

V&V Reference Report

L2 ASCDS Version : 10.4.3.1

Observation 18798 - L2 Version 2
Chandra X-Ray Center

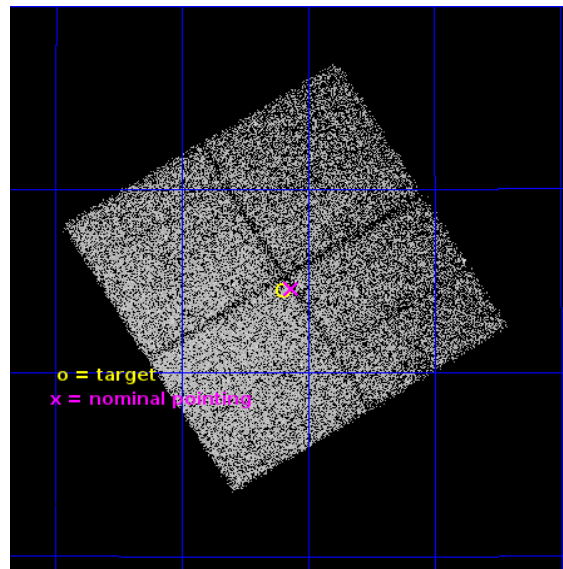
L2 Processing Date : Mar 23 2016

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1 Front

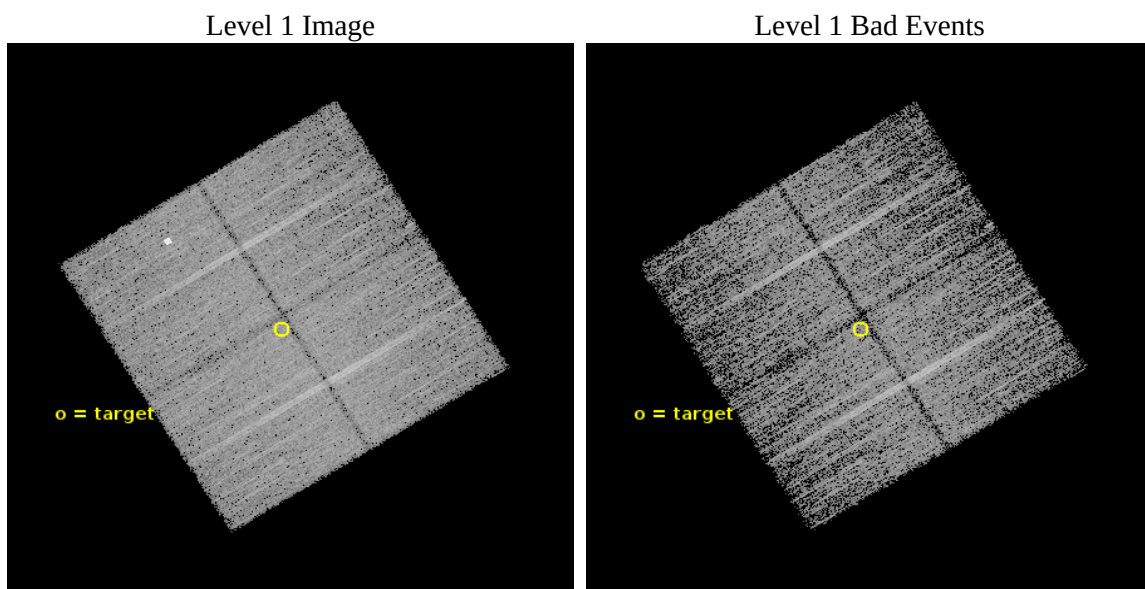
seq_num	801595	Sequence number
obs_id	18798	Observation id
title	Probing ICM on mean free path scales	Proposal title
observer	Dr Irina Zhuravleva	Principal investigator
object	Coma cluster	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	194.649583	Observer's specified target RA [deg]
dec_targ	28.074806	Observer's specified target Dec [deg]
ra_nom	194.64147298253	Nominal RA [deg]
dec_nom	28.076169563156	Nominal Dec [deg]
roll_nom	148.21255614579	Nominal Roll [deg]
revision	2	Processing version of data
ontime	13082.000100732	Sum of GTIs [s]
livetime	12911.074138587	Livetime [s]
ontime0	13082.000100732	Sum of GTIs [s]
ontime1	13078.859040618	Sum of GTIs [s]
ontime2	13082.000100732	Sum of GTIs [s]
ontime3	13082.000100732	Sum of GTIs [s]
l2events	67729	Number of level 2 events



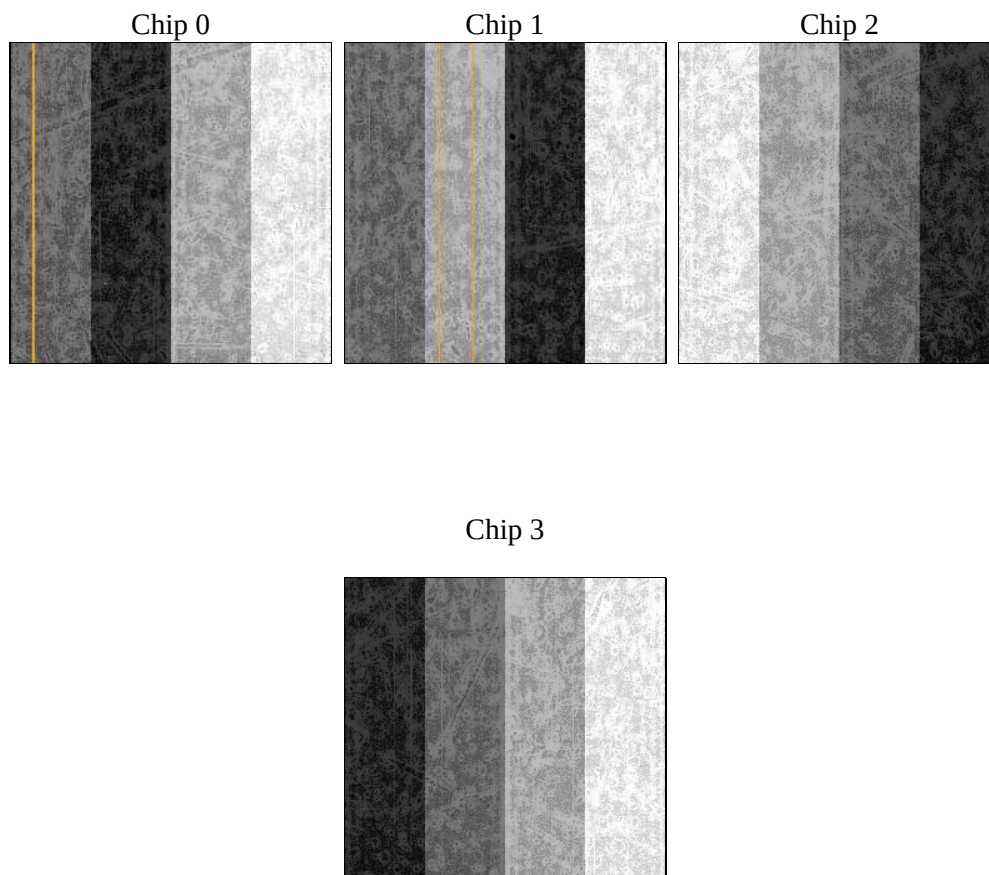
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	13000.000000	[s] Scheduled observation exposure time
ascdsver	10.4.3.1	Processing system revision	ontime	13082.000100732	Sum of GTIs [s]
caldbver	4.7.1	 	ontime0	13082.000100732	Sum of GTIs [s]
date	2016-03-23T17:20:44	Date and time of file creation	ontime1	13078.859040618	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	13082.000100732	Sum of GTIs [s]
			ontime3	13082.000100732	Sum of GTIs [s]
			l1events	358559	Number of level 1 events

2.1.4 Events

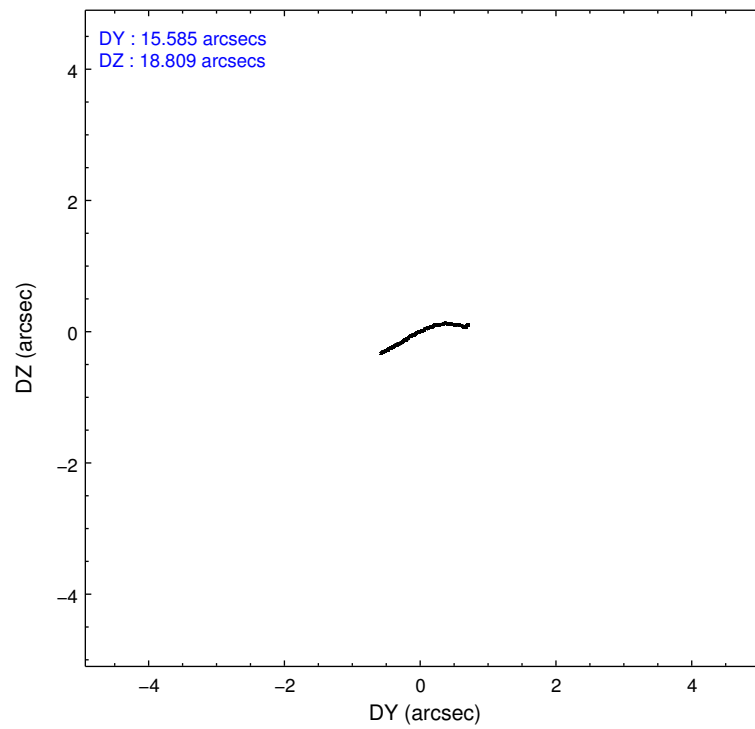
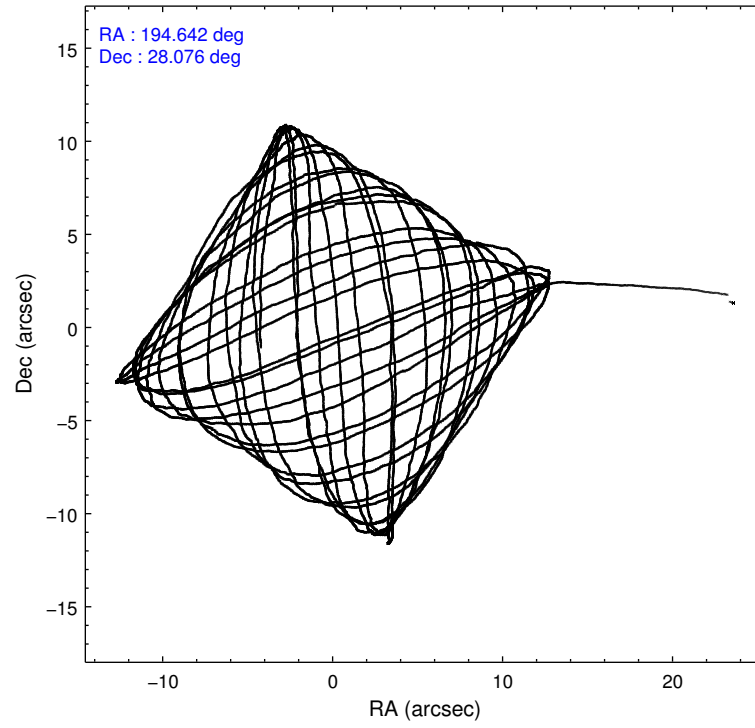
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	79780	90533	90820	97426
rejected events	66107	65627	75861	73001
rejected %	82%	72%	83%	74%

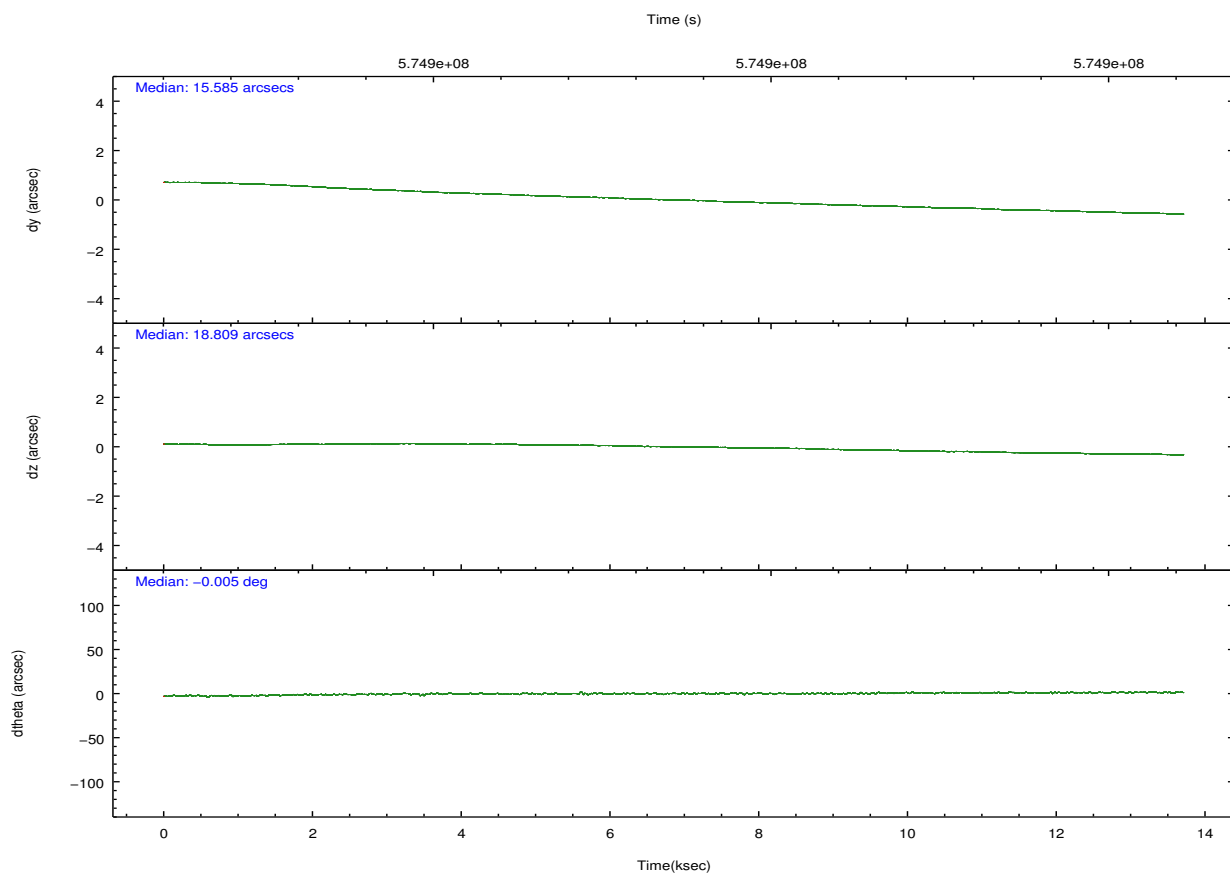
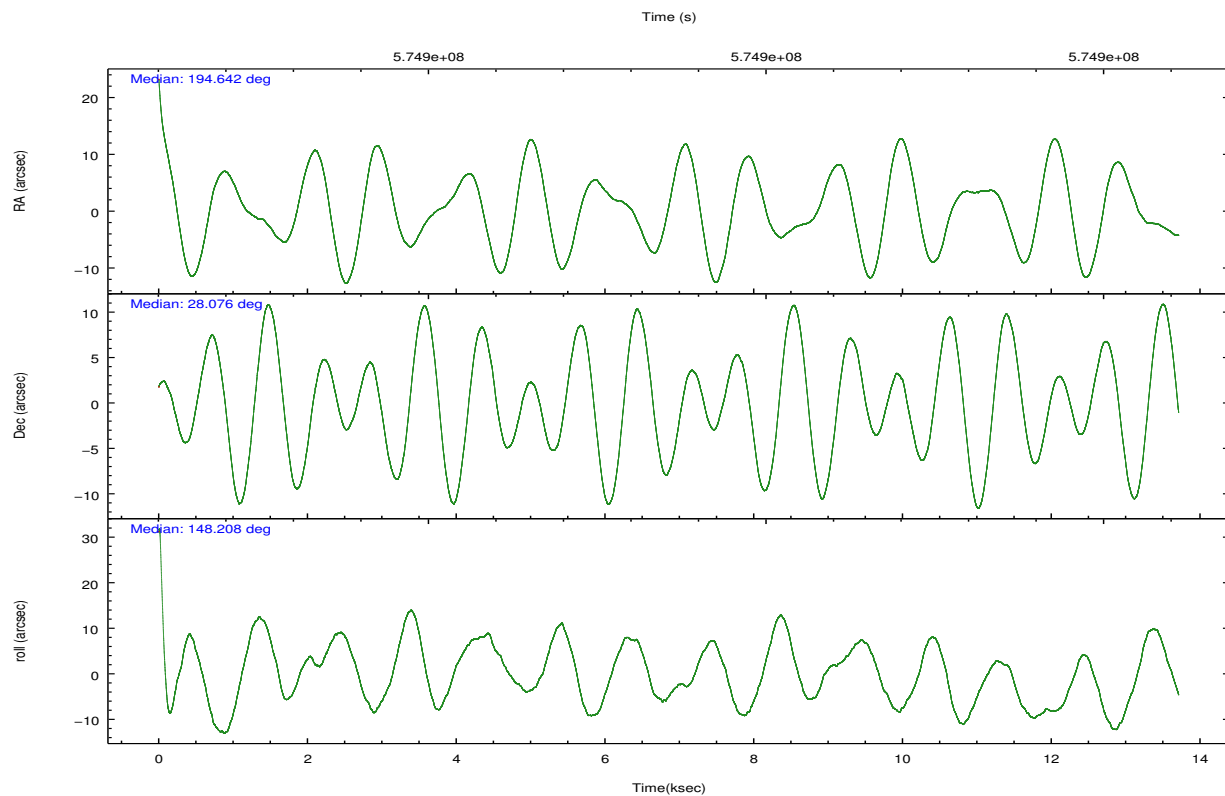
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	6880	15481	8151	15587
	8%	17%	8%	15%
grade 1 events	41	74	71	91
	0%	0%	0%	0%
grade 2 events	2696	4044	2654	3563
	3%	4%	2%	3%
grade 3 events	1058	1345	1123	1456
	1%	1%	1%	1%
grade 4 events	1021	1312	1060	1473
	1%	1%	1%	1%
grade 5 events	3350	3635	3246	3767
	4%	4%	3%	3%
grade 6 events	2024	2736	1975	2357
	2%	3%	2%	2%
grade 7 events	62710	61906	72540	69132
	78%	68%	79%	70%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-0123	ACIS-0123	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	194.672751	194.6414729825327	Subarray requested	NONE	NONE
[deg] Pointing Dec	28.075381	28.07616956315614	Alternating exposures requested	N	N
[deg] Pointing Roll	147.989092	148.2125561457949	[s] Primary exposure time	0.000000	3.1
[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)	574892425.184000	574890207.30524			
Observation start date	2016-03-20T20:19:17	2016-03-20T19:43:27			
[s] Observation end time (MET)	574905425.184000	574906091.73115			
Observation end date	2016-03-20T23:55:57	2016-03-21T00:08:11			
Read mode	TIMED	TIMED			

2.3 Aspect



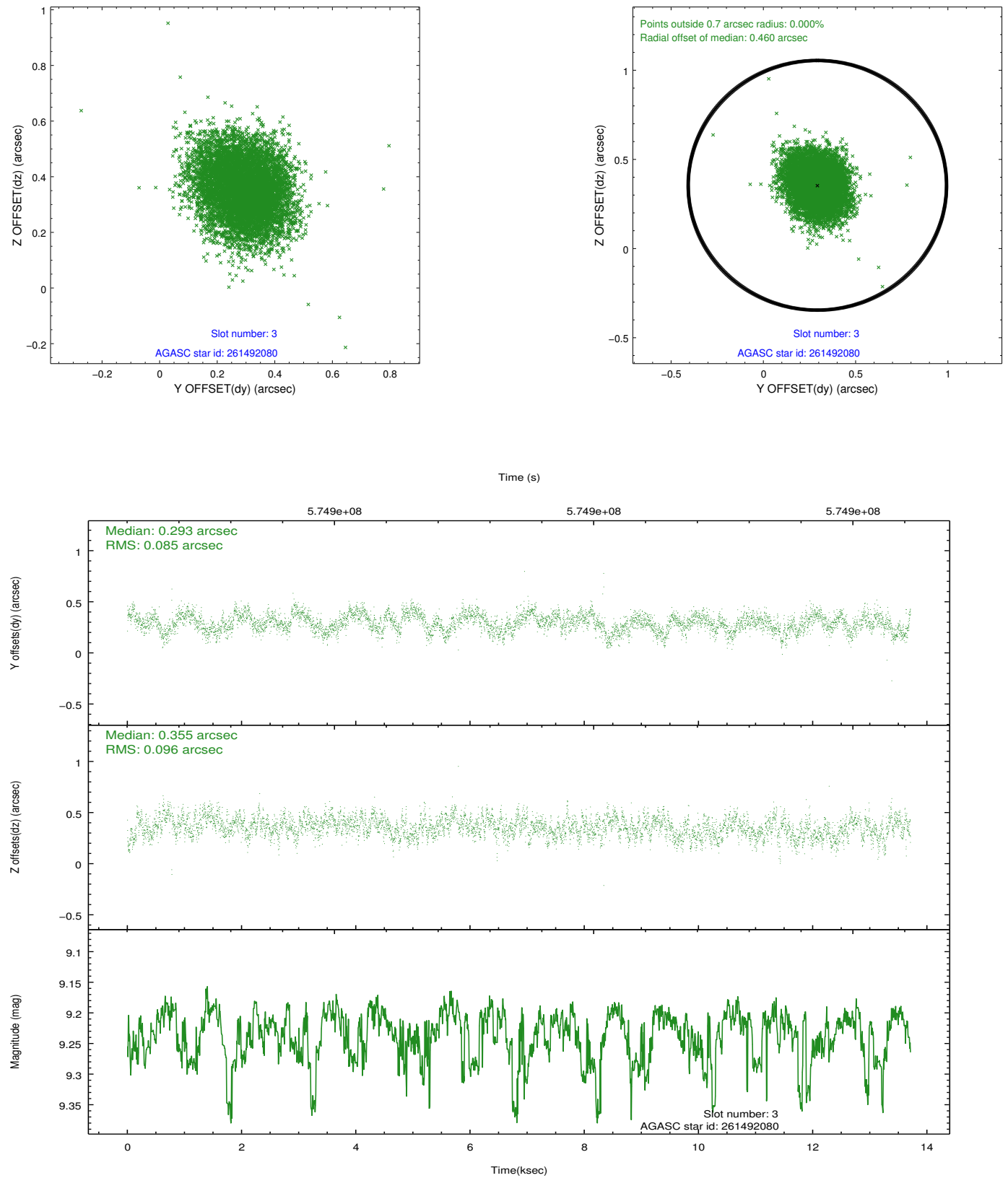


Slot Statistics

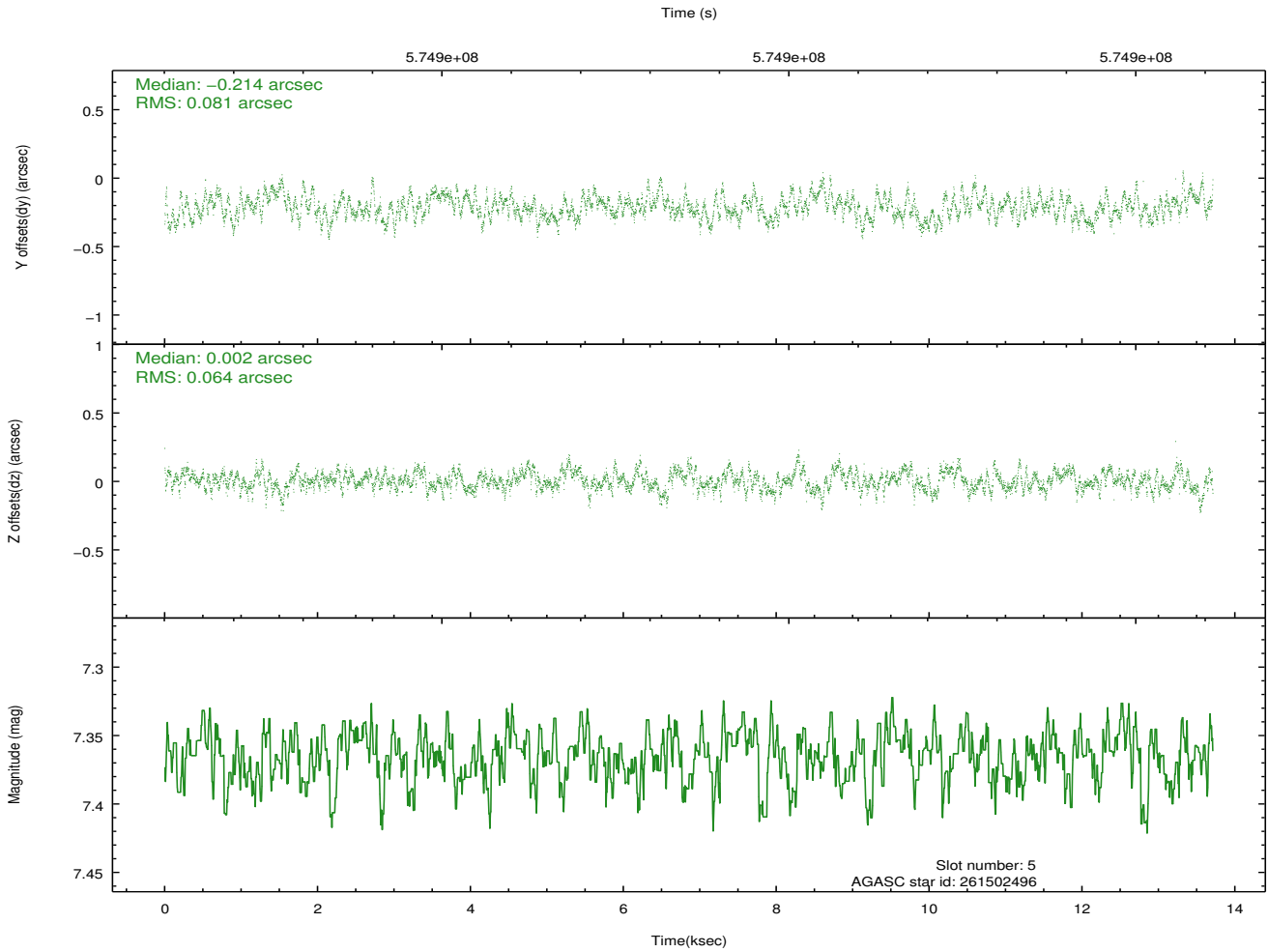
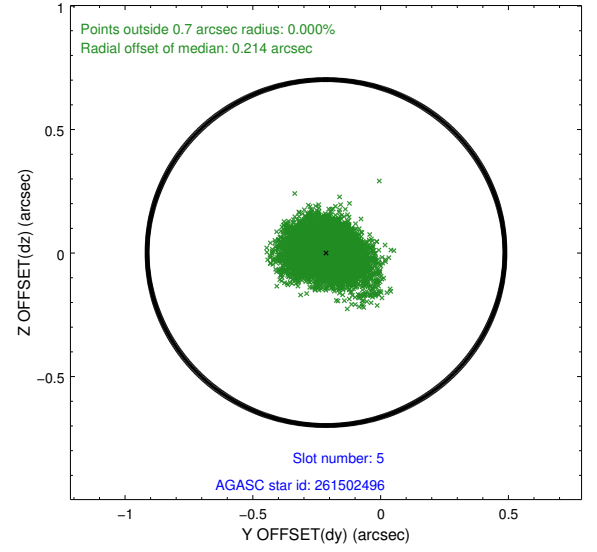
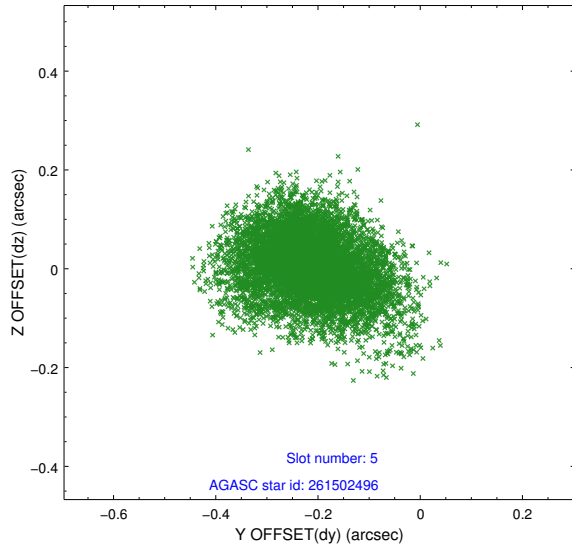
lot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-I-1	7.26	3345	0.060	-0.004	0.010	0.017	0.000000	0.000000	923.92	-842.43
1	FID		ACIS-I-5	7.26	3345	-0.354	0.027	0.009	0.016	0.000000	0.000000	-1824.50	1054.79
2	FID		ACIS-I-6	7.26	3345	0.203	0.046	0.009	0.016	0.000000	0.000000	389.11	1699.87
3	GUIDE	used	261492080	9.23	6636	0.293	0.355	0.137	0.215	194.976344	28.631585	249.29	-2206.90
4	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
5	GUIDE	used	261502496	7.36	6689	-0.214	0.002	0.110	0.176	194.887297	28.065668	-596.05	-332.33
6	GUIDE	used	261505808	9.34	6682	-0.165	0.002	0.181	0.302	193.710324	27.913269	2293.02	2107.92
7	BAD	used	261505760	9.77	6382	0.087	-0.377	0.216	0.351	193.736841	27.992885	2371.84	1820.07

2.4 Star Slots

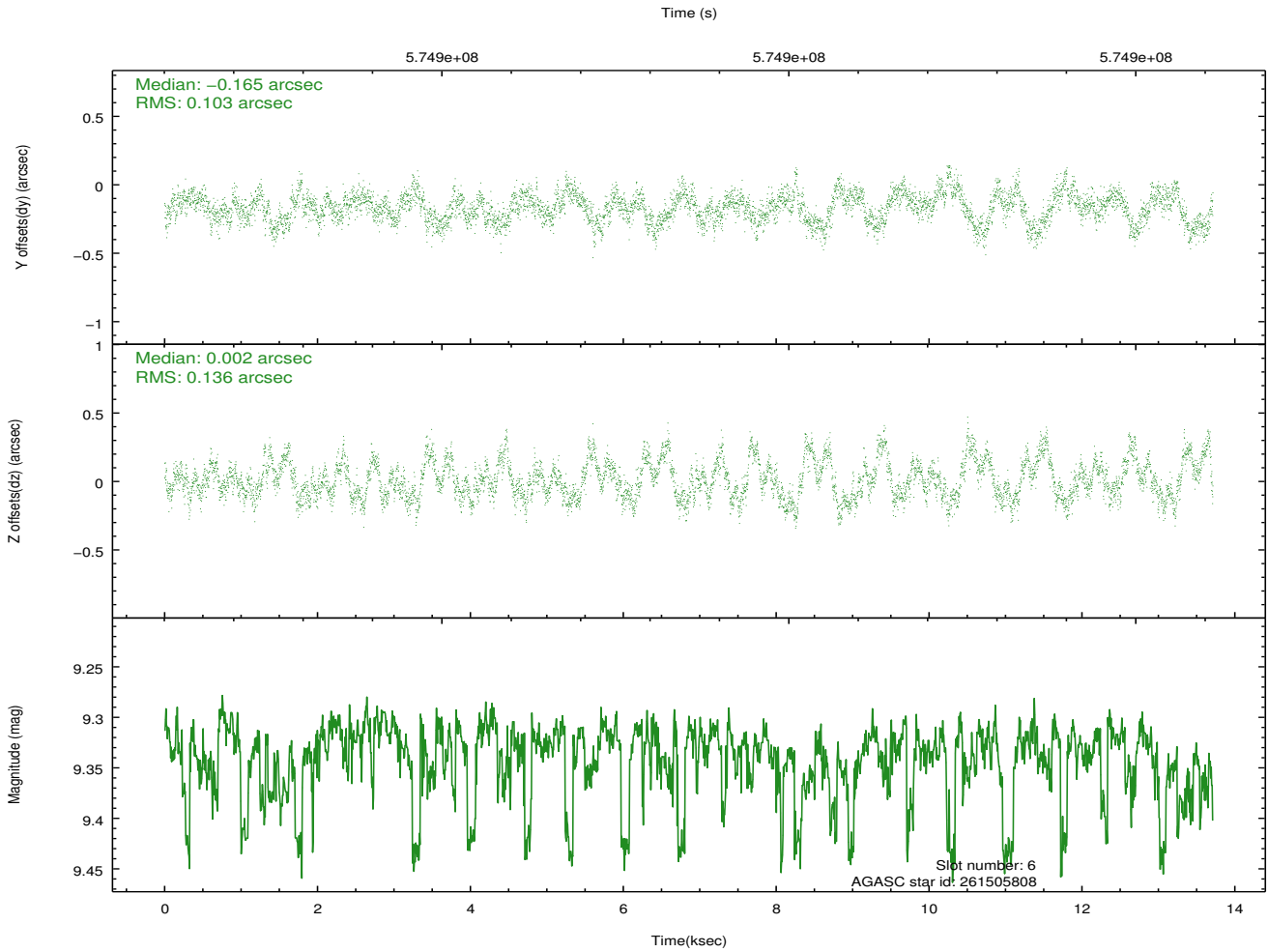
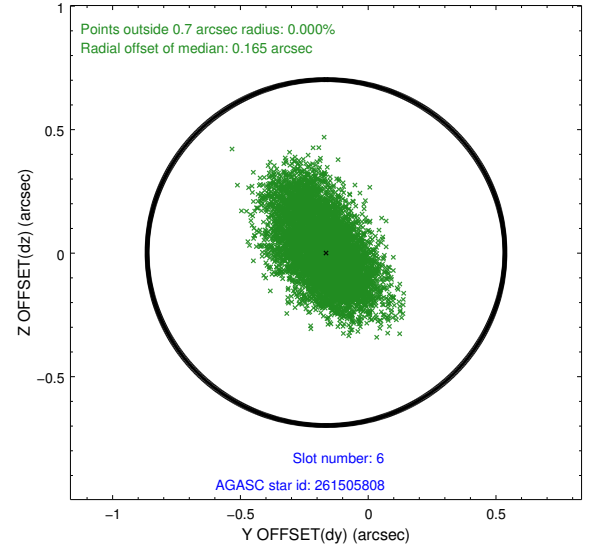
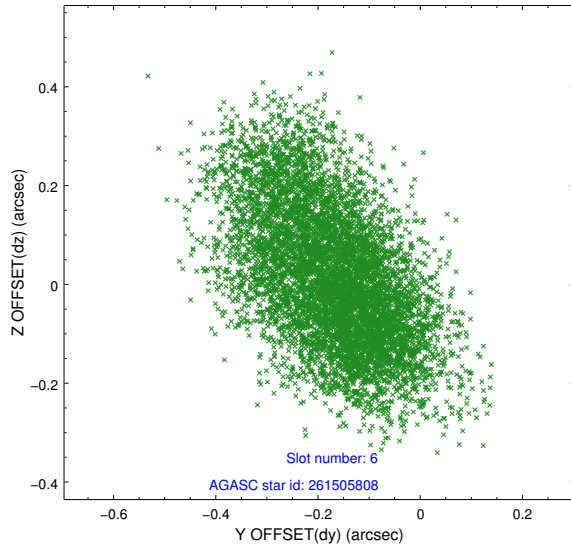
2.4.1 Slot 3



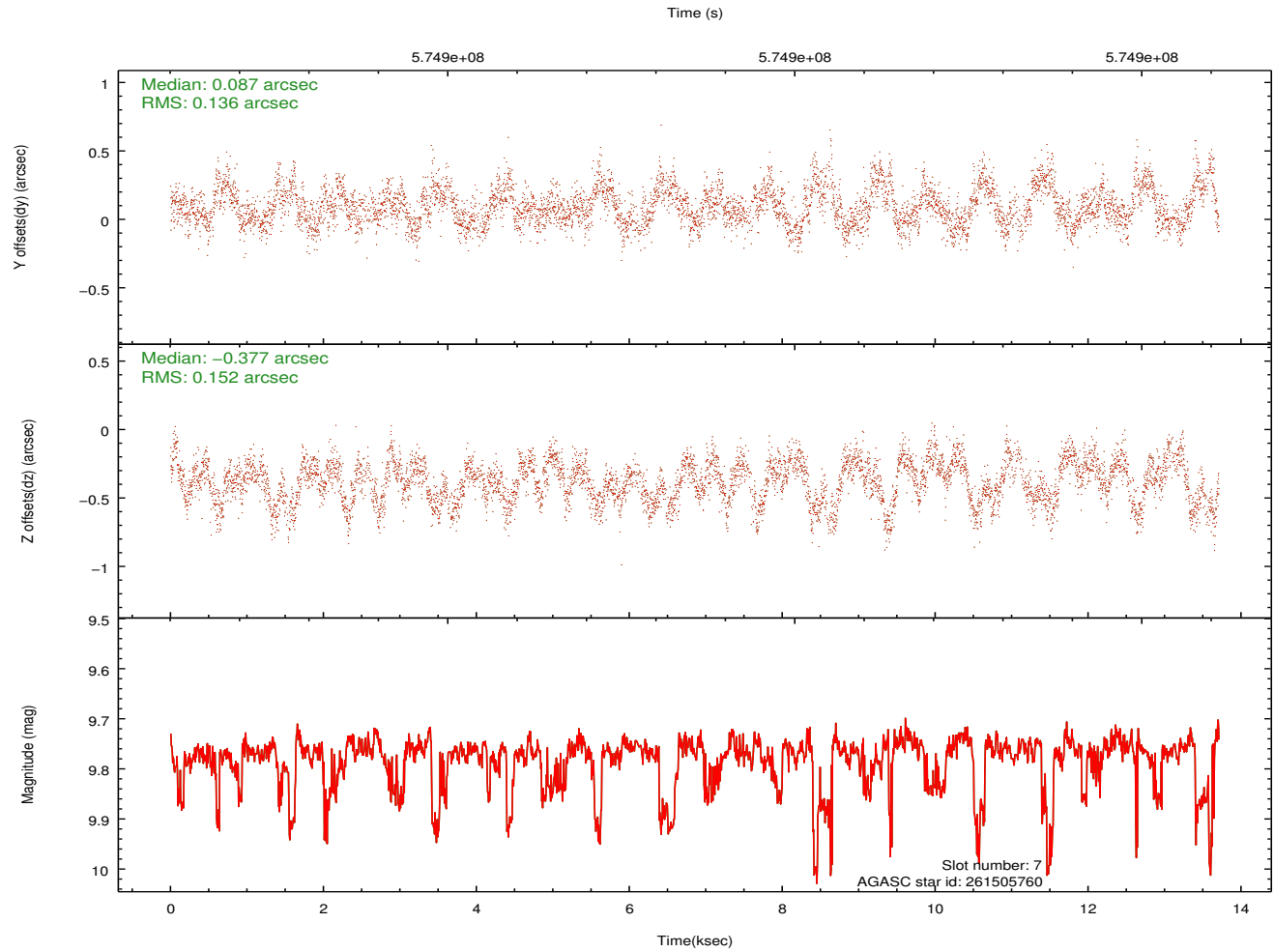
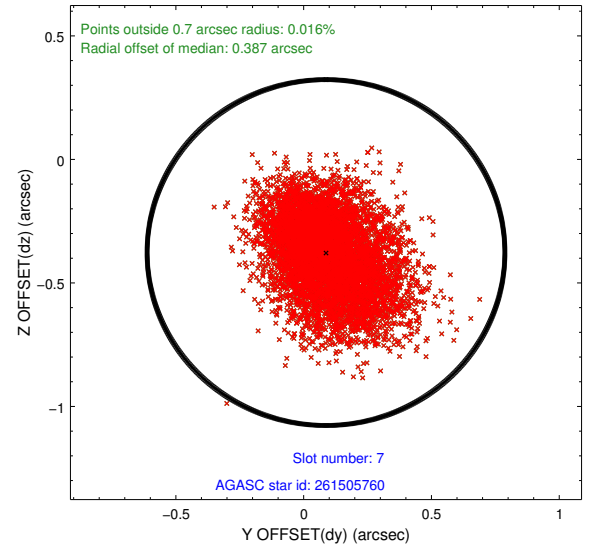
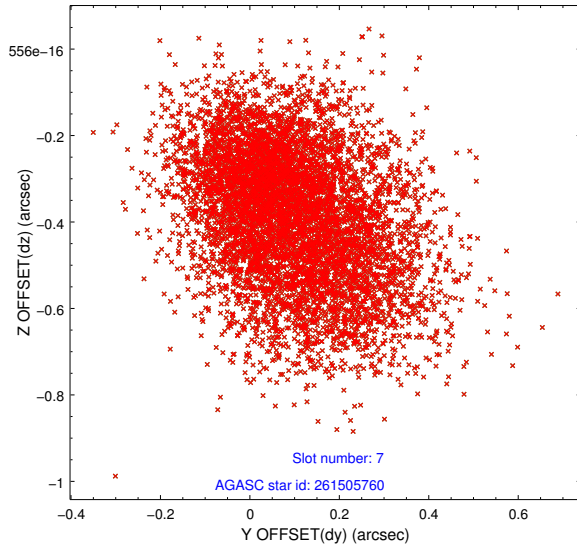
2.4.2 Slot 5



2.4.3 Slot 6

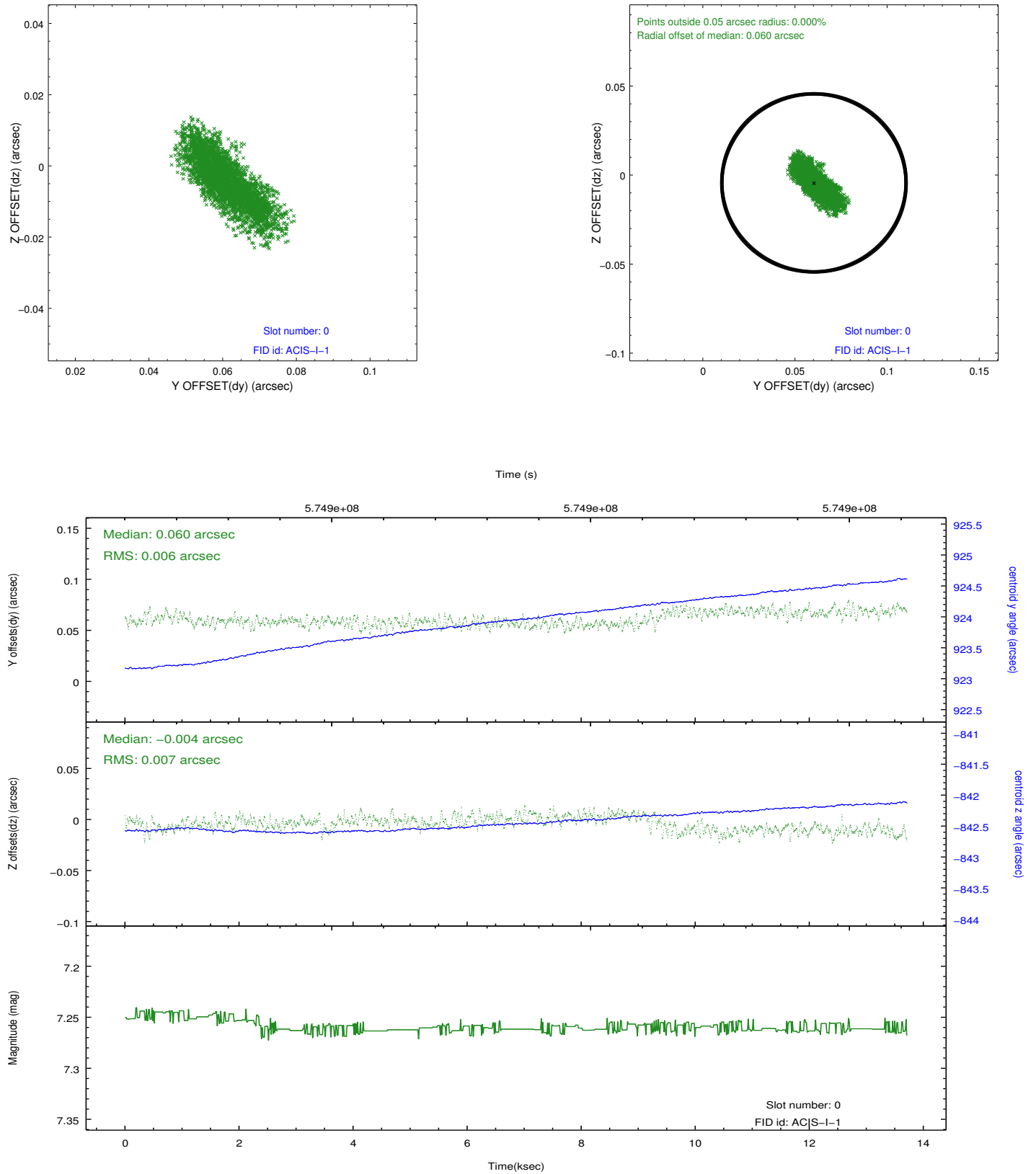


2.4.4 Slot 7

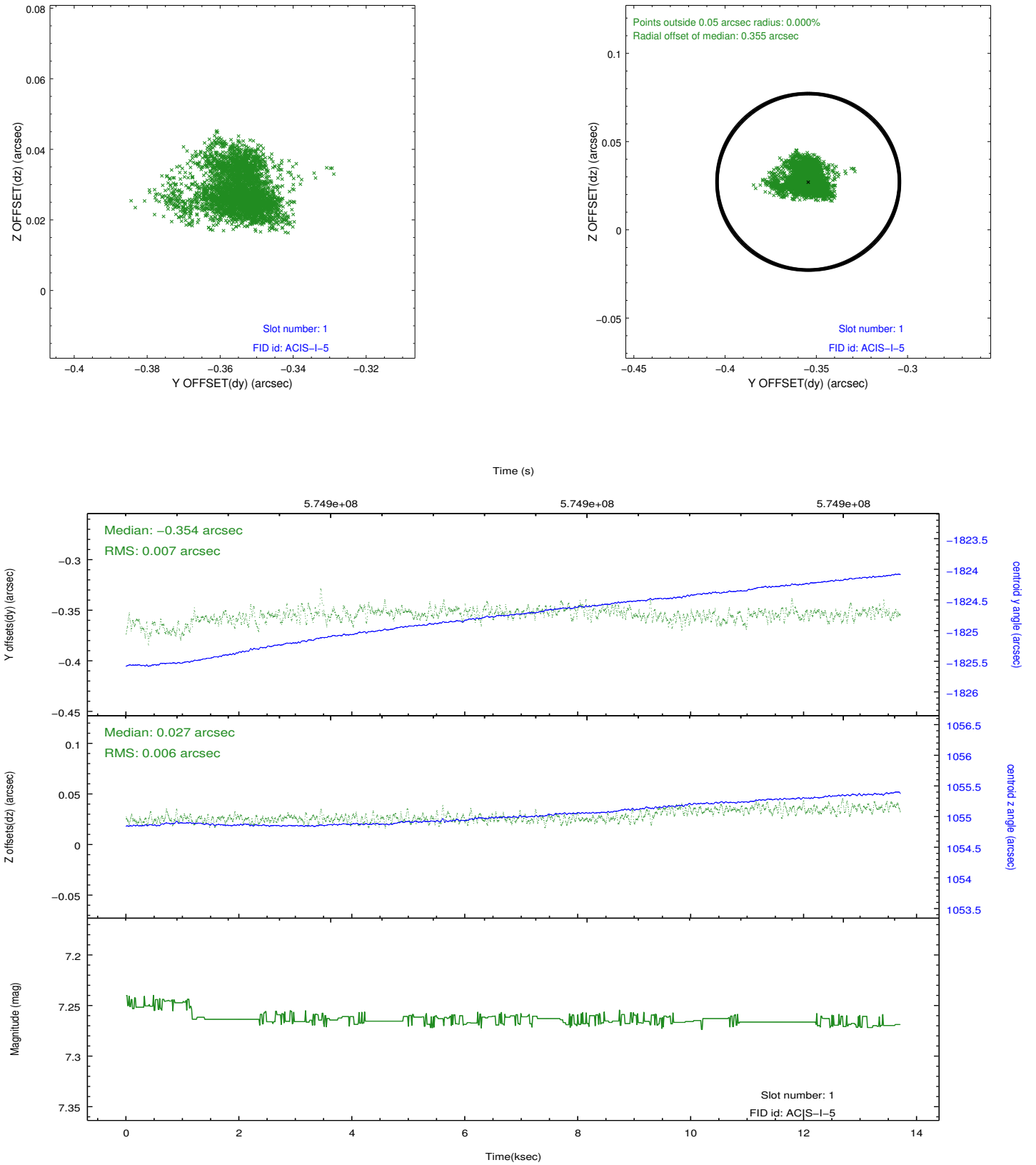


2.5 FID Slots

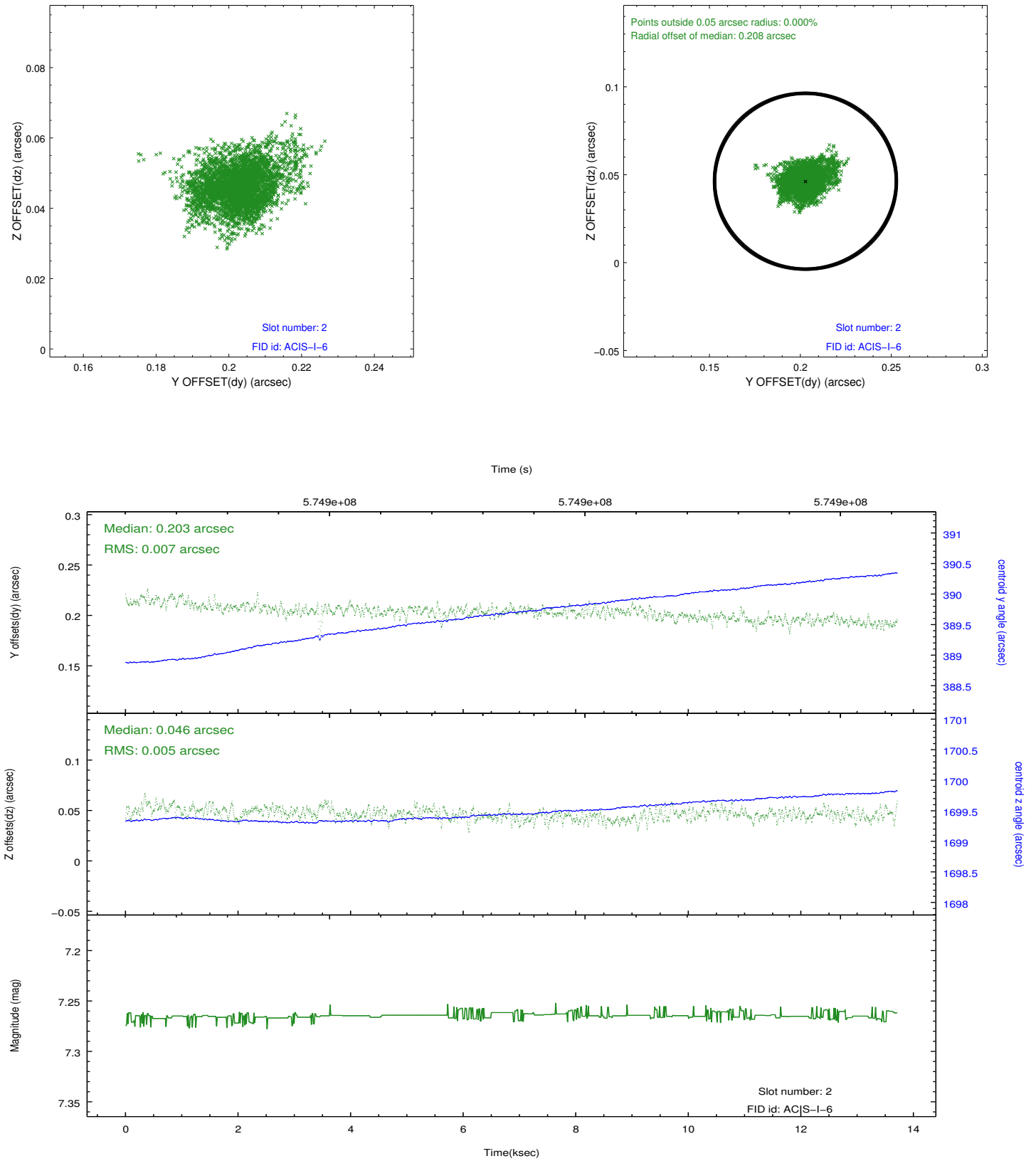
2.5.1 Slot 0



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)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	13.082000100732

A.2 Comments

The guide star in slot 4 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this star from the solution.

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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.