

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 9969 - L2 Version 3  
Chandra X-Ray Center

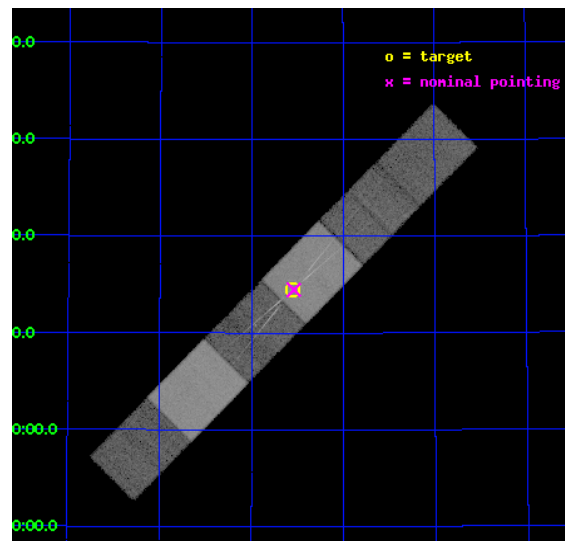
L2 Processing Date : Jun 22 2012

## 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 6 . . . . .	11
2.4.4	Slot 7 . . . . .	12
2.5	FID Slots . . . . .	13
2.5.1	Slot 0 . . . . .	13
2.5.2	Slot 1 . . . . .	14
2.5.3	Slot 2 . . . . .	15
<b>3</b>	<b>Gratings</b>	<b>16</b>
3.1	HEG Arm . . . . .	16
3.2	MEG Arm . . . . .	18
<b>A</b>	<b>Summary</b>	<b>20</b>
A.1	Status . . . . .	20
A.2	Comments . . . . .	20

# 1 Front

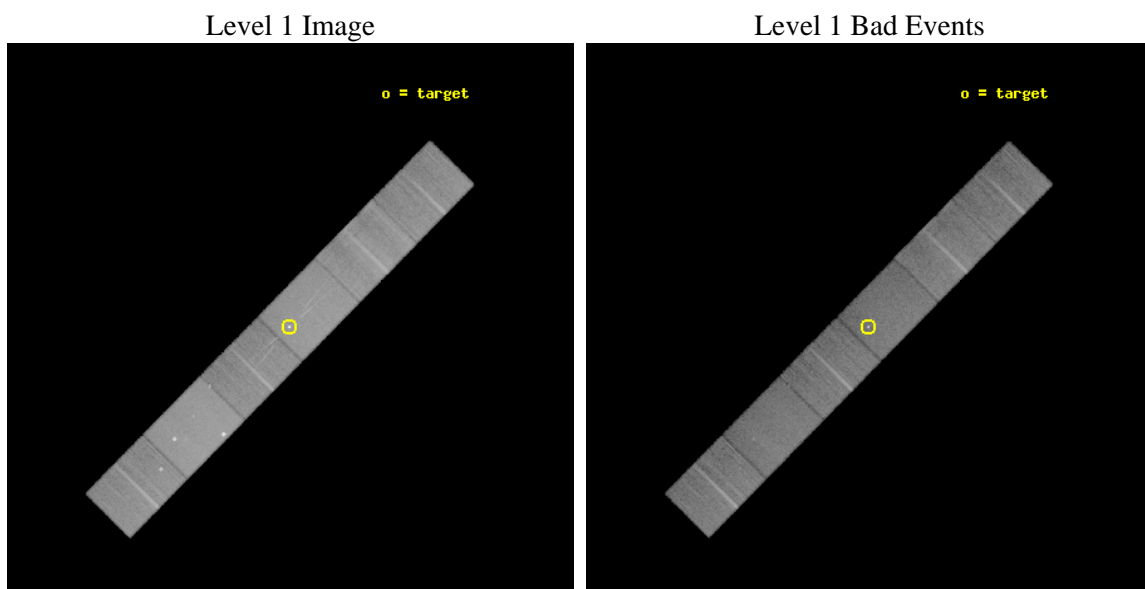
seq_num	300255	Sequence number
obs_id	9969	Observation id
title	The Nature of the Soft Component in the Symbiotic Star CH Cygni	Pr
observer	Dr Koji Mukai	Principal investigator
object	CH Cygni	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	291.137917	Observer's specified target RA [deg]
dec_targ	50.241417	Observer's specified target Dec [deg]
ra_nom	291.13462546009	Nominal RA [deg]
dec_nom	50.241300301866	Nominal Dec [deg]
roll_nom	314.54102379462	Nominal Roll [deg]
revision	3	Processing version of data
ontime	20067.417185783	Sum of GTIs [s]
livetime	19743.31099253	Livetime [s]
ontime4	20067.458225787	Sum of GTIs [s]
ontime5	20067.37614578	Sum of GTIs [s]
ontime6	20067.335105777	Sum of GTIs [s]
ontime7	20067.417185783	Sum of GTIs [s]
ontime8	20067.294065773	Sum of GTIs [s]
ontime9	20067.25302577	Sum of GTIs [s]
l2events	315941	Number of level 2 events



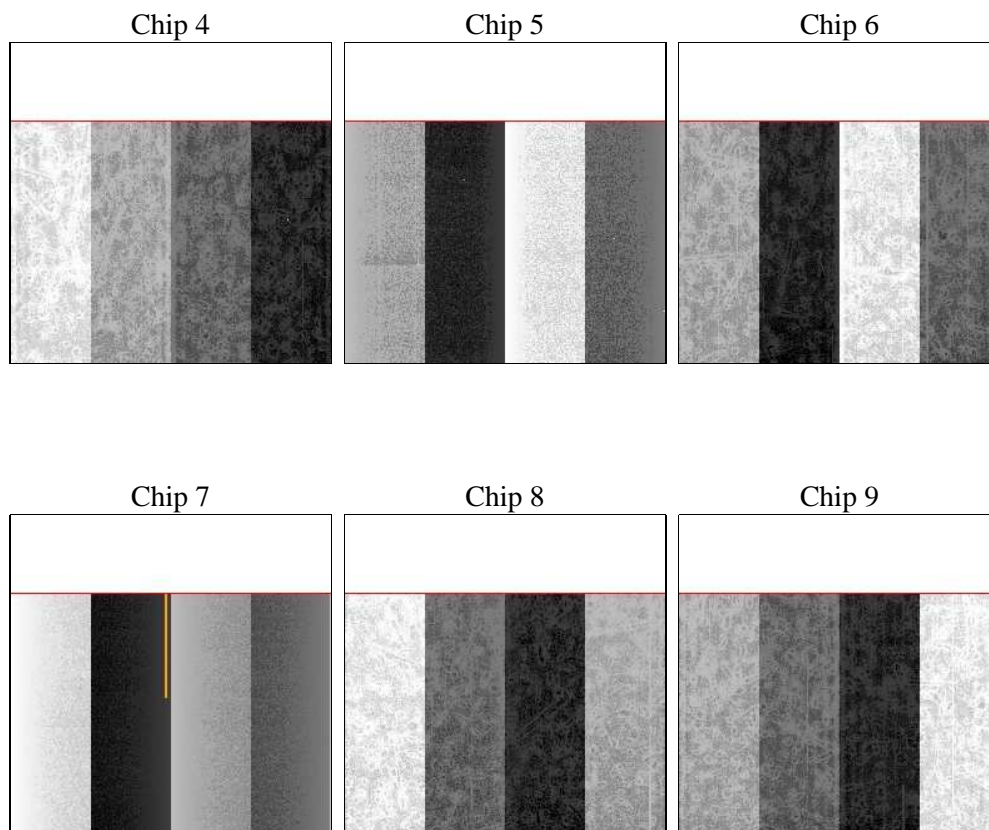
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	19970.447000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	20067.417185783	Sum of GTIs [s]
caldsver	4.4.10	&#160	ontime4	20067.458225787	Sum of GTIs [s]
date	2012-06-22T19:04:28	Date and time of file creation	ontime5	20067.37614578	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	20067.335105777	Sum of GTIs [s]
			ontime7	20067.417185783	Sum of GTIs [s]
			ontime8	20067.294065773	Sum of GTIs [s]
			ontime9	20067.25302577	Sum of GTIs [s]
			l1events	1234068	Number of level 1 events

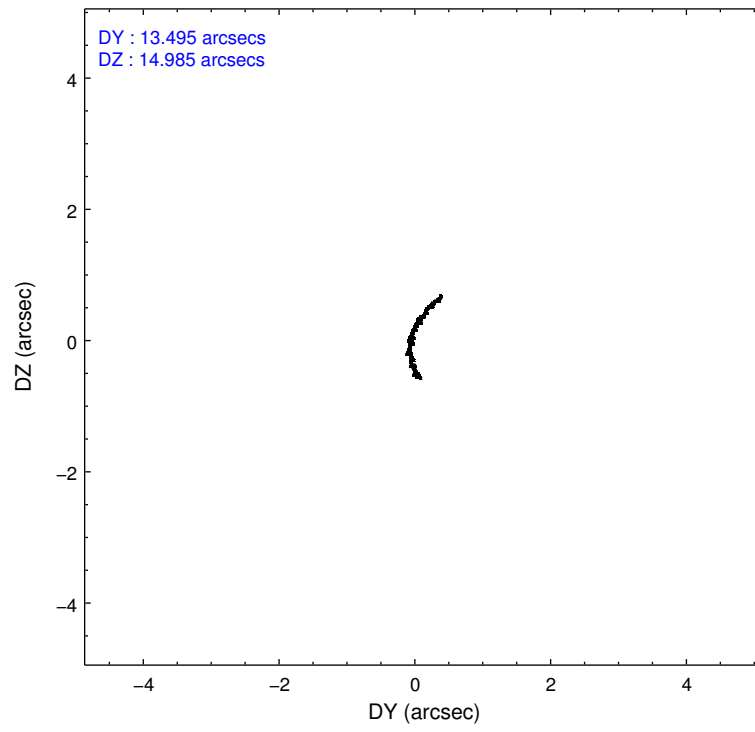
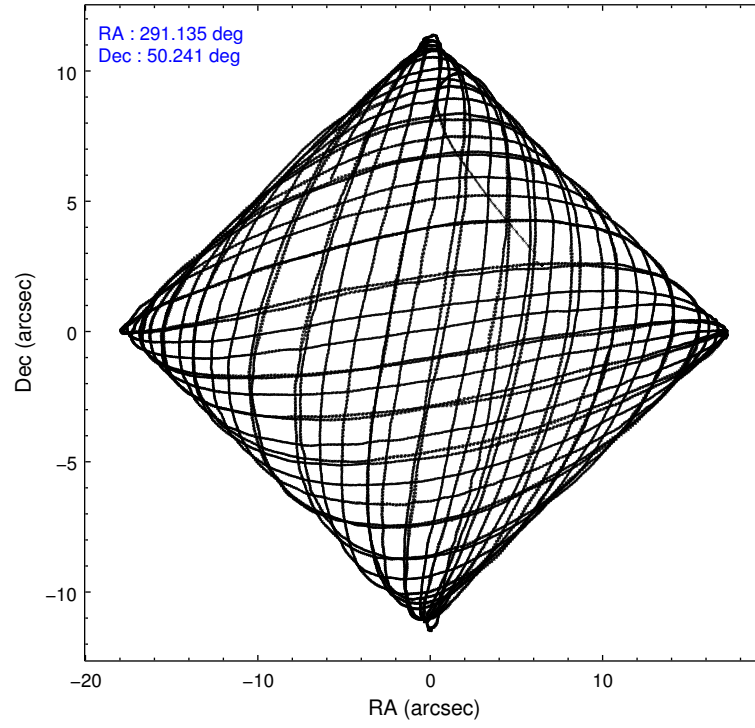
### 2.1.4 Events

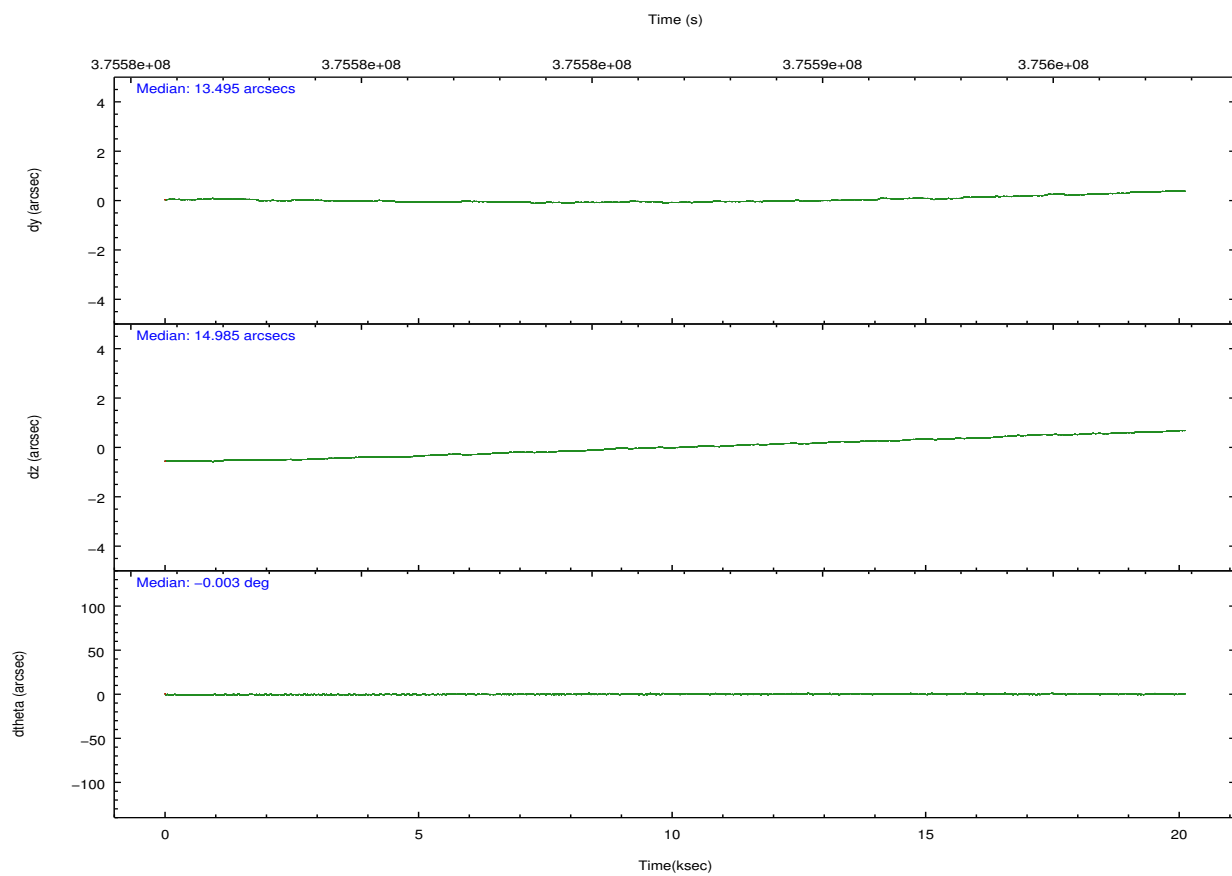
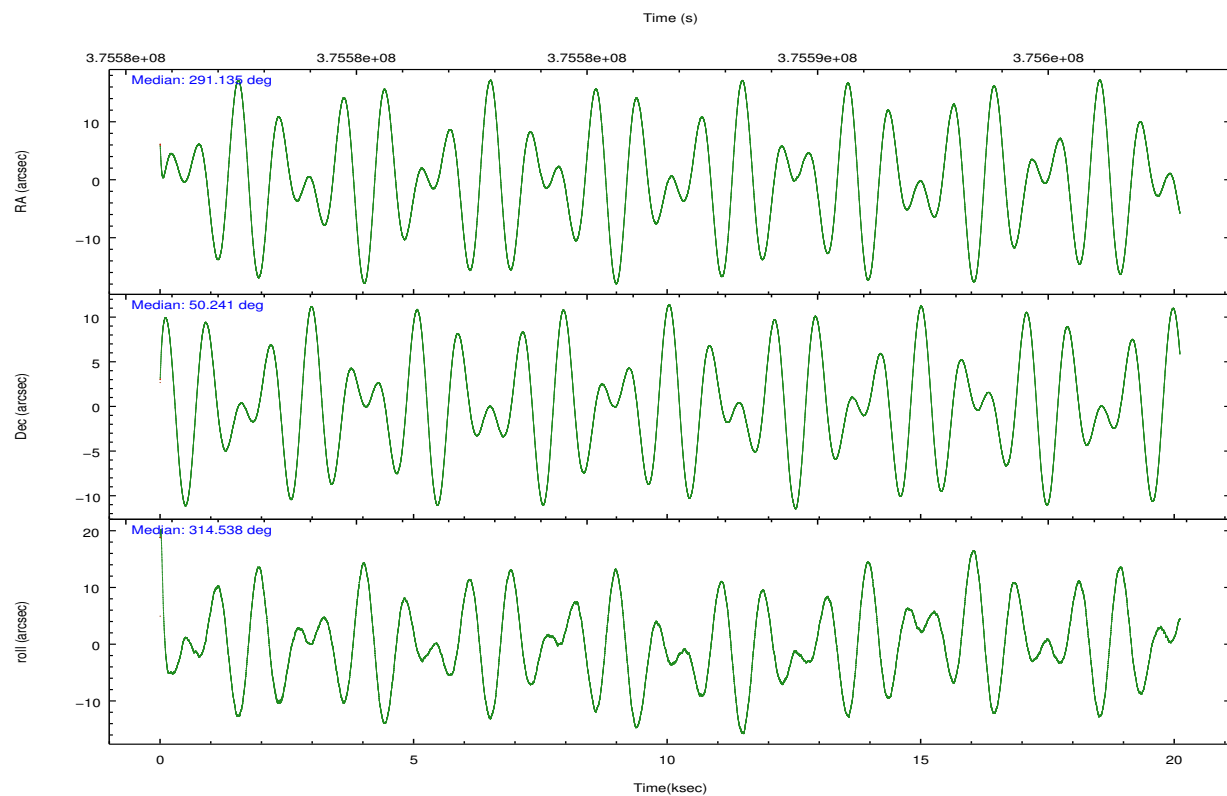
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	182298	265159	168605	240151	216582	161273	grade 0 events	13671	17633	12000	10784	17769	10757
rejected events	154161	137299	140586	131373	161876	135985		7%	6%	7%	4%	8%	6%
rejected %	84%	51%	83%	54%	74%	84%	grade 1 events	170	612	87	322	185	110
								0%	0%	0%	0%	0%	0%
							grade 2 events	5530	37535	5780	22761	12026	4996
								3%	14%	3%	9%	5%	3%
							grade 3 events	2347	4811	2442	9414	5411	2309
								1%	1%	1%	3%	2%	1%
							grade 4 events	2272	4882	2361	9161	5019	2236
								1%	1%	1%	3%	2%	1%
							grade 5 events	7499	18432	7841	21442	10507	8286
								4%	6%	4%	8%	4%	5%
							grade 6 events	4324	63031	5446	56689	14509	4999
								2%	23%	3%	23%	6%	3%
							grade 7 events	146485	118223	132648	109578	151156	127580
								80%	44%	78%	45%	69%	79%

## 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	291.093240	291.1346254600888	Subarray requested	CUSTOM	CUSTOM
[deg] Pointing Dec	50.248187	50.24130030186555	Subarray start row	1	1
[deg] Pointing Roll	314.416197	314.5410237946242	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)	375576879.184000	375575801.74189			
Observation start date	2009-11-25T22:53:33	2009-11-25T22:36:41			
[s] Observation end time (MET)	375596849.184000	375597071.51797			
Observation end date	2009-11-26T04:26:23	2009-11-26T04:31:11			
Read mode	TIMED	TIMED			

## 2.3 Aspect



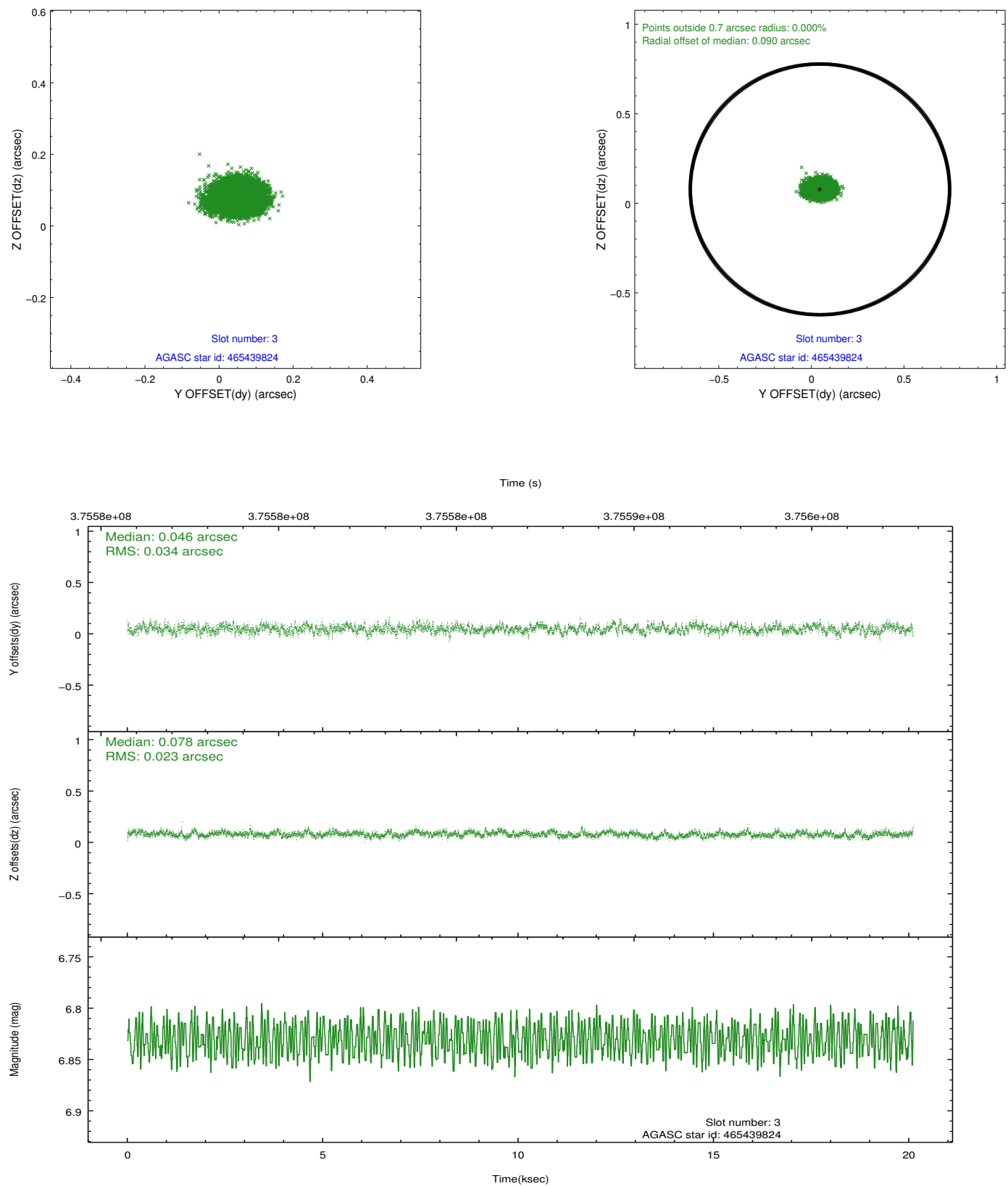


### Slot Statistics

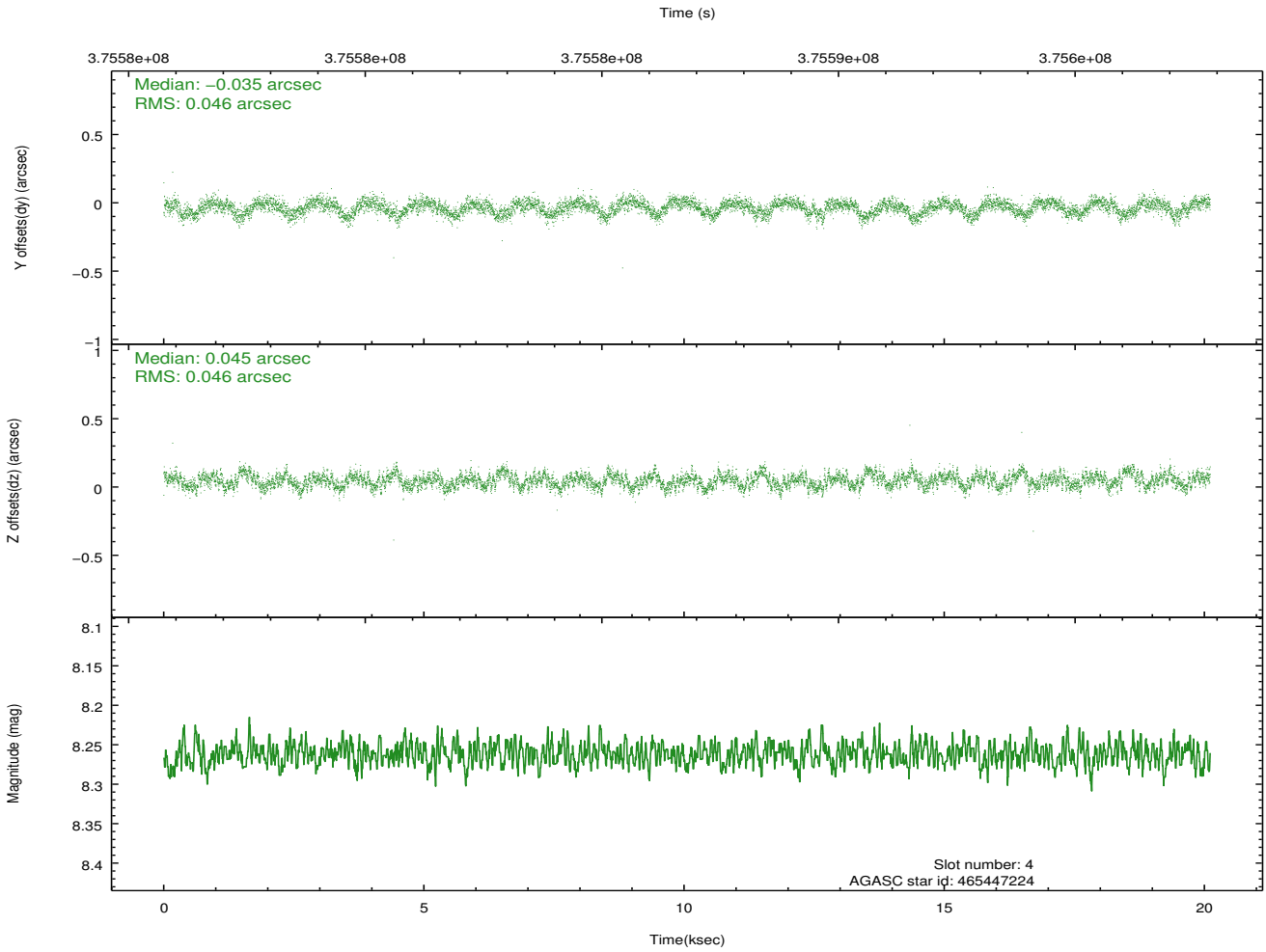
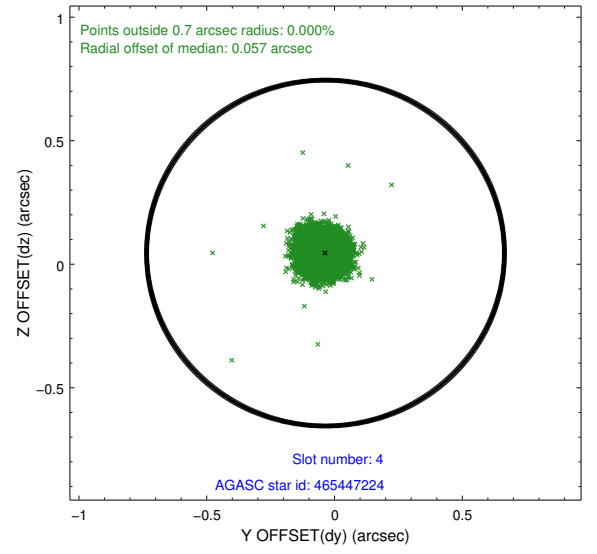
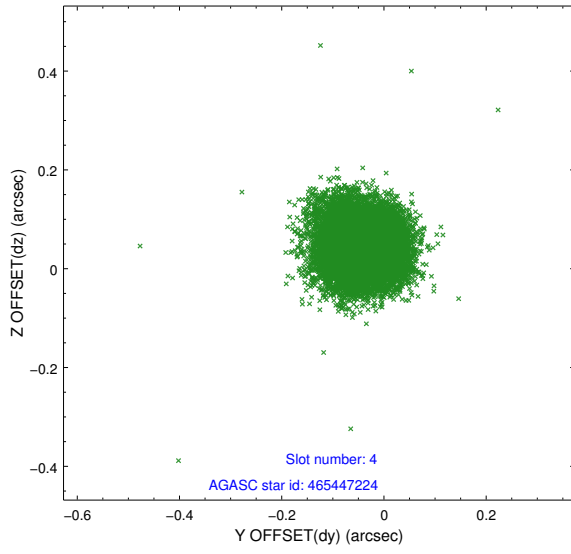
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.91	4906	-0.085	-0.080	0.015	0.022	0.000000	0.000000	-766.37	-1798.53
1	FID	ACIS-S-4	6.98	4905	0.194	0.062	0.010	0.019	0.000000	0.000000	2147.13	109.86
2	FID	ACIS-S-5	7.04	4906	-0.140	0.028	0.014	0.021	0.000000	0.000000	-1819.01	103.74
3	GUIDE	465439824	6.83	9811	0.046	0.078	0.043	0.070	290.131117	50.340225	-1793.59	-1336.72
4	GUIDE	465447224	8.26	9810	-0.035	0.045	0.069	0.109	291.830226	50.402668	780.40	1602.72
5	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
6	GUIDE	465309224	6.92	9811	-0.167	-0.184	0.061	0.094	289.625506	50.227624	-2336.22	-2443.06
7	GUIDE	465447232	8.96	9797	0.158	0.061	0.077	0.125	291.671863	50.155078	1170.00	722.18

## 2.4 Star Slots

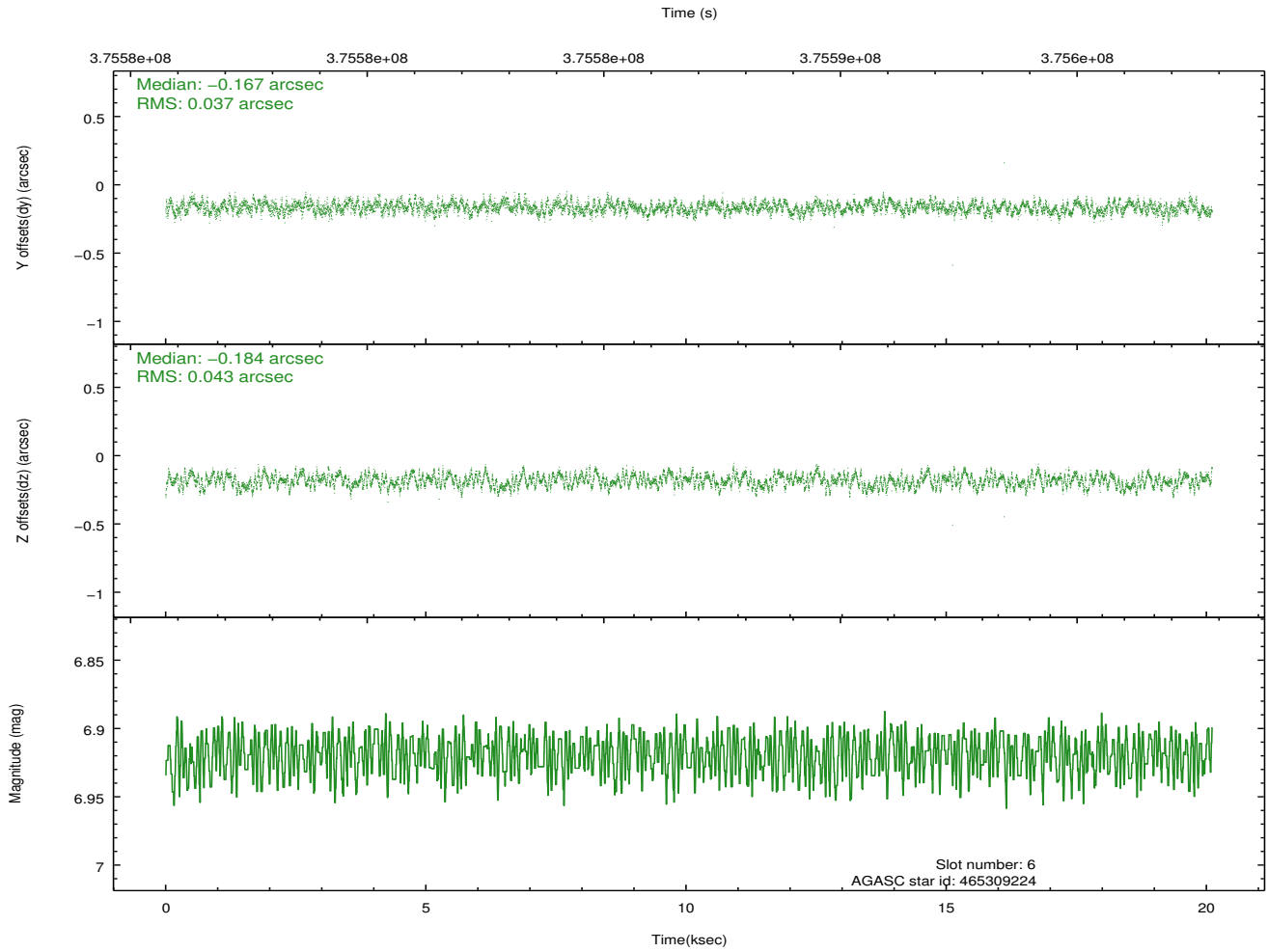
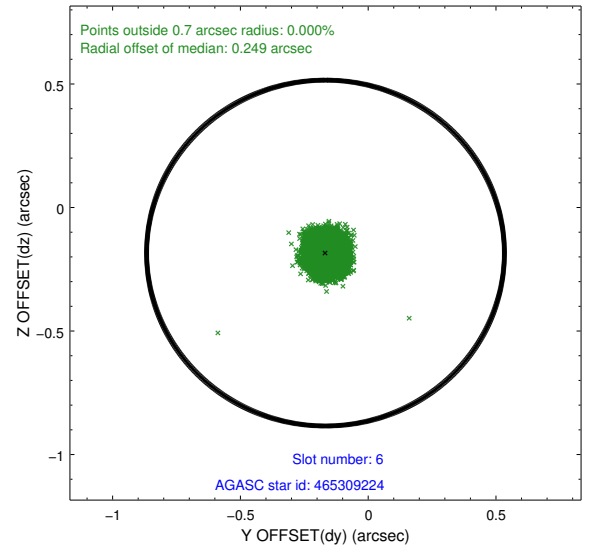
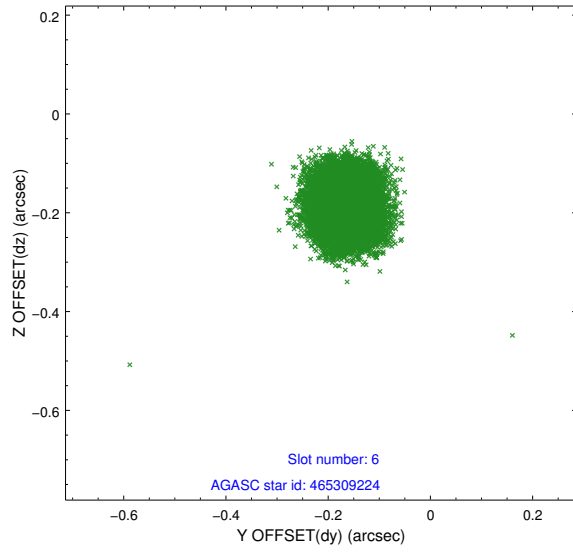
### 2.4.1 Slot 3



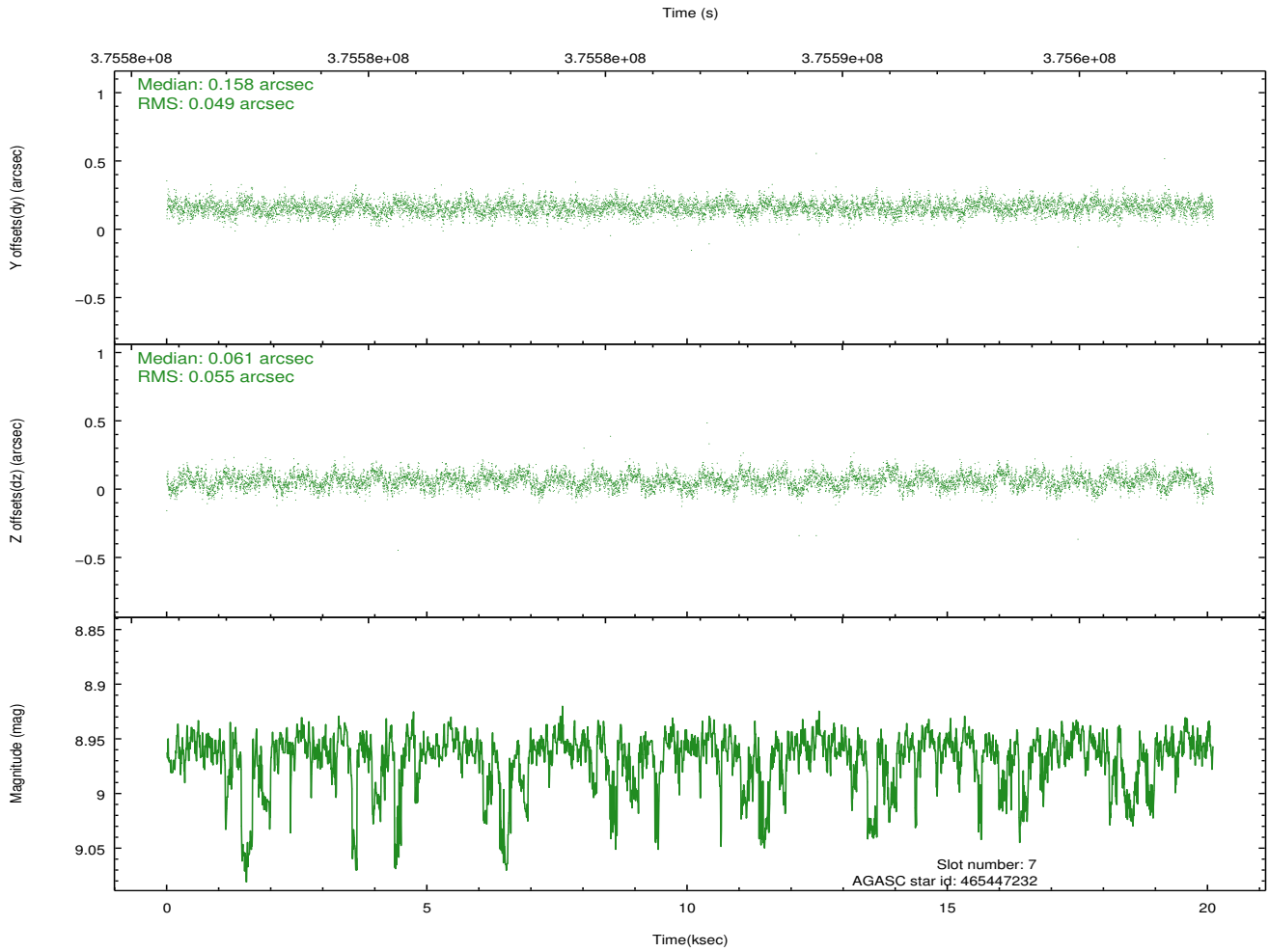
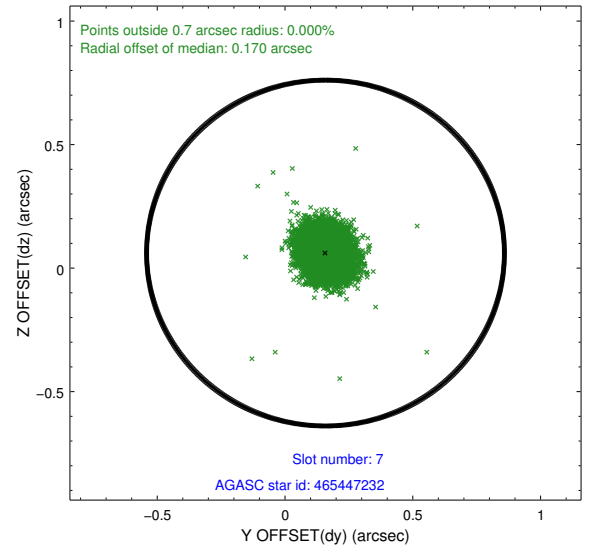
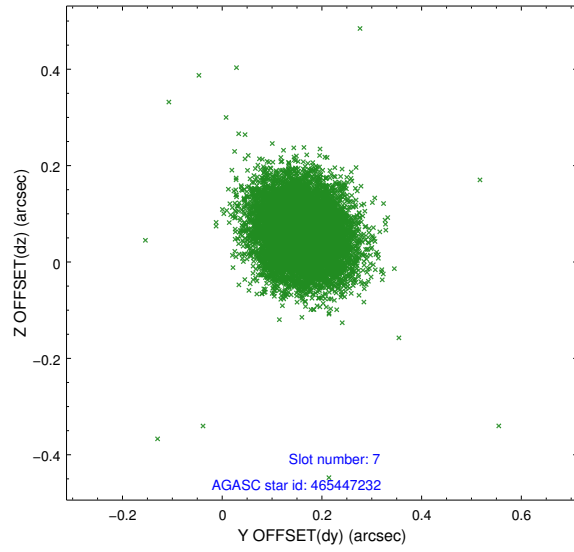
## 2.4.2 Slot 4



### 2.4.3 Slot 6

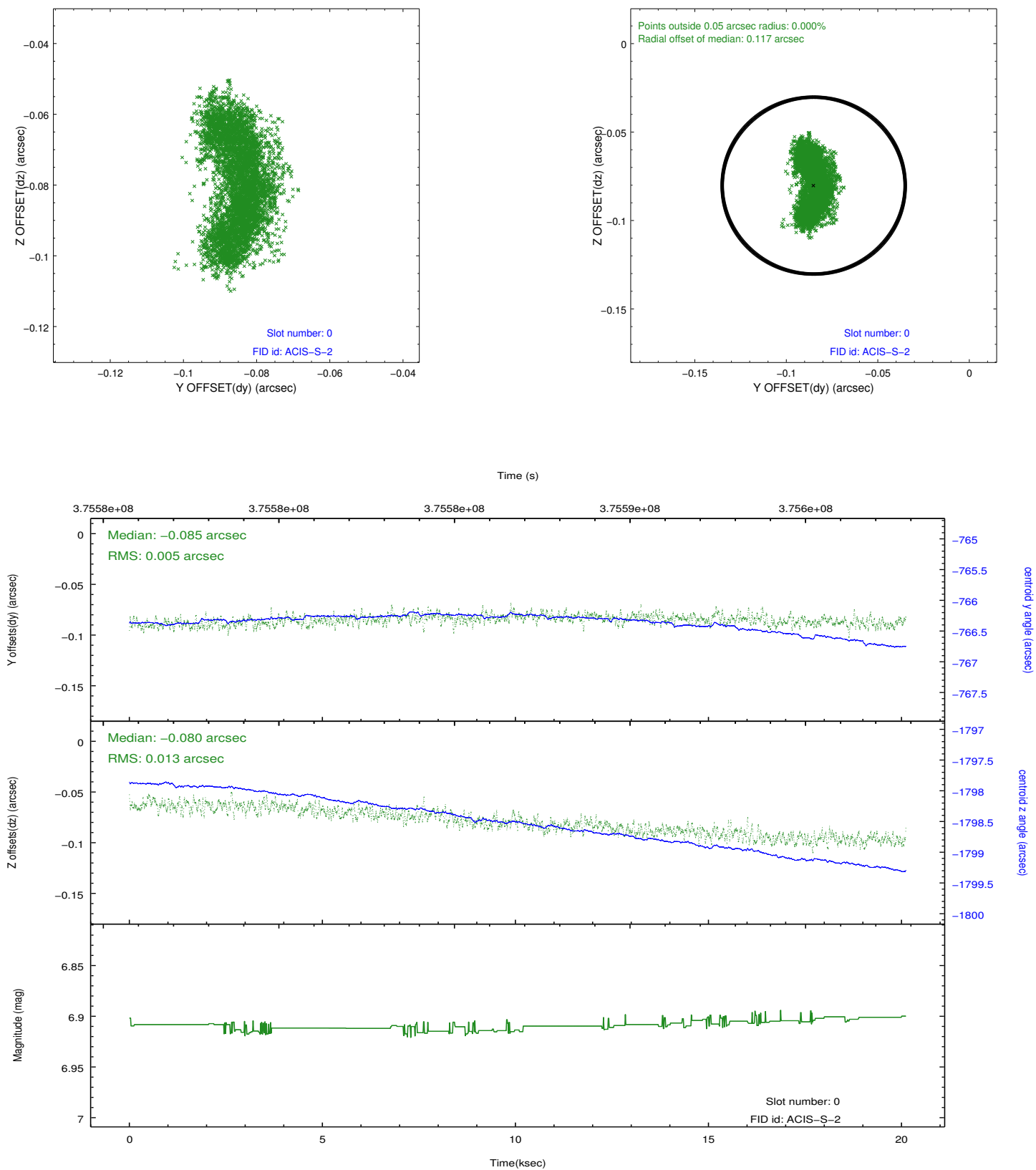


## 2.4.4 Slot 7

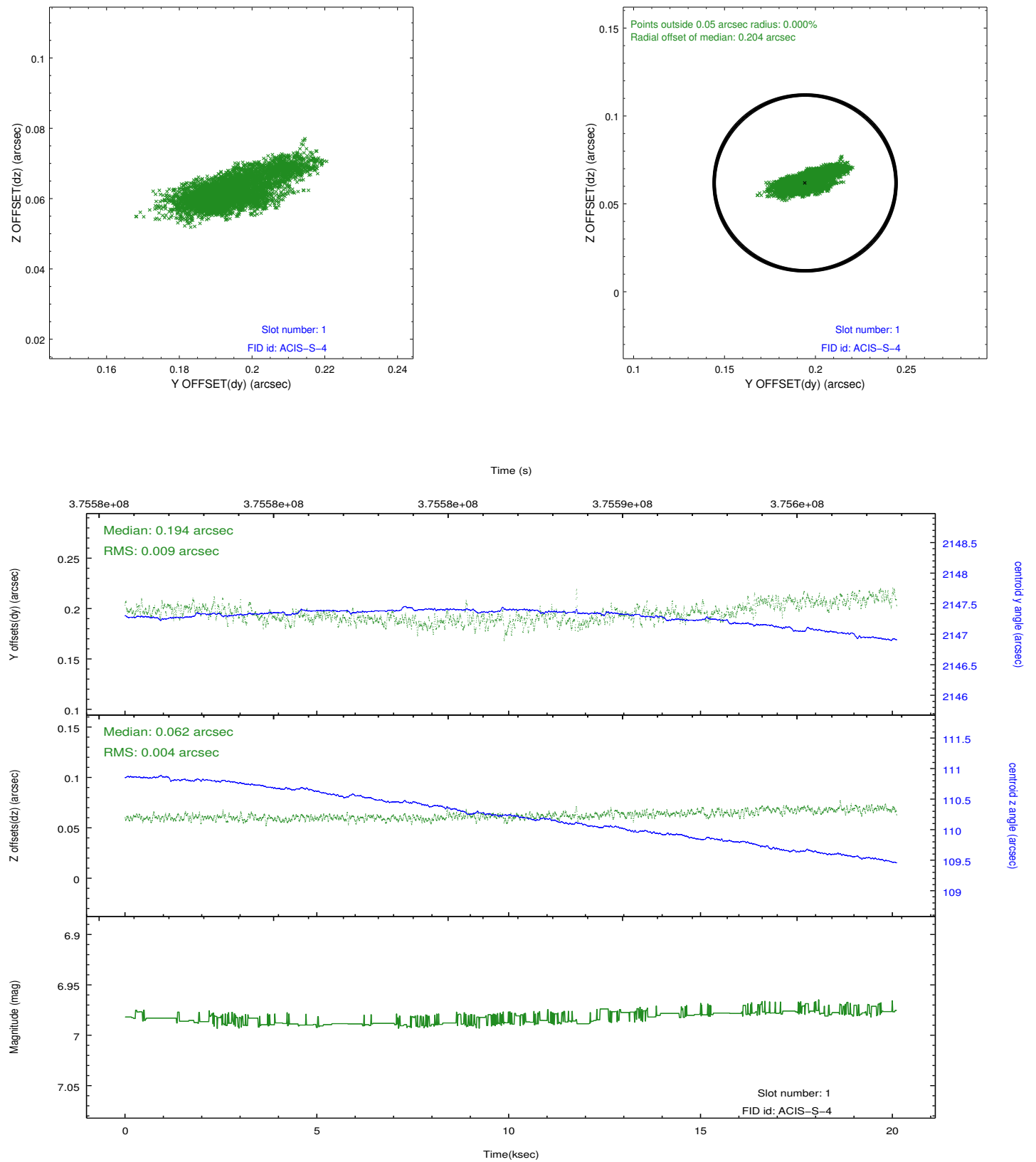


## 2.5 FID Slots

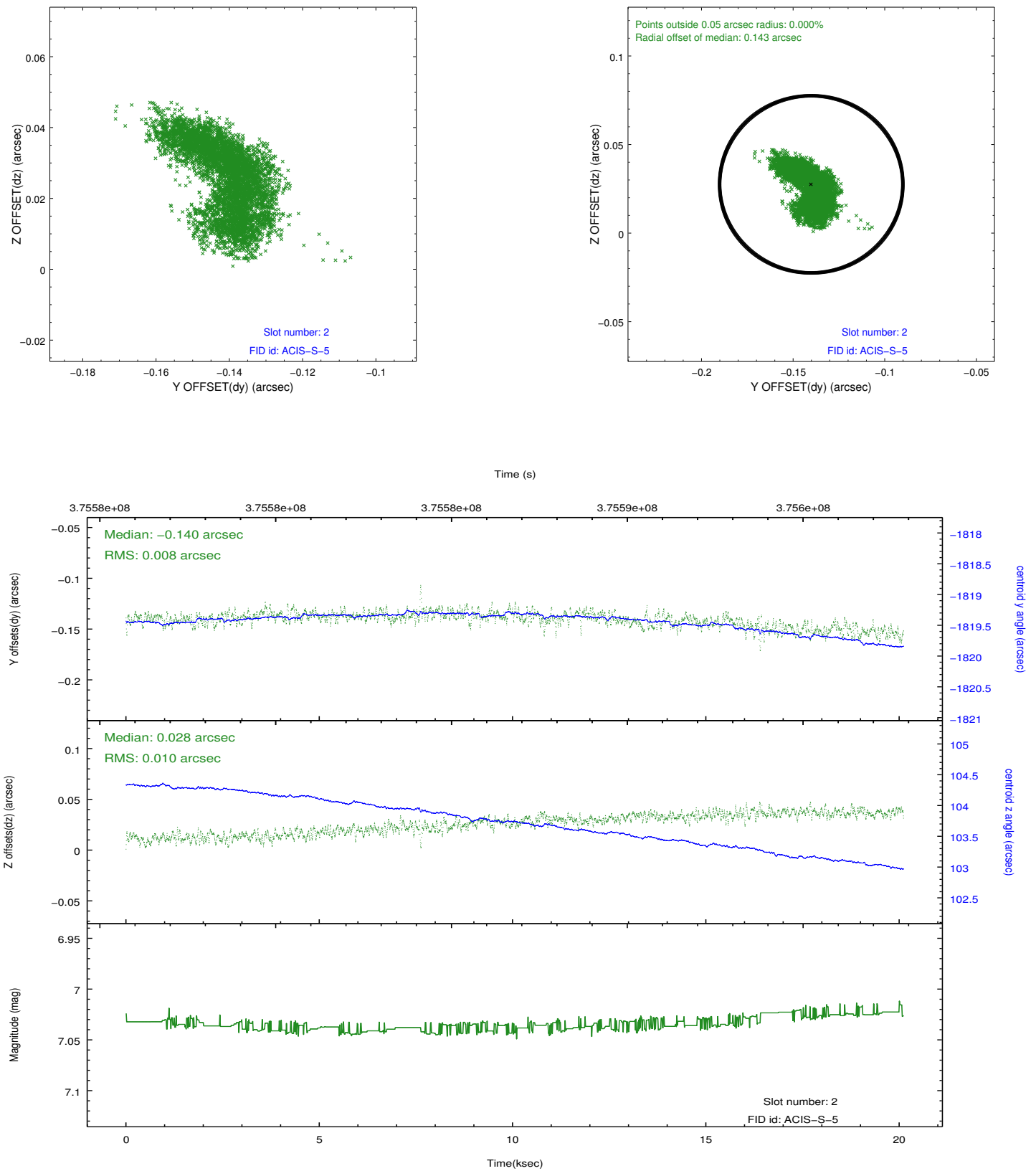
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

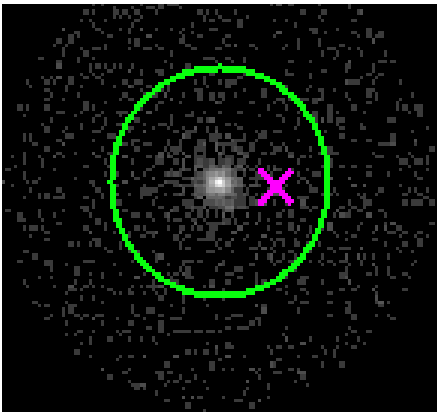


# 3 Gratings

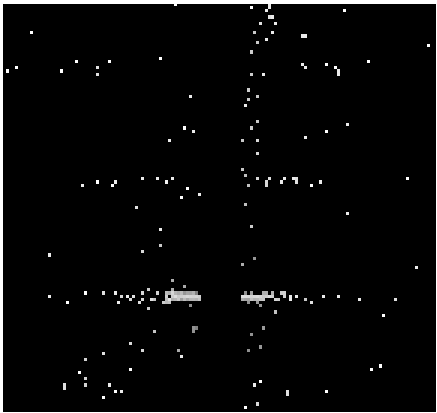
## 3.1 HEG Arm



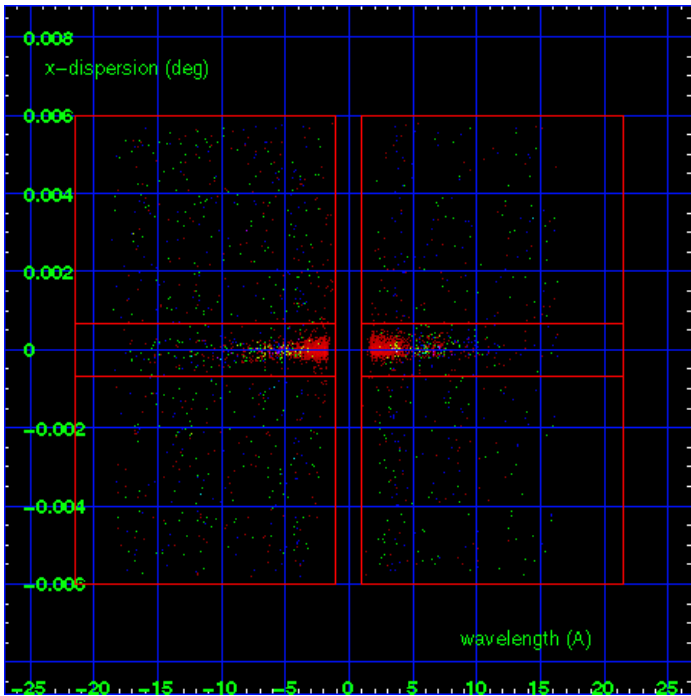
HEG Order Sort 123



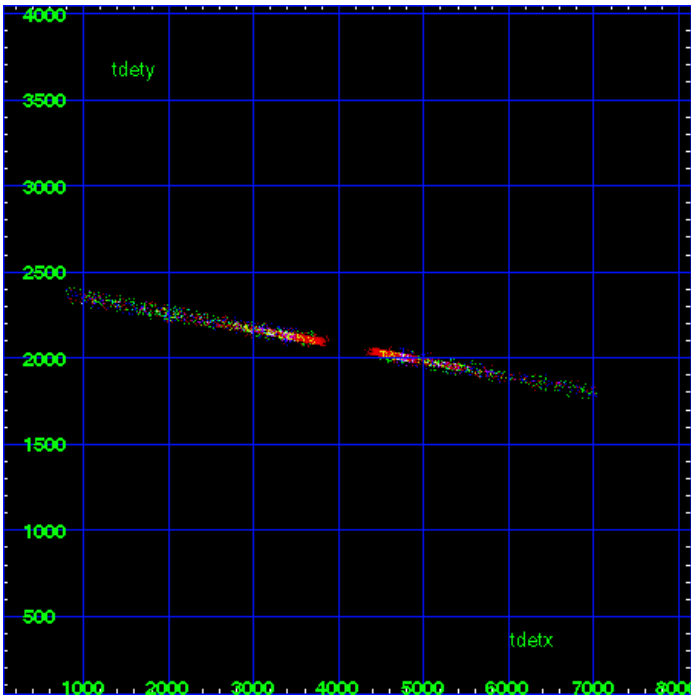
HEG Zero Order



HEG Order Sort ALL

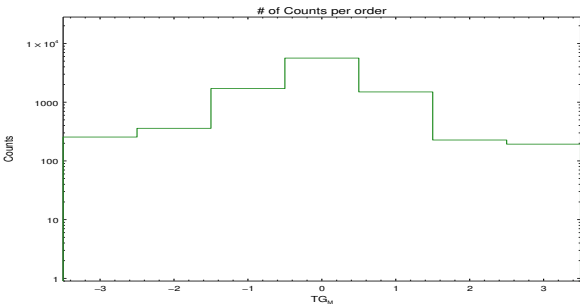


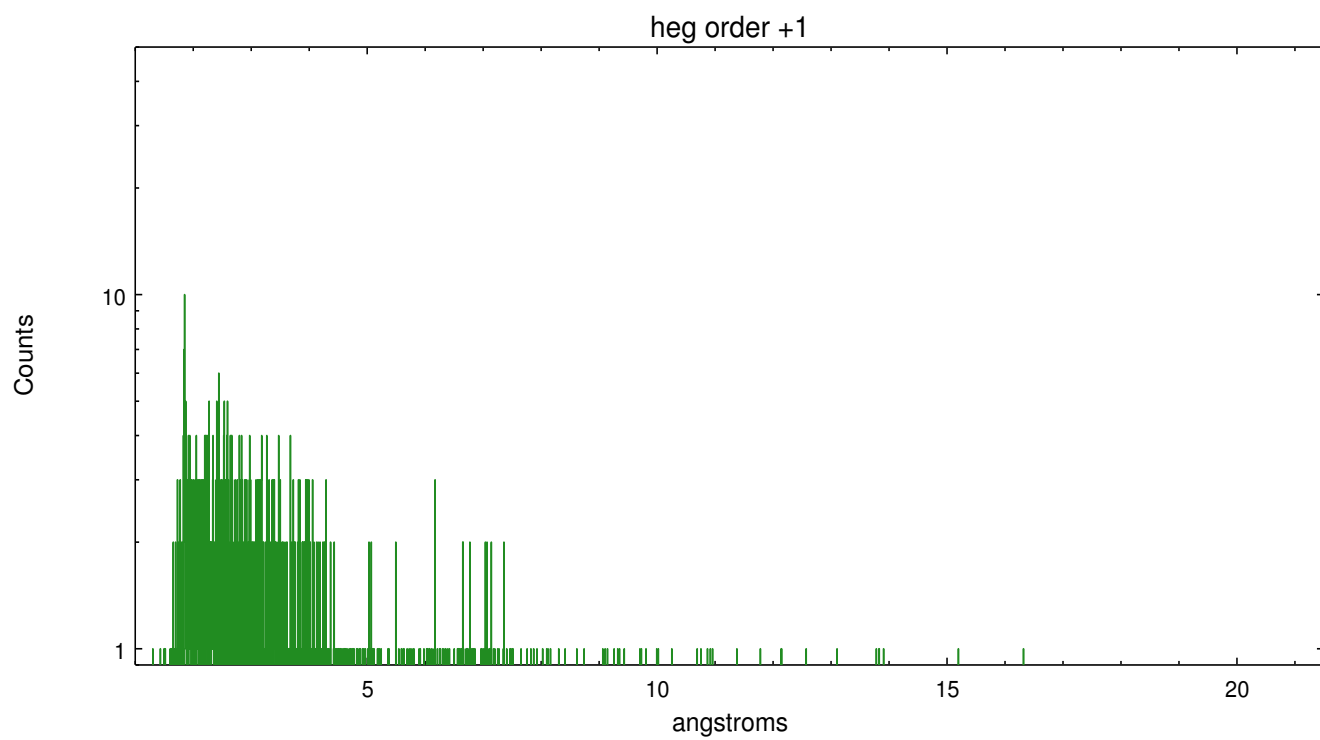
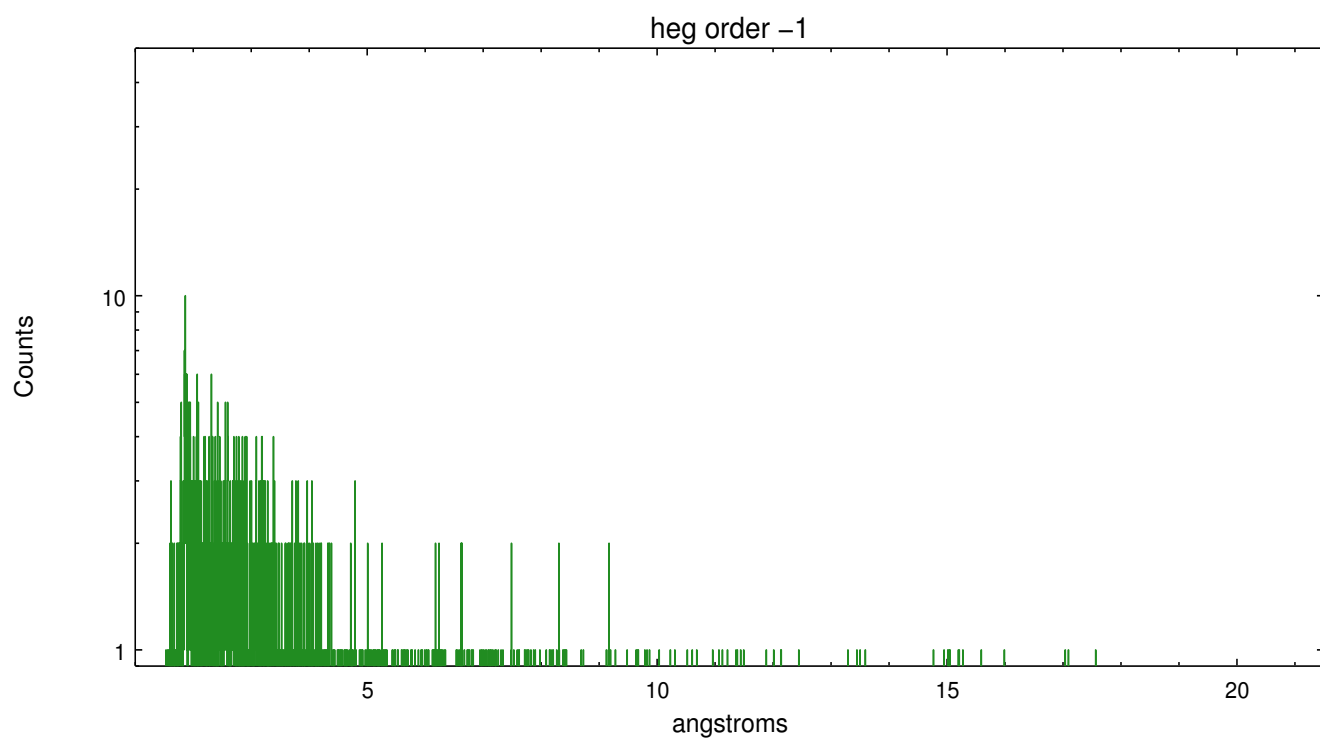
Spot Image HEG



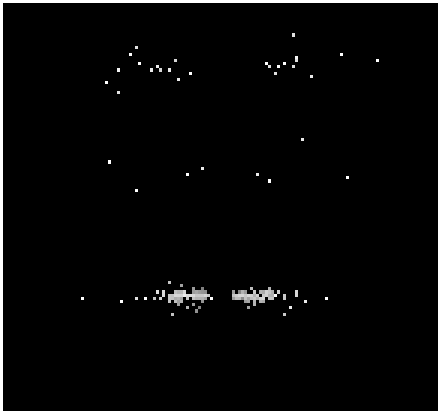
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	255	359	1706	5639	1496	227	193

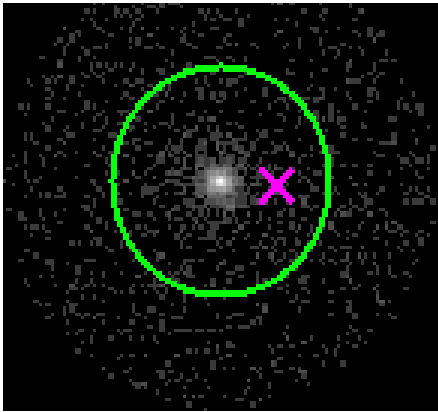




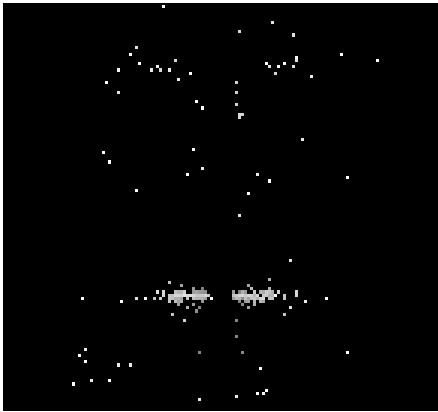
3.2 MEG Arm



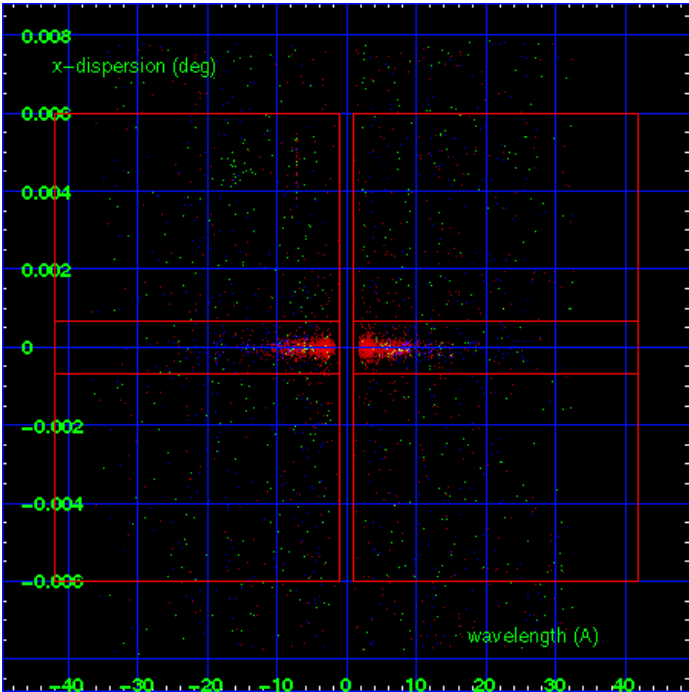
MEG Order Sort 123



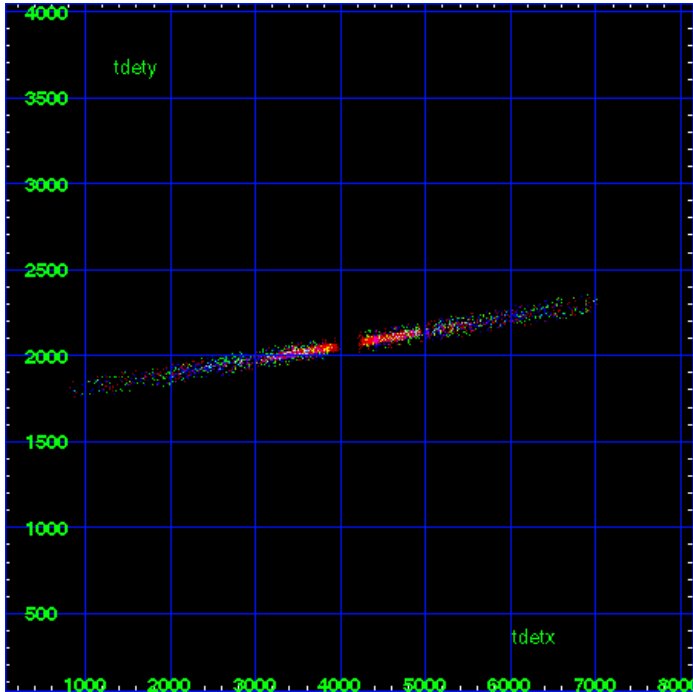
MEG Zero Order



MEG Order Sort ALL

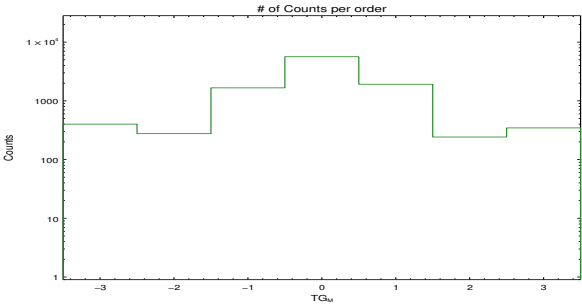


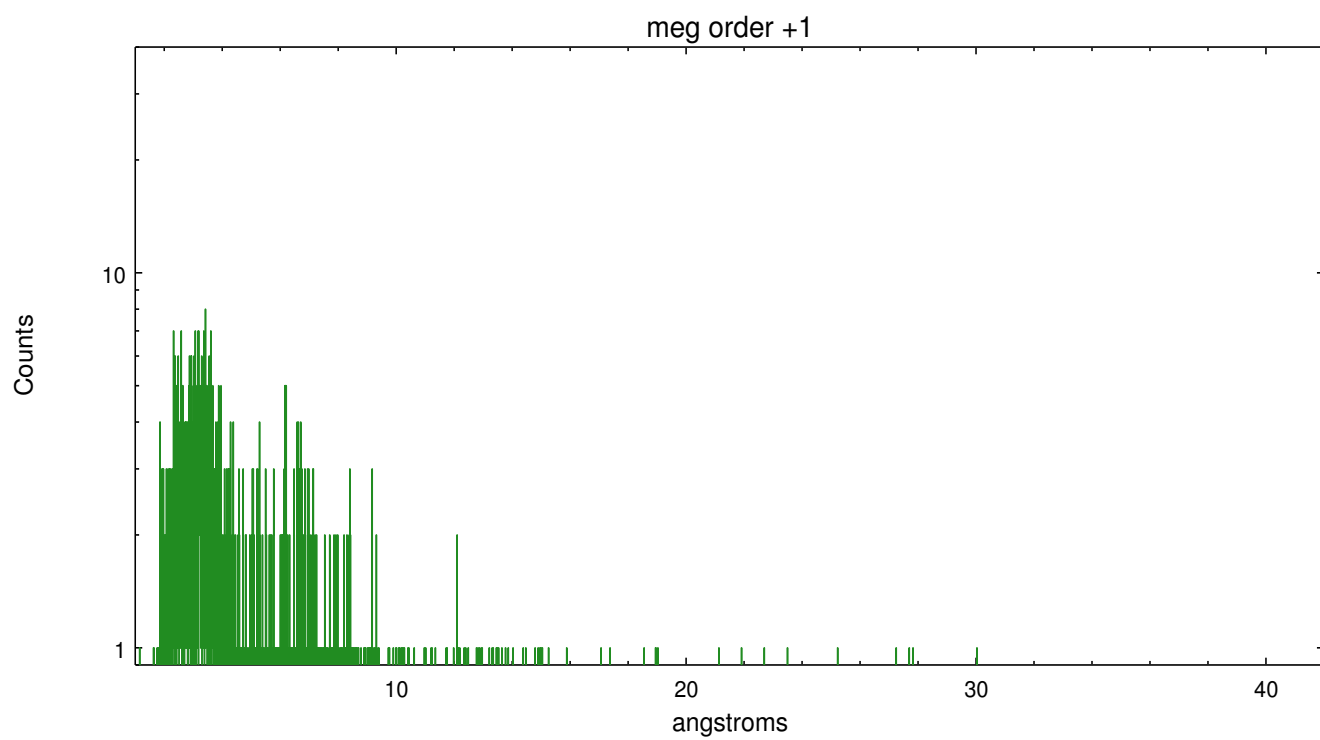
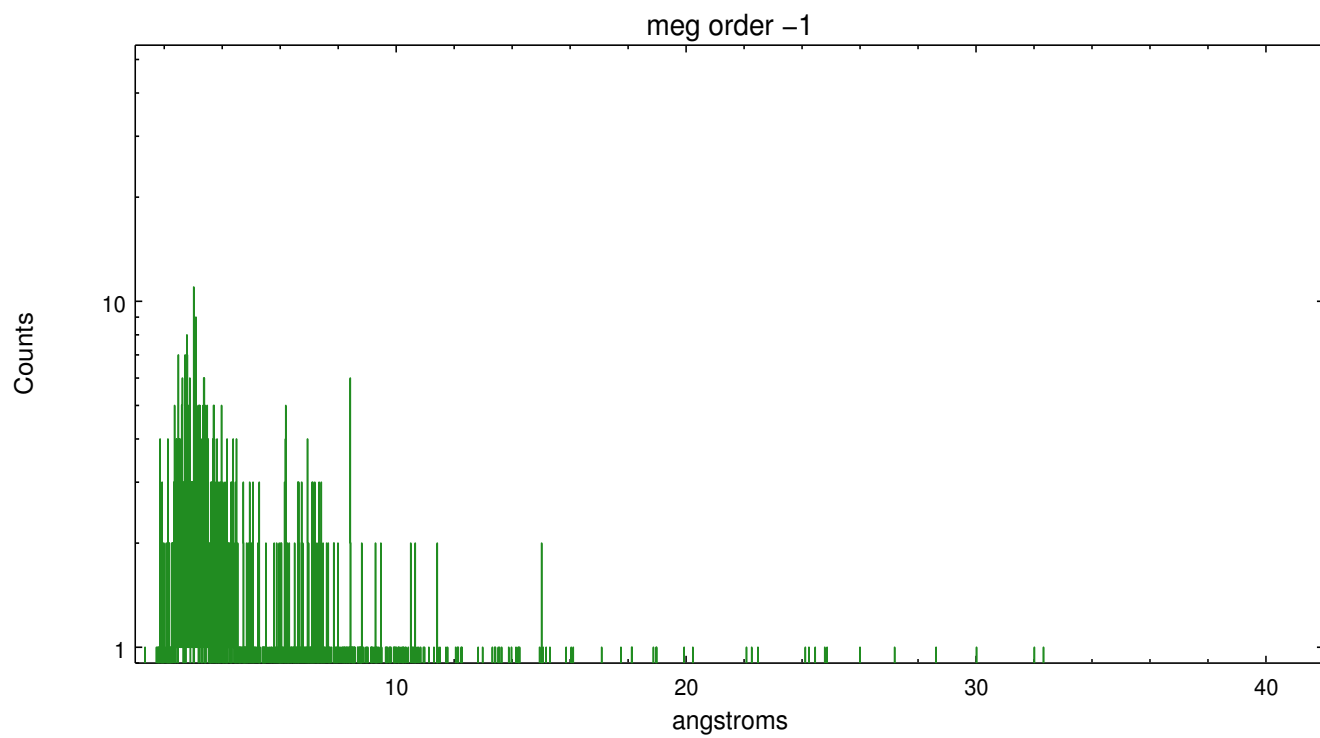
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	401	276	1664	5639	1917	242	346





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.07.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.067417192638

## A.2 Comments

There is a faint jet toward the SW. 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.

===

The guide star in slot 5 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this guide star from the solution.