

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1789 - L2 Version 5
Chandra X-Ray Center

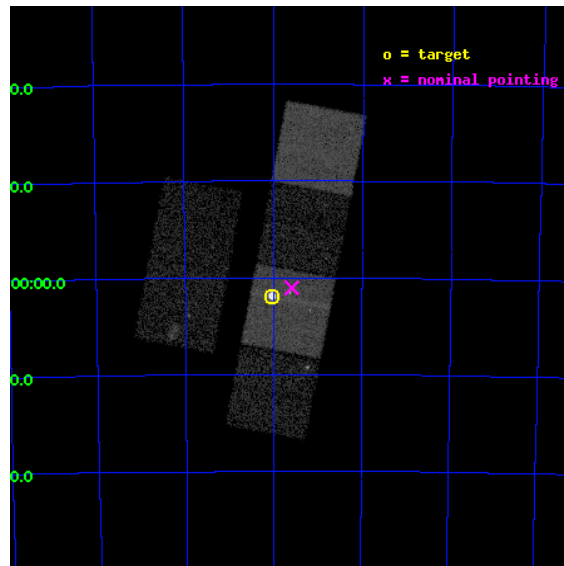
L2 Processing Date : Aug 29 2012

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1 Front

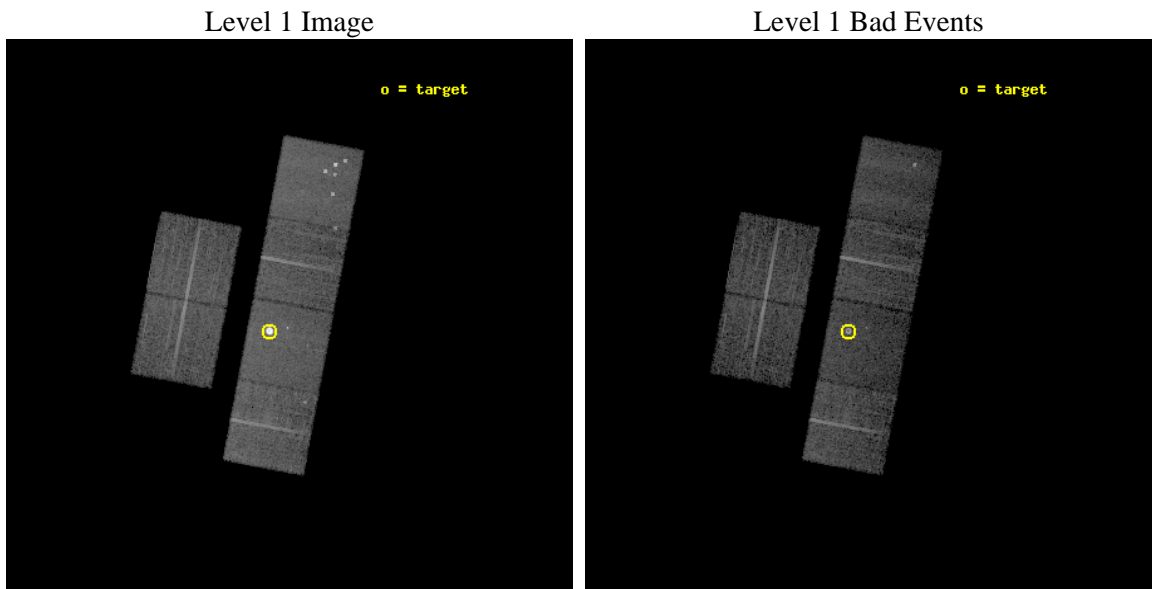
seq_num	590215	Sequence number
obs_id	1789	Observation id
title	ACIS CHIP RESPONSE TO LINES WITH E=0.6-1.5 KEV	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72.3 [Chip S3, T=110, Offsets=-1,-2,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	15.897055469327	Nominal RA [deg]
dec_nom	-72.017270754571	Nominal Dec [deg]
roll_nom	100.71847545554	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7673.6000071317	Sum of GTIs [s]
livetime	7576.4322633542	Livetime [s]
ontime2	7673.6000071317	Sum of GTIs [s]
ontime3	7673.6000071317	Sum of GTIs [s]
ontime5	7673.6000071317	Sum of GTIs [s]
ontime6	7673.6000071317	Sum of GTIs [s]
ontime7	7673.6000071317	Sum of GTIs [s]
ontime8	7673.6000071317	Sum of GTIs [s]
l2events	134894	Number of level 2 events



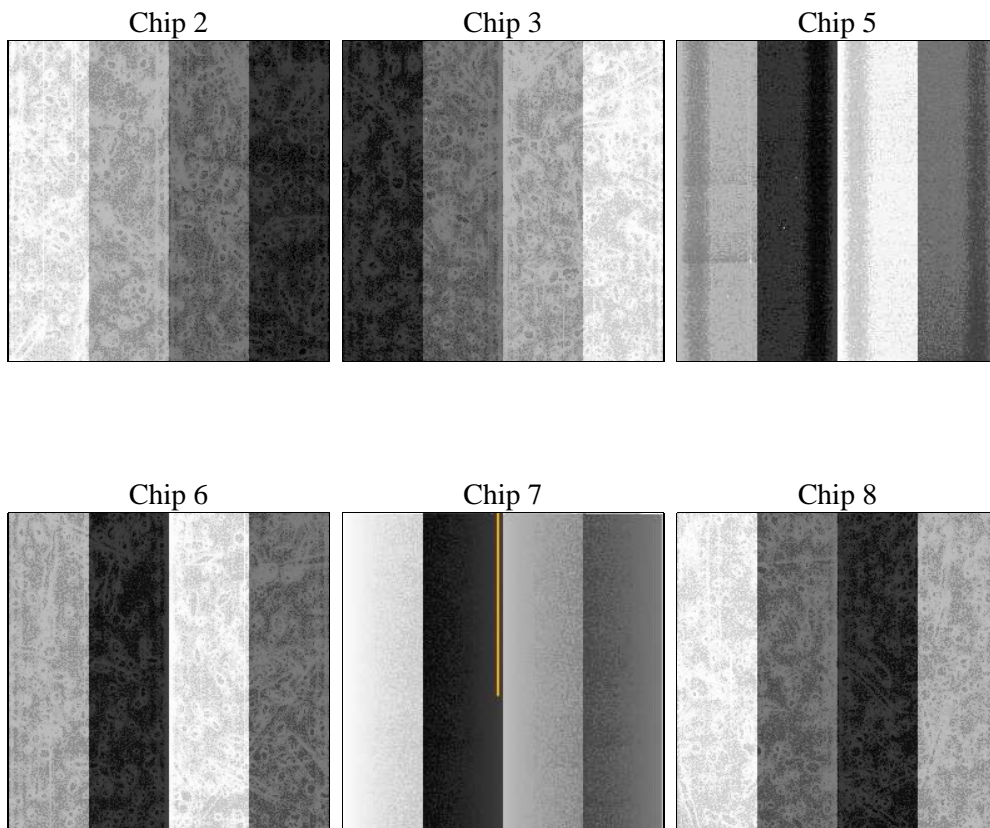
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7920.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7673.6000071317	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime2	7673.6000071317	Sum of GTIs [s]
date	2012-08-30T01:17:10	Date and time of file creation	ontime3	7673.6000071317	Sum of GTIs [s]
revision	5	Processing version of data	ontime5	7673.6000071317	Sum of GTIs [s]
			ontime6	7673.6000071317	Sum of GTIs [s]
			ontime7	7673.6000071317	Sum of GTIs [s]
			ontime8	7673.6000071317	Sum of GTIs [s]
			l1events	442770	Number of level 1 events

2.1.4 Events

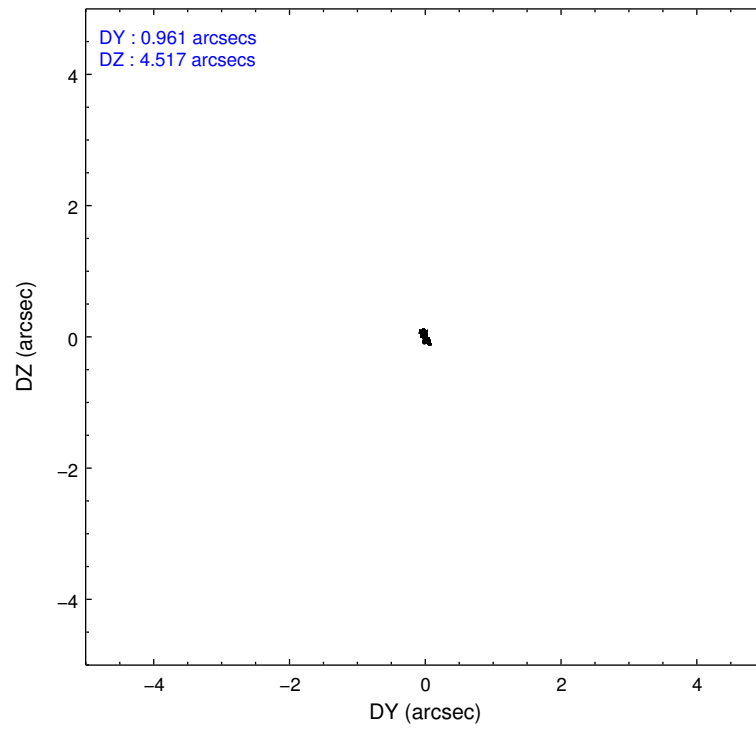
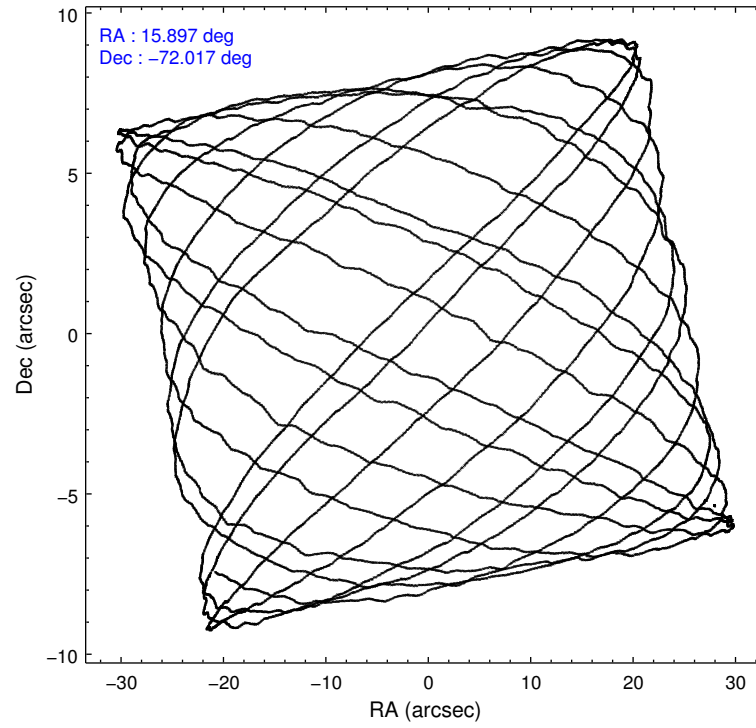
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8		ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	56087	54011	78173	55379	131018	68102	grade 0 events	1091	1601	9750	1344	24468	3160
rejected events	51095	48251	41012	49717	40925	56296		1%	2%	12%	2%	18%	4%
rejected %	91%	89%	52%	89%	31%	82%	grade 1 events	10	7	690	13	520	22
								0%	0%	0%	0%	0%	0%
							grade 2 events	1998	2112	7842	2124	23316	3585
								3%	3%	10%	3%	17%	5%
							grade 3 events	301	359	1135	330	9835	946
								0%	0%	1%	0%	7%	1%
							grade 4 events	292	320	966	326	8816	881
								0%	0%	1%	0%	6%	1%
							grade 5 events	1025	1090	2629	1212	5126	1590
								1%	2%	3%	2%	3%	2%
							grade 6 events	1311	1371	17485	1541	23691	3262
								2%	2%	22%	2%	18%	4%
							grade 7 events	50059	47151	37676	48489	35246	54656
								89%	87%	48%	87%	26%	80%

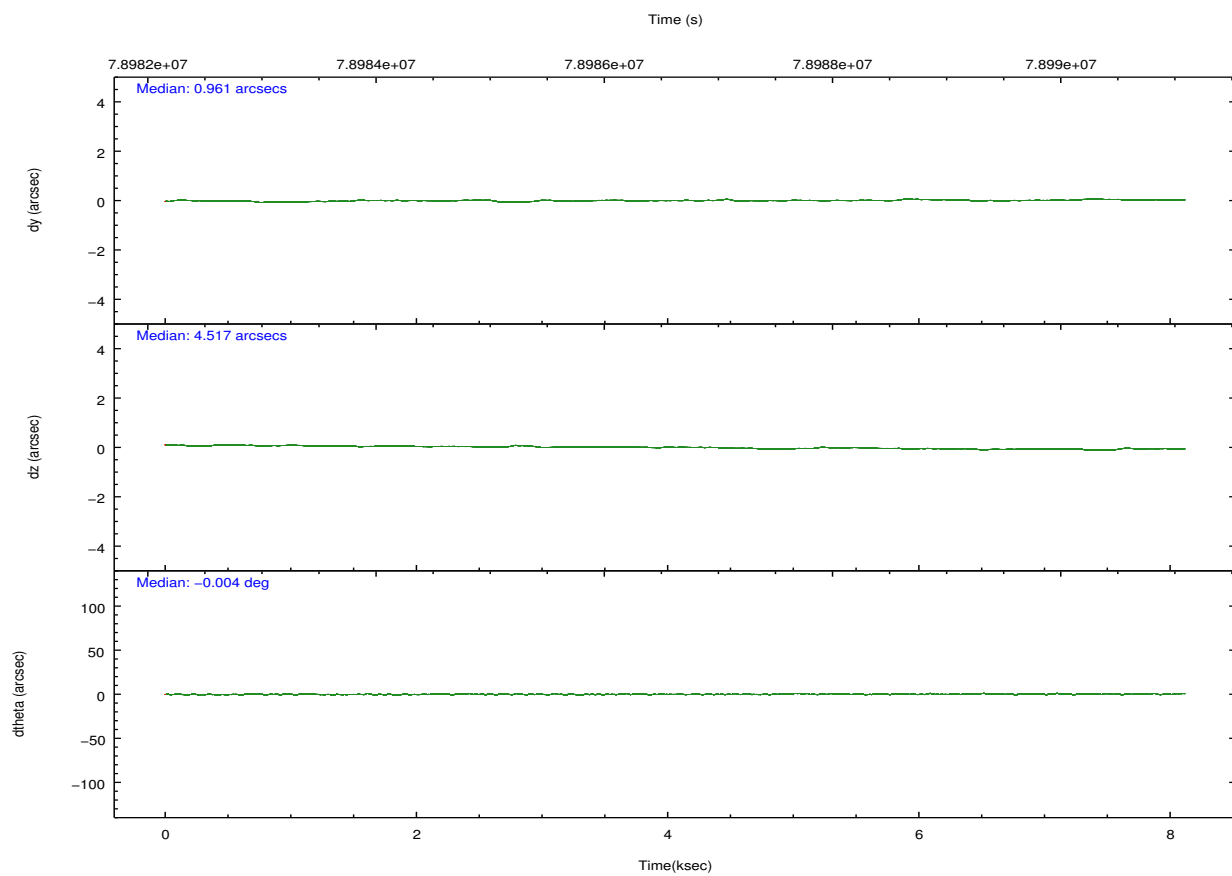
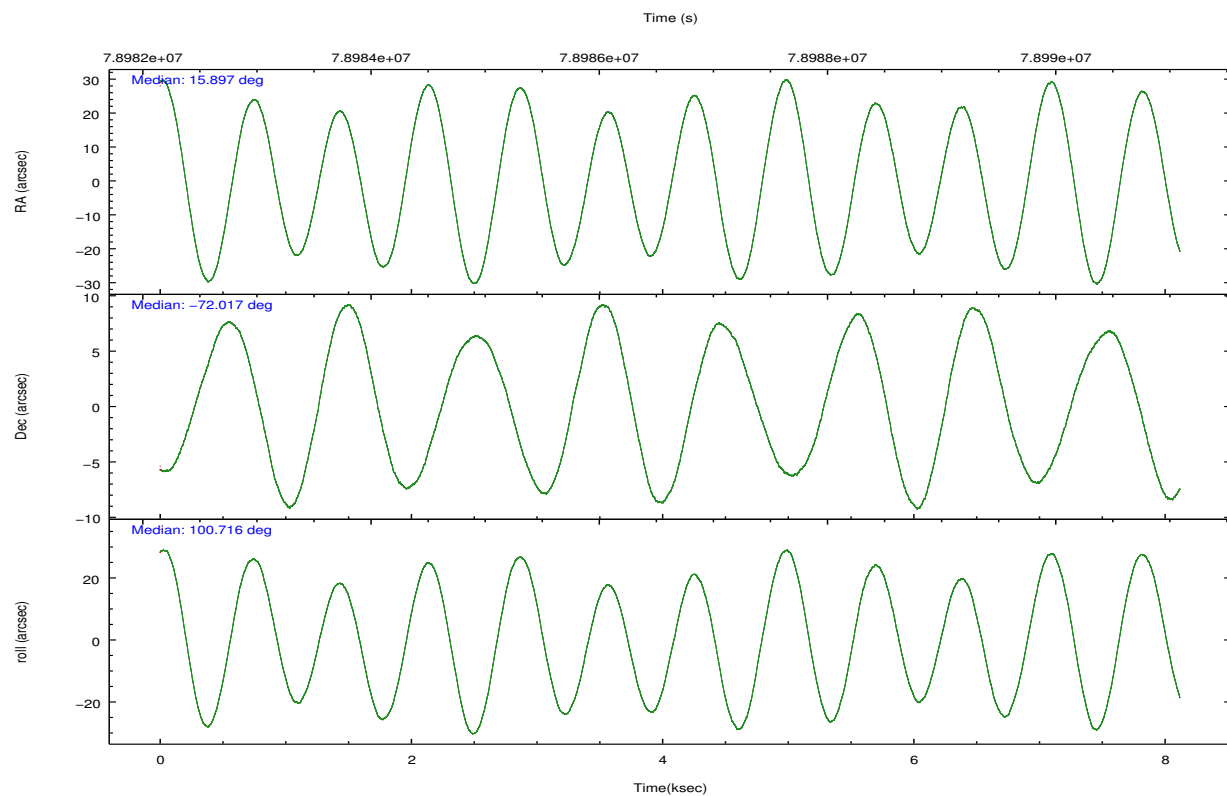
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	15.955310	15.89705546932747
[deg] Pointing Dec	-72.037920	-72.01727075457106
[deg] Pointing Roll	100.617257	100.7184754555361
[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)	78982759.184000	78982383.209093
Observation start date	2000-07-03T03:38:15	2000-07-03T03:33:03
[s] Observation end time (MET)	78990679.184000	78990812.809404
Observation end date	2000-07-03T05:50:15	2000-07-03T05:53:32
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



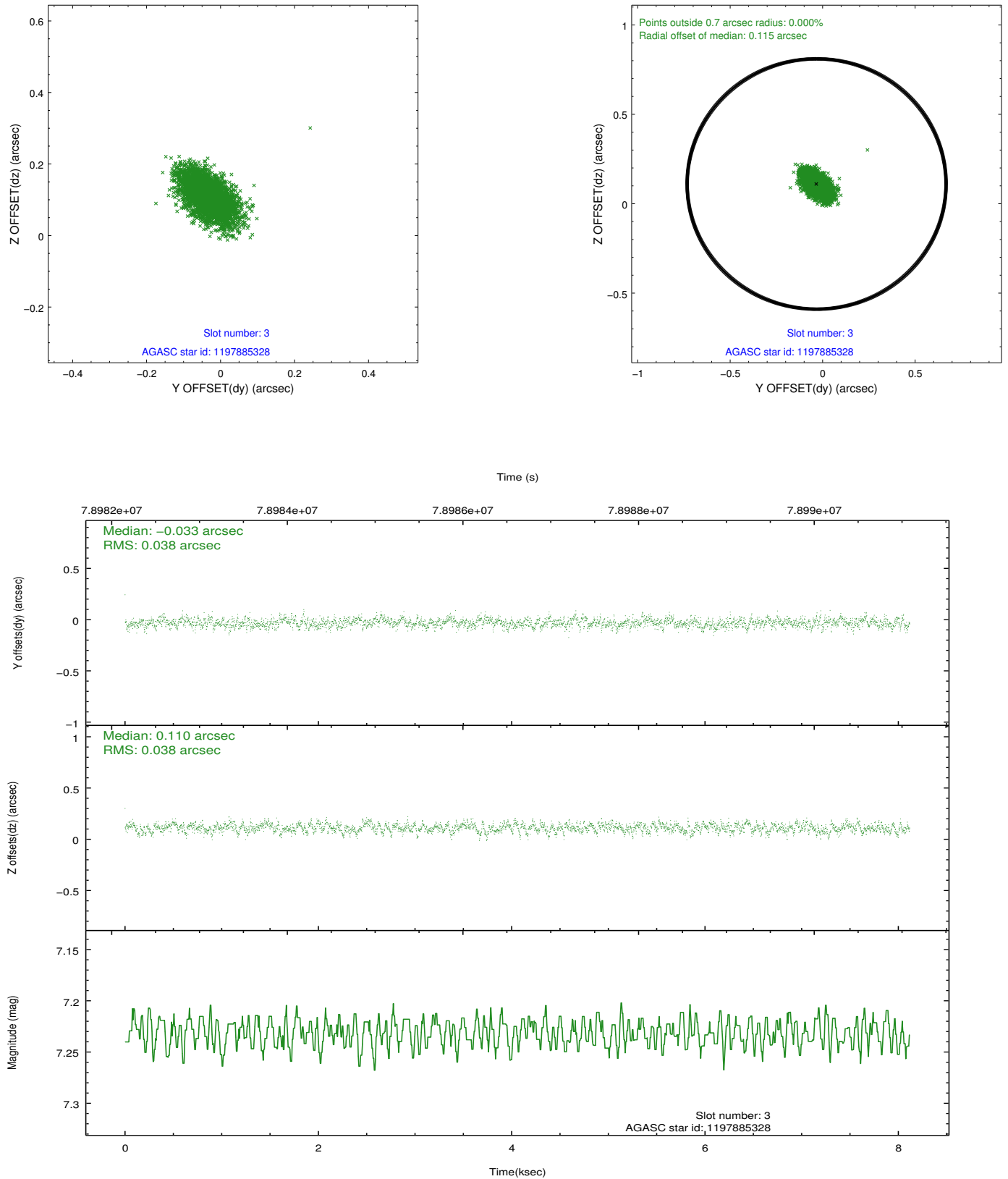


Slot Statistics

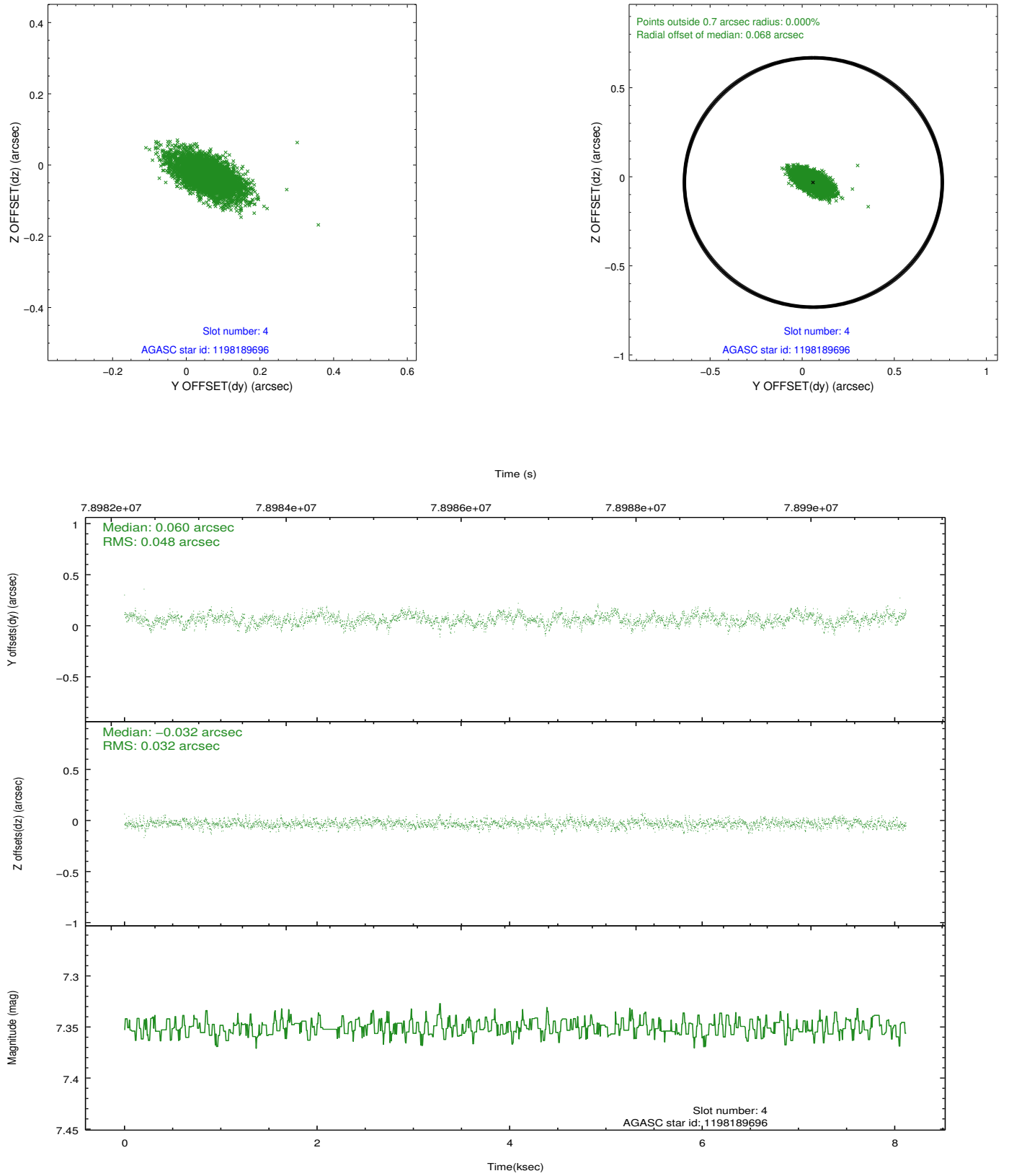
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	1981	-0.024	-0.008	0.006	0.011	0.000000	0.000000	-753.58	-1725.56
1	FID	ACIS-S-4	7.21	1981	-0.004	0.014	0.005	0.009	0.000000	0.000000	2159.42	182.21
2	FID	ACIS-S-5	7.24	1981	-0.003	0.003	0.006	0.011	0.000000	0.000000	-1805.50	176.68
3	GUIDE	1197885328	7.23	3961	-0.033	0.110	0.056	0.097	16.283090	-71.733943	1007.01	-565.03
4	GUIDE	1198189696	7.35	3961	0.060	-0.032	0.058	0.108	15.223750	-72.697522	-2193.50	1207.85
5	GUIDE	1197750936	7.57	3961	-0.117	-0.084	0.065	0.108	15.387940	-71.549550	1843.99	312.13
6	GUIDE	1197884536	8.49	3960	-0.014	0.058	0.064	0.105	17.160729	-71.835289	455.52	-1461.52
7	GUIDE	1197749664	9.58	3959	0.103	-0.053	0.086	0.144	15.809015	-72.366369	-1132.22	374.06

2.4 Star Slots

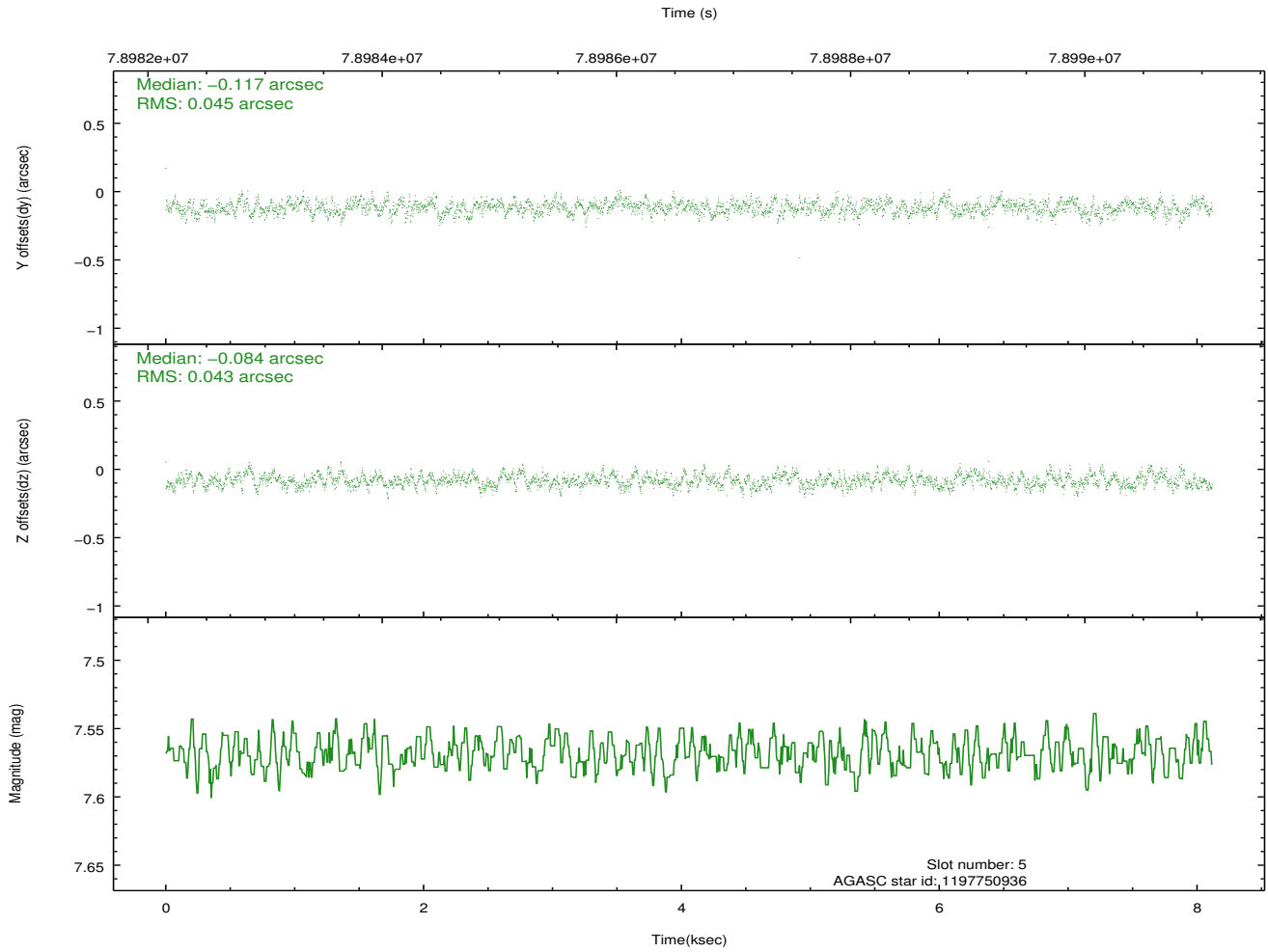
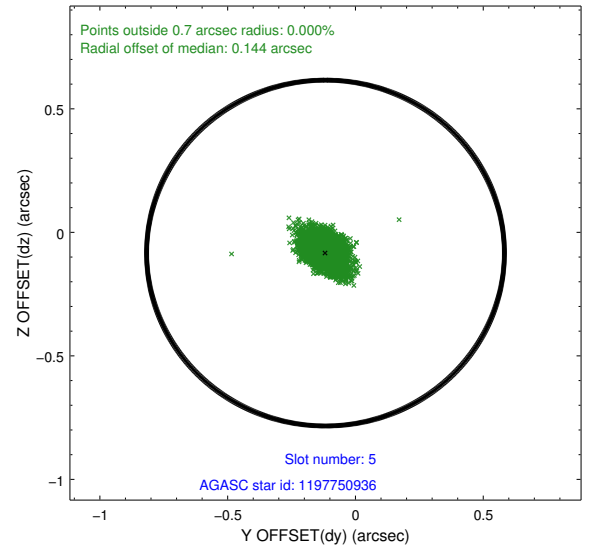
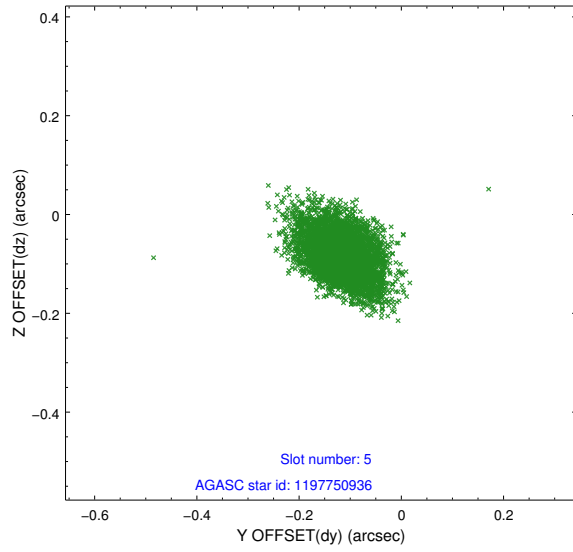
2.4.1 Slot 3



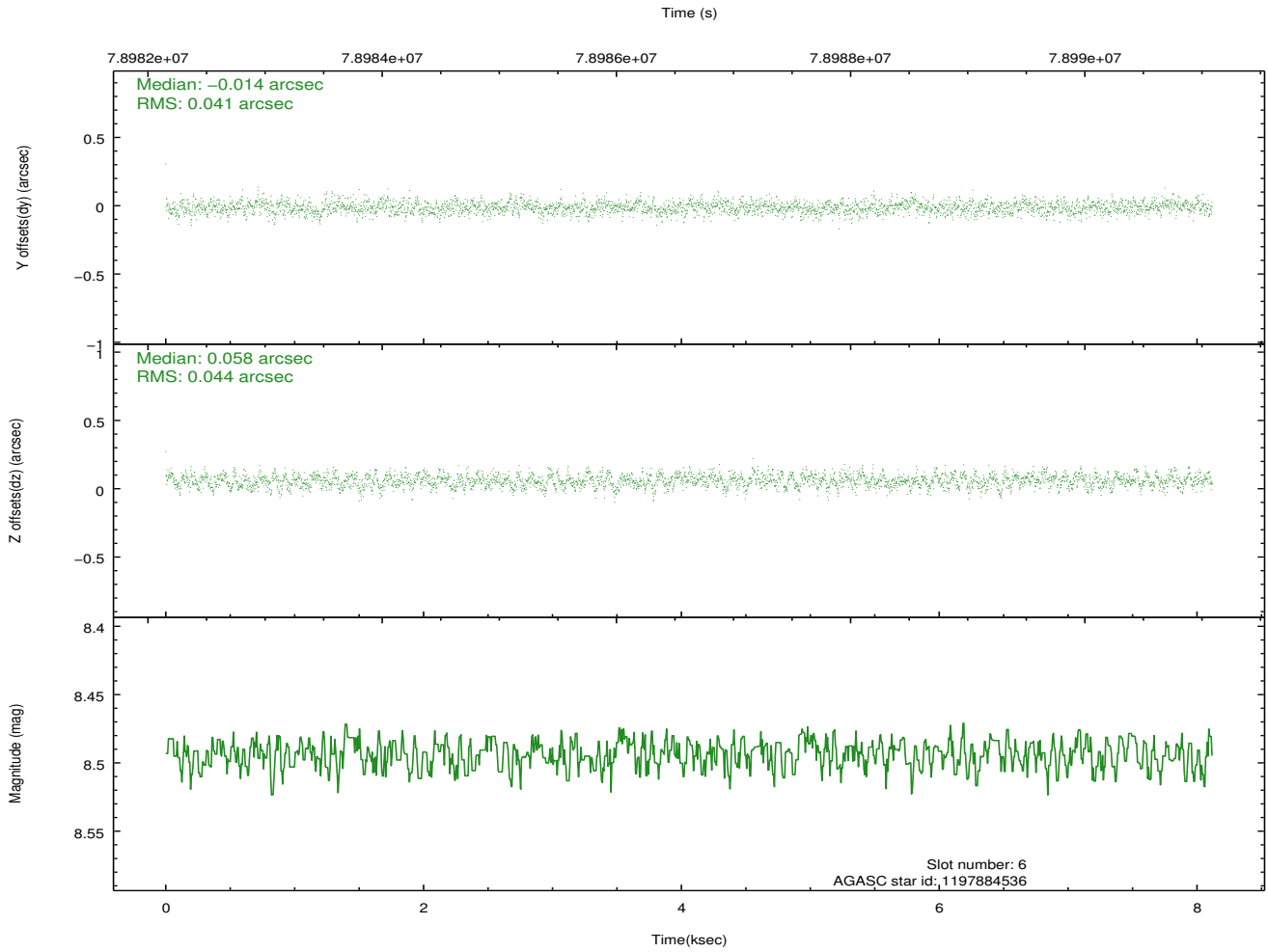
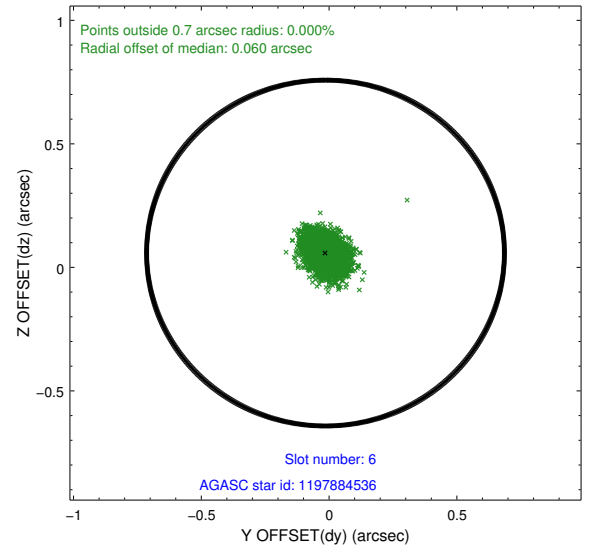
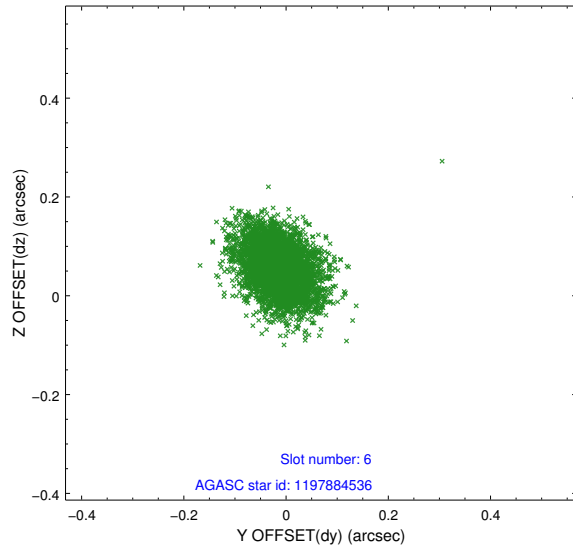
2.4.2 Slot 4



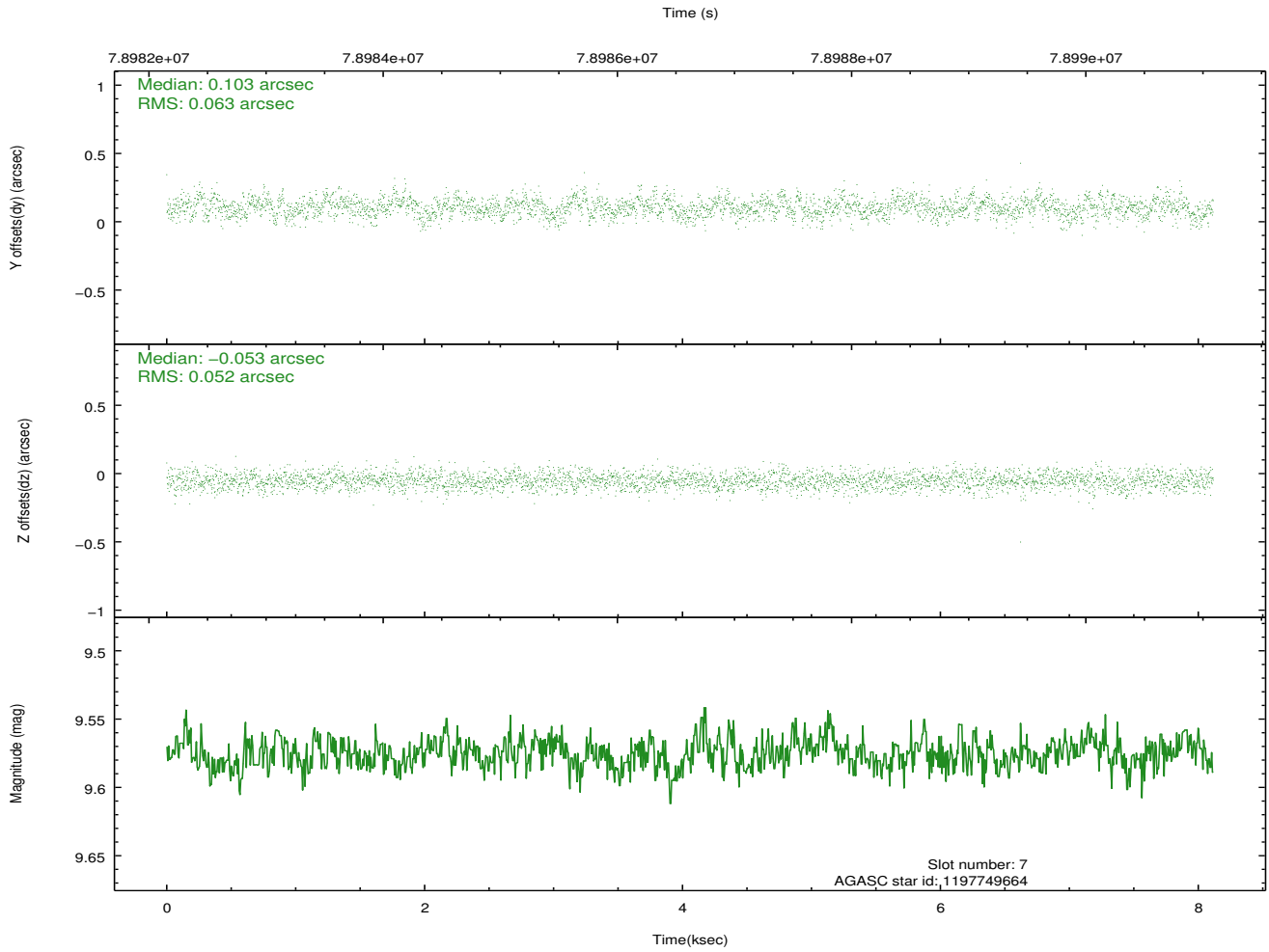
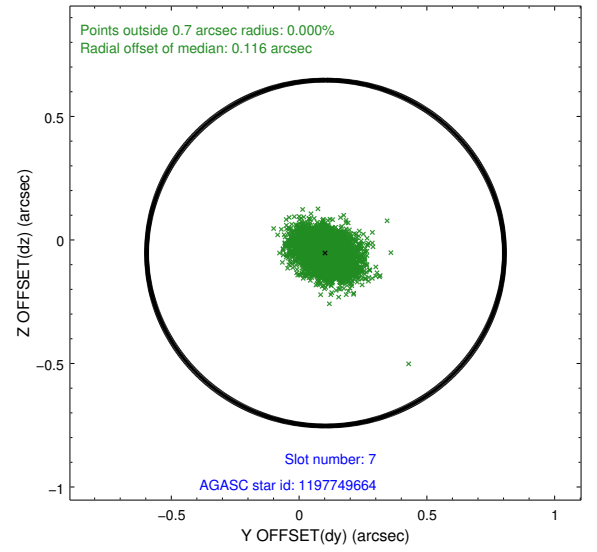
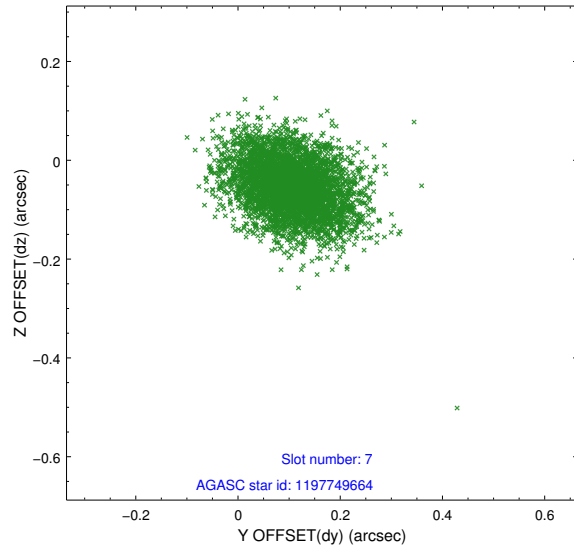
2.4.3 Slot 5



2.4.4 Slot 6

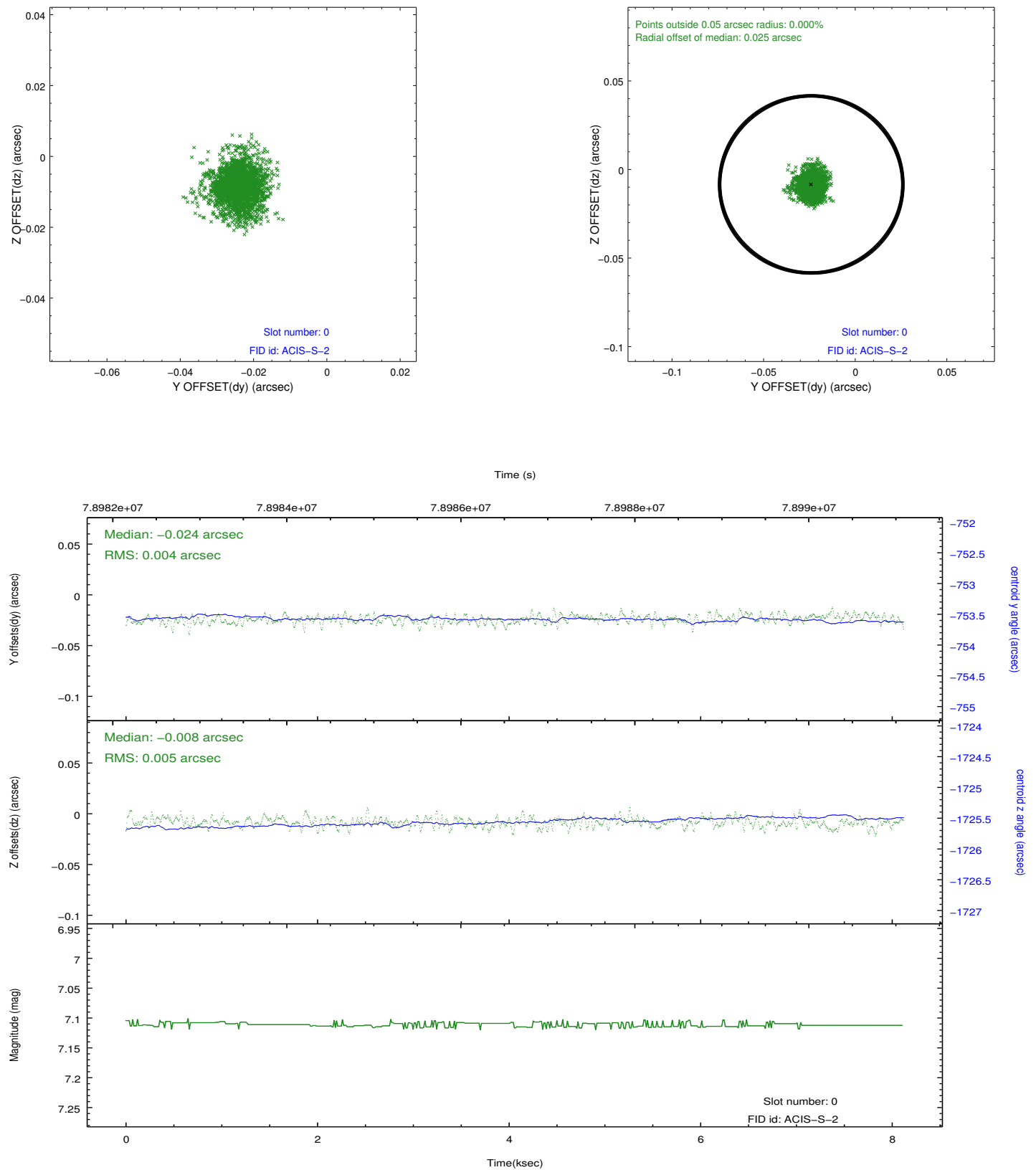


2.4.5 Slot 7

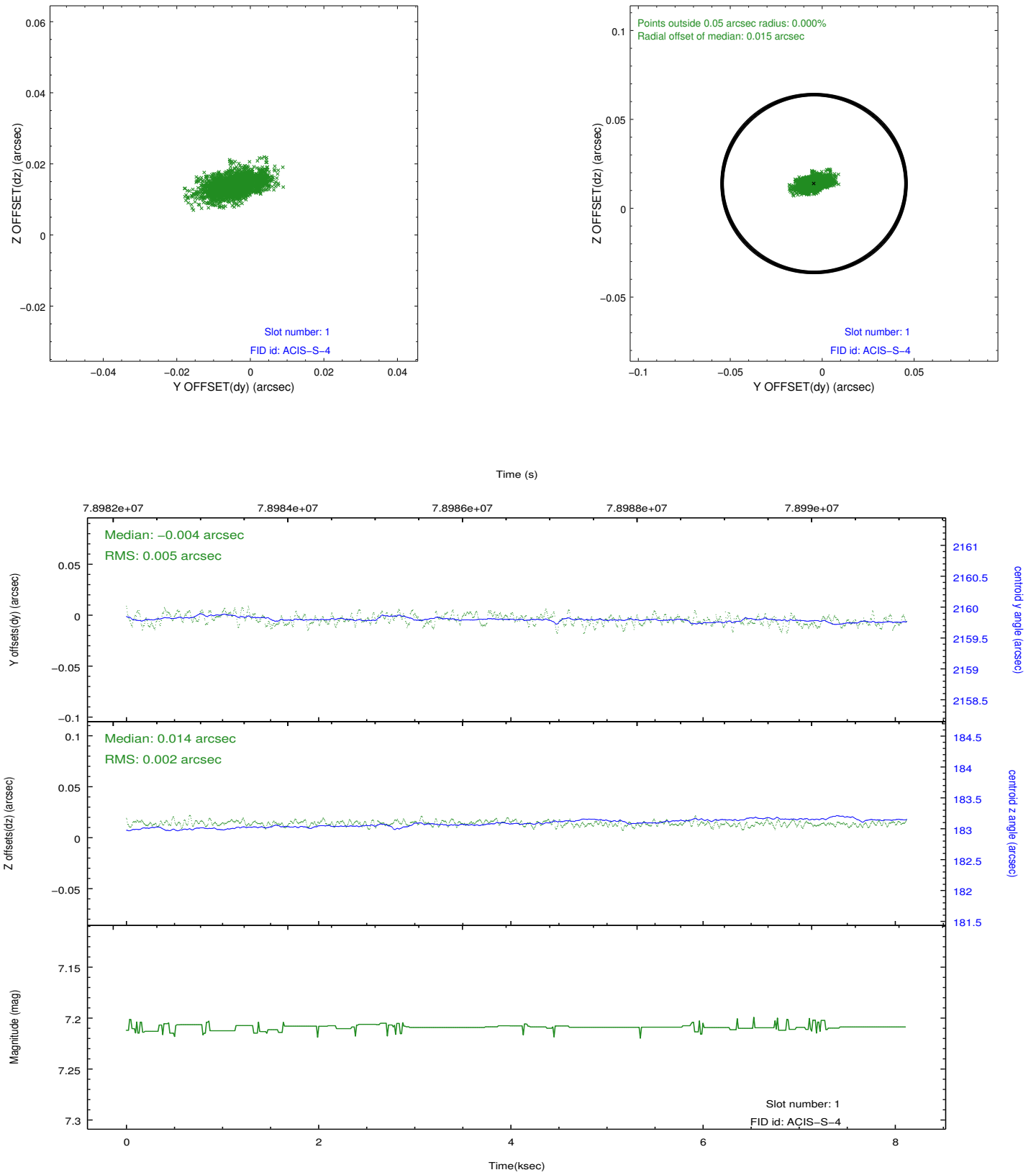


2.5 FID Slots

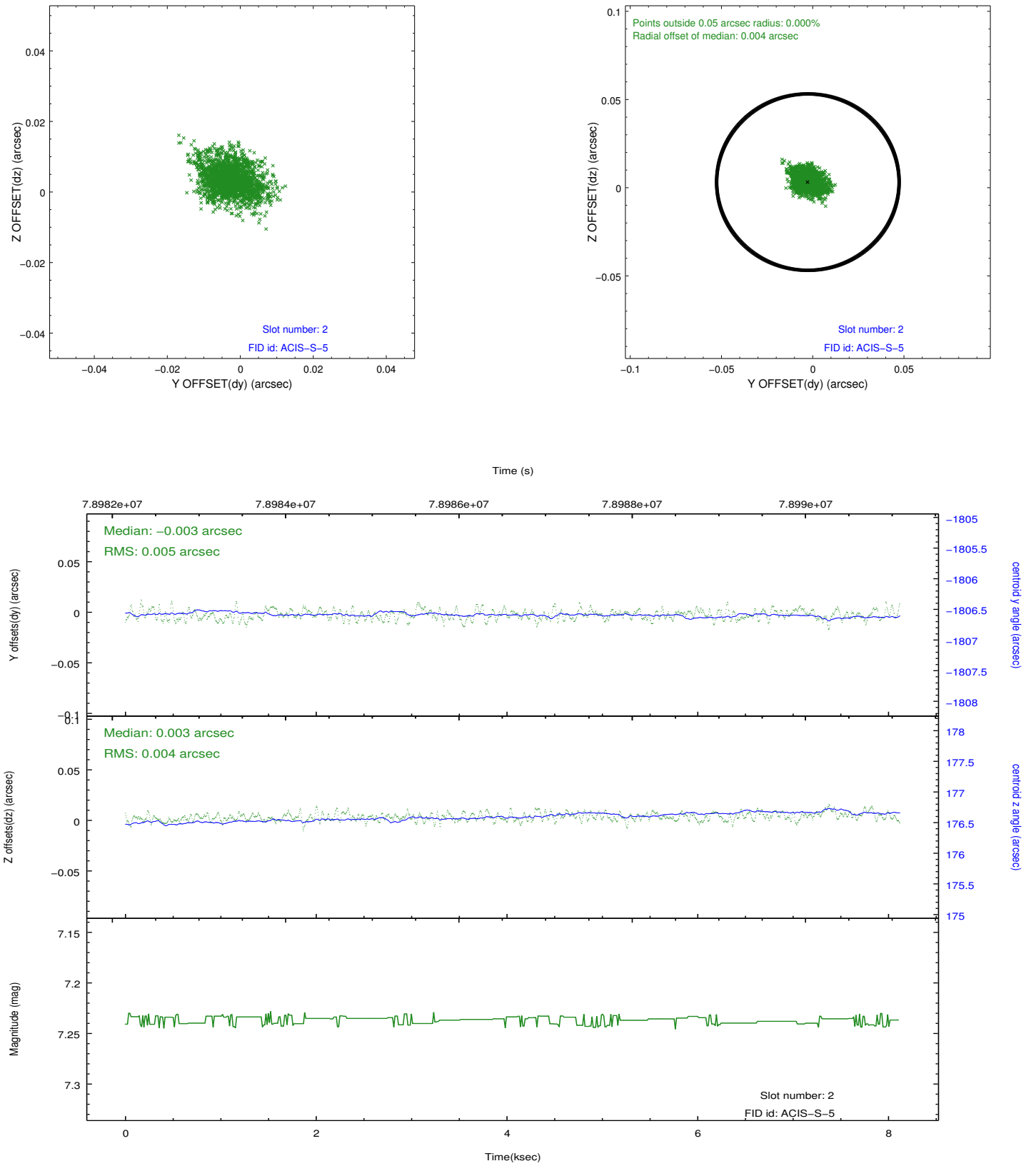
2.5.1 Slot 0



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	7.683

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.