

# V&V Summary Report

## L2 ASCDS Version : 10.6

Observation 21083 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Apr 28 2018

See [axaff21083N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.04.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.079041506171

## Comments

The focal plane temperature during the first approximately 8 ksec 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](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.

====

Zeroth order is extended. The zeroth order sky position was determined using a software tool developed by CXC called findzero, which is available in CIAO as part of the tgdetect2 tool. The tool calculates the point of intersection of the readout streak on the ACIS CCD and the meg dispersed spectral arm, rather than using a centroid position of the source. The findzero results are more accurate than source centroid in this case.

seq_num	402026	Sequence number
obs_id	21083	Observation id
title	Wind energetic and dust scattering halo in Swift J1658.2-4242	Prop
observer	Gabriele Ponti	Principal investigator
object	Swift J1658.2-4242	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	254.552917	Observer's specified target RA [deg]
dec_targ	-42.698917	Observer's specified target Dec [deg]
ra_nom	254.55018538428	Nominal RA [deg]
dec_nom	-42.692482885332	Nominal Dec [deg]
roll_nom	61.88455014526	Nominal Roll [deg]
revision	1	Processing version of data
ontime	30079.041506171	Sum of GTIs [s]
livetime	29084.356513413	Livetime [s]
ontime5	30079.000466228	Sum of GTIs [s]
ontime6	30078.959426165	Sum of GTIs [s]
ontime7	30079.041506171	Sum of GTIs [s]
ontime8	30078.918386221	Sum of GTIs [s]
l2events	419220	Number of level 2 events

