

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21396 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Feb 16 2019

See [axaff21396N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.02.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.41400014174

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	703694	Sequence number
obs_id	21396	Observation id
title	COMPLETING THE CHANDRA EXTRAGALACTIC 3CR SURVEY	Proposal title
observer	Fr Massaro	Principal investigator
object	3CR 249.0	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	165.515833	Observer's specified target RA [deg]
dec_targ	-1.271472	Observer's specified target Dec [deg]
ra_nom	165.5145870855	Nominal RA [deg]
dec_nom	-1.266955541079	Nominal Dec [deg]
roll_nom	49.290675645088	Nominal Roll [deg]
revision	1	Processing version of data
ontime	18414.00014174	Sum of GTIs [s]
liveltime	18173.407673698	Livetime [s]
ontime2	18414.00014174	Sum of GTIs [s]
ontime3	18410.859041452	Sum of GTIs [s]
ontime6	18410.859071612	Sum of GTIs [s]
ontime7	18414.00014174	Sum of GTIs [s]
l2events	113510	Number of level 2 events

