

V&V Summary Report

L2 ASCDS Version : 8.4.5

Observation 1786 - L2 Version 5
Chandra X-Ray Center

L2 Processing Date : Aug 29 2012

See axaff01786N003_VV002_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.05
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	7.686

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	590212	Sequence number
obs_id	1786	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I1, T=110, Offsets=-7,-1,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	15.861463710488	Nominal RA [deg]
dec_nom	-71.917184909401	Nominal Dec [deg]
roll_nom	100.37173751674	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7680.0000071377	Sum of GTIs [s]
livetime	7582.7512227065	Livetime [s]
ontime0	7680.0000071377	Sum of GTIs [s]
ontime1	7680.0000071377	Sum of GTIs [s]
ontime2	7680.0000071377	Sum of GTIs [s]
ontime3	7676.7590468973	Sum of GTIs [s]
ontime6	7680.0000071377	Sum of GTIs [s]
ontime7	7680.0000071377	Sum of GTIs [s]
l2events	70290	Number of level 2 events

