

# V&V Summary Report

## L2 ASCDS Version : 10.7

Observation 21966 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Nov 21 2018

See axaff21966N001\_VV001\_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.11.21
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.320500156403

## Comments

The guide star in slot 5 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.

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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](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	801798	Sequence number
obs_id	21966	Observation id
title	Witnessing the formation of a radio halo	Proposal title
observer	Ralph Kraft	Principal investigator
object	Abell 2219	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	250.089167	Observer's specified target RA [deg]
dec_targ	46.705833	Observer's specified target Dec [deg]
ra_nom	250.10189667388	Nominal RA [deg]
dec_nom	46.708273096918	Nominal Dec [deg]
roll_nom	348.19940418959	Nominal Roll [deg]
revision	1	Processing version of data
ontime	20320.500156403	Sum of GTIs [s]
livetime	20054.997862125	Livetime [s]
ontime0	20317.359136224	Sum of GTIs [s]
ontime1	20320.500156403	Sum of GTIs [s]
ontime2	20317.359136224	Sum of GTIs [s]
ontime3	20320.500156403	Sum of GTIs [s]
ontime7	20320.500156403	Sum of GTIs [s]
l2events	163847	Number of level 2 events

