

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 6089 - L2 Version 3  
Chandra X-Ray Center

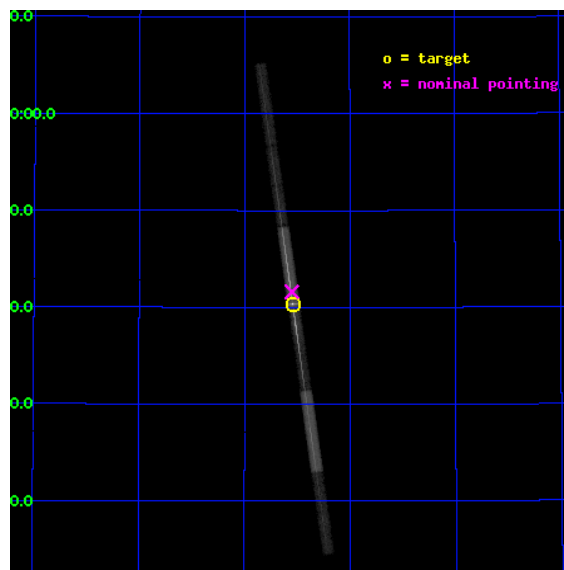
L2 Processing Date : Dec 28 2012

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# 1 Front

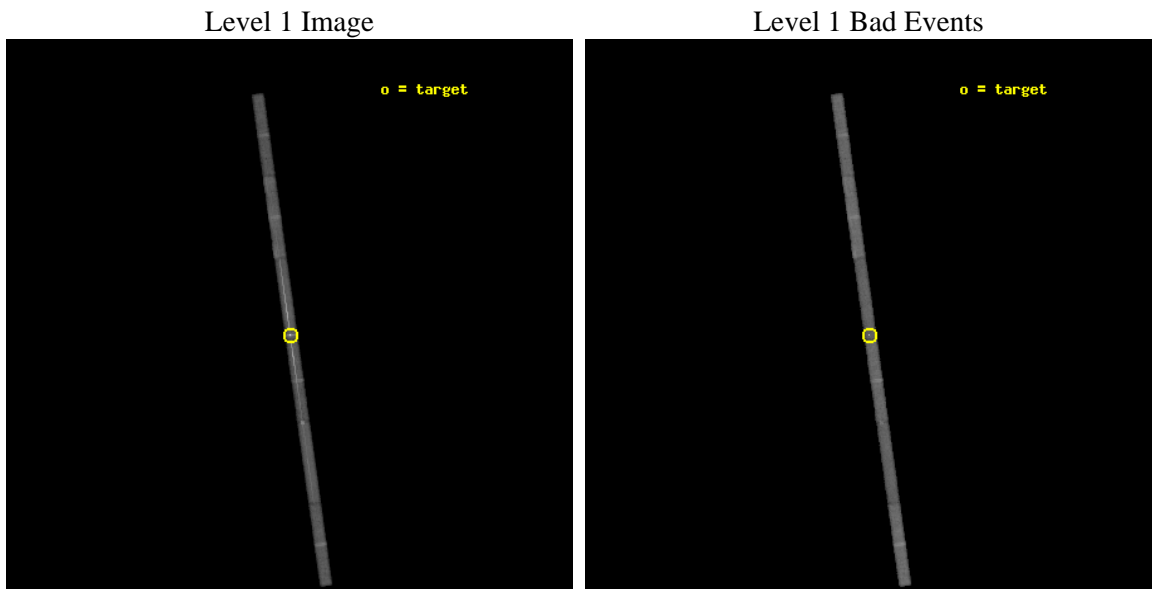
seq_num	790098	Sequence number
obs_id	6089	Observation id
title	AO6 Calibration Observations of 3C273	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	1H1426+428	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	217.135833	Observer's specified target RA [deg]
dec_targ	42.6725	Observer's specified target Dec [deg]
ra_nom	217.13765494867	Nominal RA [deg]
dec_nom	42.693481266291	Nominal Dec [deg]
roll_nom	261.93333671354	Nominal Roll [deg]
revision	3	Processing version of data
ontime	42179.899281681	Sum of GTIs [s]
livetime	39843.907882404	Livetime [s]
ontime4	42179.899281681	Sum of GTIs [s]
ontime5	42179.899281681	Sum of GTIs [s]
ontime6	42179.899281681	Sum of GTIs [s]
ontime7	42179.899281681	Sum of GTIs [s]
ontime8	42179.899281681	Sum of GTIs [s]
ontime9	42179.899281681	Sum of GTIs [s]
l2events	185707	Number of level 2 events



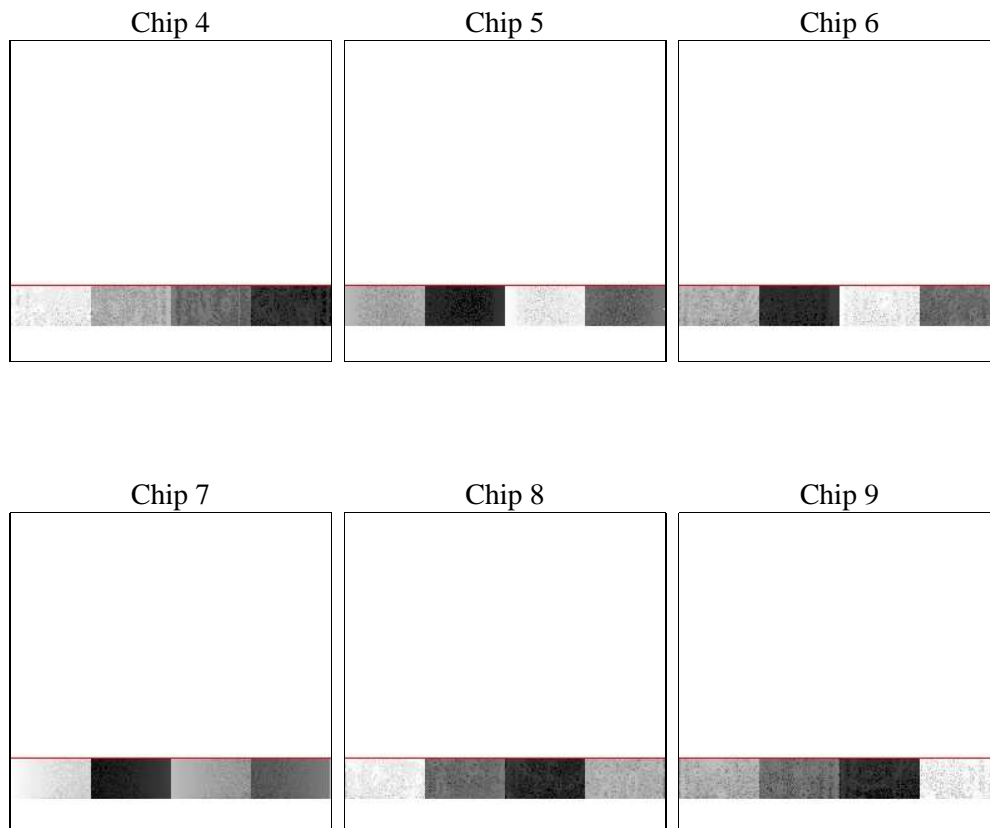
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	42000.000000	[s] Scheduled observation exposure time
ascdsver	8.5.1.1	Processing system revision	ontime	42179.899281681	Sum of GTIs [s]
caldbver	4.5.5	&#160	ontime4	42179.899281681	Sum of GTIs [s]
date	2012-12-27T02:20:34	Date and time of file creation	ontime5	42179.899281681	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	42179.899281681	Sum of GTIs [s]
			ontime7	42179.899281681	Sum of GTIs [s]
			ontime8	42179.899281681	Sum of GTIs [s]
			ontime9	42179.899281681	Sum of GTIs [s]
			l1events	463979	Number of level 1 events

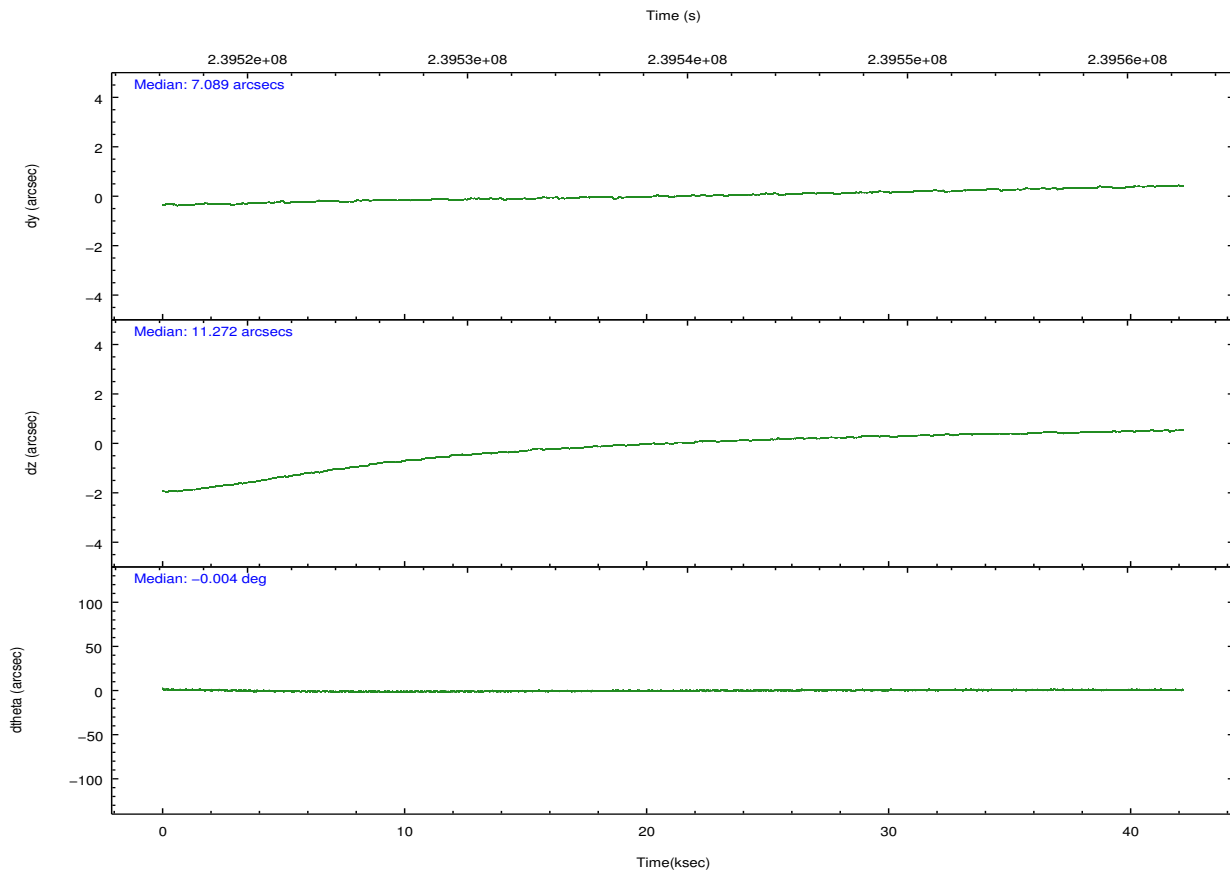
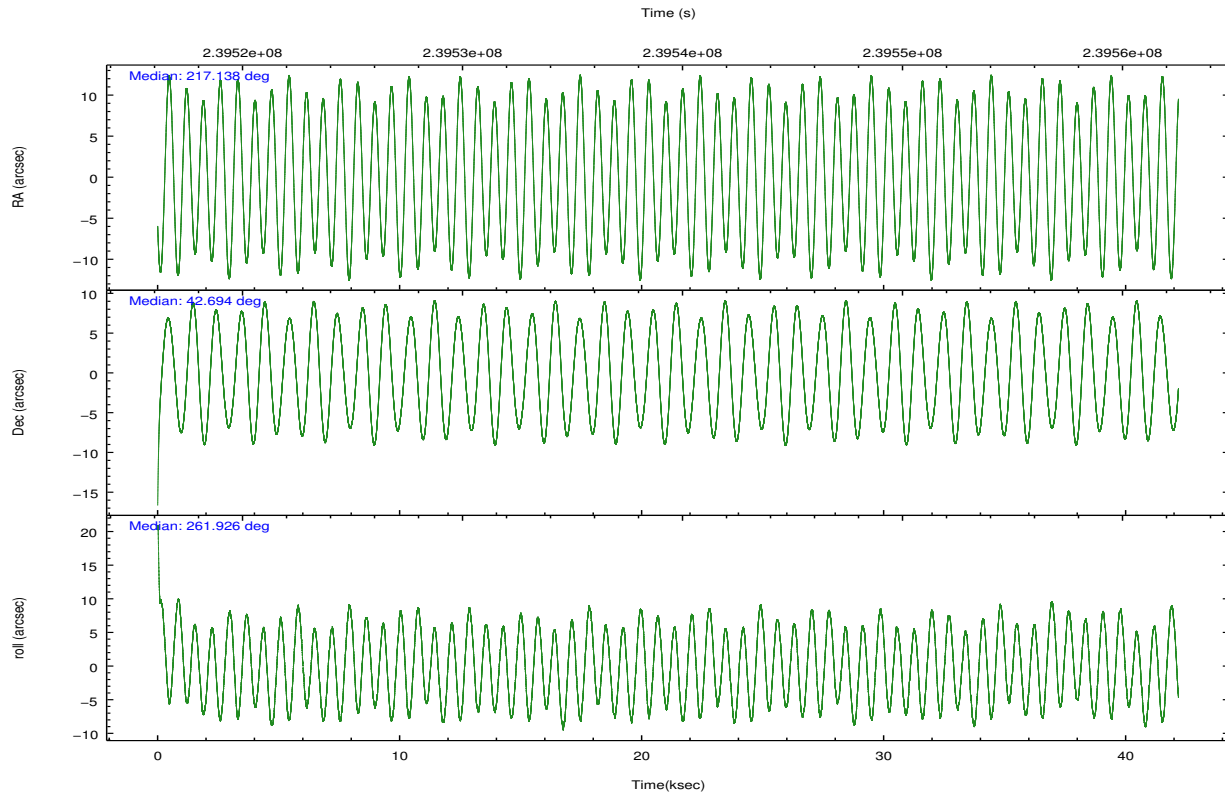
### 2.1.4 Events

	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	57745	67494	78495	141286	72336	46623	grade 0 events	2981	6695	25697	23460	6280	2806
rejected events	50599	31982	43800	38128	54762	39925		5%	9%	32%	16%	8%	6%
rejected %	87%	47%	55%	26%	75%	85%	grade 1 events	31	385	51	788	36	15
								0%	0%	0%	0%	0%	0%
							grade 2 events	1394	8746	3784	25053	2863	1034
								2%	12%	4%	17%	3%	2%
							grade 3 events	903	2825	1786	11936	2270	978
								1%	4%	2%	8%	3%	2%
							grade 4 events	870	3080	1764	11507	2107	951
								1%	4%	2%	8%	2%	2%
							grade 5 events	1638	5639	1684	7891	2202	1678
								2%	8%	2%	5%	3%	3%
							grade 6 events	1032	14530	1779	31535	4132	962
								1%	21%	2%	22%	5%	2%
							grade 7 events	48896	25594	41950	29116	52446	38199
								84%	37%	53%	20%	72%	81%

## 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	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	217.123353	217.137654948666	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	42.718612	42.69348126629097	Subarray start row	113	113
[deg] Pointing Roll	261.786407	261.9333367135376	Subarray row count	128	128
[s] Window start time (MET)	233971264.184000	233971264.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	241833664.184000	241833664.184000	[s] Primary exposure time	0.000000	0.7
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-182.132523	-182.139514760308			
[mm] SIM translation stage offset	-8	-7.993007822699838			
[s] Observation start time (MET)	239518439.184000	239517390.23216			
Observation start date	2005-08-04T04:52:55	2005-08-04T04:36:30			
[s] Observation end time (MET)	239560439.184000	239561247.42167			
Observation end date	2005-08-04T16:32:55	2005-08-04T16:47:27			
Read mode	TIMED	TIMED			

## 2.3 Aspect

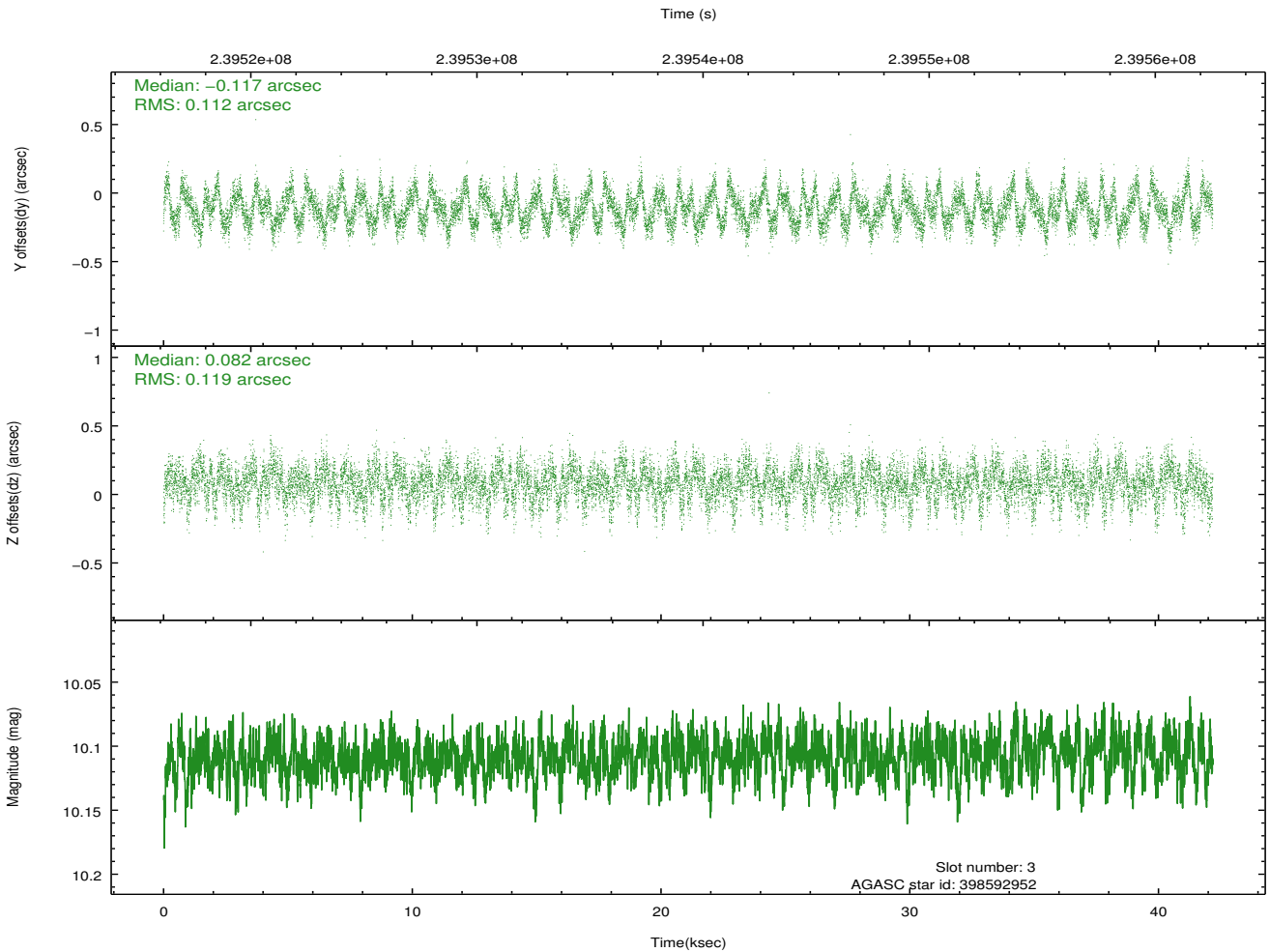
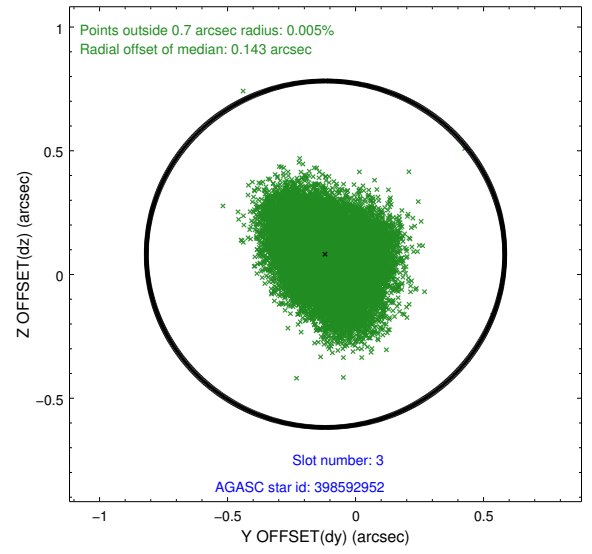
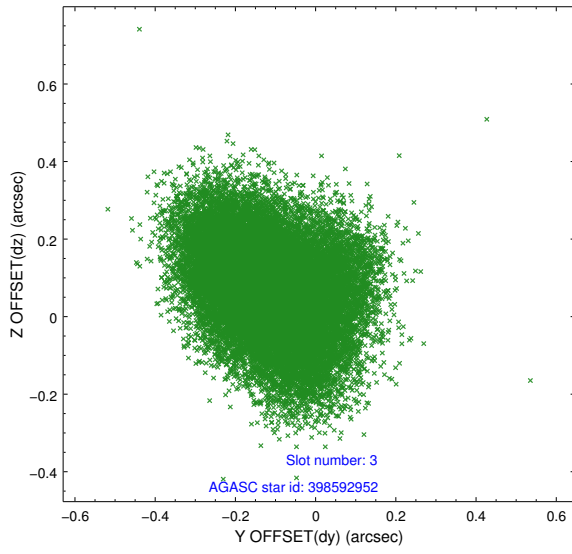


### Slot Statistics

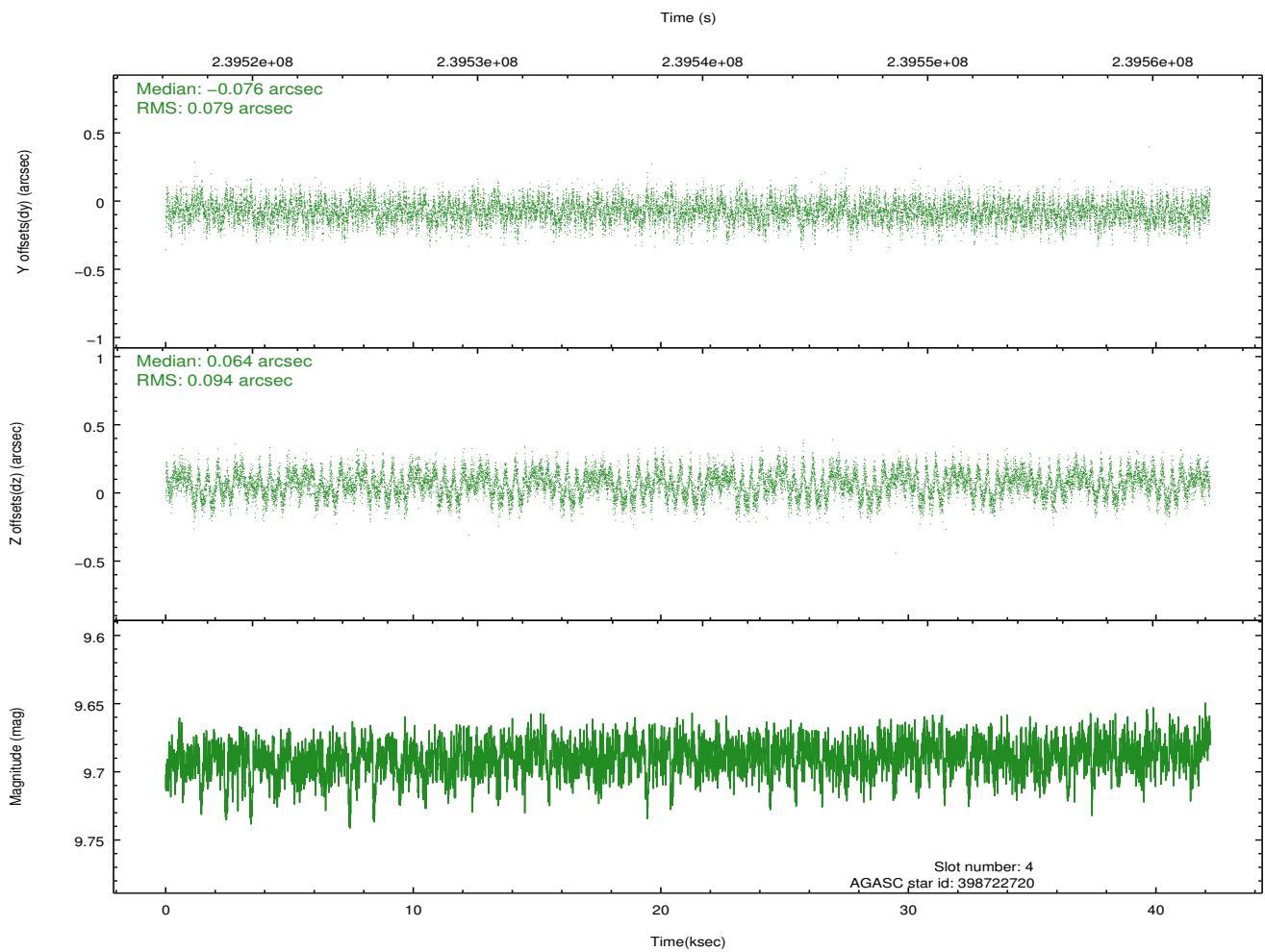
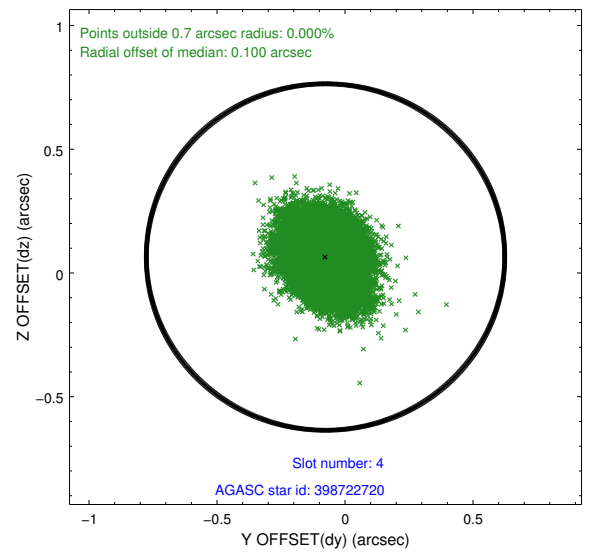
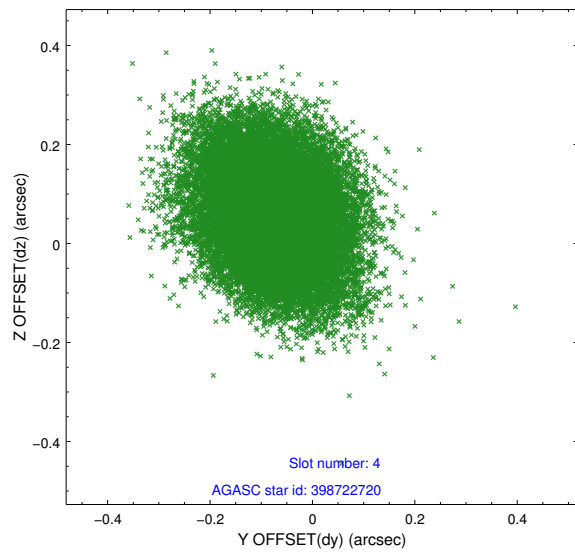
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	10287	-0.072	-0.145	0.027	0.050	0.000000	0.000000	-759.36	-1897.10
1	FID	ACIS-S-4	7.18	10288	0.123	0.072	0.012	0.026	0.000000	0.000000	2154.11	11.55
2	FID	ACIS-S-5	7.23	10288	-0.084	0.079	0.024	0.043	0.000000	0.000000	-1812.21	5.23
3	GUIDE	398592952	10.11	20556	-0.117	0.082	0.176	0.278	216.343106	43.029643	-823.97	-2193.40
4	GUIDE	398722720	9.69	20555	-0.076	0.064	0.131	0.208	218.042263	43.202045	-2080.38	2135.92
5	GUIDE	398723464	9.05	20536	0.079	-0.171	0.084	0.136	217.255519	42.514001	679.28	452.46
6	GUIDE	398725424	8.78	20568	-0.067	0.109	0.104	0.162	217.673023	42.542871	413.28	1533.26
7	GUIDE	398197864	9.37	20554	0.182	-0.086	0.107	0.175	216.112574	42.237784	2083.09	-2420.87

## 2.4 Star Slots

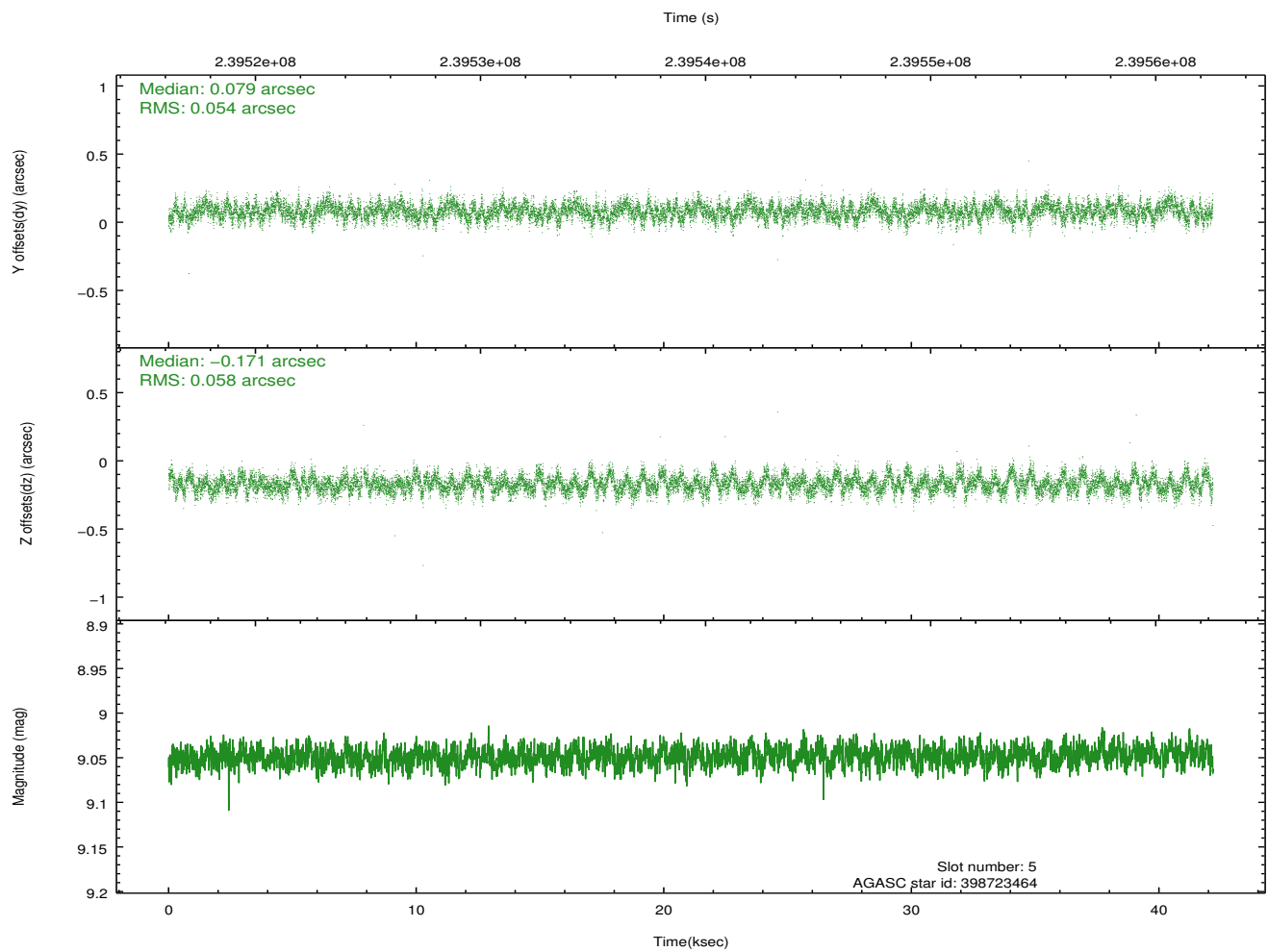
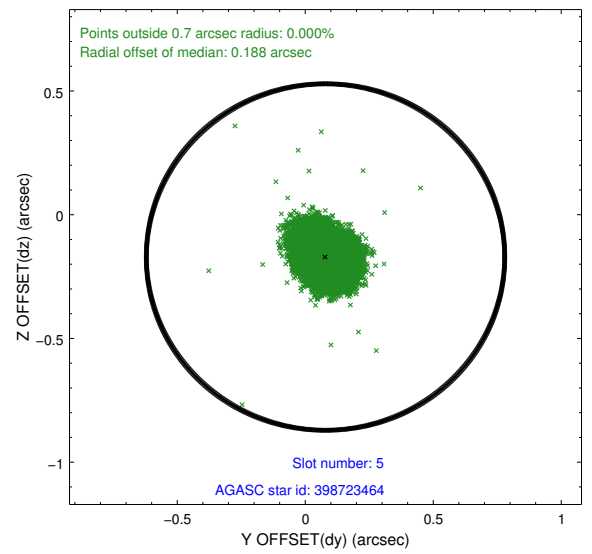
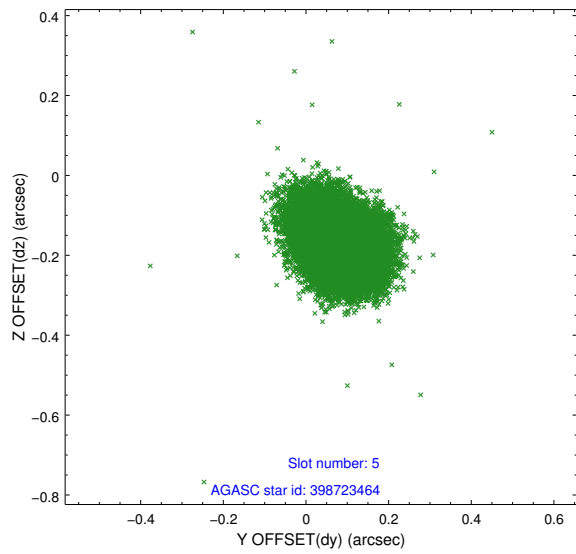
### 2.4.1 Slot 3



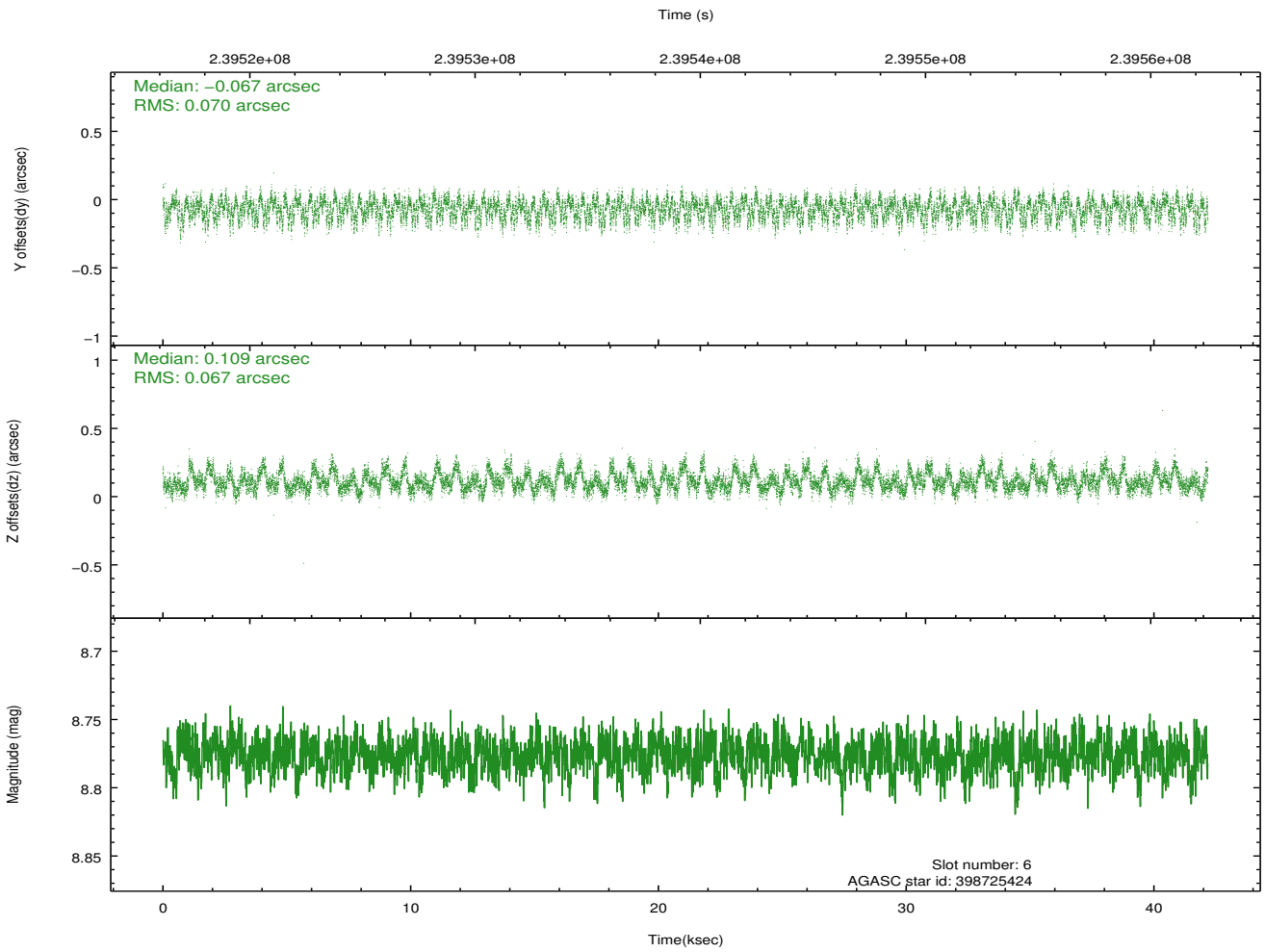
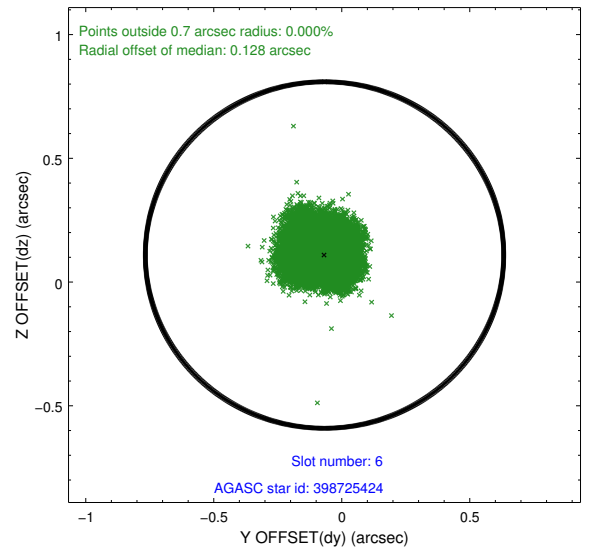
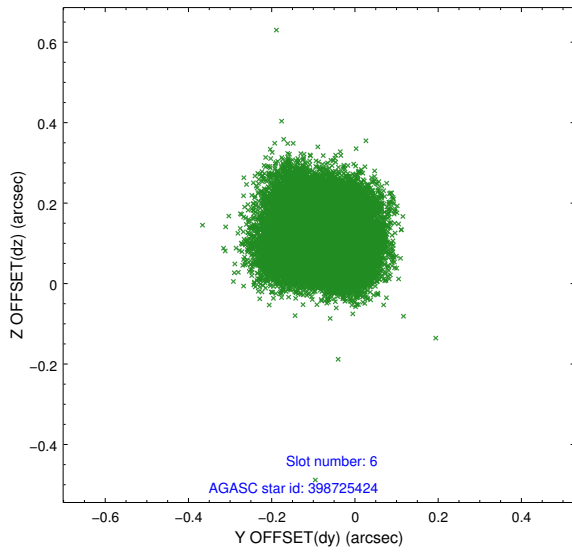
## 2.4.2 Slot 4



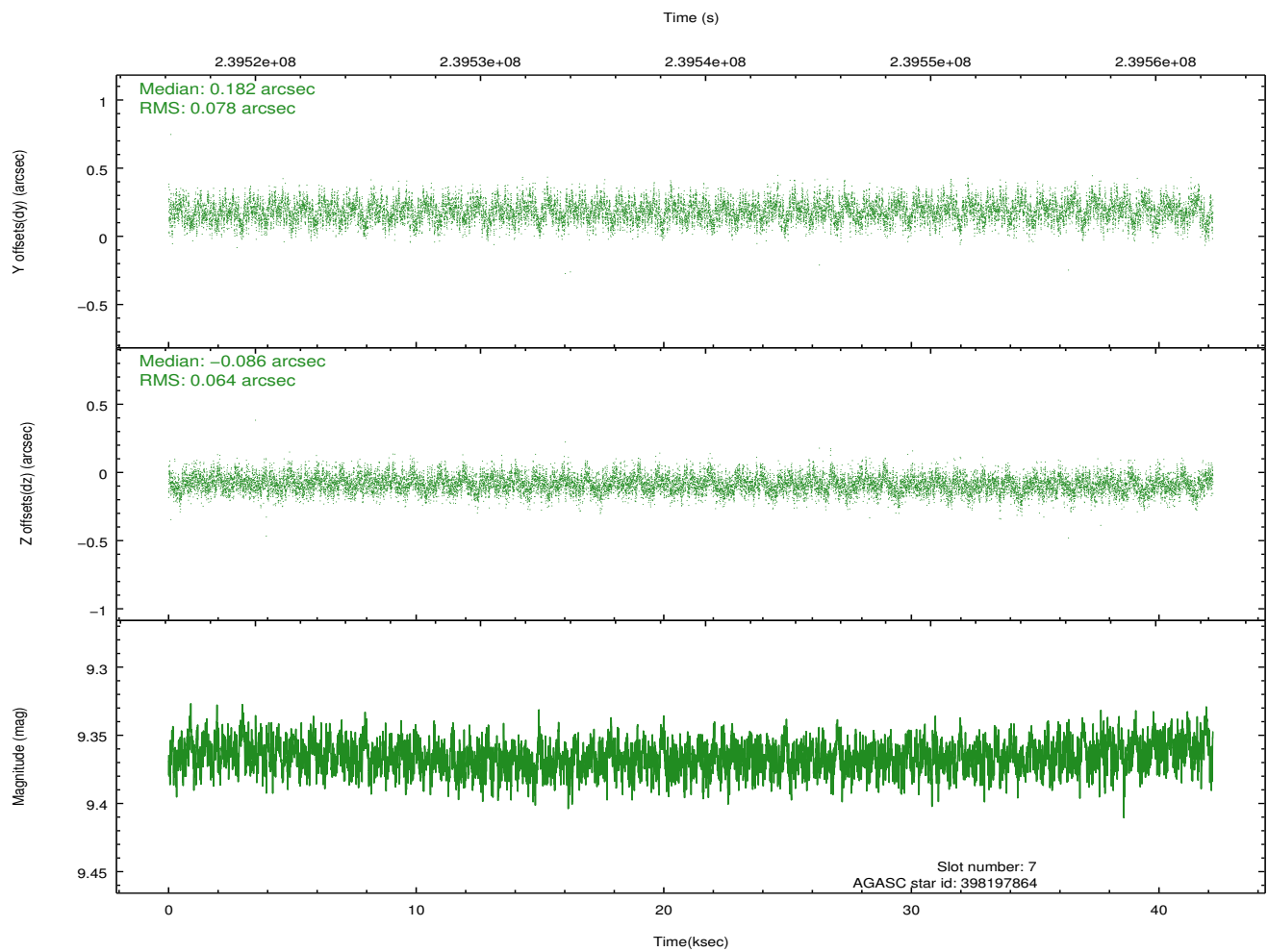
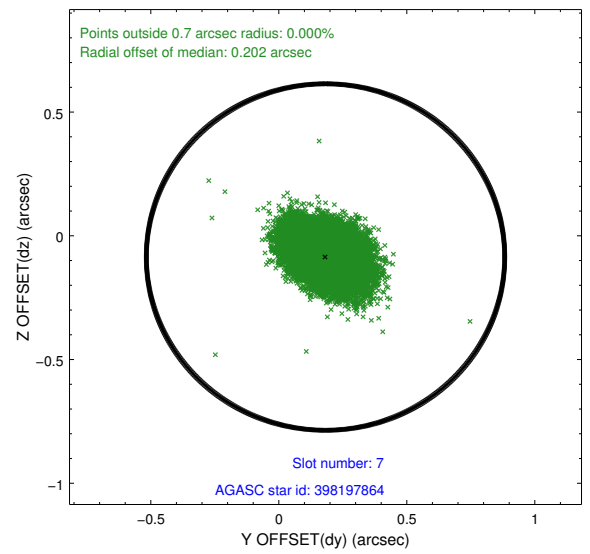
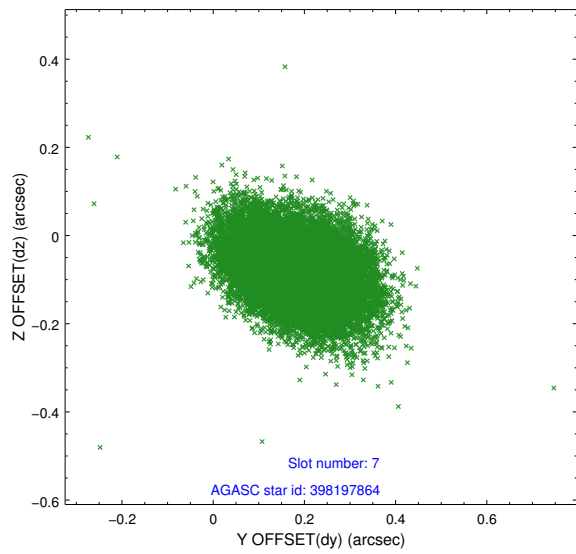
### 2.4.3 Slot 5



### 2.4.4 Slot 6

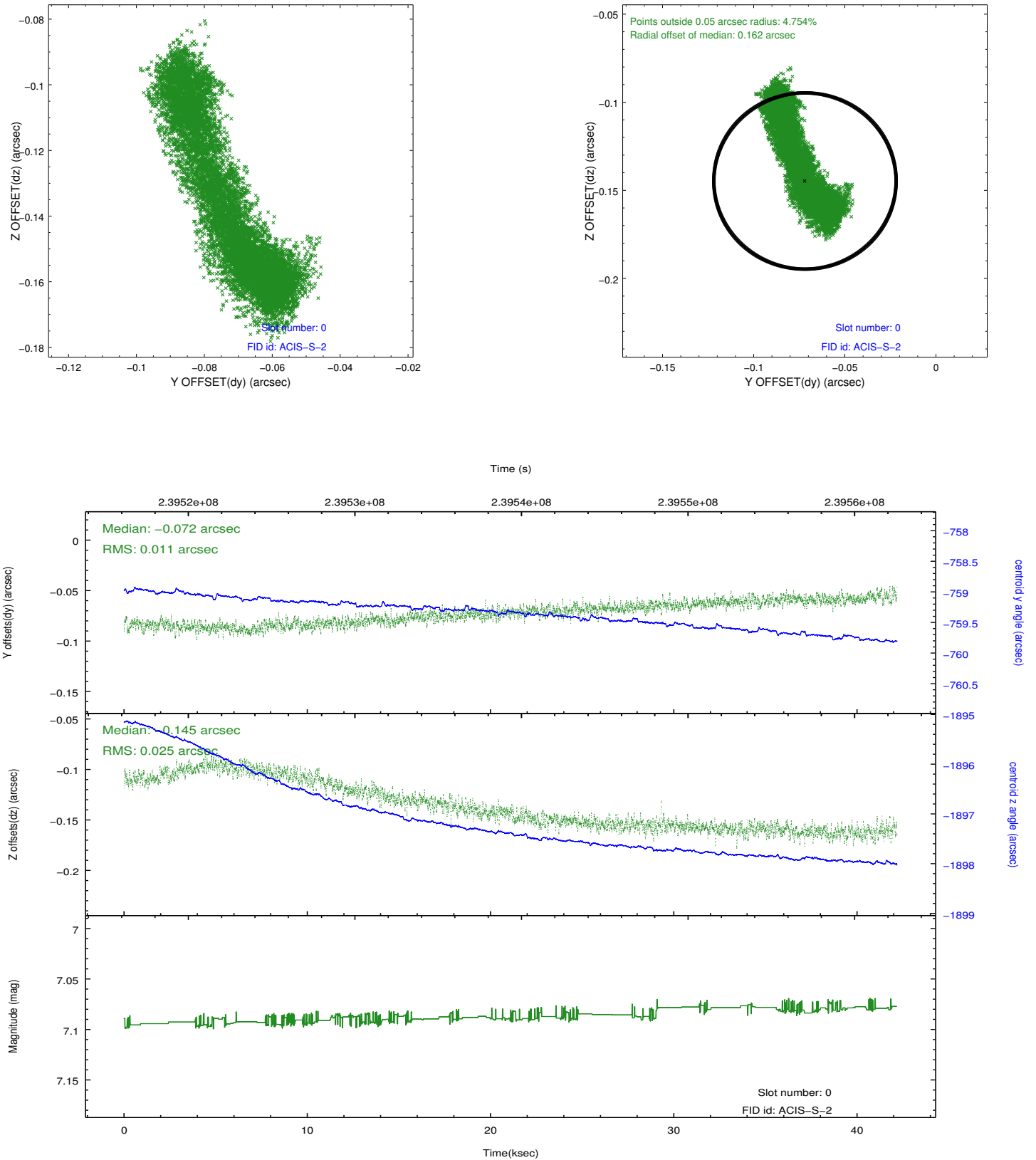


## 2.4.5 Slot 7

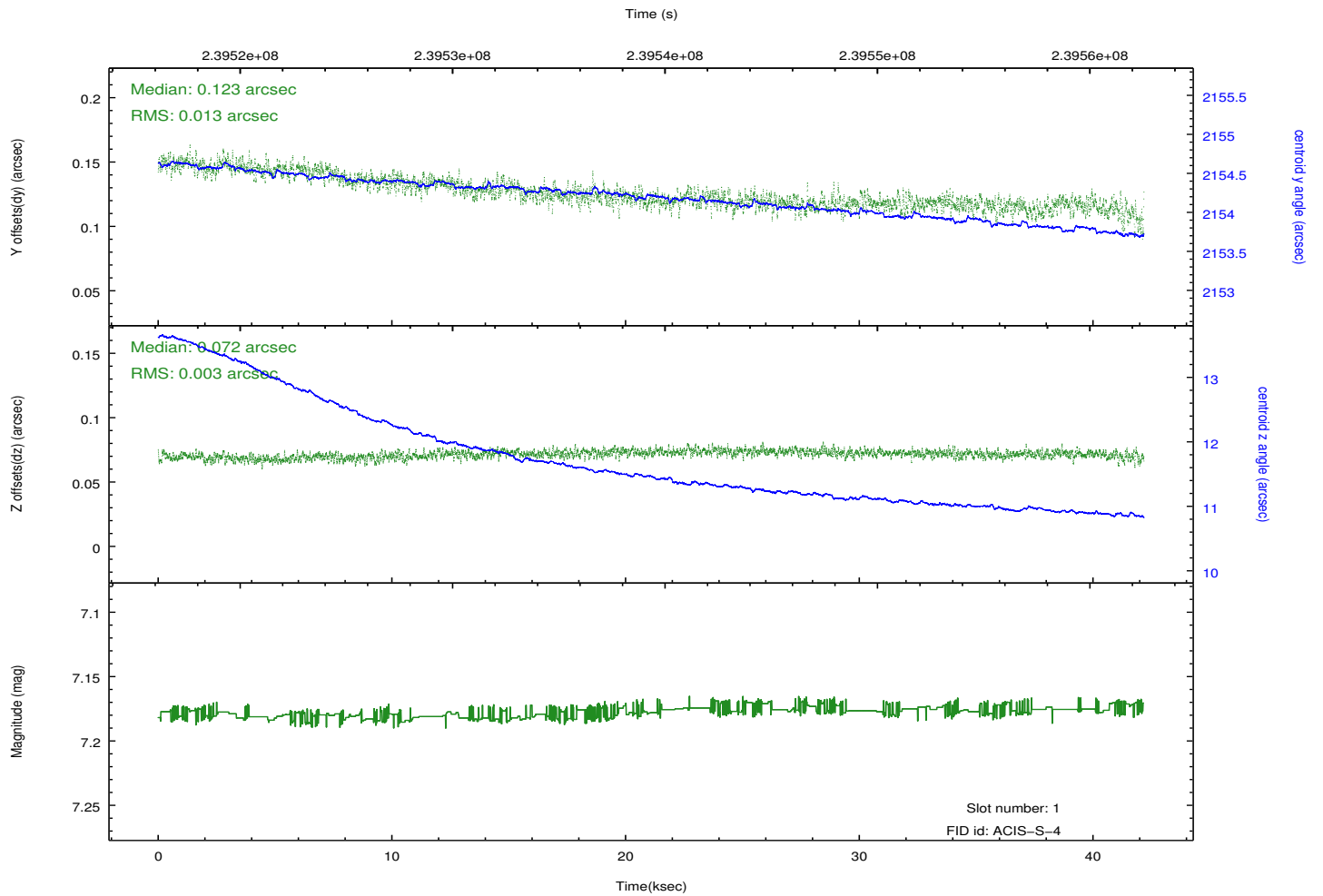
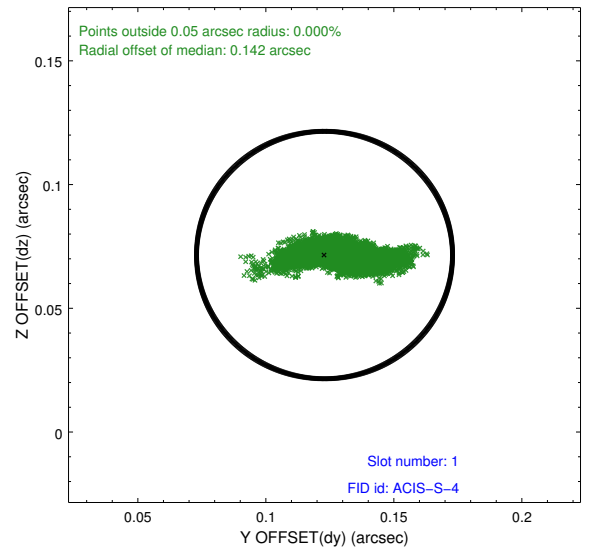
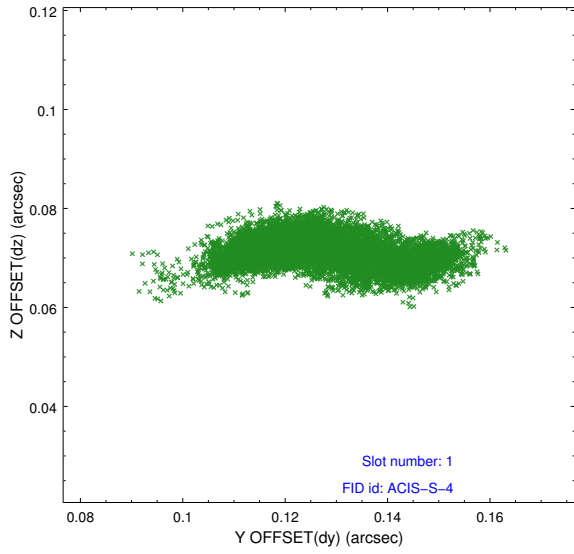


## 2.5 FID Slots

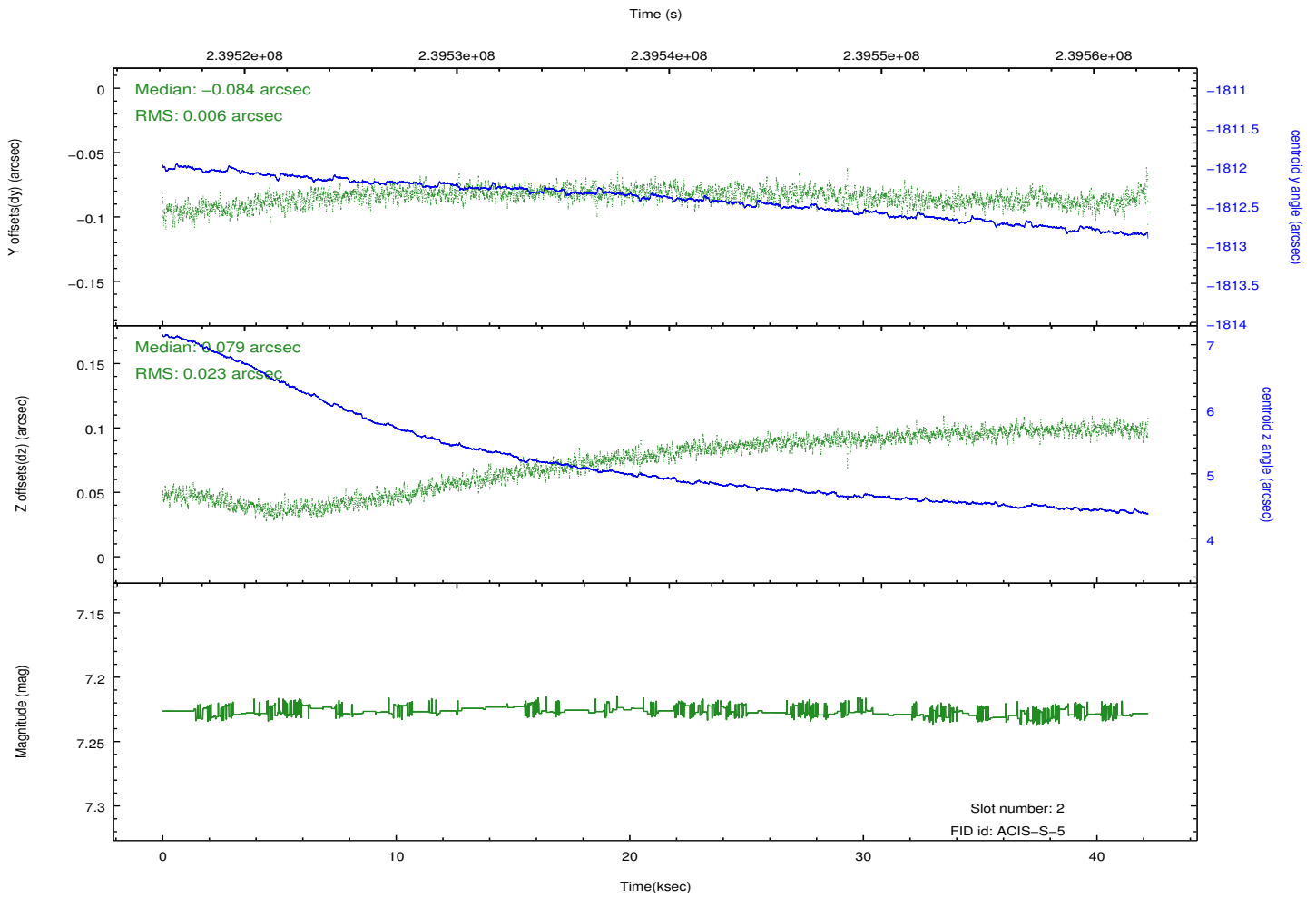
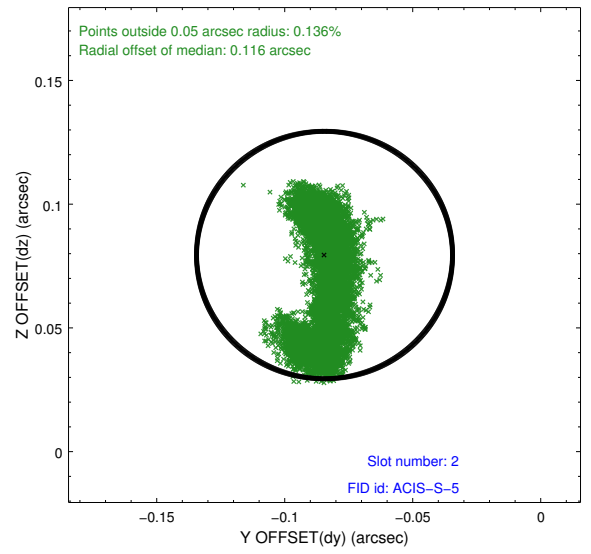
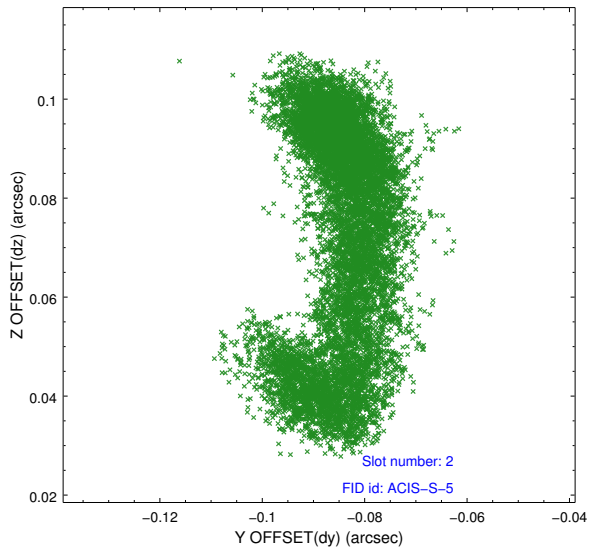
### 2.5.1 Slot 0



## 2.5.2 Slot 1

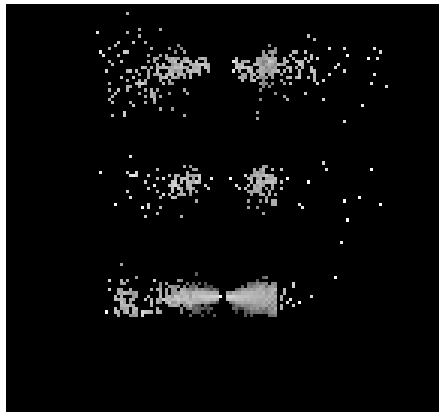


### 2.5.3 Slot 2

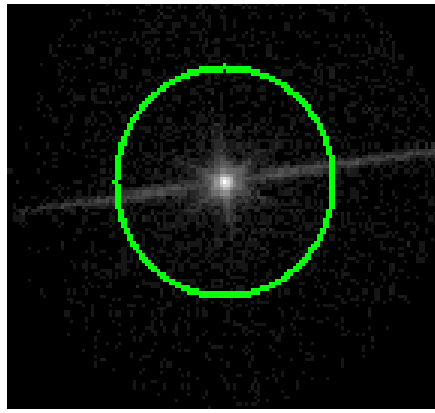


### 3 Gratings

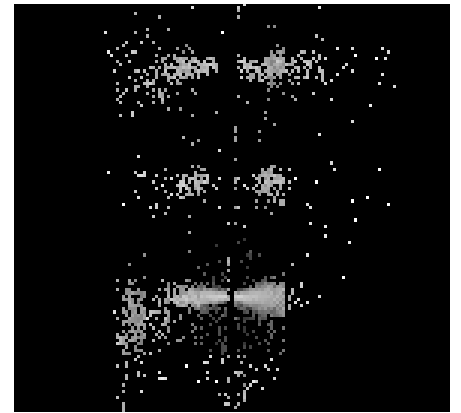
#### 3.1 LETG Arm



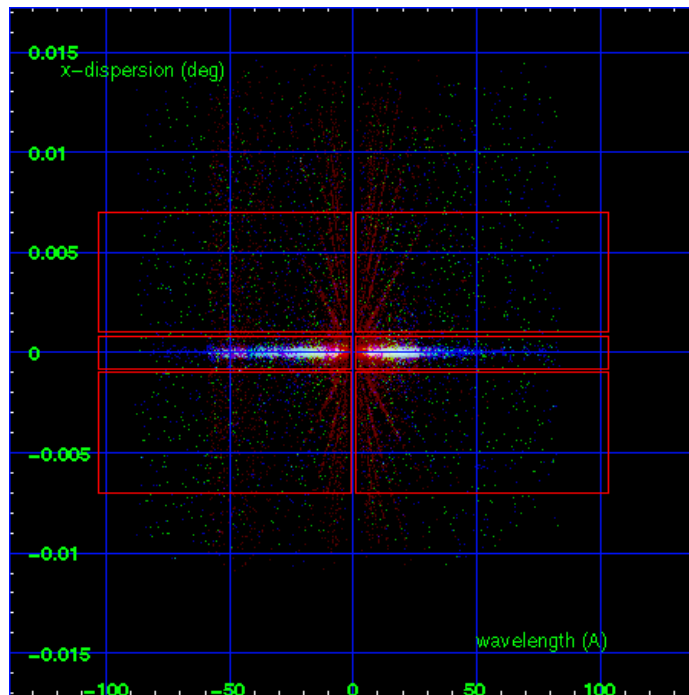
LETG Order Sort 123



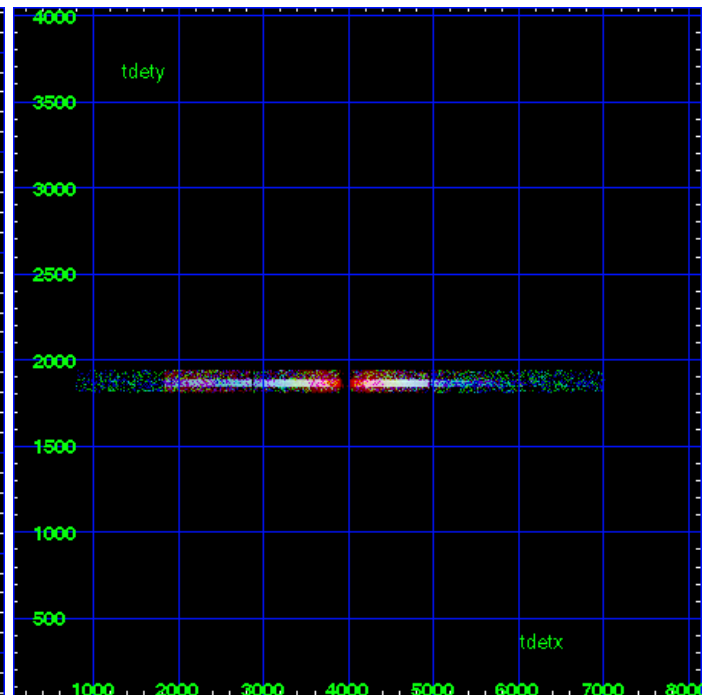
LETG Zero Order



LETG Order Sort ALL

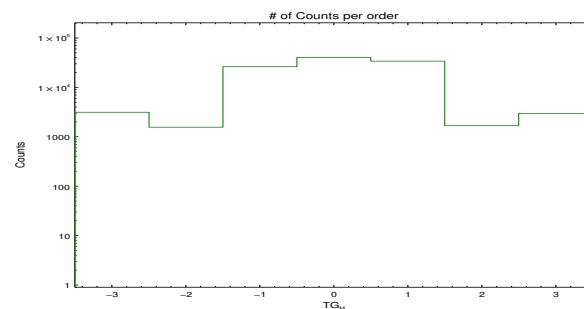


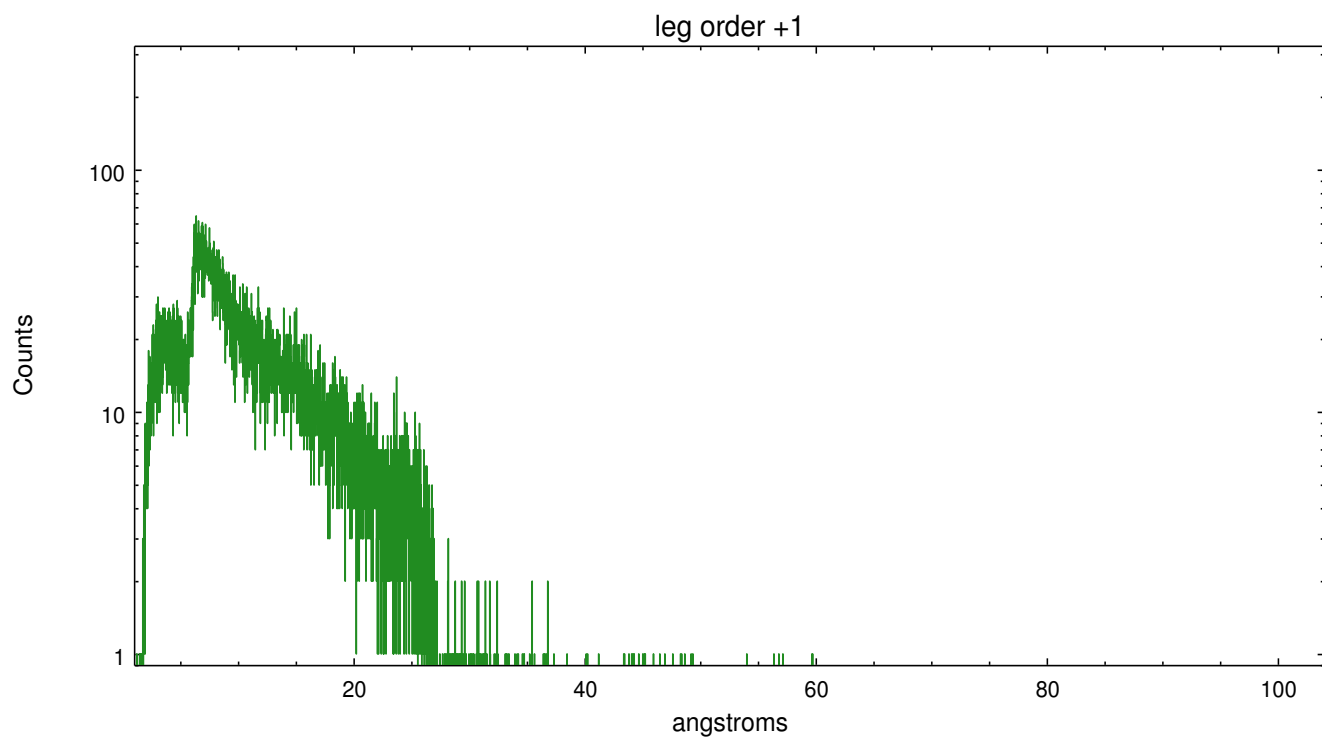
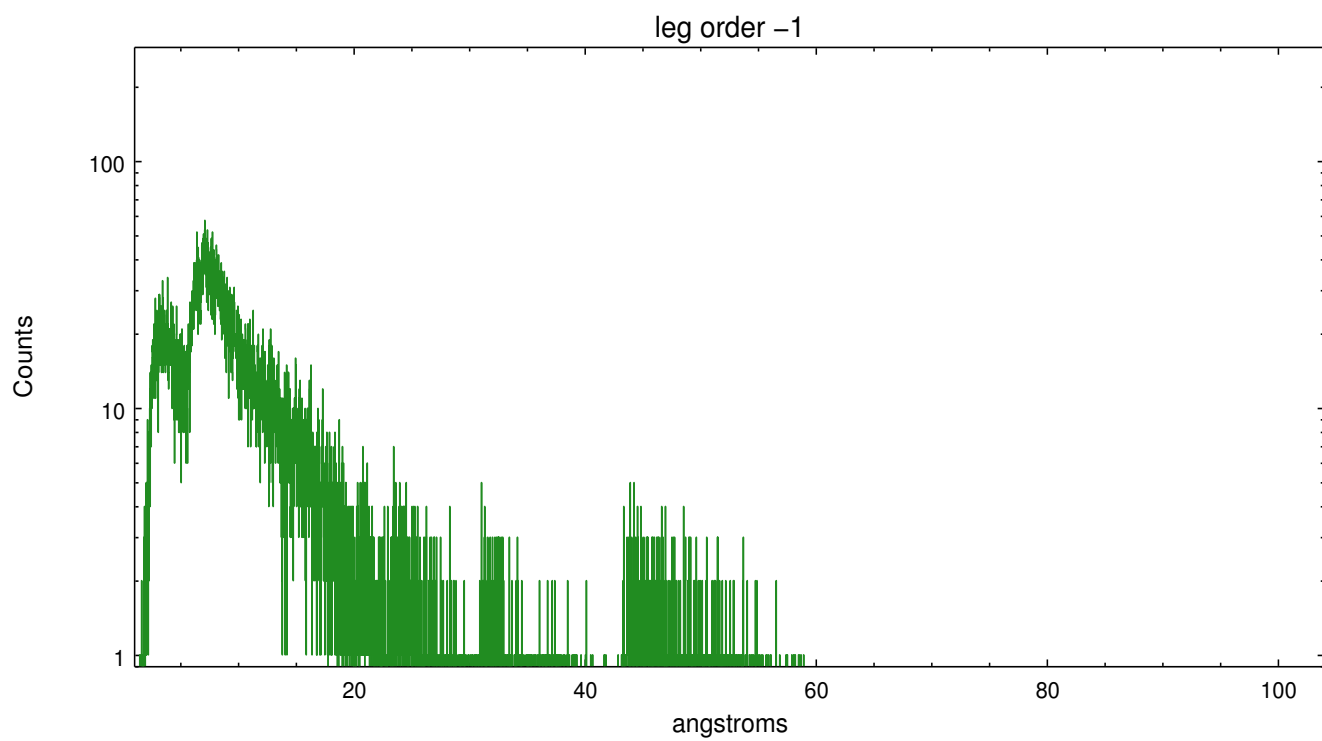
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	3145	1564	26440	40498	34191	1681	2953





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	42.1799

## A.2 Comments

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=4106.28, y=3943.11) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg\_findzo, available in CIAO. 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.

===

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.