

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 13010 - L2 Version 3  
Chandra X-Ray Center

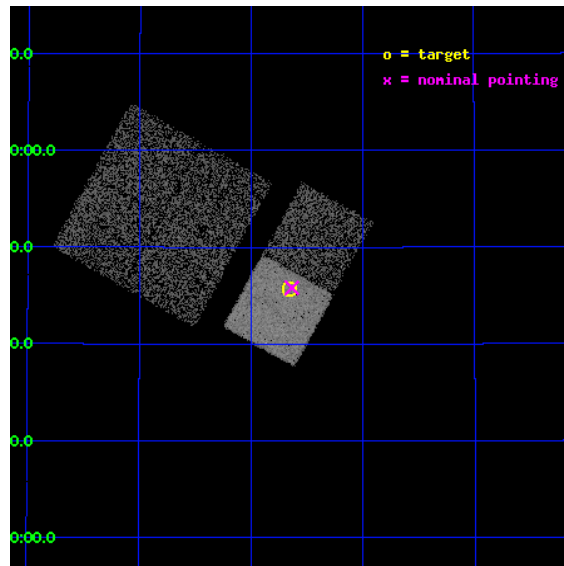
L2 Processing Date : Feb 2 2012

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# 1 Front

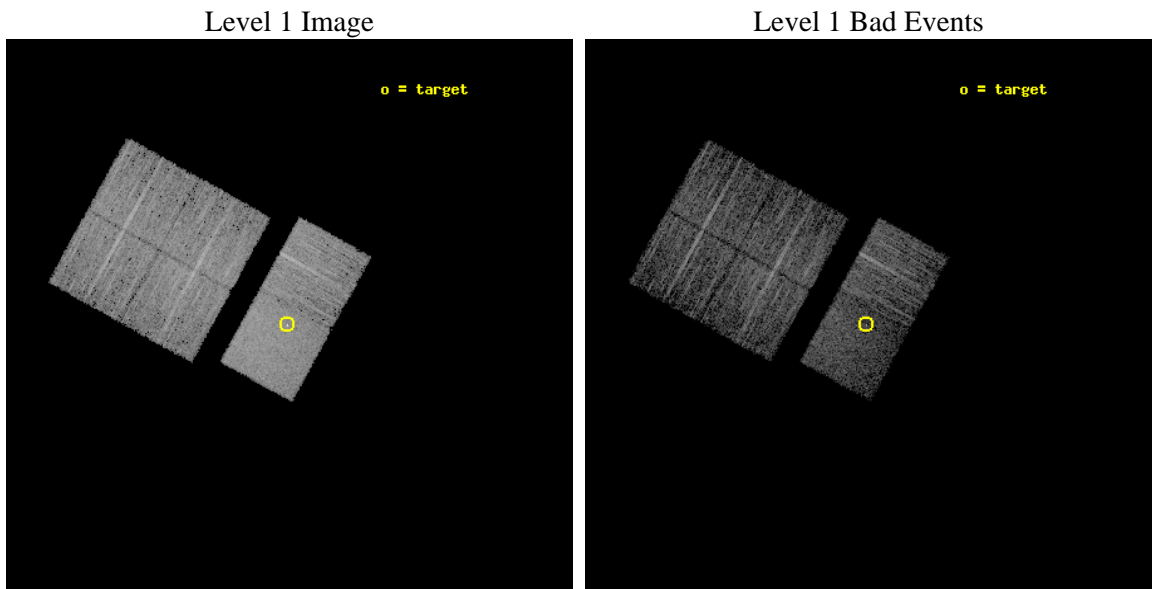
seq_num	600974	Sequence number
obs_id	13010	Observation id
title	The brightest ultraluminous X-ray sources across the sky	Proposal
observer	Dr Jifeng Liu	Principal investigator
object	J104439.4+384541	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	161.164167	Observer's specified target RA [deg]
dec_targ	38.761389	Observer's specified target Dec [deg]
ra_nom	161.15882642521	Nominal RA [deg]
dec_nom	38.763751561307	Nominal Dec [deg]
roll_nom	119.00594823325	Nominal Roll [deg]
revision	3	Processing version of data
ontime	4959.8640964031	Sum of GTIs [s]
livetime	4897.0593107429	Livetime [s]
ontime0	4959.9051364064	Sum of GTIs [s]
ontime1	4959.6999363899	Sum of GTIs [s]
ontime2	4959.7409763932	Sum of GTIs [s]
ontime3	4959.7820163965	Sum of GTIs [s]
ontime6	4959.8230563998	Sum of GTIs [s]
ontime7	4959.8640964031	Sum of GTIs [s]
l2events	36819	Number of level 2 events



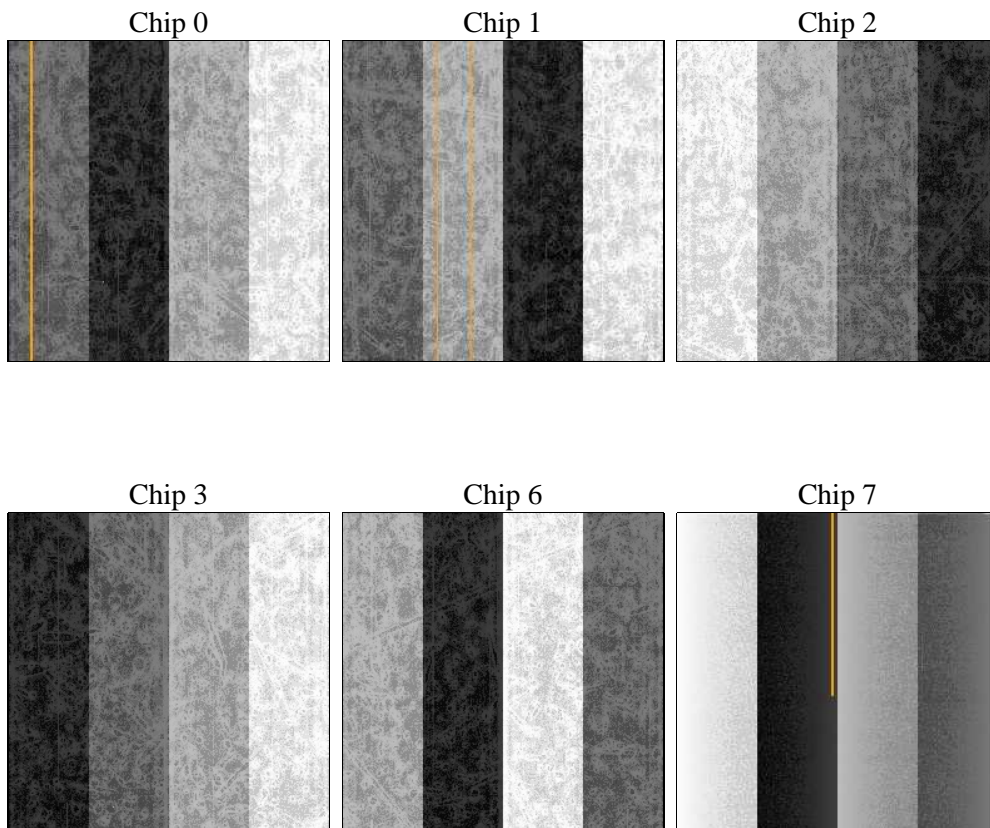
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	5000.563000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	4959.8640964031	Sum of GTIs [s]
caldsver	4.4.7	&#160	ontime0	4959.9051364064	Sum of GTIs [s]
date	2012-02-03T00:55:09	Date and time of file creation	ontime1	4959.6999363899	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	4959.7409763932	Sum of GTIs [s]
			ontime3	4959.7820163965	Sum of GTIs [s]
			ontime6	4959.8230563998	Sum of GTIs [s]
			ontime7	4959.8640964031	Sum of GTIs [s]
			l1events	224126	Number of level 1 events

### 2.1.4 Events

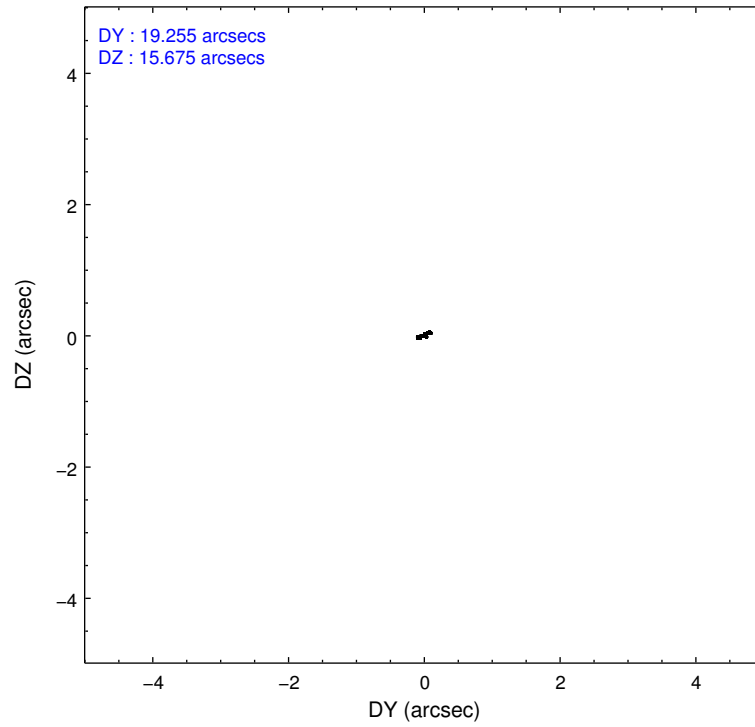
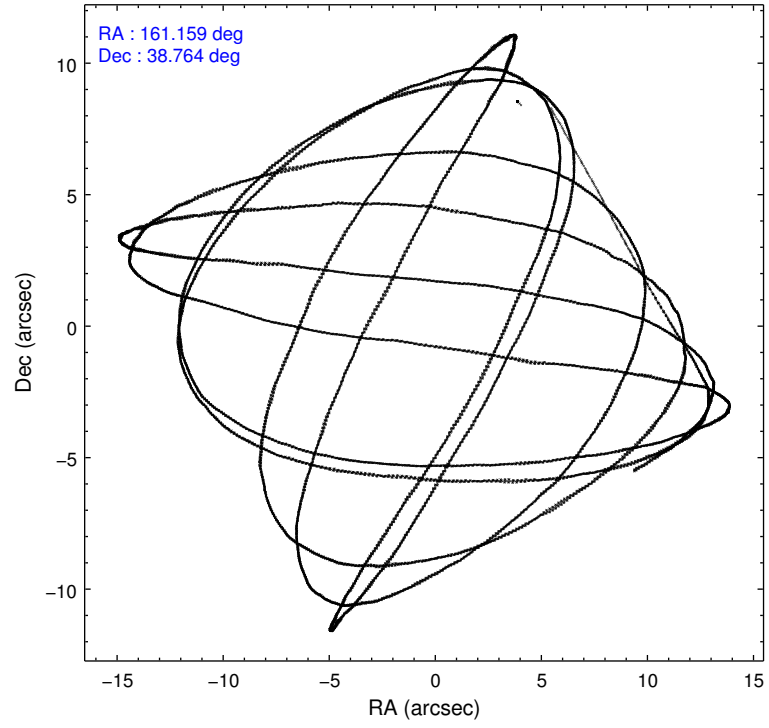
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	35067	32903	36788	35000	38753	45615	grade 0 events	1442	1551	1334	1258	1439	2077
rejected events	30988	28748	32968	31391	34593	24772		4%	4%	3%	3%	3%	4%
rejected %	88%	87%	89%	89%	89%	54%	grade 1 events	26	15	22	18	15	71
								0%	0%	0%	0%	0%	0%
							grade 2 events	985	981	919	801	932	4265
								2%	2%	2%	2%	2%	9%
							grade 3 events	404	436	386	399	420	1802
								1%	1%	1%	1%	1%	3%
							grade 4 events	411	394	386	400	459	1850
								1%	1%	1%	1%	1%	4%
							grade 5 events	1553	1542	1338	1640	1647	4497
								4%	4%	3%	4%	4%	9%
							grade 6 events	841	801	800	753	915	10865
								2%	2%	2%	2%	2%	23%
							grade 7 events	29405	27183	31603	29731	32926	20188
								83%	82%	85%	84%	84%	44%

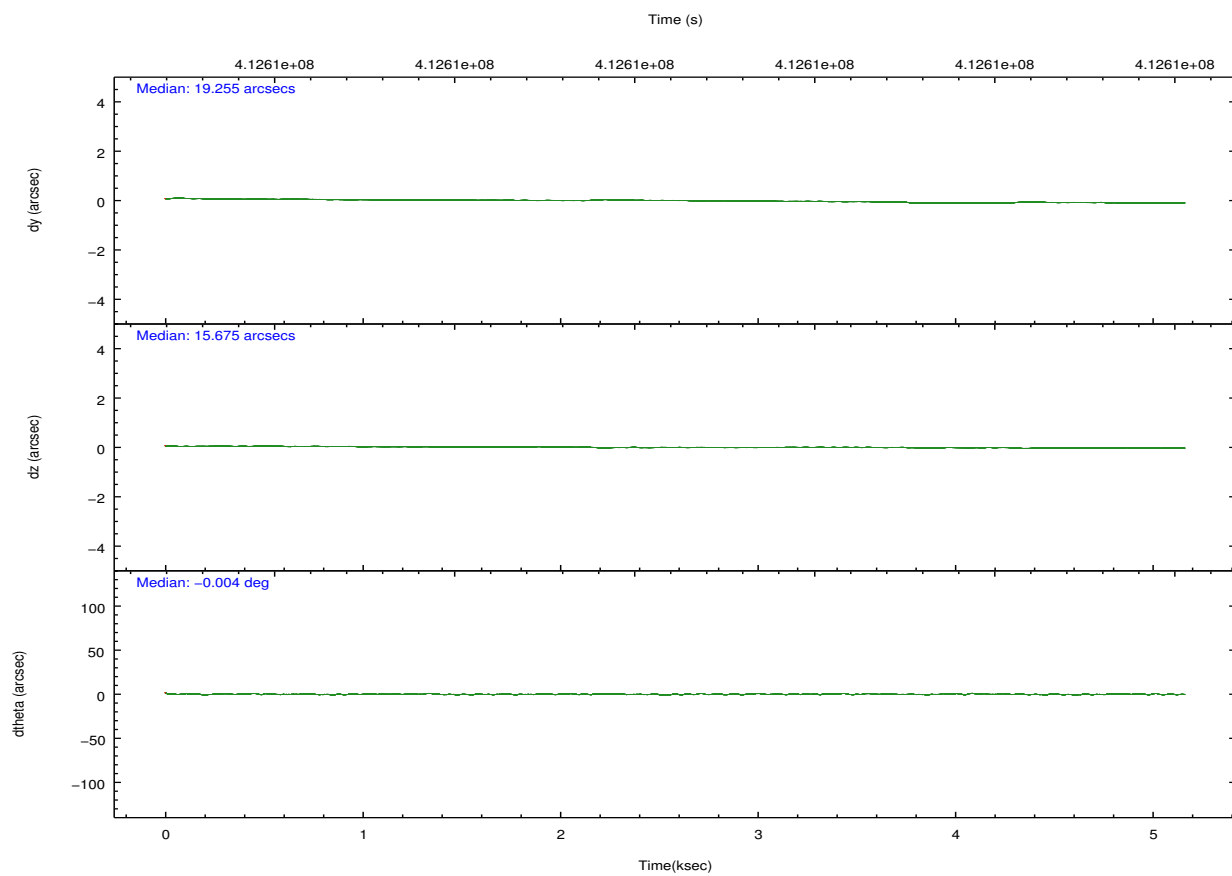
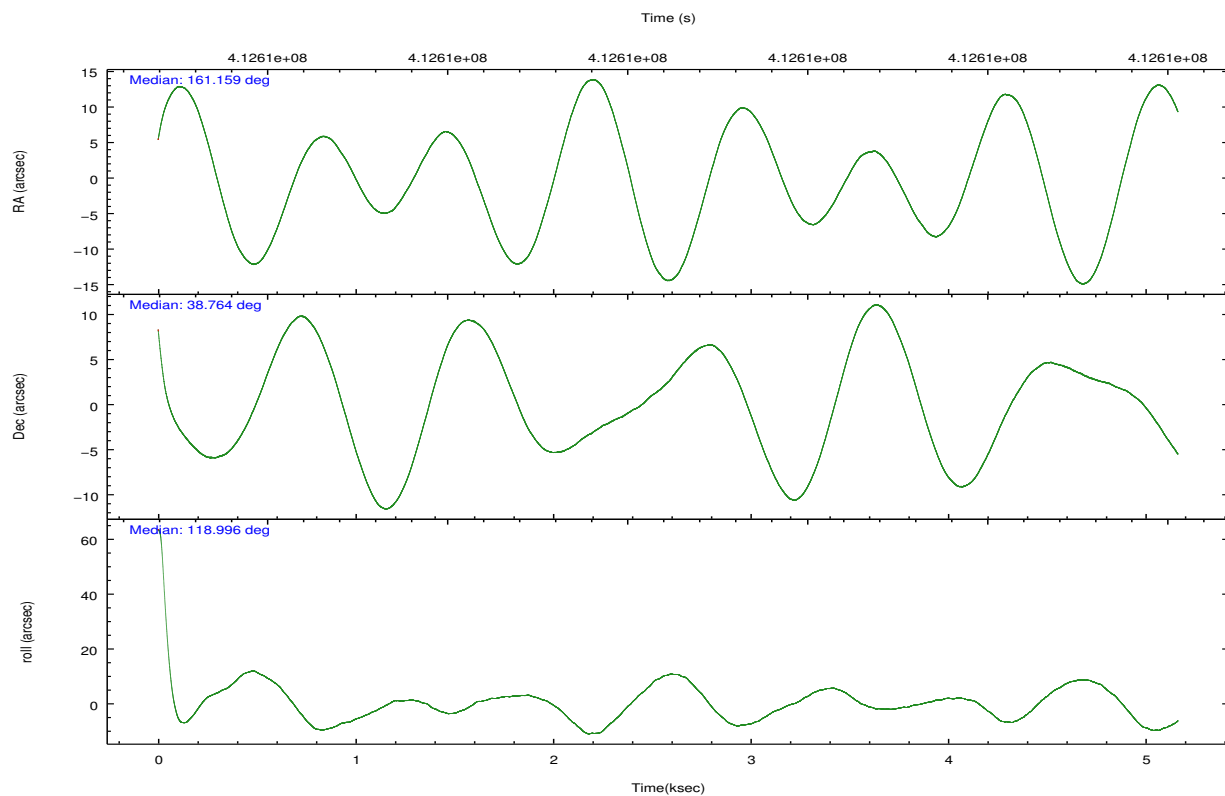


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-012367	ACIS-012367	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	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	161.189045	161.1588264252138	Subarray requested	NONE	NONE
[deg] Pointing Dec	38.749992	38.76375156130651	Alternating exposures requested	N	N
[deg] Pointing Roll	118.830214	119.0059482332466	[s] Primary exposure time	0.000000	3.2
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	412607808.184000	412606205.67053			
Observation start date	2011-01-28T13:15:42	2011-01-28T12:50:05			
[s] Observation end time (MET)	412612809.184000	412613037.80839			
Observation end date	2011-01-28T14:39:03	2011-01-28T14:43:57			
Read mode	TIMED	TIMED			

## 2.3 Aspect



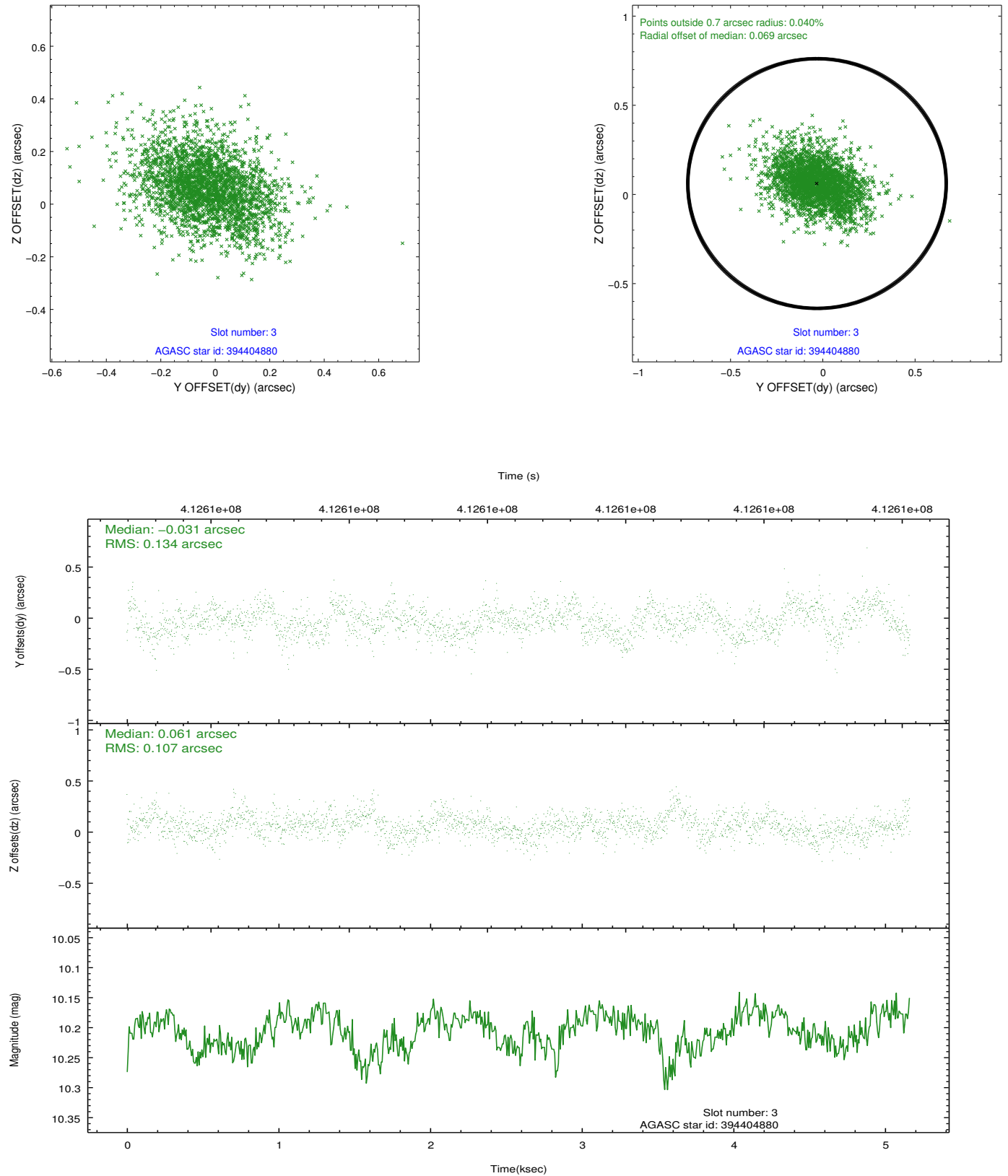


### Slot Statistics

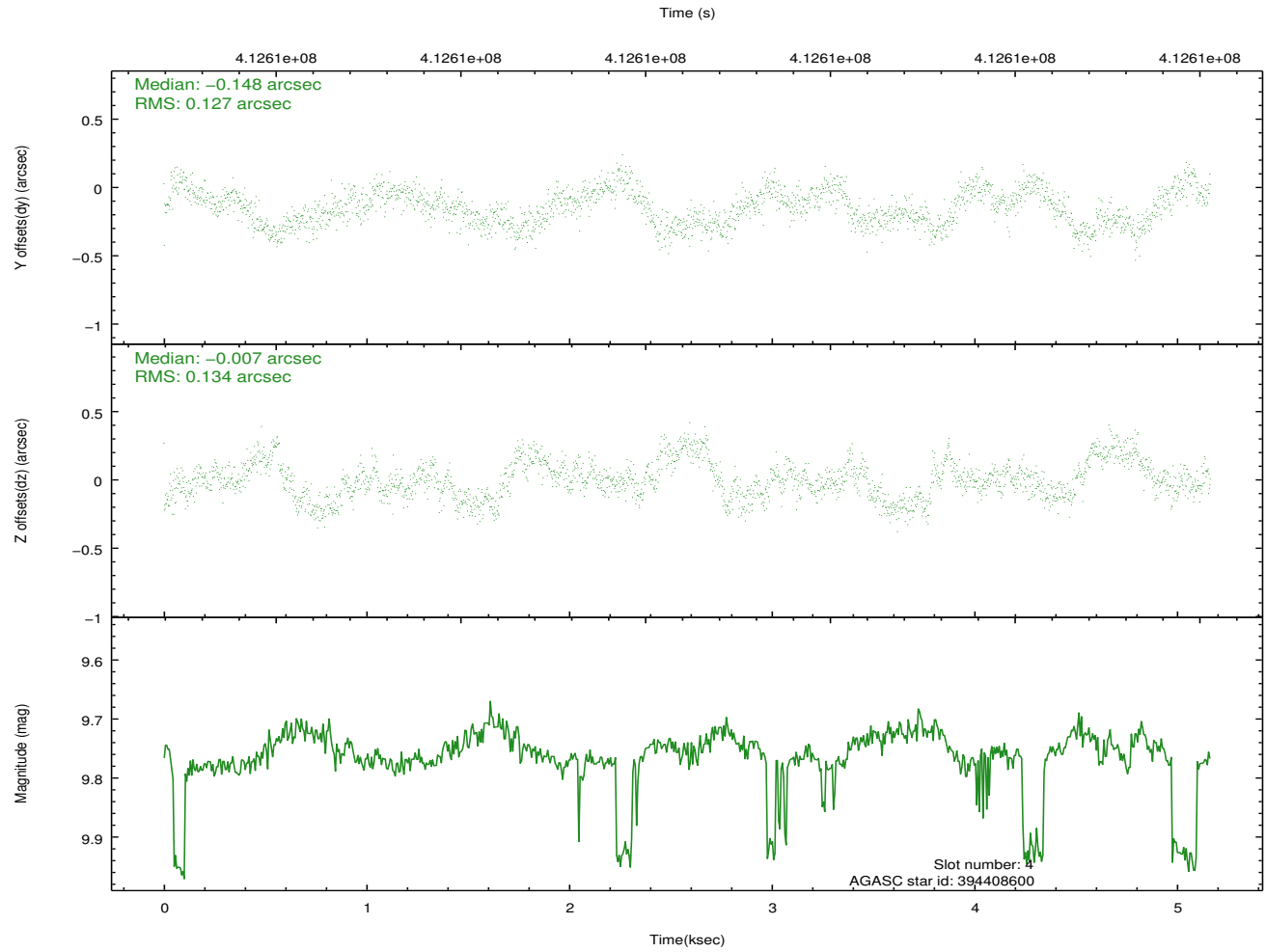
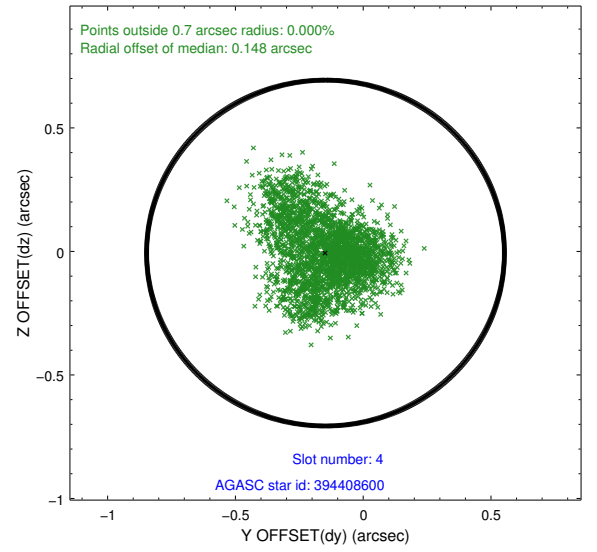
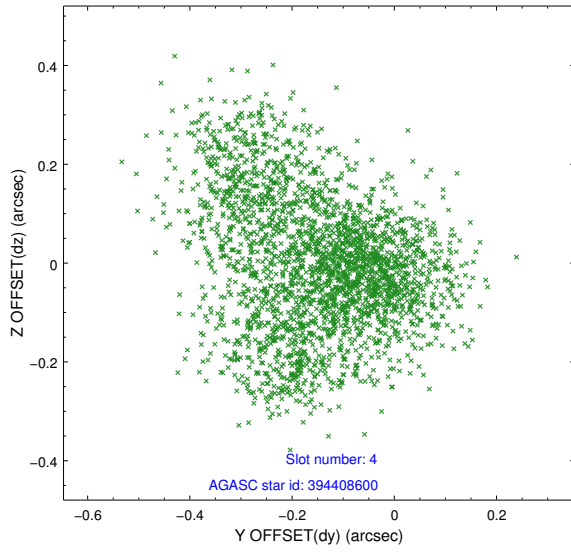
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.01	1260	-0.109	-0.014	0.006	0.011	0.000000	0.000000	-772.42	-1737.05
1	FID	ACIS-S-4	7.09	1260	0.246	0.056	0.006	0.010	0.000000	0.000000	2140.66	170.31
2	FID	ACIS-S-5	7.12	1260	-0.168	-0.033	0.006	0.011	0.000000	0.000000	-1823.84	165.20
3	GUIDE	394404880	10.20	2512	-0.031	0.061	0.178	0.305	161.173092	39.443892	2210.49	-1164.88
4	GUIDE	394408600	9.76	2505	-0.148	-0.007	0.201	0.310	161.342067	38.938562	389.32	-702.05
5	GUIDE	394410152	8.60	2518	0.016	0.049	0.120	0.196	161.523410	39.494599	1902.90	-2106.31
6	GUIDE	394412608	9.35	2518	0.076	-0.012	0.123	0.197	161.124186	38.356703	-1150.80	843.07
7	GUIDE	394413432	9.72	2515	0.083	-0.097	0.155	0.245	160.761661	38.395573	-534.04	1671.35

## 2.4 Star Slots

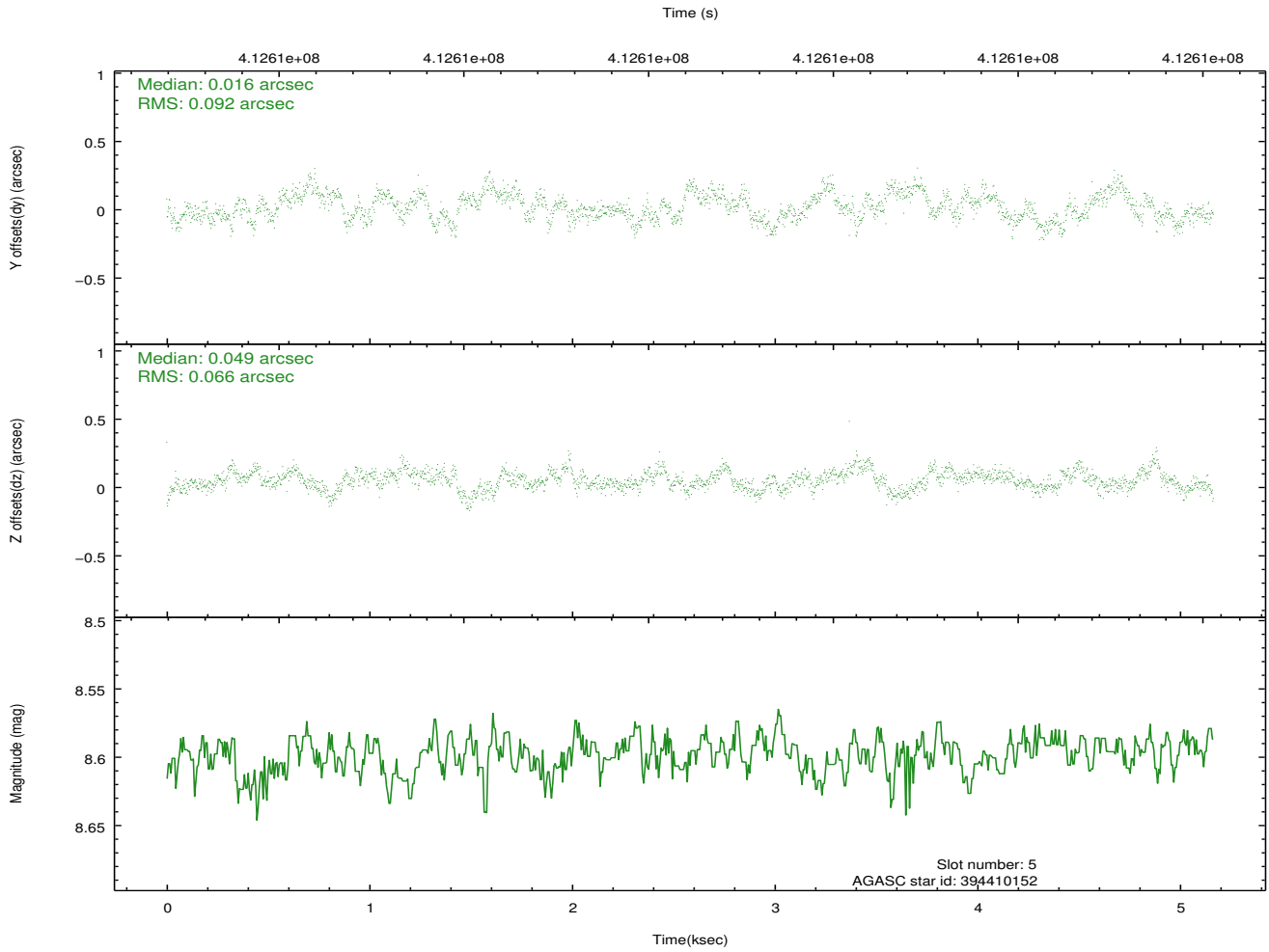
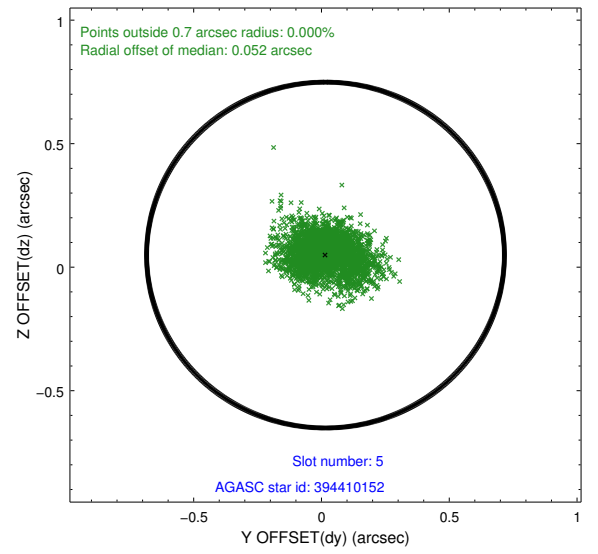
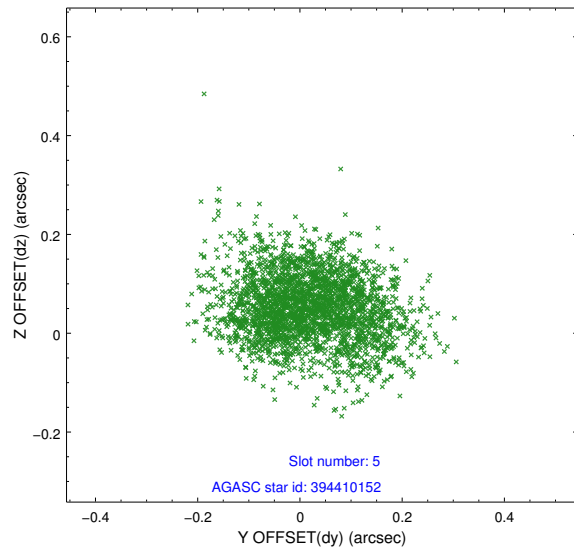
### 2.4.1 Slot 3



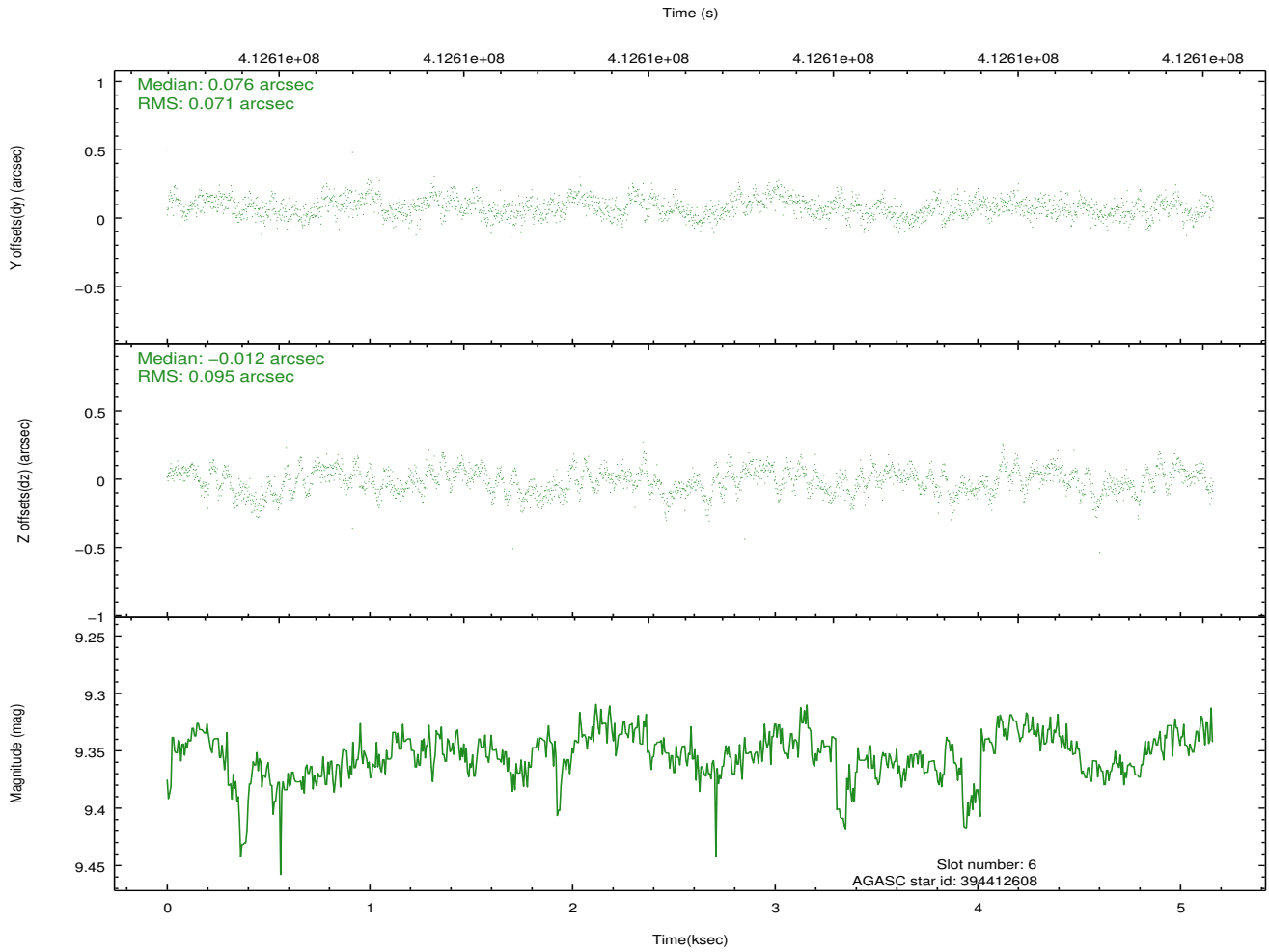
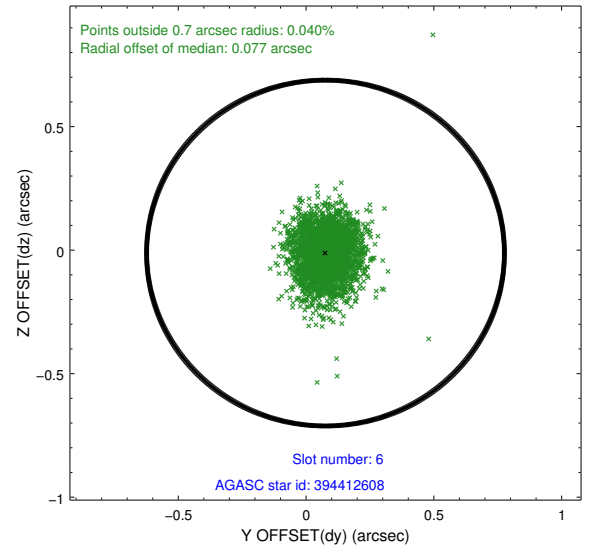
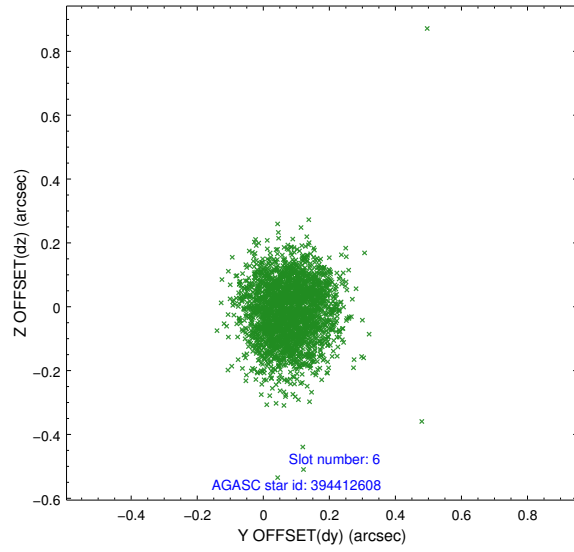
## 2.4.2 Slot 4



### 2.4.3 Slot 5

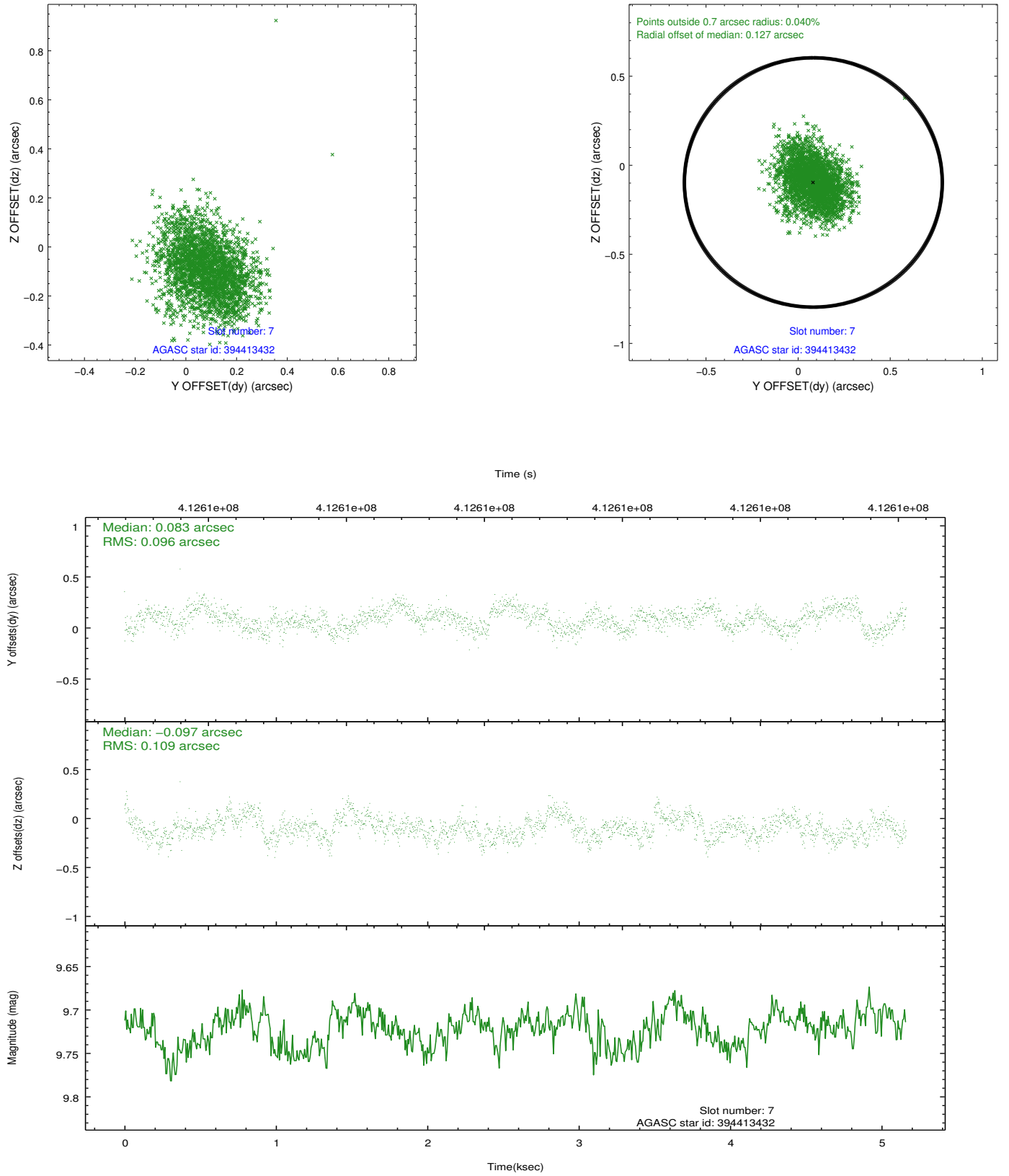


## 2.4.4 Slot 6



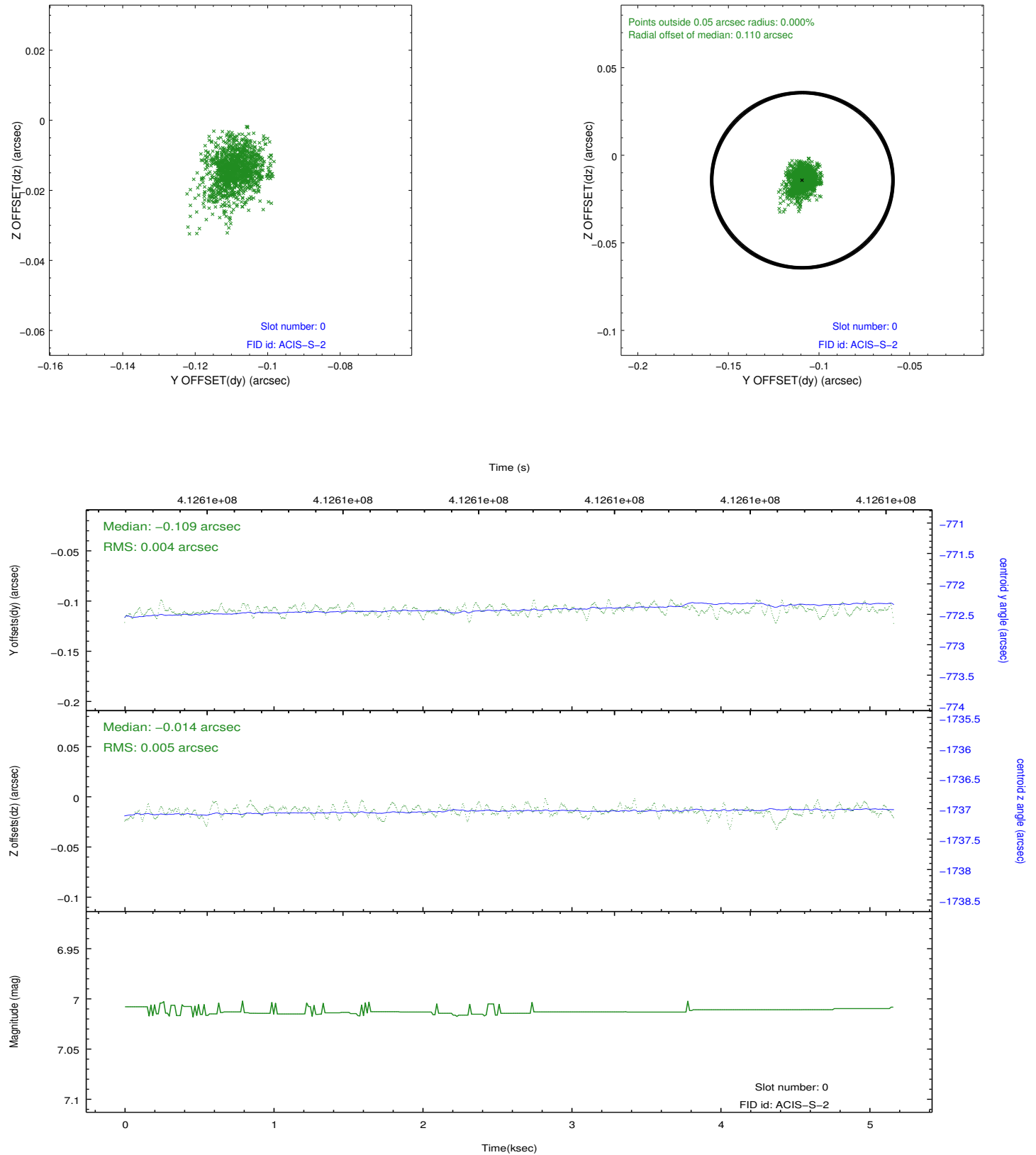


## 2.4.5 Slot 7

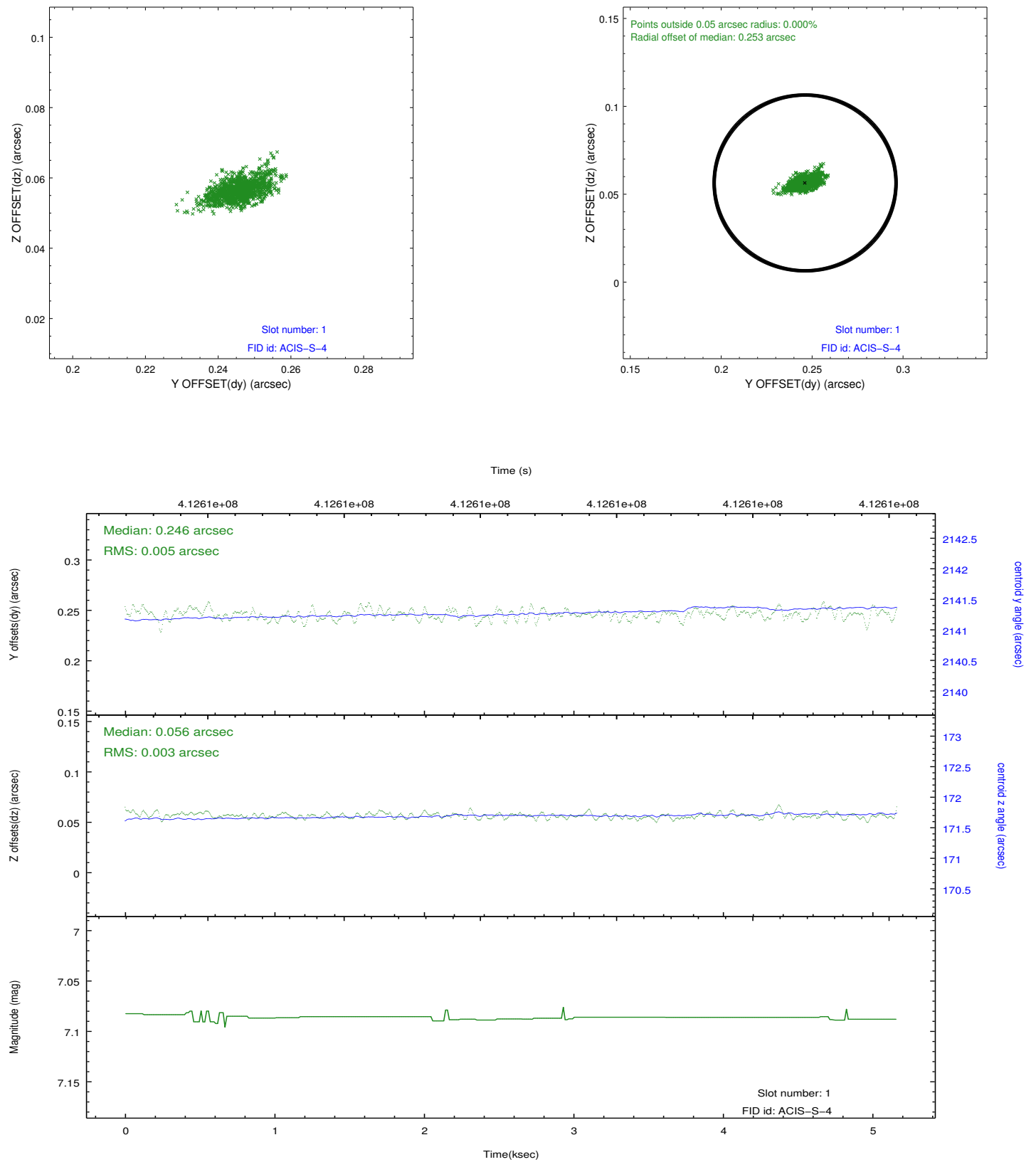


## 2.5 FID Slots

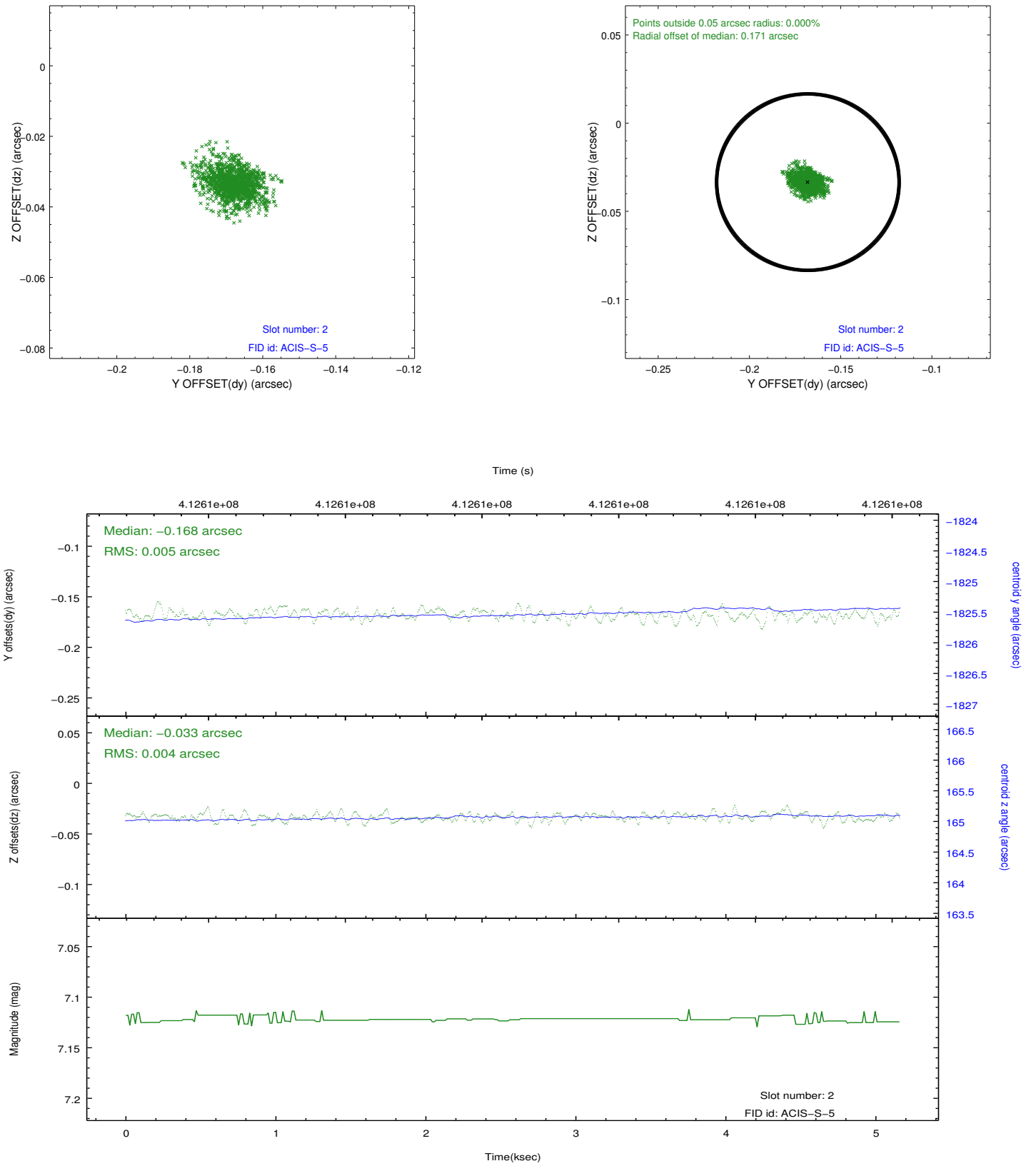
### 2.5.1 Slot 0



## 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)	2012.02.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	4.9598640969992

## 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.

=====

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 sky coords:  
(161.37676,39.01892),(161.37291,39.01728),(161.37909,39.00856),(161.38396,39.00877)