

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 22168 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Apr 7 2019

See [axaff22168N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.04.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.06079940033

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	703876	Sequence number
obs_id	22168	Observation id
title	C-BASS: A Chandra Legacy Survey of AGN at the Highest Spatial Resolutions	Proposal title
observer	Michael Koss	Principal investigator
object	2MASXJ02141794+5144520	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	33.574753	Observer's specified target RA [deg]
dec_targ	51.747765	Observer's specified target Dec [deg]
ra_nom	33.579103904758	Nominal RA [deg]
dec_nom	51.750173967132	Nominal Dec [deg]
roll_nom	335.4230856609	Nominal Roll [deg]
revision	1	Processing version of data
ontime	10060.79940033	Sum of GTIs [s]
livetime	9569.8653099302	Livetime [s]
ontime7	10060.79940033	Sum of GTIs [s]
l2events	19222	Number of level 2 events

