



NIRSpec Reference Files Data package

Delivery 1

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List of Applicable Documents

Document Number	Document Title	Revision	Note
JWST-Plan-003310	Near Infrared Spectrograph Joint Project Implementation Plan.	Rev B	JPIP
JWST-RQMT-002090	James Webb Space Telescope Project Integrated Science Instrument Module Near-Infrared Spectrograph and Mid-Infrared Instrument Data Requirements Document.	Rev A	DRD
JWST-LIST-000823	James Webb Space Telescope Project Integrated Science Instrument Module Near-Infrared Spectrograph Deliverable Items List and Schedule.	Rev D	DILS



Introduction

The NIRSpec JPIP lists the ESA JWST Science Operations Team (SOT) responsibilities during the development phase and commissioning period. One of these responsibilities is the preparation and delivery of the NIRSpec Calibration Reference Files that will be used by the JWST S&OC to develop the operational science data pipeline for NIRSpec.

This data package constitutes the first formal delivery of the DRD GSW-02 “Science Instrument Calibration Reference Files”.

The ESA SOT is developing with the JWST S&OC a plan for the complementary delivery of the Science Data Pipeline Inputs DRD GSW-01 “Science Instrument Data Pipeline Inputs and User Processing Requirements”. The formal delivery of GSW-01 is planned for Spring 2014.

This initial delivery of DRD GSW-02 is done in accordance with the content specification listed in the DRD and procedure agreed between ESA/MIRI-EC/NASA/STScI and documented in ESA-JWST-PR-19562.



Data Package Content

The reference files in this data package are for Focal Plane Array FPA-104, used during the NIRSpec ground calibration campaigns FM1, FM2 (A and B). FPA104 will be also used during ISIM CV2. Due to the degrading performances of the detectors same reference file has been delivered in multiple versions.

All reference files are delivered as FITS files.

Their format and content follows the guidelines provided in the STScI confluence page “JWST Calibration Reference Files: File Formats for the Ramps-to-Slopes Pipeline” version Sep 10, 2013 available at the following link

<https://confluence.stsci.edu/display/JWST/JWST+Calibration+Reference+Files%3A+File+Formats+for+the+Ramps-to-Slopes+Pipeline> and provided as supporting documentation in the data package.

The detailed description of the file naming convention and standard keyword and reference file type is provided in the NIRSpec Technical Note “Data product specification of NIRSpec reference files for “ramps-to-slopes” processing” NTN-2013-007/ESA-JWST-TN-20074 provided in the data package.

All delivered documents are under configuration control in the ESA JWST Data Management System.



Delivered Items

Note: All listed documents are part to this data package

Level 2B Pipeline Step	Data Initialization		
Reference File Description Document	Title	Issue	Date
NTN-2013-005 ESA-JWST-TN-20073	FPA104 Gain Maps and Amplifier reference files	1.0	31.10.2013
Reference File in this datapack	Notes		
nirspec_ampl_nrs1_f_01.00.fits nirspec_ampl_nrs2_f_01.00.fits	Amplifier data		
nirspec_gain_nrs1_f_01.00.fits nirspec_gain_nrs2_f_01.00.fits	Gain maps – currently not used by S&OC pipeline		

Level 2B Pipeline Step	Data Initialization		
Reference File Description Document	Title	Issue	Date
NTN-2013-010 ESA-JWST-TN-20075	NIRSpec Mask Reference File for FPA104	1.0	31.10.2013
Reference File in this datapack	Notes		
nirspec_mask_nrs1_f_01.00.fits			



nirspec_mask_nrs2_f_01.00.fits			
Level 2B Pipeline Step	Dark Current		
Reference File Description Document	Title	Issue	Date
NTN-2013-003 ESA-JWST-TN-20072	Description of the NIRSpec Bias and Dark reference files	1.0	29.10.2013
Reference File in this datapack	Notes		
nirspec_drkc_nrs1_f_01.00.fits nirspec_drkc_nrs2_f_01.00.fits nirspec_bias_nrs1_f_01.00.fits nirspec_bias_nrs2_f_01.00.fits nirspec_drkc_nrs1_f_02.00.fits nirspec_drkc_nrs2_f_02.00.fits nirspec_bias_nrs1_f_02.00.fits nirspec_bias_nrs2_f_02.00.fits nirspec_drkc_nrs1_f_03.00.fits nirspec_drkc_nrs2_f_03.00.fits nirspec_bias_nrs1_f_03.00.fits nirspec_bias_nrs2_f_03.00.fits nirspec_drkc_nrs1_w_ALLSLITS_01.00.fits nirspec_drkc_nrs2_w_ALLSLITS_01.00.fits nirspec_bias_nrs1_w_ALLSLITS_01.00.fits nirspec_bias_nrs2_w_ALLSLITS_01.00.fits nirspec_drkc_nrs1_w_S1600A_M_01.00.fits nirspec_drkc_nrs2_w_S200B_M_01.00.fits	Different versions correspond to different USAFTER dates. For details see the reference file description document.		

<p>nirspec_bias_nrs1_w_S1600A_M_01.00.fits nirspec_bias_nrs2_w_S200B_M_01.00.fits nirspec_drkc_nrs1_s_SPECIAL1_01.00.fits nirspec_drkc_nrs2_s_SPECIAL1_01.00.fits nirspec_bias_nrs1_s_SPECIAL1_01.00.fits nirspec_bias_nrs2_s_SPECIAL1_01.00.fits</p>	
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Level 2B Pipeline Step	Linearity Correction		
Reference File Description Document	Title	Issue	Date
NTN-2013-004 NTN-JWST-TN-20071	Description of the NIRSpec linearity correction reference files	1.0	29.10.2013
Reference File in this datapack	Notes		
nirspec_linc_nrs1_f_01.00.fits nirspec_linc_nrs2_f_01.00.fits nirspec_linc_nrs1_f_02.00.fits nirspec_linc_nrs2_f_02.00.fits	Different versions correspond to different USAFTER dates. For details see the reference file description document.		



Open/Deferred Work

Data Product/ Pipeline Step Affected	Short Description of Work	Remarks
Dark and bias	During the calibration campaign different window/stripe configuration were tested. In this first delivery we only provide reference files only for couple of window mode configurations for pipeline testing.	Only after ISIM 3 the position of the supported window can be established. All data for the final preparation of reference files for window mode need to be acquired at ISIM-3 level or in subsequent campaigns.
Amplifier data	Read noise maps have not yet been prepared for FPA104. As consequence the delivered reference files contain a single number for all outputs.	Currently the STScI pipeline does not implement a read noise map.
Dark and Bias	Need to agree with STScI on the filenaming convention for reference files applicable to window mode not listed in the OCD.	



Supporting Documentation

Note: All listed documents are part of this data package

Document Number	Document Title	Version.Revision	Note
NTN-2013-007 ESA-JWST-TN-20074	Data product specification of NIRSpec reference files for “ramps-to-slopes’ processing	1.0	
N/A	JWST Calibration Reference Files: File Formats for the Ramps-to-Slopes Pipeline	Sep 10, 2013	Printout from STSci confluence page
ESA-JWST-PR-19562	Procedure for the submission and review of NIRSpec and MIRI deliverables DRD GSw-01 and DRD GSW-02	Mar 27, 2013	MEMO



Plans for future updates and new deliveries

Pipeline Step	Reference File								Notes
		Fal 2013	ISIM CV2 *	FPA 106 +	ISIM CV3 #	OTIS	COMMISSIONING		
Data Initialization	Amplifier data								
	Bad pixel Mask								
	Gain Maps								
	Read Noise Maps								
Reference pixel correction	drift correction								available on request
Dark Current	dark cube								
	Bias frame								
Linearity	Linearity/Saturation map								
Jump detection	NONE								
Ramp Fitting									
Flat field	NONE								to be delivered as part of the extraction pipeline.
Telescope emission	NONE								
Persistence	TBD								
Photometric Calibration	photometric calibration								

NOTES:

* due to detector degradation new DARK, BIAS and potentially LINEARITY Maps will need to be delivered
 + after characterization of FPA106 the indicated files will be prepared and delivered
 # updates for Noise properties after installation in ISIM and determination of window extractoin positions

New	Update
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