

V&V Summary Report

L2 ASCDS Version : 10.6

Observation 21038 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Mar 19 2018

See axaff21038N001_VV001_vvref2.pdf for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.03.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	35.043800982952

Comments

Roll constraint met. WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission line will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle.

====WARNING::Zeroth order selected by pipeline tools is well-centered in the supernova remnant but is not at the position(s) of brightest emission. The user may want to select a region or source of interest, then use software tools such as CIAO to specify the coordinates of the zeroth order source of interest before running the tools to resolve the dispersed events

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WARNING: The focal plane temperature during the first 4 ks 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

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	503016	Sequence number
obs_id	21038	Observation id
title	High Resolution Spectroscopy of SN 1987A	Proposal title
observer	SANGWOOK PARK	Principal investigator
object	SN 1987A	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.866667	Observer's specified target RA [deg]
dec_targ	-69.26975	Observer's specified target Dec [deg]
ra_nom	83.875901113666	Nominal RA [deg]
dec_nom	-69.274788830048	Nominal Dec [deg]
roll_nom	255.16524150591	Nominal Roll [deg]
revision	1	Processing version of data
ontime	35043.800982952	Sum of GTIs [s]
livetime	34217.744377509	Livetime [s]
ontime4	35043.800982952	Sum of GTIs [s]
ontime5	35043.800982952	Sum of GTIs [s]
ontime6	35043.800982952	Sum of GTIs [s]
ontime7	35043.800982952	Sum of GTIs [s]
ontime8	35043.800982952	Sum of GTIs [s]
ontime9	35042.059962749	Sum of GTIs [s]
l2events	237263	Number of level 2 events

