

# V&V Summary Report

## L2 ASCDS Version : 10.5

Observation 18631 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Aug 10 2016

See [axaff18631N001\\_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	11.807900090933

## Comments

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/Acis\\_response\\_summary.html](http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/Acis_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	801639	Sequence number
obs_id	18631	Observation id
title	Lensing Calibration of the Evolution of Cluster Scaling Relations for eROSITA	Proposal title
observer	Dr. Peter Predehl	Principal investigator
object	CODEX 50514	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	353.05875	Observer's specified target RA [deg]
dec_targ	10.592278	Observer's specified target Dec [deg]
ra_nom	353.05278079561	Nominal RA [deg]
dec_nom	10.59565084728	Nominal Dec [deg]
roll_nom	128.22042260112	Nominal Roll [deg]
revision	1	Processing version of data
ontime	11807.900090933	Sum of GTIs [s]
livetime	11653.621183395	Livetime [s]
ontime0	11807.900090933	Sum of GTIs [s]
ontime1	11807.900090933	Sum of GTIs [s]
ontime2	11807.900090933	Sum of GTIs [s]
ontime3	11807.900090933	Sum of GTIs [s]
ontime7	11807.900090933	Sum of GTIs [s]
l2events	66853	Number of level 2 events

