

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 15553 - L2 Version 2  
Chandra X-Ray Center

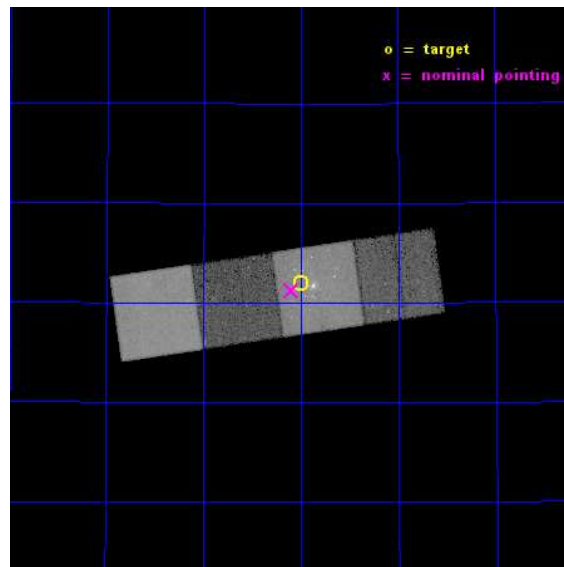
L2 Processing Date : Nov 27 2014

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# 1 Front

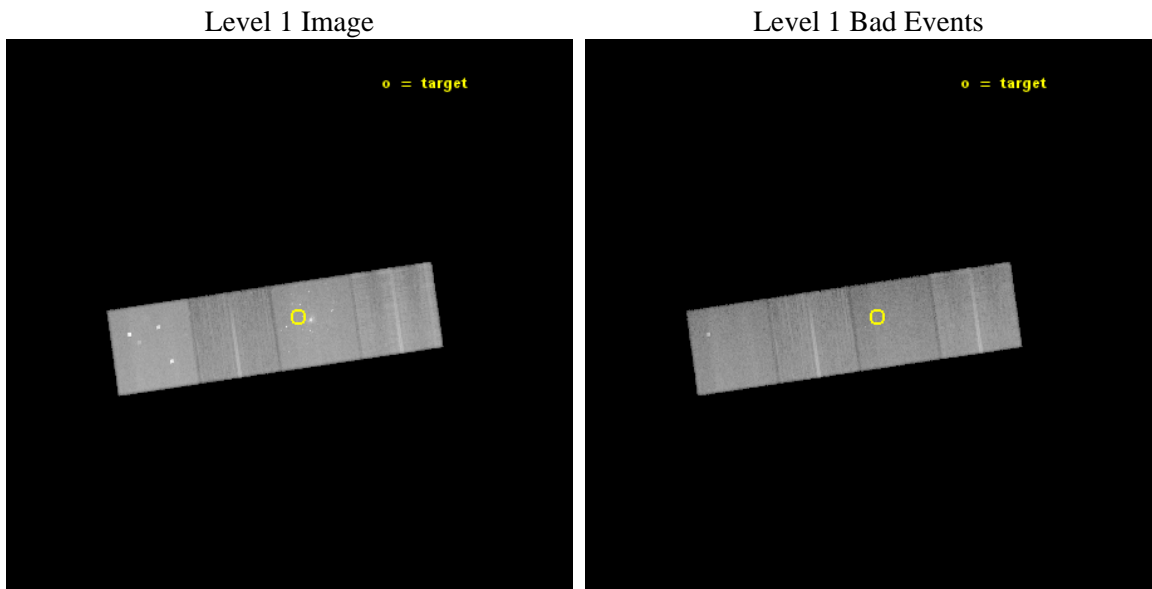
seq_num	600995	Sequence number
obs_id	15553	Observation id
title	M51: Using the Kinematics of a Grand-Design Spiral to Understand the Physics of the Hot ISM, SNRs, and XRBs	Proposal title
observer	Dr. K.D. Kuntz	Principal investigator
object	M51	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	202.5	Observer's specified target RA [deg]
dec_targ	47.2	Observer's specified target Dec [deg]
ra_nom	202.52447665338	Nominal RA [deg]
dec_nom	47.187484333086	Nominal Dec [deg]
roll_nom	351.72966603399	Nominal Roll [deg]
revision	2	Processing version of data
ontime	38070.84257561	Sum of GTIs [s]
livetime	37573.418990013	Livetime [s]
ontime5	38070.801535606	Sum of GTIs [s]
ontime6	38070.760495603	Sum of GTIs [s]
ontime7	38070.84257561	Sum of GTIs [s]
ontime8	38070.7194556	Sum of GTIs [s]
l2events	317505	Number of level 2 events



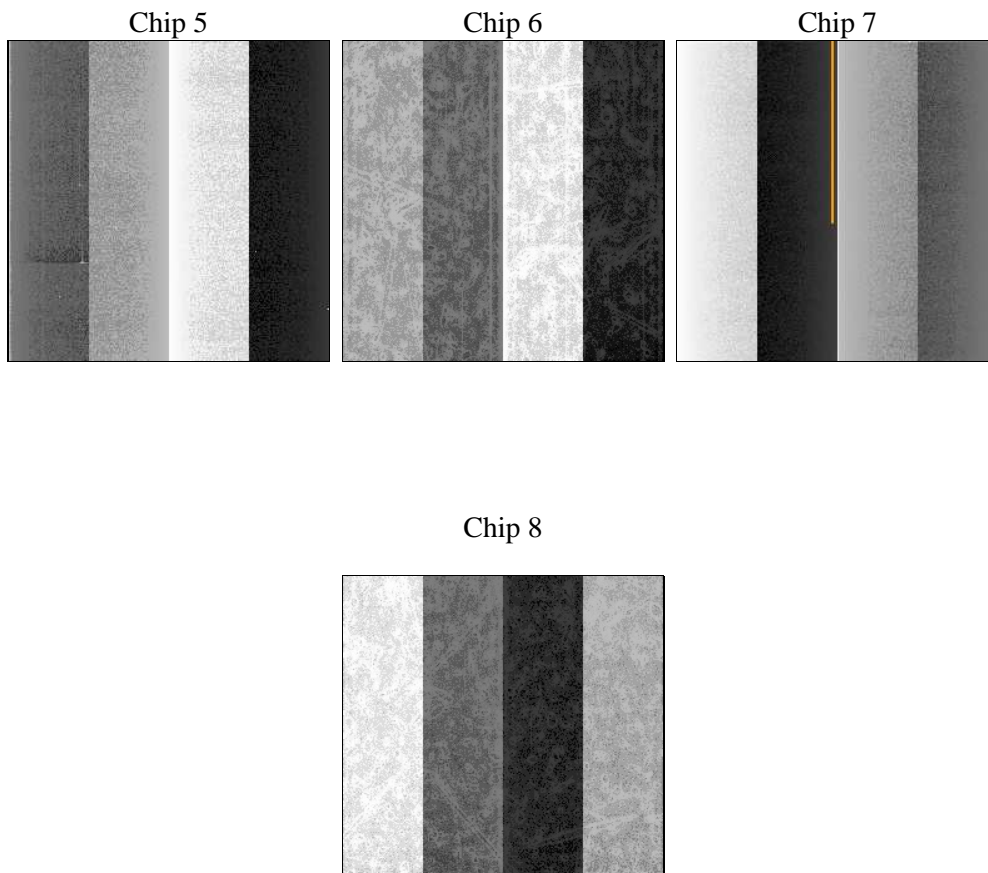
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	38000.000000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	38070.84257561	Sum of GTIs [s]
caldsver	4.6.4	&#160	ontime5	38070.801535606	Sum of GTIs [s]
date	2014-11-27T22:50:08	Date and time of file creation	ontime6	38070.760495603	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	38070.84257561	Sum of GTIs [s]
			ontime8	38070.7194556	Sum of GTIs [s]
			l1events	1059220	Number of level 1 events

### 2.1.4 Events

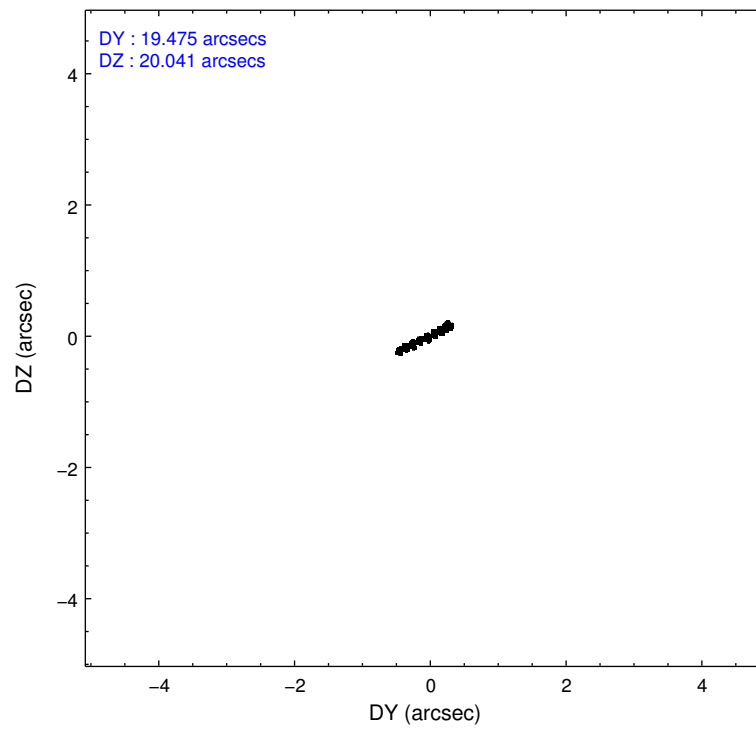
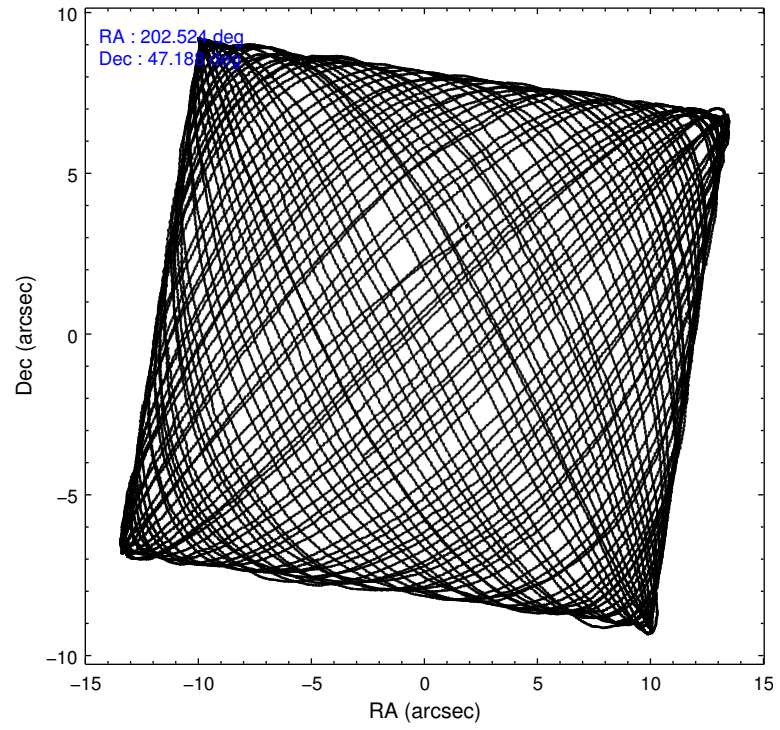
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	333055	193035	273346	259784
rejected events	161935	169391	142068	184759
rejected %	48%	87%	51%	71%

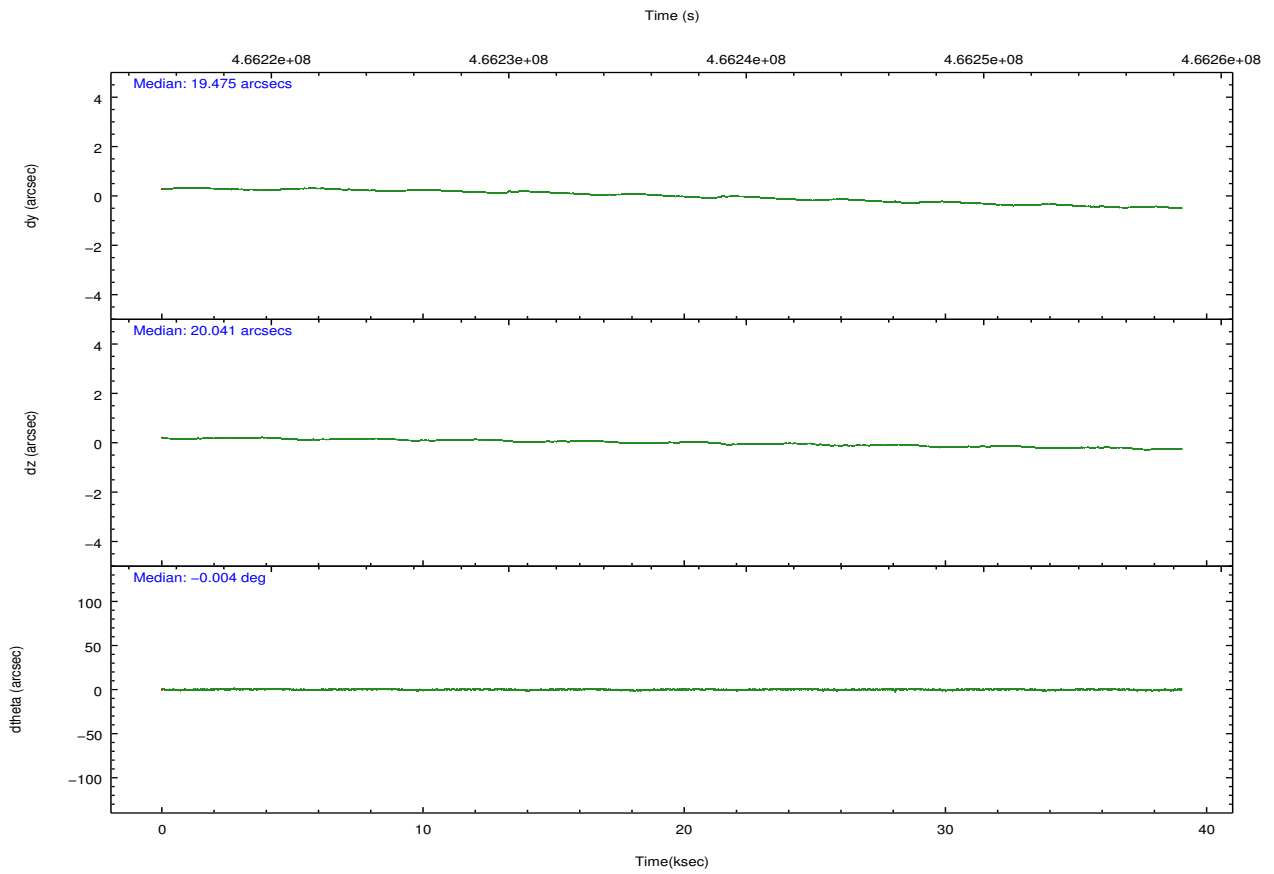
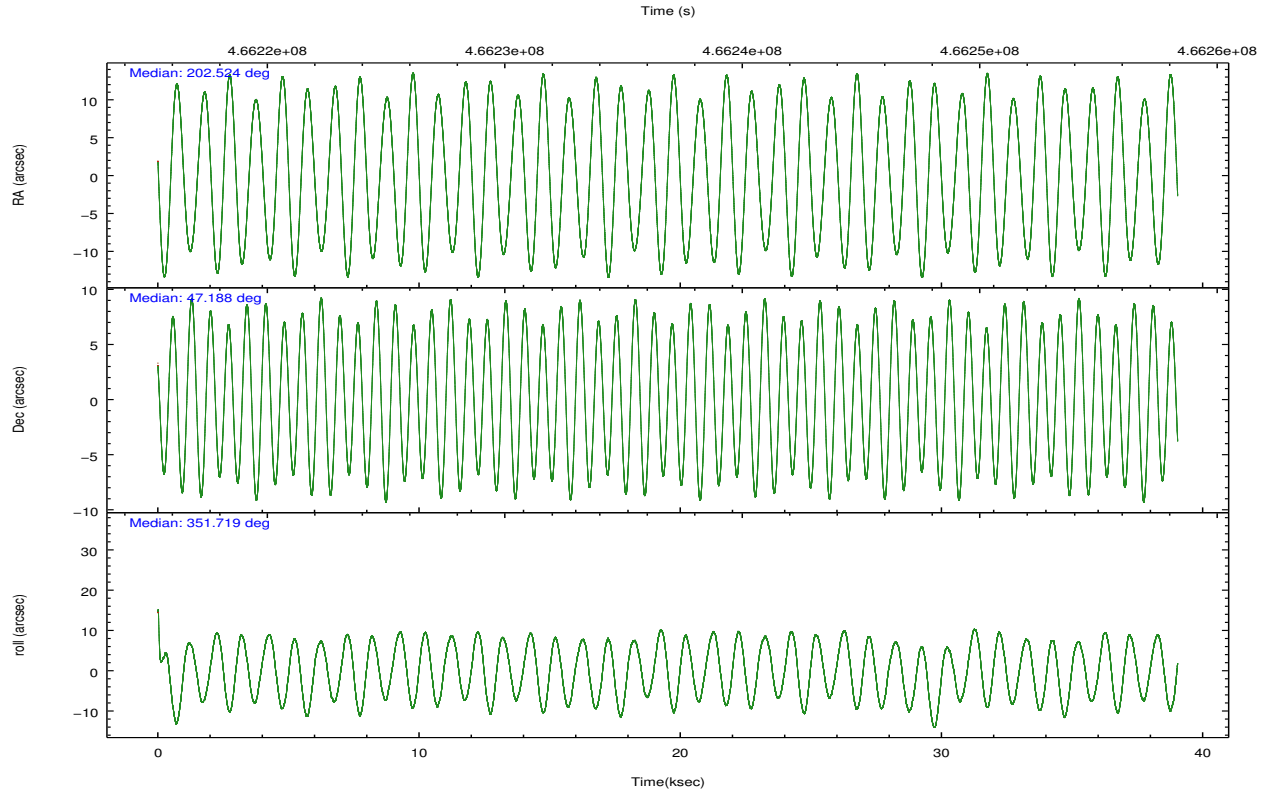
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	26561	8323	16913	23632
	7%	4%	6%	9%
grade 1 events	1703	96	306	230
	0%	0%	0%	0%
grade 2 events	52259	5356	28116	16527
	15%	2%	10%	6%
grade 3 events	5601	2431	11606	8362
	1%	1%	4%	3%
grade 4 events	5303	2306	11674	8024
	1%	1%	4%	3%
grade 5 events	23536	9946	26338	14055
	7%	5%	9%	5%
grade 6 events	81407	5233	62978	18484
	24%	2%	23%	7%
grade 7 events	136685	159344	115415	170470
	41%	82%	42%	65%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	202.487321	202.5244766533807	Subarray requested	NONE	NONE
[deg] Pointing Dec	47.177018	47.18748433308563	Alternating exposures requested	N	N
[deg] Pointing Roll	351.600295	351.729666033993	[s] Primary exposure time	0.000000	3.1
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	466218389.184000	466217082.71826			
Observation start date	2012-10-10T01:05:22	2012-10-10T00:44:42			
[s] Observation end time (MET)	466256389.184000	466257108.97041			
Observation end date	2012-10-10T11:38:42	2012-10-10T11:51:48			
Read mode	TIMED	TIMED			

## 2.3 Aspect





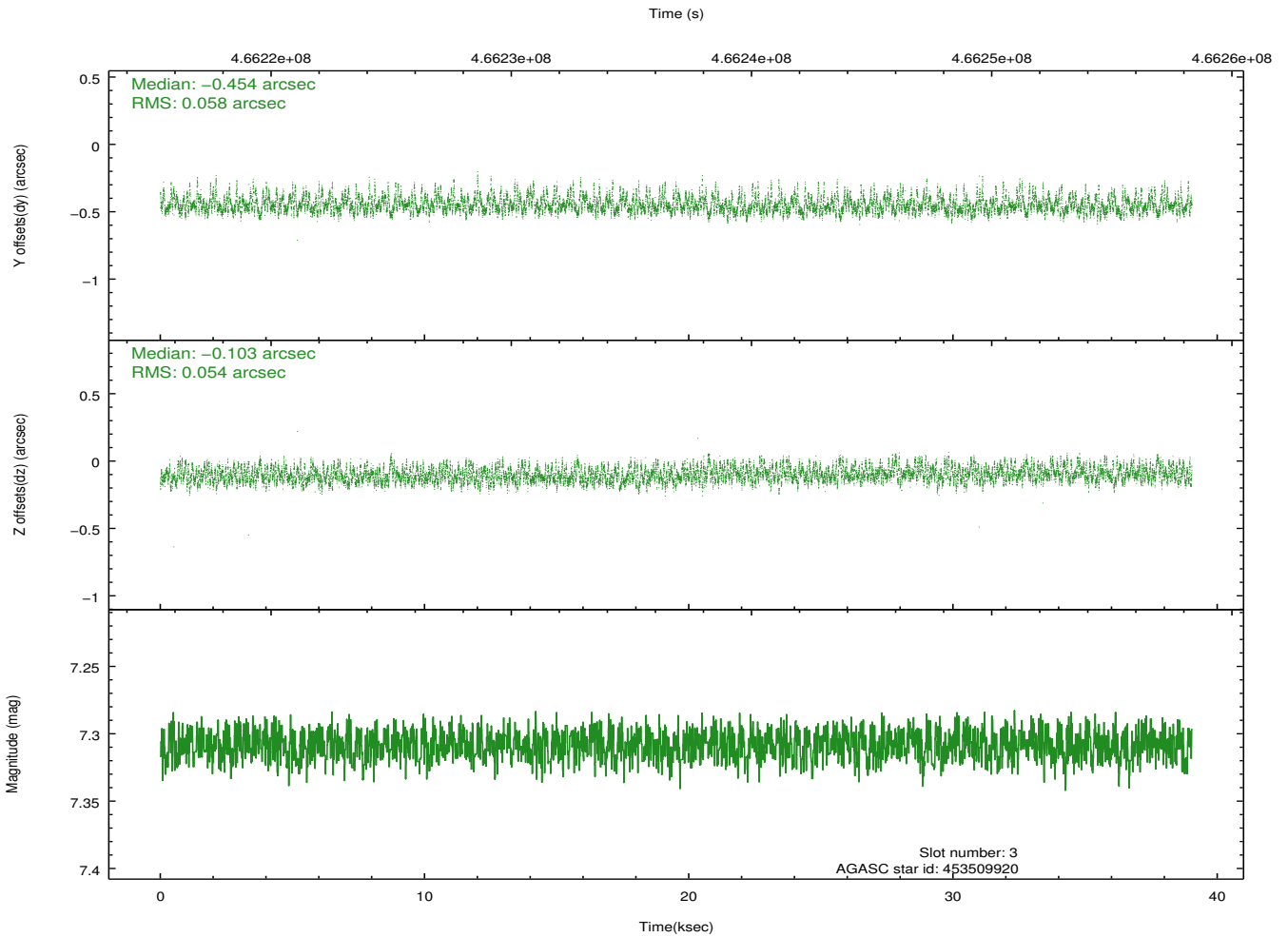
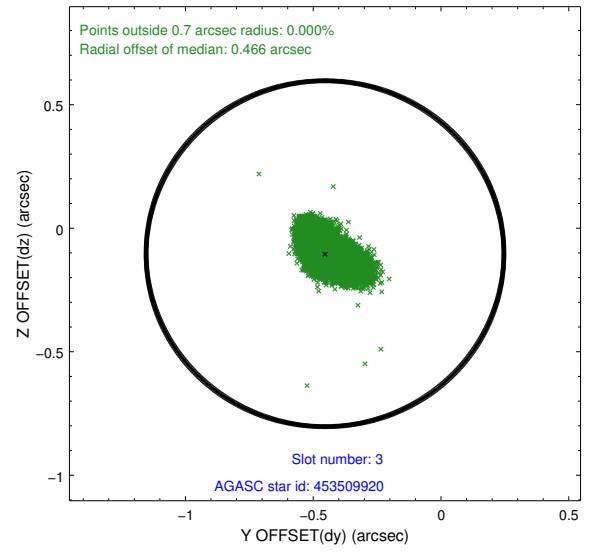
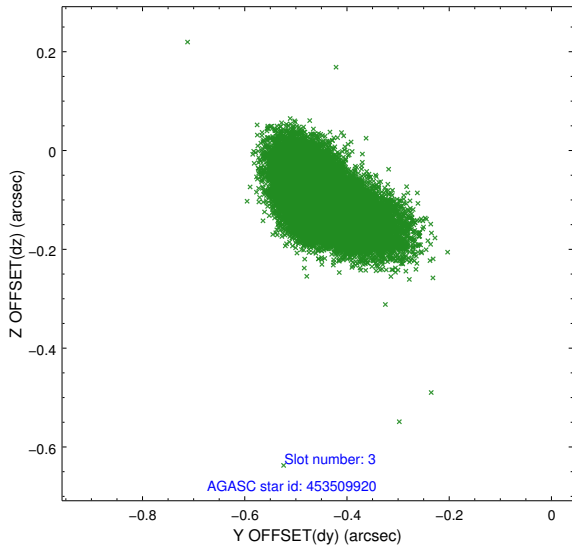
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.93	9523	-0.122	-0.010	0.011	0.016	0.000000	0.000000	-772.67	-1741.50
1	FID		ACIS-S-4	7.01	9523	0.244	0.062	0.010	0.015	0.000000	0.000000	2140.98	167.02
2	FID		ACIS-S-5	7.04	9521	-0.152	-0.043	0.015	0.023	0.000000	0.000000	-1825.51	160.63
3	GUIDE	used	453509920	7.31	19039	-0.454	-0.103	0.082	0.141	202.256826	47.847140	-904.00	2305.73
4	GUIDE	used	453511800	9.13	19031	0.013	0.394	0.171	0.252	201.825327	46.820165	-1426.93	-1501.81
5	GUIDE	used	453904608	7.38	19042	0.507	-0.197	0.091	0.144	202.983748	47.234418	1170.40	385.41
6	GUIDE	used	453904928	8.70	19033	-0.105	0.233	0.119	0.181	203.391671	46.796779	2403.52	-1015.13
7	GUIDE	used	454303184	7.35	19044	0.041	-0.318	0.082	0.122	203.304787	47.758729	1650.19	2370.45

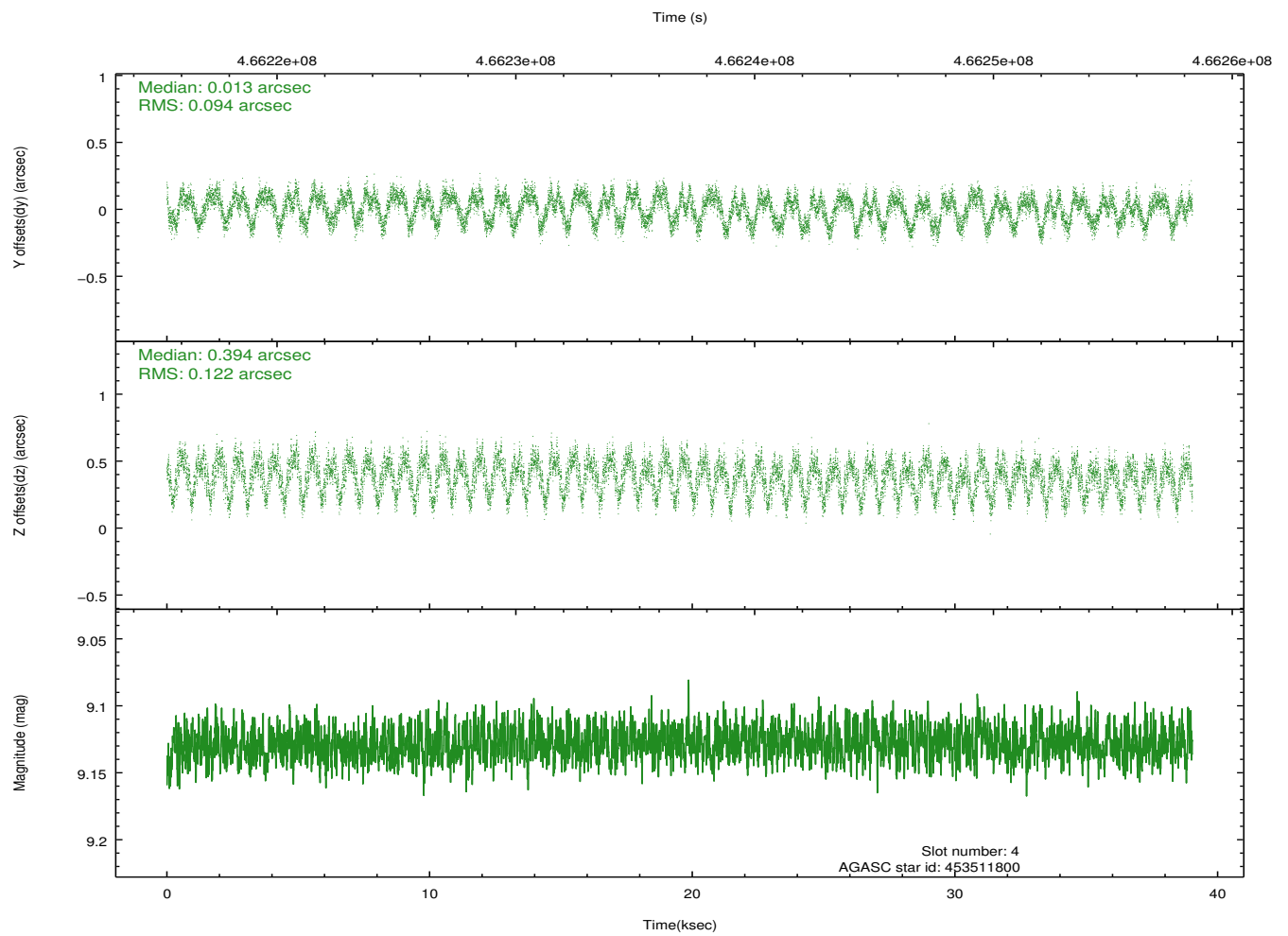
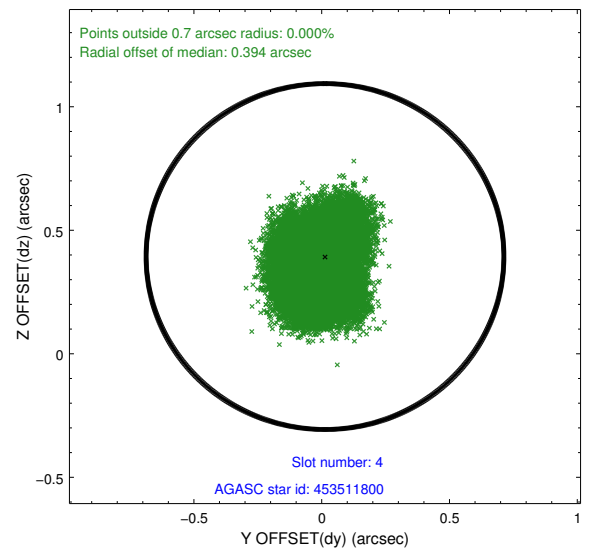
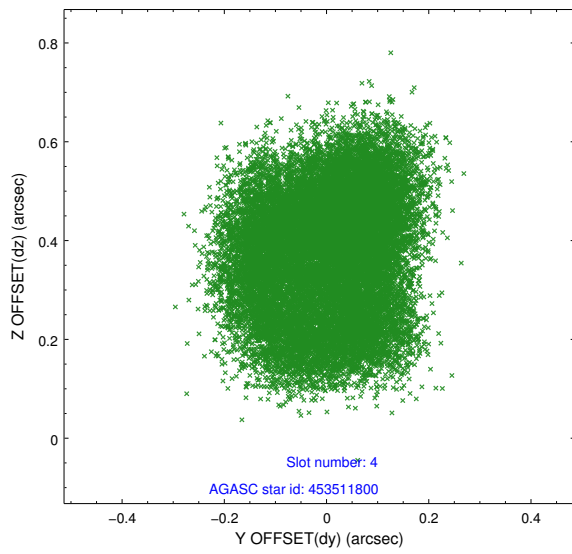
∞

## 2.4 Star Slots

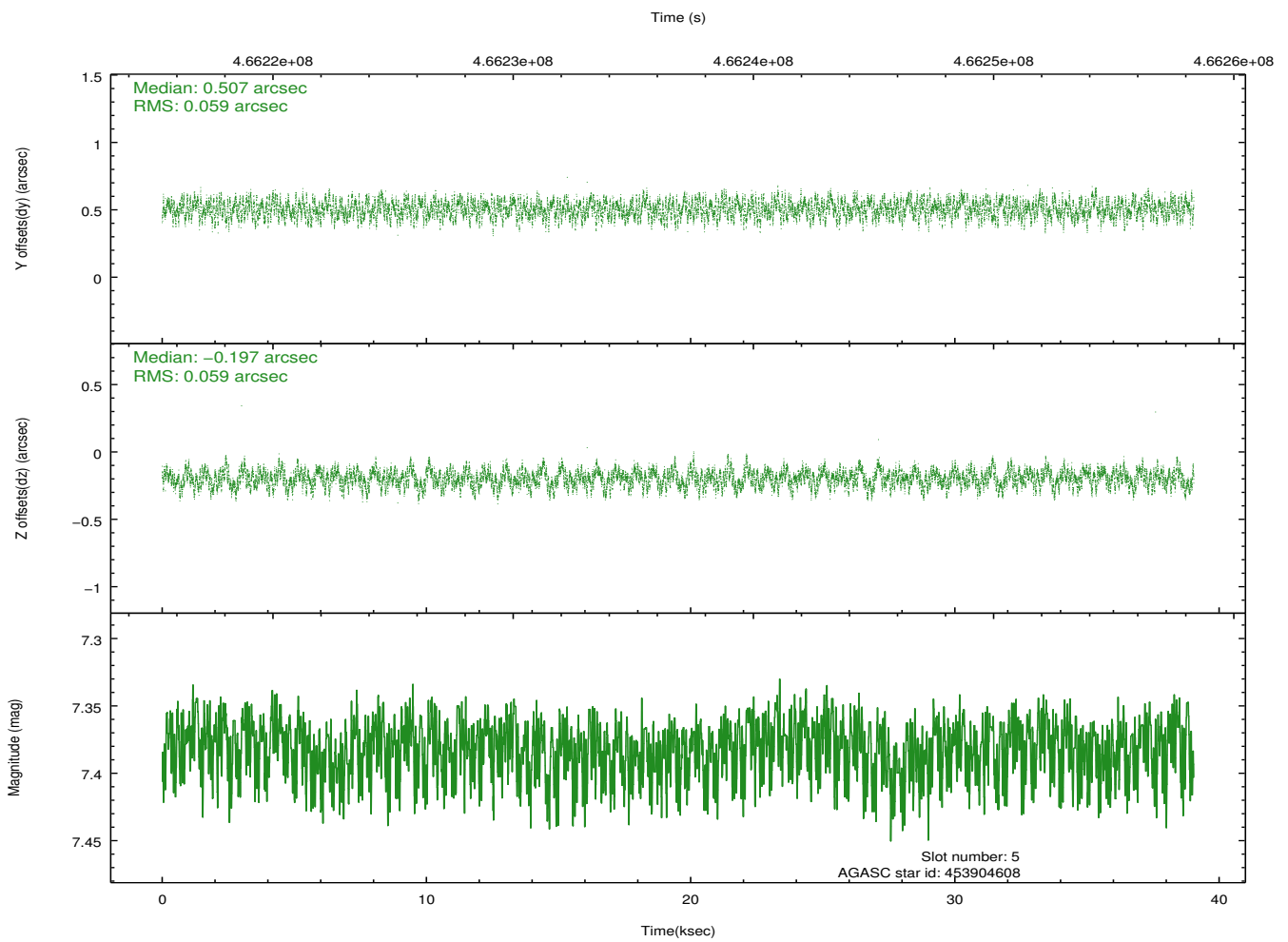
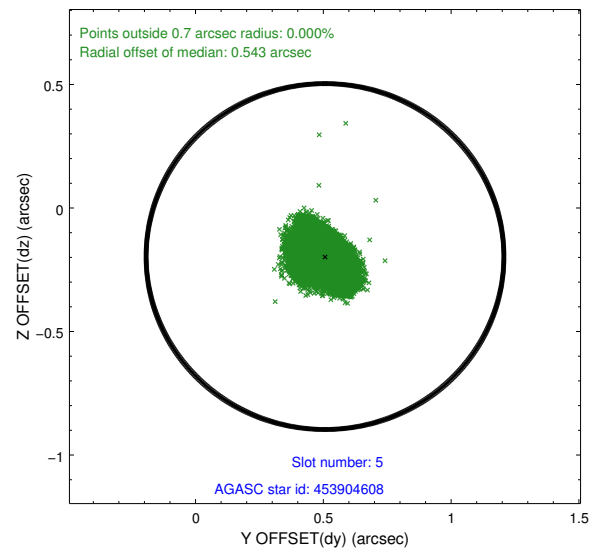
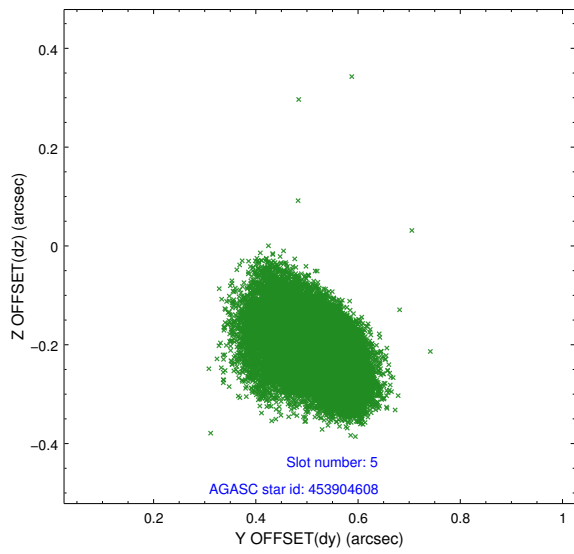
### 2.4.1 Slot 3



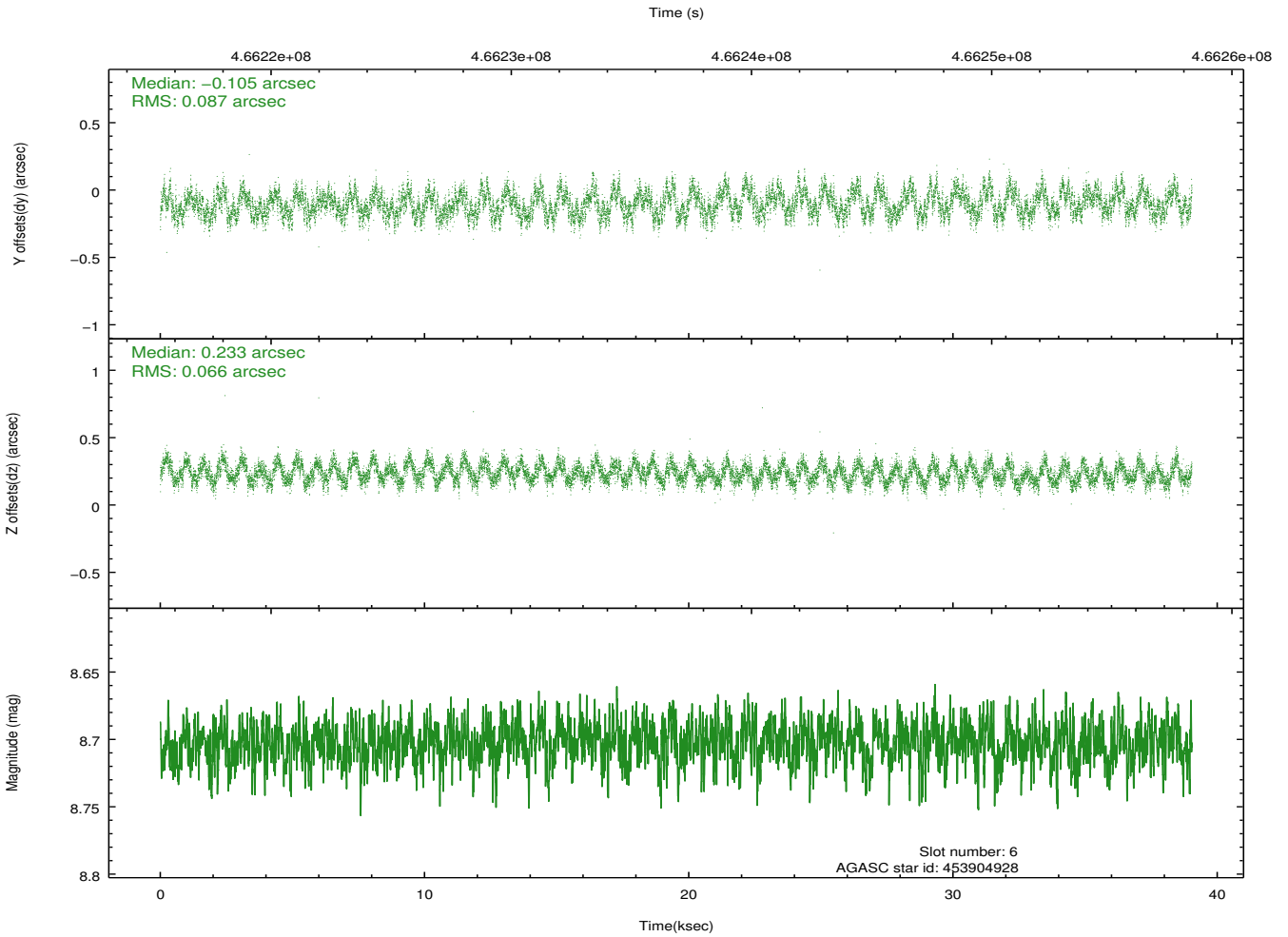
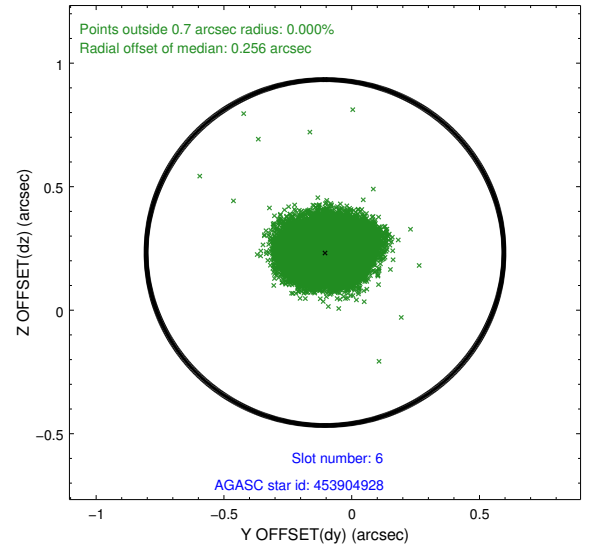
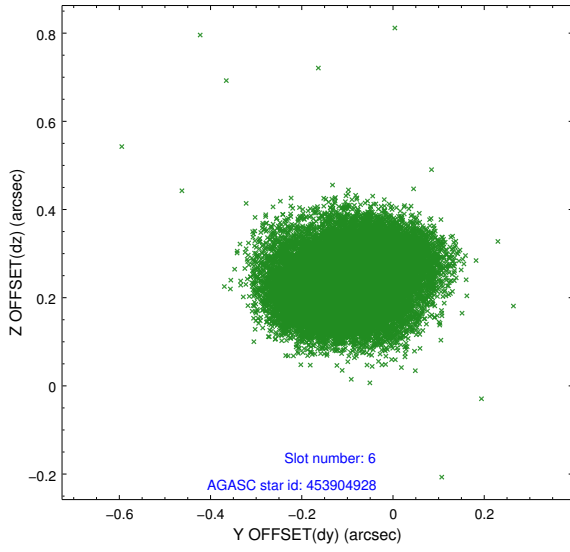
## 2.4.2 Slot 4



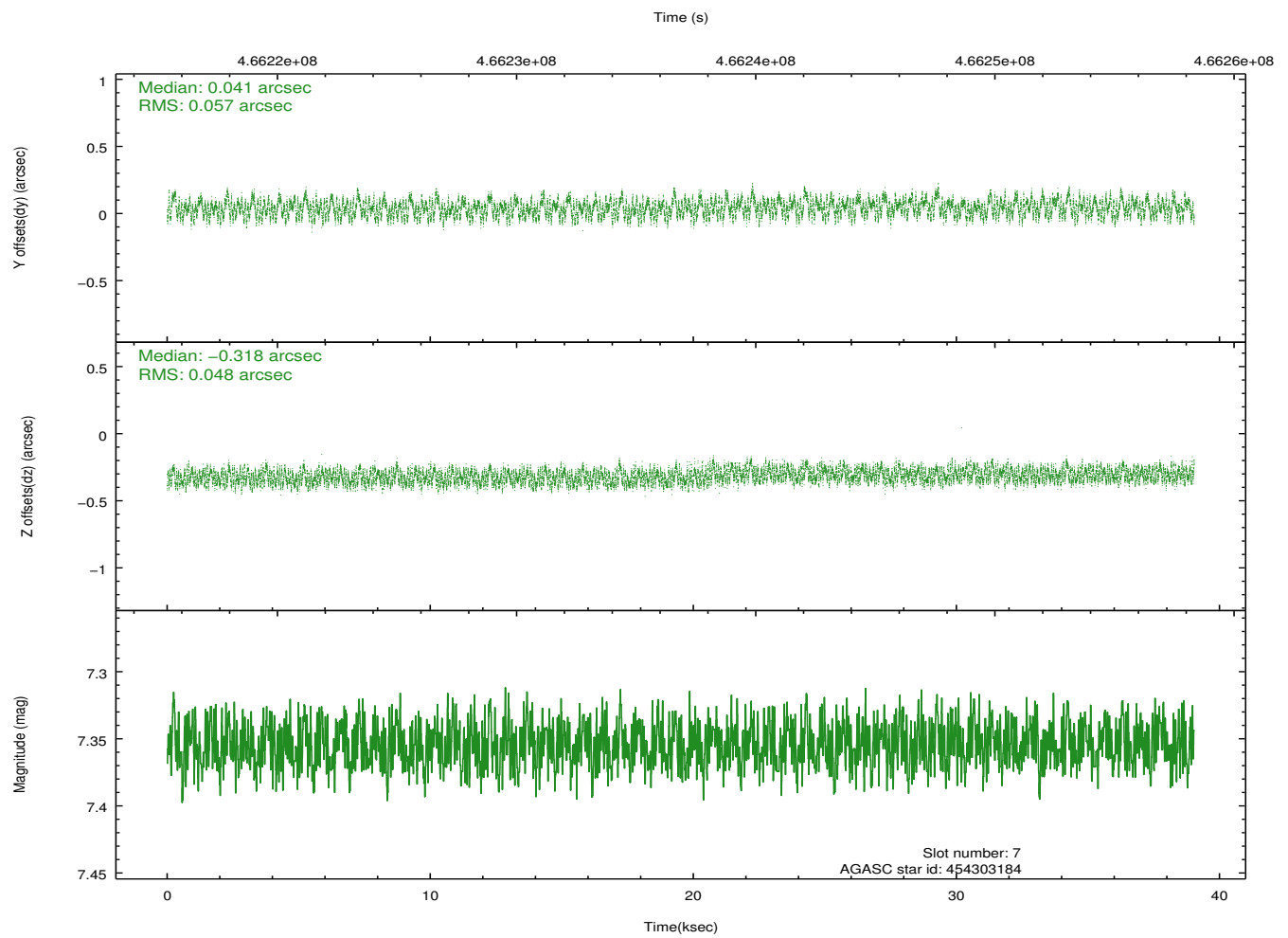
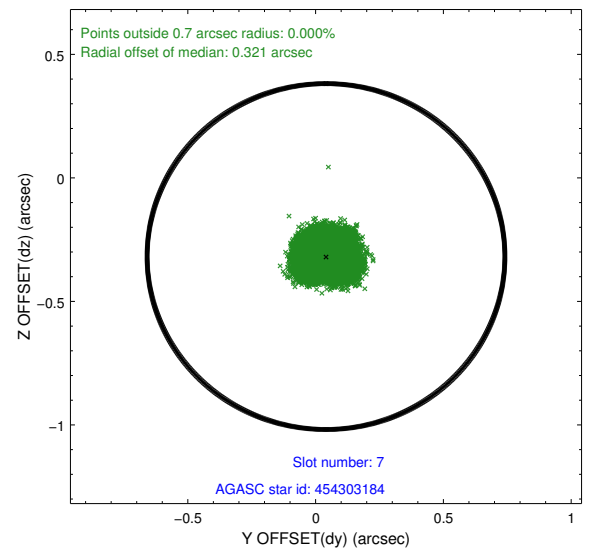
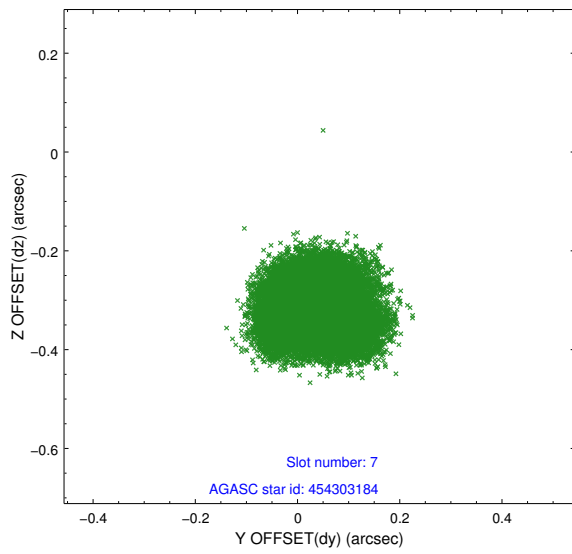
### 2.4.3 Slot 5



## 2.4.4 Slot 6

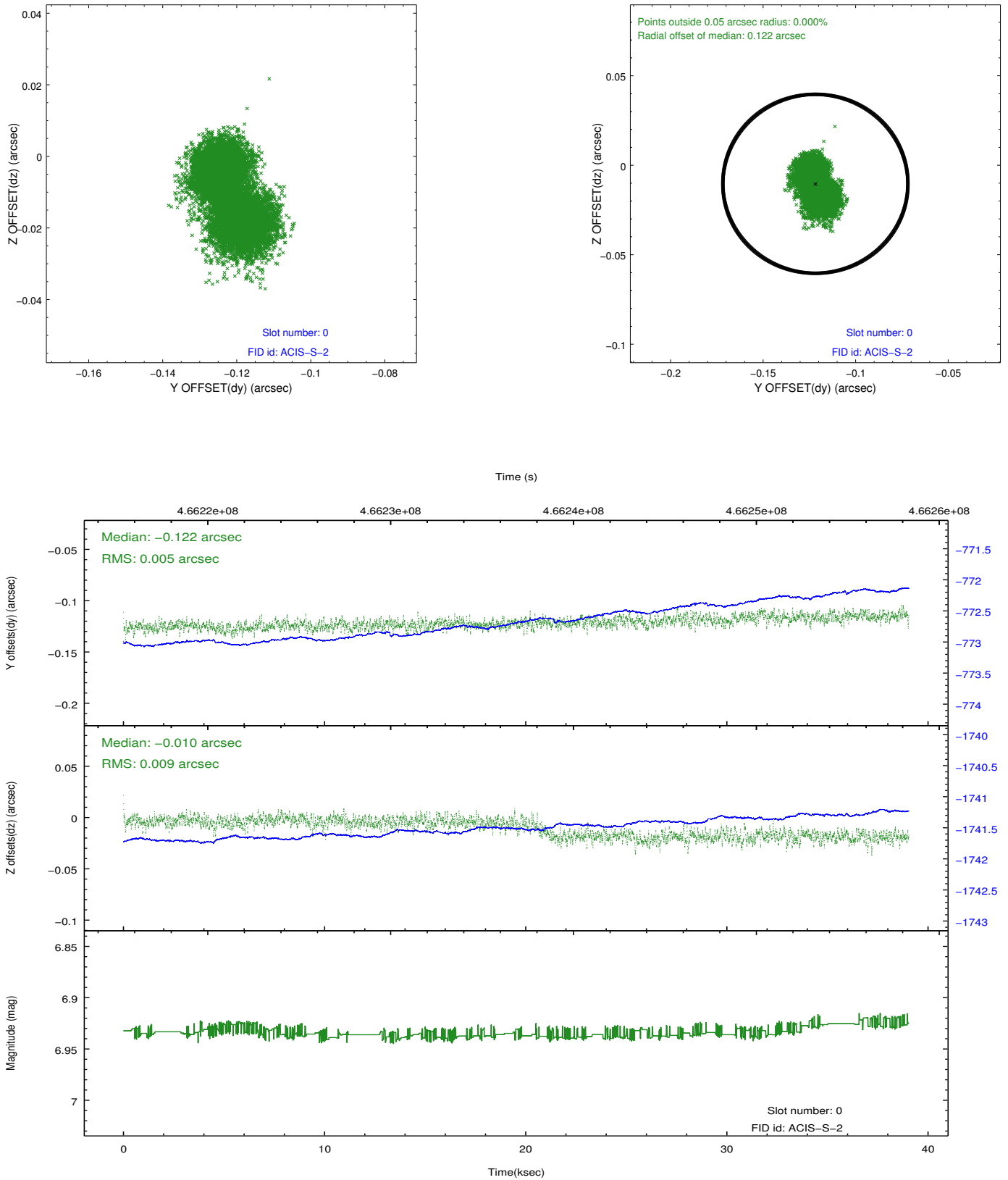


## 2.4.5 Slot 7

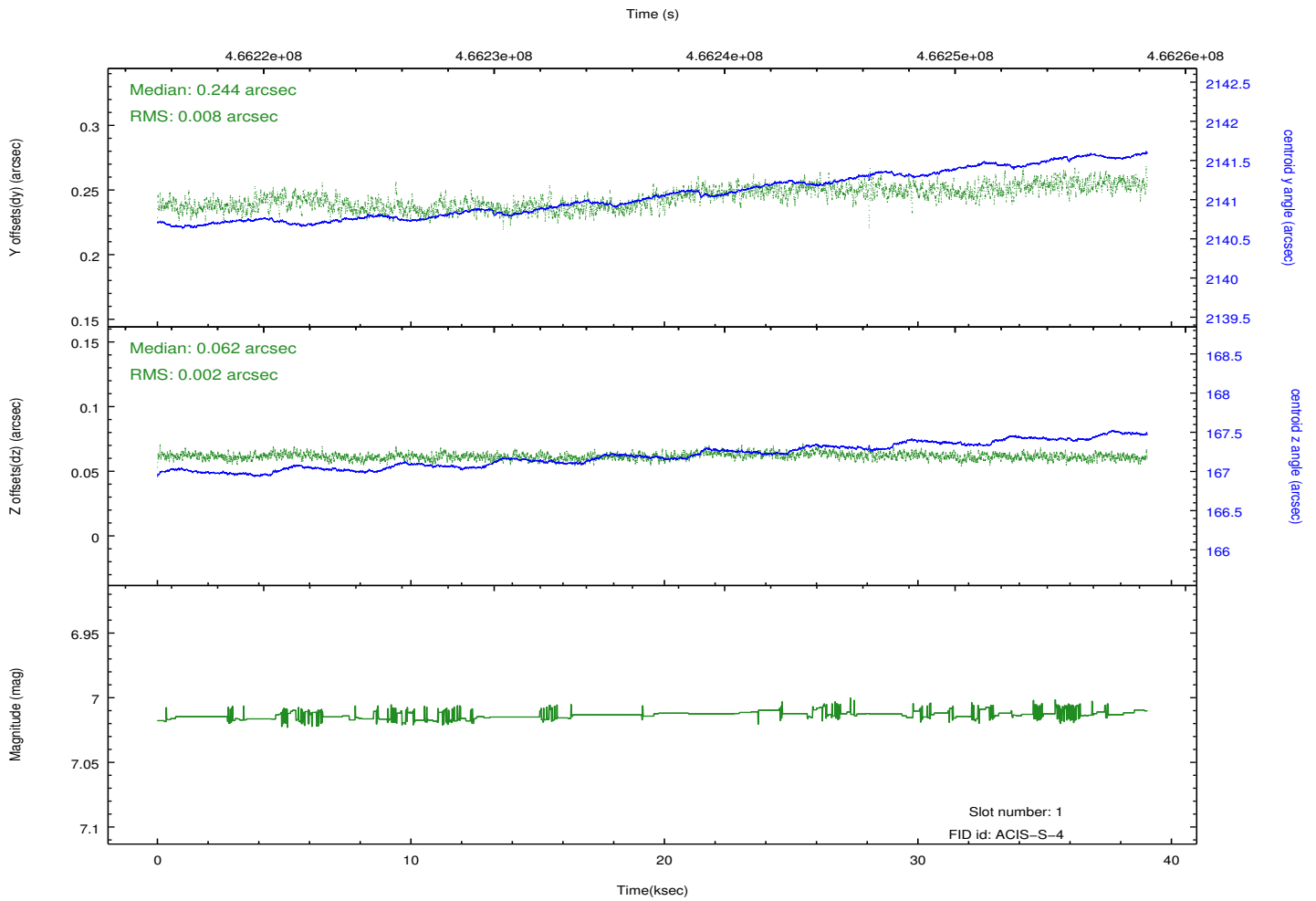
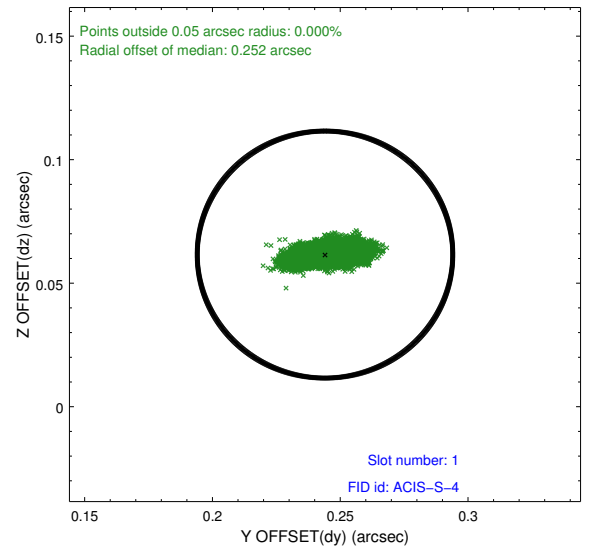
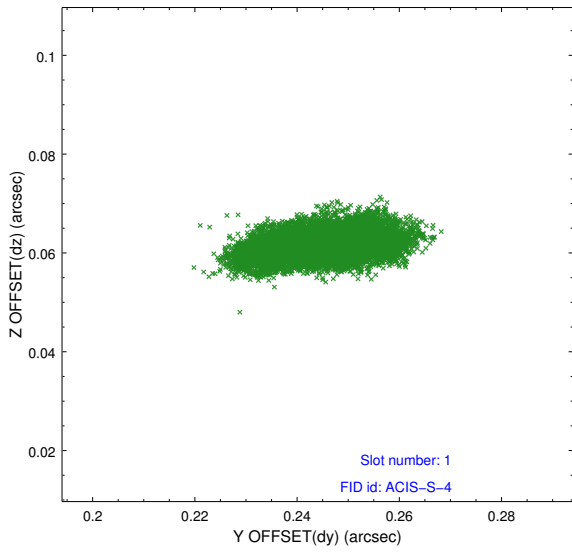


## 2.5 FID Slots

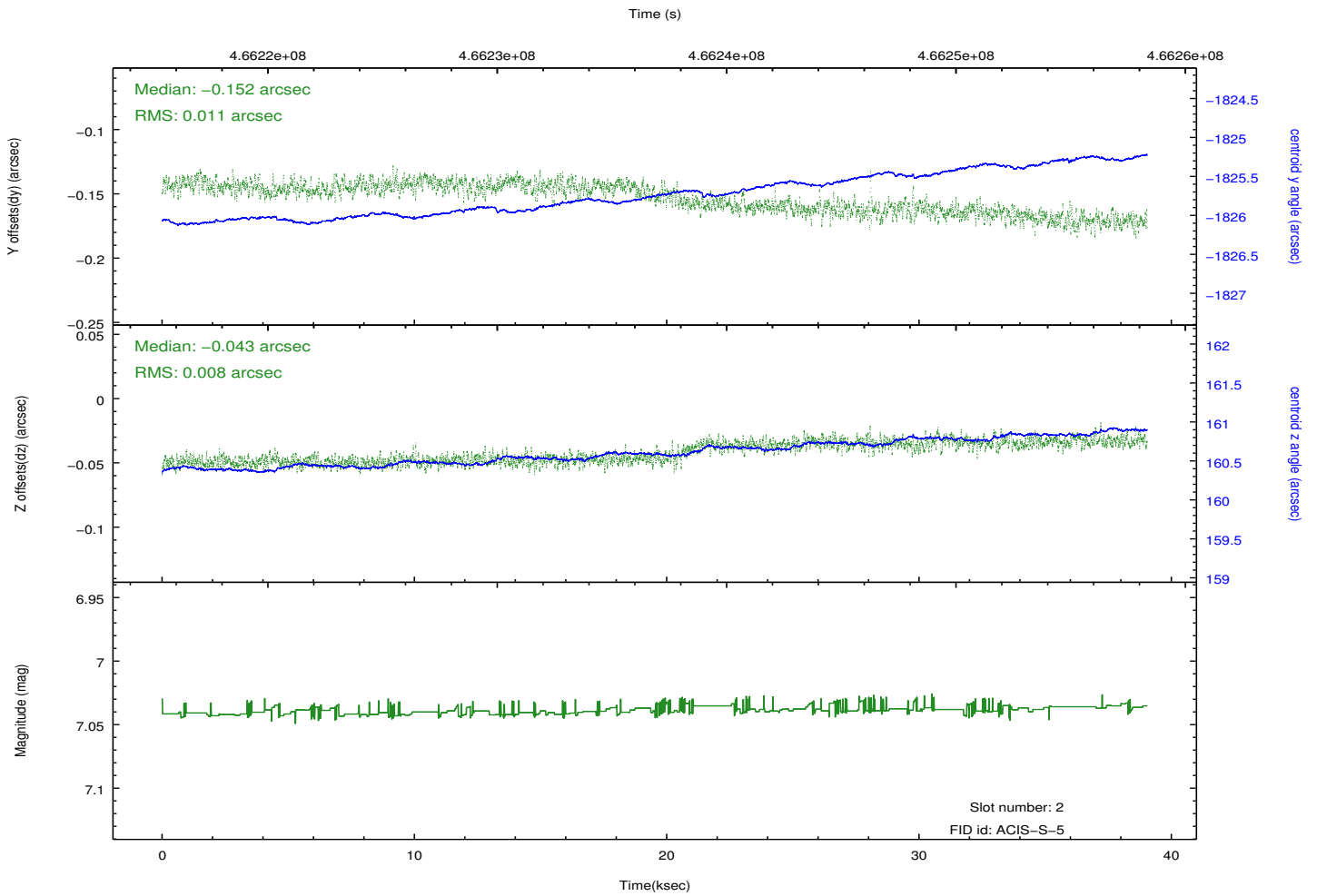
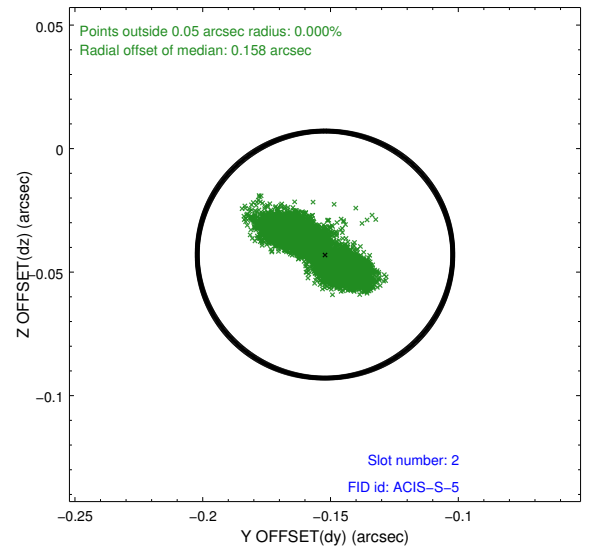
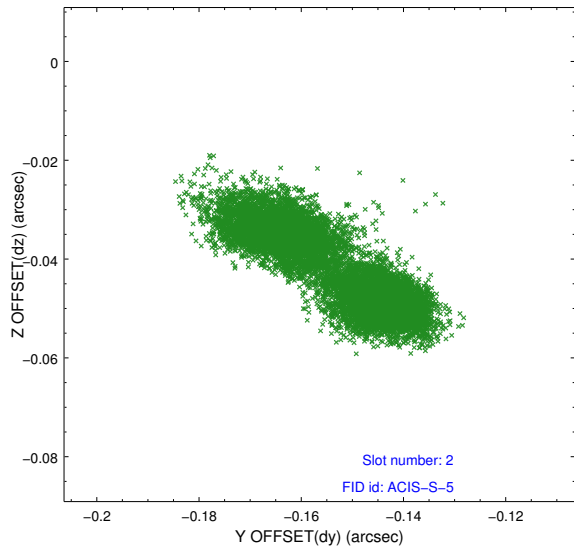
### 2.5.1 Slot 0



## 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)	2014.12.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	38.07084257561

## 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.