

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12283 - L2 Version 3  
Chandra X-Ray Center

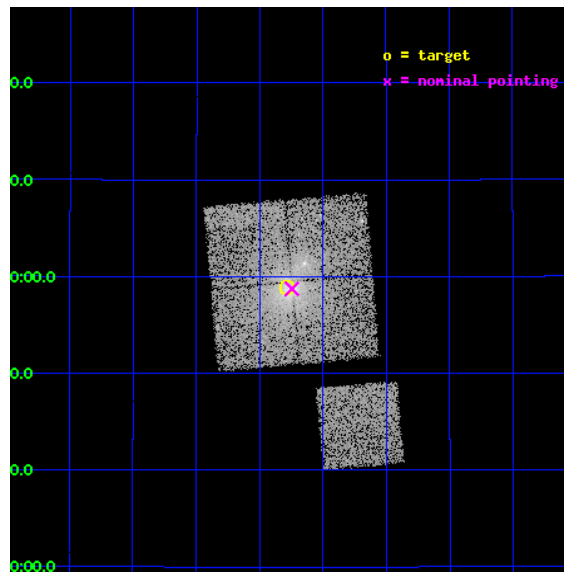
L2 Processing Date : Feb 8 2012

## 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	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

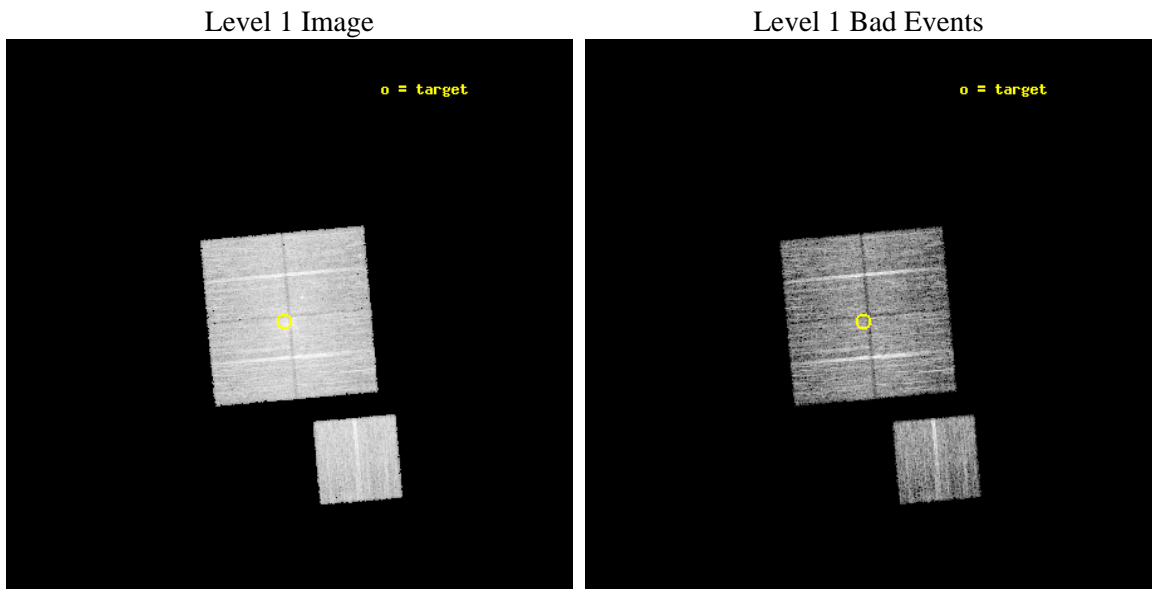
seq_num	801002	Sequence number
obs_id	12283	Observation id
title	A 'CENTENNIAL' SAMPLE OF THE 100 X-RAY BRIGHTEST GALAXY CLUSTERS	&#160
observer	Dr. Alexey Vikhlinin	Principal investigator
object	A1831	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	209.820417	Observer's specified target RA [deg]
dec_targ	27.980778	Observer's specified target Dec [deg]
ra_nom	209.81143478556	Nominal RA [deg]
dec_nom	27.979013180843	Nominal Dec [deg]
roll_nom	174.94053076826	Nominal Roll [deg]
revision	3	Processing version of data
ontime	10055.527378321	Sum of GTIs [s]
livetime	9924.1445103514	Livetime [s]
ontime0	10055.404258311	Sum of GTIs [s]
ontime1	10055.445298314	Sum of GTIs [s]
ontime2	10055.486338317	Sum of GTIs [s]
ontime3	10055.527378321	Sum of GTIs [s]
ontime6	10055.363218307	Sum of GTIs [s]
l2events	43662	Number of level 2 events



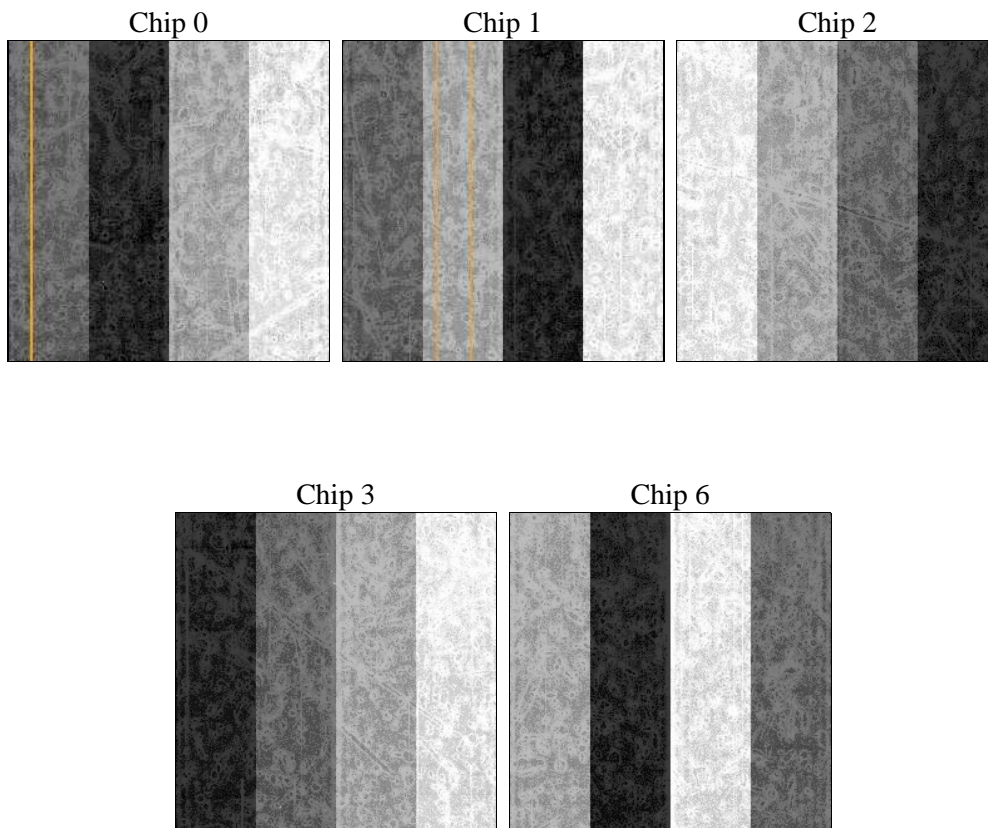
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	10055.527378321	Sum of GTIs [s]
caldbver	4.4.7	&#160	ontime0	10055.404258311	Sum of GTIs [s]
date	2012-02-08T05:43:48	Date and time of file creation	ontime1	10055.445298314	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	10055.486338317	Sum of GTIs [s]
			ontime3	10055.527378321	Sum of GTIs [s]
			ontime6	10055.363218307	Sum of GTIs [s]
			l1events	331779	Number of level 1 events

### 2.1.4 Events

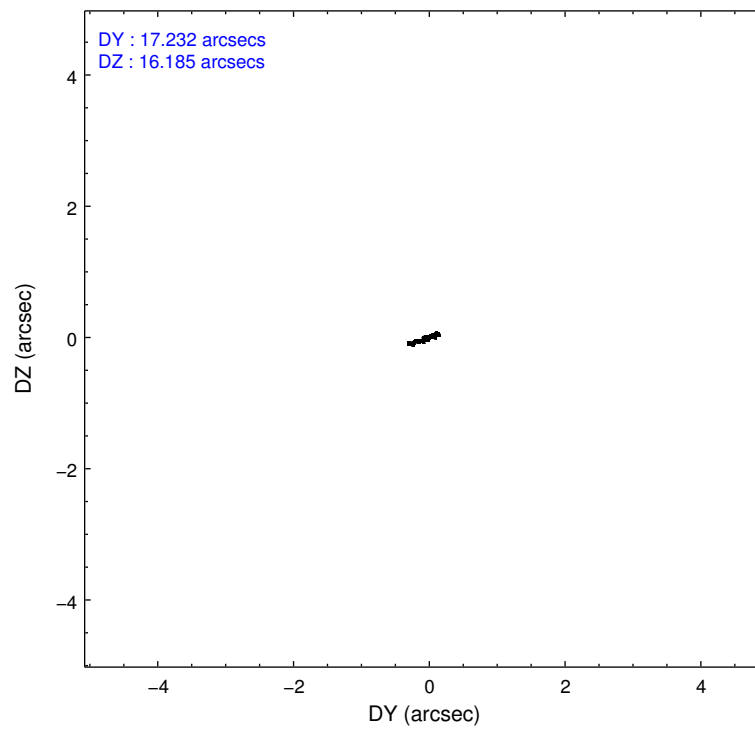
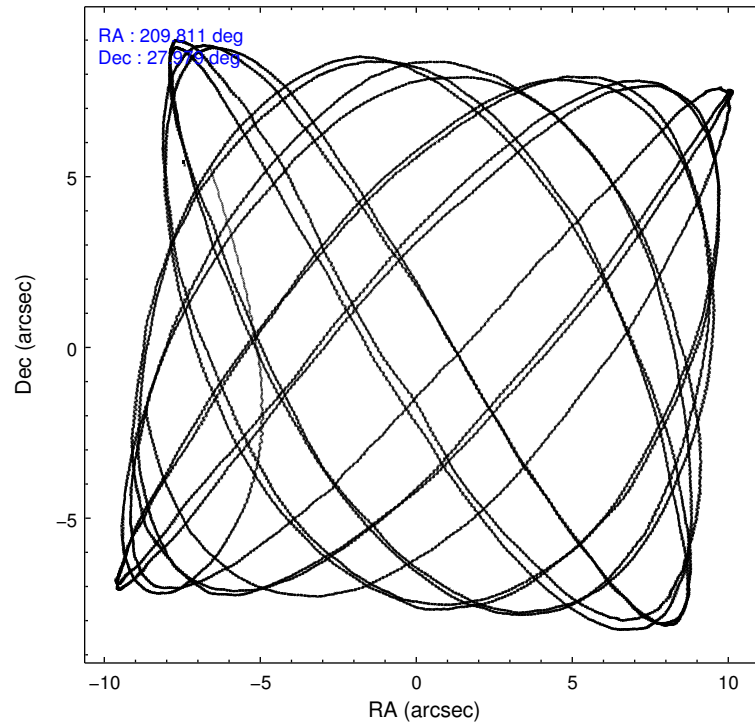
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	62442	64285	71454	68724	64874
rejected events	52199	54259	60584	57113	57326
rejected %	83%	84%	84%	83%	88%

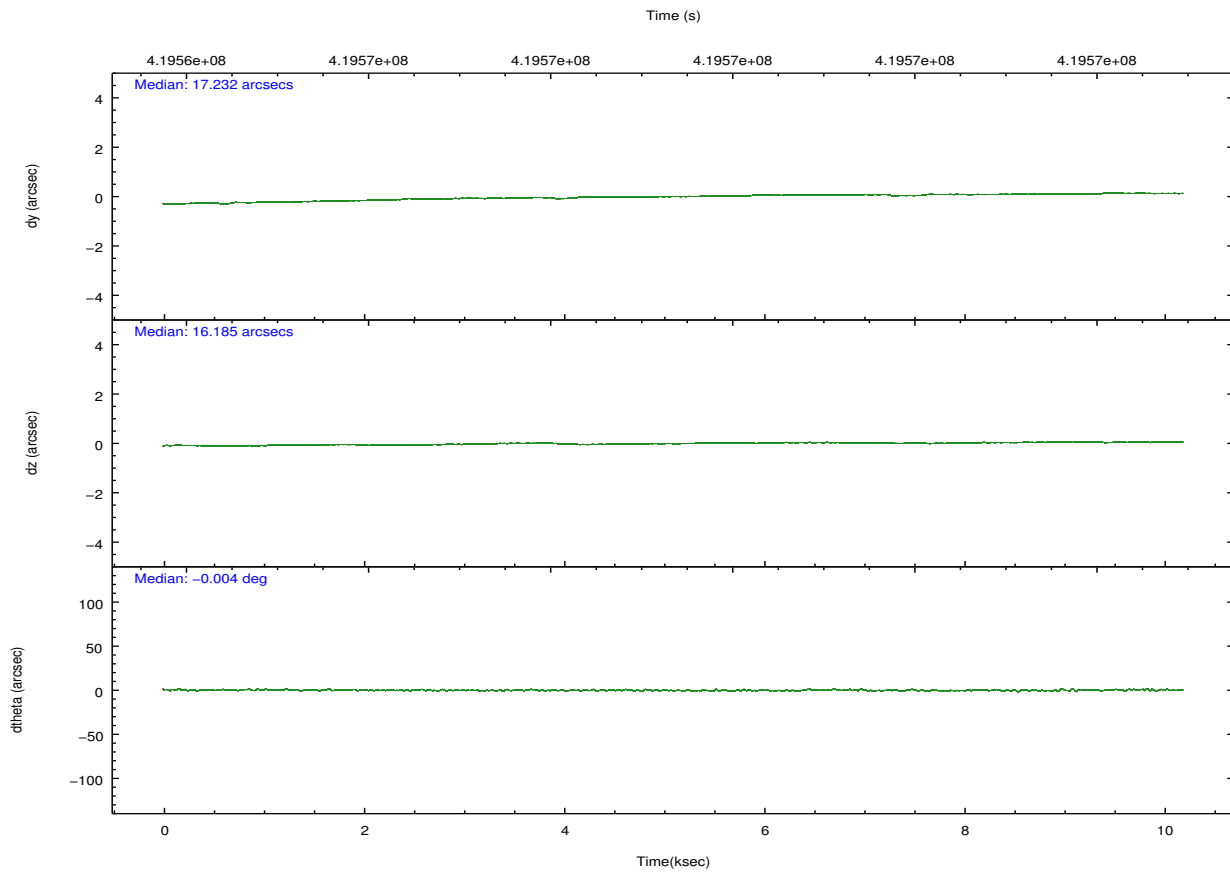
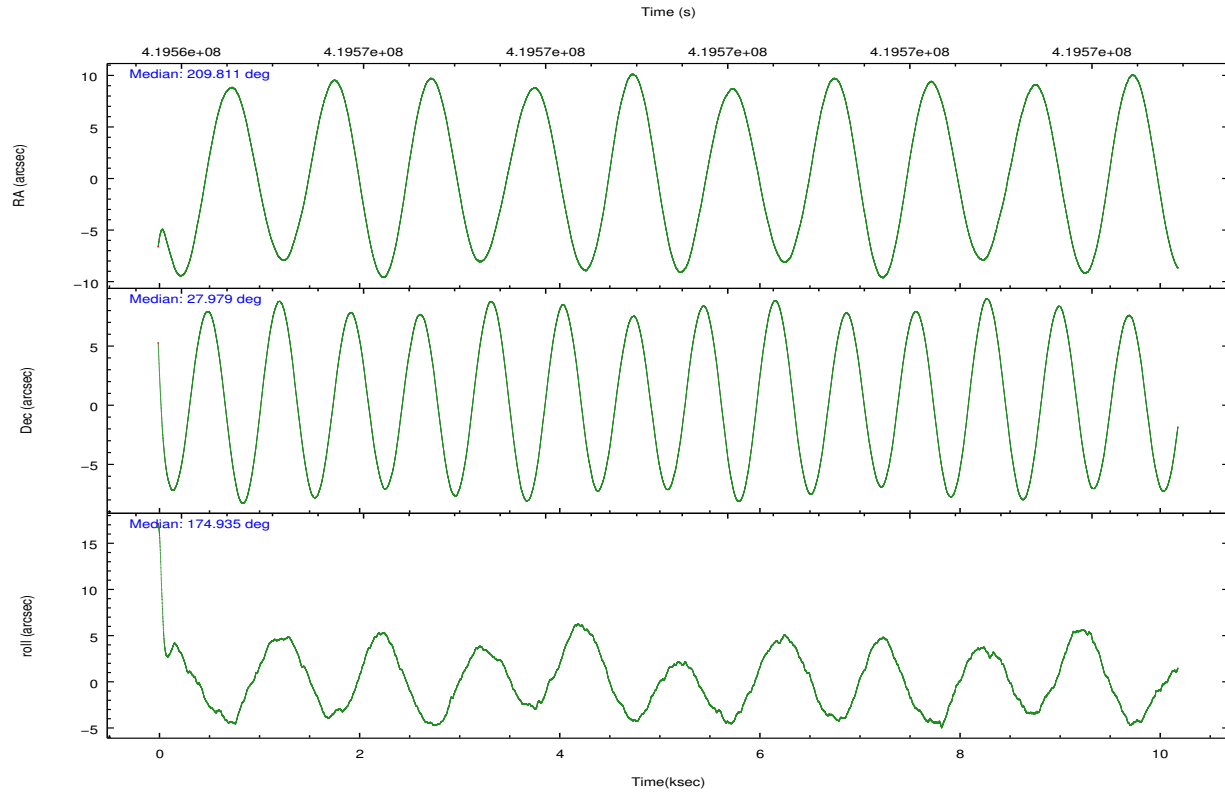
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	4926	4518	5626	6353	2611
	7%	7%	7%	9%	4%
grade 1 events	51	37	64	64	34
	0%	0%	0%	0%	0%
grade 2 events	2101	2030	2049	1999	1727
	3%	3%	2%	2%	2%
grade 3 events	905	879	846	864	778
	1%	1%	1%	1%	1%
grade 4 events	773	867	863	890	767
	1%	1%	1%	1%	1%
grade 5 events	2788	2900	2647	3141	3057
	4%	4%	3%	4%	4%
grade 6 events	1543	1736	1493	1514	1672
	2%	2%	2%	2%	2%
grade 7 events	49355	51318	57866	53899	54228
	79%	79%	80%	78%	83%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	209.839656	209.811434785561	CCD I2 on	Y	Y
[deg] Pointing Dec	27.990756	27.97901318084286	CCD I3 on	Y	Y
[deg] Pointing Roll	174.718579	174.9405307682563	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	419564433.184000	419563407.88092	CCD S5 on	N	N
Observation start date	2011-04-19T01:39:27	2011-04-19T01:23:27	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	419574433.184000	419575147.71903	On-chip summing requested	N	N
Observation end date	2011-04-19T04:26:07	2011-04-19T04:39:07	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



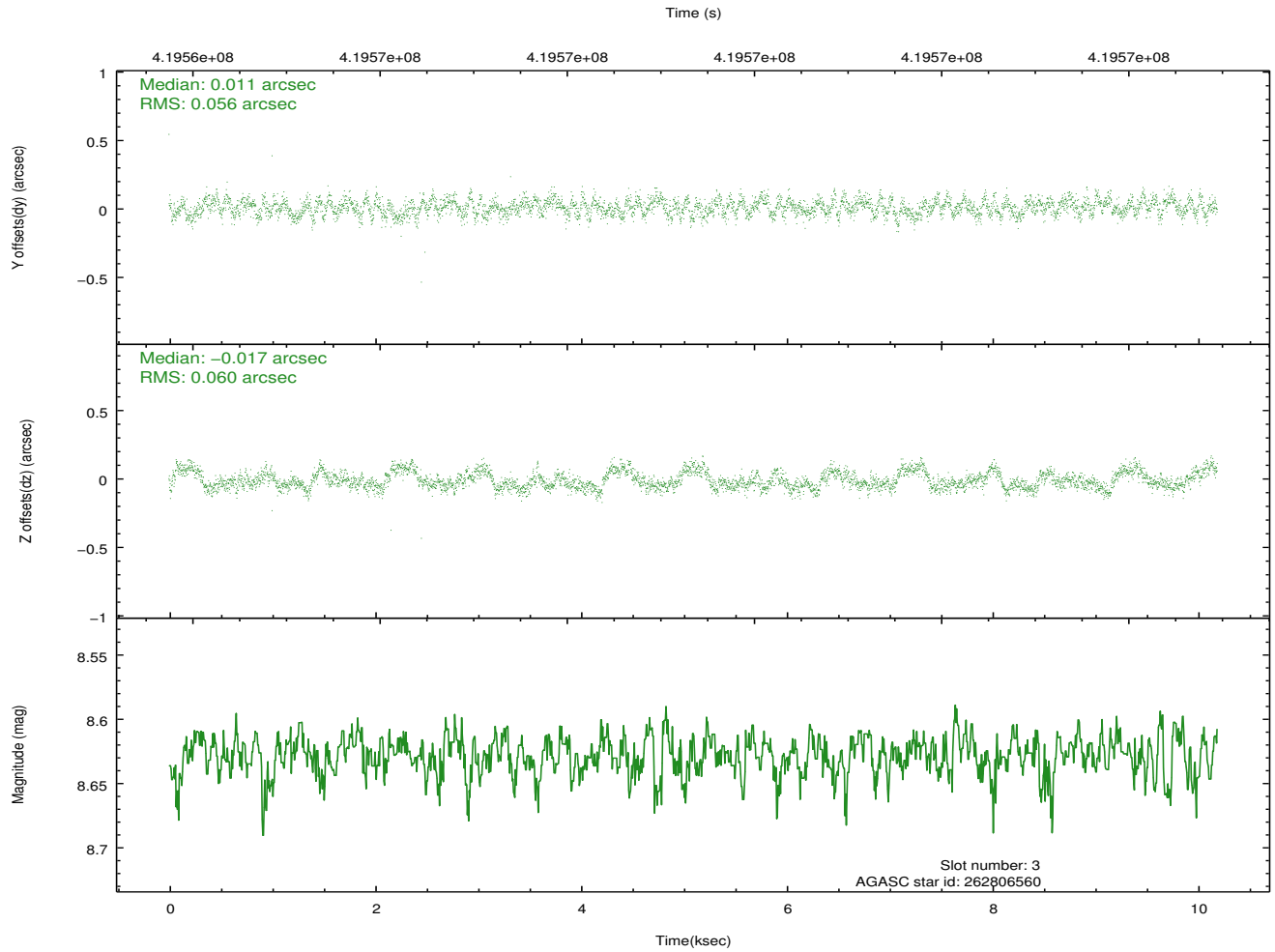
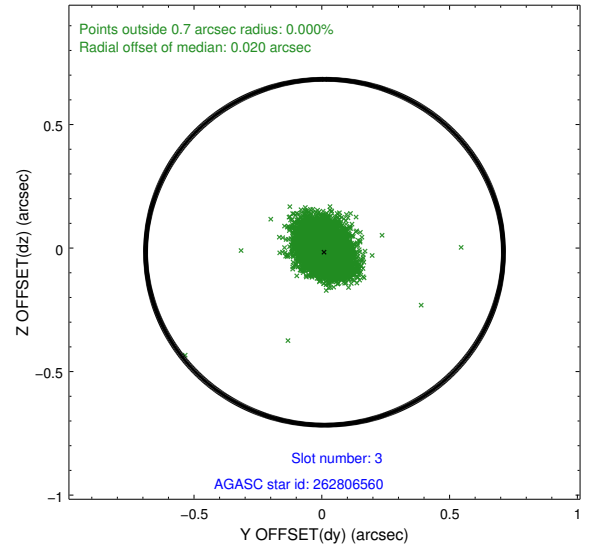
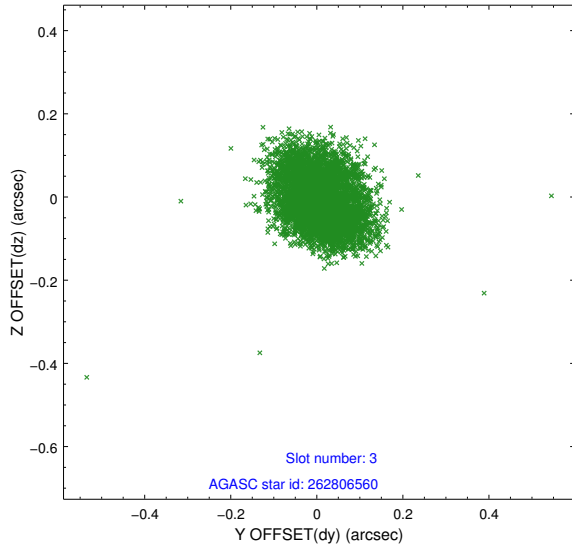


### Slot Statistics

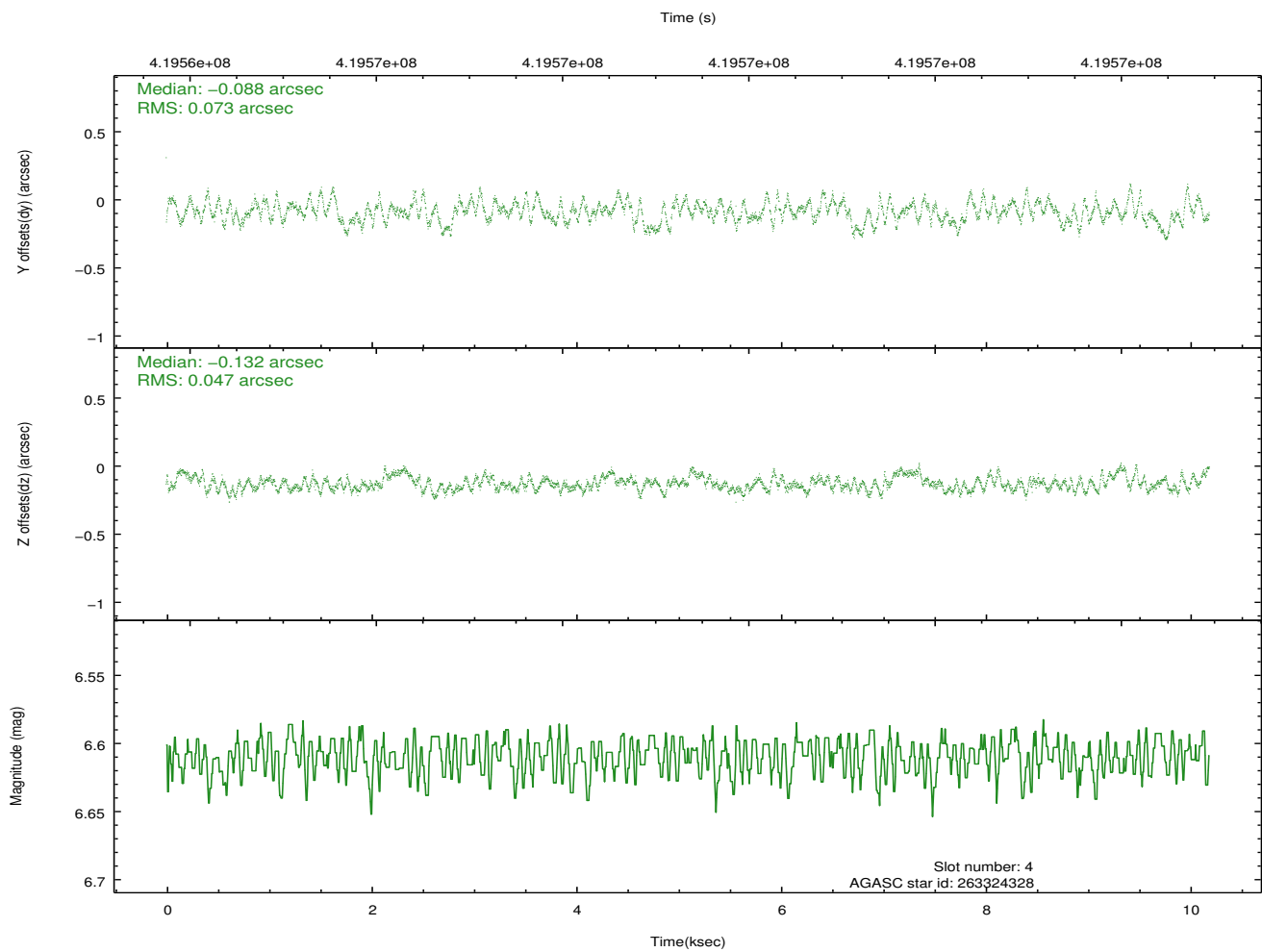
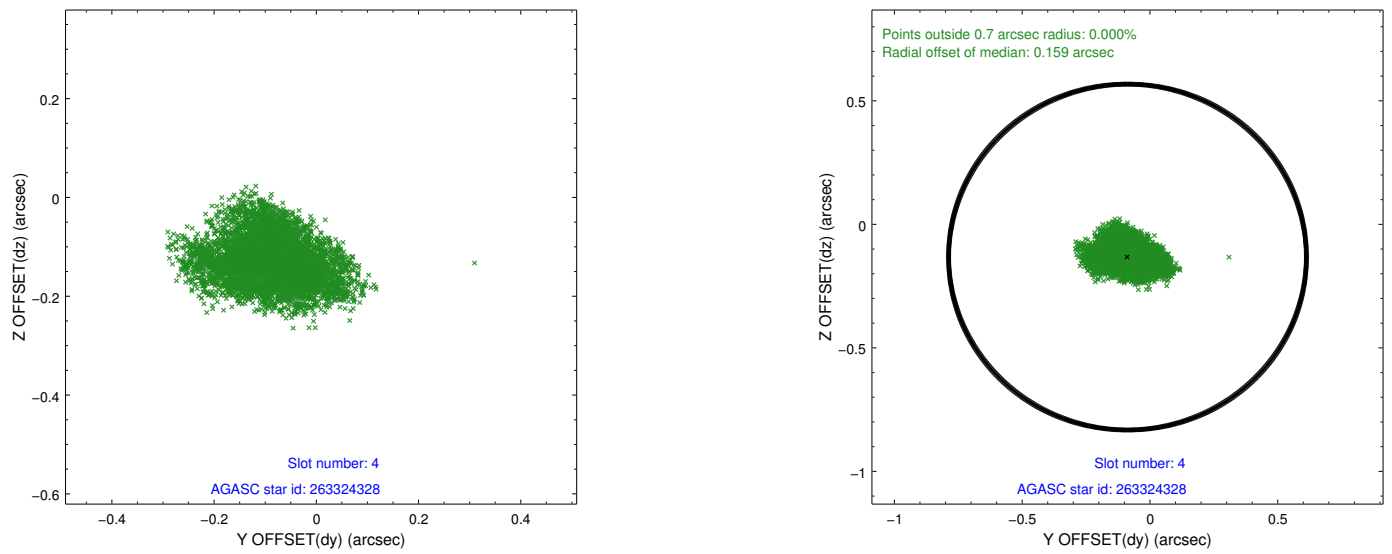
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	6.96	2486	-0.070	-0.097	0.010	0.017	0.000000	0.000000	-772.02	-846.29
1	FID	ACIS-I-4	6.97	2486	0.220	0.071	0.013	0.023	0.000000	0.000000	2142.03	1059.87
2	FID	ACIS-I-5	7.02	2486	-0.250	0.095	0.014	0.022	0.000000	0.000000	-1825.42	1058.23
3	GUIDE	262806560	8.63	4970	0.011	-0.017	0.087	0.139	209.171450	28.338023	2224.27	-1055.36
4	GUIDE	263324328	6.61	4972	-0.088	-0.132	0.093	0.148	210.293671	27.386592	-1643.87	2029.11
5	GUIDE	263718976	10.02	4951	0.022	0.110	0.155	0.244	210.470883	27.723408	-2091.31	768.59
6	GUIDE	263720632	8.50	4971	0.058	0.101	0.078	0.128	210.331594	28.409758	-1412.02	-1648.25
7	GUIDE	263723144	9.86	4960	-0.003	-0.061	0.144	0.229	209.518796	28.243963	1097.77	-815.34

## 2.4 Star Slots

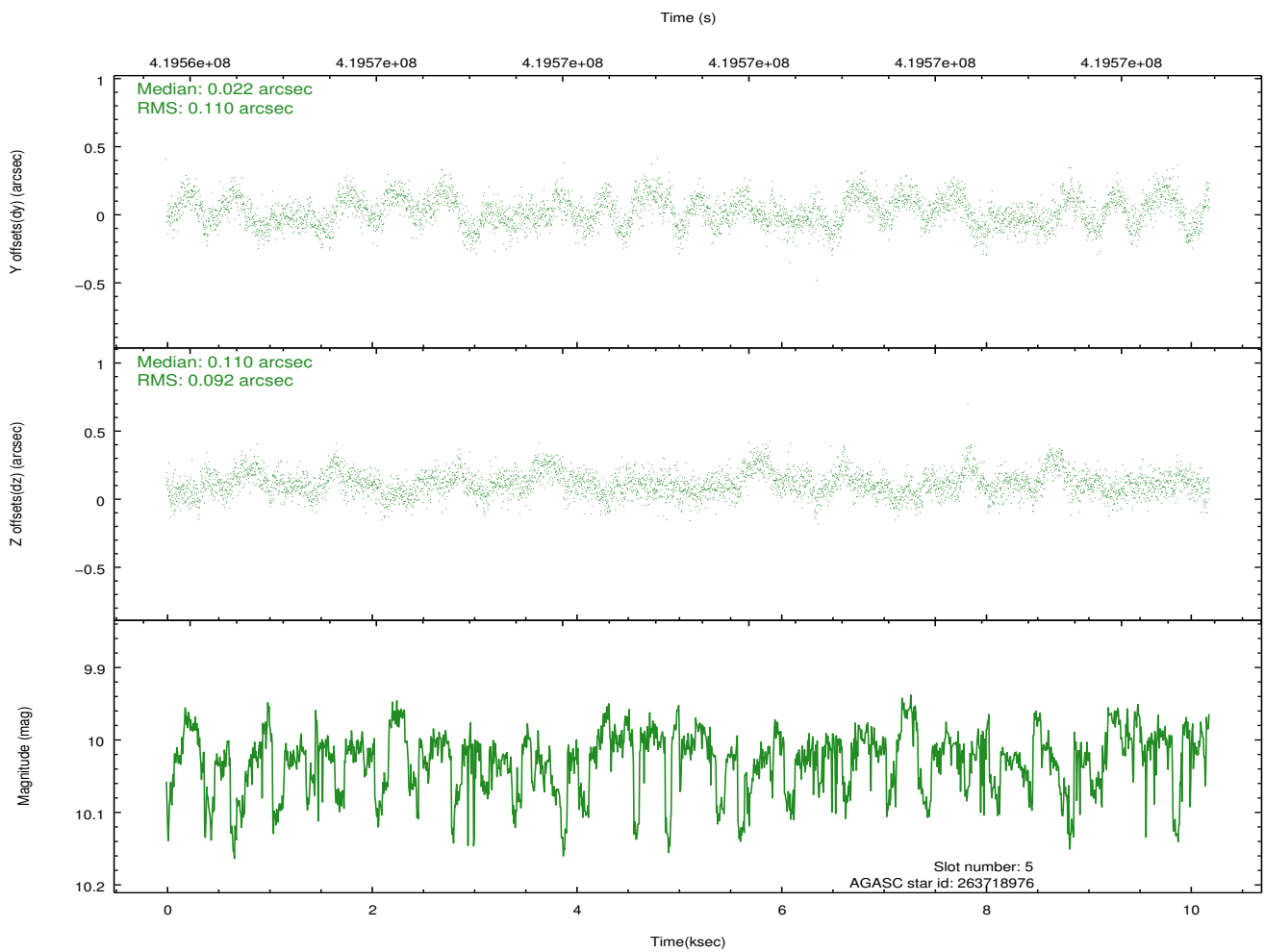
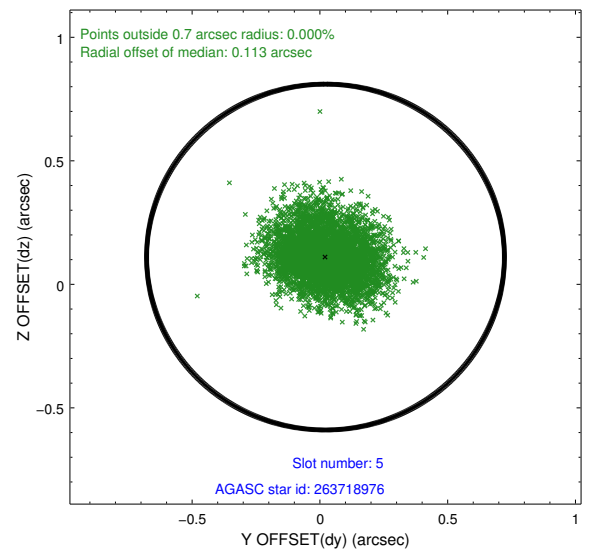
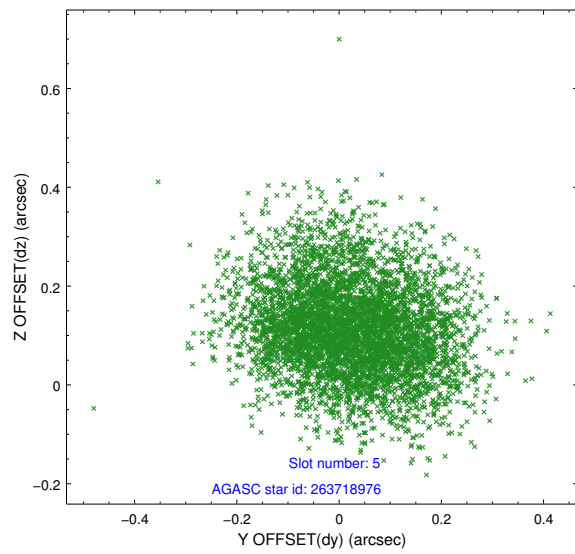
### 2.4.1 Slot 3



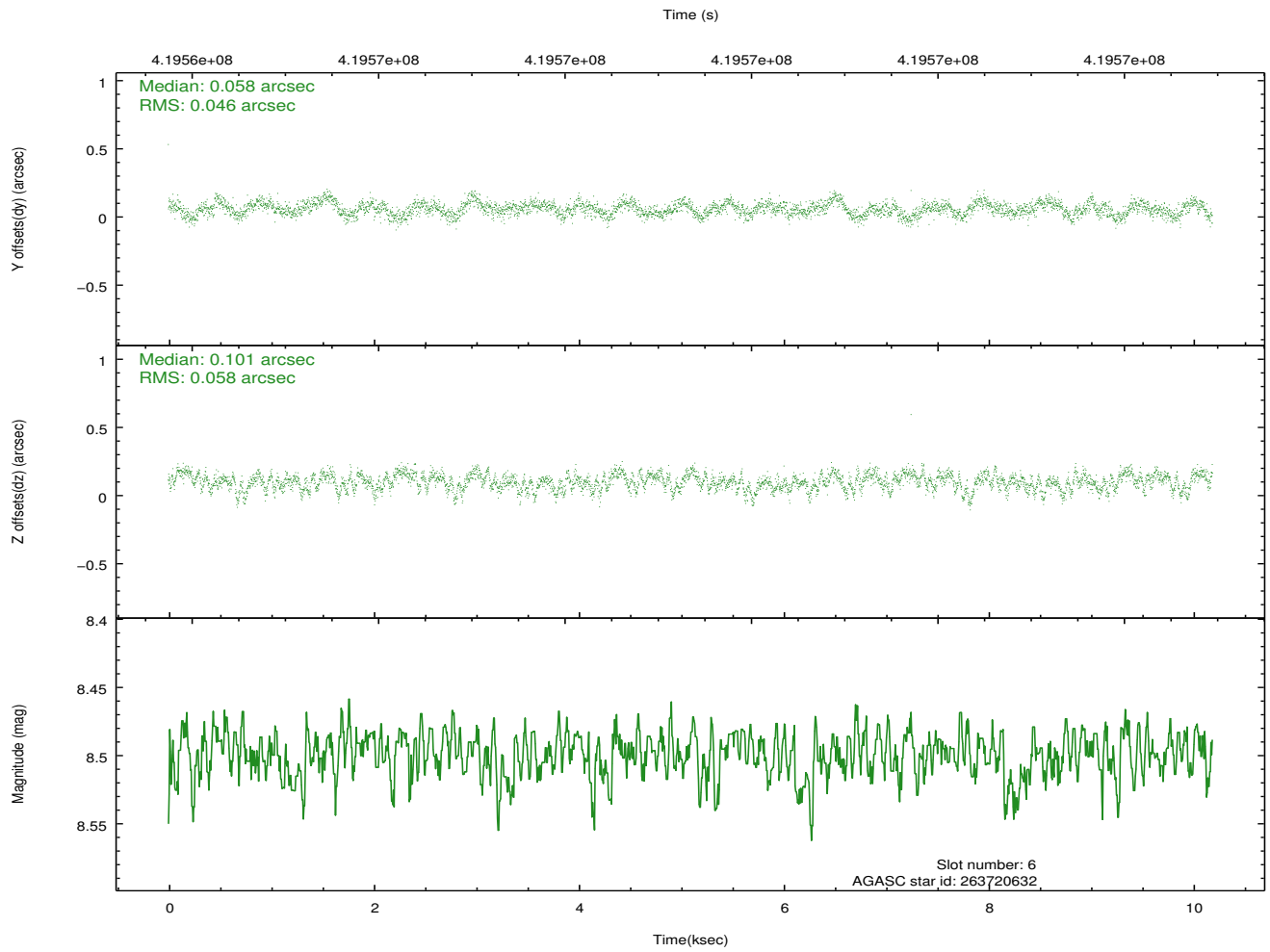
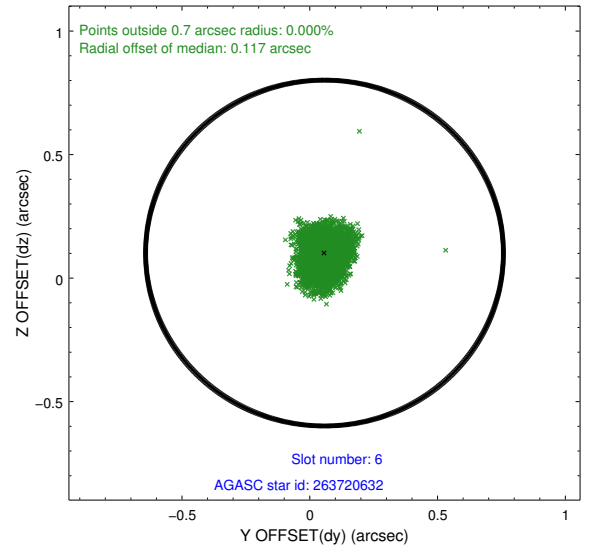
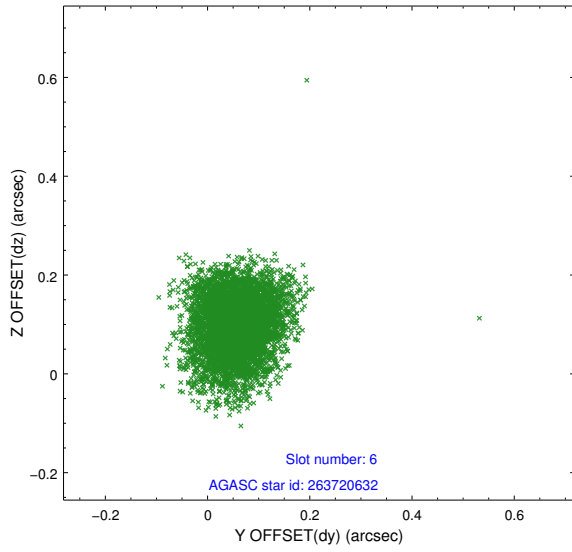
## 2.4.2 Slot 4



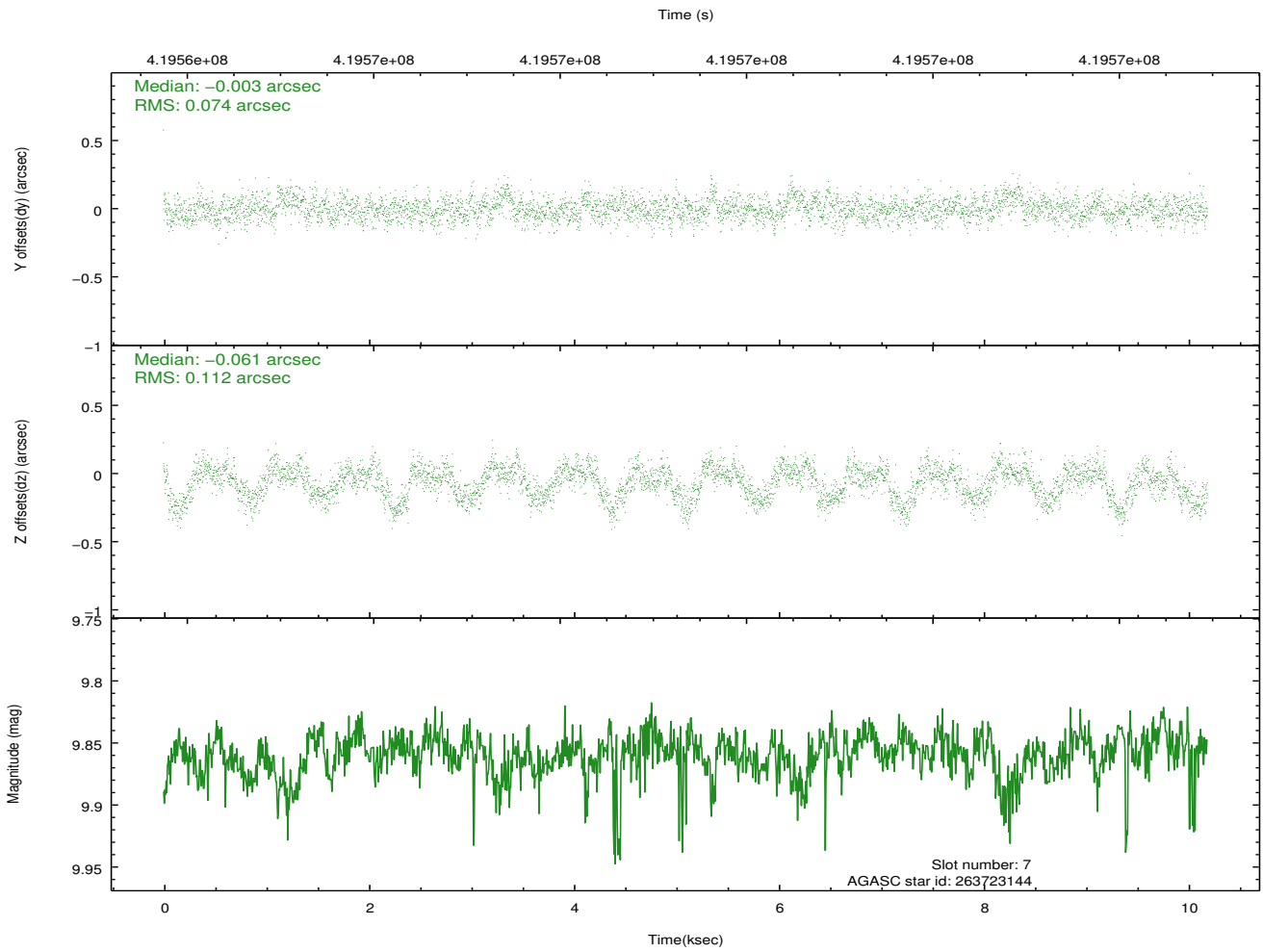
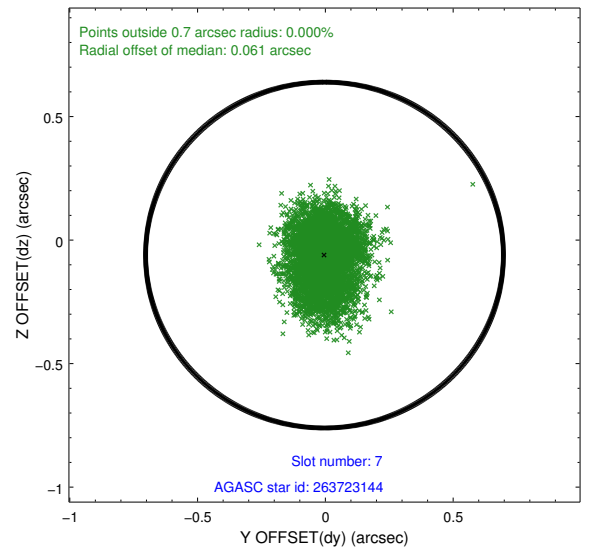
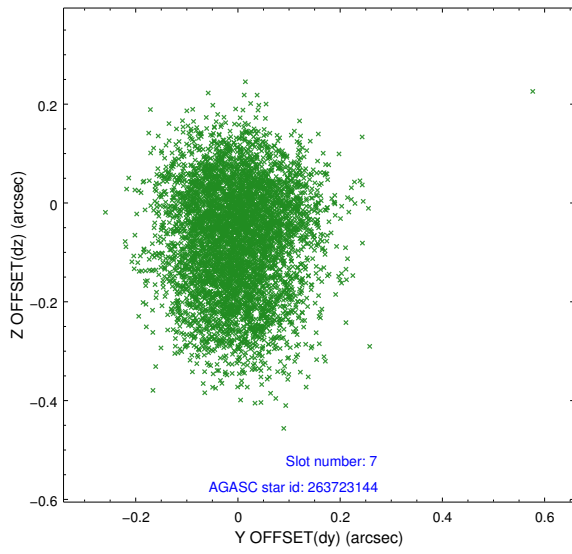
### 2.4.3 Slot 5



### 2.4.4 Slot 6

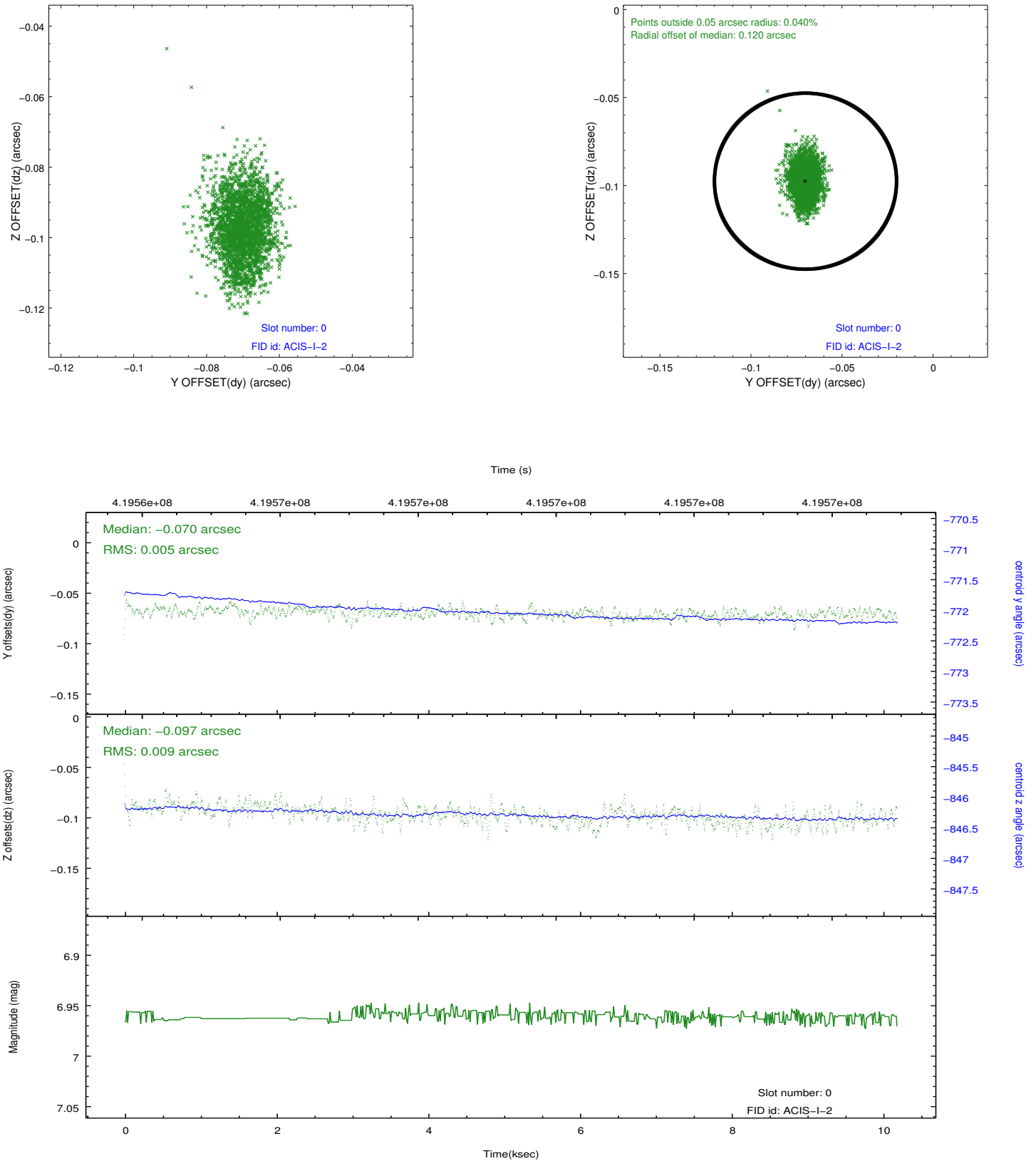


## 2.4.5 Slot 7

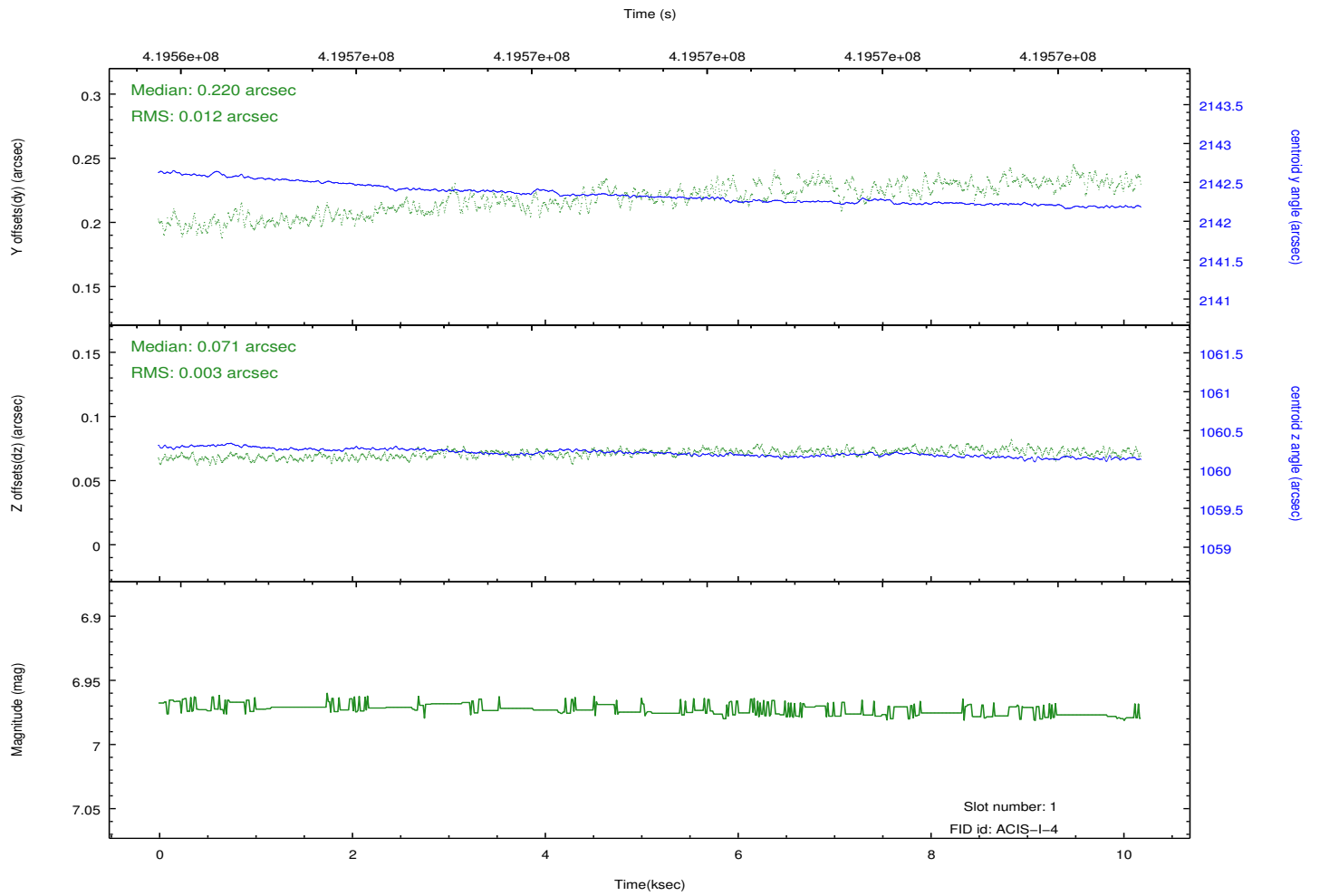
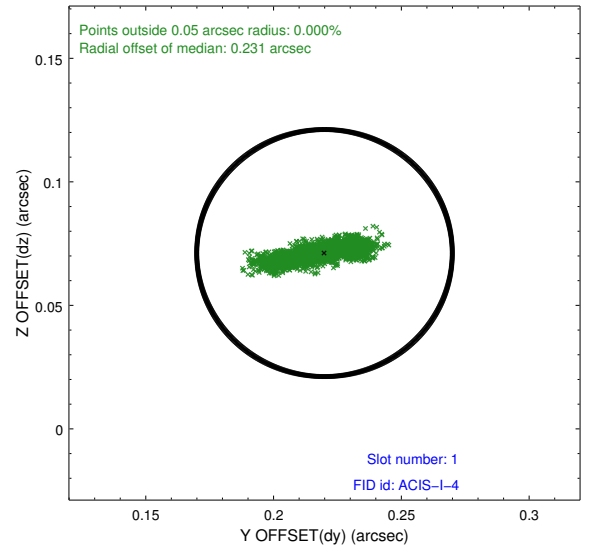
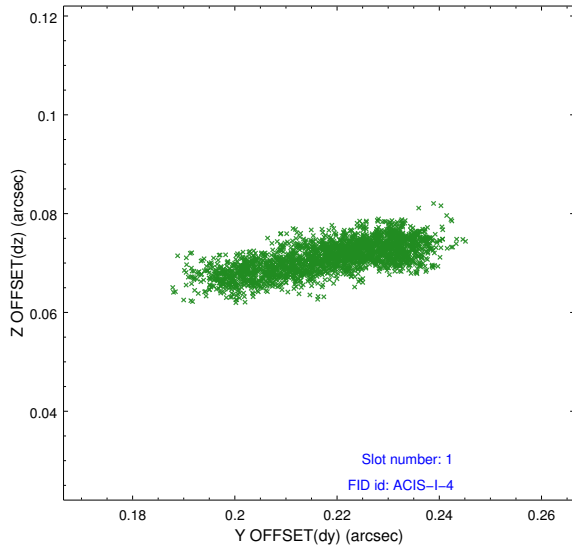


## 2.5 FID Slots

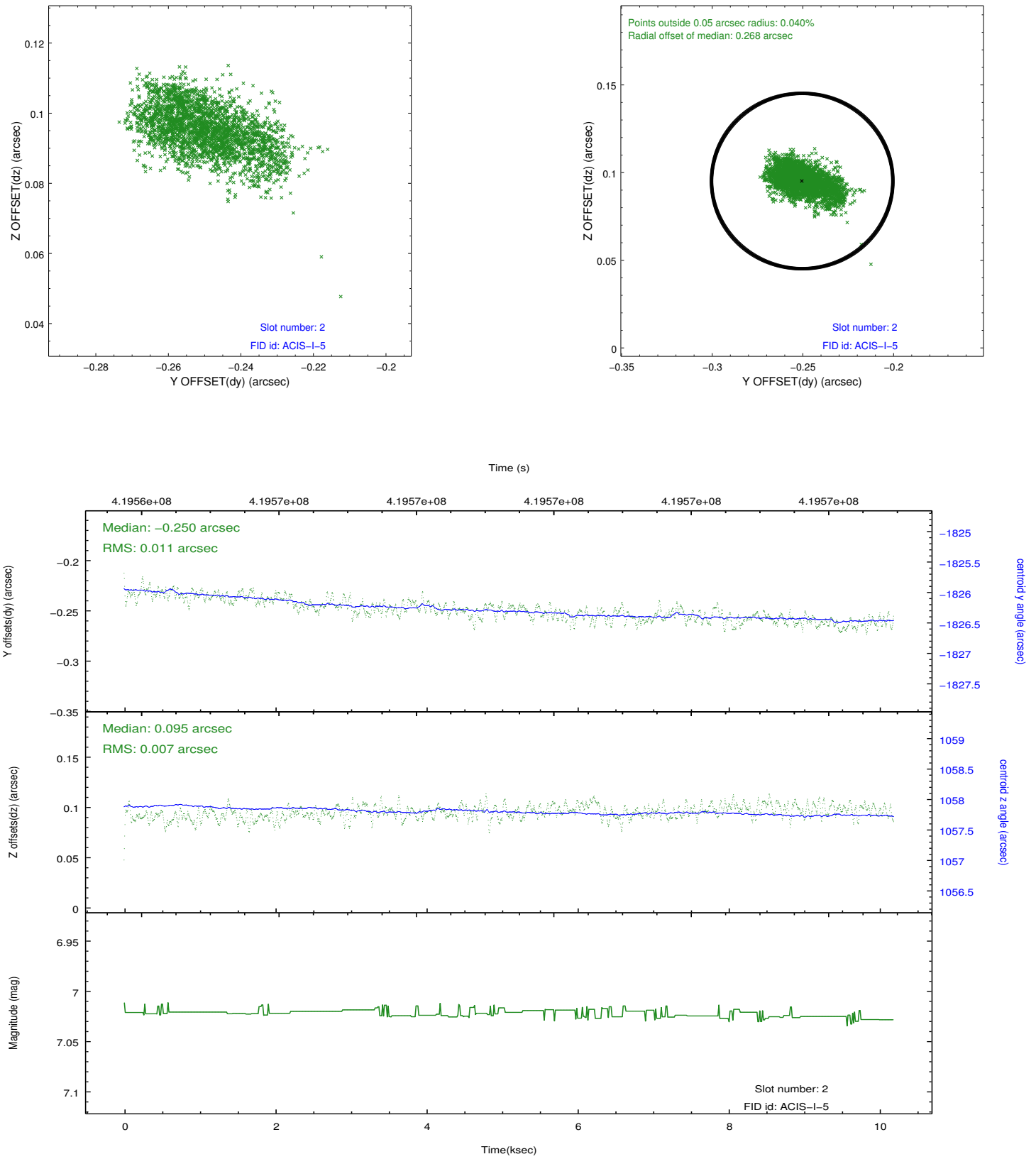
### 2.5.1 Slot 0



## 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)	2012.02.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.055527376235

## A.2 Comments

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.

=====

Spatial regions of the original bias maps for CCDs = 0 and 2 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 (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias maps for CCD = 0 and 2 have 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 the sky coords: CCD 0: (209.66316,28.10701), (209.66149,28.09058), (209.68011,28.08914), (209.66316,28.10701)

CCD 2: (209.71334,27.97923), (209.71260,27.97163), (209.76611,27.96747), (209.75824,27.97575)