

V&V Summary Report

L2 ASCDS Version : 10.8.1

Observation 22336 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Dec 22 2019

See [axaff22336N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Melania Nynka
V&V Date (YYYY-MM-DD)	2019.12.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	25.930181418538

Comments

The focal plane temperature during the interval 693425243.99 - 693426843.59 (MET s) 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/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.

seq_num	201298	Sequence number
obs_id	22336	Observation id
title	THE TRUE NATURE OF X-RAYS FROM THE ORION TRAPEZIUM	Proposal title
observer	Norbert Schulz	Principal investigator
object	Orion Nebula Cluster	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.81875	Observer's specified target RA [deg]
dec_targ	-5.38975	Observer's specified target Dec [deg]
ra_nom	83.823639524827	Nominal RA [deg]
dec_nom	-5.3860282348164	Nominal Dec [deg]
roll_nom	348.53963361969	Nominal Roll [deg]
revision	1	Processing version of data
ontime	25930.181418538	Sum of GTIs [s]
livetime	25591.384508783	Livetime [s]
ontime5	25930.140378594	Sum of GTIs [s]
ontime6	25930.099338531	Sum of GTIs [s]
ontime7	25930.181418538	Sum of GTIs [s]
ontime8	25930.058298588	Sum of GTIs [s]
l2events	372421	Number of level 2 events

