

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 11962 - L2 Version 3
Chandra X-Ray Center

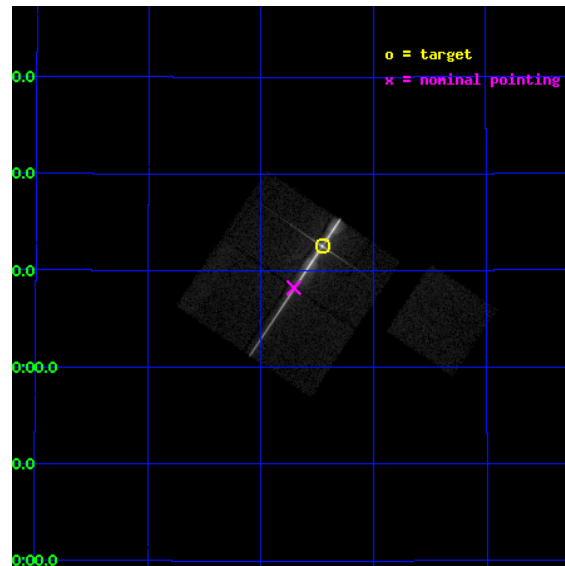
L2 Processing Date : Jul 20 2012

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1 Front

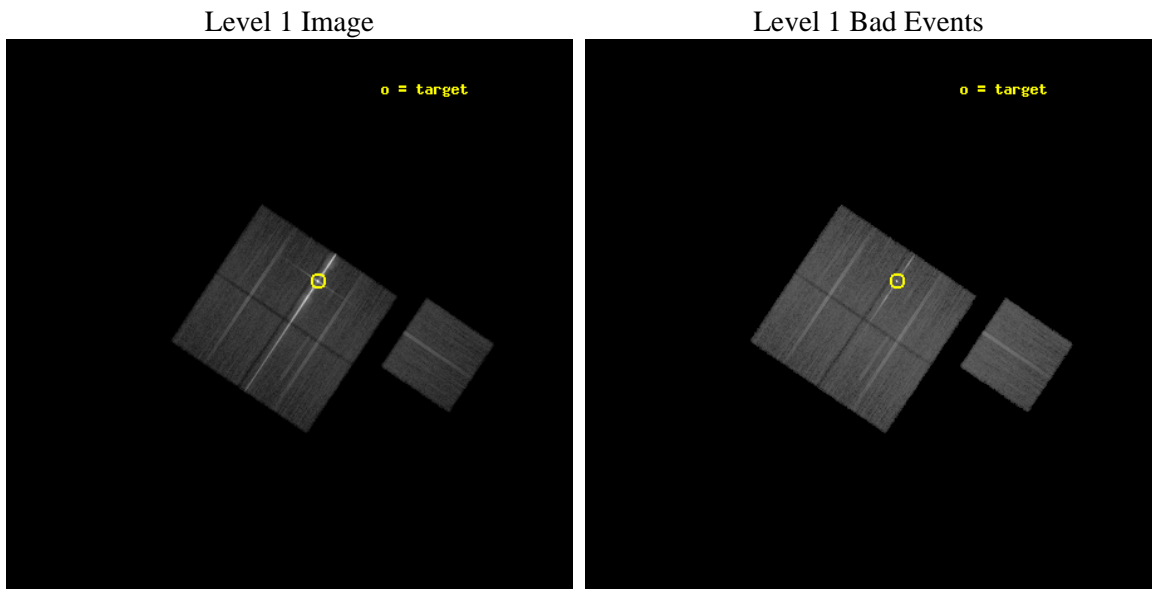
seq_num	790211	Sequence number
obs_id	11962	Observation id
title	AO-11 Calibration Observations of MKN 421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.17683639238	Nominal RA [deg]
dec_nom	38.137169082619	Nominal Dec [deg]
roll_nom	123.93029977836	Nominal Roll [deg]
revision	3	Processing version of data
ontime	19768.70015204	Sum of GTIs [s]
livetime	19510.407531048	Livetime [s]
ontime0	19765.559131682	Sum of GTIs [s]
ontime1	19768.70015204	Sum of GTIs [s]
ontime2	19768.70015204	Sum of GTIs [s]
ontime3	19762.418121397	Sum of GTIs [s]
ontime6	19768.70015204	Sum of GTIs [s]
l2events	537418	Number of level 2 events



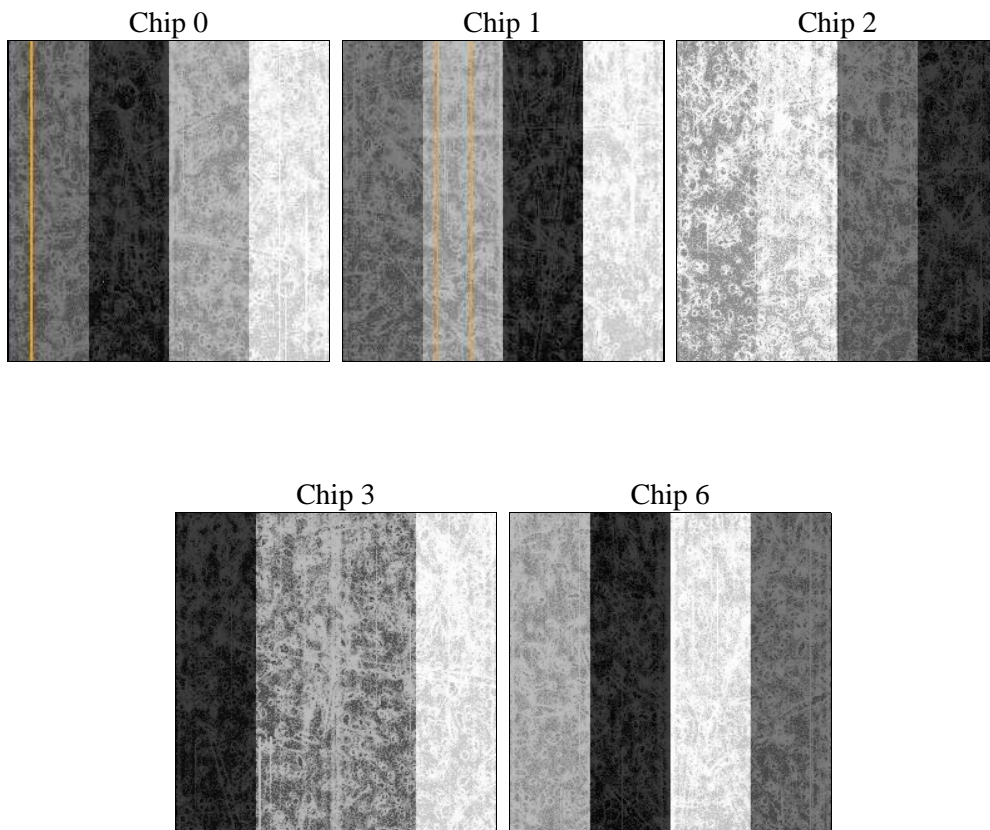
2 OBI

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	8.4.5	Processing system revision	ontime	19768.70015204	Sum of GTIs [s]
caldbver	4.4.10	 	ontime0	19765.559131682	Sum of GTIs [s]
date	2012-06-21T00:52:06	Date and time of file creation	ontime1	19768.70015204	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	19768.70015204	Sum of GTIs [s]
			ontime3	19762.418121397	Sum of GTIs [s]
			ontime6	19768.70015204	Sum of GTIs [s]
			l1events	1337893	Number of level 1 events

2.1.4 Events

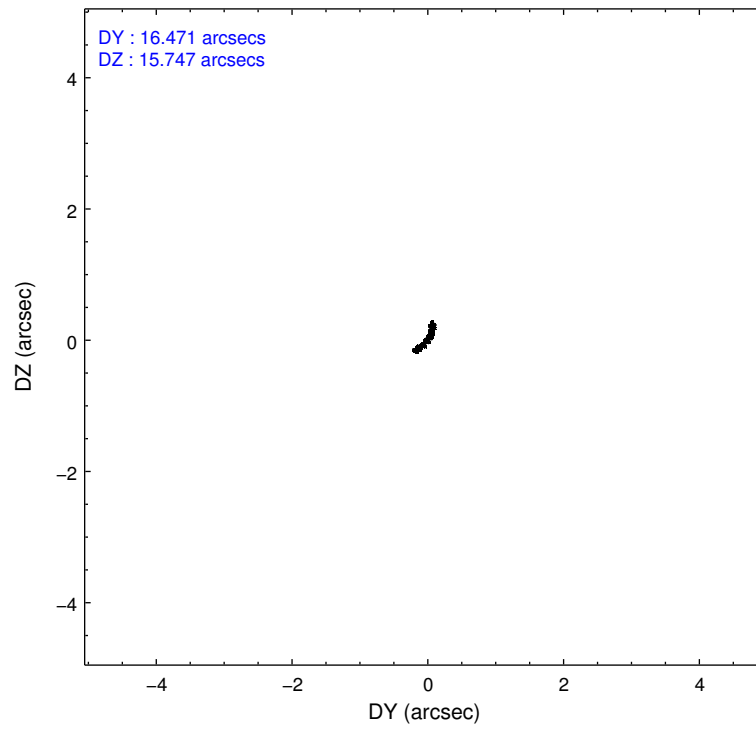
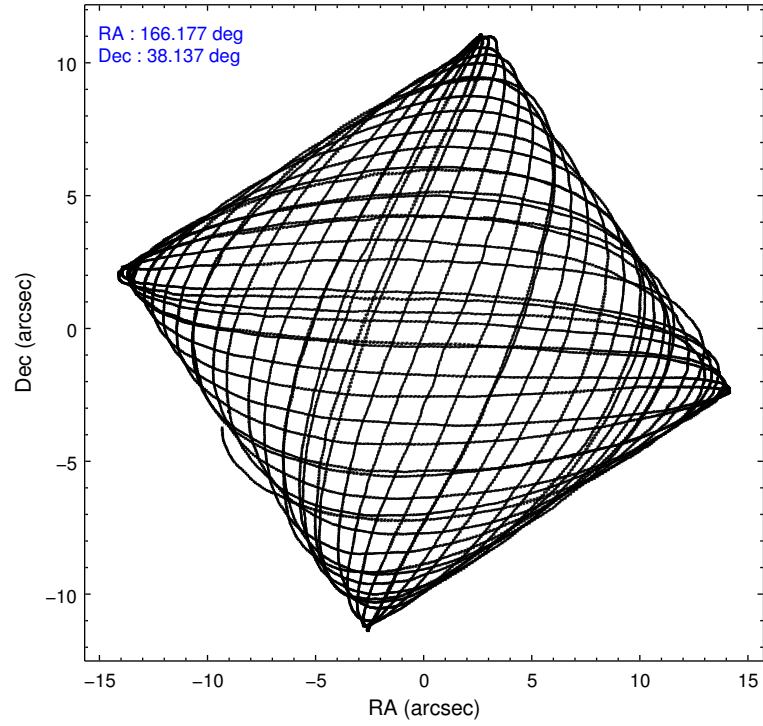
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	164464	157677	644324	199394	172034
rejected events	139020	137268	203435	147065	154096
rejected %	84%	87%	31%	73%	89%

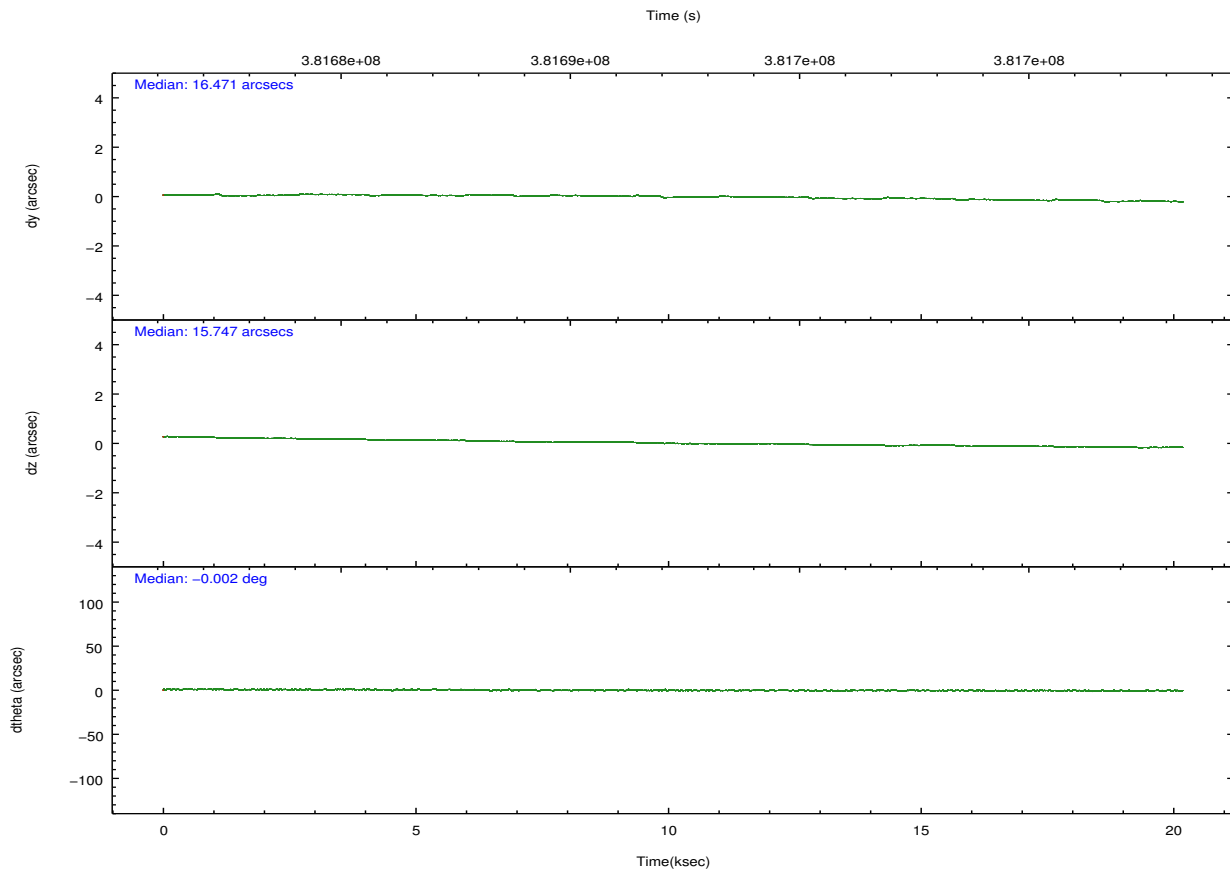
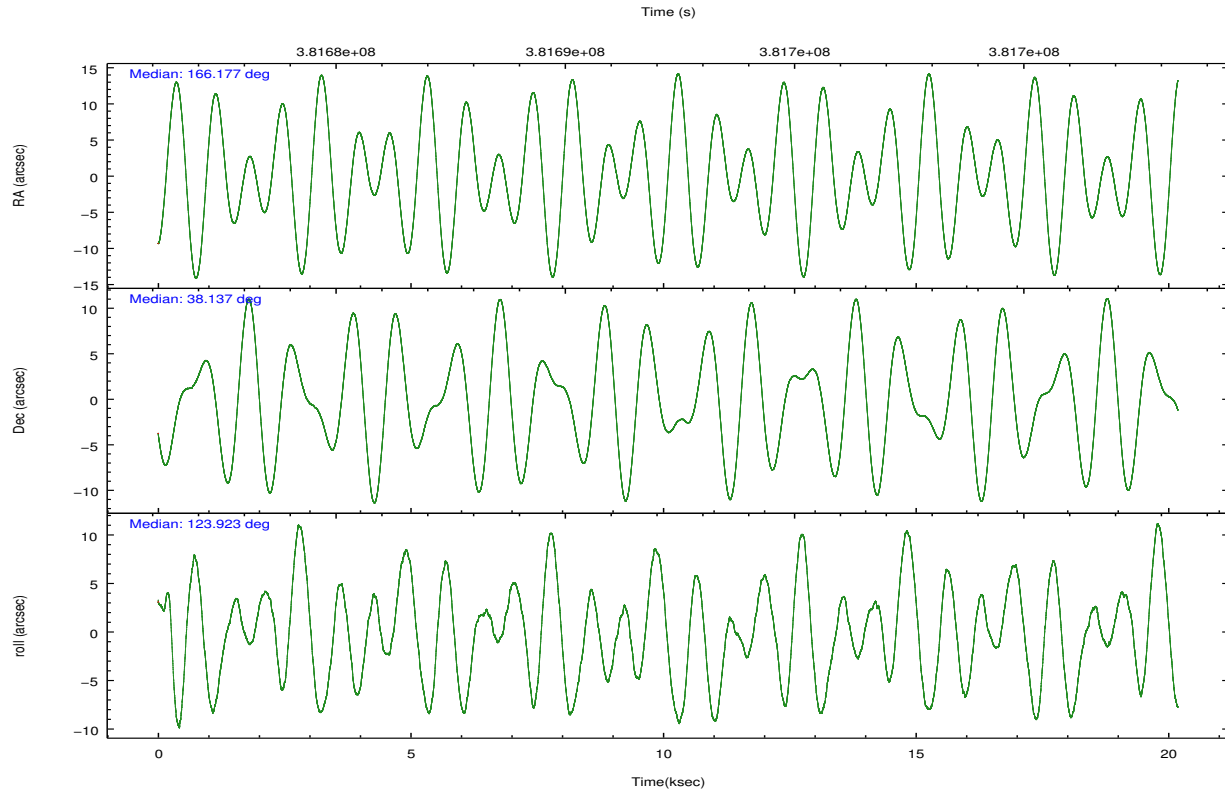
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	12052	7599	328013	36374	6137
	7%	4%	50%	18%	3%
grade 1 events	139	105	14975	383	96
	0%	0%	2%	0%	0%
grade 2 events	5244	4665	54606	6736	4067
	3%	2%	8%	3%	2%
grade 3 events	2215	2043	18880	2798	1987
	1%	1%	2%	1%	1%
grade 4 events	2107	2062	19003	2649	1913
	1%	1%	2%	1%	1%
grade 5 events	6557	6992	17148	7247	7133
	3%	4%	2%	3%	4%
grade 6 events	3832	4045	20515	3794	3844
	2%	2%	3%	1%	2%
grade 7 events	132318	130166	171184	139413	146857
	80%	82%	26%	69%	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	LETG	LETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	166.208305	166.1768363923811	Subarray requested	NONE	NONE
[deg] Pointing Dec	38.125187	38.13716908261936	Alternating exposures requested	N	N
[deg] Pointing Roll	123.702179	123.9302997783623	[s] Primary exposure time	0.000000	3.1
[s] Window start time (MET)	378691266.184000	378691266.184000			
[s] Window stop time (MET)	383702466.184000	383702466.184000			
[mm] SIM focus pos	-0.782348	-0.7809083437167272			
[mm] SIM defocus	0	0.001439871863259334			
[mm] SIM translation stage pos	-233.592463	-233.5874344608287			
[mm] SIM translation stage offset	0	-0.005018542100998502			
[s] Observation start time (MET)	381682325.184000	381681948.96306			
Observation start date	2010-02-04T14:50:59	2010-02-04T14:45:48			
[s] Observation end time (MET)	381702325.184000	381703294.07664			
Observation end date	2010-02-04T20:24:19	2010-02-04T20:41:34			
Read mode	TIMED	TIMED			

2.3 Aspect



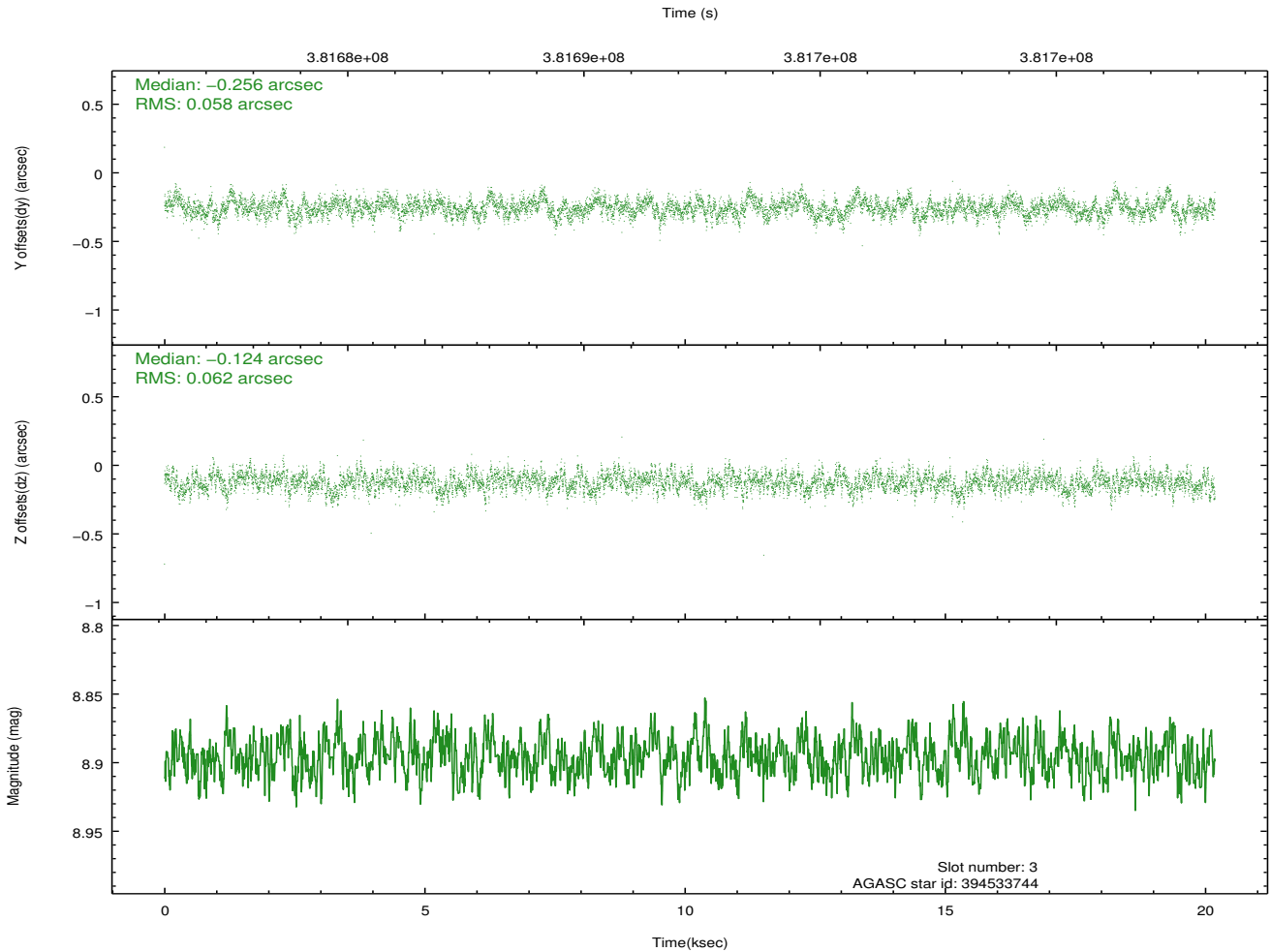
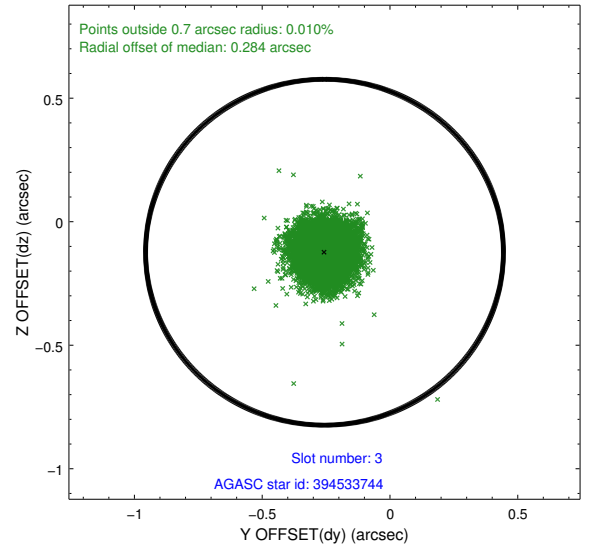
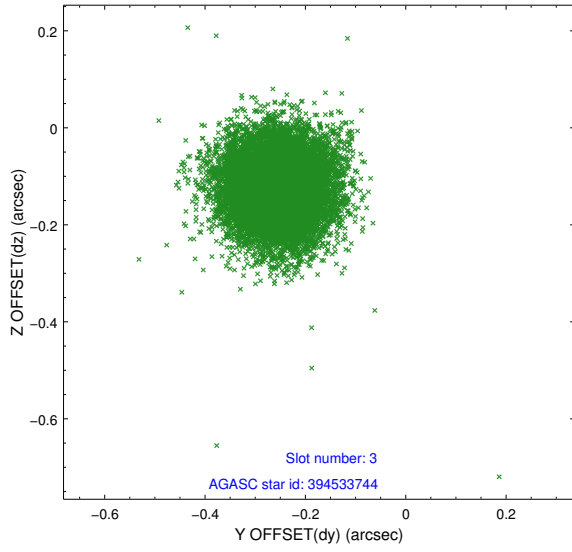


Slot Statistics

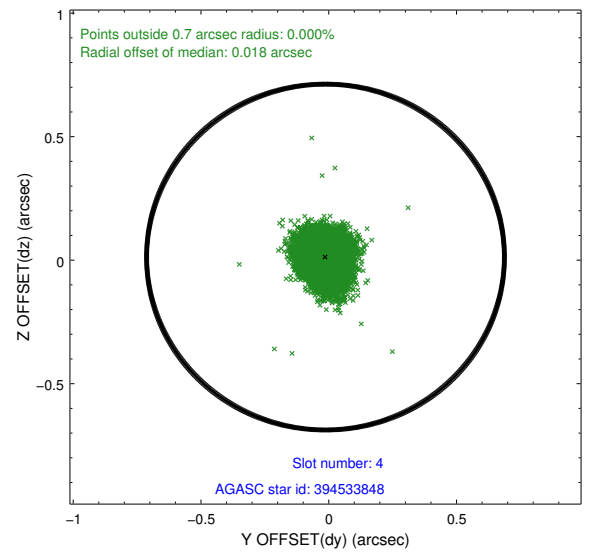
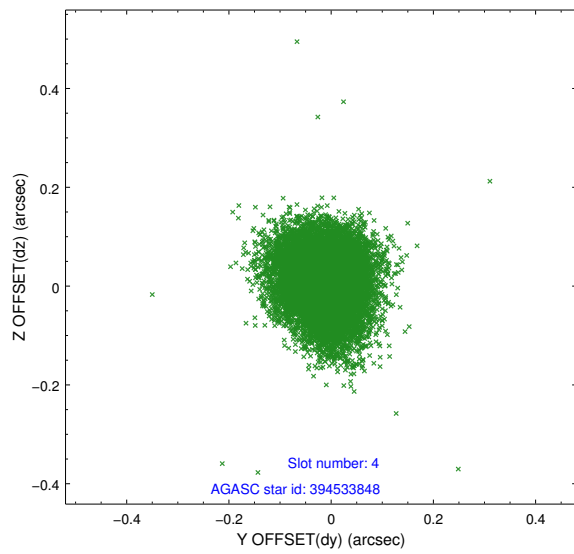
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.06	4923	0.033	-0.019	0.009	0.015	0.000000	0.000000	923.01	-839.41
1	FID	ACIS-I-5	7.06	4923	-0.198	0.038	0.007	0.011	0.000000	0.000000	-1825.23	1058.05
2	FID	ACIS-I-6	7.06	4924	0.074	0.051	0.007	0.011	0.000000	0.000000	388.39	1702.77
3	GUIDE	394533744	8.90	9842	-0.256	-0.124	0.090	0.143	167.094985	37.988717	-1794.55	-1827.32
4	GUIDE	394533848	8.73	9836	-0.013	0.013	0.081	0.129	166.382906	38.276007	180.74	-709.67
5	GUIDE	394543960	9.80	9843	0.197	-0.034	0.161	0.263	165.802757	37.787371	-369.29	1633.19
6	GUIDE	394546712	6.60	9845	-0.074	-0.042	0.071	0.115	166.451462	38.394357	426.70	-1107.98
7	GUIDE	394530152	7.53	9846	0.144	0.200	0.076	0.123	166.075805	38.868252	2432.28	-1175.08

2.4 Star Slots

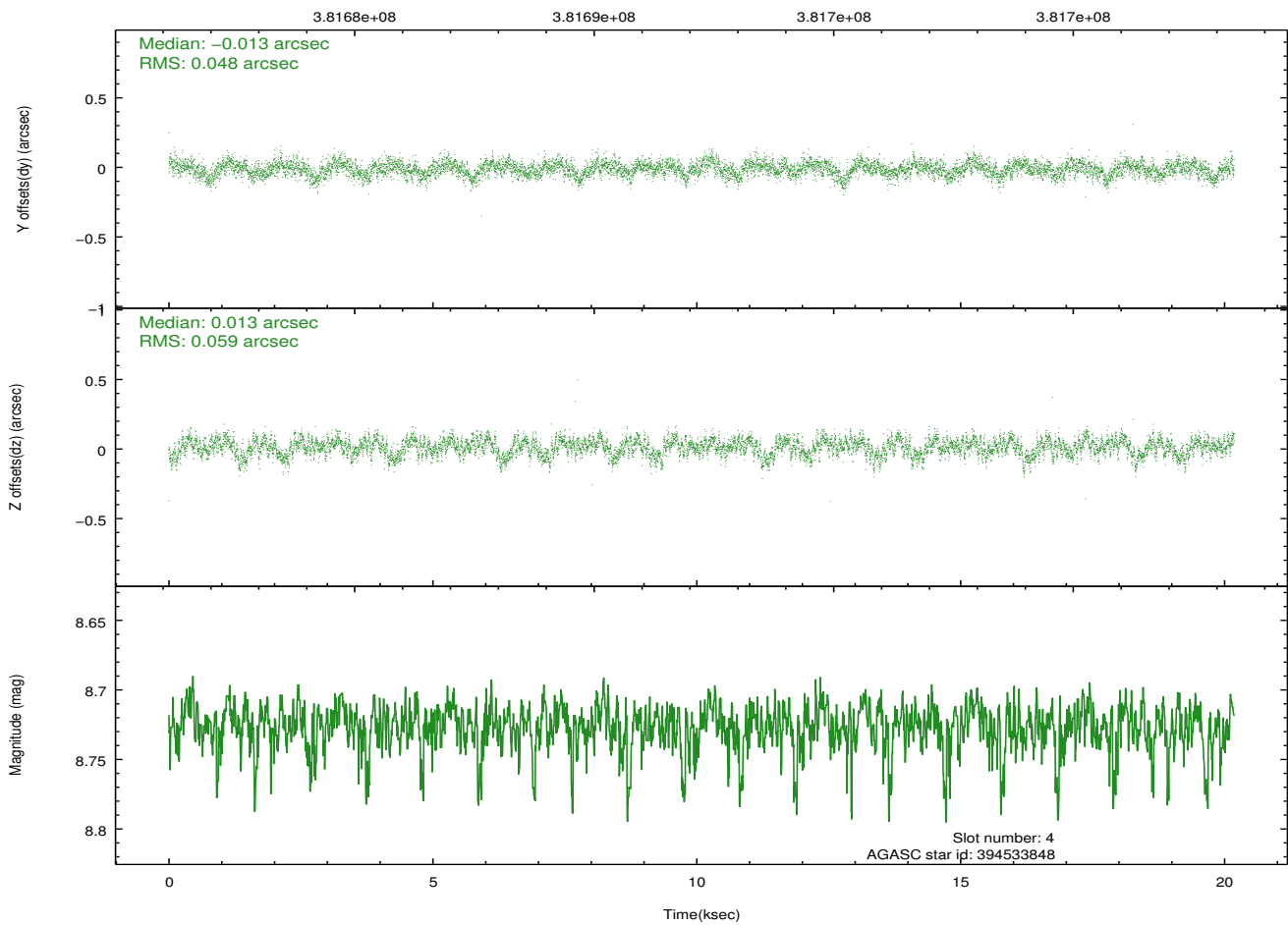
2.4.1 Slot 3



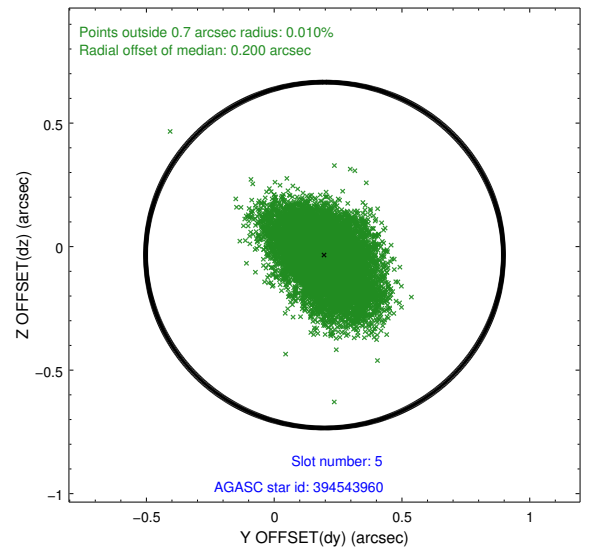
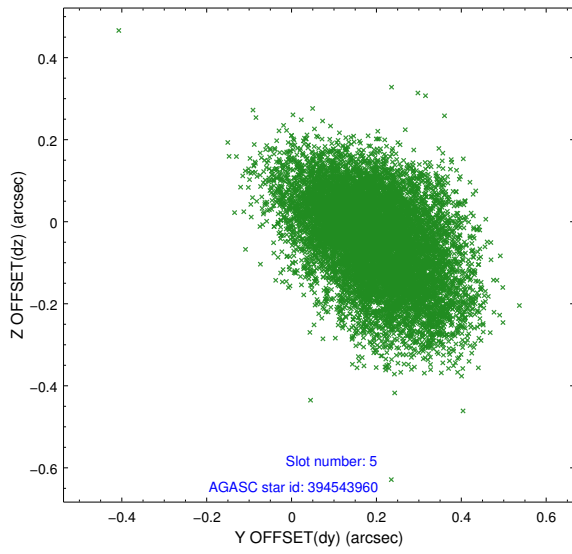
2.4.2 Slot 4



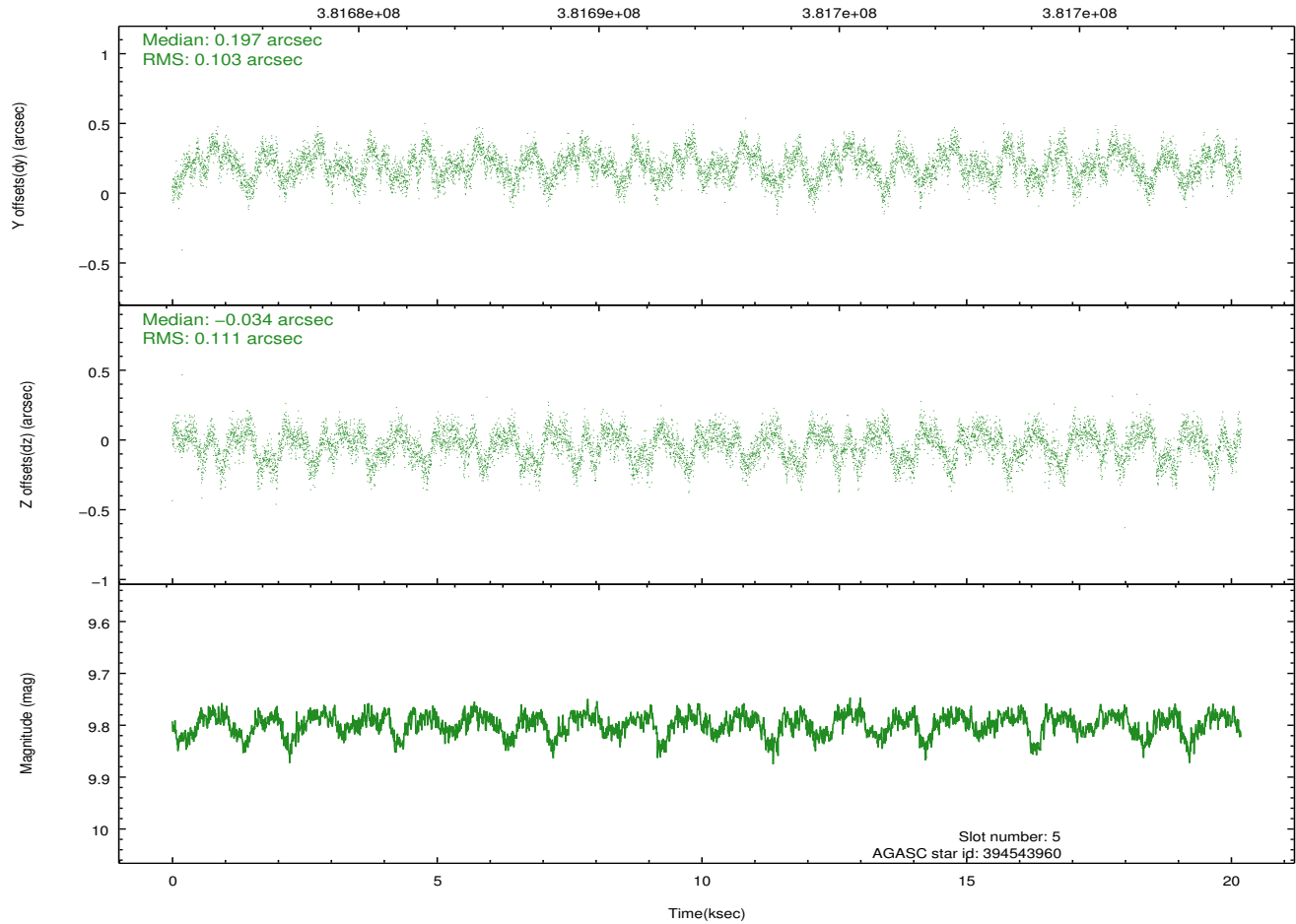
Time (s)



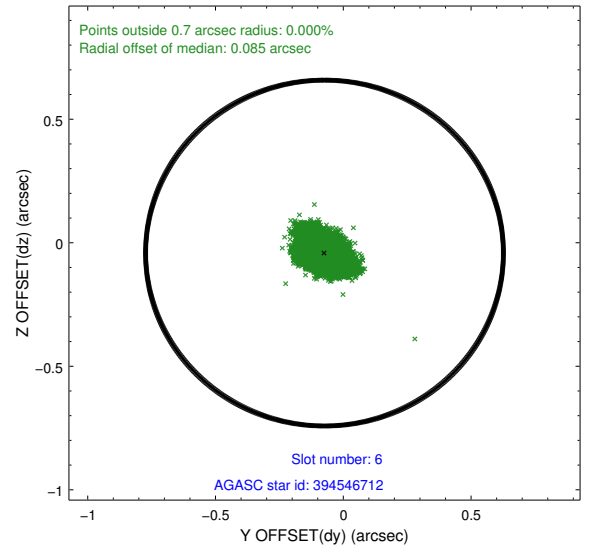
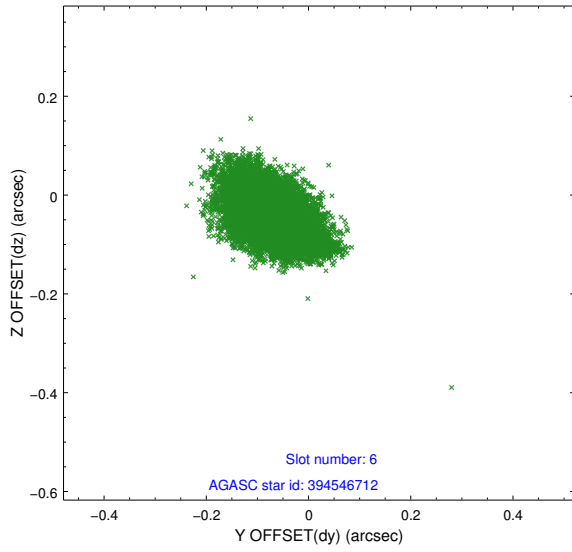
2.4.3 Slot 5



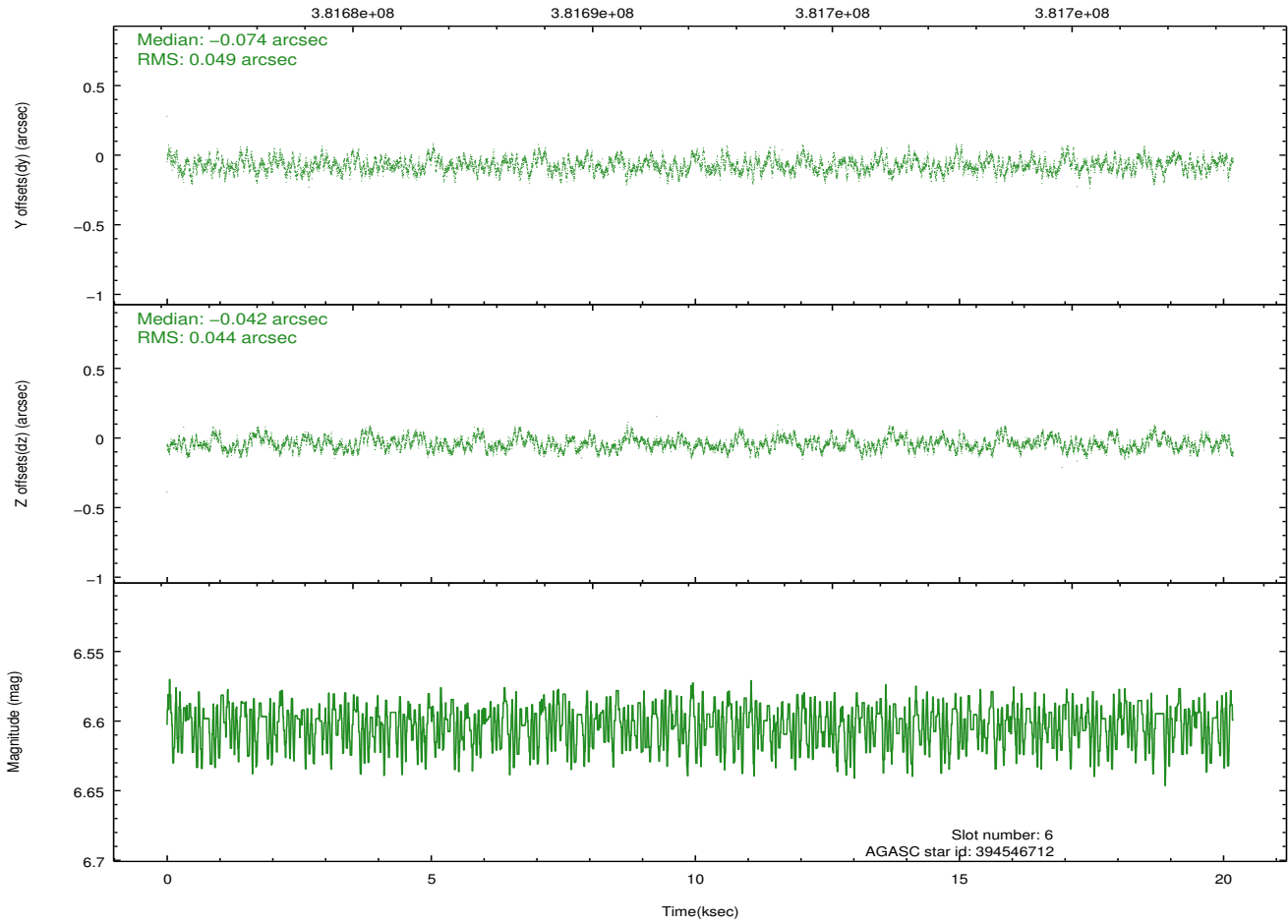
Time (s)



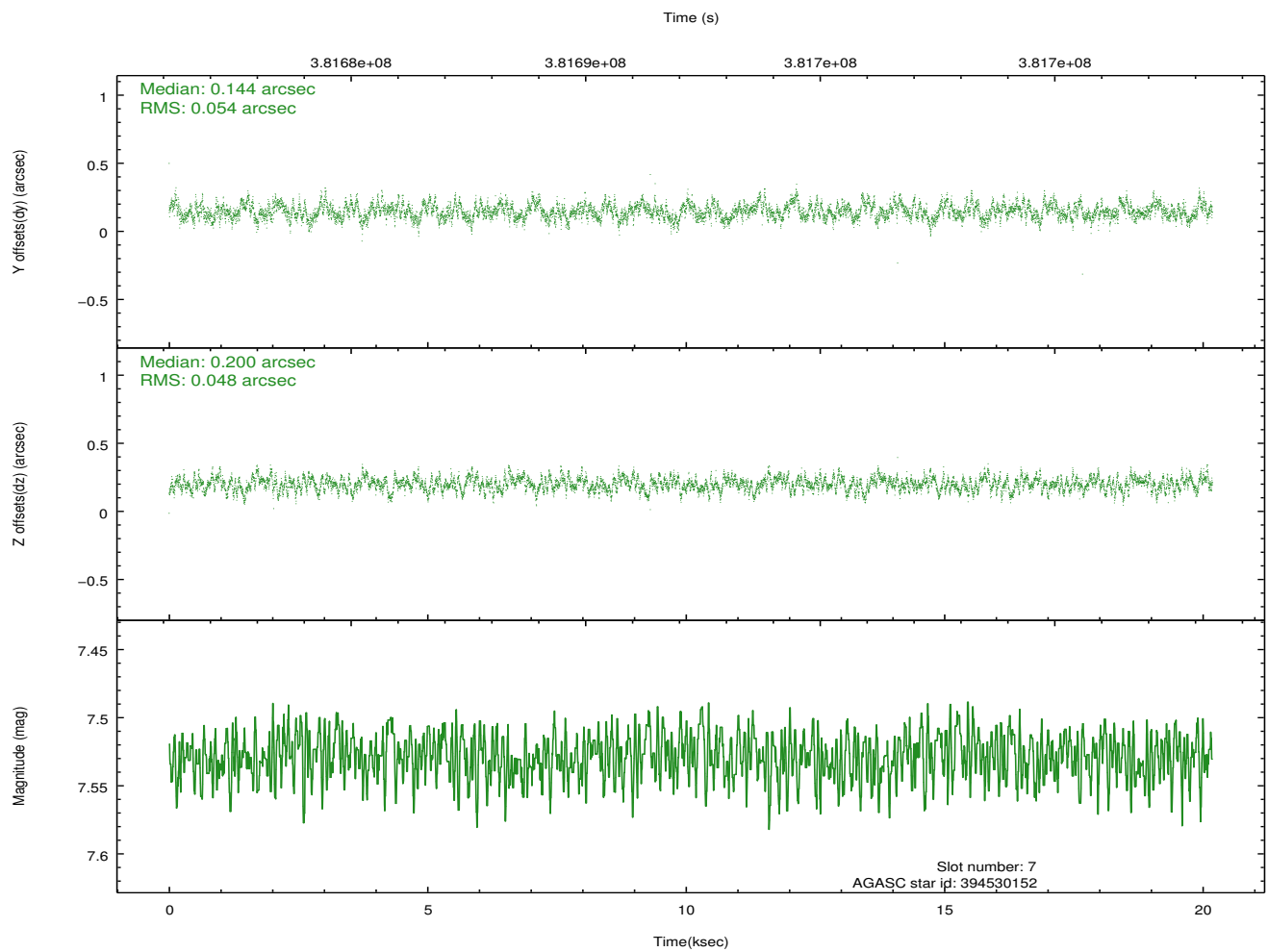
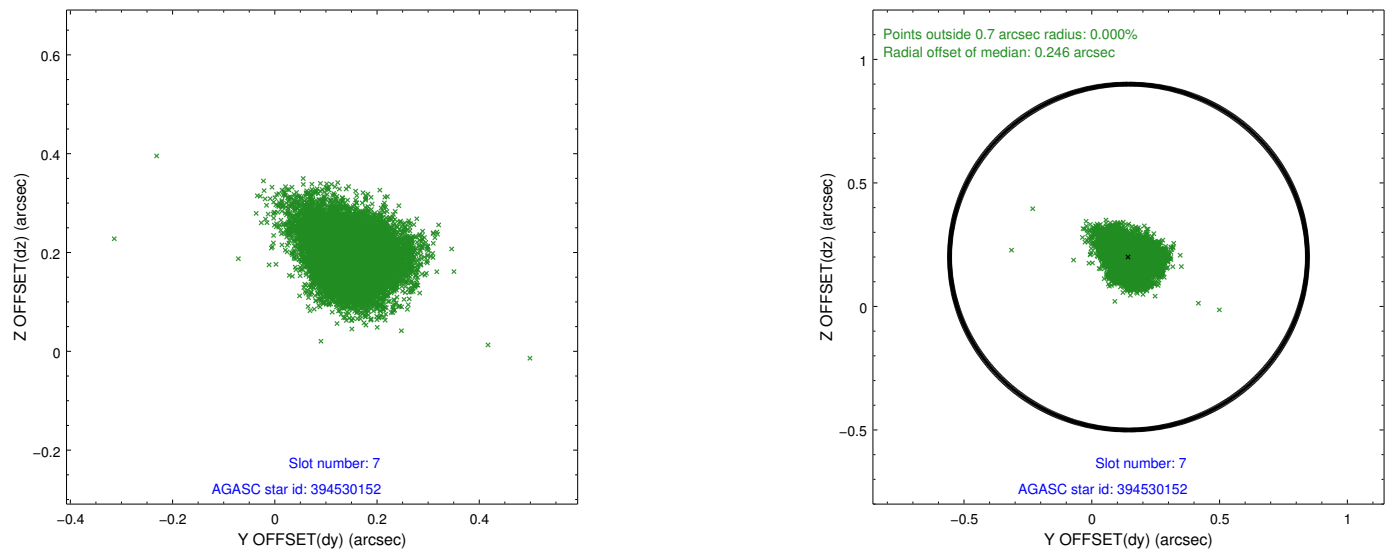
2.4.4 Slot 6



Time (s)

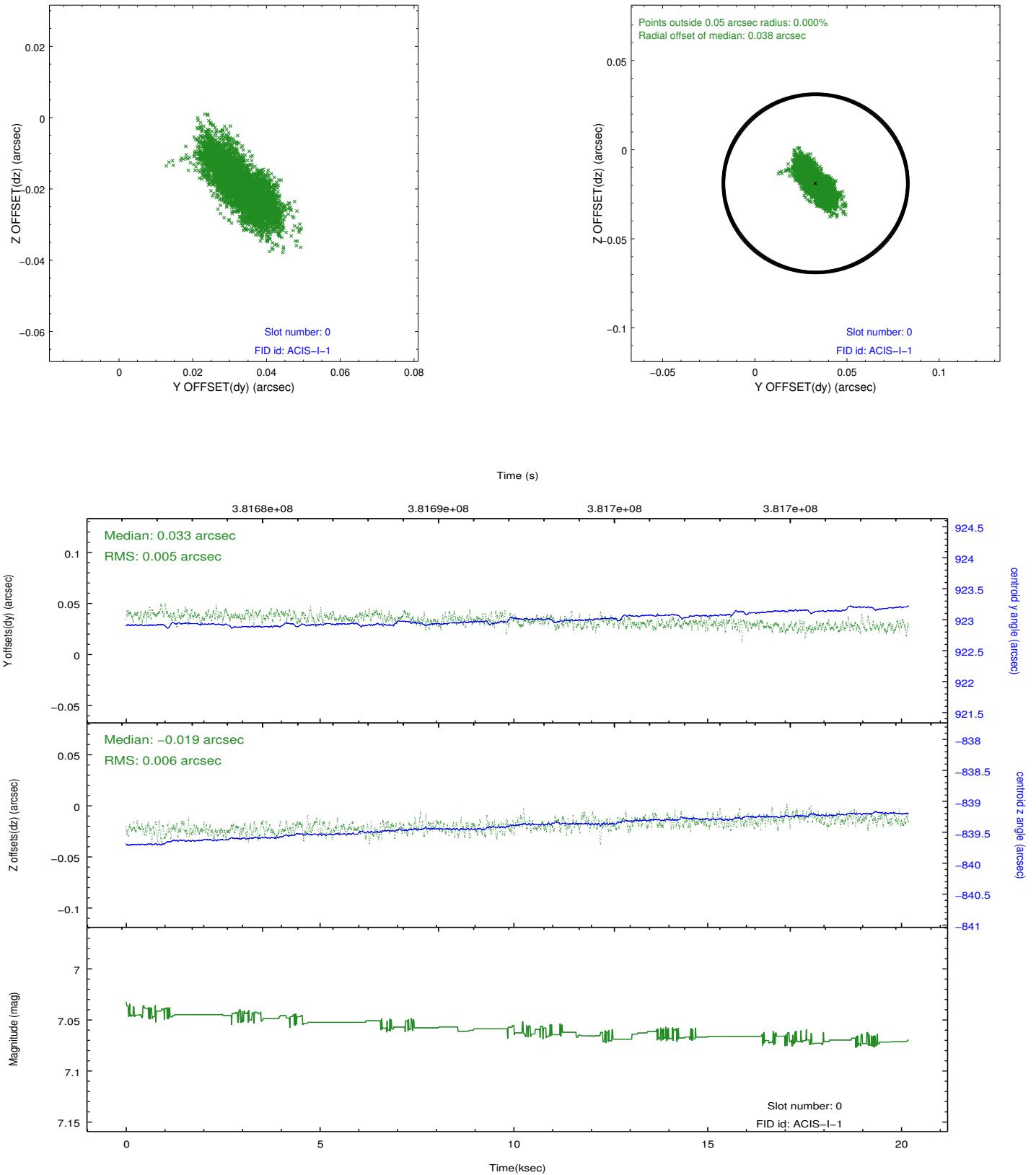


2.4.5 Slot 7

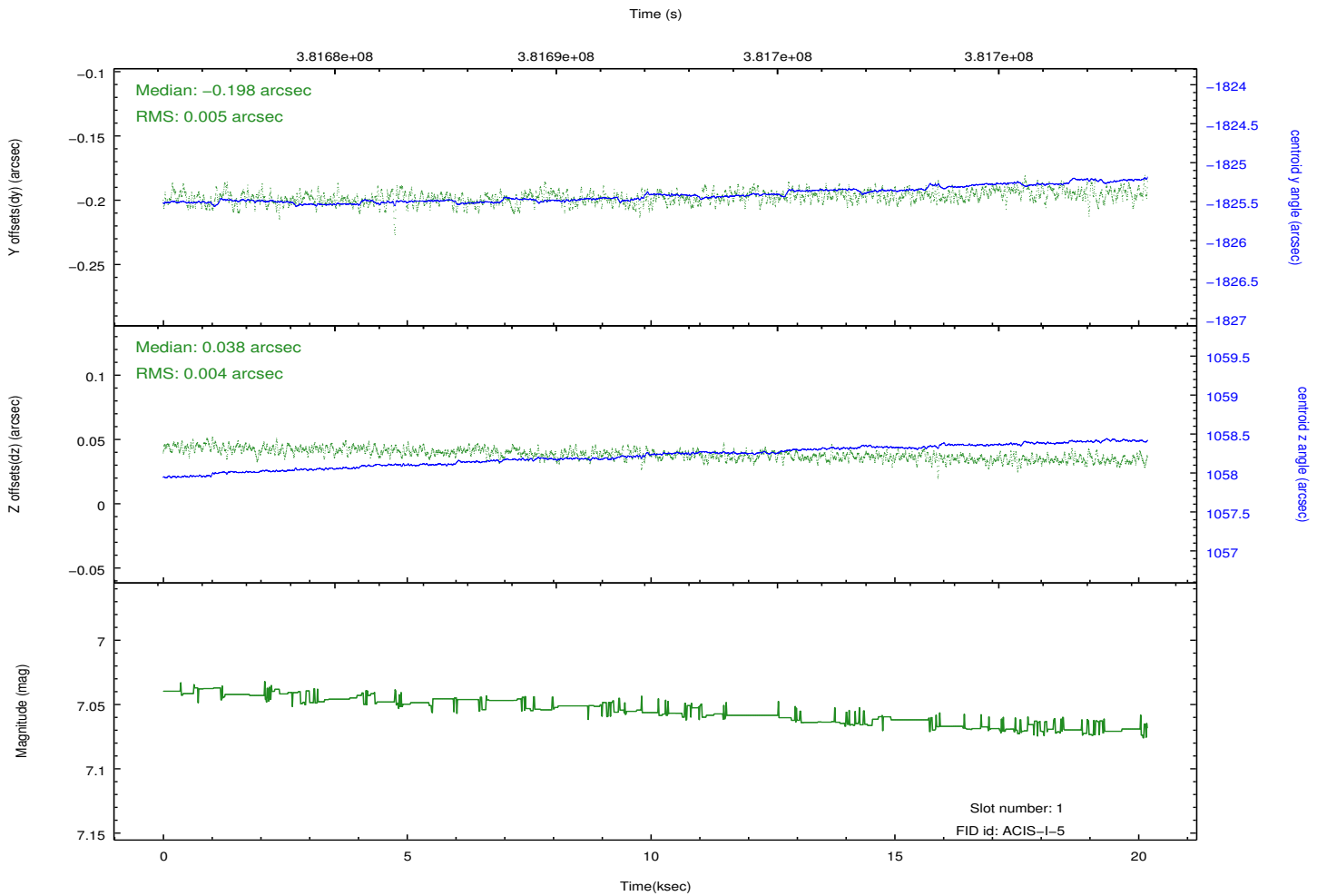
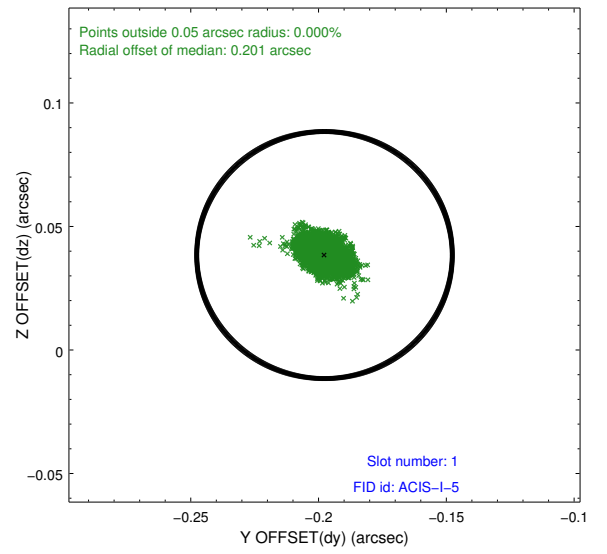
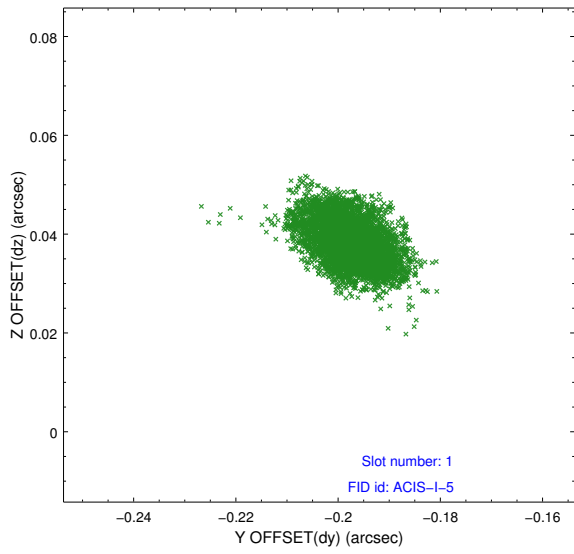


2.5 FID Slots

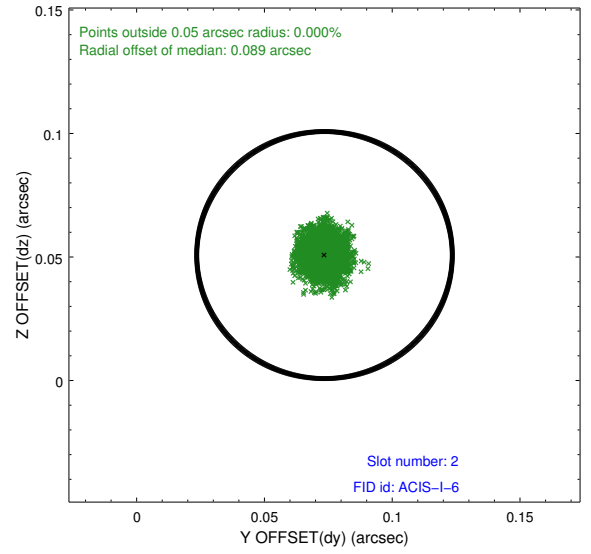
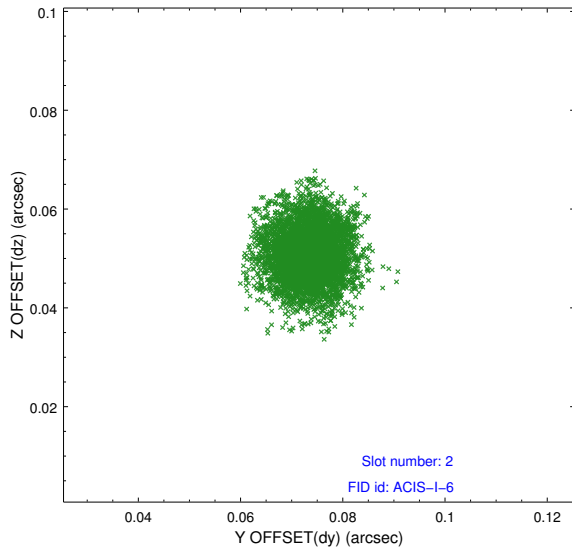
2.5.1 Slot 0



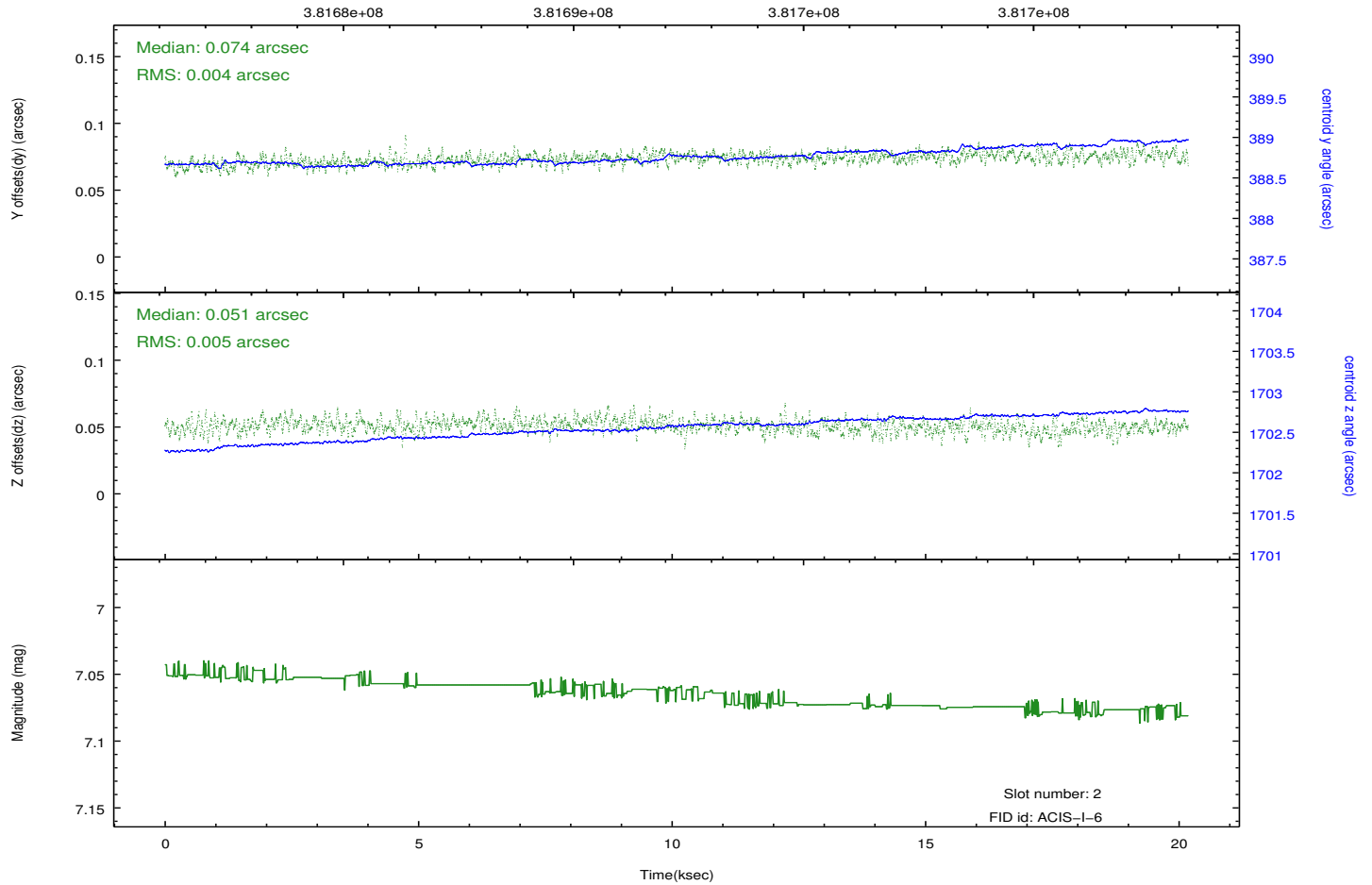
2.5.2 Slot 1



2.5.3 Slot 2

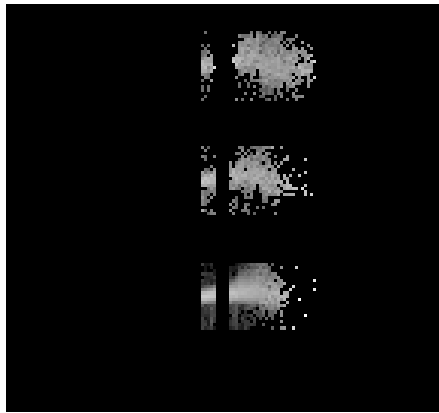


Time (s)

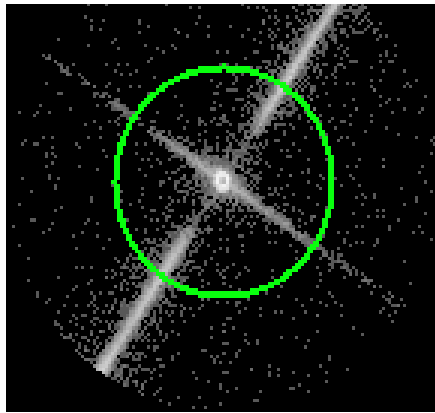


3 Gratings

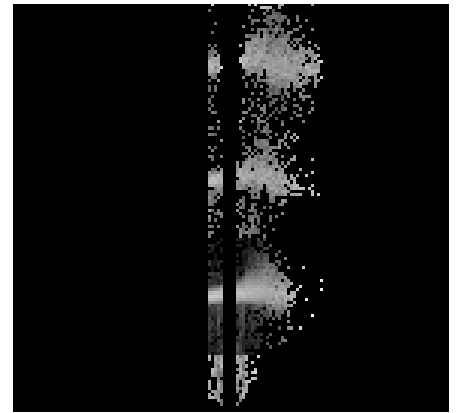
3.1 LETG Arm



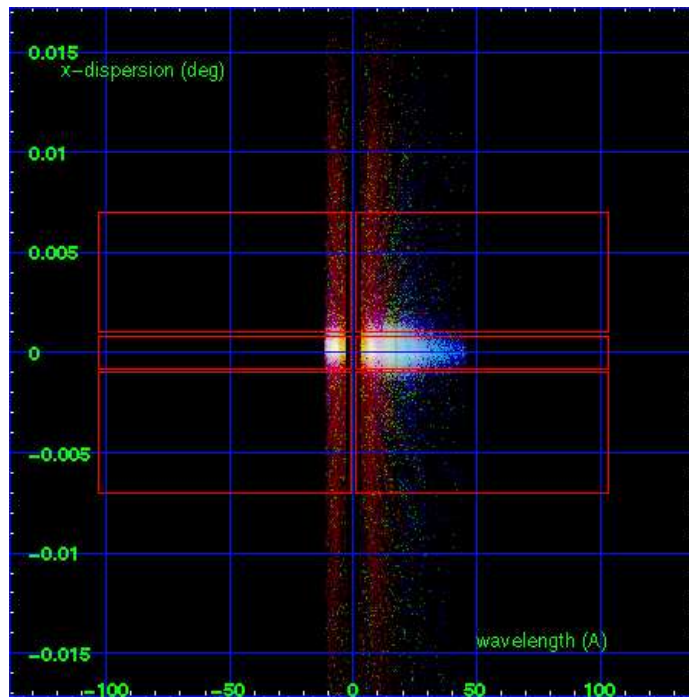
LETG Order Sort 123



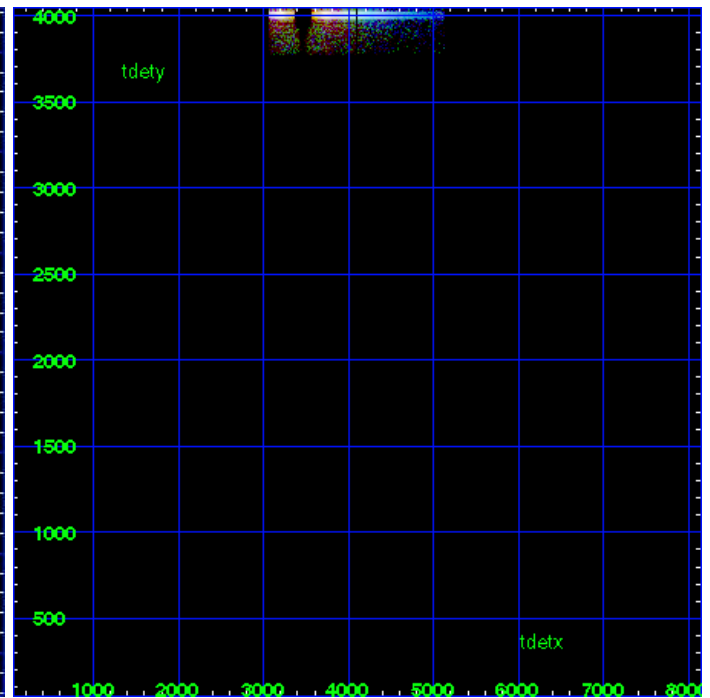
LETG Zero Order



LETG Order Sort ALL

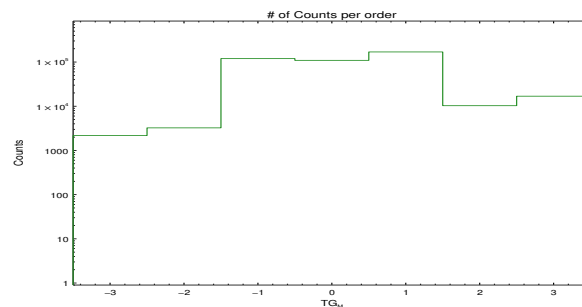


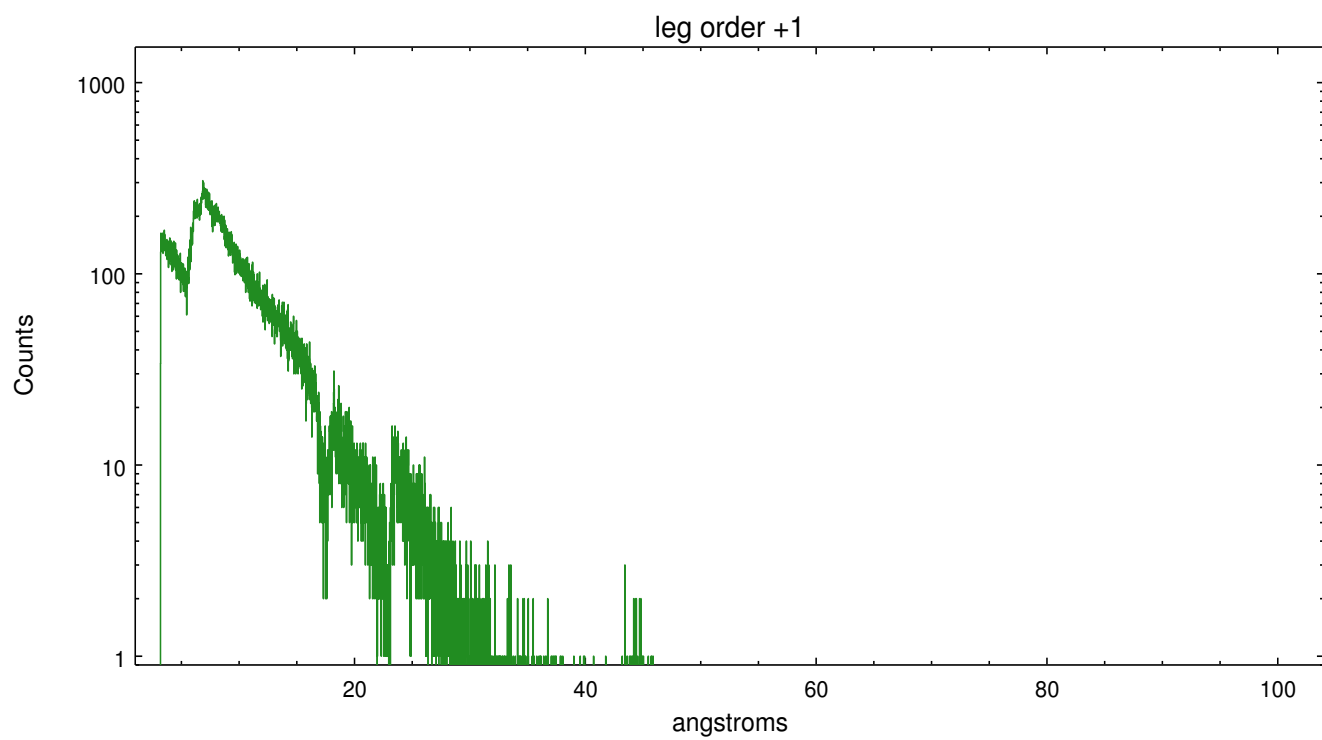
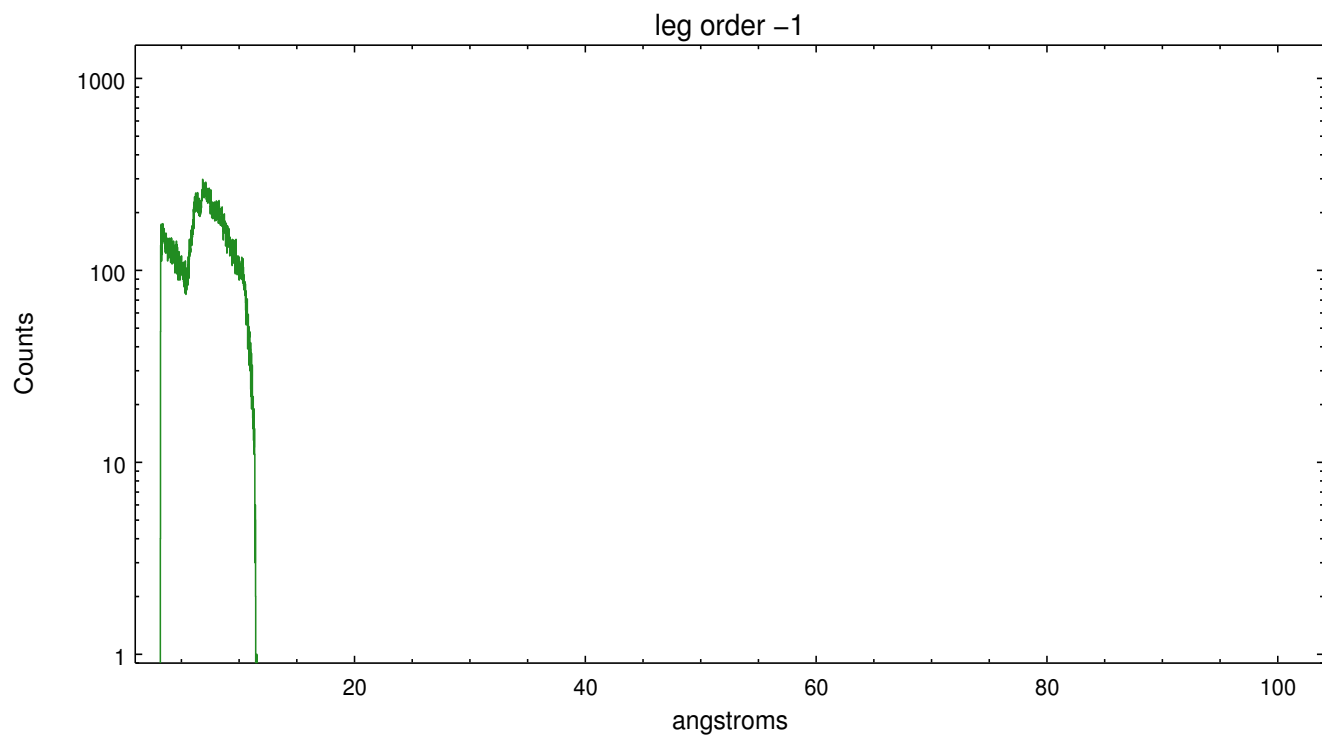
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2172	3242	119609	109209	169312	10292	16873





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.07.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	19.76870015204

A.2 Comments

Used flat order-sorting in `tg_resolve_events`, since there is no 'osip' table for ACIS-I.

===

```
pset grt_lev15 osipfile=none===
```

```
pset grt_lev15 osort_lo=0.3===
```

```
pset grt_lev15 osort_hi=0.3===
```

===

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates ($x=4459.76$, $y=4619.28$) into the `*src1a.fits` file table. These corrected coordinates were determined using a software tool developed by CXC called `findzero`, which is expected to be released in CIAO (currently in ISIS). The tool calculates the point of intersection of the readout streak and the leg arm. The zeroth order source position determined by the standard pipeline processing using the tool `tgdetect` was not used in this processing. The newly determined zeroth order coordinates have been placed in the `*src1a.fits` file, replacing the coordinates determined by `tgdetect`. Note that these corrected coordinates of the zeroth order cannot be reproduced by running `tgdetect` on the data.

===

Placement of the target on the CCD chip is such that the negative order dispersed spectrum is truncated at about 10-12 Å.