



1526 - MRS Astrometry

Cycle: 1, Proposal Category: CAL/MIRI

INVESTIGATORS

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OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
LMC Bar PosA MRS SHORT				
	1	MRS SHORT + F770 W D1_D4	MIRI Medium Resolution Spectroscopy	(1) LMC-STAR-A
LMC Bar PosA MRS MEDIUM				
	2	MRS MEDIUM + F560 W D1_D4	MIRI Medium Resolution Spectroscopy	(1) LMC-STAR-A
LMC Bar PosA MRS LONG				
	3	MRS LONG + F2100 W D17_D20	MIRI Medium Resolution Spectroscopy	(1) LMC-STAR-A

ABSTRACT

This activity will monitor the accuracy of the mapping of astrometric position in the sky to x,y pixel coordinates on the two MRS detectors. It will observe a region within the JWST astrometric field with the MRS, MIRI imager, and FGS simultaneously with the goal of measuring the location of the MRS field in V2,V3 space, the distortion across the MRS field of view, and the same quantities in the MIRI imaging field. Distortion in the MRS is particularly important to monitor throughout the mission; the relative positions of the field of views are not expected to change substantially after commissioning, and this activity will demonstrate that near the end of Cycle 1.

Targets and observing strategy for this programme are based on commissioning activity CAR-MIRI-007 (program 1024) and OTE-34 (program

This calibration program is provisional and may change in response to system developments and the final science program.

OBSERVING DESCRIPTION

The plate scale and geometric distortion of the MIRI Imager (MIRIM) and MRS will be measured using dithered pointing observations of the JWST astrometric calibration field. A moderately bright (~ 6 milliJansky at 5 microns) star will be observed with the MRS at 4 dither offset positions.

Simultaneous exposures with the MIRI Imager (using fainter stars than for the MRS to leverage the difference in sensitivity between imager and MRS), will provide thousands of centroids which will be used to solve for the transforms between MIRIM and MRS detector coordinates and sky (V_2, V_3) coordinates; (see, e.g., <https://github.com/STScI-MIRI/miricoord/>)

TIMING CONSTRAINTS

The target is in the CVZ.

This observation should be executed in Months 4-6 of Cycle 1.

The timing constraints have been set assuming a launch on 25 Dec 2021 and the beginning of Cycle 1 on 23 Jun 2022.

Missed or failed observations should be made up as soon as possible, ideally within the requested window.

TARGETS

This APT file includes a backup target which is not currently scheduled for observation.

Proposal 1526 - Targets - MRS Astrometry

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	LMC-STAR-A	RA: 05 21 52.2463 (80.4676929d) Dec: -69 30 51.05 (-69.51418d) Equinox: J2000 <i>Comments: Coordinates from Anderson's JWST astrometric catalogue</i> <i>Category=Calibration</i> <i>Description=[Aperture location, Astrometric, External flat field, Telescope/sky background]</i> <i>Extended=NO</i>	Epoch of Position: 2000	
(2)	LMC-STAR-BACKUP	RA: 05 22 2.0669 (80.5086121d) Dec: -69 30 38.74 (-69.51076d) Equinox: J2000 <i>Comments: Coordinates from Anderson's JWST astrometric catalogue</i> <i>Category=Calibration</i> <i>Description=[Aperture location, Astrometric, External flat field, Telescope/sky background]</i> <i>Extended=NO</i>	Proper Motion RA: 25.0 mas/yr Proper Motion Dec: -43.5 mas/yr Epoch of Position: 2000		

Proposal 1526 - Observation 1 - MRS Astrometry

Mon Nov 07 18:02:40 GMT 2022

Observation	Proposal 1526, Observation 1: MRS SHORT + F770W D1_D4 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Coordinated Parallel Template(s): FGS External Calibration Comments: Need MRS dither patterns												
	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(1)	LMC-STAR-A	RA: 05 21 52.2463 (80.4676929d) Dec: -69 30 51.05 (-69.51418d) Equinox: J2000			Epoch of Position: 2000							
Comments: Coordinates from Anderson's JWST astrometric catalogue Category=Calibration Description=[Aperture location, Astrometric, External flat field, Telescope/sky background] Extended=NO													
Acquisition	MIRI Medium Resolution Spectroscopy	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC	Wkbk.Calc	Calc ID		
	1	1 LMC-STAR-A	F1000W	FAST	6	1	1	16.65			17925		
Template	MIRI Medium Resolution Spectroscopy						FGS External Calibration						
	AcqTarget: 1 LMC-STAR-A AcqFilter: F1000W Primary Channel: ALL Simultaneous Imaging: YES Imager Subarray: FULL						Target type: IMAGE Detector: GUIDER2						
Dithers	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT SOURCE			POSITIVE					
Spectral Elements	MIRI Medium Resolution Spectroscopy	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F770W	FASTR1	10	10	1	Dither 1	4	40	1209.917	17925
	1	SHORT(A)	MRSLONG		FASTR1	10	10	1	Dither 1	4	40	1209.917	17925
	1	SHORT(A)	MRSSHORT		FASTR1	10	10	1	Dither 1	4	40	1209.917	17925

Proposal 1526 - Observation 1 - MRS Astrometry

Spectral Elements	FGS External Calibration	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Cale ID
1		FGSRAPID	4	5	4	20	1073.677	
Special Requirements	Between Dates 01-MAR-2023:00:00:00 and 31-MAY-2023:00:00:00 No Parallel Guide Star in Guider 1 Sequence Observations 1, 2, 3, Non-interruptible							

Proposal 1526 - Observation 2 - MRS Astrometry

Mon Nov 07 18:02:40 GMT 2022

Observation	Proposal 1526, Observation 2: MRS MEDIUM + F560W D1_D4 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Coordinated Parallel Template(s): FGS External Calibration												
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates				Targ. Coord. Corrections			Miscellaneous			
	(1)	LMC-STAR-A	RA: 05 21 52.2463 (80.4676929d) Dec: -69 30 51.05 (-69.51418d) Equinox: J2000				Epoch of Position: 2000						
<i>Comments: Coordinates from Anderson's JWST astrometric catalogue</i> <i>Category=Calibration</i> <i>Description=[Aperture location, Astrometric, External flat field, Telescope/sky background]</i> <i>Extended=NO</i>													
Acquisition	MIRI Medium Resolution Spectroscopy	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC	Wkbk.Calc ID			
	1	1 LMC-STAR-A	F1000W	FAST	6	1	1	16.65	17925				
Template	MIRI Medium Resolution Spectroscopy						FGS External Calibration						
	AcqTarget: 1 LMC-STAR-A AcqFilter: F1000W Primary Channel: ALL Simultaneous Imaging: YES Imager Subarray: FULL						Target type: IMAGE Detector: GUIDER2						
Dithers	#	Dither Type				Optimized For			Direction				
	1	4-Point				POINT SOURCE			POSITIVE				
Spectral Elements	MIRI Medium Resolution Spectroscopy	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F560W	FASTR1	10	10	1	Dither 1	4	40	1209.917	
	1	MEDIUM(B)	MRSLONG		FASTR1	10	10	1	Dither 1	4	40	1209.917	
	1	MEDIUM(B)	MRSSHORT		FASTR1	10	10	1	Dither 1	4	40	1209.917	

Proposal 1526 - Observation 2 - MRS Astrometry

Spectral Elements	FGS External Calibration	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Cale ID
		1	FGSRAPID	4	5	4	20	1073.677
Special Requirements	No Parallel Guide Star in Guider 1 Sequence Observations 1, 2, 3, Non-interruptible							

Proposal 1526 - Observation 3 - MRS Astrometry

Mon Nov 07 18:02:40 GMT 2022

Observation	Proposal 1526, Observation 3: MRS LONG + F2100W D17_D20 Diagnostic Status: Warning Observing Template: MIRI Medium Resolution Spectroscopy Coordinated Parallel Template(s): FGS External Calibration												
	(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous				
	(1)	LMC-STAR-A	RA: 05 21 52.2463 (80.4676929d) Dec: -69 30 51.05 (-69.51418d) Equinox: J2000			Epoch of Position: 2000							
<i>Comments: Coordinates from Anderson's JWST astrometric catalogue</i> <i>Category=Calibration</i> <i>Description=[Aperture location, Astrometric, External flat field, Telescope/sky background]</i> <i>Extended=NO</i>													
Acquisition	MIRI Medium Resolution Spectroscopy	Target	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC	Wkbk.Calc	Calc ID		
	1	1 LMC-STAR-A	F1000W	FAST	6	1	1	16.65			17925		
Template	MIRI Medium Resolution Spectroscopy						FGS External Calibration						
	AcqTarget: 1 LMC-STAR-A AcqFilter: F1000W Primary Channel: ALL Simultaneous Imaging: YES Imager Subarray: FULL						Target type: IMAGE Detector: GUIDER2						
Dithers	#	Dither Type			Optimized For			Direction					
	1	4-Point			POINT SOURCE			POSITIVE					
Spectral Elements	MIRI Medium Resolution Spectroscopy	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1		IMAGER	F1000W	FASTR1	10	10	1	Dither 1	4	40	1209.917	
	1	LONG(C)	MRSLONG		FASTR1	10	10	1	Dither 1	4	40	1209.917	
	1	LONG(C)	MRSSHORT		FASTR1	10	10	1	Dither 1	4	40	1209.917	

Proposal 1526 - Observation 3 - MRS Astrometry

Spectral Elements	FGS External Calibration	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Cale ID
		1	FGSRAPID	4	5	4	20	1073.677
Special Requirements	No Parallel Guide Star in Guider 1 Sequence Observations 1, 2, 3, Non-interruptible							