

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21191 - L2 Version 1
Chandra X-Ray Center

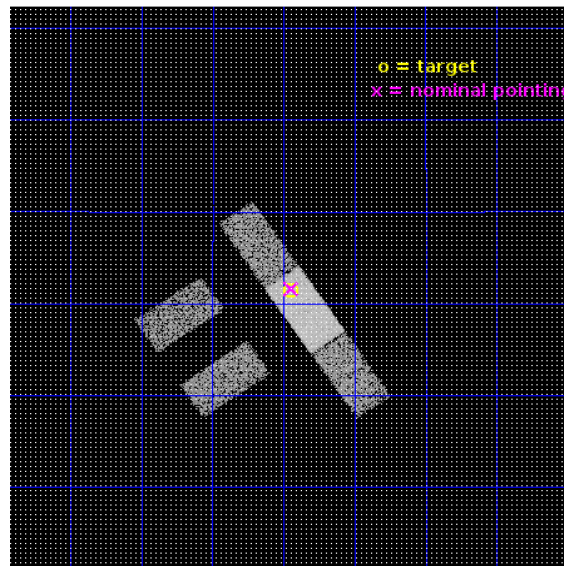
L2 Processing Date : Jan 9 2019

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1 Front

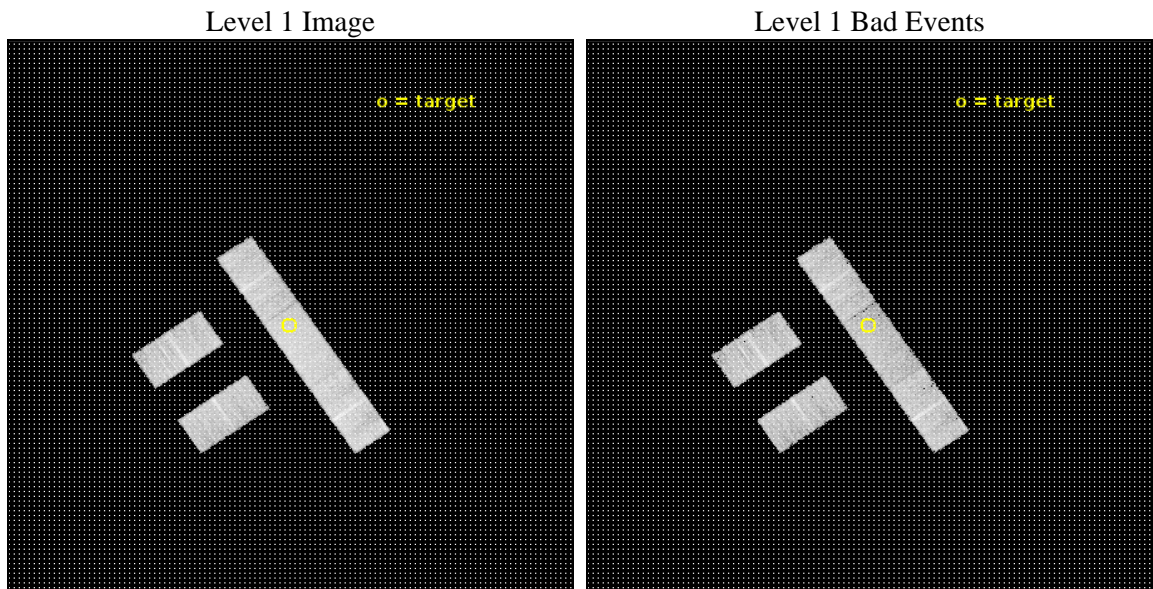
seq_num	201245	Sequence number
obs_id	21191	Observation id
title	Testing X-ray activity as an age indicator	Proposal title
observer	Christian Schneider	Principal investigator
object	HD 146413	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	243.987917	Observer's specified target RA [deg]
dec_targ	7.357028	Observer's specified target Dec [deg]
ra_nom	243.98604018787	Nominal RA [deg]
dec_nom	7.3601935718851	Nominal Dec [deg]
roll_nom	55.665151084548	Nominal Roll [deg]
revision	1	Processing version of data
ontime	9015.1002528667	Sum of GTIs [s]
livetime	8802.5952475954	Livetime [s]
ontime2	9015.1002528667	Sum of GTIs [s]
ontime3	9015.1002528667	Sum of GTIs [s]
ontime6	9015.1002528667	Sum of GTIs [s]
ontime7	9015.1002528667	Sum of GTIs [s]
ontime8	9015.1002528667	Sum of GTIs [s]
l2events	33130	Number of level 2 events



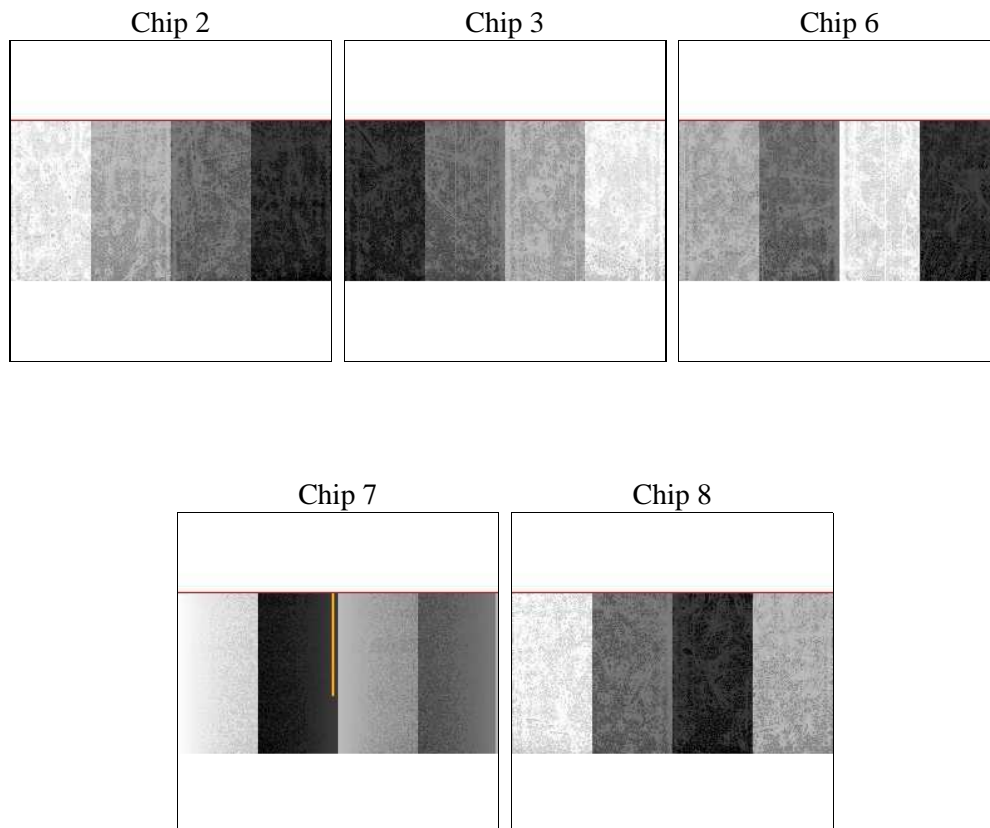
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	9000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	9015.1002528667	Sum of GTIs [s]
caldbver	4.8.2	 	ontime2	9015.1002528667	Sum of GTIs [s]
date	2019-01-09T17:24:00	Date and time of file creation	ontime3	9015.1002528667	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	9015.1002528667	Sum of GTIs [s]
			ontime7	9015.1002528667	Sum of GTIs [s]
			ontime8	9015.1002528667	Sum of GTIs [s]
			l1events	206430	Number of level 1 events

2.1.4 Events

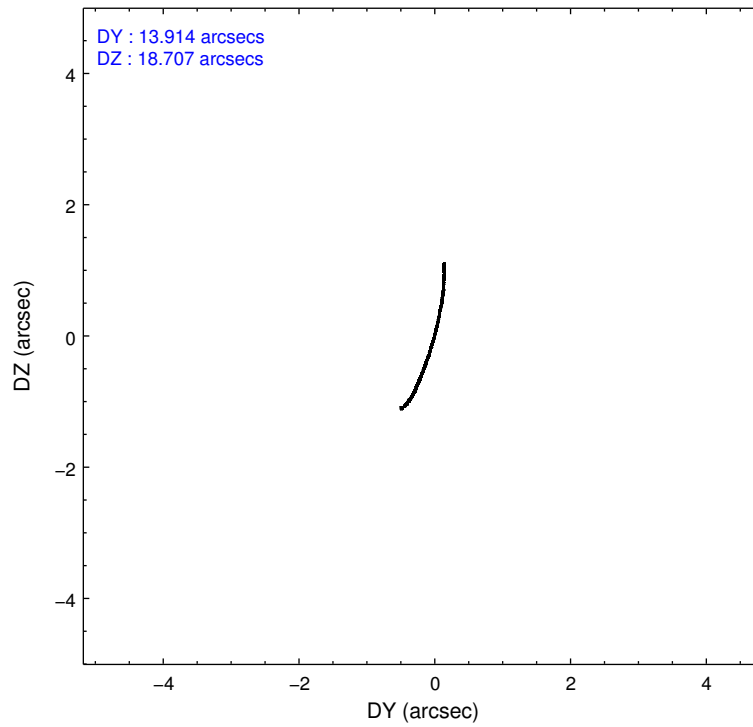
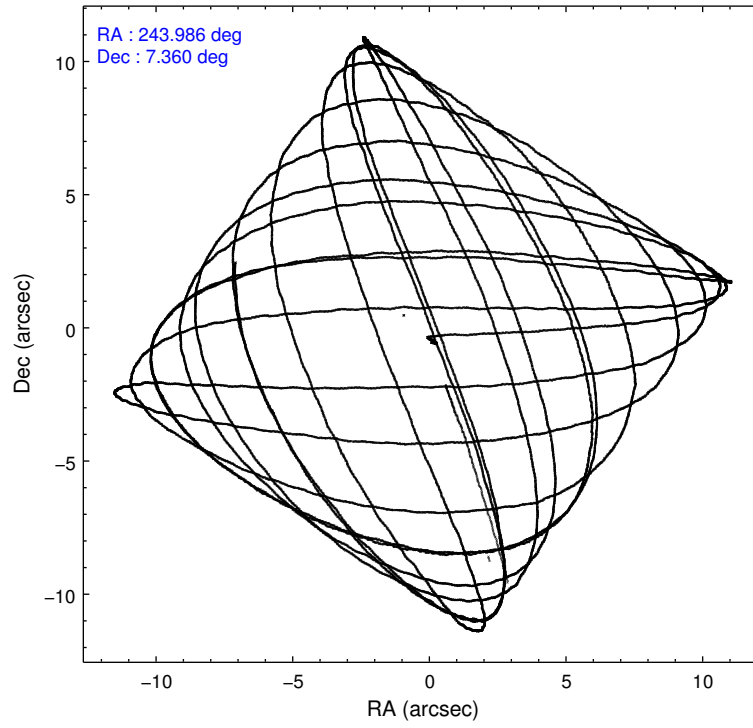
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	37849	35299	38428	46311	48543
rejected events	34163	31476	34320	26326	37197
rejected %	90%	89%	89%	56%	76%

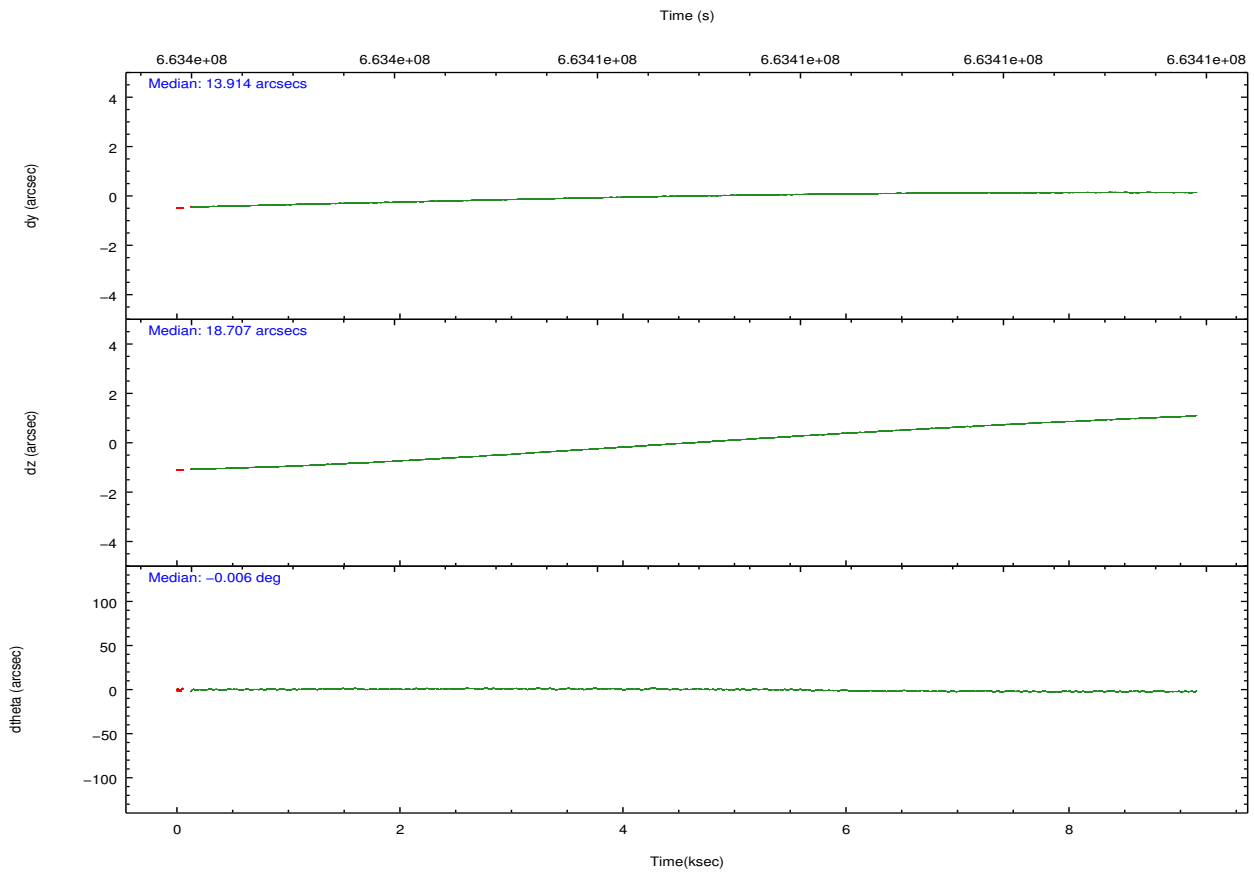
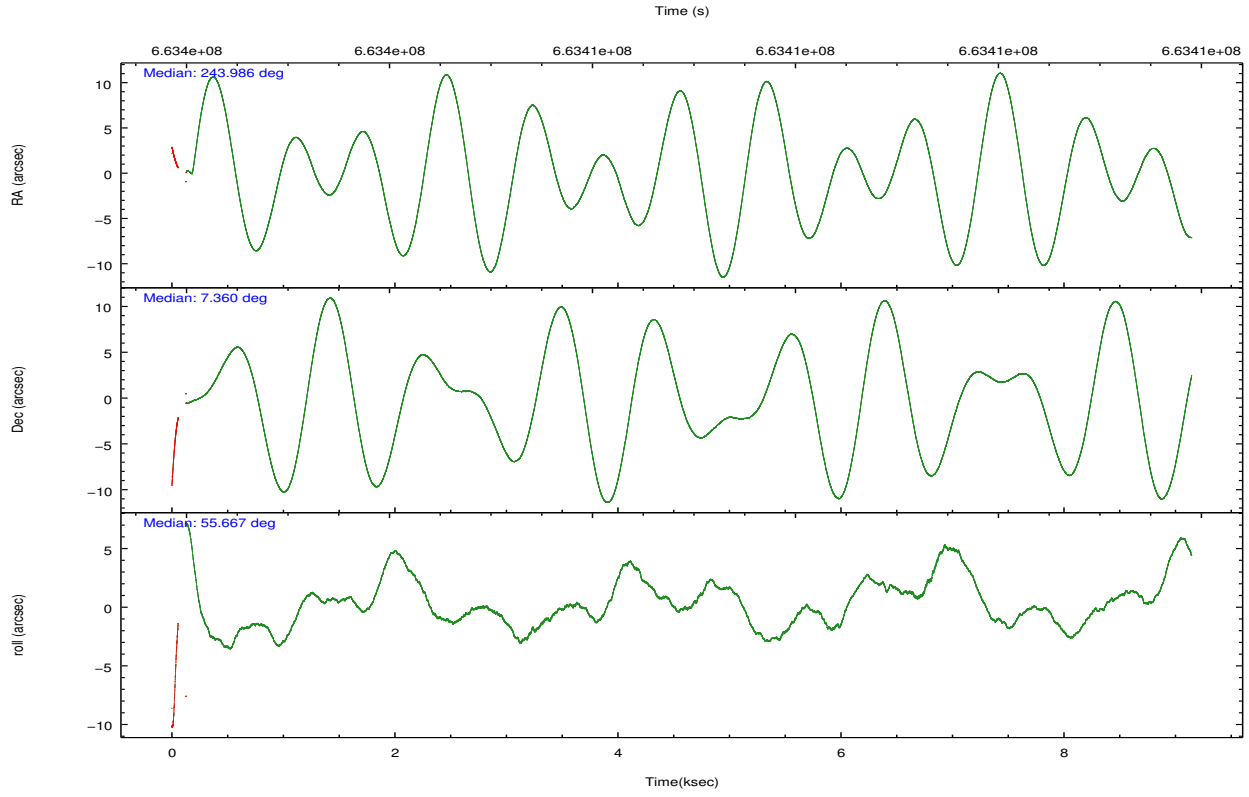
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	1241	1363	1245	2030	3136
	3%	3%	3%	4%	6%
grade 1 events	13	14	11	67	26
	0%	0%	0%	0%	0%
grade 2 events	801	777	965	4187	2783
	2%	2%	2%	9%	5%
grade 3 events	475	527	462	1802	1298
	1%	1%	1%	3%	2%
grade 4 events	474	468	443	1822	1170
	1%	1%	1%	3%	2%
grade 5 events	1288	1596	1643	4551	2340
	3%	4%	4%	9%	4%
grade 6 events	758	760	1073	10511	3126
	2%	2%	2%	22%	6%
grade 7 events	32799	29794	32586	21341	34664
	86%	84%	84%	46%	71%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-23678	ACIS-23678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	243.984275	243.9860401878728	CCD I2 on	O1	Y
[deg] Pointing Dec	7.332831	7.360193571885137	CCD I3 on	Y	Y
[deg] Pointing Roll	55.508777	55.66515108454772	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	N	N
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	Y	Y
[s] Observation start time (MET)	663402428.184000	663401220.62972	CCD S5 on	N	N
Observation start date	2019-01-09T06:25:59	2019-01-09T06:07:00	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	663411428.184000	663412292.68038	On-chip summing requested	N	N
Observation end date	2019-01-09T08:55:59	2019-01-09T09:11:32	Subarray requested	CUSTOM	1/2
Read mode	TIMED	TIMED	Subarray start row	257	257
			Subarray row count	512	512
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	1.7

2.3 Aspect





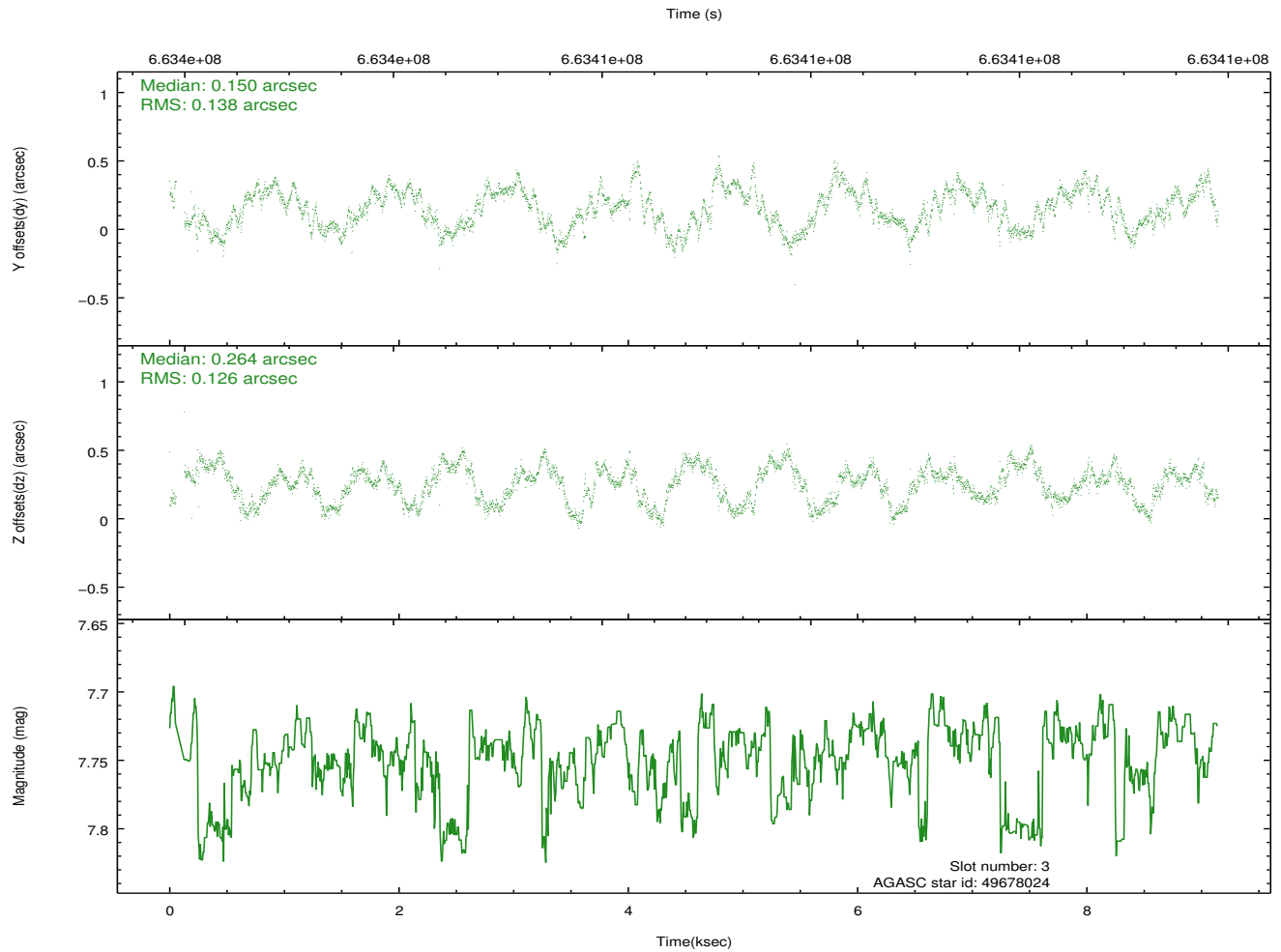
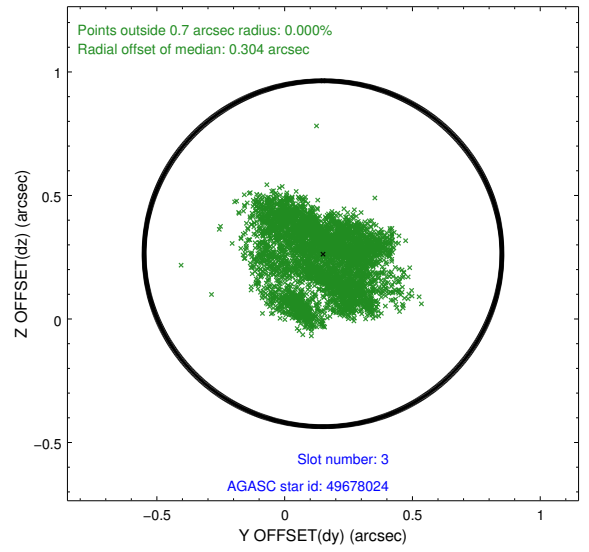
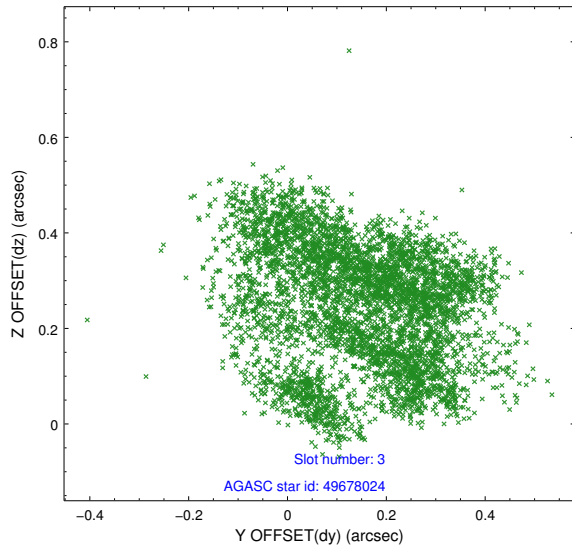
Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.14	2214	1.000	-0.274	-0.239	0.032	0.052	0.000000	0.000000	-767.01	-1740
1	FID		ACIS-S-4	7.27	2214	1.000	0.790	0.198	0.030	0.040	0.000000	0.000000	2147.00	168
2	FID		ACIS-S-5	7.24	2214	1.000	-0.541	0.057	0.027	0.048	0.000000	0.000000	-1819.41	162
3	GUIDE	used	49678024	7.75	4428	1.000	0.150	0.264	0.212	0.292	243.460446	6.993913	-2063.98	852
4	GUIDE	used	49814808	8.10	4424	1.000	0.391	0.488	0.156	0.257	244.404039	7.013971	-97.42	-1885
5	GUIDE	used	49677152	8.91	4423	1.000	0.034	-0.267	0.122	0.231	243.128875	7.205978	-2103.73	2260
6	GUIDE	used	124002320	7.40	4428	1.000	-0.569	-0.501	0.128	0.197	244.099751	8.035981	2318.67	1094
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

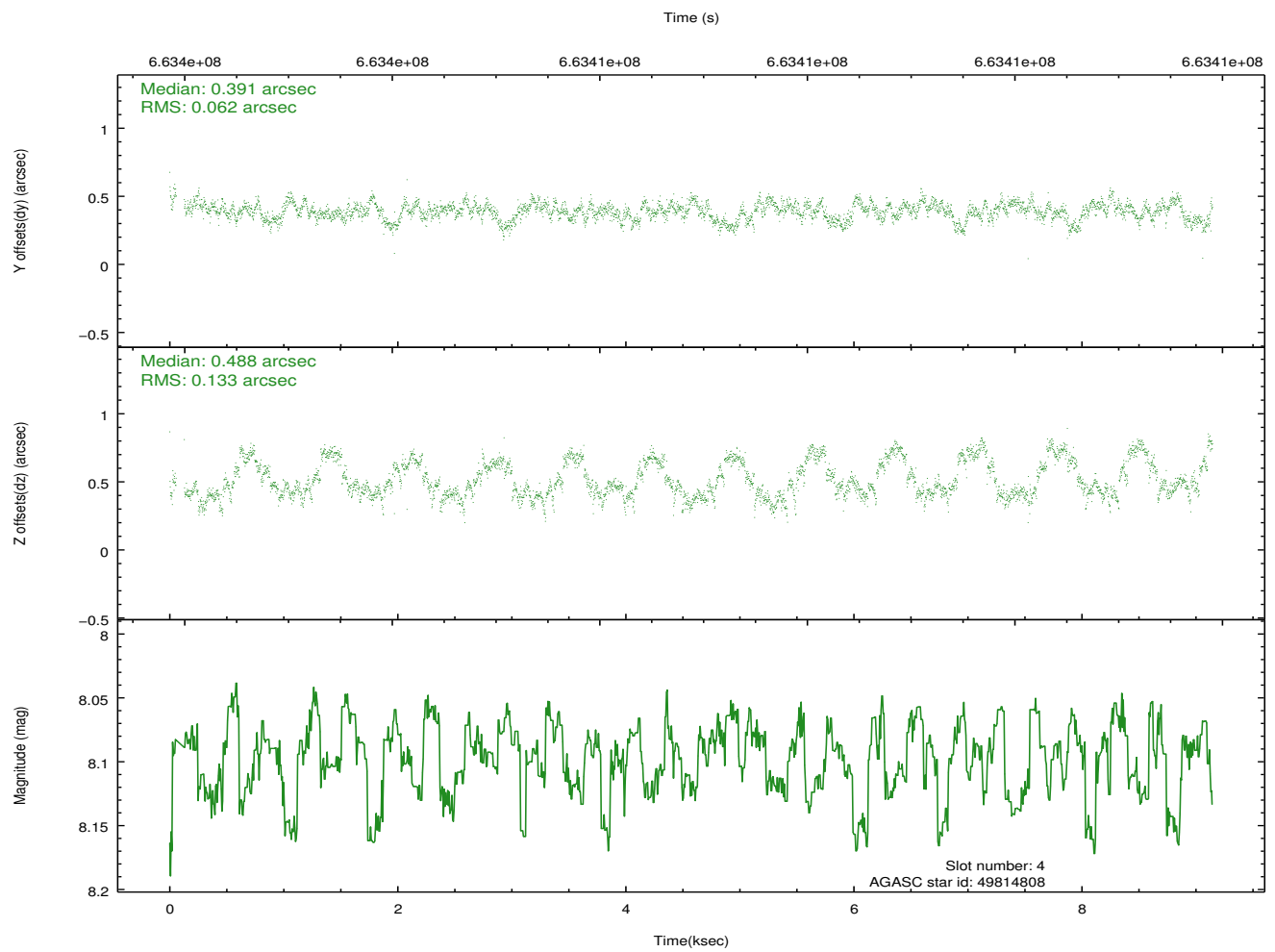
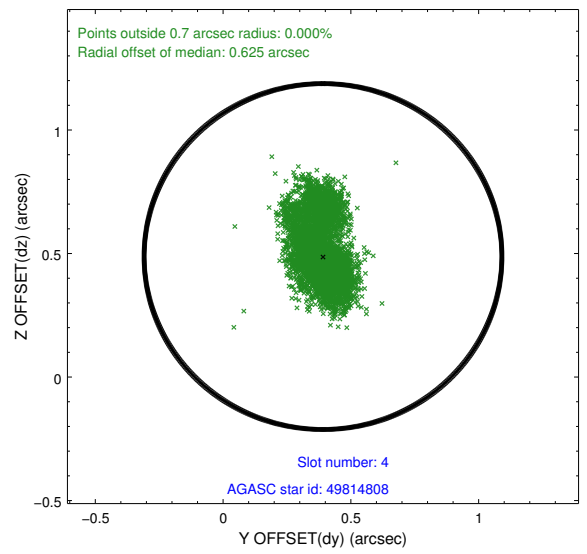
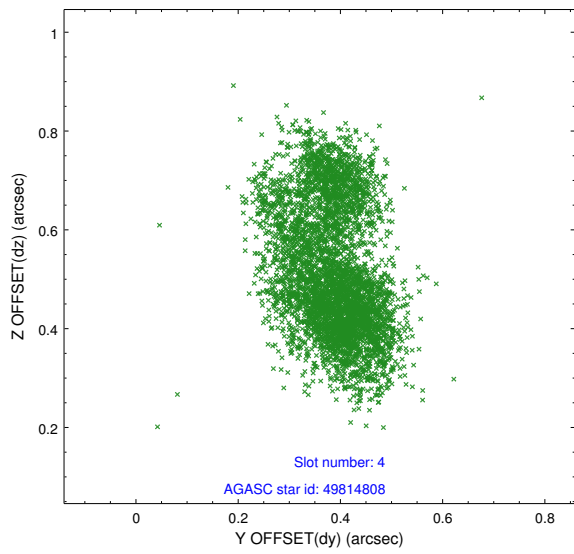
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2.4 Star Slots

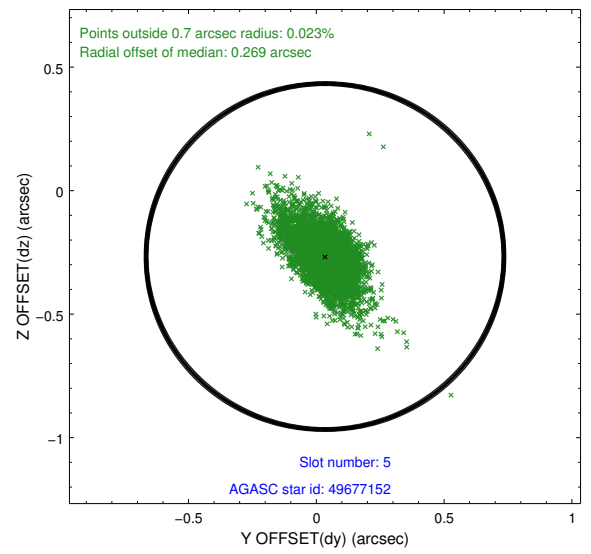
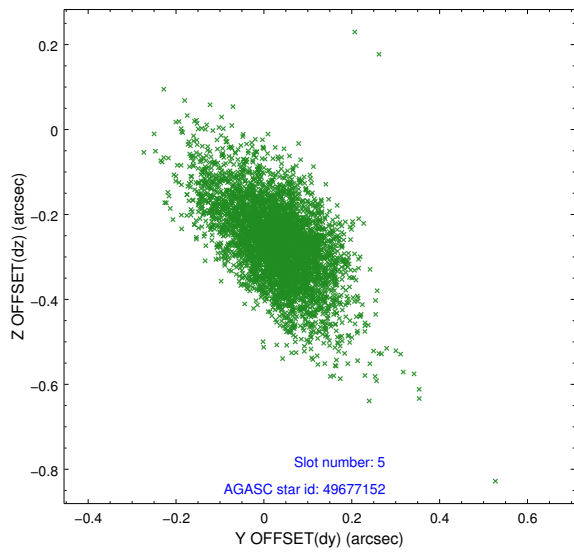
2.4.1 Slot 3



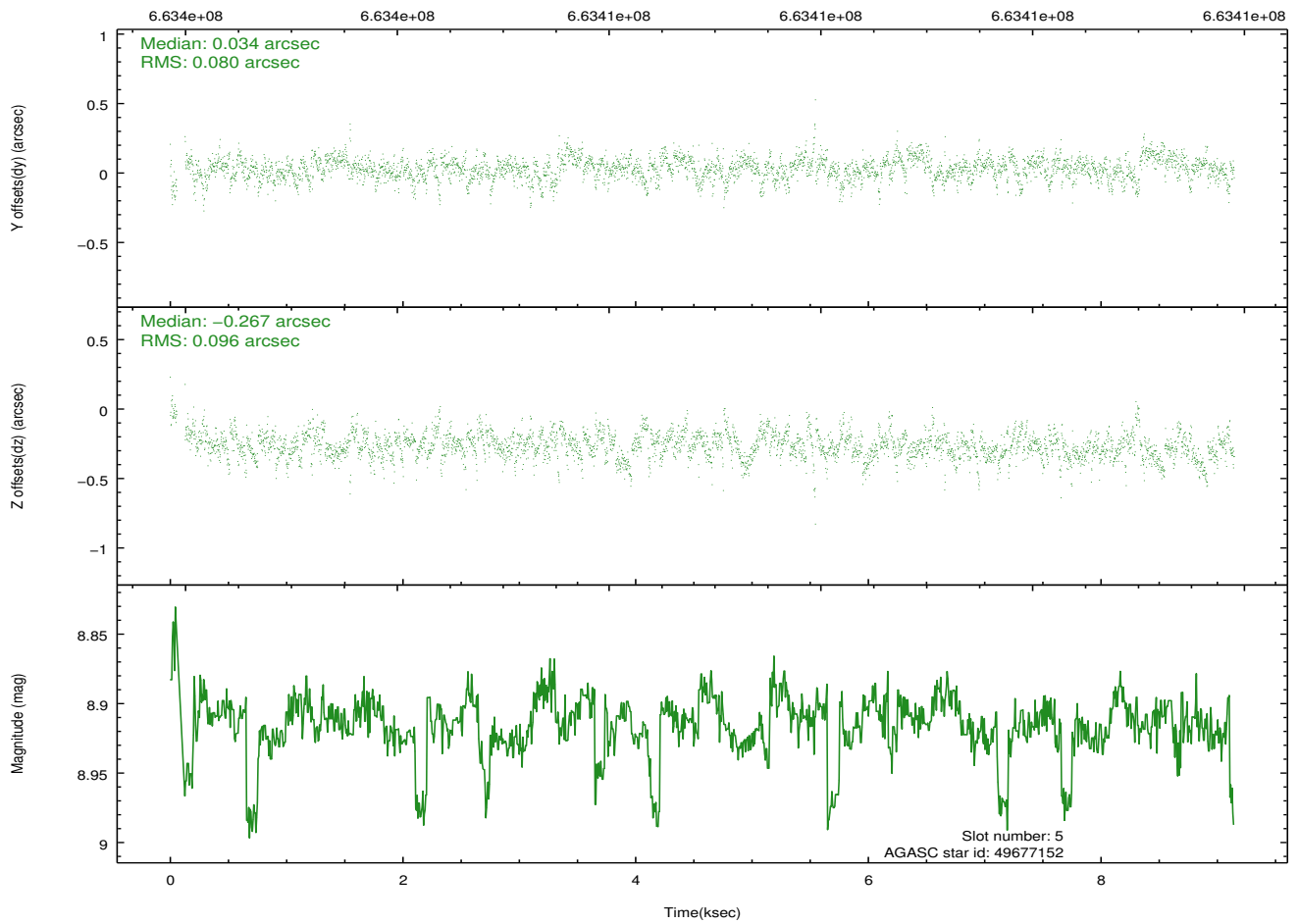
2.4.2 Slot 4



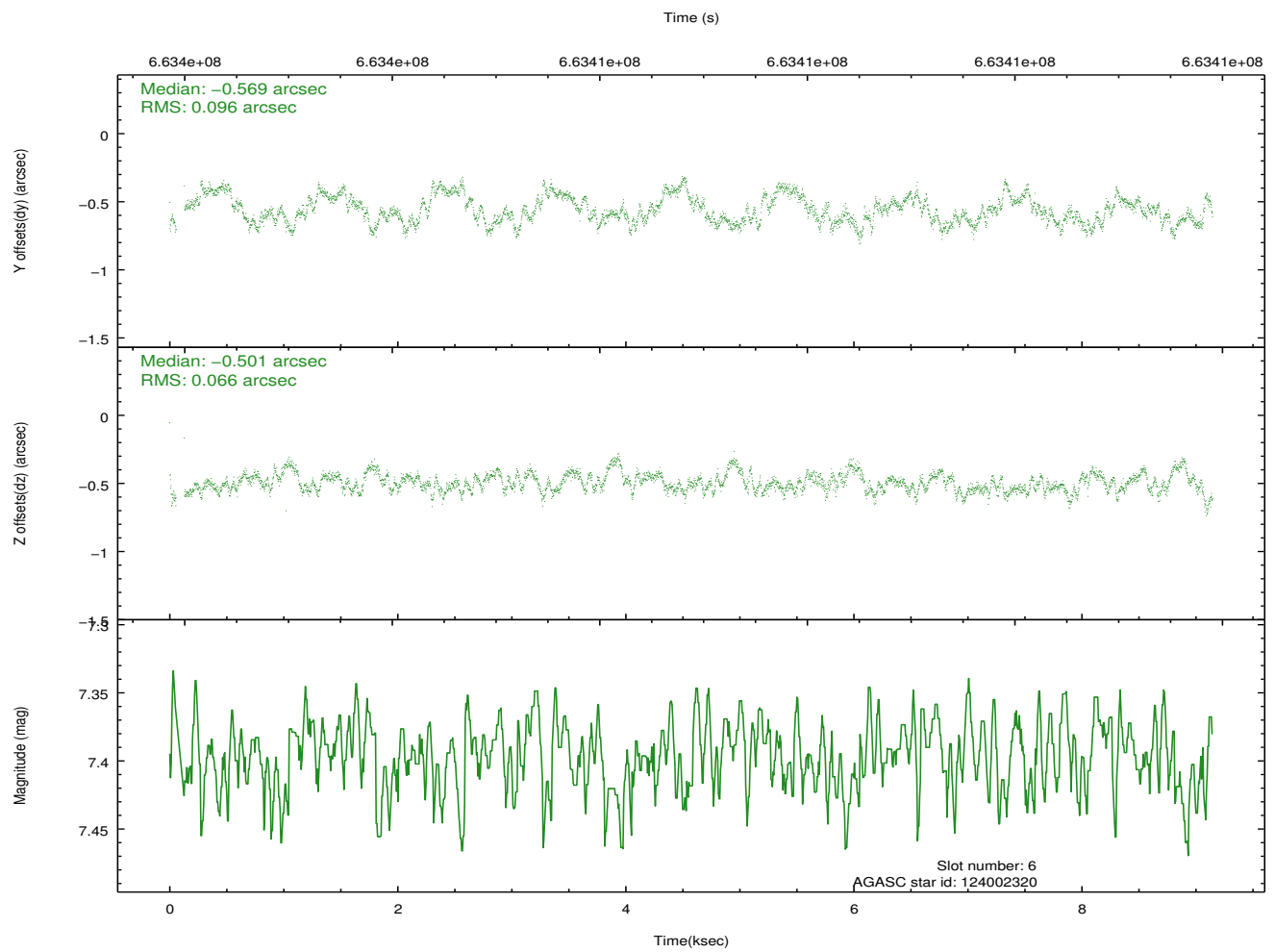
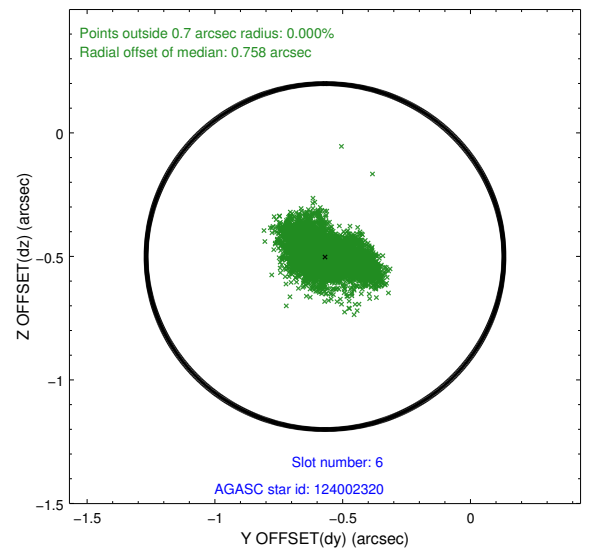
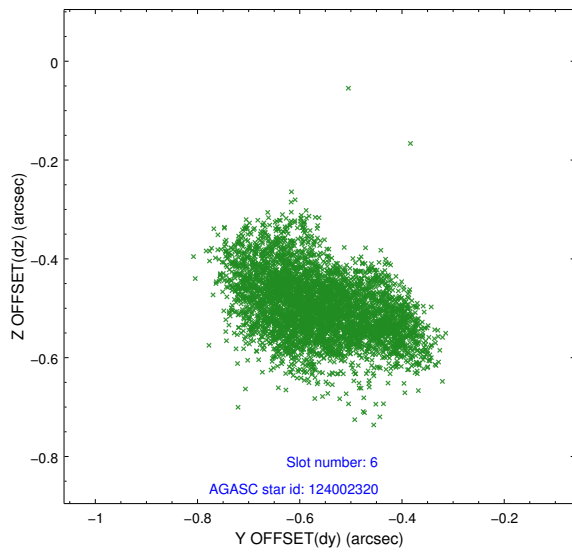
2.4.3 Slot 5



Time (s)

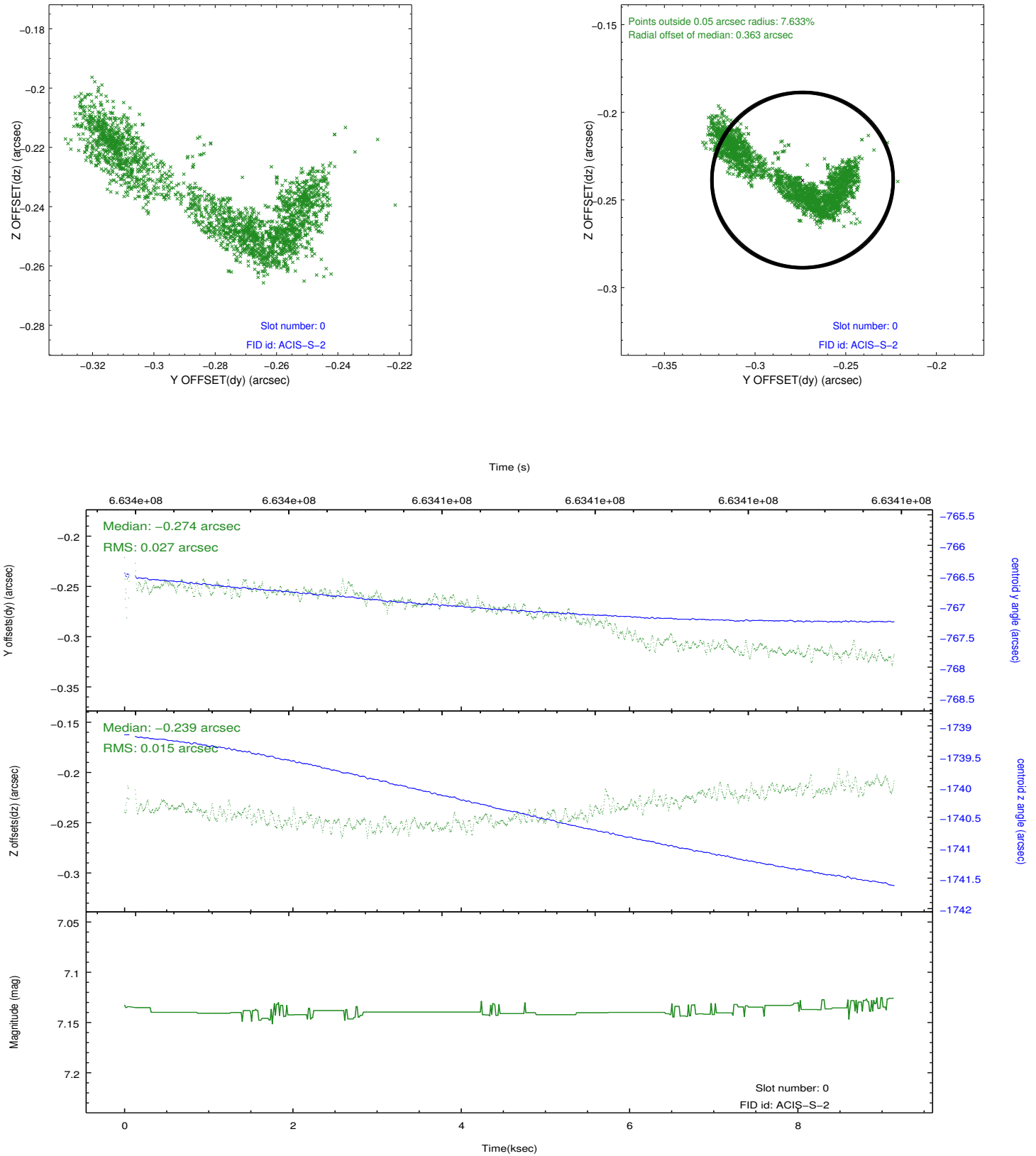


2.4.4 Slot 6

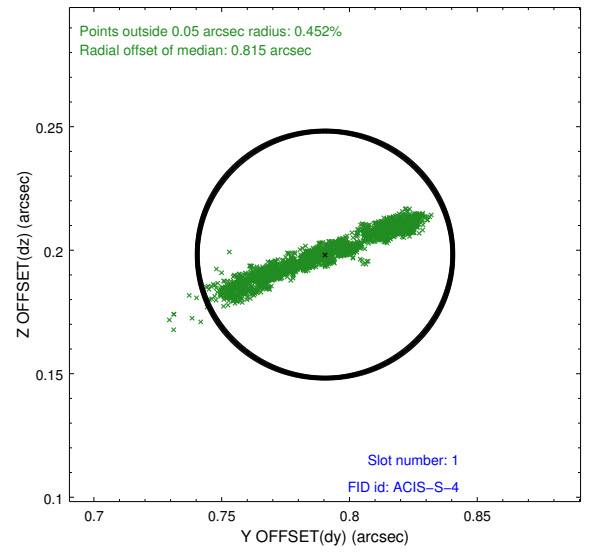
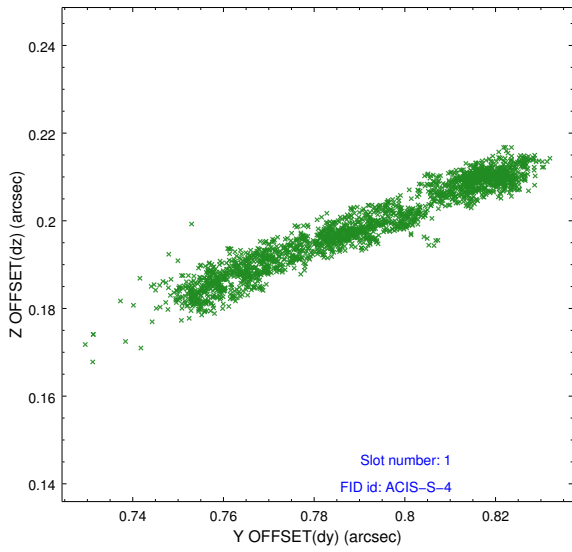


2.5 FID Slots

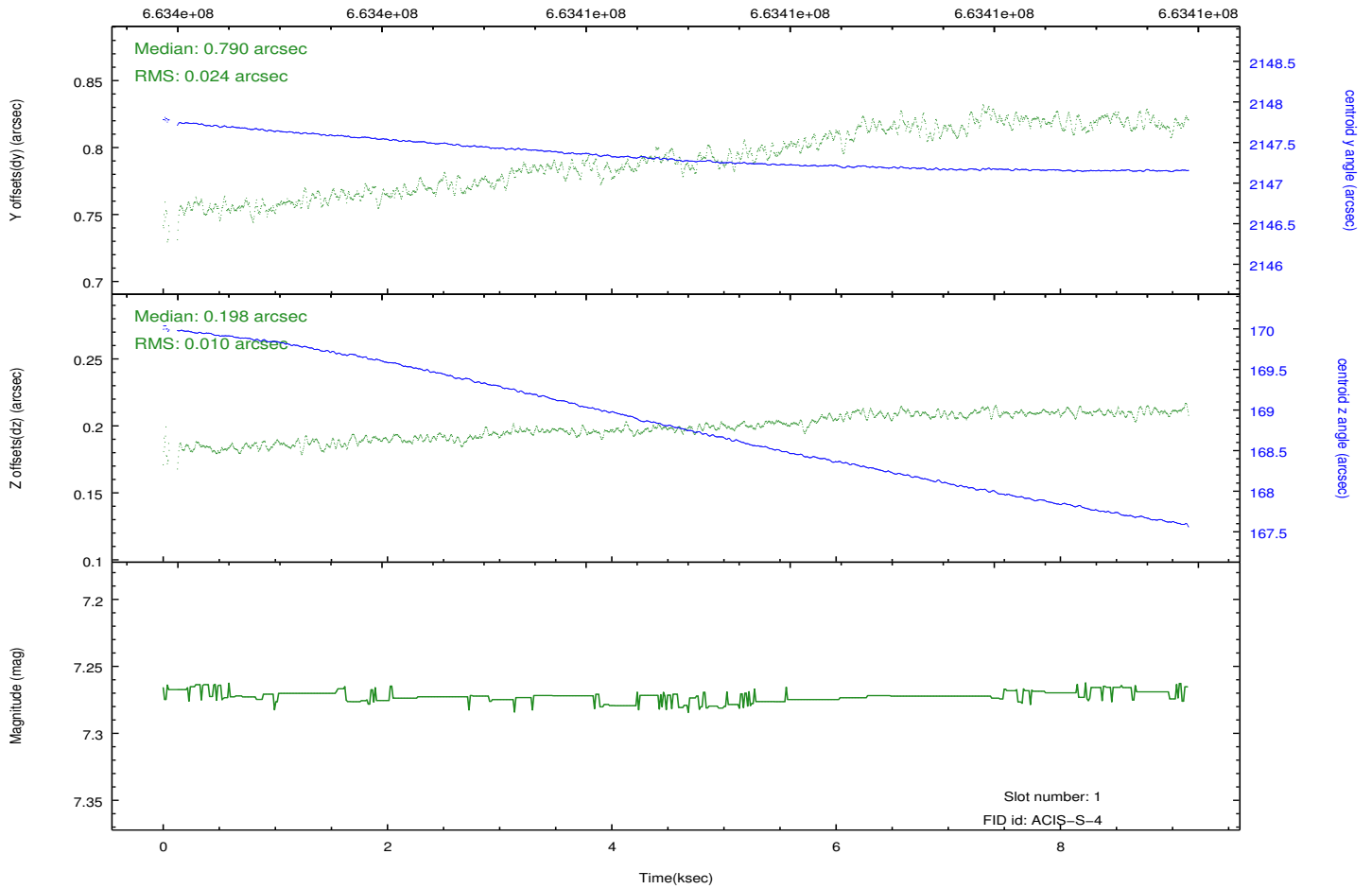
2.5.1 Slot 0



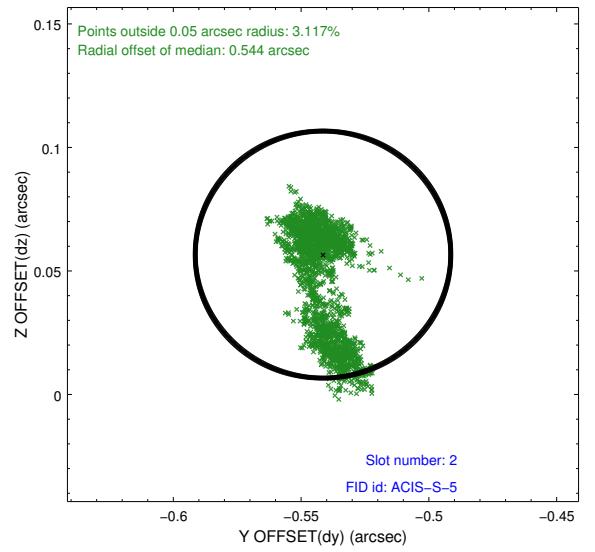
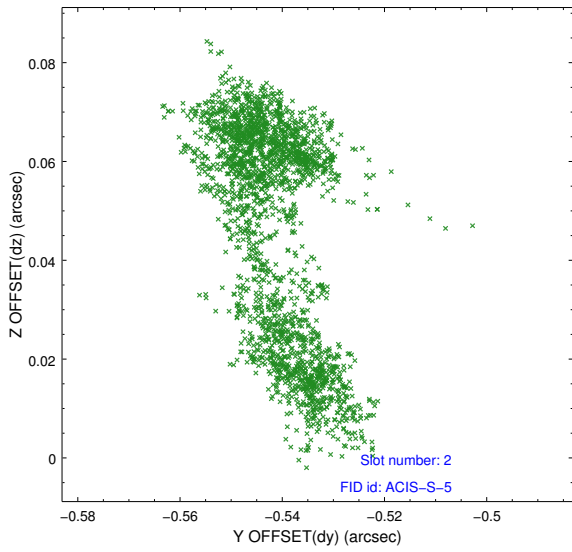
2.5.2 Slot 1



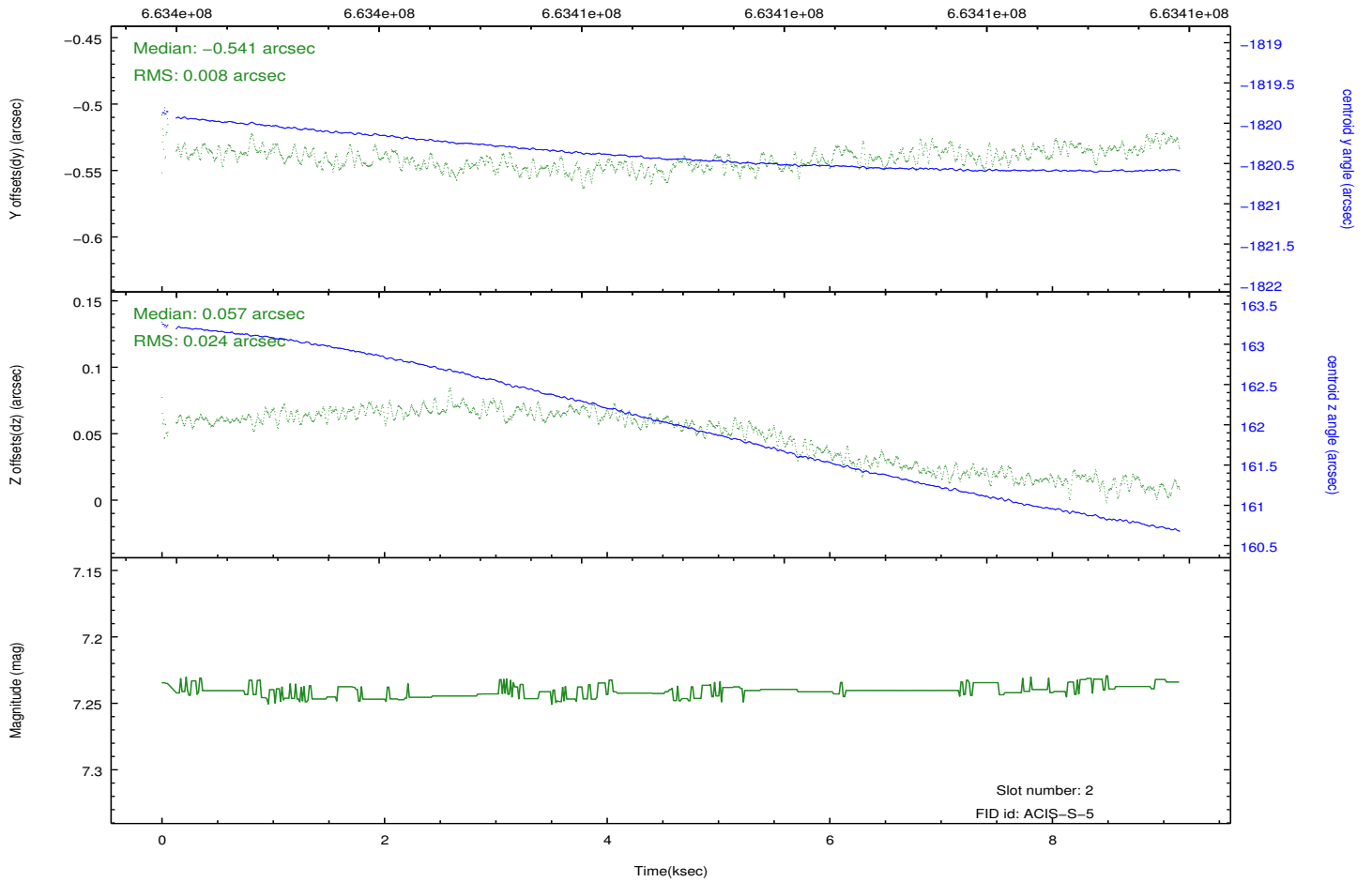
Time (s)



2.5.3 Slot 2



Time (s)



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.01.09
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	9.0151002528667

A.2 Comments

The ACA has the capability to devote one or more of the eight image slots to "monitor" particular sky locations. This allows simultaneous optical photometry of one or more targets in the ACA field of view. These optical sources can be slightly fainter than the ACA guide star limit of $m_{ACA} = 10.2$ mag. The bright-end limit for monitor star photometry is $m_{ACA}=6.2$ mag. However, since there are a fixed number of image slots, devoting a slot to photometry instead of tracking a guide star results in a degradation of the image reconstruction and celestial location accuracy (Section 5.4). Using one monitor slot represents a 15 - 25% increase in the aspect image reconstruction RMS diameter, depending on the particular guide star configuration. Two monitor slots would increase the diameter by about 50 - 60%, but this configuration is not operationally allowed under normal circumstances. The photometric accuracy which can be achieved depends primarily on the star magnitude, integration time, CCD dark current, CCD read noise, sky background, and the CCD dark current uncertainty.