V&V Reference Report
L2 ASCDS Version : 8.4.5

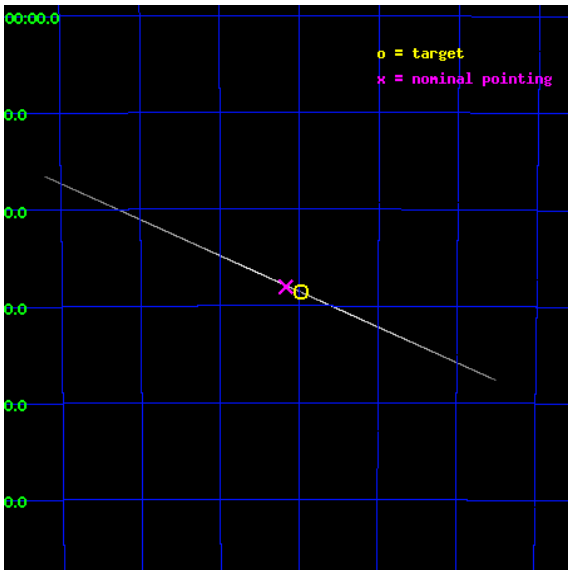
Observation 680 - L2 Version 6
Chandra X-Ray Center

L2 Processing Date : Aug 28 2012

Contents

1 Front

seq_num	400047	Sequence number
obs_id	680	Observation id
title	AXAF OBSERVATIONS OF A BRIGHT BLACK HOLE X-RAY BINARY IN OUTBURST	
observer	Prof. Walter Lewin	Principal investigator
object	XTE J1550-564 (OUTBURST RISE)	Source name
ra_targ	237.745417	Observer's specified target RA [deg]
dec_targ	-56.476472	Observer's specified target Dec [deg]
ra_nom	237.7919889181	Nominal RA [deg]
dec_nom	-56.467498749085	Nominal Dec [deg]
roll_nom	24.008743395737	Nominal Roll [deg]
revision	6	Processing version of data
ontime	2146.3662219346	Sum of GTIs [s]
livetime	2137.9819788801	Livetime [s]
ontime4	2315.5	Sum of GTIs [s]
ontime5	2315.5	Sum of GTIs [s]
ontime6	1803.4601489305	Sum of GTIs [s]
ontime7	2146.3662219346	Sum of GTIs [s]
ontime8	1977.1243356615	Sum of GTIs [s]
ontime9	2315.5	Sum of GTIs [s]
l2events	779153	Number of level 2 events

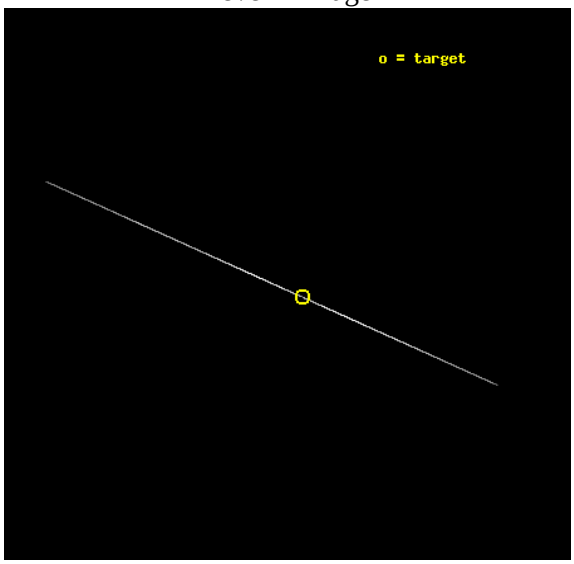


2 OBI

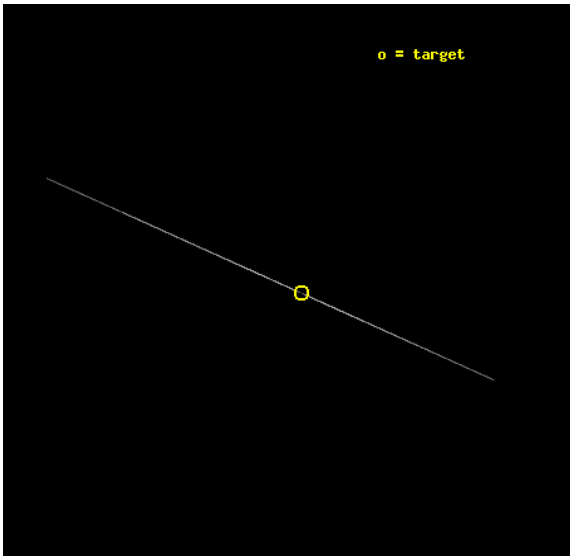
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Parameters

obi_num	0	Obi number
ascdsver	8.4.5	Processing system revision
caldbver	4.5.1.1	
date	2012-08-26T20:50:53	Date and time of file creation
revision	5	Processing version of data

sched_exp_time	2079.844000	[s] Scheduled observation exposure time
ontime	2146.3662219346	Sum of GTIs [s]
ontime4	2315.5	Sum of GTIs [s]
ontime5	2315.5	Sum of GTIs [s]
ontime6	1803.4601489305	Sum of GTIs [s]
ontime7	2146.3662219346	Sum of GTIs [s]
ontime8	1977.1243356615	Sum of GTIs [s]
ontime9	2315.5	Sum of GTIs [s]
l1events	955963	Number of level 1 events

2.1.3 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	19766	66637	301129	266463	267505	34463
rejected events	3223	16347	31235	34968	22465	4704
rejected %	16%	24%	10%	13%	8%	13%

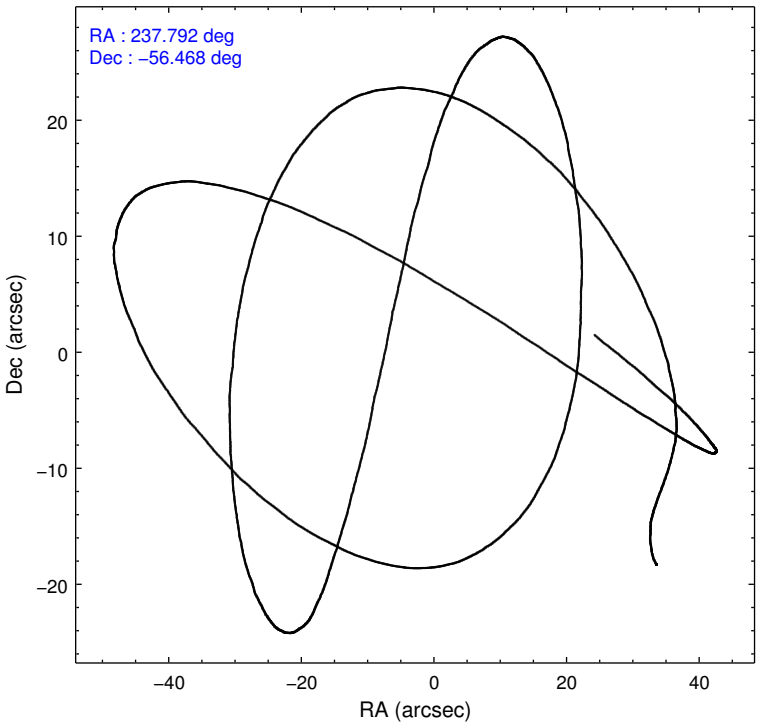
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	1010	11069	3267	17528	5064	1077
	5%	16%	1%	6%	1%	3%
grade 1 events	20	11	56	154	31	15
	0%	0%	0%	0%	0%	0%
grade 2 events	15049	29367	273825	98300	239941	28644
	76%	44%	90%	36%	89%	83%
grade 3 events	663	1451	581	10582	1124	621
	3%	2%	0%	3%	0%	1%
grade 4 events	710	1432	595	10514	1040	651
	3%	2%	0%	3%	0%	1%
grade 5 events	728	2213	2043	6152	1828	879
	3%	3%	0%	2%	0%	2%
grade 6 events	1586	21094	20762	123233	18477	2576
	8%	31%	6%	46%	6%	7%
grade 7 events	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%

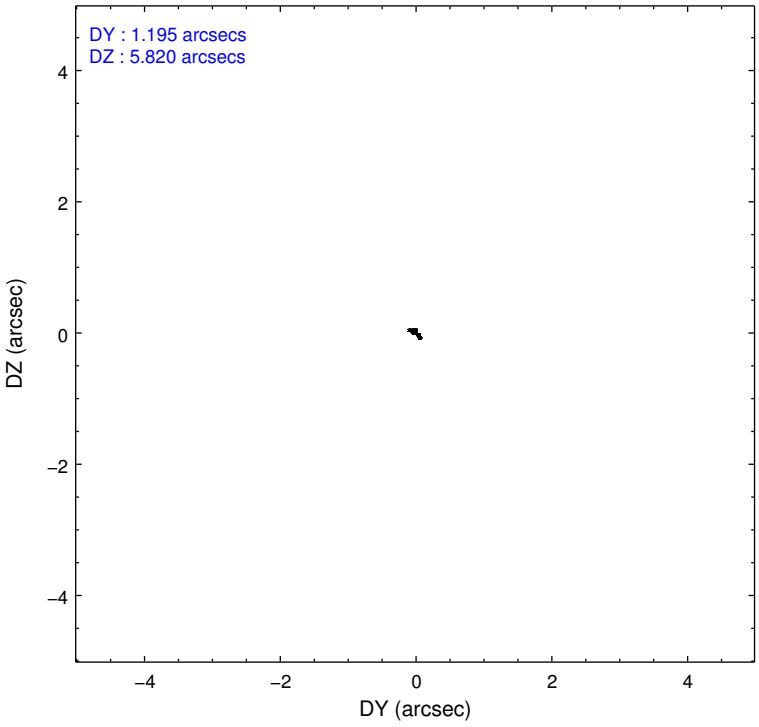
2.2 Compared Parameters

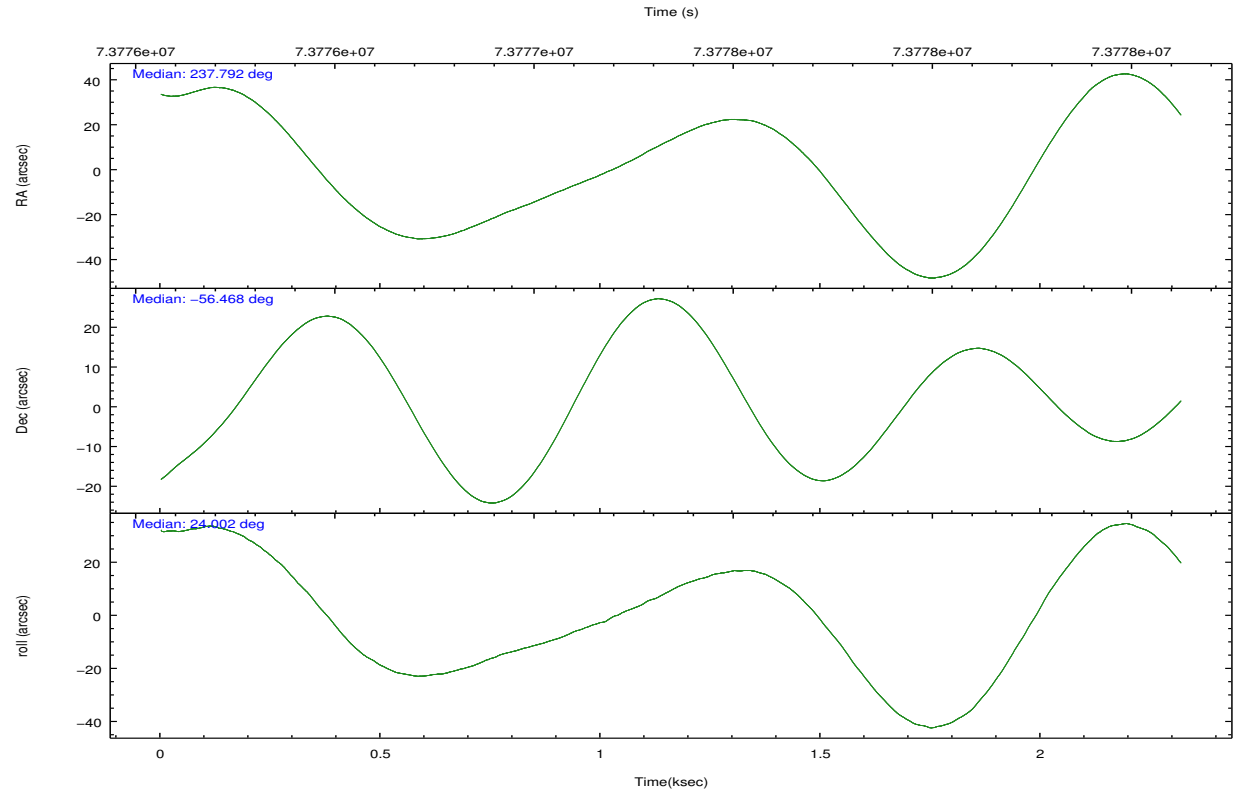
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	CC33_GRADED	CC33_GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	237.761567	237.7919889181007
[deg] Pointing Dec	-56.489654	-56.46749874908495
[deg] Pointing Roll	23.826737	24.00874339573681
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-200.132523	-200.139498004176
[mm] SIM translation stage offset	10	10.00697542116819
[s] Observation start time (MET)	73776430.184000	73775440.929984
Observation start date	2000-05-03T21:26:06	2000-05-03T21:10:40
[s] Observation end time (MET)	73778510.184000	73778819.842608
Observation end date	2000-05-03T22:00:46	2000-05-03T22:06:59
Read mode	CONTINUOUS	CONTINUOUS

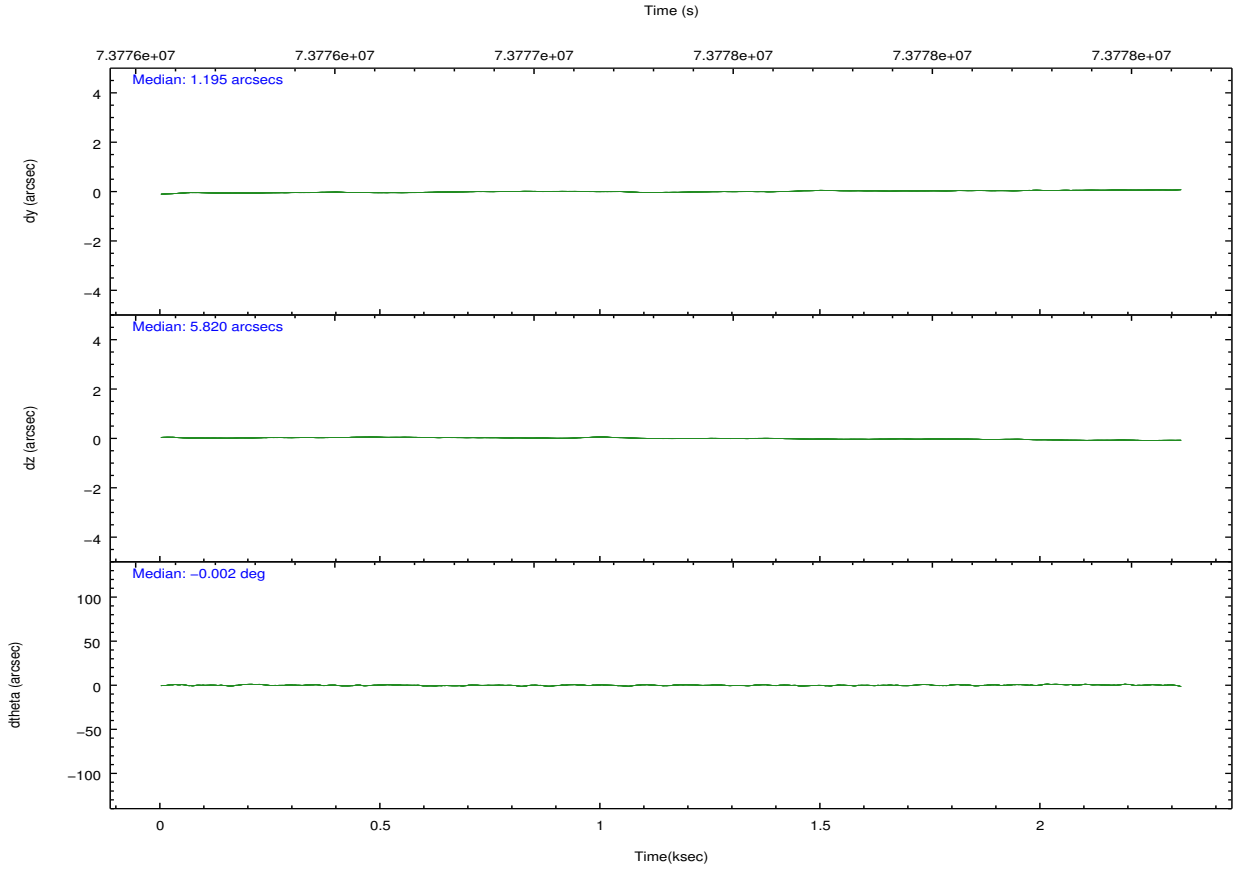
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0

2.3 Aspect


RA : 237.792 deg
Dec : −56.468 deg
Dec (arcsec)
RA (arcsec)
20
10
0
−10
−20
−40
−20
0
20
40


DY : 1.195 arcsecs
DZ : 5.820 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
7.3776e+07
7.3776e+07
7.3777e+07
7.3778e+07
7.3778e+07
7.3778e+07
Median: 237.792 deg
RA (arcsec)
Median: −56.468 deg
Dec (arcsec)
Median: 24.002 deg
roll (arcsec)
Time(ksec)

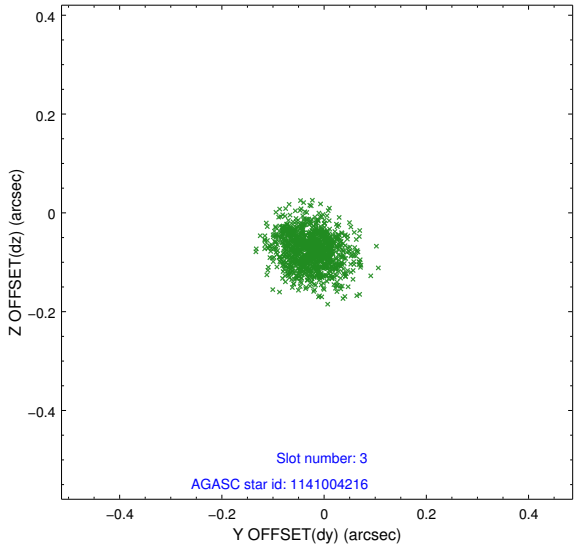

Time (s)
7.3776e+07
7.3776e+07
7.3777e+07
7.3778e+07
7.3778e+07
7.3778e+07
Median: 1.195 arcsecs
dy (arcsec)
Median: 5.820 arcsecs
dz (arcsec)
Median: −0.002 deg
dtheta (arcsec)
Time(ksec)

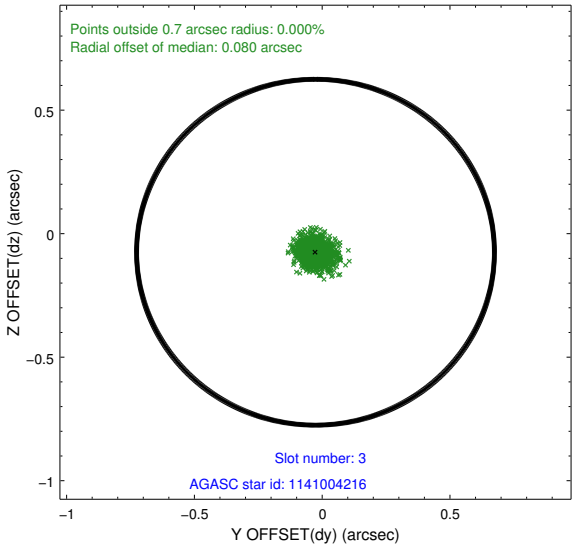
Slot Statistics

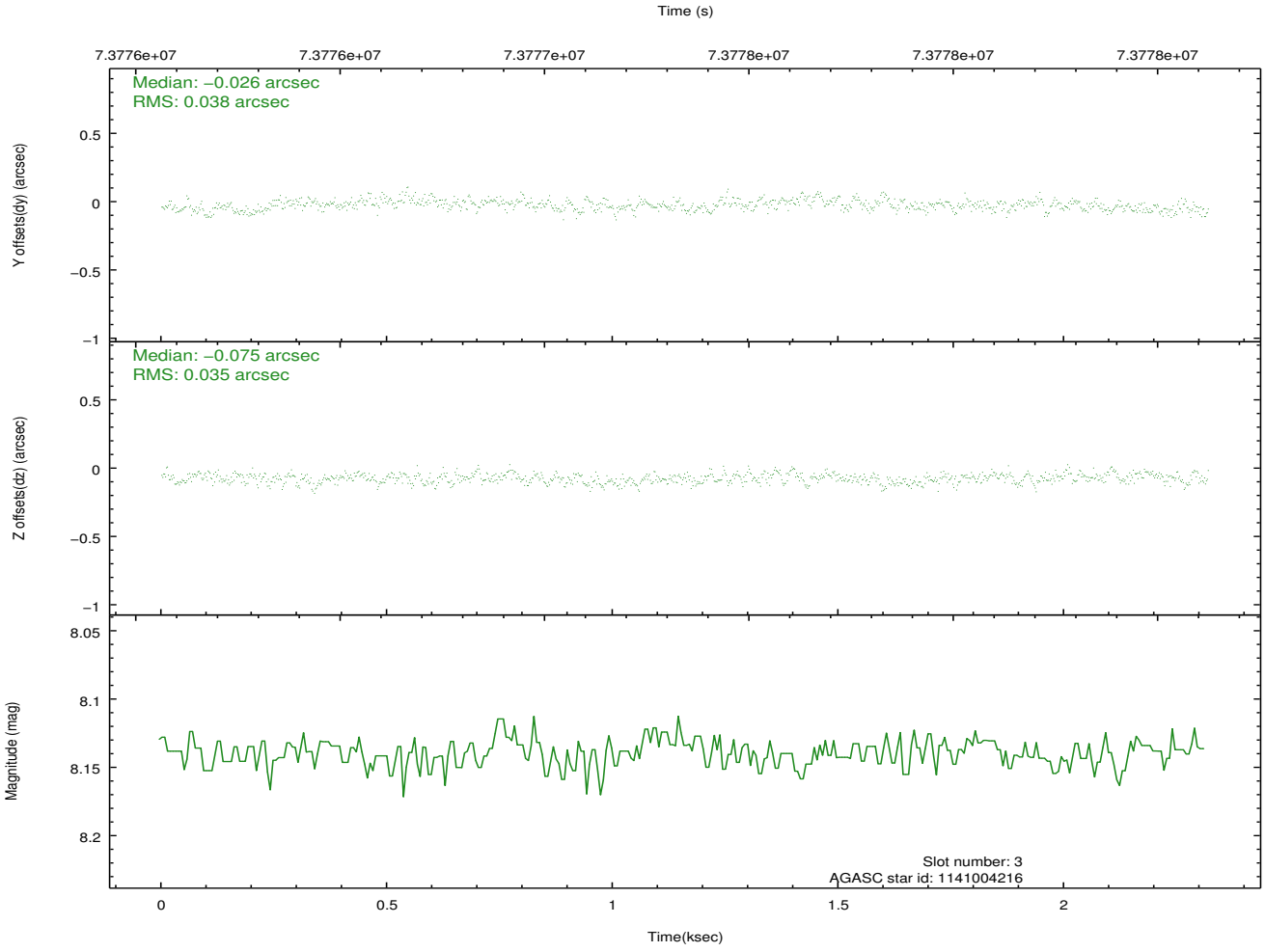
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.21	566	0.045	-0.148	0.006	0.010	0.000000	0.000000	941.58	-1516.51
1	FID	ACIS-S-5	7.23	566	0.082	0.054	0.006	0.011	0.000000	0.000000	-1805.67	378.93
2	FID	ACIS-S-6	7.31	566	-0.148	0.106	0.006	0.011	0.000000	0.000000	404.10	1025.96
3	GUIDE	1141004216	8.14	1132	-0.026	-0.075	0.055	0.091	237.245988	-56.471011	-915.46	472.48
4	GUIDE	1140989920	8.89	1132	-0.046	0.157	0.079	0.123	237.647305	-57.151120	-1169.91	-2087.31
5	GUIDE	1141004616	9.66	1131	0.054	0.022	0.096	0.156	238.066818	-56.808784	81.71	-1296.40
6	GUIDE	1140998992	9.52	1129	0.115	-0.110	0.088	0.141	238.012836	-56.351628	655.88	250.67
7	GUIDE	1140465896	9.79	1131	-0.093	0.007	0.114	0.176	238.112353	-55.701514	1793.64	2307.47

2.4 Star Slots

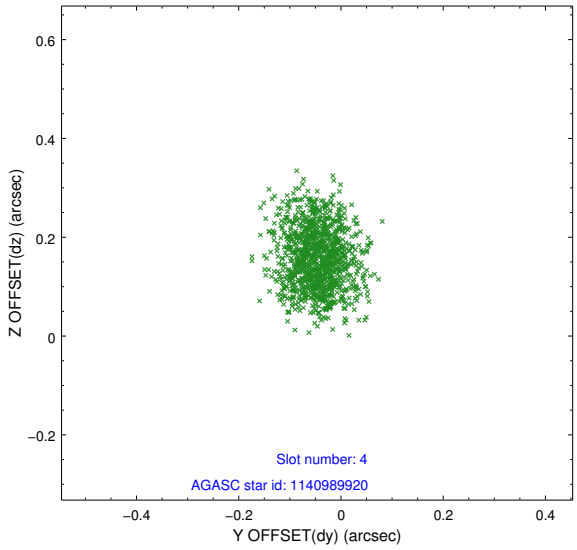
2.4.1 Slot 3

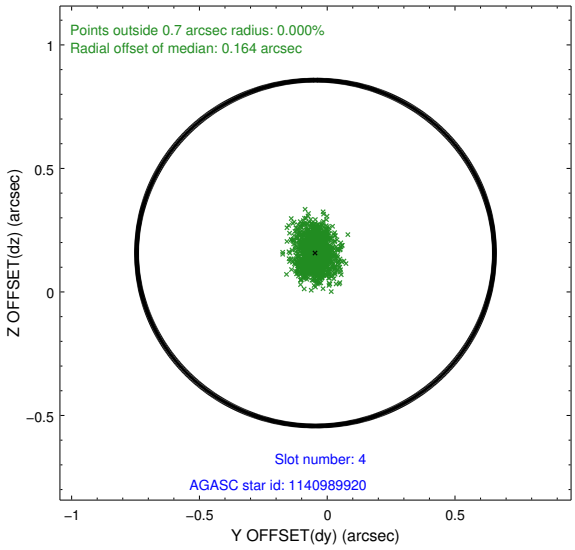


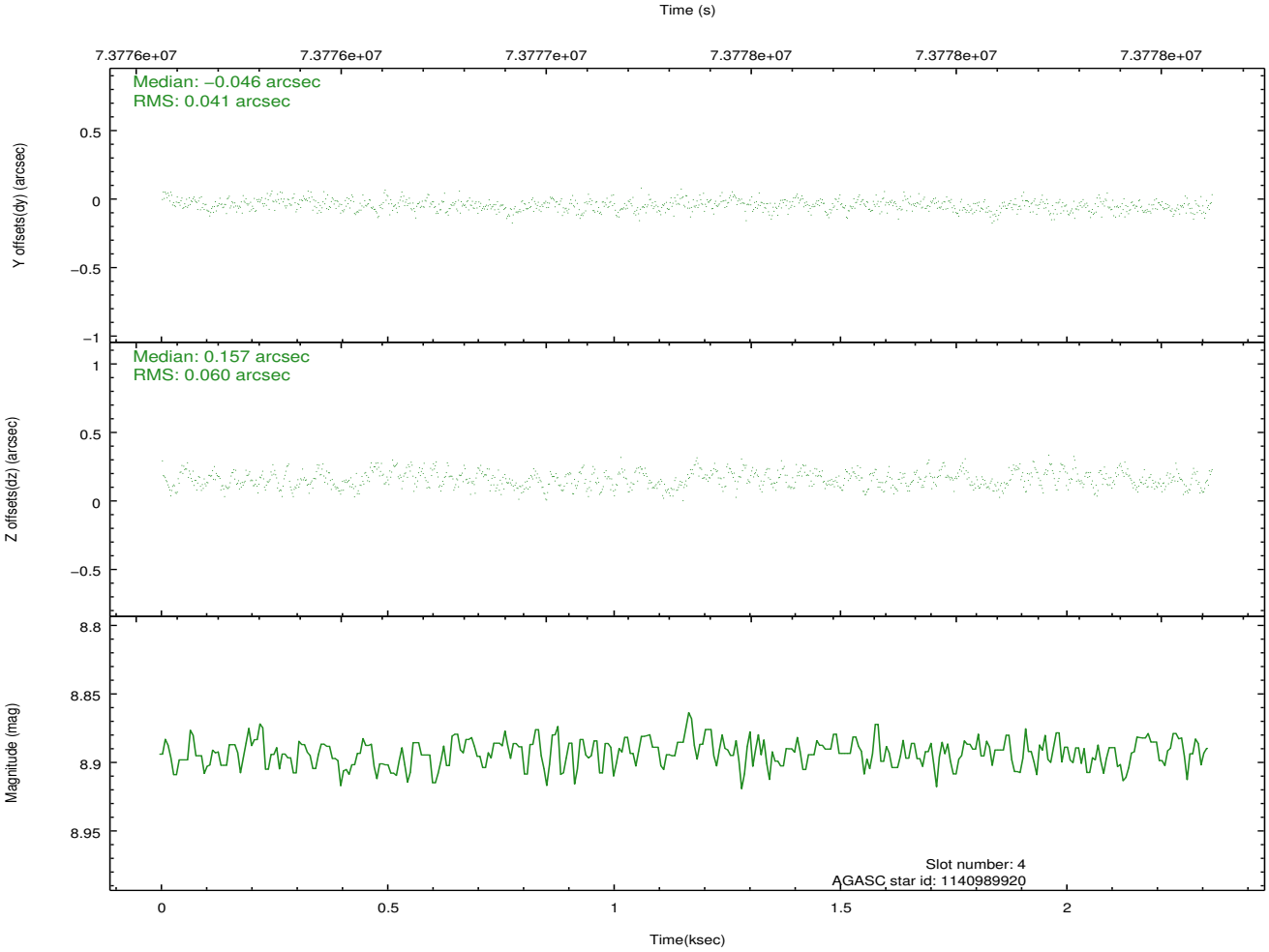




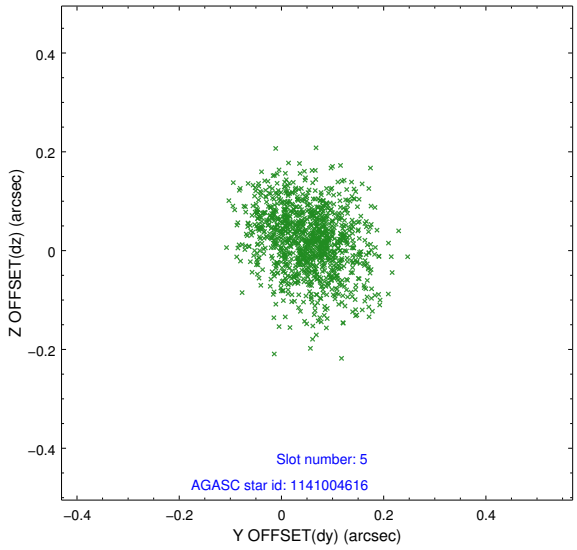
2.4.2 Slot 4

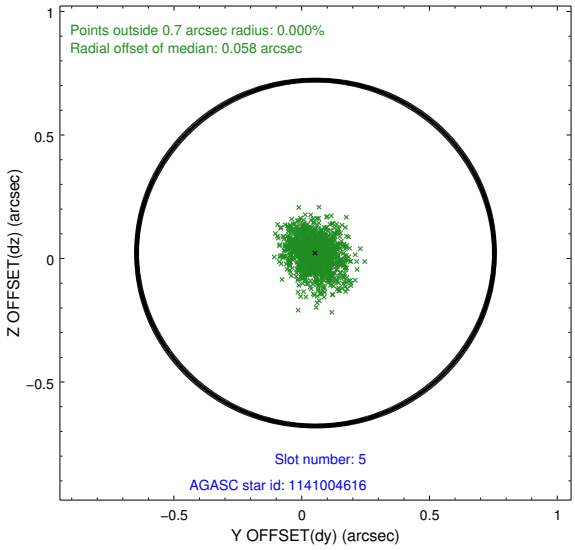

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1140989920

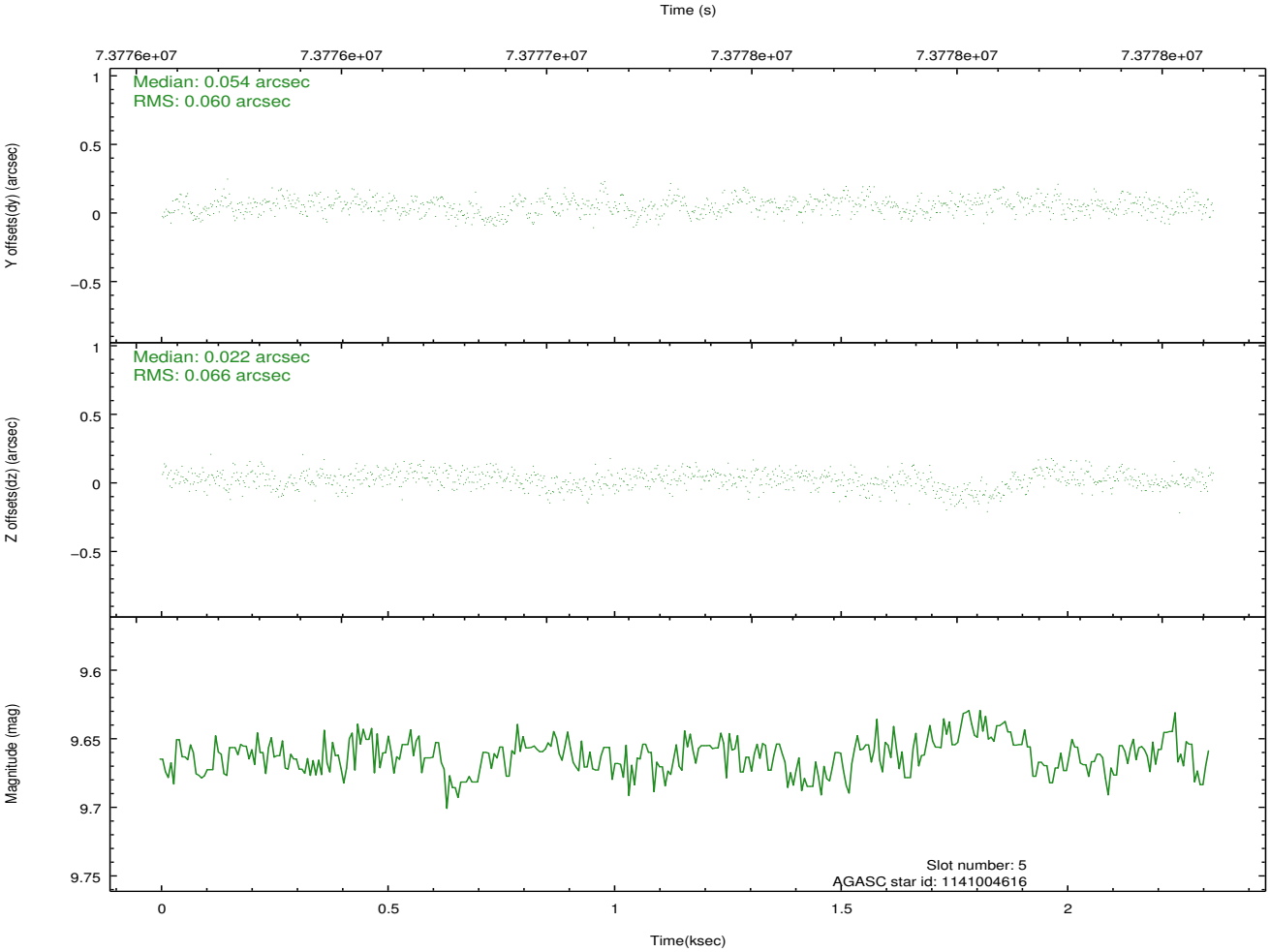

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.164 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1140989920


Time (s)
Median: −0.046 arcsec
RMS: 0.041 arcsec
Y offsets(dy) (arcsec)
Median: 0.157 arcsec
RMS: 0.060 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1140989920
Time(ksec)

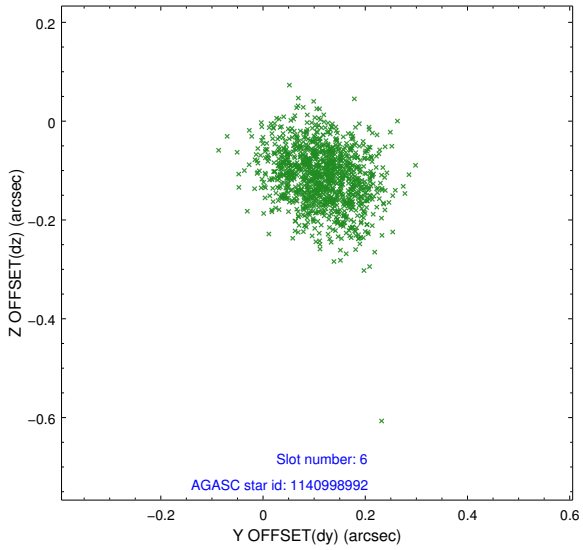
2.4.3 Slot 5

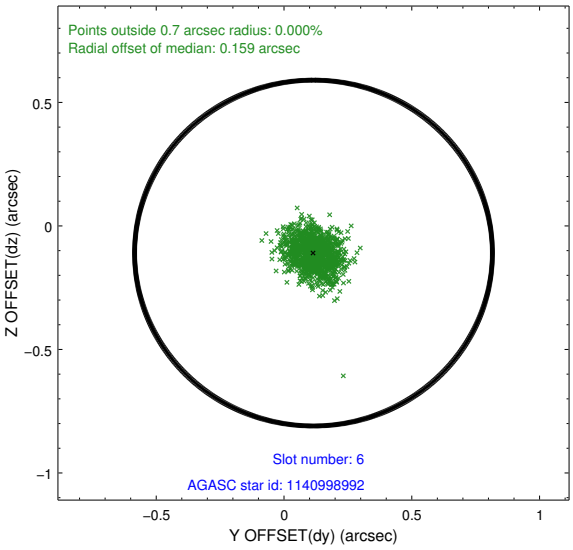

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1141004616

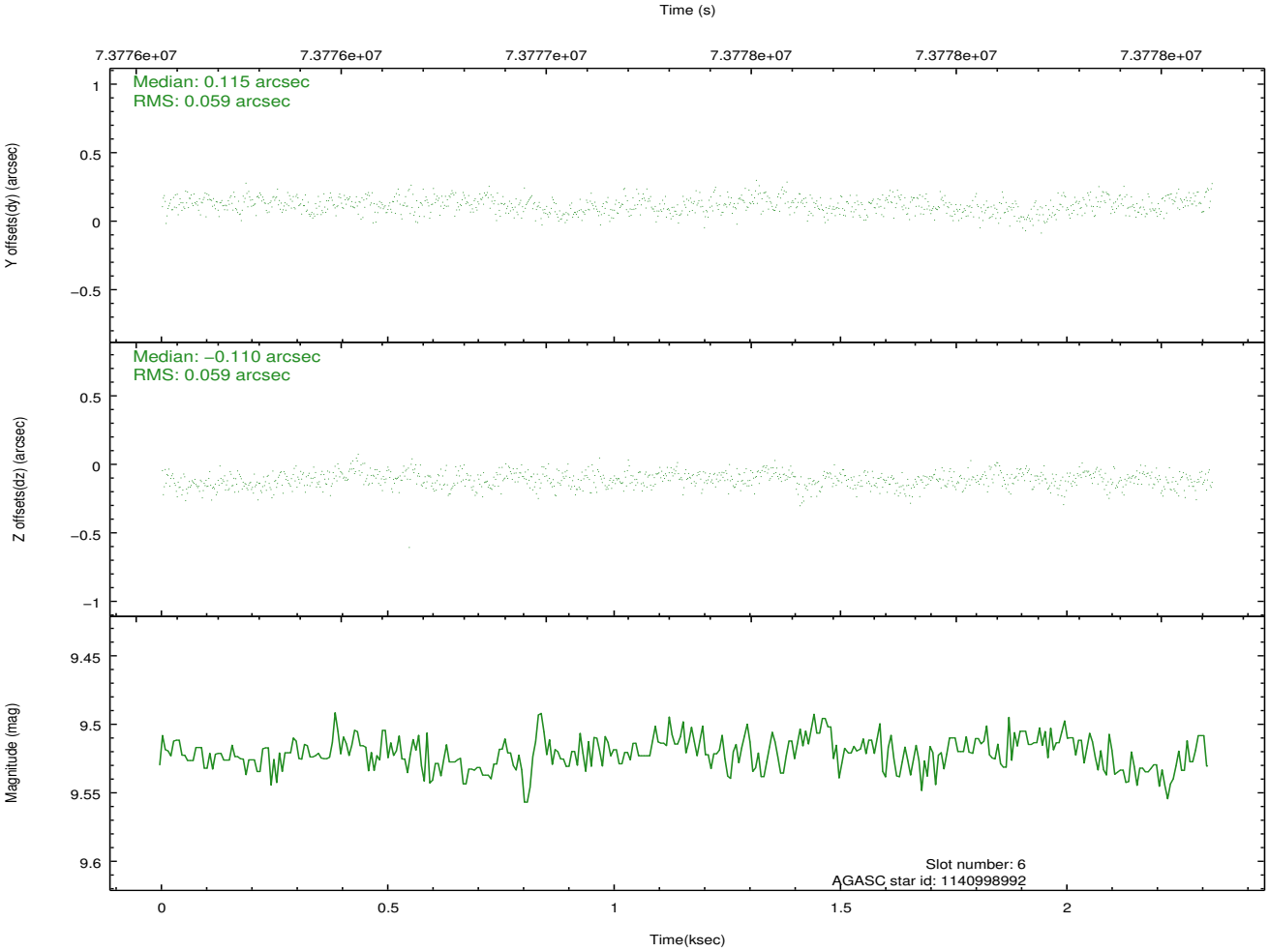

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.058 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1141004616


Time (s)
Median: 0.054 arcsec
RMS: 0.060 arcsec
Y offsets(dy) (arcsec)
Median: 0.022 arcsec
RMS: 0.066 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1141004616
Time(ksec)

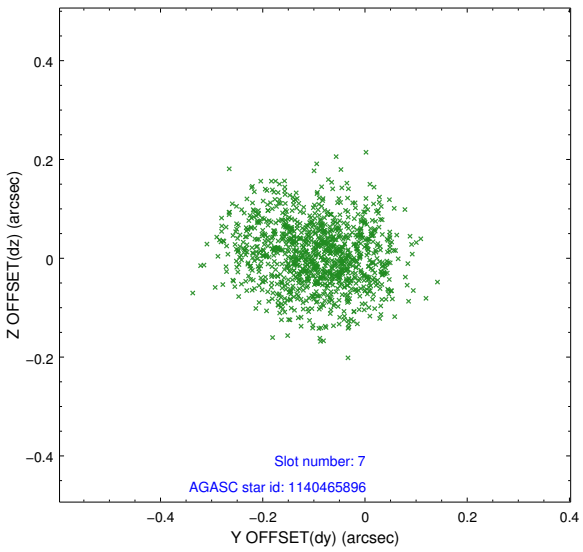
2.4.4 Slot 6

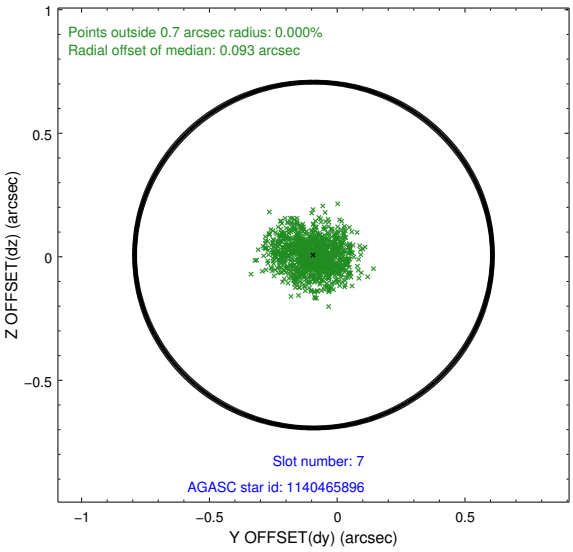

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1140998992

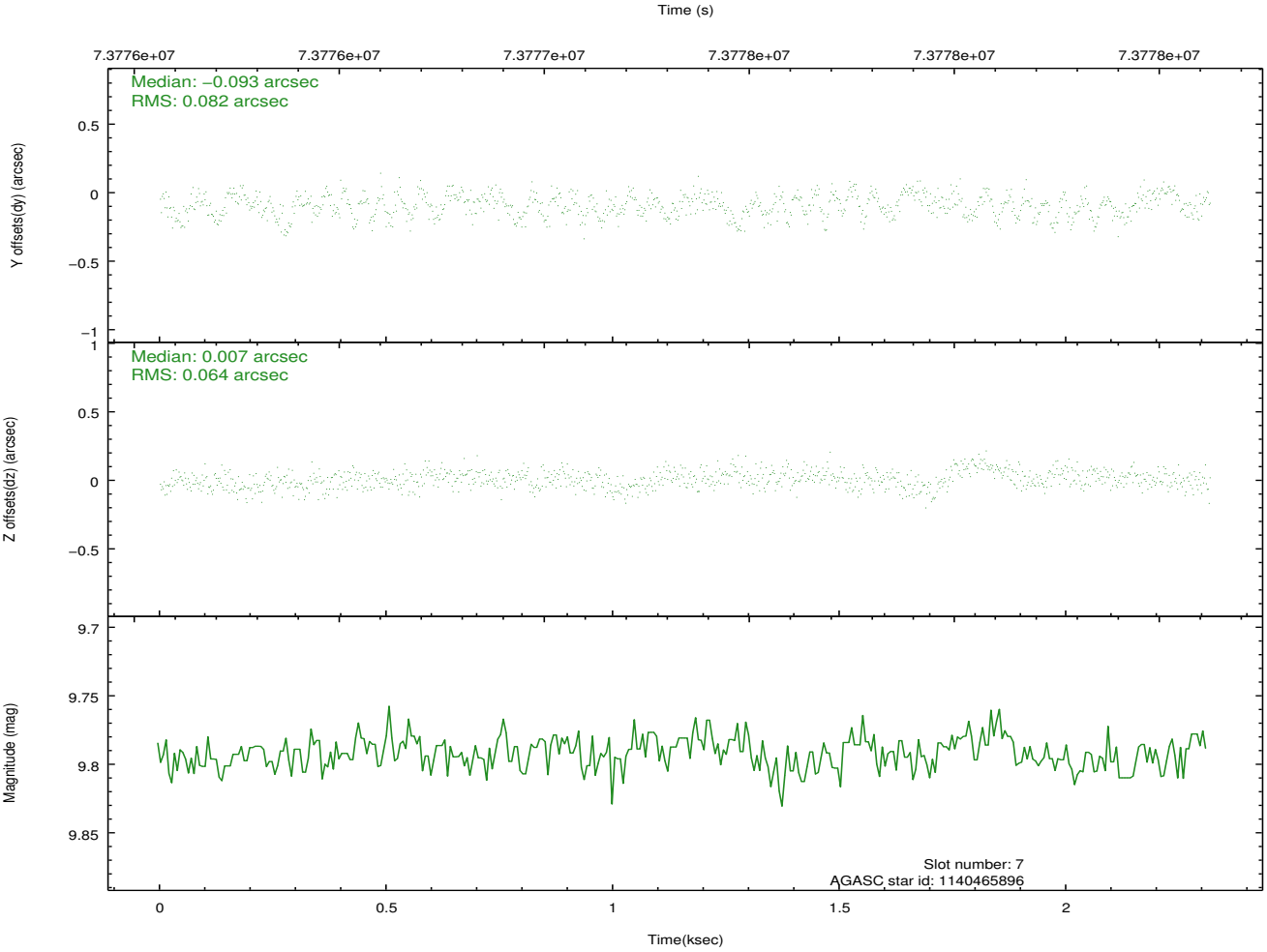

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.159 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1140998992


Time (s)
Median: 0.115 arcsec
RMS: 0.059 arcsec
Y offsets(dy) (arcsec)
Median: −0.110 arcsec
RMS: 0.059 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1140998992
Time(ksec)

2.4.5 Slot 7

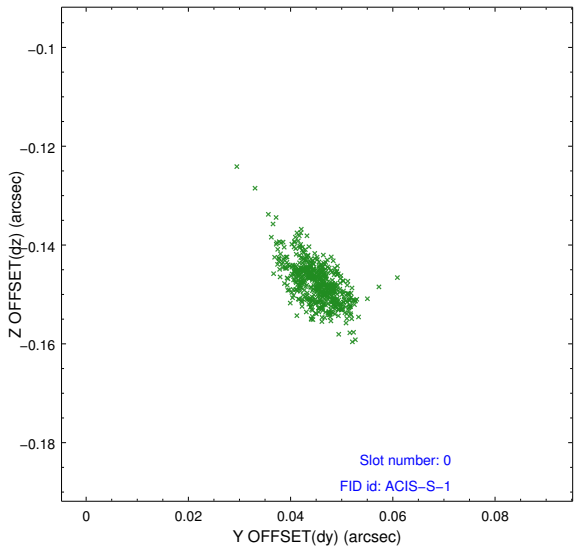

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1140465896

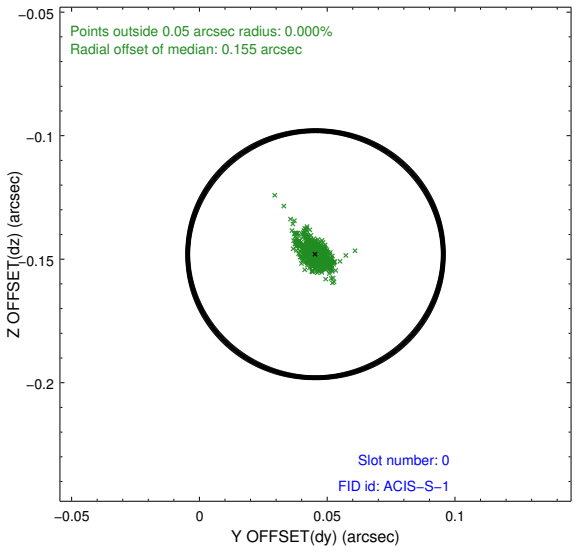

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.093 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1140465896

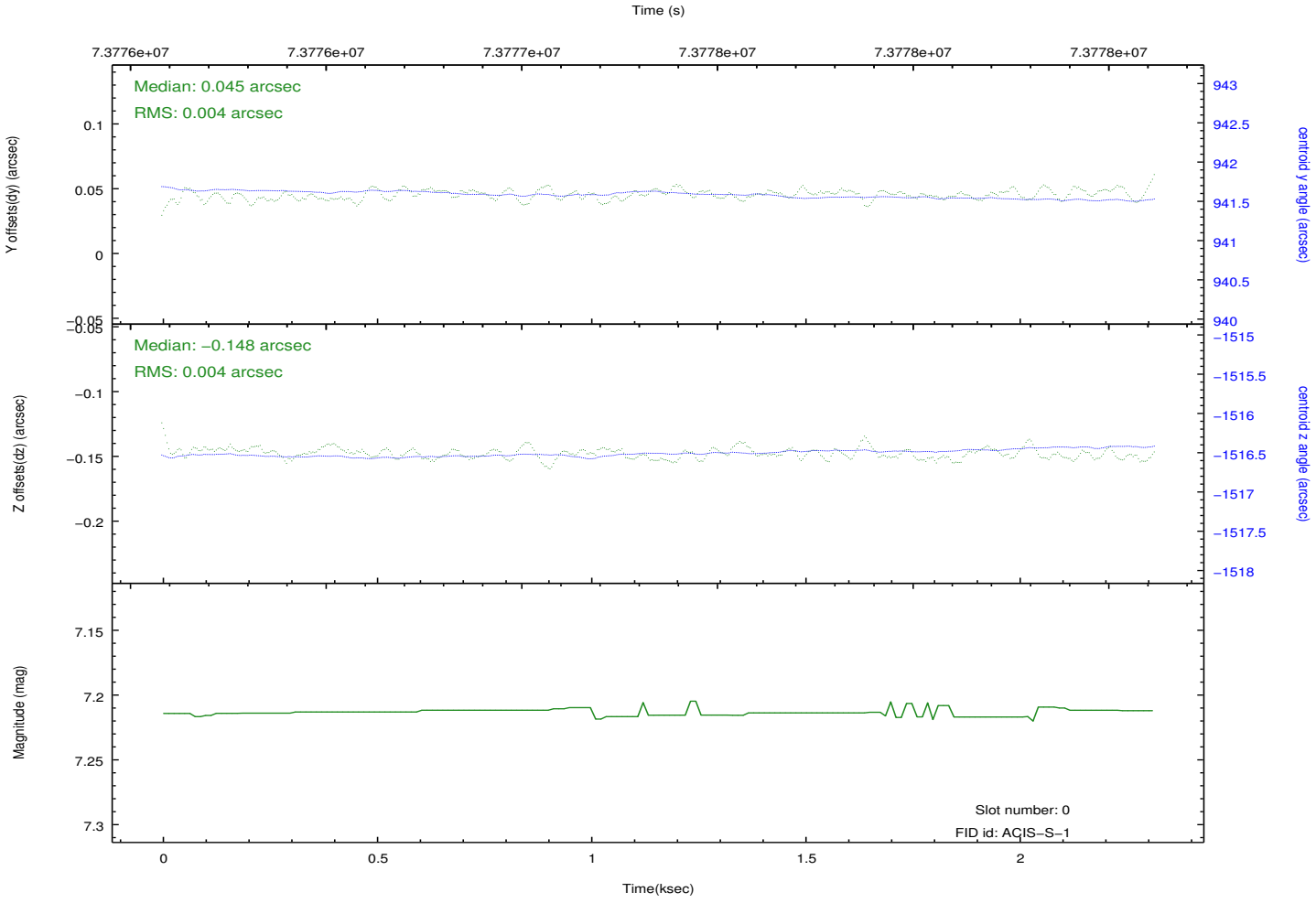

Time (s)
Median: −0.093 arcsec
RMS: 0.082 arcsec
Y offsets(dy) (arcsec)
Median: 0.007 arcsec
RMS: 0.064 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 1140465896
Time(ksec)

2.5 FID Slots

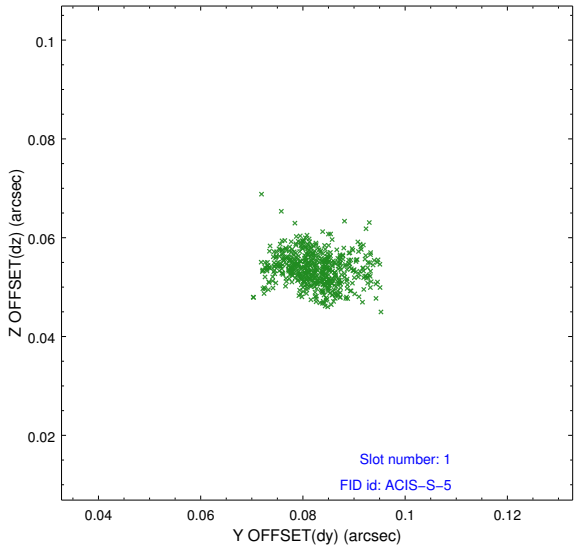
2.5.1 Slot 0

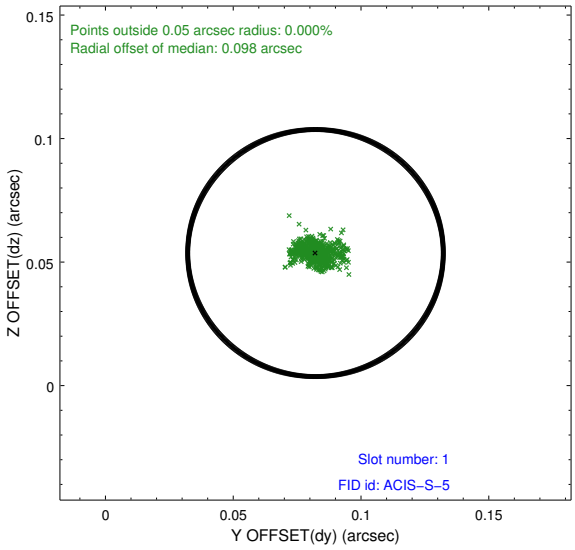


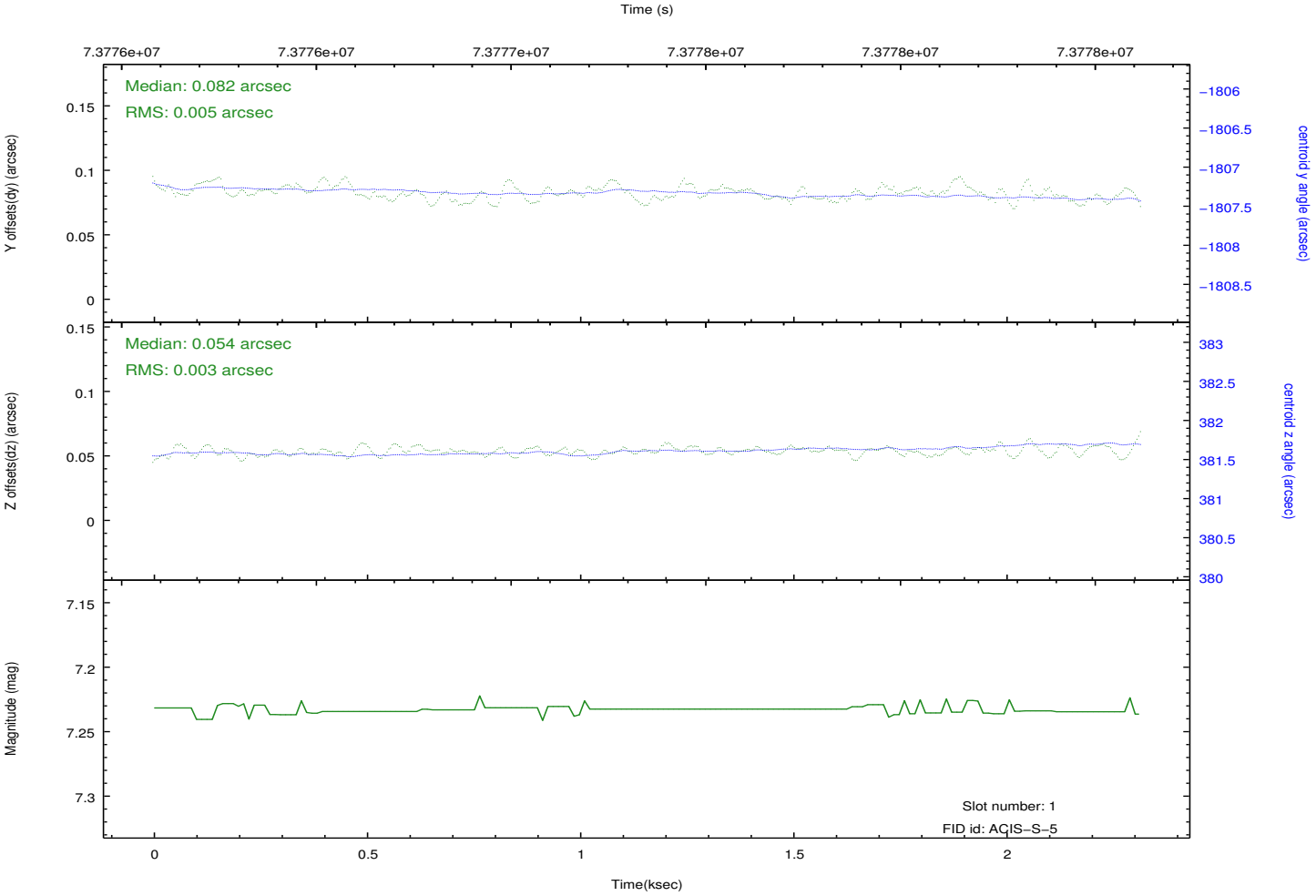




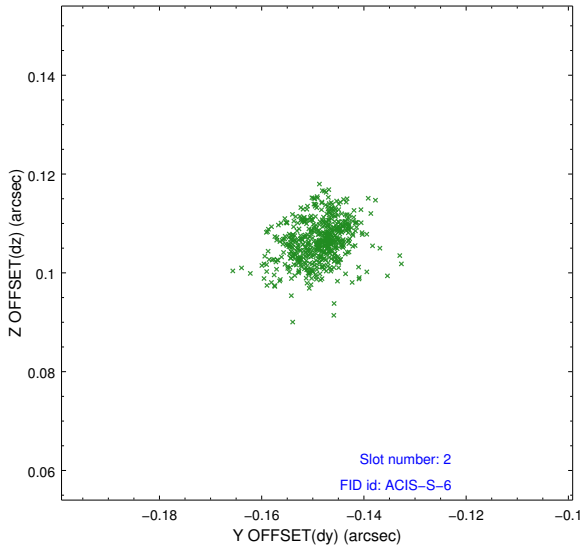
2.5.2 Slot 1

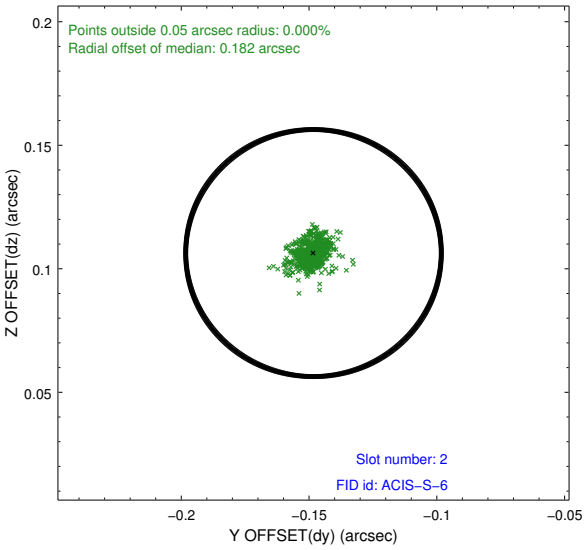

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5

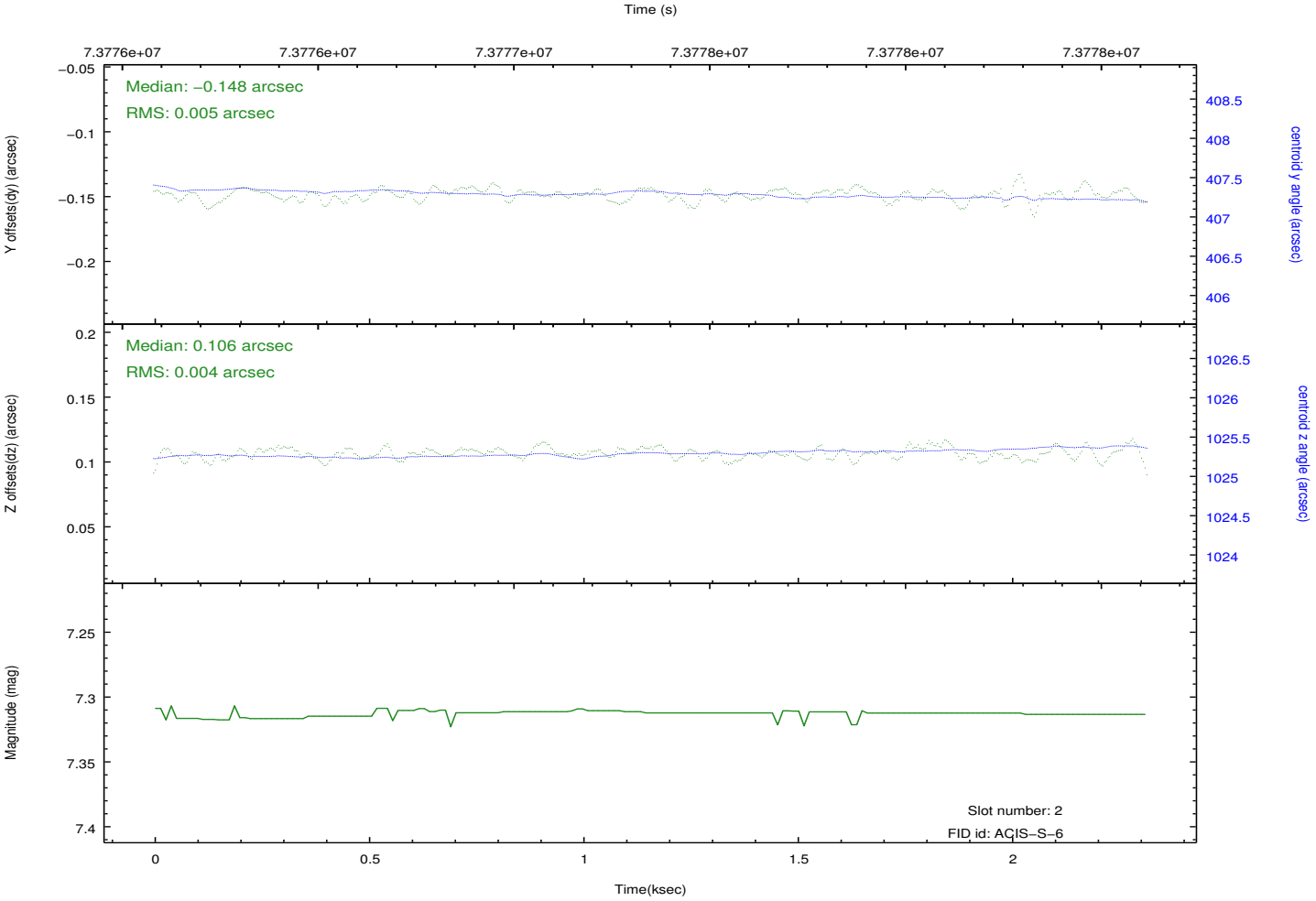

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.098 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5


Time (s)
Median: 0.082 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.054 arcsec
RMS: 0.003 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−S−5
Time(ksec)

2.5.3 Slot 2

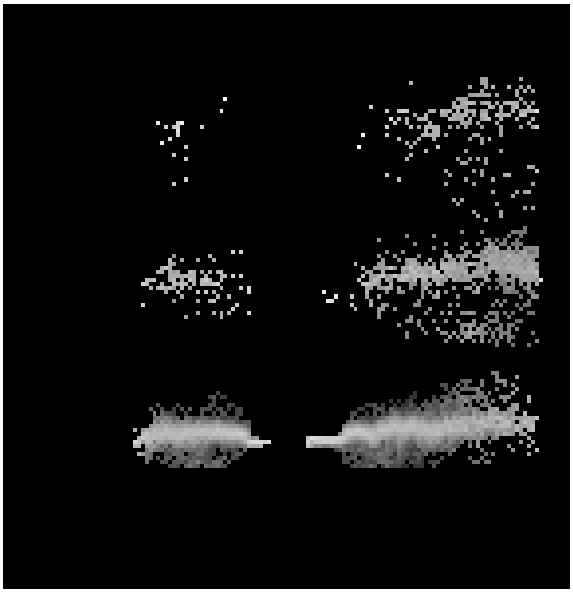

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.182 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6

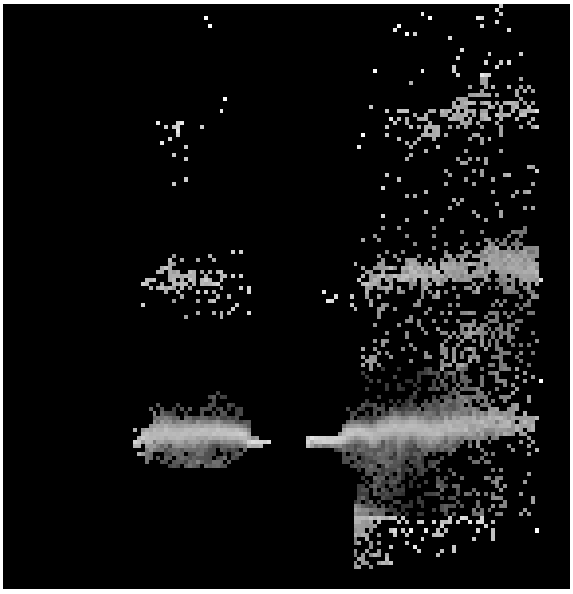

Time (s)
Median: −0.148 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.106 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−6
Time(ksec)

3 Gratings

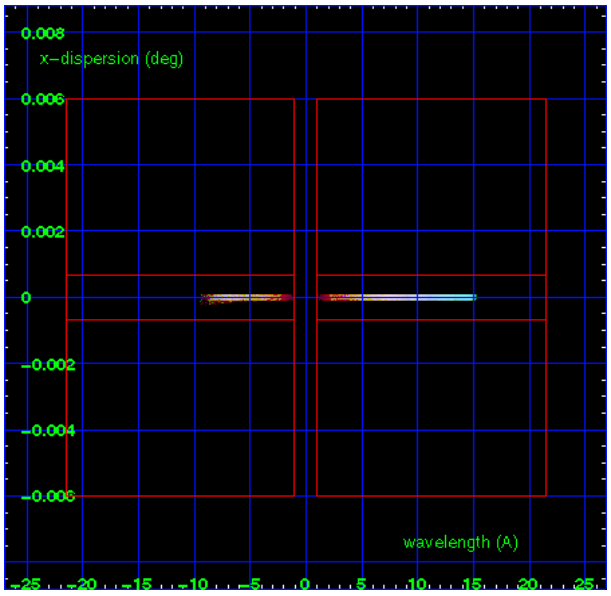
3.1 HEG Arm



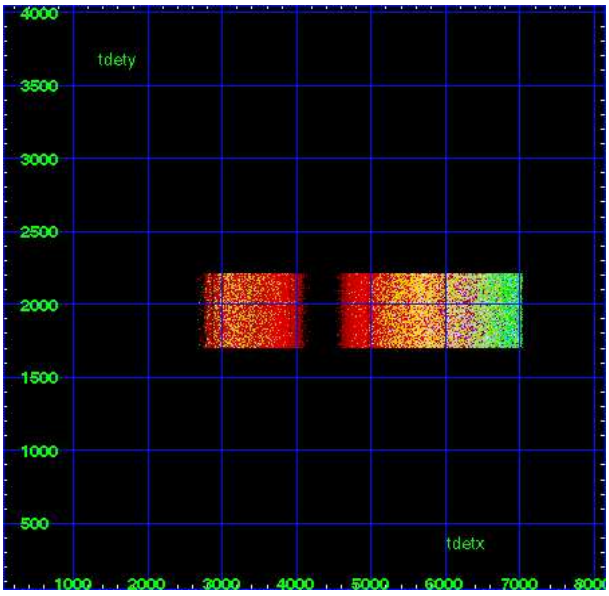
HEG Order Sort 123



HEG Order Sort ALL

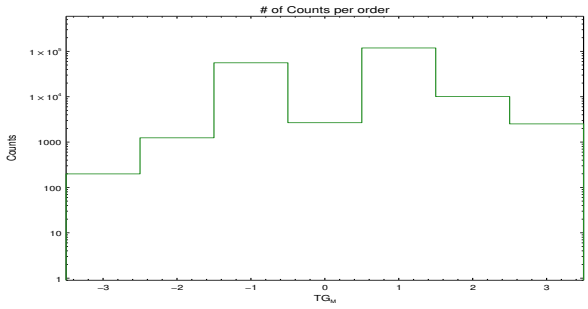


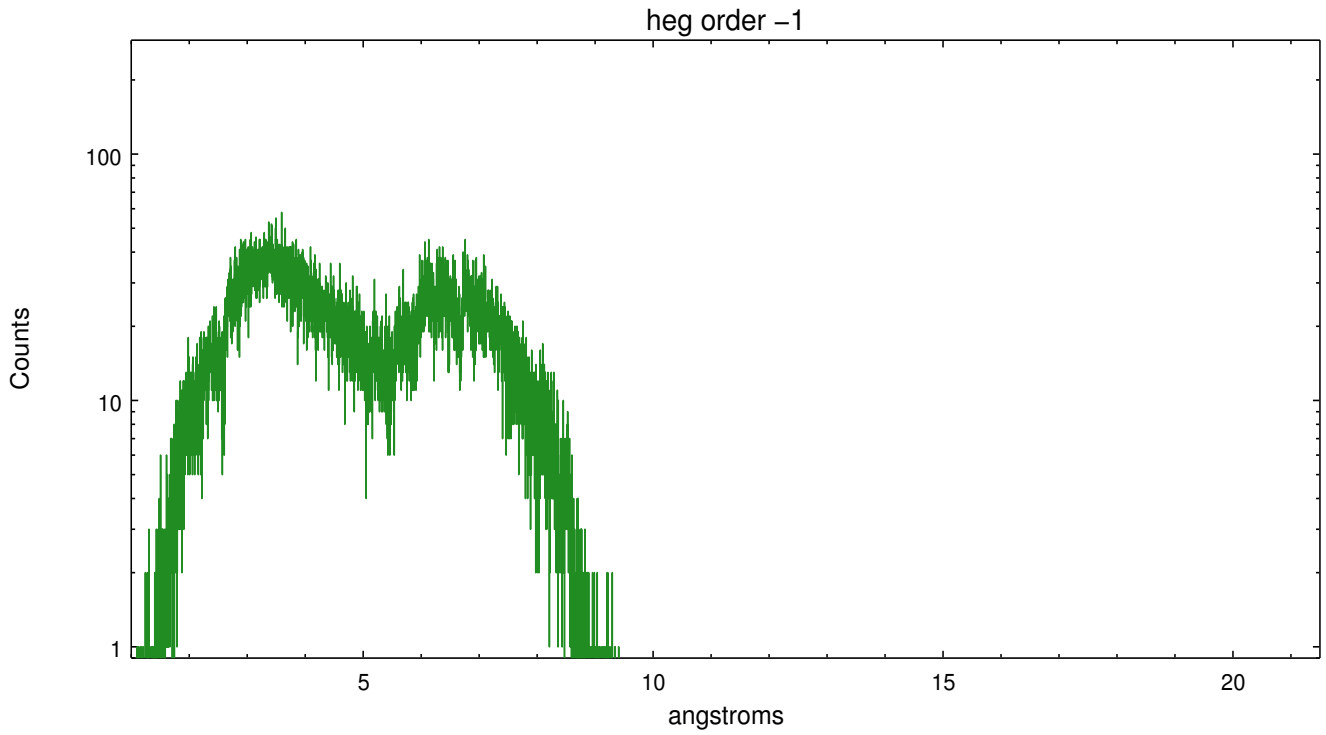
Spot Image HEG

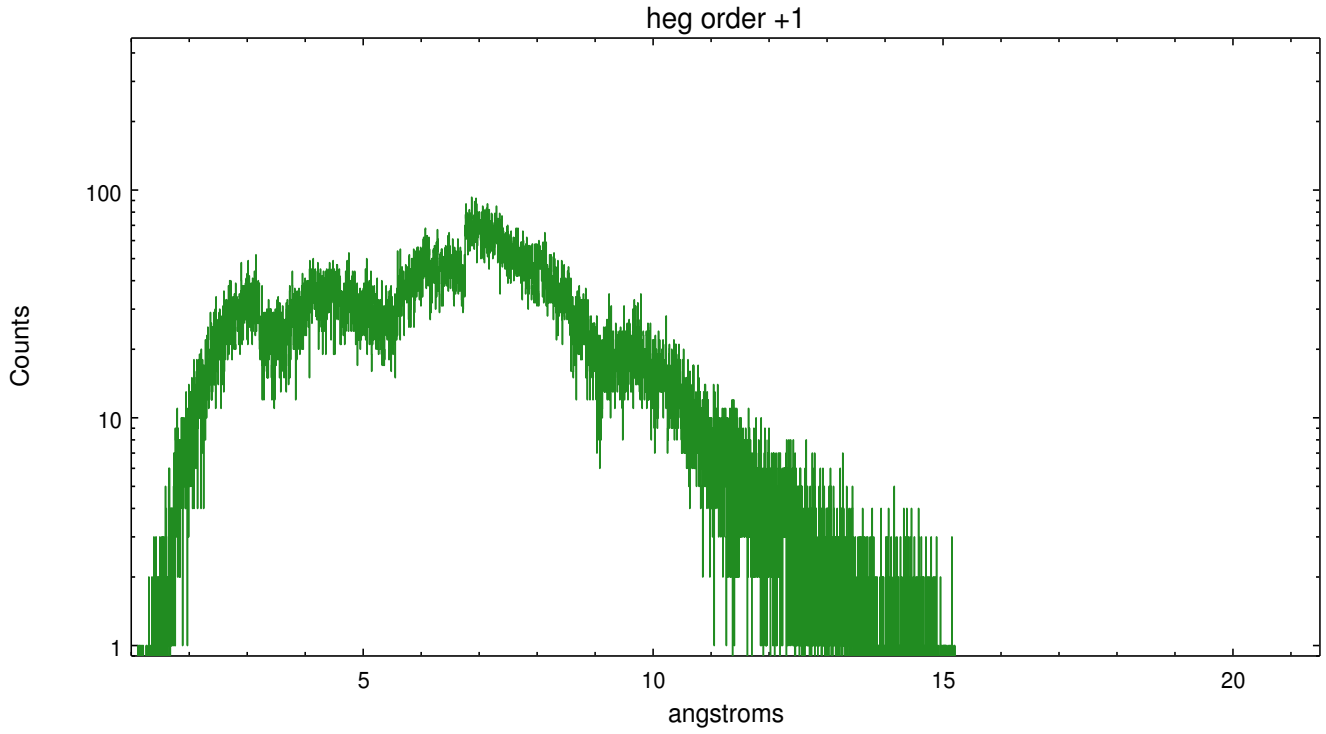


Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	199	1242	55982	2676	118878	10065	2519

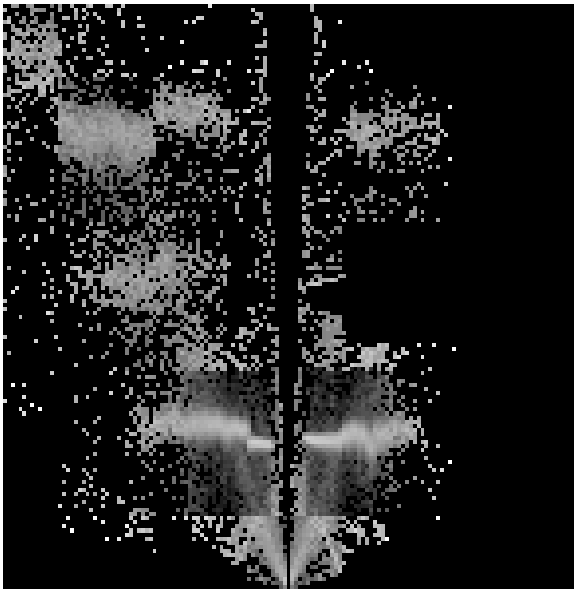



heg order −1
Counts
100
10
1
5
10
15
20
angstroms

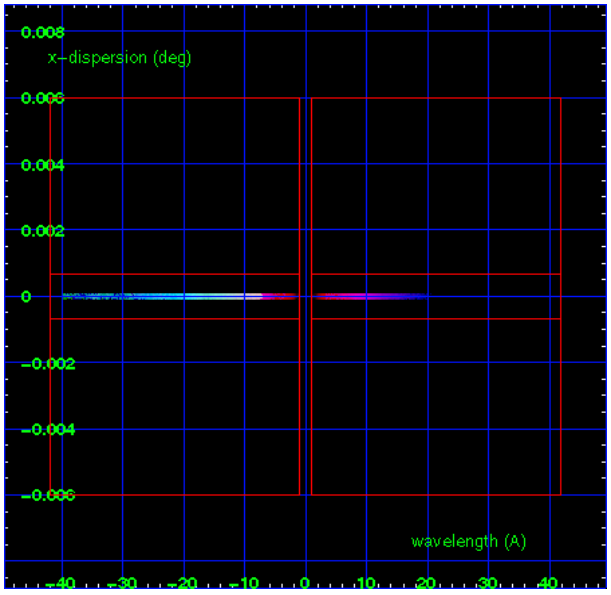

heg order +1
Counts
100
10
1
5
10
15
20
angstroms

3.2 MEG Arm

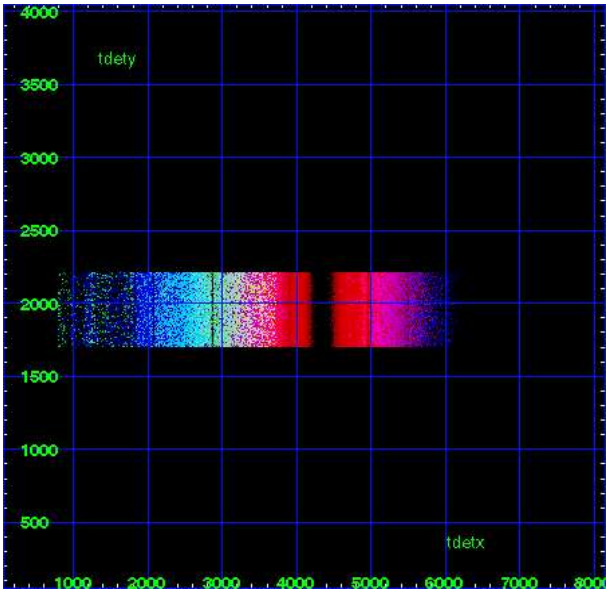
MEG Order Sort 123



MEG Order Sort ALL

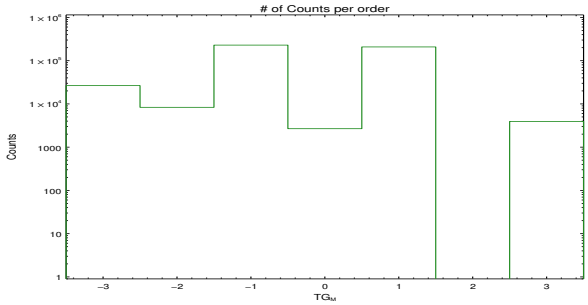


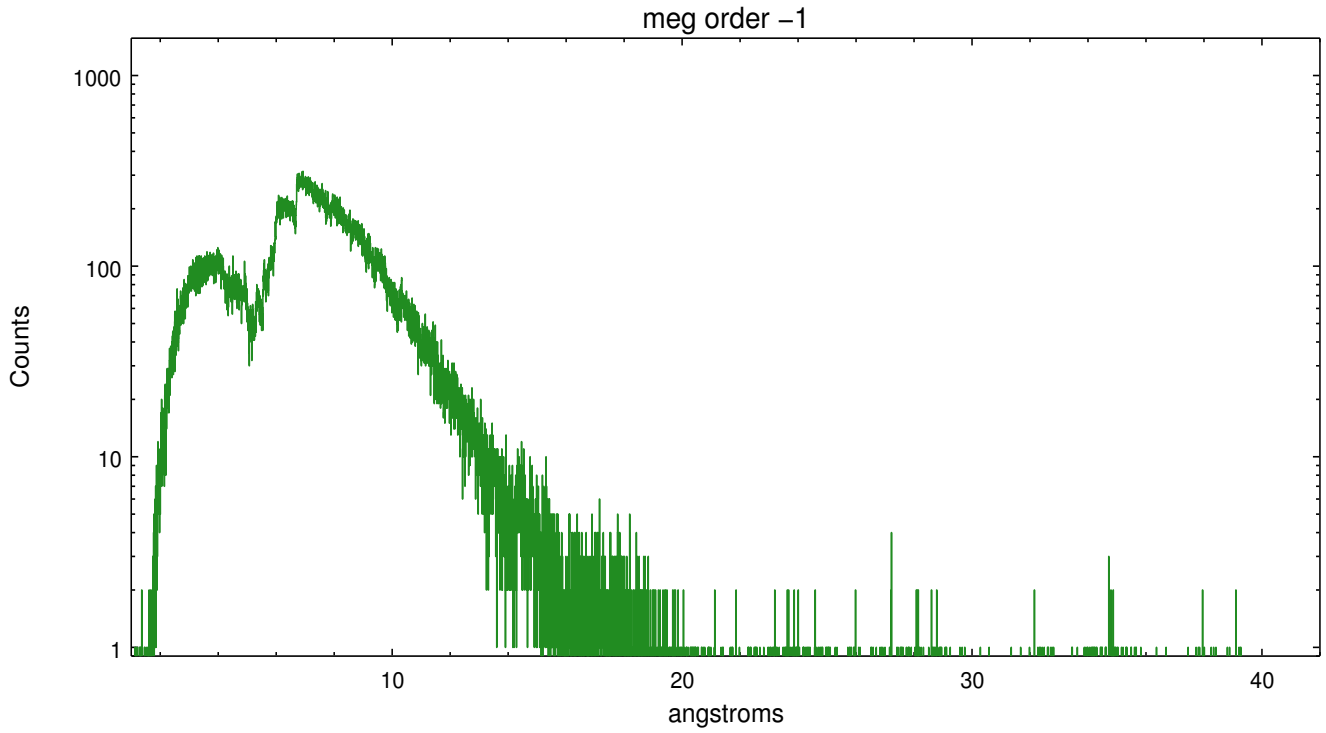
Spot Image MEG

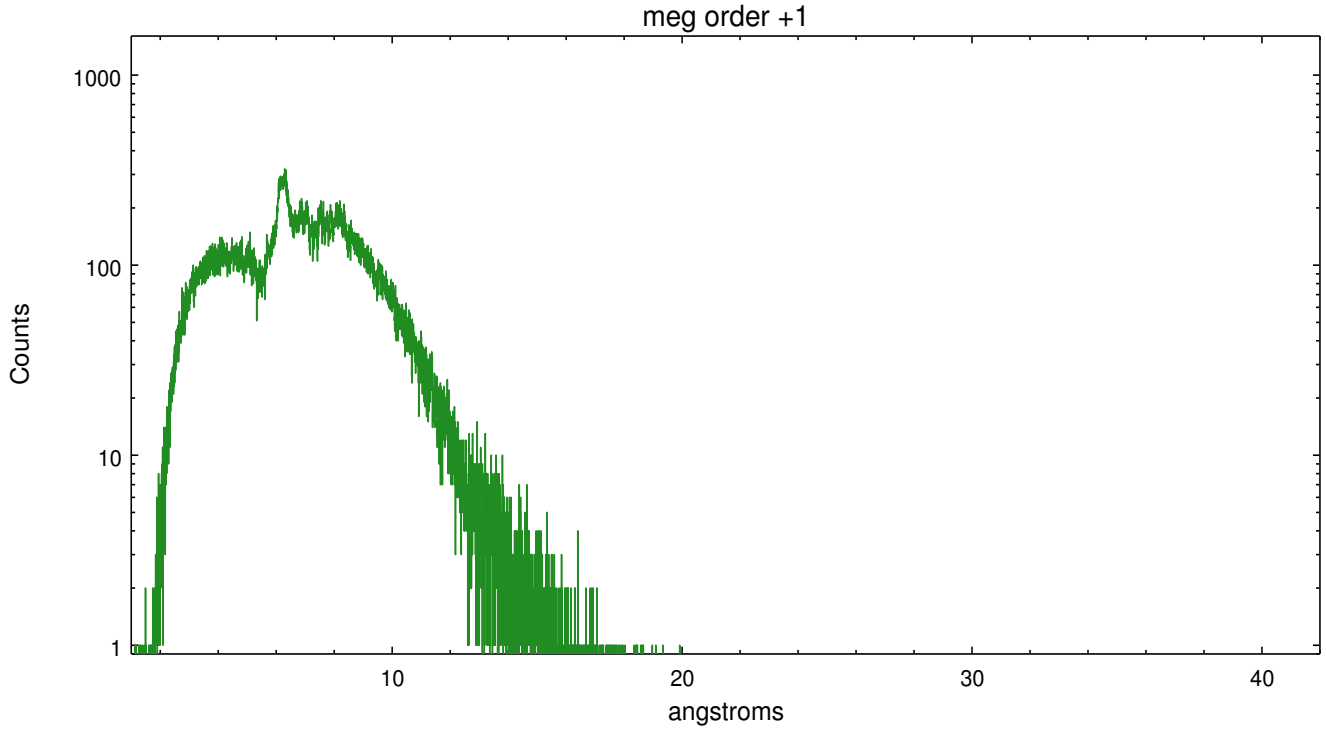


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	26515	8335	228970	2676	207921	0	3937




meg order −1
1000
100
10
1
Counts
10
20
30
40
angstroms


meg order +1
1000
100
10
1
Counts
10
20
30
40
angstroms

A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2012.08.29
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.147

A.2 Comments

```
Note: zeroth order off the array; used target's celestial coordinates to
provide the equivalent sky pixel position.
```