

V&V Summary Report

L2 ASCDS Version : 8.4.5

Observation 1770 - L2 Version 5
Chandra X-Ray Center

L2 Processing Date : Aug 30 2012

See axaff01770N003_VV002_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.05
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	7.315

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	590196	Sequence number
obs_id	1770	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip S3, T=110, Offsets=-1,0,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.36953601559	Nominal RA [deg]
dec_nom	-10.575837754566	Nominal Dec [deg]
roll_nom	205.32909070027	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7308.7335641384	Sum of GTIs [s]
livetime	7216.1859789583	Livetime [s]
ontime0	7312.0000067949	Sum of GTIs [s]
ontime1	7311.8103743792	Sum of GTIs [s]
ontime2	7311.8514143825	Sum of GTIs [s]
ontime3	7311.8924543858	Sum of GTIs [s]
ontime6	7311.9334943742	Sum of GTIs [s]
ontime7	7308.7335641384	Sum of GTIs [s]
l2events	71720	Number of level 2 events

