

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 21315 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Apr 10 2019

See [axaff21315N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.04.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.056700115919

Comments

The focal plane temperature is warmer than -112.0 C during the interval 671218132.95 - 671223985.75 (MET s) of this observation. 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	503087	Sequence number
obs_id	21315	Observation id
title	Late-time X-rays to map the Zoo of Engine-driven Stellar Explosions	
observer	Aprajita Hajela	Principal investigator
object	GRB190114C	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.504962	Observer's specified target RA [deg]
dec_targ	-26.946314	Observer's specified target Dec [deg]
ra_nom	54.506633636018	Nominal RA [deg]
dec_nom	-26.950504240965	Nominal Dec [deg]
roll_nom	231.31656343827	Nominal Roll [deg]
revision	1	Processing version of data
ontime	15056.700115919	Sum of GTIs [s]
livetime	14859.973244323	Livetime [s]
ontime5	15056.700115919	Sum of GTIs [s]
ontime6	15056.700115919	Sum of GTIs [s]
ontime7	15056.700115919	Sum of GTIs [s]
ontime8	15056.700115919	Sum of GTIs [s]
l2events	170052	Number of level 2 events

