V&V Reference Report
L2 ASCDS Version : 10

Observation 53531 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Aug 2 2013

Contents

1 Front

seq_num	&#160	Sequence number
obs_id	53531	Observation id
title	ACIS-456789 diagnostics	Proposal title
observer	CHANDRA engineering request/realtime commanding	Principal investig
object	&#160	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	0.0	Observer's specified target RA [deg]
dec_targ	0.0	Observer's specified target Dec [deg]
ra_nom	325.06235202656	Nominal RA [deg]
dec_nom	2.6519267414609	Nominal Dec [deg]
roll_nom	137.61445205346	Nominal Roll [deg]
revision	1	Processing version of data
ontime	575.60519438982	Sum of GTIs [s]
livetime	568.31653483062	Livetime [s]
ontime4	449.08305752277	Sum of GTIs [s]
ontime5	575.56415438652	Sum of GTIs [s]
ontime6	458.84721761942	Sum of GTIs [s]
ontime7	575.60519438982	Sum of GTIs [s]
ontime8	471.72928768396	Sum of GTIs [s]
ontime9	465.45232856274	Sum of GTIs [s]
l2events	14544	Number of level 2 events

2 OBI

2.1 OBI

2.1.1 Images

Level 1 Image

Level 1 Bad Events

2.1.2 Bias

Chip 4

Chip 5

Chip 6

Chip 7

Chip 8

Chip 9
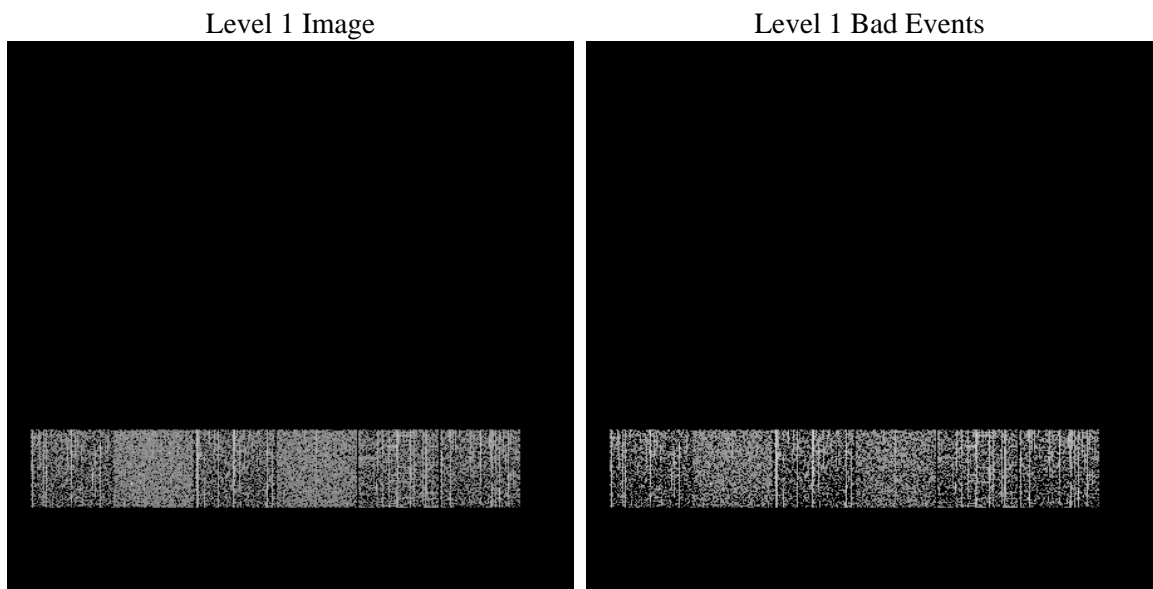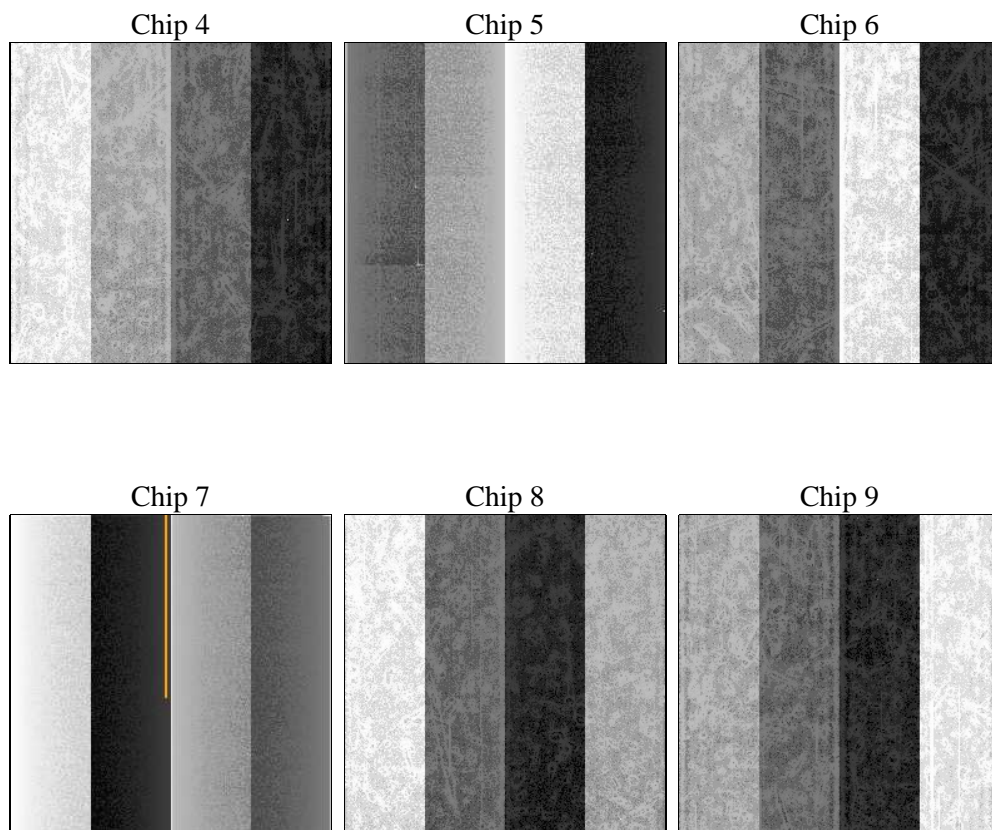
2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10	Processing system revision
caldbver	4.5.7	&#160
date	2013-08-02T15:03:22	Date and time of file creation
revision	1	Processing version of data

sched_exp_time	0.0	[s] Scheduled observation exposure time
ontime	575.60519438982	Sum of GTIs [s]
ontime4	449.08305752277	Sum of GTIs [s]
ontime5	575.56415438652	Sum of GTIs [s]
ontime6	458.84721761942	Sum of GTIs [s]
ontime7	575.60519438982	Sum of GTIs [s]
ontime8	471.72928768396	Sum of GTIs [s]
ontime9	465.45232856274	Sum of GTIs [s]
l1events	60894	Number of level 1 events

2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	8812	11220	10256	10019	10697	9890
rejected events	7000	6734	8403	6045	8384	8042
rejected %	79%	60%	81%	60%	78%	81%

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	1197	774	1164	673	1244	1158
	13%	6%	11%	6%	11%	11%
grade 1 events	12	8	8	7	6	6
	0%	0%	0%	0%	0%	0%
grade 2 events	402	1855	444	1177	585	422
	4%	16%	4%	11%	5%	4%
grade 3 events	154	241	148	384	232	164
	1%	2%	1%	3%	2%	1%
grade 4 events	161	145	132	379	196	152
	1%	1%	1%	3%	1%	1%
grade 5 events	239	556	221	609	296	212
	2%	4%	2%	6%	2%	2%
grade 6 events	304	2279	374	2068	533	340
	3%	20%	3%	20%	4%	3%
grade 7 events	6343	5362	7765	4722	7605	7436
	71%	47%	75%	47%	71%	75%

2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	SECONDARY	SECONDARY
[deg] Pointing RA	0	325.0623520265588
[deg] Pointing Dec	0	2.651926741460875
[deg] Pointing Roll	0.0	137.614452053455
[mm] SIM focus pos	-1.429586	-1.428180813131781
[mm] SIM defocus	0.1037507710433287	0.1051558262725154
[mm] SIM translation stage pos	250.455976	250.466033080201
[mm] SIM translation stage offset	0	-0.01005468664627074
[s] Observation start time (MET)	491017290.133568	491017289.10857
Observation start date	2013-07-24T01:41:30	2013-07-24T01:41:29
[s] Observation end time (MET)	491019288.883677	491019287.85868
Observation end date	2013-07-24T02:14:49	2013-07-24T02:14:47
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	3.2	3.2

2.3 Star Slots

2.4 FID Slots

A Summary

A.1 Status

V&V Scientist	Glenn Allen
V&V Date (YYYY-MM-DD)	2013.08.05
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	0.57560519438982

A.2 Comments

As noted below, some data, in addition to the bias data was not
telemetered. However, I think that the event data as processed using
the replacemnt/repaired biases is OK.

Glenn

PLEASE NOTE: In addition to the problems with the bias files that are
detailed below, the pixel threshold value drops to nearly zero between
about 0.18 and 0.28 ks into the observation. In fact all of the data in
the exposure-records files are missing during this interval for the four
CCDs mentioned below. This period is also marked NOT GTI for the
affected chips. I don't know the cause of this.
============

Because of a trickle-bias anomaly, the bias maps for CCD chips 4, 6, and
8 were not included in the telemetry stream for transmission to the
ground. In addition, only
https://icxc2.cfa.harvard.edu/soft/vvpipeline/53531N001/acisf53531N001_s
mtlacis_strip_samstrip_o0.png

part of the bias map for CCD chip 5 was included in the telemetry
stream. There was no problem in the acquisition and onboard processing
of the event data. The bias maps were available to ACIS throughout the
observation and were used for event thresholding. There is no negative
impact on the science quality of the data. ==== The bias maps that were
not available in telemetry have been replaced using scaled data from
similar bias maps taken near in time and at similar focal plane
temperature. Initial overclock values for each chip were not available
in telemetry; they were calculated using the PHA values of the outer 8
pixels of each event island as a measure of the scaling factor required.
==== The portion of the bias map for CCD 5 that was included in
telemetry was used, but the missing portion was replaced according to
established procedure when a partial bias map is received. The procedure
finds a bias map taken near in time and temperature, then scales the
bias values to match the median adu value of the affected node(s).

====
Donor bias file used: Obsid 53544
===Details===
Bias file for CCD=5 (FEP=2):
This bias file was 40% complete, so we treated it just like a standard
bias repair case. We were able to use the median value of each
node for the portion of the bias file that was telemetered, scaling a
donor bias file to match that median value for the missing part.
To improve the results, we added 1 adu for nodes 1 and 2 in the repaired
area.
===
Bias files for CCDs 4, 6, and 8 (FEPs 3-5):
Nothing was telemetered for these bias files, so we had to use the bias
replacement algorithm that uses a donor file, scaled by the
overclocking values of the lost bias file. Procedures for this work
defined by Glenn Allen at MIT.