

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 21039 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Apr 9 2019

See axaff21039N001\_VV001\_vvref2.pdf for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.04.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	45.063681268573

## Comments

The focal plane temperature is warmer than -112.0 C during the interval 671211999.57 - 671216020.27 (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 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](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	703599	Sequence number
obs_id	21039	Observation id
title	NGC 3393: Resolving Feedback in the Narrow Line Region on 50-pc Scales	Proposal title
observer	Walter Maksym	Principal investigator
object	NGC 3393	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	162.0975	Observer's specified target RA [deg]
dec_targ	-25.162028	Observer's specified target Dec [deg]
ra_nom	162.10196273586	Nominal RA [deg]
dec_nom	-25.162500398361	Nominal Dec [deg]
roll_nom	291.94013329563	Nominal Roll [deg]
revision	1	Processing version of data
ontime	45063.681268573	Sum of GTIs [s]
livetime	44474.891097399	Livetime [s]
ontime3	45054.175948024	Sum of GTIs [s]
ontime6	45057.358068109	Sum of GTIs [s]
ontime7	45063.681268573	Sum of GTIs [s]
ontime8	45057.275988102	Sum of GTIs [s]
l2events	293164	Number of level 2 events

