

# V&V Reference Report

## L2 ASCDS Version : 10.5.4

Observation 20086 - L2 Version 2  
Chandra X-Ray Center

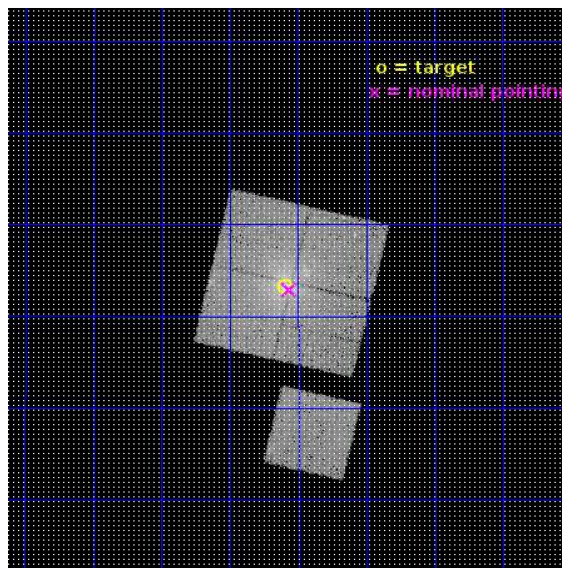
L2 Processing Date : Jun 6 2017

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# 1 Front

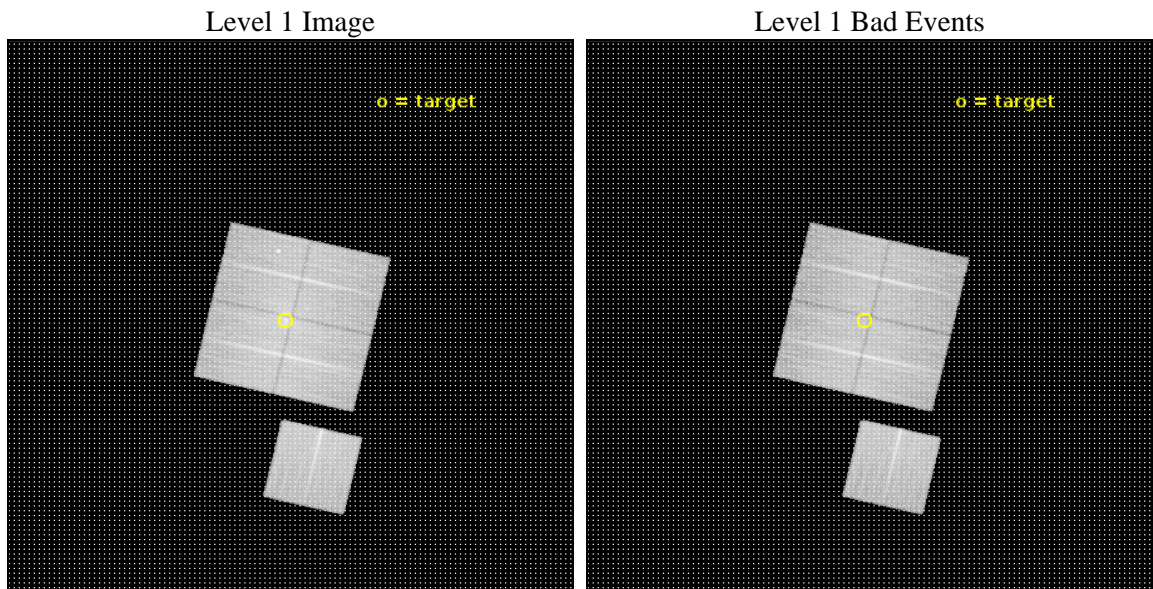
seq_num	801681	Sequence number
obs_id	20086	Observation id
title	Two Clusters with Short Central t_cool but no Signatures of Cooling Gas - Why Hasn't Cooling Commenced?	Proposal title
observer	Michael Hogan	Principal investigator
object	A2151	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	241.149167	Observer's specified target RA [deg]
dec_targ	17.721472	Observer's specified target Dec [deg]
ra_nom	241.14105869842	Nominal RA [deg]
dec_nom	17.714997532881	Nominal Dec [deg]
roll_nom	193.21118985082	Nominal Roll [deg]
revision	2	Processing version of data
ontime	30063.61715591	Sum of GTIs [s]
livetime	29670.813865255	Livetime [s]
ontime0	30063.494055986	Sum of GTIs [s]
ontime1	30069.81725657	Sum of GTIs [s]
ontime2	30060.4350456	Sum of GTIs [s]
ontime3	30063.61715591	Sum of GTIs [s]
ontime6	30063.453026175	Sum of GTIs [s]
l2events	119542	Number of level 2 events



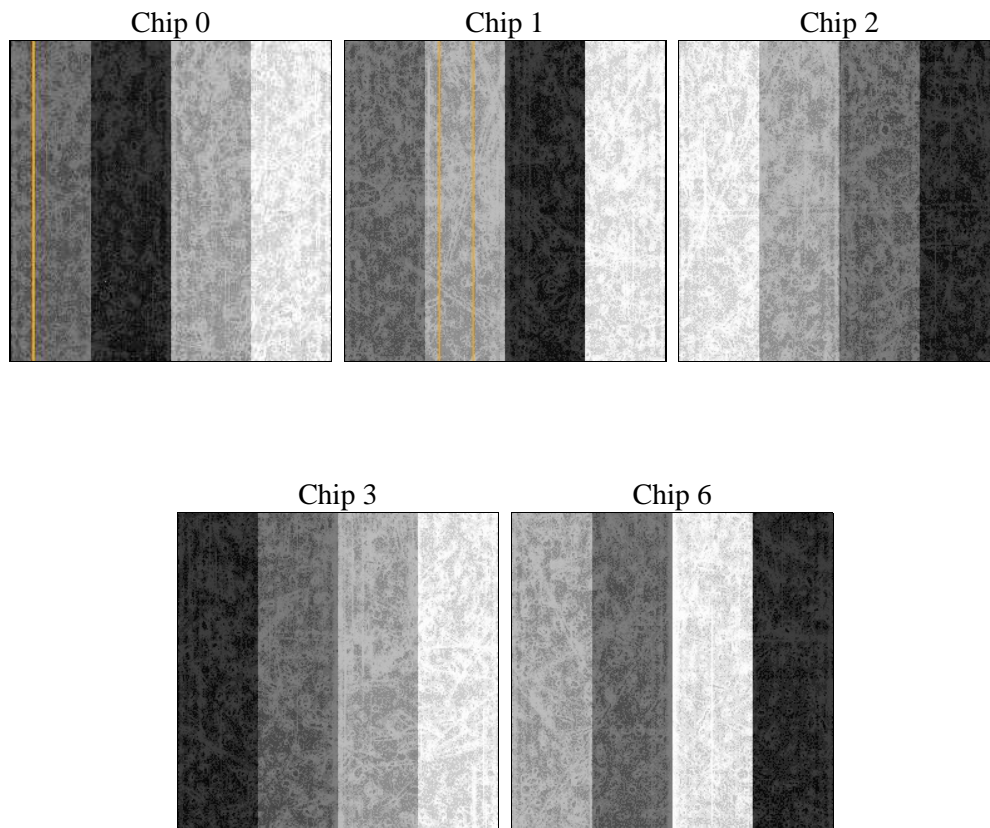
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	30000.000000	[s] Scheduled observation exposure time
ascdsver	10.5.4	Processing system revision	ontime	30063.61715591	Sum of GTIs [s]
caldbver	4.7.4	&#160	ontime0	30063.494055986	Sum of GTIs [s]
date	2017-06-06T16:54:37	Date and time of file creation	ontime1	30069.81725657	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	30060.4350456	Sum of GTIs [s]
			ontime3	30063.61715591	Sum of GTIs [s]
			ontime6	30063.453026175	Sum of GTIs [s]
			l1events	1019173	Number of level 1 events

### 2.1.4 Events

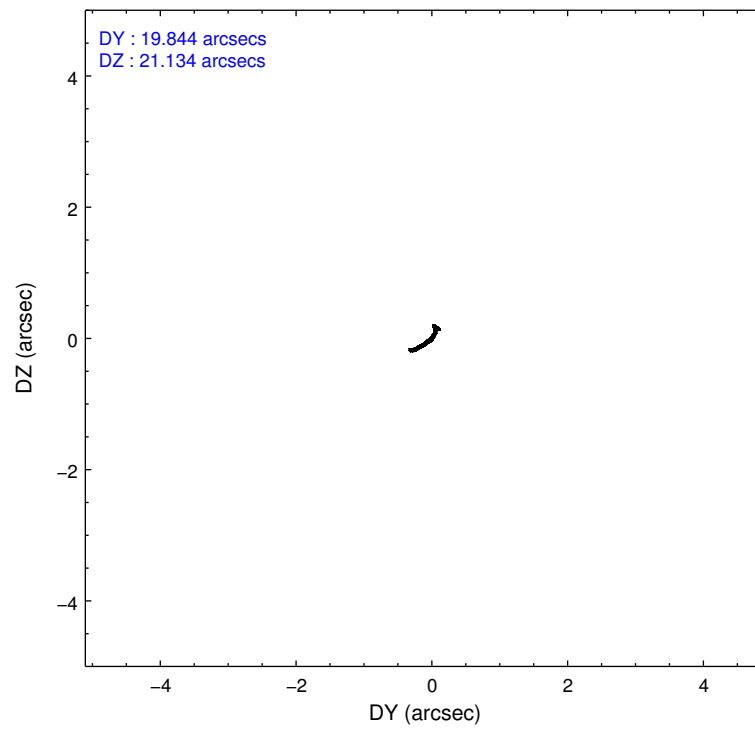
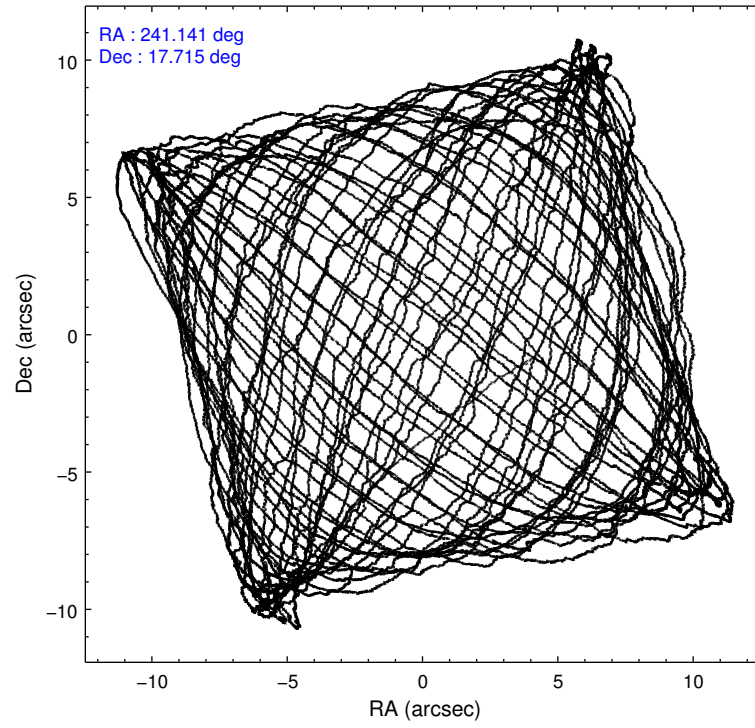
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	189183	195979	214413	213625	205973
rejected events	162246	164389	187926	180686	183704
rejected %	85%	83%	87%	84%	89%

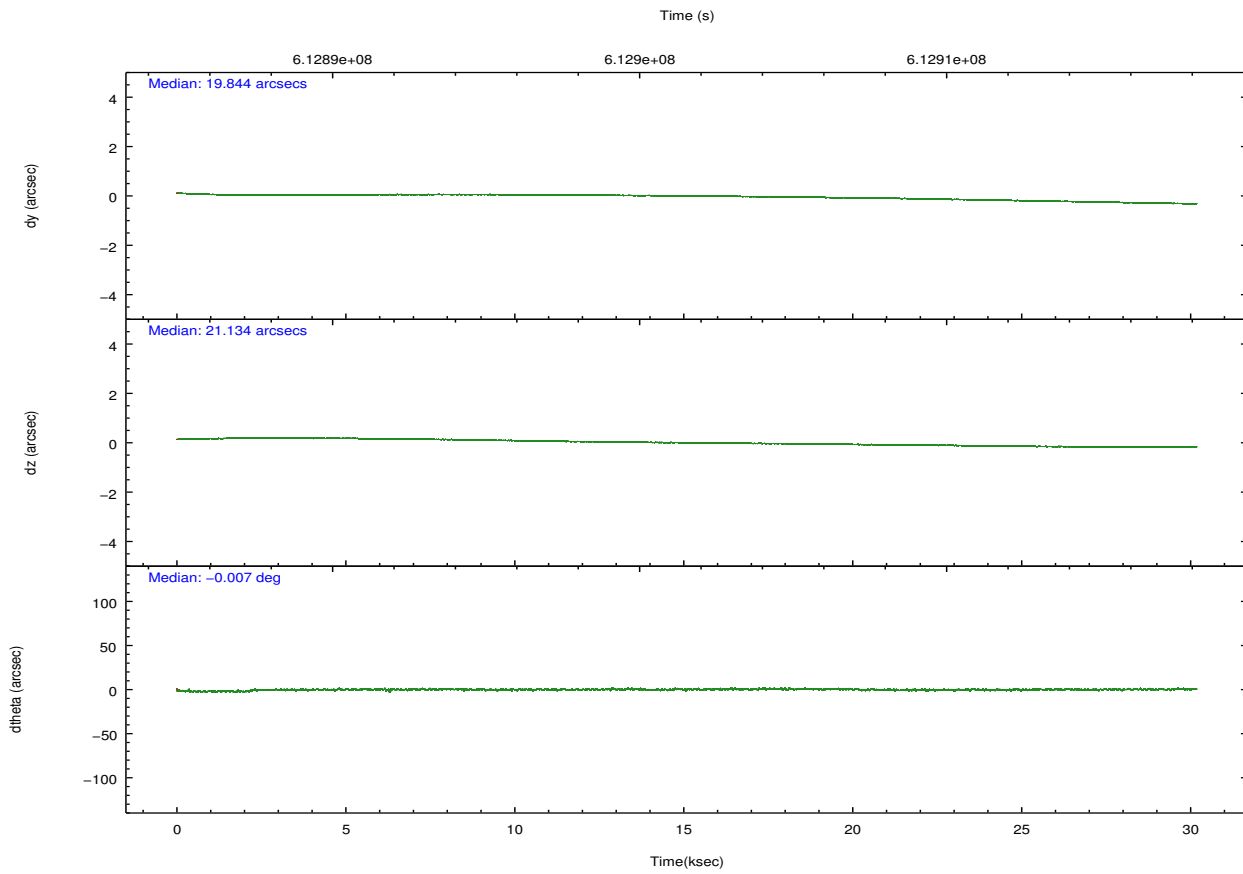
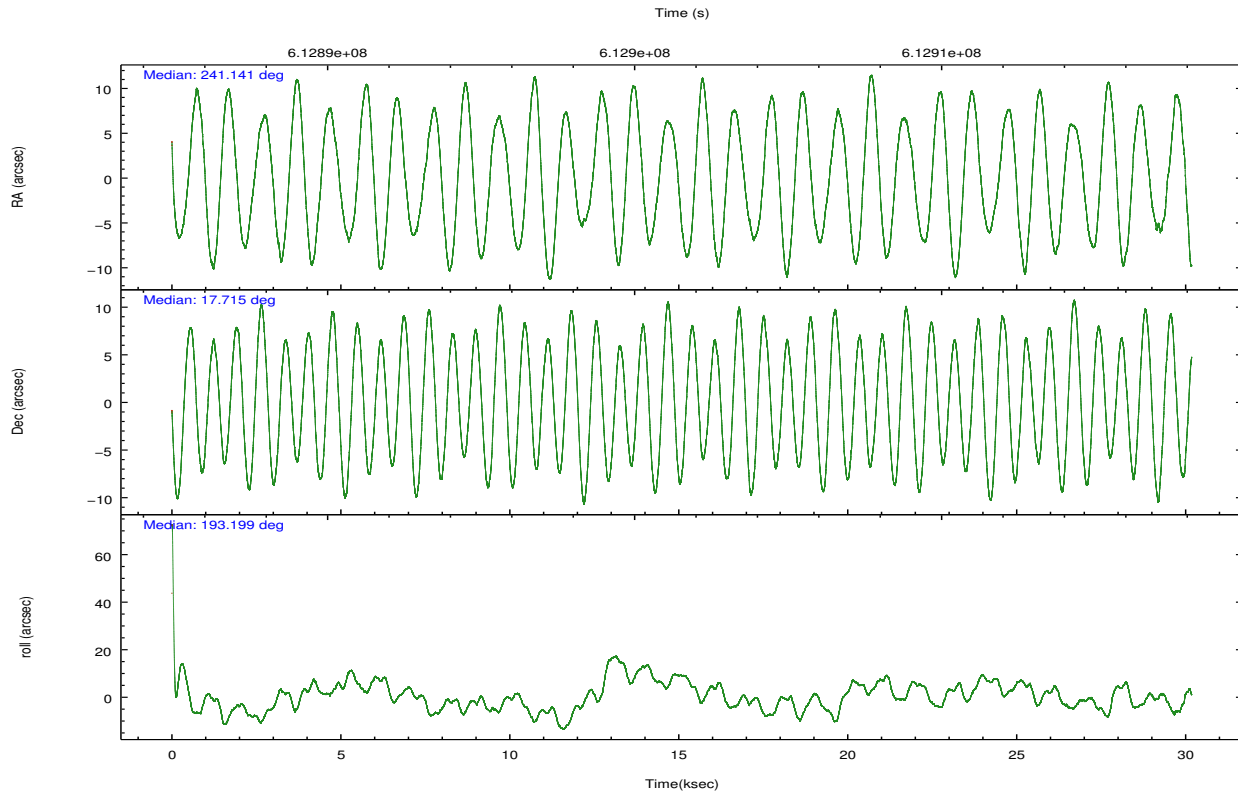
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	11947	14999	12550	17795	7697
	6%	7%	5%	8%	3%
grade 1 events	140	140	163	170	100
	0%	0%	0%	0%	0%
grade 2 events	5928	6501	5556	5840	5254
	3%	3%	2%	2%	2%
grade 3 events	2379	2452	2182	2563	2120
	1%	1%	1%	1%	1%
grade 4 events	2205	2388	2278	2419	2040
	1%	1%	1%	1%	0%
grade 5 events	7169	7528	6504	8345	7746
	3%	3%	3%	3%	3%
grade 6 events	4483	5258	3928	4330	5166
	2%	2%	1%	2%	2%
grade 7 events	154932	156713	181252	172163	175850
	81%	79%	84%	80%	85%

## 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	241.162102	241.1410586984211	CCD I2 on	Y	Y
[deg] Pointing Dec	17.733982	17.71499753288082	CCD I3 on	Y	Y
[deg] Pointing Roll	192.996061	193.2111898508157	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	Y	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	O1	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	612886619.184000	612885061.19578	CCD S5 on	N	N
Observation start date	2017-06-03T14:15:50	2017-06-03T13:51:01	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	612916619.184000	612917619.29767	On-chip summing requested	N	N
Observation end date	2017-06-03T22:35:50	2017-06-03T22:53:39	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



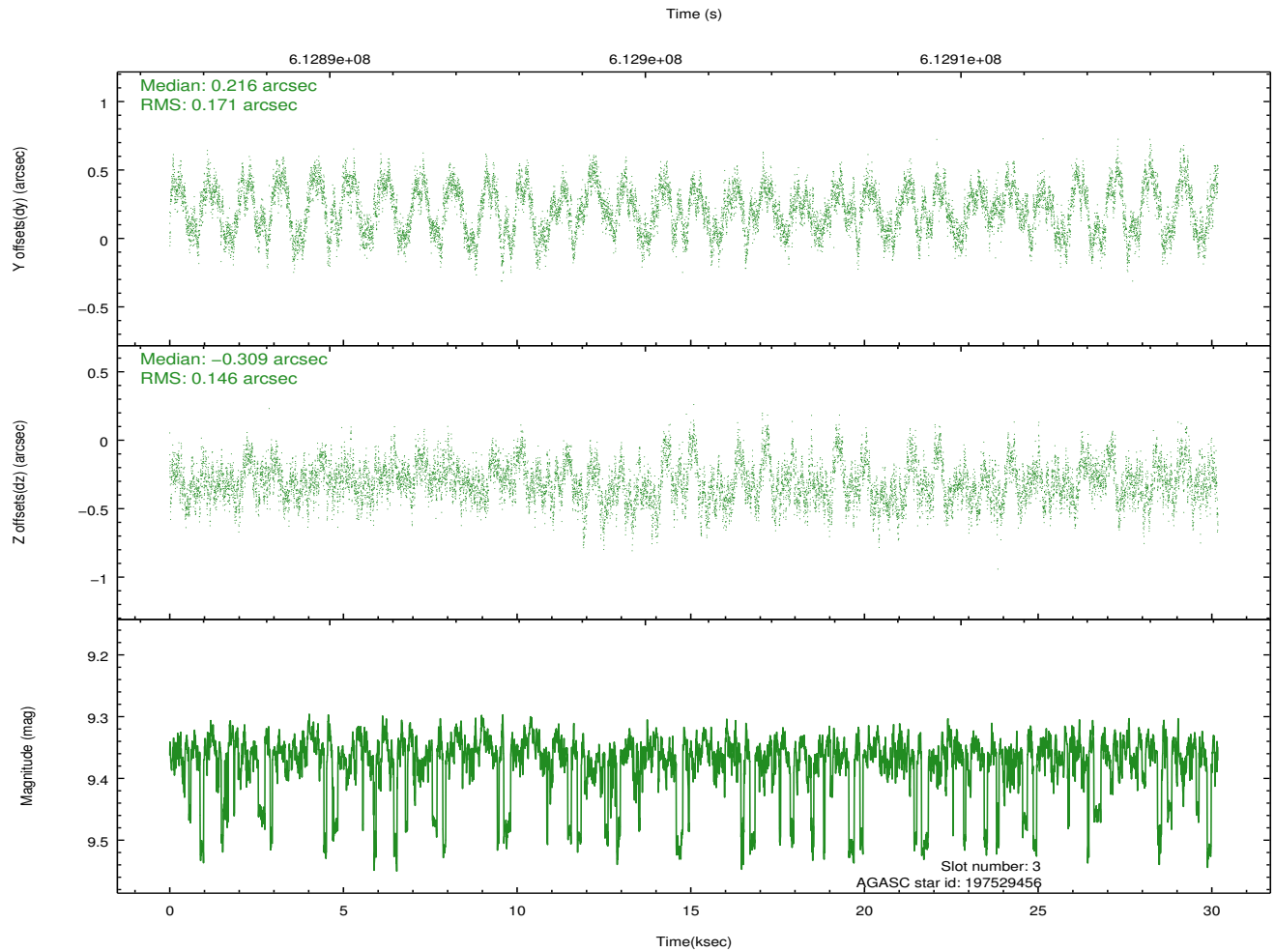
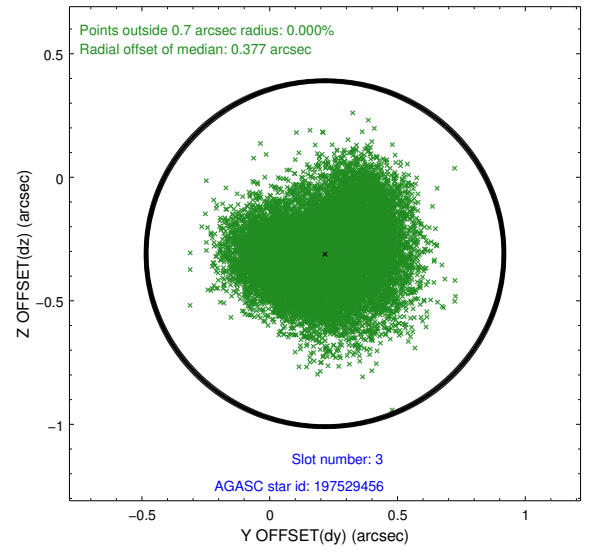
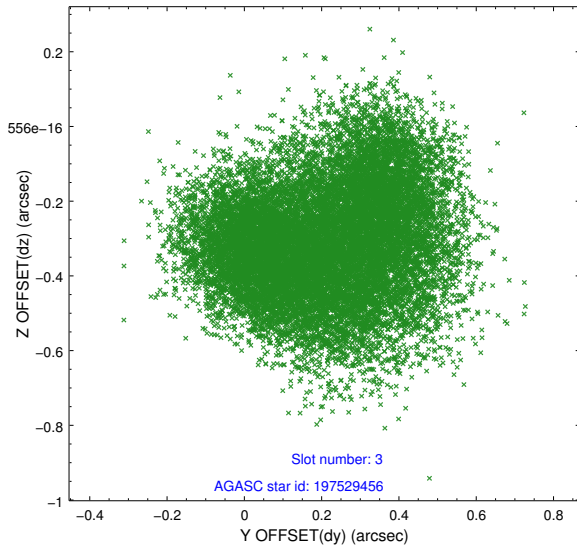


### Slot Statistics

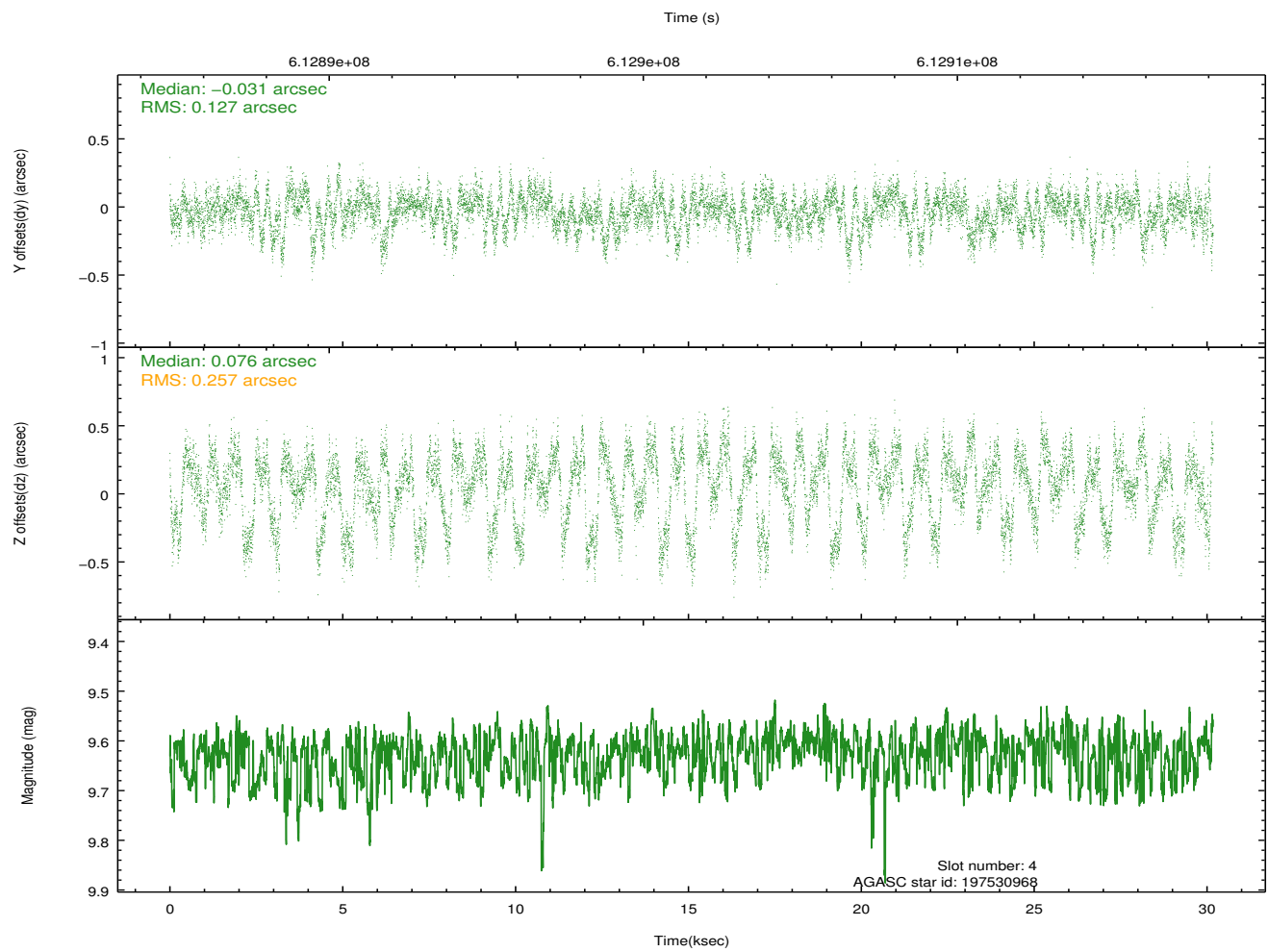
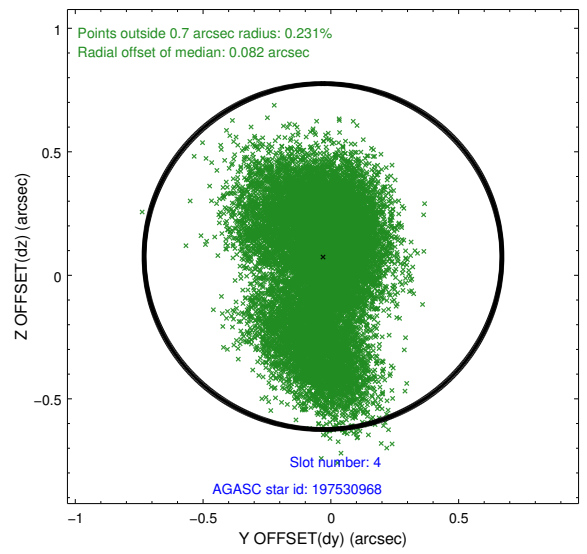
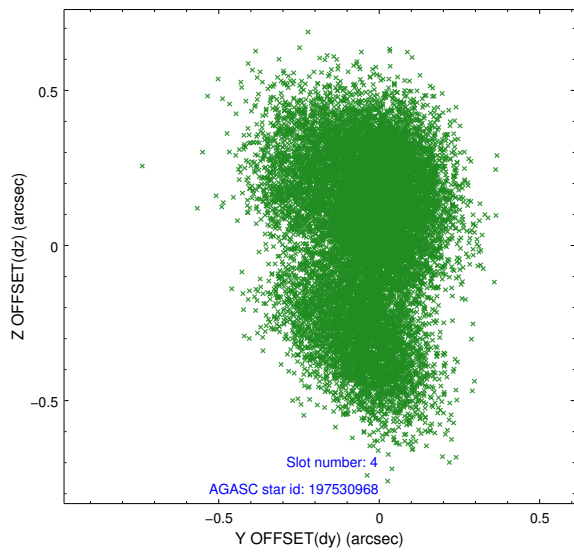
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-1	7.21	7361	-0.062	-0.144	0.014	0.022	0.000000	0.000000	919.54	-844.97
1	FID		ACIS-I-4	7.14	7360	0.471	0.153	0.016	0.026	0.000000	0.000000	2140.01	1055.19
2	FID		ACIS-I-5	7.19	7358	-0.509	0.062	0.013	0.021	0.000000	0.000000	-1828.97	1052.71
3	GUIDE	used	197529456	9.36	14696	0.216	-0.309	0.248	0.363	241.685864	18.193984	-2117.54	-1213.94
4	GUIDE	used	197530968	9.62	14699	-0.031	0.076	0.305	0.512	241.553279	17.328552	-981.89	1723.07
5	GUIDE	used	197533488	6.54	14721	-0.119	0.145	0.133	0.217	240.957637	17.802774	627.76	-399.21
6	GUIDE	used	197534144	8.95	14710	-0.303	-0.439	0.153	0.260	240.771626	16.972716	1925.81	2366.74
7	GUIDE	used	197529056	9.73	14706	0.245	0.568	0.233	0.370	241.695051	18.343610	-2266.52	-1733.16

## 2.4 Star Slots

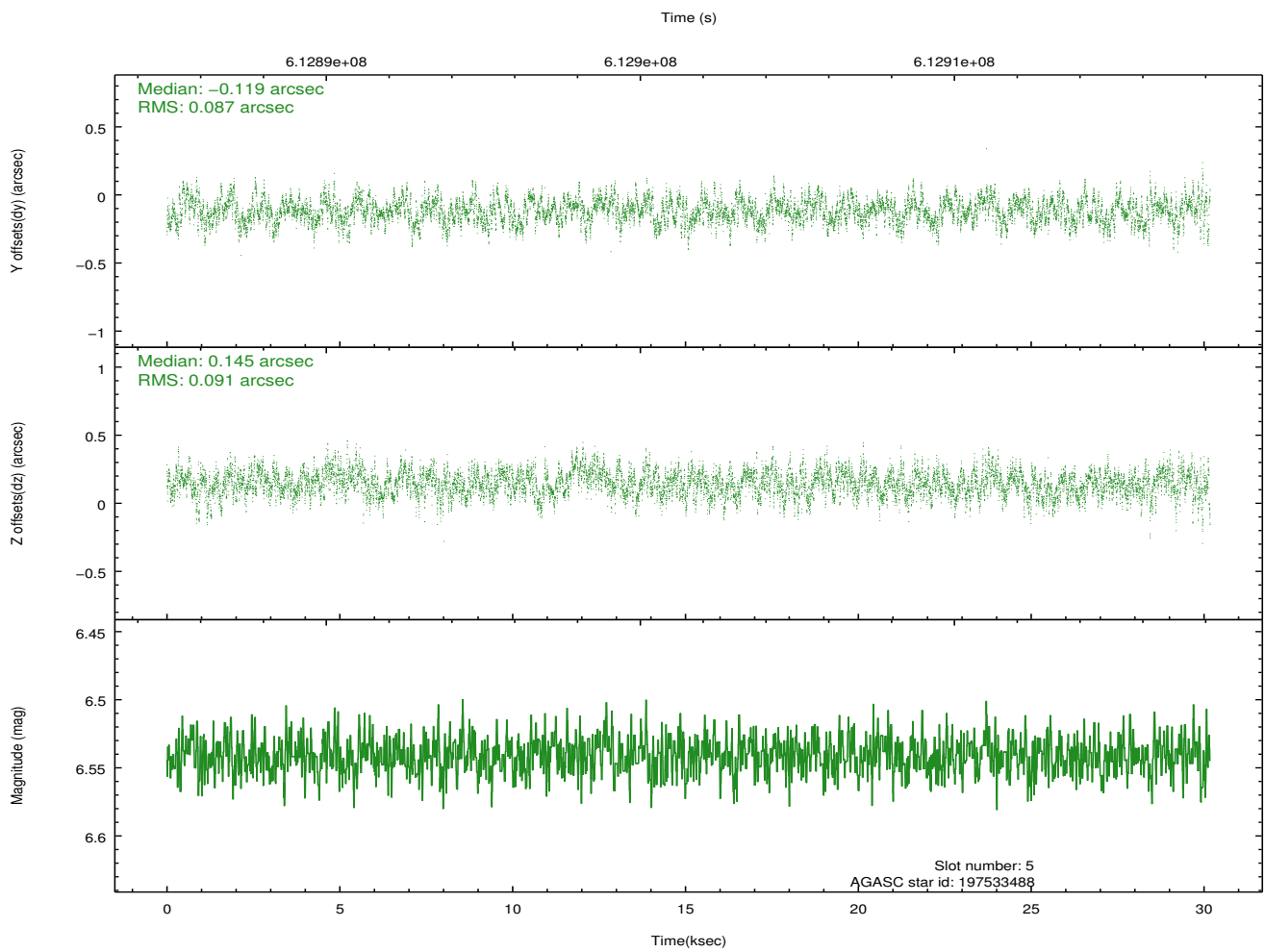
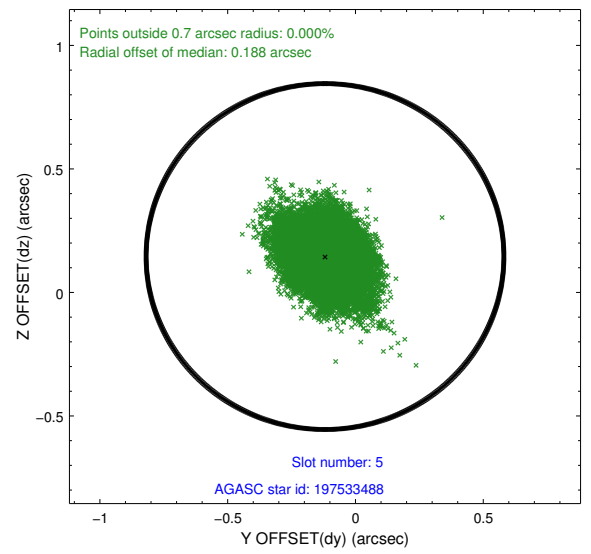
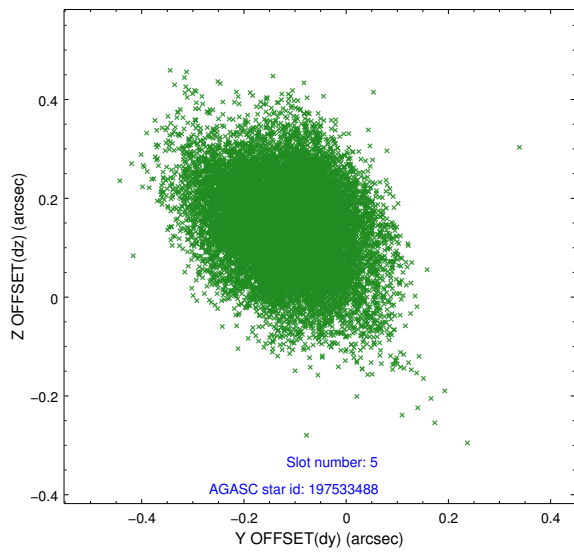
### 2.4.1 Slot 3



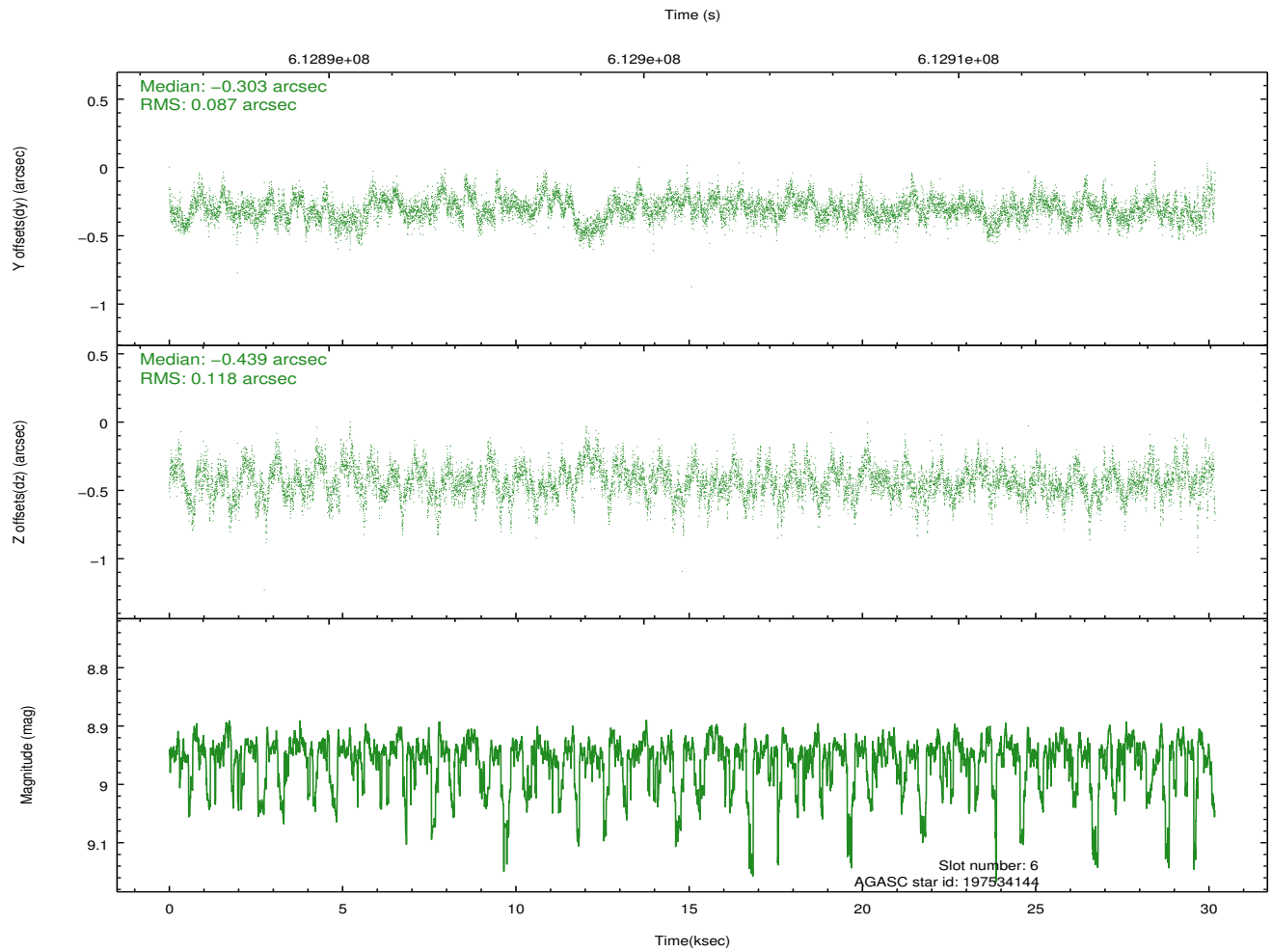
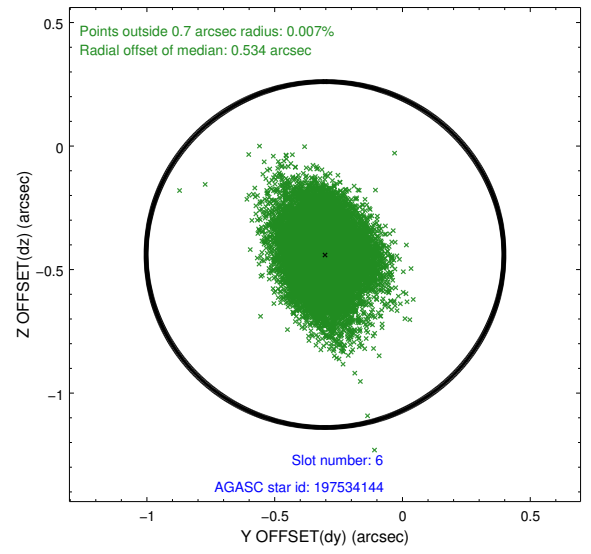
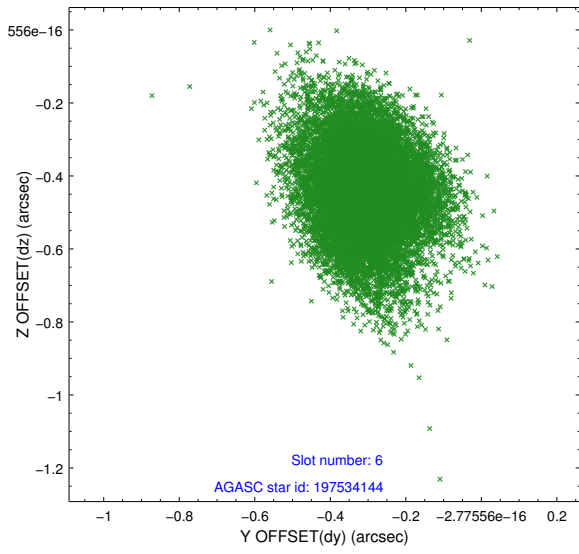
## 2.4.2 Slot 4



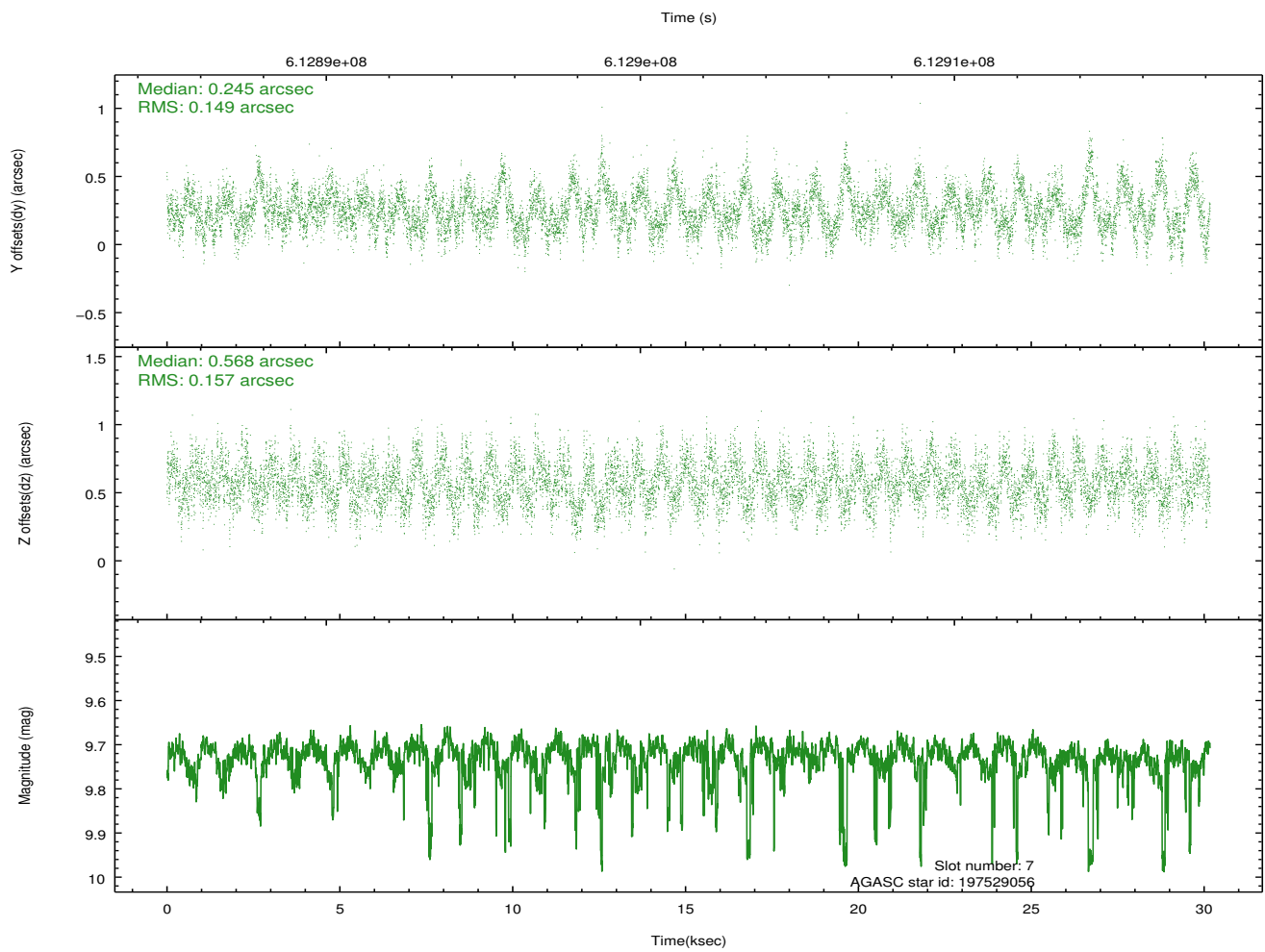
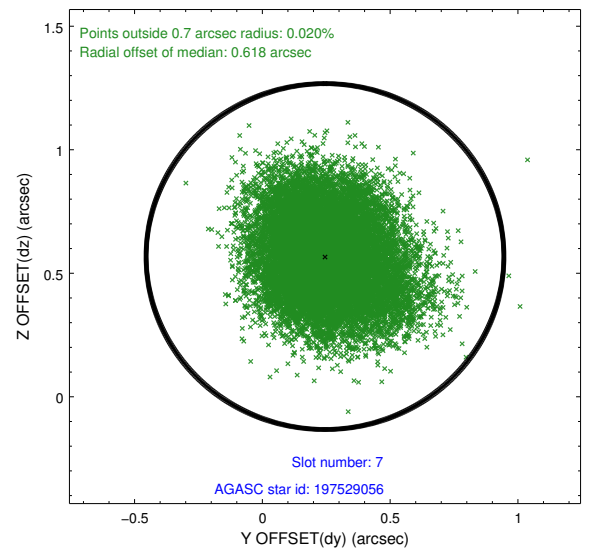
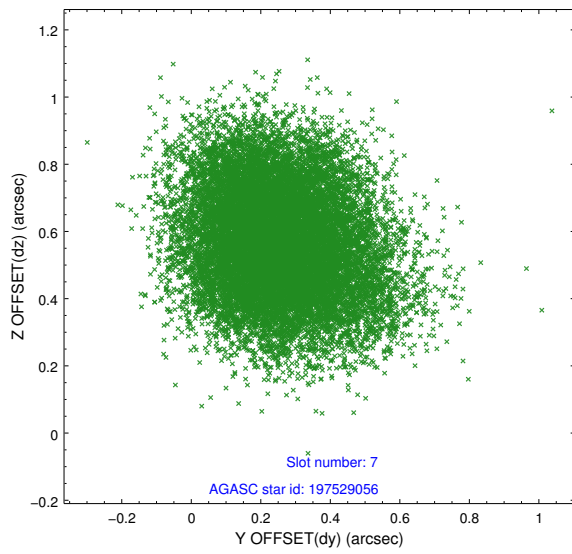
### 2.4.3 Slot 5



## 2.4.4 Slot 6

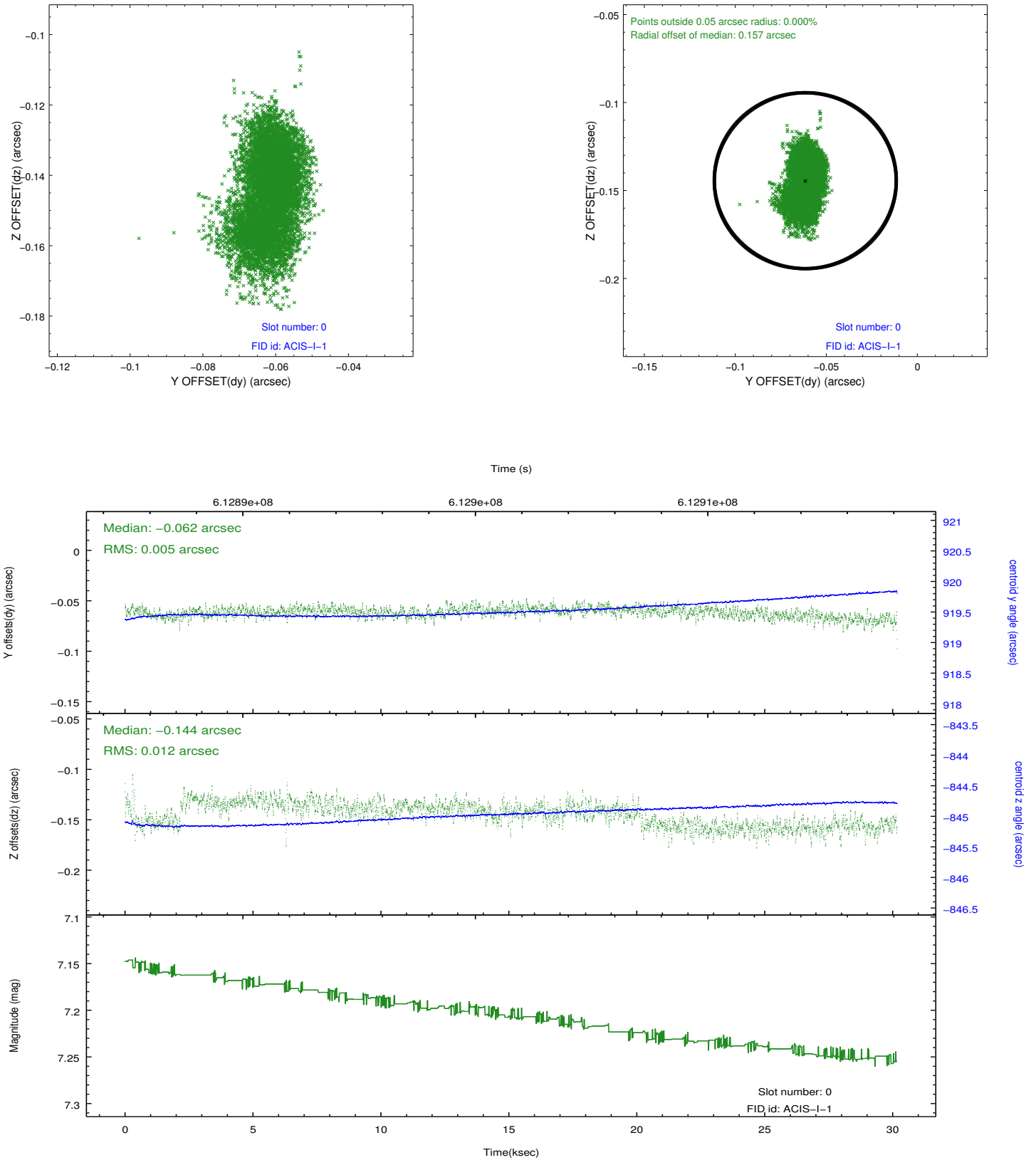


## 2.4.5 Slot 7

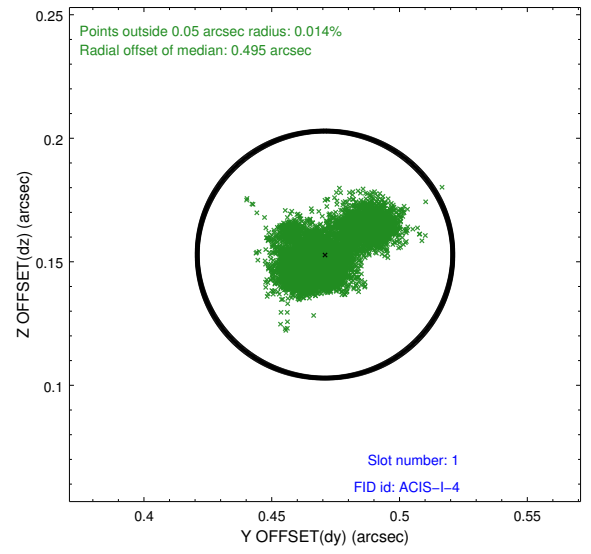
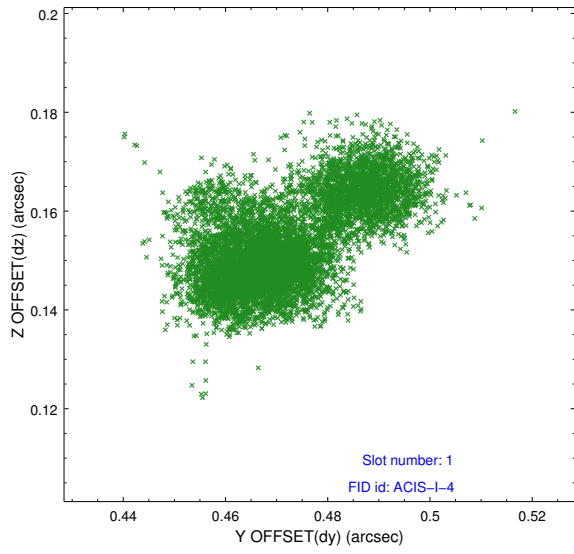


## 2.5 FID Slots

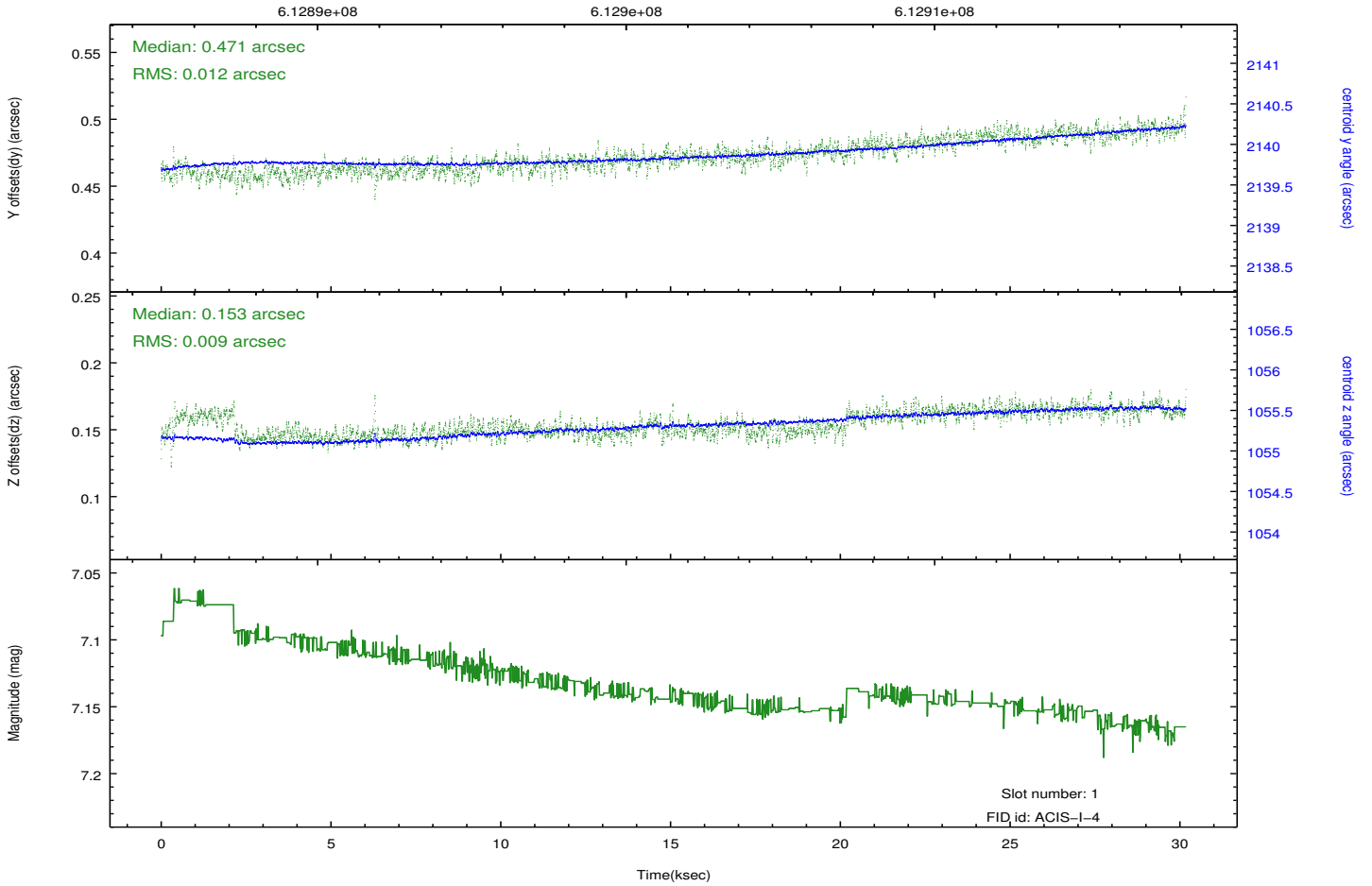
### 2.5.1 Slot 0



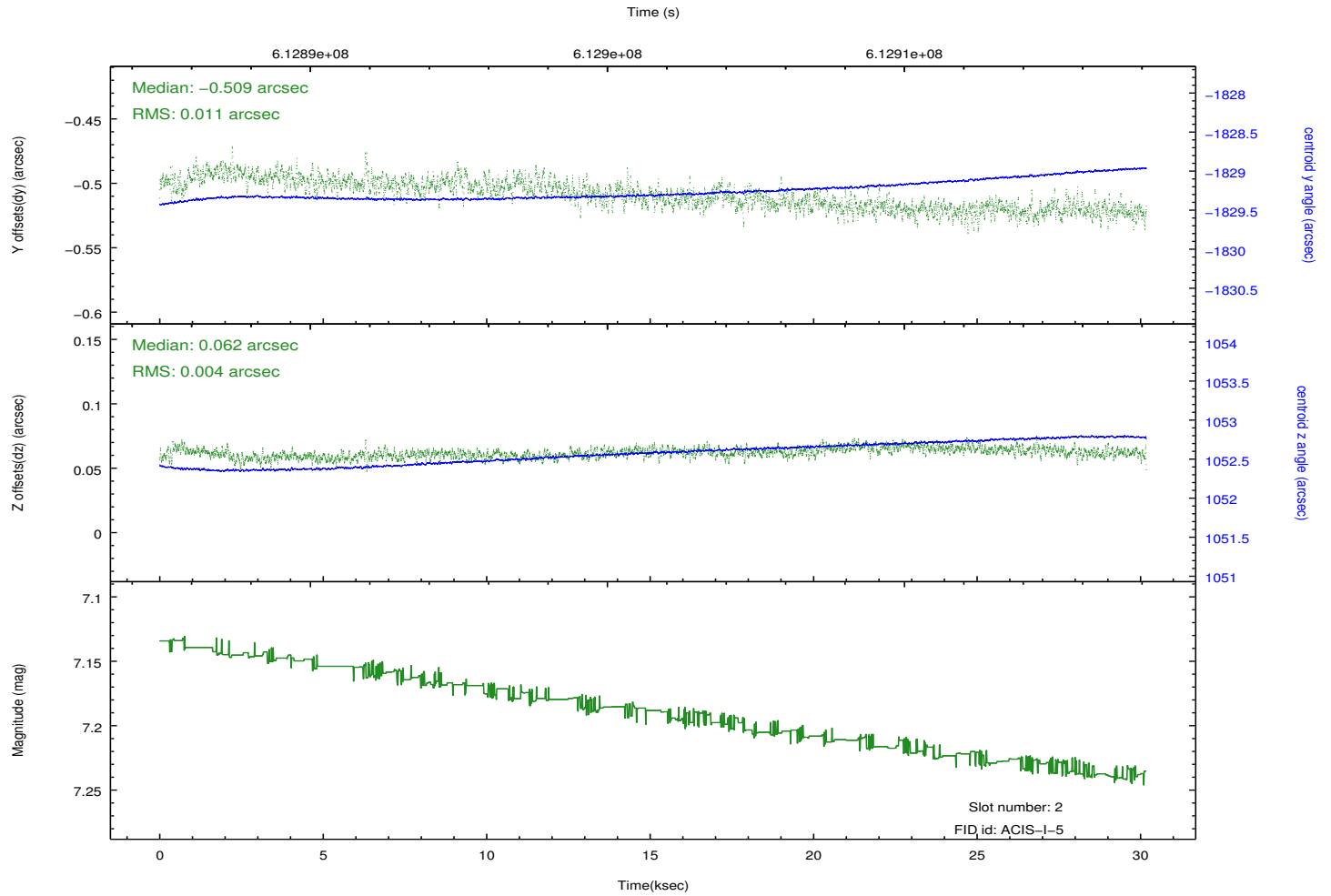
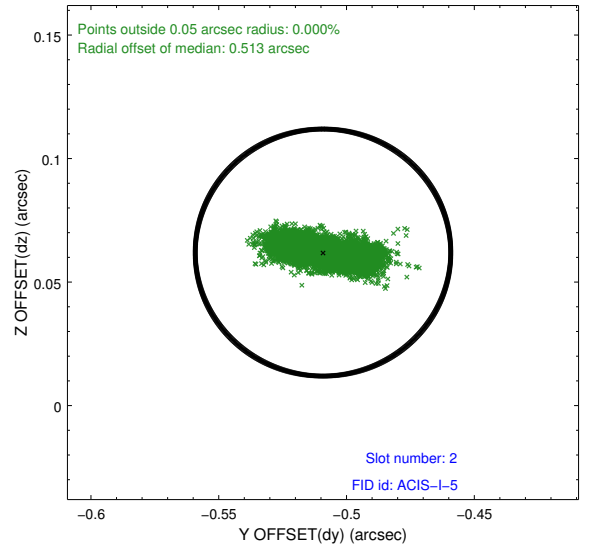
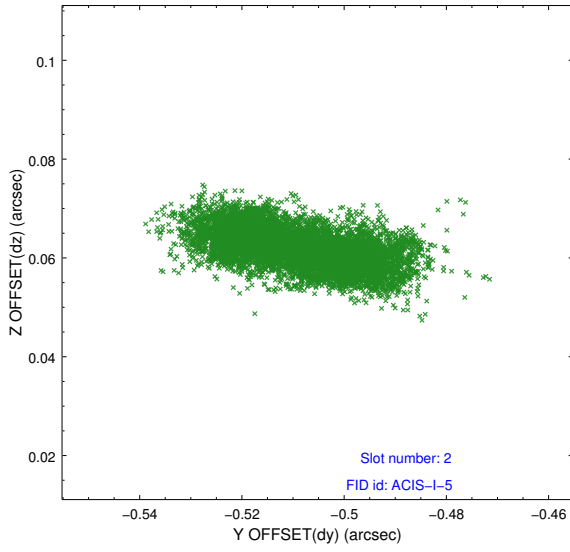
## 2.5.2 Slot 1



Time (s)



### 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2017.06.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.06361715591

## A.2 Comments

One optional chip was dropped.

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 ( $\sim 20$  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: (240.98941,17.71316), (240.99019,17.70997), (241.04577,17.72245), (241.04053,17.72463).