

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21515 - L2 Version 1
Chandra X-Ray Center

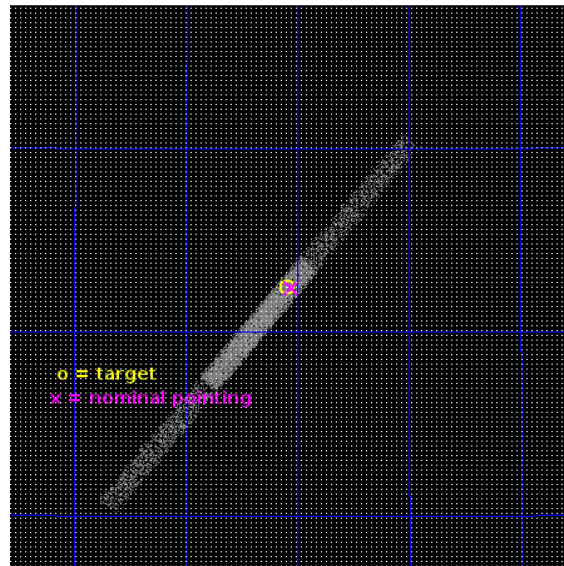
L2 Processing Date : Jan 20 2019

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1 Front

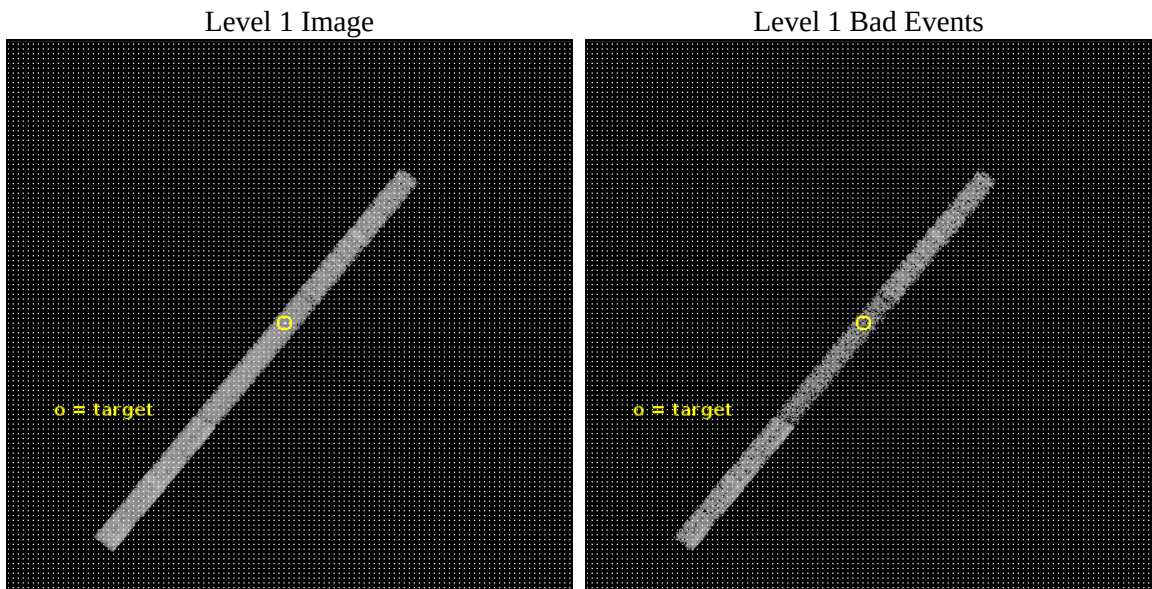
seq_num	703808	Sequence number
obs_id	21515	Observation id
title	X-ray Properties of Extreme Super Eddington Accreting Massive Black Holes	Proposal title
observer	Michael Brotherton	Principal investigator
object	SDSS J093302.68+385228.0	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	143.26125	Observer's specified target RA [deg]
dec_targ	38.874444	Observer's specified target Dec [deg]
ra_nom	143.25669201405	Nominal RA [deg]
dec_nom	38.873487000105	Nominal Dec [deg]
roll_nom	128.52436996398	Nominal Roll [deg]
revision	1	Processing version of data
ontime	11643.00046277	Sum of GTIs [s]
livetime	10897.604326816	Livetime [s]
ontime6	11643.00046277	Sum of GTIs [s]
ontime7	11643.00046277	Sum of GTIs [s]
ontime8	11643.00046277	Sum of GTIs [s]
l2events	10317	Number of level 2 events



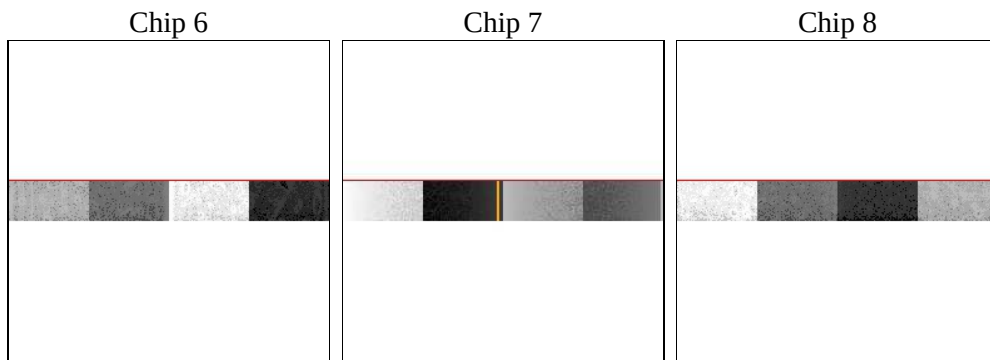
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	11540.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	11643.00046277	Sum of GTIs [s]
caldsver	4.8.2	 	ontime6	11643.00046277	Sum of GTIs [s]
date	2019-01-20T08:35:20	Date and time of file creation	ontime7	11643.00046277	Sum of GTIs [s]
revision	1	Processing version of data	ontime8	11643.00046277	Sum of GTIs [s]
			l1events	52234	Number of level 1 events

2.1.4 Events

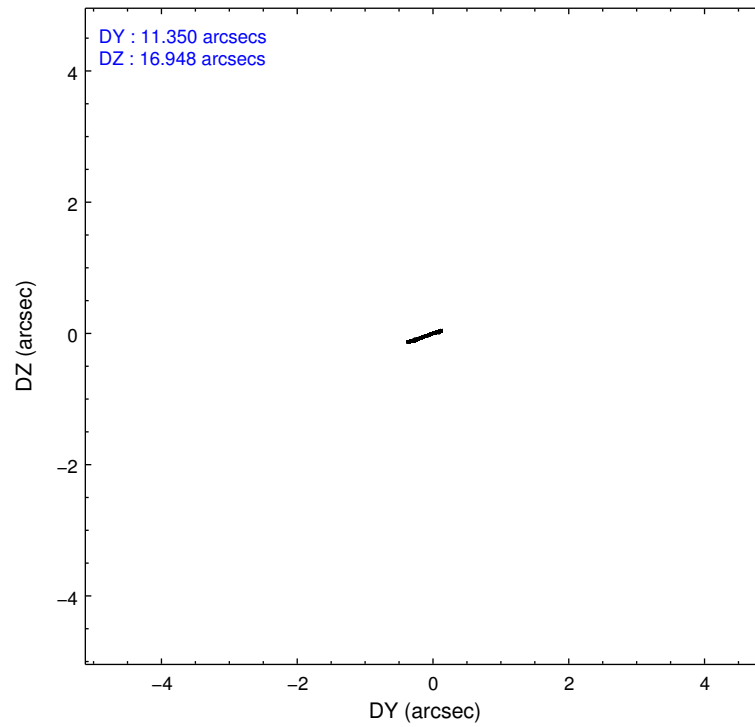
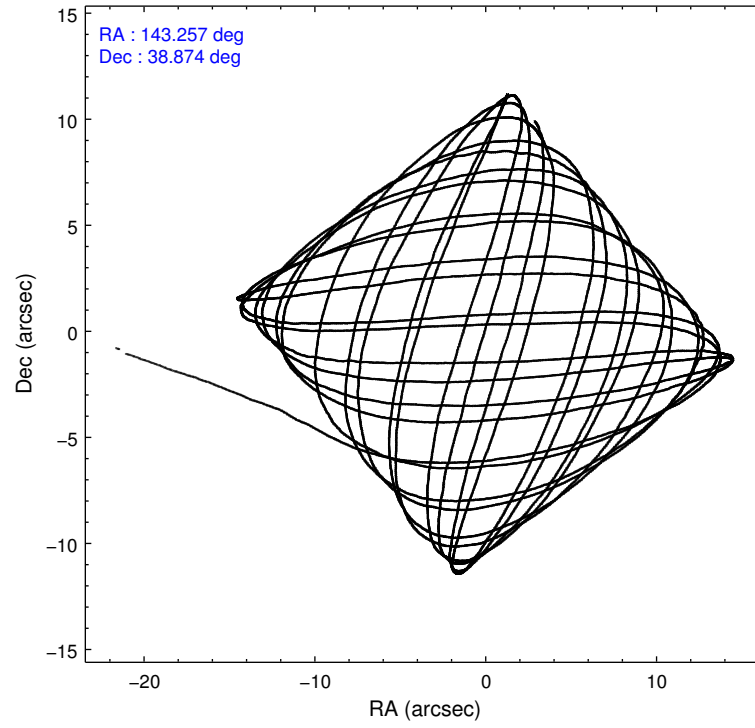
	ccd 6	ccd 7	ccd 8
level 1 events	15147	16000	21087
rejected events	13441	8130	16717
rejected %	88%	50%	79%

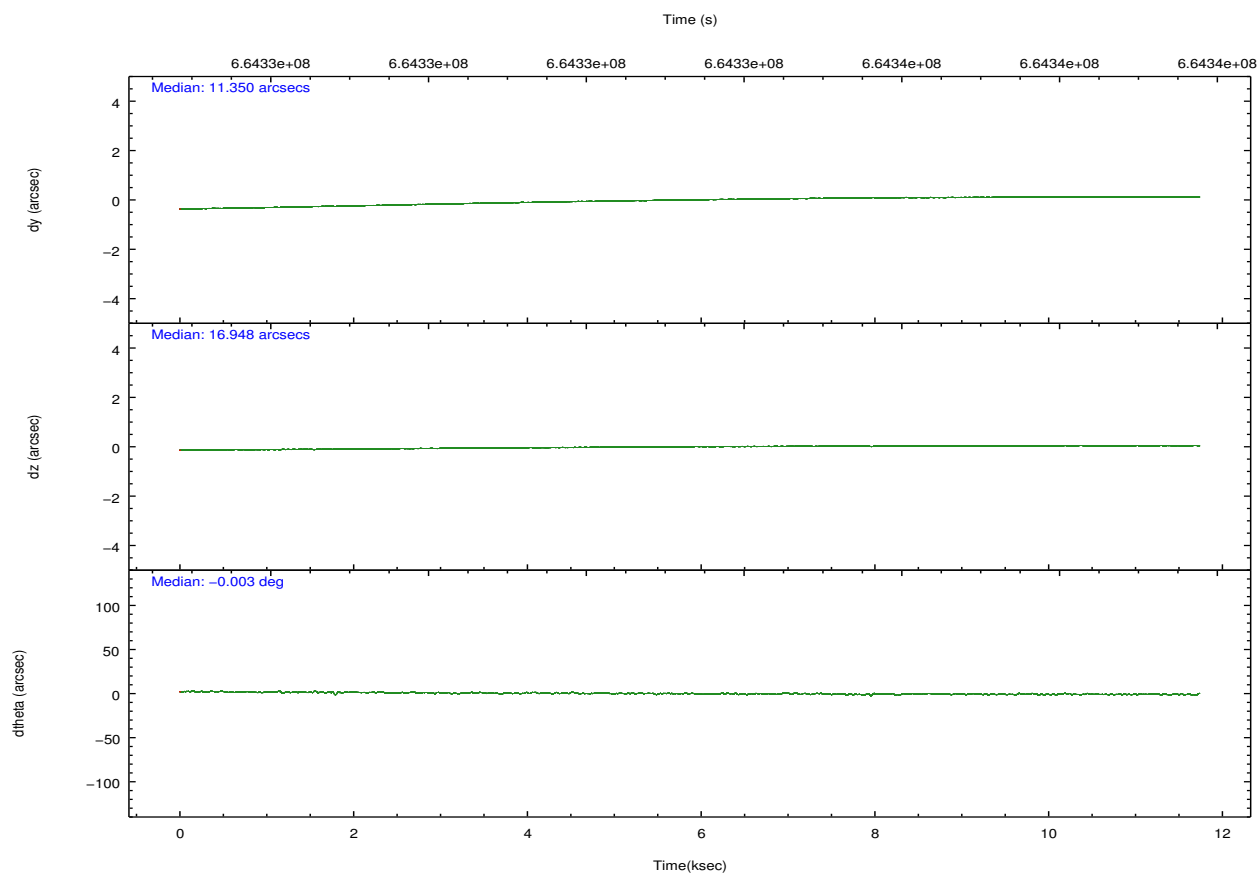
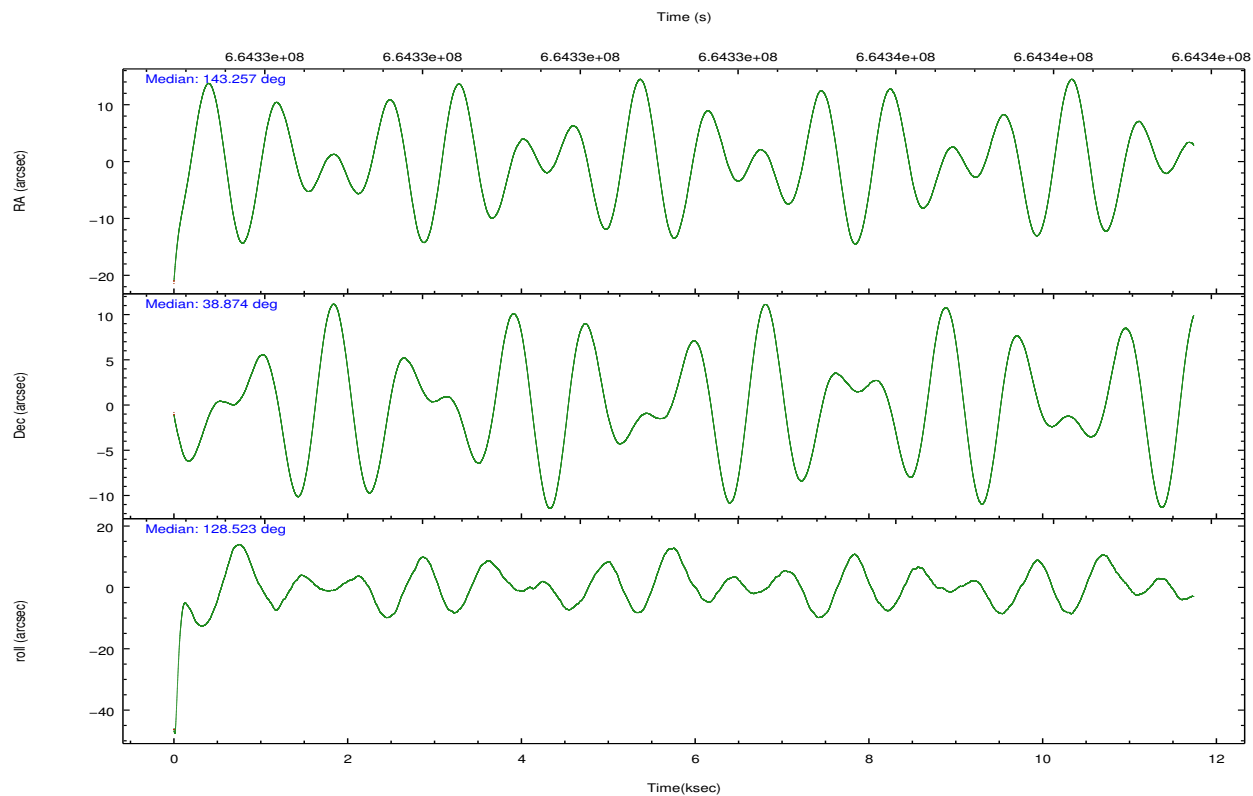
	ccd 6	ccd 7	ccd 8
grade 0 events	426	900	996
	2%	5%	4%
grade 1 events	3	29	5
	0%	0%	0%
grade 2 events	314	1539	928
	2%	9%	4%
grade 3 events	280	922	500
	1%	5%	2%
grade 4 events	313	873	476
	2%	5%	2%
grade 5 events	467	1559	755
	3%	9%	3%
grade 6 events	373	3636	1470
	2%	22%	6%
grade 7 events	12971	6542	15957
	85%	40%	75%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-678	ACIS-678	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	143.289660	143.2566920140454	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	38.863814	38.8734870001052	Subarray start row	449	449
[deg] Pointing Roll	128.347112	128.5243699639807	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	0.6
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	664327652.184000	664326979.16			
Observation start date	2019-01-19T23:26:23	2019-01-19T23:16:19			
[s] Observation end time (MET)	664339192.184000	664340223.69829			
Observation end date	2019-01-20T02:38:43	2019-01-20T02:57:03			
Read mode	TIMED	TIMED			

2.3 Aspect



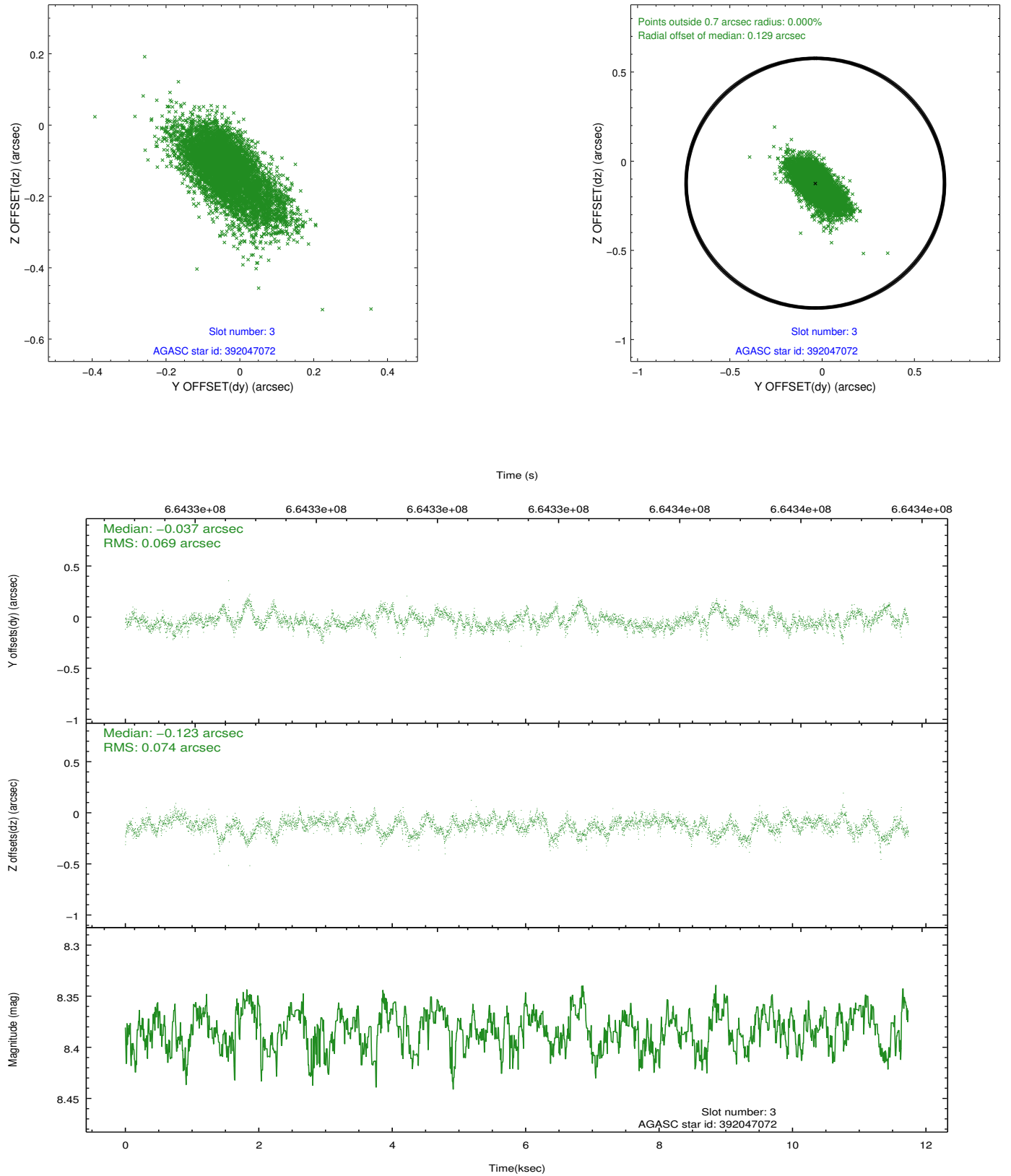


Slot Statistics

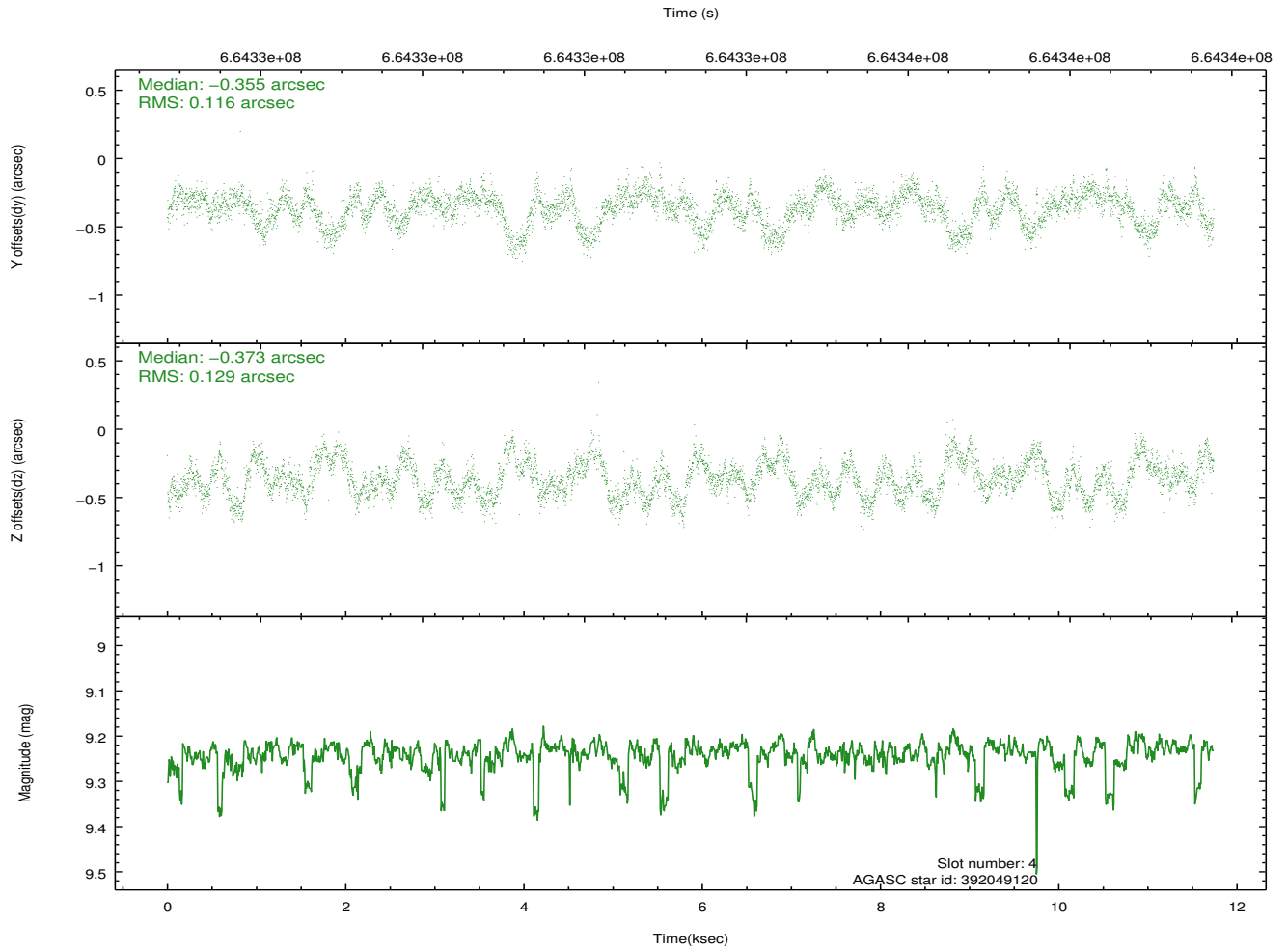
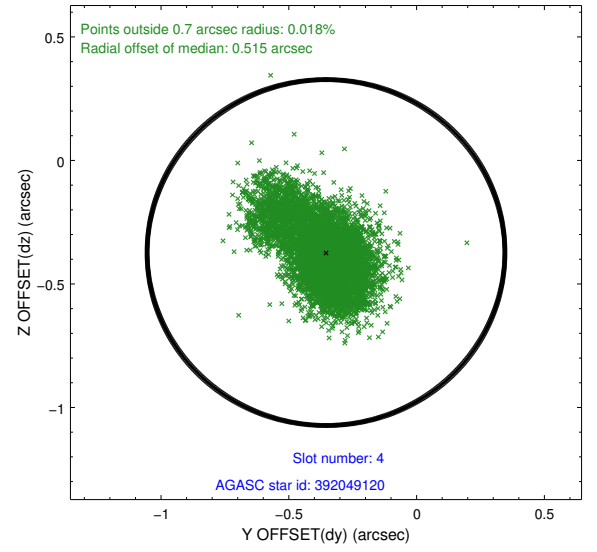
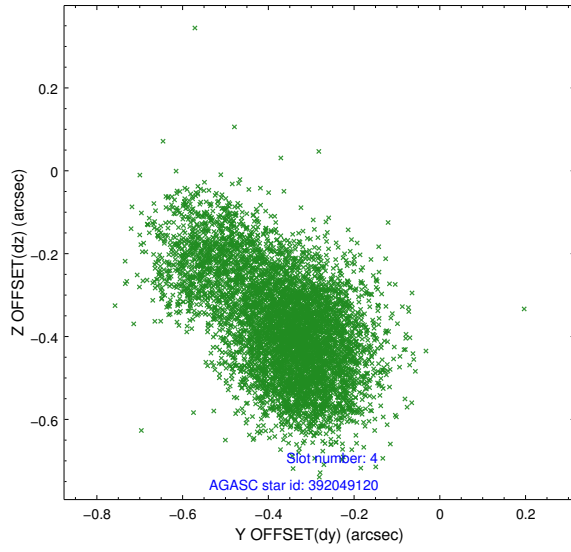
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.15	2864	1.000	-0.413	-0.282	0.007	0.011	0.000000	0.000000	-764.62	-1738
1	FID		ACIS-S-4	7.28	2862	1.000	0.458	0.235	0.008	0.013	0.000000	0.000000	2149.37	169
2	FID		ACIS-S-6	7.41	2863	1.000	-0.073	0.055	0.009	0.015	0.000000	0.000000	398.30	807
3	GUIDE	used	392047072	8.38	5722	1.000	-0.037	-0.123	0.100	0.188	142.893294	38.588848	-82.17	1488
4	GUIDE	used	392049120	9.24	5657	1.000	-0.355	-0.373	0.183	0.309	142.347766	39.098242	2304.95	1532
5	GUIDE	used	392175408	9.31	5724	1.000	0.518	0.459	0.178	0.286	143.824239	38.797374	-1113.90	-1029
6	GUIDE	used	392179904	8.24	5725	1.000	0.173	0.427	0.088	0.155	143.567998	39.153670	337.43	-1257
7	GUIDE	used	392049992	7.97	5726	1.000	-0.287	-0.391	0.096	0.147	142.526905	38.921829	1495.32	1540

2.4 Star Slots

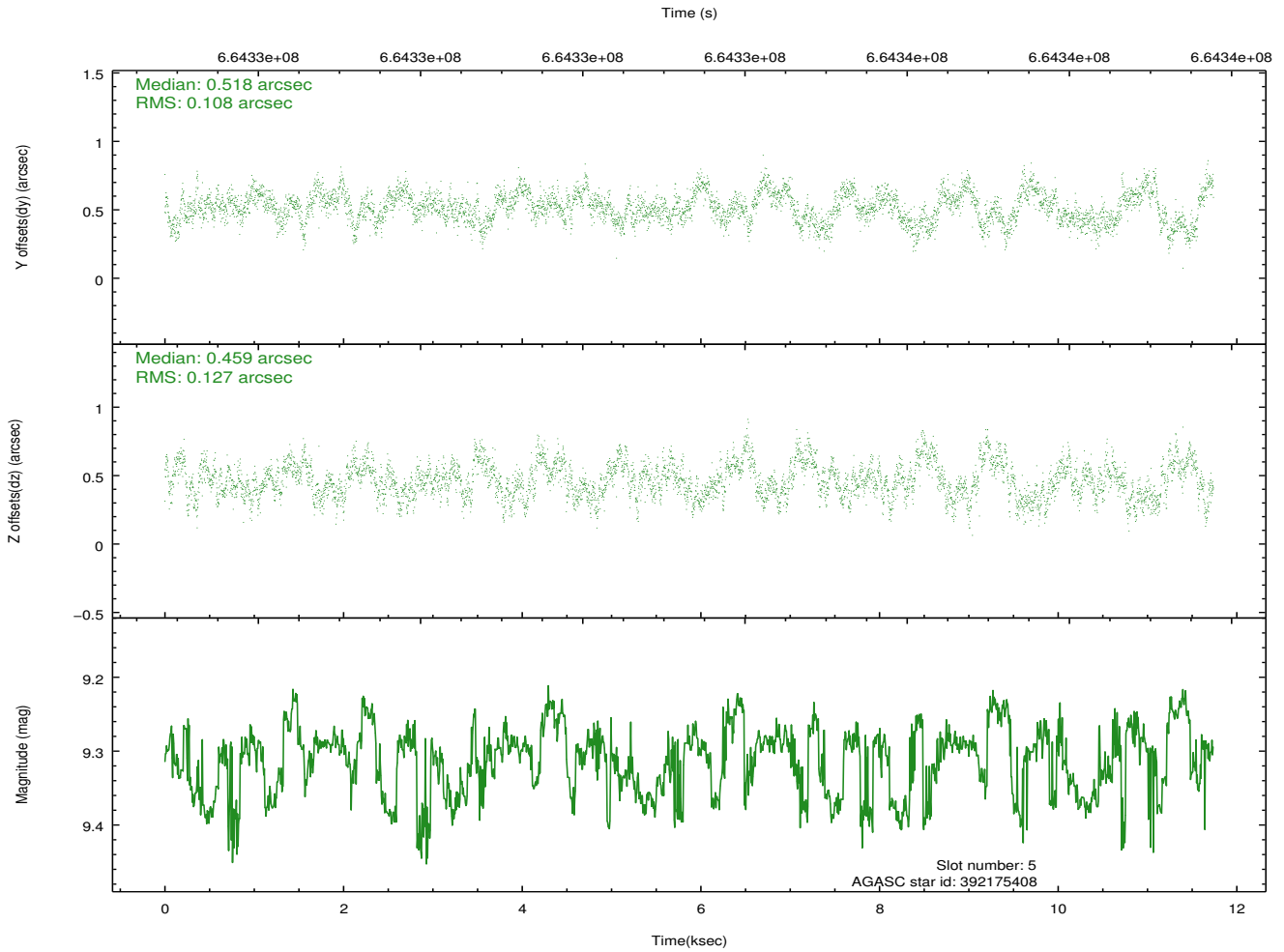
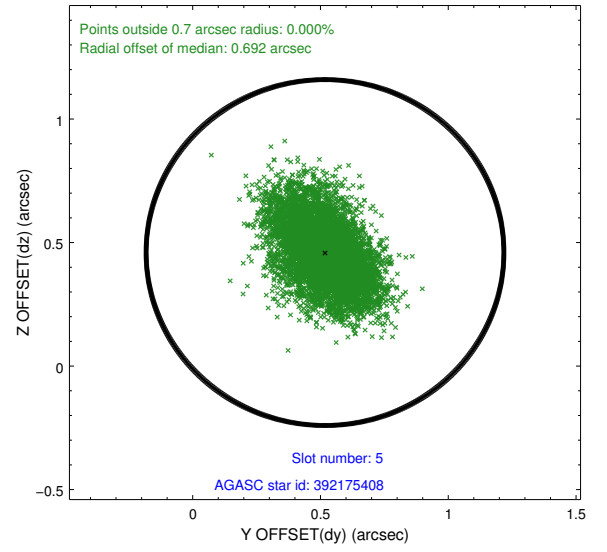
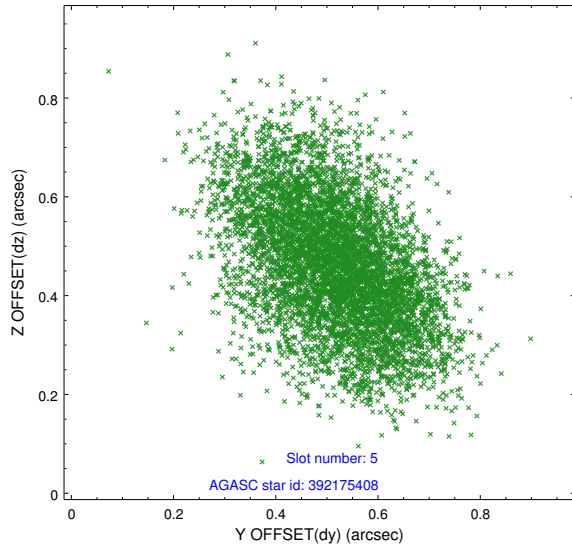
2.4.1 Slot 3



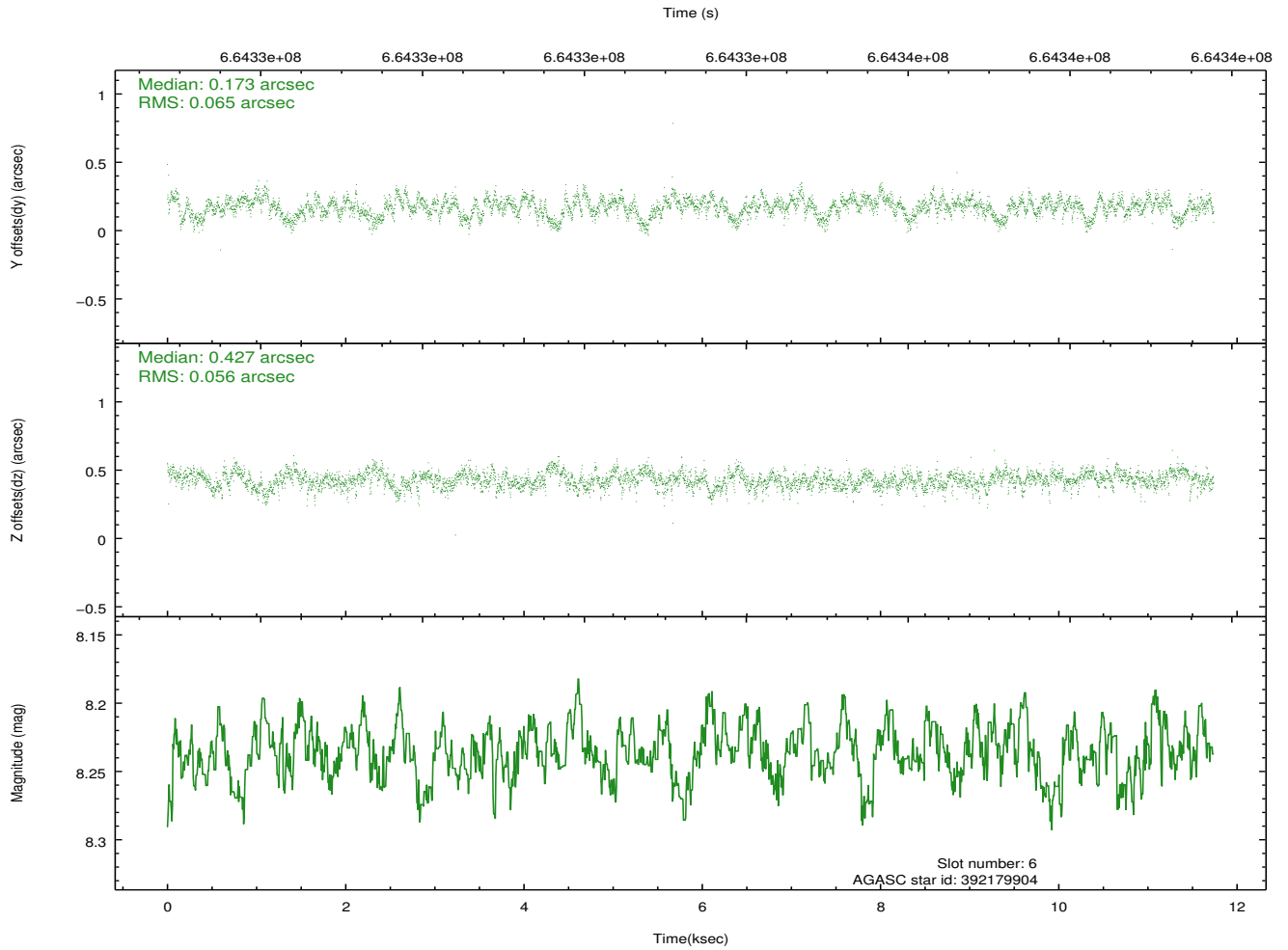
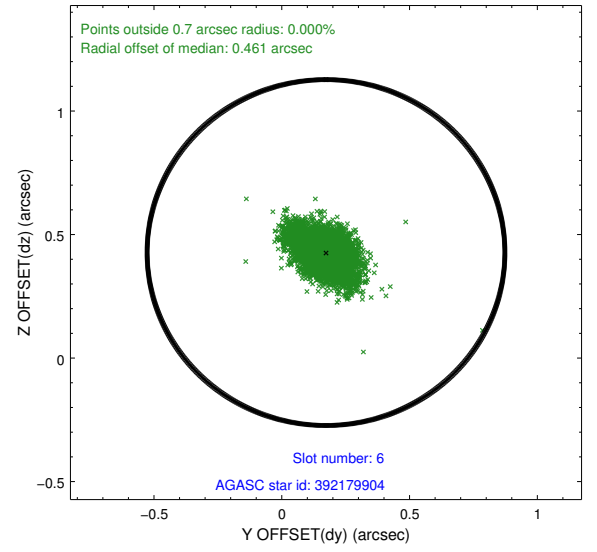
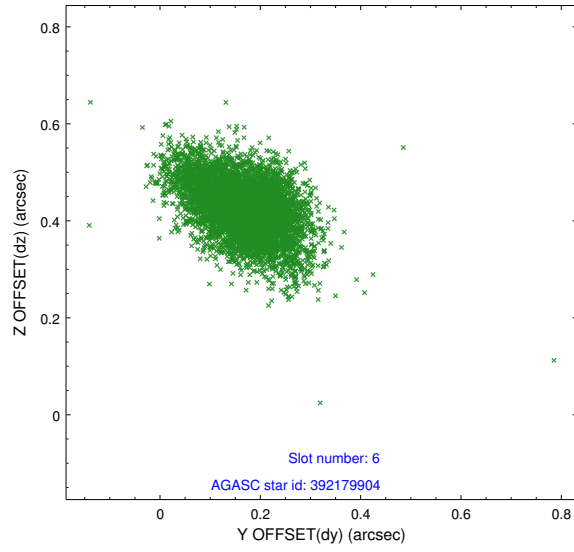
2.4.2 Slot 4



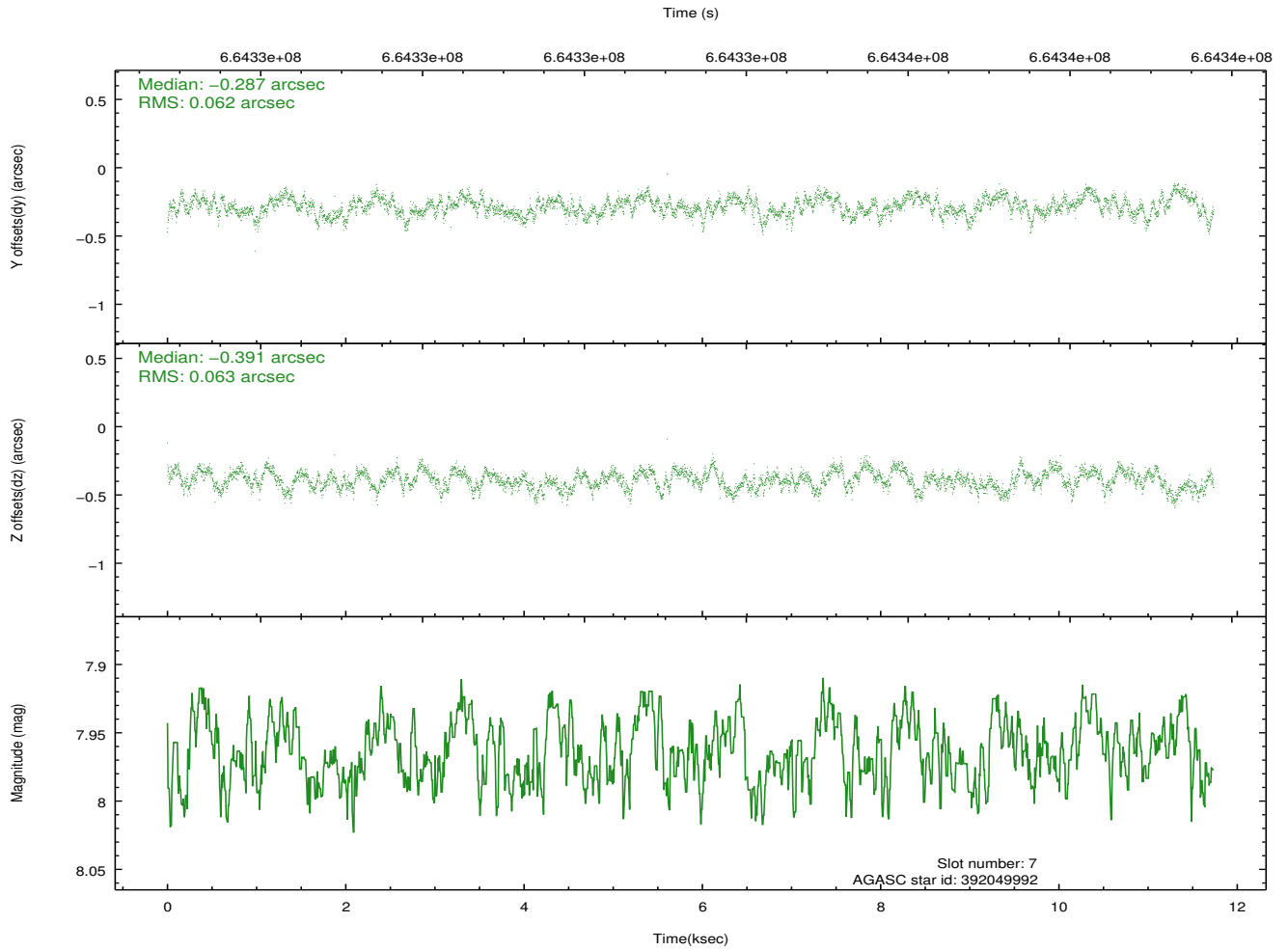
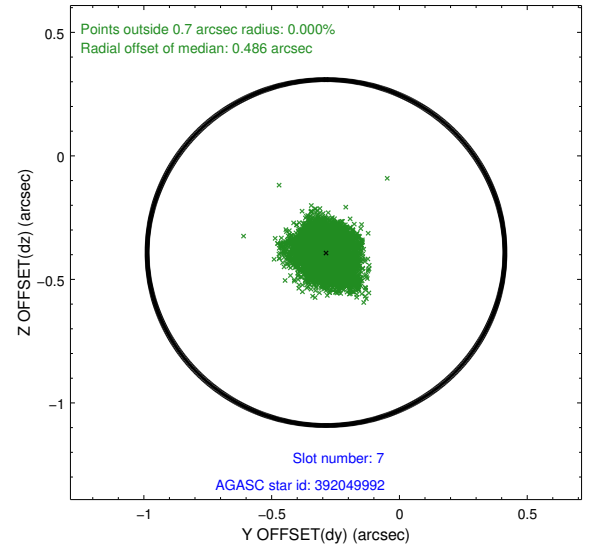
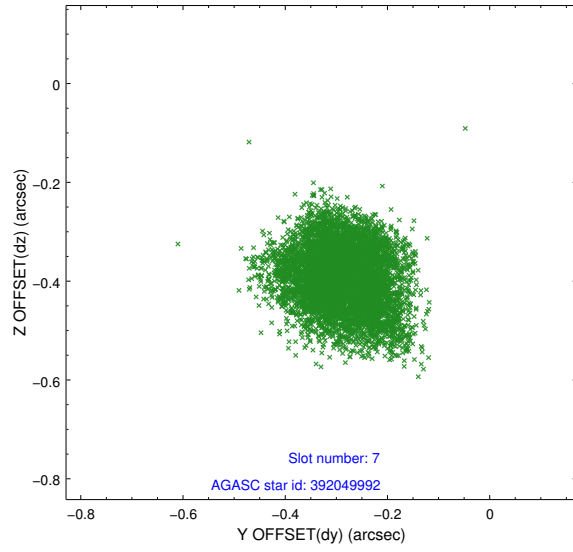
2.4.3 Slot 5



2.4.4 Slot 6

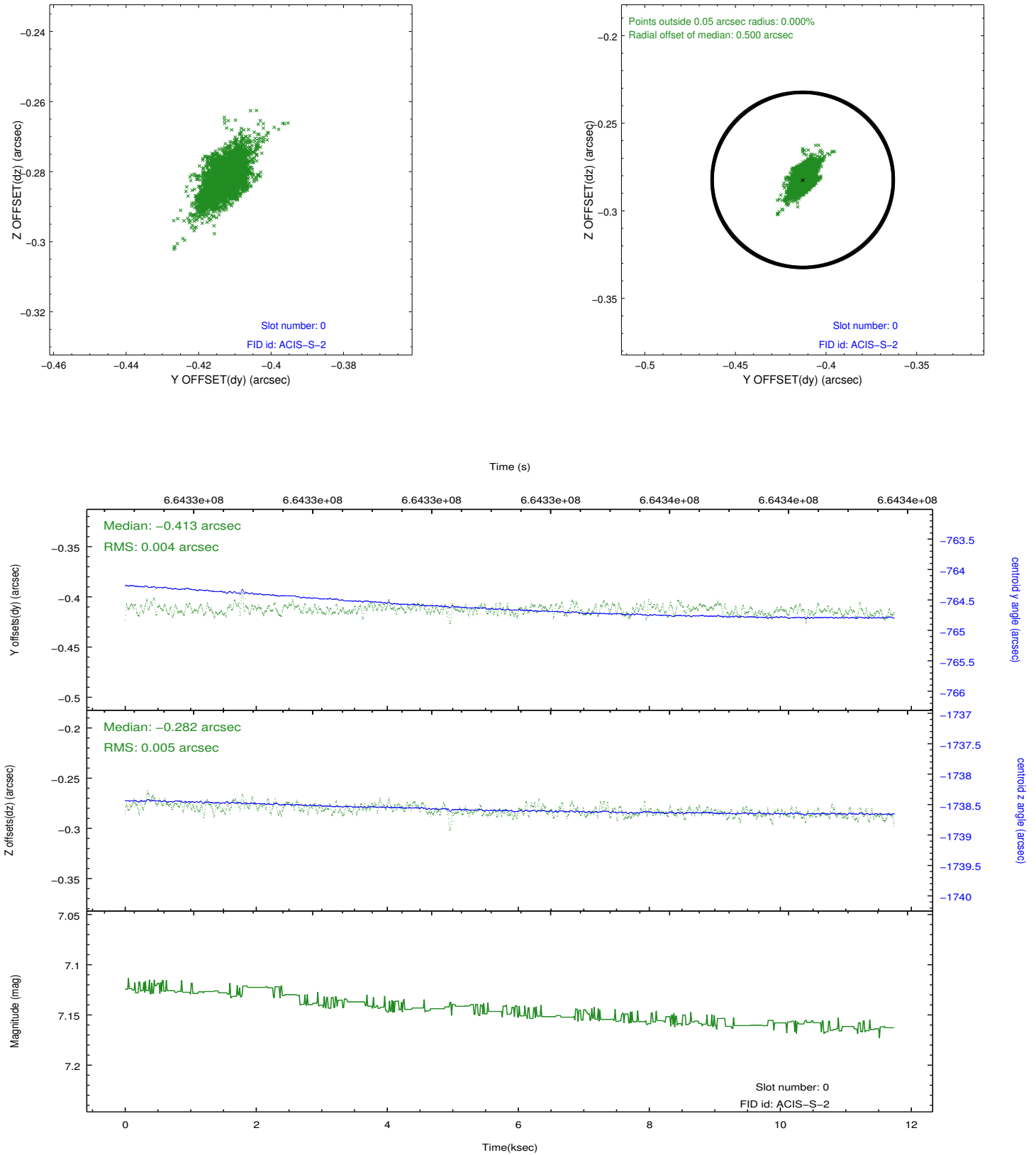


2.4.5 Slot 7

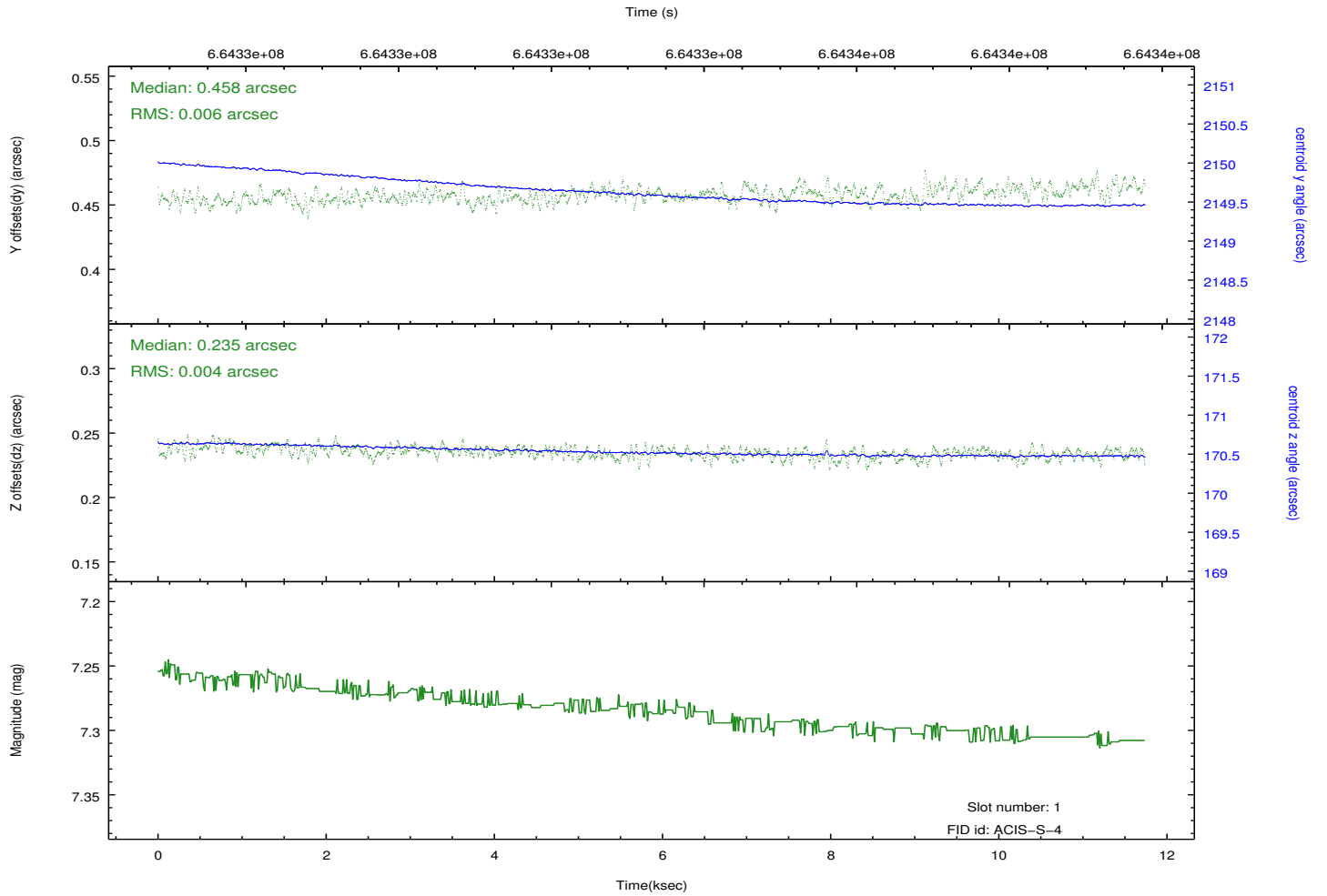
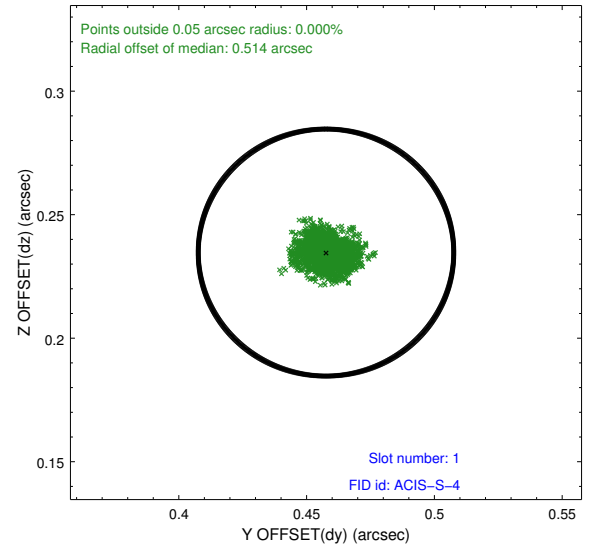
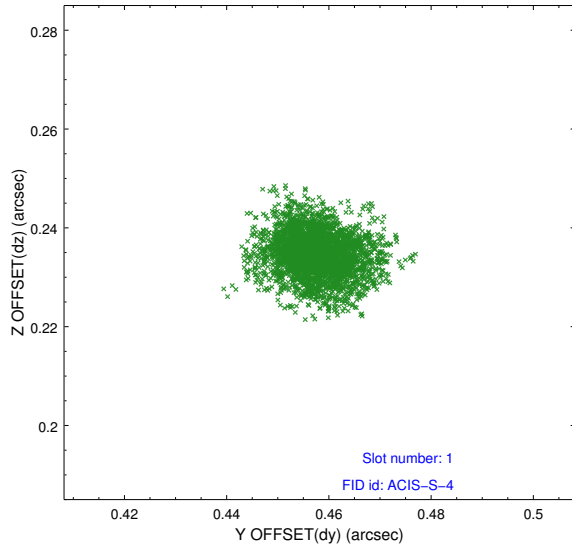


2.5 FID Slots

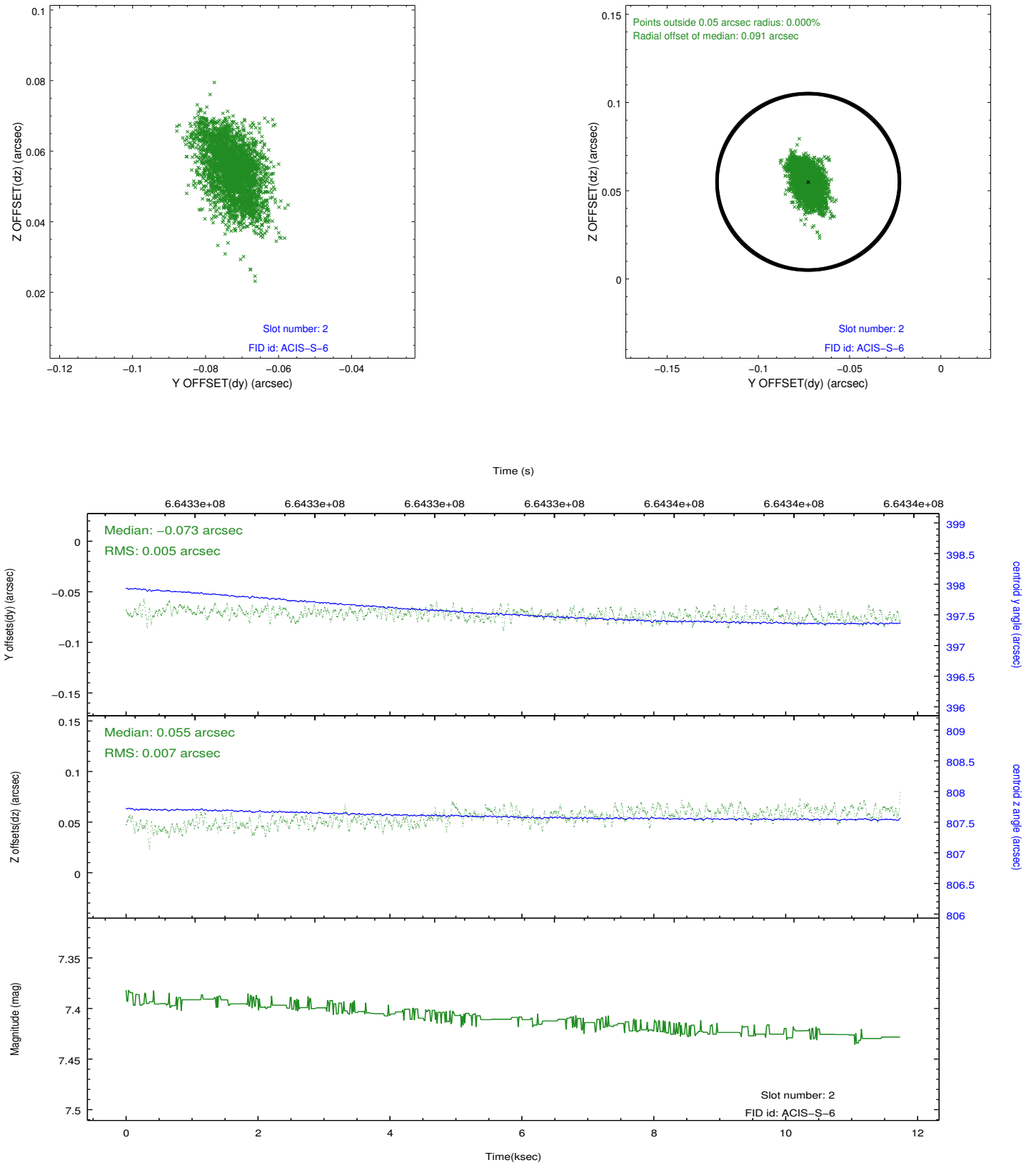
2.5.1 Slot 0



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)	2019.01.20
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	11.64300046277

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.