

V&V Summary Report

L2 ASCDS Version : 10.6

Observation 19448 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jul 13 2017

See [axaff19448N001_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	45.080200346828

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	901346	Sequence number
obs_id	19448	Observation id
title	A Magnetic X-ray Filament near the Galactic Center: Seeking the Energy Source	Proposal title
observer	Mark Morris	Principal investigator
object	XMM J0.173-0.413	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.911125	Observer's specified target RA [deg]
dec_targ	-29.00275	Observer's specified target Dec [deg]
ra_nom	266.8979682689	Nominal RA [deg]
dec_nom	-29.017845613561	Nominal Dec [deg]
roll_nom	273.20229350902	Nominal Roll [deg]
revision	1	Processing version of data
ontime	45080.200346828	Sum of GTIs [s]
livetime	44491.194341736	Livetime [s]
ontime0	45077.059266448	Sum of GTIs [s]
ontime1	45077.059266567	Sum of GTIs [s]
ontime2	45080.200346828	Sum of GTIs [s]
ontime3	45080.200346828	Sum of GTIs [s]
l2events	176141	Number of level 2 events

