

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 55166 - L2 Version 3  
Chandra X-Ray Center

L2 Processing Date : Feb 23 2012

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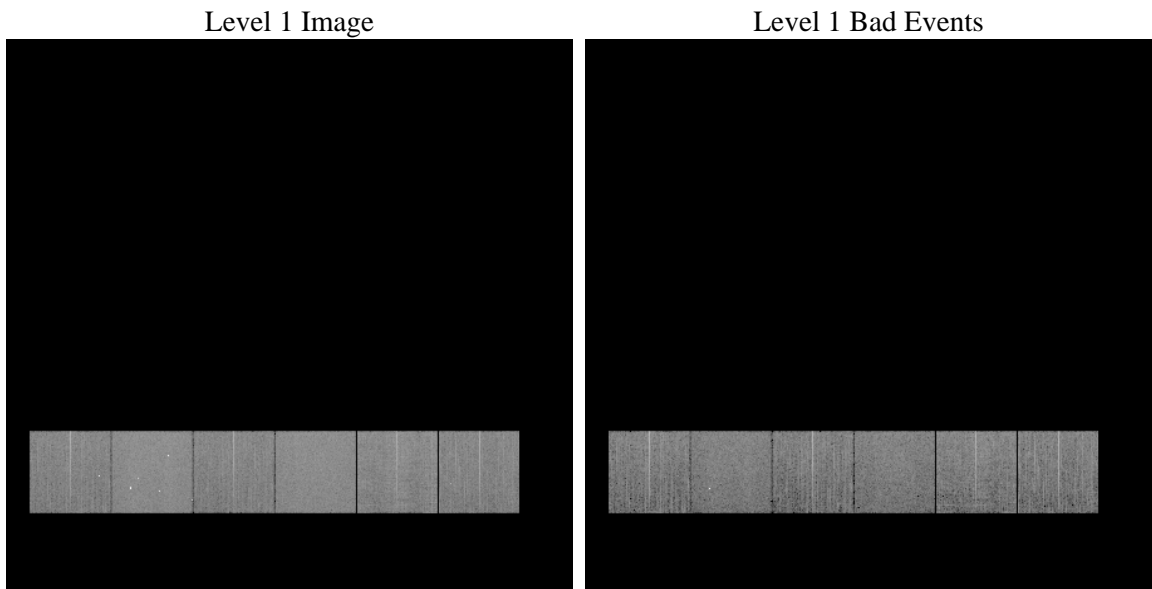
# 1 Front

|          |   |   |
|----------|---|---|
| seq_num  | &#160   | Sequence number                             |
| obs_id   | 55166   | Observation id                              |
| title    | ACIS-456789 diagnostics                         | Proposal title                              |
| observer | CHANDRA engineering request/realtime commanding | Principal investig                          |
| object   | &#160   | Source name                                 |
| dtcycle  | 0   | &#160                                       |
| cycle    | P   | events from which exps?<br>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   | 27.491972638294                                 | Nominal RA [deg]                            |
| dec_nom  | -6.9724062428507                                | Nominal Dec [deg]                           |
| roll_nom | 73.191035338994                                 | Nominal Roll [deg]                          |
| revision | 3   | Processing version of data                  |
| ontime   | 8281.5999692082                                 | Sum of GTIs [s]                             |
| livetime | 8176.7333638173                                 | Livetime [s]                                |
| ontime4  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| ontime5  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| ontime6  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| ontime7  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| ontime8  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| ontime9  | 8281.5999692082                                 | Sum of GTIs [s]                             |
| l2events | 322819  | Number of level 2 events                    |

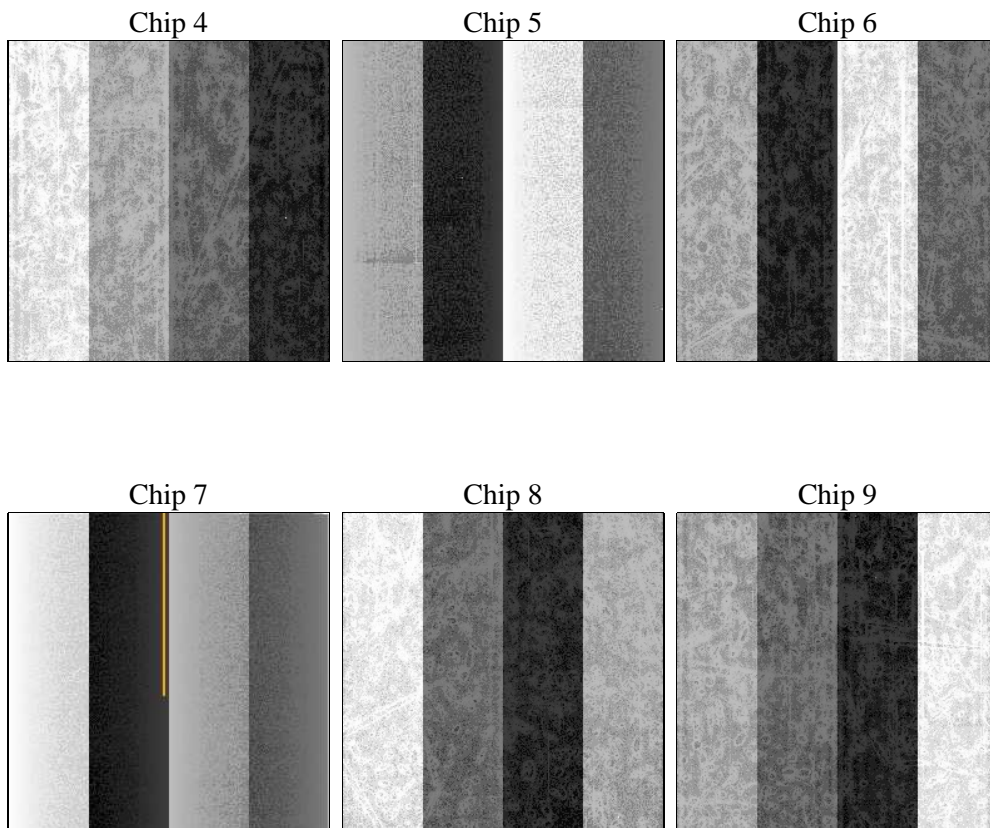
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 0.0             | [s] Scheduled observation exposure time |
| ascdsver | 8.4.3               | Processing system revision     | ontime         | 8281.5999692082 | Sum of GTIs [s]                         |
| caldsver | 4.4.8               | &#160                          | ontime4        | 8281.5999692082 | Sum of GTIs [s]                         |
| date     | 2012-02-23T16:39:31 | Date and time of file creation | ontime5        | 8281.5999692082 | Sum of GTIs [s]                         |
| revision | 3                   | Processing version of data     | ontime6        | 8281.5999692082 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 8281.5999692082 | Sum of GTIs [s]                         |
|          |                     |                                | ontime8        | 8281.5999692082 | Sum of GTIs [s]                         |
|          |                     |                                | ontime9        | 8281.5999692082 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 722886          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 4  | ccd 5  | ccd 6  | ccd 7  | ccd 8  | ccd 9  |                | ccd 4 | ccd 5 | ccd 6 | ccd 7 | ccd 8 | ccd 9 |
|-----------------|--------|--------|--------|--------|--------|--------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 108541 | 142608 | 106541 | 132709 | 123911 | 108576 | grade 0 events | 27358 | 11826 | 24825 | 12427 | 28182 | 25019 |
| rejected events | 61279  | 61753  | 57958  | 57888  | 64771  | 61350  |                | 25%   | 8%    | 23%   | 9%    | 22%   | 23%   |
| rejected %      | 56%    | 43%    | 54%    | 43%    | 52%    | 56%    | grade 1 events | 239   | 163   | 130   | 117   | 148   | 143   |
|                 |        |        |        |        |        |        |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |        |        |        |        |        |        | grade 2 events | 7163  | 28344 | 9038  | 16337 | 11339 | 8230  |
|                 |        |        |        |        |        |        |                | 6%    | 19%   | 8%    | 12%   | 9%    | 7%    |
|                 |        |        |        |        |        |        | grade 3 events | 3254  | 3355  | 3206  | 6464  | 4547  | 3117  |
|                 |        |        |        |        |        |        |                | 2%    | 2%    | 3%    | 4%    | 3%    | 2%    |
|                 |        |        |        |        |        |        | grade 4 events | 3240  | 2860  | 3209  | 6698  | 4259  | 3227  |
|                 |        |        |        |        |        |        |                | 2%    | 2%    | 3%    | 5%    | 3%    | 2%    |
|                 |        |        |        |        |        |        | grade 5 events | 3545  | 7729  | 3672  | 8924  | 4676  | 3904  |
|                 |        |        |        |        |        |        |                | 3%    | 5%    | 3%    | 6%    | 3%    | 3%    |
|                 |        |        |        |        |        |        | grade 6 events | 6267  | 34494 | 8328  | 32924 | 10831 | 7652  |
|                 |        |        |        |        |        |        |                | 5%    | 24%   | 7%    | 24%   | 8%    | 7%    |
|                 |        |        |        |        |        |        | grade 7 events | 57475 | 53837 | 54133 | 48818 | 59929 | 57284 |
|                 |        |        |        |        |        |        |                | 52%   | 37%   | 50%   | 36%   | 48%   | 52%   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-456789         | ACIS-456789          | Obspar file type                      | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status                  | NONE      | UPDATED |
| Data mode                         | FAINT               | FAINT                | Number of optional ACIS chips dropped | 0         | 0       |
| Observation mode                  | SECONDARY           | SECONDARY            | On-chip summing requested             | N         | N       |
| [deg] Pointing RA                 | 0                   | 27.49197263829394    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 0                   | -6.972406242850686   | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 0.0                 | 73.19103533899397    | [s] Primary exposure time             | 3.2       | 3.2     |
| [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)  | 433400392.143254    | 433400391.11824      |                                       |           |         |
| Observation start date            | 2011-09-26T04:59:52 | 2011-09-26T04:59:51  |                                       |           |         |
| [s] Observation end time (MET)    | 433413909.843963    | 433413908.81895      |                                       |           |         |
| Observation end date              | 2011-09-26T08:45:10 | 2011-09-26T08:45:08  |                                       |           |         |
| Read mode                         | TIMED               | TIMED                |                                       |           |         |

## **2.3 Star Slots**

## **2.4 FID Slots**

# A Summary

## A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Jen Lauer       |
| V&V Date (YYYY-MM-DD)      | 2012.02.23      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 8.2815999692082 |

## A.2 Comments

A spatial region of the original bias map for CCD = 9 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 9 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by chip coordinates:  
(420,1),(440,1),(440,1024),(420,1024)