

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21514 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jan 12 2019

See [axaff21514N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.01.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.504000735402

Comments

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/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	703807	Sequence number
obs_id	21514	Observation id
title	X-ray Properties of Extreme Super Eddington Accreting Massive Black Holes	Proposal title
observer	Michael Brotherton	Principal investigator
object	SDSS J084533.28+474934.5	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	131.38875	Observer's specified target RA [deg]
dec_targ	47.82625	Observer's specified target Dec [deg]
ra_nom	131.38204261454	Nominal RA [deg]
dec_nom	47.824559672842	Nominal Dec [deg]
roll_nom	145.53193036389	Nominal Roll [deg]
revision	1	Processing version of data
ontime	18504.000735402	Sum of GTIs [s]
livetime	17319.356734746	Livetime [s]
ontime6	18504.000735402	Sum of GTIs [s]
ontime7	18504.000735402	Sum of GTIs [s]
ontime8	18503.988155365	Sum of GTIs [s]
l2events	15293	Number of level 2 events

