

# V&V Reference Report

## L2 ASCDS Version : 10.5.2

Observation 20049 - L2 Version 2  
Chandra X-Ray Center

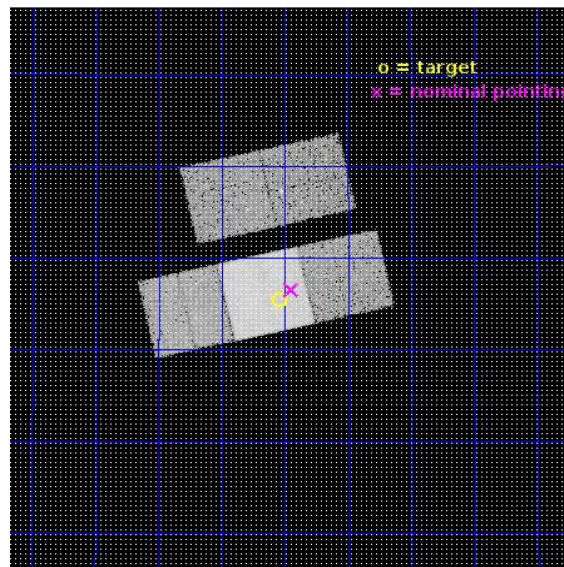
L2 Processing Date : Apr 3 2017

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# 1 Front

seq_num	801561	Sequence number
obs_id	20049	Observation id
title	Tales of tails: the Coma episodes	Proposal title
observer	Ming Sun	Principal investigator
object	NGC 4848	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	194.5111	Observer's specified target RA [deg]
dec_targ	28.2576	Observer's specified target Dec [deg]
ra_nom	194.48693831867	Nominal RA [deg]
dec_nom	28.275810214645	Nominal Dec [deg]
roll_nom	167.16807499202	Nominal Roll [deg]
revision	2	Processing version of data
ontime	20047.700154305	Sum of GTIs [s]
livetime	19785.762192886	Livetime [s]
ontime2	20047.700154305	Sum of GTIs [s]
ontime3	20047.700154305	Sum of GTIs [s]
ontime6	20047.700154305	Sum of GTIs [s]
ontime7	20047.700154305	Sum of GTIs [s]
ontime8	20047.700154305	Sum of GTIs [s]
l2events	145765	Number of level 2 events

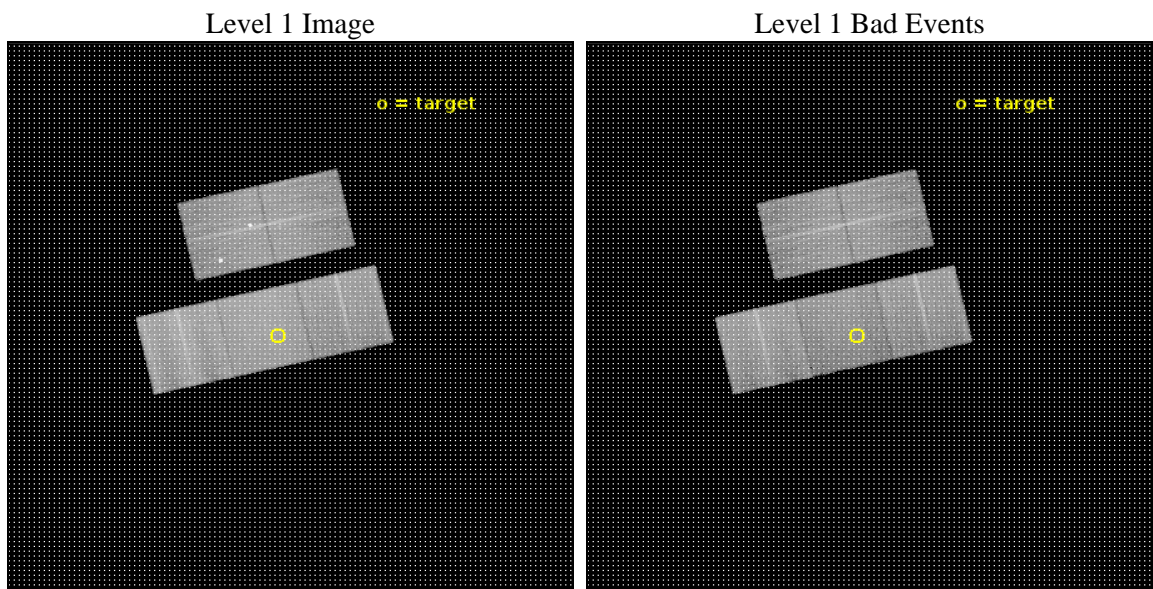




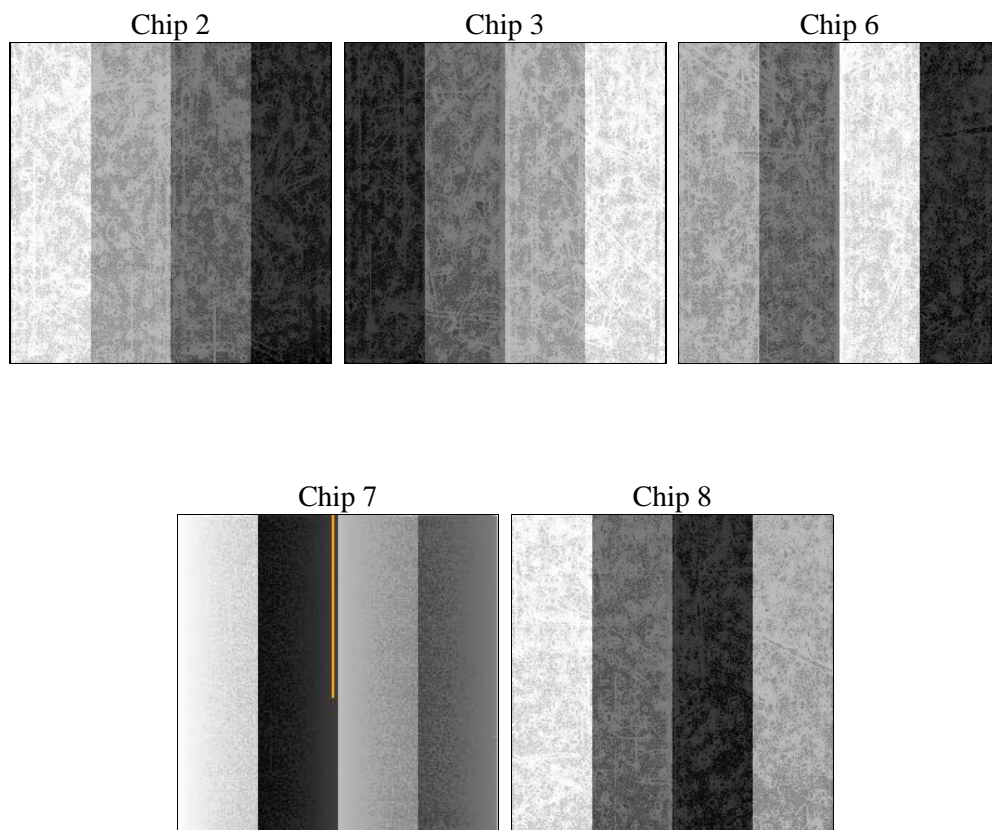
## 2 OBI

### 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	10.5.2	Processing system revision	ontime	20047.700154305	Sum of GTIs [s]
caldsver	4.7.3	&#160	ontime2	20047.700154305	Sum of GTIs [s]
date	2017-04-03T16:01:04	Date and time of file creation	ontime3	20047.700154305	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	20047.700154305	Sum of GTIs [s]
			ontime7	20047.700154305	Sum of GTIs [s]
			ontime8	20047.700154305	Sum of GTIs [s]
			l1events	831807	Number of level 1 events

### 2.1.4 Events

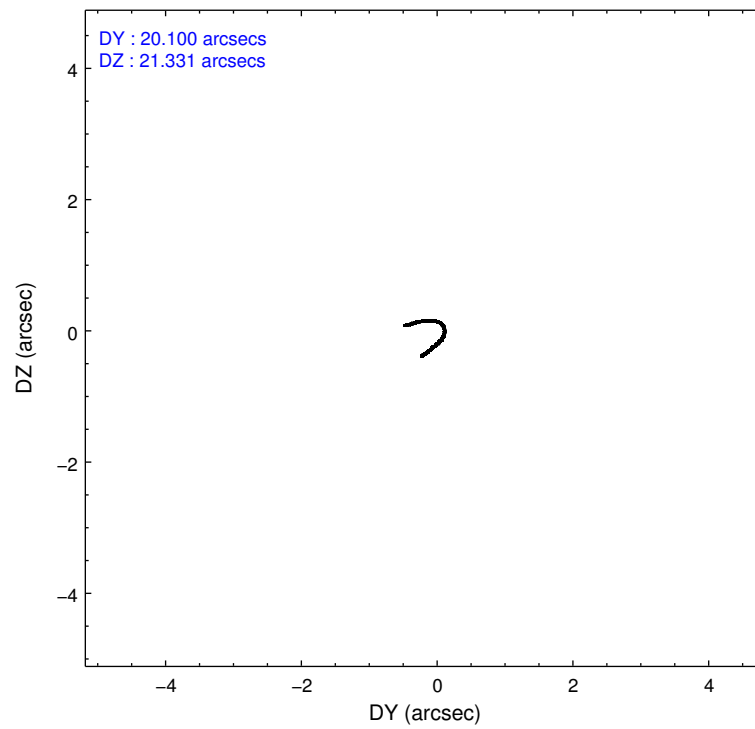
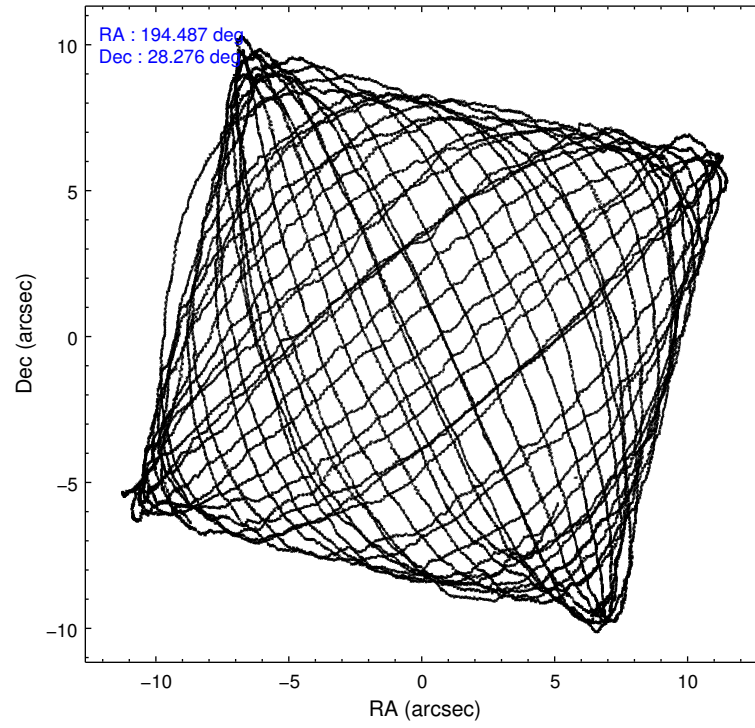
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	143323	155294	148325	188858	196007
rejected events	127681	127252	130853	104856	142312
rejected %	89%	81%	88%	55%	72%

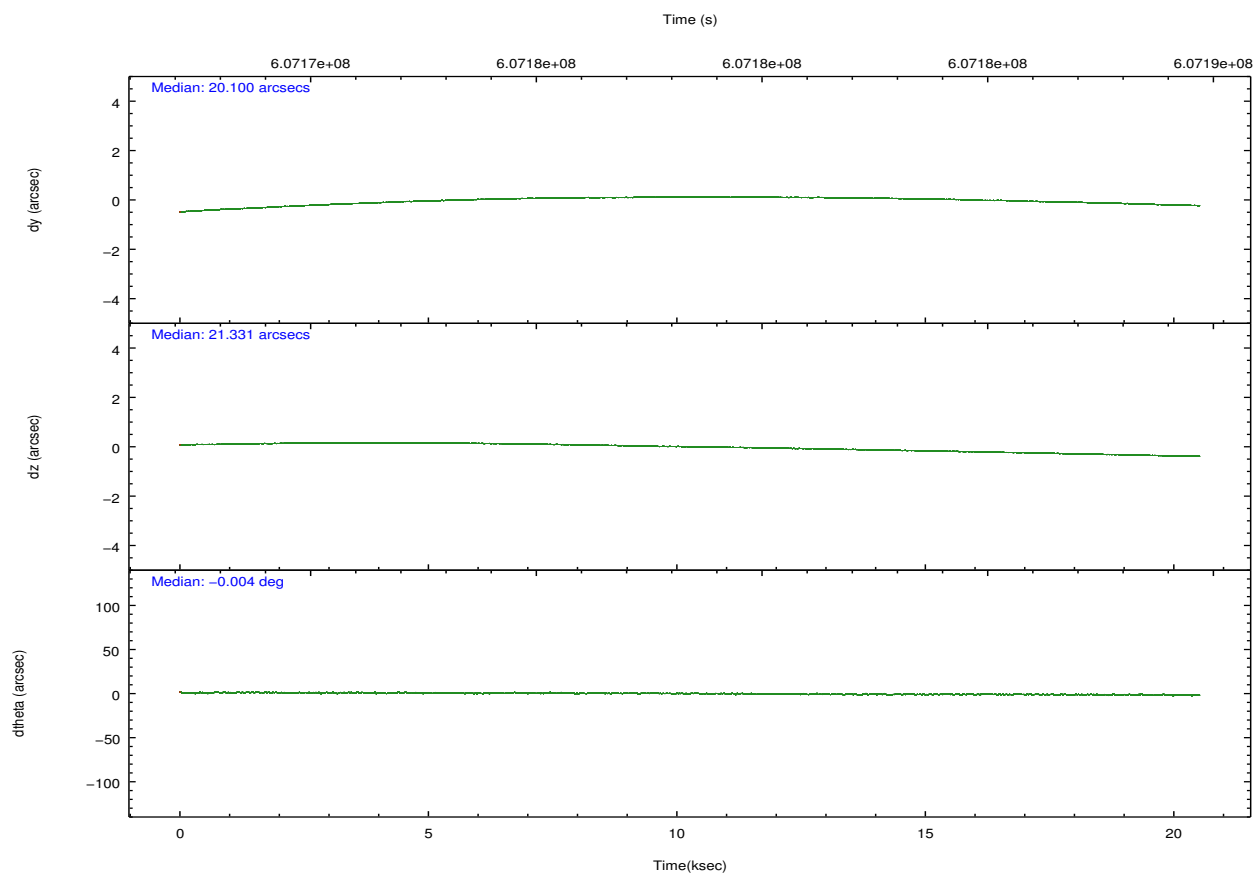
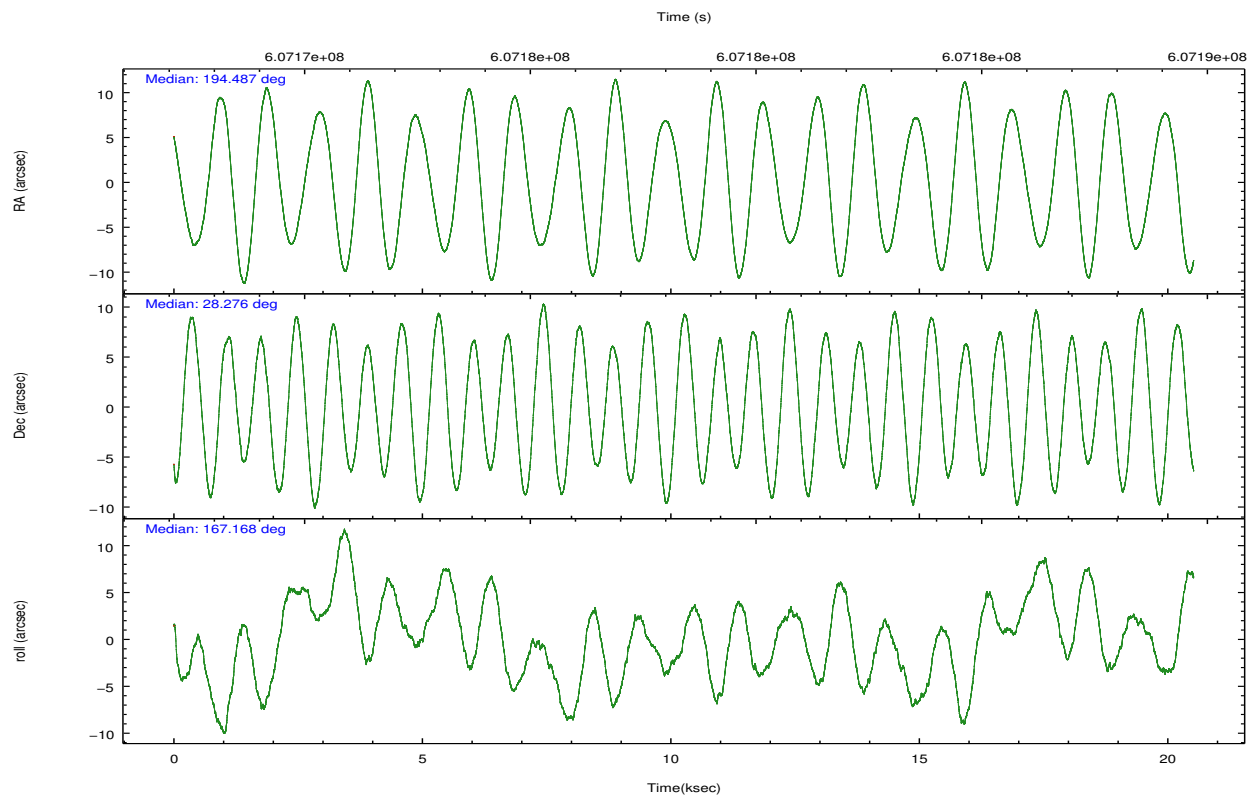
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	6021	18237	6135	7620	17932
	4%	11%	4%	4%	9%
grade 1 events	69	181	63	228	152
	0%	0%	0%	0%	0%
grade 2 events	3564	3432	4117	18331	12422
	2%	2%	2%	9%	6%
grade 3 events	1539	1622	1574	6811	5183
	1%	1%	1%	3%	2%
grade 4 events	1610	1675	1563	6555	4901
	1%	1%	1%	3%	2%
grade 5 events	5473	6484	6636	17649	10266
	3%	4%	4%	9%	5%
grade 6 events	2910	3080	4084	44702	13267
	2%	1%	2%	23%	6%
grade 7 events	122137	120583	124153	86962	131884
	85%	77%	83%	46%	67%

## 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	194.516620	194.4869383186699	CCD I2 on	O1	Y
[deg] Pointing Dec	28.284259	28.27581021464538	CCD I3 on	Y	Y
[deg] Pointing Roll	166.997385	167.168074992025	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	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	607168643.184000	607167386.38849	CCD S5 on	N	N
Observation start date	2017-03-29T09:56:14	2017-03-29T09:36:26	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	607188643.184000	607189550.47728	On-chip summing requested	N	N
Observation end date	2017-03-29T15:29:34	2017-03-29T15:45:50	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



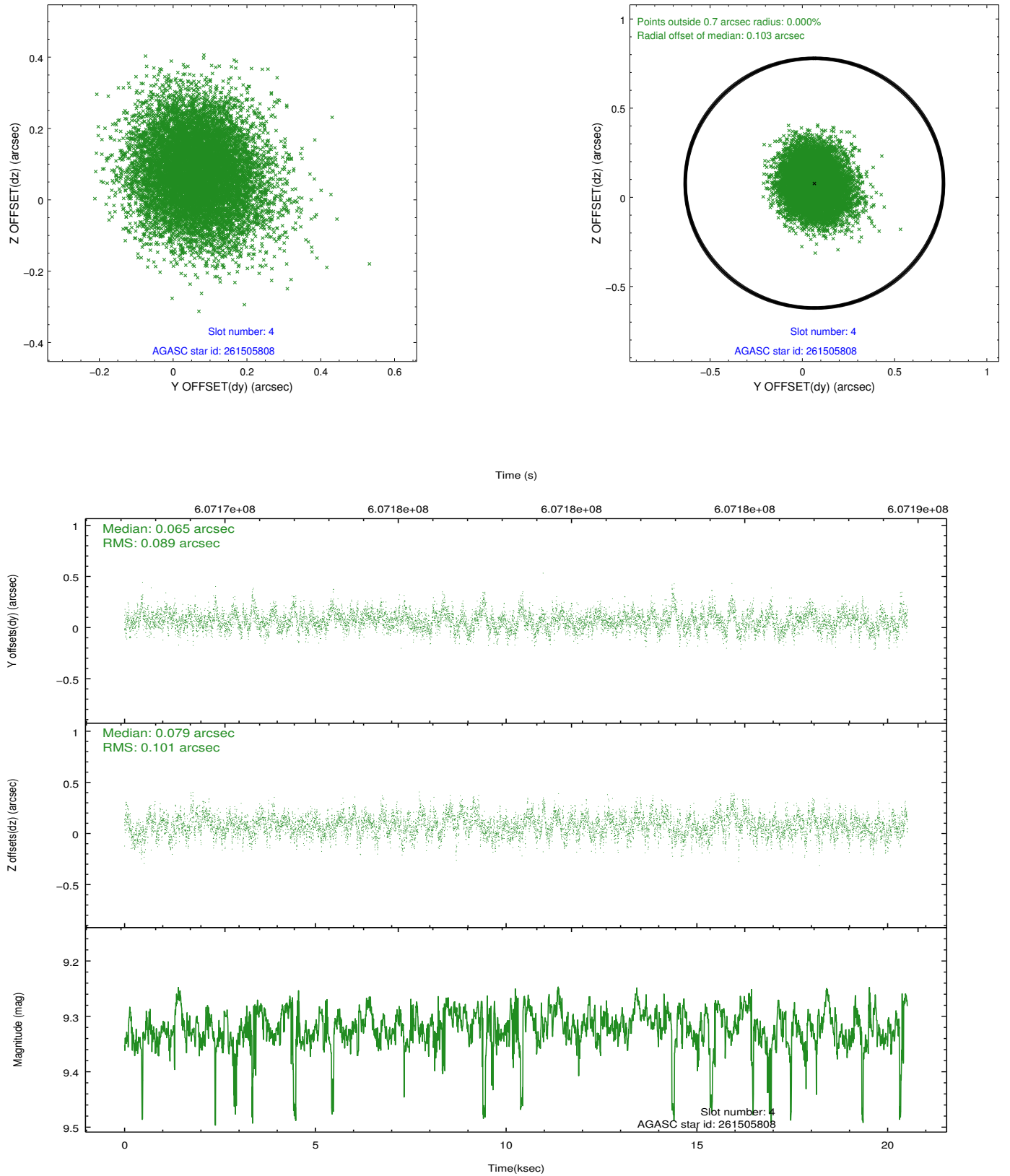


Slot Statistics

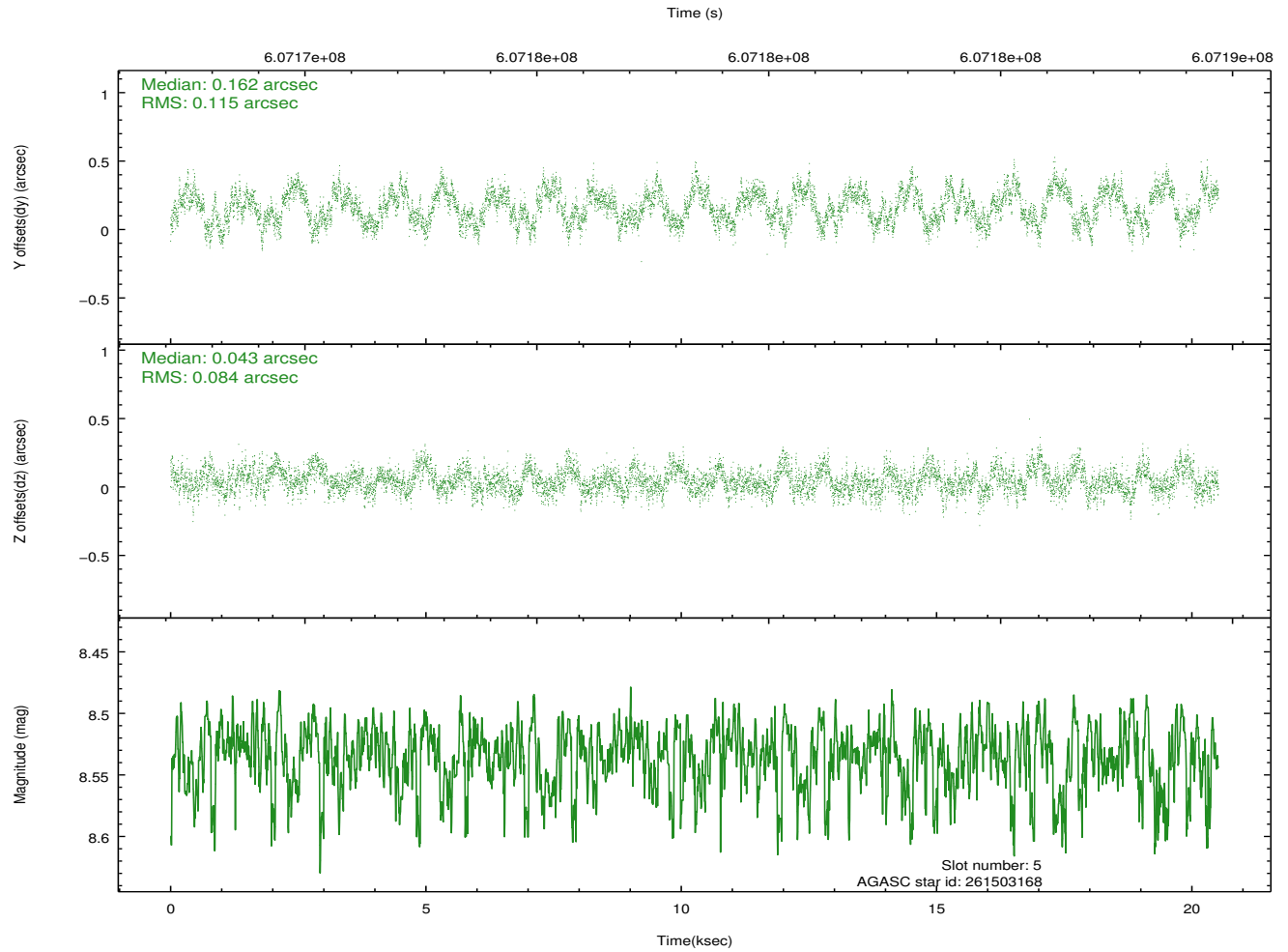
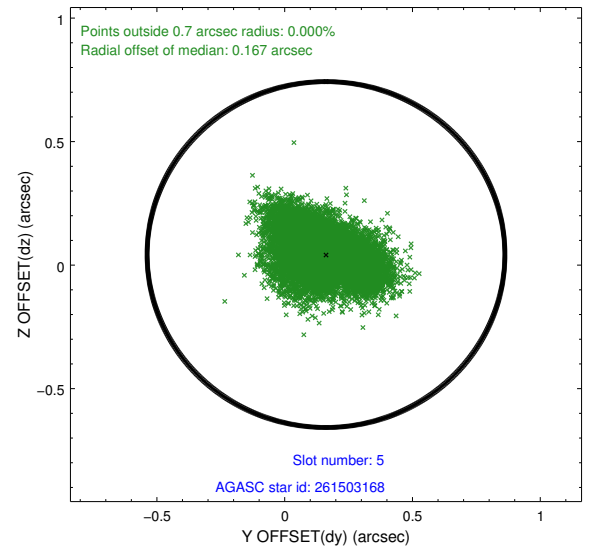
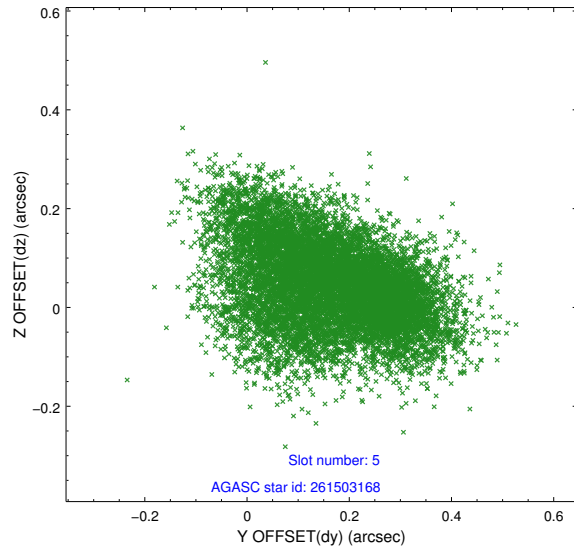
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.08	5006	-0.275	-0.166	0.010	0.017	0.000000	0.000000	-773.43	-1743.01
1	FID		ACIS-S-4	7.20	5006	0.572	0.177	0.008	0.017	0.000000	0.000000	2140.61	165.64
2	FID		ACIS-S-5	7.19	5003	-0.328	-0.001	0.010	0.017	0.000000	0.000000	-1826.10	159.32
3	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
4	GUIDE	used	261505808	9.32	10003	0.065	0.079	0.144	0.233	193.710324	27.913269	2200.63	1870.20
5	GUIDE	used	261503168	8.53	10005	0.162	0.043	0.153	0.246	193.765545	28.234101	2282.23	705.02
6	GUIDE	used	261503592	7.85	10004	-0.189	-0.207	0.122	0.194	193.784432	27.766358	1854.60	2335.72
7	GUIDE	used	261502496	7.34	10010	-0.049	0.086	0.143	0.241	194.887297	28.065668	-1323.97	500.33

## 2.4 Star Slots

### 2.4.1 Slot 4

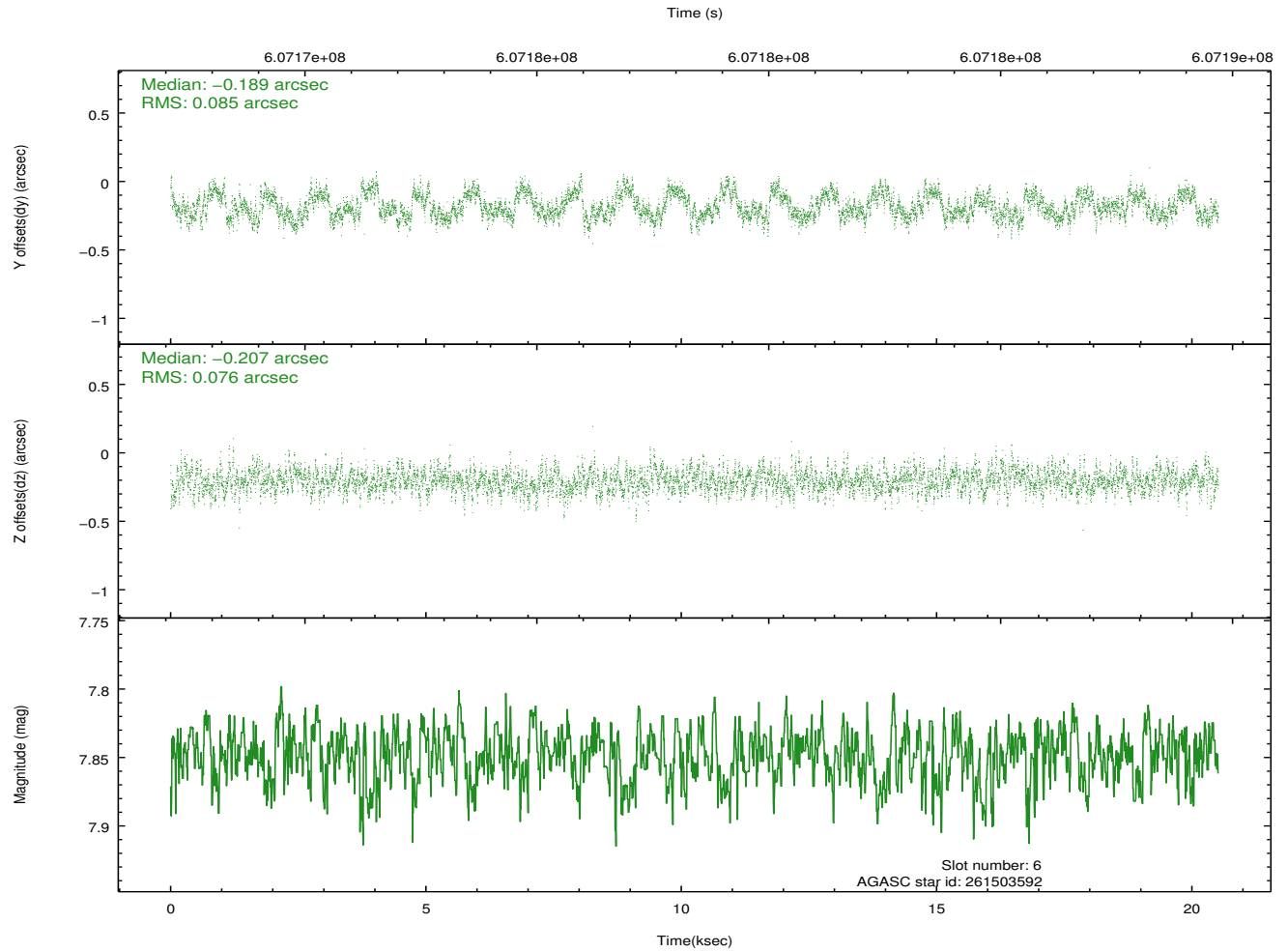
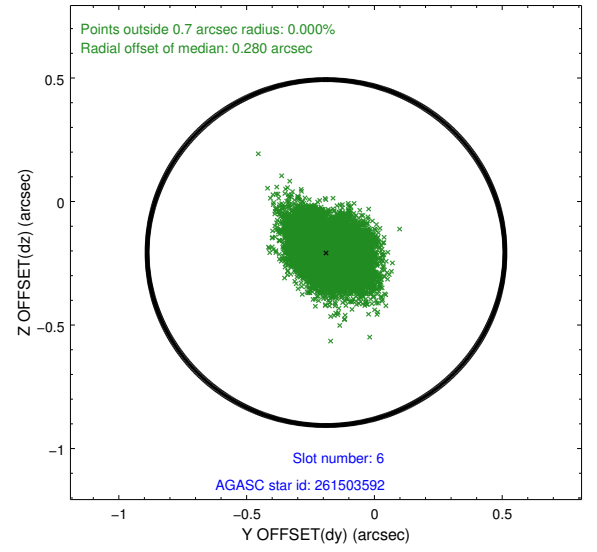
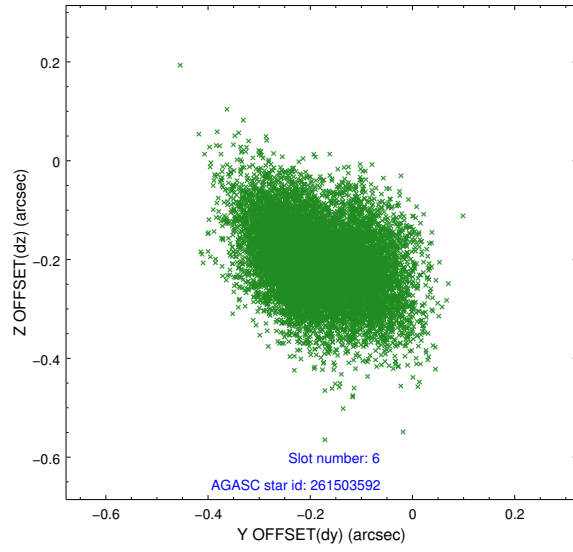


## 2.4.2 Slot 5

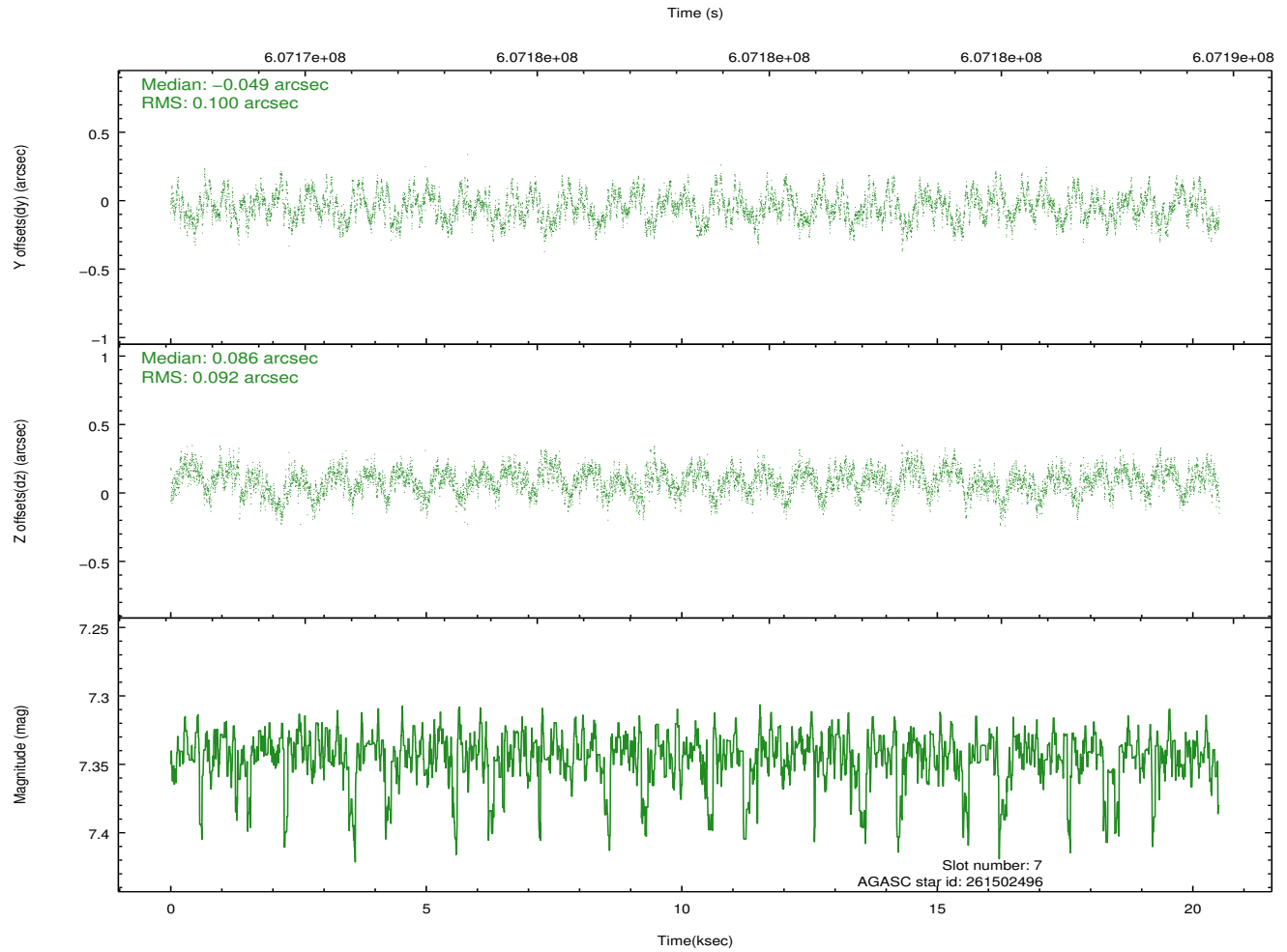
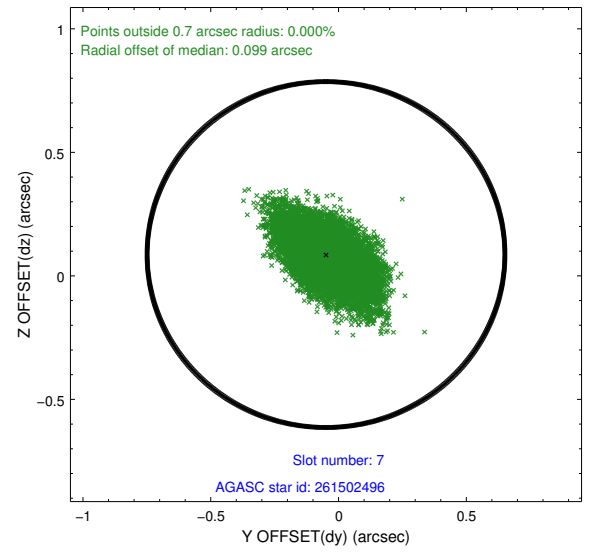
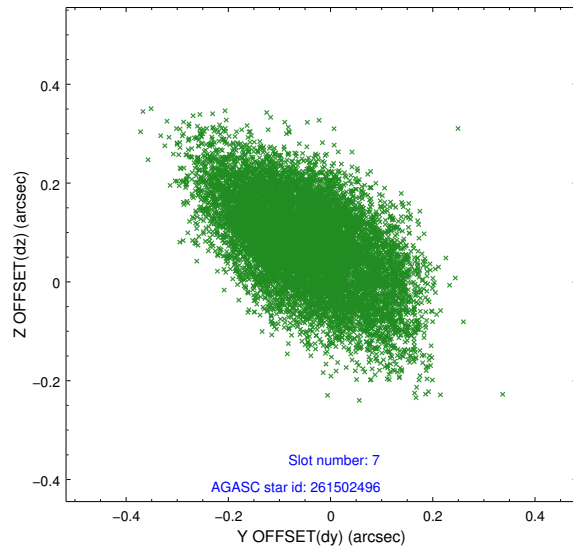




### 2.4.3 Slot 6

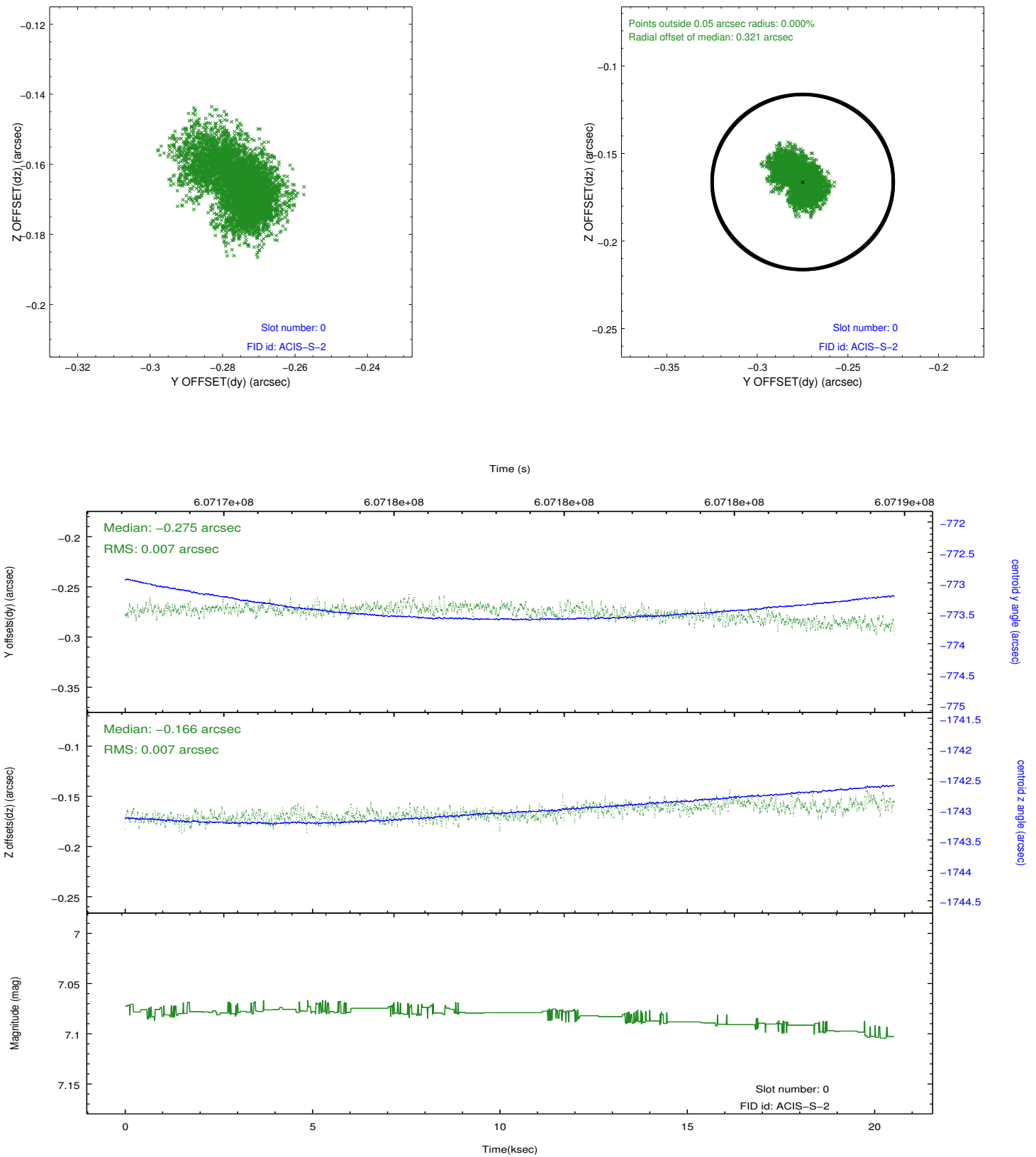


## 2.4.4 Slot 7

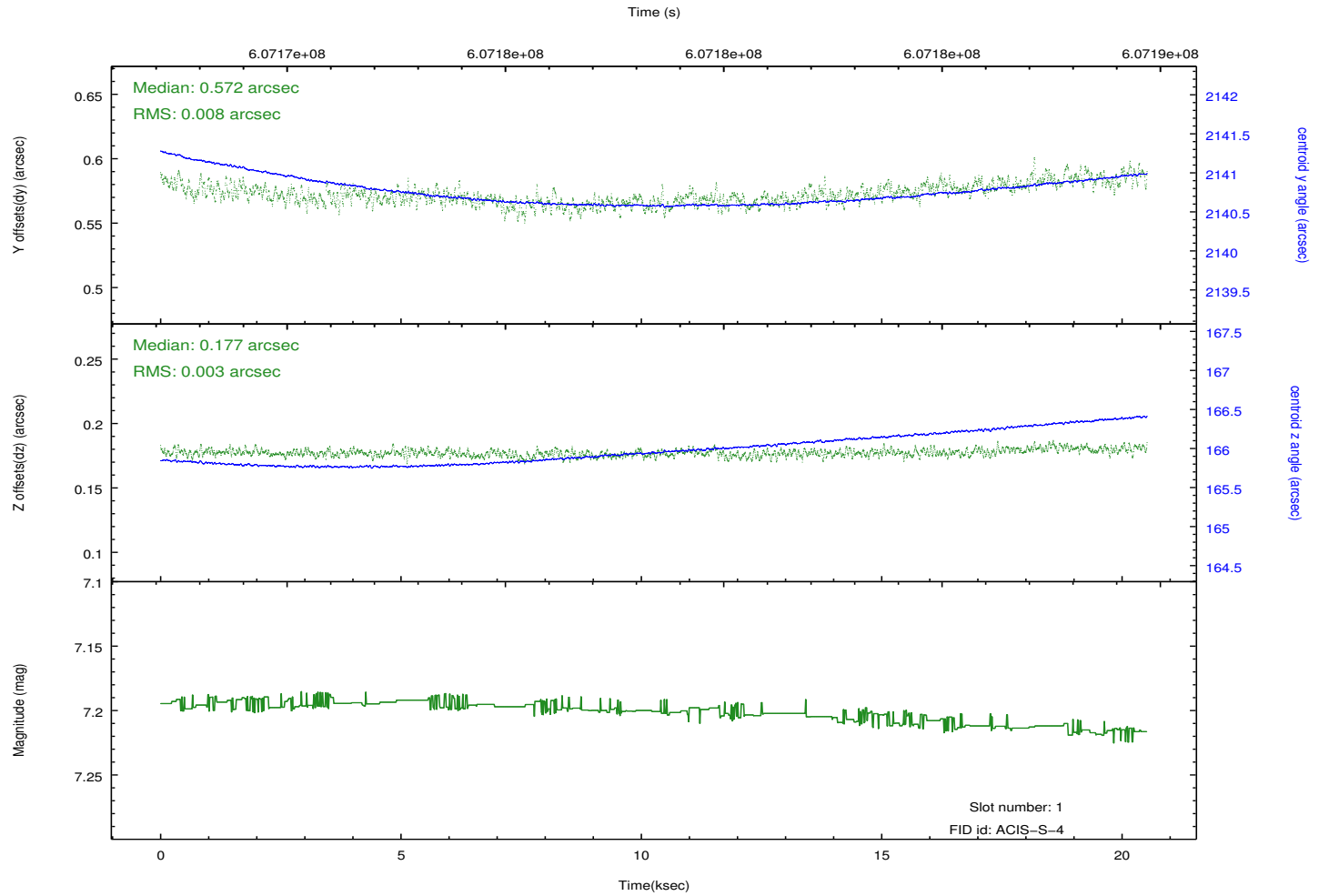
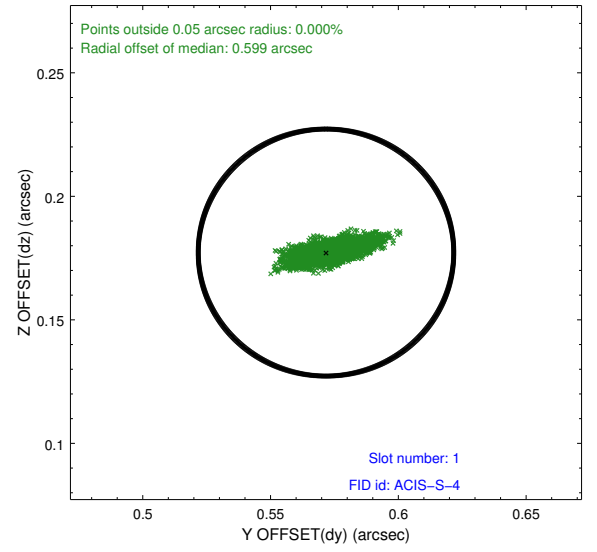
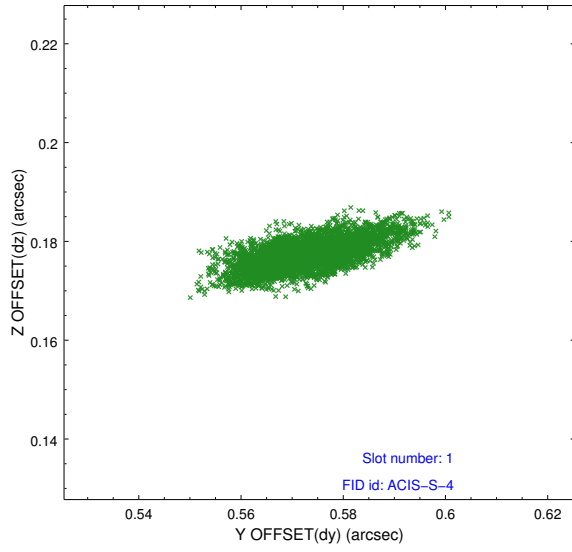


## 2.5 FID Slots

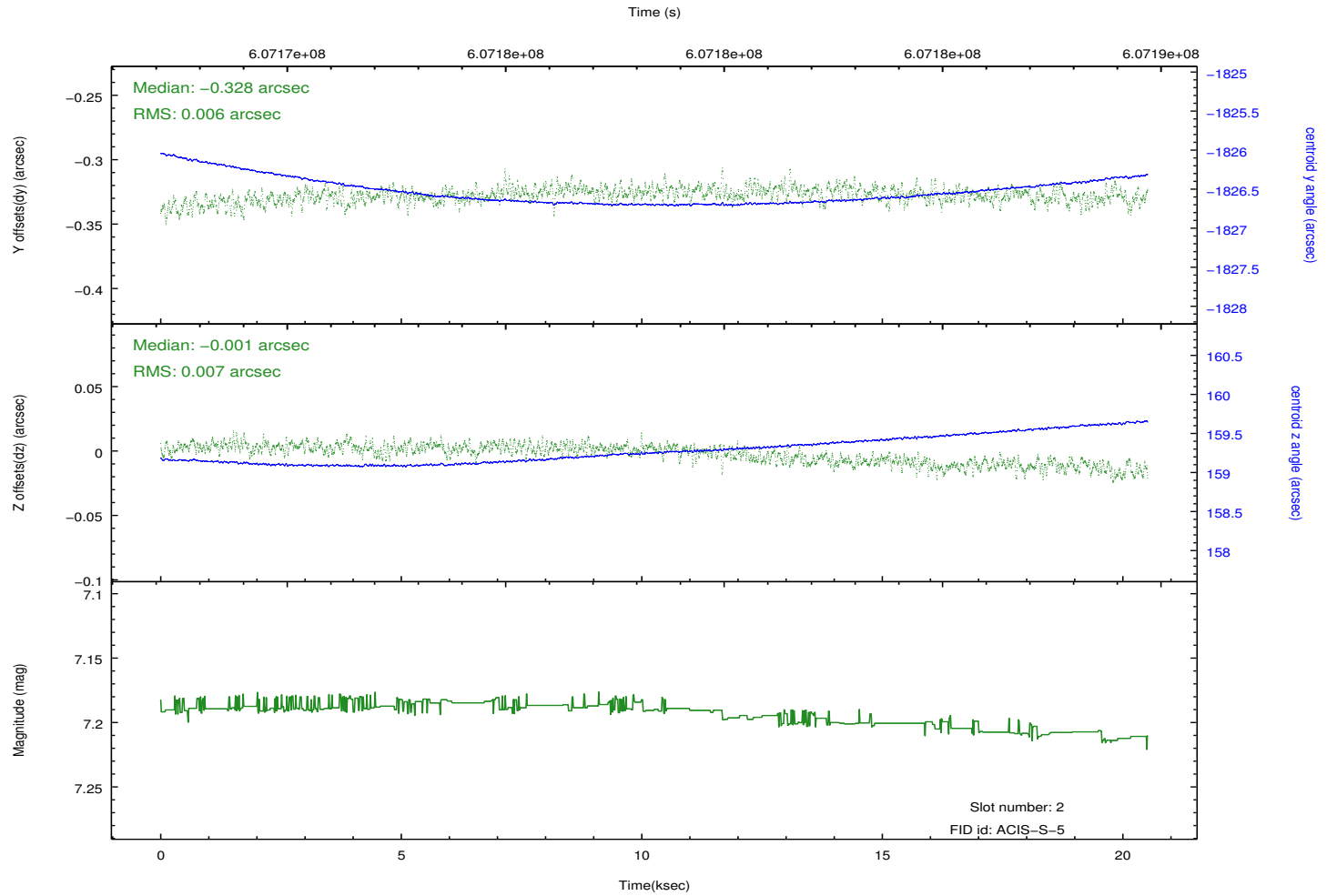
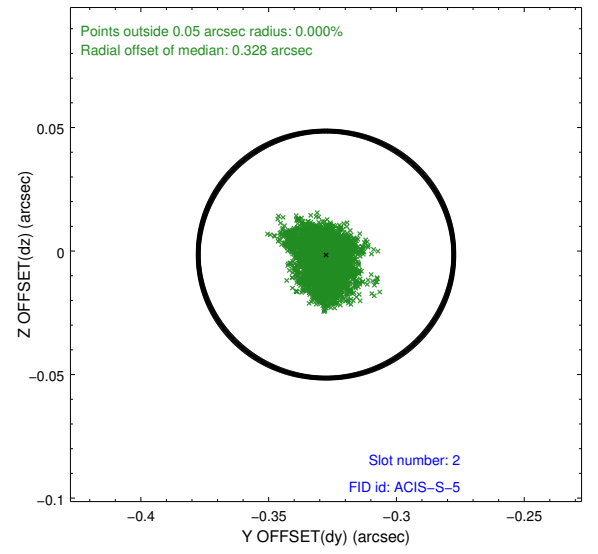
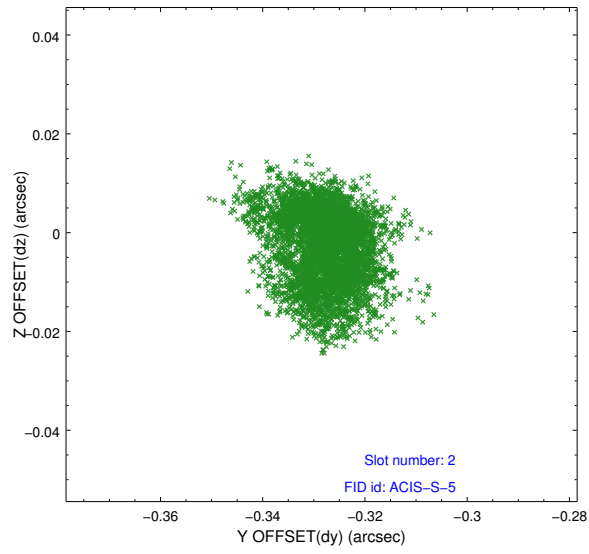
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2017.04.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.047700154305

## A.2 Comments

The guide star in slot 3 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this guide star from the solution.

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A spatial region of the original bias map for CCD = 6 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 = 6 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:  
(386,1),(440,1),(440,205),(386,231).