



## 15641 - Focus on Betelgeuse

Cycle: 26, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

### INVESTIGATORS

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### VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:01.0	yes
02	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:03.0	yes
03	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:06.0	yes
07	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:08.0	yes
04	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:10.0	yes
08	(1) HD39801	STIS/CCD STIS/NUV-MAMA	3	23-Aug-2019 16:01:13.0	yes
05	(1) HD39801	STIS/CCD STIS/NUV-MAMA	1	23-Aug-2019 16:01:14.0	yes
06	(1) HD39801	STIS/CCD STIS/NUV-MAMA	1	23-Aug-2019 16:01:15.0	yes

20 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 from the pickup 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 pickup position as described above.

We are scheduling 4 visits of 3 orbits each during the 5 months (separated) of accessibility of the target: 7 Jan - 1 May 2019, 12-22 August 2019 of Cycle 26, then for successive Cycles 27 and 28, we can access HD 39801 in December 2019, Feb, April, August, 2020, and similarly in 2021.

Proposal 15641 - Visit 01 - Focus on Betelgeuse

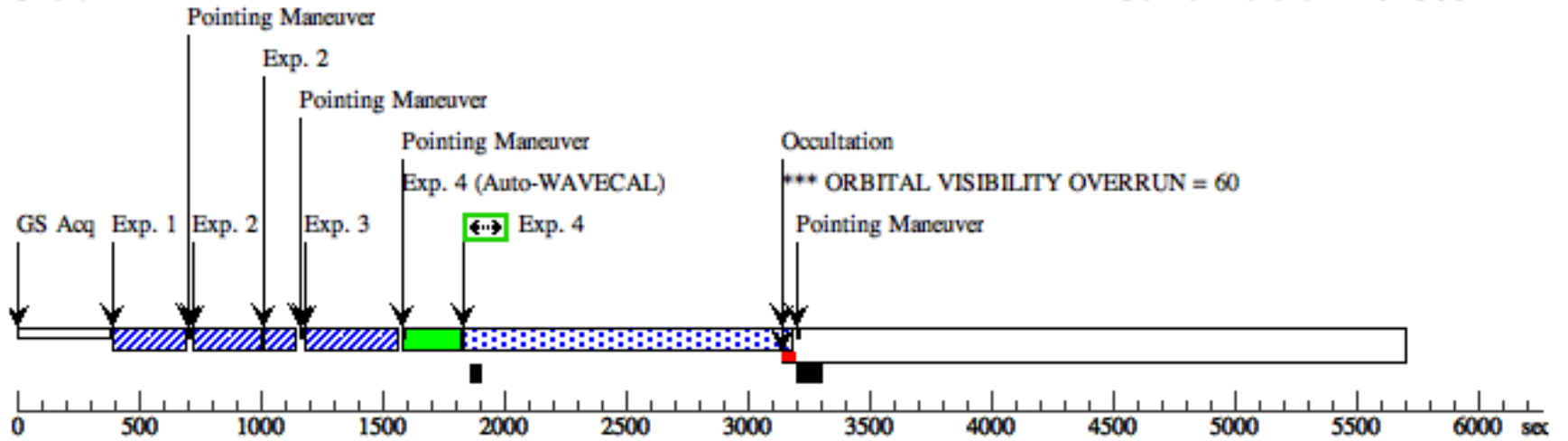
Fri Aug 23 20:01:15 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 01, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: BEFORE 05-FEB-2019:00:00:00				
	<b>Diagnostics</b>	(Visit 01) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN			
(Visit 01) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
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<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(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
Miscellaneous: Reference Frame: ICRS  Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO					

Proposal 15641 - 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/Peakup 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/peakup spiral small (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 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0		1125 Secs (1337 Secs) [==>1337.0 Secs ]	[1]	
	5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0		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		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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

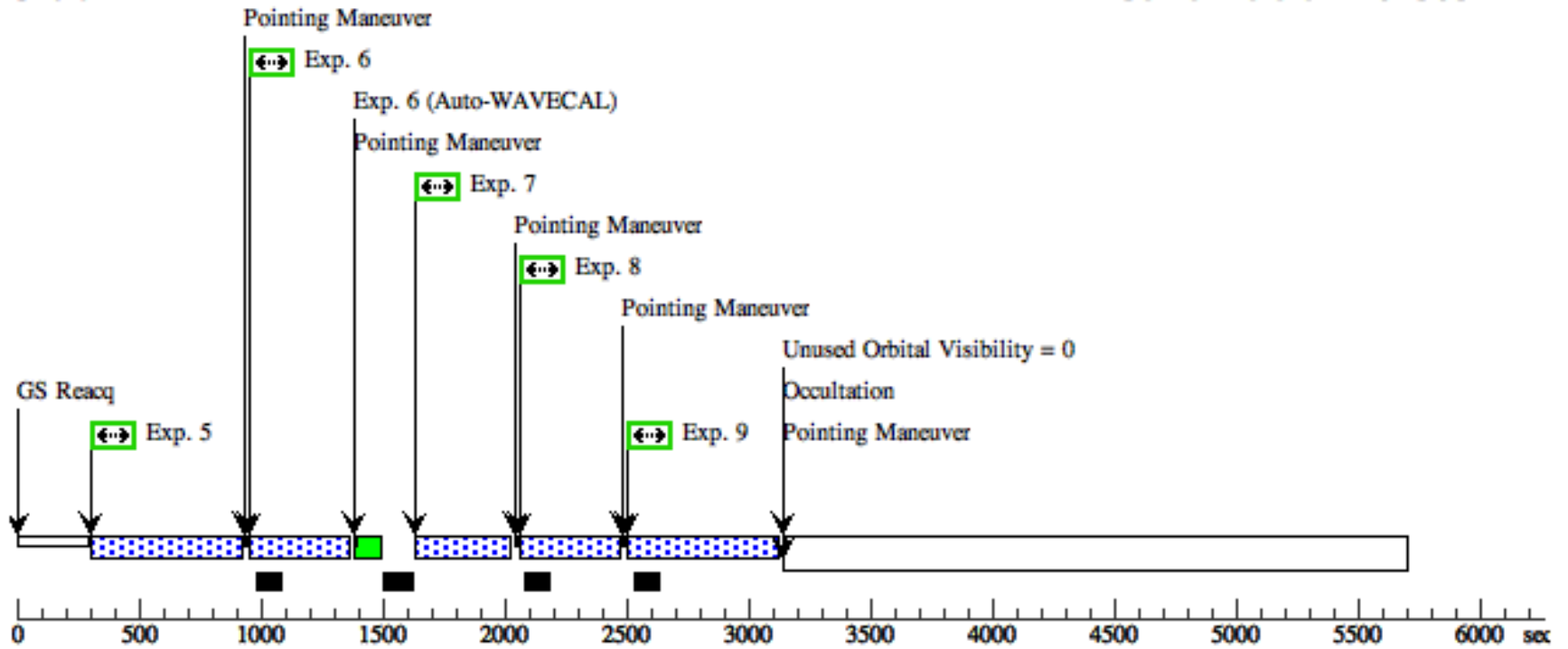
**Orbit 1**



Orbit Structure

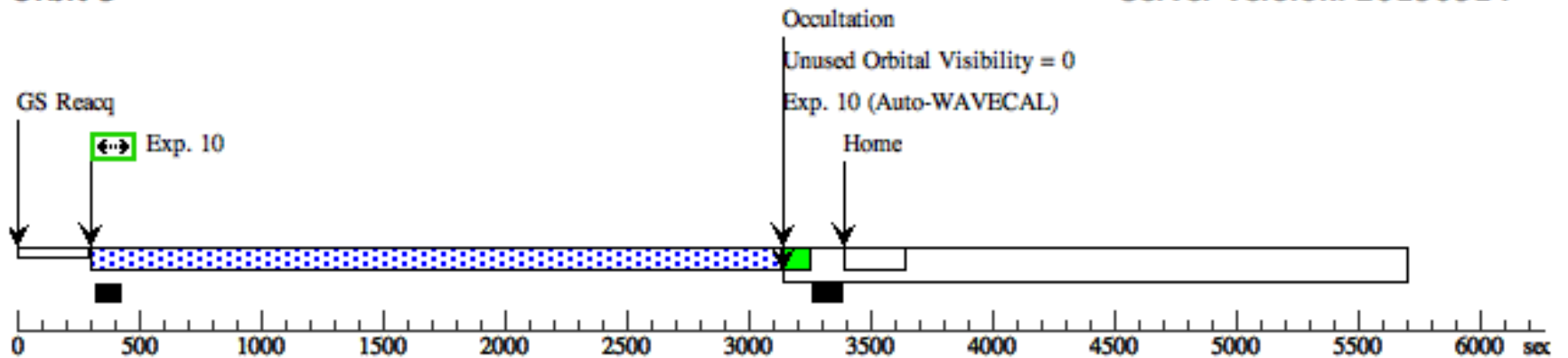
**Orbit 2**

Server Version: 20190514



**Orbit 3**

Server Version: 20190514



Proposal 15641 - Visit 02 - Focus on Betelgeuse

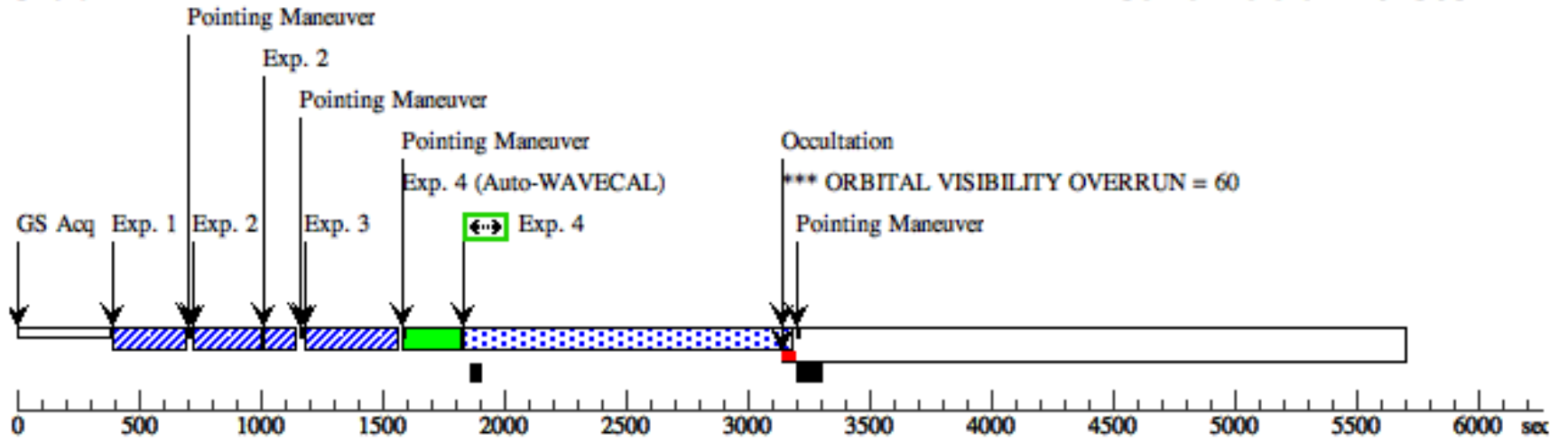
Fri Aug 23 20:01:15 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 02, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 01 BY 36 D TO 50 D				
	<b>Diagnostics</b>	(Visit 02) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN			
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<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(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
Miscellaneous: Reference Frame: ICRS  Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO					

Proposal 15641 - 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 (1337 Secs) [==>1337.0 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 (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 expo sure (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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

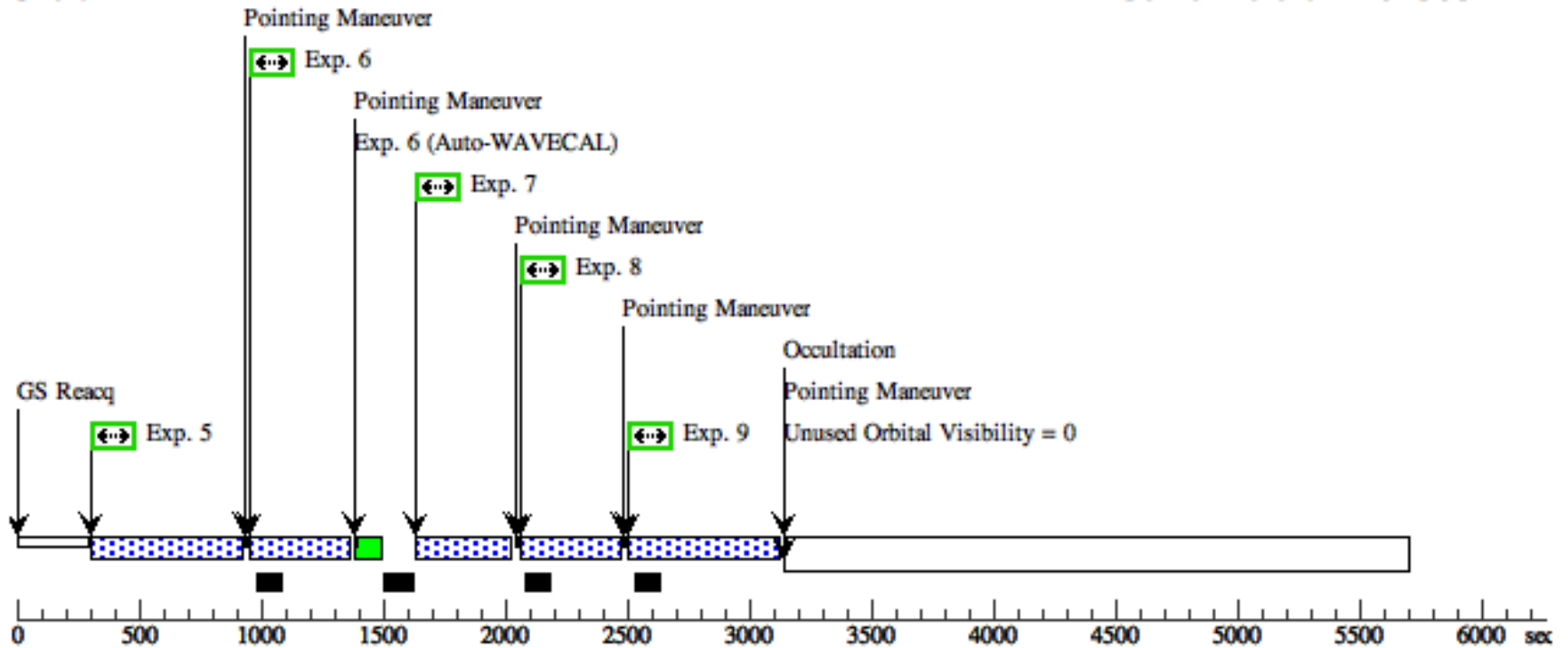
**Orbit 1**



Orbit Structure

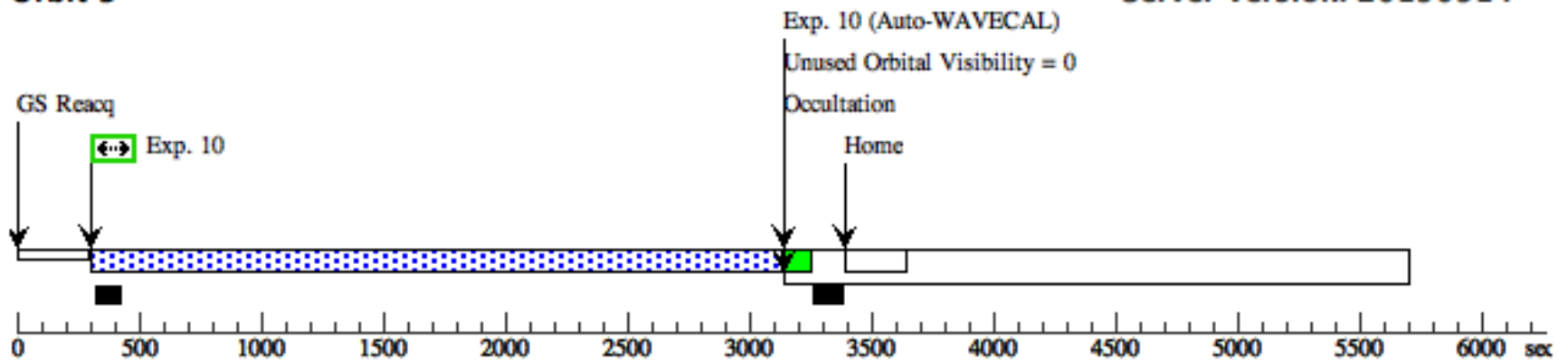
**Orbit 2**

Server Version: 20190514



**Orbit 3**

Server Version: 20190514



Proposal 15641 - Visit 03 - Focus on Betelgeuse

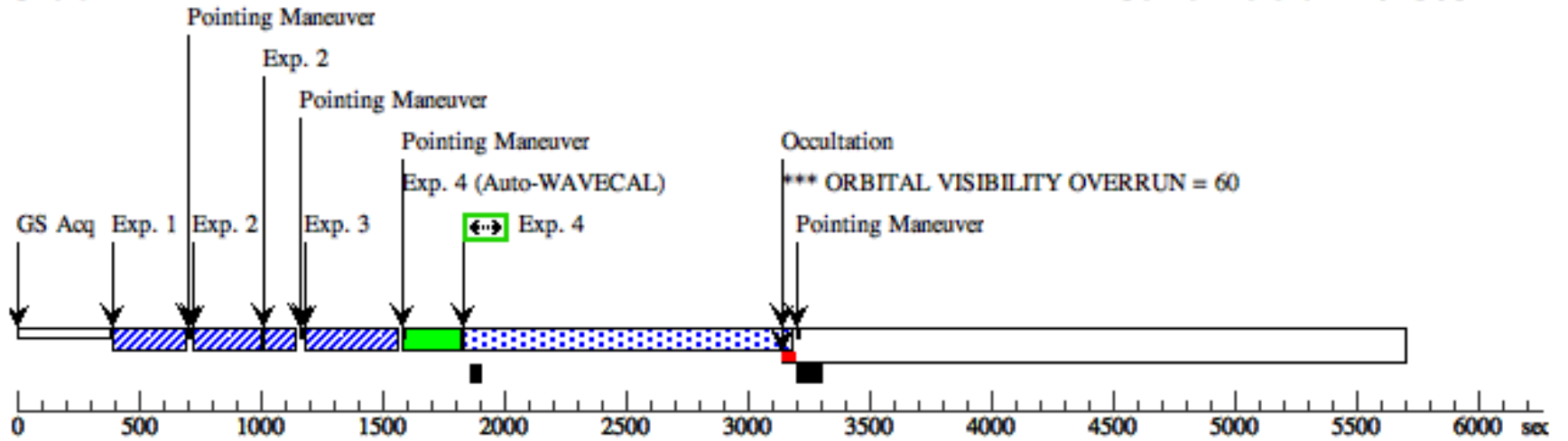
Fri Aug 23 20:01:16 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 03, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 02 BY 36 D TO 50 D				
	<b>Diagnostics</b>	(Visit 03) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN			
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<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(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
Miscellaneous: Reference Frame: ICRS  Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO					

Proposal 15641 - 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 (1337 Secs) [==>1337.0 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 (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 expo sure (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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

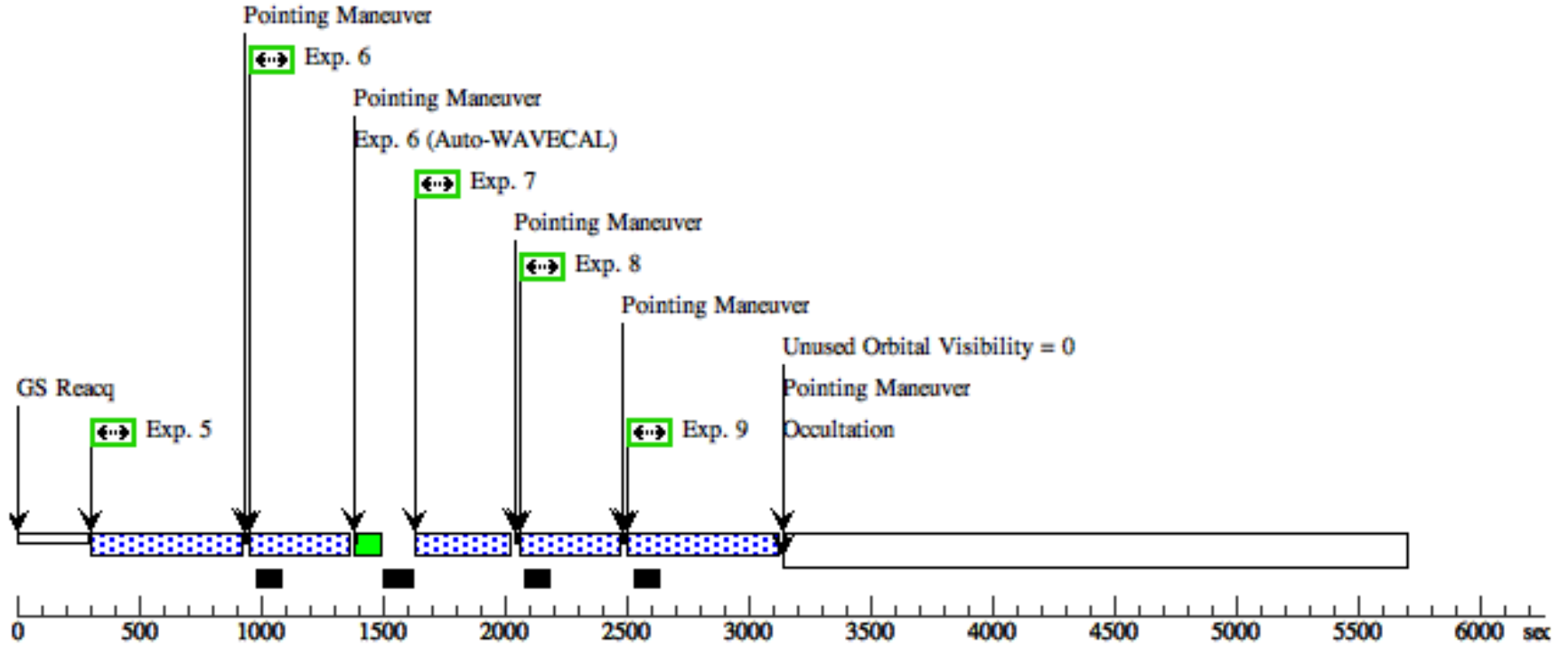
**Orbit 1**



Orbit Structure

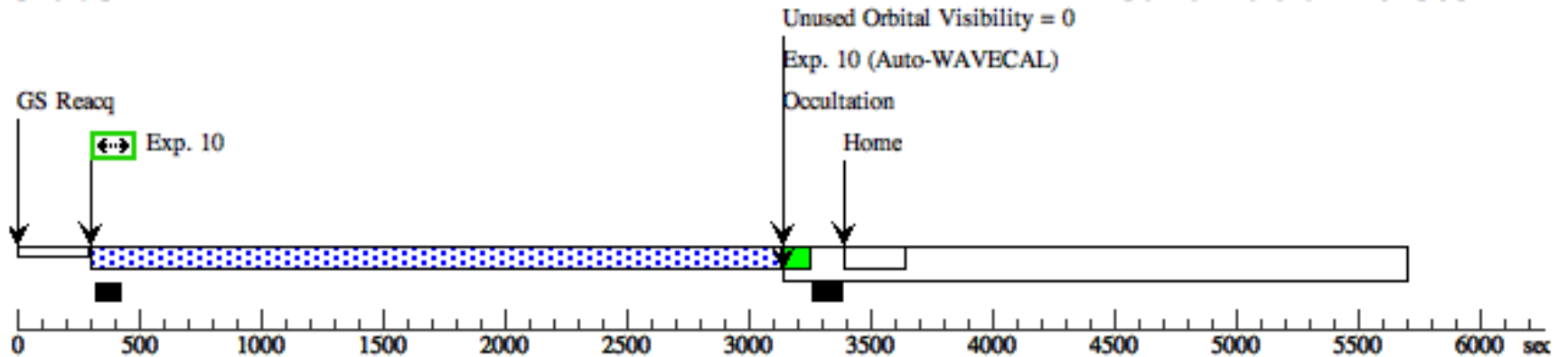
### Orbit 2

Server Version: 20190514



### Orbit 3

Server Version: 20190514



Proposal 15641 - Visit 07 - Focus on Betelgeuse

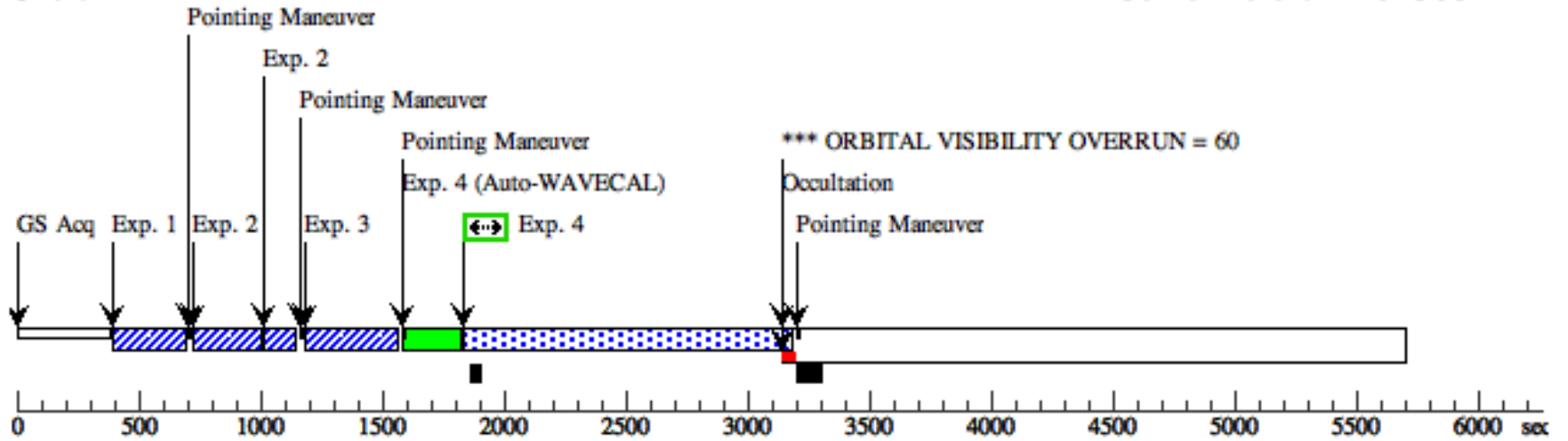
Fri Aug 23 20:01:16 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 07, scheduling</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 04 BY 21 D TO 35 D				
	<b>Diagnostics</b>	(Visit 07) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN			
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(Visit 07) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(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
Miscellaneous: Reference Frame: ICRS  Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO					

Proposal 15641 - Visit 07 - 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 (1337 Secs) [==>1337.0 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 (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 expo sure (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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

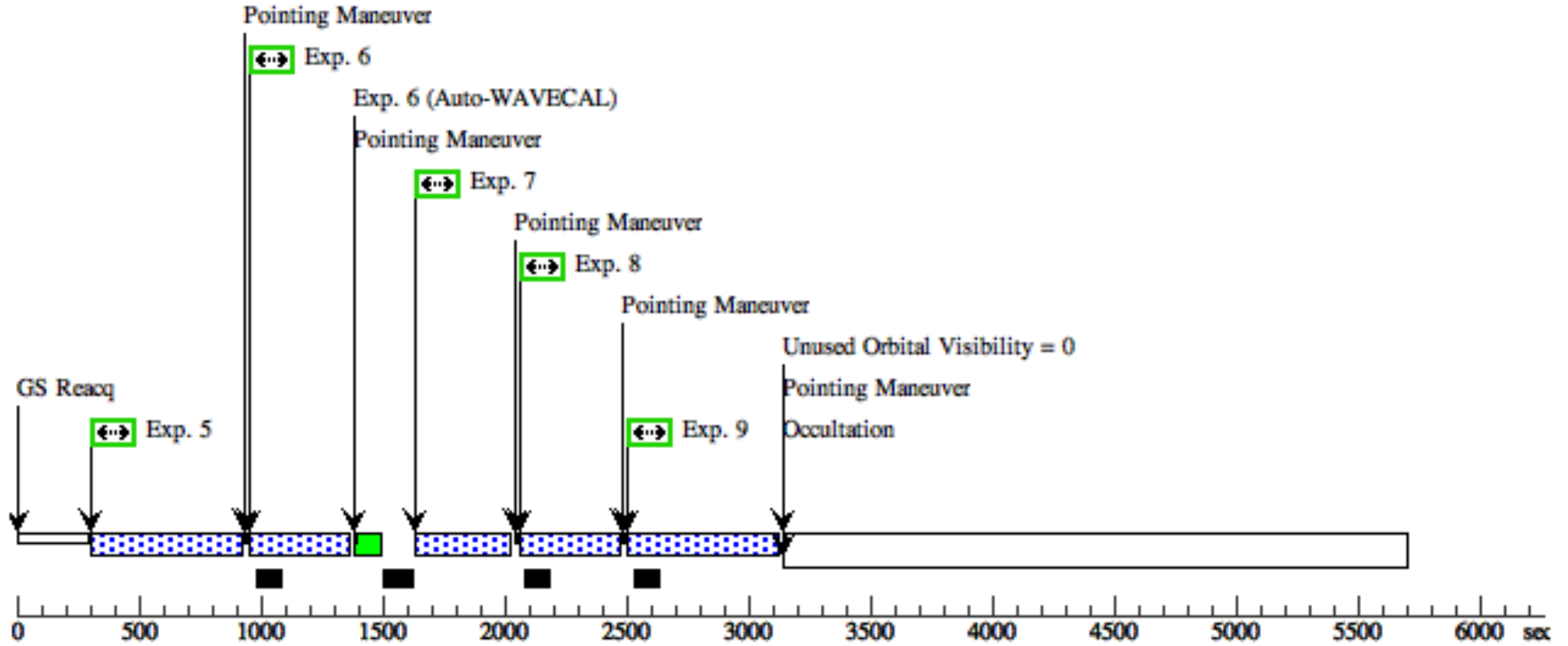
**Orbit 1**



Orbit Structure

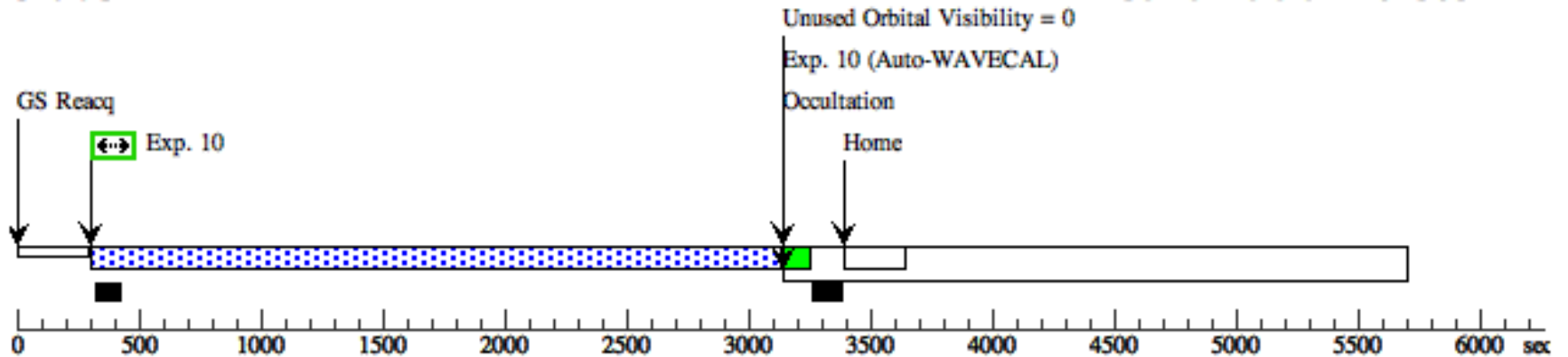
**Orbit 2**

Server Version: 20190514



**Orbit 3**

Server Version: 20190514



Proposal 15641 - Visit 04 - Focus on Betelgeuse

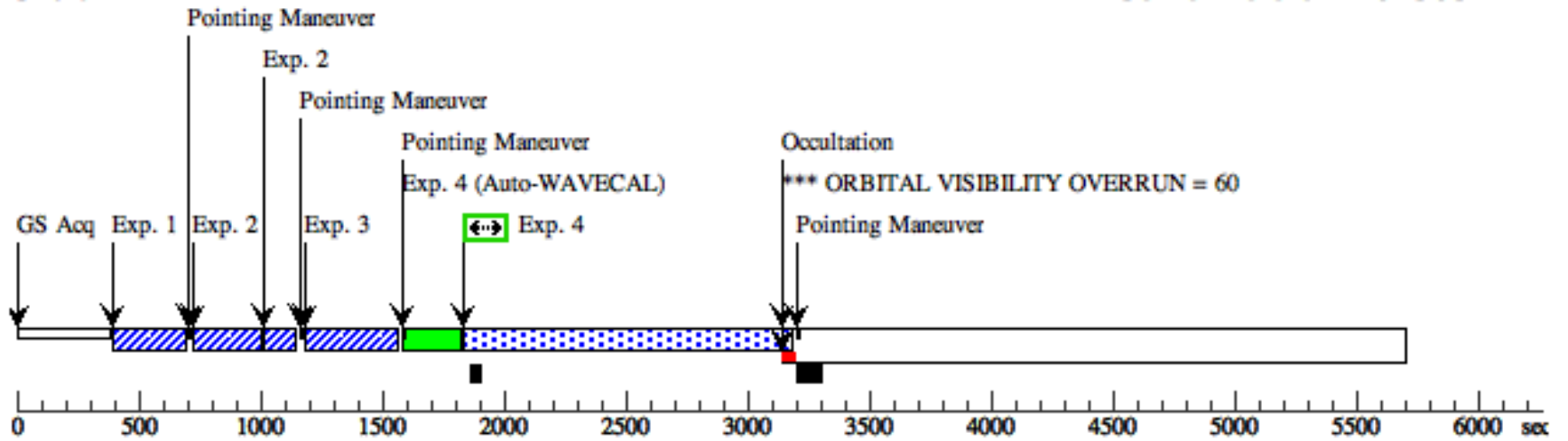
Fri Aug 23 20:01:16 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 04, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: AFTER 03 BY 103 D TO 127 D				
	<b>Diagnostics</b>	(Visit 04) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN			
(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE					
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(Visit 04) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT					
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>	<b>Fluxes</b>
	(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
Miscellaneous: Reference Frame: ICRS  Comments: parallax from Harper et al. 2017, AJ, 154, 11 Category=STAR Description=[M III-I] Extended=NO					

Proposal 15641 - 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/Peakup 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/peakup spiral small (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 mas (1299115)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.075,0		1125 Secs (1337 Secs) [==>1337.0 Secs ]	[1]	
	5	Offset -50 mas (1299109)	(1) HD39801	STIS/NUV-MAMA, ACCUM, 0.1X0.03	E230M 2707 A		POS TARG -0.050,0		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		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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

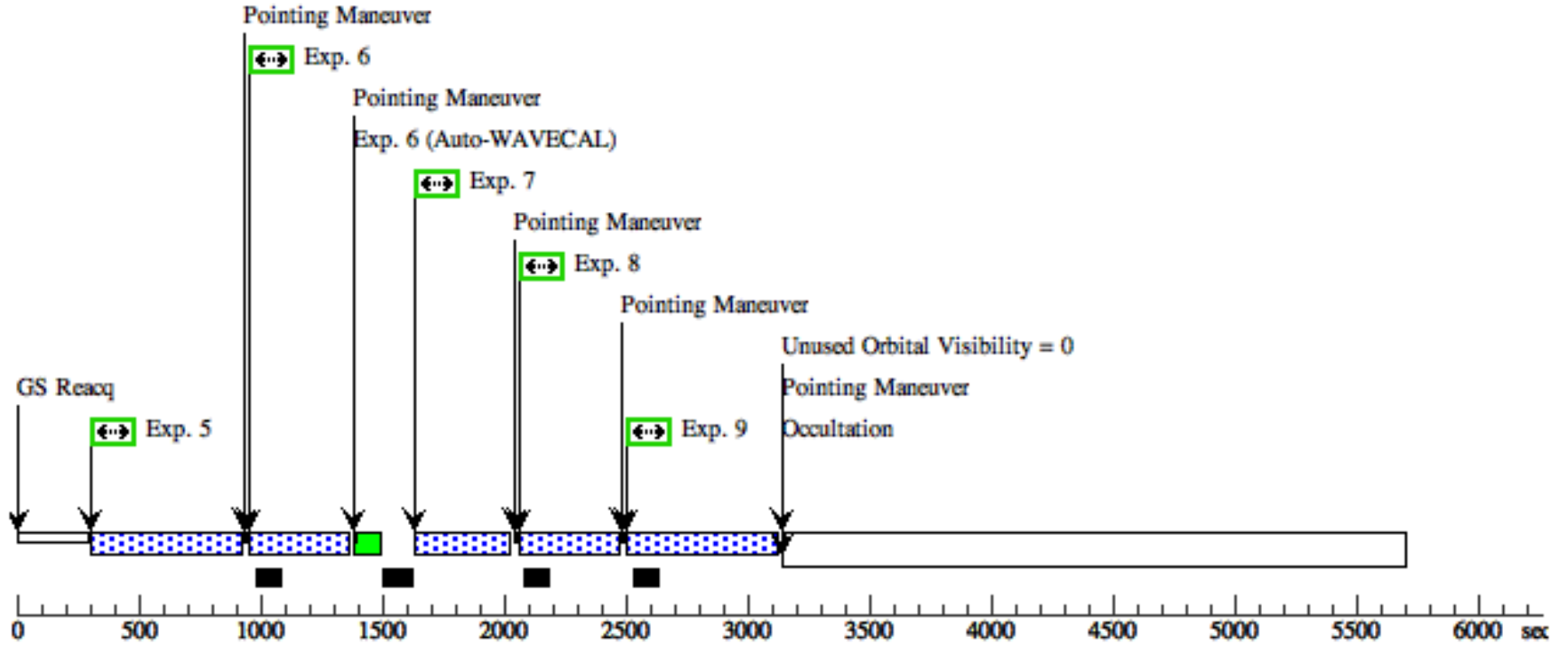
**Orbit 1**



Orbit Structure

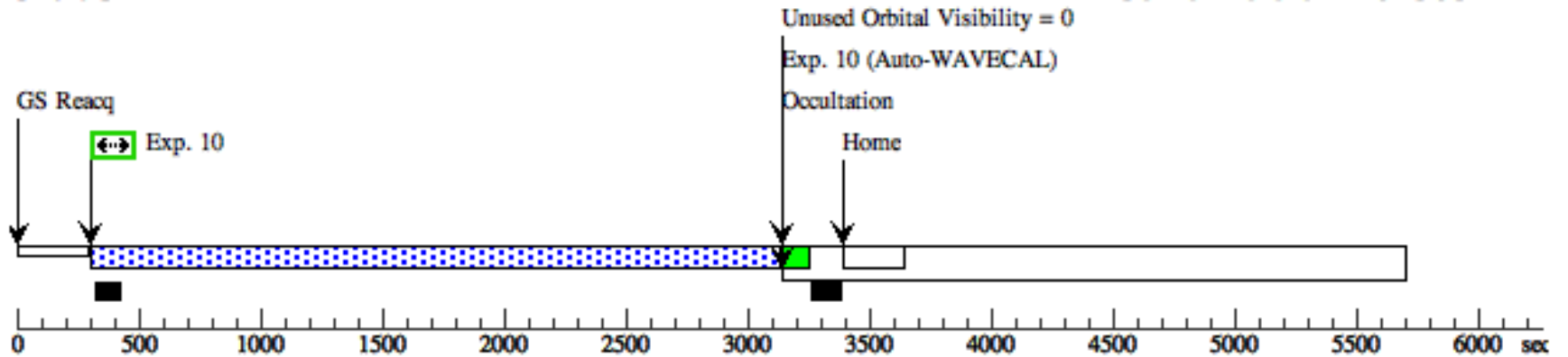
**Orbit 2**

Server Version: 20190514



**Orbit 3**

Server Version: 20190514



Proposal 15641 - Visit 08 - Focus on Betelgeuse

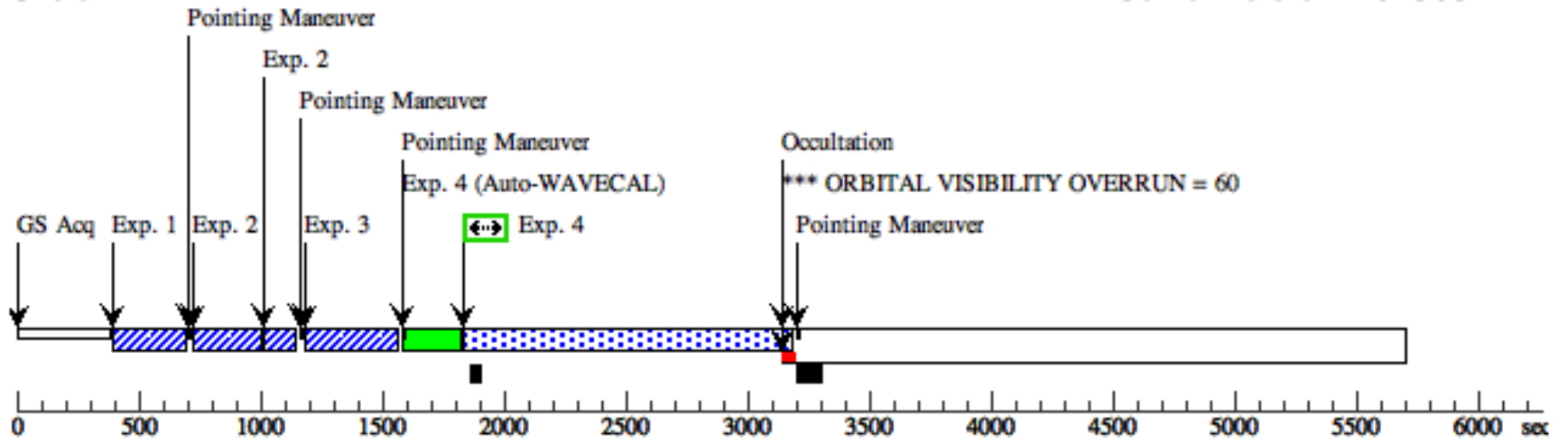
Fri Aug 23 20:01:16 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 08</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)																							
	<b>Diagnostics</b>	(Visit 08) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN																						
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<b>Fixed Targets</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Name</th> <th>Target Coordinates</th> <th>Targ. Coord. Corrections</th> <th>Fluxes</th> <th>Miscellaneous</th> </tr> </thead> <tbody> <tr> <td>(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 15641 - Visit 08 - 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 (1337 Secs) [==>1337.0 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 (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 expo sure (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		2000 Secs (2813 Secs) [==>2813.0 Secs ]	[3]		

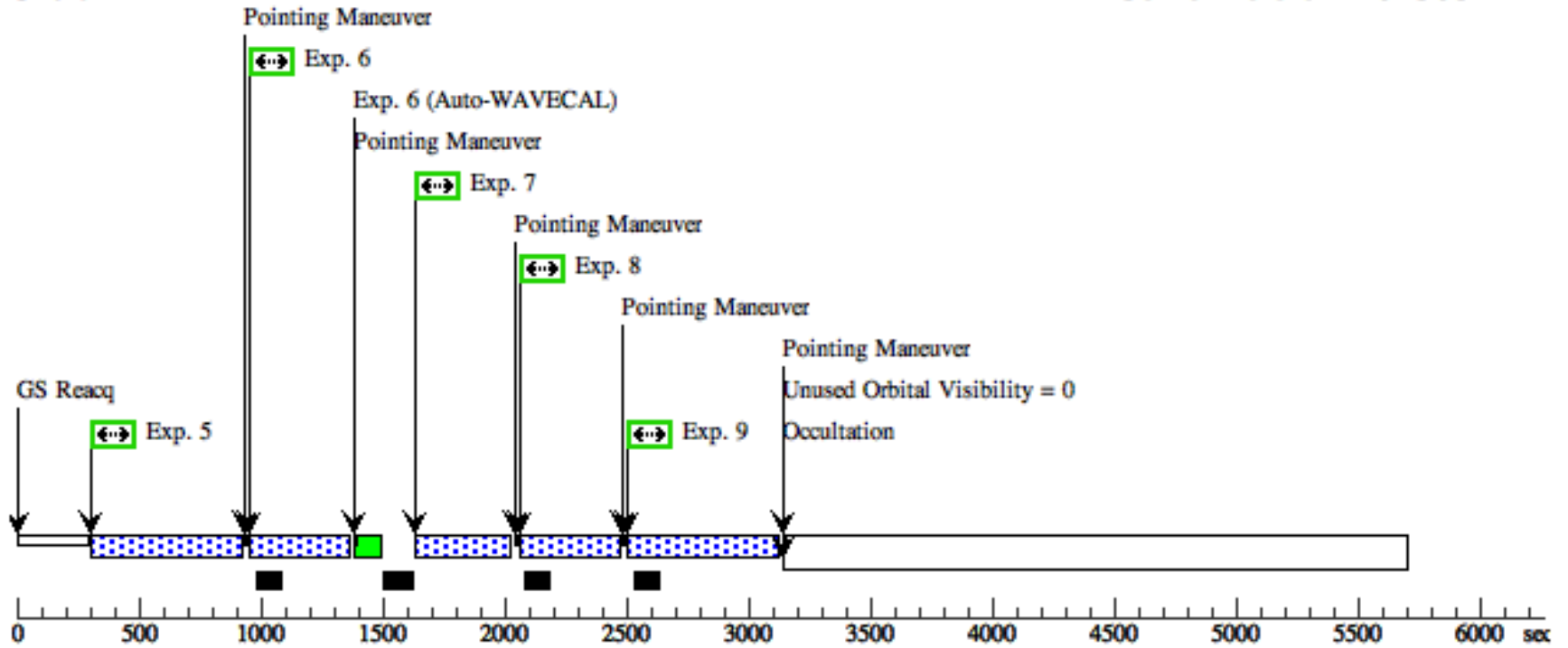
**Orbit 1**



Orbit Structure

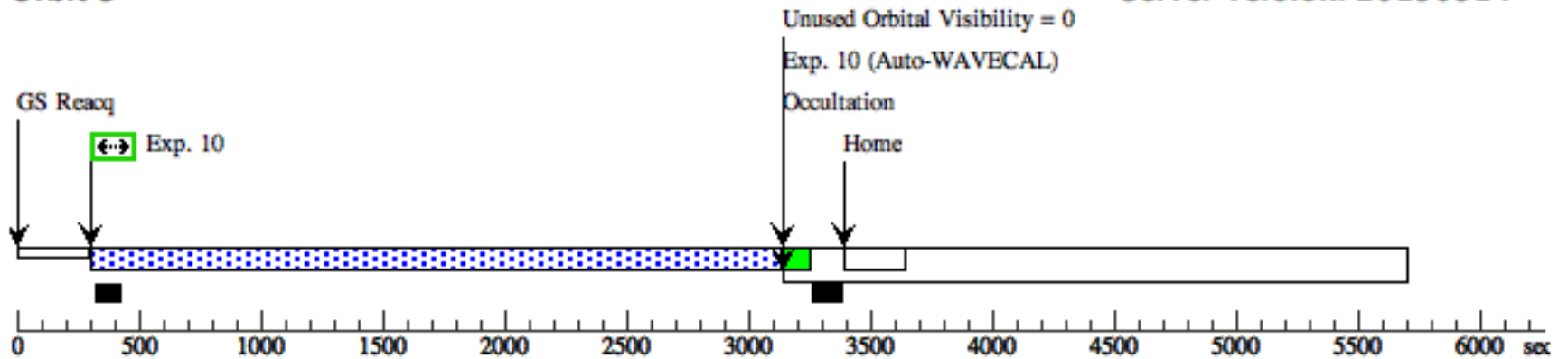
**Orbit 2**

Server Version: 20190514



**Orbit 3**

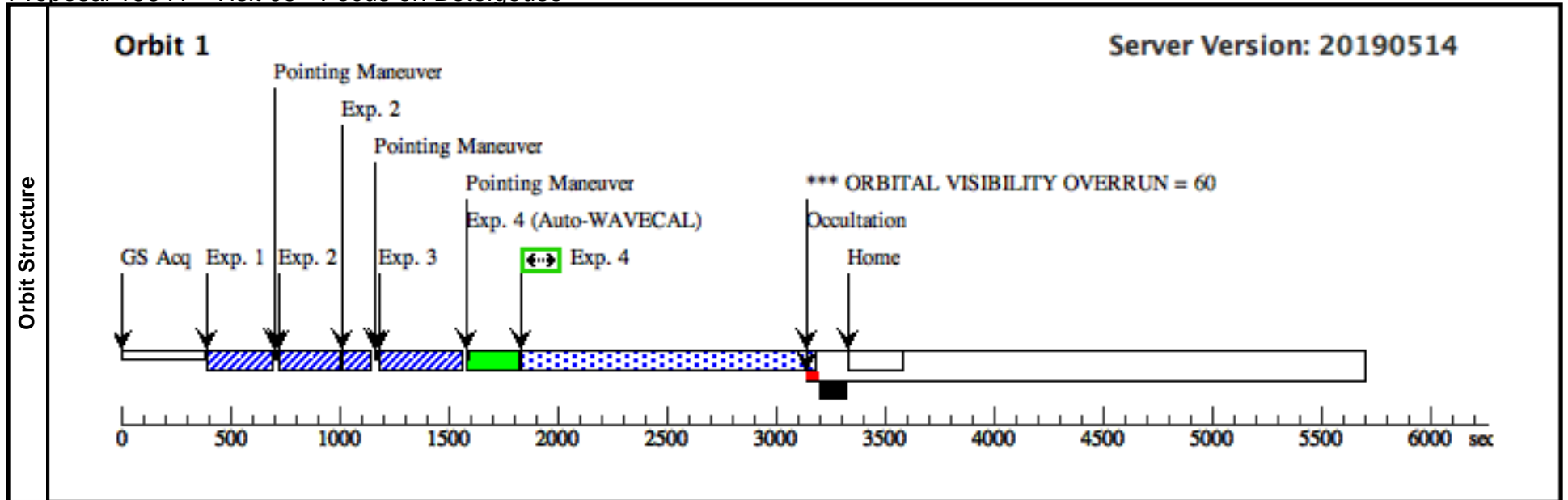
Server Version: 20190514



# Proposal 15641 - Visit 05 - Focus on Betelgeuse

Fri Aug 23 20:01:16 GMT 2019

Visit	<b>Proposal 15641, Visit 05, failed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)																																																																															
Diagnostics	(Visit 05) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 05) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 05) 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)</td> <td>Proper Motion Dec: 11.30 mas/yr</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Equinox: J2000</td> <td>Parallax: 0.00451"</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>Epoch of Position: 1991.25</td> <td></td> <td></td> </tr> </tbody> </table> <p><i>Comments: parallax from Harper et al. 2017, AJ, 154, 11</i>                      Category=STAR                      Description=[M III-I]                      Extended=NO</p>										#	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)	Proper Motion Dec: 11.30 mas/yr					Equinox: J2000	Parallax: 0.00451"						Epoch of Position: 1991.25																																										
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(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)	Proper Motion Dec: 11.30 mas/yr																																																																													
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Exposures	<table border="1"> <thead> <tr> <th>#</th> <th>Label (ETC Run)</th> <th>Target</th> <th>Config,Mode,Aperture</th> <th>Spectral Els.</th> <th>Opt. Params.</th> <th>Special Reqs.</th> <th>Groups</th> <th>Exp. Time (Total)/[Actual Dur.]</th> <th>Orbit</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ACQ (1299541)</td> <td>(1) HD39801</td> <td>STIS/CCD, ACQ, F25ND5</td> <td>MIRROR</td> <td></td> <td></td> <td></td> <td>1 Secs (1 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td>2</td> <td>ACQ/Peaku p 1 (1299694)</td> <td>(1) HD39801</td> <td>STIS/CCD, ACQ/PEAK, 0.2X0.09</td> <td>G230LB 2375 A</td> <td></td> <td></td> <td></td> <td>1 Secs (1 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td colspan="10"><i>Comments: Supposed to be a 3-pt linear peakup, telescope returned to central dwell position</i></td> </tr> <tr> <td>3</td> <td>ACQ/peaku p spiral sm all (1299759)</td> <td>(1) HD39801</td> <td>STIS/CCD, ACQ/PEAK, 0.1X0.03</td> <td>G230LB 2375 A</td> <td></td> <td></td> <td></td> <td>1 Secs (1 Secs) [==&gt;]</td> <td>[1]</td> </tr> <tr> <td colspan="10"><i>Comments: spiral in 0.1X0.03</i></td> </tr> <tr> <td>4</td> <td>Offset -75 m as (1299115)</td> <td>(1) HD39801</td> <td>STIS/NUV-MAMA, ACCUM, 0.1X0.03</td> <td>E230M 2707 A</td> <td></td> <td>POS TARG -0.075,0</td> <td></td> <td>1125 Secs (1337 Secs) [==&gt;1337.0 Secs ]</td> <td>[1]</td> </tr> </tbody> </table>										#	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 spiral 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 (1337 Secs) [==>1337.0 Secs ]	[1]
#	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>																																																																																
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Proposal 15641 - Visit 06 - Focus on Betelgeuse

Fri Aug 23 20:01:16 GMT 2019

<b>Visit</b>	<b>Proposal 15641, Visit 06, completed</b> <b>Diagnostic Status: Warning</b> Scientific Instruments: STIS/NUV-MAMA, STIS/CCD Special Requirements: (none)									
	(Visit 06) Warning (Orbit Planner): ORBITAL VISIBILITY OVERRUN (Visit 06) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE (Visit 06) Warning (Orbit Planner): POS TARG OUTSIDE OF APERTURE NO ORIENT									
<b>Diagnosics</b>										
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>	<b>Targ. Coord. Corrections</b>		<b>Fluxes</b>	<b>Miscellaneous</b>			
	(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			
<i>Comments: parallax from Harper et al. 2017, AJ, 154, 11</i> Category=STAR Description=[M III-I] Extended=NO										
<b>Exposures</b>	<b>#</b>	<b>Label (ETC Run)</b>	<b>Target</b>	<b>Config,Mode,Aperture</b>	<b>Spectral Els.</b>	<b>Opt. Params.</b>	<b>Special Reqs.</b>	<b>Groups</b>	<b>Exp. Time (Total)/[Actual Dur.]</b>	<b>Orbit</b>
	1	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 spiral 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 (1337 Secs) [==>1337.0 Secs ]	[1]	

