

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12463 - L2 Version 2  
Chandra X-Ray Center

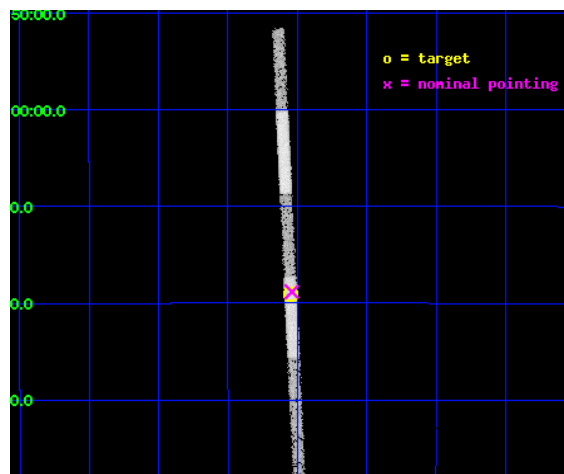
L2 Processing Date : Feb 4 2012

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# 1 Front

seq_num	401204	Sequence number
obs_id	12463	Observation id
title	X-ray observations of a nearby, old Rotating Radio Transient	Propo
observer	Prof. Maura McLaughlin	Principal investigator
object	J1840-14	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	280.137333	Observer's specified target RA [deg]
dec_targ	-14.318056	Observer's specified target Dec [deg]
ra_nom	280.13491707429	Nominal RA [deg]
dec_nom	-14.313832156046	Nominal Dec [deg]
roll_nom	87.246479609863	Nominal Roll [deg]
revision	2	Processing version of data
ontime	29373.998249173	Sum of GTIs [s]
livetime	10083.069562397	Livetime [s]
ontime4	29373.998249173	Sum of GTIs [s]
ontime5	29373.998249173	Sum of GTIs [s]
ontime6	29373.998249173	Sum of GTIs [s]
ontime7	29373.998249173	Sum of GTIs [s]
ontime8	29373.998249173	Sum of GTIs [s]
ontime9	29373.998249173	Sum of GTIs [s]
l2events	21879	Number of level 2 events

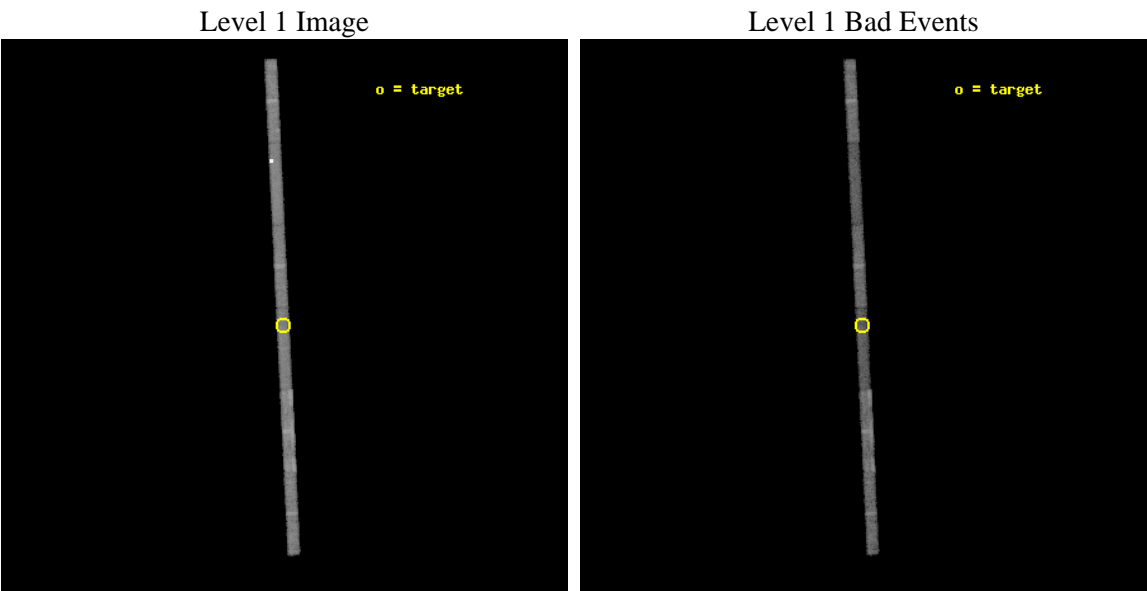




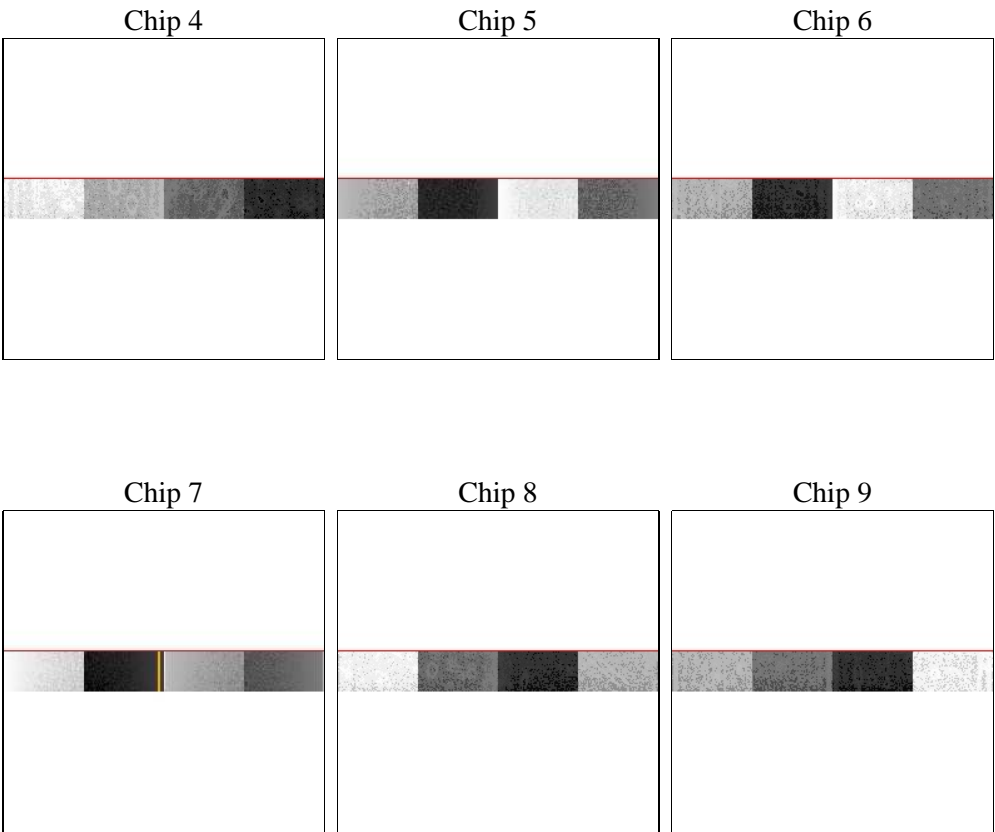
# 2 OBI

## 2.1 OBI

### 2.1.1 Images



### 2.1.2 Bias



Chip 7



Chip 8



Chip 9



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	29373.998249173	Sum of GTIs [s]
caldsver	4.4.7	&#160	ontime4	29373.998249173	Sum of GTIs [s]
date	2012-02-04T20:04:20	Date and time of file creation	ontime5	29373.998249173	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	29373.998249173	Sum of GTIs [s]
			ontime7	29373.998249173	Sum of GTIs [s]
			ontime8	29373.998249173	Sum of GTIs [s]
			ontime9	29373.998249173	Sum of GTIs [s]
			l1events	149868	Number of level 1 events

### 2.1.4 Events

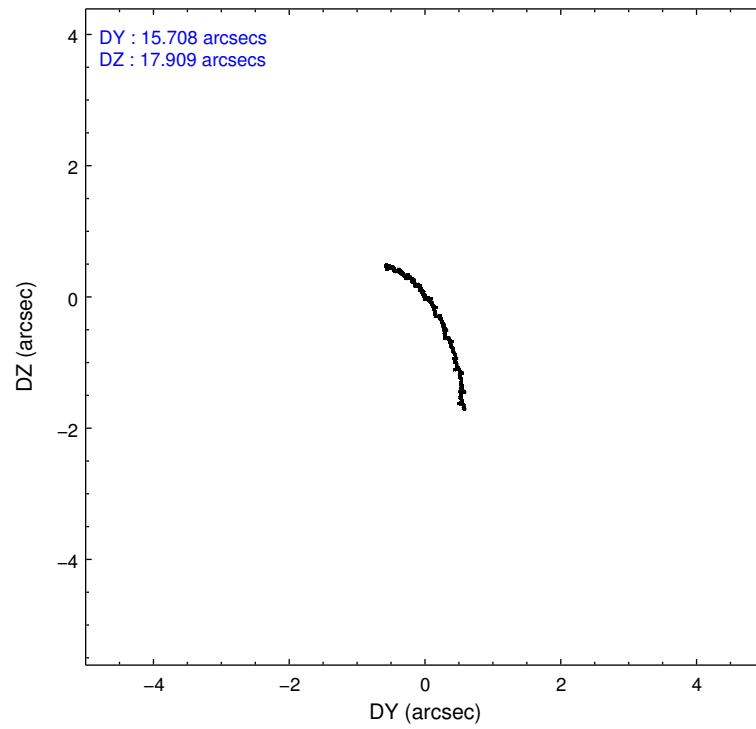
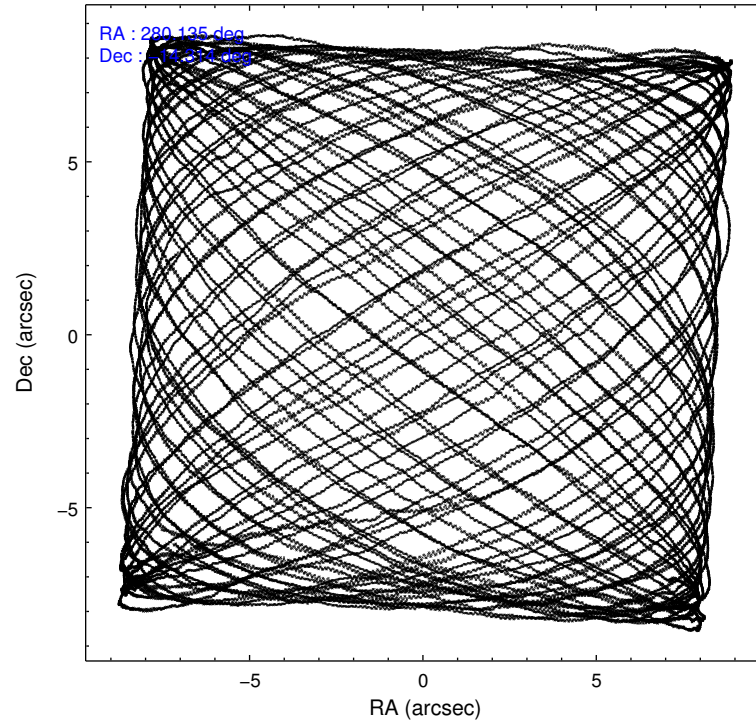
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	22220	44042	19133	17022	29670	17781
rejected events	19816	10459	17191	9917	23422	15910
rejected %	89%	23%	89%	58%	78%	89%

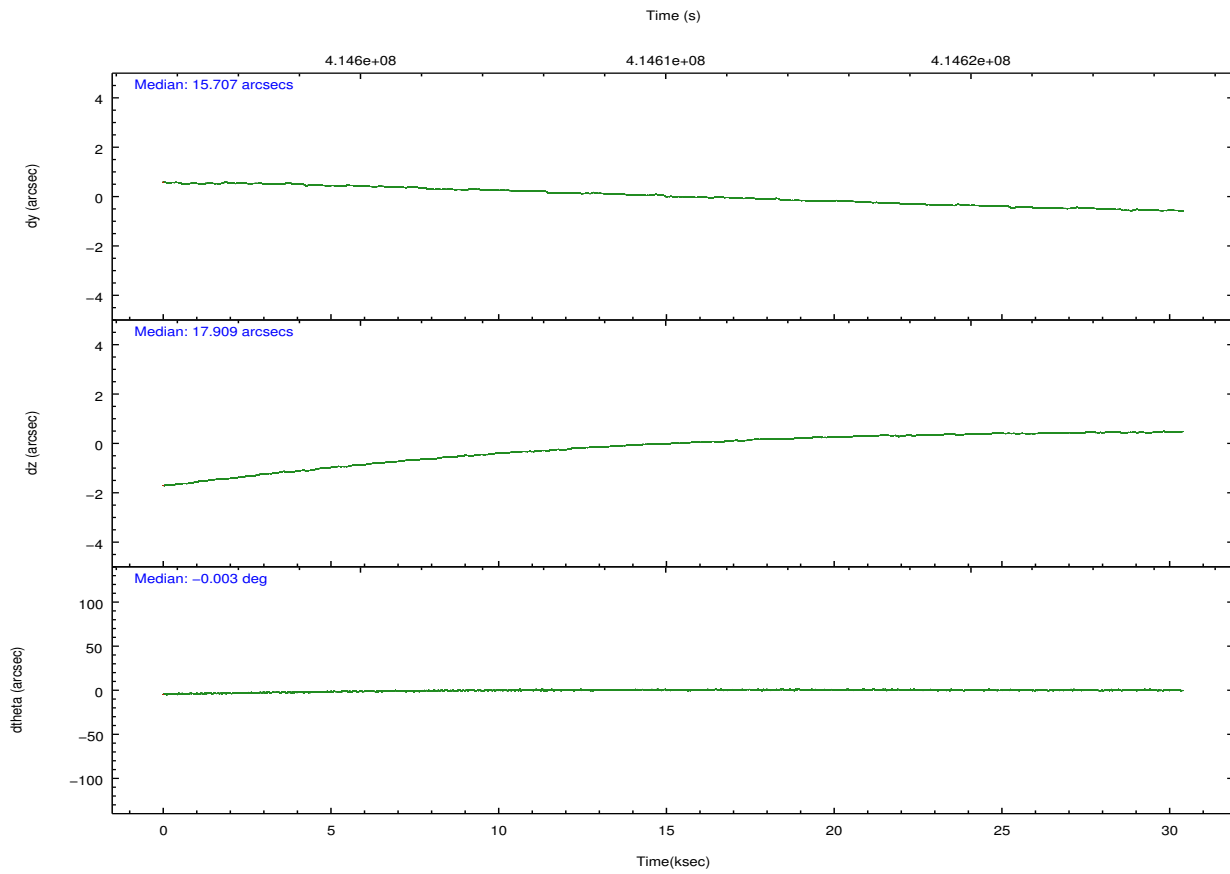
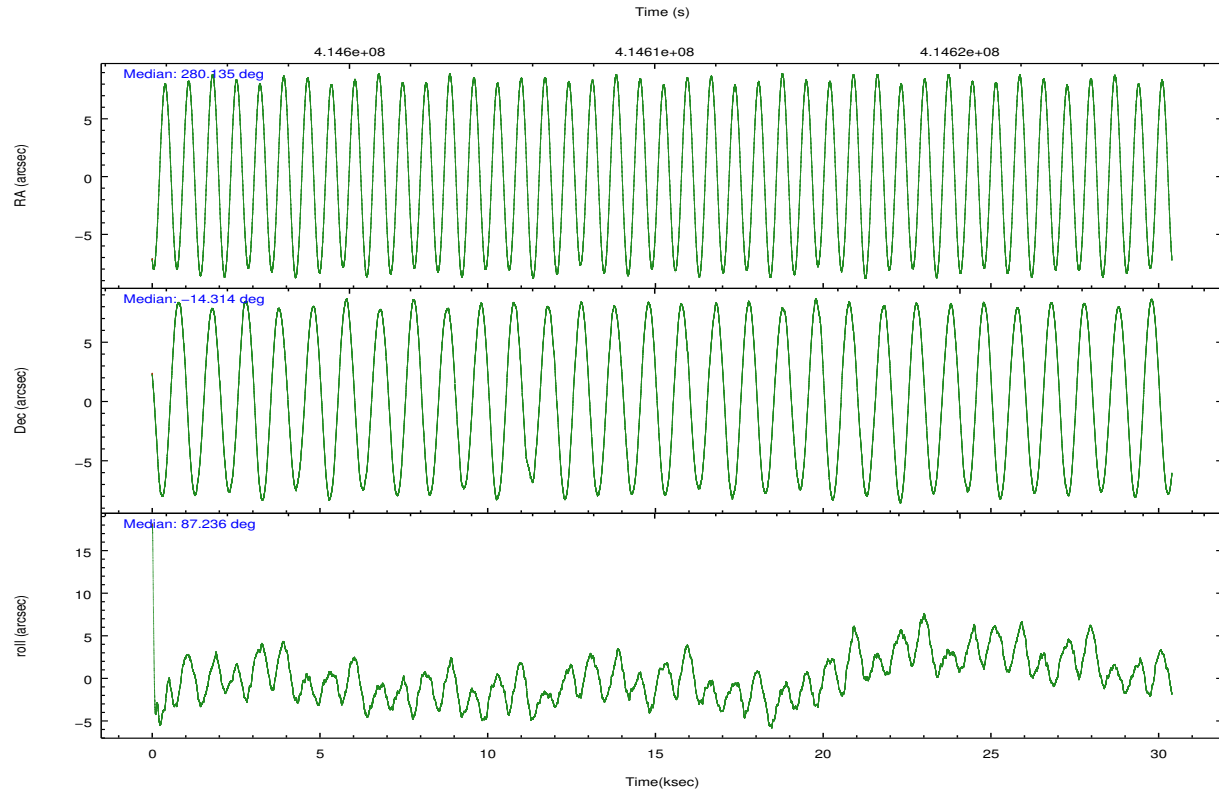
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	823	21213	467	728	1342	528
	3%	48%	2%	4%	4%	2%
grade 1 events	17	61	7	16	5	6
	0%	0%	0%	0%	0%	0%
grade 2 events	484	6309	374	1466	1283	314
	2%	14%	1%	8%	4%	1%
grade 3 events	388	741	399	913	682	333
	1%	1%	2%	5%	2%	1%
grade 4 events	352	817	354	896	663	349
	1%	1%	1%	5%	2%	1%
grade 5 events	668	1759	661	1707	848	638
	3%	3%	3%	10%	2%	3%
grade 6 events	357	4506	348	3102	2279	347
	1%	10%	1%	18%	7%	1%
grade 7 events	19131	8636	16523	8194	22568	15266
	86%	19%	86%	48%	76%	85%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	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	280.148174	280.1349170742852	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	-14.337950	-14.31383215604616	Subarray start row	449	449
[deg] Pointing Roll	87.093121	87.24647960986258	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	0.4
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	414595437.184000	414594759.07346			
Observation start date	2011-02-20T13:22:51	2011-02-20T13:12:39			
[s] Observation end time (MET)	414625437.184000	414626586.8626			
Observation end date	2011-02-20T21:42:51	2011-02-20T22:03:06			
Read mode	TIMED	TIMED			

## 2.3 Aspect



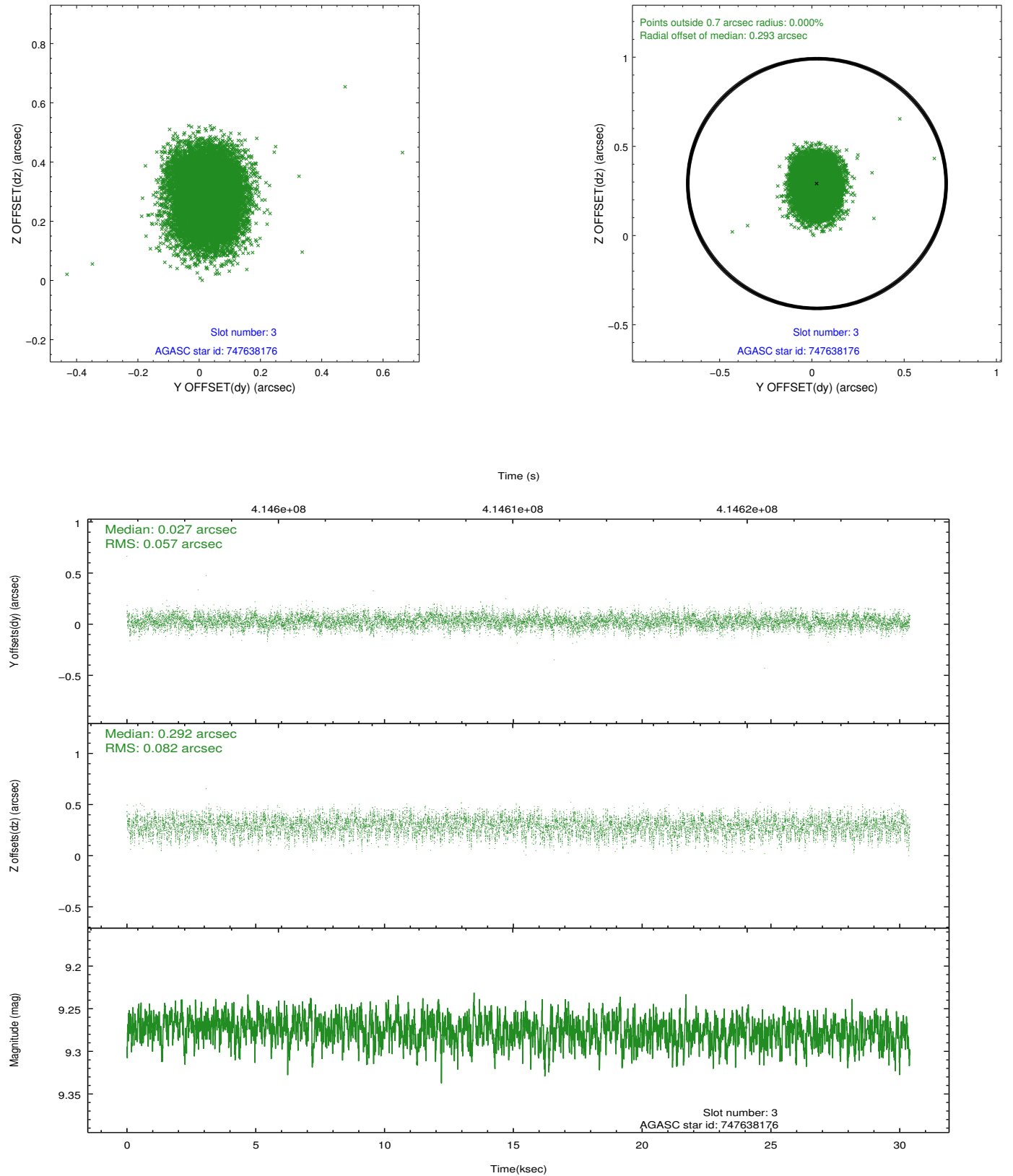


### Slot Statistics

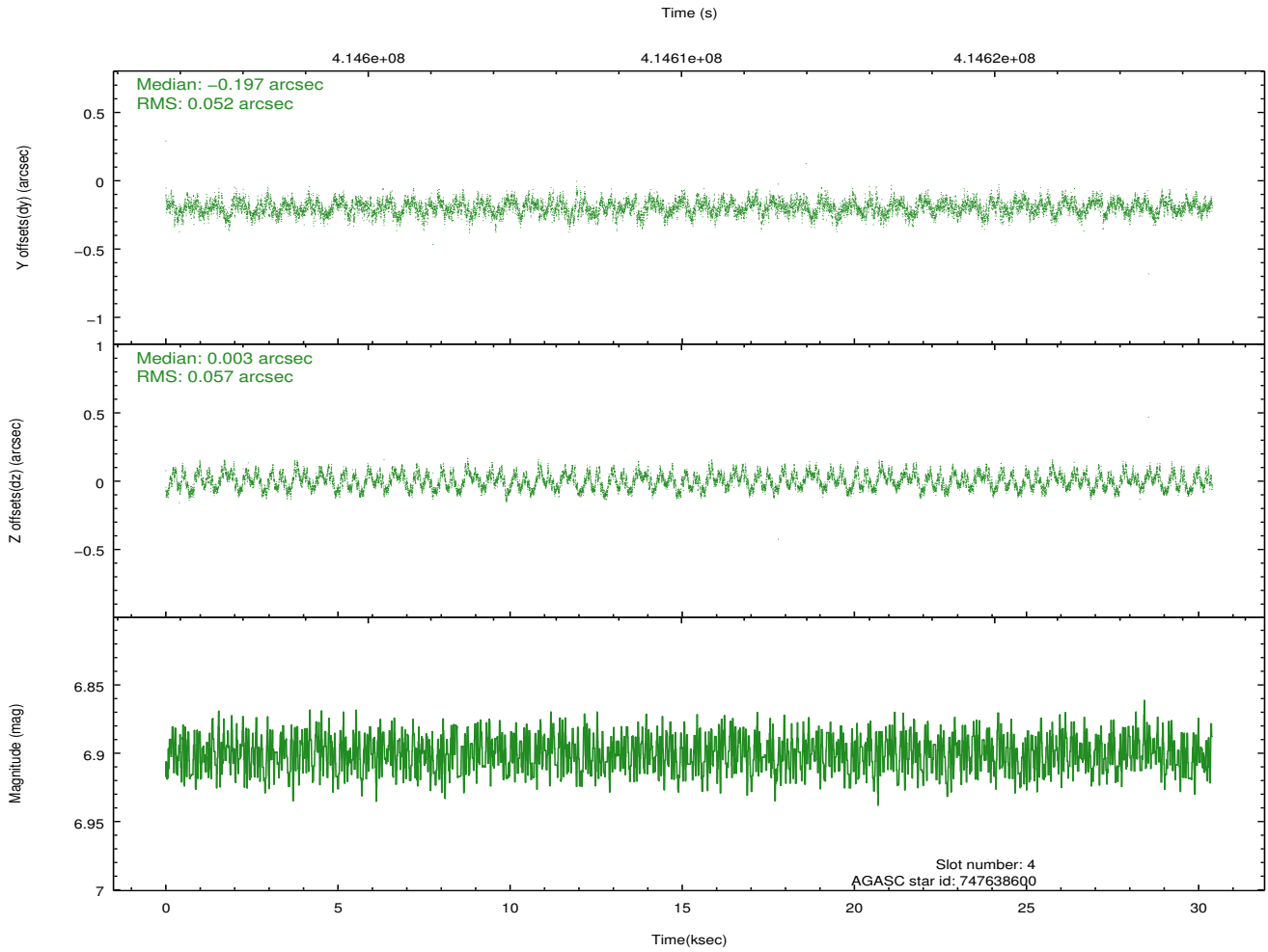
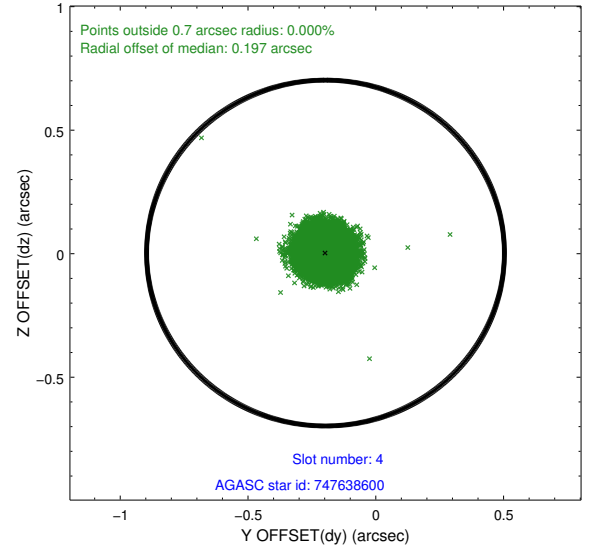
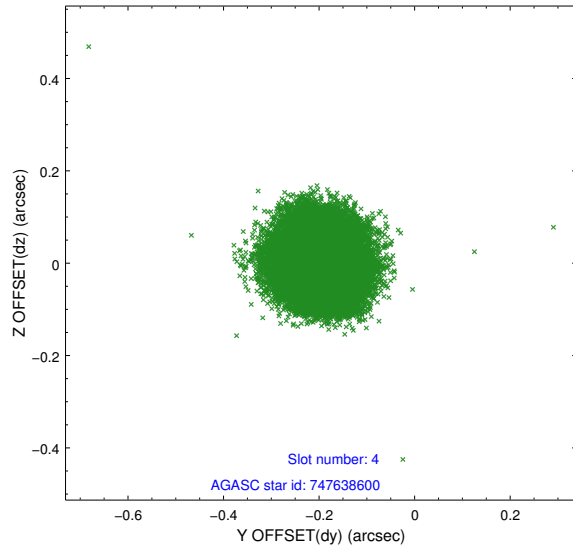
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.89	7415	-0.079	-0.050	0.016	0.032	0.000000	0.000000	-768.83	-1739.18
1	FID	ACIS-S-4	6.98	7415	0.178	0.051	0.016	0.023	0.000000	0.000000	2144.71	169.26
2	FID	ACIS-S-5	7.00	7415	-0.129	0.008	0.020	0.031	0.000000	0.000000	-1821.60	163.05
3	GUIDE	747638176	9.28	14811	0.027	0.292	0.106	0.170	280.801557	-14.682855	-1127.14	-2335.19
4	GUIDE	747638600	6.90	14828	-0.197	0.003	0.084	0.122	280.227503	-14.505704	-589.05	-306.68
5	GUIDE	747641080	8.60	14817	-0.013	-0.469	0.098	0.154	279.794251	-14.409703	-321.46	1219.10
6	GUIDE	747642864	8.08	14819	0.101	0.160	0.076	0.124	280.605302	-14.645135	-1024.58	-1645.94
7	GUIDE	747642976	9.01	14816	0.089	0.028	0.148	0.215	280.693108	-14.466487	-367.34	-1920.52

## 2.4 Star Slots

### 2.4.1 Slot 3

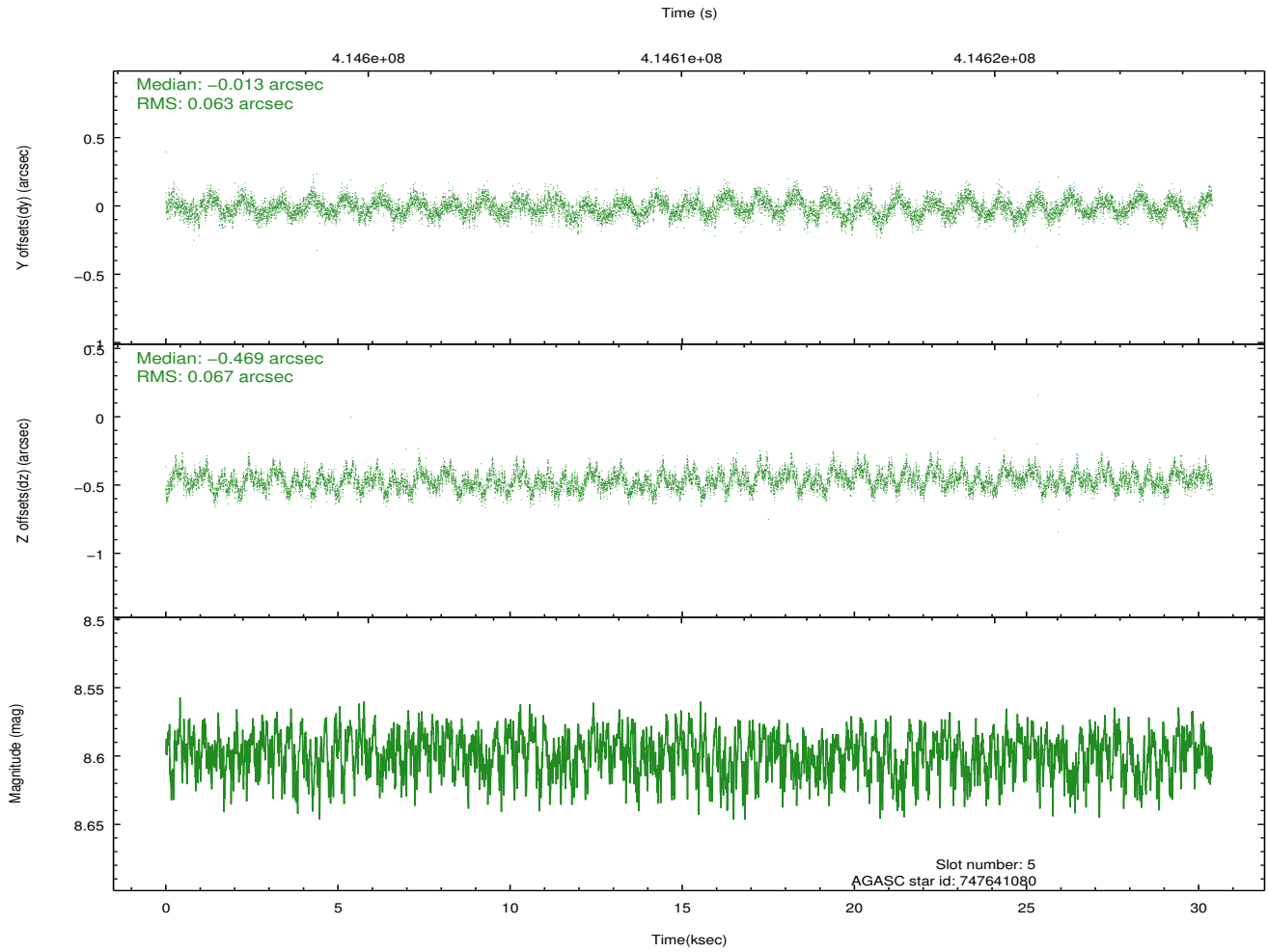
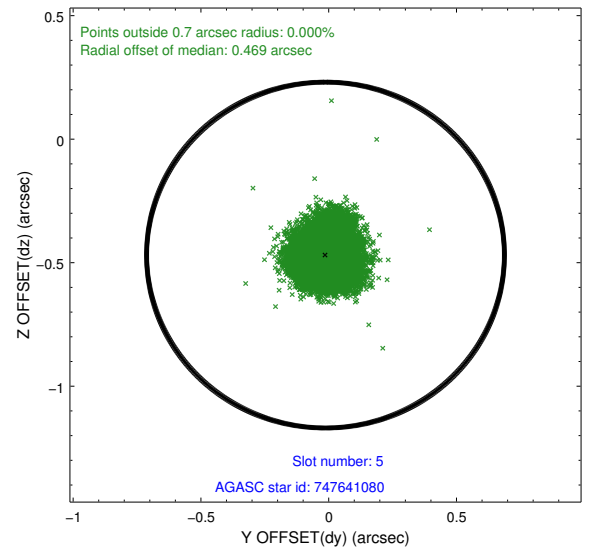
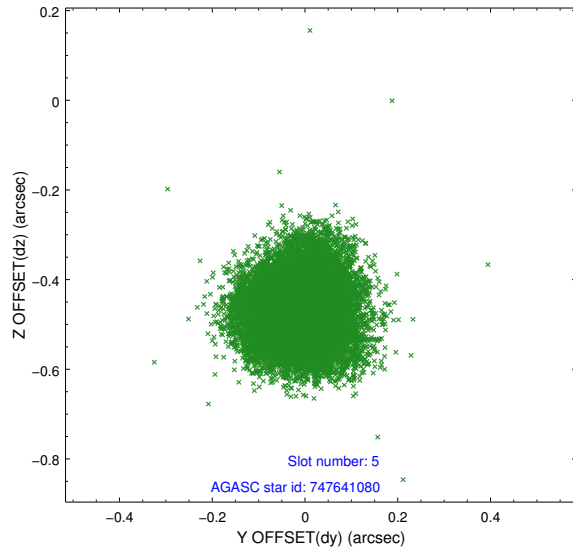


## 2.4.2 Slot 4

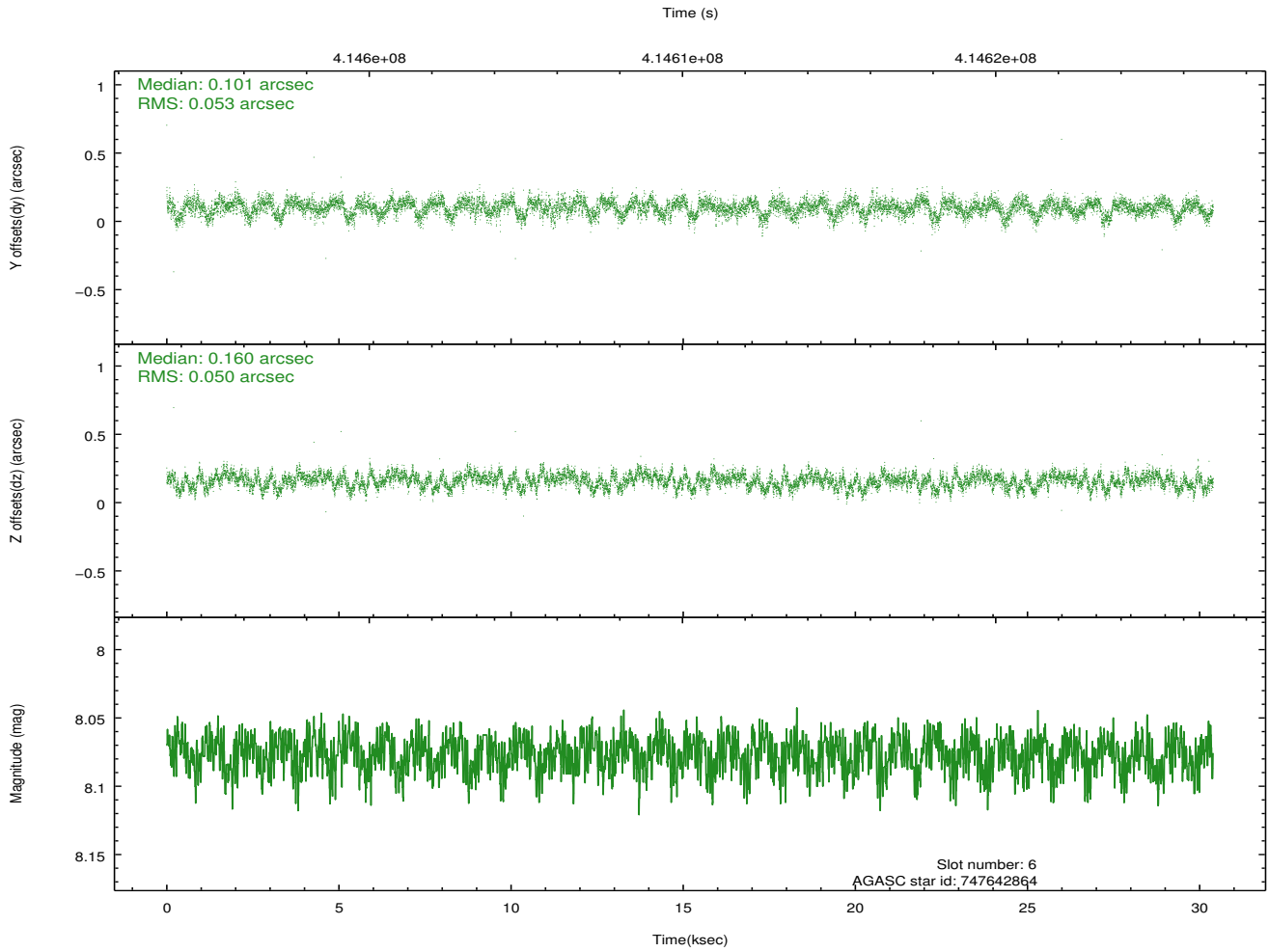
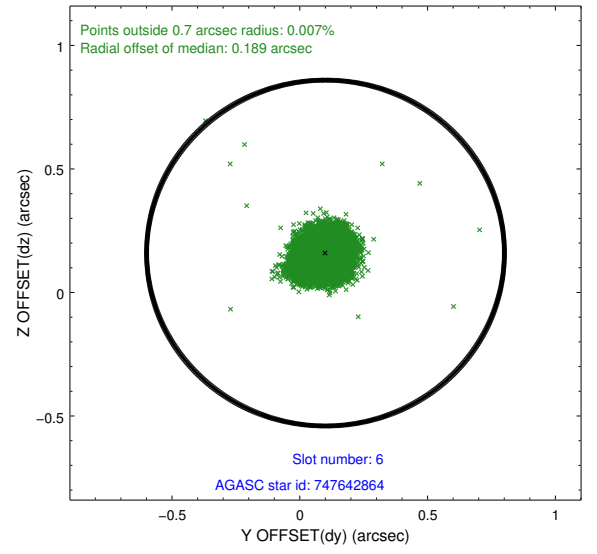
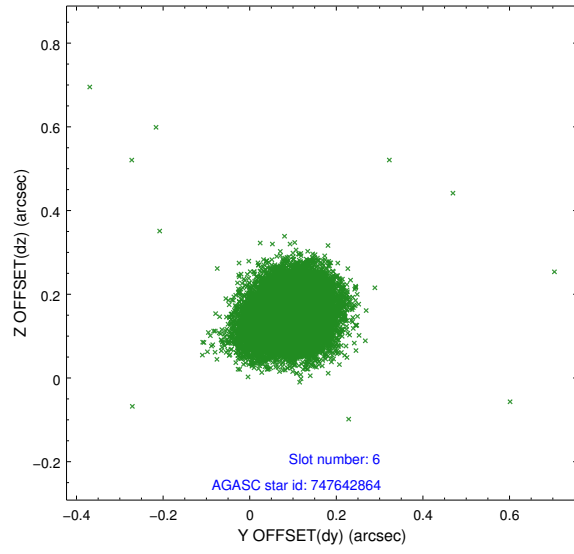




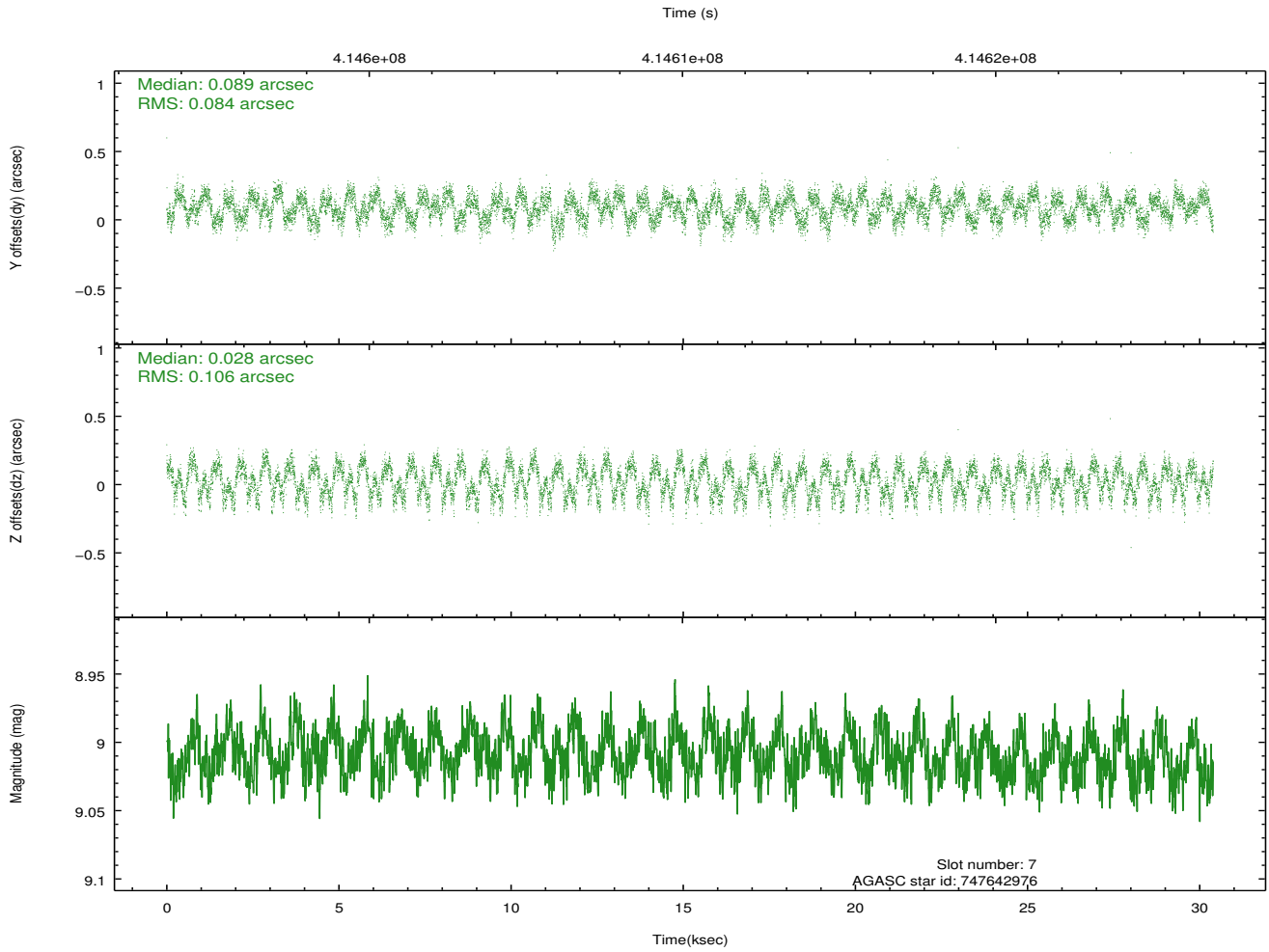
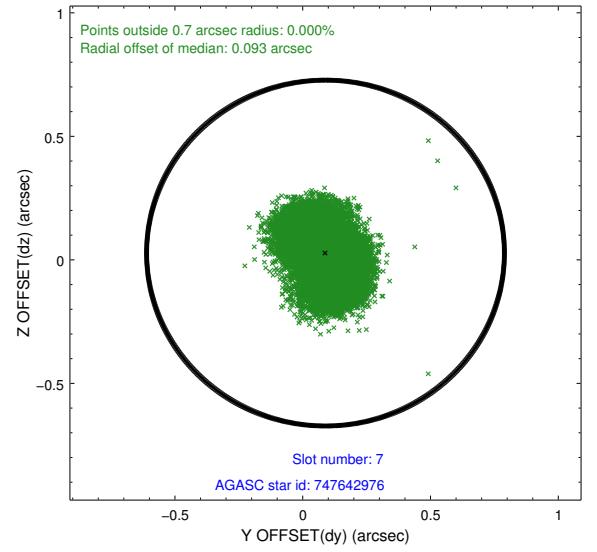
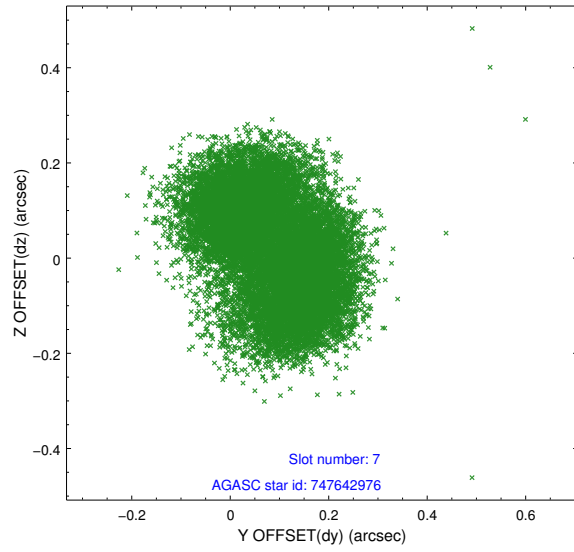
### 2.4.3 Slot 5



## 2.4.4 Slot 6

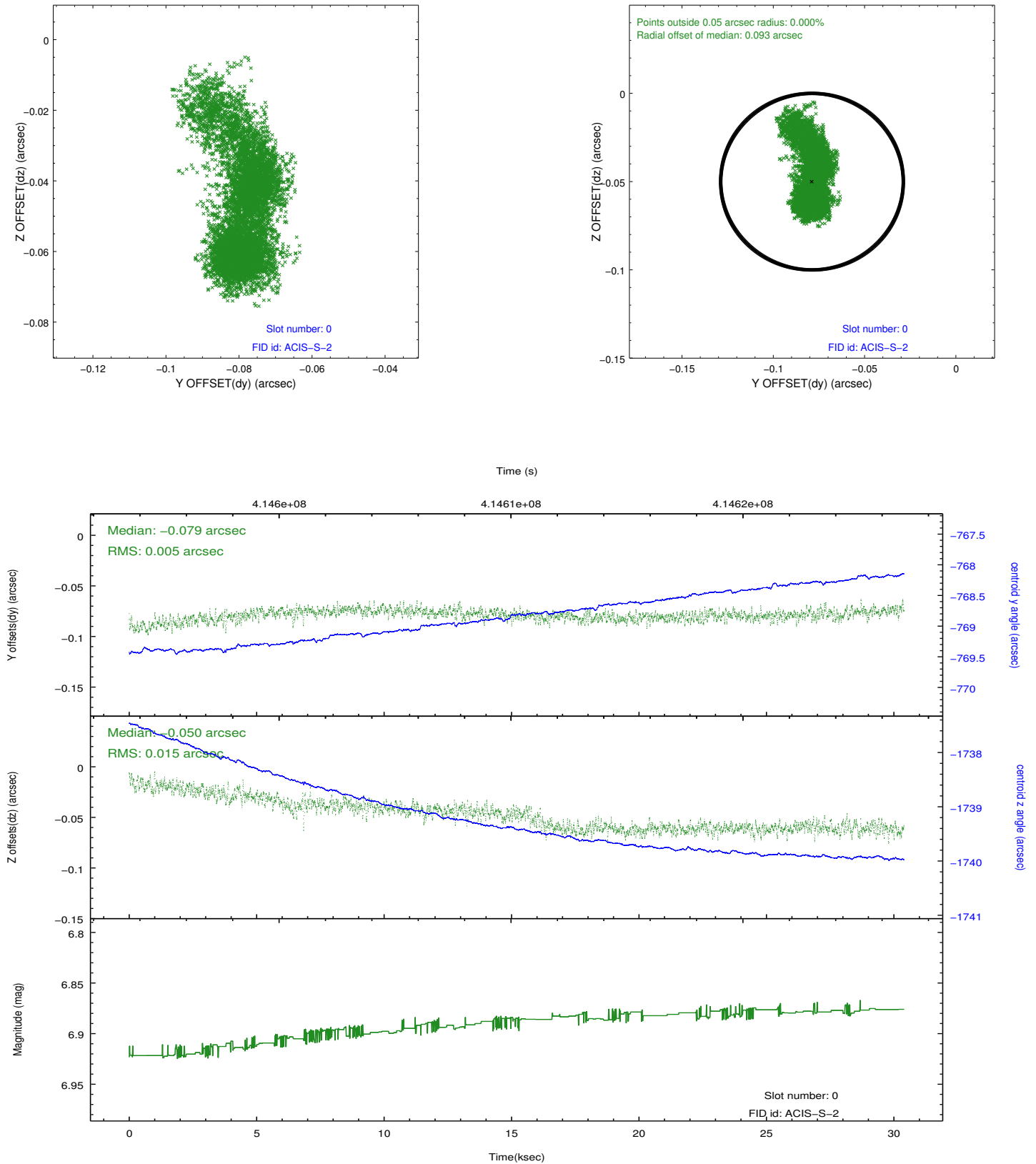


## 2.4.5 Slot 7

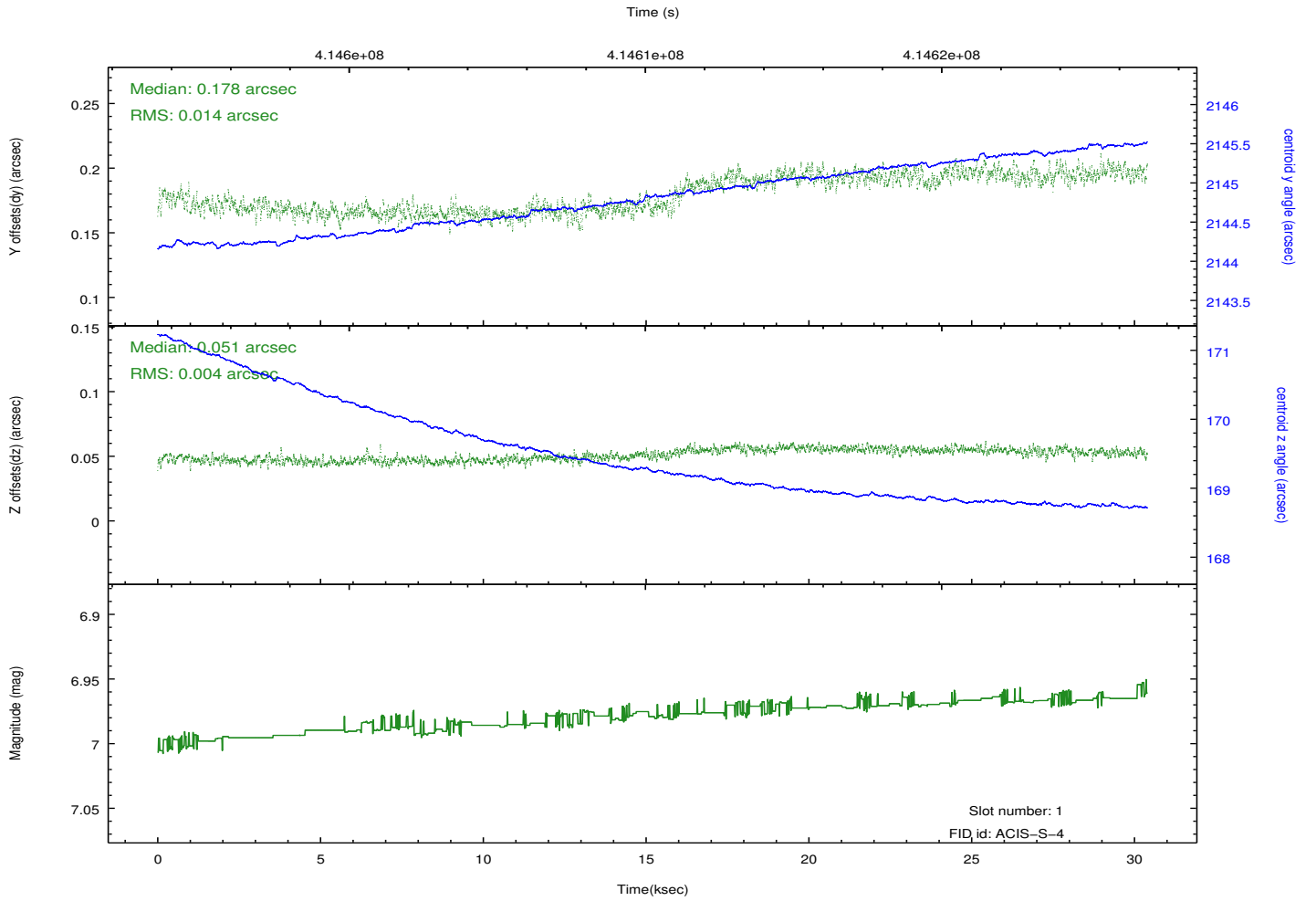
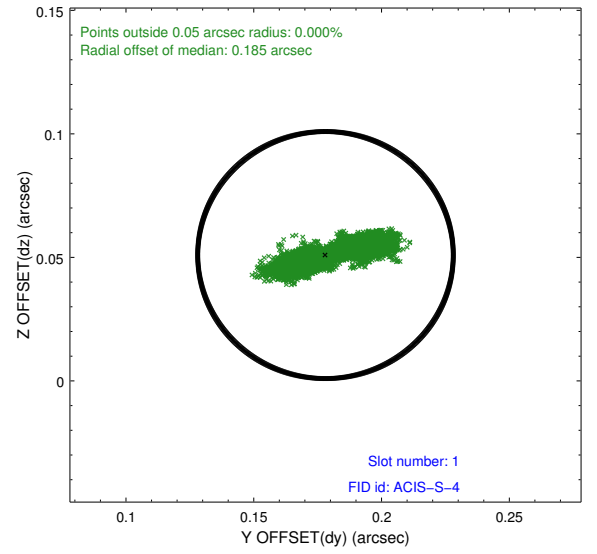
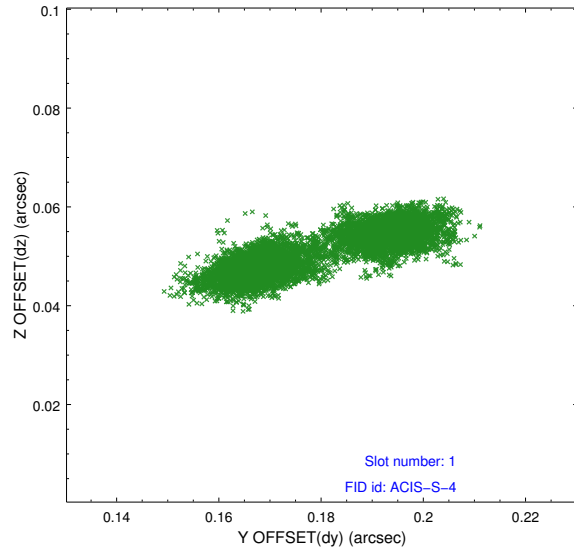


## 2.5 FID Slots

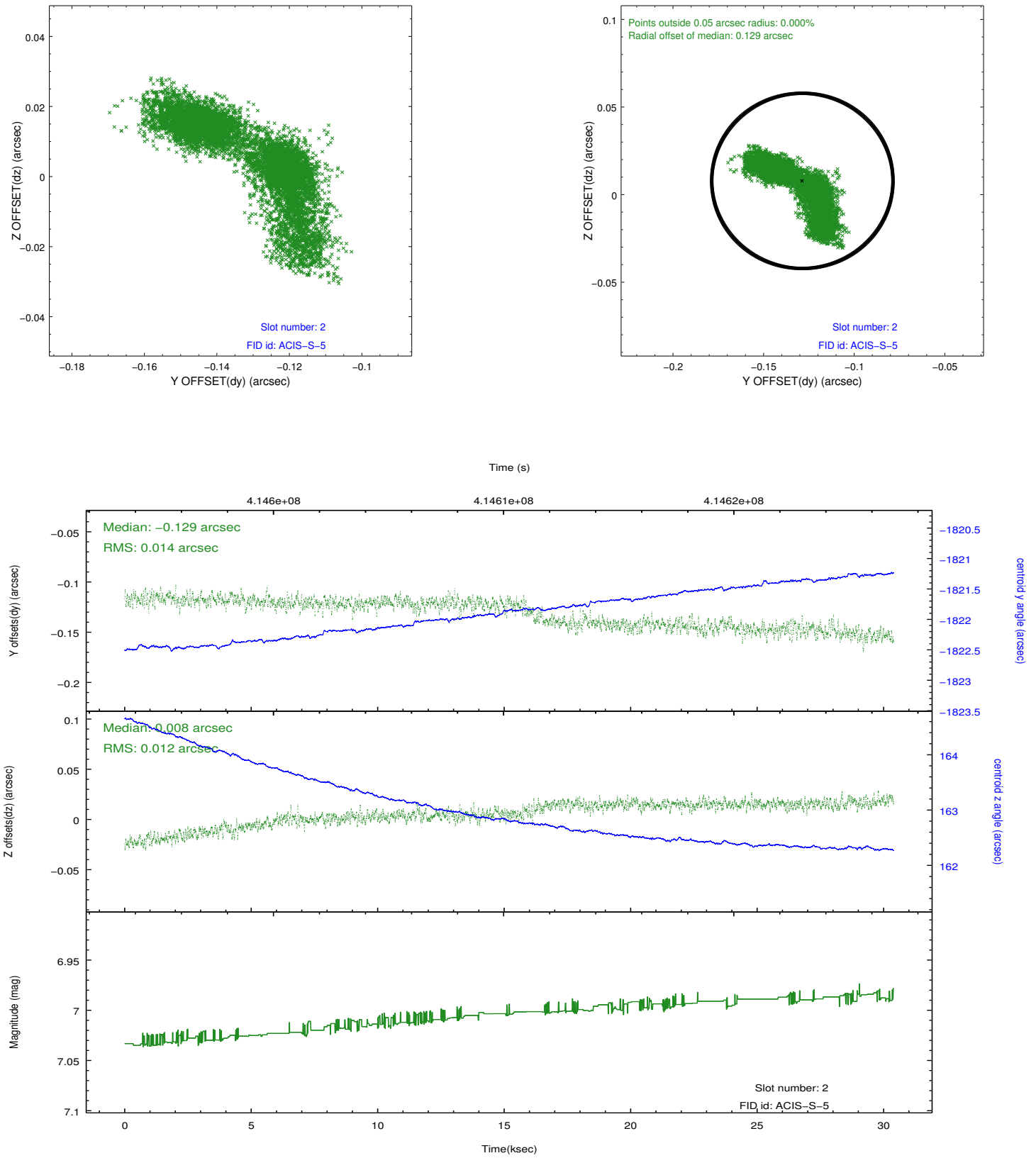
### 2.5.1 Slot 0



## 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)	2012.02.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.373998249173

## 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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The livetime for each chip is about 10 ks instead of 30 ks for each chip because the use of a 0.4 s frame time for the selection of chips and rows used during the observation is shorter than the time it takes to read out one frame of data. The formula in section 6.12.1 of the POG: [http://asc.harvard.edu/proposer/POG/html/chap6.html#tth\\_sEc6.12.1](http://asc.harvard.edu/proposer/POG/html/chap6.html#tth_sEc6.12.1) indicates that the frame time must be at least 0.7 s to avoid 'flushing' the detector before each frame of data is collected. The time required to flush the detector is specified on p. 120 of the ACIS Science Instrument Software User's Guide: <http://acis.mit.edu/swuserA/swuser.pdf> Events that occur during such a flush are discarded onboard. The flush time is effectively 'dead time.' For this reason, most of the 30 ks of the observation was spent flushing the detectors instead of collecting data. Had the frame time been 0.7 s or longer, there would have been about 30 ks of exposure instead of only about 10 ks.