

# V&V Summary Report

## L2 ASCDS Version : 10.5.2

Observation 19287 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Jan 12 2017

See axaff19287N001\_VV002\_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	20.078315650225

## Comments

Joint proposal with NRAO.

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The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

[http://asc.harvard.edu/cal/Acis/Cal\\_prods/Gain\\_and\\_Spectral\\_Resolution/A\\_CIS\\_response\\_summary.html](http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/A_CIS_response_summary.html)

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
- 2) The gain on FI chips remains within 0.3% below row 600 at all

measured temperatures.

3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.

4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.

5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.

In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.

seq_num	502937	Sequence number
obs_id	19287	Observation id
title	Coordinated X-ray and Radio Observations of the Repeating Fast Radio Burst FRB 121102	Proposal title
observer	Slavko Bogdanov	Principal investigator
object	FRB 121102	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	82.994667	Observer's specified target RA [deg]
dec_targ	33.145869	Observer's specified target Dec [deg]
ra_nom	82.996558537028	Nominal RA [deg]
dec_nom	33.138221633032	Nominal Dec [deg]
roll_nom	254.95003508244	Nominal Roll [deg]
revision	1	Processing version of data
ontime	20078.315650225	Sum of GTIs [s]
livetime	19815.977674814	Livetime [s]
ontime0	20078.192530274	Sum of GTIs [s]
ontime1	20075.092469931	Sum of GTIs [s]
ontime2	20071.992429852	Sum of GTIs [s]
ontime3	20078.315650225	Sum of GTIs [s]
l2events	50208	Number of level 2 events

