V&V Summary Report
L2 ASCDS Version : 7.6.8

Observation 3505 - L2 Version 001
Chandra X-Ray Center

L2 Processing Date : Aug 25 2006

See axaff03505N001_VV001_vvref2.pdf for the full report

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2007.06.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	16.058

Comments

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Sco X-1 intentionally off-chip; a nominal mapping of source celestial
position to virtual chip position was used for zero-order centroid, and
is somewhat in error. The sky coordinates used in this processing are
x=4077.53, y=4122.10, derived from the position of Sco X-1. Although
some minus-order HEG counts are detected in the extraction window, no
MEG counts fall in the extraction window. This observation will require
some user-iteration to obtain an improved zero order centroid. It is
also possible that inaccurate graded-mode gain calibration and/or
order-sorting tables, or pileup in the MEG arms, are responsible for the
misalignment of the extraction regions with the spectral
data.

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The following analysis techniques are recommended:

1. Reprocess with acis_process_events to eliminate the CTI correction:
params
apply_cti=no; apply_tgain=yes;gainfile=CALDB. This will yield sharper,
more well-defined orders.
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2. Determine position of zeroth order (iteration may be necessary here).

3. To get mask size, determine perpendicular separation of source from counts trace. We calculate 640 pixels.

4. Run tg_create_mask with params use_user_pars=yes;
last_source_toread=A;
sA_zero_x=4077.53 (iterate); sA_zero_y=4122.10 (iterate);
sA_zero_rad=20;
sA_width_meg=1400 (2*640=1200+200(safety margin)=1400).

5. Run tg_resolve_events on results above, using the flat order sorting to compensate for the bad gain: params osipfile=NONE; osort_lo=0.2; osort_hi=0.5. The first and second orders of the spectrum should work fine with this setup. For third order and above, the bad gain correction
will scale the CCD energy into the next order.

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The charge time is based on CCD_ID=7 (S3), which had no dropped frames and does reflect the requested exposure. Other chips have dropped frames
due to telemetry saturation by the dispersed spectra, and their effective exposures range from 8-11.4 ksec. Spectral arms are piled up.

seq_num	400258
obs_id	3505
title	HIGH RESOLUTION SPECTROSCOPY OF THE LMXB SCO X-1
observer	Prof. Claude Canizares
object	SCO X-1
ra_targ	244.979583
dec_targ	-15.640278
ra_nom	244.9768911365
dec_nom	-15.643776420036
roll_nom	256.02287294545
revision	3
ontime	16055.5
livetime	15992.783203125
ontime4	9728.9619322717
ontime5	8039.3385961354
ontime6	11355.158042014
ontime7	16055.5
ontime8	11417.106468916
ontime9	8714.8979323208
l2events	5565408