



## 2769 - NIRSpec and NIRCам detector verification

Cycle: 1, Proposal Category: CAL/NIRSPEC

### INVESTIGATORS

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### OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
DS mode switch verification				
	1	NIRSpec DS mode switch verification	NIRSpec Internal Lamp	NONE
NIRSpec ASIC LVDS crosstalk verification				
	2	FULL, traditional and IRS2 readout patterns	NIRSpec Dark	NONE
	3	SUBARRAY (ALLSLITS)	NIRSpec Dark	NONE
NIRCам ASIC LVDS crosstalk verification				
	4	FULL, All Detectors	NIRCам Dark	NONE
	5	SUB320, Module A	NIRCам Dark	NONE
	6	SUB320 Module B	NIRCам Dark	NONE

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	7	FULL All Detectors	NIRCam Dark	NONE

## ABSTRACT

This program is intended to verify the expected behavior of the NIRSpec and NIRCam detector systems after changes to the OSS scripts and/or ASIC microcode.

These internal exposures are designed to verify that i) the detector mode switching from one readout mode to another is working as intended and ii) the detector tuning is unchanged after the updates.

## OBSERVING DESCRIPTION

We will obtain a number of exposures using the (unpointed) NIRSpec Internal Lamp and/or Dark templates (using all NIRSpec readout modes) and the NIRCam Dark template.

Obs. 1 was designed to take place after the installation of OSS Build 8.4.13 (and the associate FSW update), which changed the way the NIRSpec detector system readout mode transition is performed, significantly shortening it and thereby increasing NIRSpec and observatory operational efficiency. Due to the involved FSW and OSS update we need to exercise all transitions from all three detector modes to another, i.e. six detector transitions in total. The goal of the observation is to

- 1) verify that detector mode switching is working as intended after the update
- 2) that the tuning / performance of the NIRSpec detectors (bias level, CDS noise, conversion gain) has not changed due to the FSW/OSS update

Obs. 2 through 7 were created to verify detector behavior after the installation of the ASIC LVDS crosstalk fix. Obs. 2 and 3 apply to NIRSpec, and Obs 4, 5, 6, and 7 apply to NIRCam.

### \*\*\* SCHEDULING NOTES \*\*\*

Obs. 2 through 7 as a group should be executed as soon as possible following installation of the ASIC LVDS crosstalk fix and with as much time as practically feasible before any other NIRSpec and NIRCam observations to facilitate downlink and analysis of the exposures for detector behavior verification prior to further instrument usage. Obs. 2 and 3 should be executed in sequence order, and independently Obs. 4 through 7 should be

JWST Proposal 2769 (Created: Wednesday, September 6, 2023 at 2:00:28 PM Eastern Standard Time) - Overview

executed in sequence order. Obs. 3 through 7 may run as parallels; Obs. 2 cannot because there may not be more than 1 Exposure Specification in a PARALLEL observation.

Proposal 2769 - Observation 1 - NIRSpec and NIRCам detector verification

Wed Sep 06 19:00:28 GMT 2023

<b>Observation</b>	<p><b>Proposal 2769, Observation 1: NIRSpec DS mode switch verification</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec Internal Lamp</p>											
<b>Diagnostics</b>	<p>(NIRSpec DS mode switch verification (Obs 1)) Warning (Form): Interleaving MSA configurations in a visit increases MSA shutter configuration changes.</p> <p>(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
<b>Spectral Elements</b>	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	FULL	NONE	ALLCLOSED	G235H	NRSIRS2RAPID	10	1	1	160.478	
	2	FIXEDSLIT	ALLSLITS	NONE	ALLCLOSED	G235H	NRSRAPID	15	1	1	87.924	
	3	FIXEDSLIT	FULL	NONE	ALLCLOSED	G235H	NRSRAPID	14	1	1	161.052	
	4	MSASPEC	FULL	FLAT5	SLIT5-C	G235H	NRSIRS2RAPID	10	3	3	481.433	
	5	MSASPEC	FULL	FLAT5	SLIT5-C	G235H	NRSRAPID	14	3	3	483.155	
	6	FIXEDSLIT	ALLSLITS	FLAT5	ALLCLOSED	G235H	NRSRAPID	15	3	3	263.773	
	7	FIXEDSLIT	FULL	NONE	ALLCLOSED	G235H	NRSIRS2RAPID	10	1	1	160.478	
<b>Special Requirements</b>	No Parallel Attachments											

Proposal 2769 - Observation 2 - NIRSpec and NIRCам detector verification

Wed Sep 06 19:00:28 GMT 2023

<b>Observation</b>	<p>Proposal 2769, Observation 2: FULL, traditional and IRS2 readout patterns</p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec Dark</p>																											
<b>Diagnostics</b>	<p>(FULL, traditional and IRS2 readout patterns (Obs 2)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																											
<b>Template</b>	<p>Subarray</p> <hr/> <p>FULL</p>																											
<b>Spectral Elements</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Readout Pattern</th> <th>Grating</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Exposures/Dith</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>NRSIRS2RAPID</td> <td></td> <td>10</td> <td>1</td> <td>1</td> <td>1</td> <td>160.478</td> <td></td> </tr> <tr> <td>2</td> <td>NRSRAPID</td> <td></td> <td>14</td> <td>1</td> <td>1</td> <td>1</td> <td>161.052</td> <td></td> </tr> </tbody> </table>	#	Readout Pattern	Grating	Groups/Int	Integrations/Exp	Exposures/Dith	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	NRSIRS2RAPID		10	1	1	1	160.478		2	NRSRAPID		14	1	1	1	161.052	
#	Readout Pattern	Grating	Groups/Int	Integrations/Exp	Exposures/Dith	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID																				
1	NRSIRS2RAPID		10	1	1	1	160.478																					
2	NRSRAPID		14	1	1	1	161.052																					
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Group Observations 2, 3 within 4 Hours</p>																											

Proposal 2769 - Observation 3 - NIRSpec and NIRCам detector verification

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<b>Observation</b>	<p>Proposal 2769, Observation 3: SUBARRAY (ALLSLITS)</p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRSpec Dark</p>								
<b>Diagnostics</b>	<p>(SUBARRAY (ALLSLITS) (Obs 3)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>								
<b>Template</b>	<p>Subarray</p> <hr/> <p>ALLSLITS</p>								
<b>Spectral Elements</b>	<b>#</b>	<b>Readout Pattern</b>	<b>Grating</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	NRSRAPID	G140H	15	1	1	1	87.924	
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Group Observations 2, 3 within 4 Hours</p>								

Proposal 2769 - Observation 4 - NIRSpec and NIRCам detector verification

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<b>Observation</b>	<p><b>Proposal 2769, Observation 4: FULL, All Detectors</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCам Dark</p>																							
<b>Diagnostics</b>	<p>(FULL, All Detectors (Obs 4)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																							
<b>Template</b>	<table border="1"> <thead> <tr> <th>Module</th> <th>Subarray</th> <th>Science Template</th> <th>Coronagraphic Mask</th> <th>No. of Output Channels</th> </tr> </thead> <tbody> <tr> <td>ALL</td> <td>FULL</td> <td>Imaging</td> <td></td> <td>4</td> </tr> </tbody> </table>	Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels	ALL	FULL	Imaging		4													
Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels																				
ALL	FULL	Imaging		4																				
<b>Spectral Elements</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Exposures/Dith</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RAPID</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> <td>21.474</td> <td></td> </tr> </tbody> </table>	#	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	RAPID	2	1	1	1	21.474								
#	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID																	
1	RAPID	2	1	1	1	21.474																		
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Sequence Observations 4, 5, 6, 7 within 4 Hours</p>																							

Proposal 2769 - Observation 5 - NIRSpec and NIRCам detector verification

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<b>Observation</b>	<p>Proposal 2769, Observation 5: SUB320, Module A</p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCам Dark</p>																							
<b>Diagnostics</b>	<p>(SUB320, Module A (Obs 5)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																							
<b>Template</b>	<table border="1"> <thead> <tr> <th>Module</th> <th>Subarray</th> <th>Science Template</th> <th>Coronagraphic Mask</th> <th>No. of Output Channels</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>SUB320</td> <td>Imaging</td> <td></td> <td>1</td> </tr> </tbody> </table>	Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels	A	SUB320	Imaging		1													
Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels																				
A	SUB320	Imaging		1																				
<b>Spectral Elements</b>	<table border="1"> <thead> <tr> <th>#</th> <th>Readout Pattern</th> <th>Groups/Int</th> <th>Integrations/Exp</th> <th>Exposures/Dith</th> <th>Total Integrations</th> <th>Total Exposure Time</th> <th>ETC Wkbk.Calc ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>RAPID</td> <td>5</td> <td>1</td> <td>1</td> <td>1</td> <td>6.435</td> <td></td> </tr> </tbody> </table>	#	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	1	RAPID	5	1	1	1	6.435								
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1	RAPID	5	1	1	1	6.435																		
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Sequence Observations 4, 5, 6, 7 within 4 Hours</p>																							

Proposal 2769 - Observation 6 - NIRSpec and NIRCам detector verification

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<b>Observation</b>	<p><b>Proposal 2769, Observation 6: SUB320 Module B</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCам Dark</p>																					
<b>Diagnostics</b>	<p>(SUB320 Module B (Obs 6)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>																					
<b>Template</b>	<table border="1"> <thead> <tr> <th>Module</th> <th>Subarray</th> <th>Science Template</th> <th>Coronagraphic Mask</th> <th>No. of Output Channels</th> </tr> </thead> <tbody> <tr> <td>B</td> <td>SUB320</td> <td>Imaging</td> <td></td> <td>1</td> </tr> </tbody> </table>	Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels	B	SUB320	Imaging		1											
Module	Subarray	Science Template	Coronagraphic Mask	No. of Output Channels																		
B	SUB320	Imaging		1																		
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1	RAPID	5	1	1	1	6.435																
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Sequence Observations 4, 5, 6, 7 within 4 Hours</p>																					

Proposal 2769 - Observation 7 - NIRSpec and NIRCам detector verification

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<b>Observation</b>	<p><b>Proposal 2769, Observation 7: FULL All Detectors</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCам Dark</p>							
<b>Diagnostics</b>	<p>(FULL All Detectors (Obs 7)) Warning (Form): PARALLEL requirement expected.</p> <p>(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>							
<b>Template</b>	<b>Module</b>	<b>Subarray</b>	<b>Science Template</b>	<b>Coronagraphic Mask</b>	<b>No. of Output Channels</b>			
	ALL	FULL	Imaging		4			
<b>Spectral Elements</b>	<b>#</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Exposures/Dith</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	RAPID	2	1	1	1	21.474	
<b>Special Requirements</b>	<p>DMS Priority HIGH</p> <p>Sequence Observations 4, 5, 6, 7 within 4 Hours</p>							