

V&V Summary Report

L2 ASCDS Version : 10.8

Observation 21379 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Aug 9 2019

See [axaff21379N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.08.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	80.060106878638

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., -111.0 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

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	601431	Sequence number
obs_id	21379	Observation id
title	Testing Cosmic Ray vs X-ray Driven Chemistry in Extreme Star-Forming Conditions	Proposal title
observer	Jeremy Drake	Principal investigator
object	IRAS 18293-3413	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.171667	Observer's specified target RA [deg]
dec_targ	-34.190944	Observer's specified target Dec [deg]
ra_nom	278.18056356814	Nominal RA [deg]
dec_nom	-34.20602258806	Nominal Dec [deg]
roll_nom	287.06742266082	Nominal Roll [deg]
revision	1	Processing version of data
ontime	80060.106878638	Sum of GTIs [s]
livetime	79014.062642876	Livetime [s]
ontime3	80050.601477385	Sum of GTIs [s]
ontime6	80047.501517653	Sum of GTIs [s]
ontime7	80060.106878638	Sum of GTIs [s]
ontime8	80053.701588154	Sum of GTIs [s]
l2events	520088	Number of level 2 events

