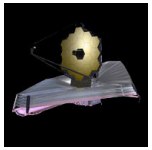

1481 - Coronagraphic Distortion Monitor

Cycle: 1, Proposal Category: CAL/NIRCAM

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1	Lyot Wedges Astrometric Calibration Epoch 1	NIRCam Engineering Imaging	(1) LMC-ASTROMETRIC-FIELD
	2	Lyot Wedges Astrometric Calibration Epoch 2	NIRCam Engineering Imaging	(1) LMC-ASTROMETRIC-FIELD

ABSTRACT

This program monitors the NIRCam coronagraphic distortion/astrometry. Commissioning will determine the absolute distortion solution to within 3 mas. In cycle 1, we will revisit the LMC calibration field twice to monitor changes. This will involve observing stars behind the ND squares as well as in the vicinity of the coronagraphic masks to quantify the distortion behind the coronagraphic substrate. We will use the NIRCam Engineering Imaging template to observe with the FULL array, including dithers and a mosaic to overlap the shortwave (SW) detectors (an important cross-check). Since only module A is enabled for science observations, we will restrict detector overlap to the 2 SW detectors used for coronagraphy on module A.

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

OBSERVING DESCRIPTION

June 29, 2022 MBoyer

- Added FGS1 in parallel for obs 1 and FGS2 in parallel for obs 2.
- adjusted pointnig so that modA is at the center of the HST calibration field

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Sep 2020 MBoyer

Added timing constraints that reflect the Oct 31, 2021 launch

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Nov 2019 MBoyer

With the CLEAR element in the pupil wheel, we will use the BRIGHT1 readout pattern with 2 groups and 2 integrations. With the MASKRND and MASKBAR elements, we will use the SHALLOW2 readout with 4 groups and 2 integrations. A 2-point small INTRAMODULEBOX primary dither will be used, along with a 1x2 mosaic with 80% column overlap to ensure that SCAs A2 and A4 overlap. All setups will use the F210M and F335M filters.

TIMING CONSTRAINTS: Two epochs, ~6 month separation. The first epoch should be scheduled 2-3 months after the associated commissioning program.

NOTE THAT A SPECIAL REQUIREMENT FOR THE TIMING OF EPOCH 1 NEEDS TO BE ADDED ONCE COMMISSIONING DATES ARE KNOWN

Proposal 1481 - Targets - Coronagraphic Distortion Monitor

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	LMC-ASTROMETRIC-FIELD	RA: 05 21 57.0000 (80.4875000d) Dec: -69 29 51.00 (-69.49750d) Equinox: J2000		

Comments: This target is the LMC astrometric field that has been previously mapped using ACS on HST.
Category=Calibration
Description=[Astrometric]

Observation

Proposal 1481, Observation 1: Lyot Wedges Astrometric Calibration Epoch 1 Wed Jun 29 21:00:48 GMT 2022

Diagnostic Status: Warning

Observing Template: NIRCam Engineering Imaging

Coordinated Parallel Template(s): FGS External Calibration

Diagnostics

(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 1:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	LMC-ASTROMETRIC-FIELD	RA: 05 21 57.0000 (80.4875000d) Dec: -69 29 51.00 (-69.49750d) Equinox: J2000		

Comments: This target is the LMC astrometric field that has been previously mapped using ACS on HST.
Category=Calibration
Description=[Astrometric]

Template

NIRCam Engineering Imaging	FGS External Calibration
Module: ALL	Target type: IMAGE
Subarray: FULL	Detector: GUIDER1

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift	Column shift	Tile Order
1	2	10.0	80.0	0.0	0.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	2	STANDARD		1

Spectral Elements

NIRCam Engineering Imaging	Short Pupil	Long Pupil	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	CLEAR	CLEAR	F210M	F335M	BRIGHT1	2	2	4	2	150.315	
2	MASKRND	MASKRND	F210M	F335M	SHALLOW2	4	2	4	2	751.574	
3	MASKBAR	MASKBAR	F210M	F335M	SHALLOW2	4	2	4	2	751.574	

Spectral Elements

FGS External Calibration	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	FGSRAPID	4	1	2	2	107.368	
2	FGS	3	1	2	2	279.156	
3	FGS	3	1	2	2	279.156	

Special Requirements	
	Between Dates 01-SEP-2022:00:00:00 and 01-NOV-2022:00:00:00 Sequence Visits within 53.0 Days Visits Same PA Offset -75.0 arcsec, 0.0 arcsec No Parallel Guide Star in Guider 2 2 After 1 by 150 Days to 200 Days

Observation

Proposal 1481, Observation 2: Lyot Wedges Astrometric Calibration Epoch 2 Wed Jun 29 21:00:48 GMT 2022

Diagnostic Status: Warning

Observing Template: NIRCam Engineering Imaging

Coordinated Parallel Template(s): FGS External Calibration

Diagnostics

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 2:2) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	LMC-ASTROMETRIC-FIELD	RA: 05 21 57.0000 (80.4875000d) Dec: -69 29 51.00 (-69.49750d) Equinox: J2000		

Comments: This target is the LMC astrometric field that has been previously mapped using ACS on HST.
Category=Calibration
Description=[Astrometric]

Template

NIRCam Engineering Imaging	FGS External Calibration
Module: ALL	Target type: IMAGE
Subarray: FULL	Detector: GUIDER2

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift	Column shift	Tile Order
1	2	10.0	80.0	0.0	0.0	DEFAULT

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	INTRAMODULEBOX	2	STANDARD		1

Spectral Elements

NIRCam Engineering Imaging	Short Pupil	Long Pupil	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	CLEAR	CLEAR	F210M	F335M	BRIGHT1	2	2	4	2	150.315	
2	MASKRND	MASKRND	F210M	F335M	SHALLOW2	4	2	4	2	751.574	
3	MASKBAR	MASKBAR	F210M	F335M	SHALLOW2	4	2	4	2	751.574	

Spectral Elements

FGS External Calibration	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	FGSRAPID	3	1	2	2	85.894	
2	FGS	3	1	2	2	279.156	
3	FGS	3	1	2	2	279.156	

Special Requirements	
	Sequence Visits within 53.0 Days Visits Same PA Offset -75.0 arcsec, 0.0 arcsec No Parallel Guide Star in Guider 1 2 After 1 by 150 Days to 200 Days