

V&V Summary Report

L2 ASCDS Version : 10.3.1

Observation 16148 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jan 15 2015

See [axaff16148N001_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	5.514858972311

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

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	801401	Sequence number
obs_id	16148	Observation id
title	Setting the Scale: Supporting precision cluster cosmology with Chandra observations of low-z lensing clusters	Proposal title
observer	Dr Adam Mantz	Principal investigator
object	A667	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	127.019167	Observer's specified target RA [deg]
dec_targ	44.764	Observer's specified target Dec [deg]
ra_nom	126.9946200203	Nominal RA [deg]
dec_nom	44.792294707809	Nominal Dec [deg]
roll_nom	155.25477465778	Nominal Roll [deg]
revision	1	Processing version of data
ontime	5514.858972311	Sum of GTIs [s]
livetime	5442.8032798577	Livetime [s]
ontime0	5518.0000425577	Sum of GTIs [s]
ontime1	5518.0000425577	Sum of GTIs [s]
ontime2	5518.0000425577	Sum of GTIs [s]
ontime3	5514.858972311	Sum of GTIs [s]
ontime6	5518.0000425577	Sum of GTIs [s]
l2events	14509	Number of level 2 events

