

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21704 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Jan 29 2019

See [axaff21704N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.01.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	31.452559271693

## Comments

The focal plane temperature during the interval 665147454.06 - 665148994.76 (MET s) 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](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	801850	Sequence number
obs_id	21704	Observation id
title	Studying the Progenitors of Our Favorite Clusters at $z > 1$ (HRC-GTO)	&#160
observer	Ralph Kraft	Principal investigator
object	SPT-CLJ2331-5736	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	352.9189	Observer's specified target RA [deg]
dec_targ	-57.6155	Observer's specified target Dec [deg]
ra_nom	352.91658092701	Nominal RA [deg]
dec_nom	-57.622778932668	Nominal Dec [deg]
roll_nom	232.20674089557	Nominal Roll [deg]
revision	1	Processing version of data
ontime	31452.559271693	Sum of GTIs [s]
livetime	31041.608429771	Livetime [s]
ontime0	31452.559281826	Sum of GTIs [s]
ontime1	31452.559221864	Sum of GTIs [s]
ontime2	31452.559271693	Sum of GTIs [s]
ontime3	31452.559271693	Sum of GTIs [s]
l2events	90853	Number of level 2 events

