176.0 Secs ]	[1]
	4	1222-FPAL L-1 (COS.sp.144 6530)	(2) NGC5253-5+11	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=14 900				1309 Secs (5236 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)]	[2] [3]

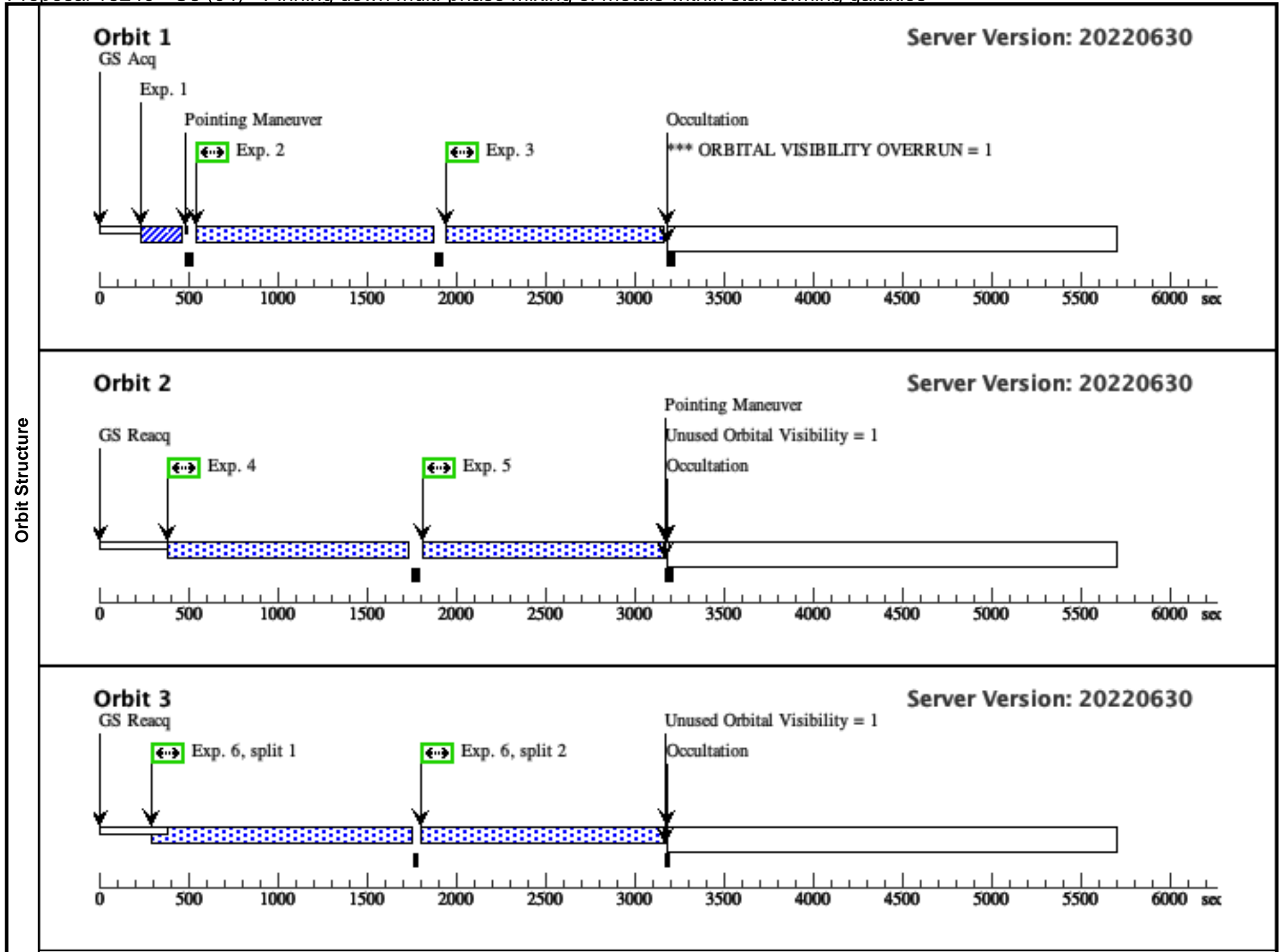


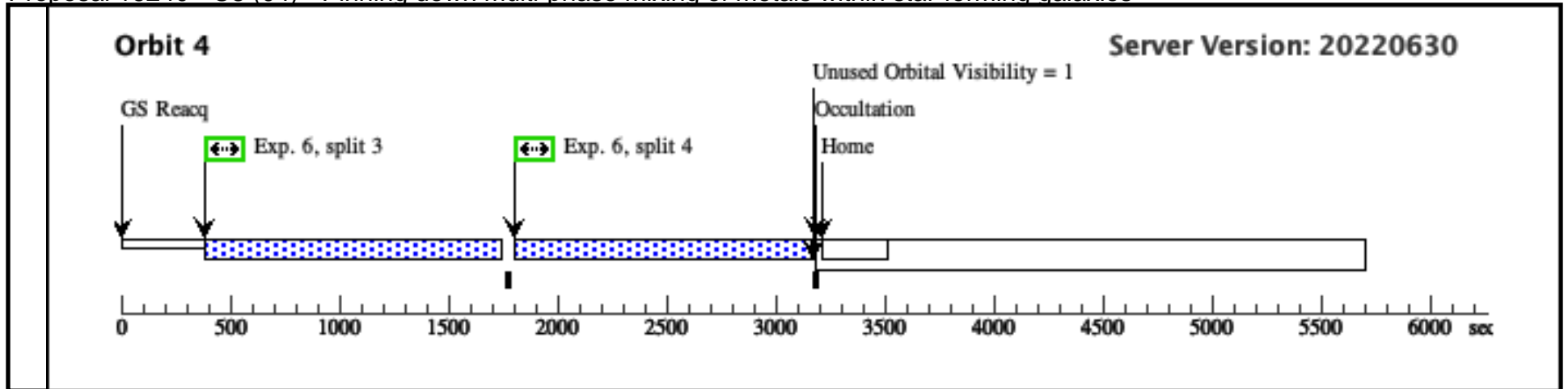


Proposal 16240 - C8 (04) - Pinning down multi-phase mixing of metals within star-forming galaxies

Fri Oct 28 15:01:57 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C8 (04), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: (none)</p> <p><i>Comments: Point source, no PA requirements</i></p>									
	<p>(C8 (04)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.</p> <p>(C8 (04)) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C8 (04)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p>									
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	(3)	NGC5253-8	RA: 13 39 55.3520 (204.9806333d) Dec: -31 38 33.40 (-31.64261d) Equinox: J2000		V=18.3 F(125LP)=1.61E-15 erg/s/cm^2/ A	Reference Frame: Gaia				
<p><i>Comments: HLA ACS/SBC F125LP image used for coordinates</i></p> <p><i>Flux = total flux within COS 2.5" aperture</i></p> <p><i>Category=STELLAR CLUSTER</i></p> <p><i>Description=[STAR FORMING REGION]</i></p> <p><i>Extended=NO</i></p>										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	TACQ - C8 (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA				10 Secs (10 Secs) [==>]	[1]
2	1291-FP3-1 (COS.sp.144 6534)	(3) NGC5253-8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=47 00			1140 Secs (1162 Secs) [==>1162.0 Secs ]	[1]	
3	1291-FP3-2 (COS.sp.144 6534)	(3) NGC5253-8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=47 00			1150 Secs (1172 Secs) [==>1172.0 Secs ]	[1]	
4	1291-FP4-1 (COS.sp.144 6534)	(3) NGC5253-8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=47 00			1140 Secs (1301 Secs) [==>1301.0 Secs ]	[2]	
5	1291-FP4-2 (COS.sp.144 6534)	(3) NGC5253-8	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=47 00			1140 Secs (1301 Secs) [==>1301.0 Secs ]	[2]	
6	1222-FPAL L (COS.sp.144 6535)	(3) NGC5253-8	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=12 600			1173 Secs (5236 Secs) [==>1309.0 Secs (Split 1)] [==>1309.0 Secs (Split 2)] [==>1309.0 Secs (Split 3)] [==>1309.0 Secs (Split 4)]	[3] [4]	





Proposal 16240 - C9,10 (05) - Pinning down multi-phase mixing of metals within star-forming galaxies

Fri Oct 28 15:01:57 GMT 2022

<b>Visit</b>	<p><b>Proposal 16240, C9,10 (05), completed</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Scientific Instruments: COS/FUV, COS/NUV</p> <p>Special Requirements: ORIENT 167D TO 217 D; ORIENT 347D TO 37 D</p> <p><i>Comments: Require PA of Cross-Dispersion axis of COS ~57 deg, 135deg offset from U3 axis Relaxed PA requirements by +/- 25 deg to allow for schedulability</i></p>																																		
	<b>Diagnostics</b>	<p>(C9,10 (05)) Warning (Form): For the best data quality, it is generally required to use all four FP-POS positions when observing at a given COS cenwave. See the COS Instrument Handbook for exceptions that may apply to observations with G130M/1291 or G160M.</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(C9,10 (05)) Warning (Orbit Planner): REFERENCE-FRAME MUST BE ICRS OR GSC1 FOR SMALL APERTURE</p> <p>(1291-FP3-1 (05.003)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p> <p>(1291-FP4-3 (05.004)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p> <p>(1291-FP4-4 (05.005)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p> <p>(1222-FPALL (05.006)) Warning (Form): COS FUV PSA science exposures with extended targets have special calibration limitations. See "Errors and Warnings" for more details.</p>																																	
<b>Fixed Targets</b>		<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(3)</td> <td>NGC5253-8</td> <td>RA: 13 39 55.3520 (204.9806333d) Dec: -31 38 33.40 (-31.64261d) Equinox: J2000</td> <td></td> <td>V=18.3 F(125LP)=1.61E-15 erg/s/cm^2/ A</td> <td>Reference Frame: Gaia</td> </tr> <tr> <td colspan="6"> <p><i>Comments: HLA ACS/SBC F125LP image used for coordinates</i></p> <p><i>Flux = total flux within COS 2.5" aperture</i></p> <p><i>Category=STELLAR CLUSTER</i></p> <p><i>Description=[STAR FORMING REGION]</i></p> <p><i>Extended=NO</i></p> </td> </tr> <tr> <td>(4)</td> <td>NGC5253-9+10</td> <td>Offset from NGC5253-8 RA Offset: 0.19 Secs Dec Offset: 4.35 Arcsec</td> <td></td> <td>V=18.9 F(125LP)=5.49E-16 erg/s/cm^2/ A</td> <td>Offset Position (NGC5253-9+10)</td> </tr> <tr> <td colspan="6"> <p><i>Comments: Flux = average flux within COS 2.5" aperture</i></p> <p><i>Category=STELLAR CLUSTER</i></p> <p><i>Description=[STAR FORMING REGION]</i></p> <p><i>Extended=YES</i></p> </td> </tr> </tbody> </table>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(3)	NGC5253-8	RA: 13 39 55.3520 (204.9806333d) Dec: -31 38 33.40 (-31.64261d) Equinox: J2000		V=18.3 F(125LP)=1.61E-15 erg/s/cm^2/ A	Reference Frame: Gaia	<p><i>Comments: HLA ACS/SBC F125LP image used for coordinates</i></p> <p><i>Flux = total flux within COS 2.5" aperture</i></p> <p><i>Category=STELLAR CLUSTER</i></p> <p><i>Description=[STAR FORMING REGION]</i></p> <p><i>Extended=NO</i></p>						(4)	NGC5253-9+10	Offset from NGC5253-8 RA Offset: 0.19 Secs Dec Offset: 4.35 Arcsec		V=18.9 F(125LP)=5.49E-16 erg/s/cm^2/ A	Offset Position (NGC5253-9+10)	<p><i>Comments: Flux = average flux within COS 2.5" aperture</i></p> <p><i>Category=STELLAR CLUSTER</i></p> <p><i>Description=[STAR FORMING REGION]</i></p> <p><i>Extended=YES</i></p>				
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Proposal 16240 - C9,10 (05) - Pinning down multi-phase mixing of metals within star-forming galaxies

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit	
	1	TACQ - C8 Offset (COS.ta.145 0245)	(3) NGC5253-8	COS/NUV, ACQ/IMAGE, PSA	MIRRORA			GS ACQ SCENARI O BASE1BE		10 Secs (10 Secs) [==>]	[1]
	2	NUV Image C9,10 (COS.im.14 50243)	(4) NGC5253-9+10	COS/NUV, ACCUM, PSA	MIRRORA					20 Secs (37 Secs) [==>37.0 Secs ]	[1]
	3	1291-FP3-1 (COS.sp.144 6531)	(4) NGC5253-9+10	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=3; BUFFER-TIME=42 20				1400 Secs (1372 Secs) [==>1372.0 Secs ]	[1]
	4	1291-FP4-3 (COS.sp.144 6531)	(4) NGC5253-9+10	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=42 00				750 Secs (722 Secs) [==>722.0 Secs ]	[1]
	5	1291-FP4-4 (COS.sp.144 6531)	(4) NGC5253-9+10	COS/FUV, TIME-TAG, PSA	G130M 1291 A	FP-POS=4; BUFFER-TIME=42 00				1300 Secs (1501 Secs) [==>1501.0 Secs ]	[2]
	6	1222-FPAL L (COS.sp.144 6532)	(4) NGC5253-9+10	COS/FUV, TIME-TAG, PSA	G130M 1222 A	FP-POS=ALL; BUFFER-TIME=10 255				680 Secs (3215 Secs) [==>881.0 Secs (Split 1)] [==>778.0 Secs (Split 2)] [==>778.0 Secs (Split 3)] [==>778.0 Secs (Split 4)]	[2] [3]

