V&V Reference Report
L2 ASCDS Version : 8.4.3

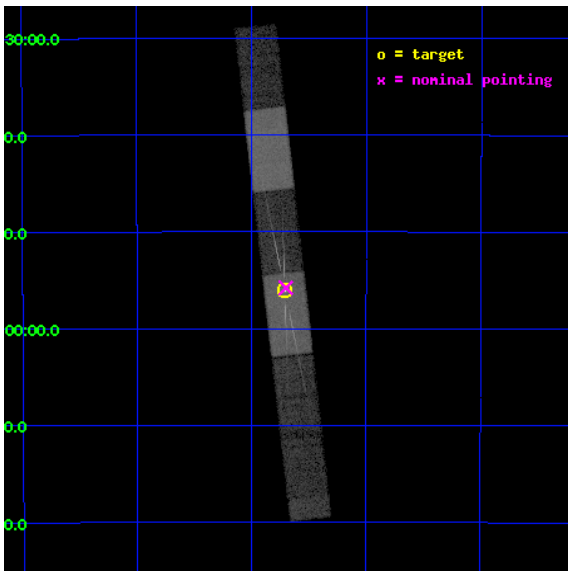
Observation 12452 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Feb 6 2012

Contents

1 Front

seq_num	401193	Sequence number
obs_id	12452	Observation id
title	INVESTIGATING NEW INTEGRAL SOURCES WITH CHANDRA	Proposal title
observer	Adamantia Paizis	Principal investigator
object	IGR J17177-3656	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	259.427833	Observer's specified target RA [deg]
dec_targ	-36.934214	Observer's specified target Dec [deg]
ra_nom	259.42526856965	Nominal RA [deg]
dec_nom	-36.929837603647	Nominal Dec [deg]
roll_nom	83.453649740824	Nominal Roll [deg]
revision	2	Processing version of data
ontime	20076.999859273	Sum of GTIs [s]
livetime	19603.742453226	Livetime [s]
ontime4	20076.999859273	Sum of GTIs [s]
ontime5	20076.999859273	Sum of GTIs [s]
ontime6	20076.999859273	Sum of GTIs [s]
ontime7	20076.999859273	Sum of GTIs [s]
ontime8	20076.999859273	Sum of GTIs [s]
ontime9	20076.999859273	Sum of GTIs [s]
l2events	139735	Number of level 2 events

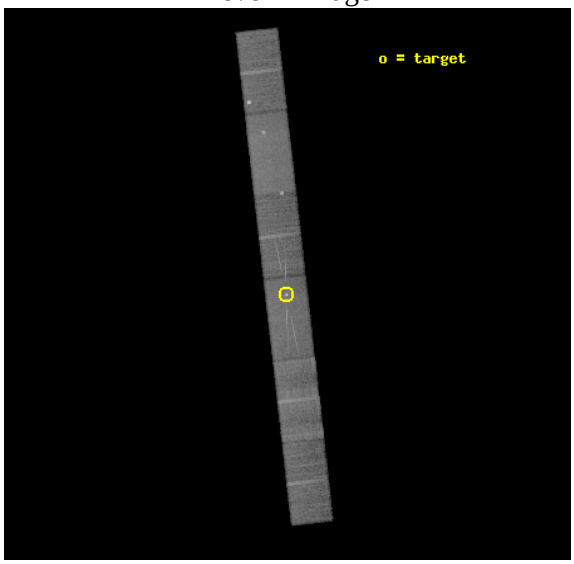


2 OBI

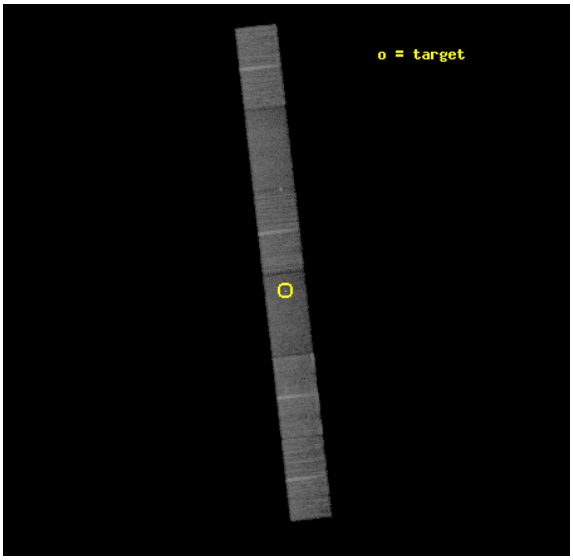
2.1 OBI

2.1.1 Images

Level 1 Image

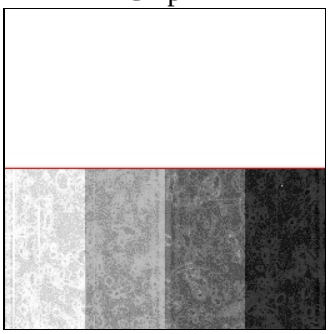


Level 1 Bad Events

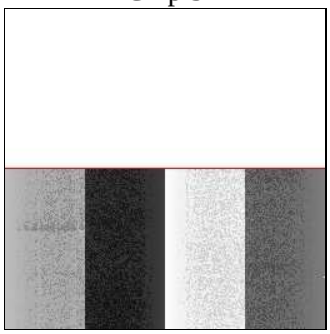


2.1.2 Bias

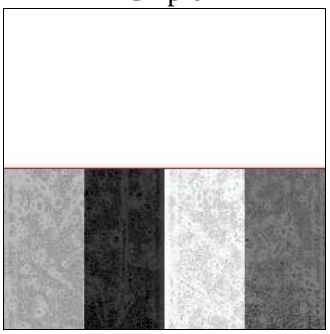
Chip 4



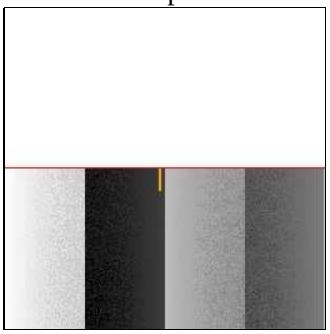
Chip 5



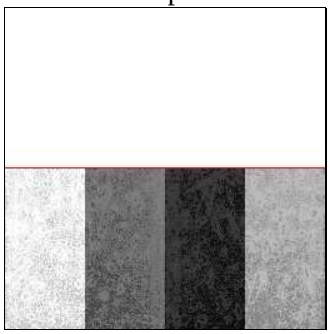
Chip 6



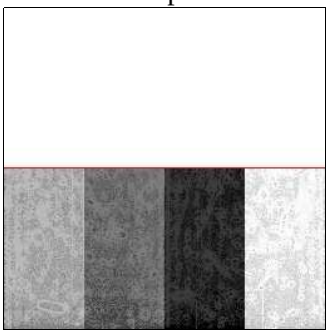
Chip 7



Chip 8



Chip 9



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.7	
date	2012-02-06T21:54:27	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	20003.500000	[s] Scheduled observation exposure time
ontime	20076.999859273	Sum of GTIs [s]
ontime4	20076.999859273	Sum of GTIs [s]
ontime5	20076.999859273	Sum of GTIs [s]
ontime6	20076.999859273	Sum of GTIs [s]
ontime7	20076.999859273	Sum of GTIs [s]
ontime8	20076.999859273	Sum of GTIs [s]
ontime9	20076.999859273	Sum of GTIs [s]
l1events	554441	Number of level 1 events

2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	87786	111160	79690	101508	102270	72027
rejected events	74099	54732	66778	47753	73380	62705
rejected %	84%	49%	83%	47%	71%	87%

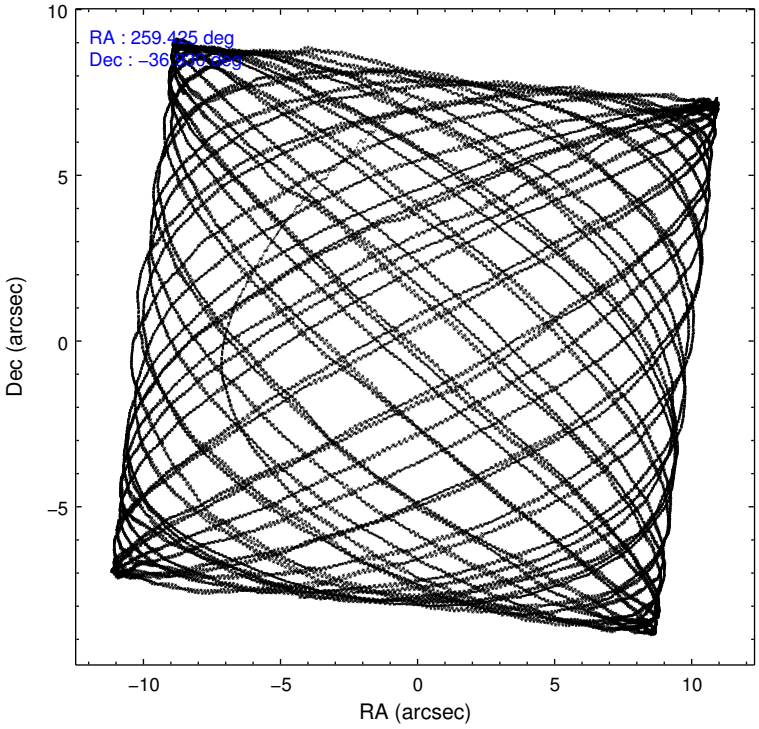
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	7535	6216	5697	6230	8472	3334
	8%	5%	7%	6%	8%	4%
grade 1 events	76	446	33	190	64	37
	0%	0%	0%	0%	0%	0%
grade 2 events	2405	15950	2496	11278	6224	1924
	2%	14%	3%	11%	6%	2%
grade 3 events	1103	3117	1259	5194	3457	1074
	1%	2%	1%	5%	3%	1%
grade 4 events	1064	2886	1263	5177	3170	1072
	1%	2%	1%	5%	3%	1%
grade 5 events	3050	9147	3037	9406	4534	3349
	3%	8%	3%	9%	4%	4%
grade 6 events	1581	28265	2197	25880	7570	1918
	1%	25%	2%	25%	7%	2%
grade 7 events	70972	45133	63708	38153	68779	59319
	80%	40%	79%	37%	67%	82%

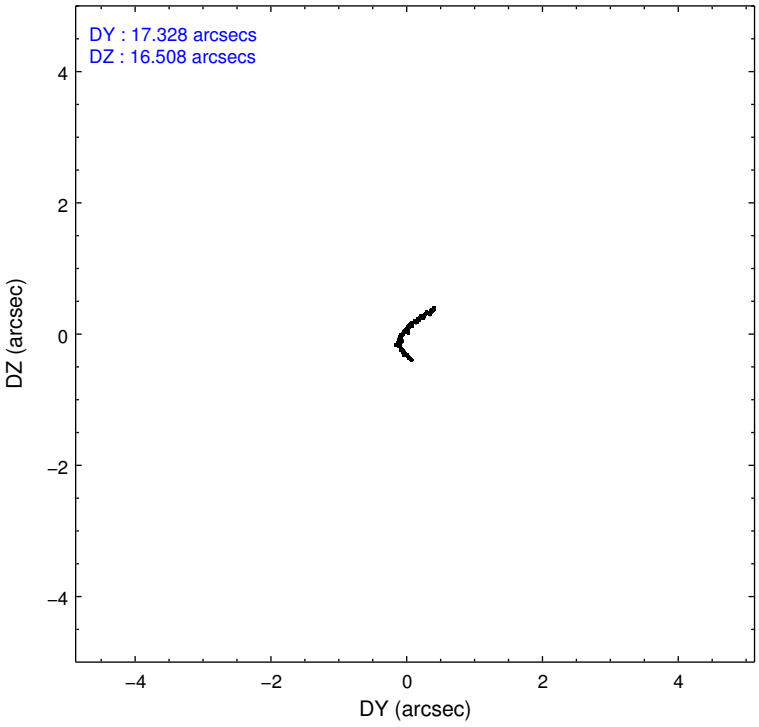
2.2 Compared Parameters

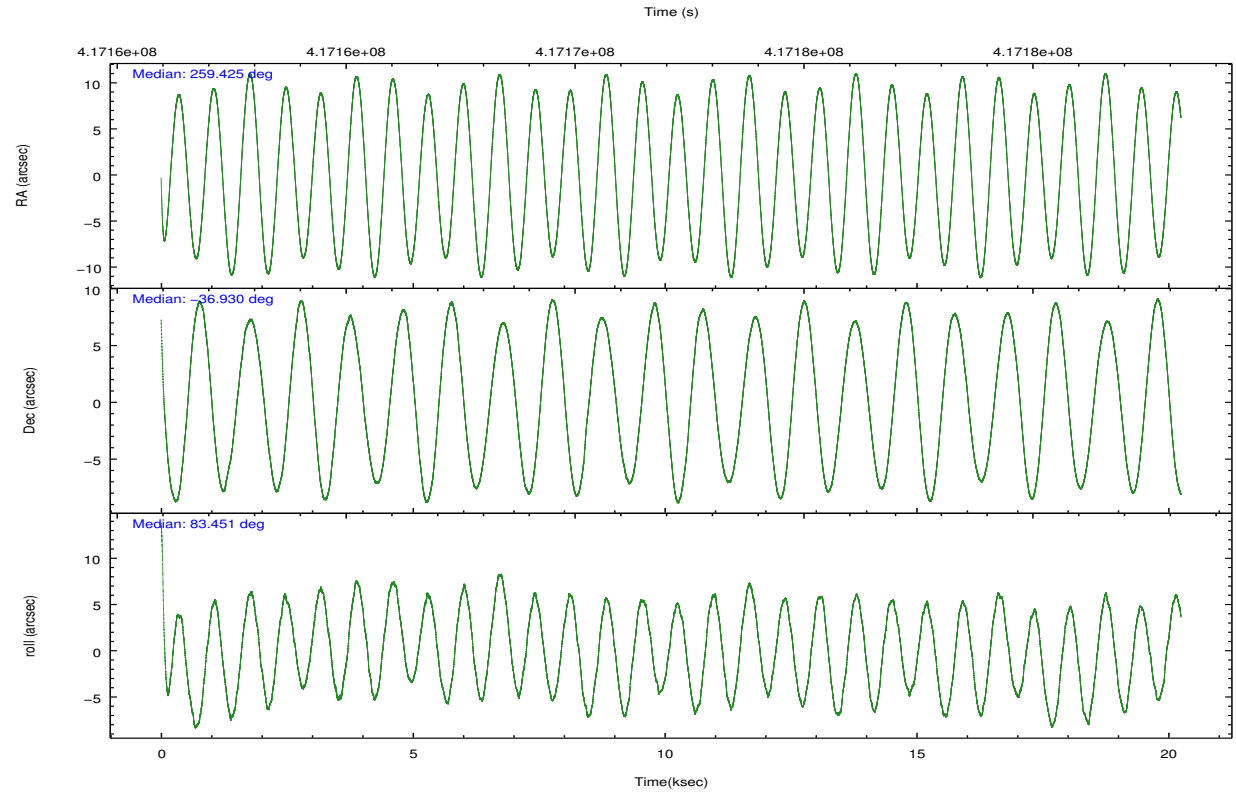
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	259.439302	259.425268569647
[deg] Pointing Dec	-36.954760	-36.92983760364743
[deg] Pointing Roll	83.305450	83.45364974082412
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-183.992523	-183.9875365069546
[mm] SIM translation stage offset	-6.14	-6.144986076053243
[s] Observation start time (MET)	417162221.184000	417161235.18137
Observation start date	2011-03-22T06:22:35	2011-03-22T06:07:15
[s] Observation end time (MET)	417182224.184000	417182448.58247
Observation end date	2011-03-22T11:55:58	2011-03-22T12:00:48
Read mode	TIMED	TIMED

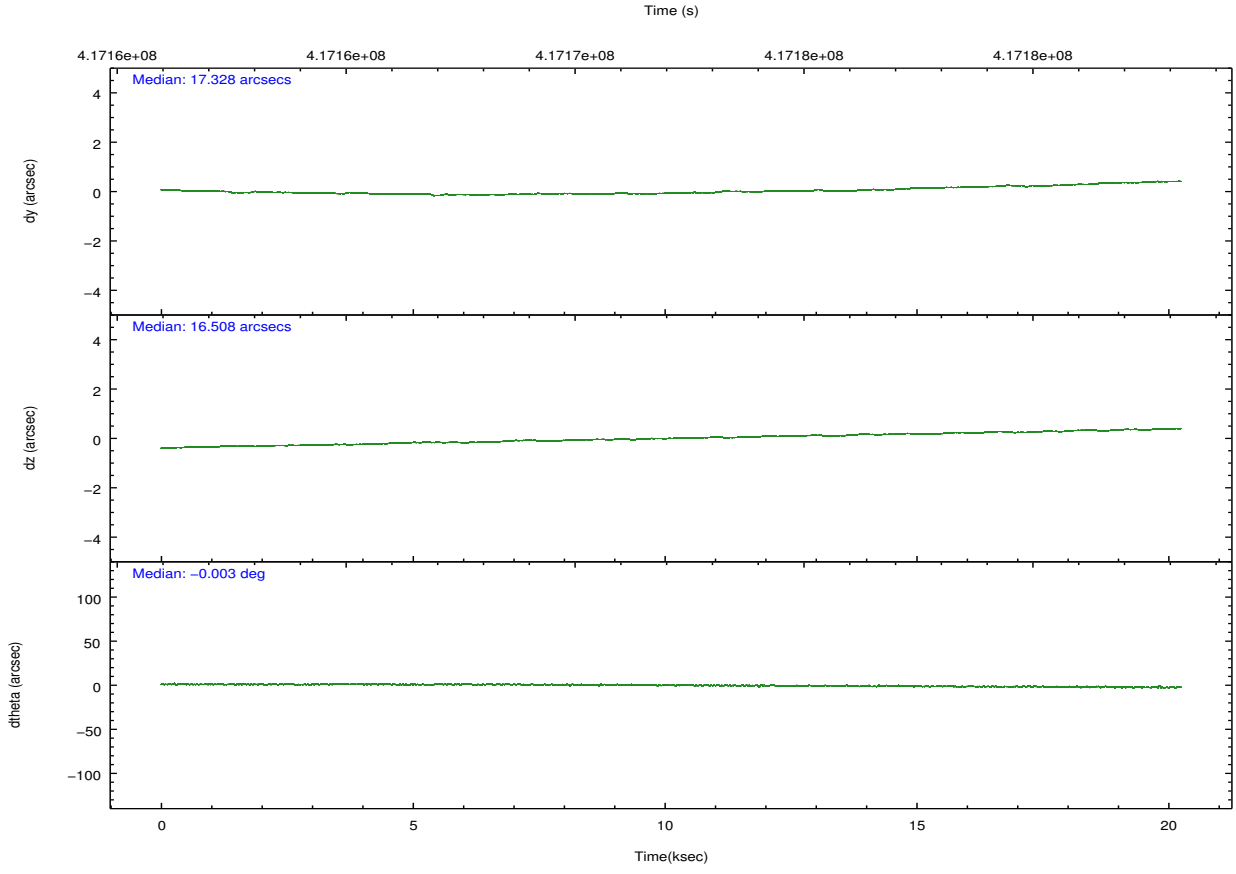
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	Y
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	Y	Y
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/2
Subarray start row	1	1
Subarray row count	512	512
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	1.7

2.3 Aspect


RA : 259.425 deg
Dec : −36.
10
5
0
−5
−10
−5
0
5
10
Dec (arcsec)
RA (arcsec)


DY : 17.328 arcsecs
DZ : 16.508 arcsecs
4
2
0
−2
−4
−4
−2
0
2
4
DZ (arcsec)
DY (arcsec)


Time (s)
4.1716e+08
4.1716e+08
4.1717e+08
4.1718e+08
4.1718e+08
Median: 259.425 deg
RA (arcsec)
Median: −36.930 deg
Dec (arcsec)
Median: 83.451 deg
roll (arcsec)
Time(ksec)

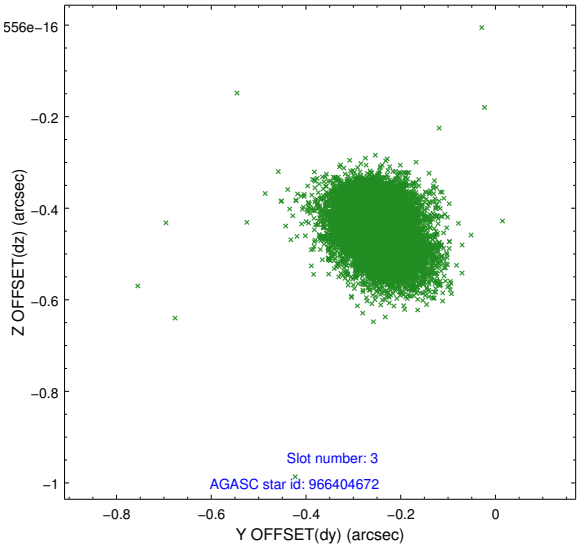

Time (s)
4.1716e+08
4.1716e+08
4.1717e+08
4.1718e+08
4.1718e+08
Median: 17.328 arcsecs
dy (arcsec)
Median: 16.508 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

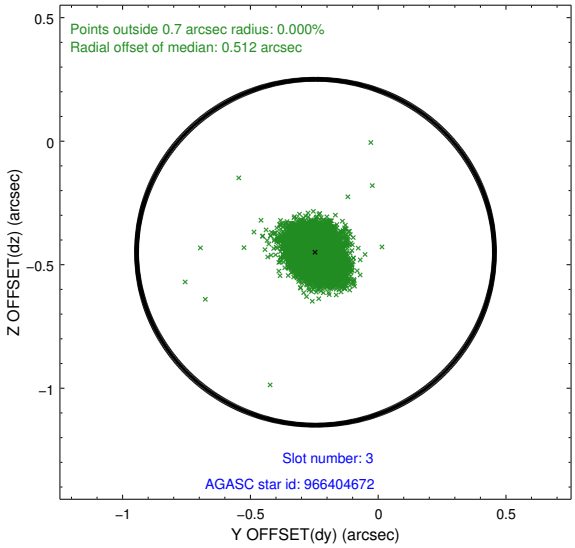
Slot Statistics

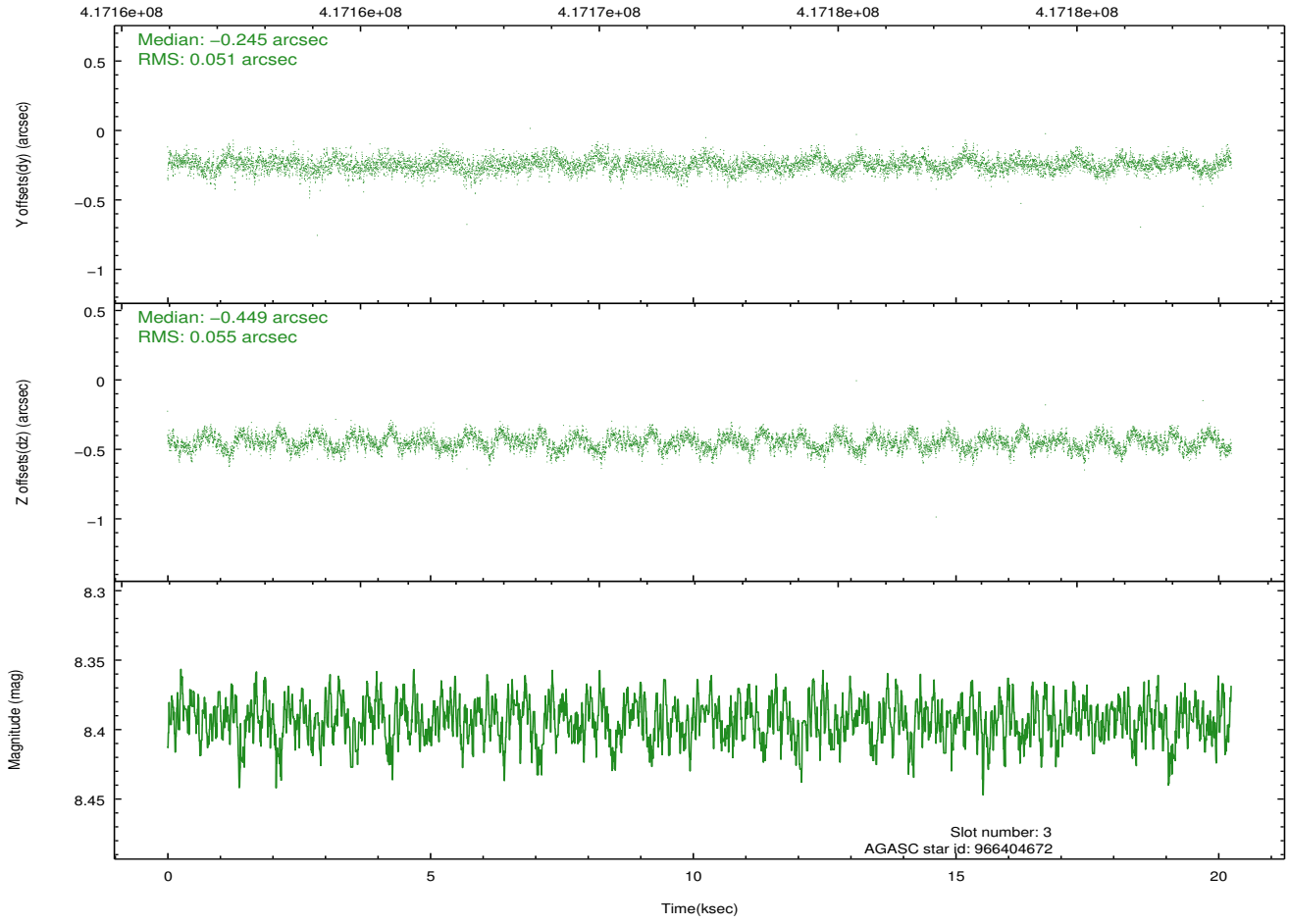
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.00	4938	-0.068	-0.095	0.016	0.024	0.000000	0.000000	-770.06	-1864.67
1	FID	ACIS-S-4	7.06	4937	0.181	0.058	0.009	0.015	0.000000	0.000000	2143.41	43.70
2	FID	ACIS-S-5	7.12	4937	-0.145	0.044	0.014	0.021	0.000000	0.000000	-1822.72	37.62
3	GUIDE	966404672	8.39	9871	-0.245	-0.449	0.078	0.127	258.732174	-36.454154	1543.34	2242.56
4	GUIDE	966526680	9.05	9872	0.193	0.193	0.148	0.224	259.712281	-37.092655	-402.17	-835.98
5	GUIDE	966527104	6.77	9876	0.120	0.126	0.065	0.105	259.814922	-37.359205	-1322.54	-1237.34
6	GUIDE	966527864	8.15	9869	0.271	-0.230	0.076	0.124	259.198901	-37.409371	-1706.13	491.61
7	GUIDE	966530176	8.77	9869	-0.332	0.387	0.086	0.137	260.167913	-36.682742	1209.69	-1975.30

2.4 Star Slots

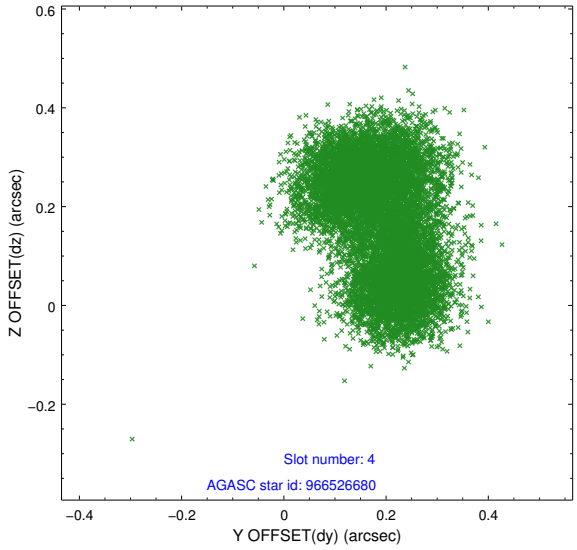
2.4.1 Slot 3

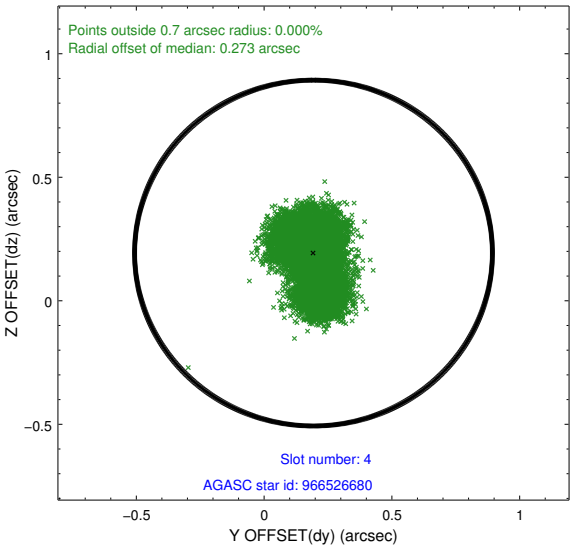


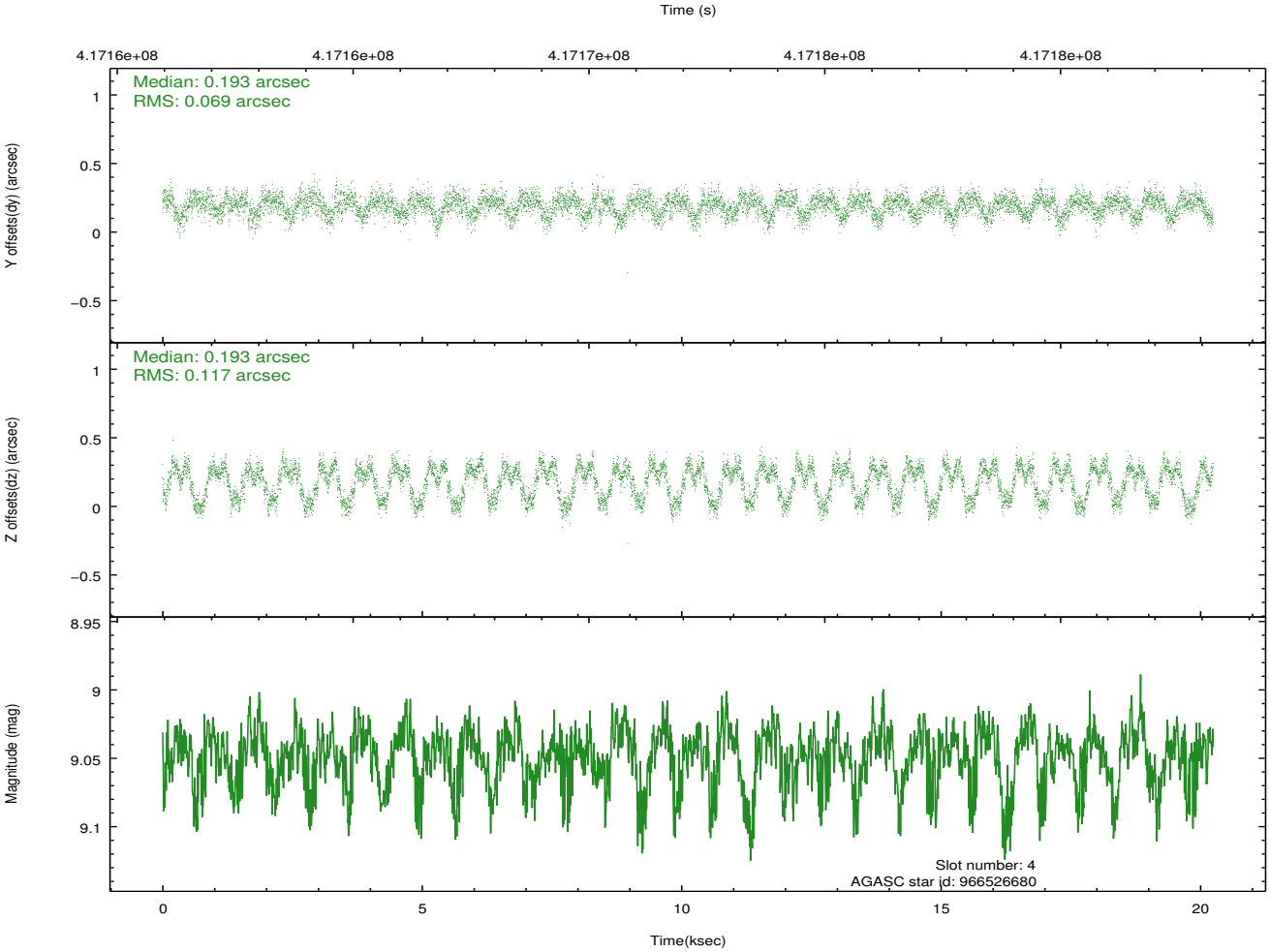




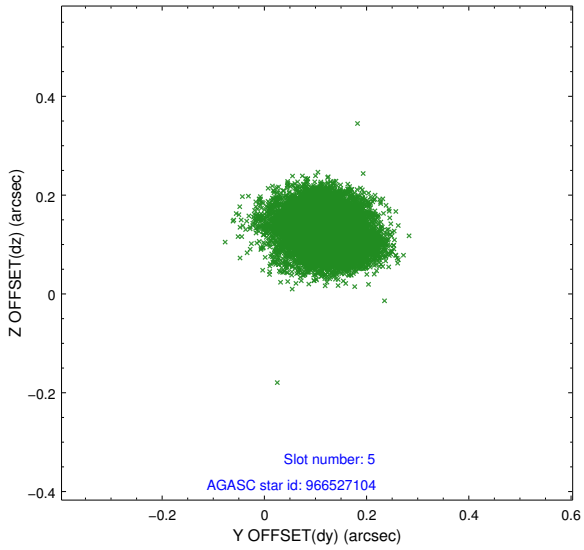
2.4.2 Slot 4

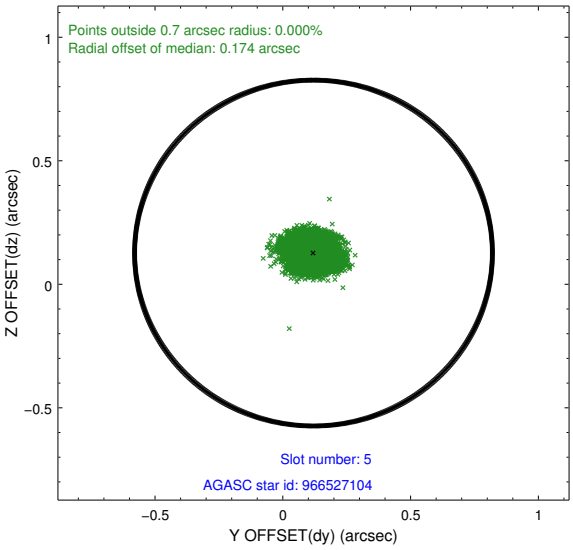

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 966526680

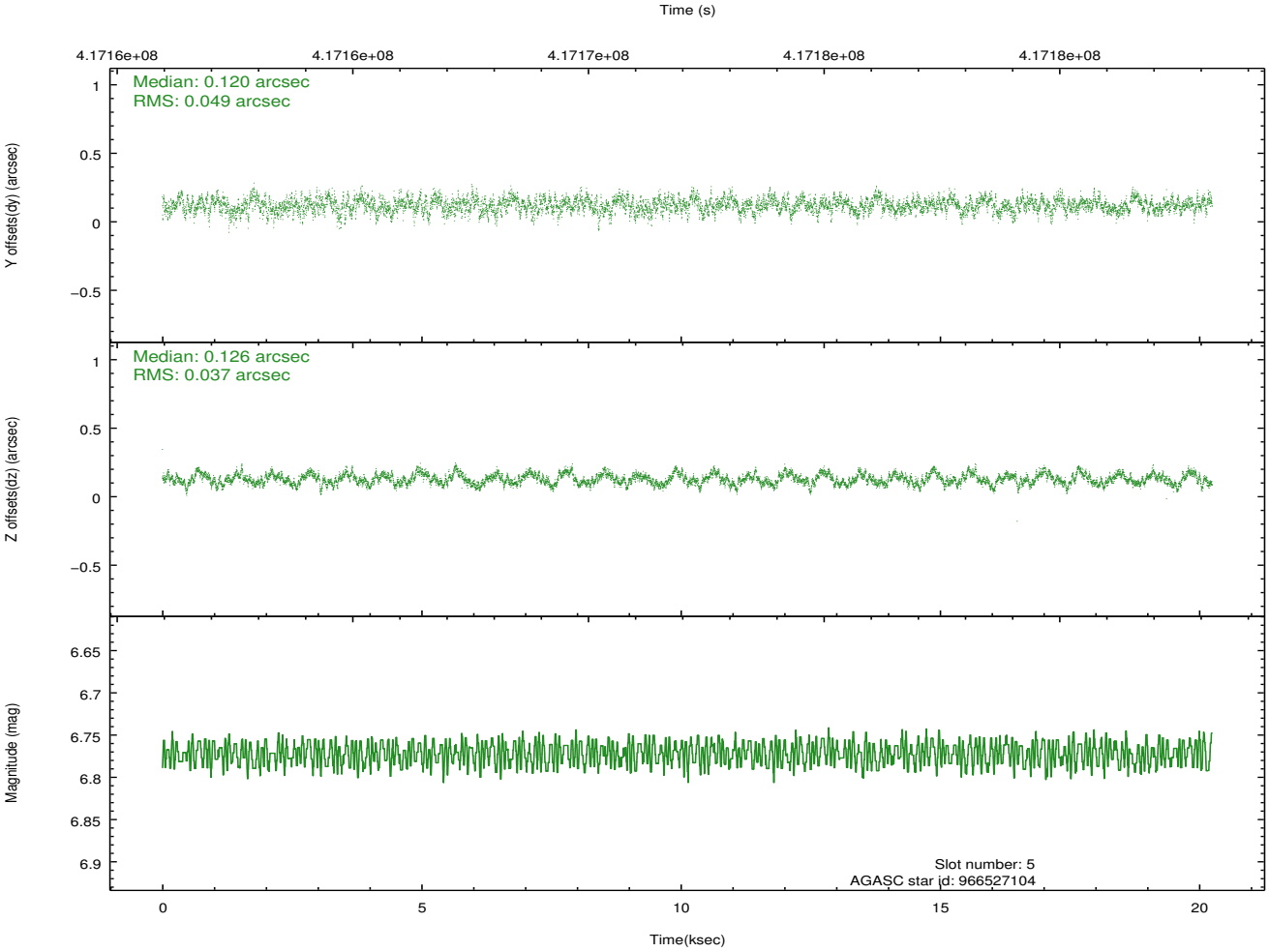

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.273 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 966526680


Time (s)
Median: 0.193 arcsec
RMS: 0.069 arcsec
Y offsets(dy) (arcsec)
Median: 0.193 arcsec
RMS: 0.117 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 966526680
Time(ksec)

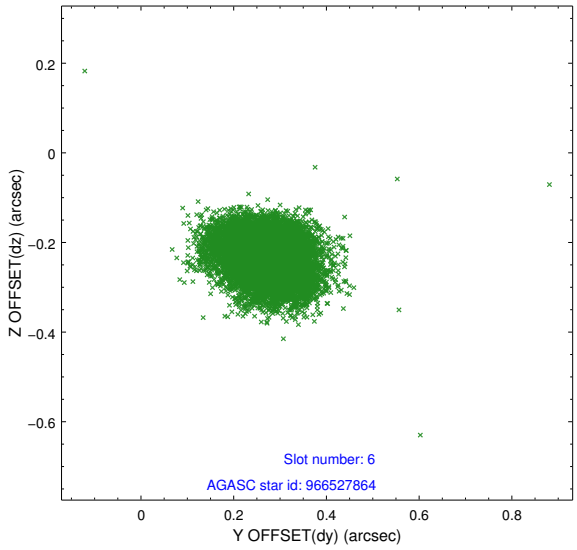
2.4.3 Slot 5

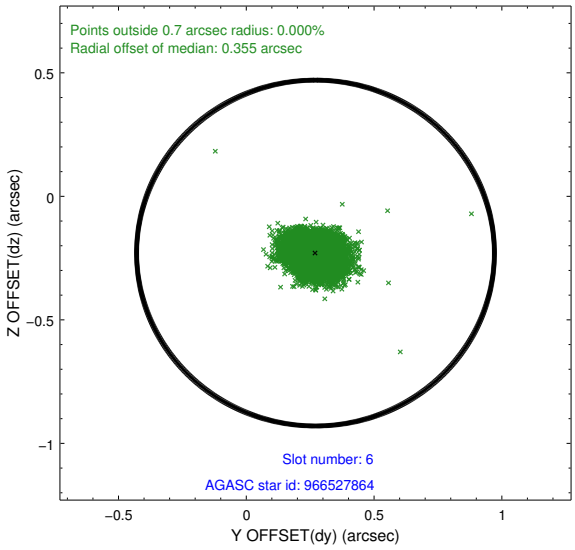

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 966527104

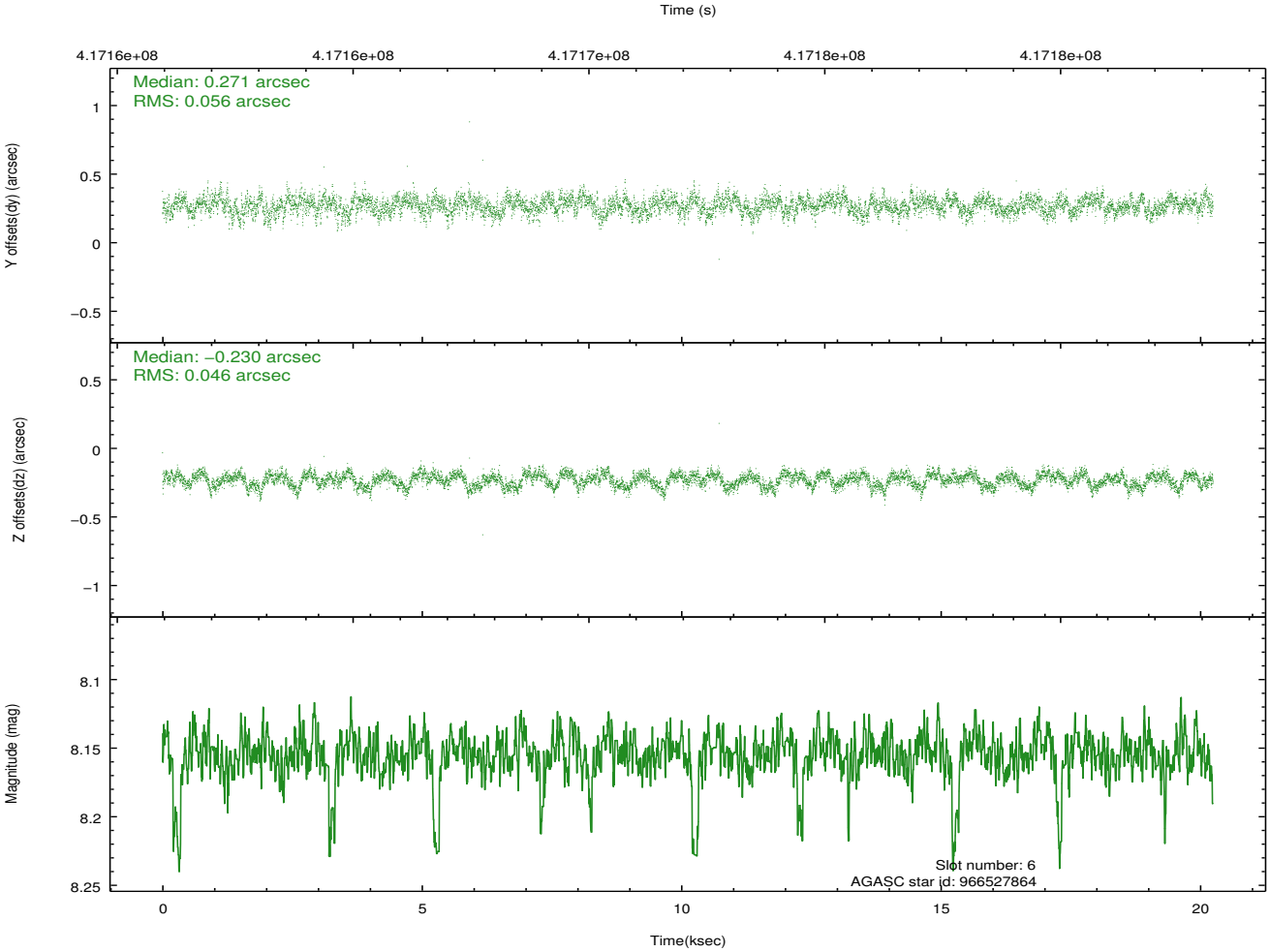

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.174 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 966527104


Time (s)
Median: 0.120 arcsec
RMS: 0.049 arcsec
Y offsets(dy) (arcsec)
Median: 0.126 arcsec
RMS: 0.037 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 966527104
Time(ksec)

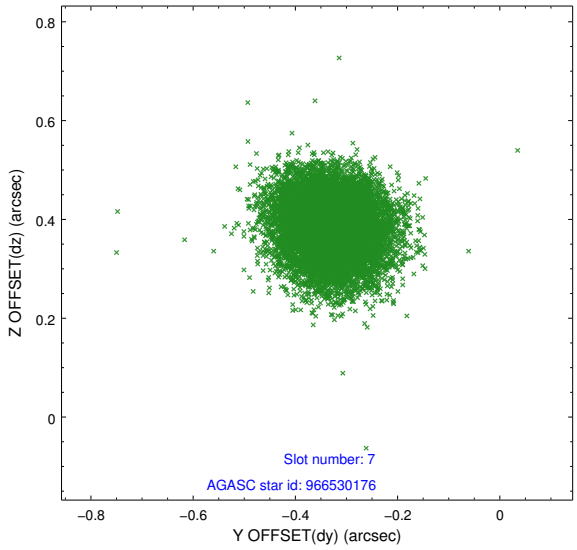
2.4.4 Slot 6

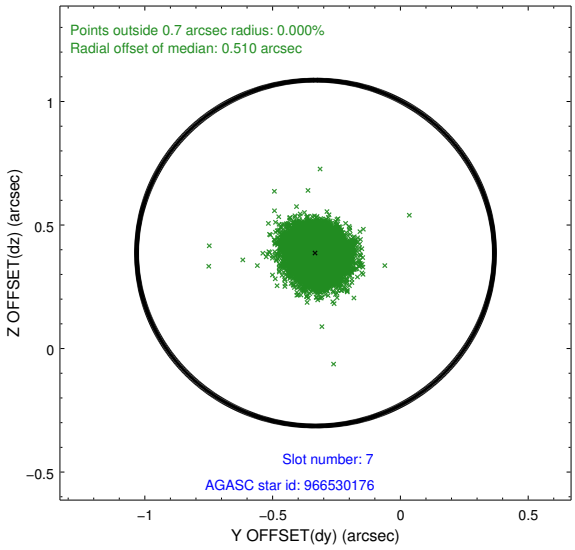

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 966527864

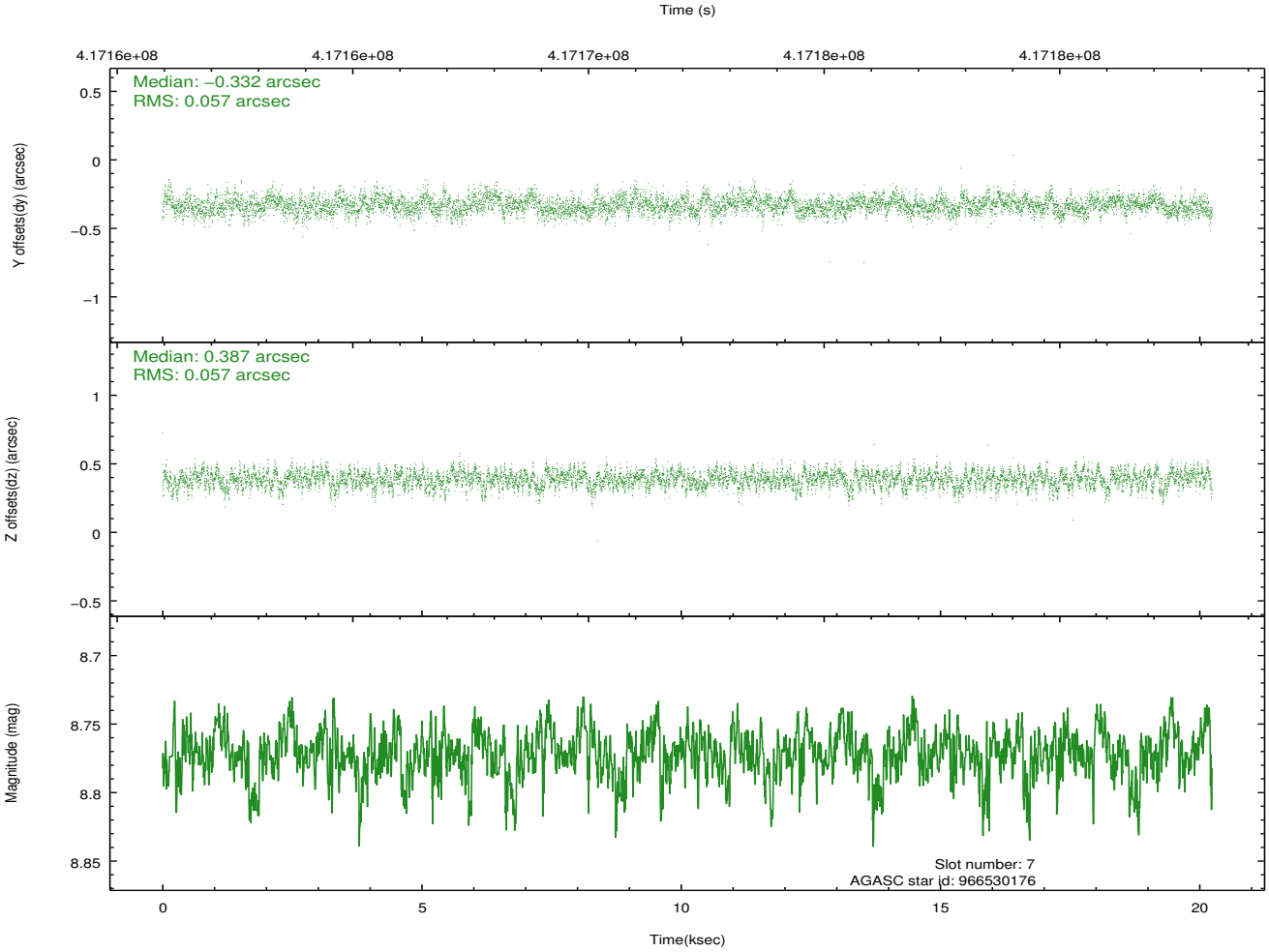

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.355 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 966527864


Time (s)
Median: 0.271 arcsec
RMS: 0.056 arcsec
Y offsets(dy) (arcsec)
Median: −0.230 arcsec
RMS: 0.046 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 966527864
Time(ksec)

2.4.5 Slot 7

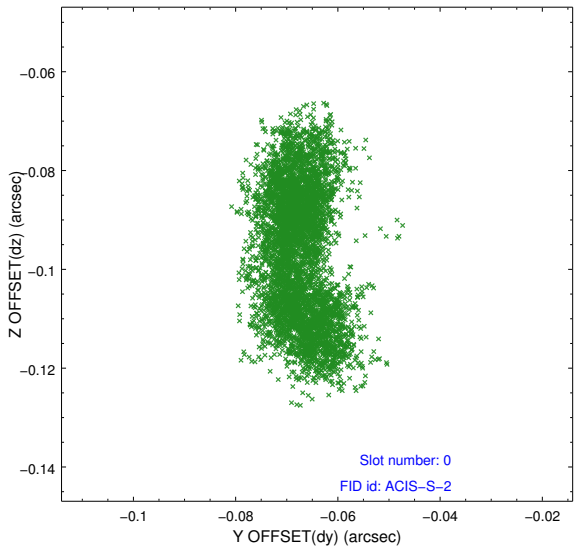

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 966530176

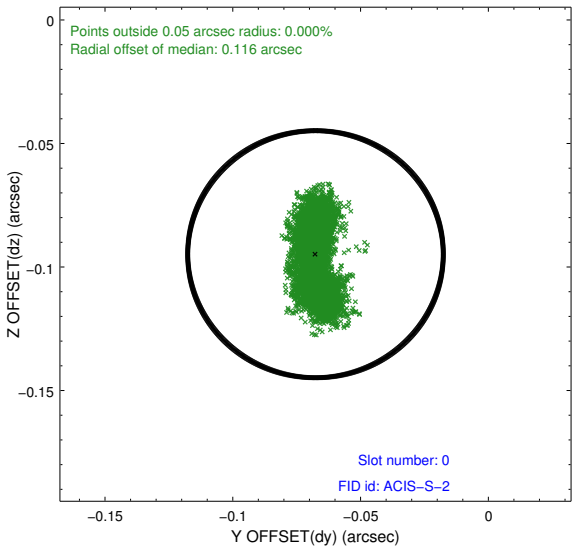

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.510 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 966530176

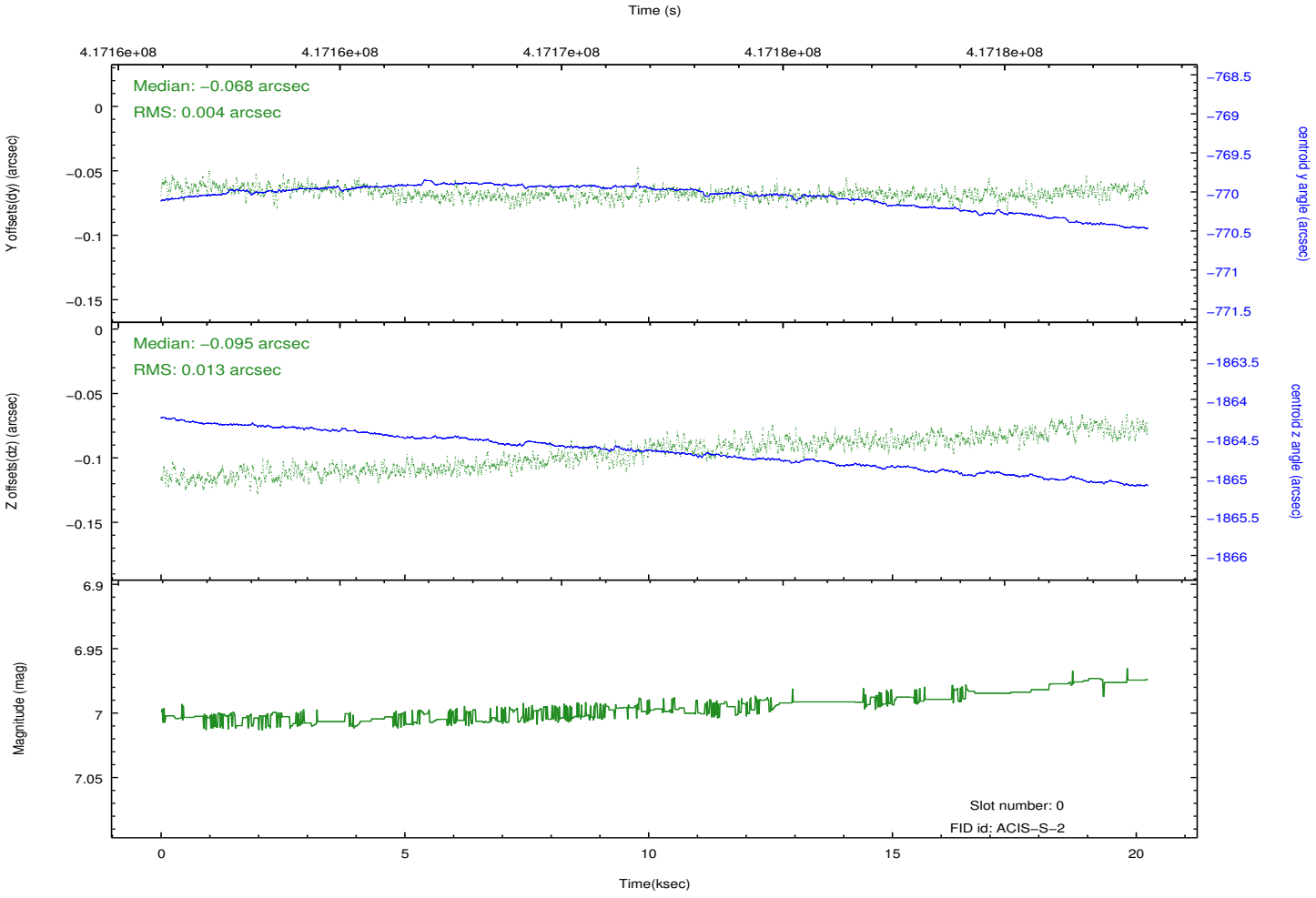

Time (s)
Median: −0.332 arcsec
RMS: 0.057 arcsec
Y offsets(dy) (arcsec)
Median: 0.387 arcsec
RMS: 0.057 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 966530176
Time(ksec)

2.5 FID Slots

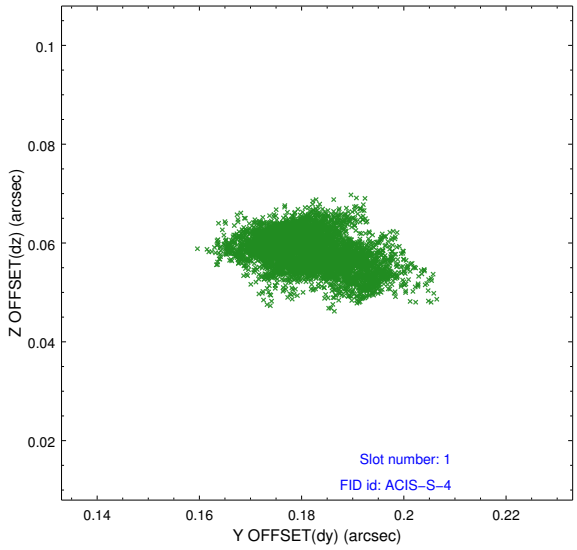
2.5.1 Slot 0

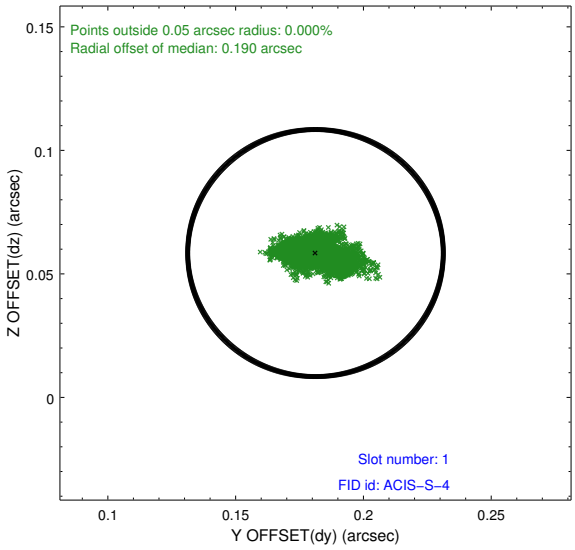


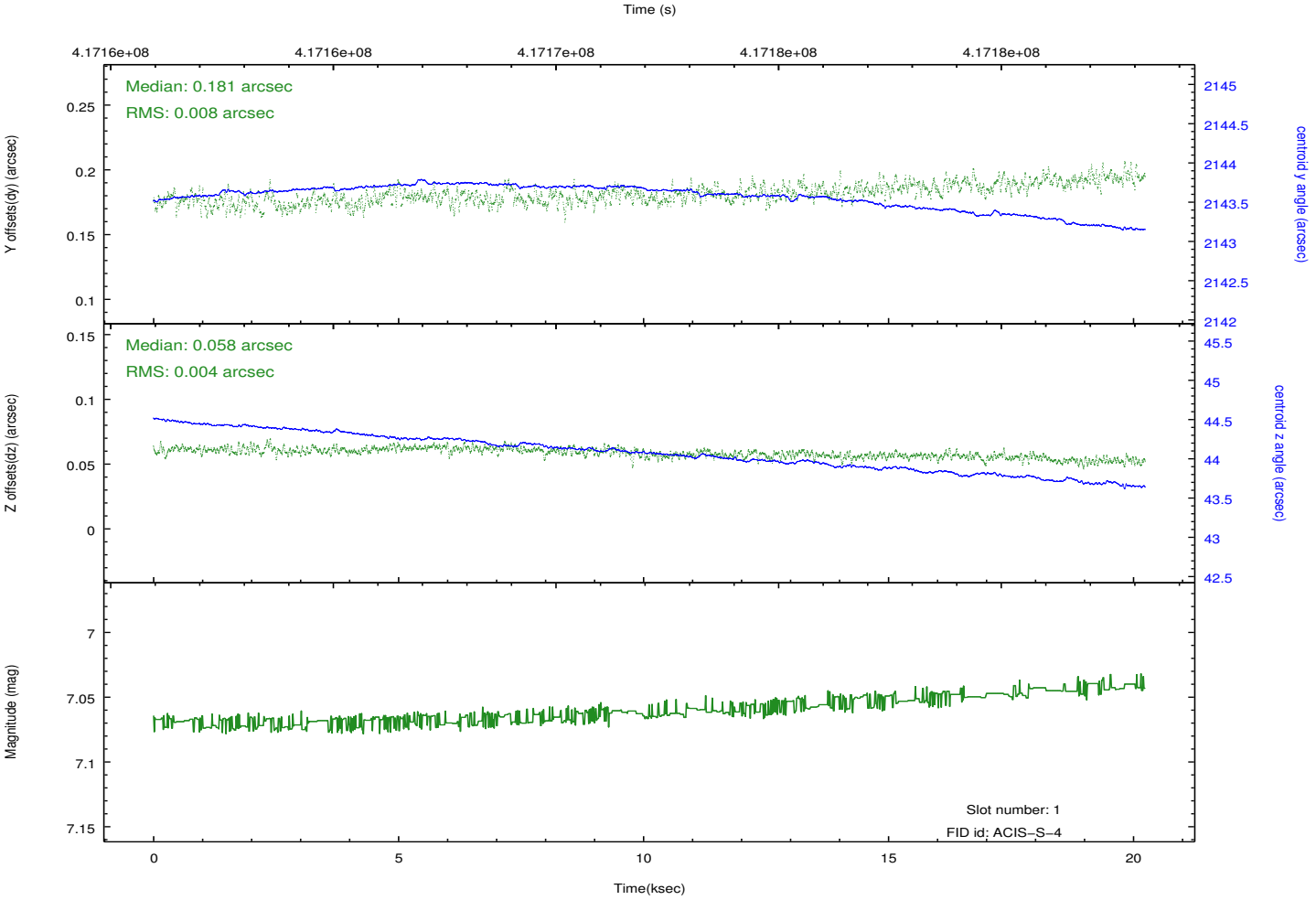




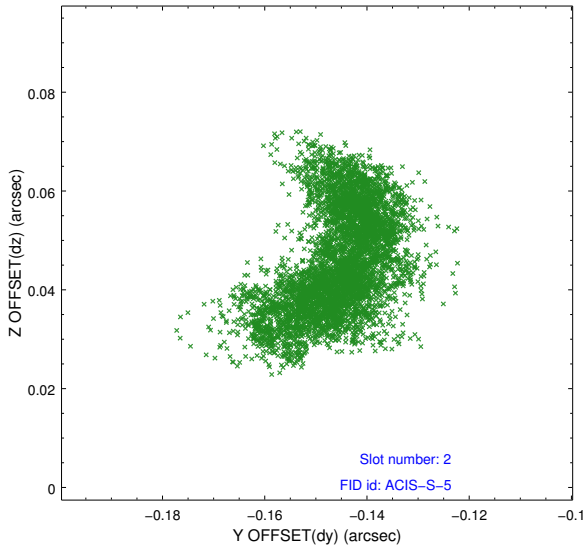
2.5.2 Slot 1

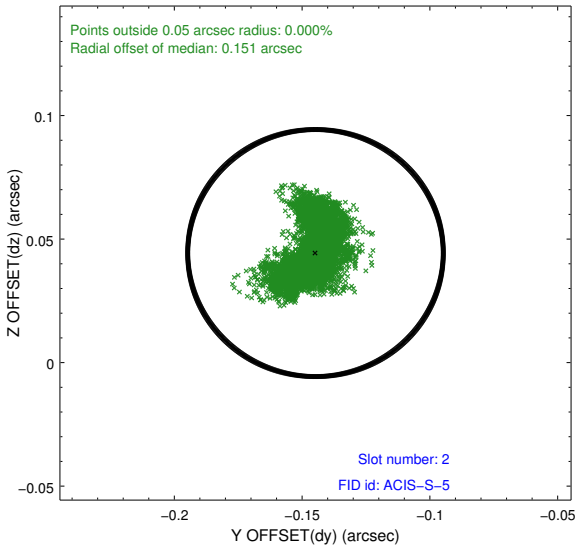

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

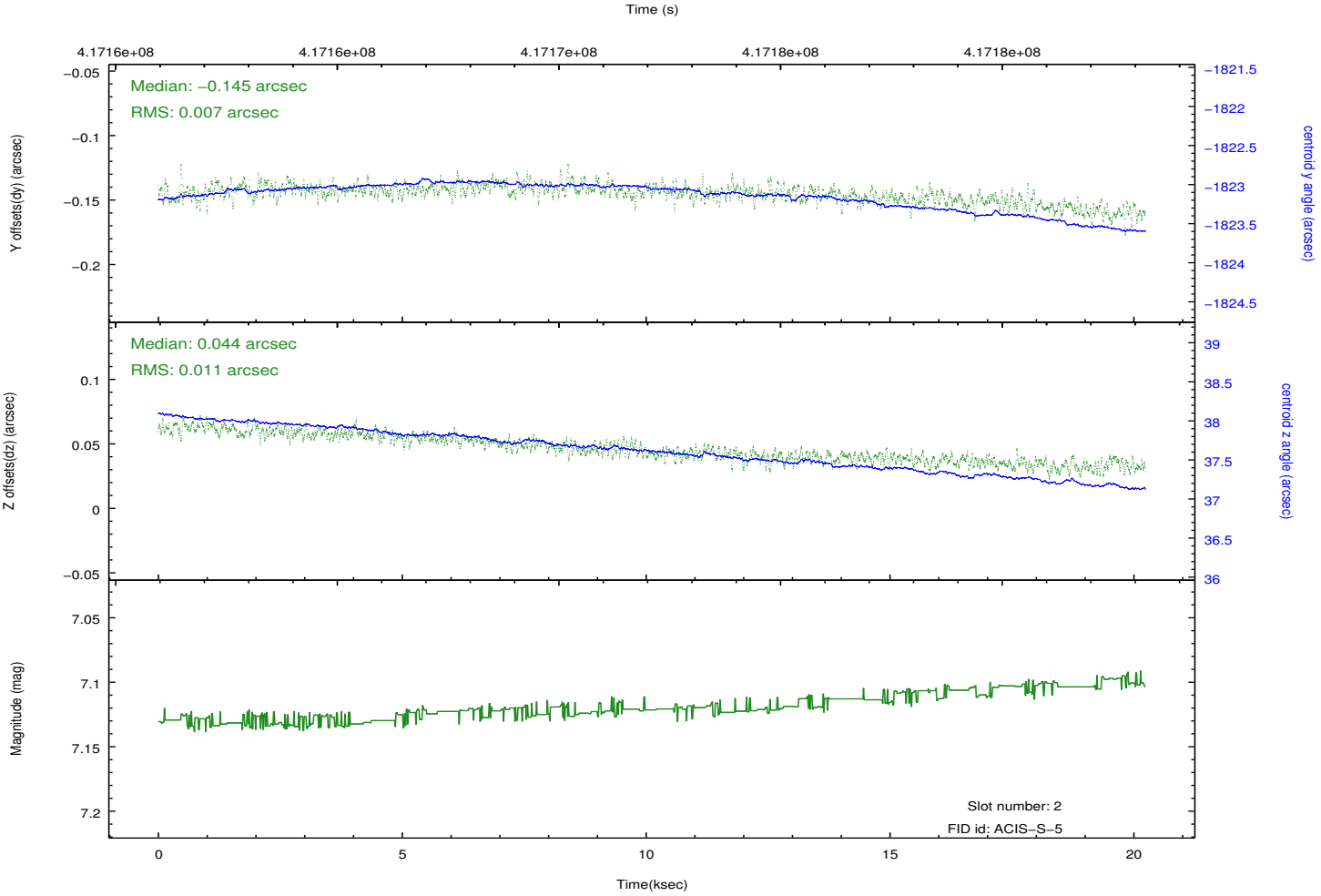

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.190 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.181 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.058 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−S−4
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5

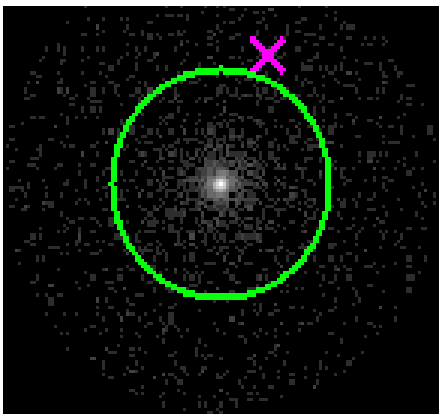

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.151 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.145 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.044 arcsec
RMS: 0.011 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−5
Time(ksec)

3 Gratings

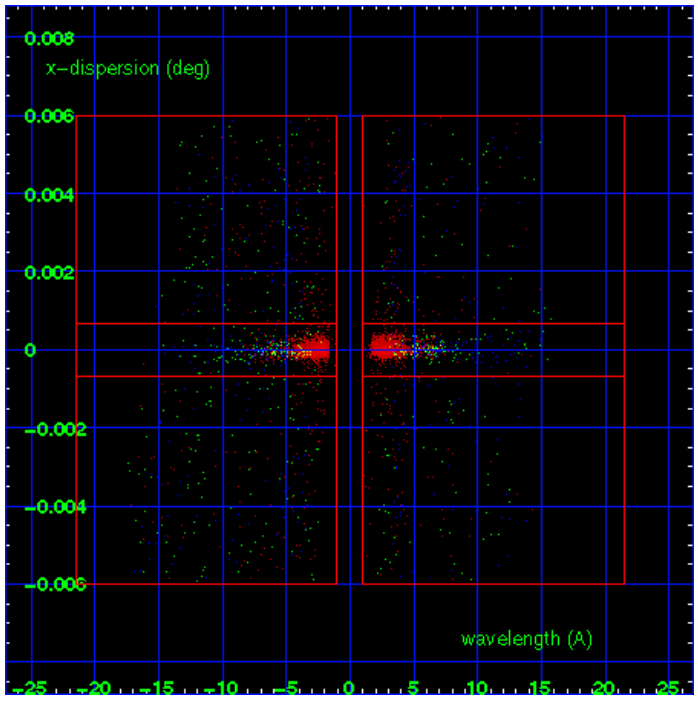
3.1 HEG Arm

HEG Order Sort 123

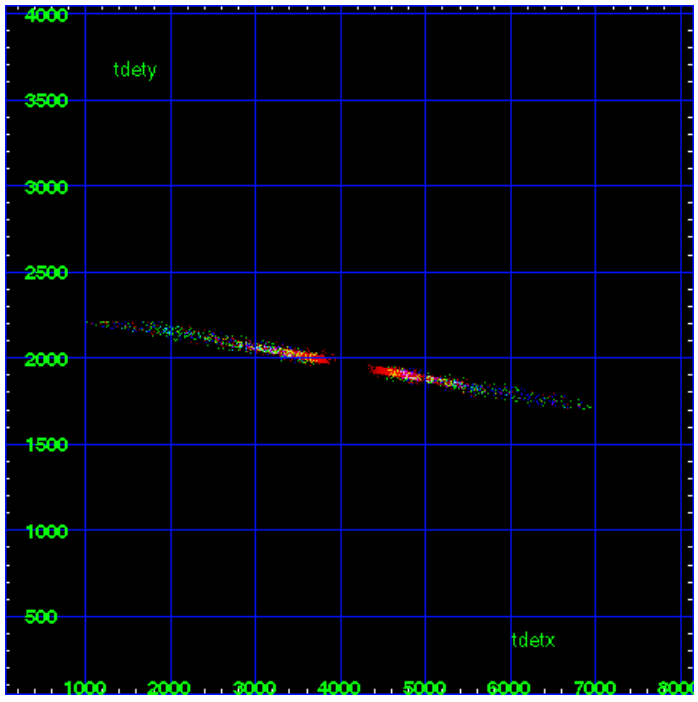


HEG Zero Order

HEG Order Sort ALL

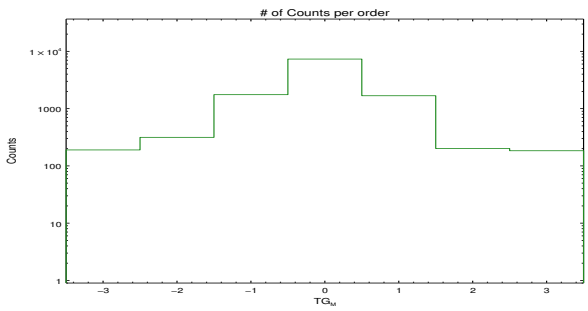


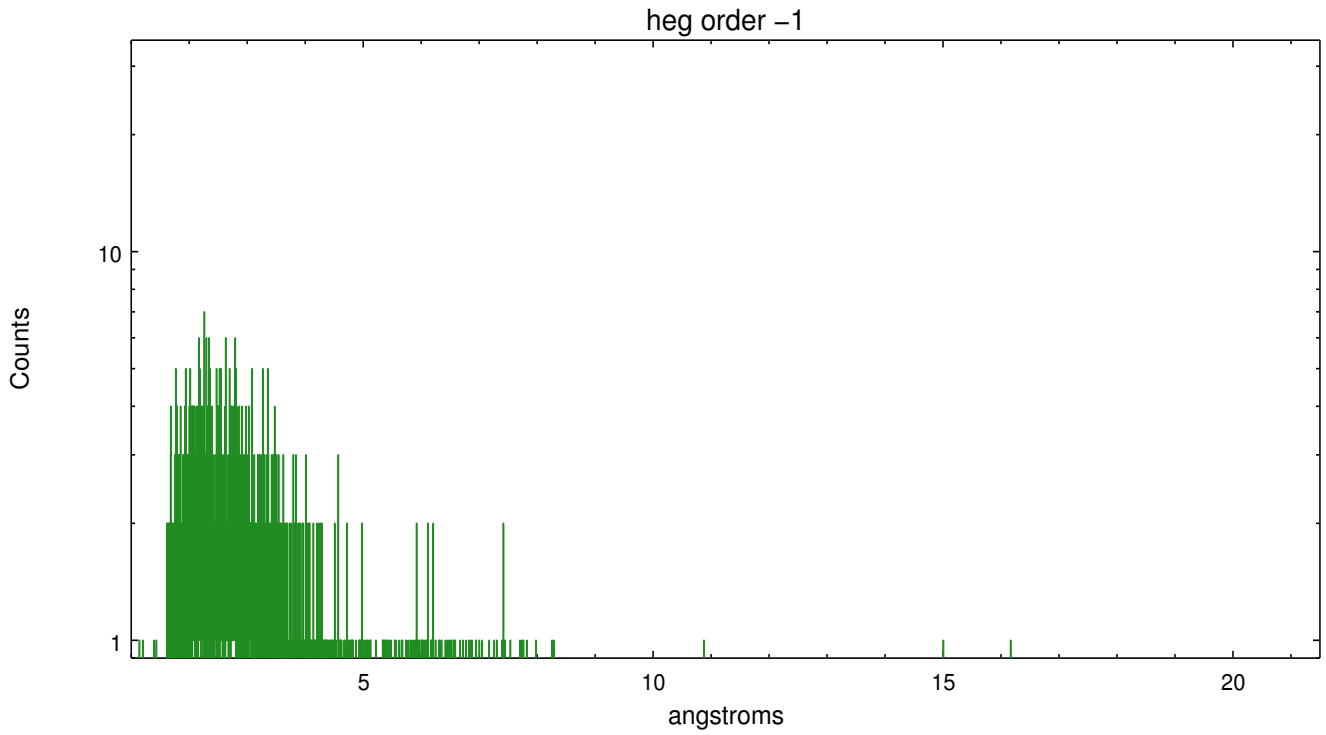
Spot Image HEG

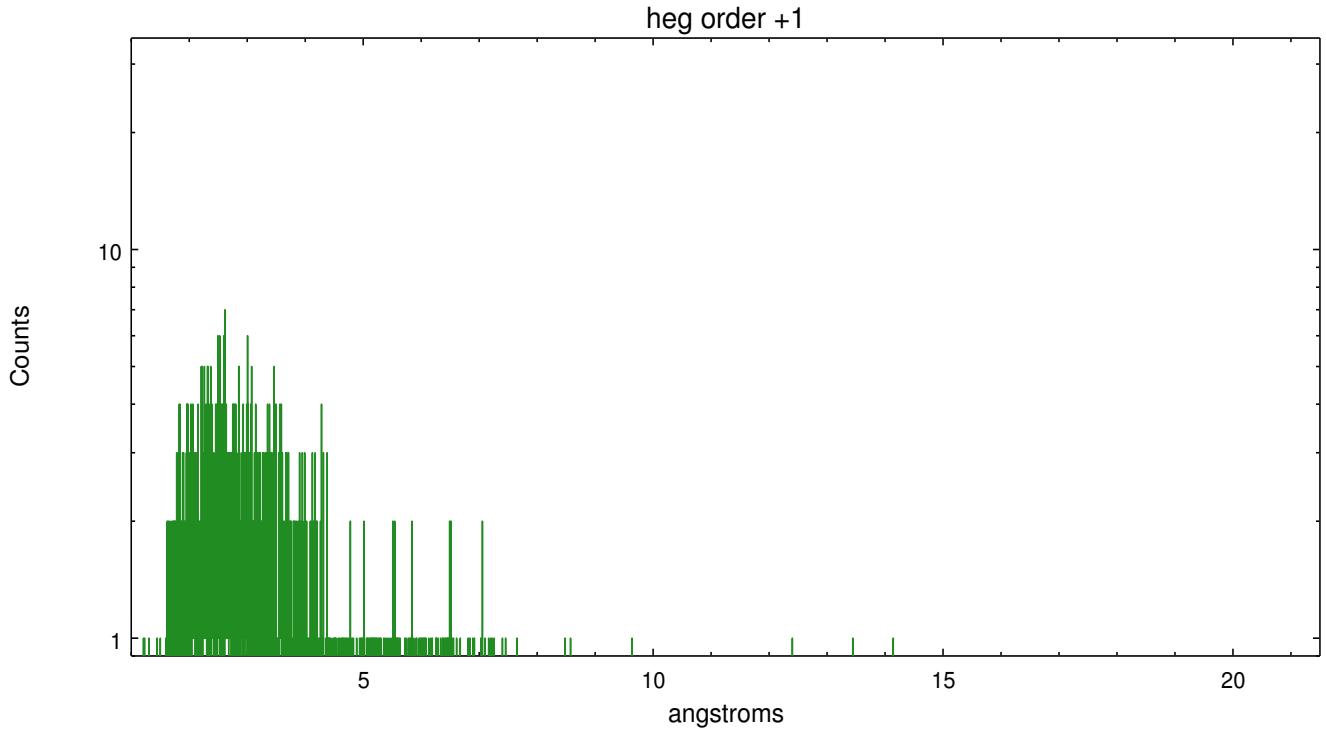


Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	190	315	1754	7334	1680	201	184

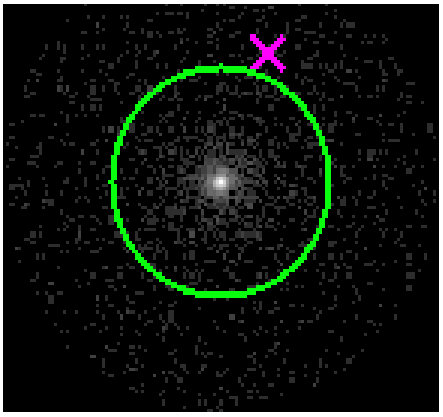



heg order −1
Counts
10
1
5
10
15
20
angstroms

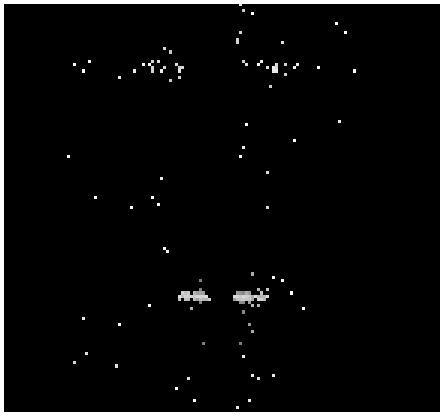

heg order +1
Counts
10
1
5
10
15
20
angstroms

3.2 MEG Arm

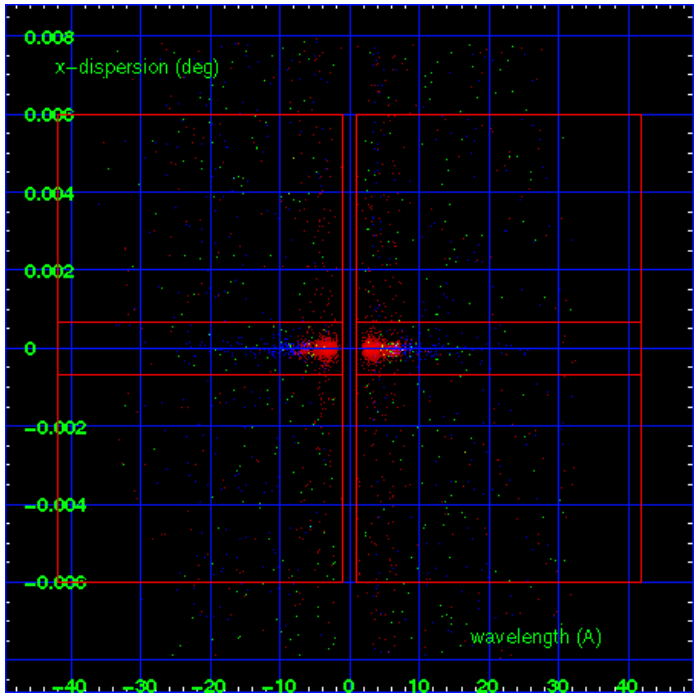
MEG Order Sort 123



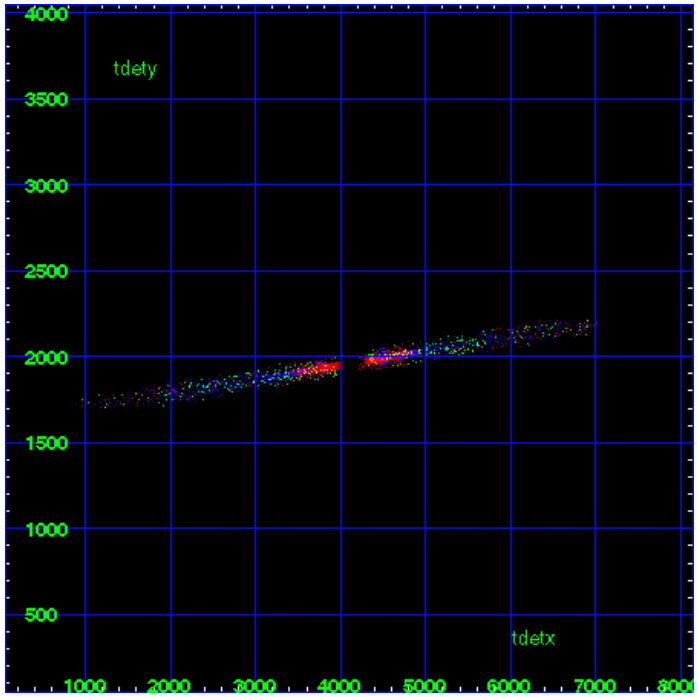
MEG Zero Order



MEG Order Sort ALL

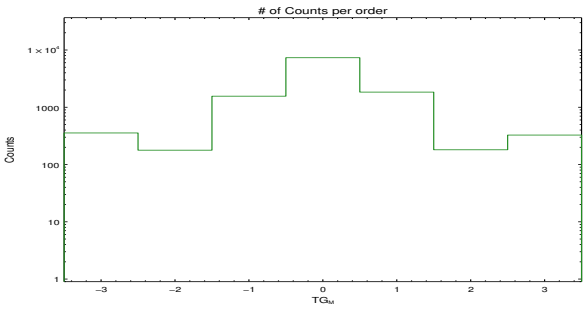


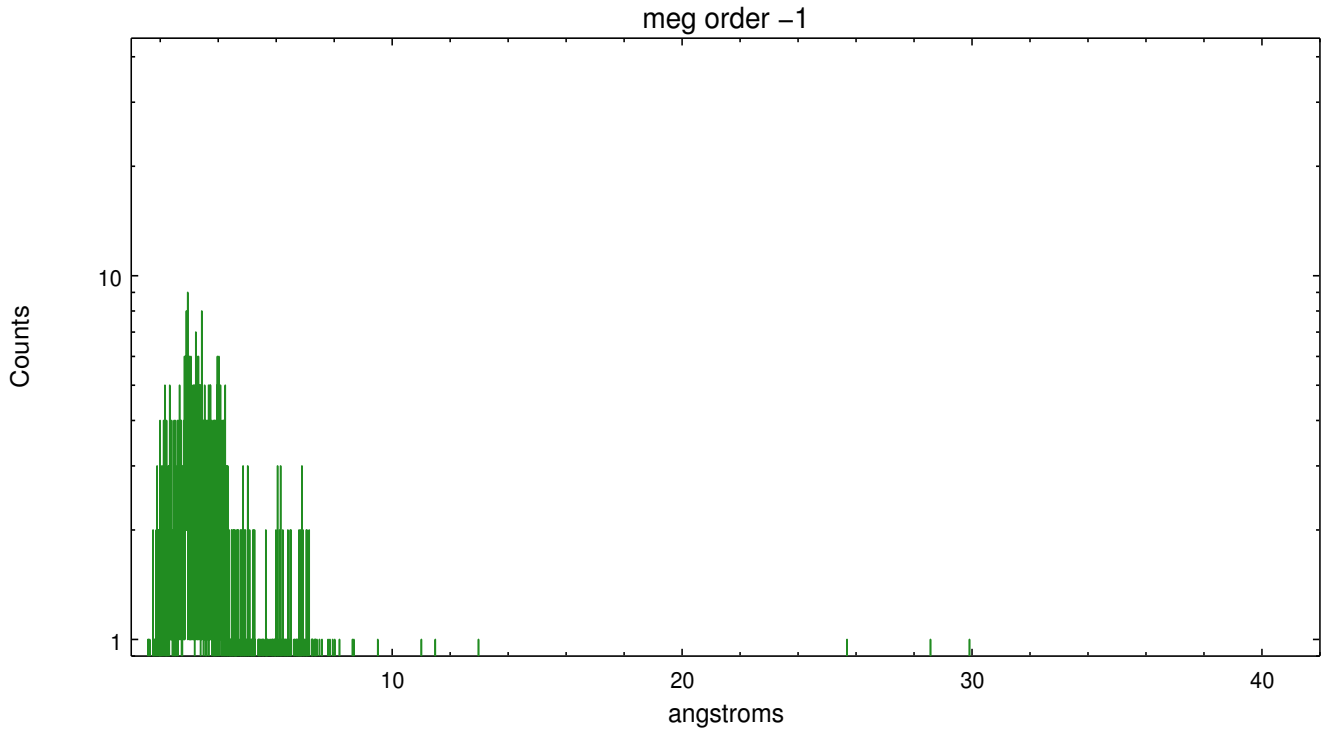
Spot Image MEG

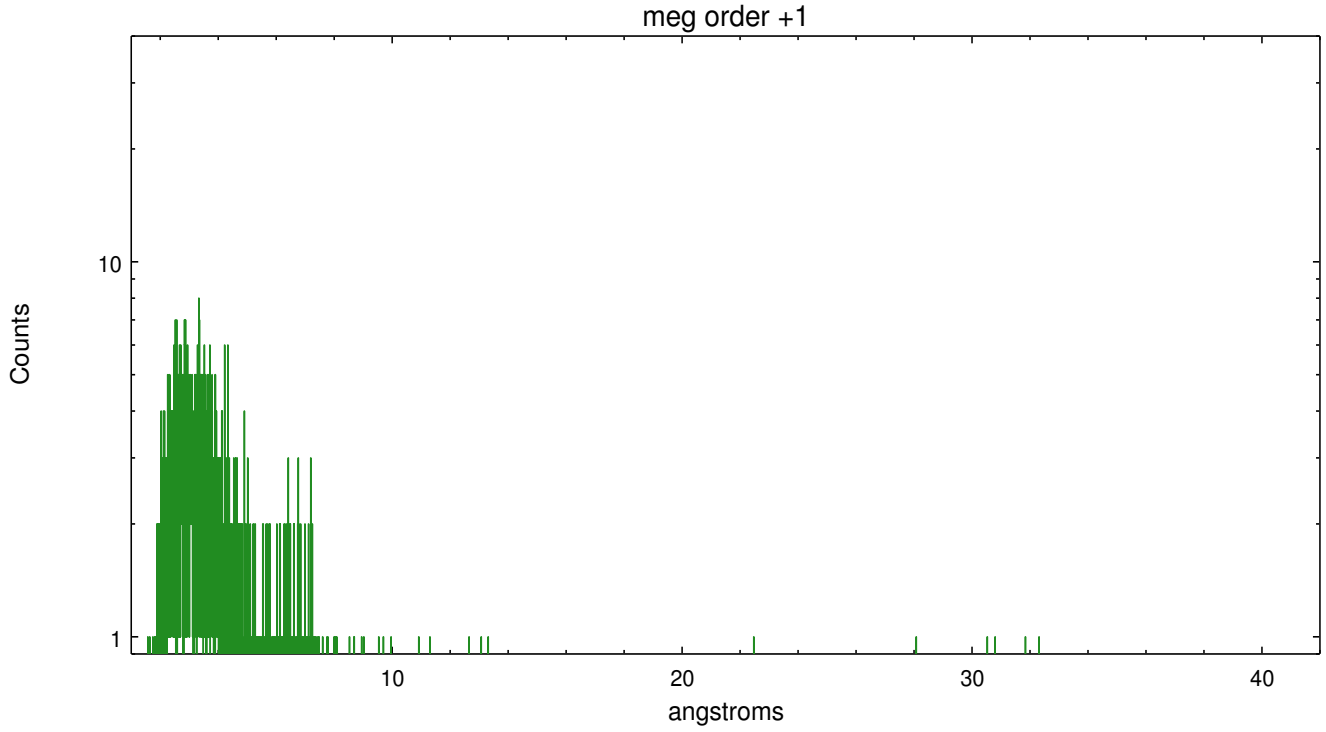


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	356	178	1561	7334	1839	181	327




meg order −1
Counts
10
1
10
20
30
40
angstroms


meg order +1
Counts
10
1
10
20
30
40
angstroms

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.02.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.076999859273

A.2 Comments

The data for this observation have been processed using the 'EDSER' sub-pixel event-repositioning algorithm of Li et al. (2004, ApJ, 610, 1204). Small-scale features should become sharper for sources near the aim point. The improvement will be less noticeable for off-axis sources where the size of the point-spread function is comparable to or larger than the size of an ACIS pixel. To take full advantage of the improvement, images should be binned on spatial scales smaller than the size of an ACIS pixel. Note that, at present, the point-spread function has not been calibrated for data to which the EDSER algorithm has been applied. If dither was disabled for the observation, then the algorithm can introduce artificial aliasing effects on spatial scales smaller than a pixel. If you would prefer to use no sub-pixel adjustment or to apply a coordinate randomization, then use acis_process_events to reprocess the data with the parameter pix_adj=NONE or RANDOMIZE, respectively.