

# V&V Reference Report

## L2 ASCDS Version : 10

Observation 15654 - L2 Version 4  
Chandra X-Ray Center

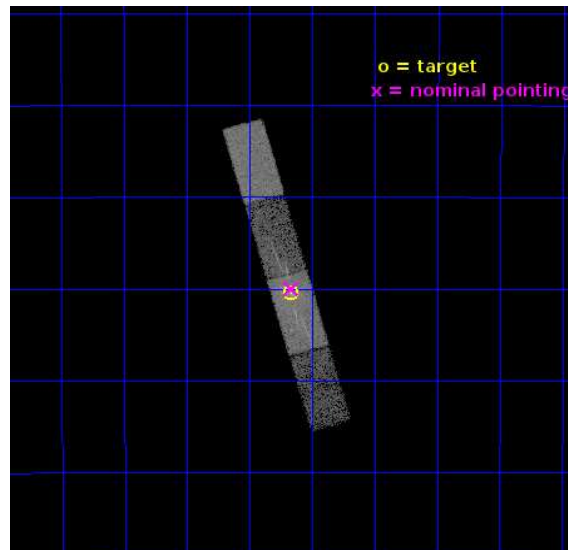
L2 Processing Date : Oct 7 2015

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# 1 Front

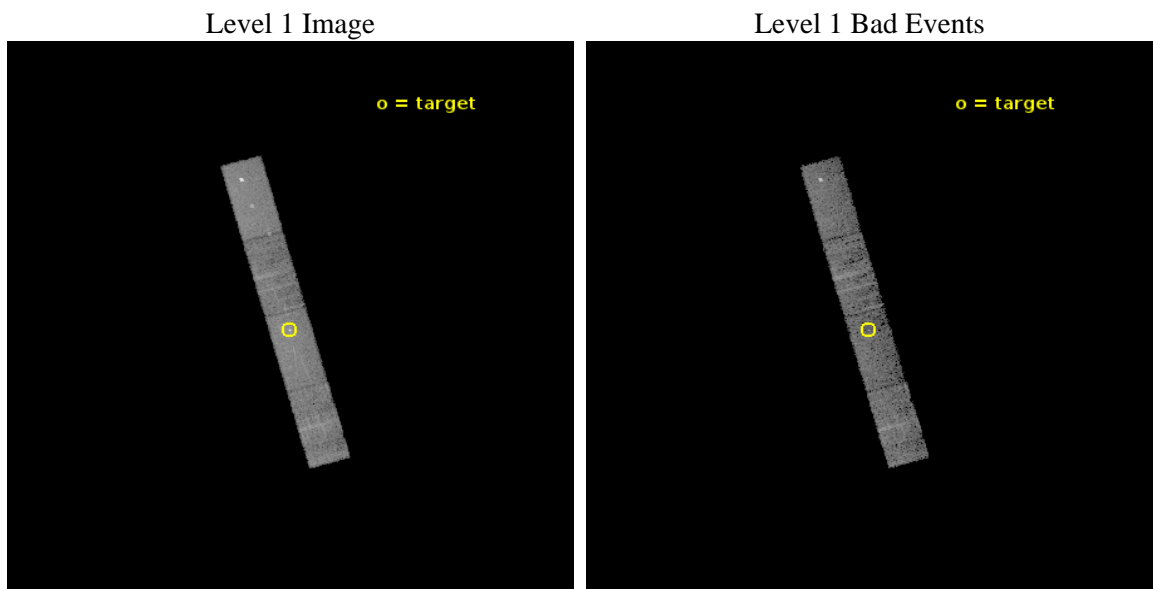
seq_num	702847	Sequence number
obs_id	15654	Observation id
title	Joint Chandra/XMM/EVLA Monitoring of the Gas Cloud G2 as it Encounters Sgr A*	Proposal title
observer	Dr. Daryl Haggard	Principal investigator
object	Sgr A	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.416837	Observer's specified target RA [deg]
dec_targ	-29.007811	Observer's specified target Dec [deg]
ra_nom	266.41640650222	Nominal RA [deg]
dec_nom	-28.999930835816	Nominal Dec [deg]
roll_nom	74.156428073417	Nominal Roll [deg]
revision	4	Processing version of data
ontime	9260.2632116079	Sum of GTIs [s]
livetime	9028.6776303885	Livetime [s]
ontime5	9260.2221716046	Sum of GTIs [s]
ontime6	9260.1811316013	Sum of GTIs [s]
ontime7	9260.2632116079	Sum of GTIs [s]
ontime8	9260.140091598	Sum of GTIs [s]
l2events	49938	Number of level 2 events



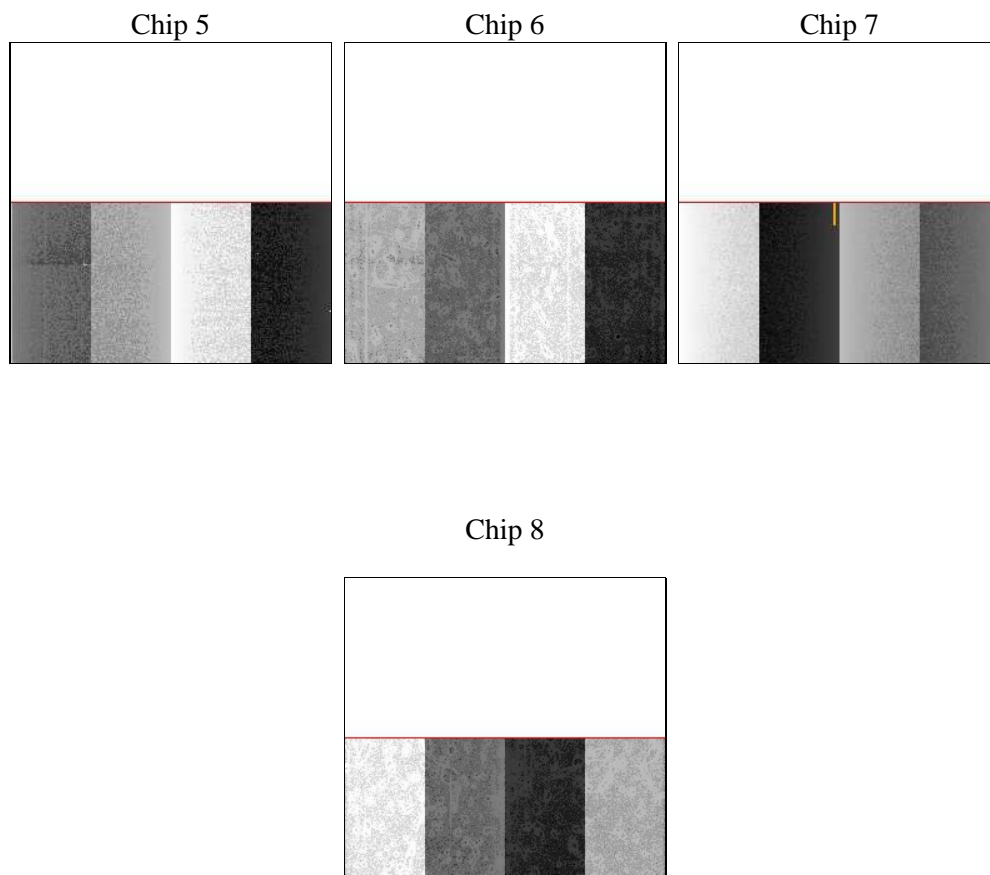
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	9200.000000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	9260.2632116079	Sum of GTIs [s]
caldsver	4.6.4	&#160	ontime5	9260.2221716046	Sum of GTIs [s]
date	2014-12-03T16:38:57	Date and time of file creation	ontime6	9260.1811316013	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	9260.2632116079	Sum of GTIs [s]
			ontime8	9260.140091598	Sum of GTIs [s]
			l1events	138809	Number of level 1 events
			tgmethod	TGDETECT	Method used to create src1a file
			zo_pos	(4094.85, 4038.92)	src1a sky pixel position

### 2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	41875	26970	37980	31984
rejected events	19734	19965	16385	22047
rejected %	47%	74%	43%	68%

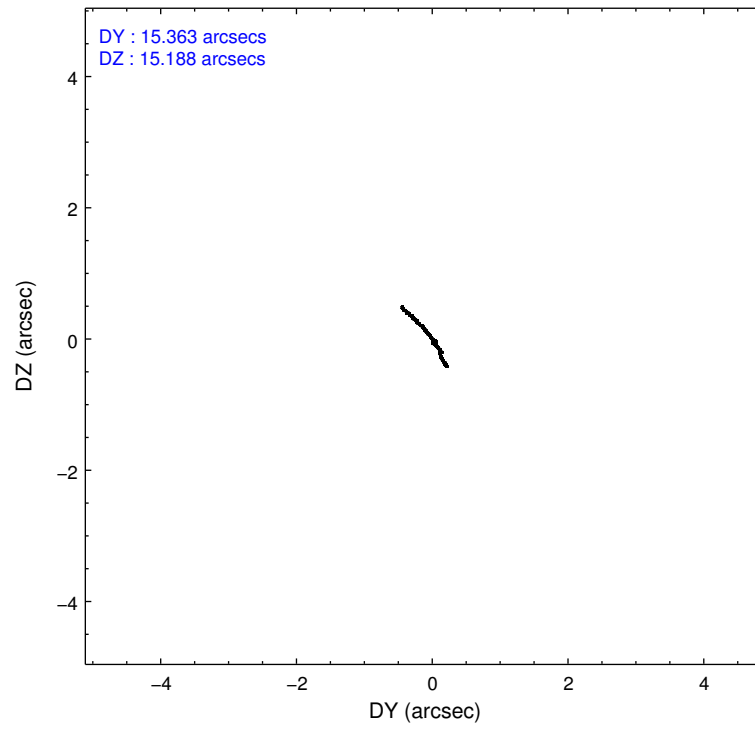
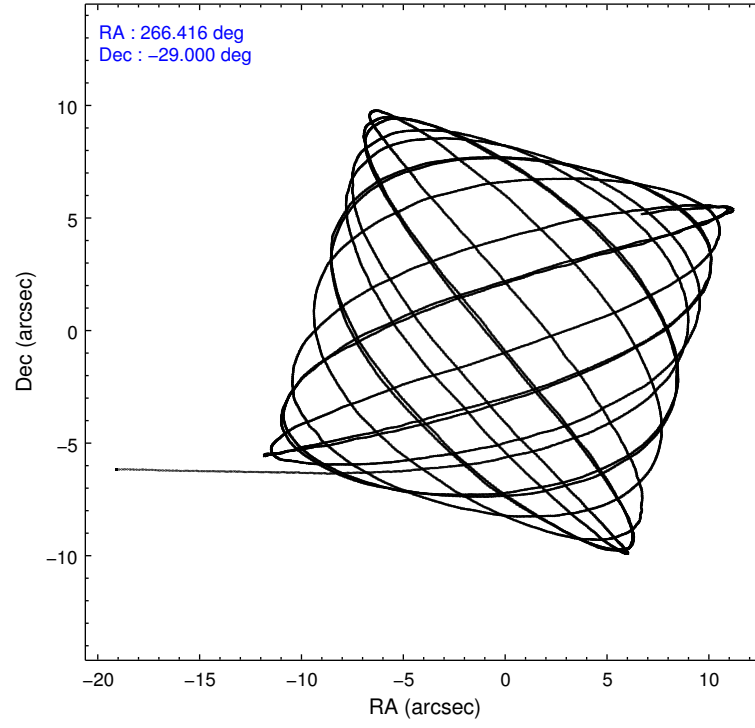
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	2286	3649	2804	3546
	5%	13%	7%	11%
grade 1 events	73	18	42	18
	0%	0%	0%	0%
grade 2 events	8250	1261	4772	2032
	19%	4%	12%	6%
grade 3 events	1106	534	2162	1054
	2%	1%	5%	3%
grade 4 events	1000	558	2109	970
	2%	2%	5%	3%
grade 5 events	3745	1113	3229	1558
	8%	4%	8%	4%
grade 6 events	9502	1006	9751	2336
	22%	3%	25%	7%
grade 7 events	15913	18831	13111	20470
	38%	69%	34%	64%

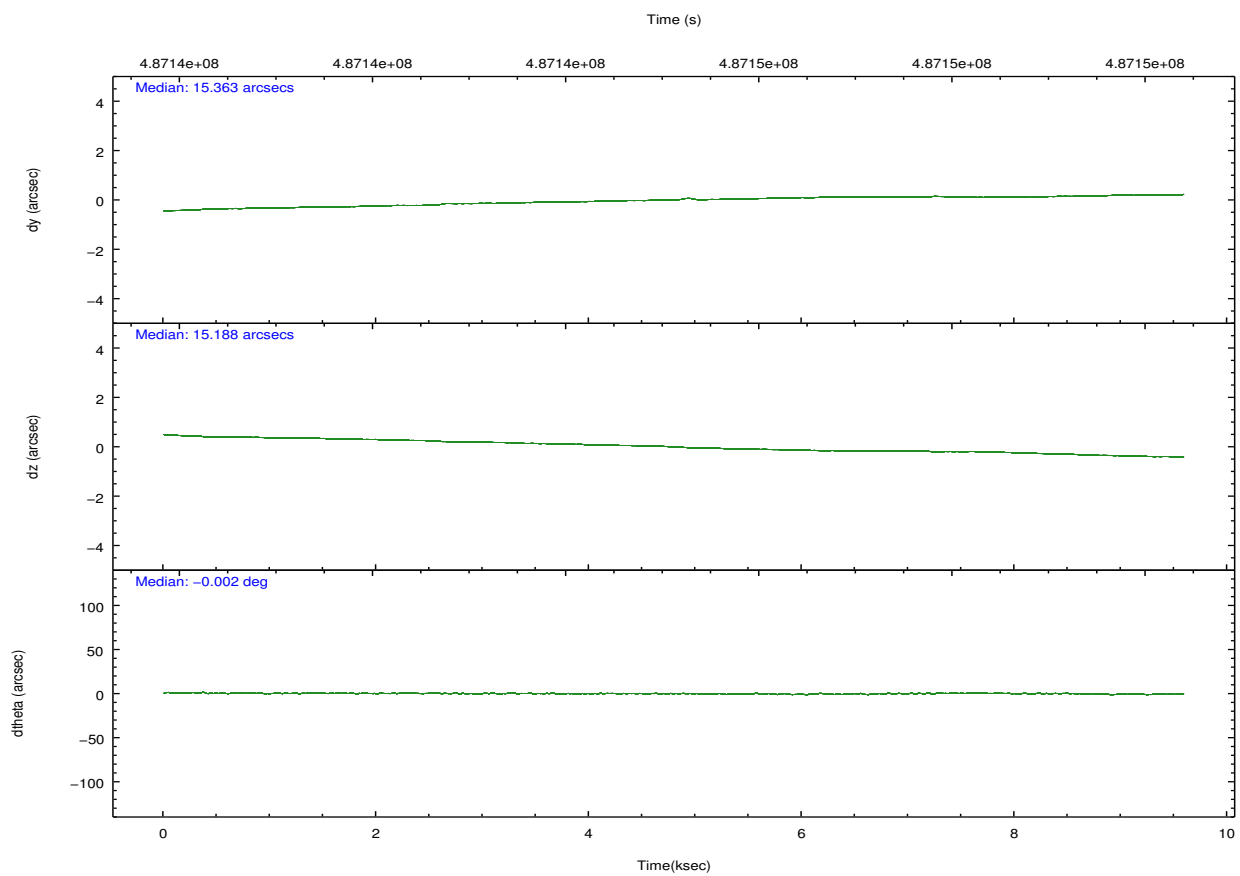
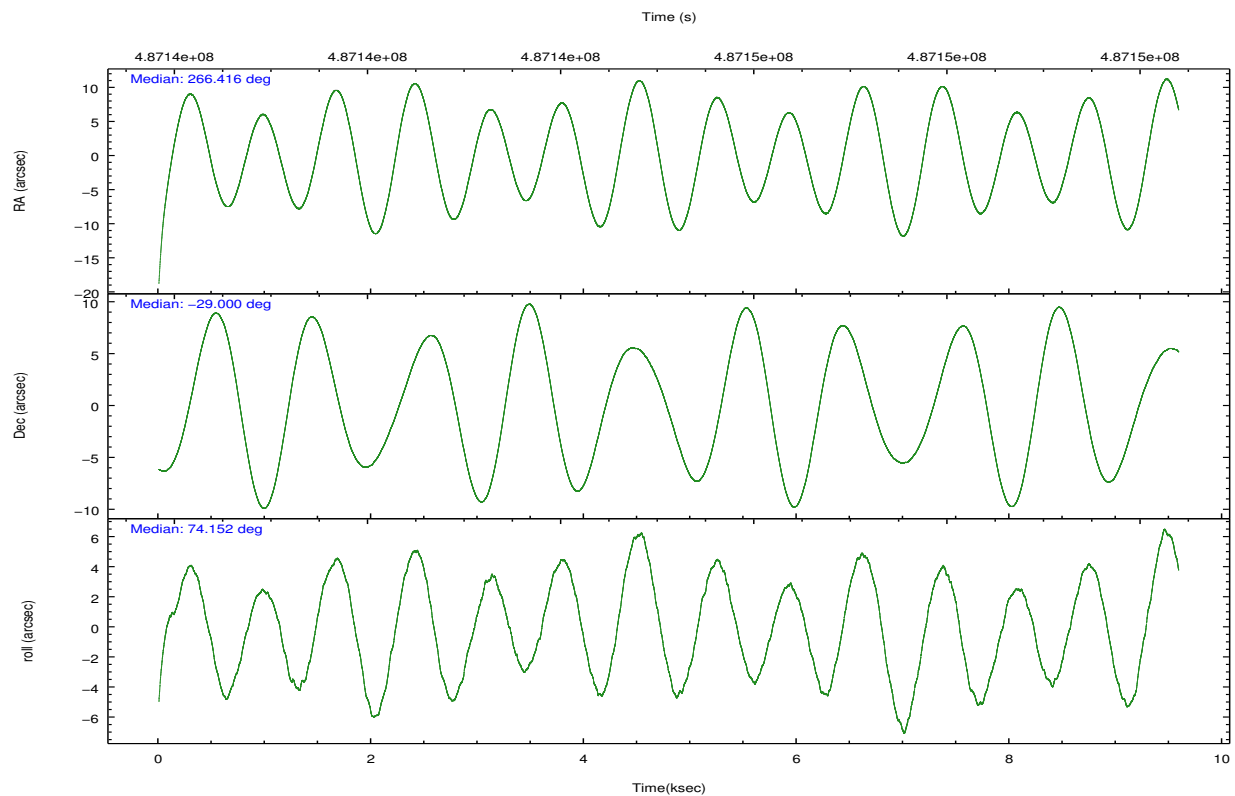


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	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	266.424431	266.4164065022238	Subarray requested	CUSTOM	1/2
[deg] Pointing Dec	-29.026361	-28.99993083581577	Subarray start row	1	1
[deg] Pointing Roll	74.003682	74.15642807341749	Subarray row count	512	512
[s] Window start time (MET)	486432067.184000	486432067.184000	Alternating exposures requested	N	N
[s] Window stop time (MET)	488073607.184000	488073607.184000	[s] Primary exposure time	0.000000	1.6
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-183.992523	-183.985022191653			
[mm] SIM translation stage offset	-6.14	-6.147500391354811			
[s] Observation start time (MET)	487140717.184000	487139176.79773			
Observation start date	2013-06-09T04:50:50	2013-06-09T04:26:16			
[s] Observation end time (MET)	487149917.184000	487150708.56085			
Observation end date	2013-06-09T07:24:10	2013-06-09T07:38:28			
Read mode	TIMED	TIMED			

## 2.3 Aspect



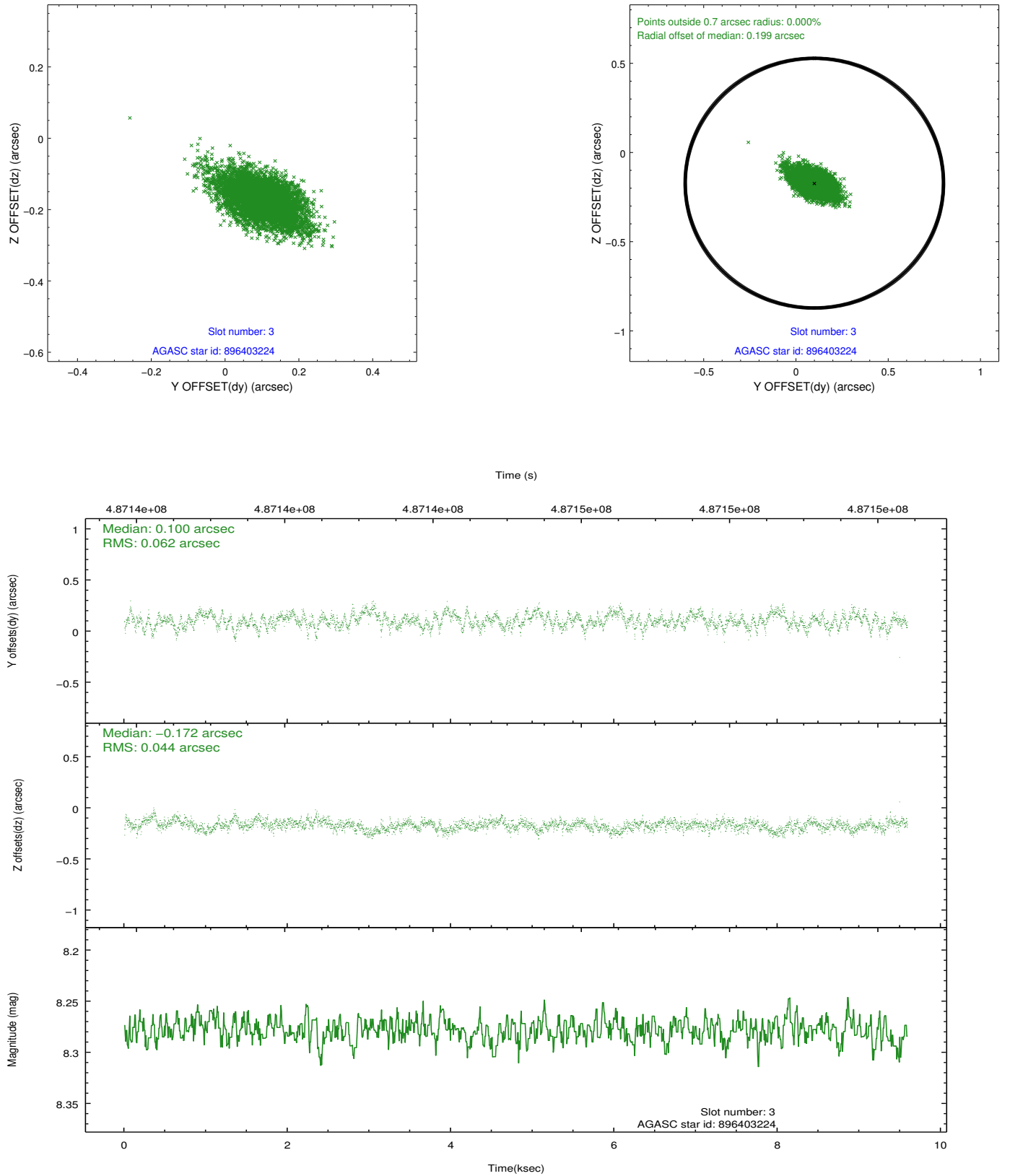


### Slot Statistics

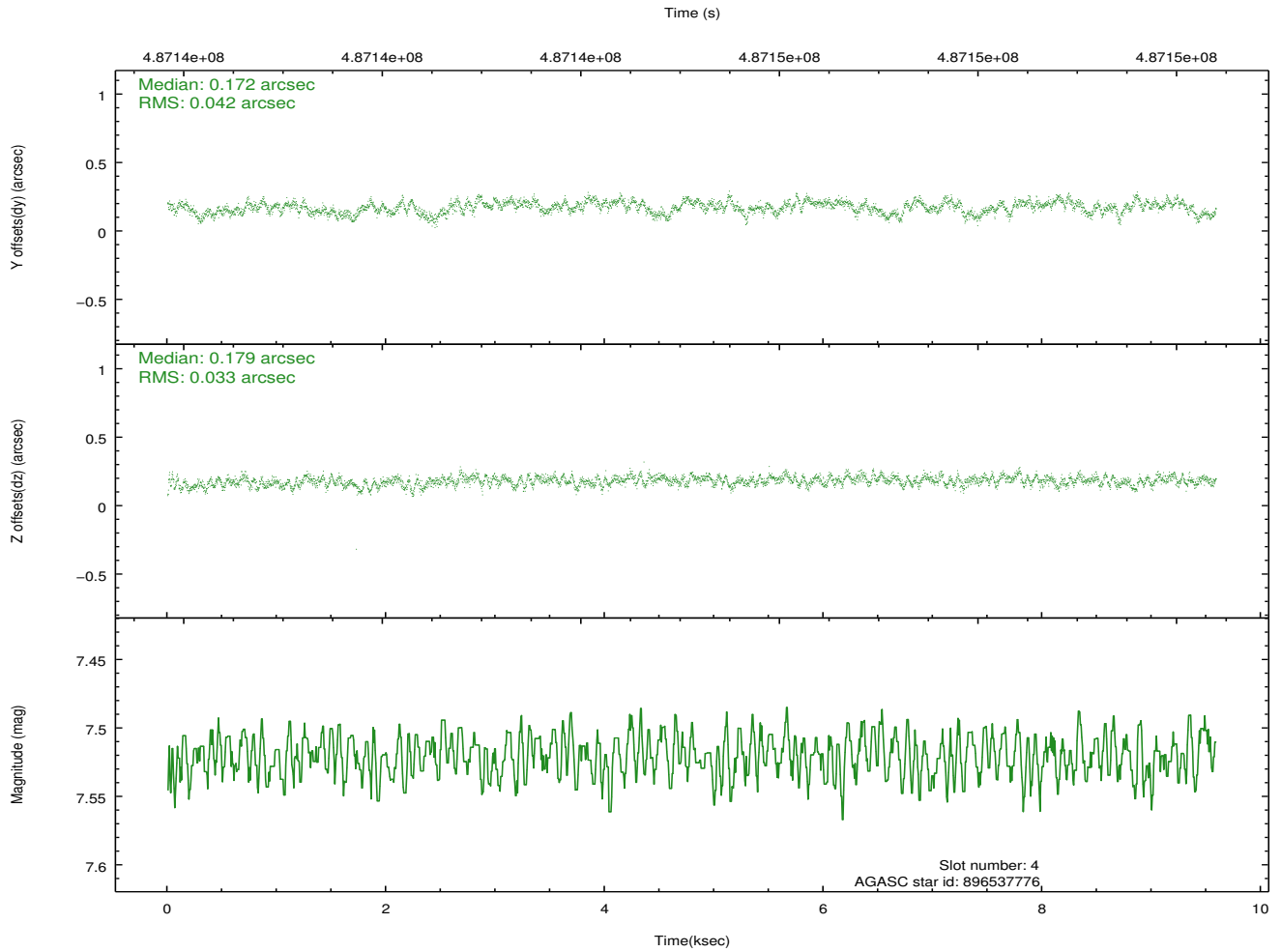
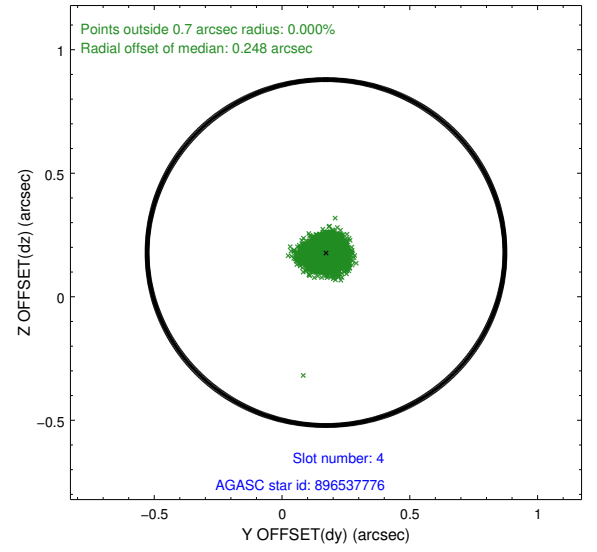
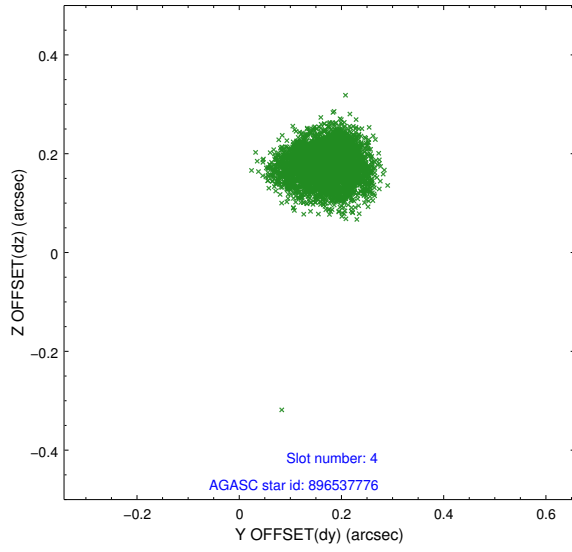
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.84	2339	-0.100	-0.120	0.014	0.024	0.000000	0.000000	-768.02	-1863.39
1	FID		ACIS-S-4	6.91	2339	0.221	0.080	0.013	0.029	0.000000	0.000000	2145.39	44.55
2	FID		ACIS-S-5	6.96	2339	-0.154	0.049	0.018	0.032	0.000000	0.000000	-1820.14	38.96
3	GUIDE	used	896403224	8.28	4677	0.100	-0.172	0.078	0.138	265.612825	-29.438915	-2137.63	2034.06
4	GUIDE	used	896537776	7.52	4676	0.172	0.179	0.057	0.091	266.655684	-29.665673	-2013.86	-1329.20
5	GUIDE	used	896538696	6.84	4678	-0.311	-0.239	0.057	0.093	266.298470	-28.325572	2314.24	1078.82
6	GUIDE	used	896533888	7.04	4678	0.079	0.090	0.054	0.088	266.666434	-29.392757	-1058.78	-1092.93
7	GUIDE	used	896538208	7.98	4674	-0.033	0.140	0.073	0.129	267.176969	-28.671626	1875.42	-1934.85

## 2.4 Star Slots

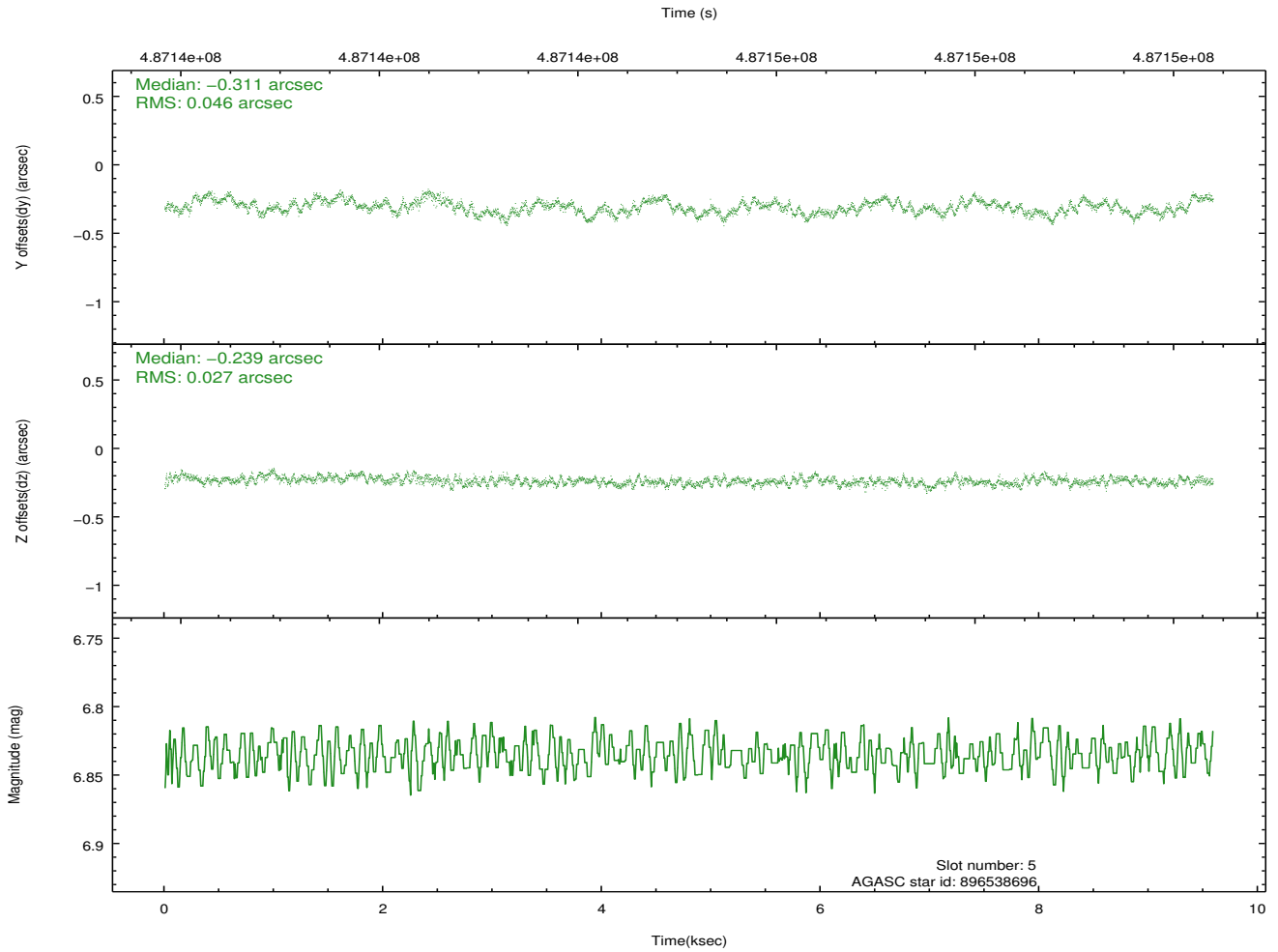
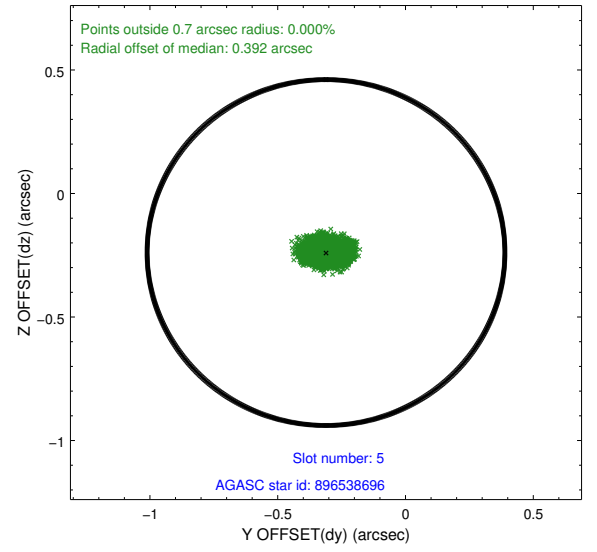
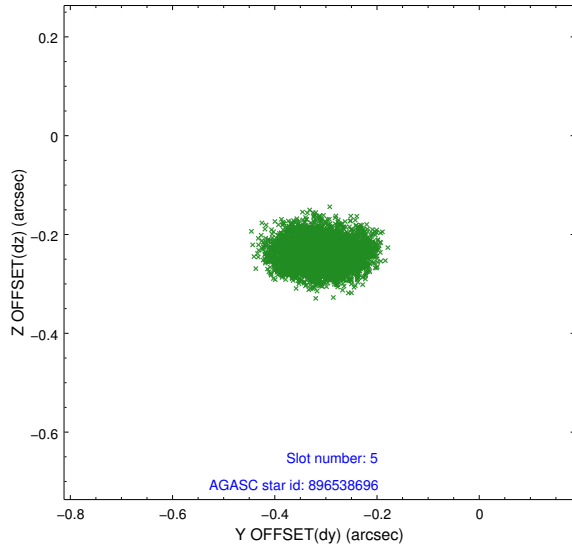
### 2.4.1 Slot 3



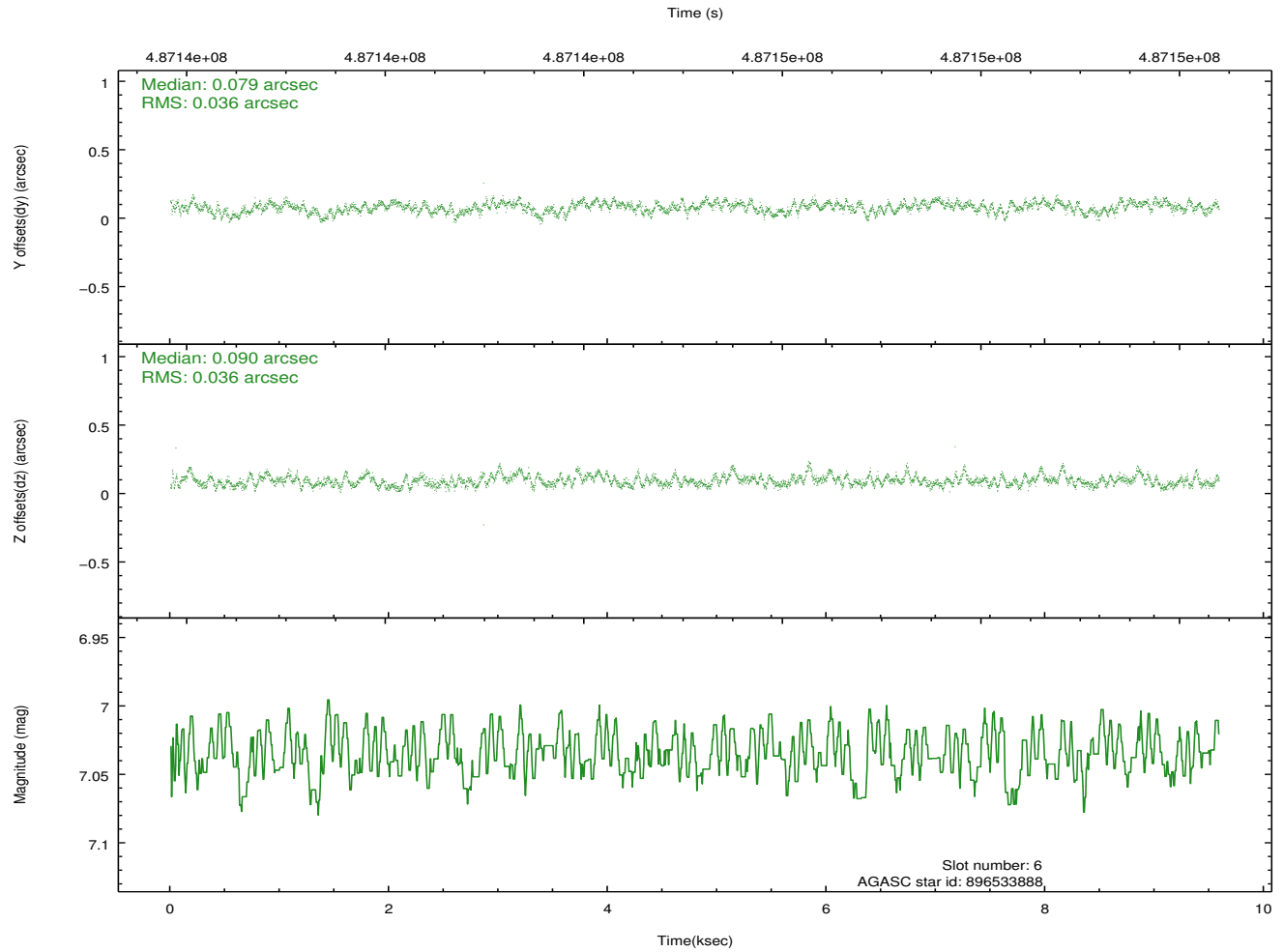
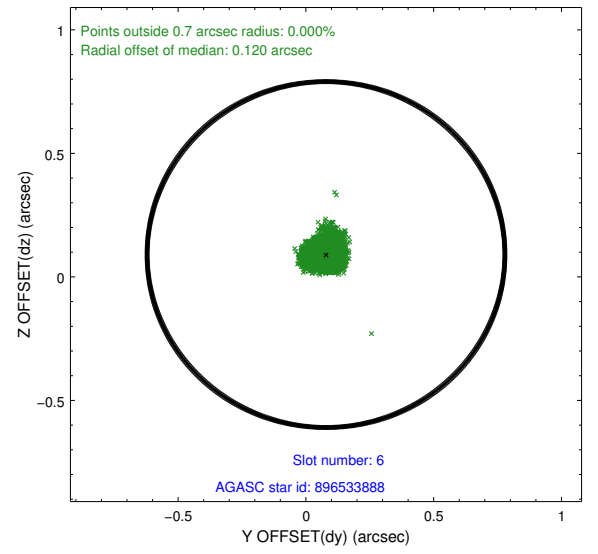
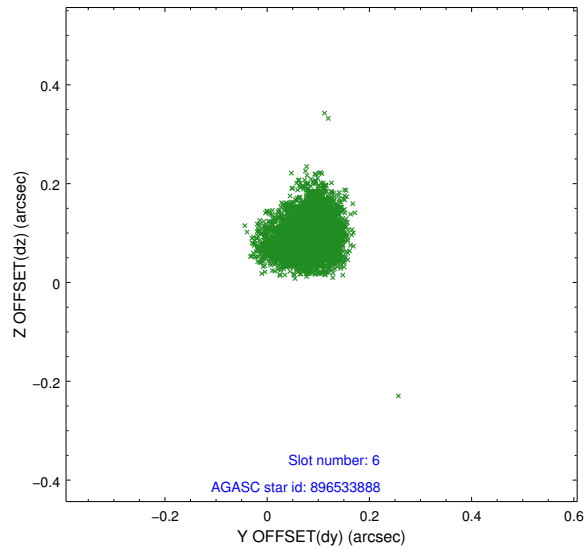
## 2.4.2 Slot 4



### 2.4.3 Slot 5

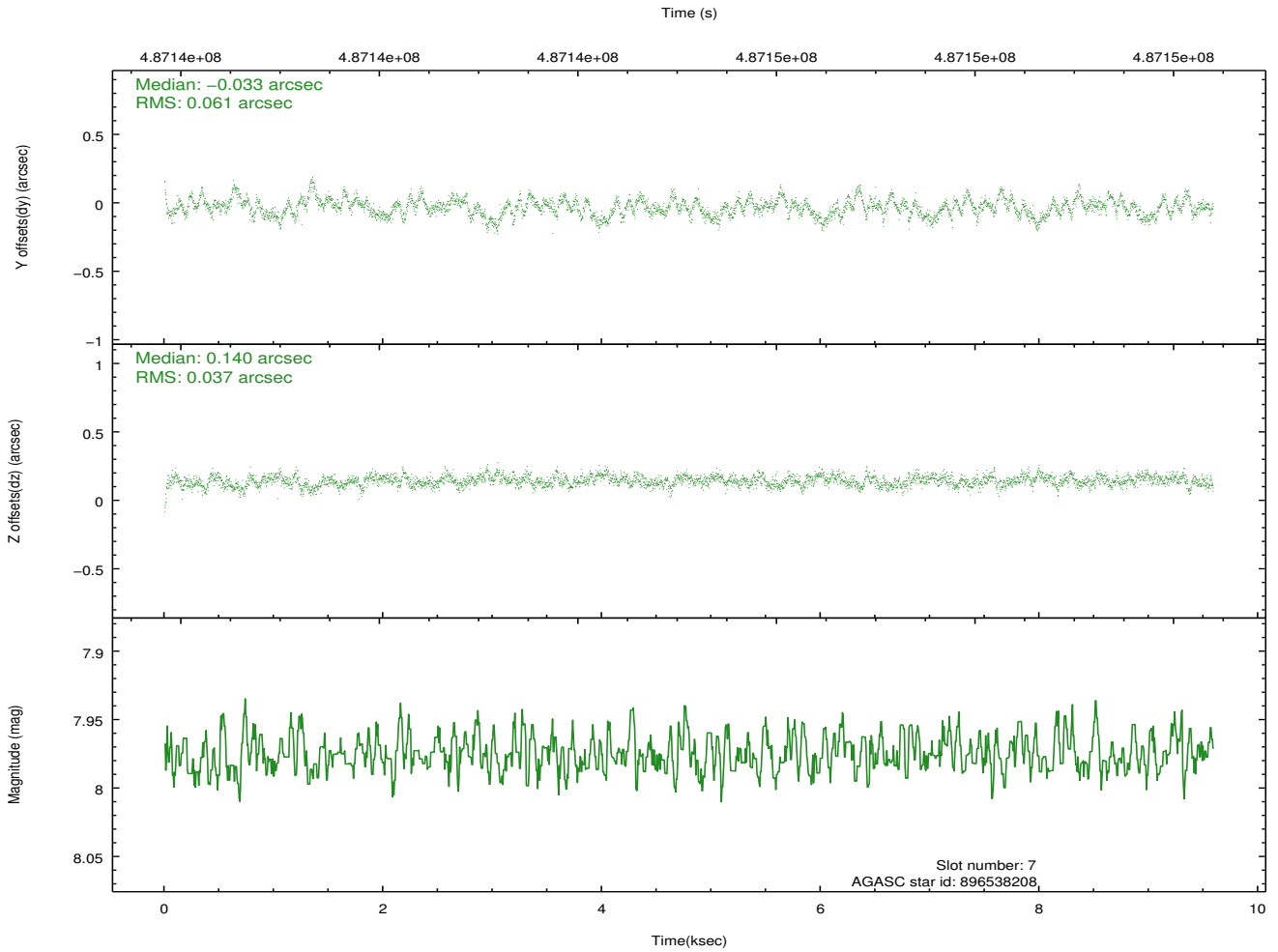
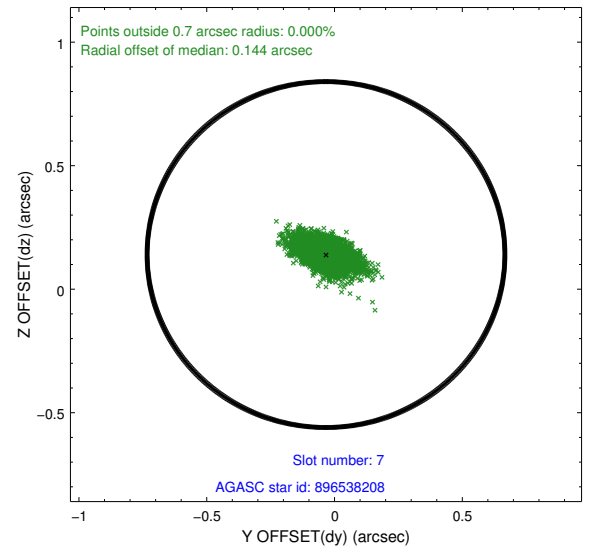
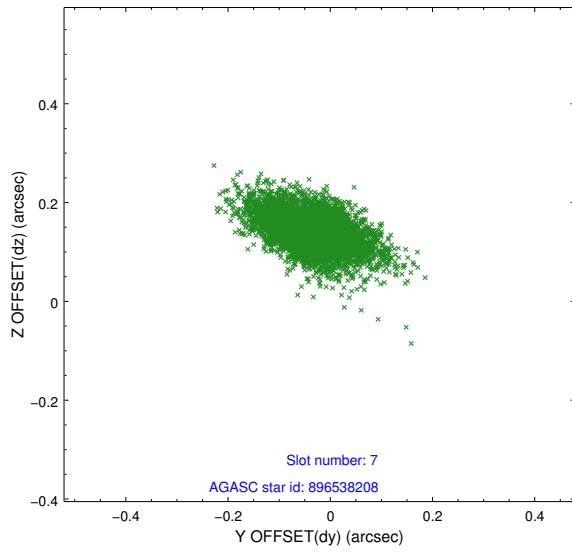


## 2.4.4 Slot 6



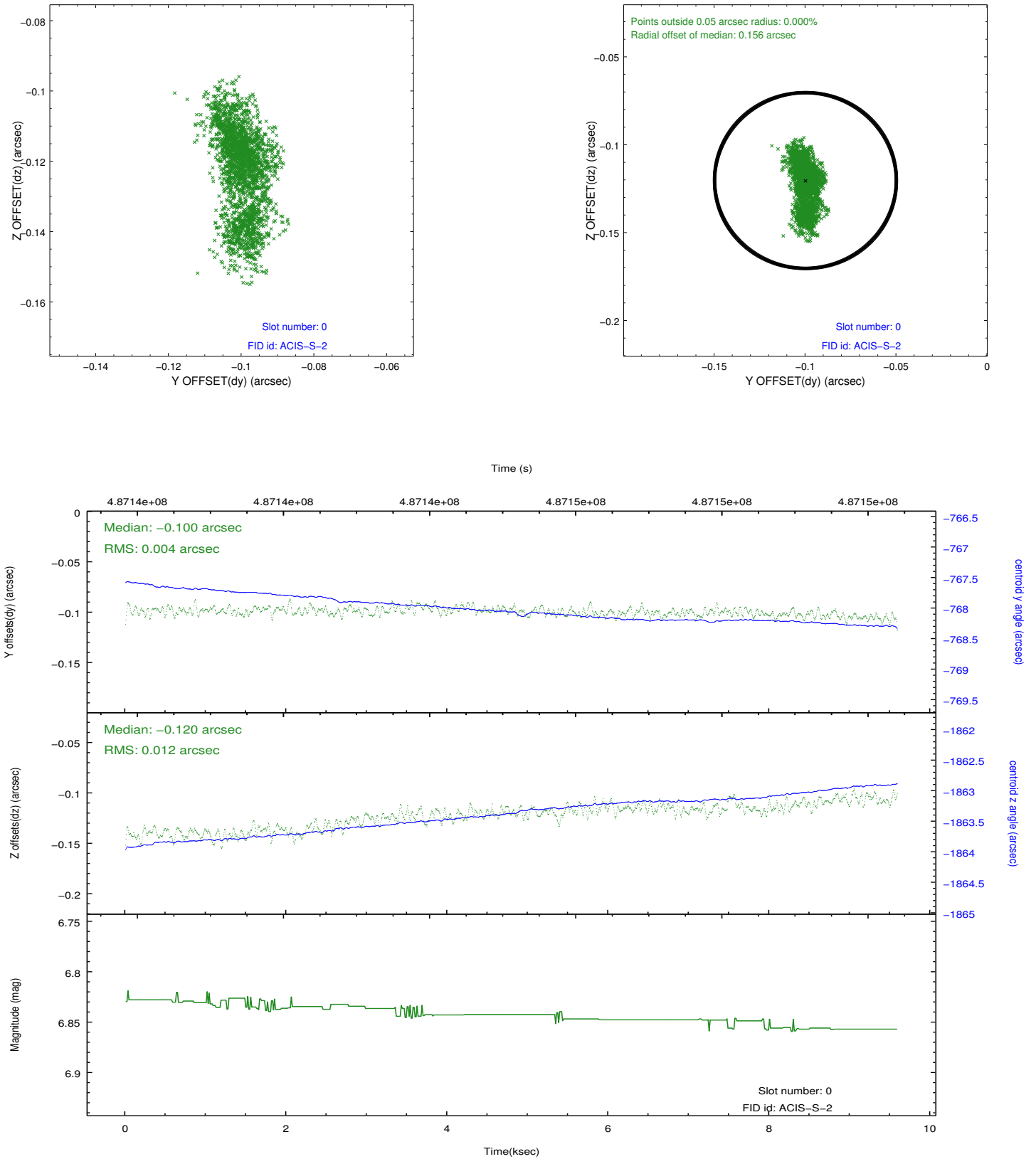


## 2.4.5 Slot 7

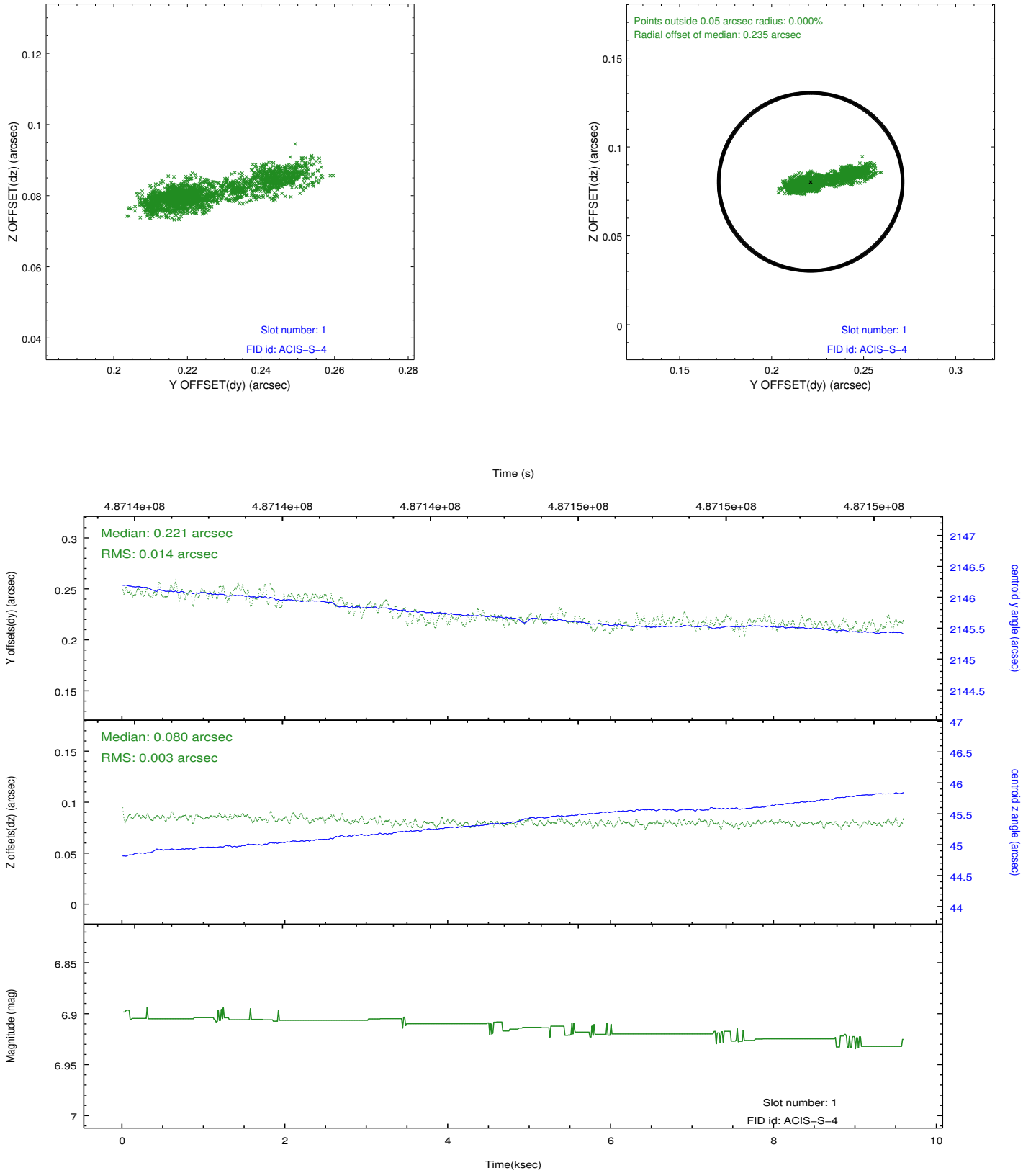


## 2.5 FID Slots

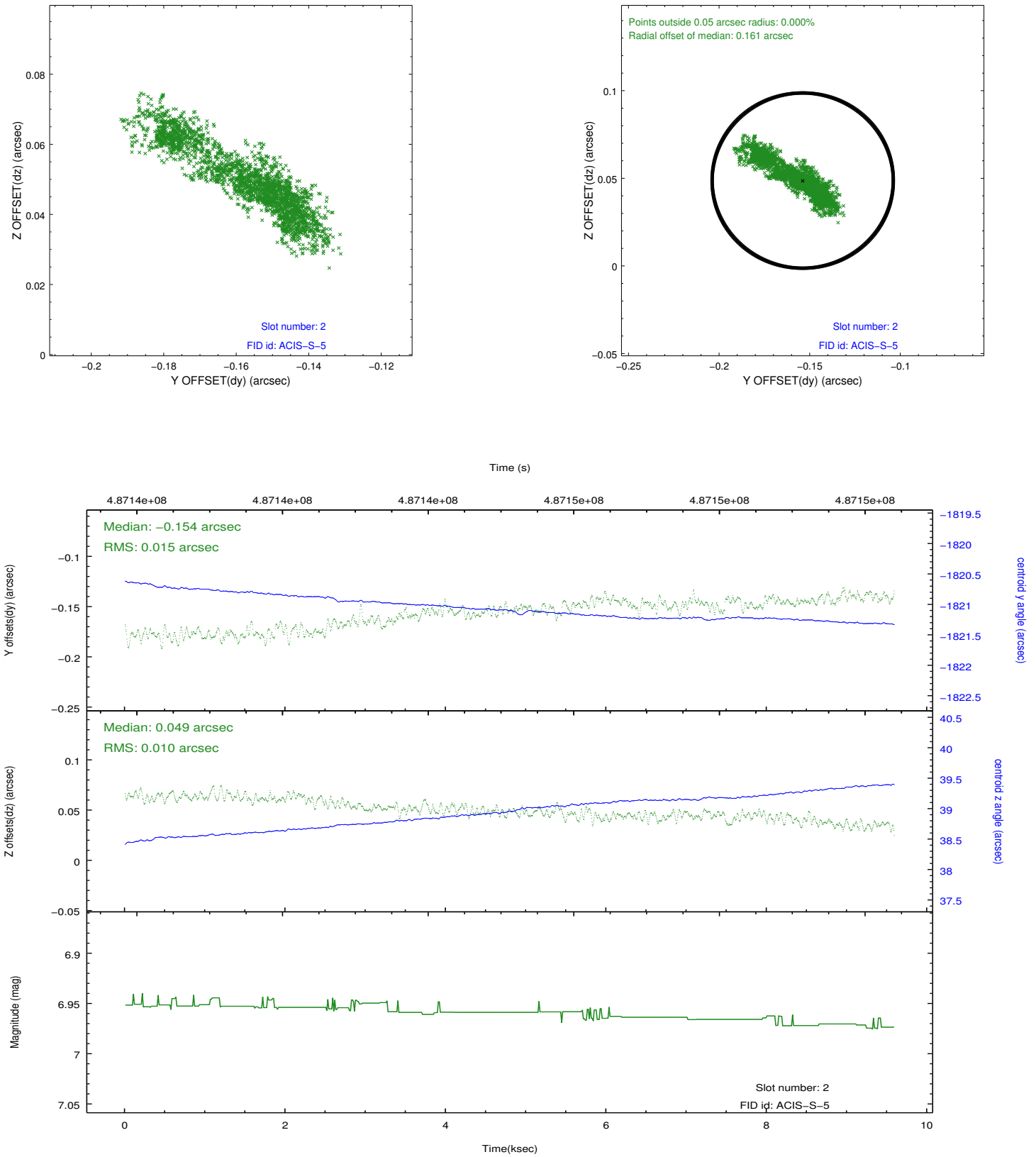
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

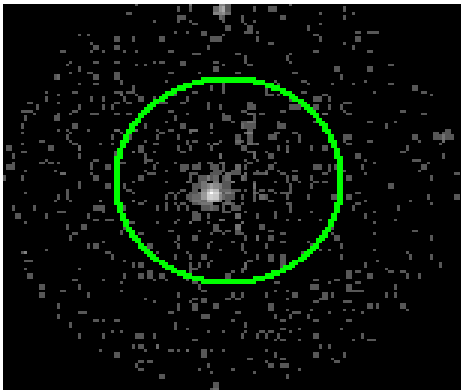


# 3 Gratings

## 3.1 HEG Arm



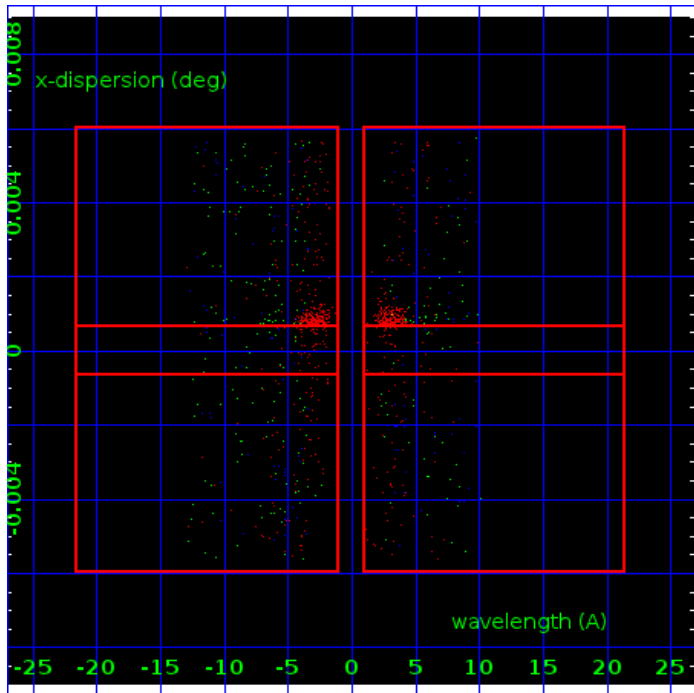
HEG Order Sort 123



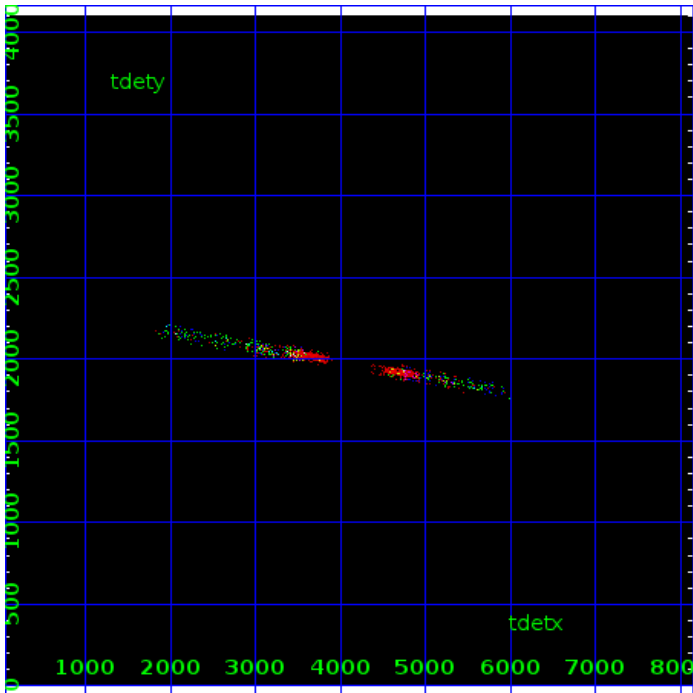
HEG Zero Order



HEG Order Sort ALL

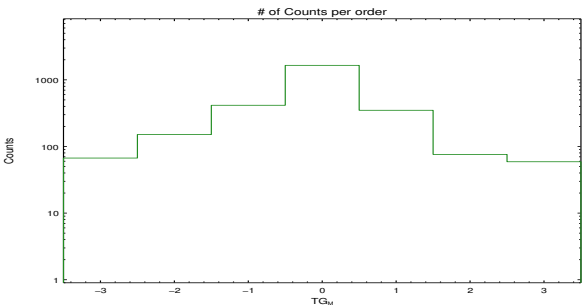


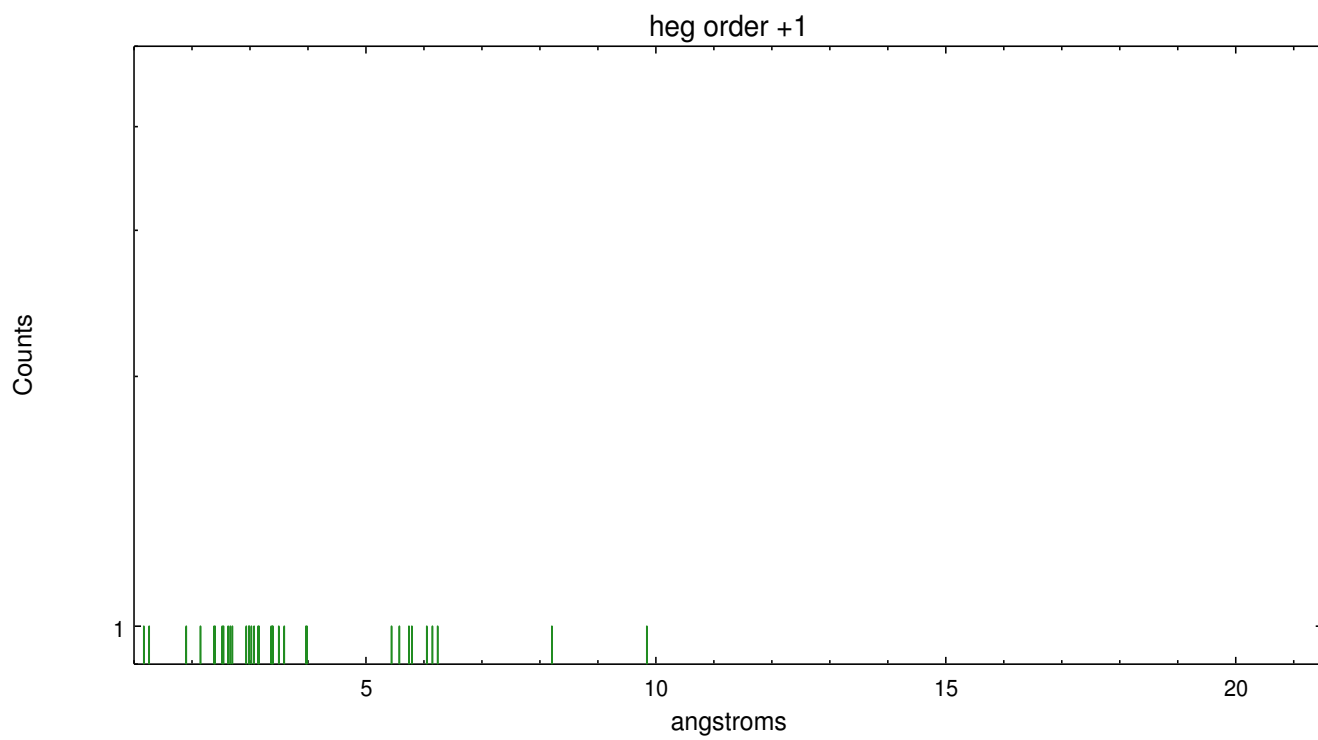
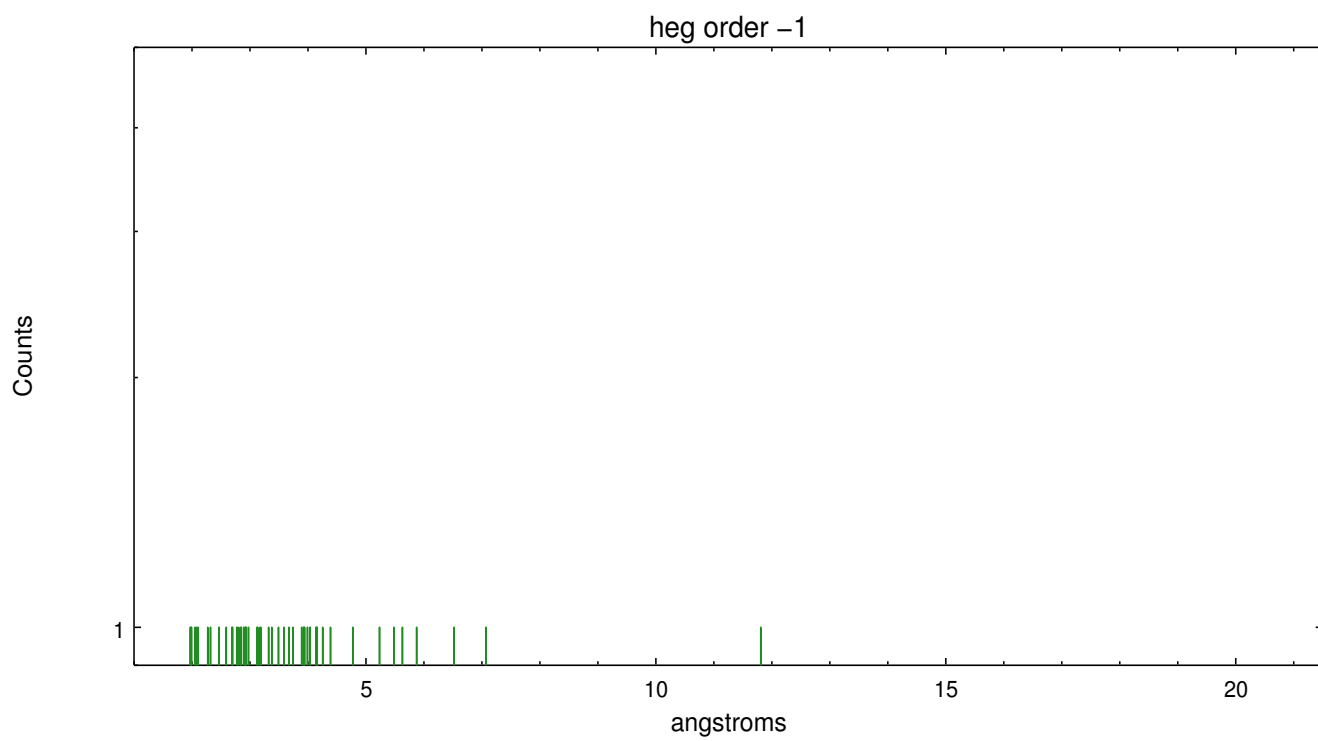
Spot Image HEG



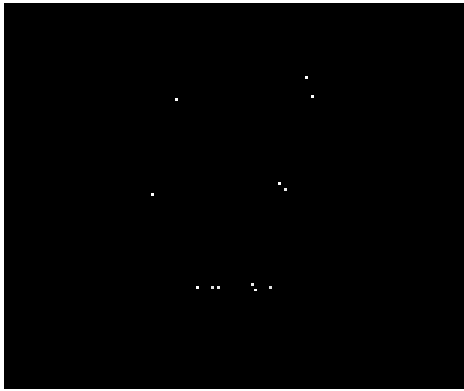
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	67	151	415	1649	349	76	59

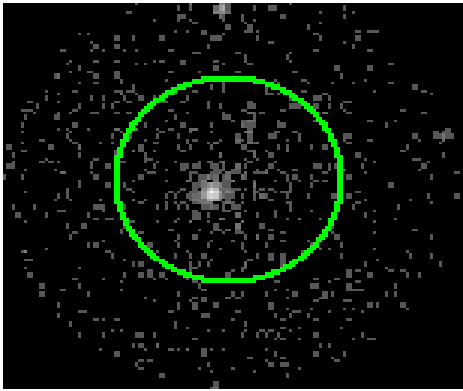




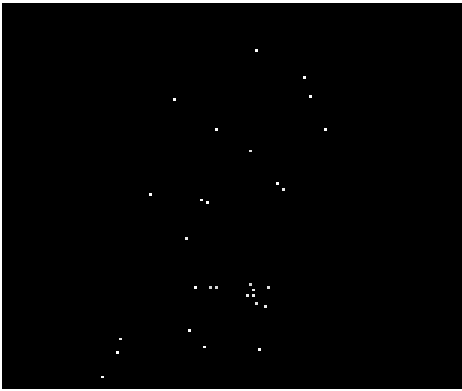
3.2 MEG Arm



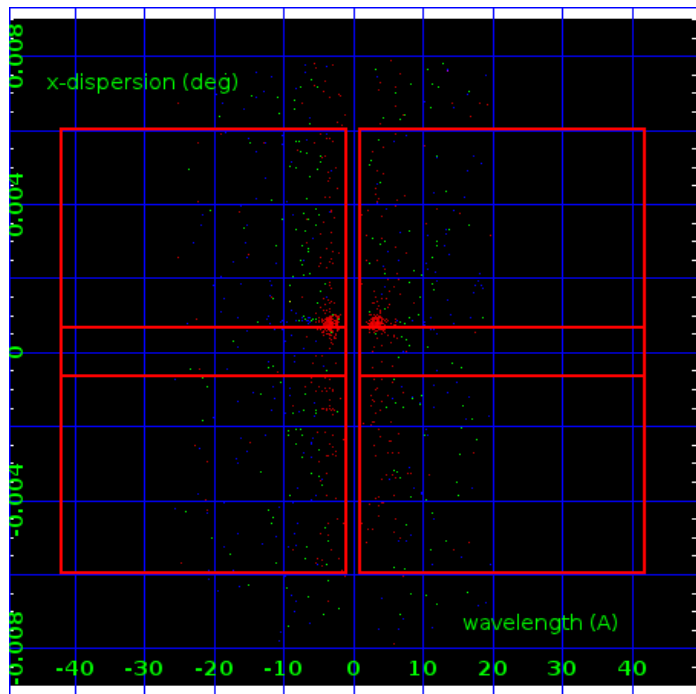
MEG Order Sort 123



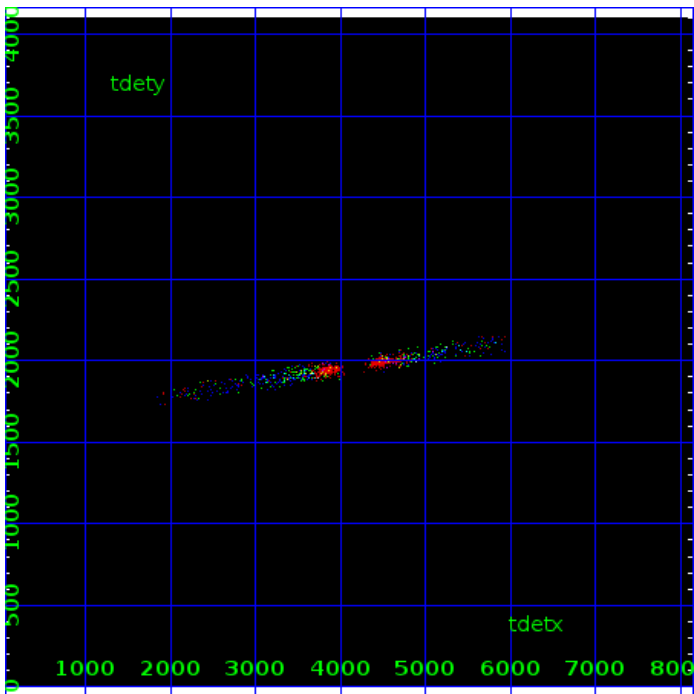
MEG Zero Order



MEG Order Sort ALL

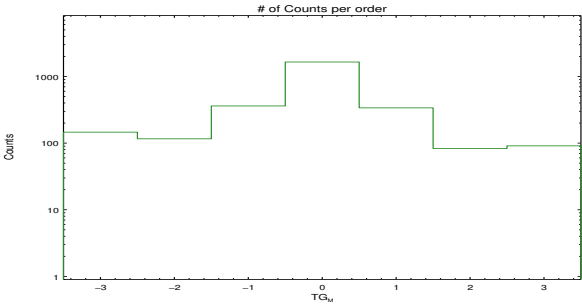


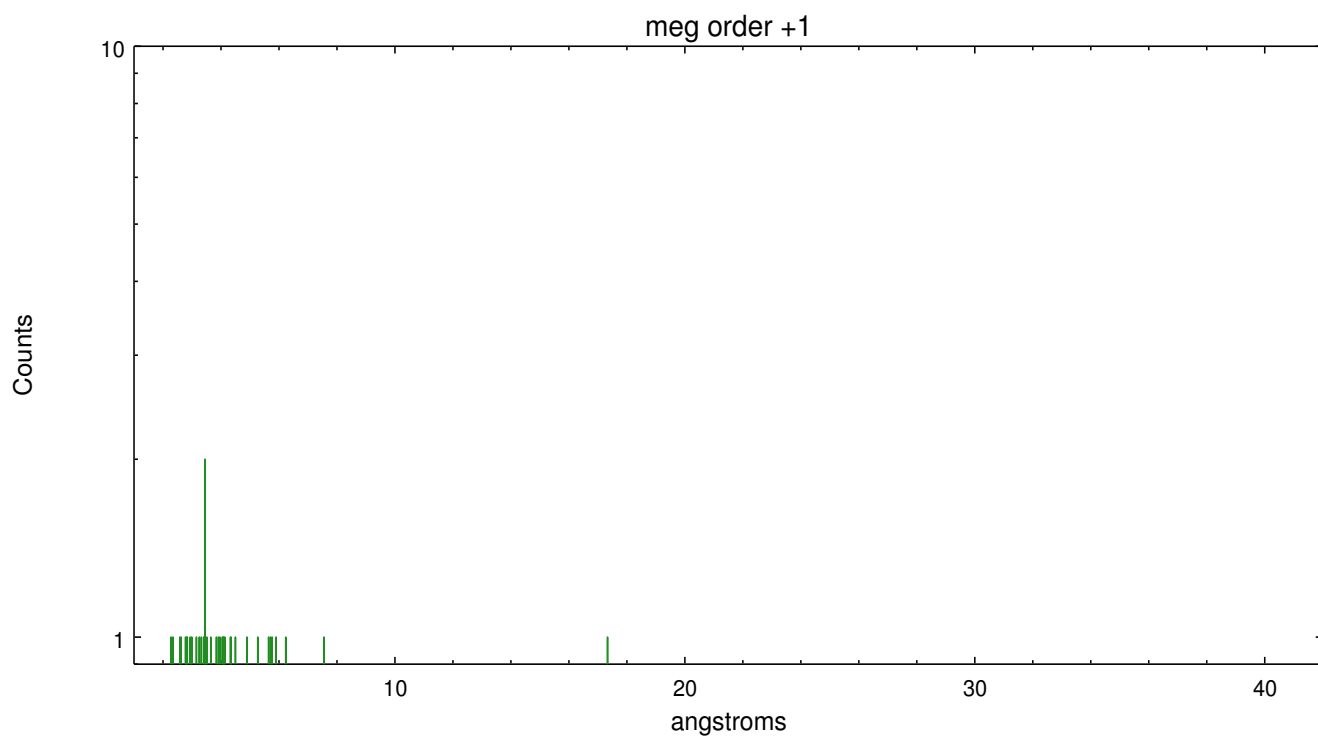
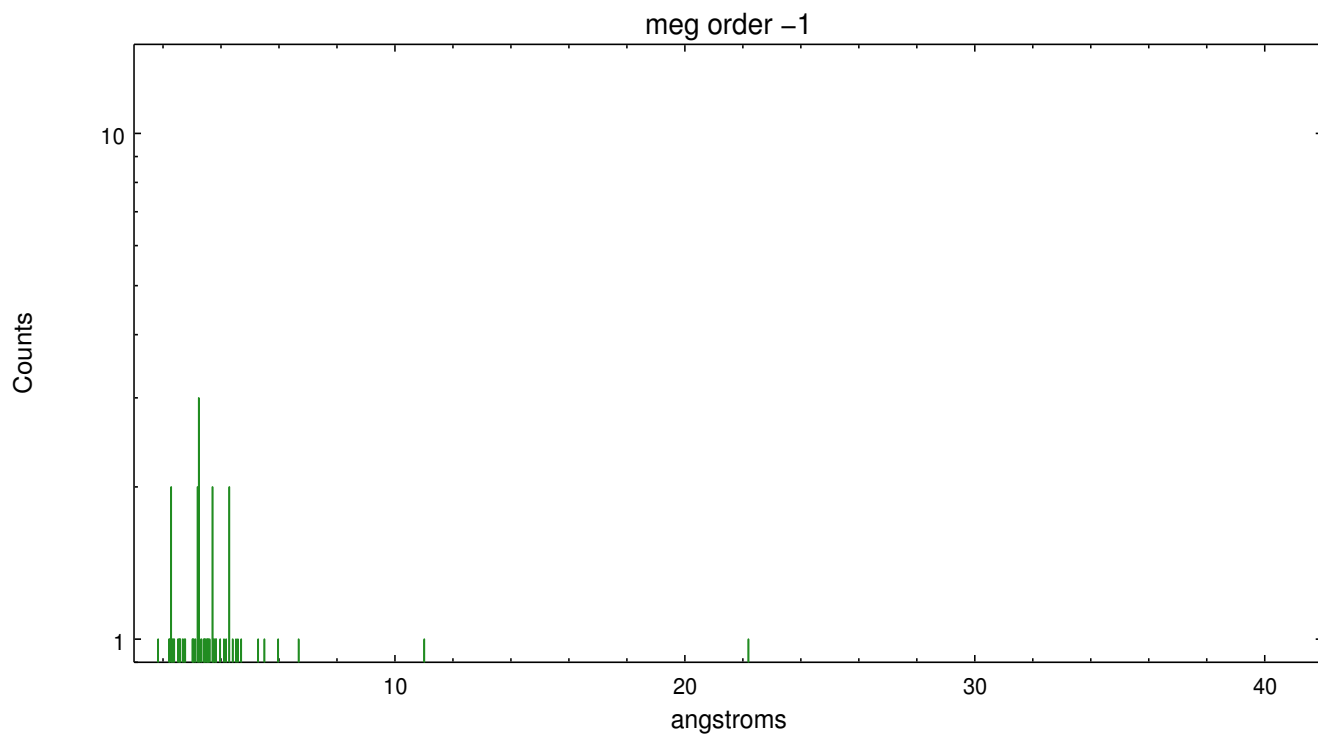
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	146	116	361	1649	338	83	91







# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.10.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	9.26026321

## A.2 Comments

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.

====

Note: spatially complex region with multiple point sources and extended emission. The spectral extraction was centered on the nominal Sgr A\* coordinates: (RA, DEC) = (266.41667, -29.00780)[deg]. === The user should 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 nominal position of Sgr A\* as defined above. === 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.