

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 20301 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : May 23 2019

See [axaff20301N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.05.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	35.072292482495

Comments

The ACIS focal plane temperature is warmer than -114.0 C degrees during the interval 675001382.68 - 675002901.68 (MET s) of this observation. The ACIS spectral response calibration for the front-illuminated chips is less accurate at these warmer temperatures than it is at -115.0 C. 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	502999	Sequence number
obs_id	20301	Observation id
title	The Answer is Blowing in the Wind: Jet Sweepback in Three PWNe	Pro
observer	Roger Romani	Principal investigator
object	PSR J1709-4429	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	257.427724	Observer's specified target RA [deg]
dec_targ	-44.485585	Observer's specified target Dec [deg]
ra_nom	257.36548932135	Nominal RA [deg]
dec_nom	-44.513817174922	Nominal Dec [deg]
roll_nom	36.16504871914	Nominal Roll [deg]
revision	1	Processing version of data
ontime	35072.292482495	Sum of GTIs [s]
livetime	34614.047161365	Livetime [s]
ontime0	35072.292482495	Sum of GTIs [s]
ontime1	35078.615612745	Sum of GTIs [s]
ontime2	35075.515632629	Sum of GTIs [s]
ontime3	35078.697702646	Sum of GTIs [s]
l2events	128781	Number of level 2 events

