

# V&V Reference Report

## L2 ASCDS Version : 10.2.1

Observation 15178 - L2 Version 2  
Chandra X-Ray Center

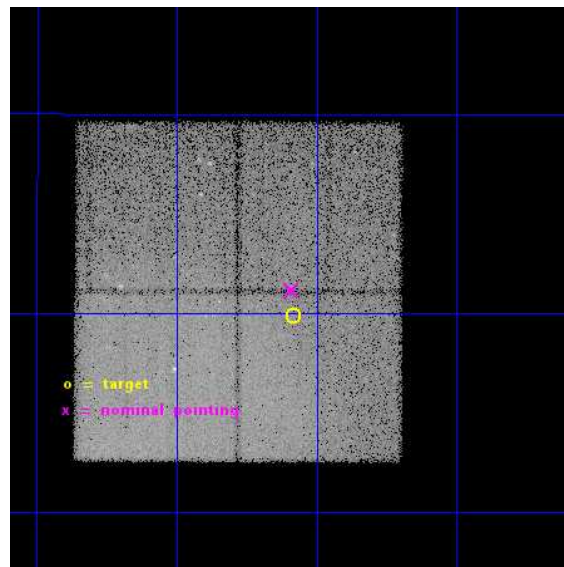
L2 Processing Date : Dec 10 2014

## 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

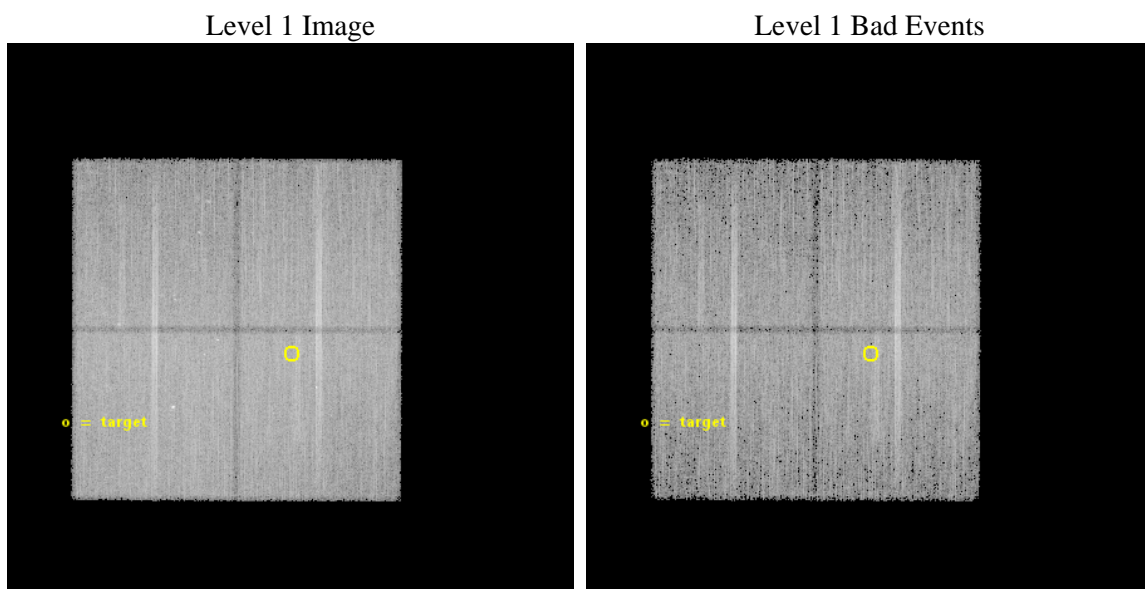
seq_num	801305	Sequence number
obs_id	15178	Observation id
title	Resolving the nearest cold front in the sky: the cleanest experimental tool to study detailed ICM physics	Proposal title
observer	Dr. Norbert Werner	Principal investigator
object	Virgo cold front	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	187.52067	Observer's specified target RA [deg]
dec_targ	12.664798	Observer's specified target Dec [deg]
ra_nom	187.52245764604	Nominal RA [deg]
dec_nom	12.685836978717	Nominal Dec [deg]
roll_nom	90.208295760241	Nominal Roll [deg]
revision	2	Processing version of data
ontime	47094.618529558	Sum of GTIs [s]
livetime	46479.292667916	Livetime [s]
ontime0	47085.072248518	Sum of GTIs [s]
ontime1	47094.536449552	Sum of GTIs [s]
ontime2	47094.577489555	Sum of GTIs [s]
ontime3	47094.618529558	Sum of GTIs [s]
l2events	244397	Number of level 2 events



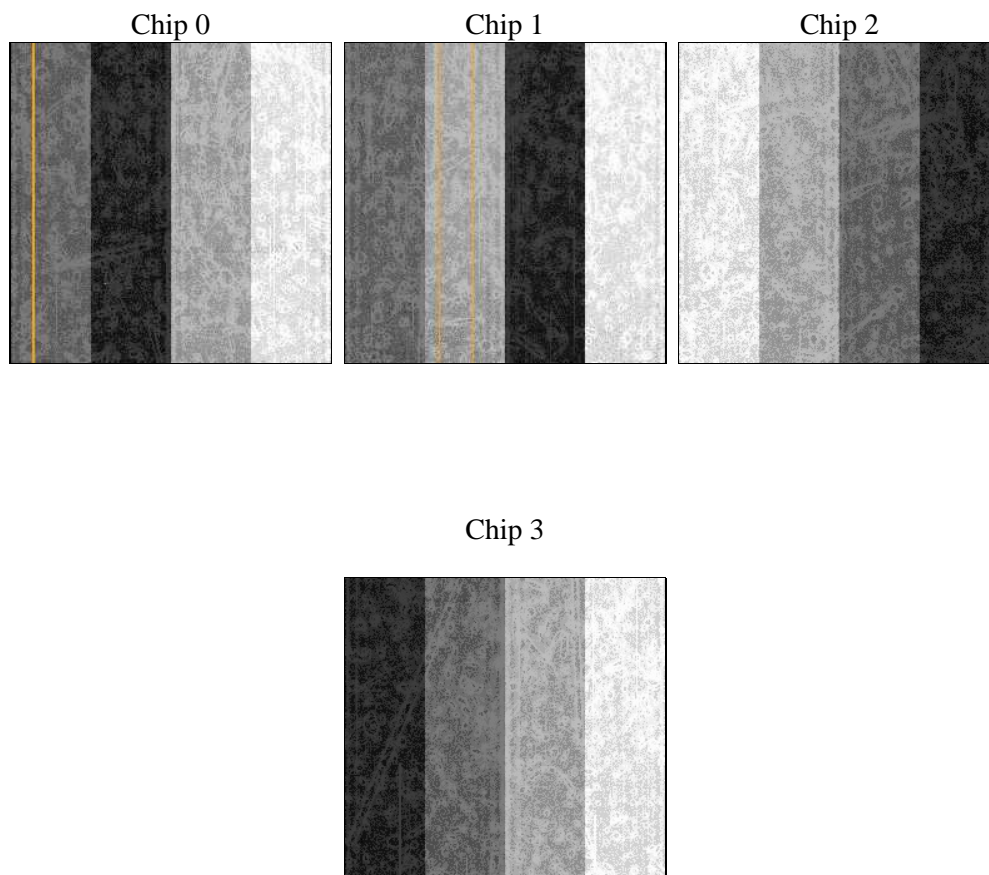
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	47000.630000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	47094.618529558	Sum of GTIs [s]
caldsver	4.6.4	&#160	ontime0	47085.072248518	Sum of GTIs [s]
date	2014-12-10T10:01:05	Date and time of file creation	ontime1	47094.536449552	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	47094.577489555	Sum of GTIs [s]
			ontime3	47094.618529558	Sum of GTIs [s]
			l1events	965677	Number of level 1 events

### 2.1.4 Events

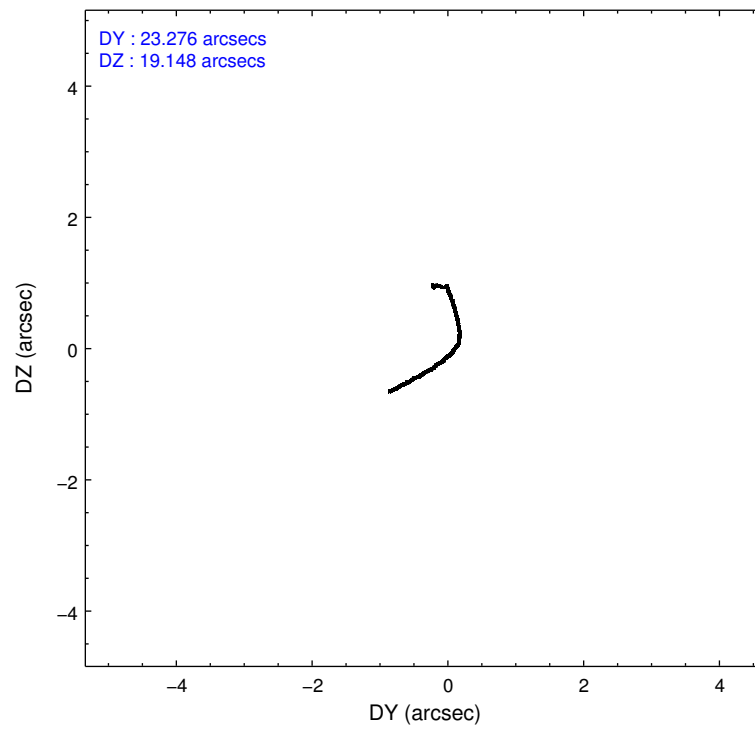
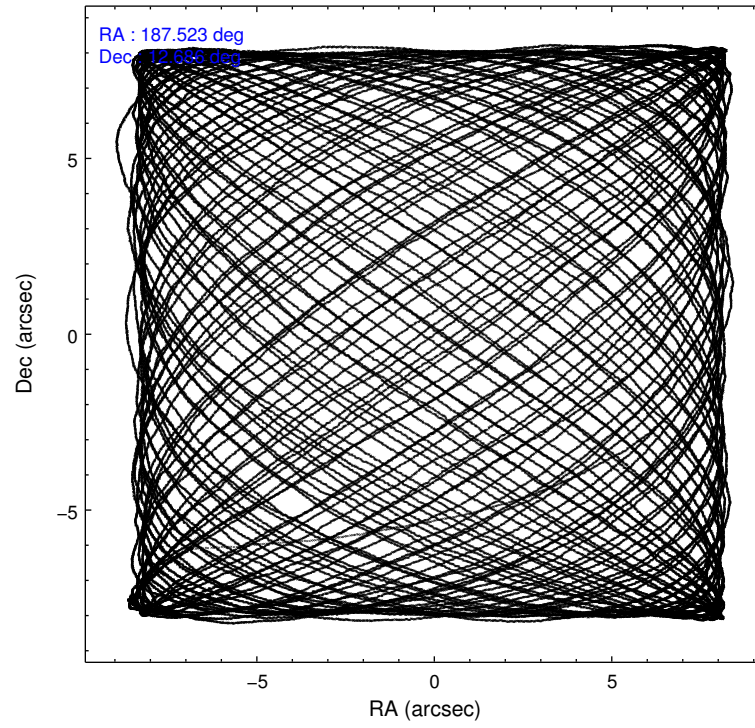
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	209228	276920	228743	250786
rejected events	160267	171107	184029	180639
rejected %	76%	61%	80%	72%

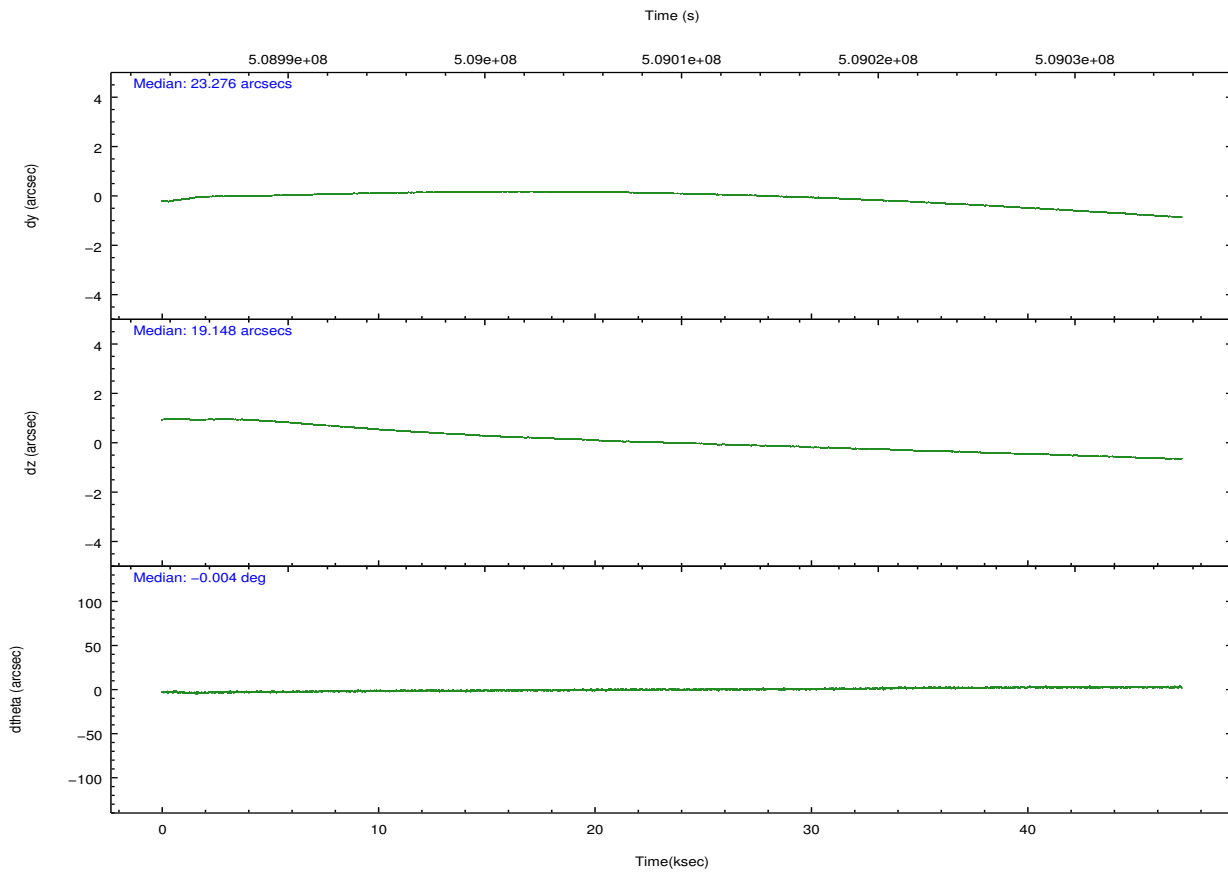
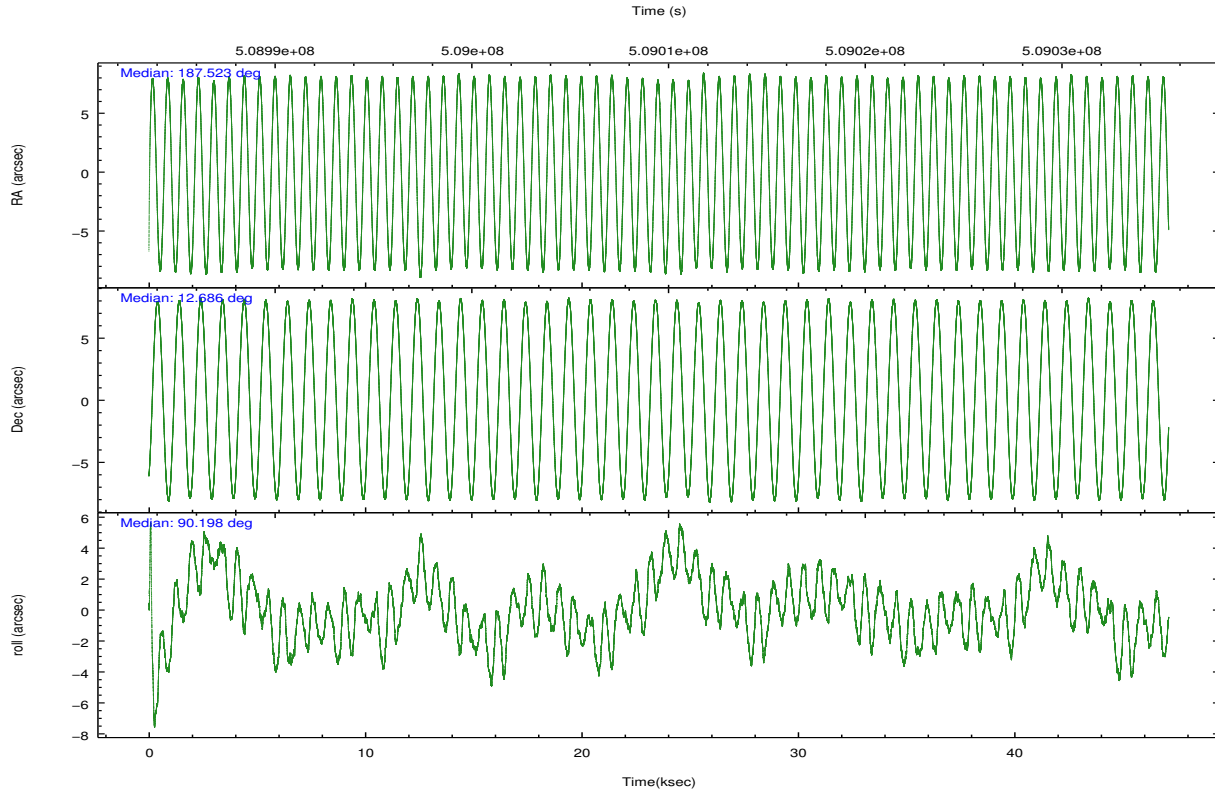
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	28292	73740	25414	46355
	13%	26%	11%	18%
grade 1 events	171	290	191	238
	0%	0%	0%	0%
grade 2 events	8600	14498	8011	10027
	4%	5%	3%	3%
grade 3 events	3362	4981	3011	3840
	1%	1%	1%	1%
grade 4 events	3096	4934	3035	4008
	1%	1%	1%	1%
grade 5 events	10049	11079	9578	11788
	4%	4%	4%	4%
grade 6 events	5618	7679	5249	5929
	2%	2%	2%	2%
grade 7 events	150040	159719	174254	168601
	71%	57%	76%	67%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-0123	ACIS-0123	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	187.536731	187.5224576460397	CCD I2 on	Y	Y
[deg] Pointing Dec	12.662128	12.68583697871741	CCD I3 on	Y	Y
[deg] Pointing Roll	89.996480	90.20829576024104	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	-227.592463	-227.5958210972112	CCD S3 on	O1	N
[mm] SIM translation stage offset	-6	-5.996631905718488	CCD S4 on	N	N
[s] Observation start time (MET)	508986059.184000	508984861.02995	CCD S5 on	N	N
Observation start date	2014-02-17T00:59:52	2014-02-17T00:41:01	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	509033060.184000	509033294.84512	On-chip summing requested	N	N
Observation end date	2014-02-17T14:03:13	2014-02-17T14:08:14	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





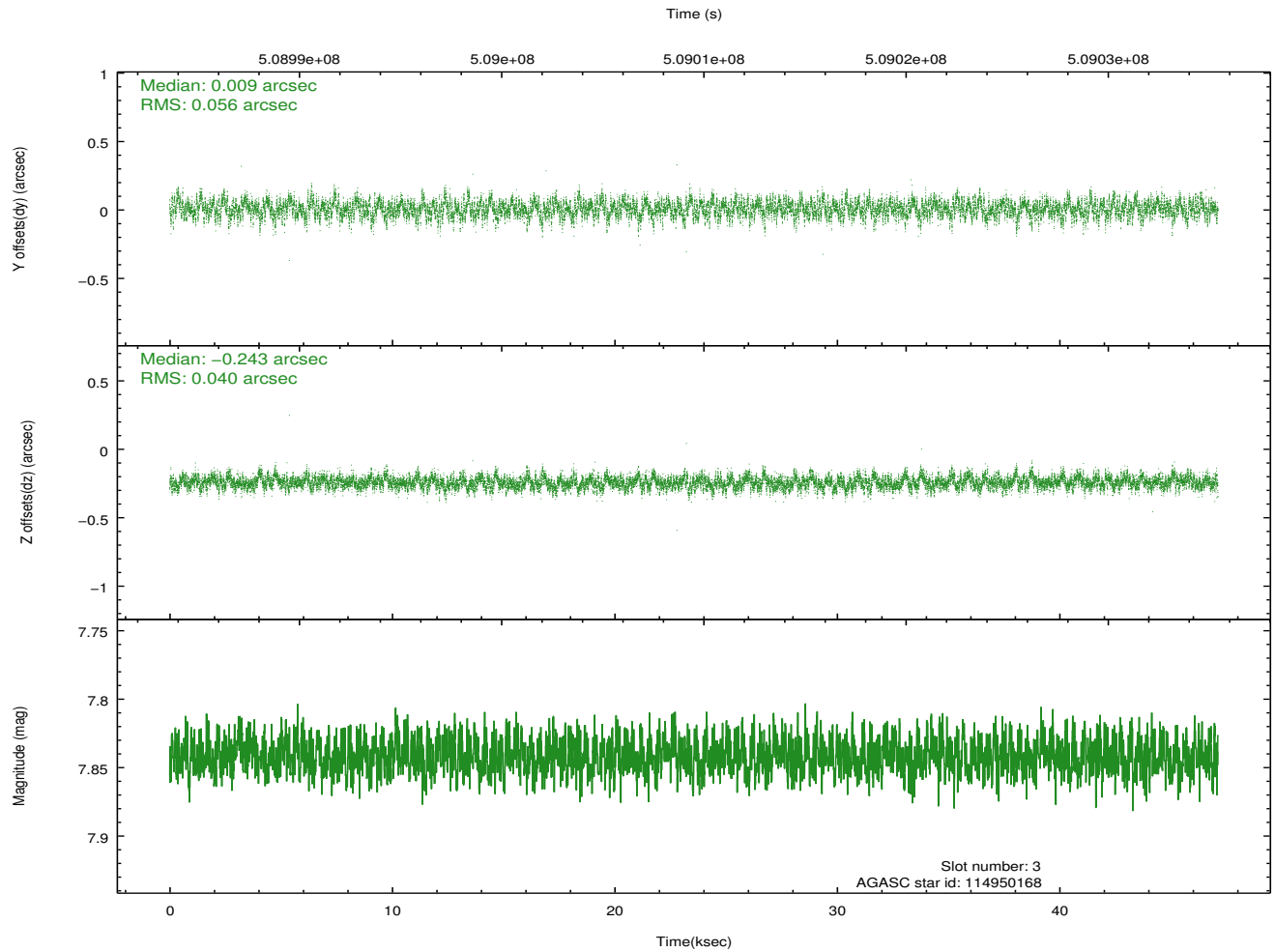
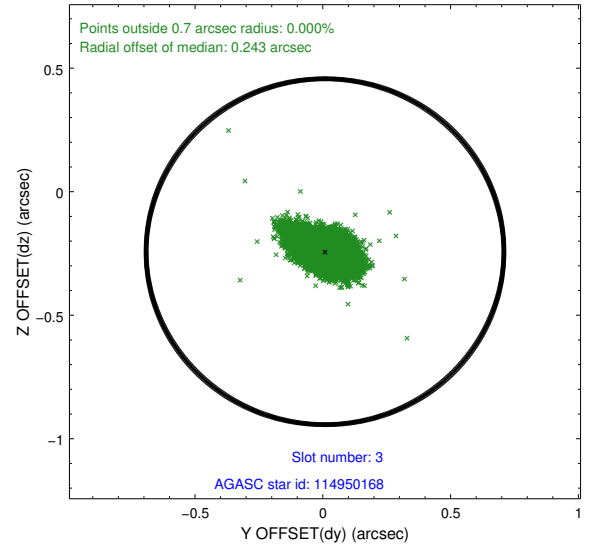
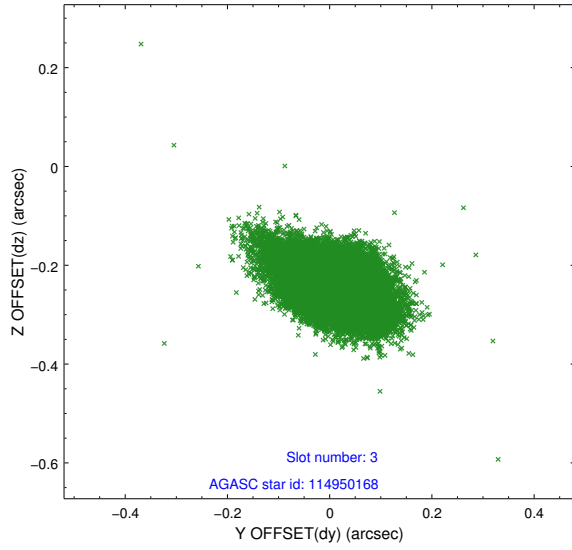
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.10	11492	0.089	-0.036	0.018	0.037	0.000000	0.000000	916.09	-966.02
1	FID		ACIS-I-5	7.10	11493	-0.318	0.064	0.013	0.021	0.000000	0.000000	-1832.51	931.46
2	FID		ACIS-I-6	7.11	11493	0.138	0.046	0.017	0.031	0.000000	0.000000	381.58	1576.03
3	GUIDE	used	114950168	7.84	22981	0.009	-0.243	0.070	0.122	187.143398	12.117441	-1960.32	1384.23
4	GUIDE	used	114952824	8.57	22977	-0.143	0.135	0.097	0.152	187.703904	12.486727	-631.28	-586.50
5	GUIDE	used	114954440	9.18	22973	0.037	-0.556	0.110	0.181	186.915066	12.219118	-1593.01	2185.57
6	GUIDE	used	114955056	8.33	22978	0.100	1.042	0.081	0.131	187.914001	12.127854	-1921.95	-1326.56
7	GUIDE	used	114957008	8.24	22981	-0.002	-0.380	0.085	0.144	186.894794	12.099160	-2024.66	2260.19

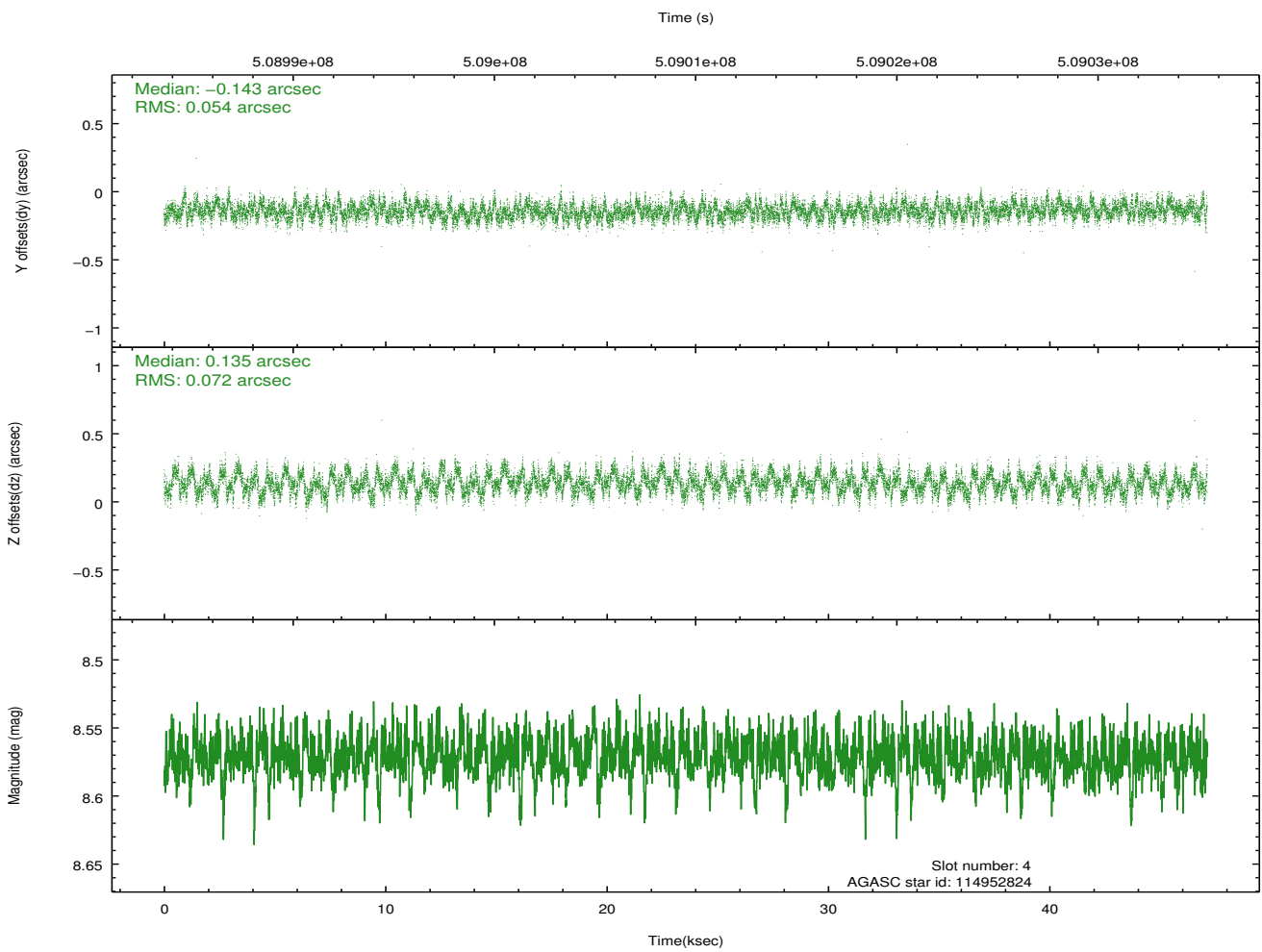
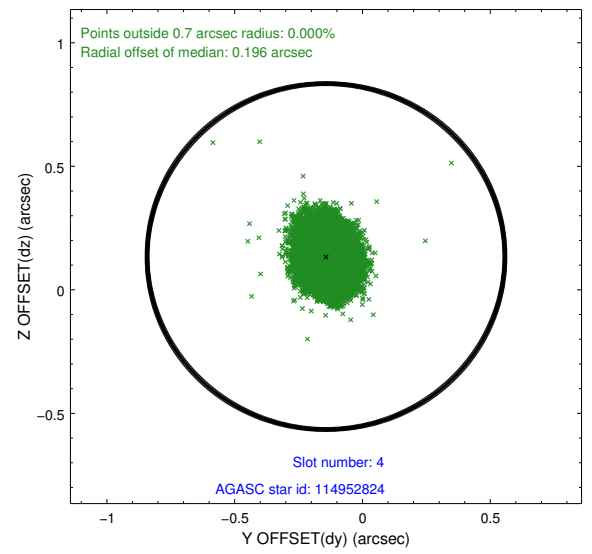
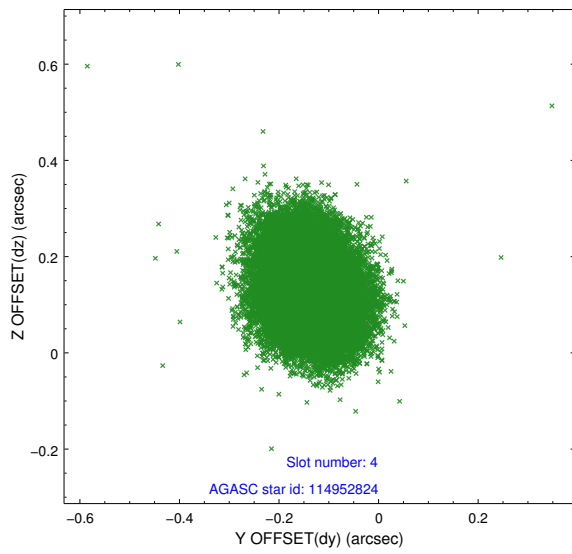
∞

## 2.4 Star Slots

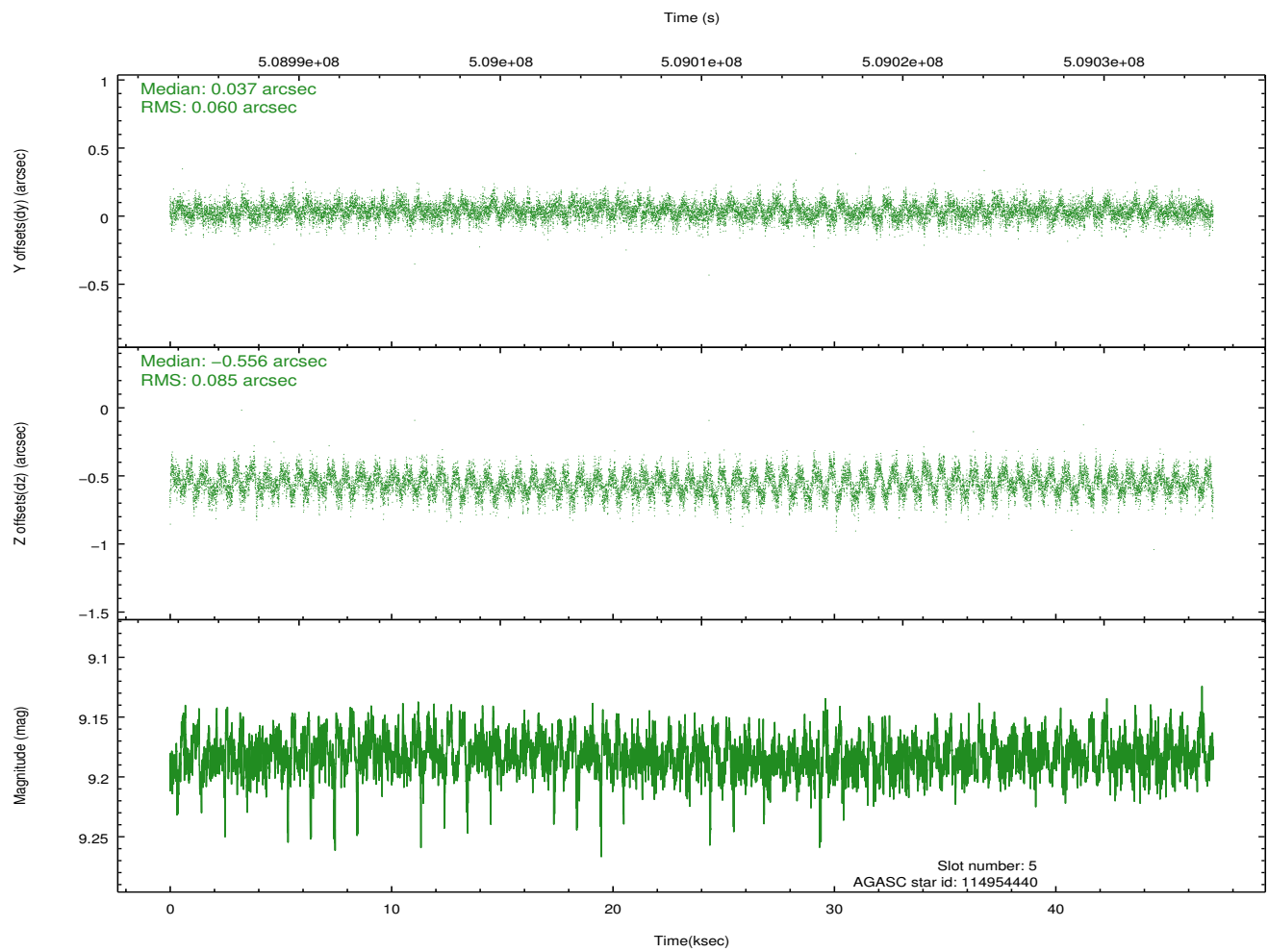
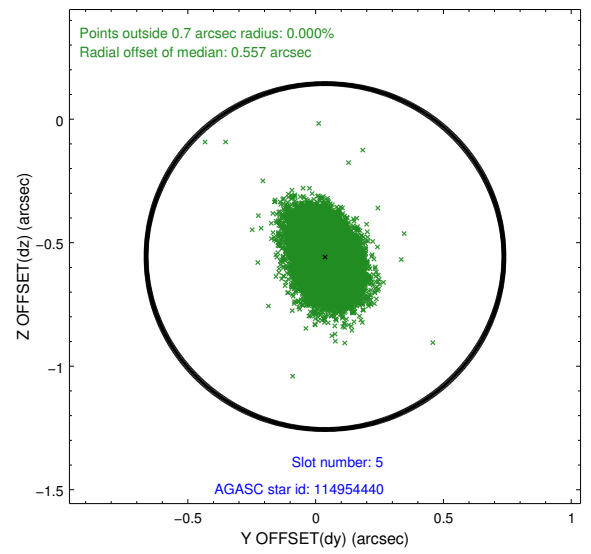
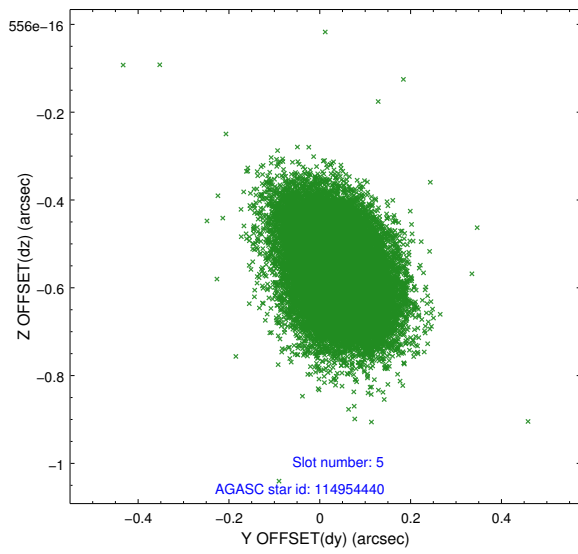
### 2.4.1 Slot 3



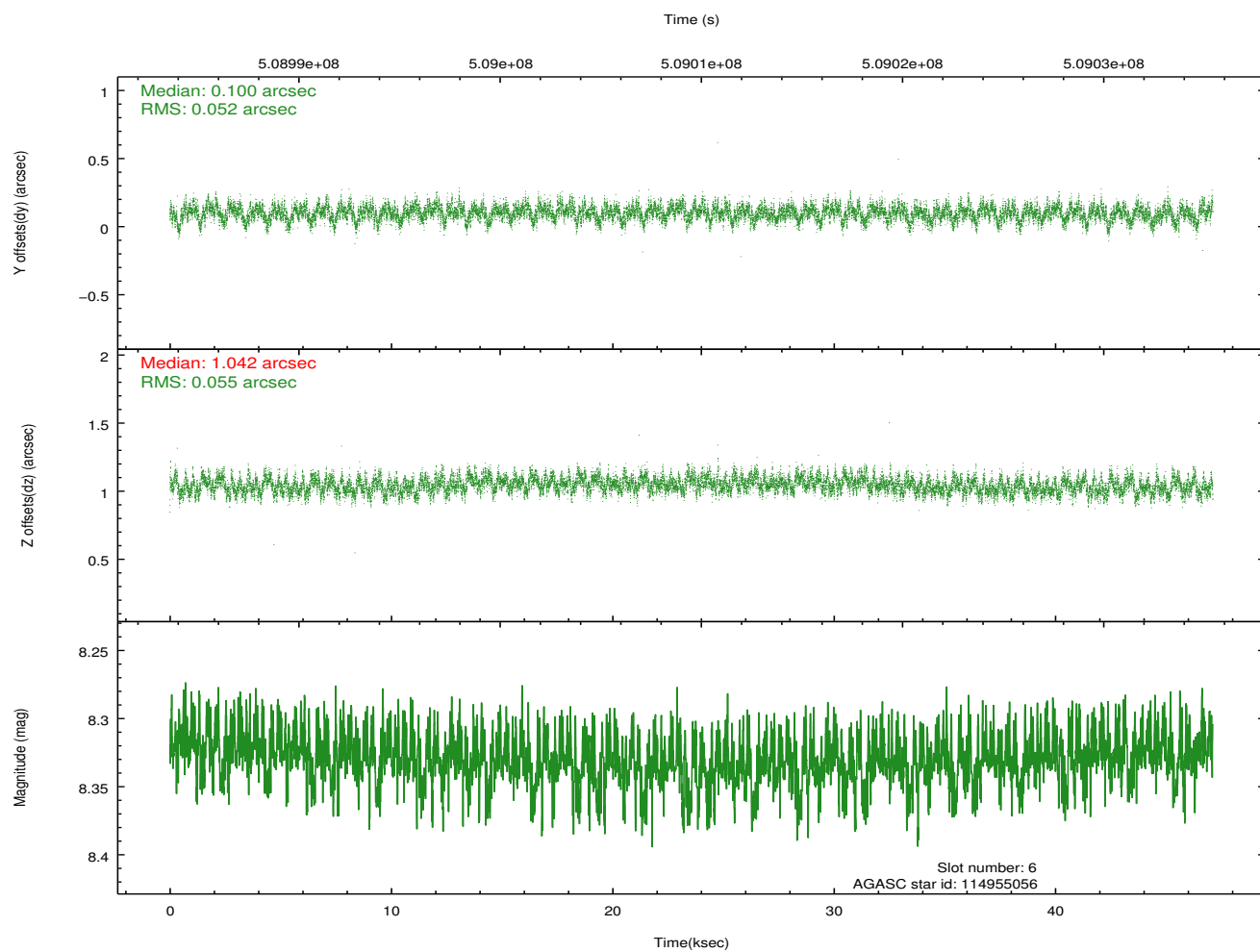
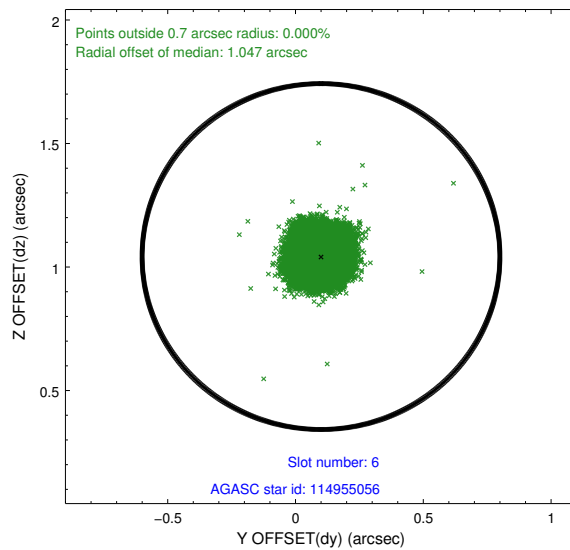
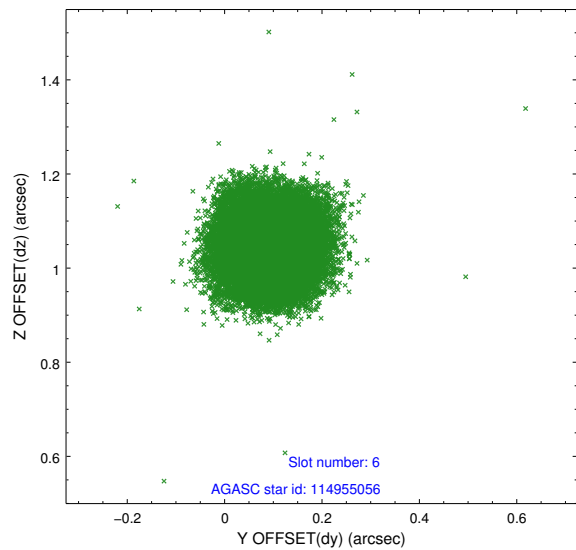
## 2.4.2 Slot 4



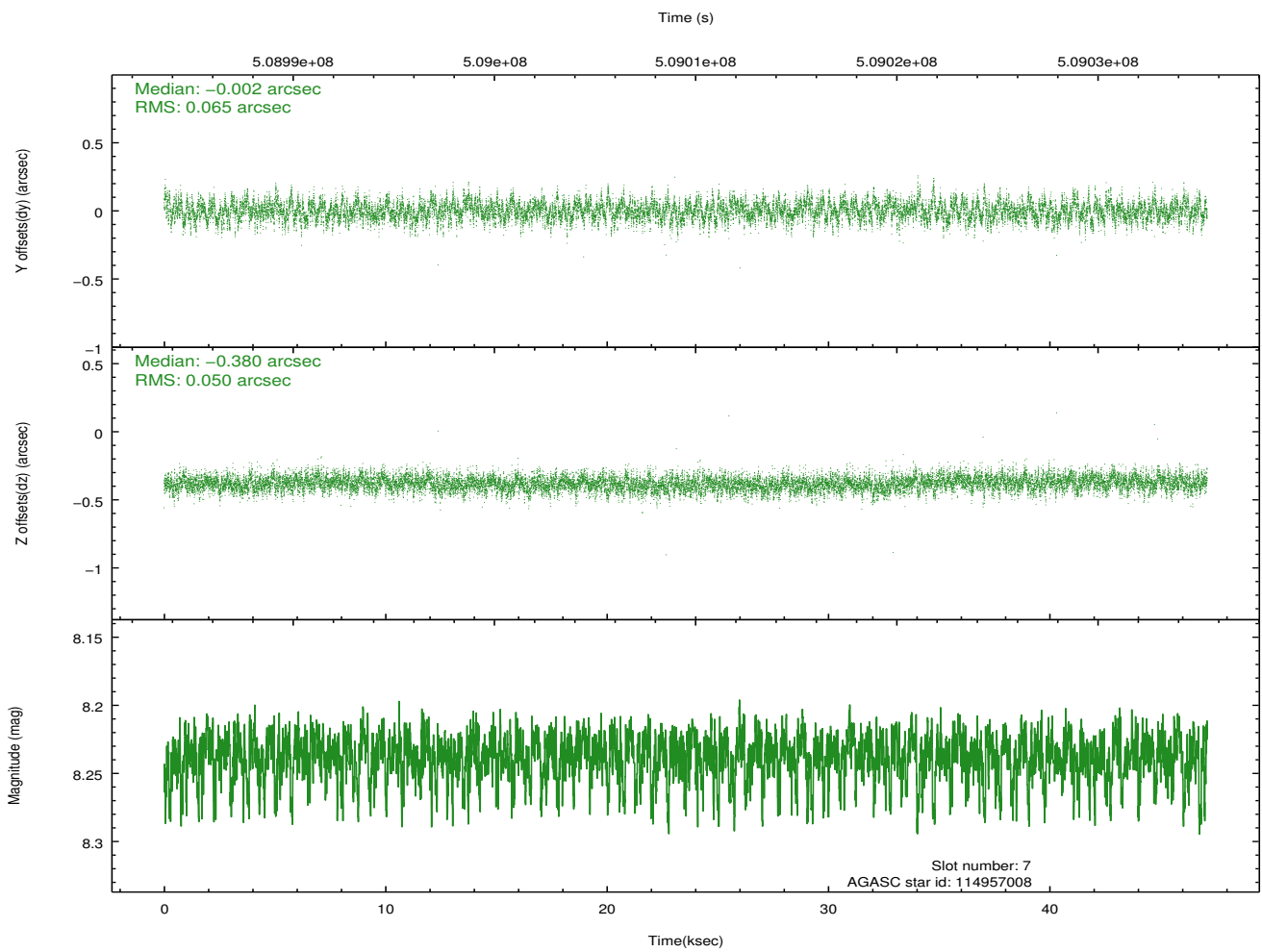
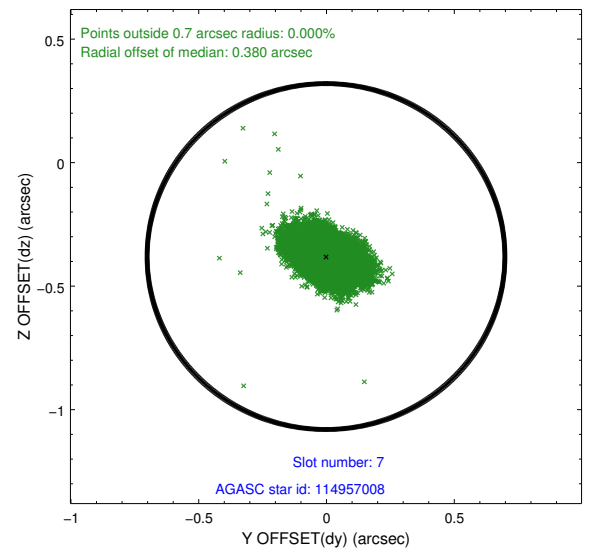
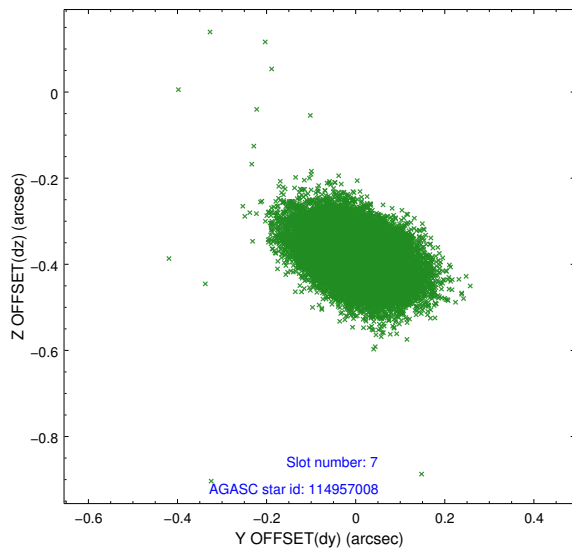
### 2.4.3 Slot 5



## 2.4.4 Slot 6

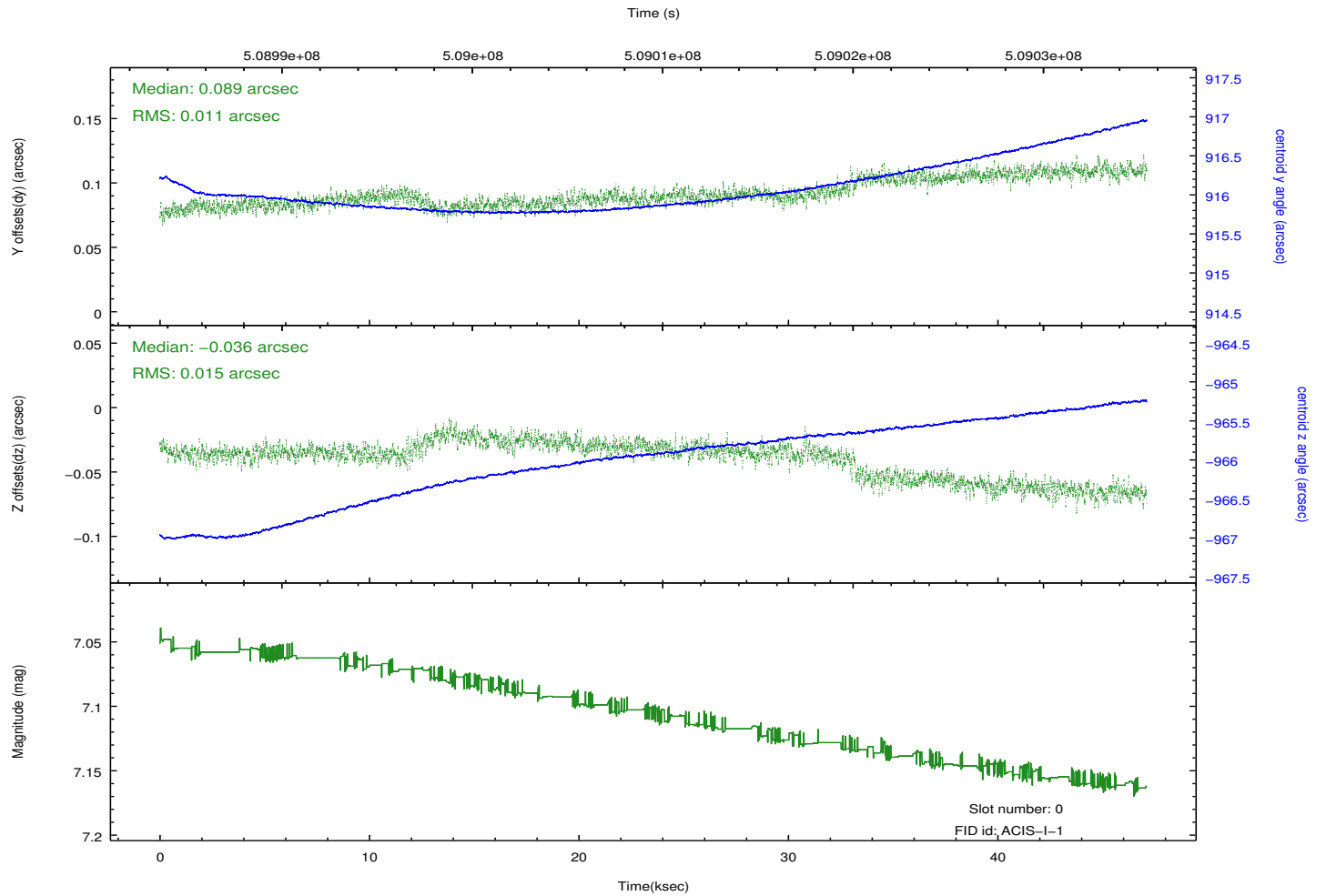
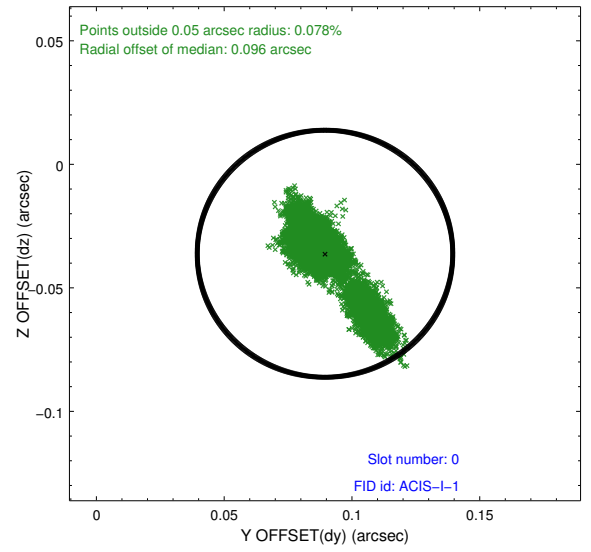
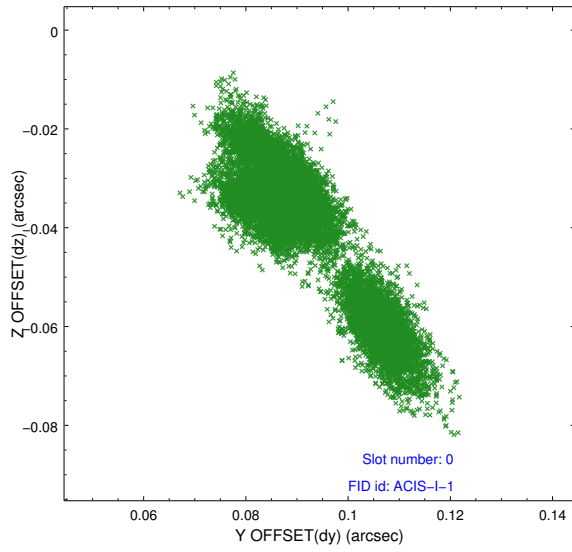


## 2.4.5 Slot 7

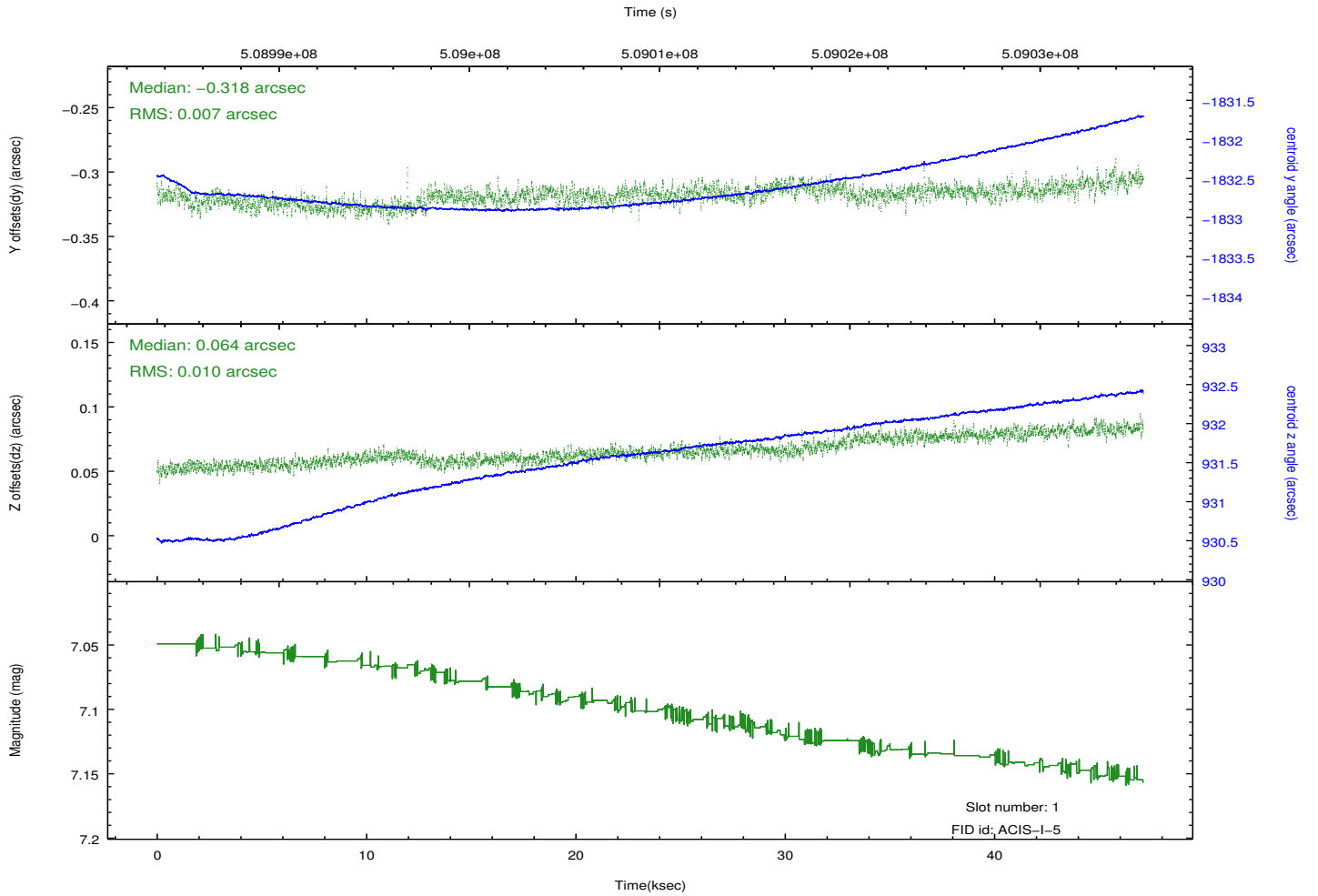
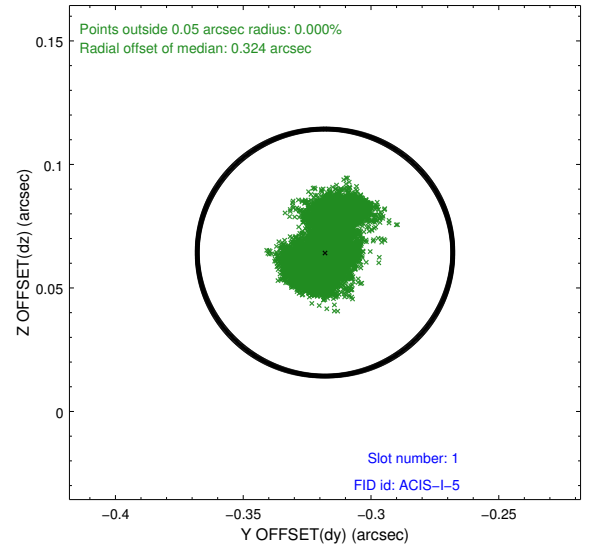
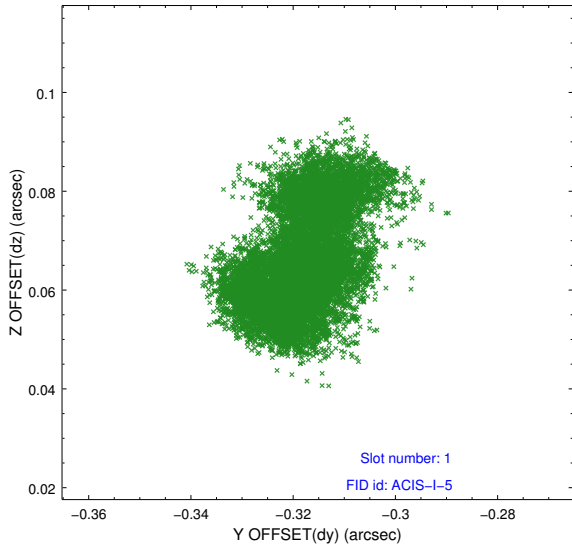


## 2.5 FID Slots

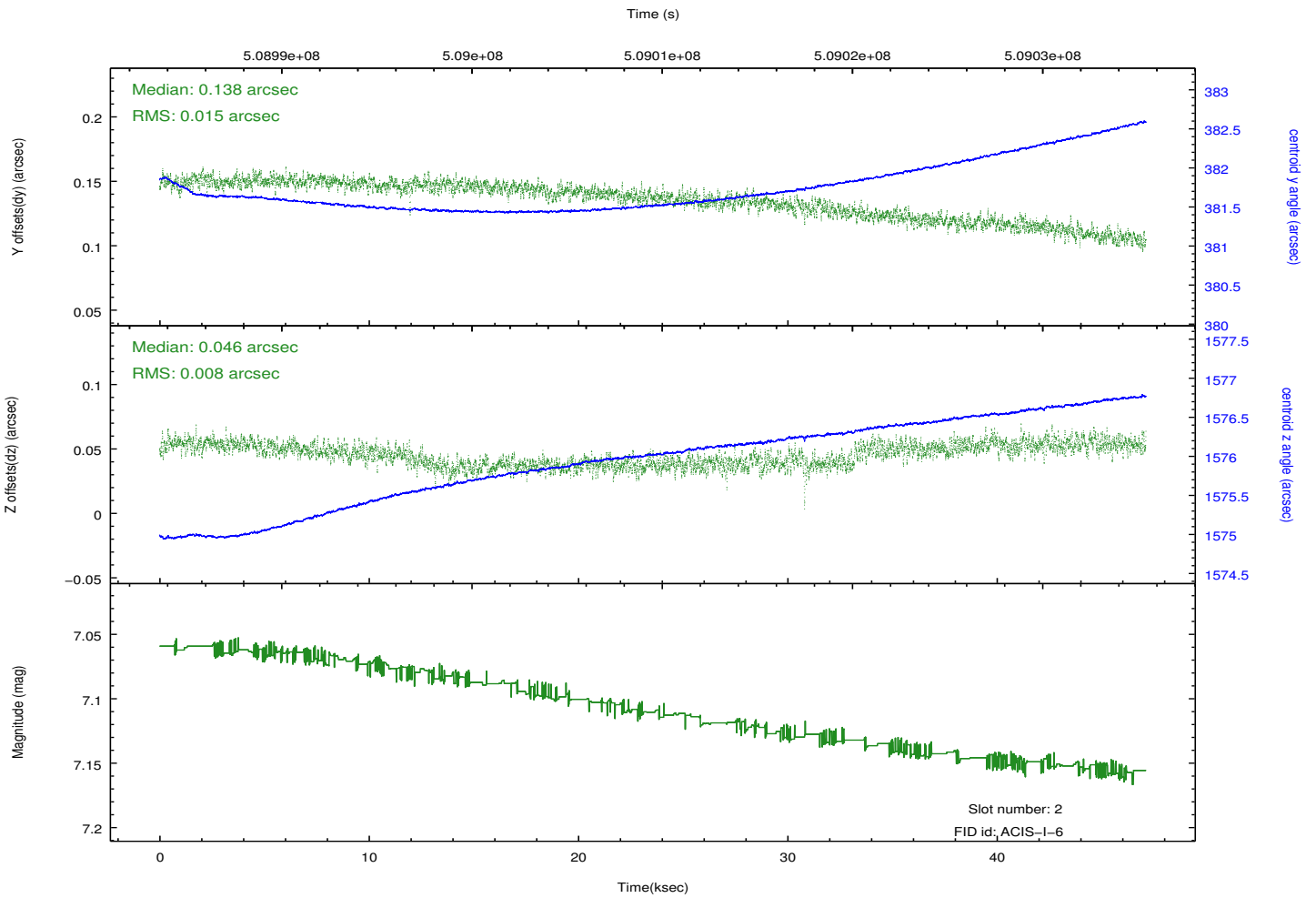
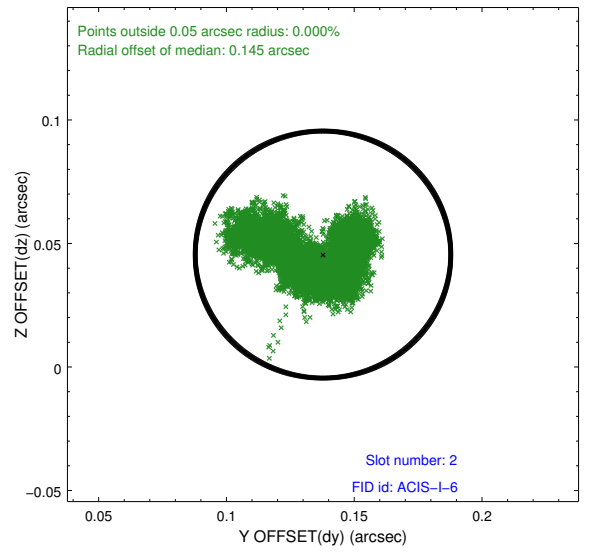
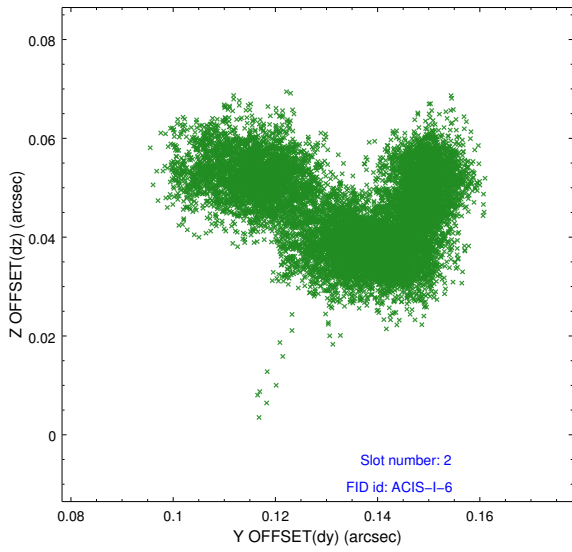
### 2.5.1 Slot 0



## 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)	2014.12.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	47.094618529558

## A.2 Comments

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.