V&V Summary Report
L2 ASCDS Version : 8.4.3

Observation 13479 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Jan 20 2012

See axaff13479N002_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	51.249159403861

Comments

A spatial region of the original bias map for CCD = 0 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 0 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (14.47994,-61.96975),(14.48650,-61.96916),(14.47450,-61.93957),(14.46794,-61.94015)

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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	801120	Sequence number
obs_id	13479	Observation id
title	Cosmology and Cluster Evolution from the 80 Most Massive Clusters in 2000 deg^2 from the South Pole Telescope Survey	Proposal title
observer	Dr Bradford Benson	Principal investigator
object	SPT-CLJ0058-6145	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	14.572917	Observer's specified target RA [deg]
dec_targ	-61.760111	Observer's specified target Dec [deg]
ra_nom	14.599293275924	Nominal RA [deg]
dec_nom	-61.813089753817	Nominal Dec [deg]
roll_nom	280.90176781434	Nominal Roll [deg]
revision	2	Processing version of data
ontime	51249.159403861	Sum of GTIs [s]
livetime	50579.551407167	Livetime [s]
ontime0	51249.159423828	Sum of GTIs [s]
ontime1	51249.15940392	Sum of GTIs [s]
ontime2	51246.018572867	Sum of GTIs [s]
ontime3	51249.159403861	Sum of GTIs [s]
ontime6	51252.300394177	Sum of GTIs [s]
l2events	153218	Number of level 2 events