



16216 - Focus on Betelgeuse

Cycle: 28, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Andrea Dupree (PI) (Contact)	Smithsonian Institution Astrophysical Observatory	dupree@cfa.harvard.edu
Dr. Andrea Chiavassa (CoI) (ESA Member)	Observatoire de la Cote d'Azur	andrea.chiavassa@oca.eu
Dr. Bernd Freytag (CoI) (ESA Member)	Uppsala University	bernd.freytag@physics.uu.se
Dr. Graham M. Harper (CoI)	University of Colorado at Boulder	graham.harper@colorado.edu
Prof. Pierre Kervella (CoI) (ESA Member)	Observatoire de Paris	pierre.kervella@obspm.fr
Dr. Agnes Lebre (CoI) (ESA Member)	Universite de Montpellier	agnes.lebre@umontpellier.fr
Dr. Lynn D Matthews (CoI)	Massachusetts Institute of Technology	lmatthew@haystack.mit.edu
Prof. Keiichi Ohnaka (CoI)	Universidad Andres Bello	k1.ohnaka@gmail.com
Dr. Miguel Montarges (CoI) (ESA Member)	Observatoire de Paris - Section de Meudon	miguel.montarges@observatoiredeparis.psl.eu
Dr. Andreas Quirrenbach (CoI) (ESA Member)	Landessternwarte Heidelberg	a.quirrenbach@lsw.uni-heidelberg.de
Dr. Anita Richards (CoI) (ESA Member)	University of Manchester	amsr@jb.man.ac.uk
Dr. Henrique R. Schmitt (CoI)	Naval Research Laboratory	henrique.schmitt@nrl.navy.mil
Prof. Klaus G Strassmeier (CoI) (ESA Member)	Leibniz-Institut für Astrophysik Potsdam (AIP)	kstrassmeier@aip.de
Dr. Han Uitenbroek (CoI)	NSO - (CO)	huitenbroek@nso.edu
Dr. J. Craig Wheeler (CoI)	University of Texas at Austin	wheel@astro.as.utexas.edu
Dr. Markus Wittkowski (CoI) (ESA Member)	European Southern Observatory - Germany	mwittkow@eso.org

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) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:20.0	yes
02	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:22.0	yes
52	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:24.0	yes
03	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:27.0	yes
04	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:29.0	yes
54	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	30-Apr-2021 11:00:31.0	yes

18 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 offset spectra with STIS, medium resolution E230M grating using the small slit (0.1X0.03") centered on the red supergiant Betelgeuse (HD 39801). The offset pointing (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 months of accessibility of the target:

Visit 1: Between 23 Aug - 9 Sept 2020

Visit 2: Between 17 Oct - 3 Nov. 2020

Visit 3: Between 29 Dec 2020 -15 Feb 2021

Visit 4: Beteen 15 Mar and 25 Apr 2021

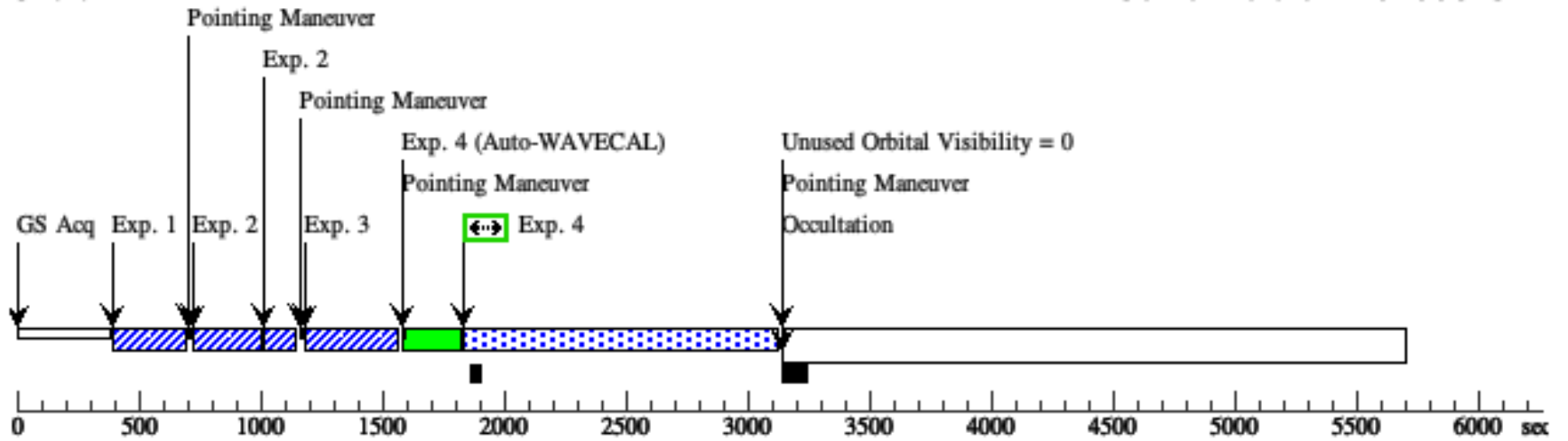
Proposal 16216 - Visit 01 - Focus on Betelgeuse

Visit	<p>Proposal 16216, Visit 01, completed Fri Apr 30 15:00:32 GMT 2021</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: STIS/NUV-MAMA, STIS/CCD</p> <p>Special Requirements: BEFORE 09-SEP-2020:00:00:00</p>																						
	<p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>																						
Fixed Targets	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">#</th> <th style="width: 20%;">Name</th> <th style="width: 25%;">Target Coordinates</th> <th style="width: 25%;">Targ. Coord. Corrections</th> <th style="width: 10%;">Fluxes</th> <th style="width: 15%;">Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>HD39801</td> <td>RA: 05 55 10.3054 (88.7929392d)</td> <td>Proper Motion RA: 27.54 mas/yr</td> <td>V=0.5</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td>Alt Name1: BETELGEUSE</td> <td>Dec: +07 24 25.43 (7.40706d) Equinox: J2000</td> <td>Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS		Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25		
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																	
(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS																		
	Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25																				
<p><i>Comments: parallax from Harper et al. 2017, AJ, 154, 11</i></p> <p><i>Category=STAR</i></p> <p><i>Description=[M III-I]</i></p> <p><i>Extended=NO</i></p>																							

Proposal 16216 - Visit 01 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0 .0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0 .0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

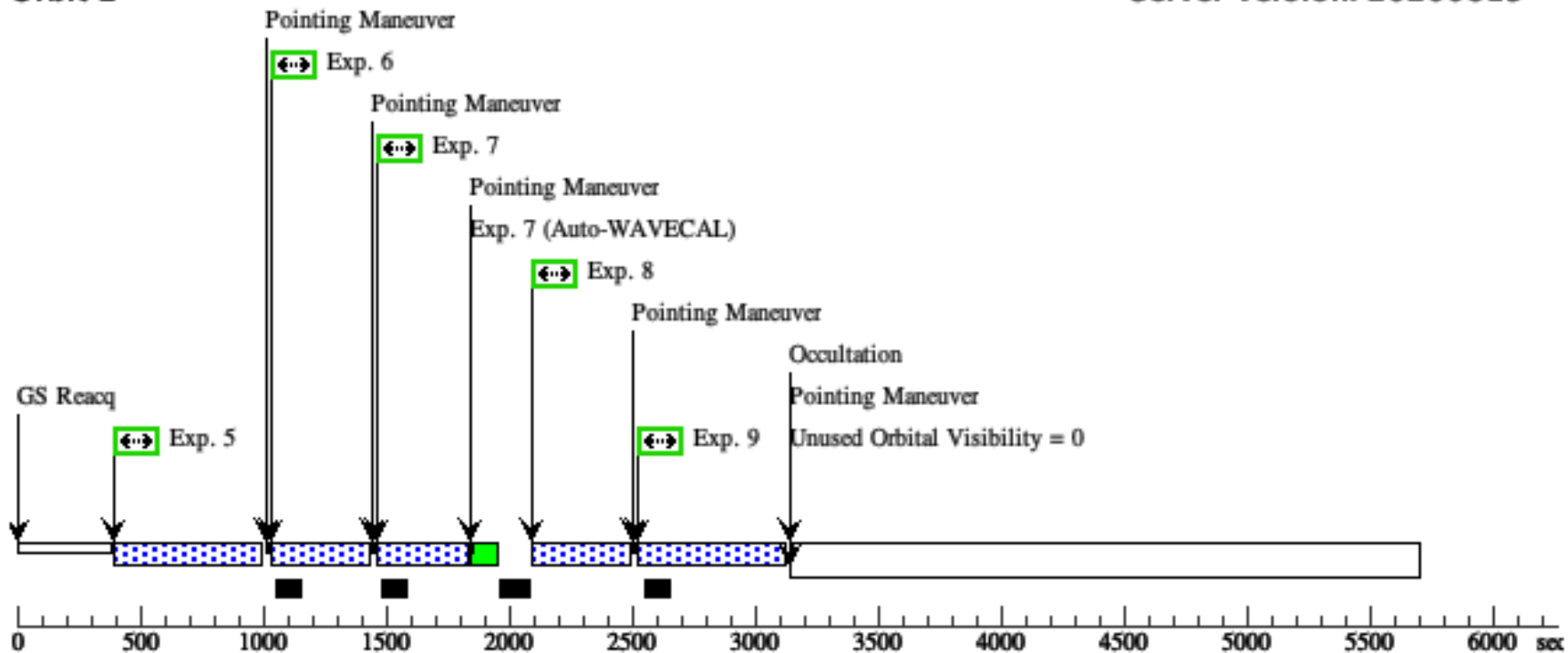
Orbit 1



Orbit Structure

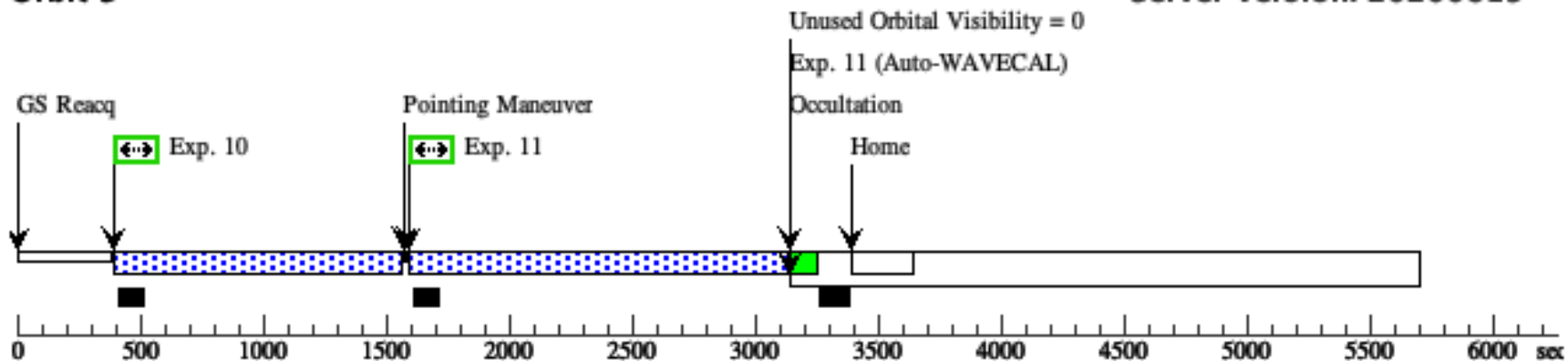
Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619



Proposal 16216 - Visit 02 - Focus on Betelgeuse

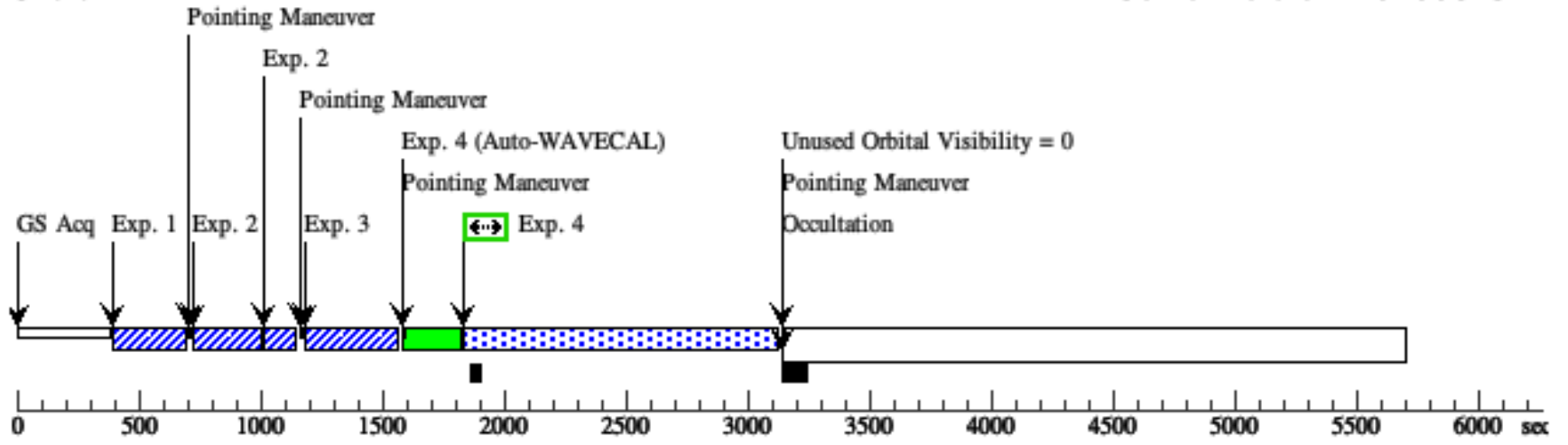
Fri Apr 30 15:00:32 GMT 2021

Visit	Proposal 16216, Visit 02, failed Diagnostic Status: Warning Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 01 BY 40 D TO 52 D					
	Diagnostics	(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE				
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 02) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
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						

Proposal 16216 - Visit 02 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0 .0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0 .0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

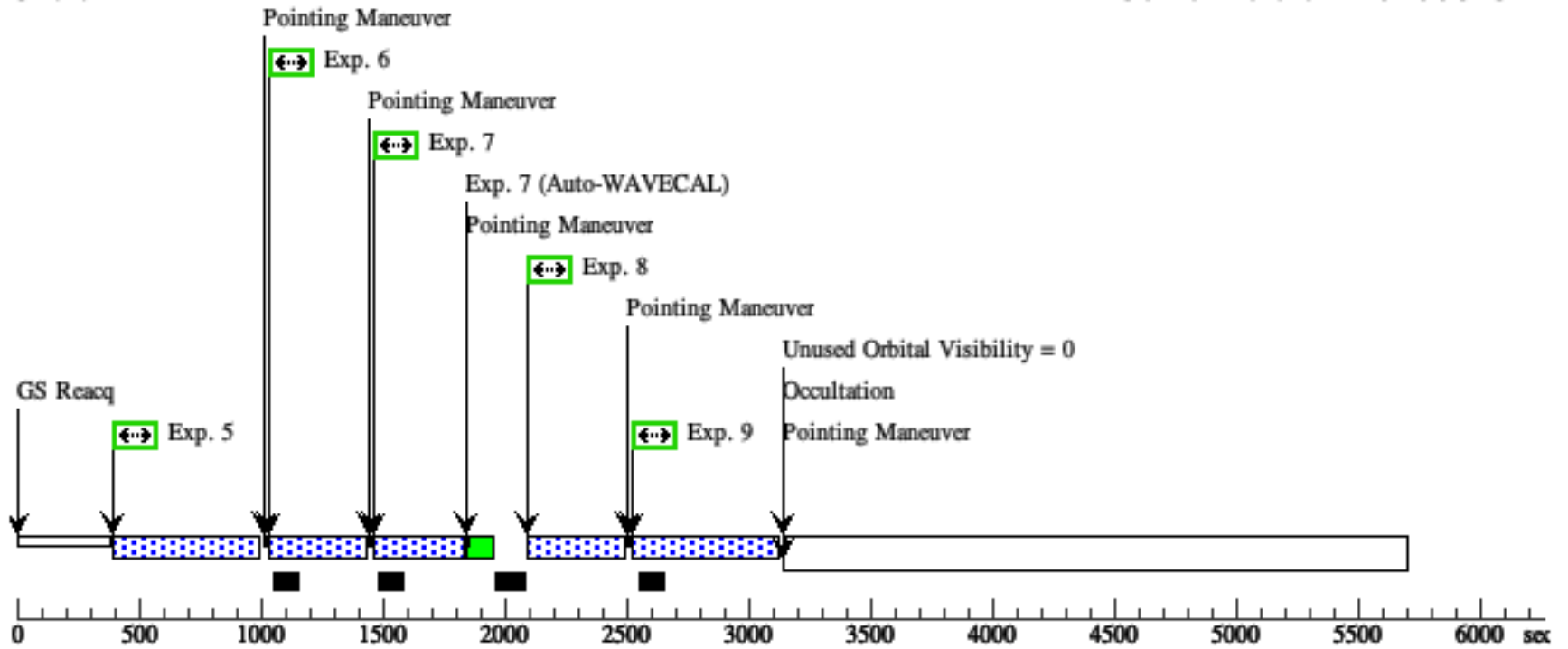
Orbit 1



Orbit Structure

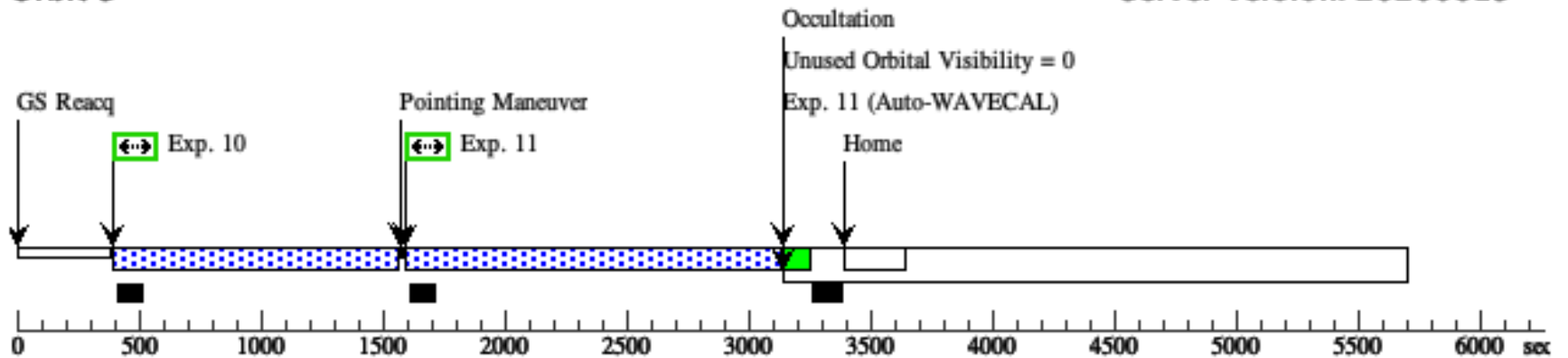
Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619



Proposal 16216 - Visit 52 - Focus on Betelgeuse

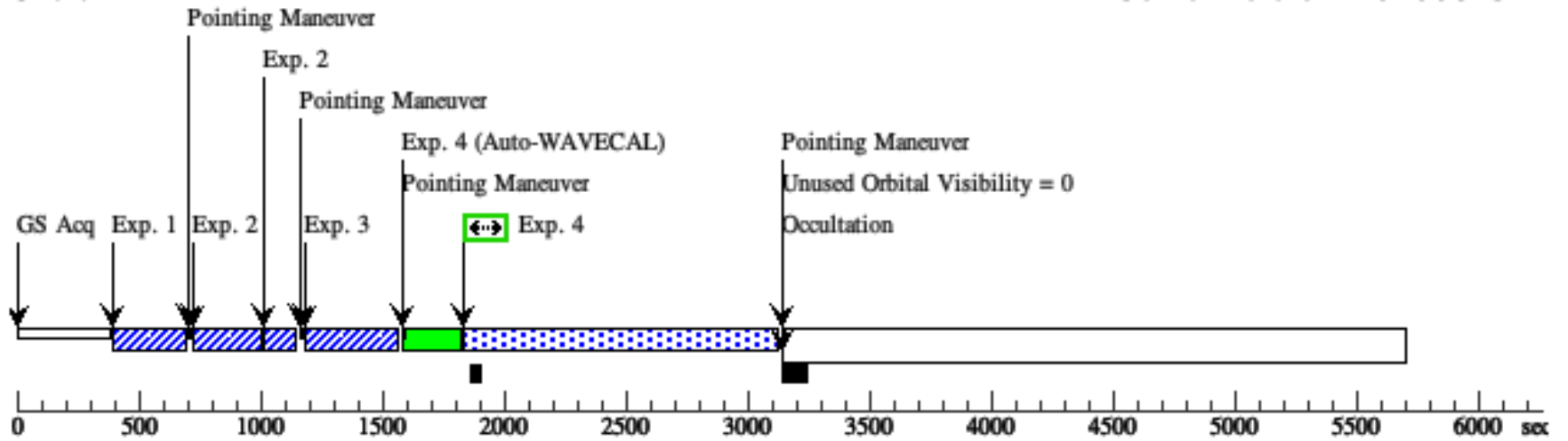
Fri Apr 30 15:00:32 GMT 2021

Visit	<p>Proposal 16216, Visit 52, completed</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: STIS/NUV-MAMA, STIS/CCD</p> <p>Special Requirements: (none)</p> <p><i>Comments: The is a repeat of failed visit 02.</i></p>						
	Diagnostics	<p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 52) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>					
Fixed Targets		#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)		HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS	
		Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25			
<p><i>Comments: parallax from Harper et al. 2017, AJ, 154, 11</i></p> <p>Category=STAR</p> <p>Description=[M III-I]</p> <p>Extended=NO</p>							

Proposal 16216 - Visit 52 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0 .0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0 .0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

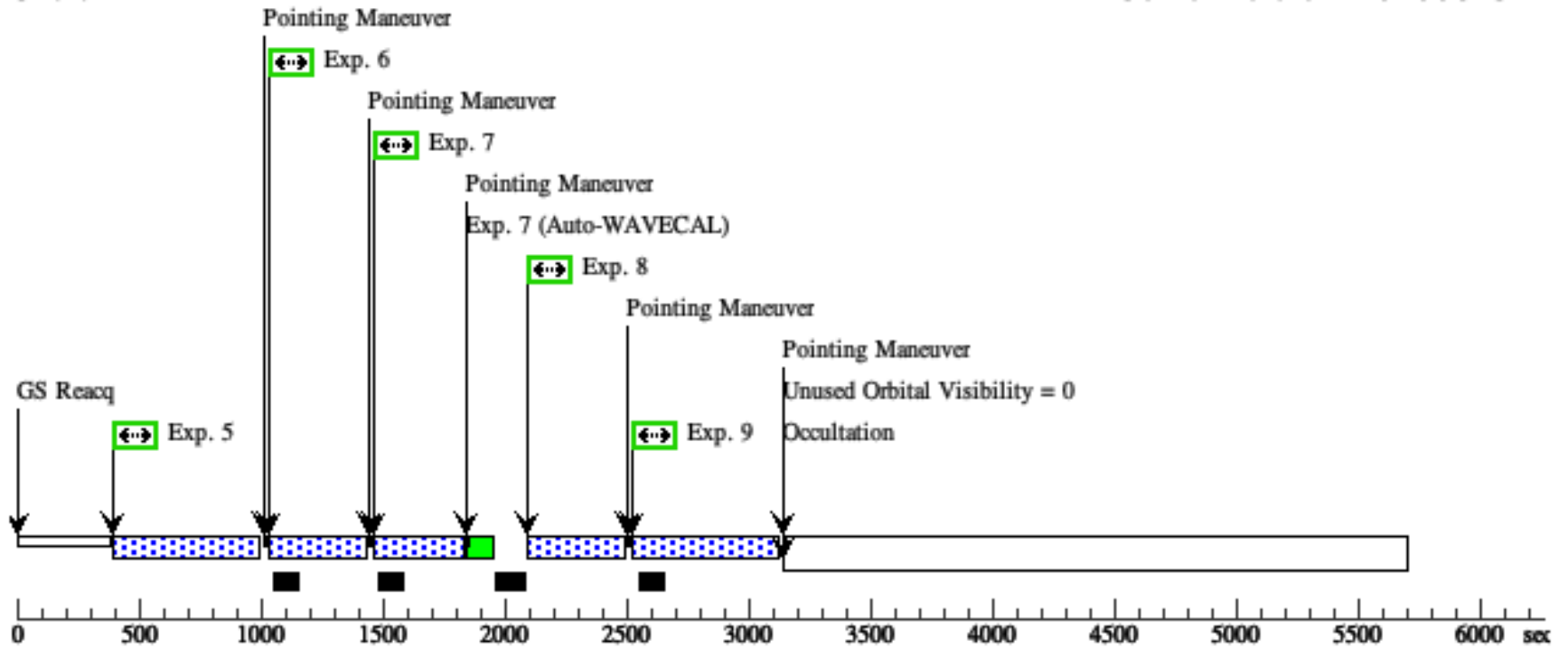
Orbit 1



Orbit Structure

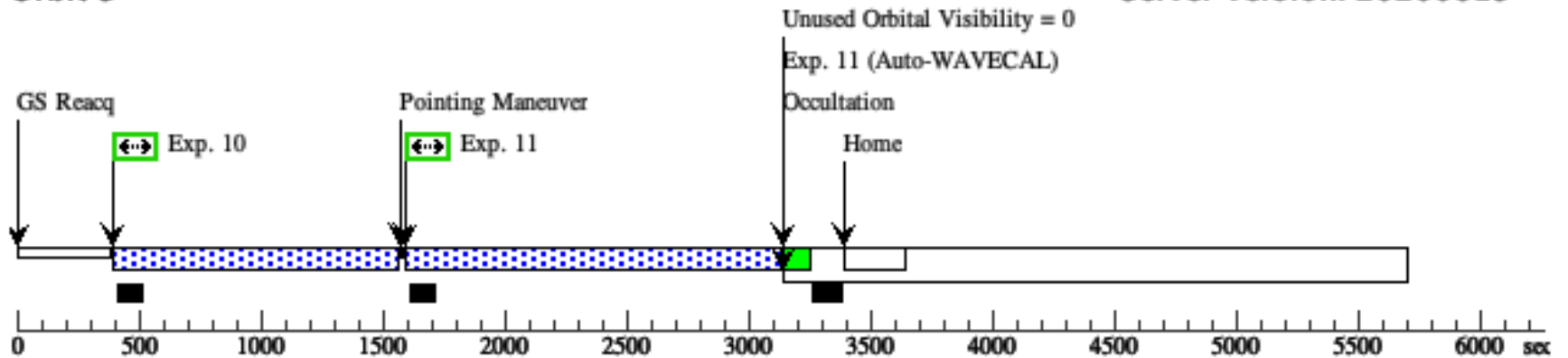
Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619



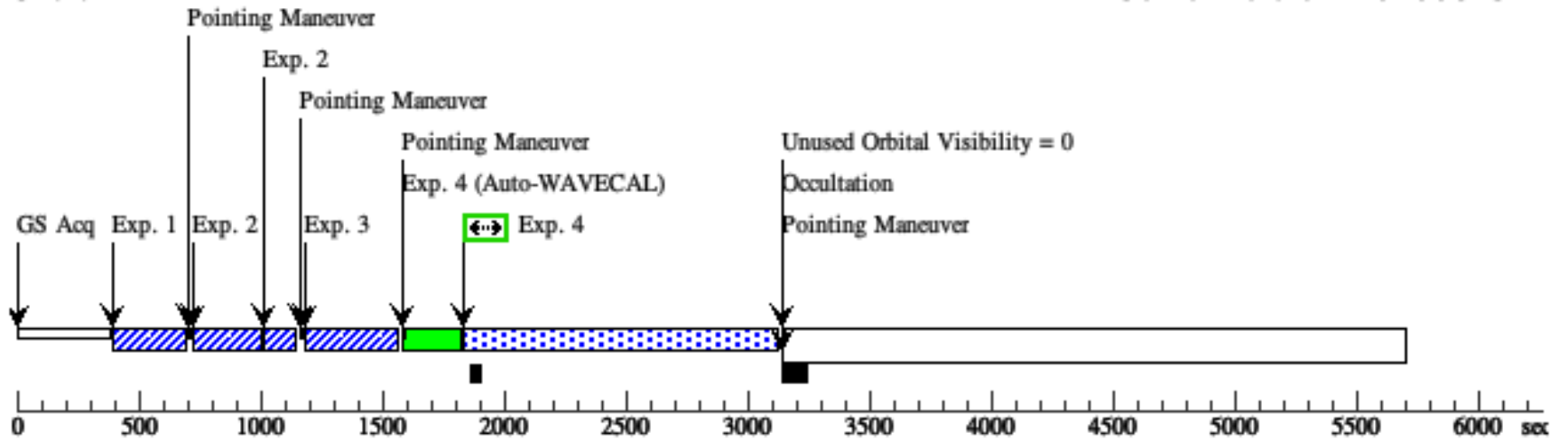
Proposal 16216 - Visit 03 - Focus on Betelgeuse

Visit	<p>Proposal 16216, Visit 03, completed Fri Apr 30 15:00:33 GMT 2021</p> <p>Diagnostic Status: Warning</p> <p>Scientific Instruments: STIS/NUV-MAMA, STIS/CCD</p> <p>Special Requirements: AFTER 29-DEC-2020:00:00:00</p>																						
	<p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p> <p>(Visit 03) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT</p>																						
Fixed Targets	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">#</th> <th style="width: 20%;">Name</th> <th style="width: 25%;">Target Coordinates</th> <th style="width: 20%;">Targ. Coord. Corrections</th> <th style="width: 10%;">Fluxes</th> <th style="width: 20%;">Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(1)</td> <td>HD39801</td> <td>RA: 05 55 10.3054 (88.7929392d)</td> <td>Proper Motion RA: 27.54 mas/yr</td> <td>V=0.5</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td>Alt Name1: BETELGEUSE</td> <td>Dec: +07 24 25.43 (7.40706d) Equinox: J2000</td> <td>Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table>					#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS		Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25		
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																	
(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS																		
	Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25																				
<p><i>Comments: parallax from Harper et al. 2017, AJ, 154, 11</i></p> <p>Category=STAR</p> <p>Description=[M III-I]</p> <p>Extended=NO</p>																							

Proposal 16216 - Visit 03 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0 .0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0 .0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

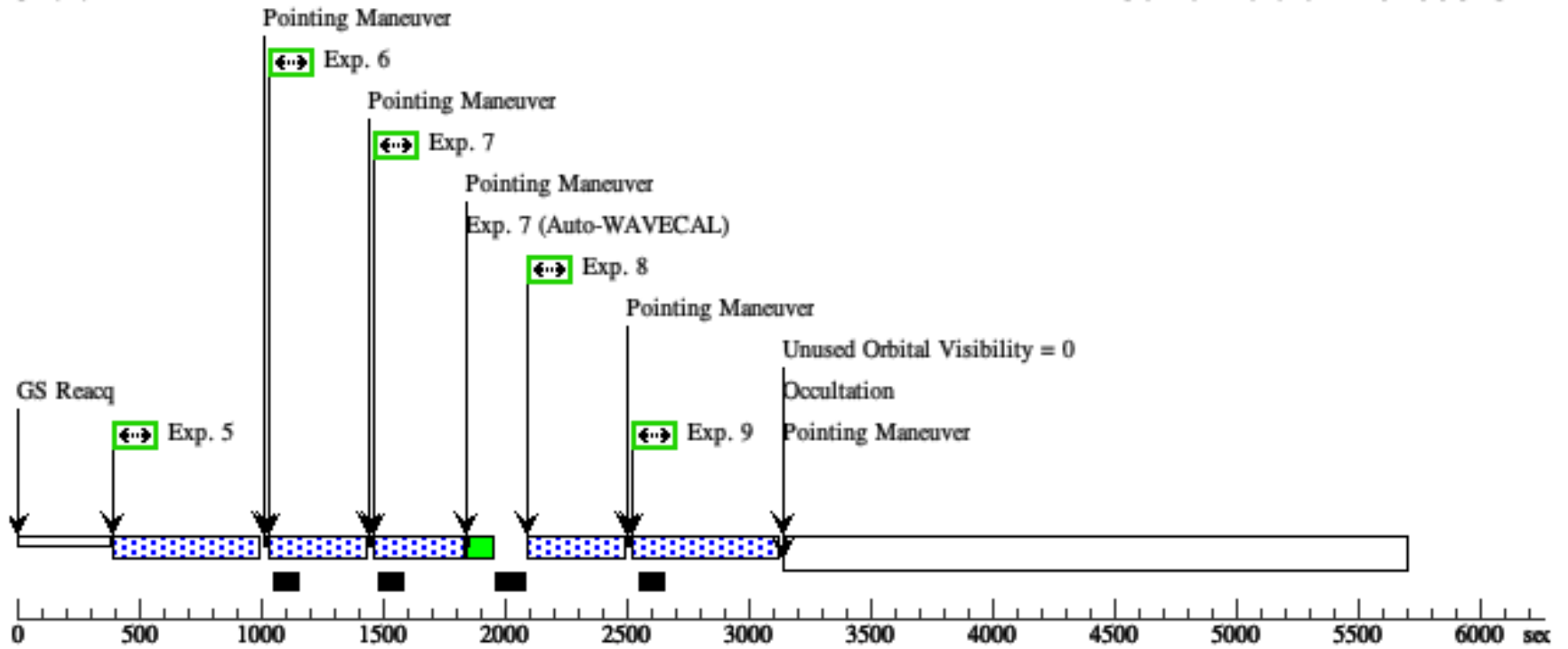
Orbit 1



Orbit Structure

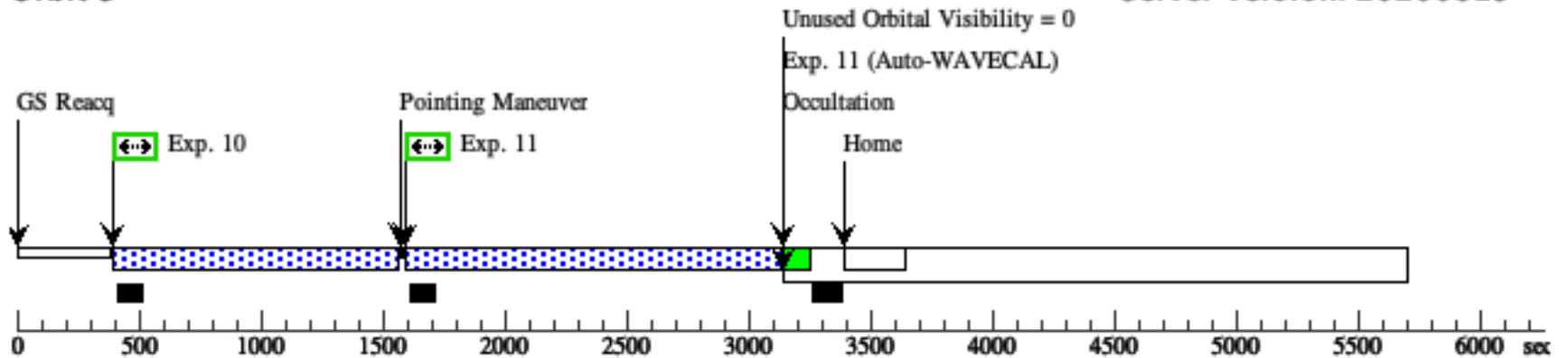
Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619



Proposal 16216 - Visit 04 - Focus on Betelgeuse

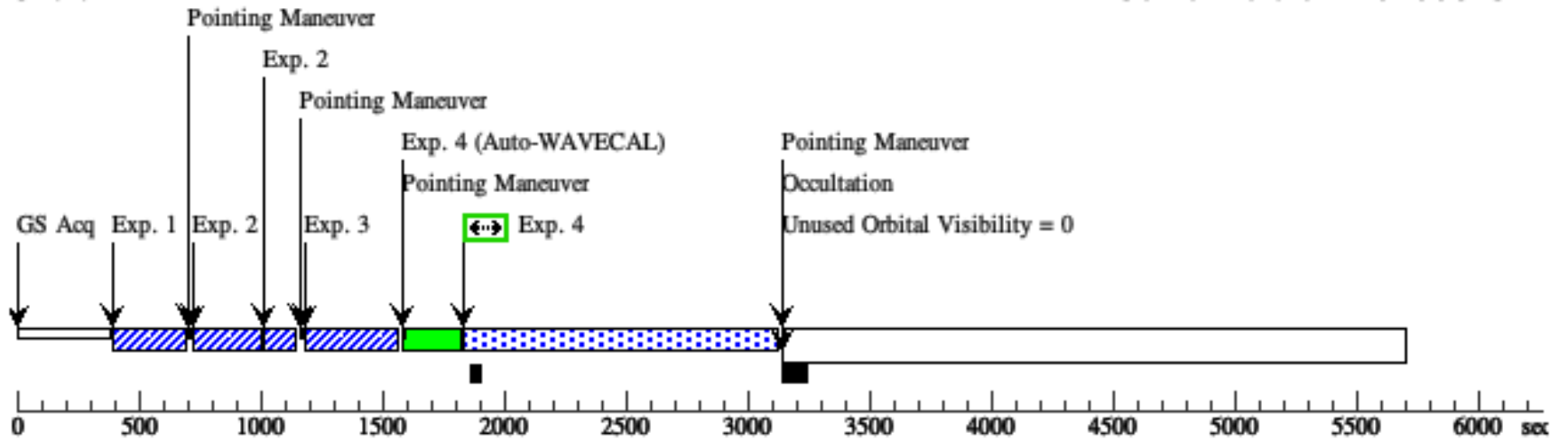
Fri Apr 30 15:00:33 GMT 2021

Visit	Proposal 16216, Visit 04, failed Diagnostic Status: Warning Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 03 BY 60 D TO 90 D					
	Diagnostics	(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE				
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT						
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						

Proposal 16216 - Visit 04 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

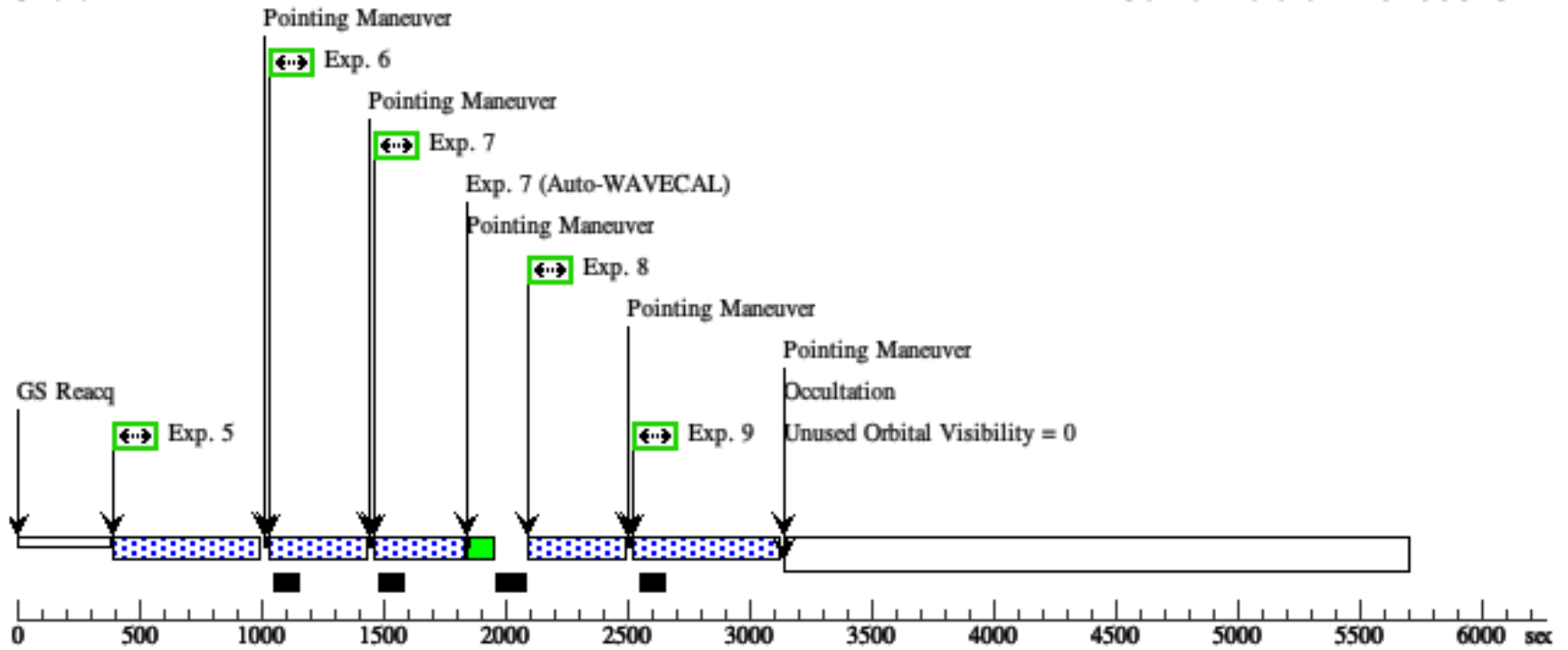
Orbit 1



Orbit Structure

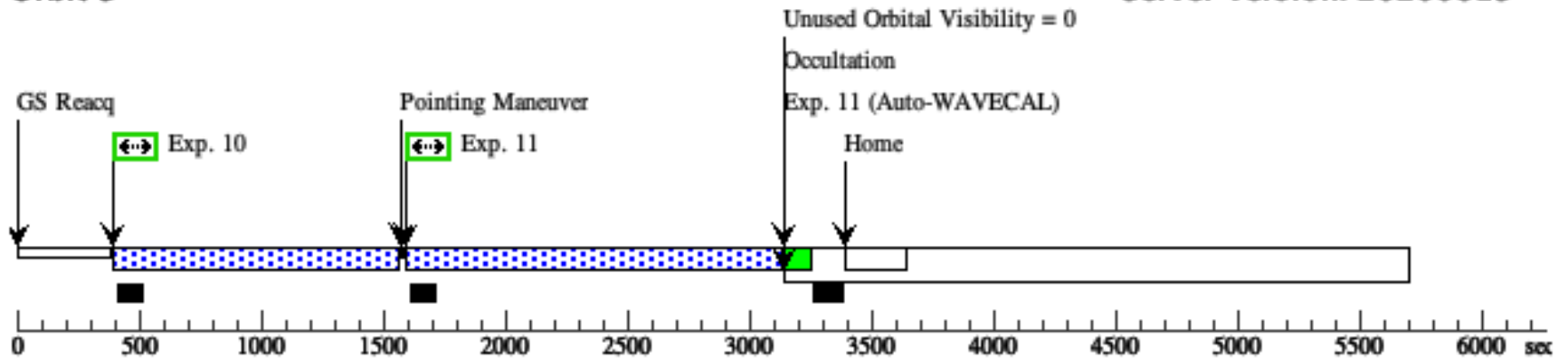
Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619



Proposal 16216 - Visit 54 - Focus on Betelgeuse

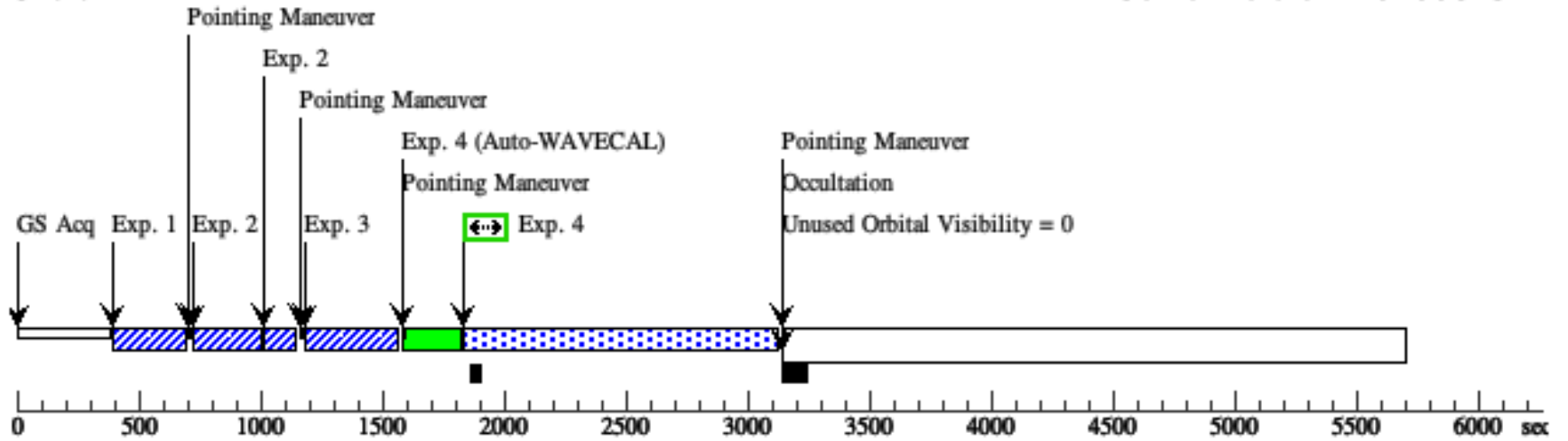
Fri Apr 30 15:00:33 GMT 2021

Visit	Proposal 16216, Visit 54 Diagnostic Status: Warning Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)																							
	Diagnostics	(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																						
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT																								
(Visit 54) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT																								
Fixed Targets	<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>(1)</td> <td>HD39801</td> <td>RA: 05 55 10.3054 (88.7929392d)</td> <td>Proper Motion RA: 27.54 mas/yr</td> <td>V=0.5</td> <td>Reference Frame: ICRS</td> </tr> <tr> <td></td> <td>Alt Name1: BETELGEUSE</td> <td>Dec: +07 24 25.43 (7.40706d) Equinox: J2000</td> <td>Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table>	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous	(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS		Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25			Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO				
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous																		
(1)	HD39801	RA: 05 55 10.3054 (88.7929392d)	Proper Motion RA: 27.54 mas/yr	V=0.5	Reference Frame: ICRS																			
	Alt Name1: BETELGEUSE	Dec: +07 24 25.43 (7.40706d) Equinox: J2000	Proper Motion Dec: 11.30 mas/yr Parallax: 0.00451" Epoch of Position: 1991.25																					

Proposal 16216 - Visit 54 - Focus on Betelgeuse

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/Peaku p 1 (1299694)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.2X0.09	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i>										
	3	ACQ/peaku p sspiral sm all (1299759)	(1) HD39801	STIS/CCD, ACQ/PEAK, 0.1X0.03	G230LB 2375 A				1 Secs (1 Secs) [==>]	[1]	
	<i>Comments: spiral in 0.1X0.03</i>										
	4	Offset -75 m as (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 m as (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0 .0		600 Secs (588 Secs) [==>588.0 Secs]	[2]	
	6	Offset -25 m as (1299112)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.025,0 .0		392 Secs (380 Secs) [==>380.0 Secs]	[2]	
	7	Center expo sure (1299113)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG 0.0,0.0		366 Secs (354 Secs) [==>354.0 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 (380 Secs) [==>380.0 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 (588 Secs) [==>588.0 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		2000 Secs (1150 Secs) [==>1150.0 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		1613 Secs (1523 Secs) [==>1523.0 Secs]	[3]		

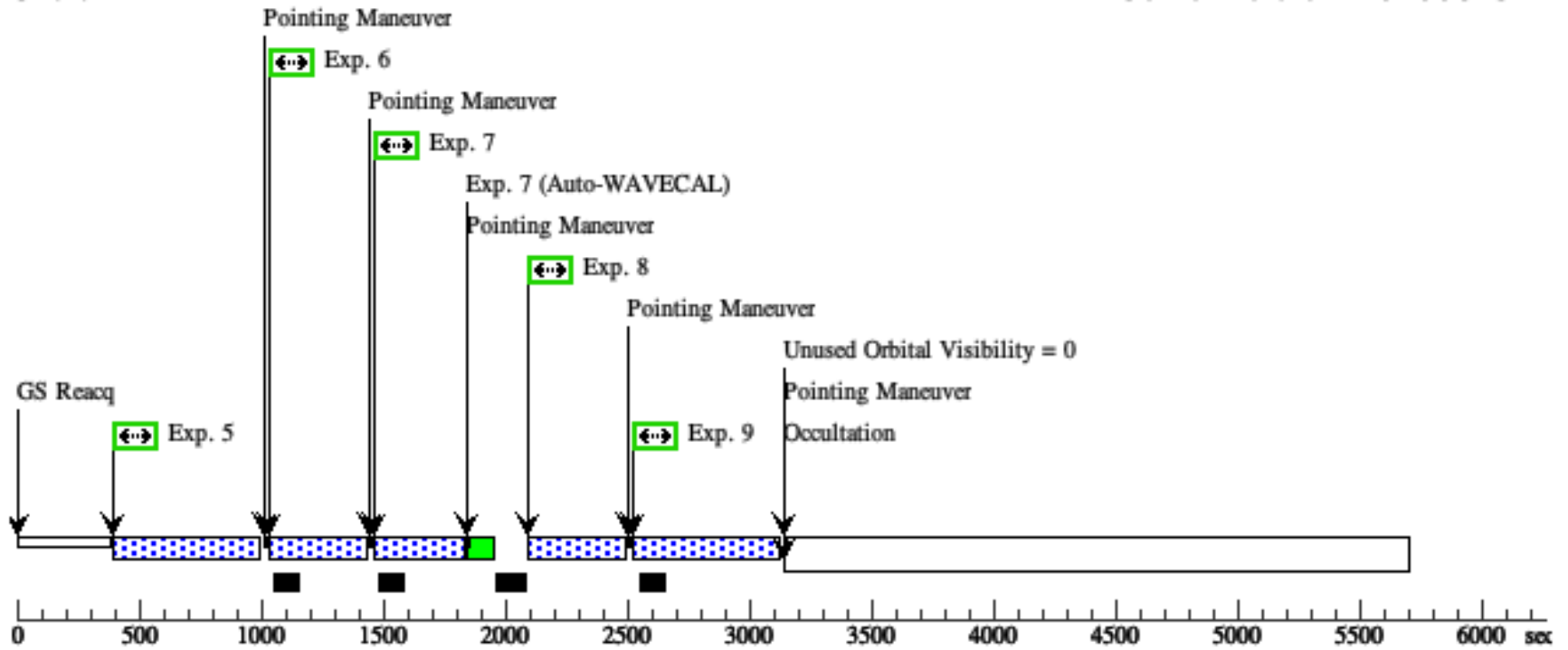
Orbit 1



Orbit Structure

Orbit 2

Server Version: 20200619



Orbit 3

Server Version: 20200619

