

# V&V Reference Report

## L2 ASCDS Version : 8.4.3

Observation 14266 - L2 Version 1  
Chandra X-Ray Center

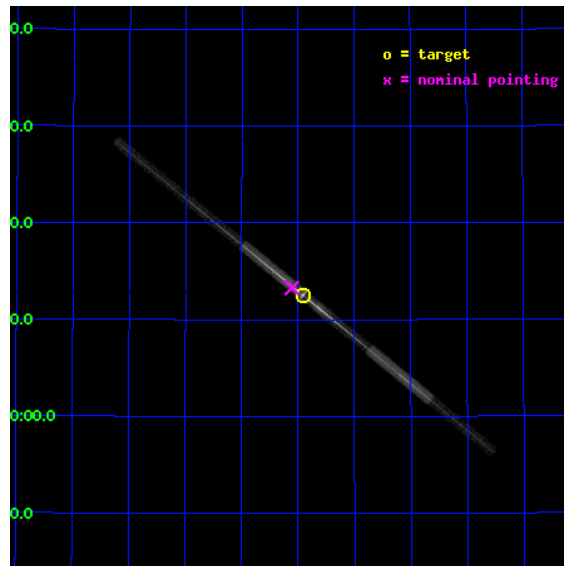
L2 Processing Date : Apr 9 2012

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# 1 Front

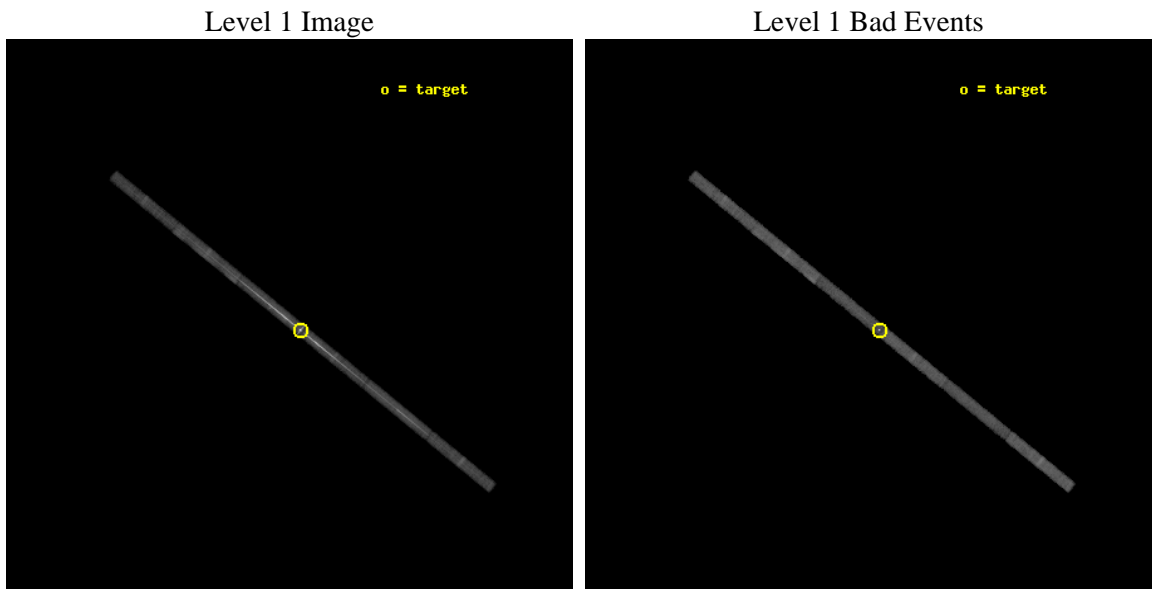
seq_num	790237	Sequence number
obs_id	14266	Observation id
title	AO-13 Calibration Observations of Mkn421	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.13853364983	Nominal RA [deg]
dec_nom	38.221527611007	Nominal Dec [deg]
roll_nom	219.13308528702	Nominal Roll [deg]
revision	1	Processing version of data
ontime	30049.801194072	Sum of GTIs [s]
livetime	28125.983895612	Livetime [s]
ontime4	30049.801194072	Sum of GTIs [s]
ontime5	30049.801194072	Sum of GTIs [s]
ontime6	30049.801194072	Sum of GTIs [s]
ontime7	30049.801194072	Sum of GTIs [s]
ontime8	30049.801194072	Sum of GTIs [s]
ontime9	30049.772396147	Sum of GTIs [s]
l2events	233660	Number of level 2 events



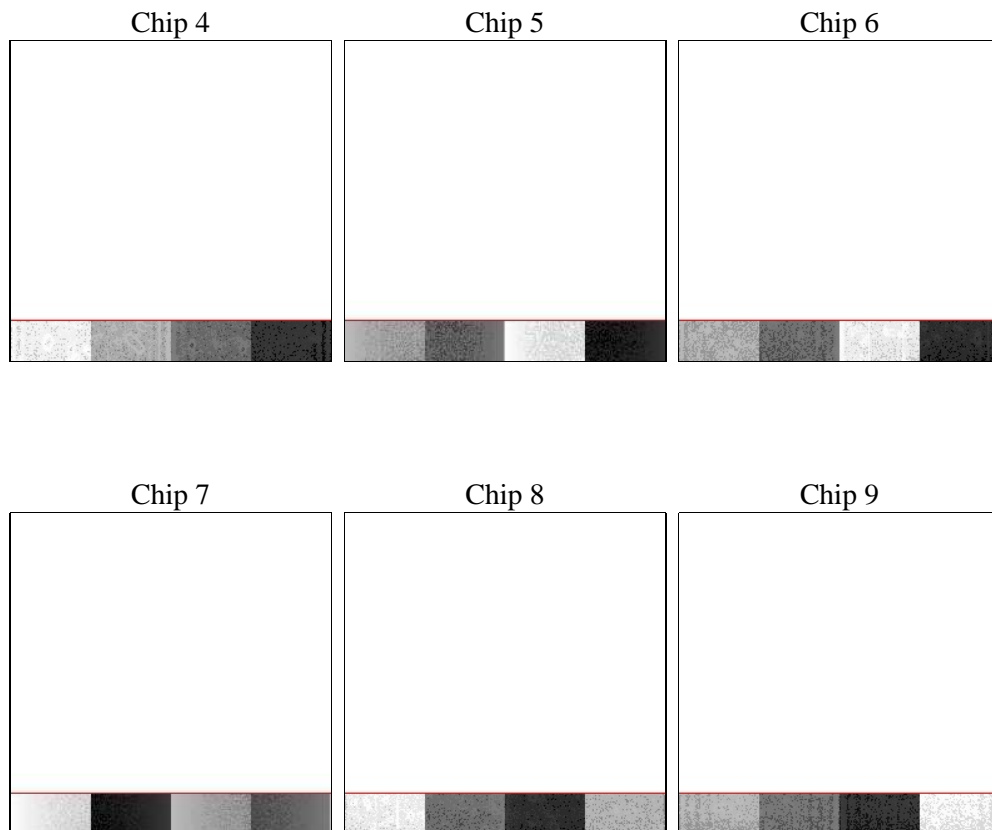
## 2 OBI

### 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	8.4.3	Processing system revision	ontime	30049.801194072	Sum of GTIs [s]
caldbver	4.4.9	&#160	ontime4	30049.801194072	Sum of GTIs [s]
date	2012-04-09T15:56:30	Date and time of file creation	ontime5	30049.801194072	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	30049.801194072	Sum of GTIs [s]
			ontime7	30049.801194072	Sum of GTIs [s]
			ontime8	30049.801194072	Sum of GTIs [s]
			ontime9	30049.772396147	Sum of GTIs [s]
			l1events	406247	Number of level 1 events

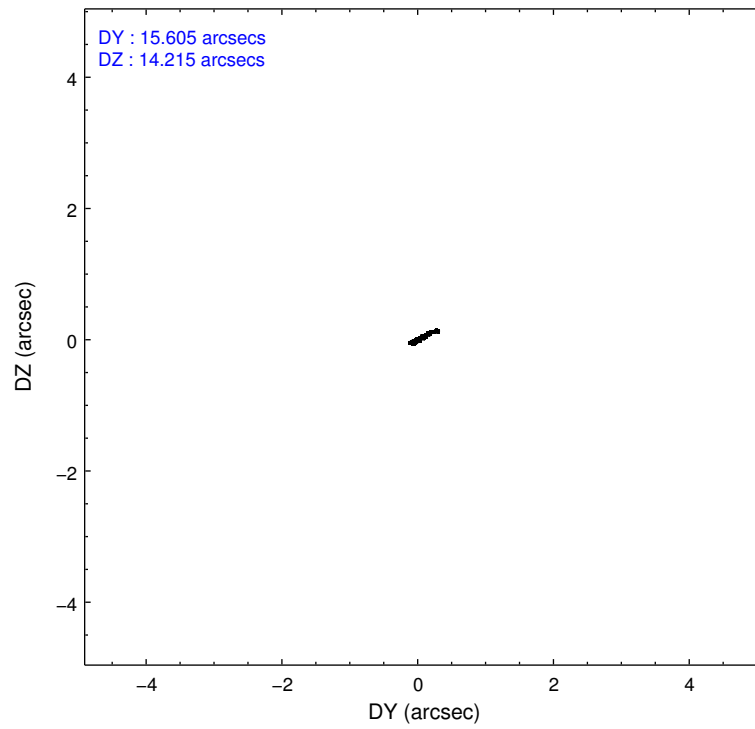
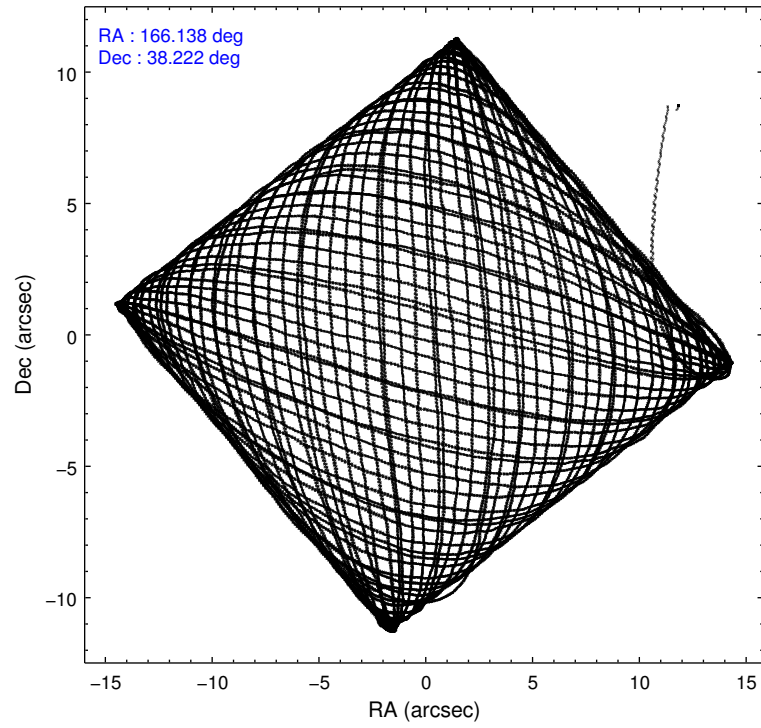
### 2.1.4 Events

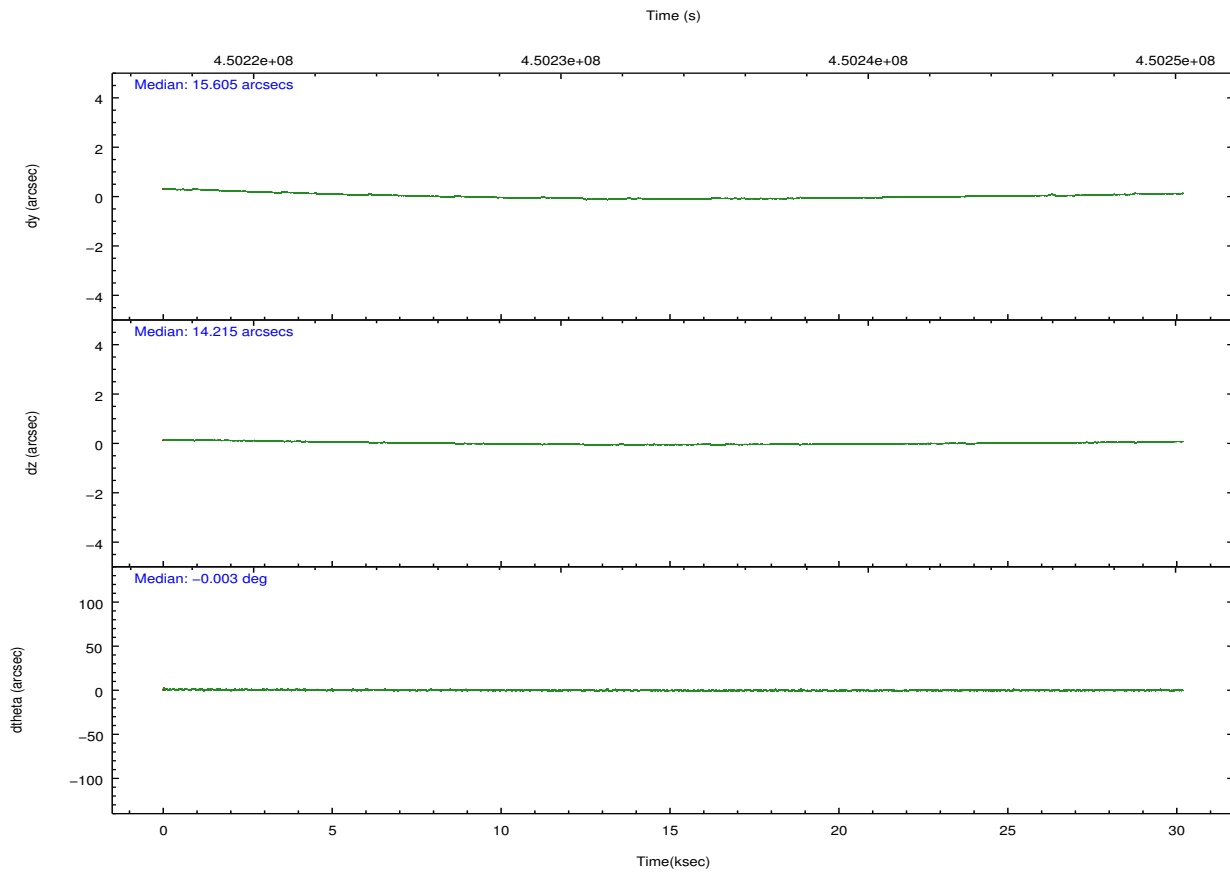
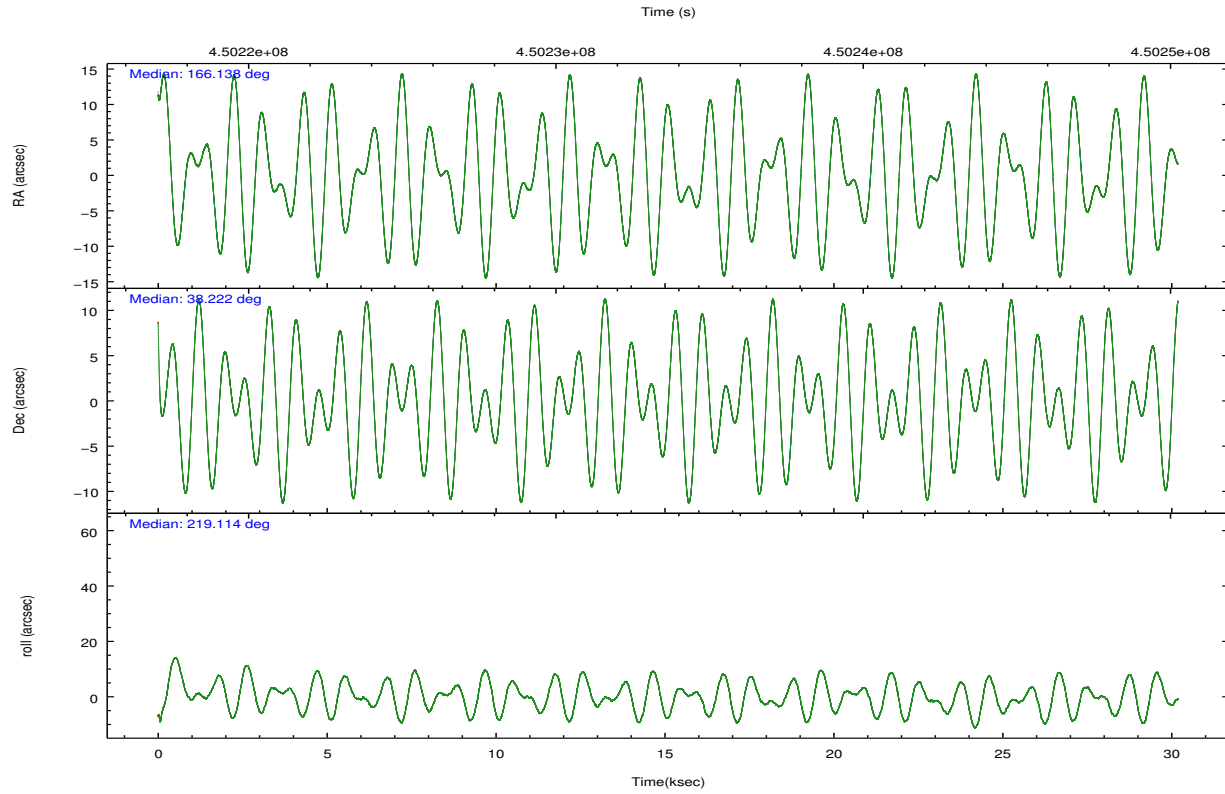
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	33716	47505	83714	169284	44841	27187	grade 0 events	2313	9400	45641	29876	5912	2338
rejected events	28628	17146	24973	35017	31379	22202		6%	19%	54%	17%	13%	8%
rejected %	84%	36%	29%	20%	69%	81%	grade 1 events	14	42	114	1323	20	12
								0%	0%	0%	0%	0%	0%
							grade 2 events	936	6691	6229	32859	2223	762
								2%	14%	7%	19%	4%	2%
							grade 3 events	599	2382	2405	15396	1232	596
								1%	5%	2%	9%	2%	2%
							grade 4 events	579	2254	2436	14815	1206	624
								1%	4%	2%	8%	2%	2%
							grade 5 events	962	3259	1075	8625	1416	960
								2%	6%	1%	5%	3%	3%
							grade 6 events	661	9632	2030	41325	2889	666
								1%	20%	2%	24%	6%	2%
							grade 7 events	27652	13845	23784	25065	29943	21229
								82%	29%	28%	14%	66%	78%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	Obspar file type	PREDICTED	ACTUAL
Grating	LETG	LETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	166.150463	166.1385336498325	CCD I2 on	N	N
[deg] Pointing Dec	38.247201	38.22152761100659	CCD I3 on	N	N
[deg] Pointing Roll	218.969077	219.1330852870205	CCD S0 on	O1	Y
[s] Window start time (MET)	449625666.184000	449625666.184000	CCD S1 on	Y	Y
[s] Window stop time (MET)	454809666.184000	454809666.184000	CCD S2 on	Y	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S3 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S4 on	Y	Y
[mm] SIM translation stage pos	-179.132523	-179.1399366055469	CCD S5 on	Y	Y
[mm] SIM translation stage offset	-11	-10.99258597746092	Number of optional ACIS chips dropped	0	0
[s] Observation start time (MET)	450218743.184000	450217824.58096	On-chip summing requested	N	N
Observation start date	2012-04-07T20:44:37	2012-04-07T20:30:24	Subarray requested	CUSTOM	1/8
[s] Observation end time (MET)	450248743.184000	450249701.57015	Subarray start row	1	1
Observation end date	2012-04-08T05:04:37	2012-04-08T05:21:41	Subarray row count	128	128
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	0.6

## 2.3 Aspect



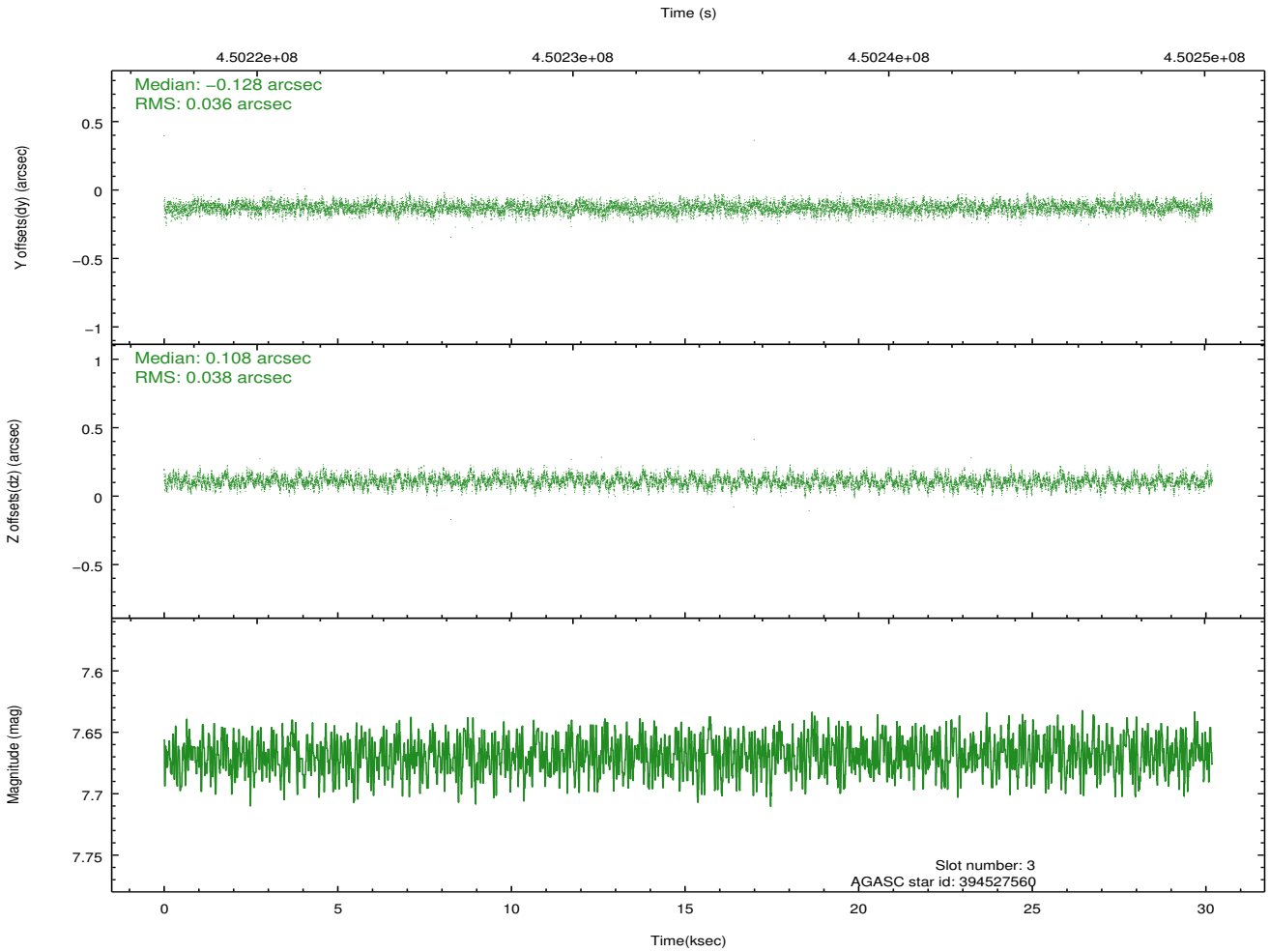
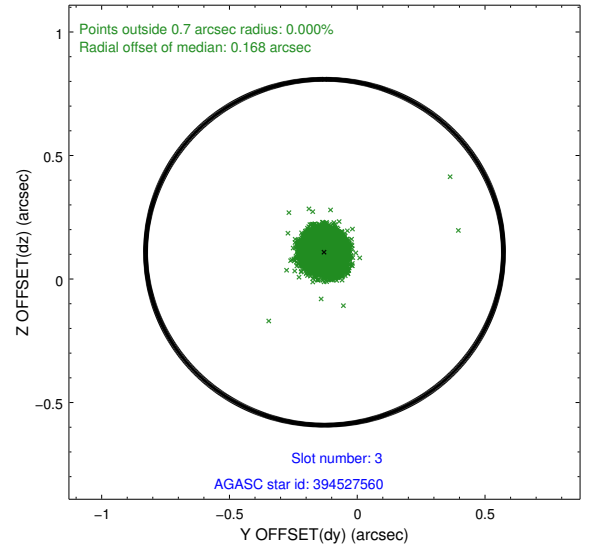
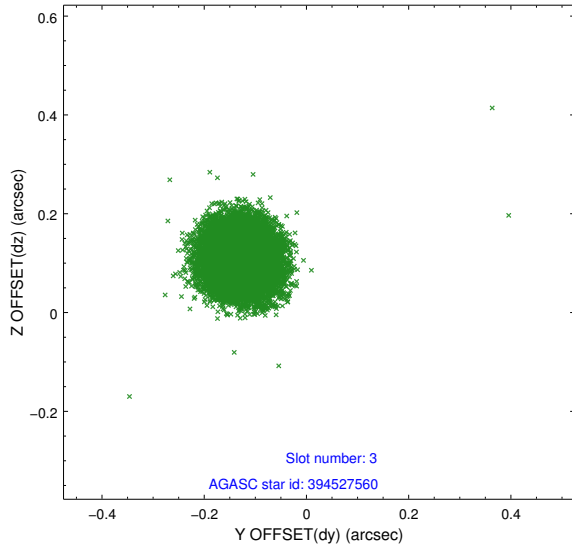


### Slot Statistics

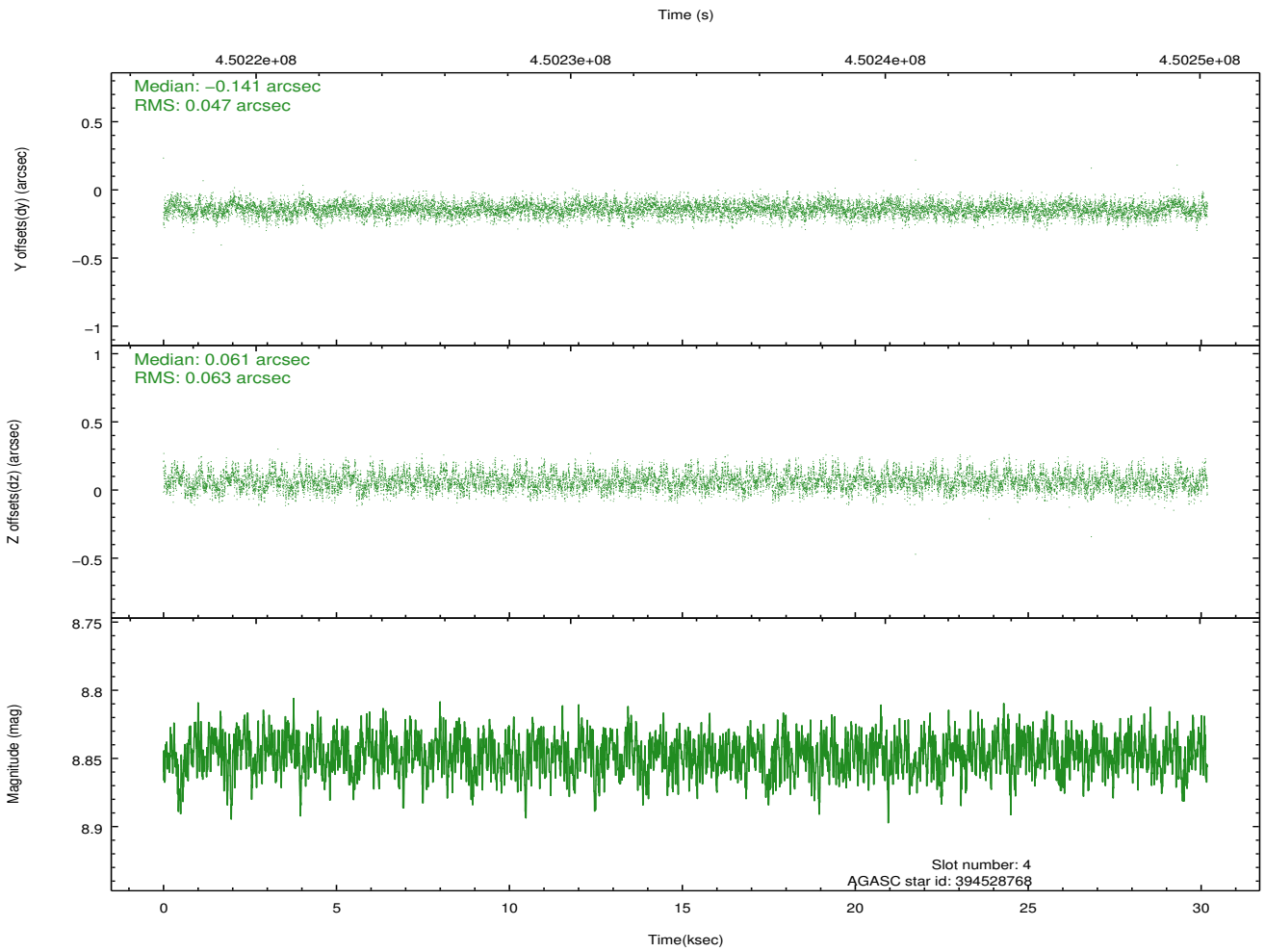
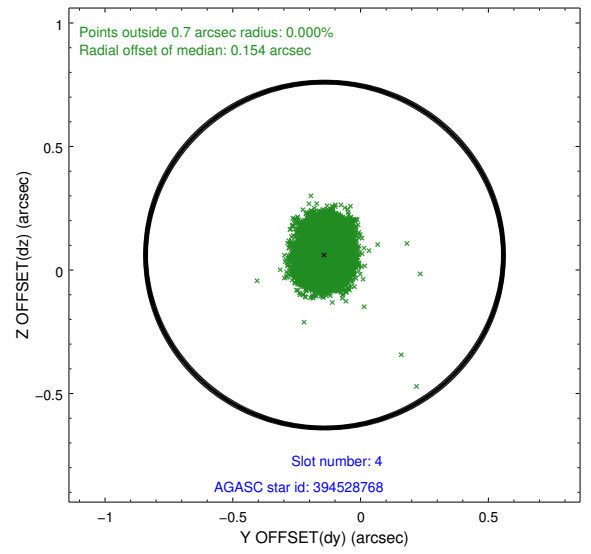
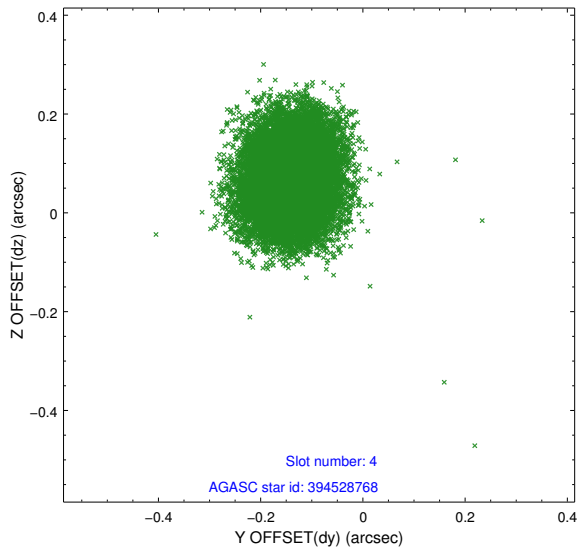
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.09	7363	0.196	0.061	0.006	0.011	0.000000	0.000000	928.35	-1957.50
1	FID	ACIS-S-5	7.14	7362	-0.239	0.183	0.006	0.010	0.000000	0.000000	-1820.96	-59.83
2	FID	ACIS-S-6	7.31	7363	0.022	-0.233	0.007	0.011	0.000000	0.000000	393.76	583.70
3	GUIDE	394527560	7.67	14724	-0.128	0.108	0.056	0.089	165.970713	38.960939	-1224.33	-2313.99
4	GUIDE	394528768	8.85	14714	-0.141	0.061	0.084	0.137	166.180365	38.952248	-1660.67	-1920.51
5	GUIDE	394530152	7.51	14725	0.228	-0.354	0.096	0.148	166.075805	38.868252	-1242.63	-1870.00
6	GUIDE	394533848	8.72	14723	0.217	-0.159	0.092	0.148	166.382906	38.276007	-573.63	329.10
7	GUIDE	394533744	8.90	14707	-0.179	0.336	0.101	0.164	167.094985	37.988717	-1507.91	2399.00

## 2.4 Star Slots

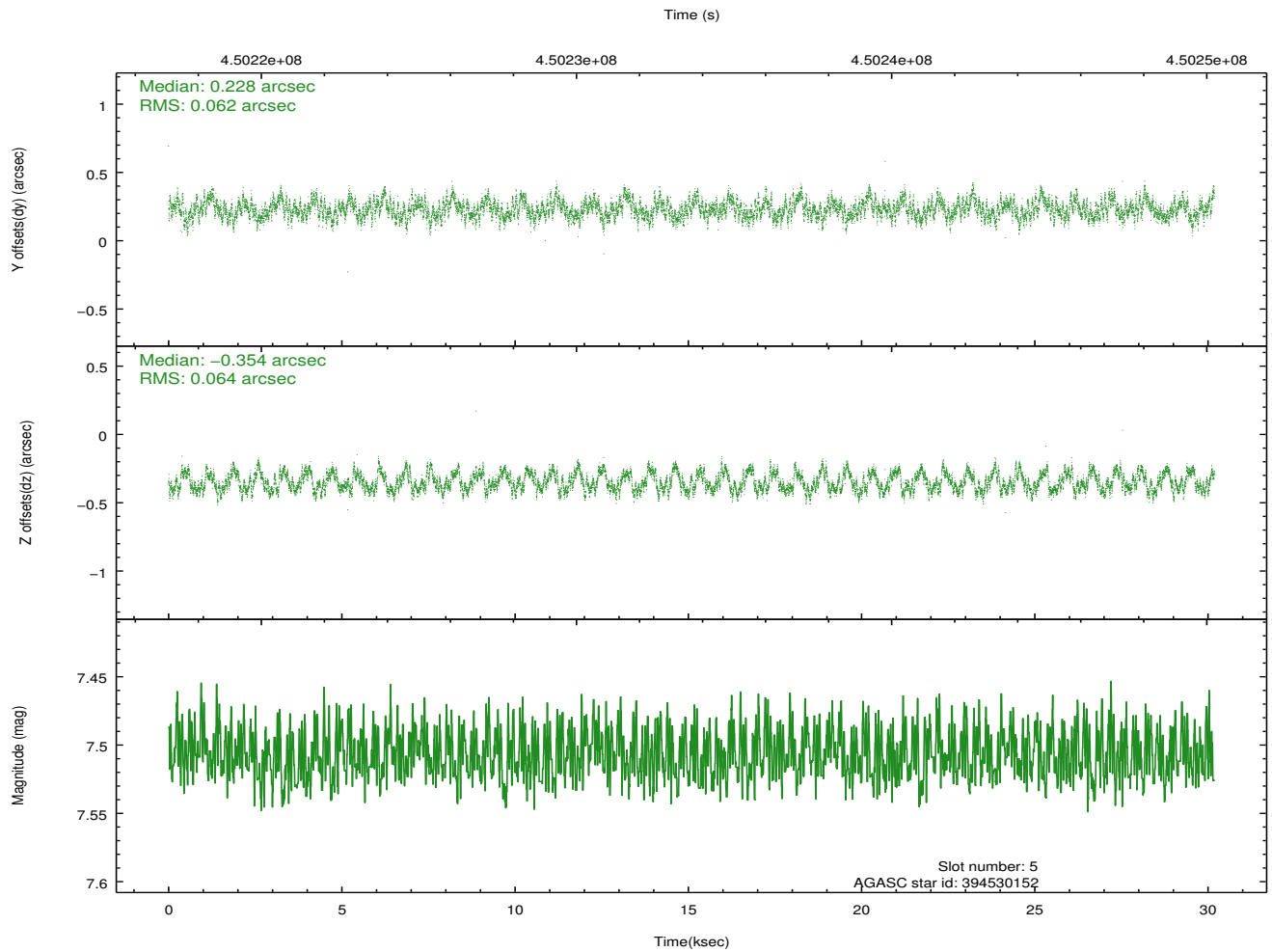
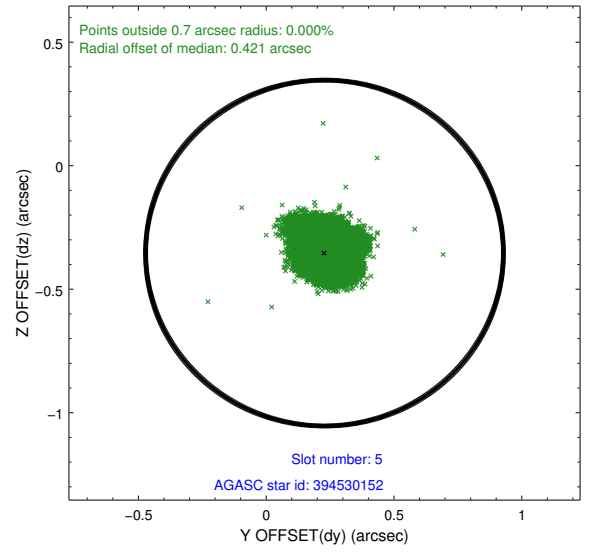
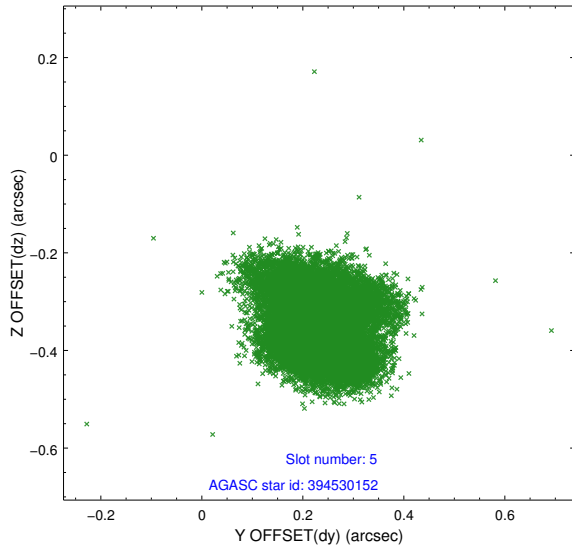
### 2.4.1 Slot 3



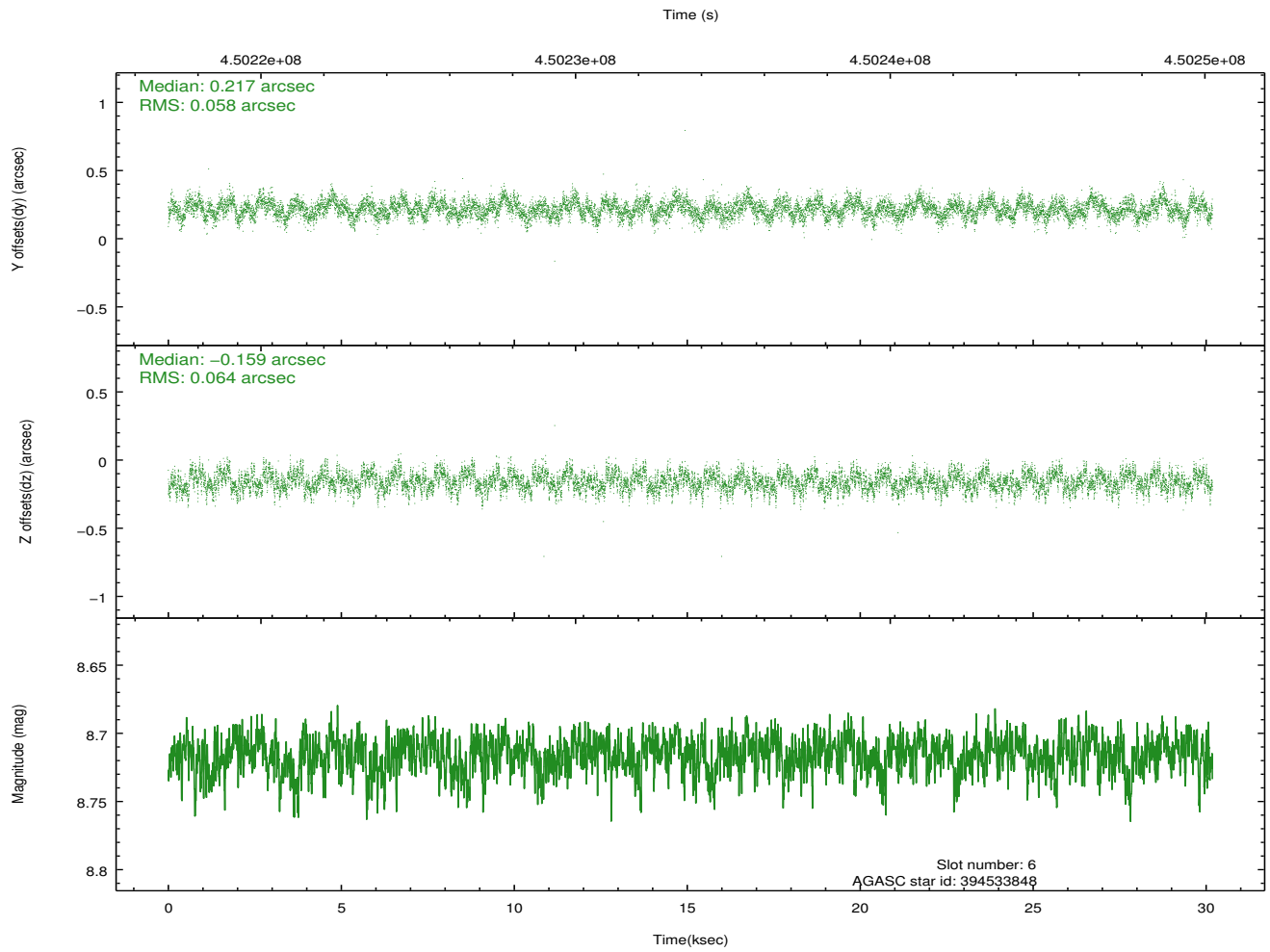
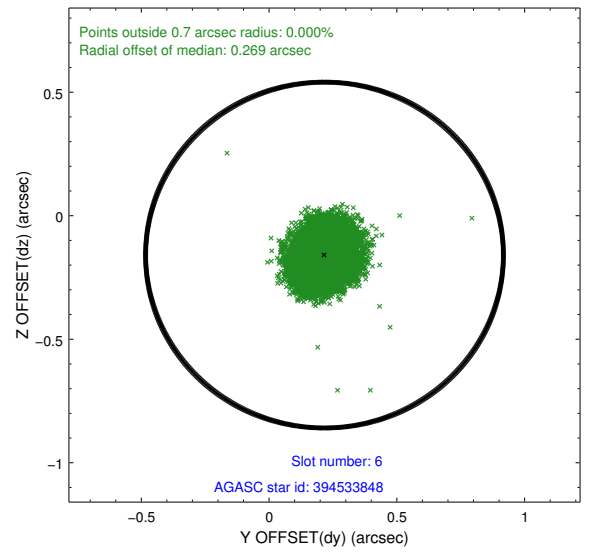
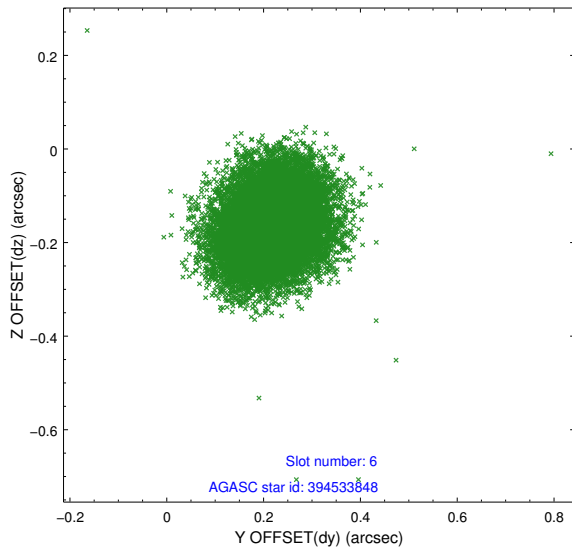
### 2.4.2 Slot 4



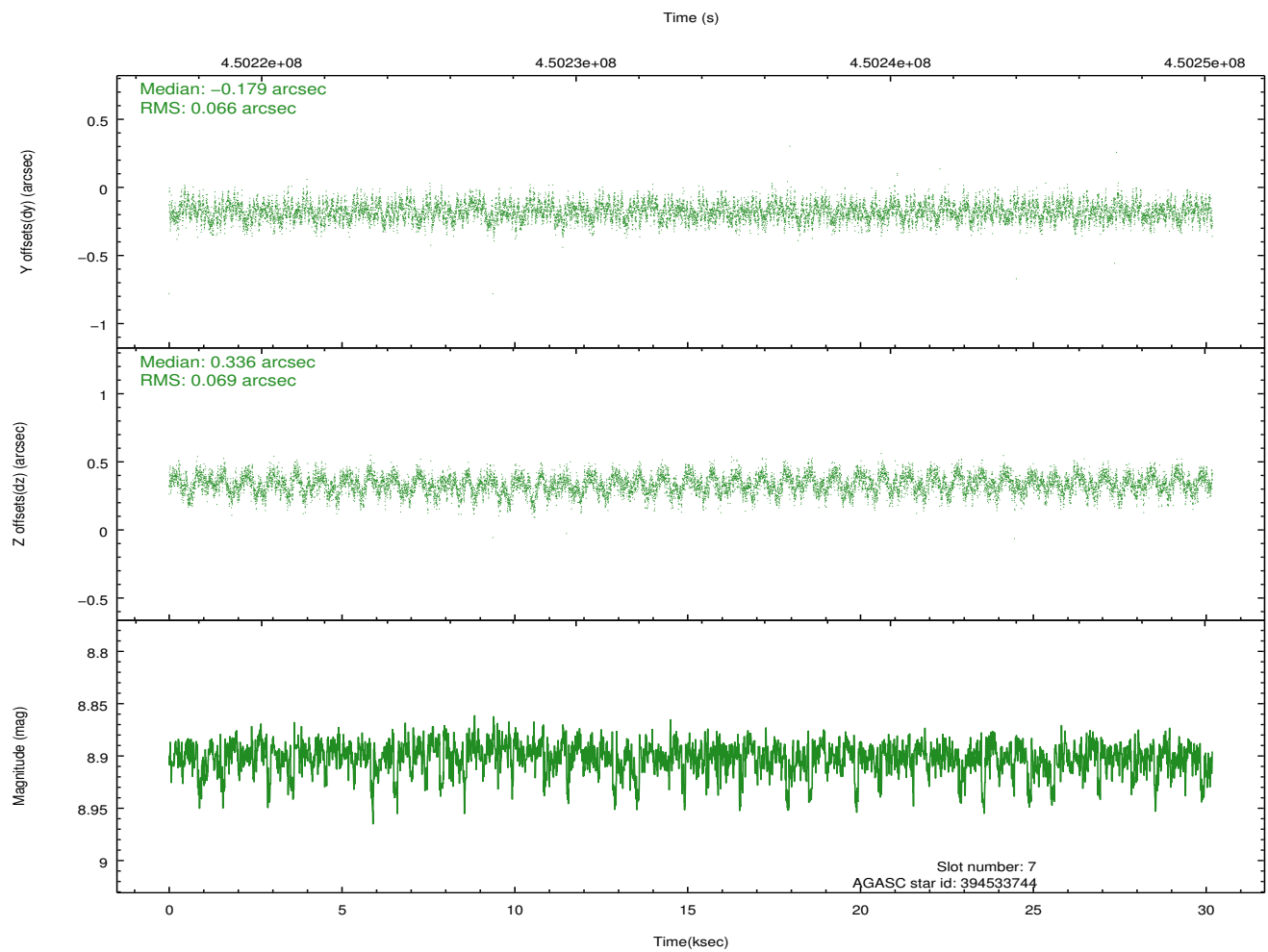
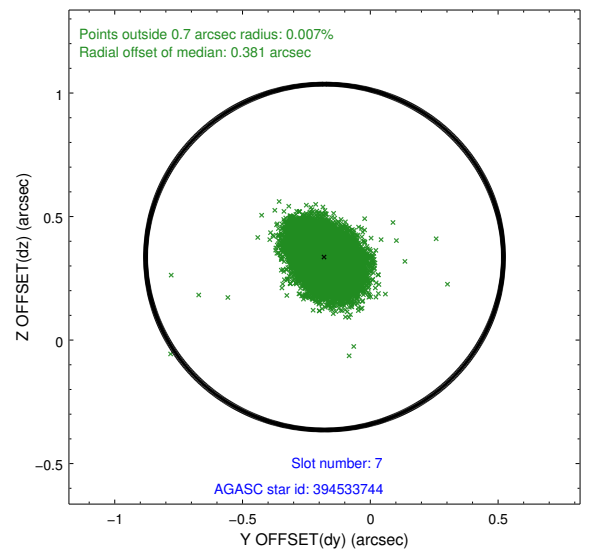
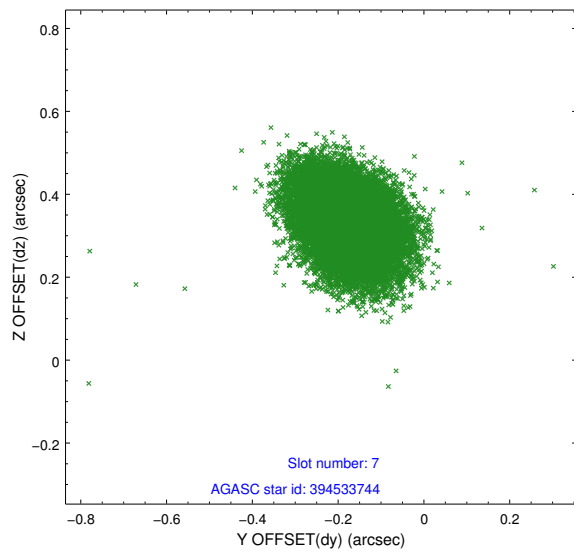
### 2.4.3 Slot 5



## 2.4.4 Slot 6

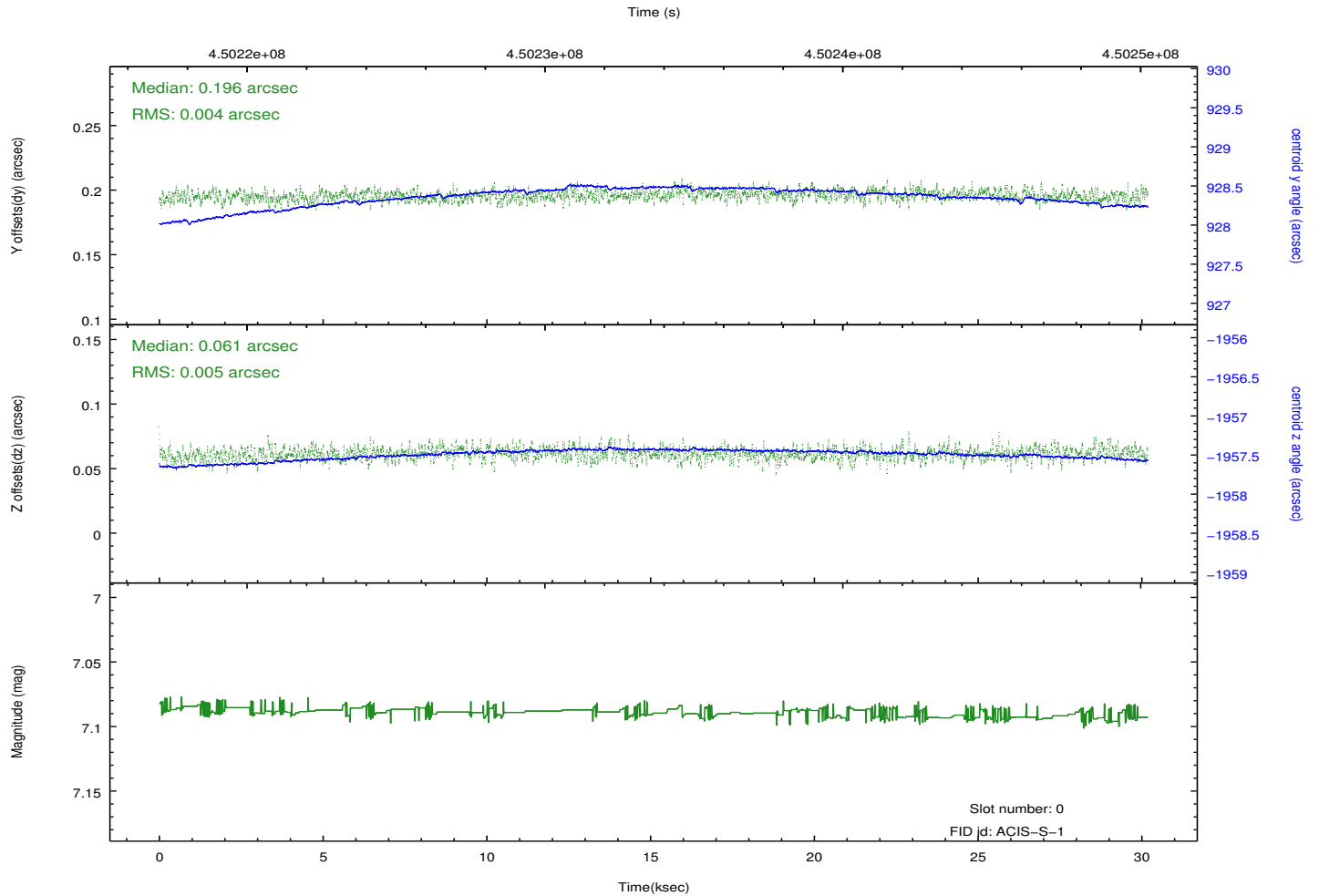
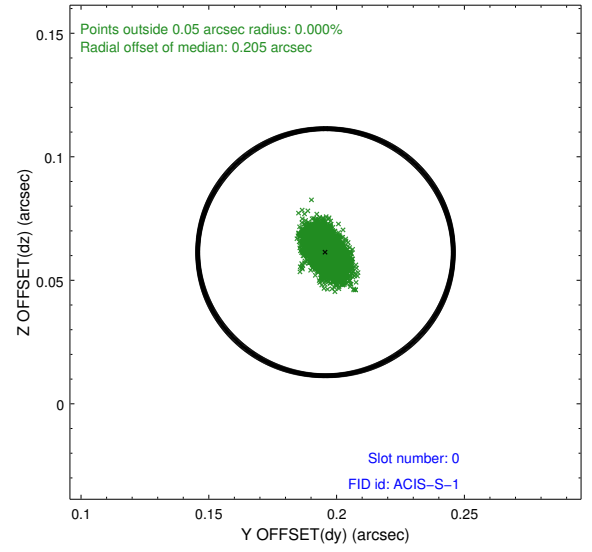
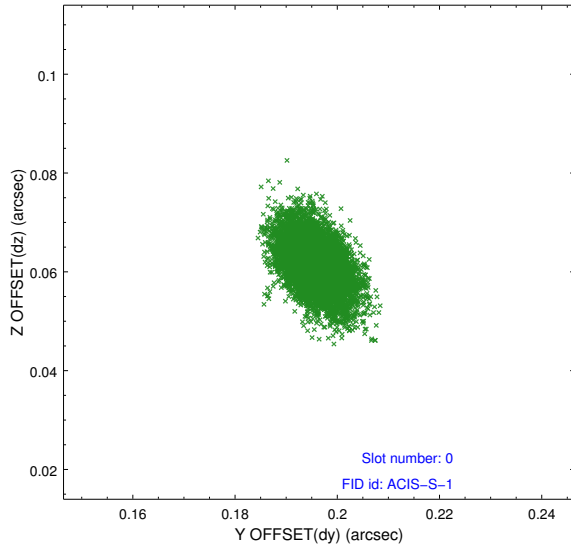


## 2.4.5 Slot 7

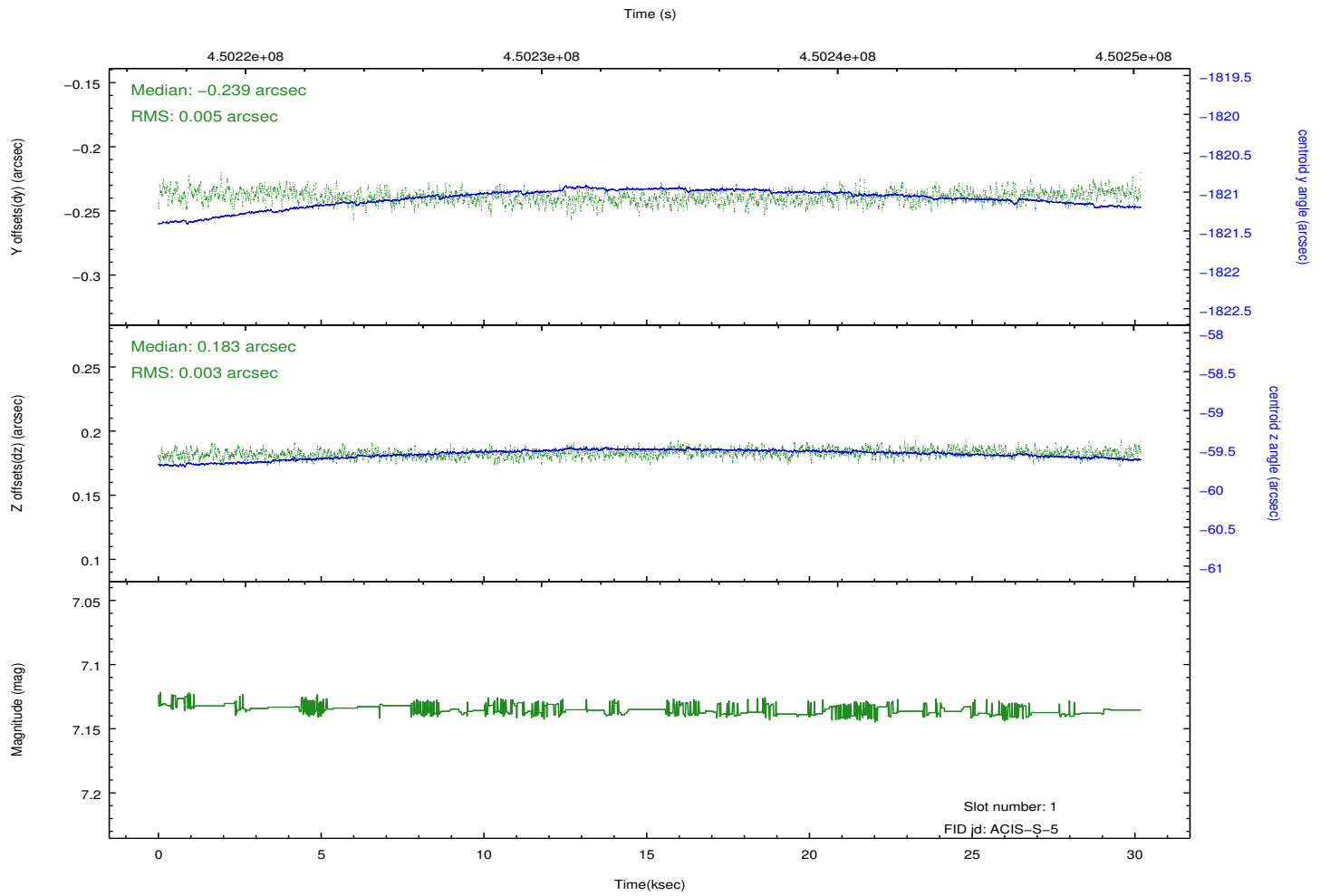
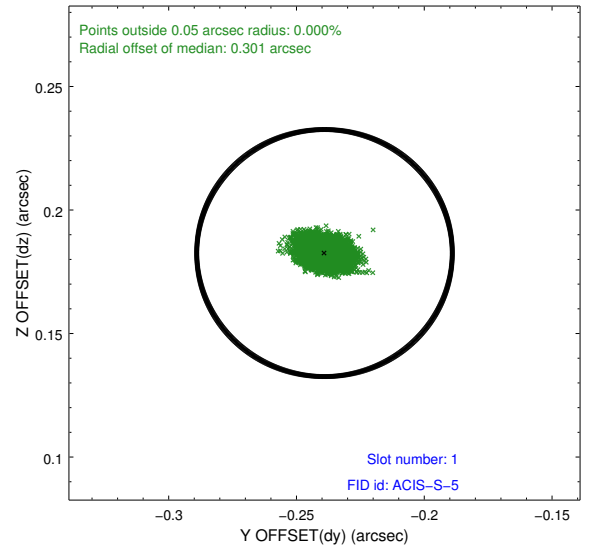
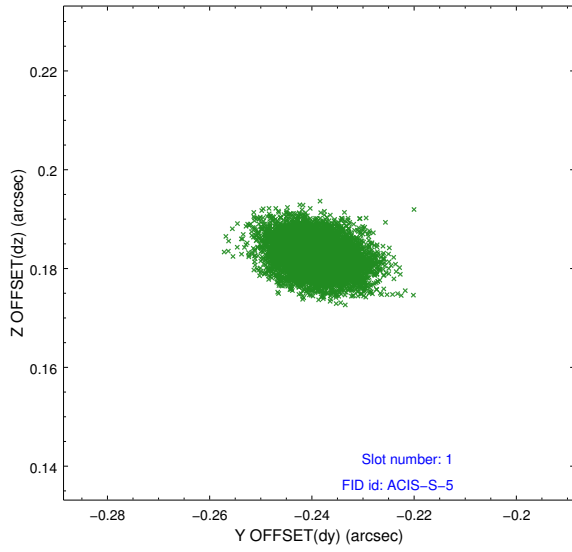


## 2.5 FID Slots

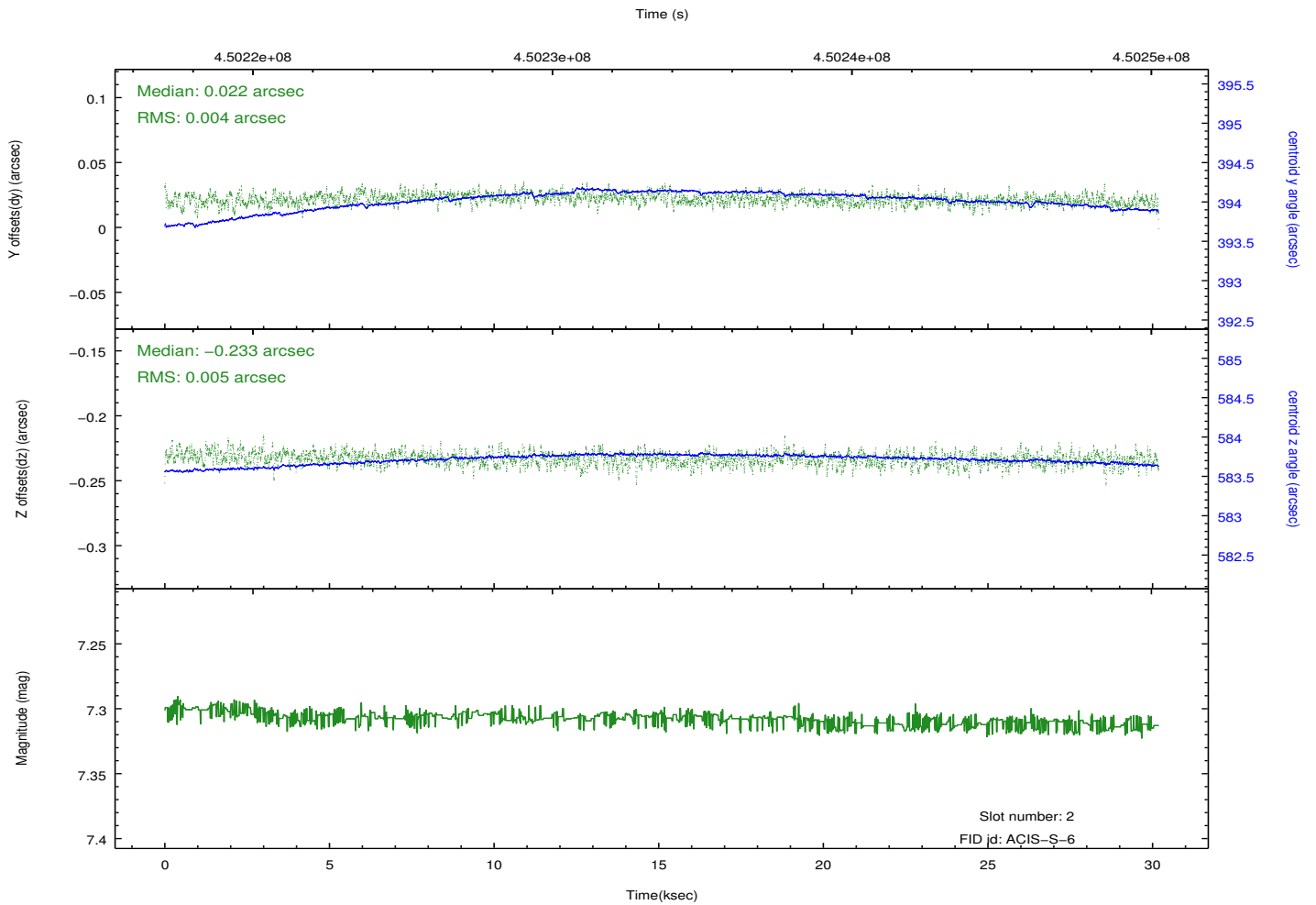
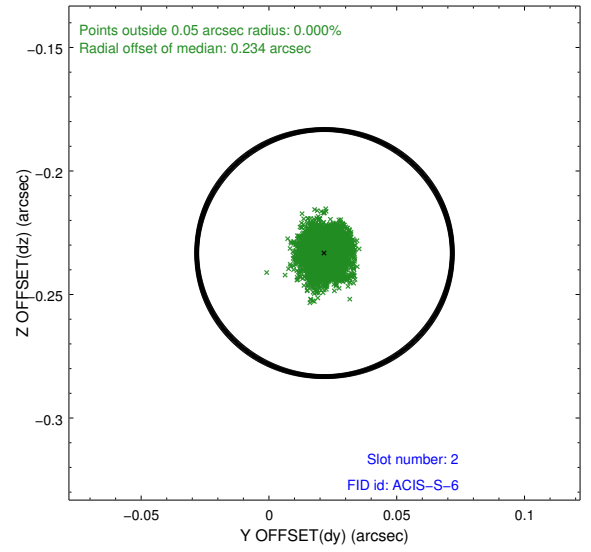
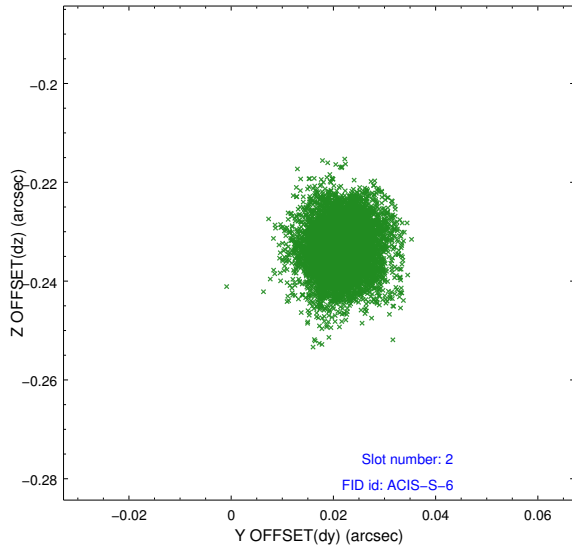
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

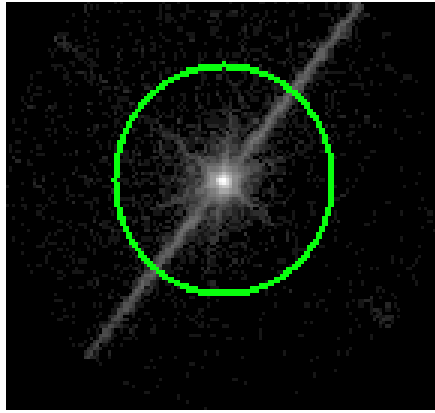


# 3 Gratings

## 3.1 LETG Arm



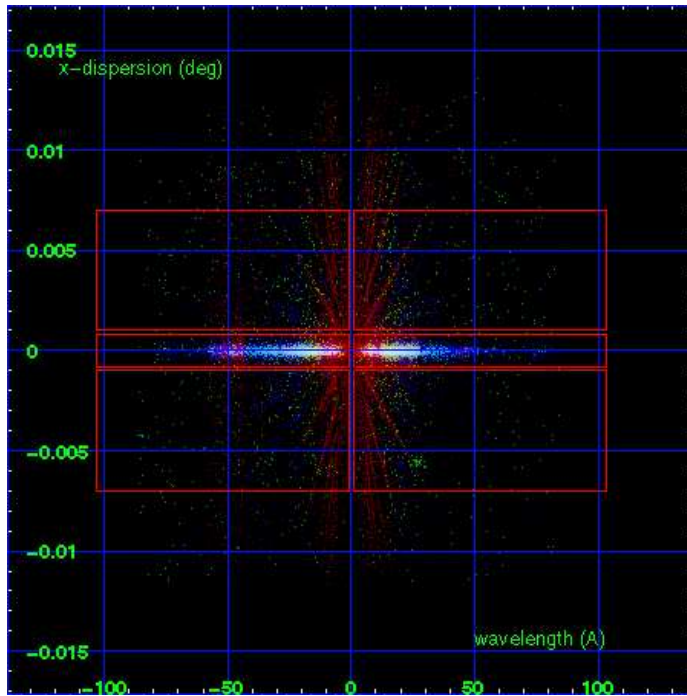
LETG Order Sort 123



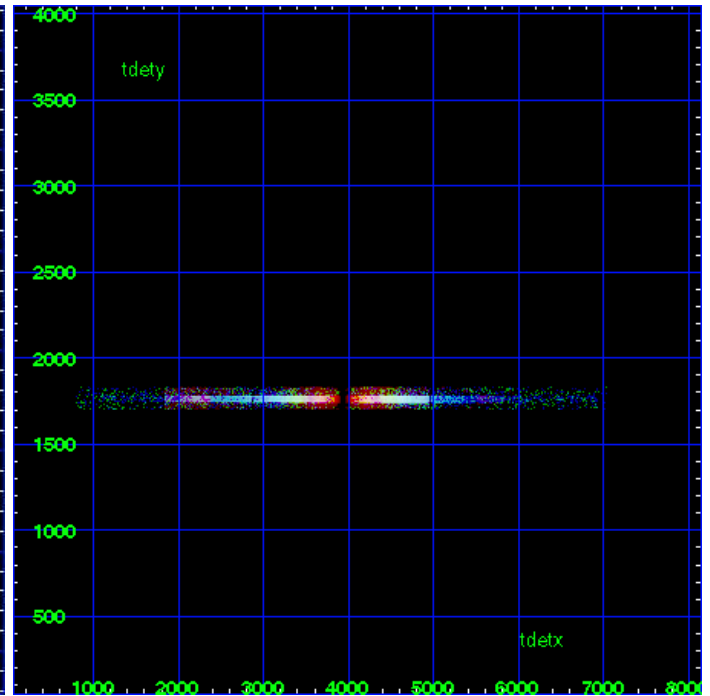
LETG Zero Order



LETG Order Sort ALL

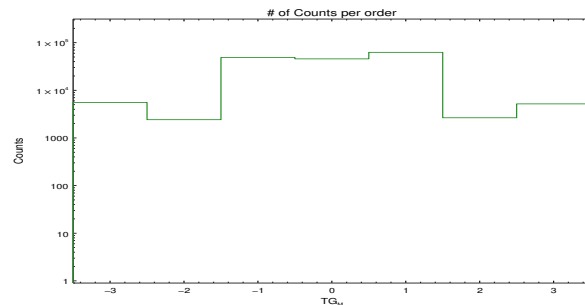


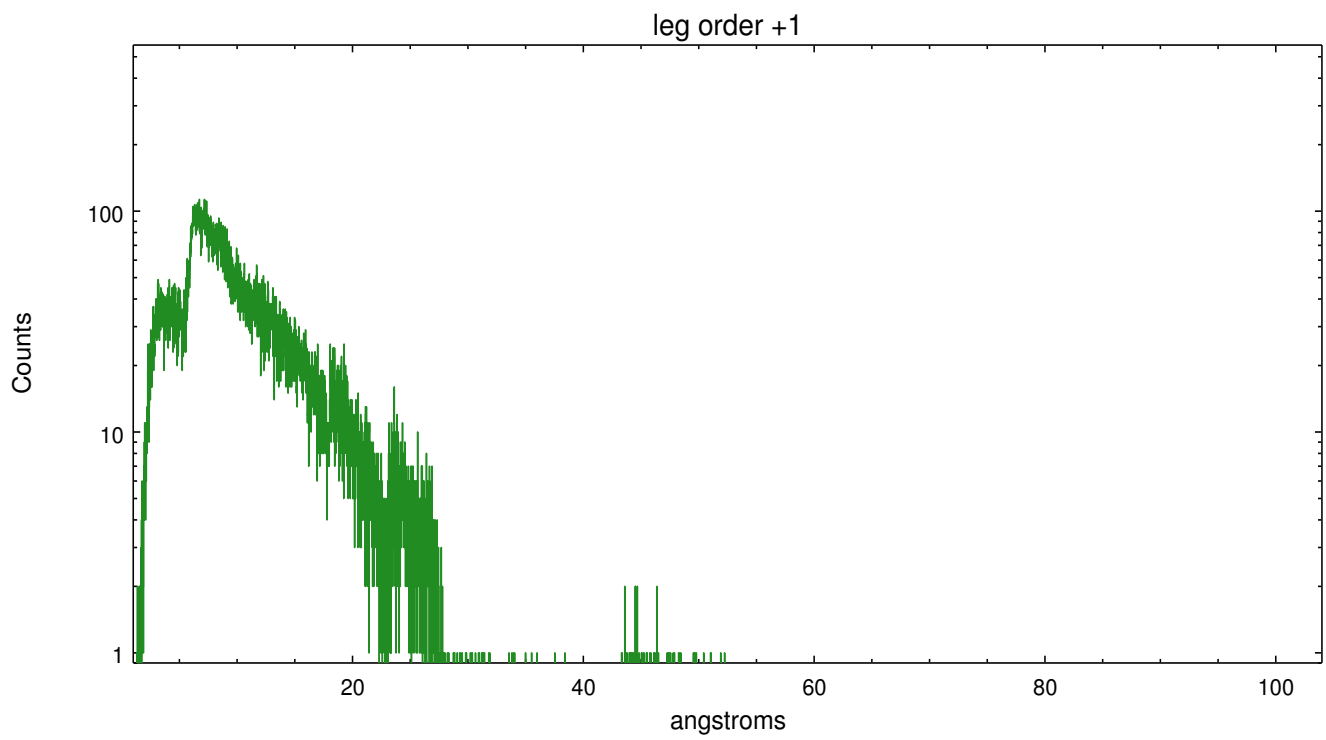
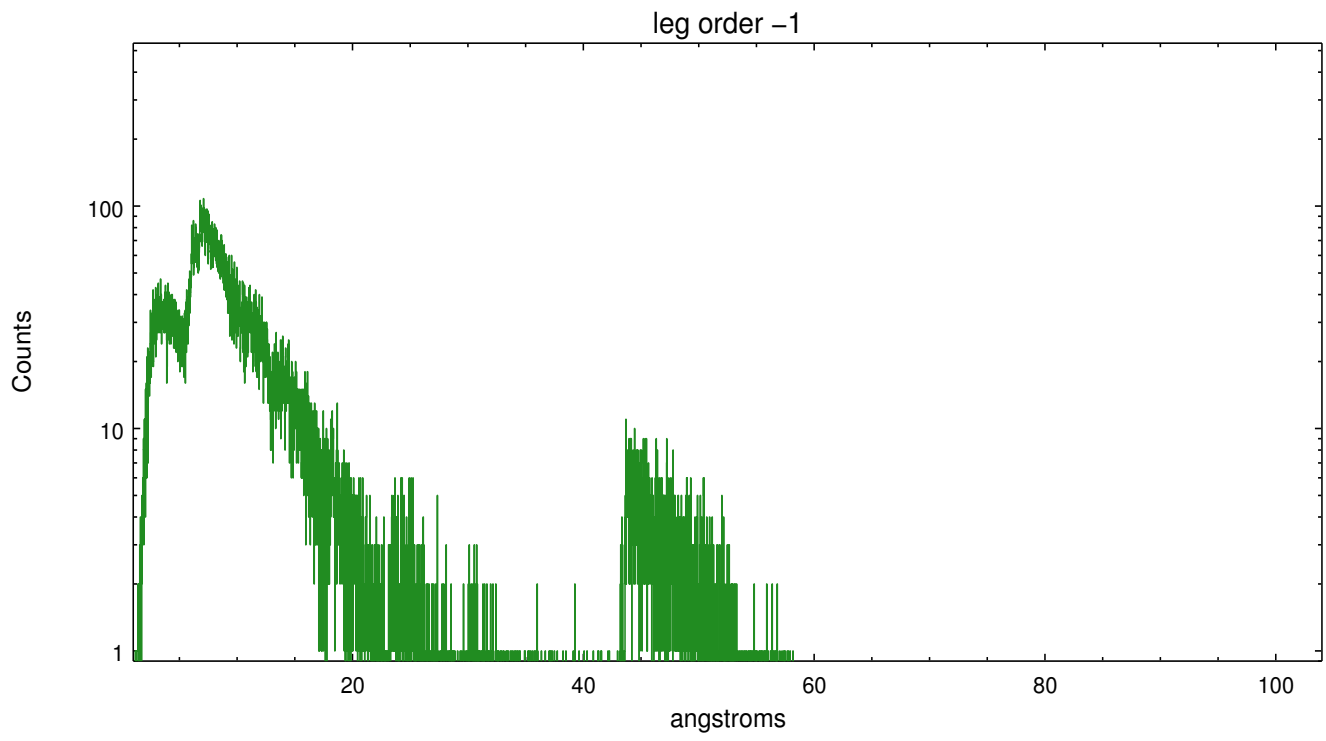
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5559	2419	48893	45734	62668	2653	5192





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.04.09
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.049801194072

## A.2 Comments

Gain and CTI correction are not well calibrated on CCD\_ID 5 (ACIS-S1). Default order sorting can clip some regions, particularly longward of 30A (first order). User-specified custom processing parameters may be required in `tg_resolve_events` (`osipfile=None`, `osort_lo`, `osort_hi ~0.5`) though this can allow more zeroth order background at short wavelengths.