

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 13418 - L2 Version 2
Chandra X-Ray Center

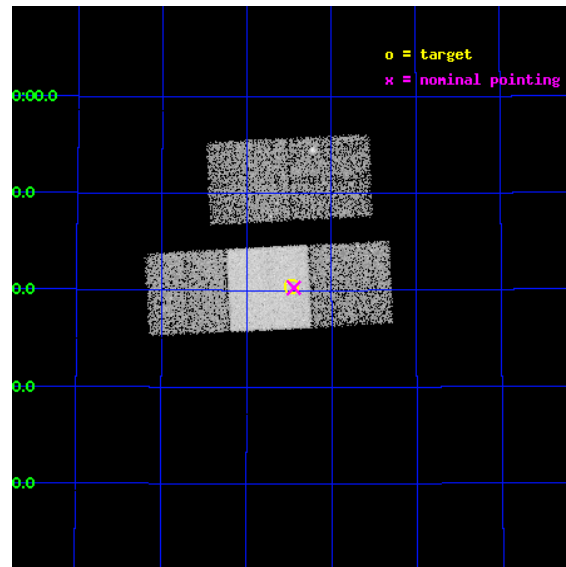
L2 Processing Date : Feb 10 2012

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1 Front

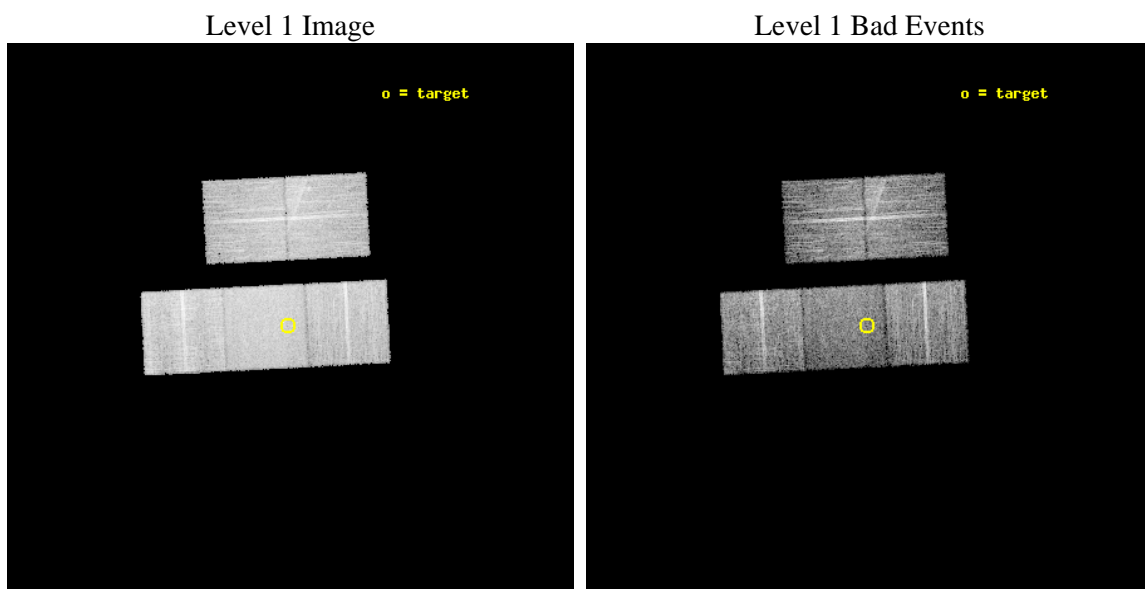
seq_num	702581	Sequence number
obs_id	13418	Observation id
title	Chandra Follow-up of an Exceptional GALEX+PS1 Tidal Disruption Event Candidate	Proposal title
observer	Dr. Suvi Gezari	Principal investigator
object	TDE_PS1_DDT_C12	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	242.367917	Observer's specified target RA [deg]
dec_targ	53.673389	Observer's specified target Dec [deg]
ra_nom	242.36079901984	Nominal RA [deg]
dec_nom	53.671044507647	Nominal Dec [deg]
roll_nom	177.08321552034	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10040.057825744	Sum of GTIs [s]
livetime	9908.8770788678	Livetime [s]
ontime2	10036.752675354	Sum of GTIs [s]
ontime3	10039.975745738	Sum of GTIs [s]
ontime6	10033.734864831	Sum of GTIs [s]
ontime7	10040.057825744	Sum of GTIs [s]
ontime8	10039.934705734	Sum of GTIs [s]
l2events	62611	Number of level 2 events



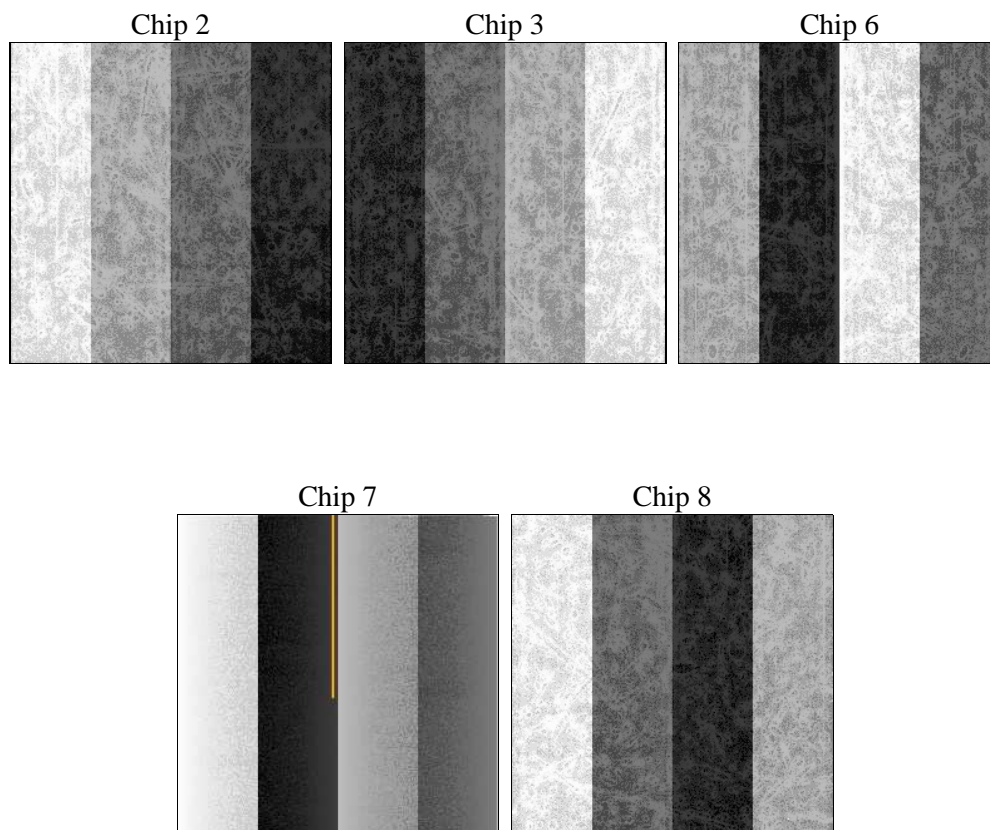
2 OBI

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	10040.057825744	Sum of GTIs [s]
caldbver	4.4.7	 	ontime2	10036.752675354	Sum of GTIs [s]
date	2012-02-11T00:17:35	Date and time of file creation	ontime3	10039.975745738	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	10033.734864831	Sum of GTIs [s]
			ontime7	10040.057825744	Sum of GTIs [s]
			ontime8	10039.934705734	Sum of GTIs [s]
			l1events	372623	Number of level 1 events

2.1.4 Events

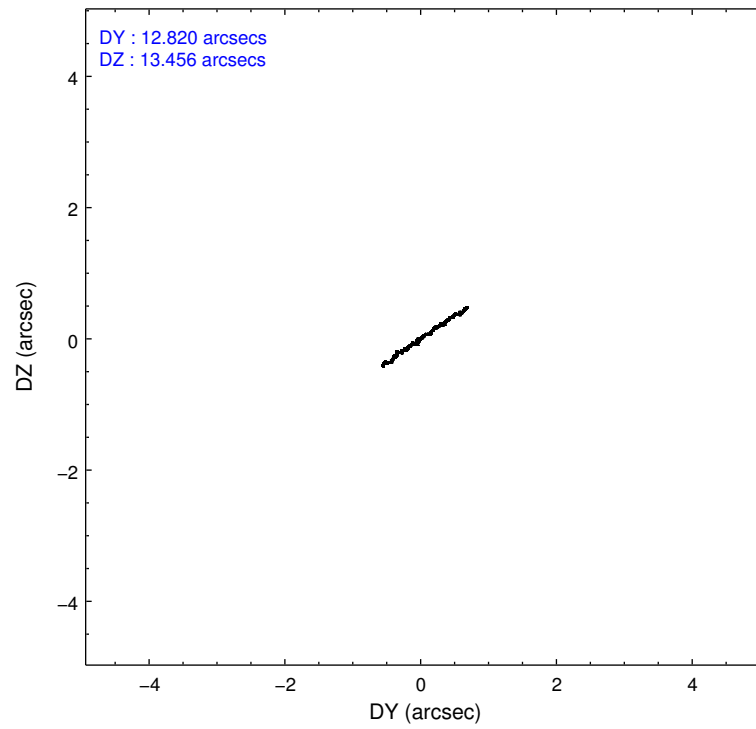
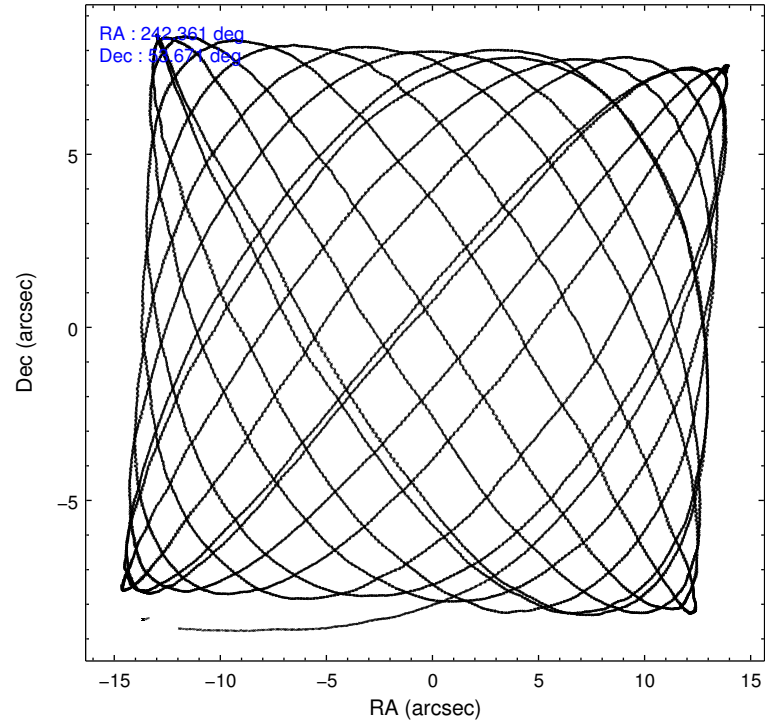
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	69045	64017	68520	84152	86889
rejected events	61678	57162	60958	46817	63734
rejected %	89%	89%	88%	55%	73%

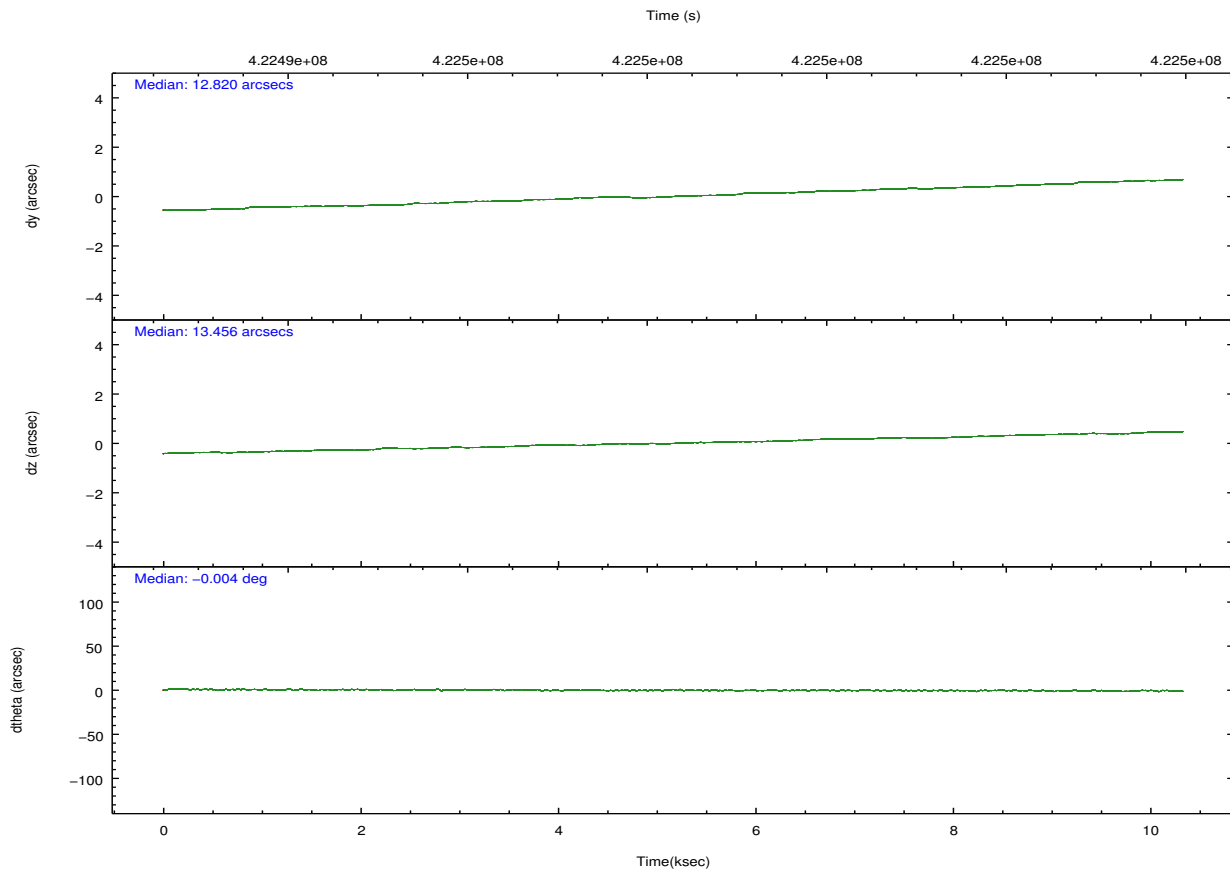
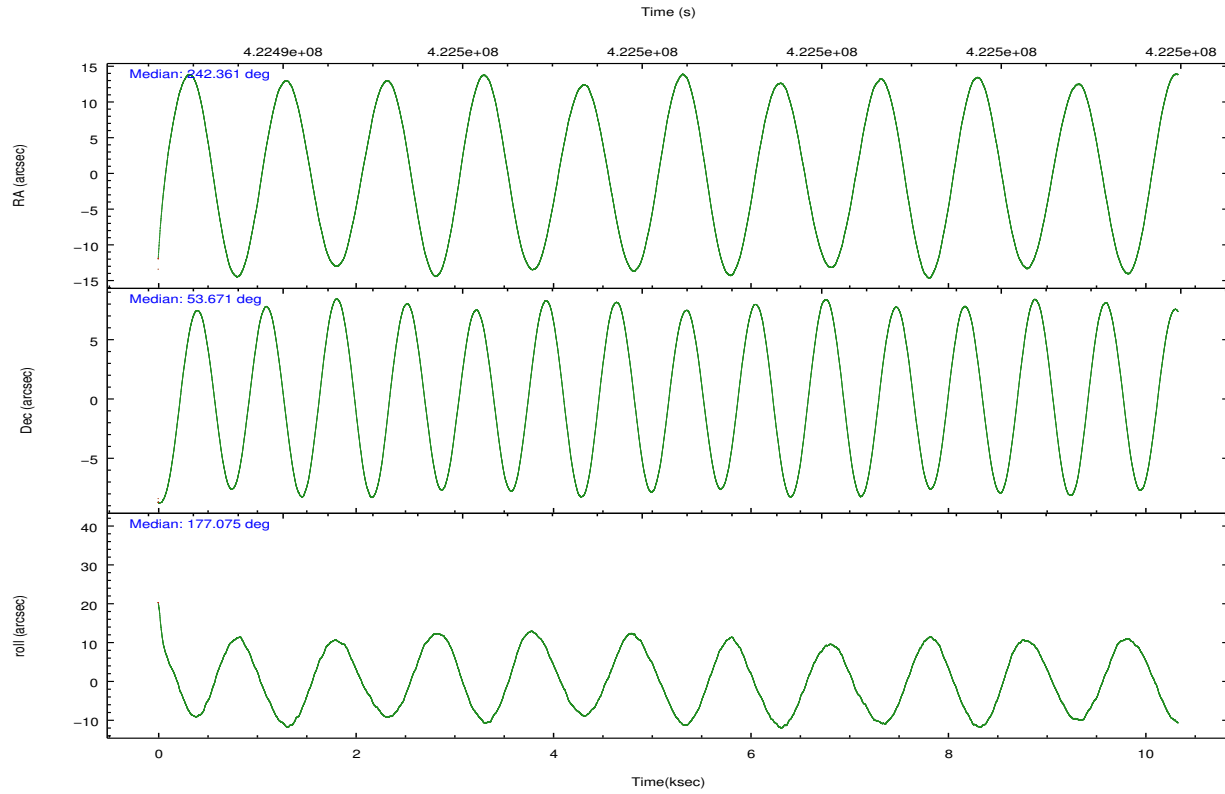
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	2762	2486	2626	3535	6696
	4%	3%	3%	4%	7%
grade 1 events	40	43	27	99	70
	0%	0%	0%	0%	0%
grade 2 events	1754	1467	1665	7529	5535
	2%	2%	2%	8%	6%
grade 3 events	793	764	796	3209	2437
	1%	1%	1%	3%	2%
grade 4 events	734	732	783	3228	2256
	1%	1%	1%	3%	2%
grade 5 events	2523	3113	3174	8467	4574
	3%	4%	4%	10%	5%
grade 6 events	1330	1411	1694	19862	6239
	1%	2%	2%	23%	7%
grade 7 events	59109	54001	57755	38223	59082
	85%	84%	84%	45%	67%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-23678	ACIS-23678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	242.401560	242.3607990198364	Subarray requested	NONE	NONE
[deg] Pointing Dec	53.683824	53.67104450764661	Alternating exposures requested	N	N
[deg] Pointing Roll	176.893739	177.0832155203374	[s] Primary exposure time	0.000000	3.1
[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)	422493444.184000	422492441.88302			
Observation start date	2011-05-22T23:16:18	2011-05-22T23:00:41			
[s] Observation end time (MET)	422503444.184000	422504895.63367			
Observation end date	2011-05-23T02:02:58	2011-05-23T02:28:15			
Read mode	TIMED	TIMED			

2.3 Aspect



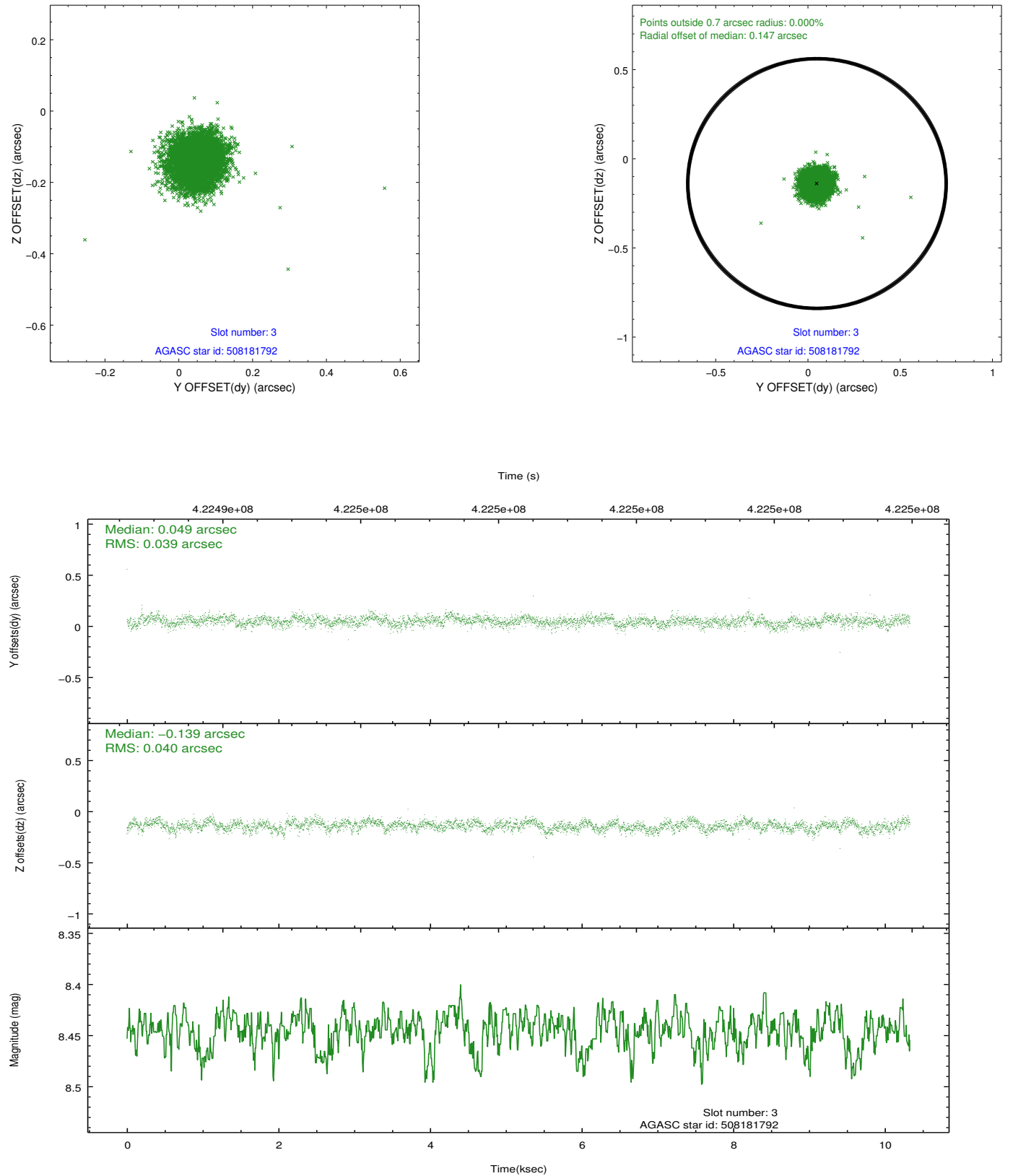


Slot Statistics

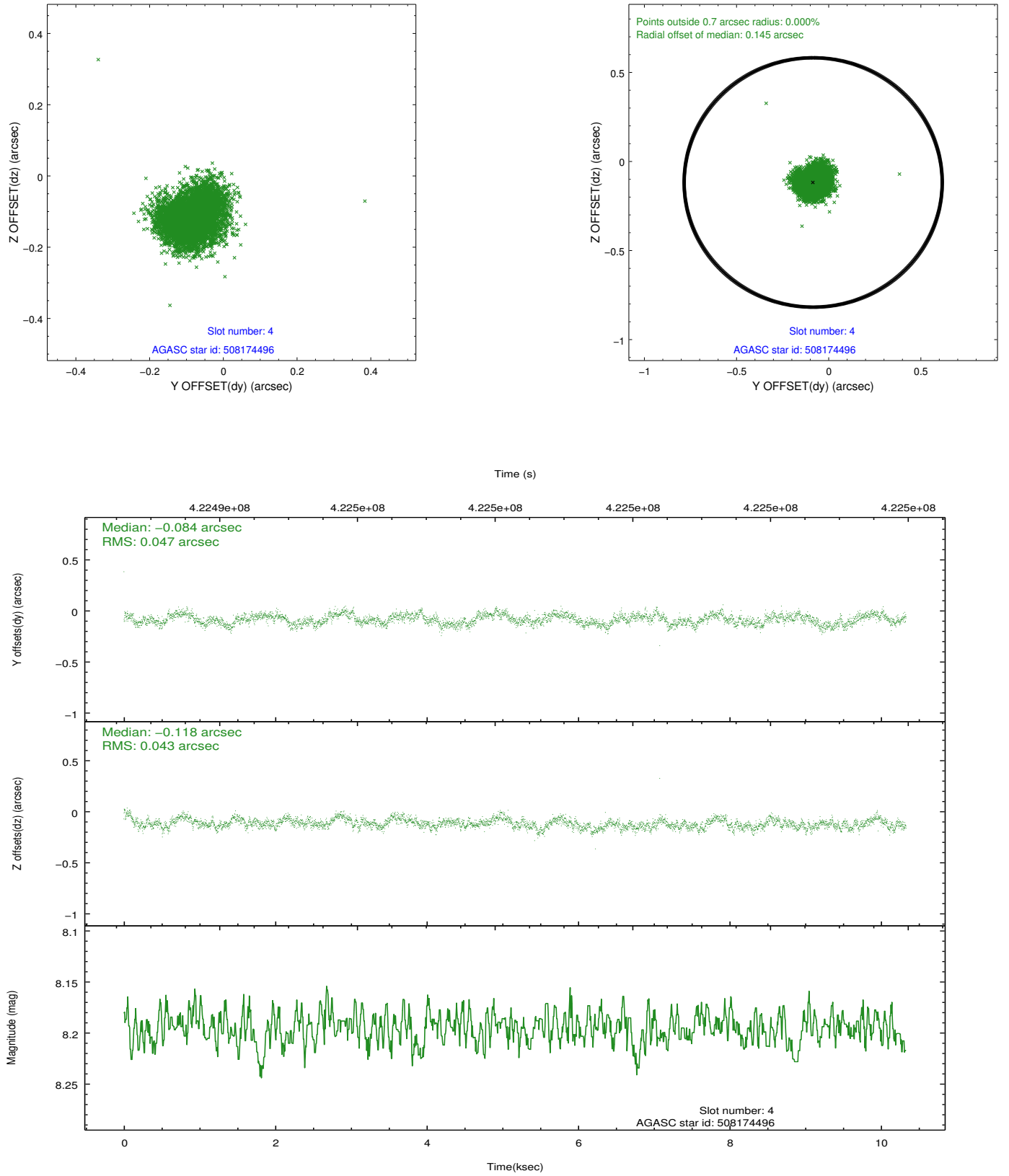
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.97	2520	-0.026	-0.055	0.011	0.020	0.000000	0.000000	-765.79	-1734.82
1	FID	ACIS-S-4	7.05	2520	0.155	0.027	0.019	0.038	0.000000	0.000000	2147.44	173.22
2	FID	ACIS-S-5	7.09	2520	-0.161	0.036	0.012	0.021	0.000000	0.000000	-1818.11	167.48
3	GUIDE	508181792	8.44	5039	0.049	-0.139	0.058	0.094	241.580704	53.515038	1721.72	693.21
4	GUIDE	508174496	8.20	5040	-0.084	-0.118	0.068	0.106	241.573933	53.294304	1703.62	1487.39
5	GUIDE	508170024	9.38	5035	0.079	0.048	0.113	0.182	241.730655	54.371050	1540.53	-2399.95
6	GUIDE	508168152	9.44	5005	0.001	0.140	0.129	0.209	241.888534	54.357327	1207.54	-2366.00
7	GUIDE	508180600	9.26	5034	-0.036	0.066	0.090	0.144	243.000865	53.504406	-1315.40	569.66

2.4 Star Slots

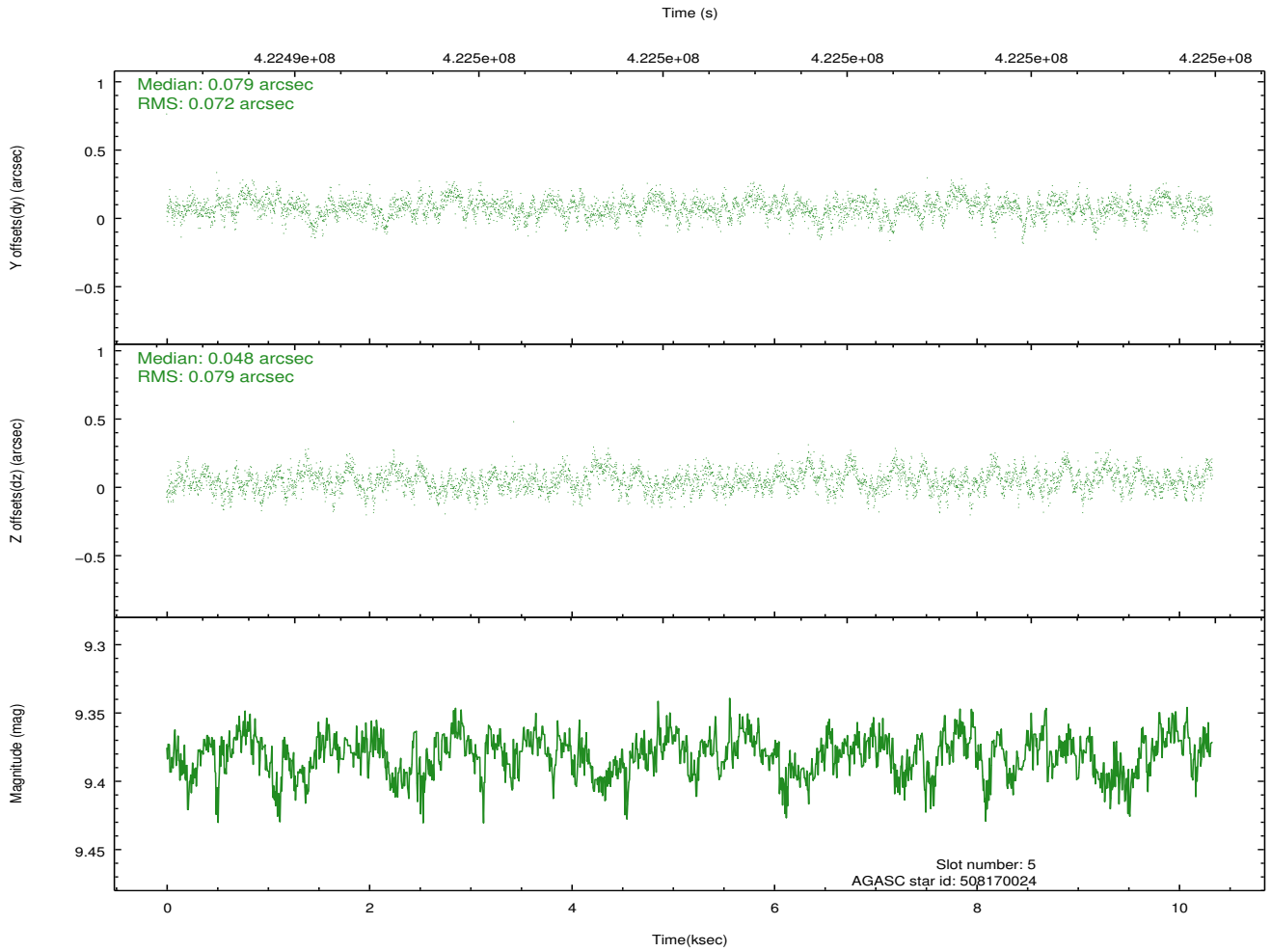
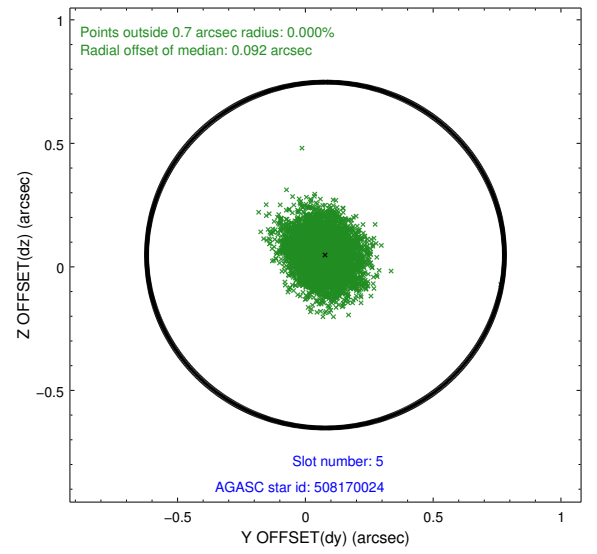
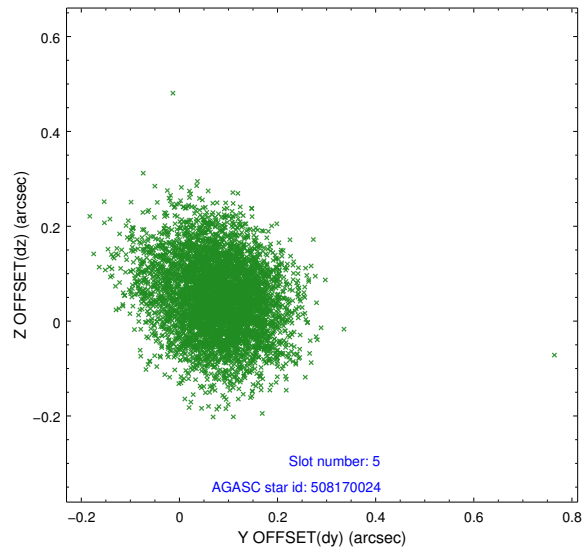
2.4.1 Slot 3



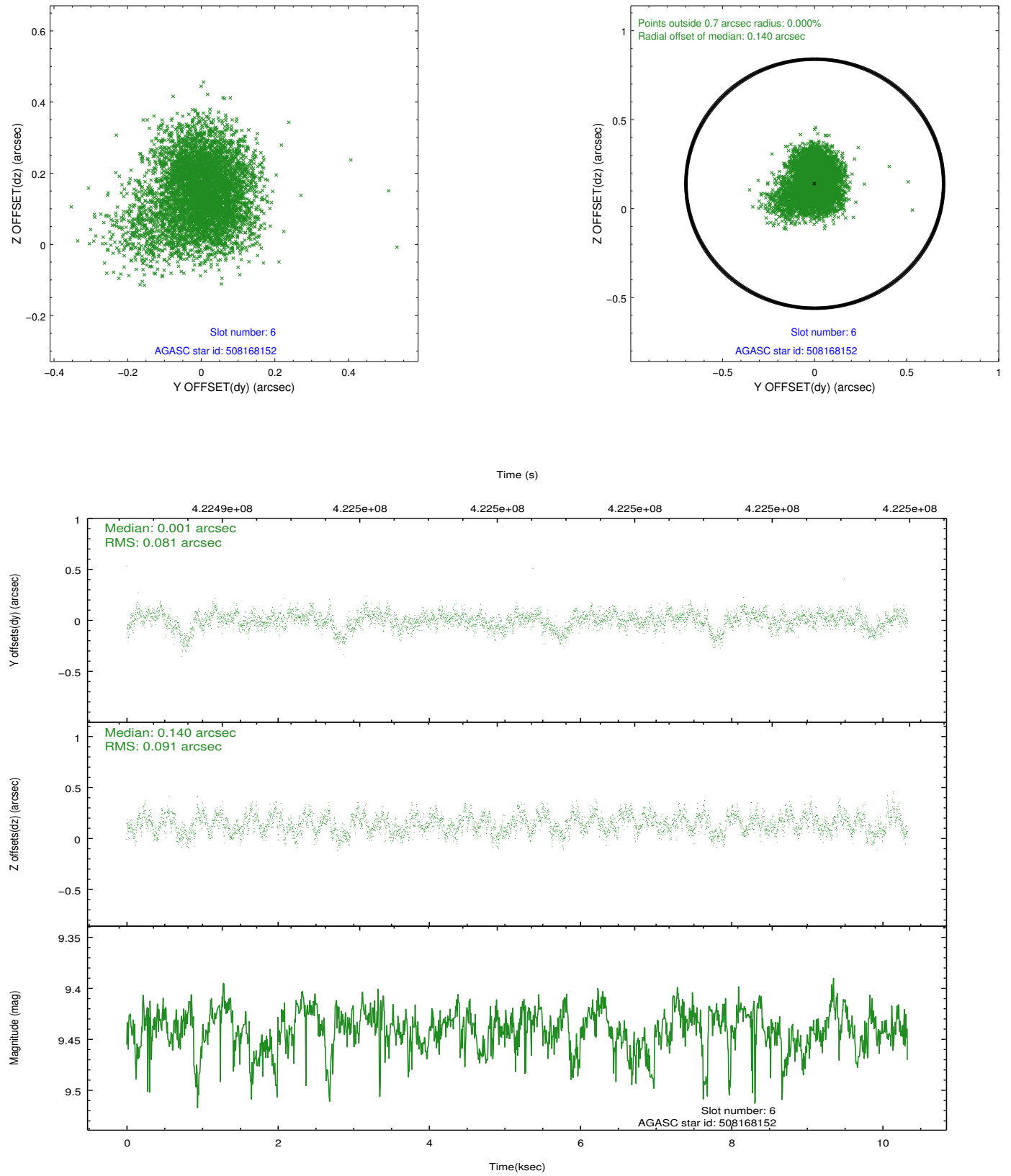
2.4.2 Slot 4



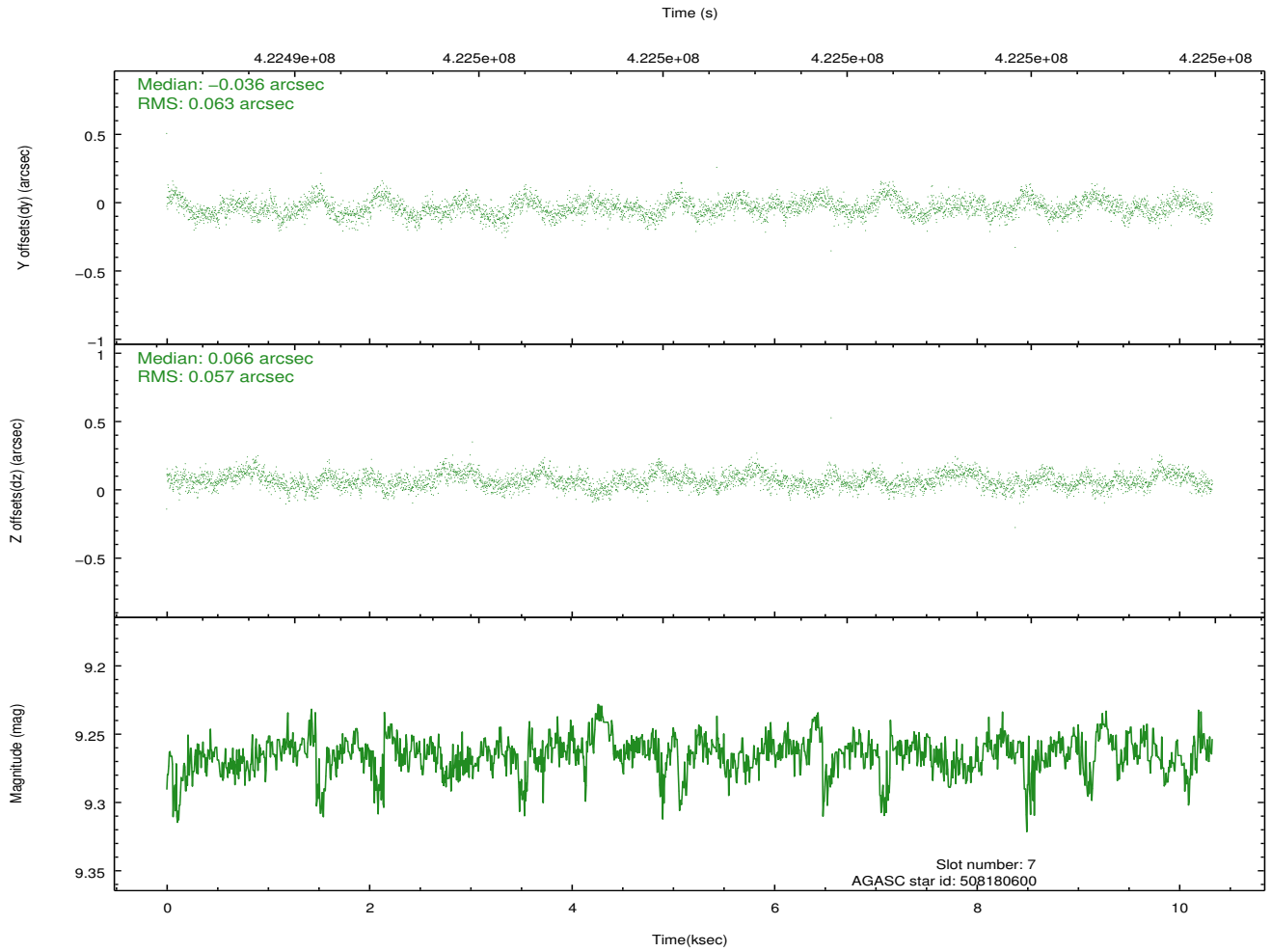
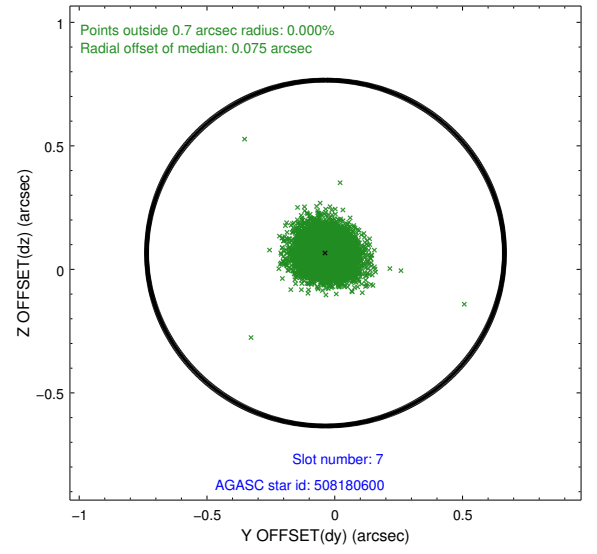
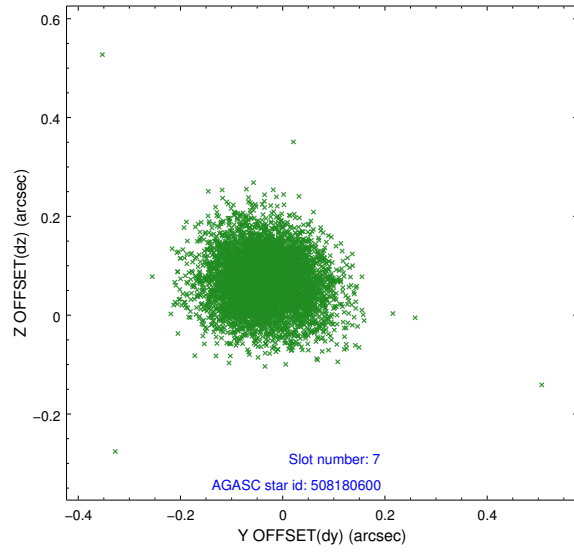
2.4.3 Slot 5



2.4.4 Slot 6

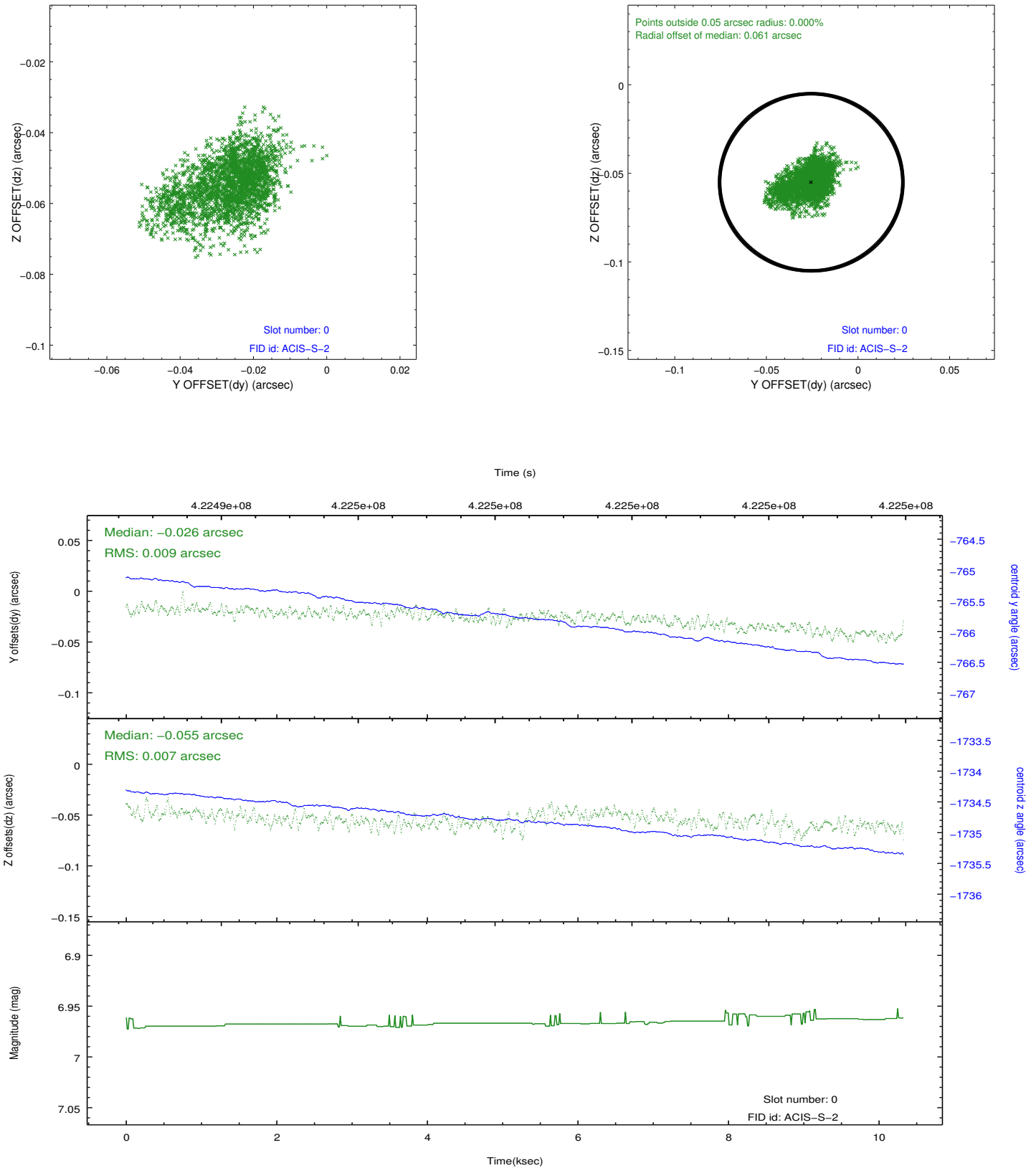


2.4.5 Slot 7

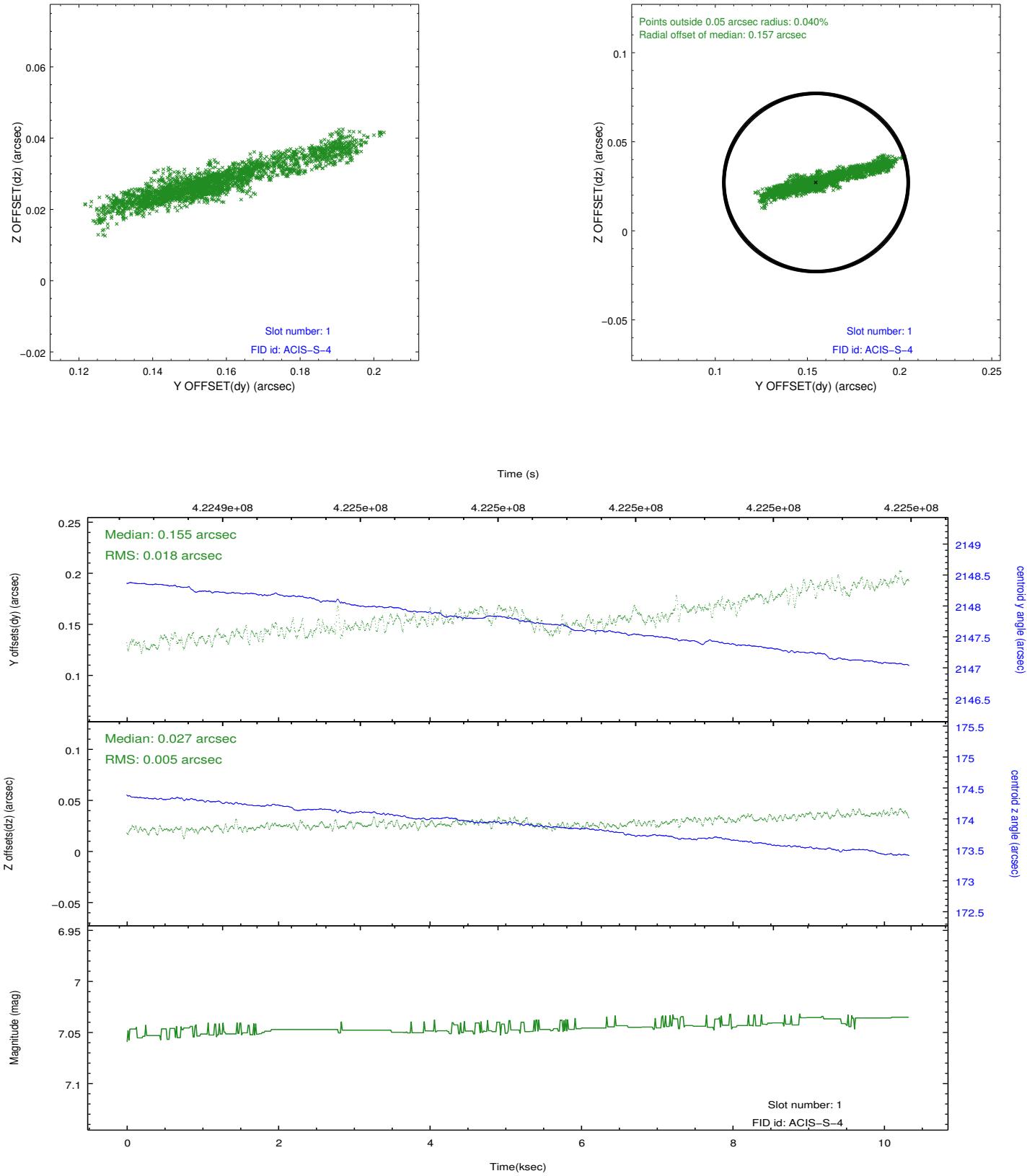


2.5 FID Slots

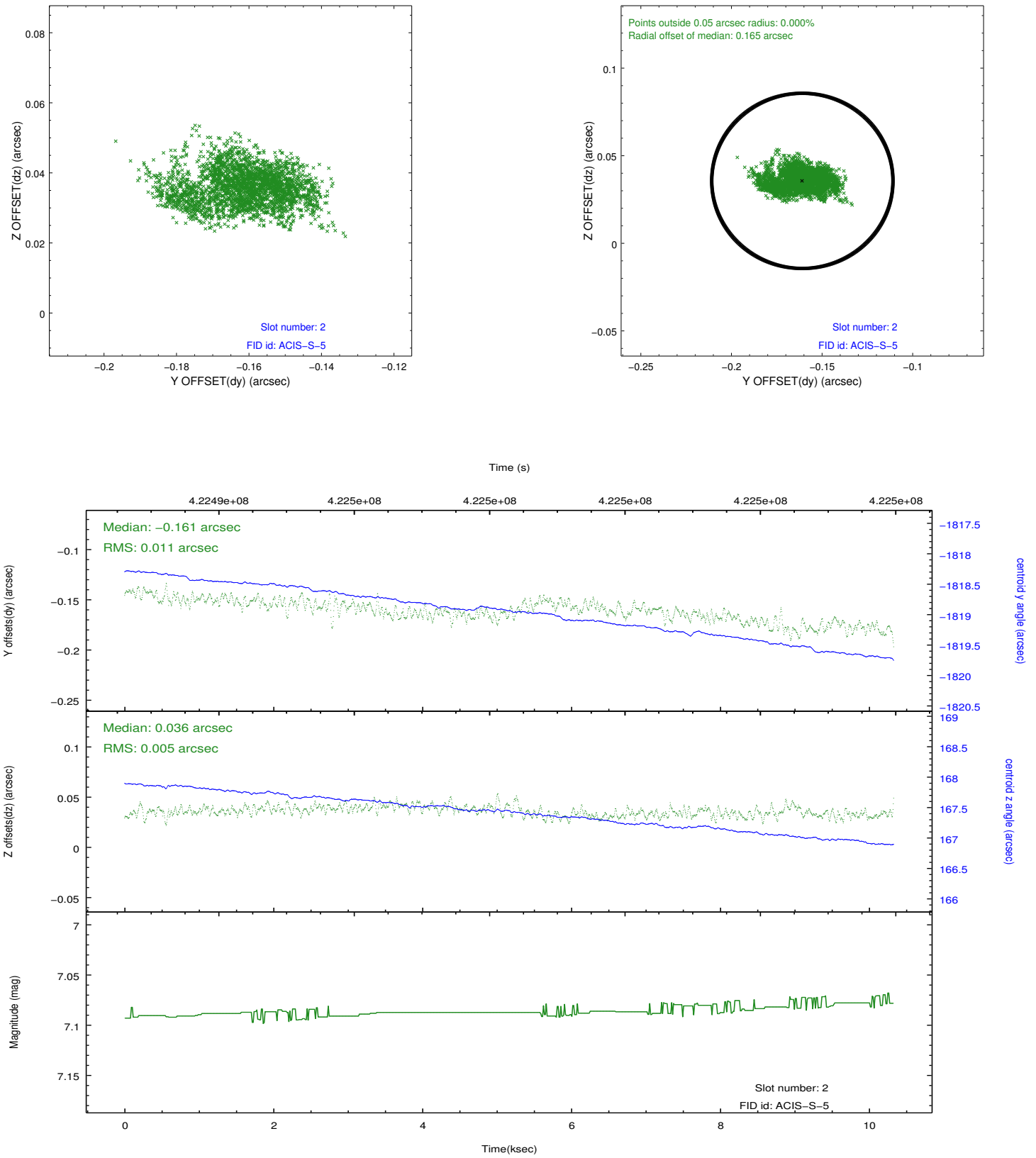
2.5.1 Slot 0



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	10.04005782491

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.

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Chip I2 has an enhanced region in the upper left corner. This region is also in the bad pixel image and is not present in the level 2 data.

=====

The problem seems to be confined to frame `EXPNO = 616` of `CCD_ID = 2`. There are about 2640 events in the affected region during this frame. These events have `GRADE = 7`, which is why they do not appear in the Level 2 file. There is no problem with the bias. Nor is there a bias-parity error or a problem with the overclock values. For these reasons, I think that the events are associated with a charged particle that interacted with the CCD at that particular time. Since the events are excluded from the Level 2 file, I think that nothing more needs to be done to the pipeline-produced products. The anomaly is confined to a single exposure frame of `CCD_I2` and has the characteristics of a charged particle traveling parallel to the CCD gates, depositing mucho charge across the image store. There were so many event candidates that the FEP was forced to skip the next frame but it had fully recovered by the following one, `EXPNO=618`. Subsequent exposures in that run, and in the next I2 bias map (`OBSID 12431`), show no evidence of permanent damage.