

# V&V Reference Report

## L2 ASCDS Version : 10

Observation 16319 - L2 Version 2  
Chandra X-Ray Center

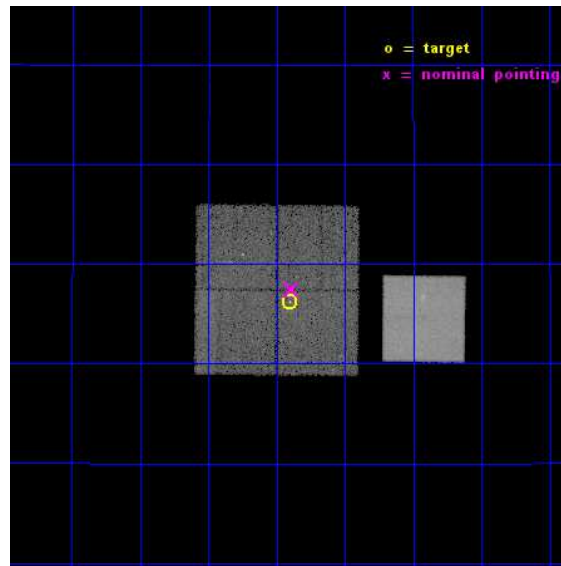
L2 Processing Date : Dec 6 2014

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# 1 Front

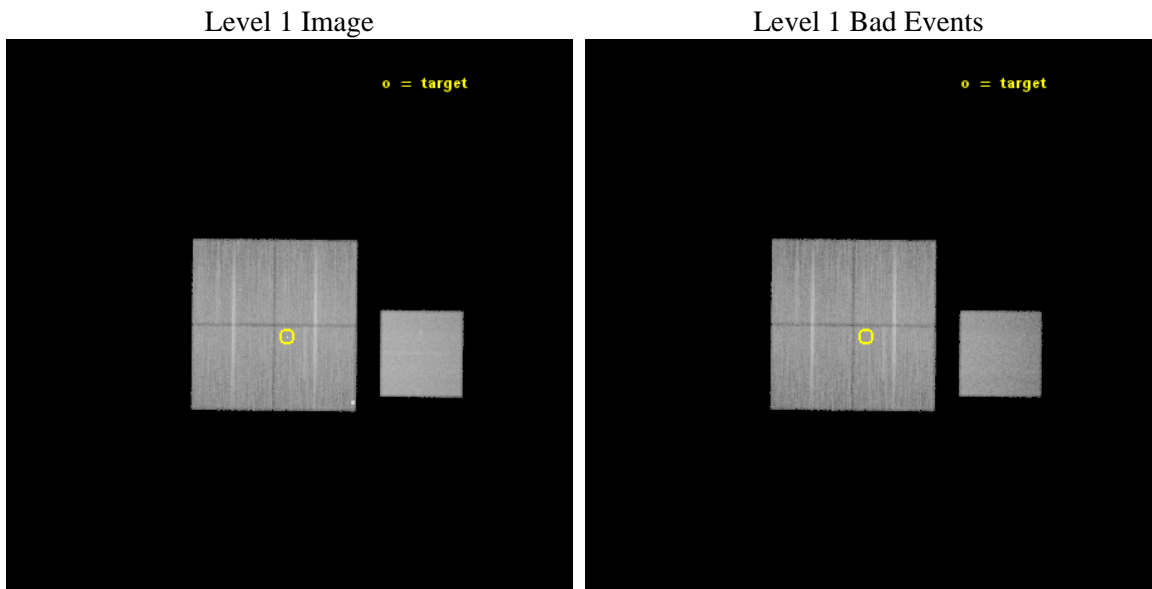
seq_num	501823	Sequence number
obs_id	16319	Observation id
title	A Legacy Study of the Relativistic Shocks of PWNe	Proposal title
observer	Prof. Roger Romani	Principal investigator
object	PSR J0633+1746	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	98.475833	Observer's specified target RA [deg]
dec_targ	17.77025	Observer's specified target Dec [deg]
ra_nom	98.47313616329	Nominal RA [deg]
dec_nom	17.791268724349	Nominal Dec [deg]
roll_nom	90.609510873273	Nominal Roll [deg]
revision	2	Processing version of data
ontime	45069.380919993	Sum of GTIs [s]
livetime	44480.516278678	Livetime [s]
ontime0	45069.257800043	Sum of GTIs [s]
ontime1	45072.439810395	Sum of GTIs [s]
ontime2	45069.33987999	Sum of GTIs [s]
ontime3	45069.380919993	Sum of GTIs [s]
ontime7	45072.562930405	Sum of GTIs [s]
l2events	210795	Number of level 2 events



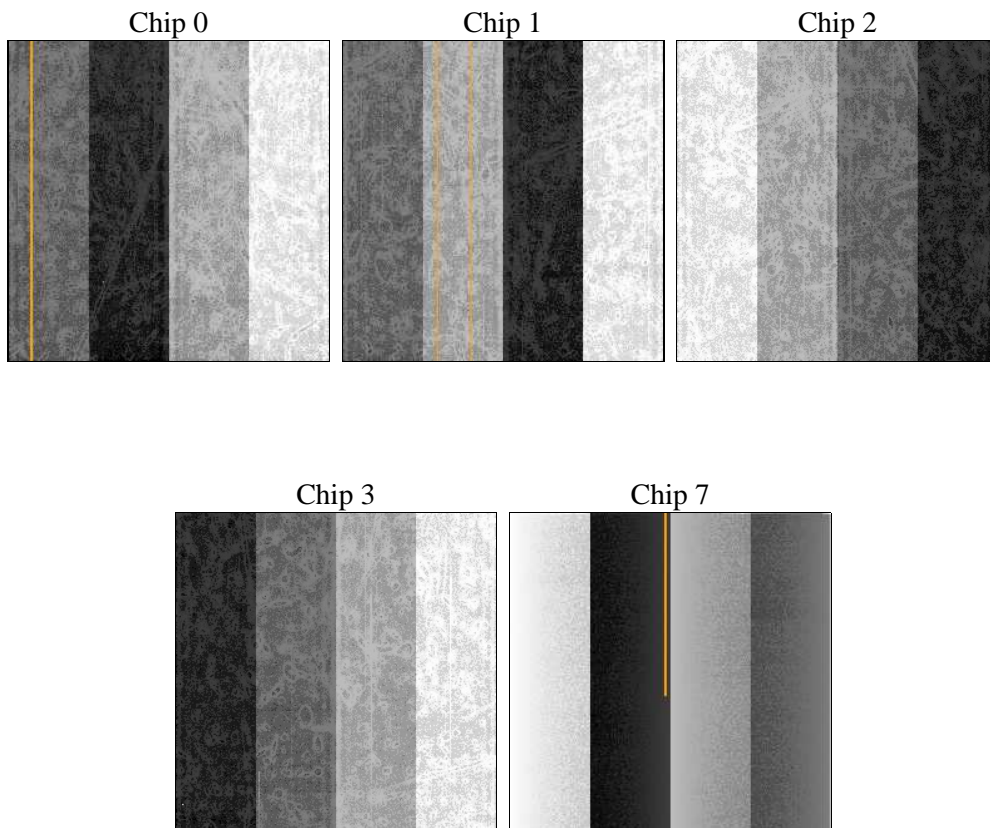
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	45000.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	45069.380919993	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime0	45069.257800043	Sum of GTIs [s]
date	2014-12-06T07:44:30	Date and time of file creation	ontime1	45072.439810395	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	45069.33987999	Sum of GTIs [s]
			ontime3	45069.380919993	Sum of GTIs [s]
			ontime7	45072.562930405	Sum of GTIs [s]
			l1events	1102951	Number of level 1 events

### 2.1.4 Events

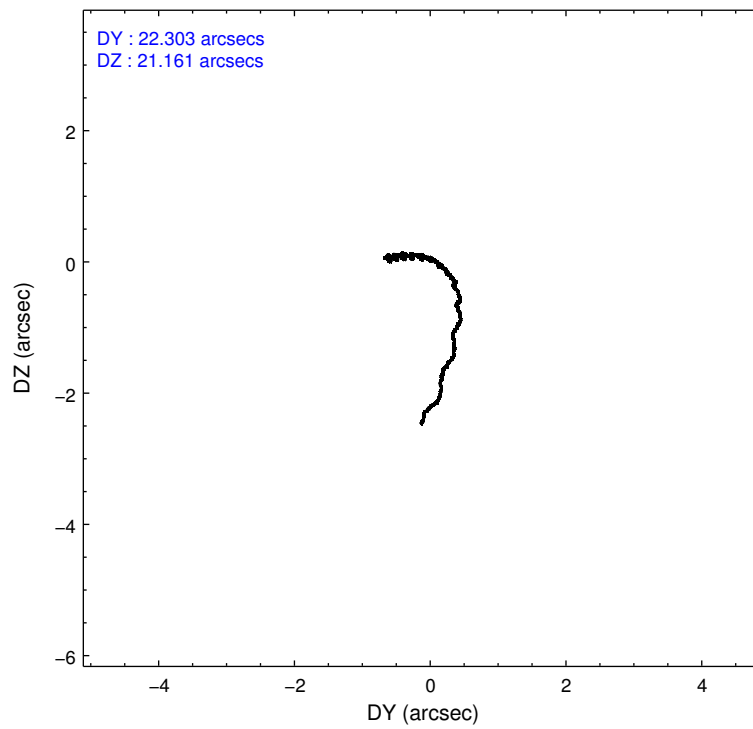
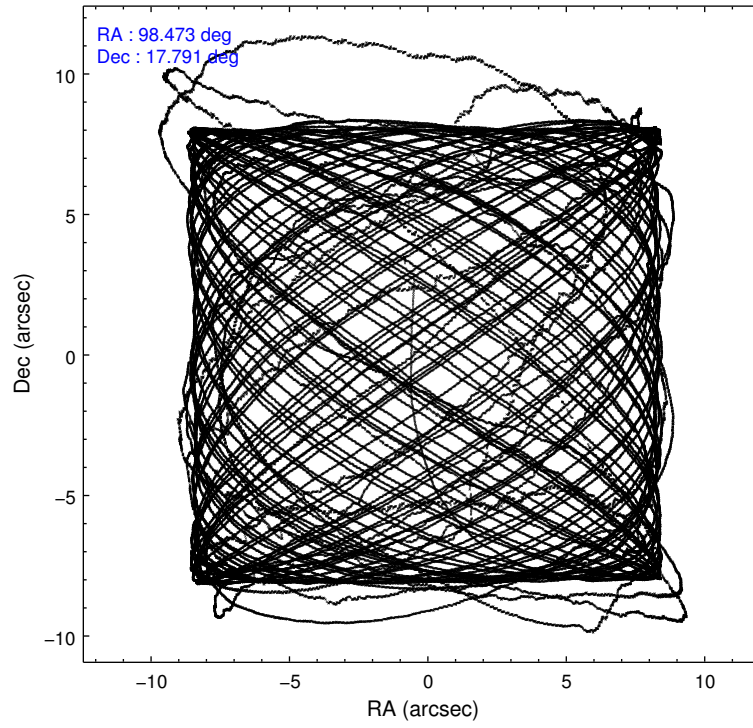
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 7
level 1 events	194727	195636	209782	211910	290896
rejected events	168834	167727	185086	182311	164286
rejected %	86%	85%	88%	86%	56%

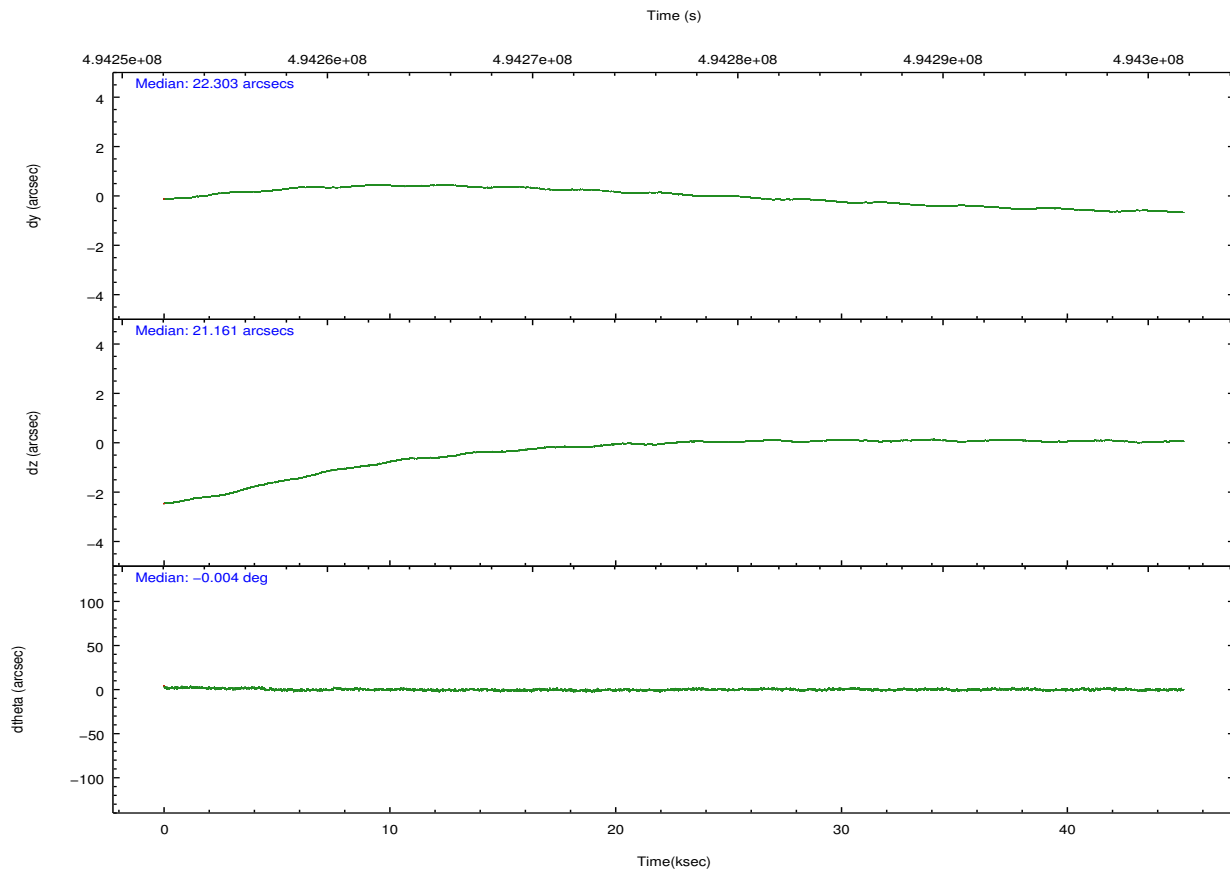
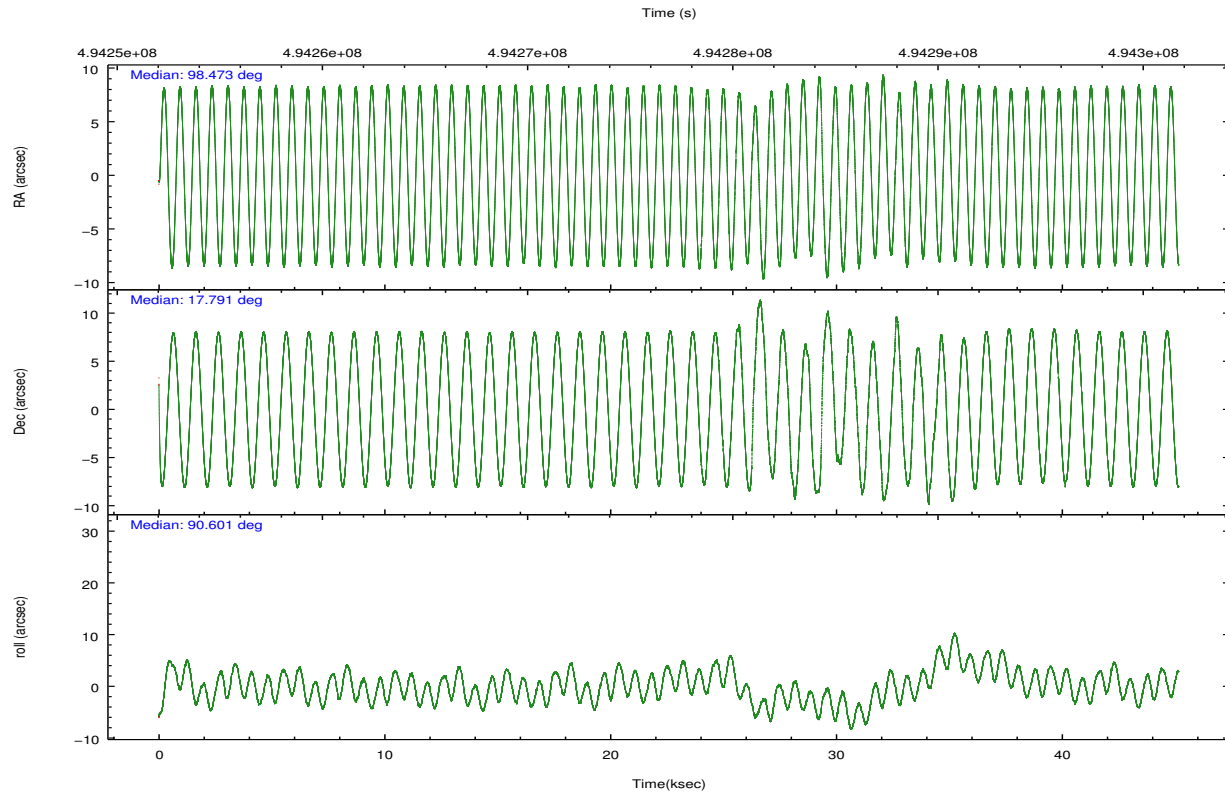
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 7
grade 0 events	9153	9582	8781	13476	11138
	4%	4%	4%	6%	3%
grade 1 events	95	103	114	165	339
	0%	0%	0%	0%	0%
grade 2 events	6330	6940	6241	5583	25778
	3%	3%	2%	2%	8%
grade 3 events	2668	2744	2398	2711	10879
	1%	1%	1%	1%	3%
grade 4 events	2560	2669	2463	2663	10749
	1%	1%	1%	1%	3%
grade 5 events	10158	10811	9221	11362	30126
	5%	5%	4%	5%	10%
grade 6 events	5185	5975	4816	5171	68076
	2%	3%	2%	2%	23%
grade 7 events	158578	156812	175748	170779	133811
	81%	80%	83%	80%	45%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01237	ACIS-01237	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	98.487930	98.47313616328972	CCD I2 on	Y	Y
[deg] Pointing Dec	17.767664	17.7912687243485	CCD I3 on	Y	Y
[deg] Pointing Roll	90.396305	90.60951087327307	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	N	N
[mm] SIM translation stage pos	-231.252463	-231.2566641762826	CCD S3 on	O1	Y
[mm] SIM translation stage offset	-2.34	-2.335788826647132	CCD S4 on	N	N
[s] Observation start time (MET)	494254456.184000	494253172.77243	CCD S5 on	N	N
Observation start date	2013-08-30T12:53:09	2013-08-30T12:32:52	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	494299456.184000	494300203.875	On-chip summing requested	N	N
Observation end date	2013-08-31T01:23:09	2013-08-31T01:36:43	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





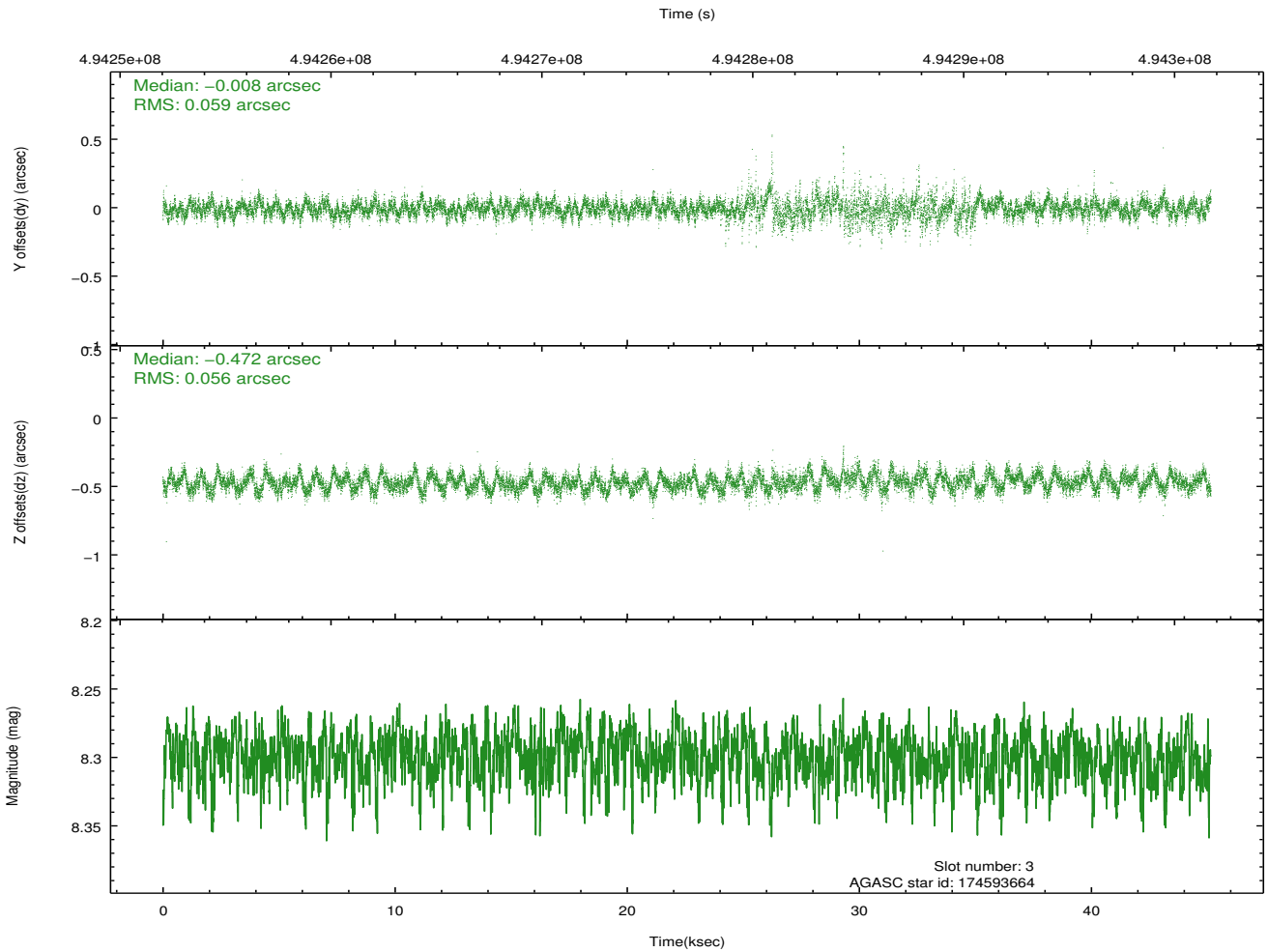
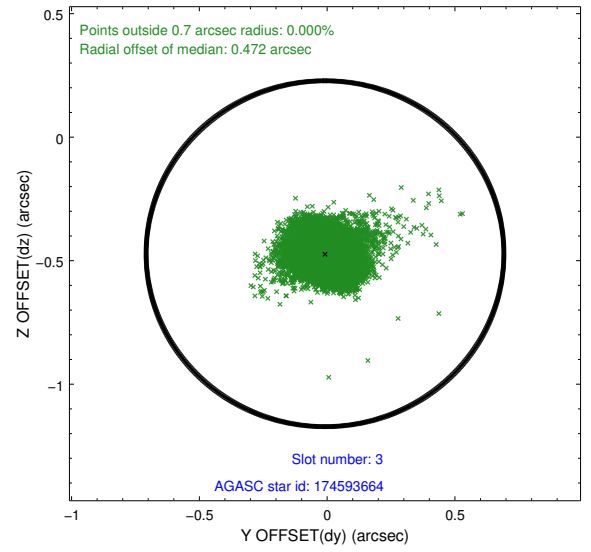
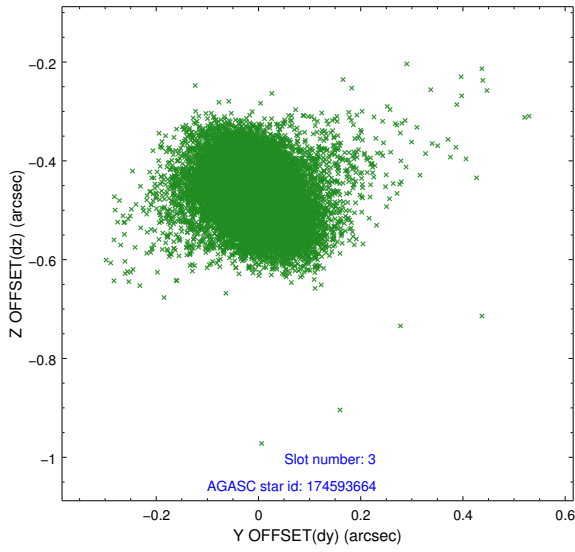
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-2	6.99	11014	-0.145	-0.029	0.014	0.024	0.000000	0.000000	-777.46	-898.48
1	FID		ACIS-I-4	6.99	11013	0.302	0.088	0.025	0.036	0.000000	0.000000	2136.98	1007.87
2	FID		ACIS-I-5	7.04	11015	-0.257	0.009	0.020	0.029	0.000000	0.000000	-1831.34	1005.23
3	GUIDE	used	174593664	8.30	22018	-0.008	-0.472	0.082	0.143	97.965949	17.333165	-1549.40	1804.31
4	GUIDE	used	174726936	7.74	22025	-0.142	-0.454	0.075	0.131	98.009571	17.665063	-356.45	1643.16
5	GUIDE	used	174730168	8.13	22018	-0.139	-0.034	0.073	0.128	98.803227	18.065078	1062.39	-1086.62
6	GUIDE	used	174731792	7.92	22022	0.103	0.347	0.080	0.136	98.964622	17.200033	-2052.36	-1624.81
7	GUIDE	used	174731032	8.86	22015	0.184	0.609	0.098	0.165	99.169475	17.388789	-1375.30	-2331.28

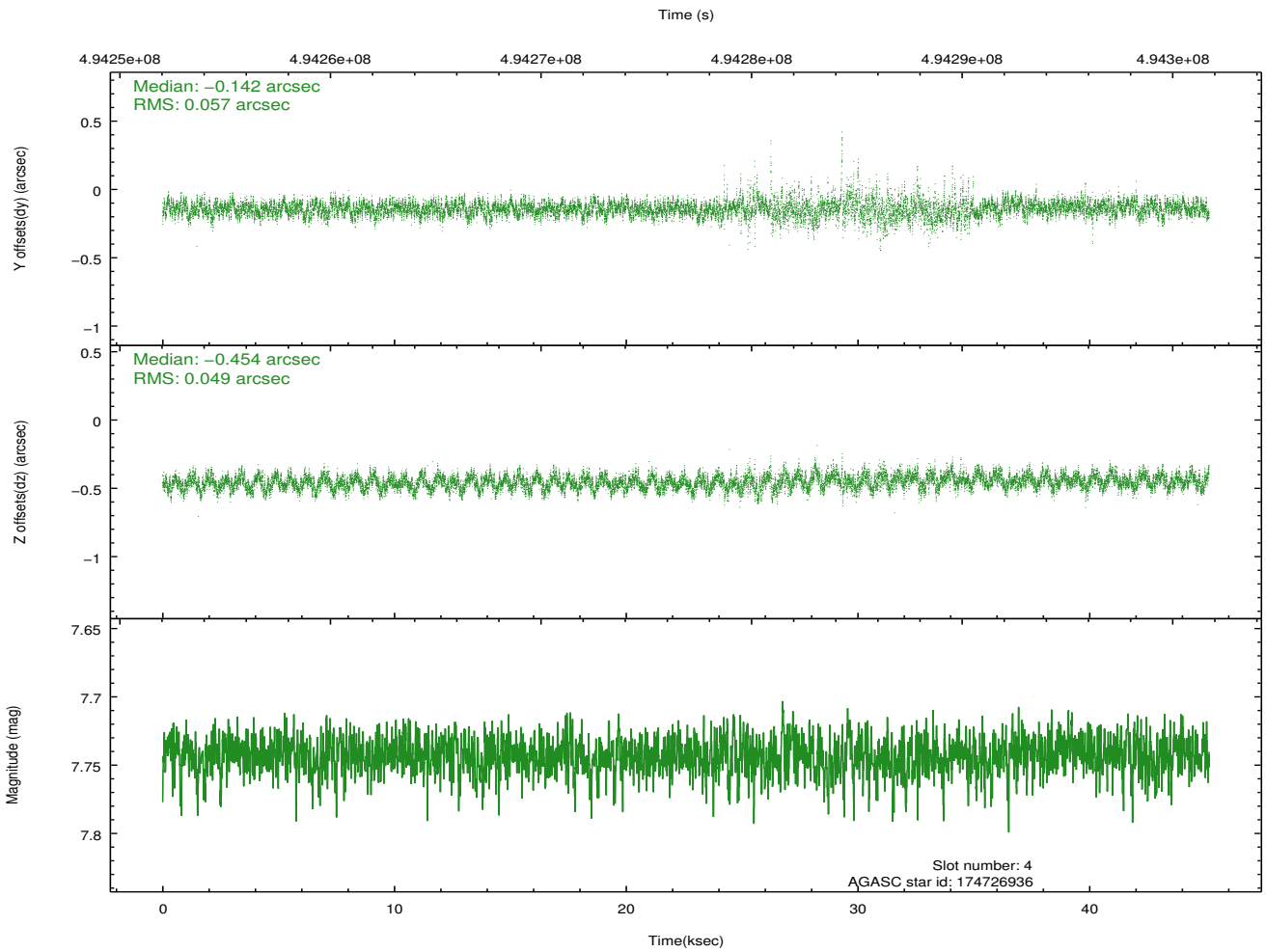
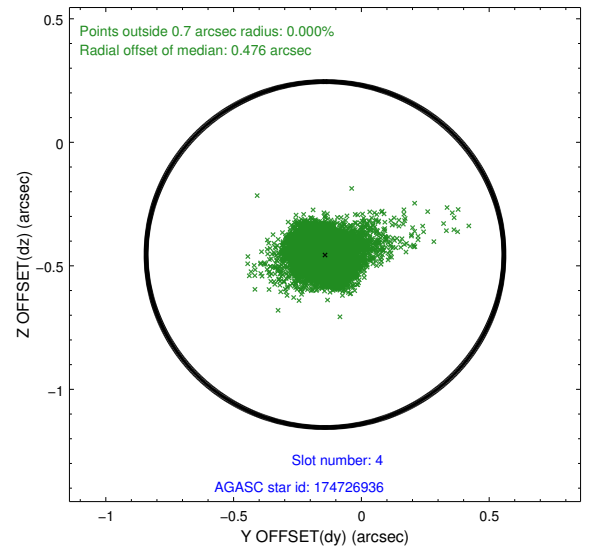
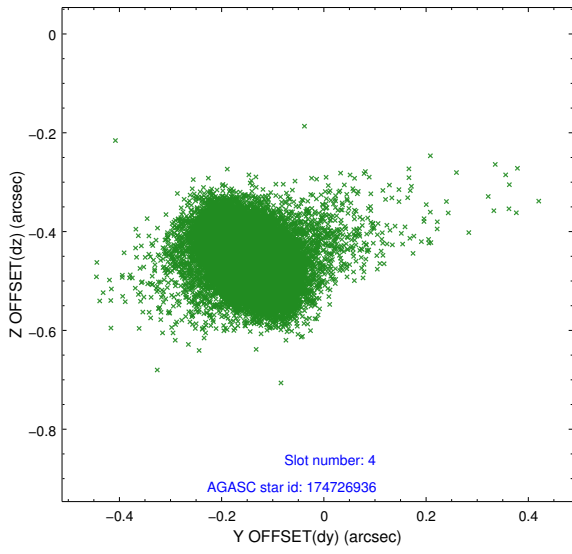
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## 2.4 Star Slots

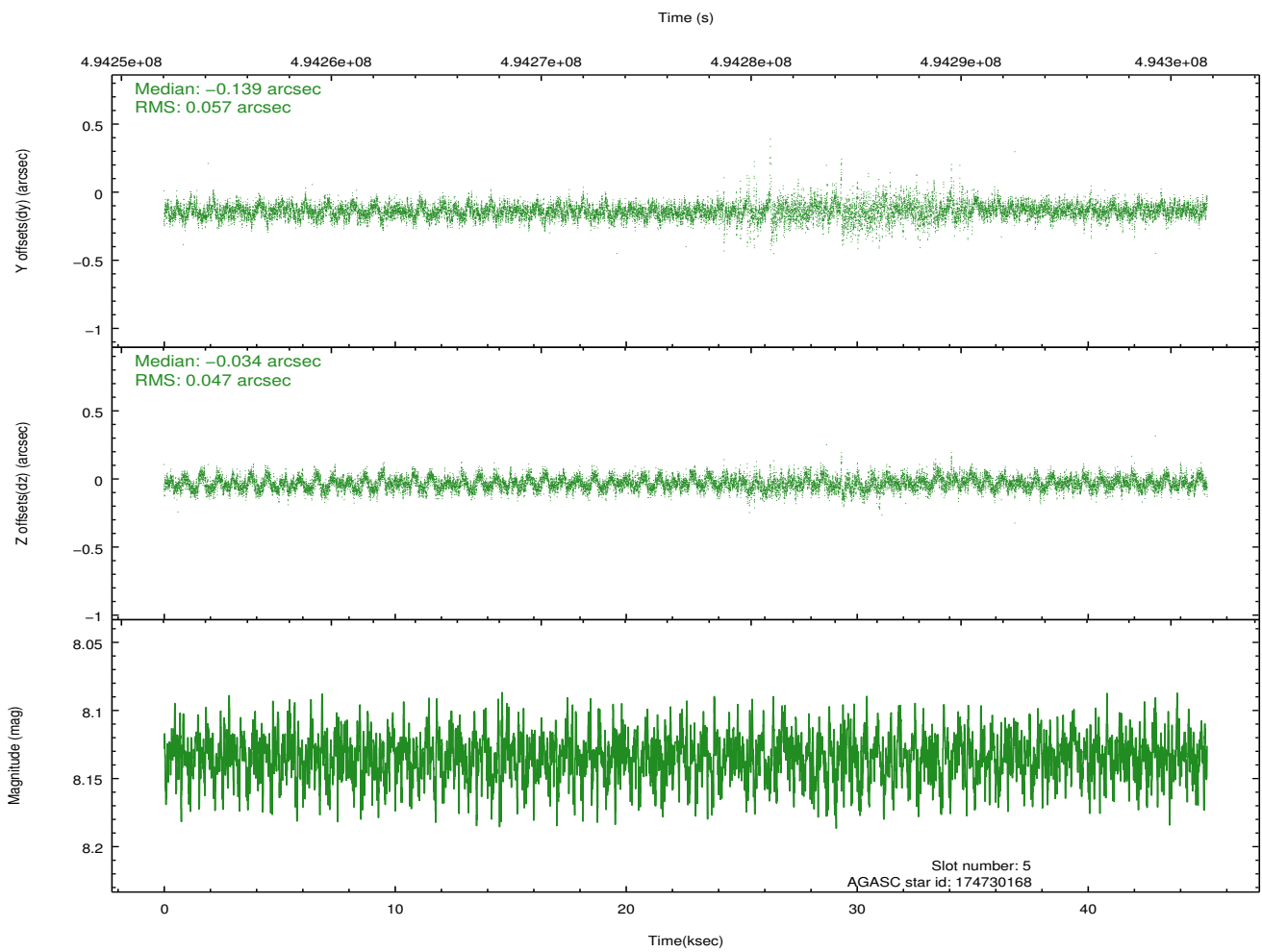
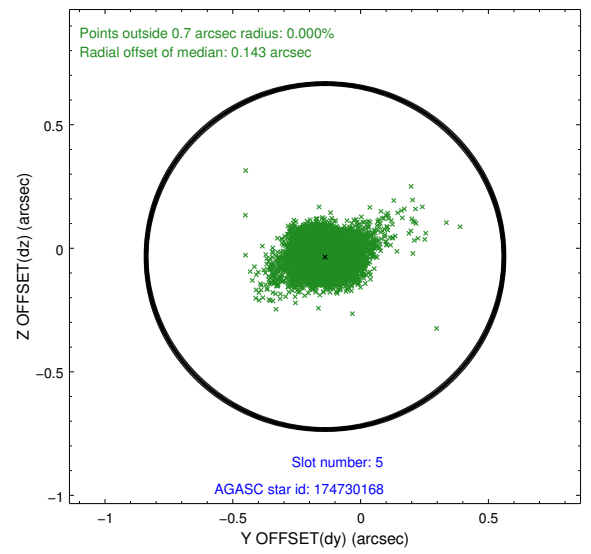
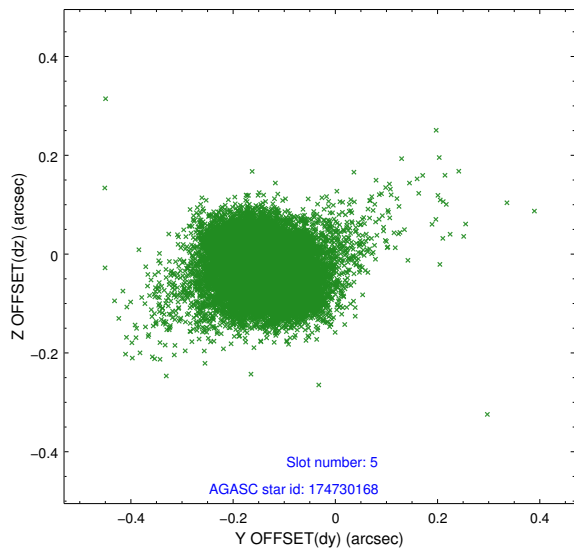
### 2.4.1 Slot 3



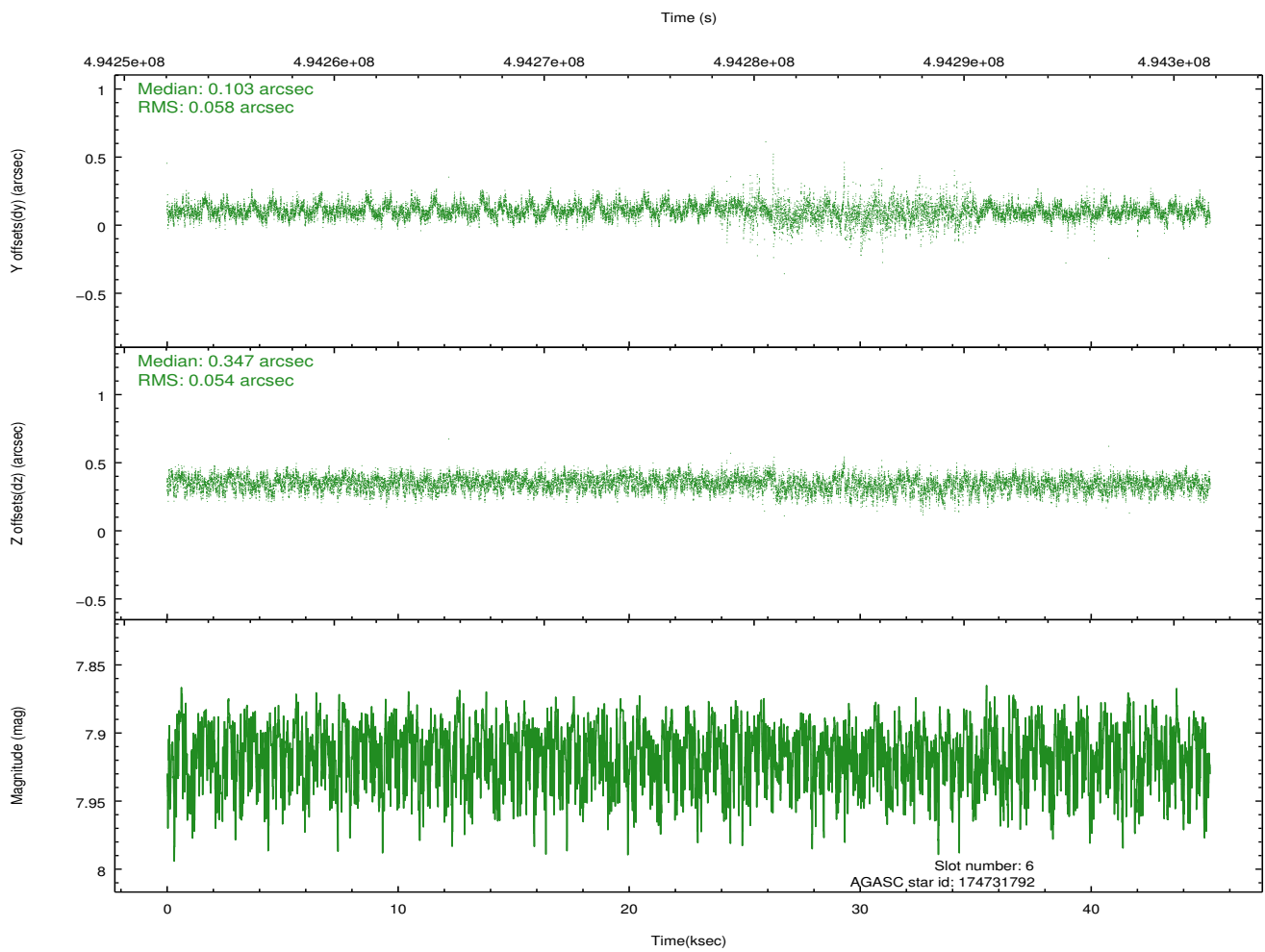
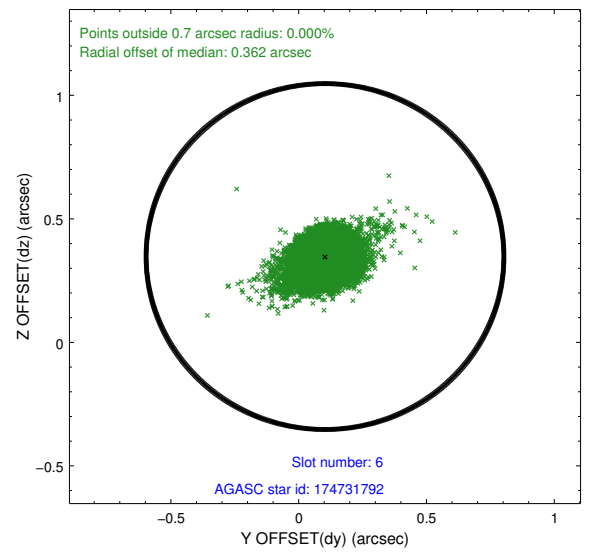
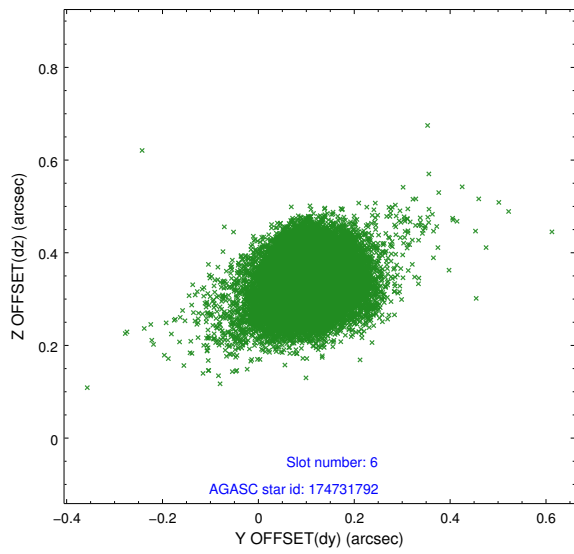
## 2.4.2 Slot 4



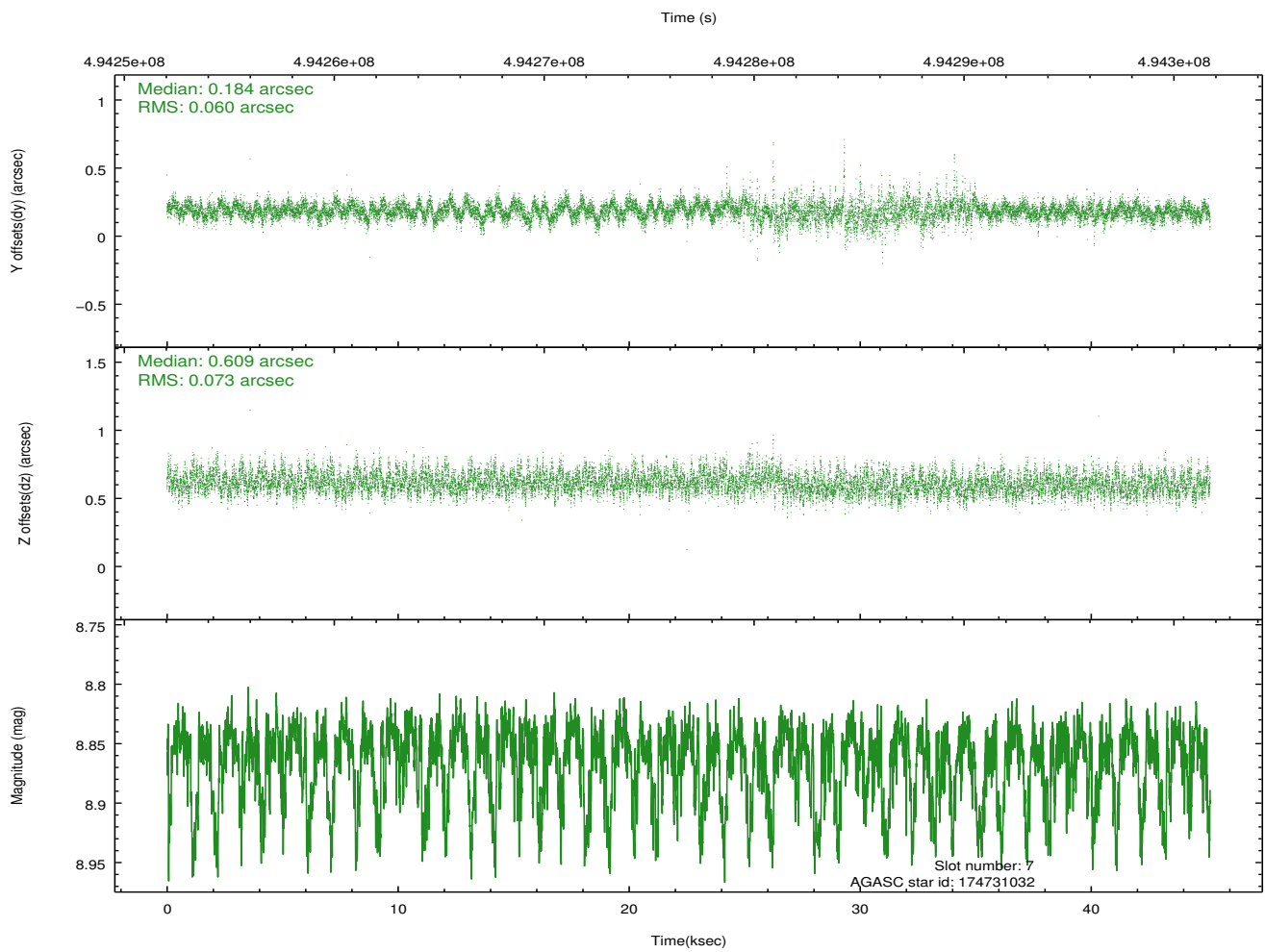
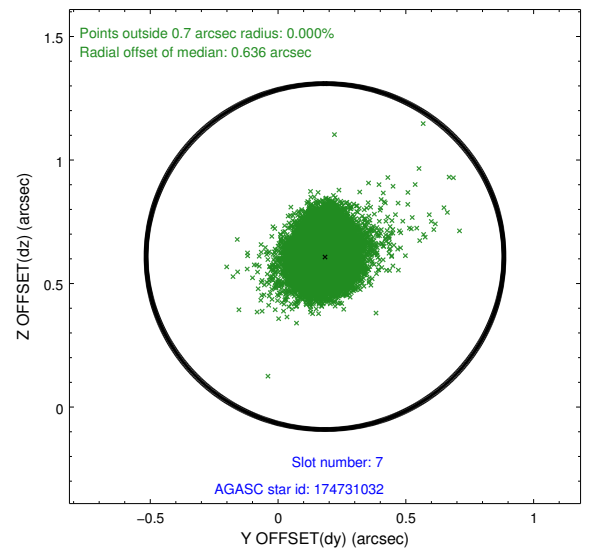
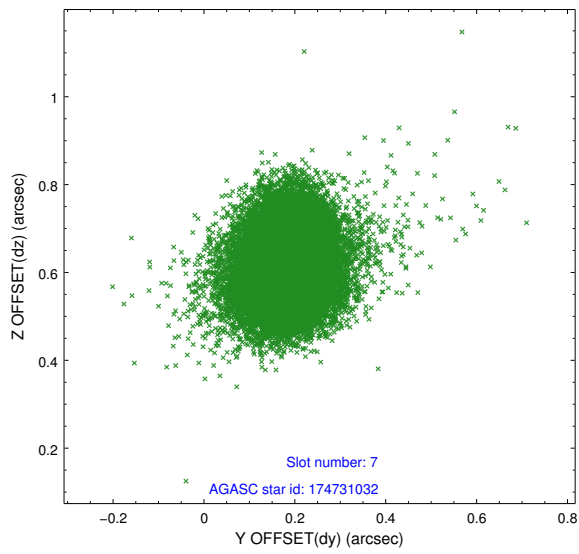
### 2.4.3 Slot 5



## 2.4.4 Slot 6

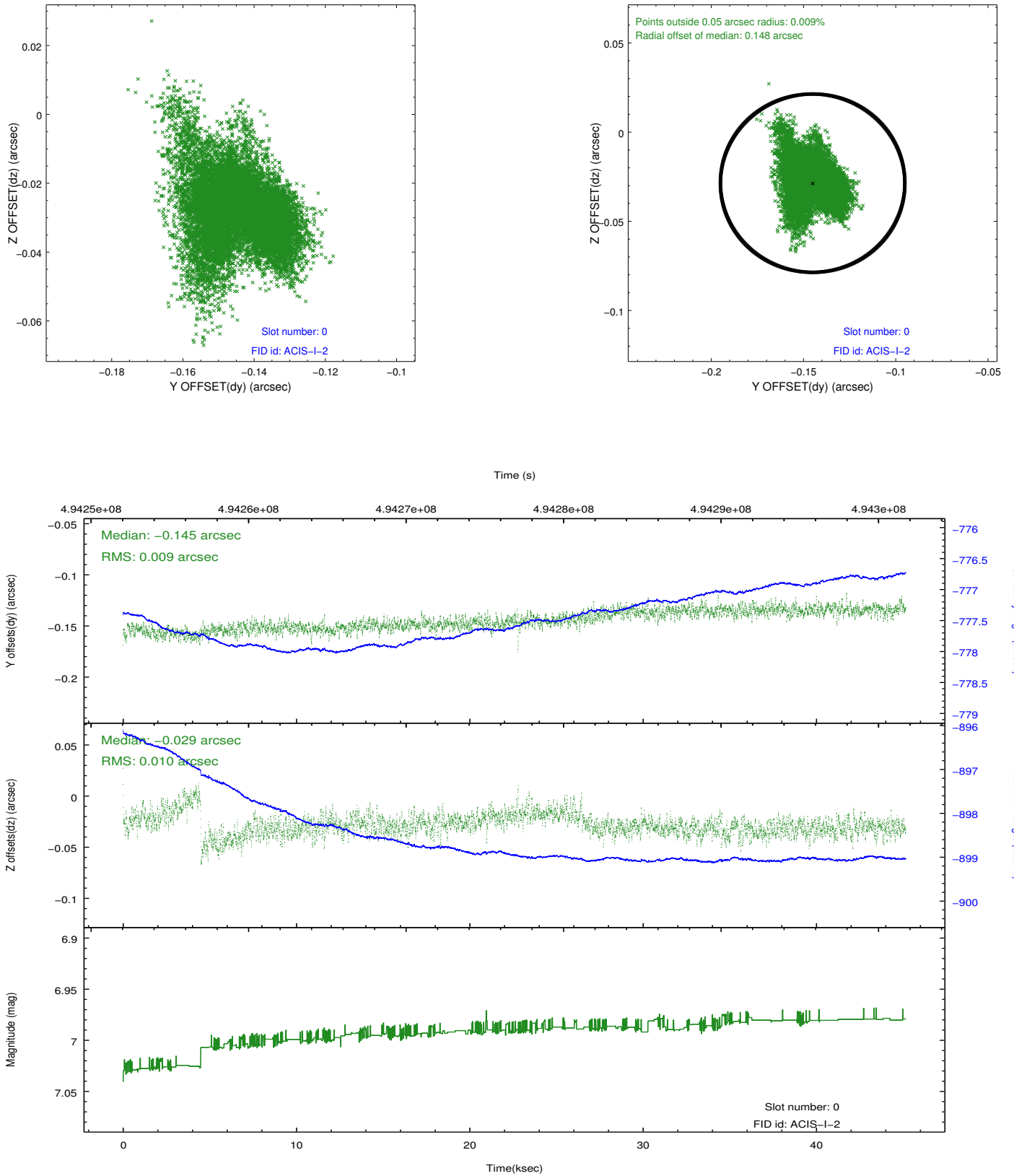


## 2.4.5 Slot 7

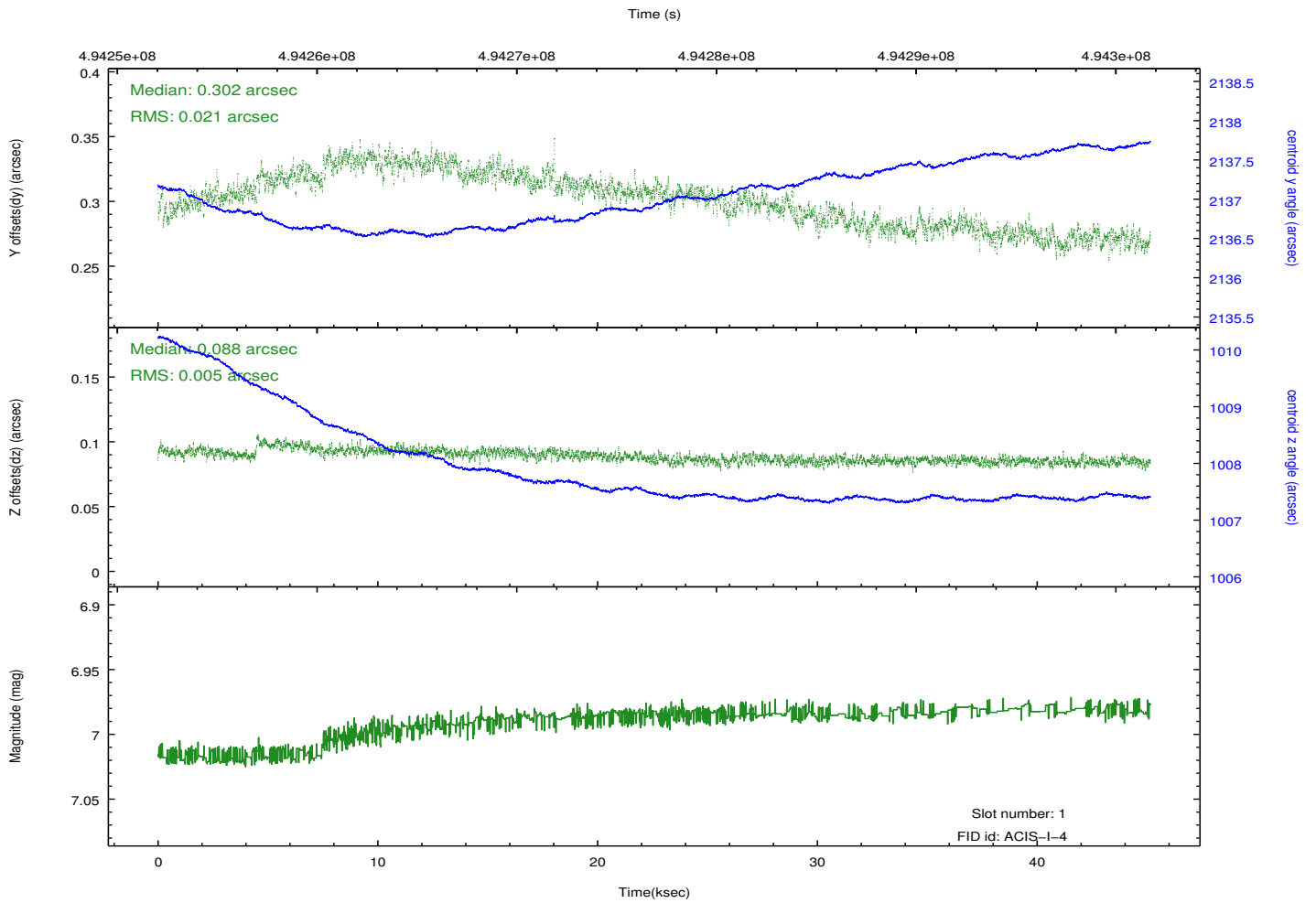
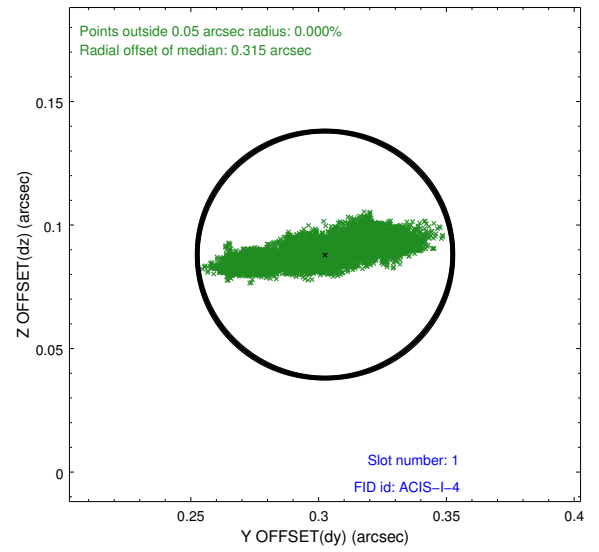
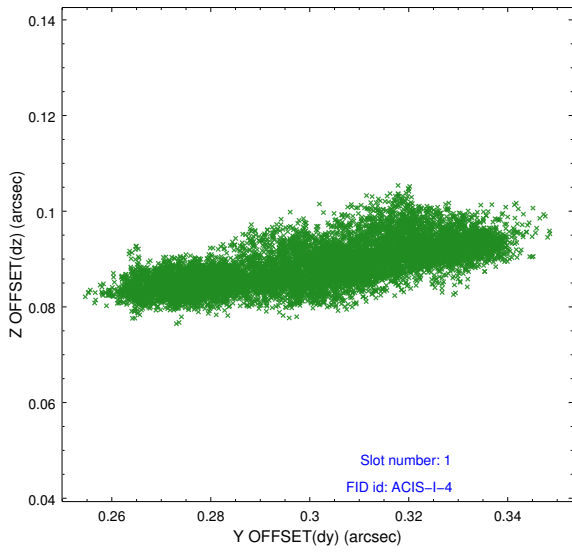


## 2.5 FID Slots

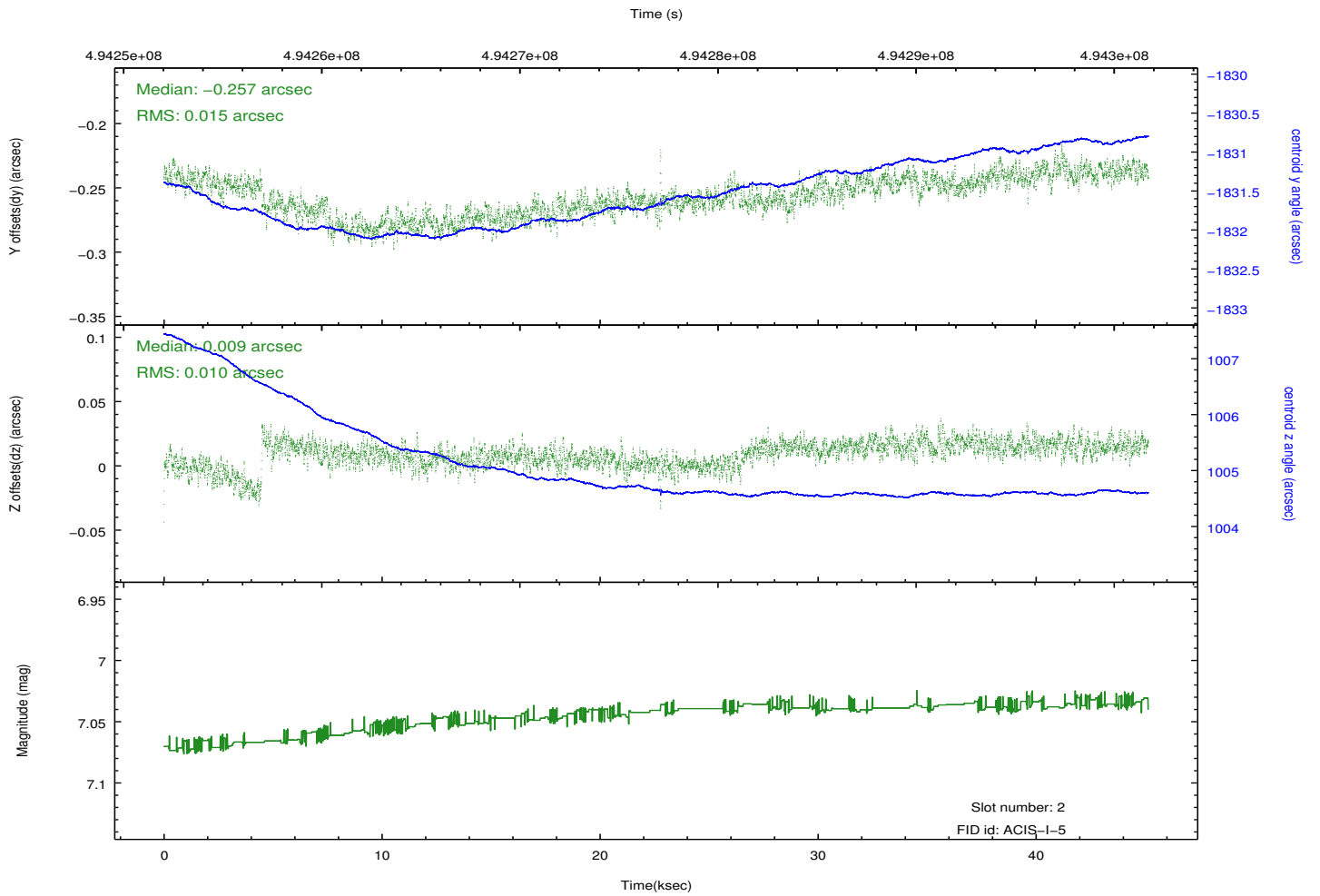
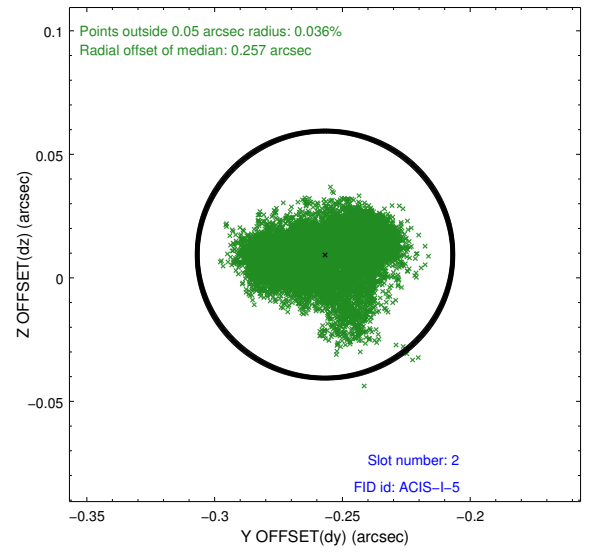
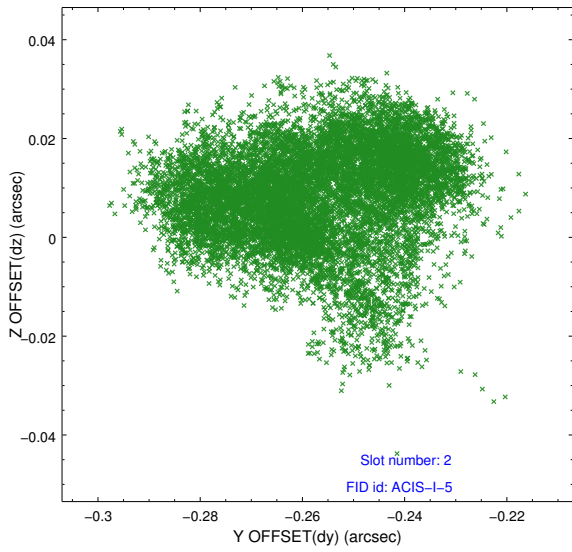
### 2.5.1 Slot 0



## 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)	2014.12.12
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	45.069380919993

## A.2 Comments

A jog or discontinuity in the gyro bias values occurred at about 2013:242:19:30 and continued for about 12 ksec. During this period the centroid residuals for the guide stars increase significantly. However, the Aspect solution still easily meets requirements and is acceptable.

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These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.