

# V&V Reference Report

## L2 ASCDS Version : 10.3.1

Observation 17564 - L2 Version 1  
Chandra X-Ray Center

L2 Processing Date : Dec 23 2014

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# 1 Front

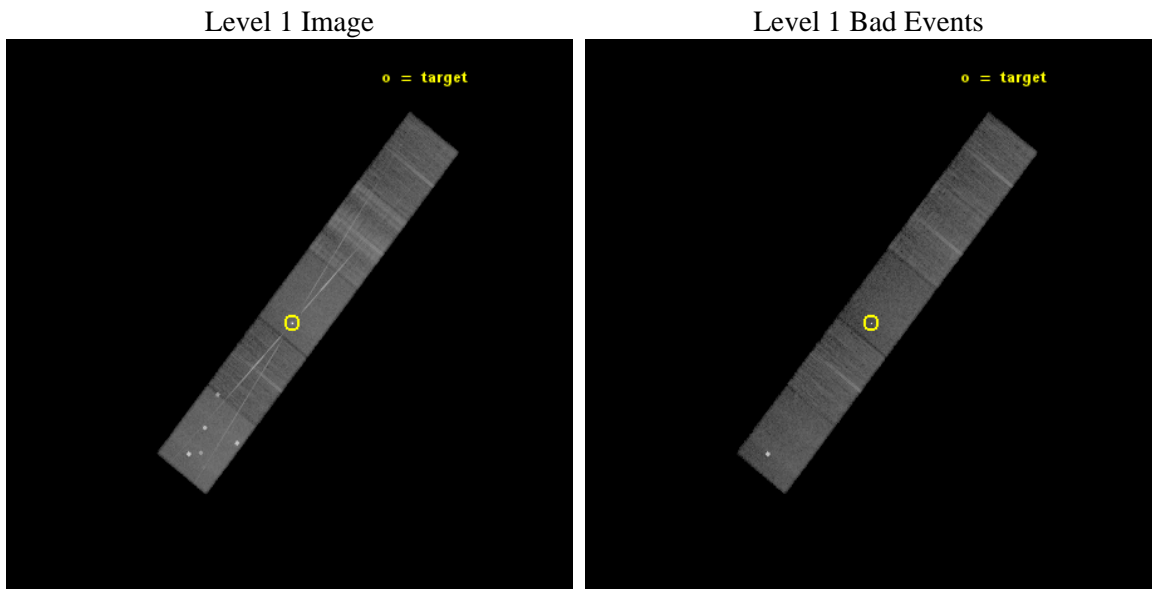
seq_num	703009	Sequence number
obs_id	17564	Observation id
title	Unifying X-ray winds in radio galaxies with Chandra HETG	Proposal
observer	Dr. Francesco Tombesi	Principal investigator
object	3C 120	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	68.29625	Observer's specified target RA [deg]
dec_targ	5.354333	Observer's specified target Dec [deg]
ra_nom	68.30090642238	Nominal RA [deg]
dec_nom	5.3526258601372	Nominal Dec [deg]
roll_nom	308.15620058434	Nominal Roll [deg]
revision	1	Processing version of data
ontime	30808.799693942	Sum of GTIs [s]
livetime	30290.82655977	Livetime [s]
ontime5	30808.799693942	Sum of GTIs [s]
ontime6	30808.799693942	Sum of GTIs [s]
ontime7	30808.799693942	Sum of GTIs [s]
ontime8	30808.799693942	Sum of GTIs [s]
ontime9	30808.799693942	Sum of GTIs [s]
l2events	241305	Number of level 2 events



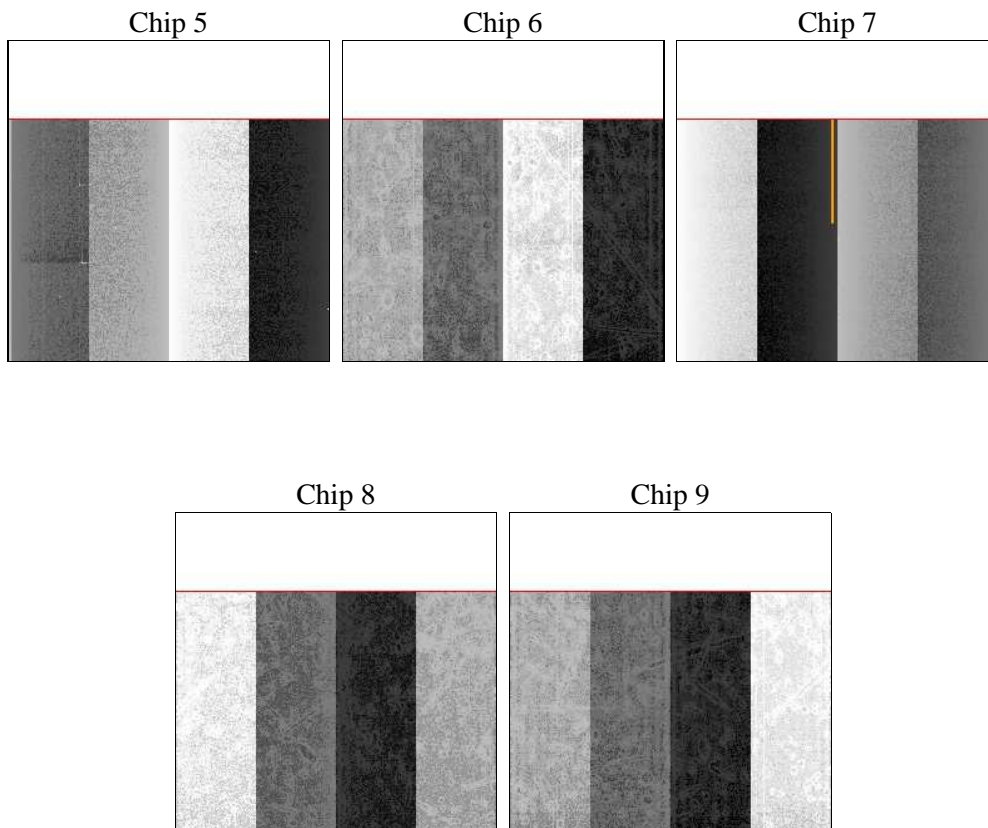
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	30762.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	30808.799693942	Sum of GTIs [s]
caldsver	4.6.5	&#160	ontime5	30808.799693942	Sum of GTIs [s]
date	2014-12-23T15:33:00	Date and time of file creation	ontime6	30808.799693942	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	30808.799693942	Sum of GTIs [s]
			ontime8	30808.799693942	Sum of GTIs [s]
			ontime9	30808.799693942	Sum of GTIs [s]
			l1events	849490	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4131.92, 4109.19)	src1a sky pixel position
					src1a sky pixel position via

### 2.1.4 Events

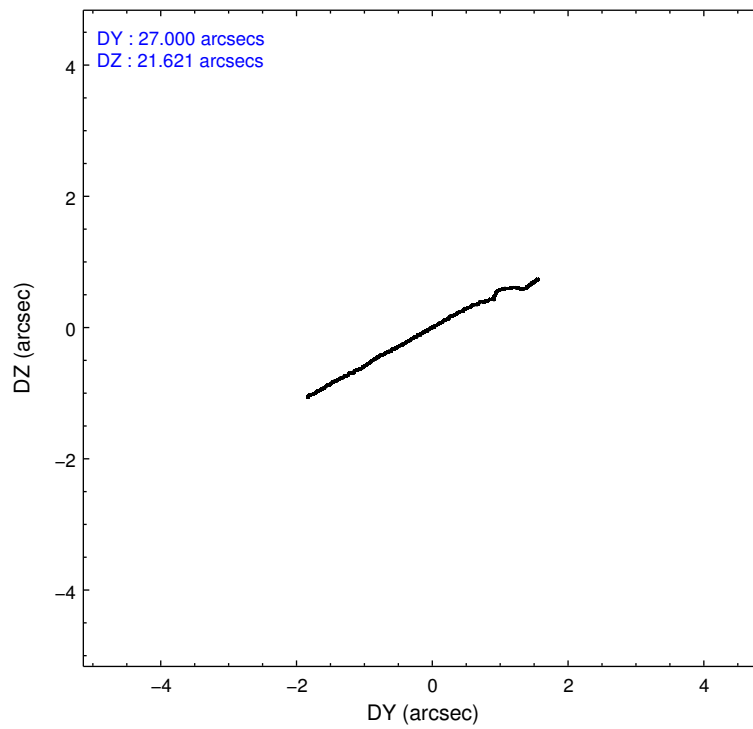
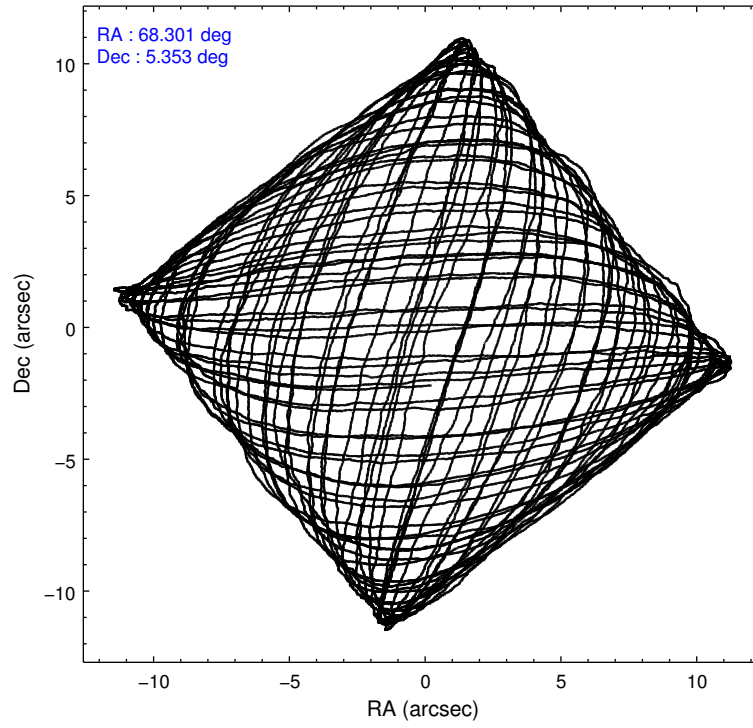
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	222857	136070	182343	191926	116294
rejected events	106394	104434	90004	113215	99825
rejected %	47%	76%	49%	58%	85%

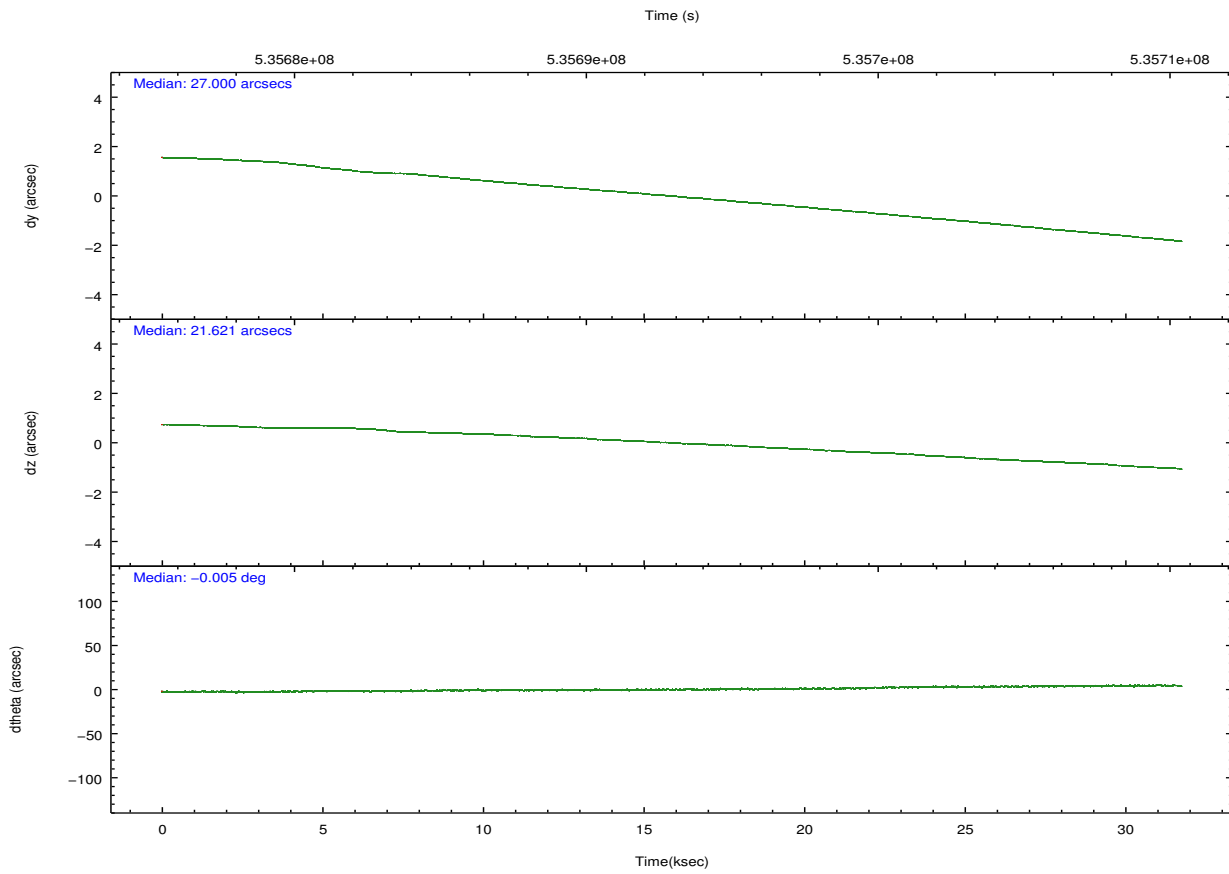
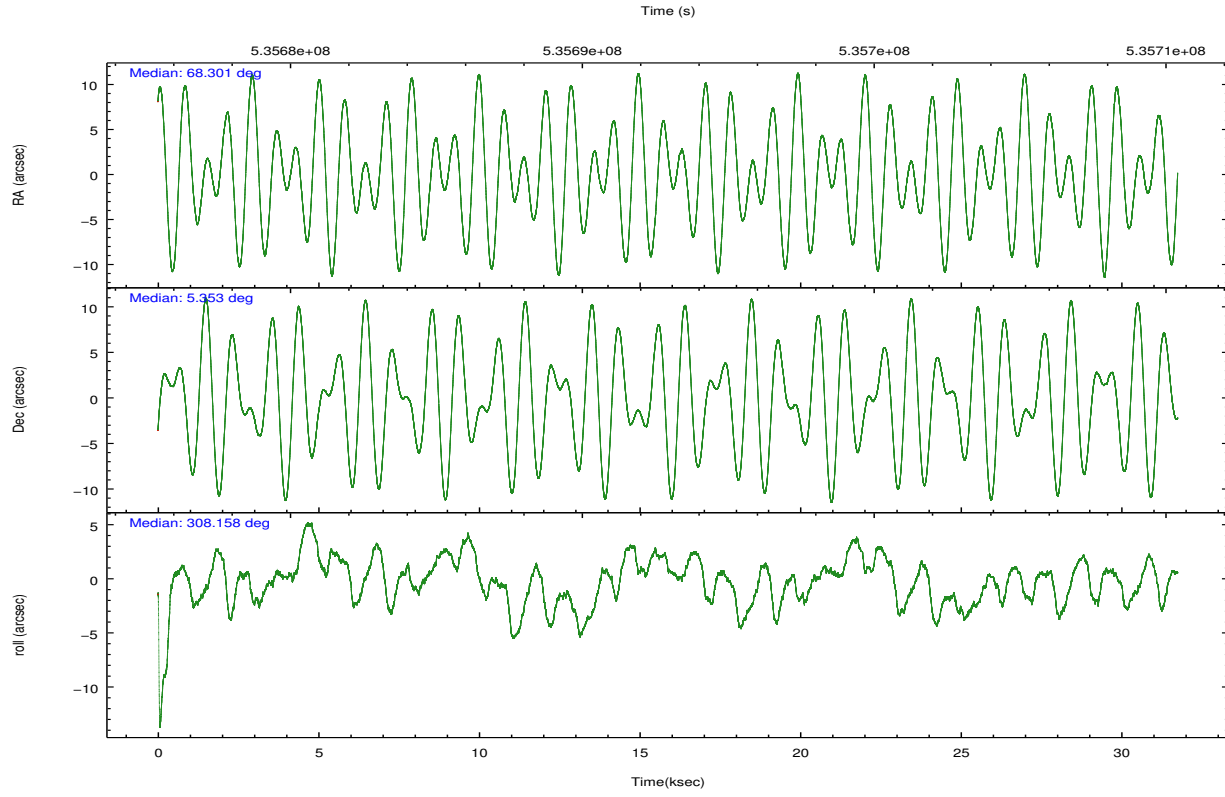
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	30674	18348	11302	27111	6424
	13%	13%	6%	14%	5%
grade 1 events	357	103	454	172	55
	0%	0%	0%	0%	0%
grade 2 events	29243	5347	20303	13821	3576
	13%	3%	11%	7%	3%
grade 3 events	4859	2125	8530	10926	1603
	2%	1%	4%	5%	1%
grade 4 events	4308	2052	8383	10066	1548
	1%	1%	4%	5%	1%
grade 5 events	13993	5613	16777	8475	6120
	6%	4%	9%	4%	5%
grade 6 events	47399	3767	43828	16818	3324
	21%	2%	24%	8%	2%
grade 7 events	92024	98715	72766	104537	93644
	41%	72%	39%	54%	80%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-56789	ACIS-56789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	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	68.275193	68.30090642238004	CCD I2 on	N	N
[deg] Pointing Dec	5.362483	5.352625860137208	CCD I3 on	N	N
[deg] Pointing Roll	308.001966	308.1562005843408	CCD S0 on	O1	N
[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	-187.132523	-187.1228876879999	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-3	-3.009634895007935	CCD S4 on	Y	Y
[s] Observation start time (MET)	535678031.184000	535676726.07093	CCD S5 on	O2	Y
Observation start date	2014-12-22T23:26:04	2014-12-22T23:05:26	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	535708793.184000	535709534.27276	On-chip summing requested	N	N
Observation end date	2014-12-23T07:58:46	2014-12-23T08:12:14	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	1	1
			Subarray row count	774	774
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	2.4

## 2.3 Aspect





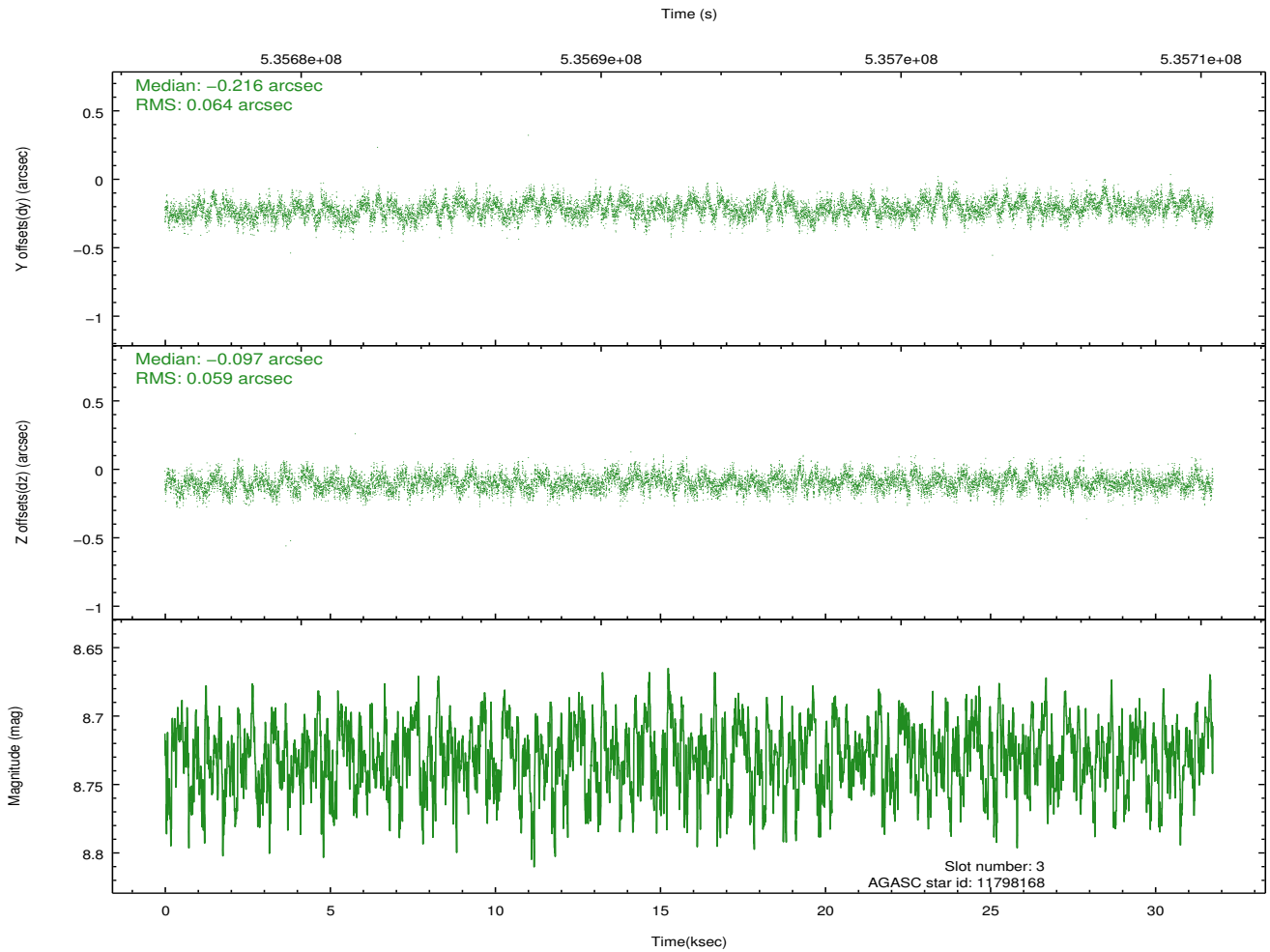
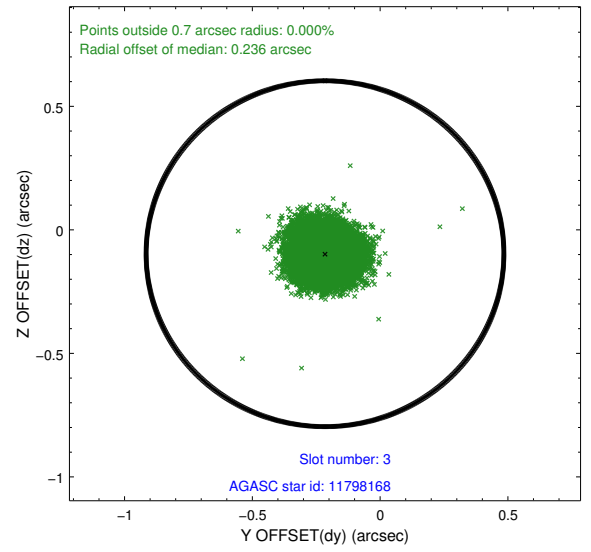
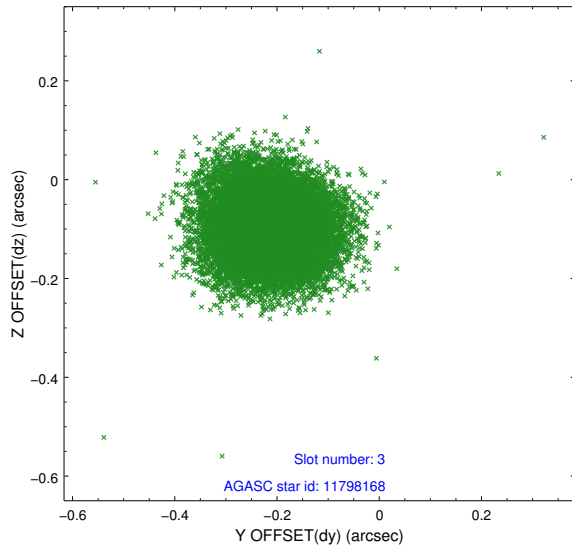
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.94	7745	-0.218	-0.031	0.028	0.037	0.000000	0.000000	-780.26	-1805.30
1	FID		ACIS-S-4	7.02	7745	0.378	0.118	0.028	0.076	0.000000	0.000000	2133.59	103.27
2	FID		ACIS-S-5	7.06	7745	-0.195	-0.073	0.029	0.051	0.000000	0.000000	-1833.02	96.80
3	GUIDE	used	11798168	8.73	15471	-0.216	-0.097	0.094	0.149	68.723067	4.993277	2036.50	447.96
4	GUIDE	used	11801400	7.90	15484	-0.242	-0.196	0.098	0.154	68.459989	5.385023	346.57	568.39
5	GUIDE	used	11805784	8.87	15478	0.115	0.135	0.118	0.185	68.291152	4.970127	1150.17	-824.11
6	GUIDE	used	12323392	8.92	15476	0.159	0.094	0.107	0.175	68.029576	5.625661	-1287.19	-109.52
7	GUIDE	used	12327088	8.59	15482	0.183	0.064	0.093	0.145	67.823561	5.844308	-2362.62	-205.82

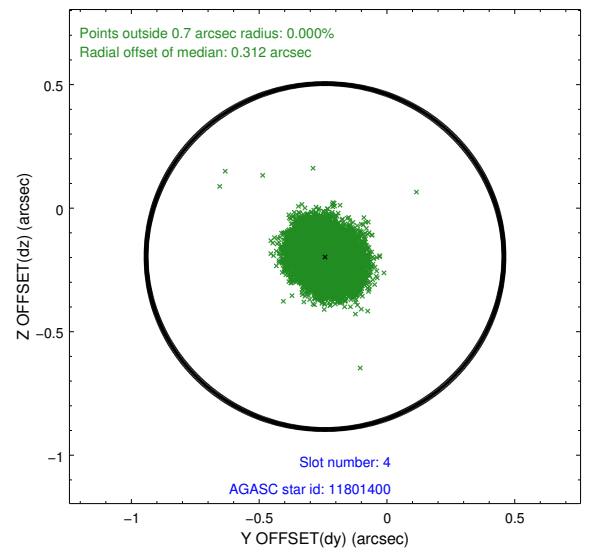
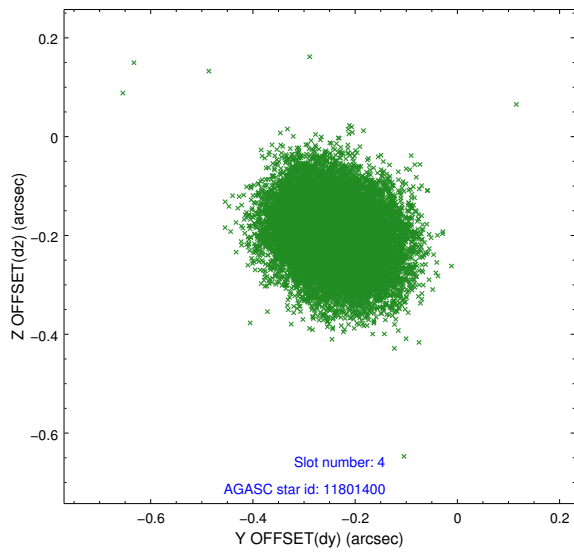
∞

## 2.4 Star Slots

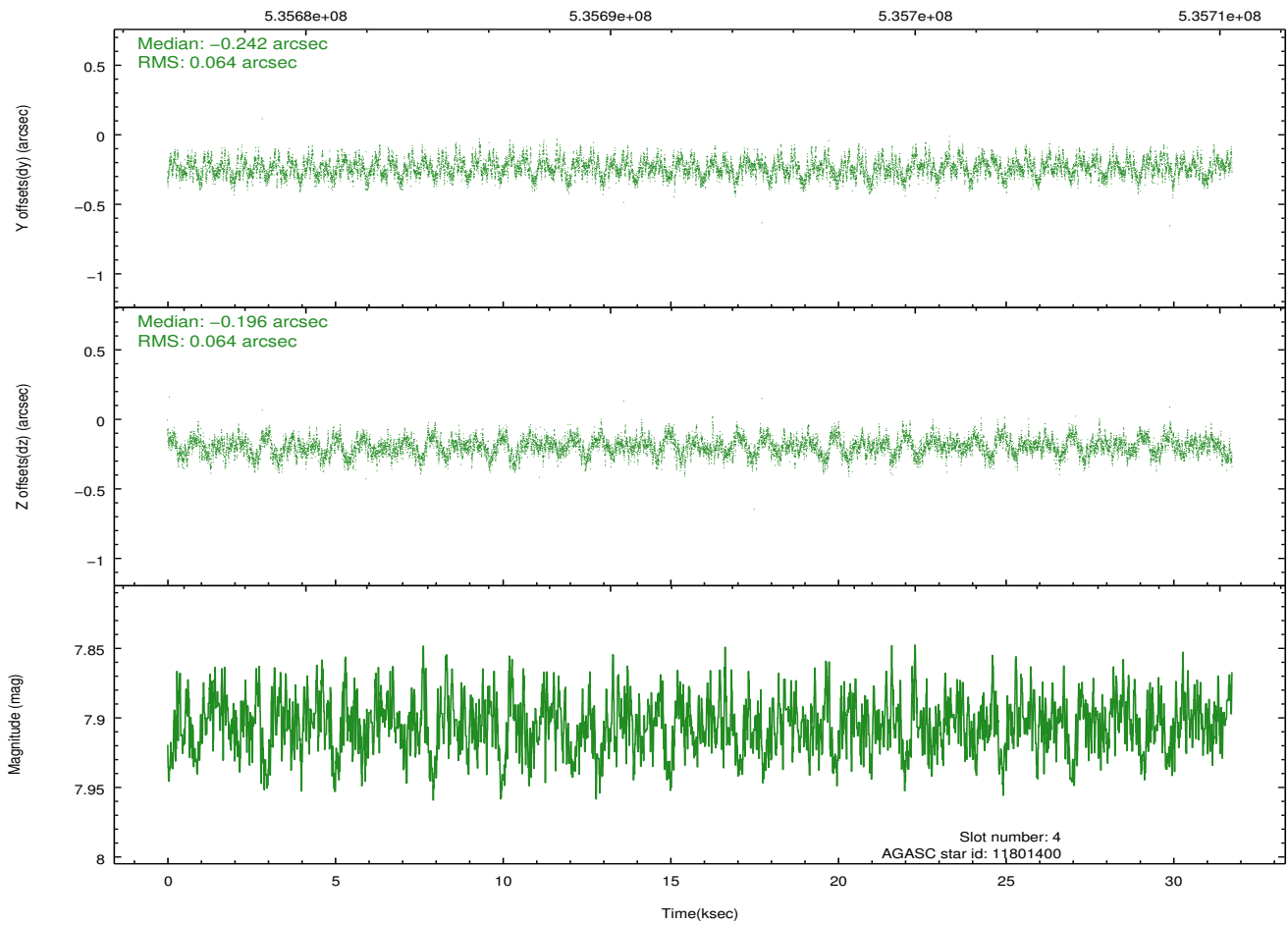
### 2.4.1 Slot 3



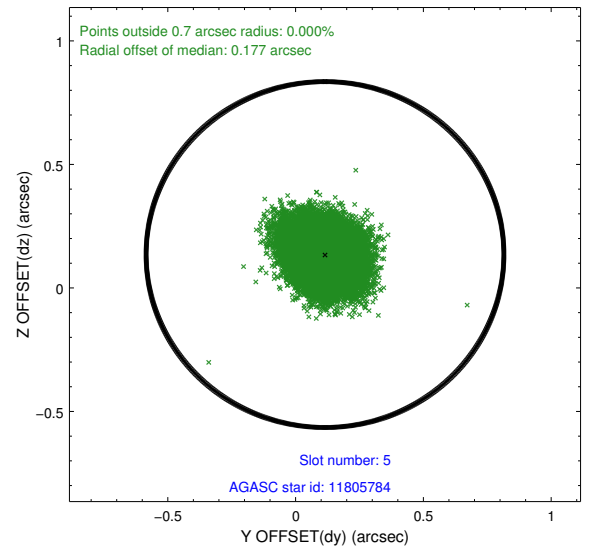
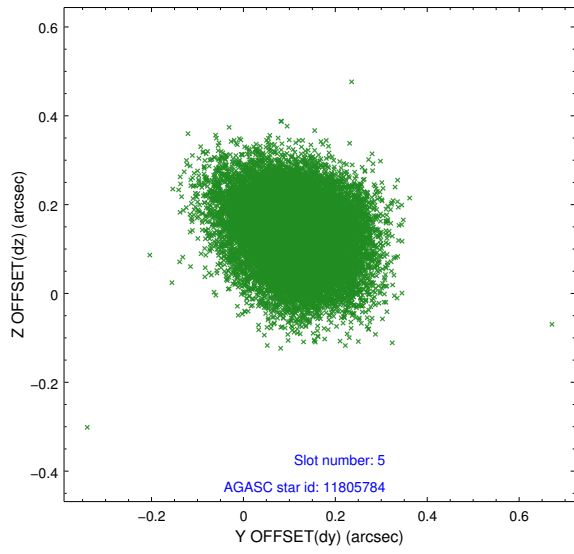
## 2.4.2 Slot 4



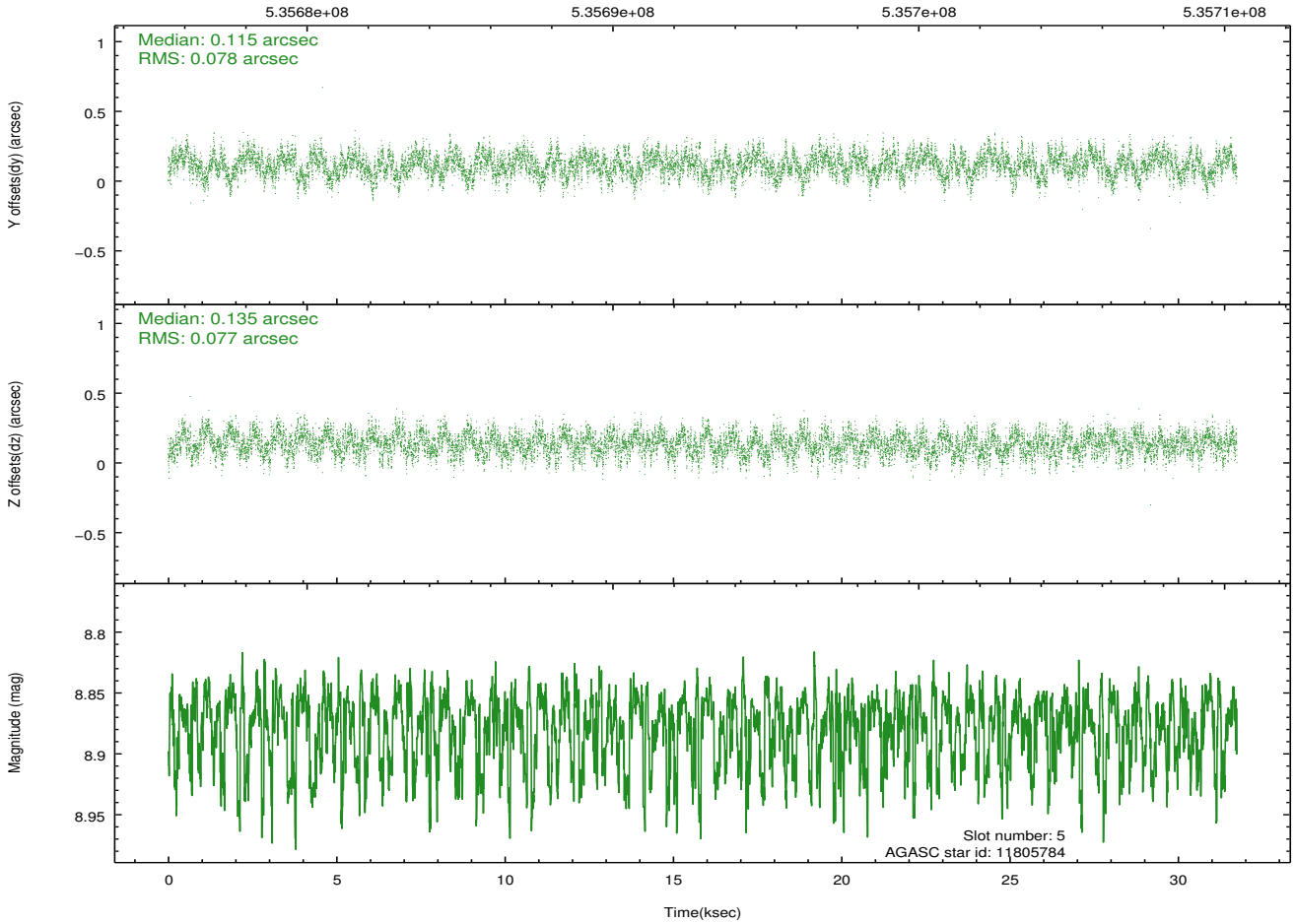
Time (s)



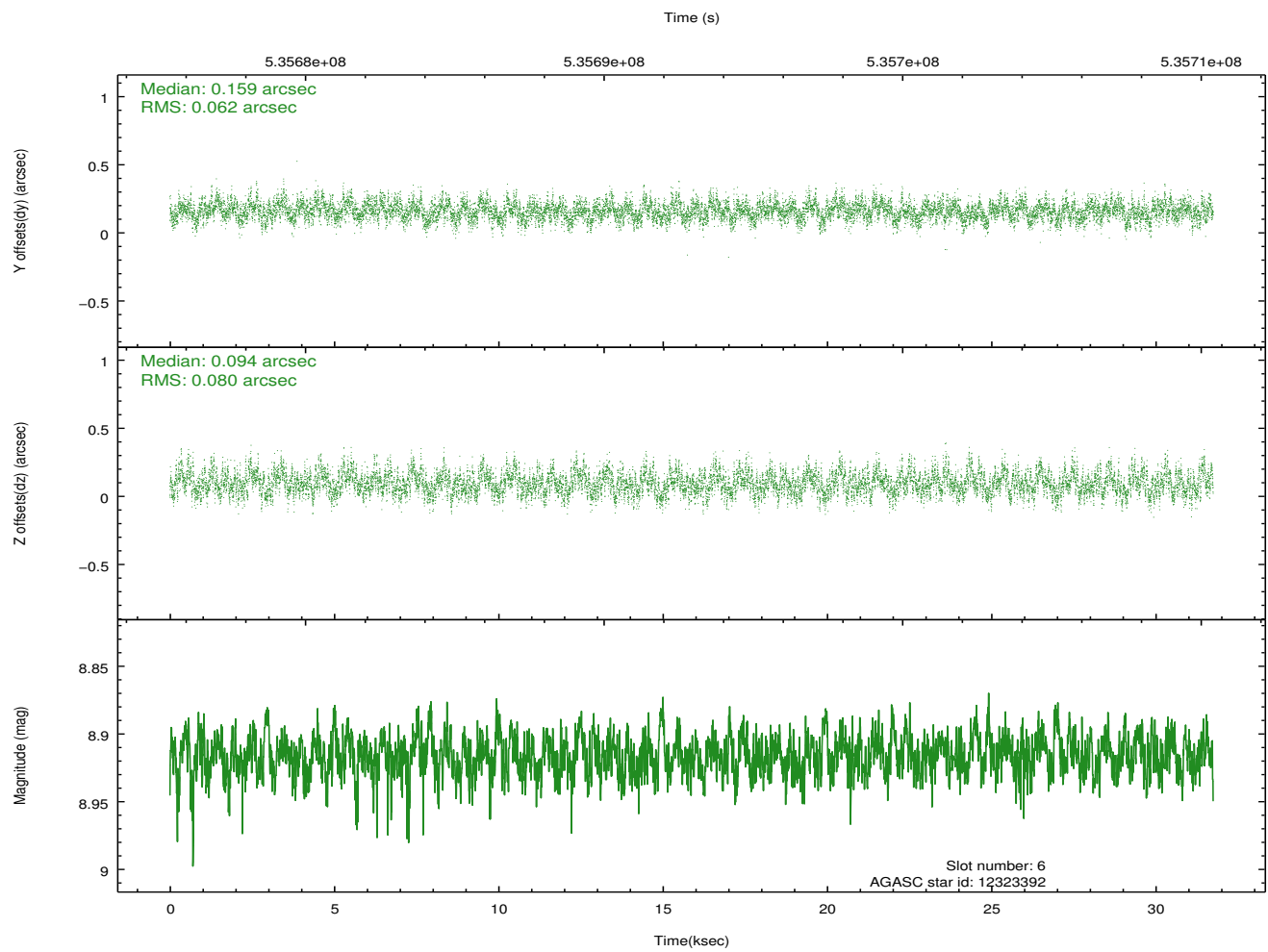
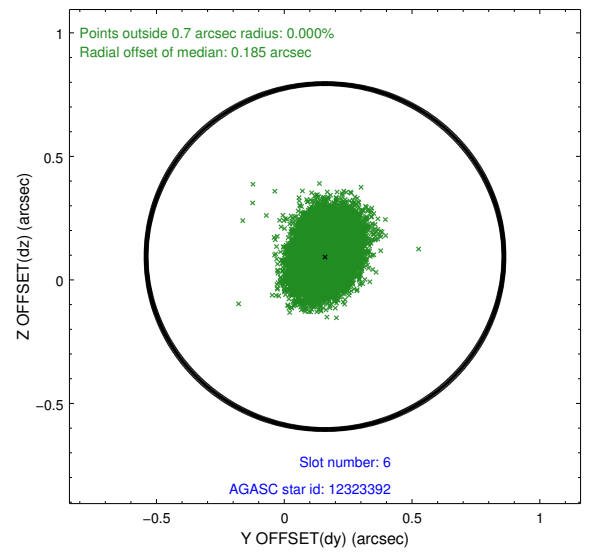
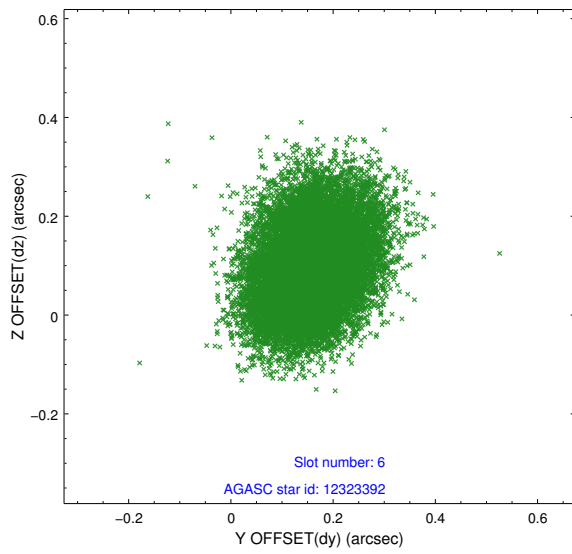
### 2.4.3 Slot 5



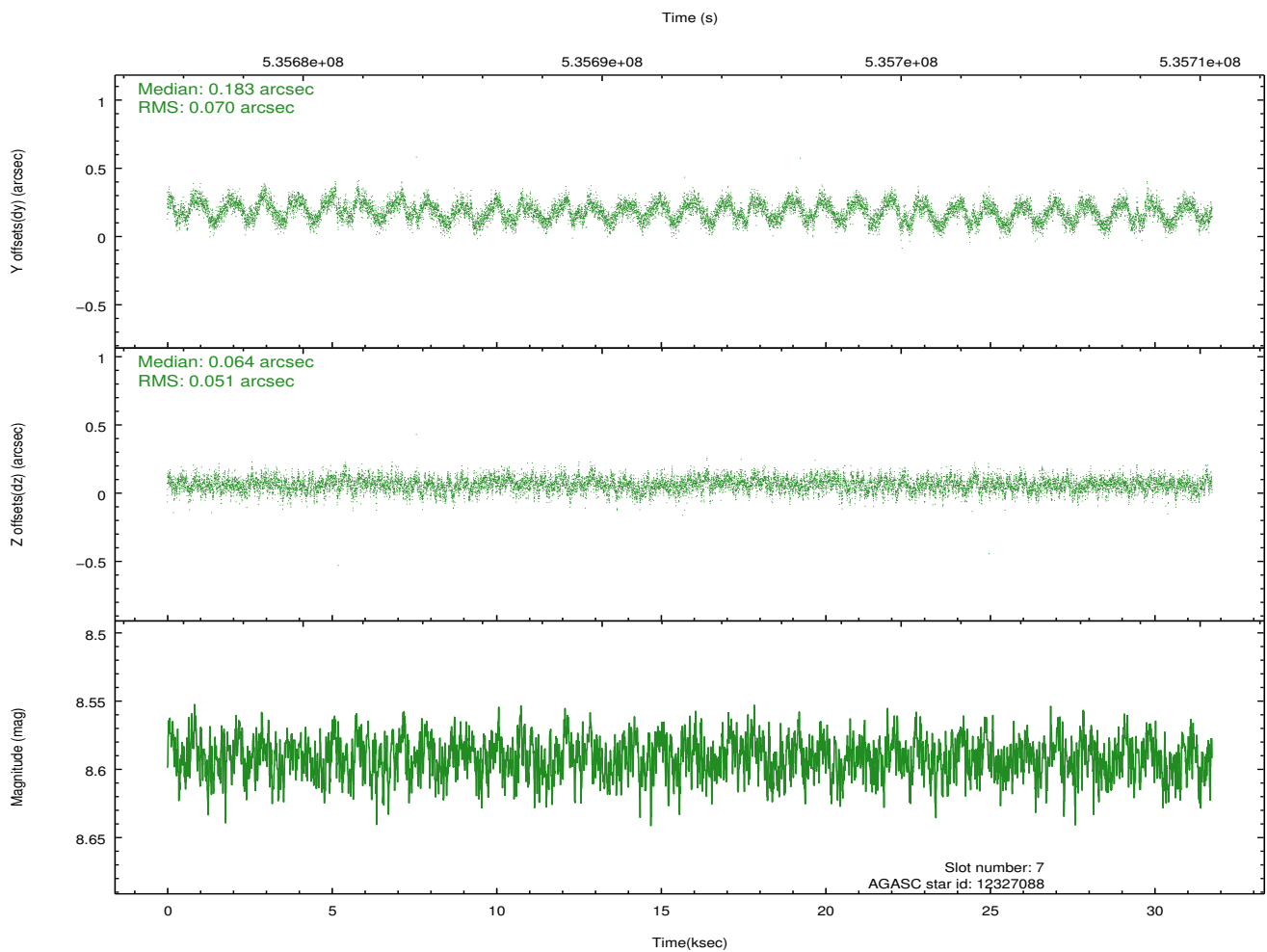
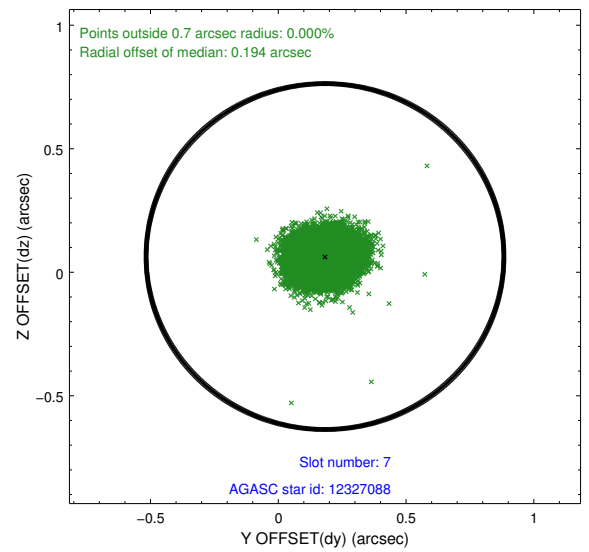
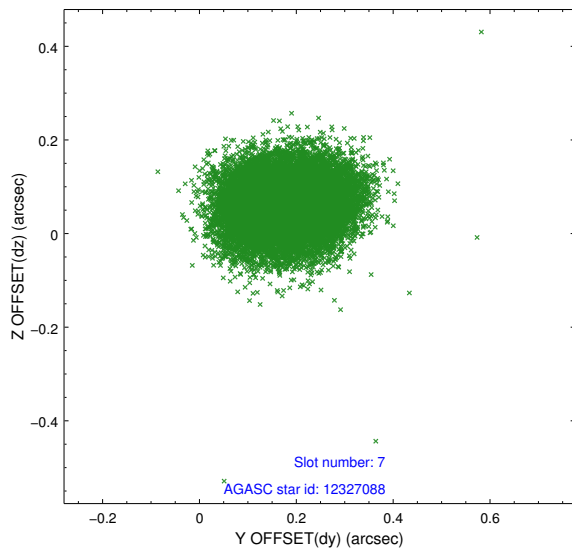
Time (s)



## 2.4.4 Slot 6

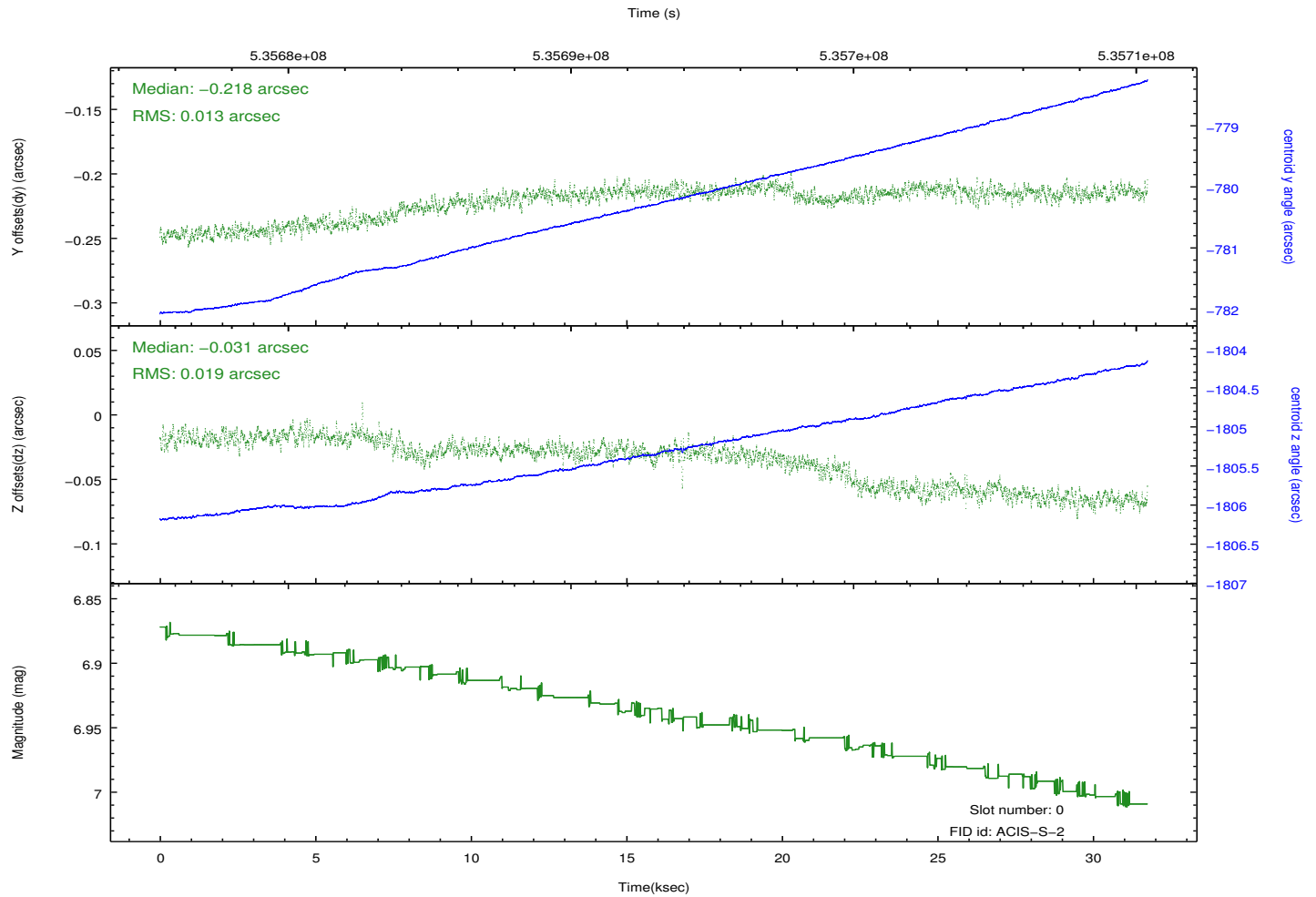
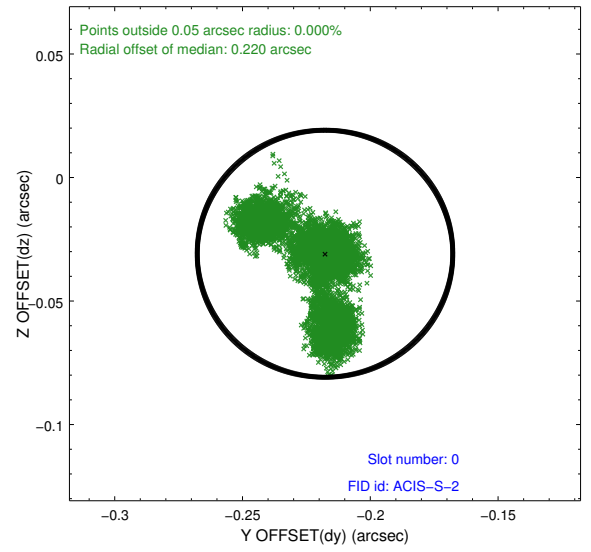
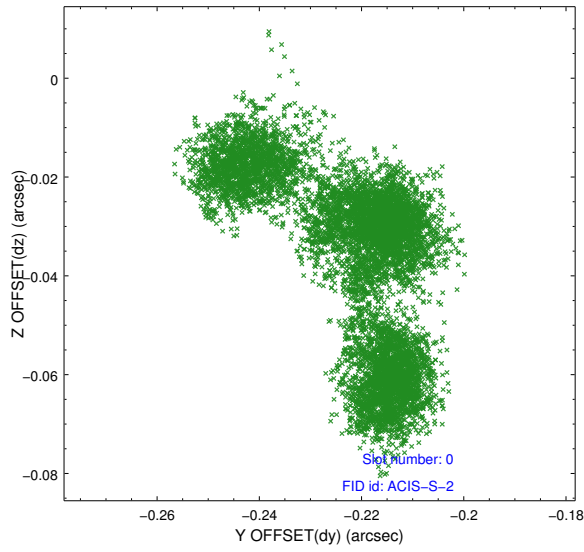


## 2.4.5 Slot 7

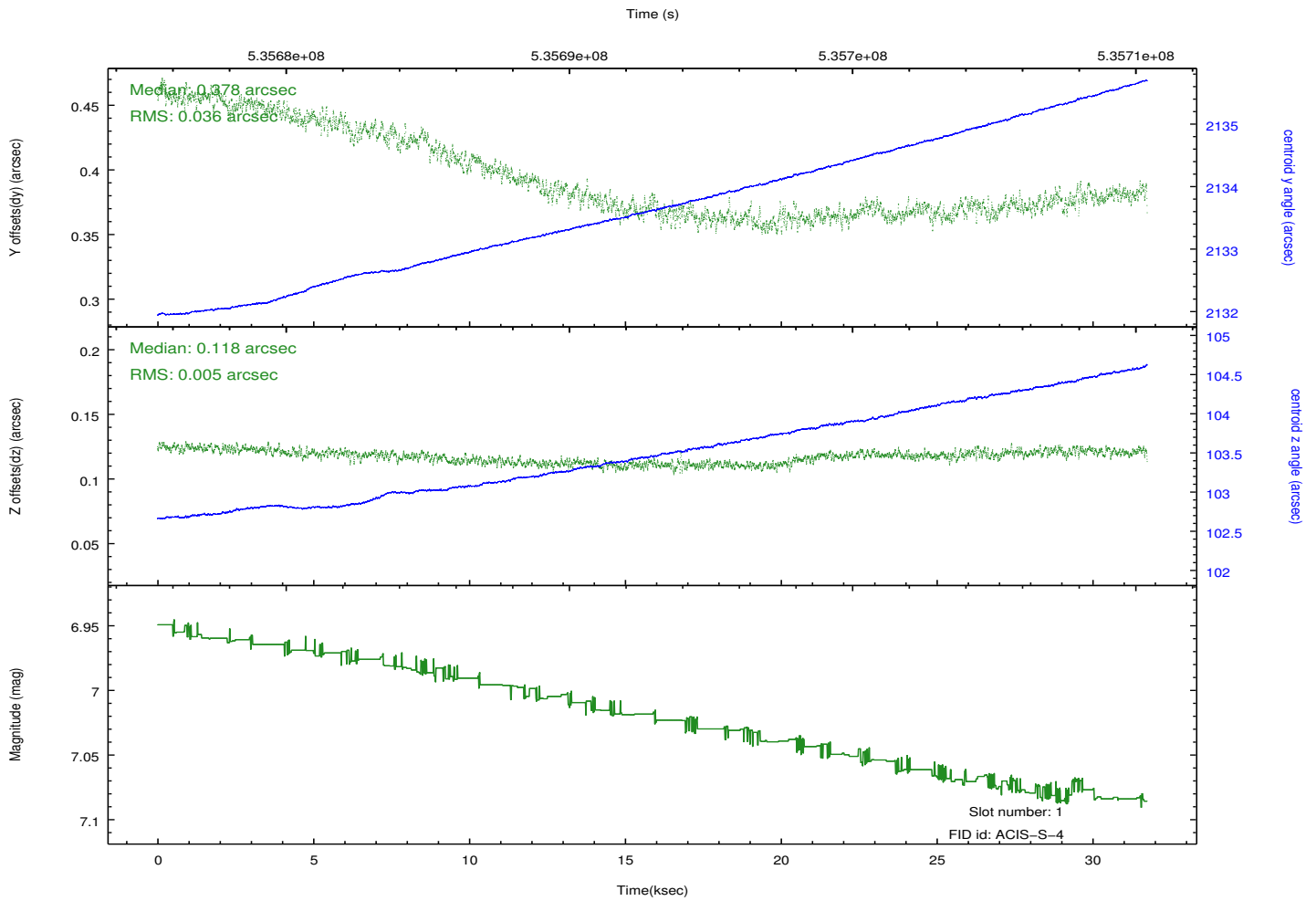
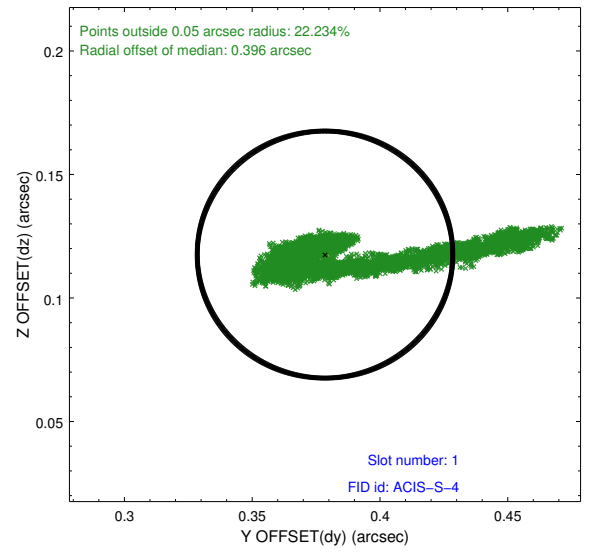
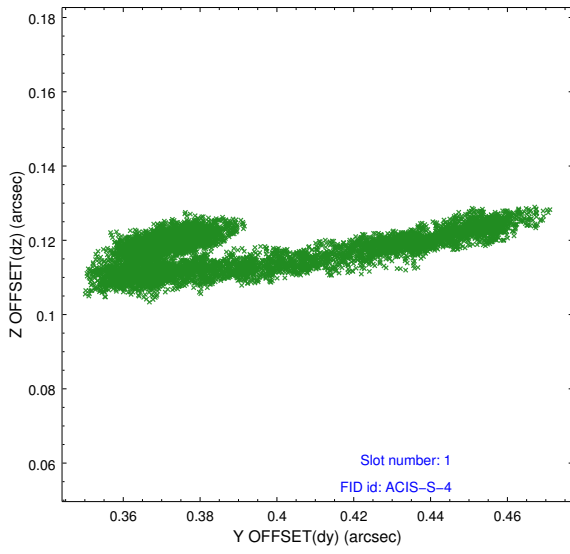


## 2.5 FID Slots

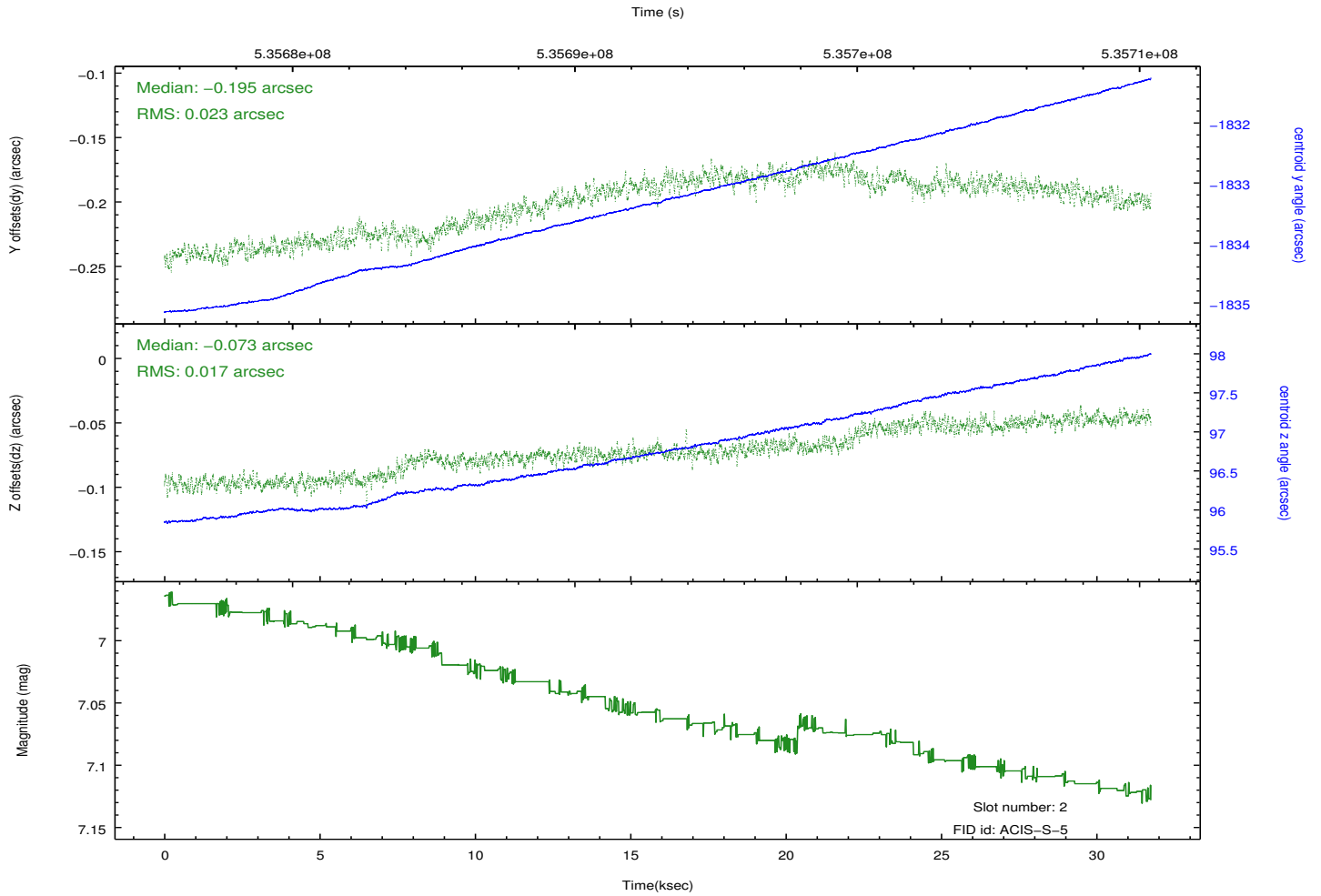
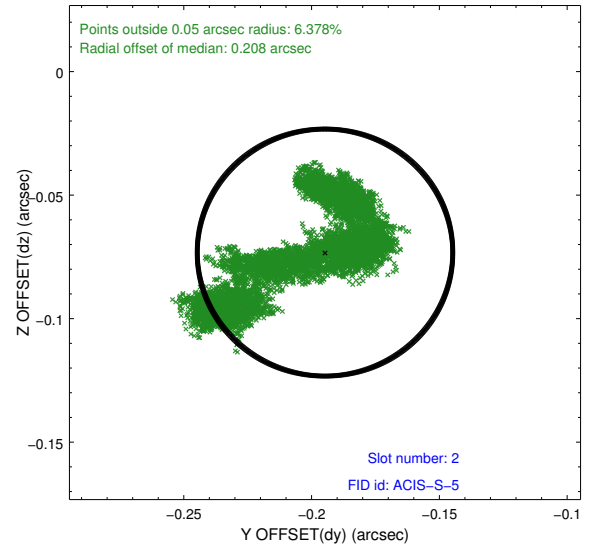
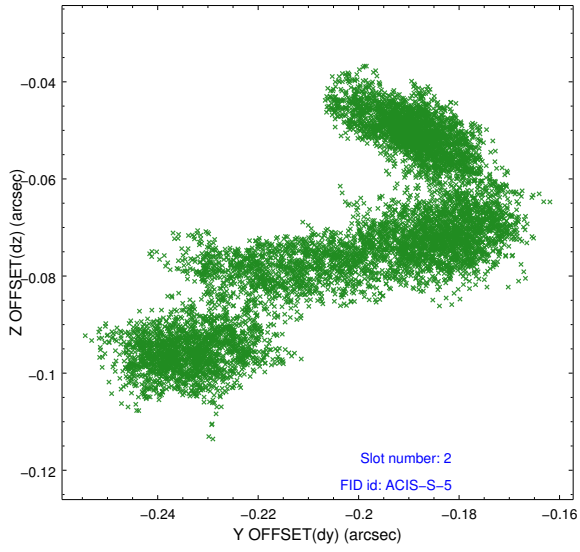
### 2.5.1 Slot 0



## 2.5.2 Slot 1

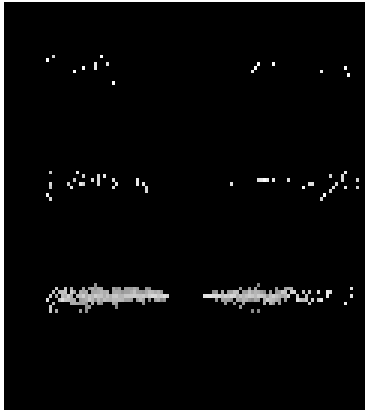


### 2.5.3 Slot 2

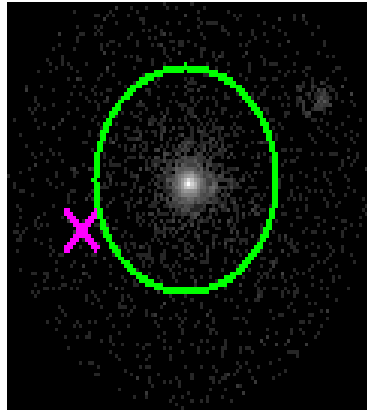


### 3 Gratings

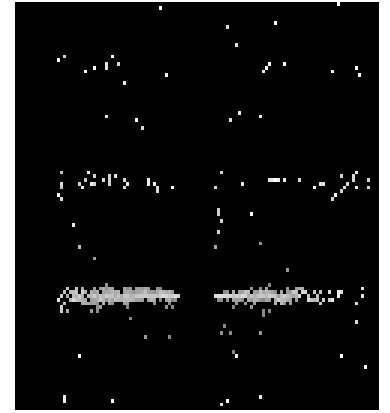
#### 3.1 HEG Arm



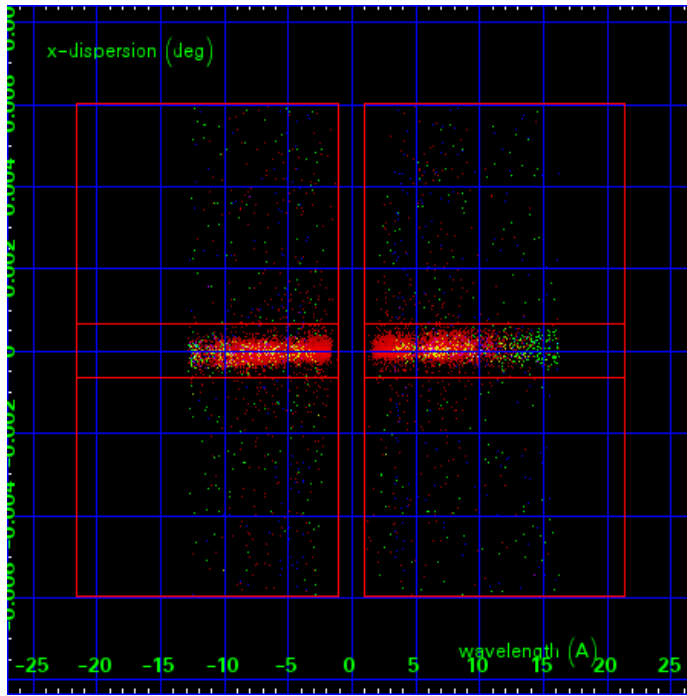
HEG Order Sort 123



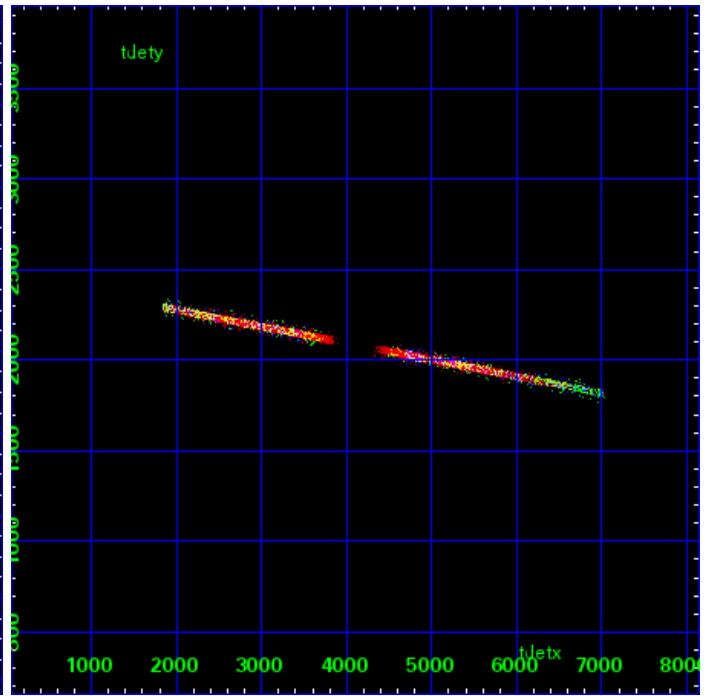
HEG Zero Order



HEG Order Sort ALL

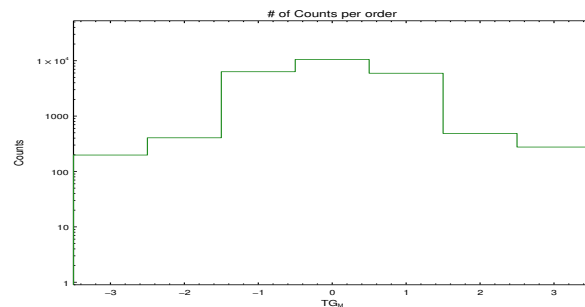


Spot Image HEG

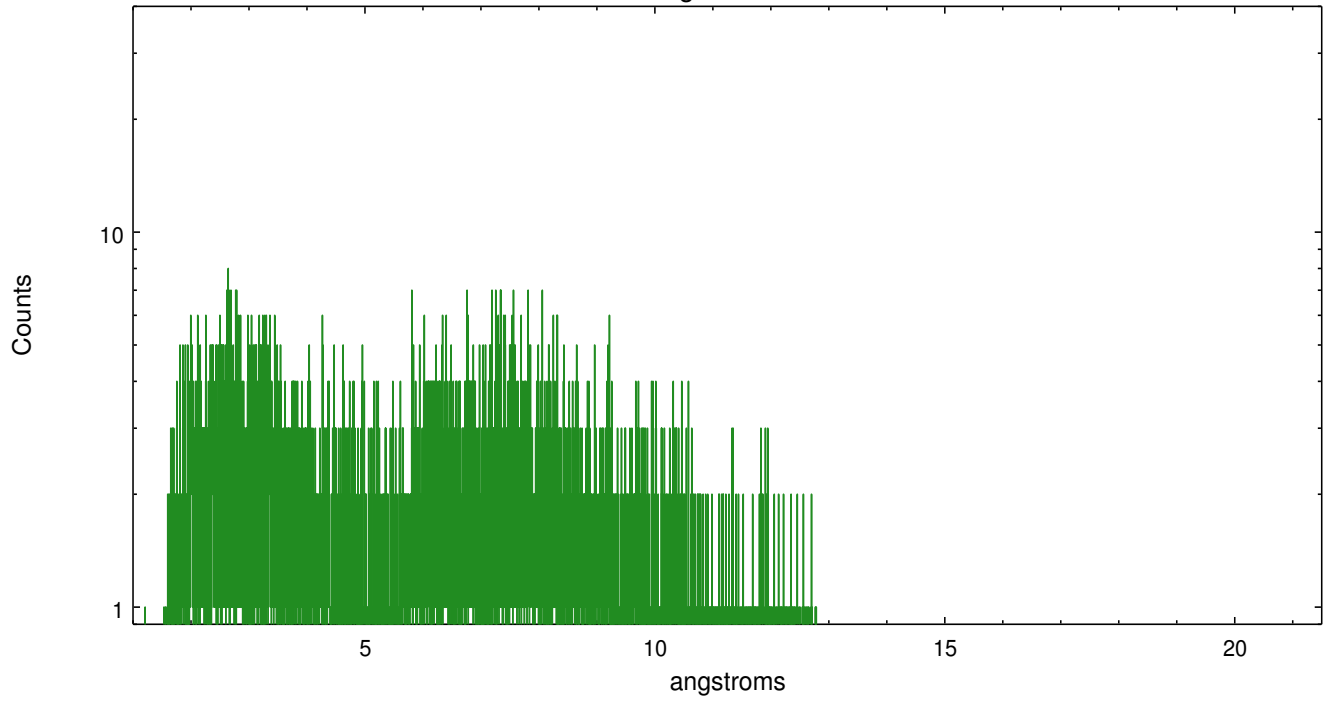


Full Detector HEG

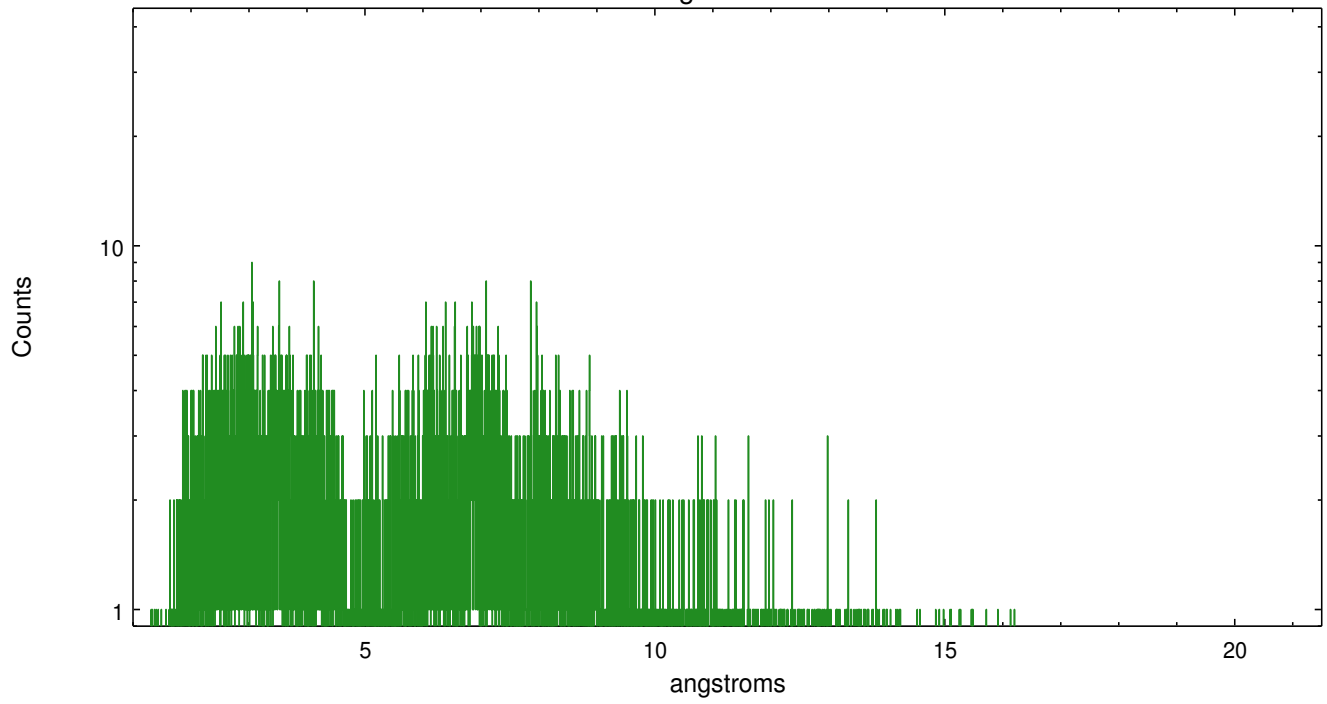
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	198	406	6333	10516	5932	486	276



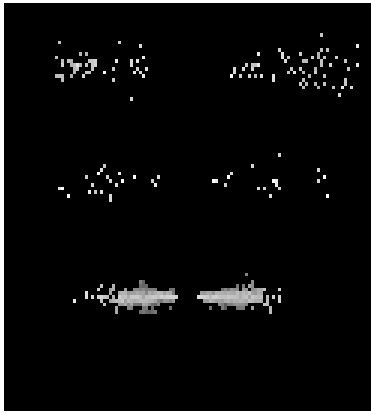
heg order -1



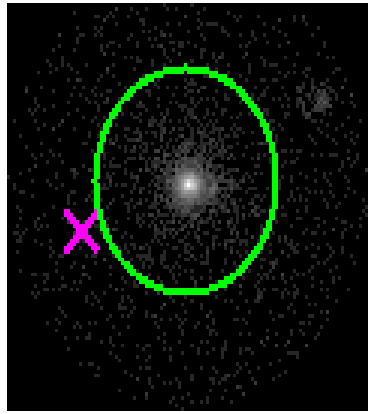
heg order +1



### 3.2 MEG Arm



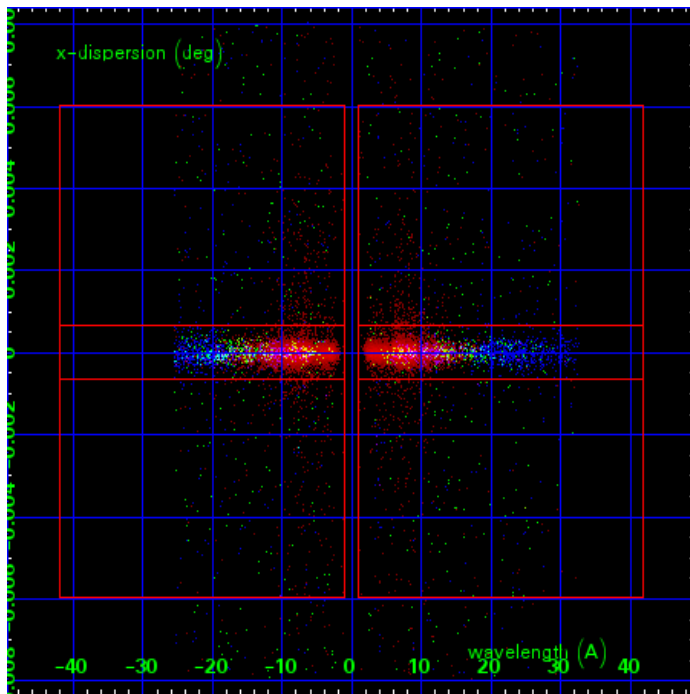
MEG Order Sort 123



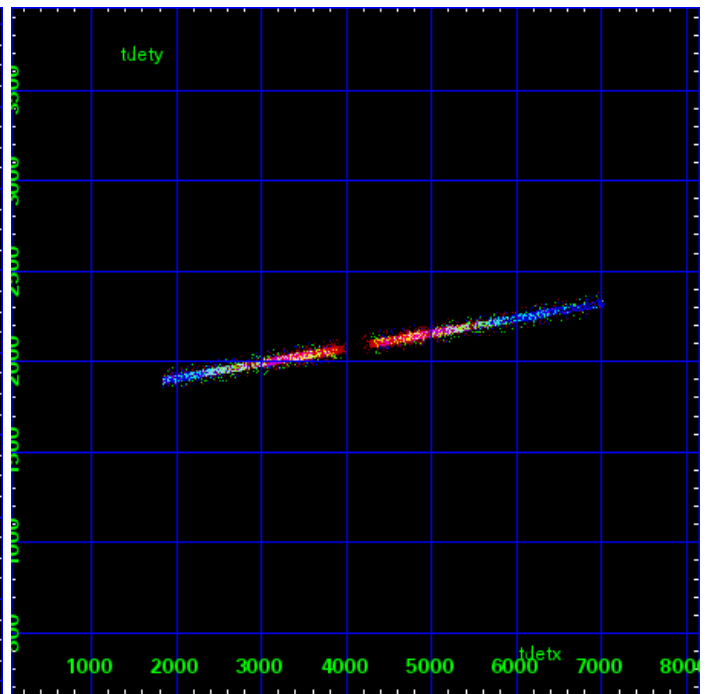
MEG Zero Order



MEG Order Sort ALL

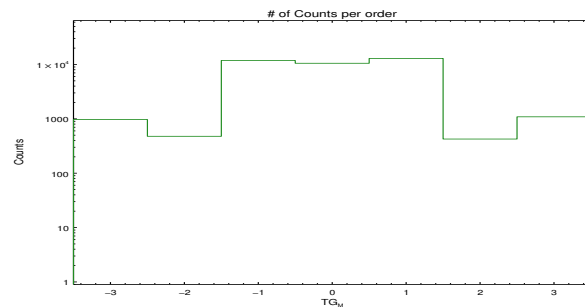


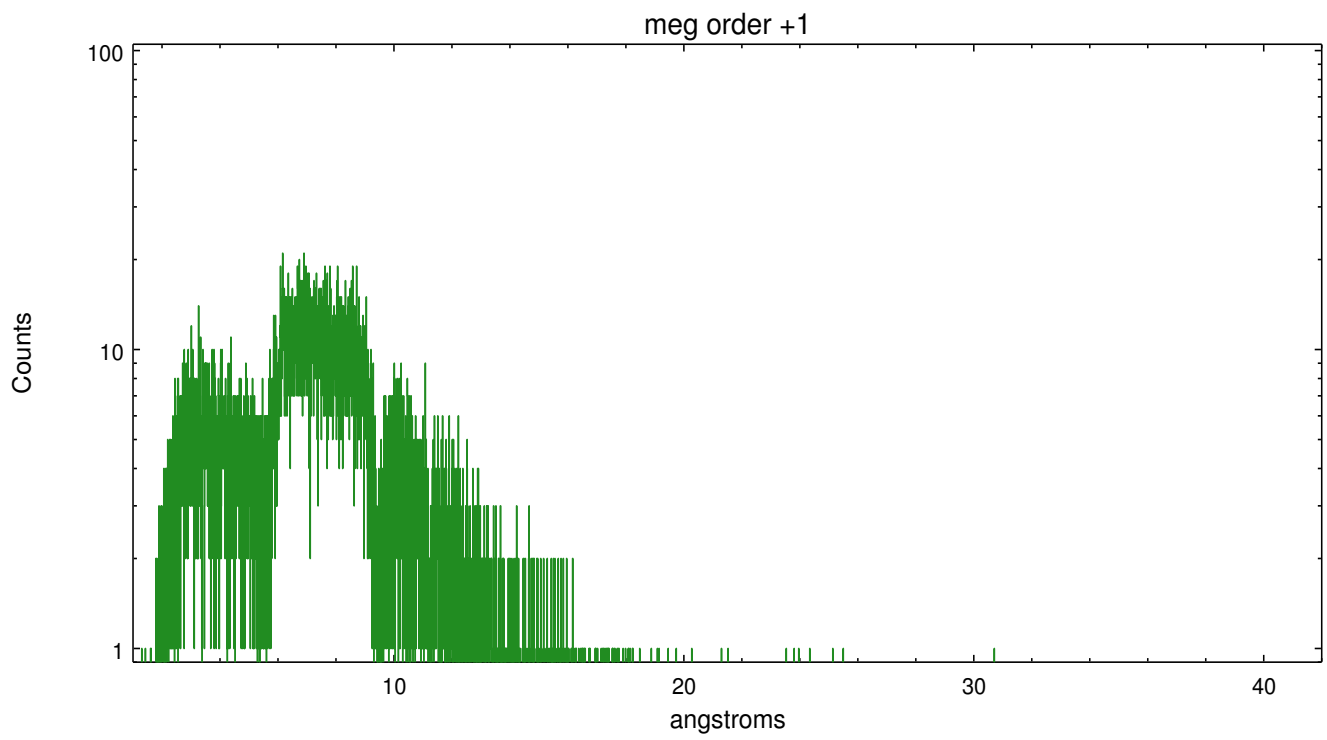
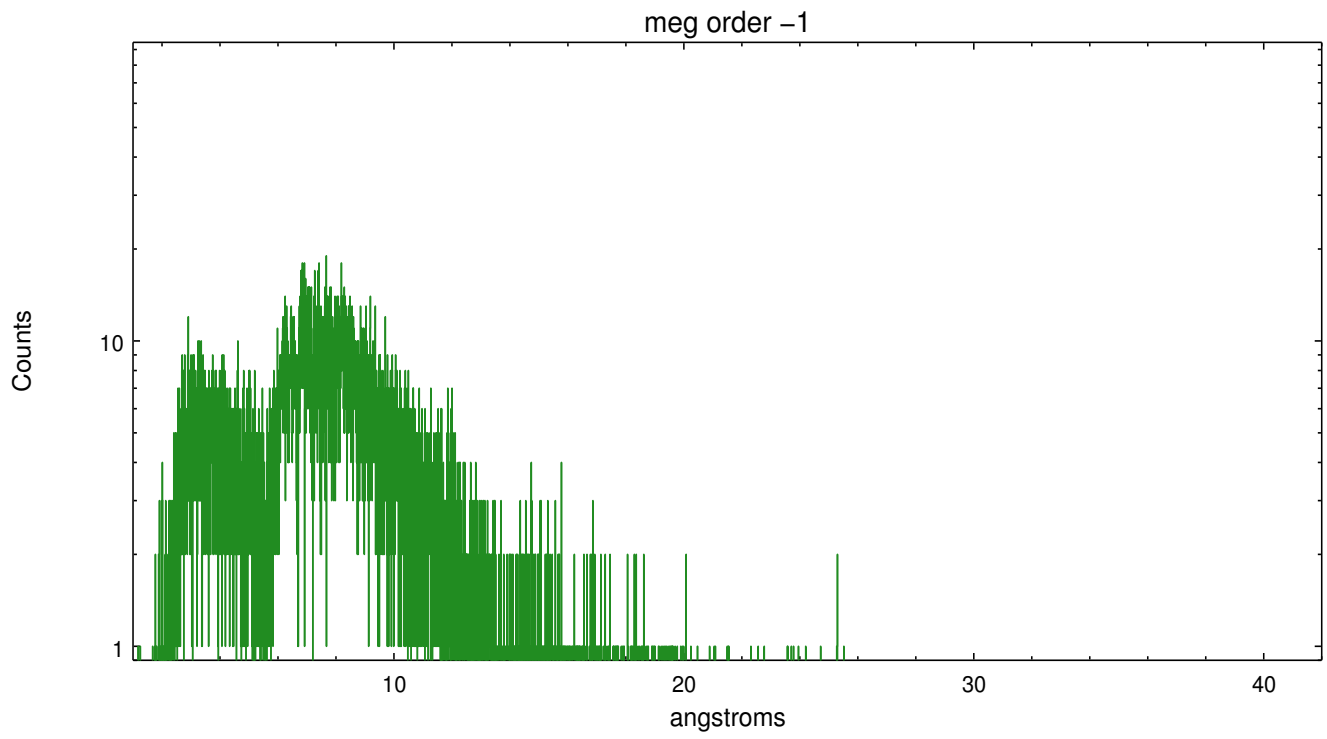
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	970	477	11841	10516	12916	425	1090





## A Summary

### A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2014.12.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	30.808799693942

### A.2 Comments