V&V Summary Report
L2 ASCDS Version : 10.8.1

Observation 22327 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Oct 23 2019

See axaff22327N001_VV001_vvref2.pdf for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.10.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.477079330444

Comments

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The focal plane temperature during the interval 688156941.26 -
688169420.46 (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.

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This star is bright in both X-rays and optically (V=4.85) so the observer has chosen a
0.4-s frame time and offset of Y=-2.0' to reduce pileup and optical loading.

seq_num	201291	Sequence number
obs_id	22327	Observation id
title	X-Ray Stellar Cycles at Low Rossby Number	Proposal title
observer	Bradford Wargelin	Principal investigator
object	HD 20630	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	49.841917	Observer's specified target RA [deg]
dec_targ	3.370731	Observer's specified target Dec [deg]
ra_nom	49.850341242708	Nominal RA [deg]
dec_nom	3.4057464060413	Nominal Dec [deg]
roll_nom	70.428777435885	Nominal Roll [deg]
revision	1	Processing version of data
ontime	15477.079330444	Sum of GTIs [s]
livetime	14036.894005482	Livetime [s]
ontime7	15477.079330444	Sum of GTIs [s]
l2events	16980	Number of level 2 events