

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12266 - L2 Version 3  
Chandra X-Ray Center

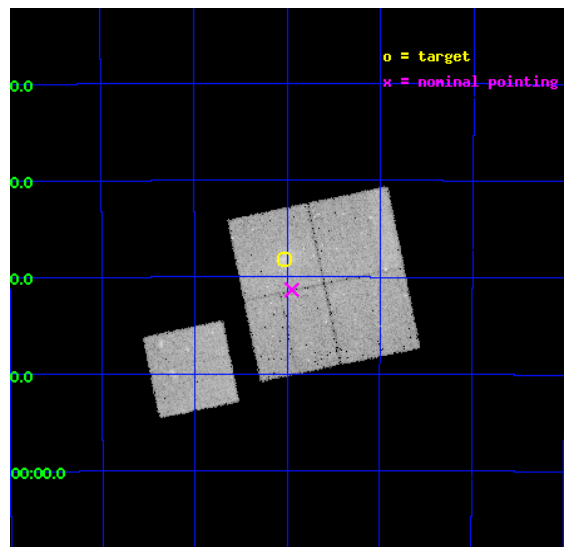
L2 Processing Date : Feb 5 2012

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# 1 Front

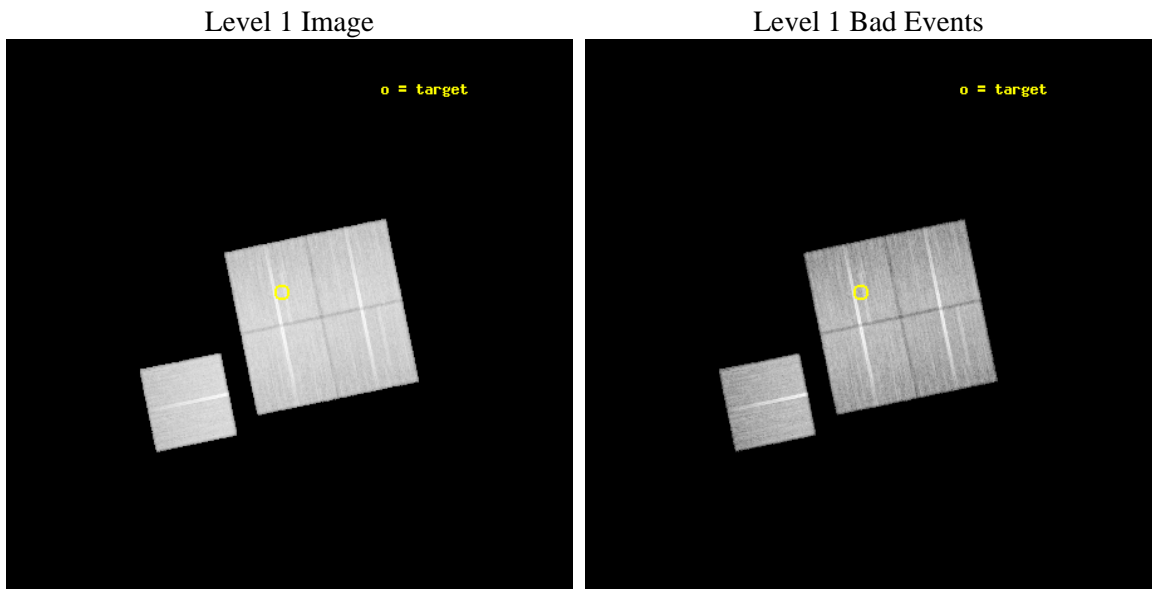
seq_num	800985	Sequence number
obs_id	12266	Observation id
title	Chandra Observations of the ACT Sample of SZE-Selected Galaxy Clusters	Proposal title
observer	Prof John Hughes	Principal investigator
object	ACT J0237-4939	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	39.257083	Observer's specified target RA [deg]
dec_targ	-49.636111	Observer's specified target Dec [deg]
ra_nom	39.237125645431	Nominal RA [deg]
dec_nom	-49.688965230334	Nominal Dec [deg]
roll_nom	258.29924847043	Nominal Roll [deg]
revision	3	Processing version of data
ontime	40129.459467828	Sum of GTIs [s]
livetime	39605.138537003	Livetime [s]
ontime0	40123.177347958	Sum of GTIs [s]
ontime1	40132.600308657	Sum of GTIs [s]
ontime2	40123.177357793	Sum of GTIs [s]
ontime3	40129.459467828	Sum of GTIs [s]
ontime6	40126.318358064	Sum of GTIs [s]
l2events	134002	Number of level 2 events



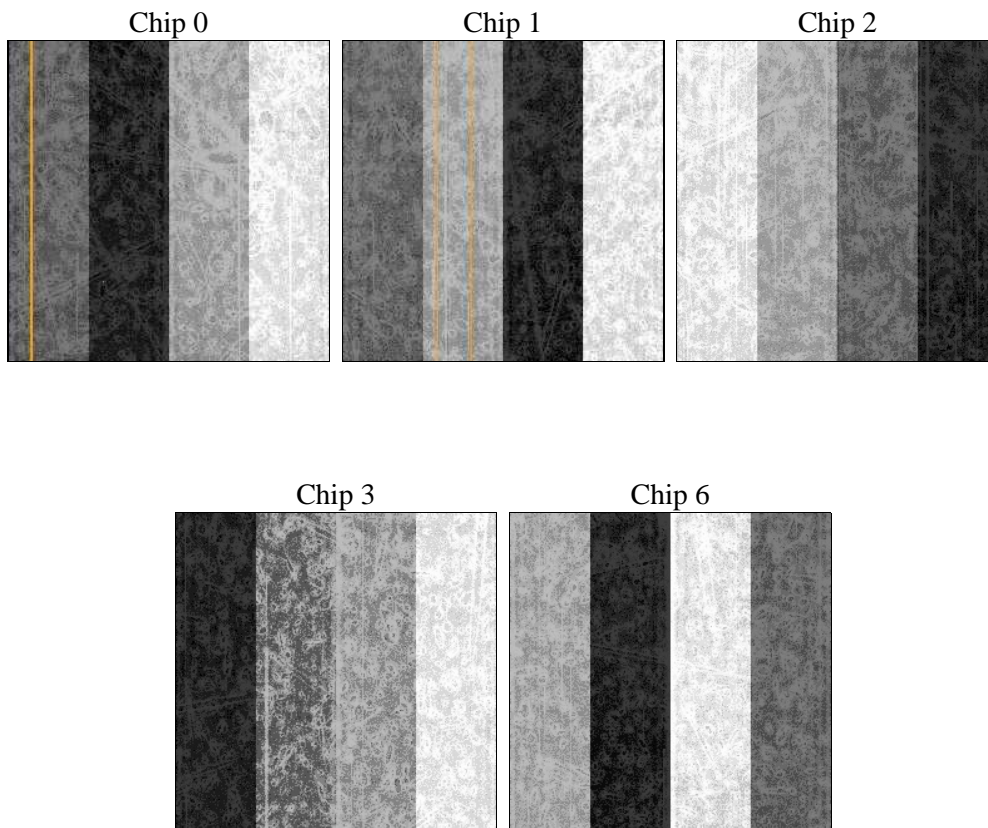
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	40082.188000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	40129.459467828	Sum of GTIs [s]
caldsver	4.4.7	&#160	ontime0	40123.177347958	Sum of GTIs [s]
date	2012-02-05T18:18:17	Date and time of file creation	ontime1	40132.600308657	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	40123.177357793	Sum of GTIs [s]
			ontime3	40129.459467828	Sum of GTIs [s]
			ontime6	40126.318358064	Sum of GTIs [s]
			l1events	1360776	Number of level 1 events

### 2.1.4 Events

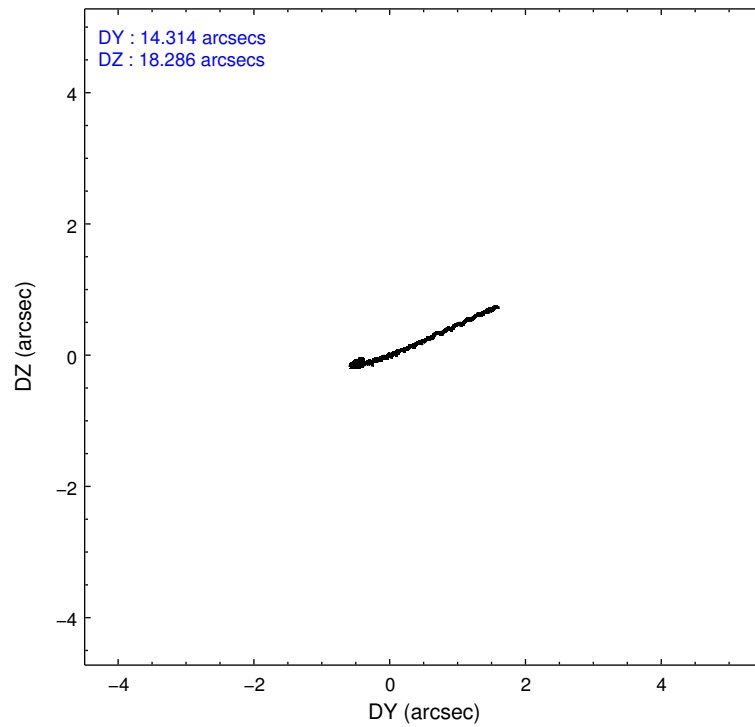
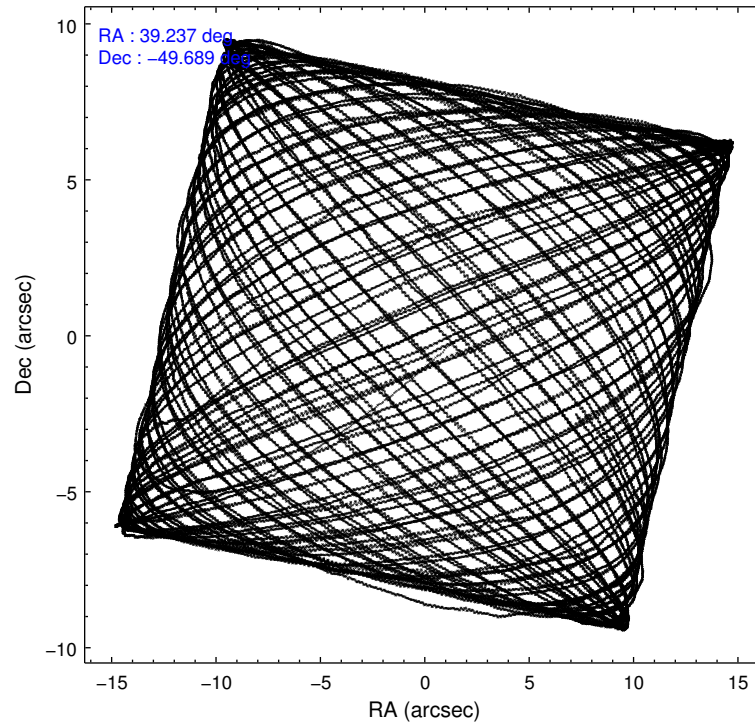
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	255511	263227	282787	276181	283070
rejected events	224881	228124	252854	244024	251228
rejected %	88%	86%	89%	88%	88%

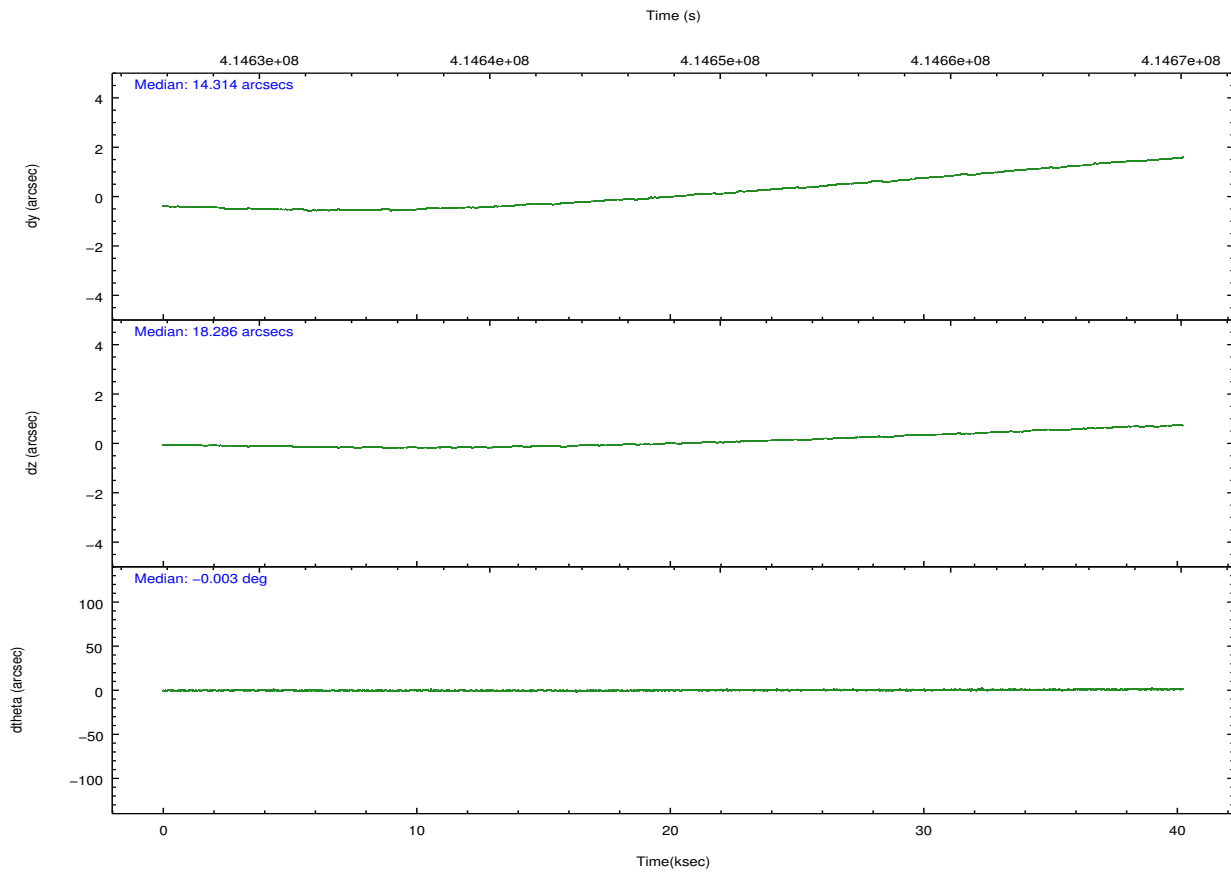
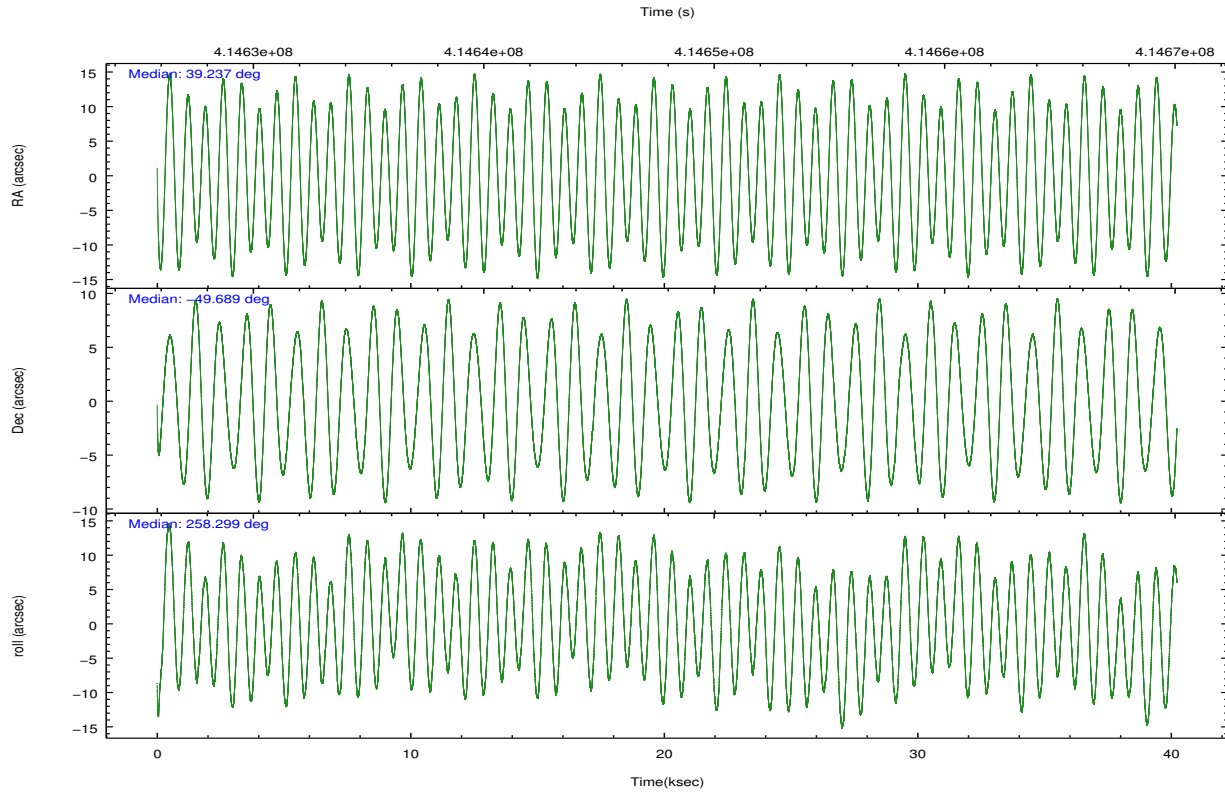
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	10424	12274	10589	12722	11241
	4%	4%	3%	4%	3%
grade 1 events	148	154	170	167	137
	0%	0%	0%	0%	0%
grade 2 events	7538	8308	7482	6785	7140
	2%	3%	2%	2%	2%
grade 3 events	3273	3574	3022	3330	3291
	1%	1%	1%	1%	1%
grade 4 events	3145	3598	3137	3228	3265
	1%	1%	1%	1%	1%
grade 5 events	11834	12526	11026	13057	12595
	4%	4%	3%	4%	4%
grade 6 events	6250	7353	5707	6096	6912
	2%	2%	2%	2%	2%
grade 7 events	212899	215440	241654	230796	238489
	83%	81%	85%	83%	84%

## 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	39.223632	39.23712564543081	CCD I2 on	Y	Y
[deg] Pointing Dec	-49.662882	-49.68896523033401	CCD I3 on	Y	Y
[deg] Pointing Roll	258.080285	258.2992484704254	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	-225.792463	-225.7829997647864	CCD S3 on	N	N
[mm] SIM translation stage offset	-7.8	-7.809453238143249	CCD S4 on	N	N
[s] Observation start time (MET)	414627978.184000	414626586.8626	CCD S5 on	N	N
Observation start date	2011-02-20T22:25:12	2011-02-20T22:03:06	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	414668061.184000	414668299.23976	On-chip summing requested	N	N
Observation end date	2011-02-21T09:33:15	2011-02-21T09:38:19	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



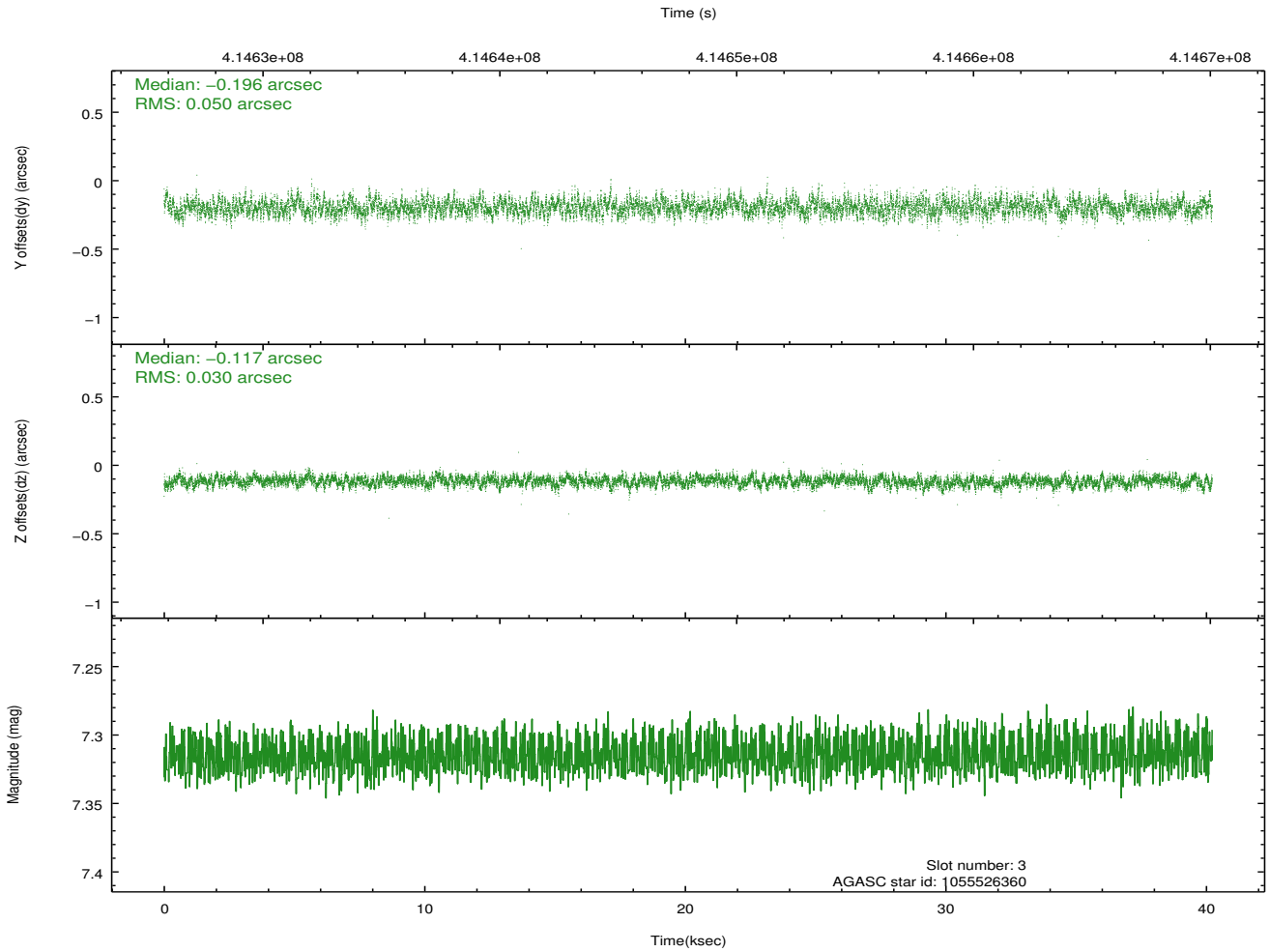
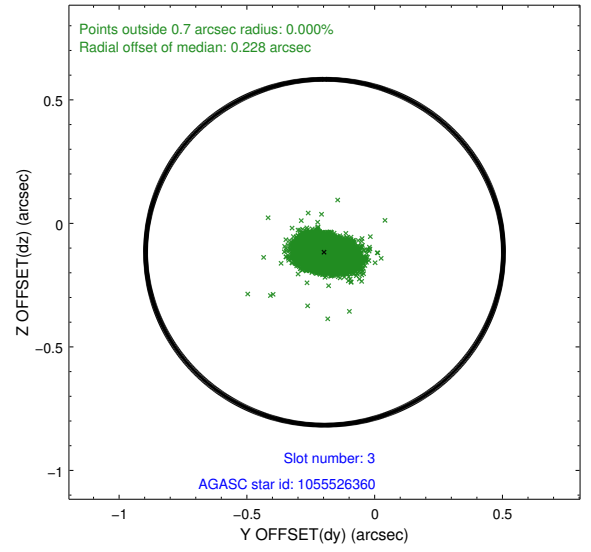
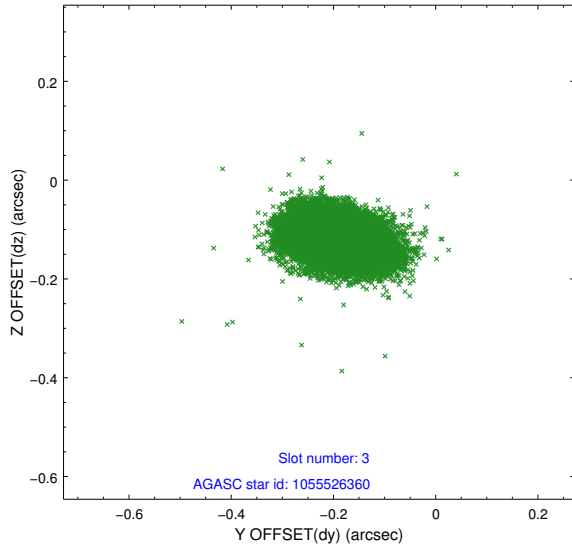


### Slot Statistics

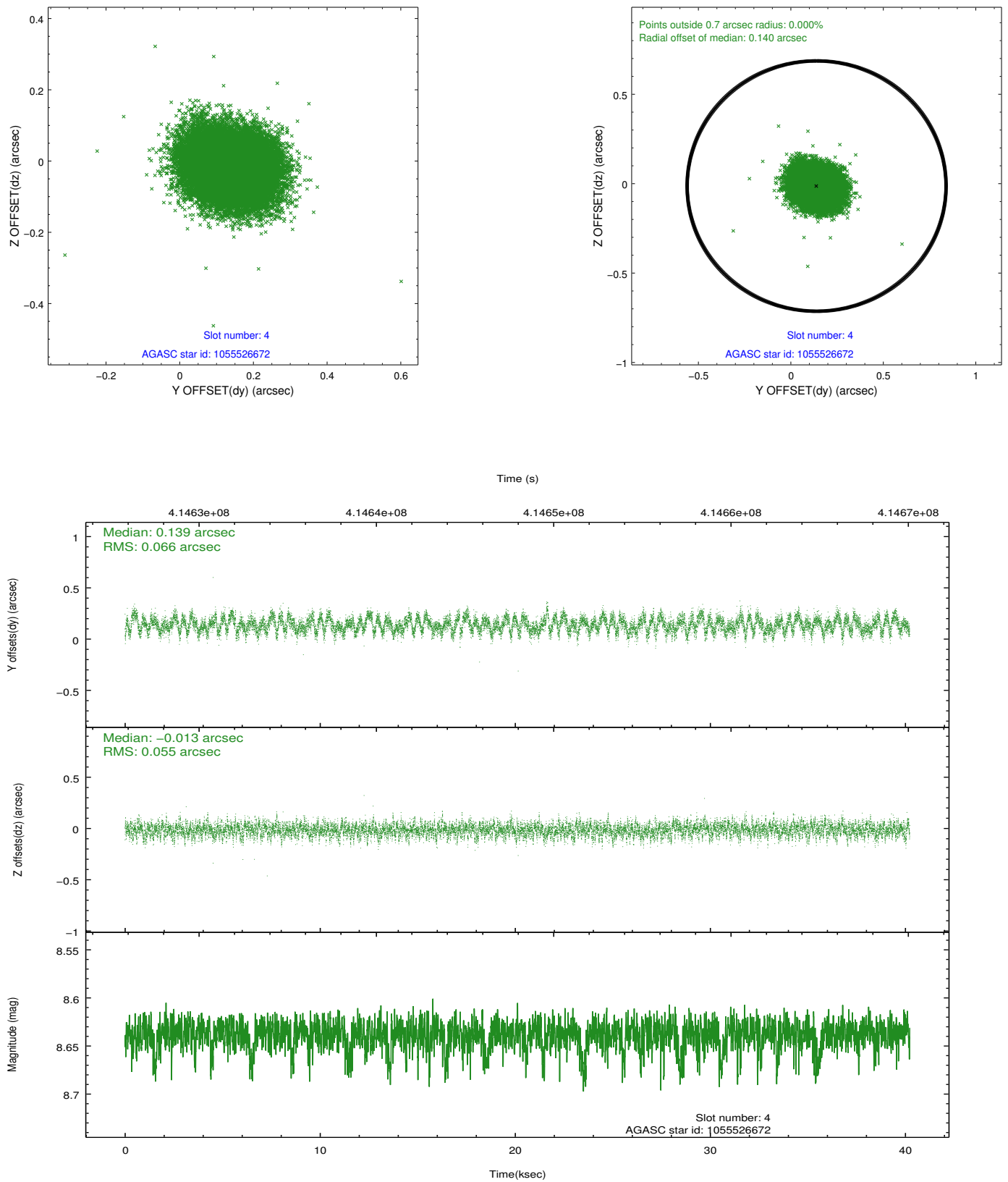
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	6.99	9812	0.086	-0.046	0.017	0.035	0.000000	0.000000	924.93	-1002.45
1	FID	ACIS-I-5	6.99	9812	-0.246	0.077	0.015	0.025	0.000000	0.000000	-1823.54	895.09
2	FID	ACIS-I-6	7.01	9812	0.074	0.041	0.011	0.035	0.000000	0.000000	390.39	1539.62
3	GUIDE	1055526360	7.31	19624	-0.196	-0.117	0.060	0.104	39.854386	-49.148309	-2113.22	1072.13
4	GUIDE	1055526672	8.64	19613	0.139	-0.013	0.092	0.144	38.908325	-49.564406	-193.18	-793.03
5	GUIDE	1055527856	9.31	19597	-0.095	-0.004	0.104	0.168	38.910437	-49.322064	-1047.11	-971.95
6	GUIDE	1055923616	9.54	19531	0.279	0.059	0.130	0.211	39.897670	-50.008017	900.89	1784.24
7	GUIDE	1055525608	8.66	19601	-0.126	0.075	0.091	0.147	39.831182	-49.134305	-2151.67	1008.85

## 2.4 Star Slots

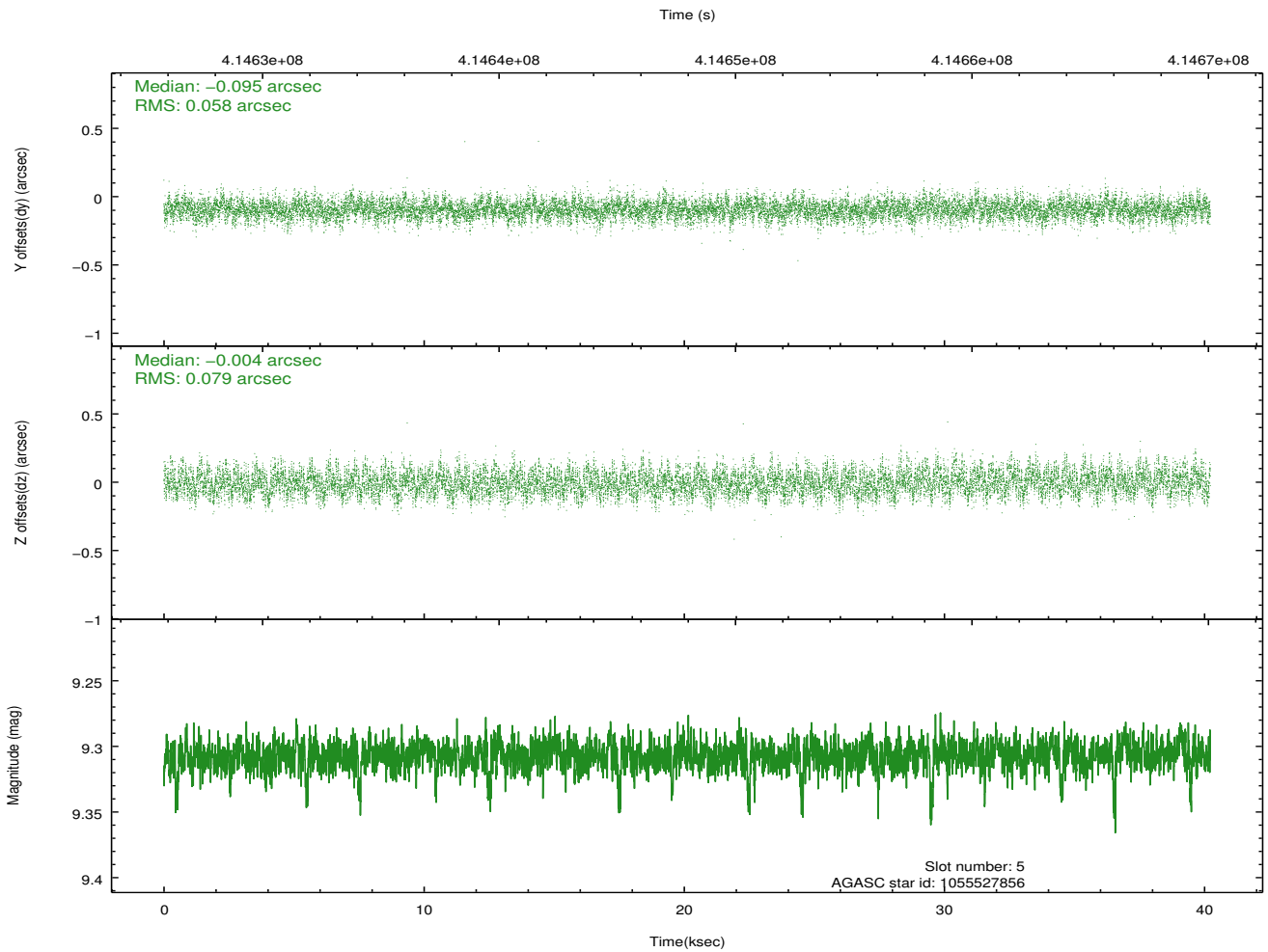
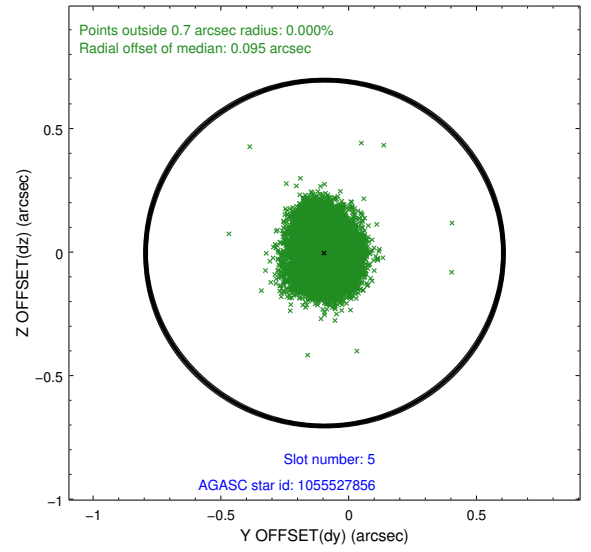
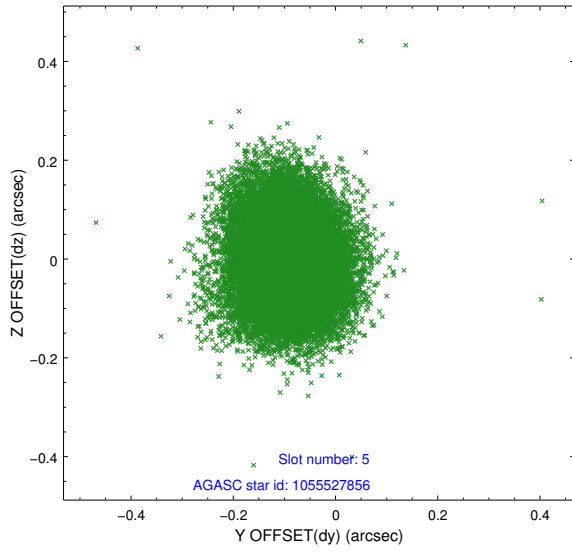
### 2.4.1 Slot 3



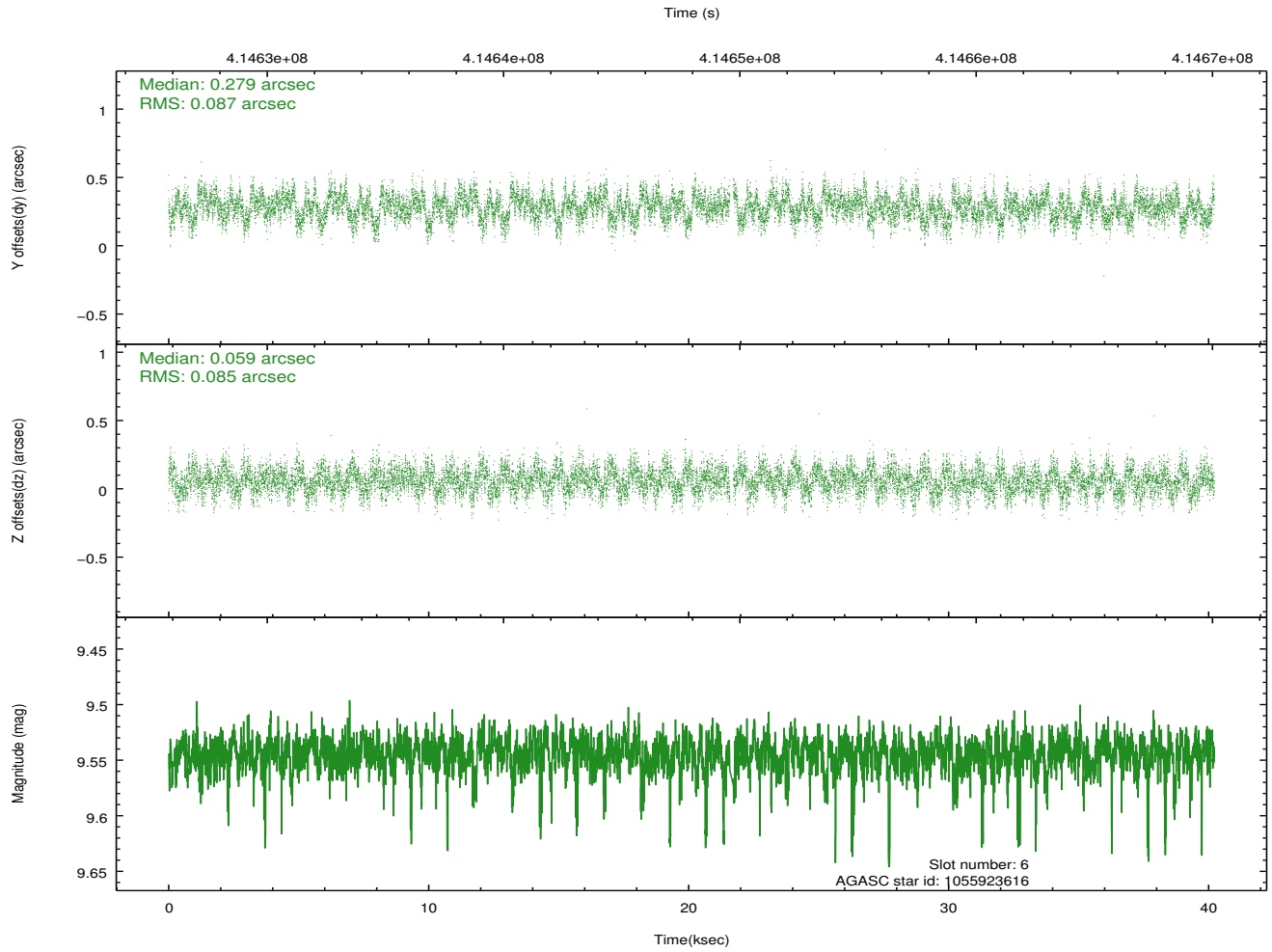
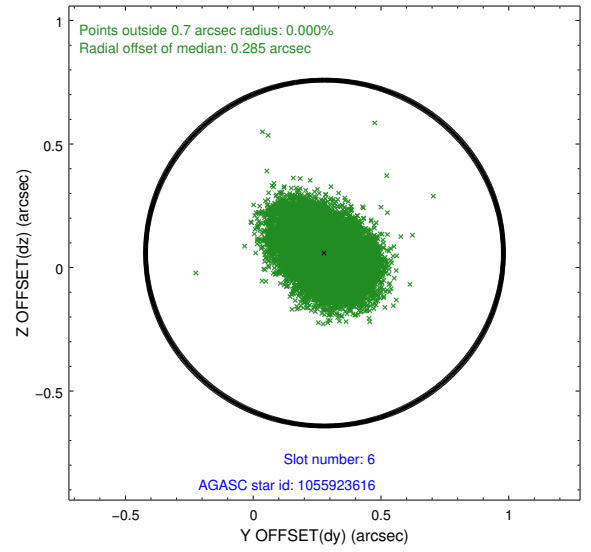
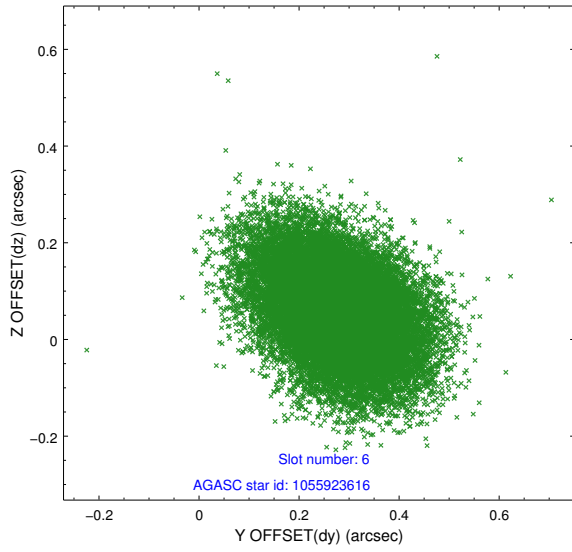
## 2.4.2 Slot 4



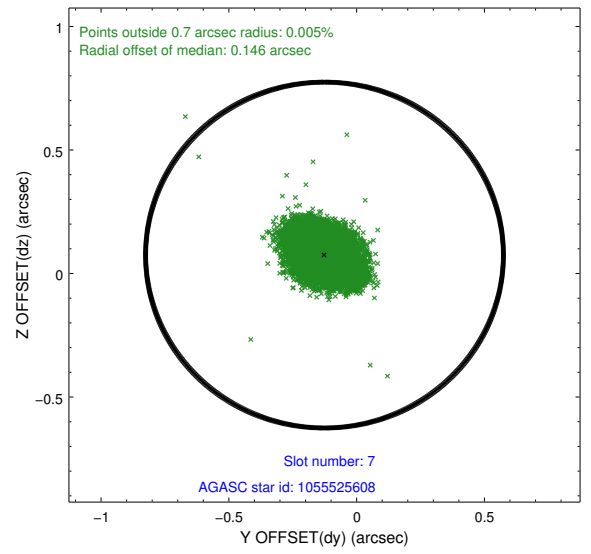
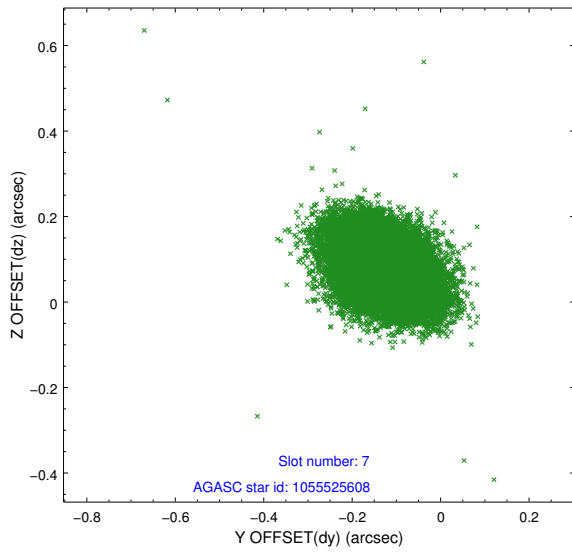
### 2.4.3 Slot 5



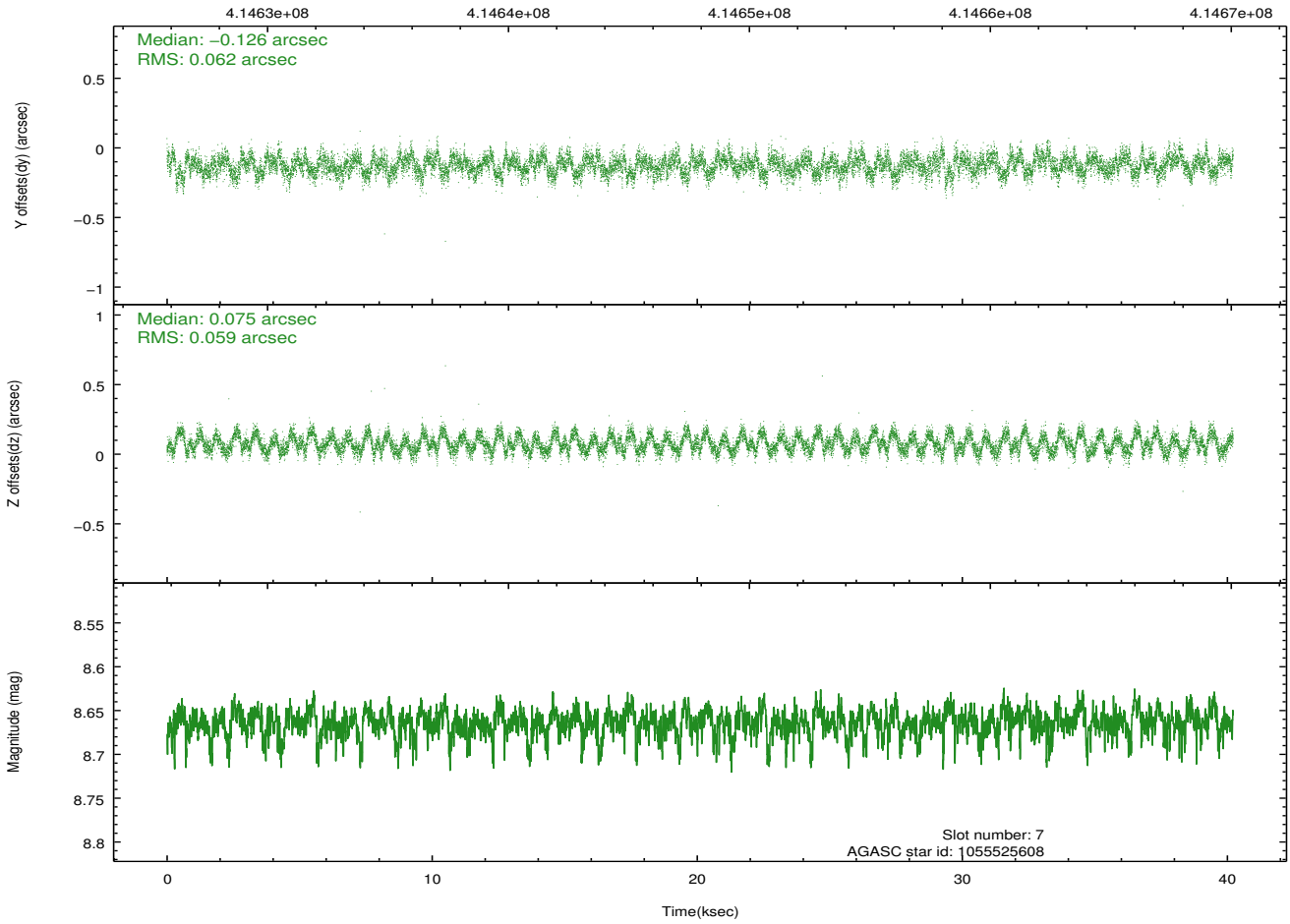
## 2.4.4 Slot 6



## 2.4.5 Slot 7

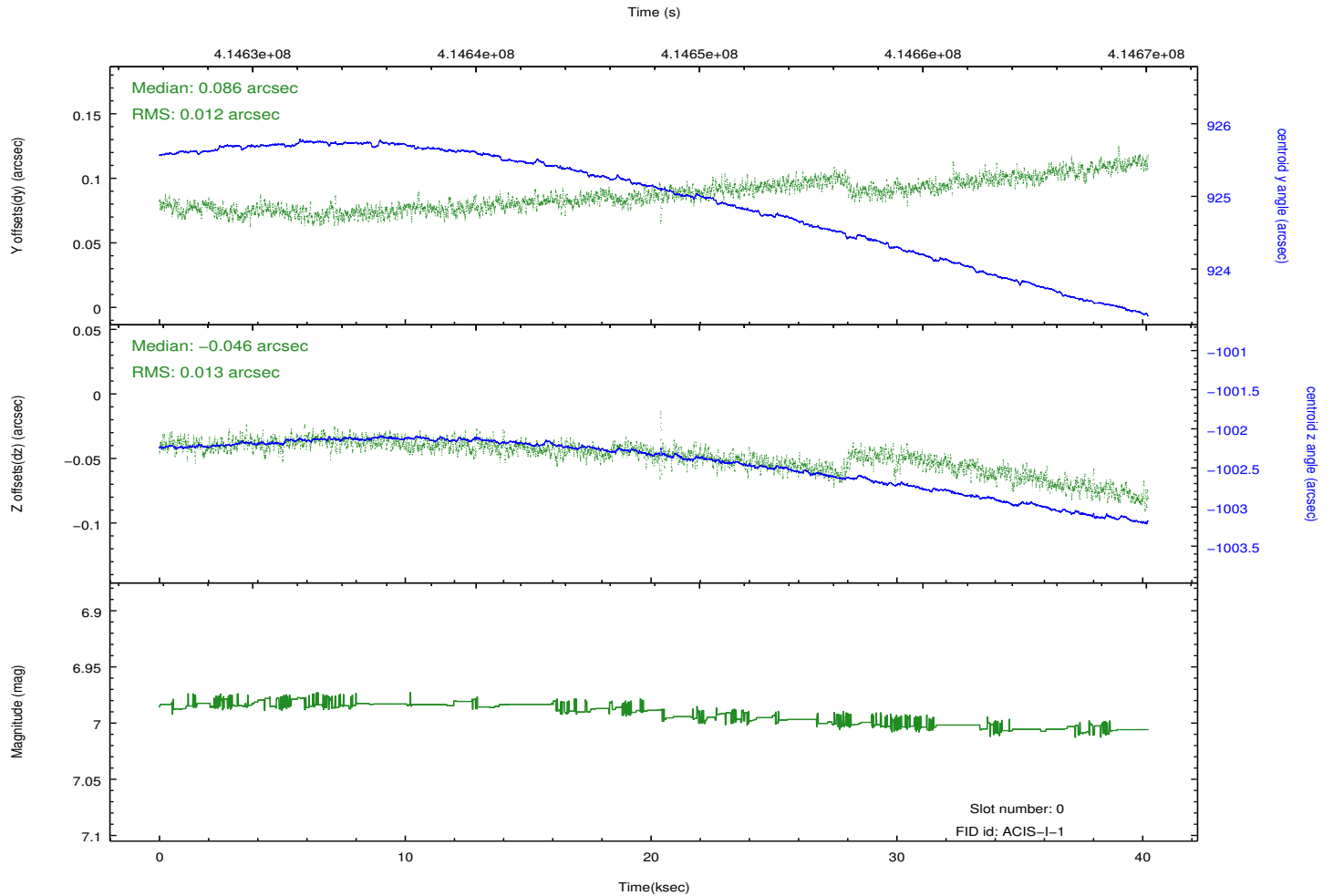
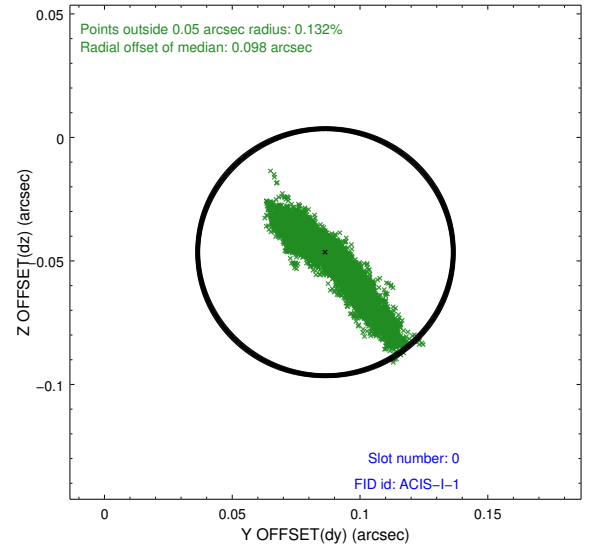
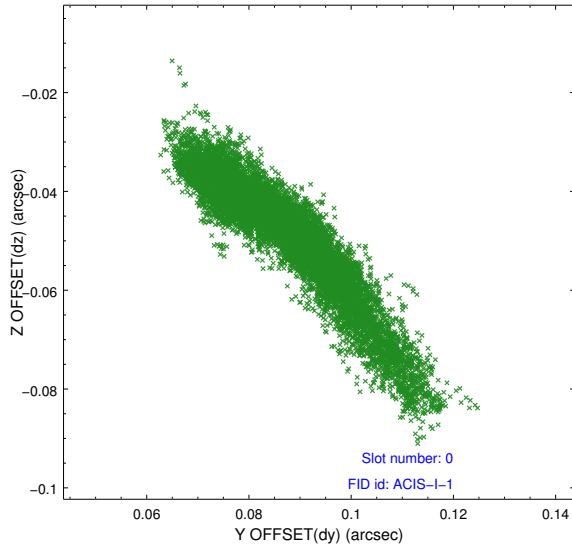


Time (s)

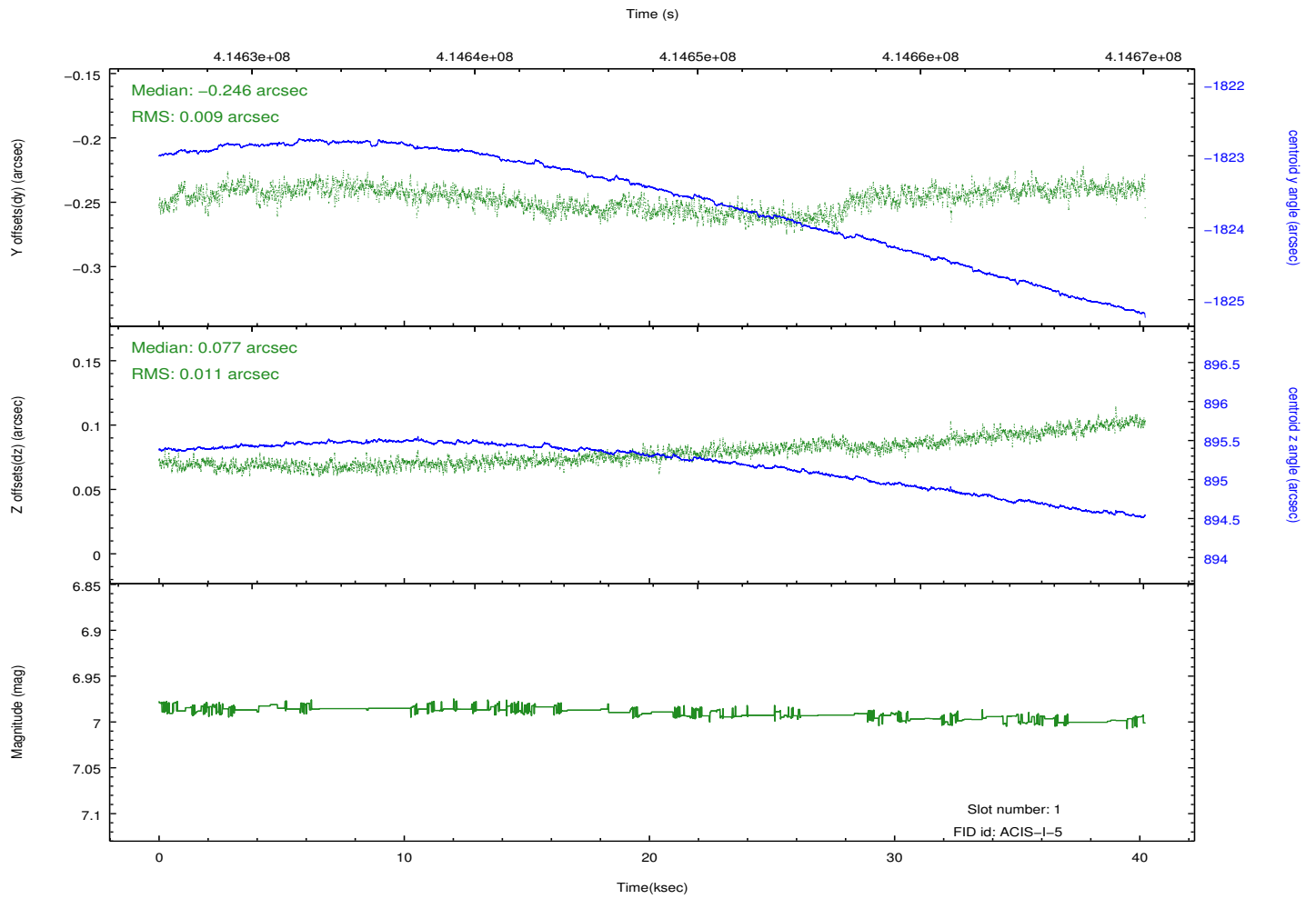
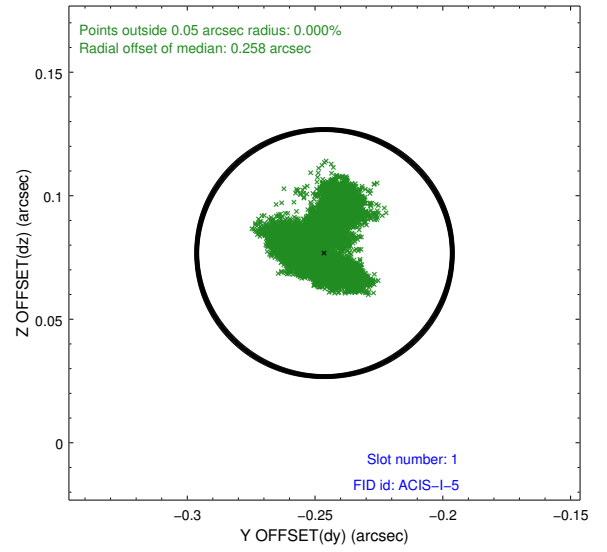
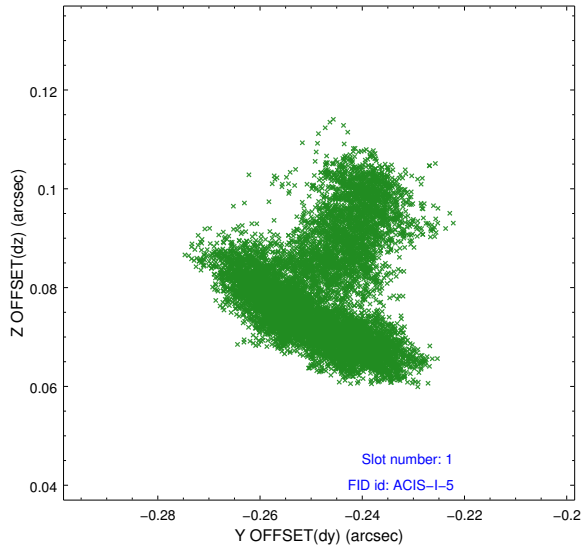


## 2.5 FID Slots

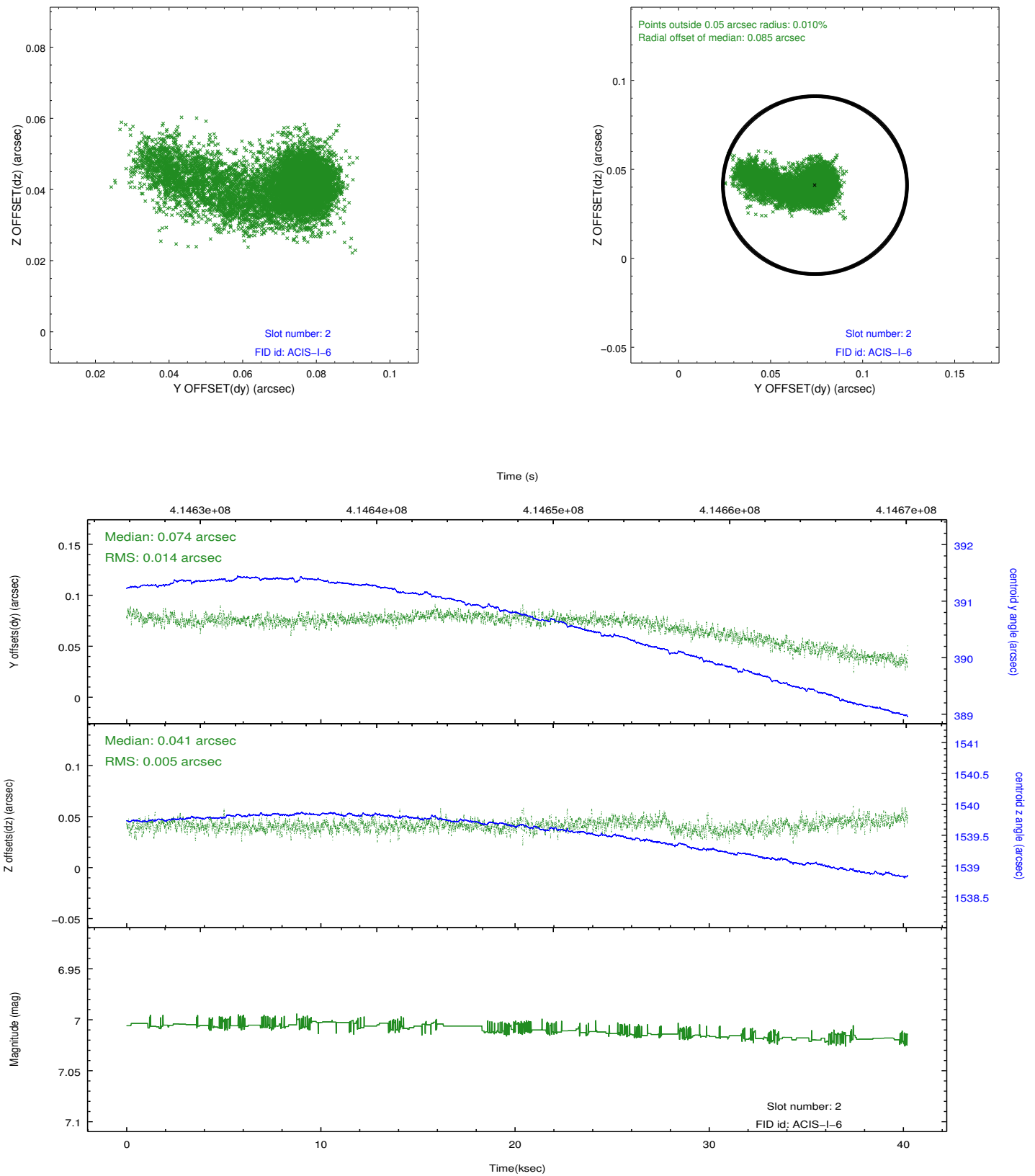
### 2.5.1 Slot 0



## 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)	2012.02.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	40.129459467828

## 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 EDSE 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 = 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 map for CCD = 2 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:  
(39.29666, -49.84224), (39.30536, -49.84338), (39.32756, -49.77380), (39.31534, -49.78374)