

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1773 - L2 Version 5
Chandra X-Ray Center

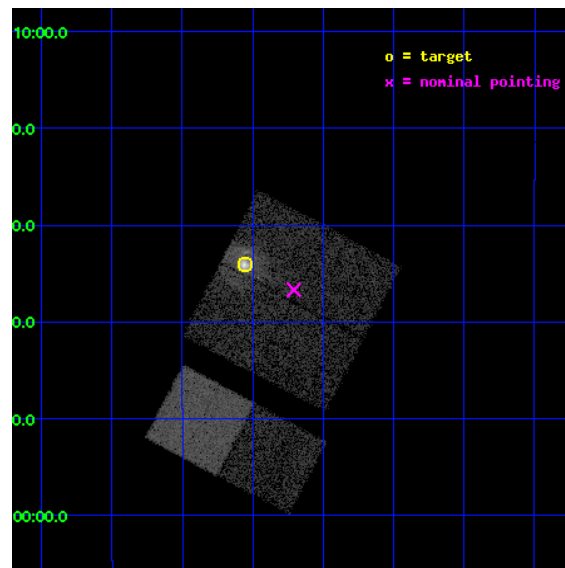
L2 Processing Date : Aug 30 2012

Contents

1	Front	2
2	OBI	3
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
A	Summary	17
A.1	Status	17
A.2	Comments	17

1 Front

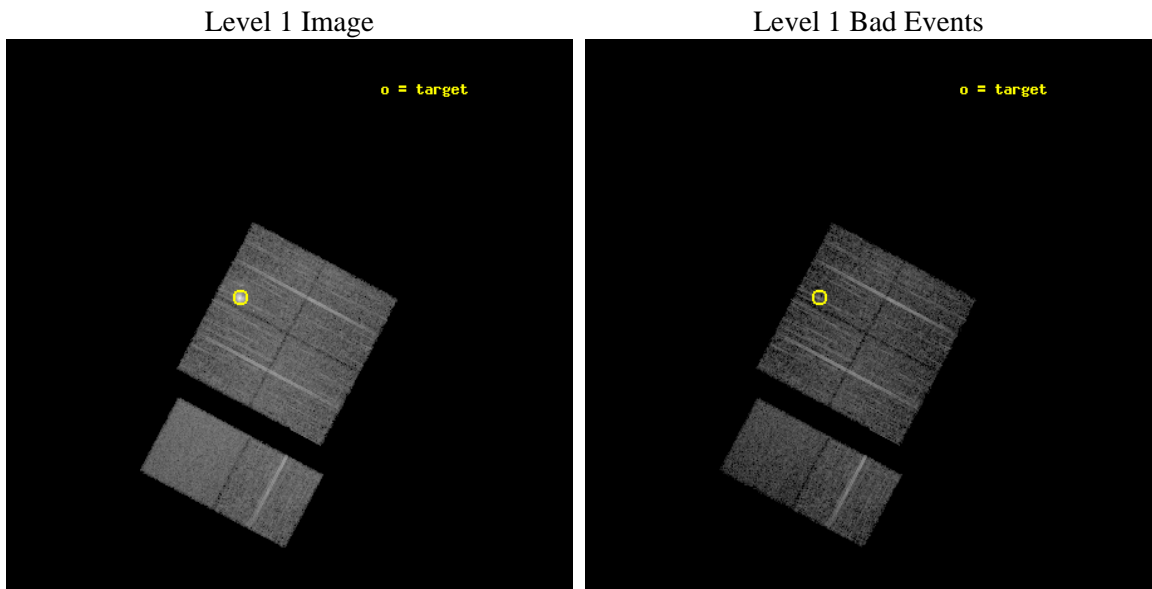
seq_num	590199	Sequence number
obs_id	1773	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip I1, T=110, Offsets=-5,0,-1]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.30196698826	Nominal RA [deg]
dec_nom	-10.611546311939	Nominal Dec [deg]
roll_nom	207.87174266115	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7314.8013248742	Sum of GTIs [s]
livetime	7222.176906054	Livetime [s]
ontime0	7314.7602848709	Sum of GTIs [s]
ontime1	7314.8013248742	Sum of GTIs [s]
ontime2	7314.8423648775	Sum of GTIs [s]
ontime3	7314.8834048659	Sum of GTIs [s]
ontime6	7314.9654848725	Sum of GTIs [s]
ontime7	7314.9244448692	Sum of GTIs [s]
l2events	63953	Number of level 2 events



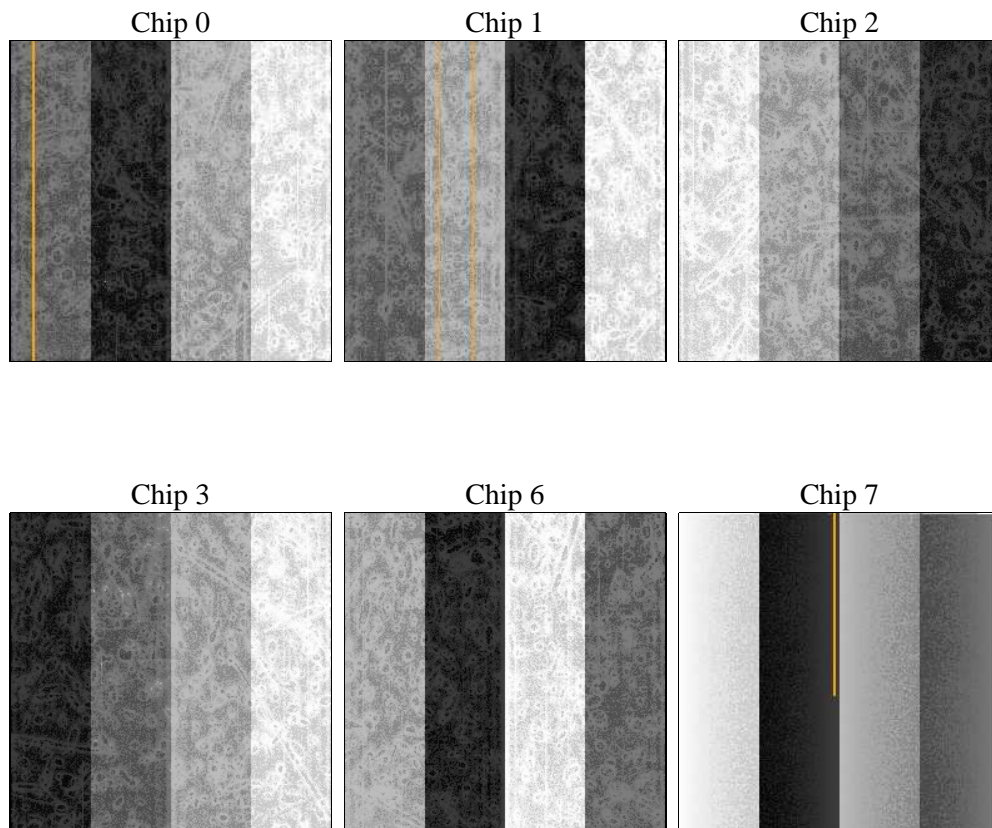
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7560.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7314.8013248742	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime0	7314.7602848709	Sum of GTIs [s]
date	2012-08-30T03:42:05	Date and time of file creation	ontime1	7314.8013248742	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7314.8423648775	Sum of GTIs [s]
			ontime3	7314.8834048659	Sum of GTIs [s]
			ontime6	7314.9654848725	Sum of GTIs [s]
			ontime7	7314.9244448692	Sum of GTIs [s]
			l1events	328307	Number of level 1 events

2.1.4 Events

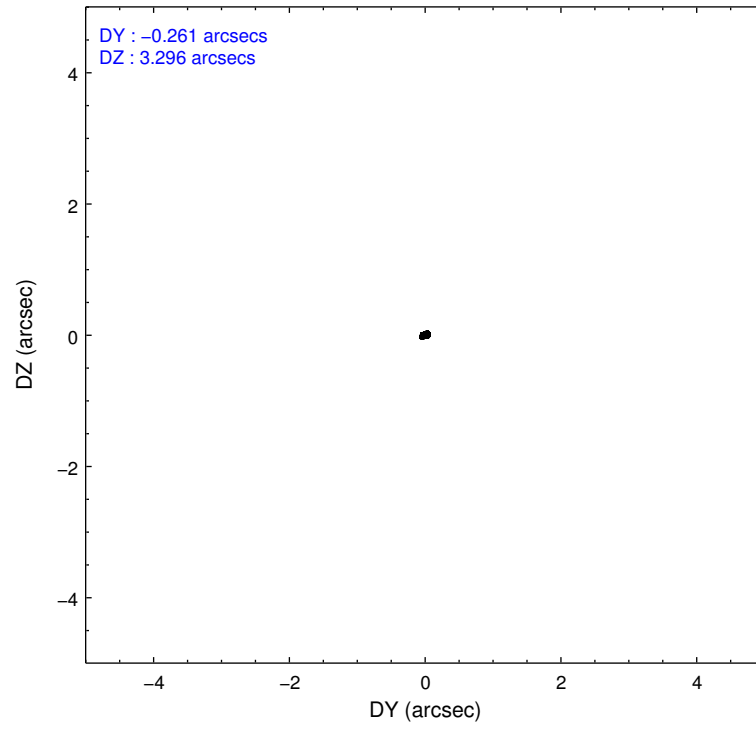
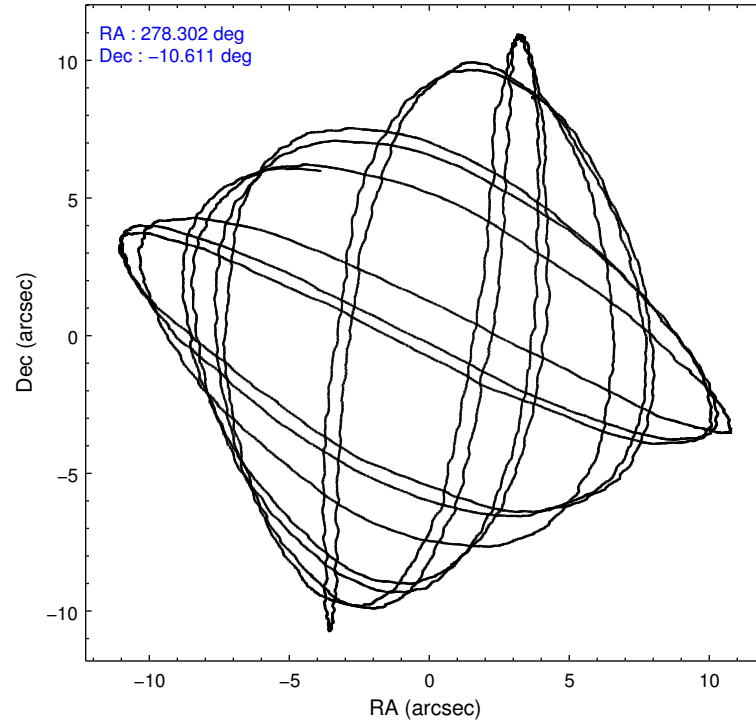
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	45535	68908	51643	52767	52949	56505	grade 0 events	1463	15887	1136	1904	1028	1153
rejected events	40052	42405	46580	46519	47682	35380		3%	23%	2%	3%	1%	2%
rejected %	87%	61%	90%	88%	90%	62%	grade 1 events	14	110	15	17	6	34
								0%	0%	0%	0%	0%	0%
							grade 2 events	2059	5335	2048	2314	2106	4509
								4%	7%	3%	4%	3%	7%
							grade 3 events	384	1280	325	360	339	1256
								0%	1%	0%	0%	0%	2%
							grade 4 events	338	1319	334	325	303	1087
								0%	1%	0%	0%	0%	1%
							grade 5 events	1010	1246	919	1118	1243	3497
								2%	1%	1%	2%	2%	6%
							grade 6 events	1242	2693	1222	1351	1492	13132
								2%	3%	2%	2%	2%	23%
							grade 7 events	39025	41038	45644	45378	46432	31837
								85%	59%	88%	85%	87%	56%

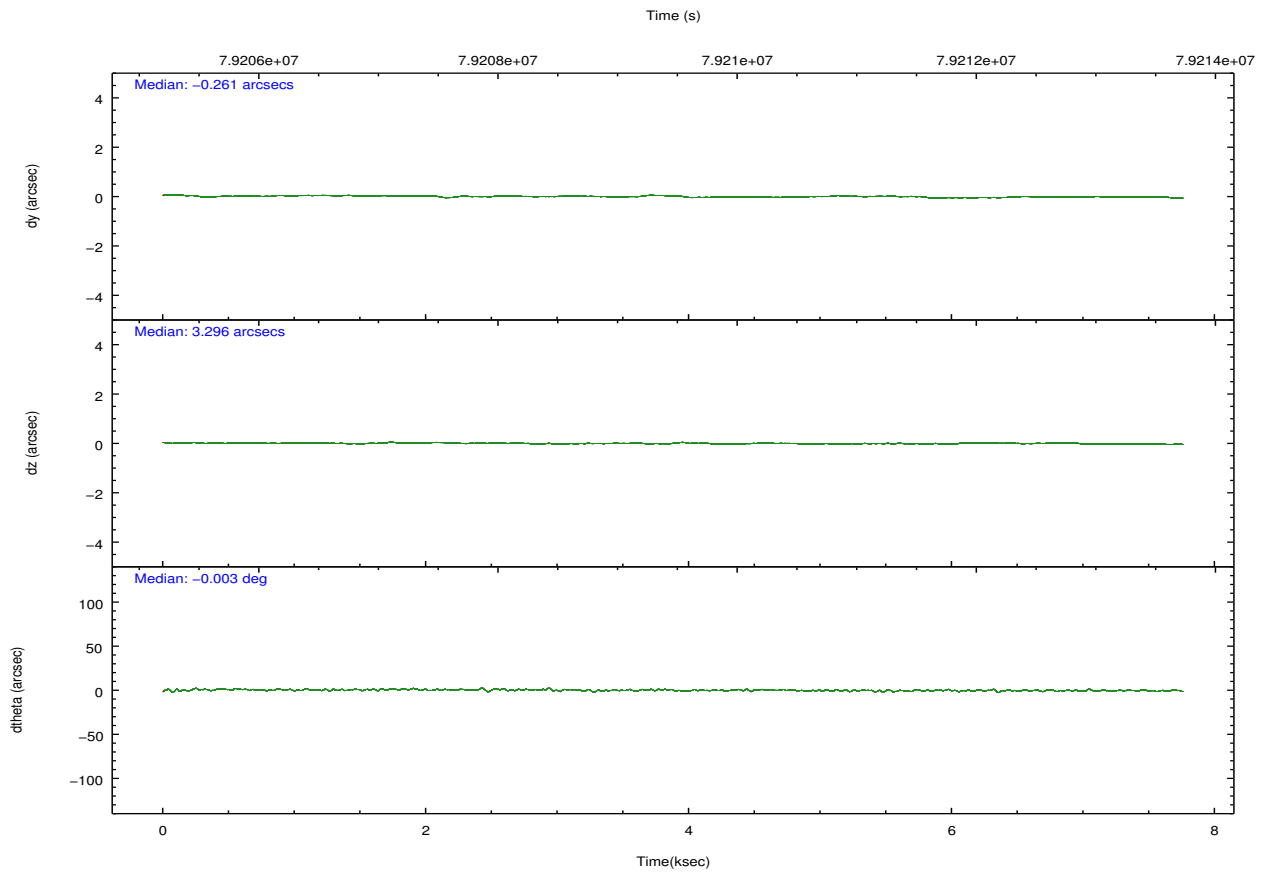
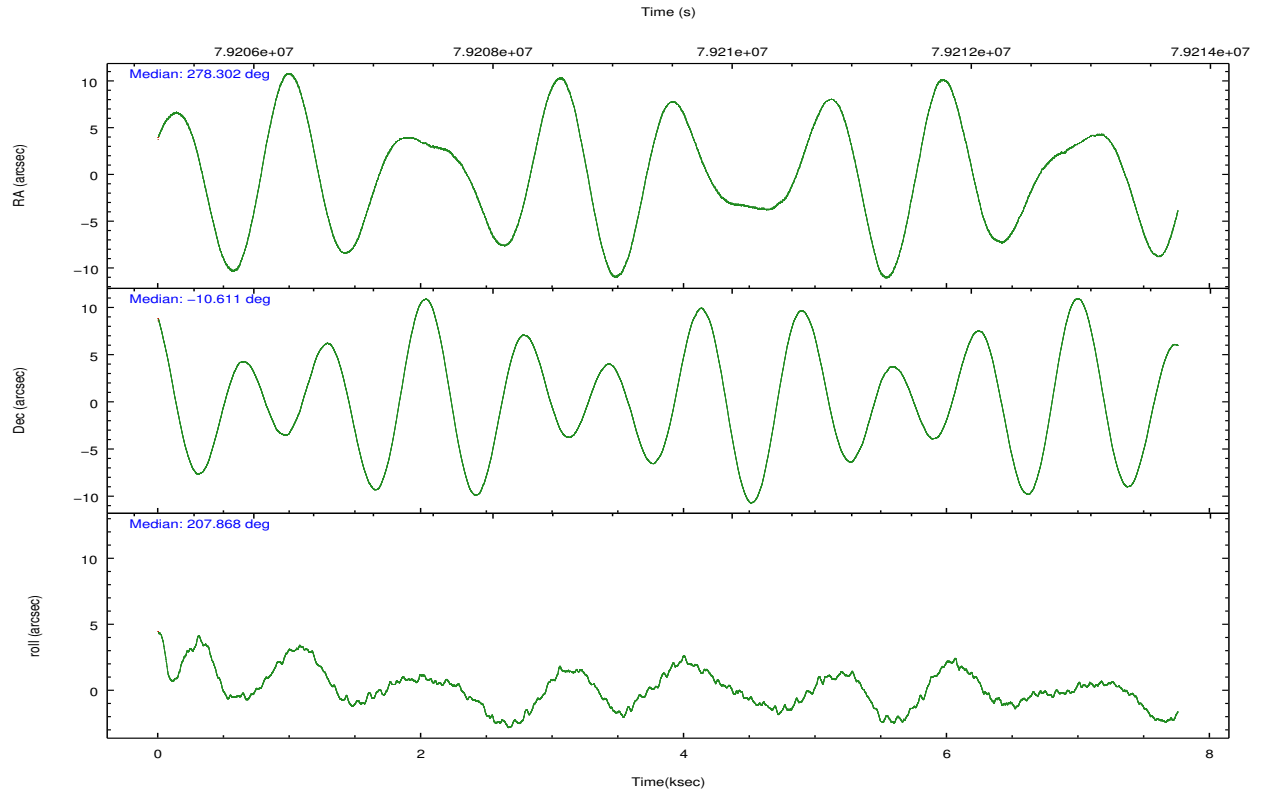
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	278.317008	278.301966988264
[deg] Pointing Dec	-10.588244	-10.61154631193929
[deg] Pointing Roll	207.665819	207.8717426611495
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-238.277263	-238.2741181829365
[mm] SIM translation stage offset	4.6848	4.681665180006831
[s] Observation start time (MET)	79205786.184000	79205409.892314
Observation start date	2000-07-05T17:35:22	2000-07-05T17:30:09
[s] Observation end time (MET)	79213346.184000	79213479.717611
Observation end date	2000-07-05T19:41:22	2000-07-05T19:44:39
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect



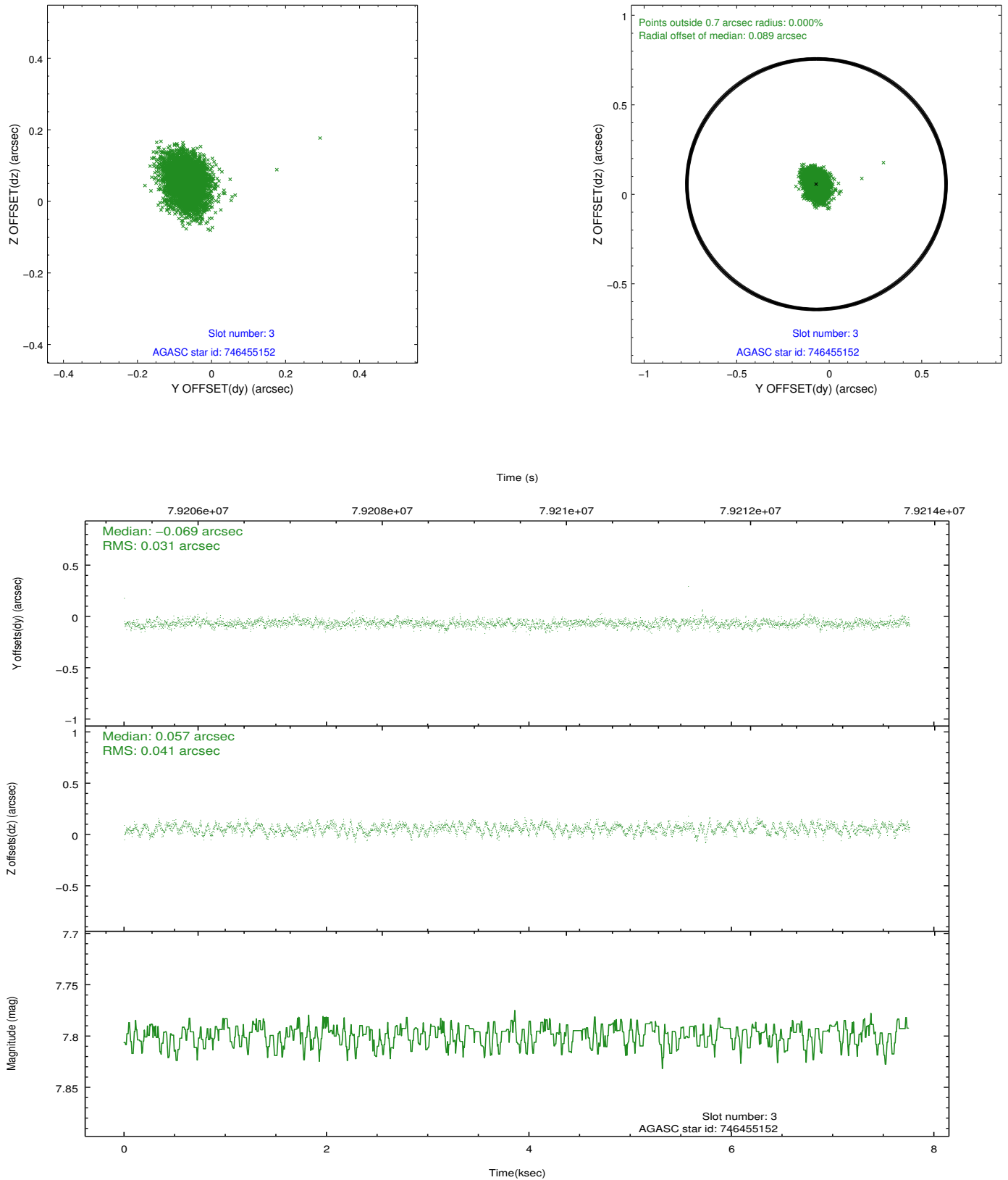


Slot Statistics

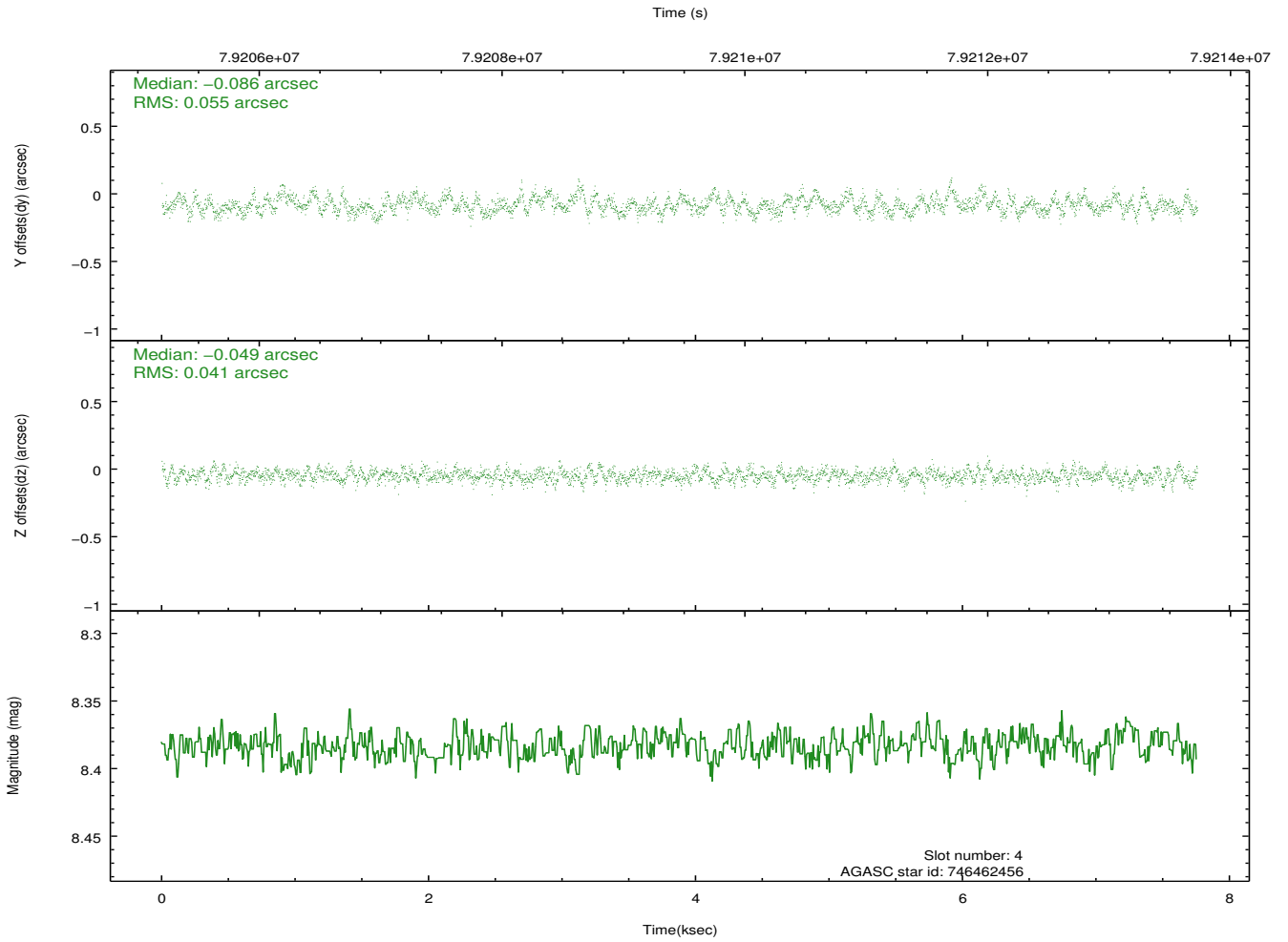
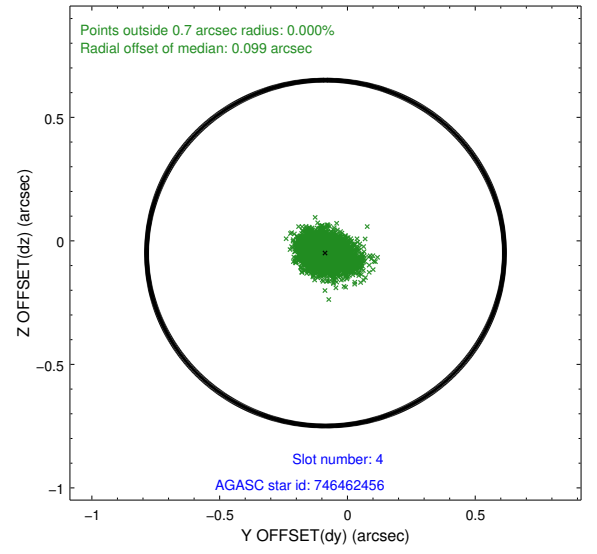
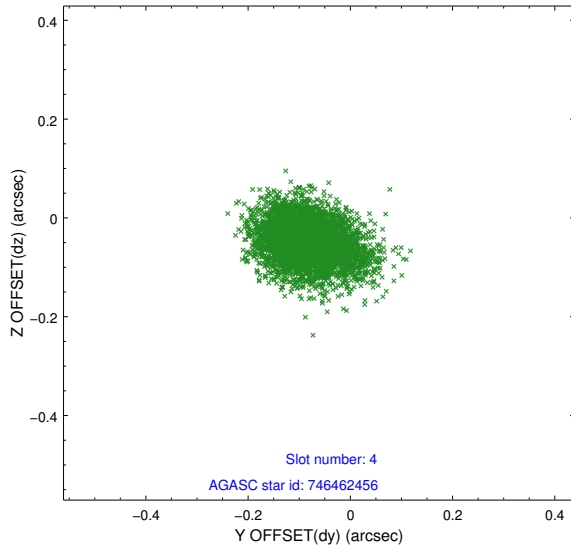
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.17	1891	-0.059	-0.077	0.012	0.018	0.000000	0.000000	-753.74	-737.40
1	FID	ACIS-I-4	7.20	1893	-0.017	0.060	0.009	0.016	0.000000	0.000000	2160.02	1168.69
2	FID	ACIS-I-5	7.24	1893	-0.024	0.085	0.009	0.015	0.000000	0.000000	-1806.87	1167.91
3	GUIDE	746455152	7.80	3785	-0.069	0.057	0.054	0.089	278.447893	-9.976732	-1433.27	-1733.61
4	GUIDE	746462456	8.38	3785	-0.086	-0.049	0.073	0.118	278.652171	-10.530173	-1148.02	366.35
5	GUIDE	746455112	8.93	3783	0.191	-0.084	0.064	0.108	278.266531	-10.703234	350.06	284.42
6	GUIDE	746460328	9.81	3785	0.013	0.019	0.089	0.146	278.603974	-9.898096	-2054.72	-1726.93
7	GUIDE	746995400	9.51	3783	-0.053	0.058	0.087	0.142	278.078957	-11.289885	1916.51	1847.60

2.4 Star Slots

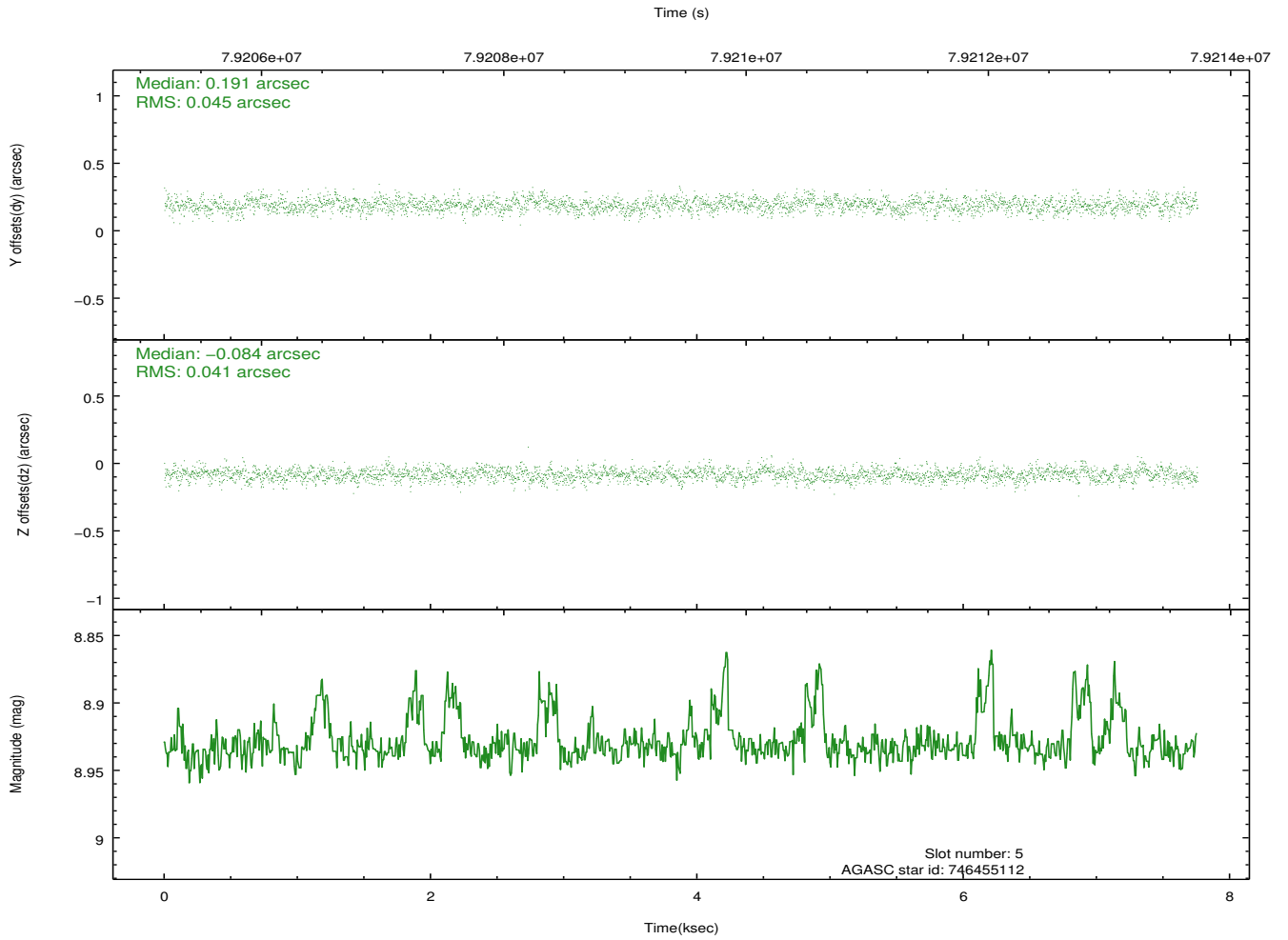
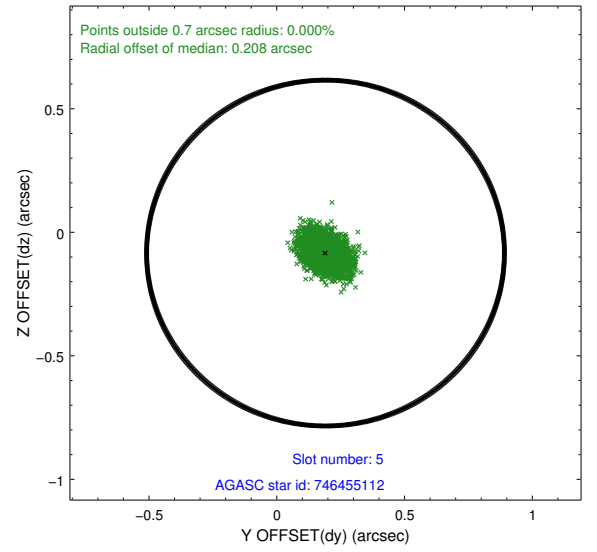
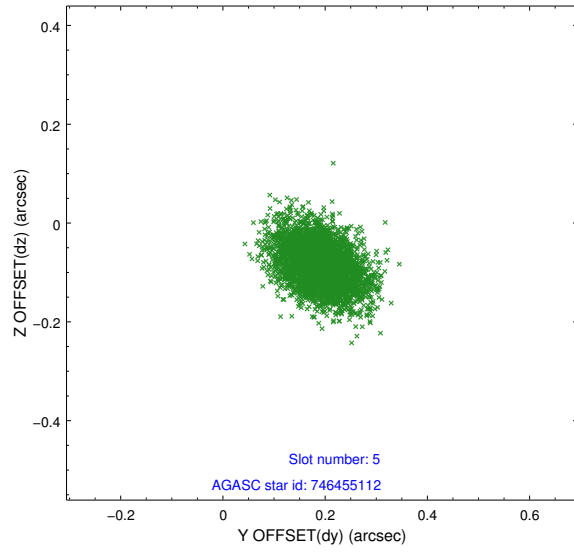
2.4.1 Slot 3



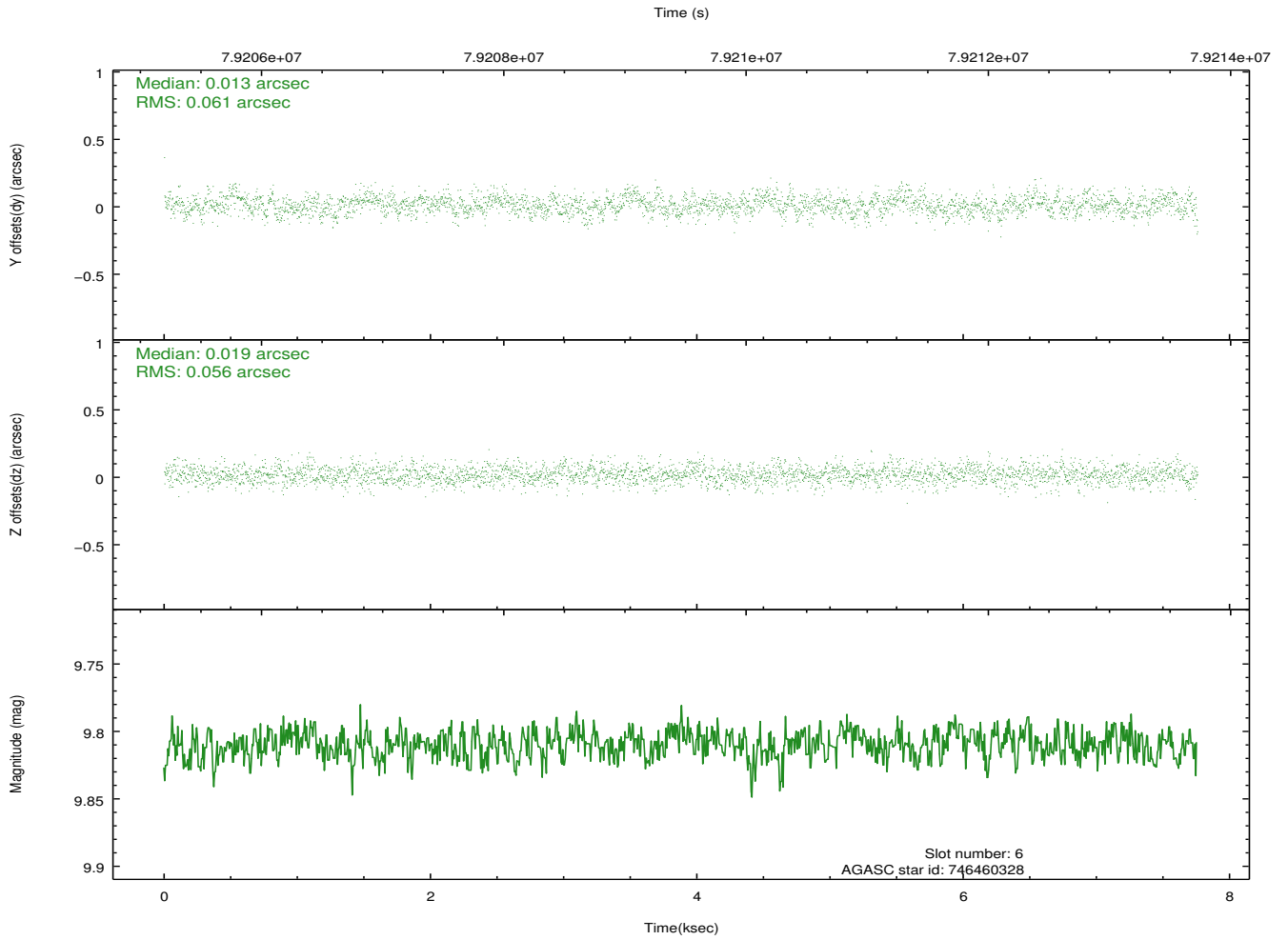
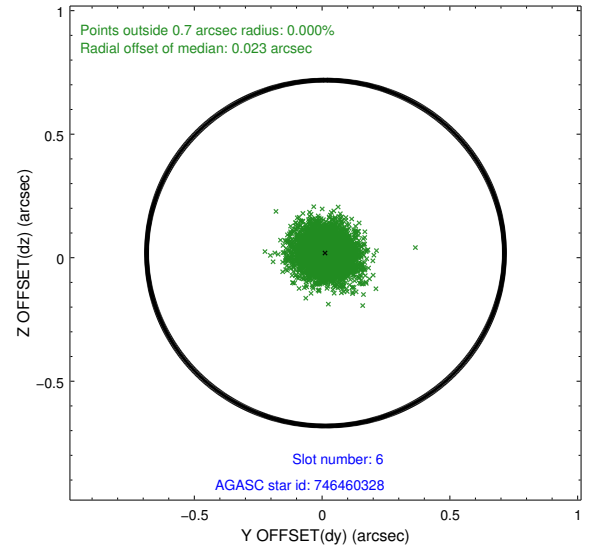
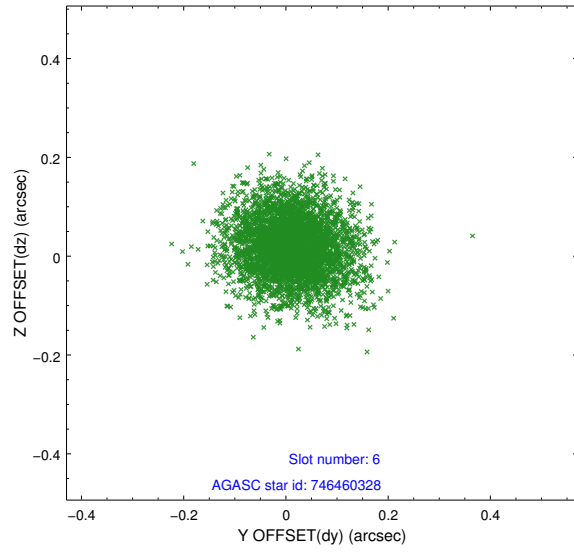
2.4.2 Slot 4



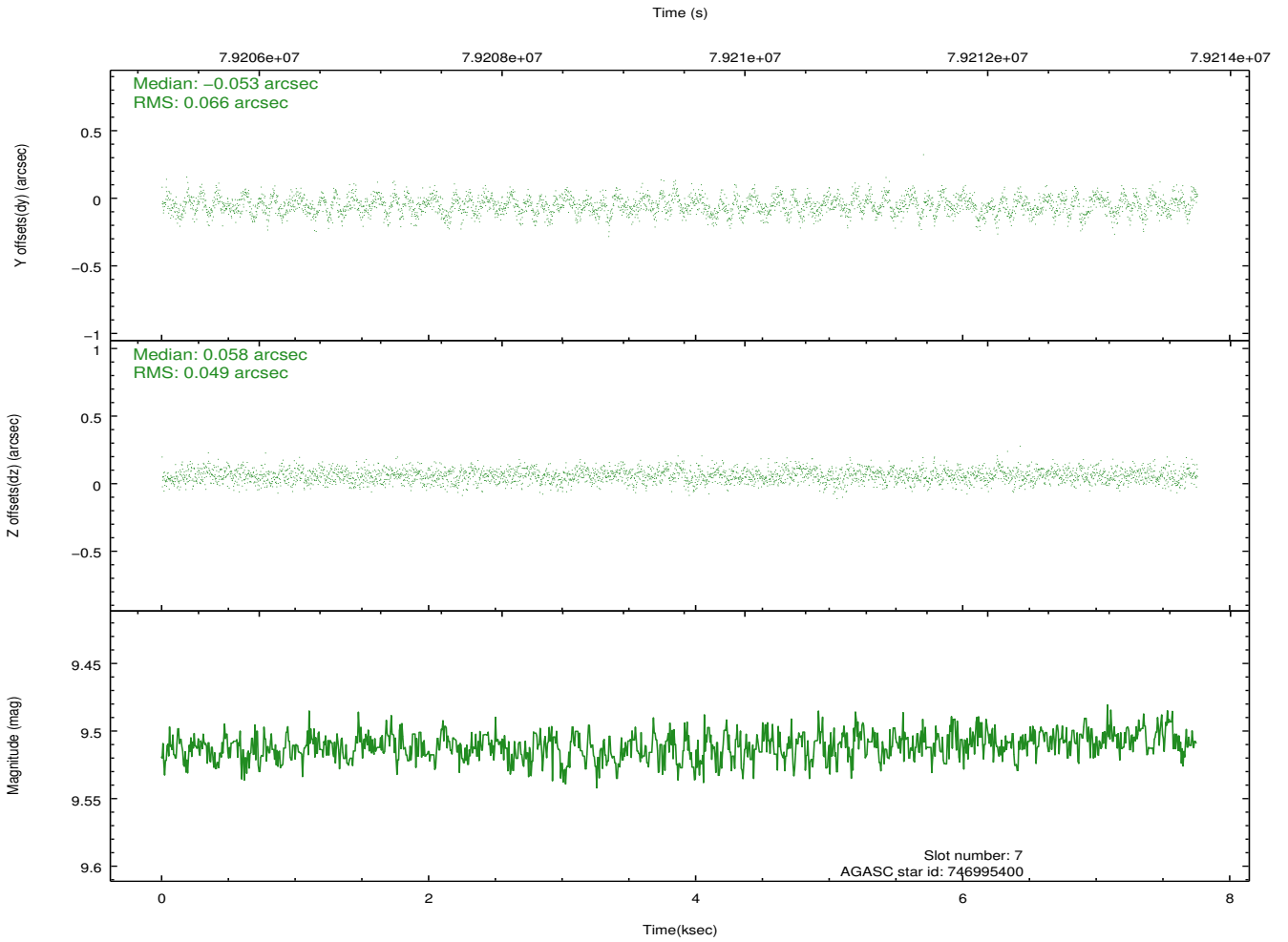
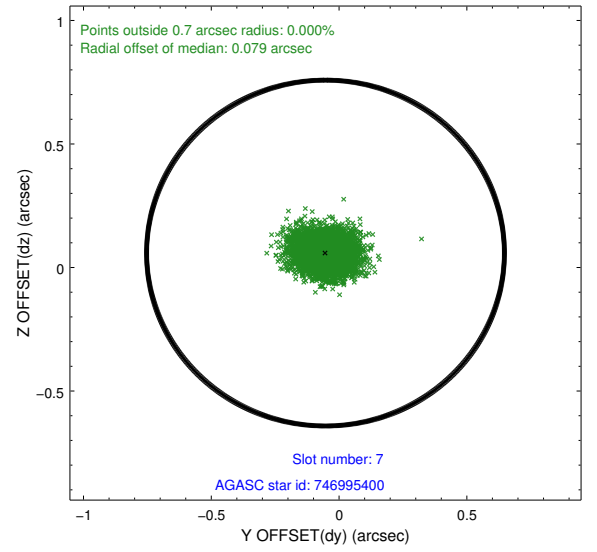
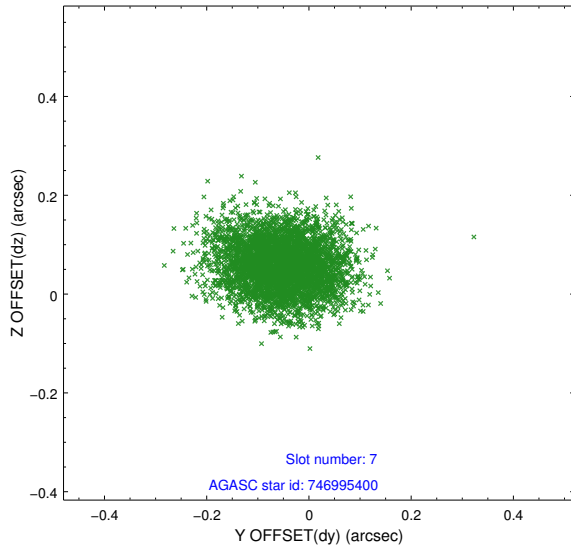
2.4.3 Slot 5



2.4.4 Slot 6

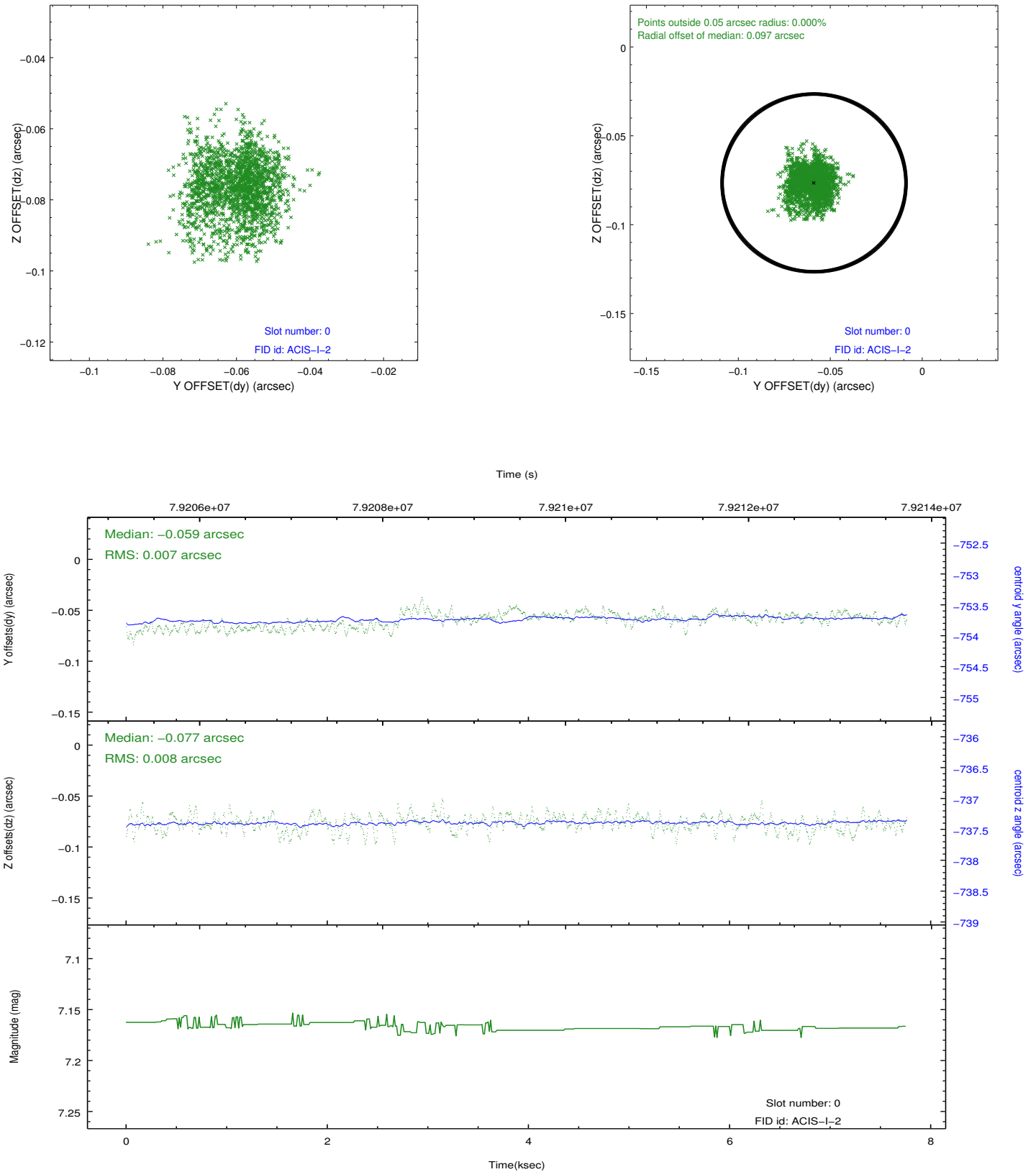


2.4.5 Slot 7

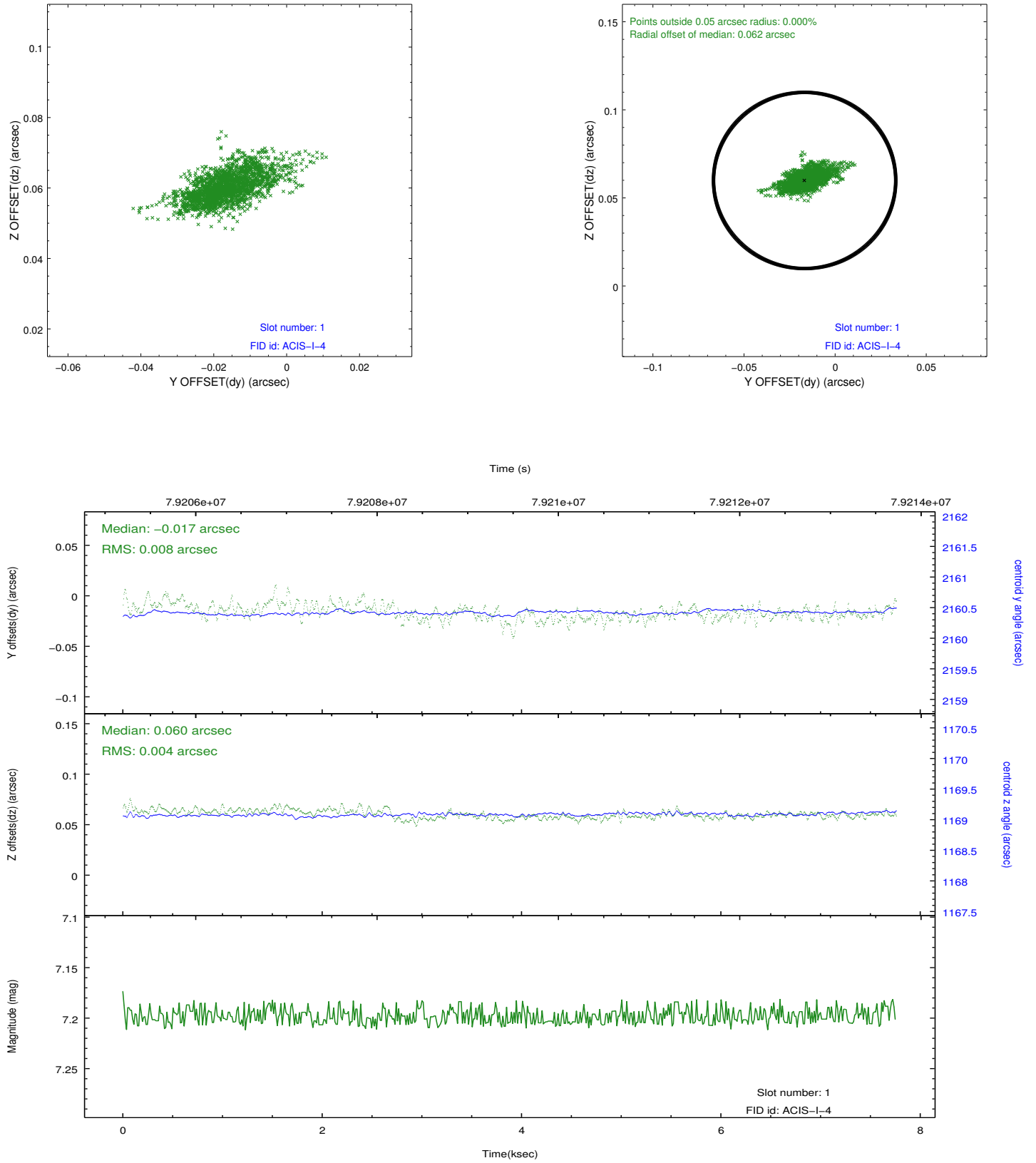


2.5 FID Slots

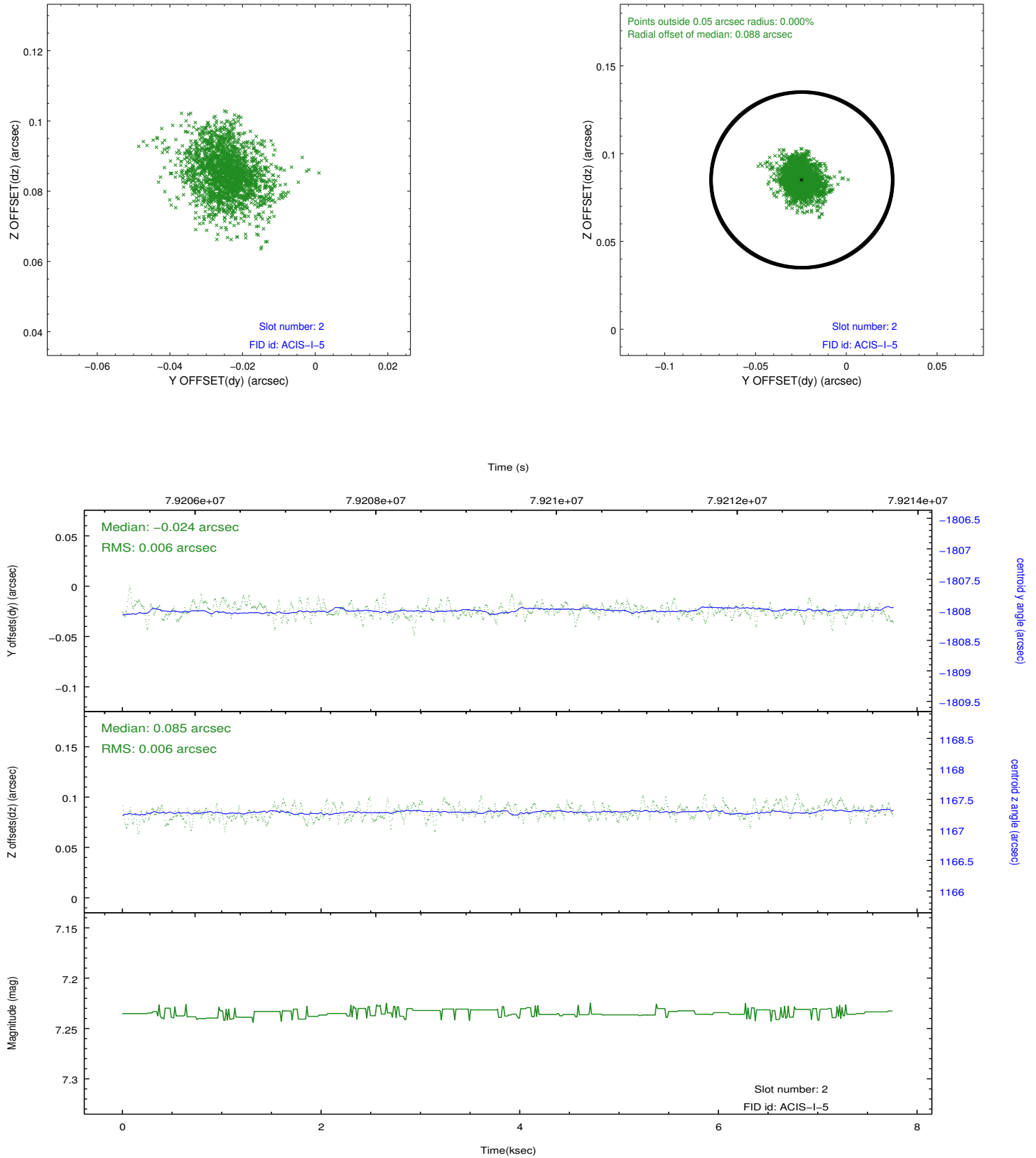
2.5.1 Slot 0



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)	2018.03.05
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	7.315

A.2 Comments

The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/ACIS_response_summary.html

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
 - 2) The gain on FI chips remains within 0.3% below row 600 at all measured temperatures.
 - 3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.
 - 4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.
 - 5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.
- In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.