

# V&V Reference Report

## L2 ASCDS Version : 10.2.1

Observation 15137 - L2 Version 2  
Chandra X-Ray Center

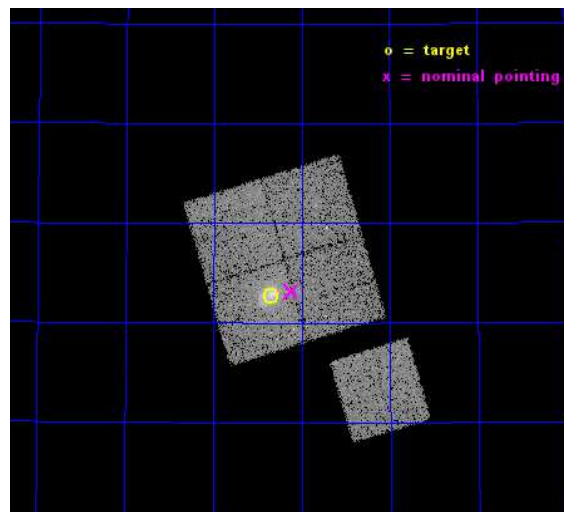
L2 Processing Date : Dec 9 2014

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# 1 Front

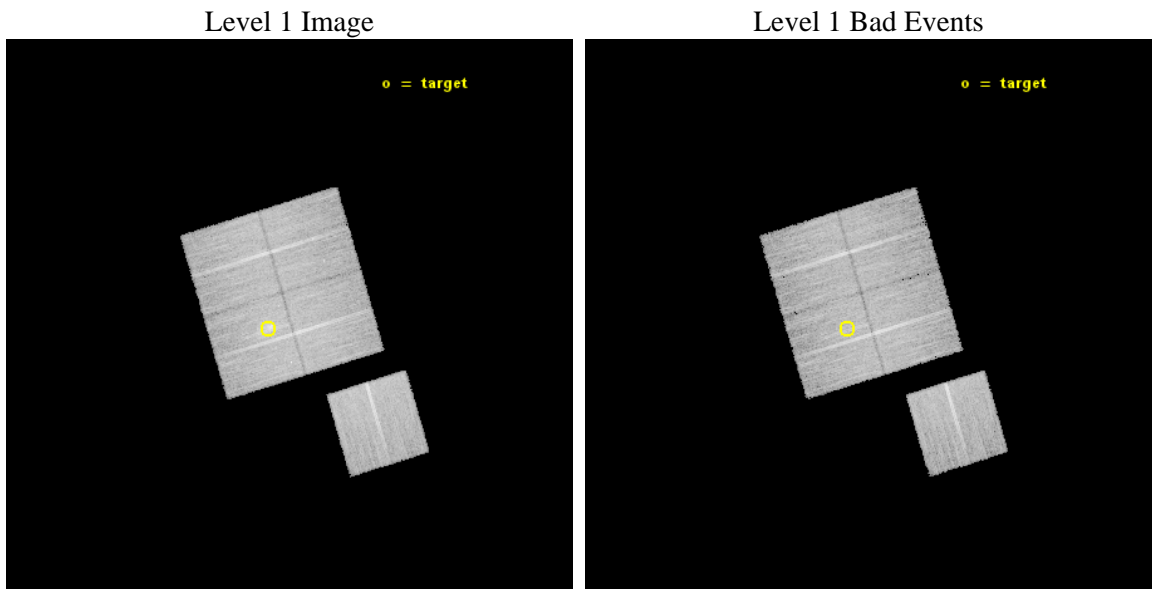
seq_num	801266	Sequence number
obs_id	15137	Observation id
title	A Chandra-Planck Legacy Program for Massive Clusters of Galaxies	P
observer	Dr. Christine Jones	Principal investigator
object	G164.61+46.39	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	144.589167	Observer's specified target RA [deg]
dec_targ	52.044	Observer's specified target Dec [deg]
ra_nom	144.52938263239	Nominal RA [deg]
dec_nom	52.05269179645	Nominal Dec [deg]
roll_nom	163.25585196498	Nominal Roll [deg]
revision	2	Processing version of data
ontime	22089.290815473	Sum of GTIs [s]
livetime	21800.677969069	Livetime [s]
ontime0	22079.744484365	Sum of GTIs [s]
ontime1	22089.208735466	Sum of GTIs [s]
ontime2	22089.249775469	Sum of GTIs [s]
ontime3	22089.290815473	Sum of GTIs [s]
ontime6	22089.126655459	Sum of GTIs [s]
l2events	56277	Number of level 2 events



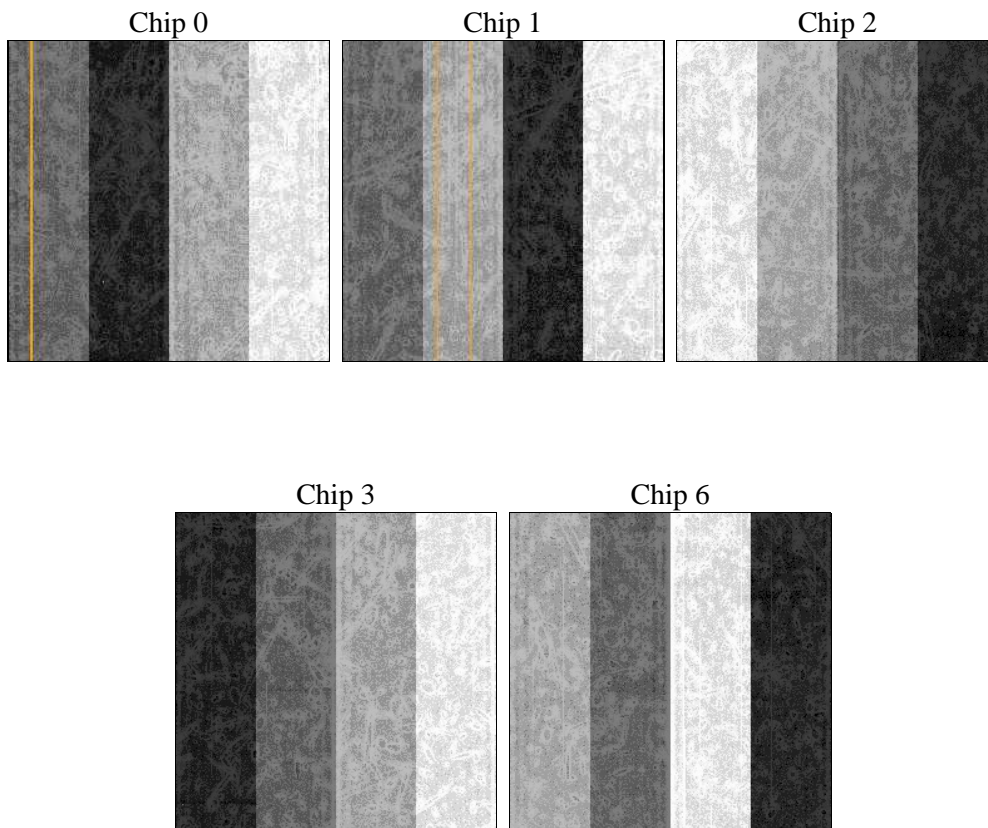
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	22004.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	22089.290815473	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime0	22079.744484365	Sum of GTIs [s]
date	2014-12-10T02:35:17	Date and time of file creation	ontime1	22089.208735466	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	22089.249775469	Sum of GTIs [s]
			ontime3	22089.290815473	Sum of GTIs [s]
			ontime6	22089.126655459	Sum of GTIs [s]
			l1events	513843	Number of level 1 events

### 2.1.4 Events

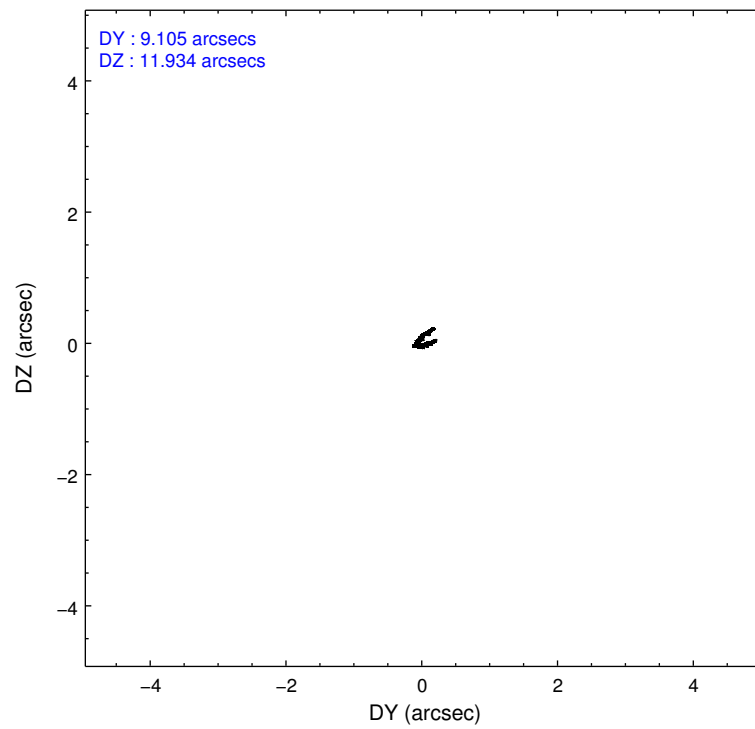
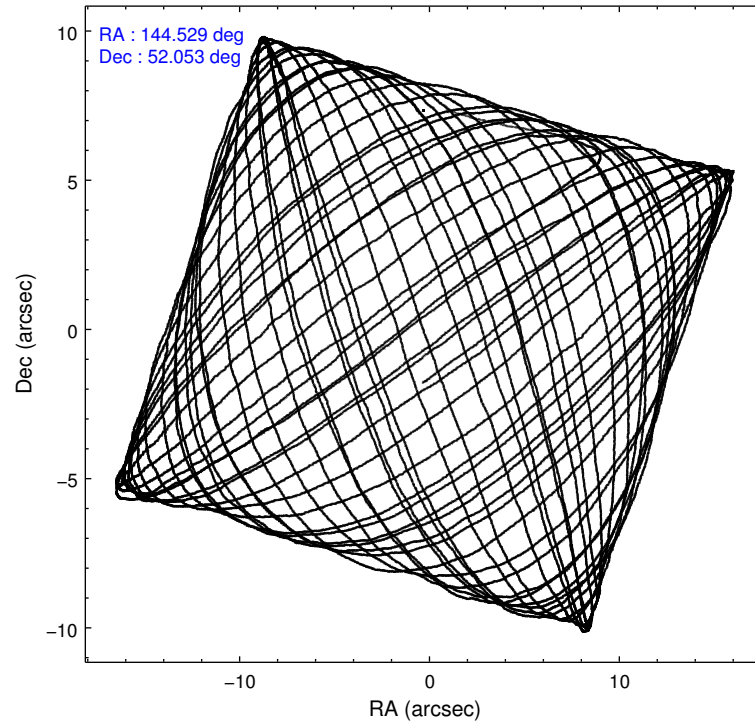
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	95228	99650	105483	107289	106193
rejected events	83172	86699	93821	90813	94062
rejected %	87%	87%	88%	84%	88%

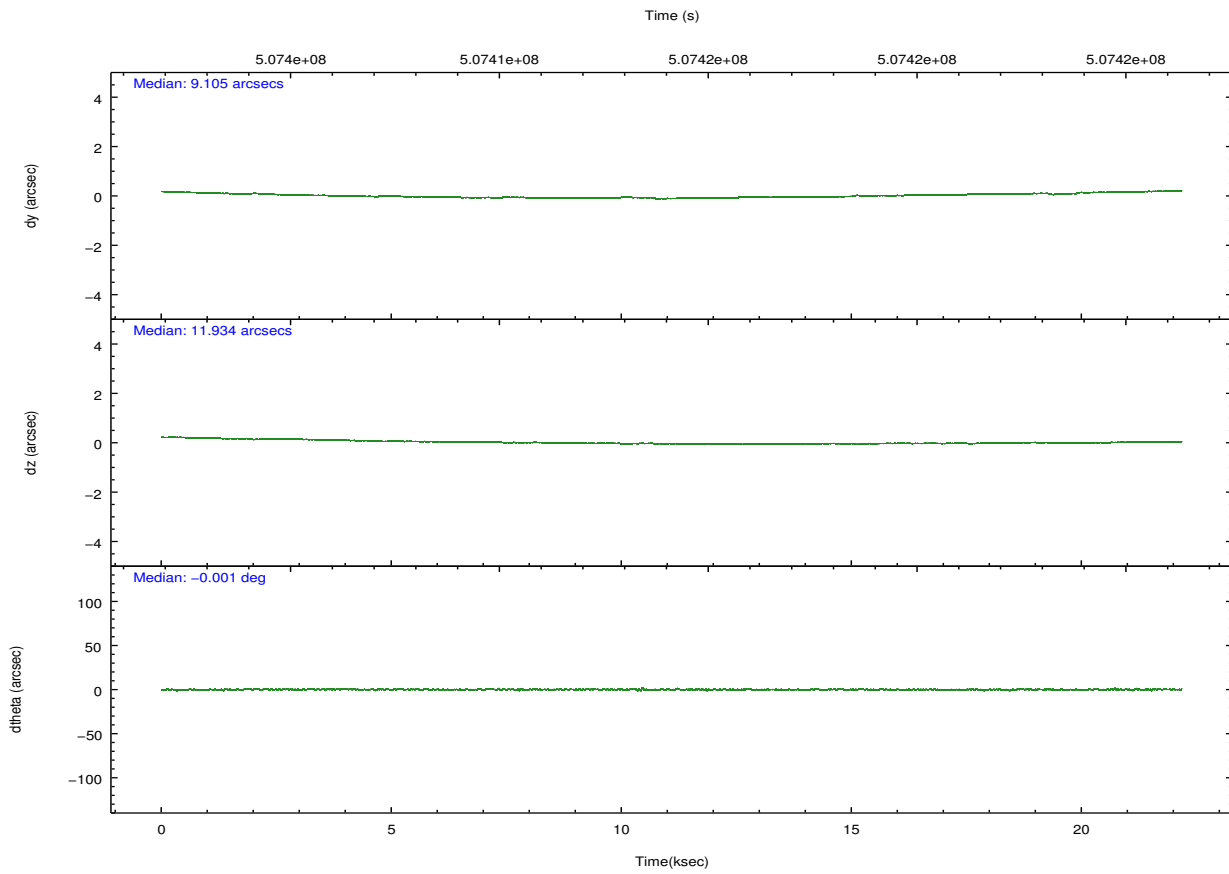
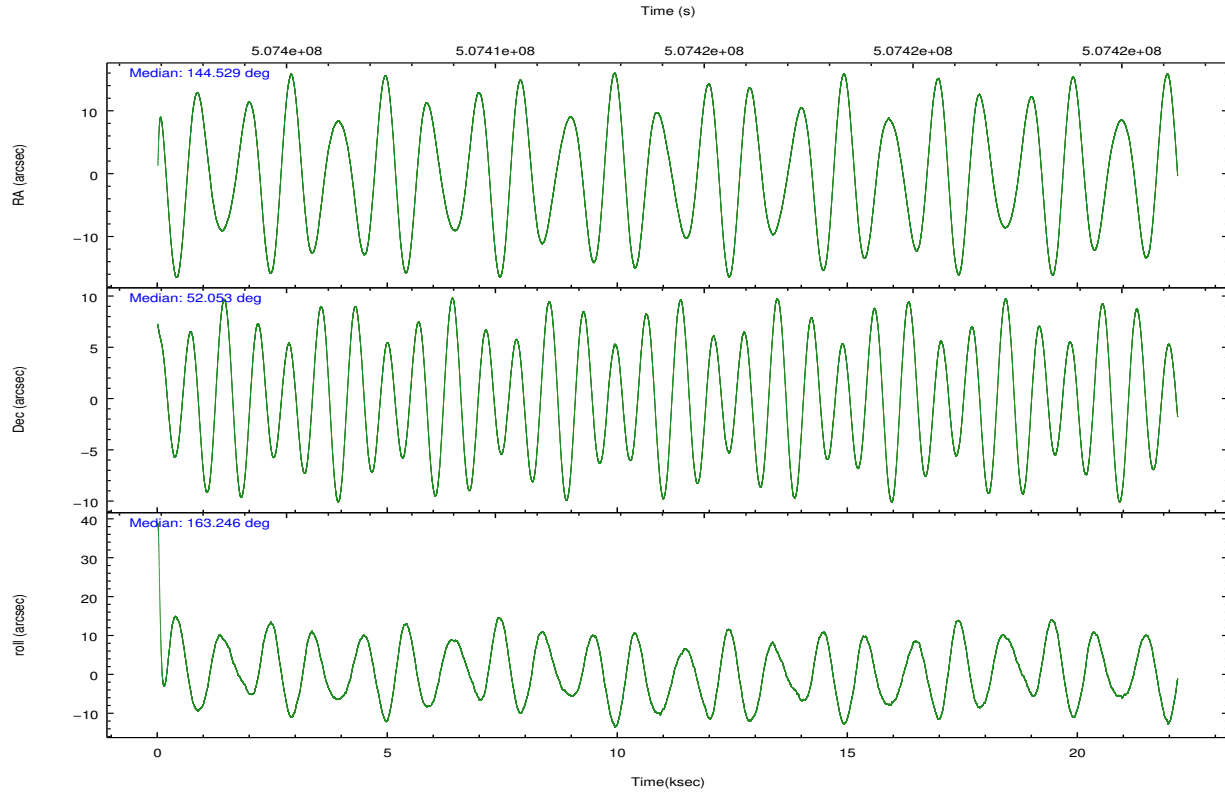
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	4125	4306	4184	8112	3902
	4%	4%	3%	7%	3%
grade 1 events	62	46	68	72	49
	0%	0%	0%	0%	0%
grade 2 events	2898	3090	2730	2983	2819
	3%	3%	2%	2%	2%
grade 3 events	1316	1234	1179	1336	1219
	1%	1%	1%	1%	1%
grade 4 events	1144	1183	1201	1447	1219
	1%	1%	1%	1%	1%
grade 5 events	4840	5036	4588	5623	5106
	5%	5%	4%	5%	4%
grade 6 events	2576	3140	2371	2602	2980
	2%	3%	2%	2%	2%
grade 7 events	78267	81615	89162	85114	88899
	82%	81%	84%	79%	83%

## 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	144.572854	144.5293826323868	CCD I2 on	Y	Y
[deg] Pointing Dec	52.059097	52.05269179645021	CCD I3 on	Y	Y
[deg] Pointing Roll	163.012852	163.2558519649763	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	-225.842463	-225.8458576473255	CCD S3 on	N	N
[mm] SIM translation stage offset	-7.75	-7.746595355604228	CCD S4 on	N	N
[s] Observation start time (MET)	507403217.184000	507401866.31785	CCD S5 on	N	N
Observation start date	2014-01-29T17:19:10	2014-01-29T16:57:46	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	507425221.184000	507426146.51919	On-chip summing requested	N	N
Observation end date	2014-01-29T23:25:54	2014-01-29T23:42:26	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



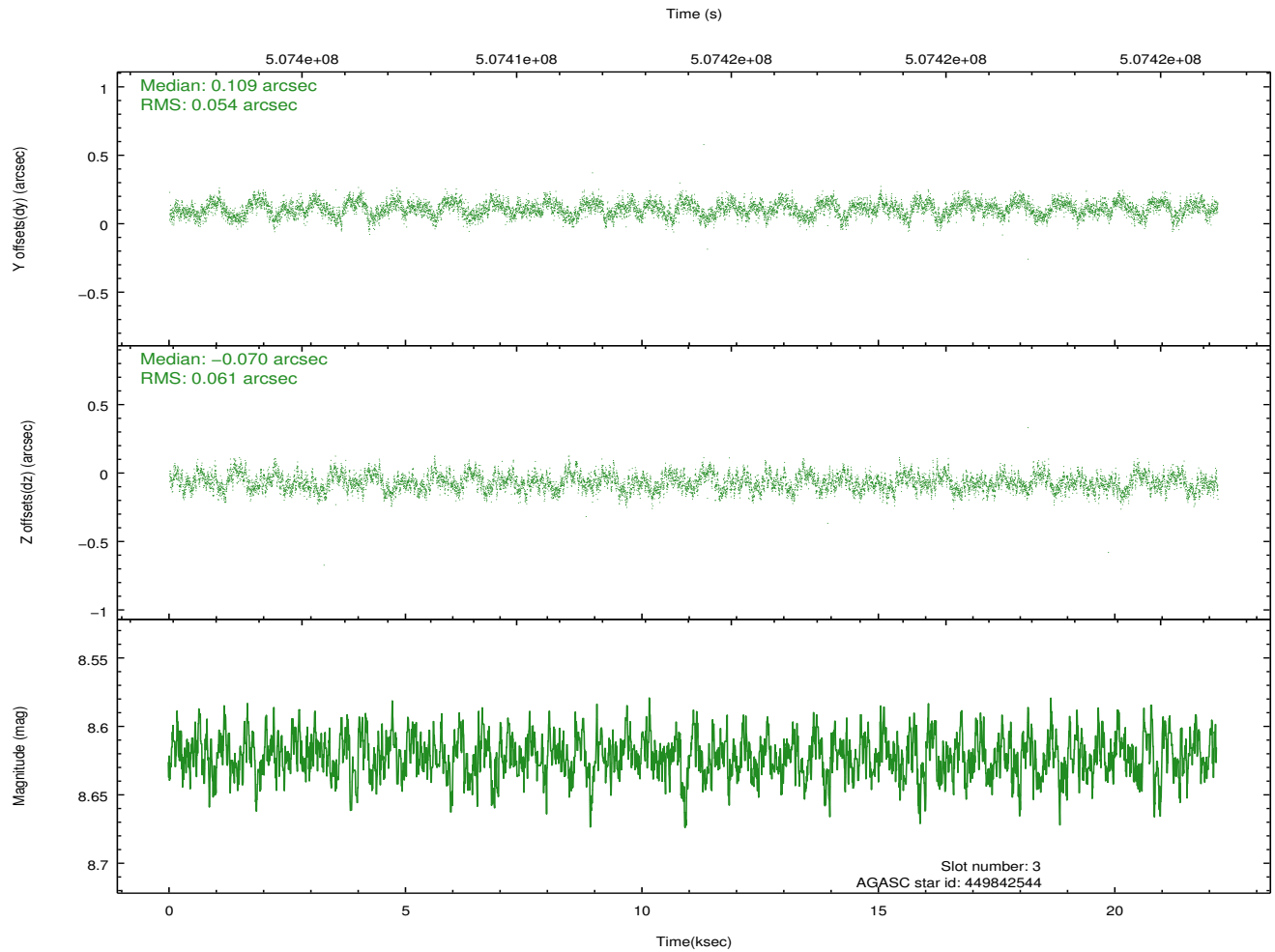
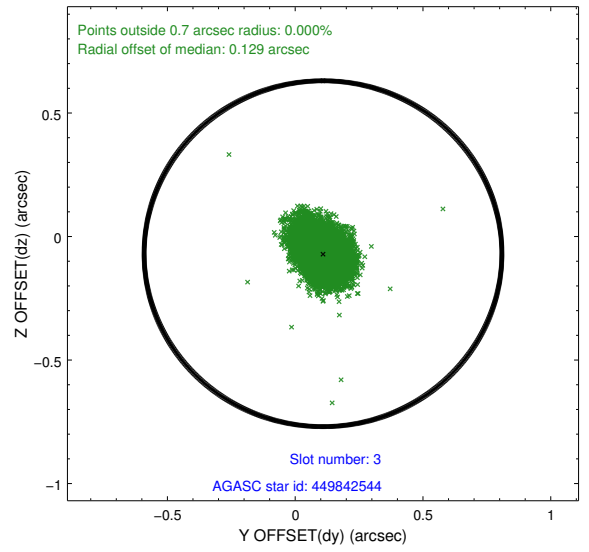
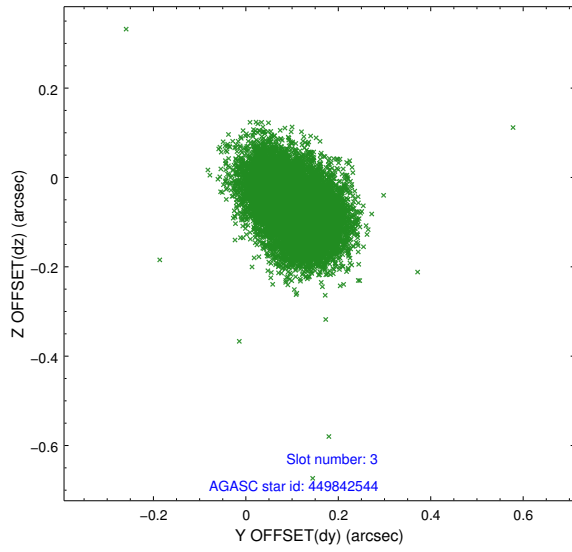


### Slot Statistics

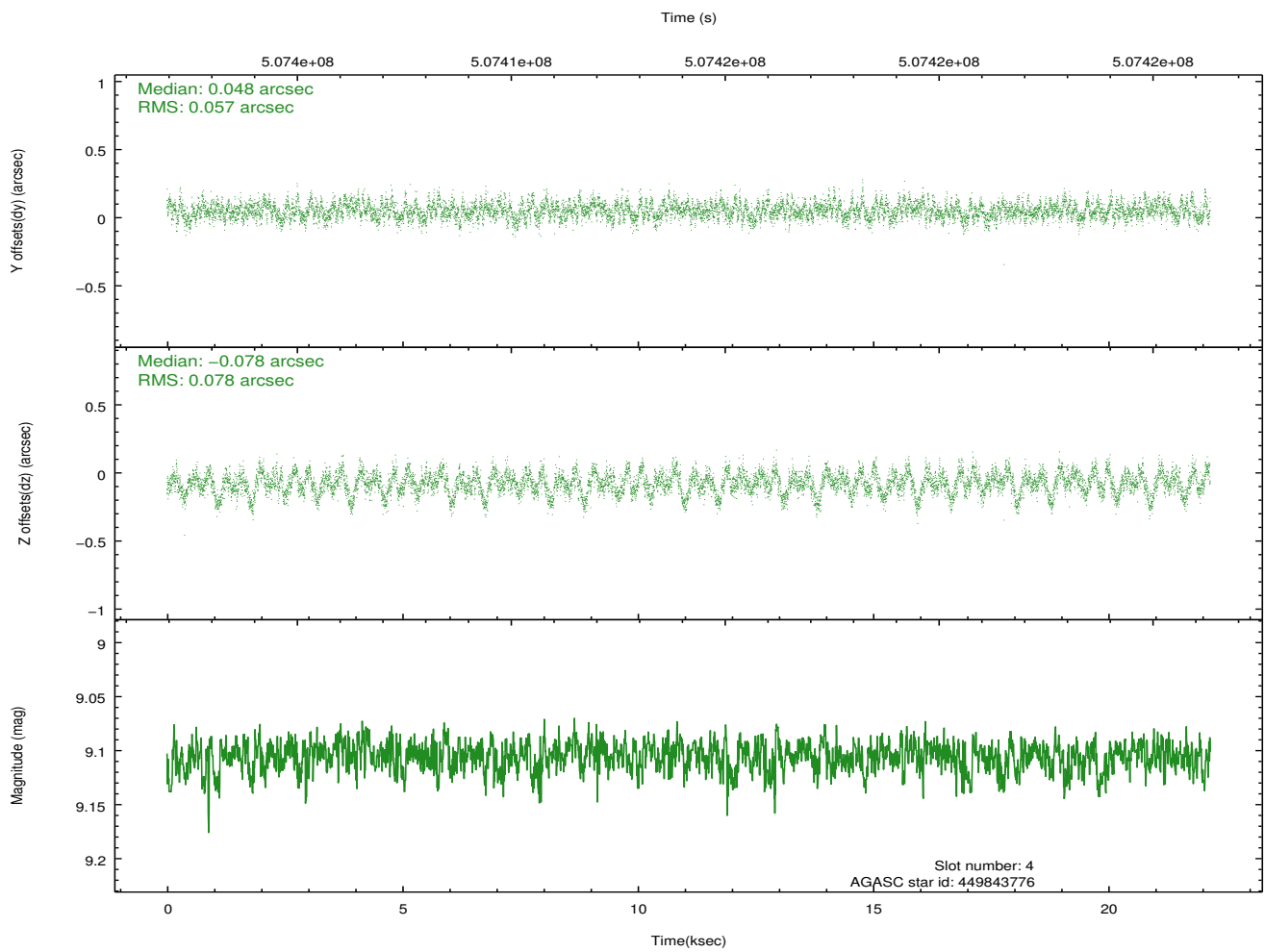
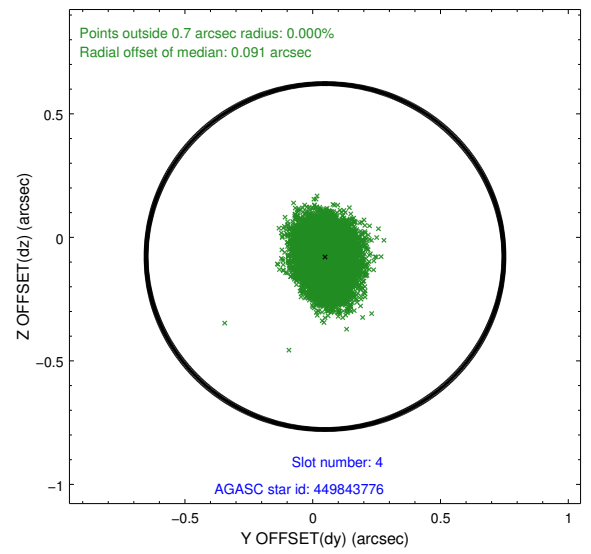
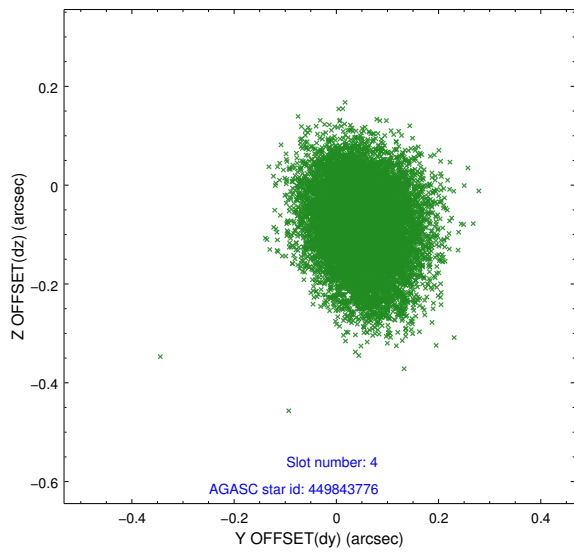
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.21	5407	0.176	-0.155	0.007	0.019	0.000000	0.000000	930.53	-994.67
1	FID		ACIS-I-5	7.19	5407	-0.295	0.141	0.007	0.012	0.000000	0.000000	-1817.95	903.03
2	FID		ACIS-I-6	7.22	5407	0.028	0.085	0.008	0.014	0.000000	0.000000	395.78	1547.64
3	GUIDE	used	449842544	8.62	10812	0.109	-0.070	0.087	0.137	144.787223	52.326058	-169.75	-1056.33
4	GUIDE	used	449843776	9.10	10809	0.048	-0.078	0.104	0.167	145.003350	51.524715	-1483.39	1555.75
5	GUIDE	used	449843800	7.99	10810	-0.133	0.160	0.072	0.111	145.360838	52.113273	-1606.99	-703.55
6	GUIDE	used	449849376	9.65	10805	-0.012	-0.135	0.220	0.325	145.198524	51.350436	-2089.65	2023.26
7	GUIDE	used	498998576	8.26	10812	-0.010	0.122	0.093	0.149	145.260103	52.618763	-845.16	-2370.72

## 2.4 Star Slots

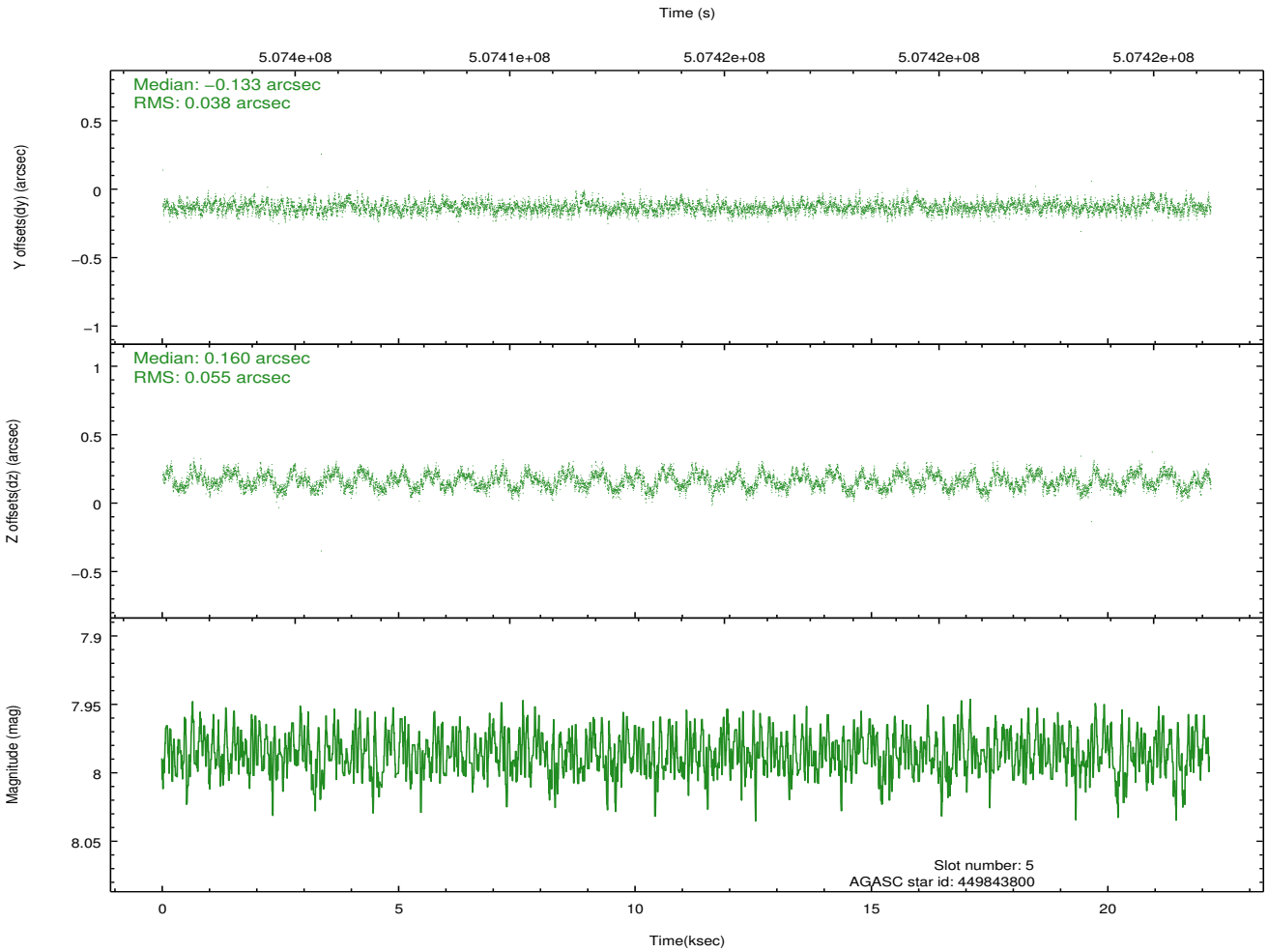
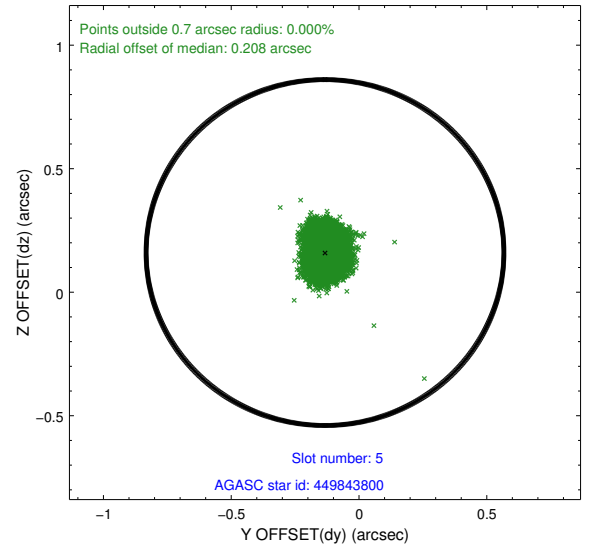
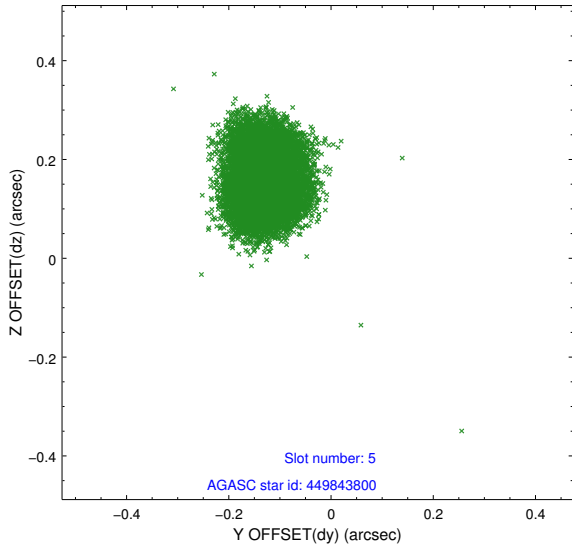
### 2.4.1 Slot 3



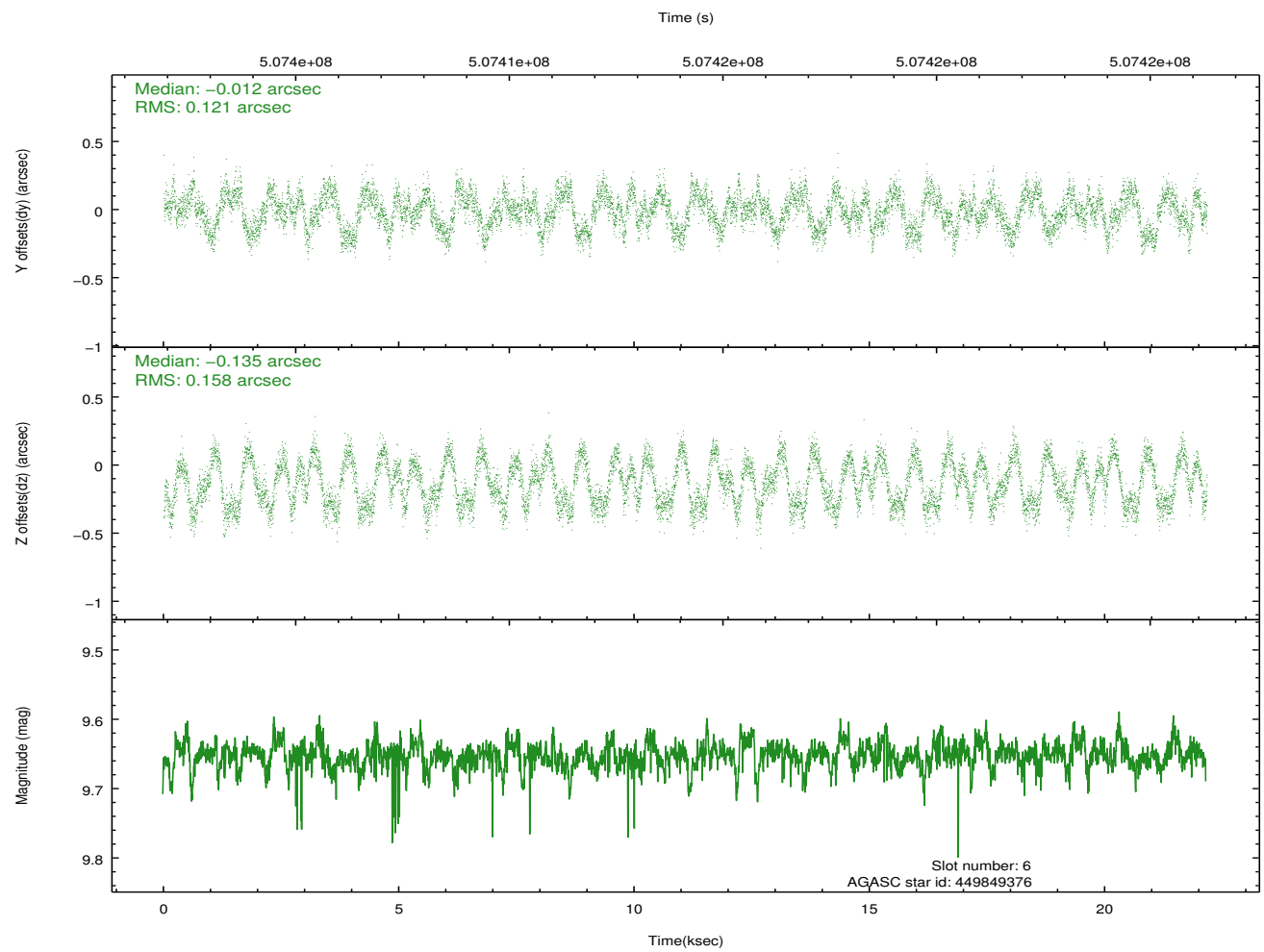
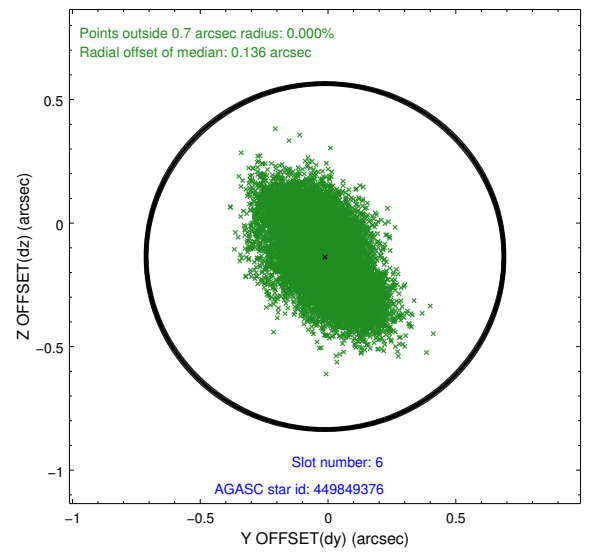
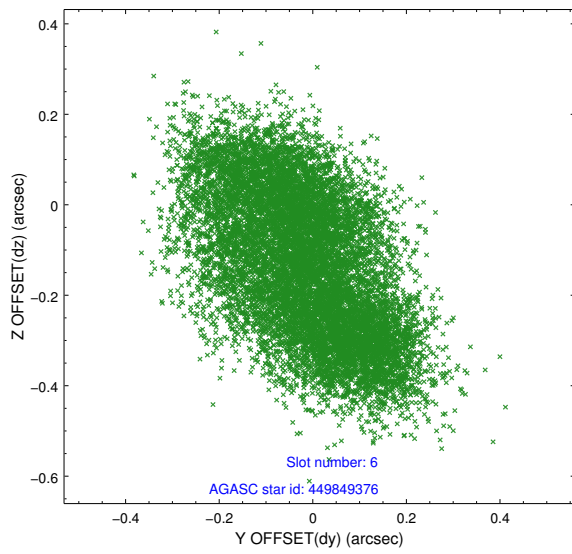
## 2.4.2 Slot 4



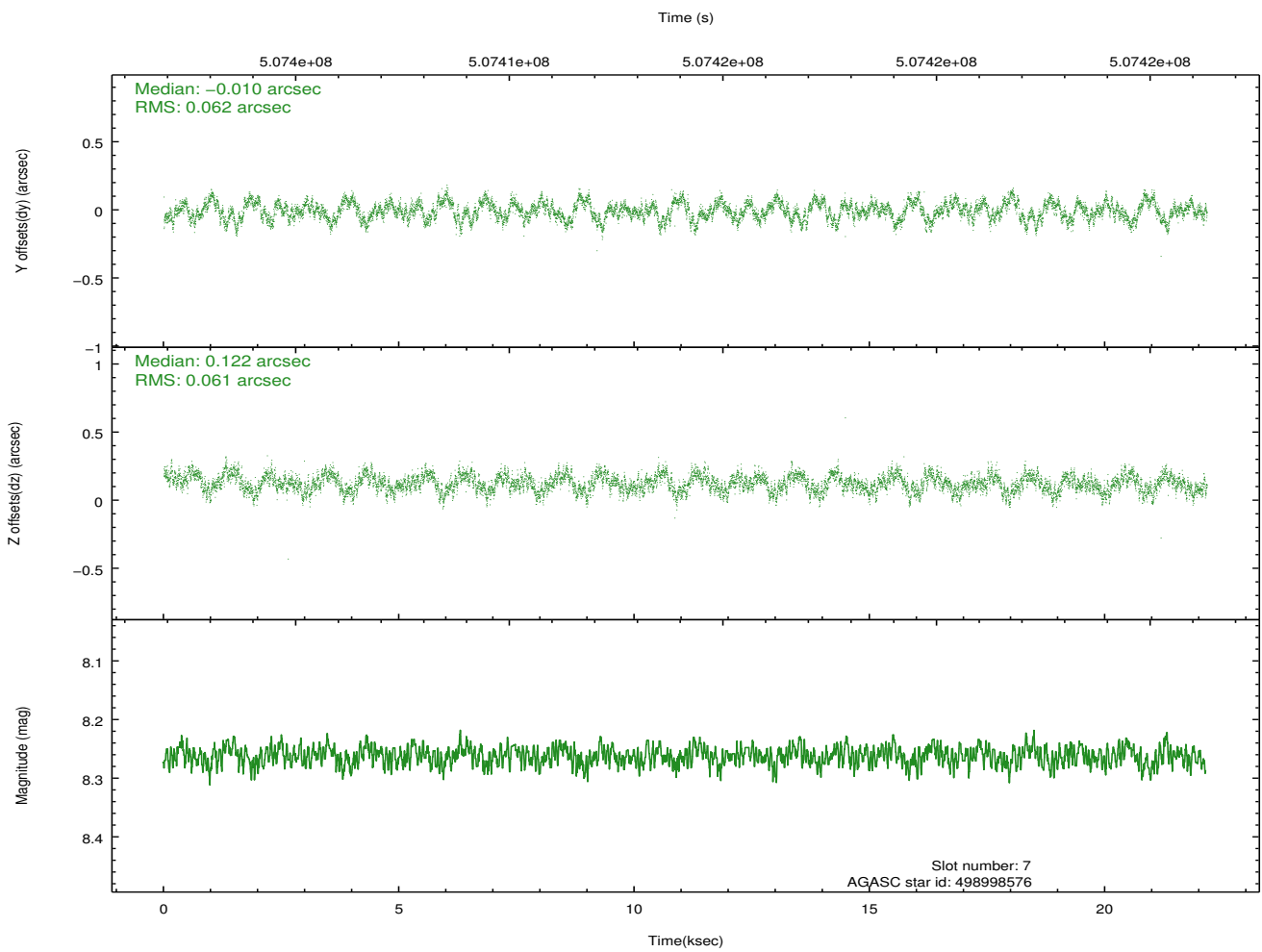
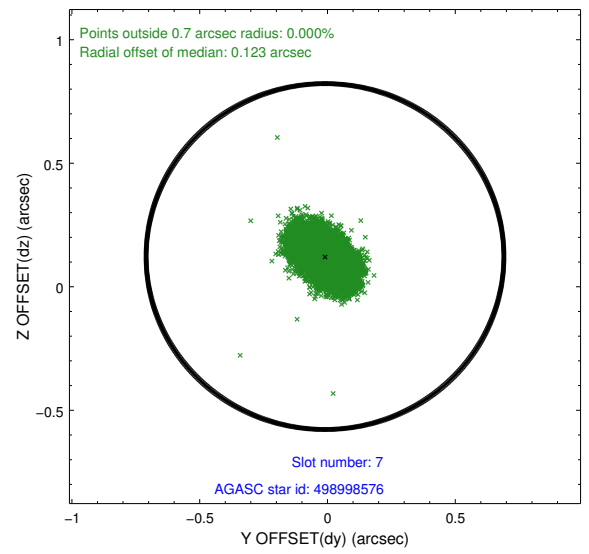
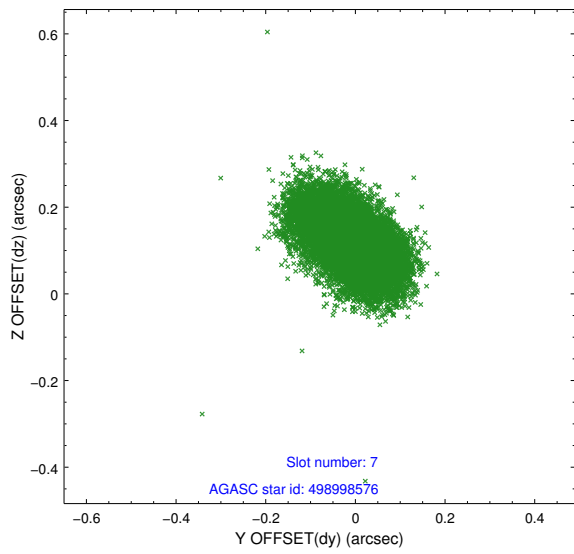
### 2.4.3 Slot 5



## 2.4.4 Slot 6

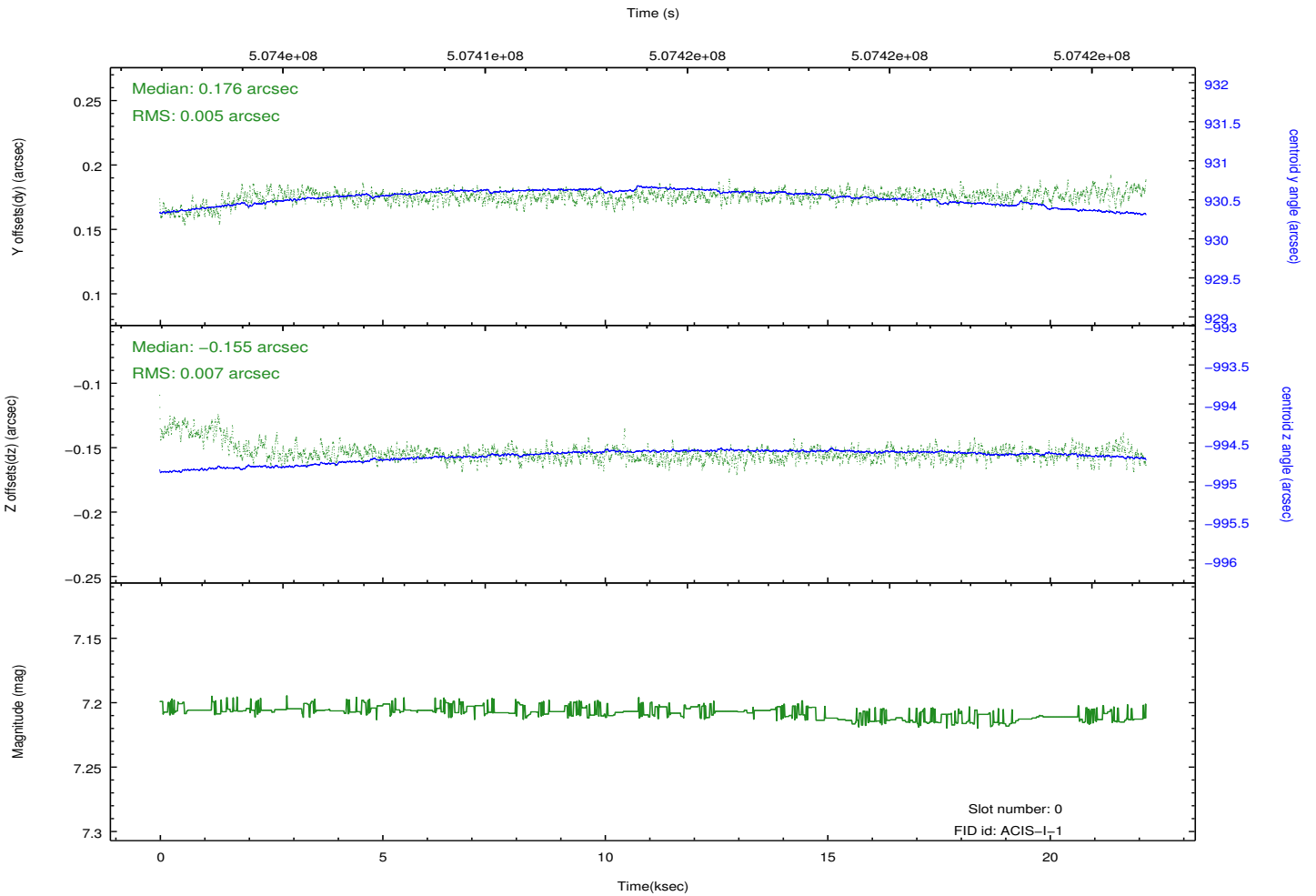
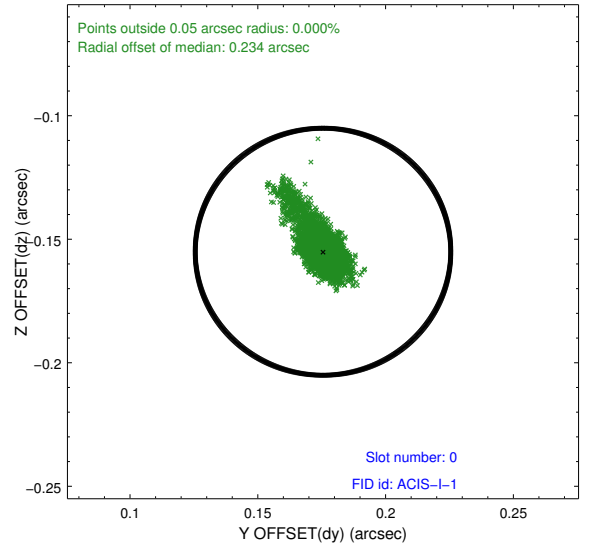
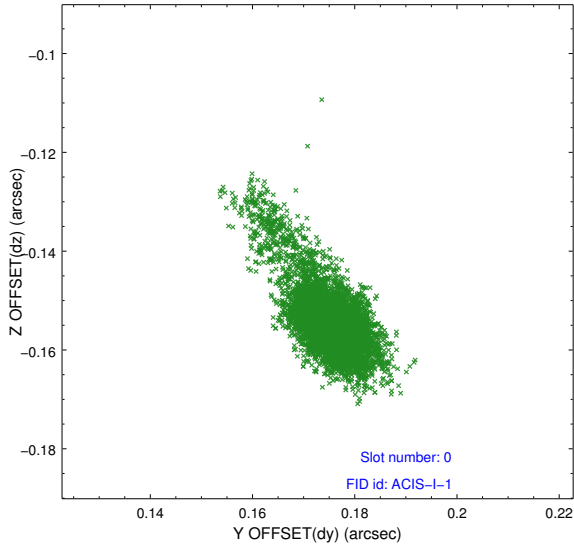


## 2.4.5 Slot 7

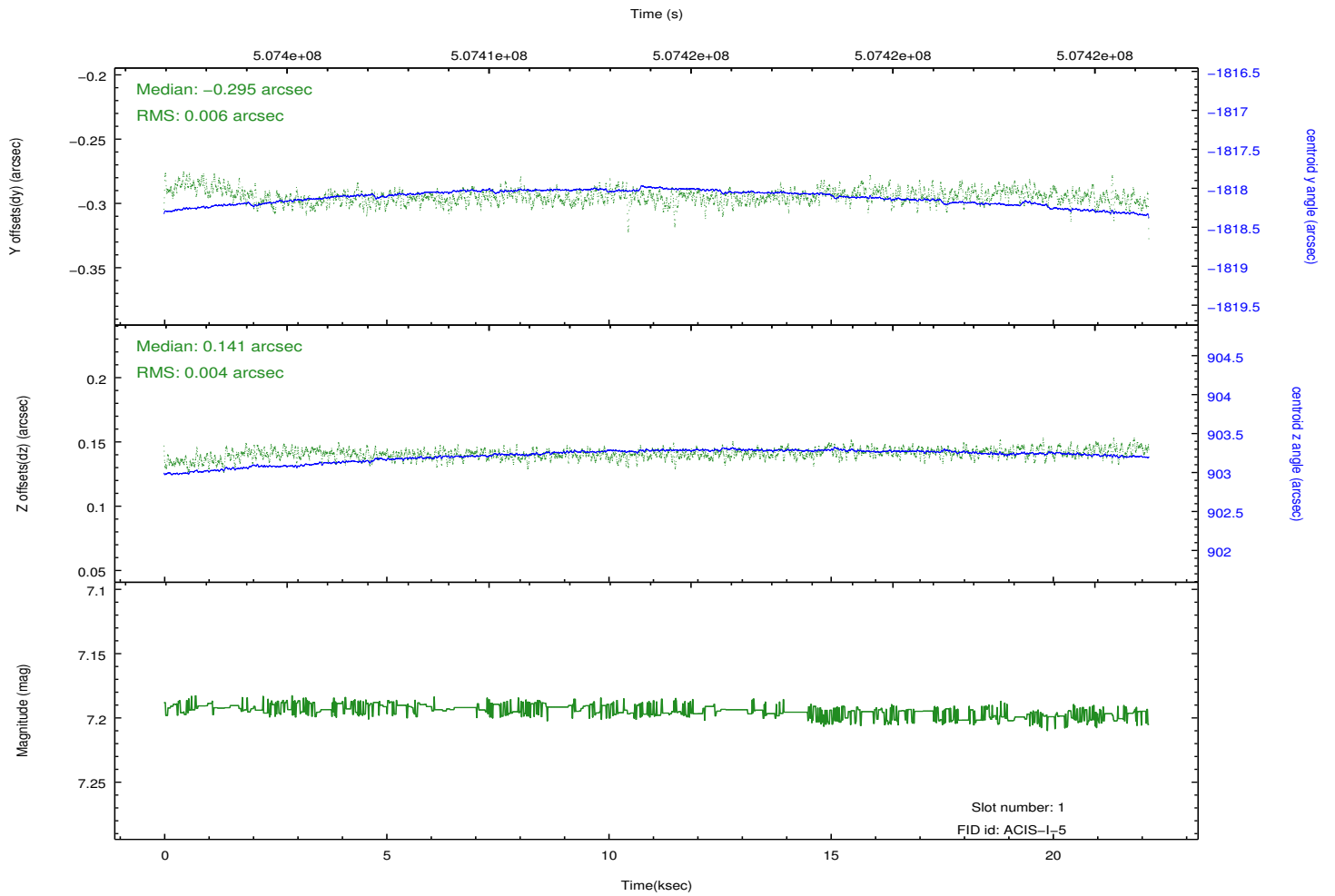
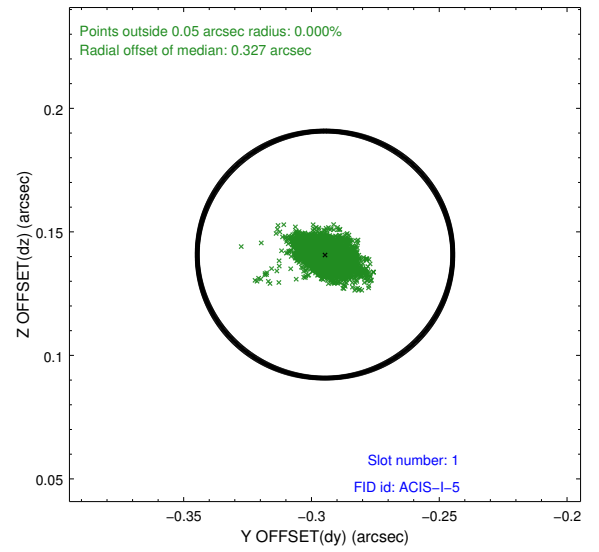
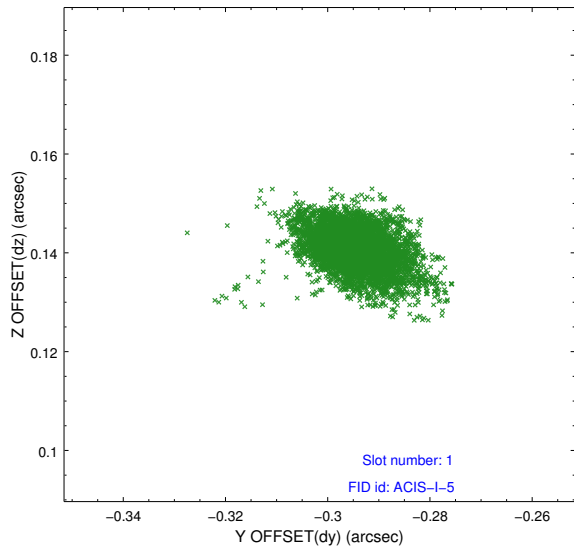


## 2.5 FID Slots

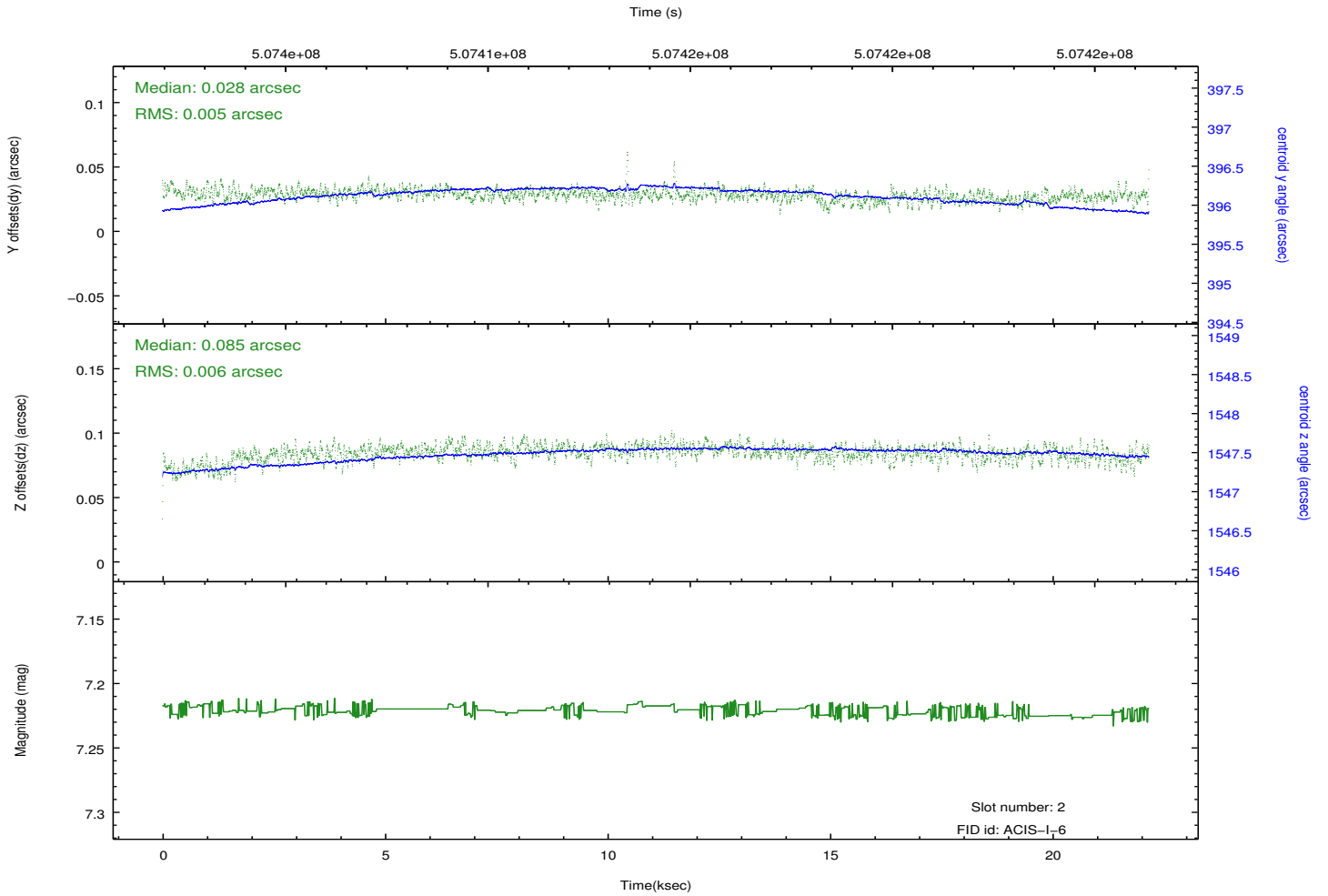
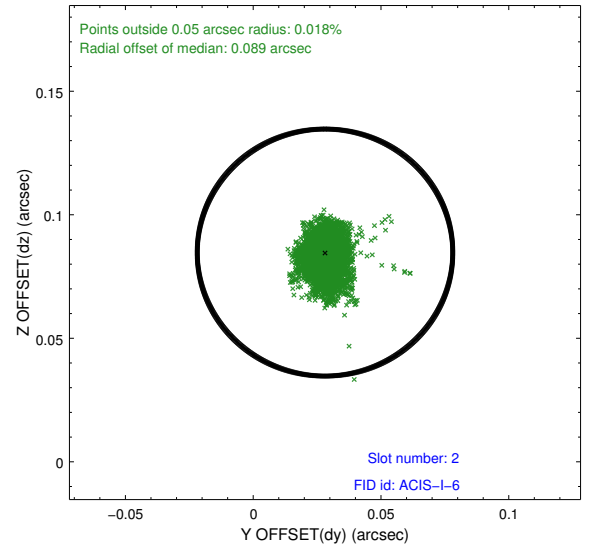
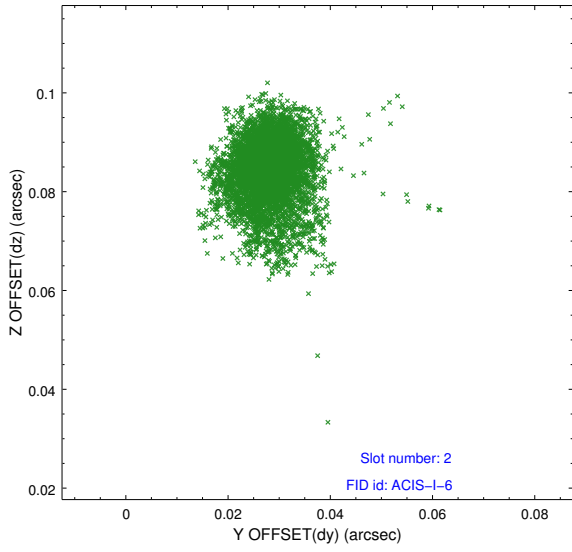
### 2.5.1 Slot 0



## 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)	2014.12.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	22.089290815473

## A.2 Comments

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.