

V&V Summary Report

L2 ASCDS Version : 10.5.4

Observation 18904 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jun 9 2017

See [axaff18904N001_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	80.076059535742

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	201097	Sequence number
obs_id	18904	Observation id
title	X-raying the Bones of the Milky Way	Proposal title
observer	Leisa Townsley	Principal investigator
object	G337.978-0.473	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	250.35	Observer's specified target RA [deg]
dec_targ	-47.084972	Observer's specified target Dec [deg]
ra_nom	250.36205674761	Nominal RA [deg]
dec_nom	-47.083510852693	Nominal Dec [deg]
roll_nom	343.21752788374	Nominal Roll [deg]
revision	1	Processing version of data
ontime	80076.059535742	Sum of GTIs [s]
livetime	79029.80686677	Livetime [s]
ontime0	80069.777395248	Sum of GTIs [s]
ontime1	80079.200616002	Sum of GTIs [s]
ontime2	80063.495275259	Sum of GTIs [s]
ontime3	80076.059535742	Sum of GTIs [s]
l2events	205538	Number of level 2 events

