16261 - Mrk 71: Prototype for Catastrophic Cooling in a Green Pea Analog

Cycle: 28, 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) MRK71-A	ACS/SBC	2	28-Jan-2022 22:00:15.0	yes
02	(1) MRK71-A	ACS/SBC	2	28-Jan-2022 22:00:16.0	yes
03	(1) MRK71-A	ACS/SBC	2	28-Jan-2022 22:00:16.0	yes
04	(1) MRK71-A	ACS/SBC	2	28-Jan-2022 22:00:17.0	yes

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
05	(1) MRK71-A	ACS/SBC	2	28-Jan-2022 22:00:17.0	yes
06	(1) MRK71-A	ACS/SBC	3	28-Jan-2022 22:00:18.0	yes
07	(2) MRK71-A-POS2	STIS/CCD STIS/FUV-MAMA	3	28-Jan-2022 22:00:19.0	yes
57	(2) MRK71-A-POS2	STIS/CCD STIS/FUV-MAMA	3	28-Jan-2022 22:00:20.0	yes
08	(2) MRK71-A-POS2	STIS/CCD STIS/FUV-MAMA	3	28-Jan-2022 22:00:21.0	yes
09	(2) MRK71-A-POS2	STIS/CCD STIS/FUV-MAMA	3	28-Jan-2022 22:00:22.0	yes
10	(2) MRK71-A-POS2	STIS/CCD STIS/FUV-MAMA	3	28-Jan-2022 22:00:23.0	yes

28 Total Orbits Used

ABSTRACT

The new paradigm for extreme feedback from metal-poor, compact, super star clusters (SSCs) has superwinds suppressed due to catastrophic radiative cooling of weak winds in high-density conditions. This cooling generates strong nebular line radiation in C IV, whose spatial morphology contrasts with that of He II. We propose the first ever, nebular C IV imaging with ACS/SBC to test for these conditions in Mrk 71, a metal-poor (0.1 Z_sun), nearby starburst complex with strong evidence of suppressed superwinds. This system is a uniquely accessible, spatially resolved analog of the Lyman continuum-emitting Green Pea galaxies, a population of cosmological importance, in which suppressed superwinds appear to be relevant. We also propose STIS FUV + optical observations to identify the stellar population of the parent super star cluster Mrk 71-A, which may host very massive stars > 100 M_sun. The STIS long slit will also include a second massive cluster, Mrk 71-B, that is driving a conventional, adiabatic superbubble system; this will allow us to also calibrate classical, adiabatic feedback in this cosmologically important, low-metallicity regime.

OBSERVING DESCRIPTION

We carry out deep, C IV 1550 nebular imaging with ACS/SBC using filters F150LP and F165LP. Although these are broadband filters, the shape of their responses redward of ~1650 A is identical, allowing the difference, F150LP - F165LP, to act as a ~150 A-wide filter with an effective

wavelength of ~1550 A. F165LP has lower sensitivity, but we must get similar depth. We apply the ACS BOX dither pattern to optimize spatial resolution. The ORIENT is restricted to ensure that the entire Mrk 71 complex, including the superbubble of Knot B, which extends to ~8 arcsec east of Knot A, is included. We specify the same ORIENT for all imaging exposures to optimize coadding.

We will also obtain a STIS FUV spectrum with grating G140L covering the range 1150 - 1730 A, using the 0.2 arcsec longslit, aperture 52x0.2. We orient the slit to simultaneously observe Mrk 71-A and Mrk 71-B, which are 5 arcsec apart, dithering along the slit. We do not use aperture D1 so that we can obtain both objects.

Finally, we will obtain a STIS CCD spectrum with G430L, also obtaining both Mrk 71-A and B. This will cover the range 2900 - 5700 A. We use the 52x0.2 slit as before, to ensure obtaining both objects. There are extremely bright lines, in particular [O III] 5007, so we take 3 exposures dithered along the slit. The ETC gives a time to saturation of ~1300 sec.

Visit

Proposal 16261, SBC-LP150-Visit1 (01), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: PCS MODE FINE; ORIENT 235D TO 5 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d) Dec: +69 11 21.07 (69.18919d) Equinox: J2000	Epoch of Position: 2000.0 Radial Velocity: 78 km/sec	V=17.955+/-0.020 F336W = 18.360 +/- 0.043	Reference Frame: ICRS

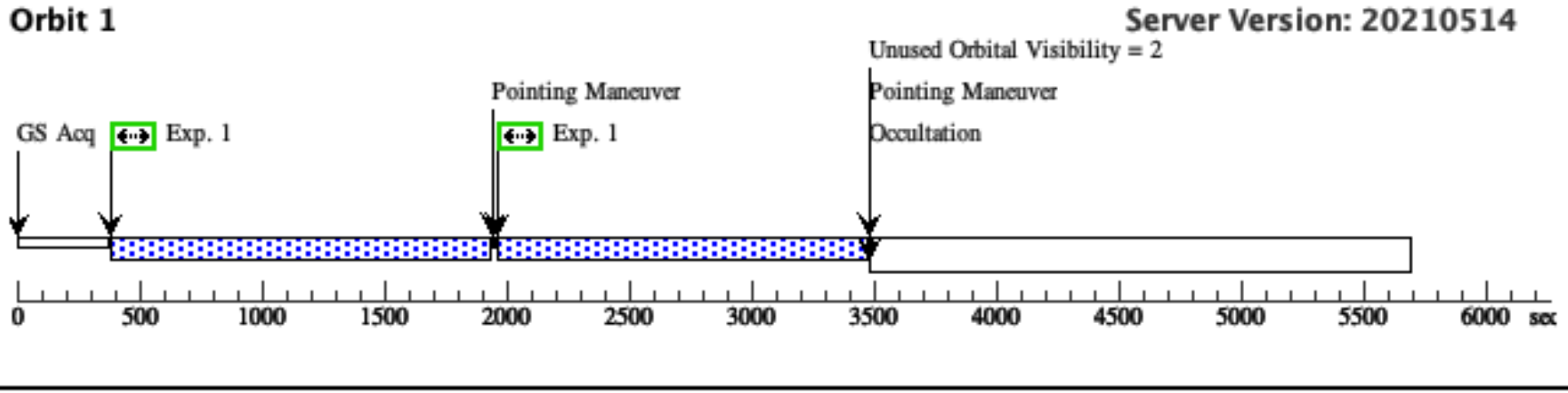
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

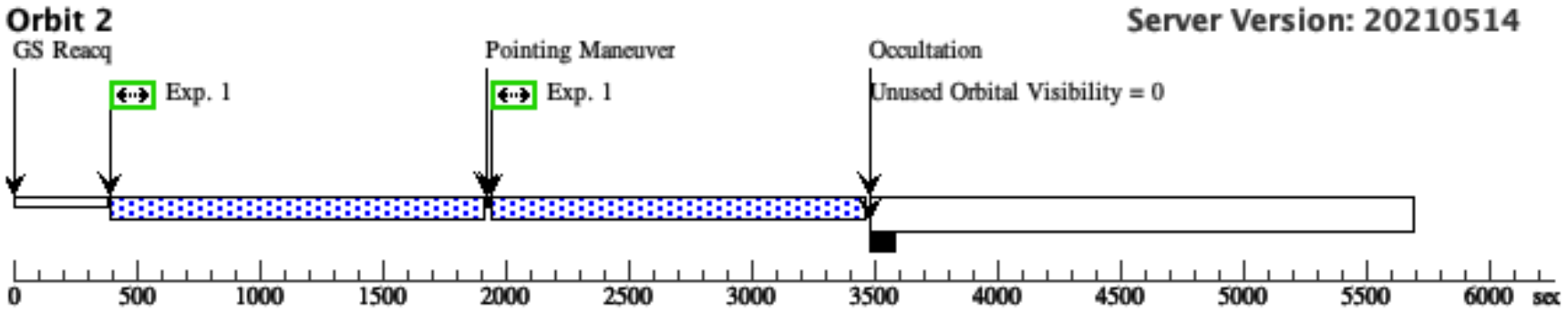
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACS-SBC-F150LP (1419962)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F150LP			Pattern 1, Exps 1-1 in SBC-LP150-Visit1 (01) (1)	1480 Secs (5954 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>1497.0 Secs (Pattern 3)] *[==>1497.0 Secs (Pattern 4)]*	***[2]***

Comments: The new aperture SBC-LODARK was enabled in October 2018. Near the reference pixel (175, 185) of this aperture, the dark rate of the detector remains at nominal level even at high temperatures. This aperture is therefore recommended when a visit will be longer than ~2 orbits and the target is small enough that it will not be affected by the elevated dark rates in the rest of the detector. See ACS ISR 2018-07 for further details.

Orbit Structure





Visit

Proposal 16261, SBC-LP150-Visit2 (02), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: PCS MODE FINE; SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d) Dec: +69 11 21.07 (69.18919d) Equinox: J2000	Epoch of Position: 2000.0 Radial Velocity: 78 km/sec	V=17.955+/-0.020 F336W = 18.360 +/- 0.043	Reference Frame: ICRS

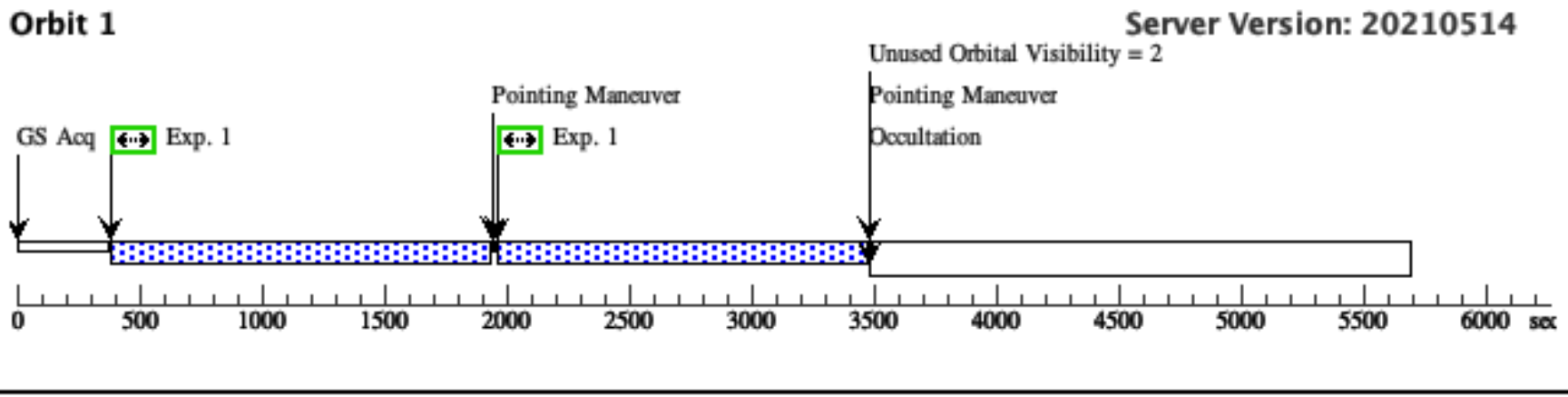
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

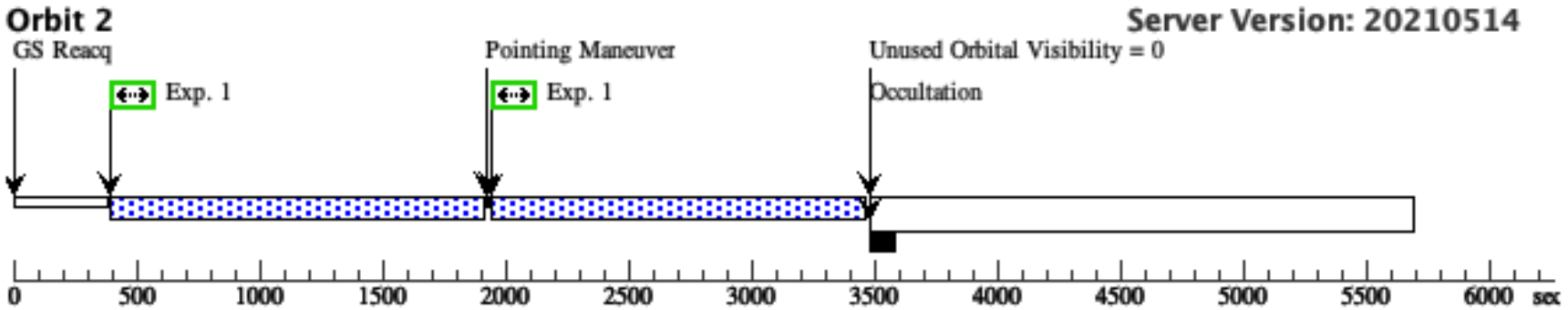
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	ACS-SBC-F150LP (1419962)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F150LP			Pattern 1, Exps 1-1 in SBC-LP150-Visit2 (02) (1)	1480 Secs (5954 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>1497.0 Secs (Pattern 3)] *[==>1497.0 Secs (Pattern 4)]*	***[2]***

Comments: The new aperture SBC-LODARK was enabled in October 2018. Near the reference pixel (175, 185) of this aperture, the dark rate of the detector remains at nominal level even at high temperatures. This aperture is therefore recommended when a visit will be longer than ~2 orbits and the target is small enough that it will not be affected by the elevated dark rates in the rest of the detector. See ACS ISR 2018-07 for further details.

Orbit Structure





Visit

Proposal 16261, SBC-F165LP-Visit1 (03), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1)

Fixed Targets

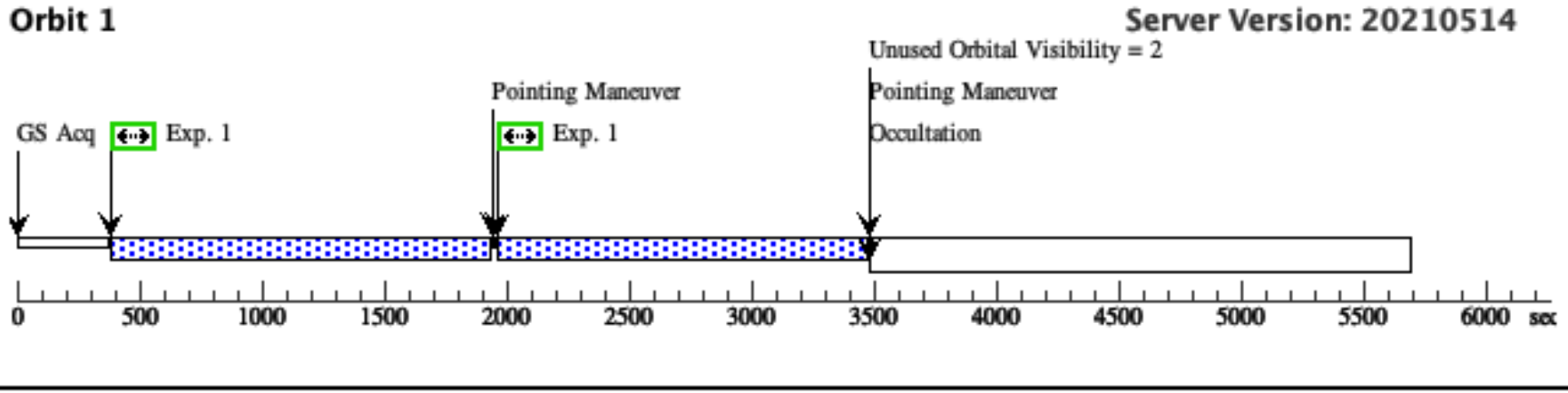
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d) Dec: +69 11 21.07 (69.18919d) Equinox: J2000	Epoch of Position: 2000.0 Radial Velocity: 78 km/sec	V=17.955+/-0.020 F336W = 18.360 +/- 0.043	Reference Frame: ICRS

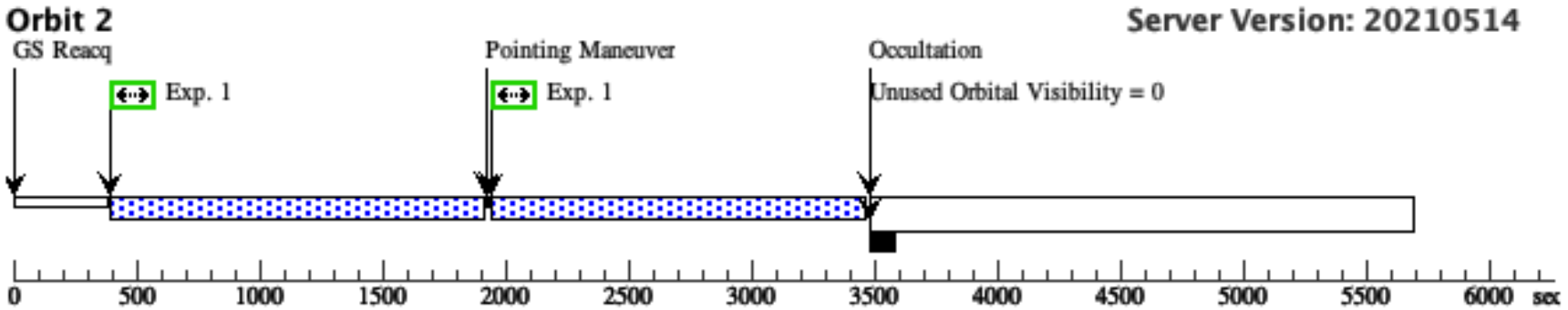
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBC-F165LP (1420020)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F165LP			Pattern 1, Exps 1-1 in SBC-F165LP-Visit1 (03) (1)	1480 Secs (5954 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
								[==>1497.0 Secs (Pattern 3)]	***[2]***
								[==>1497.0 Secs (Pattern 4)]	

Orbit Structure





Visit

Proposal 16261, SBC-F165LP-Visit2 (04), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=20.02		
	Number Of Points=4	Angle Between Sides=63.65		
	Point Spacing=0.179	Center Pattern=false		
	Line Spacing=0.116			

Fixed Targets

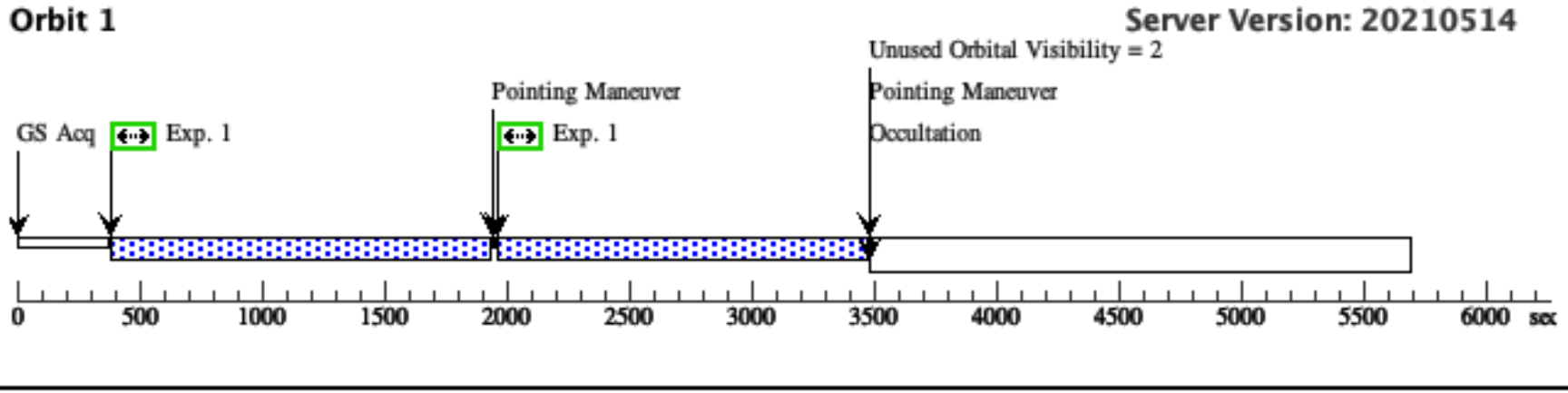
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000.0	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 21.07 (69.18919d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

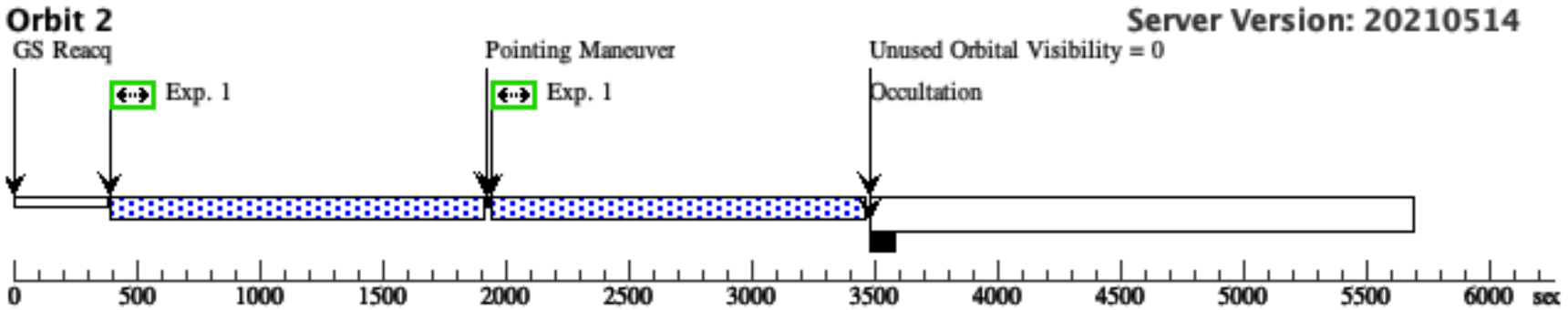
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBC-F165LP (1420020)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F165LP			Pattern 1, Exps 1-1 in SBC-F165LP-Visit2 (04) (1)	1480 Secs (5954 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
								[==>1497.0 Secs (Pattern 3)]	***[2]***
								[==>1497.0 Secs (Pattern 4)]	

Orbit Structure





Visit

Proposal 16261, SBC-F165LP-Visit3 (05), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX	Coordinate Frame=POS-TARG		(1)
	Purpose=DITHER	Pattern Orientation=20.02		
	Number Of Points=4	Angle Between Sides=63.65		
	Point Spacing=0.179	Center Pattern=false		
	Line Spacing=0.116			

Fixed Targets

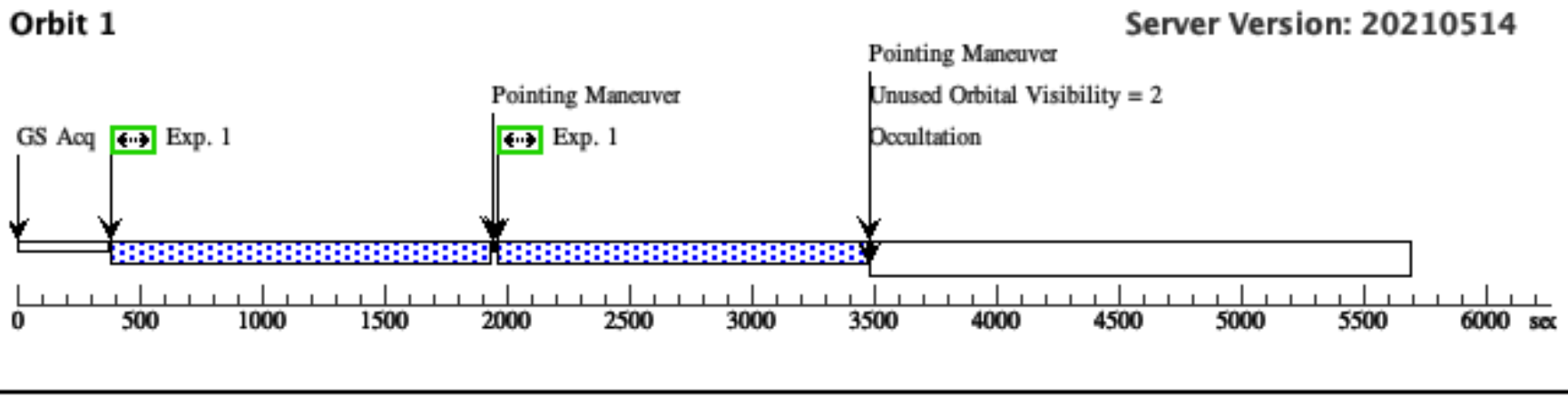
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000.0	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 21.07 (69.18919d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

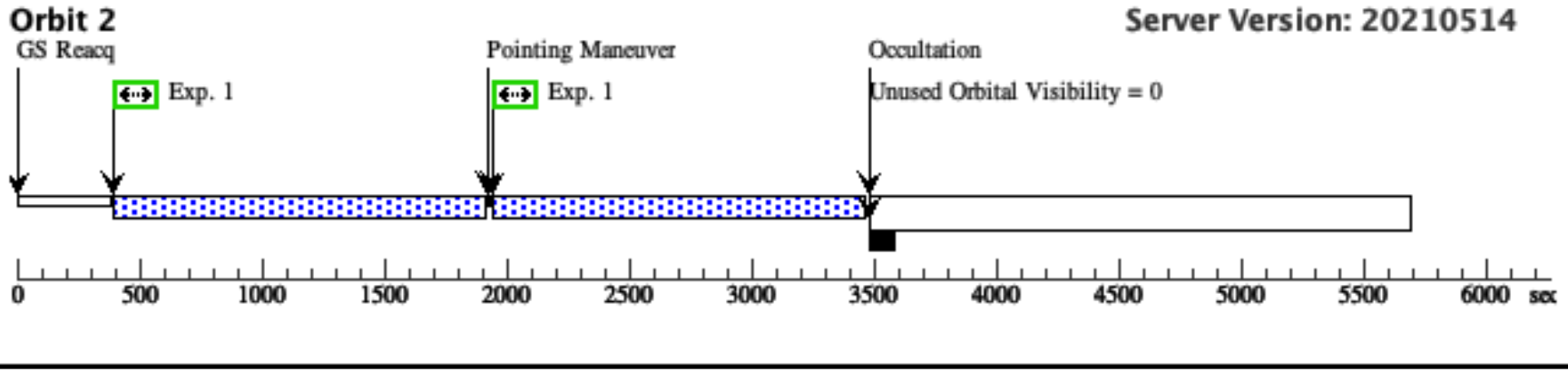
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBC-F165LP (1420020)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F165LP			Pattern 1, Exps 1-1 in SBC-F165LP-Visit3 (05) (1)	1480 Secs (5954 Secs)	
								[==>(Pattern 1)]	***[1]***
								[==>(Pattern 2)]	
								[==>1497.0 Secs (Pattern 3)]	***[2]***
								[==>1497.0 Secs (Pattern 4)]	

Orbit Structure





Visit

Proposal 16261, SBC-F165LP-Visit4 (06), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: ACS/SBC

Special Requirements: SAME ORIENT AS 01

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(1)	Pattern Type=ACS-SBC-DITHER-BOX Purpose=DITHER Number Of Points=4 Point Spacing=0.179 Line Spacing=0.116	Coordinate Frame=POS-TARG Pattern Orientation=20.02 Angle Between Sides=63.65 Center Pattern=false		(1)

Fixed Targets

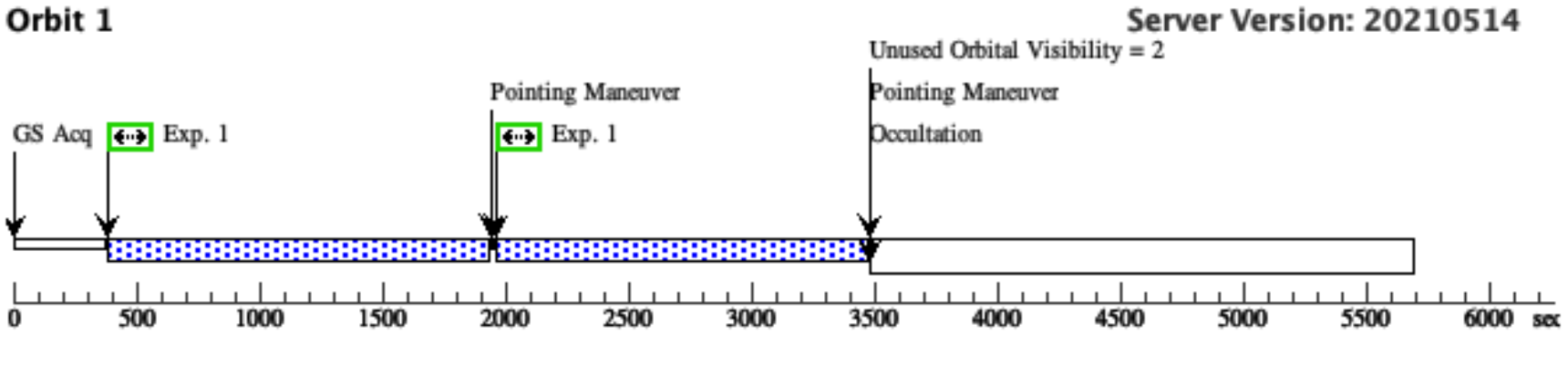
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	MRK71-A	RA: 07 28 42.7160 (112.1779833d) Dec: +69 11 21.07 (69.18919d) Equinox: J2000	Epoch of Position: 2000.0 Radial Velocity: 78 km/sec	V=17.955+/-0.020 F336W = 18.360 +/- 0.043	Reference Frame: ICRS

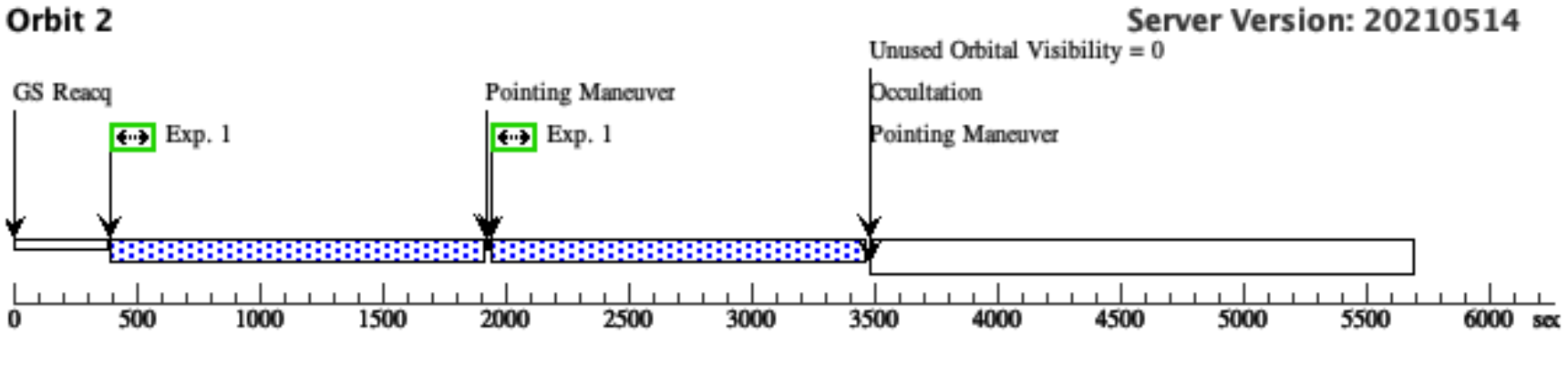
Comments: FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, SHELL, STAR FORMING REGION]
Extended=YES

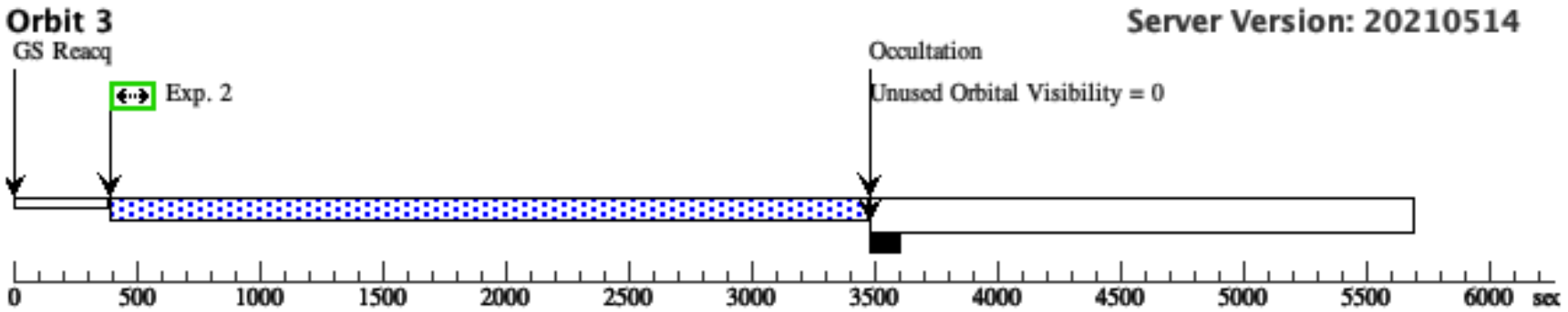
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	SBC-F165LP (1420020)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F165LP			Pattern 1, Exps 1-1 in SBC-F165LP-Visit4 (06) (1)	1480 Secs (5954 Secs) *[==>(Pattern 1)]* *[==>(Pattern 2)]*	***[1]***
								[==>1497.0 Secs (Pattern 3)] *[==>1497.0 Secs (Pattern 4)]*	***[2]***
2	SBC-F165LP (1420020)	(1) MRK71-A	ACS/SBC, ACCUM, SBC-LODARK	F165LP				3000 Secs (3054 Secs) *[==>3054.0 Secs]*	***[3]***

Orbit Structure







Visit

Proposal 16261, STIS FUV-MAMA Visit1 (07), failed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

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

Special Requirements: ORIENT 306.9D TO 306.9 D; ORIENT 126.9D TO 126.9 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MRK71-A-POS2	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 22.07 (69.18946d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

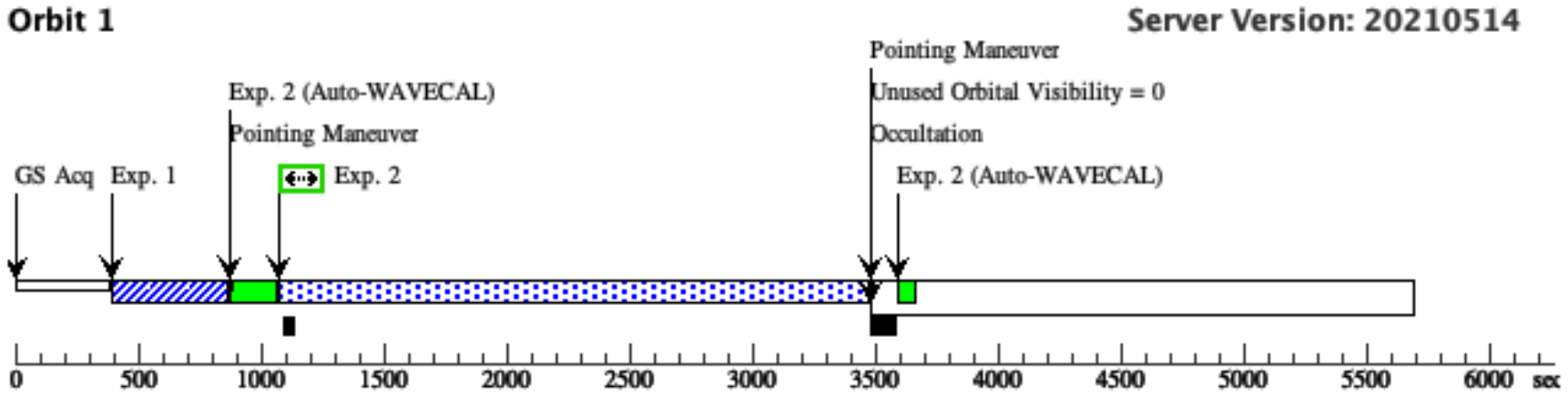
Comments: THIS IS A COPY OF FIXED TARGET 1, BUT ADJUSTING THE POSITION IN DEC BY 1 ARCSEC.

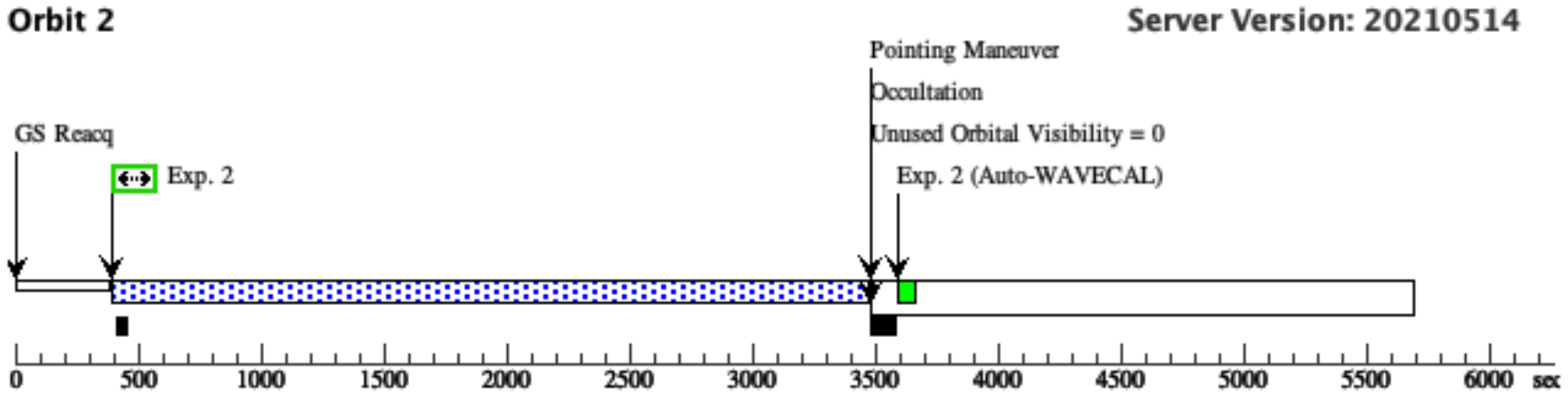
FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, STAR FORMING REGION]
Extended=YES

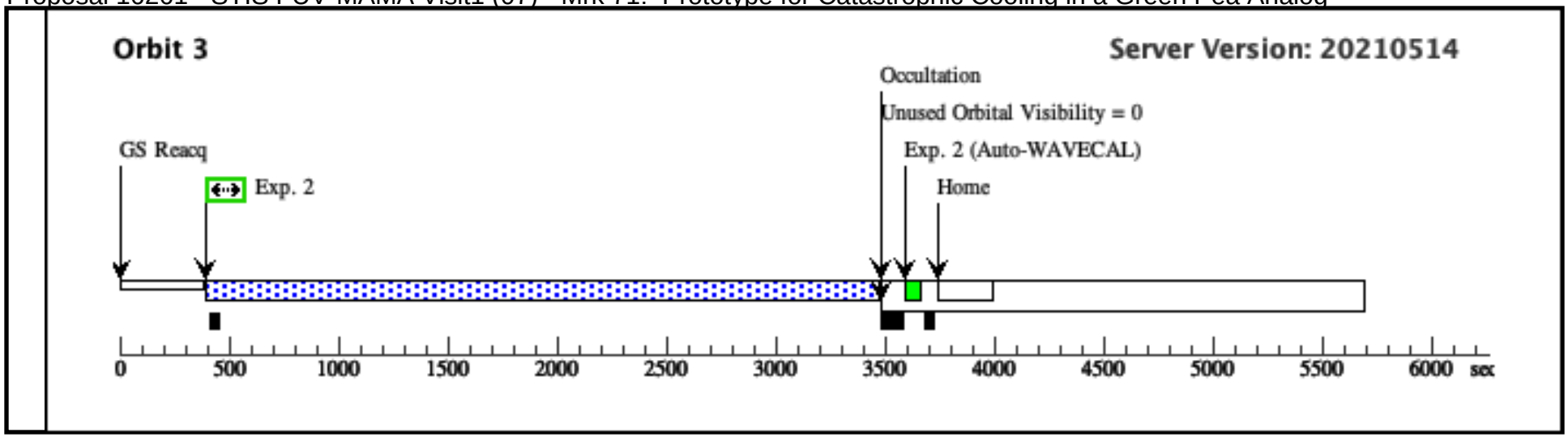
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	STIS-CCD ACQ (1448537)	(2) MRK71-A-POS2	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
								[==>]	***[1]***
2	(1447902)	(2) MRK71-A-POS2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Pattern 2, Exps 2-2 in STIS FUV-MAMA Visit1 (07) (2)	2200 Secs (8516 Secs)	
								[==>2384 Secs (Pattern 1)]	***[1]***
								[==>3066 Secs (Pattern 2)]	***[2]***
								[==>3066 Secs (Pattern 3)]	***[3]***

Orbit Structure






Orbit 3
Server Version: 20210514
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 2
Exp. 2 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16261, STIS FUV-MAMA Visit1 (57), scheduling Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

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

Special Requirements: ORIENT 309.55D TO 309.55 D; ORIENT 129.55D TO 129.55 D

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MRK71-A-POS2	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 22.07 (69.18946d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

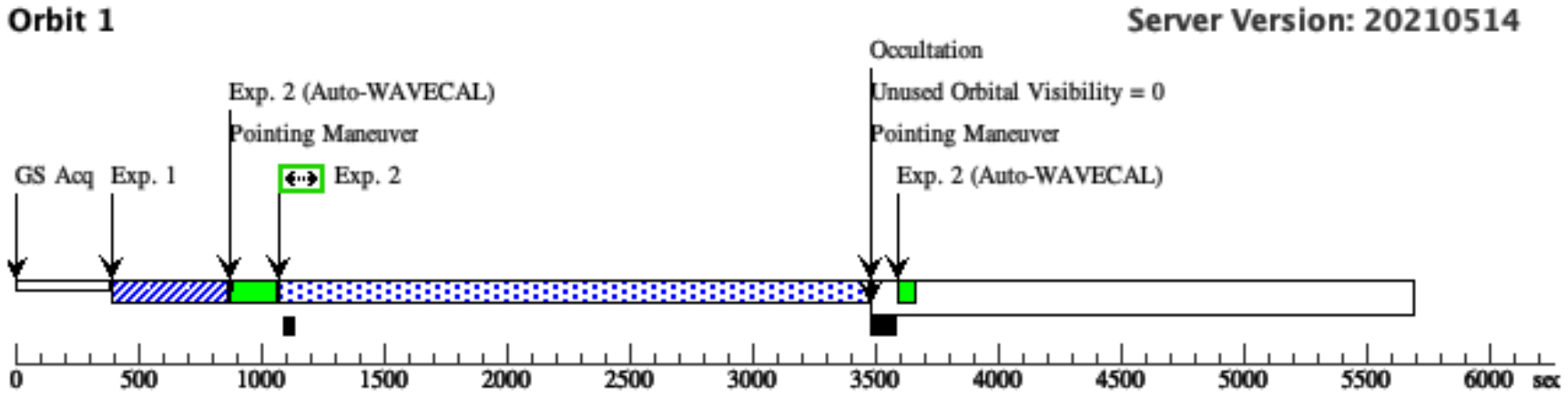
Comments: THIS IS A COPY OF FIXED TARGET 1, BUT ADJUSTING THE POSITION IN DEC BY 1 ARCSEC.

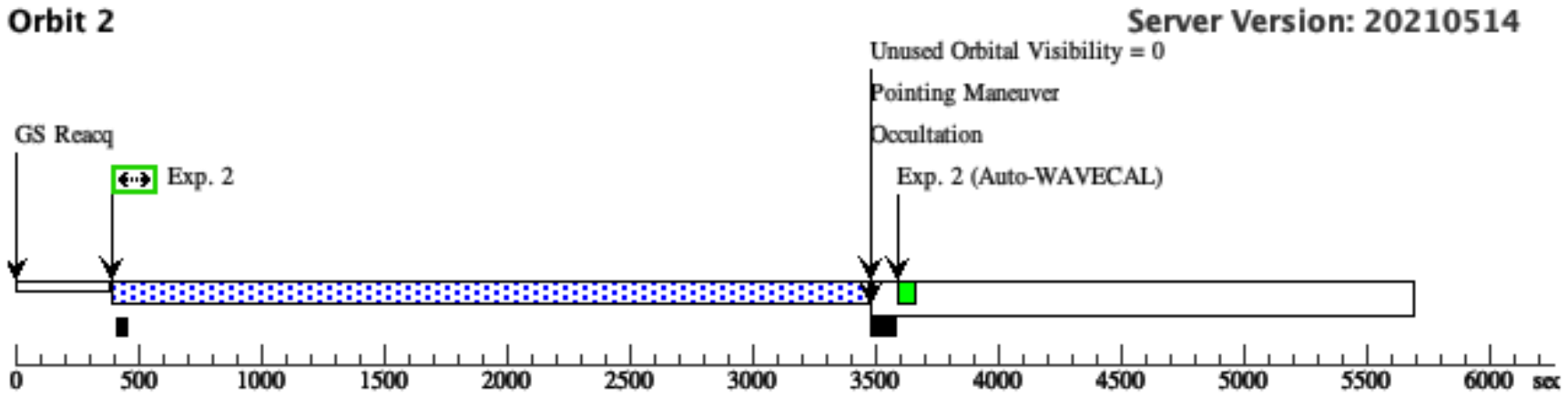
FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, STAR FORMING REGION]
Extended=YES

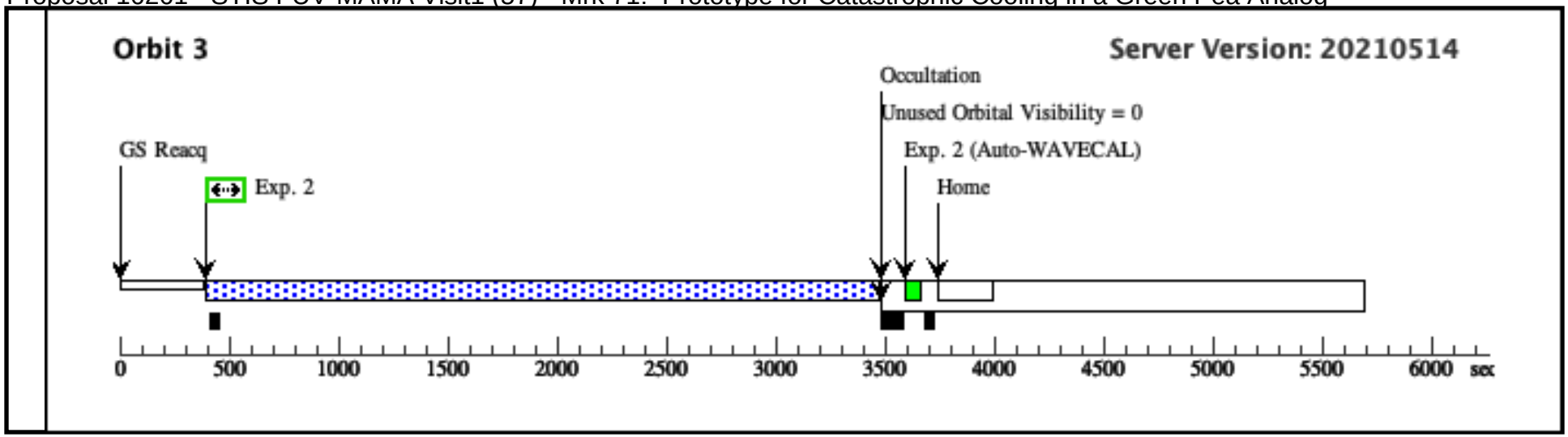
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	STIS-CCD ACQ (1448537)	(2) MRK71-A-POS2	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
								[==>]	***[1]***
2	(1447902)	(2) MRK71-A-POS2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Pattern 2, Exps 2-2 in STIS FUV-MAMA Visit1 (57) (2)	2200 Secs (8516 Secs)	
								[==>2384 Secs (Pattern 1)]	***[1]***
								[==>3066 Secs (Pattern 2)]	***[2]***
								[==>3066 Secs (Pattern 3)]	***[3]***

Orbit Structure






Orbit 3
Server Version: 20210514
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 2
Exp. 2 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16261, STIS FUV-MAMA Visit2 (08), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

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

Special Requirements: SAME ORIENT AS 07

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MRK71-A-POS2	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 22.07 (69.18946d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

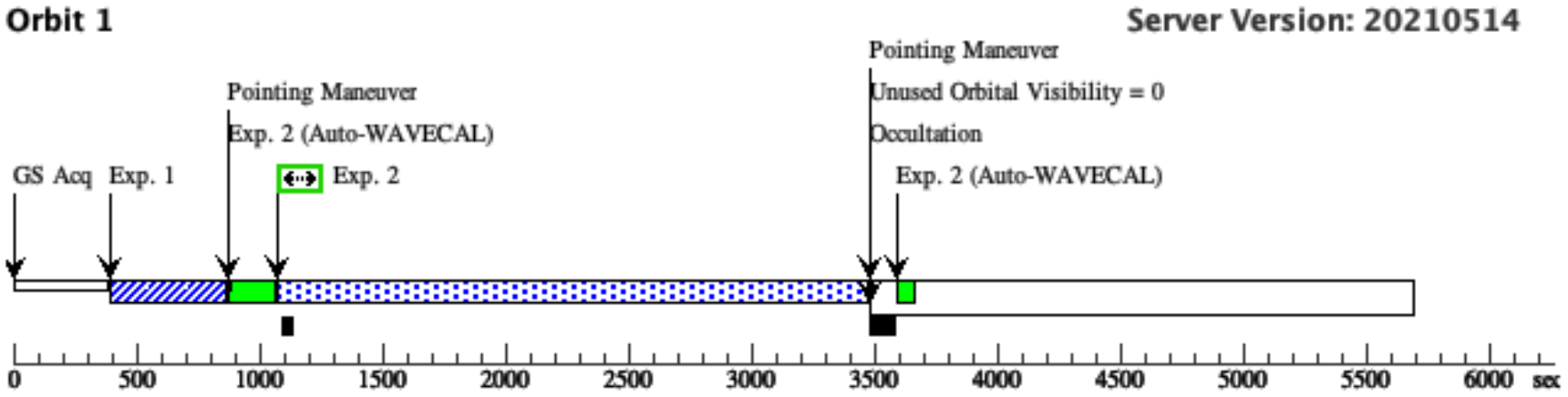
Comments: THIS IS A COPY OF FIXED TARGET 1, BUT ADJUSTING THE POSITION IN DEC BY 1 ARCSEC.

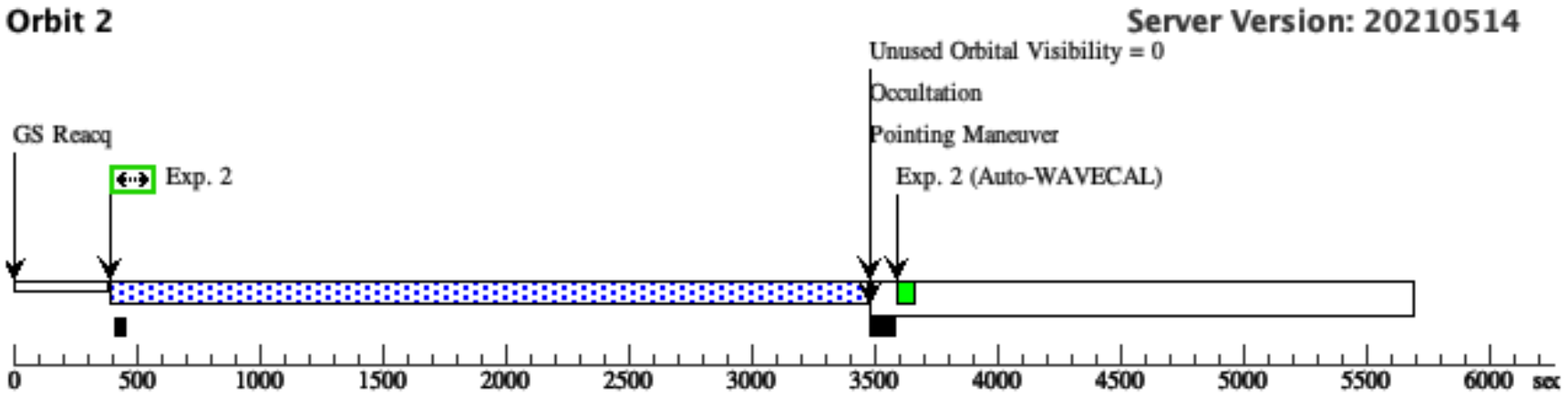
FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, STAR FORMING REGION]
Extended=YES

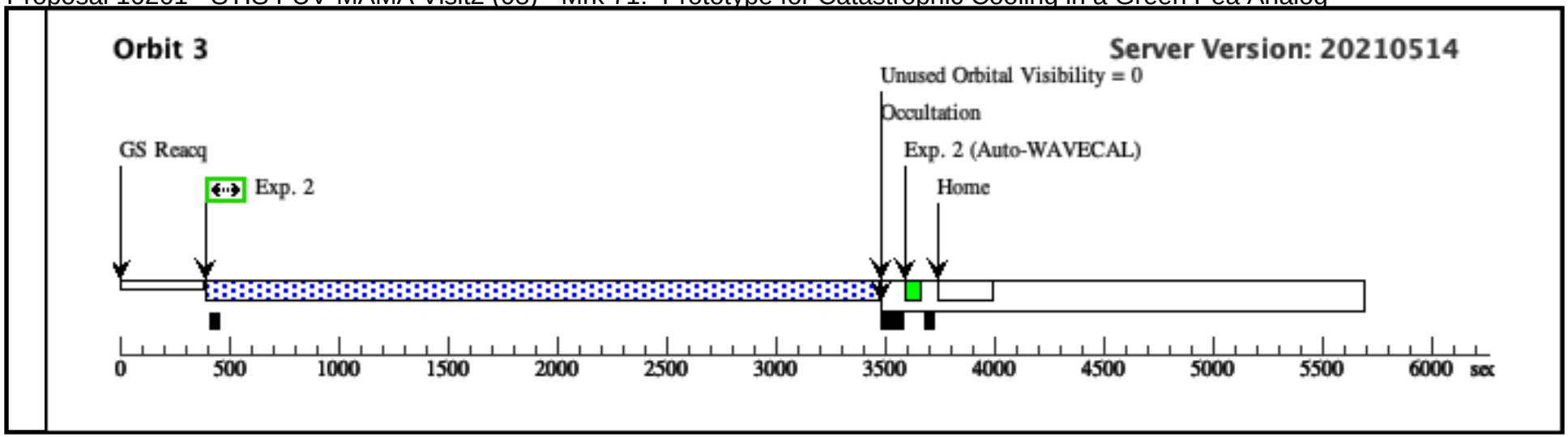
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	STIS-CCD ACQ (1448537)	(2) MRK71-A-POS2	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
								[==>]	***[1]***
2	(1447902)	(2) MRK71-A-POS2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Pattern 2, Exps 2-2 in STIS FUV-MAMA Visit2 (08) (2)	2200 Secs (8516 Secs)	
								[==>2384 Secs (Pattern 1)]	***[1]***
								[==>3066 Secs (Pattern 2)]	***[2]***
								[==>3066 Secs (Pattern 3)]	***[3]***

Orbit Structure






Orbit 3
Server Version: 20210514
Unused Orbital Visibility = 0
Occultation
GS Reacq
Exp. 2
Exp. 2 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16261, STIS FUV-MAMA Visit3 (09), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

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

Special Requirements: SAME ORIENT AS 07

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MRK71-A-POS2	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 22.07 (69.18946d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

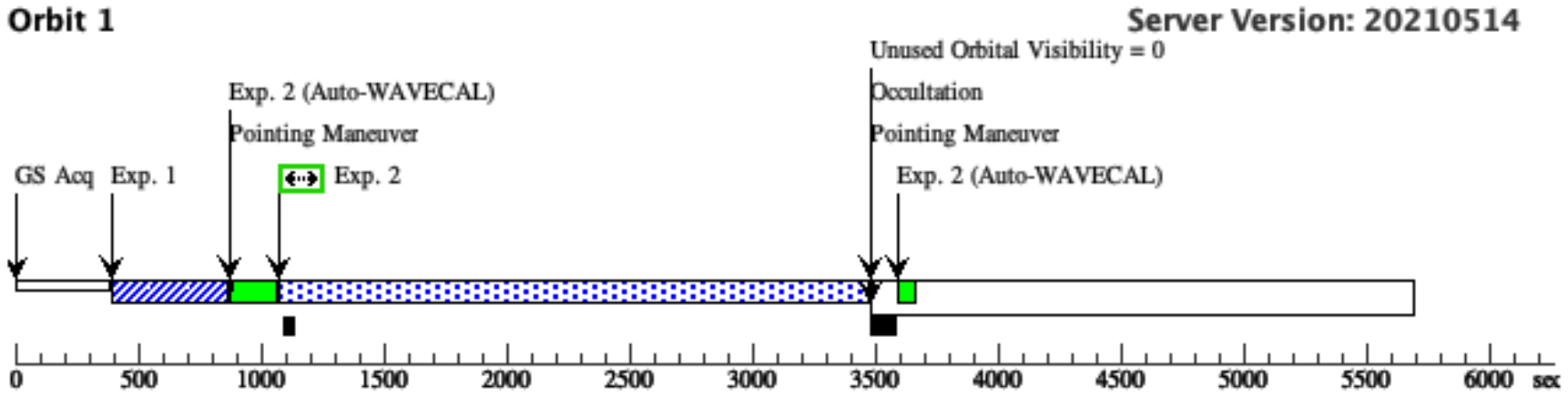
Comments: THIS IS A COPY OF FIXED TARGET 1, BUT ADJUSTING THE POSITION IN DEC BY 1 ARCSEC.

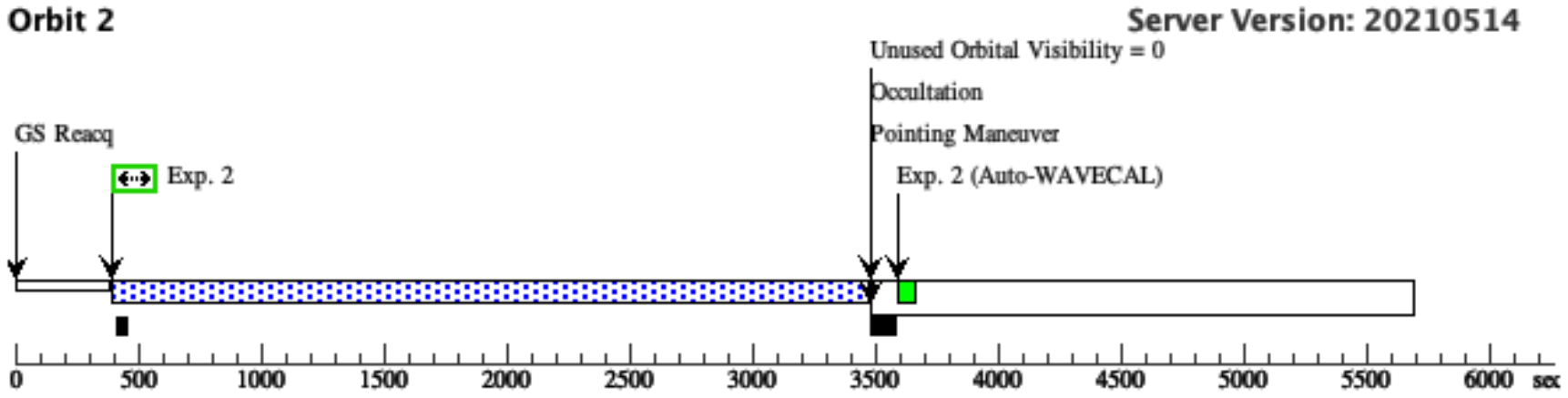
FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, STAR FORMING REGION]
Extended=YES

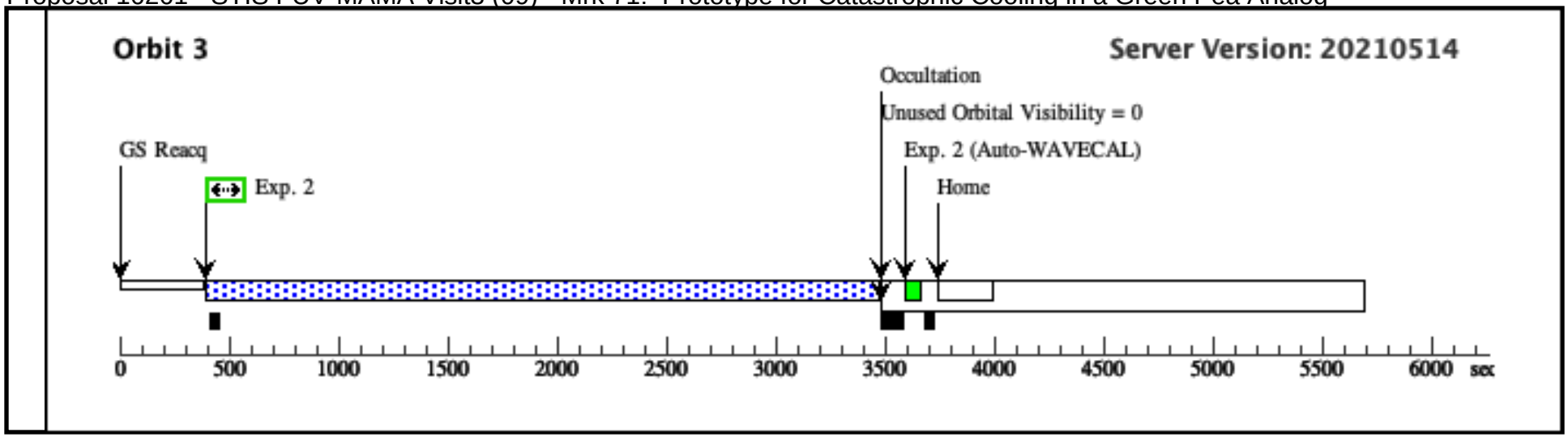
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	STIS-CCD ACQ (1448537)	(2) MRK71-A-POS2	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
								[==>]	***[1]***
2	(1447902)	(2) MRK71-A-POS2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Pattern 2, Exps 2-2 in STIS FUV-MAMA Visit3 (09) (2)	2200 Secs (8516 Secs)	
								[==>2384 Secs (Pattern 1)]	***[1]***
								[==>3066 Secs (Pattern 2)]	***[2]***
								[==>3066 Secs (Pattern 3)]	***[3]***

Orbit Structure






Orbit 3
Server Version: 20210514
Occultation
Unused Orbital Visibility = 0
GS Reacq
Exp. 2
Exp. 2 (Auto-WAVECAL)
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec

Visit

Proposal 16261, STIS-FUV/CCD (10), completed Sat Jan 29 03:00:24 GMT 2022

Diagnostic Status: No Diagnostics

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

Special Requirements: SAME ORIENT AS 07

Patterns

#	Primary Pattern		Secondary Pattern	Exposures
(2)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(3)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=3	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			
(3)	Pattern Type=STIS-ALONG-SLIT	Coordinate Frame=POS-TARG		(2)
	Purpose=DITHER	Pattern Orientation=90.0		
	Number Of Points=2	Angle Between Sides=		
	Point Spacing=0.3	Center Pattern=false		
	Line Spacing=			

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	MRK71-A-POS2	RA: 07 28 42.7160 (112.1779833d)	Epoch of Position: 2000	V=17.955+/-0.020	Reference Frame: ICRS
		Dec: +69 11 22.07 (69.18946d)	Radial Velocity: 78 km/sec	F336W = 18.360 +/- 0.043	
		Equinox: J2000			

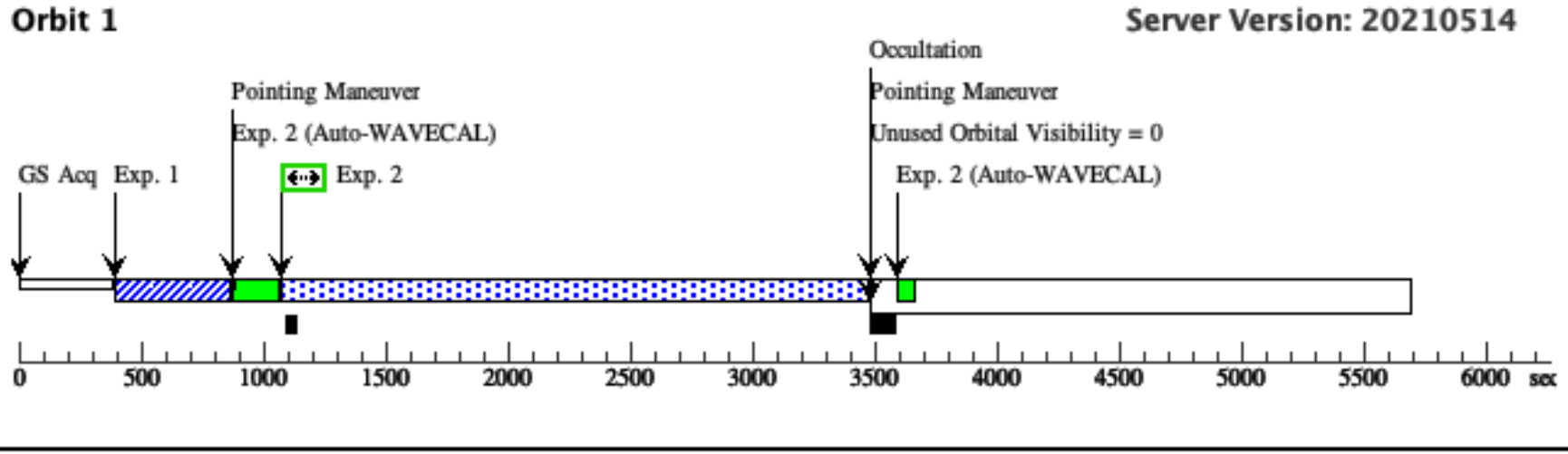
Comments: THIS IS A COPY OF FIXED TARGET 1, BUT ADJUSTING THE POSITION IN DEC BY 1 ARCSEC.

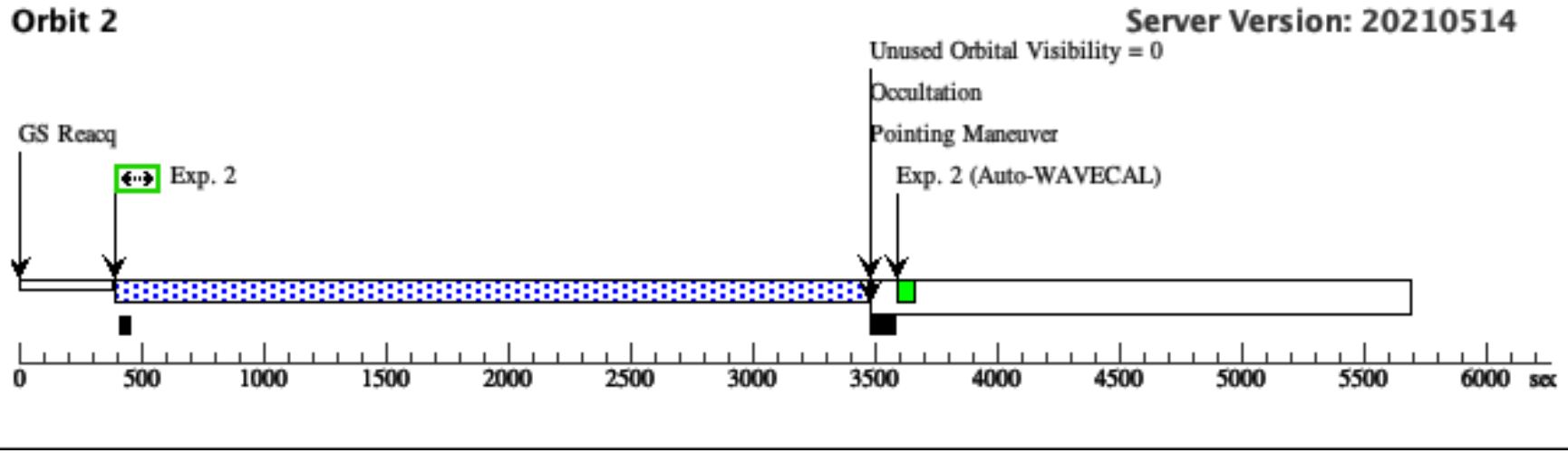
FUV continuum = 4 x 10^-15 erg s^-1 cm^-2 A^-1 arcsec^-2 at 1300 - 1500 A from existing FOS data.
Knot B is the object flagged by the BOT. The ETC shows that it is safe, and has F336W = 18.5.
http://etc.stsci.edu/etc/results/ACS.im.1452066/
Category=EXT-MEDIUM
Description=[EMISSION LINE NEBULA, HII REGION, KNOT, STAR FORMING REGION]
Extended=YES

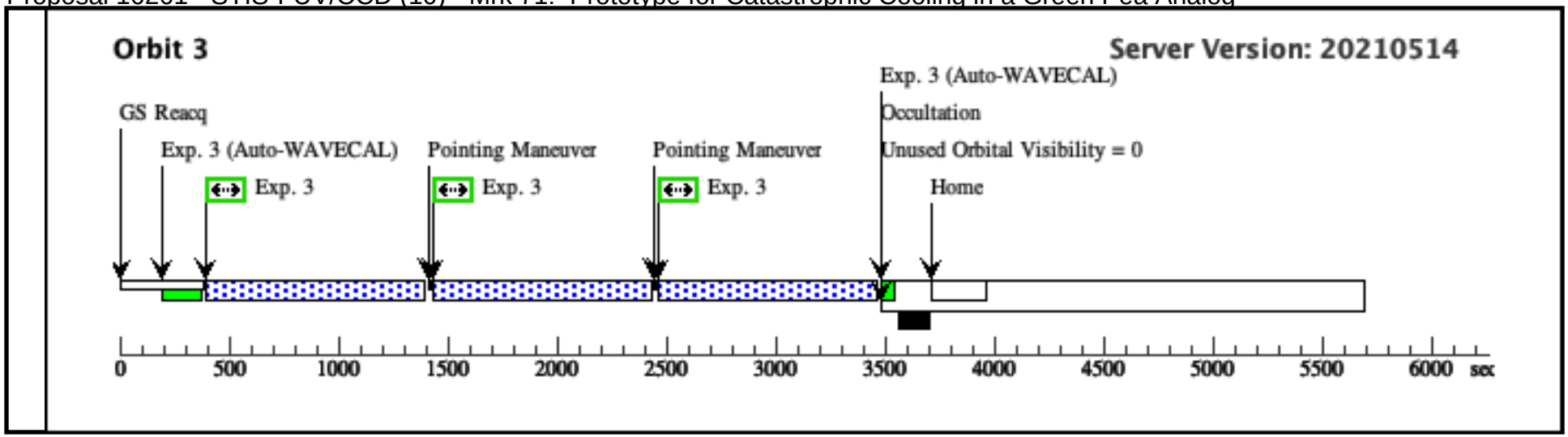
Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	STIS-CCD ACQ (1448537)	(2) MRK71-A-POS2	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
								[==>]	***[1]***
2	(1447902)	(2) MRK71-A-POS2	STIS/FUV-MAMA, ACCUM, 52X0.2	G140L 1425 A			Pattern 3, Exps 2-2 in STIS-FUV/CCD (10) (3)	2200 Secs (5450 Secs)	
								[==>2384 Secs (Pattern 1)]	***[1]***
								[==>3066 Secs (Pattern 2)]	***[2]***
3		(2) MRK71-A-POS2	STIS/CCD, ACCUM, 52X0.2	G430L 4300 A	CR-SPLIT=NO		Pattern 2, Exps 3-3 in STIS-FUV/CCD (10) (2)	984 Secs (2904 Secs)	
								[==>968.0 Secs (Pattern 1)]	
								[==>968.0 Secs (Pattern 2)]	***[3]***
								[==>968.0 Secs (Pattern 3)]	

Orbit Structure






Orbit 3
Server Version: 20210514
GS Reacq
Exp. 3 (Auto-WAVECAL)
Exp. 3
Pointing Maneuver
Exp. 3
Pointing Maneuver
Exp. 3
Exp. 3 (Auto-WAVECAL)
Occultation
Unused Orbital Visibility = 0
Home
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
sec