

# V&V Reference Report

## L2 ASCDS Version : 10.2.2

Observation 14517 - L2 Version 2  
Chandra X-Ray Center

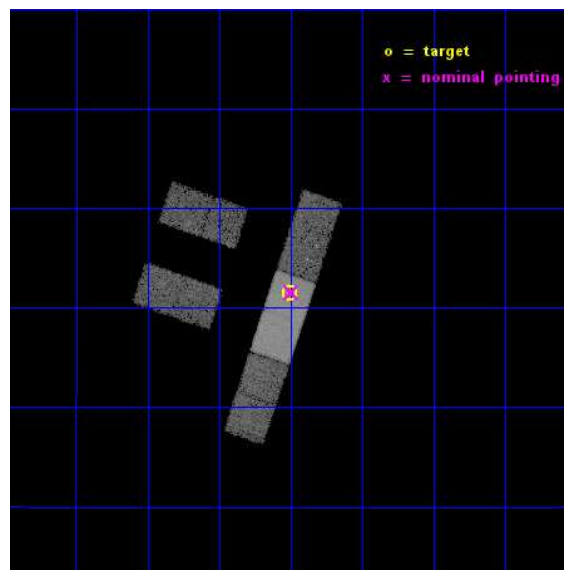
L2 Processing Date : Dec 11 2014

## 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

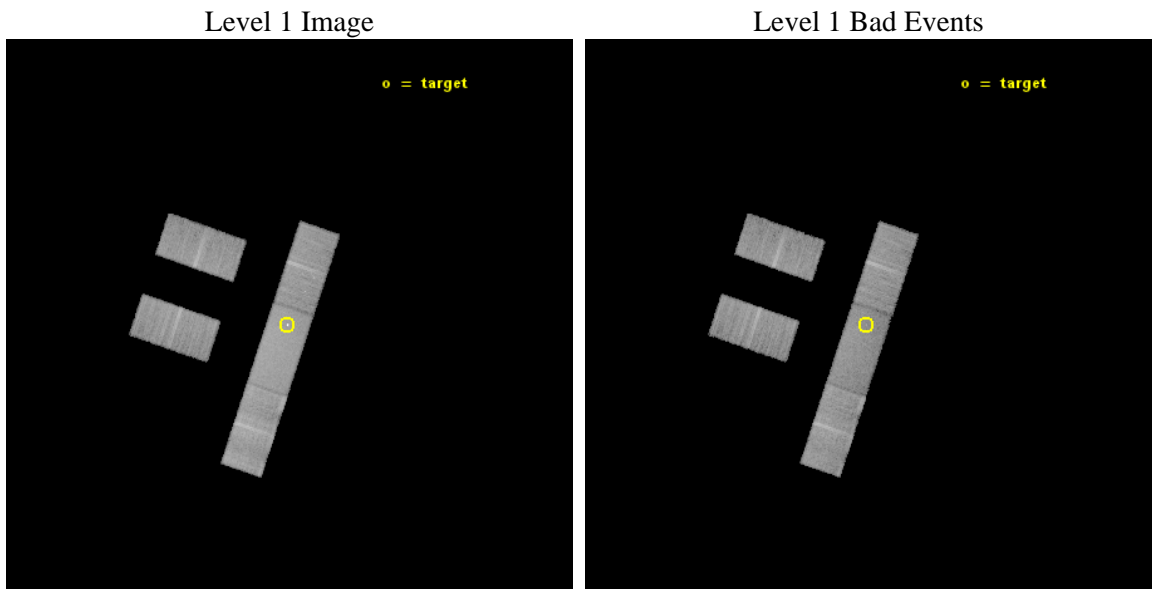
seq_num	702754	Sequence number
obs_id	14517	Observation id
title	ENERGY DEPENDENT X-RAY MICROLENSING AND THE STRUCTURE OF QUASARS	P
observer	Prof. Christopher Kochanek	Principal investigator
object	Q2237+0305	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	340.12625	Observer's specified target RA [deg]
dec_targ	3.358	Observer's specified target Dec [deg]
ra_nom	340.12329761076	Nominal RA [deg]
dec_nom	3.3587216803038	Nominal Dec [deg]
roll_nom	108.77270913684	Nominal Roll [deg]
revision	2	Processing version of data
ontime	30062.781088352	Sum of GTIs [s]
livetime	29354.137670702	Livetime [s]
ontime2	30062.616928339	Sum of GTIs [s]
ontime3	30062.699008346	Sum of GTIs [s]
ontime6	30062.740048349	Sum of GTIs [s]
ontime7	30062.781088352	Sum of GTIs [s]
ontime8	30060.916948199	Sum of GTIs [s]
l2events	81298	Number of level 2 events



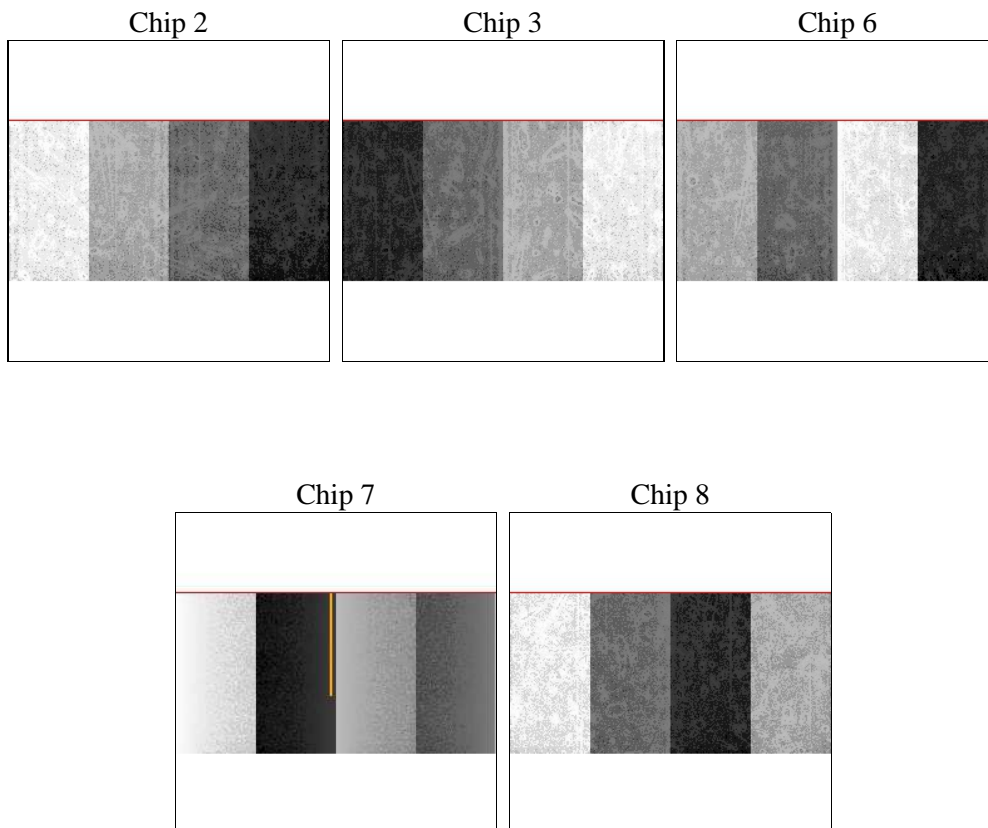
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	30062.781088352	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime2	30062.616928339	Sum of GTIs [s]
date	2014-12-11T12:41:58	Date and time of file creation	ontime3	30062.699008346	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	30062.740048349	Sum of GTIs [s]
			ontime7	30062.781088352	Sum of GTIs [s]
			ontime8	30060.916948199	Sum of GTIs [s]
			l1events	459584	Number of level 1 events

### 2.1.4 Events

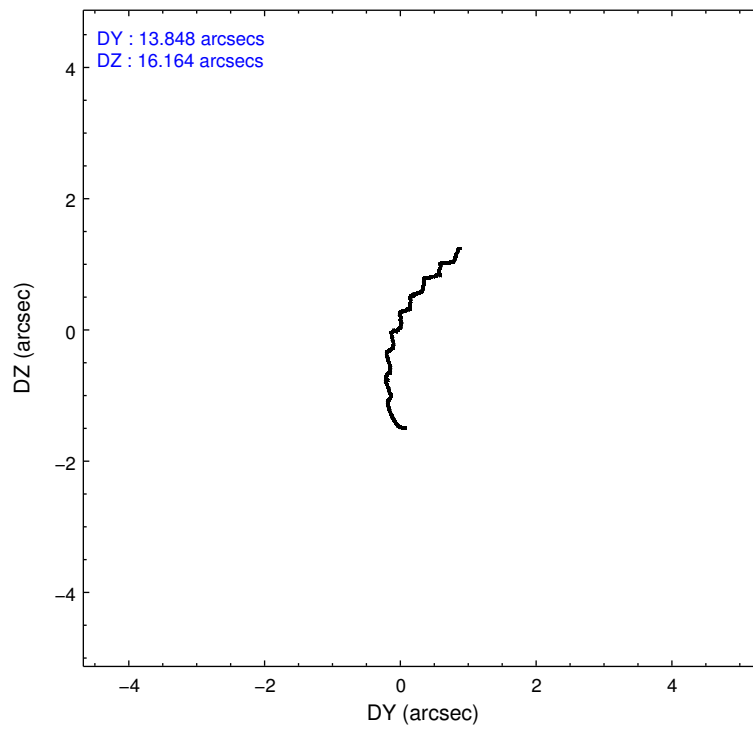
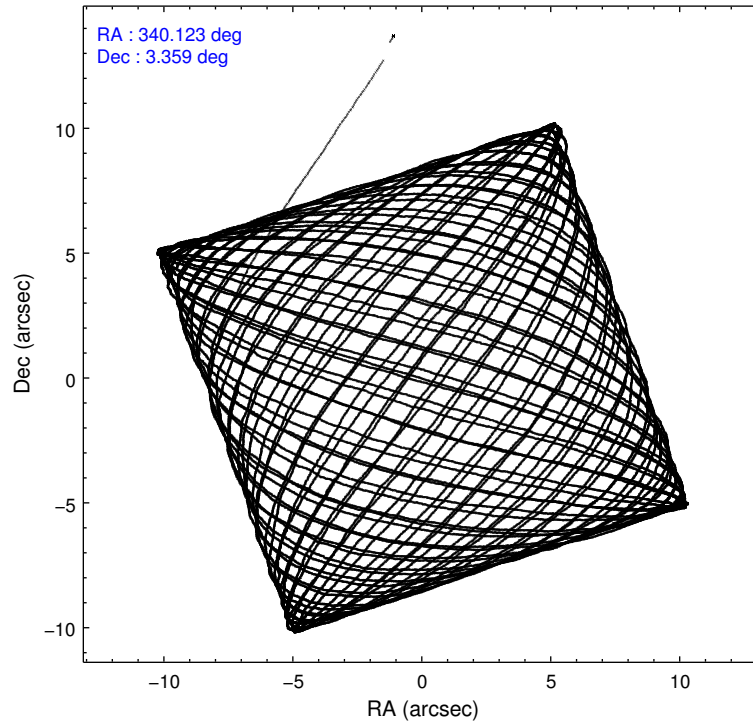
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	78670	80065	83017	108514	109318
rejected events	69410	71066	72780	59515	82413
rejected %	88%	88%	87%	54%	75%

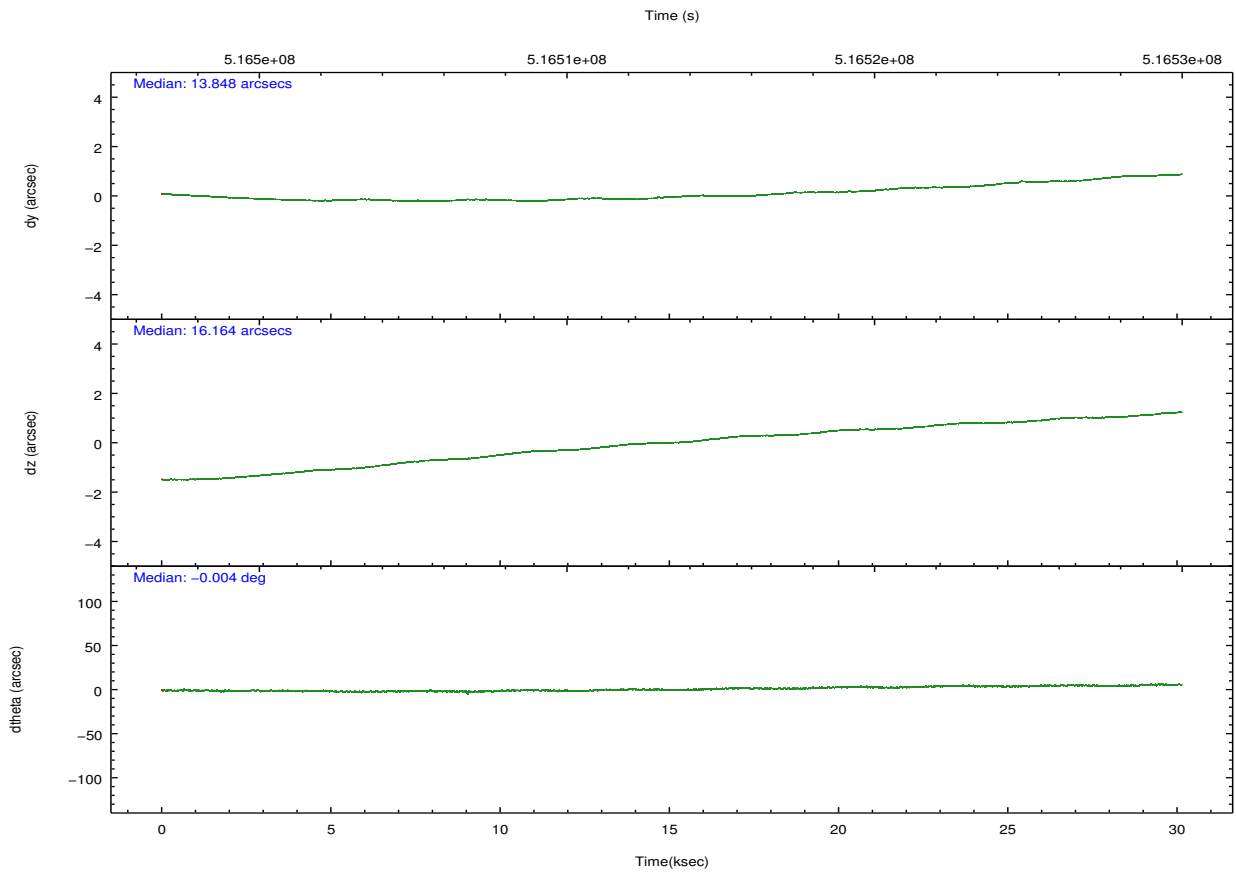
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	3194	2949	3370	4862	7452
	4%	3%	4%	4%	6%
grade 1 events	46	36	42	128	72
	0%	0%	0%	0%	0%
grade 2 events	2165	1986	2292	10200	6399
	2%	2%	2%	9%	5%
grade 3 events	1060	1132	1159	4778	2859
	1%	1%	1%	4%	2%
grade 4 events	1140	1065	1113	4673	2617
	1%	1%	1%	4%	2%
grade 5 events	3336	4058	4096	11098	5788
	4%	5%	4%	10%	5%
grade 6 events	1702	1870	2305	24490	7580
	2%	2%	2%	22%	6%
grade 7 events	66027	66969	68640	48285	76551
	83%	83%	82%	44%	70%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-23678	ACIS-23678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	340.144151	340.1232976107596	CCD I2 on	O4	Y
[deg] Pointing Dec	3.340980	3.358721680303817	CCD I3 on	O3	Y
[deg] Pointing Roll	108.614862	108.772709136836	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	N	N
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	O2	Y
[s] Observation start time (MET)	516498474.184000	516497358.06915	CCD S5 on	N	N
Observation start date	2014-05-14T23:46:47	2014-05-14T23:29:18	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	516528474.184000	516529485.15842	On-chip summing requested	N	N
Observation end date	2014-05-15T08:06:47	2014-05-15T08:24:45	Subarray requested	CUSTOM	1/2
Read mode	TIMED	TIMED	Subarray start row	257	257
			Subarray row count	512	512
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	1.7

## 2.3 Aspect



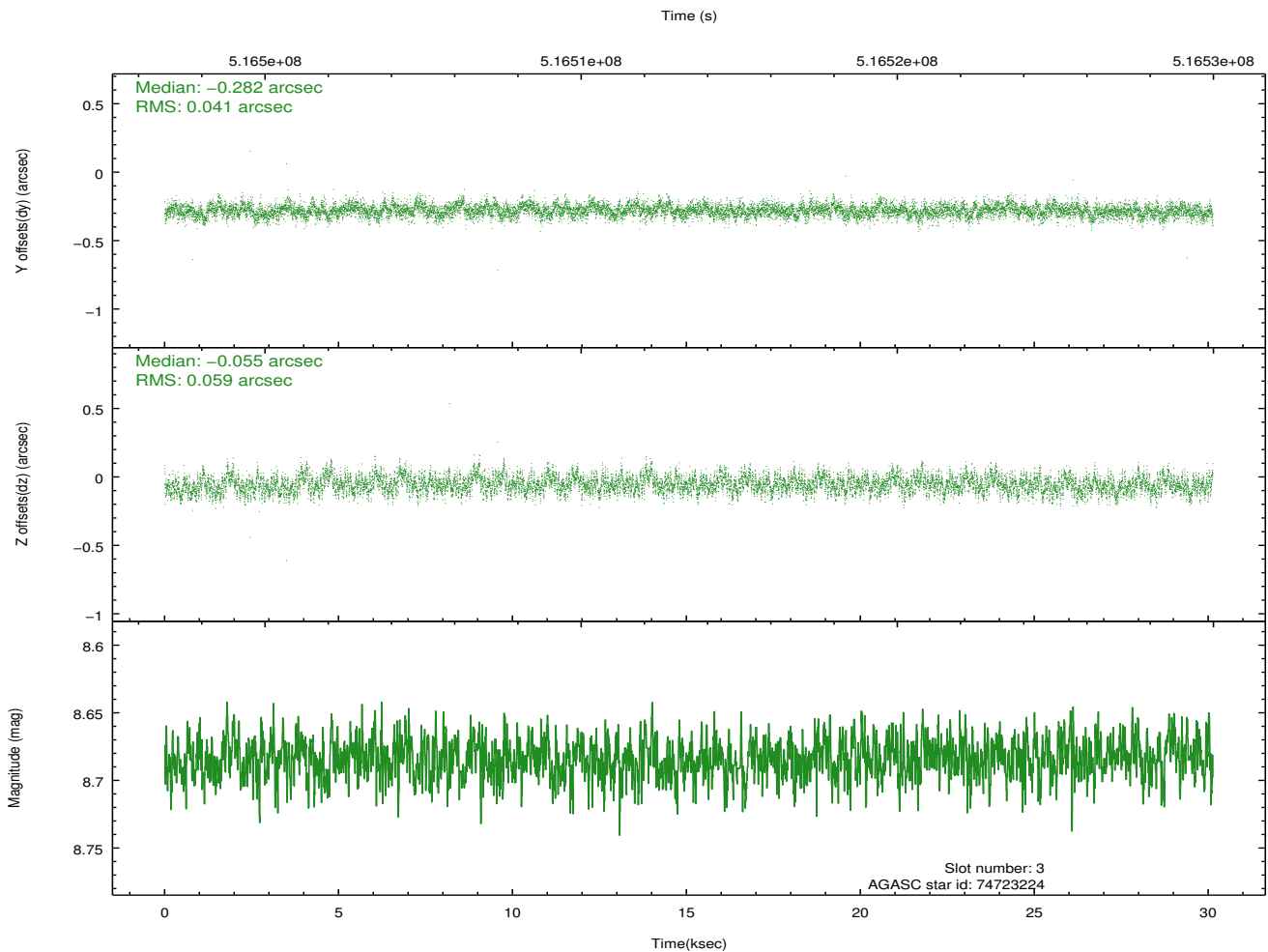
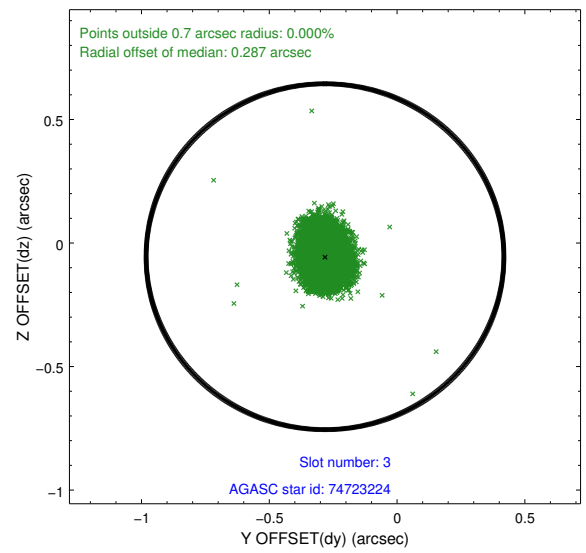
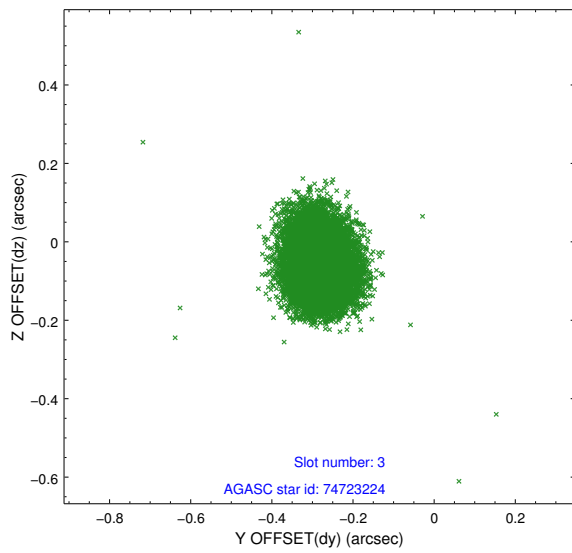


### Slot Statistics

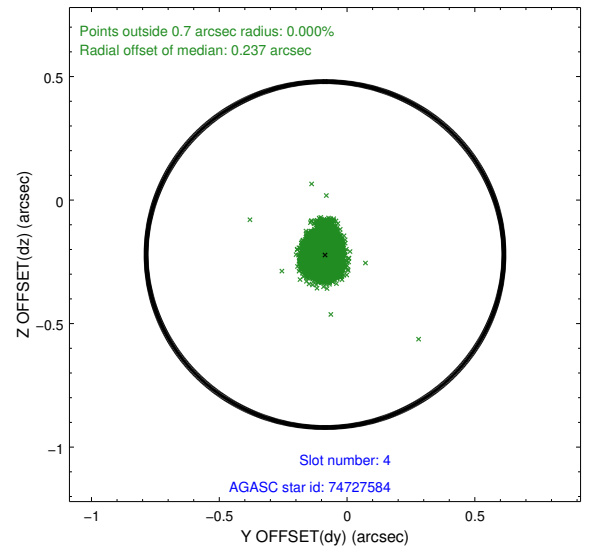
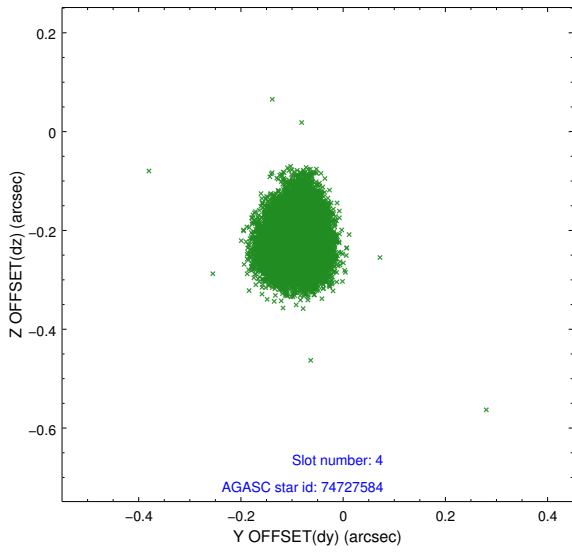
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.02	7348	-0.075	-0.023	0.014	0.021	0.000000	0.000000	-766.98	-1737.53
1	FID		ACIS-S-4	7.11	7348	0.241	0.043	0.008	0.014	0.000000	0.000000	2146.58	170.94
2	FID		ACIS-S-5	7.14	7349	-0.198	-0.011	0.013	0.020	0.000000	0.000000	-1819.85	164.65
3	GUIDE	used	74723224	8.68	14695	-0.282	-0.055	0.075	0.122	339.594650	3.574222	1426.13	1603.03
4	GUIDE	used	74727584	7.00	14695	-0.086	-0.221	0.058	0.094	339.633744	3.463732	1004.61	1596.97
5	GUIDE	used	74842128	8.52	14695	0.487	0.089	0.082	0.130	340.118134	3.132788	-679.92	328.31
6	GUIDE	used	74854992	8.28	14690	0.053	0.306	0.078	0.122	340.342808	3.603730	668.74	-977.60
7	GUIDE	used	74855640	8.84	14690	-0.167	-0.116	0.087	0.139	340.341123	3.746937	1159.40	-1137.15

## 2.4 Star Slots

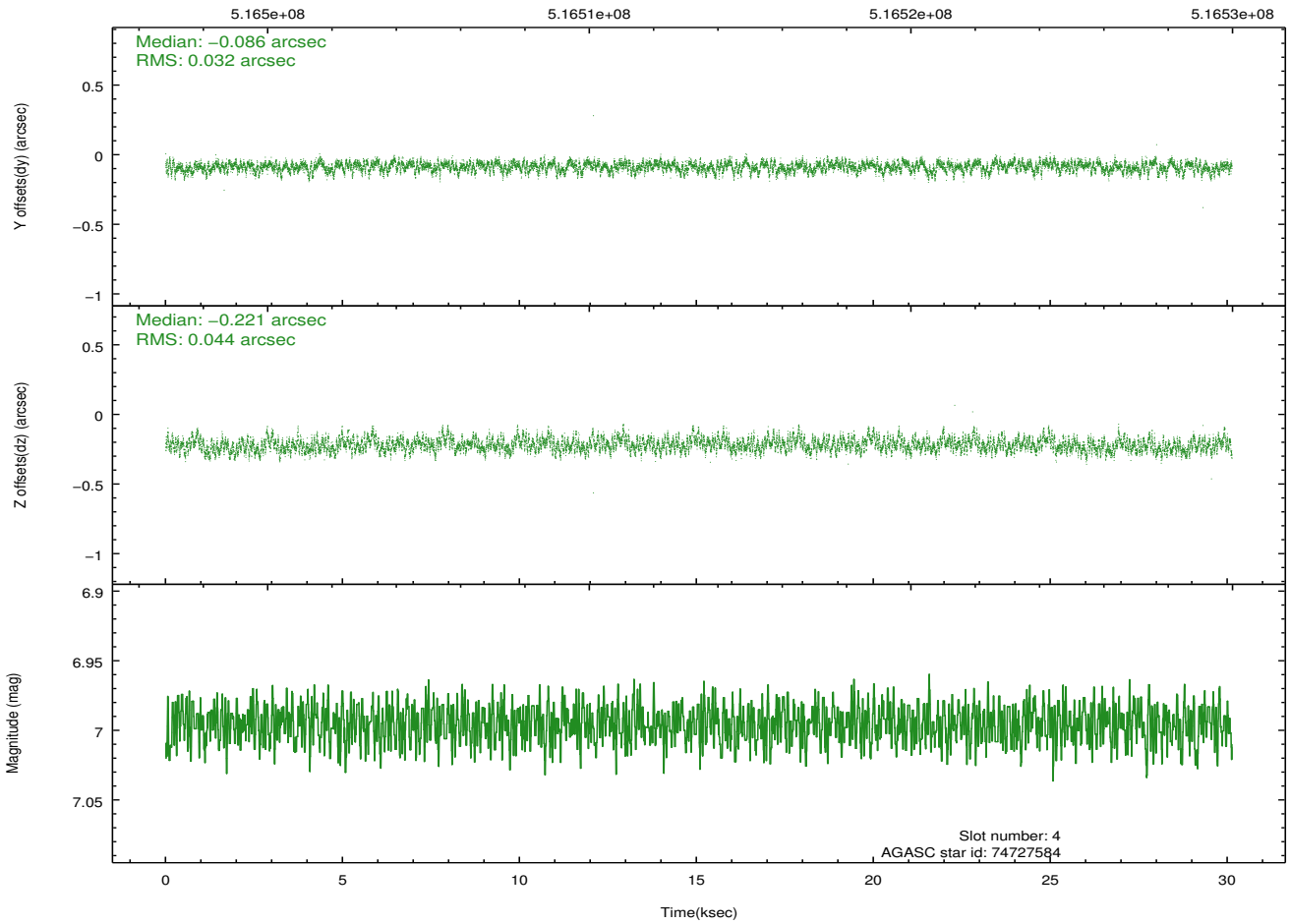
### 2.4.1 Slot 3



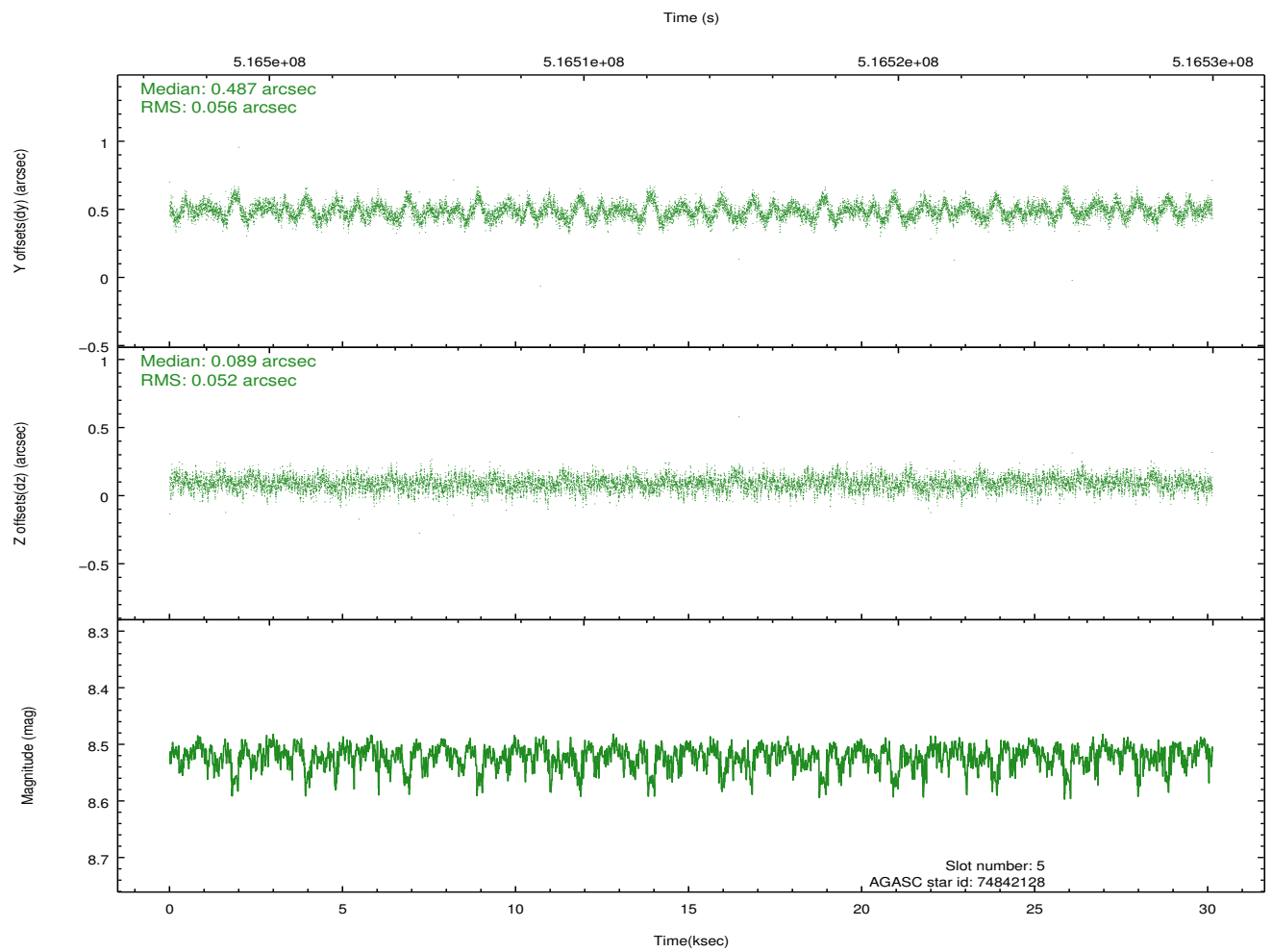
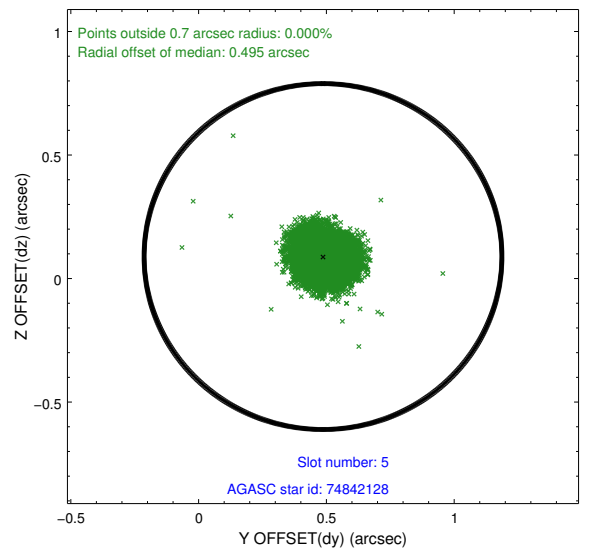
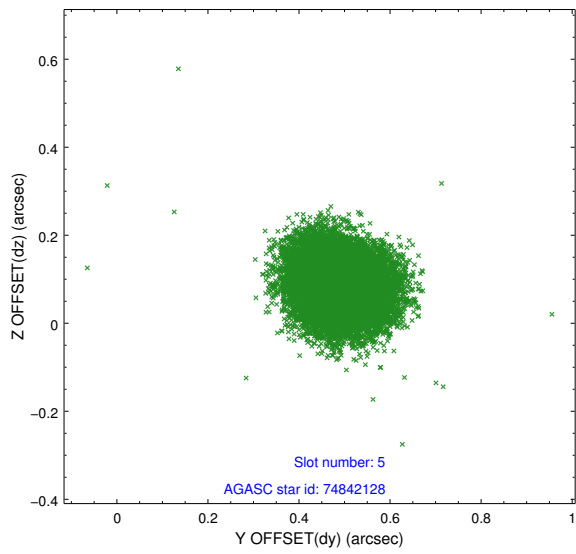
## 2.4.2 Slot 4



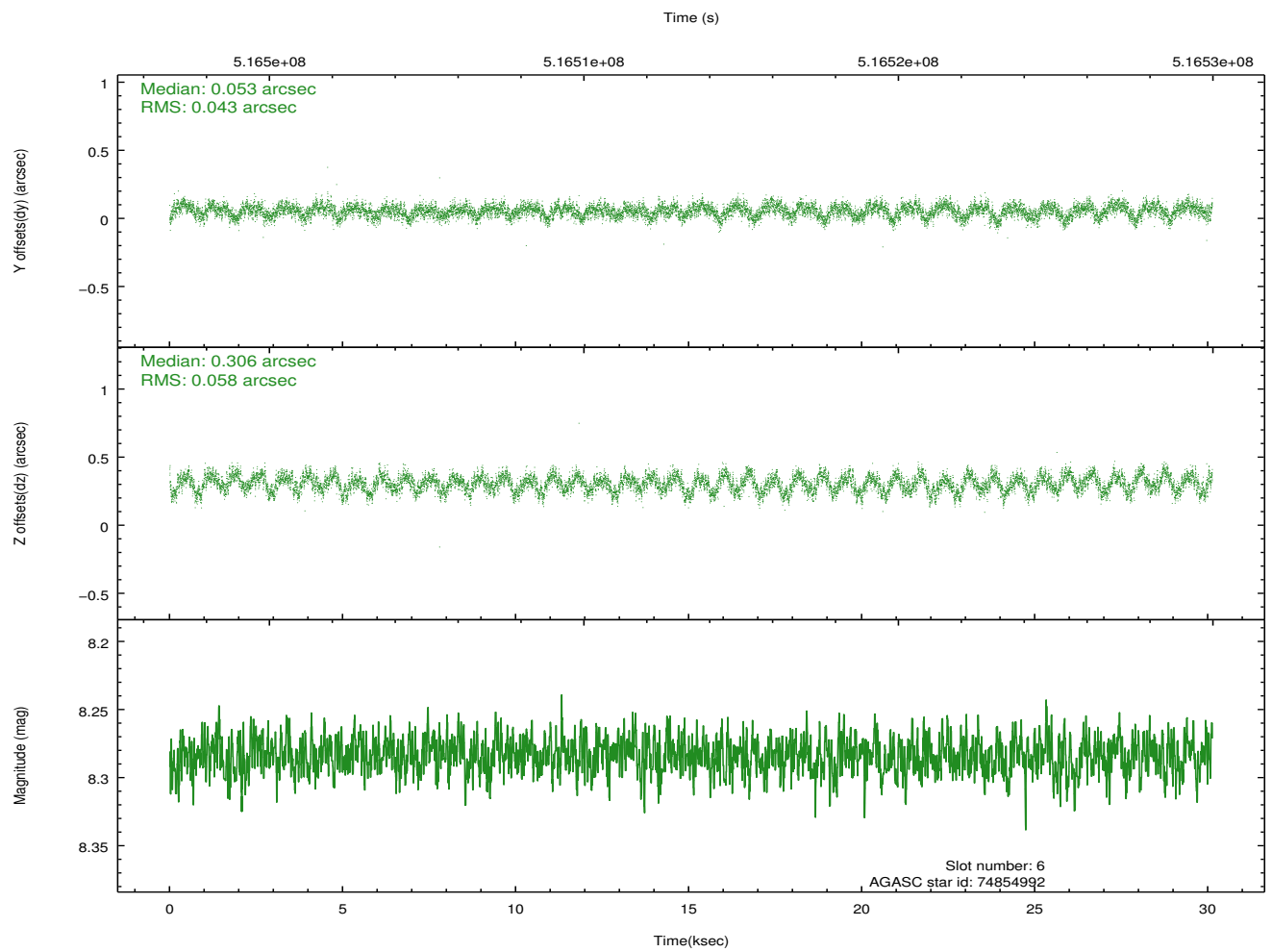
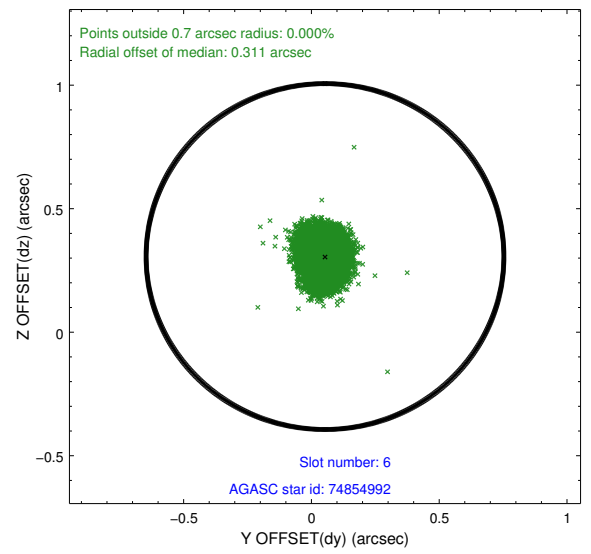
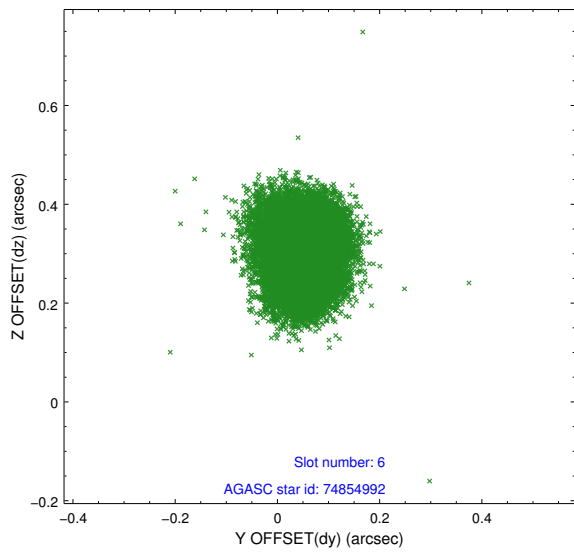
Time (s)



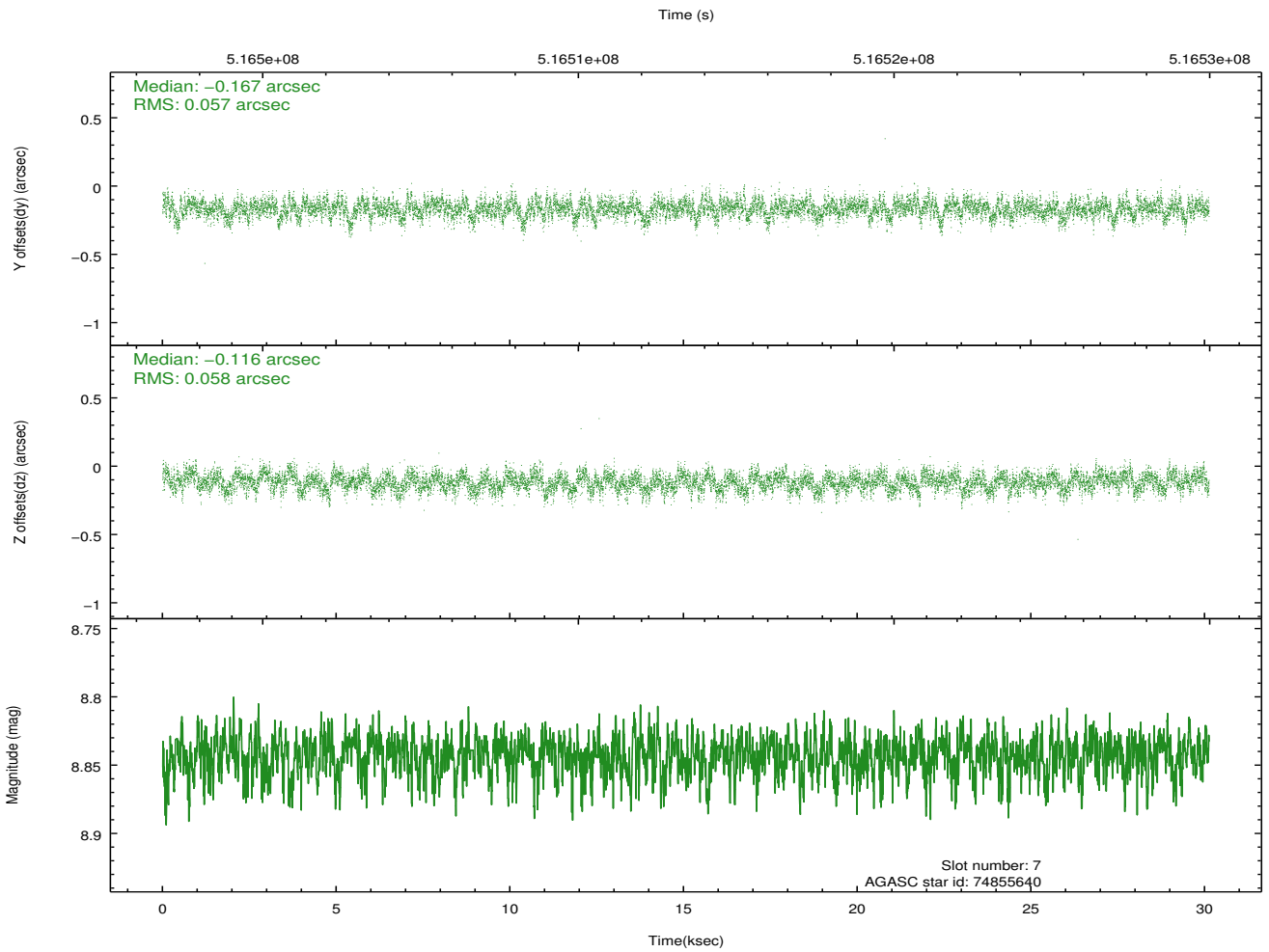
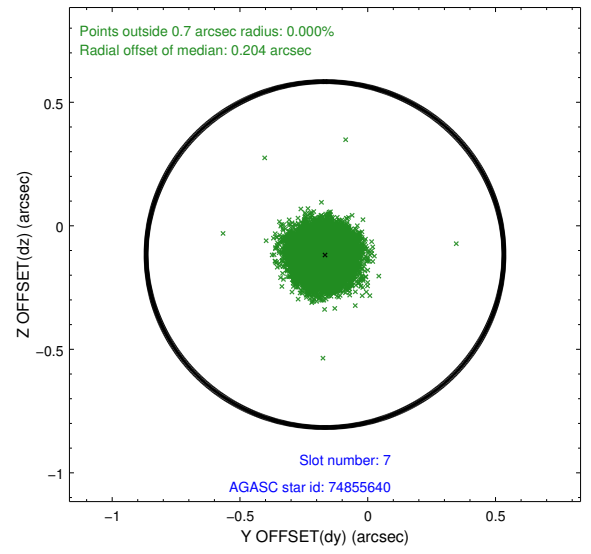
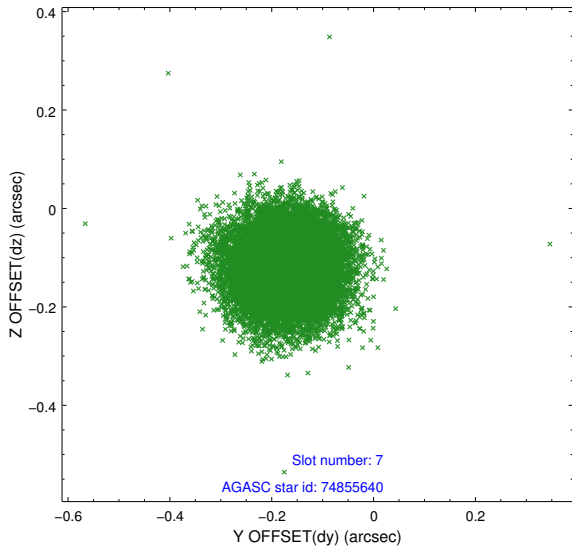
### 2.4.3 Slot 5



## 2.4.4 Slot 6

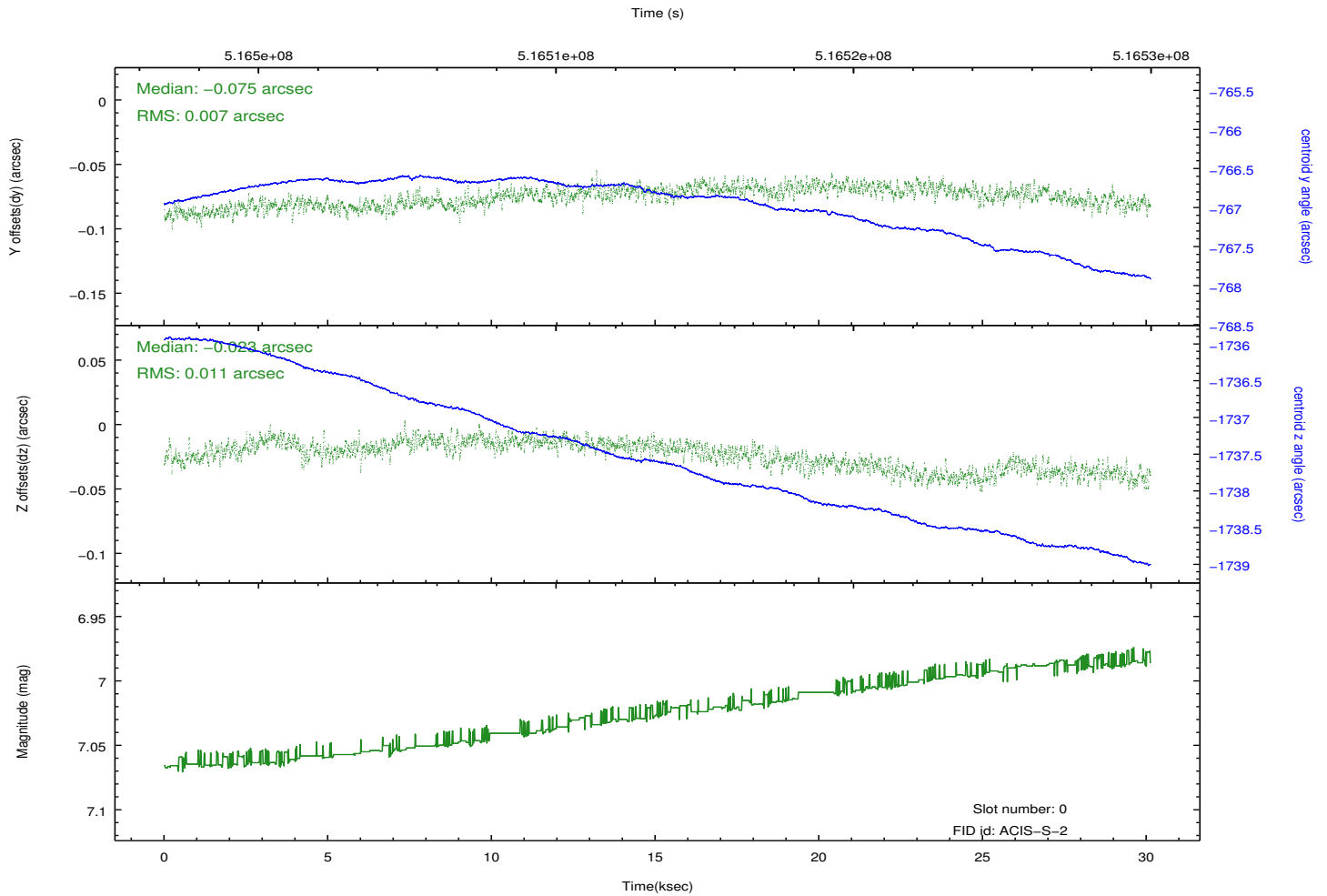
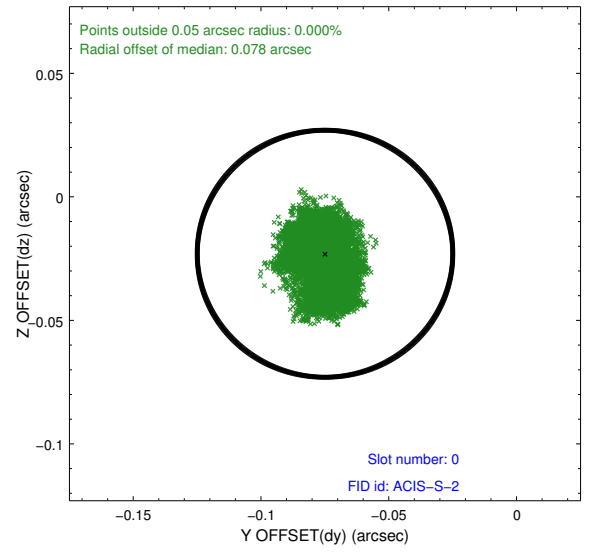
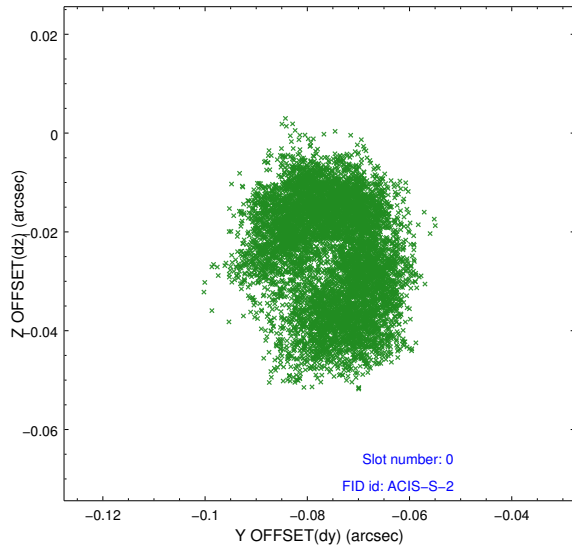


### 2.4.5 Slot 7

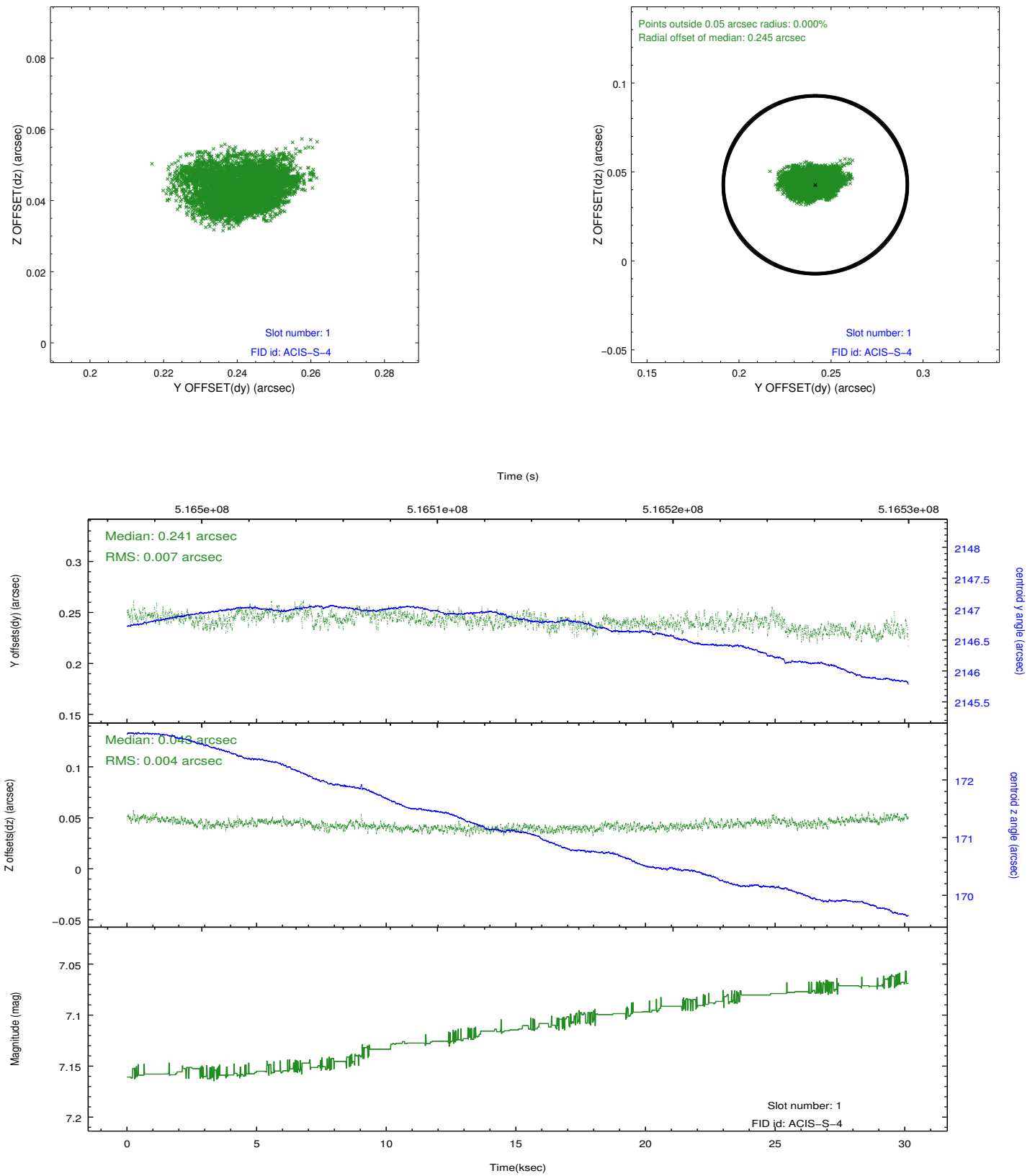


## 2.5 FID Slots

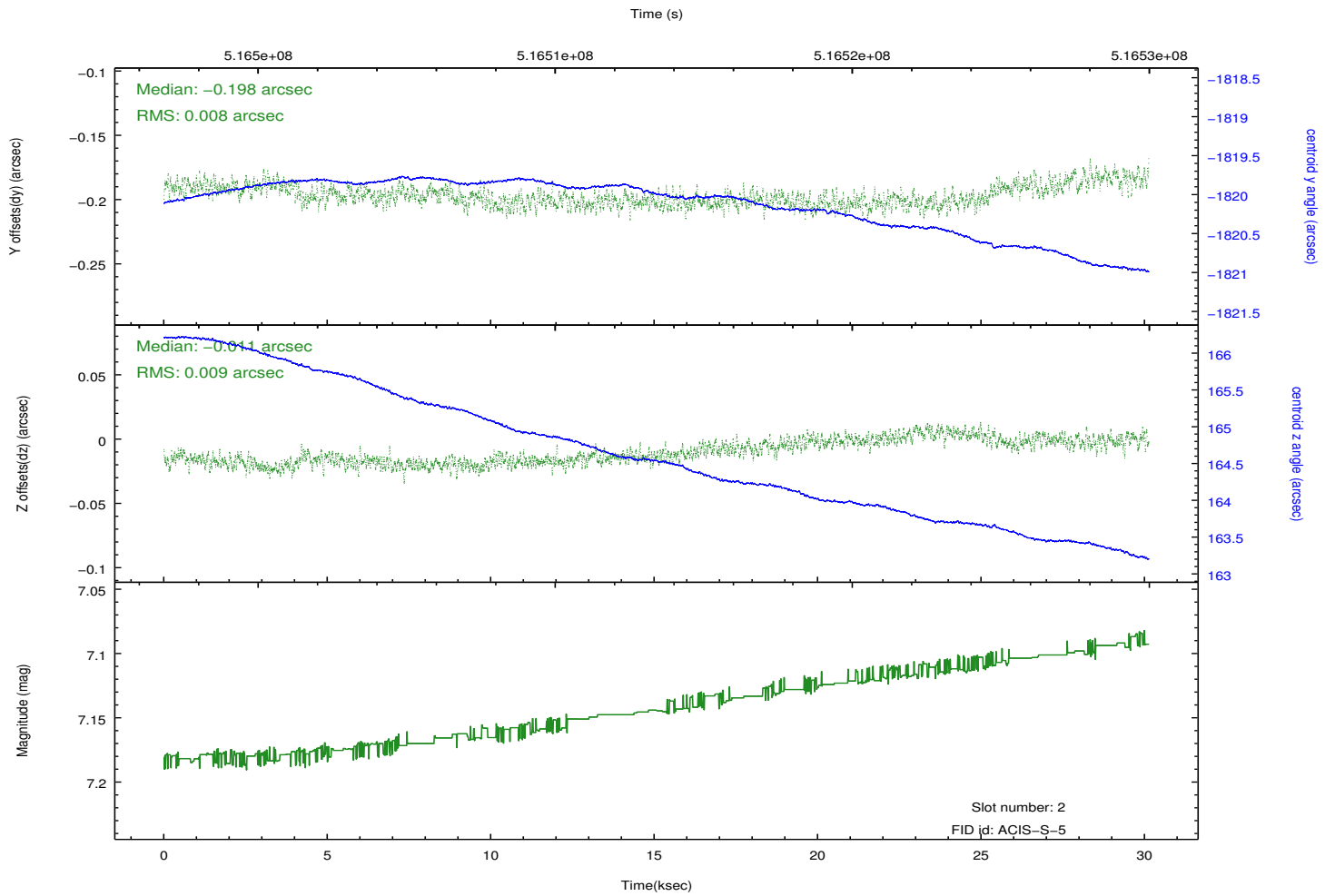
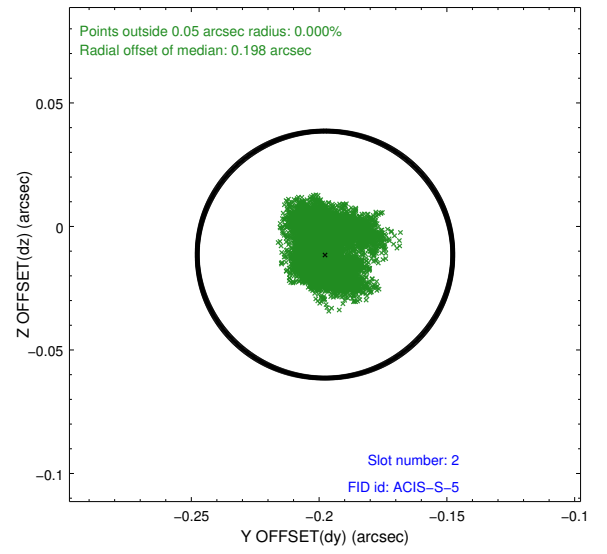
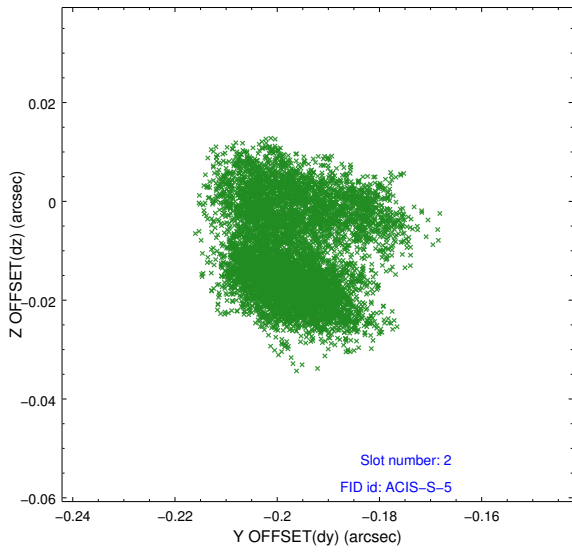
### 2.5.1 Slot 0



## 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)	2014.12.18
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.062781088352

## A.2 Comments

Joint proposal with HST.

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.