

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 15603 - L2 Version 2  
Chandra X-Ray Center

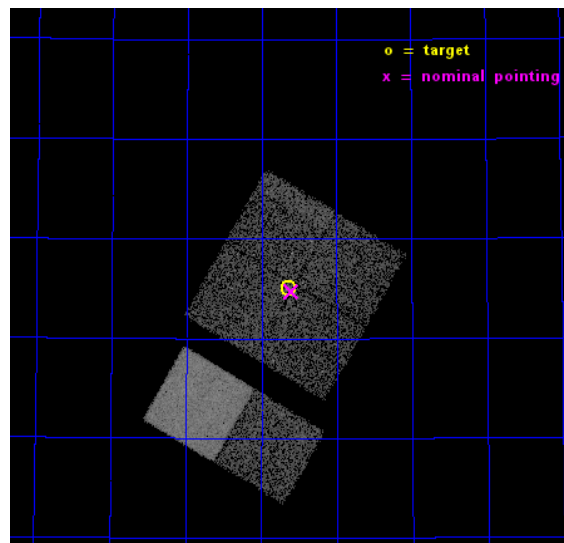
L2 Processing Date : Dec 3 2014

## 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

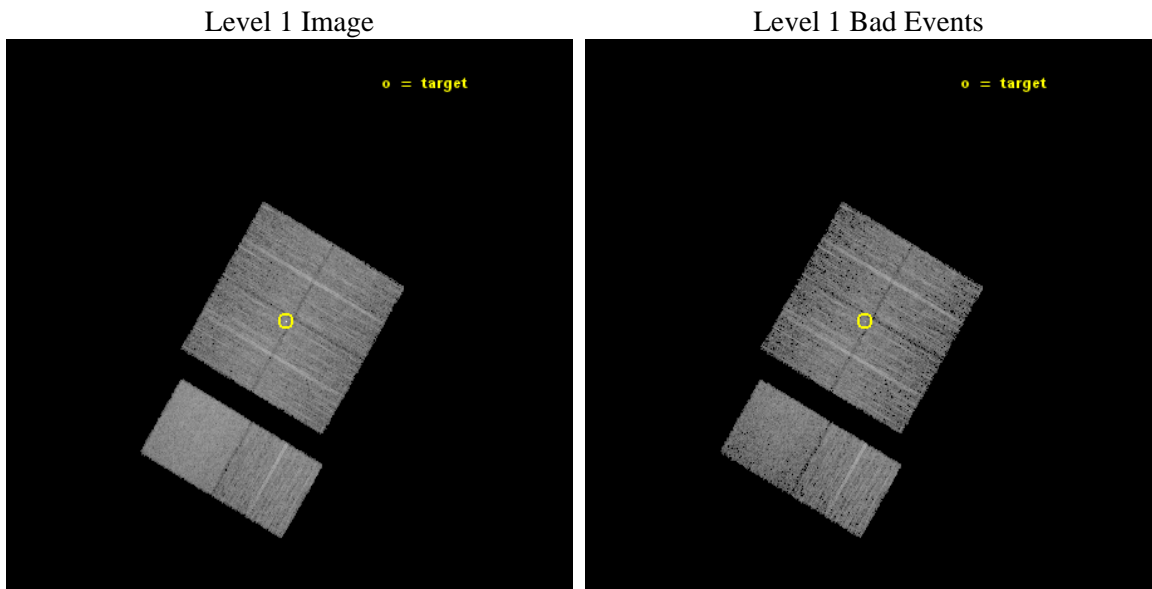
seq_num	401508	Sequence number
obs_id	15603	Observation id
title	Broad-band X-ray study of Ultraluminous X-ray sources with Chandra, XMM-Newton and NuSTAR	Proposal title
observer	Prof. Fiona Harrison	Principal investigator
object	NGC 5204	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	202.410833	Observer's specified target RA [deg]
dec_targ	58.418333	Observer's specified target Dec [deg]
ra_nom	202.40041746502	Nominal RA [deg]
dec_nom	58.412371687626	Nominal Dec [deg]
roll_nom	210.21754419482	Nominal Roll [deg]
revision	2	Processing version of data
ontime	9971.199962914	Sum of GTIs [s]
livetime	9844.9386250478	Livetime [s]
ontime0	9971.199962914	Sum of GTIs [s]
ontime1	9971.199962914	Sum of GTIs [s]
ontime2	9971.199962914	Sum of GTIs [s]
ontime3	9971.199962914	Sum of GTIs [s]
ontime6	9971.199962914	Sum of GTIs [s]
ontime7	9971.199962914	Sum of GTIs [s]
l2events	57483	Number of level 2 events



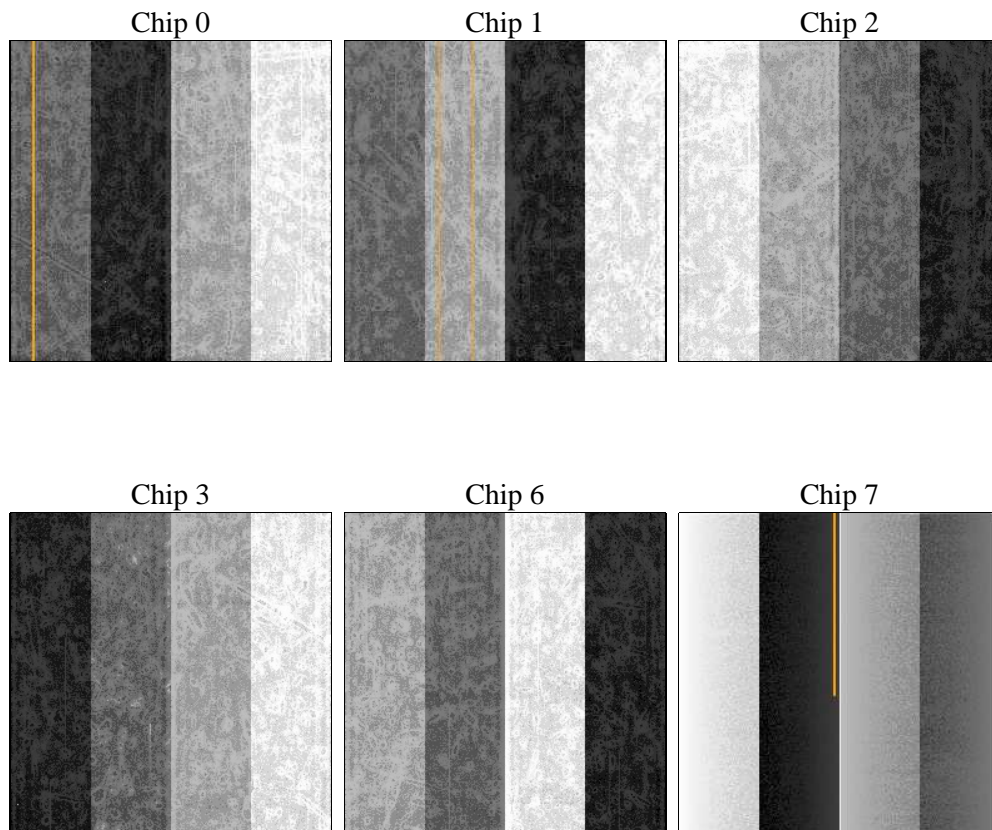
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	9971.199962914	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime0	9971.199962914	Sum of GTIs [s]
date	2014-12-03T05:51:30	Date and time of file creation	ontime1	9971.199962914	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	9971.199962914	Sum of GTIs [s]
			ontime3	9971.199962914	Sum of GTIs [s]
			ontime6	9971.199962914	Sum of GTIs [s]
			ontime7	9971.199962914	Sum of GTIs [s]
			l1events	320824	Number of level 1 events

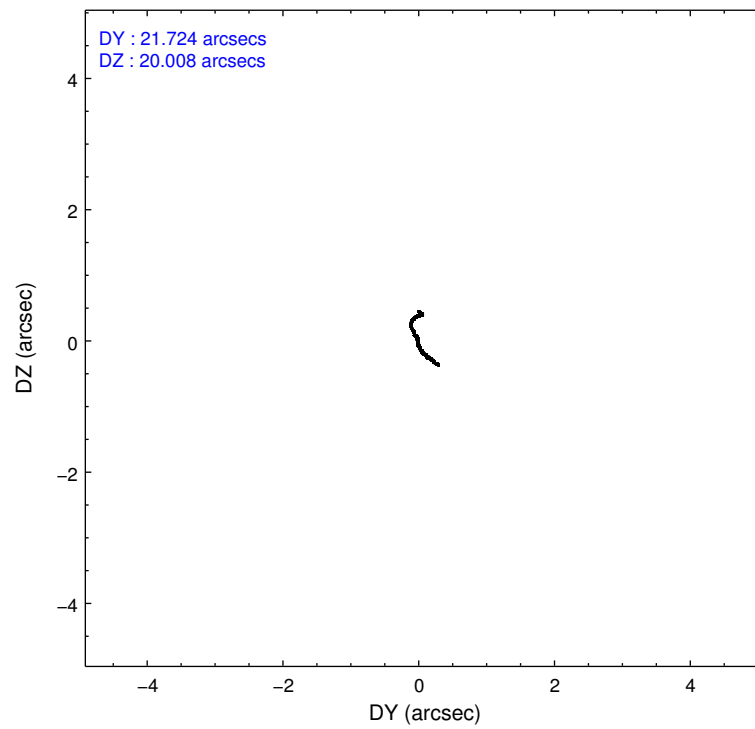
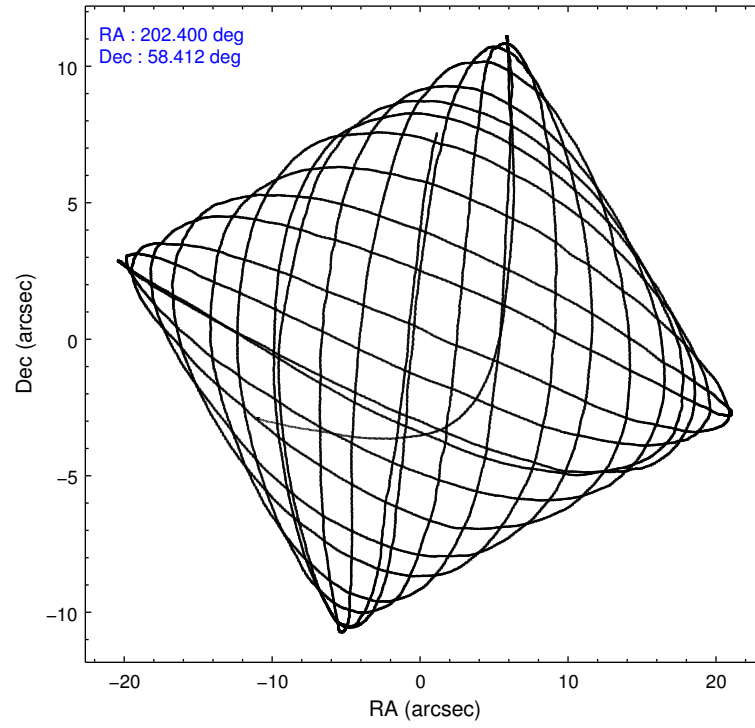
### 2.1.4 Events

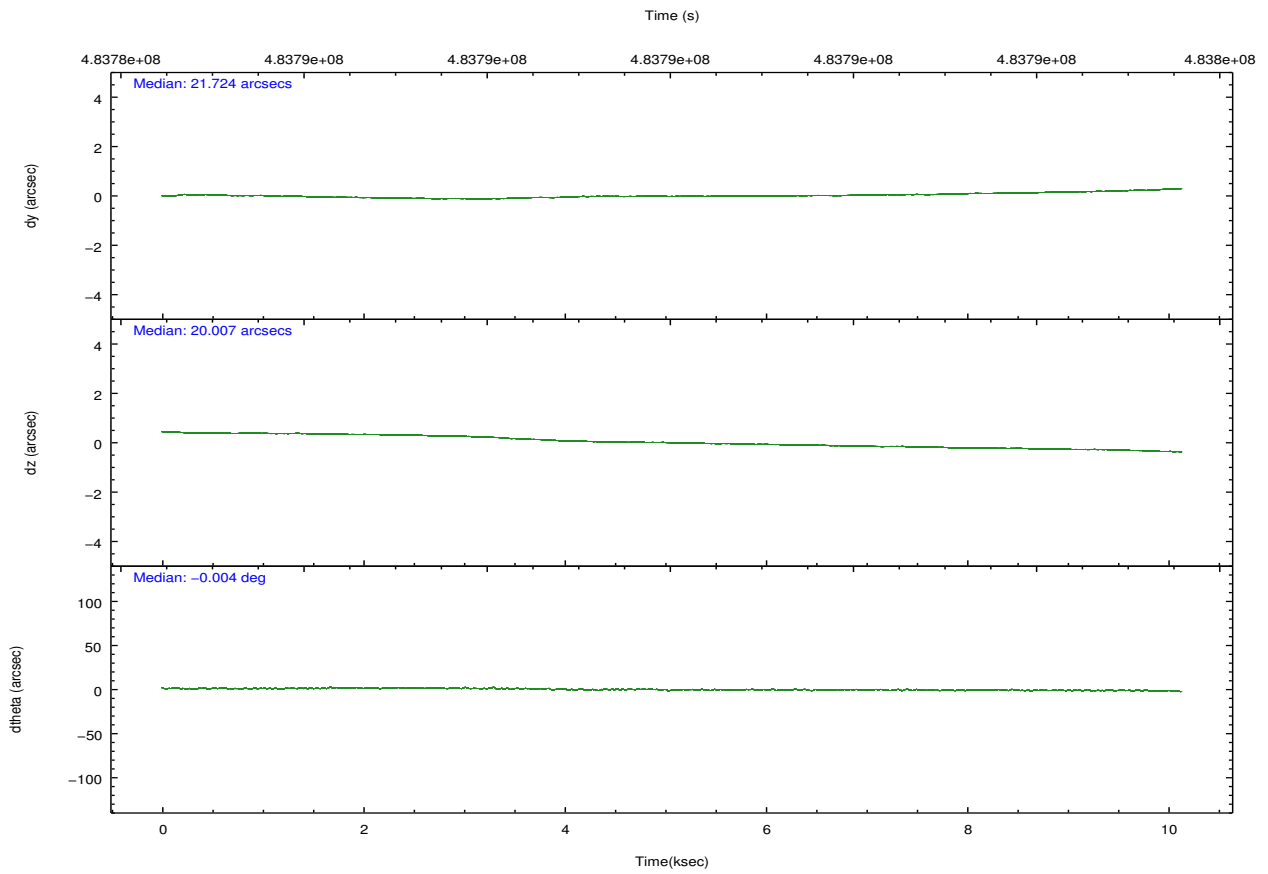
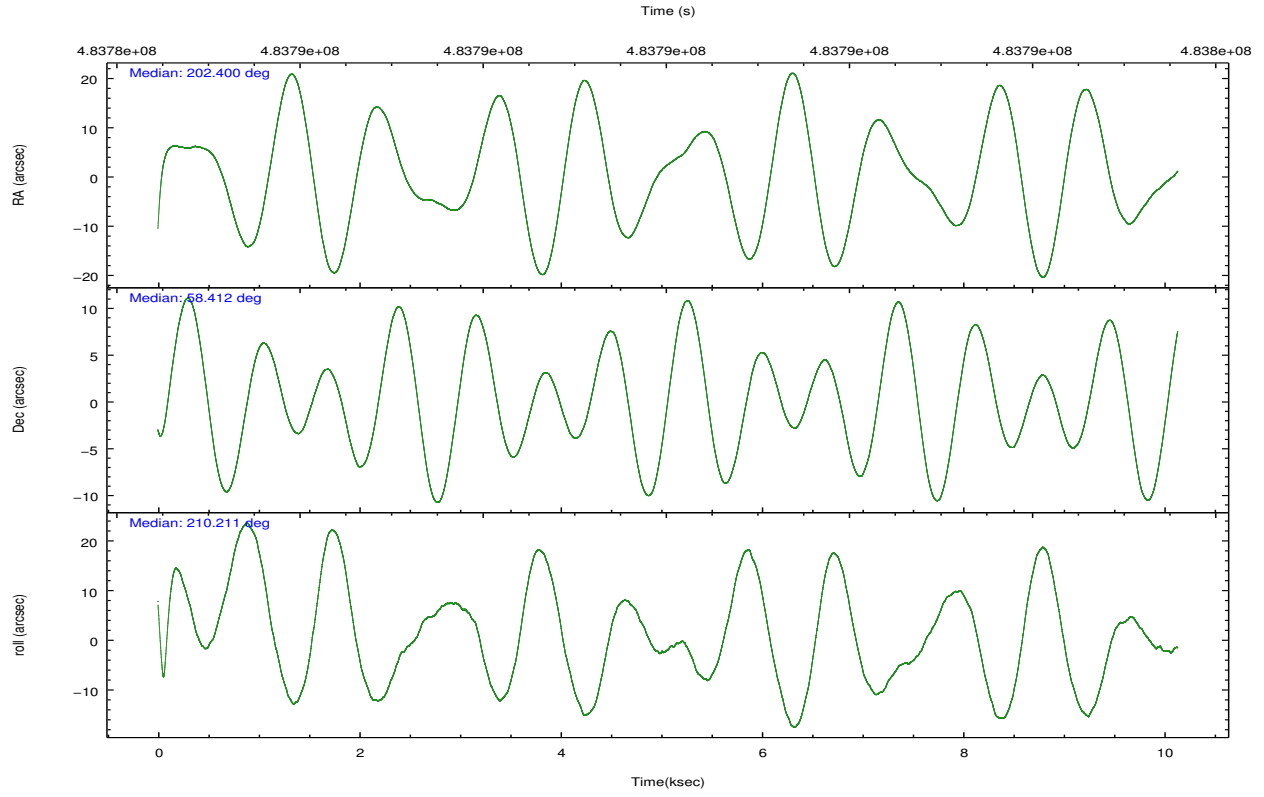
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	48338	46770	50458	49660	54520	71078	grade 0 events	2186	2541	2045	2764	2102	2807
rejected events	42163	39812	44587	42910	48179	40096		4%	5%	4%	5%	3%	3%
rejected %	87%	85%	88%	86%	88%	56%	grade 1 events	36	24	20	71	32	91
								0%	0%	0%	0%	0%	0%
							grade 2 events	1482	1658	1465	1464	1437	6323
								3%	3%	2%	2%	2%	8%
							grade 3 events	643	713	593	664	626	2631
								1%	1%	1%	1%	1%	3%
							grade 4 events	627	652	614	662	676	2529
								1%	1%	1%	1%	1%	3%
							grade 5 events	2325	2551	2280	2650	2802	7469
								4%	5%	4%	5%	5%	10%
							grade 6 events	1239	1396	1156	1204	1504	16705
								2%	2%	2%	2%	2%	23%
							grade 7 events	39800	37235	42285	40181	45341	32523
								82%	79%	83%	80%	83%	45%

## 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	FAINT	FAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	202.426314	202.4004174650181	CCD I2 on	Y	Y
[deg] Pointing Dec	58.436295	58.41237168762575	CCD I3 on	Y	Y
[deg] Pointing Roll	209.986804	210.2175441948155	CCD S0 on	N	N
[s] Window start time (MET)	470707267.184000	470707267.184000	CCD S1 on	N	N
[s] Window stop time (MET)	486345667.184000	486345667.184000	CCD S2 on	O1	Y
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S3 on	O2	Y
[mm] SIM defocus	0	0.001439871863259334	CCD S4 on	N	N
[mm] SIM translation stage pos	-233.592463	-233.5899487761303	CCD S5 on	N	N
[mm] SIM translation stage offset	0	-0.002504226799430853	Number of optional ACIS chips dropped	0	0
[s] Observation start time (MET)	483785084.184000	483783331.22827	On-chip summing requested	N	N
Observation start date	2013-05-01T08:43:37	2013-05-01T08:15:31	Subarray requested	NONE	NONE
[s] Observation end time (MET)	483795084.184000	483795666.07894	Alternating exposures requested	N	N
Observation end date	2013-05-01T11:30:17	2013-05-01T11:41:06	[s] Primary exposure time	0.000000	3.2
Read mode	TIMED	TIMED			

## 2.3 Aspect





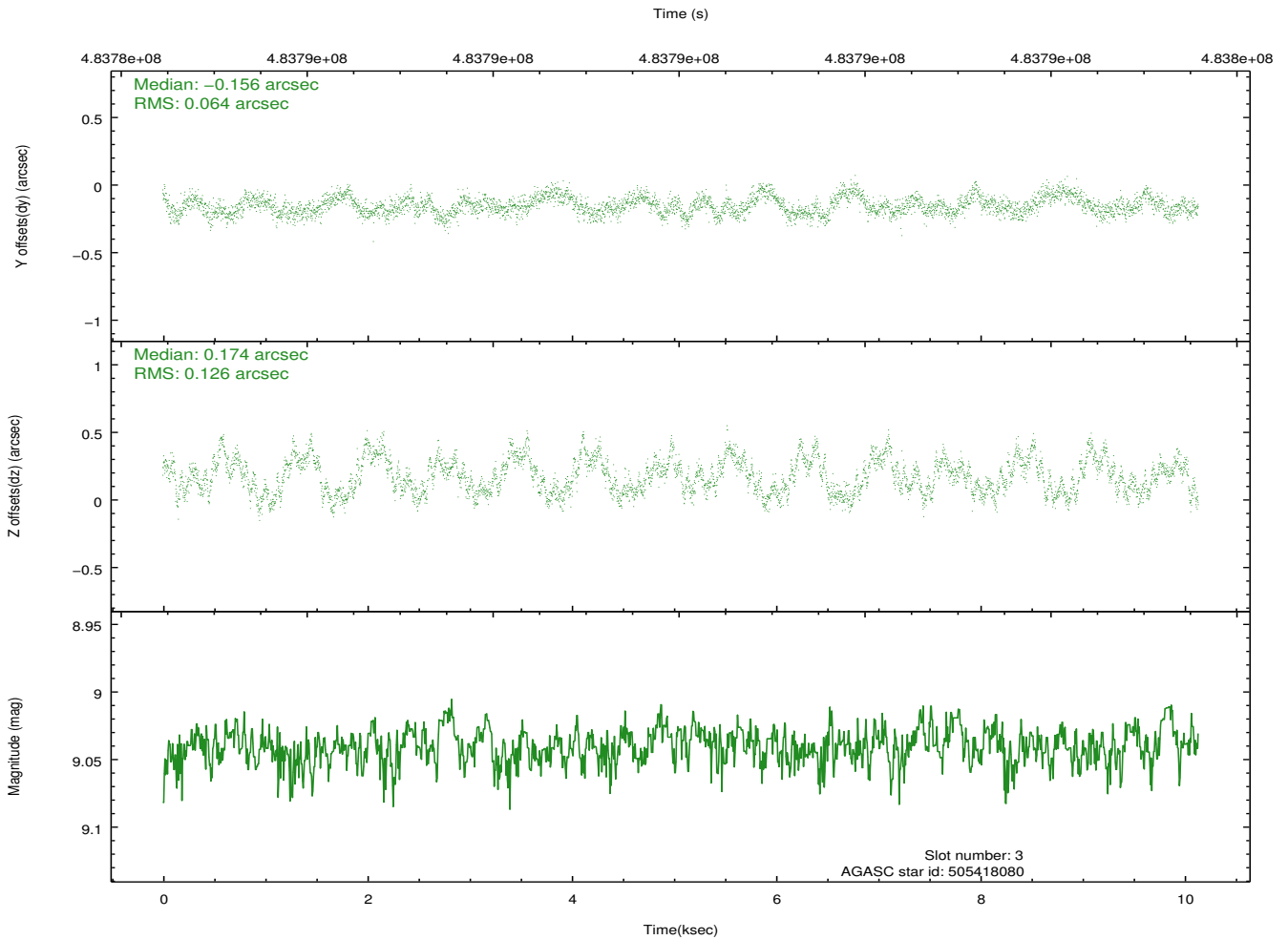
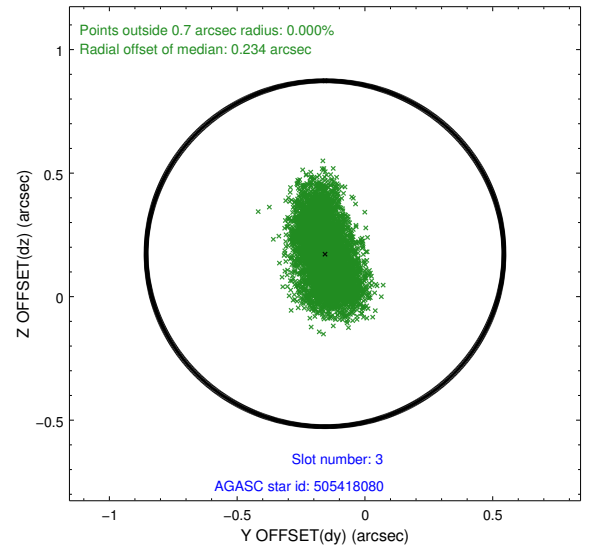
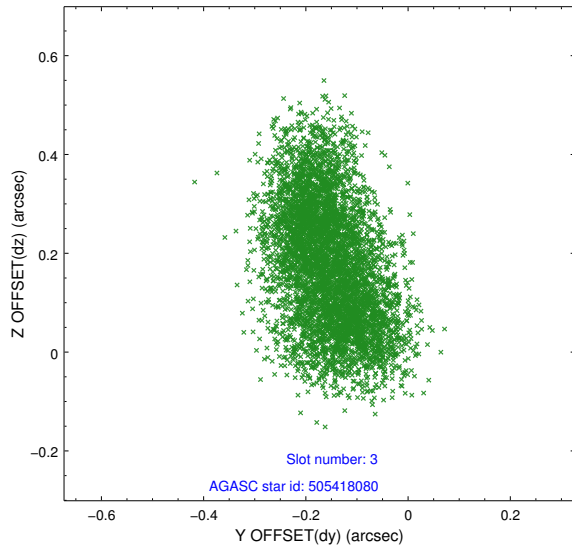
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.07	2472	0.025	0.020	0.016	0.026	0.000000	0.000000	917.58	-843.68
1	FID		ACIS-I-5	7.06	2472	-0.233	0.029	0.007	0.013	0.000000	0.000000	-1830.56	1053.48
2	FID		ACIS-I-6	7.06	2472	0.116	0.023	0.012	0.019	0.000000	0.000000	382.57	1698.63
3	GUIDE	used	505418080	9.04	4940	-0.156	0.174	0.152	0.244	201.533017	58.898788	601.75	-2281.47
4	GUIDE	used	505421936	8.85	4932	-0.165	-0.211	0.087	0.144	201.854843	57.887820	1932.14	1159.35
5	GUIDE	used	505421968	8.19	4930	0.061	-0.345	0.100	0.156	202.022601	58.209270	1071.63	323.42
6	GUIDE	used	505422344	8.59	4943	-0.151	-0.117	0.106	0.175	202.767077	57.846963	494.41	2163.01
7	GUIDE	used	505422504	10.05	4930	0.412	0.488	0.257	0.427	202.156173	59.054723	-678.81	-2178.09

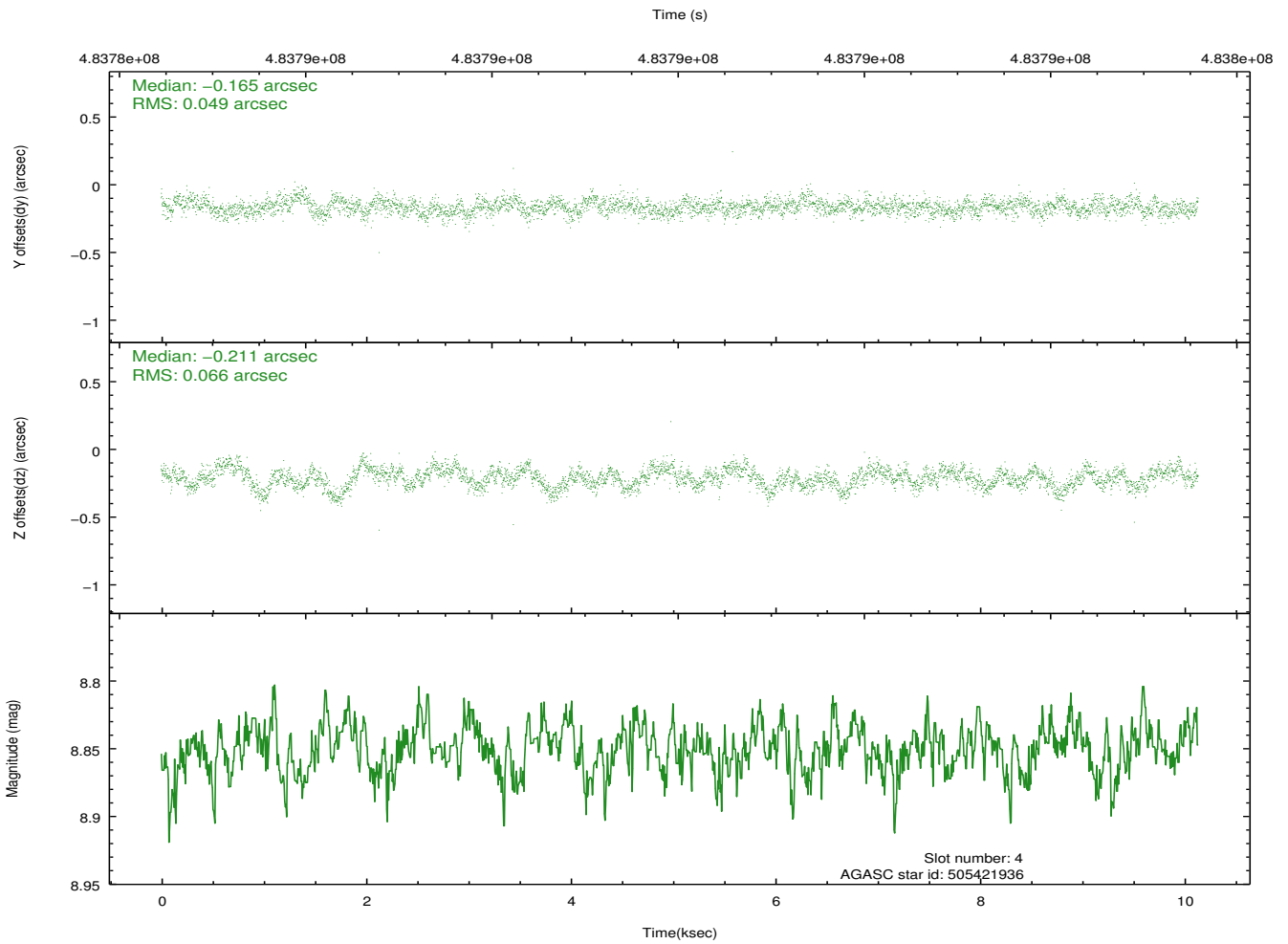
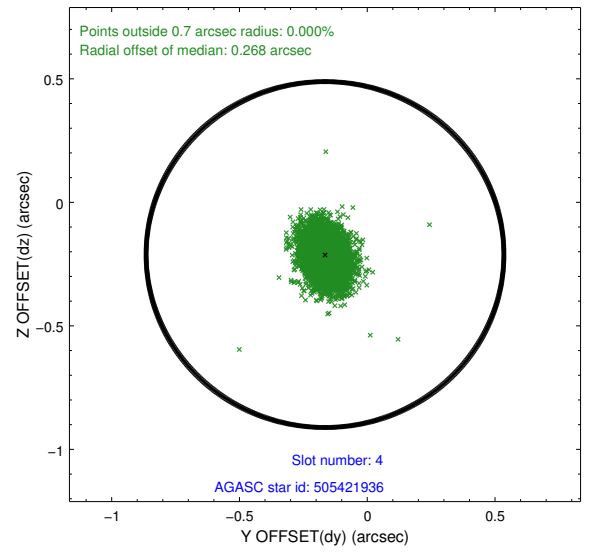
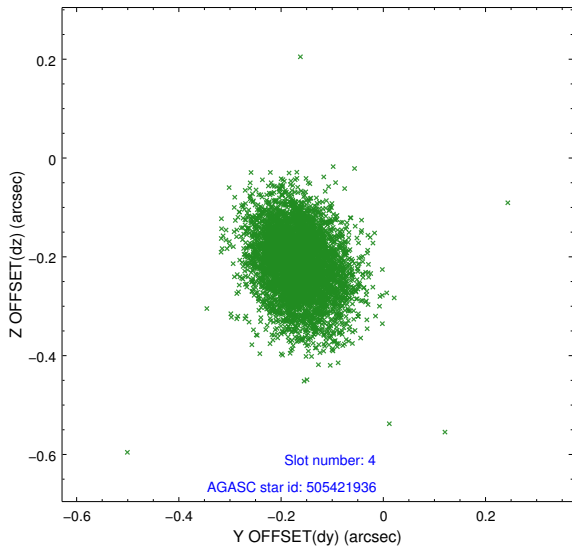
∞

## 2.4 Star Slots

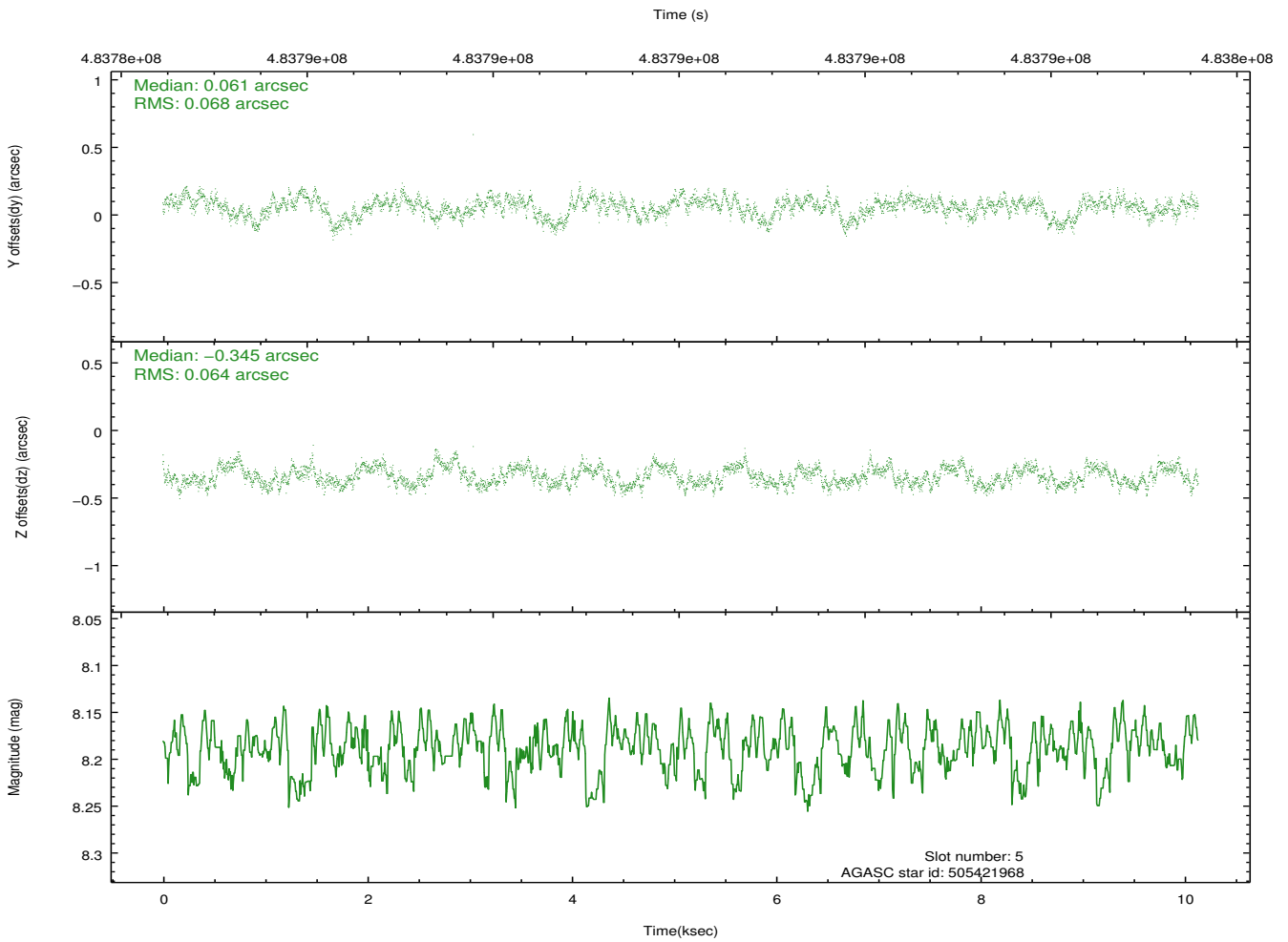
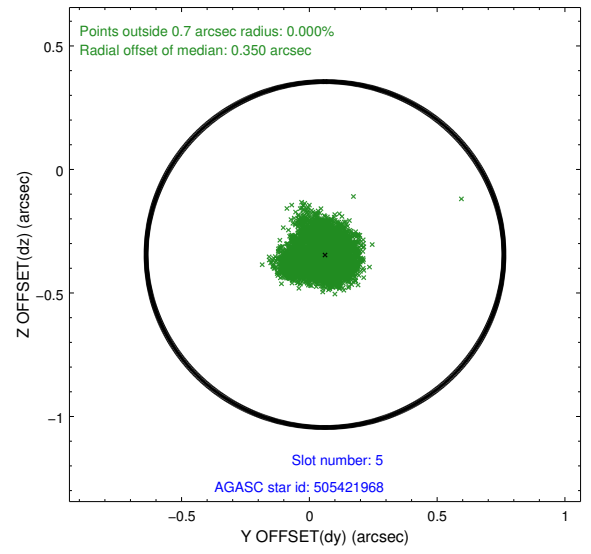
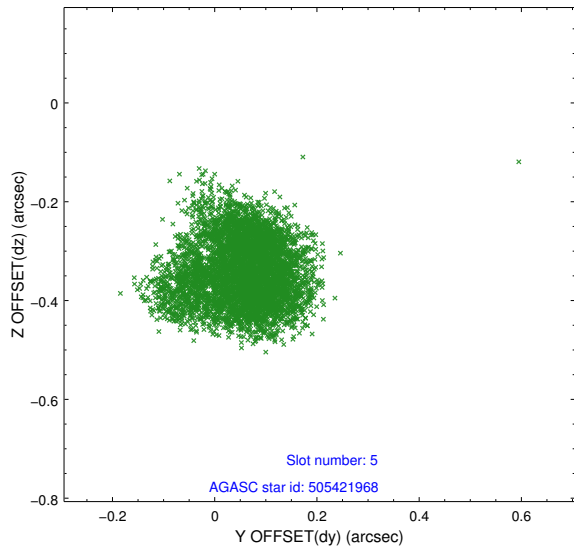
### 2.4.1 Slot 3



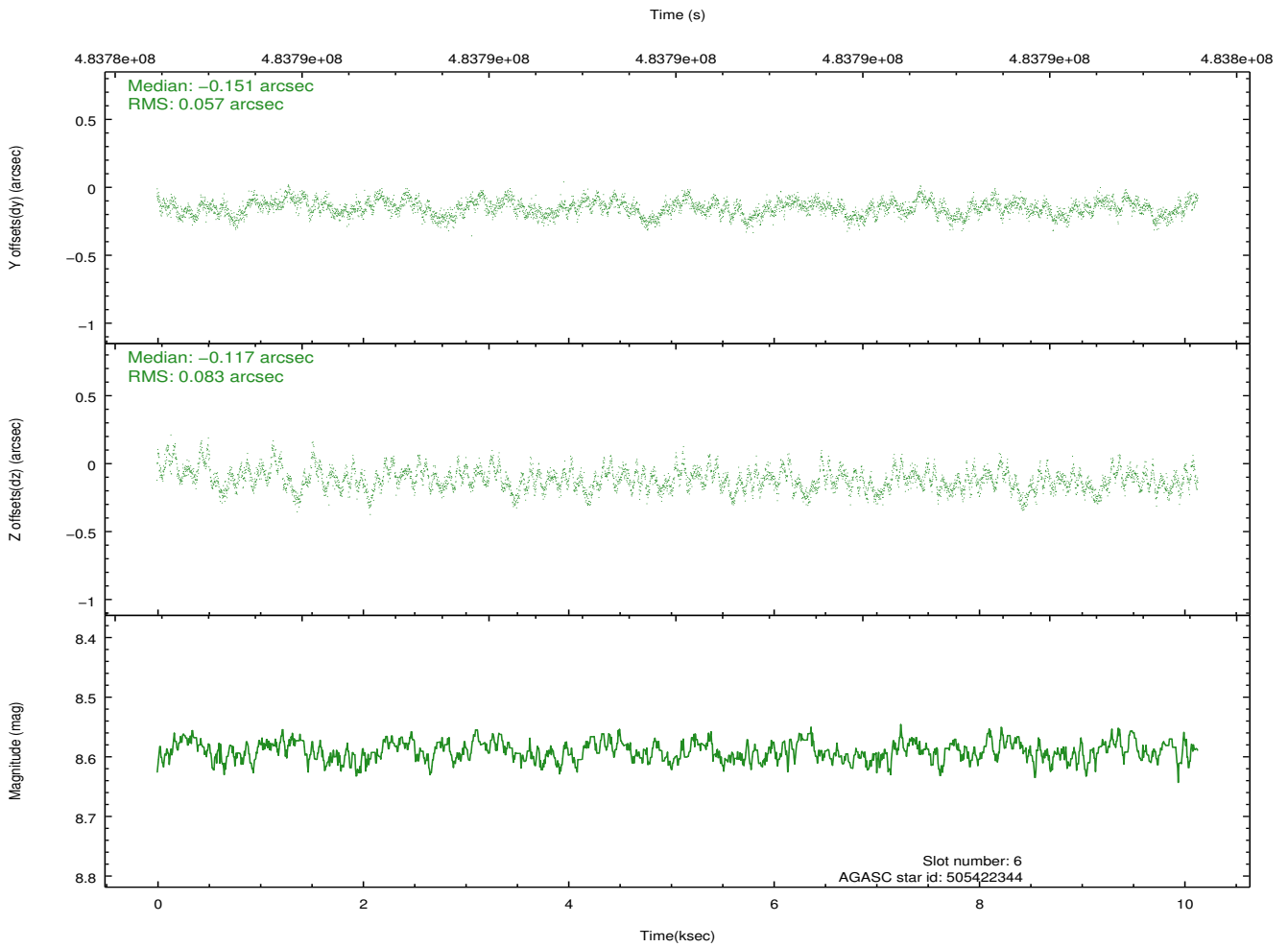
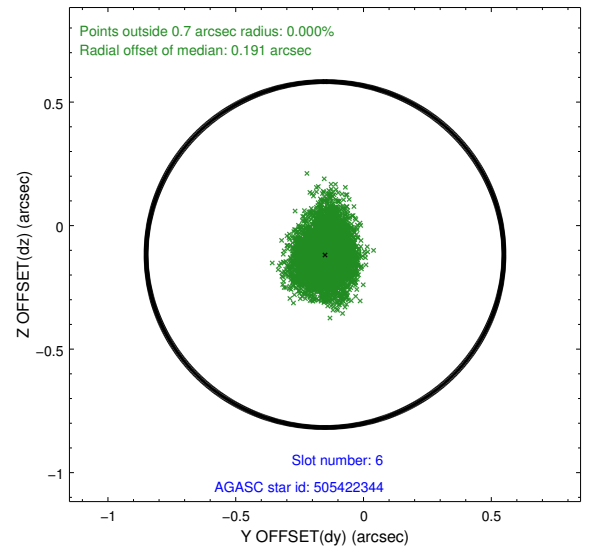
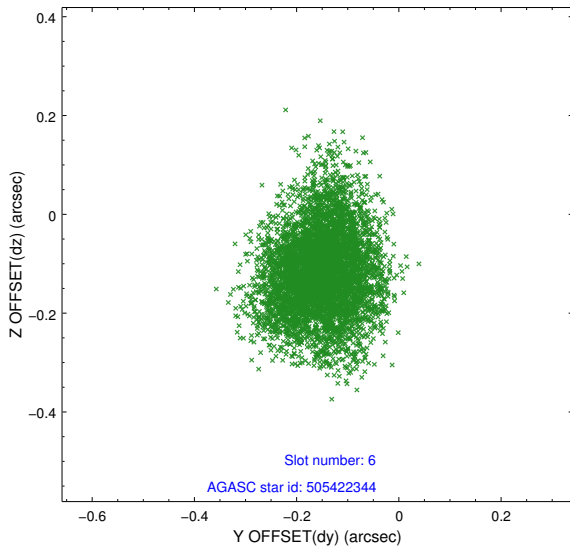
### 2.4.2 Slot 4



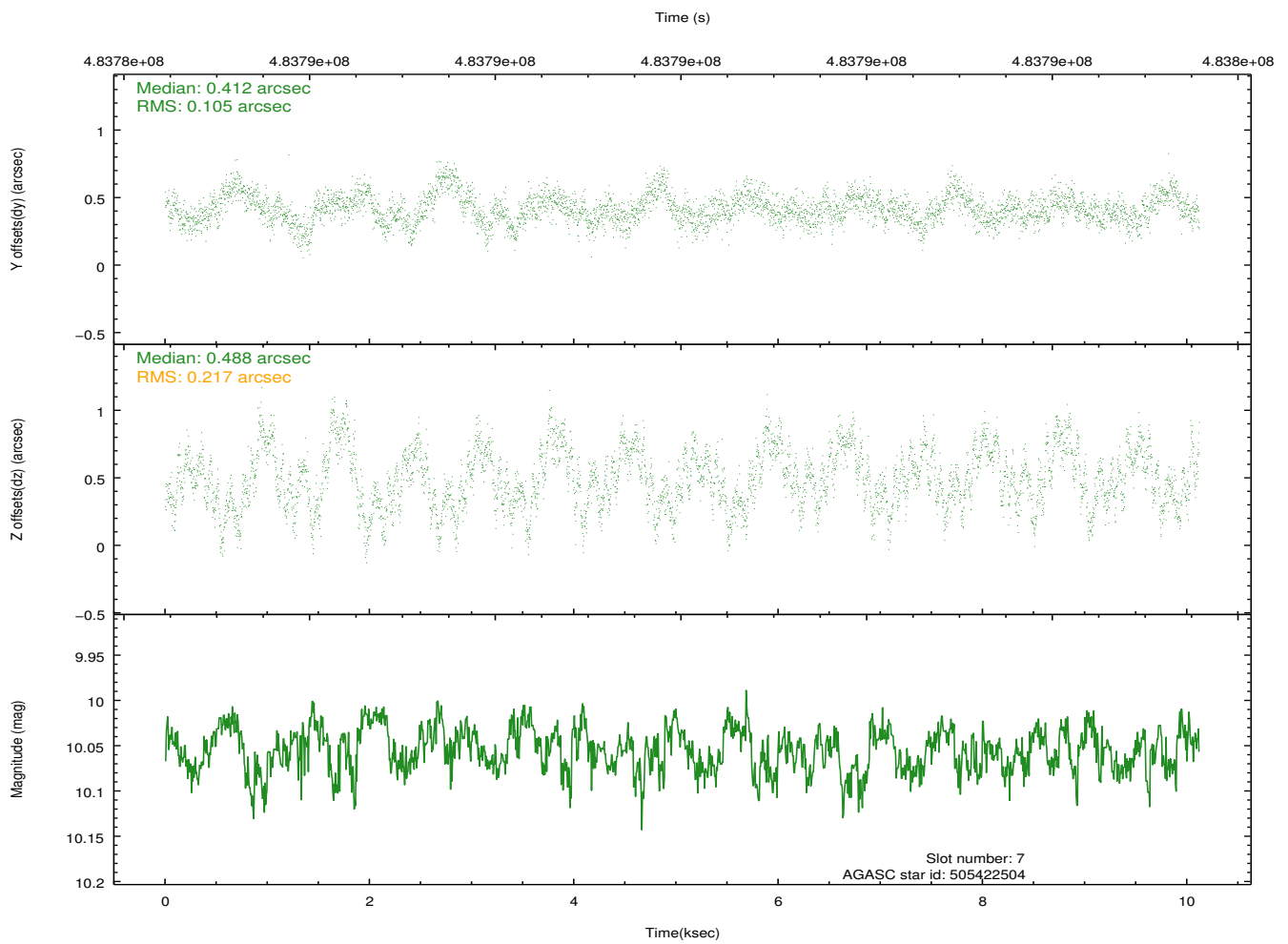
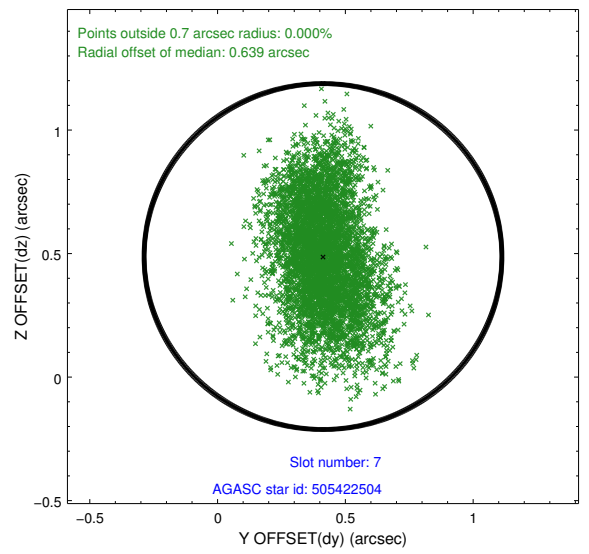
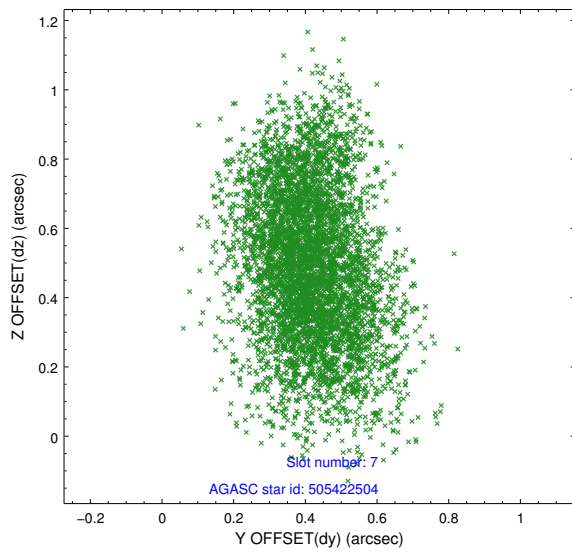
### 2.4.3 Slot 5



## 2.4.4 Slot 6

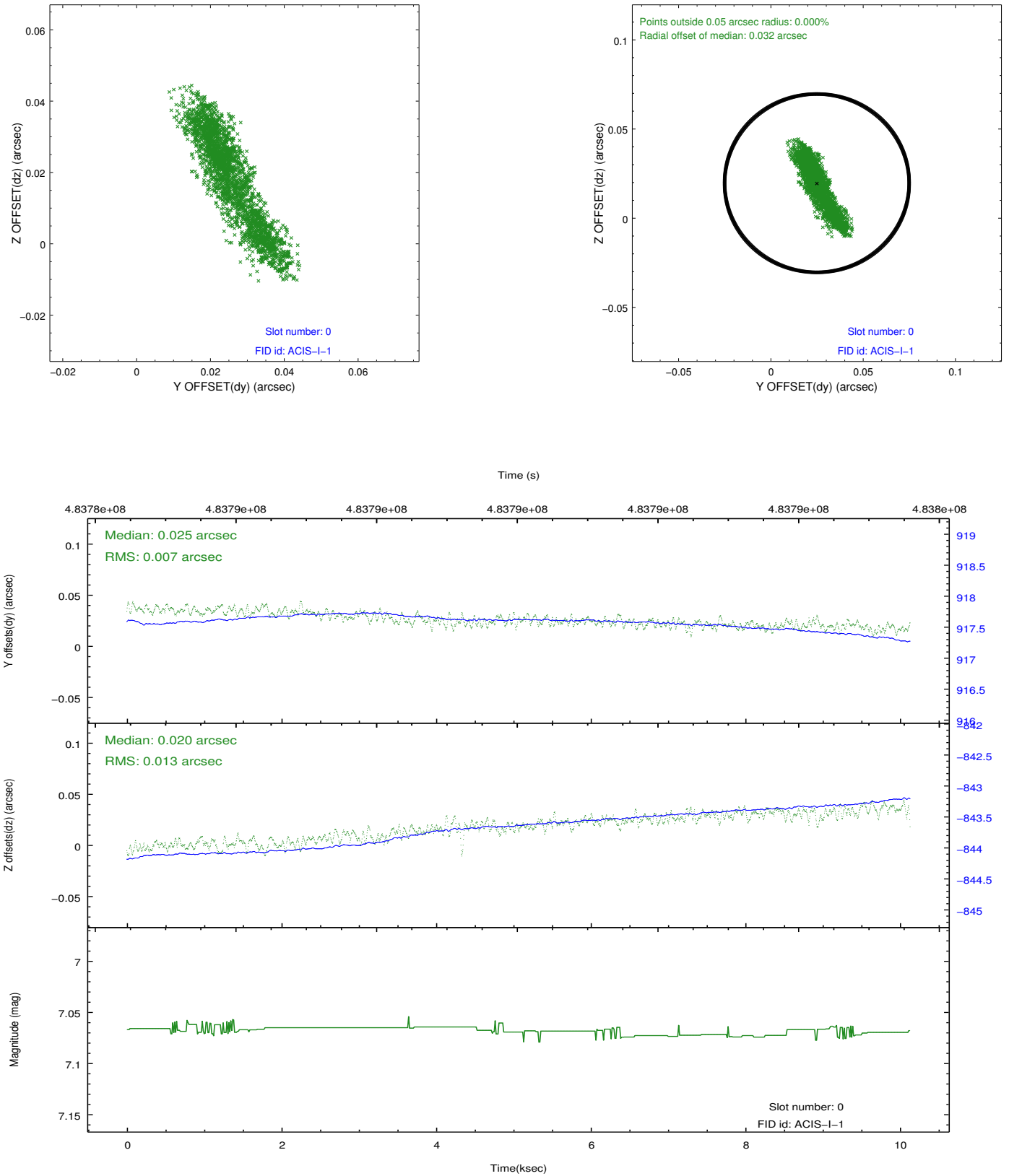


## 2.4.5 Slot 7

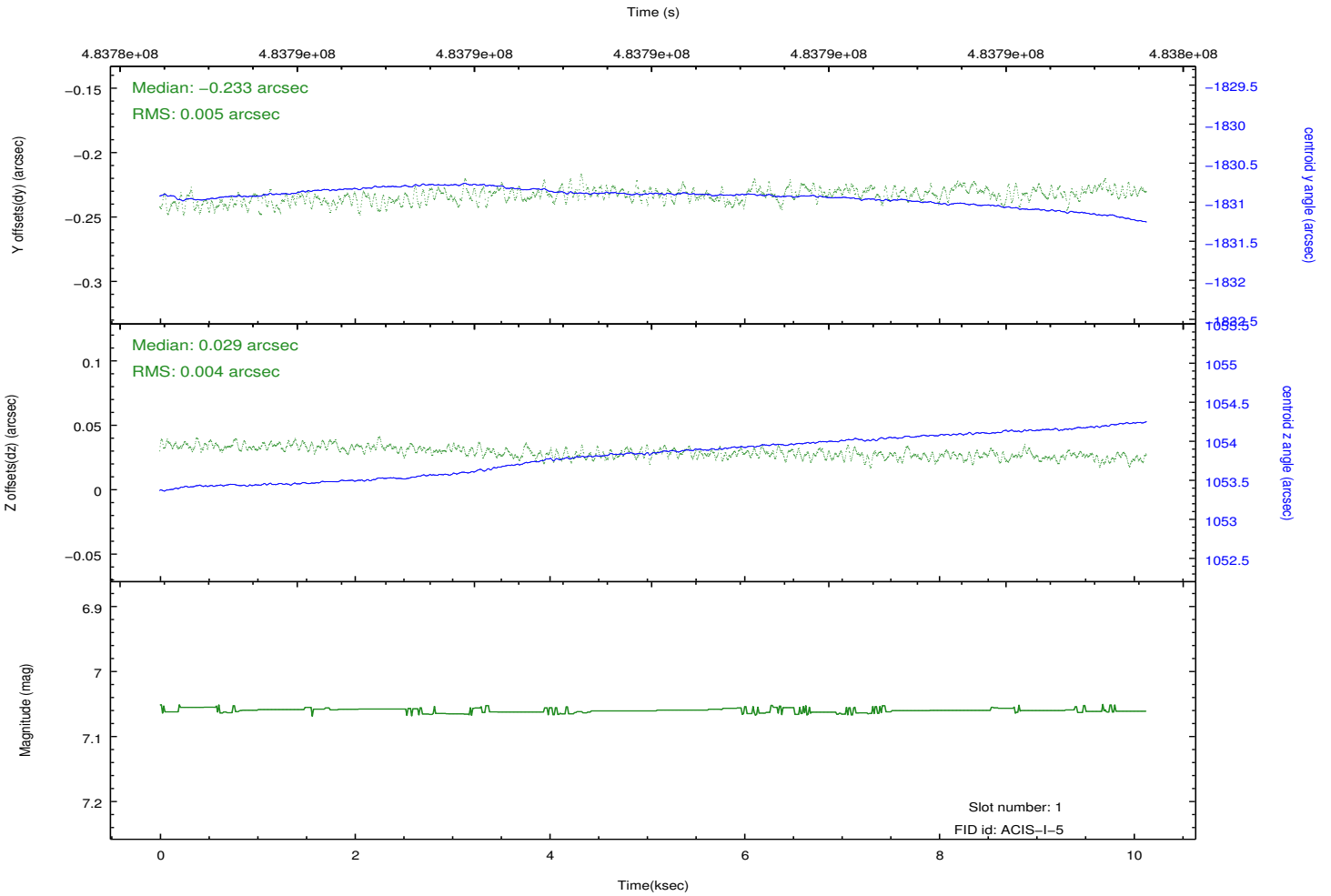
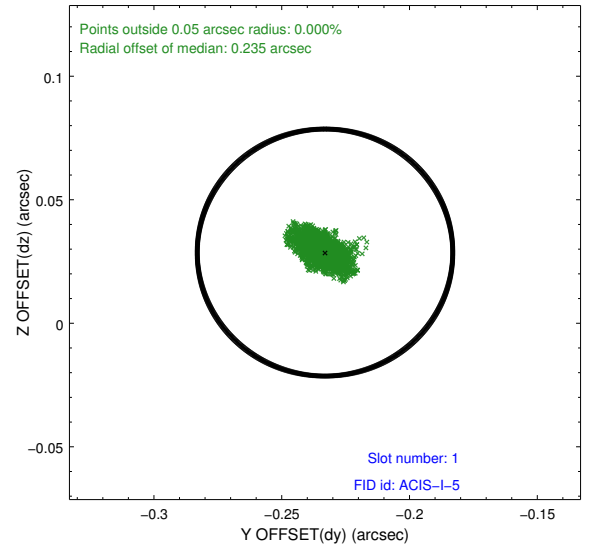
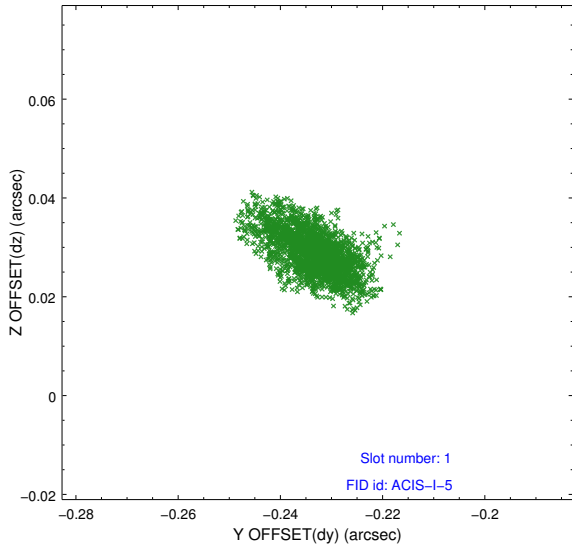


## 2.5 FID Slots

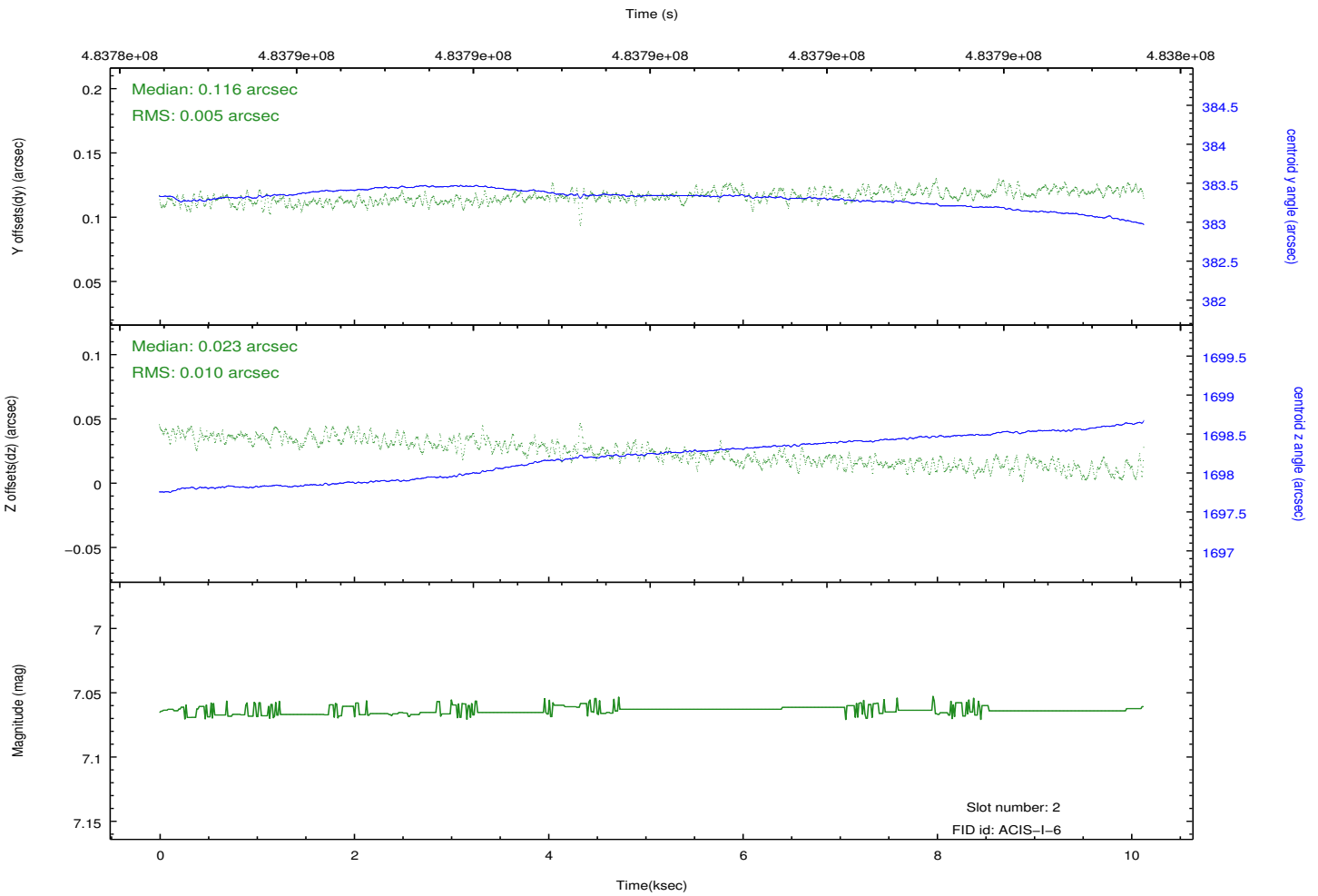
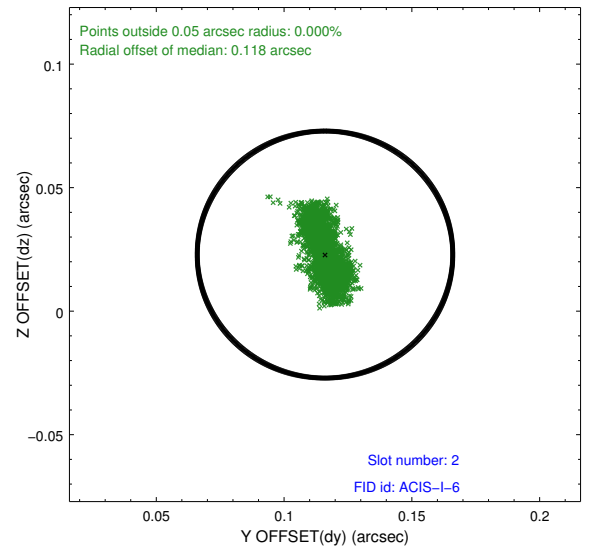
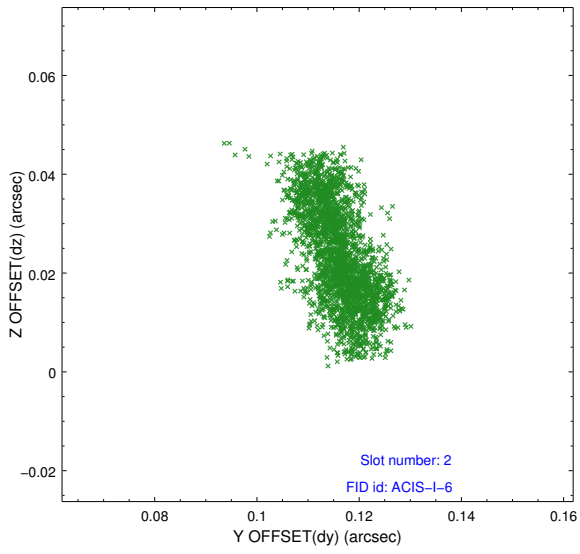
### 2.5.1 Slot 0



## 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)	2014.12.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	9.971199962914

## A.2 Comments

Observation coordinated with XMM.

Window preference met.

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.