

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 54948 - L2 Version 2  
Chandra X-Ray Center

L2 Processing Date : Jan 5 2012

## Contents

|          |                               |          |
|----------|-------------------------------|----------|
| <b>1</b> | <b>Front</b>                  | <b>2</b> |
| <b>2</b> | <b>OBI</b>                    | <b>3</b> |
| 2.1      | OBI . . . . .                 | 3        |
| 2.1.1    | Images . . . . .              | 3        |
| 2.1.2    | Bias . . . . .                | 3        |
| 2.1.3    | Parameters . . . . .          | 4        |
| 2.1.4    | Events . . . . .              | 4        |
| 2.2      | Compared Parameters . . . . . | 5        |
| 2.3      | Star Slots . . . . .          | 6        |
| 2.4      | FID Slots . . . . .           | 6        |
| <b>A</b> | <b>Summary</b>                | <b>7</b> |
| A.1      | Status . . . . .              | 7        |
| A.2      | Comments . . . . .            | 7        |

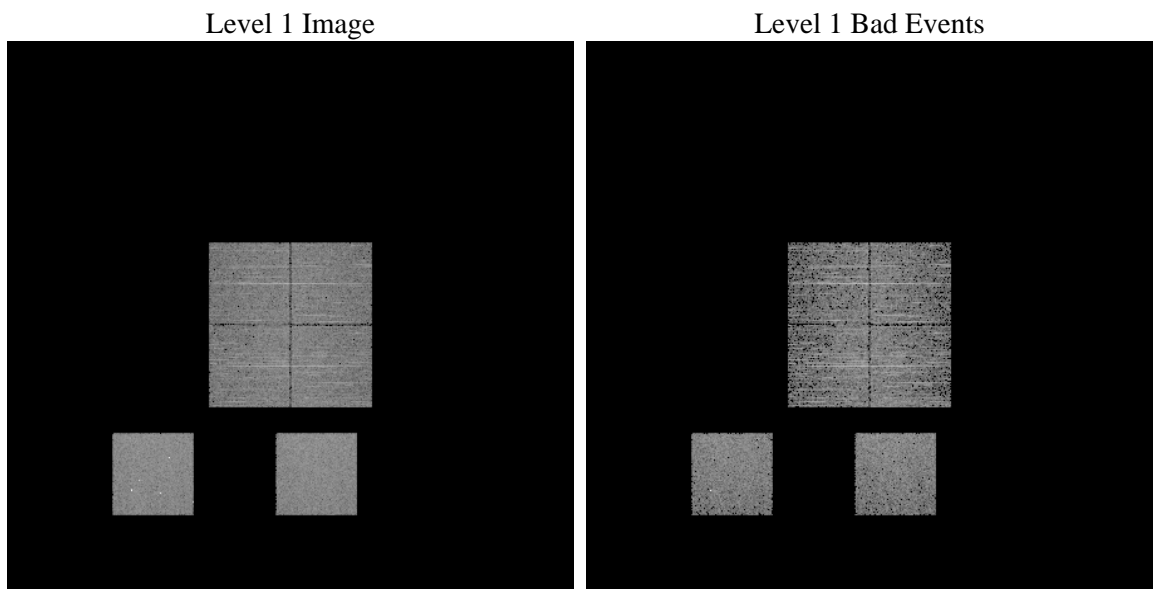
# 1 Front

|          |   |   |
|----------|---|---|
| seq_num  | &#160   | Sequence number                             |
| obs_id   | 54948   | Observation id                              |
| title    | ACIS-012357 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   | 98.026148375331                                 | Nominal RA [deg]                            |
| dec_nom  | -0.99015110149487                               | Nominal Dec [deg]                           |
| roll_nom | 344.83271444006                                 | Nominal Roll [deg]                          |
| revision | 2   | Processing version of data                  |
| ontime   | 3289.5706750751                                 | Sum of GTIs [s]                             |
| livetime | 3247.9161504456                                 | Livetime [s]                                |
| ontime0  | 3289.5296350718                                 | Sum of GTIs [s]                             |
| ontime1  | 3289.4885950685                                 | Sum of GTIs [s]                             |
| ontime2  | 3289.4475550652                                 | Sum of GTIs [s]                             |
| ontime3  | 3289.5999878049                                 | Sum of GTIs [s]                             |
| ontime5  | 3289.4065150619                                 | Sum of GTIs [s]                             |
| ontime7  | 3289.5706750751                                 | Sum of GTIs [s]                             |
| l2events | 123026  | Number of level 2 events                    |

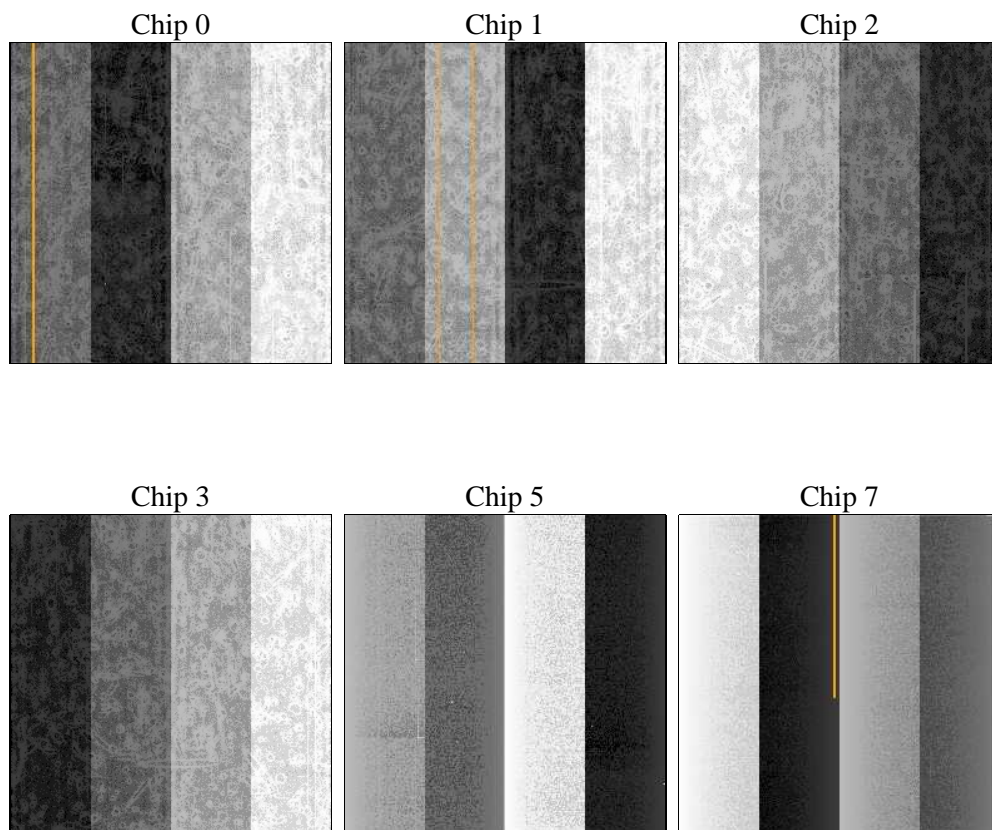
## 2 OBI

### 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         | 3289.5706750751 | Sum of GTIs [s]                         |
| caldsver | 4.4.7               | &#160                          | ontime0        | 3289.5296350718 | Sum of GTIs [s]                         |
| date     | 2012-01-05T20:21:18 | Date and time of file creation | ontime1        | 3289.4885950685 | Sum of GTIs [s]                         |
| revision | 2                   | Processing version of data     | ontime2        | 3289.4475550652 | Sum of GTIs [s]                         |
|          |                     |                                | ontime3        | 3289.5999878049 | Sum of GTIs [s]                         |
|          |                     |                                | ontime5        | 3289.4065150619 | Sum of GTIs [s]                         |
|          |                     |                                | ontime7        | 3289.5706750751 | Sum of GTIs [s]                         |
|          |                     |                                | l1events       | 261323          | Number of level 1 events                |

### 2.1.4 Events

|                 | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 5 | ccd 7 |                | ccd 0 | ccd 1 | ccd 2 | ccd 3 | ccd 5 | ccd 7 |
|-----------------|-------|-------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|-------|-------|
| level 1 events  | 36619 | 37548 | 39943 | 40251 | 54958 | 52004 | grade 0 events | 9055  | 8977  | 9489  | 9414  | 4692  | 4798  |
| rejected events | 19203 | 20053 | 22205 | 22759 | 23440 | 22845 |                | 24%   | 23%   | 23%   | 23%   | 8%    | 9%    |
| rejected %      | 52%   | 53%   | 55%   | 56%   | 42%   | 43%   | grade 1 events | 50    | 45    | 70    | 62    | 95    | 47    |
|                 |       |       |       |       |       |       |                | 0%    | 0%    | 0%    | 0%    | 0%    | 0%    |
|                 |       |       |       |       |       |       | grade 2 events | 3209  | 3427  | 3060  | 3071  | 10971 | 6307  |
|                 |       |       |       |       |       |       |                | 8%    | 9%    | 7%    | 7%    | 19%   | 12%   |
|                 |       |       |       |       |       |       | grade 3 events | 1284  | 1171  | 1269  | 1205  | 1272  | 2631  |
|                 |       |       |       |       |       |       |                | 3%    | 3%    | 3%    | 2%    | 2%    | 5%    |
|                 |       |       |       |       |       |       | grade 4 events | 1161  | 1149  | 1252  | 1147  | 1237  | 2603  |
|                 |       |       |       |       |       |       |                | 3%    | 3%    | 3%    | 2%    | 2%    | 5%    |
|                 |       |       |       |       |       |       | grade 5 events | 1379  | 1340  | 1298  | 1573  | 3042  | 3618  |
|                 |       |       |       |       |       |       |                | 3%    | 3%    | 3%    | 3%    | 5%    | 6%    |
|                 |       |       |       |       |       |       | grade 6 events | 2707  | 2771  | 2668  | 2655  | 13346 | 12820 |
|                 |       |       |       |       |       |       |                | 7%    | 7%    | 6%    | 6%    | 24%   | 24%   |
|                 |       |       |       |       |       |       | grade 7 events | 17774 | 18668 | 20837 | 21124 | 20303 | 19180 |
|                 |       |       |       |       |       |       |                | 48%   | 49%   | 52%   | 52%   | 36%   | 36%   |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                             | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|---------------------------------------|-----------|---------|
| Instrument                        | ACIS                | ACIS                 | Obspar format version number          | 7         | 7       |
| Detector                          | ACIS-012357         | ACIS-012357          | 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                   | 98.02614837533106    | Subarray requested                    | NONE      | NONE    |
| [deg] Pointing Dec                | 0                   | -0.9901511014948734  | Alternating exposures requested       | N         | N       |
| [deg] Pointing Roll               | 0.0                 | 344.8327144400602    | [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)  | 442089180.038042    | 442089179.01304      |                                       |           |         |
| Observation start date            | 2012-01-04T18:33:00 | 2012-01-04T18:32:59  |                                       |           |         |
| [s] Observation end time (MET)    | 442112962.089298    | 442112961.0643       |                                       |           |         |
| Observation end date              | 2012-01-05T01:09:22 | 2012-01-05T01:09:21  |                                       |           |         |
| 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)      | 2012.01.06      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 3.2895706750751 |

## A.2 Comments

A spatial region of the original bias map for CCD = 0 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 = 0 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 coords:  
(170,1),(194,1),(194,1024),(170,1024)