

# V&V Reference Report

## L2 ASCDS Version : 10.4.1

Observation 18441 - L2 Version 2  
Chandra X-Ray Center

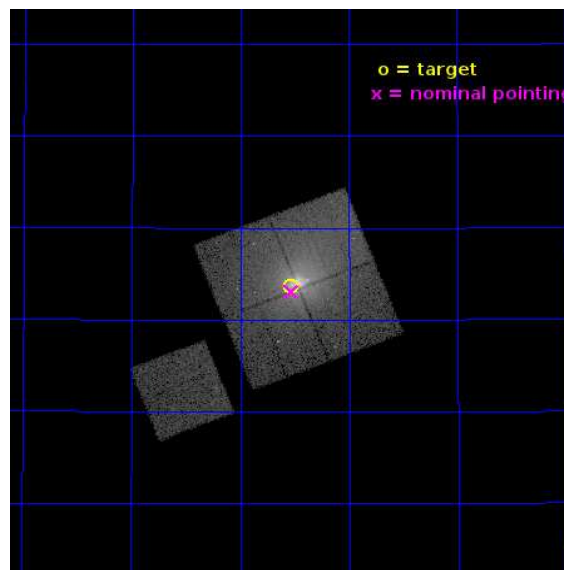
L2 Processing Date : Sep 22 2015

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# 1 Front

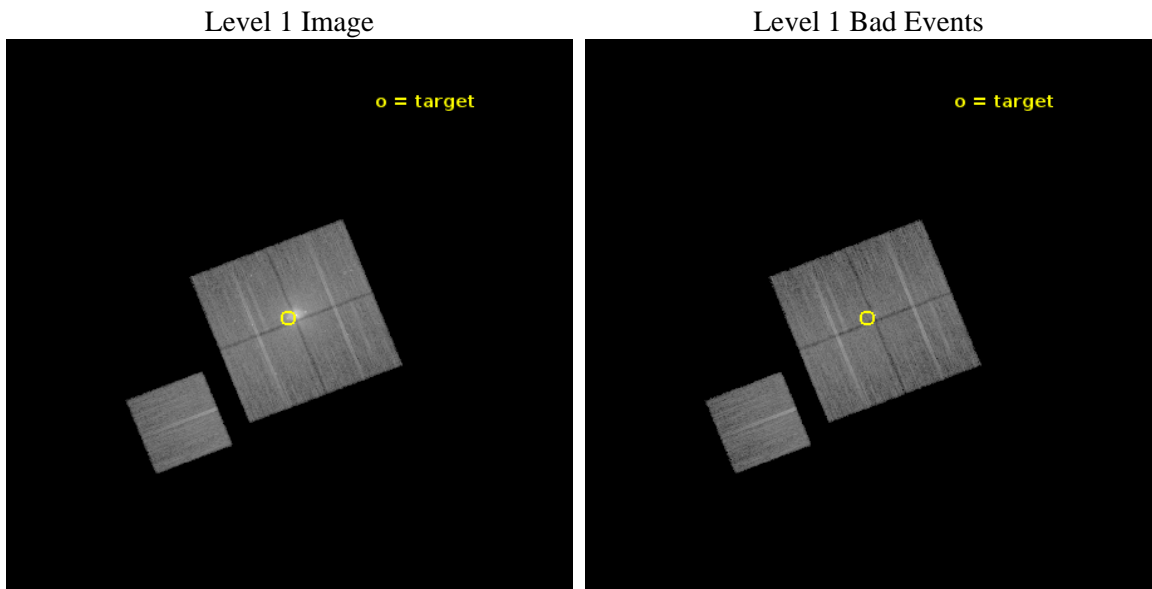
seq_num	703133	Sequence number
obs_id	18441	Observation id
title	The Rise to Power: Half a Billion Years of Intense AGN Activity in the Merging Cluster Cygnus A	Proposal title
observer	Dr. Michael Wise	Principal investigator
object	Cygnus A - E Hotspot	Source name
dtcycle	0	&#160
cycle	P	events from 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	299.88275835038	Nominal RA [deg]
dec_nom	40.717866586303	Nominal Dec [deg]
roll_nom	248.50907641924	Nominal Roll [deg]
revision	2	Processing version of data
ontime	24901.524194241	Sum of GTIs [s]
livetime	24576.167448407	Livetime [s]
ontime0	24898.260004044	Sum of GTIs [s]
ontime1	24901.442114234	Sum of GTIs [s]
ontime2	24898.342104077	Sum of GTIs [s]
ontime3	24901.524194241	Sum of GTIs [s]
ontime6	24901.360034227	Sum of GTIs [s]
l2events	179050	Number of level 2 events



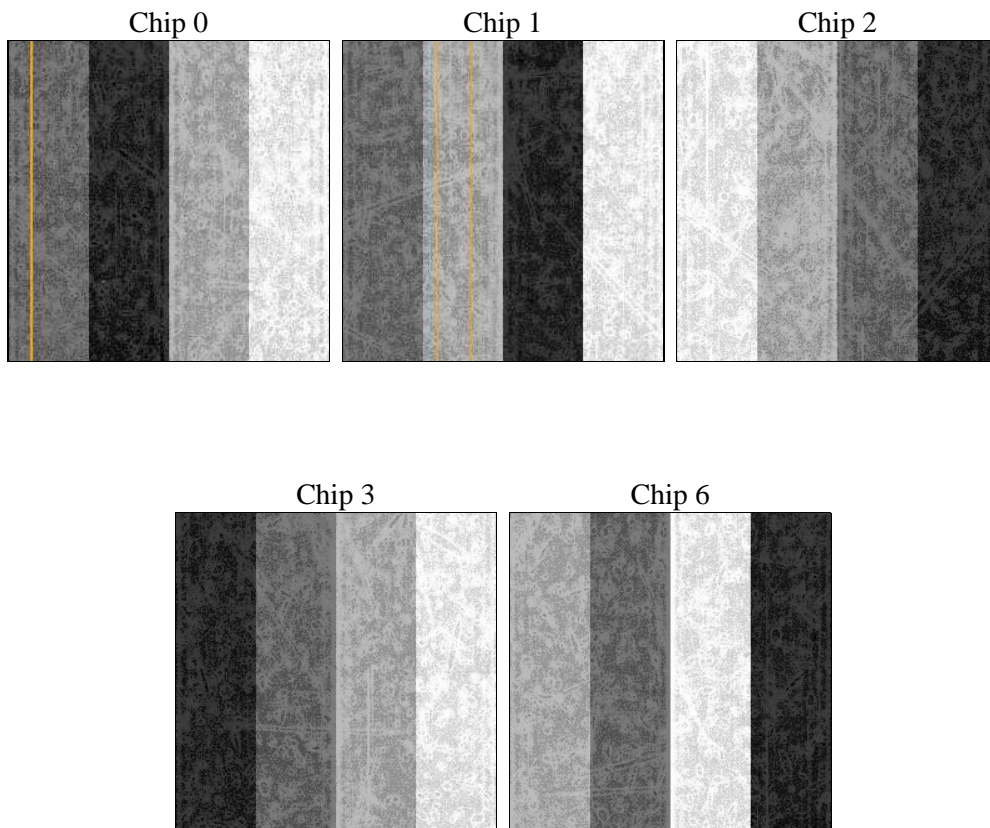
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	24821.519000	[s] Scheduled observation exposure time
ascdsver	10.4.1	Processing system revision	ontime	24901.524194241	Sum of GTIs [s]
caldbver	4.6.8	&#160	ontime0	24898.260004044	Sum of GTIs [s]
date	2015-09-22T16:50:42	Date and time of file creation	ontime1	24901.442114234	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	24898.342104077	Sum of GTIs [s]
			ontime3	24901.524194241	Sum of GTIs [s]
			ontime6	24901.360034227	Sum of GTIs [s]
			l1events	760314	Number of level 1 events

### 2.1.4 Events

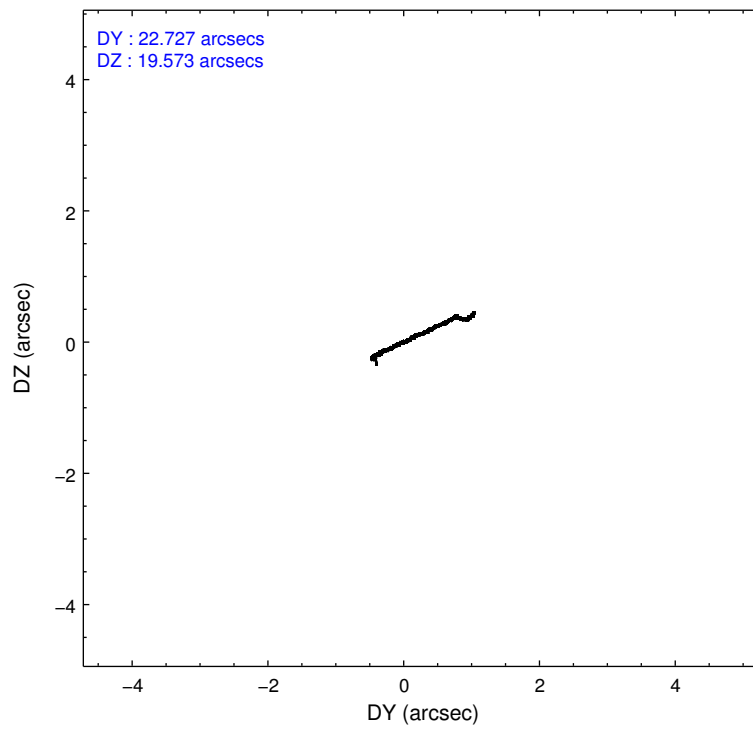
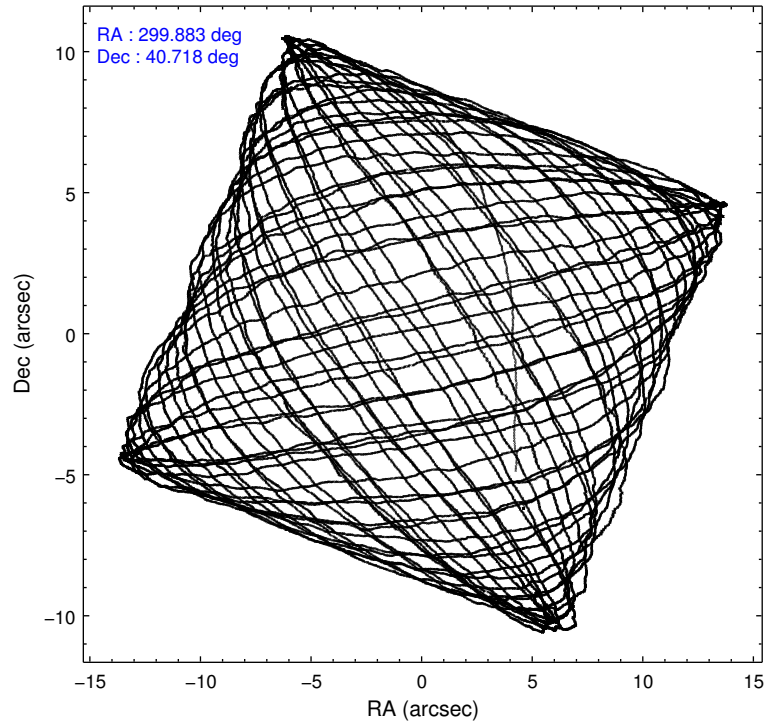
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	136870	187412	148171	156598	131263
rejected events	106269	107863	122054	110578	115636
rejected %	77%	57%	82%	70%	88%

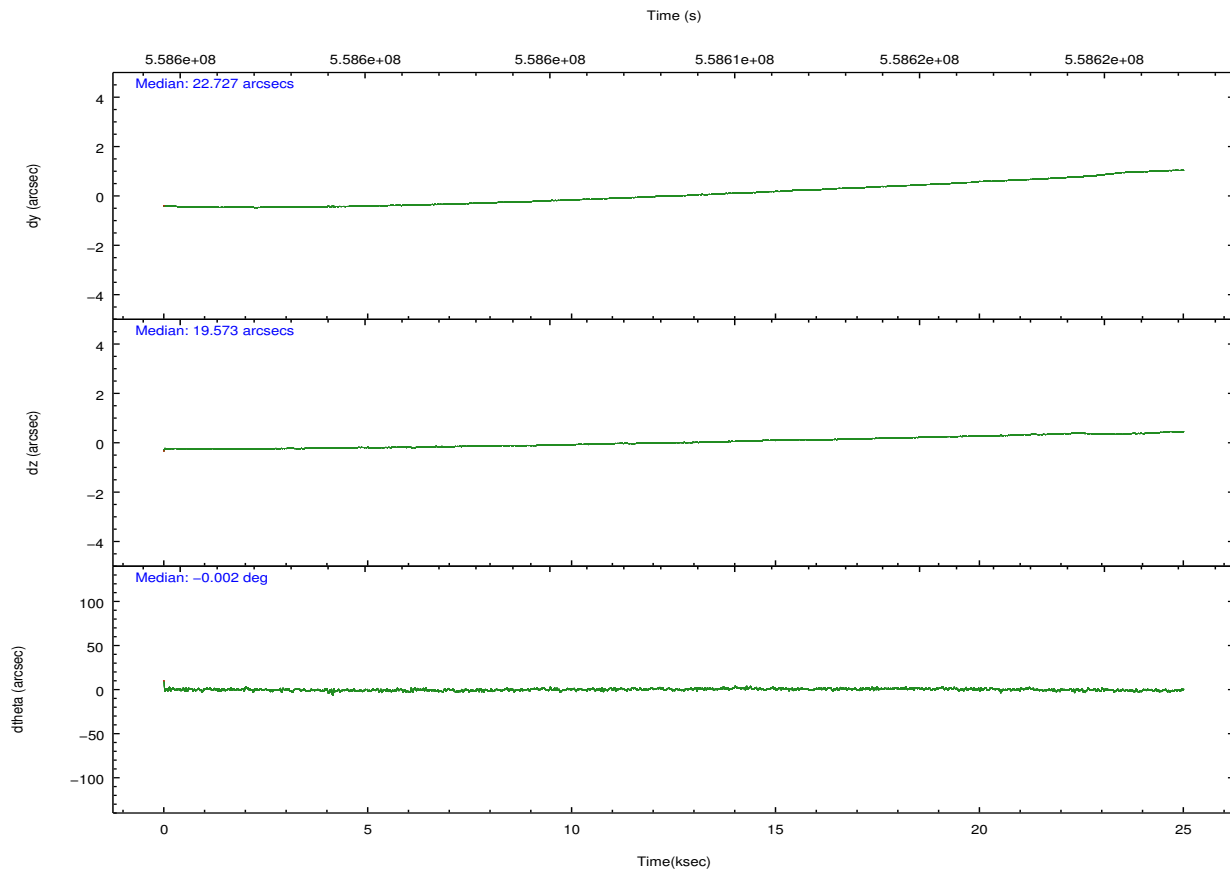
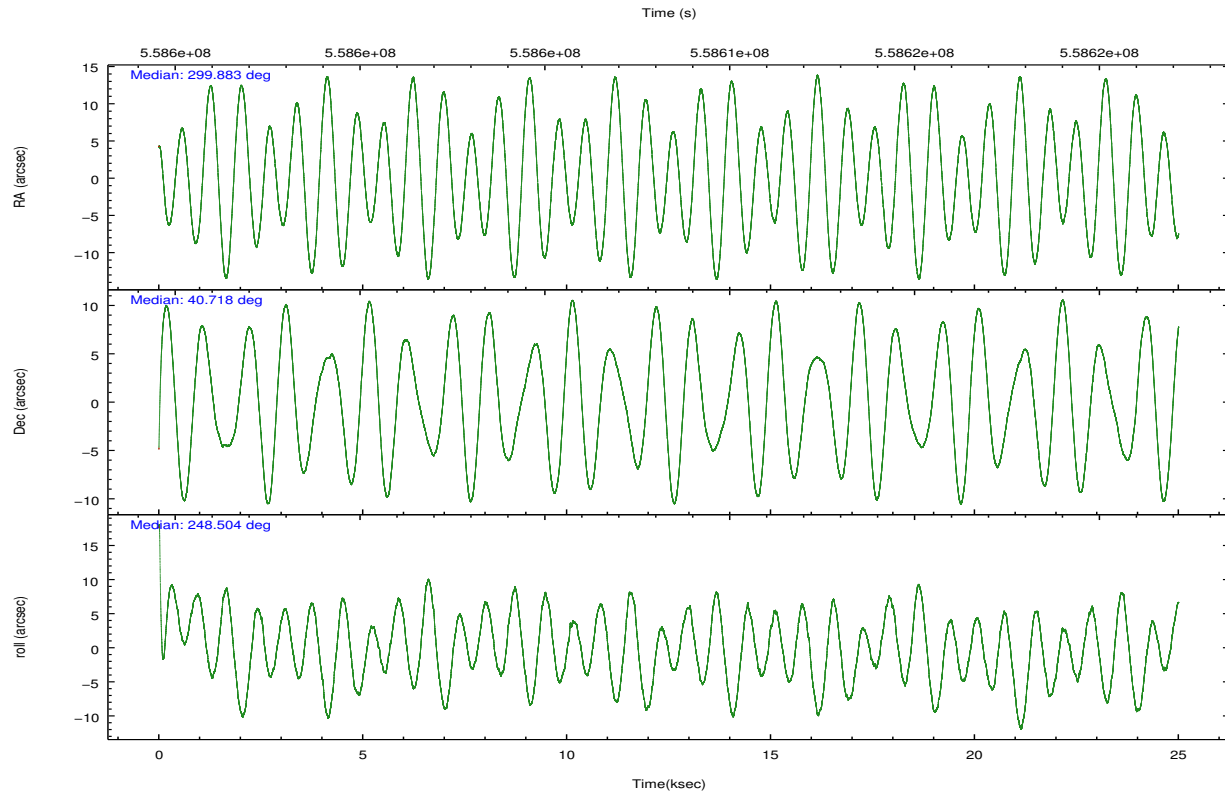
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	17273	50739	14716	30405	5401
	12%	27%	9%	19%	4%
grade 1 events	108	335	96	191	60
	0%	0%	0%	0%	0%
grade 2 events	5627	14565	4638	6401	3580
	4%	7%	3%	4%	2%
grade 3 events	1995	3565	1755	2551	1507
	1%	1%	1%	1%	1%
grade 4 events	2048	3536	1810	2528	1407
	1%	1%	1%	1%	1%
grade 5 events	5792	6406	5392	6575	6025
	4%	3%	3%	4%	4%
grade 6 events	3661	7149	3203	4142	3734
	2%	3%	2%	2%	2%
grade 7 events	100366	101117	116561	103805	109549
	73%	53%	78%	66%	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	299.877237	299.8827583503841	CCD I2 on	Y	Y
[deg] Pointing Dec	40.745152	40.7178665863029	CCD I3 on	Y	Y
[deg] Pointing Roll	248.303976	248.509076419238	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)	558596028.184000	558594525.03124	CCD S5 on	N	N
Observation start date	2015-09-14T05:32:40	2015-09-14T05:08:45	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	558620849.184000	558621079.7077399	On-chip summing requested	N	N
Observation end date	2015-09-14T12:26:21	2015-09-14T12:31:19	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





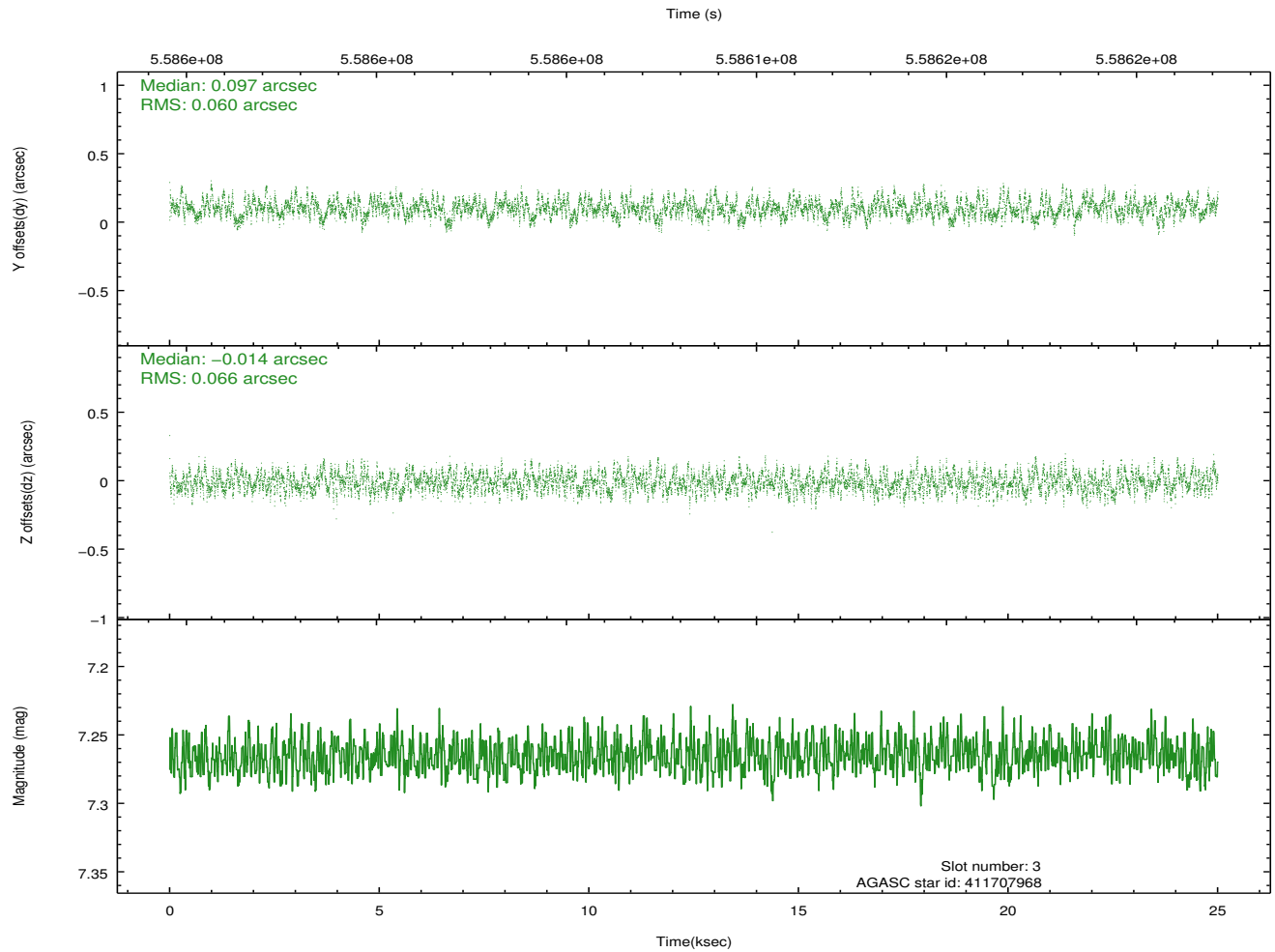
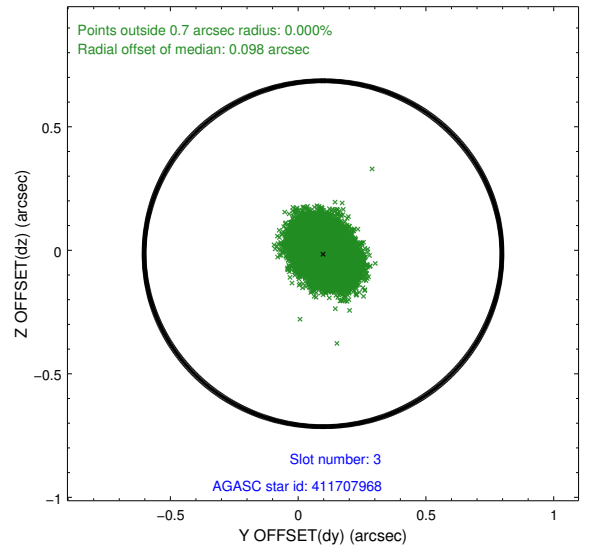
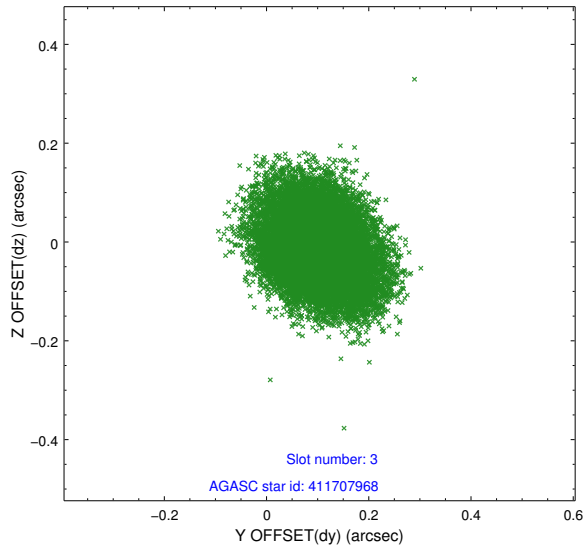
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.26	6099	-0.061	-0.003	0.016	0.025	0.000000	0.000000	916.37	-843.32
1	FID		ACIS-I-2	7.15	6098	-0.271	-0.145	0.017	0.029	0.000000	0.000000	-777.87	-849.97
2	FID		ACIS-I-4	7.19	6100	0.235	0.215	0.011	0.019	0.000000	0.000000	2136.50	1056.64
3	GUIDE	used	411707968	7.27	12196	0.097	-0.014	0.096	0.150	299.509933	40.926839	-240.00	-1170.53
4	GUIDE	used	411722416	7.93	12198	0.337	-0.036	0.103	0.173	298.936507	40.391736	2123.88	-1931.05
5	GUIDE	used	412240768	8.26	12194	0.032	0.503	0.074	0.122	299.999696	41.280279	-1912.00	-403.96
6	GUIDE	used	413405352	8.34	12198	-0.121	-0.066	0.084	0.133	300.290830	41.091941	-1577.14	580.34
7	GUIDE	used	413425232	8.67	12192	-0.346	-0.387	0.094	0.153	300.417382	40.029012	1840.61	2335.10

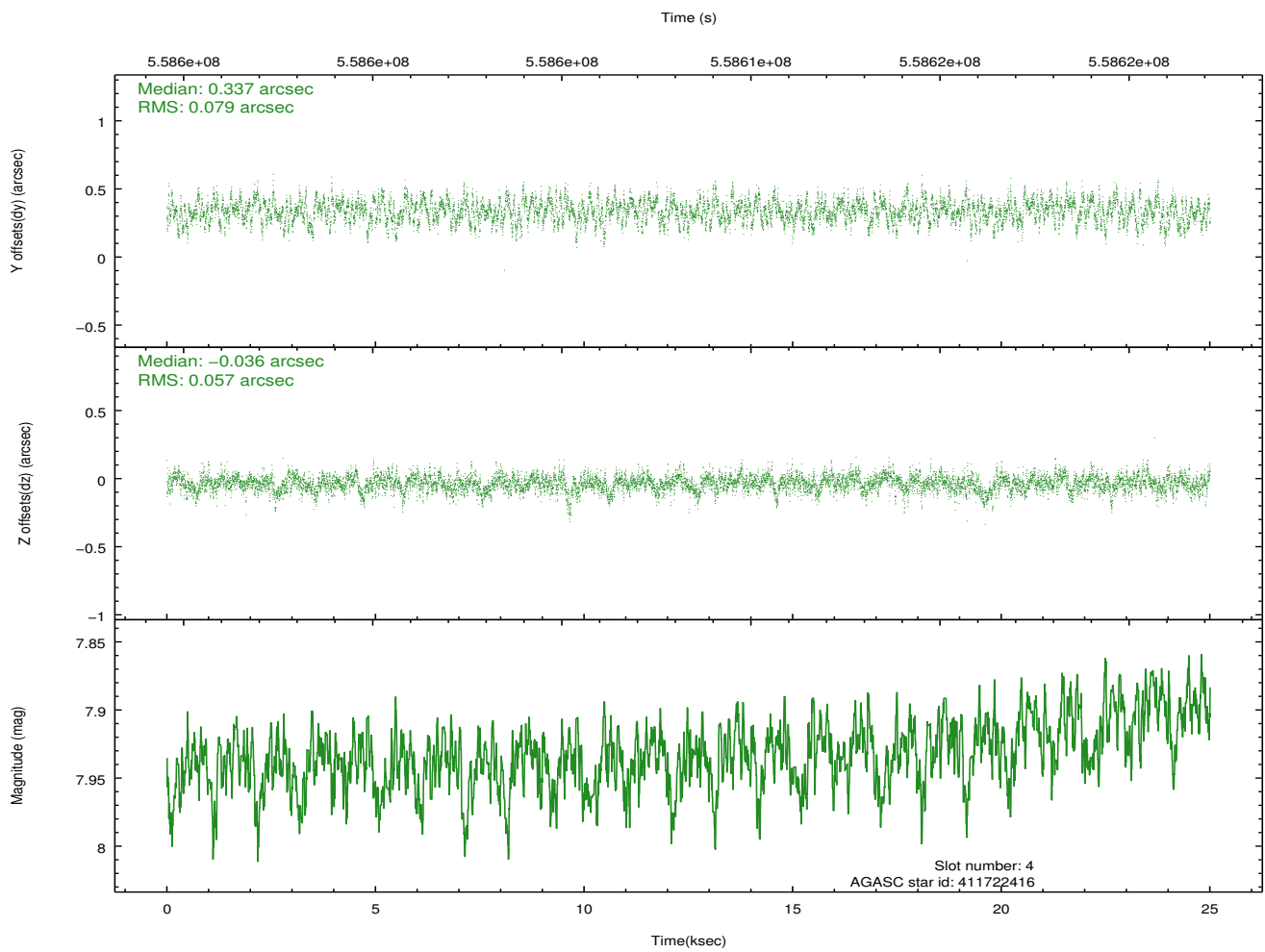
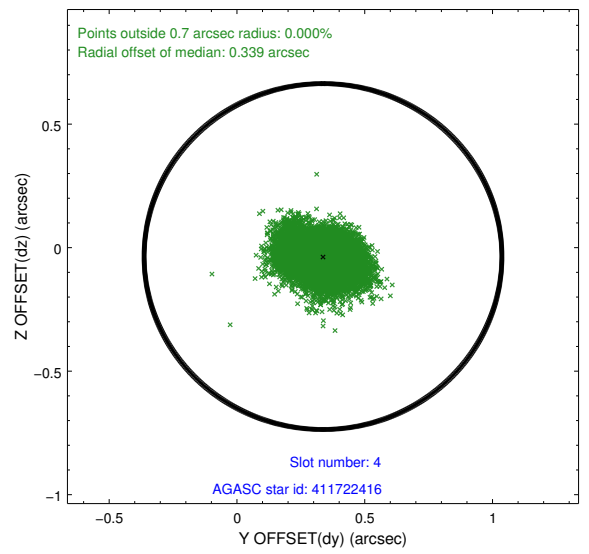
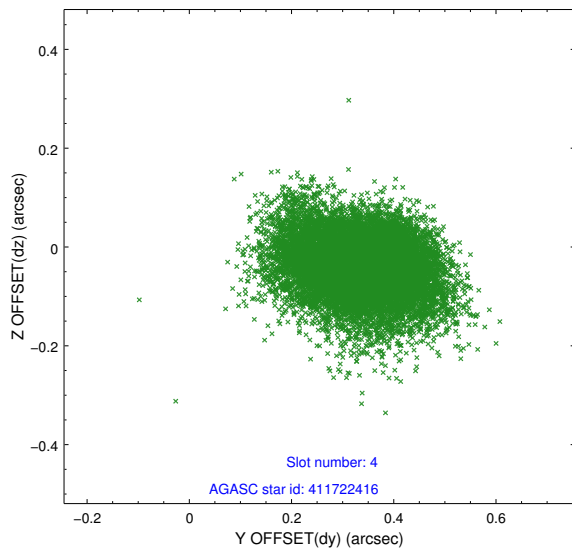
∞

## 2.4 Star Slots

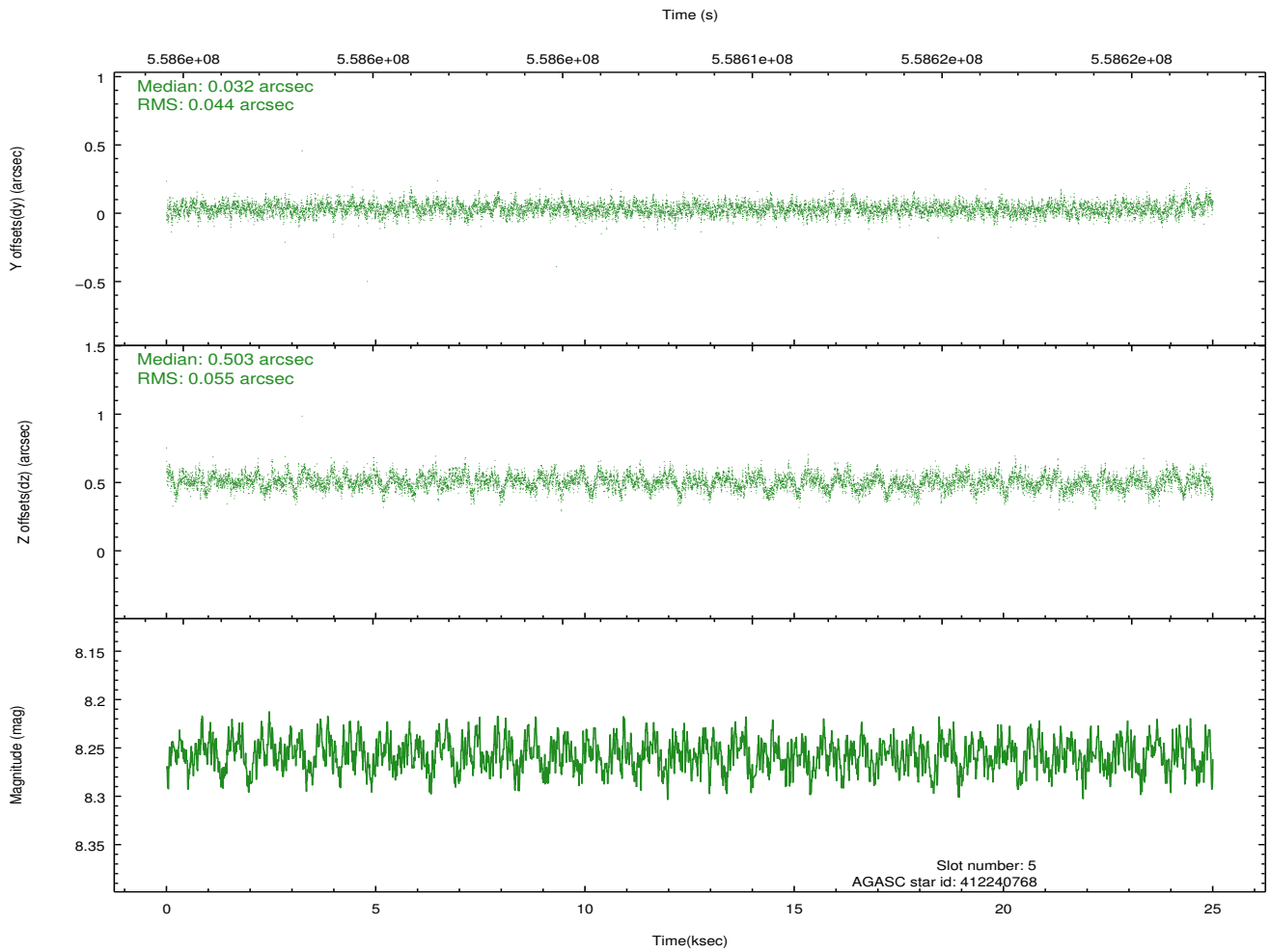
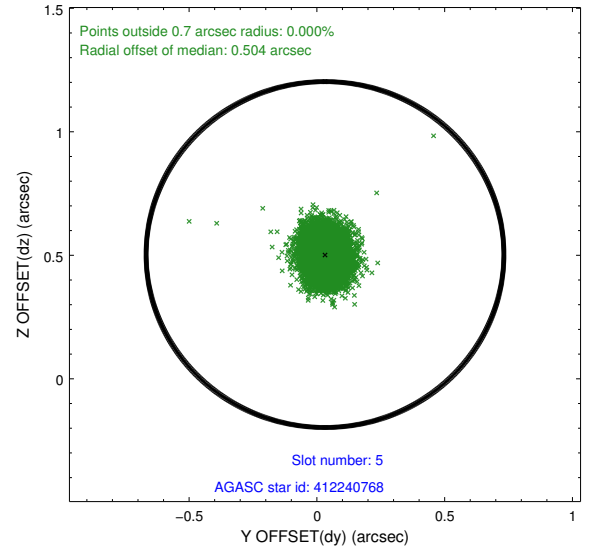
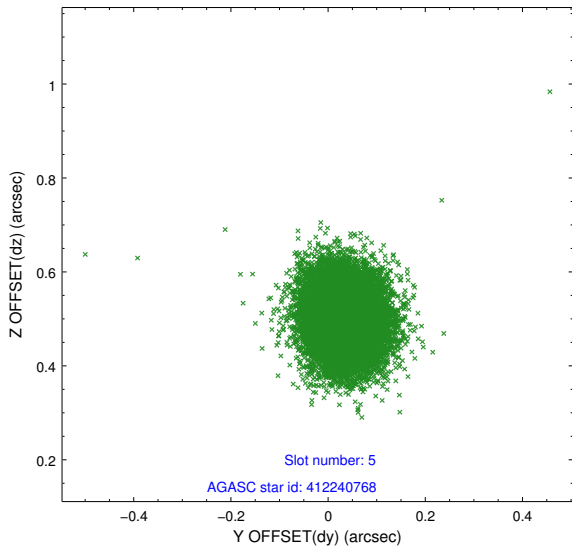
### 2.4.1 Slot 3



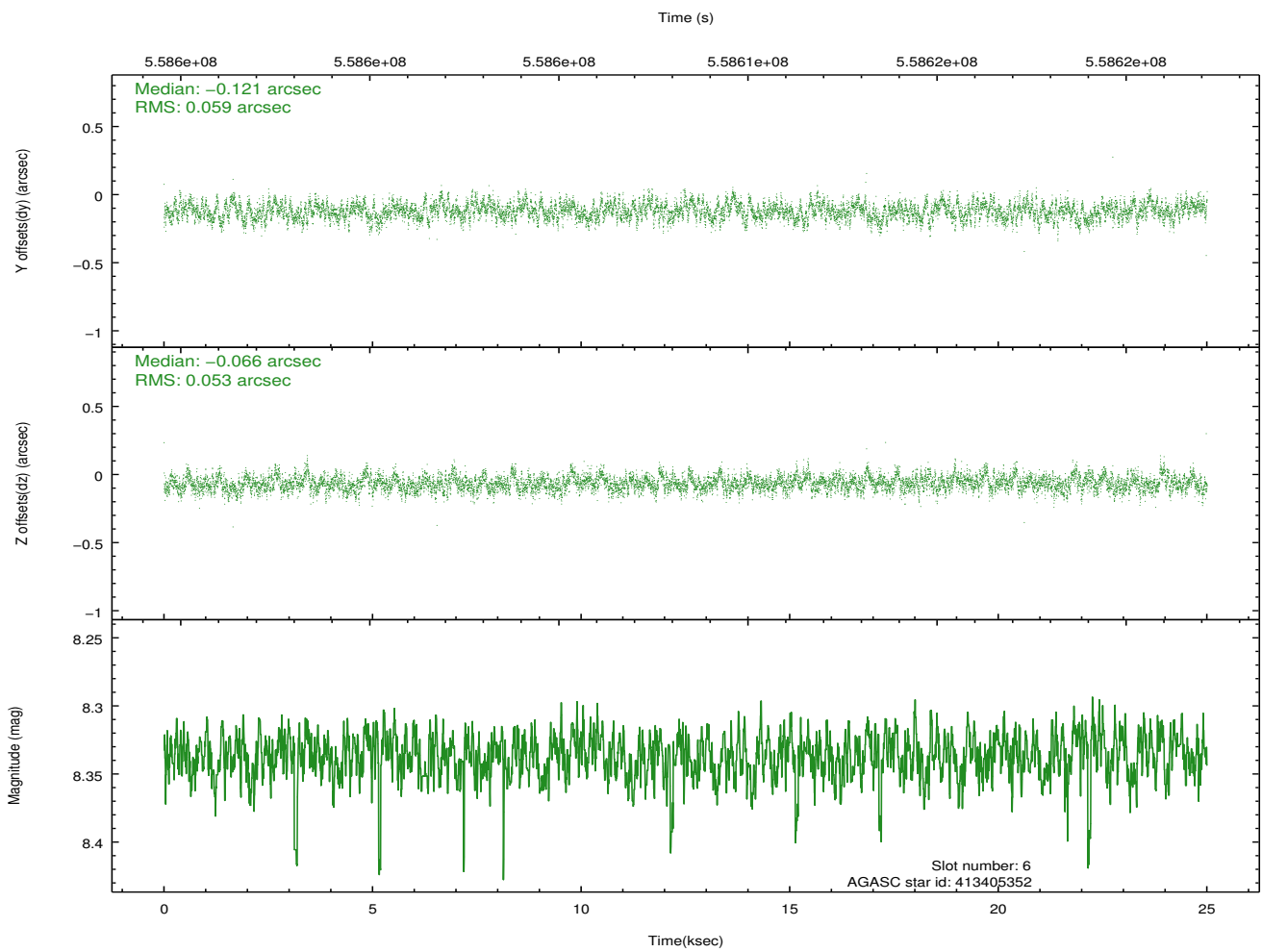
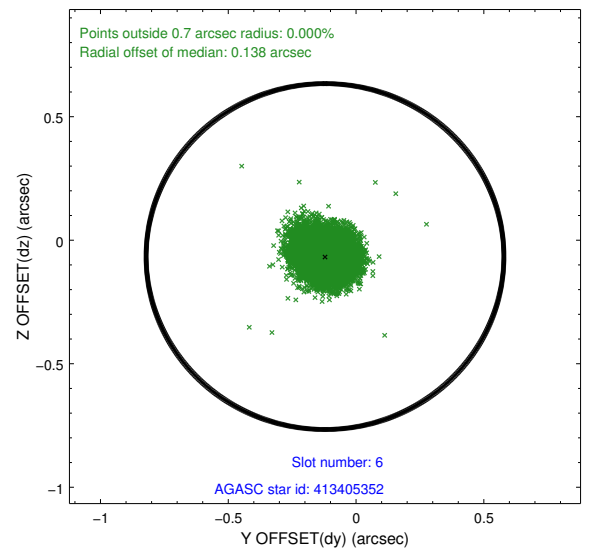
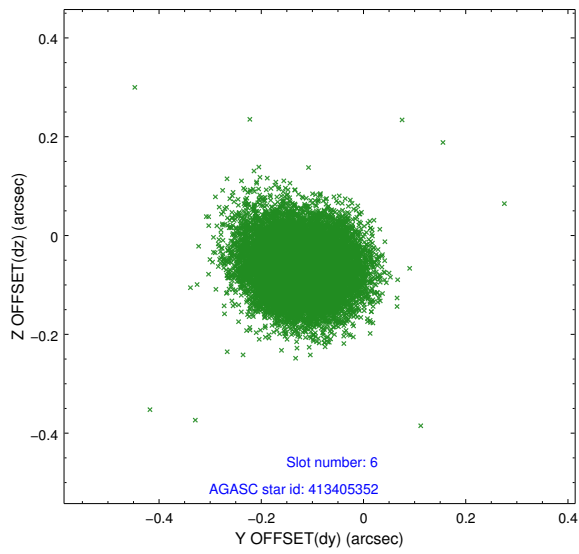
## 2.4.2 Slot 4



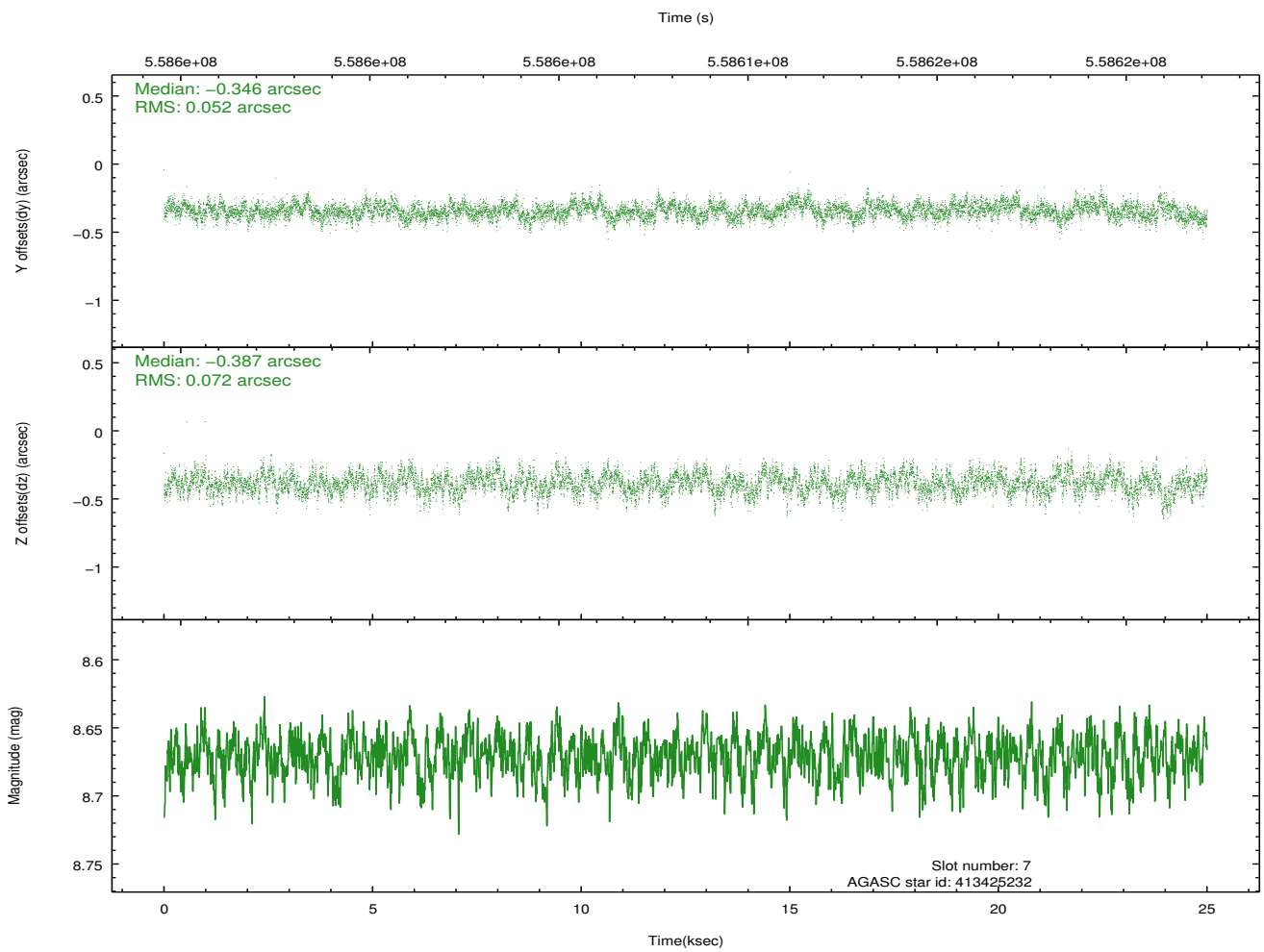
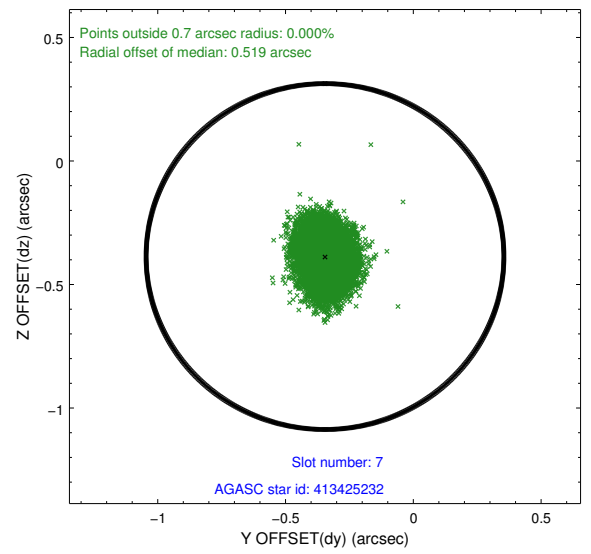
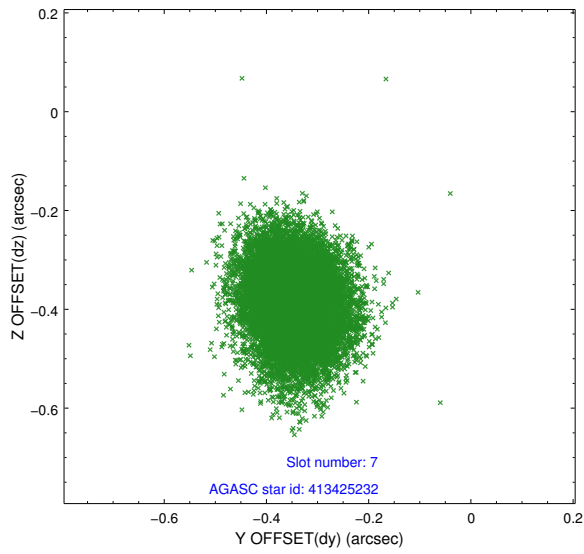
### 2.4.3 Slot 5



## 2.4.4 Slot 6

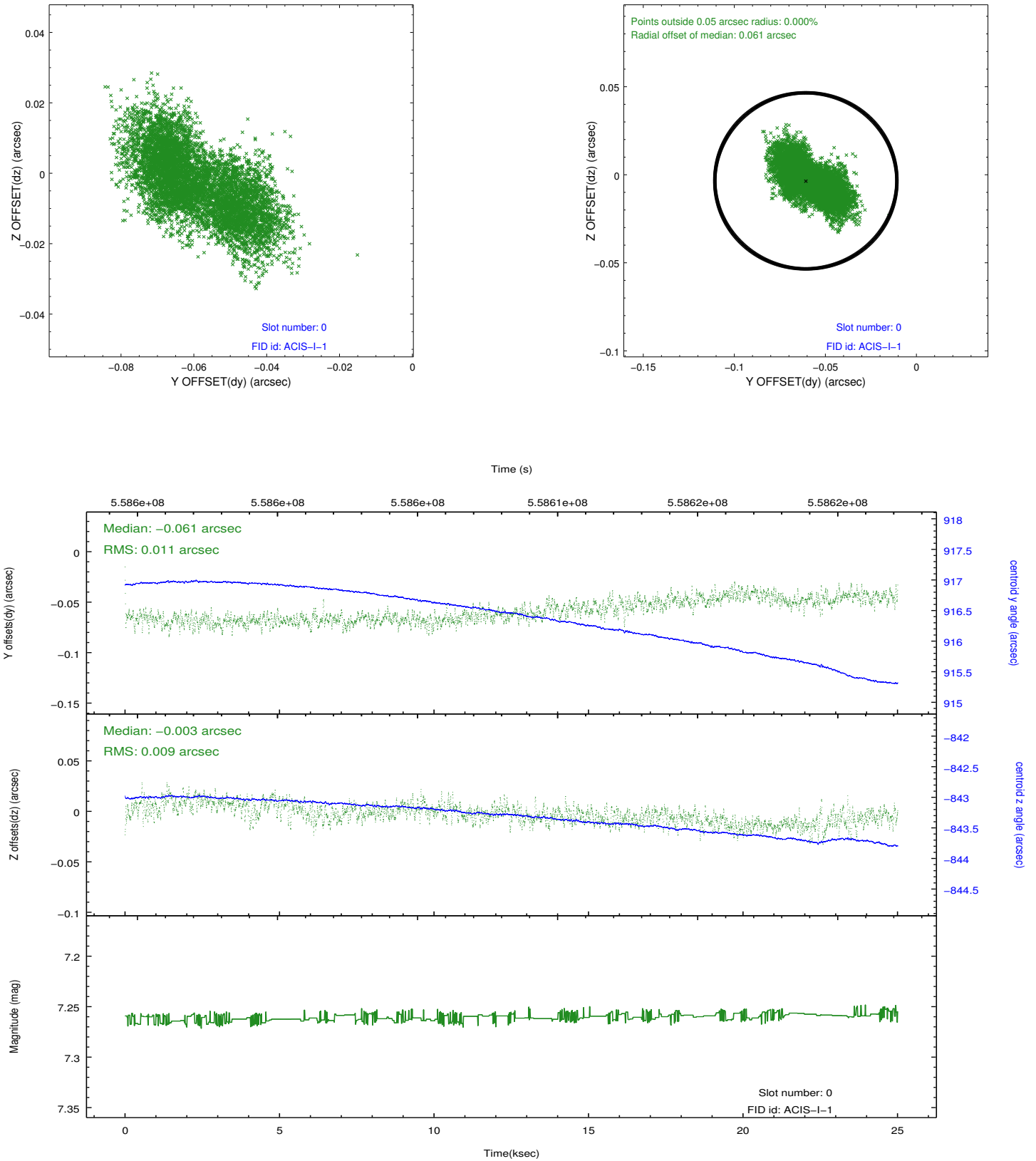


## 2.4.5 Slot 7

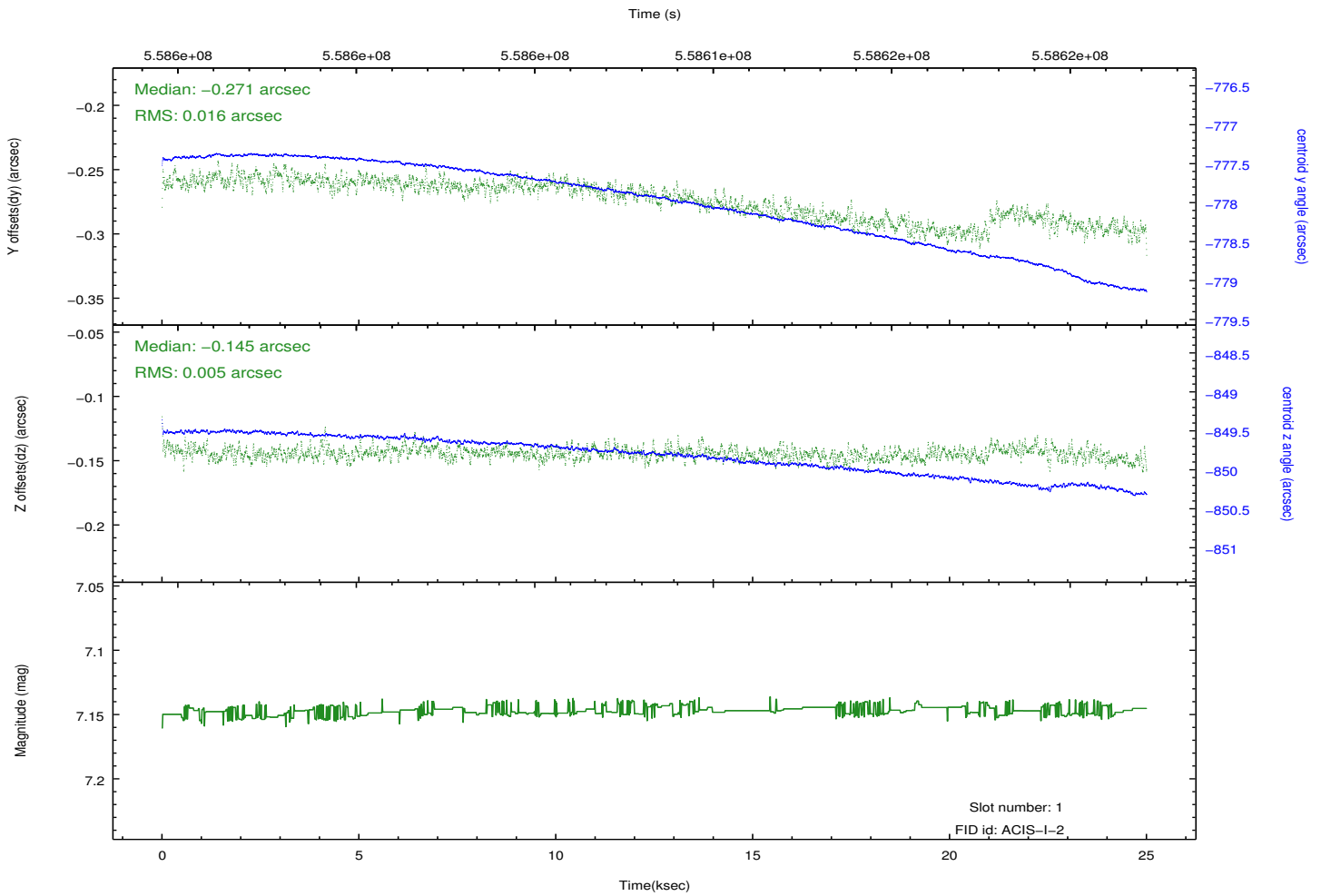
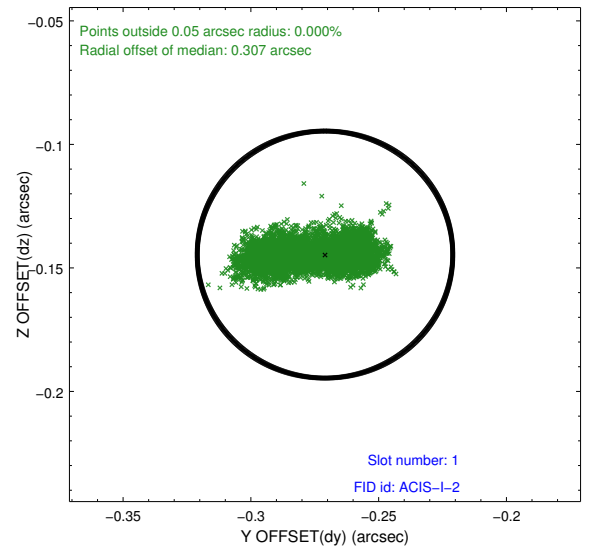
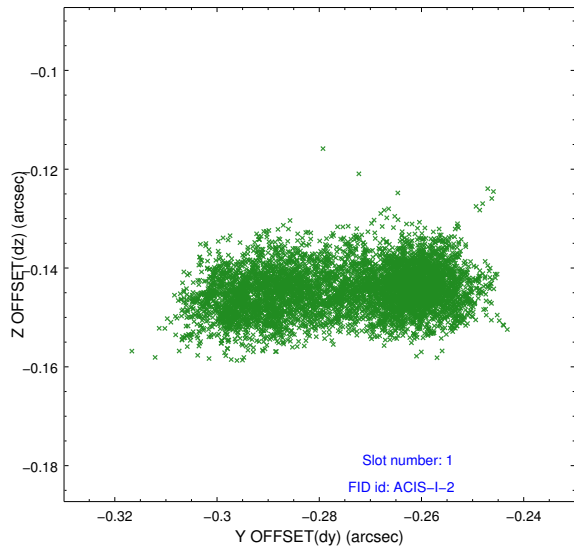


## 2.5 FID Slots

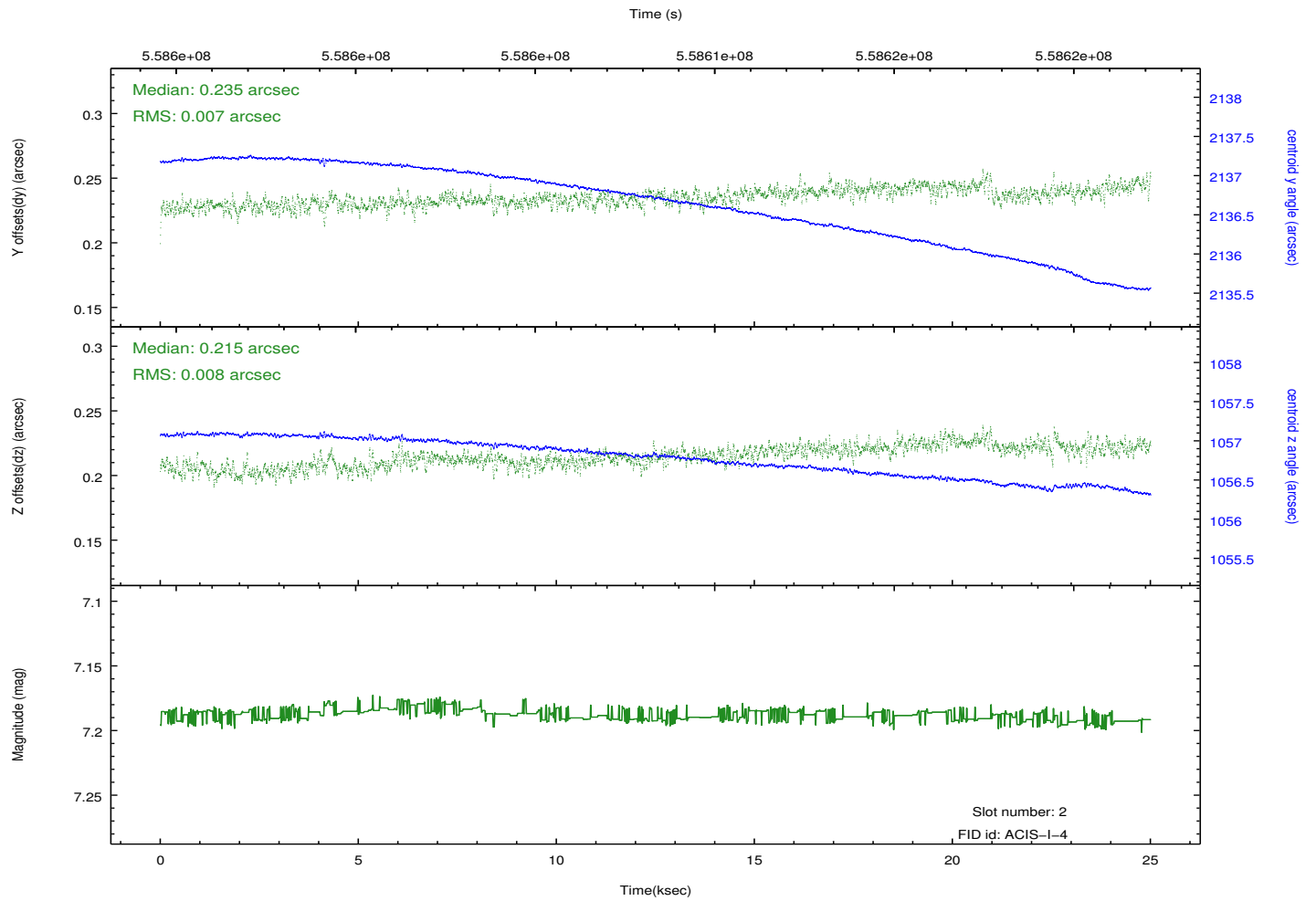
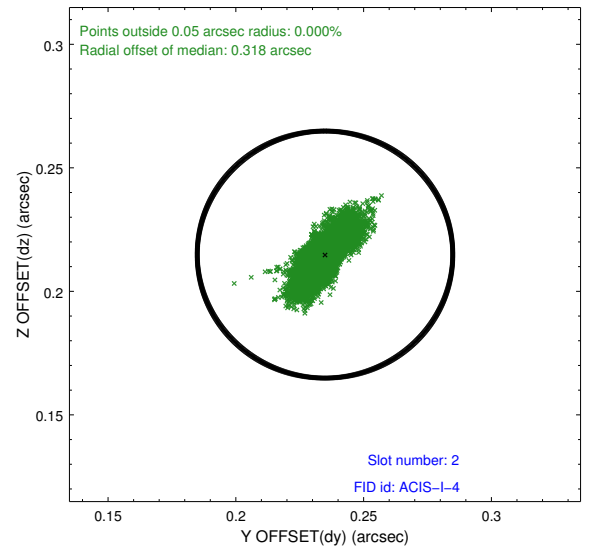
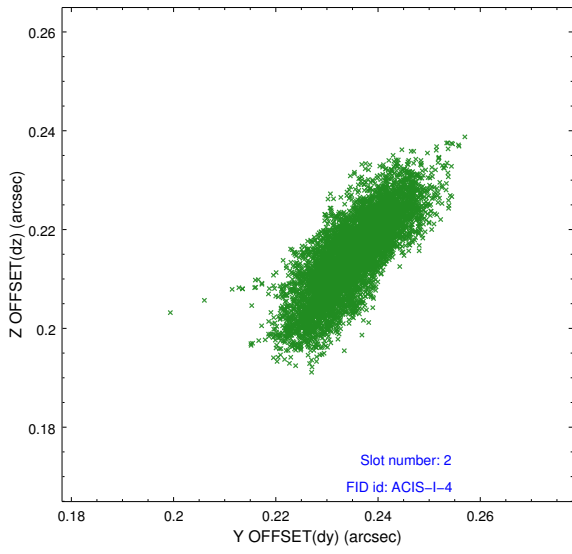
### 2.5.1 Slot 0



## 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)	2015.09.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	24.901524194241

## A.2 Comments

A spatial region of the original bias map for CCD = 1 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 = 1 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: (299.85186, 40.87951), (299.84564, 40.88134), (299.80801, 40.80889), (299.81679, 40.81200).