

V&V Summary Report

L2 ASCDS Version : 10.5.4

Observation 18450 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : May 9 2017

See axaff18450N001_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	29.457903431416

Comments

One optional chip was dropped.

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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/A_CIS_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	502656	Sequence number
obs_id	18450	Observation id
title	Probing the rare Halpha bow-shock around PSR B0740-28 in X-rays	Pr
observer	Gordon Garmire	Principal investigator
object	PSR B0740-28	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	115.70125	Observer's specified target RA [deg]
dec_targ	-28.378806	Observer's specified target Dec [deg]
ra_nom	115.70160318632	Nominal RA [deg]
dec_nom	-28.387614814147	Nominal Dec [deg]
roll_nom	245.23448104091	Nominal Roll [deg]
revision	1	Processing version of data
ontime	29457.903431416	Sum of GTIs [s]
livetime	29073.014236491	Livetime [s]
ontime0	29445.216230154	Sum of GTIs [s]
ontime1	29457.821560979	Sum of GTIs [s]
ontime2	29464.144391775	Sum of GTIs [s]
ontime3	29457.903431416	Sum of GTIs [s]
l2events	52633	Number of level 2 events

