

V&V Reference Report

L2 ASCDS Version : 10.8

Observation 22259 - L2 Version 2
Chandra X-Ray Center

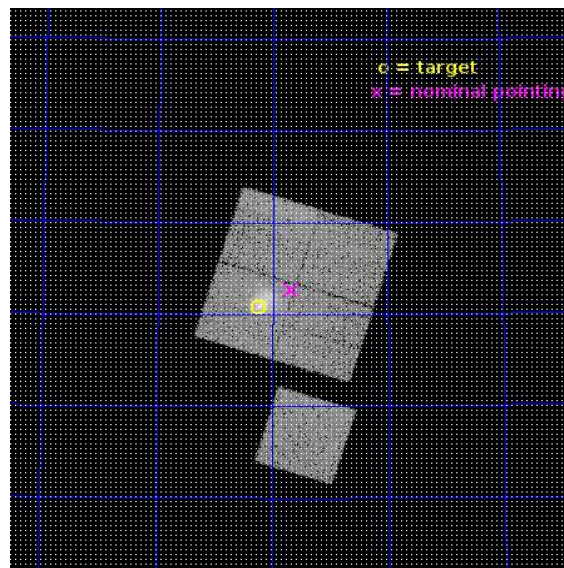
L2 Processing Date : Jun 24 2019

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1 Front

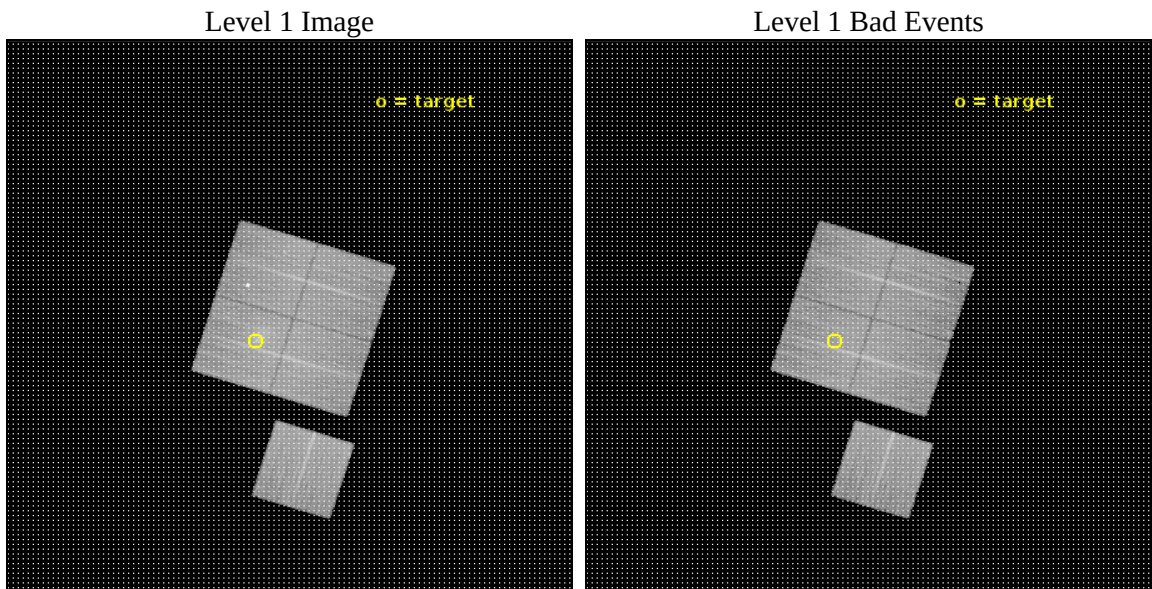
seq_num	801762	Sequence number
obs_id	22259	Observation id
title	Shock structure, the electron-ion equilibration timescale and the disintegrating cool core in A2146	Proposal title
observer	Helen Russell	Principal investigator
object	Abell 2146	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	239.06125	Observer's specified target RA [deg]
dec_targ	66.346917	Observer's specified target Dec [deg]
ra_nom	238.91830644867	Nominal RA [deg]
dec_nom	66.378361511816	Nominal Dec [deg]
roll_nom	197.33965273197	Nominal Roll [deg]
revision	2	Processing version of data
ontime	20066.300154448	Sum of GTIs [s]
livetime	19804.119170334	Livetime [s]
ontime0	20066.300154448	Sum of GTIs [s]
ontime1	20063.159194112	Sum of GTIs [s]
ontime2	20066.300154448	Sum of GTIs [s]
ontime3	20066.300154448	Sum of GTIs [s]
ontime6	20066.300154448	Sum of GTIs [s]
l2events	82996	Number of level 2 events



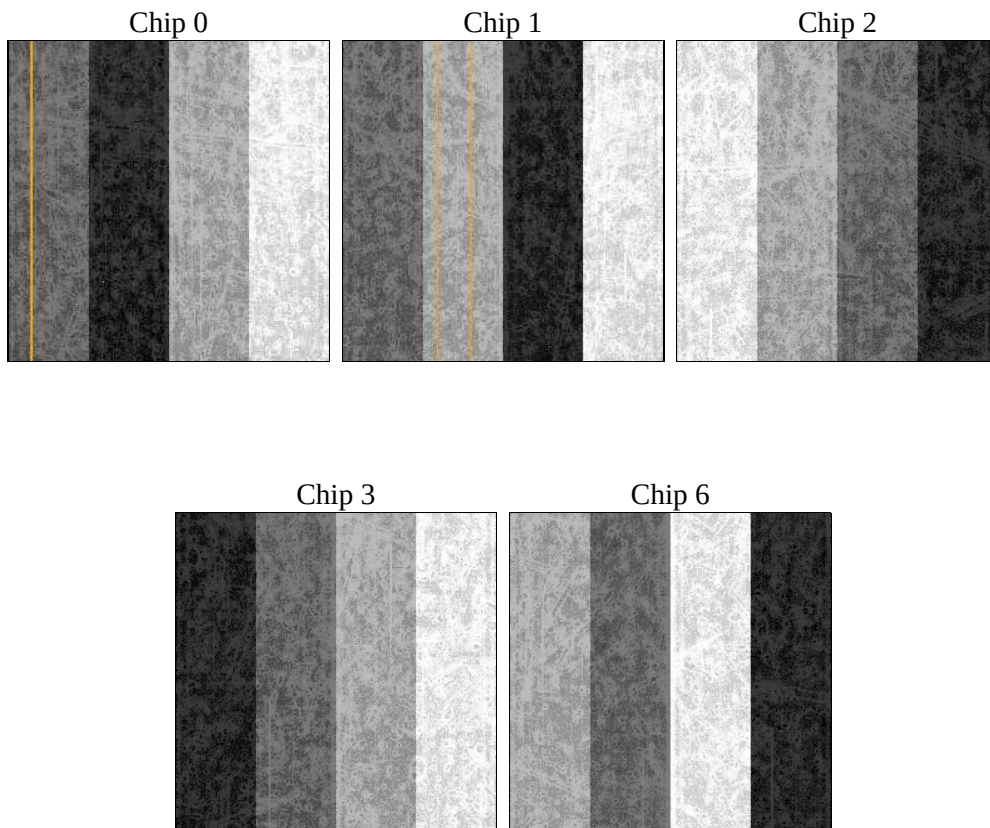
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ascdsver	10.8	Processing system revision	ontime	20066.300154448	Sum of GTIs [s]
caldsver	4.8.3	 	ontime0	20066.300154448	Sum of GTIs [s]
date	2019-06-24T17:58:56	Date and time of file creation	ontime1	20063.159194112	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	20066.300154448	Sum of GTIs [s]
			ontime3	20066.300154448	Sum of GTIs [s]
			ontime6	20066.300154448	Sum of GTIs [s]
			l1events	774838	Number of level 1 events

2.1.4 Events

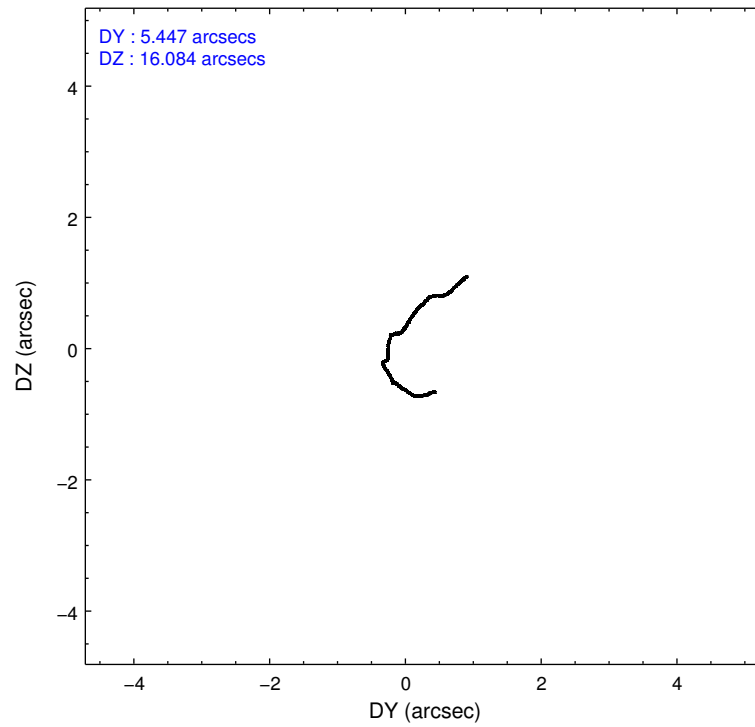
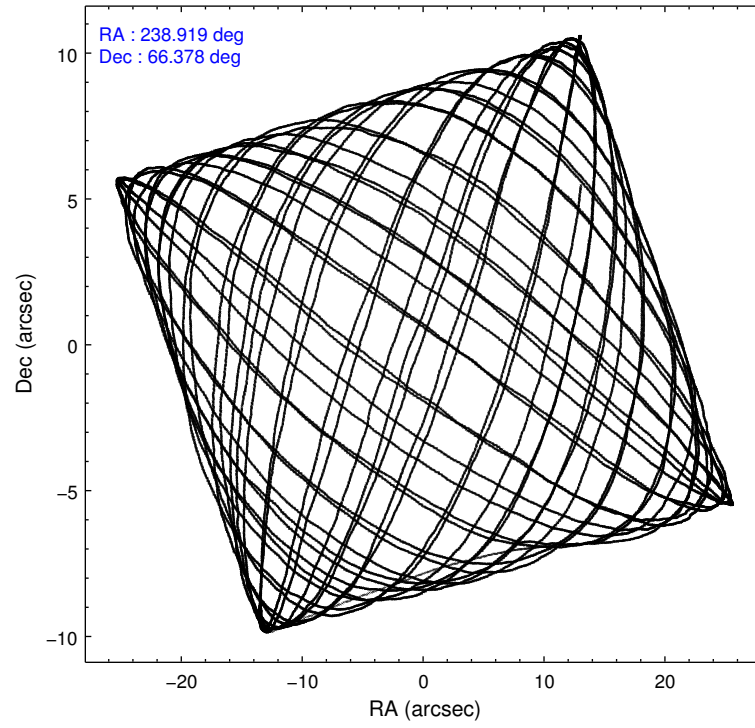
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	140291	157598	156058	166772	154119
rejected events	122846	131660	138826	141263	136747
rejected %	87%	83%	88%	84%	88%

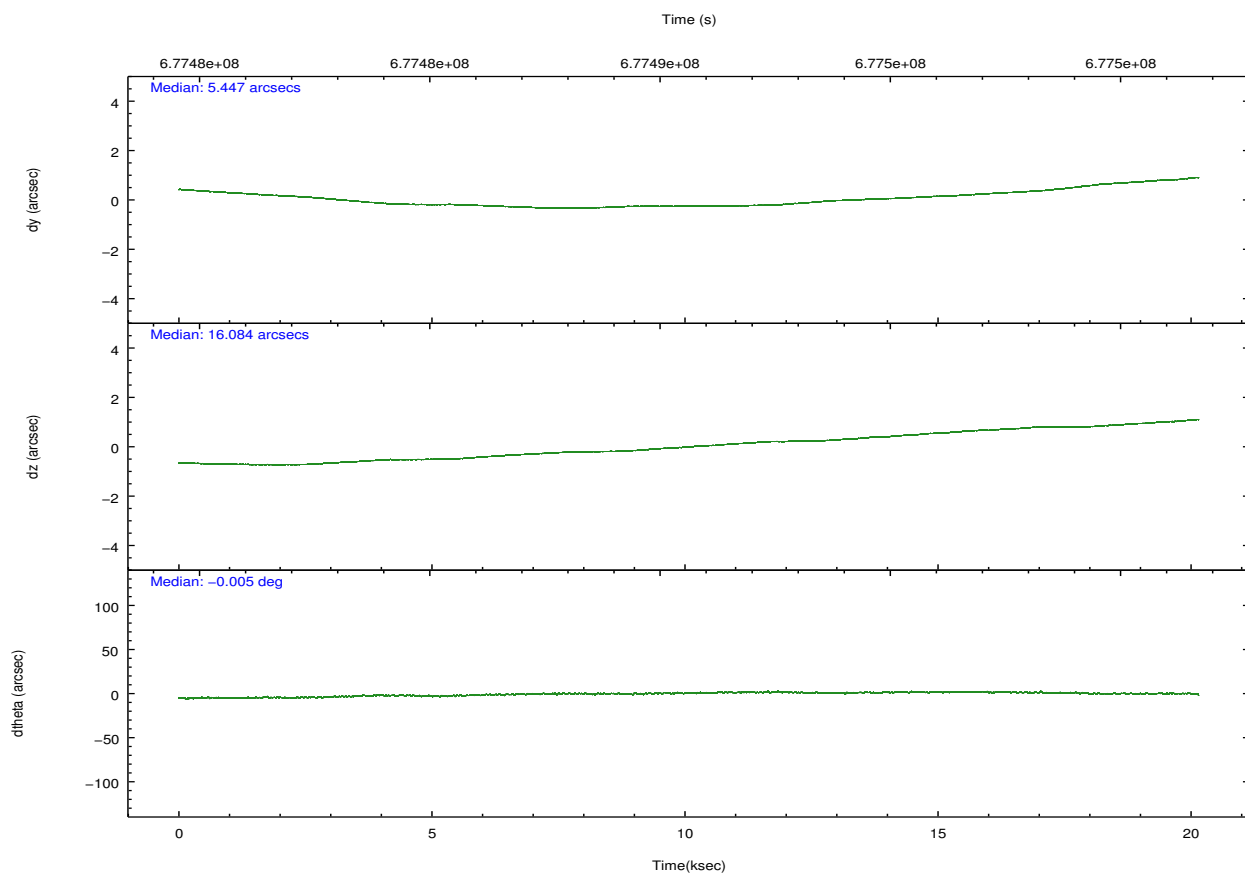
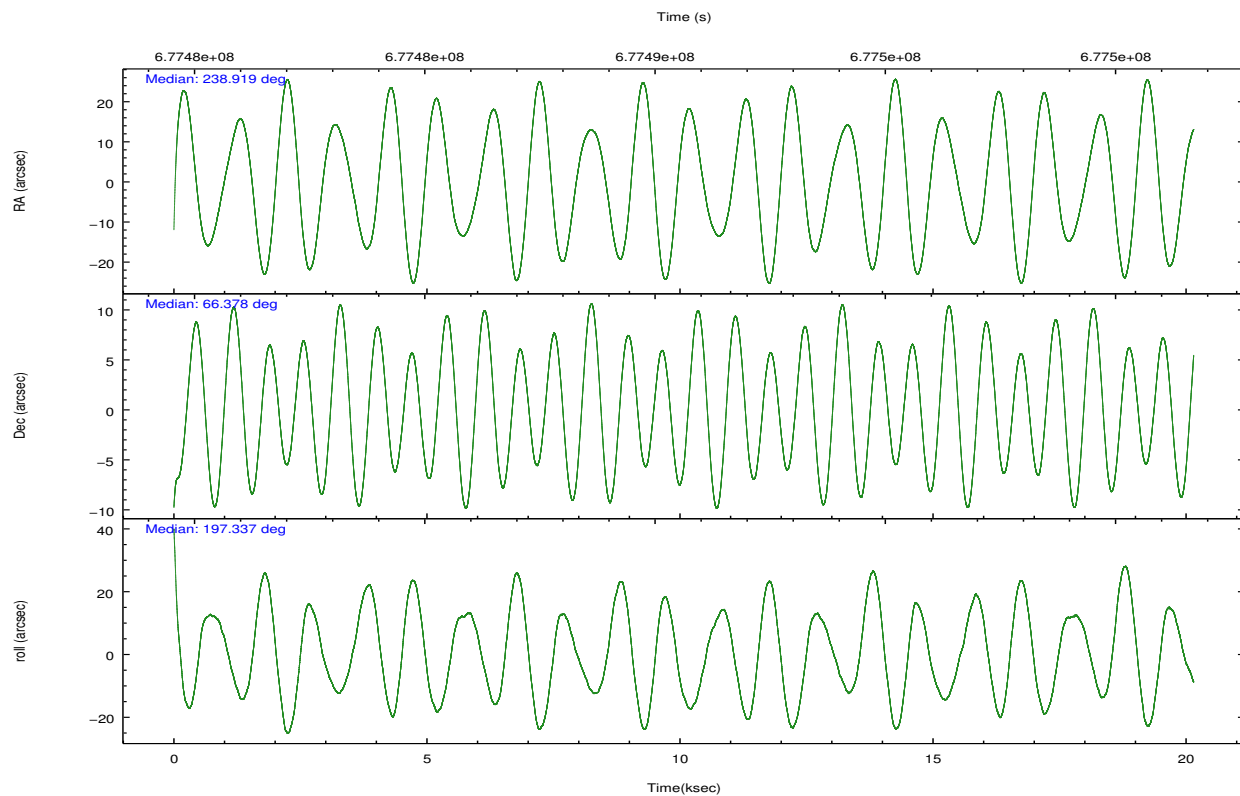
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	5847	12648	5980	12864	5635
	4%	8%	3%	7%	3%
grade 1 events	72	206	99	137	134
	0%	0%	0%	0%	0%
grade 2 events	4493	5224	4368	4783	4128
	3%	3%	2%	2%	2%
grade 3 events	1865	1816	1596	1957	1624
	1%	1%	1%	1%	1%
grade 4 events	1642	1786	1772	2061	1715
	1%	1%	1%	1%	1%
grade 5 events	6899	6912	6612	7422	6975
	4%	4%	4%	4%	4%
grade 6 events	3598	4470	3518	3845	4273
	2%	2%	2%	2%	2%
grade 7 events	115875	124536	132113	133703	129635
	82%	79%	84%	80%	84%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	238.964814	238.9183064486747	CCD I2 on	Y	Y
[deg] Pointing Dec	66.398745	66.37836151181567	CCD I3 on	Y	Y
[deg] Pointing Roll	197.088360	197.339652731972	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	677480715.184000	677479668.2222	CCD S5 on	N	N
Observation start date	2019-06-21T05:04:06	2019-06-21T04:47:48	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	677500715.184000	677502024.49854	On-chip summing requested	N	N
Observation end date	2019-06-21T10:37:26	2019-06-21T11:00:24	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



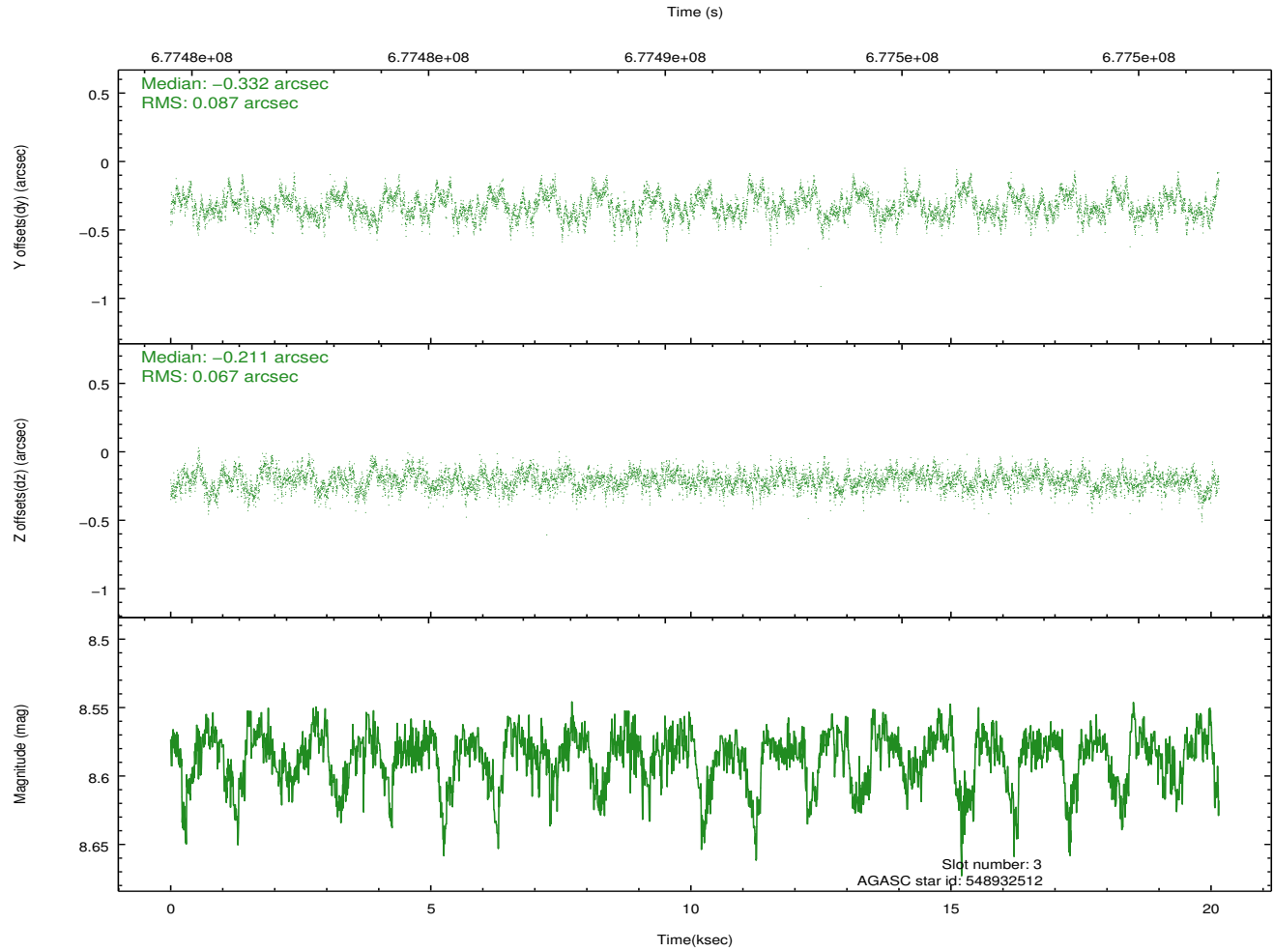
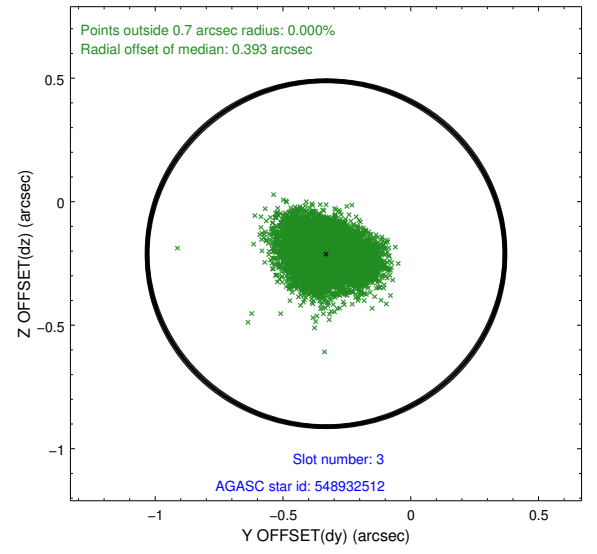
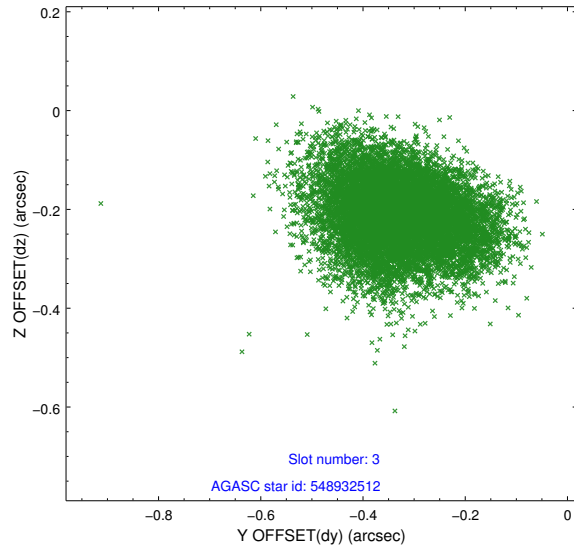


Slot Statistics

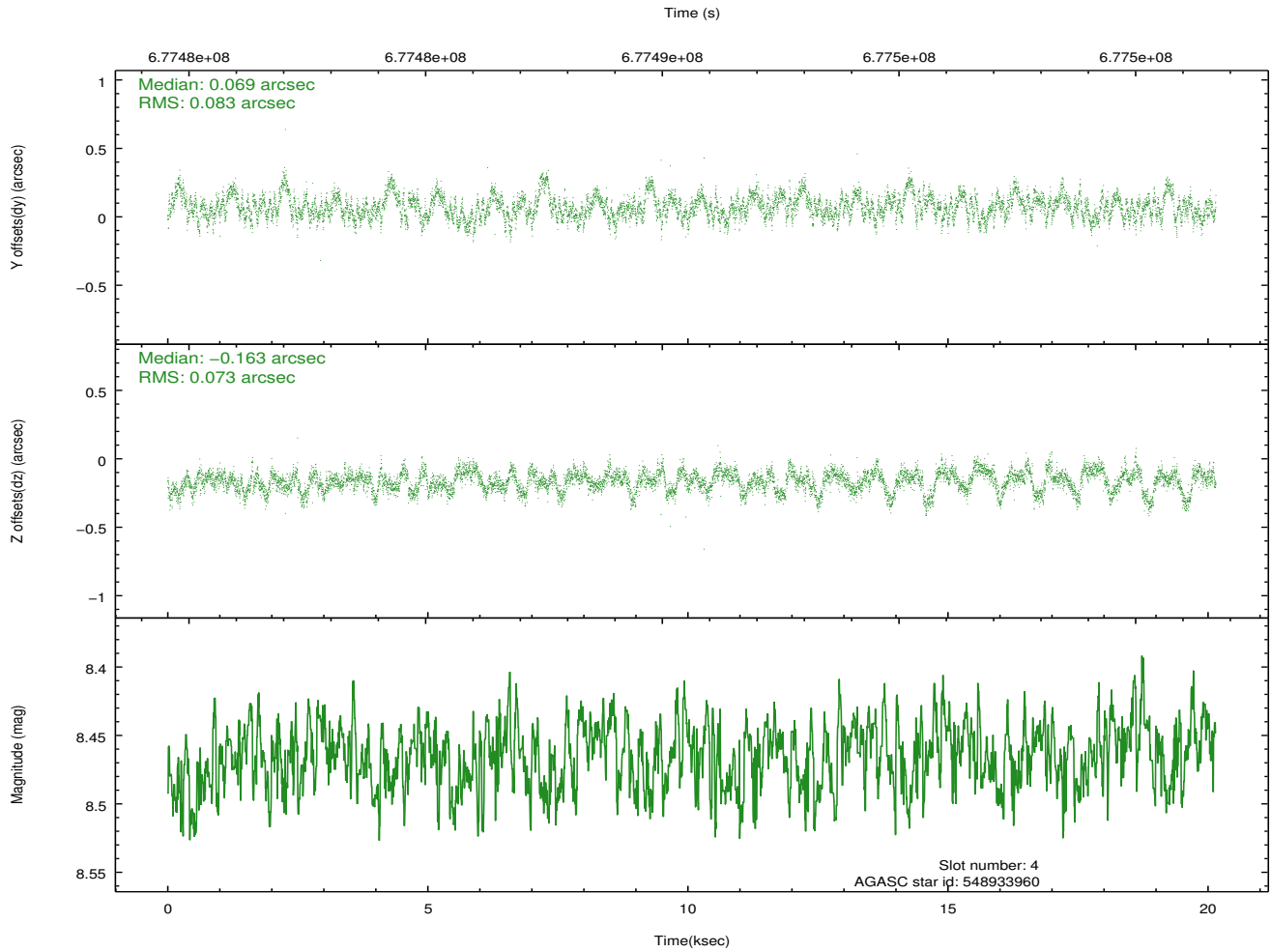
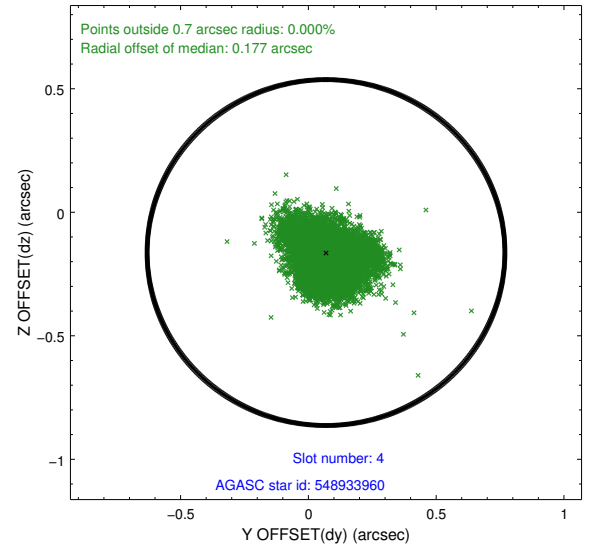
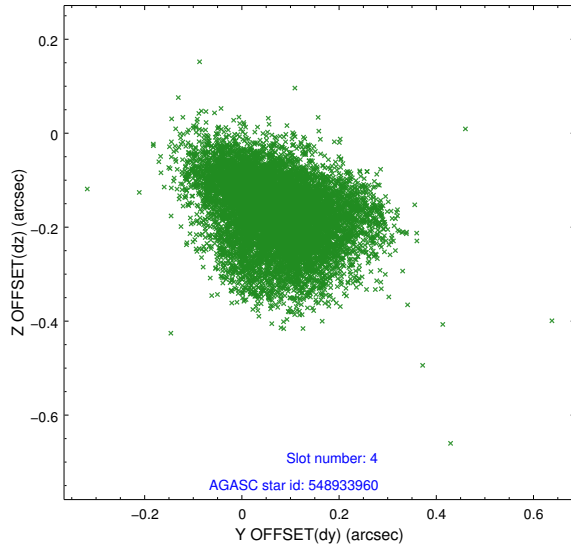
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.17	4915	1.000	0.125	-0.150	0.015	0.038	0.000000	0.000000	934.39	-839
1	FID		ACIS-I-5	7.12	4915	1.000	-0.418	0.049	0.014	0.019	0.000000	0.000000	-1814.28	1057
2	FID		ACIS-I-6	7.13	4914	1.000	0.200	0.174	0.026	0.050	0.000000	0.000000	399.64	1702
3	GUIDE	used	548932512	8.58	9827	1.000	-0.332	-0.211	0.116	0.190	239.727627	66.054972	-703.94	1503
4	GUIDE	used	548933960	8.46	9821	1.000	0.069	-0.163	0.119	0.190	237.671184	66.428675	1743.60	-667
5	GUIDE	used	548937184	9.85	9801	1.000	-0.076	0.062	0.270	0.444	238.771821	66.565432	88.03	-654
6	GUIDE	used	548939872	10.24	9796	1.000	0.248	-0.095	0.264	0.434	238.964867	66.978384	-612.65	-1994
7	GUIDE	used	549849072	9.12	9823	1.000	0.074	0.417	0.138	0.217	240.420863	66.802816	-2407.32	-806

2.4 Star Slots

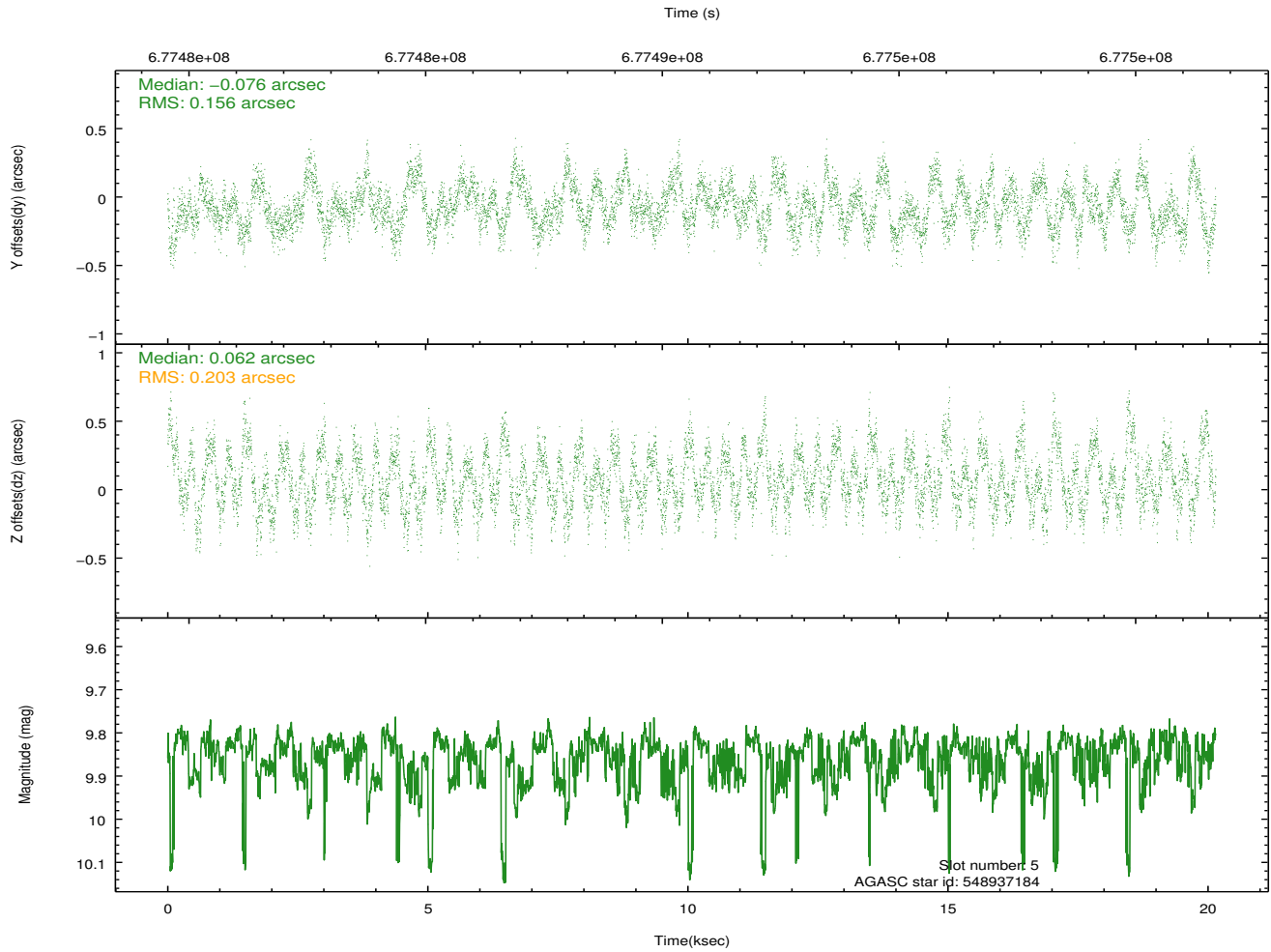
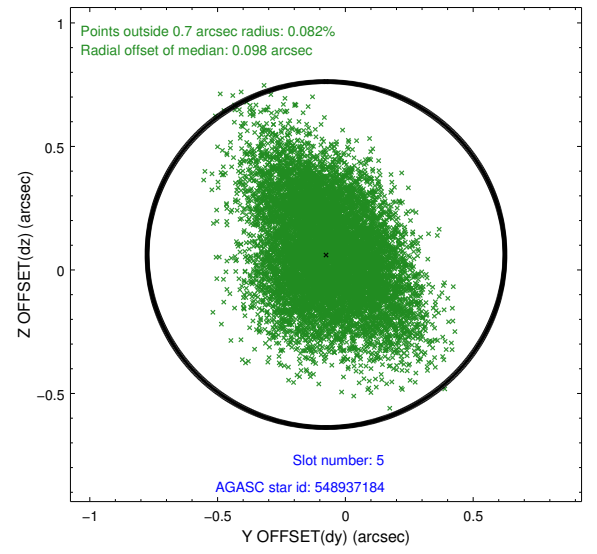
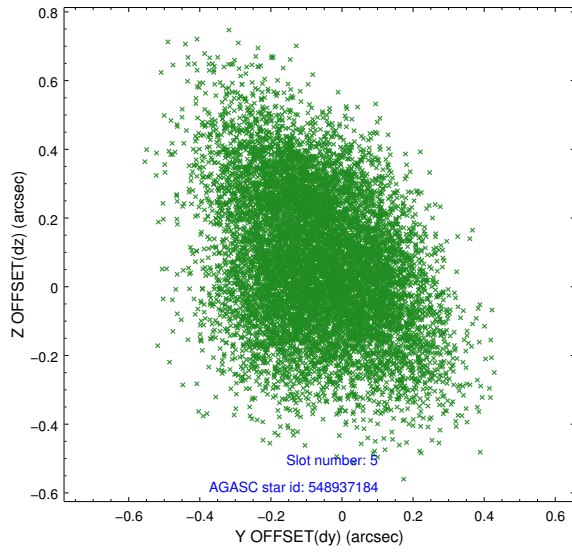
2.4.1 Slot 3



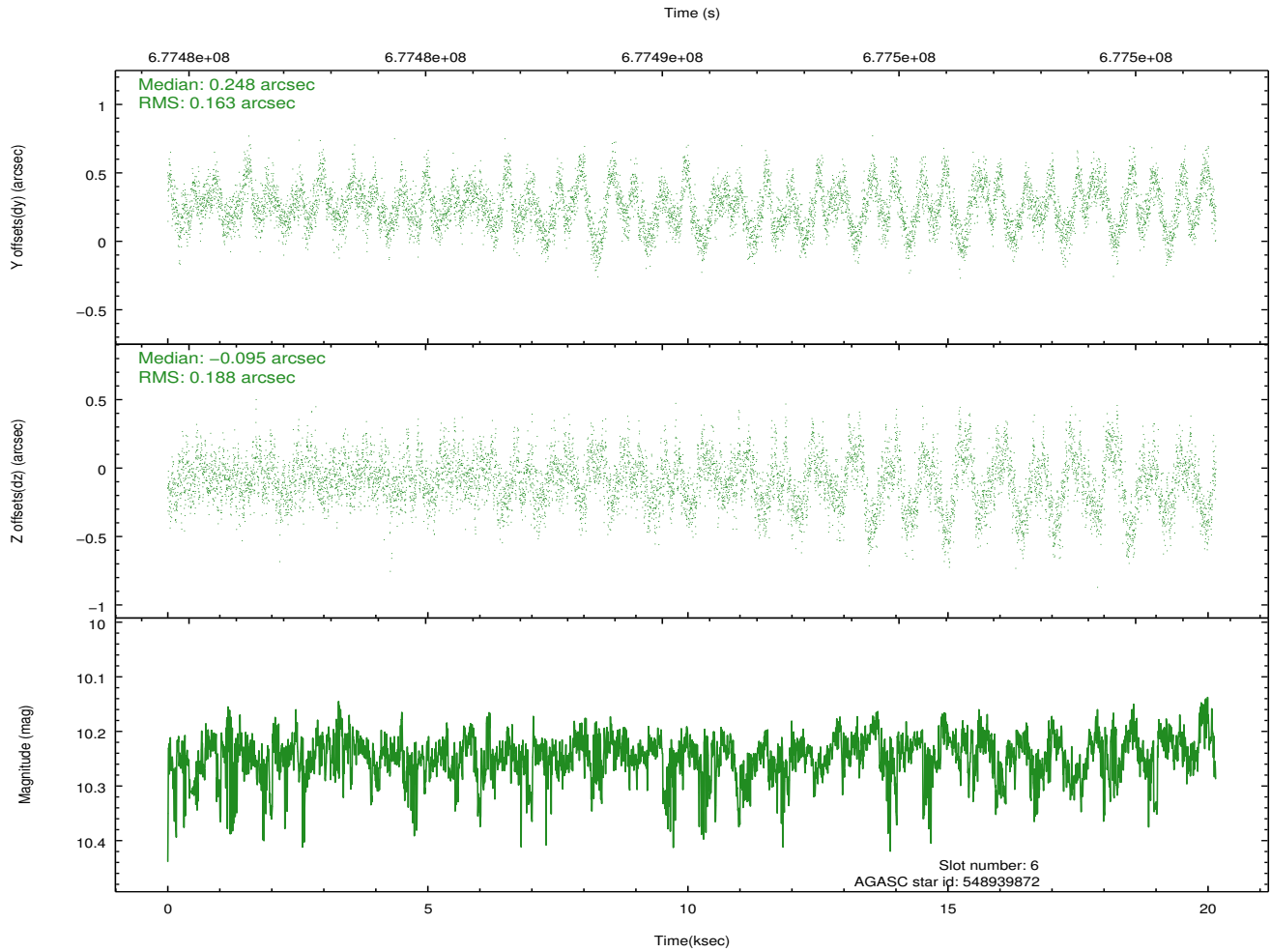
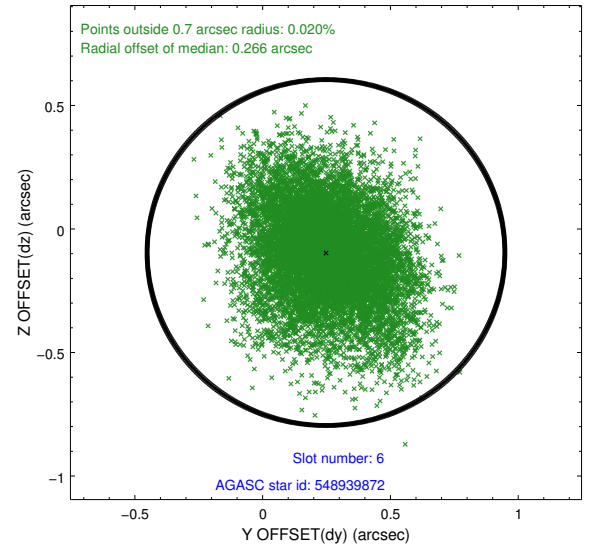
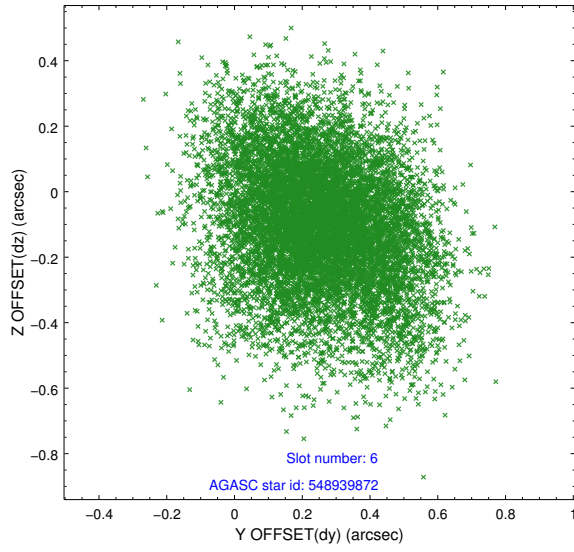
2.4.2 Slot 4



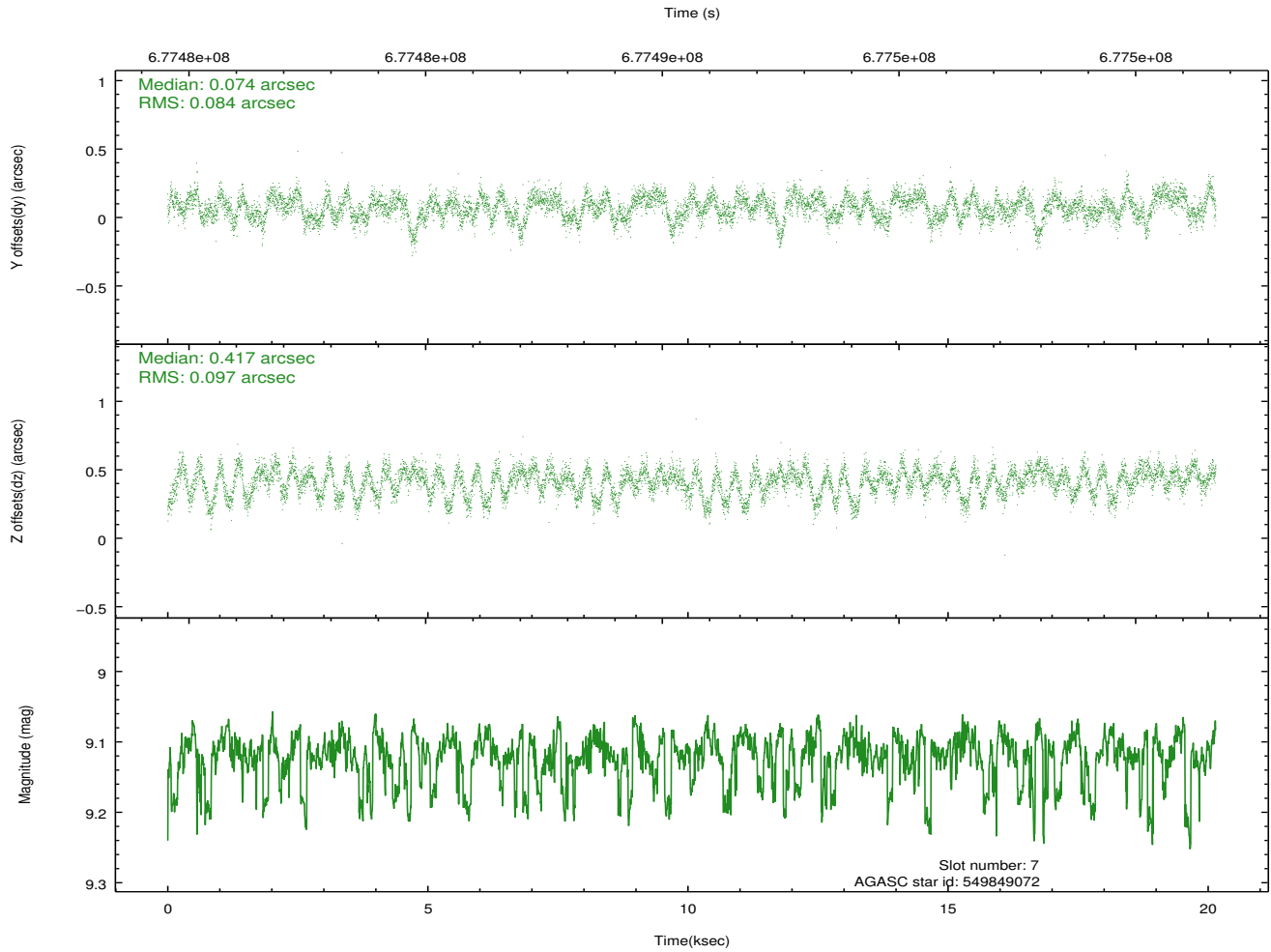
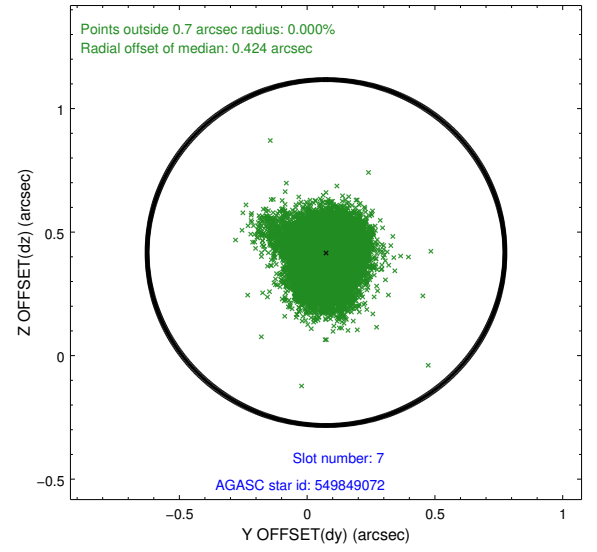
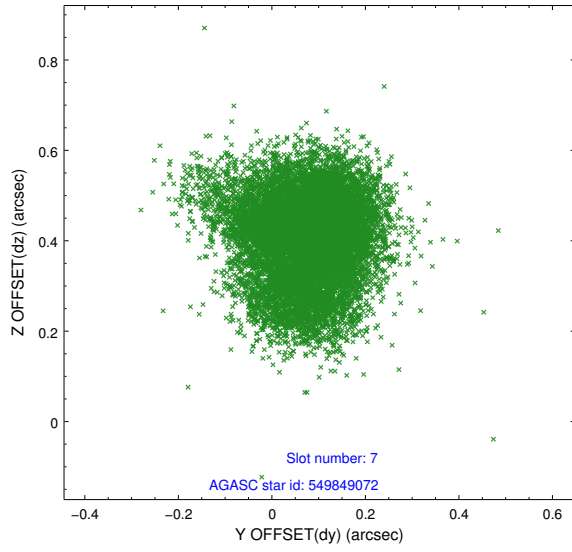
2.4.3 Slot 5



2.4.4 Slot 6

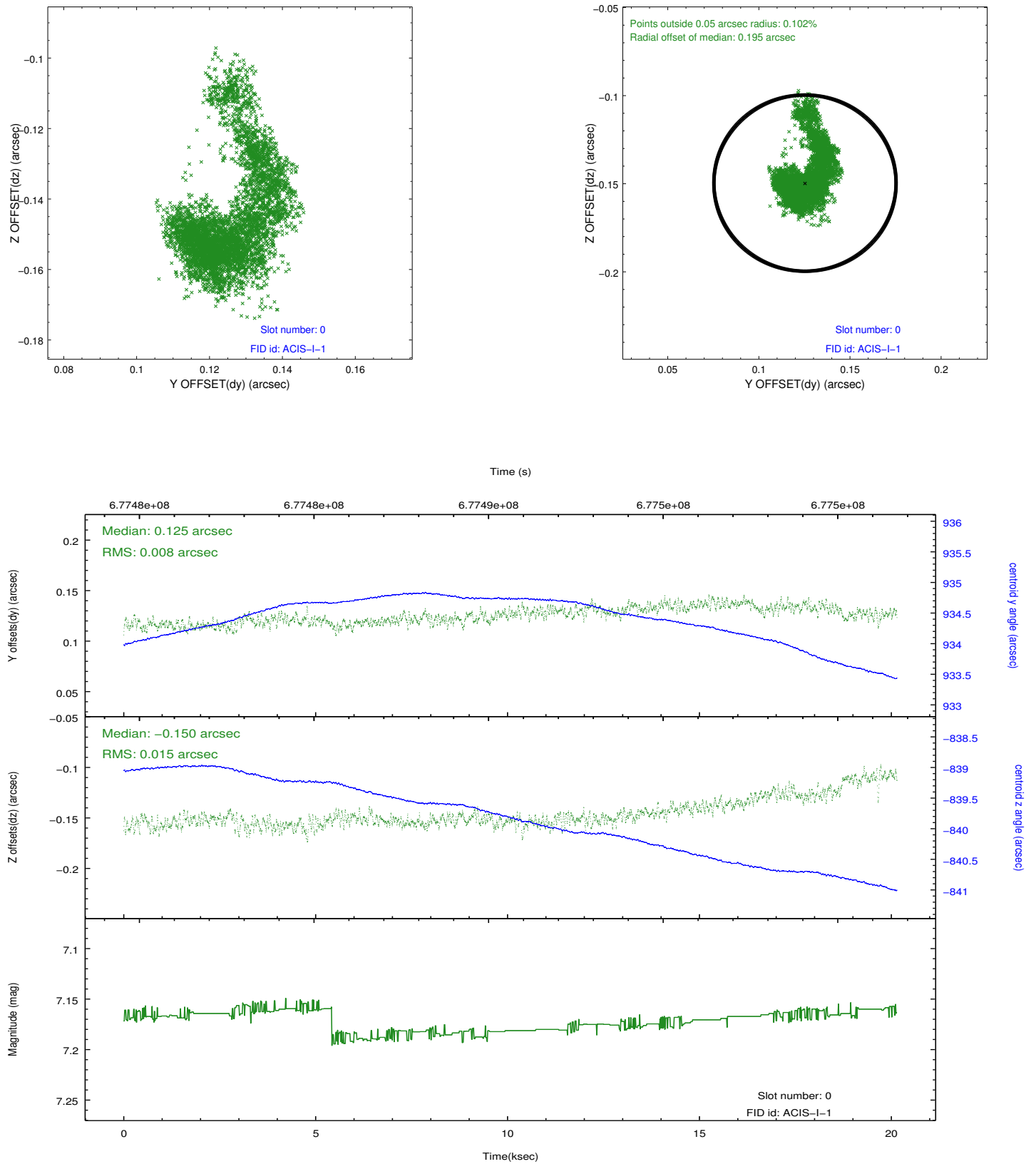


2.4.5 Slot 7

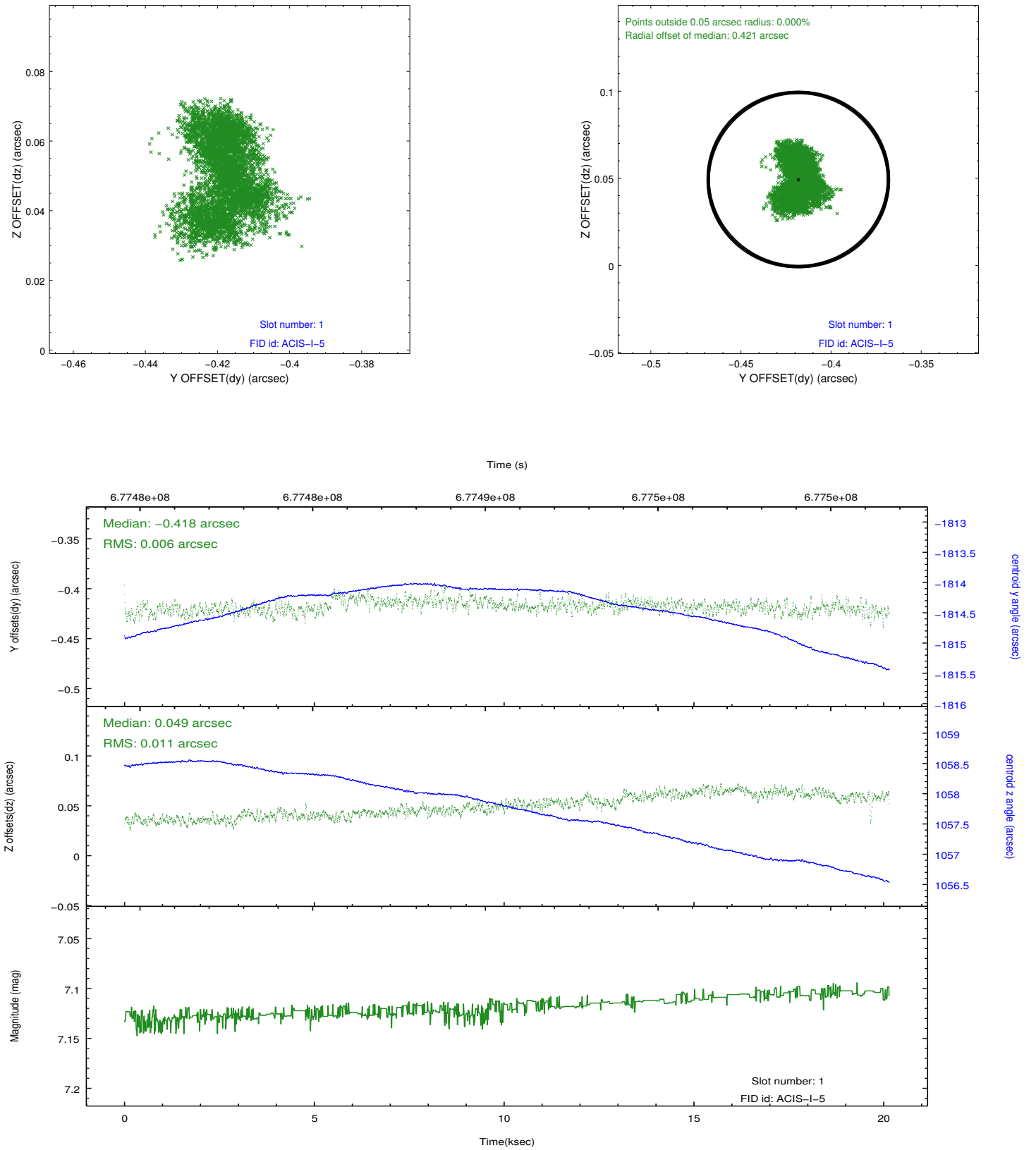


2.5 FID Slots

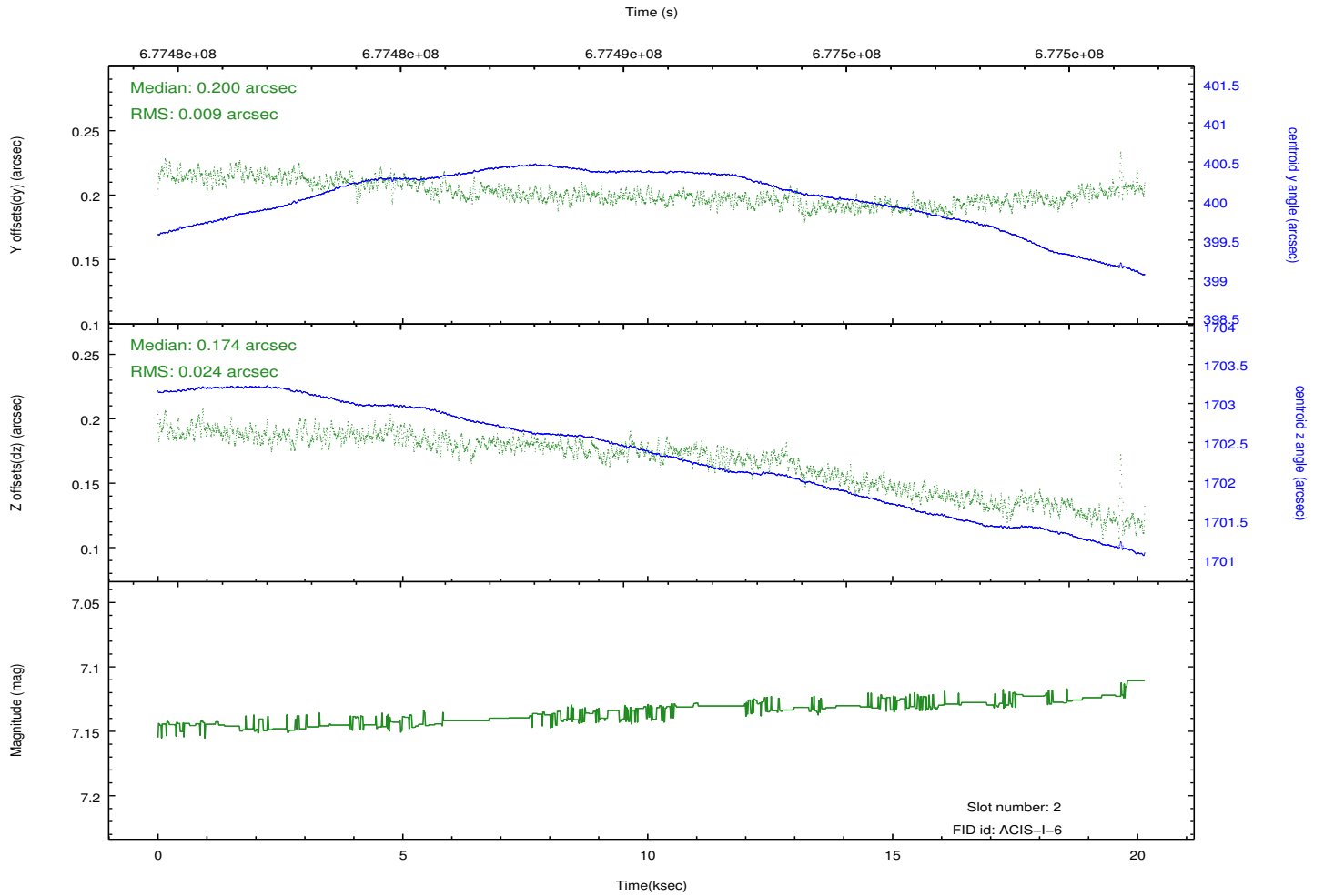
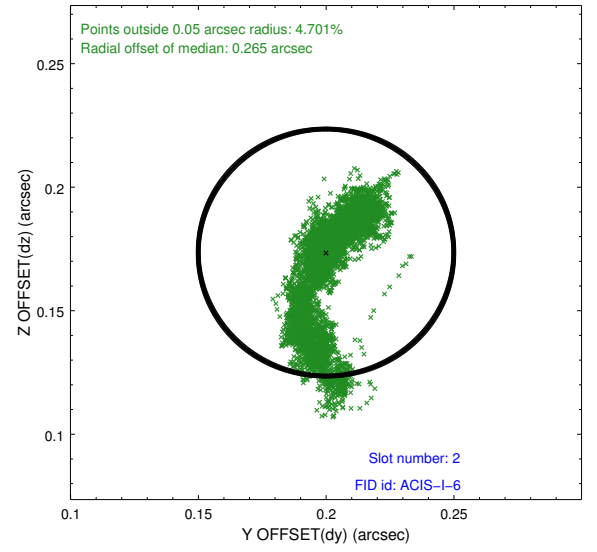
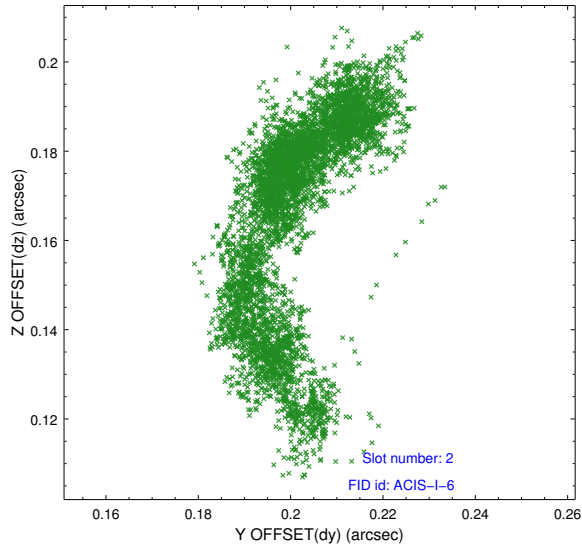
2.5.1 Slot 0



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)	2019.06.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.066300154448

A.2 Comments

A spatial region of the original bias map for CCD = 0 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~ 20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 0 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (238.54745, 66.36721), (238.54961, 66.36448), (238.72699, 66.38703), (238.73784, 66.39141).