

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21453 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Mar 29 2019

See axaff21453N001_VV001_vvref2.pdf for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.04.01
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	33.068798028827

Comments

The focal plane temperature is warmer than -112.0 C during the interval 670220448.16 - 670222849.36 (MET s) of this observation. 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

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	703750	Sequence number
obs_id	21453	Observation id
title	Event Horizon Dynamics: Joint Chandra/EHT Imaging of Sgr A* and M87	
observer	Daryl Haggard	Principal investigator
object	Sgr A*	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.416667	Observer's specified target RA [deg]
dec_targ	-29.007833	Observer's specified target Dec [deg]
ra_nom	266.41325131797	Nominal RA [deg]
dec_nom	-29.007355783668	Nominal Dec [deg]
roll_nom	93.15497187532	Nominal Roll [deg]
revision	1	Processing version of data
ontime	33068.798028827	Sum of GTIs [s]
livetime	29991.654297866	Livetime [s]
ontime7	33068.798028827	Sum of GTIs [s]
l2events	34454	Number of level 2 events

