

# V&V Reference Report

## L2 ASCDS Version : 8.5

Observation 6099 - L2 Version 3  
Chandra X-Ray Center

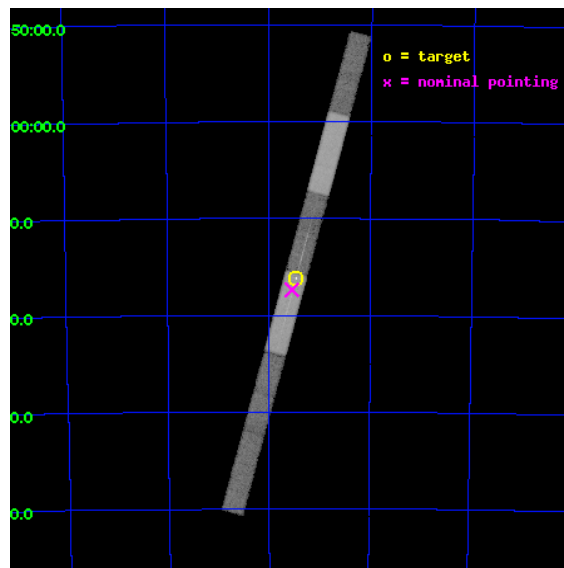
L2 Processing Date : Dec 8 2012

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# 1 Front

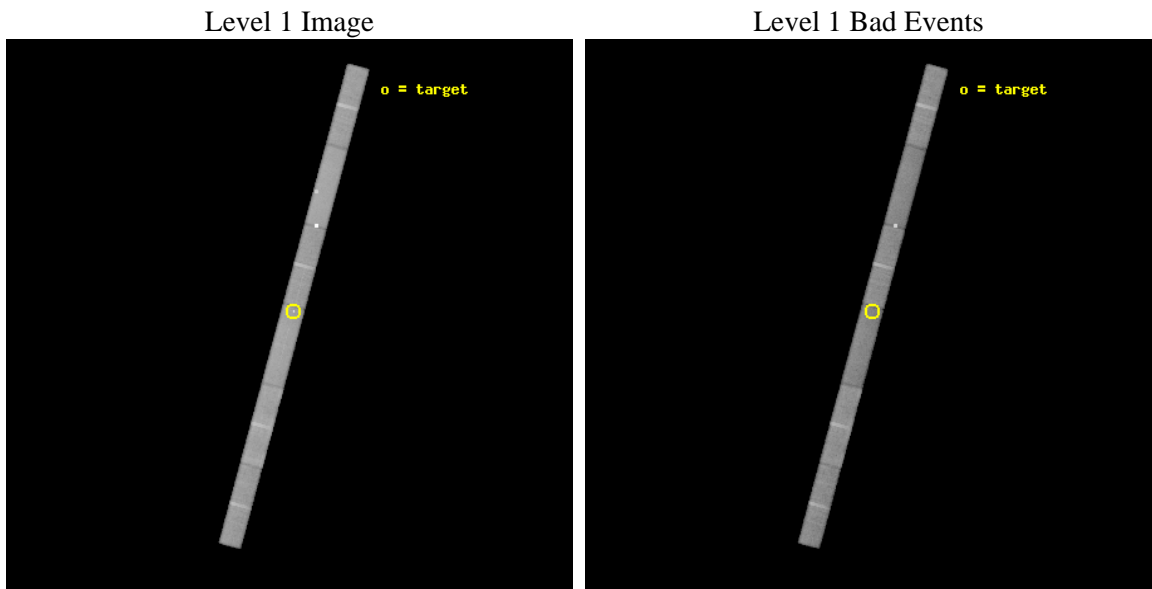
seq_num	500460	Sequence number
obs_id	6099	Observation id
title	Spatially resolved grating spectrometry of the newborn supernova remnant SNR1987A	Proposal title
observer	Dr. Richard McCray	Principal investigator
object	SNR1987A	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.866667	Observer's specified target RA [deg]
dec_targ	-69.26975	Observer's specified target Dec [deg]
ra_nom	83.88659472091	Nominal RA [deg]
dec_nom	-69.289579395684	Nominal Dec [deg]
roll_nom	105.17526328075	Nominal Roll [deg]
revision	3	Processing version of data
ontime	50606.0	Sum of GTIs [s]
livetime	48611.004380235	Livetime [s]
ontime4	50606.0	Sum of GTIs [s]
ontime5	50606.0	Sum of GTIs [s]
ontime6	50606.0	Sum of GTIs [s]
ontime7	50606.0	Sum of GTIs [s]
ontime8	50606.0	Sum of GTIs [s]
ontime9	50606.0	Sum of GTIs [s]
l2events	170254	Number of level 2 events



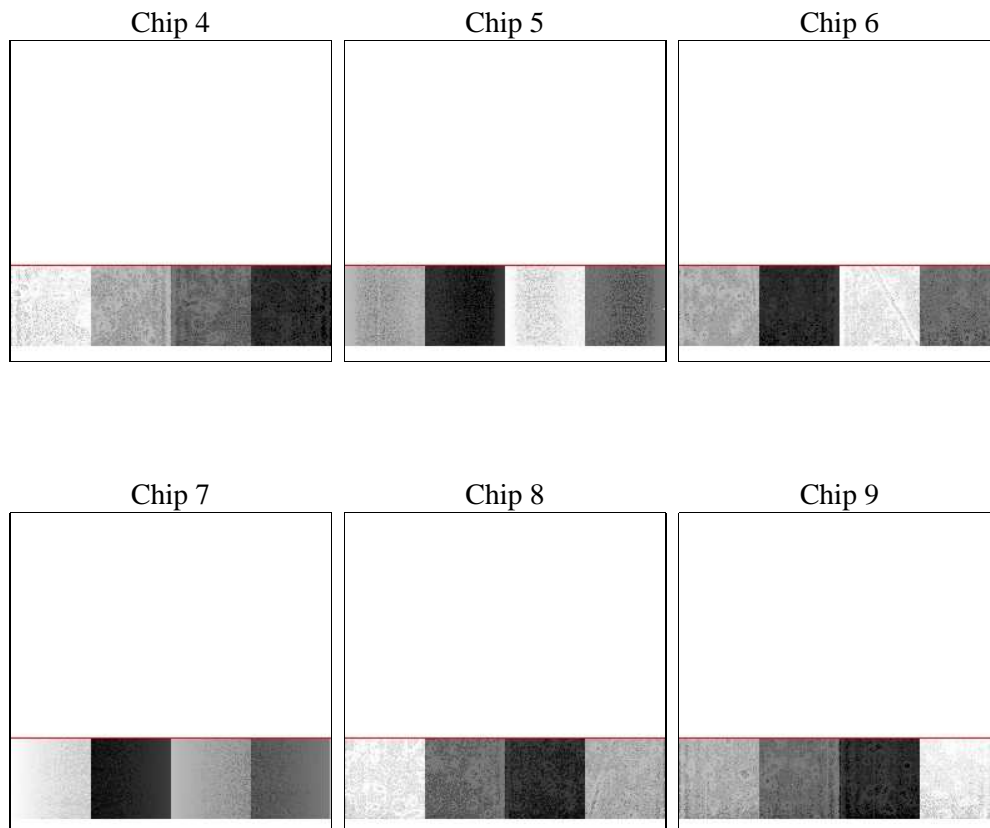
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	50468.000000	[s] Scheduled observation exposure time
ascdsver	8.5	Processing system revision	ontime	50606.0	Sum of GTIs [s]
caldbver	4.5.4	&#160	ontime4	50606.0	Sum of GTIs [s]
date	2012-12-08T10:51:11	Date and time of file creation	ontime5	50606.0	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	50606.0	Sum of GTIs [s]
			ontime7	50606.0	Sum of GTIs [s]
			ontime8	50606.0	Sum of GTIs [s]
			ontime9	50606.0	Sum of GTIs [s]
			l1events	816705	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	128116	175231	116624	138077	149826	108831	grade 0 events	5420	13465	6110	6746	8981	5069
rejected events	113720	85431	101744	77154	119410	95493		4%	7%	5%	4%	5%	4%
rejected %	88%	48%	87%	55%	79%	87%	grade 1 events	60	1901	40	155	70	31
								0%	1%	0%	0%	0%	0%
							grade 2 events	3035	22132	2597	12803	6125	2372
								2%	12%	2%	9%	4%	2%
							grade 3 events	1943	5503	1945	6446	3753	1882
								1%	3%	1%	4%	2%	1%
							grade 4 events	1876	6920	1947	6400	3580	1804
								1%	3%	1%	4%	2%	1%
							grade 5 events	3926	17248	4266	12183	5540	4492
								3%	9%	3%	8%	3%	4%
							grade 6 events	2271	42757	2432	29168	8311	2369
								1%	24%	2%	21%	5%	2%
							grade 7 events	109585	65305	97287	64176	113466	90812
								85%	37%	83%	46%	75%	83%

## 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	83.941966	83.88659472091	Subarray requested	CUSTOM	1/4
[deg] Pointing Dec	-69.308481	-69.28957939568394	Subarray start row	49	49
[deg] Pointing Roll	105.070441	105.1752632807531	Subarray row count	256	256
[deg] Roll angle	100.000000	100.000000	Alternating exposures requested	N	N
[deg] Roll tolerance	10.000000	10.000000	[s] Primary exposure time	0.000000	1
Roll constraint allows 180D rotation	N	N			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-182.132523	-182.1344861297048			
[mm] SIM translation stage offset	-8	-7.998036453302973			
[s] Observation start time (MET)	210468366.184000	210467316.05577			
Observation start date	2004-09-01T23:25:02	2004-09-01T23:08:36			
[s] Observation end time (MET)	210518834.184000	210519352.74559			
Observation end date	2004-09-02T13:26:10	2004-09-02T13:35:52			
Read mode	TIMED	TIMED			

## 2.3 Aspect

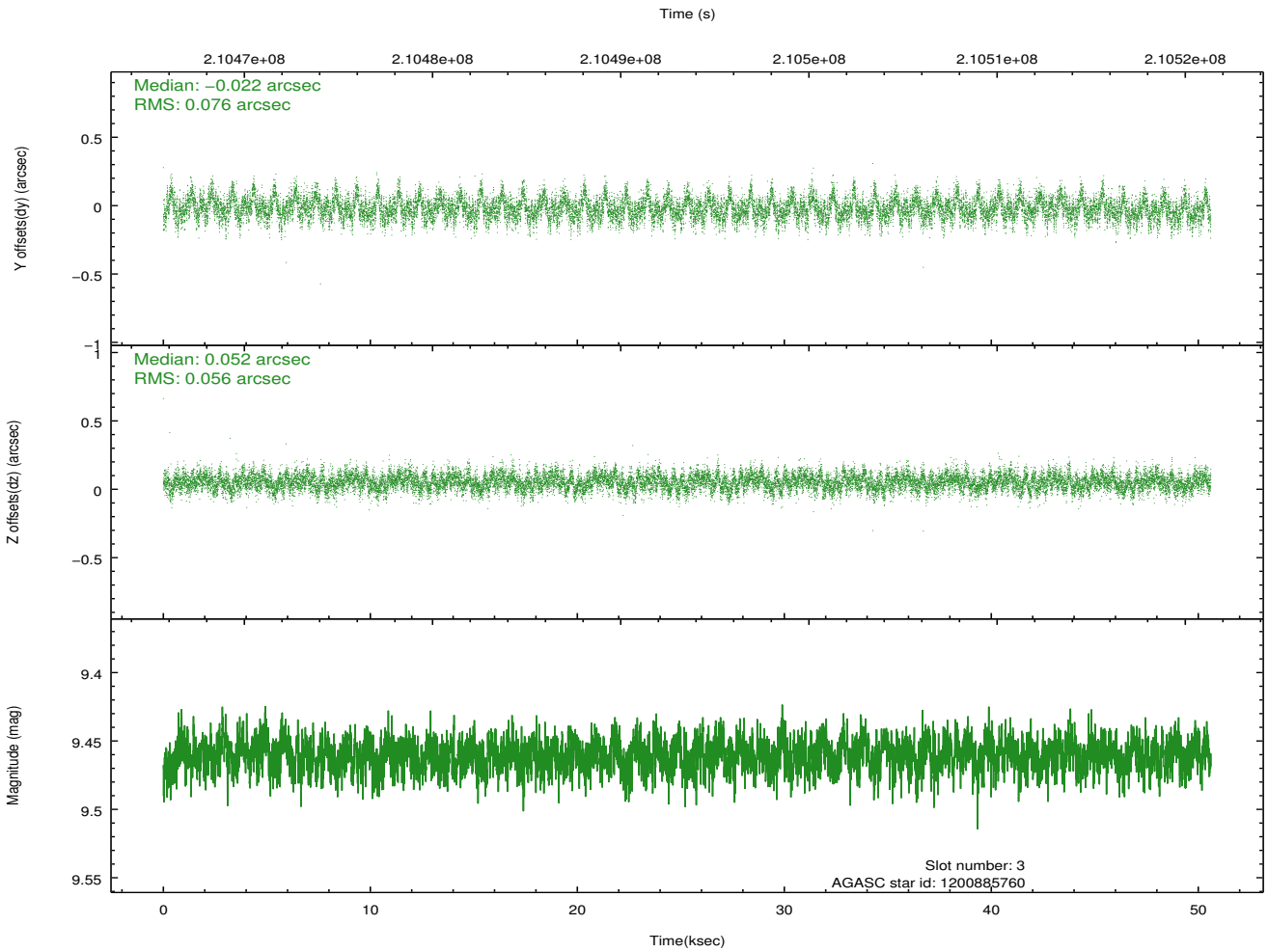
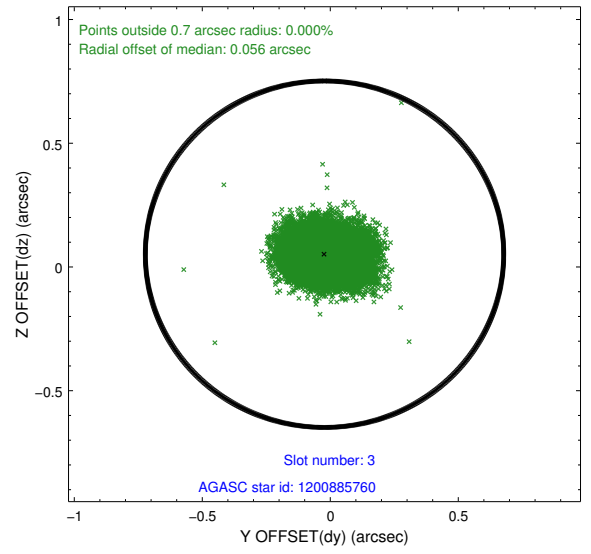
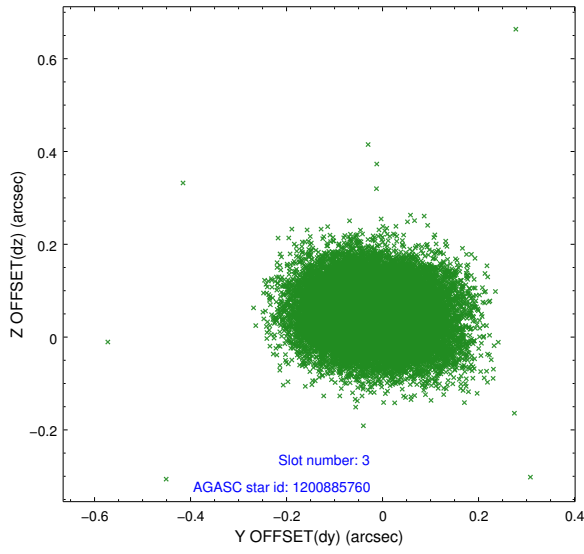


### Slot Statistics

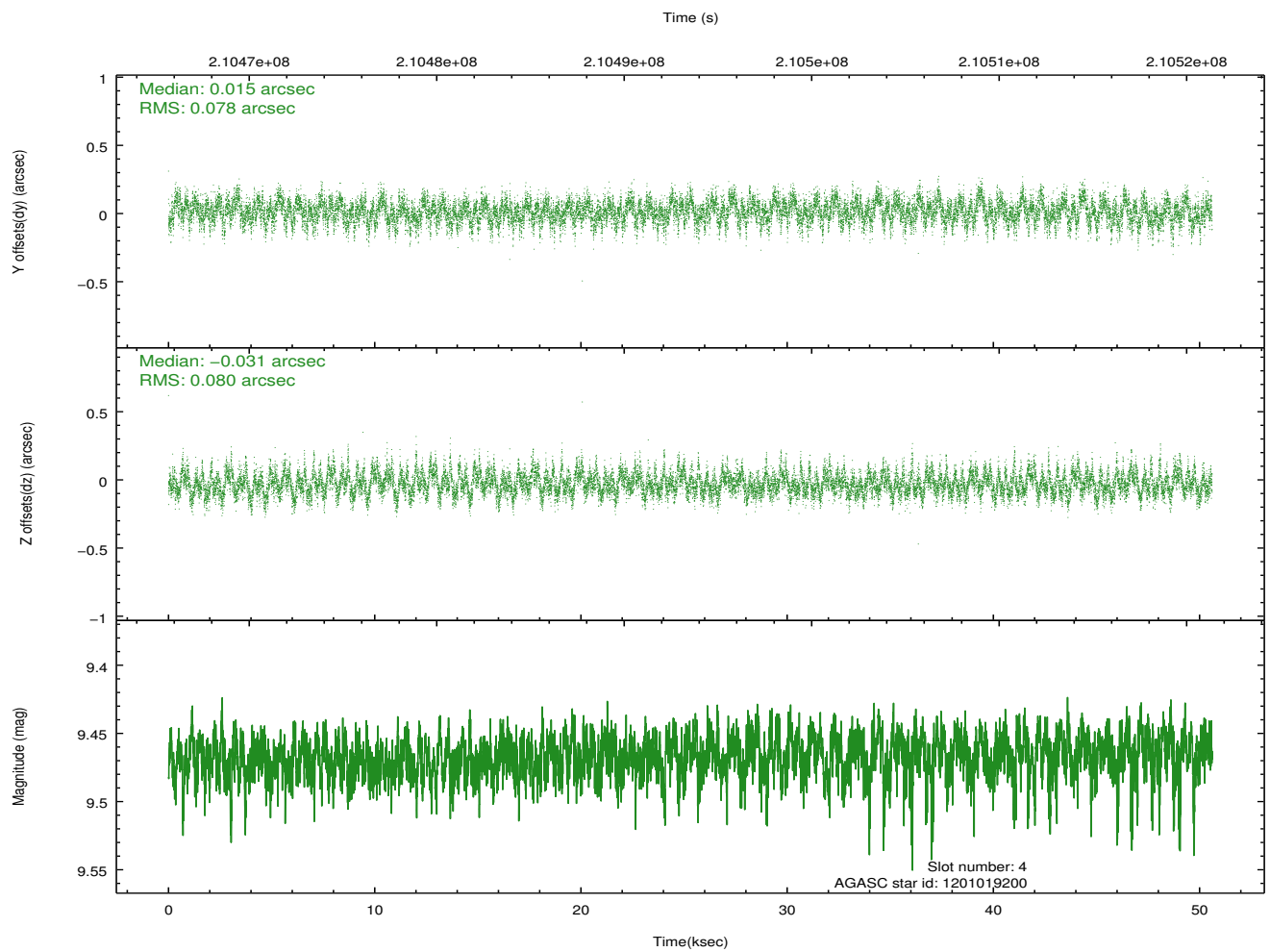
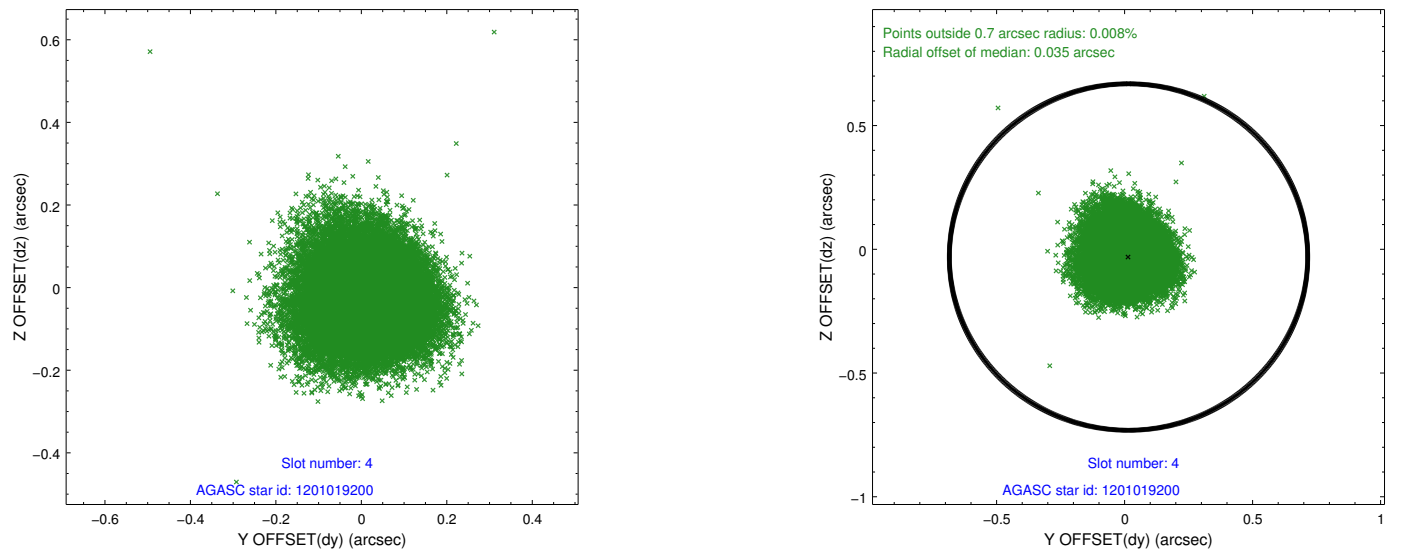
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.18	12344	0.091	0.057	0.014	0.036	0.000000	0.000000	938.10	-1890.98
1	FID	ACIS-S-2	7.09	12344	-0.112	-0.128	0.017	0.057	0.000000	0.000000	-758.02	-1895.79
2	FID	ACIS-S-5	7.22	12344	-0.003	0.078	0.014	0.045	0.000000	0.000000	-1811.22	6.48
3	GUIDE	1200885760	9.46	24675	-0.022	0.052	0.099	0.165	83.723637	-68.777667	1918.96	-221.53
4	GUIDE	1201019200	9.47	24657	0.015	-0.031	0.119	0.191	84.213591	-68.777384	1753.94	-838.35
5	GUIDE	1201406184	7.94	24687	-0.058	-0.057	0.064	0.104	82.503234	-69.975517	-1877.79	2342.05
6	GUIDE	1201410616	9.35	24681	0.113	-0.171	0.121	0.194	82.516808	-69.784406	-1213.39	2162.58
7	GUIDE	1201017424	10.20	24663	-0.060	0.213	0.167	0.279	85.854985	-69.248506	-462.13	-2401.64

## 2.4 Star Slots

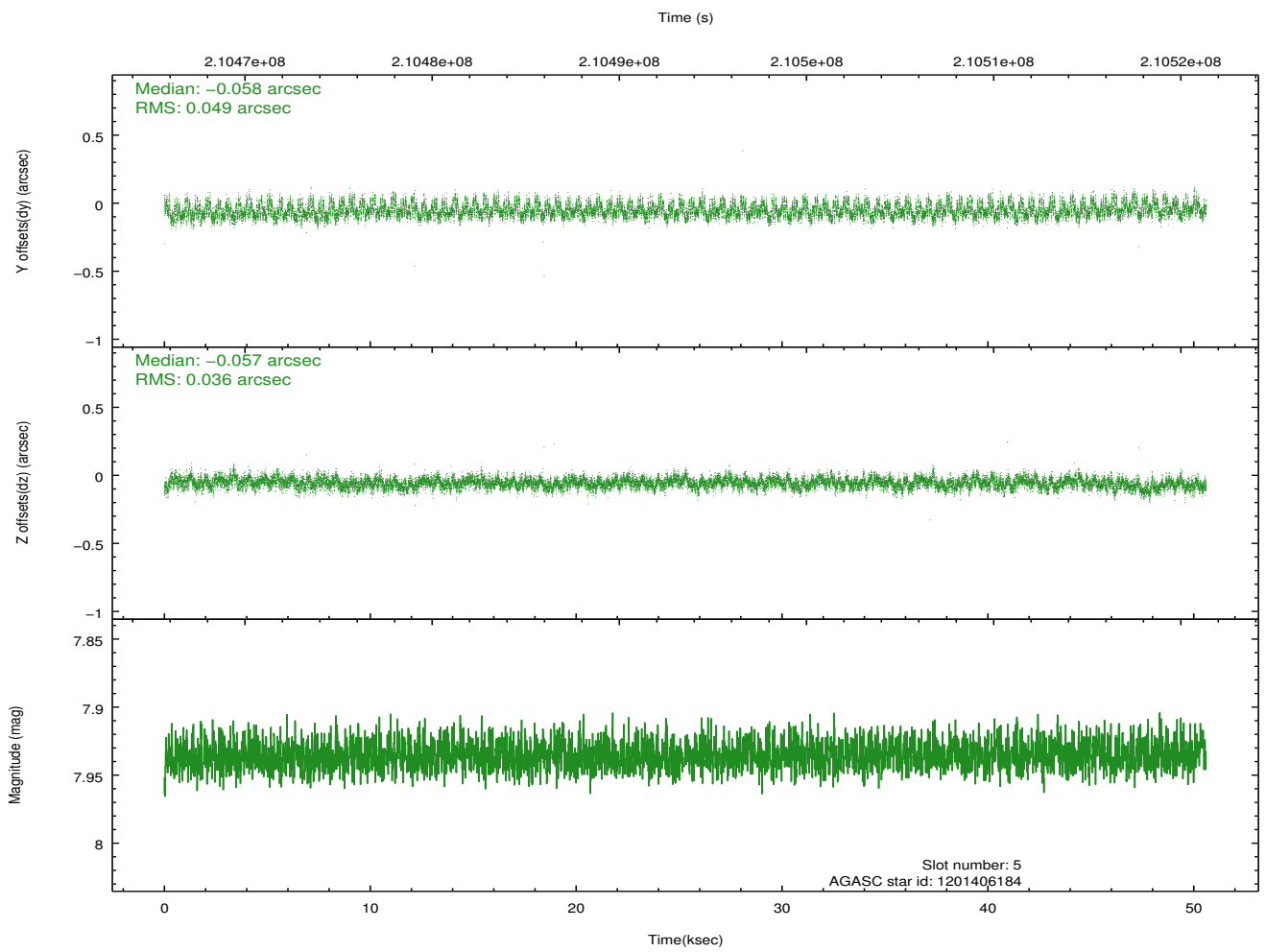
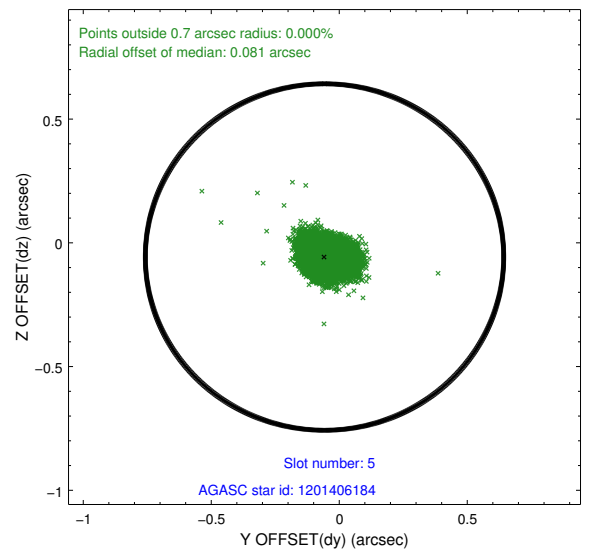
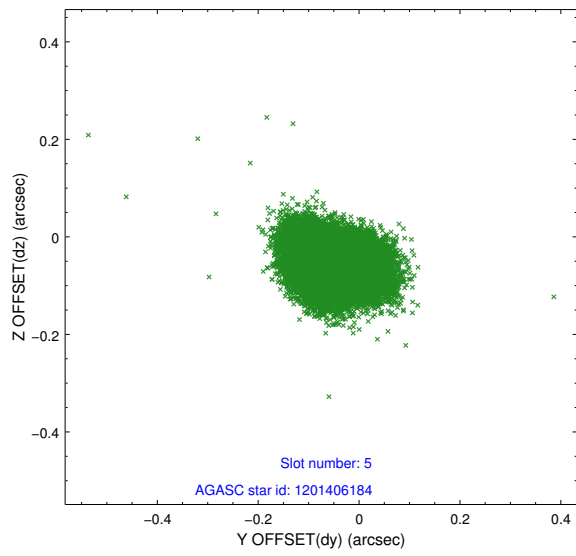
### 2.4.1 Slot 3



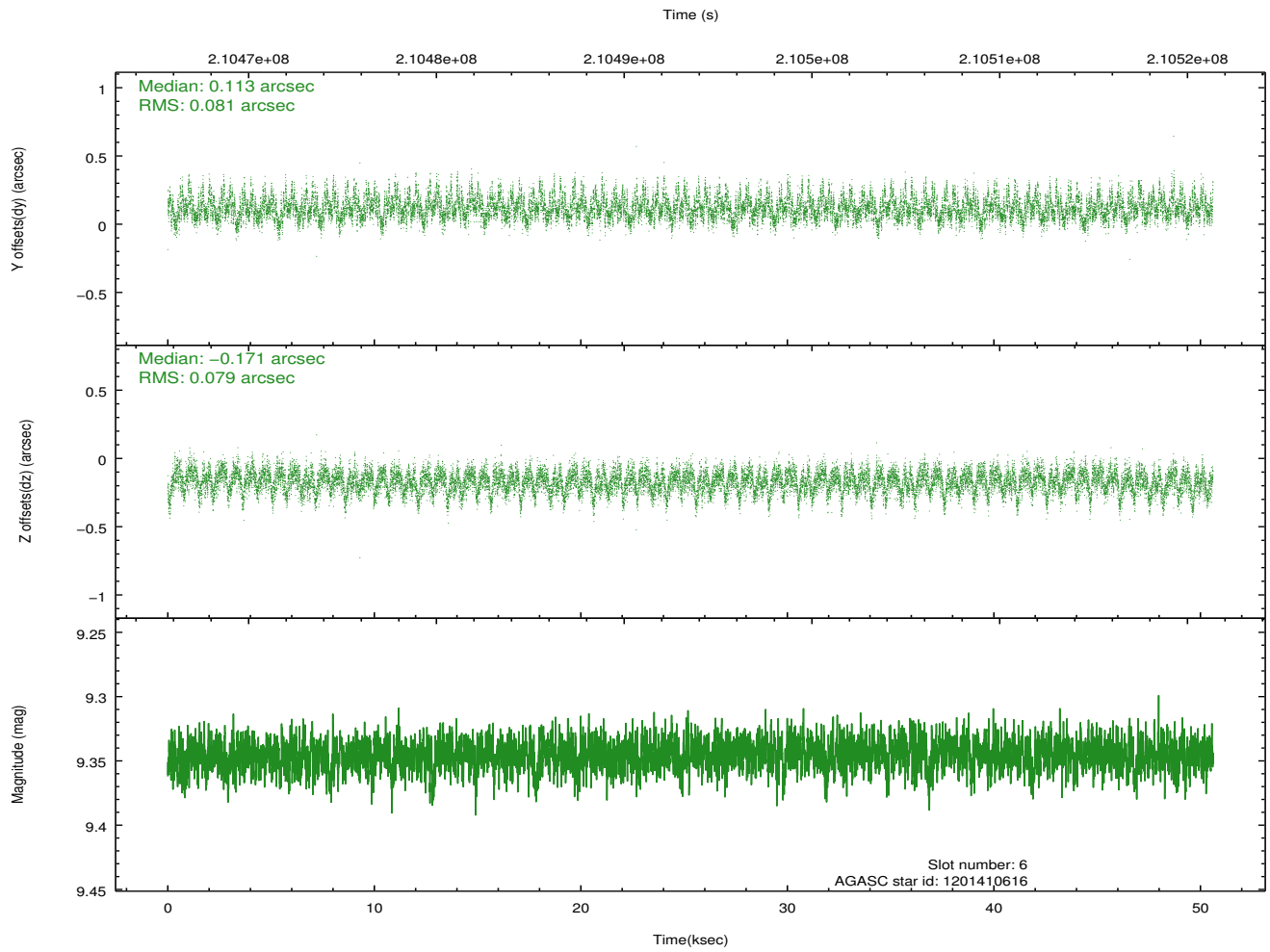
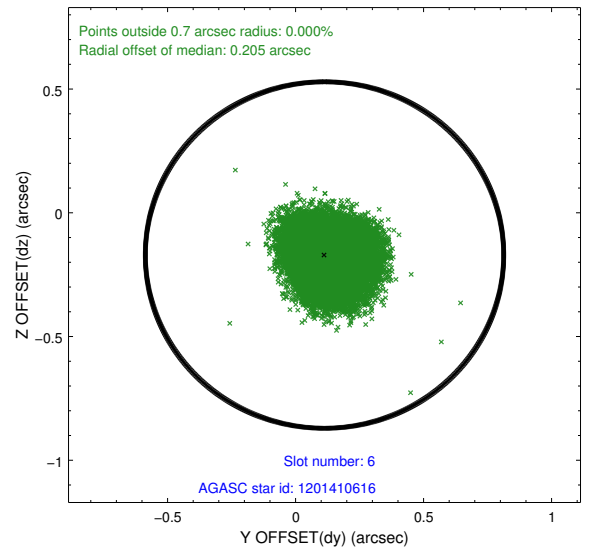
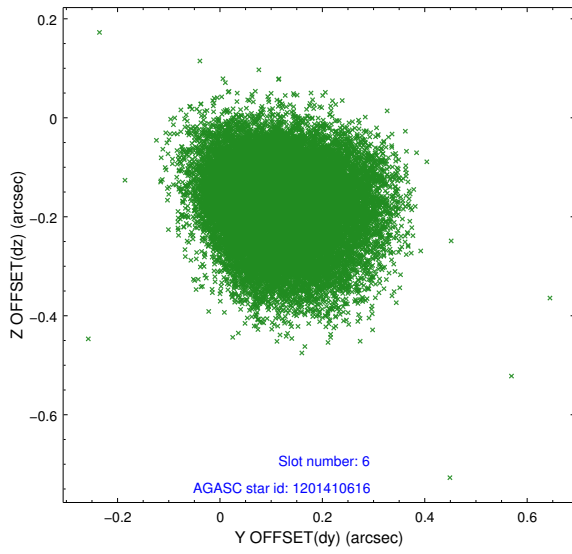
## 2.4.2 Slot 4



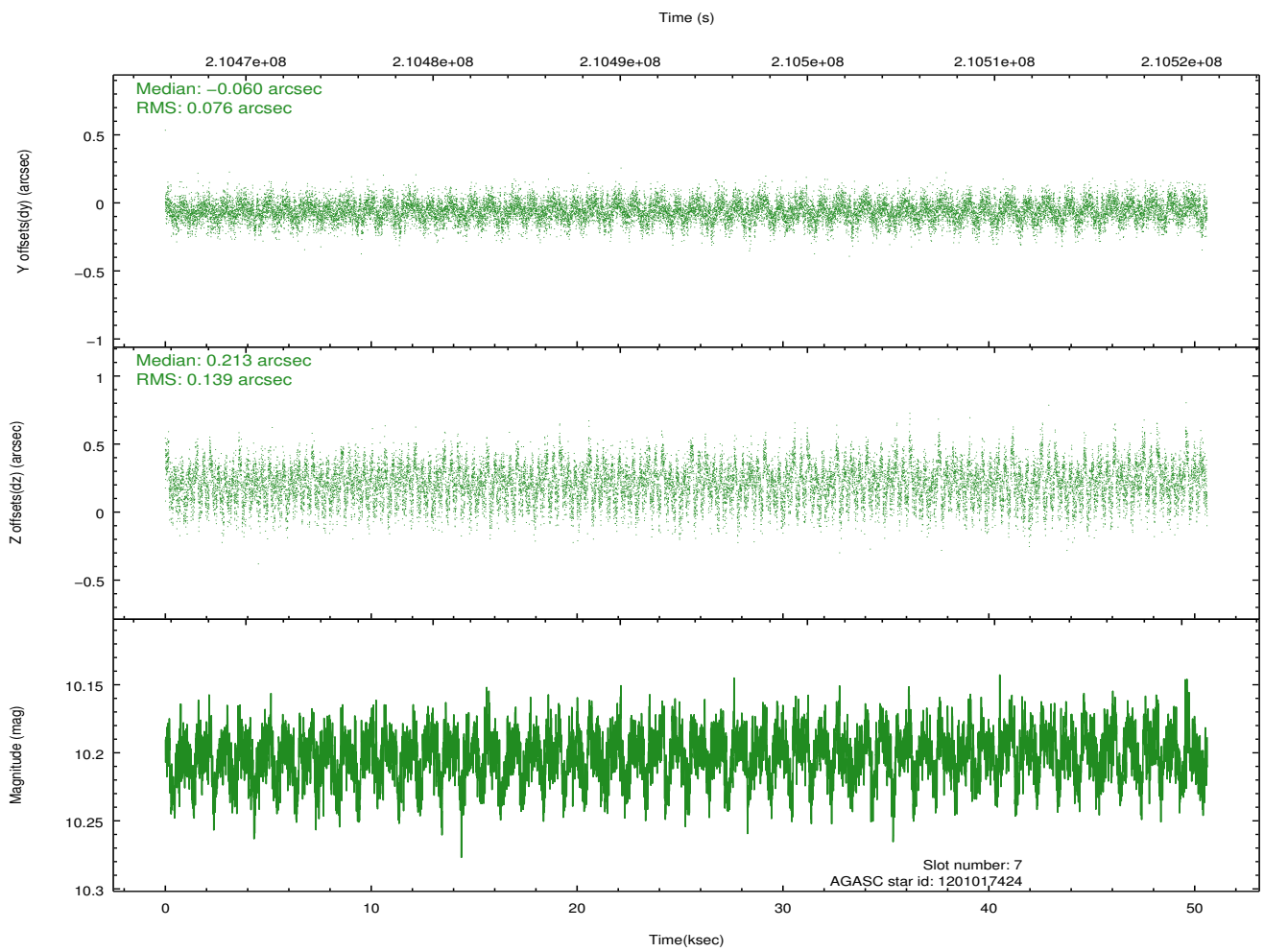
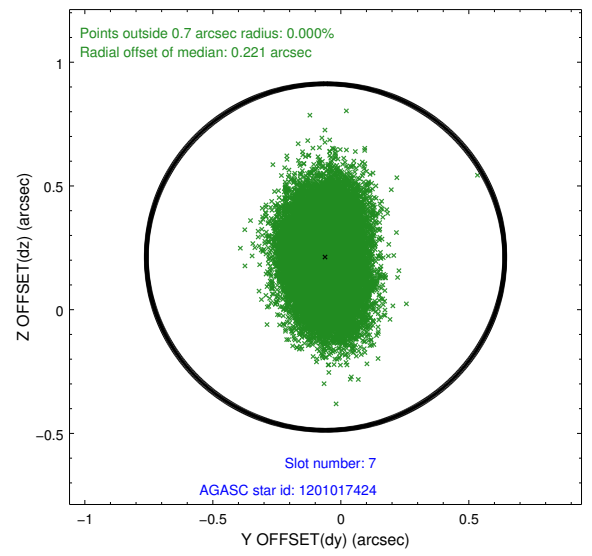
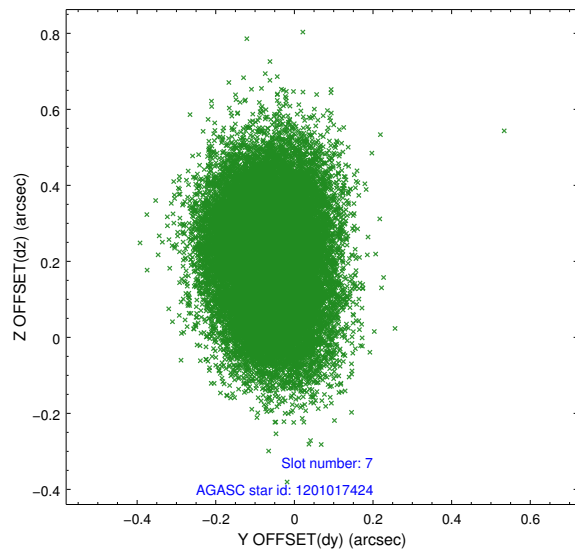
### 2.4.3 Slot 5



### 2.4.4 Slot 6

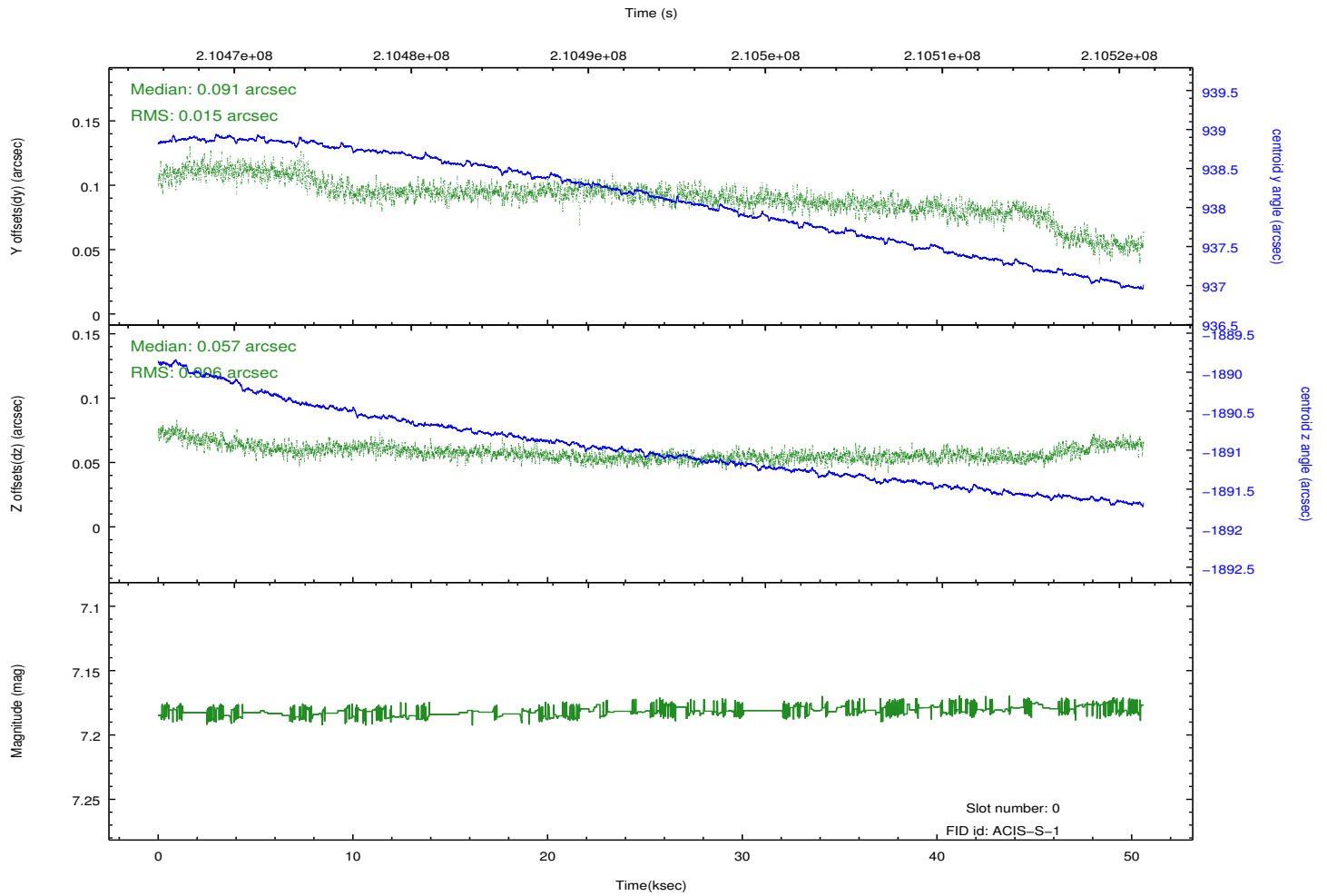
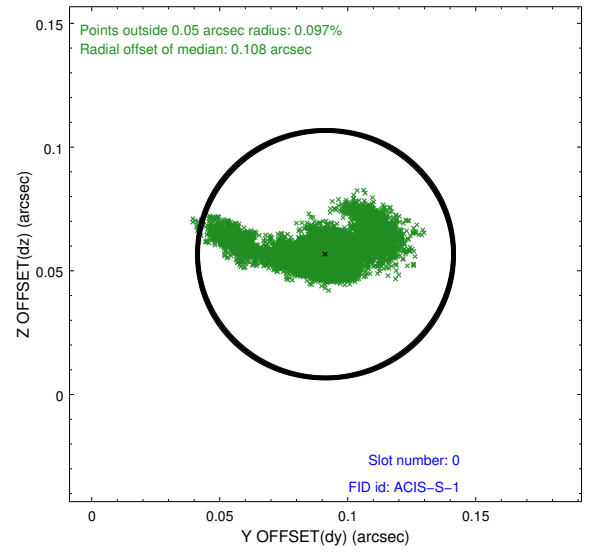
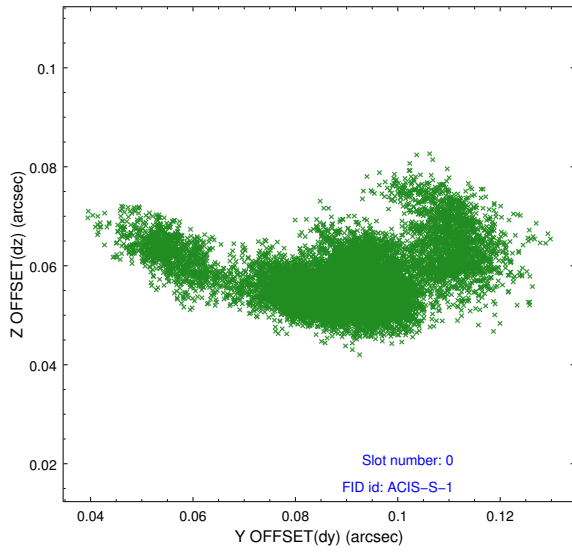


## 2.4.5 Slot 7

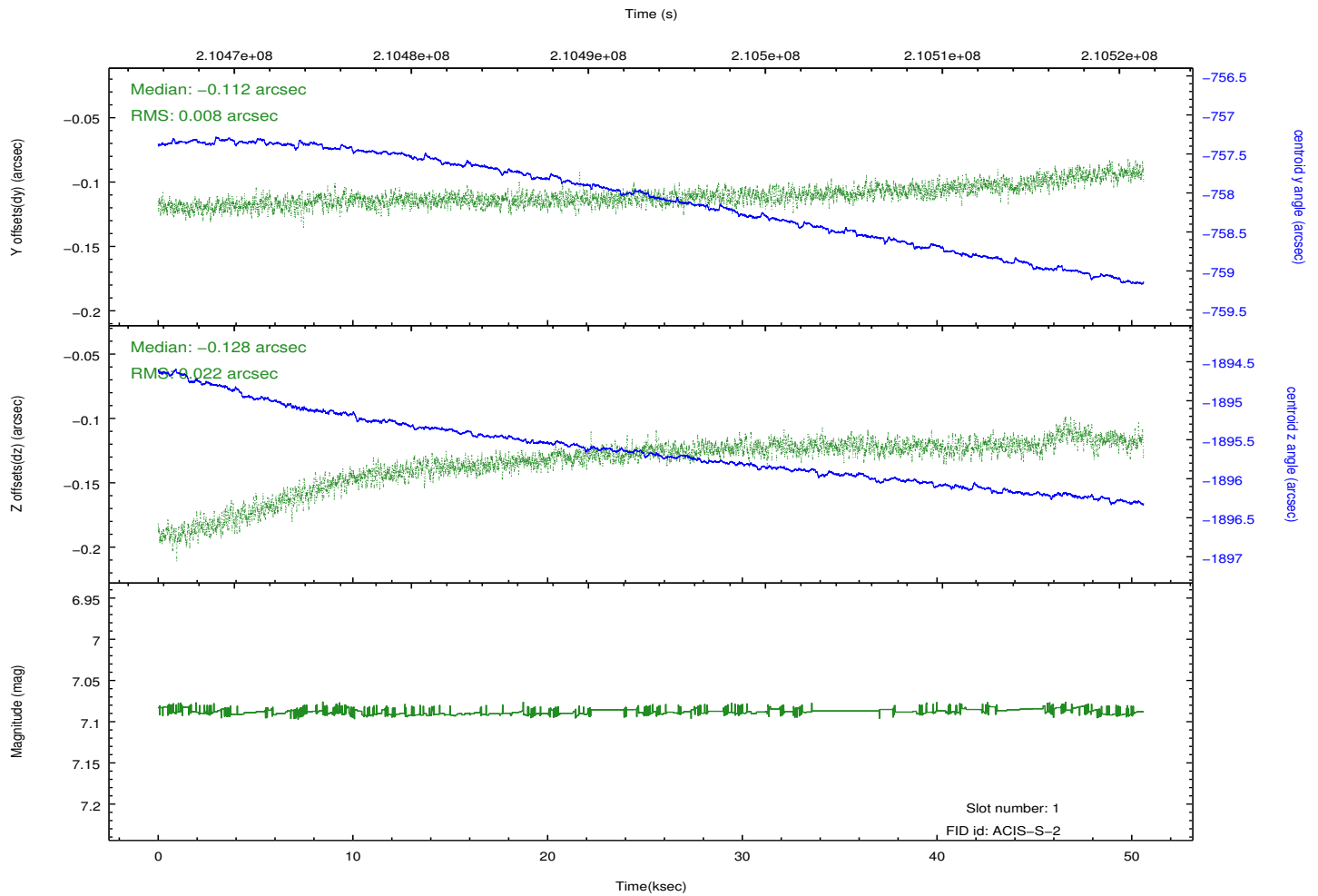
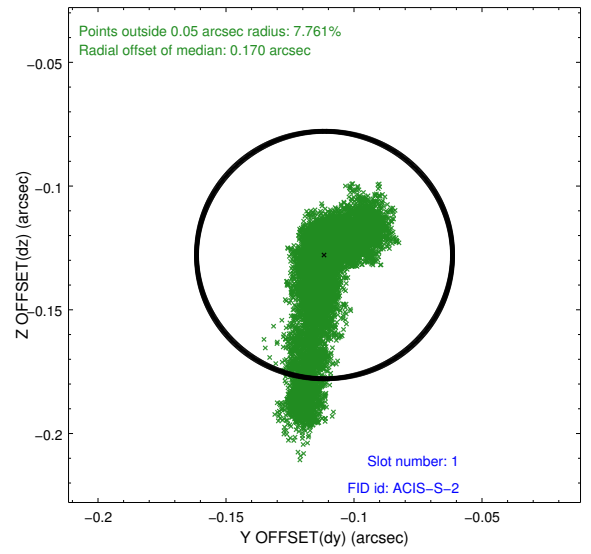
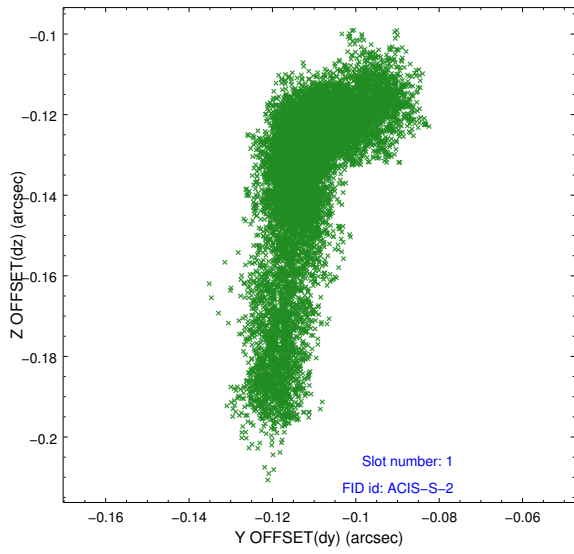


## 2.5 FID Slots

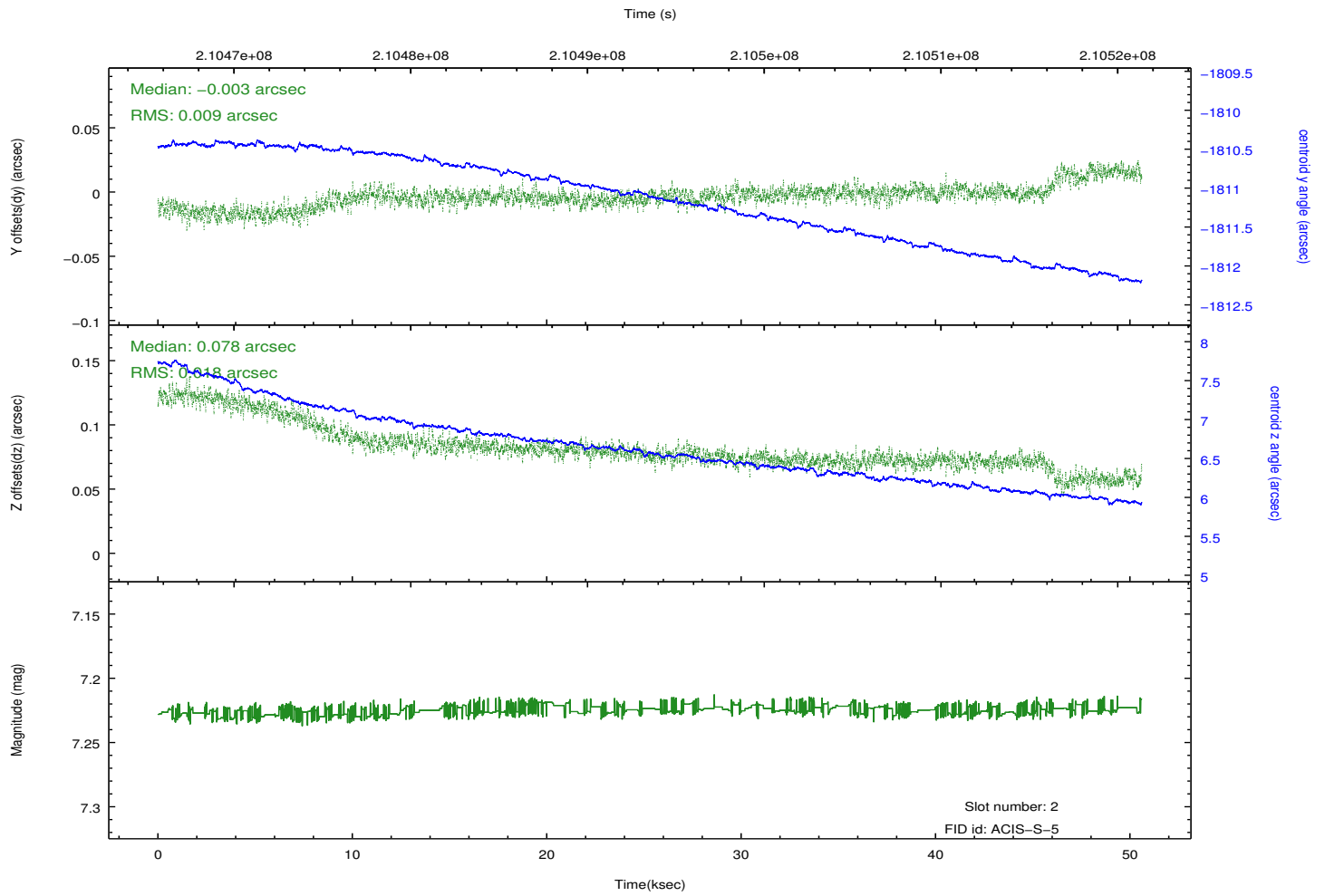
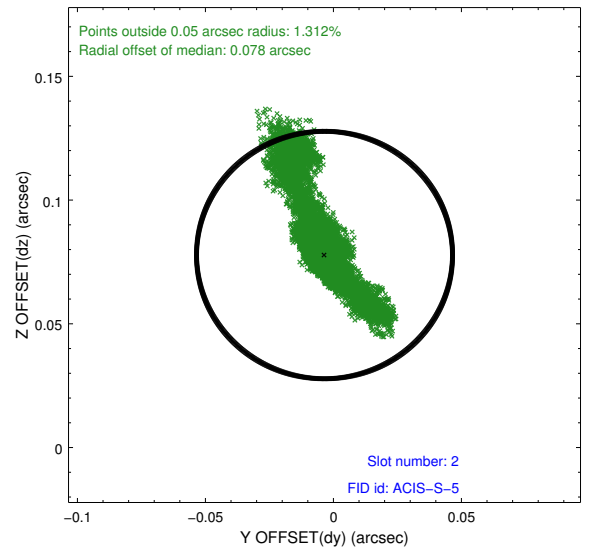
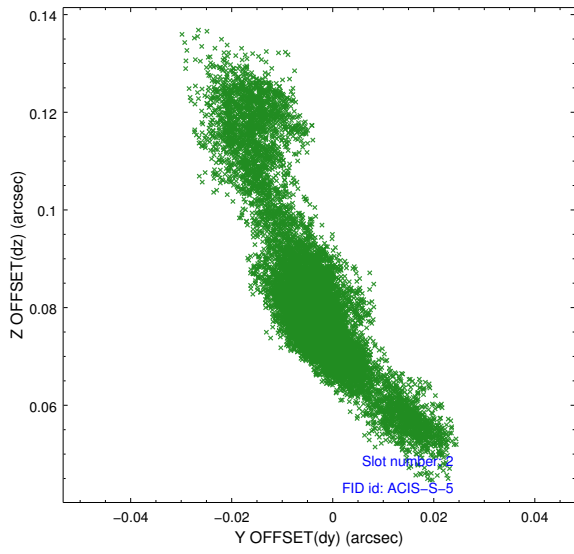
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

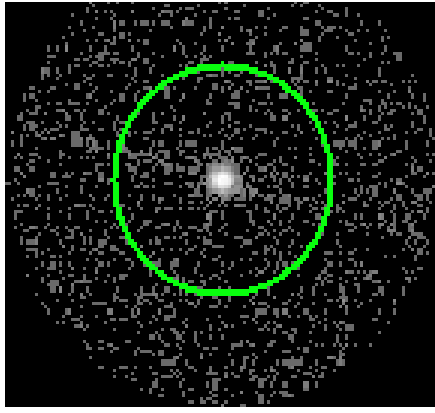


### 3 Gratings

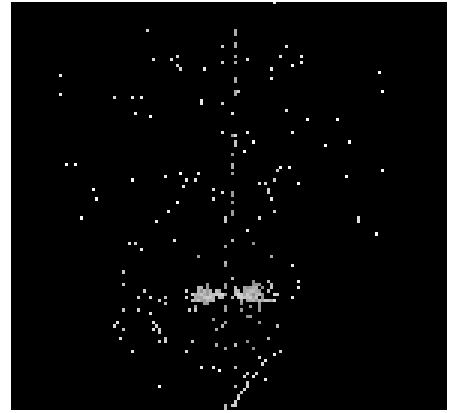
#### 3.1 LETG Arm



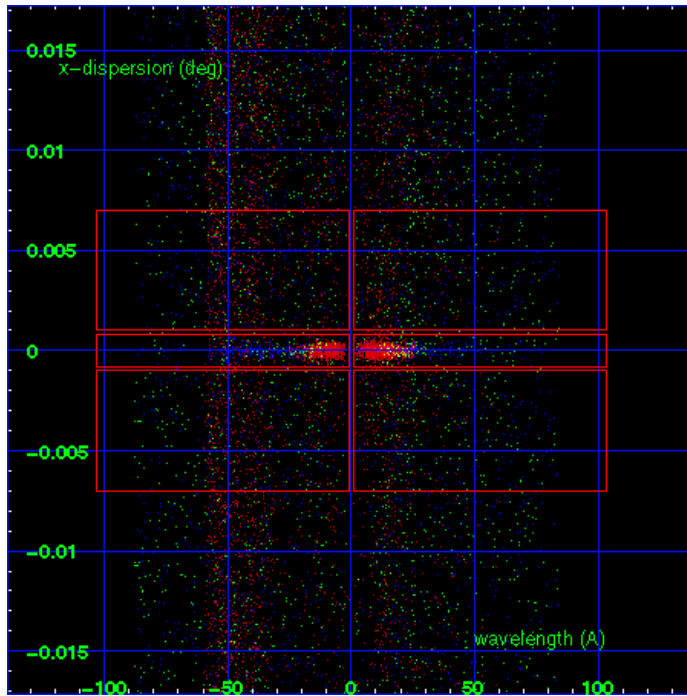
LETG Order Sort 123



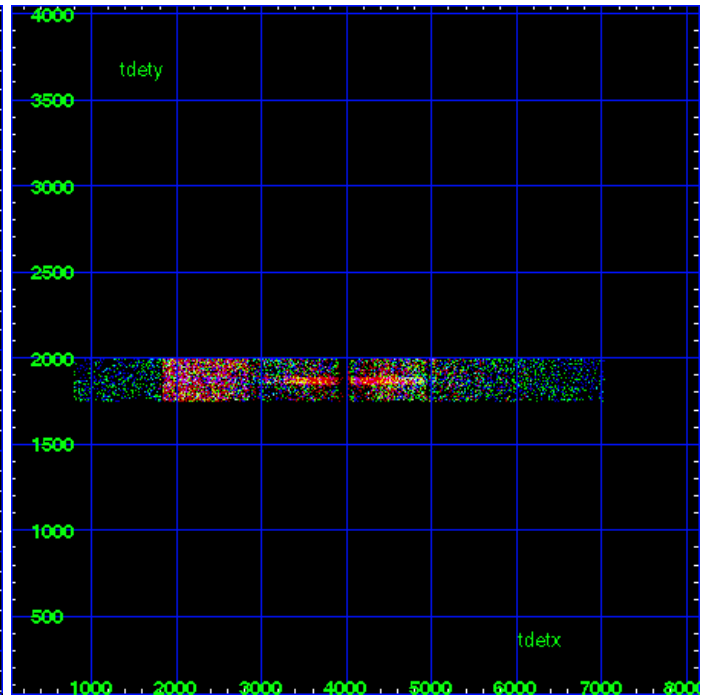
LETG Zero Order



LETG Order Sort ALL

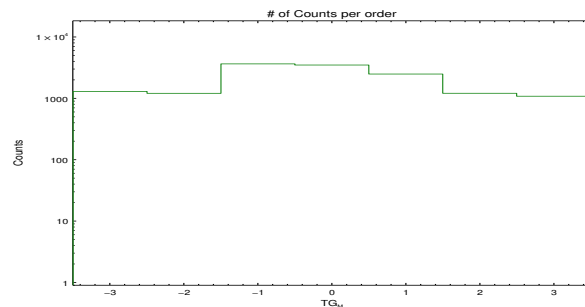


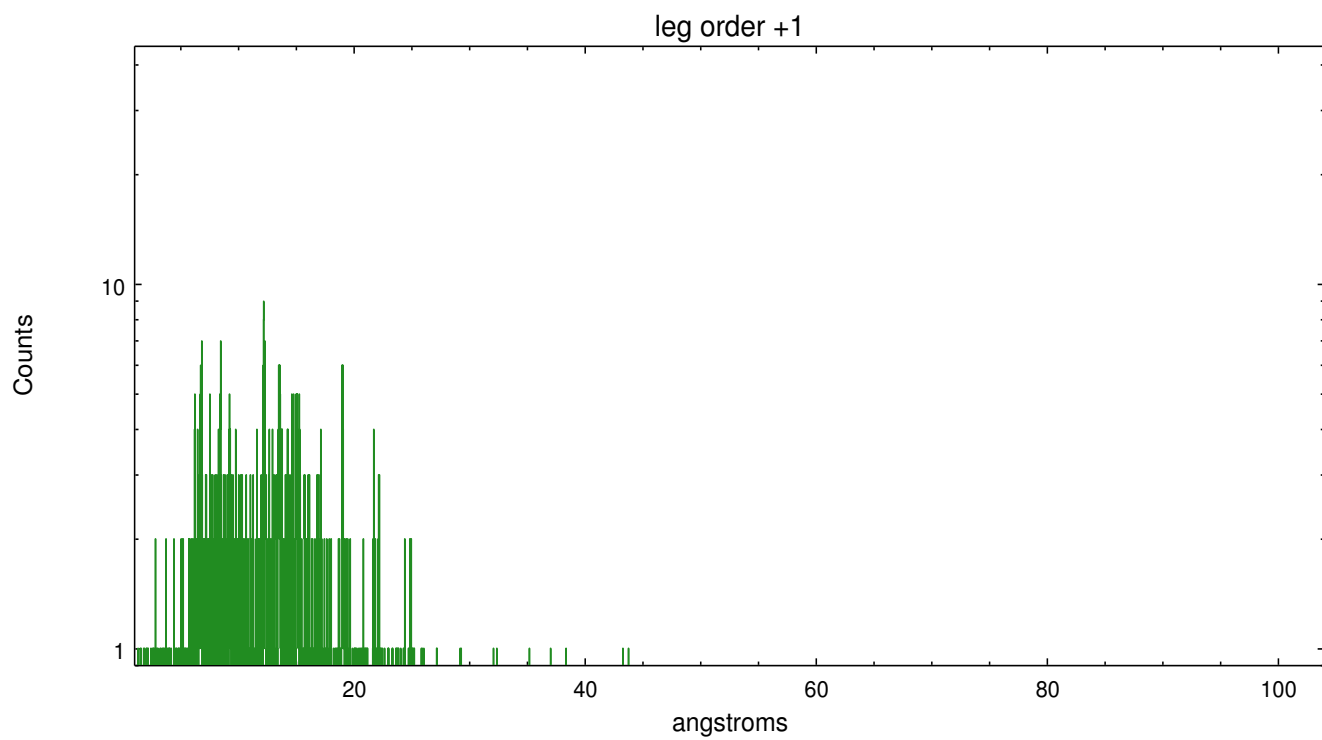
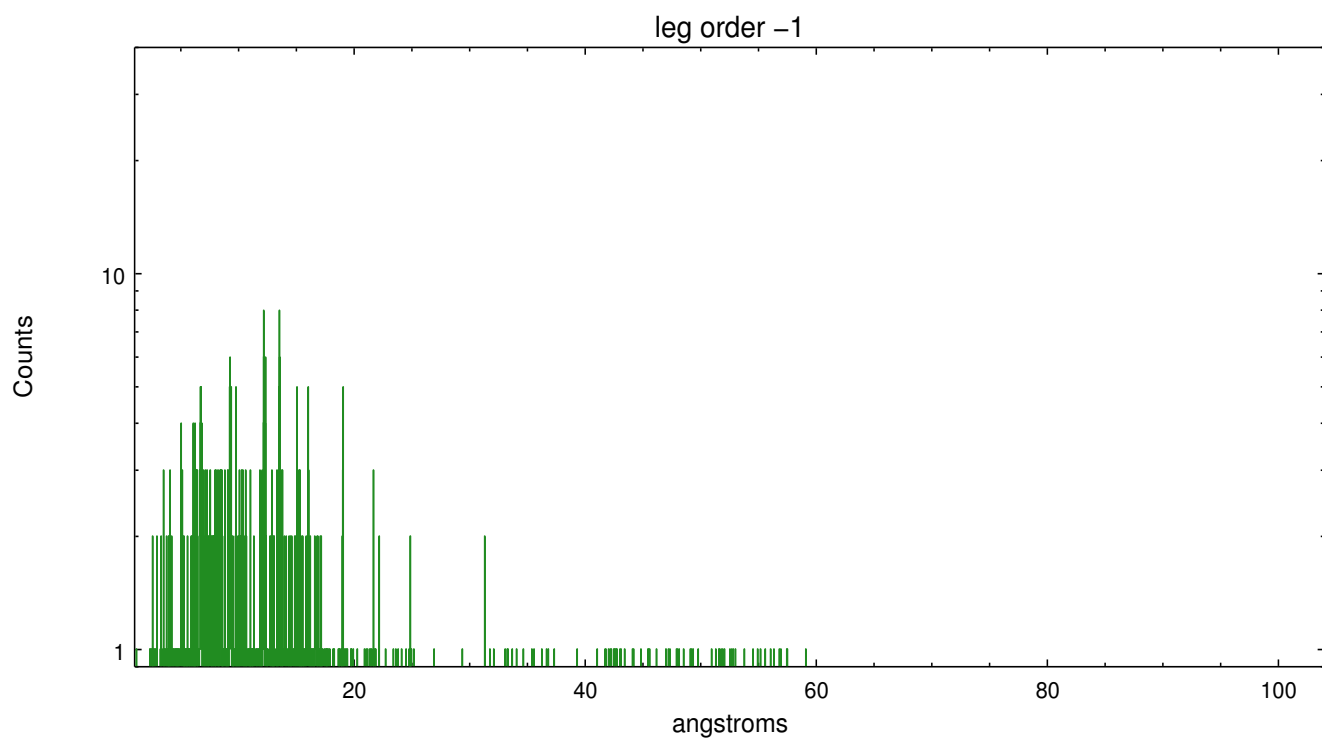
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1302	1211	3666	3510	2501	1213	1086





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	50.606

## A.2 Comments

The spatial flux distribution of the source is asymmetric and extended. The wavelength solution is pertinent only to the zeroth order position determined by the tool `tgdetect`. For extended sources, there is no unique mapping from position to wavelength.

===WARNING: there are no standard ciao tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle. ===== WARNING::Zeroth order selected by pipeline tools is well-centered in the SNR but is not necessarily at the position of brightest emission. The user may want to select a region or source of interest, then use software tools such as CIAO to specify the coordinates of the zeroth order source of interest before running the tools to resolve the dispersed events.

===

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.