15873 - Focus on Betelgeuse

Cycle: 27, 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?*
01	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	22-Jan-2020 13:01:43.0	yes
02	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	22-Jan-2020 13:01:46.0	yes
52	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	22-Jan-2020 13:01:48.0	yes
03	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	22-Jan-2020 13:01:51.0	yes
04	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	22-Jan-2020 13:01:53.0	yes

15 Total Orbits Used

ABSTRACT

Multiple ultraviolet spectra of the nearby red supergiant, Betelgeuse, using STIS will enable spatially resolved measures of chromospheric structure and mass inflows and outflows. An HST campaign of 3 cycles will be complemented by multi-frequency photometry, spectroscopy, interferometry, and polarimetry at radio, infrared, and optical wavelengths in order to map surface structures and their variability, and the extended outer atmosphere over both the short (400-day) and long secondary (2000-day) periods of this supergiant. These observations, coupled with detailed modeling and simulations, will probe the structure, the dynamics, and the mass loss from Betelgeuse in unprecedented detail and provide crucial insights into the atmospheric physics and wind-driving mechanisms of red supergiants.

OBSERVING DESCRIPTION

We plan raster scans with STIS, medium resolution E230M grating using the small slit (0.1X0.03") centered on the red supergiant Betelgeuse (HD 39801). The raster scans (perpendicular to the long axis of the slit) with STIS using E230M (2707A) will be at the centered position, +/-25 mas, +/- 50 mas, +/- 75 mas, and +100 mas.. The pattern is expected to be -75mas, -50mas, -25 mas, 0, +25mas, +50mas, +75mas +100 mas from the peakup in the small aperture.. The visit begins with an acquisition, then a first ACQ/PEAKUP in the 0.2X0.09 aperture using the dispersed spectrum (G230LB), followed by a spiral ACQ/PEAKUP using slit 0.1X0.03. Then offsets are made from the final peakup position as described above.

We are scheduling 4 visits of 3 orbits each during the times ot target accessibility. Hopefully: November 2019, Jan. 2020, March 2020, April 2020

Proposal 15873 - Visit 01 - Focus on Betelgeuse

Visit

Proposal 15873, Visit 01, completed Wed Jan 22 18:01:54 GMT 2020

Diagnostic Status: Warning

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

Special Requirements: BETWEEN 27-OCT-2019 AND 30-NOV-2019

Comments: 8 exposures at 8 positions on UV disk: offset -75, -50 -25, 0 +25,+50,+75,+100 mas with the 0.1X0.03 slit

Diagnostics

(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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Fixed Targets

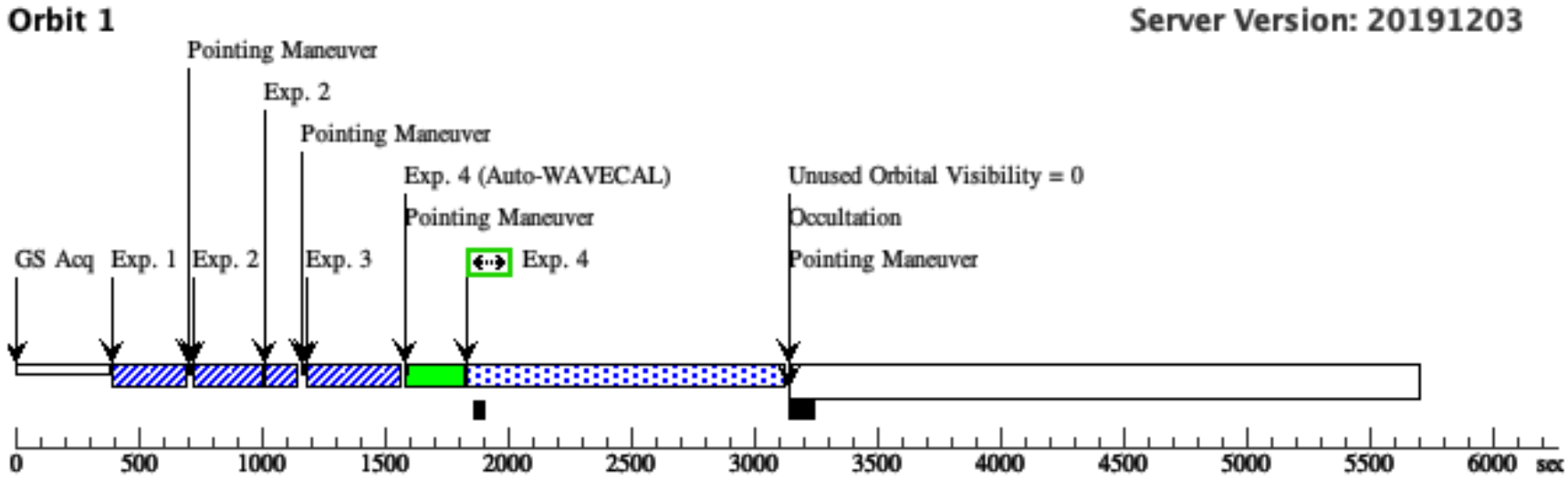
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD39801 Alt Name1: BETELGEUSE	RA: 05 55 10.3054 (88.7929392d) Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion RA: 27.54 mas/yr Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25	V=0.5	Reference Frame: ICRS

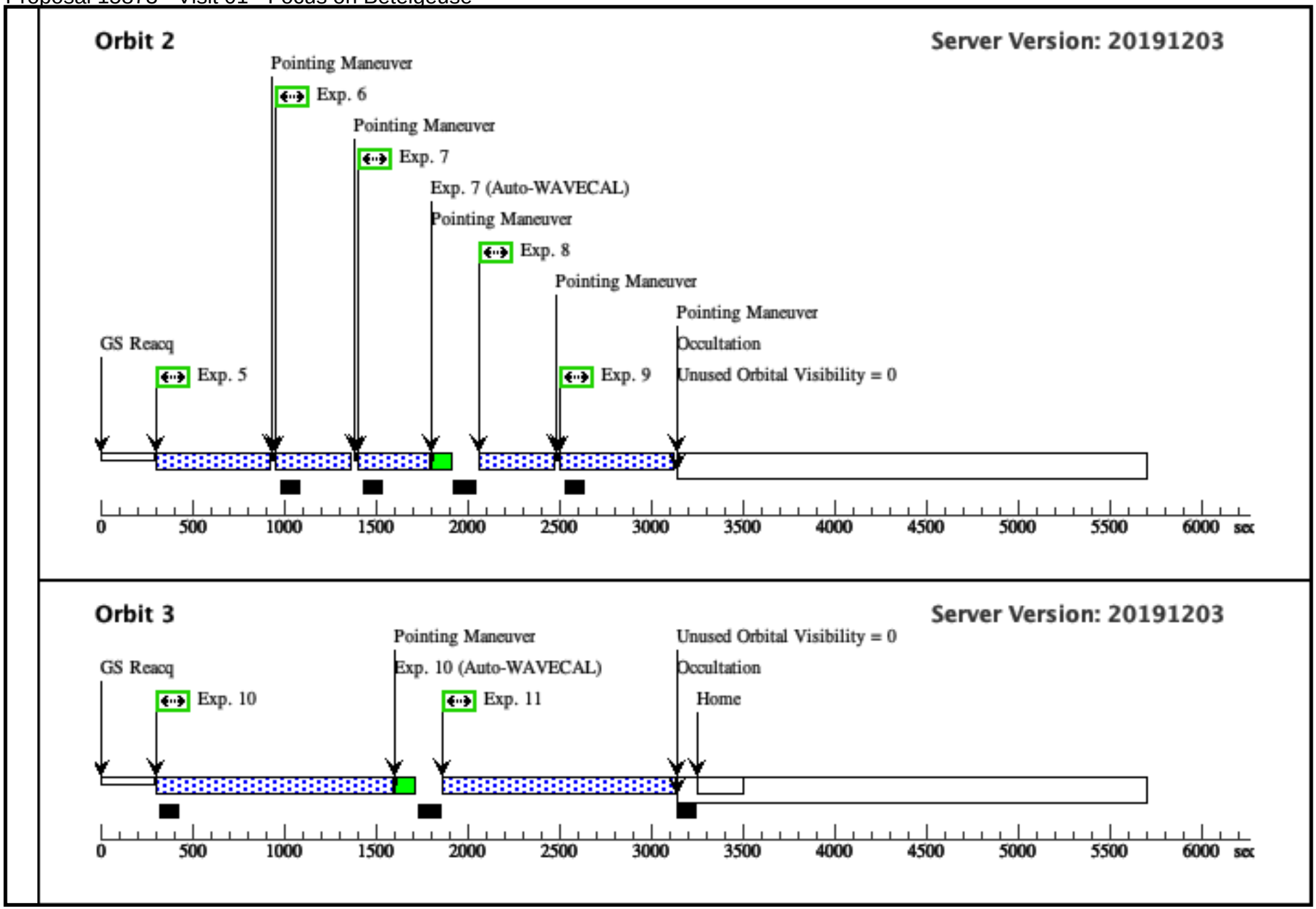
Comments: parallax from Harper et al. 2017, AJ, 154, 11
Category=STAR
Description=[M III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1299541)	(1) HD39801	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	 ***[1]***
2	ACQ/Peakup 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	 ***[1]***
Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position									
3	ACQ/peakup sspiral small (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	 ***[1]***
Comments: spiral in 0.1X0.03									
4	Offset -75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0.		1125 Secs (1277 Secs) *[==>1277.0 Secs]*	 ***[1]***
5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	 ***[2]***
6	Offset -25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	 ***[2]***
7	Center exposure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (372 Secs) *[==>372.0 Secs]*	 ***[2]***
8	Offset +25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.025, 0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	 ***[2]***
9	Offset +50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.050, 0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	 ***[2]***
10	Offset +75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.075, 0.0		1150 Secs (1277 Secs) *[==>1277.0 Secs]*	 ***[3]***
11	Offset +100 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.100, 0.0; MAX DUR 1700.0 S ; MIN DUR 950.0 S		1613 Secs (1253 Secs) *[==>1253.0 Secs]*	 ***[3]***

Orbit Structure




Orbit 2
Server Version: 20191203
Pointing Maneuver
Exp. 6
Pointing Maneuver
Exp. 7
Exp. 7 (Auto-WAVECAL)
Pointing Maneuver
Exp. 8
Pointing Maneuver
Pointing Maneuver
GS Reacq
Occultation
Exp. 5
Exp. 9
Unused Orbital Visibility = 0
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec
Orbit 3
Server Version: 20191203
Pointing Maneuver
Unused Orbital Visibility = 0
GS Reacq
Exp. 10 (Auto-WAVECAL)
Occultation
Exp. 10
Exp. 11
Home
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Visit

Proposal 15873, Visit 02, completed — Wed Jan 22 18:01:55 GMT 2020

Diagnostic Status: Warning

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

Special Requirements: AFTER 01 BY 30 D TO 60 D; BETWEEN 26-NOV-2019 AND 25-APR-2020

Comments: 8 exposures at 9 positions on UV disk: offset -75, -50 -25, 0 +25,+50,+75 +100 mas with the 0.1X0.03 slit

Diagnostics

(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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Fixed Targets

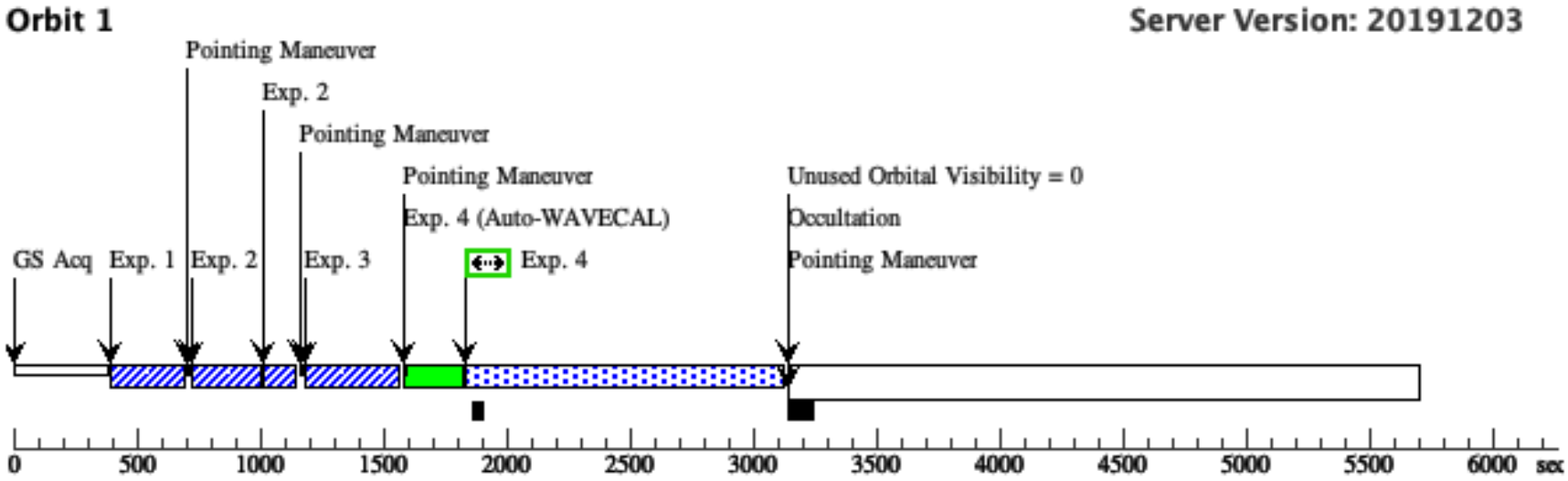
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD39801 Alt Name1: BETELGEUSE	RA: 05 55 10.3054 (88.7929392d) Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion RA: 27.54 mas/yr Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25	V=0.5	Reference Frame: ICRS

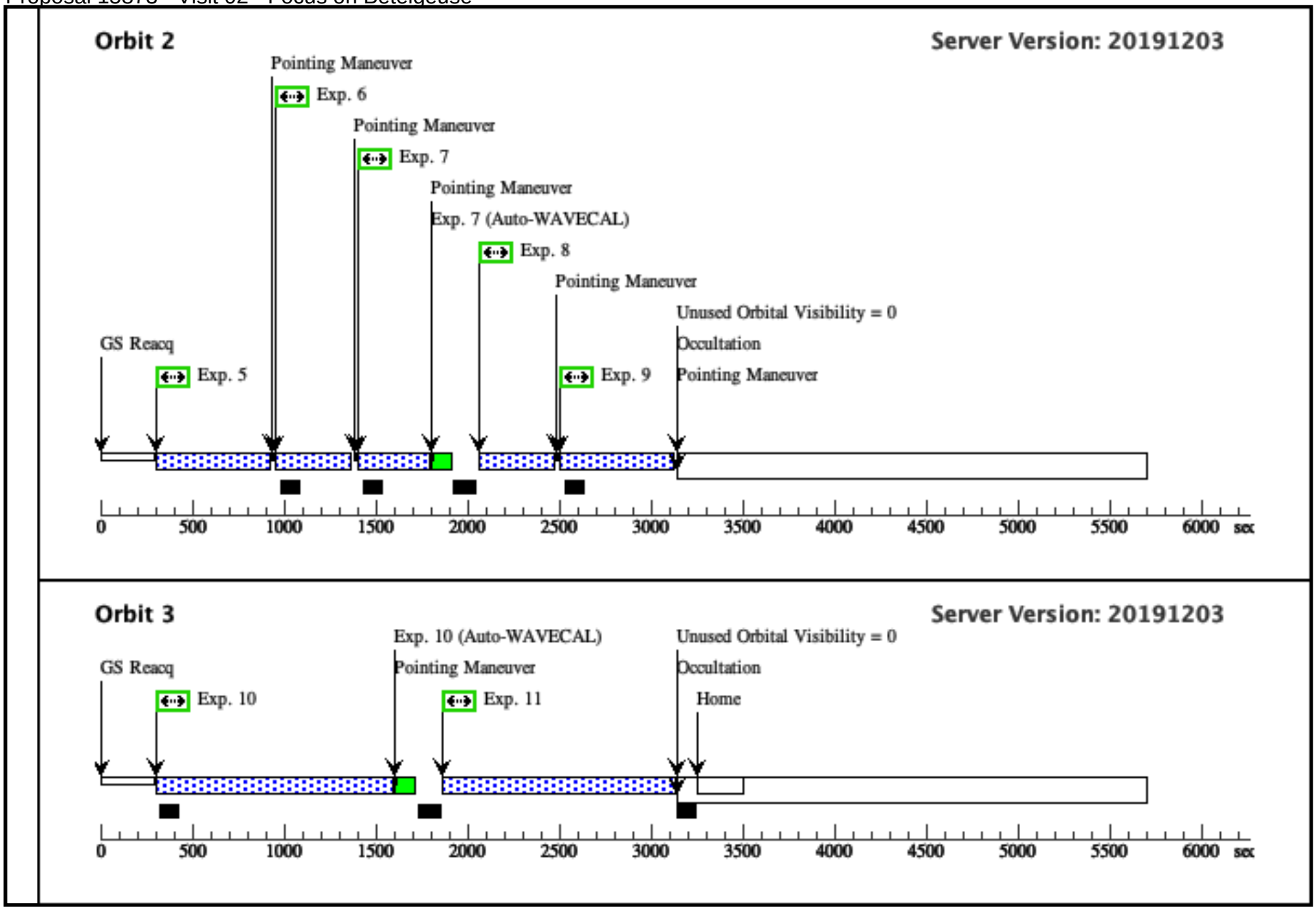
Comments: parallax from Harper et al. 2017, AJ, 154, 11
Category=STAR
Description=[M III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1299541)	(1) HD39801	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	***[1]***
2	ACQ/Peakup 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	***[1]***
Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position									
3	ACQ/peakup sspiral small (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	***[1]***
Comments: spiral in 0.1X0.03									
4	Offset -75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0.		1125 Secs (1277 Secs) *[==>1277.0 Secs]*	***[1]***
5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
6	Offset -25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
7	Center exposure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (372 Secs) *[==>372.0 Secs]*	***[2]***
8	Offset +25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.025, 0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
9	Offset +50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.050, 0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
10	Offset +75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.075, 0.0		1150 Secs (1277 Secs) *[==>1277.0 Secs]*	***[3]***
11	Offset +100 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.100, 0.0; MAX DUR 1700.0 S ; MIN DUR 950.0 S		1613 Secs (1253 Secs) *[==>1253.0 Secs]*	***[3]***

Orbit Structure

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Server Version: 20191203
Pointing Maneuver
Exp. 6
Pointing Maneuver
Exp. 7
Pointing Maneuver
Exp. 7 (Auto-WAVECAL)
Exp. 8
Pointing Maneuver
Unused Orbital Visibility = 0
Occultation
Pointing Maneuver
GS Reacq
Exp. 5
Exp. 9
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec
Orbit 3
Server Version: 20191203
Exp. 10 (Auto-WAVECAL)
Unused Orbital Visibility = 0
GS Reacq
Pointing Maneuver
Occultation
Exp. 10
Exp. 11
Home
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Proposal 15873 - Visit 52 - Focus on Betelgeuse

Visit

Proposal 15873, Visit 52 Wed Jan 22 18:01:55 GMT 2020

Diagnostic Status: Warning

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

Special Requirements: (none)

Comments: 8 exposures at 9 positions on UV disk: offset -75, -50 -25, 0 +25,+50,+75 +100 mas with the 0.1X0.03 slit

Diagnostics

(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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Fixed Targets

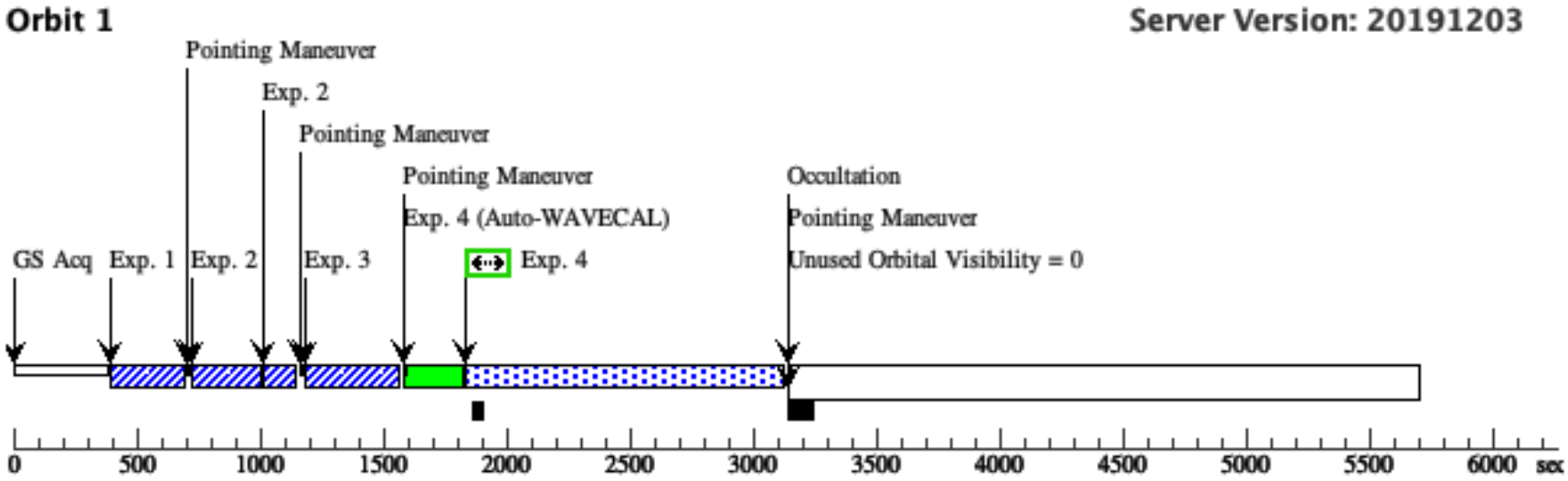
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD39801 Alt Name1: BETELGEUSE	RA: 05 55 10.3054 (88.7929392d) Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion RA: 27.54 mas/yr Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25	V=0.5	Reference Frame: ICRS

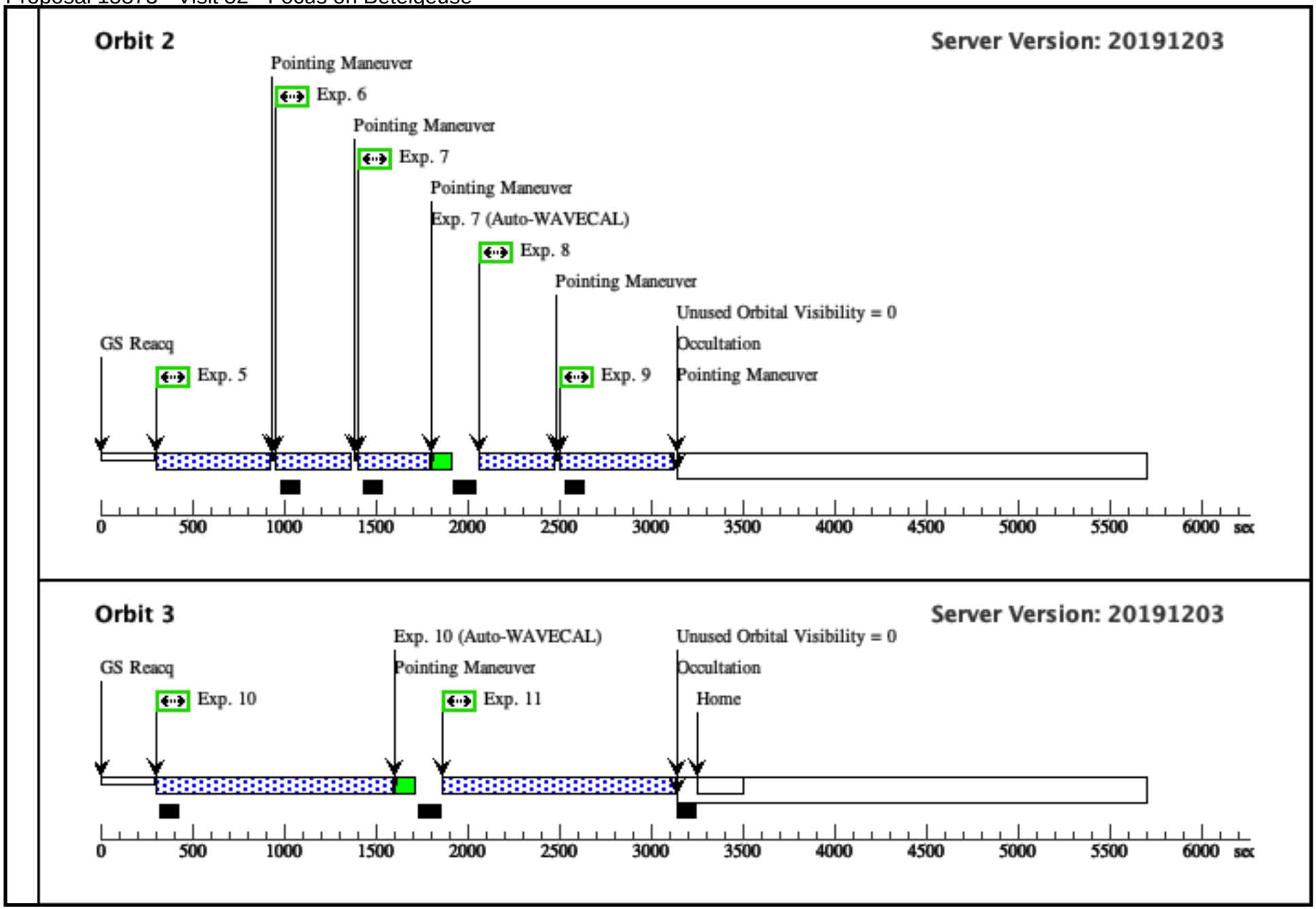
Comments: parallax from Harper et al. 2017, AJ, 154, 11
Category=STAR
Description=[M III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1299541)	(1) HD39801	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	*[1]*
2	ACQ/Peakup 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	*[1]*
Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position									
3	ACQ/peakup sspiral small (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	*[1]*
Comments: spiral in 0.1X0.03									
4	Offset -75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0.		1125 Secs (1277 Secs) *[==>1277.0 Secs]*	*[1]*
5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	*[2]*
6	Offset -25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	*[2]*
7	Center exposure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (372 Secs) *[==>372.0 Secs]*	*[2]*
8	Offset +25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.025, 0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	*[2]*
9	Offset +50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.050, 0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	*[2]*
10	Offset +75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.075, 0.0		1150 Secs (1277 Secs) *[==>1277.0 Secs]*	*[3]*
11	Offset +100 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.100, 0.0; MAX DUR 1700.0 S ; MIN DUR 950.0 S		1613 Secs (1253 Secs) *[==>1253.0 Secs]*	*[3]*

Orbit Structure




Orbit 2
Server Version: 20191203
Pointing Maneuver
Exp. 6
Pointing Maneuver
Exp. 7
Pointing Maneuver
Exp. 7 (Auto-WAVECAL)
Exp. 8
Pointing Maneuver
Unused Orbital Visibility = 0
Occultation
Pointing Maneuver
GS Reacq
Exp. 5
Exp. 9
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec
Orbit 3
Server Version: 20191203
Exp. 10 (Auto-WAVECAL)
Pointing Maneuver
Unused Orbital Visibility = 0
Occultation
GS Reacq
Exp. 10
Exp. 11
Home
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Proposal 15873 - Visit 03 - Focus on Betelgeuse

Visit

Proposal 15873, Visit 03, scheduling — Wed Jan 22 18:01:55 GMT 2020

Diagnostic Status: Warning

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

Special Requirements: AFTER 02 BY 28 D TO 45 D; BETWEEN 14-JAN-2020 AND 25-APR-2020

Comments: 8 exposures at 8 positions on UV disk: offset -75, -50 -25, 0 +25,+50,+75 +100 mas with the 0.1X0.03 slit

Diagnostics

(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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Fixed Targets

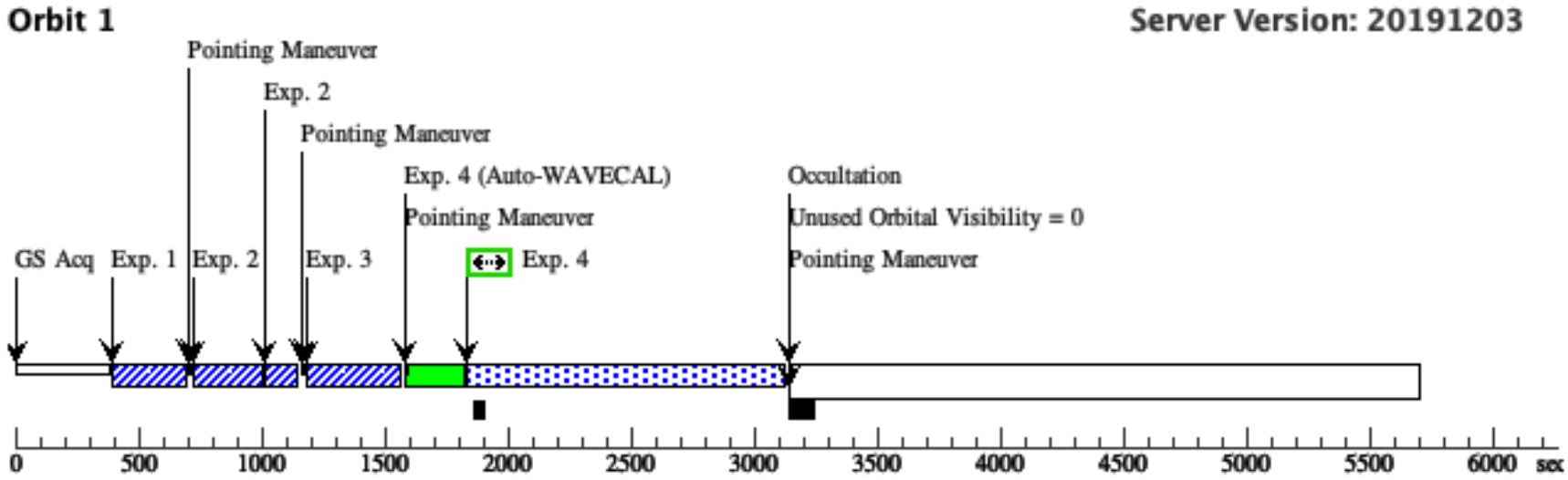
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD39801 Alt Name1: BETELGEUSE	RA: 05 55 10.3054 (88.7929392d) Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion RA: 27.54 mas/yr Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25	V=0.5	Reference Frame: ICRS

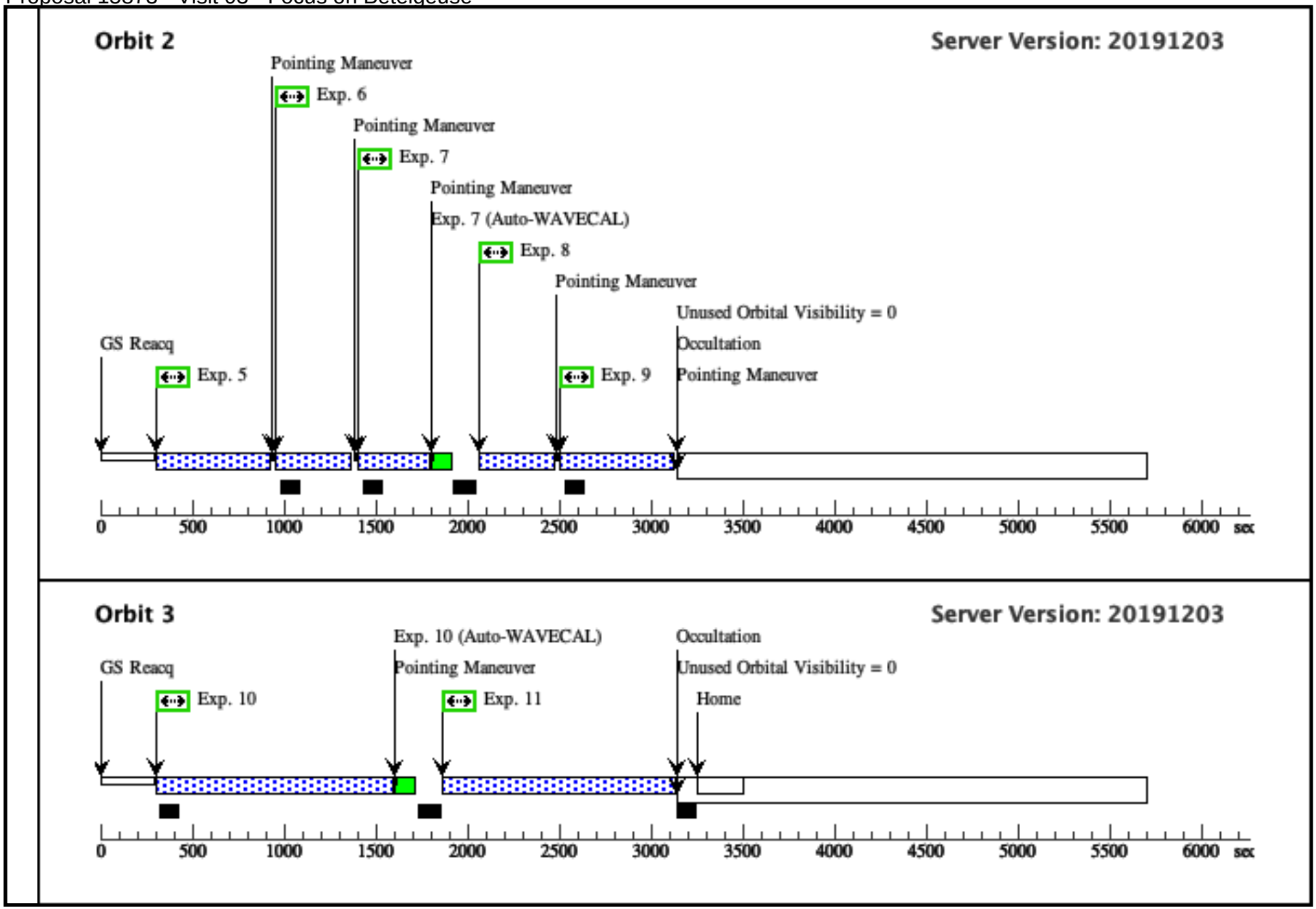
Comments: parallax from Harper et al. 2017, AJ, 154, 11
Category=STAR
Description=[M III-I]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACQ (1299541)	(1) HD39801	STIS/CCD, ACQ, F25ND5	MIRROR				1 Secs (1 Secs) *[==>]*	***[1]***
2	ACQ/Peakup 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	***[1]***
Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position									
3	ACQ/peakup sspiral small (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) *[==>]*	***[1]***
Comments: spiral in 0.1X0.03									
4	Offset -75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0.		1125 Secs (1277 Secs) *[==>1277.0 Secs]*	***[1]***
5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
6	Offset -25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
7	Center exposure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (372 Secs) *[==>372.0 Secs]*	***[2]***
8	Offset +25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.025, 0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
9	Offset +50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.050, 0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
10	Offset +75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.075, 0.0		1150 Secs (1277 Secs) *[==>1277.0 Secs]*	***[3]***
11	Offset +100 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.100, 0.0; MAX DUR 1700.0 S ; MIN DUR 950.0 S		1613 Secs (1253 Secs) *[==>1253.0 Secs]*	***[3]***

Orbit Structure




Orbit 2
Server Version: 20191203
Pointing Maneuver
Exp. 6
Pointing Maneuver
Exp. 7
Pointing Maneuver
Exp. 7 (Auto-WAVECAL)
Exp. 8
Pointing Maneuver
Unused Orbital Visibility = 0
Occultation
Pointing Maneuver
GS Reacq
Exp. 5
Exp. 9
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec
Orbit 3
Server Version: 20191203
Exp. 10 (Auto-WAVECAL)
Pointing Maneuver
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 10
Exp. 11
Home
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 sec

Visit

Proposal 15873, Visit 04, scheduling Wed Jan 22 18:01:55 GMT 2020

Diagnostic Status: Warning

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

Special Requirements: AFTER 03 BY 30 D TO 45 D; BETWEEN 14-JAN-2020 AND 25-APR-2020

Comments: 8 exposures at 8 positions on UV disk: offset -75, -50 -25, 0 +25,+50,+75,+100 mas with the 0.1X0.03 slit

Diagnostics

(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE
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Comments: parallax from Harper et al. 2017, AJ, 154, 11
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Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position									
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Comments: spiral in 0.1X0.03									
4	Offset -75 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0.		1125 Secs (1277 Secs) *[==>1277.0 Secs]*	***[1]***
5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
6	Offset -25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
7	Center exposure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (372 Secs) *[==>372.0 Secs]*	***[2]***
8	Offset +25 mas (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.025, 0.0		392 Secs (398 Secs) *[==>398.0 Secs]*	***[2]***
9	Offset +50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.050, 0.0		600 Secs (606 Secs) *[==>606.0 Secs]*	***[2]***
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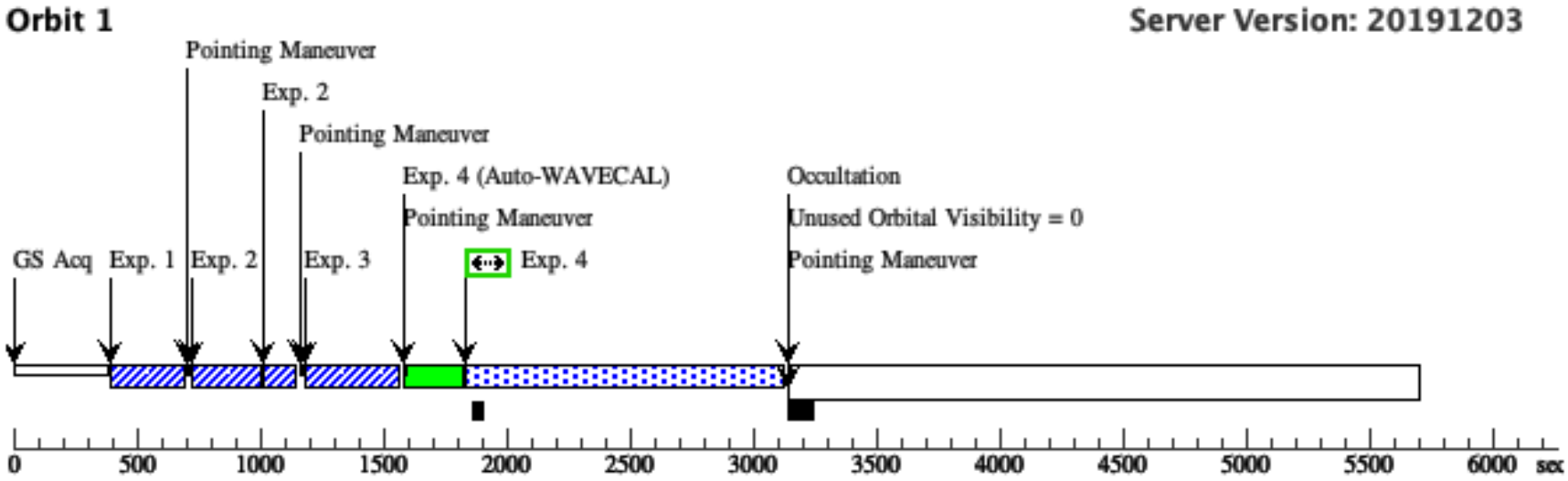
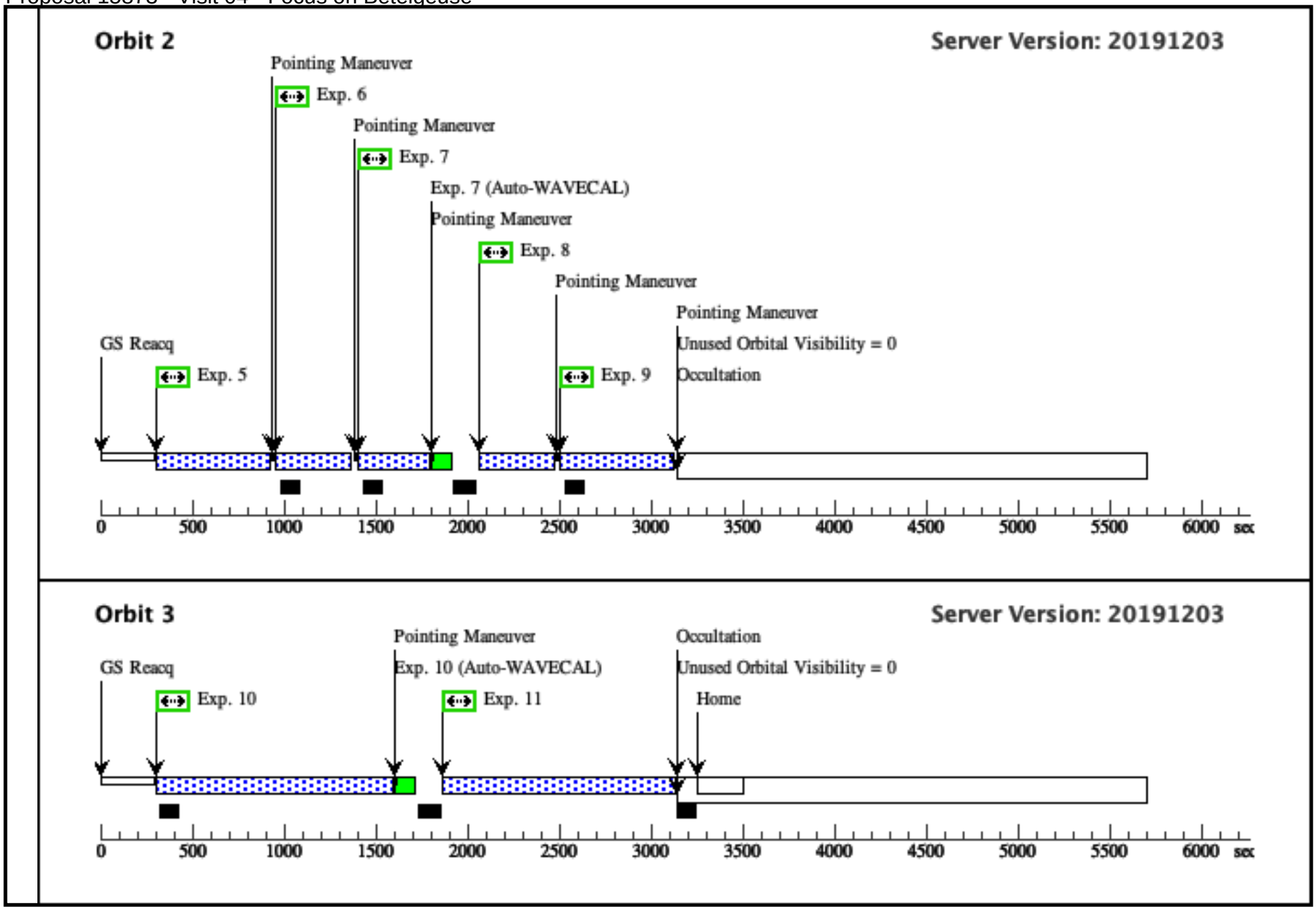
11	Offset +100 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG +0.100, 0.0; MAX DUR 1700.0 S ; MIN DUR 950.0 S		1613 Secs (1253 Secs) *[==>1253.0 Secs]*	***[3]***

Orbit Structure




Orbit 2
Server Version: 20191203
Pointing Maneuver
Exp. 6
Pointing Maneuver
Exp. 7
Exp. 7 (Auto-WAVECAL)
Pointing Maneuver
Exp. 8
Pointing Maneuver
Pointing Maneuver
GS Reacq
Exp. 5
Exp. 9
Unused Orbital Visibility = 0
Occultation
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec
Orbit 3
Server Version: 20191203
Pointing Maneuver
Occultation
GS Reacq
Exp. 10 (Auto-WAVECAL)
Unused Orbital Visibility = 0
Exp. 10
Exp. 11
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec