

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 10948 - L2 Version 4  
Chandra X-Ray Center

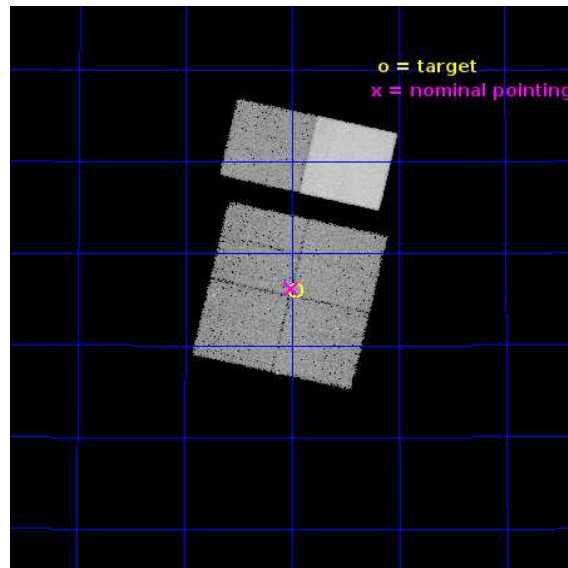
L2 Processing Date : Jul 16 2015

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>A</b>	<b>Summary</b>	<b>17</b>
A.1	Status . . . . .	17
A.2	Comments . . . . .	17

# 1 Front

seq_num	200580	Sequence number
obs_id	10948	Observation id
title	The Chandra Cygnus OB2 Survey	Proposal title
observer	Dr. Jeremy Drake	Principal investigator
object	Cygnus OB2	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	308.491869	Observer's specified target RA [deg]
dec_targ	41.765838	Observer's specified target Dec [deg]
ra_nom	308.50124179633	Nominal RA [deg]
dec_nom	41.769900138059	Nominal Dec [deg]
roll_nom	12.902452216186	Nominal Roll [deg]
revision	4	Processing version of data
ontime	27615.602614105	Sum of GTIs [s]
livetime	27265.917225685	Livetime [s]
ontime0	27612.36161387	Sum of GTIs [s]
ontime1	27612.361593783	Sum of GTIs [s]
ontime2	27615.602594197	Sum of GTIs [s]
ontime3	27615.602614105	Sum of GTIs [s]
ontime6	27618.843584418	Sum of GTIs [s]
ontime7	27618.843584418	Sum of GTIs [s]
l2events	199621	Number of level 2 events

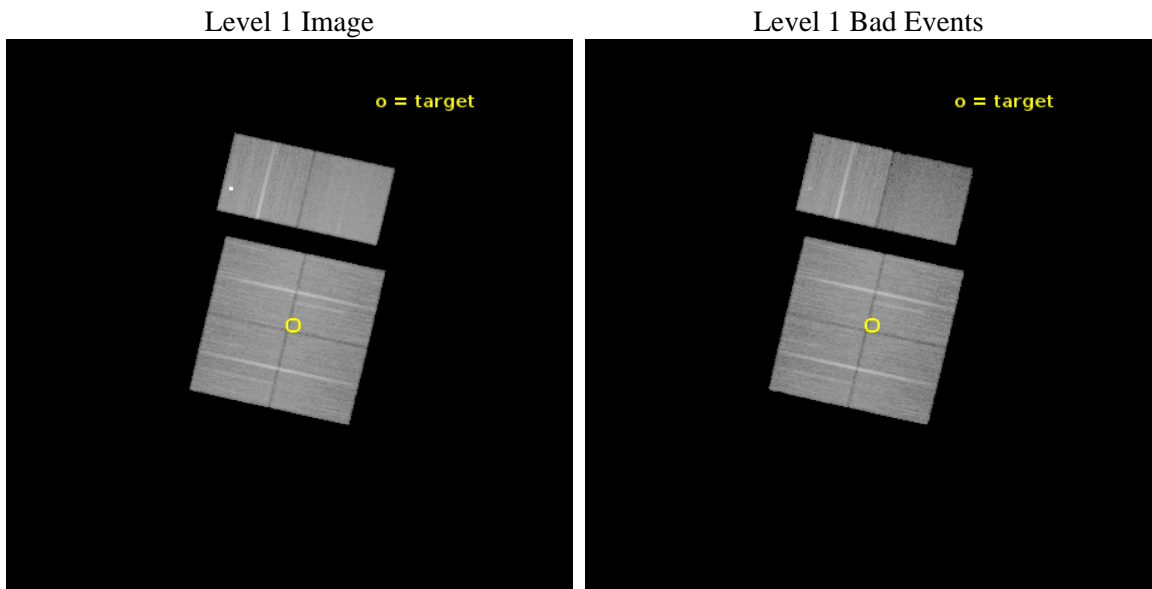




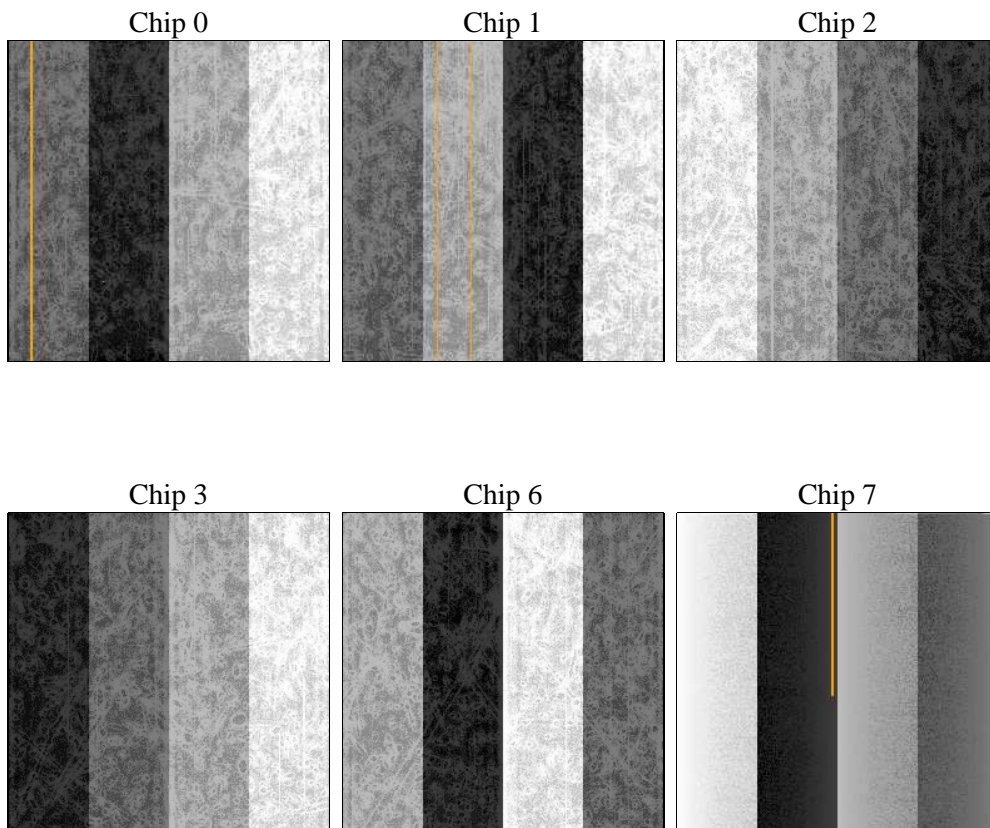
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	27500.000000	[s] Scheduled observation exposure time
ascdsver	10.4.1	Processing system revision	ontime	27615.602614105	Sum of GTIs [s]
caldsver	4.6.8	&#160	ontime0	27612.36161387	Sum of GTIs [s]
date	2015-07-16T14:46:46	Date and time of file creation	ontime1	27612.361593783	Sum of GTIs [s]
revision	4	Processing version of data	ontime2	27615.602594197	Sum of GTIs [s]
			ontime3	27615.602614105	Sum of GTIs [s]
			ontime6	27618.843584418	Sum of GTIs [s]
			ontime7	27618.843584418	Sum of GTIs [s]
			l1events	1300586	Number of level 1 events

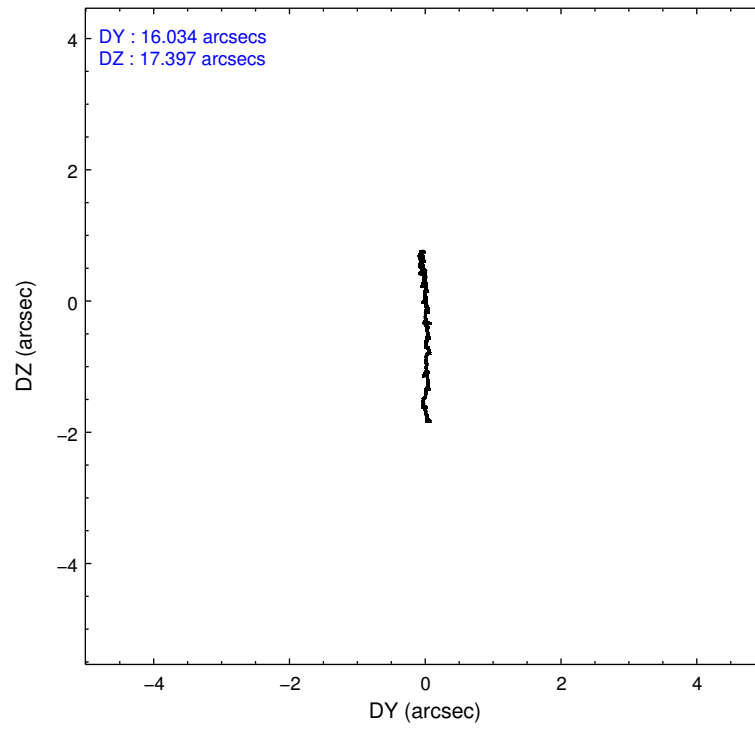
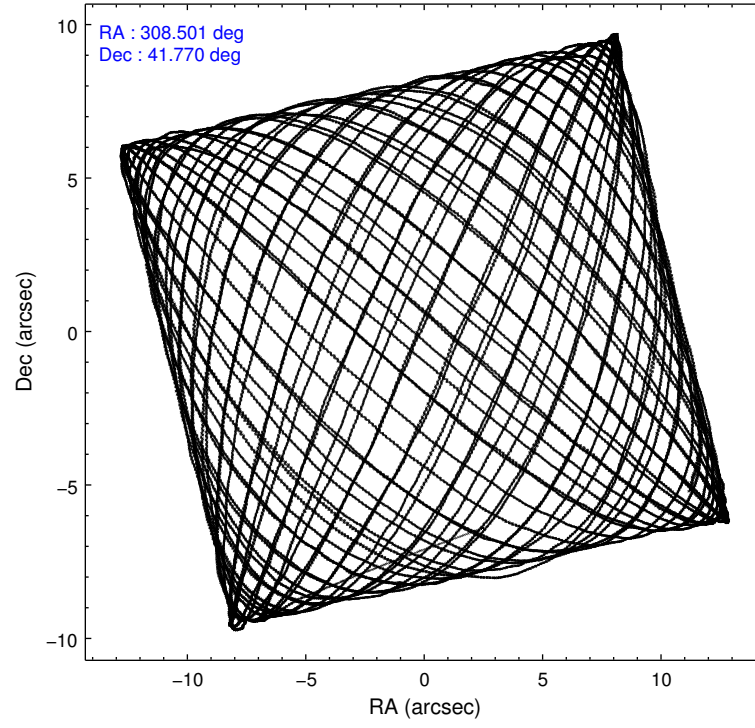
### 2.1.4 Events

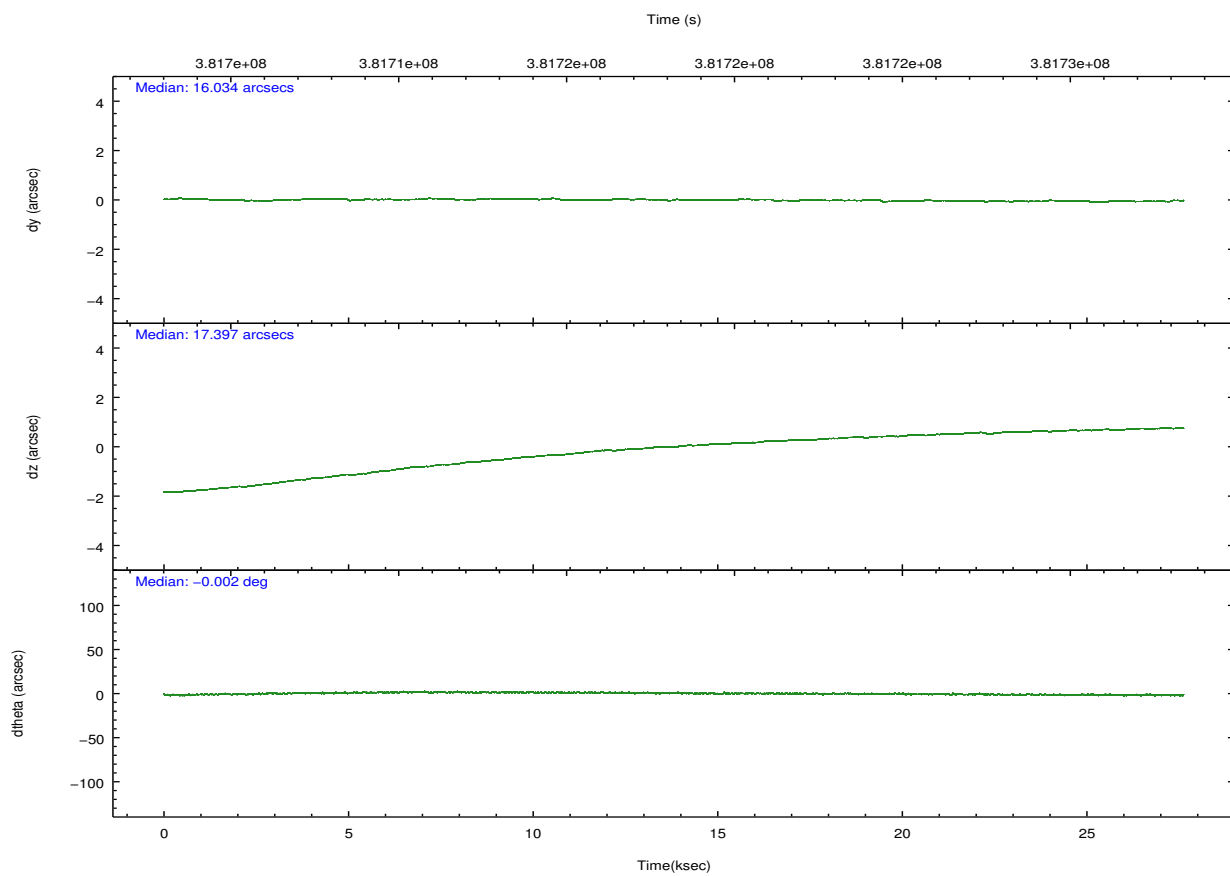
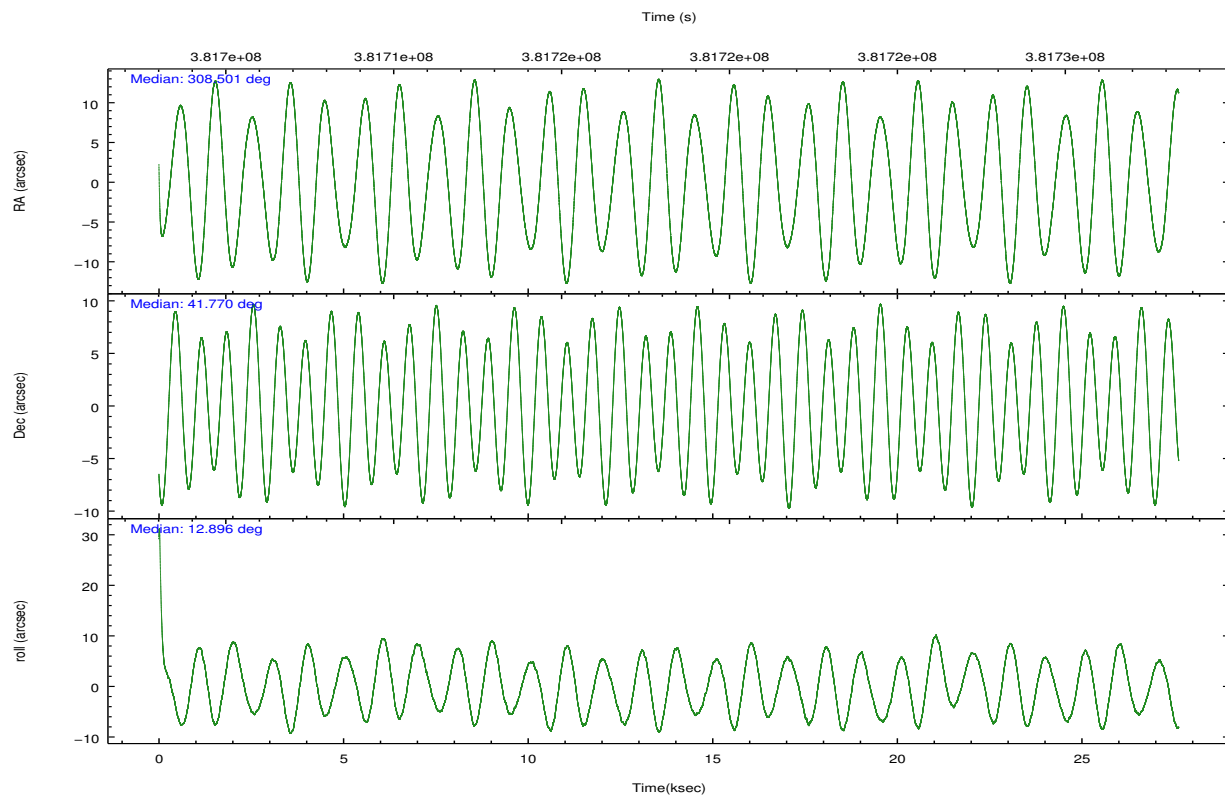
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	203782	198174	224824	214818	241236	217752	grade 0 events	8795	8934	8893	8747	24683	10794
rejected events	180243	173680	201842	192487	201645	111169		4%	4%	3%	4%	10%	4%
rejected %	88%	87%	89%	89%	83%	51%	grade 1 events	140	106	143	162	268	360
								0%	0%	0%	0%	0%	0%
							grade 2 events	5707	5490	5465	4805	5440	23009
								2%	2%	2%	2%	2%	10%
							grade 3 events	2479	2712	2297	2401	2427	9745
								1%	1%	1%	1%	1%	4%
							grade 4 events	2346	2647	2376	2277	2387	9715
								1%	1%	1%	1%	0%	4%
							grade 5 events	6917	7561	6497	7823	7991	23181
								3%	3%	2%	3%	3%	10%
							grade 6 events	4242	4743	3994	4139	4733	53537
								2%	2%	1%	1%	1%	24%
							grade 7 events	173156	165981	195159	184464	193307	87411
								84%	83%	86%	85%	80%	40%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-012367	ACIS-012367	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	308.474338	308.5012417963327	CCD I2 on	Y	Y
[deg] Pointing Dec	41.751099	41.76990013805887	CCD I3 on	Y	Y
[deg] Pointing Roll	12.711667	12.90245221618599	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	O2	Y
[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)	381704505.184000	381703294.07664	CCD S5 on	N	N
Observation start date	2010-02-04T21:00:39	2010-02-04T20:41:34	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	381732005.184000	381732139.1156	On-chip summing requested	N	N
Observation end date	2010-02-05T04:38:59	2010-02-05T04:42:19	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.2

## 2.3 Aspect



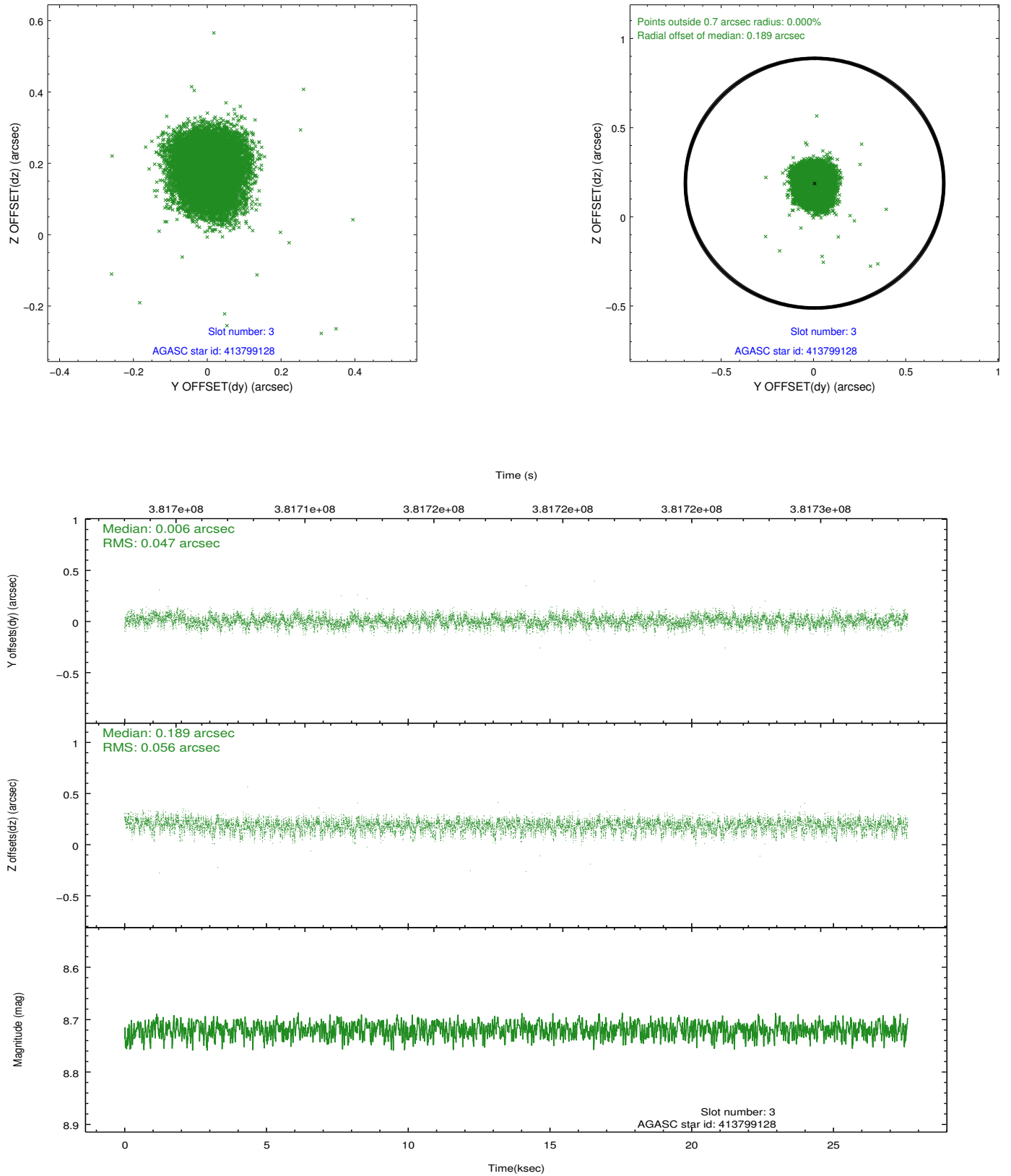


### Slot Statistics

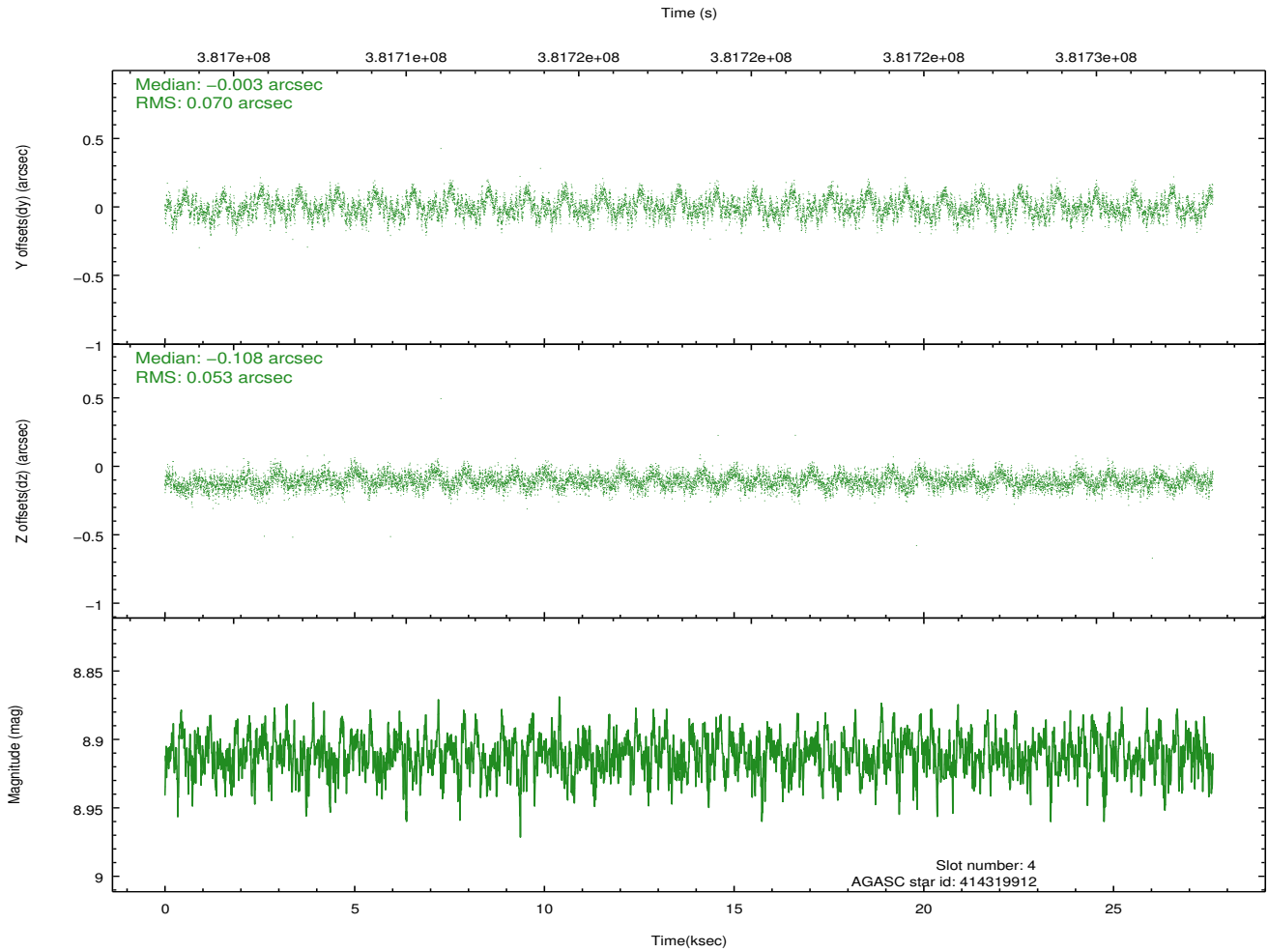
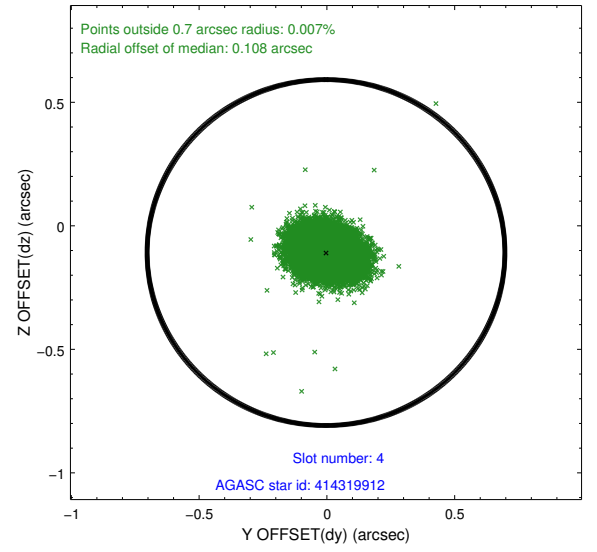
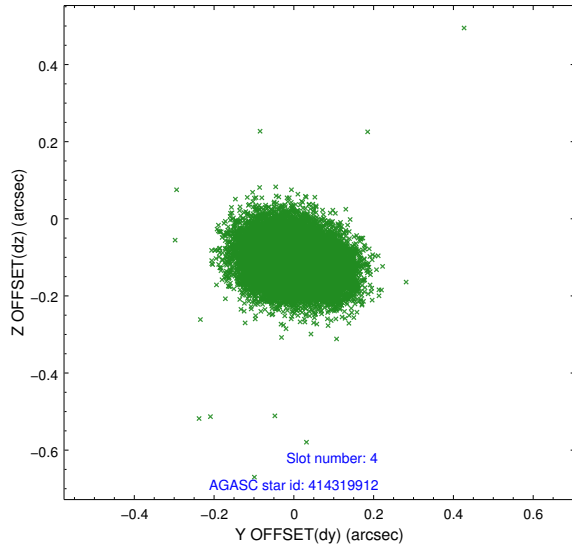
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.05	6733	0.050	-0.008	0.025	0.036	0.000000	0.000000	923.45	-840.85
1	FID		ACIS-I-5	7.05	6738	-0.208	0.057	0.009	0.026	0.000000	0.000000	-1824.86	1056.67
2	FID		ACIS-I-6	7.06	6738	0.067	0.019	0.023	0.041	0.000000	0.000000	388.92	1701.24
3	GUIDE	used	413799128	8.72	13470	0.006	0.189	0.077	0.124	307.948219	41.110579	-1897.95	-1930.91
4	GUIDE	used	414319912	8.91	13462	-0.003	-0.108	0.094	0.149	308.768330	42.373876	1256.19	2016.43
5	GUIDE	used	414326136	7.38	13472	-0.015	0.024	0.057	0.096	308.256176	41.473642	-793.12	-843.55
6	GUIDE	used	414327224	7.99	13470	0.060	0.025	0.074	0.121	309.355439	41.393115	2040.94	-1768.30
7	GUIDE	used	414322472	8.53	13470	-0.056	-0.126	0.079	0.127	307.661586	42.199898	-1756.66	2062.86

## 2.4 Star Slots

### 2.4.1 Slot 3

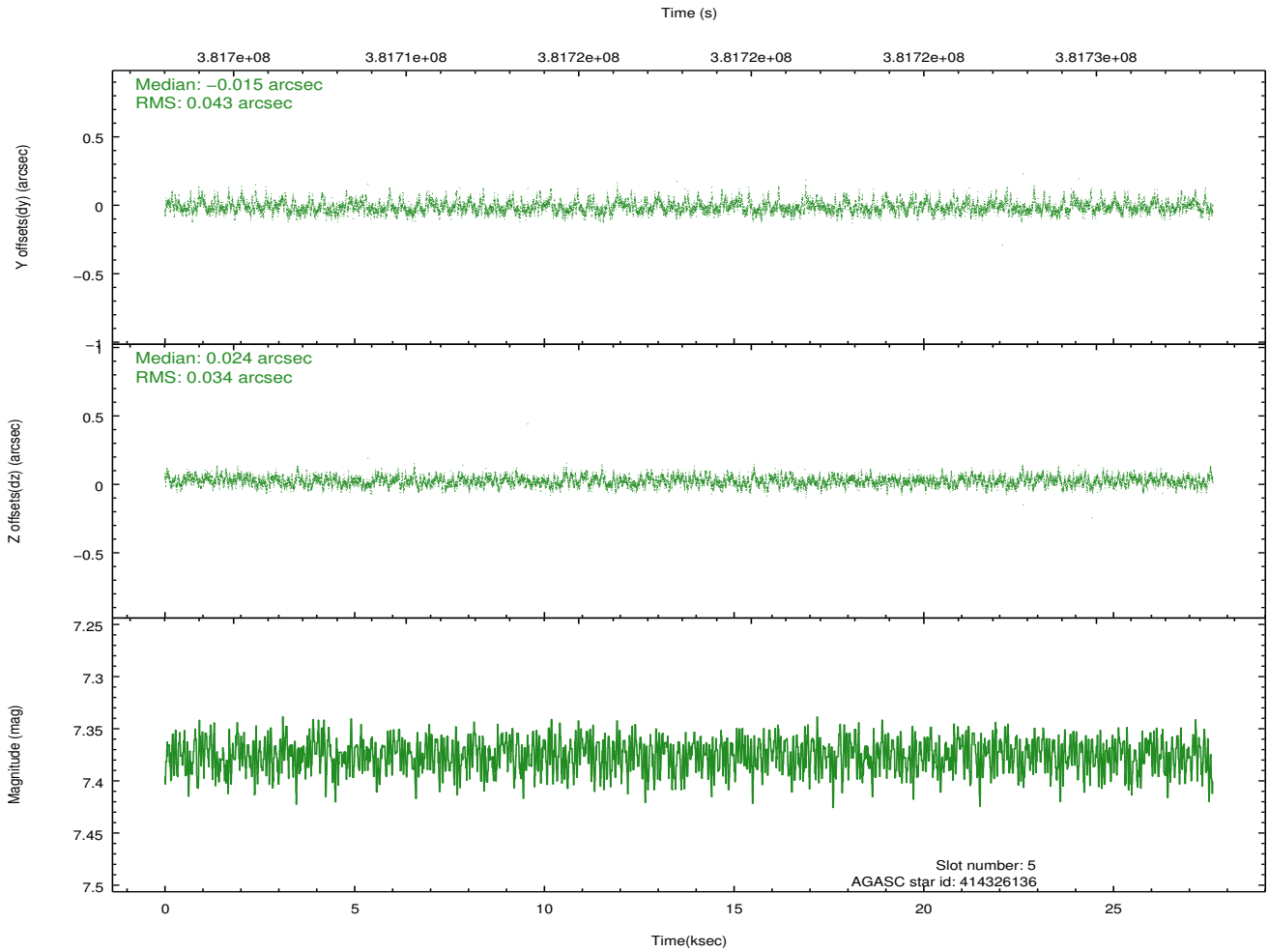
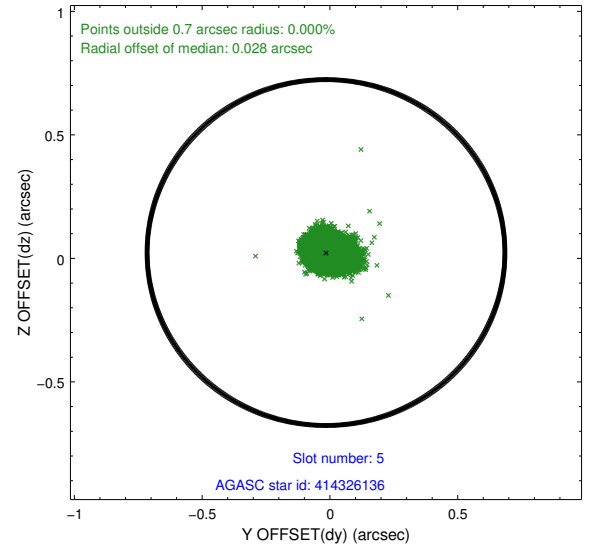
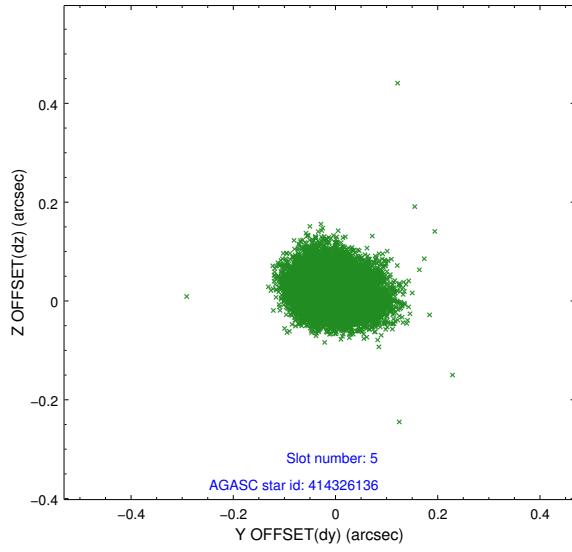


## 2.4.2 Slot 4

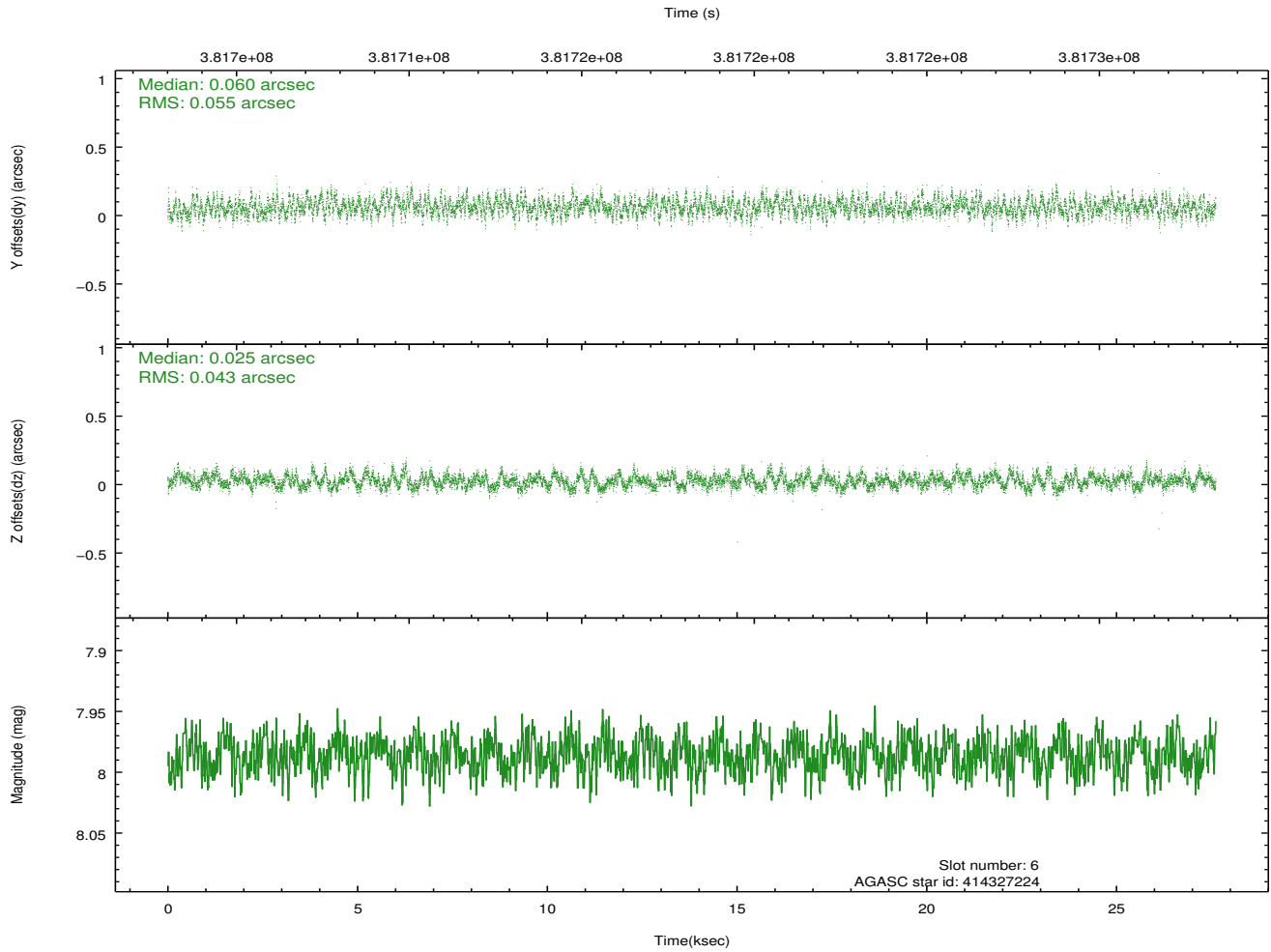
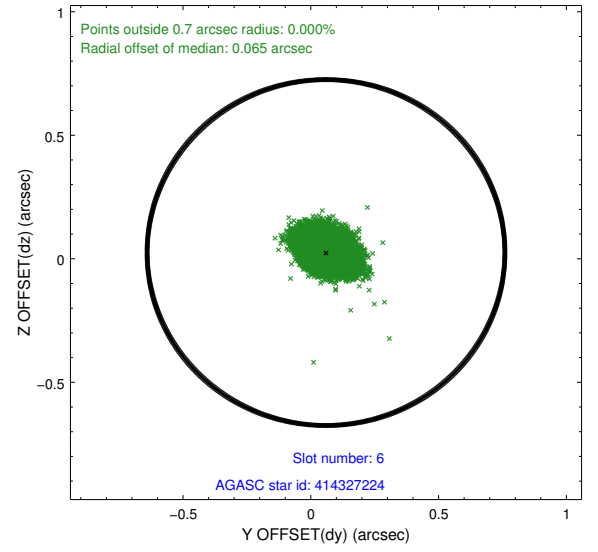
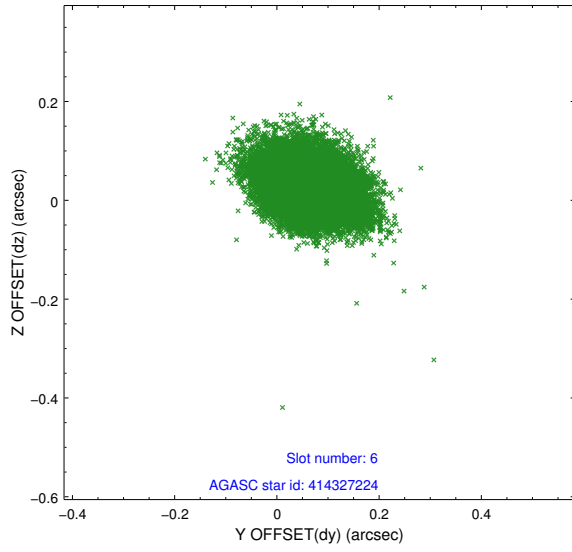




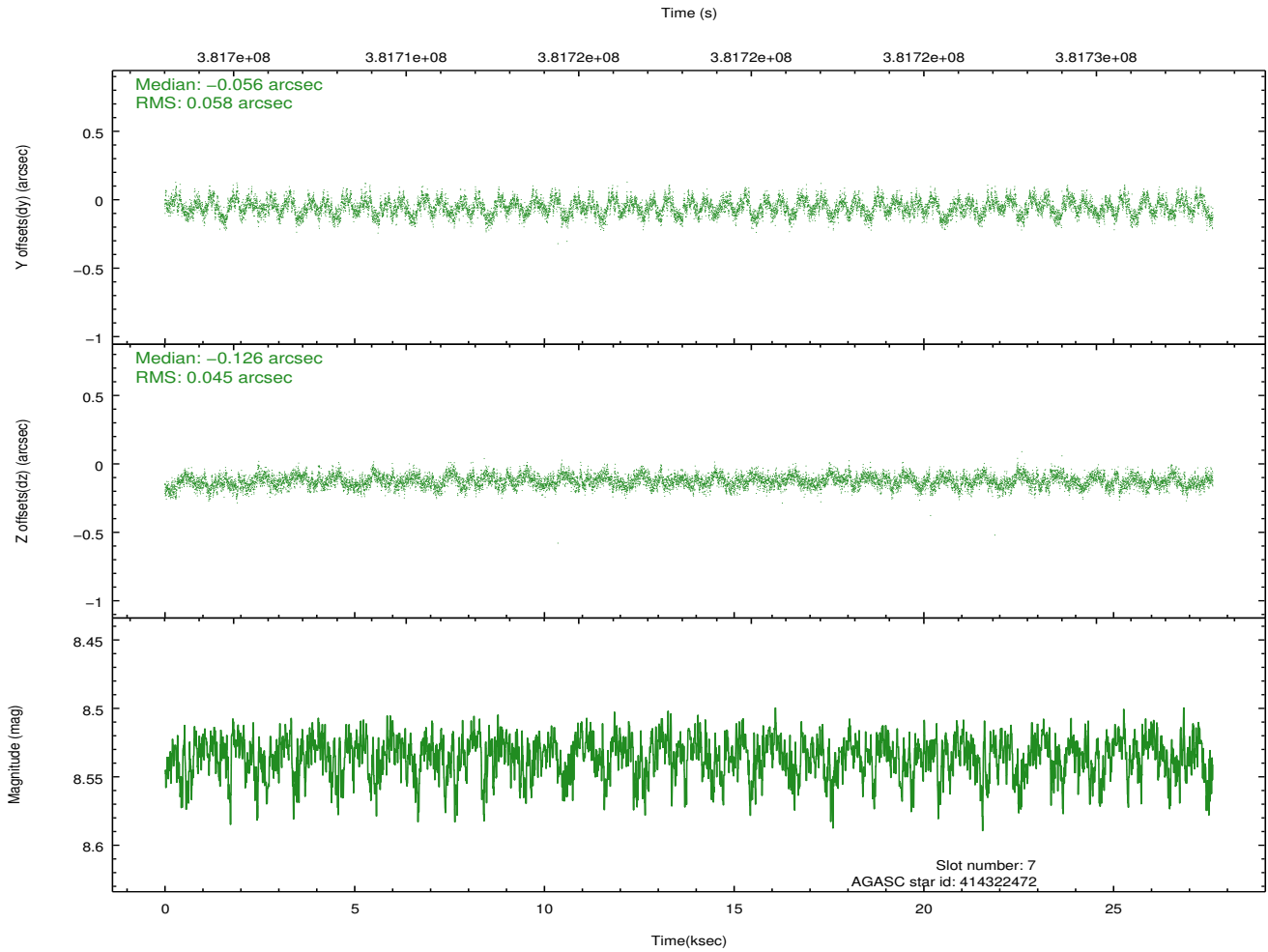
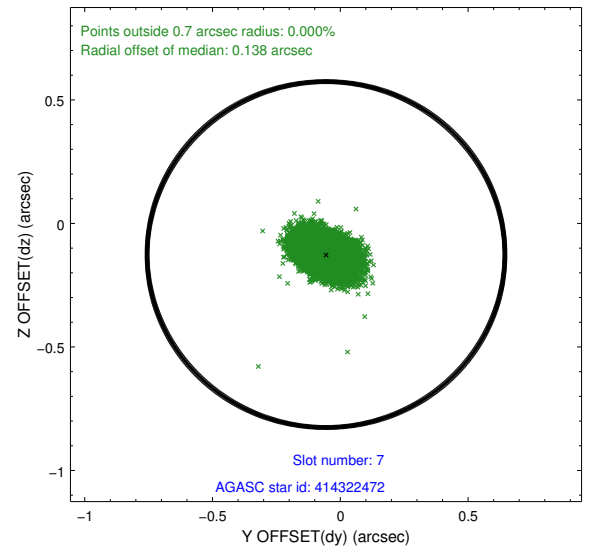
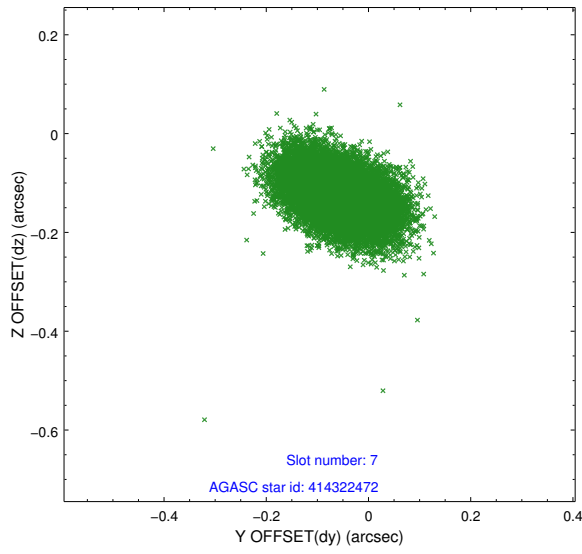
### 2.4.3 Slot 5



## 2.4.4 Slot 6

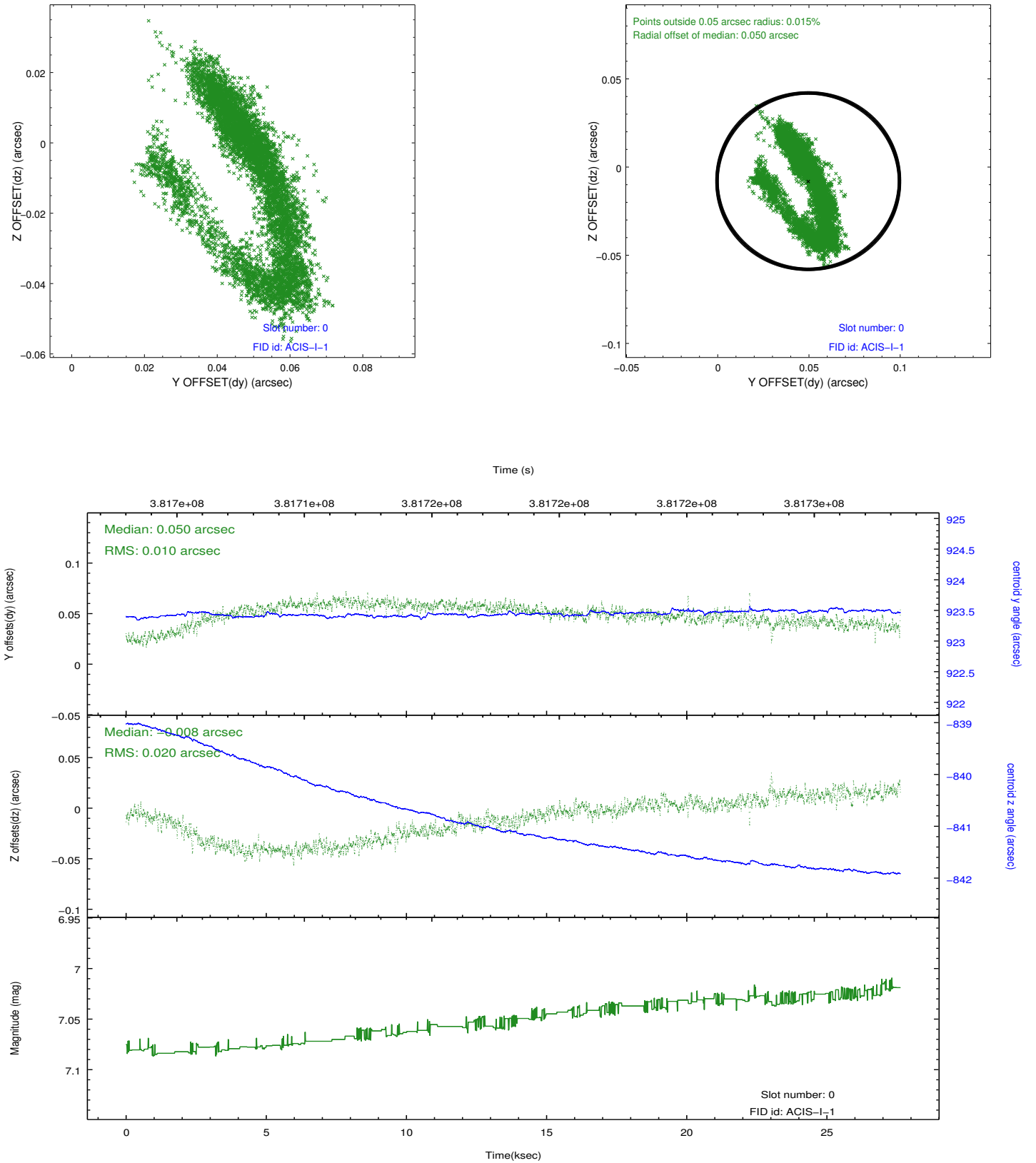


## 2.4.5 Slot 7

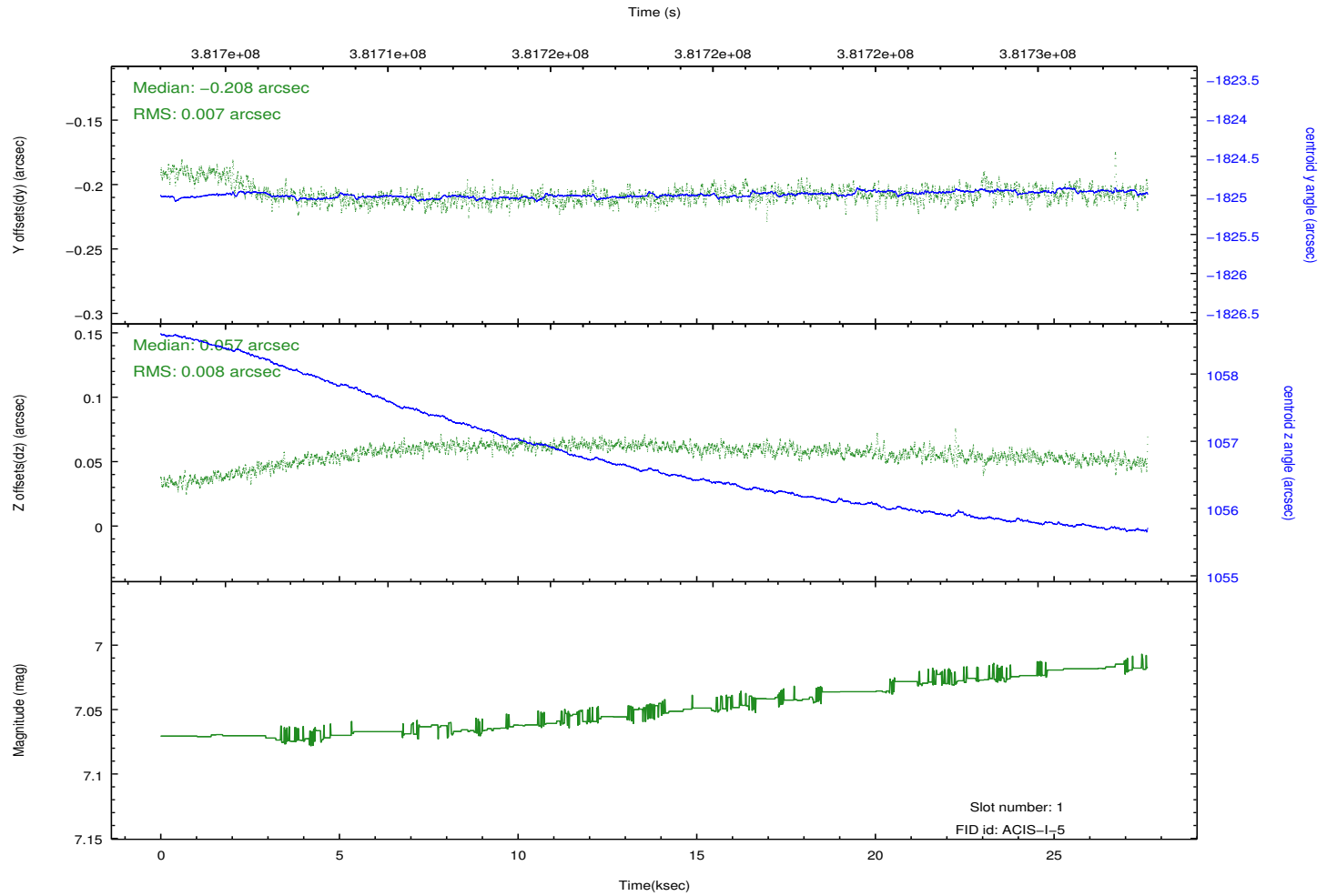
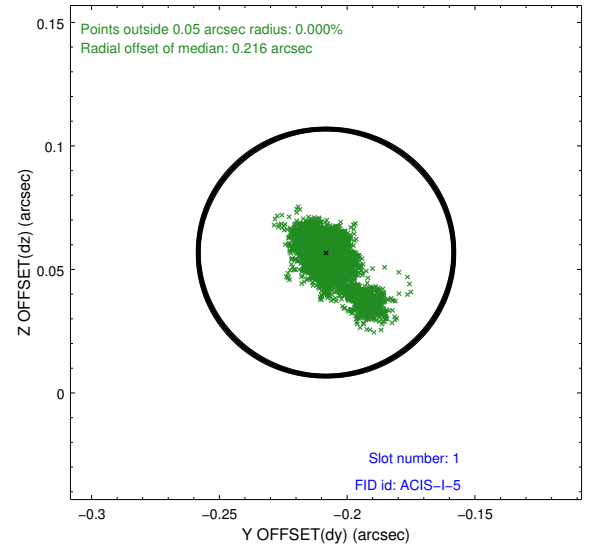
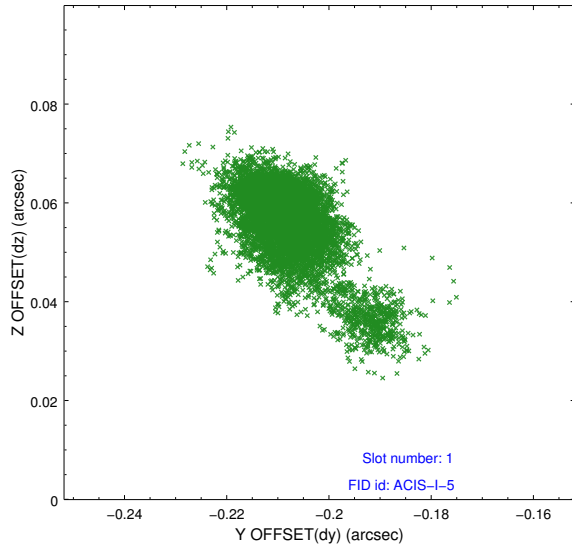


## 2.5 FID Slots

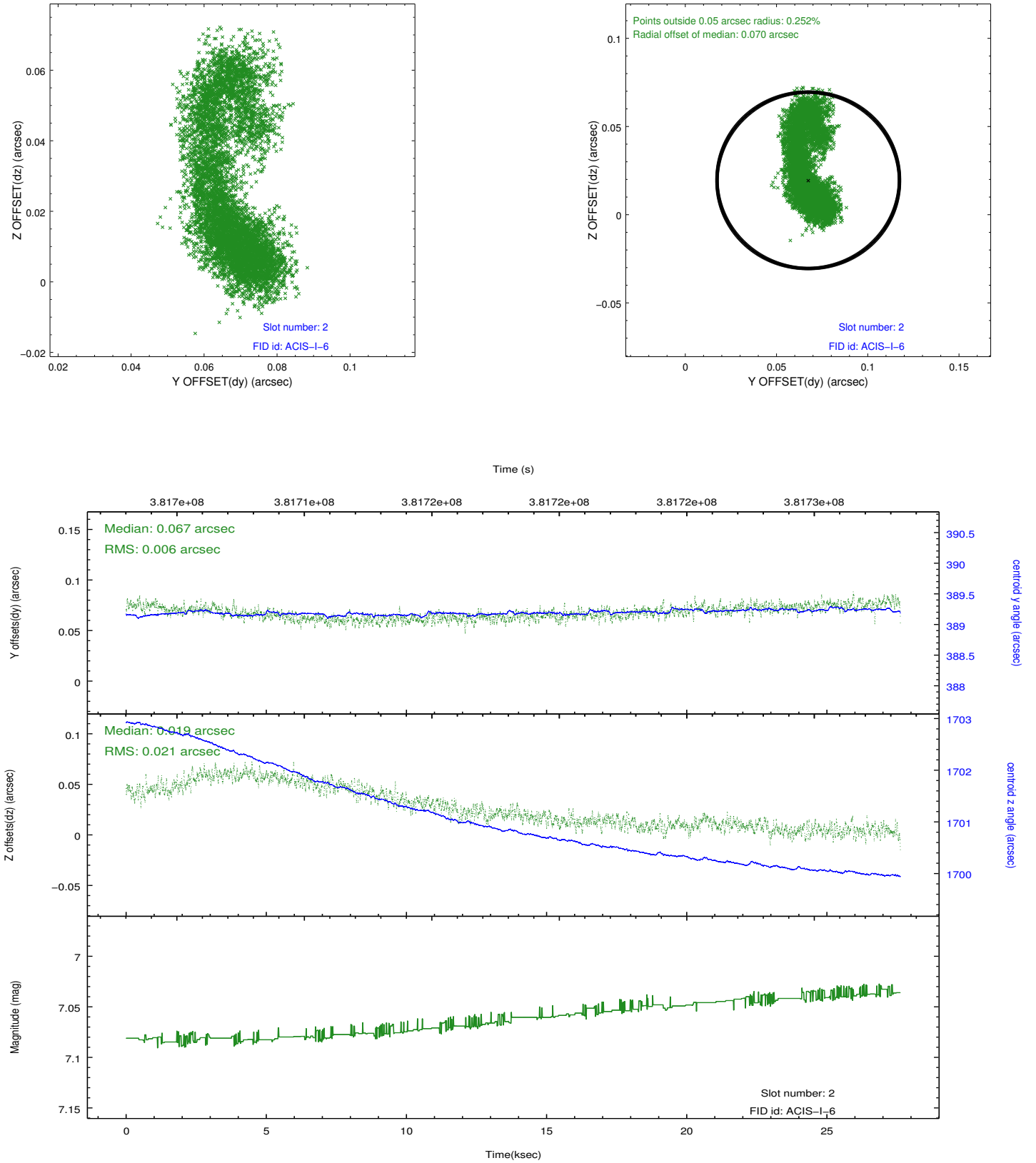
### 2.5.1 Slot 0



## 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)	2015.07.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	27.615958926797

## A.2 Comments

Because an aspect solution is determined in a finite time interval, a small number of events registered within the delta time before the first aspect solution do not have proper sky coordinates. We apply a manual workaround to exclude those events with incorrect sky positions until the complete s/w resolution is obtained.

A spatial region of the original bias map for CCD = 2 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 (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 2 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:  
(308.52794,41.87963), (308.52703,41.88255), (308.49384,41.87689),  
(308.49474,41.87397)