

V&V Summary Report

L2 ASCDS Version : 10.7.1

Observation 20747 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jun 9 2019

See [axaff20747N001_VV001_vvref2.pdf](#) for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.06.09
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	50.1665

Comments

Comments for Obi 0

The ACIS focal plane temperature is warmer than -114.0 C degrees during the interval 676376648.21 - 676426815.46 (MET s) of this observation. This temperature is the upper limit of the verified ACIS calibration for the front-illuminated chips. The focal plane temperature is warmer than -112.0 C during the interval 676412110.71 - 676417282.46, 676417654.71 - 676420541.71, 676420719.21 - 676422135.71, 676422259.96 - 676426815.46 (MET s) of this observation. This temperature is the upper limit of the verified ACIS calibration for the back-illuminated chips. 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

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	503041	Sequence number
obs_id	20747	Observation id
title	Spinup and changes in pulse profile of 1E161348-5055 in RCW 103	Pr
observer	Gordon Garmire	Principal investigator
object	1E161348-5055	Source name
ra_targ	244.40125	Observer's specified target RA [deg]
dec_targ	-51.040278	Observer's specified target Dec [deg]
ra_nom	244.40241253929	Nominal RA [deg]
dec_nom	-51.03780530575	Nominal Dec [deg]
roll_nom	338.1058600155	Nominal Roll [deg]
revision	1	Processing version of data
ontime	50166.5	Sum of GTIs [s]
livetime	49970.537109375	Livetime [s]
ontime6	50165.041925788	Sum of GTIs [s]
ontime7	50166.5	Sum of GTIs [s]
l2events	963504	Number of level 2 events

