14673 - A Definitive Test of Rotational Mixing in Massive Stars

Cycle: 24, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(5) NGC3293-ESL005	COS/NUV	1	07-Sep-2016 18:01:47.0	yes
06	(6) NGC3293-ESL006	COS/NUV	1	07-Sep-2016 18:01:49.0	yes
15	(15) NGC3293-ESL015	COS/NUV	1	07-Sep-2016 18:01:51.0	yes
16	(16) NGC3293-ESL016	COS/NUV	1	07-Sep-2016 18:01:53.0	yes
20	(20) NGC3293-ESL020	COS/NUV	1	07-Sep-2016 18:01:54.0	yes
25	(25) NGC3293-ESL025	COS/NUV	1	07-Sep-2016 18:01:56.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
28	(28) NGC3293-ESL028	COS/NUV	2	07-Sep-2016 18:01:58.0	yes
30	(30) NGC3298-ESL030	COS/NUV	2	07-Sep-2016 18:02:00.0	yes
31	(31) NGC3298-ESL031	COS/NUV	2	07-Sep-2016 18:02:01.0	yes
38	(38) NGC3293-ESL038	COS/NUV	2	07-Sep-2016 18:02:02.0	yes

14 Total Orbits Used

ABSTRACT

CNO processed surface material found in OB stars may originate either from internal mixing or from binary interaction, but incomplete boron depletion is an unambiguous sign of internal mixing. Existing boron observations indeed suggest that internal mixing occurs in some stars at a level that is consistent with the low end of the efficiency range predicted by the different models of rotationally driven mixing. However, current results are too sparse to directly confirm the expected relation between boron depletion and rotation, and leave room to interpret boron depletion through other mixing processes. We propose to observe boron in ten rather rapidly rotating early-B stars in the 10 Myr old open cluster NGC 3293. Together with our previous data on stars in this cluster, this increased sample with an expanded range of V sin(i) values will provide a definitive test of rotational mixing, and --- assuming that rotation actually drives the expected mixing --- will allow for a tight calibration of its efficiency, which is of critical importance for modeling the interior of massive stars, with wide implications for their advanced evolutionary stages.

OBSERVING DESCRIPTION

All targets will be acquired with dispersed light acquisitions using the COS G185M 1971 PSA setting followed by science observations in the same mode.

Target names (ESL#'s) are from Evans, Smartt, Lee et al. (2005) A&A, 437, 467. To simplify tracking, we have set the APT target and visit numbers to match the ESL target numbers.

The four brightest targets will be observed with ACCUM mode as rates are too high for uninterupted TIME-TAG observations. The other six targets will be observed using TIME-TAG.

All observations will use all four FP-POS positions. For the ACCUM targets, the exposure at each FP-POS position will be split into two 255 s pieces to minimize OSM drift or smearing due to variations in the photospheric velocity during the observations.

Except for ESL 05 which has Hipparcos measurements, coordinates and proper motions are from the PPMXL Catalog. For our stars this seems to give proper motions with smaller errors and values more consistent with the mean cluster proper motion (-6.91+/-2.01 and +0.26+/-3.95 mas/yr) than does UCAC4.

For targets ESL 5 and 31 we have IUE LGAP LO data and so can make direct ETC calculations.

Use IUE spectra of ESL005 - SWP20323+LWR16247
COS.sp.820449
Get total 17160 in brightest stripe
Buffer time 56 c/s

Use IUE spectra of ESL031 - SWP20322+LWR16246
COS.sp.820450
Get total 1926 in brightest stripe
Buffer time = 427 s
Time to S/N=150 is 6129 s

We estimate acquisition times for our faintest target using the IUE spectrum for ESL031:
PEAKD COS.sa.820452 gives needed time of 0.4 s.
PEAKXD COS.sa.820453 gives time of 1.08 s for stripe B
Since these times are very short, we will adopt 1 s and 2 s for all PEAKD/PEAKXD exposure times for all of our targets..

For other ETC calculations we adopt V & E(B-V) from Dufton, P. L., Smartt, S. J., Lee, J. K., et al. 2006, A&A, 457, 265
For BOP ETC estimates we will adopt the Kurucz B1V spectrum (Teff=25400; log g =3.9), even though our targets are all a few thousand K cooler than this, and so the ETC calcuations should provide a firm upper limit to the possible count rates.

Below we give the adopted V & E(B-V) values used as input with B1V spectrum, along with the actual Teff & logg, and the ETC count rate for the brightest stripe and the ETC calculation #.

#ESL V Teff log g E(B-V) STRIPEA ETC#
005 8.12 21500 3.05 0.27 27863 821148 (see also COS.sp.820449 for IUE results)
006 8.21 21500 3.15 0.26 26826 821149
015 9.11 25000 3.80 0.21 14765 821150
016 9.21 19200 4.00 0.20 14092 821151
020 9.55 20500 3.15 0.21 9651 821152
025 10.01 21100 3.70 0.19 6907 821153
028 10.26 19400 3.65 0.18 5736 821154
030 10.51 19800 3.70 0.13 5692 821155
031 10.66 17400 3.45 0.21 3472 821156 (ee also COS.sp.820450 for IUE results)
038 11.00 20600 3.95 0.14 1882 820454

With the Kurucz B1 spectrum, targets 5 & 6 at 89% to 93% OF THE 30000 c/s/stripe limit on STRIPEA, but the more realistic IUE spectrum for ESL 005 shows only 17160 c/s/stripe and ESL 6 has almost identical parameters to ESL 5.

Note that for target 20, a more realistic flux estimate with a slightly cooler SED (COS.sp.820432) gives an ETC buffer time estimate of 130 s, so OK to use time-tag with a 110 s buffer time for this one instead of ACCUM.

CS requested that acq exposures change to 1921 setting

The CENWAVE=1921 ETC #s
#ESL V Teff log g E(B-V) STRIPEA ETC#
005 8.12 21500 3.05 0.27 19840 831885 (adopts IUE spectrum)
006 8.21 21500 3.15 0.26 29050 831888
015 9.11 25000 3.80 0.21 15744 831889
016 9.21 19200 4.00 0.20 14993 831890

020 9.55 20500 3.15 0.21 10498 831891
025 10.01 21100 3.70 0.19 7493 831897
028 10.26 19400 3.65 0.18 6128 831892
030 10.51 19800 3.70 0.13 5692 831893
031 10.66 17400 3.45 0.21 3777 831894
038 11.00 20600 3.95 0.14 3737 831895

Visit

Proposal 14673, ESL005-ACCUM (05), implementation Wed Sep 07 22:02:03 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: The BOT reports the target as "unsafe" because it assumes that it is an unreddened O star. In reality it is a significantly reddened early-B star with IUE LGAP-LO observations. Using SWP20323+LWR16247 in ETC COS.sp.820449 predicts total 17160 counts/second in the brightest stripe.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(5)	NGC3293-ESL005 Alt Name1: CPD-57-3521	RA: 10 35 56.5410 (158.9855875d) Dec: -58 14 34.85 (-58.24301d) Equinox: J2000	Proper Motion RA: -5.0 mas/yr Proper Motion Dec: 1.3 mas/yr Epoch of Position: 2000	V=8.084	Reference Frame: ICRS

Comments: Vmag, coordinates, proper motions, and errors from UCAC4 catalog Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831885)	(5) NGC3293-ESL005	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	*[1]*

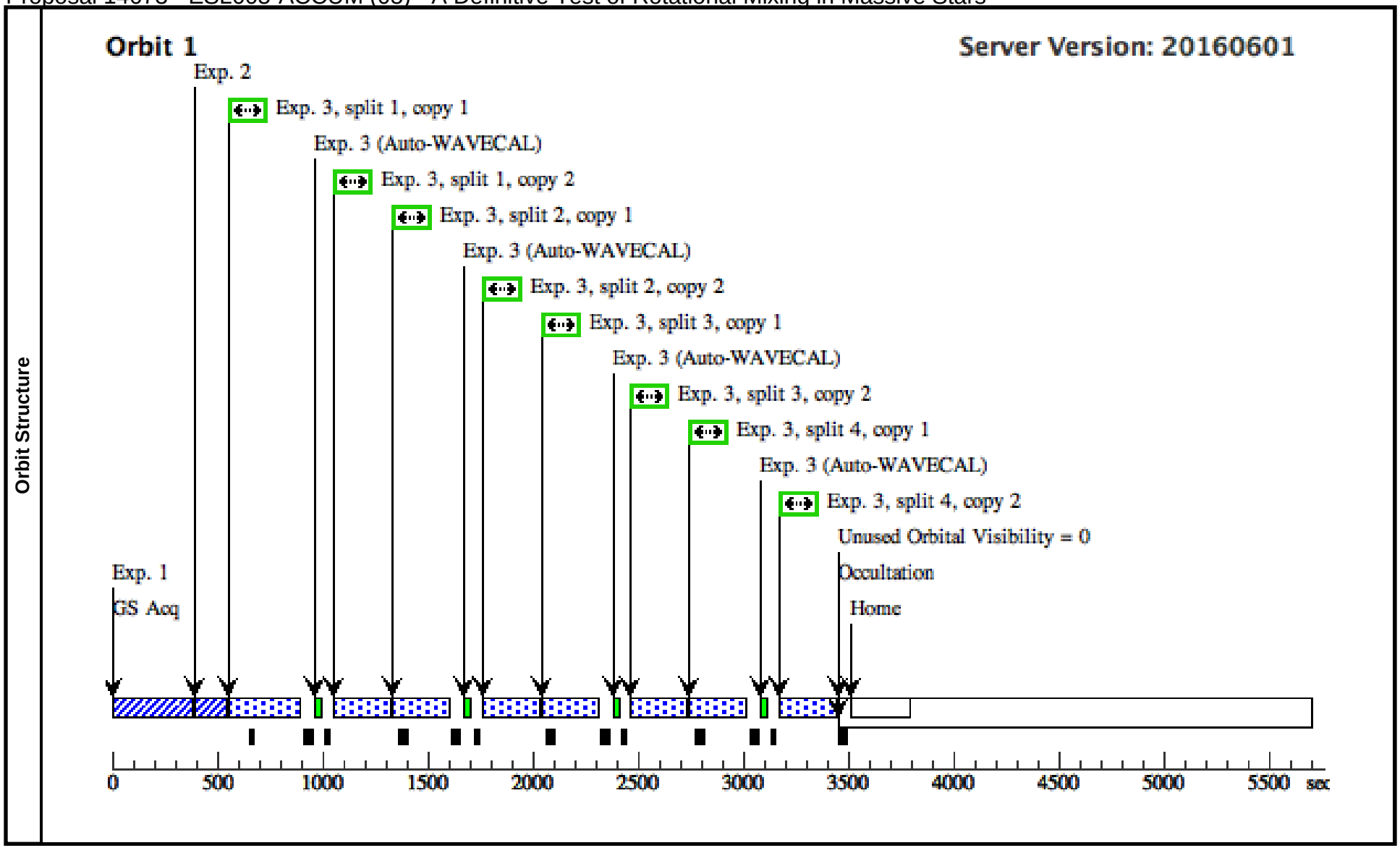
Comments: The BOT reports the target as "unsafe" because it assumes that it is an unreddened O star. In reality it is a significantly reddened early-B star with IUE LGAP-LO observations. Using SWP20323+LWR16247 in ETC COS.sp.820449 predicts total 17160 counts/second in the brightest stripe.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
2	PEAKD (COS.sa.831885)	(5) NGC3293-ESL005	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	*[1]*

Comments: The BOT reports the target as "unsafe" because it assumes that it is an unreddened O star. In reality it is a significantly reddened early-B star with IUE LGAP-LO observations. Using SWP20323+LWR16247 in ETC COS.sp.820449 predicts total 17160 counts/second in the brightest stripe.

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
3	ACCUM (821156)	(5) NGC3293-ESL005	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			255 Secs X 2 (2040 Secs) *[==>(Copy 1, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 2, Split 4)]*	*[1]*

Comments: The BOT reports the target as "unsafe" because it assumes that it is an unreddened O star. In reality it is a significantly reddened early-B star with IUE LGAP-LO observations. Using SWP20323+LWR16247 in ETC COS.sp.820449 predicts total 17160 counts/second in the brightest stripe.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Exp. 3, split 1, copy 2
Exp. 3, split 2, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 2, copy 2
Exp. 3, split 3, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 3, copy 2
Exp. 3, split 4, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 4, copy 2
Unused Orbital Visibility = 0
Occultation
Home
Exp. 1
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL006-ACCUM (06), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: BOT finds no targets in PSA

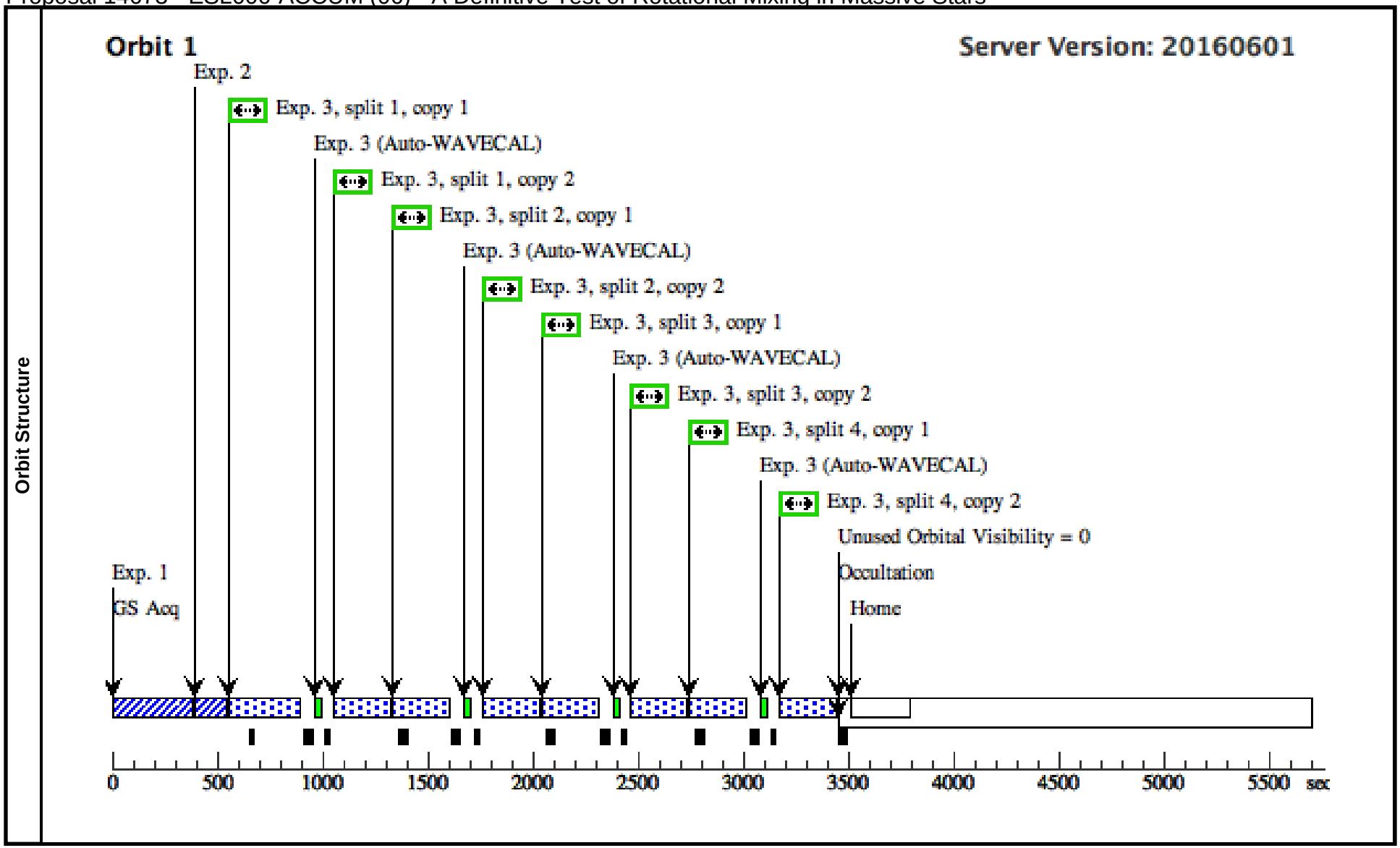
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(6)	NGC3293-ESL006 Alt Name1: CPD-57-3526B	RA: 10 35 58.8820 (158.9953417d) Dec: -58 14 26.45 (-58.24068d) Equinox: J2000	Proper Motion RA: -4.5 mas/yr Proper Motion Dec: 2.0 mas/yr Epoch of Position: 2000	V=8.196	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831888)	(6) NGC3293-ESL006	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831888)	(6) NGC3293-ESL006	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	ACCUM (821149)	(6) NGC3293-ESL006	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			255 Secs X 2 (2040 Secs) *[==>(Copy 1, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 2, Split 4)]*	 ***[1]***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Exp. 3, split 1, copy 2
Exp. 3, split 2, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 2, copy 2
Exp. 3, split 3, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 3, copy 2
Exp. 3, split 4, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 4, copy 2
Unused Orbital Visibility = 0
Occultation
Home
Exp. 1
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL015-ACCUM (15), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: BOT fails to find any stars, including the target

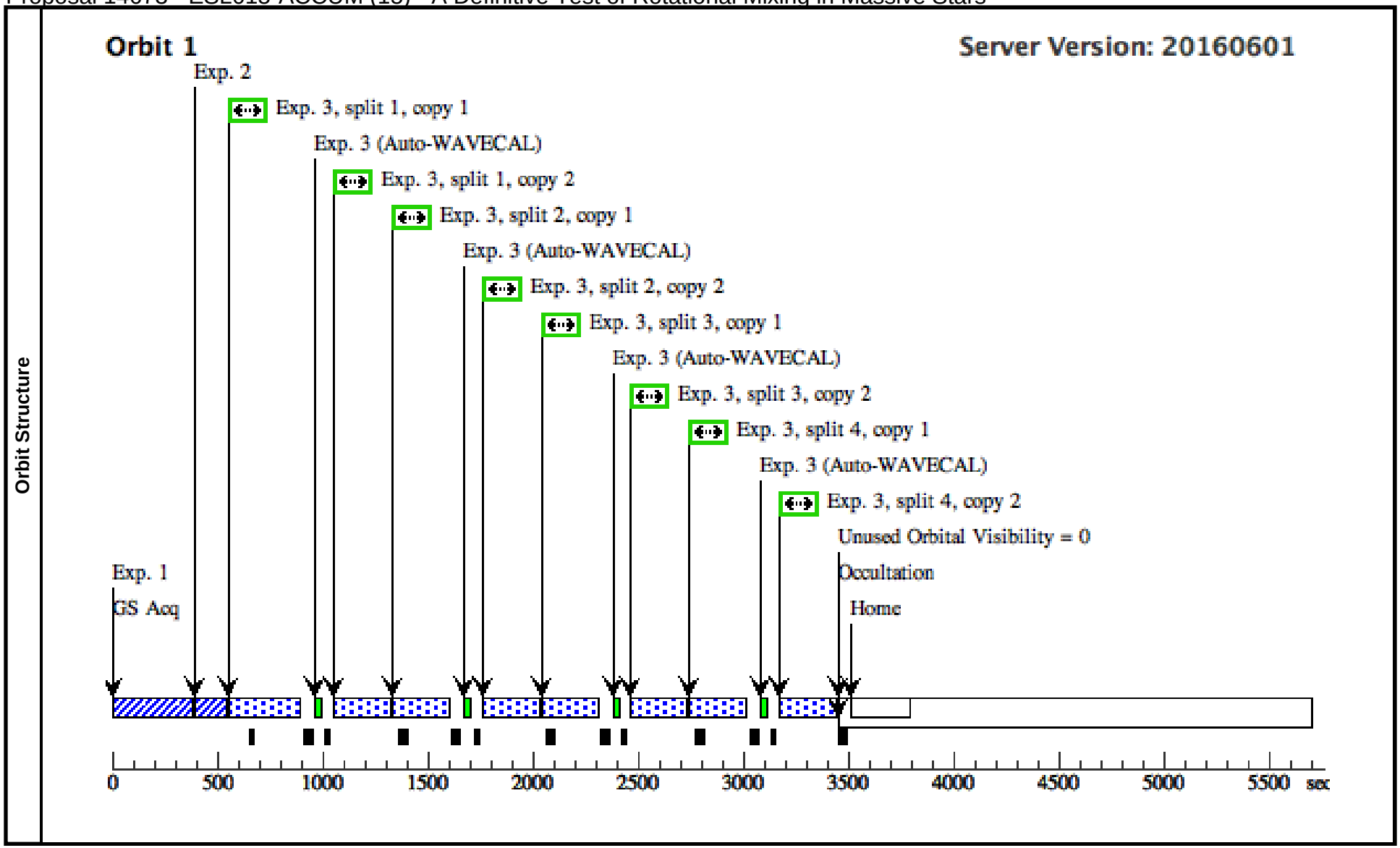
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(15)	NGC3293-ESL015 Alt Name1: V-V440-CAR	RA: 10 35 54.9130 (158.9788042d) Dec: -58 12 59.15 (-58.21643d) Equinox: J2000	Proper Motion RA: -6.3 mas/yr Proper Motion Dec: 5.3 mas/yr Epoch of Position: 2000	V=9.053	Reference Frame: ICRS

Comments: Cooridnates and proper motion from UCAC4
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831889)	(15) NGC3293-ESL015	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831889)	(15) NGC3293-ESL015	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	ACCUM (821150)	(15) NGC3293-ESL015	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			255 Secs X 2 (2040 Secs) *[==>(Copy 1, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 2, Split 4)]*	 ***[1]***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Orbit Structure
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Exp. 3, split 2, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 2, copy 2
Exp. 3, split 3, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 3, copy 2
Exp. 3, split 4, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 4, copy 2
Unused Orbital Visibility = 0
Occultation
Home
Exp. 1
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL016-ACCUM (16), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: BOT finds no objects in PSA

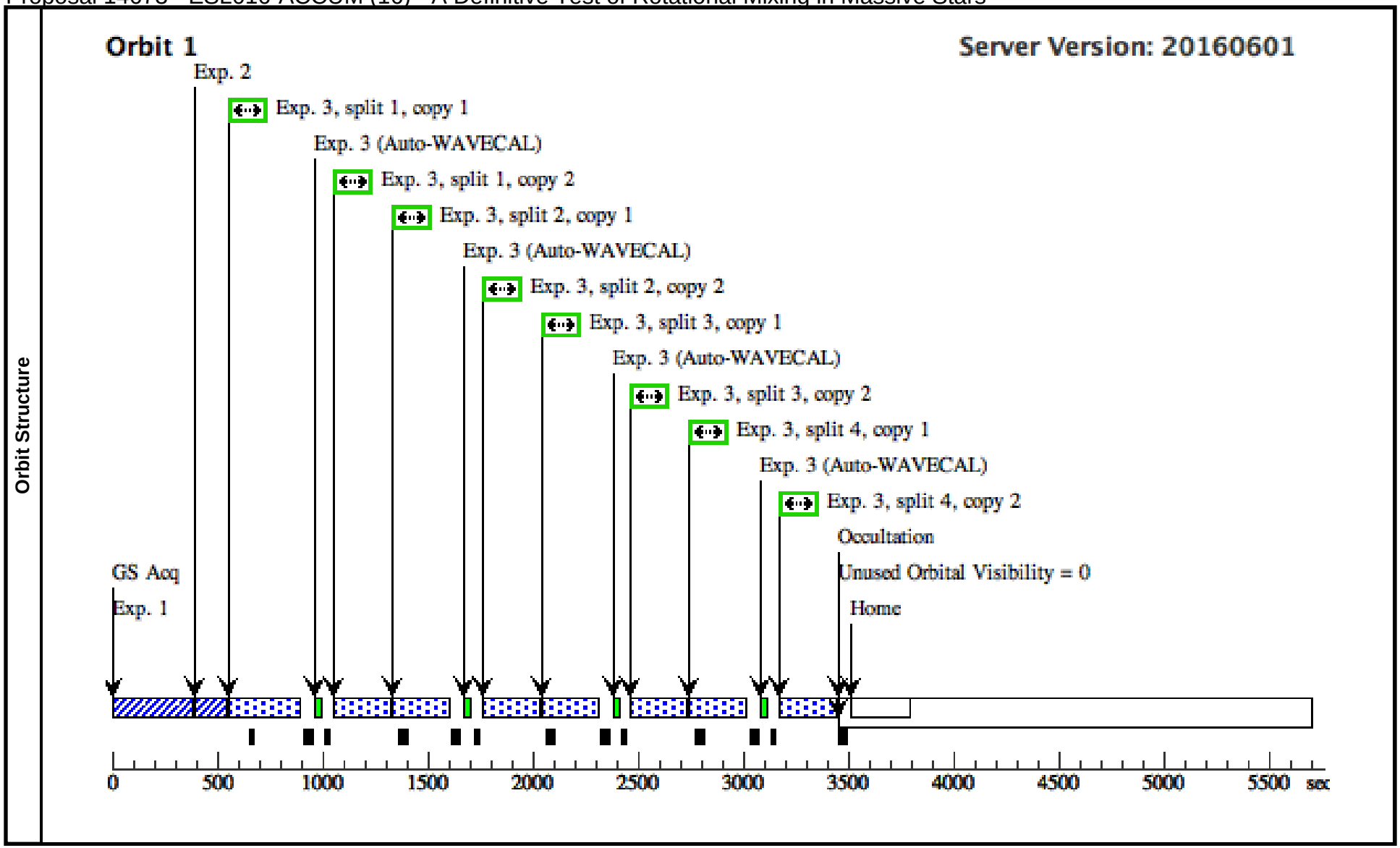
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(16)	NGC3293-ESL016	RA: 10 35 48.2570 (158.9510708d)	Proper Motion RA: -11.8 mas/yr	V=9.143	Reference Frame: ICRS
	Alt Name1: MCW-1182	Dec: -58 14 16.47 (-58.23791d)	Proper Motion Dec: 2.7 mas/yr		
		Equinox: J2000	Epoch of Position: 2000		

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831890)	(16) NGC3293-ESL016	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831890)	(16) NGC3293-ESL016	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	ACCUM (821151)	(16) NGC3293-ESL016	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			255 Secs X 2 (2040 Secs) *[==>(Copy 1, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 2, Split 4)]*	 ***[1]***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Exp. 3, split 2, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 2, copy 2
Exp. 3, split 3, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 3, copy 2
Exp. 3, split 4, copy 1
Exp. 3 (Auto-WAVECAL)
Exp. 3, split 4, copy 2
Occultation
Unused Orbital Visibility = 0
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL020-timetag (20), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: BOT labels the target as "UNKNOWN". See BOP comments in observation description

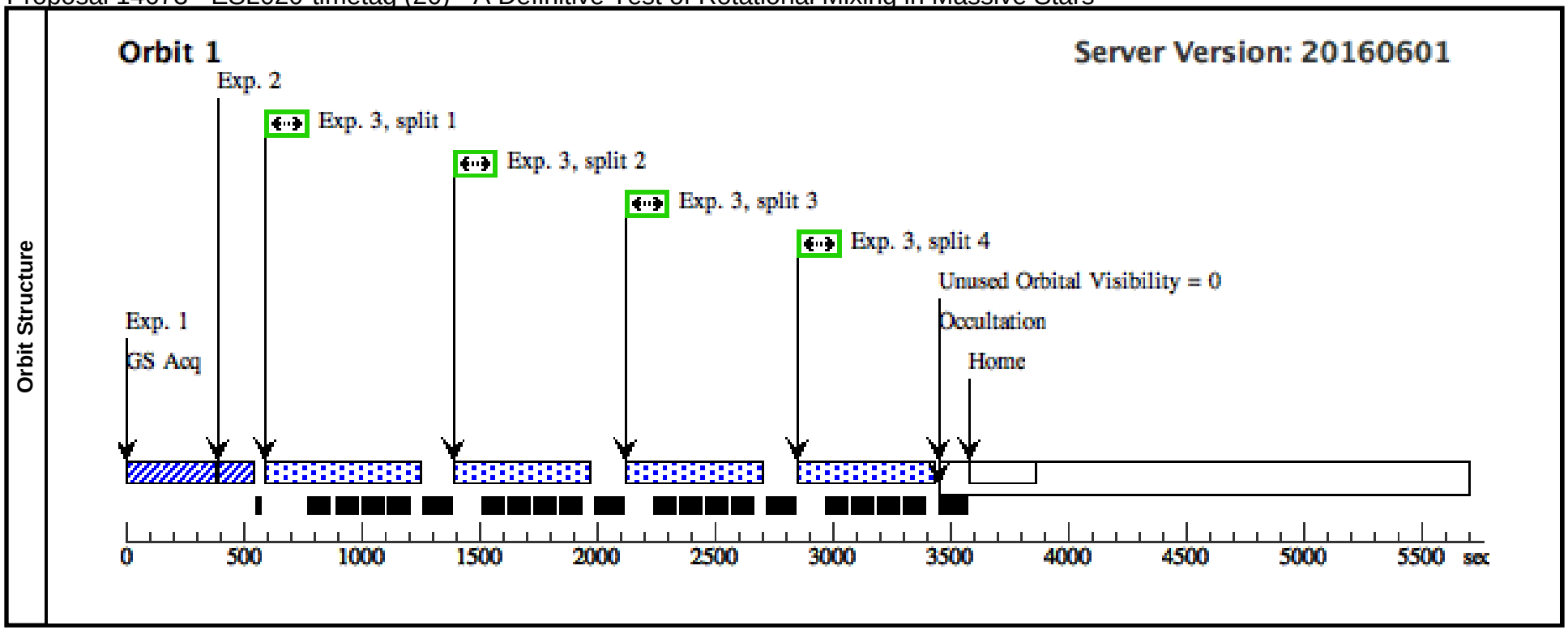
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(20)	NGC3293-ESL020 Alt Name1: V-V401-CAR	RA: 10 35 30.0530 (158.8752208d) Dec: -58 12 8.19 (-58.20227d) Equinox: J2000	Proper Motion RA: -8.8 mas/yr Proper Motion Dec: 2.7 mas/yr Epoch of Position: 2000	V=9.502	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (820443)	(20) NGC3293-ESL020	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	*[1]*
Comments: The single "unknown" star reported by the BOT is the target.									
2	PEAKD (820443)	(20) NGC3293-ESL020	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	*[1]*
Comments: The single "unknown" star reported by the BOT is the target.									
3	time-tag (821152)	(20) NGC3293-ESL020	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=111; FP-POS=ALL			568 Secs (2272 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*
Comments: The single "unknown" star reported by the BOT is the target.									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Server Version: 20160601
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Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Unused Orbital Visibility = 0
Occultation
Home
Exp. 1
GS Acq
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL025-timetag (25), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

Comments: BOT does not find target

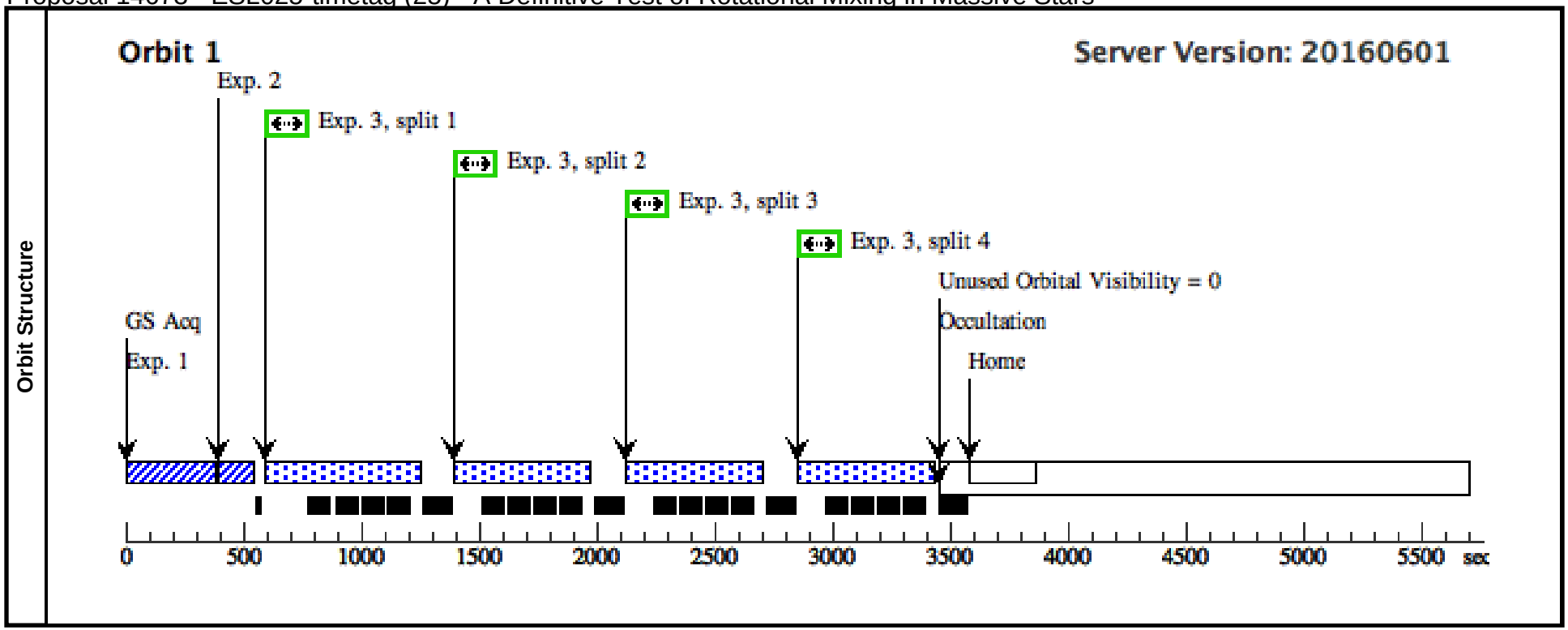
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(25)	NGC3293-ESL025 Alt Name1: CPD-57-3504	RA: 10 35 45.1570 (158.9381542d) Dec: -58 12 23.89 (-58.20664d) Equinox: J2000	Proper Motion RA: -8.2 mas/yr Proper Motion Dec: 10.4 mas/yr Epoch of Position: 2000	V=10.01	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831891)	(25) NGC3293-ESL025	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	*[1]*
2	PEAKD (COS.sa.831891)	(25) NGC3293-ESL025	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	*[1]*
3	time-tag (821153)	(25) NGC3293-ESL025	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=111; FP-POS=ALL			568 Secs (2272 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	*[1]*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Server Version: 20160601
Exp. 2
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Unused Orbital Visibility = 0
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 14673, ESL028-timetag (28), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

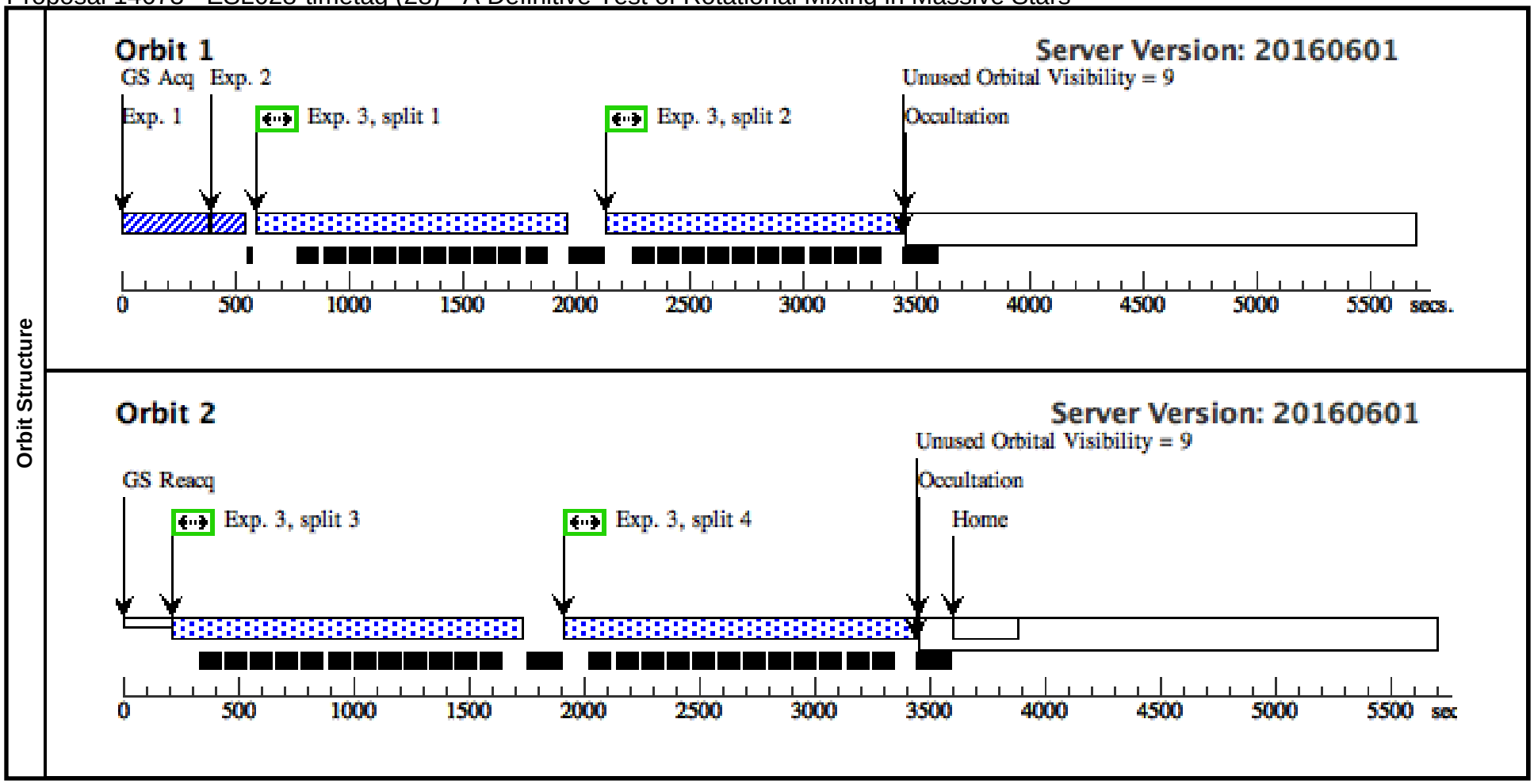
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(28)	NGC3293-ESL028 Alt Name1: CPD-57-3520	RA: 10 35 56.5980 (158.9858250d) Dec: -58 12 40.89 (-58.21136d) Equinox: J2000	Proper Motion RA: -8.2 mas/yr Proper Motion Dec: -1.0 mas/yr Epoch of Position: 2000	V=10.23	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831892)	(28) NGC3293-ESL028	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831892)	(28) NGC3293-ESL028	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	time-tag (821154)	(28) NGC3293-ESL028	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=111; FP-POS=ALL			1280 Secs (5566 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>1503.0 Secs (Split 3)]* *[==>1503.0 Secs (Split 4)]*	 ***[1]*** ***[2]***


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

Visit

Proposal 14673, ESL030-timetag (30), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

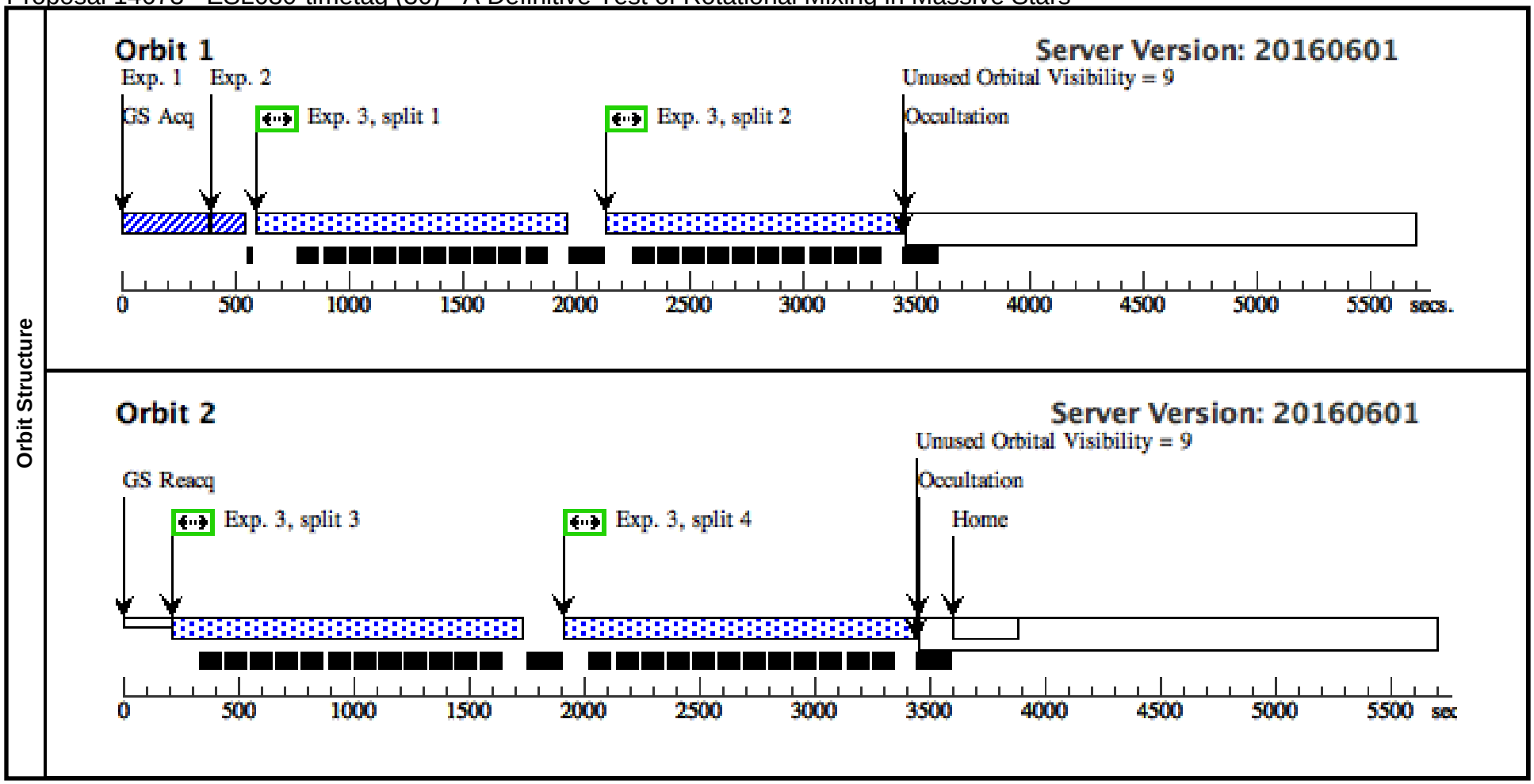
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(30)	NGC3298-ESL030 Alt Name1: CPD-57-3514	RA: 10 35 52.9970 (158.9708208d) Dec: -58 12 17.01 (-58.20472d) Equinox: J2000	Proper Motion RA: -8.8 mas/yr Proper Motion Dec: 2.3 mas/yr Epoch of Position: 2000	V=10.503	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831893)	(30) NGC3298-ESL030	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831893)	(30) NGC3298-ESL030	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	time-tag (821155)	(30) NGC3298-ESL030	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=111; FP-POS=ALL			1280 Secs (5566 Secs) *[==>(Split 1)]* *[==>(Split 2)]* *[==>1503.0 Secs (Split 3)]* *[==>1503.0 Secs (Split 4)]*	 ***[1]*** ***[2]***


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

Visit

Proposal 14673, ESL031-timetag (31), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

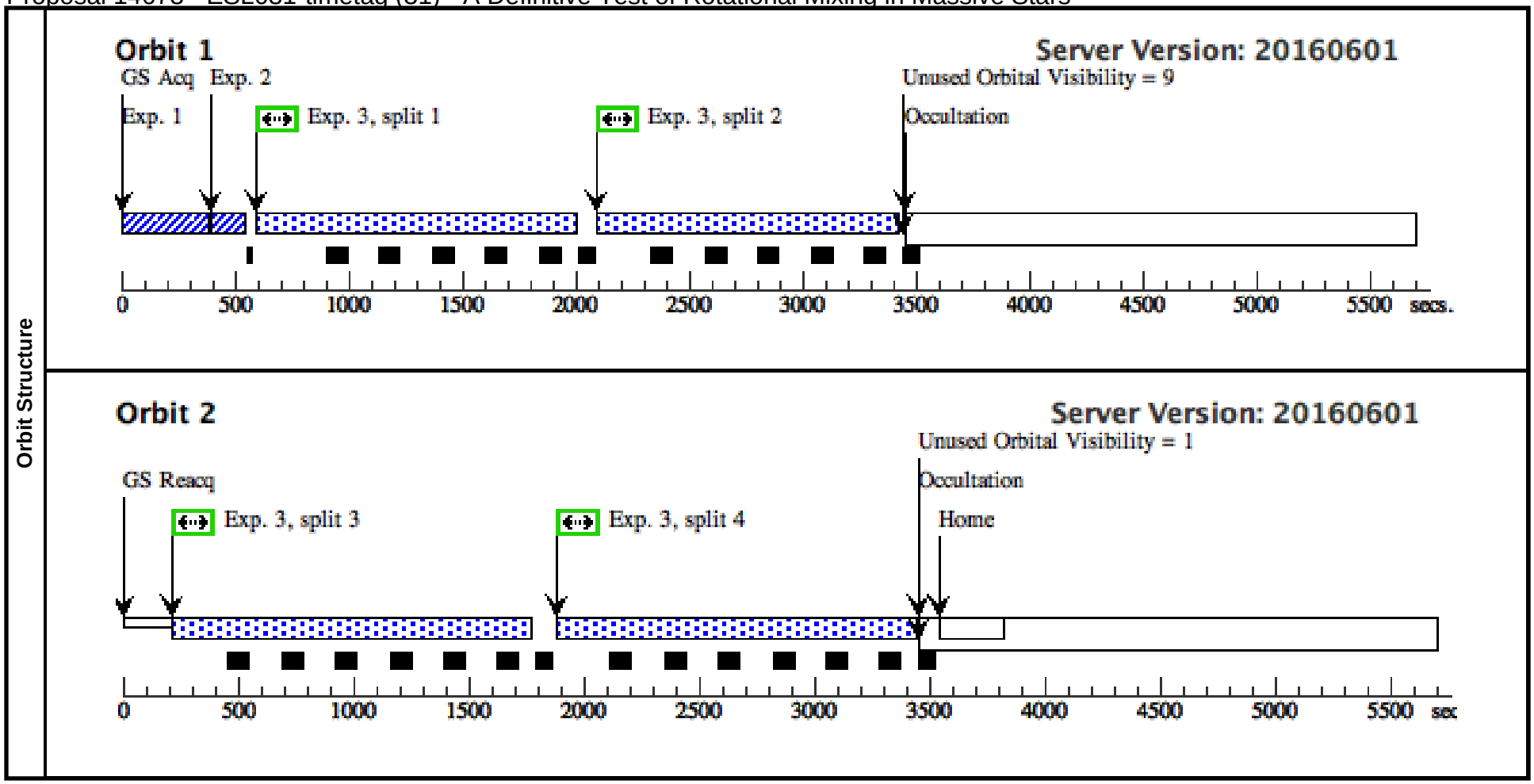
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(31)	NGC3298-ESL031 Alt Name1: CPD-57-3528	RA: 10 36 3.4950 (159.0145625d) Dec: -58 14 40.22 (-58.24451d) Equinox: J2000	Proper Motion RA: -7.5 mas/yr Proper Motion Dec: 2.0 mas/yr Epoch of Position: 2000	V=10.6	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831894)	(31) NGC3298-ESL031	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
2	PEAKD (COS.sa.831894)	(31) NGC3298-ESL031	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	time-tag (820450)	(31) NGC3298-ESL031	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=234; FP-POS=ALL			1280 Secs (5726 Secs) *[==>1318.0 Secs (Split 1)]* *[==>1318.0 Secs (Split 2)]* *[==>1545.0 Secs (Split 3)]* *[==>1545.0 Secs (Split 4)]*	 ***[1]*** ***[2]***


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

Visit

Proposal 14673, ESL038-timetag (38), implementation Wed Sep 07 22:02:04 GMT 2016

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/NUV

Special Requirements: (none)

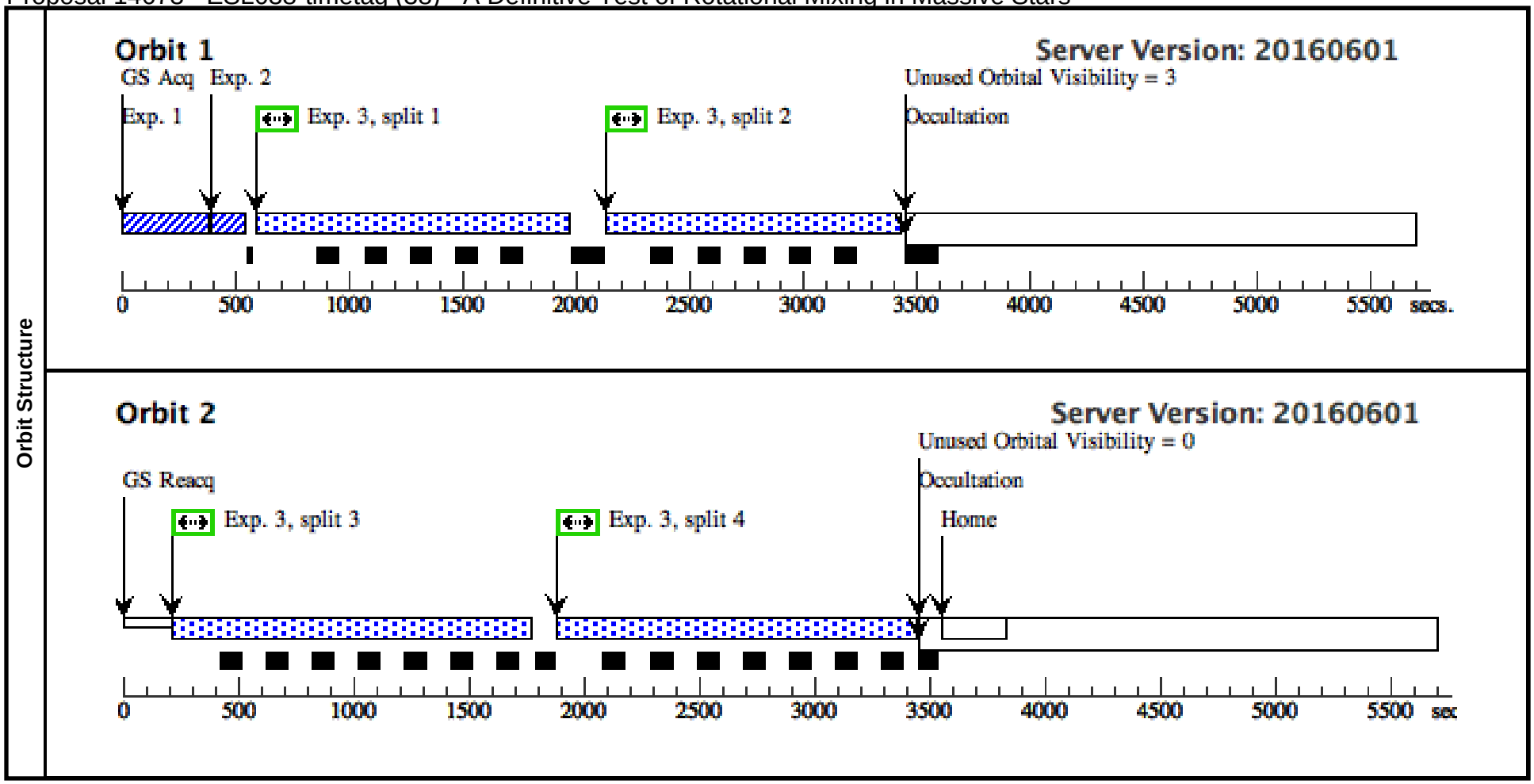
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(38)	NGC3293-ESL038 Alt Name1: CL-NGC-3293-ESL-38	RA: 10 35 6.6220 (158.7775917d) Dec: -58 10 34.80 (-58.17633d) Equinox: J2000	Proper Motion RA: -7.3 mas/yr Proper Motion Dec: 3.1 mas/yr Epoch of Position: 2000	V=11.0	Reference Frame: ICRS

Comments: Coordinates and proper motion from PPMXL catalog
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	PEAKXD (COS.sa.831895)	(38) NGC3293-ESL038	COS/NUV, ACQ/PEAKXD, PSA	G185M 1921 A				2 Secs (2 Secs) *[==>]*	 ***[1]***
	Comments: The BOT shows three unknows for this field. *The unknown in the PSA is the target. See the observation description for the notes on the target ETC calcuation.* *Two "unknowns" are reported in the BOA. These are stars with no catalog magnitude listed.* *However an unreddened O star would need V=4.2 to reach 40,000 c/s/stripe for G185M/1971/BOA,* *COS.sp.820600, and it is obvious there are no stars this bright in this cluster. The integrated light of the entire open cluster only reaches V=4.7.*								
2	PEAKD (COS.sa.831895)	(38) NGC3293-ESL038	COS/NUV, ACQ/PEAKD, PSA	G185M 1921 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			1 Secs (1 Secs) *[==>]*	 ***[1]***
3	time-tag (821157)	(38) NGC3293-ESL038	COS/NUV, TIME-TAG, PSA	G185M 1971 A	BUFFER-TIME=200; FP-POS=ALL			1280 Secs (5658 Secs) *[==>1288.0 Secs (Split 1)]* *[==>1288.0 Secs (Split 2)]* *[==>1541.0 Secs (Split 3)]* *[==>1541.0 Secs (Split 4)]*	 ***[1]*** ***[2]***


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