

# V&V Reference Report

## L2 ASCDS Version : 10.2.1

Observation 14494 - L2 Version 2  
Chandra X-Ray Center

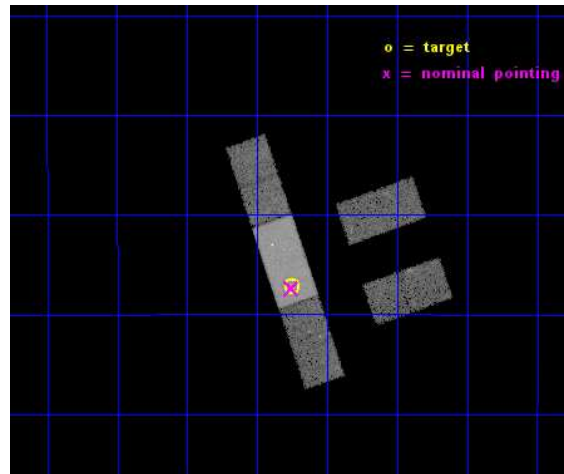
L2 Processing Date : Dec 11 2014

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# 1 Front

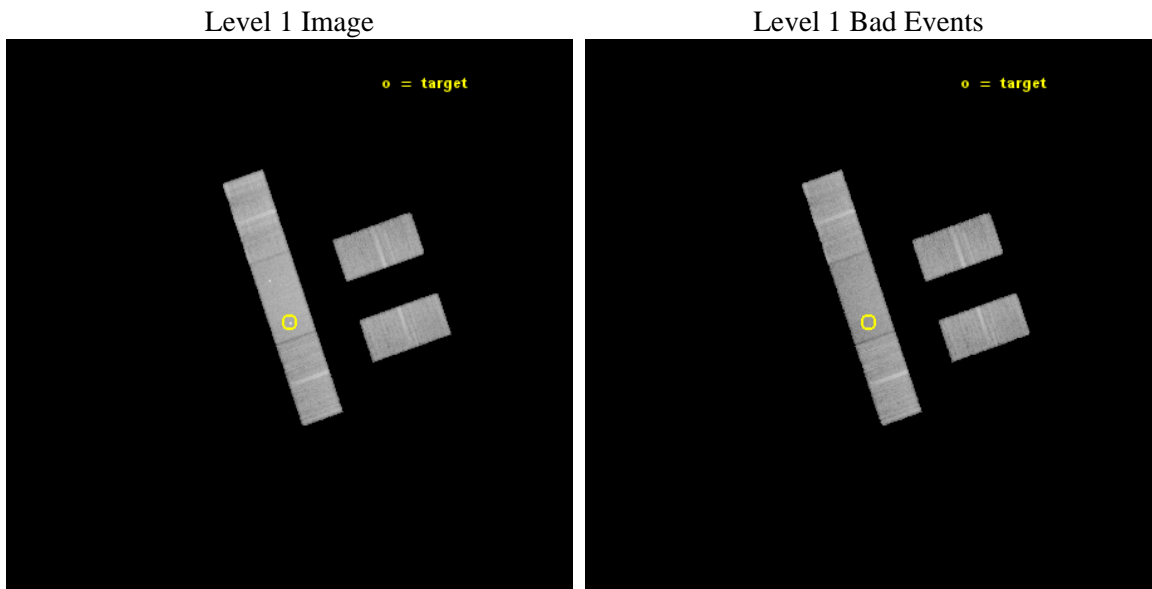
seq_num	702731	Sequence number
obs_id	14494	Observation id
title	ENERGY DEPENDENT X-RAY MICROLENSING AND THE STRUCTURE OF QUASARS	P
observer	Prof. Christopher Kochanek	Principal investigator
object	HE0435-1223	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	69.562083	Observer's specified target RA [deg]
dec_targ	-12.287333	Observer's specified target Dec [deg]
ra_nom	69.564011205355	Nominal RA [deg]
dec_nom	-12.289710951954	Nominal Dec [deg]
roll_nom	250.95481586912	Nominal Roll [deg]
revision	2	Processing version of data
ontime	37065.099740148	Sum of GTIs [s]
livetime	36191.396842261	Livetime [s]
ontime2	37065.099740148	Sum of GTIs [s]
ontime3	37065.099740148	Sum of GTIs [s]
ontime6	37065.099740148	Sum of GTIs [s]
ontime7	37065.099740148	Sum of GTIs [s]
ontime8	37065.099740148	Sum of GTIs [s]
l2events	94642	Number of level 2 events



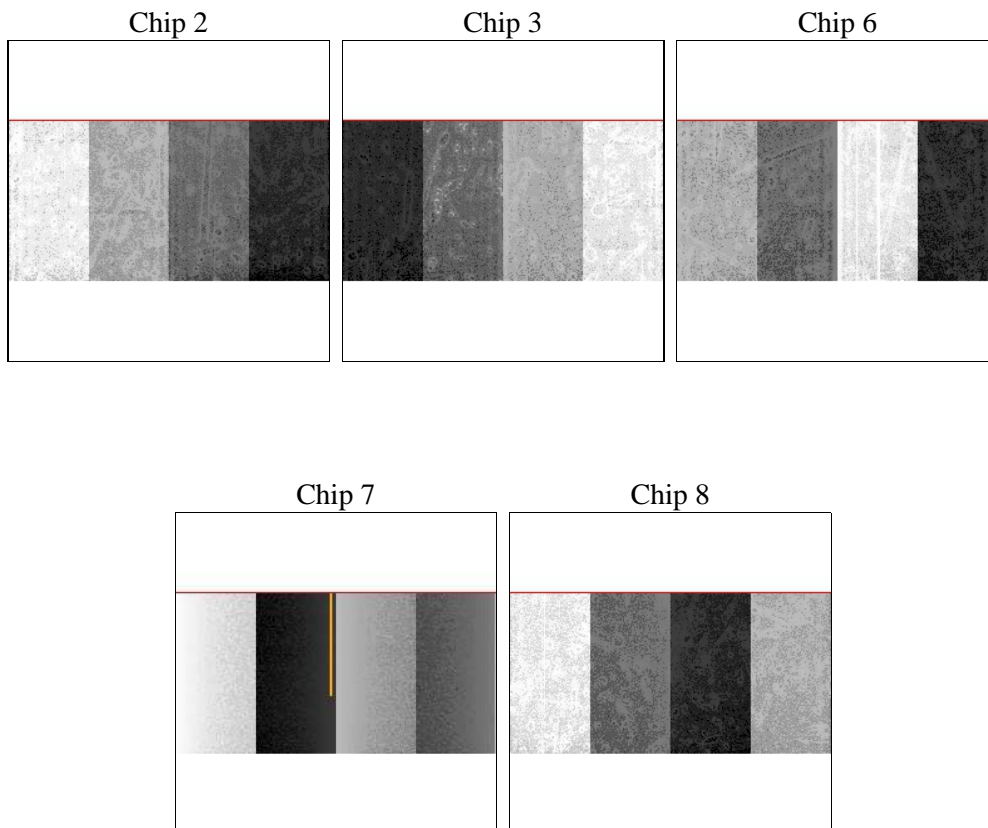
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	37000.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	37065.099740148	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime2	37065.099740148	Sum of GTIs [s]
date	2014-12-11T05:51:13	Date and time of file creation	ontime3	37065.099740148	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	37065.099740148	Sum of GTIs [s]
			ontime7	37065.099740148	Sum of GTIs [s]
			ontime8	37065.099740148	Sum of GTIs [s]
			l1events	528364	Number of level 1 events

### 2.1.4 Events

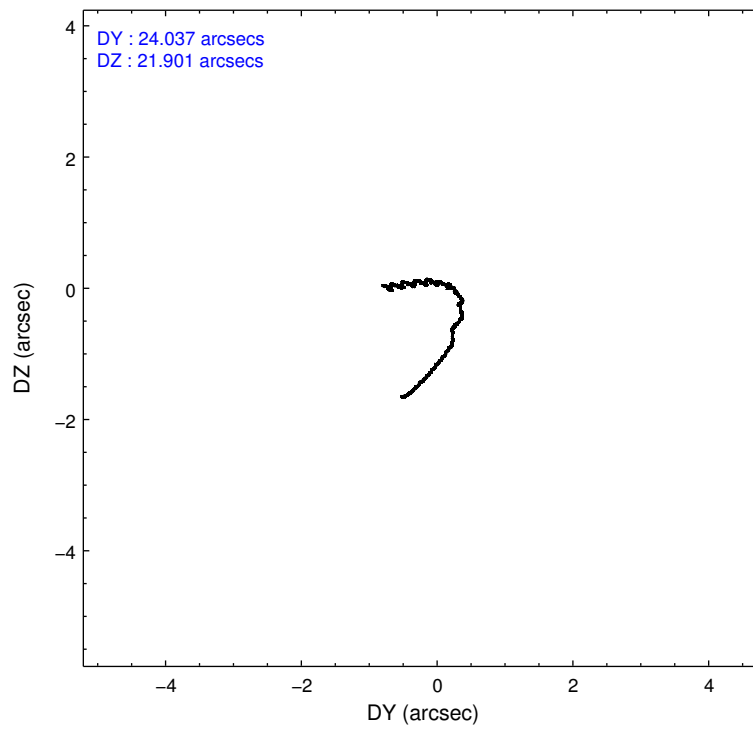
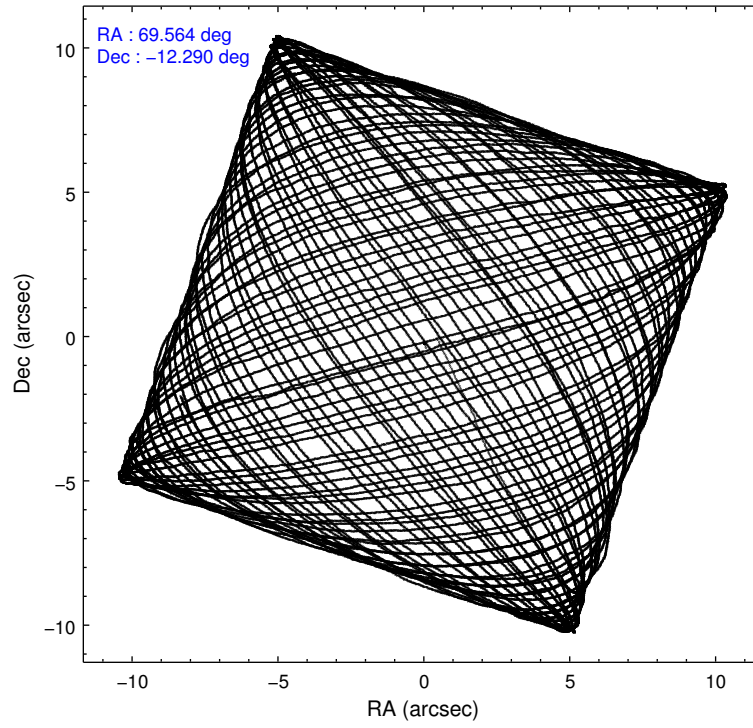
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	88889	89184	97442	126079	126770
rejected events	78393	78742	85997	68615	92431
rejected %	88%	88%	88%	54%	72%

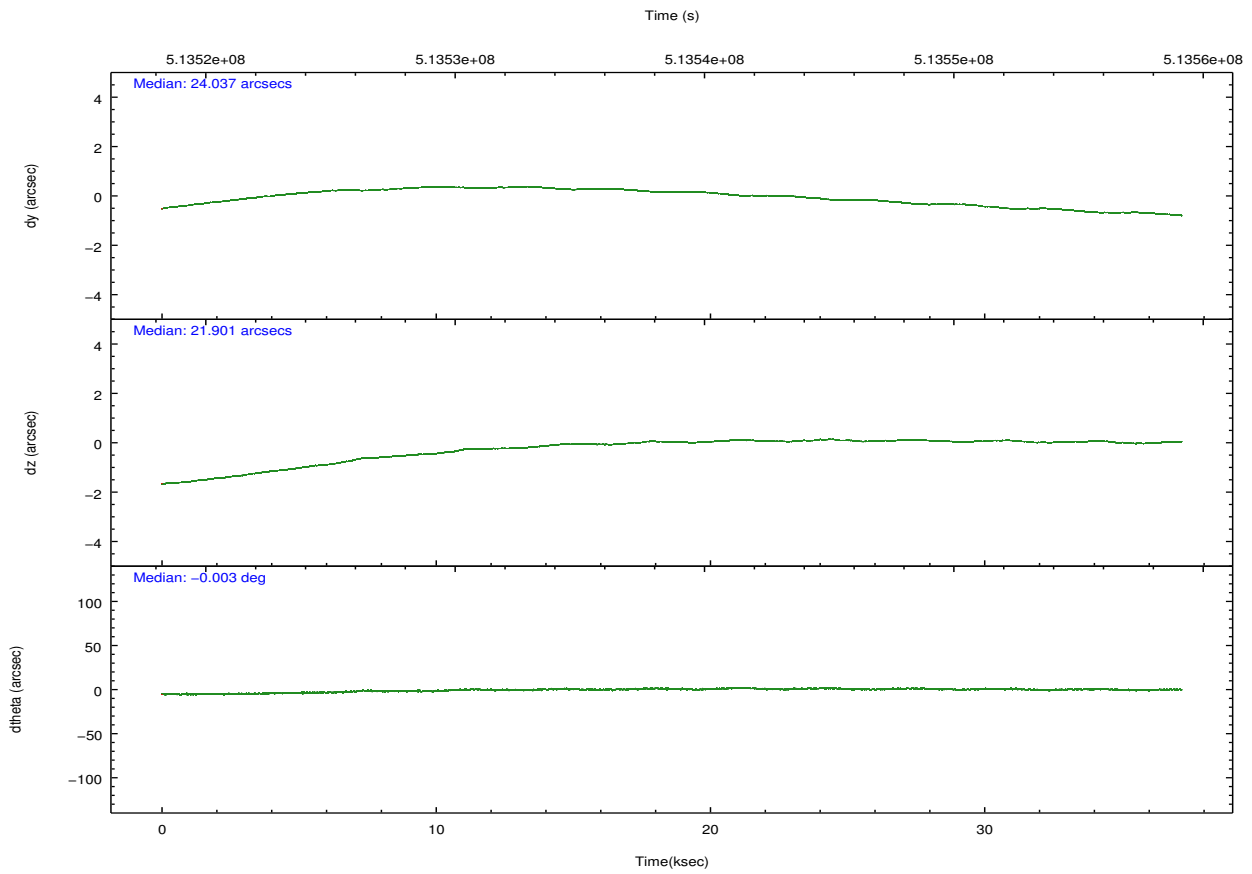
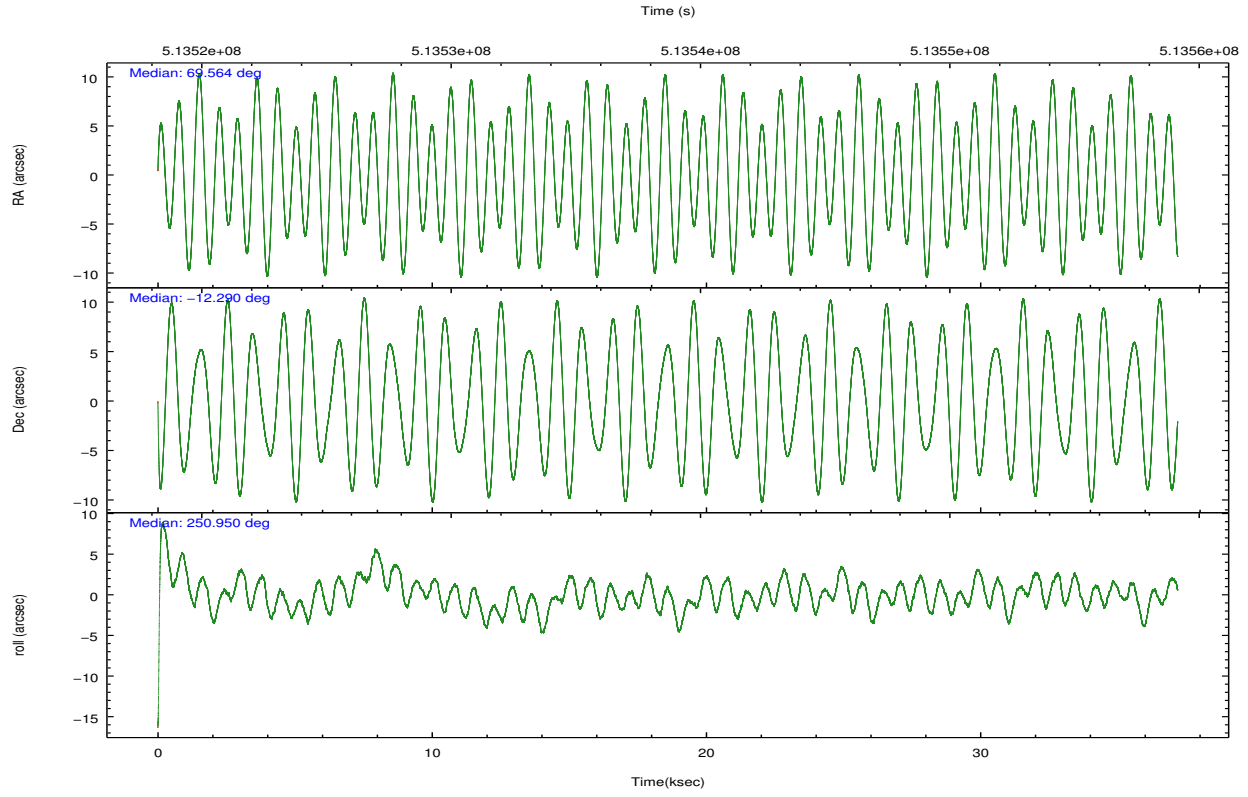
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	3469	3442	3672	6255	10085
	3%	3%	3%	4%	7%
grade 1 events	41	54	41	148	84
	0%	0%	0%	0%	0%
grade 2 events	2530	2321	2516	12054	7627
	2%	2%	2%	9%	6%
grade 3 events	1248	1254	1386	5476	3881
	1%	1%	1%	4%	3%
grade 4 events	1295	1292	1385	5547	3633
	1%	1%	1%	4%	2%
grade 5 events	3526	4697	4774	13176	6723
	3%	5%	4%	10%	5%
grade 6 events	1954	2134	2486	28136	9115
	2%	2%	2%	22%	7%
grade 7 events	74826	73990	81182	55287	85622
	84%	82%	83%	43%	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	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	69.558317	69.56401120535524	CCD I2 on	O4	Y
[deg] Pointing Dec	-12.262928	-12.28971095195439	CCD I3 on	O3	Y
[deg] Pointing Roll	250.796985	250.9548158691246	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	N	N
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	O2	Y
[s] Observation start time (MET)	513520280.184000	513519352.1173	CCD S5 on	N	N
Observation start date	2014-04-10T12:30:13	2014-04-10T12:15:52	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	513557280.184000	513558275.98195	On-chip summing requested	N	N
Observation end date	2014-04-10T22:46:53	2014-04-10T23:04:35	Subarray requested	CUSTOM	1/2
Read mode	TIMED	TIMED	Subarray start row	257	257
			Subarray row count	512	512
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	1.7

## 2.3 Aspect





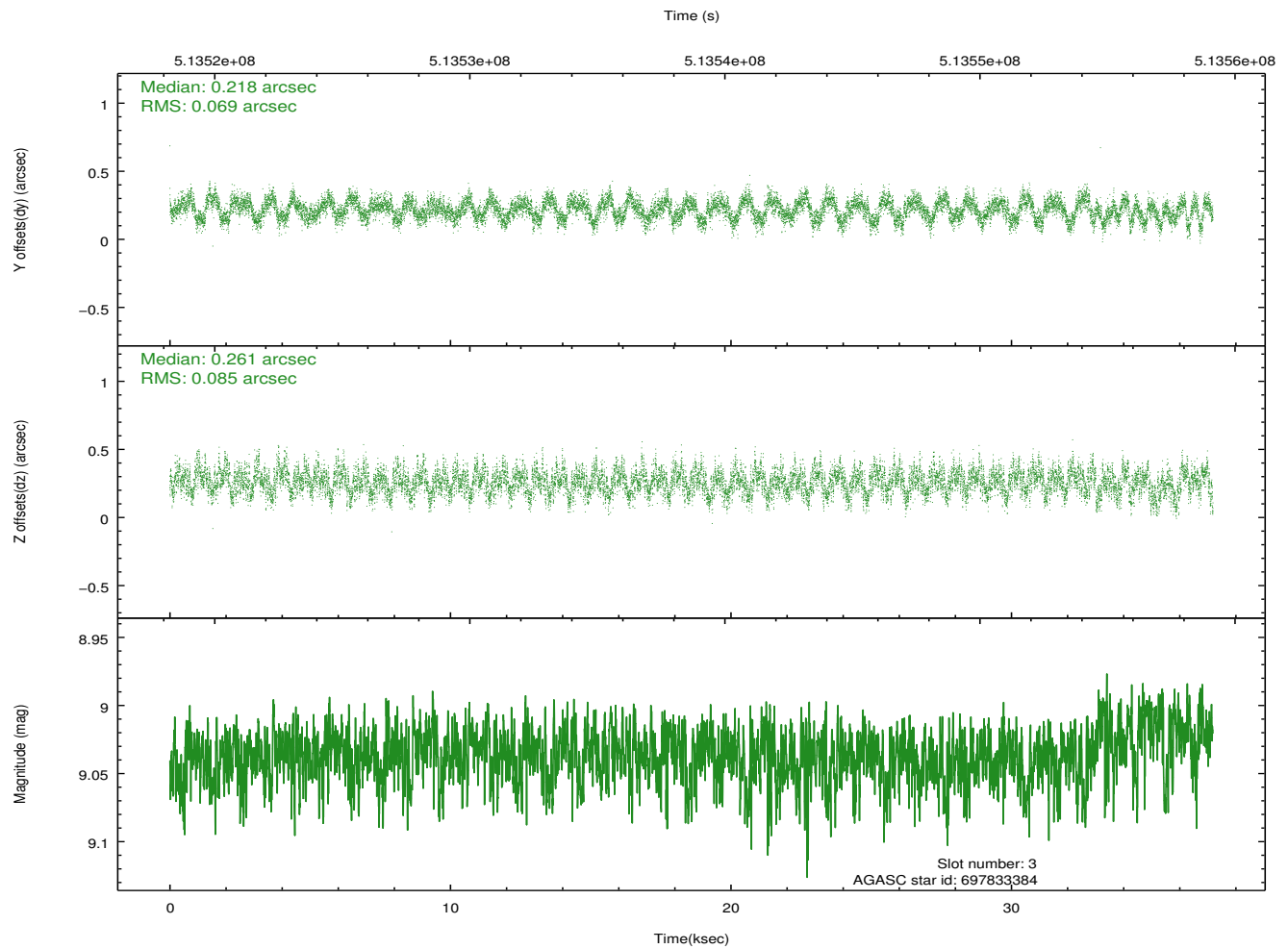
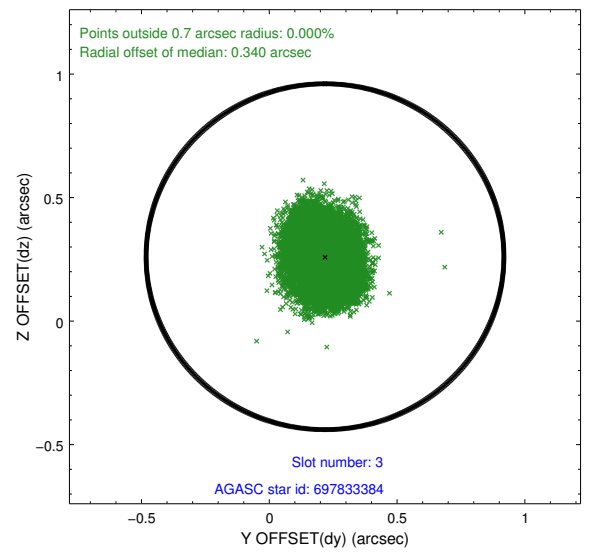
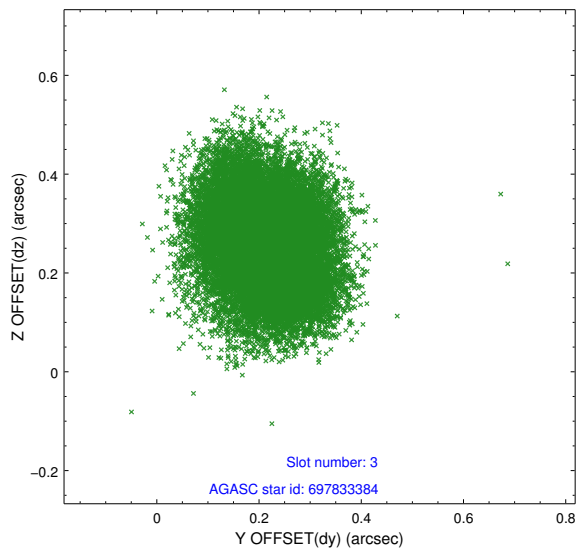
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.92	9071	-0.140	-0.024	0.022	0.031	0.000000	0.000000	-777.33	-1743.19
1	FID		ACIS-S-4	7.00	9071	0.323	0.074	0.017	0.039	0.000000	0.000000	2136.41	165.32
2	FID		ACIS-S-5	7.03	9069	-0.212	-0.037	0.014	0.030	0.000000	0.000000	-1830.19	158.95
3	GUIDE	used	697833384	9.04	18127	0.218	0.261	0.118	0.187	69.085079	-11.610863	-1665.82	-2347.16
4	GUIDE	used	697837536	8.73	18138	0.141	0.161	0.088	0.142	69.361544	-11.866636	-1118.49	-1123.53
5	GUIDE	used	698220616	7.54	18136	-0.092	-0.150	0.062	0.100	69.313891	-12.560296	1294.10	-458.56
6	GUIDE	used	698221568	8.60	18133	-0.161	-0.271	0.078	0.127	69.849031	-12.529974	573.02	1280.56
7	GUIDE	used	697835968	9.02	18123	-0.100	-0.002	0.108	0.181	70.113917	-11.772123	-2310.59	1269.27

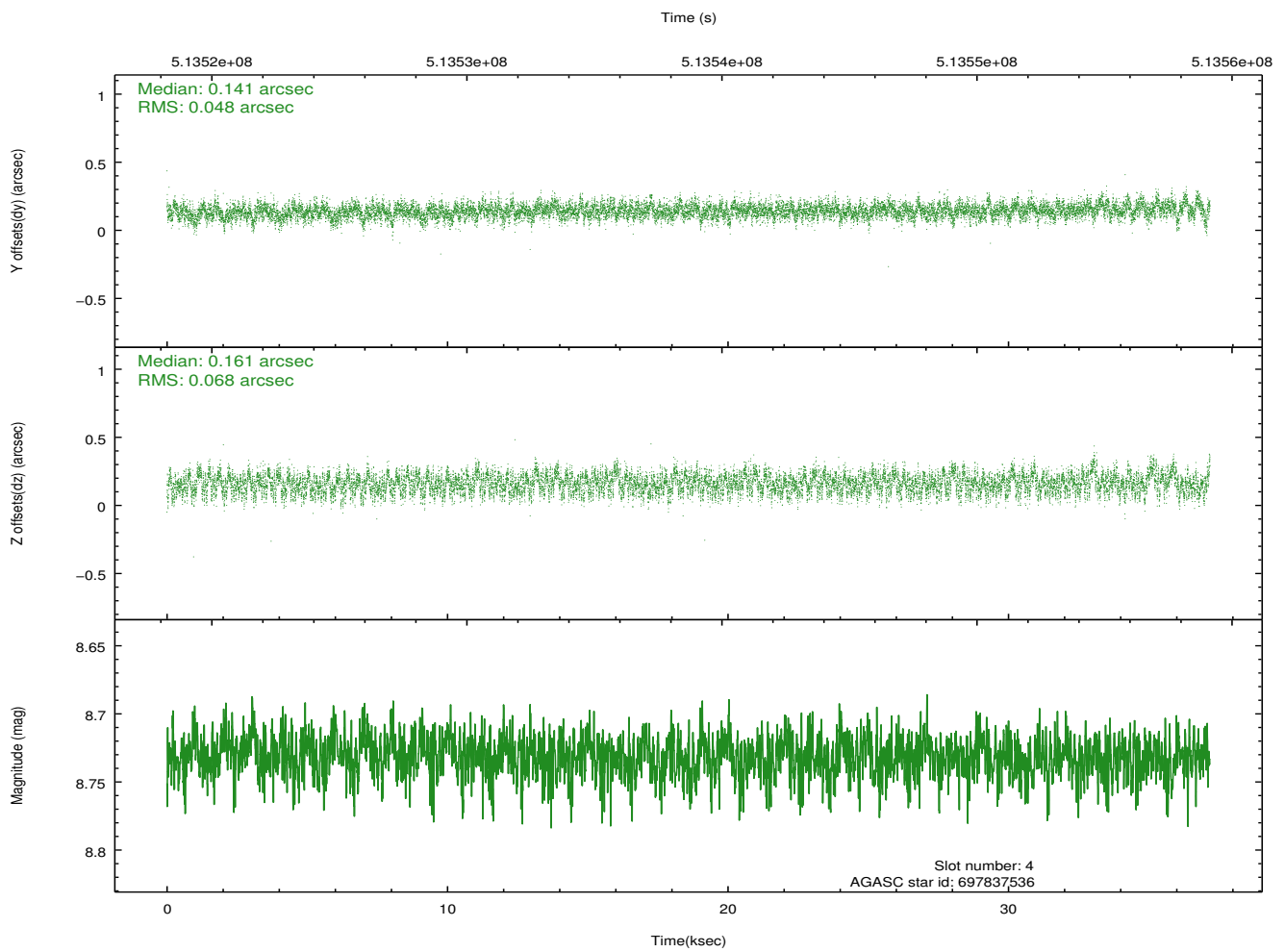
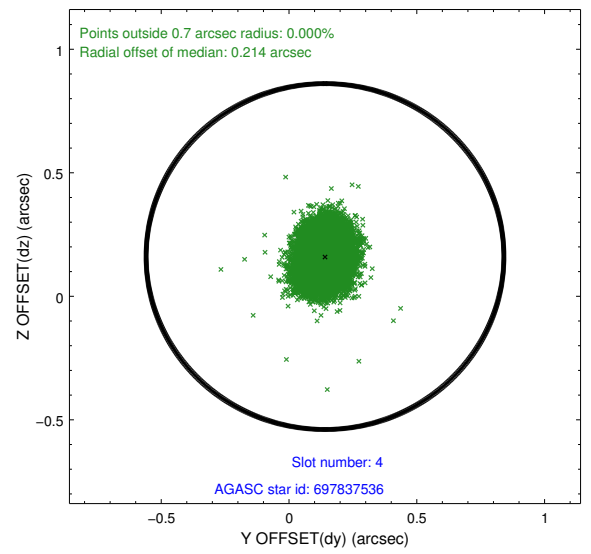
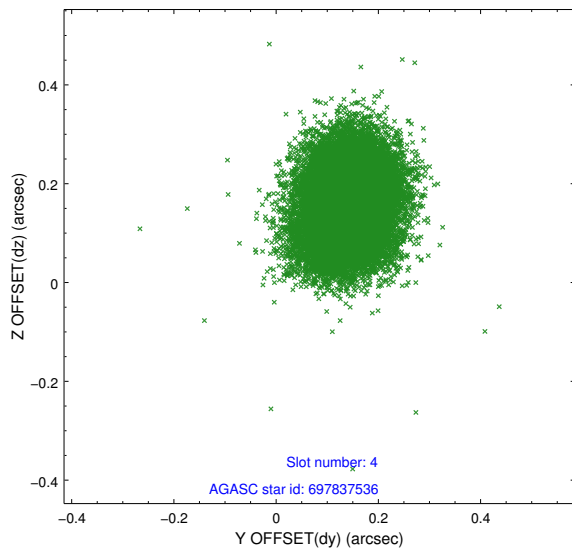
∞

## 2.4 Star Slots

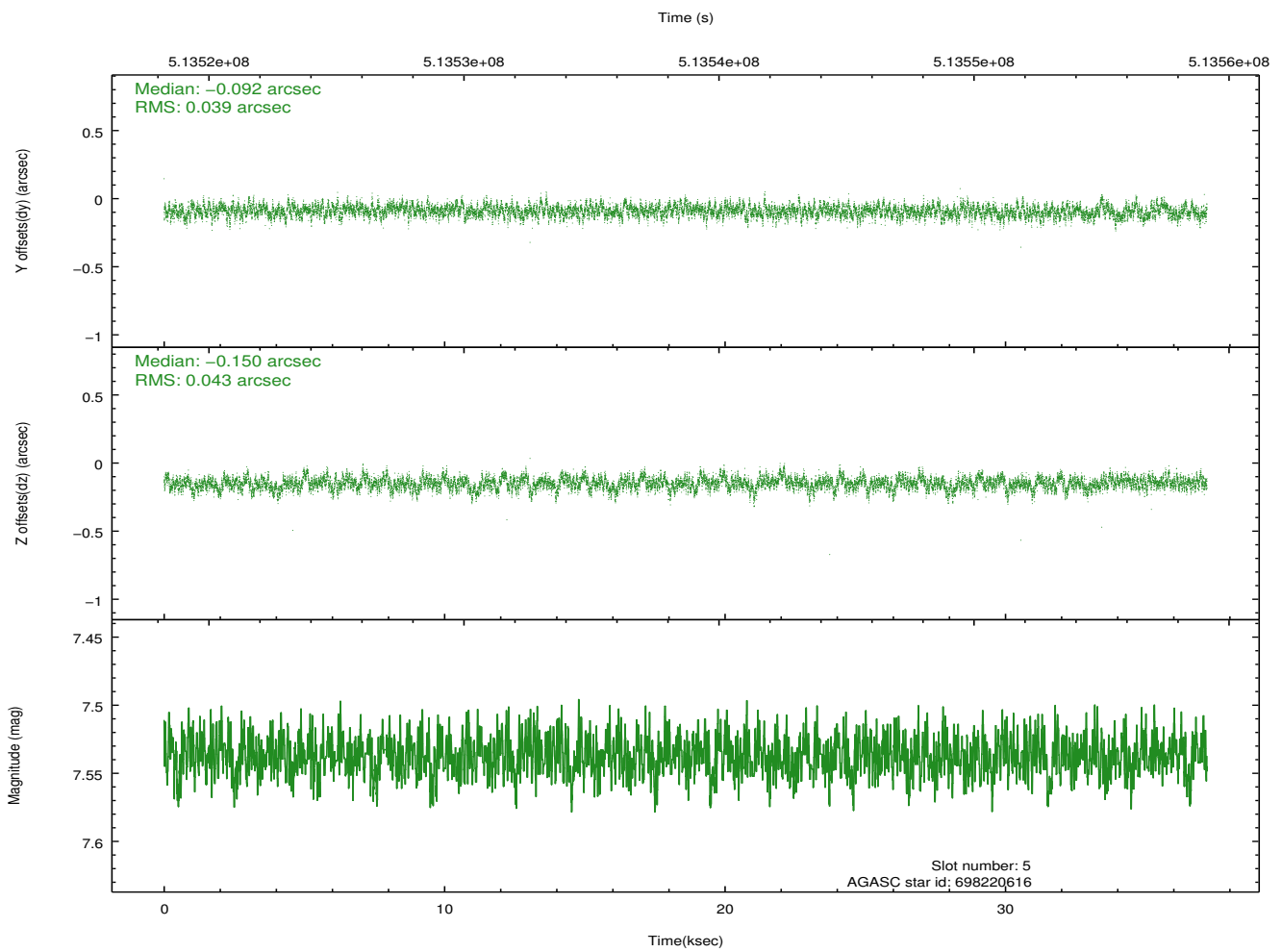
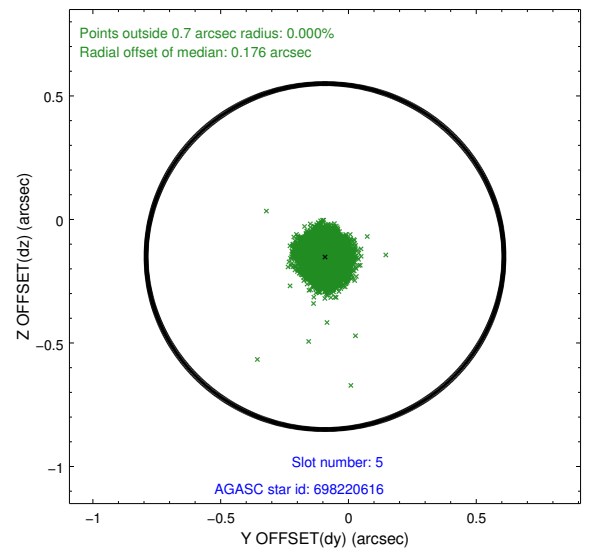
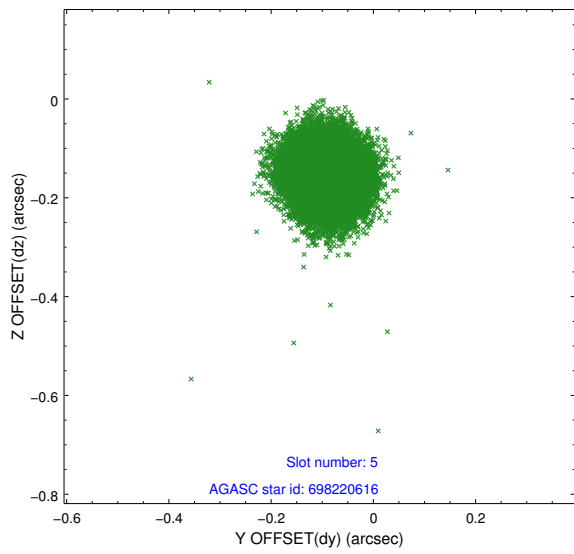
### 2.4.1 Slot 3



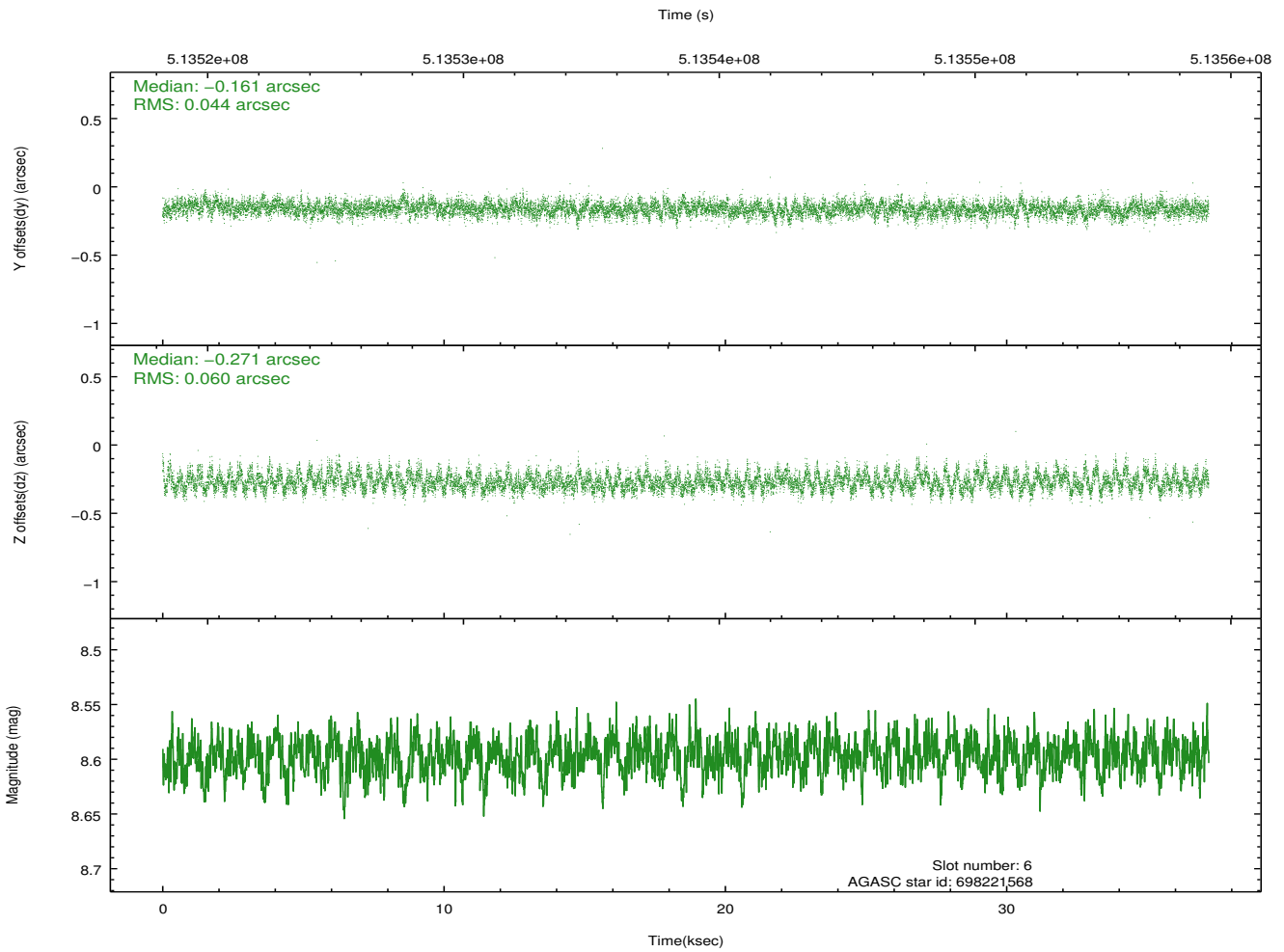
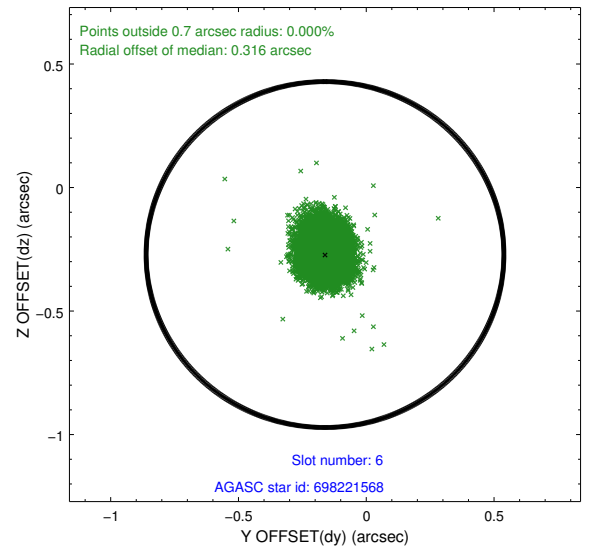
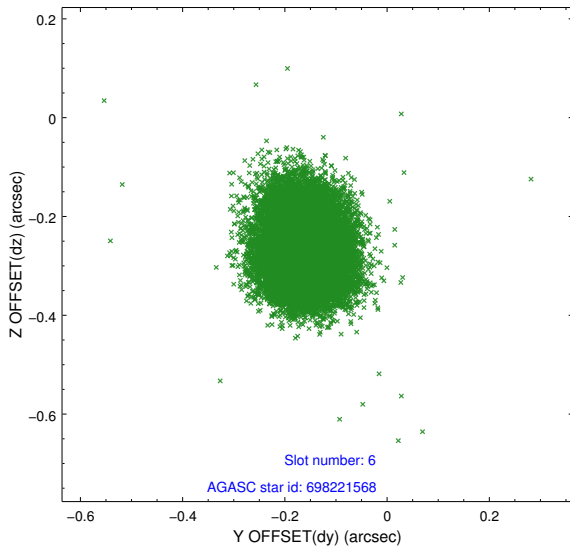
## 2.4.2 Slot 4



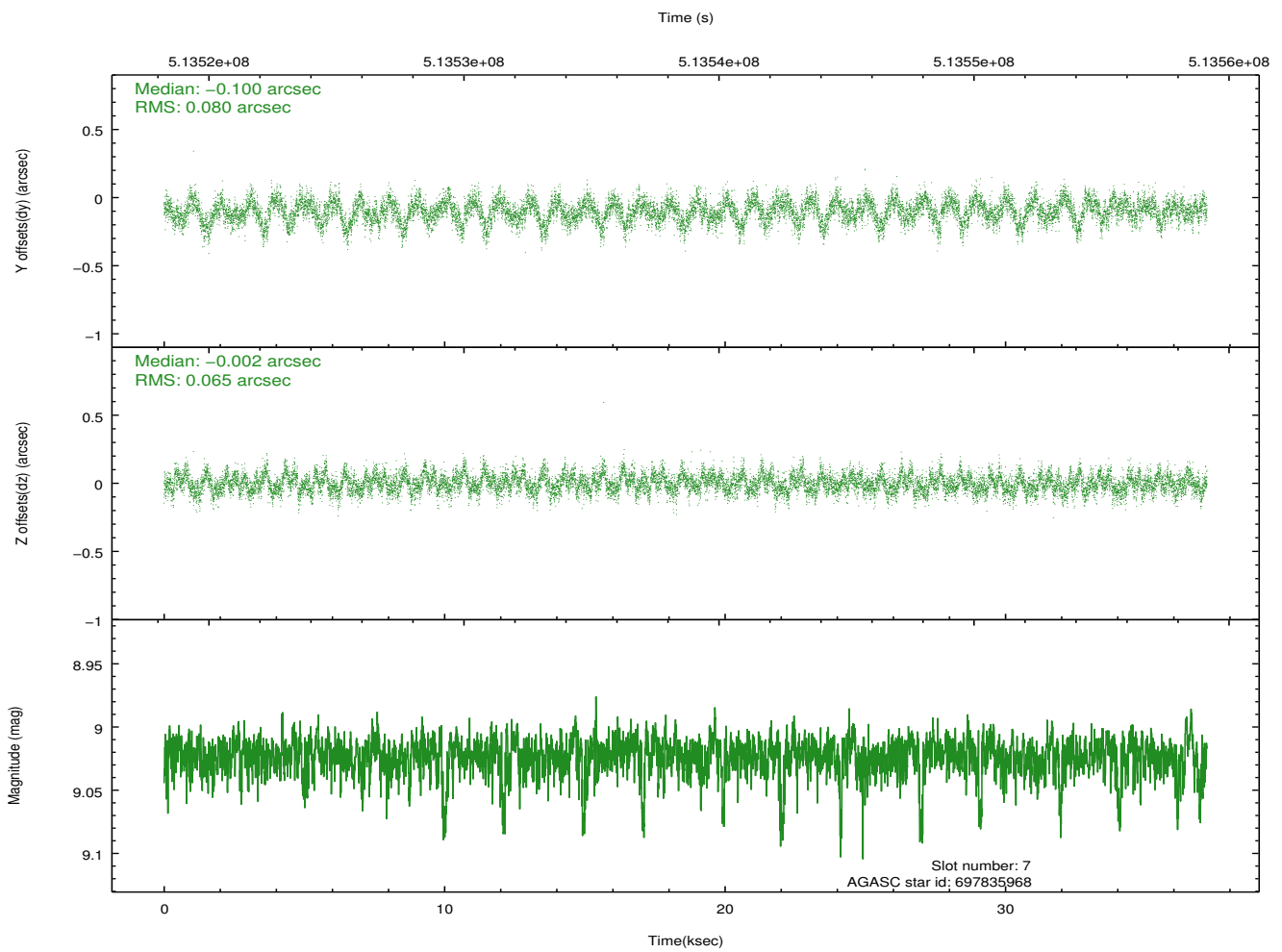
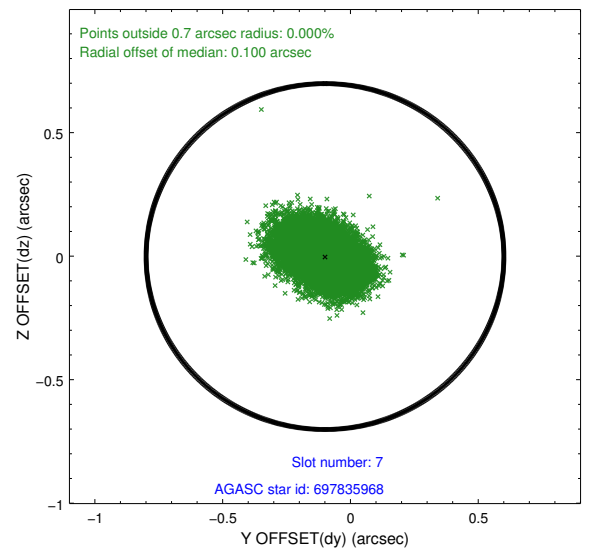
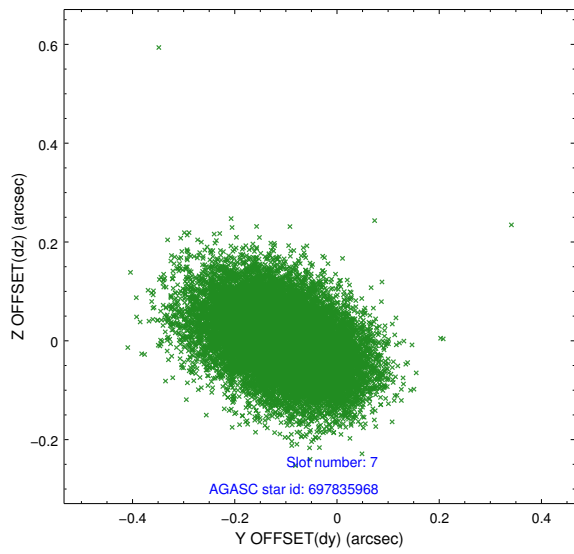
### 2.4.3 Slot 5



## 2.4.4 Slot 6

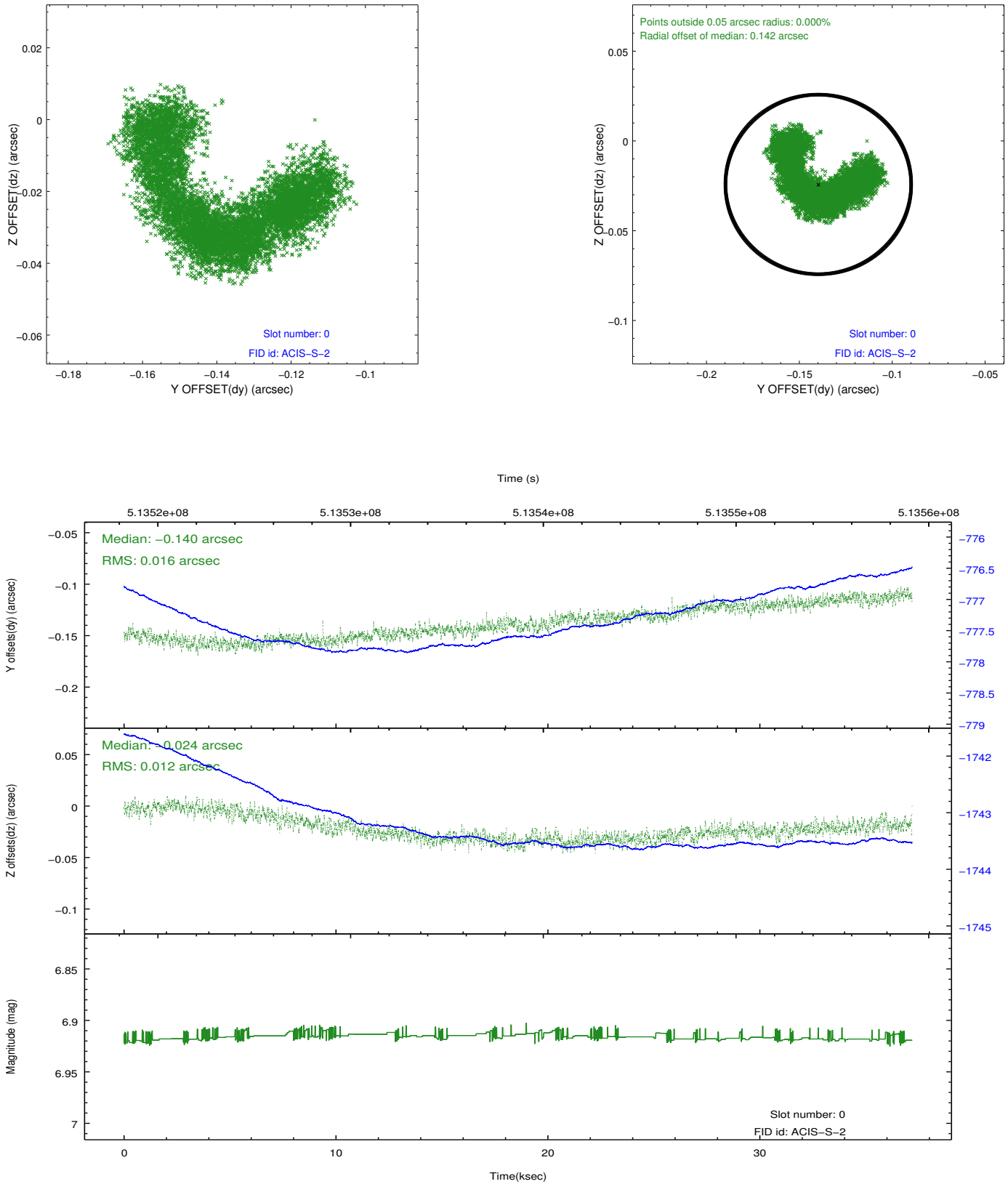


## 2.4.5 Slot 7

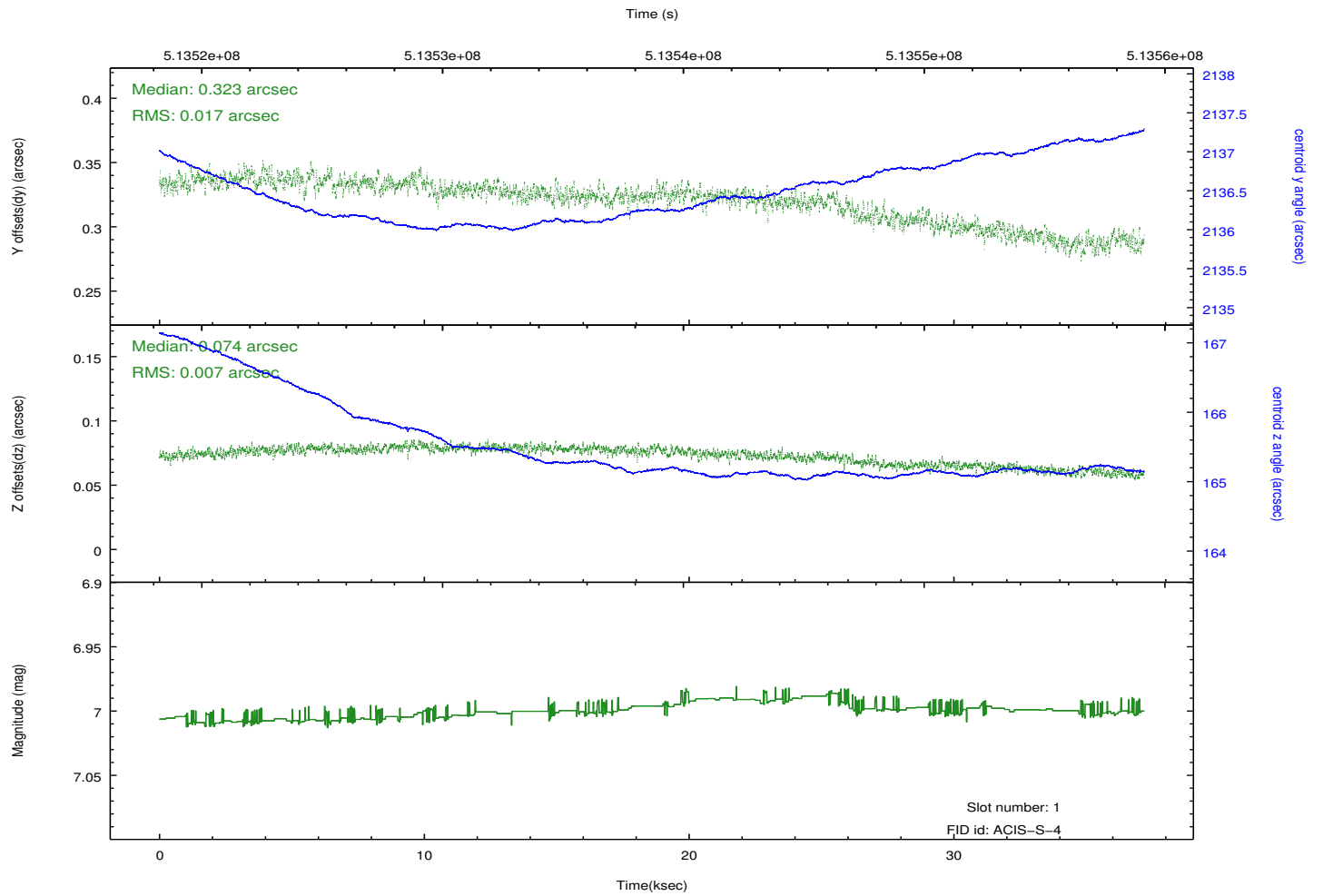
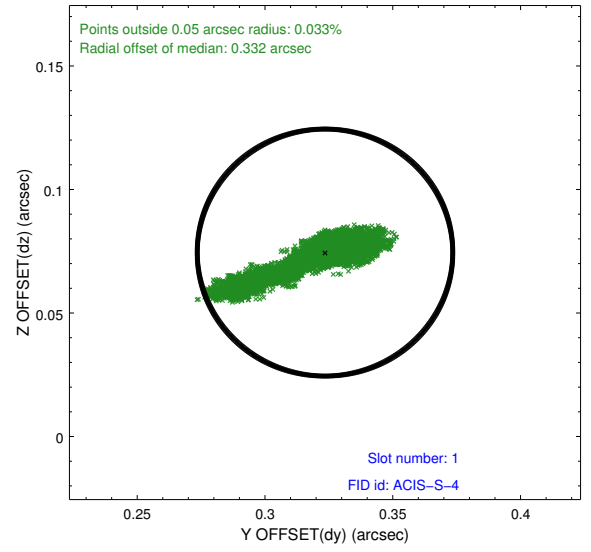
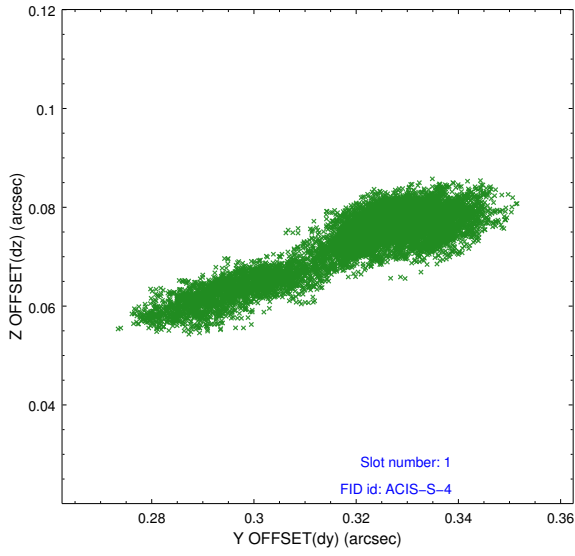


## 2.5 FID Slots

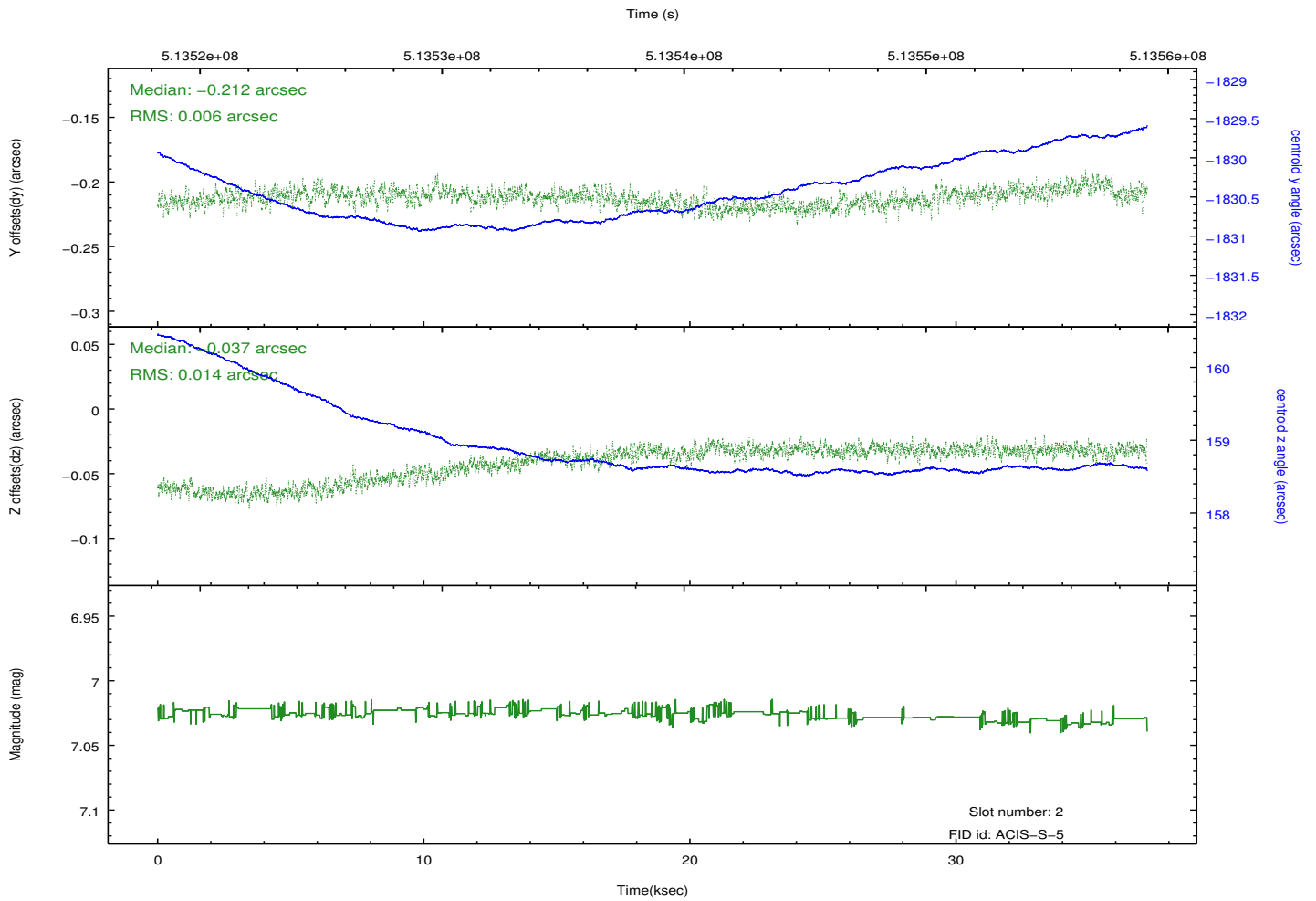
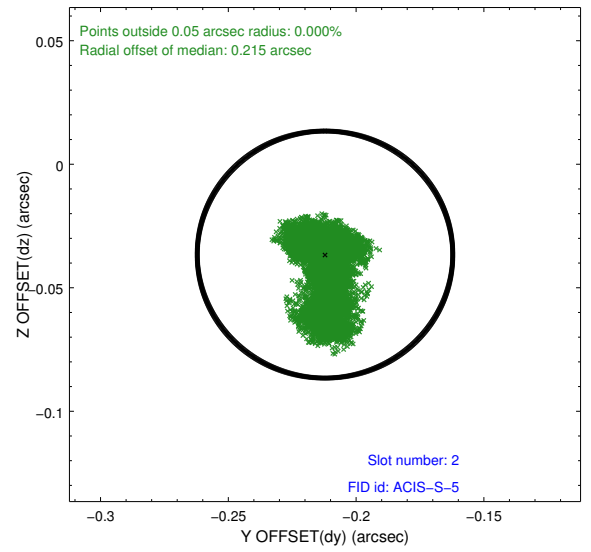
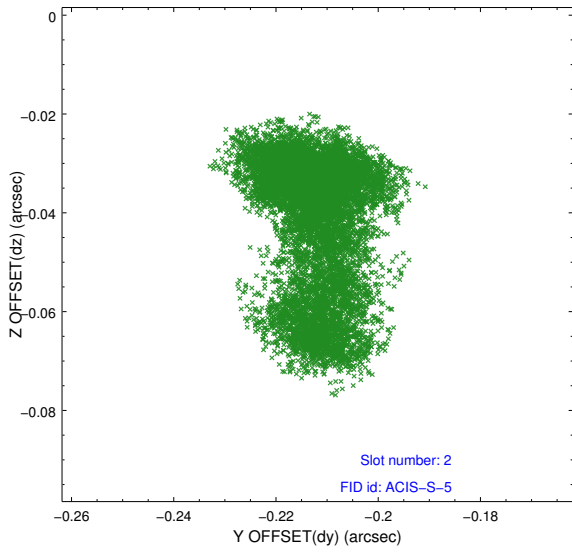
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2014.12.18
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	37.065099740148

## A.2 Comments

Joint proposal with HST.

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.