

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1787 - L2 Version 5
Chandra X-Ray Center

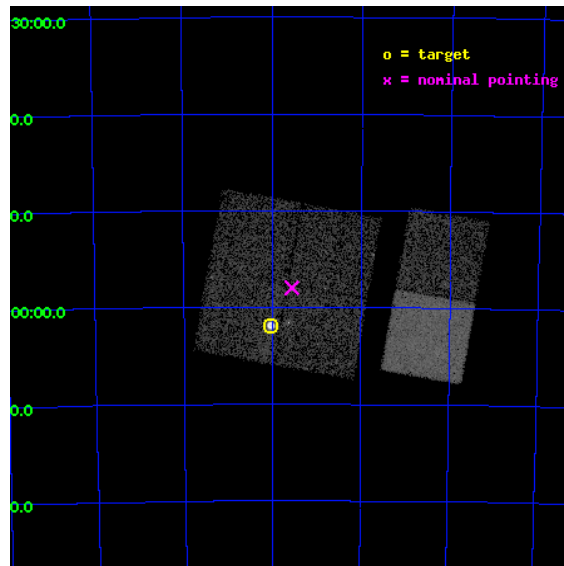
L2 Processing Date : Aug 29 2012

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

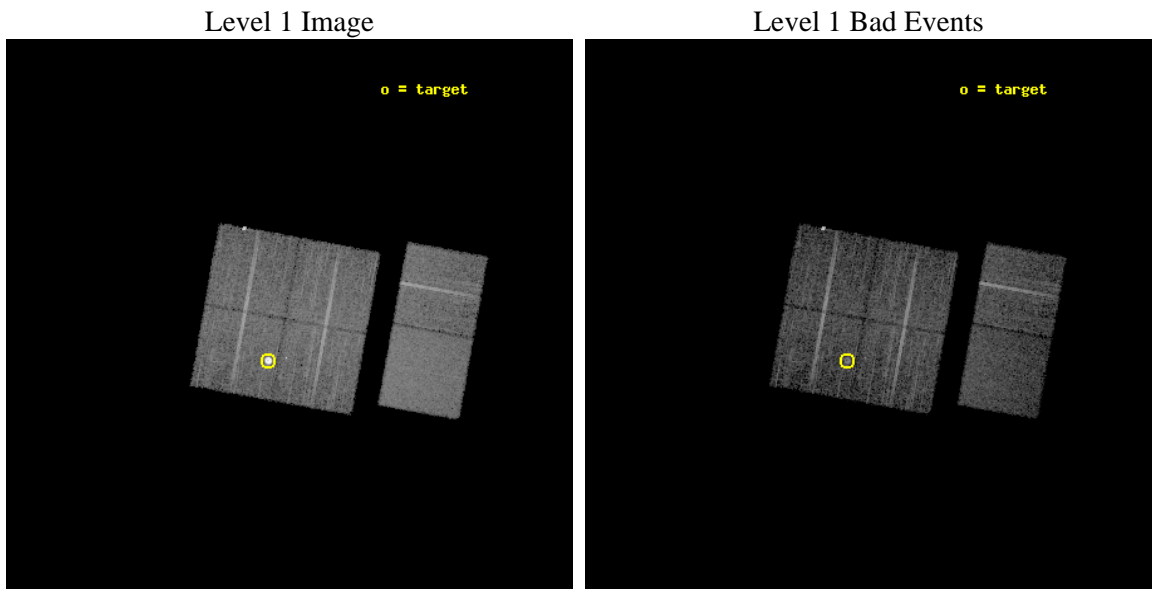
seq_num	590213	Sequence number
obs_id	1787	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip I1, T=110, Offsets=-4,-1,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	15.890377400349	Nominal RA [deg]
dec_nom	-71.966273308188	Nominal Dec [deg]
roll_nom	100.28396043459	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7689.6000071466	Sum of GTIs [s]
livetime	7592.2296617349	Livetime [s]
ontime0	7686.359046936	Sum of GTIs [s]
ontime1	7689.6000071466	Sum of GTIs [s]
ontime2	7689.6000071466	Sum of GTIs [s]
ontime3	7689.6000071466	Sum of GTIs [s]
ontime6	7689.6000071466	Sum of GTIs [s]
ontime7	7689.6000071466	Sum of GTIs [s]
l2events	74854	Number of level 2 events



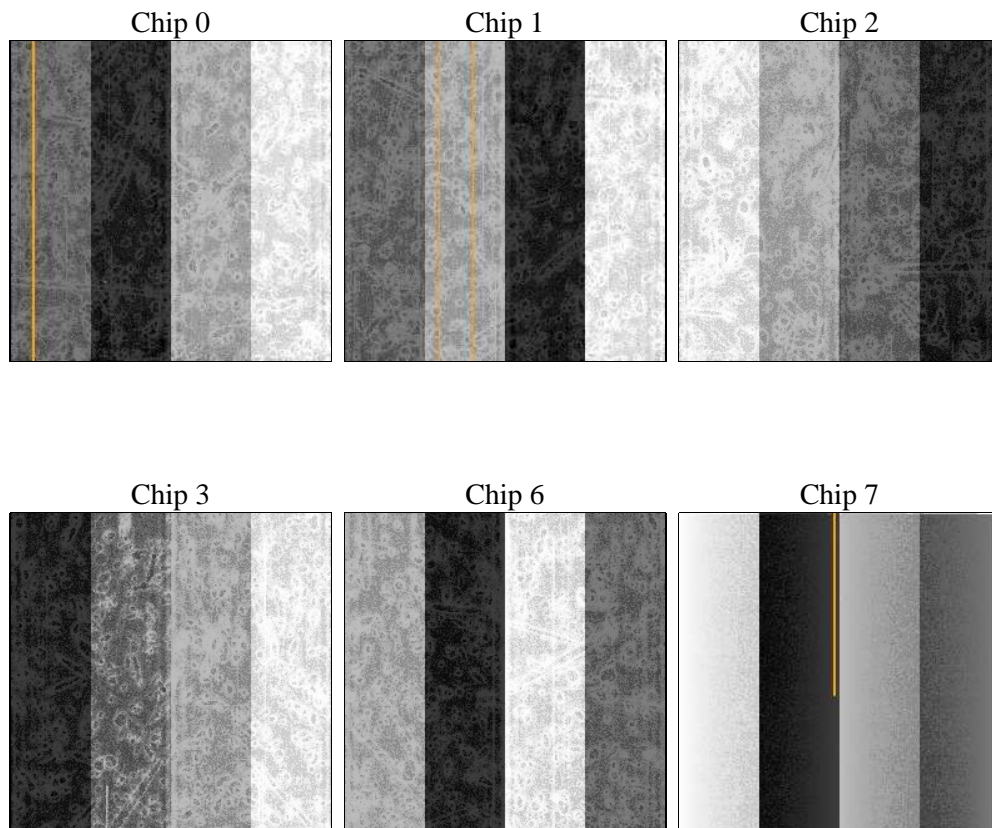
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7930.065000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7689.6000071466	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime0	7686.359046936	Sum of GTIs [s]
date	2012-08-30T01:17:20	Date and time of file creation	ontime1	7689.6000071466	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7689.6000071466	Sum of GTIs [s]
			ontime3	7689.6000071466	Sum of GTIs [s]
			ontime6	7689.6000071466	Sum of GTIs [s]
			ontime7	7689.6000071466	Sum of GTIs [s]
			l1events	354156	Number of level 1 events

2.1.4 Events

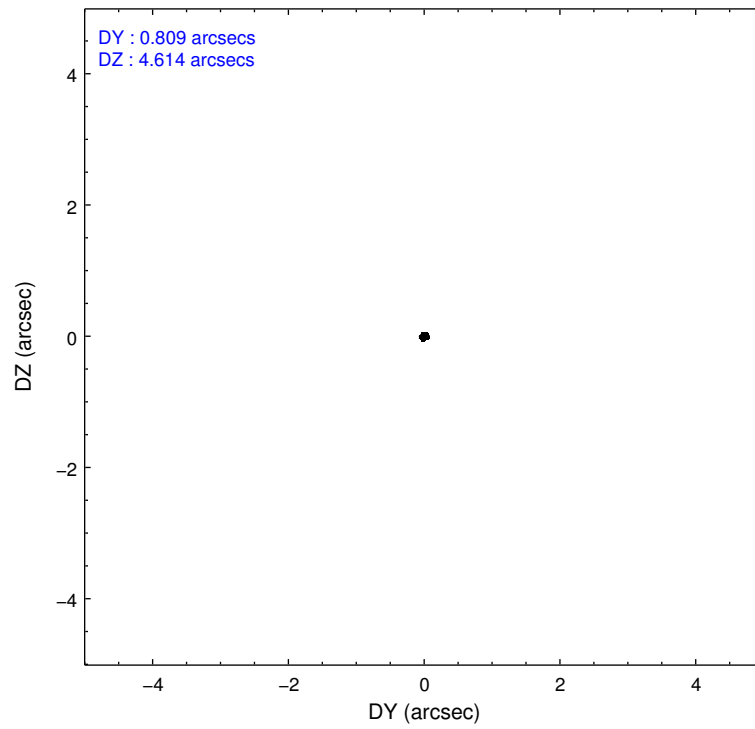
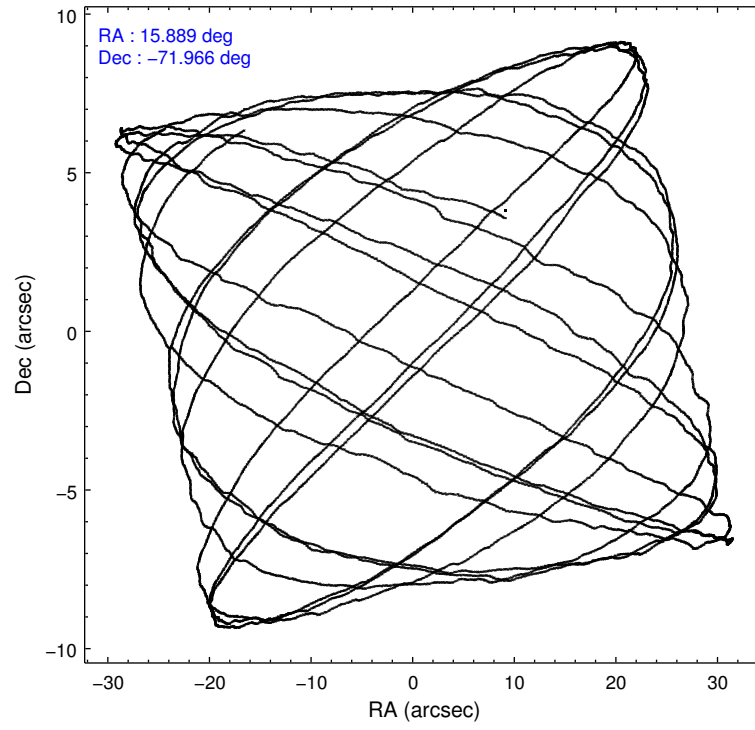
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	50585	78341	55569	54375	53318	61968	grade 0 events	1251	26498	1339	1659	1174	1901
rejected events	45193	43779	50255	48128	47753	37318		2%	33%	2%	3%	2%	3%
rejected %	89%	55%	90%	88%	89%	60%	grade 1 events	2307	216	14	19	12	33
								4%	0%	0%	0%	0%	0%
							grade 2 events	2134	4632	2026	2437	2119	5221
								4%	5%	3%	4%	3%	8%
							grade 3 events	400	866	328	357	331	1451
								0%	1%	0%	0%	0%	2%
							grade 4 events	348	900	347	339	329	1376
								0%	1%	0%	0%	0%	2%
							grade 5 events	1023	1200	973	1103	1254	3656
								2%	1%	1%	2%	2%	5%
							grade 6 events	1261	1677	1275	1459	1612	14716
								2%	2%	2%	2%	3%	23%
							grade 7 events	41861	42352	49267	47002	46487	33614
								82%	54%	88%	86%	87%	54%

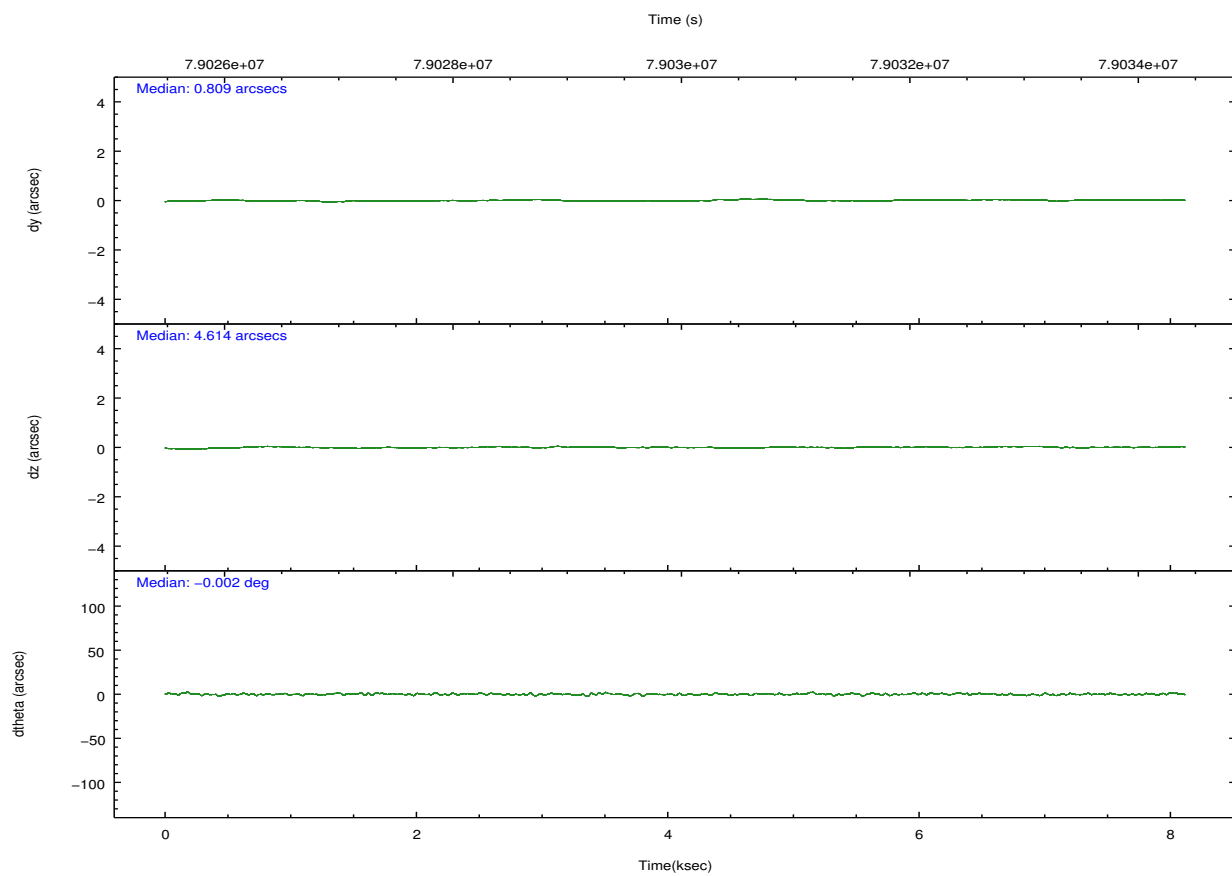
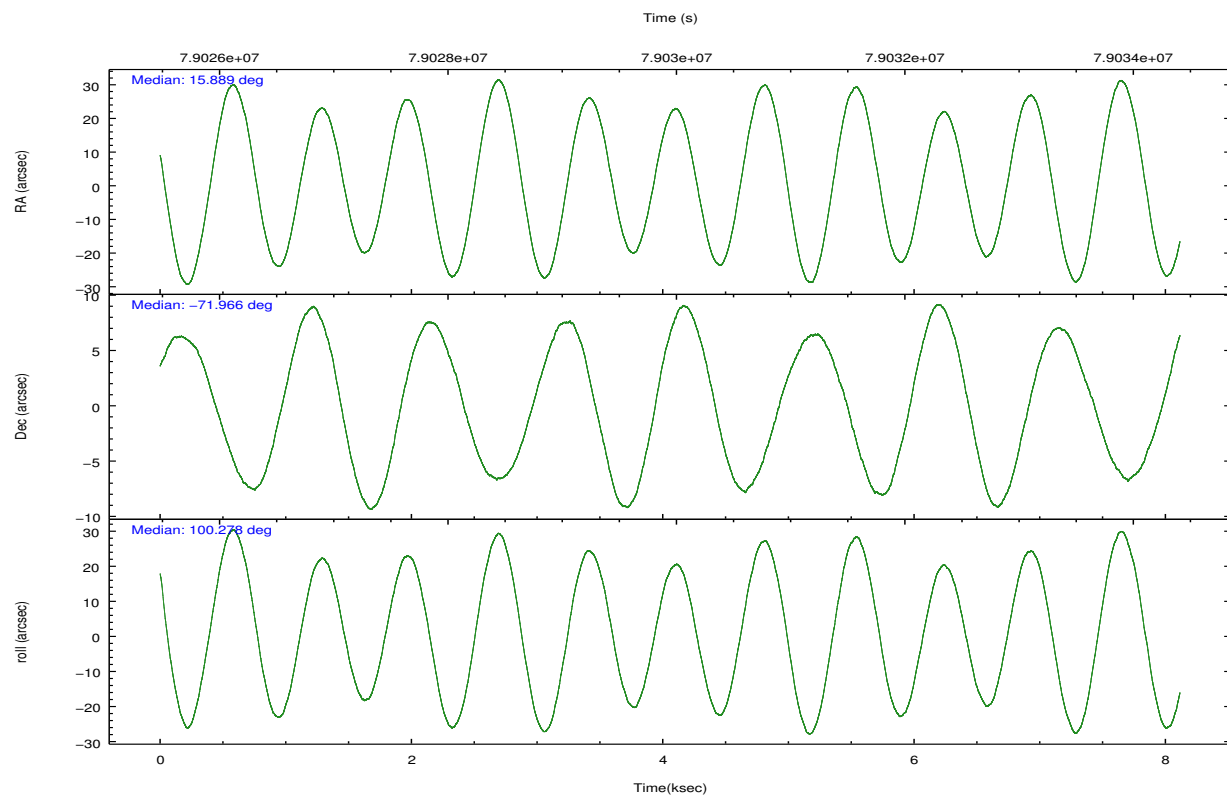
2.2 Compared Parameters

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	15.947893	15.89037740034898
[deg] Pointing Dec	-71.987371	-71.96627330818829
[deg] Pointing Roll	100.129966	100.2839604345866
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-233.592463	-233.5874344608287
[mm] SIM translation stage offset	0	-0.005018542100998502
[s] Observation start time (MET)	79026079.184000	79025702.78568999
Observation start date	2000-07-03T15:40:15	2000-07-03T15:35:02
[s] Observation end time (MET)	79034009.184000	79034318.93600801
Observation end date	2000-07-03T17:52:25	2000-07-03T17:58:38
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



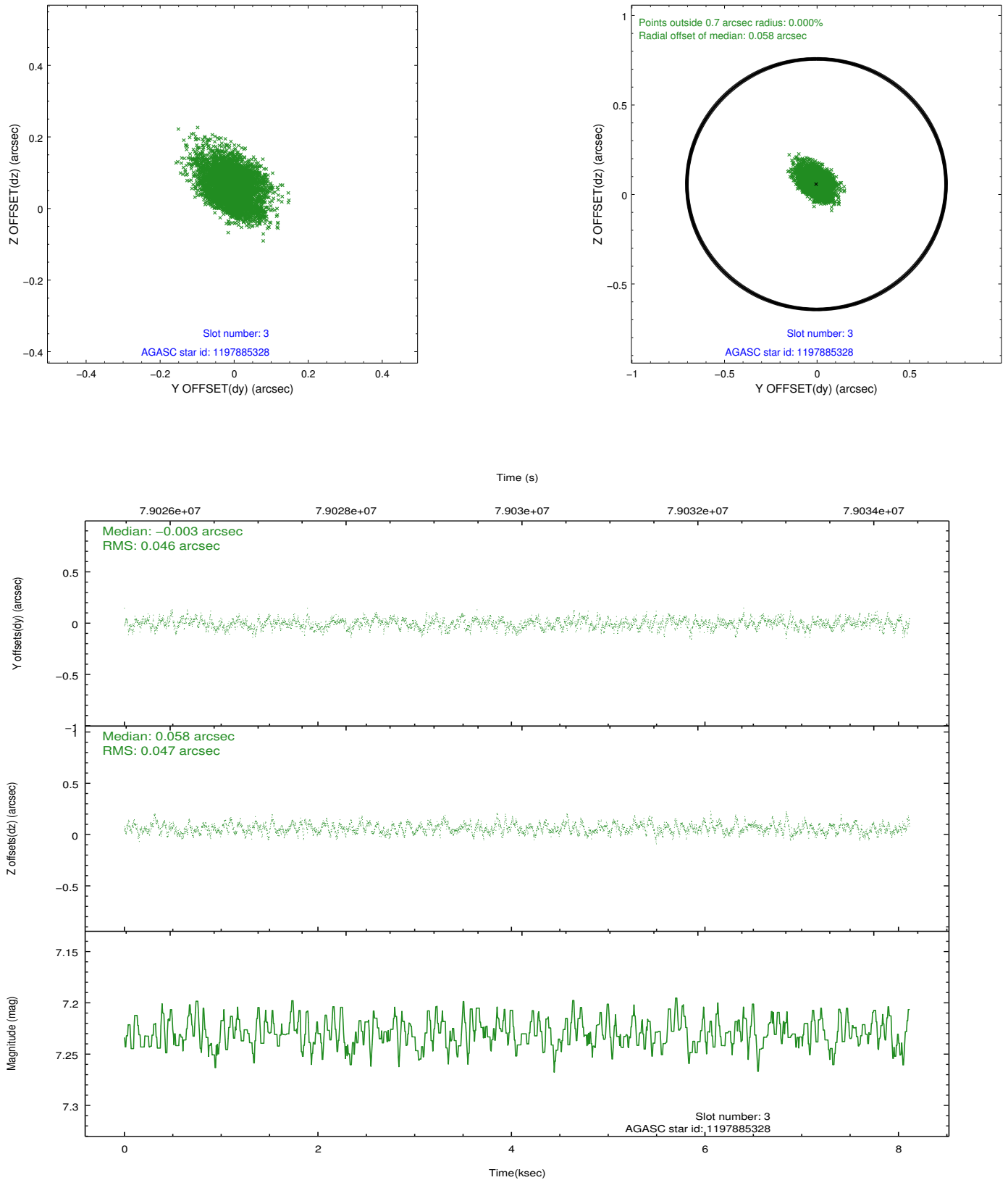


Slot Statistics

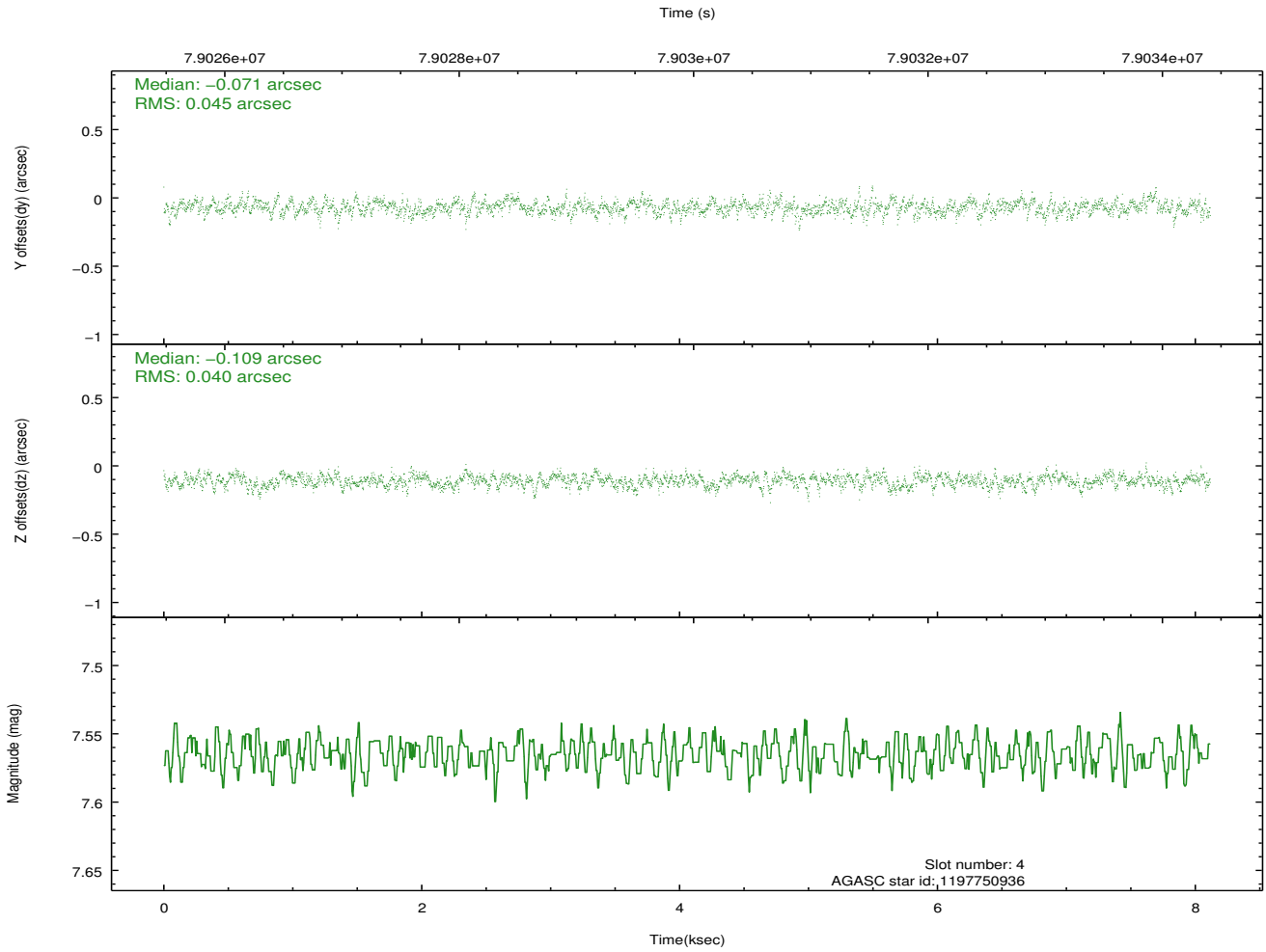
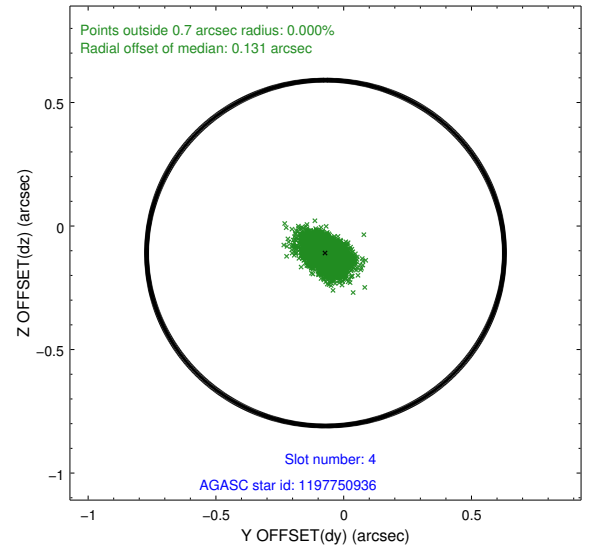
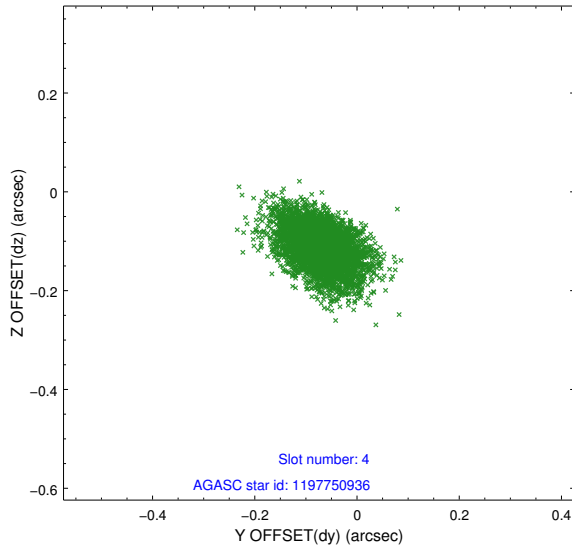
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	1980	-0.054	-0.006	0.006	0.011	0.000000	0.000000	-755.18	-834.32
1	FID	ACIS-I-4	7.19	1980	-0.045	0.037	0.007	0.012	0.000000	0.000000	2158.57	1071.57
2	FID	ACIS-I-6	7.27	1980	-0.000	0.032	0.009	0.015	0.000000	0.000000	405.83	1714.53
3	GUIDE	1197885328	7.23	3960	-0.003	0.058	0.068	0.114	16.283090	-71.733943	830.74	-533.84
4	GUIDE	1197750936	7.56	3960	-0.071	-0.109	0.062	0.106	15.387940	-71.549550	1661.09	349.92
5	GUIDE	1197884536	8.49	3957	0.003	0.036	0.067	0.118	17.160729	-71.835289	286.76	-1434.91
6	GUIDE	1197750640	9.74	3958	0.094	-0.044	0.098	0.161	15.758835	-72.088048	-320.02	268.13
7	GUIDE	1197878768	9.62	3956	-0.022	0.061	0.121	0.196	16.656786	-71.304581	2271.29	-1237.81

2.4 Star Slots

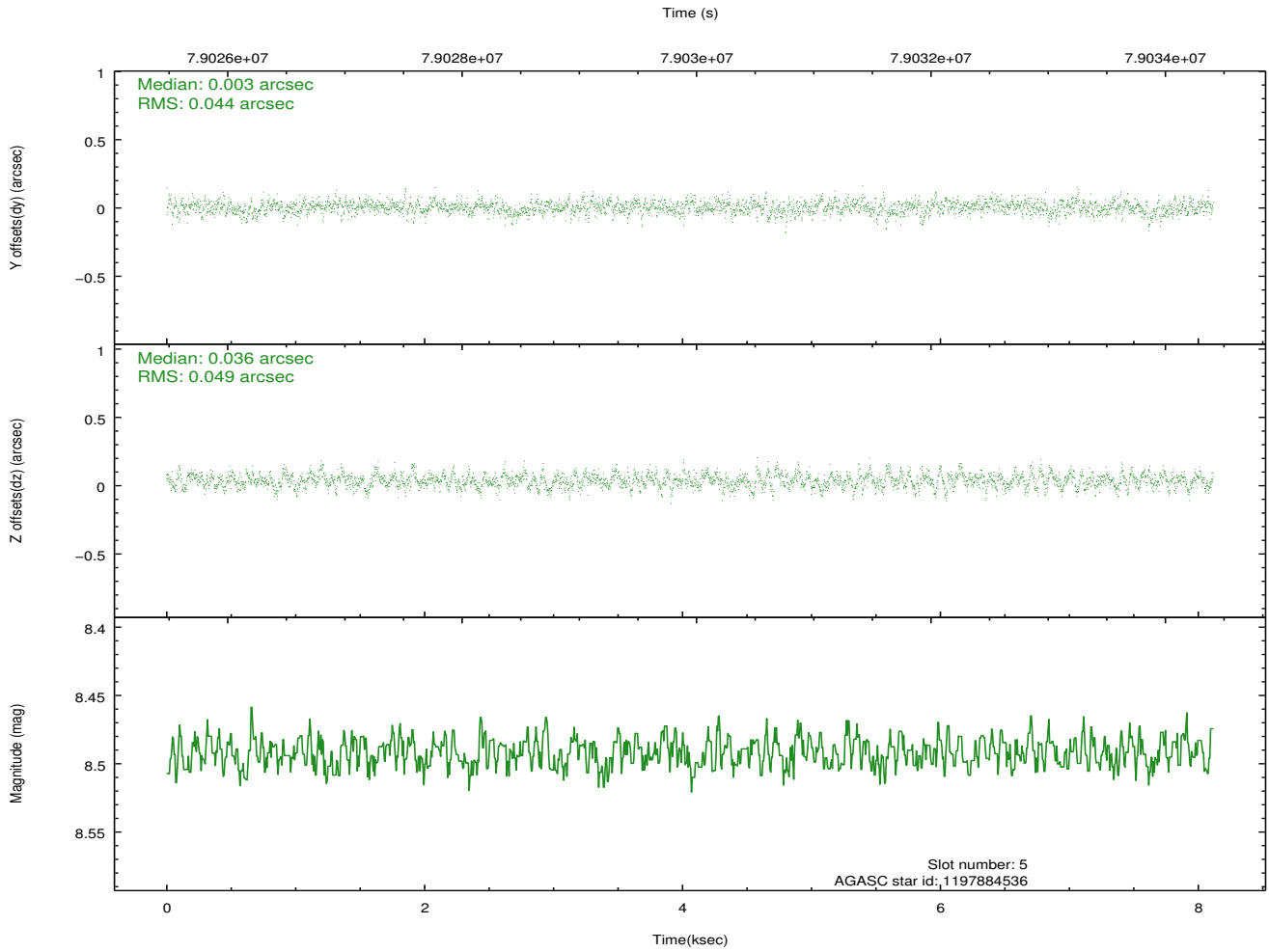
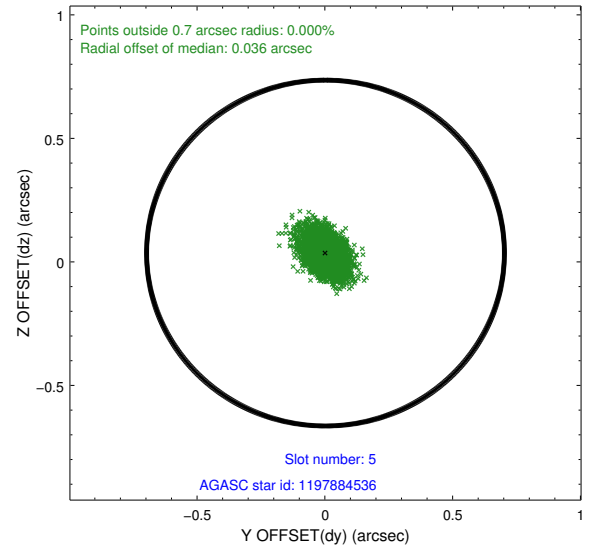
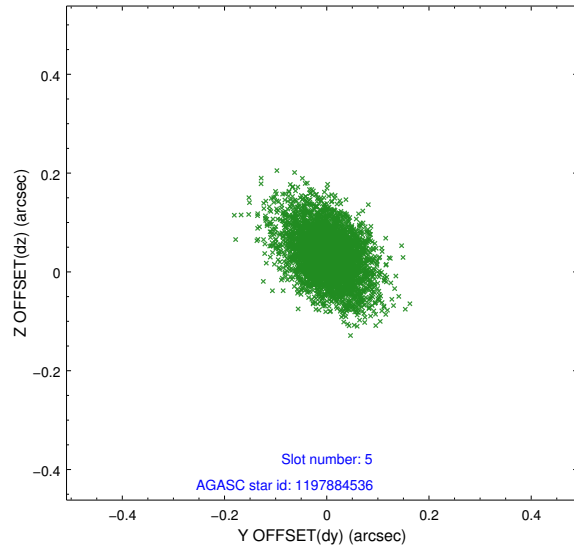
2.4.1 Slot 3



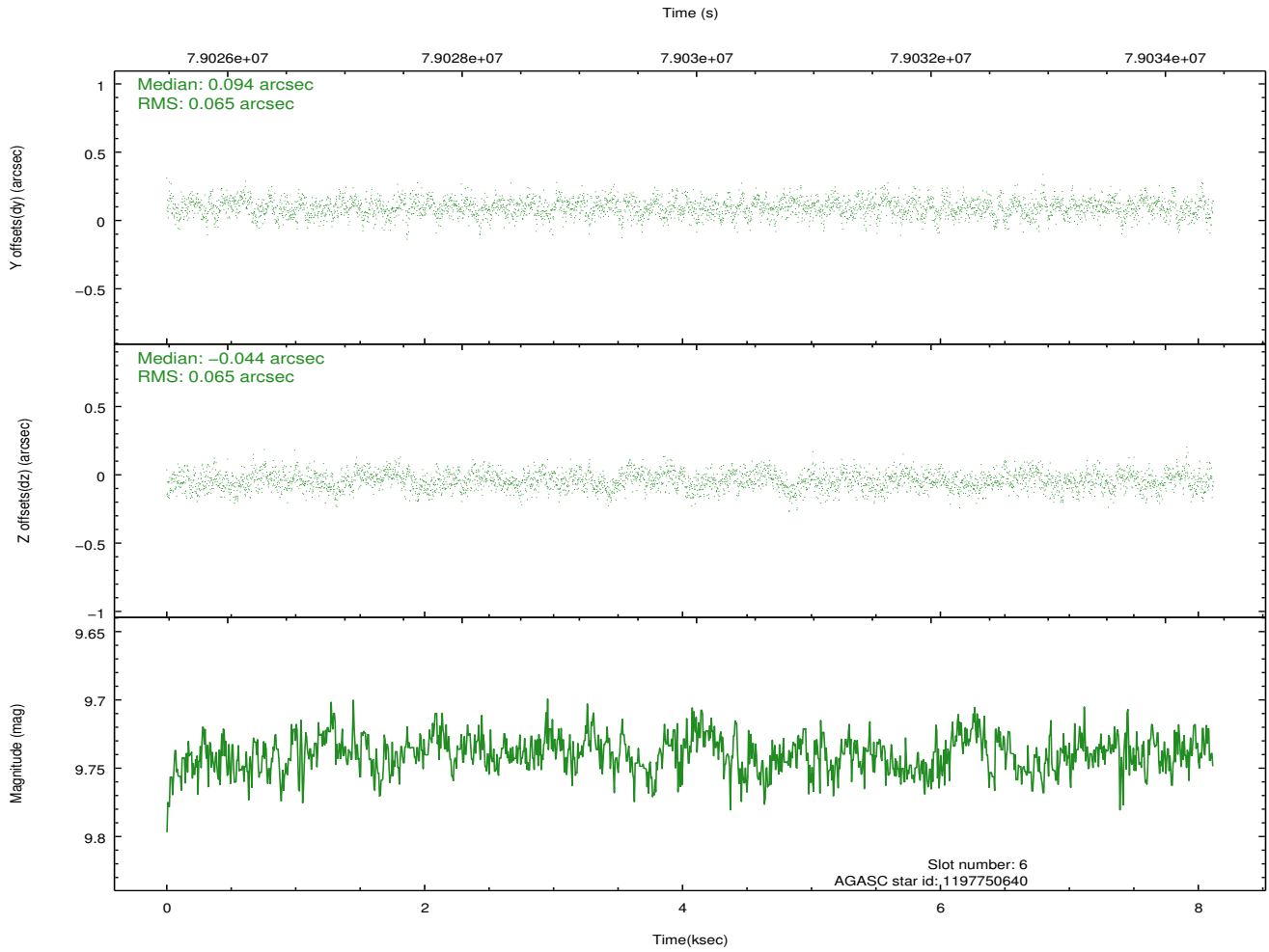
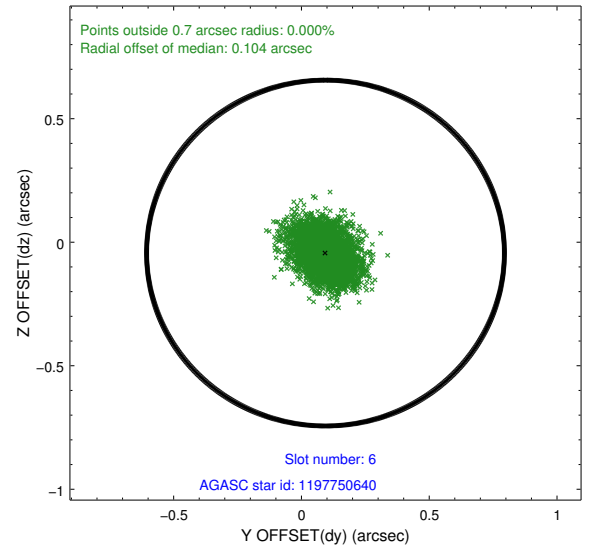
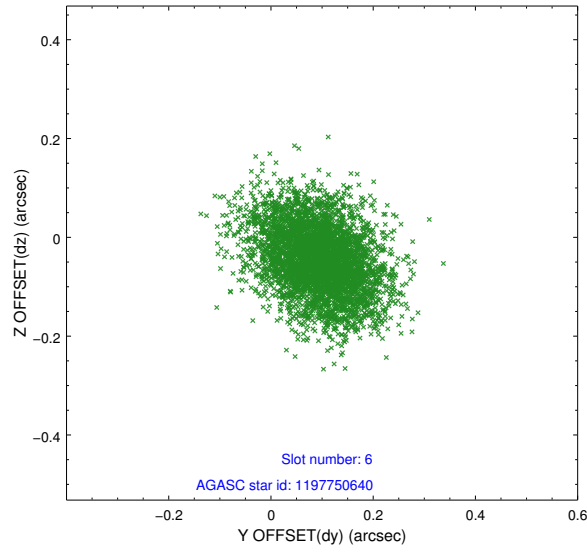
2.4.2 Slot 4



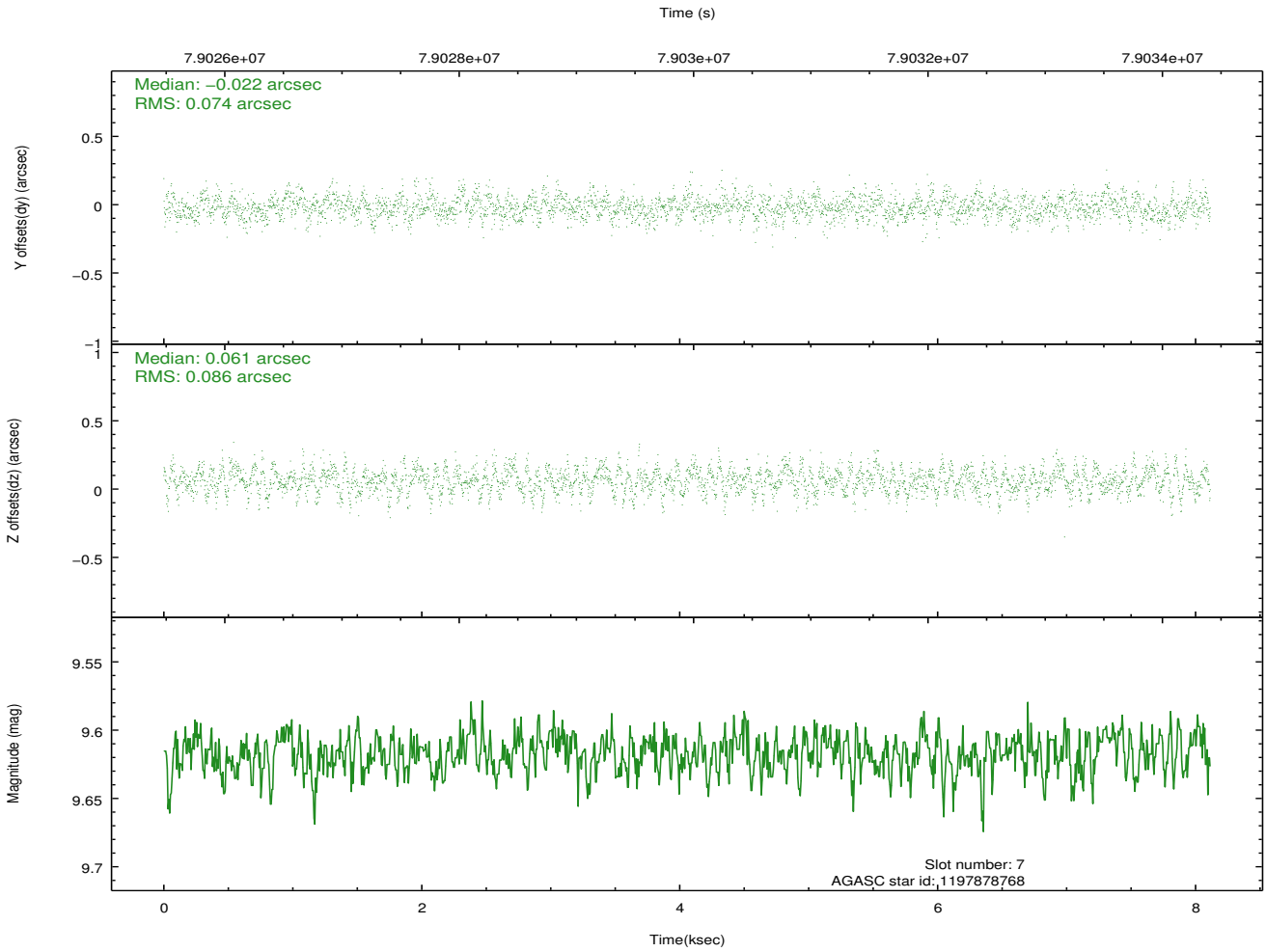
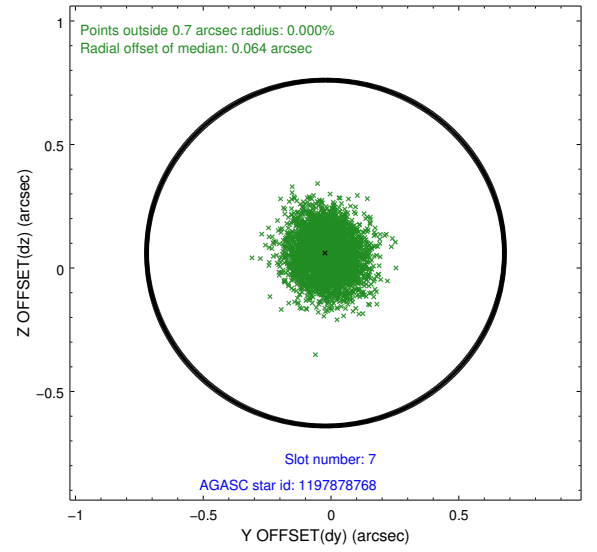
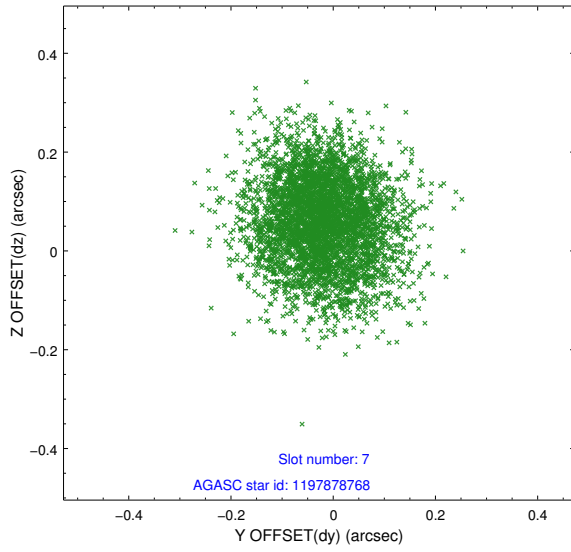
2.4.3 Slot 5



2.4.4 Slot 6

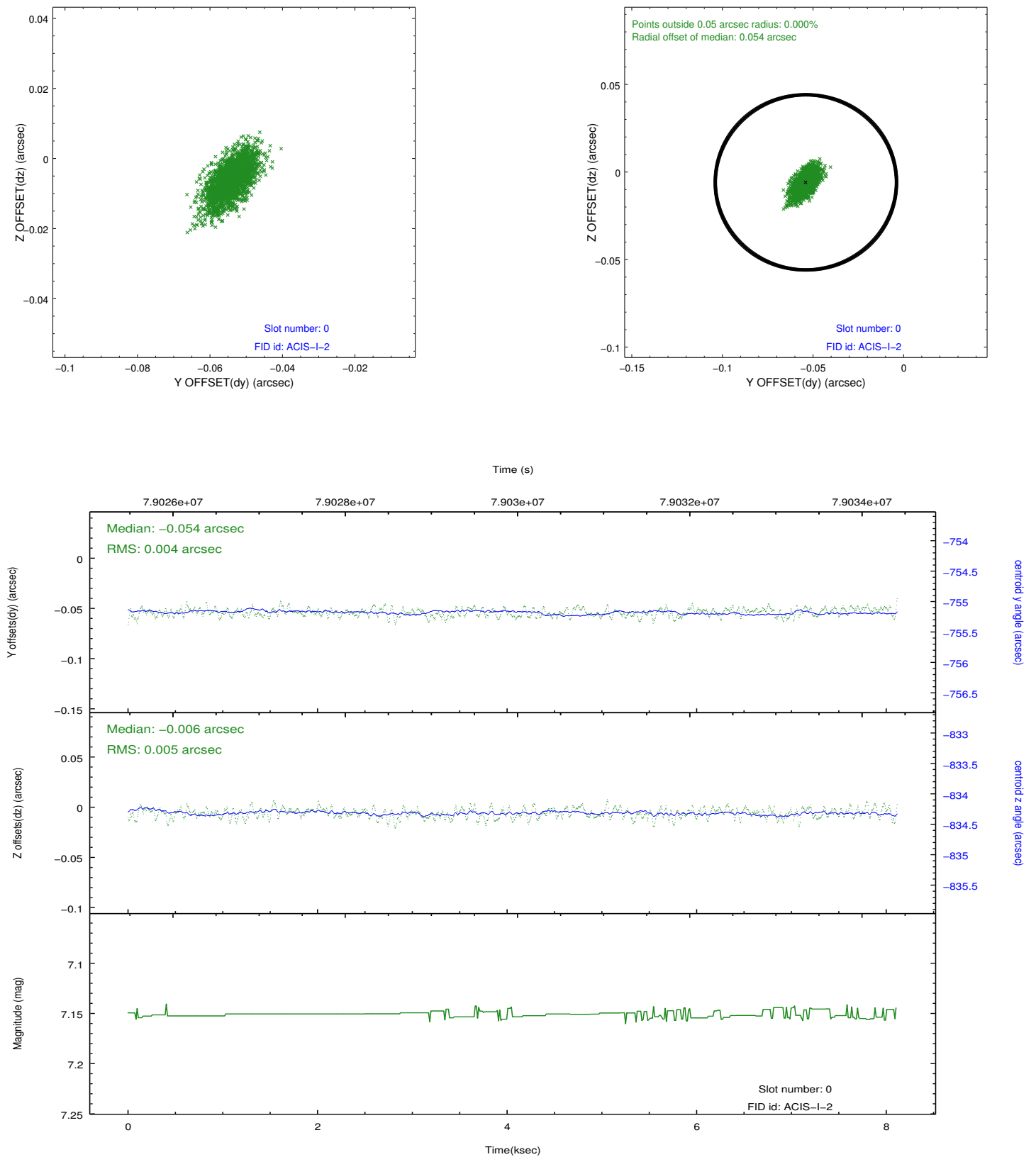


2.4.5 Slot 7

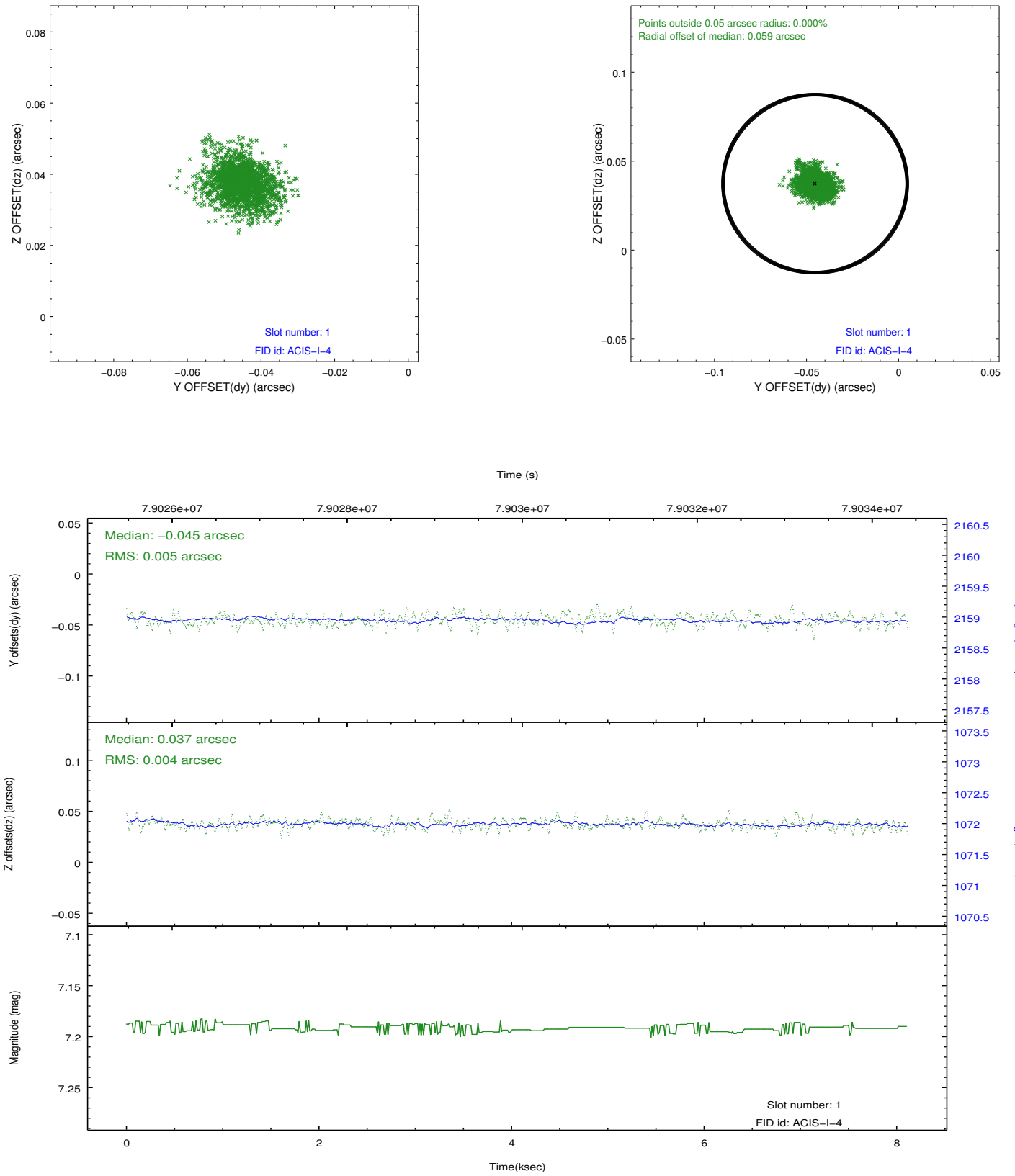


2.5 FID Slots

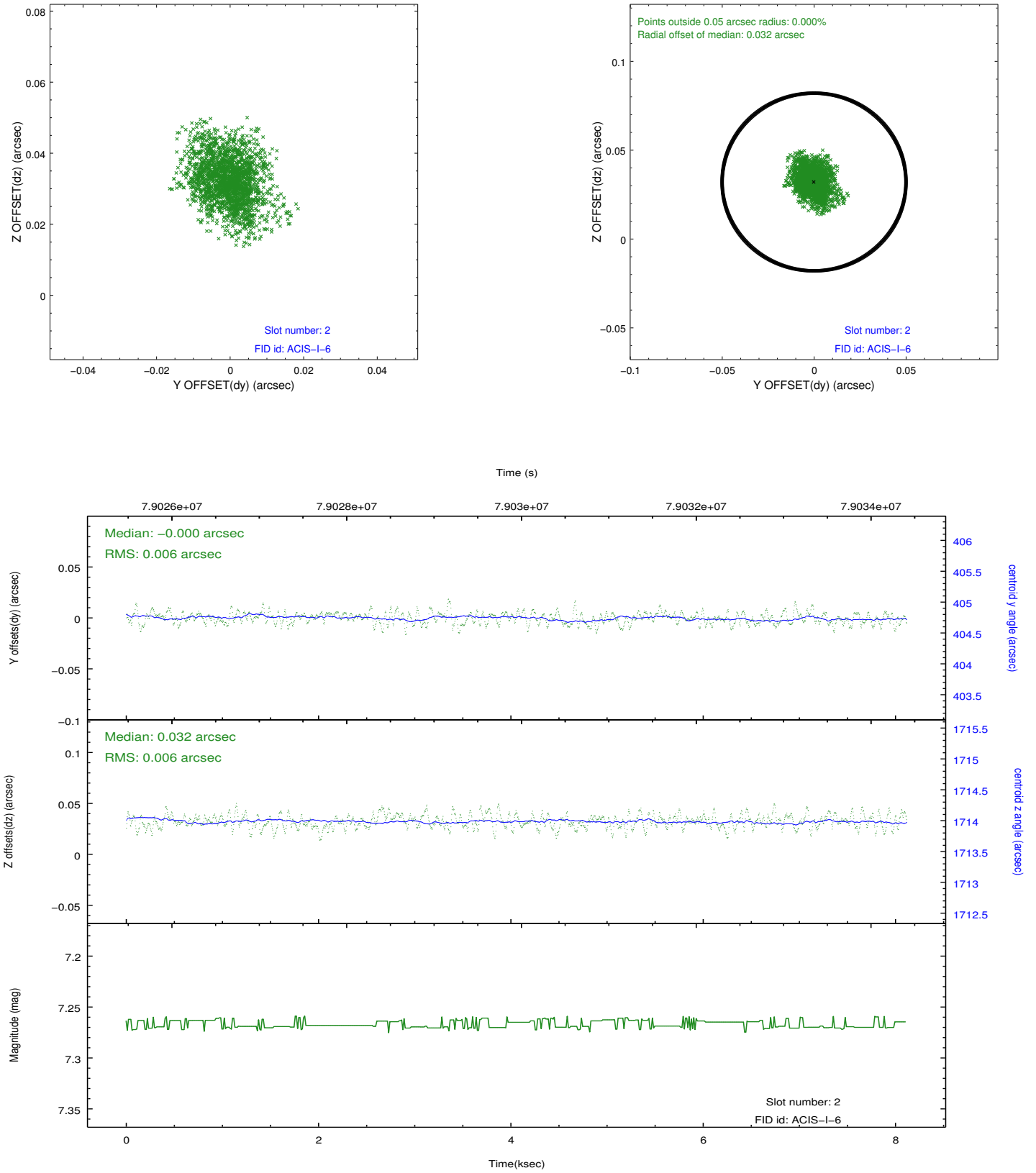
2.5.1 Slot 0



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	7.692

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.