

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21292 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Mar 5 2019

See [axaff21292N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.03.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	3.5544703714848

## Comments

The ACIS focal plane temperature is warmer than -112.0 C degrees during the interval 668199362.10 - 668202914.70 (MET s) of this observation. 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](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	503065	Sequence number
obs_id	21292	Observation id
title	Where Have All the Central Compact Objects Gone?	Proposal title
observer	Eric Gotthelf	Principal investigator
object	PSR J1758-2846	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	269.564167	Observer's specified target RA [deg]
dec_targ	-28.767222	Observer's specified target Dec [deg]
ra_nom	269.56043714882	Nominal RA [deg]
dec_nom	-28.766333132155	Nominal Dec [deg]
roll_nom	91.359263194471	Nominal Roll [deg]
revision	1	Processing version of data
ontime	3554.4703714848	Sum of GTIs [s]
livetime	3508.0285993183	Livetime [s]
ontime2	3554.3062114716	Sum of GTIs [s]
ontime3	3548.1062604189	Sum of GTIs [s]
ontime6	3554.4293315411	Sum of GTIs [s]
ontime7	3554.4703714848	Sum of GTIs [s]
ontime8	3554.3472515345	Sum of GTIs [s]
l2events	26994	Number of level 2 events

