

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 12163 - L2 Version 2  
Chandra X-Ray Center

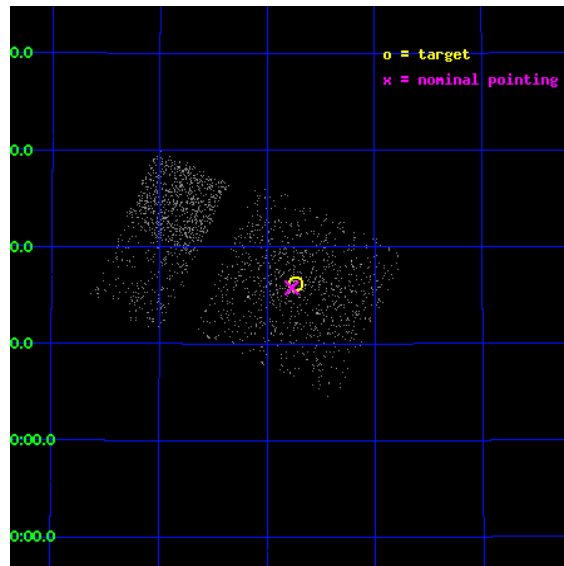
L2 Processing Date : Feb 2 2012

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# 1 Front

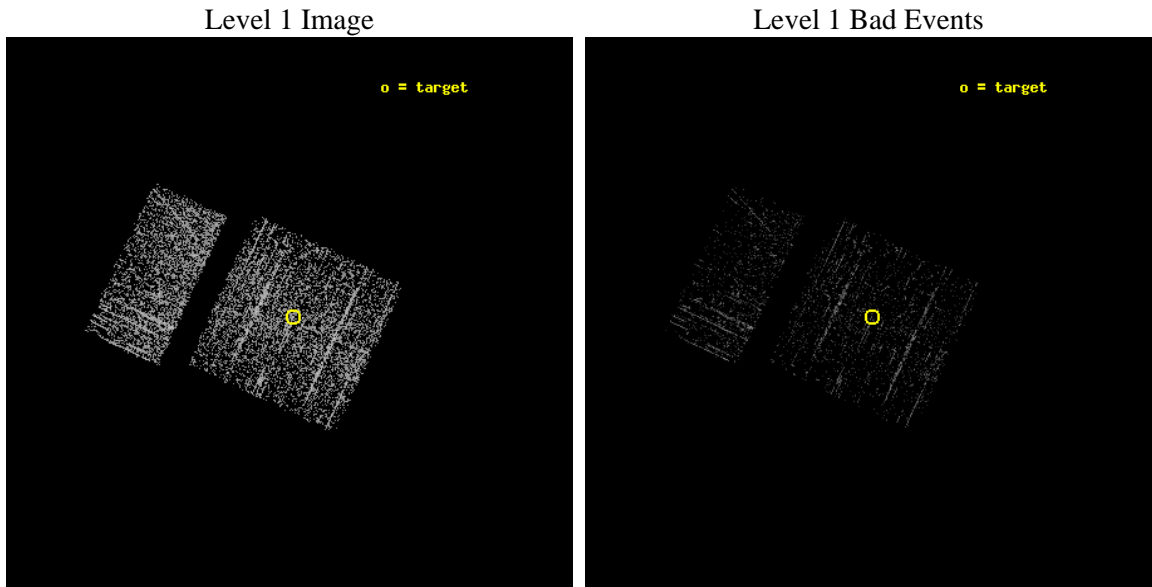
seq_num	600917	Sequence number
obs_id	12163	Observation id
title	Black Hole X-ray Novae in M31	Proposal title
observer	Dr Stephen Murray	Principal investigator
object	M31	Source name
dtcycle	0	&#160
cycle	P	events are from which exps? P[rimary] S[econdar
ra_targ	10.685	Observer's specified target RA [deg]
dec_targ	41.268972	Observer's specified target Dec [deg]
ra_nom	10.692365195541	Nominal RA [deg]
dec_nom	41.263047463852	Nominal Dec [deg]
roll_nom	295.12652226156	Nominal Roll [deg]
revision	2	Processing version of data
ontime	937.74558162689	Sum of GTIs [s]
livetime	147.62377444695	Livetime [s]
ontime0	937.74558162689	Sum of GTIs [s]
ontime1	937.74558162689	Sum of GTIs [s]
ontime2	937.74558162689	Sum of GTIs [s]
ontime3	937.74558162689	Sum of GTIs [s]
ontime6	937.74558162689	Sum of GTIs [s]
ontime7	937.74558162689	Sum of GTIs [s]
l2events	2436	Number of level 2 events



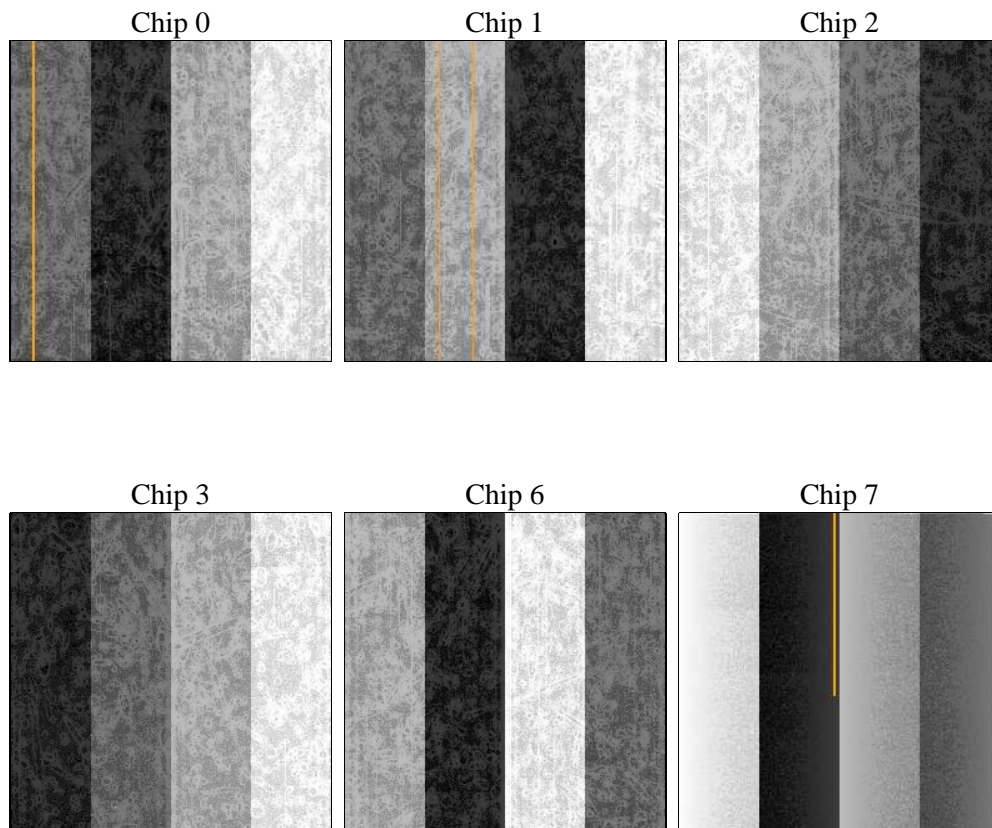
## 2 OBI Primary

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	937.74558162689	Sum of GTIs [s]
caldsver	4.4.7	&#160	ontime0	937.74558162689	Sum of GTIs [s]
date	2012-02-02T03:19:01	Date and time of file creation	ontime1	937.74558162689	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	937.74558162689	Sum of GTIs [s]
			ontime3	937.74558162689	Sum of GTIs [s]
			ontime6	937.74558162689	Sum of GTIs [s]
			ontime7	937.74558162689	Sum of GTIs [s]
			l1events	19860	Number of level 1 events

### 2.1.4 Events

	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	3007	3110	3162	3371	3956	3254
rejected events	2704	2593	2786	2991	3706	2315
rejected %	89%	83%	88%	88%	93%	71%

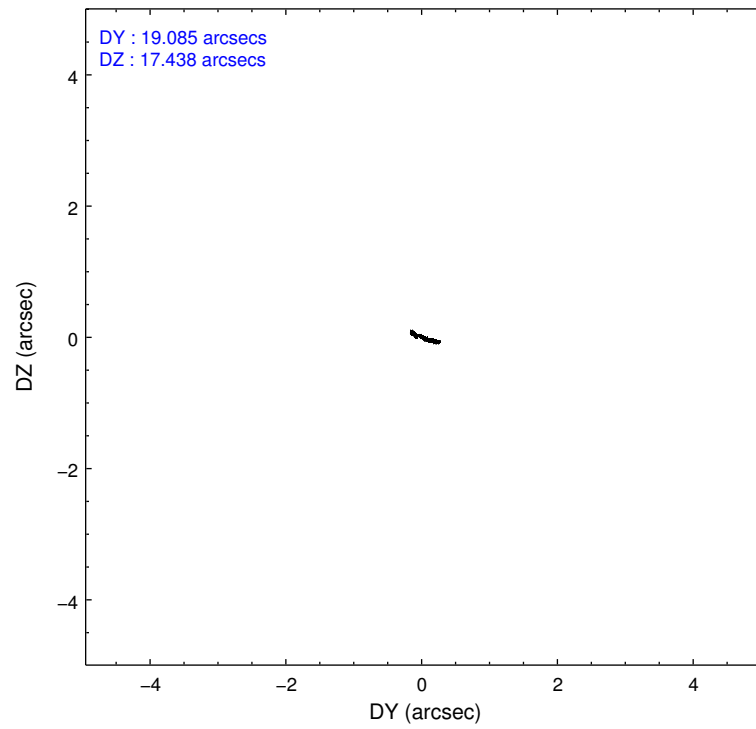
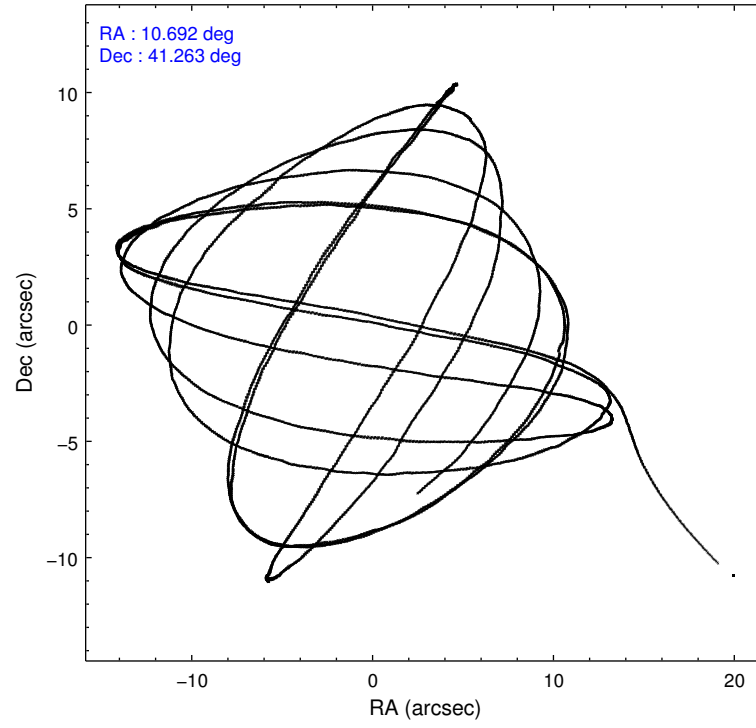
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	96	242	169	157	72	84
	3%	7%	5%	4%	1%	2%
grade 1 events	1	2	0	0	0	3
	0%	0%	0%	0%	0%	0%
grade 2 events	68	105	87	87	59	193
	2%	3%	2%	2%	1%	5%
grade 3 events	38	53	38	40	31	109
	1%	1%	1%	1%	0%	3%
grade 4 events	42	41	39	34	28	83
	1%	1%	1%	1%	0%	2%
grade 5 events	113	123	111	120	121	284
	3%	3%	3%	3%	3%	8%
grade 6 events	63	79	44	65	61	472
	2%	2%	1%	1%	1%	14%
grade 7 events	2586	2465	2674	2868	3584	2026
	85%	79%	84%	85%	90%	62%

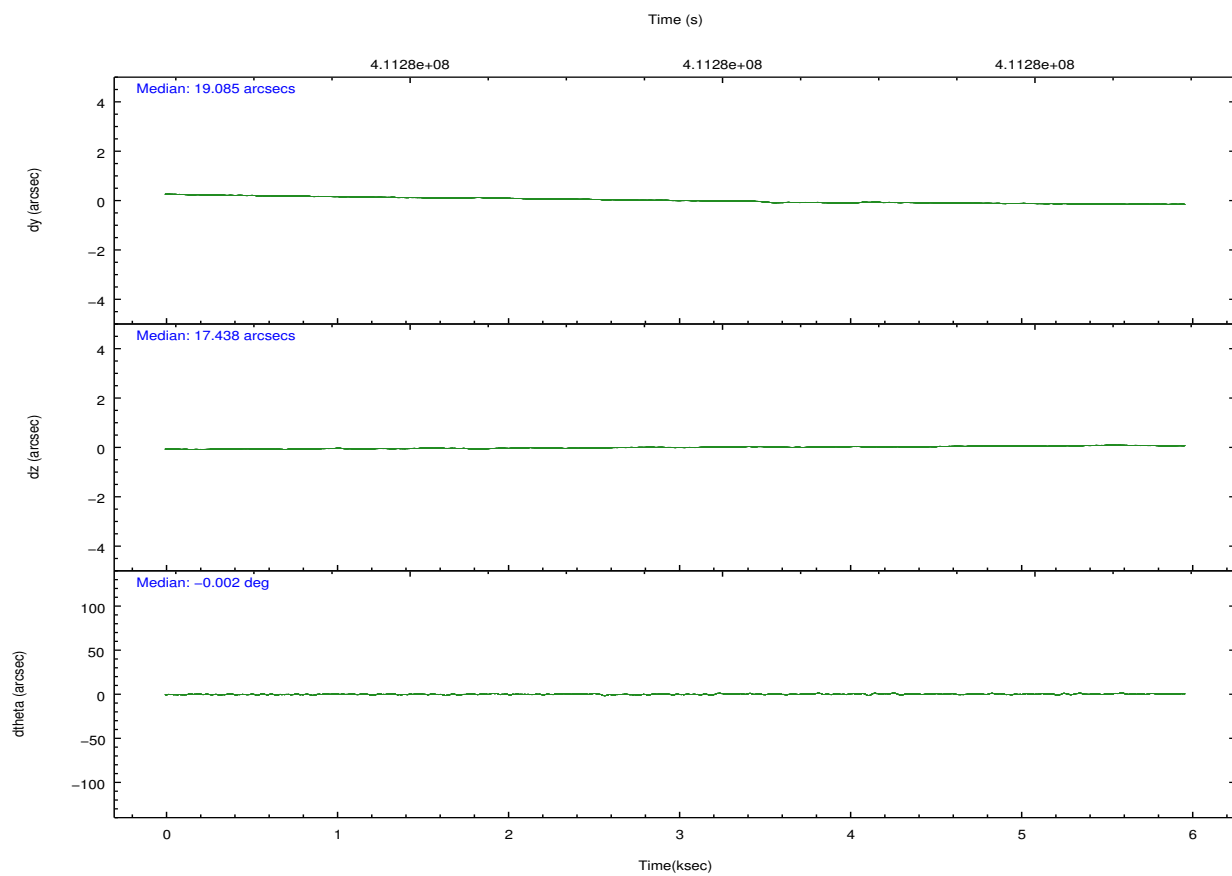
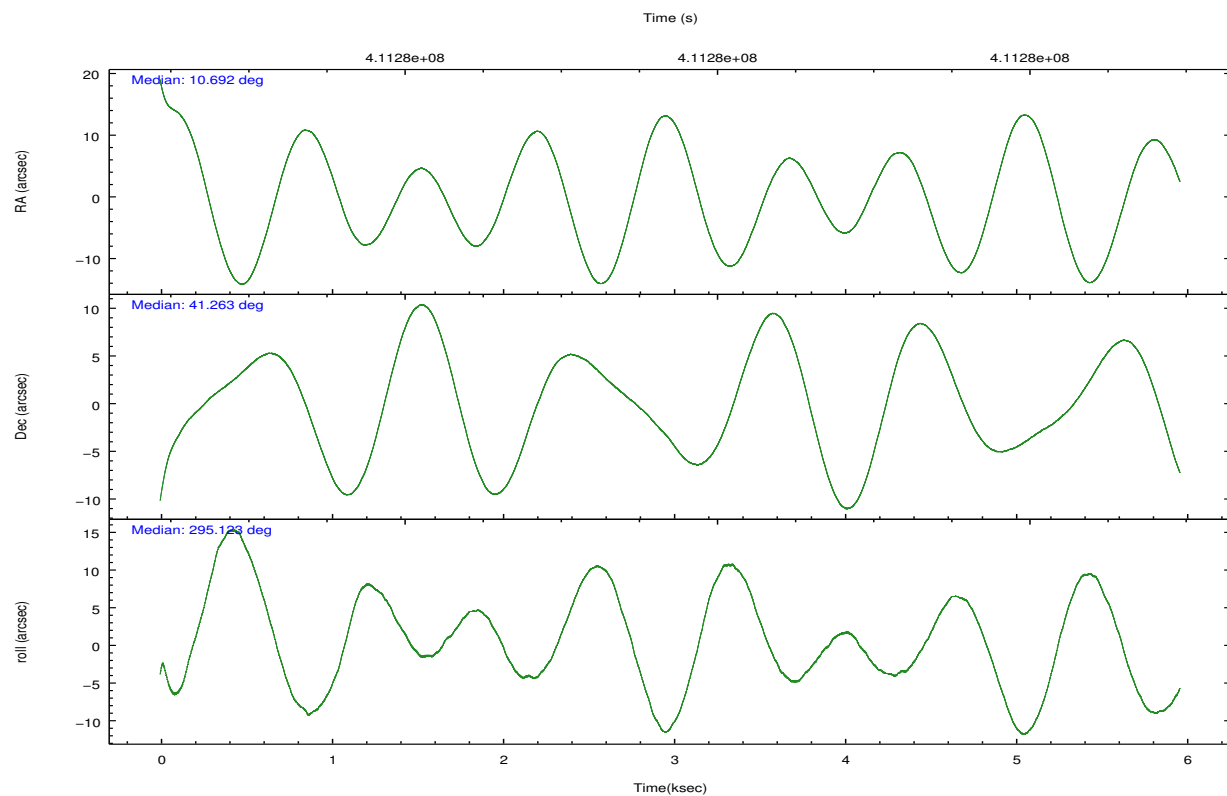


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-012367	ACIS-012367	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	10.662155	10.69236519554069	CCD I2 on	Y	Y
[deg] Pointing Dec	41.278638	41.26304746385164	CCD I3 on	Y	Y
[deg] Pointing Roll	294.937744	295.1265222615627	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	O2	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	O1	Y
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	411279675.184000	411277823.02686	CCD S5 on	N	N
Observation start date	2011-01-13T04:20:09	2011-01-13T03:50:23	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	411284675.184000	411285773.43978	On-chip summing requested	N	N
Observation end date	2011-01-13T05:43:29	2011-01-13T06:02:53	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	Y	Y
			[s] Primary exposure time	0.600000	0.6
			[s] Secondary exposure time	0.000000	3.2
			Duty cycle	5	5

## 2.3 Aspect



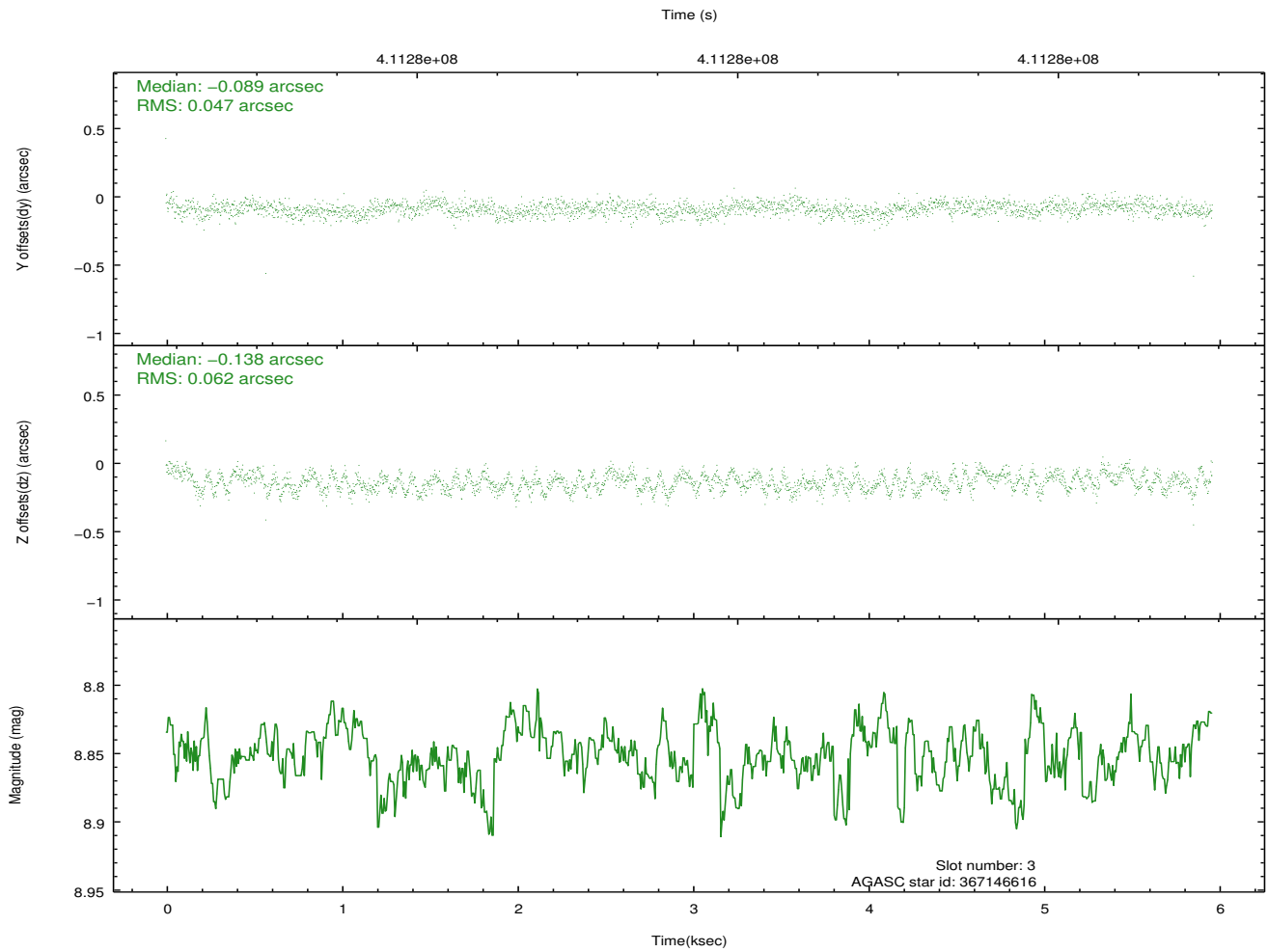
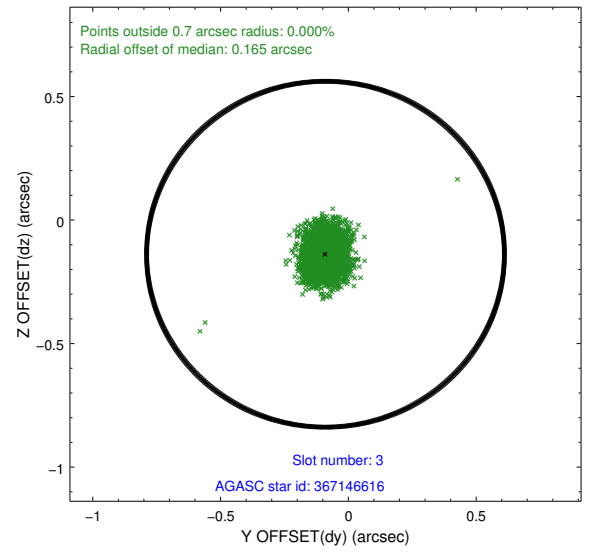
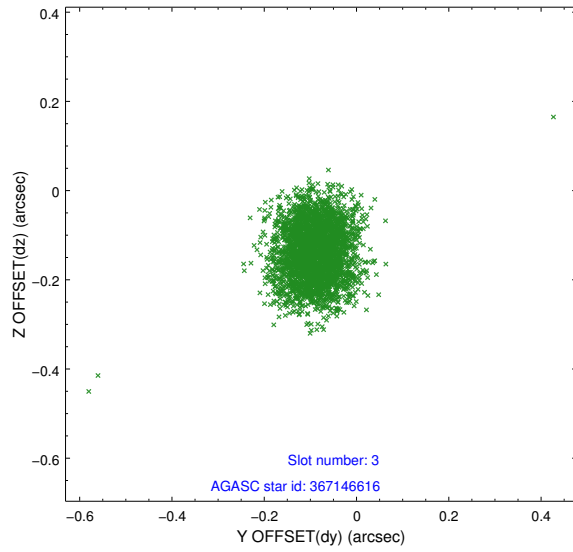


### Slot Statistics

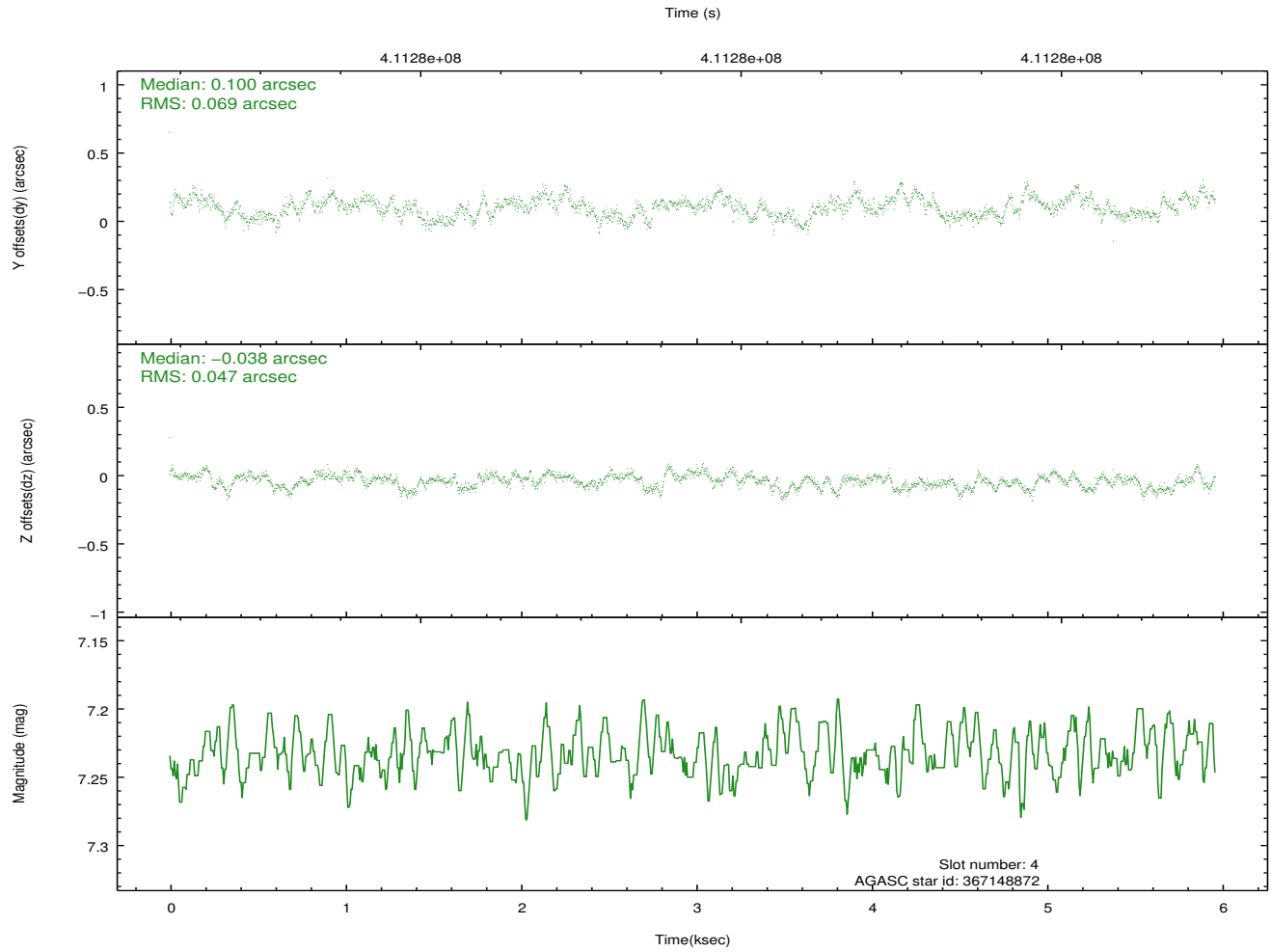
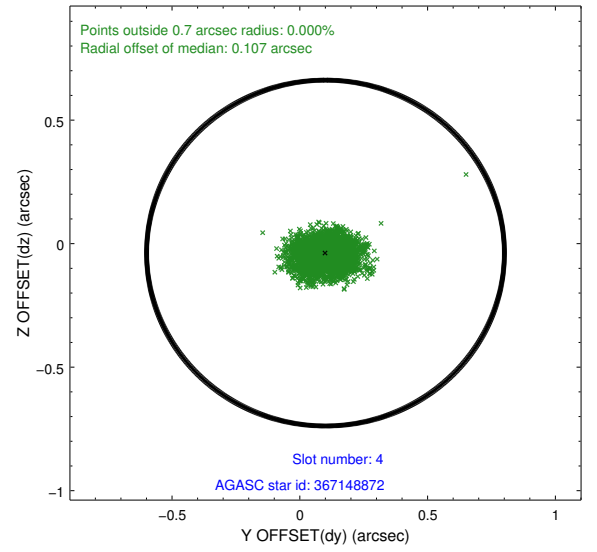
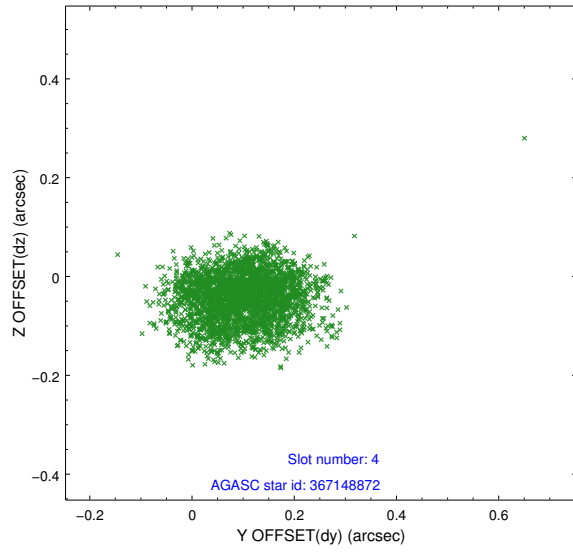
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.08	1455	0.062	0.004	0.013	0.023	0.000000	0.000000	920.31	-841.09
1	FID	ACIS-I-5	7.06	1455	-0.256	0.061	0.010	0.018	0.000000	0.000000	-1827.57	1055.95
2	FID	ACIS-I-6	7.08	1455	0.102	0.006	0.008	0.013	0.000000	0.000000	384.81	1701.53
3	GUIDE	367146616	8.85	2901	-0.089	-0.138	0.081	0.129	11.418645	41.190163	1144.99	1727.53
4	GUIDE	367148872	7.23	2910	0.100	-0.038	0.089	0.143	10.505940	40.688258	1748.56	-1282.62
5	GUIDE	367657896	9.00	2903	-0.041	0.088	0.096	0.158	11.197765	41.313576	493.37	1367.65
6	GUIDE	367663272	9.27	2898	-0.011	0.050	0.103	0.162	10.656279	41.699429	-1379.80	623.66
7	GUIDE	367674552	8.84	2907	0.045	0.041	0.092	0.156	11.016238	41.570845	-553.58	1309.20

## 2.4 Star Slots

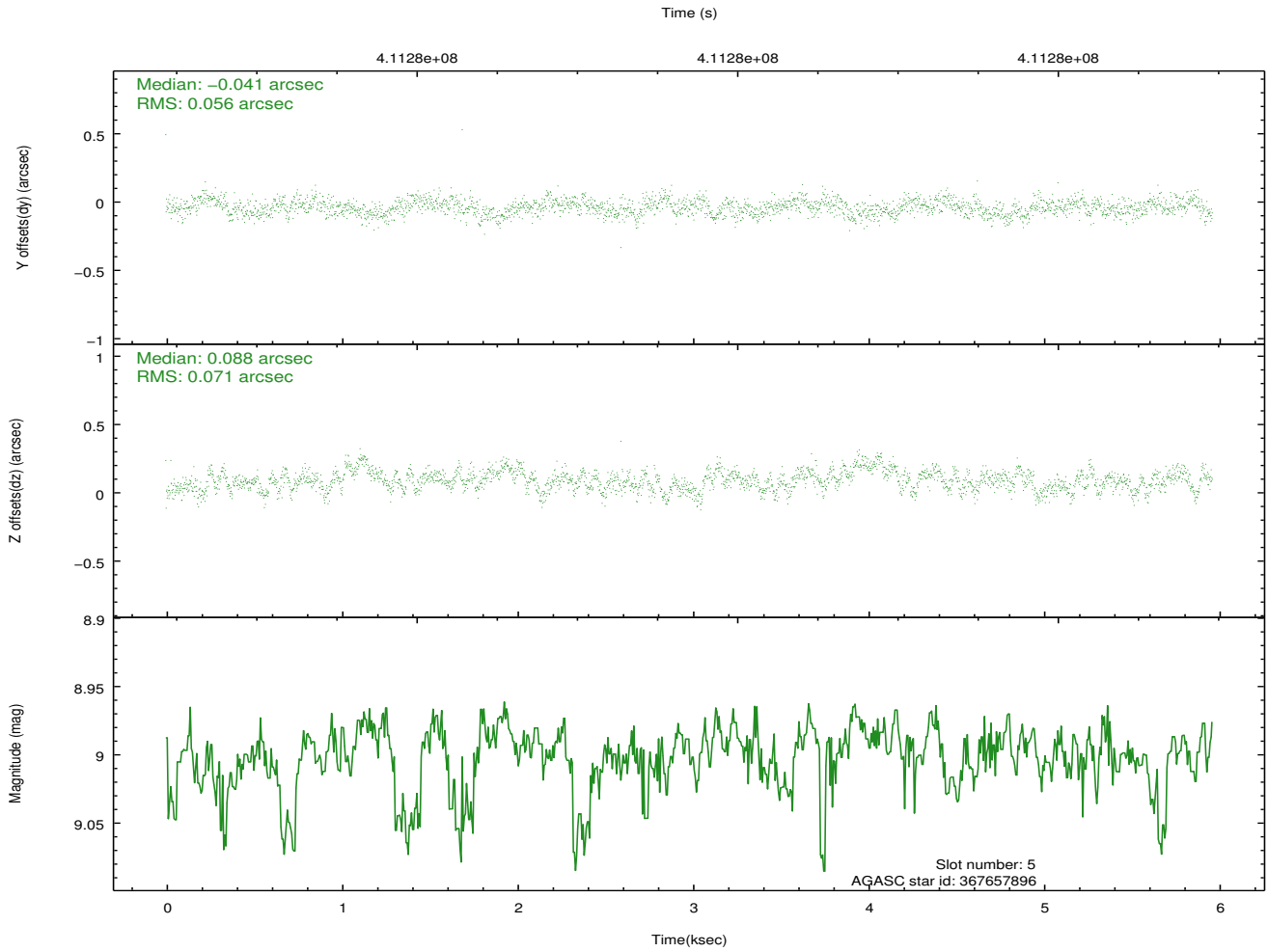
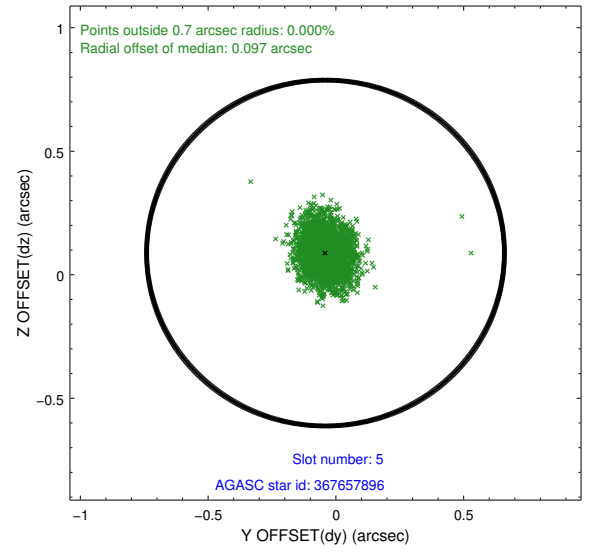
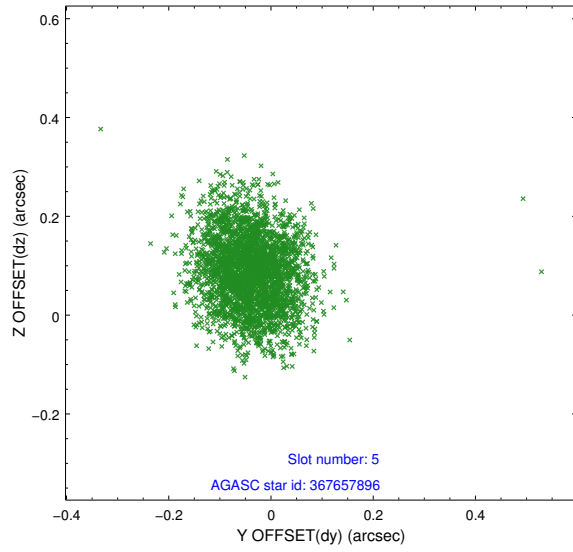
### 2.4.1 Slot 3



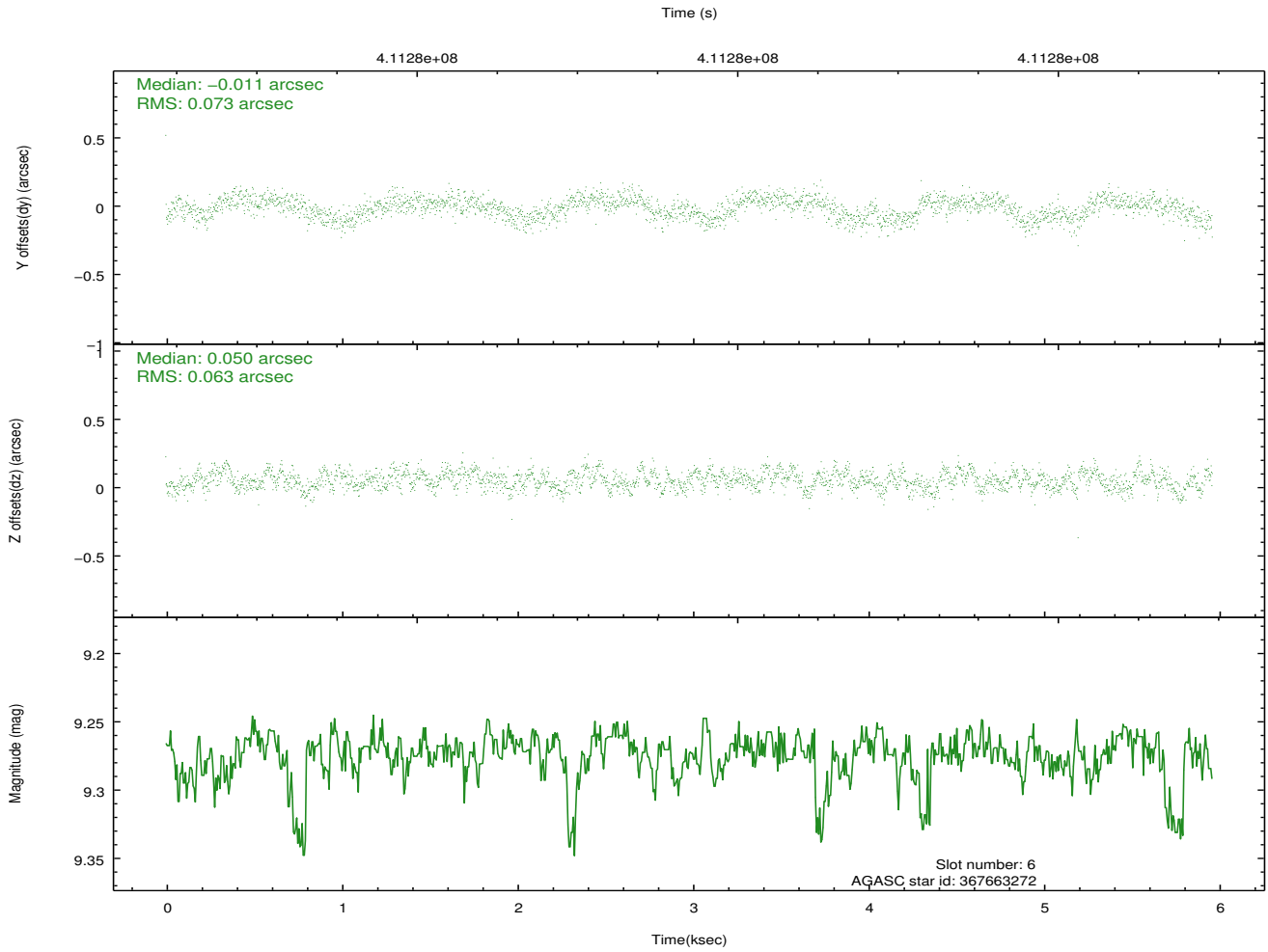
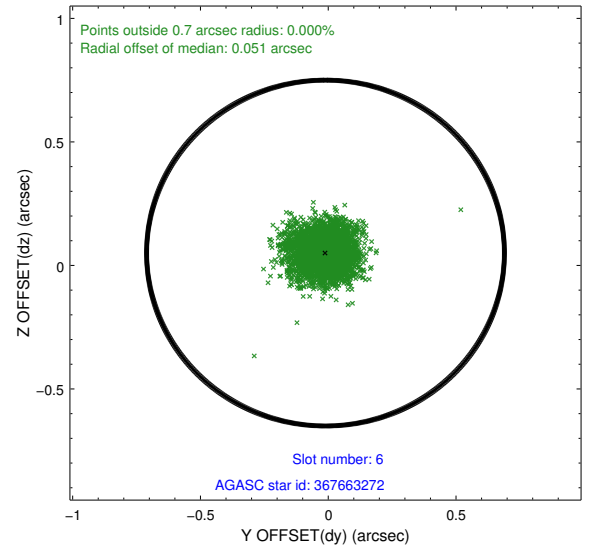
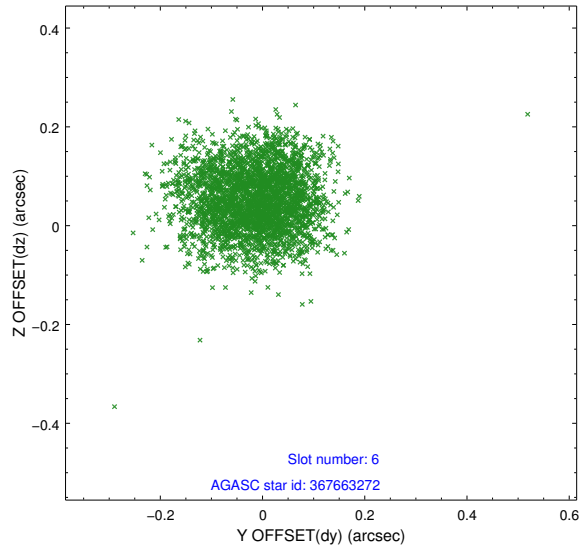
## 2.4.2 Slot 4



### 2.4.3 Slot 5

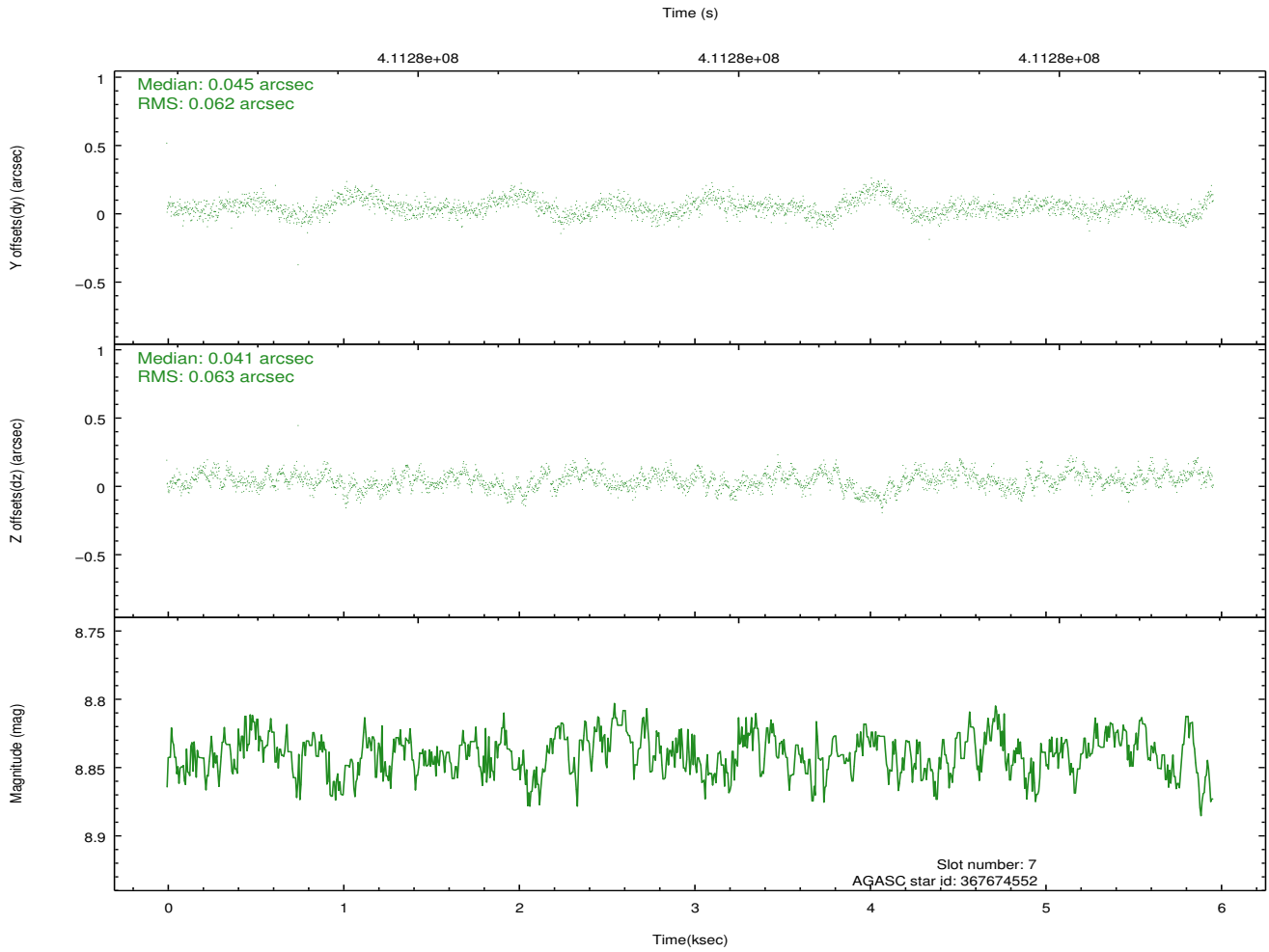
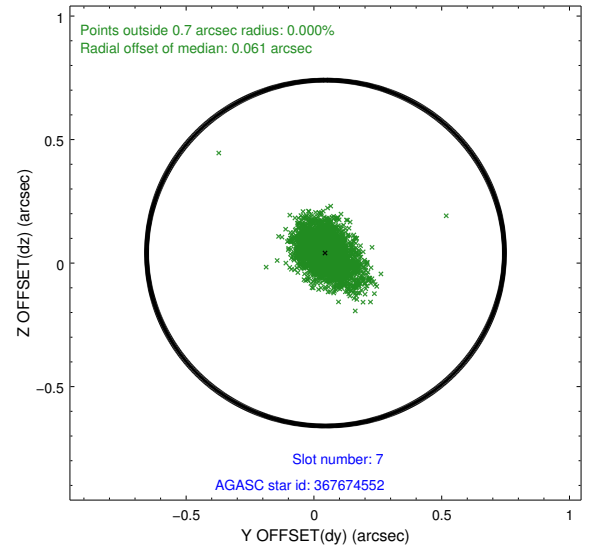
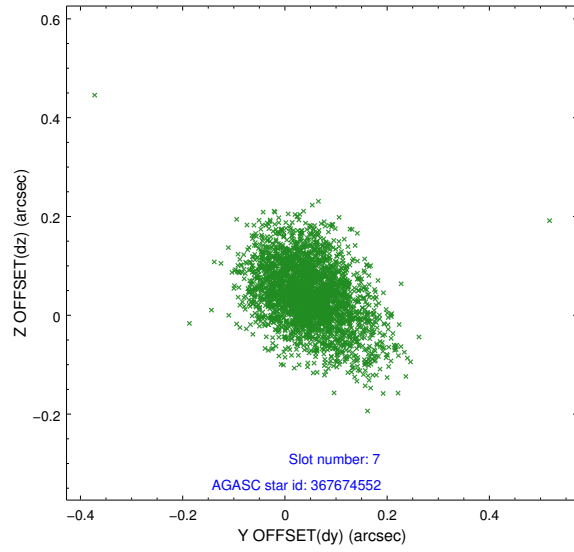


## 2.4.4 Slot 6



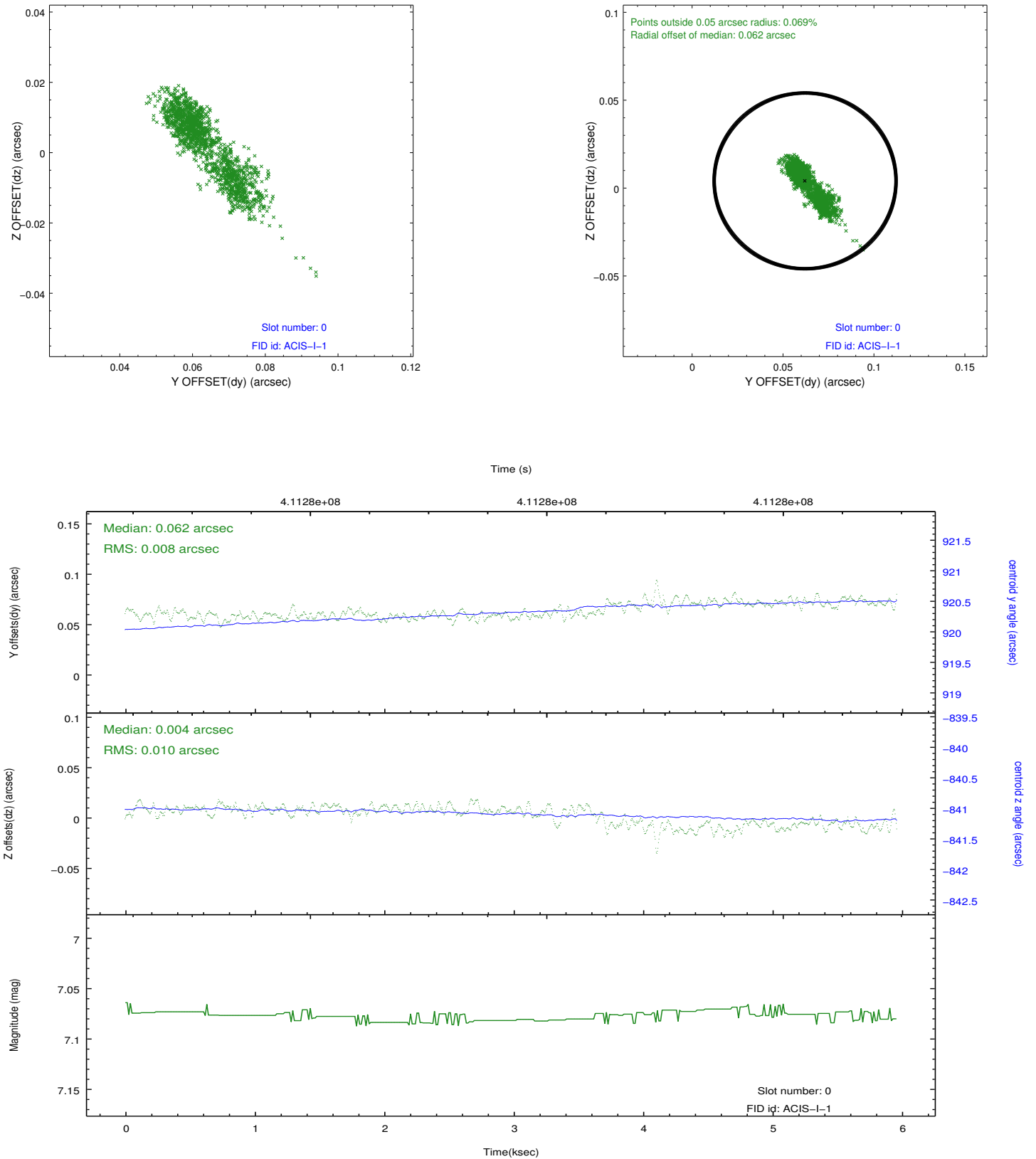


## 2.4.5 Slot 7

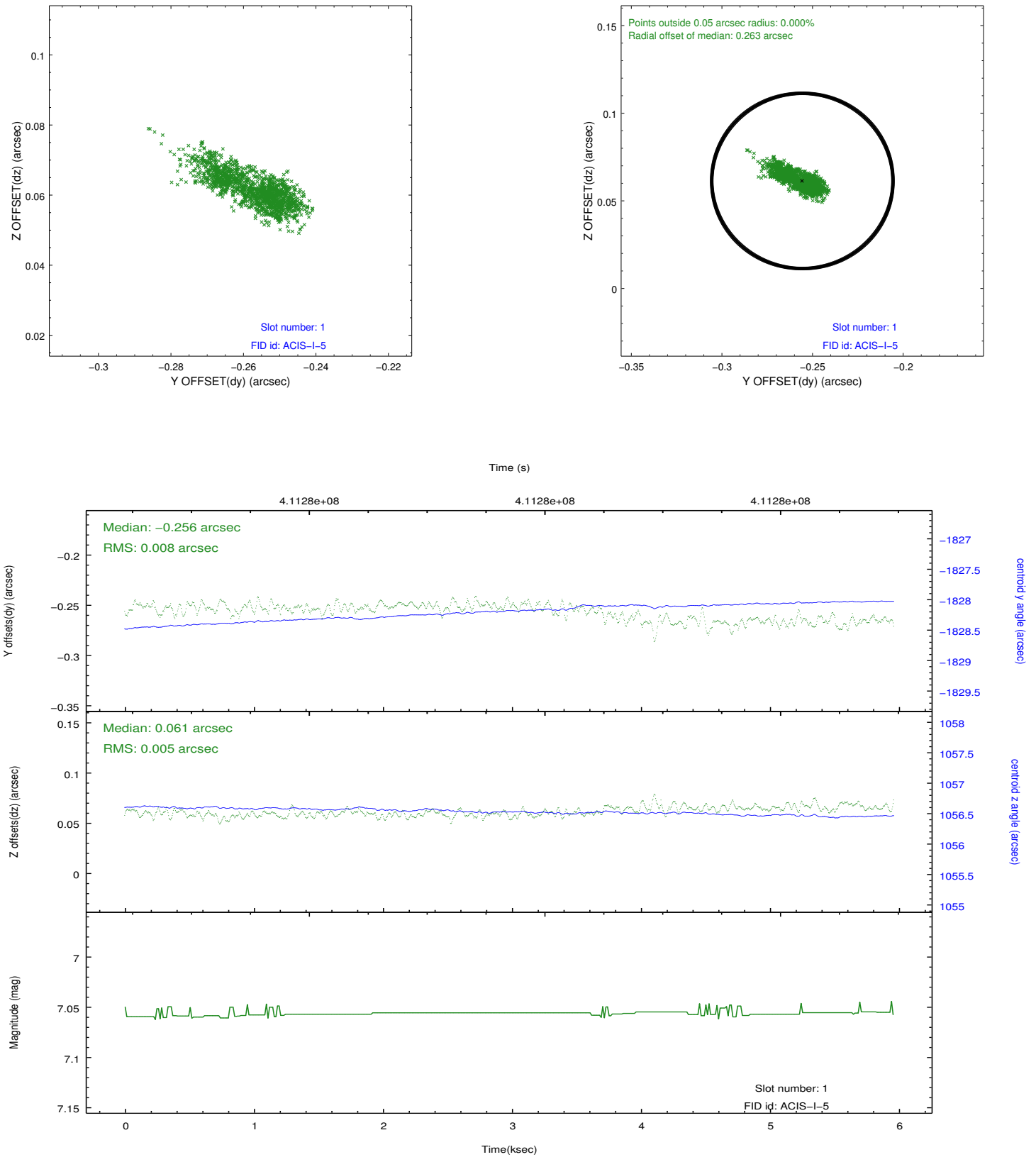


## 2.5 FID Slots

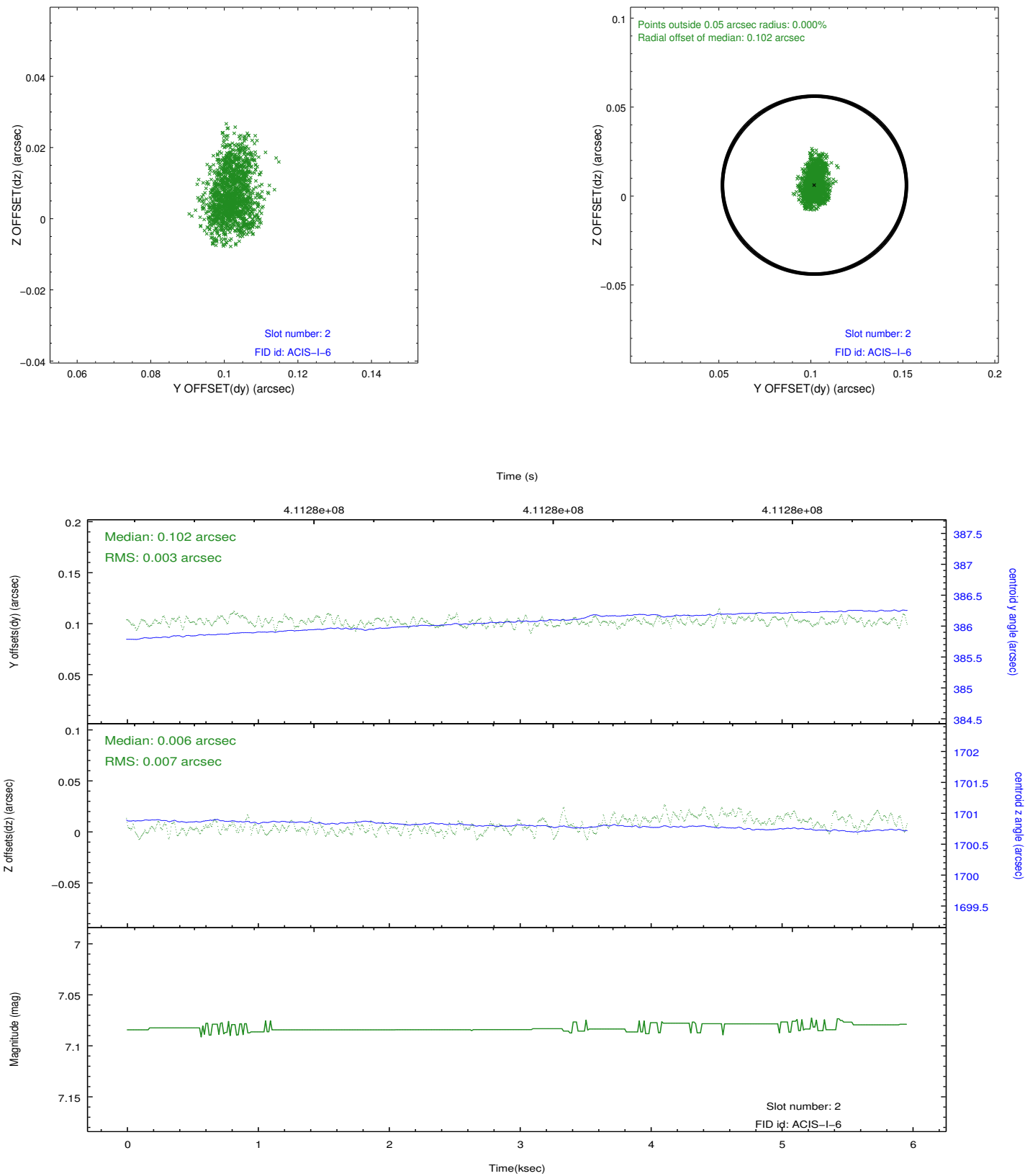
### 2.5.1 Slot 0



## 2.5.2 Slot 1



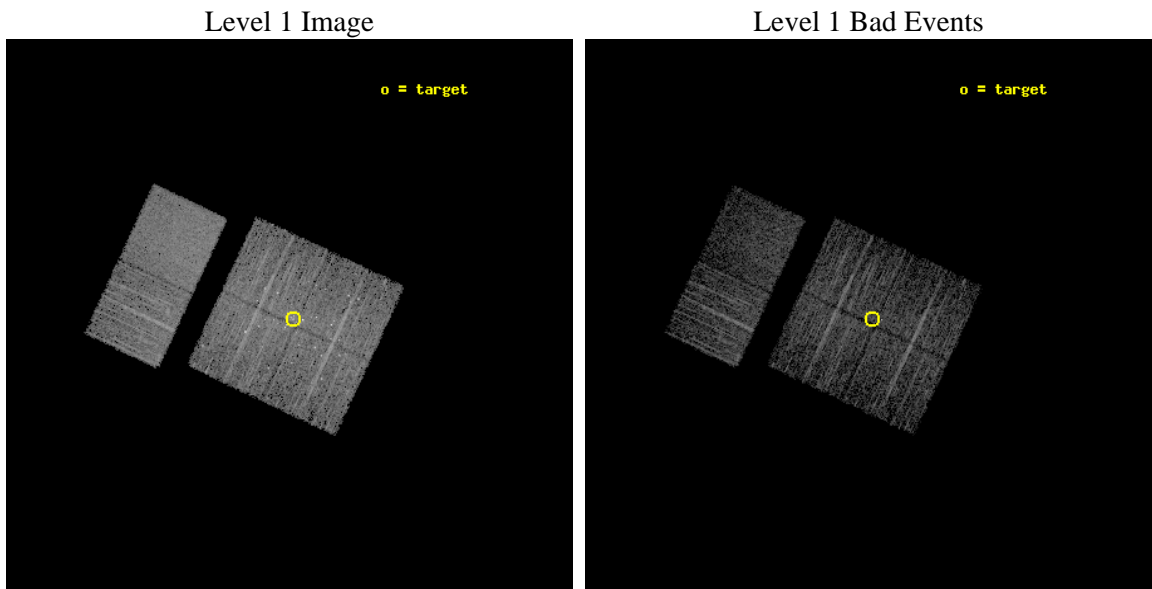
### 2.5.3 Slot 2



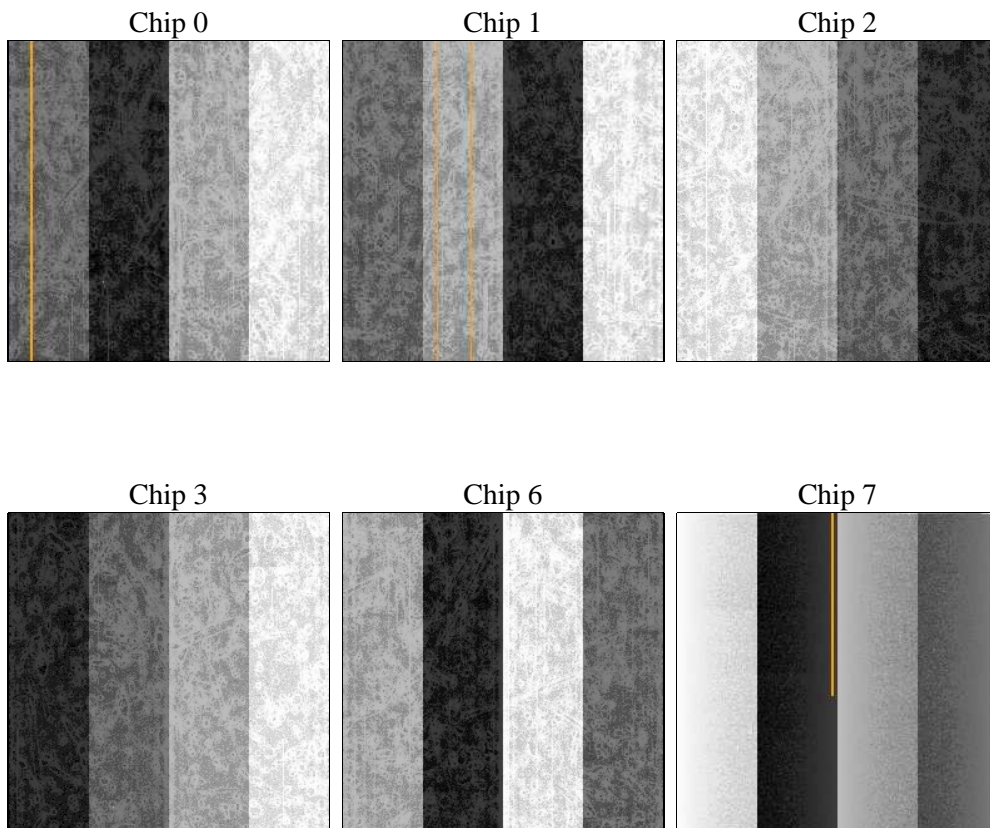
## 3 OBI Secondary

### 3.1 OBI

#### 3.1.1 Images



#### 3.1.2 Bias



### 3.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.3	Processing system revision	ontime	4022.7918038368	Sum of GTIs [s]
caldsver	4.4.7	&#160	ontime0	4022.7915062904	Sum of GTIs [s]
date	2012-02-02T03:21:24	Date and time of file creation	ontime1	4022.7916455865	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	4022.7918428779	Sum of GTIs [s]
			ontime3	4022.7918038368	Sum of GTIs [s]
			ontime6	4022.7915955782	Sum of GTIs [s]
			ontime7	4022.7916849852	Sum of GTIs [s]
			l1events	188240	Number of level 1 events

### 3.1.4 Events

	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	27795	31300	31731	31609	30310	35495	grade 0 events	2333	4104	3114	3531	1256	1404
rejected events	23194	23949	26093	25645	26908	19759		8%	13%	9%	11%	4%	3%
rejected %	83%	76%	82%	81%	88%	55%	grade 1 events	23	133	55	53	20	29
								0%	0%	0%	0%	0%	0%
							grade 2 events	906	1345	974	879	757	3164
								3%	4%	3%	2%	2%	8%
							grade 3 events	354	519	416	422	317	1333
								1%	1%	1%	1%	1%	3%
							grade 4 events	329	508	419	419	327	1389
								1%	1%	1%	1%	1%	3%
							grade 5 events	1188	1310	1126	1308	1241	3575
								4%	4%	3%	4%	4%	10%
							grade 6 events	682	880	717	723	747	8457
								2%	2%	2%	2%	2%	23%
							grade 7 events	21980	22501	24910	24274	25645	16144
								79%	71%	78%	76%	84%	45%

# A Summary

## A.1 Status

V&V Scientist	Mike Nowak
V&V Date (YYYY-MM-DD)	2012.02.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	4.96053738546369

## A.2 Comments

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use `acis_process_events` to reprocess the data with the parameter `pix_adj=NONE` or `RANDOMIZE`, respectively.