

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21541 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jan 12 2019

See [axaff21541N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.01.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.079159048796

Comments

One optional chip was dropped.

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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

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	801823	Sequence number
obs_id	21541	Observation id
title	A direct Chandra - Suzaku comparison of cluster outskirts	Proposal
observer	Andrea Morandi	Principal investigator
object	A773	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	139.277917	Observer's specified target RA [deg]
dec_targ	51.849472	Observer's specified target Dec [deg]
ra_nom	139.26654754837	Nominal RA [deg]
dec_nom	51.851287401115	Nominal Dec [deg]
roll_nom	137.21767308876	Nominal Roll [deg]
revision	1	Processing version of data
ontime	18079.159048796	Sum of GTIs [s]
livetime	17842.94152614	Livetime [s]
ontime0	18082.300139189	Sum of GTIs [s]
ontime1	18079.159068942	Sum of GTIs [s]
ontime2	18082.300139189	Sum of GTIs [s]
ontime3	18079.159048796	Sum of GTIs [s]
l2events	49436	Number of level 2 events

