

# V&V Reference Report

## L2 ASCDS Version : 10.3.3

Observation 17530 - L2 Version 2  
Chandra X-Ray Center

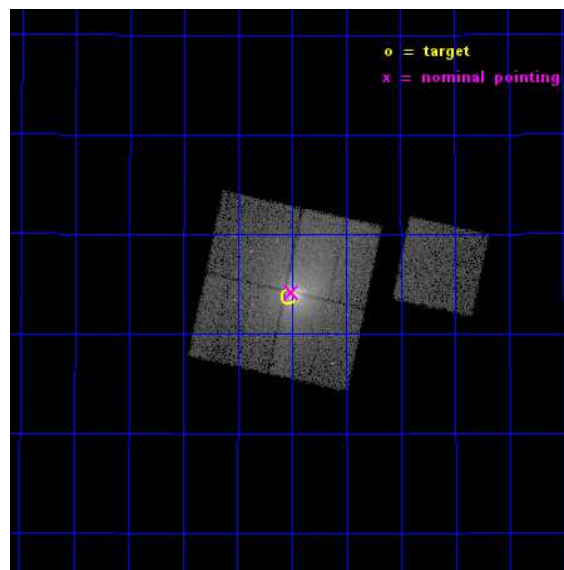
L2 Processing Date : Apr 22 2015

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# 1 Front

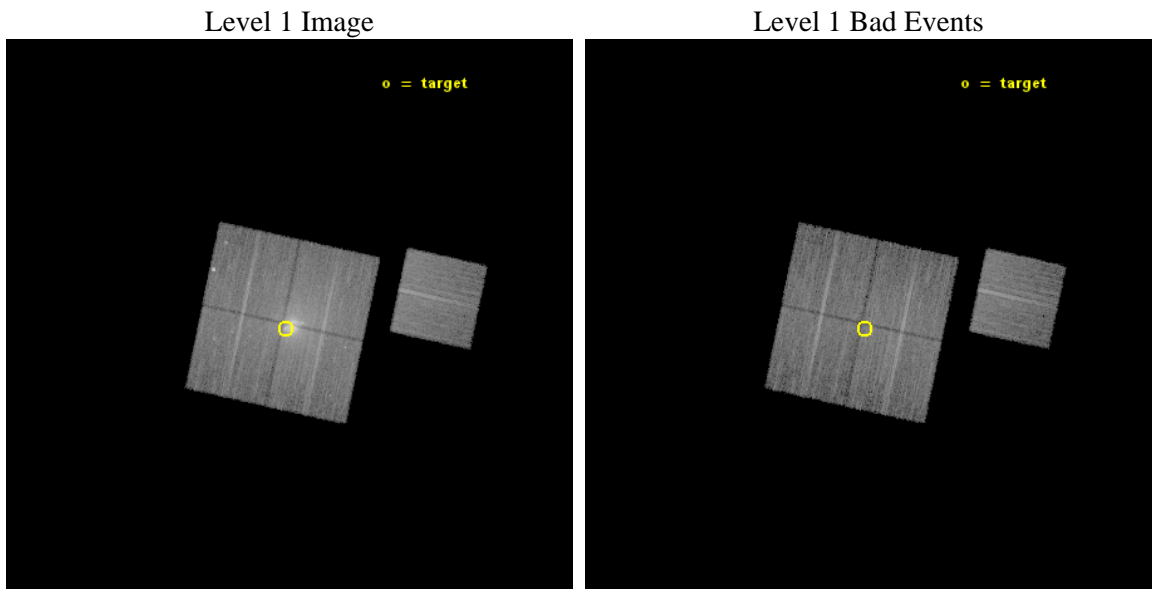
seq_num	703133	Sequence number
obs_id	17530	Observation id
title	The Rise to Power: Half a Billion Years of Intense AGN Activity in the Merging Cluster Cygnus A	Proposal title
observer	Dr. Michael Wise	Principal investigator
object	Cygnus A - E Hotspot	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	299.883333	Observer's specified target RA [deg]
dec_targ	40.727889	Observer's specified target Dec [deg]
ra_nom	299.87644332059	Nominal RA [deg]
dec_nom	40.736484306252	Nominal Dec [deg]
roll_nom	102.21319857139	Nominal Roll [deg]
revision	2	Processing version of data
ontime	21582.200166106	Sum of GTIs [s]
livetime	21300.212832351	Livetime [s]
ontime0	21579.059175849	Sum of GTIs [s]
ontime1	21582.200166106	Sum of GTIs [s]
ontime2	21582.200166106	Sum of GTIs [s]
ontime3	21582.200166106	Sum of GTIs [s]
ontime6	21582.200166106	Sum of GTIs [s]
l2events	159643	Number of level 2 events



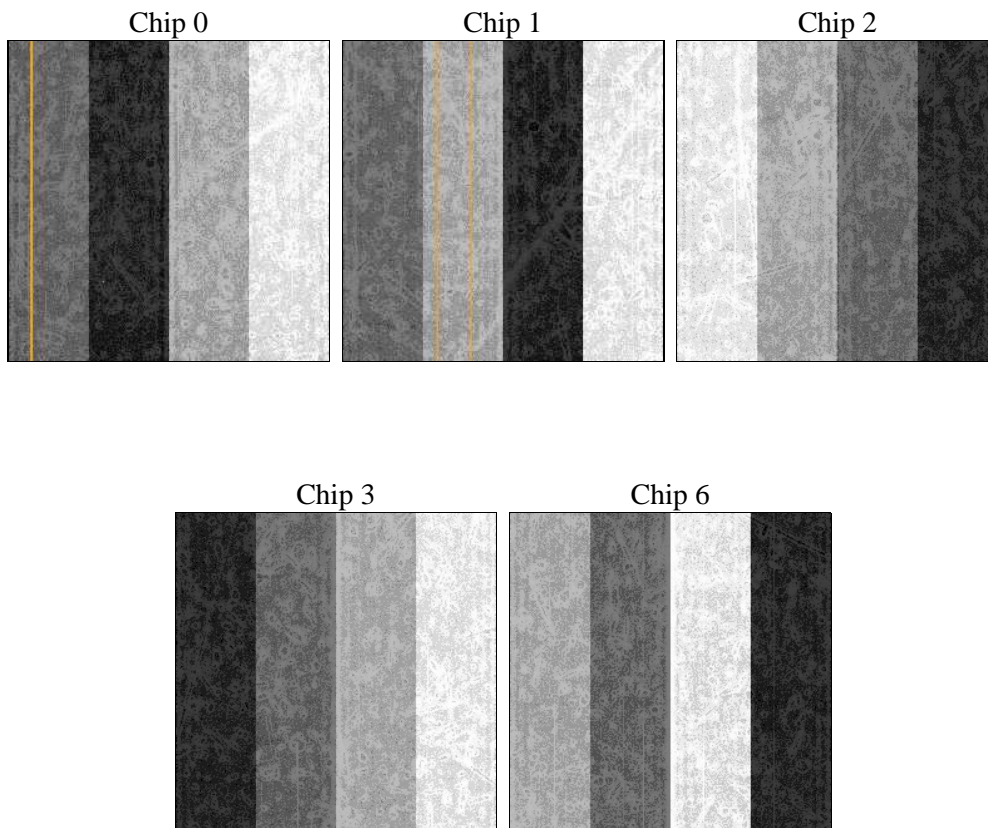
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	21500.000000	[s] Scheduled observation exposure time
ascdsver	10.3.3	Processing system revision	ontime	21582.200166106	Sum of GTIs [s]
caldbver	4.6.7	&#160	ontime0	21579.059175849	Sum of GTIs [s]
date	2015-04-22T18:05:28	Date and time of file creation	ontime1	21582.200166106	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	21582.200166106	Sum of GTIs [s]
			ontime3	21582.200166106	Sum of GTIs [s]
			ontime6	21582.200166106	Sum of GTIs [s]
			l1events	599497	Number of level 1 events

### 2.1.4 Events

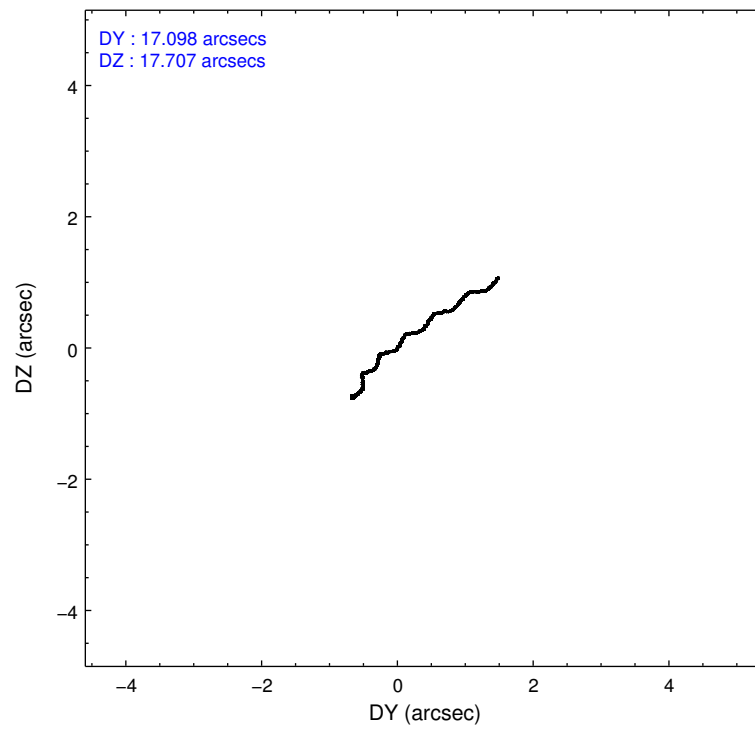
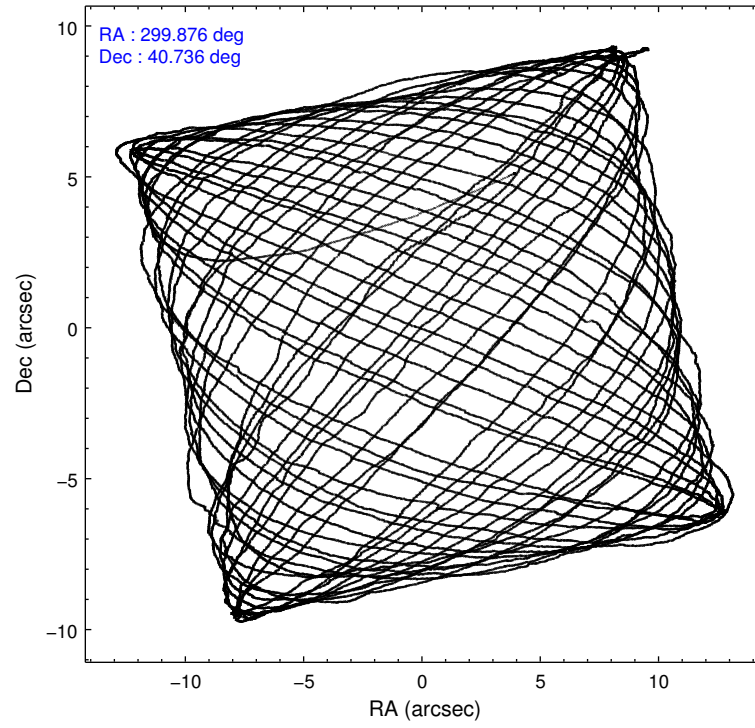
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	105900	102274	144360	145162	101801
rejected events	79468	79472	87128	88805	87523
rejected %	75%	77%	60%	61%	85%

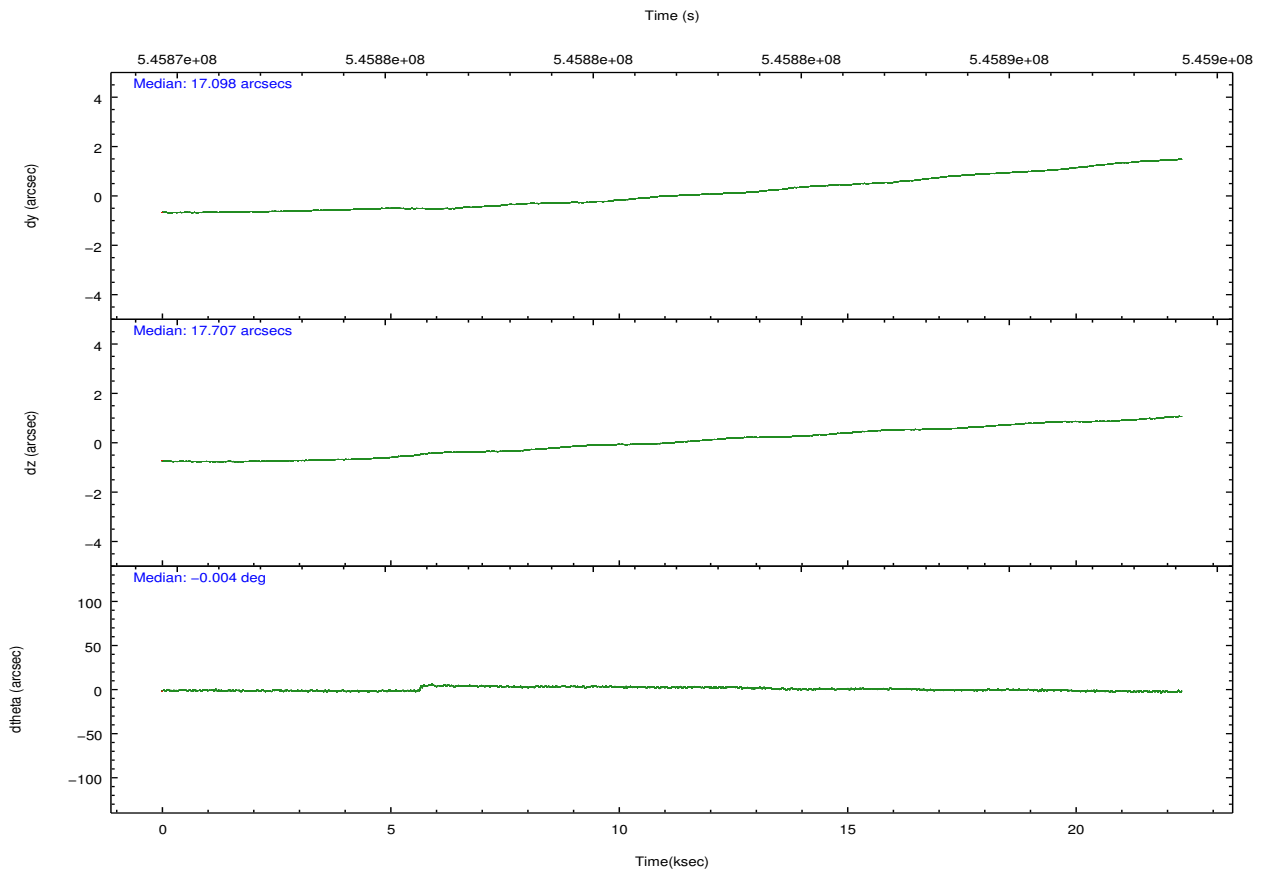
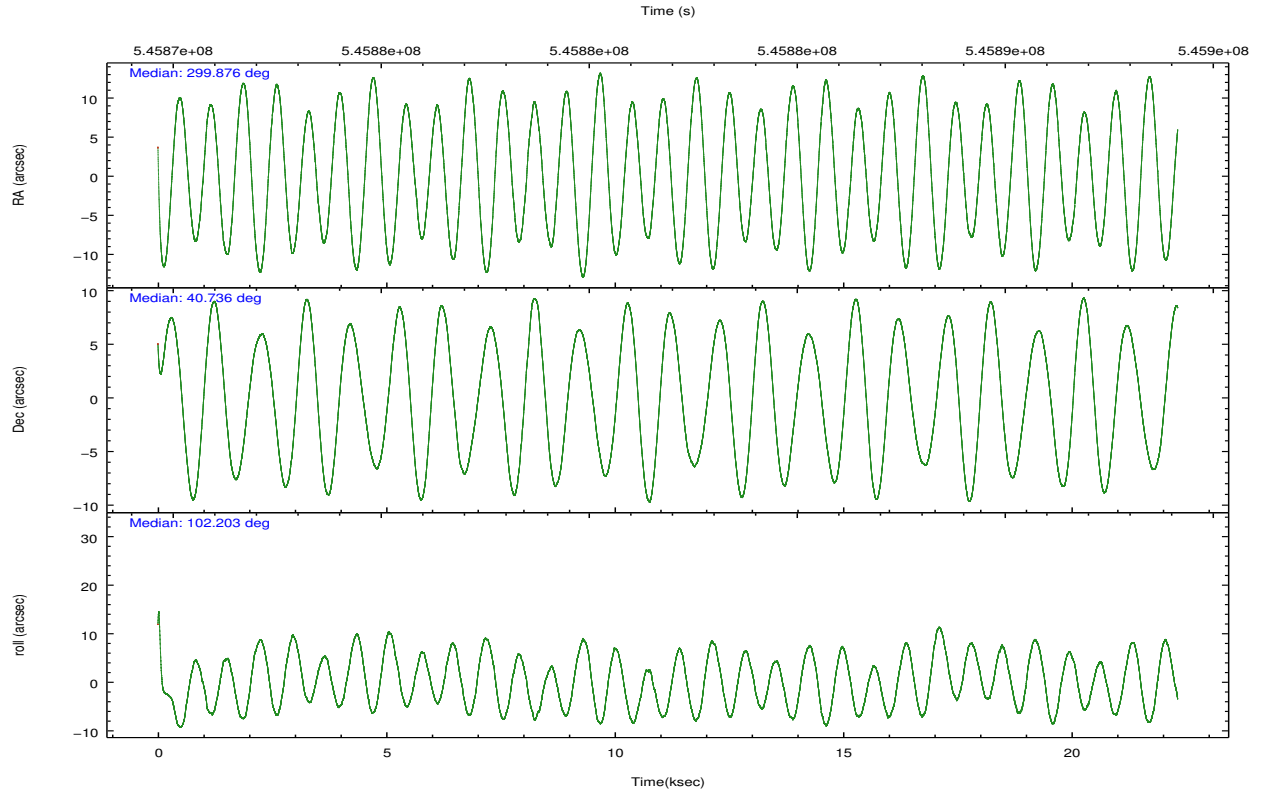
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	13678	12084	40023	39146	5821
	12%	11%	27%	26%	5%
grade 1 events	95	76	210	341	54
	0%	0%	0%	0%	0%
grade 2 events	6620	4385	7815	7478	3039
	6%	4%	5%	5%	2%
grade 3 events	1675	1601	2792	2777	1322
	1%	1%	1%	1%	1%
grade 4 events	1567	1578	2726	2828	1260
	1%	1%	1%	1%	1%
grade 5 events	4819	5125	4563	5670	5208
	4%	5%	3%	3%	5%
grade 6 events	2902	3162	3889	4155	2843
	2%	3%	2%	2%	2%
grade 7 events	74544	74263	82342	82767	82254
	70%	72%	57%	57%	80%

## 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	299.901033	299.8764433205873	CCD I2 on	Y	Y
[deg] Pointing Dec	40.716085	40.7364843062523	CCD I3 on	Y	Y
[deg] Pointing Roll	101.988452	102.2131985713908	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	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	545871530.184000	545869779.17814	CCD S5 on	N	N
Observation start date	2015-04-19T22:57:43	2015-04-19T22:29:39	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	545893030.184000	545893874.36698	On-chip summing requested	N	N
Observation end date	2015-04-20T04:56:03	2015-04-20T05:11:14	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





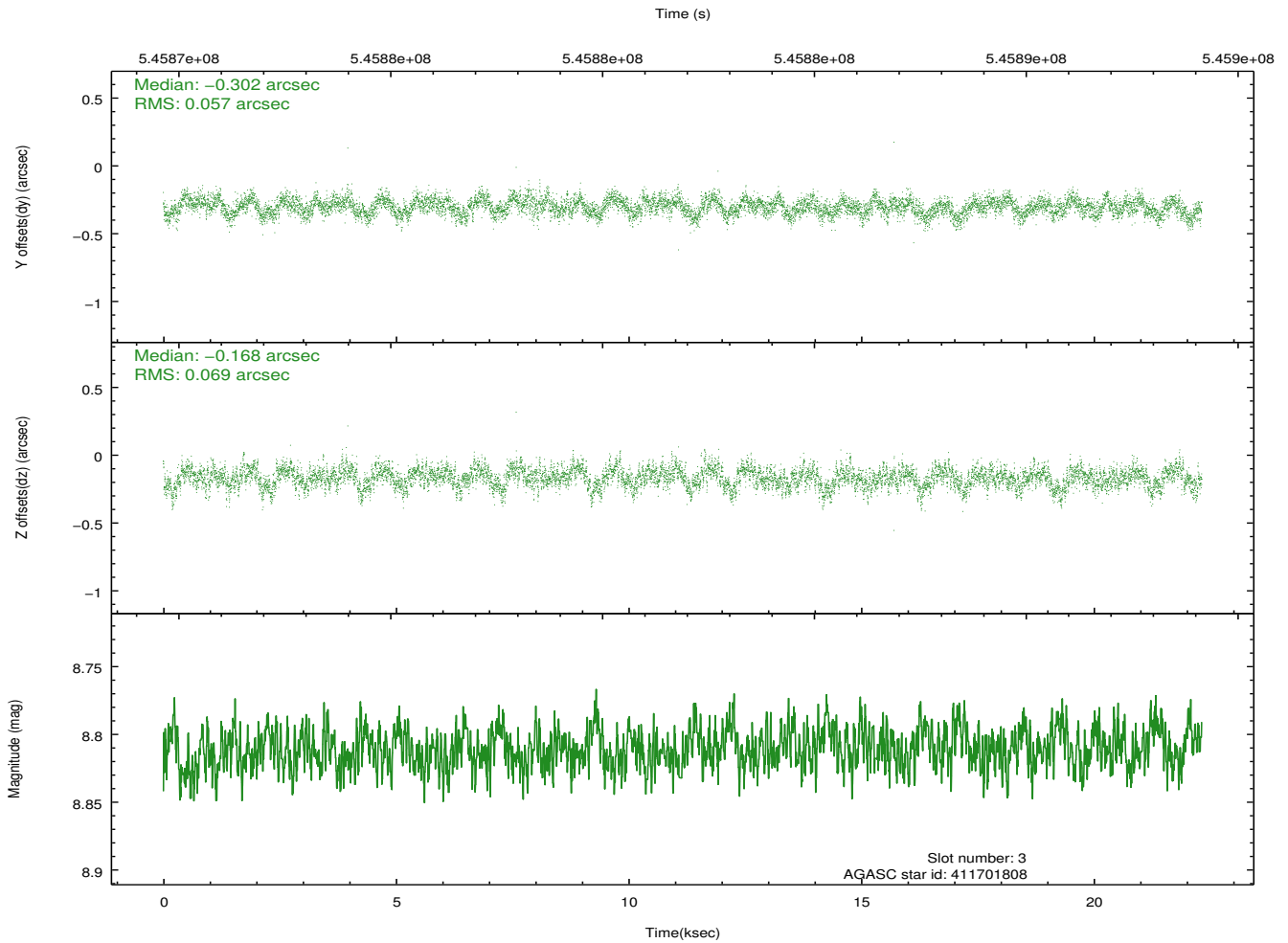
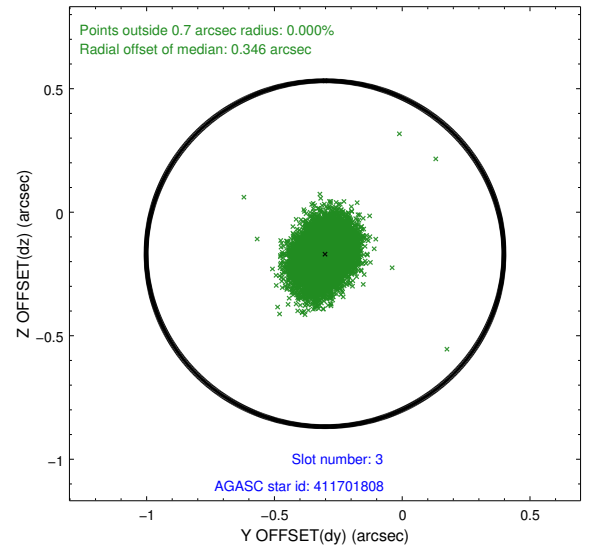
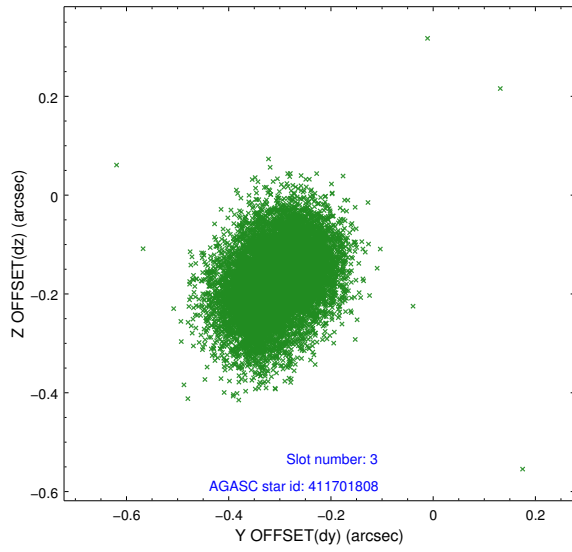
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.02	5445	-0.031	-0.012	0.024	0.083	0.000000	0.000000	922.17	-841.42
1	FID		ACIS-I-4	6.97	5445	0.297	0.047	0.032	0.075	0.000000	0.000000	2142.56	1058.43
2	FID		ACIS-I-5	7.01	5443	-0.364	0.037	0.024	0.054	0.000000	0.000000	-1826.02	1056.32
3	GUIDE	used	411701808	8.81	10885	-0.302	-0.168	0.095	0.153	299.419536	40.880184	853.26	1158.62
4	GUIDE	used	411707968	7.23	10889	-0.060	-0.387	0.097	0.160	299.509933	40.926839	965.67	882.29
5	GUIDE	used	413421016	8.69	10887	0.169	0.438	0.107	0.162	300.612426	40.446254	-1346.80	-1705.80
6	GUIDE	used	413421624	8.70	10886	-0.033	0.207	0.087	0.138	300.399768	40.893051	345.38	-1460.74
7	GUIDE	used	413929808	8.46	10886	0.229	-0.088	0.130	0.207	300.621353	41.348826	1832.57	-2378.92

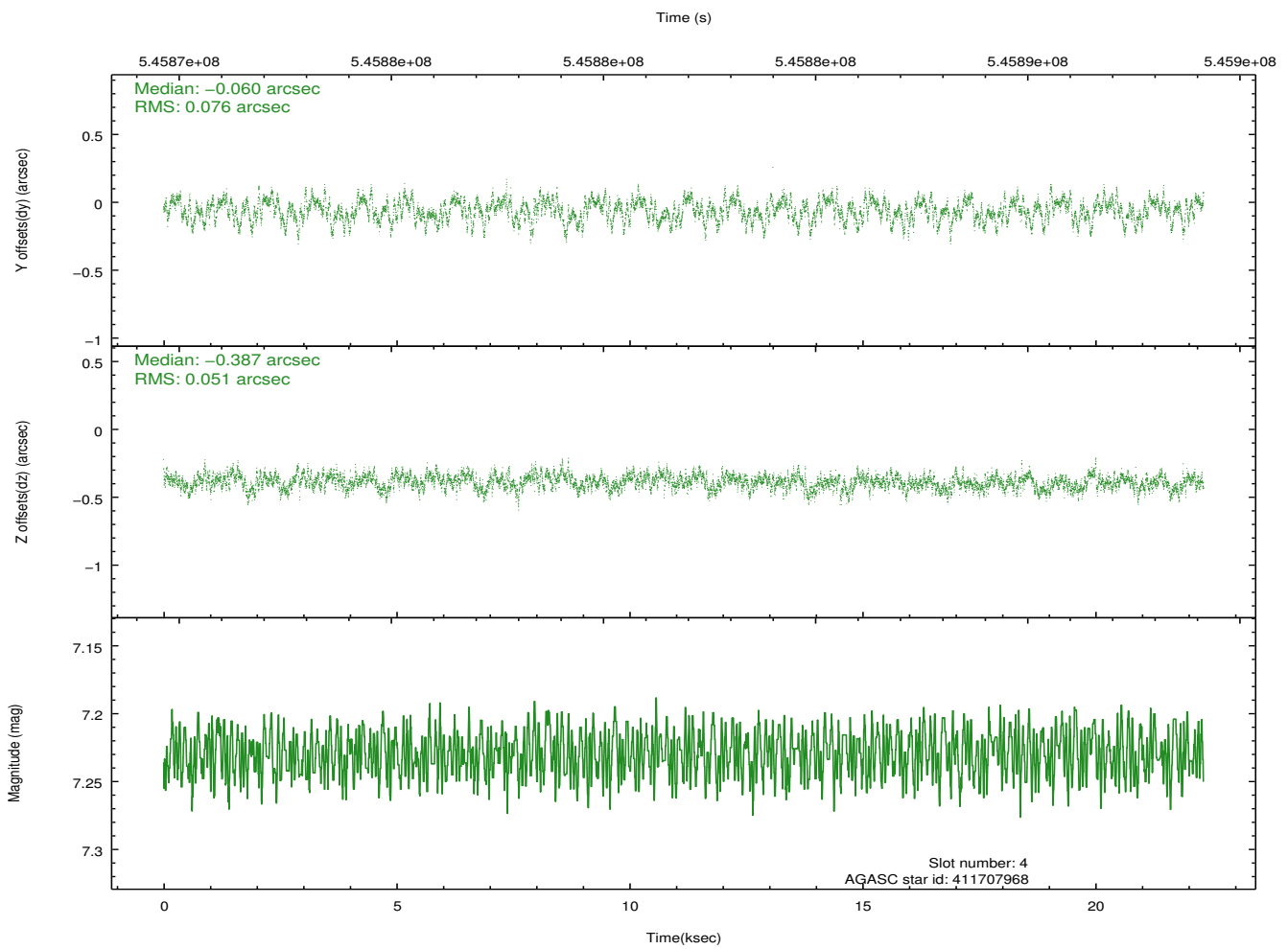
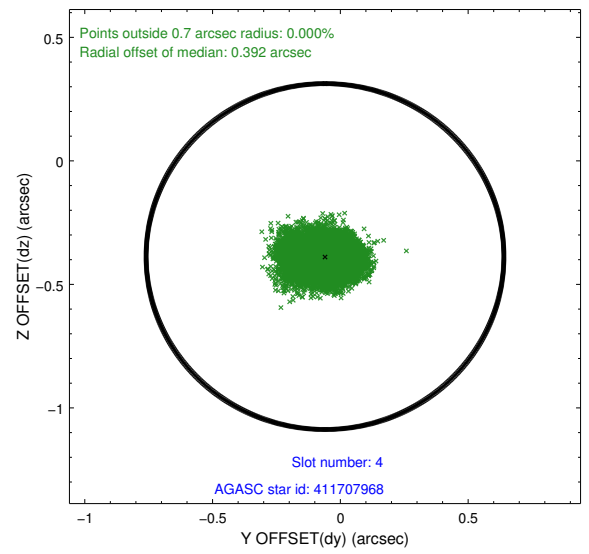
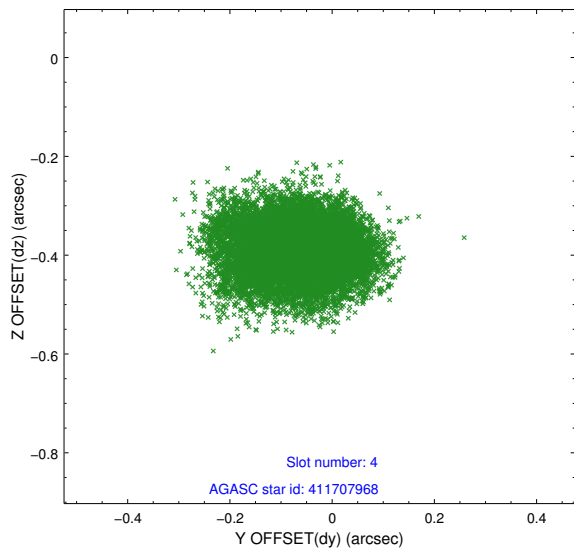
∞

## 2.4 Star Slots

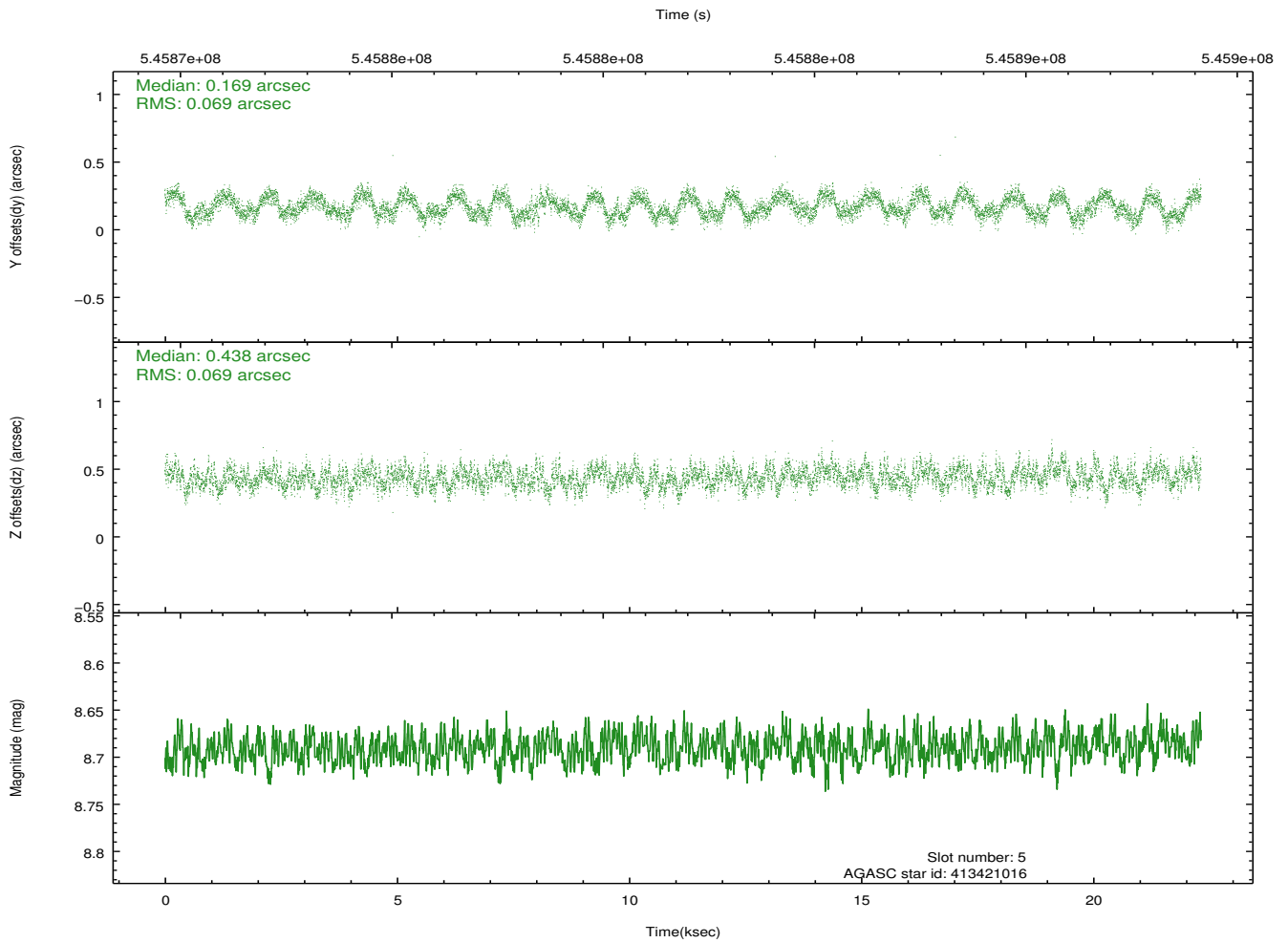
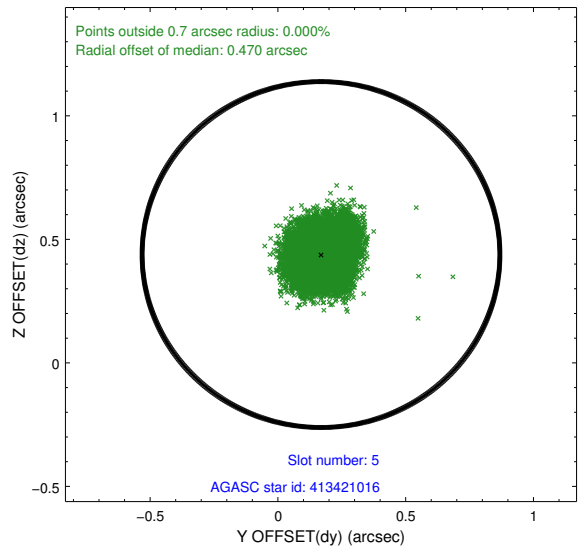
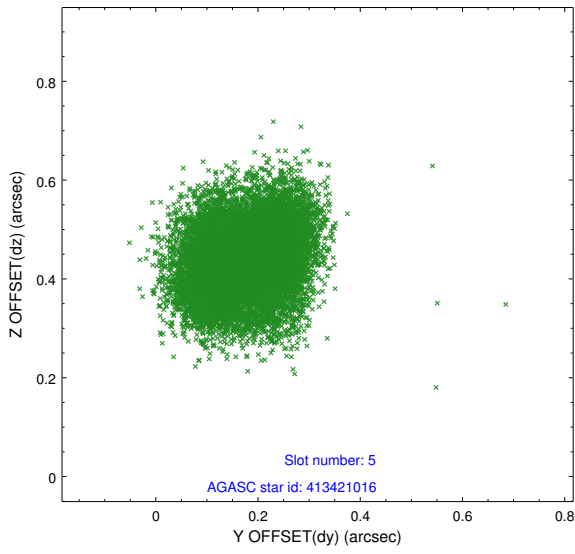
### 2.4.1 Slot 3



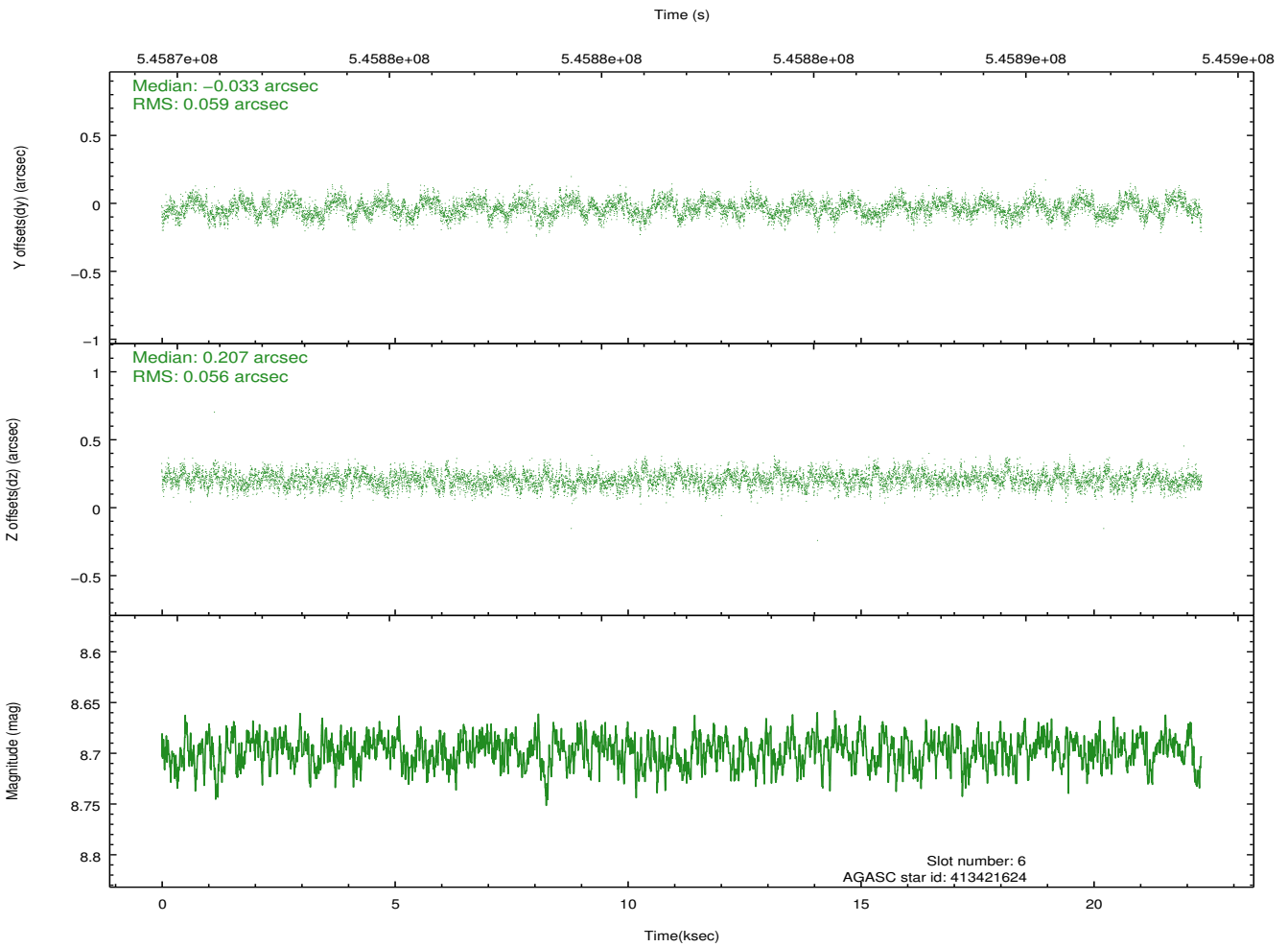
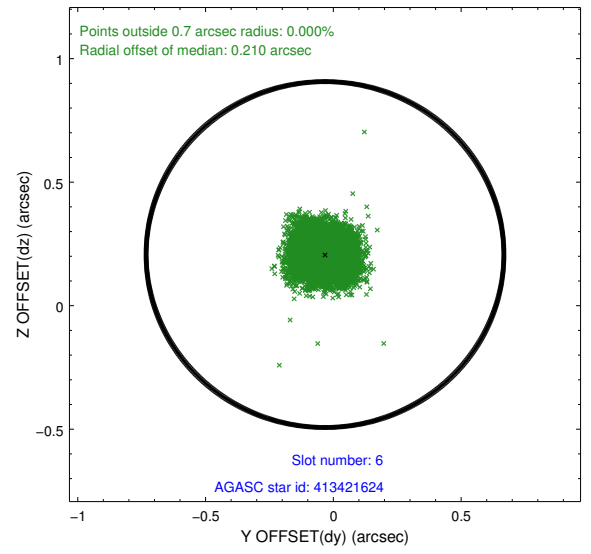
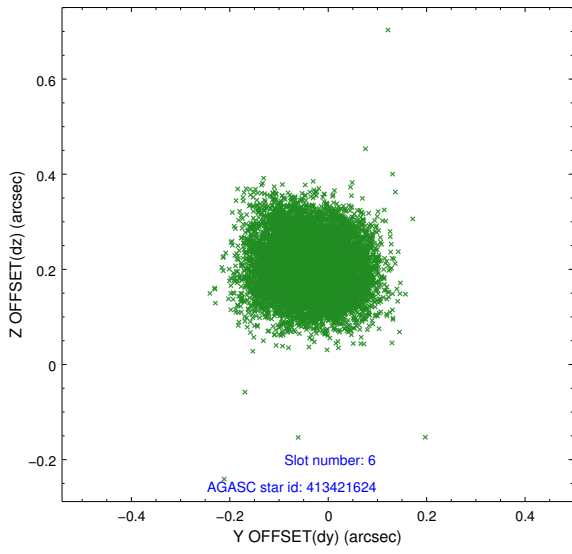
## 2.4.2 Slot 4



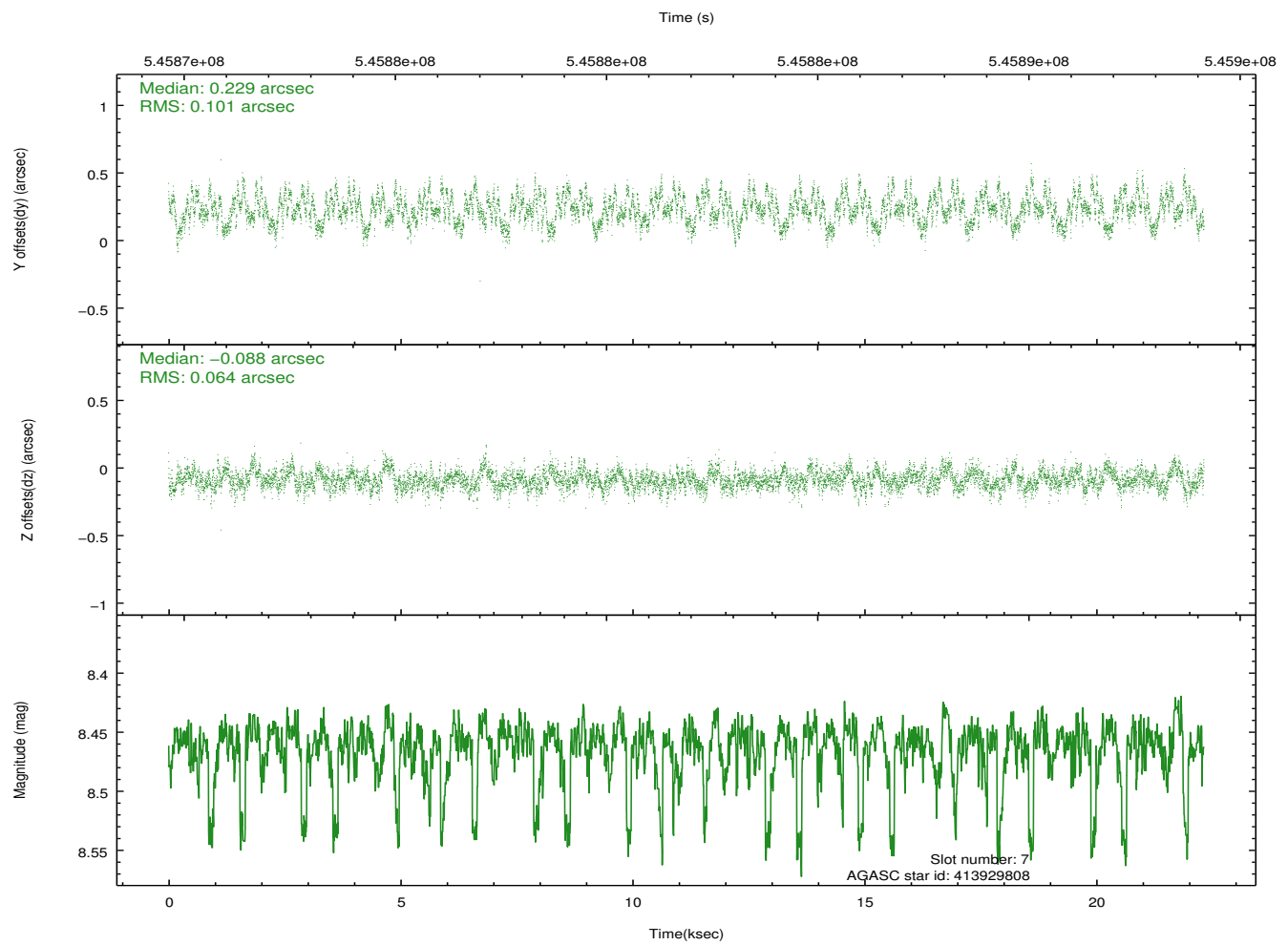
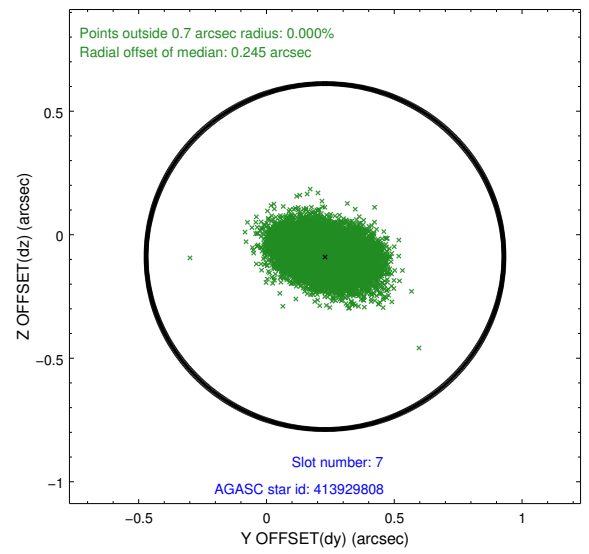
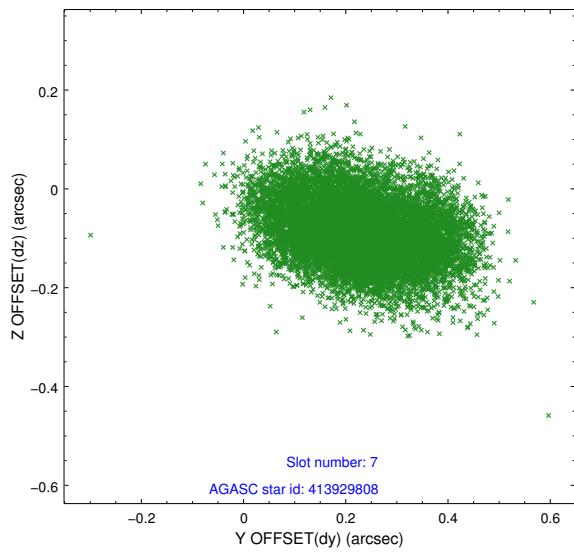
### 2.4.3 Slot 5



### 2.4.4 Slot 6

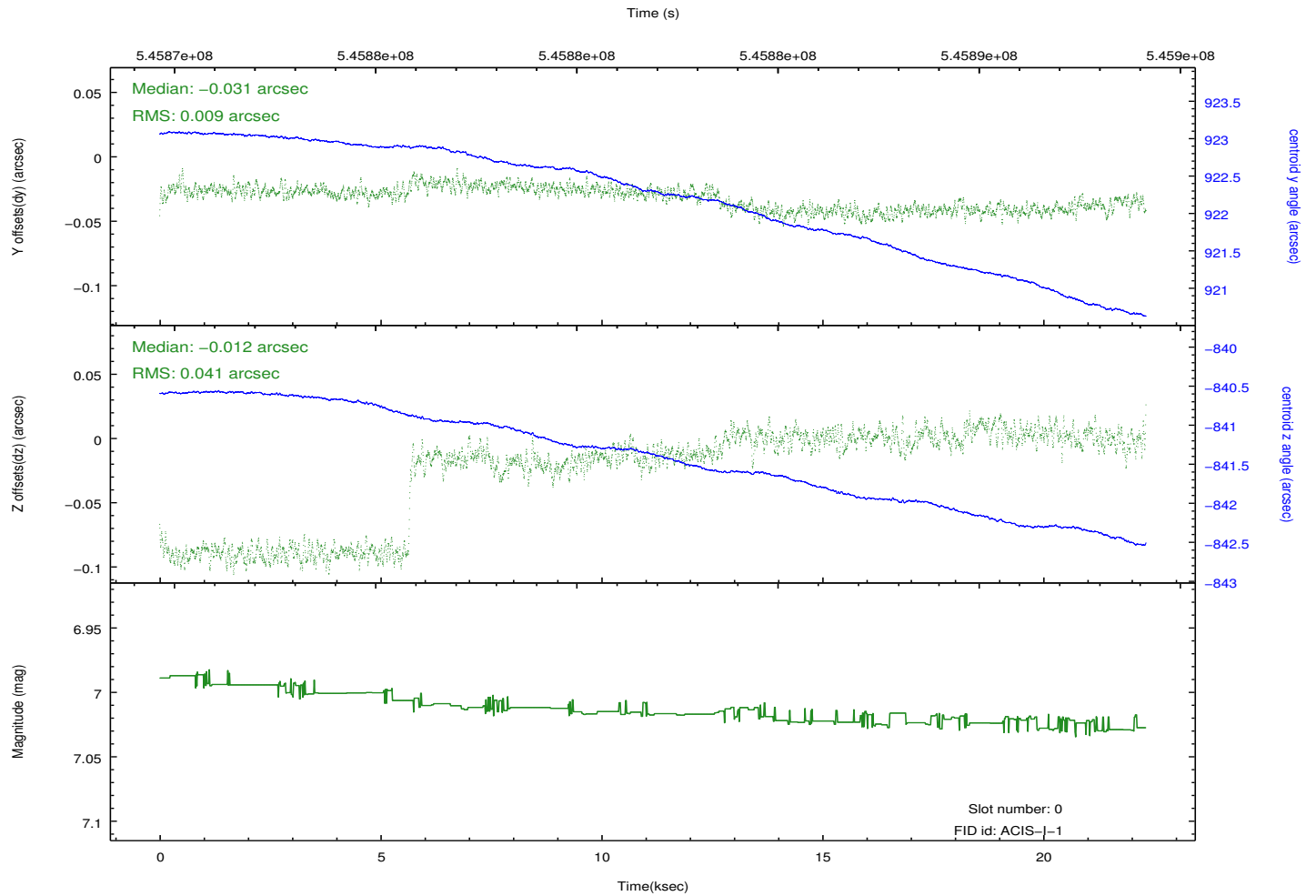
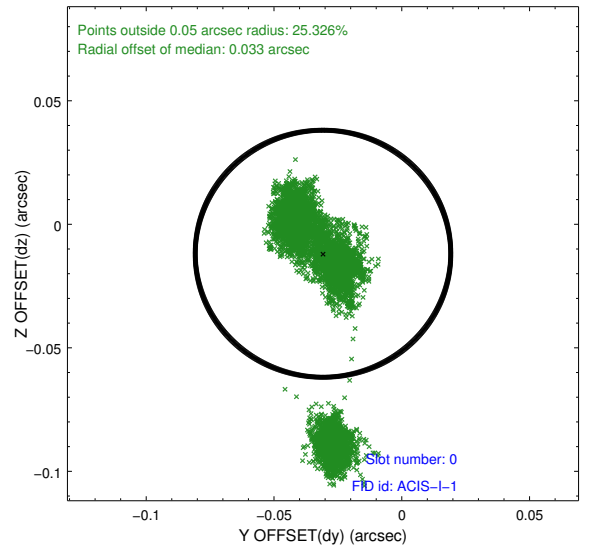
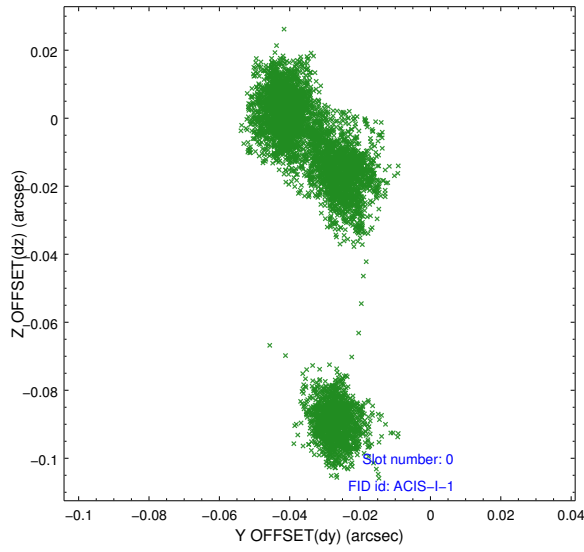


## 2.4.5 Slot 7

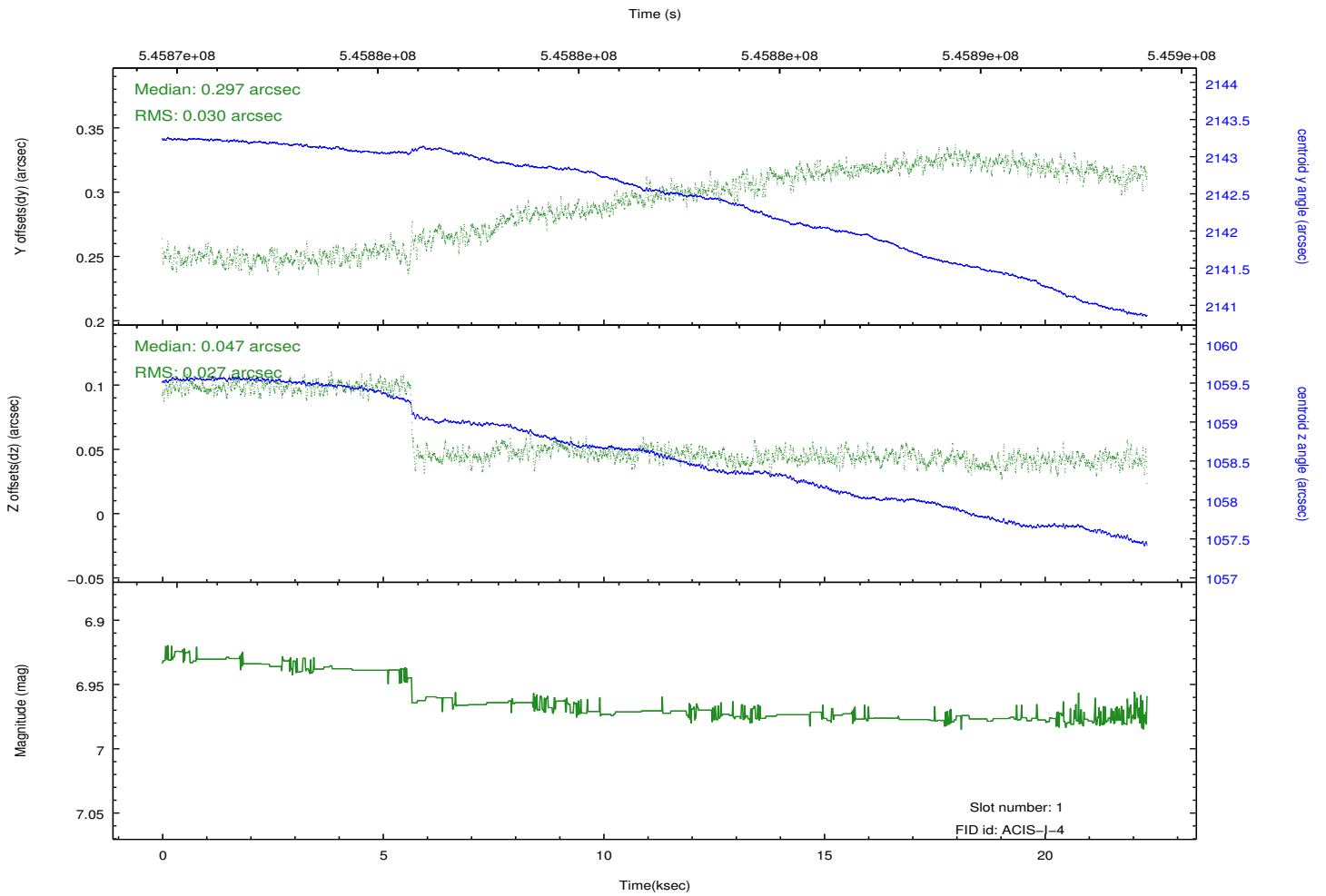
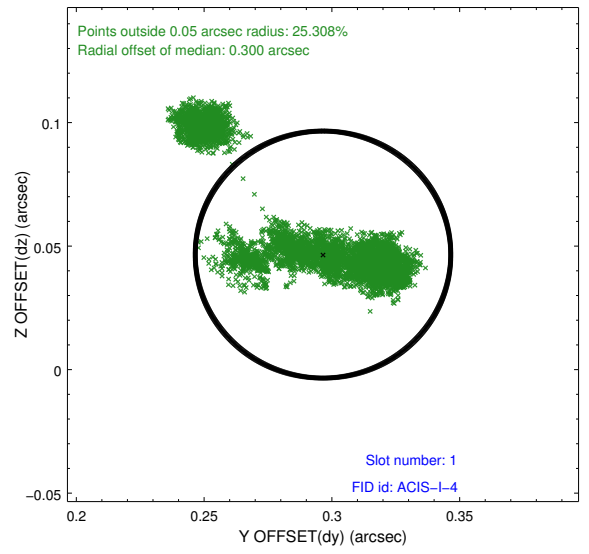
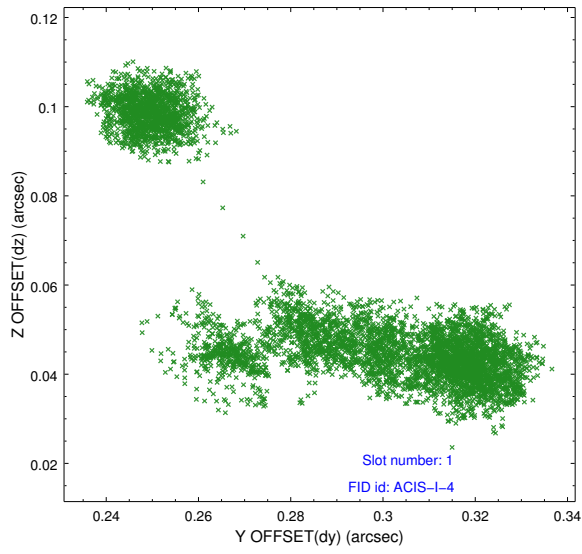


## 2.5 FID Slots

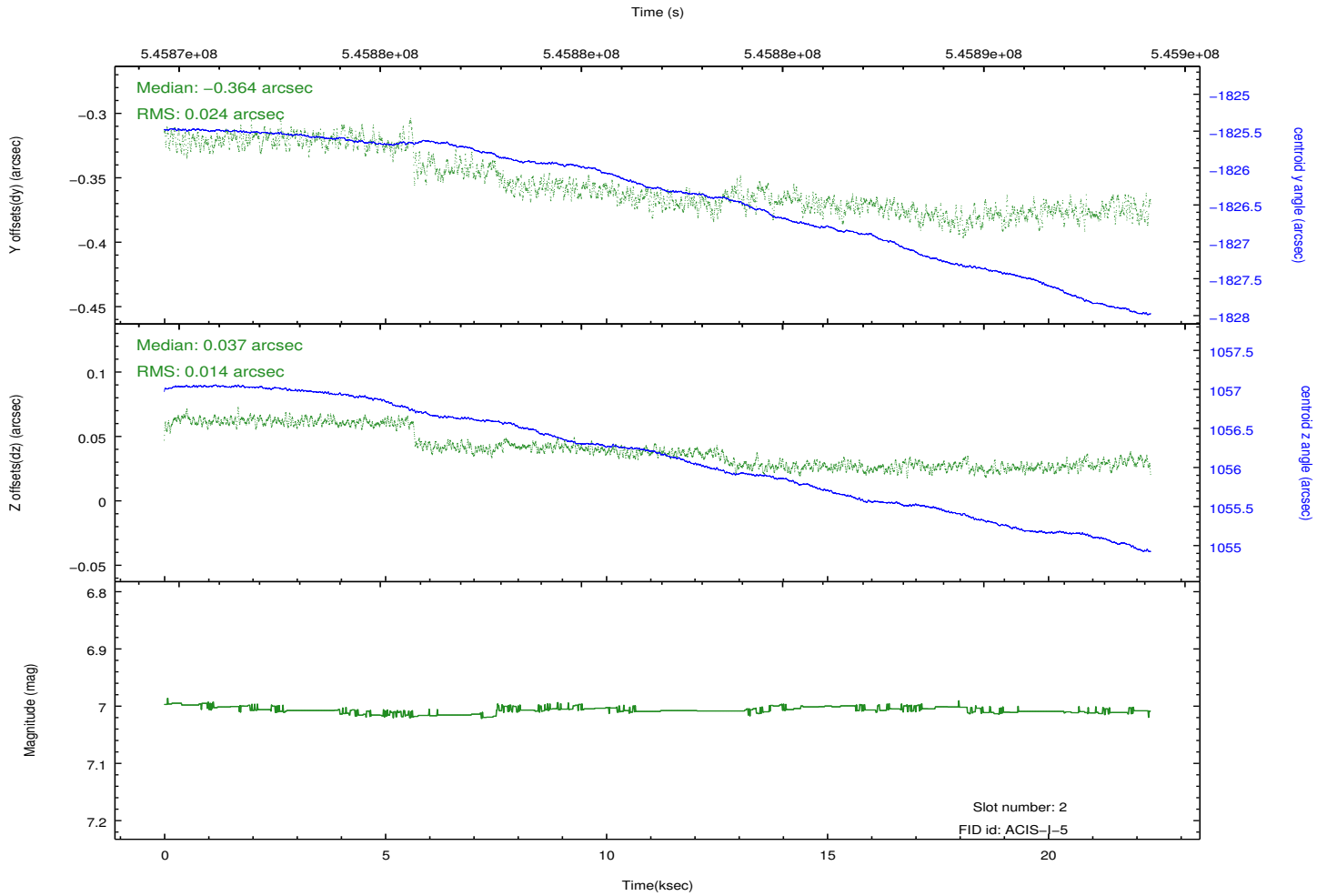
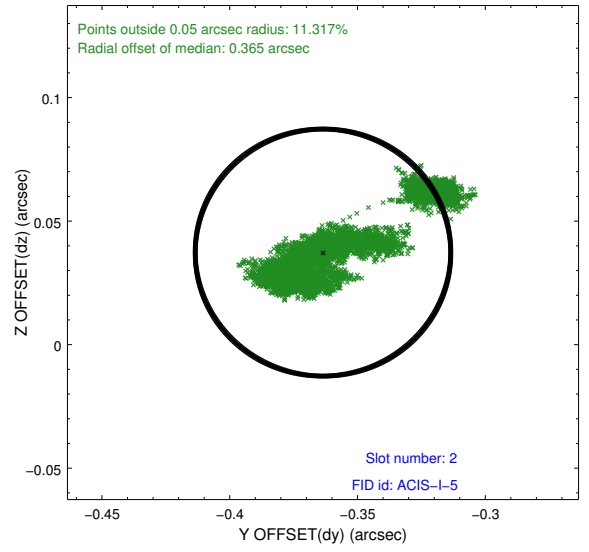
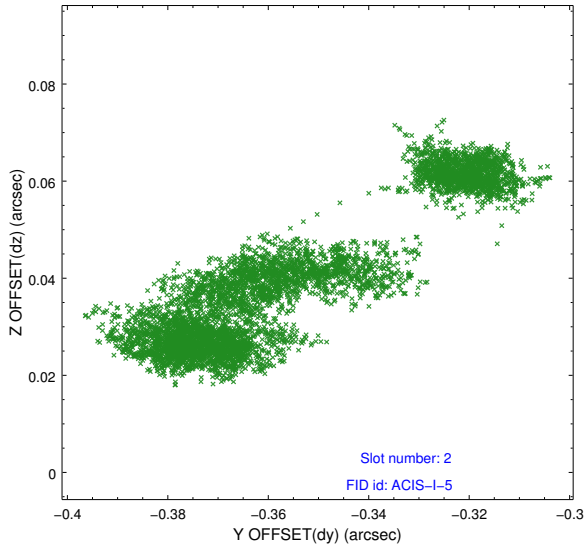
### 2.5.1 Slot 0



## 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)	2015.04.22
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	21.582200166106

## A.2 Comments

A spatial region of the original bias map for CCD = 0 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 0 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (299.94917, 40.89328), (299.94599, 40.89277), (299.98086, 40.77029), (299.98433, 40.76973).