V&V Summary Report
L2 ASCDS Version : 10.8

Observation 21403 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Sep 26 2019

See axaff21403N002_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	18.077277457356

Comments

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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 part 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/A
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CIS_response_summary

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	703701	Sequence number
obs_id	21403	Observation id
title	COMPLETING THE CHANDRA EXTRAGALACTIC 3CR SURVEY	Proposal title
observer	Francesco Massaro	Principal investigator
object	3CR 454.0	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	342.894583	Observer's specified target RA [deg]
dec_targ	18.811139	Observer's specified target Dec [deg]
ra_nom	342.89411794743	Nominal RA [deg]
dec_nom	18.808618864104	Nominal Dec [deg]
roll_nom	161.15680298658	Nominal Roll [deg]
revision	2	Processing version of data
ontime	18077.277457356	Sum of GTIs [s]
livetime	17833.317671609	Livetime [s]
ontime6	18074.195327044	Sum of GTIs [s]
ontime7	18077.277457356	Sum of GTIs [s]
l2events	89700	Number of level 2 events