

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 1703 - L2 Version 4  
Chandra X-Ray Center

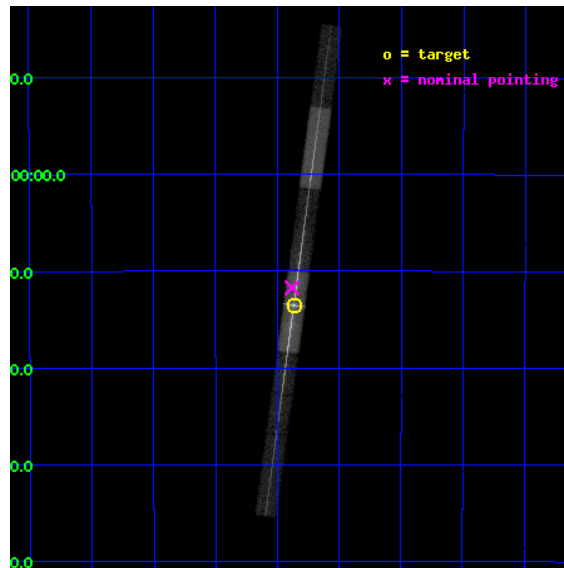
L2 Processing Date : Aug 28 2012

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# 1 Front

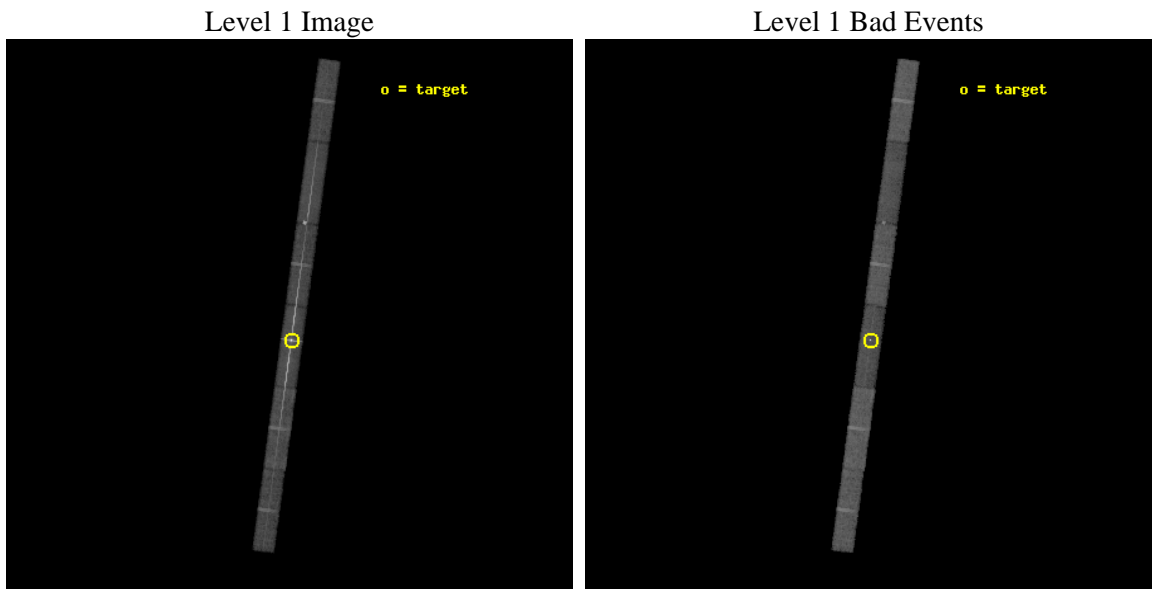
seq_num	700261	Sequence number
obs_id	1703	Observation id
title	HETG OBSERVATIONS OF VARIOUS ACTIVE GALACTIC NUCLEI	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	PKS 2155-304	Source name
dtycycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.72061404899	Nominal RA [deg]
dec_nom	-30.195499003067	Nominal Dec [deg]
roll_nom	97.770585593685	Nominal Roll [deg]
revision	4	Processing version of data
ontime	26218.499857932	Sum of GTIs [s]
livetime	25275.494148957	Livetime [s]
ontime4	26218.499857932	Sum of GTIs [s]
ontime5	26218.499857932	Sum of GTIs [s]
ontime6	26218.499857932	Sum of GTIs [s]
ontime7	26218.499857932	Sum of GTIs [s]
ontime8	26218.499857932	Sum of GTIs [s]
ontime9	26218.499857932	Sum of GTIs [s]
l2events	237411	Number of level 2 events



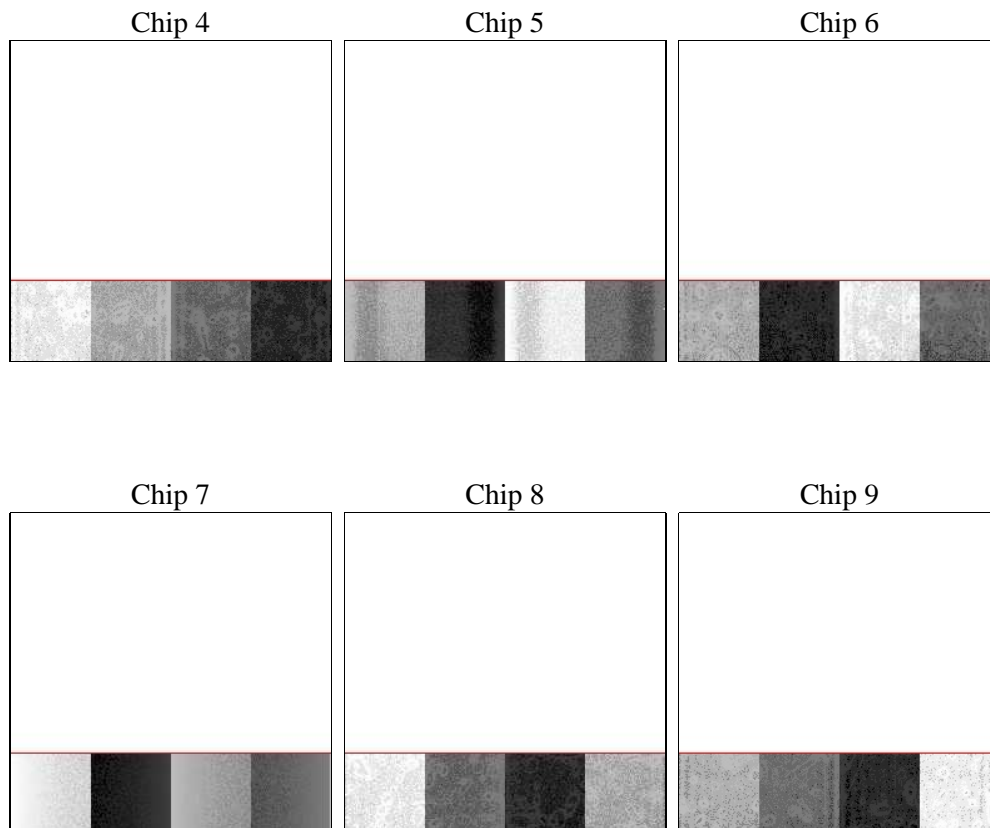
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	26000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	26218.499857932	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	26218.499857932	Sum of GTIs [s]
date	2012-08-28T06:10:53	Date and time of file creation	ontime5	26218.499857932	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	26218.499857932	Sum of GTIs [s]
			ontime7	26218.499857932	Sum of GTIs [s]
			ontime8	26218.499857932	Sum of GTIs [s]
			ontime9	26218.499857932	Sum of GTIs [s]
			l1events	552365	Number of level 1 events

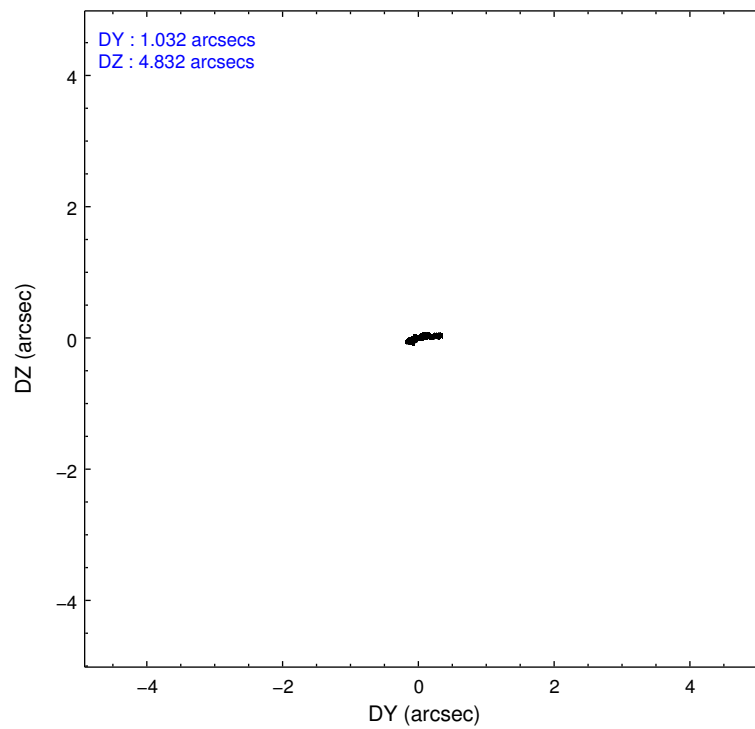
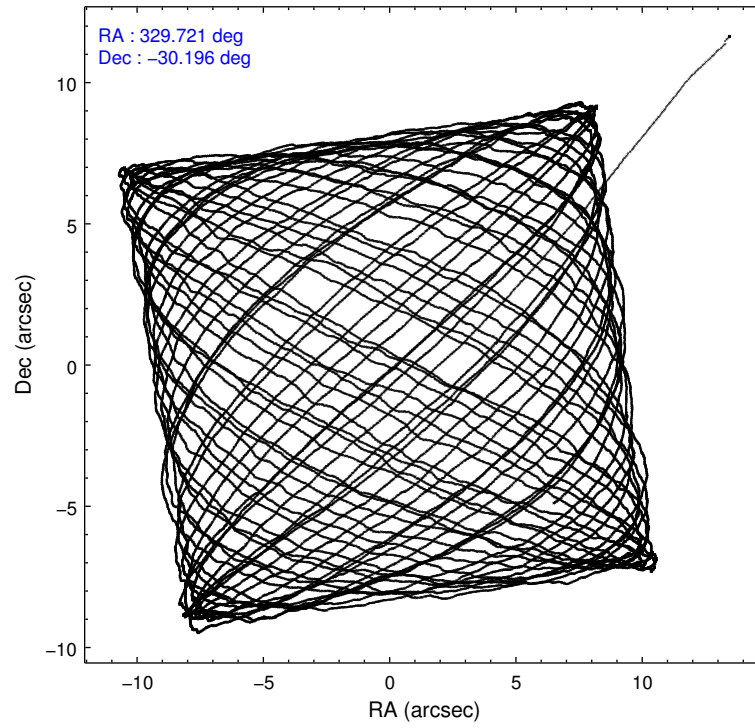
### 2.1.4 Events

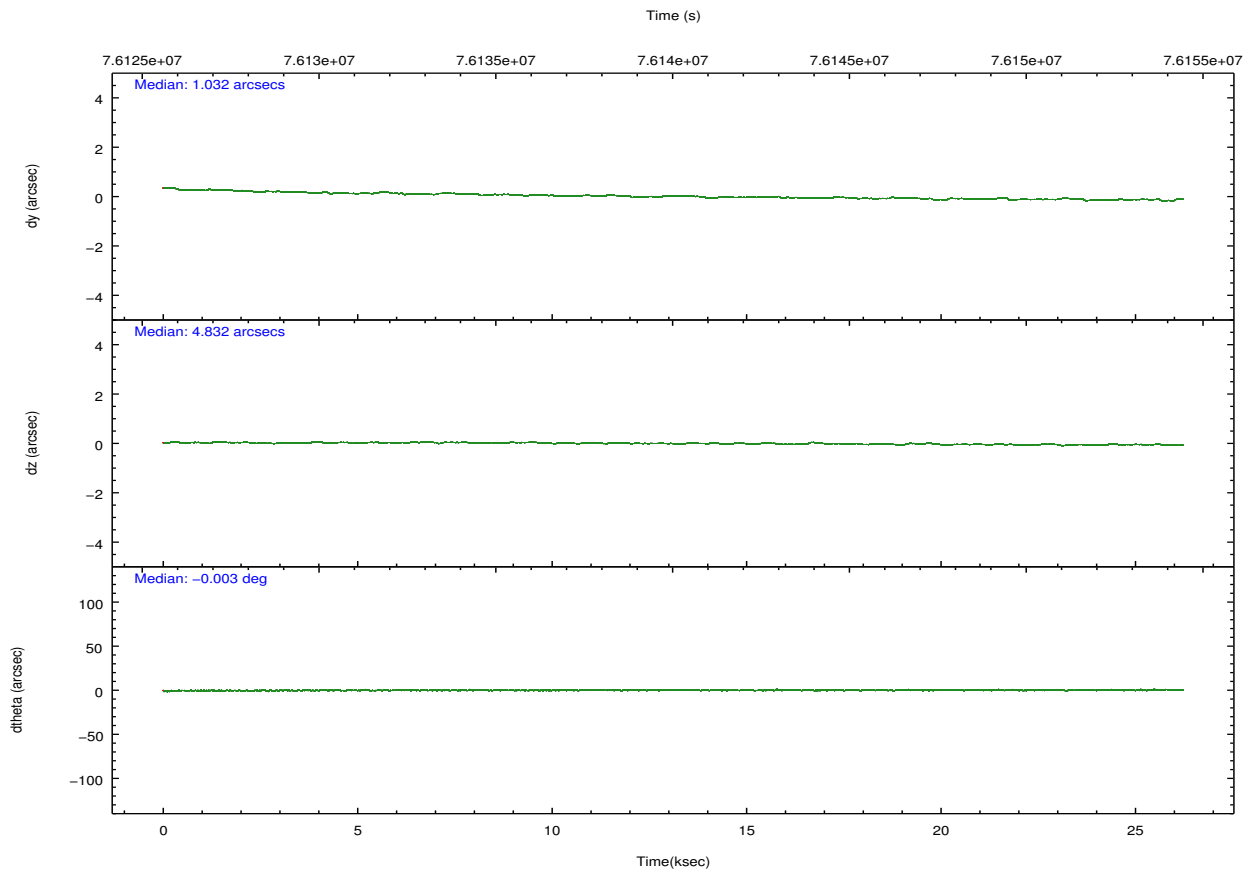
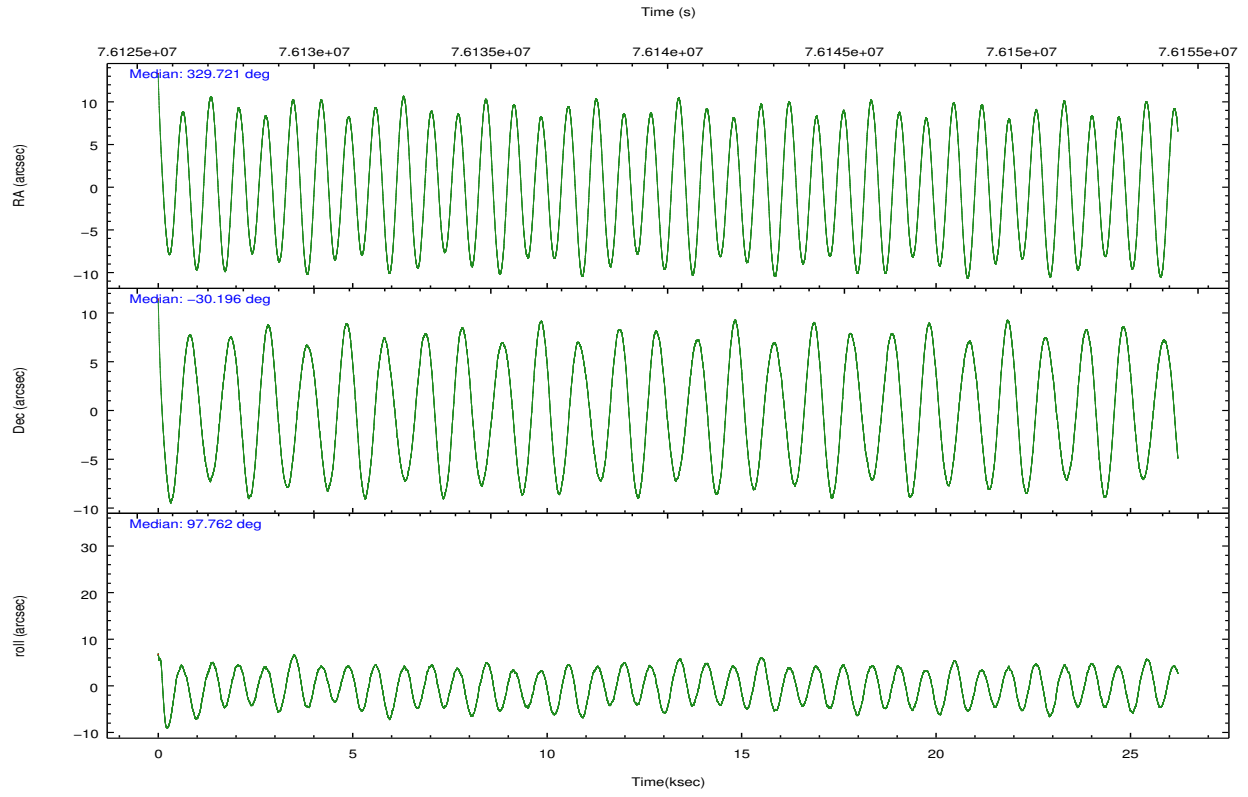
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	62266	82335	75875	194632	82905	54352	grade 0 events	3396	19360	21674	34845	14890	4191
rejected events	55113	31422	48588	51493	57976	46267		5%	23%	28%	17%	17%	7%
rejected %	88%	38%	64%	26%	69%	85%	grade 1 events	13	653	47	1195	38	19
								0%	0%	0%	0%	0%	0%
							grade 2 events	1227	11091	2403	34655	3168	1152
								1%	13%	3%	17%	3%	2%
							grade 3 events	873	3601	1146	16209	1844	952
								1%	4%	1%	8%	2%	1%
							grade 4 events	815	3178	1152	16241	1738	871
								1%	3%	1%	8%	2%	1%
							grade 5 events	1392	5771	1497	9441	2002	1511
								2%	7%	1%	4%	2%	2%
							grade 6 events	918	14257	1070	41885	3498	987
								1%	17%	1%	21%	4%	1%
							grade 7 events	53632	24424	46886	40161	55727	44669
								86%	29%	61%	20%	67%	82%

## 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	329.740133	329.7206140489911	Subarray requested	CUSTOM	1/4
[deg] Pointing Dec	-30.217123	-30.19549900306662	Subarray start row	1	1
[deg] Pointing Roll	97.623782	97.77058559368488	Subarray row count	256	256
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	1.1
[mm] SIM translation stage pos	-182.132523	-182.1344861297048			
[mm] SIM translation stage offset	-8	-7.998036453302973			
[s] Observation start time (MET)	76127123.184000	76126147.316358			
Observation start date	2000-05-31T02:24:19	2000-05-31T02:09:07			
[s] Observation end time (MET)	76153123.184000	76153334.929859			
Observation end date	2000-05-31T09:37:39	2000-05-31T09:42:14			
Read mode	TIMED	TIMED			

## 2.3 Aspect



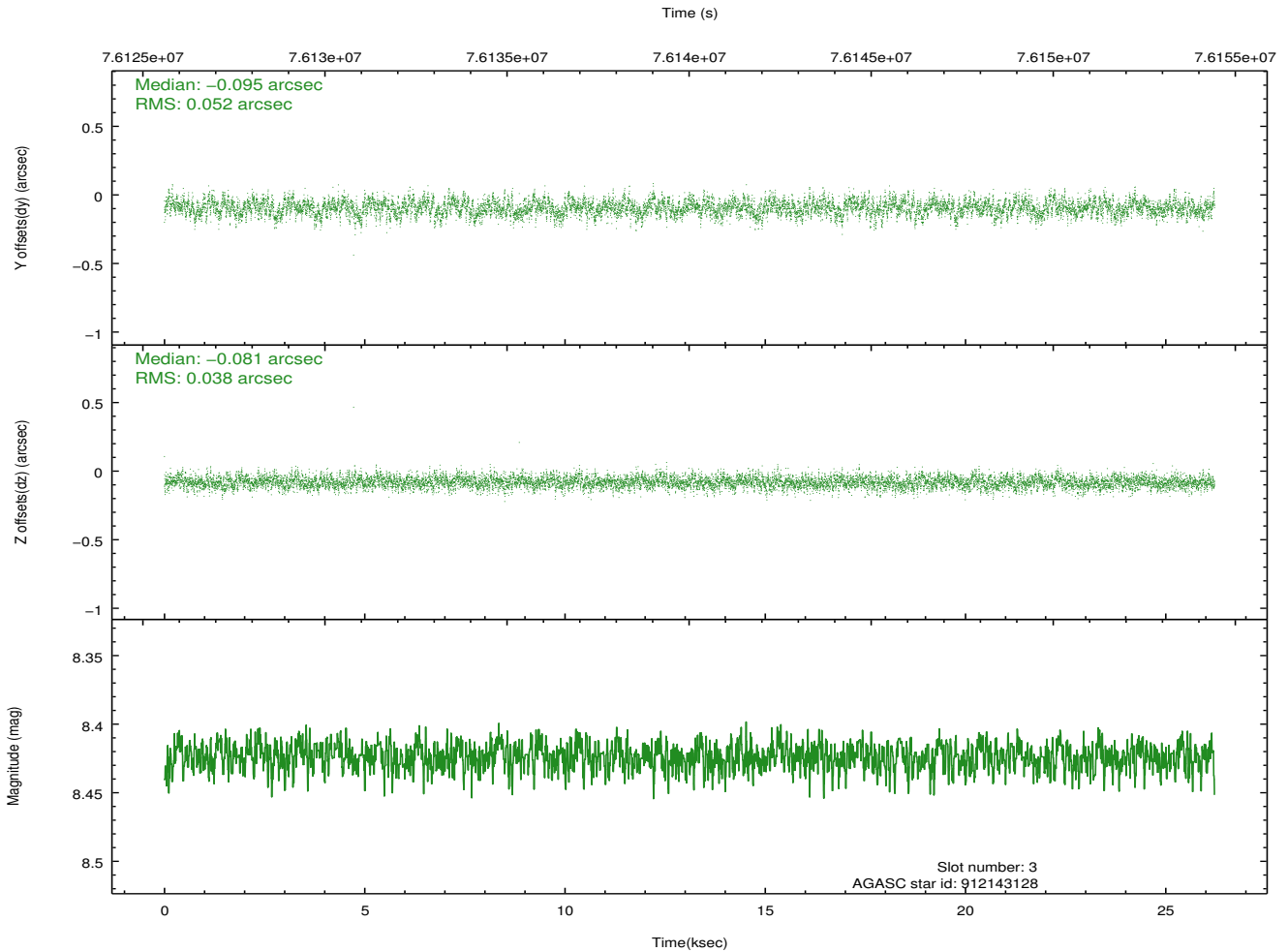
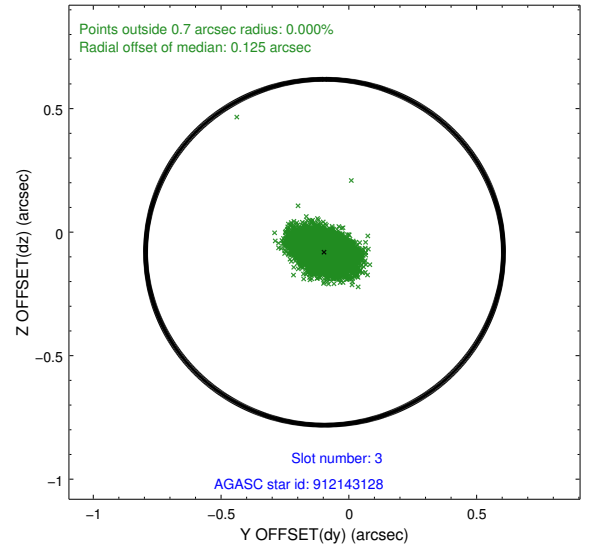
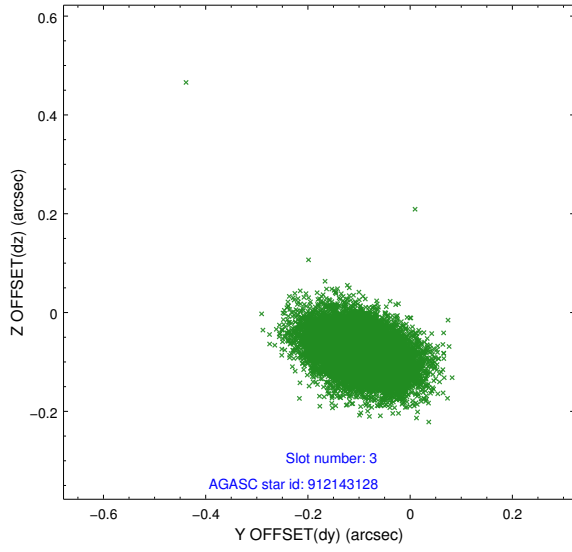


### Slot Statistics

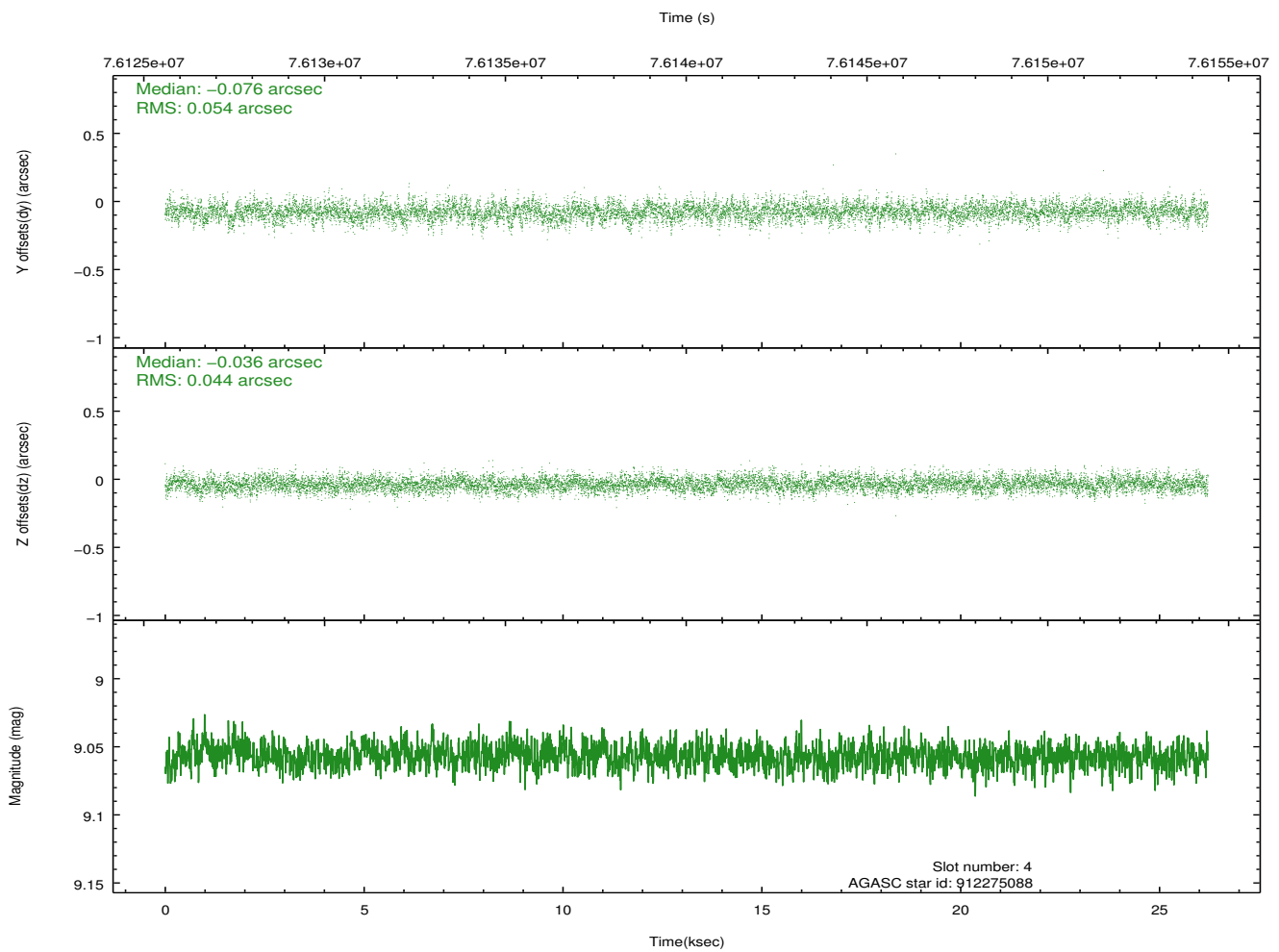
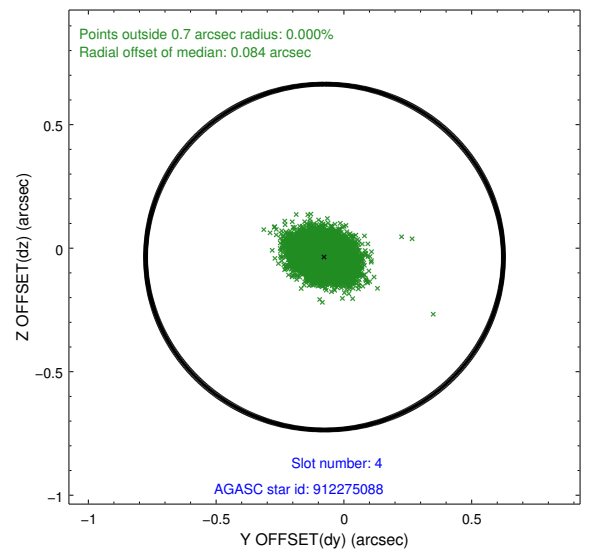
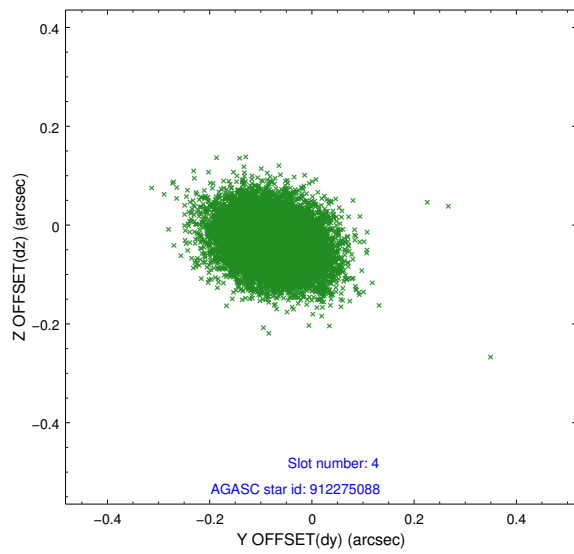
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	6395	-0.070	-0.068	0.007	0.012	0.000000	0.000000	-753.16	-1890.76
1	FID	ACIS-S-4	7.18	6395	0.083	0.052	0.006	0.011	0.000000	0.000000	2160.24	17.67
2	FID	ACIS-S-5	7.22	6394	-0.044	0.024	0.007	0.011	0.000000	0.000000	-1805.82	11.47
3	GUIDE	912143128	8.42	12790	-0.095	-0.081	0.067	0.114	328.924992	-29.706140	2153.18	2284.22
4	GUIDE	912275088	9.06	12786	-0.076	-0.036	0.073	0.122	329.619228	-29.738698	1758.28	146.96
5	GUIDE	981478152	9.39	12779	-0.002	-0.046	0.082	0.136	329.415589	-30.057192	704.56	926.62
6	GUIDE	981468128	9.35	12785	0.193	0.220	0.081	0.134	329.756350	-30.158334	204.48	-77.36
7	GUIDE	981469488	9.59	12780	-0.016	-0.057	0.098	0.161	329.261199	-30.045155	809.48	1398.07

## 2.4 Star Slots

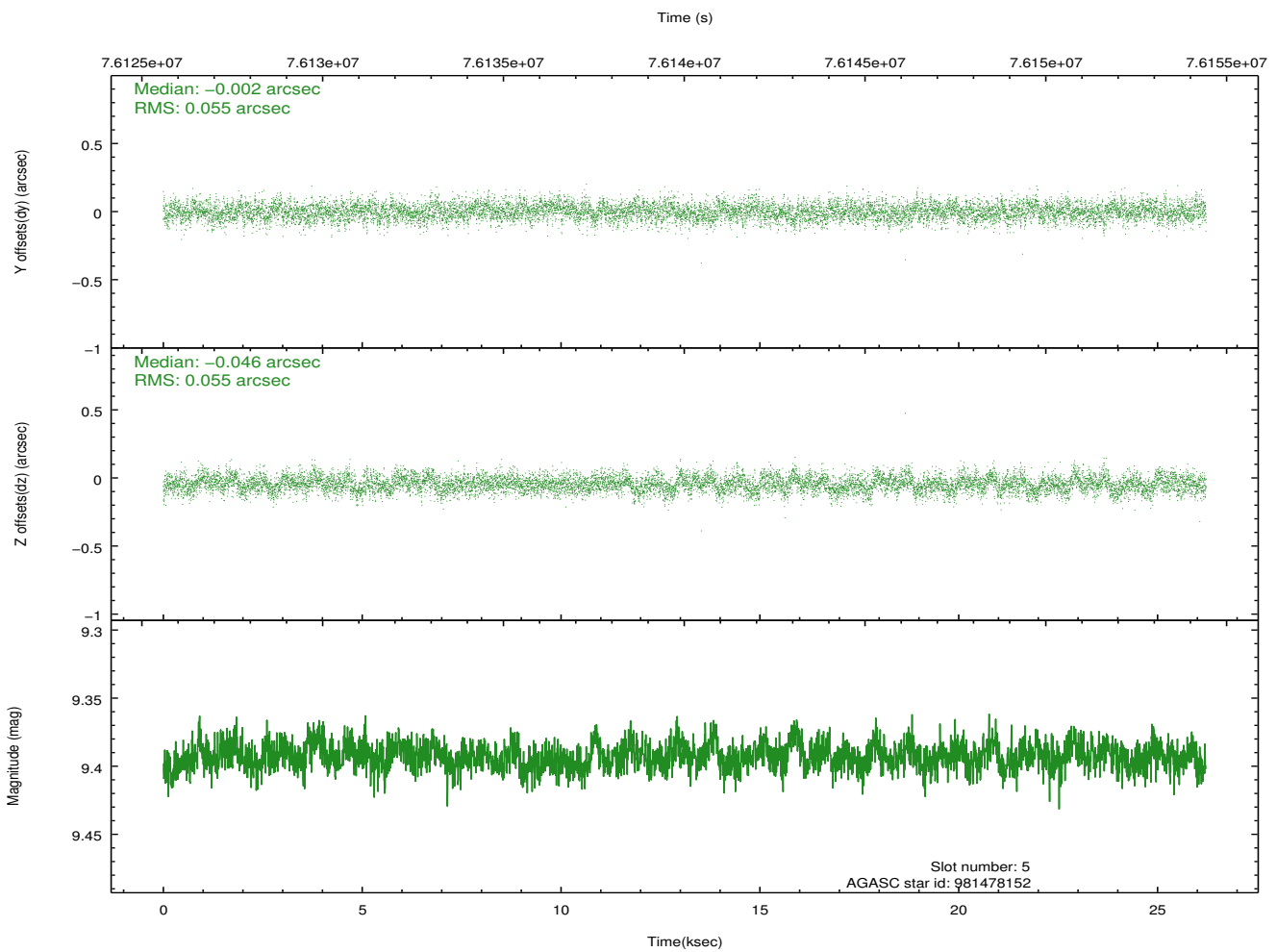
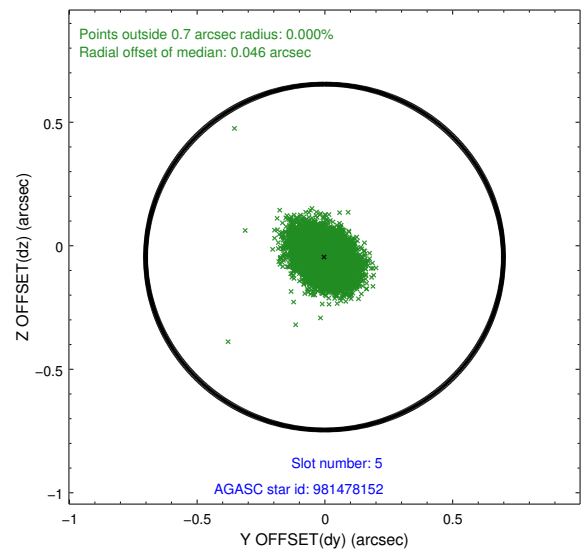
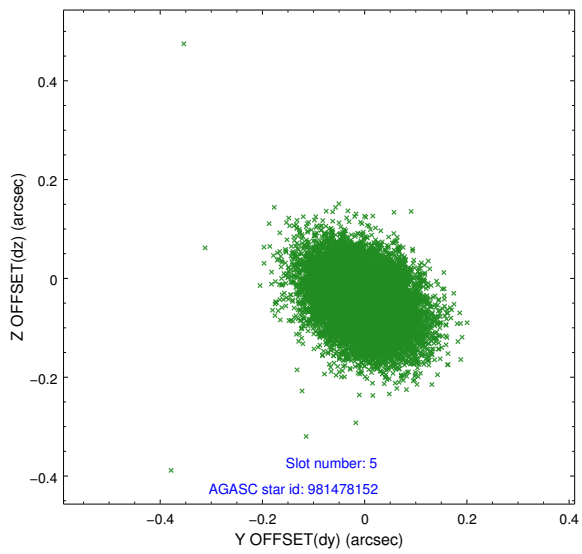
### 2.4.1 Slot 3



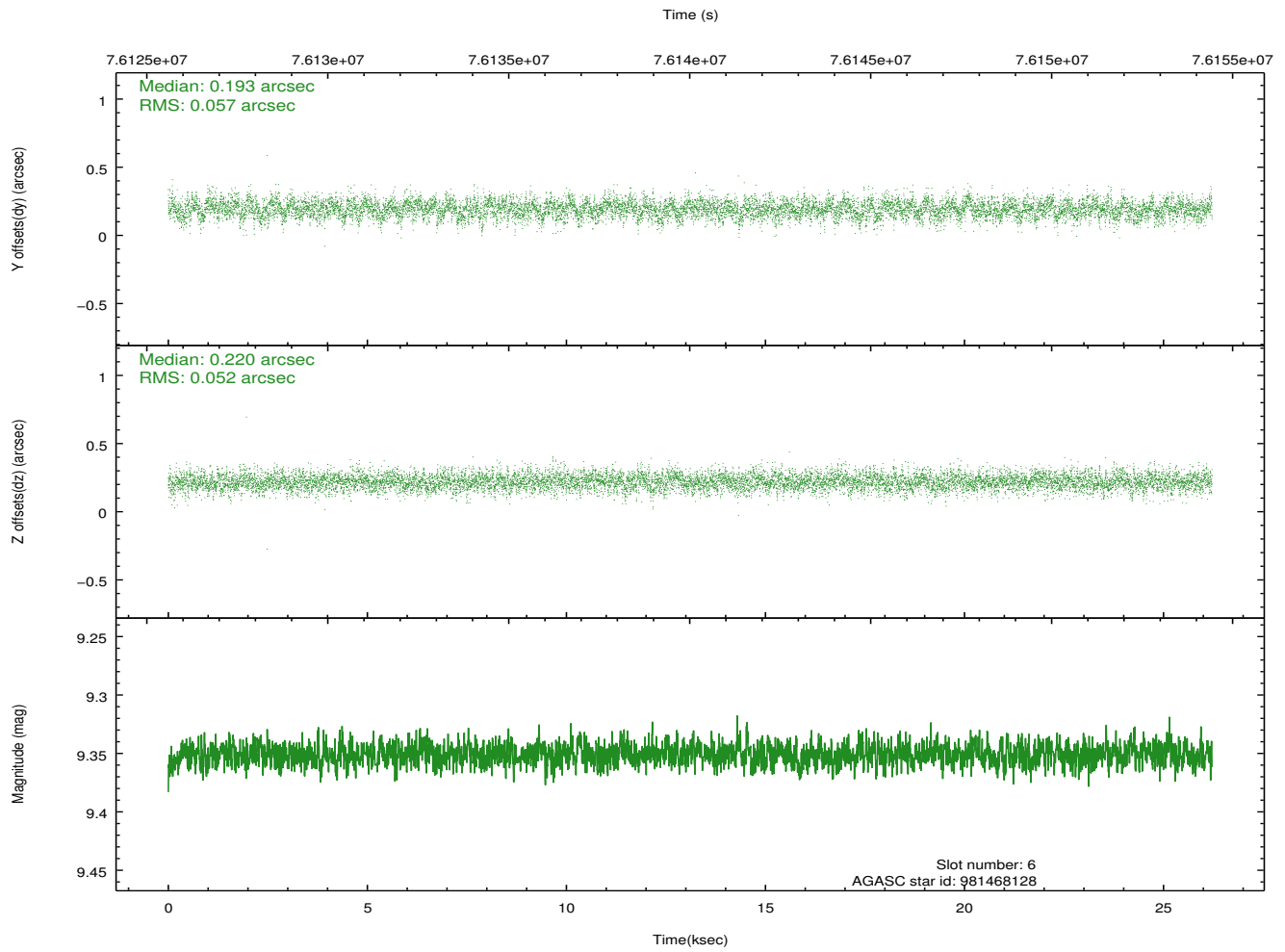
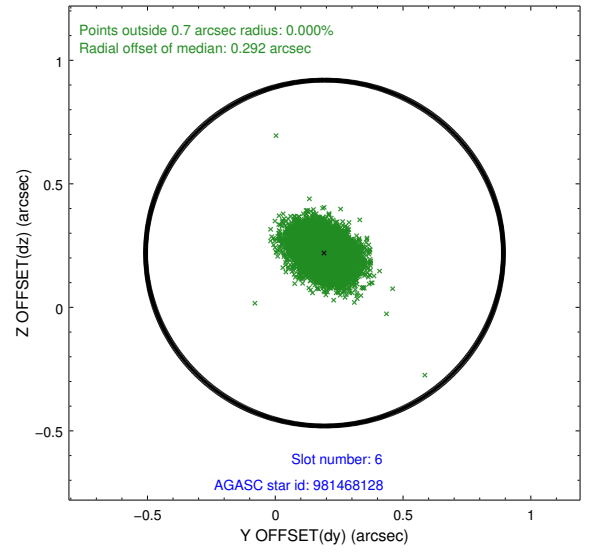
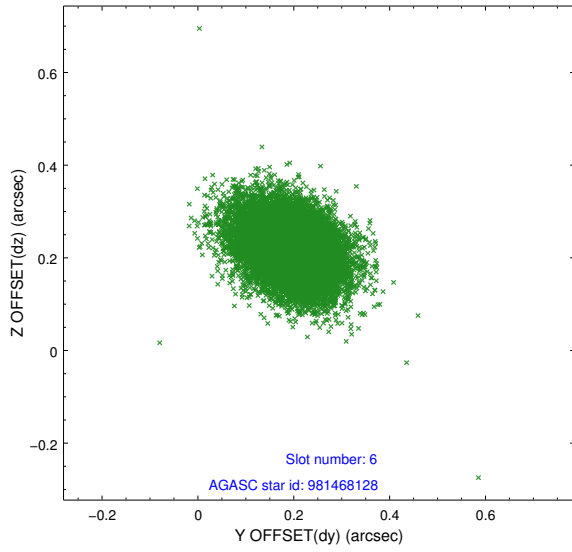
## 2.4.2 Slot 4



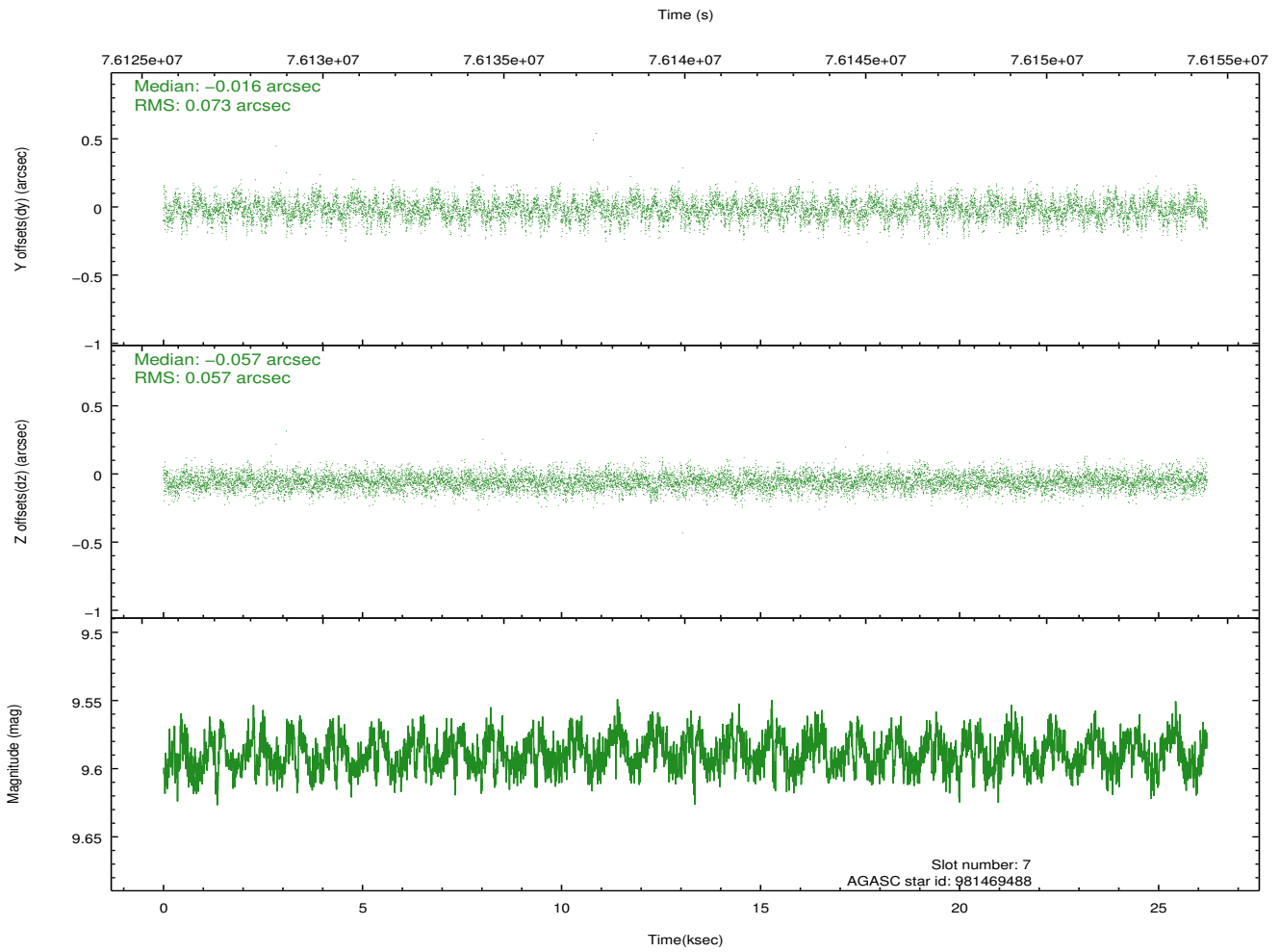
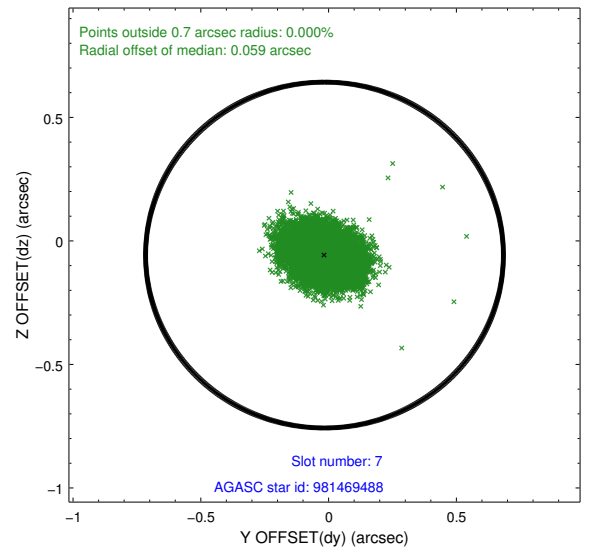
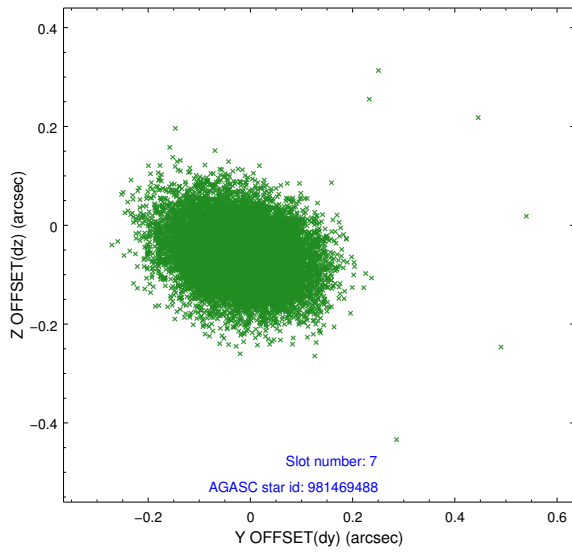
### 2.4.3 Slot 5



### 2.4.4 Slot 6

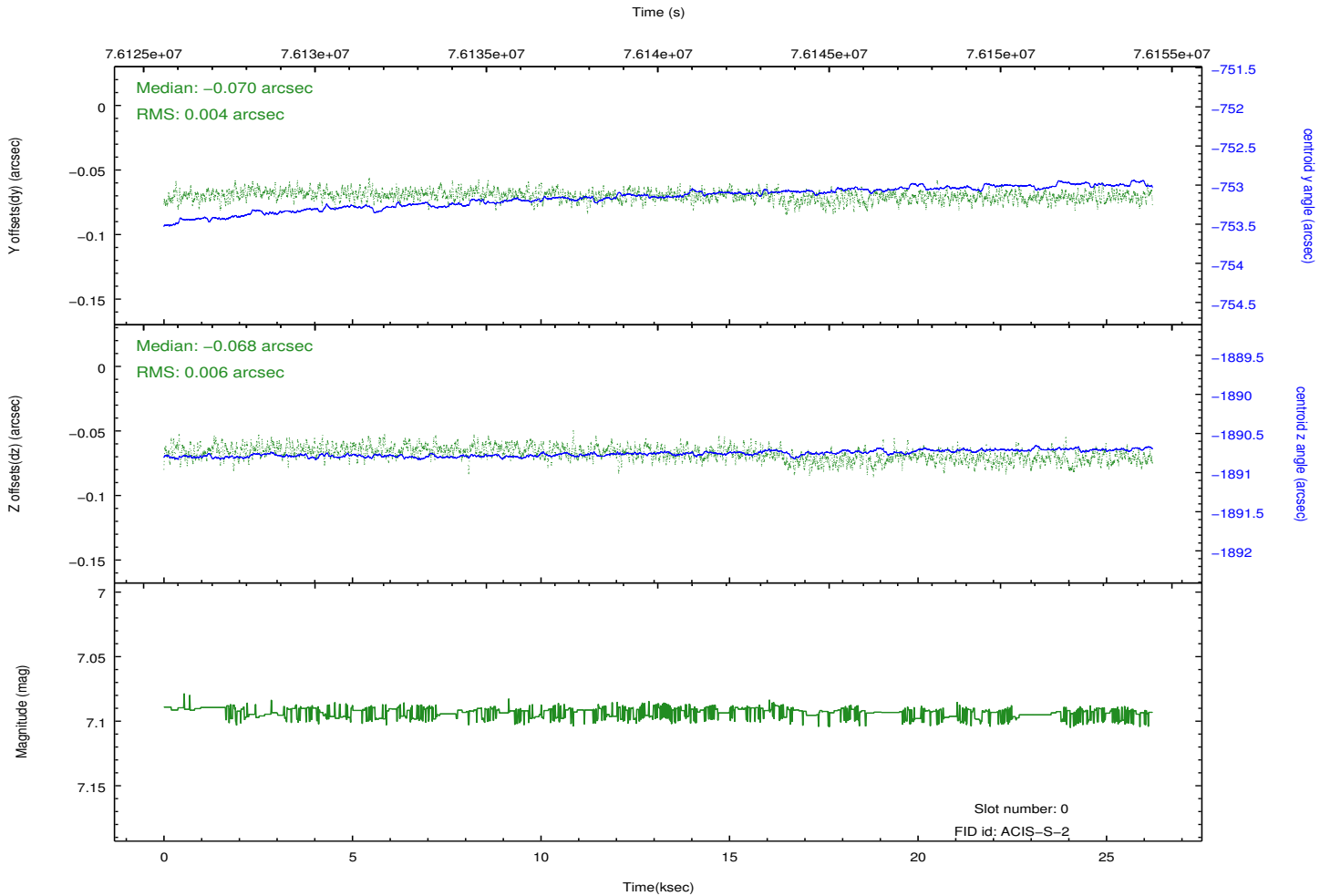
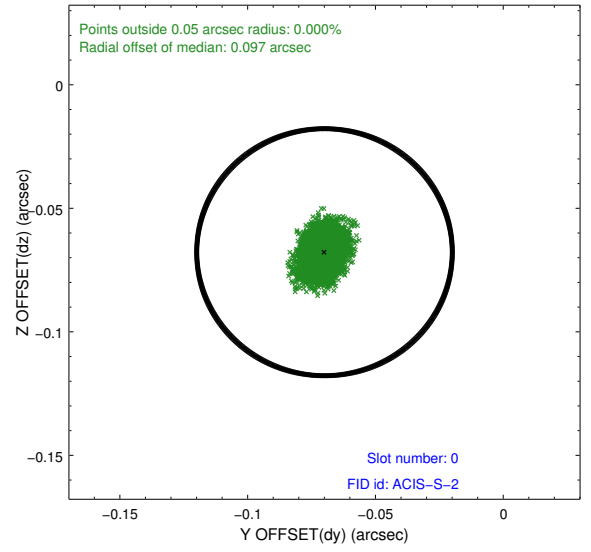
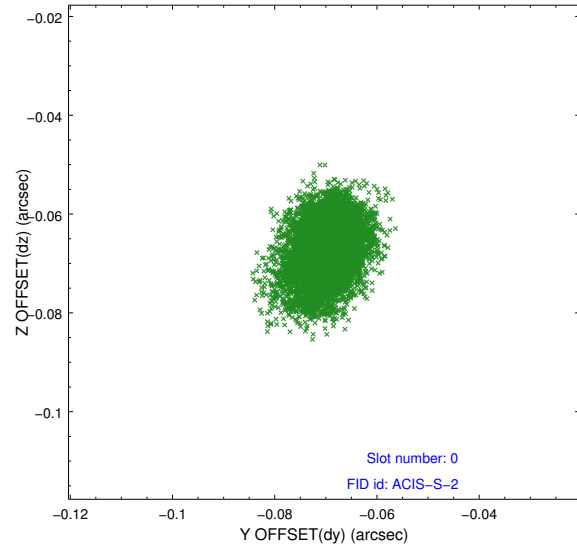


## 2.4.5 Slot 7

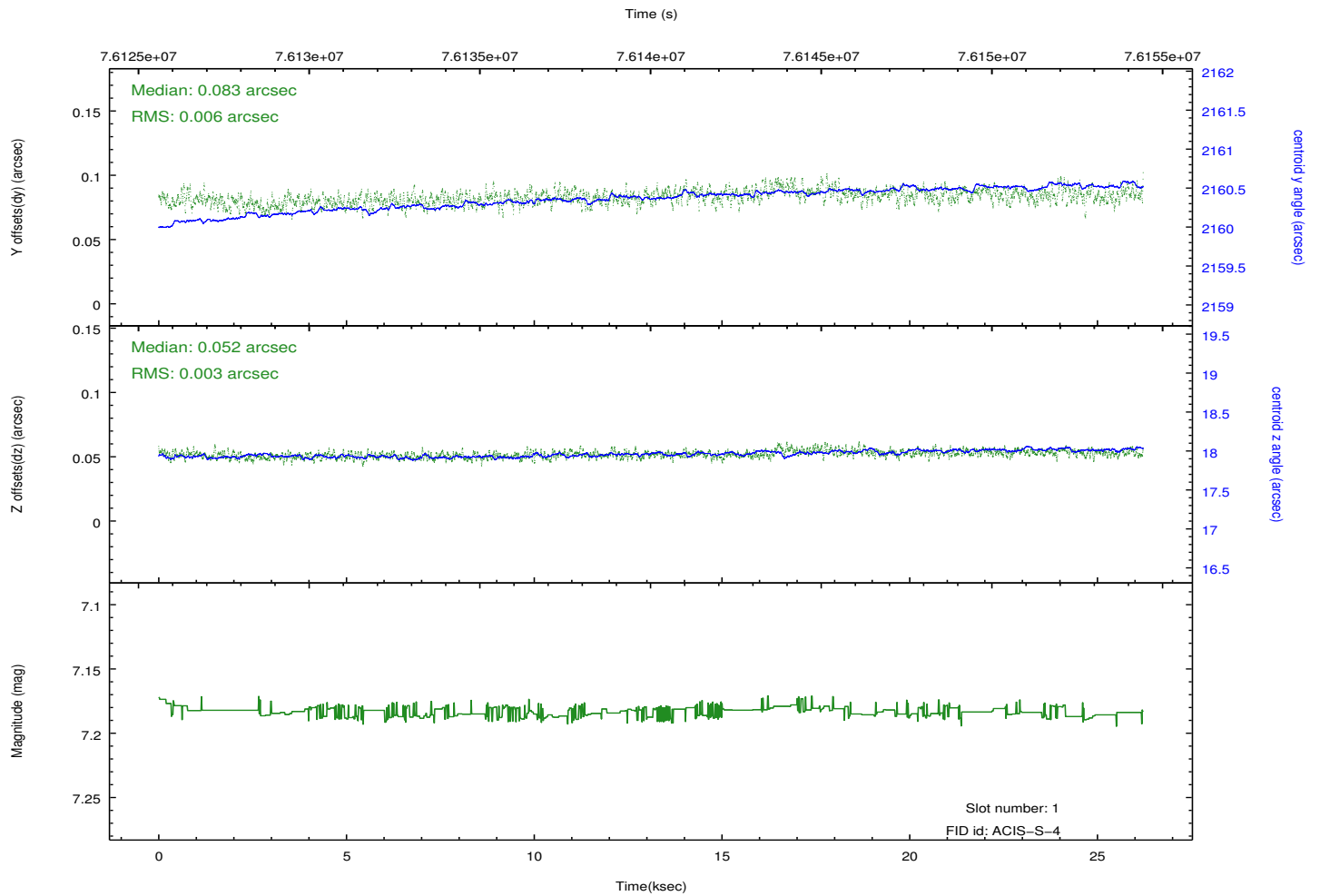
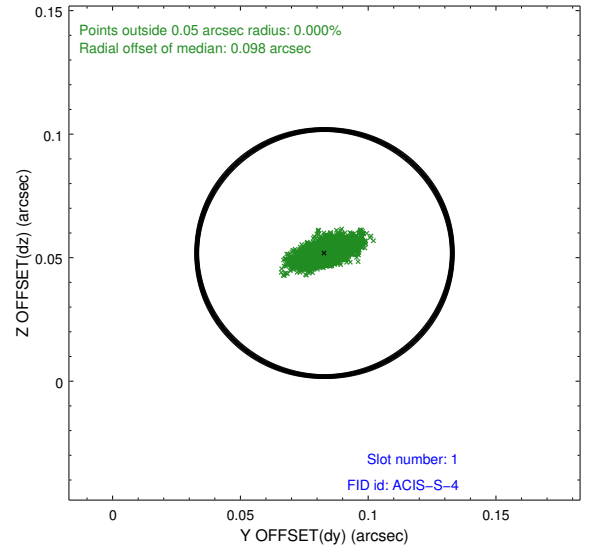
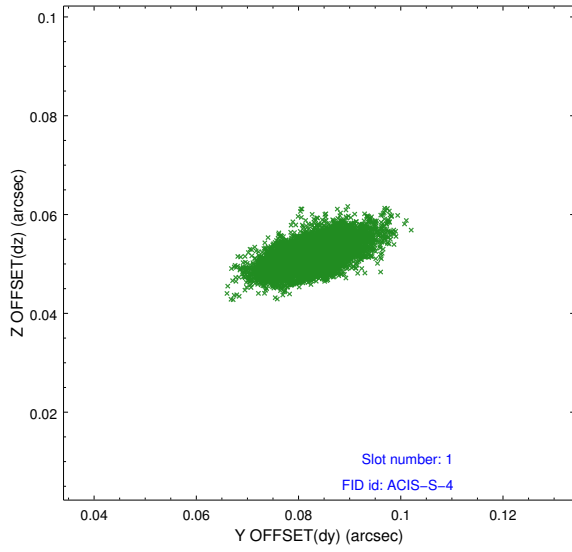


## 2.5 FID Slots

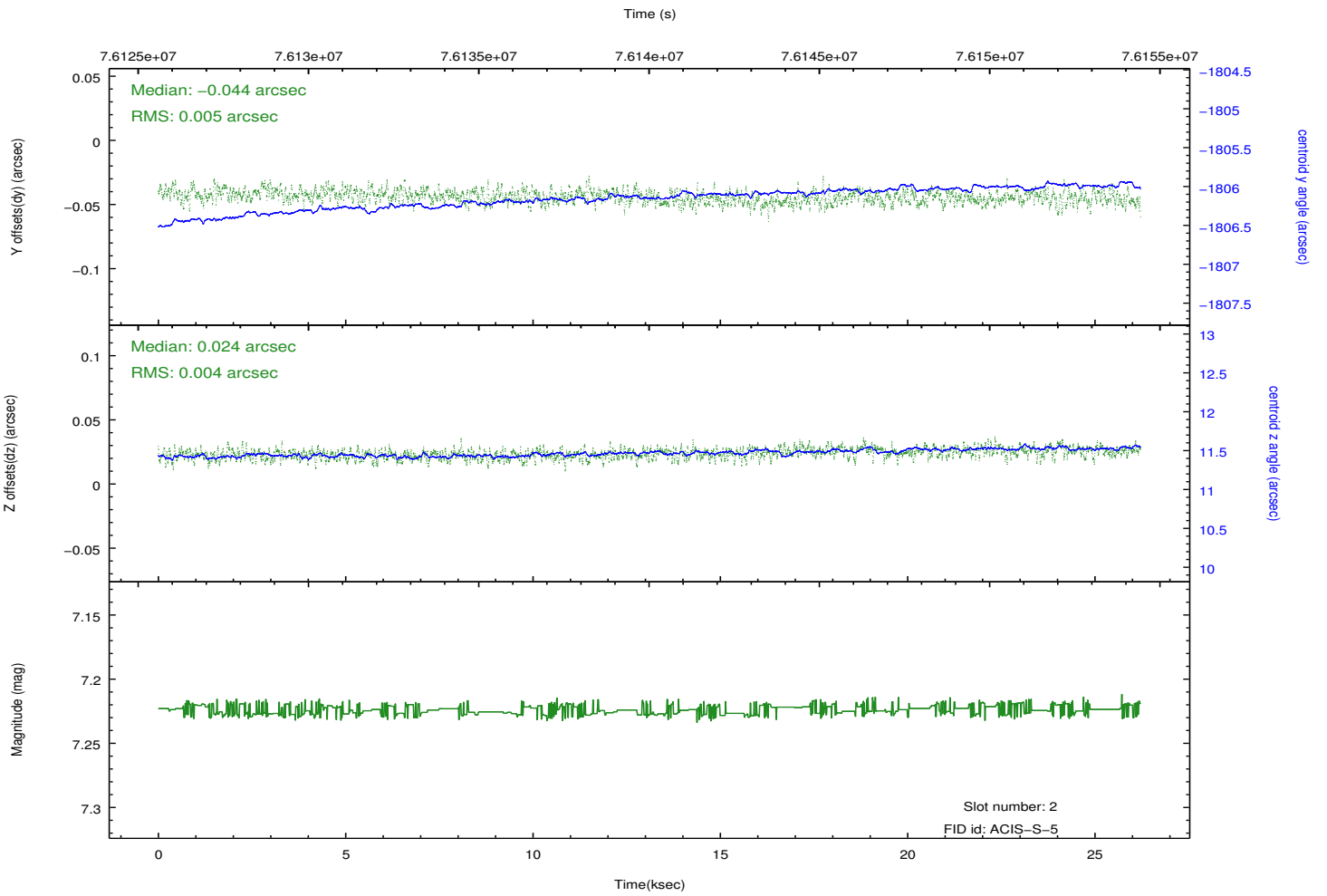
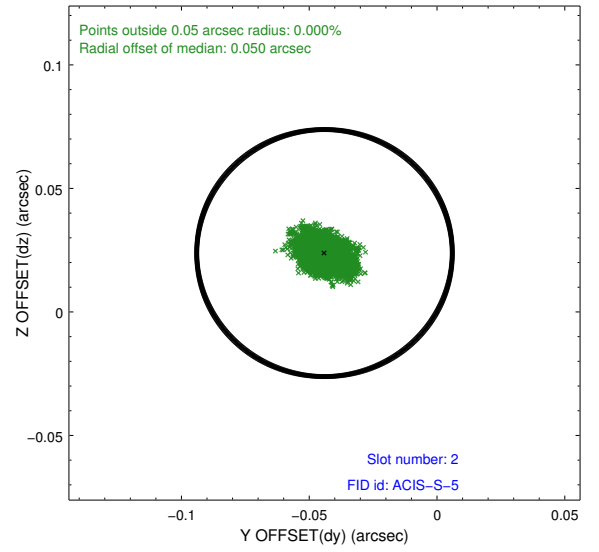
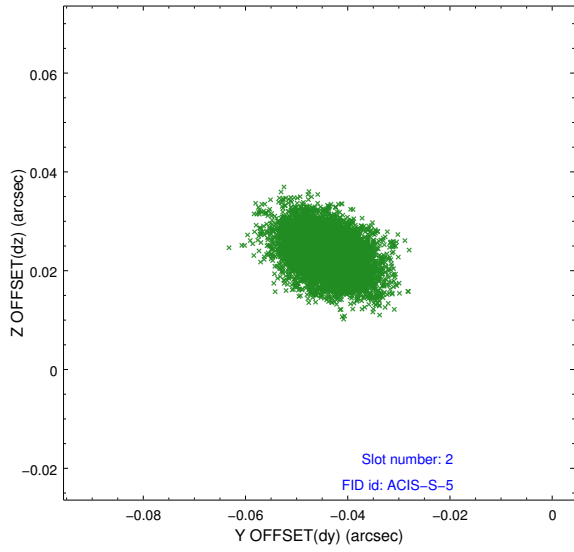
### 2.5.1 Slot 0



## 2.5.2 Slot 1

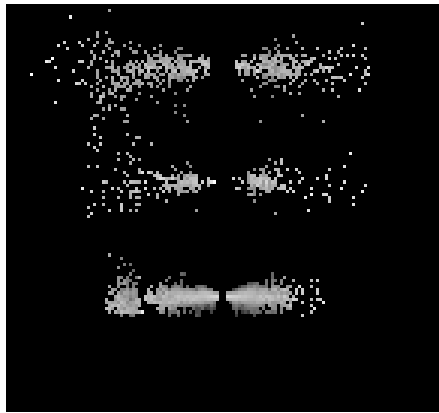


### 2.5.3 Slot 2

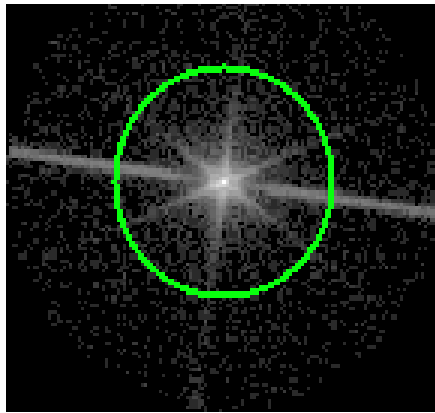


### 3 Gratings

#### 3.1 LETG Arm



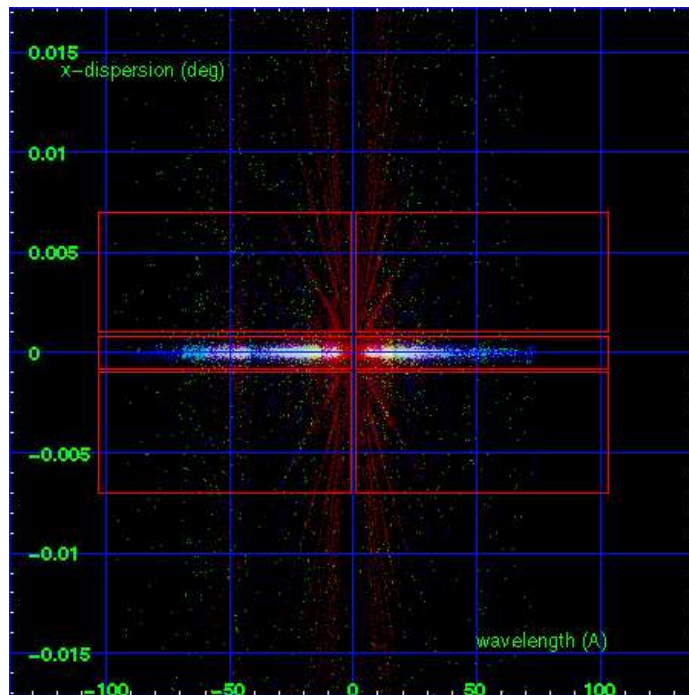
LETG Order Sort 123



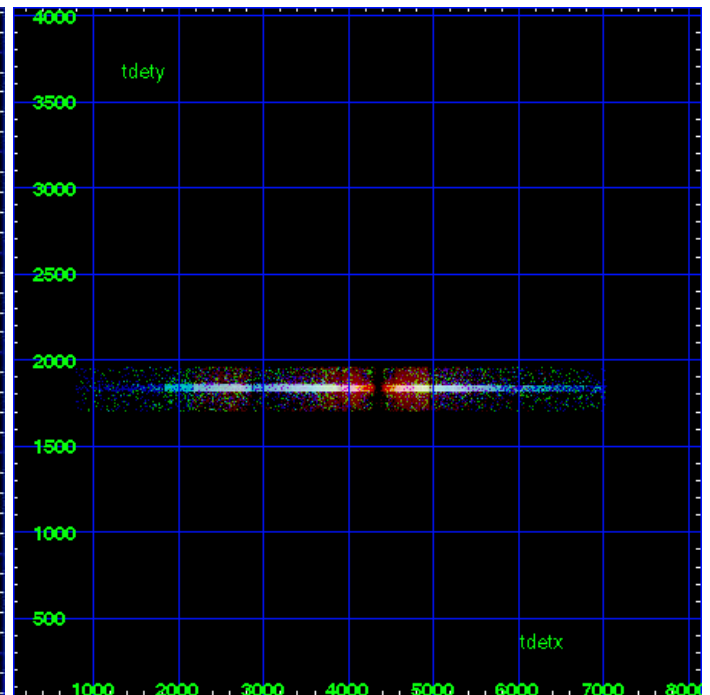
LETG Zero Order



LETG Order Sort ALL

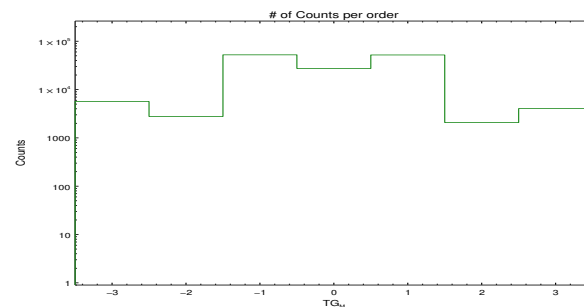


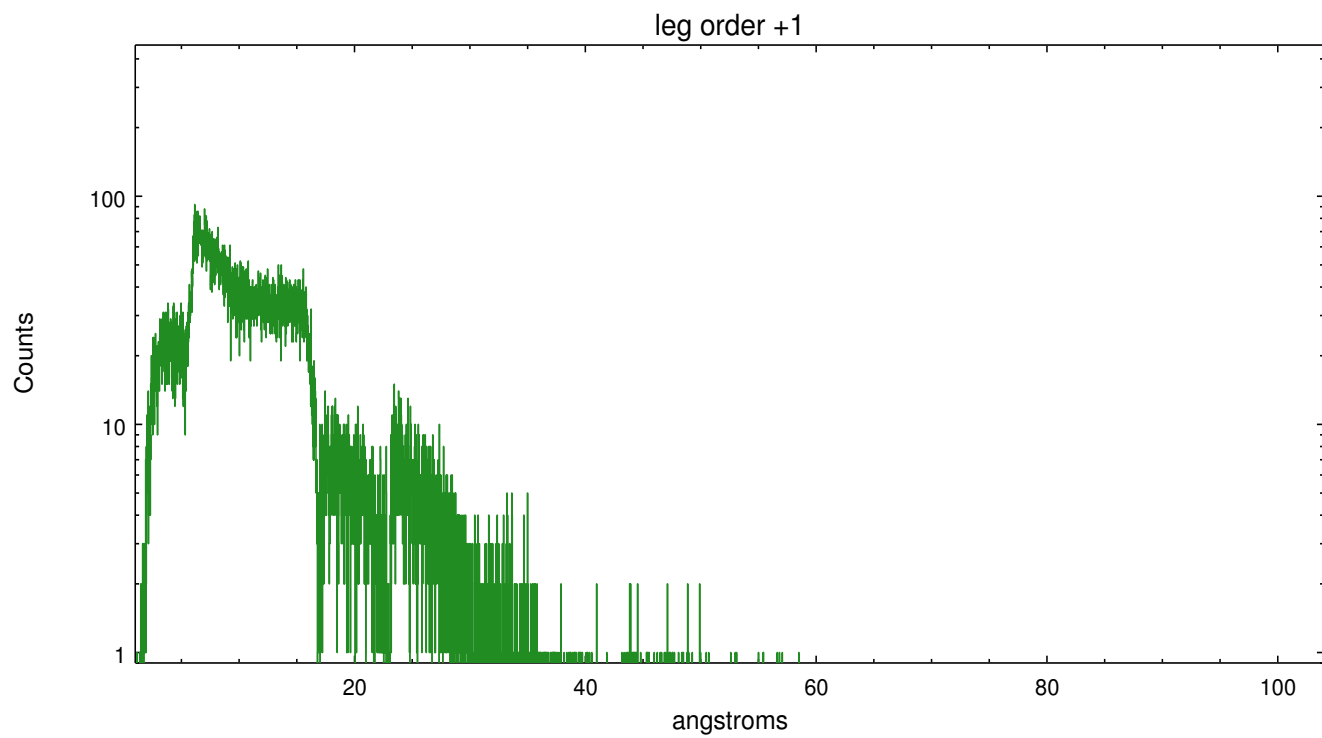
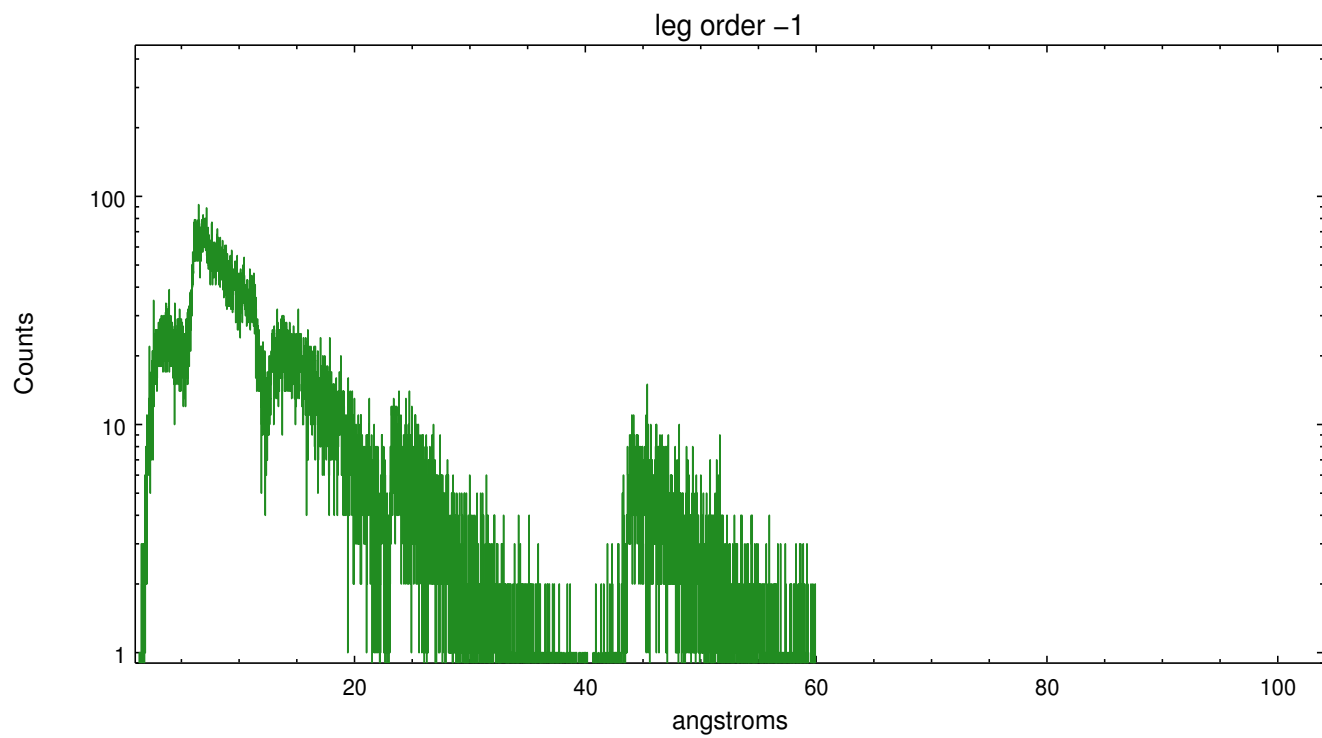
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5656	2776	52358	27350	52024	2079	4037





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.08.31
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	26.185

## 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.

===

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=4119.5`, `y=3876.42`) 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 as `tg_findzo` (currently in ISIS as `findzo`). The tool calculates the point of intersection of the readout streak and the meg 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.

===

Charge time for this ObsId remains at previous value of 26.185 ks, although with the current processing the charge time would be 26.218 ks.