

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 22067 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Feb 1 2019

See axaff22067N001_VV001_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.02.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	25.060400192857

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	703856	Sequence number
obs_id	22067	Observation id
title	Calibration of the quasar Hubble diagram with z	Proposal title
observer	Francesca Civano	Principal investigator
object	SDSSJ084339.24+053125.2	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	130.913528	Observer's specified target RA [deg]
dec_targ	5.52369	Observer's specified target Dec [deg]
ra_nom	130.91772560377	Nominal RA [deg]
dec_nom	5.5255337912864	Nominal Dec [deg]
roll_nom	327.1562257719	Nominal Roll [deg]
revision	1	Processing version of data
ontime	25060.400192857	Sum of GTIs [s]
livetime	24732.967615139	Livetime [s]
ontime5	25060.400192857	Sum of GTIs [s]
ontime6	25057.259122491	Sum of GTIs [s]
ontime7	25060.400192857	Sum of GTIs [s]
ontime8	25054.117861032	Sum of GTIs [s]
l2events	278008	Number of level 2 events

