

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21470 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Mar 27 2019

See axaff21470N001\_VV001\_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.03.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	19.108375369072

## Comments

The guide star in slot 4 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	703766	Sequence number
obs_id	21470	Observation id
title	RUNAWAY TIDAL CAPTURE IN NUCLEAR STAR CLUSTERS AS A FORMATION PATHWAY FOR MASSIVE BLACK HOLES	Proposal title
observer	Vivienne Baldassare	Principal investigator
object	UGC 09215	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	215.863333	Observer's specified target RA [deg]
dec_targ	1.726222	Observer's specified target Dec [deg]
ra_nom	215.85948869552	Nominal RA [deg]
dec_nom	1.7277603696951	Nominal Dec [deg]
roll_nom	97.523543414773	Nominal Roll [deg]
revision	1	Processing version of data
ontime	19108.375369072	Sum of GTIs [s]
lifetime	18858.710377494	Lifetime [s]
ontime6	19105.193238735	Sum of GTIs [s]
ontime7	19108.375369072	Sum of GTIs [s]
ontime8	19098.87003839	Sum of GTIs [s]
l2events	108348	Number of level 2 events

