



8838 - CAL-NRC-410: NIRCам Spectral Calibration

Cycle: 4, Proposal Category: CAL/NIRCAM

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Norbert Pirzkal (PI) (ESA Member)	Space Telescope Science Institute - ESA - JWST
Dr. Martha L. Boyer (CoI) (Contact)	Space Telescope Science Institute
Dr. Anton M. Koekemoer (CoI) (Contact)	Space Telescope Science Institute

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
Observation Folder				
	1	NIRCам Grism Mod A SHORT Middle top	NIRCам Engineering Imaging	(1) SMP-LMC-58
	6	NIRCам Grism Mod B SHORT Middle top	NIRCам Engineering Imaging	(1) SMP-LMC-58
	5	NIRCам Grism Mod A LONG Middle top	NIRCам Engineering Imaging	(1) SMP-LMC-58
	7	NIRCам Grism Mod B LONG Middle top	NIRCам Engineering Imaging	(1) SMP-LMC-58

ABSTRACT

This program will monitor the calibration of NIRCам's long wavelength (LW) grism, including wavelength calibration and the line-spread function (LSF) characterization. The wavelength solution will be determined by observing a planetary nebula (PN) in the LMC, which has a weak continuum and a rich set of strong spectral lines. The PN is also sufficiently compact to enable the LSF to be measured. The same target was observed both in Commissioning and Cycle 1-3. We include both grisms in Cycle 4 (GRISM C and GRISM R), on both modules, over the full NIRCам wavelength range.

Based on already obtained calibration in previous cycle, we place the wavelength calibrator in the middle top regions of both detectors for both R and

C grisms.

This calibration program is provisional and may change in response to system developments and the final Cycle 4 science program.

OBSERVING DESCRIPTION

We are obtaining full-frame Grism images of spectral calibrator SMP-LMC-58, a planetary nebula in the LMC.

EXPOSURE SETUP: BRIGHT1, 5 groups, GRISMR and GRISMC with F322W2 and F444W. Direct images are in F405N. Achieve S/N up to 200 per wavelength in grism mode with both F322W2 and F444W

DIRECT IMAGES: We include one direct image in each observation, using the Engineering Imaging template.

DITHERS: INTRAMODULEX, 4 dithers

SPECIAL REQUIREMENTS: We include offsets to place the target at detector locations that will ensure the full spectrum for both GRISMR and GRISMC falls on the detector.

We put the long-wavelength and short-wavelength observations into different observations since the target needs to move on a different spot on the detector to ensure the full spectrum is captured in each case.

Proposal 8838 - Targets - CAL-NRC-410: NIRCcam Spectral Calibration

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000 <i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i>		

Proposal 8838 - Observation 1 - CAL-NRC-410: NIRCcam Spectral Calibration

Observation	Proposal 8838, Observation 1: NIRCcam Grism Mod A SHORT MIDDLE top Wed Jul 23 17:00:36 GMT 2025											
	Diagnostic Status: Warning Observing Template: NIRCcam Engineering Imaging <i>Comments: Part 1</i>											
Diagnostics	(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)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000									
Template	<i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i>											
	Module	Subarray				No. of Output Channels						
Dithers	A	FULL				4						
	#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions						
Spectral Elements	1	INTRAMODULE	3	STANDARD	1							
	#	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
Special Requirements	1	CLEAR	GRISMC	F212N	F322W2	BRIGHT1	5	1	3	3	289.893	
	2	CLEAR	GRISMR	F212N	F322W2	BRIGHT1	5	1	3	3	289.893	
	3	CLEAR	F405N	F212N	F444W	RAPID	5	1	3	3	161.052	
Special Requirements	Offset 0.0 arcsec, 50.0 arcsec											

Proposal 8838 - Observation 6 - CAL-NRC-410: NIRCcam Spectral Calibration

Observation	Proposal 8838, Observation 6: NIRCcam Grism Mod B SHORT Middle top Wed Jul 23 17:00:36 GMT 2025																																																										
Diagnostics	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.																																																										
Fixed Targets	<table border="1"> <thead> <tr> <th>#</th><th>Name</th><th>Target Coordinates</th><th>Targ. Coord. Corrections</th><th>Miscellaneous</th></tr> </thead> <tbody> <tr> <td>(1)</td><td>SMP-LMC-58</td><td>RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000</td><td></td><td></td></tr> <tr> <td colspan="5"> <i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i> </td></tr> </tbody> </table>											#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous	(1)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000			<i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i>																																					
#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous																																																							
(1)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000																																																									
<i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i>																																																											
Template	<table border="1"> <thead> <tr> <th>Module</th><th>Subarray</th><th>No. of Output Channels</th></tr> </thead> <tbody> <tr> <td>B</td><td>FULL</td><td>4</td></tr> </tbody> </table>											Module	Subarray	No. of Output Channels	B	FULL	4																																										
Module	Subarray	No. of Output Channels																																																									
B	FULL	4																																																									
Dithers	<table border="1"> <thead> <tr> <th>#</th><th>Primary Dither Type</th><th>Primary Dithers</th><th>Subpixel Dither Type</th><th>Dither Size</th><th>Subpixel Positions</th></tr> </thead> <tbody> <tr> <td>1</td><td>INTRAMODULE</td><td>4</td><td>STANDARD</td><td></td><td>1</td></tr> </tbody> </table>											#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions	1	INTRAMODULE	4	STANDARD		1																																				
#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions																																																						
1	INTRAMODULE	4	STANDARD		1																																																						
Spectral Elements	<table border="1"> <thead> <tr> <th>#</th><th>Short Pupil</th><th>Long Pupil</th><th>Short Filter</th><th>Long Filter</th><th>Readout Pattern</th><th>Groups/Int</th><th>Integrations/Exp</th><th>Total Integrations</th><th>Total Dithers</th><th>Total Exposure Time</th><th>ETC Wkbk.Calc ID</th></tr> </thead> <tbody> <tr> <td>1</td><td>CLEAR</td><td>GRISMC</td><td>F212N</td><td>F322W2</td><td>BRIGHT1</td><td>5</td><td>1</td><td>4</td><td>4</td><td>386.524</td><td></td></tr> <tr> <td>2</td><td>CLEAR</td><td>GRISMR</td><td>F212N</td><td>F322W2</td><td>BRIGHT1</td><td>5</td><td>1</td><td>4</td><td>4</td><td>386.524</td><td></td></tr> <tr> <td>3</td><td>CLEAR</td><td>F405N</td><td>F212N</td><td>F444W</td><td>RAPID</td><td>5</td><td>1</td><td>4</td><td>4</td><td>214.735</td><td></td></tr> </tbody> </table>											#	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	GRISMC	F212N	F322W2	BRIGHT1	5	1	4	4	386.524		2	CLEAR	GRISMR	F212N	F322W2	BRIGHT1	5	1	4	4	386.524		3	CLEAR	F405N	F212N	F444W	RAPID	5	1	4	4	214.735	
#	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	GRISMC	F212N	F322W2	BRIGHT1	5	1	4	4	386.524																																																	
2	CLEAR	GRISMR	F212N	F322W2	BRIGHT1	5	1	4	4	386.524																																																	
3	CLEAR	F405N	F212N	F444W	RAPID	5	1	4	4	214.735																																																	
Special Requirements	Offset 0.0 arcsec, 50.0 arcsec																																																										

Proposal 8838 - Observation 5 - CAL-NRC-410: NIRCcam Spectral Calibration

Observation	Proposal 8838, Observation 5: NIRCcam Grism Mod A LONG Middle top Wed Jul 23 17:00:36 GMT 2025											
	Diagnostic Status: Warning Observing Template: NIRCcam Engineering Imaging <i>Comments: Part 1</i>											
Diagnostics	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections				Miscellaneous			
	(1)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000									
	<i>Comments: Placeholder for wavelength calibrator (an LMC PN)</i> <i>Kmag = 14.5</i> <i>Category=Calibration</i> <i>Description=[Planetary nebulae]</i>											
Template	Module		Subarray				No. of Output Channels					
	A		FULL				4					
Dithers	#	Primary Dither Type		Primary Dithers		Subpixel Dither Type		Dither Size		Subpixel Positions		
	1	INTRAMODULE		3		STANDARD				1		
Spectral Elements	#	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	GRISMC	F212N	F444W	BRIGHT1	5	1	3	3	289.893	
	2	CLEAR	GRISMR	F212N	F444W	BRIGHT1	5	1	3	3	289.893	
	3	CLEAR	F405N	F212N	F444W	RAPID	5	1	3	3	161.052	
Special Requirements	Offset 0.0 arcsec, 50.0 arcsec											

Proposal 8838 - Observation 7 - CAL-NRC-410: NIRCcam Spectral Calibration

Observation	Proposal 8838, Observation 7: NIRCcam Grism Mod B LONG Middle top Diagnostic Status: Warning Observing Template: NIRCcam Engineering Imaging Comments: Part 1											Wed Jul 23 17:00:36 GMT 2025
Diagnostics	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates		Targ. Coord. Corrections				Miscellaneous			
	(1)	SMP-LMC-58	RA: 05 24 20.7650 (81.0865208d) Dec: -70 05 1.52 (-70.08376d) Equinox: J2000									
	Comments: Placeholder for wavelength calibrator (an LMC PN) Kmag = 14.5 Category=Calibration Description=[Planetary nebulae]											
Template	Module		Subarray				No. of Output Channels					
	B		FULL				4					
Dithers	#	Primary Dither Type		Primary Dithers		Subpixel Dither Type		Dither Size		Subpixel Positions		
	1	INTRAMODULE		4		STANDARD				1		
Spectral Elements	#	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	GRISMC	F212N	F444W	BRIGHT1	5	1	4	4	386.524	
	2	CLEAR	GRISMR	F212N	F444W	BRIGHT1	5	1	4	4	386.524	
	3	CLEAR	F405N	F212N	F444W	RAPID	5	1	4	4	214.735	
Special Requirements	Offset 0.0 arcsec, 50.0 arcsec											