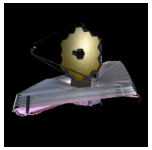

4462 - Monitoring of the NIRSpec Instrument Model (CAL-NRS-207)

Cycle: 2, Proposal Category: CAL/NIRSPEC

INVESTIGATORS

Name	*Institution*
Dr. Peter Zeidler (PI) (ESA Member)	**Space Telescope Science Institute - ESA - JWST**

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1	NIRSpec Model (gratings)	NIRSpec Internal Lamp	NONE
	2	mid-cycle (MOS only)	NIRSpec Internal Lamp	NONE

ABSTRACT

From a set of internal CAA lamp exposures, this activity, along with the GWA tilt calibration monitor program, will serve to monitor the NIRSpec instrument model during Cycle 2. The instrument model is a parametric model of NIRSpec optical geometry and is used to trace, extract and rectify the spectra and provides WCS information for each pixel in a 2D spectrum. Most model components are expected to remain stable, but a limited monitor will guard against changes not traceable via existing observations.

This calibration program is provisional and may change in response to system developments and the analysis of the Cycle 1 monitoring program (PID 1489).

OBSERVING DESCRIPTION

The crucial aspect of this activity is that the data for each grating must be obtained without moving the GWA between exposures.

For each of the six NIRSpec gratings, exposures will be obtained with the CAA REF lamp and the appropriate LINE and FLAT lamps through one

customized MSA configuration. In addition, a similar set of lamps will be used to obtain IFU exposures (plus associated "background" exposures through the all-closed MSA with IFU closed). For the PRISM, we will obtain a similar data set, but using CAA lamps FLAT5 and LINE4, as the PRISM spans the entire NIRSpec wavelength range. The treatment of GWA tilt calibration monitor will be conducted as a separate activity. The cadence still needs to be determined but there are no indications of a significant change in the model solution with time, hence as of now a once per Cycle minitoring appears to be suffcient. This will be subject to change if a significant drift will be determined.

We added a second Observation to confirm a possible trending of the model.

Proposal 4462 - Observation 1 - Monitoring of the NIRSpec Instrument Model (CAL-NRS-207)

Observation	**Proposal 4462, Observation 1: NIRSpec Model (gratings)** Tue Aug 15 00:01:37 GMT 2023 **Diagnostic Status: Warning** Observing Template: NIRSpec Internal Lamp *Comments: The special combos SPCB-PD-B, SPCB-GD-B, and CROSS5-B may need updating closer to the execution to account for an updated operability map due to possibly masked columns and rows caused by short detection.*
Diagnostics	(NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 122 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 122 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 407 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 504 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 59 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 78 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 88 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Additional overhead of 88 seconds for WAVECAL lamp minimum off-time (NIRSpec Model (gratings) (Obs 1)) Warning (Form): Interleaving MSA configurations in a visit increases MSA shutter configuration changes. (Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

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	IMAGE	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
2	IMAGE	FULL	TEST	CROSS5-B	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
3	IMAGE	FULL	TEST	CROSS5-B	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
4	MSASPEC	FULL	LINE1	SPCB-GD-B	G140H	NRSIRS2RAPID	7	1	1	116.711	
5	MSASPEC	FULL	REF	SPCB-GD-B	G140H	NRSIRS2RAPID	10	1	1	160.478	
6	MSASPEC	FULL	FLAT1	SPCB-GD-B	G140H	NRSIRS2RAPID	14	1	1	218.833	
7	IFU	FULL	FLAT1		G140H	NRSIRS2RAPID	28	1	1	423.078	
8	IFU	FULL	LINE1		G140H	NRSIRS2RAPID	7	1	1	116.711	
9	IFU	FULL	REF		G140H	NRSIRS2RAPID	20	1	1	306.367	
10	FIXEDSLIT	FULL	FLAT1	ALLCLOSED	G140H	NRSIRS2RAPID	28	1	1	423.078	
11	FIXEDSLIT	FULL	LINE1	ALLCLOSED	G140H	NRSIRS2RAPID	7	1	1	116.711	
12	FIXEDSLIT	FULL	REF	ALLCLOSED	G140H	NRSIRS2RAPID	20	1	1	306.367	
13	MSASPEC	FULL	REF	SPCB-GD-B	G235H	NRSIRS2RAPID	10	1	1	160.478	
14	MSASPEC	FULL	FLAT2	SPCB-GD-B	G235H	NRSIRS2RAPID	17	1	1	262.6	
15	MSASPEC	FULL	LINE2	SPCB-GD-B	G235H	NRSIRS2RAPID	7	1	1	116.711	
16	IFU	FULL	FLAT2		G235H	NRSIRS2RAPID	34	1	1	510.611	
17	IFU	FULL	REF		G235H	NRSIRS2RAPID	20	1	1	306.367	
18	IFU	FULL	LINE2		G235H	NRSIRS2RAPID	7	1	1	116.711	
19	FIXEDSLIT	FULL	FLAT2	ALLCLOSED	G235H	NRSIRS2RAPID	34	1	1	510.611	
20	FIXEDSLIT	FULL	REF	ALLCLOSED	G235H	NRSIRS2RAPID	20	1	1	306.367	
21	FIXEDSLIT	FULL	LINE2	ALLCLOSED	G235H	NRSIRS2RAPID	7	1	1	116.711	
22	MSASPEC	FULL	LINE3	SPCB-GD-B	G395H	NRSIRS2RAPID	7	1	1	116.711	
23	MSASPEC	FULL	FLAT3	SPCB-GD-B	G395H	NRSIRS2RAPID	14	1	1	218.833	
24	MSASPEC	FULL	REF	SPCB-GD-B	G395H	NRSIRS2RAPID	10	1	1	160.478	
25	IFU	FULL	FLAT3		G395H	NRSIRS2RAPID	28	1	1	423.078	
26	IFU	FULL	LINE3		G395H	NRSIRS2RAPID	7	1	1	116.711	

#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
27	IFU	FULL	REF		G395H	NRSIRS2RAPID	20	1	1	306.367	
28	FIXEDSLIT	FULL	FLAT3	ALLCLOSED	G395H	NRSIRS2RAPID	28	1	1	423.078	
29	FIXEDSLIT	FULL	LINE3	ALLCLOSED	G395H	NRSIRS2RAPID	7	1	1	116.711	
30	FIXEDSLIT	FULL	REF	ALLCLOSED	G395H	NRSIRS2RAPID	20	1	1	306.367	
31	MSASPEC	FULL	LINE1	SPCB-GD-B	G140M	NRSIRS2RAPID	5	1	1	87.533	
32	MSASPEC	FULL	FLAT1	SPCB-GD-B	G140M	NRSIRS2RAPID	6	1	1	102.122	
33	MSASPEC	FULL	REF	SPCB-GD-B	G140M	NRSIRS2RAPID	5	1	1	87.533	
34	IFU	FULL	FLAT1		G140M	NRSIRS2RAPID	12	1	1	189.656	
35	IFU	FULL	LINE1		G140M	NRSIRS2RAPID	7	1	1	116.711	
36	IFU	FULL	REF		G140M	NRSIRS2RAPID	10	1	1	160.478	
37	FIXEDSLIT	FULL	FLAT1	ALLCLOSED	G140M	NRSIRS2RAPID	12	1	1	189.656	
38	FIXEDSLIT	FULL	REF	ALLCLOSED	G140M	NRSIRS2RAPID	10	1	1	160.478	
39	FIXEDSLIT	FULL	LINE1	ALLCLOSED	G140M	NRSIRS2RAPID	7	1	1	116.711	
40	MSASPEC	FULL	LINE2	SPCB-GD-B	G235M	NRSIRS2RAPID	7	1	1	116.711	
41	MSASPEC	FULL	FLAT2	SPCB-GD-B	G235M	NRSIRS2RAPID	7	1	1	116.711	
42	MSASPEC	FULL	REF	SPCB-GD-B	G235M	NRSIRS2RAPID	5	1	1	87.533	
43	IFU	FULL	FLAT2		G235M	NRSIRS2RAPID	14	1	1	218.833	
44	IFU	FULL	LINE2		G235M	NRSIRS2RAPID	7	1	1	116.711	
45	IFU	FULL	REF		G235M	NRSIRS2RAPID	10	1	1	160.478	
46	FIXEDSLIT	FULL	FLAT2	ALLCLOSED	G235M	NRSIRS2RAPID	14	1	1	218.833	
47	FIXEDSLIT	FULL	REF	ALLCLOSED	G235M	NRSIRS2RAPID	10	1	1	160.478	
48	FIXEDSLIT	FULL	LINE2	ALLCLOSED	G235M	NRSIRS2RAPID	7	1	1	116.711	
49	MSASPEC	FULL	LINE3	SPCB-GD-B	G395M	NRSIRS2RAPID	6	1	1	102.122	
50	MSASPEC	FULL	FLAT3	SPCB-GD-B	G395M	NRSIRS2RAPID	6	1	1	102.122	
51	MSASPEC	FULL	REF	SPCB-GD-B	G395M	NRSIRS2RAPID	5	1	1	87.533	
52	IFU	FULL	FLAT3		G395M	NRSIRS2RAPID	12	1	1	189.656	

#	Operating Mode	Subarray	Lamp	MSA Configuration	Grating	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
53	IFU	FULL	LINE3		G395M	NRSIRS2RAPID	7	1	1	116.711	
54	IFU	FULL	REF		G395M	NRSIRS2RAPID	10	1	1	160.478	
55	FIXEDSLIT	FULL	FLAT3	ALLCLOSED	G395M	NRSIRS2RAPID	12	1	1	189.656	
56	FIXEDSLIT	FULL	REF	ALLCLOSED	G395M	NRSIRS2RAPID	10	1	1	160.478	
57	FIXEDSLIT	FULL	LINE3	ALLCLOSED	G395M	NRSIRS2RAPID	7	1	1	116.711	
58	MSASPEC	FULL	FLAT5	SPCB-PD-B	PRISM	NRSIRS2RAPID	10	1	1	160.478	
59	MSASPEC	FULL	LINE4	SPCB-PD-B	PRISM	NRSIRS2RAPID	5	1	1	87.533	
60	IFU	FULL	FLAT5		PRISM	NRSIRS2RAPID	20	1	1	306.367	
61	IFU	FULL	LINE4		PRISM	NRSIRS2RAPID	7	1	1	116.711	
62	FIXEDSLIT	FULL	FLAT5	ALLCLOSED	PRISM	NRSIRS2RAPID	20	1	1	306.367	
63	FIXEDSLIT	FULL	LINE4	ALLCLOSED	PRISM	NRSIRS2RAPID	7	1	1	116.711	
64	MSASPEC	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
65	MSASPEC	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
66	MSASPEC	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	

Special Requirements

Between Dates 01-JAN-2024:00:00:00 and 15-MAY-2024:00:00:00
No Parallel Attachments

Proposal 4462 - Observation 2 - Monitoring of the NIRSpec Instrument Model (CAL-NRS-207)

Observation

Proposal 4462, Observation 2: mid-cycle (MOS only) Tue Aug 15 00:01:37 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec Internal Lamp

Comments: The special combos SPCB-PD-B, SPCB-GD-B, and CROSS5-B may need updating closer to the execution to account for an updated operability map due to possibly masked columns and rows caused by short detection.

Diagnostics

(mid-cycle (MOS only) (Obs 2)) Warning (Form): Interleaving MSA configurations in a visit increases MSA shutter configuration changes.

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

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	IMAGE	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	
2	MSASPEC	FULL	LINE1	SPCB-GD-B	G140H	NRSIRS2RAPID	7	1	1	116.711	
3	MSASPEC	FULL	REF	SPCB-GD-B	G140H	NRSIRS2RAPID	10	1	1	160.478	
4	MSASPEC	FULL	FLAT1	SPCB-GD-B	G140H	NRSIRS2RAPID	14	1	1	218.833	
5	MSASPEC	FULL	REF	SPCB-GD-B	G235H	NRSIRS2RAPID	10	1	1	160.478	
6	MSASPEC	FULL	FLAT2	SPCB-GD-B	G235H	NRSIRS2RAPID	17	1	1	262.6	
7	MSASPEC	FULL	LINE2	SPCB-GD-B	G235H	NRSIRS2RAPID	7	1	1	116.711	
8	MSASPEC	FULL	LINE3	SPCB-GD-B	G395H	NRSIRS2RAPID	7	1	1	116.711	
9	MSASPEC	FULL	FLAT3	SPCB-GD-B	G395H	NRSIRS2RAPID	14	1	1	218.833	
10	MSASPEC	FULL	REF	SPCB-GD-B	G395H	NRSIRS2RAPID	10	1	1	160.478	
11	MSASPEC	FULL	LINE1	SPCB-GD-B	G140M	NRSIRS2RAPID	5	1	1	87.533	
12	MSASPEC	FULL	FLAT1	SPCB-GD-B	G140M	NRSIRS2RAPID	6	1	1	102.122	
13	MSASPEC	FULL	REF	SPCB-GD-B	G140M	NRSIRS2RAPID	5	1	1	87.533	
14	MSASPEC	FULL	LINE2	SPCB-GD-B	G235M	NRSIRS2RAPID	7	1	1	116.711	
15	MSASPEC	FULL	FLAT2	SPCB-GD-B	G235M	NRSIRS2RAPID	7	1	1	116.711	
16	MSASPEC	FULL	REF	SPCB-GD-B	G235M	NRSIRS2RAPID	5	1	1	87.533	
17	MSASPEC	FULL	LINE3	SPCB-GD-B	G395M	NRSIRS2RAPID	6	1	1	102.122	
18	MSASPEC	FULL	FLAT3	SPCB-GD-B	G395M	NRSIRS2RAPID	6	1	1	102.122	
19	MSASPEC	FULL	REF	SPCB-GD-B	G395M	NRSIRS2RAPID	5	1	1	87.533	
20	MSASPEC	FULL	FLAT5	SPCB-PD-B	PRISM	NRSIRS2RAPID	10	1	1	160.478	
21	MSASPEC	FULL	LINE4	SPCB-PD-B	PRISM	NRSIRS2RAPID	5	1	1	87.533	
22	MSASPEC	FULL	TEST	CHKBD3x3-1	MIRROR	NRSIRS2RAPID	5	1	1	87.533	

Special Requirements	
	Before Date 30-SEP-2023:00:00:00 No Parallel Attachments