12520 - Testing Rotational Mixing in Massive Stars: Boron in the Galactic Open Cluster NGC 3293

Cycle: 19, Proposal Category: GO

(Availability Mode: AVAILABLE)

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?*
02	(2) NGC3293-ESL002 WAVE	STIS/CCD STIS/NUV-MAMA	1	28-Jun-2011 22:10:31.0	yes
03	(3) NGC3293-ESL003	COS/NUV	1	28-Jun-2011 22:10:40.0	yes
04	(4) NGC3293-ESL004	COS/NUV	1	28-Jun-2011 22:10:51.0	yes
07	(7) NGC3293-ESL007	COS/NUV	1	28-Jun-2011 22:11:00.0	yes
08	(8) NGC3293-ESL008	COS/NUV	1	28-Jun-2011 22:11:10.0	yes
10	(10) NGC3293-ESL010	COS/NUV	1	28-Jun-2011 22:11:19.0	yes
12	(12) NGC3293-ESL012	COS/NUV	1	28-Jun-2011 22:11:29.0	yes
19	(19) NGC3293-ESL019	COS/NUV	1	28-Jun-2011 22:11:37.0	yes
23	(23) NGC3293-ESL023	COS/NUV	1	28-Jun-2011 22:11:44.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
24	(24) NGC3293-ESL024	COS/NUV	1	28-Jun-2011 22:11:49.0	yes

10 Total Orbits Used

ABSTRACT

Recent observational advances have shown that chemical mixing in the envelopes of early-B stars is more complex than had previously been realized. The abundance patterns seen do not match the simple theoretically expected patterns, and there appear to be processes other than rotation that can also cause mixing. These complicating effects make it difficult to test or calibrate current stellar evolution models that include rotation with the currently available data, especially as most existing boron observations are biased towards intrinsically slow rotating stars. We have identified a sample of near-turnoff stars in the 10 Myr open cluster NGC 3293 which can now be efficiently observed with the COS G185M setting in which the earliest stages of rotationally driven mixing should have noticeably depleted the surface boron abundances. These observations will place stringent new constraints on models of rotationally driven mixing in early-B stars.

OBSERVING DESCRIPTION

One target will be observed in each of the ten visits.

The brightest target (#02) will be observed with STIS E230H 1963 in ACCUM mode.
The STIS ACQ will be done with F28X50OII, and the ACQ/PEAK with the G430L.
We will use four of the 0.2x0.06 stis FP-SPLIT slits for the observations and the 0.2x0.06FPB for the peakup.
We substitute a STIS GO wavecal at the end of the orbit for a standard auto-wavecal.

The other targets will be observed with the COS G185M using the 1971 setting and all four FP-POS positions.
Targets, 3, 4, 7, 8, 10, 12, & 19 will be observed using ACCUM mode, while targets 23 & 24 will use time-tag.
For the targets observed in COS ACCUM mode we will take two subexposures at each FP-POS position to minimize
the effects of OSM drift and/or photospheric velocity variations in the target.

COS acquisitions will use the same dispersed light G185M grating as the science. In principle, we could use
NUV imaging with the BOA, but that would leave a difficult BOP issue for the PSA aperture in this crowded cluster field.

To simplify the matching of targets and visits, we specify as the primary names for all of our targets the designations given to stars in this cluster by Evans et al 2005 (A&A, 437, 467), and we set both the target # and the visit # to correspond the Evans et al's number for that star. Simbad searches on these names can be done with designations like "Cl* NGC 3293 ESL 2" for his star #2.

Many, if not most of these stars are beta Cepheid variables, but none of the stars have large amplitudes.

ADDITIONAL COMMENTS

Target BOP

For most of our targets low-dispersion, large aperture IUE observations are available.

For stars with low-dispersion, large aperture IUE data we used the observed SWP+LWR or LWP spectra as the ETC input. For all stars we also interpolated Kurucz models tailored to the Vmag, Teff, logg, & E(B-V) given by Dufton et al. 2006, A&A, 457, 265. Online data from Dufton is available at http://vizier.cfa.harvard.edu/viz-bin/VizieR?-source=J/A+A/457/265

Stellar Parameters from Dufton et al,

Name	Vmag	B-V	SpType	Teff	logg	E(B-V)
	mag			K	[cm/s2]	mag
3293-002	6.73	0.07	B0.7 Ib	23000	2.80	0.27
3293-003	7.61	0.11	B1 III	21100	2.90	0.30
3293-004	8.03	0.02	B1 III	21500	3.00	0.21
3293-007	8.25	0.18	B1 III	22800	3.10	0.38
3293-008	8.59	0.05	B1 III	21500	3.25	0.24

3293-010	8.77	0.00	B1 III	21000	3.15	0.18
3293-012	8.95	0.06	B1 III	21500	3.30	0.25
3293-019	9.27	-0.04	B1 V	25000	3.85	0.18
3293-023	10.01	-0.05	B1.5 III	20500	3.40	0.13
3293-024	10.01	-0.01	B1.5 III	20500	3.50	0.17

For all stars where we have IUE data, the observed fluxes are always slightly less than the model predictions, but in most cases differences are < 10% (for ESL003, the IUE observation is about 15% smaller).
So we are confident that all stars are within allowed limits, even though ESL003 and ESL004 are getting rather close to the 30000 c/s per stripe limit for COS NUV spectra of some of our targets.

Results from Kurucz models tailored to Dufton's parameters above are given below. We used synphot to interpolate the standard Kurucz solar metallicty grid to the Teff and Logg values given, and also added Dufton's listed amount of extinction. Below we report the predicted global rate as well as the peak stripe rate and peak local rate, and the ETC ID #.

Spectral energy distrib	ETC ID	global	stripe	local
ngc3293esl002_kvnorm.dat	STIS.sp.180644	81691	N/A	0.874
ngc3293esl003_kvnorm.dat	COS.sp.180605	61856,	26133,	14.126
ngc3293esl004_kvnorm.dat	COS.sp.180613	67965,	27603,	14.876
ngc3293esl007_kvnorm.dat	COS.sp.180616	27511,	11995,	6.385
ngc3293esl008_kvnorm.dat	COS.sp.180618	35288,	14421,	7.772
ngc3293esl010_kvnorm.dat	COS.sp.180619	38255,	15136,	8.199
ngc3293esl012_kvnorm.dat	COS.sp.180620	24364,	9901,	5.336
ngc3293esl019_kvnorm.dat	COS.sp.180621	33494,	13586,	7.189
ngc3293esl023_kvnorm.dat	COS.sp.180623	15419,	5764,	3.128
ngc3293esl024_kvnorm.dat	COS.sp.180625	12789,	4831,	2.619

The ETC predictions for the IUE input spectra are given below
using the same format as table above.

IUE-SED file	ETC ID	global	stripe	local
ngc3293esl002.dat	STIS.sp.180645	77123	N/A	1.045
ngc3293esl003.dat	COS.sp.180632	52557	21052	13.017
ngc3293esl004.dat	COS.sp.180633	65158	26873	15.870
ngc3293esl007.dat	COS.sp.180637	24583	10232	5.617
ngc3293esl008.dat	COS.sp.180634	32380	13490	7.726
010 N/A				
ngc3293esl012.dat	COS.sp.180638	24000	10107	5.834
ngc3293esl019.dat	COS.sp.180640	32945	13804	7.507
023 N/A				
024 N/A				

Field BOP

For G185M 1971 BOA observations of an unreddened O star to
exceed the allowed global per stripe limits of 30000 counts/s
would require V<4.5. (COS.sp.181682). No star this bright is
within 0.5 degrees of NGC 3293, so there is no need to be concerned
about where the BOA is pointing during our PSA COS observations.

For the COS targets in the PSA, the field appears very crowded in
the GSC2; however, finding charts made using 2MASS images show
that there are no bright close companions. The BOT assumes that
most of these targets are unreddened O stars rather than the moderately
reddened B stars that they are and so produces spurious warnings.

The BOT also warns of a few unknown objects that might be in the
BOA aperture, but as noted above these are too faint to be of concern.

Visit

Proposal 12520, Visit 02 Wed Jun 29 02:11:55 GMT 2011

Diagnostic Status: No Diagnostics

Scientific Instruments: STIS/CCD, STIS/NUV-MAMA

Special Requirements: (none)

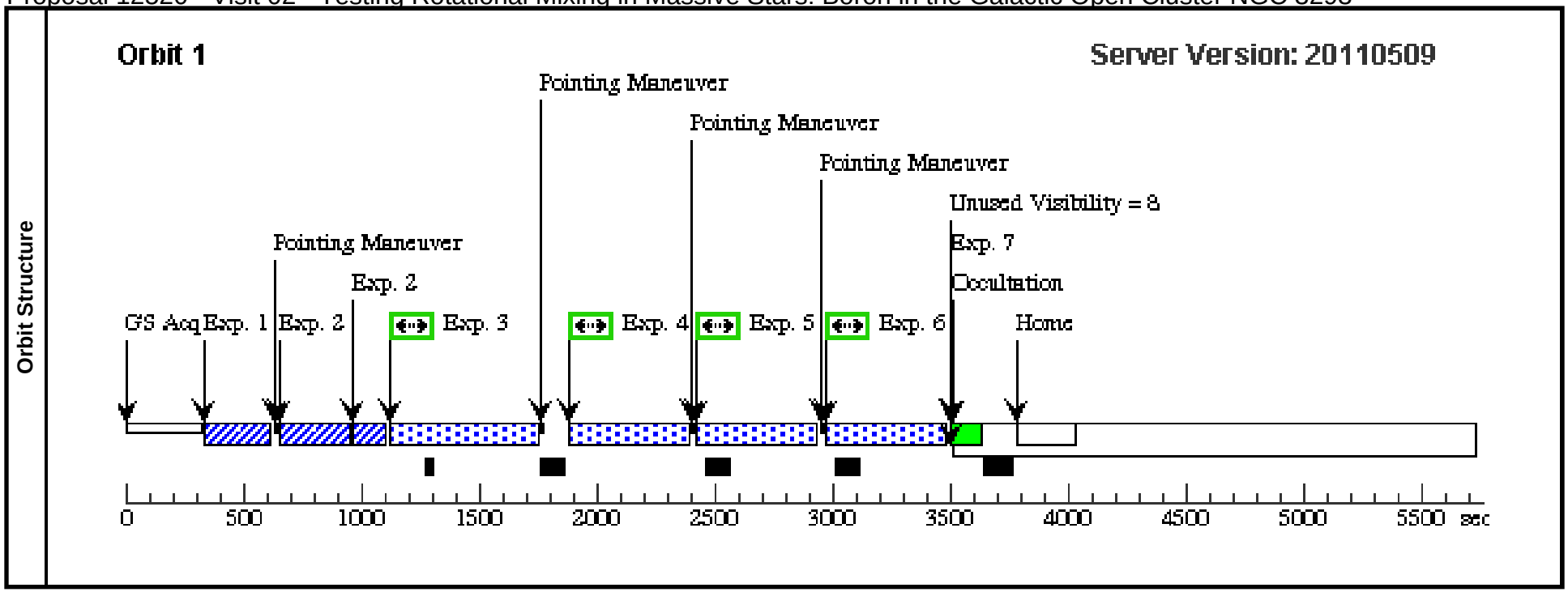
Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC3293-ESL002	RA: 10 35 42.0150 (158.9250625d)	Proper Motion RA: -0.00770 arcsec/yr	V=6.69	Reference Frame: ICRS
	Alt Name1: HD91943	Dec: -58 11 34.41 (-58.19289d)	Proper Motion Dec: 0.00358 arcsec/yr	FLAM(2070)=2.1e-11	
	Alt Name2: V513CAR	Equinox: J2000	Parallax: 0.0008"		
			Epoch of Position: 2000		

Comments: Cl NGC 3293 ESL 2*
Revised Hipparcos Coordinates and proper motions
IUE SWP10349 SWP21514 LWR 16227

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	ACQ (STIS.ta.180015)	(2) NGC3293-ESL002	STIS/CCD, ACQ, F28X50OIII	MIRROR				3 Secs *[==>]*	*[1]*
2	ACQ/PEAK (STIS.sp.180018)	(2) NGC3293-ESL002	STIS/CCD, ACQ/PEAK, 0.2X0.06FPB	G430L 4300 A				1 Secs *[==>]*	*[1]*
3	E230H-1963-FPB (STIS.sp.180645)	(2) NGC3293-ESL002	STIS/NUV-MAMA, ACCUM, 0.2X0.06FPB	E230H 1963 A	WAVECAL=NO			485 Secs *[==>]*	*[1]*
	Comments: Using IUE LGAP spectra predict SNR=82 in 1900 seconds combined exposure STIS.sp.180021 Global rate=77123 peak local=1.045 GO-WAVECAL substituted for AUTO-WAVECAL to hide exposure in occultation								
4	E230H-1963-FPE (STIS.sp.180021)	(2) NGC3293-ESL002	STIS/NUV-MAMA, ACCUM, 0.2X0.06FPE	E230H 1963 A				485 Secs *[==>]*	*[1]*
	Comments: Using IUE LGAP spectra predict SNR=82 in 1900 seconds combined exposure STIS.sp.180021 Global rate=77123 peak local=1.045 GO-WAVECAL substituted for AUTO-WAVECAL to hide exposure in occultation								
5	E230H-1963-FPC (STIS.sp.180021)	(2) NGC3293-ESL002	STIS/NUV-MAMA, ACCUM, 0.2X0.06FPC	E230H 1963 A				485 Secs *[==>]*	*[1]*
	Comments: Using IUE LGAP spectra predict SNR=82 in 1900 seconds combined exposure STIS.sp.180021 Global rate=77123 peak local=1.045 GO-WAVECAL substituted for AUTO-WAVECAL to hide exposure in occultation								
6	E230H-1963-FPD (STIS.sp.180021)	(2) NGC3293-ESL002	STIS/NUV-MAMA, ACCUM, 0.2X0.06FPD	E230H 1963 A				485 Secs *[==>]*	*[1]*
	Comments: Using IUE LGAP spectra predict SNR=82 in 1900 seconds combined exposure STIS.sp.180021 Global rate=77123 peak local=1.045 GO-WAVECAL substituted for AUTO-WAVECAL to hide exposure in occultation								
7		WAVE	STIS/NUV-MAMA, ACCUM, 0.1X0.09	E230H 1963 A				60 Secs *[==>]*	*[1]*


Orbit Structure
Orbit 1
Server Version: 20110509
Pointing Maneuver
Pointing Maneuver
Pointing Maneuver
Unused Visibility = 8
Exp. 7
Occultation
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Exp. 2
GS Acq
Exp. 1
Exp. 2
Exp. 3
Exp. 4
Exp. 5
Exp. 6
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 03 Wed Jun 29 02:11:56 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 03) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

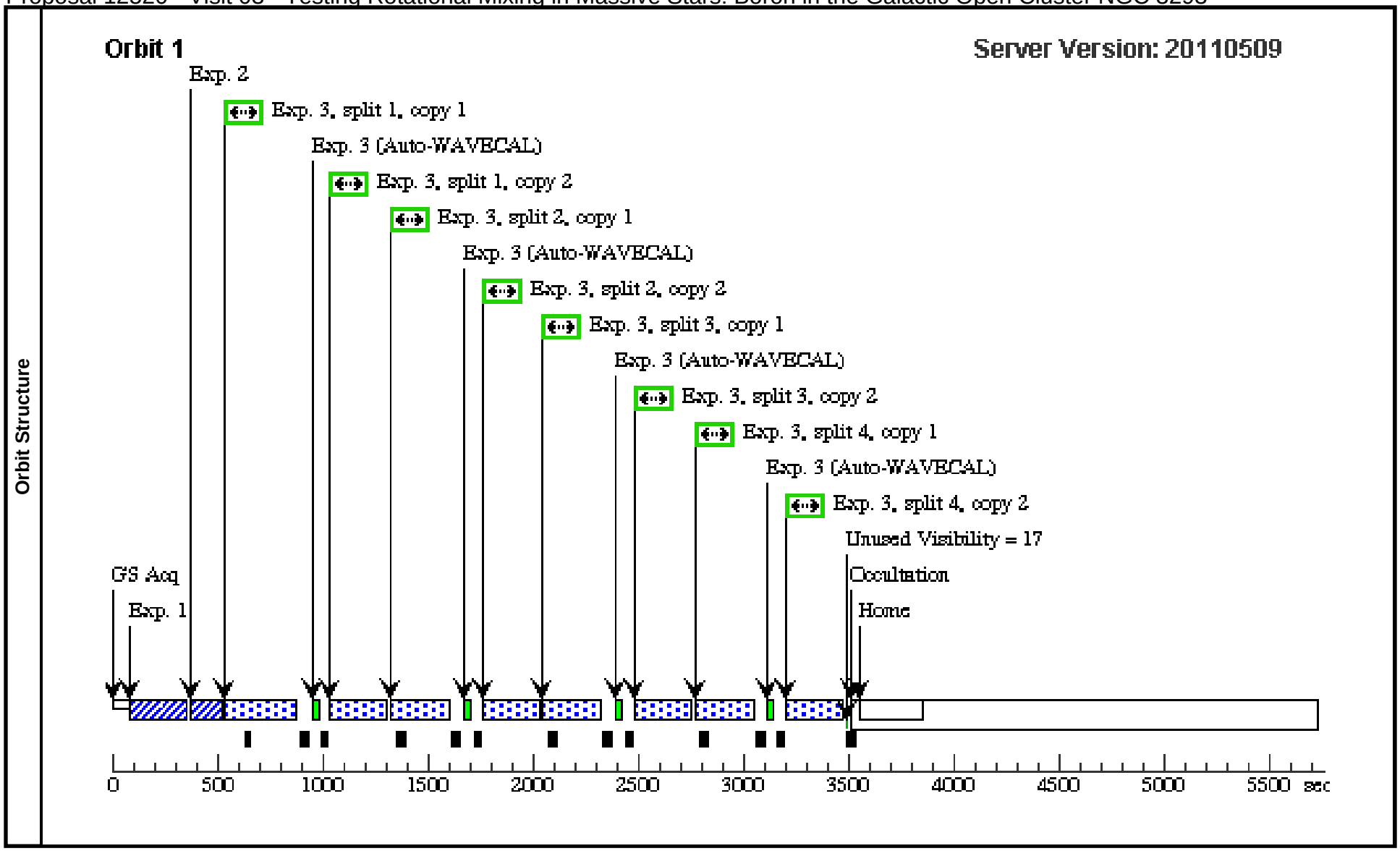
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(3)	NGC3293-ESL003 Alt Name1: CPD-57D3506A Alt Name2: CD-57D3348	RA: 10 35 46.5620 (158.9440083d) Dec: -58 14 12.08 (-58.23669d) Equinox: J2000	Proper Motion RA: -0.0073 arcsec/yr Proper Motion Dec: -0.0028 arcsec/yr Epoch of Position: 2000	V=7.6 FLAM(2070)=7.1e-12	Reference Frame: ICRS

Comments: Cl NGC 3293 ESL 3*
Coordinates and PM from Tycho-2 Catalogue
FLAM(2070) from SWP21529, LWR16998

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181524)	(3) NGC3293-ESL003	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	*[1]*
2	(COS.sa.181525)	(3) NGC3293-ESL003	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	*[1]*
3	G185M 1971 ACCUM (COS.sp.180632)	(3) NGC3293-ESL003	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	*[1]*

Comments: Used IUE spectra to provide input SED
Global rate of 52557 requires ACCUM mode
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)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Server Version: 20110509
Orbit Structure
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Exp. 3 (Auto-WAVECAL)
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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
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500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 04 Wed Jun 29 02:11:57 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 04) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

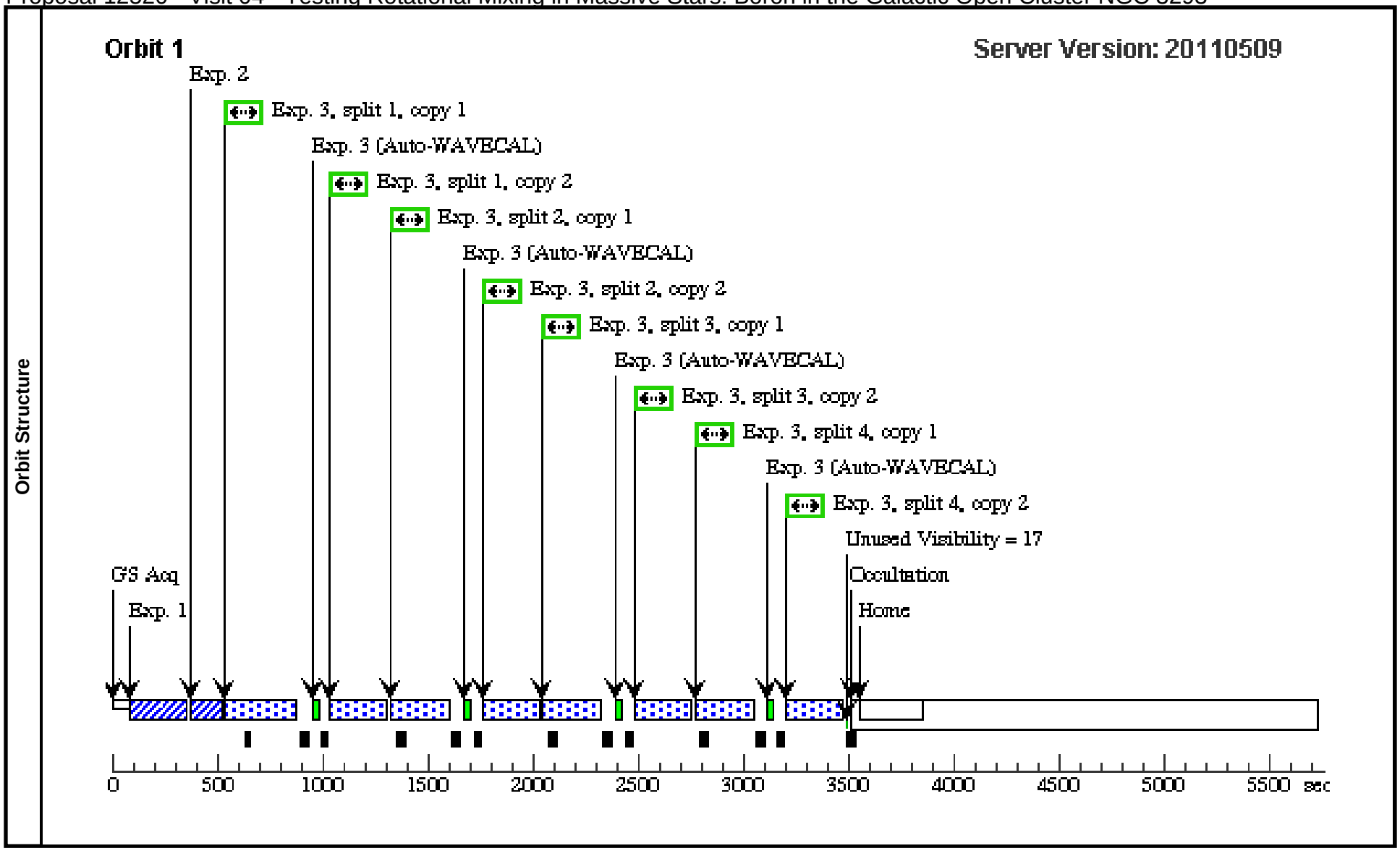
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(4)	NGC3293-ESL004 Alt Name1: CPD-57D3523	RA: 10 35 57.7110 (158.9904625d) Dec: -58 13 20.86 (-58.22246d) Equinox: J2000	Proper Motion RA: -0.0088 arcsec/yr Proper Motion Dec: -0.0005 arcsec/yr Epoch of Position: 2000	V=8.03 FLAM(2070)=8.6e-12	Reference Frame: ICRS

Comments: Cl NGC 3293 ESL 4*
Coordinates and proper motions from Tycho 2 catalog
FLAM(2070) from IUE data LWR16994, SWP21512 LGAP-LO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181523)	(4) NGC3293-ESL004	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181522)	(4) NGC3293-ESL004	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 ACCUM (COS.sp.180633)	(4) NGC3293-ESL004	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	 ***[1]***

Comments: Used IUE spectra to provide input SED
Global rate of 65157 requires ACCUM mode
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)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Orbit Structure
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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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 07 Wed Jun 29 02:11:58 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 07) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

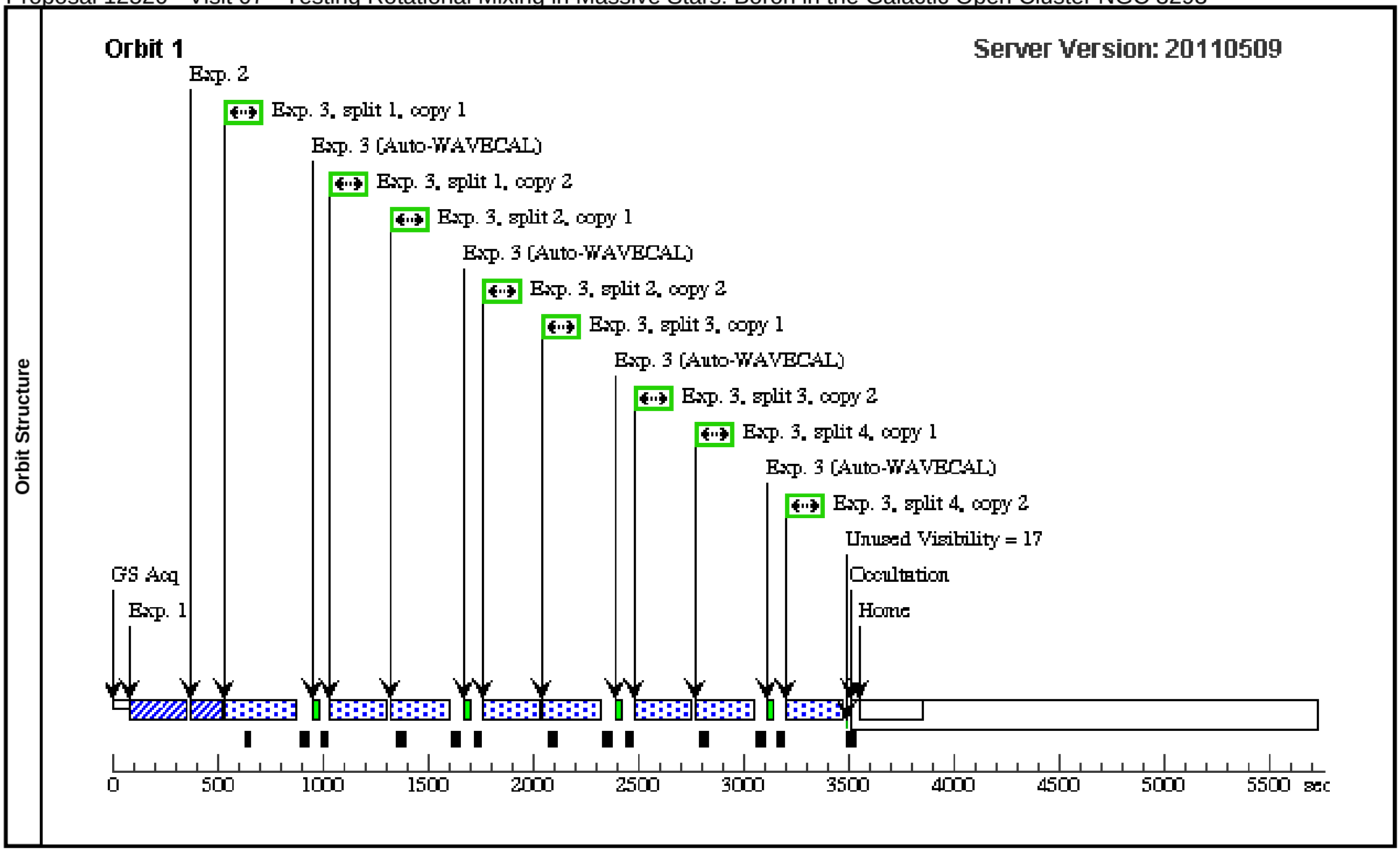
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(7)	NGC3293-ESL007	RA: 10 36 16.0800 (159.0670000d)	Proper Motion RA: -0.0068 arcsec/yr	V=8.37	Reference Frame: ICRS
	Alt Name1: HD092044	Dec: -58 16 38.18 (-58.27727d)	Proper Motion Dec: 0.0034 arcsec/yr	FLAM(2070)=3.1e-12	
		Equinox: J2000	Epoch of Position: 2000		

Comments: Cl NGC 3293 ESL 7*
Coordinates and proper motions from Tycho 2 catalog
FLAM(2070) from IUE data SWP21531 & LWR 17000

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181526)	(7) NGC3293-ESL007	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181527)	(7) NGC3293-ESL007	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 ACCUM (COS.sp.180637)	(7) NGC3293-ESL007	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	 ***[1]***

Comments: Used IUE spectra to provide input SED
Global rate of 24582 requires ACCUM mode to allow sufficient margin against
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)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Server Version: 20110509
Orbit Structure
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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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 08 Wed Jun 29 02:11:58 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 08) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

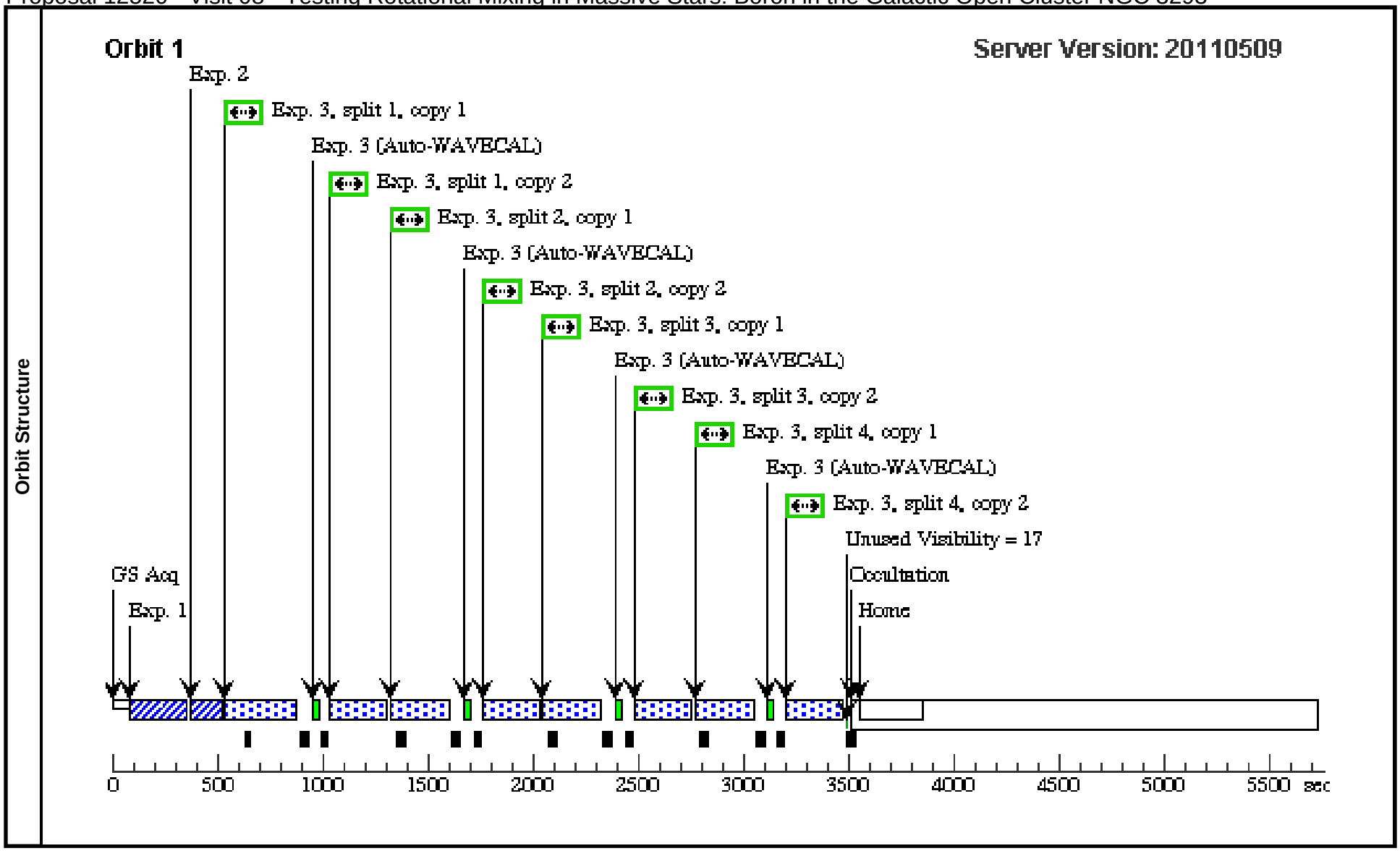
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(8)	NGC3293-ESL008	RA: 10 35 54.2070 (158.9758625d)	Proper Motion RA: -0.006 arcsec/yr	V=8.58	Reference Frame: ICRS
	Alt Name1: HD091983	Dec: -58 15 27.05 (-58.25751d)	Proper Motion Dec: -0.0009 arcsec/yr	FLAM(2070)=4.1e-12	
		Equinox: J2000	Epoch of Position: 2000		

Comments: Cl NGC 3293 ESL 8*
Coordinates and proper motions from Tycho 2 catalog
FLAM(2070) from IUE swp21511.mxlo swp23569.mxhi lwr16993.mxlo

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181528)	(8) NGC3293-ESL008	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	***[1]***
2	(COS.sa.181529)	(8) NGC3293-ESL008	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	***[1]***
3	G185M 1971 ACCUM (COS.sp.180634)	(8) NGC3293-ESL008	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	***[1]***

Comments: Used IUE spectra to provide input SED
Global rate of 32380 requires ACCUM mode
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)


Orbit 1
Server Version: 20110509
Orbit Structure
Exp. 2
Exp. 3, split 1, copy 1
Exp. 3 (Auto-WAVECAL)
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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 10 Wed Jun 29 02:11:58 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 10) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

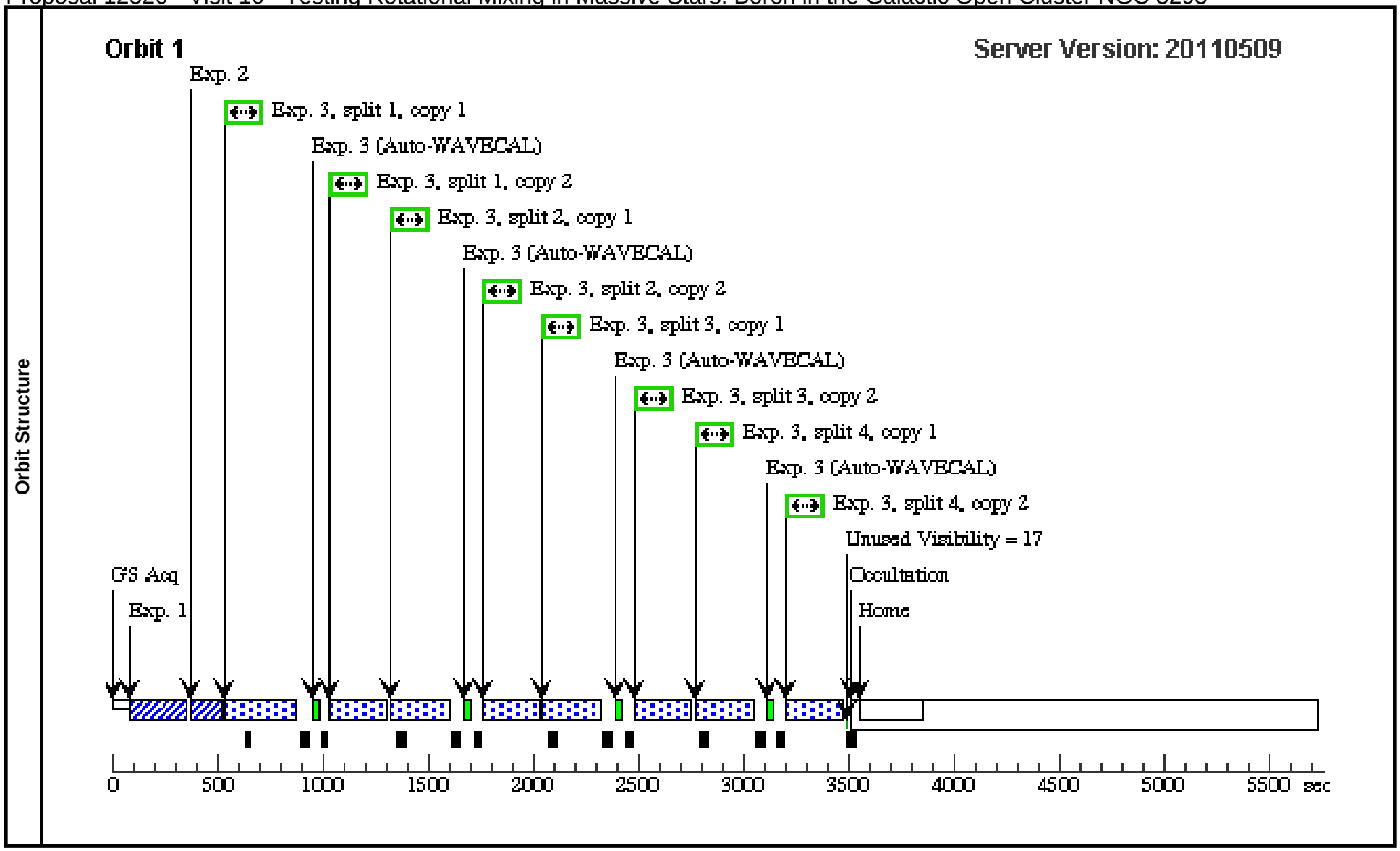
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(10)	NGC3293-ESL010 Alt Name1: CPD-57D3500 Alt Name2: V403CAR	RA: 10 35 40.7280 (158.9197000d) Dec: -58 12 44.26 (-58.21229d) Equinox: J2000	Proper Motion RA: -0.0062 arcsec/yr Proper Motion Dec: 0.0049 arcsec/yr Epoch of Position: 2000	V=8.77 FLAM(2070)=2.9e-12	Reference Frame: ICRS

Comments: Cl NGC 3293 ESL 10*
Coordinates and proper motions from Tycho 2 catalog
No IUE data

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181530)	(10) NGC3293-ESL010	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	***[1]***
2	(COS.sa.181531)	(10) NGC3293-ESL010	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	***[1]***
3	G185M 1971 ACCUM (COS.sp.180619)	(10) NGC3293-ESL010	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	***[1]***

Comments: Used Kurucz spectra tailored to Dufton paramters to provide input SED
Global rate of 38254 requires ACCUM mode
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)


Orbit 1
Server Version: 20110509
Orbit Structure
Exp. 2
Exp. 3, split 1, copy 1
Exp. 3 (Auto-WAVECAL)
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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 12 Wed Jun 29 02:11:59 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 12) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

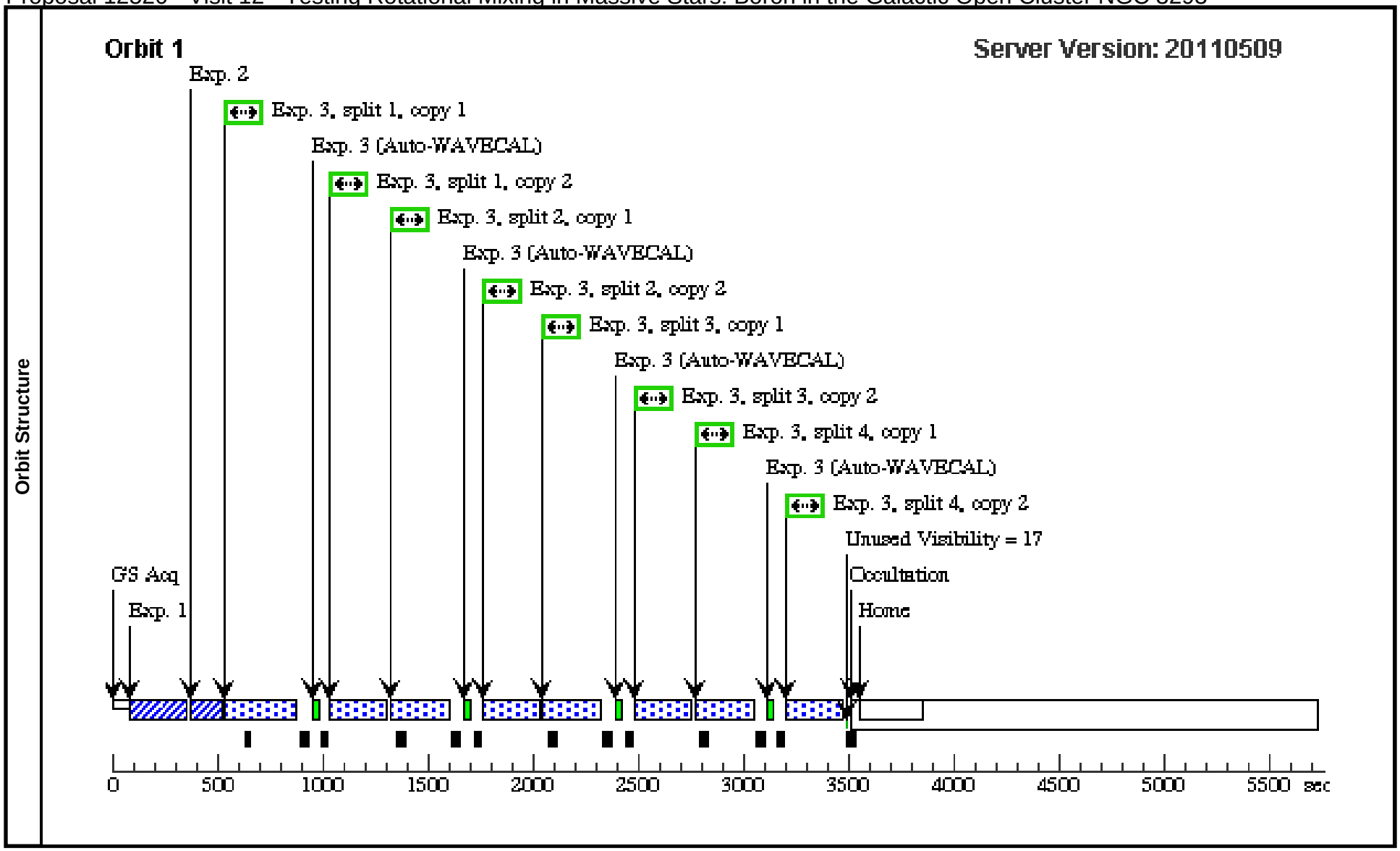
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(12)	NGC3293-ESL012	RA: 10 36 1.5860 (159.0066083d)	Proper Motion RA: -0.0079 arcsec/yr	V=8.95	Reference Frame: ICRS
	Alt Name1: HD092007	Dec: -58 15 9.61 (-58.25267d)	Proper Motion Dec: -0.0007 arcsec/yr	FLAM(2070)=2.9e-12	
	Alt Name2: V380CAR	Equinox: J2000	Epoch of Position: 2000		

Comments: Cl NGC 3293 ESL 12*
Coordinates and proper motion from the Tycho 2 catalog
swp20307, lwr16228 (low disp, large aper)

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181534)	(12) NGC3293-ESL012	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181535)	(12) NGC3293-ESL012	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 ACCUM (COS.sp.180638)	(12) NGC3293-ESL012	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	 ***[1]***

Comments: Used IUE spectra to provide input SED
Global rate of 24000 requires ACCUM mode to provide sufficient margin against flux uncertainties
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)


Orbit 1
Server Version: 20110509
Orbit Structure
Exp. 2
Exp. 3, split 1, copy 1
Exp. 3 (Auto-WAVECAL)
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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 19 Wed Jun 29 02:11:59 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 19) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

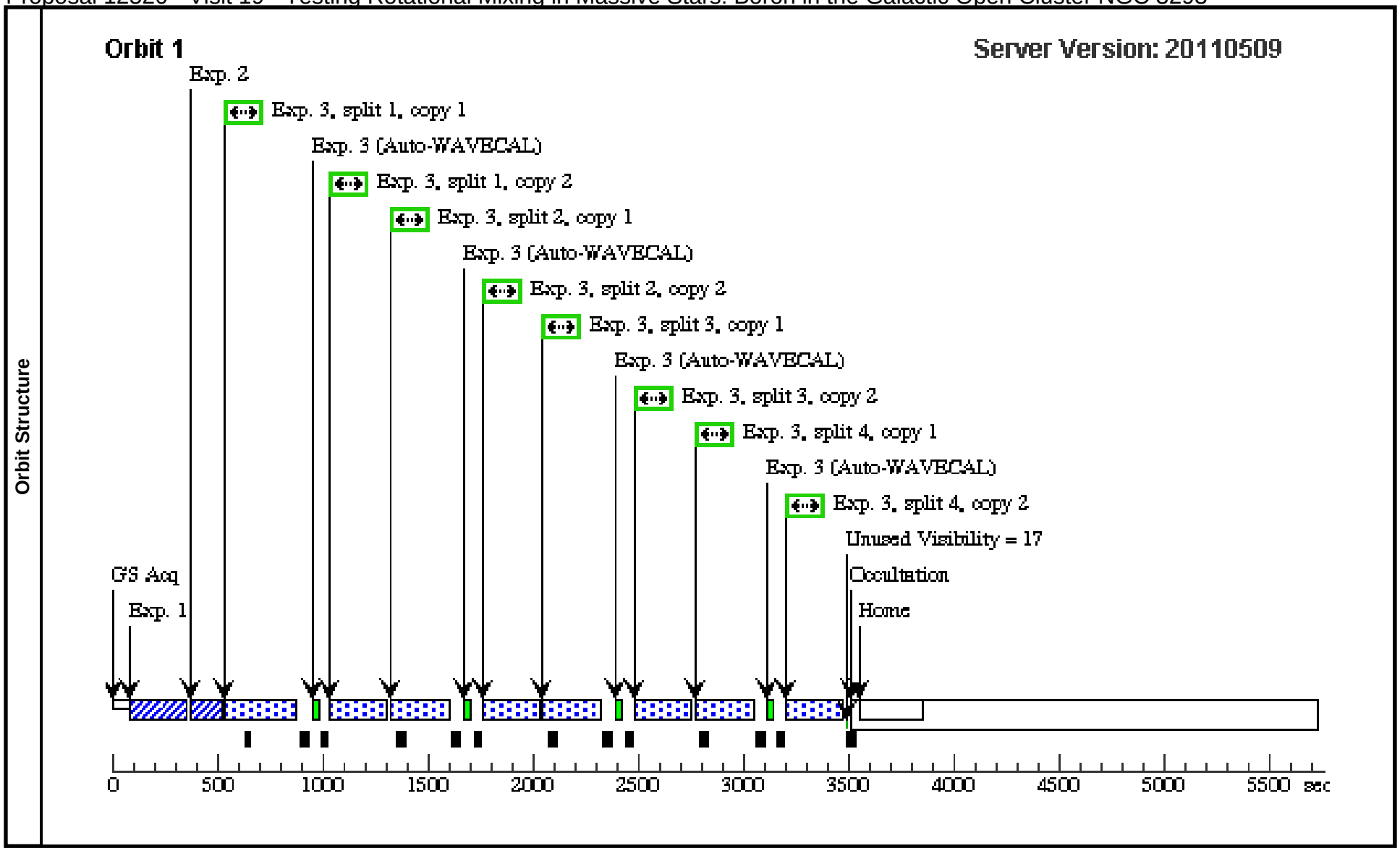
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(19)	NGC3293-ESL019 Alt Name1: CPD-57D3507 Alt Name2: V405CAR	RA: 10 35 48.2090 (158.9508708d) Dec: -58 12 33.23 (-58.20923d) Equinox: J2000	Proper Motion RA: -0.0092 arcsec/yr Proper Motion Dec: -0.0014 arcsec/yr Epoch of Position: 2000	V=9.28 FLAM(2070)=4.0e-12	Reference Frame: ICRS

Comments: Cl NGC 3293 ESL 19*
Positions and proper motions from UCAC3
IUE swp21513 & LWR16995 low-large
Dufton qies 25000, 3.70,

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181532)	(19) NGC3293-ESL019	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181533)	(19) NGC3293-ESL019	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 ACCUM (COS.sp.180640)	(19) NGC3293-ESL019	COS/NUV, ACCUM, PSA	G185M 1971 A	FP-POS=ALL			260 Secs X 2 *[==>(Copy 1, Split 1)]* *[==>(Copy 2, Split 1)]* *[==>(Copy 1, Split 2)]* *[==>(Copy 2, Split 2)]* *[==>(Copy 1, Split 3)]* *[==>(Copy 2, Split 3)]* *[==>(Copy 1, Split 4)]* *[==>(Copy 2, Split 4)]*	 ***[1]***

Comments: Used IUE spectra to provide input SED
Global rate of 32944 requires ACCUM mode
Combined exposure time of 2080 s
Individual exposures kept short to allow for photospheric velocity changes (beta Cephei pulsations)


Orbit 1
Server Version: 20110509
Orbit Structure
Exp. 2
Exp. 3, split 1, copy 1
Exp. 3 (Auto-WAVECAL)
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 Visibility = 17
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 23 Wed Jun 29 02:12:00 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 23) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

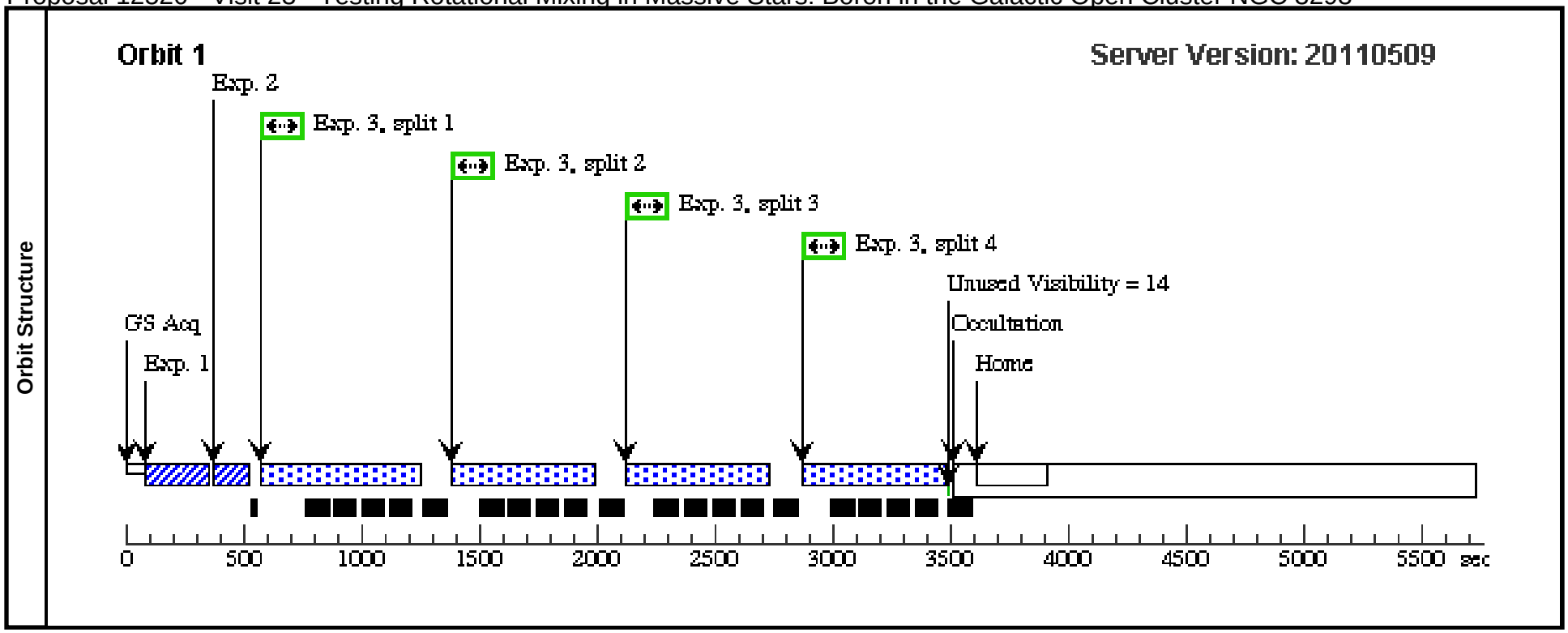
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(23)	NGC3293-ESL023 Alt Name1: CPD-57D3519	RA: 10 35 55.3740 (158.9807250d) Dec: -58 12 19.90 (-58.20553d) Equinox: J2000	Proper Motion RA: -0.0115 arcsec/yr Proper Motion Dec: 0.0059 arcsec/yr Epoch of Position: 2000	V=9.96	Reference Frame: ICRS

Comments: Coordinates and proper motions from UCAC3 catalogue
No IUE data
From Dufton, V=10.01, Teff=20500, logg=3.4, E(B-V)=0.13
COS.sp.180188 qvies global 13578, globalA=5040, local, 2.73, S/N=142 in 2000 S, buffer=173

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181536)	(23) NGC3293-ESL023	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181537)	(23) NGC3293-ESL023	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 TIME-TAG (COS.sp.180623)	(23) NGC3293-ESL023	COS/NUV, TIME-TAG, PSA	G185M 1971 A	FP-POS=ALL; BUFFER-TIME=120			595 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***

Comments: Used Kurucz spectra tailored to Dufton paramters to provide input SED
Predicted global rate 15419 c/s


Orbit Structure
Orbit 1
Server Version: 20110509
Exp. 2
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Unused Visibility = 14
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec

Visit

Proposal 12520, Visit 24 Wed Jun 29 02:12:00 GMT 2011

Diagnostic Status: Warning

Scientific Instruments: COS/NUV

Special Requirements: (none)

Diagnostics

(Visit 24) Warning (Form): If the target coordinates are not known to 0.4" (or better) an ACQ/SEARCH should precede the ACQ/PEAKXD.

Fixed Targets

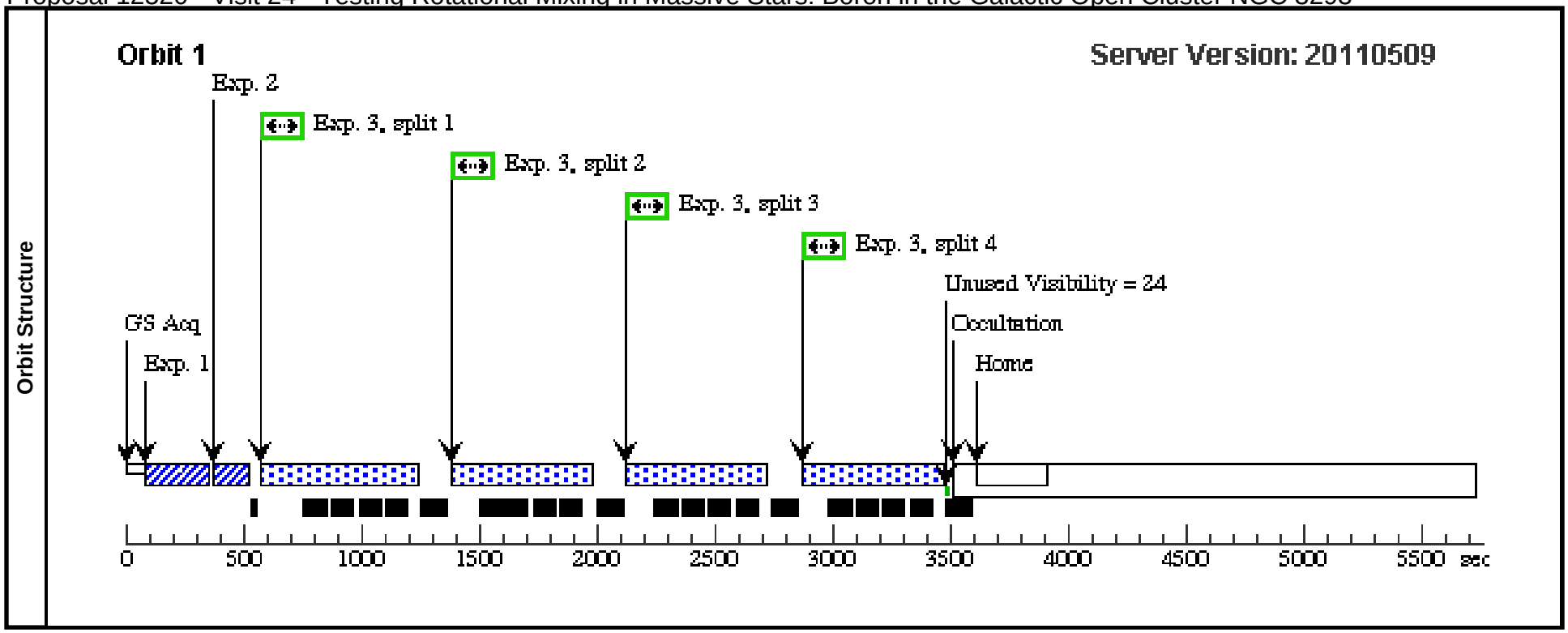
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(24)	NGC3293-ESL024	RA: 10 36 4.9070 (159.0204458d)	Proper Motion RA: -0.0035 arcsec/yr	V=10.1	Reference Frame: ICRS
	Alt Name1: HD303065	Dec: -58 10 43.37 (-58.17871d)	Proper Motion Dec: 0.0041 arcsec/yr		
		Equinox: J2000	Epoch of Position: 2000		

Comments: Coordinates and proper motions from UCAC3 catalogue
No IUE data
From Dufton, V=10.01, Teff=20500, logg=3.5, E(B-V)=0.17

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time/[Actual Dur.]	Orbit
1	(COS.sa.181538)	(24) NGC3293-ESL024	COS/NUV, ACQ/PEAKXD, PSA	G185M 1971 A				0.5 Secs *[==>]*	 ***[1]***
2	(COS.sa.181539)	(24) NGC3293-ESL024	COS/NUV, ACQ/PEAKD, PSA	G185M 1971 A	STEP-SIZE=0.9; NUM-POS=5; CENTER=FLUX-WT-FLR			0.5 Secs *[==>]*	 ***[1]***
3	G185M 1971 TIME-TAG (COS.sp.180625)	(24) NGC3293-ESL024	COS/NUV, TIME-TAG, PSA	G185M 1971 A	FP-POS=ALL; BUFFER-TIME=115			585 Secs *[==>(Split 1)]* *[==>(Split 2)]* *[==>(Split 3)]* *[==>(Split 4)]*	 ***[1]***

Comments: Used Kurucz spectra tailored to Dufton paramters to provide input SED
predicted global rate 12789 c/s


Orbit Structure
Orbit 1
Server Version: 20110509
Exp. 2
Exp. 3, split 1
Exp. 3, split 2
Exp. 3, split 3
Exp. 3, split 4
Unused Visibility = 24
Occultation
Home
GS Acq
Exp. 1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
sec