V&V Summary Report
L2 ASCDS Version : 10.8

Observation 21898 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Sep 26 2019

See axaff21898N002_VV001_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.09.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	56.43773167336

Comments

ACIS T_GAIN files released in CalDB 4.8.3 (23 May 2019) and CalDB 4.8.4 (03 September 2019) have errors in the T_GAIN corrections for ACIS-I chips 0, 1, 2, and 3, and ACIS-S chip 6 (S2). All ACIS OBS_IDs including those chips, which were processed (or reprocessed) in SDP between 2019-05-24T01:06:00 and 2019-09-06T17:31:43 with CalDB 4.8.3, 4.8.3.1, or 4.8.4, were affected. The errors in the T_GAINs, which produce a 1%-2% reduction in the PHA and hence the ENERGY column values for dithered observations, result from alternating real value and zero value columns in CHIPX space across FI chips ACIS-0, 1, 2, 3, and 6. The error has been corrected in this version of the data products.
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The focal plane temperature during the interval 682400186.76 - 682403165.86 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -111.0 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	201176	Sequence number
obs_id	21898	Observation id
title	Legacy HETG Spectrum of a Massive Star: zeta Pup	Proposal title
observer	Wayne Waldron	Principal investigator
object	zeta Pup	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	120.895833	Observer's specified target RA [deg]
dec_targ	-40.003139	Observer's specified target Dec [deg]
ra_nom	120.89216168972	Nominal RA [deg]
dec_nom	-40.005402109846	Nominal Dec [deg]
roll_nom	151.20209415877	Nominal Roll [deg]
revision	2	Processing version of data
ontime	56437.73167336	Sum of GTIs [s]
livetime	55700.331160194	Livetime [s]
ontime4	56437.567513347	Sum of GTIs [s]
ontime5	56437.690633416	Sum of GTIs [s]
ontime6	56437.649593353	Sum of GTIs [s]
ontime7	56437.73167336	Sum of GTIs [s]
ontime8	56431.326562643	Sum of GTIs [s]
l2events	698127	Number of level 2 events