

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21782 - L2 Version 1  
Chandra X-Ray Center

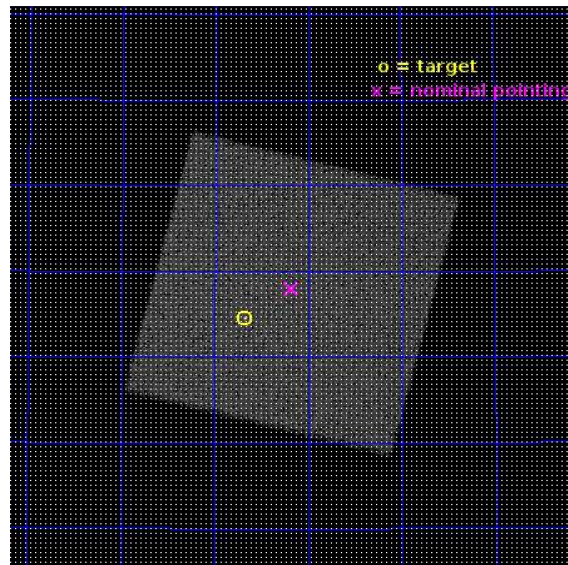
L2 Processing Date : Apr 9 2019

## 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    | Parameters . . . . .          | 4         |
| 2.1.3    | Events . . . . .              | 4         |
| 2.2      | Compared Parameters . . . . . | 5         |
| 2.3      | Aspect . . . . .              | 6         |
| 2.4      | Star Slots . . . . .          | 9         |
| 2.4.1    | Slot 3 . . . . .              | 9         |
| 2.4.2    | Slot 4 . . . . .              | 10        |
| 2.4.3    | Slot 5 . . . . .              | 11        |
| 2.4.4    | Slot 6 . . . . .              | 12        |
| 2.4.5    | Slot 7 . . . . .              | 13        |
| 2.5      | FID Slots . . . . .           | 14        |
| 2.5.1    | Slot 0 . . . . .              | 14        |
| 2.5.2    | Slot 1 . . . . .              | 15        |
| 2.5.3    | Slot 2 . . . . .              | 16        |
| <b>A</b> | <b>Summary</b>                | <b>17</b> |
| A.1      | Status . . . . .              | 17        |
| A.2      | Comments . . . . .            | 17        |

# 1 Front

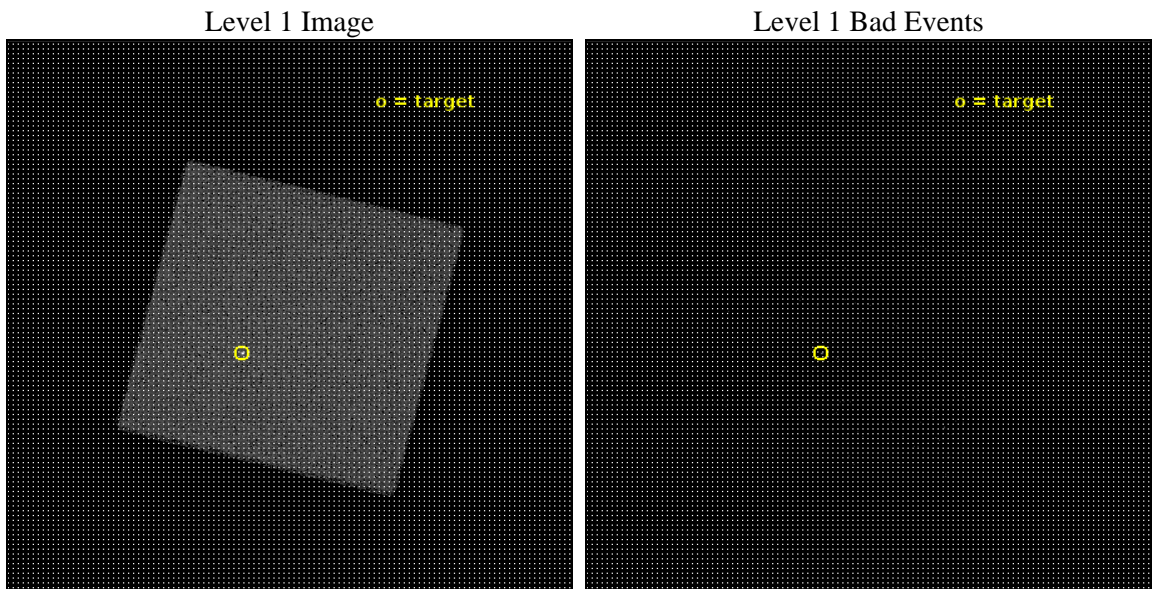
|          |  |                                       |
|----------|--|---------------------------------------|
| seq_num  | 291468   | Sequence number                       |
| obs_id   | 21782  | Observation id                        |
| title    | AO-20 Calibration Observations to Monitor the Spatial Variations in the HRC-I Gain | Proposal title                        |
| observer | CXC Calibration  | Principal investigator                |
| object   | ArLac  | Source name                           |
| ra_targ  | 332.169666   | Observer's specified target RA [deg]  |
| dec_targ | 45.742509  | Observer's specified target Dec [deg] |
| ra_nom   | 332.04476801371  | Nominal RA [deg]                      |
| dec_nom  | 45.799869286127  | Nominal Dec [deg]                     |
| roll_nom | 59.327236895015  | Nominal Roll [deg]                    |
| revision | 1  | Processing version of data            |
| ontime   | 1194.3813215494  | [s]                                   |
| livetime | 1176.4751448676  | Ontime multiplied by DTCOR            |
| l2events | 153742   | Number of level 2 events              |



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

|          |                     |                                |                |                 |   |
|----------|---------------------|--------------------------------|----------------|-----------------|---|
| obi_num  | 0                   | Obi number                     | sched_exp_time | 1000.000000     | [s] Scheduled observation exposure time |
| ascdsver | 10.7.1              | Processing system revision     | ontime         | 1194.3813215494 | [s]                                     |
| caldbver | 4.8.2               | &#160                          | l1events       | 235036          | Number of level 1 events                |
| date     | 2019-04-09T03:57:18 | Date and time of file creation |                |                 |   |
| revision | 1                   | Processing version of data     |                |                 |   |

### 2.1.3 Events

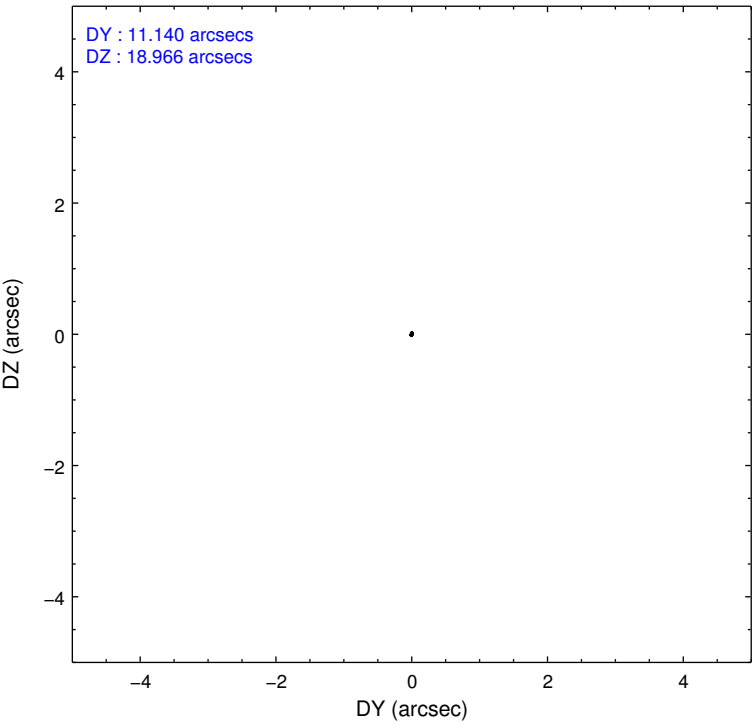
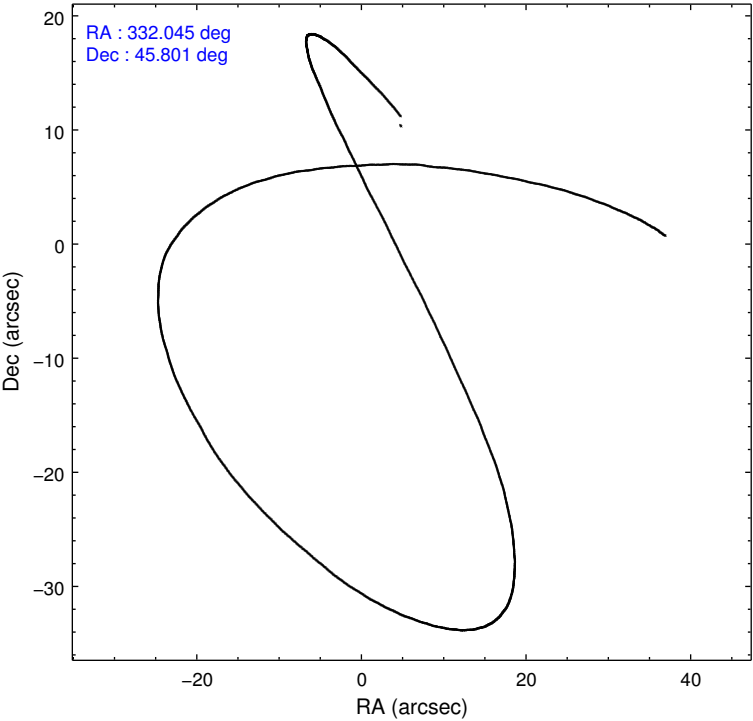
#### Level 1 Events

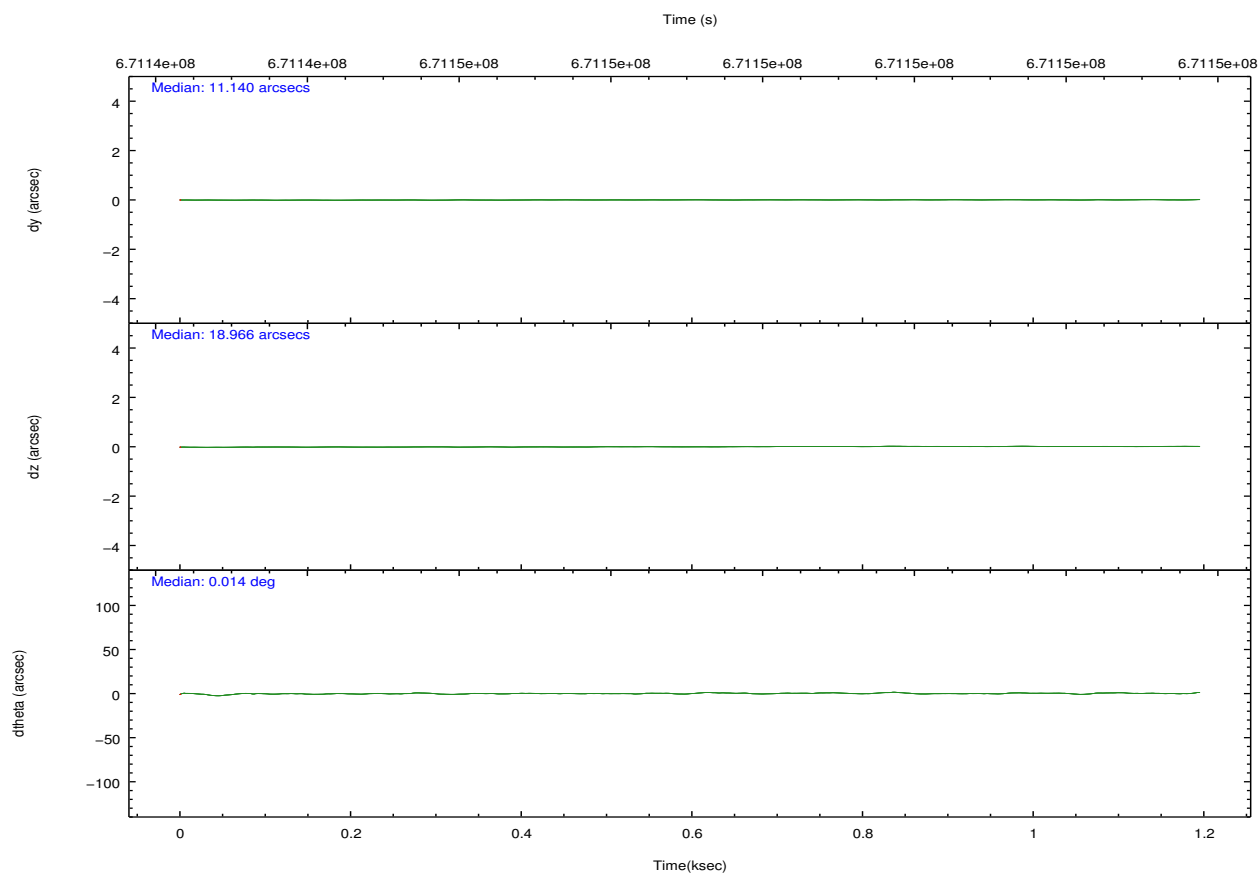
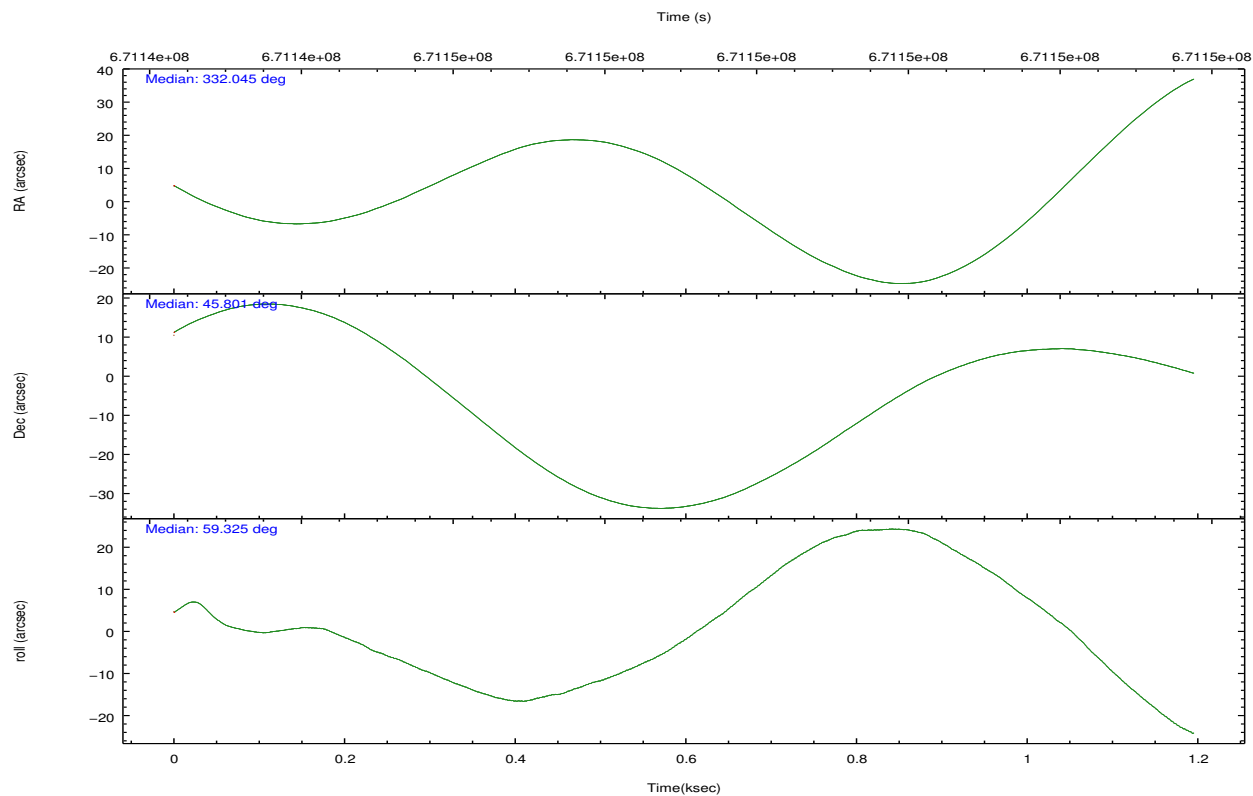
|                 |                      |
|-----------------|----------------------|
|                 | <b>segment<br/>0</b> |
| level 1 events  | 235036               |
| rejected events | 34700                |
| rejected %      | 14%                  |

## 2.2 Compared Parameters

| Parameter                         | Planned             | Actual               | Parameter                    | Planned   | Actual  |
|-----------------------------------|---------------------|----------------------|------------------------------|-----------|---------|
| Instrument                        | HRC                 | HRC                  | Obspar format version number | 7         | 7       |
| Detector                          | HRC-I               | HRC-I                | Obspar file type             | PREDICTED | ACTUAL  |
| Grating                           | NONE                | NONE                 | Obspar update status         | NONE      | UPDATED |
| Data mode                         | OBSERVING           | OBSERVING            |                              |           |         |
| Observation mode                  | POINTING            | POINTING             |                              |           |         |
| [deg] Pointing RA                 | 332.045911          | 332.0447680137077    |                              |           |         |
| [deg] Pointing Dec                | 45.771694           | 45.79986928612698    |                              |           |         |
| [deg] Pointing Roll               | 59.421878           | 59.32723689501459    |                              |           |         |
| [mm] SIM focus pos                | -1.040293           | -1.038866356238299   |                              |           |         |
| [mm] SIM defocus                  | 0                   | 0.001426264420575141 |                              |           |         |
| [mm] SIM translation stage pos    | 126.985494          | 126.9829799899862    |                              |           |         |
| [mm] SIM translation stage offset | 0                   | 0.002508901615314585 |                              |           |         |
| [s] Observation start time (MET)  | 671145104.184000    | 671144727.60504      |                              |           |         |
| Observation start date            | 2019-04-08T21:10:35 | 2019-04-08T21:05:27  |                              |           |         |
| [s] Observation end time (MET)    | 671146104.184000    | 671147062.04268      |                              |           |         |
| Observation end date              | 2019-04-08T21:27:15 | 2019-04-08T21:44:22  |                              |           |         |

2.3 Aspect





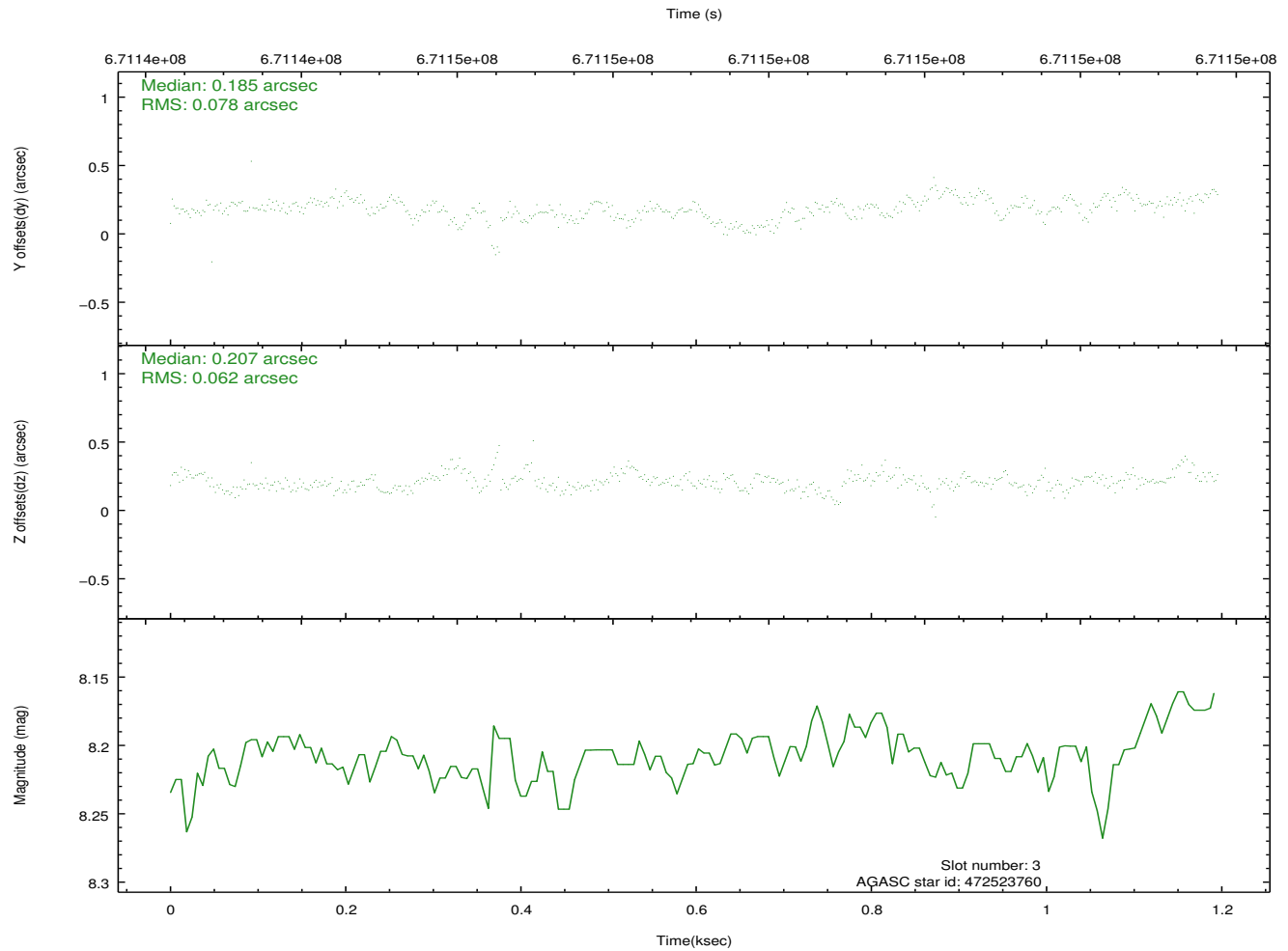
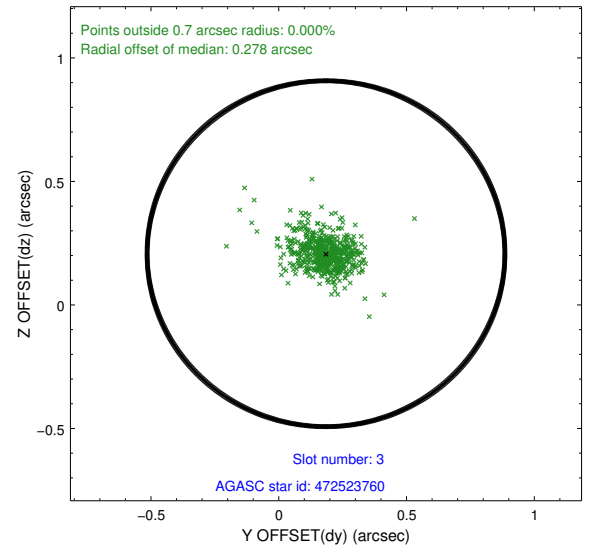
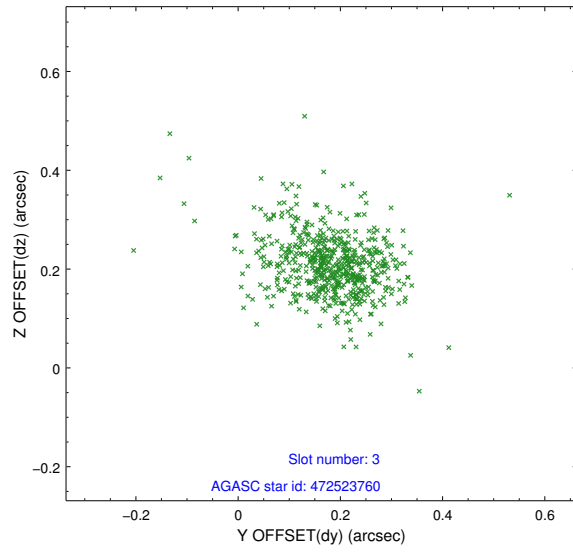
Slot Statistics

| pt | status | used | id        | mag  | n_pts | frac_pts | med_dy | med_dz | dr1   | dr2   | ra         | dec       | mean_y   | mea   |
|----|--------|------|-----------|------|-------|----------|--------|--------|-------|-------|------------|-----------|----------|-------|
| 0  | FID    |      | HRC-I-1   | 7.01 | 292   | 1.000    | -0.141 | -0.159 | 0.007 | 0.011 | 0.000000   | 0.000000  | -767.09  | -1307 |
| 1  | FID    |      | HRC-I-3   | 7.08 | 292   | 1.000    | -0.249 | -0.087 | 0.008 | 0.013 | 0.000000   | 0.000000  | -1198.11 | 992   |
| 2  | FID    |      | HRC-I-4   | 7.02 | 292   | 1.000    | 0.503  | 0.157  | 0.005 | 0.010 | 0.000000   | 0.000000  | 1272.45  | 998   |
| 3  | GUIDE  | used | 472523760 | 8.21 | 584   | 1.000    | 0.185  | 0.207  | 0.096 | 0.171 | 331.645363 | 45.403260 | -1656.46 | 195   |
| 4  | GUIDE  | used | 472525528 | 6.61 | 584   | 1.000    | 0.246  | 0.153  | 0.106 | 0.209 | 331.551102 | 45.248694 | -2259.65 | 120   |
| 5  | GUIDE  | used | 472533912 | 9.12 | 583   | 1.000    | -0.014 | -0.226 | 0.194 | 0.330 | 331.791136 | 46.368695 | 1523.62  | 1635  |
| 6  | GUIDE  | used | 472536328 | 8.08 | 584   | 1.000    | -0.408 | -0.461 | 0.095 | 0.171 | 331.496671 | 46.454831 | 1428.88  | 2425  |
| 7  | GUIDE  | used | 472665256 | 8.98 | 583   | 1.000    | -0.001 | 0.328  | 0.135 | 0.223 | 332.808125 | 46.195041 | 2287.01  | -853  |

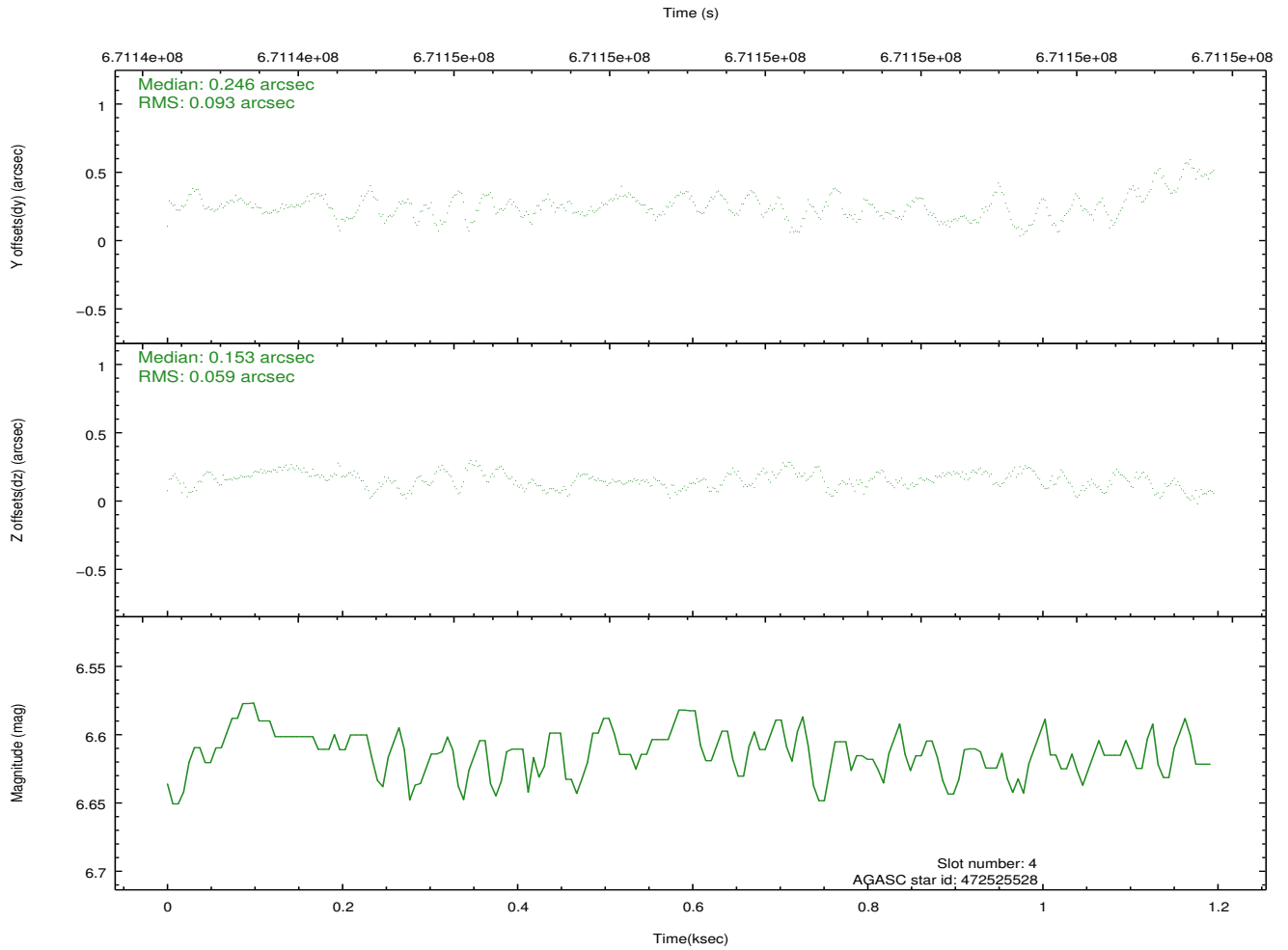
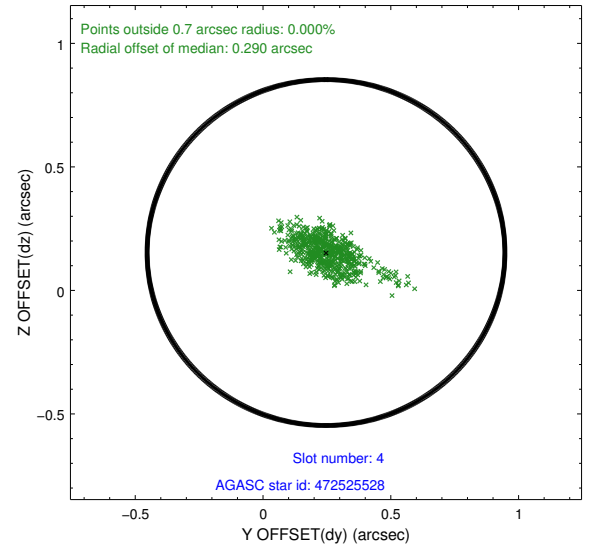
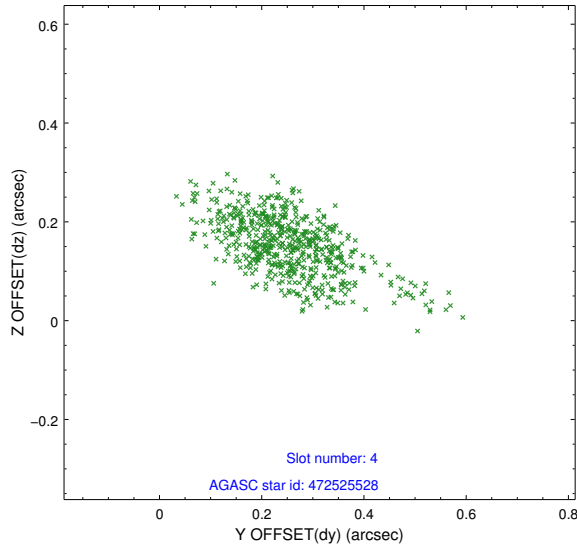


## 2.4 Star Slots

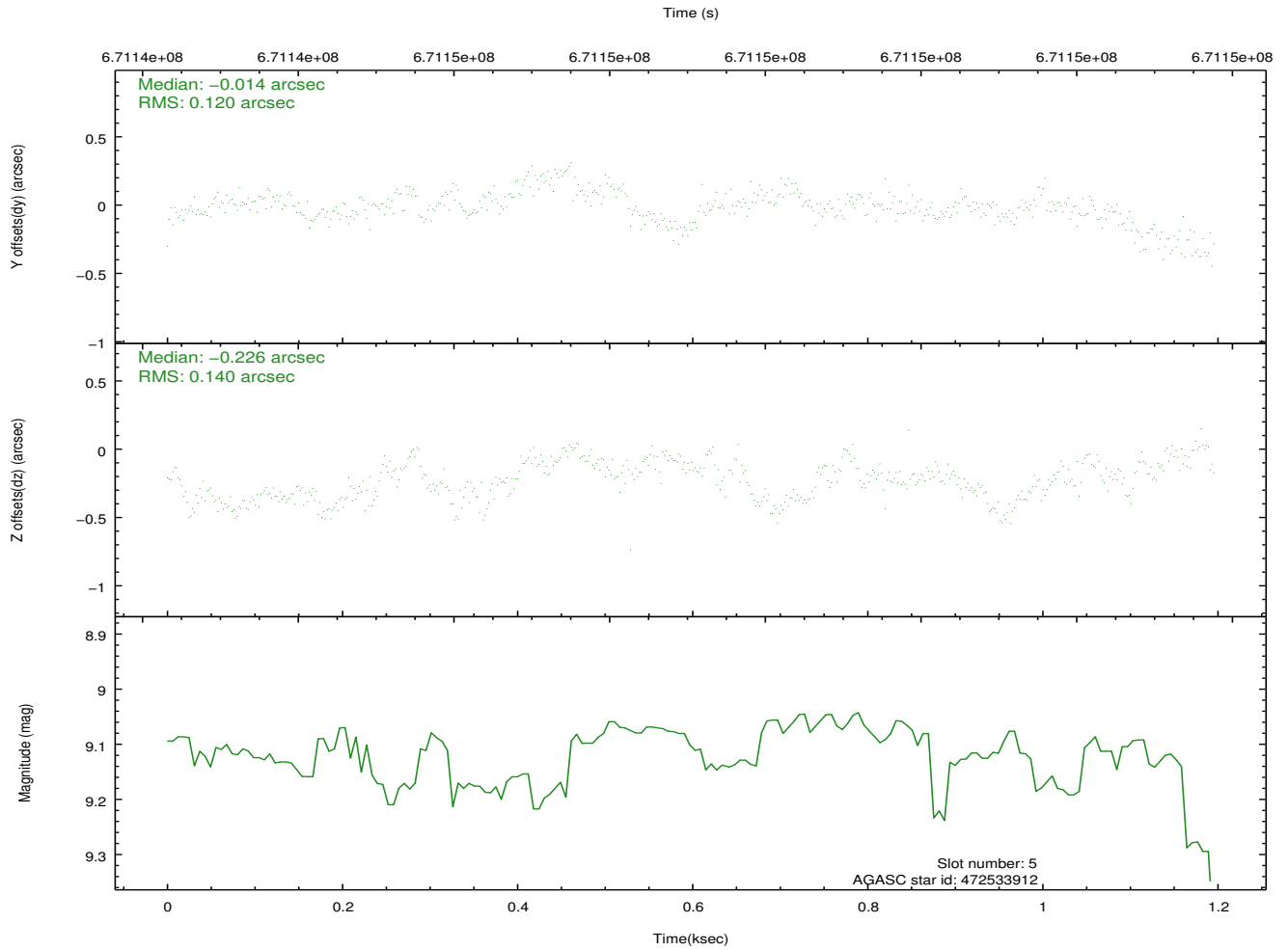
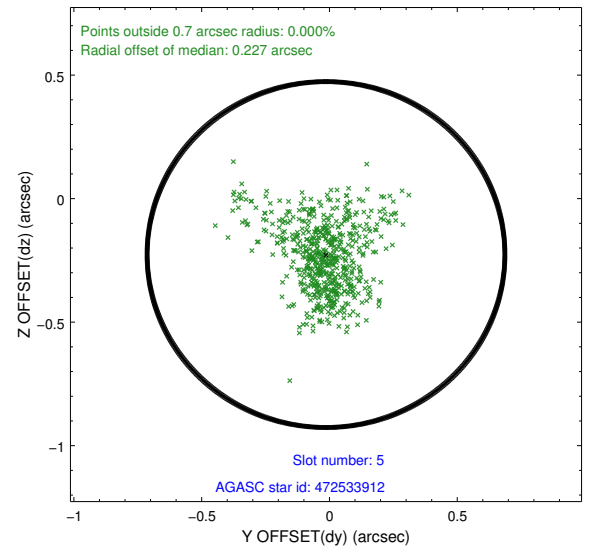
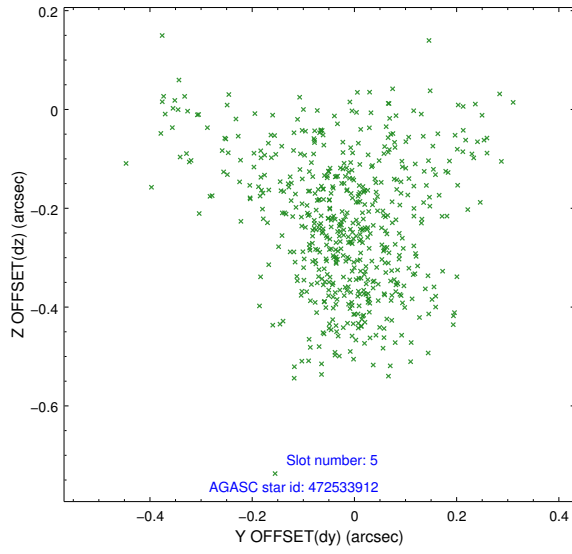
### 2.4.1 Slot 3



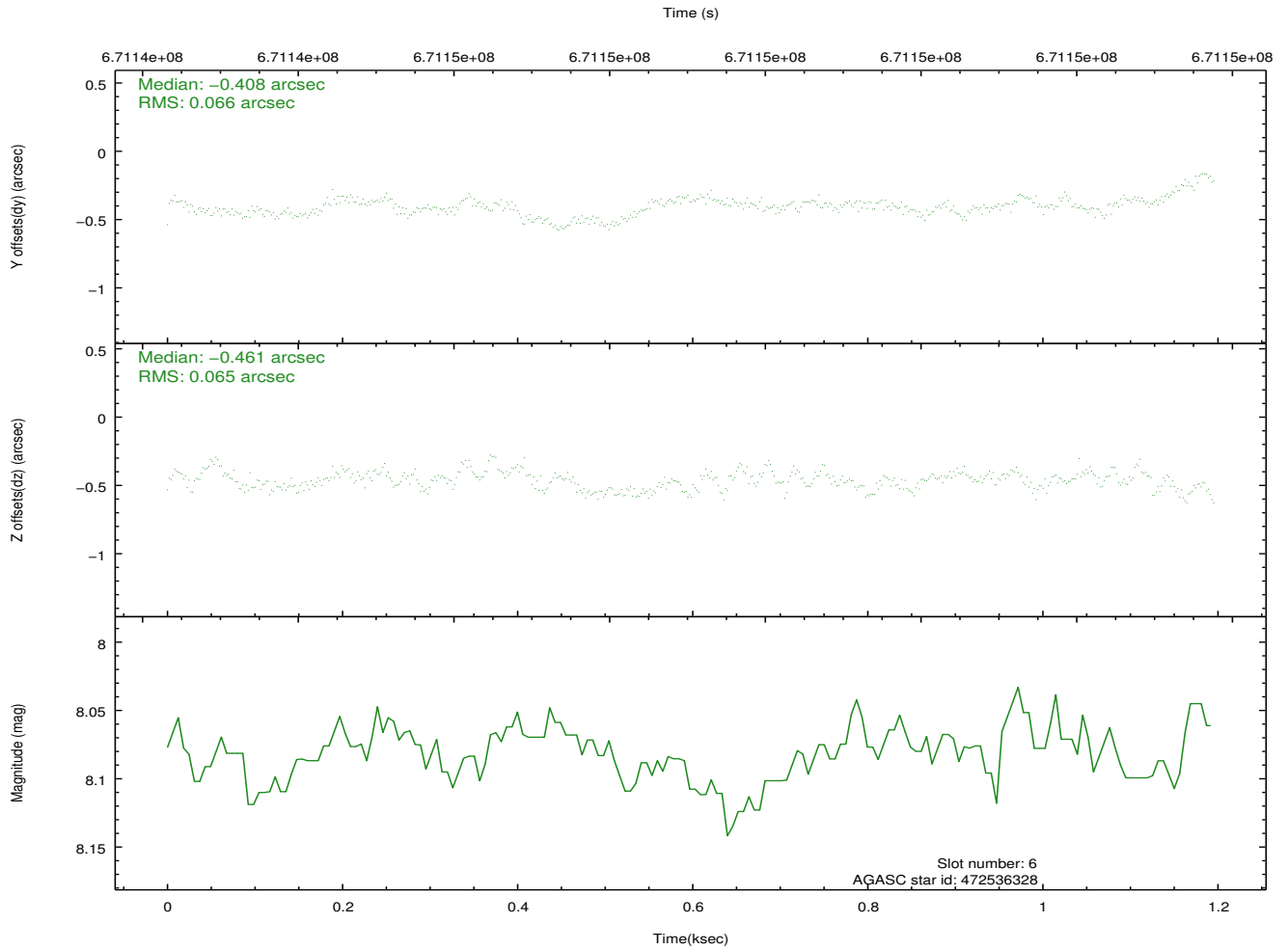
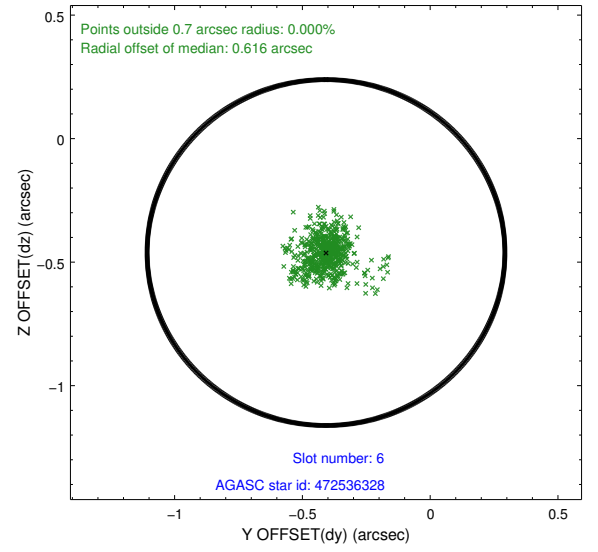
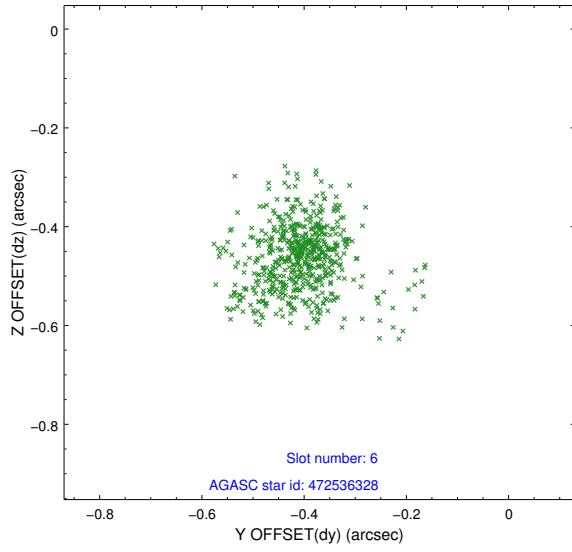
## 2.4.2 Slot 4



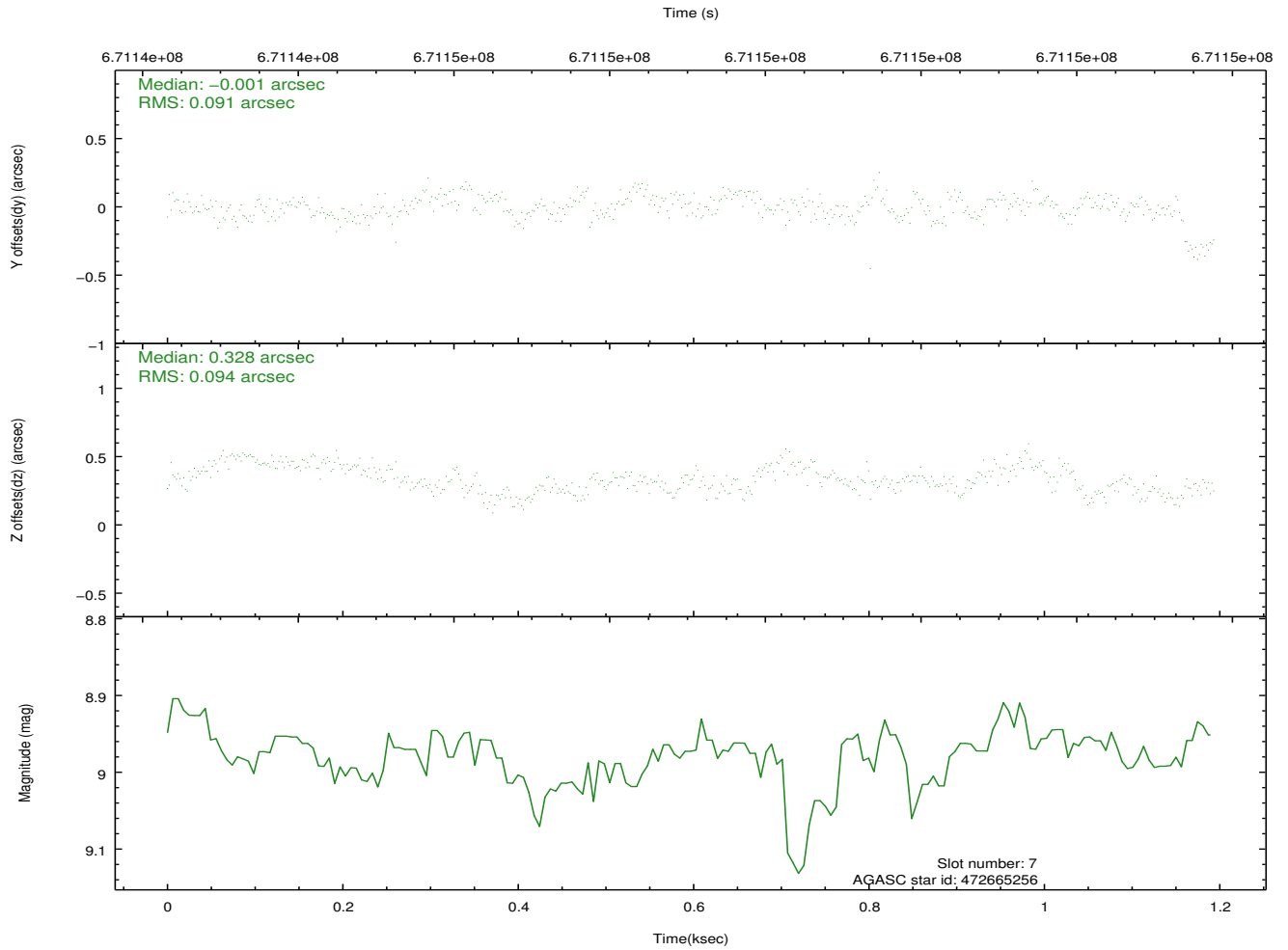
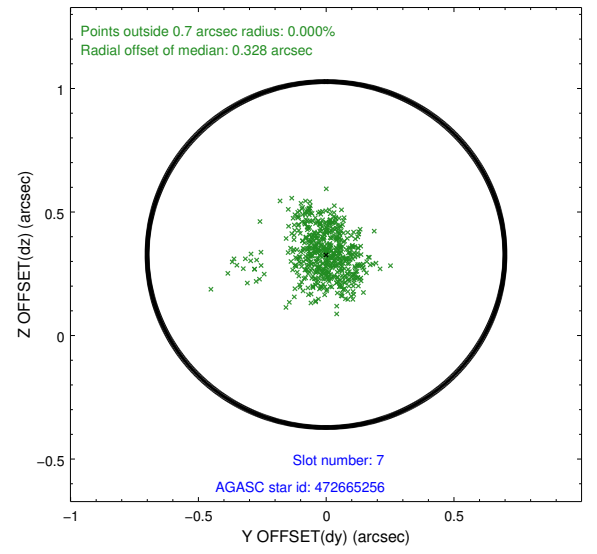
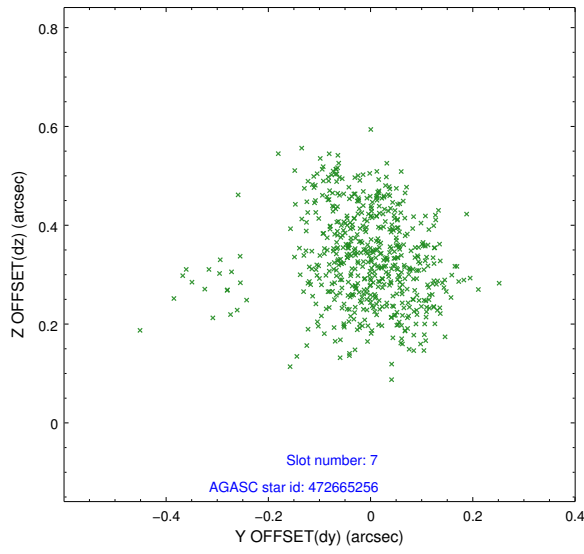
### 2.4.3 Slot 5



## 2.4.4 Slot 6

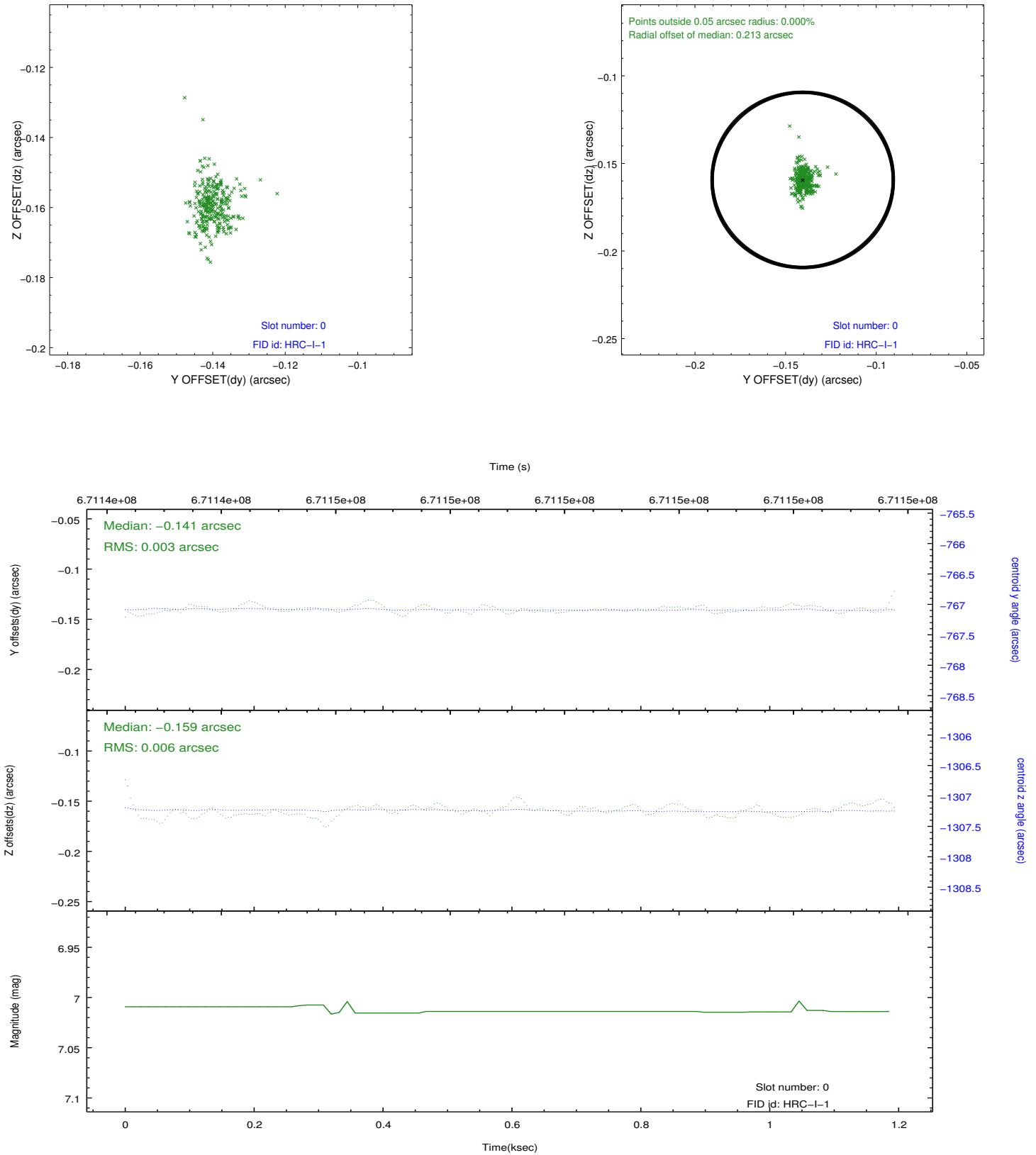


## 2.4.5 Slot 7

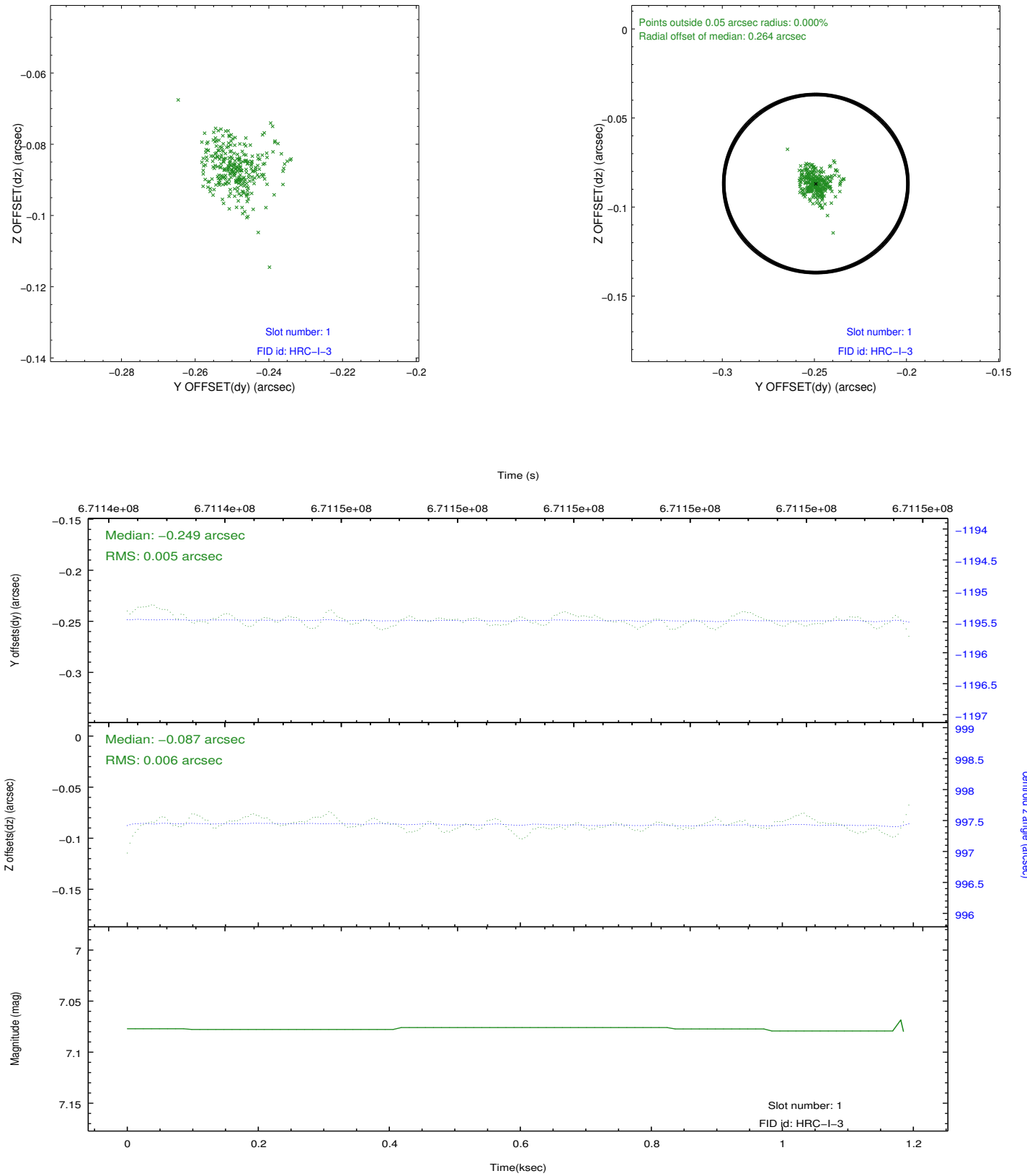


## 2.5 FID Slots

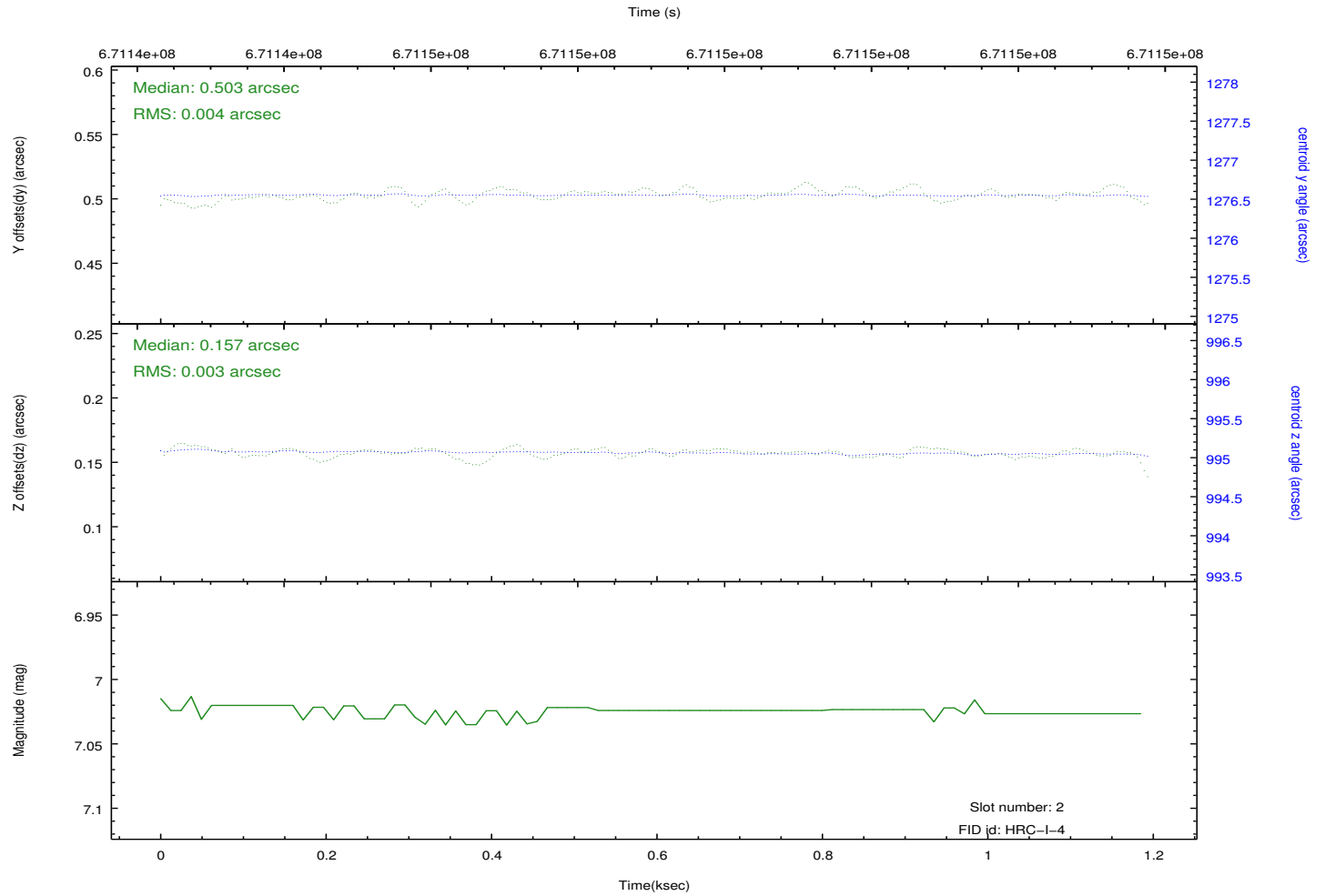
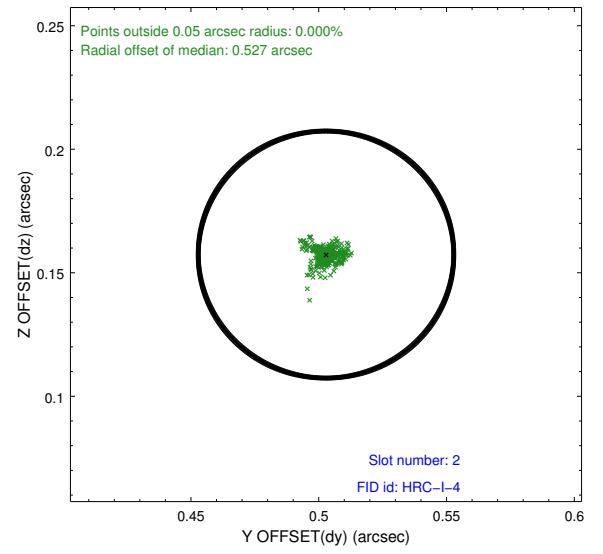
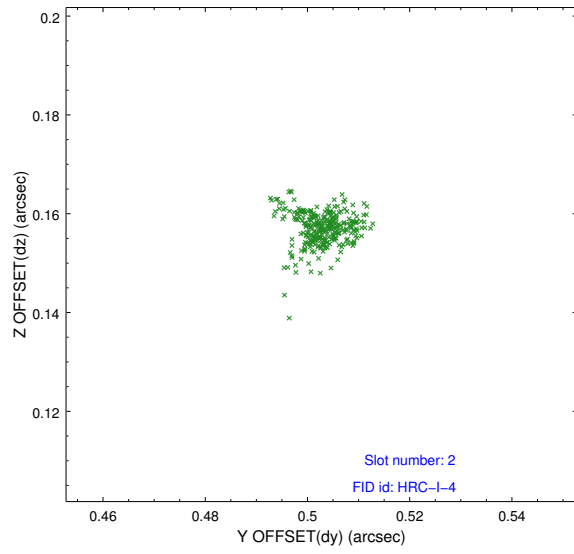
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2





## A Summary

### A.1 Status

|                            |                 |
|----------------------------|-----------------|
| V&V Scientist              | Jen Lauer       |
| V&V Date (YYYY-MM-DD)      | 2019.04.09      |
| V&V Edition                | 1               |
| V&V Disposition and Status | OK              |
| V&V Charge Time            | 1.1943813215494 |

### A.2 Comments