

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21402 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Mar 16 2019

See [axaff21402N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.03.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.066363796711

## 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](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	703700	Sequence number
obs_id	21402	Observation id
title	COMPLETING THE CHANDRA EXTRAGALACTIC 3CR SURVEY	Proposal title
observer	Fr Massaro	Principal investigator
object	3CR 454.1	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	342.637083	Observer's specified target RA [deg]
dec_targ	71.488639	Observer's specified target Dec [deg]
ra_nom	342.63830503983	Nominal RA [deg]
dec_nom	71.492239985977	Nominal Dec [deg]
roll_nom	17.155507258528	Nominal Roll [deg]
revision	1	Processing version of data
ontime	18066.363796711	Sum of GTIs [s]
livetime	17830.313453443	Livetime [s]
ontime2	18066.240676761	Sum of GTIs [s]
ontime3	18066.281716704	Sum of GTIs [s]
ontime6	18063.181666493	Sum of GTIs [s]
ontime7	18066.363796711	Sum of GTIs [s]
l2events	111003	Number of level 2 events

