

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21218 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jun 12 2019

See [axaff21218N001_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.06.24
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	10.334836235046

Comments

A spatial region of the original bias map for CCD = 8 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. In this case, the bias map for CCD = 8 could not be improved because no suitable data at a compatible temperature and time range are available to use as replacement values. The bias map used in this processing is the original bias map telemetered with the observation.

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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. 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

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.

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Joint proposal with HST.

Three optional chips were dropped.

seq_num	402051	Sequence number
obs_id	21218	Observation id
title	Transient LMXBs in Globular Clusters	Proposal title
observer	Jeroen Homan	Principal investigator
object	Terzan 6 Transient	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	267.69525	Observer's specified target RA [deg]
dec_targ	-31.274683	Observer's specified target Dec [deg]
ra_nom	267.66905482587	Nominal RA [deg]
dec_nom	-31.249571899311	Nominal Dec [deg]
roll_nom	45.143047021337	Nominal Roll [deg]
revision	1	Processing version of data
ontime	10334.836235046	Sum of GTIs [s]
livetime	10199.80399124	Livetime [s]
ontime6	10334.795195103	Sum of GTIs [s]
ontime7	10334.836235046	Sum of GTIs [s]
ontime8	10334.75415504	Sum of GTIs [s]
l2events	109544	Number of level 2 events

