

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21255 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : May 13 2019

See [axaff21255N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.05.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5.0561000390053

Comments

The ACIS focal plane temperature is warmer than -114.0 C degrees during the interval 674134648.67 - 674136421.87 (MET s) of this observation. The ACIS spectral response calibration for the front-illuminated chips is less accurate at these warmer temperatures than it is at -115.0 C. 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/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	402087	Sequence number
obs_id	21255	Observation id
title	The Nature of INTEGRAL Sources in the Galactic Plane	Proposal titl
observer	John Tomsick	Principal investigator
object	IGR J18013-3222	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	270.325833	Observer's specified target RA [deg]
dec_targ	-32.371	Observer's specified target Dec [deg]
ra_nom	270.32199734083	Nominal RA [deg]
dec_nom	-32.364689371977	Nominal Dec [deg]
roll_nom	86.206572559162	Nominal Roll [deg]
revision	1	Processing version of data
ontime	5056.1000390053	Sum of GTIs [s]
livetime	4990.038369749	Livetime [s]
ontime0	5056.1000390053	Sum of GTIs [s]
ontime1	5056.1000390053	Sum of GTIs [s]
ontime2	5056.1000390053	Sum of GTIs [s]
ontime3	5056.1000390053	Sum of GTIs [s]
ontime7	5056.1000390053	Sum of GTIs [s]
l2events	34669	Number of level 2 events

