

# V&V Reference Report

## L2 ASCDS Version : 8.4.4

Observation 8590 - L2 Version 3  
Chandra X-Ray Center

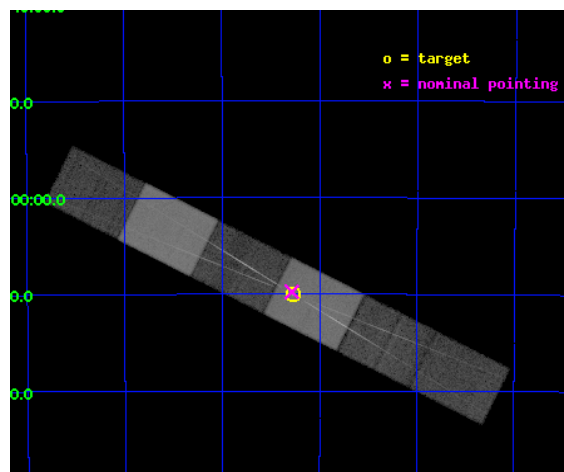
L2 Processing Date : Apr 30 2012

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>3</b>	<b>Gratings</b>	<b>17</b>
3.1	HEG Arm . . . . .	17
3.2	MEG Arm . . . . .	19
<b>A</b>	<b>Summary</b>	<b>21</b>
A.1	Status . . . . .	21
A.2	Comments . . . . .	21

# 1 Front

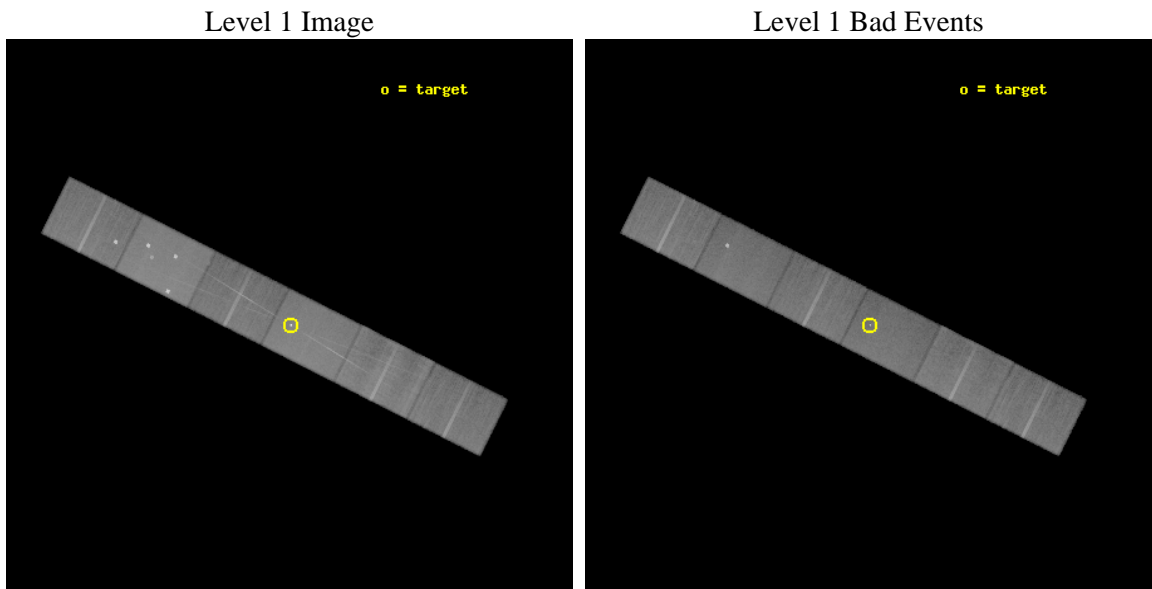
seq_num	701410	Sequence number
obs_id	8590	Observation id
title	The origin of the iron line complex in the reflection-less Seyfert 1 galaxy NGC7213	Proposal title
observer	Professor Giorgio Matt	Principal investigator
object	NGC 7213	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	332.3175	Observer's specified target RA [deg]
dec_targ	-47.166667	Observer's specified target Dec [deg]
ra_nom	332.32123475516	Nominal RA [deg]
dec_nom	-47.162530723529	Nominal Dec [deg]
roll_nom	26.659367910764	Nominal Roll [deg]
revision	3	Processing version of data
ontime	35127.5	Sum of GTIs [s]
livetime	34560.160406762	Livetime [s]
ontime4	35124.95898962	Sum of GTIs [s]
ontime5	35127.5	Sum of GTIs [s]
ontime6	35127.5	Sum of GTIs [s]
ontime7	35127.5	Sum of GTIs [s]
ontime8	35124.958979785	Sum of GTIs [s]
ontime9	35127.5	Sum of GTIs [s]
l2events	464555	Number of level 2 events



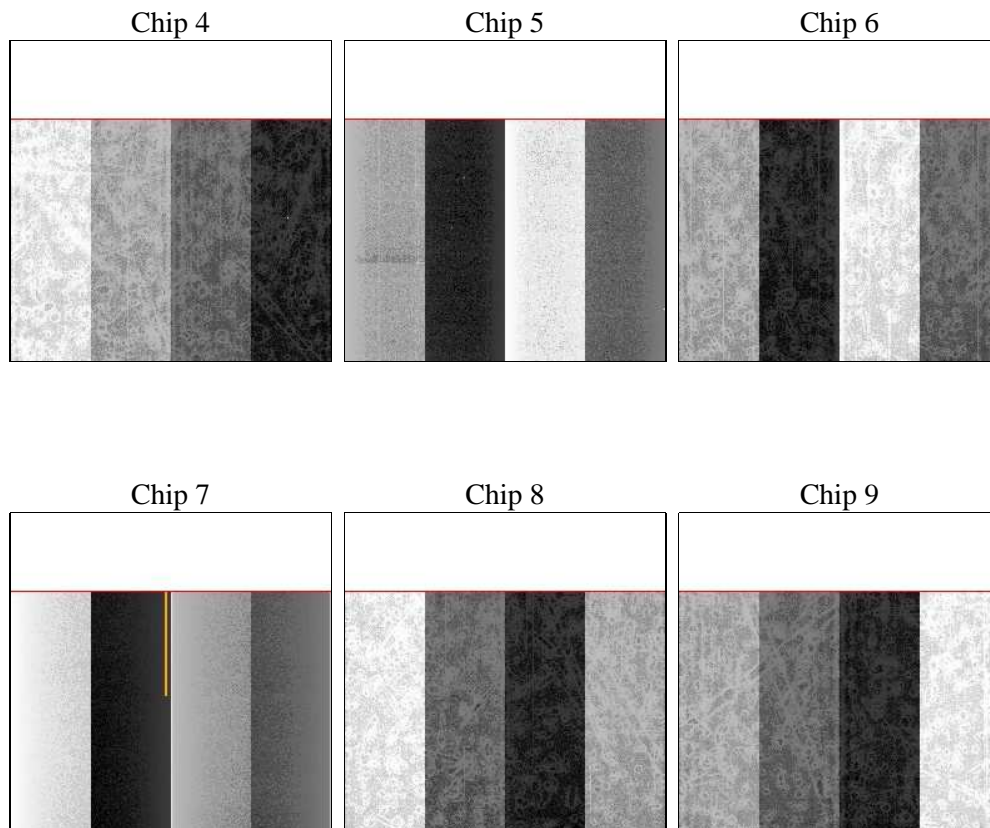
## 2 OBI

### 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	8.4.4	Processing system revision	ontime	35127.5	Sum of GTIs [s]
caldbver	4.4.9	&#160	ontime4	35124.95898962	Sum of GTIs [s]
date	2012-04-30T16:38:13	Date and time of file creation	ontime5	35127.5	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	35127.5	Sum of GTIs [s]
			ontime7	35127.5	Sum of GTIs [s]
			ontime8	35124.958979785	Sum of GTIs [s]
			ontime9	35127.5	Sum of GTIs [s]
			l1events	2055963	Number of level 1 events

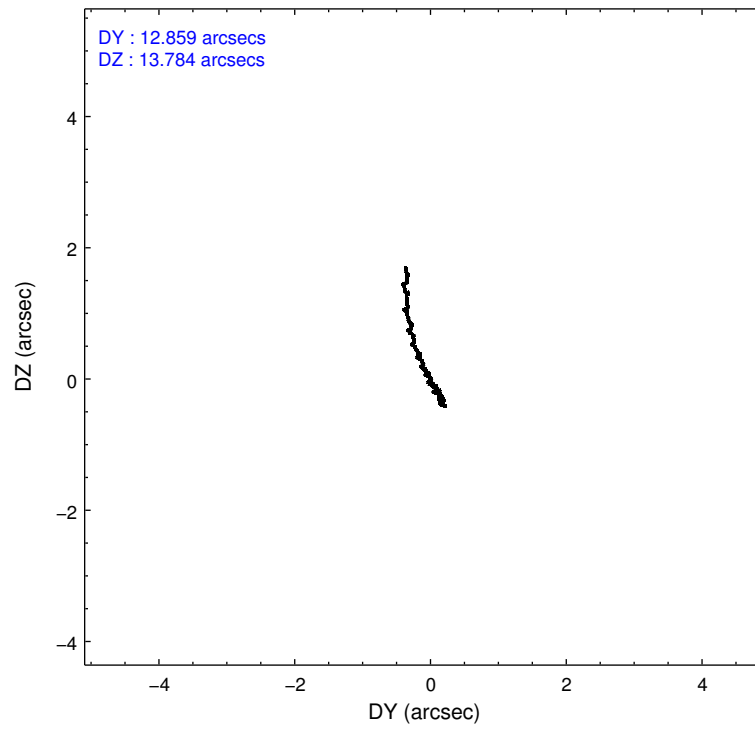
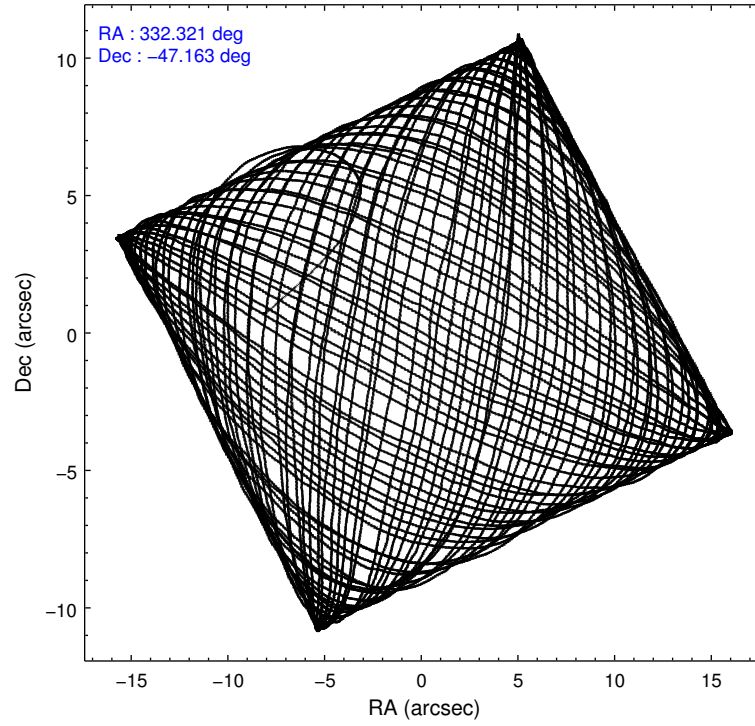
### 2.1.4 Events

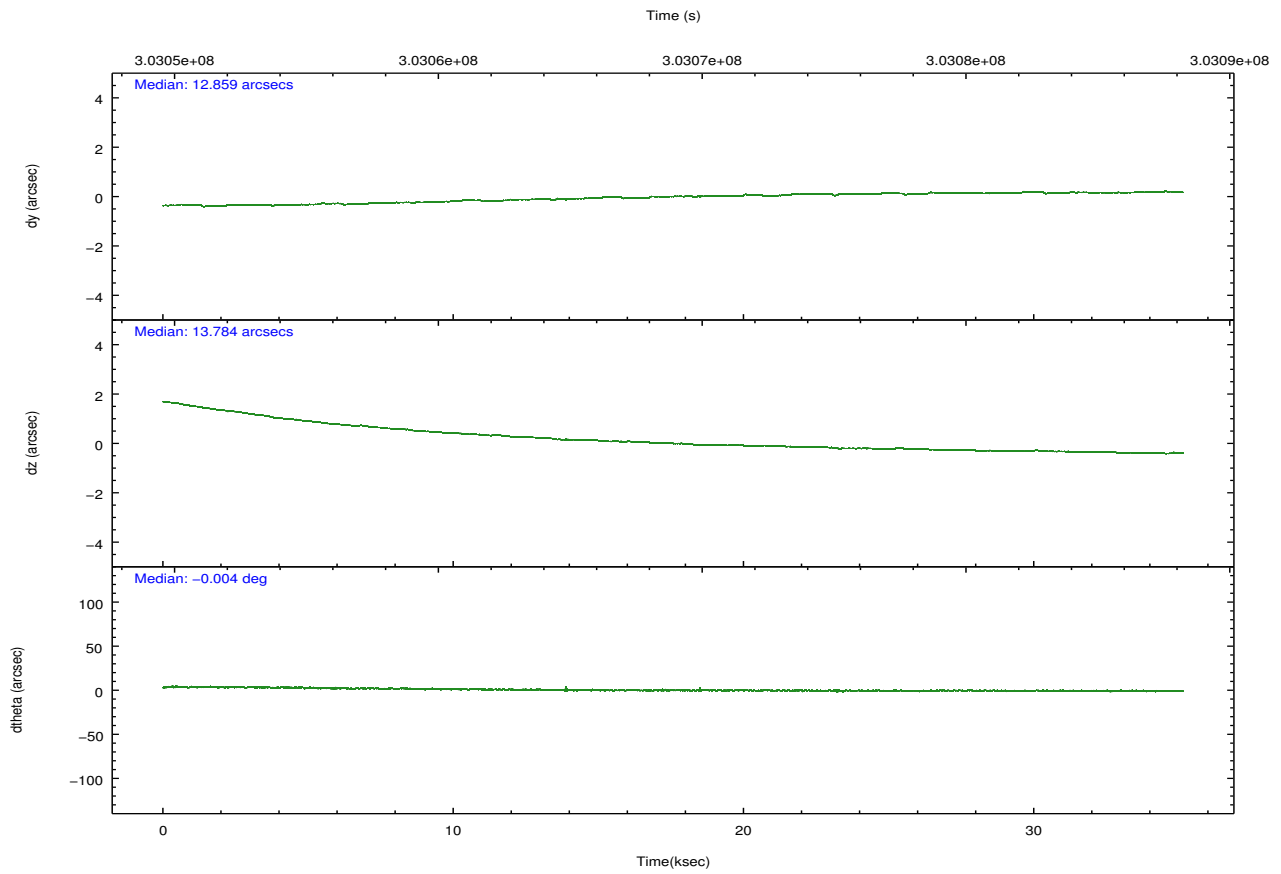
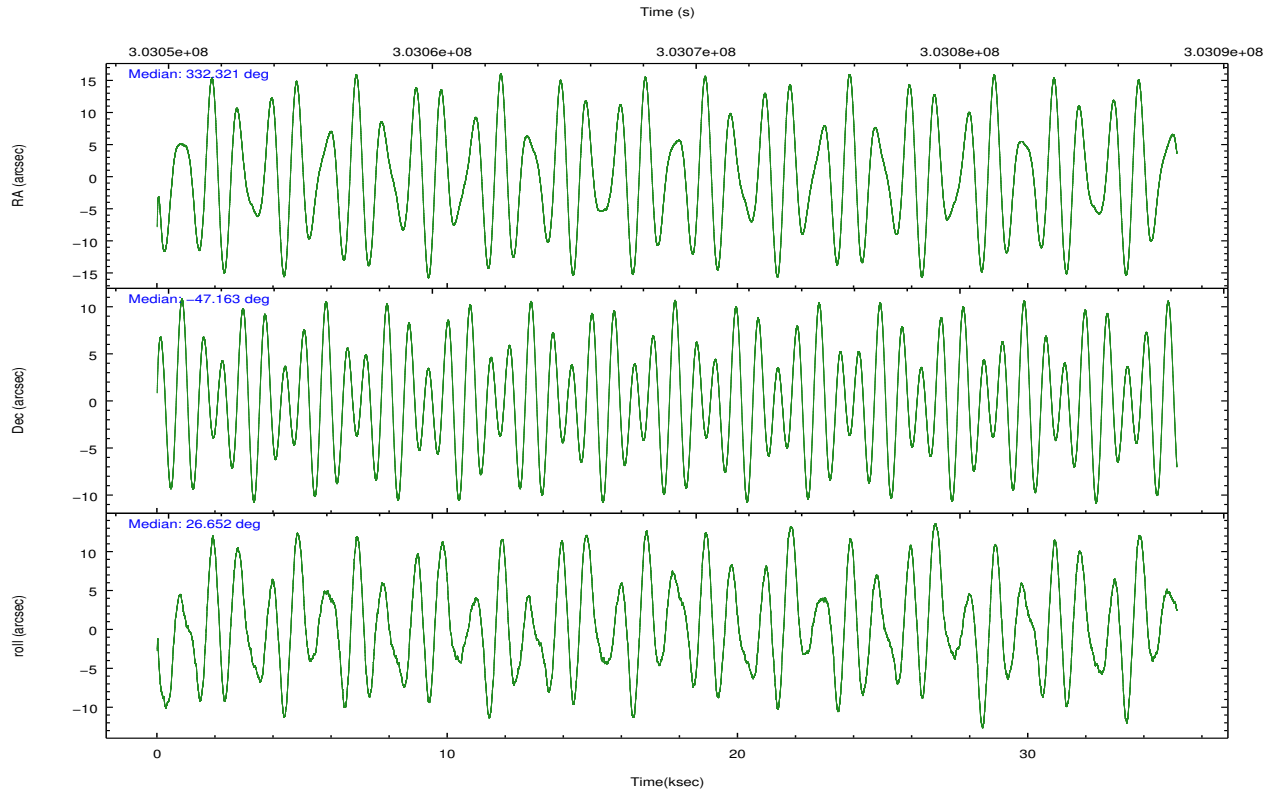
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	312667	441607	283337	388115	355061	275176	grade 0 events	25739	36209	19881	17075	28670	14596
rejected events	268698	237110	242770	223254	273495	241928		8%	8%	7%	4%	8%	5%
rejected %	85%	53%	85%	57%	77%	87%	grade 1 events	311	555	177	557	246	131
								0%	0%	0%	0%	0%	0%
							grade 2 events	7683	60985	8115	35724	18384	6870
								2%	13%	2%	9%	5%	2%
							grade 3 events	3544	8462	3579	15649	8880	3600
								1%	1%	1%	4%	2%	1%
							grade 4 events	3470	7855	3691	15246	8176	3321
								1%	1%	1%	3%	2%	1%
							grade 5 events	12146	31478	12686	35630	16969	13300
								3%	7%	4%	9%	4%	4%
							grade 6 events	5606	101021	6877	88722	21250	6467
								1%	22%	2%	22%	5%	2%
							grade 7 events	254168	195042	228331	179512	252486	226891
								81%	44%	80%	46%	71%	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	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	332.299596	332.3212347551601	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	-47.185572	-47.16253072352866	Subarray start row	1	1
[deg] Pointing Roll	26.486866	26.65936791076415	Subarray row count	774	774
[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	2.5
[mm] SIM translation stage pos	-187.132523	-187.1254020033014			
[mm] SIM translation stage offset	-3	-3.007120579706367			
[s] Observation start time (MET)	303051468.184000	303049593.57598			
Observation start date	2007-08-09T12:56:43	2007-08-09T12:26:33			
[s] Observation end time (MET)	303086468.184000	303087559.0653			
Observation end date	2007-08-09T22:40:03	2007-08-09T22:59:19			
Read mode	TIMED	TIMED			

## 2.3 Aspect





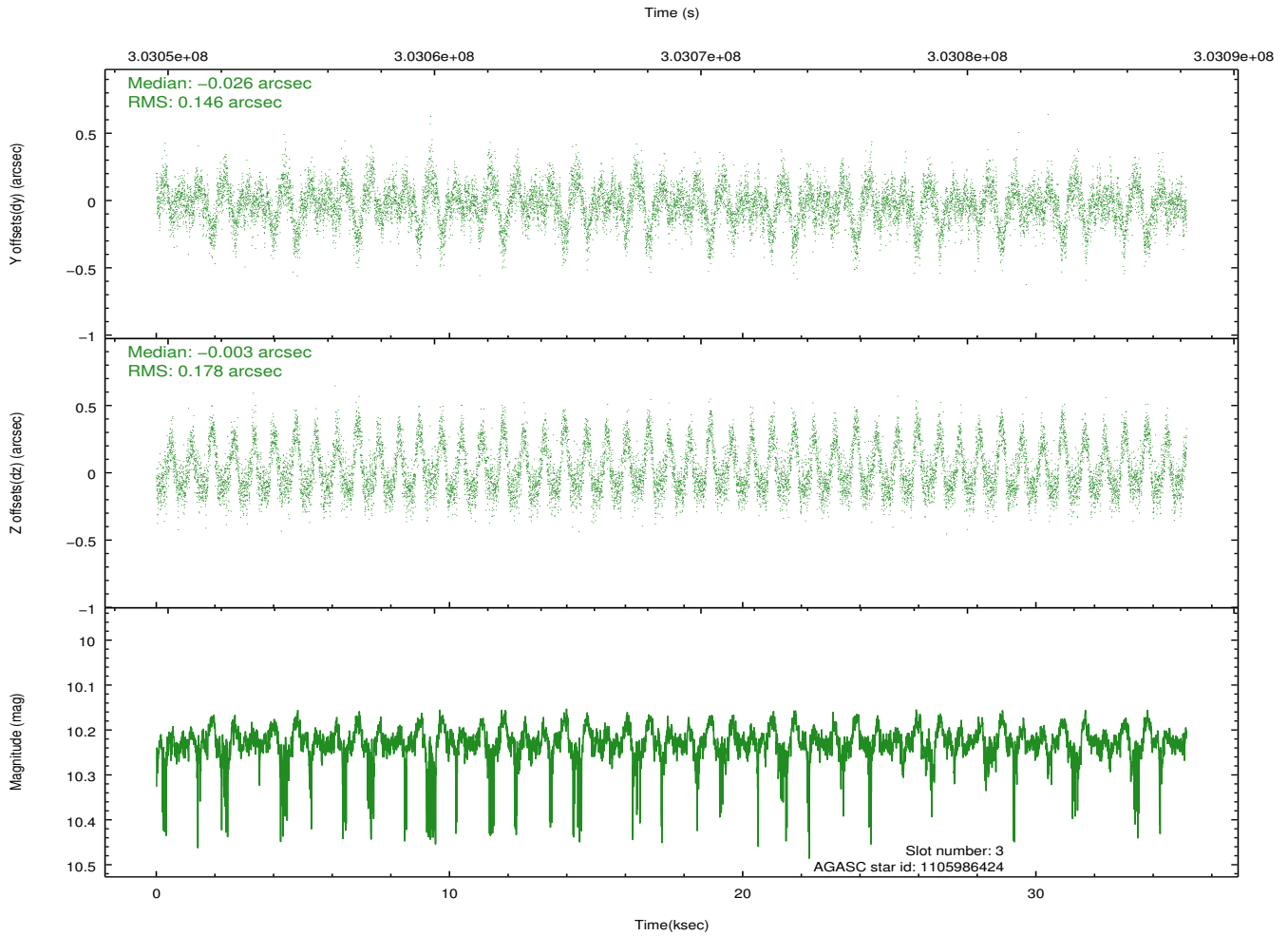
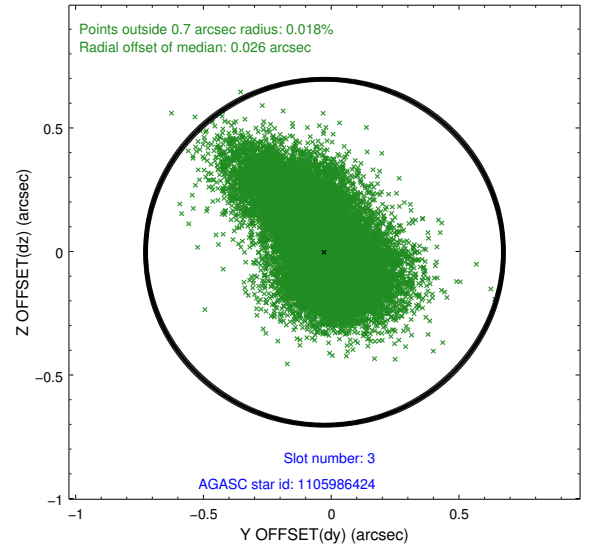
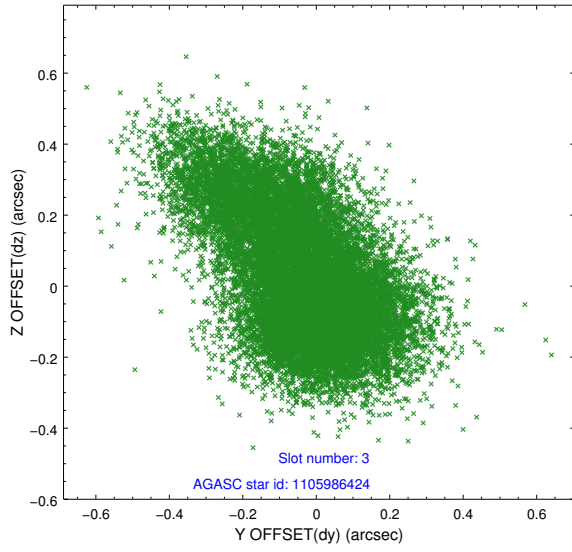
### Slot Statistics

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	8568	-0.088	-0.074	0.018	0.048	0.000000	0.000000	-765.59	-1797.50
1	FID	ACIS-S-4	7.18	8569	0.189	0.063	0.011	0.020	0.000000	0.000000	2147.94	111.08
2	FID	ACIS-S-5	7.23	8569	-0.133	0.020	0.015	0.042	0.000000	0.000000	-1818.43	104.75
3	GUIDE	1105986424	10.23	17088	-0.026	-0.003	0.235	0.420	333.319526	-47.232354	2149.85	-1277.31
4	GUIDE	1105987400	9.89	17072	-0.147	0.057	0.176	0.295	333.214550	-47.381977	1675.40	-1639.02
5	GUIDE	1105991336	9.54	17118	0.038	-0.041	0.112	0.184	331.992967	-47.405978	-1022.82	-378.48
6	GUIDE	1105993144	9.84	17092	0.074	-0.184	0.122	0.202	331.214474	-46.887018	-1918.52	2135.78
7	GUIDE	1106385480	9.21	17119	0.074	0.166	0.112	0.186	332.094291	-47.516798	-978.62	-844.98

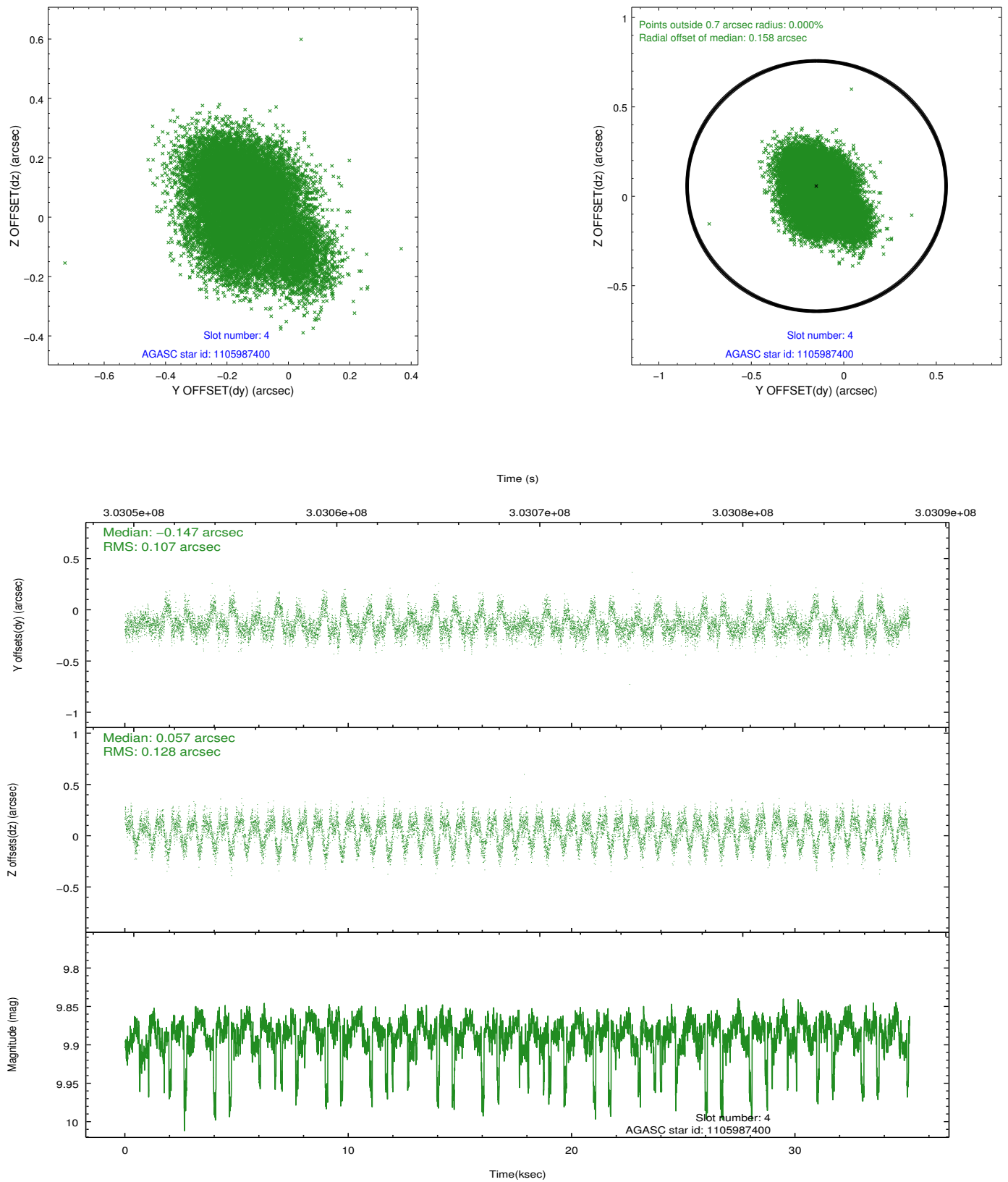
∞

## 2.4 Star Slots

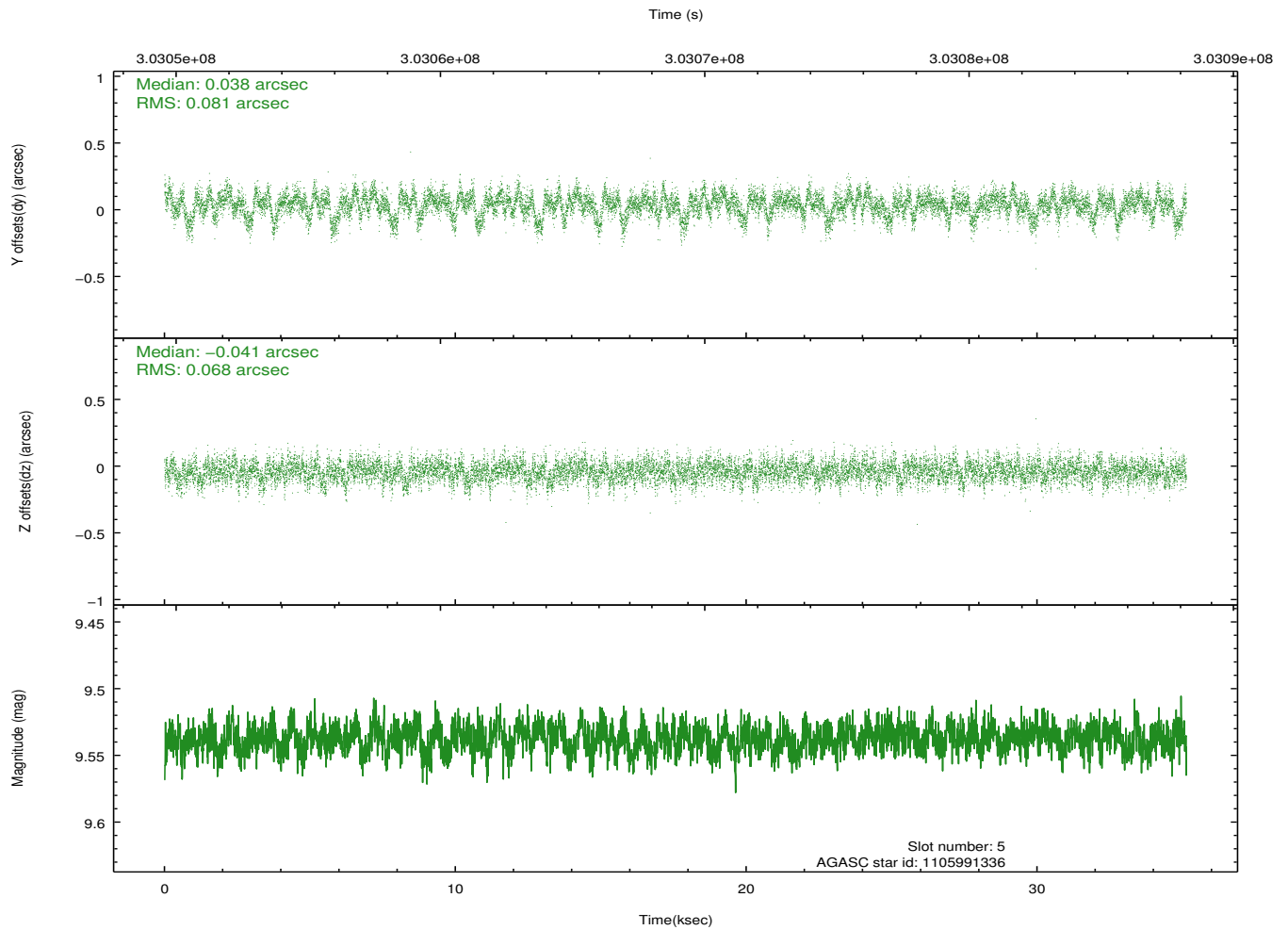
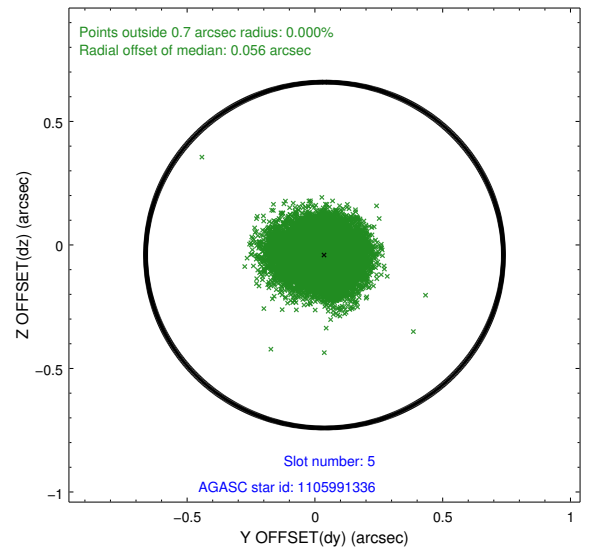
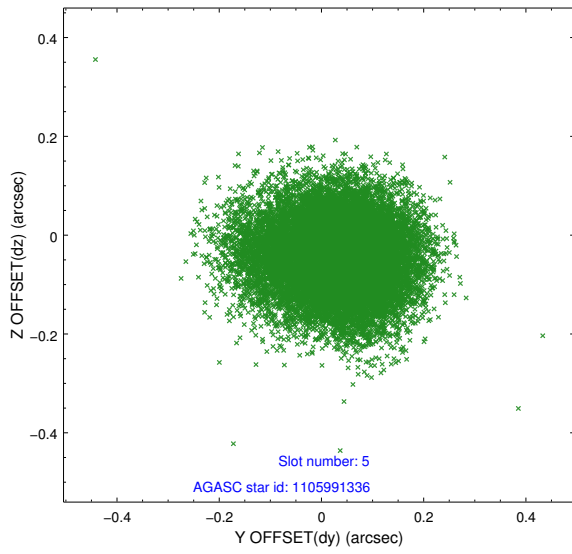
### 2.4.1 Slot 3



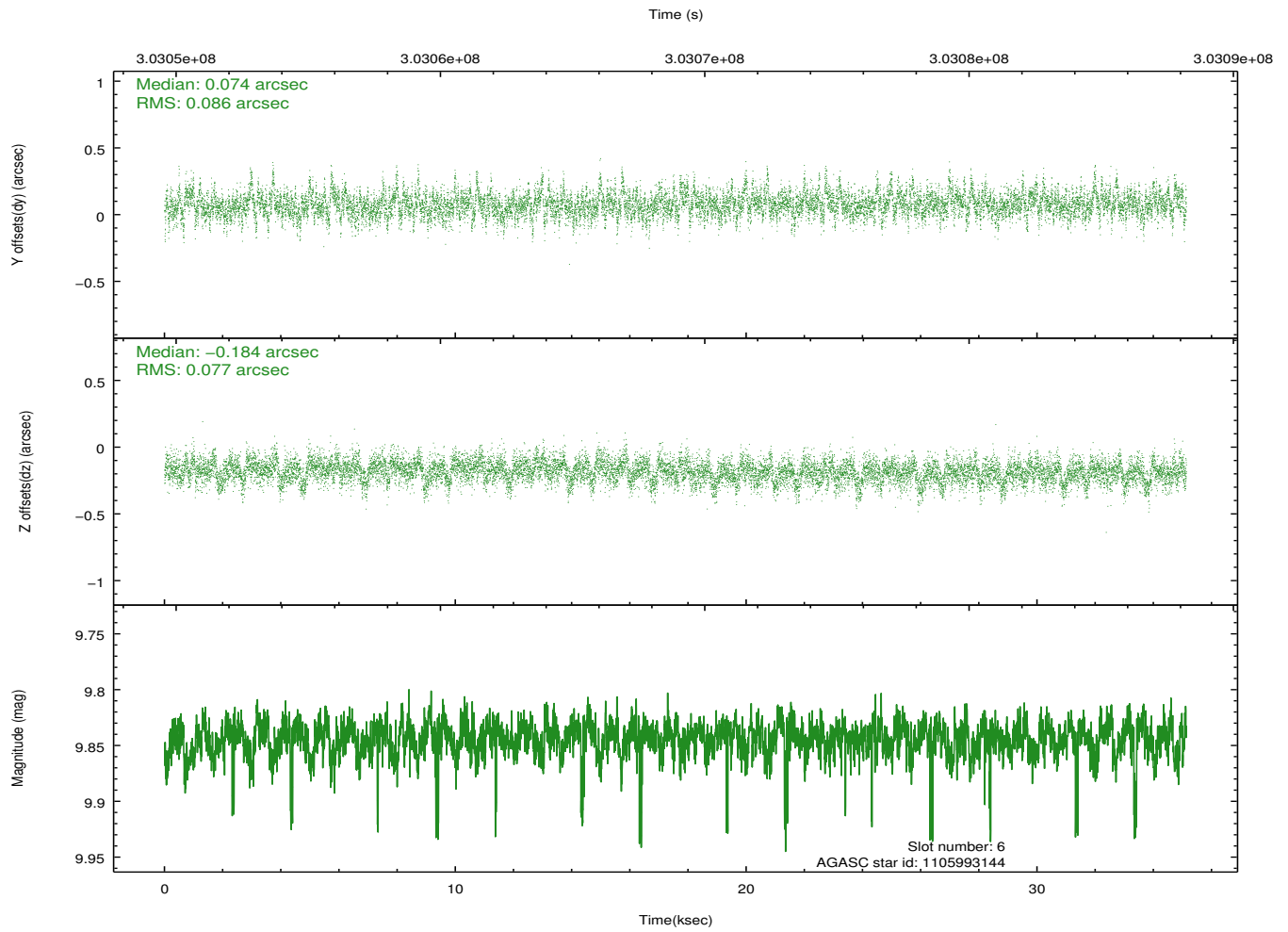
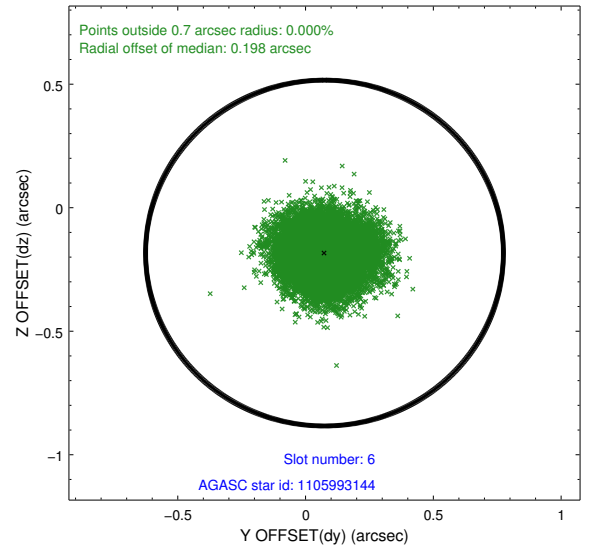
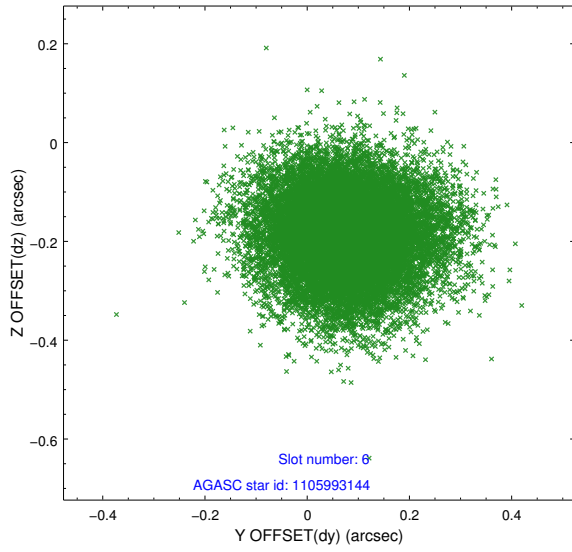
## 2.4.2 Slot 4



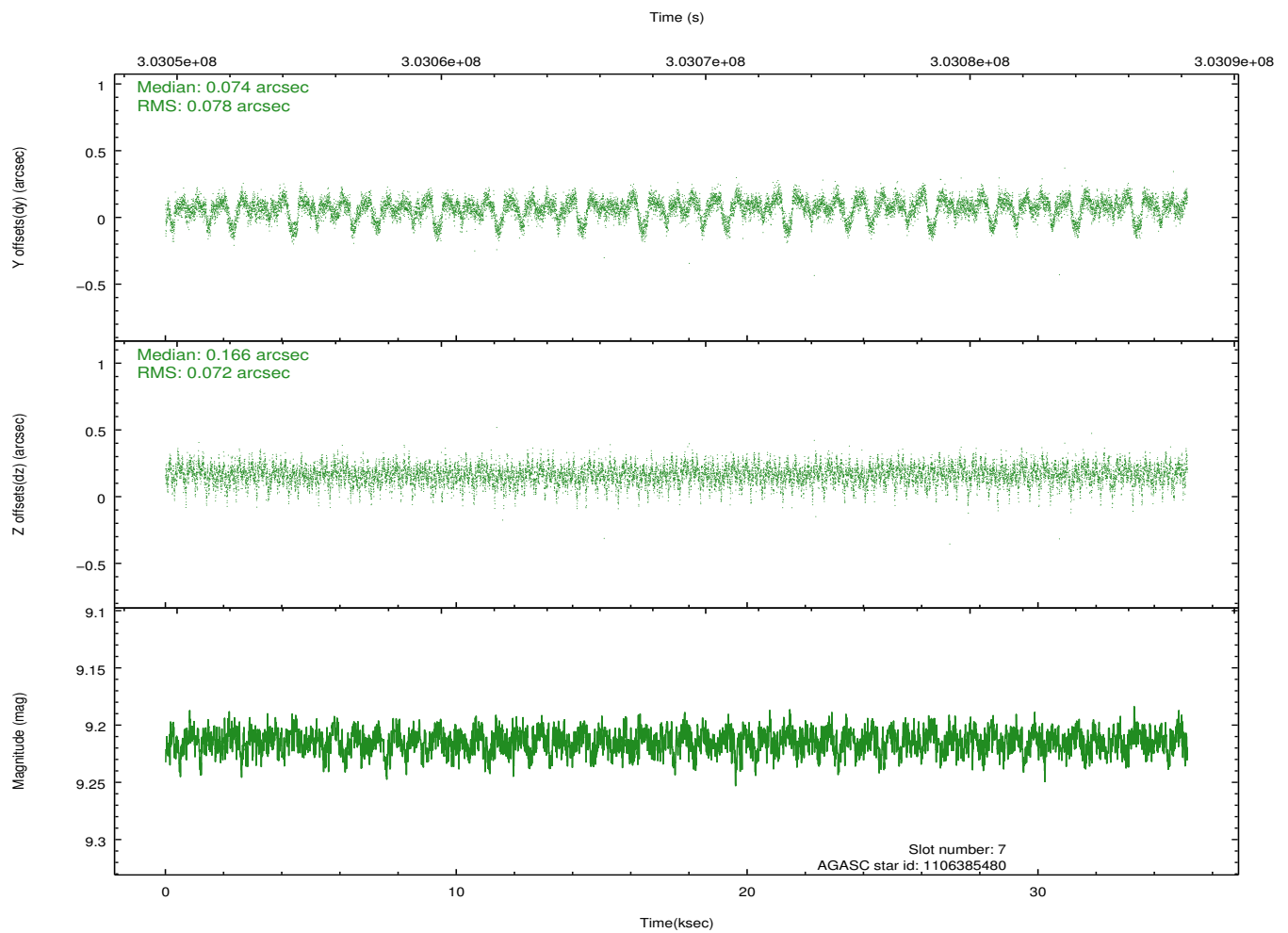
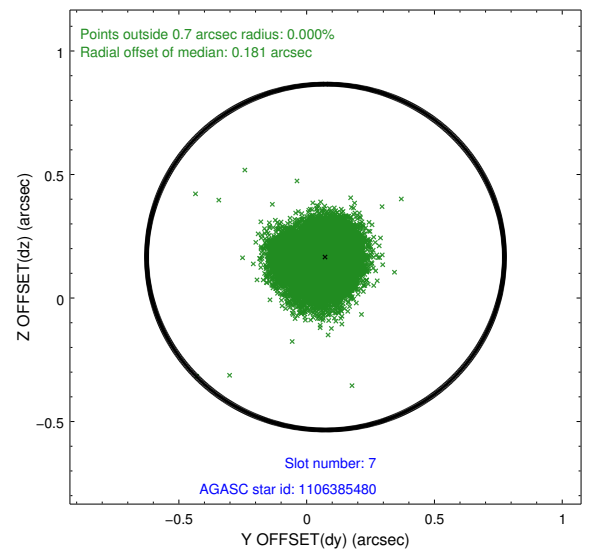
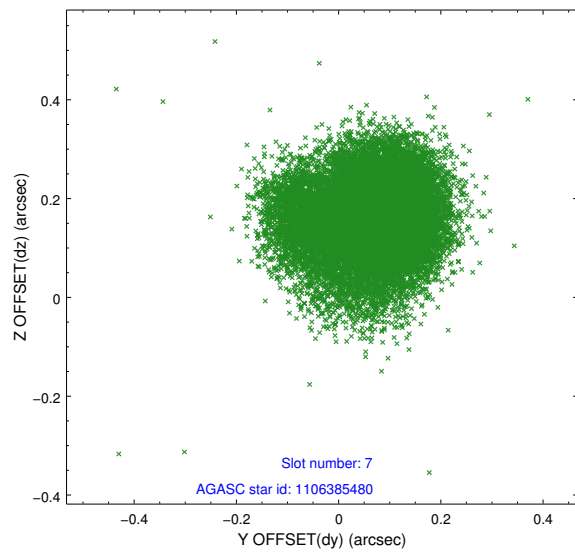
### 2.4.3 Slot 5



### 2.4.4 Slot 6

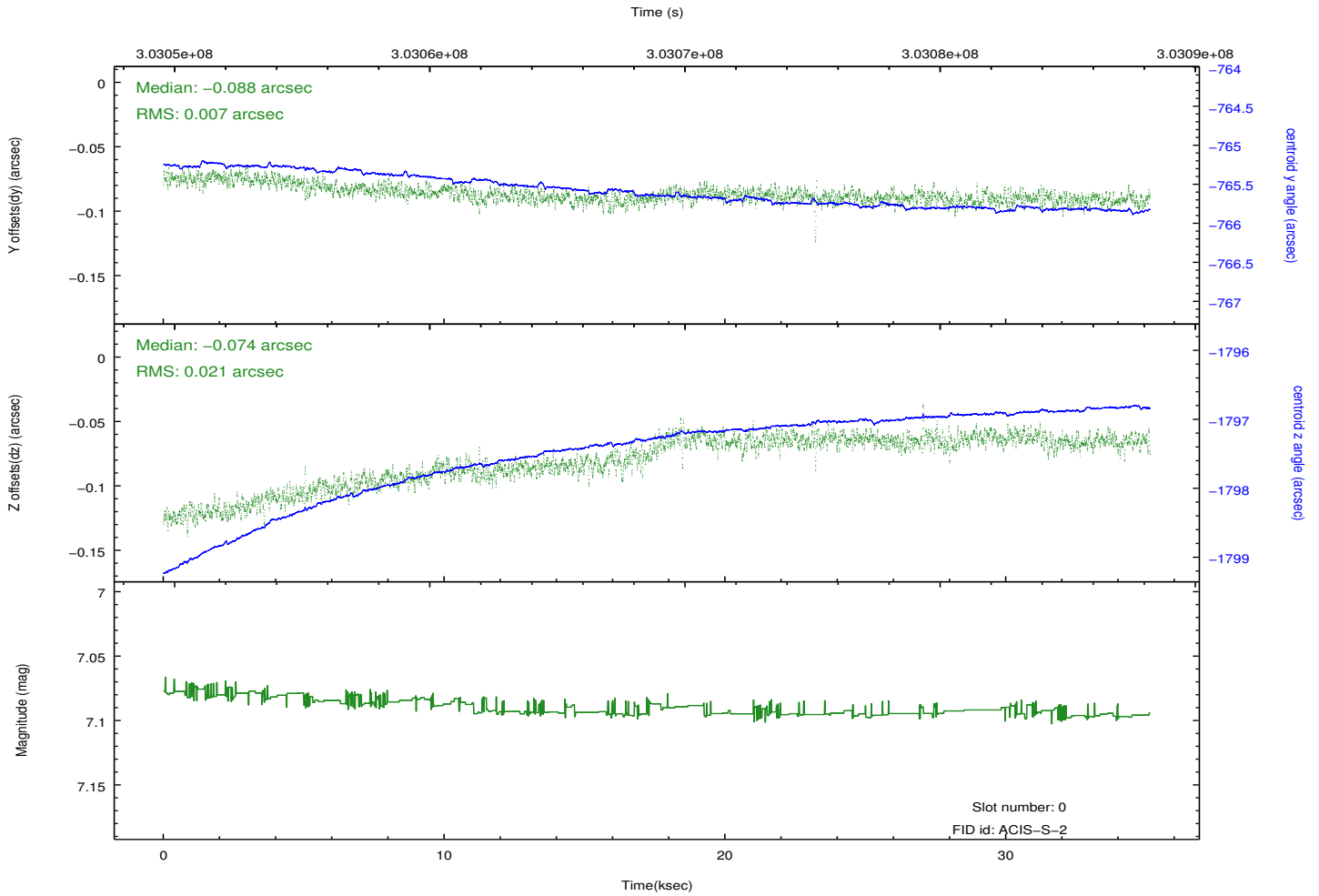
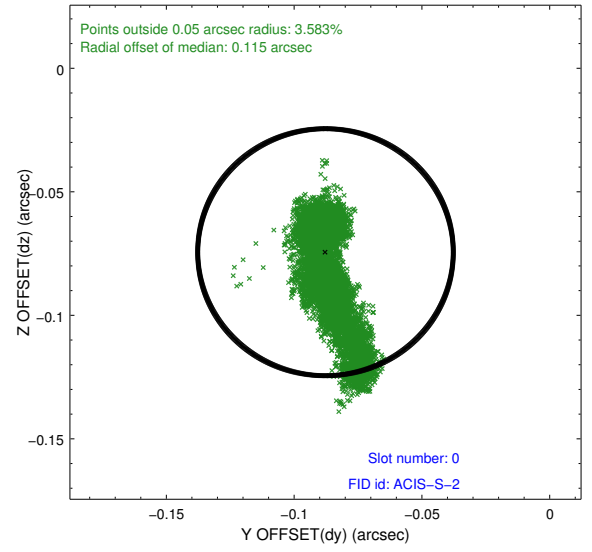
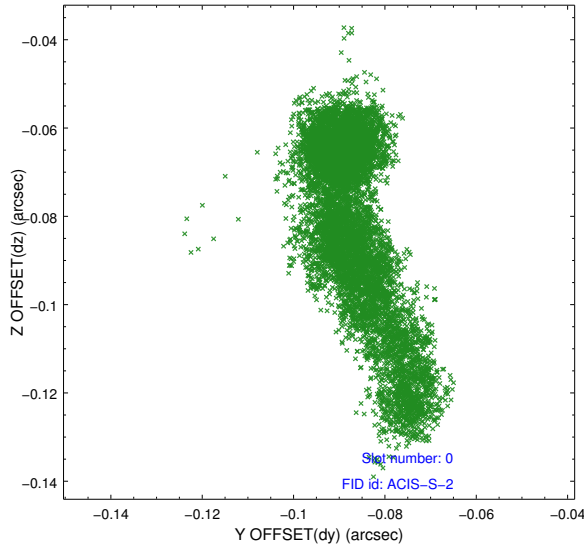


## 2.4.5 Slot 7

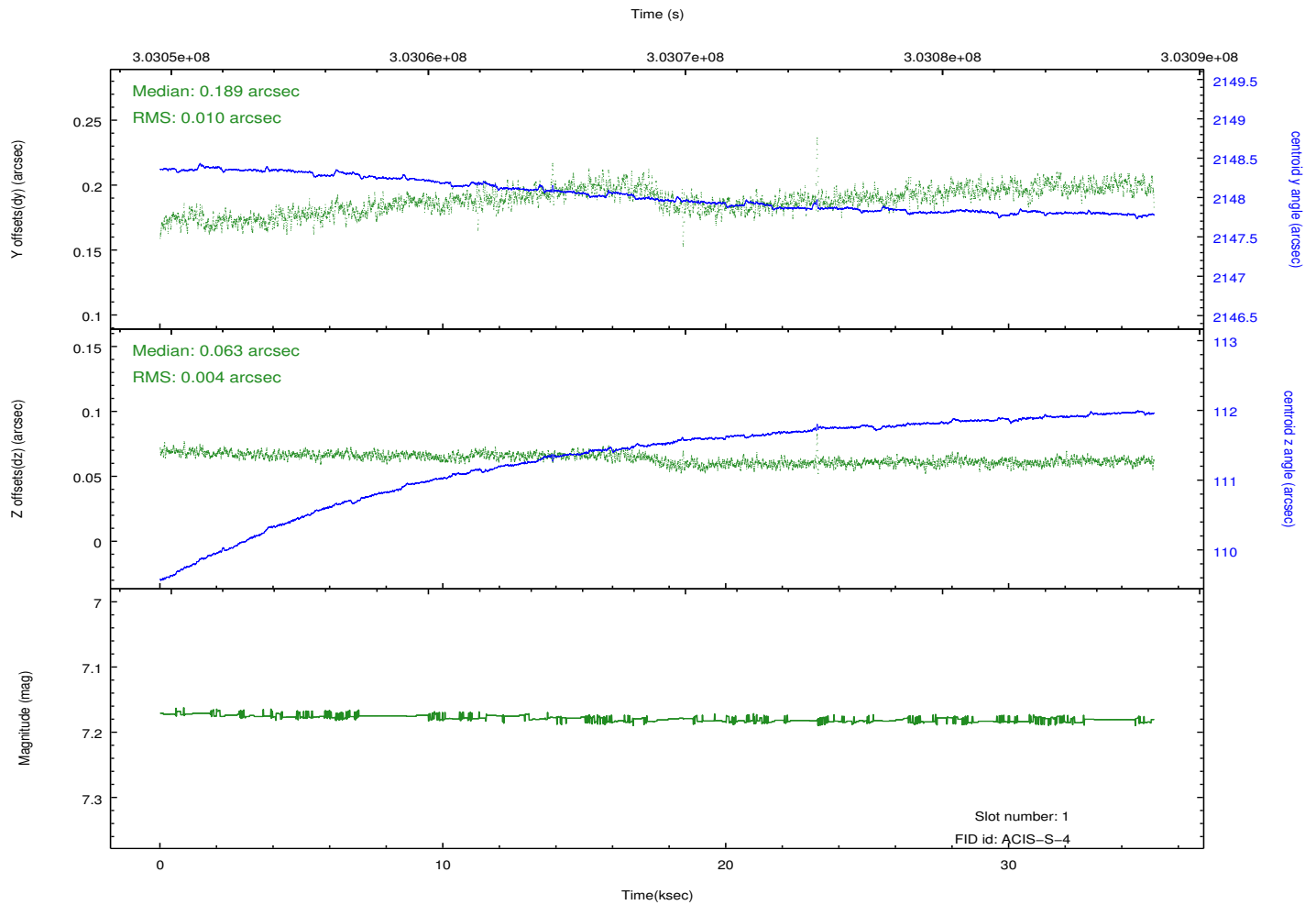
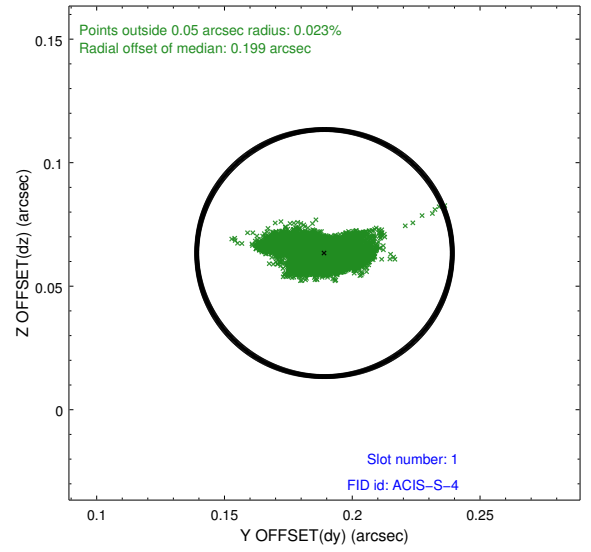
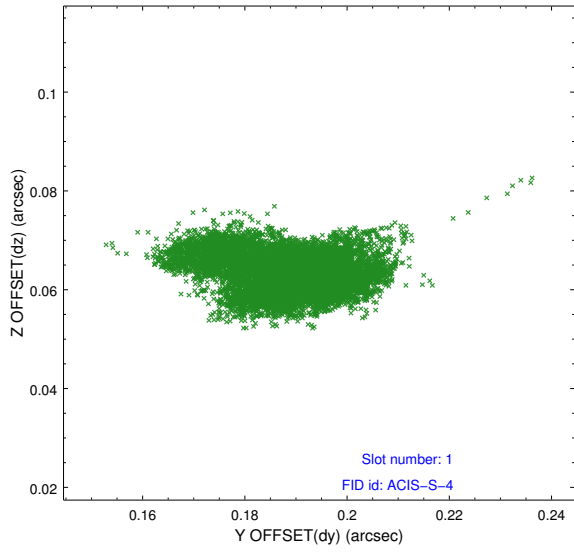


## 2.5 FID Slots

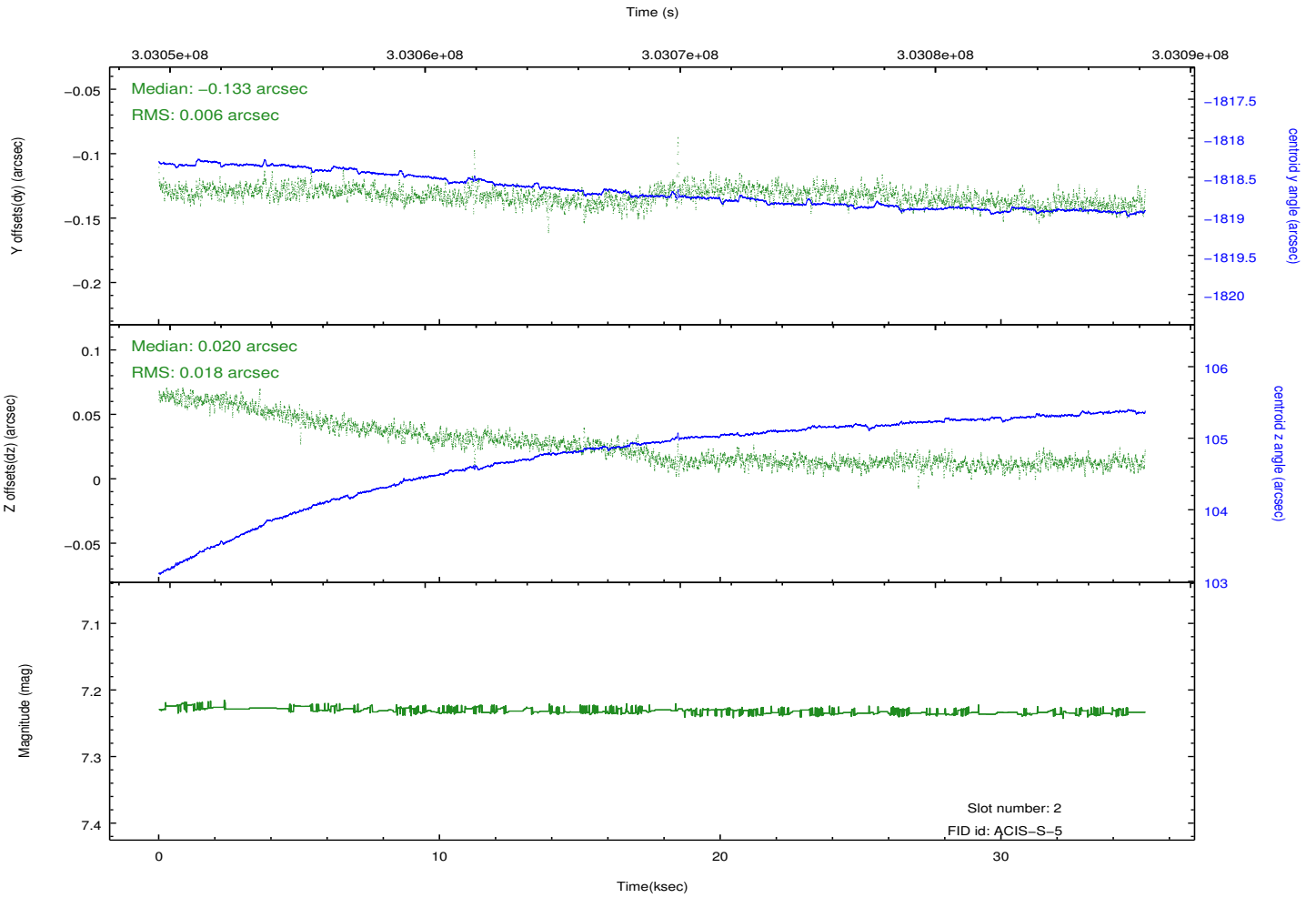
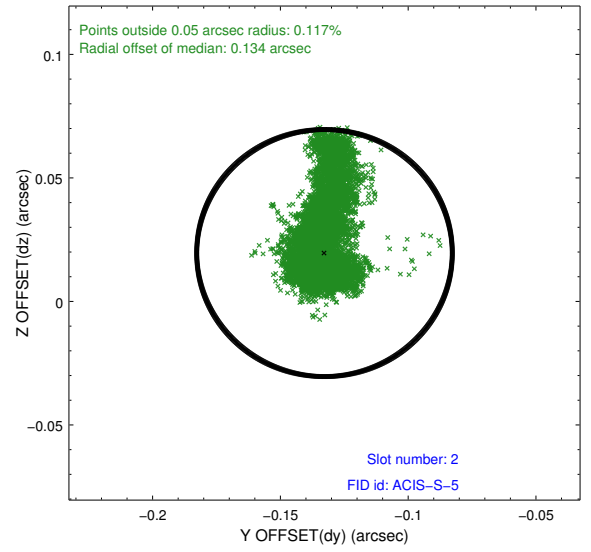
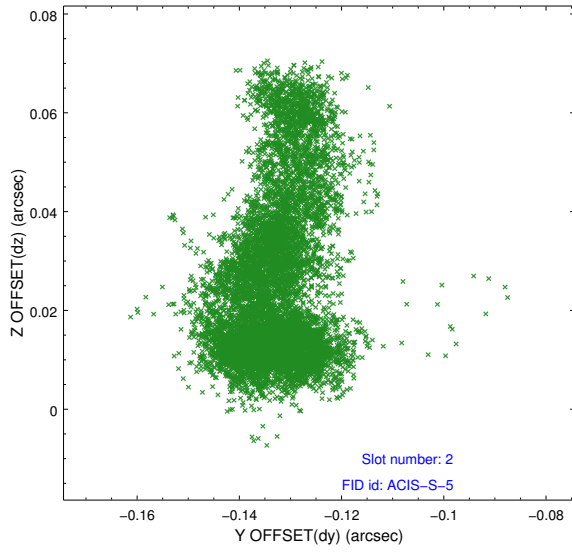
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

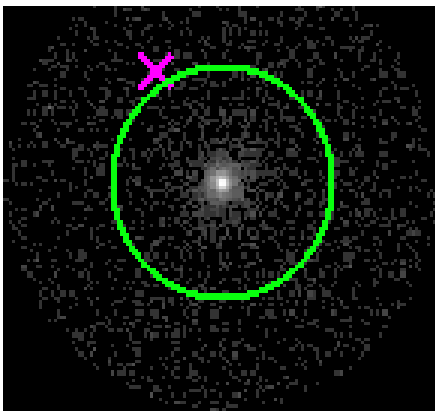


### 3 Gratings

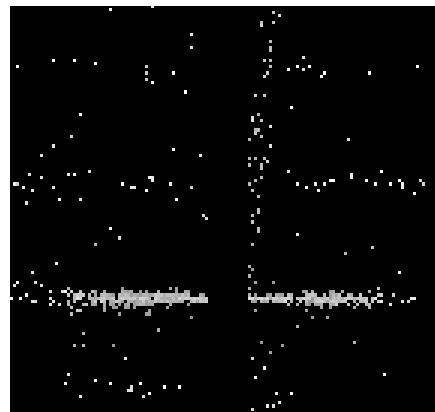
#### 3.1 HEG Arm



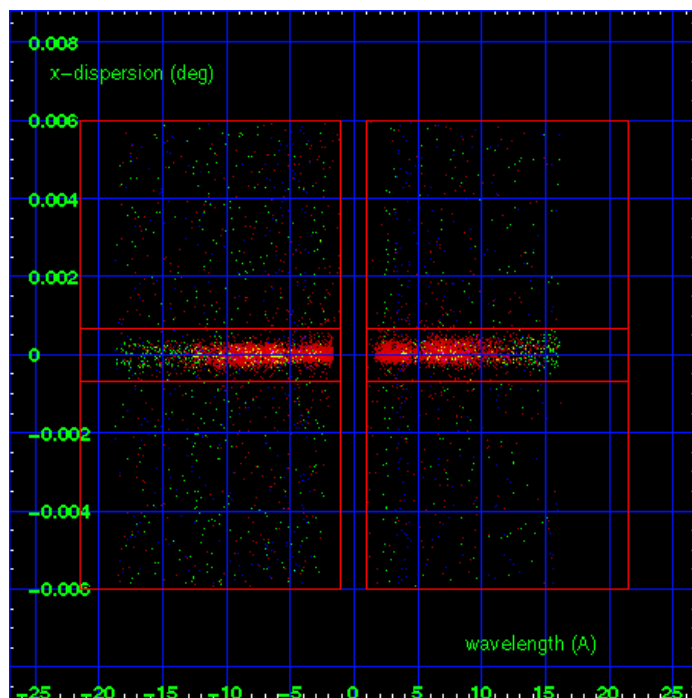
HEG Order Sort 123



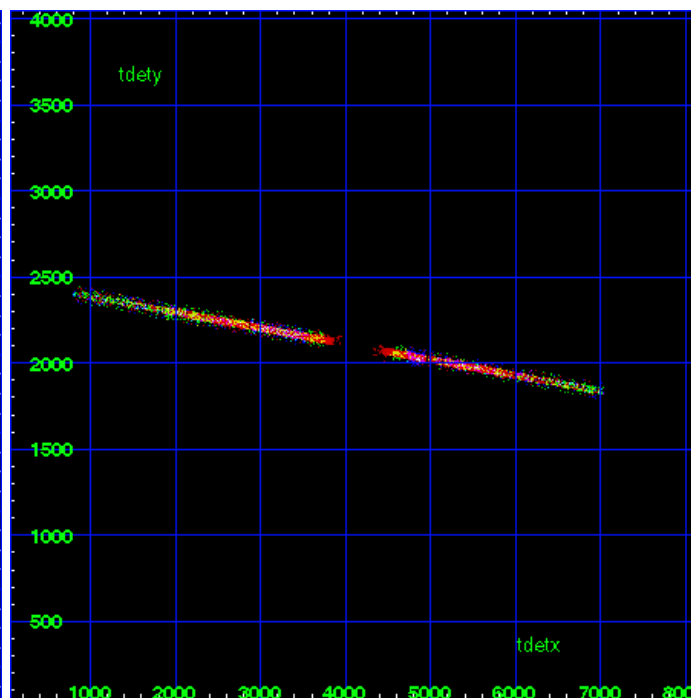
HEG Zero Order



HEG Order Sort ALL

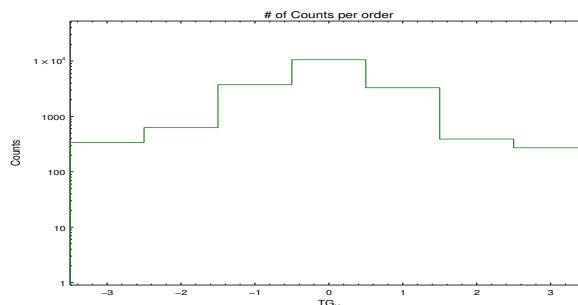


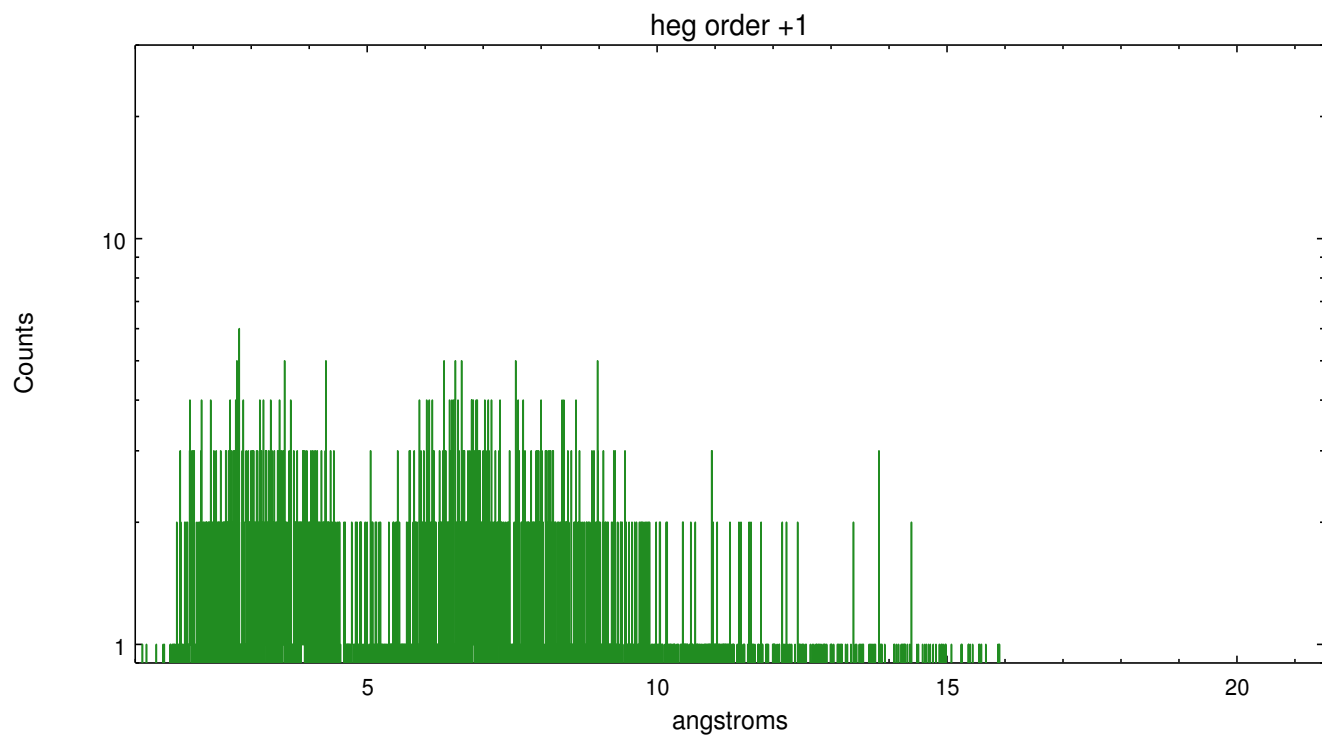
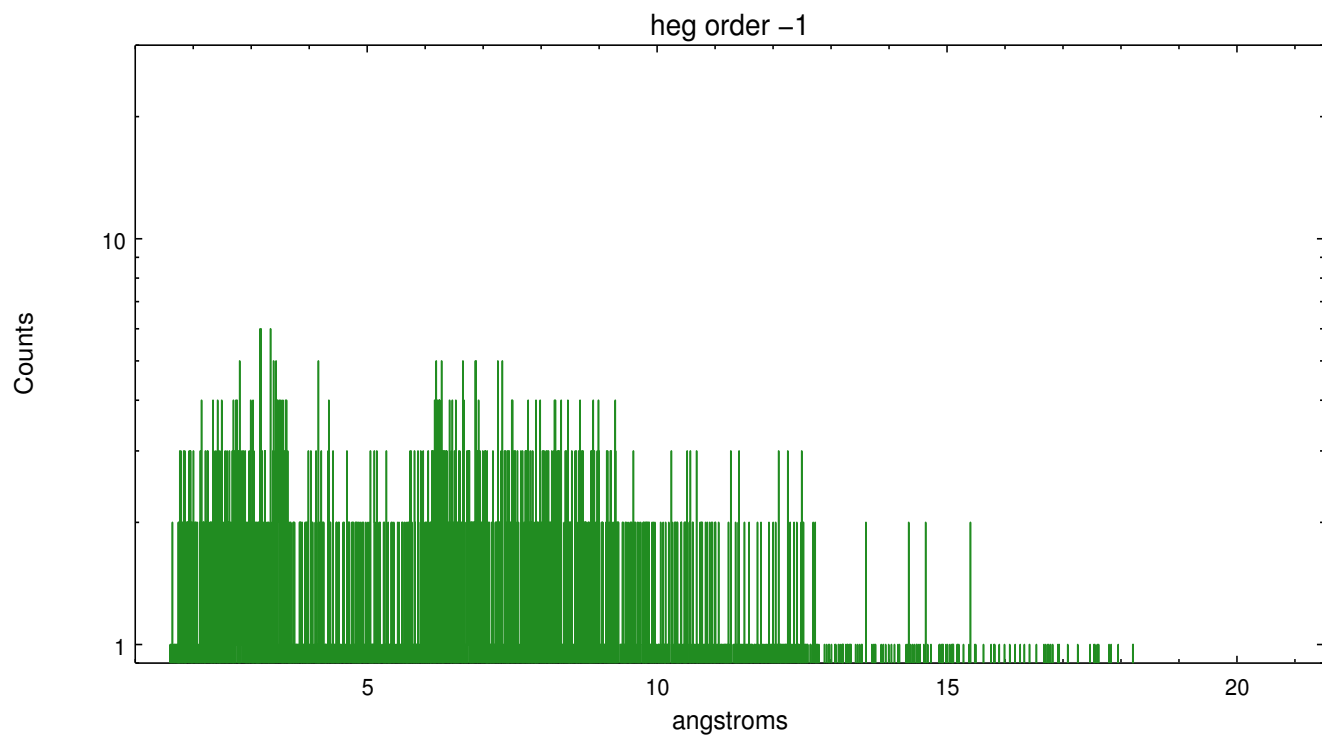
Spot Image HEG



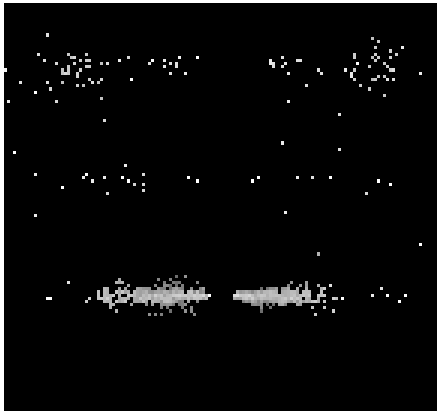
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	339	627	3741	10561	3300	390	271

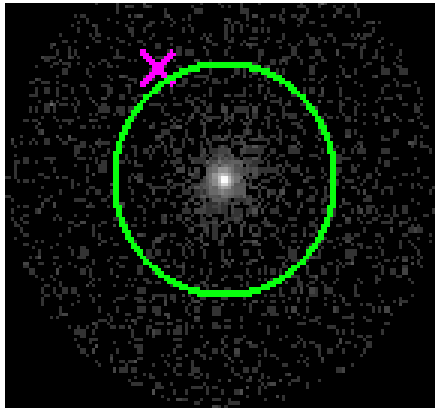




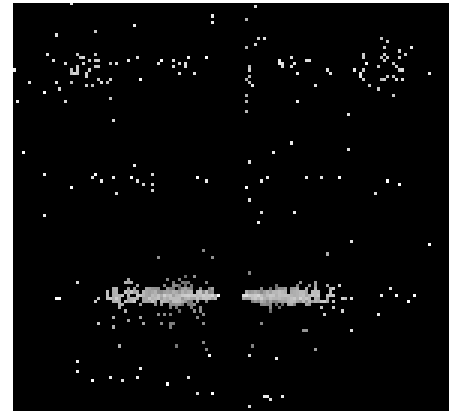
### 3.2 MEG Arm



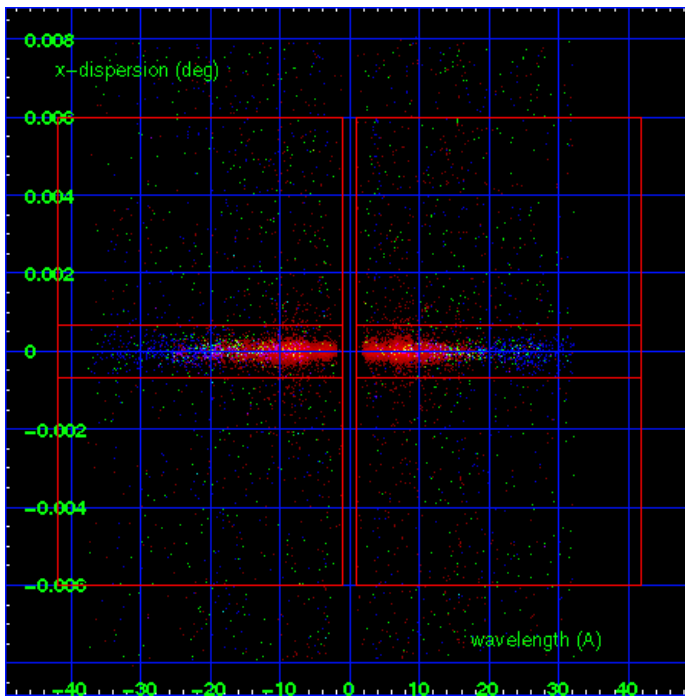
MEG Order Sort 123



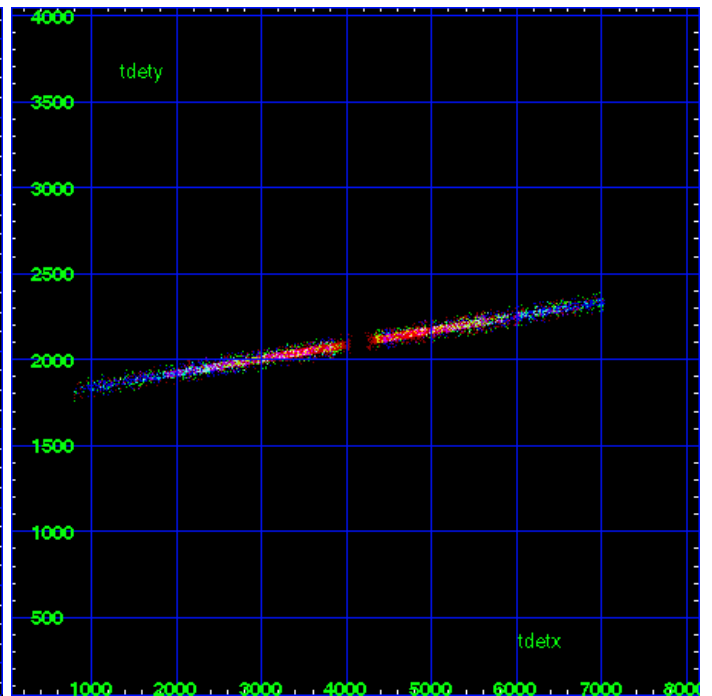
MEG Zero Order



MEG Order Sort ALL

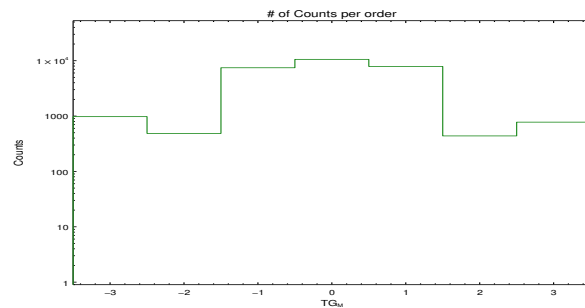


Spot Image MEG

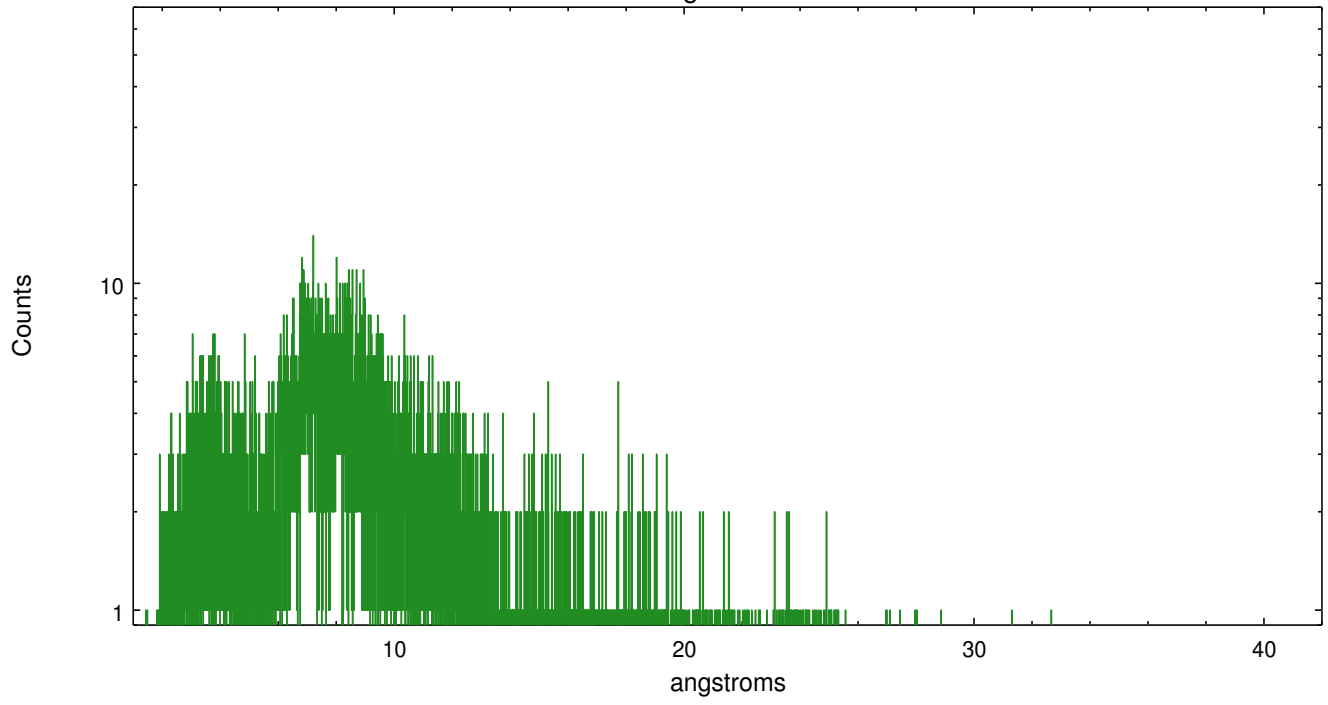


Full Detector MEG

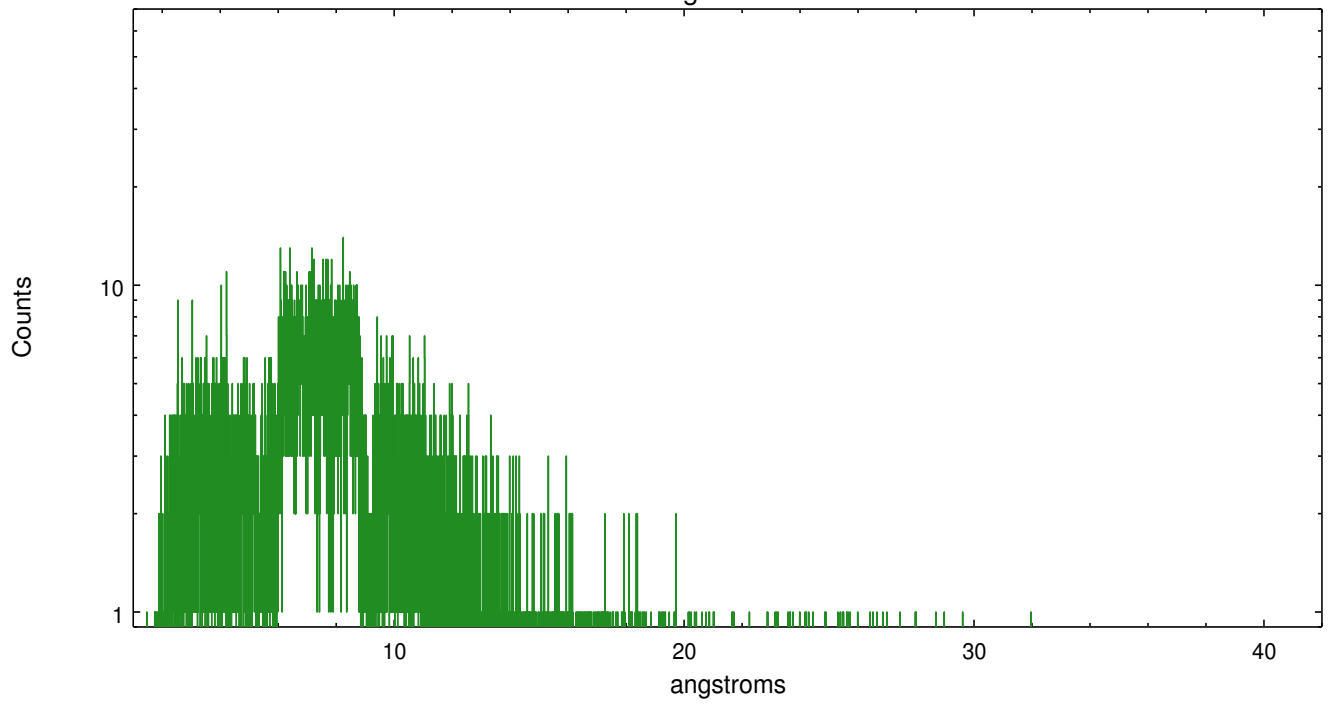
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	977	486	7459	10561	7874	438	776



meg order -1



meg order +1



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.05.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	35.1275

## A.2 Comments

A spatial region of the original bias map for CCD = 9 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 9 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords:  
(331.79744, -47.28251), (331.79257, -47.28414), (331.82183, -47.32427), (331.82787, -47.32423)