V&V Summary Report
L2 ASCDS Version : 8.4.3

Observation 12831 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Feb 10 2012

See axaff12831N002_VV002_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	30.06279978925

Comments

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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., -114.0 C for ACIS-I and -112.0 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.
3) The gain on FI chips above row 600 can be underestimated by as much
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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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The data for this observation have been processed using the 'EDSER'
sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610,
1204). Small-scale features should become sharper for sources near the
aim point. The improvement will be less noticeable for off-axis sources
where the size of the point-spread function is comparable to or larger
than the size of an ACIS pixel. To take full advantage of the
improvement, images should be binned on spatial scales smaller than the
size of an ACIS pixel. Note that, at present, the point-spread function
has not been calibrated for data to which the EDSER algorithm has been
applied. If dither was disabled for the observation, then the algorithm
can introduce artificial aliasing effects on spatial scales smaller than
a pixel. If you would prefer to use no sub-pixel adjustment or to apply
a coordinate randomization, then use acis_process_events to reprocess
the data with the parameter pix_adj=NONE or RANDOMIZE, respectively.

seq_num	702464	Sequence number
obs_id	12831	Observation id
title	Energy Dependent X-ray Microlensing	Proposal title
observer	Dr. Christopher Kochanek	Principal investigator
object	Q2237+0305	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	340.12625	Observer's specified target RA [deg]
dec_targ	3.358	Observer's specified target Dec [deg]
ra_nom	340.12250524035	Nominal RA [deg]
dec_nom	3.3611083224491	Nominal Dec [deg]
roll_nom	108.73211038322	Nominal Roll [deg]
revision	2	Processing version of data
ontime	30062.79978925	Sum of GTIs [s]
livetime	29354.15593078	Livetime [s]
ontime2	30059.317749023	Sum of GTIs [s]
ontime3	30061.058749199	Sum of GTIs [s]
ontime6	30062.79978925	Sum of GTIs [s]
ontime7	30062.79978925	Sum of GTIs [s]
ontime8	30062.79978925	Sum of GTIs [s]
l2events	104760	Number of level 2 events