

V&V Summary Report

L2 ASCDS Version : 10.5.2

Observation 19987 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Feb 1 2017

See [axaff19987N002_VV002_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	128.05623836243

Comments

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/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	703249	Sequence number
obs_id	19987	Observation id
title	QSOs at z=6: Black Hole Growth and Feedback in the Early Universe	
observer	Dr Roberto Gilli	Principal investigator
object	SDSSJ1030+0524	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	157.612917	Observer's specified target RA [deg]
dec_targ	5.415278	Observer's specified target Dec [deg]
ra_nom	157.61813389386	Nominal RA [deg]
dec_nom	5.4264659599587	Nominal Dec [deg]
roll_nom	64.208198861756	Nominal Roll [deg]
revision	2	Processing version of data
ontime	128056.23836875	Sum of GTIs [s]
livetime	126383.08934083	Livetime [s]
ontime0	128074.96164954	Sum of GTIs [s]
ontime1	128059.297158	Sum of GTIs [s]
ontime2	128065.62054908	Sum of GTIs [s]
ontime3	128056.23836875	Sum of GTIs [s]
l2events	326544	Number of level 2 events

