

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 10703 - L2 Version 2  
Chandra X-Ray Center

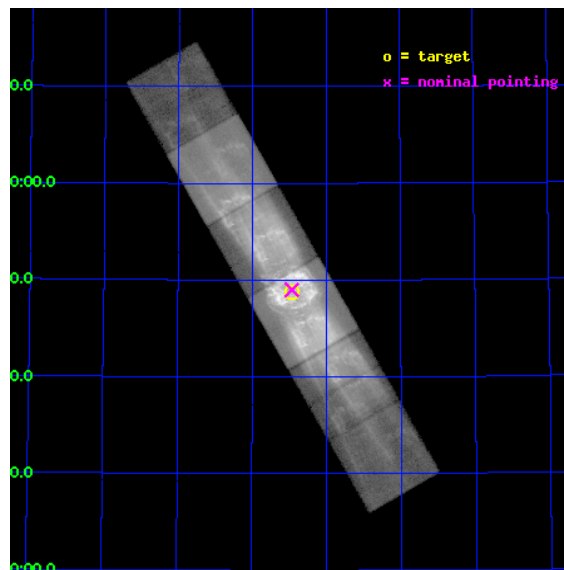
L2 Processing Date : Jun 25 2012

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# 1 Front

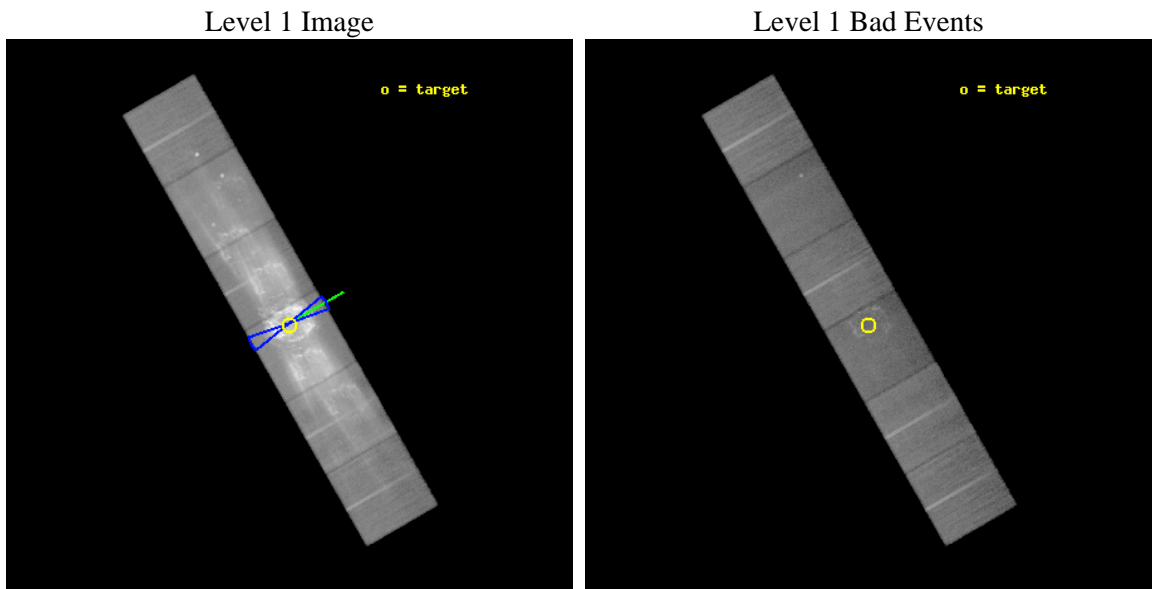
seq_num	501159	Sequence number
obs_id	10703	Observation id
title	2nd Epoch High Resolution Spectra of Cassiopeia A: Plasma Evolution and Doppler Mapping	Proposal title
observer	Prof Claude Canizares	Principal investigator
object	Cassiopeia A	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	350.86625	Observer's specified target RA [deg]
dec_targ	58.811806	Observer's specified target Dec [deg]
ra_nom	350.86595516964	Nominal RA [deg]
dec_nom	58.816659473588	Nominal Dec [deg]
roll_nom	60.156854273534	Nominal Roll [deg]
revision	2	Processing version of data
ontime	35113.599869251	Sum of GTIs [s]
livetime	34668.970324835	Livetime [s]
ontime4	35113.599869251	Sum of GTIs [s]
ontime5	35113.599869251	Sum of GTIs [s]
ontime6	35113.599869251	Sum of GTIs [s]
ontime7	35113.599869251	Sum of GTIs [s]
ontime8	35110.358898997	Sum of GTIs [s]
ontime9	35113.599869251	Sum of GTIs [s]
l2events	4033685	Number of level 2 events



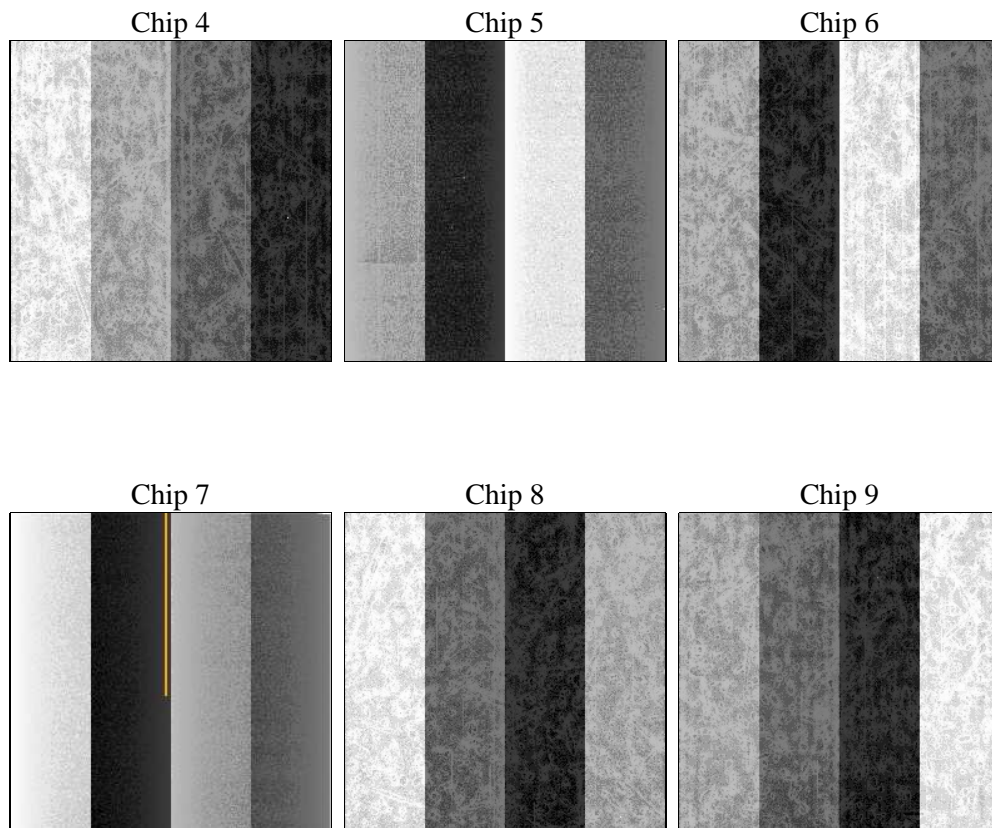
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	35000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	35113.599869251	Sum of GTIs [s]
caldbver	4.4.10	&#160	ontime4	35113.599869251	Sum of GTIs [s]
date	2012-06-25T00:03:38	Date and time of file creation	ontime5	35113.599869251	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	35113.599869251	Sum of GTIs [s]
			ontime7	35113.599869251	Sum of GTIs [s]
			ontime8	35110.358898997	Sum of GTIs [s]
			ontime9	35113.599869251	Sum of GTIs [s]
			l1events	5742143	Number of level 1 events

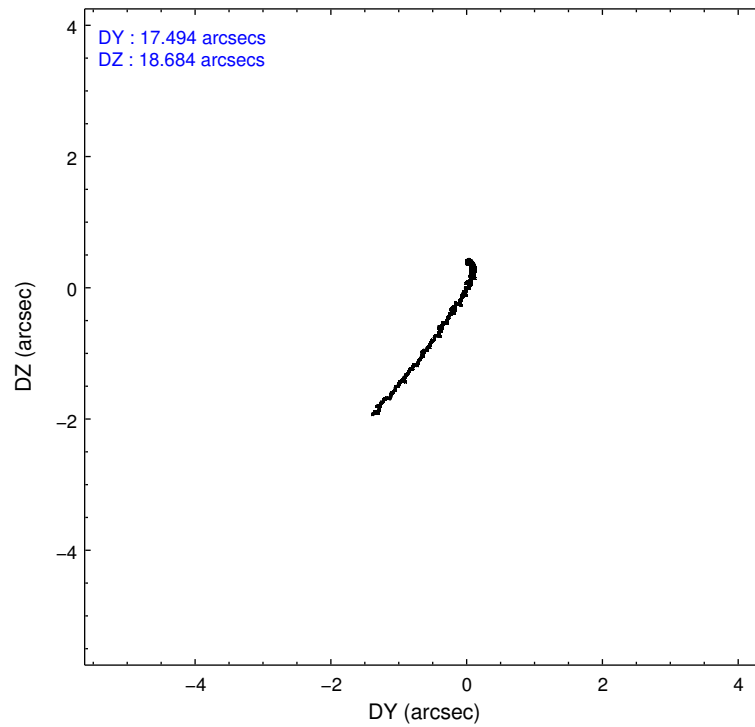
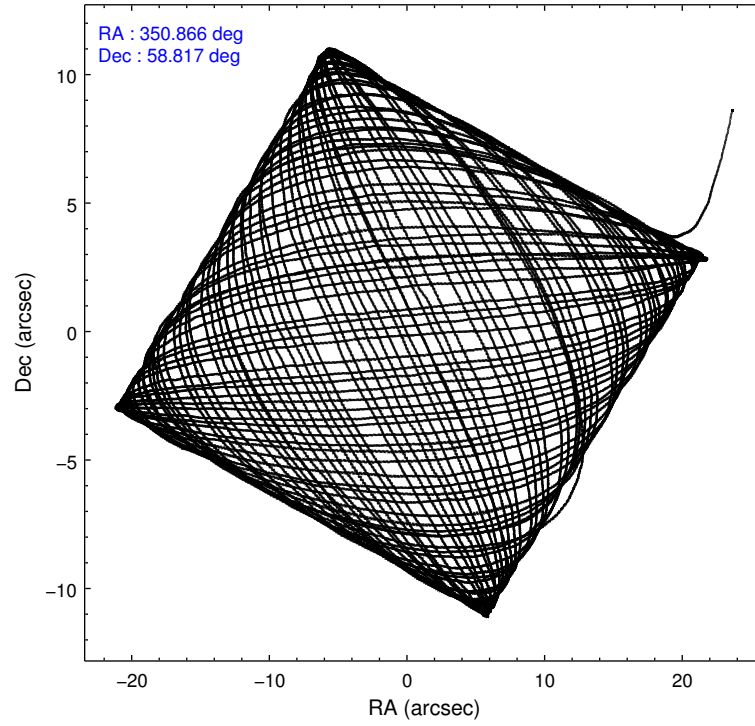
### 2.1.4 Events

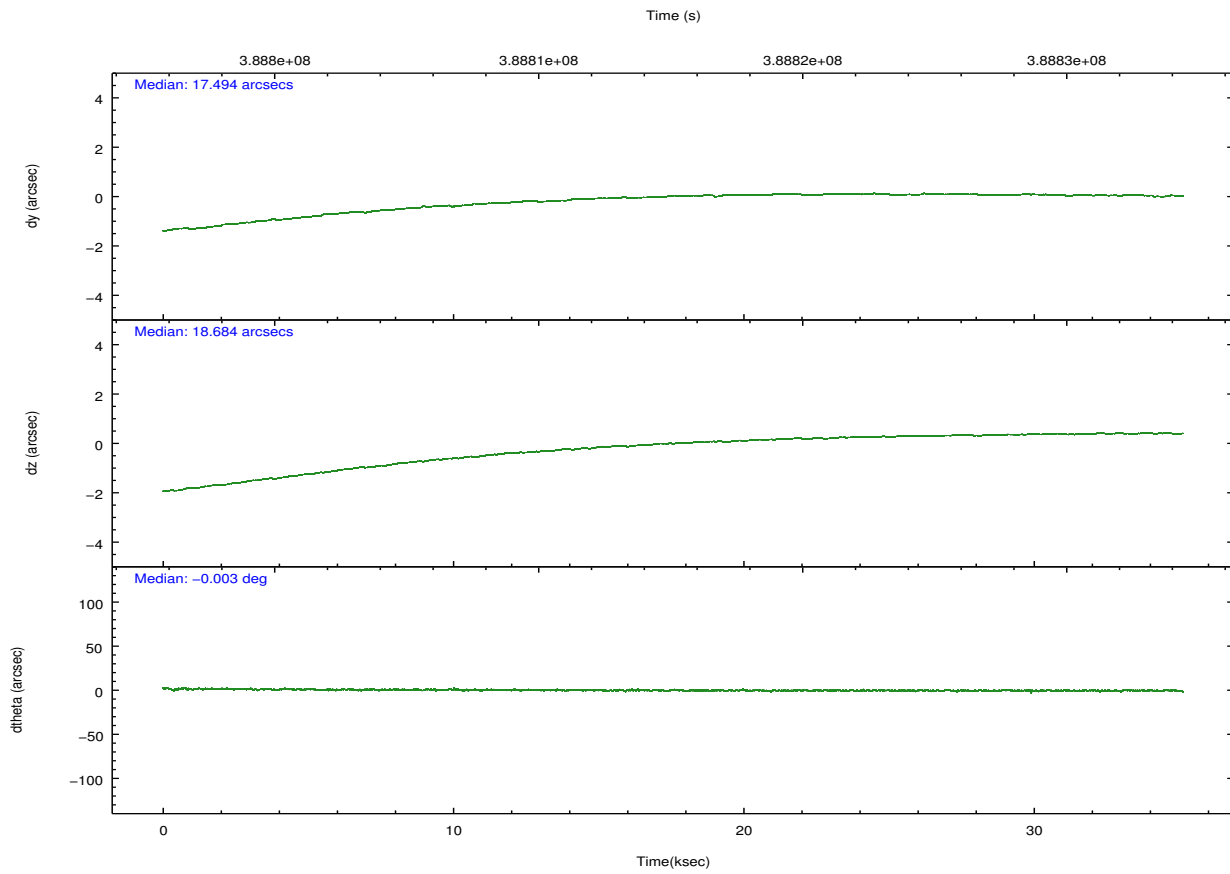
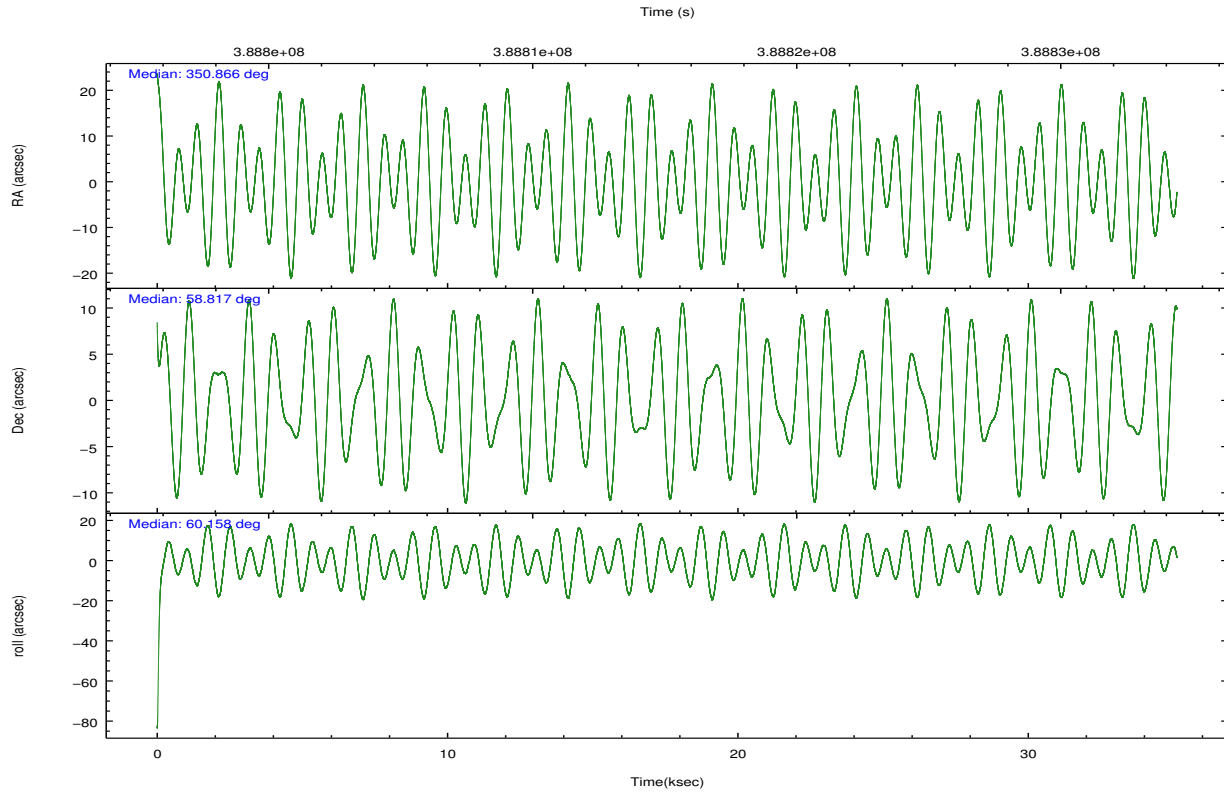
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	379669	680340	1184890	2391150	761712	344382	grade 0 events	67675	112591	733019	460143	359247	72990
rejected events	285045	217113	268432	215329	274421	239253		17%	16%	61%	19%	47%	21%
rejected %	75%	31%	22%	9%	36%	69%	grade 1 events	713	1825	4056	1935	2043	476
								0%	0%	0%	0%	0%	0%
							grade 2 events	12825	144275	100884	570314	59849	14340
								3%	21%	8%	23%	7%	4%
							grade 3 events	5095	32301	31284	249049	21421	5644
								1%	4%	2%	10%	2%	1%
							grade 4 events	4744	32019	31520	246379	20842	5448
								1%	4%	2%	10%	2%	1%
							grade 5 events	12250	33966	15494	48821	18854	13594
								3%	4%	1%	2%	2%	3%
							grade 6 events	6139	149441	26989	665117	30441	7864
								1%	21%	2%	27%	3%	2%
							grade 7 events	270228	173922	241644	149392	249015	224026
								71%	25%	20%	6%	32%	65%

## 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	HETG	HETG	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	350.866823	350.8659551696423	Subarray requested	NONE	NONE
[deg] Pointing Dec	58.789312	58.81665947358815	Alternating exposures requested	N	N
[deg] Pointing Roll	59.999510	60.156854273534	[s] Primary exposure time	0.000000	3.2
[deg] Roll angle	61.000000	61.000000			
[deg] Roll tolerance	10.000000	10.000000			
Roll constraint allows 180D rotation	Y	Y			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.145094680475			
[mm] SIM translation stage offset	0	0.01257209746719923			
[s] Observation start time (MET)	388797655.184000	388796069.96166			
Observation start date	2010-04-27T23:19:49	2010-04-27T22:54:29			
[s] Observation end time (MET)	388832655.184000	388833596.23857			
Observation end date	2010-04-28T09:03:09	2010-04-28T09:19:56			
Read mode	TIMED	TIMED			

## 2.3 Aspect



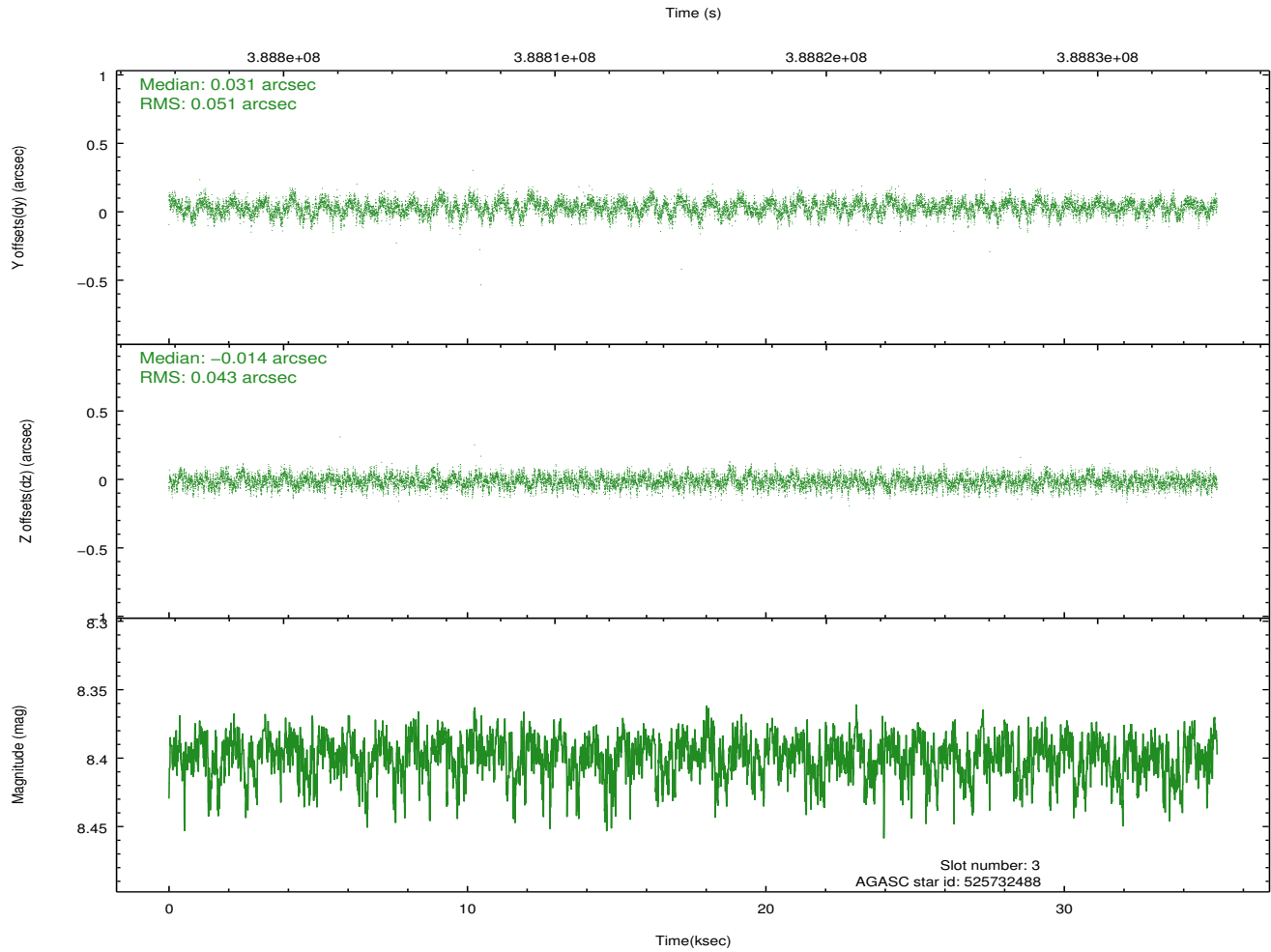
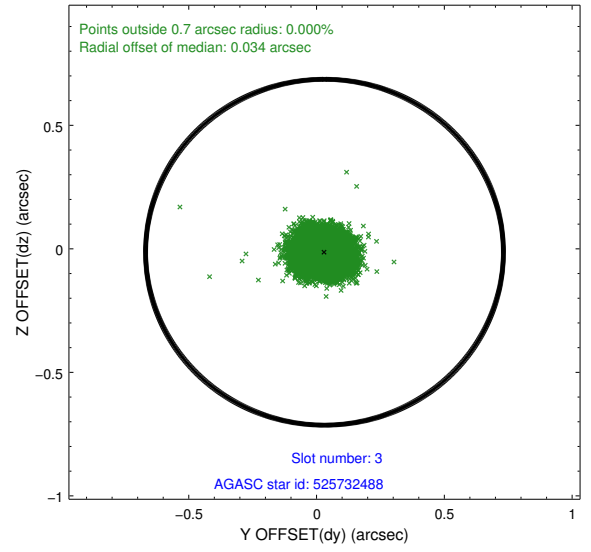
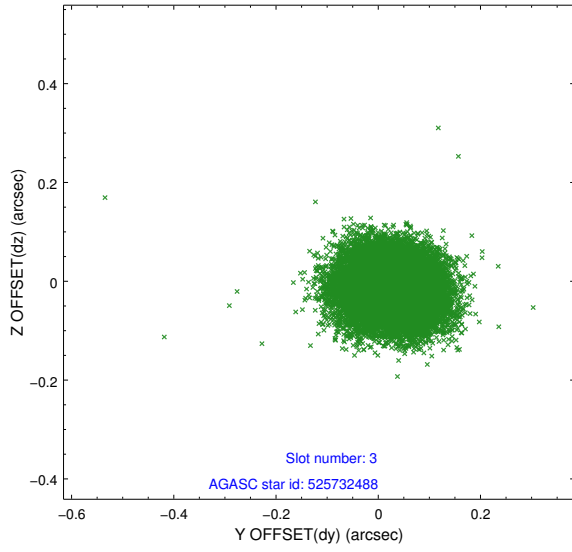


### Slot Statistics

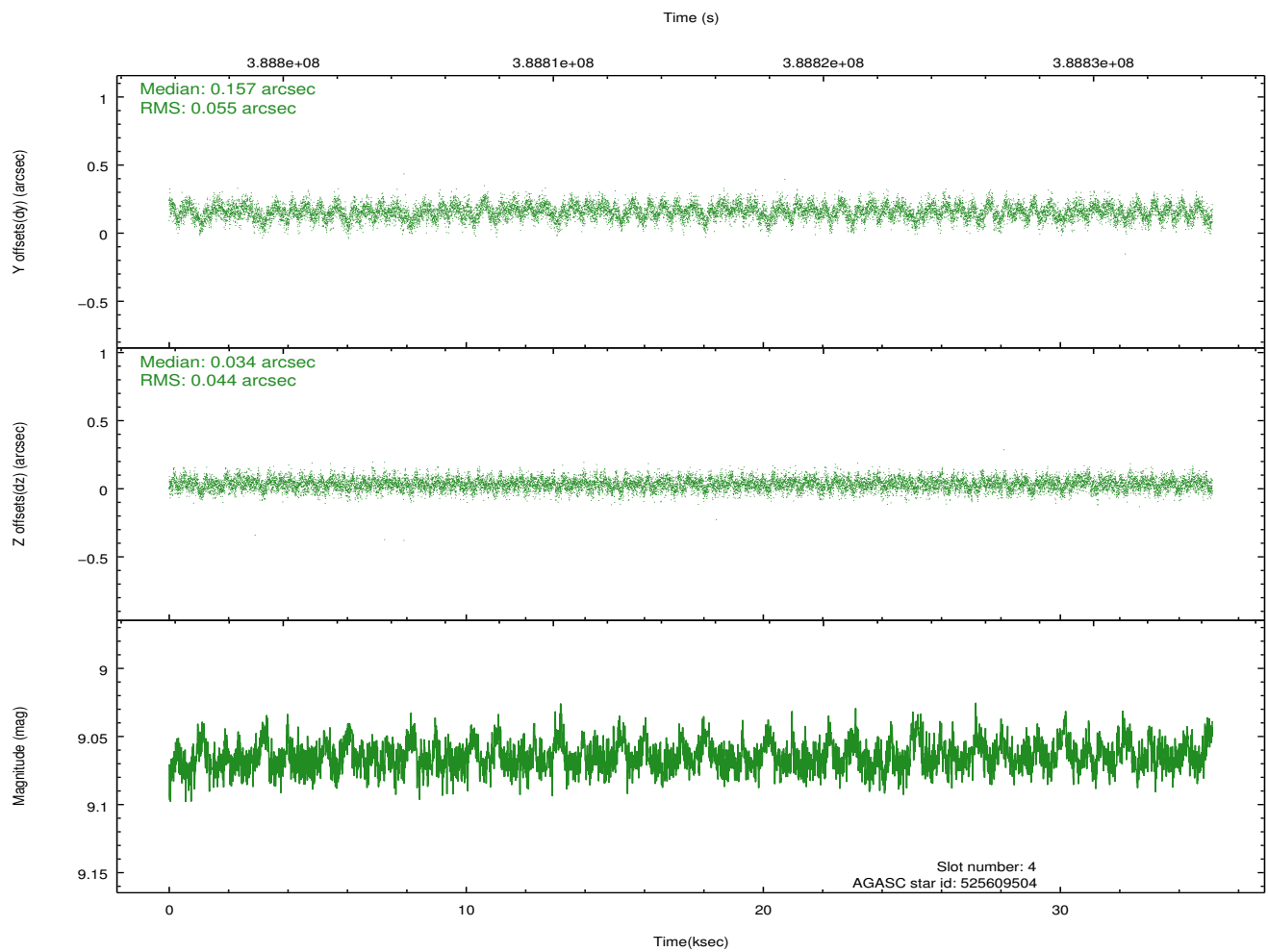
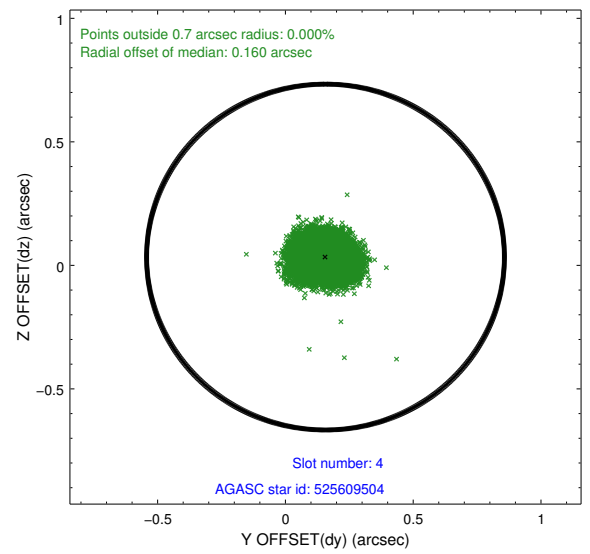
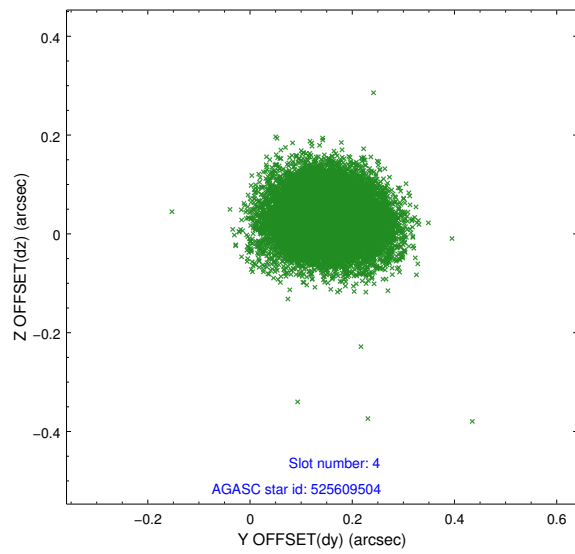
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.87	8566	-0.081	-0.035	0.013	0.021	0.000000	0.000000	-770.40	-1739.79
1	FID	ACIS-S-4	6.95	8566	0.123	0.039	0.011	0.016	0.000000	0.000000	2143.09	168.67
2	FID	ACIS-S-6	7.09	8566	-0.069	0.003	0.009	0.015	0.000000	0.000000	391.69	806.10
3	GUIDE	525732488	8.40	17130	0.031	-0.014	0.071	0.114	350.087090	58.516915	-1574.56	783.53
4	GUIDE	525609504	9.06	17111	0.157	0.034	0.074	0.122	349.896632	58.356658	-2253.51	815.26
5	GUIDE	525735976	8.85	17121	0.139	0.073	0.075	0.121	350.142956	58.277622	-2273.94	269.61
6	GUIDE	525735456	6.77	17132	-0.263	-0.325	0.051	0.082	350.628183	59.307249	1395.87	1312.31
7	GUIDE	525732528	9.36	17115	-0.065	0.230	0.113	0.187	351.607241	59.298932	2275.86	-257.05

## 2.4 Star Slots

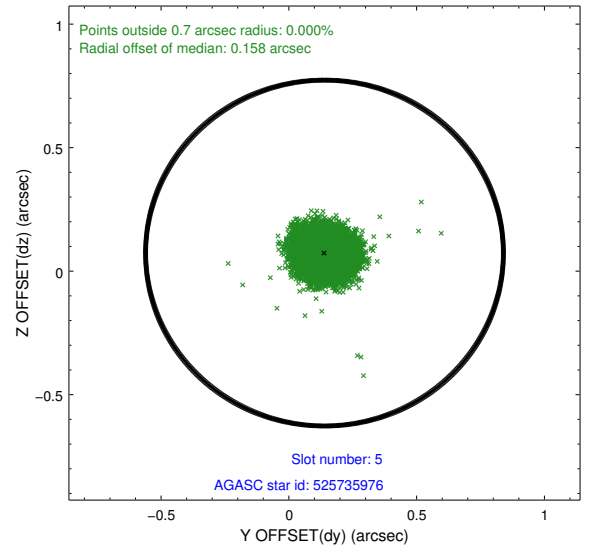
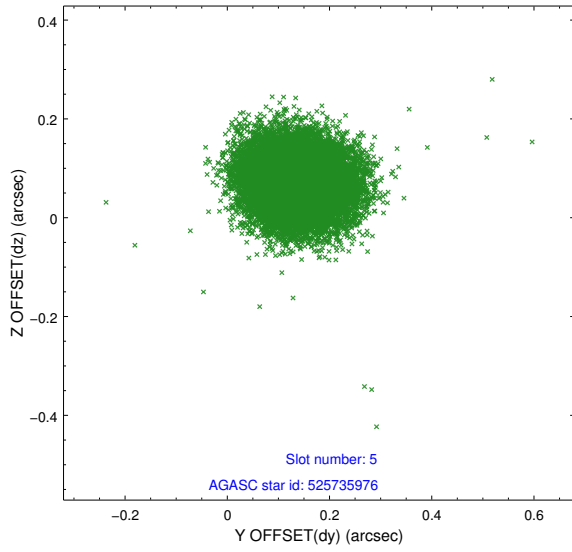
### 2.4.1 Slot 3



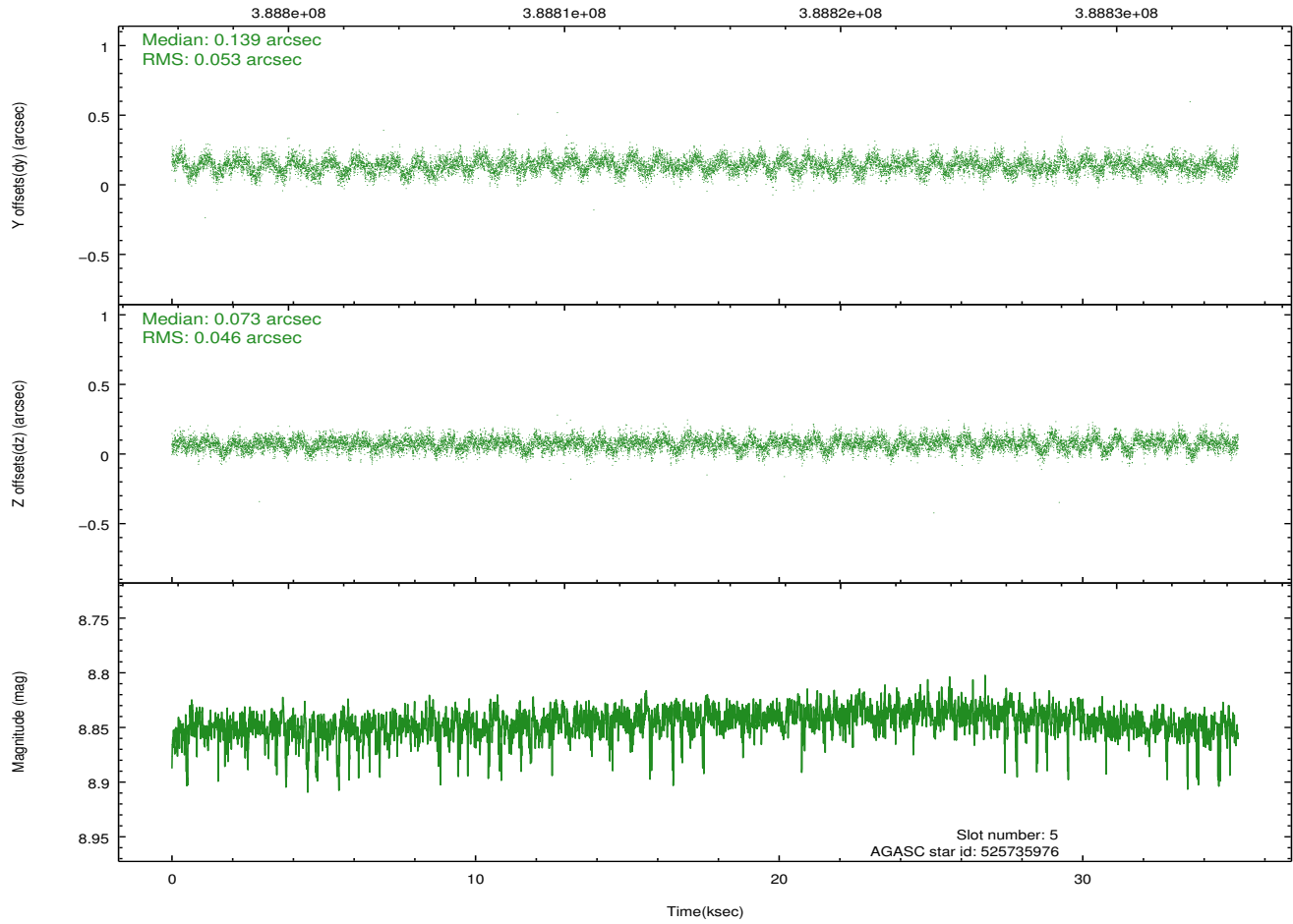
## 2.4.2 Slot 4



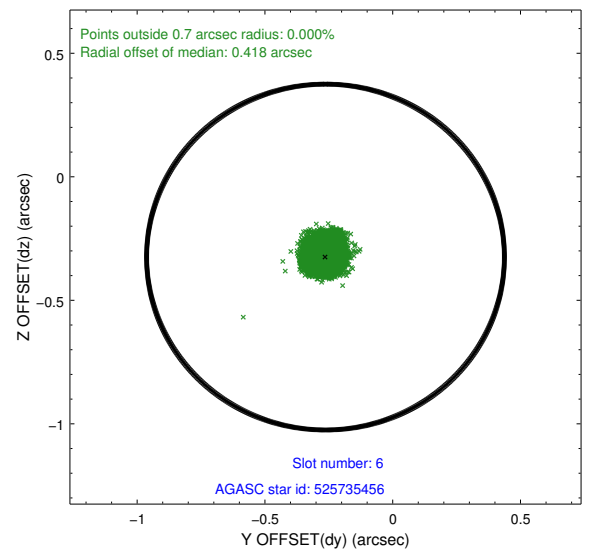
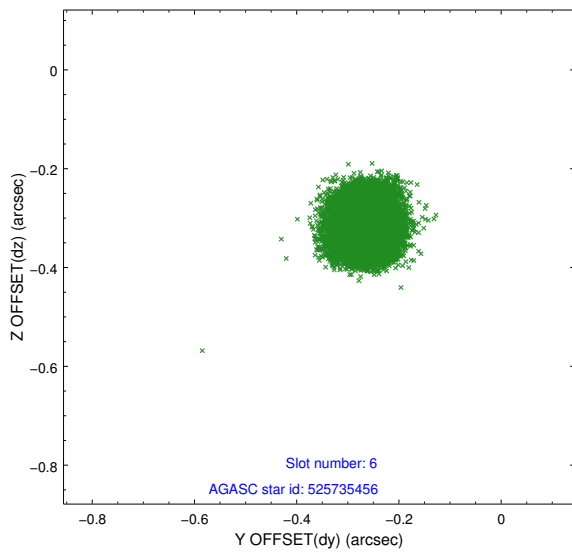
### 2.4.3 Slot 5



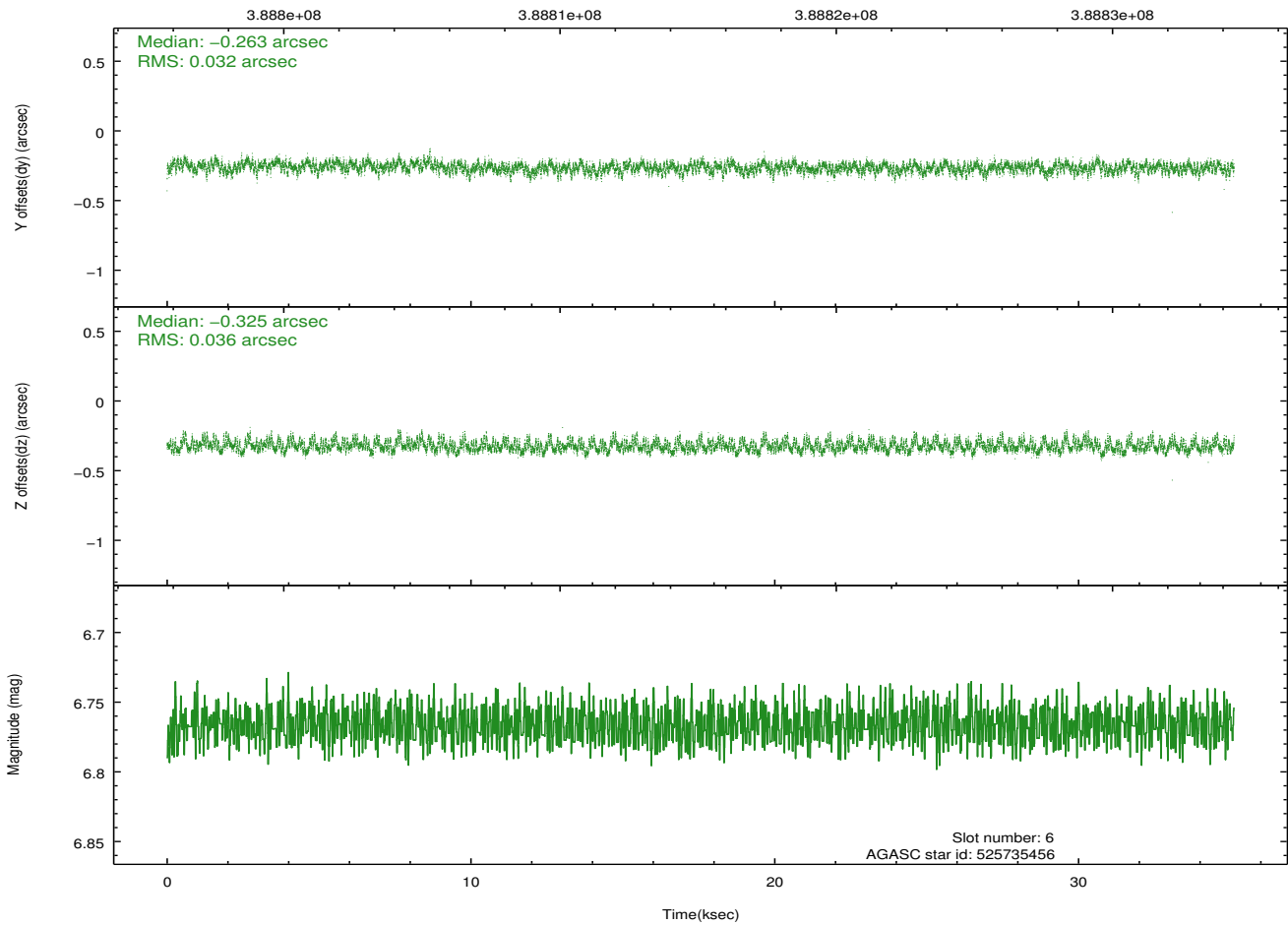
Time (s)



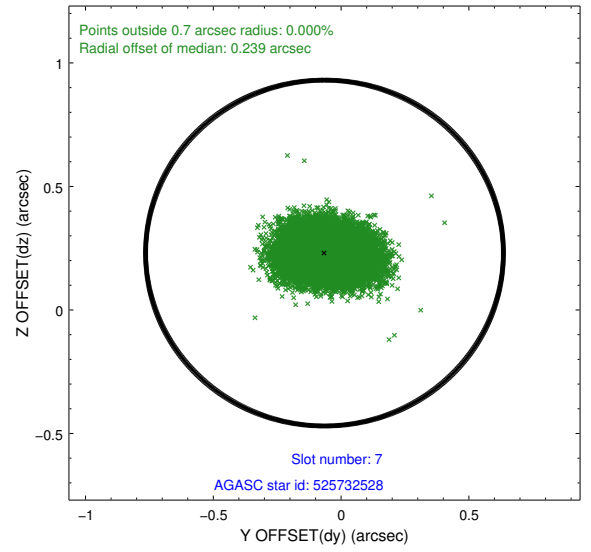
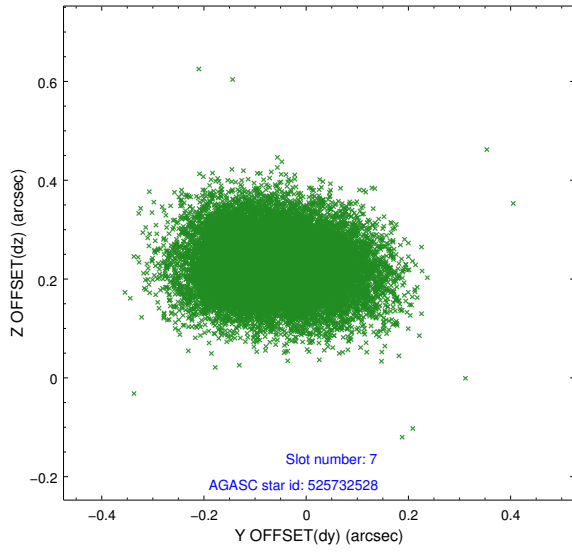
## 2.4.4 Slot 6



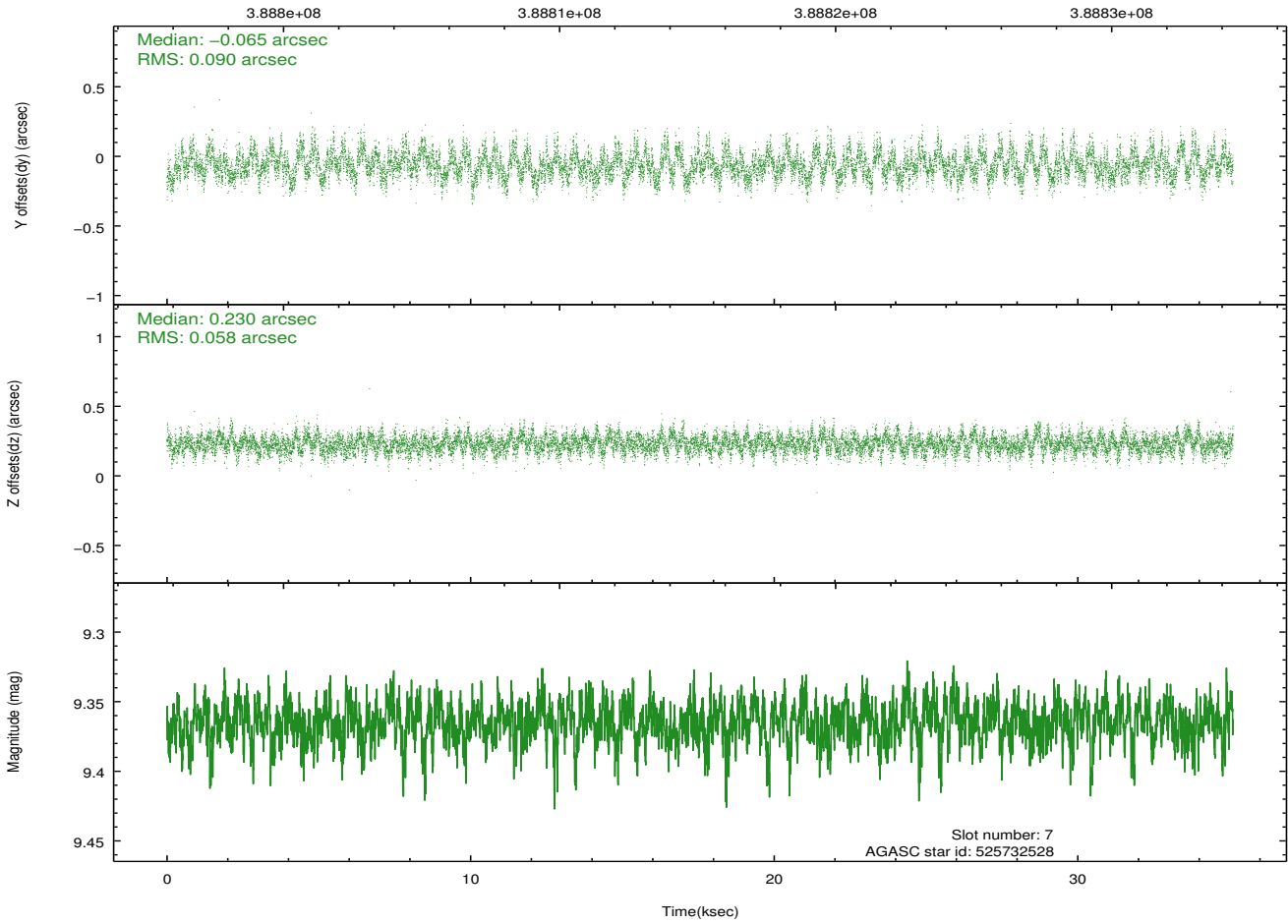
Time (s)



## 2.4.5 Slot 7

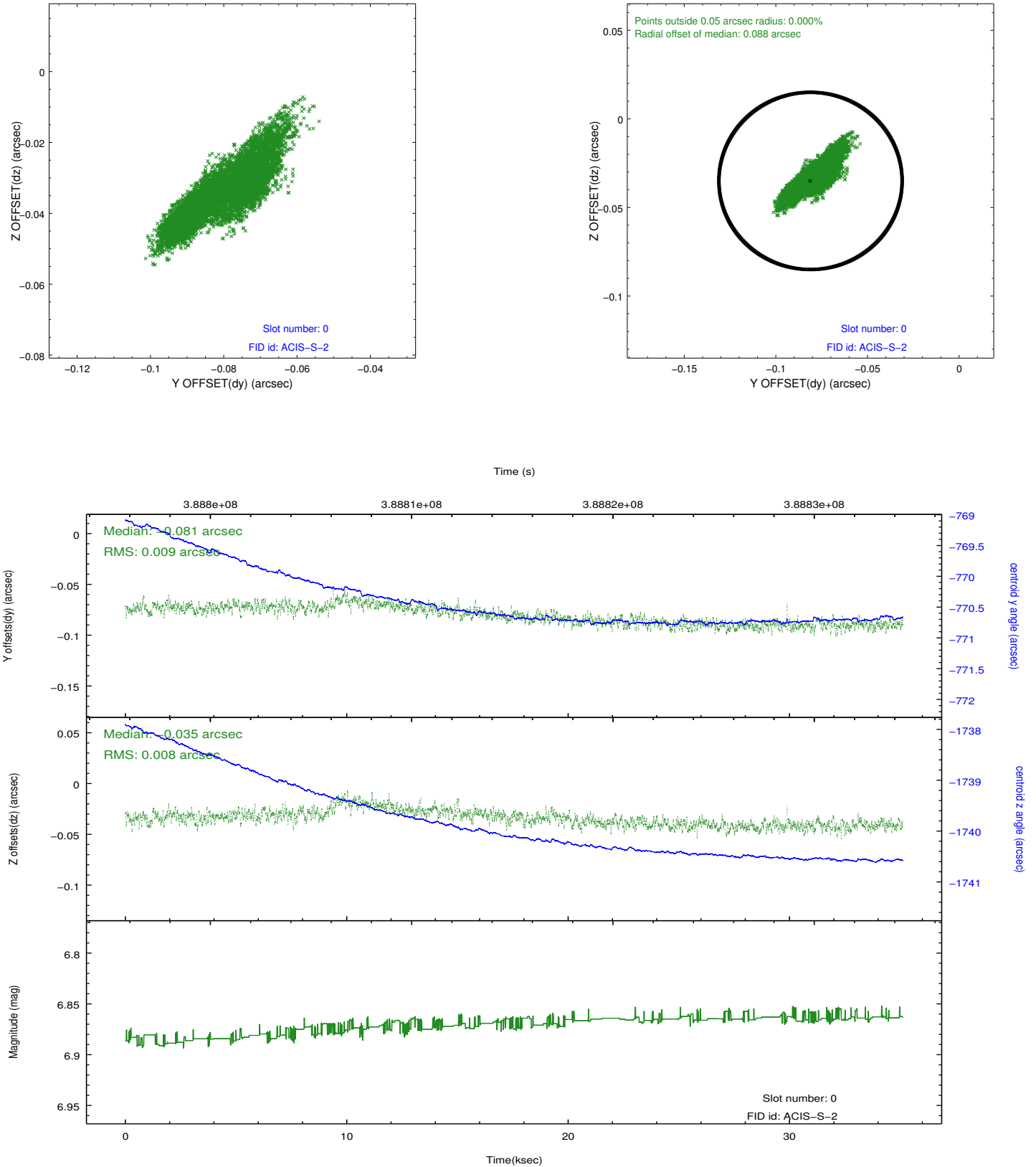


Time (s)

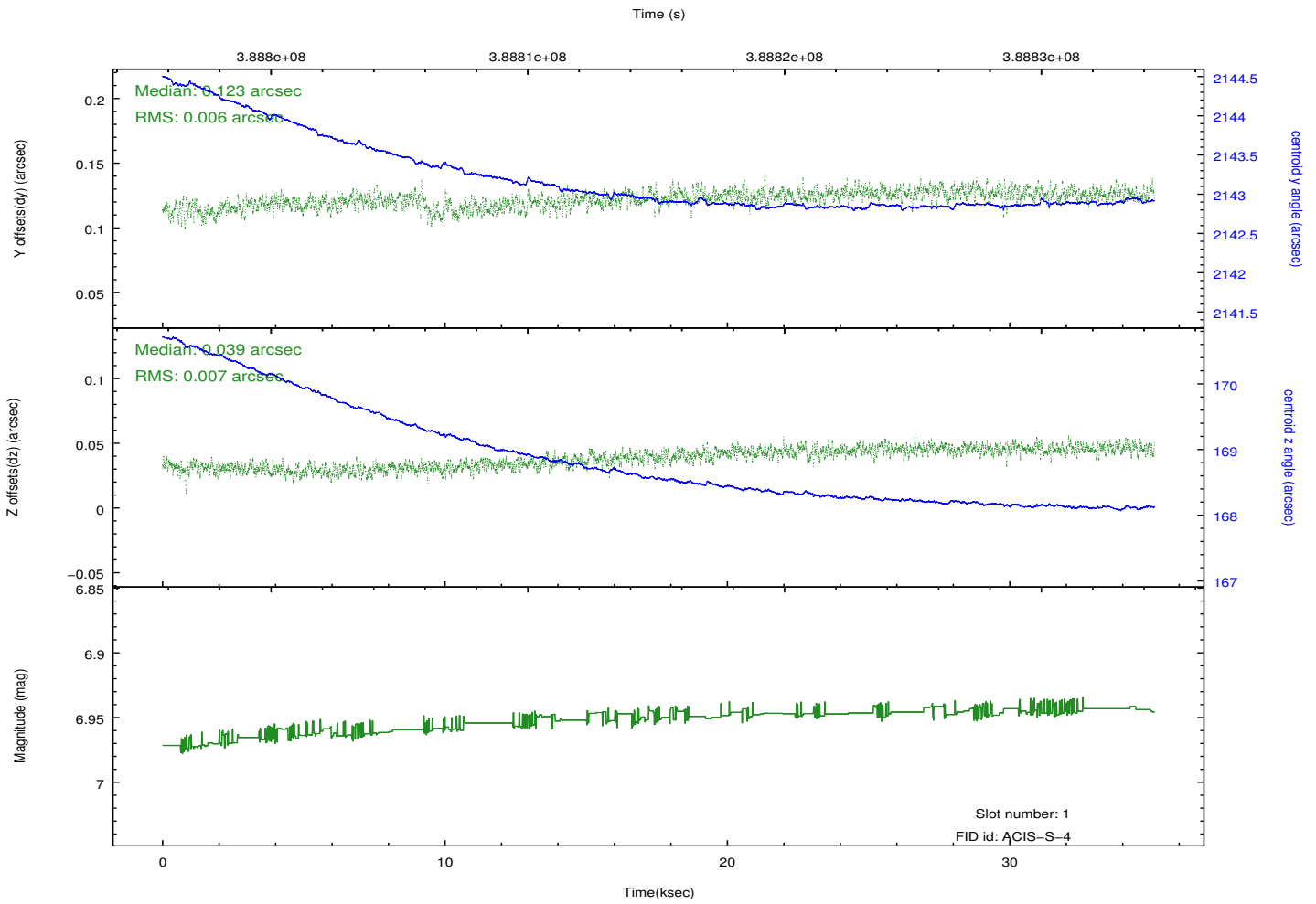
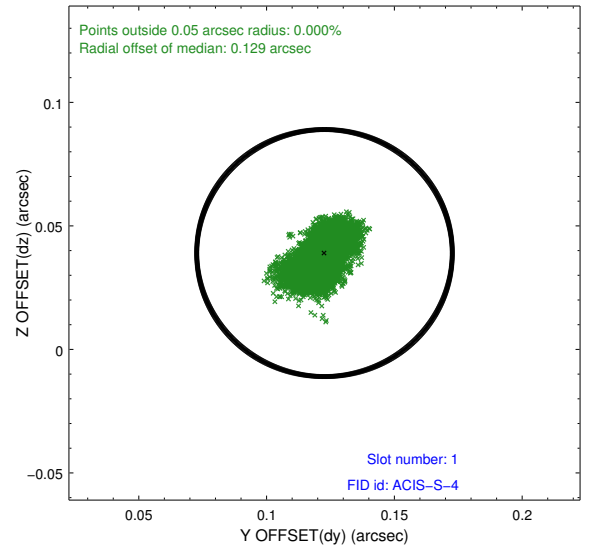
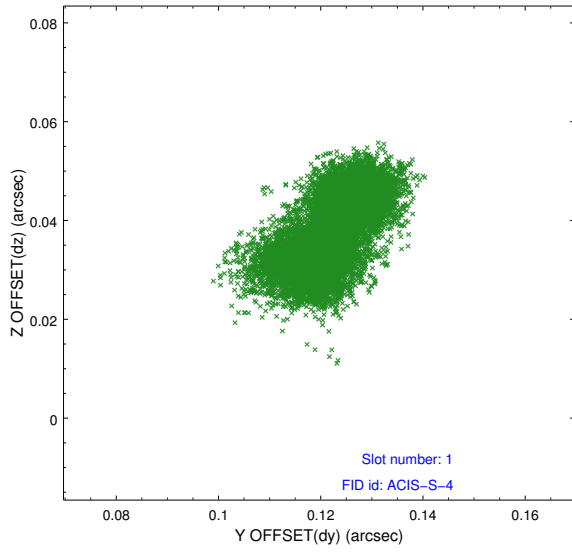


## 2.5 FID Slots

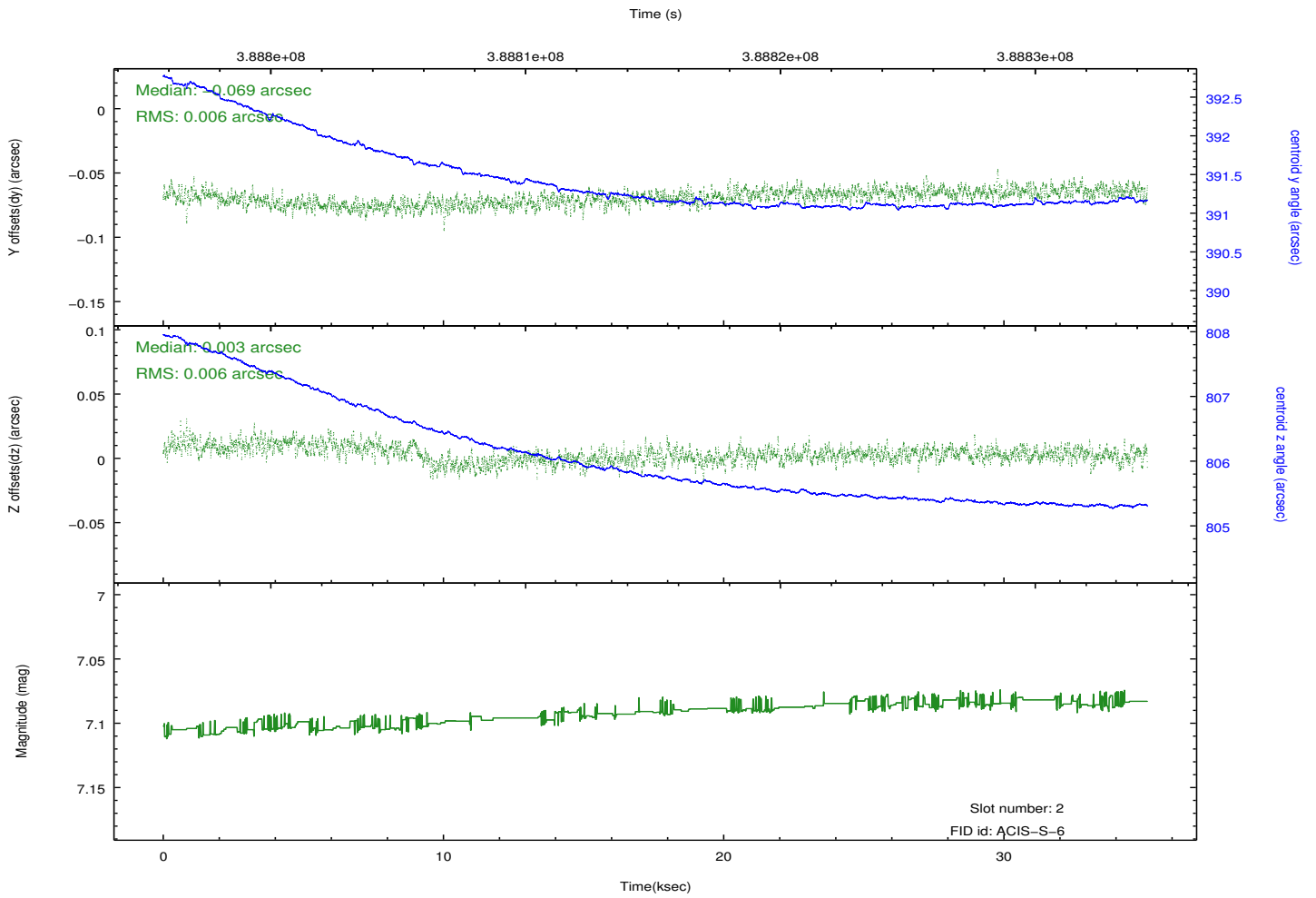
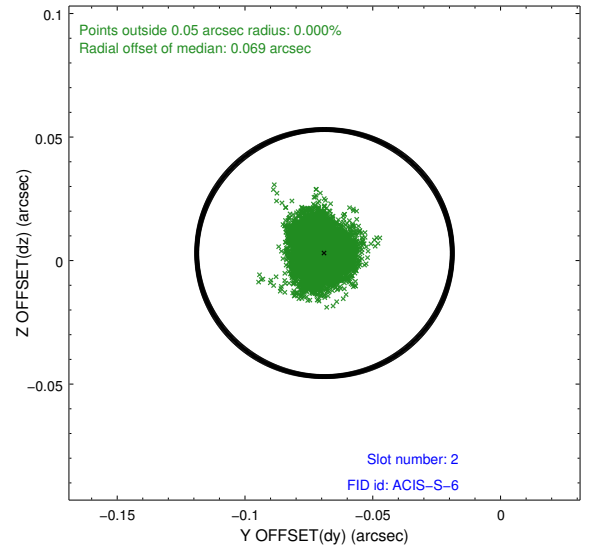
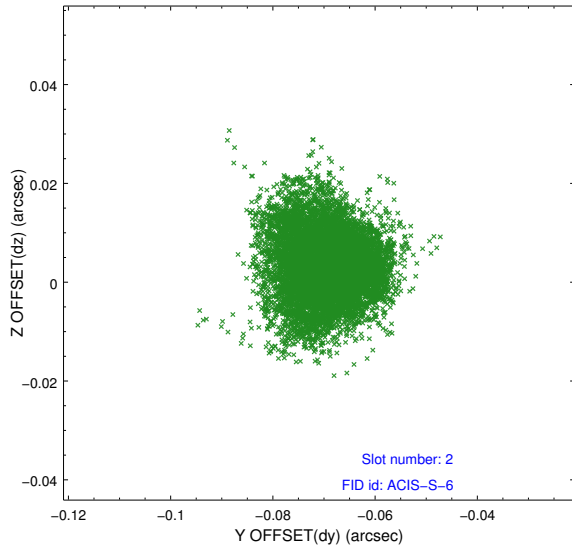
### 2.5.1 Slot 0



## 2.5.2 Slot 1

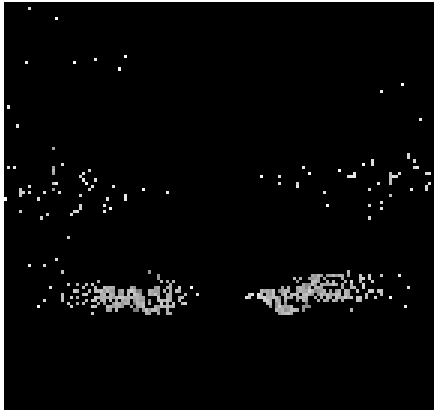


### 2.5.3 Slot 2

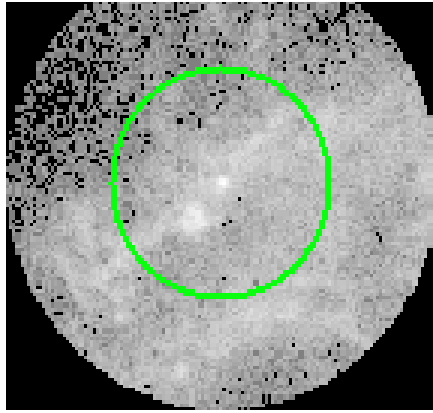


### 3 Gratings

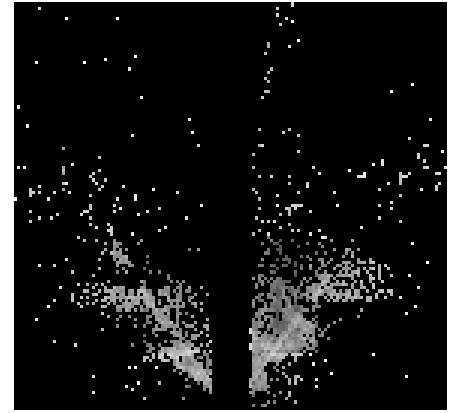
#### 3.1 HEG Arm



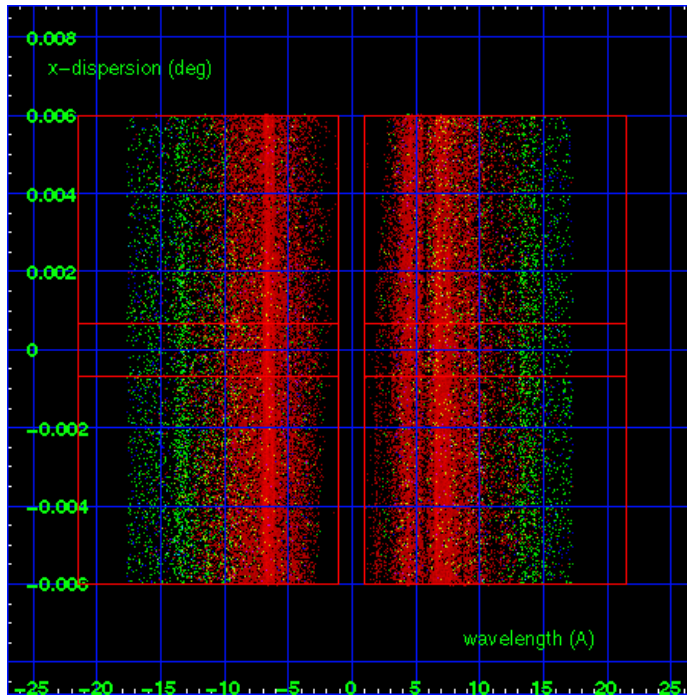
HEG Order Sort 123



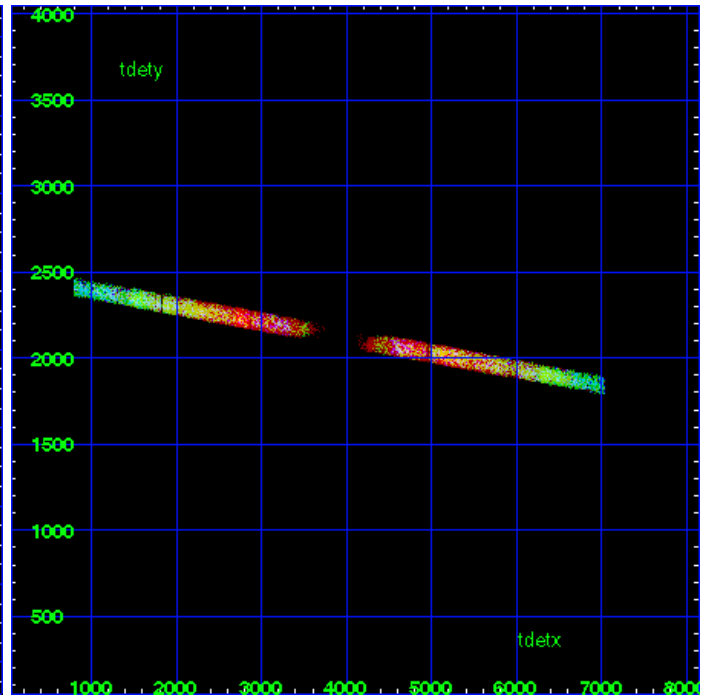
HEG Zero Order



HEG Order Sort ALL

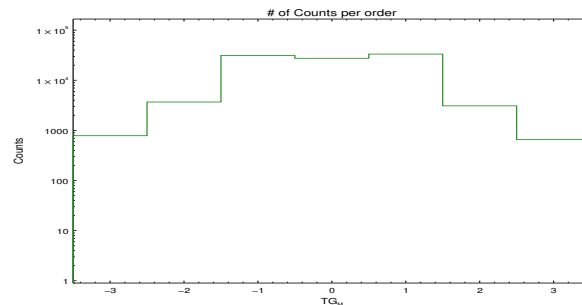


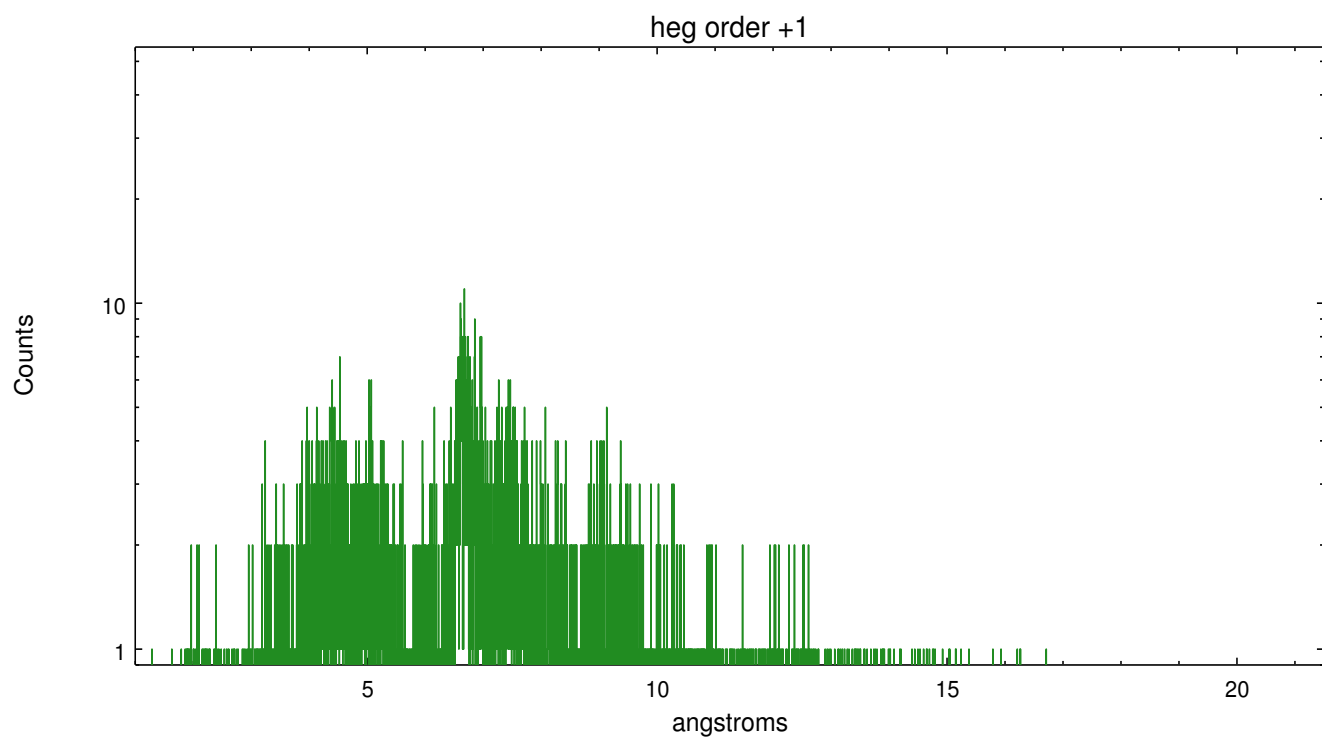
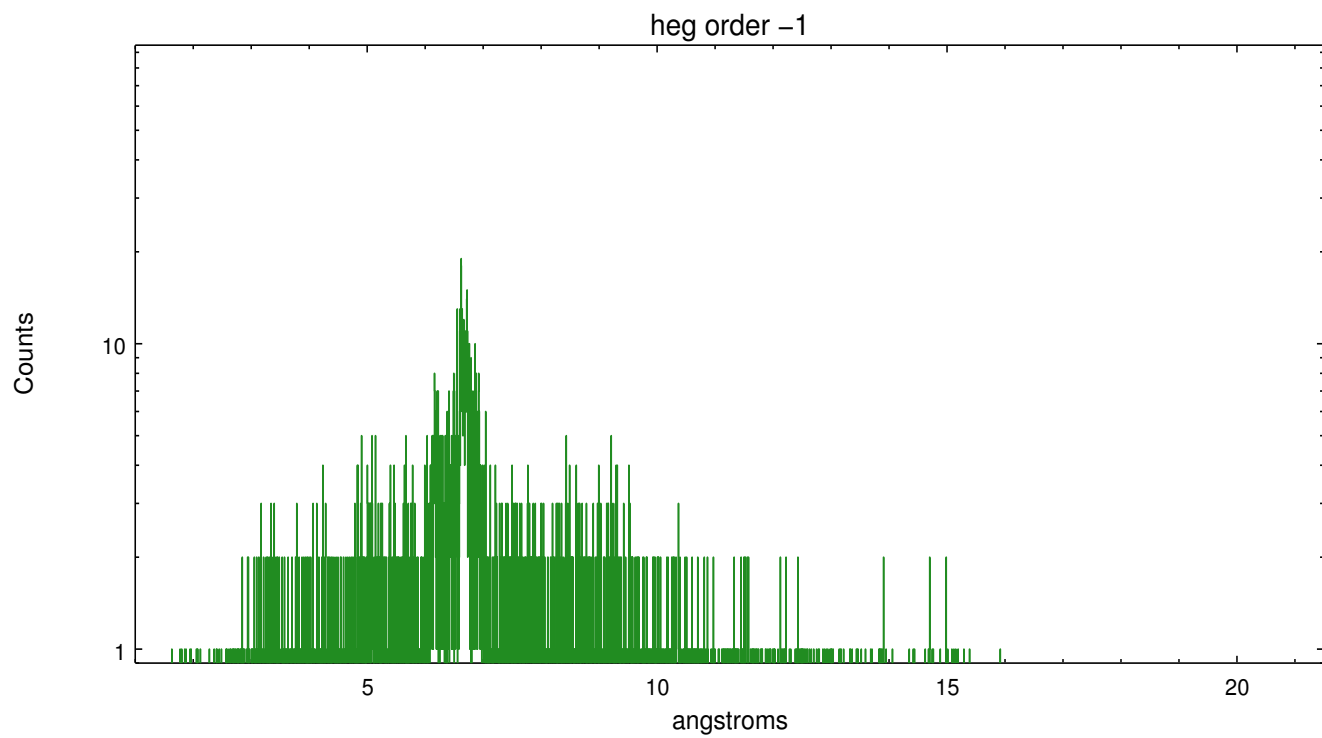
Spot Image HEG



Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	784	3684	31326	27473	33336	3093	654

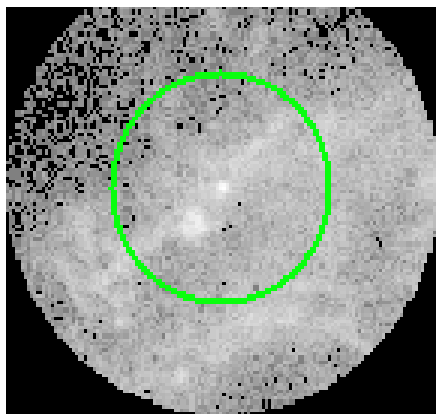




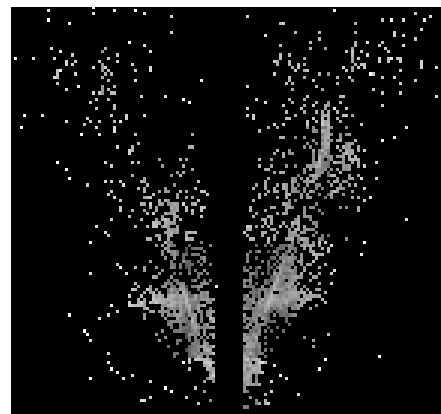
### 3.2 MEG Arm



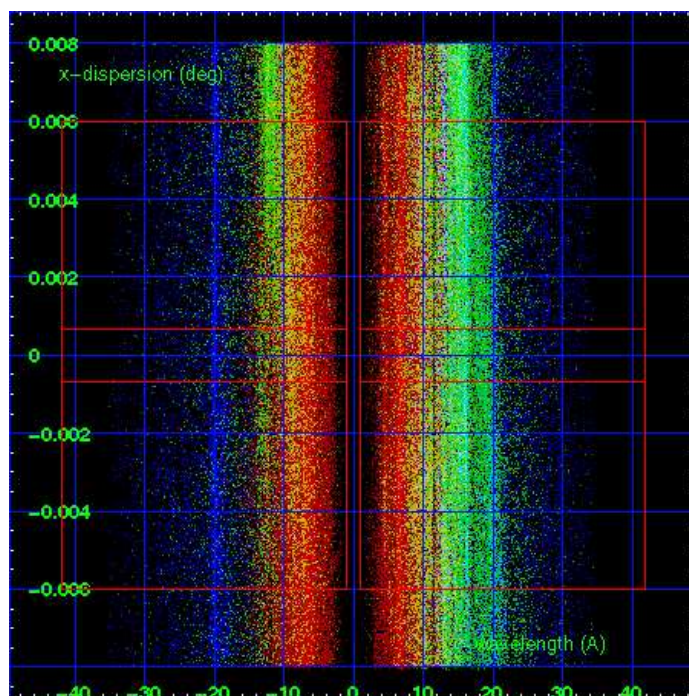
MEG Order Sort 123



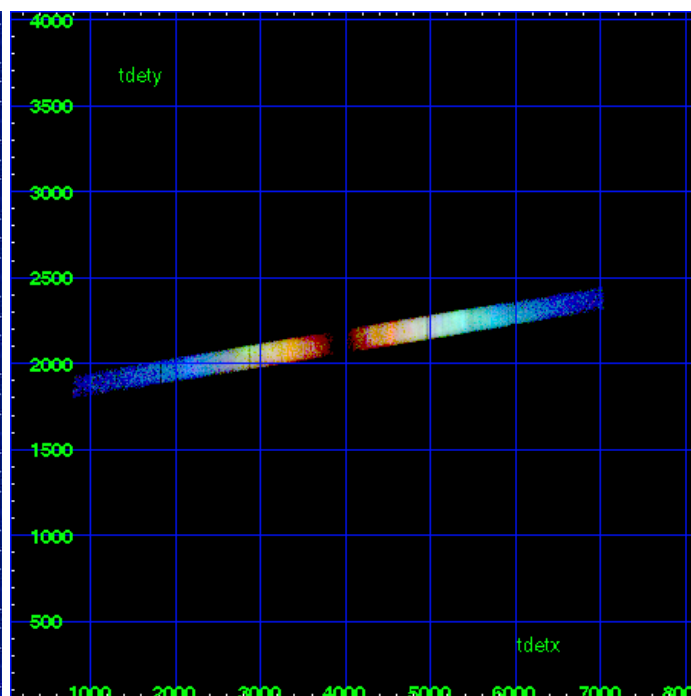
MEG Zero Order



MEG Order Sort ALL

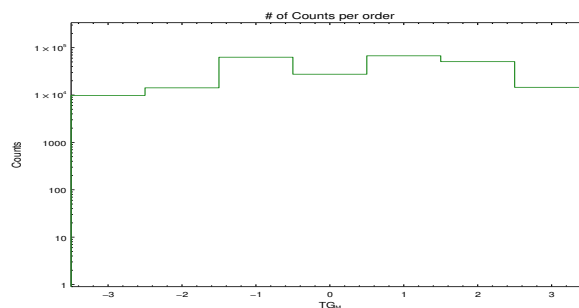


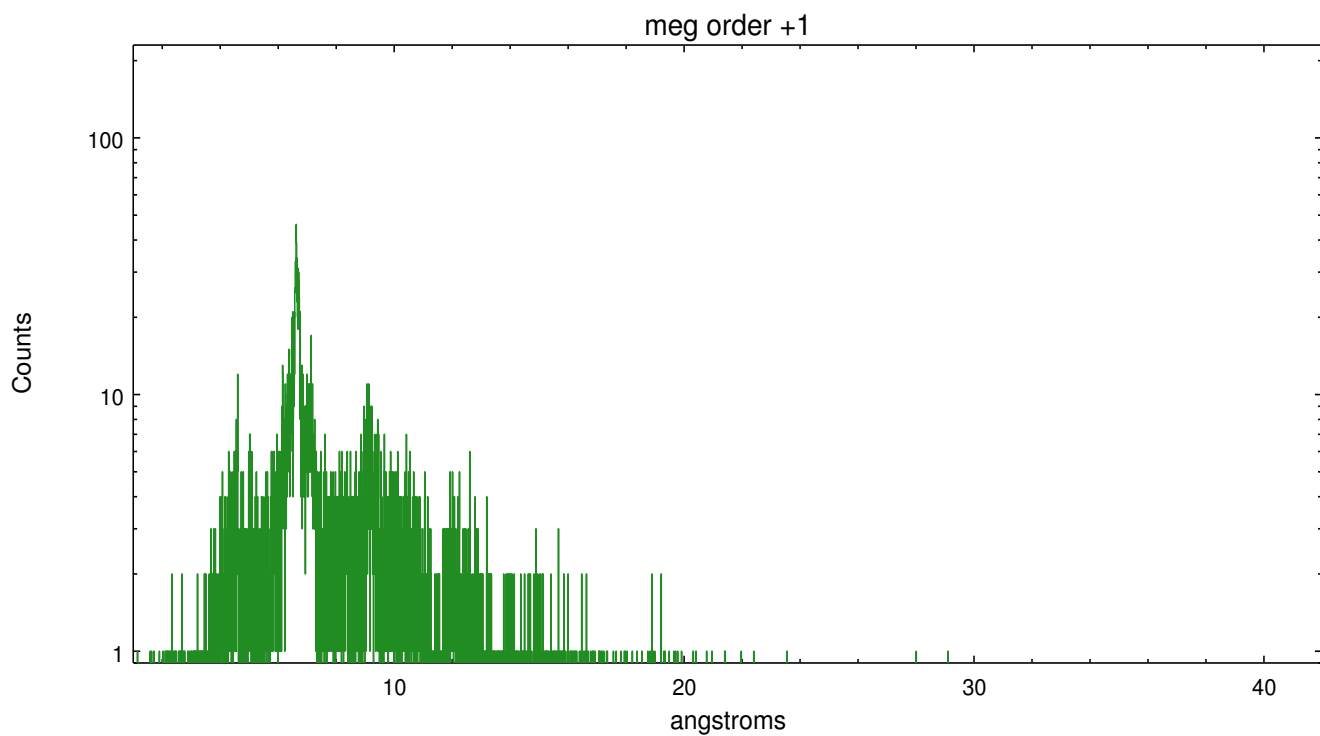
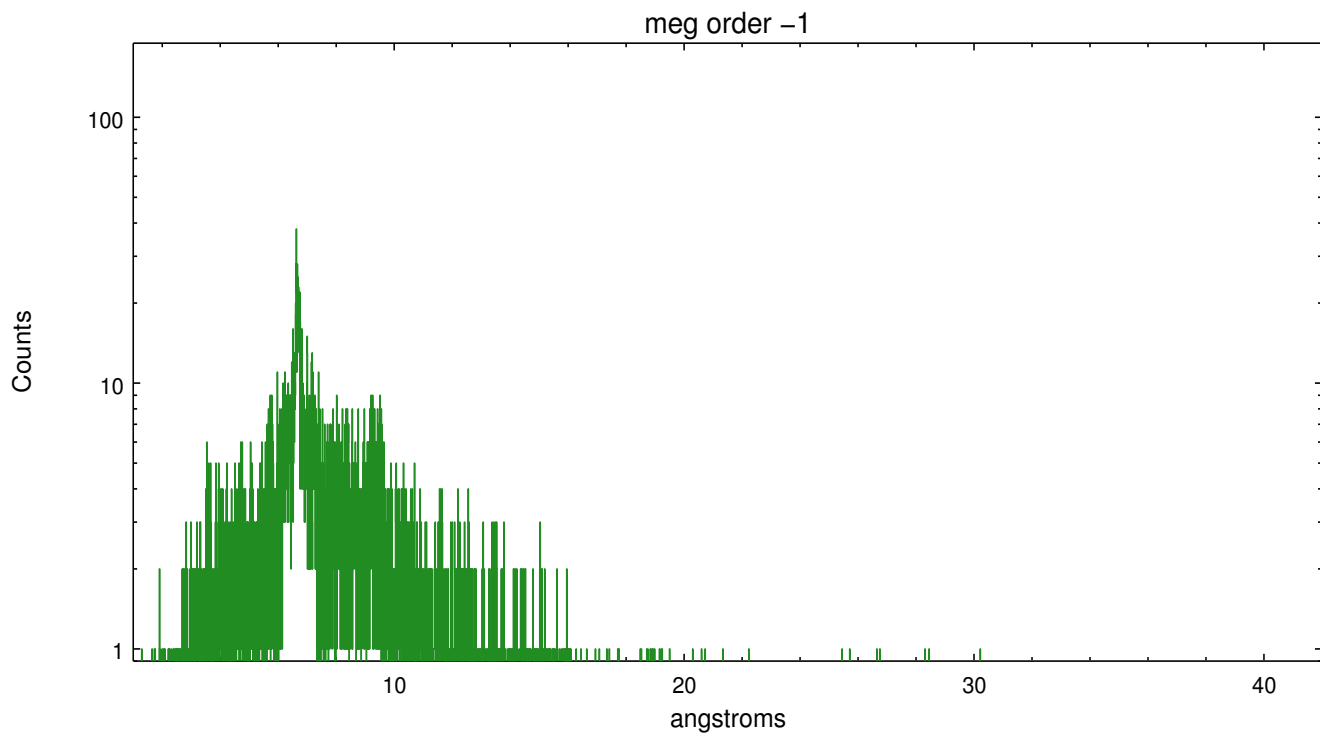
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	9813	14185	62833	27473	67312	50679	14531





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.06.26
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	35.113599869251

## A.2 Comments

THIS IS AN EXAMPLE SPECTRAL EXTRACTION. Very Extended source - special analysis needed. WARNING::Zeroth order position was manually selected to correspond to a bright Si feature in the North (R6 in Lazendic et al. 2006) and shows a high Si f/r line ratio. The sky position of the zeroth order is x=4075.25, y=4276.25.

This extraction position is NOT the same zeroth order position used in TGCat for this obsid. For this present extraction, the same Si feature position as obsid 12206 was used.

The user will need 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. The spectral data supplied in this processing are only energy-calibrated for the particular emission knot selected. Roll angle constraint met. === 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.