

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21159 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Jan 20 2019

See [axaff21159N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.01.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.095083994508

## Comments

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	201215	Sequence number
obs_id	21159	Observation id
title	Spin-down, dynamos and habitability: Chandra/K2 exploration of nearby M dwarfs	Proposal title
observer	Beate Stelzer	Principal investigator
object	EPIC 203869467	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	243.72875	Observer's specified target RA [deg]
dec_targ	-24.618444	Observer's specified target Dec [deg]
ra_nom	243.7253653658	Nominal RA [deg]
dec_nom	-24.616262145159	Nominal Dec [deg]
roll_nom	80.1552278116	Nominal Roll [deg]
revision	1	Processing version of data
ontime	28095.083994508	Sum of GTIs [s]
livetime	27728.00103882	Livetime [s]
ontime1	28091.778864264	Sum of GTIs [s]
ontime2	28091.819914222	Sum of GTIs [s]
ontime3	28091.860924363	Sum of GTIs [s]
ontime6	28095.042954564	Sum of GTIs [s]
ontime7	28095.083994508	Sum of GTIs [s]
l2events	199106	Number of level 2 events

