

# V&V Summary Report

## L2 ASCDS Version : 10.7.1

Observation 20620 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Jun 15 2019

See [axaff20620N001\\_VV001\\_vvref2.pdf](#) for the full report

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.06.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.479805679917

## Comments

Joint proposal with HST.

Observation coordinated with HST.

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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\\_CIS\\_response\\_summary.html](http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/A_CIS_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	201192	Sequence number
obs_id	20620	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	GJ849	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	332.42375	Observer's specified target RA [deg]
dec_targ	-4.640833	Observer's specified target Dec [deg]
ra_nom	332.42086010982	Nominal RA [deg]
dec_nom	-4.6415189077376	Nominal Dec [deg]
roll_nom	113.24114076898	Nominal Roll [deg]
revision	1	Processing version of data
ontime	29479.805679917	Sum of GTIs [s]
lifetime	28041.287624767	Lifetime [s]
ontime7	29479.805679917	Sum of GTIs [s]
l2events	33201	Number of level 2 events

