

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 11961 - L2 Version 3
Chandra X-Ray Center

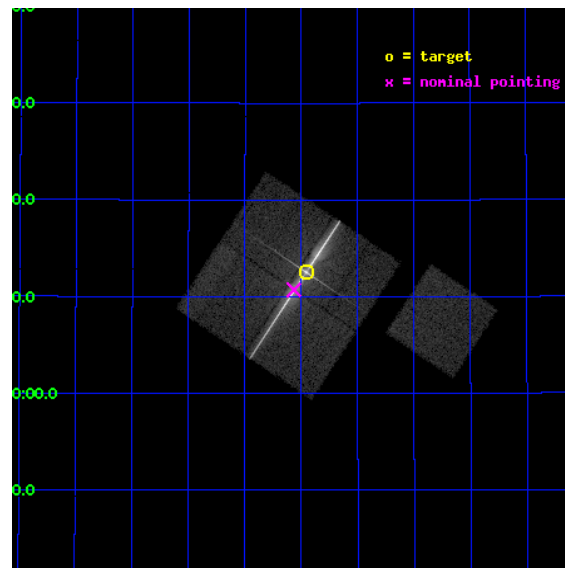
L2 Processing Date : Jul 20 2012

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1 Front

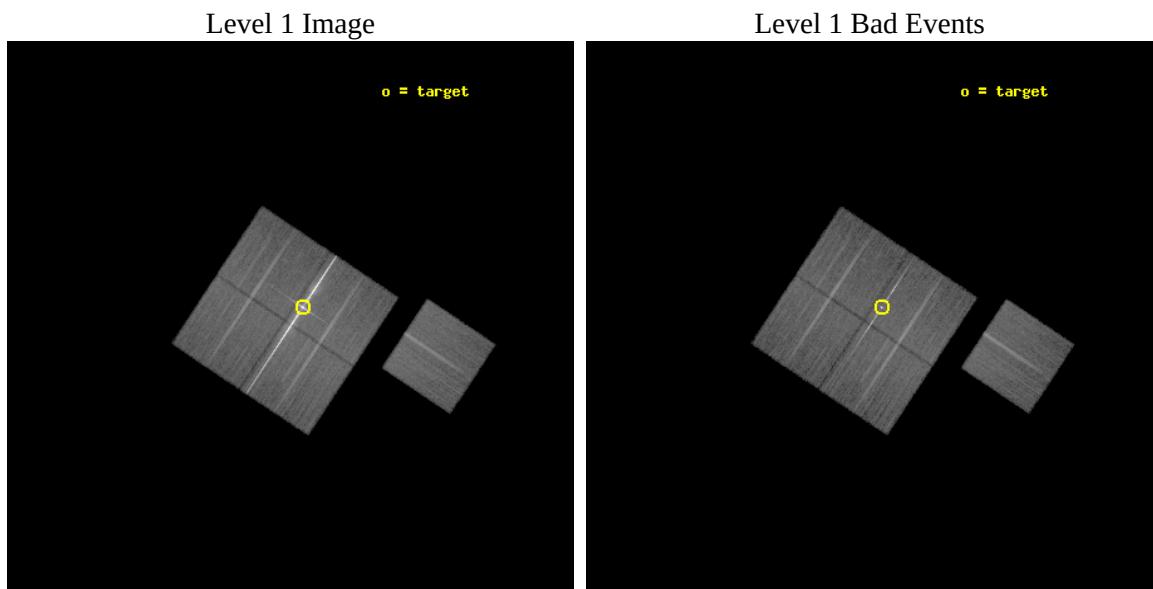
seq_num	790210	Sequence number
obs_id	11961	Observation id
title	AO-11 Calibration Observations of MKN 421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.14128201857	Nominal RA [deg]
dec_nom	38.178626269366	Nominal Dec [deg]
roll_nom	123.59506387079	Nominal Roll [deg]
revision	3	Processing version of data
ontime	20174.800155163	Sum of GTIs [s]
livetime	19911.201538664	Livetime [s]
ontime0	20171.659144878	Sum of GTIs [s]
ontime1	20174.800155163	Sum of GTIs [s]
ontime2	20174.800155163	Sum of GTIs [s]
ontime3	20171.659134924	Sum of GTIs [s]
ontime6	20174.800155163	Sum of GTIs [s]
l2events	471794	Number of level 2 events



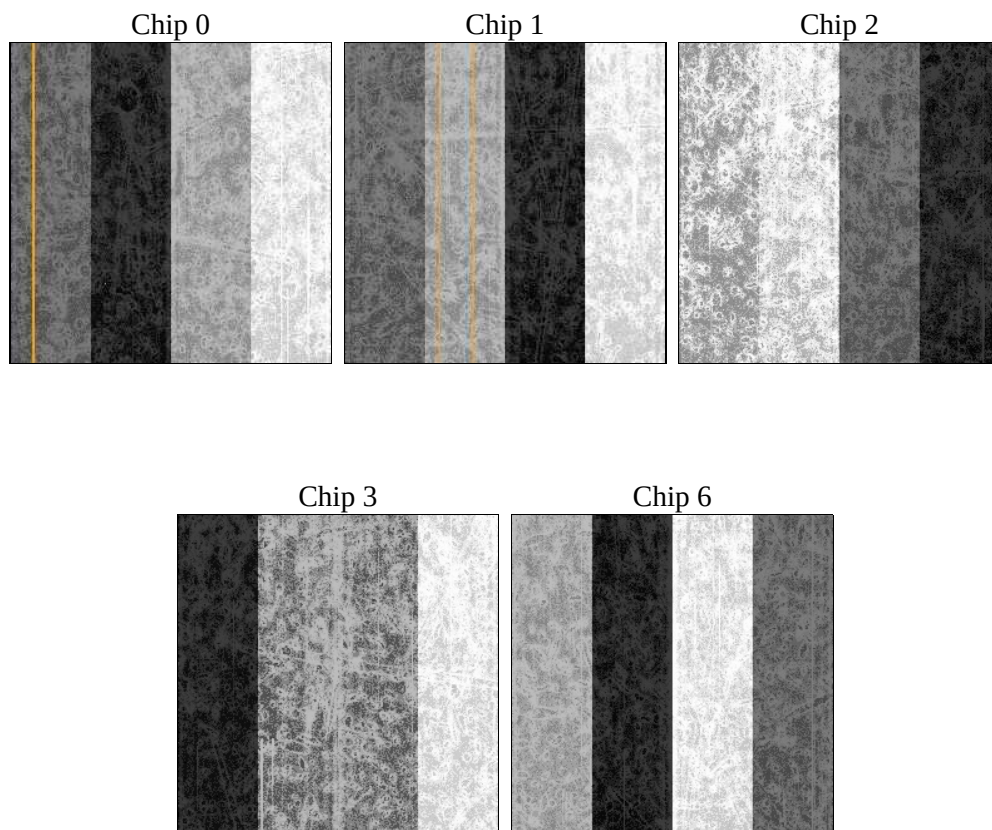
2 OBI

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	20174.800155163	Sum of GTIs [s]
caldsver	4.4.10	 	ontime0	20171.659144878	Sum of GTIs [s]
date	2012-06-21T00:46:51	Date and time of file creation	ontime1	20174.800155163	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	20174.800155163	Sum of GTIs [s]
			ontime3	20171.659134924	Sum of GTIs [s]
			ontime6	20174.800155163	Sum of GTIs [s]
			l1events	1280203	Number of level 1 events

2.1.4 Events

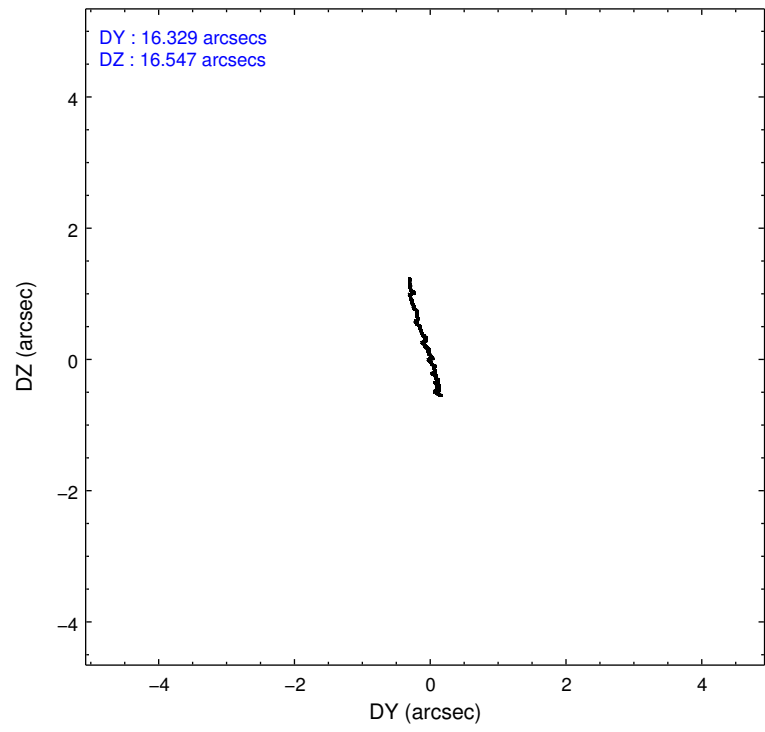
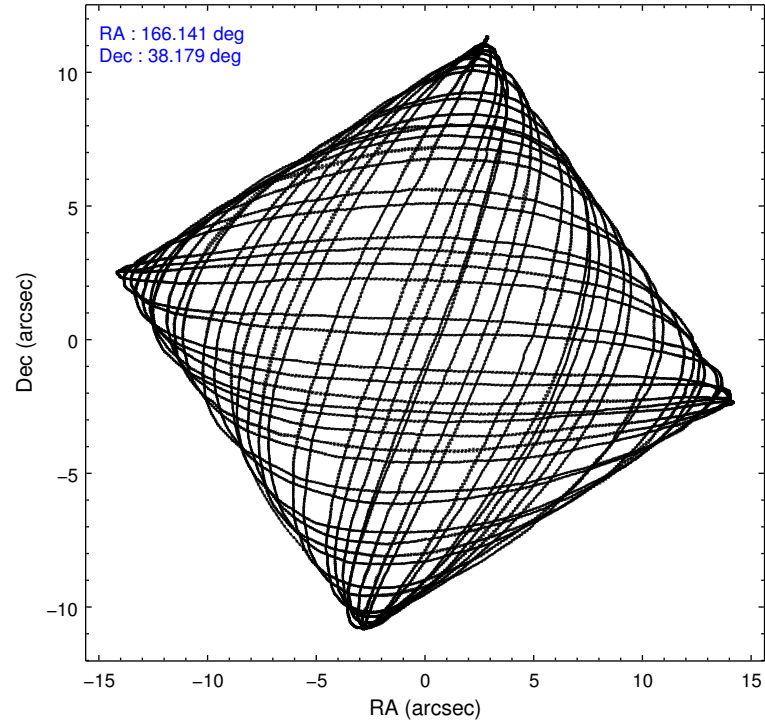
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	165957	167066	478193	296720	172267
rejected events	142189	145333	182871	164987	153949
rejected %	85%	86%	38%	55%	89%

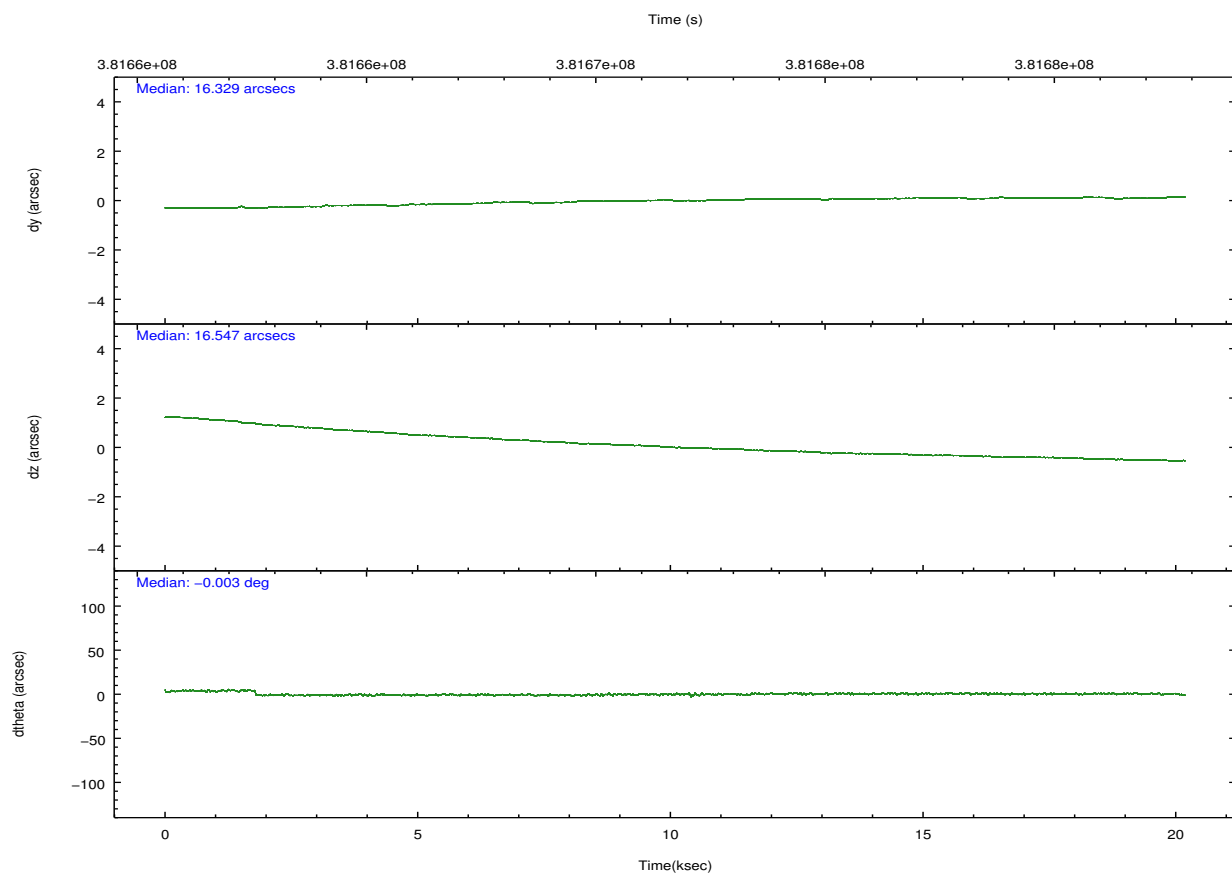
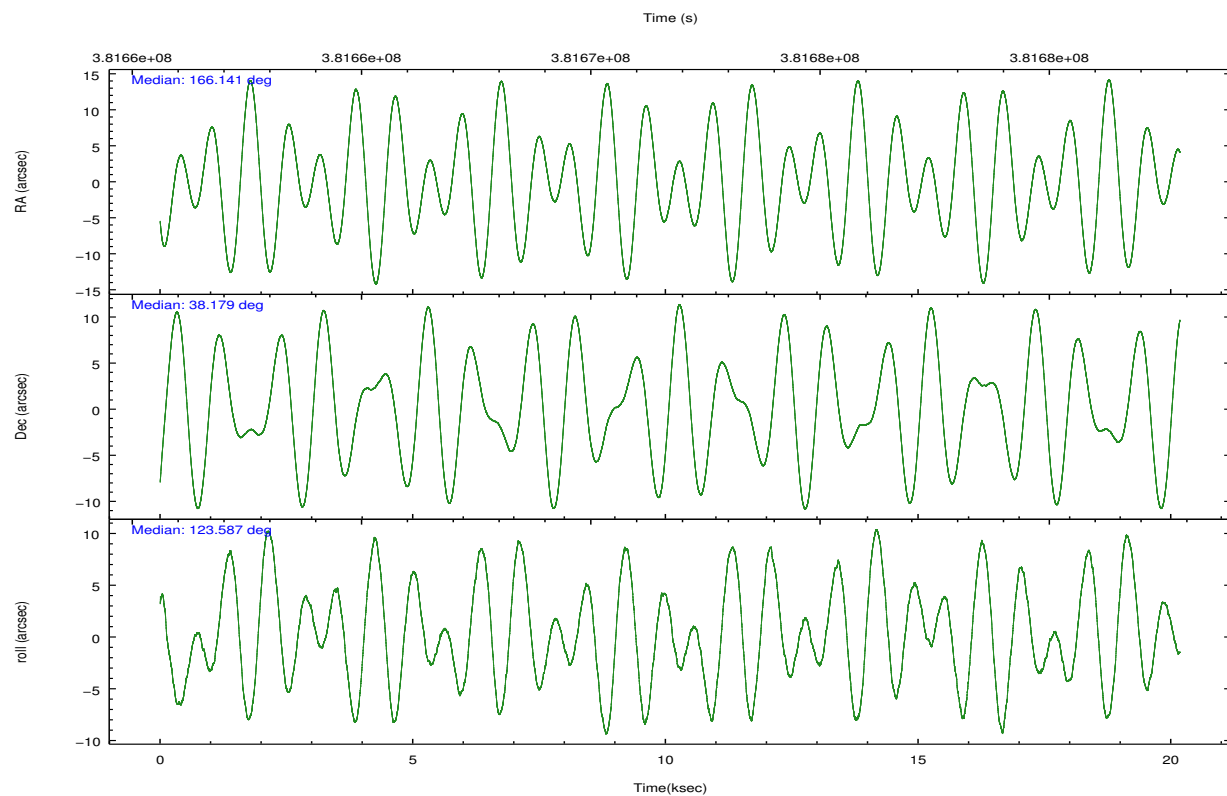
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	11044	8773	223740	103382	6416
	6%	5%	46%	34%	3%
grade 1 events	154	115	7923	2437	85
	0%	0%	1%	0%	0%
grade 2 events	4971	4869	36257	15016	4107
	2%	2%	7%	5%	2%
grade 3 events	2191	2140	12477	5077	2027
	1%	1%	2%	1%	1%
grade 4 events	1959	2072	12386	5090	1987
	1%	1%	2%	1%	1%
grade 5 events	6714	7234	11236	8577	7327
	4%	4%	2%	2%	4%
grade 6 events	3833	4117	13067	5177	3935
	2%	2%	2%	1%	2%
grade 7 events	135091	137746	161107	151964	146383
	81%	82%	33%	51%	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	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	166.172690	166.1412820185725	Subarray requested	NONE	NONE
[deg] Pointing Dec	38.166493	38.17862626936629	Alternating exposures requested	N	N
[deg] Pointing Roll	123.366961	123.5950638707893	[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)	381661815.184000	381660665.86198			
Observation start date	2010-02-04T09:09:09	2010-02-04T08:51:05			
[s] Observation end time (MET)	381681815.184000	381681948.96306			
Observation end date	2010-02-04T14:42:29	2010-02-04T14:45:48			
Read mode	TIMED	TIMED			

2.3 Aspect



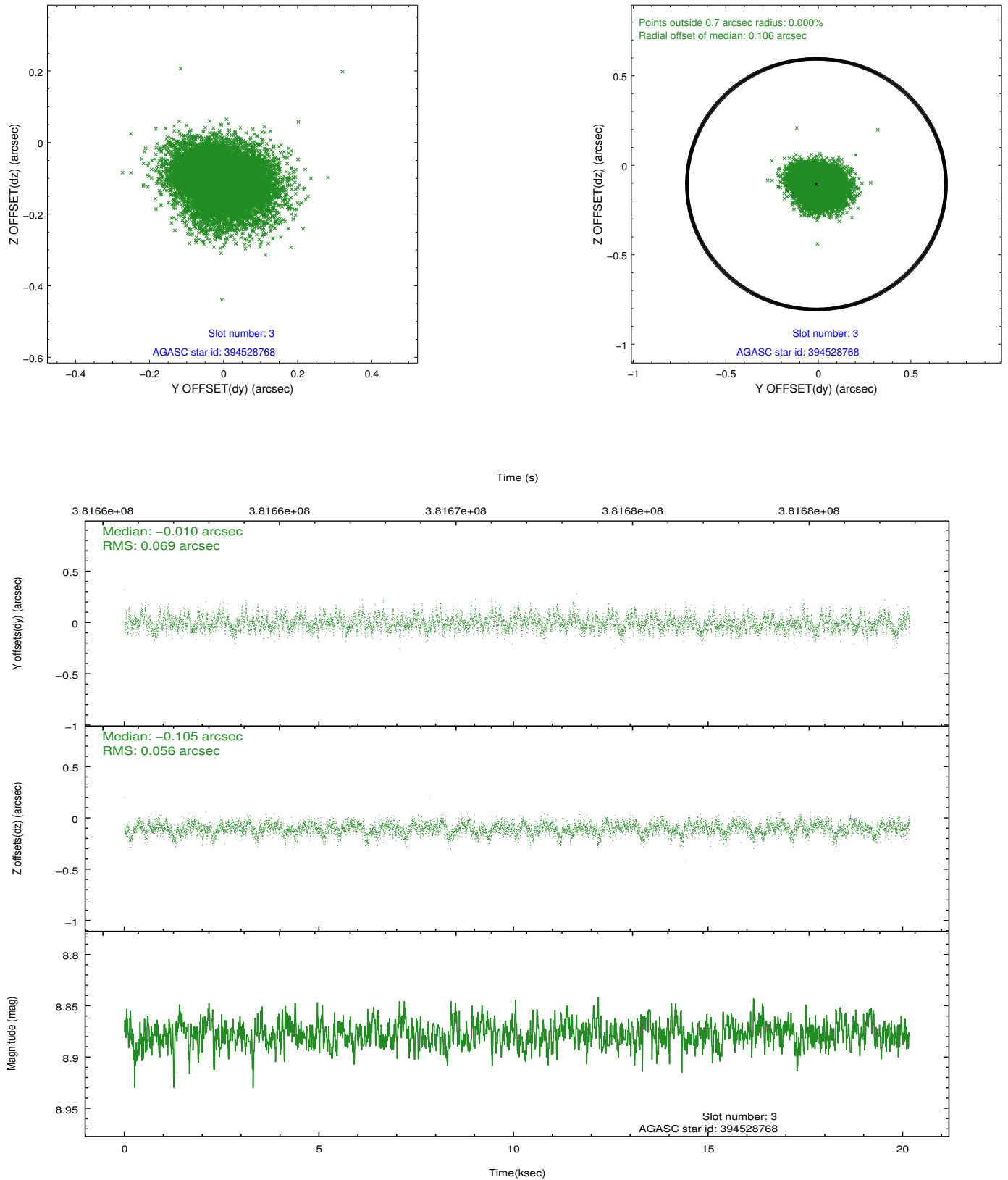


Slot Statistics

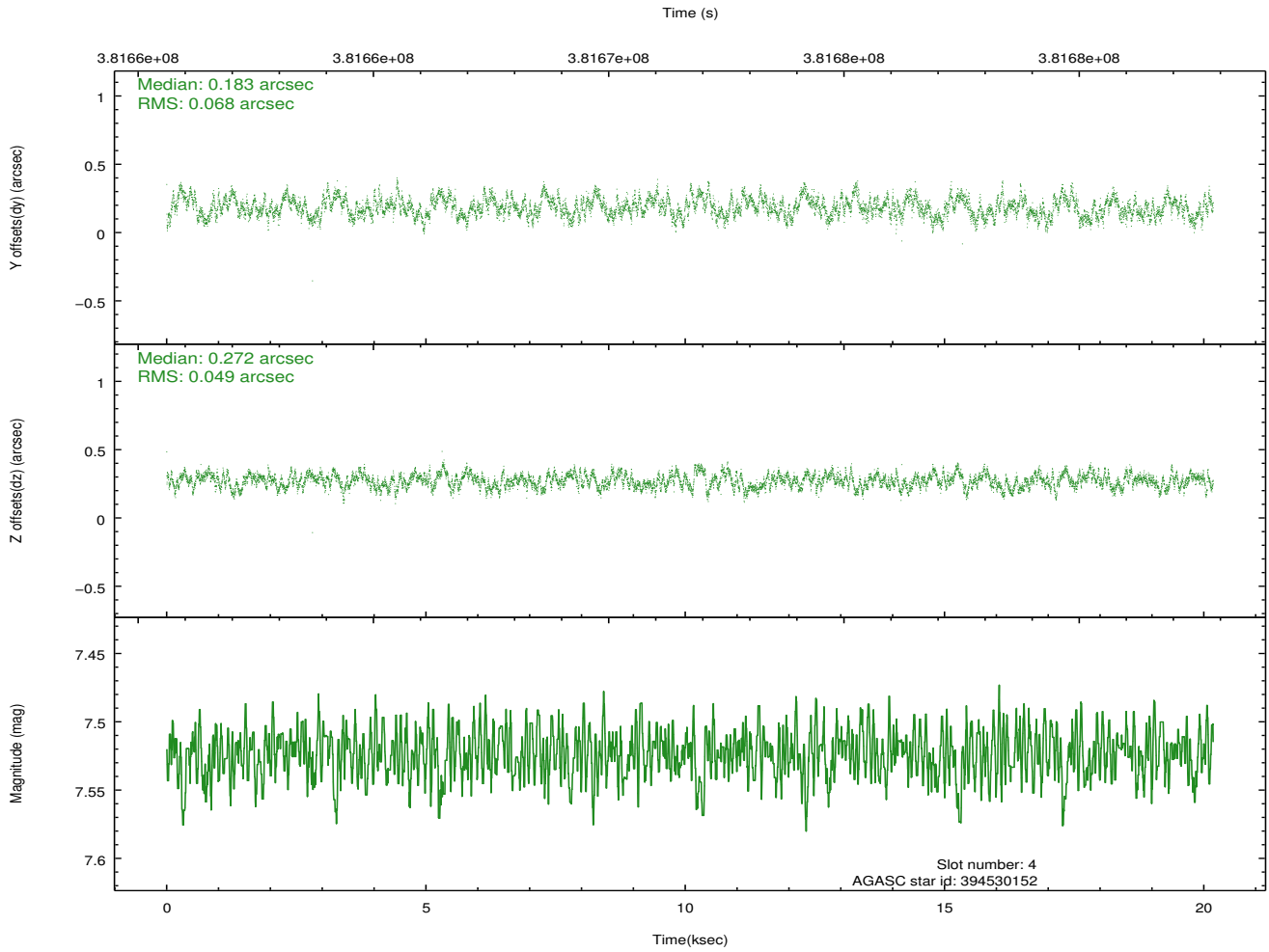
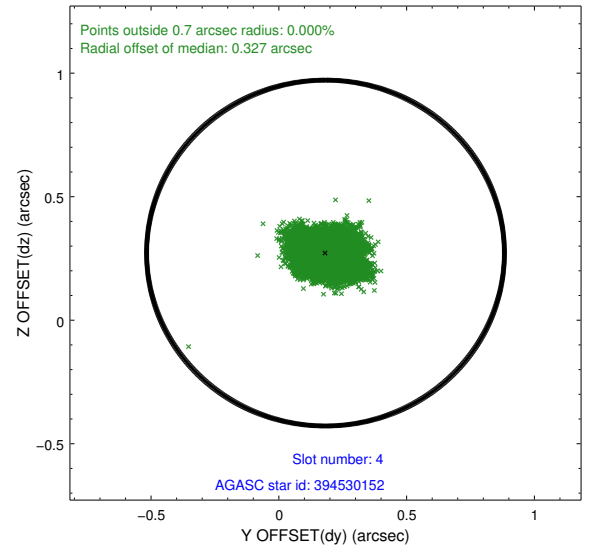
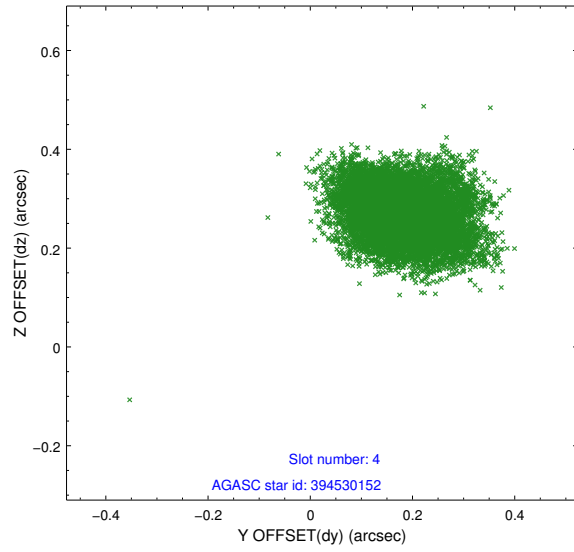
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	6.93	4922	-0.086	-0.094	0.023	0.034	0.000000	0.000000	-771.11	-846.79
1	FID	ACIS-I-4	6.95	4921	0.185	0.078	0.013	0.019	0.000000	0.000000	2143.10	1059.51
2	FID	ACIS-I-5	7.01	4920	-0.199	0.086	0.017	0.026	0.000000	0.000000	-1824.85	1057.51
3	GUIDE	394528768	8.88	9844	-0.010	-0.105	0.094	0.153	166.180365	38.952248	2351.04	-1573.33
4	GUIDE	394530152	7.52	9842	0.183	0.272	0.089	0.144	166.075805	38.868252	2260.20	-1162.29
5	GUIDE	394533744	8.89	9842	-0.268	-0.152	0.080	0.126	167.094985	37.988717	-1962.49	-1841.10
6	GUIDE	394546712	6.60	9845	-0.075	-0.031	0.067	0.107	166.451462	38.394357	253.84	-1108.09
7	GUIDE	394543960	9.79	9822	0.167	0.015	0.163	0.254	165.802757	37.787371	-559.10	1628.44

2.4 Star Slots

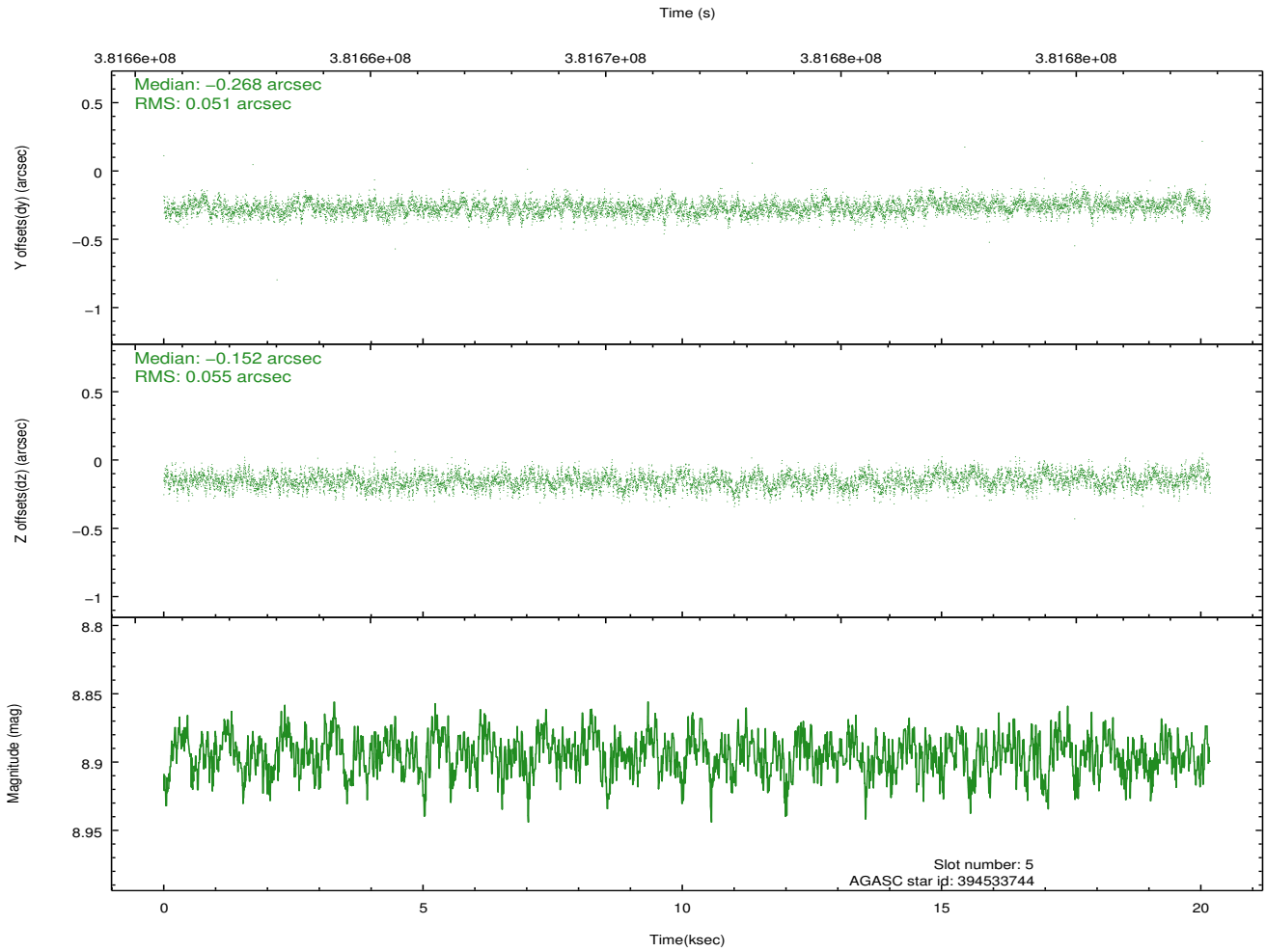
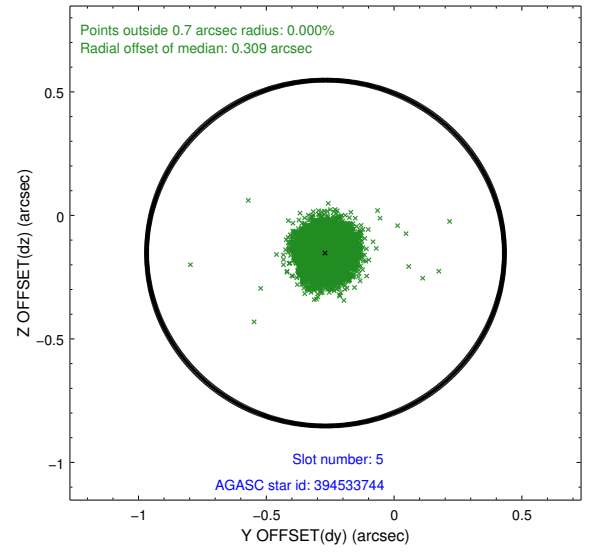
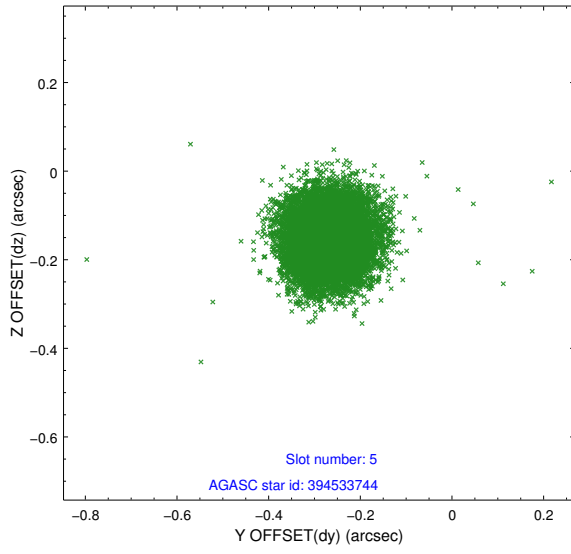
2.4.1 Slot 3



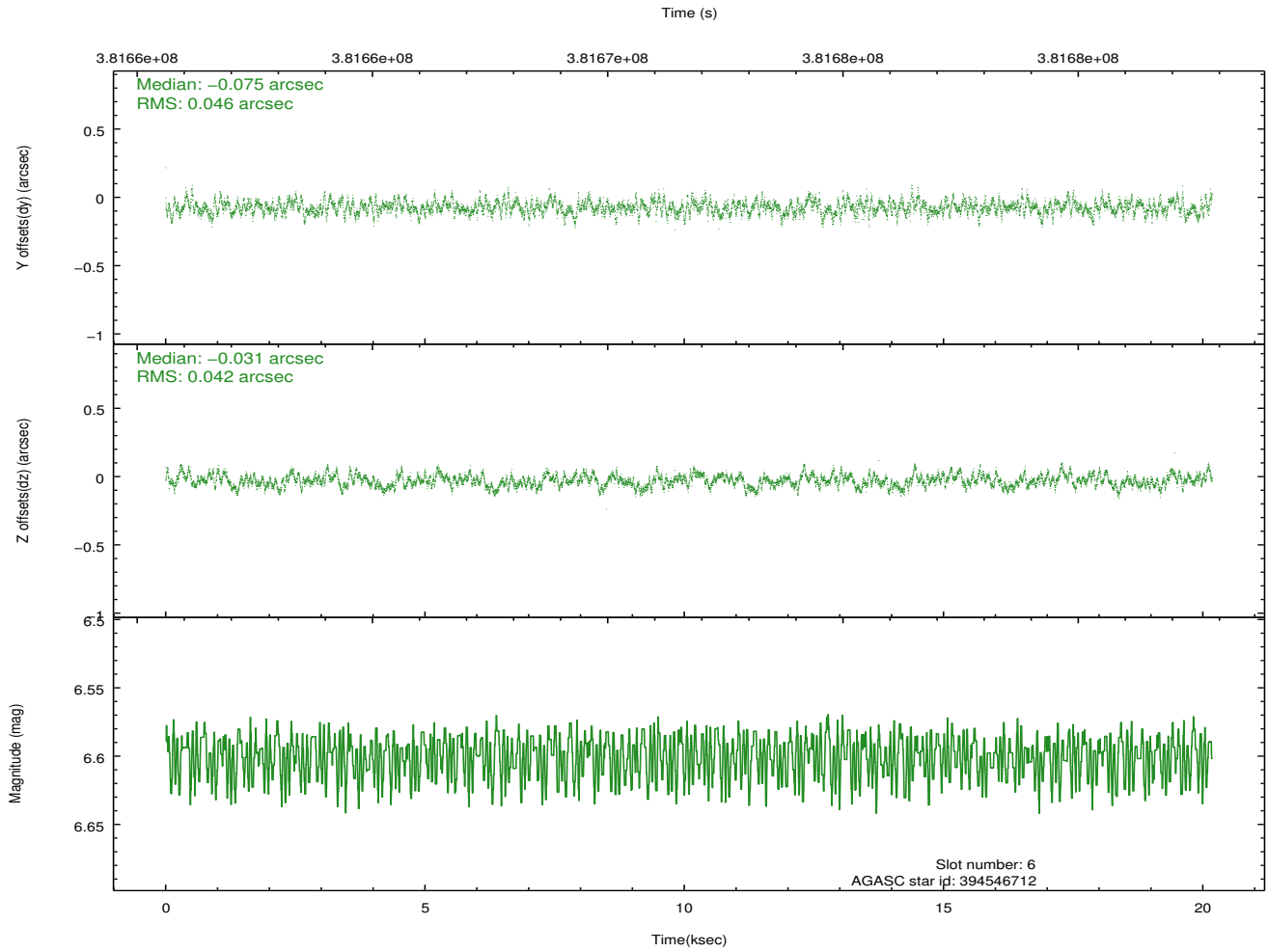
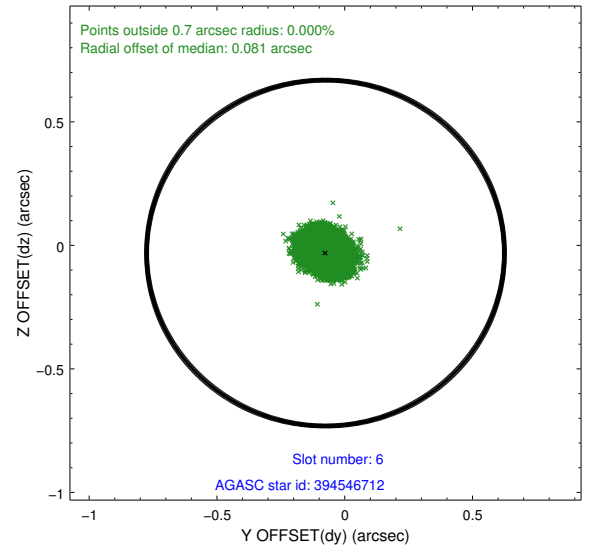
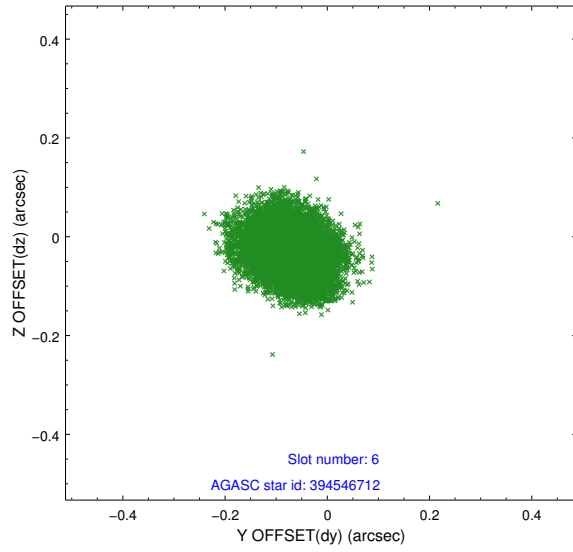
2.4.2 Slot 4



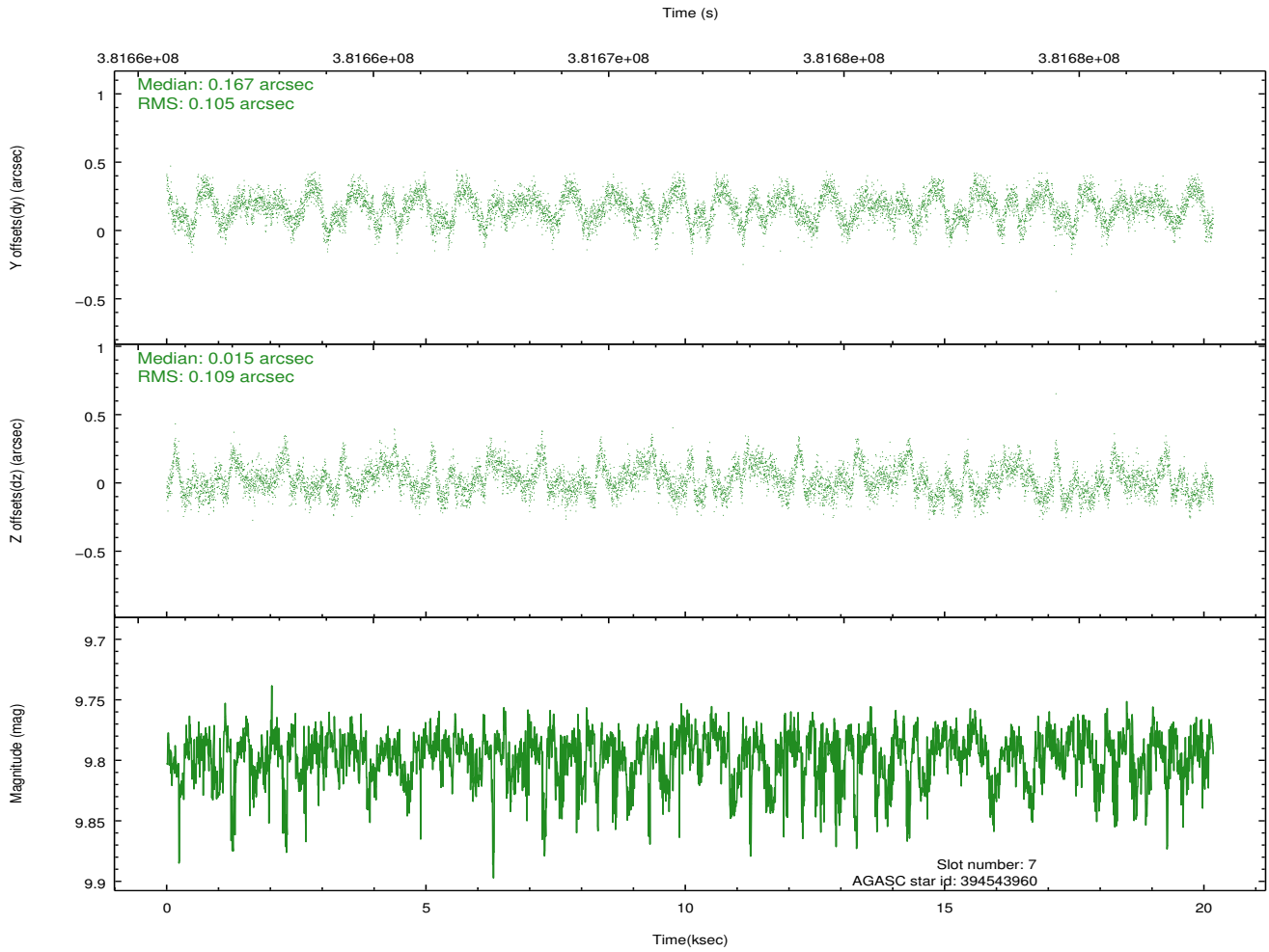
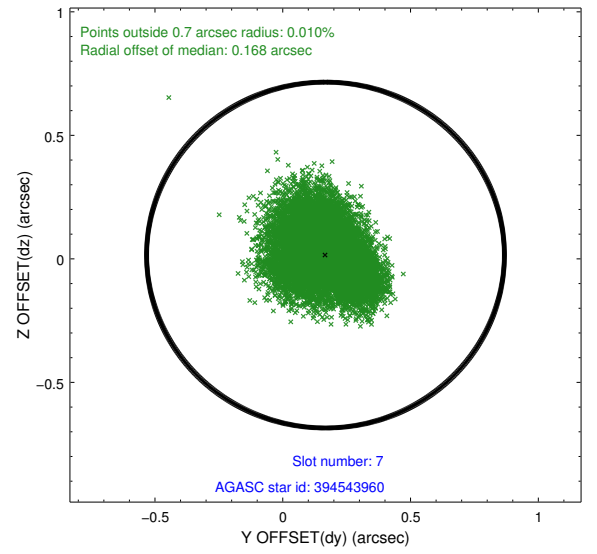
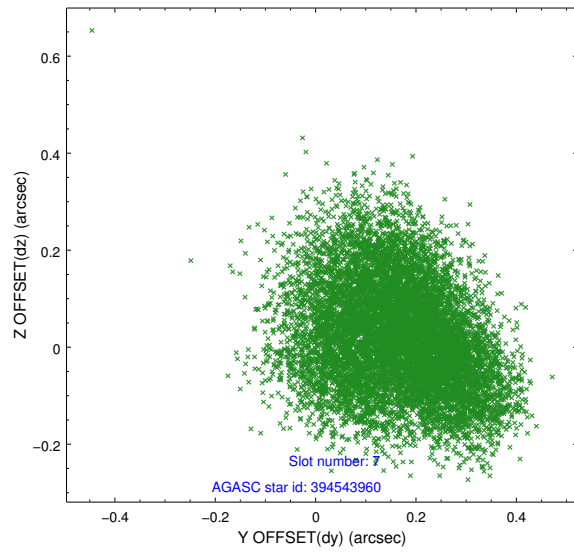
2.4.3 Slot 5



2.4.4 Slot 6

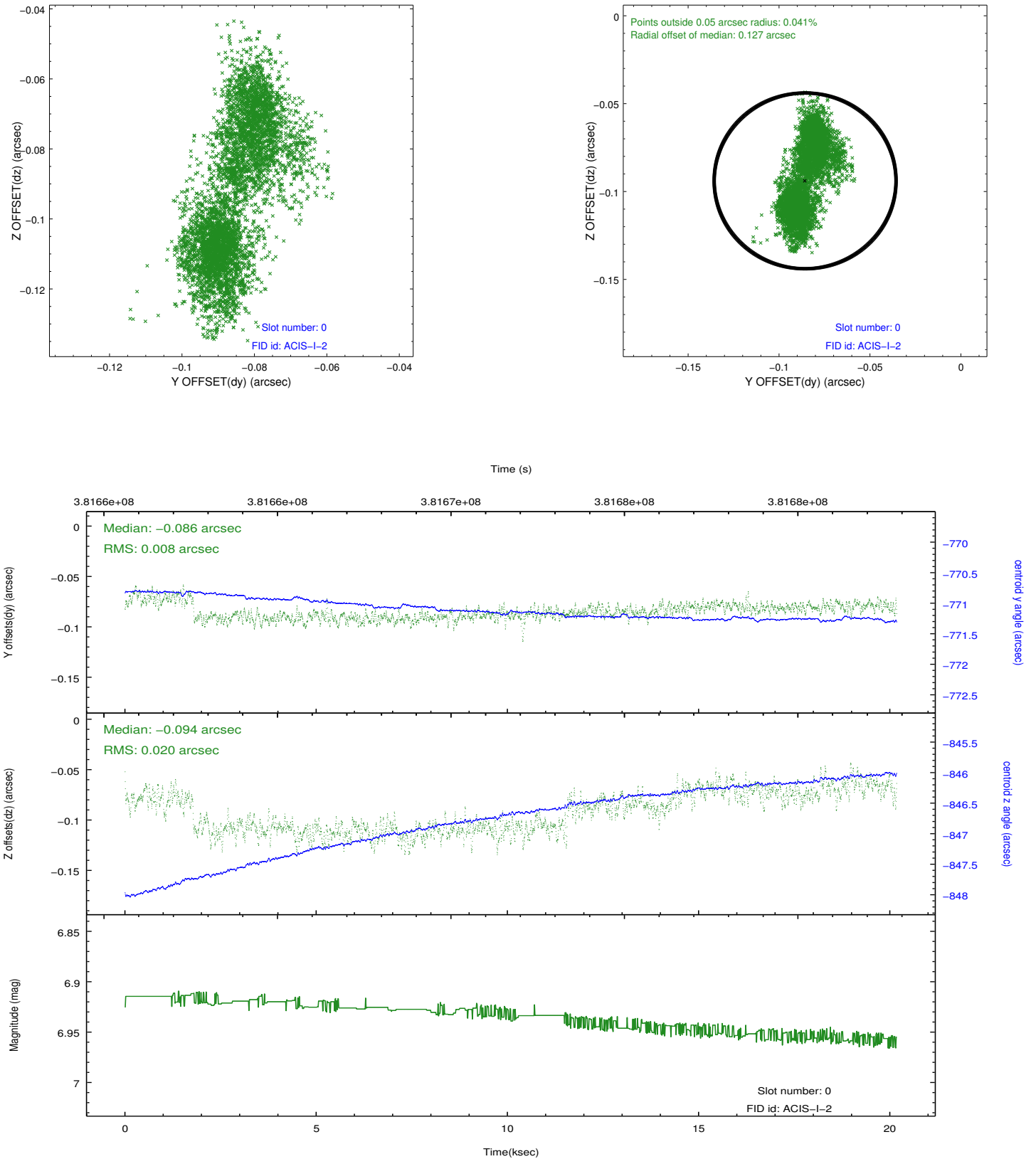


2.4.5 Slot 7

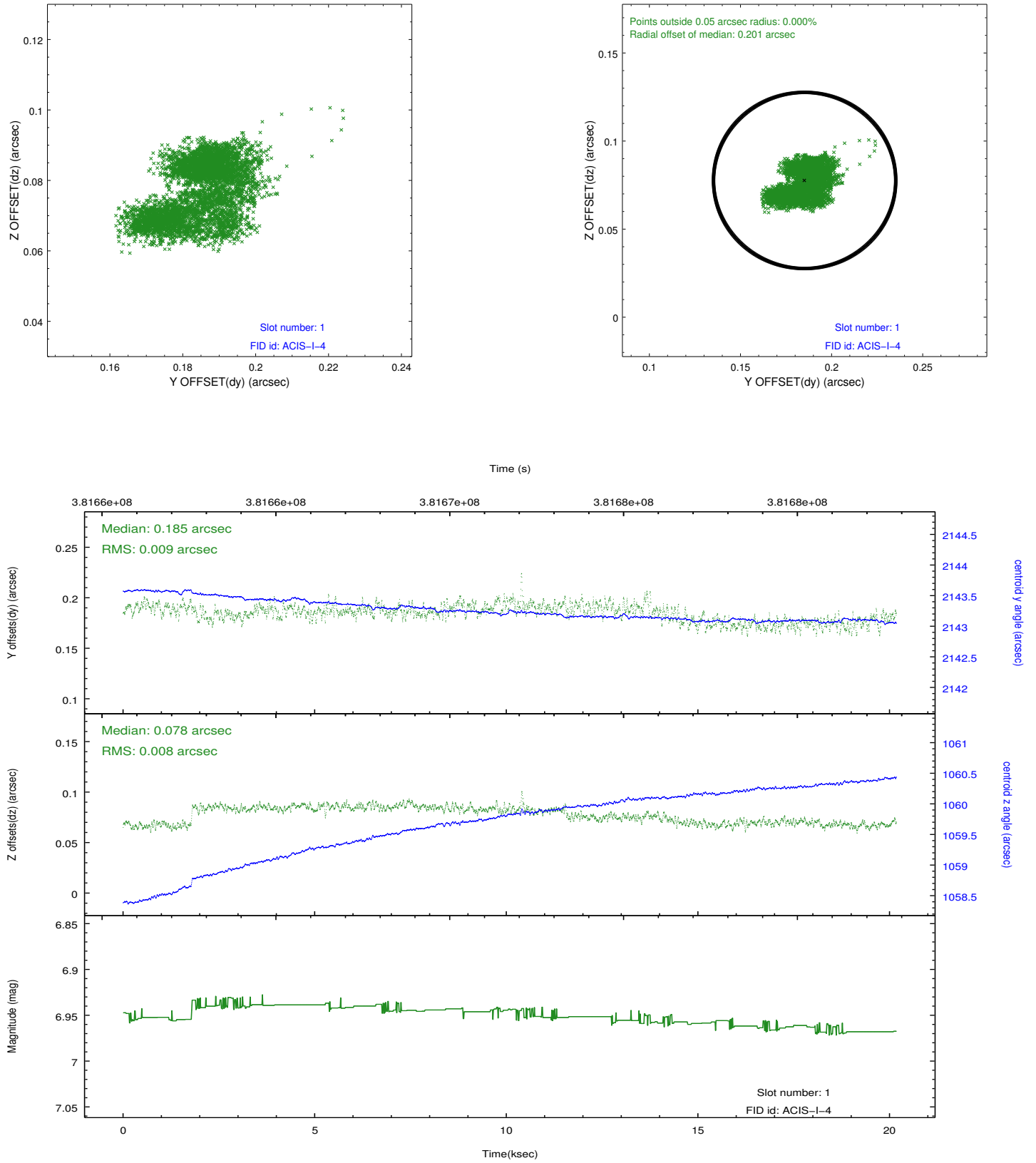


2.5 FID Slots

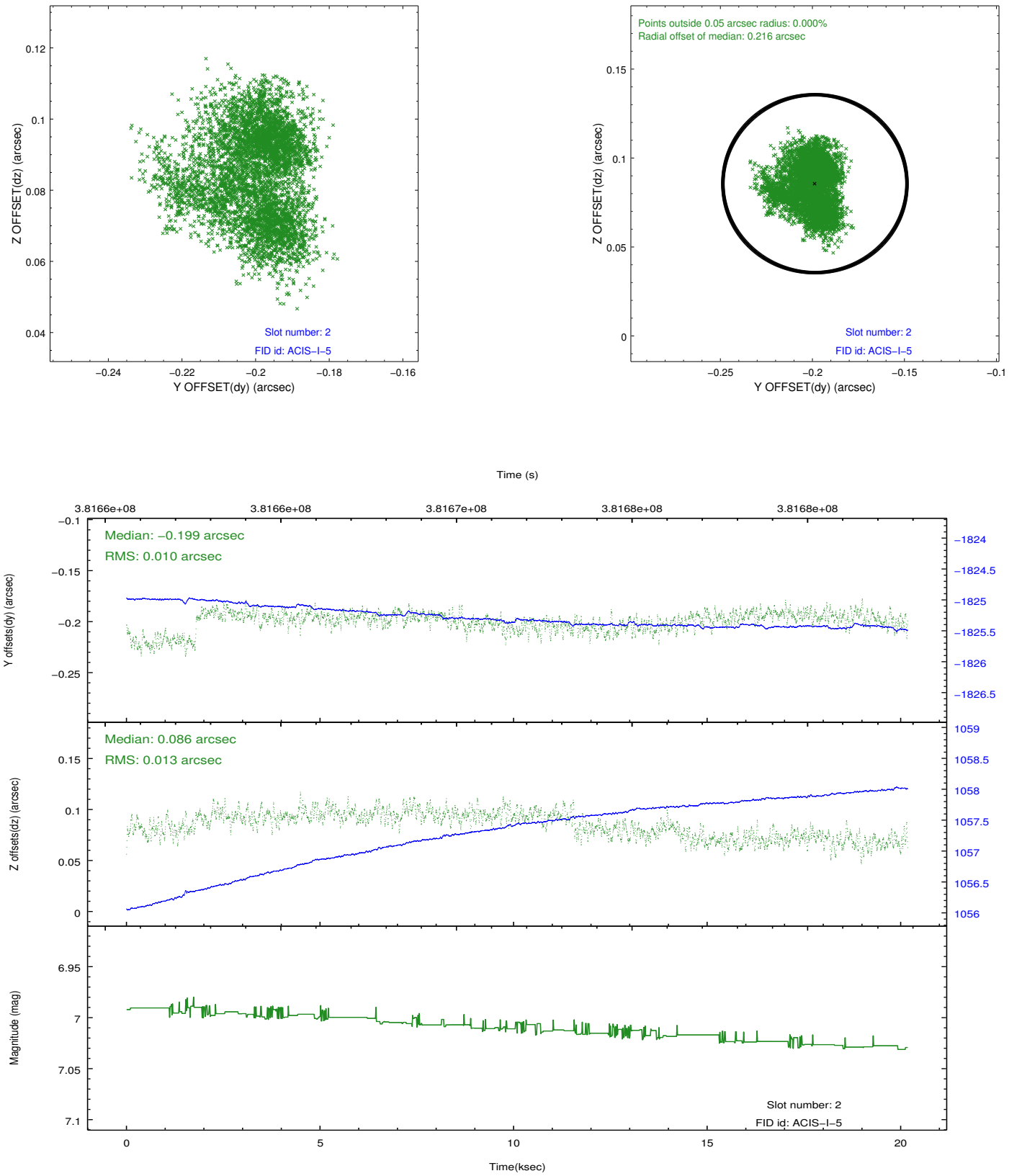
2.5.1 Slot 0



2.5.2 Slot 1

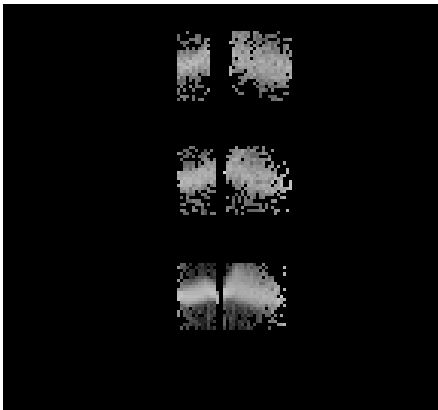


2.5.3 Slot 2

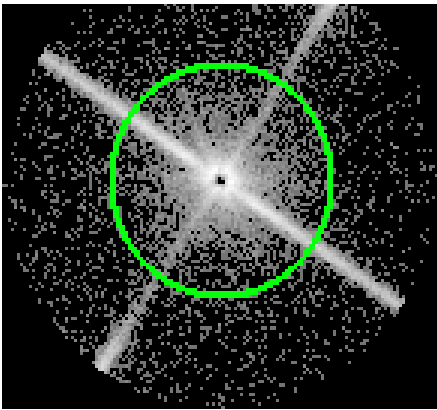


3 Gratings

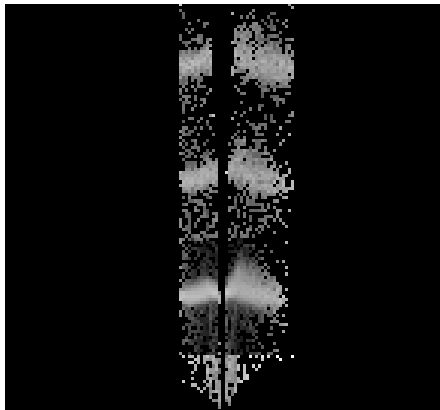
3.1 LETG Arm



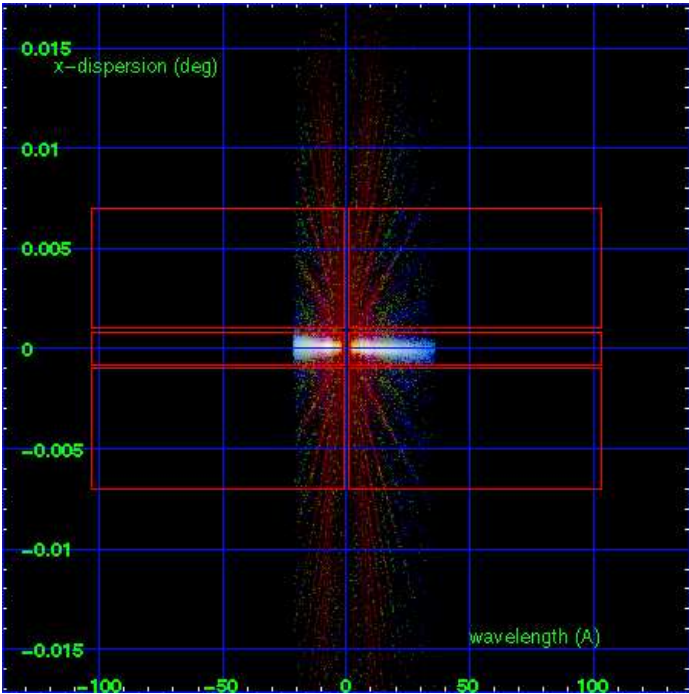
LETG Order Sort 123



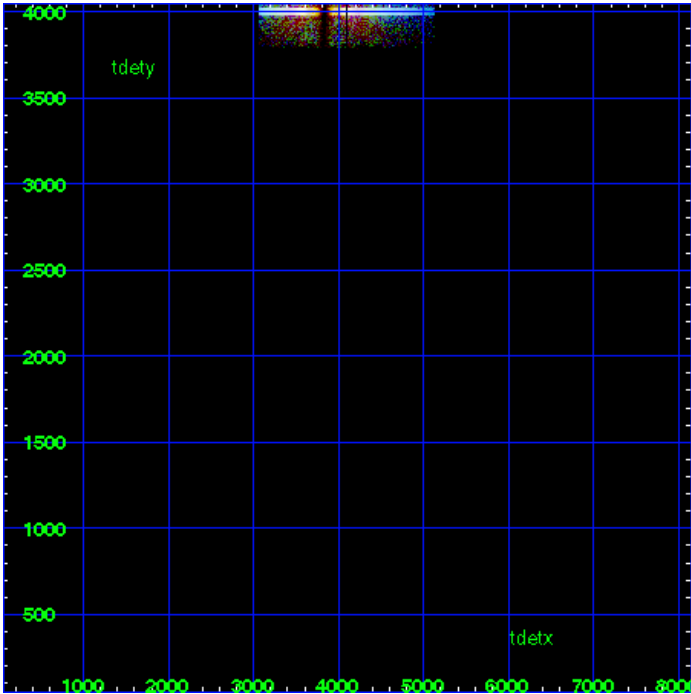
LETG Zero Order



LETG Order Sort ALL

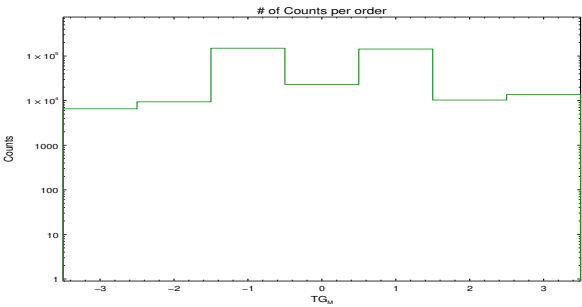


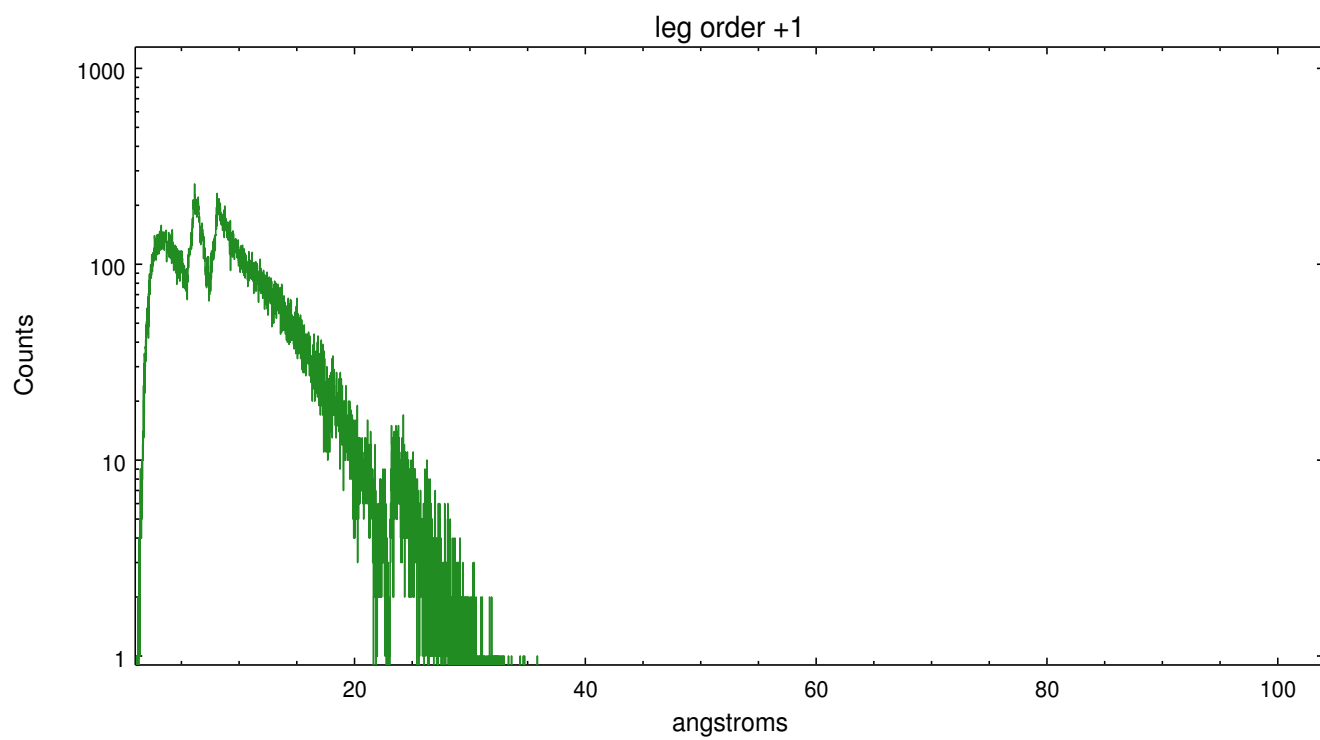
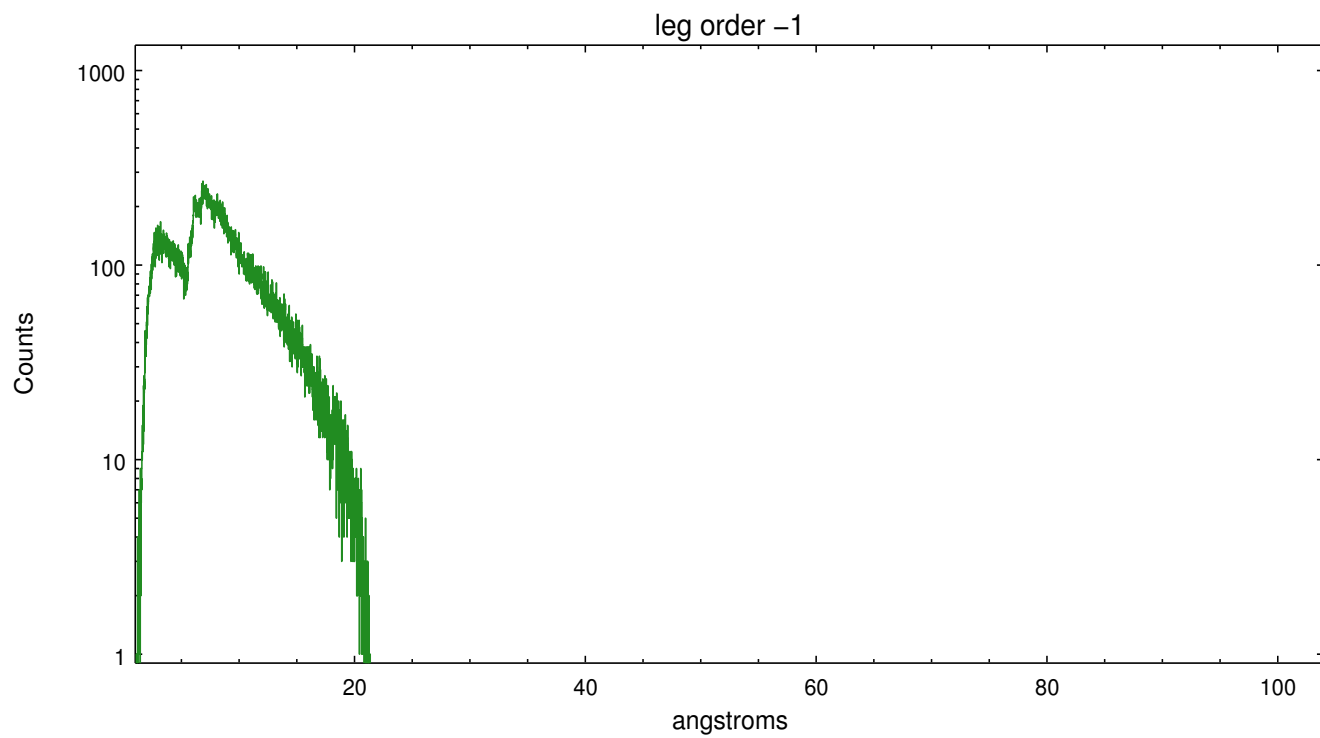
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	6558	9405	149834	23086	143569	10313	13677





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	20.174800155163

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 ($x=4254.76$, $y=4317.07$) 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.