

V&V Summary Report

L2 ASCDS Version : 10.5

Observation 17743 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Aug 2 2016

See [axaff17743N001_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	75.611679680705

Comments

One optional chip was dropped.

==

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/A_CIS_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	201052	Sequence number
obs_id	17743	Observation id
title	Formation of the W40 Cluster at the Heart of the Aquila Star-Forming Region	Proposal title
observer	Michael Kuhn	Principal investigator
object	W40	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	277.865417	Observer's specified target RA [deg]
dec_targ	-2.087333	Observer's specified target Dec [deg]
ra_nom	277.86473817808	Nominal RA [deg]
dec_nom	-2.0940951848142	Nominal Dec [deg]
roll_nom	242.3441466126	Nominal Roll [deg]
revision	1	Processing version of data
ontime	75611.679680705	Sum of GTIs [s]
livetime	74623.757421168	Livetime [s]
ontime0	75608.415470481	Sum of GTIs [s]
ontime1	75611.597520113	Sum of GTIs [s]
ontime2	75608.497580528	Sum of GTIs [s]
ontime3	75611.679680705	Sum of GTIs [s]
ontime7	75614.861790895	Sum of GTIs [s]
l2events	431809	Number of level 2 events

