



1486 - Spectroscopic Subarray Flats

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>
NRS-003 Cy 1: NIRSpec internal spectral flatfield subarrays				
	1	NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, PRISM	NIRSpec Internal Lamp	NONE
	2	NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G140H	NIRSpec Internal Lamp	NONE
	3	NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G235H, G395H	NIRSpec Internal Lamp	NONE
	4	NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G140M	NIRSpec Internal Lamp	NONE
	5	NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G235M, G395M	NIRSpec Internal Lamp	NONE
NRS-003 Cy 1: NIRSpec subarray saturation				

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	6	Saturation G235H / G3 95H	NIRSpec Internal Lamp	NONE
	7	Saturation G235M / G3 95M	NIRSpec Internal Lamp	NONE

ABSTRACT

This program will acquire the spectroscopic (lamp) flats for the FS mode using the ALLSLITS subarray. Observations will be acquired for all of the NIRSpec disperser/lamp combinations. These observations are essential for minimizing flat field calibration noise for FS and/or BOTS observations that need improved signal-to-noise. The commissioning program will acquire a minimum set of flats, these observations for Cycle 1 calibration will greatly decrease the noise from flat fielding process for science observation processing. The S-flat is one part of the 3 component NIRSpec flat field: the F-flat traces the field-dependent throughput of the OTE and instrument FORE optics, the S-flat traces the light path from the micro-shutter array up to but not including the FPA and the D-flat consists of the pixel-to-pixel variations of the detector.

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

After consideration we have added two additional observations (6 and 7) to better measure the saturation in subarray modes.

These will allow us to follow exposures to saturation for all pixels that will ever see light from the fixed slits, allowing proper error flagging in these cases.

OBSERVING DESCRIPTION

ALLSLITS exposures taken with all 9 disperser/ lamp configurations (filter set to OPAQUE).

subarray gain is always 2.

Uses internal lamp flat template therefore parallel slew only special requirement is required.

The flat field response is purely a property of the detector pixel, therefore data for other subarrays can be cutout of the ALLSLITS subarray.

Sub2048 and Sub512 are used with prism and medium gratings because S1600A1 will saturate too quickly.

Integrations are selected to avoid saturation, should be adjusted if there is saturation during commissioning.

cycle through all exposures with a particular grating before moving on to minimize GWA moves.

All exposures are in a single visit. Total time investment for high S/N flats is approximately 2 hours.

exposures:

fixedslit allslits flat5 prism nrsrapid 7 10 10

brighobj sub512 flat4 prism nrsrapid 2 500 500

fixedslit allslits flat1 g140h nrsrapid 12 10 10

fixedslit allslits flat4 g140h nrsrapid 12 10 10

fixedslit allslits flat2 g235h nrsrapid 12 10 10

fixedslit allslits flat3 g395h nrsrapid 8 10 10

fixedslit allslits flat1 g140m nrsrapid 8 10 10

fixedslit allslits flat4 g140m nrsrapid 4 10 10

brightobj sub2048 flat1 g140m nrsrapid 8 10 10

brightobj sub2048 flat4 g140m nrsrapid 8 10 10

fixedslit allslits flat2 g235m nrsrapid 5 10 10

brightobj sub2048 flat2 g235m nrsrapid 10 10 10

fixedslit allslits flat3 g395m nrsrapid 4 10 10

brightobj sub2048 flat3 g395m nrsrapid 8 10 10

Added exposures to better define saturation limits (Sep 9, 2022). Total added time about 1.14 hours

fixedslit allslits flat4 g235h nrsrapid 100 1 1

fixedslit allslits flat4 g395h nrsrapid 100 1 1

fixedslit allslits flat4 g235m nrsrapid 100 1 1

fixedslit allslits flat4 g395m nrsrapid 100 1 1

TIMING CONSTRAINTS

Timing constraints assume a launch of 52 Dec 2021 and a start for Cycle 1 on 23 Jun 2022.

The visits in this program can execute anytime in Cycle 1.

Visits are planned so they can be scheduled in slews. Grouping visits together would be nice, but is not required so that schedulers have greater flexibility.

Proposal 1486 - Observation 1 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 1: NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, PRISM</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT5		PRISM	NRSRAPID	7	10	10	439.725	
	2	BRIGHTOBJ	SUB512	FLAT4		PRISM	NRSRAPID	2	500	500	349.48	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 2 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 2: NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G140H</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT1		G140H	NRSRAPID	12	10	10	714.425	
	2	FIXEDSLIT	ALLSLITS	FLAT4		G140H	NRSRAPID	12	10	10	714.425	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 3 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 3: NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G235H, G395H</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT2		G235H	NRSRAPID	12	10	10	714.425	
	2	FIXEDSLIT	ALLSLITS	FLAT3		G395H	NRSRAPID	8	10	10	494.665	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 4 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 4: NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G140M</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT1		G140M	NRSRAPID	4	10	10	274.905	
	2	FIXEDSLIT	ALLSLITS	FLAT4		G140M	NRSRAPID	4	10	10	274.905	
	3	BRIGHTOBJ	SUB2048	FLAT1		G140M	NRSRAPID	8	10	10	81.385	
	4	BRIGHTOBJ	SUB2048	FLAT4		G140M	NRSRAPID	8	10	10	81.385	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 5 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 5: NRS-003 Cy 1: NIRSpec Internal spec flats subarrays, G235M,G395M</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT2		G235M	NRSRAPID	5	10	10	329.845	
	2	BRIGHTOBJ	SUB2048	FLAT2		G235M	NRSRAPID	10	10	10	99.425	
	3	FIXEDSLIT	ALLSLITS	FLAT3		G395M	NRSRAPID	4	10	10	274.905	
	4	BRIGHTOBJ	SUB2048	FLAT3		G395M	NRSRAPID	8	10	10	81.385	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 6 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:31 GMT 2022

Observation	<p>Proposal 1486, Observation 6: Saturation G235H / G395H</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT4	ALLCLOSED	G235H	NRSRAPID	100	1	1	554.914	
	2	FIXEDSLIT	ALLSLITS	FLAT4	ALLCLOSED	G395H	NRSRAPID	100	1	1	554.914	
Special Requirements	<p>No Parallel Parallel slew only</p>											

Proposal 1486 - Observation 7 - Spectroscopic Subarray Flats

Fri Sep 09 23:00:32 GMT 2022

Observation	<p>Proposal 1486, Observation 7: Saturation G235M / G395M</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec Internal Lamp</p>											
Diagnostics	<p>(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.</p>											
Spectral Elements	#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	FIXEDSLIT	ALLSLITS	FLAT4	ALLCLOSED	G235M	NRSRAPID	100	1	1	554.914	
	2	FIXEDSLIT	ALLSLITS	FLAT4	ALLCLOSED	G395M	NRSRAPID	100	1	1	554.914	
Special Requirements	<p>No Parallel Parallel slew only</p>											