

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 14321 - L2 Version 2  
Chandra X-Ray Center

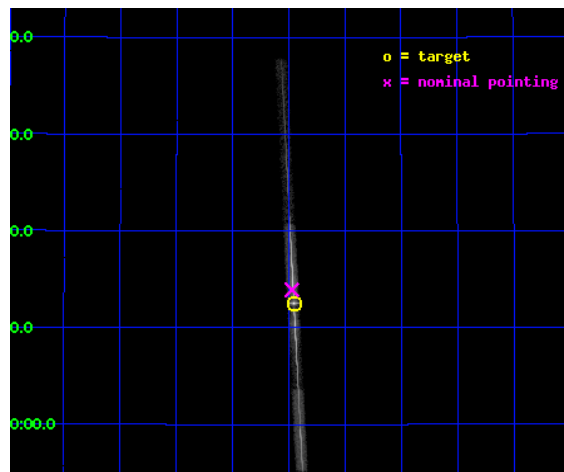
L2 Processing Date : Jul 6 2012

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# 1 Front

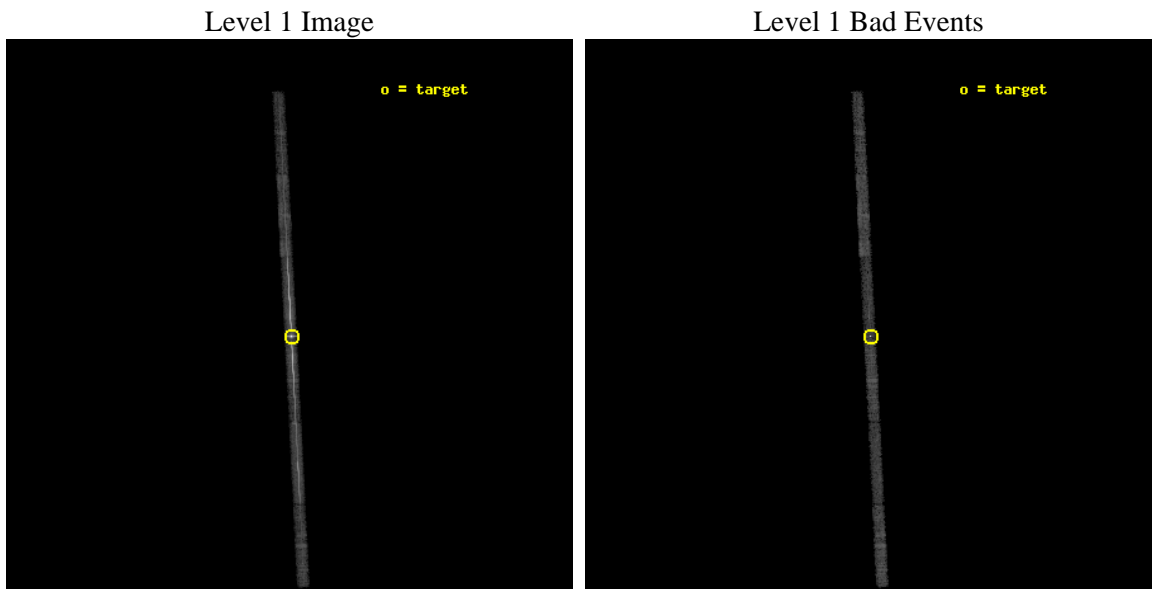
seq_num	790240	Sequence number
obs_id	14321	Observation id
title	AO-13 Calibration Observations of Mkn421 to Calibrate the New HRC-S HV Setting	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.11819933667	Nominal RA [deg]
dec_nom	38.232067088027	Nominal Dec [deg]
roll_nom	267.04087697827	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10054.592835009	Sum of GTIs [s]
livetime	9497.7531368163	Livetime [s]
ontime4	10054.633875012	Sum of GTIs [s]
ontime5	10054.551795006	Sum of GTIs [s]
ontime6	10054.510755002	Sum of GTIs [s]
ontime7	10054.592835009	Sum of GTIs [s]
ontime8	10054.469714999	Sum of GTIs [s]
ontime9	10054.428674996	Sum of GTIs [s]
l2events	120372	Number of level 2 events



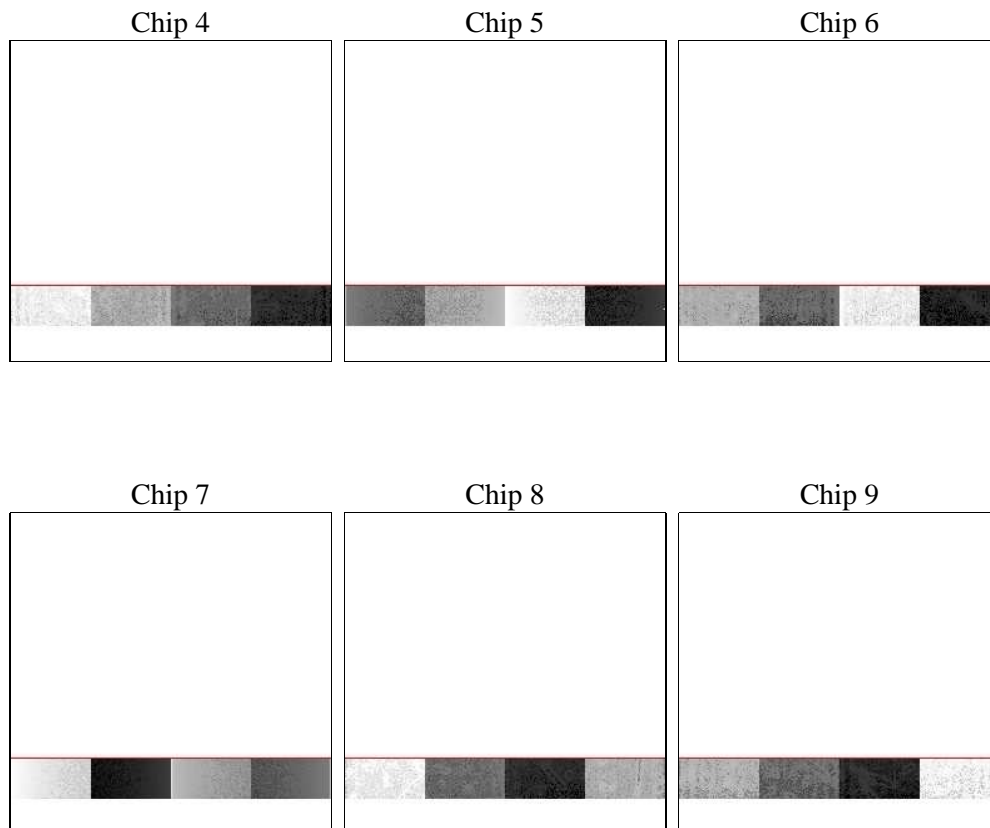
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	10054.592835009	Sum of GTIs [s]
caldbver	4.5.0	&#160	ontime4	10054.633875012	Sum of GTIs [s]
date	2012-07-05T17:26:08	Date and time of file creation	ontime5	10054.551795006	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	10054.510755002	Sum of GTIs [s]
			ontime7	10054.592835009	Sum of GTIs [s]
			ontime8	10054.469714999	Sum of GTIs [s]
			ontime9	10054.428674996	Sum of GTIs [s]
			l1events	184634	Number of level 1 events

### 2.1.4 Events

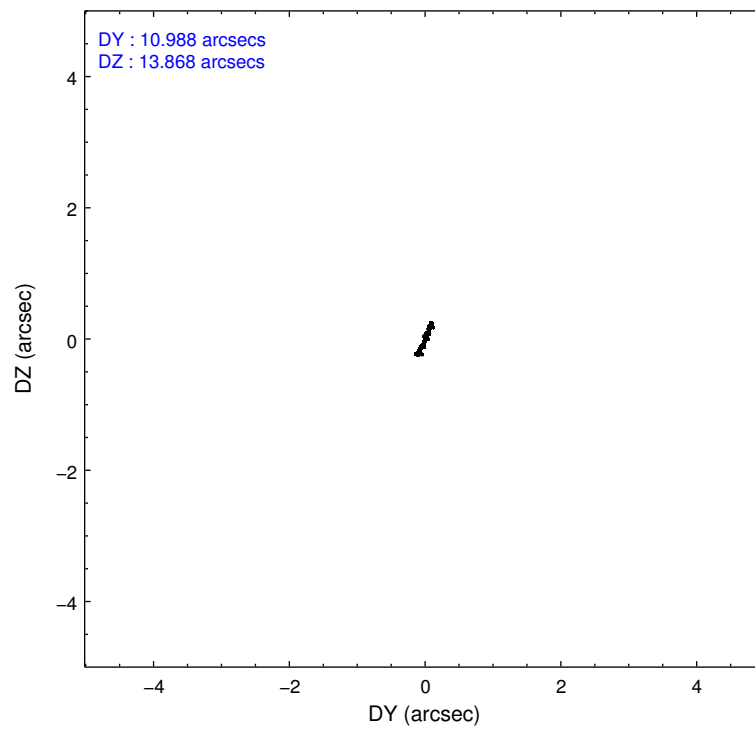
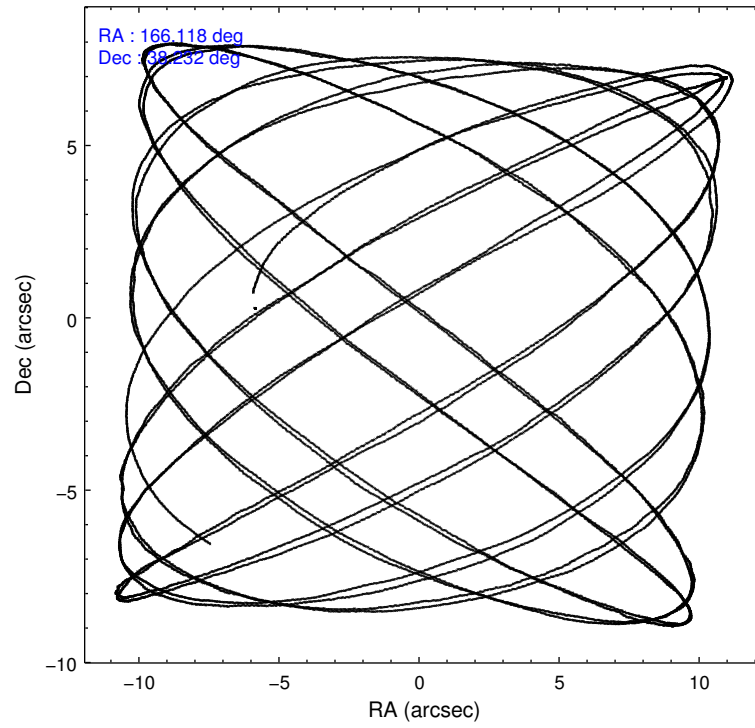
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	11034	21065	42446	84587	16582	8920
rejected events	8736	5908	8606	17906	10470	6751
rejected %	79%	28%	20%	21%	63%	75%

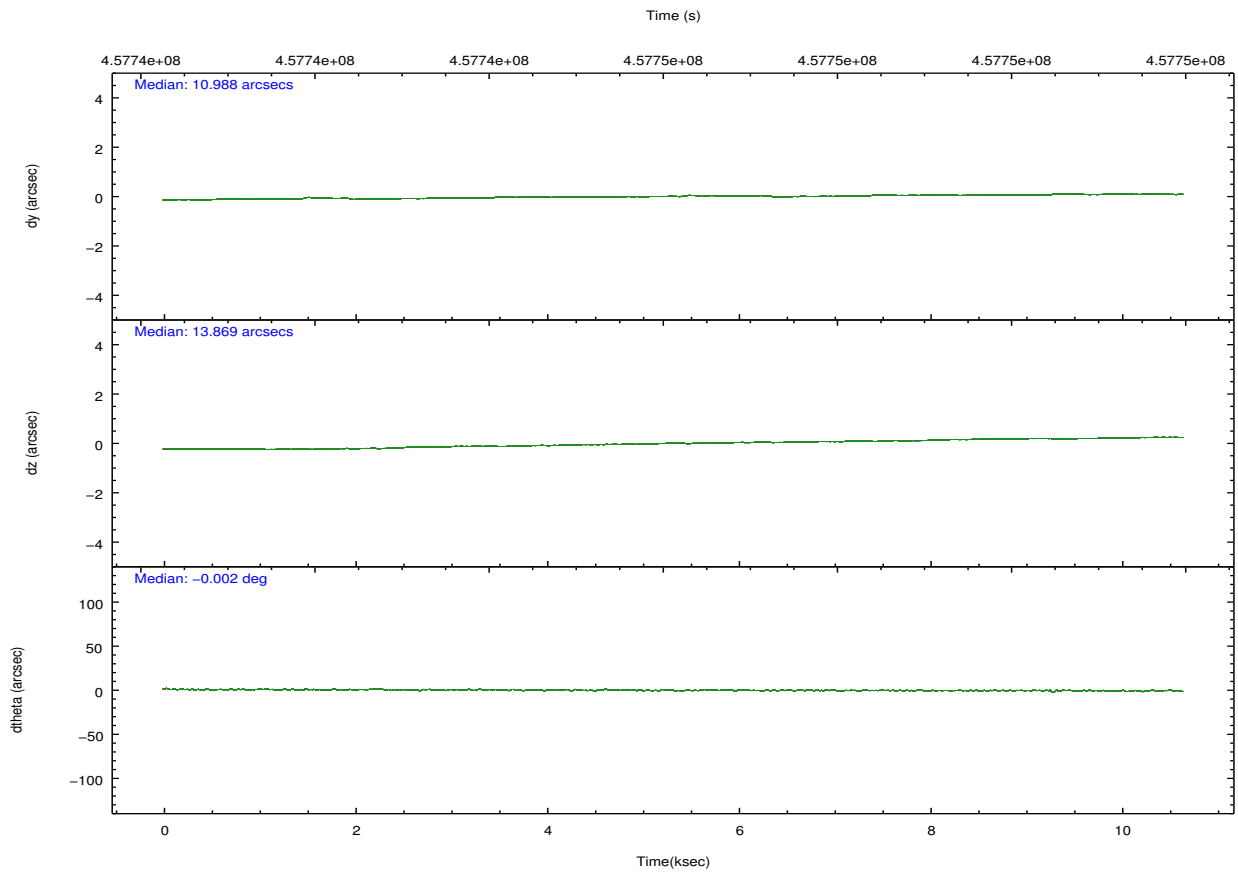
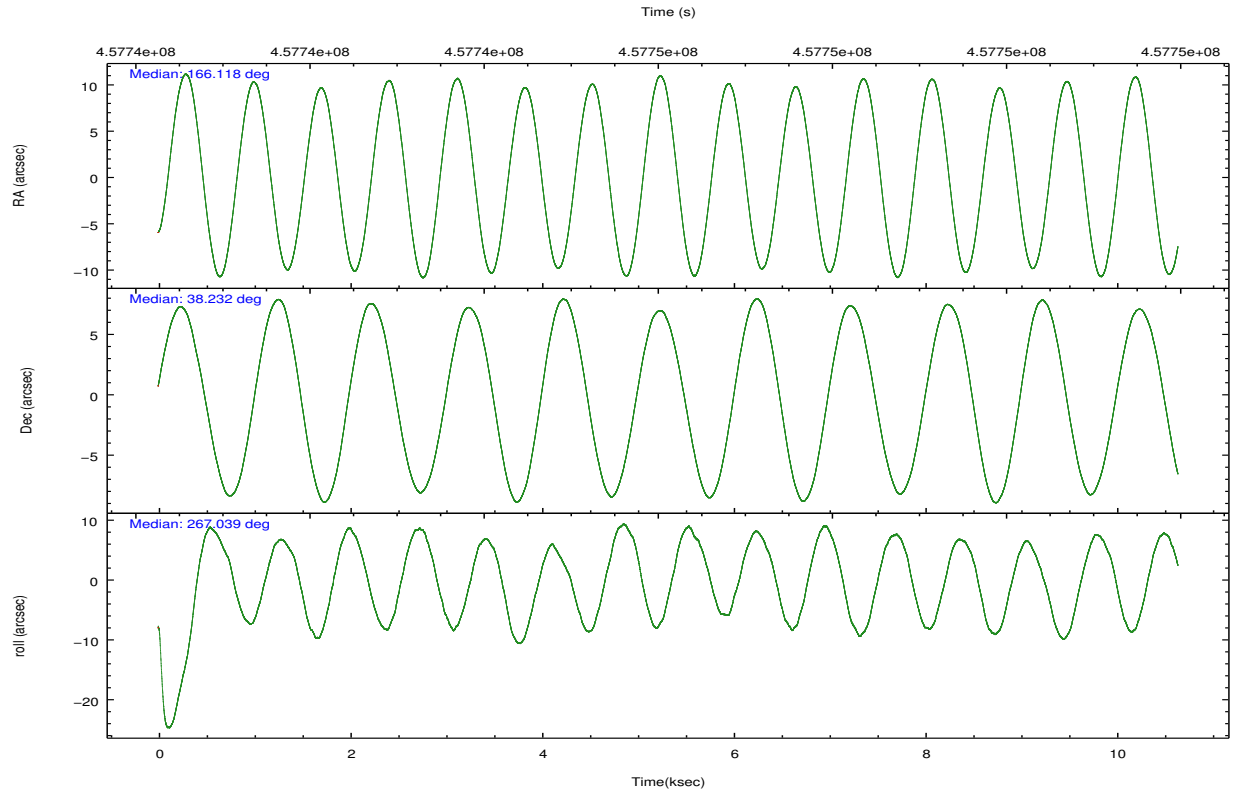
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	1286	6912	27288	18316	3188	1284
	11%	32%	64%	21%	19%	14%
grade 1 events	6	25	83	620	8	4
	0%	0%	0%	0%	0%	0%
grade 2 events	376	3031	3371	16453	980	293
	3%	14%	7%	19%	5%	3%
grade 3 events	206	961	1118	7454	432	207
	1%	4%	2%	8%	2%	2%
grade 4 events	208	954	1166	7389	424	167
	1%	4%	2%	8%	2%	1%
grade 5 events	341	1155	383	3716	500	329
	3%	5%	0%	4%	3%	3%
grade 6 events	222	3302	900	17079	1088	218
	2%	15%	2%	20%	6%	2%
grade 7 events	8389	4725	8137	13560	9962	6418
	76%	22%	19%	16%	60%	71%

## 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	166.101946	166.118199336675	CCD I2 on	N	N
[deg] Pointing Dec	38.256190	38.23206708802712	CCD I3 on	N	N
[deg] Pointing Roll	266.894294	267.0408769782674	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-182.132523	-182.1344861297048	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-8	-7.998036453302973	CCD S4 on	Y	Y
[s] Observation start time (MET)	457741430.184000	457740469.61481	CCD S5 on	Y	Y
Observation start date	2012-07-03T22:22:43	2012-07-03T22:07:49	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	457751430.184000	457751652.36541	On-chip summing requested	N	N
Observation end date	2012-07-04T01:09:23	2012-07-04T01:14:12	Subarray requested	CUSTOM	1/8
Read mode	TIMED	TIMED	Subarray start row	113	113
			Subarray row count	128	128
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	0.7

## 2.3 Aspect



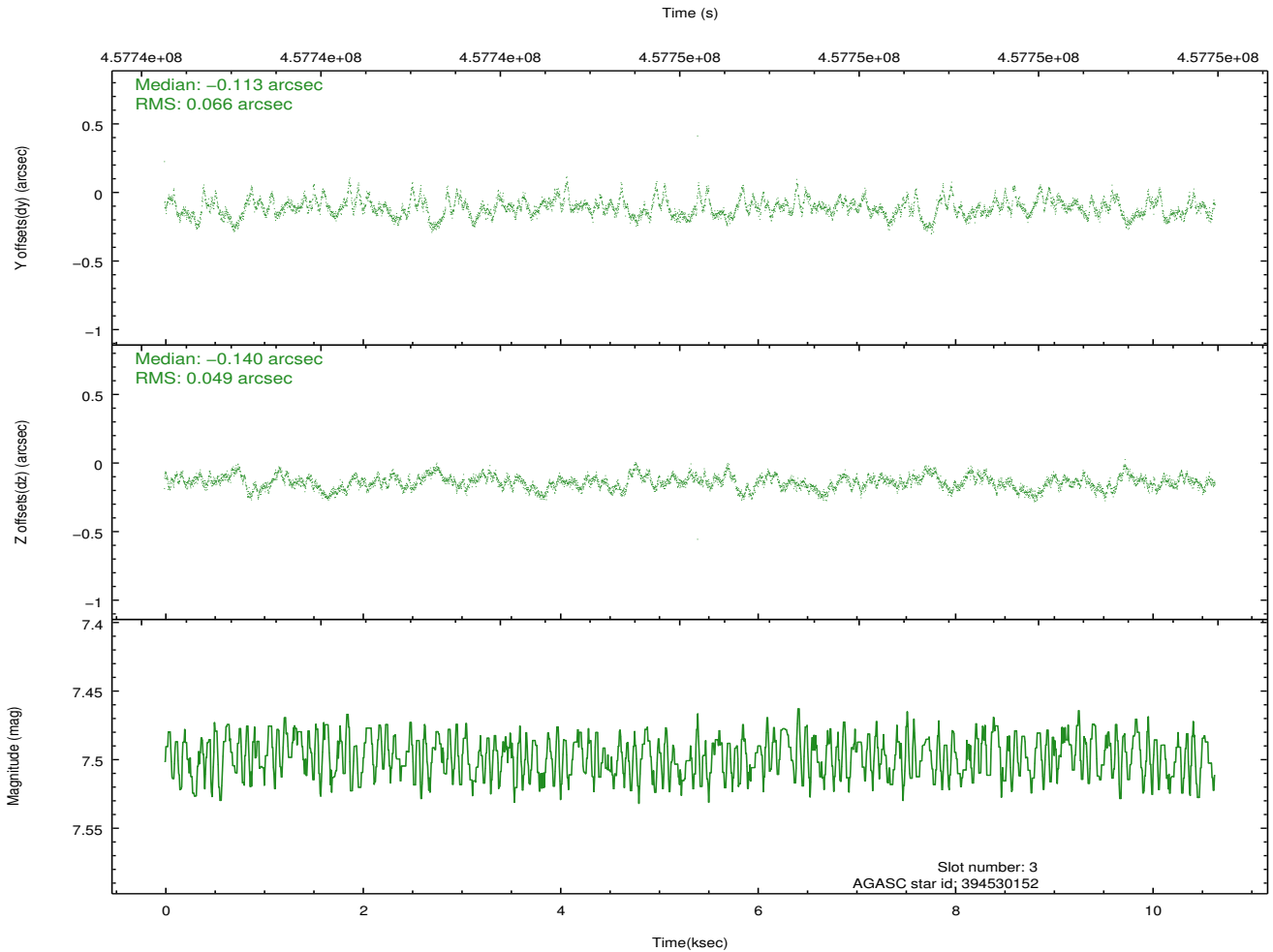
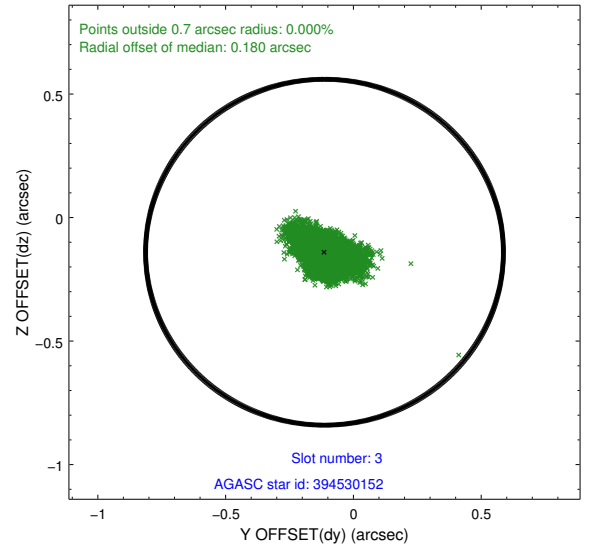
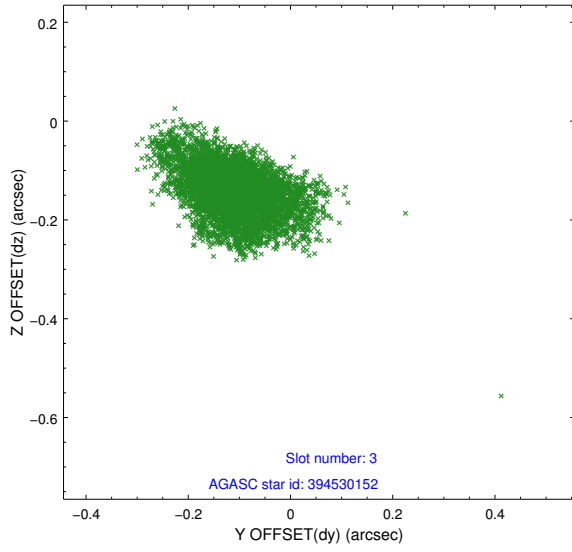


### Slot Statistics

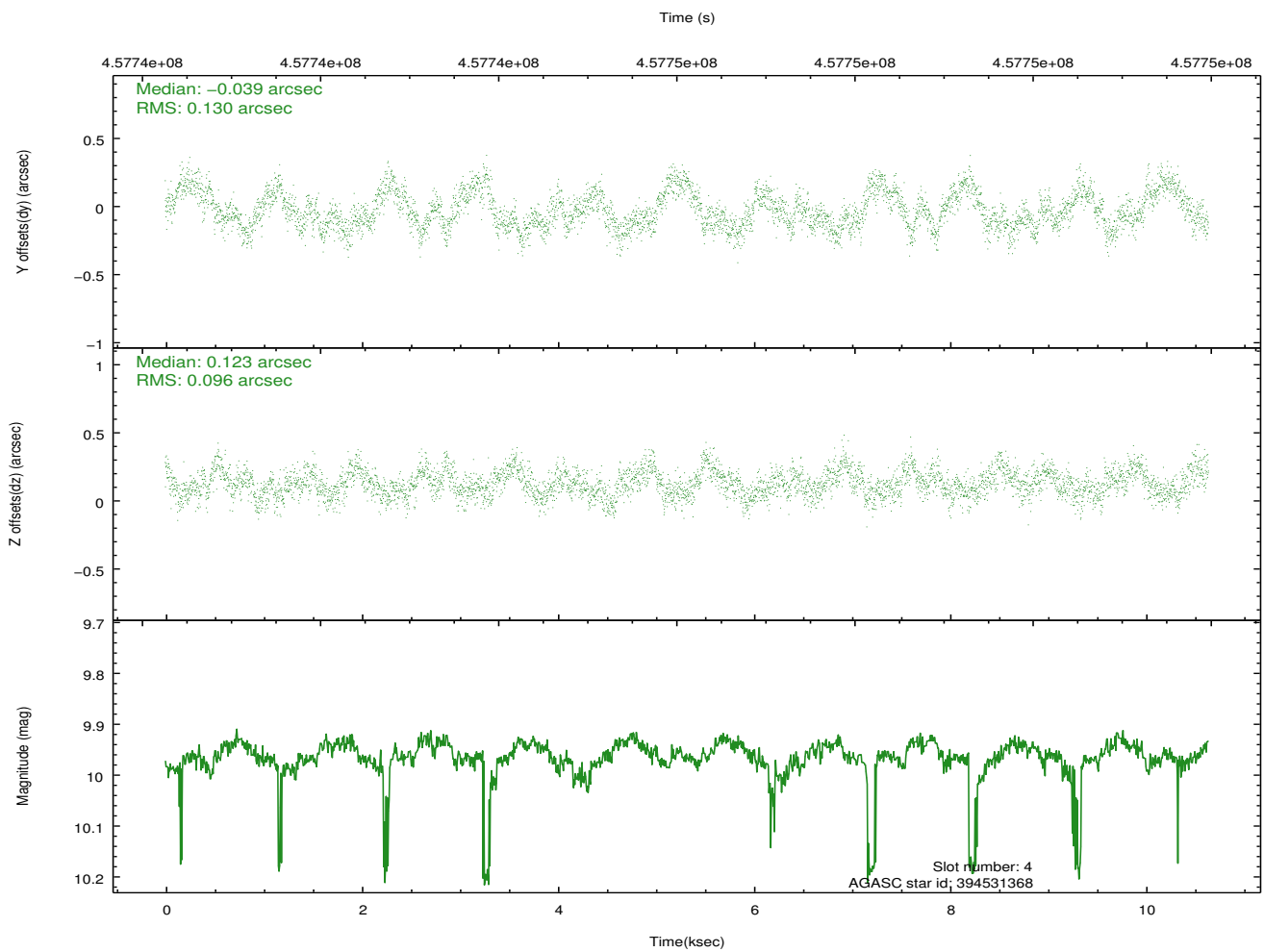
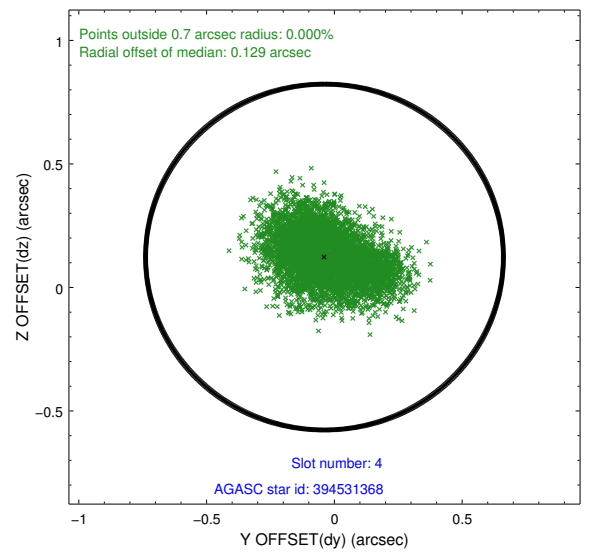
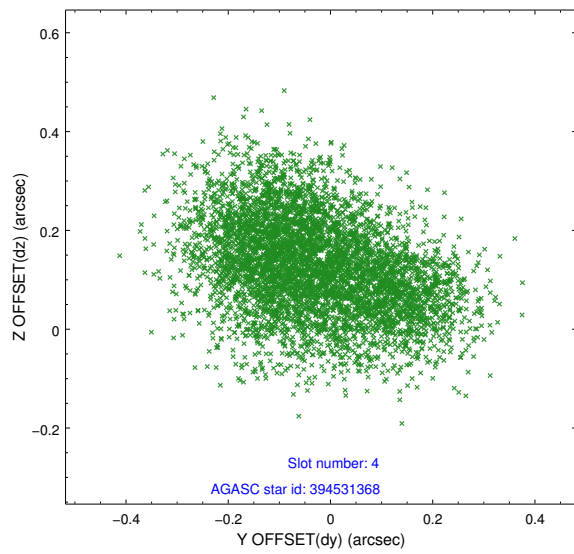
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.86	2596	-0.148	-0.100	0.006	0.012	0.000000	0.000000	-763.47	-1900.05
1	FID	ACIS-S-4	6.93	2596	0.137	0.088	0.006	0.009	0.000000	0.000000	2149.92	7.95
2	FID	ACIS-S-6	7.17	2596	-0.016	0.018	0.008	0.013	0.000000	0.000000	399.35	645.89
3	GUIDE	394530152	7.50	5192	-0.113	-0.140	0.085	0.149	166.075805	38.868252	-2195.78	-192.49
4	GUIDE	394531368	9.96	5164	-0.039	0.123	0.174	0.274	165.794613	38.837127	-2042.95	-973.68
5	GUIDE	394533848	8.72	5189	0.174	0.011	0.103	0.160	166.382906	38.276007	-115.69	784.79
6	GUIDE	394543960	9.79	5186	0.102	-0.037	0.164	0.273	165.802757	37.787371	1730.68	-758.16
7	GUIDE	394546712	6.60	5191	-0.142	0.030	0.082	0.129	166.451462	38.394357	-550.99	956.87

## 2.4 Star Slots

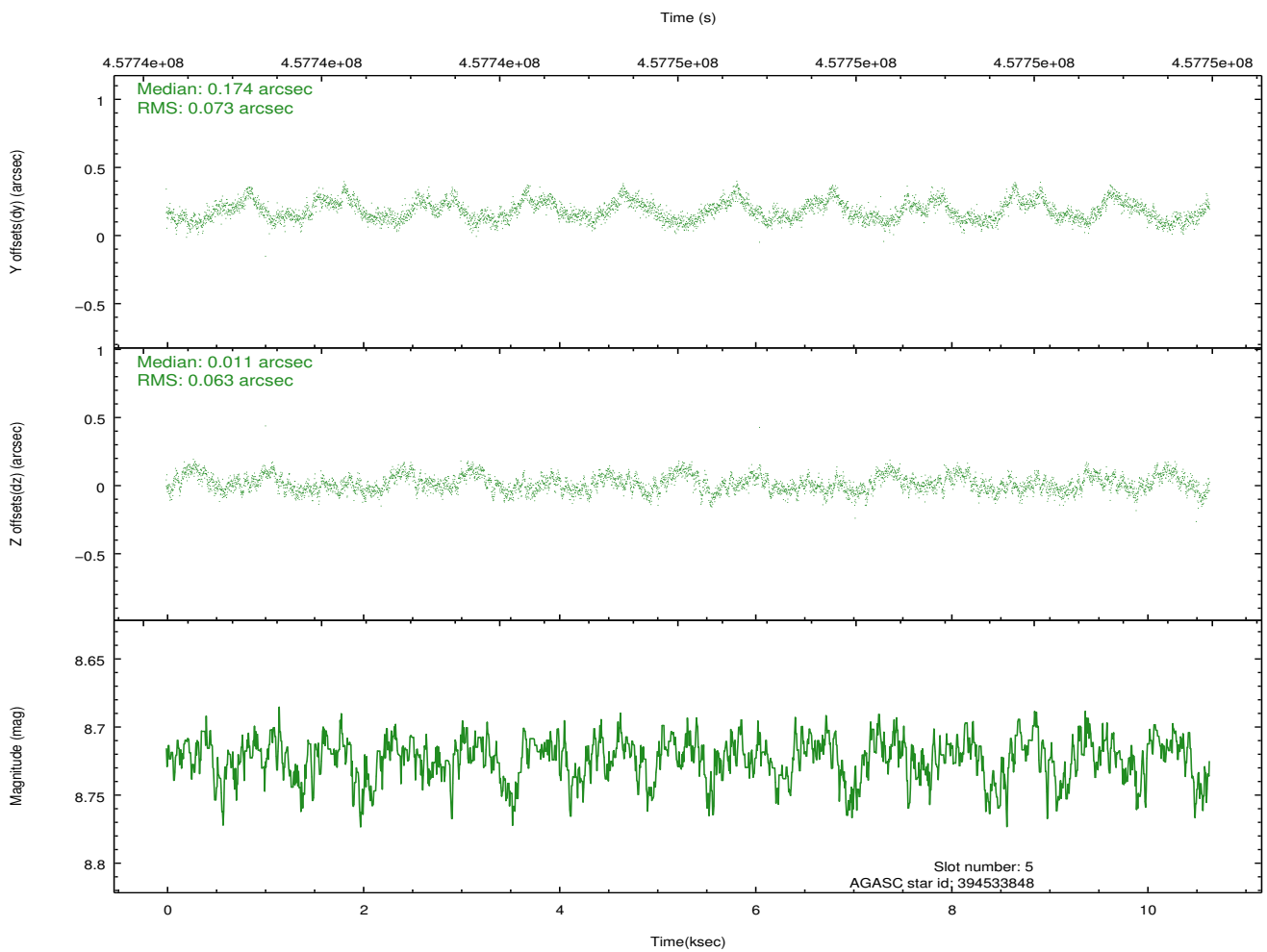
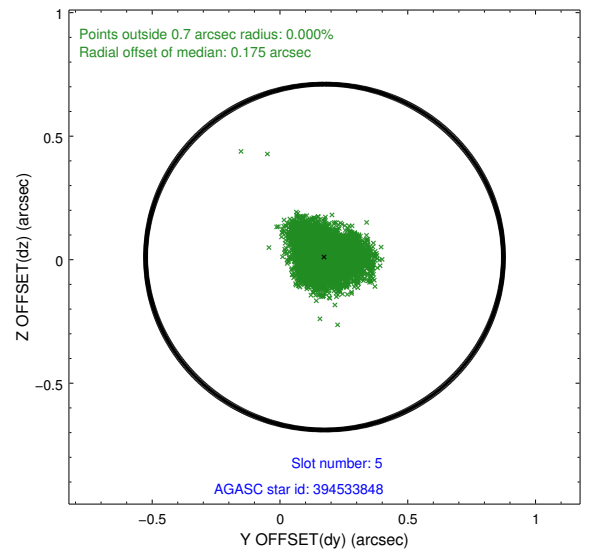
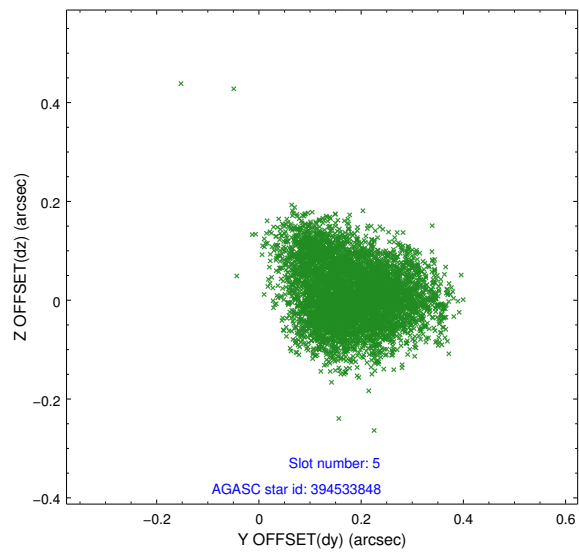
### 2.4.1 Slot 3



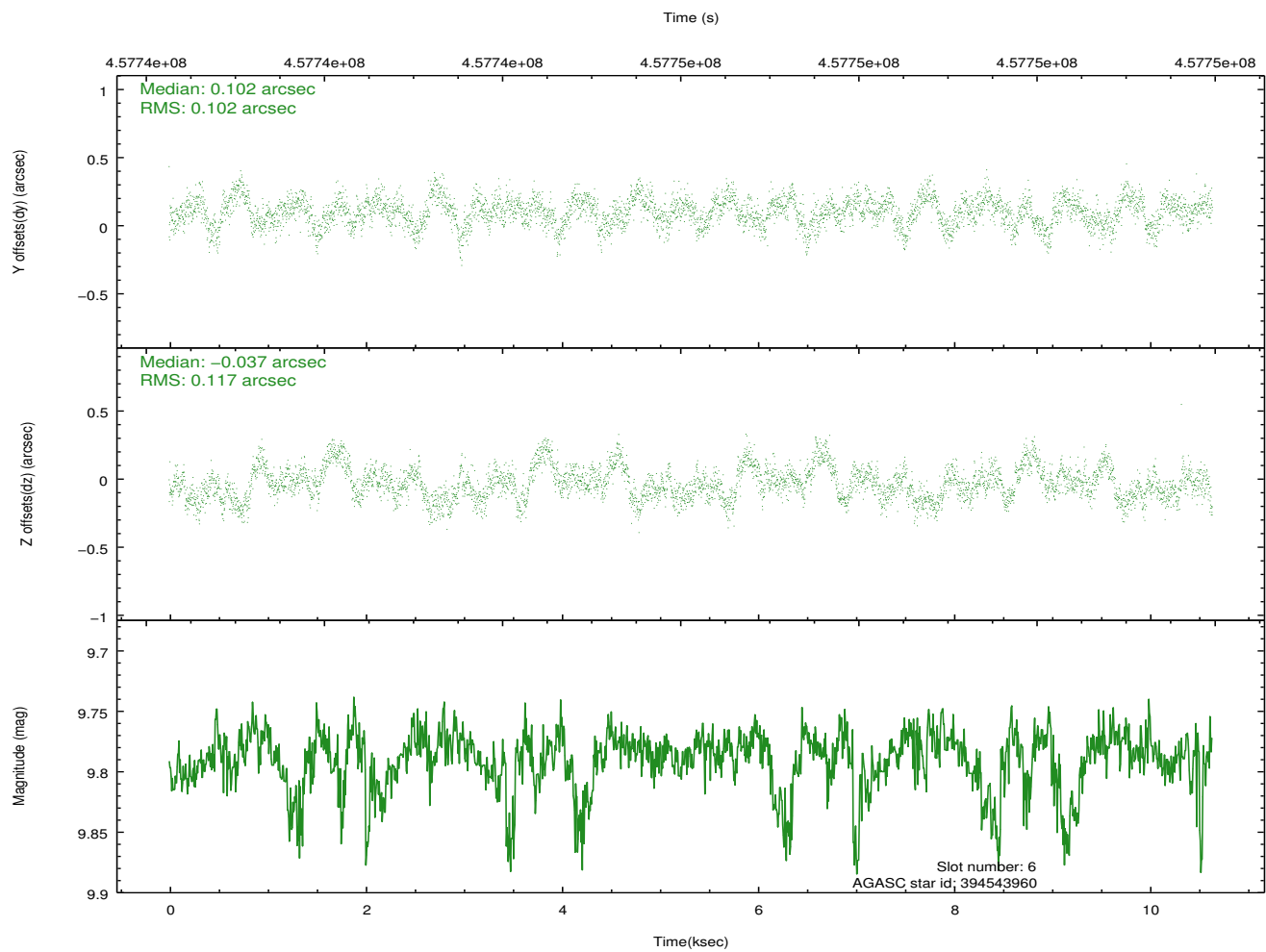
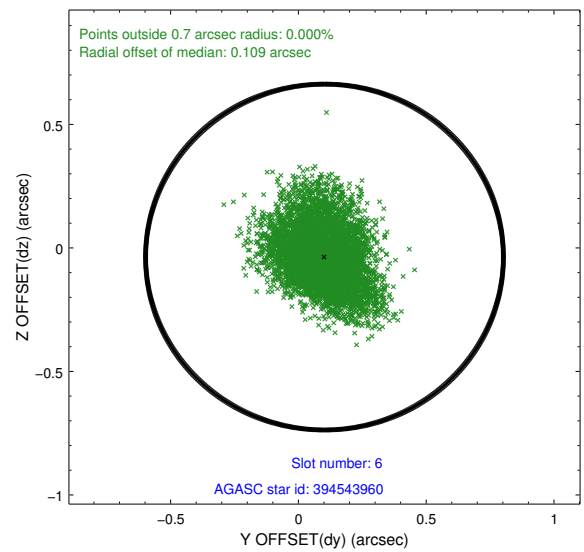
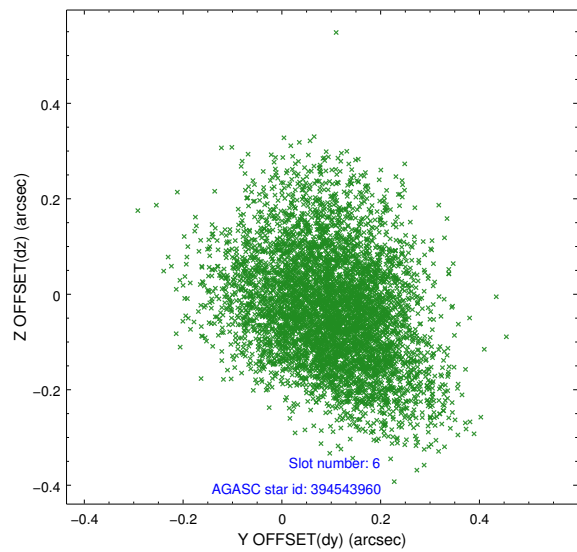
## 2.4.2 Slot 4



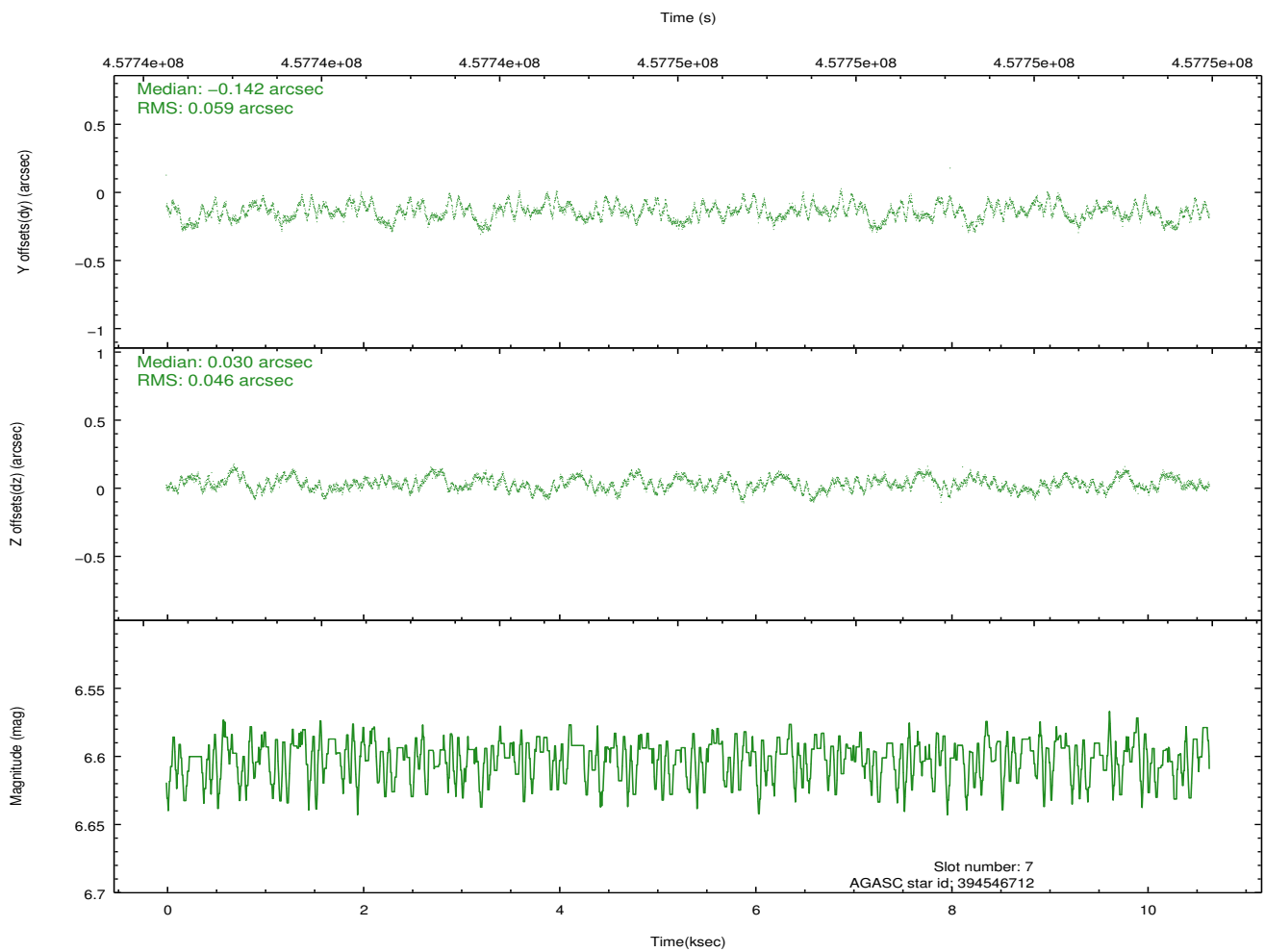
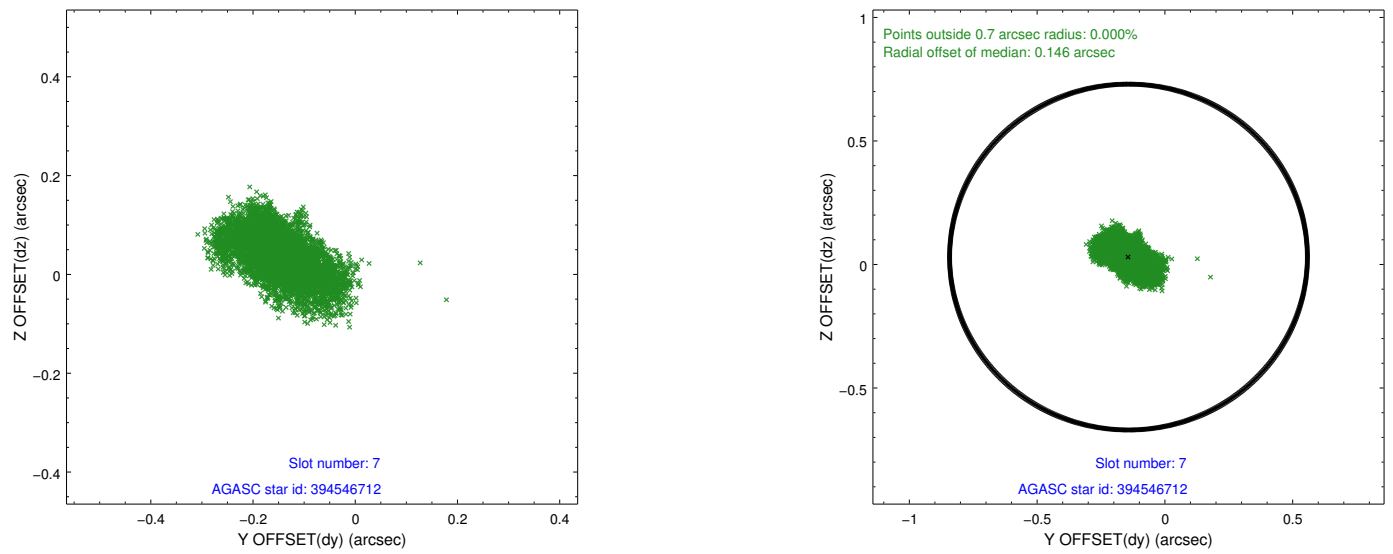
### 2.4.3 Slot 5



## 2.4.4 Slot 6

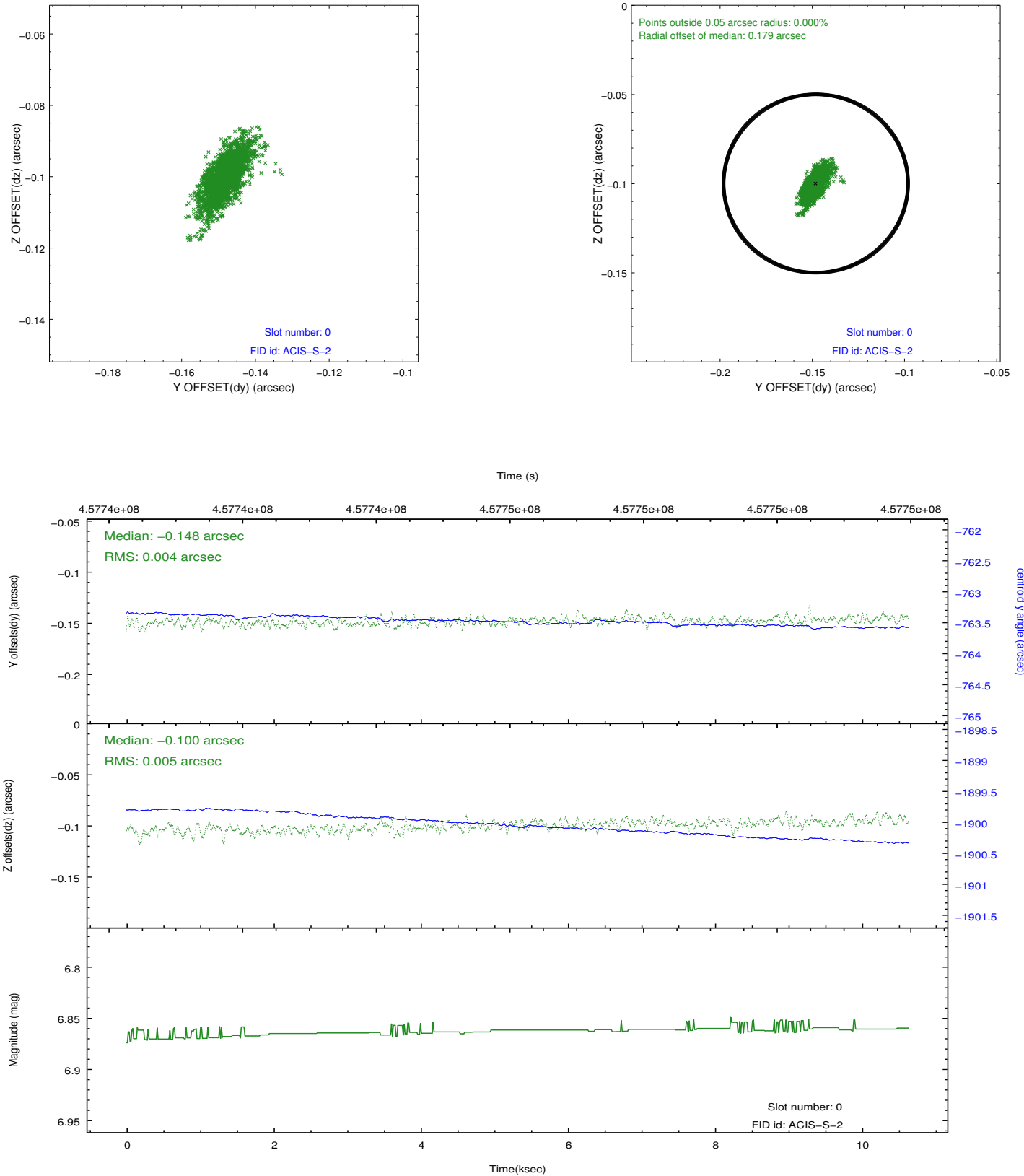


## 2.4.5 Slot 7

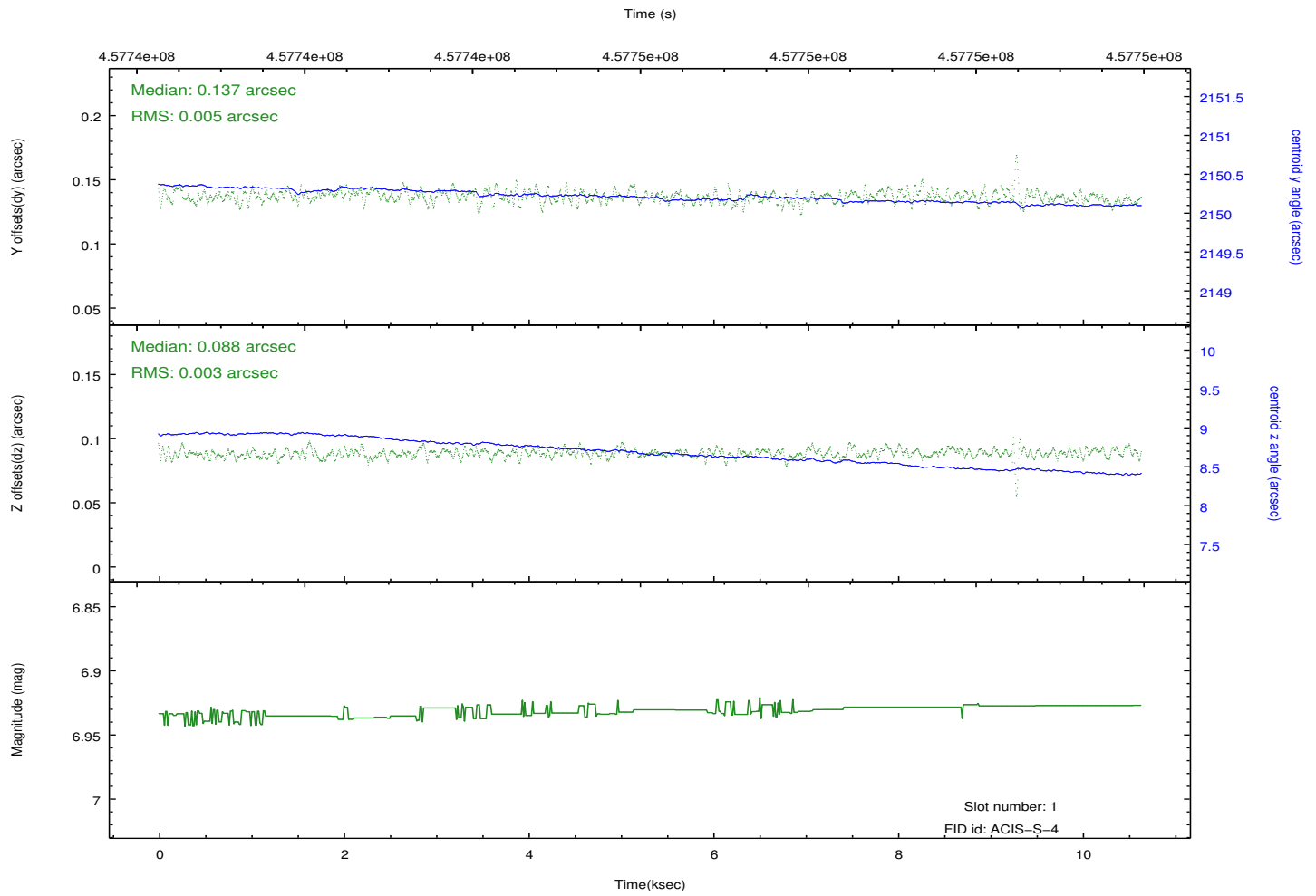
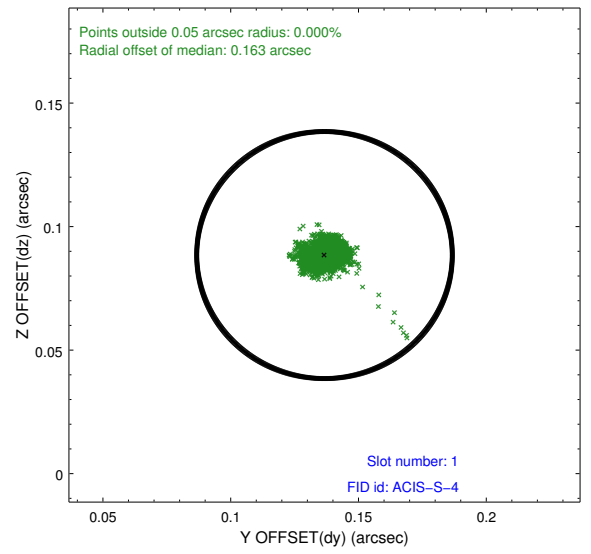
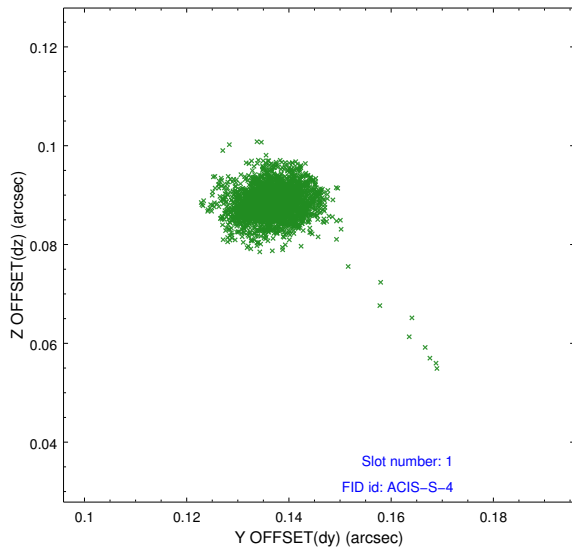


## 2.5 FID Slots

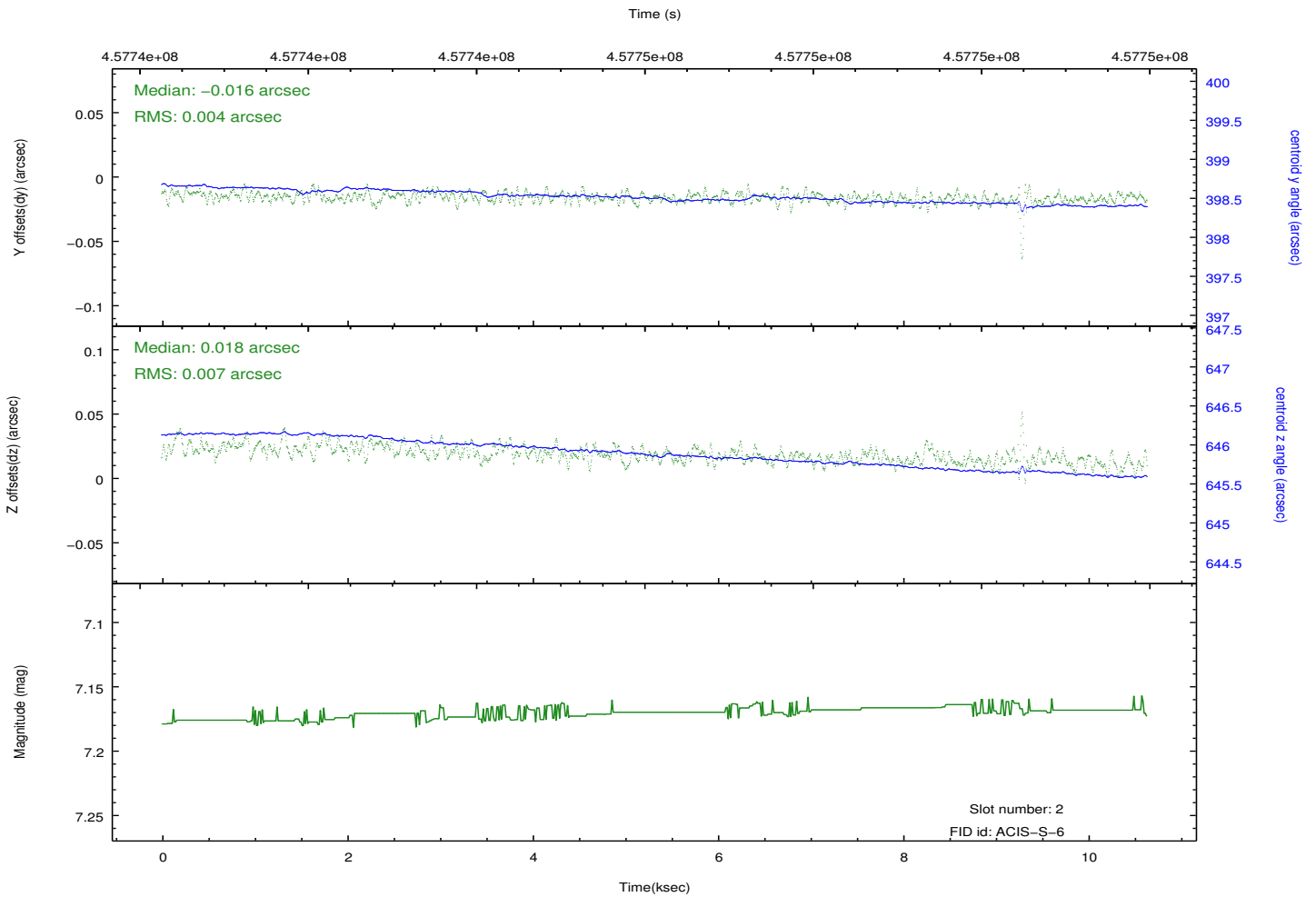
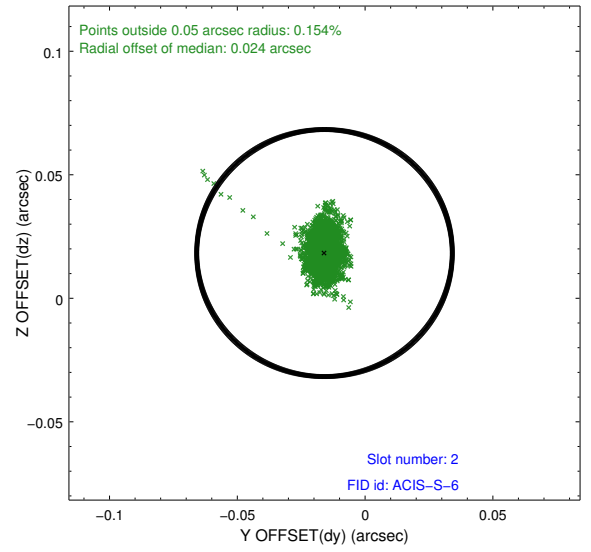
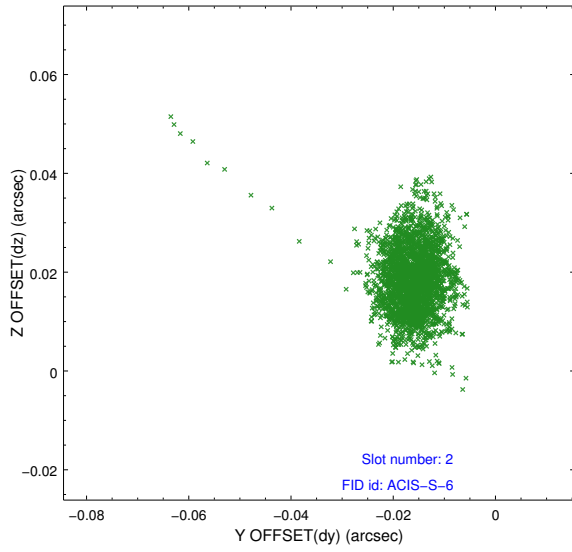
### 2.5.1 Slot 0



## 2.5.2 Slot 1

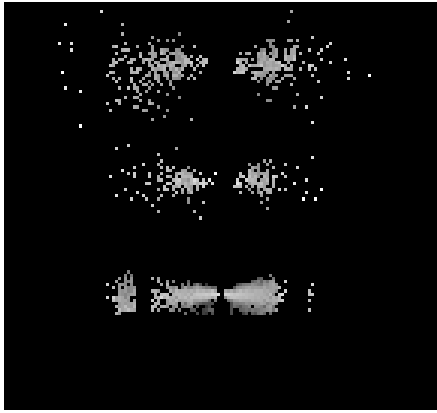


### 2.5.3 Slot 2

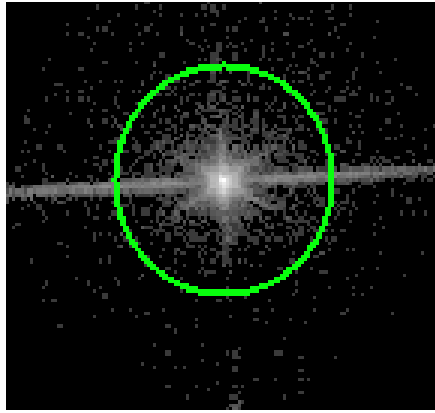


# 3 Gratings

## 3.1 LETG Arm



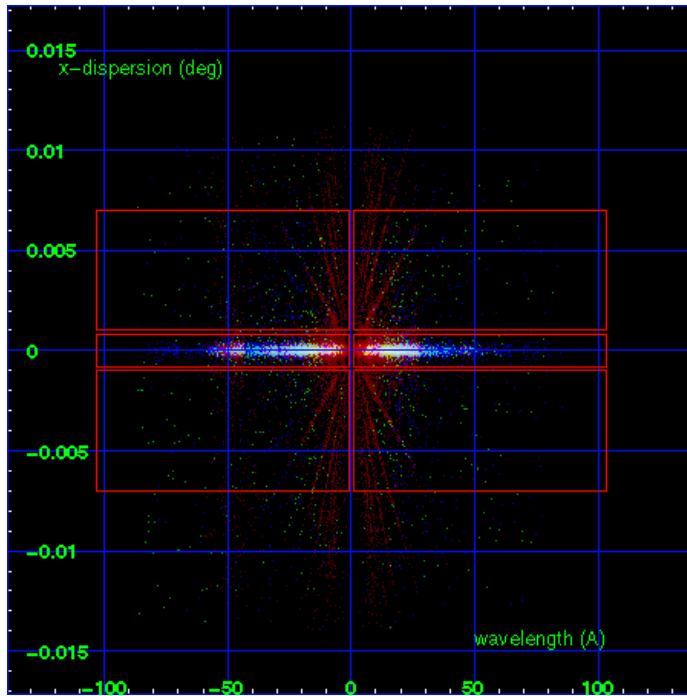
LETG Order Sort 123



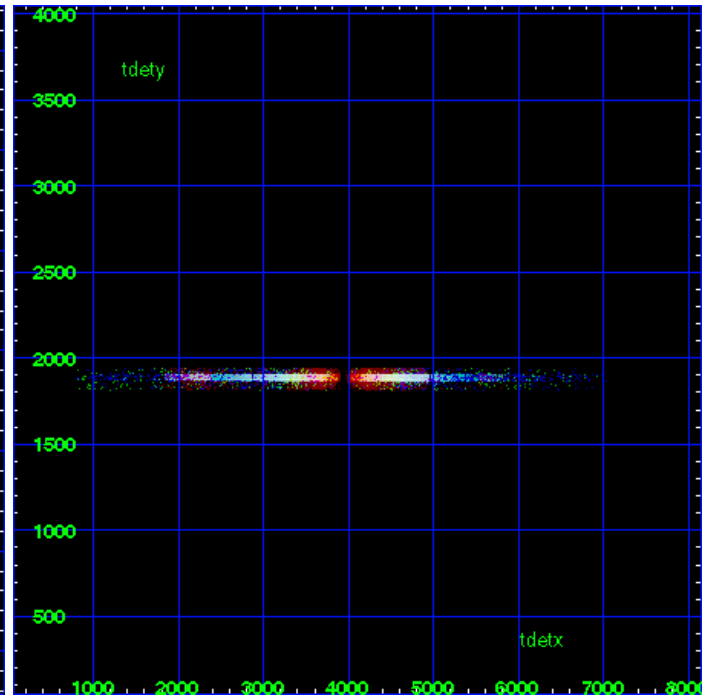
LETG Zero Order



LETG Order Sort ALL

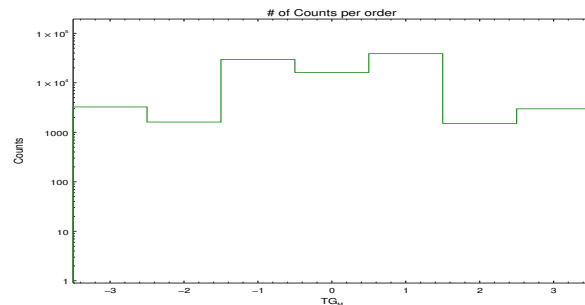


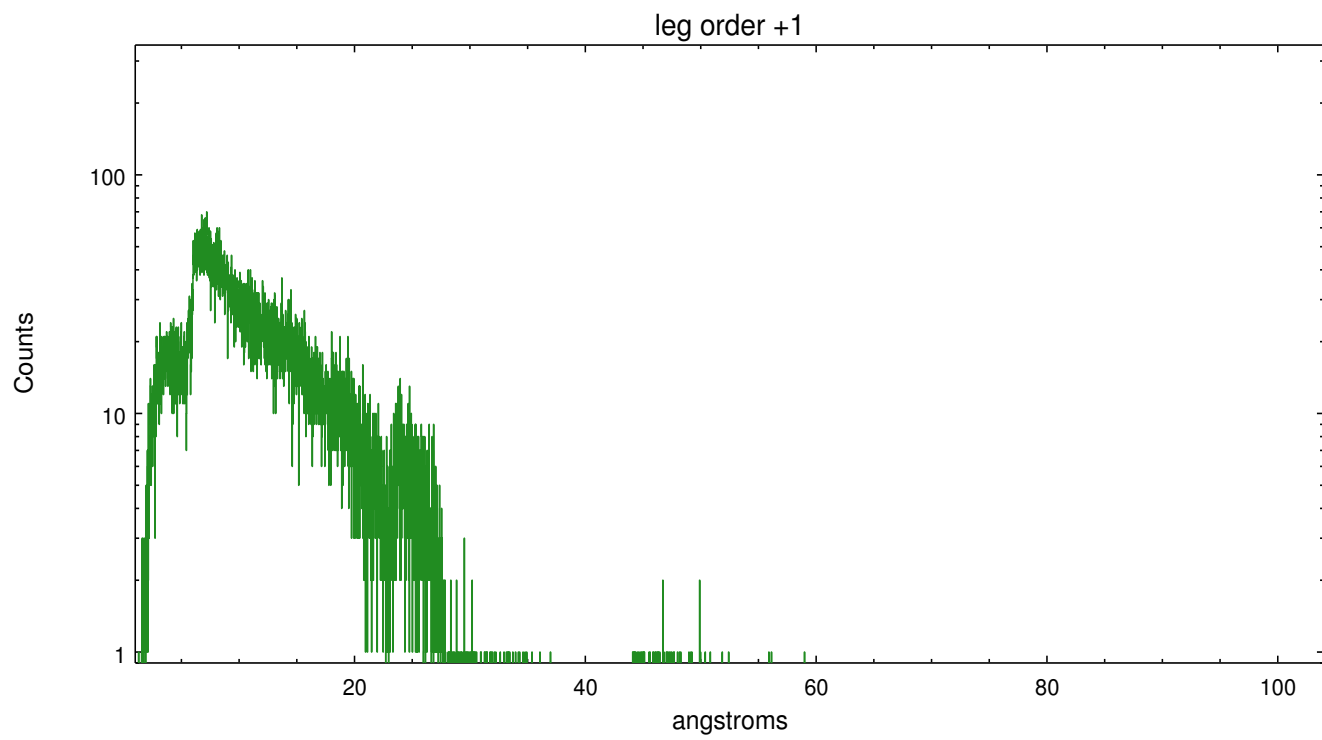
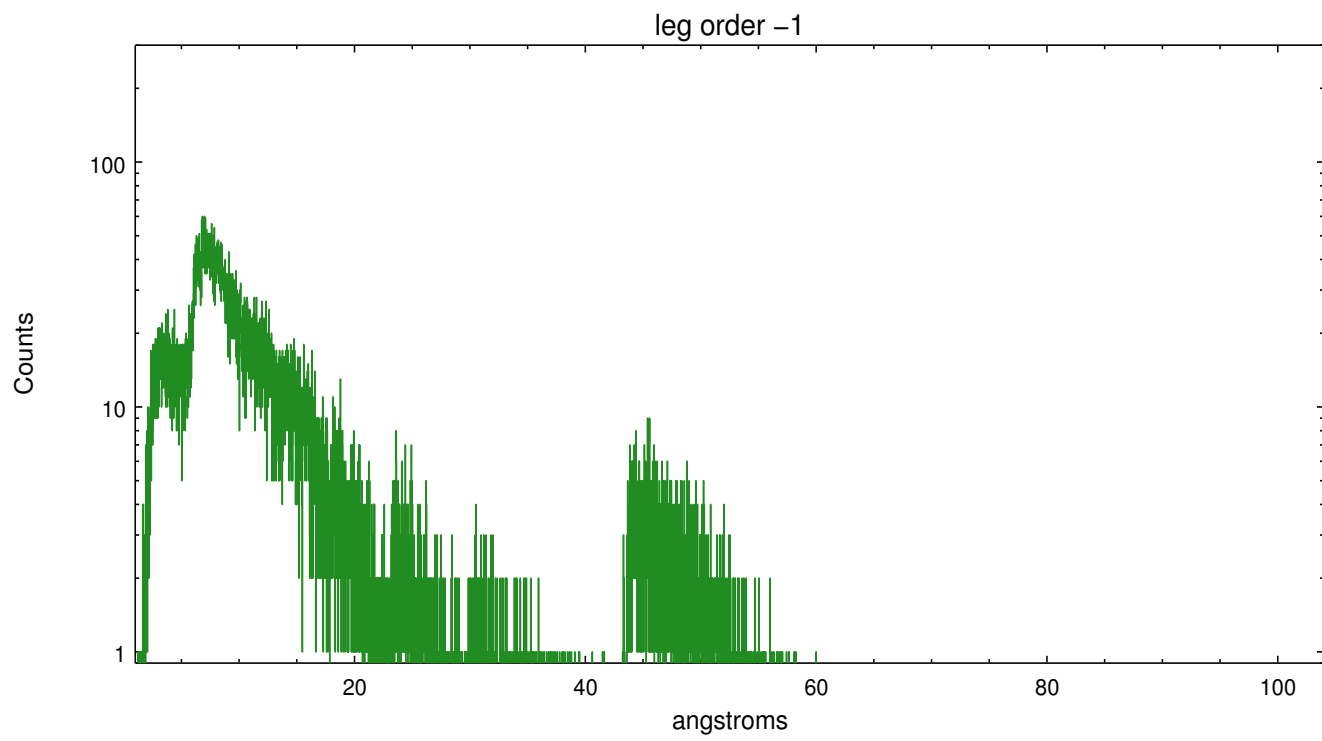
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3251	1610	29638	16184	38778	1512	2976





# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2012.07.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.054592835009

## A.2 Comments