

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21692 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Jun 12 2019

See [axaff21692N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.06.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	53.14125

## Comments

The ACIS focal plane temperature is warmer than -114.0 C degrees during the interval 676679630.14 - 676732771.14 (MET s) of this observation. This temperature is the upper limit of the verified ACIS calibration for the front-illuminated chips. The focal plane temperature is warmer than -112.0 C during the interval 676679630.14 - 676706589.64, 676706731.64 - 676708361.14 (MET s) of this observation. This temperature is the upper limit of the verified ACIS calibration for the back-illuminated chips. 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	503146	Sequence number
obs_id	21692	Observation id
title	Continuing Study of 1E1617-5102	Proposal title
observer	Gordon Garmire	Principal investigator
object	1E1617-5102	Source name
ra_targ	244.400908	Observer's specified target RA [deg]
dec_targ	-51.040278	Observer's specified target Dec [deg]
ra_nom	244.40723896191	Nominal RA [deg]
dec_nom	-51.03808196524	Nominal Dec [deg]
roll_nom	331.56416042892	Nominal Roll [deg]
revision	1	Processing version of data
ontime	53141.25	Sum of GTIs [s]
livetime	52933.666992188	Livetime [s]
ontime7	53141.25	Sum of GTIs [s]
l2events	834301	Number of level 2 events

