

V&V Summary Report

L2 ASCDS Version : 10.8.1

Observation 21433 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Oct 9 2019

See [axaff21433N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.10.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	45.069437998891

Comments

The focal plane temperature during the interval 687010953.82 - 687029052.62 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -111.0 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	703730	Sequence number
obs_id	21433	Observation id
title	X-ray and UV monitoring of the extraordinary changing-look AGN Mrk 1018	Proposal title
observer	Mirko Krumpe	Principal investigator
object	Mrk1018	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	31.566667	Observer's specified target RA [deg]
dec_targ	-0.291389	Observer's specified target Dec [deg]
ra_nom	31.563976757895	Nominal RA [deg]
dec_nom	-0.28876572308241	Nominal Dec [deg]
roll_nom	69.736865033967	Nominal Roll [deg]
revision	1	Processing version of data
ontime	45069.437998891	Sum of GTIs [s]
livetime	40875.601304998	Livetime [s]
ontime7	45069.437998891	Sum of GTIs [s]
l2events	31475	Number of level 2 events

