

V&V Reference Report

L2 ASCDS Version : 8.4.3

Observation 12464 - L2 Version 2
Chandra X-Ray Center

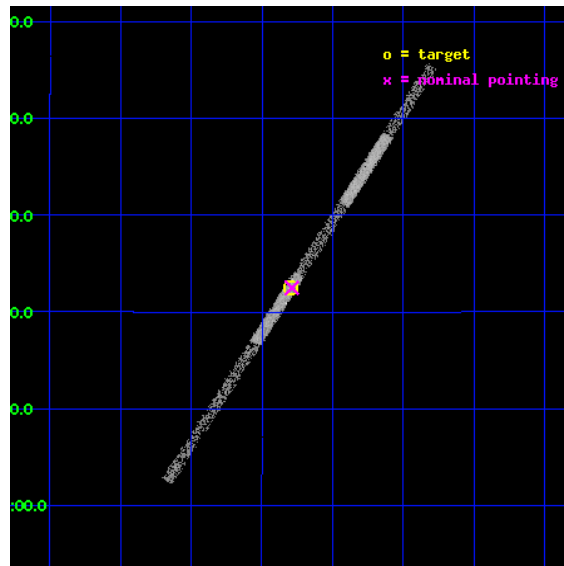
L2 Processing Date : Feb 20 2012

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1 Front

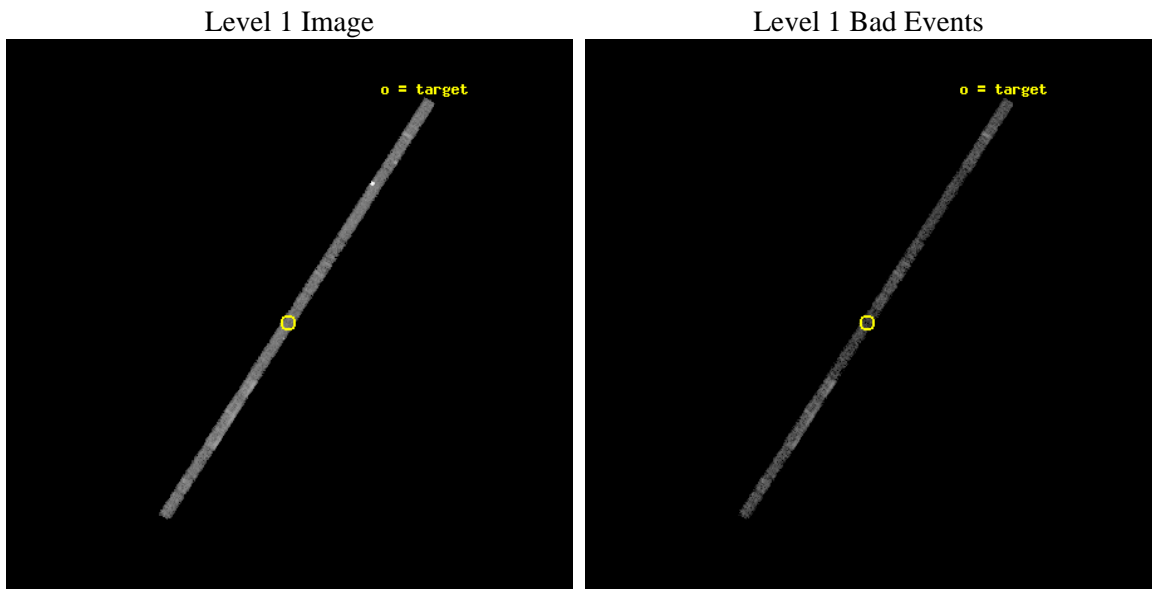
seq_num	401205	Sequence number
obs_id	12464	Observation id
title	First X-ray Observations of Four New Fermi-Associated Black-Widow Pulsars	Proposal title
observer	Prof. Maura McLaughlin	Principal investigator
object	J0023+09	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	5.825	Observer's specified target RA [deg]
dec_targ	9.375	Observer's specified target Dec [deg]
ra_nom	5.8219275763841	Nominal RA [deg]
dec_nom	9.3749571939478	Nominal Dec [deg]
roll_nom	122.85411130646	Nominal Roll [deg]
revision	2	Processing version of data
ontime	11372.799322128	Sum of GTIs [s]
livetime	3903.8855286724	Livetime [s]
ontime4	11372.799322128	Sum of GTIs [s]
ontime5	11372.799322128	Sum of GTIs [s]
ontime6	11372.799322128	Sum of GTIs [s]
ontime7	11372.799322128	Sum of GTIs [s]
ontime8	11372.799322128	Sum of GTIs [s]
ontime9	11372.799322128	Sum of GTIs [s]
l2events	7750	Number of level 2 events



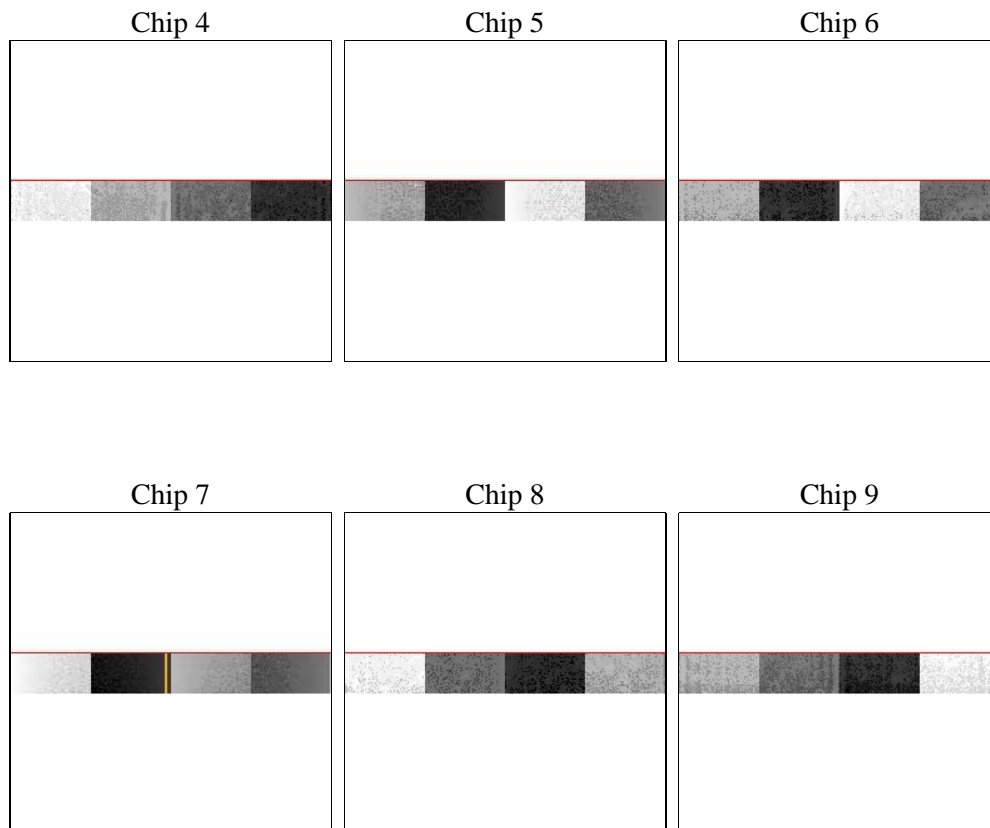
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	12000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	11372.799322128	Sum of GTIs [s]
caldbver	4.4.8	 	ontime4	11372.799322128	Sum of GTIs [s]
date	2012-02-20T23:13:11	Date and time of file creation	ontime5	11372.799322128	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	11372.799322128	Sum of GTIs [s]
			ontime7	11372.799322128	Sum of GTIs [s]
			ontime8	11372.799322128	Sum of GTIs [s]
			ontime9	11372.799322128	Sum of GTIs [s]
			l1events	53538	Number of level 1 events

2.1.4 Events

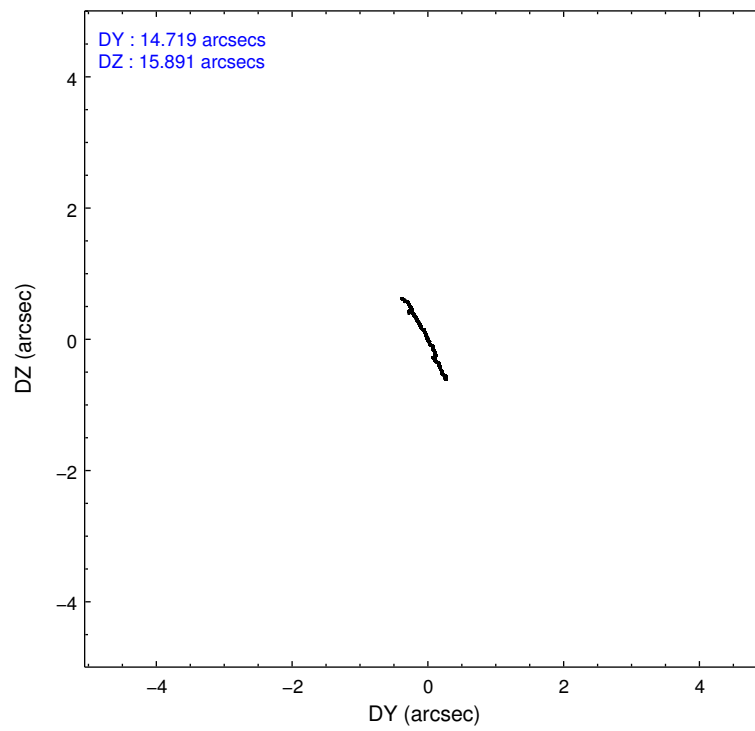
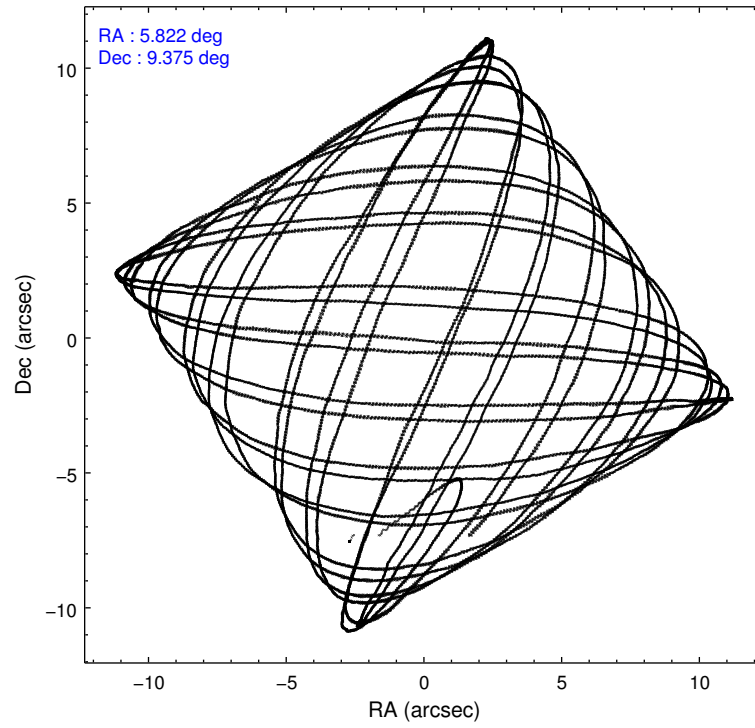
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	7515	15924	6216	6221	11599	6063
rejected events	6558	3722	5515	3553	9534	5425
rejected %	87%	23%	88%	57%	82%	89%

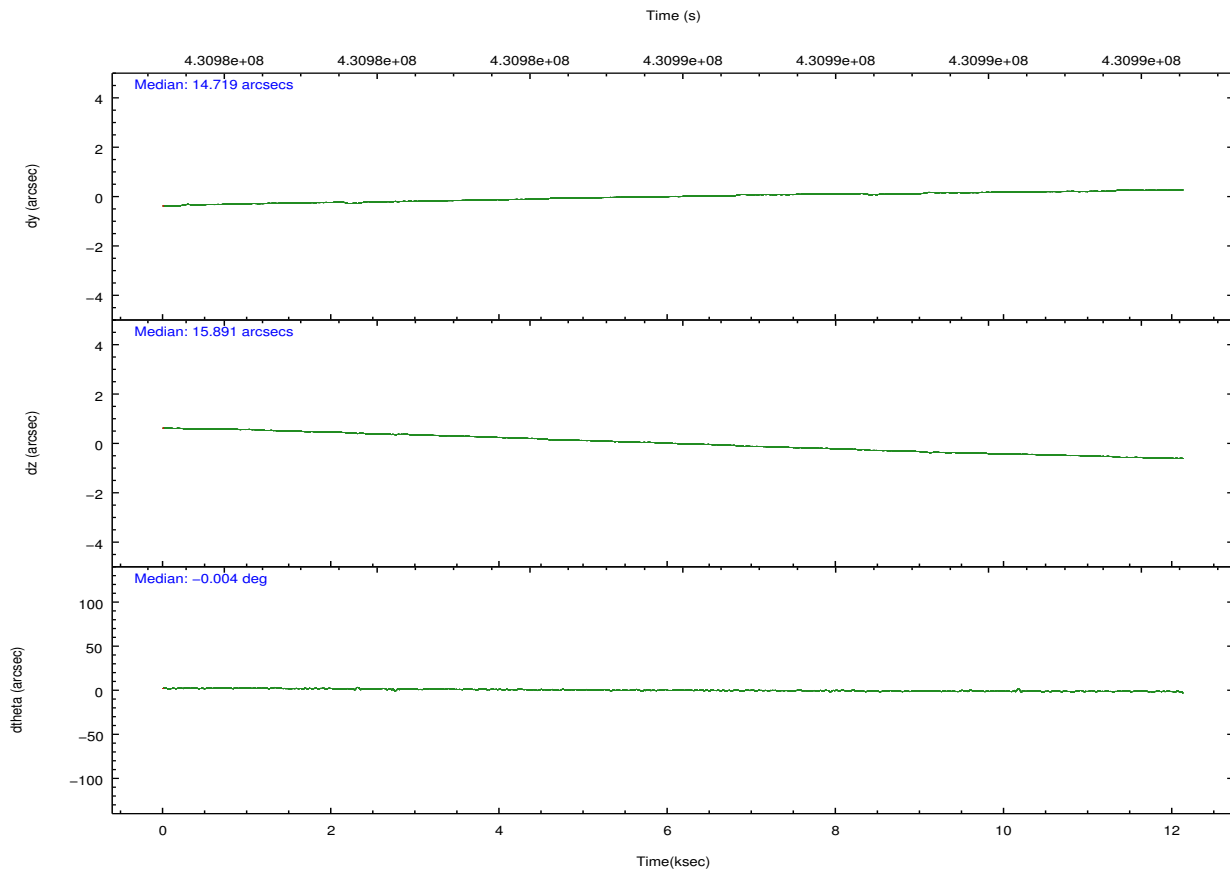
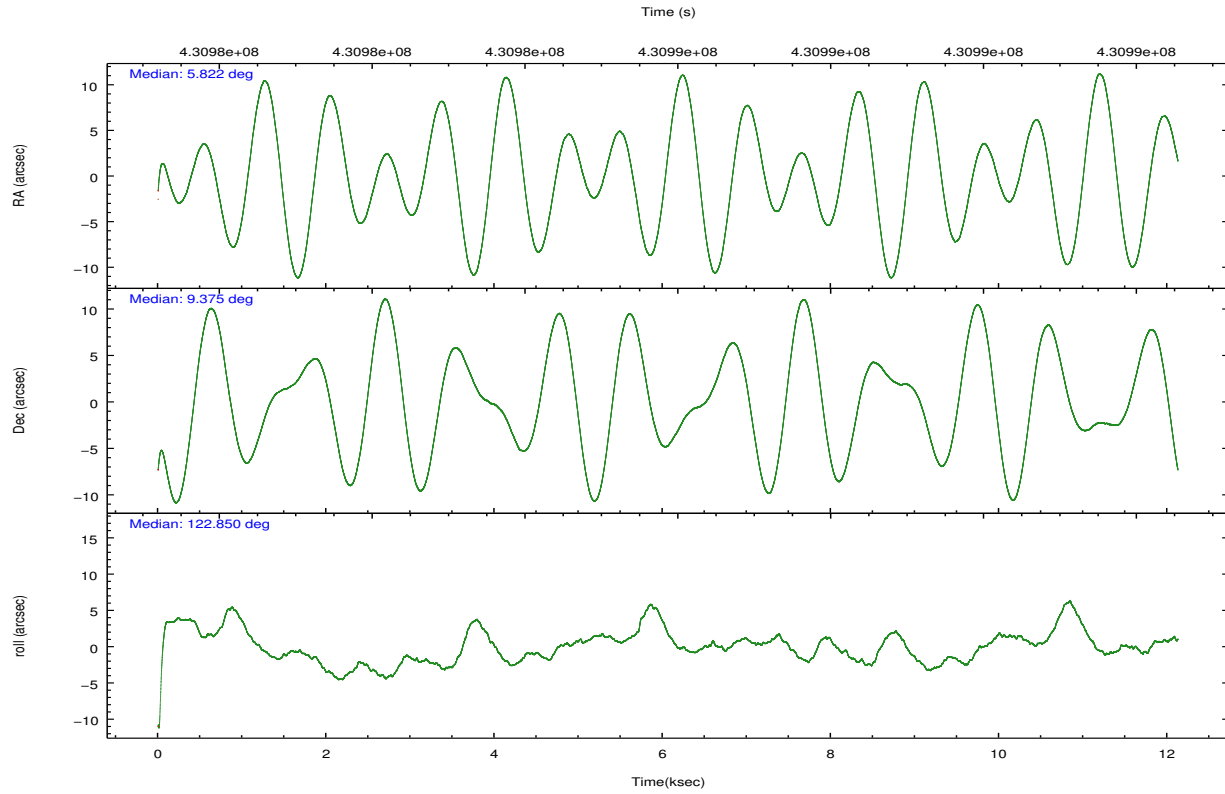
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	420	6484	163	308	394	158
	5%	40%	2%	4%	3%	2%
grade 1 events	6	17	2	7	2	1
	0%	0%	0%	0%	0%	0%
grade 2 events	139	3689	129	558	434	118
	1%	23%	2%	8%	3%	1%
grade 3 events	150	251	143	334	224	115
	1%	1%	2%	5%	1%	1%
grade 4 events	111	247	147	309	201	119
	1%	1%	2%	4%	1%	1%
grade 5 events	254	586	203	612	321	240
	3%	3%	3%	9%	2%	3%
grade 6 events	137	1537	119	1159	812	128
	1%	9%	1%	18%	7%	2%
grade 7 events	6298	3113	5310	2934	9211	5184
	83%	19%	85%	47%	79%	85%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	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	5.846762	5.821927576384137	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	9.362833	9.374957193947788	Subarray start row	449	449
[deg] Pointing Roll	122.693454	122.8541113064575	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	0.4
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	430979941.184000	430978811.57875			
Observation start date	2011-08-29T04:37:55	2011-08-29T04:20:11			
[s] Observation end time (MET)	430991941.184000	430992770.02948			
Observation end date	2011-08-29T07:57:55	2011-08-29T08:12:50			
Read mode	TIMED	TIMED			

2.3 Aspect





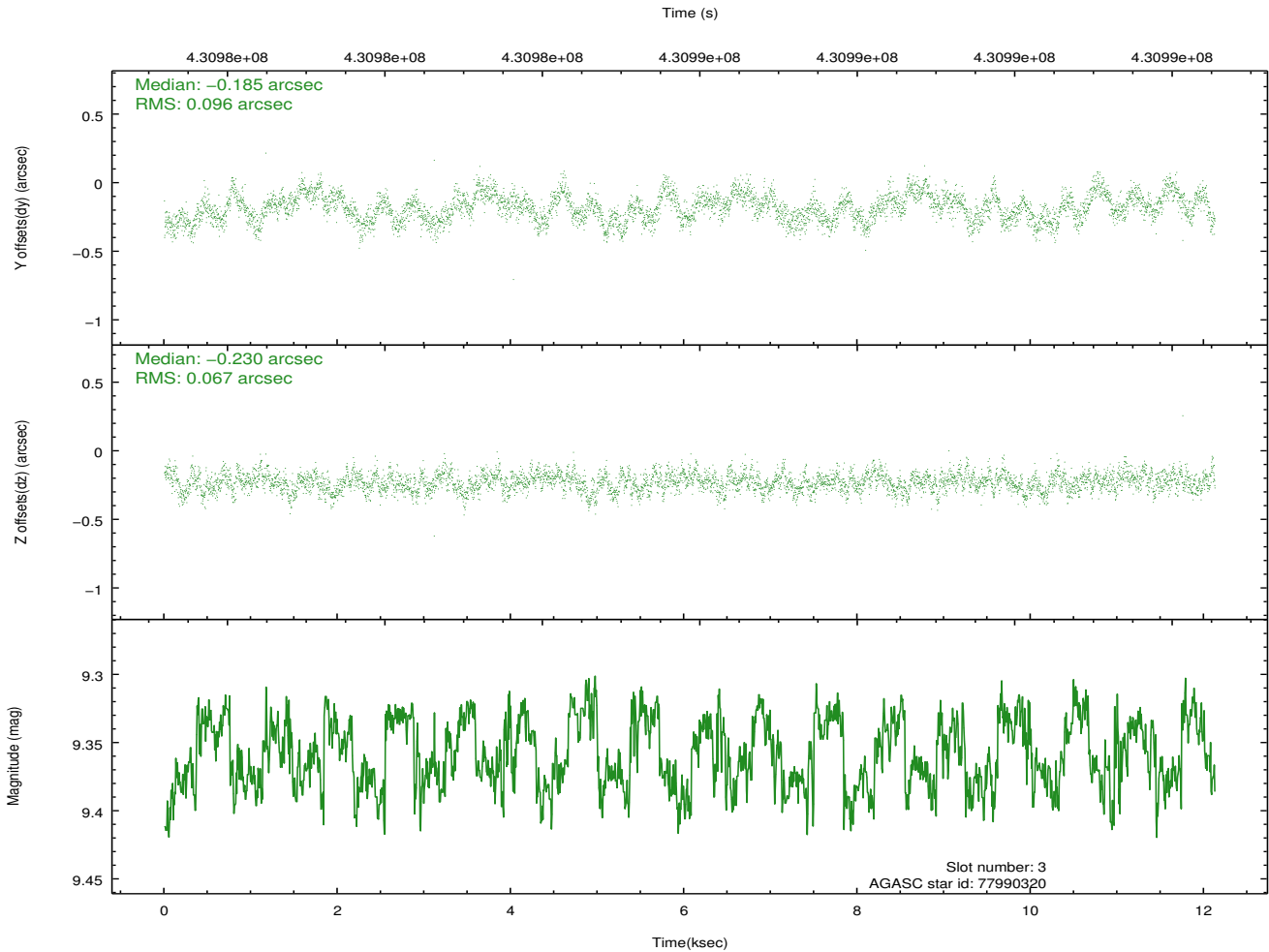
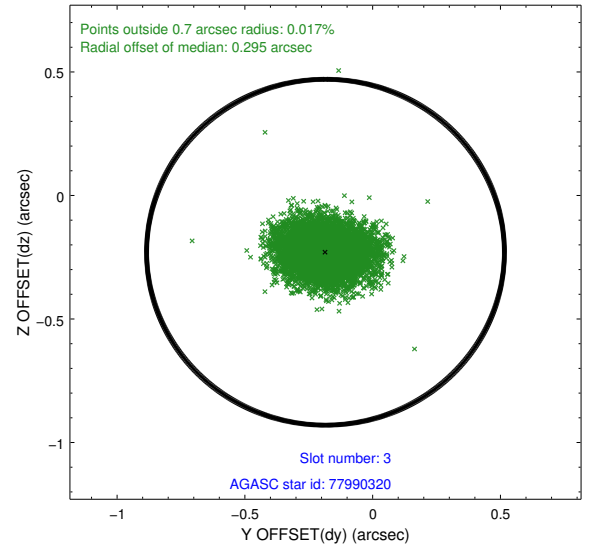
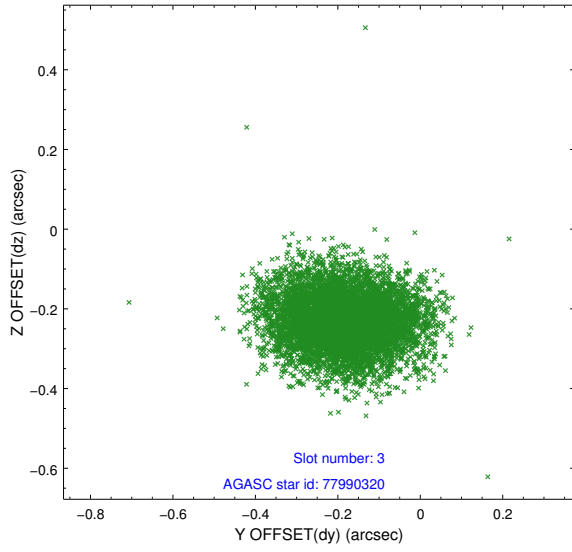
Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.89	2958	-0.105	-0.013	0.014	0.024	0.000000	0.000000	-767.77	-1737.30
1	FID	ACIS-S-4	6.98	2958	0.260	0.054	0.009	0.015	0.000000	0.000000	2145.69	170.80
2	FID	ACIS-S-5	7.01	2958	-0.188	-0.033	0.012	0.020	0.000000	0.000000	-1820.16	164.88
3	GUIDE	77990320	9.36	5898	-0.185	-0.230	0.126	0.202	5.063398	9.526426	1998.62	2019.38
4	GUIDE	78120992	8.91	5906	0.111	0.197	0.105	0.167	5.942530	9.618887	590.65	-783.10
5	GUIDE	78122976	9.22	5905	-0.055	-0.140	0.120	0.189	5.365325	9.007528	-151.59	2130.48
6	GUIDE	78128936	8.63	5914	-0.061	-0.197	0.086	0.137	5.980713	9.027947	-1271.64	250.54
7	GUIDE	78125632	8.73	5892	0.190	0.373	0.080	0.129	6.329588	9.068017	-1819.09	-871.49

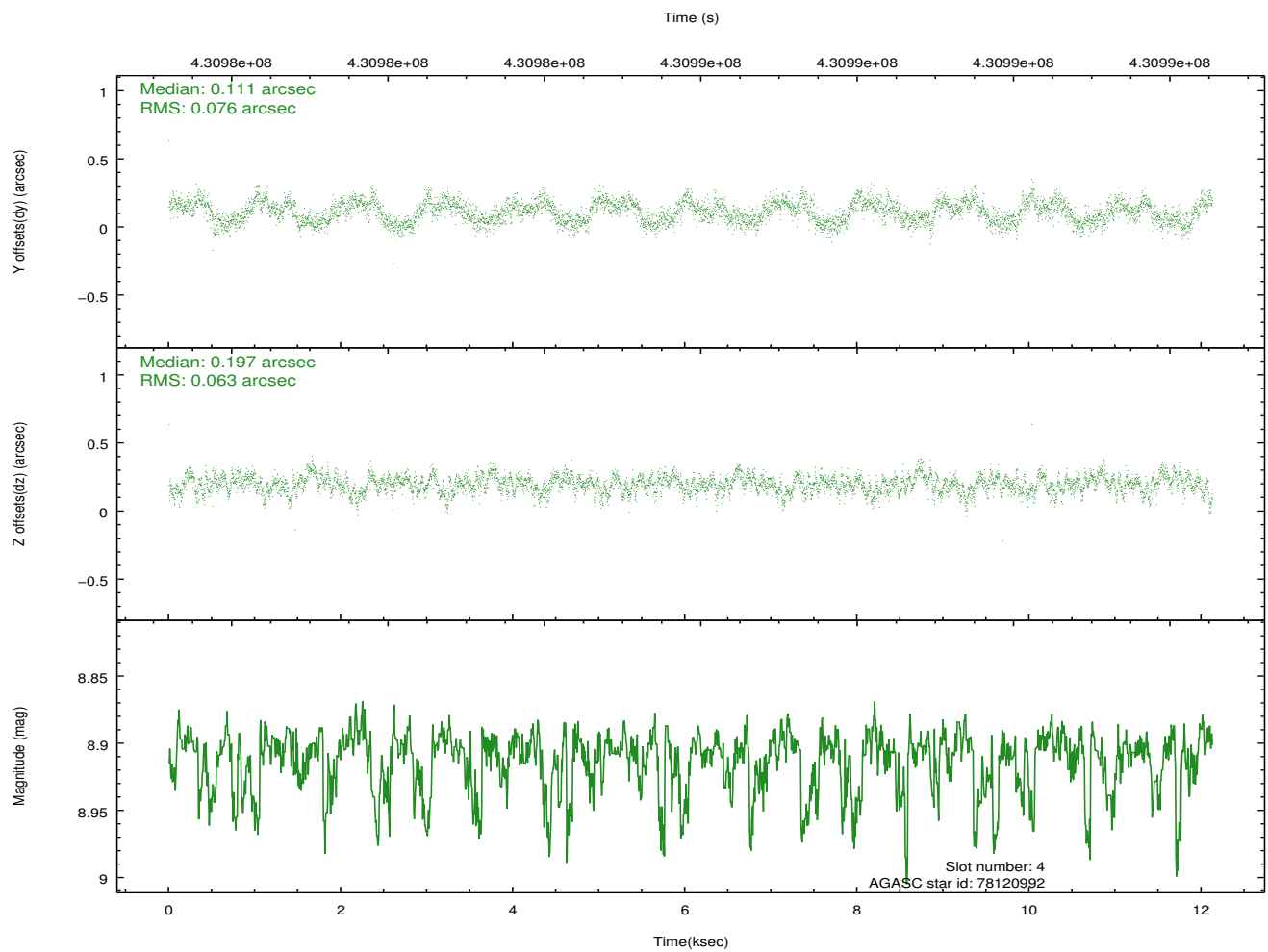
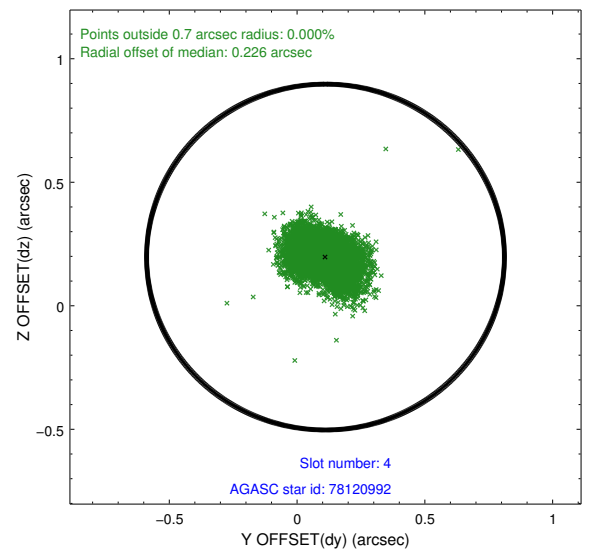
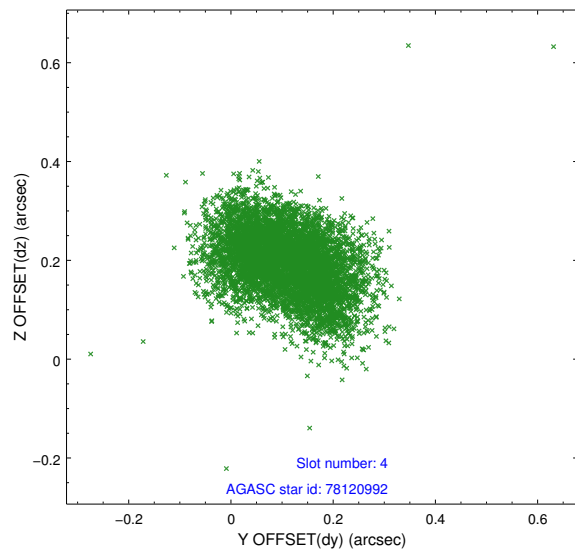
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2.4 Star Slots

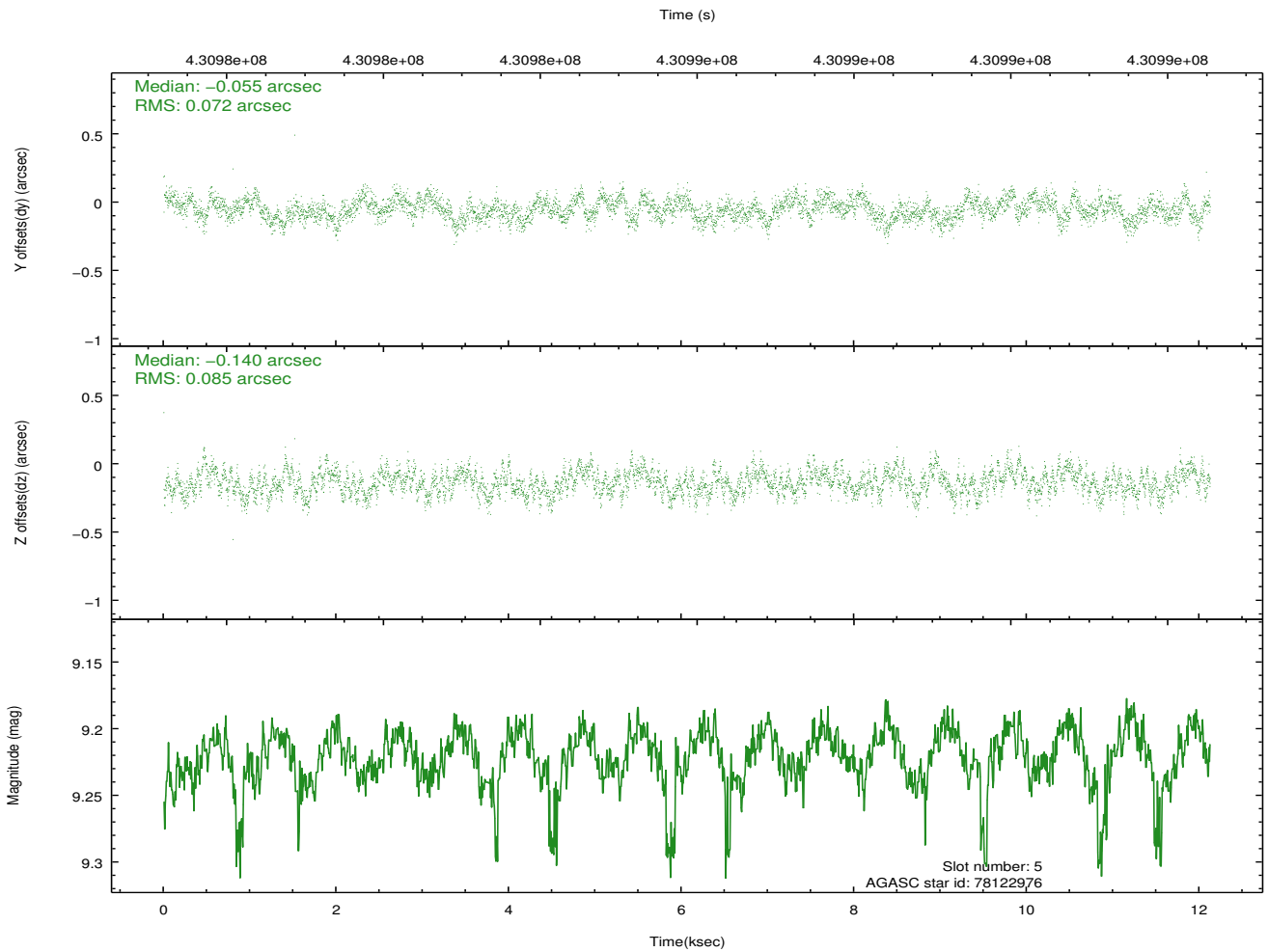
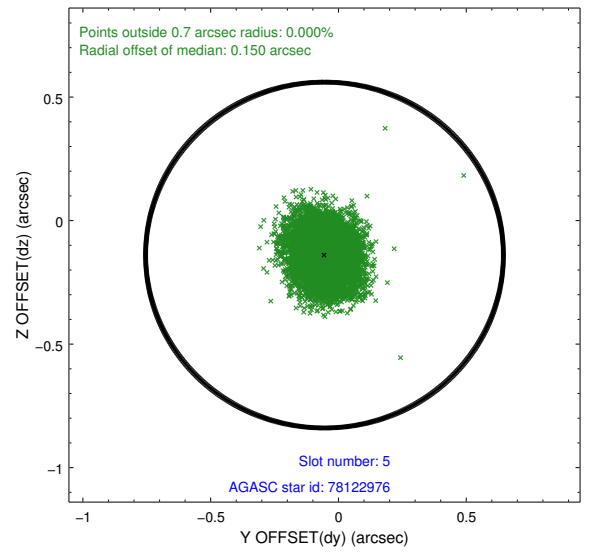
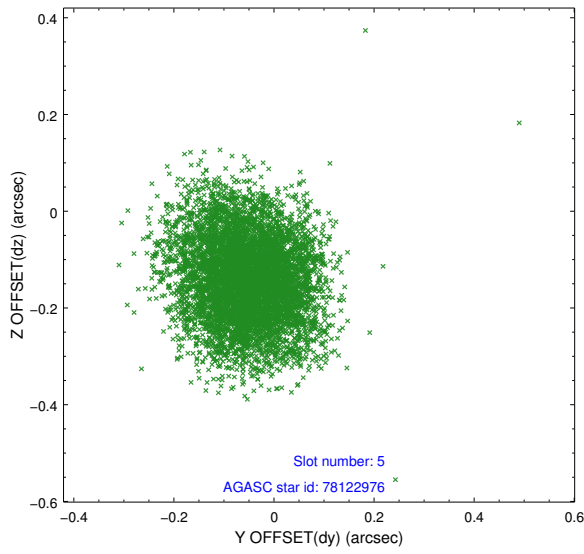
2.4.1 Slot 3



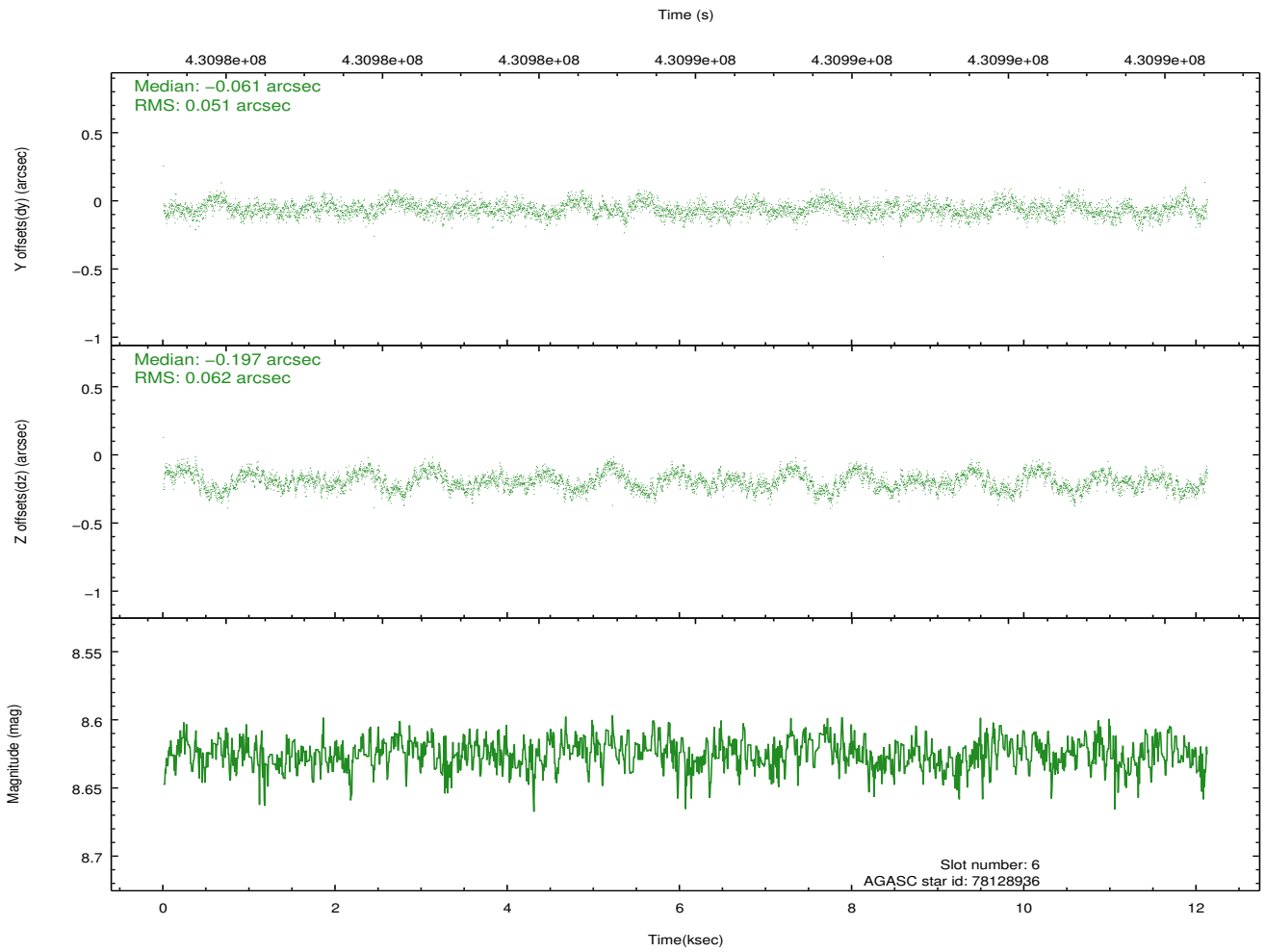
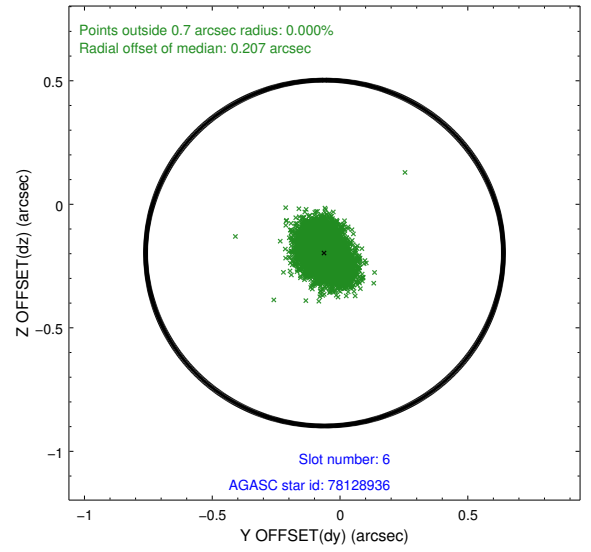
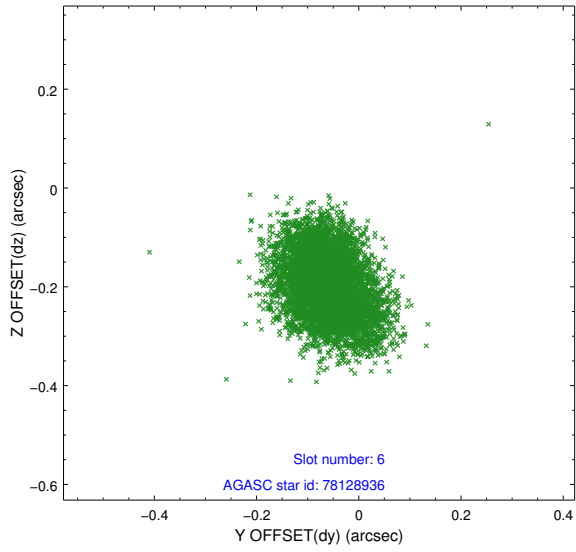
2.4.2 Slot 4



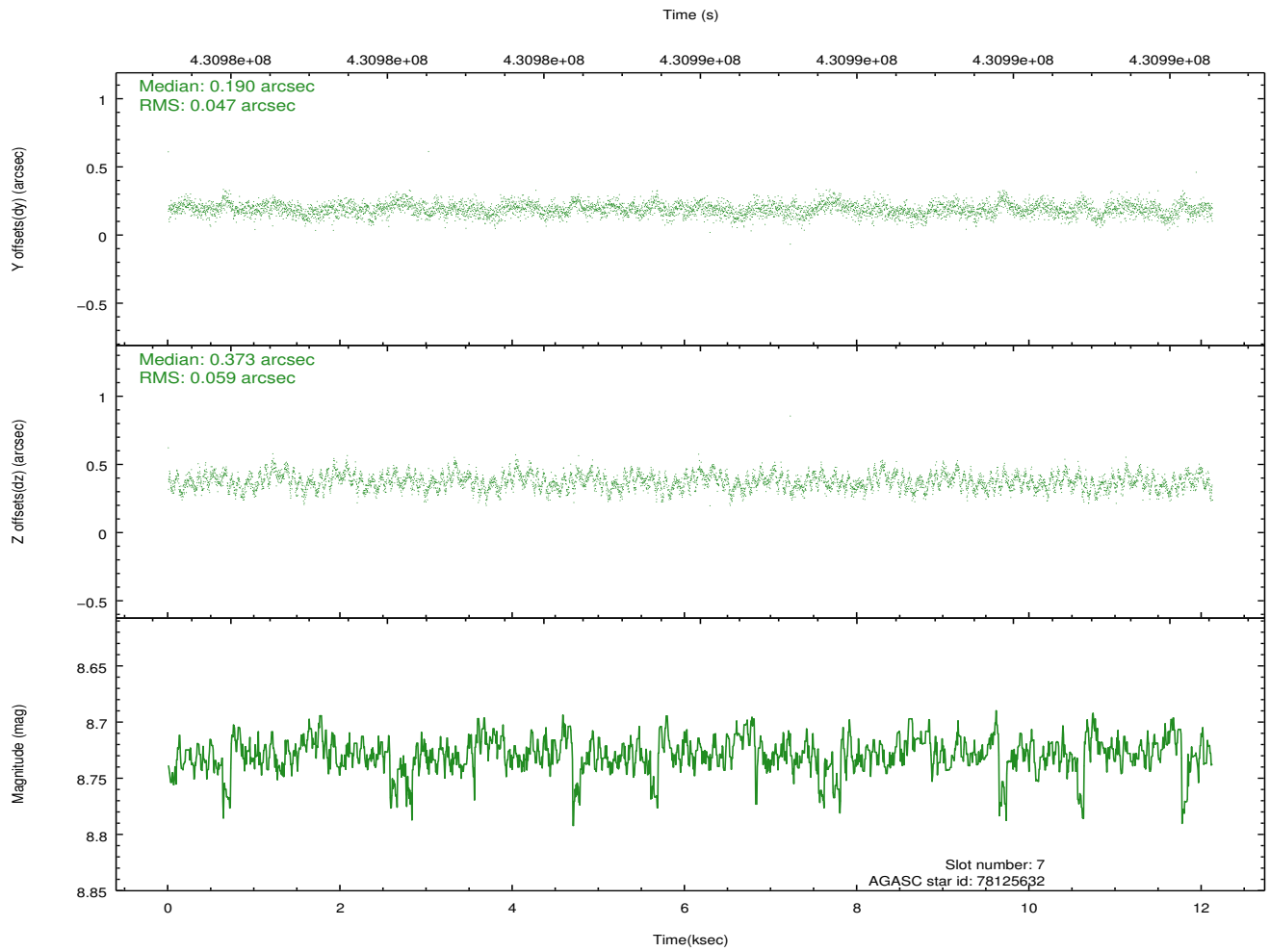
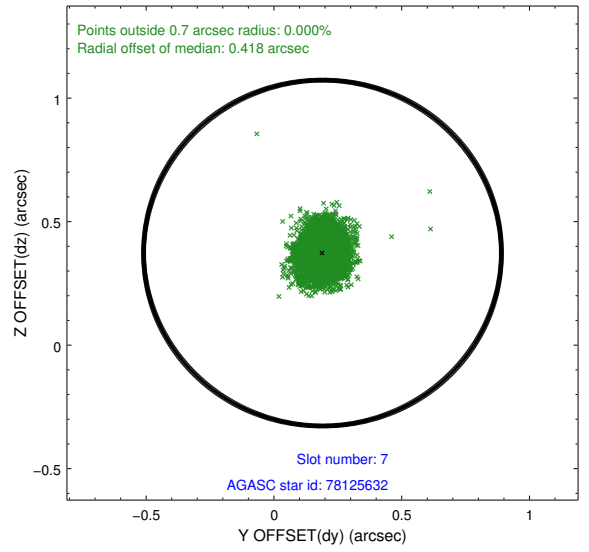
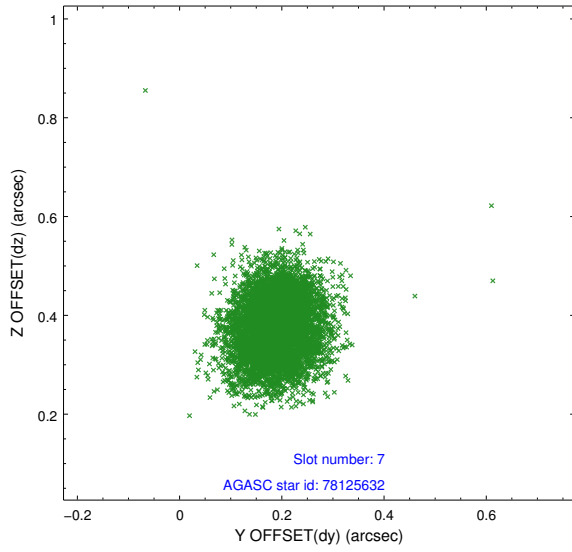
2.4.3 Slot 5



2.4.4 Slot 6

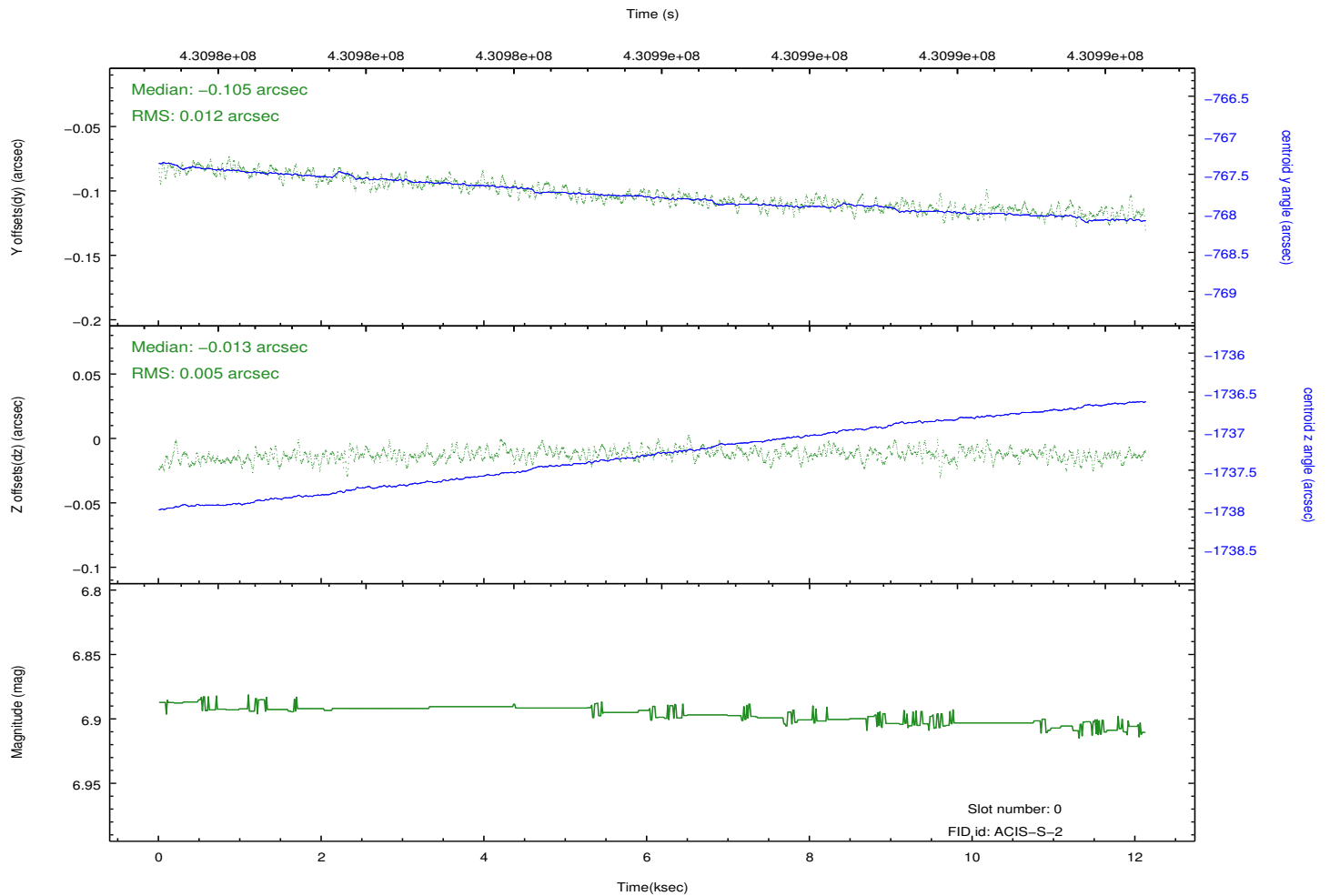
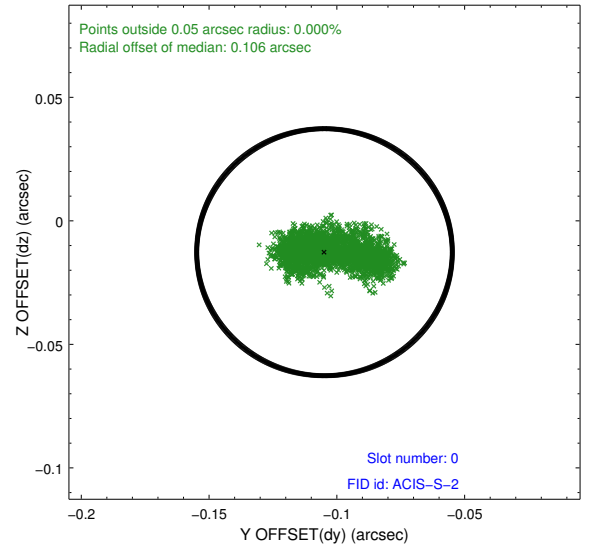
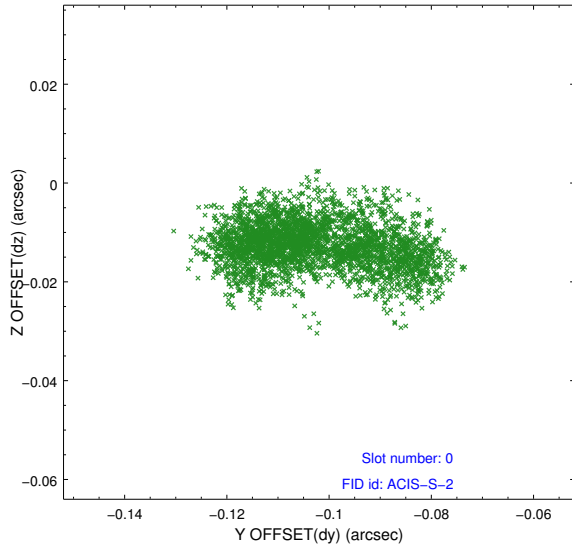


2.4.5 Slot 7

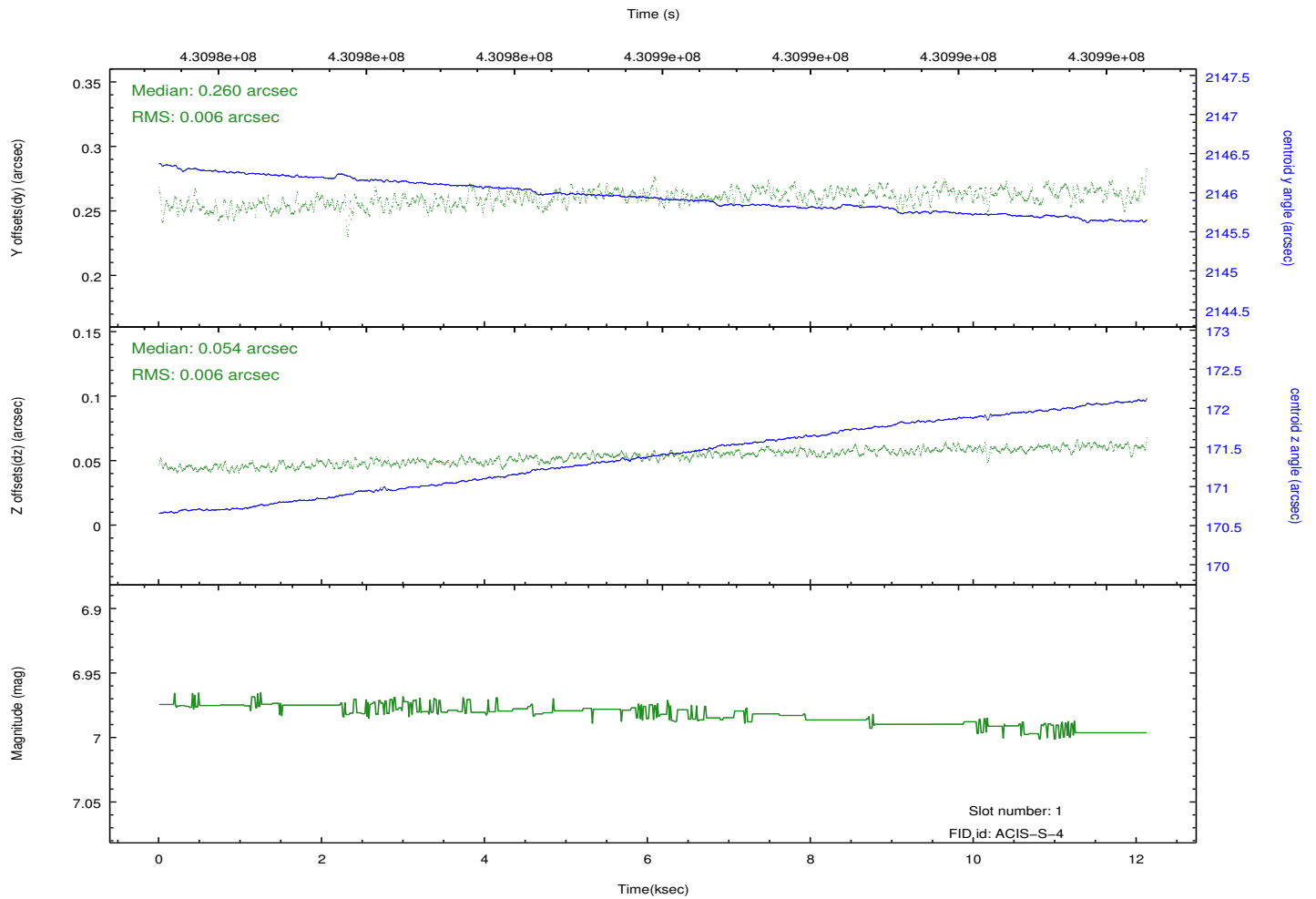
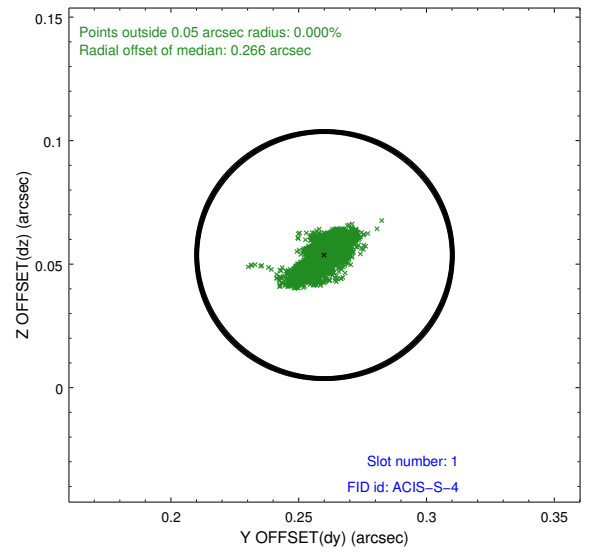
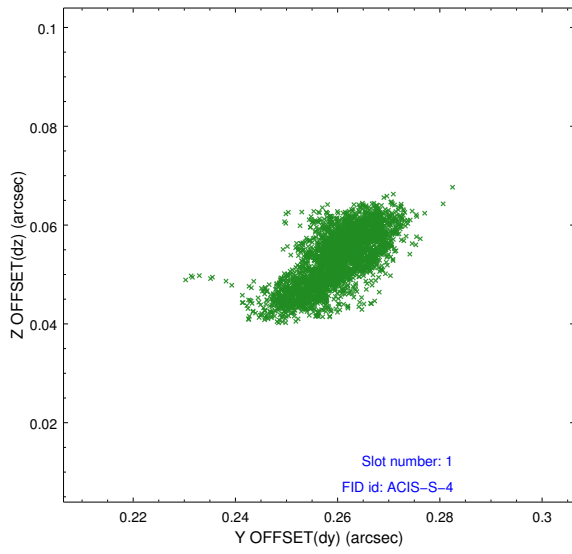


2.5 FID Slots

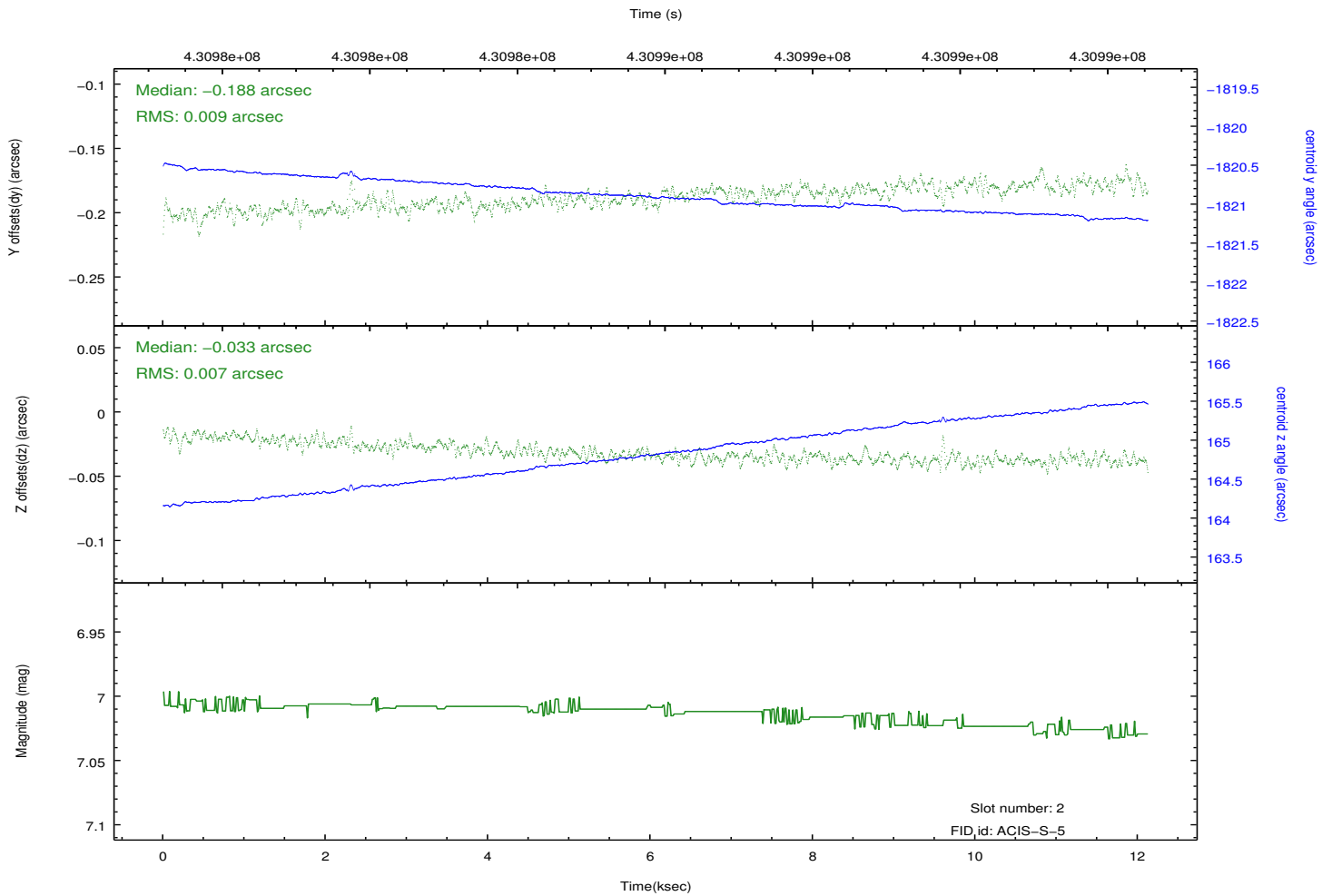
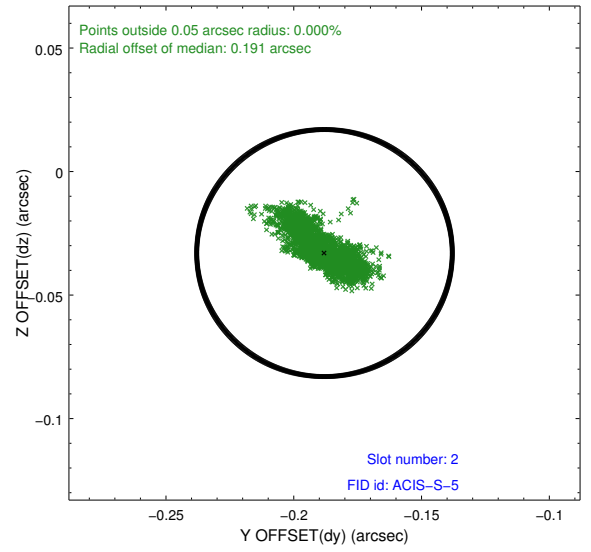
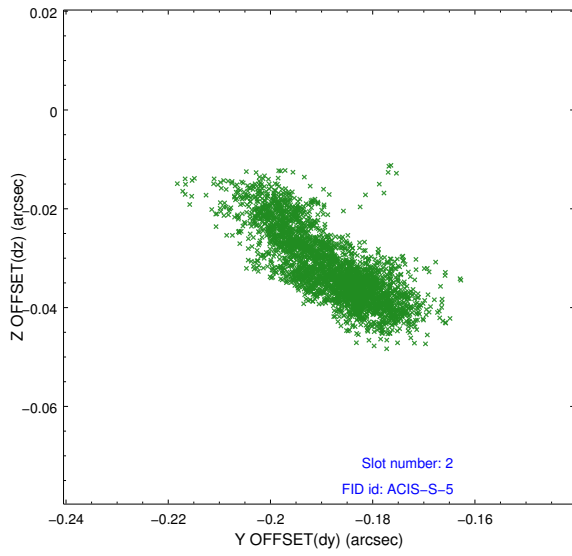
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2012.02.22
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	11.372799

A.2 Comments

The livetime for each chip is about 3.9 ks instead of 12 ks for each chip because the use of a 0.4 s frame time for the selection of chips and rows used during the observation is shorter than the time it takes to read out one frame of data. The formula in section 6.12.1 of the POG: http://asc.harvard.edu/proposer/POG/html/chap6.html#tth_sEc6.12.1 indicates that the frame time must be at least 0.7 s to avoid 'flushing' the detector before each frame of data is collected. The time required to flush the detector is specified on p. 120 of the ACIS Science Instrument Software User's Guide: <http://acis.mit.edu/swuserA/swuser.pdf> Events that occur during such a flush are discarded onboard. The flush time is effectively 'dead time.' For this reason, most of the 12 ks of the observation was spent flushing the detectors instead of collecting data. Had the frame time been 0.7 s or longer, or had only one chip been used, there would have been about 11.37 ks of exposure instead of only about 3.9 ks. ===== The sub-array frame is 0.4414 seconds, followed by a 0.72424 flush frame, so the user is getting: $0.4/(0.4414+0.72424)$ as their fractional efficiency.