

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 14490 - L2 Version 2  
Chandra X-Ray Center

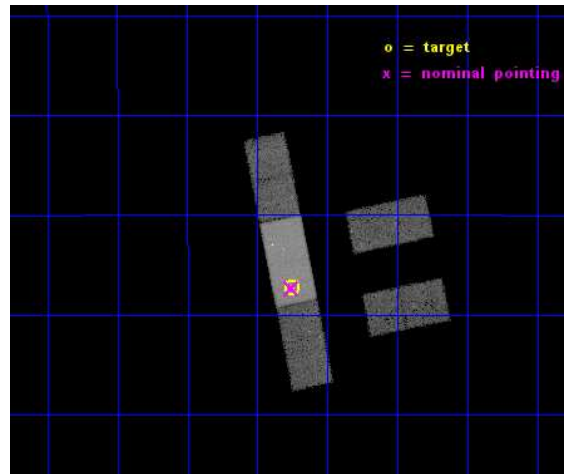
L2 Processing Date : Dec 2 2014

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# 1 Front

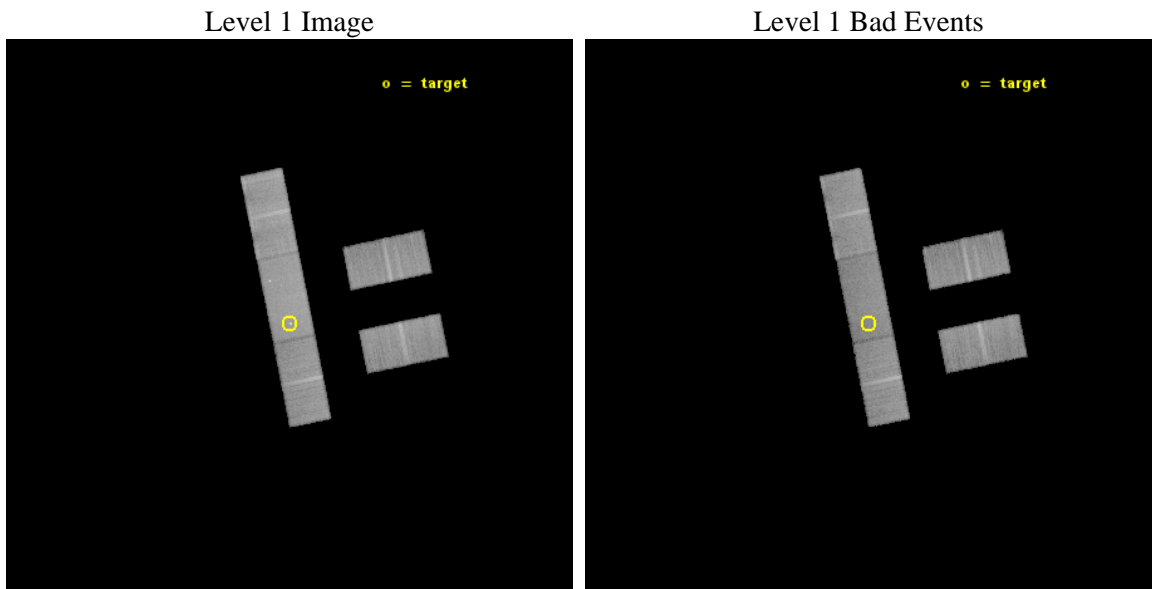
seq_num	702727	Sequence number
obs_id	14490	Observation id
title	ENERGY DEPENDENT X-RAY MICROLENSING AND THE STRUCTURE OF QUASARS	P
observer	Prof. Christopher Kochanek	Principal investigator
object	HE0435-1223	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	69.562083	Observer's specified target RA [deg]
dec_targ	-12.287333	Observer's specified target Dec [deg]
ra_nom	69.564299893091	Nominal RA [deg]
dec_nom	-12.289435124257	Nominal Dec [deg]
roll_nom	258.40773149555	Nominal Roll [deg]
revision	2	Processing version of data
ontime	37063.39974016	Sum of GTIs [s]
livetime	36189.736914873	Livetime [s]
ontime2	37063.39974016	Sum of GTIs [s]
ontime3	37063.39974016	Sum of GTIs [s]
ontime6	37058.176719666	Sum of GTIs [s]
ontime7	37063.39974016	Sum of GTIs [s]
ontime8	37063.39974016	Sum of GTIs [s]
l2events	106862	Number of level 2 events



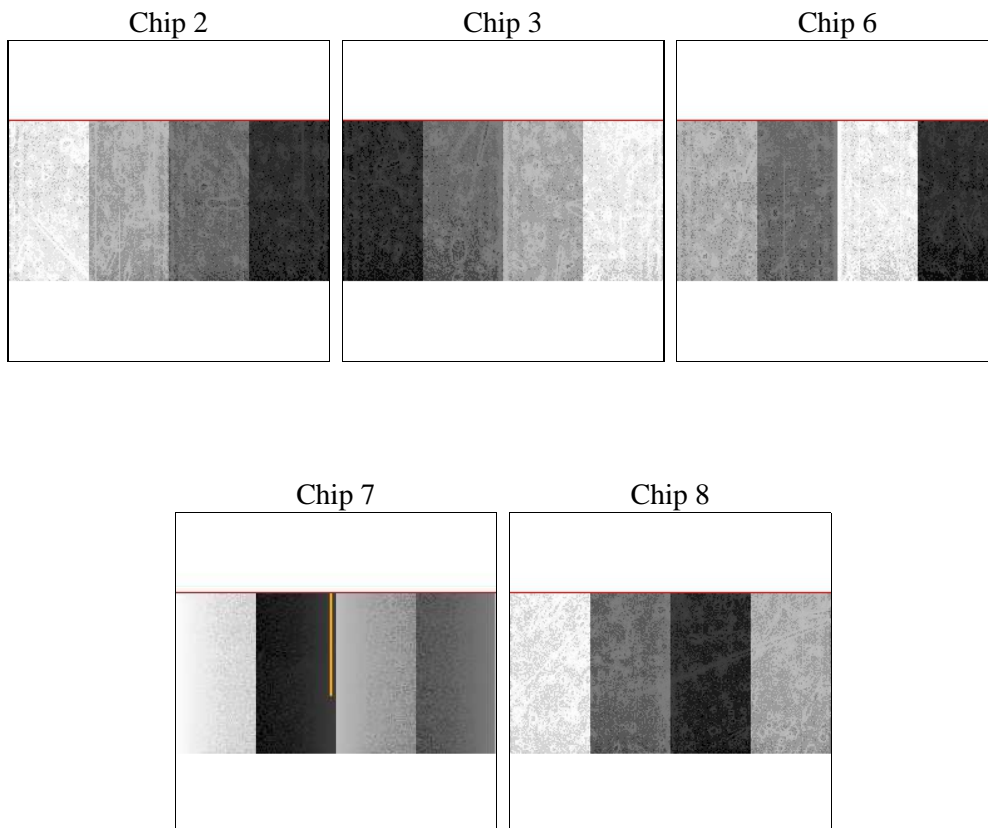
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	37000.000000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	37063.39974016	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime2	37063.39974016	Sum of GTIs [s]
date	2014-12-02T14:04:51	Date and time of file creation	ontime3	37063.39974016	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	37058.176719666	Sum of GTIs [s]
			ontime7	37063.39974016	Sum of GTIs [s]
			ontime8	37063.39974016	Sum of GTIs [s]
			l1events	600978	Number of level 1 events

### 2.1.4 Events

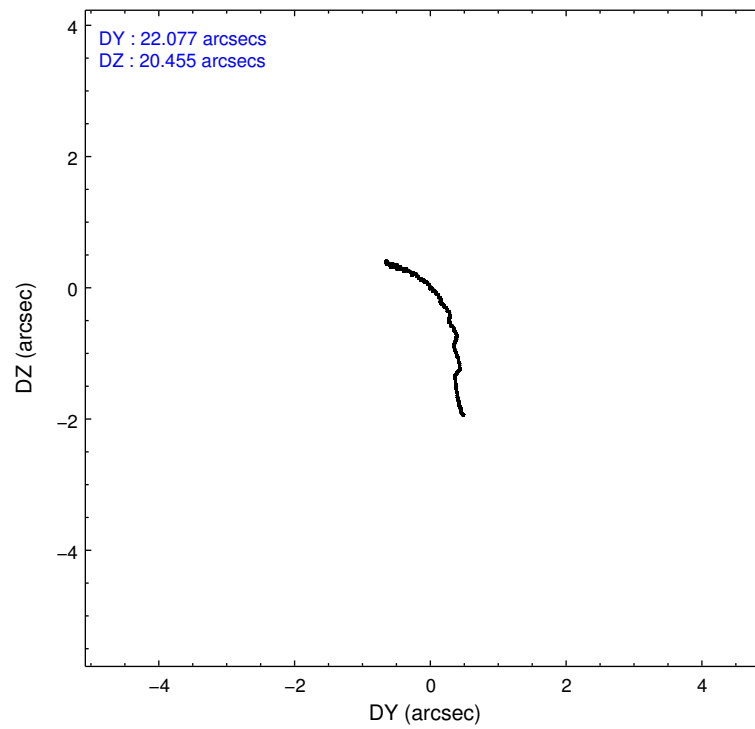
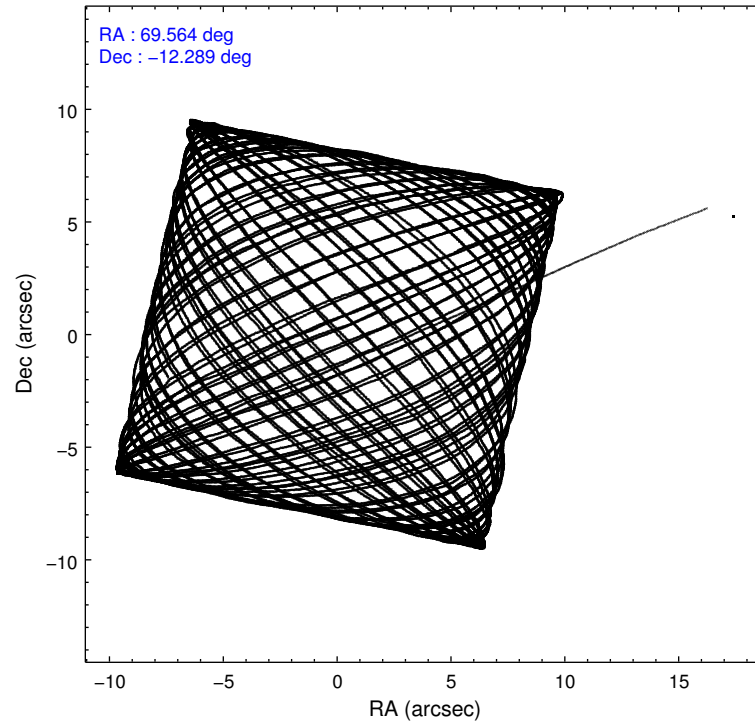
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	105136	103740	107660	141076	143366
rejected events	93574	91983	94799	75684	106352
rejected %	89%	88%	88%	53%	74%

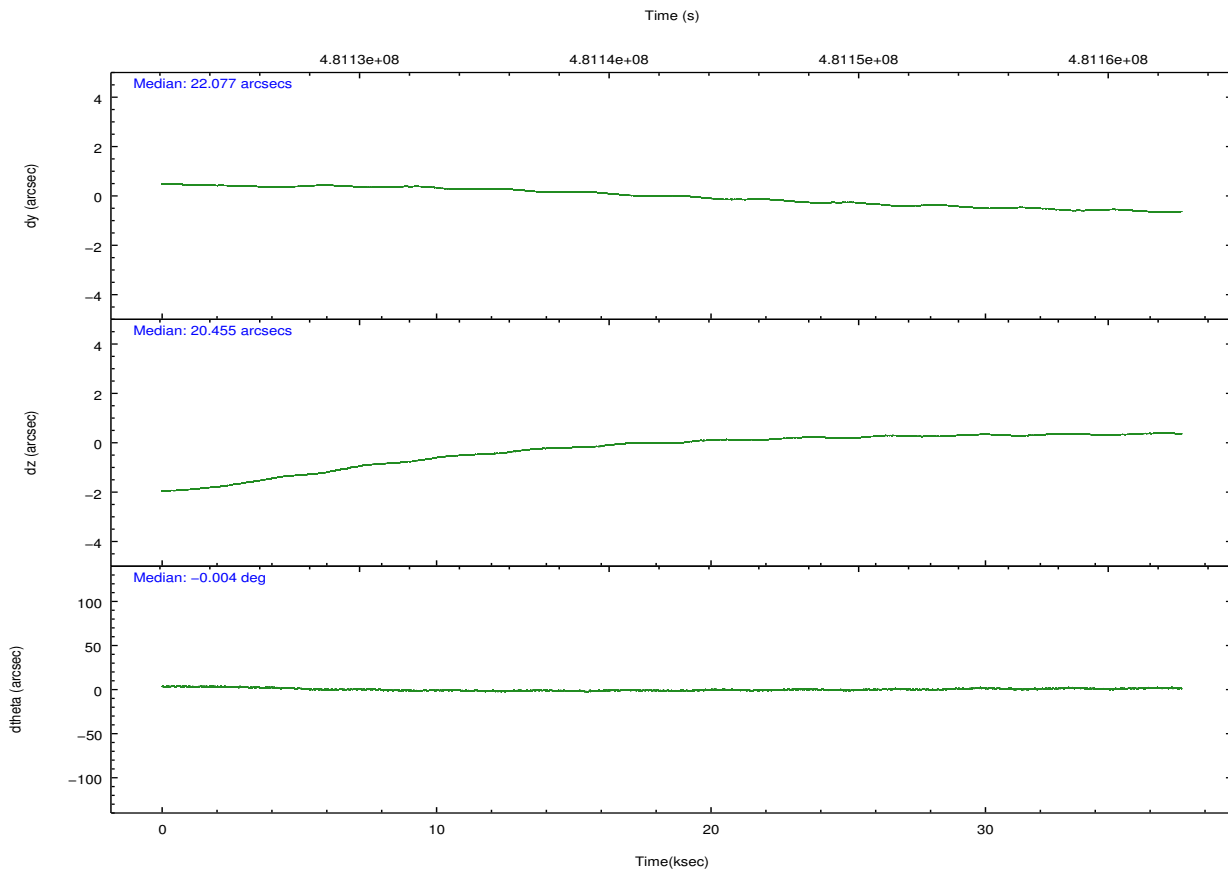
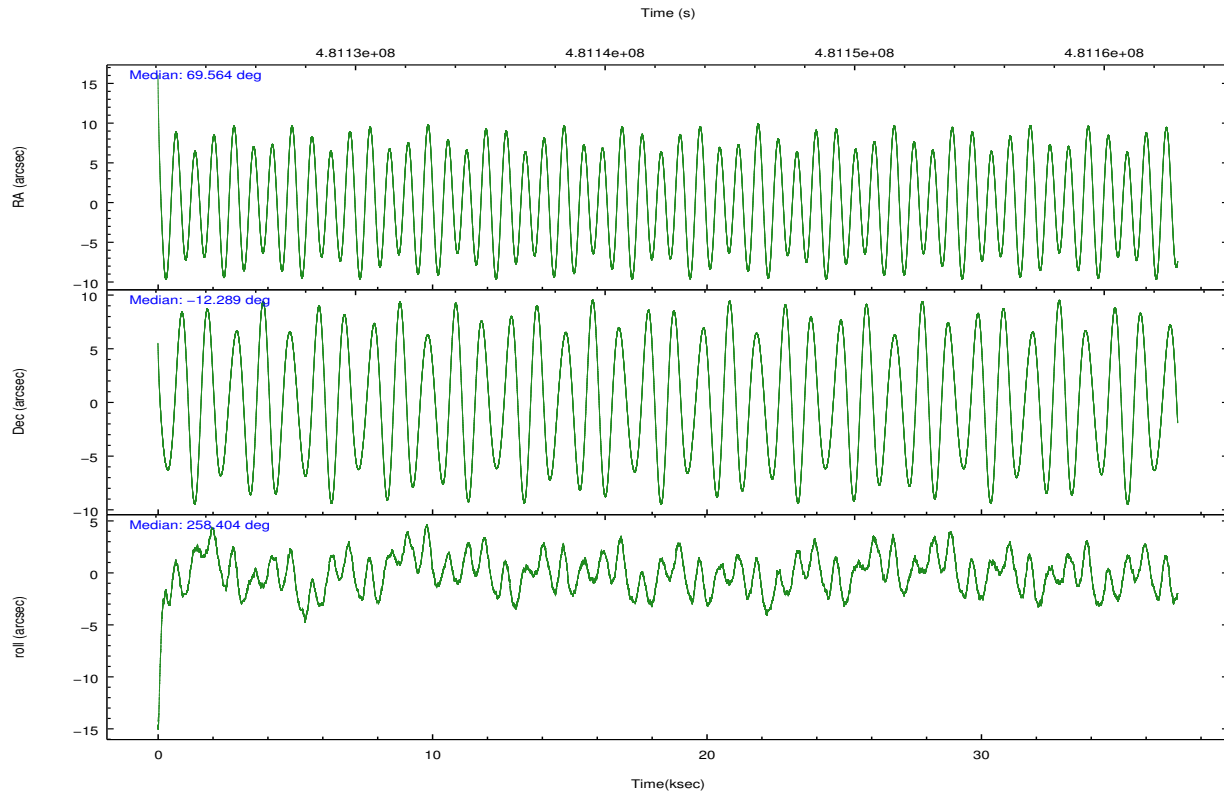
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	3870	3764	4036	7022	11026
	3%	3%	3%	4%	7%
grade 1 events	55	48	36	169	78
	0%	0%	0%	0%	0%
grade 2 events	2690	2564	2798	13705	8208
	2%	2%	2%	9%	5%
grade 3 events	1389	1512	1577	6305	4024
	1%	1%	1%	4%	2%
grade 4 events	1428	1506	1553	6441	3936
	1%	1%	1%	4%	2%
grade 5 events	4174	5232	5438	14410	7560
	3%	5%	5%	10%	5%
grade 6 events	2187	2411	2897	31922	9821
	2%	2%	2%	22%	6%
grade 7 events	89343	86703	89325	61102	98713
	84%	83%	82%	43%	68%

## 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	69.555107	69.56429989309133	CCD I2 on	O4	Y
[deg] Pointing Dec	-12.263618	-12.28943512425663	CCD I3 on	O3	Y
[deg] Pointing Roll	258.249154	258.4077314955506	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	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	O2	Y
[s] Observation start time (MET)	481124086.184000	481122961.5217	CCD S5 on	N	N
Observation start date	2013-03-31T13:33:39	2013-03-31T13:16:01	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	481161086.184000	481161870.0113	On-chip summing requested	N	N
Observation end date	2013-03-31T23:50:19	2013-04-01T00:04:30	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





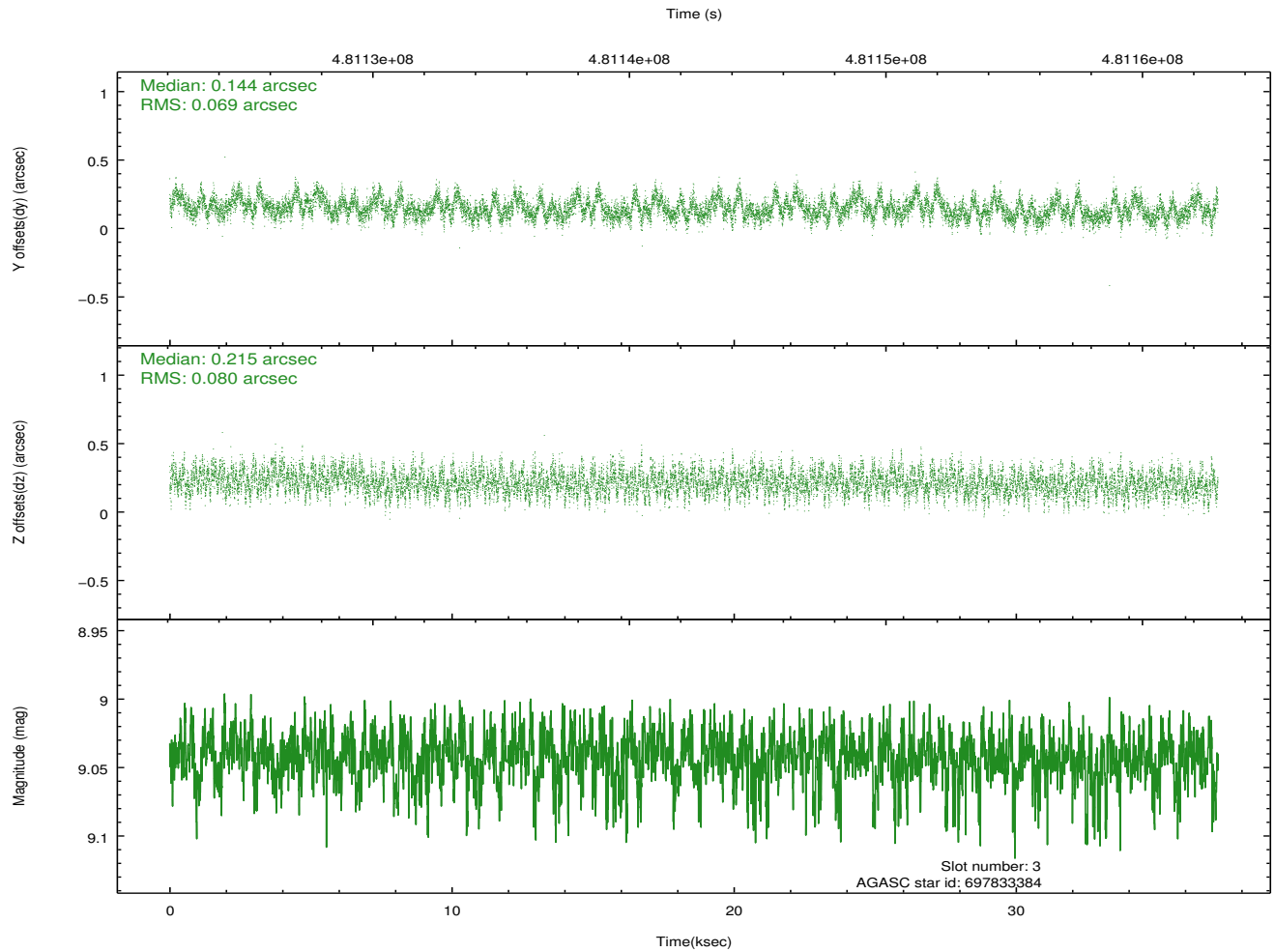
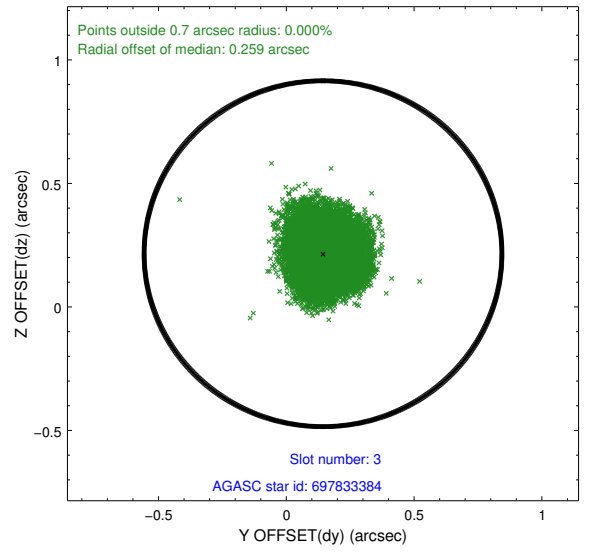
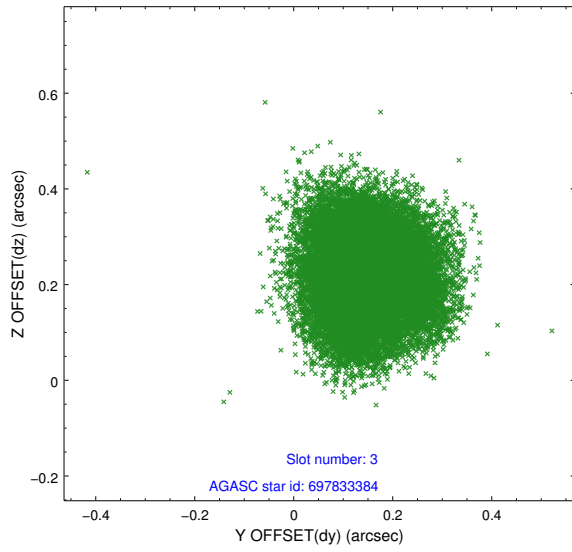
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.99	9062	-0.120	-0.025	0.014	0.040	0.000000	0.000000	-775.30	-1741.67
1	FID		ACIS-S-4	7.07	9063	0.261	0.065	0.022	0.032	0.000000	0.000000	2138.33	166.90
2	FID		ACIS-S-5	7.10	9062	-0.172	-0.031	0.023	0.046	0.000000	0.000000	-1828.18	160.48
3	GUIDE	used	697833384	9.04	18101	0.144	0.215	0.115	0.179	69.085079	-11.610863	-1961.16	-2100.76
4	GUIDE	used	697835752	7.84	18123	0.048	-0.026	0.077	0.125	69.312835	-12.164170	-176.40	-906.87
5	GUIDE	used	697835968	9.02	18113	-0.139	-0.048	0.107	0.179	70.113917	-11.772123	-2131.33	1568.60
6	GUIDE	used	698220616	7.52	18121	-0.042	-0.076	0.060	0.095	69.313891	-12.560296	1218.87	-611.89
7	GUIDE	used	698222072	8.39	18121	-0.016	-0.071	0.085	0.137	70.057004	-13.015334	2292.77	2275.62

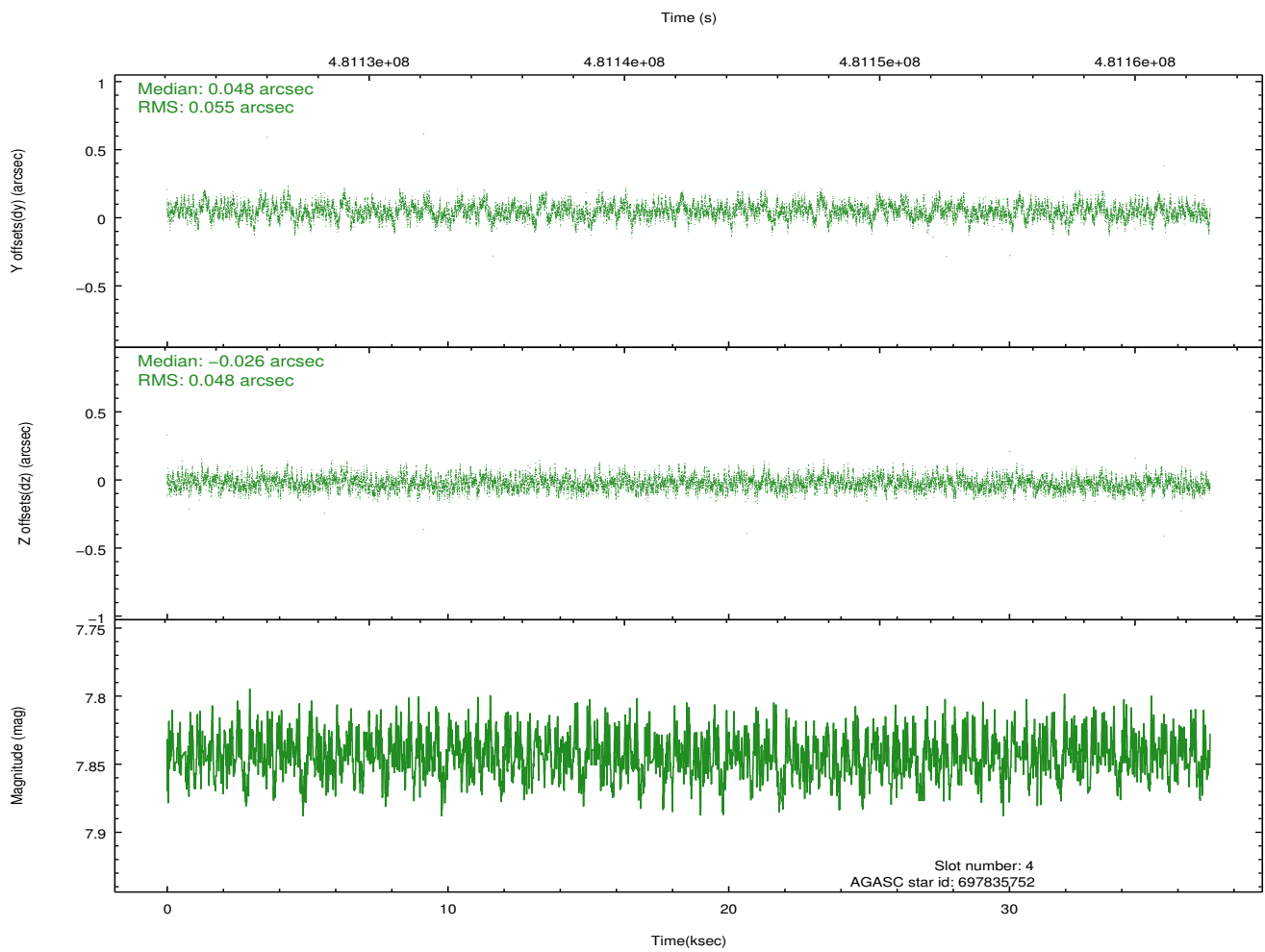
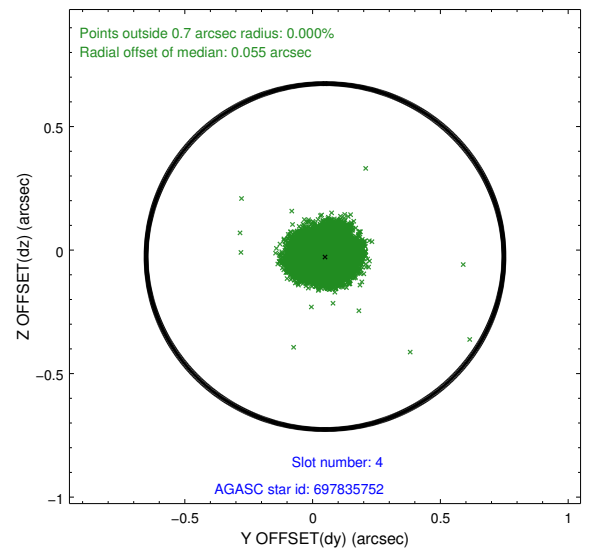
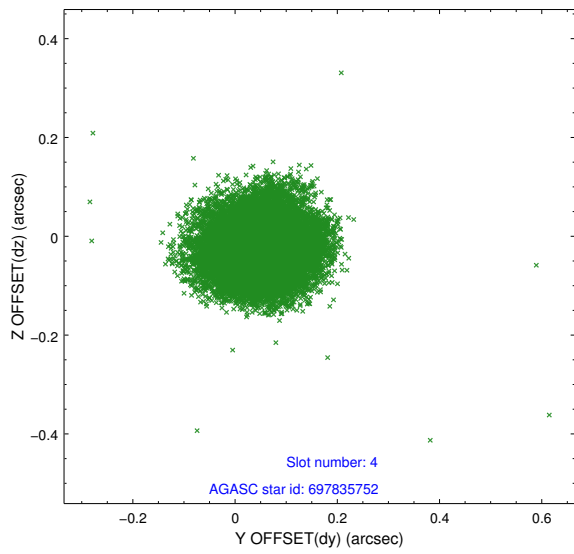
∞

## 2.4 Star Slots

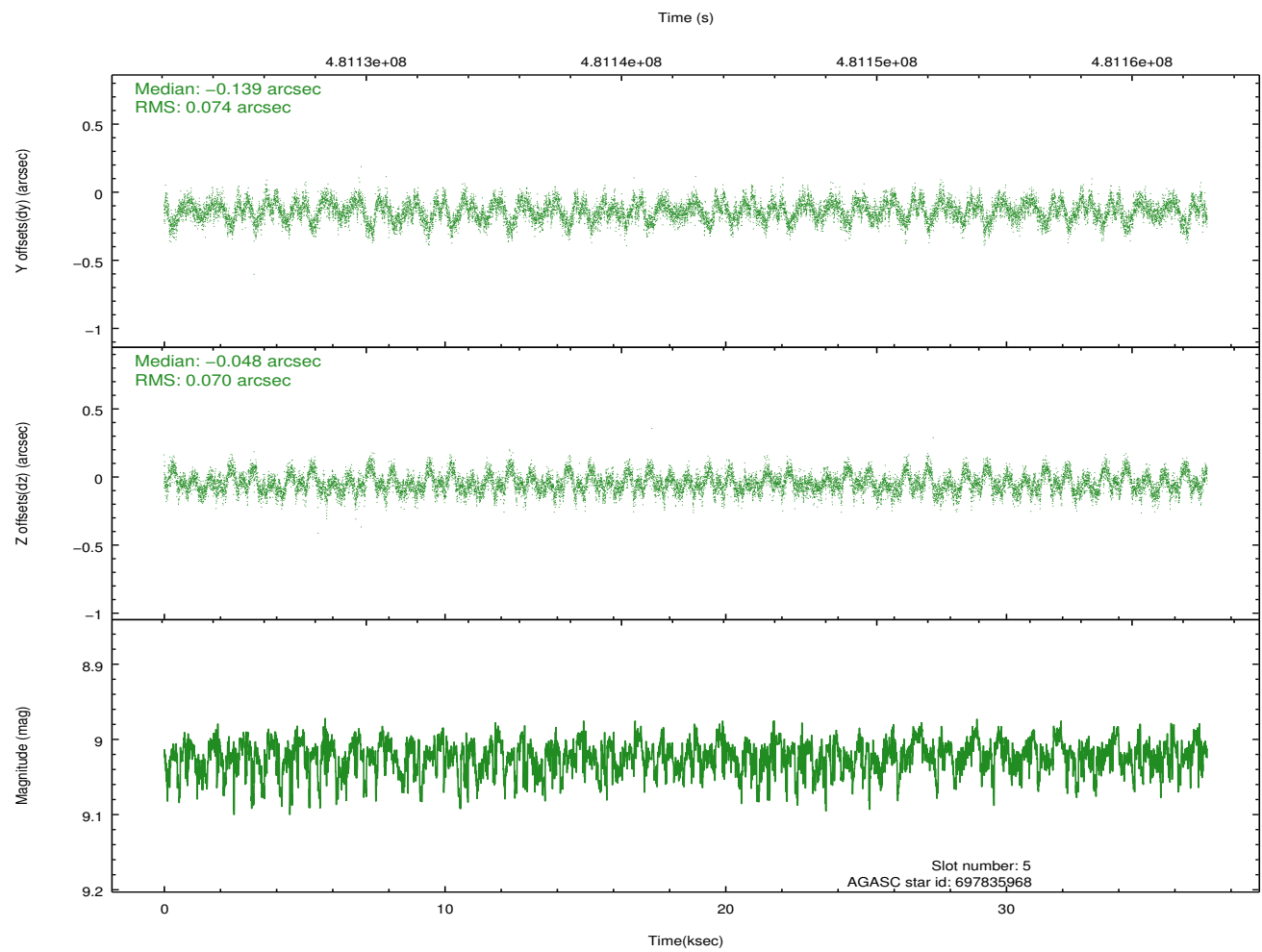
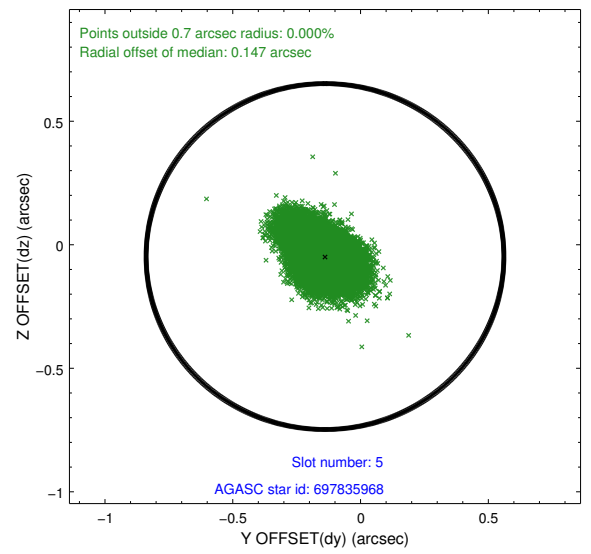
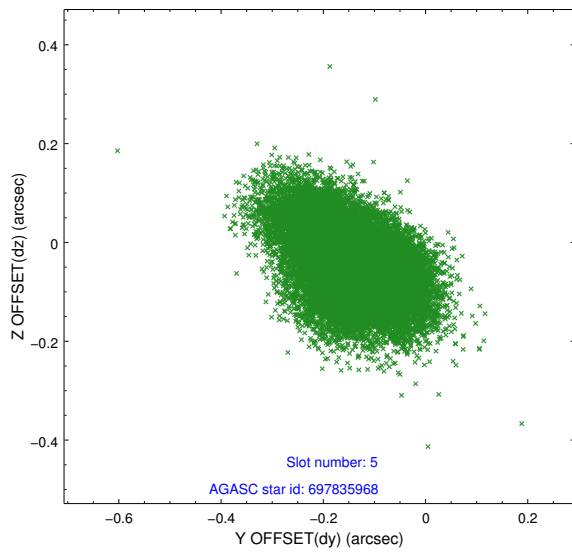
### 2.4.1 Slot 3



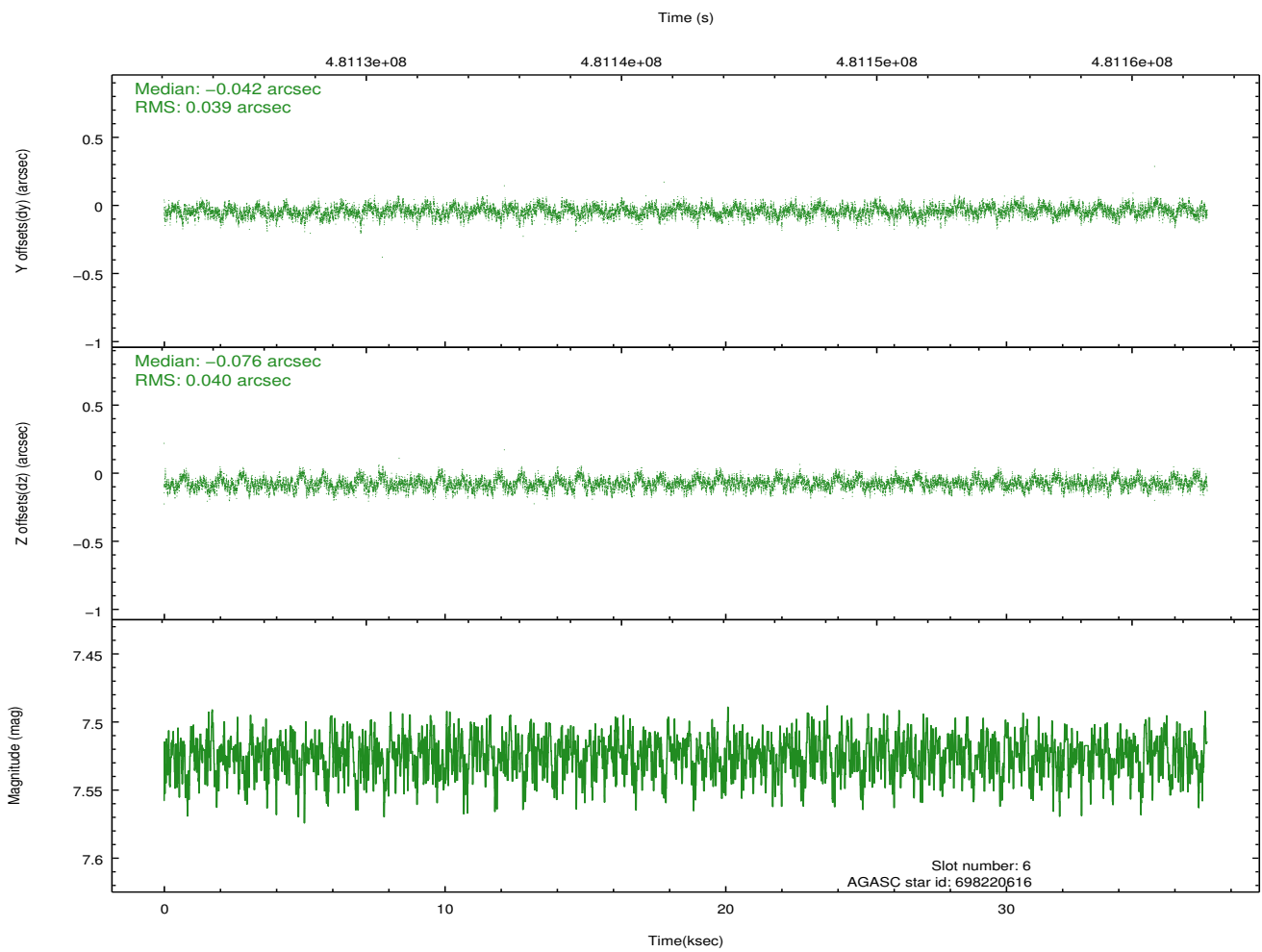
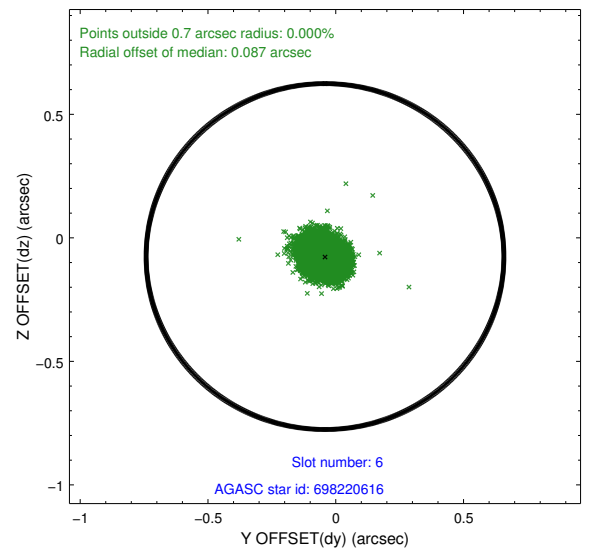
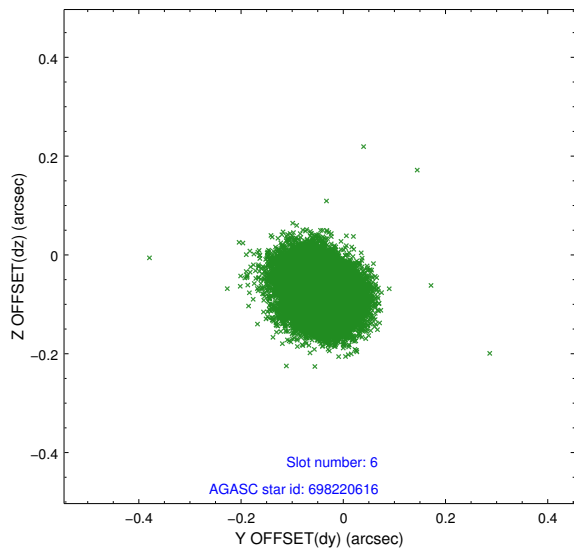
## 2.4.2 Slot 4



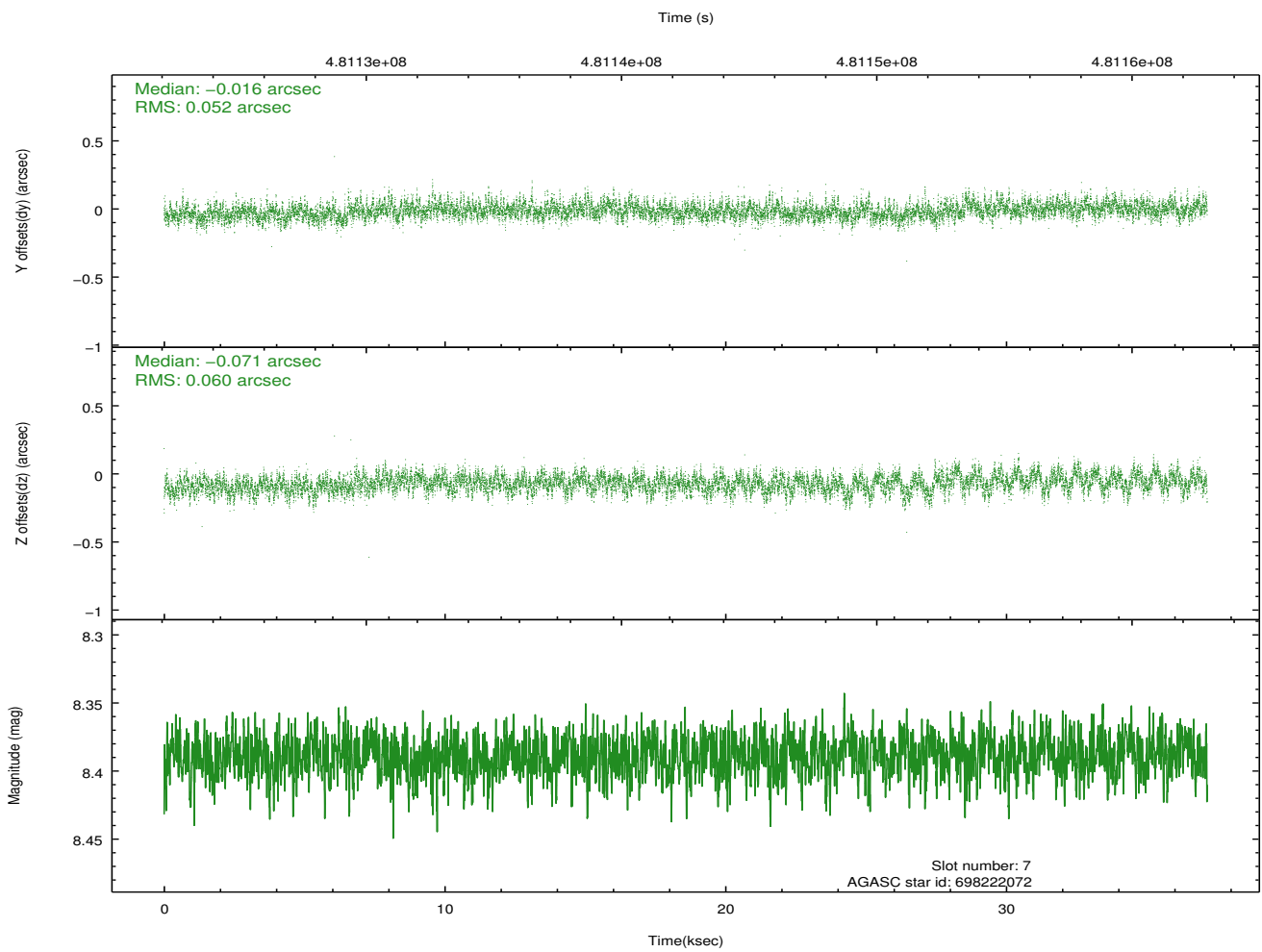
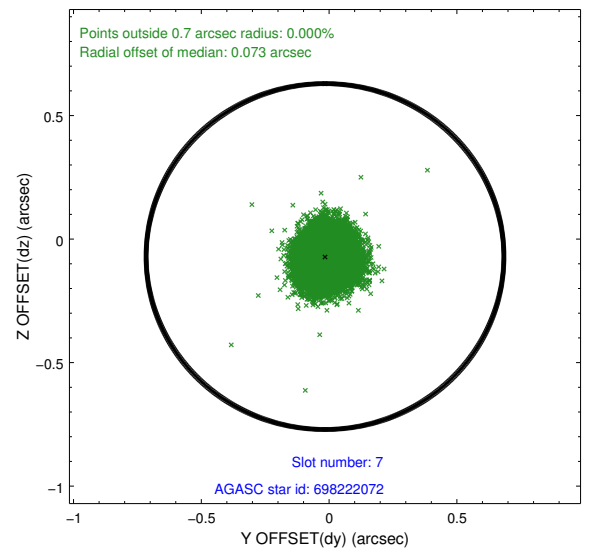
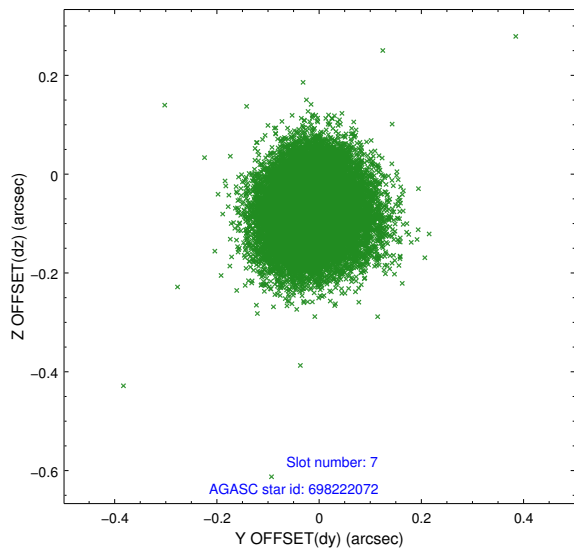
### 2.4.3 Slot 5



## 2.4.4 Slot 6

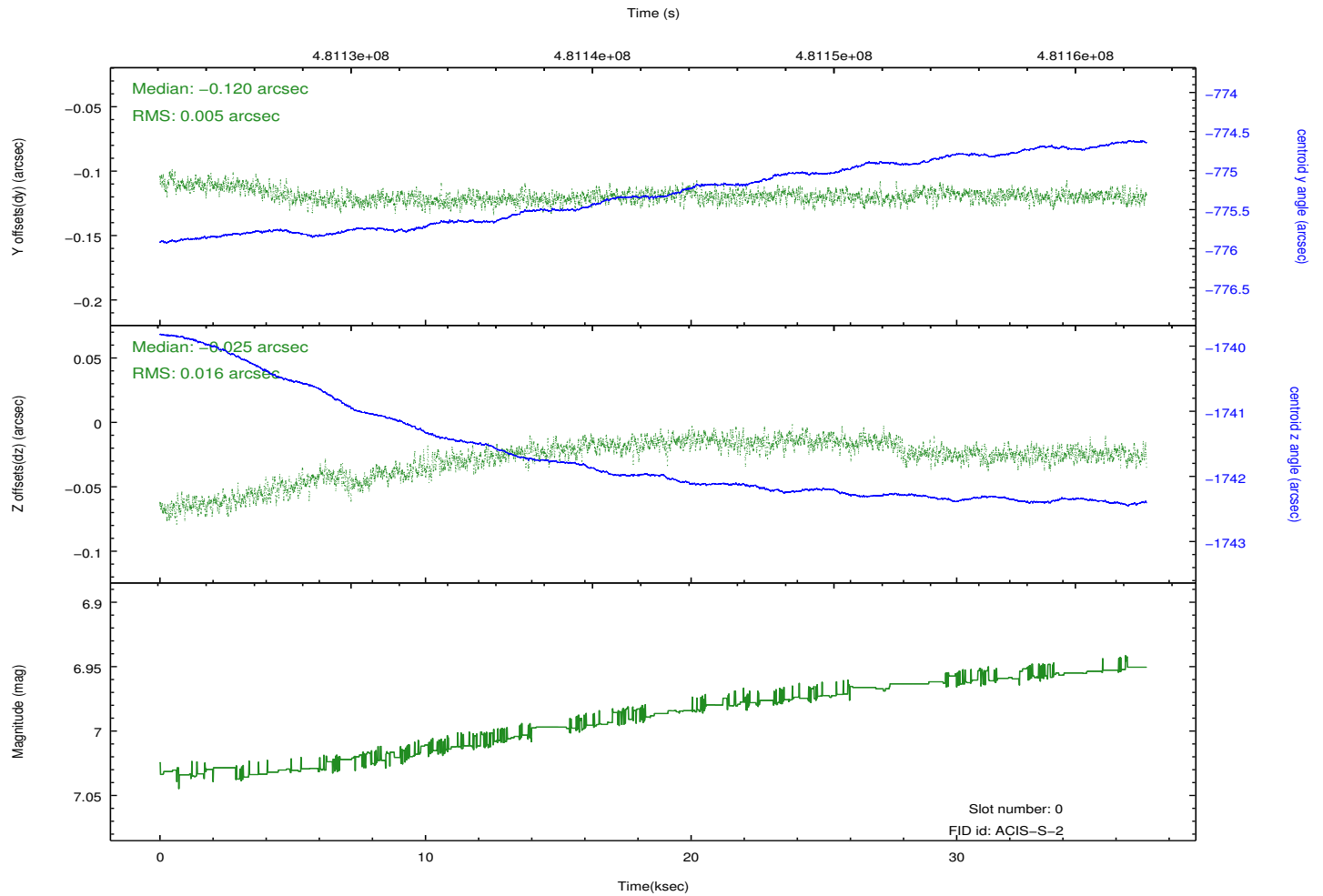
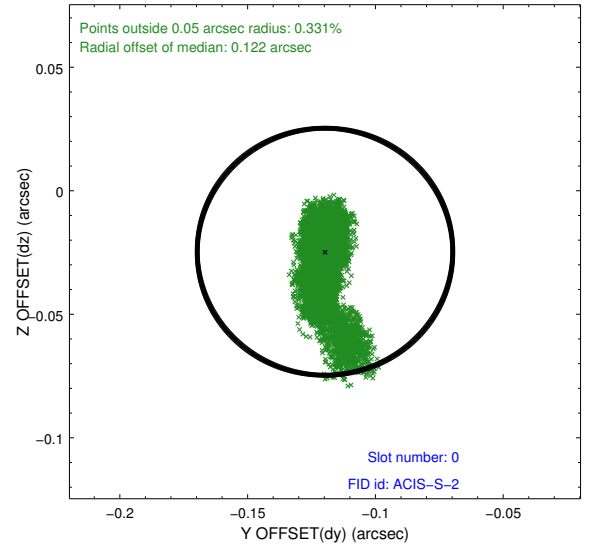
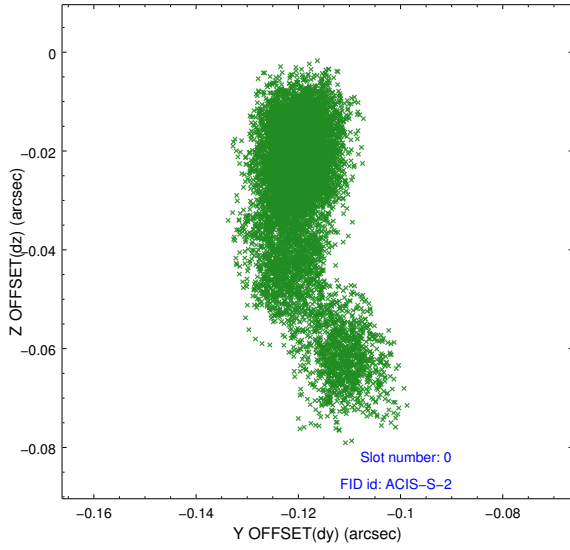


## 2.4.5 Slot 7

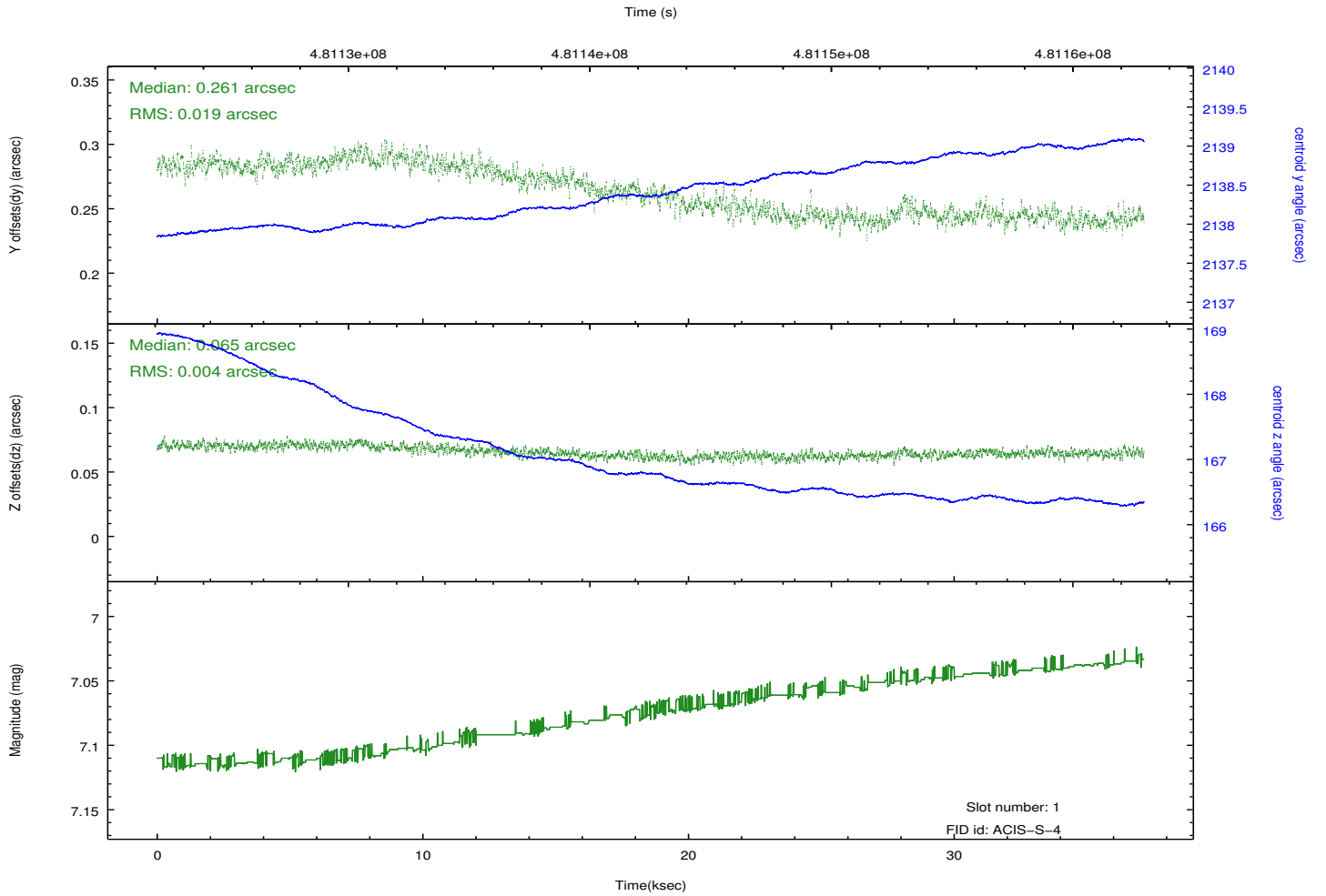
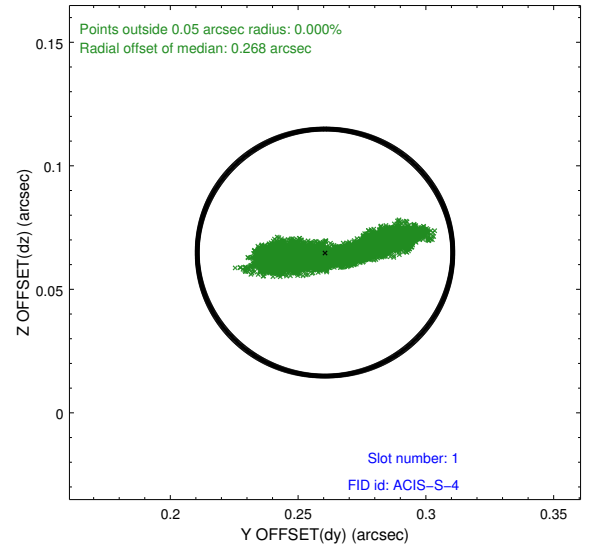
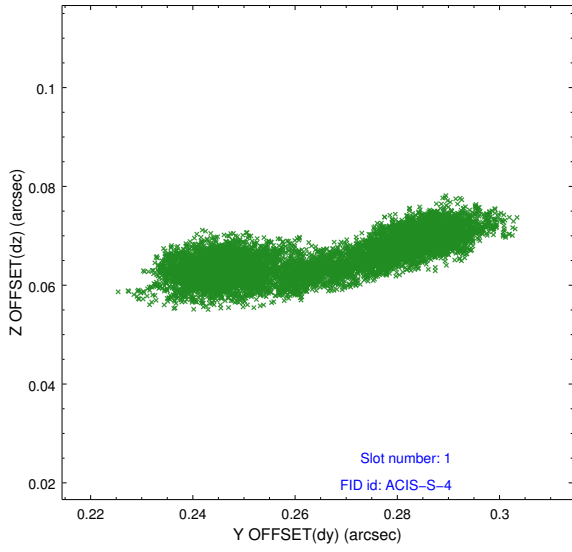


## 2.5 FID Slots

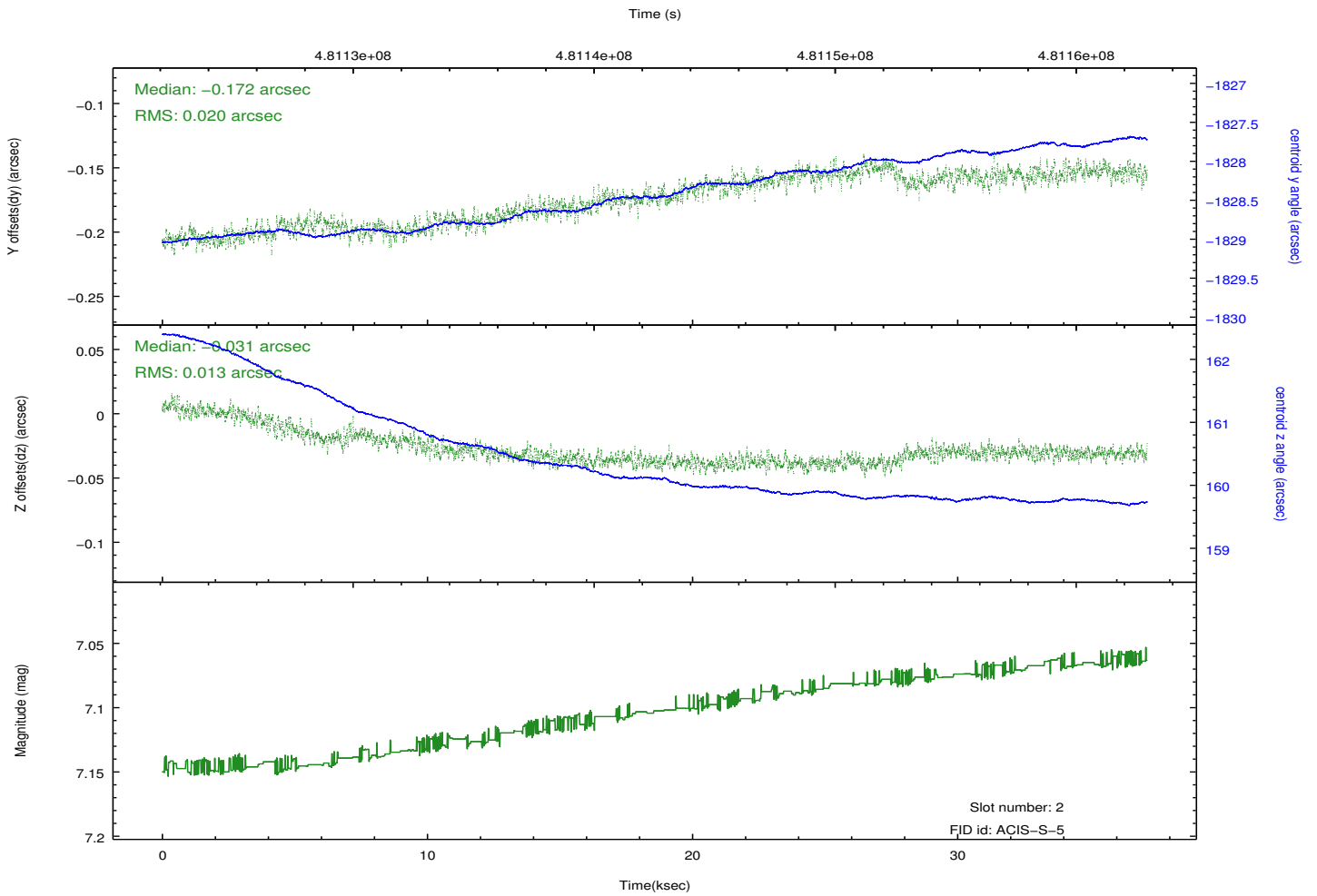
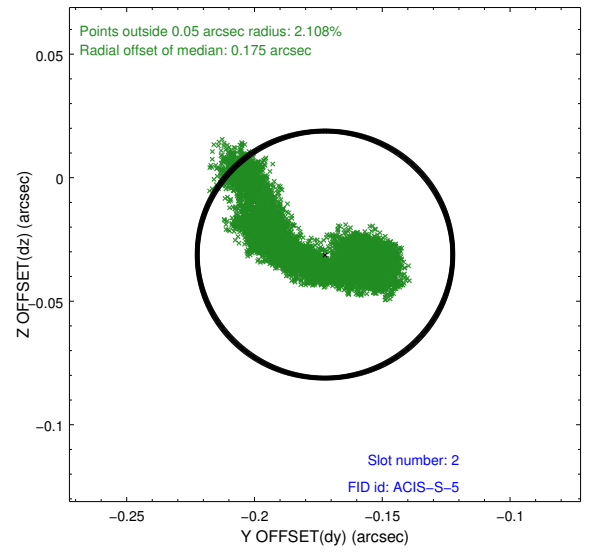
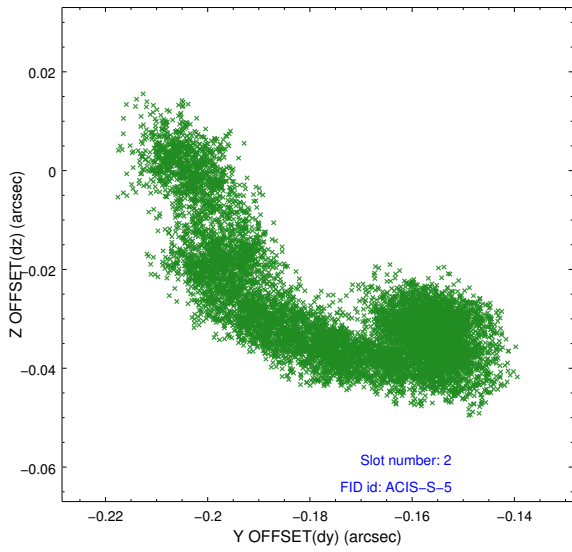
### 2.5.1 Slot 0



## 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)	2014.12.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	37.06339974016

## 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.