

# V&V Reference Report

## L2 ASCDS Version : 10.6

Observation 19664 - L2 Version 1  
Chandra X-Ray Center

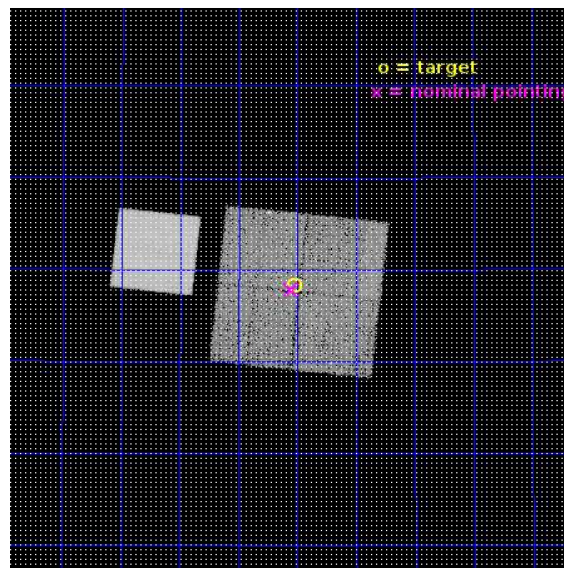
L2 Processing Date : Aug 25 2017

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# 1 Front

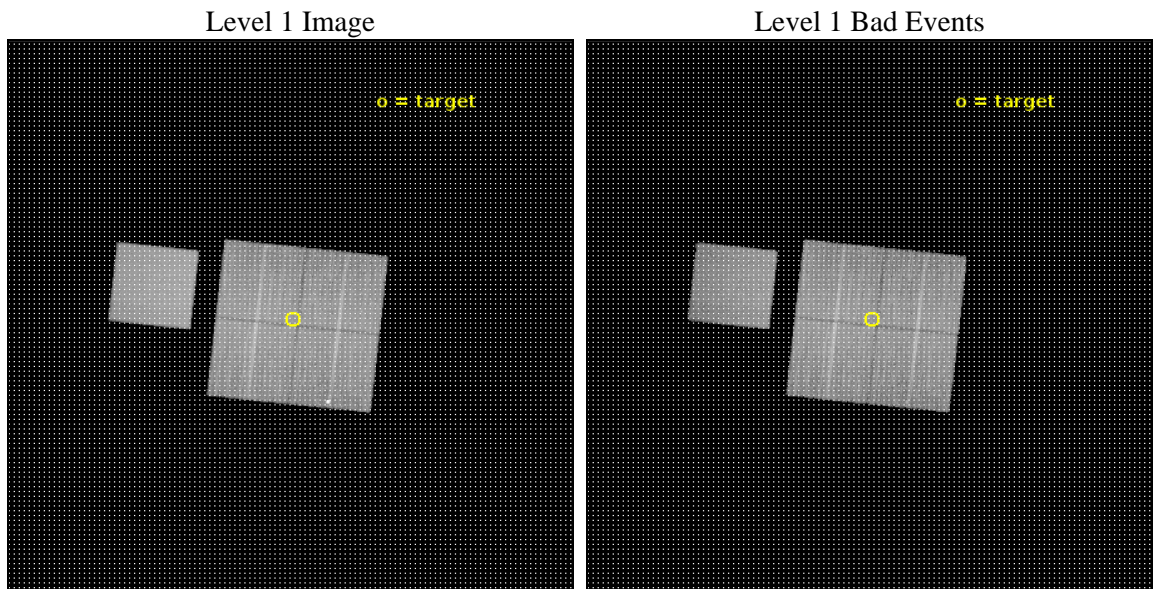
seq_num	901371	Sequence number
obs_id	19664	Observation id
title	The Chandra Deep Wide-Field Survey: Completing the new generation of Chandra extragalactic surveys	Proposal title
observer	Ryan Hickox	Principal investigator
object	CDWFS	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	216.50739	Observer's specified target RA [deg]
dec_targ	34.970601	Observer's specified target Dec [deg]
ra_nom	216.51296406649	Nominal RA [deg]
dec_nom	34.963632449006	Nominal Dec [deg]
roll_nom	276.20549895715	Nominal Roll [deg]
revision	1	Processing version of data
ontime	24874.400191426	Sum of GTIs [s]
livetime	24549.397840658	Livetime [s]
ontime0	24874.400191426	Sum of GTIs [s]
ontime1	24868.118171096	Sum of GTIs [s]
ontime2	24874.400191426	Sum of GTIs [s]
ontime3	24874.400191426	Sum of GTIs [s]
ontime7	24874.400191426	Sum of GTIs [s]
l2events	151315	Number of level 2 events



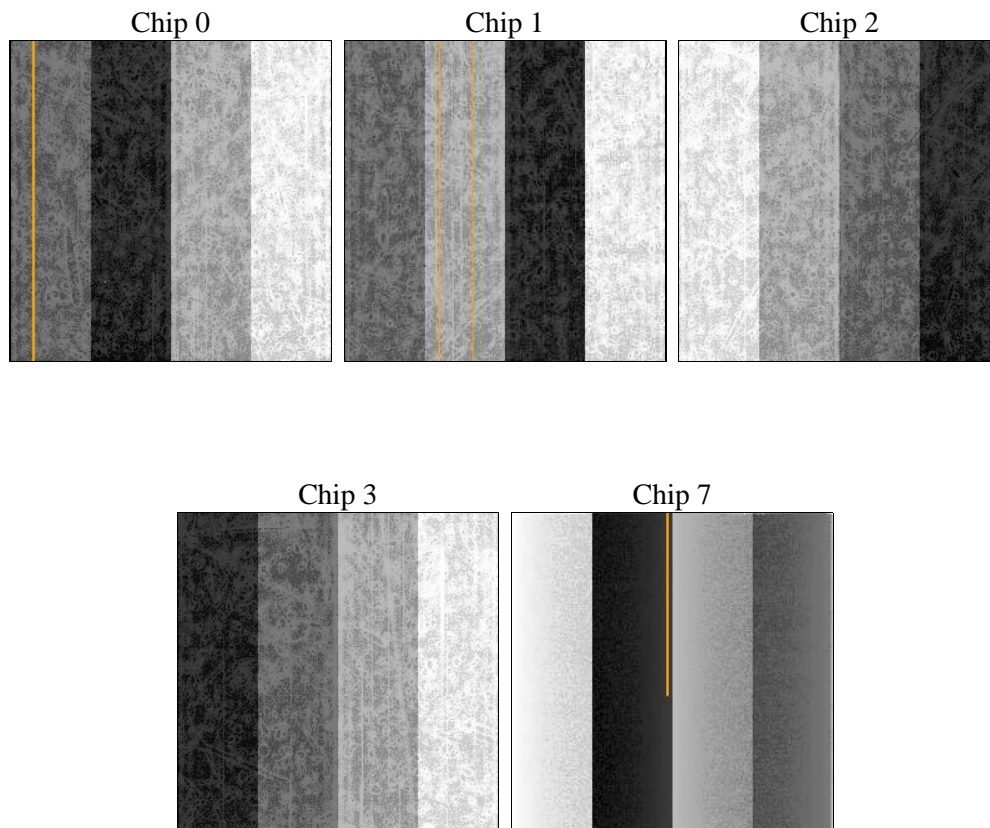
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	25000.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	24874.400191426	Sum of GTIs [s]
caldbver	4.7.6	&#160	ontime0	24874.400191426	Sum of GTIs [s]
date	2017-08-25T13:49:07	Date and time of file creation	ontime1	24868.118171096	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	24874.400191426	Sum of GTIs [s]
			ontime3	24874.400191426	Sum of GTIs [s]
			ontime7	24874.400191426	Sum of GTIs [s]
			l1events	862542	Number of level 1 events

### 2.1.4 Events

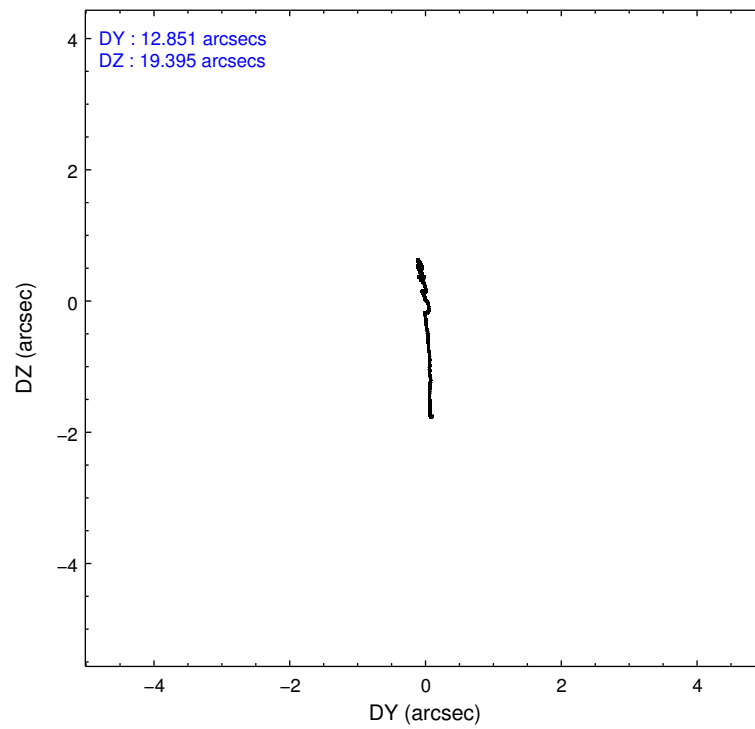
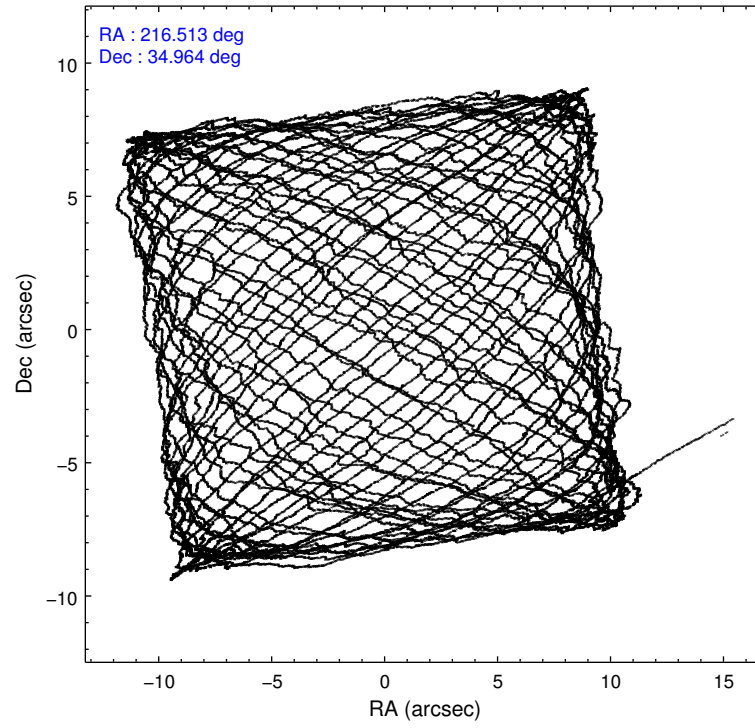
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 7
level 1 events	158792	157790	169568	162631	213761
rejected events	132877	137483	152254	144979	121387
rejected %	83%	87%	89%	89%	56%

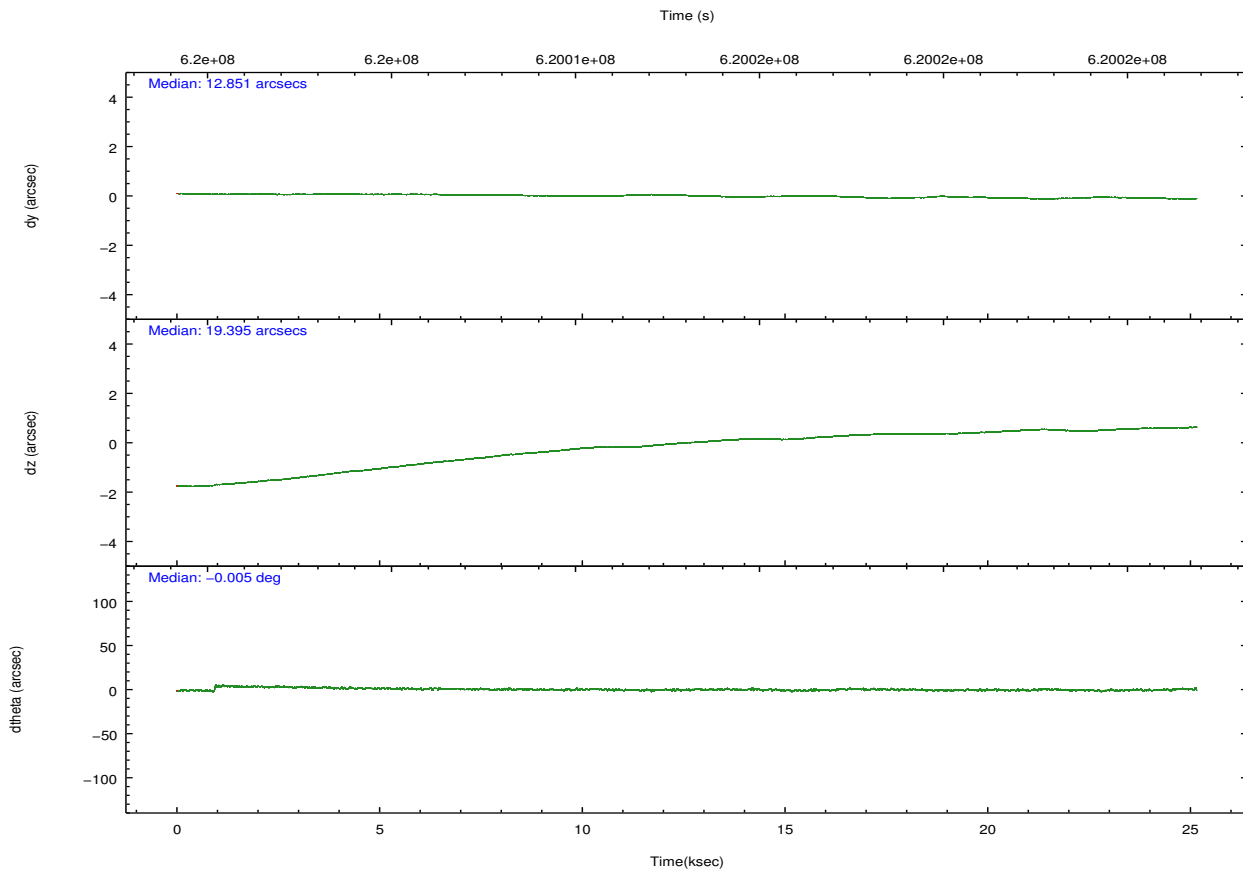
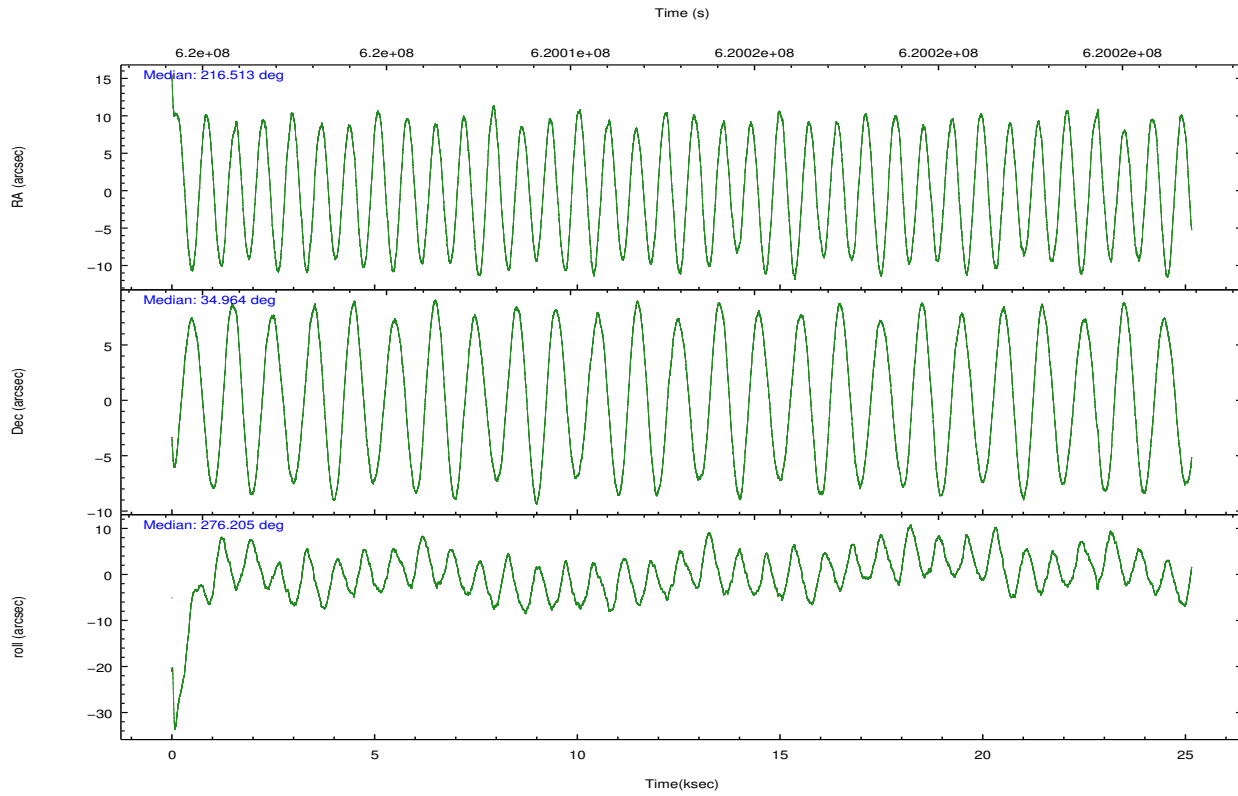
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 7
grade 0 events	6323	6608	6065	6530	7743
	3%	4%	3%	4%	3%
grade 1 events	79	69	90	94	279
	0%	0%	0%	0%	0%
grade 2 events	12221	5443	4217	3869	18984
	7%	3%	2%	2%	8%
grade 3 events	1764	1841	1699	1811	7335
	1%	1%	1%	1%	3%
grade 4 events	1687	1780	1801	1809	7166
	1%	1%	1%	1%	3%
grade 5 events	6591	7070	6205	7715	21134
	4%	4%	3%	4%	9%
grade 6 events	3923	4636	3536	3639	51168
	2%	2%	2%	2%	23%
grade 7 events	126204	130343	145955	137164	99952
	79%	82%	86%	84%	46%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01237	ACIS-01237	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	216.492943	216.512964066493	CCD I2 on	Y	Y
[deg] Pointing Dec	34.985845	34.96363244900564	CCD I3 on	Y	Y
[deg] Pointing Roll	276.008286	276.2054989571525	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	N	N
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	O1	Y
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	620000611.184000	619999426.71073	CCD S5 on	N	N
Observation start date	2017-08-24T22:22:22	2017-08-24T22:03:46	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	620025611.184000	620025743.58727	On-chip summing requested	N	N
Observation end date	2017-08-25T05:19:02	2017-08-25T05:22:23	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





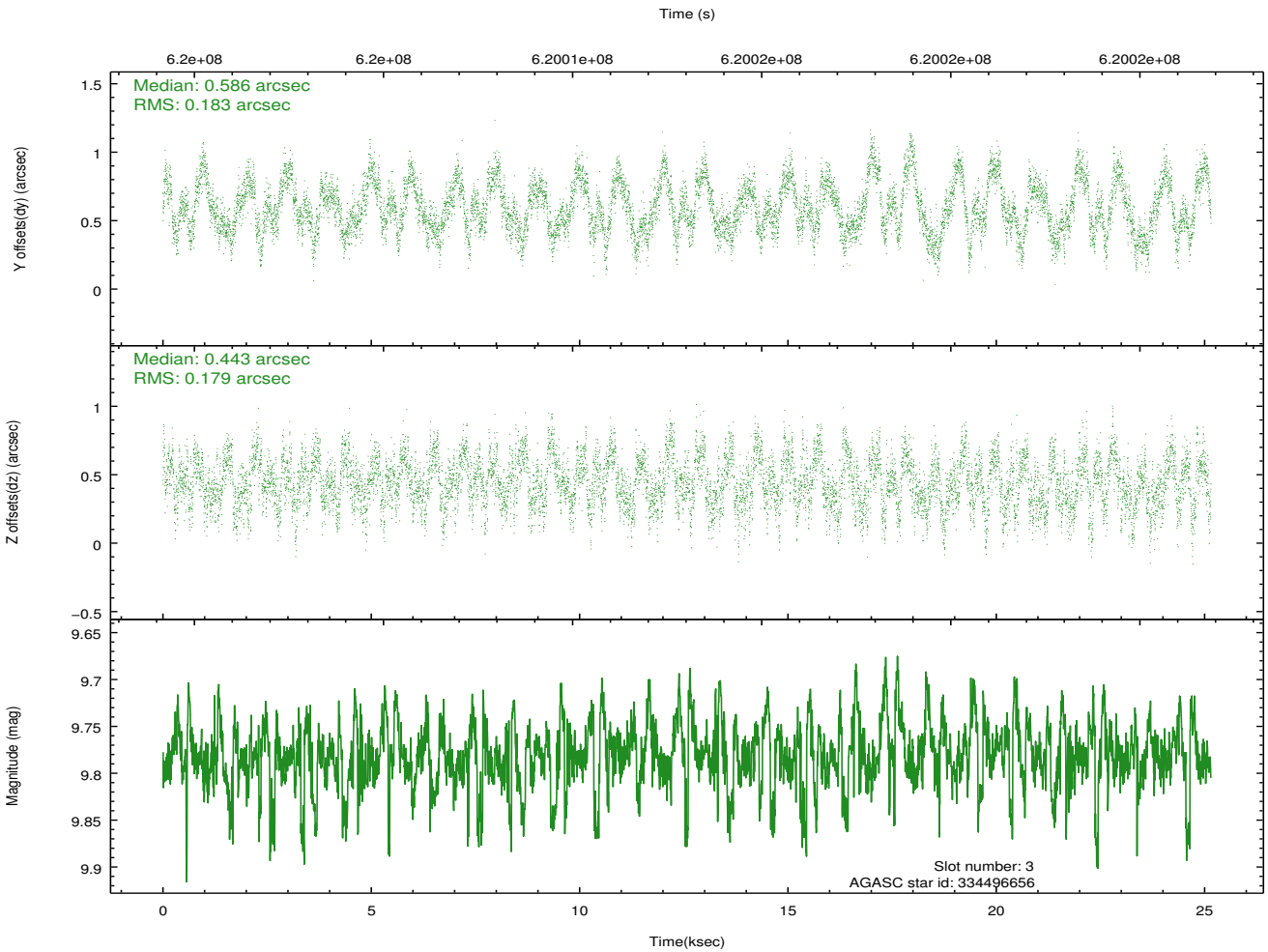
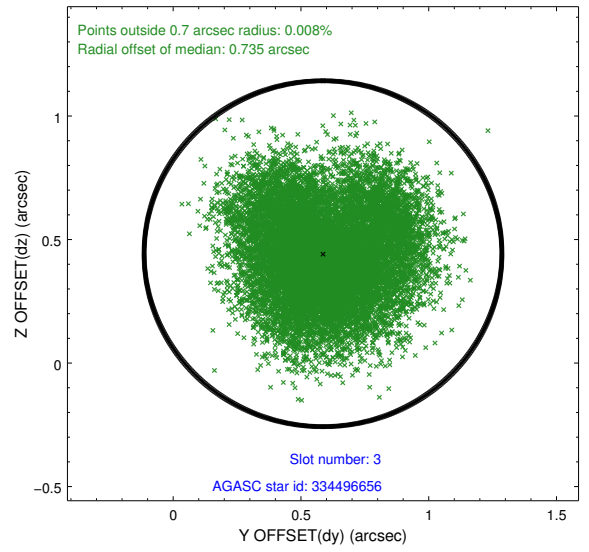
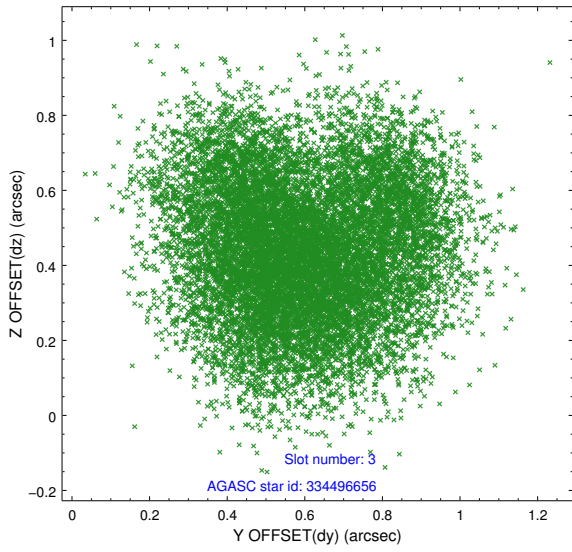
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.25	6136	-0.048	-0.022	0.014	0.030	0.000000	0.000000	926.66	-842.84
1	FID		ACIS-I-4	7.21	6133	0.404	0.062	0.019	0.033	0.000000	0.000000	2147.14	1057.05
2	FID		ACIS-I-5	7.25	6136	-0.454	0.031	0.020	0.033	0.000000	0.000000	-1821.68	1054.82
3	GUIDE	used	334496656	9.78	12249	0.586	0.443	0.284	0.422	215.929218	35.031287	-340.48	-1634.76
4	GUIDE	used	335021128	9.29	12258	0.120	-1.014	0.157	0.266	216.159551	34.422539	1911.83	-1198.05
5	GUIDE	used	335028336	9.41	12247	-0.351	0.248	0.176	0.291	217.189840	34.665629	1355.31	1932.23
6	GUIDE	used	335030384	8.80	12258	-0.148	0.043	0.151	0.252	216.806407	34.722197	1039.72	823.27
7	GUIDE	used	335414448	7.34	12269	-0.226	0.287	0.137	0.229	216.992261	35.577204	-1966.17	1678.36

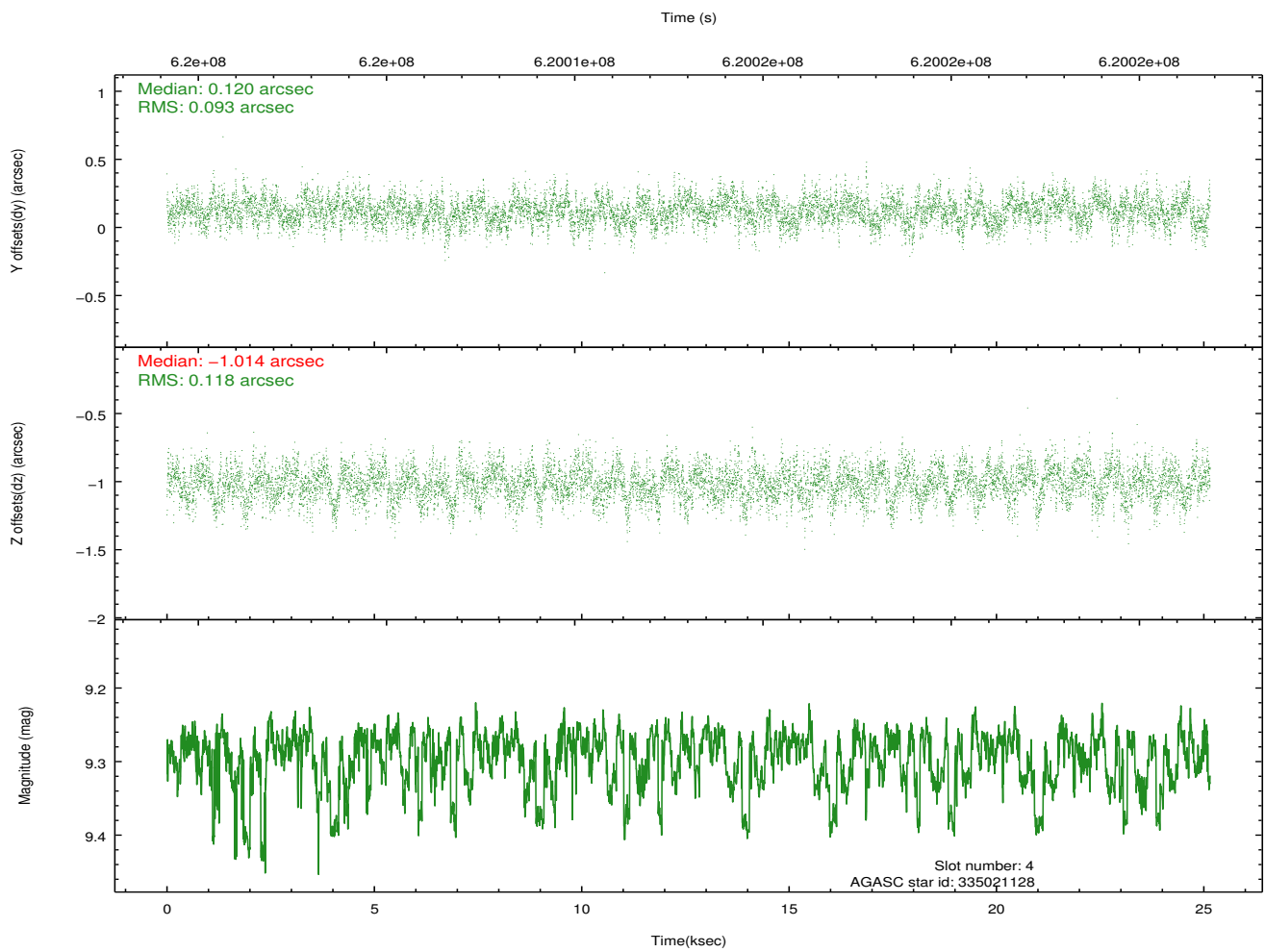
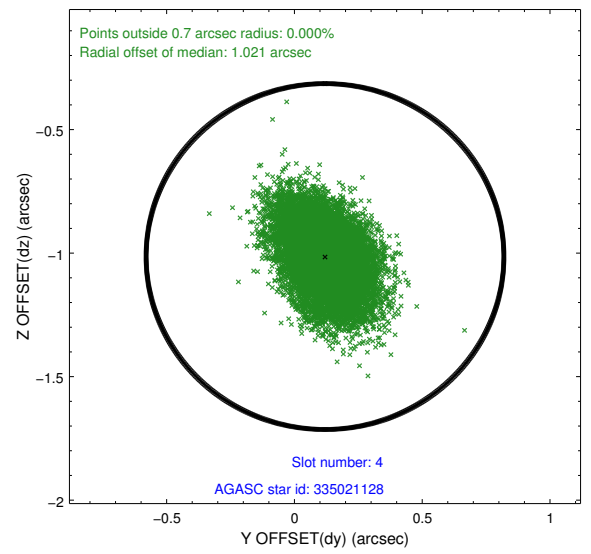
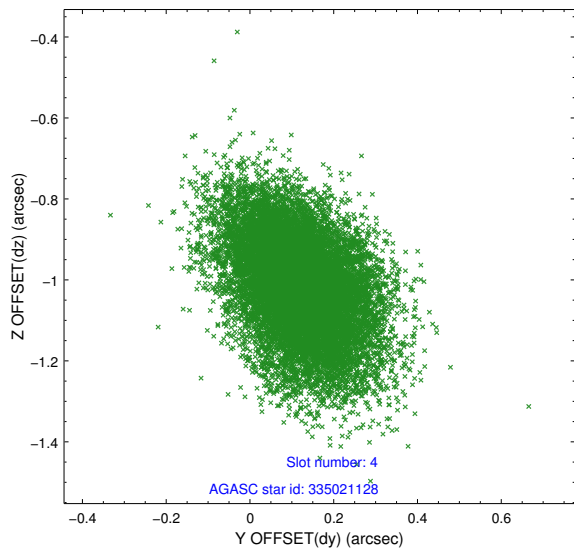
∞

## 2.4 Star Slots

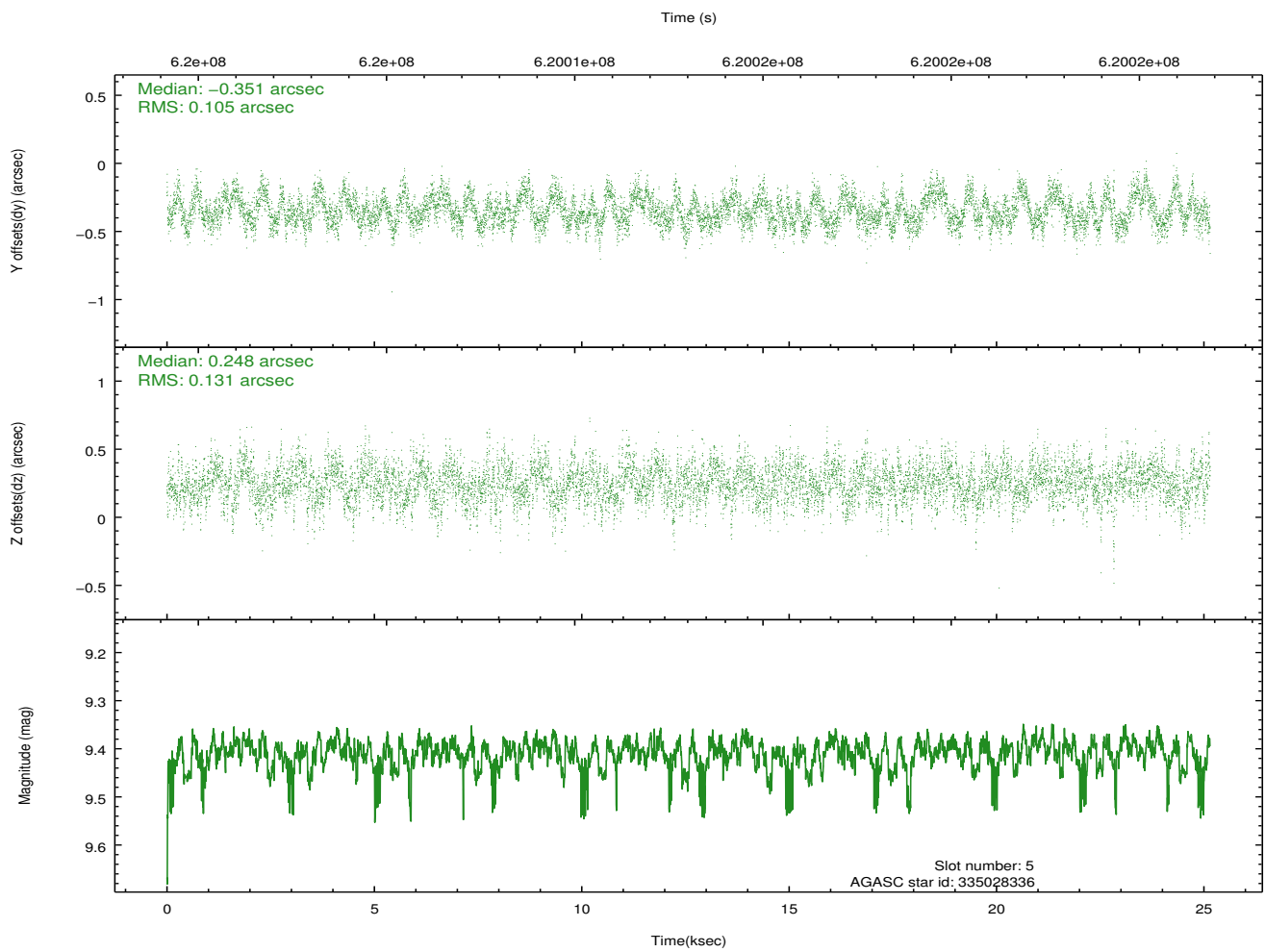
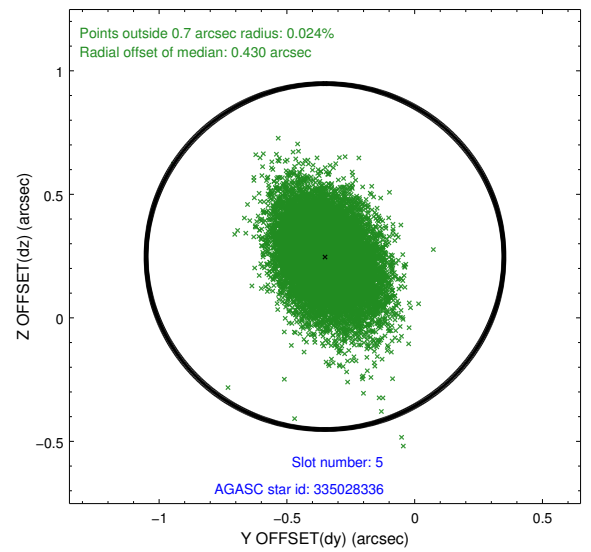
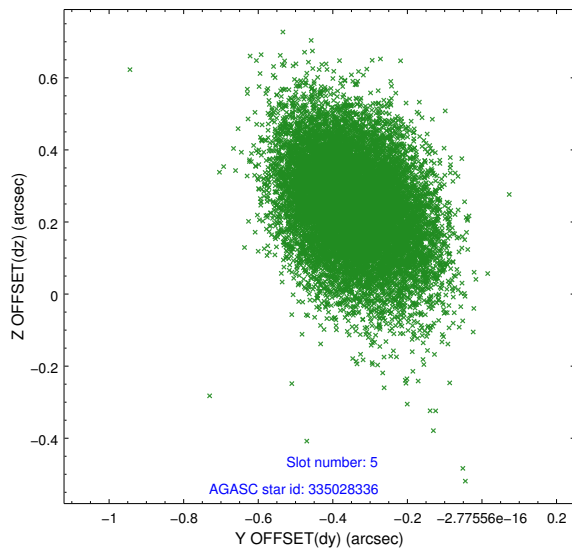
### 2.4.1 Slot 3



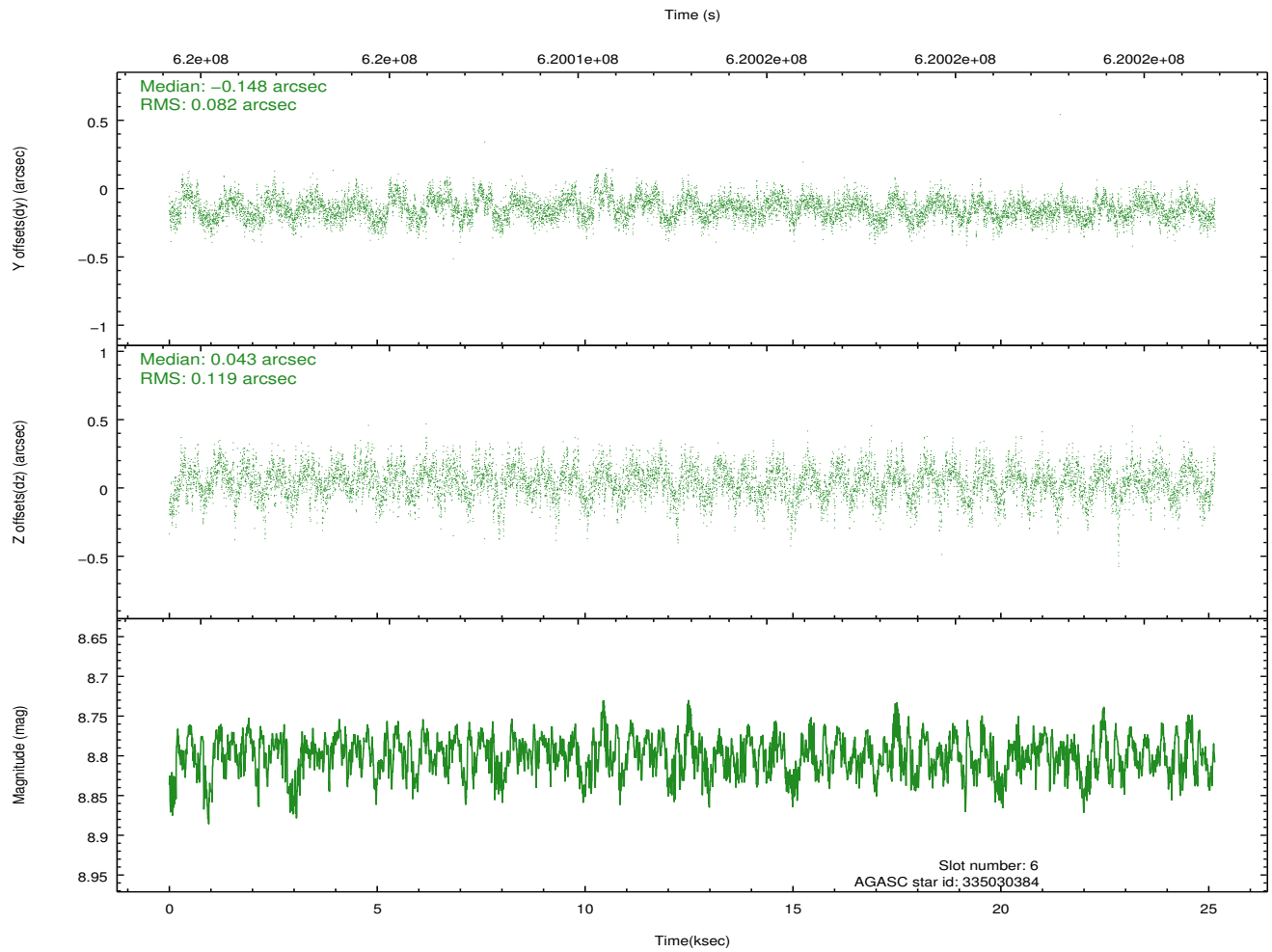
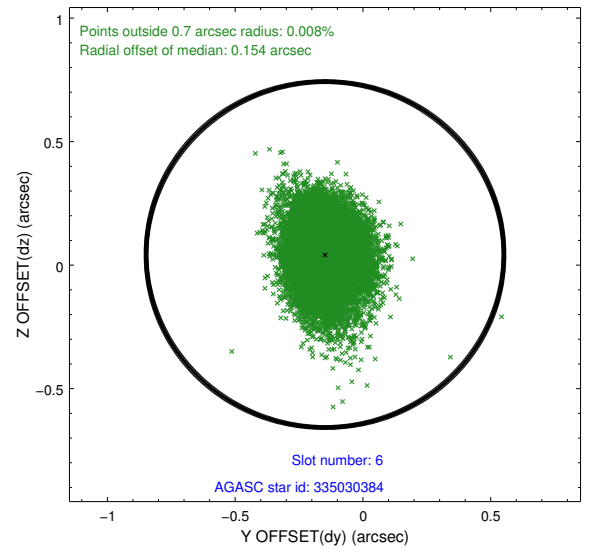
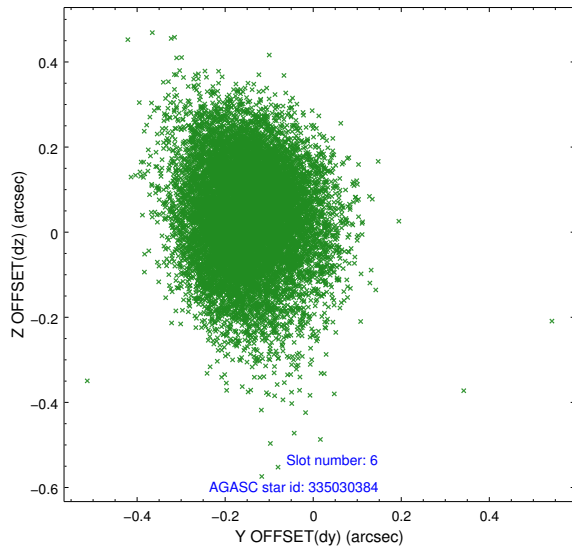
## 2.4.2 Slot 4



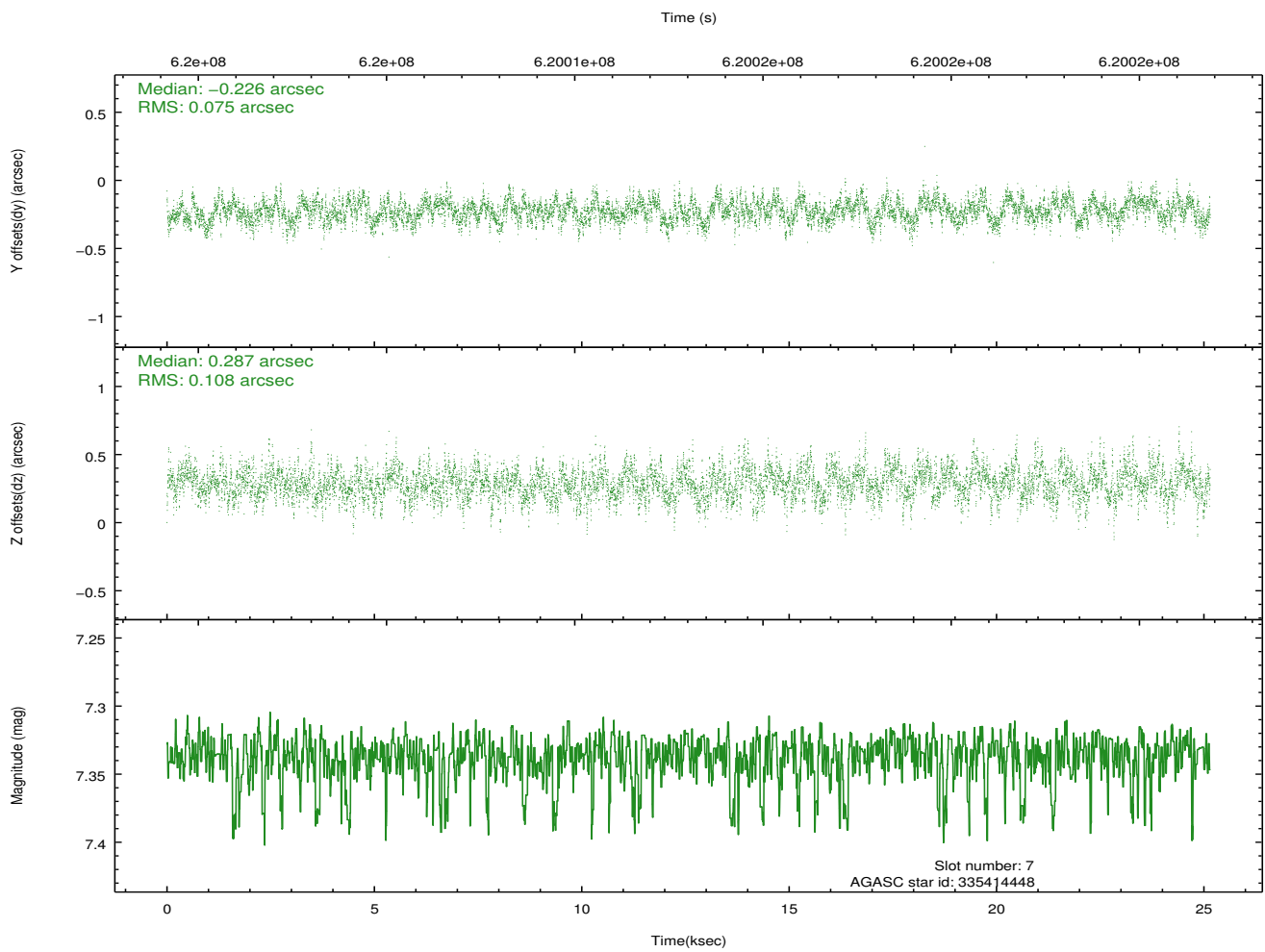
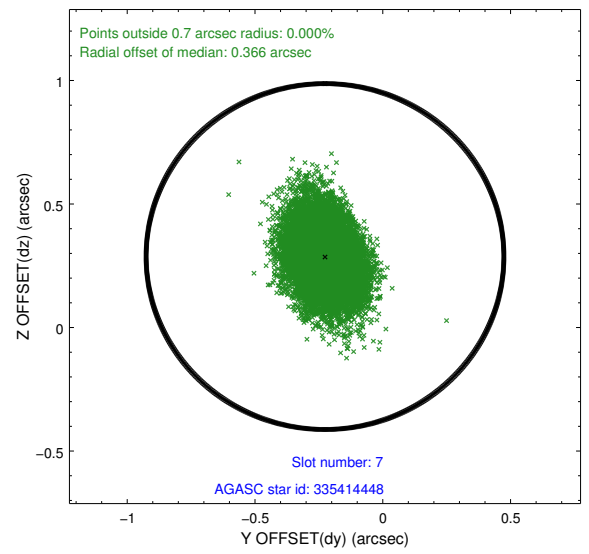
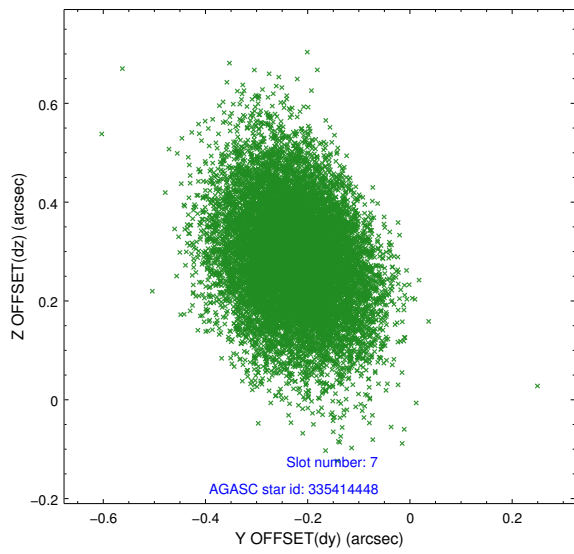
### 2.4.3 Slot 5



## 2.4.4 Slot 6

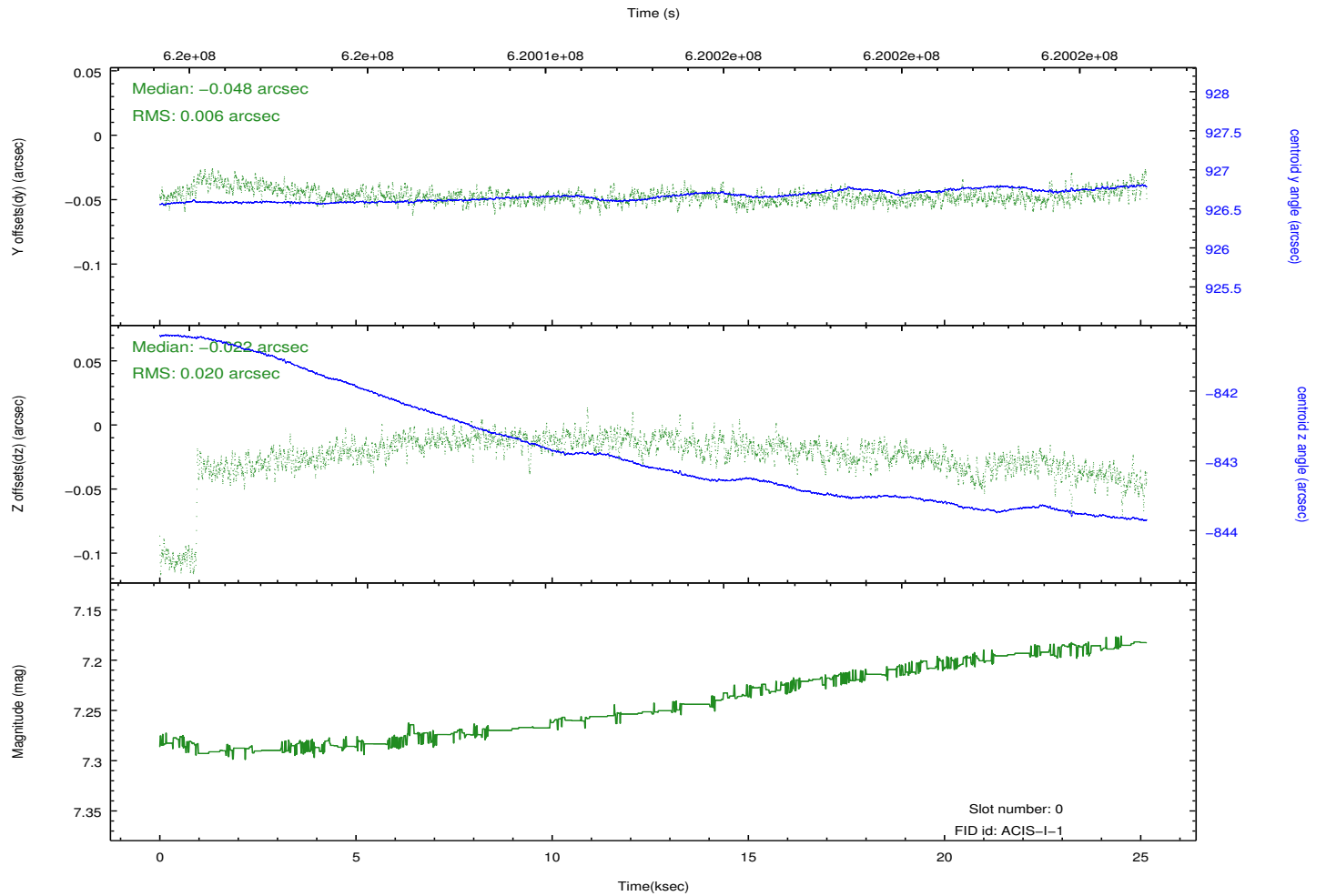
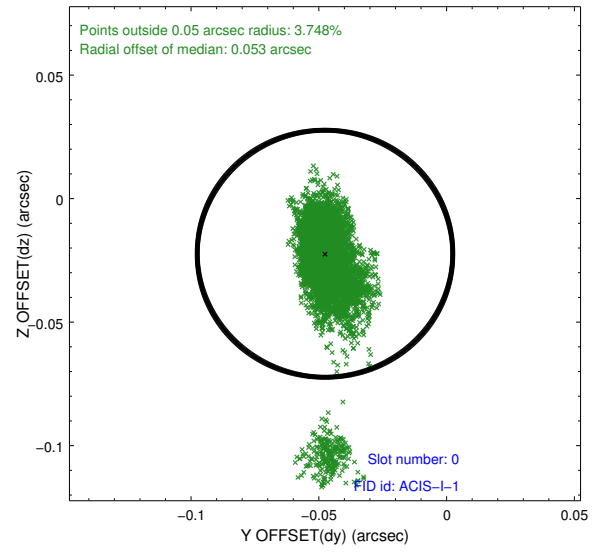
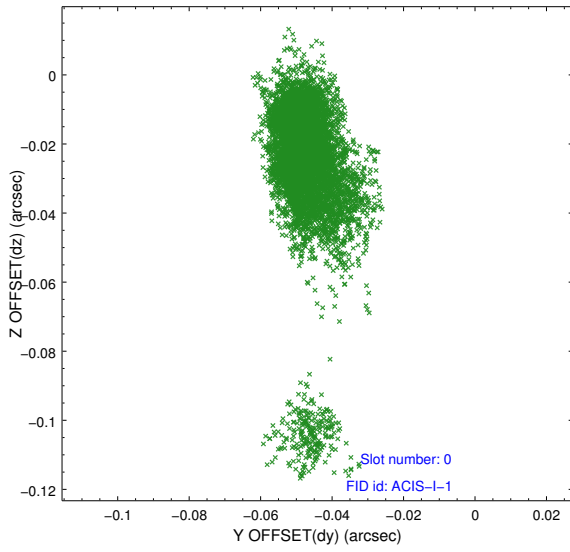


## 2.4.5 Slot 7

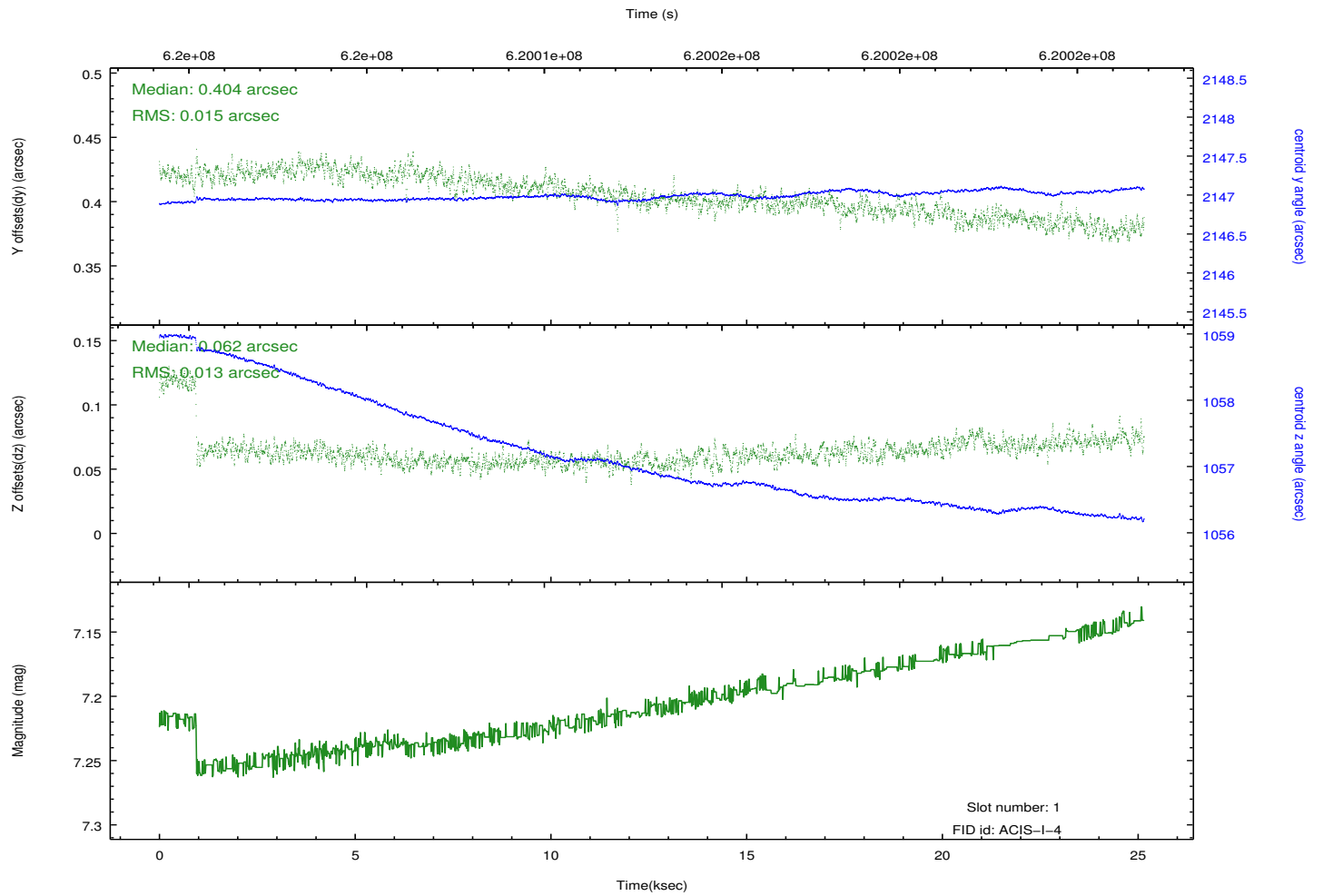
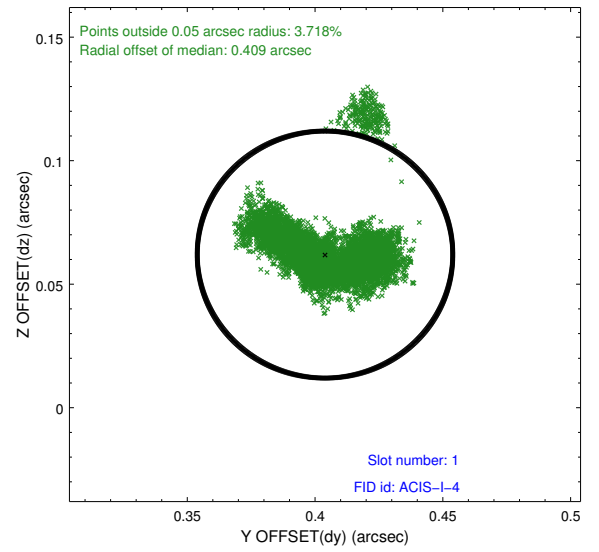
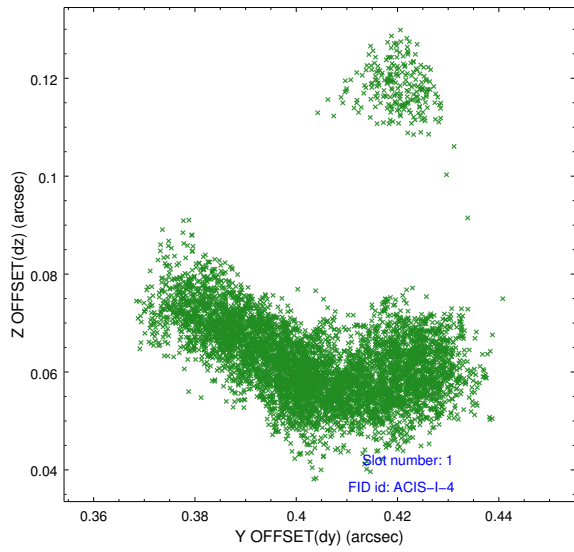


## 2.5 FID Slots

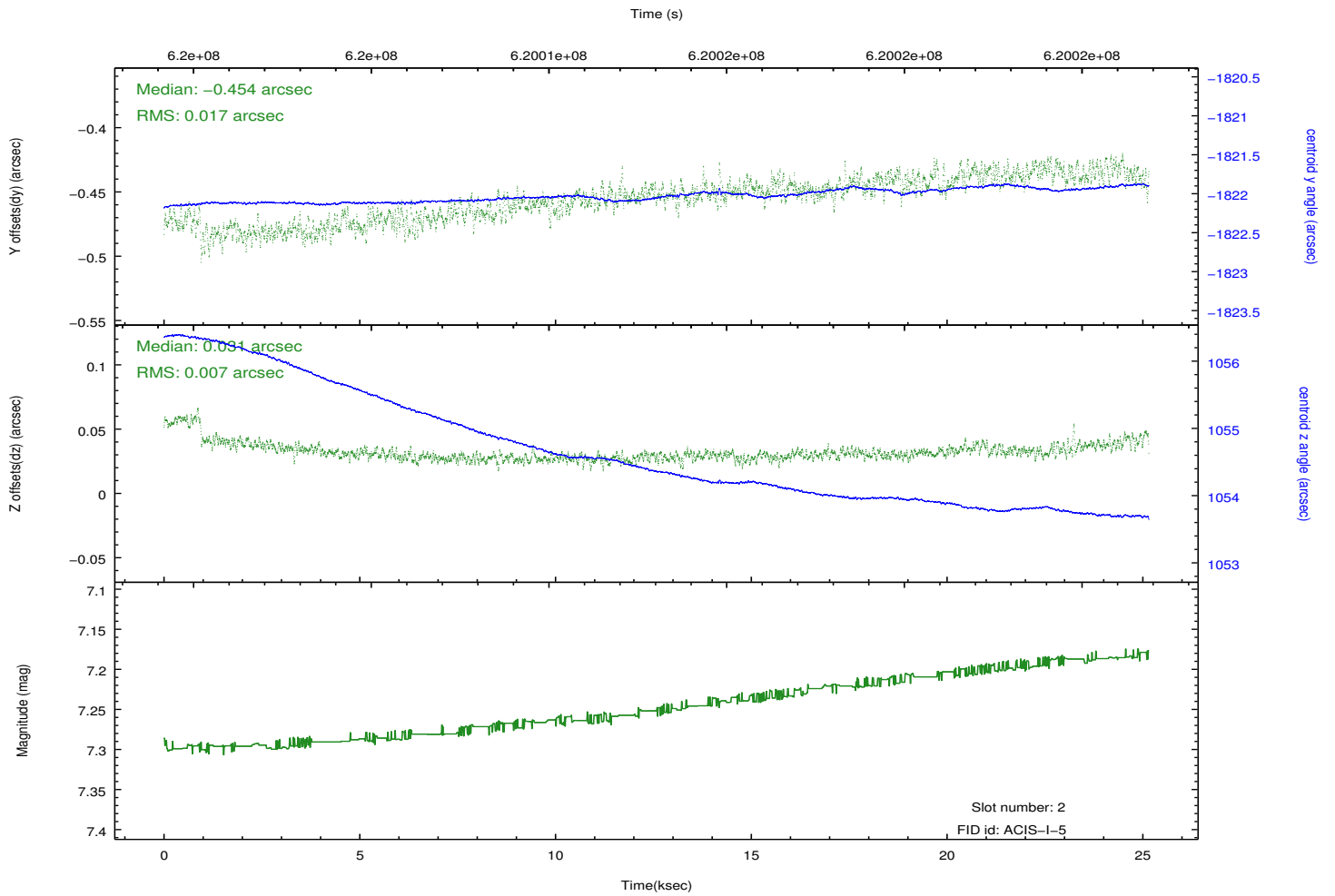
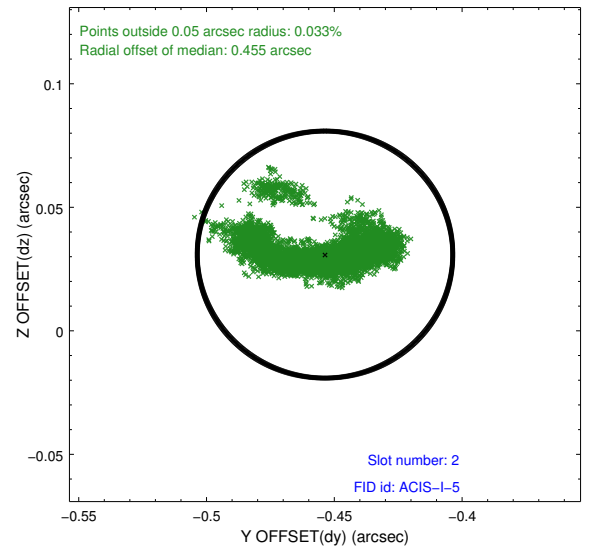
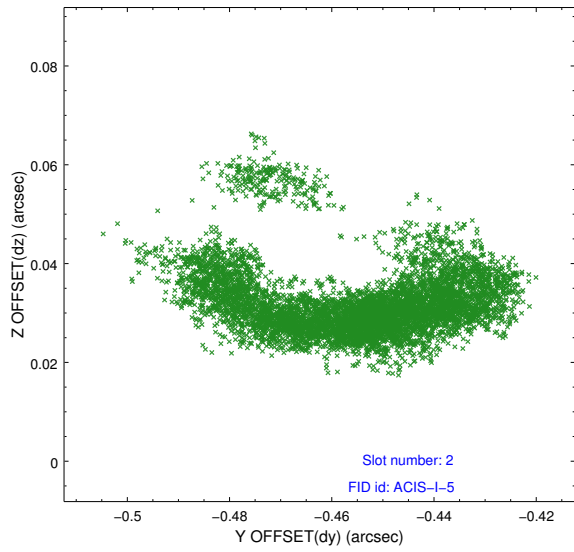
### 2.5.1 Slot 0



## 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)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	24.874400191426

## A.2 Comments

The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

[http://asc.harvard.edu/cal/Acis/Cal\\_prods/Gain\\_and\\_Spectral\\_Resolution/ACIS\\_response\\_summary.html](http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/ACIS_response_summary.html)

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
  - 2) The gain on FI chips remains within 0.3% below row 600 at all measured temperatures.
  - 3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.
  - 4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.
  - 5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.
- In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.