



14637 - Wide band spectra of nova-like variables: A confrontation of observations with theory

Cycle: 24, Proposal Category: GO

(UV Initiative)

(Availability Mode: AVAILABLE)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
Dr. Knox S. Long (PI) (Contact)	Eureka Scientific Inc.	long@stsci.edu
Prof. Christian Knigge (CoI) (ESA Member)	University of Southampton	c.knigge@soton.ac.uk
Mr. James Matthews (CoI) (ESA Member)	University of Southampton	jm8g08@soton.ac.uk
Dr. Ivan Hubeny (CoI)	University of Arizona	hubeny@as.arizona.edu
Dr. Stuart A. Sim (CoI) (ESA Member)	The Queen's University of Belfast	s.sim@qub.ac.uk
Dr. Nick Higginbottom (CoI) (ESA Member)	University of Southampton	nick_higginbottom@fastmail.fm

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) V-IX-VEL CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA	1	09-Feb-2017 21:00:26.0	yes
02	(2) V-V3885-SGR CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA	1	09-Feb-2017 21:00:29.0	yes
03	(3) V-RW-SEX CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA	1	09-Feb-2017 21:00:32.0	yes

<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>
04	(4) V-UX-UMA CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA	1	09-Feb-2017 21:00:35.0	yes
05	(5) V-RW-TRI CCDFLAT WAVE	STIS/CCD STIS/FUV-MAMA	1	09-Feb-2017 21:00:38.0	yes

5 Total Orbits Used

ABSTRACT

Nova-like variables are the best and nearest examples of steady-state disk accretion onto a compact object. Emission in these system arises from a large number of components, including the WD and secondary star, the accretion disk through which mass is accreted, and a wind through which mass is lost. However, the only wide band ``spectra" of these variable objects have been constructed by stitching together spectra obtained at different times, and as a result it is difficult to conclude exactly what is causing the departures from the predictions of steady-state accretion disk models that are observed, or to establish the geometry of the wind in these systems. This is a project to use HST/STIS to obtain single-epoch, FUV-near IR spectra of five bright nova-like variables, with varying inclinations, to remedy this problem. We will compare this benchmark set of spectra to new models of the disks and winds for this group of cataclysmic variables in order to measure the temperature profiles of the disks, to determine mass loss rates, collimation, and other physical characteristics of the winds, and to assess the overall effect of the dense regions of the wind on the spectral energy distribution.

OBSERVING DESCRIPTION

This is a project to observe 5 nova like variables. These are CVs that are (nearly always) in the high state. Two of the objects (UX UMa and RW Tri) are eclipsing. Our goal is to obtain a very broad band spectrum of the unocculted light of each of the systems and so the observations for these two objects are time-constrained. We want to carry out model fits to the entire spectrum so (relative) photometric accuracy is important.

Each target is to be observed for one orbit with STIS. Each is observed with 4 grating setups, a MAMA/FUV grating, the CCD/230LB grating, the CCD/G430L grating and the CCD/G750L grating (in that order). For fainter sources (UX UMa and RW Tri), the G140L grating will be used for the FUV grating; for brighter sources the E140M grating will be used for the FUV. Each observation will conclude with a fringe flat for the G750L grating.

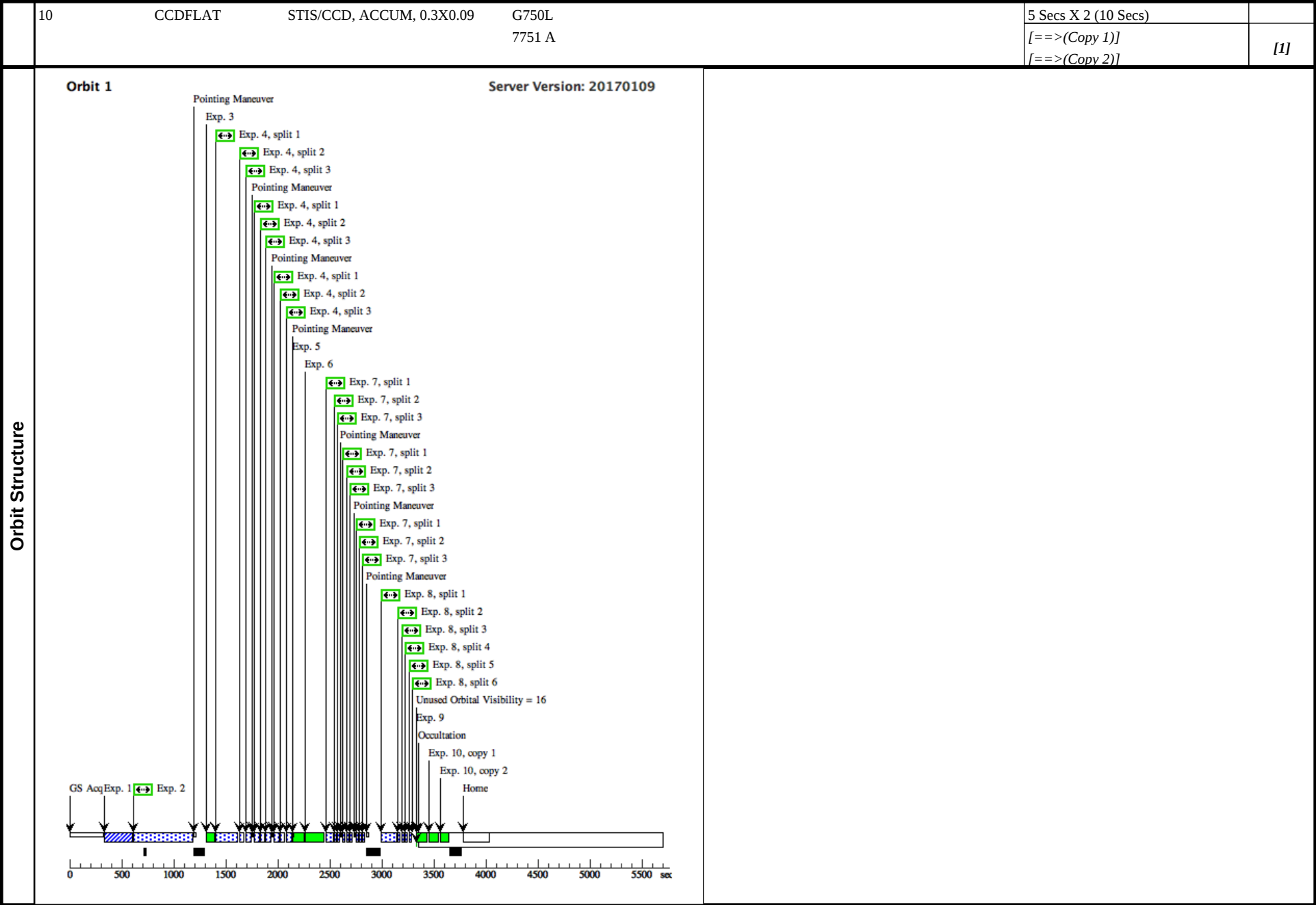
As the exposures are short, subarrays have been used for the CCD observations, 128 for the 230LB and 430 L gratings, and 256 for the G750L grating.

Proposal 14637 - IX Vel (01) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Visit	Proposal 14637, IX Vel (01), scheduled Fri Feb 10 02:00:39 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: (none)				
Patterns	#	Primary Pattern		Secondary Pattern	Exposures
	(1)	Pattern Type=STIS-ALONG-SLIT Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=90.0 Number Of Points=3 Angle Between Sides= Point Spacing=0.4064 Center Pattern=false Line Spacing=			(4), (7)
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(1)	V-IX-VEL	RA: 08 15 18.9705 (123.8290438d) Dec: -49 13 20.67 (-49.22241d) Equinox: J2000	Proper Motion RA: -26.09 mas/yr Proper Motion Dec: -95.07 mas/yr Parallax: 0.01034" Epoch of Position: 2000	V=9.5 Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. It is the Hipparcos positions					

Proposal 14637 - IX Vel (01) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.823 517)	(1) V-IX-VEL	STIS/CCD, ACQ, F28X500II	MIRROR				3 Secs (3 Secs)	
									[==>]	[1]
	2	(STIS.sp.82 5893)	(1) V-IX-VEL	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A	WAVECAL=NO			480 Secs (480 Secs)	
									[==>]	[1]
	Comments: The estimated count rate is 51,000 counts/s though this aperture for the entire array, which is significantly less than the maximum of 80,000 for an irregularly variable object. The object is well studied in the UV with both IUE and HUT, so this estimate should be robust.									
	3		WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.06	E140M 1425 A				[==>]	[1]
	4		(1) V-IX-VEL	STIS/CCD, ACCUM, 52X0.5E1	G230LB 2375 A	SIZEAXIS2=128; CR-SPLIT=3		Pattern 1, Exps 4-4 in IX Vel (01) (1)	105 Secs (315 Secs)	
									[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	5		WAVE	STIS/CCD, ACCUM, 52X0.1	G230LB 2375 A				[==>]	[1]
	6		WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A				[==>]	[1]
	7		(1) V-IX-VEL	STIS/CCD, ACCUM, 52X0.5E1	G430L 4300 A	SIZEAXIS2=128; CR-SPLIT=3		Pattern 1, Exps 7-7 in IX Vel (01) (1)	30 Secs (90 Secs)	
									[==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	8		(1) V-IX-VEL	STIS/CCD, ACCUM, 52X0.5	G750L 7751 A	SIZEAXIS2=256; CR-SPLIT=6			60 Secs (60 Secs)	
									[==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[1]
	9		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A				[==>]	[1]

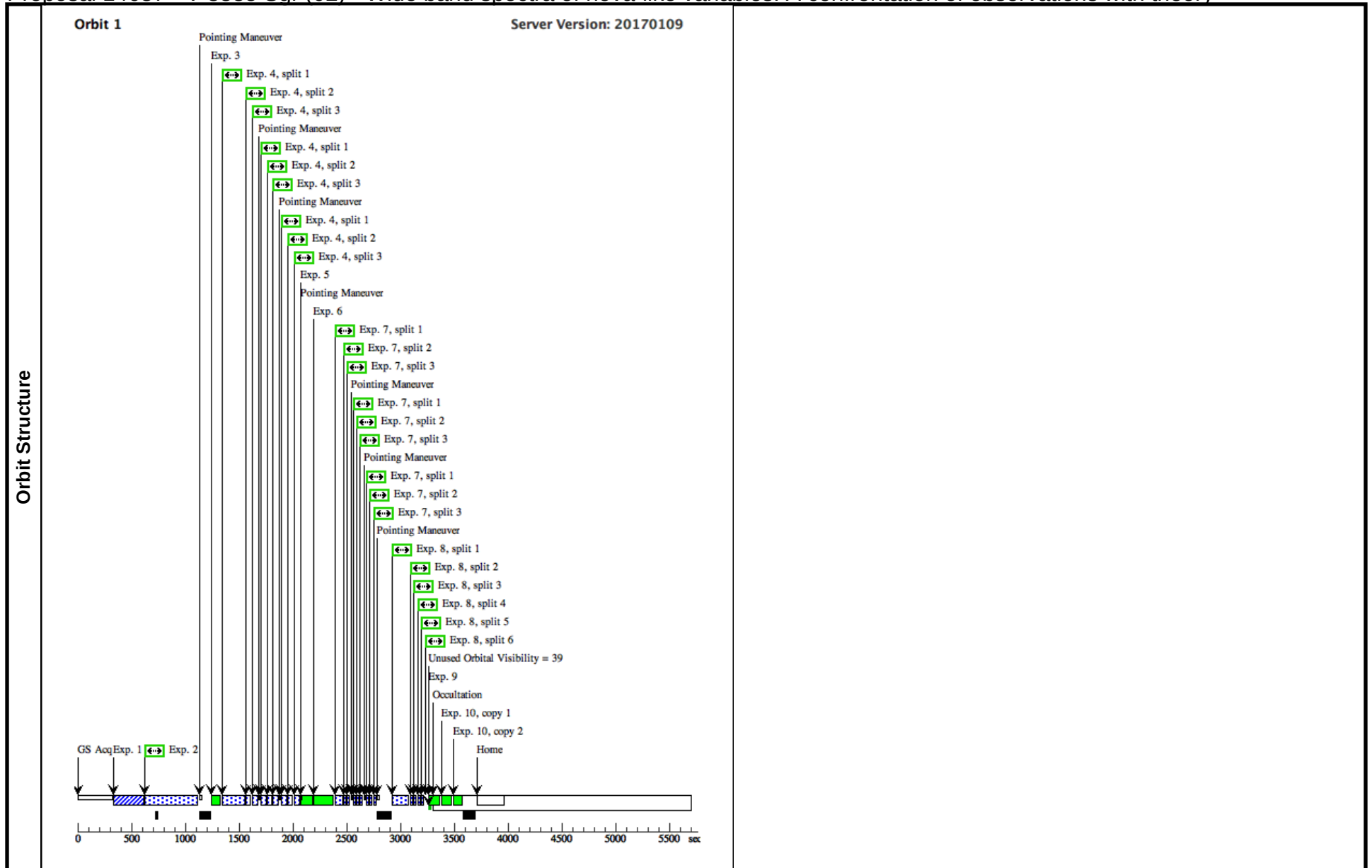


Proposal 14637 - V 3885 Sgr (02) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Visit	Proposal 14637, V 3885 Sgr (02), implementation Fri Feb 10 02:00:39 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: (none)				
Patterns	#	Primary Pattern	Secondary Pattern		Exposures
	(1)	Pattern Type=STIS-ALONG-SLIT Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=90.0 Number Of Points=3 Angle Between Sides= Point Spacing=0.4064 Center Pattern=false Line Spacing=			(4), (7)
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes Miscellaneous
	(2)	V-V3885-SGR	RA: 19 47 40.5272 (296.9188633d) Dec: -42 00 26.39 (-42.00733d) Equinox: J2000	Proper Motion RA: 27.60 mas/yr Proper Motion Dec: -40.38 mas/yr Parallax: 0.00945" Epoch of Position: 2000	V=10.39 Reference Frame: ICRS
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. The values are Hipparcos positions					

Proposal 14637 - V 3885 Sgr (02) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.823 515)	(2) V-V3885-SGR	STIS/CCD, ACQ, F28X500II	MIRROR			Sequence 1-10 Non-Int in V 3885 Sgr (02)	6 Secs (6 Secs) [==>]	[1]
	2	(STIS.sp.82 4552)	(2) V-V3885-SGR	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A	WAVECAL=NO		Sequence 1-10 Non-Int in V 3885 Sgr (02)	400 Secs (400 Secs) [==>]	[1]
	Comments: V3885 Sgr has been observed previously in this mode with this 0.2 x 0.2 aperture.									
	3		WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.06	E140M 1425 A			Sequence 1-10 Non-Int in V 3885 Sgr (02)	[==>]	[1]
	4		(2) V-V3885-SGR	STIS/CCD, ACCUM, 52X0.5E1	G230LB 2375 A	SIZEAXIS2=128; CR-SPLIT=3		Sequence 1-10 Non-Int in V 3885 Sgr (02) Pattern 1, Exps 4-4 in Sequence 1-10 Non-Int in V 3885 Sgr (02) (1)	105 Secs (315 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	5		WAVE	STIS/CCD, ACCUM, 52X0.1	G230LB 2375 A			Sequence 1-10 Non-Int in V 3885 Sgr (02)	[==>]	[1]
	6		WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			Sequence 1-10 Non-Int in V 3885 Sgr (02)	[==>]	[1]
	7		(2) V-V3885-SGR	STIS/CCD, ACCUM, 52X0.5E1	G430L 4300 A	SIZEAXIS2=128; CR-SPLIT=3		Sequence 1-10 Non-Int in V 3885 Sgr (02) Pattern 1, Exps 7-7 in Sequence 1-10 Non-Int in V 3885 Sgr (02) (1)	30 Secs (90 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	8		(2) V-V3885-SGR	STIS/CCD, ACCUM, 52X0.5	G750L 7751 A	SIZEAXIS2=256; CR-SPLIT=6		Sequence 1-10 Non-Int in V 3885 Sgr (02)	60 Secs (60 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[1]
	9		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A			Sequence 1-10 Non-Int in V 3885 Sgr (02)	[==>]	[1]
	10		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A			Sequence 1-10 Non-Int in V 3885 Sgr (02)	5 Secs X 2 (10 Secs) [==>(Copy 1)] [==>(Copy 2)]	[1]

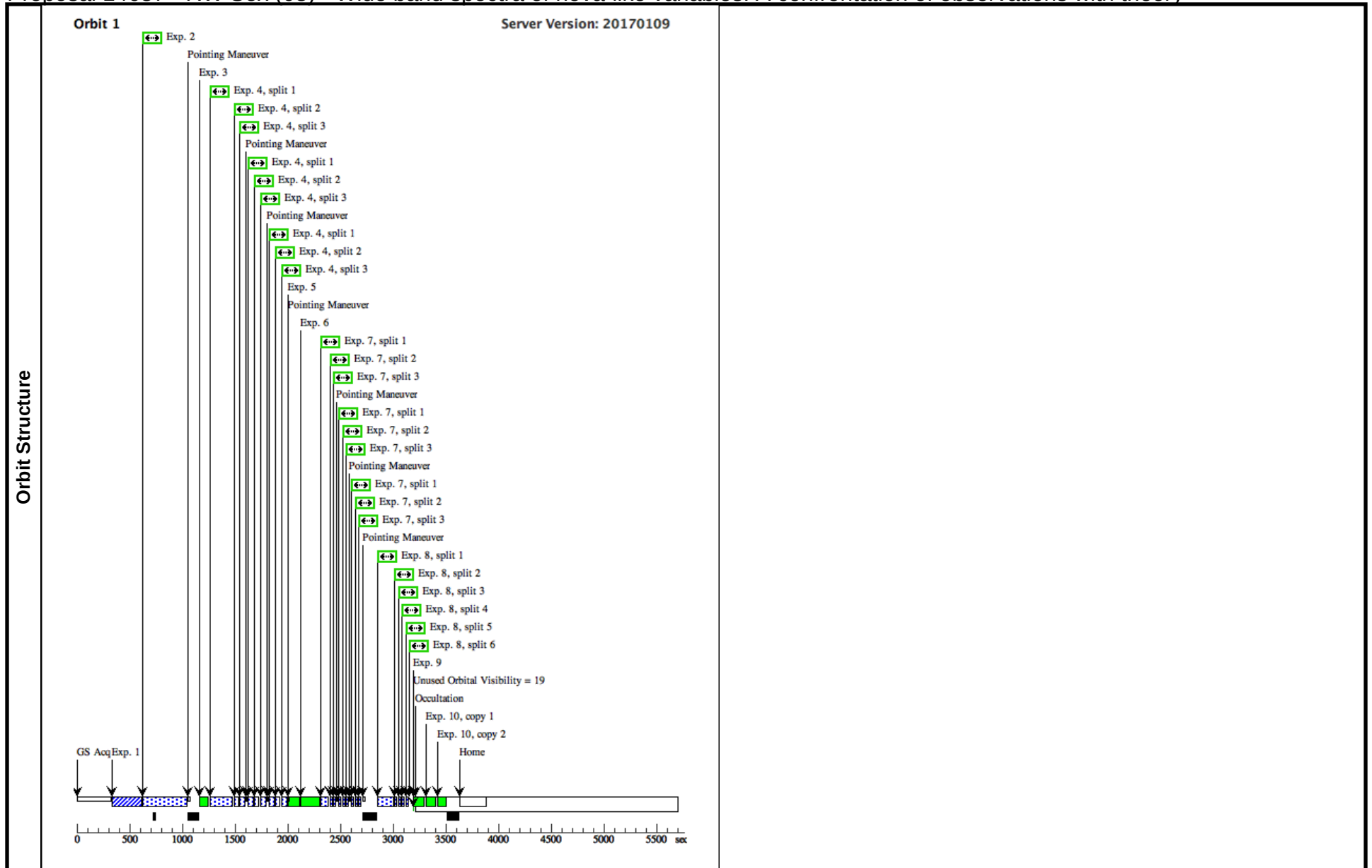


Proposal 14637 - RW Sex (03) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Visit	Proposal 14637, RW Sex (03), implementation Fri Feb 10 02:00:40 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: (none)				
Patterns	#	Primary Pattern		Secondary Pattern	Exposures
	(1)	Pattern Type=STIS-ALONG-SLIT Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=90.0 Number Of Points=3 Angle Between Sides= Point Spacing=0.4064 Center Pattern=false Line Spacing=			(4), (7)
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(3)	V-RW-SEX	RA: 10 19 56.6231 (154.9859296d) Dec: -08 41 56.09 (-8.69891d) Equinox: J2000	Proper Motion RA: -18.24 mas/yr Proper Motion Dec: -14.24 mas/yr Epoch of Position: 2000	V=10.7
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					

Proposal 14637 - RW Sex (03) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.823 517)	(3) V-RW-SEX	STIS/CCD, ACQ, F28X500II	MIRROR			Sequence 1-10 Non-Int in RW Sex (03)	5 Secs (5 Secs) [==>]	[1]
	2	(STIS.sp.82 5861)	(3) V-RW-SEX	STIS/FUV-MAMA, ACCUM, 0.2X0.2	E140M 1425 A	WAVECAL=NO		Sequence 1-10 Non-Int in RW Sex (03)	330 Secs (330 Secs) [==>]	[1]
	Comments: RW Sex, which is not expected to vary much, has been observed previously in this range with the GHRS.									
	3		WAVE	STIS/FUV-MAMA, ACCUM, 0.2X0.06	E140M 1425 A			Sequence 1-10 Non-Int in RW Sex (03)	[==>]	[1]
	4		(3) V-RW-SEX	STIS/CCD, ACCUM, 52X0.5E1	G230LB 2375 A	SIZEAXIS2=128; CR-SPLIT=3		Sequence 1-10 Non-Int in RW Sex (03) Pattern 1, Exps 4-4 in Sequence 1-10 Non-Int in RW Sex (03) (1)	105 Secs (315 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	5		WAVE	STIS/CCD, ACCUM, 52X0.1	G230LB 2375 A			Sequence 1-10 Non-Int in RW Sex (03)	[==>]	[1]
	6		WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			Sequence 1-10 Non-Int in RW Sex (03)	[==>]	[1]
	7		(3) V-RW-SEX	STIS/CCD, ACCUM, 52X0.5E1	G430L 4300 A	SIZEAXIS2=128; CR-SPLIT=3		Sequence 1-10 Non-Int in RW Sex (03) Pattern 1, Exps 7-7 in Sequence 1-10 Non-Int in RW Sex (03) (1)	30 Secs (90 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 1, Split 3)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 2, Split 3)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)] [==>(Pattern 3, Split 3)]	[1]
	8		(3) V-RW-SEX	STIS/CCD, ACCUM, 52X0.5	G750L 7751 A	SIZEAXIS2=256; CR-SPLIT=6		Sequence 1-10 Non-Int in RW Sex (03)	60 Secs (60 Secs) [==>(Split 1)] [==>(Split 2)] [==>(Split 3)] [==>(Split 4)] [==>(Split 5)] [==>(Split 6)]	[1]
	9		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A			Sequence 1-10 Non-Int in RW Sex (03)	[==>]	[1]
	10		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A			Sequence 1-10 Non-Int in RW Sex (03)	5 Secs X 2 (10 Secs) [==>(Copy 1)] [==>(Copy 2)]	[1]

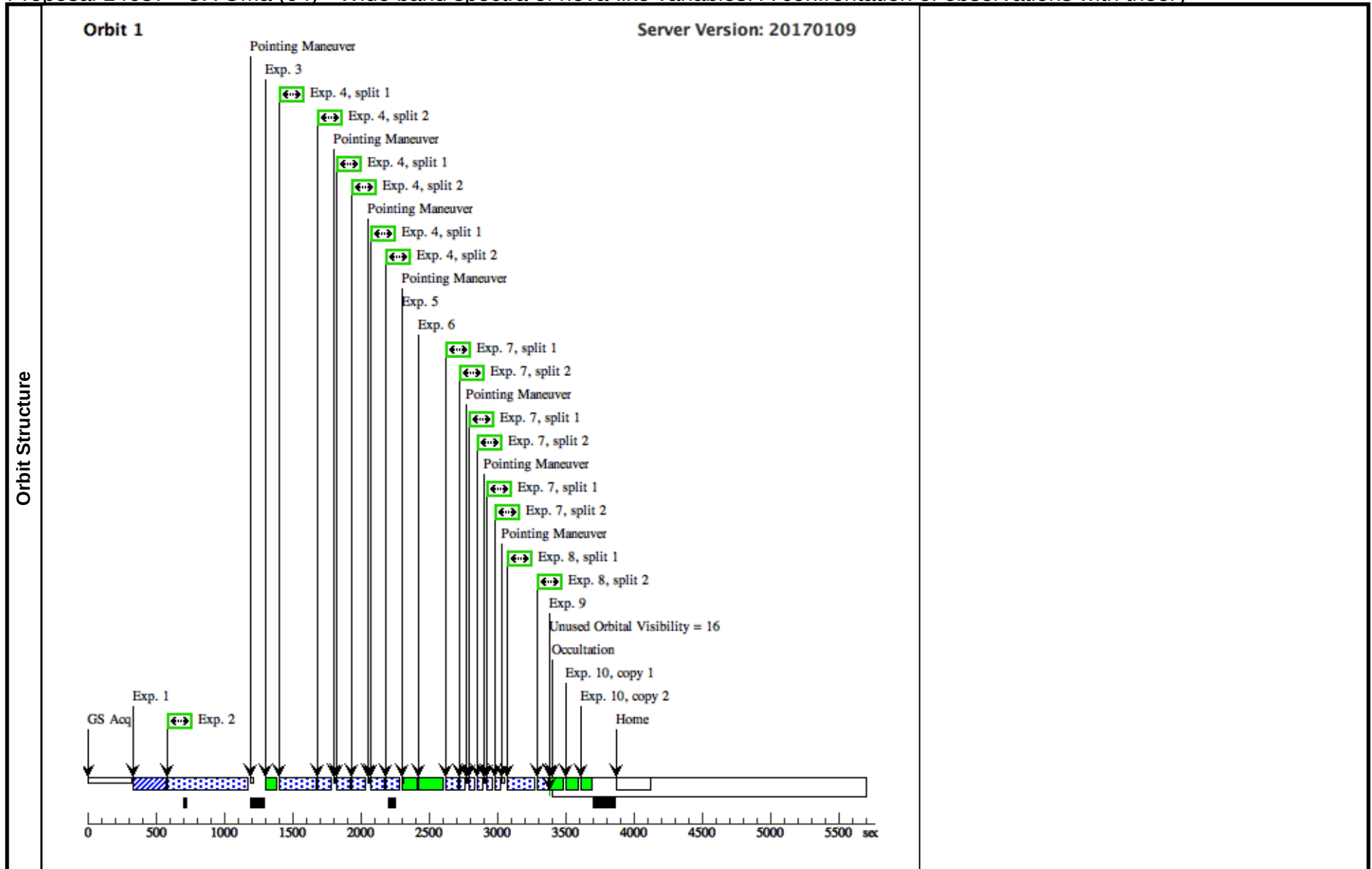


Proposal 14637 - UX UMa (04) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Visit	Proposal 14637, UX UMa (04), implementation Fri Feb 10 02:00:40 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: Period 0.196671278 D AND ZERO-PHASE HJD2457754.666788038				
Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(1)	Pattern Type=STIS-ALONG-SLIT Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=90.0 Number Of Points=3 Angle Between Sides= Point Spacing=0.4064 Center Pattern=false Line Spacing=		(4), (7)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(4)	V-UX-UMA	RA: 13 36 40.9610 (204.1706708d) Dec: +51 54 49.49 (51.91375d) Equinox: J2000	Proper Motion RA: -41.2 mas/yr Proper Motion Dec: 16.5 mas/yr Epoch of Position: 2000	V=13.26
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					

Proposal 14637 - UX UMa (04) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.823 508)	(4) V-UX-UMA	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT	PHASE 0.3 TO 0.6	Sequence 1-10 Non-Int in UX UMa (04)	3 Secs (3 Secs) [==>]	[1]
	2	(STIS.sp.82 3040)	(4) V-UX-UMA	STIS/FUV-MAMA, ACCUM, 0.2X0.2	G140L 1425 A	WAVECAL=NO		Sequence 1-10 Non-Int in UX UMa (04)	480 Secs (480 Secs) [==>]	[1]
	3		WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140L 1425 A			Sequence 1-10 Non-Int in UX UMa (04)	[==>]	[1]
	4		(4) V-UX-UMA	STIS/CCD, ACCUM, 52X0.5E1	G230LB 2375 A	SIZEAXIS2=128		Sequence 1-10 Non-Int in UX UMa (04) Pattern 1, Exps 4-4 in Sequence 1-10 Non-Int in UX UMa (04) (1)	180 Secs (540 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)]	[1]
	5		WAVE	STIS/CCD, ACCUM, 52X0.1	G230LB 2375 A			Sequence 1-10 Non-Int in UX UMa (04)	[==>]	[1]
	6		WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			Sequence 1-10 Non-Int in UX UMa (04)	[==>]	[1]
	7		(4) V-UX-UMA	STIS/CCD, ACCUM, 52X0.5E1	G430L 4300 A	SIZEAXIS2=128		Sequence 1-10 Non-Int in UX UMa (04) Pattern 1, Exps 7-7 in Sequence 1-10 Non-Int in UX UMa (04) (1)	60 Secs (180 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)]	[1]
	8		(4) V-UX-UMA	STIS/CCD, ACCUM, 52X0.5	G750L 7751 A	SIZEAXIS2=512; CR-SPLIT=2; WAVECAL=NO		Sequence 1-10 Non-Int in UX UMa (04)	120 Secs (120 Secs) [==>(Split 1)] [==>(Split 2)]	[1]
	9		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A			Sequence 1-10 Non-Int in UX UMa (04)	[==>]	[1]
	10		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A			Sequence 1-10 Non-Int in UX UMa (04)	5 Secs X 2 (10 Secs) [==>(Copy 1)] [==>(Copy 2)]	[1]



Proposal 14637 - RW Tri (05) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Visit	Proposal 14637, RW Tri (05), implementation Fri Feb 10 02:00:40 GMT 2017				
	Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD, STIS/FUV-MAMA Special Requirements: Period 0.231883392 D AND ZERO-PHASE HJD2457754.696736224				
Patterns	#	Primary Pattern	Secondary Pattern		Exposures
	(1)	Pattern Type=STIS-ALONG-SLIT Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=90.0 Number Of Points=3 Angle Between Sides= Point Spacing=0.4064 Center Pattern=false Line Spacing=			(4), (7)
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes
	(5)	V-RW-TRI	RA: 02 25 36.1500 (36.4006250d) Dec: +28 05 50.90 (28.09747d) Equinox: J2000		V=12.5
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.					

Proposal 14637 - RW Tri (05) - Wide band spectra of nova-like variables: A confrontation of observations with theory

Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	(STIS.ta.823 509)	(5) V-RW-TRI	STIS/CCD, ACQ, F28X50LP	MIRROR	ACQTYPE=POINT	PHASE 0.3 TO 0.6	Sequence 1-10 Non-Int in RW Tri (05)	2 Secs (2 Secs) [==>]	[1]
	2	(STIS.sp.82 4559)	(5) V-RW-TRI	STIS/FUV-MAMA, ACCUM, 0.2X0.2	G140L 1425 A	WAVECAL=NO		Sequence 1-10 Non-Int in RW Tri (05)	440 Secs (440 Secs) [==>]	[1]
	3		WAVE	STIS/FUV-MAMA, ACCUM, 52X0.1	G140L 1425 A			Sequence 1-10 Non-Int in RW Tri (05)	[==>]	[1]
	4		(5) V-RW-TRI	STIS/CCD, ACCUM, 52X0.5E1	G230LB 2375 A	SIZEAXIS2=128		Sequence 1-10 Non-Int in RW Tri (05) Pattern 1, Exps 4-4 in Sequence 1-10 Non-Int in RW Tri (05) (1)	150 Secs (450 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)]	[1]
	5		WAVE	STIS/CCD, ACCUM, 52X0.1	G230LB 2375 A			Sequence 1-10 Non-Int in RW Tri (05)	[==>]	[1]
	6		WAVE	STIS/CCD, ACCUM, 52X0.1	G430L 4300 A			Sequence 1-10 Non-Int in RW Tri (05)	[==>]	[1]
	7		(5) V-RW-TRI	STIS/CCD, ACCUM, 52X0.5E1	G430L 4300 A	SIZEAXIS2=128		Sequence 1-10 Non-Int in RW Tri (05) Pattern 1, Exps 7-7 in Sequence 1-10 Non-Int in RW Tri (05) (1)	60 Secs (180 Secs) [==>(Pattern 1, Split 1)] [==>(Pattern 1, Split 2)] [==>(Pattern 2, Split 1)] [==>(Pattern 2, Split 2)] [==>(Pattern 3, Split 1)] [==>(Pattern 3, Split 2)]	[1]
	8		(5) V-RW-TRI	STIS/CCD, ACCUM, 52X0.5	G750L 7751 A	SIZEAXIS2=256; CR-SPLIT=2		Sequence 1-10 Non-Int in RW Tri (05)	100 Secs (100 Secs) [==>(Split 1)] [==>(Split 2)]	[1]
	9		WAVE	STIS/CCD, ACCUM, 52X0.1	G750L 7751 A			Sequence 1-10 Non-Int in RW Tri (05)	[==>]	[1]
	10		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A			Sequence 1-10 Non-Int in RW Tri (05)	5 Secs X 2 (10 Secs) [==>(Copy 1)] [==>(Copy 2)]	[1]

