

# V&V Summary Report

## L2 ASCDS Version : 10.8.1

Observation 22870 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Oct 14 2019

See axaff22870N001\_VV001\_vvref2.pdf for the full report

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2019.10.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	32.236031610727

## Comments

Optional chip S2 not included

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Comment for FP temp violation

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The focal plane temperature during the interval 687402898.64 - 687404585.04 (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:

[http://asc.harvard.edu/cal/Acis/Cal\\_prods/Gain\\_and\\_Spectral\\_Resolution/A\\_CIS\\_response\\_summary.html](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.

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seq_num	703950	Sequence number
obs_id	22870	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	&#160
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	34.435113488118	Nominal RA [deg]
dec_nom	-3.747940874457	Nominal Dec [deg]
roll_nom	59.20879562664	Nominal Roll [deg]
revision	1	Processing version of data
ontime	32236.031610727	Sum of GTIs [s]
livetime	31814.844125912	Livetime [s]
ontime0	32235.908490777	Sum of GTIs [s]
ontime1	32229.667289495	Sum of GTIs [s]
ontime2	32235.990570784	Sum of GTIs [s]
ontime3	32236.031610727	Sum of GTIs [s]
l2events	92258	Number of level 2 events

