

V&V Summary Report

L2 ASCDS Version : 10.8.1

Observation 22869 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Oct 12 2019

See [axaff22869N001_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.10.25
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	35.026859189272

Comments

A spatial region of the original bias map for CCD = 1 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. In this case, the bias map for CCD = 1 could not be improved because no suitable data at a compatible temperature and time range are available to use as replacement values. The bias map used in this processing is the original bias map telemetered with the observation.

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The focal plane temperature during the interval 687225264.11 - 687226891.61 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -112.0 C for ACIS-I).

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:

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.

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One optional chip was dropped.

seq_num	703950	Sequence number
obs_id	22869	Observation id
title	Unveiling the AGN population in the highest redshift, mature, massive galaxy cluster	Proposal title
observer	Emil Noordeh	Principal investigator
object	XLSSC 122	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	34.433	Observer's specified target RA [deg]
dec_targ	-3.759	Observer's specified target Dec [deg]
ra_nom	34.434882279582	Nominal RA [deg]
dec_nom	-3.7500280363028	Nominal Dec [deg]
roll_nom	59.208820385861	Nominal Roll [deg]
revision	1	Processing version of data
ontime	35026.859189272	Sum of GTIs [s]
livetime	34569.207487565	Livetime [s]
ontime0	35023.718148828	Sum of GTIs [s]
ontime1	35020.577078938	Sum of GTIs [s]
ontime2	35020.576998234	Sum of GTIs [s]
ontime3	35026.859189272	Sum of GTIs [s]
l2events	100393	Number of level 2 events

