

V&V Summary Report

L2 ASCDS Version : 10.7

Observation 21528 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Nov 7 2018

See [axaff21528N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.11.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	36.076340953469

Comments

The focal plane temperature during the last ~1.5 ks 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	801812	Sequence number
obs_id	21528	Observation id
title	Is there an enormous cold front at the virial radius of the Perseus cluster?	Proposal title
observer	Stephen Walker	Principal investigator
object	Perseus_west_cf_1	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	48.322083	Observer's specified target RA [deg]
dec_targ	41.584861	Observer's specified target Dec [deg]
ra_nom	48.309420651467	Nominal RA [deg]
dec_nom	41.582591869371	Nominal Dec [deg]
roll_nom	166.2170952652	Nominal Roll [deg]
revision	1	Processing version of data
ontime	36076.340953469	Sum of GTIs [s]
livetime	35604.976999896	Livetime [s]
ontime0	36076.21778357	Sum of GTIs [s]
ontime1	36073.117693186	Sum of GTIs [s]
ontime2	36076.299903631	Sum of GTIs [s]
ontime3	36076.340953469	Sum of GTIs [s]
l2events	103975	Number of level 2 events

