

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 20618 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Mar 8 2019

See axaff20618N001\_VV001\_vvref2.pdf for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.03.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.059998327494

## Comments

Joint proposal with HST.

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	201190	Sequence number
obs_id	20618	Observation id
title	Mega-MUSCLES Treasury Survey: Measurements of the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems	Proposal titl
observer	Cynthia Froning	Principal investigator
object	LHS2686	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	197.5475	Observer's specified target RA [deg]
dec_targ	47.751917	Observer's specified target Dec [deg]
ra_nom	197.54191059615	Nominal RA [deg]
dec_nom	47.750403561052	Nominal Dec [deg]
roll_nom	140.47237454892	Nominal Roll [deg]
revision	1	Processing version of data
ontime	28059.998327494	Sum of GTIs [s]
lifetime	26690.762225334	Lifetime [s]
ontime7	28059.998327494	Sum of GTIs [s]
l2events	32350	Number of level 2 events

