

# V&V Summary Report

## L2 ASCDS Version : 10.7

Observation 21877 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Dec 9 2018

See [axaff21877N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.12.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	48.099469031572

## Comments

One optional chip was dropped.

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](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	703759	Sequence number
obs_id	21877	Observation id
title	X-raying a rare hyperluminous ultramassive black-hole at cosmic dawn	&#160
observer	Luca Zappacosta	Principal investigator
object	J03064+1853	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	46.677083	Observer's specified target RA [deg]
dec_targ	18.887722	Observer's specified target Dec [deg]
ra_nom	46.681522219244	Nominal RA [deg]
dec_nom	18.88622984288	Nominal Dec [deg]
roll_nom	283.1551806848	Nominal Roll [deg]
revision	1	Processing version of data
ontime	48099.469031572	Sum of GTIs [s]
livetime	47471.014058361	Livetime [s]
ontime3	48096.245911121	Sum of GTIs [s]
ontime6	48099.427991629	Sum of GTIs [s]
ontime7	48099.469031572	Sum of GTIs [s]
l2events	258650	Number of level 2 events

