



13355 - Uncovering the Nature of the Evolving Remnant Star of a Recent Stellar Merger

Cycle: 21, Proposal Category: GO
(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) NOVA-SCO-2008 (3) S8DQ078415 CCDFLAT	STIS/CCD	1	28-Aug-2013 21:43:58.0	yes
02	(1) NOVA-SCO-2008 (3) S8DQ078415 CCDFLAT	STIS/CCD	1	28-Aug-2013 21:44:07.0	yes
03	(1) NOVA-SCO-2008 (3) S8DQ078415 CCDFLAT	STIS/CCD	1	28-Aug-2013 21:44:15.0	yes
04	(1) NOVA-SCO-2008 (3) S8DQ078415 CCDFLAT	STIS/CCD	1	28-Aug-2013 21:44:22.0	yes

4 Total Orbits Used

ABSTRACT

The 2008 nova of V1309 Sco has been determined to have resulted from a stellar merger between a K giant and a late-type dwarf. This is the first stellar merger ever to be observed during and soon after the event. Mergers are thought to be a significant influence in the evolution of both open and globular clusters as well as the centers of spiral galaxies, but mergers remain a poorly-understood phenomenon because there has been no opportunity before now to study one in progress. No spectra in visible light have been published of the remnant star of V1309 Sco except for a few spectra obtained several months after the merger. Those spectra showed that the merger remnant had many strong emission lines, some of which were anomalous, and that the remnant was evolving dramatically in spectral type. It is important to continue to study the remnant spectroscopically because the merger process and its aftermath are poorly understood. The exact nature of the star which the remnant will become is not known or even theoretically predicted. Visible-light spectra will let us determine the current apparent spectral type. N-body merger models, as well as infrared observations we have obtained after the event, suggest that considerable mass was lost during the merger. Visible-light spectra will help us to learn how much mass was lost, and will help us look for possible identifying clues which could be used to determine whether other novae might have resulted from mergers.

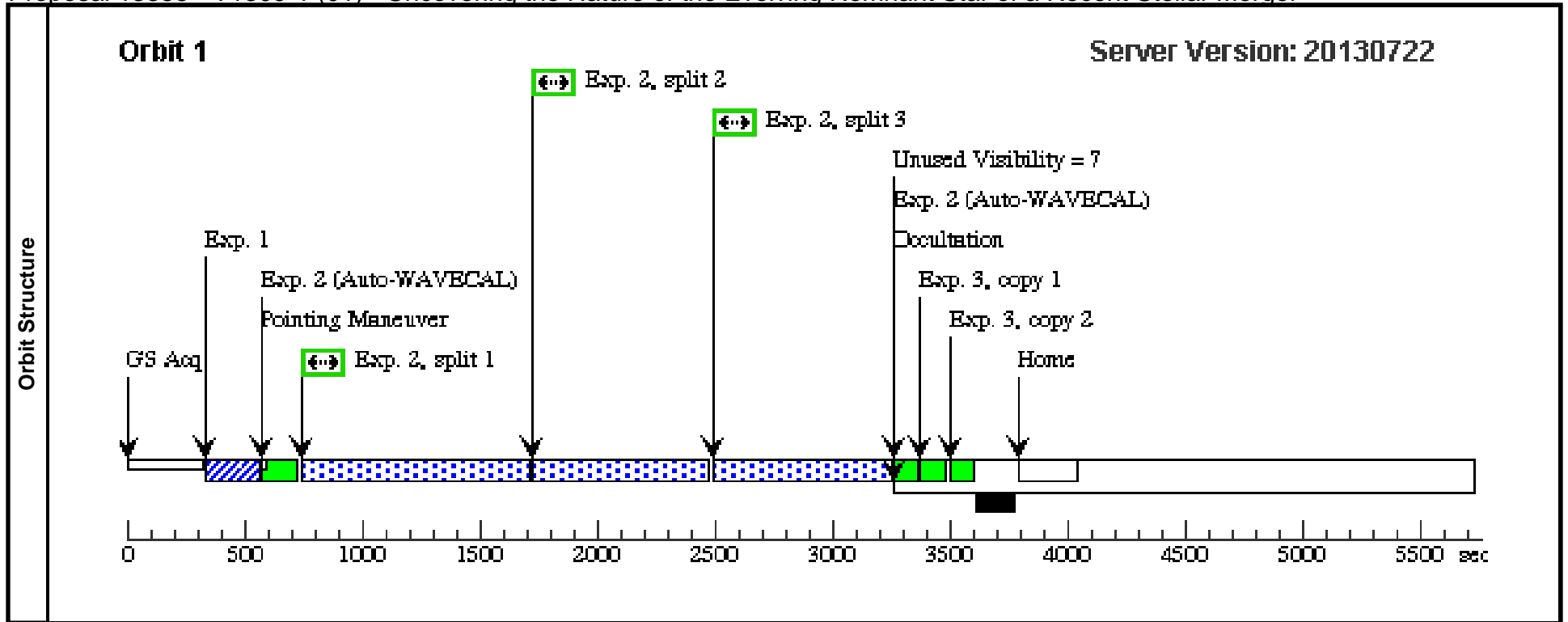
OBSERVING DESCRIPTION

We wish to obtain four exposures (not counting cr-splits) of the same star. We have allocated one visit per orbit. We are going to an offset star about 2.5 arcminutes distant before going to the target because the target is not the brightest object in the pickup field.

Proposal 13355 - V1309-1 (01) - Uncovering the Nature of the Evolving Remnant Star of a Recent Stellar Merger

Thu Aug 29 01:44:29 GMT 2013

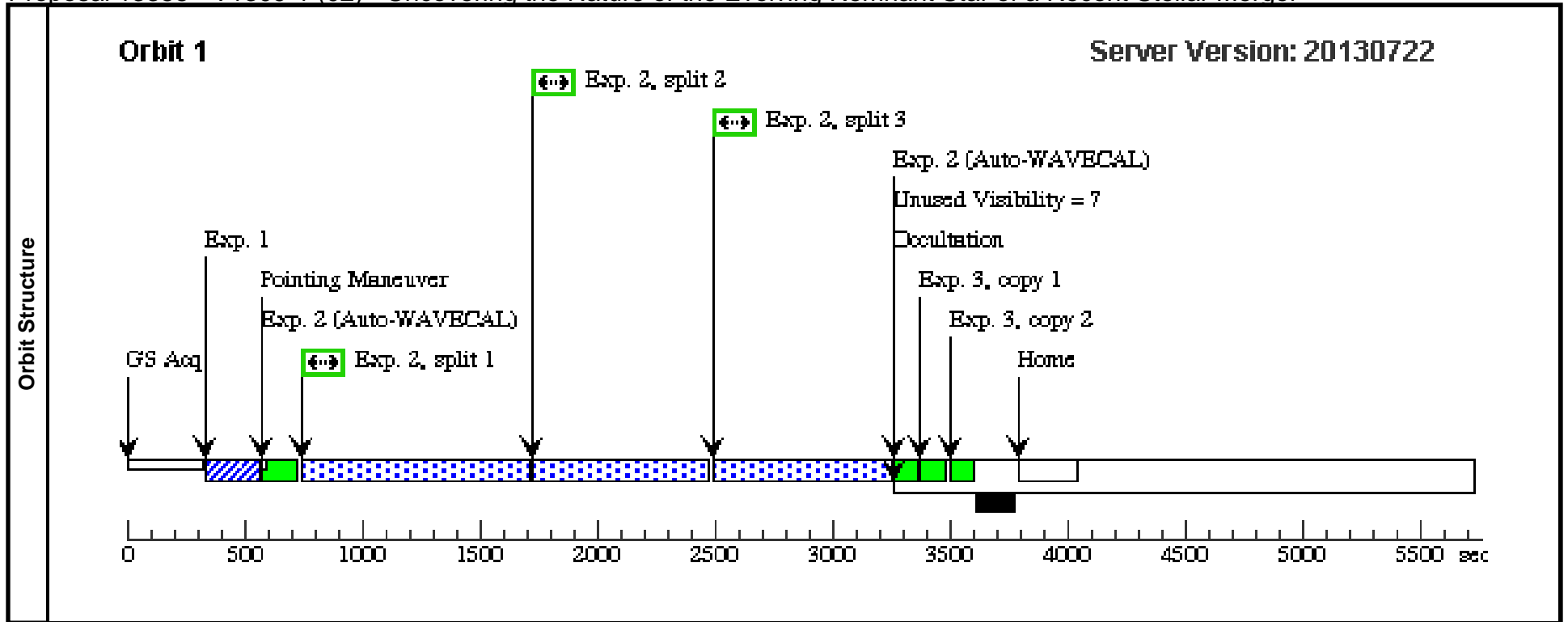
Visit	Proposal 13355, V1309-1 (01), implementation Diagnostic Status: Warning Scientific Instruments: STIS/CCD Special Requirements: (none)									
	(V1309-1 (01)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NOVA-SCO-2008	Offset from S8DQ078415 RA Offset: -0.504 Secs Dec Offset: 25.81 Arcsec		V=19	Offset Position (NOVA-SCO-2008)				
	<i>Comments: The coordinates of this object were obtained from WCF3 images taken in 2012.</i>									
(3)	S8DQ078415	RA: 17 57 33.4340 (269.3893083d) Dec: -30 43 35.90 (-30.72664d) Equinox: J2000	Epoch of Position: 2012.2		V=16.2108	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database.</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Offset star (STIS.ta.517 215)	(3) S8DQ078415	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) [==>]	[1]
	2	V1309 exposure 1	(1) NOVA-SCO-2008	STIS/CCD, ACCUM, 52X2	G750L 7751 A	CR-SPLIT=3			1000 Secs (2333.6 Secs) [==>889.0 Secs (Split 1)] [==>722.3 Secs (Split 2)] [==>722.3 Secs (Split 3)]	[1]
	3		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]



Proposal 13355 - V1309-1 (02) - Uncovering the Nature of the Evolving Remnant Star of a Recent Stellar Merger

Thu Aug 29 01:44:31 GMT 2013

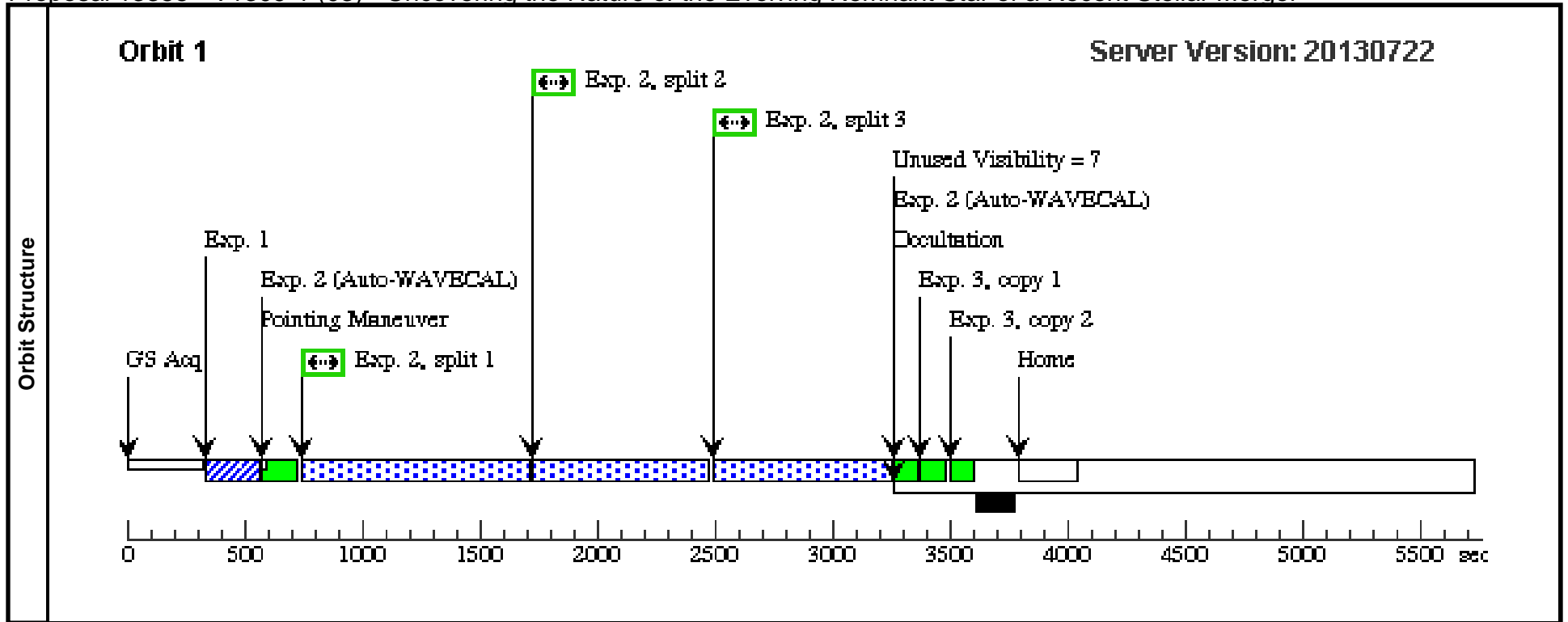
Visit	Proposal 13355, V1309-1 (02) Diagnostic Status: Warning Scientific Instruments: STIS/CCD Special Requirements: (none)									
	(V1309-1 (02)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NOVA-SCO-2008	Offset from S8DQ078415 RA Offset: -0.504 Secs Dec Offset: 25.81 Arcsec		V=19	Offset Position (NOVA-SCO-2008)				
	<i>Comments: The coordinates of this object were obtained from WCF3 images taken in 2012.</i>									
(3)	S8DQ078415	RA: 17 57 33.4340 (269.3893083d) Dec: -30 43 35.90 (-30.72664d) Equinox: J2000	Epoch of Position: 2012.2	V=16.2108	Reference Frame: ICRS					
<i>Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database.</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Offset star (STIS.ta.517 215)	(3) S8DQ078415	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) [==>]	[1]
	2	V1309 exposure 1	(1) NOVA-SCO-2008	STIS/CCD, ACCUM, 52X2	G750L 7751 A	CR-SPLIT=3			1000 Secs (2333.6 Secs) [==>889.0 Secs (Split 1)] [==>722.3 Secs (Split 2)] [==>722.3 Secs (Split 3)]	[1]
	3		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]



Proposal 13355 - V1309-1 (03) - Uncovering the Nature of the Evolving Remnant Star of a Recent Stellar Merger

Thu Aug 29 01:44:32 GMT 2013

Visit	Proposal 13355, V1309-1 (03) Diagnostic Status: Warning Scientific Instruments: STIS/CCD Special Requirements: (none)									
	(V1309-1 (03)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NOVA-SCO-2008	Offset from S8DQ078415 RA Offset: -0.504 Secs Dec Offset: 25.81 Arcsec		V=19	Offset Position (NOVA-SCO-2008)				
	<i>Comments: The coordinates of this object were obtained from WCF3 images taken in 2012.</i>									
(3)	S8DQ078415	RA: 17 57 33.4340 (269.3893083d) Dec: -30 43 35.90 (-30.72664d) Equinox: J2000	Epoch of Position: 2012.2		V=16.2108	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database.</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Offset star (STIS.ta.517 215)	(3) S8DQ078415	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) [==>]	[1]
	2	V1309 exposure 1	(1) NOVA-SCO-2008	STIS/CCD, ACCUM, 52X2	G750L 7751 A	CR-SPLIT=3			1000 Secs (2333.6 Secs) [==>889.0 Secs (Split 1)] [==>722.3 Secs (Split 2)] [==>722.3 Secs (Split 3)]	[1]
	3		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]



Proposal 13355 - V1309-1 (04) - Uncovering the Nature of the Evolving Remnant Star of a Recent Stellar Merger

Thu Aug 29 01:44:33 GMT 2013

Visit	Proposal 13355, V1309-1 (04) Diagnostic Status: Warning Scientific Instruments: STIS/CCD Special Requirements: (none)									
	Diagnosics (V1309-1 (04)) Warning (Orbit Planner): NO PLATE ID SPECIFIED FOR FIXED TARGET									
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	NOVA-SCO-2008	Offset from S8DQ078415 RA Offset: -0.504 Secs Dec Offset: 25.81 Arcsec		V=19	Offset Position (NOVA-SCO-2008)				
	<i>Comments: The coordinates of this object were obtained from WCF3 images taken in 2012.</i>									
(3)	S8DQ078415	RA: 17 57 33.4340 (269.3893083d) Dec: -30 43 35.90 (-30.72664d) Equinox: J2000	Epoch of Position: 2012.2		V=16.2108	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the GSC 2.3 database.</i>										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	Offset star (STIS.ta.517 215)	(3) S8DQ078415	STIS/CCD, ACQ, F28X50LP	MIRROR				0.2 Secs (0.2 Secs) [==>]	[1]
	2	V1309 exposure 1	(1) NOVA-SCO-2008	STIS/CCD, ACCUM, 52X2	G750L 7751 A	CR-SPLIT=3			1000 Secs (2333.6 Secs) [==>889.0 Secs (Split 1)] [==>722.3 Secs (Split 2)] [==>722.3 Secs (Split 3)]	[1]
	3		CCDFLAT	STIS/CCD, ACCUM, 0.3X0.09	G750L 7751 A				[==>(Copy 1)] [==>(Copy 2)]	[1]

