V&V Summary Report
L2 ASCDS Version : 10.9.2

Observation 22997 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Oct 16 2020

See axaff22997N001_VV001_vvref2.pdf for the full report

V&V Scientist	Melania Nynka
V&V Date (YYYY-MM-DD)	2020.10.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	26.943837353945

Comments

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The focal plane temperature during the interval 719178083.62 -
719183885.22 (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/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.
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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	201298	Sequence number
obs_id	22997	Observation id
title	THE TRUE NATURE OF X-RAYS FROM THE ORION TRAPEZIUM	Proposal title
observer	Norbert Schulz	Principal investigator
object	Orion Nebula Cluster	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.81875	Observer's specified target RA [deg]
dec_targ	-5.38975	Observer's specified target Dec [deg]
ra_nom	83.820042493585	Nominal RA [deg]
dec_nom	-5.3920504085564	Nominal Dec [deg]
roll_nom	77.155489433506	Nominal Roll [deg]
revision	1	Processing version of data
ontime	26943.837353945	Sum of GTIs [s]
livetime	26602.658261738	Livetime [s]
ontime4	26943.878393888	Sum of GTIs [s]
ontime5	26943.796313882	Sum of GTIs [s]
ontime6	26943.755273938	Sum of GTIs [s]
ontime7	26943.837353945	Sum of GTIs [s]
ontime8	26943.714233875	Sum of GTIs [s]
ontime9	26943.673193932	Sum of GTIs [s]
l2events	428159	Number of level 2 events