



18214 - Spectral Synergy of SN2023ixf: A unique insight into a nearby, radio- bright core-collapse supernovae.

Cycle: 33, Proposal Category: GO/DD

(Availability Mode: SUPPORTED)

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Conor Ransome (PI) (Contact)	University of Arizona
Dr. Joanne Pledger (CoI) (ESA Member)	University of Central Lancashire
Dr. Megan Argo (CoI) (ESA Member)	University of Central Lancashire
Diane Swan (CoI) (ESA Member)	University of Central Lancashire

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) SN-2023IXF (2) SN23IXF-OFFSET-LEGACY5313 CCDFLAT	STIS/CCD	1	04-Nov-2025 19:00:14.0	yes
02	(1) SN-2023IXF (2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	04-Nov-2025 19:00:15.0	yes
03	(1) SN-2023IXF (2) SN23IXF-OFFSET-LEGACY5313 CCDFLAT	STIS/CCD	1	04-Nov-2025 19:00:15.0	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	(1) SN-2023IXF (2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD STIS/FUV-MAMA STIS/NUV-MAMA	2	04-Nov-2025 19:00:16.0	yes

6 Total Orbits Used

ABSTRACT

SN2023ixf has been one of the most studied core collapse supernova, although it has faded in the optical domain, the transient has become bright in the radio. A recent re-brightening event offers a unique opportunity to extend the multi-domain observations of this object in the optical and radio. There is a Rapid Response Time proposal was granted using eMERLIN VLBI to make a series of 5 observations, of which the first two have been completed with a clear detection of the order of 1 mJy. However, the insights provided by the UV and optical spectra will provide a detailed analysis of the CSM conditions and shockwave characteristics. HST remains the only instrument capable of providing the spectra for SN2023ixf at this late stage, as we require the UV, and M101 is a Spring target. The combination of data in these domains will provide a clear understanding of CSM properties at the current shockwave radius and a direct insight into the progenitor history. The interaction of the CSM properties and the shockwave, creating the synchrotron radio emission, will constrain the power law arguments related to CSM density changes with time and distance. In addition, provide a test for recent considerations of alternatives to CSM density as a the sole cause of deviation from power law models in the radio domain.

OBSERVING DESCRIPTION

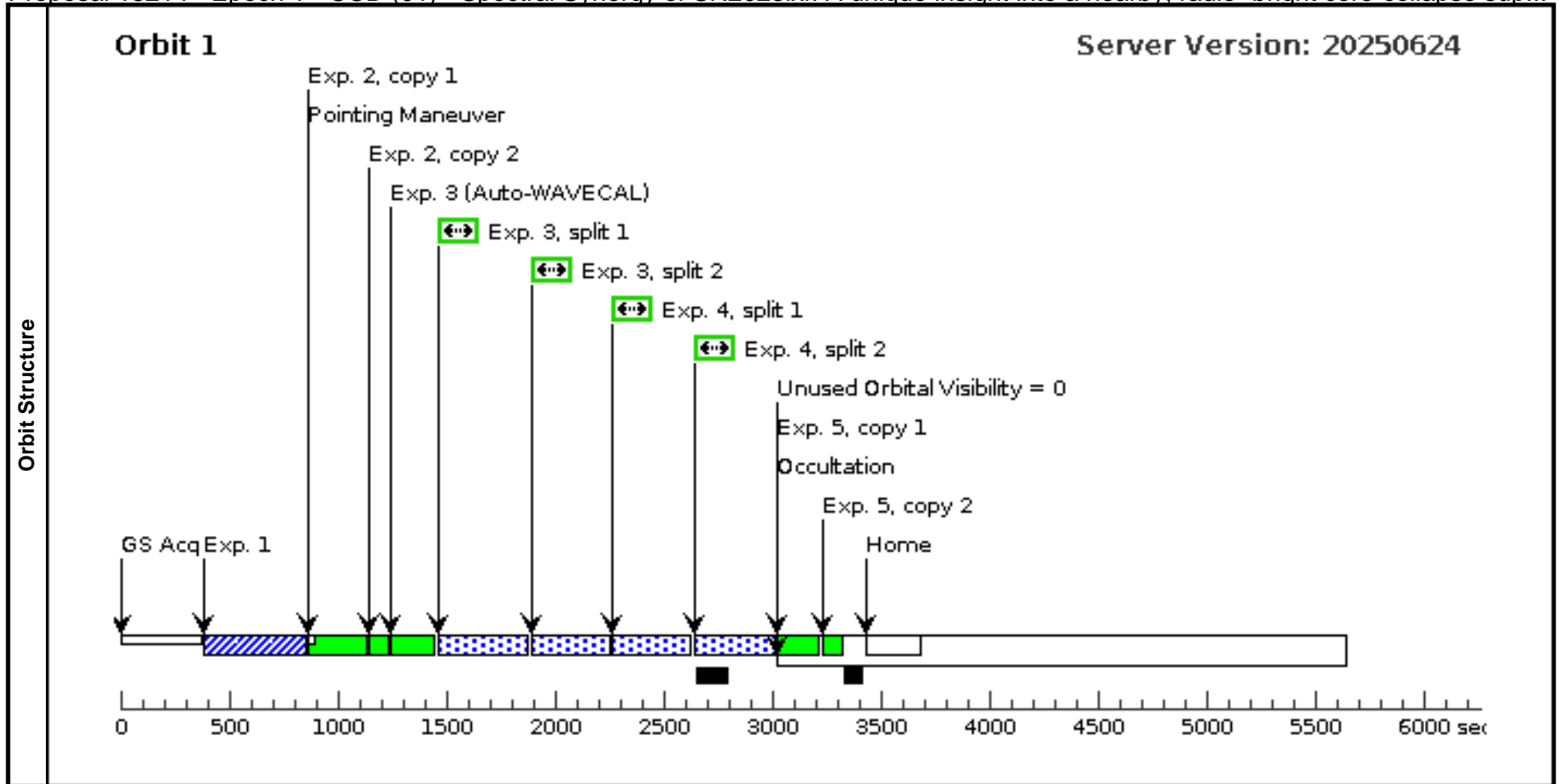
This program is to observe SN 2023ixf from the optical to the FUV. The first epoch is 2 orbits, and will be scheduled as a single visit before Nov 8 2025.

The subsequent epochs (also 2 orbits each), will repeat the same setup, with the second epoch taking place between 10-15 days after the 1st epoch. The 3rd epoch being 10-15 days after the 2nd epoch. However, if we do not see significant evolution, we will forego the third epoch, unless there is unexpected evolution in our radio observations. The faintest SN 2023ixf will be at this phase is $V=23$ mag.

Proposal 18214 - Epoch 1 - CCD (01) - Spectral Synergy of SN2023ixf: A unique insight into a nearby, radio- bright core-collapse sup...

Wed Nov 05 00:00:16 GMT 2025

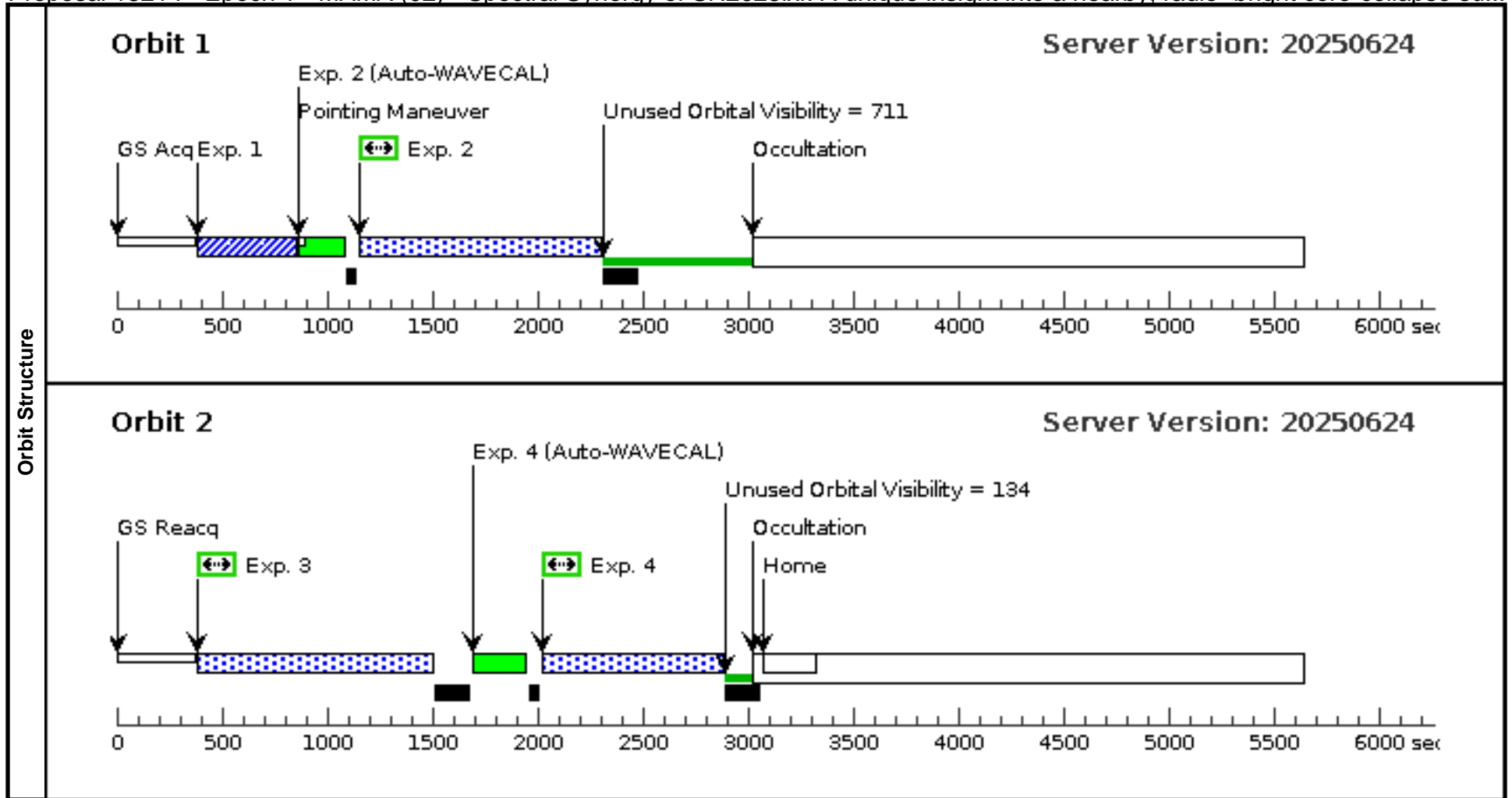
Visit	Proposal 18214, Epoch 1 - CCD (01), implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: BEFORE 24-NOV-2025:00:00:00: GROUP 01.02 WITHIN 24H; TOO RESPONSE TIME 3.0D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(1)		SN-2023IXF	RA: 14 03 38.5628 (210.9106783d) Dec: +54 18 41.94 (54.31165d) Equinox: J2000	Epoch of Position: 2000	V=23+/-0.1	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i> Category=STAR Description=[CIRCUMSTELLAR MATTER, SUPERNOVA, SUPERNOVA TYPE II] Extended=NO										
(2)	SN23IXF-OFFSET-LEGACY5313	RA: 14 03 39.8499 (210.9160413d) Dec: +54 18 6.99 (54.30194d) Equinox: J2000		V=20.5	Reference Frame: ICRS					
<i>Comments: g=20.48, r=20.43, z=20.39</i> Category=EXT-STAR Description=[K V-IV]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA	(2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
									[==>]	[1]
	2	FLAT	CCDFLAT	STIS/CCD, ACCUM, 52X0.5	G750M 6768 A				[==>(Copy 1)] [==>(Copy 2)]	[1]
	3	OPT (STIS.sp.22 02704)	(1) SN-2023IXF	STIS/CCD, ACCUM, 52X0.5E1	G750M 6581 A				650 Secs (664 Secs) [==>332.0 Secs (Split 1)] [==>332.0 Secs (Split 2)]	[1]
	4	OPT (STIS.sp.22 02704)	(1) SN-2023IXF	STIS/CCD, ACCUM, 52X0.5E1	G750M 6581 A				650 Secs (664 Secs) [==>332.0 Secs (Split 1)] [==>332.0 Secs (Split 2)]	[1]
5	FLAT	CCDFLAT	STIS/CCD, ACCUM, 52X0.5	G750M 6768 A				[==>(Copy 1)] [==>(Copy 2)]	[1]	



Proposal 18214 - Epoch 1 - MAMA (02) - Spectral Synergy of SN2023ixf: A unique insight into a nearby, radio- bright core-collapse su...

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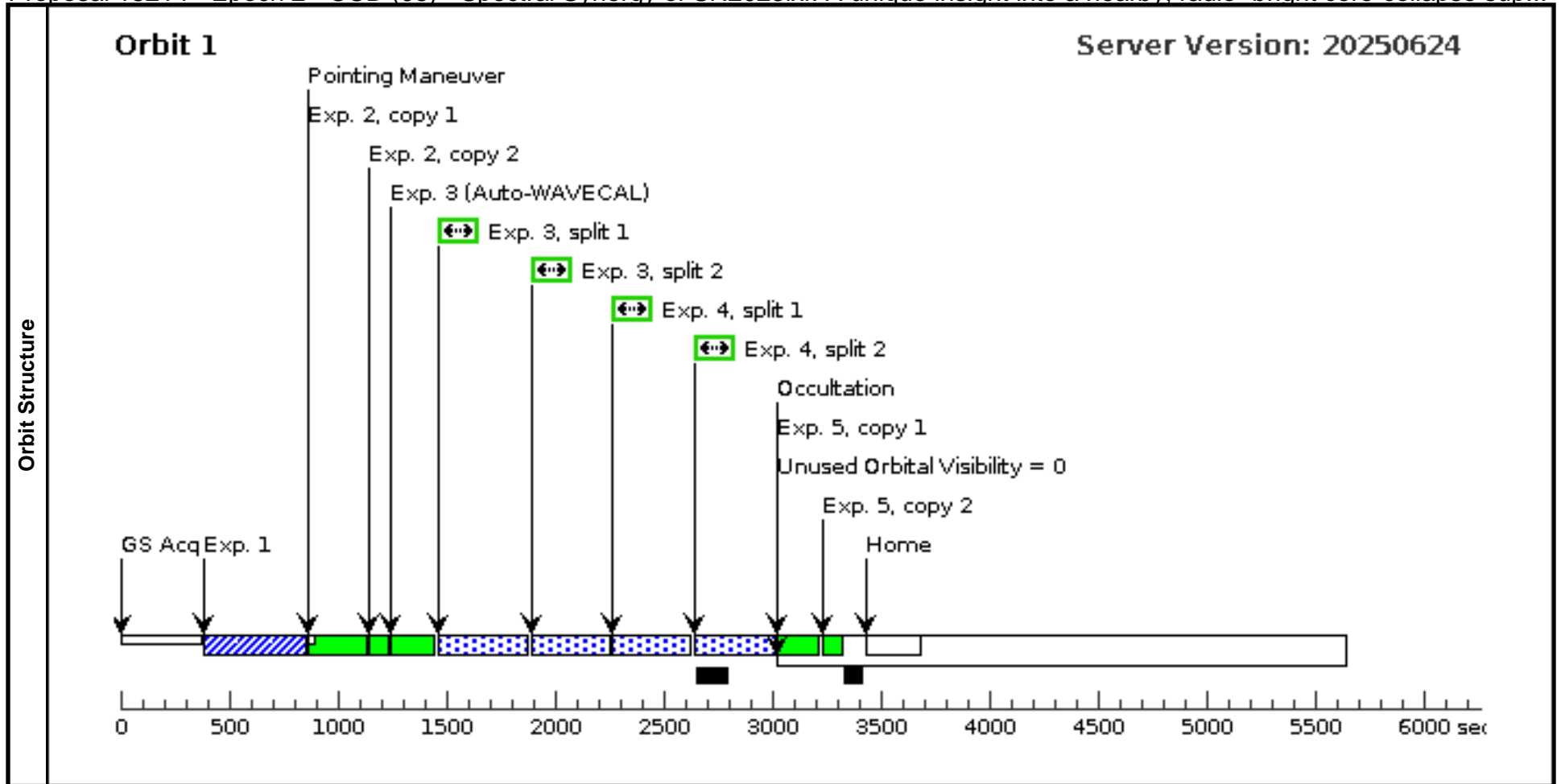
Visit	Proposal 18214, Epoch 1 - MAMA (02), implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA Special Requirements: BEFORE 24-NOV-2025:00:00:00: TOO RESPONSE TIME 3.0D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(1)		SN-2023IXF	RA: 14 03 38.5628 (210.9106783d) Dec: +54 18 41.94 (54.31165d) Equinox: J2000	Epoch of Position: 2000	V=23+/-0.1	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i> Category=STAR Description=[CIRCUMSTELLAR MATTER, SUPERNOVA, SUPERNOVA TYPE II] Extended=NO										
(2)	SN23IXF-OFFSET-LEGACY5313	RA: 14 03 39.8499 (210.9160413d) Dec: +54 18 6.99 (54.30194d) Equinox: J2000		V=20.5	Reference Frame: ICRS					
<i>Comments: g=20.48, r=20.43, z=20.39</i> Category=EXT-STAR Description=[K V-IV]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA	(2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
									[==>]	[1]
	2	NUV (STIS.sp.21 99927)	(1) SN-2023IXF	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=55 5			1110 Secs (1110 Secs)	
									[==>]	[1]
3	NUV (STIS.sp.21 99927)	(1) SN-2023IXF	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=55 5			1110 Secs (1110 Secs)		
								[==>]	[2]	
4	FUV (STIS.sp.22 02733)	(1) SN-2023IXF	STIS/FUV-MAMA, TIME-TAG, 52X0.5	G140L 1425 A	BUFFER-TIME=40 0			800 Secs (800 Secs)		
								[==>]	[2]	



Proposal 18214 - Epoch 2 - CCD (03) - Spectral Synergy of SN2023ixf: A unique insight into a nearby, radio- bright core-collapse sup...

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Visit	Proposal 18214, Epoch 2 - CCD (03), implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/CCD Special Requirements: AFTER 02 BY 10 D TO 15 D; GROUP 03,04 WITHIN 24H; TOO RESPONSE TIME 3.0D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(1)		SN-2023IXF	RA: 14 03 38.5628 (210.9106783d) Dec: +54 18 41.94 (54.31165d) Equinox: J2000	Epoch of Position: 2000	V=23+/-0.1	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i> Category=STAR Description=[CIRCUMSTELLAR MATTER, SUPERNOVA, SUPERNOVA TYPE II] Extended=NO										
(2)	SN23IXF-OFFSET-LEGACY5313	RA: 14 03 39.8499 (210.9160413d) Dec: +54 18 6.99 (54.30194d) Equinox: J2000		V=20.5	Reference Frame: ICRS					
<i>Comments: g=20.48, r=20.43, z=20.39</i> Category=EXT-STAR Description=[K V-IV]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA	(2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
									[==>]	[1]
	2	FLAT	CCDFLAT	STIS/CCD, ACCUM, 52X0.5	G750M 6768 A				[==>(Copy 1)] [==>(Copy 2)]	[1]
	3	OPT (STIS.sp.22 02704)	(1) SN-2023IXF	STIS/CCD, ACCUM, 52X0.5E1	G750M 6581 A				650 Secs (664 Secs) [==>332.0 Secs (Split 1)] [==>332.0 Secs (Split 2)]	[1]
	4	OPT (STIS.sp.22 02704)	(1) SN-2023IXF	STIS/CCD, ACCUM, 52X0.5E1	G750M 6581 A				650 Secs (664 Secs) [==>332.0 Secs (Split 1)] [==>332.0 Secs (Split 2)]	[1]
5	FLAT	CCDFLAT	STIS/CCD, ACCUM, 52X0.5	G750M 6768 A				[==>(Copy 1)] [==>(Copy 2)]	[1]	



Proposal 18214 - Epoch 2 - MAMA (04) - Spectral Synergy of SN2023ixf: A unique insight into a nearby, radio- bright core-collapse su...

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Visit	Proposal 18214, Epoch 2 - MAMA (04), implementation Diagnostic Status: No Diagnostics Scientific Instruments: STIS/NUV-MAMA, STIS/CCD, STIS/FUV-MAMA Special Requirements: TOO RESPONSE TIME 3.0D									
	Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous			
(1)		SN-2023IXF	RA: 14 03 38.5628 (210.9106783d) Dec: +54 18 41.94 (54.31165d) Equinox: J2000	Epoch of Position: 2000	V=23+/-0.1	Reference Frame: ICRS				
<i>Comments: This object was generated by the targetselector and retrieved from the NED database.</i> Category=STAR Description=[CIRCUMSTELLAR MATTER, SUPERNOVA, SUPERNOVA TYPE II] Extended=NO										
(2)	SN23IXF-OFFSET-LEGACY5313	RA: 14 03 39.8499 (210.9160413d) Dec: +54 18 6.99 (54.30194d) Equinox: J2000		V=20.5	Reference Frame: ICRS					
<i>Comments: g=20.48, r=20.43, z=20.39</i> Category=EXT-STAR Description=[K V-IV]										
Exposures	#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	TA	(2) SN23IXF-OFFSET-LEGACY5313	STIS/CCD, ACQ, F28X50LP	MIRROR				60 Secs (60 Secs)	
									[==>]	[1]
	2	NUV (STIS.sp.21 99927)	(1) SN-2023IXF	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=55 5			1110 Secs (1110 Secs)	
									[==>]	[1]
3	NUV (STIS.sp.21 99927)	(1) SN-2023IXF	STIS/NUV-MAMA, TIME-TAG, 52X0.5	G230L 2376 A	BUFFER-TIME=55 5			1110 Secs (1110 Secs)		
								[==>]	[2]	
4	FUV (STIS.sp.22 02733)	(1) SN-2023IXF	STIS/FUV-MAMA, TIME-TAG, 52X0.5	G140L 1425 A	BUFFER-TIME=40 0			800 Secs (800 Secs)		
								[==>]	[2]	

