Fig. 5. Distribution of the gain in each output (1-Black, 2- Red, 3-Blue, 4-Orange) in SCA491 (top) and SCA492 (bottom).

The final gain maps have been renormalized to the average gain listed in table 4. While new gain maps cannot be obtained anymore once the focal plane is installed in NIRSpec, the global gain cans still be measured at instrument level. Small variation of the tuning can produce variations in the global gain. If necessary the global gain can be adjusted and the gain maps can be re-normalized. For pixels with zero or negative gain, the average gain obtained in paragraph 3 and listed in Table 4 is used.

5 READNOISE MAPS

New for Build 3. The read noise reference files contain the average correlated double sampling (CDS) noise calculated from the difference of the first two consecutive frames in

dark exposures. Although CDS noise varies from pixel to pixel for FPA104 we deliver maps where the pixel CDS noise is the average CDS noise in a given output. FPA104 is rapidly degrading and shows an increasing number of hot pixels. For those pixels the CDS noise measurement is contaminated by the possson noise of the charge generated in a frame time. An accurate determination of the CDS noise per pixel does requires many exposures, many dark than those available from ISIM CV2 testing. Due to the limited data available we calculated a spatial average CDS noise for each output.
For each output the average CDS noise in regular and reference pixels has been converted in units of electrons by multiplying the calculated CDS noise with the conversion gain factor listed in table 6.

6 AMPLIFIER TABLES

Deprecated for BUILD 3 . The amplifier tables have been created using the matching pixel-to-pixel gain maps. For each SCA output, the gain values have been averaged using the IDL meanclip.pro procedure considering only positive gain values greater than zero. The read noise values were not calculated and are set to a value of 14 e- in all cases. Table 6 lists the contents of the two delivered reference files. The x/y start/stop values are in the Python slicing convention, i.e. start/stop values of 0/512 correspond to 1/512 in the fits I/O indexing convention.

Table 6: The contents of the two delivered amplifier reference files. The values in the GAIN column are in e^-/DN, the ones in the READNOISE column in e^-.

Filename	AMPLIFIER	XSTART	XSTOP	YSTART	YSTOP	GAIN	READNOISE
nirspec_ampl_nrs1_f_01.00.fits	A	0	512	0	2048	1.459	14.0
	B	512	1024	0	2048	1.444	14.0
	C	1024	1536	0	2048	1.454	14.0
	D	1536	2048	0	2048	1.537	14.0
nirspec_ampl_nrs2_f_01.00.fits	A	0	512	0	2048	1.327	14.0
	B	512	1024	0	2048	1.328	14.0
	C	1024	1536	0	2048	1.336	14.0
	D	1536	2048	0	2048	1.366	14.0

7 REFERENCES

[1]. Hanisch et al. 2001, Astronomy & Astrophysics, 376, 359
[2]. NTN-2013-007, NIRSpec reference data product specification, G. Giardino 2013
[3]. NTN-2011-005 Description of the NIRSpec pre-processing pipeline, S. Birkmann 2011
[4]. JWST-RPT-016094 NIRSpec DS Focal Plane Assembly S/N 104 Characterization Report, GSFC 2010

8 APPENDIX -1

List of background exposures used for the classical photon transfer method:

NRS_A_38_5_QE_BG_600nm_01_1_6617_JW1_jlab81_20100402T114504_20100402T114625
NRS_A_38_5_QE_BG_600nm_01_2_6618_JW1_jlab81_20100402T114634_20100402T114751
NRS_A_38_5_QE_BG_600nm_01_3_6619_JW1_jlab81_20100402T114759_20100402T114915
NRS_A_38_5_QE_BG_600_02_1_6620_JW1_jlab81_20100402T115402_20100402T115521
NRS_A_38_5_QE_BG_600_02_2_6621_JW1_jlab81_20100402T115530_20100402T115647
NRS_A_38_5_QE_BG_600_02_3_6622_JW1_jlab81_20100402T115655_20100402T115813
NRS_A_38_5_QE_BG_600_03_1_6626_JW1_jlab81_20100402T121100_20100402T121221
NRS_A_38_5_QE_BG_600_03_2_6627_JW1_jlab81_20100402T121229_20100402T121345
NRS_A_38_5_QE_BG_600_03_3_6628_JW1_jlab81_20100402T121354_20100402T121511
NRS_A_38_5_QE_BG_700_01_1_6629_JW1_jlab81_20100402T122546_20100402T122707
NRS_A_38_5_QE_BG_700_01_2_6630_JW1_jlab81_20100402T122716_20100402T122833
NRS_A_38_5_QE_BG_700_01_3_6631_JW1_jlab81_20100402T122842_20100402T122959
NRS_A_38_5_QE_BG_800_01_1_6635_JW1_jlab81_20100402T124808_20100402T124927
NRS_A_38_5_QE_BG_800_01_2_6636_JW1_jlab81_20100402T124936_20100402T125053
NRS_A_38_5_QE_BG_800_01_3_6637_JW1_jlab81_20100402T125103_20100402T125219
NRS_A_38_5_QE_BG_800_02_1_6641_JW1_jlab81_20100402T133320_20100402T133441
NRS_A_38_5_QE_BG_800_02_2_6642_JW1_jlab81_20100402T133449_20100402T133607
NRS_A_38_5_QE_BG_800_02_3_6643_JW1_jlab81_20100402T133616_20100402T133733
NRS_A_38_5_QE_BG_900_01_1_6647_JW1_jlab81_20100402T140719_20100402T140839
NRS_A_38_5_QE_BG_900_01_2_6648_JW1_jlab81_20100402T140848_20100402T141005
NRS_A_38_5_QE_BG_900_01_3_6649_JW1_jlab81_20100402T141014_20100402T141131
NRS_A_38_5_QE_BG_1000_01_1_6653_JW1_jlab81_20100402T142826_20100402T142947
NRS_A_38_5_QE_BG_1000_01_2_6654_JW1_jlab81_20100402T142955_20100402T143114
NRS_A_38_5_QE_BG_1000_01_3_6655_JW1_jlab81_20100402T143121_20100402T143239
NRS_A_38_5_QE_BG_1200_01_1_6659_JW1_jlab81_20100402T145247_20100402T145409
NRS_A_38_5_QE_BG_1200_01_2_6660_JW1_jlab81_20100402T145418_20100402T145535
NRS_A_38_5_QE_BG_1200_01_3_6661_JW1_jlab81_20100402T145544_20100402T145659
NRS_A_38_5_QE_BG_1400_01_1_6665_JW1_jlab81_20100402T151218_20100402T151337
NRS_A_38_5_QE_BG_1400_01_2_6666_JW1_jlab81_20100402T151346_20100402T151503
NRS_A_38_5_QE_BG_1400_01_3_6667_JW1_jlab81_20100402T151512_20100402T151629
NRS_A_38_5_QE_BG_1600_01_1_6671_JW1_jlab81_20100402T153256_20100402T153415
NRS_A_38_5_QE_BG_1600_01_2_6672_JW1_jlab81_20100402T153424_20100402T153541
NRS_A_38_5_QE_BG_1600_01_3_6673_JW1_jlab81_20100402T153552_20100402T153707
NRS_A_38_5_QE_BG_1800_01_1_6677_JW1_jlab81_20100402T154954_20100402T155113
NRS_A_38_5_QE_BG_1800_01_2_6678_JW1_jlab81_20100402T155122_20100402T155239
NRS_A_38_5_QE_BG_1800_01_3_6679_JW1_jlab81_20100402T155248_20100402T155405
NRS_A_38_5_QE_BG_2000_01_1_6683_JW1_jlab81_20100402T161258_20100402T161417
NRS_A_38_5_QE_BG_2000_01_2_6684_JW1_jlab81_20100402T161426_20100402T161543
NRS_A_38_5_QE_BG_2000_01_3_6685_JW1_jlab81_20100402T161554_20100402T161709
NRS_A_38_5_QE_BG_2300_01_1_6689_JW1_jlab81_20100402T163129_20100402T163243
NRS_A_38_5_QE_BG_2300_01_2_6690_JW1_jlab81_20100402T163251_20100402T163410
NRS_A_38_5_QE_BG_2300_01_3_6691_JW1_jlab81_20100402T163417_20100402T163535
NRS_A_38_5_QE_BG_2600_01_1_6695_JW1_jlab81_20100402T164952_20100402T165113
NRS_A_38_5_QE_BG_2600_01_2_6696_JW1_jlab81_20100402T165121_20100402T165239
NRS_A_38_5_QE_BG_2600_01_3_6697_JW1_jlab81_20100402T165248_20100402T165405

NRS_A_38_5_QE_BG_2900_01_1_6701_JW1_jlab81_20100402T170758_20100402T170919
NRS_A_38_5_QE_BG_2900_01_2_6702_JW1_jlab81_20100402T170928_20100402T171045
NRS_A_38_5_QE_BG_2900_01_3_6703_JW1_jlab81_20100402T171054_20100402T171212
NRS_A_38_5_QE_BG_3200_01_1_6707_JW1_jlab81_20100402T172459_20100402T172621
NRS_A_38_5_QE_BG_3200_01_2_6708_JW1_jlab81_20100402T172630_20100402T172747
NRS_A_38_5_QE_BG_3200_01_3_6709_JW1_jlab81_20100402T172756_20100402T172913
NRS_A_38_5_QE_BG_3500_01_1_6713_JW1_jlab81_20100402T174134_20100402T174255
NRS_A_38_5_QE_BG_3500_01_2_6714_JW1_jlab81_20100402T174304_20100402T174421
NRS_A_38_5_QE_BG_3500_01_3_6715_JW1_jlab81_20100402T174430_20100402T174546
NRS_A_38_5_QE_BG_3800_01_1_6719_JW1_jlab81_20100402T180012_20100402T180133
NRS_A_38_5_QE_BG_3800_01_2_6720_JW1_jlab81_20100402T180142_20100402T180257
NRS_A_38_5_QE_BG_3800_01_3_6721_JW1_jlab81_20100402T180306_20100402T180423
NRS_A_38_5_QE_BG_4100_01_1_6725_JW1_jlab81_20100402T181724_20100402T181845
NRS_A_38_5_QE_BG_4100_01_2_6726_JW1_jlab81_20100402T181854_20100402T182009
NRS_A_38_5_QE_BG_4100_01_3_6727_JW1_jlab81_20100402T182018_20100402T182135
NRS_A_38_5_QE_BG_4400_01_1_6731_JW1_jlab81_20100402T184137_20100402T184251
NRS_A_38_5_QE_BG_4400_01_2_6732_JW1_jlab81_20100402T184300_20100402T184418
NRS_A_38_5_QE_BG_4400_01_3_6733_JW1_jlab81_20100402T184428_20100402T184544
NRS_A_38_5_QE_BG_4700_01_1_6737_JW1_jlab81_20100402T190038_20100402T190157
NRS_A_38_5_QE_BG_4700_01_2_6738_JW1_jlab81_20100402T190206_20100402T190323
NRS_A_38_5_QE_BG_4700_01_3_6739_JW1_jlab81_20100402T190332_20100402T190449
NRS_A_38_5_QE_BG_5000_01_1_6743_JW1_jlab81_20100402T192417_20100402T192537
NRS_A_38_5_QE_BG_5000_01_2_6744_JW1_jlab81_20100402T192545_20100402T192703
NRS_A_38_5_QE_BG_5000_01_3_6745_JW1_jlab81_20100402T192712_20100402T192829