

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21457 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Mar 27 2019

See [axaff21457N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.03.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.56996036005

## Comments

The focal plane temperature is warmer than -112.0 C during the interval 670061570.54 - 670077140.14 (MET s) of this observation. The focal plane temperature during that interval 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	703754	Sequence number
obs_id	21457	Observation id
title	Event Horizon Dynamics: Joint Chandra/EHT Imaging of Sgr A* and M87	&#160
observer	Daryl Haggard	Principal investigator
object	M87	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.705833	Observer's specified target RA [deg]
dec_targ	12.391111	Observer's specified target Dec [deg]
ra_nom	187.70312951863	Nominal RA [deg]
dec_nom	12.388336399438	Nominal Dec [deg]
roll_nom	162.15721570555	Nominal Roll [deg]
revision	1	Processing version of data
ontime	15569.96036005	Sum of GTIs [s]
livetime	14121.132196672	Livetime [s]
ontime7	15569.96036005	Sum of GTIs [s]
l2events	81724	Number of level 2 events

