

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 22118 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Feb 21 2019

See [axaff22118N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.02.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.091015248537

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	703868	Sequence number
obs_id	22118	Observation id
title	Chandra-NuSTAR synergy in the NuSTAR serendipitous survey	Proposal
observer	Dr David Alexander	Principal investigator
object	Mrk417_s2	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	162.460175	Observer's specified target RA [deg]
dec_targ	23.02739	Observer's specified target Dec [deg]
ra_nom	162.45617360899	Nominal RA [deg]
dec_nom	23.025477435736	Nominal Dec [deg]
roll_nom	146.28065565718	Nominal Roll [deg]
revision	1	Processing version of data
ontime	10091.015248537	Sum of GTIs [s]
livetime	9954.8331313009	Livetime [s]
ontime7	10091.015248537	Sum of GTIs [s]
l2events	41781	Number of level 2 events

