# V&V Summary Report
# L2 ASCDS Version : 10.8

Observation 21153 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jul 31 2019

See axaff21153N001_VV002_vvref2.pdf for the full report

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|---|---|
| V&V Scientist | Beth Sundheim |
| V&V Date (YYYY-MM-DD) | 2020.04.02 |
| V&V Edition | 2 |
| V&V Disposition and Status | OK |
| V&V Charge Time | 54.504159349203 |

## Comments

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The focal plane temperature during the interval 680854006.38 -
680860327.28 (MET s) of this observation was warmer than the upper limit
for optimum calibration of the ACIS gain and spectral resolution (i.e.,
-112.0 C for ACIS-I).
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

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
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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.

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|---|---|---|
| seq_num | 201210 | Sequence number |
| obs_id | 21153 | Observation id |
| title | The Effect of Cloud-Cloud Collisions on the Star-Formation History of the Trifid Nebula | Proposal title |
| observer | Michael Kuhn | Principal investigator |
| object | Trifid-North | Source name |
| dtycycle | 0 |   |
| cycle | P | events from which exps? Prim/Second/Both |
| ra_targ | 270.584167 | Observer's specified target RA [deg] |
| dec_targ | -22.667222 | Observer's specified target Dec [deg] |
| ra_nom | 270.58825798911 | Nominal RA [deg] |
| dec_nom | -22.674483938808 | Nominal Dec [deg] |
| roll_nom | 269.41750701246 | Nominal Roll [deg] |
| revision | 1 | Processing version of data |
| ontime | 54504.159349203 | Sum of GTIs [s] |
| livetime | 53792.022381927 | Livetime [s] |
| ontime0 | 54501.01828897 | Sum of GTIs [s] |
| ontime1 | 54504.159349203 | Sum of GTIs [s] |
| ontime2 | 54501.018338799 | Sum of GTIs [s] |
| ontime3 | 54504.159349203 | Sum of GTIs [s] |
| l2events | 167115 | Number of level 2 events |