V&V Reference Report
L2 ASCDS Version : 7.6.8

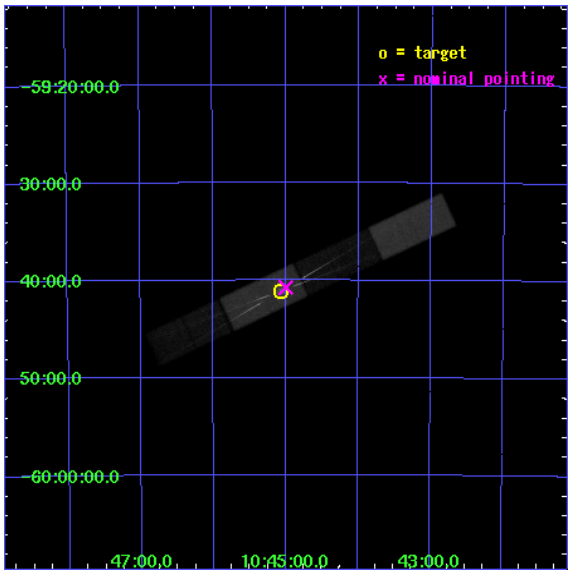
Observation 3747 - L2 Version 001
Chandra X-Ray Center

L2 Processing Date : Jul 3 2006

Contents

1 Front

seq_num	200217
obs_id	3747
title	UNVEILING ETA CAR: CHANDRA OBSERVATIONS DURING THE 2003.5 EVENT
observer	Dr Michael Corcoran
object	ETA CARINAE
dtycycle	0
cycle	P
ra_targ	161.265
dec_targ	-59.684528
ra_nom	161.24937951361
dec_nom	-59.678968734745
roll_nom	154.92477175671
revision	2
ontime	72161.600307226
livetime	70106.478952782
ontime5	72161.600307226
ontime6	72161.600307226
ontime7	72161.600307226
ontime8	72161.600307226
l2events	370604

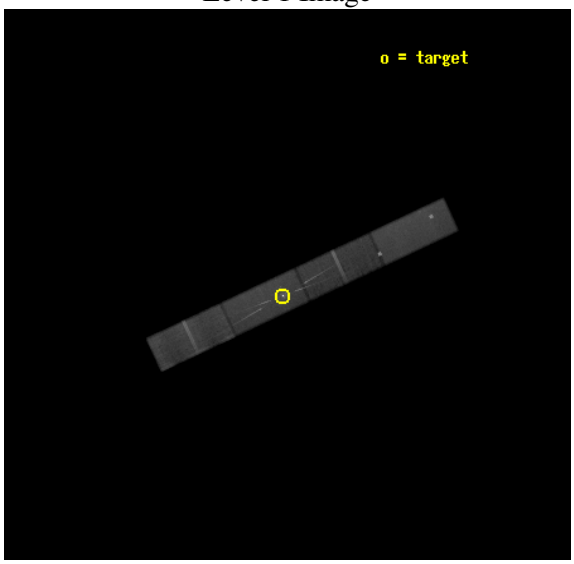


2 OBI

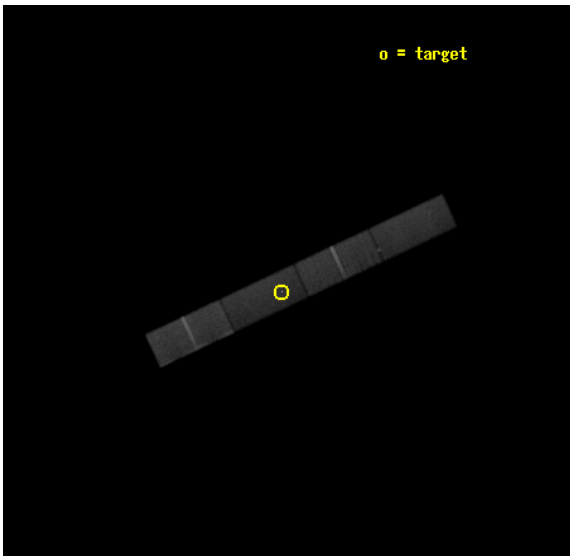
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



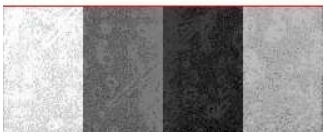
2.1.2 Bias

Chip 5

Chip 6

Chip 7

Chip 8



2.1.3 Parameters

obi_num	0
ascdsver	7.6.8
caldbver	3.2.2
date	2006-07-03T03:29:15
revision	2

sched_exp_time	72000.000000
ontime	73107.389791816
ontime5	73134.763733029
ontime6	72895.551093012
ontime7	73107.389791816
ontime8	72918.613551825
l1events	1248118

2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	334002	252982	353321	307813
rejected events	183249	209364	182873	241722
rejected %	54%	82%	51%	78%

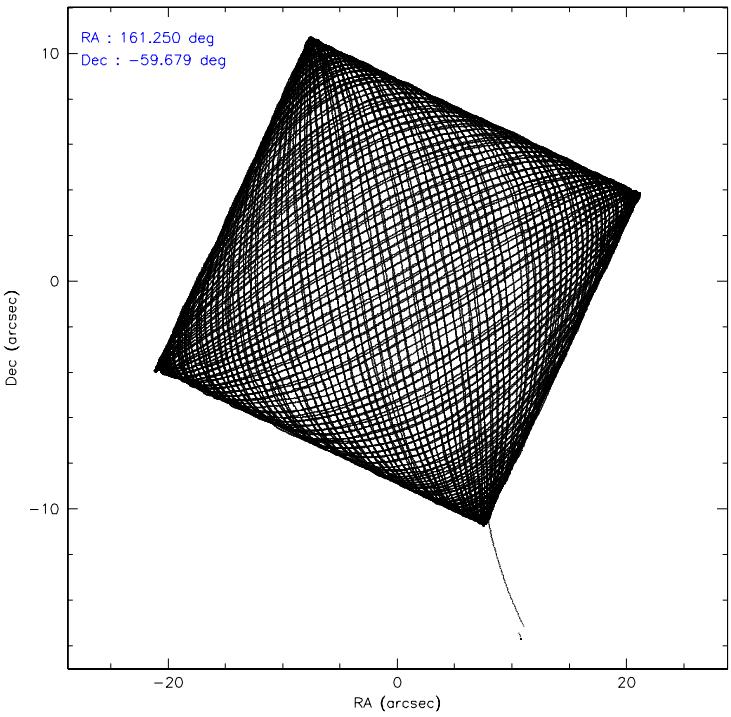
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	21624	25584	21512	26680
	6%	10%	6%	8%
grade 1 events	1042	109	572	149
	0%	0%	0%	0%
grade 2 events	46427	8597	41955	14206
	13%	3%	11%	4%
grade 3 events	6362	4625	14952	7965
	1%	1%	4%	2%
grade 4 events	6034	4428	14513	7515
	1%	1%	4%	2%
grade 5 events	17476	9098	23579	11725
	5%	3%	6%	3%
grade 6 events	80228	7562	87660	17370
	24%	2%	24%	5%
grade 7 events	154809	192979	148578	222203
	46%	76%	42%	72%

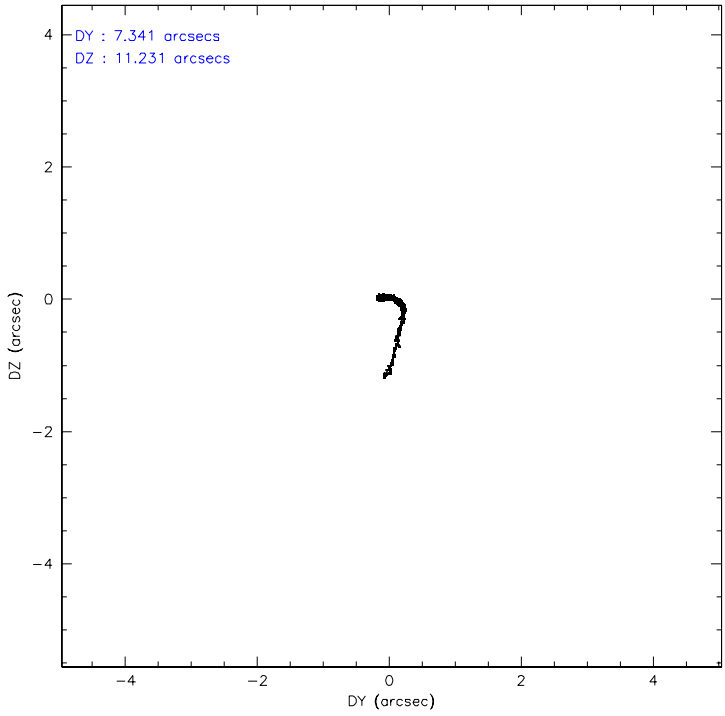
2.2 Compared Parameters

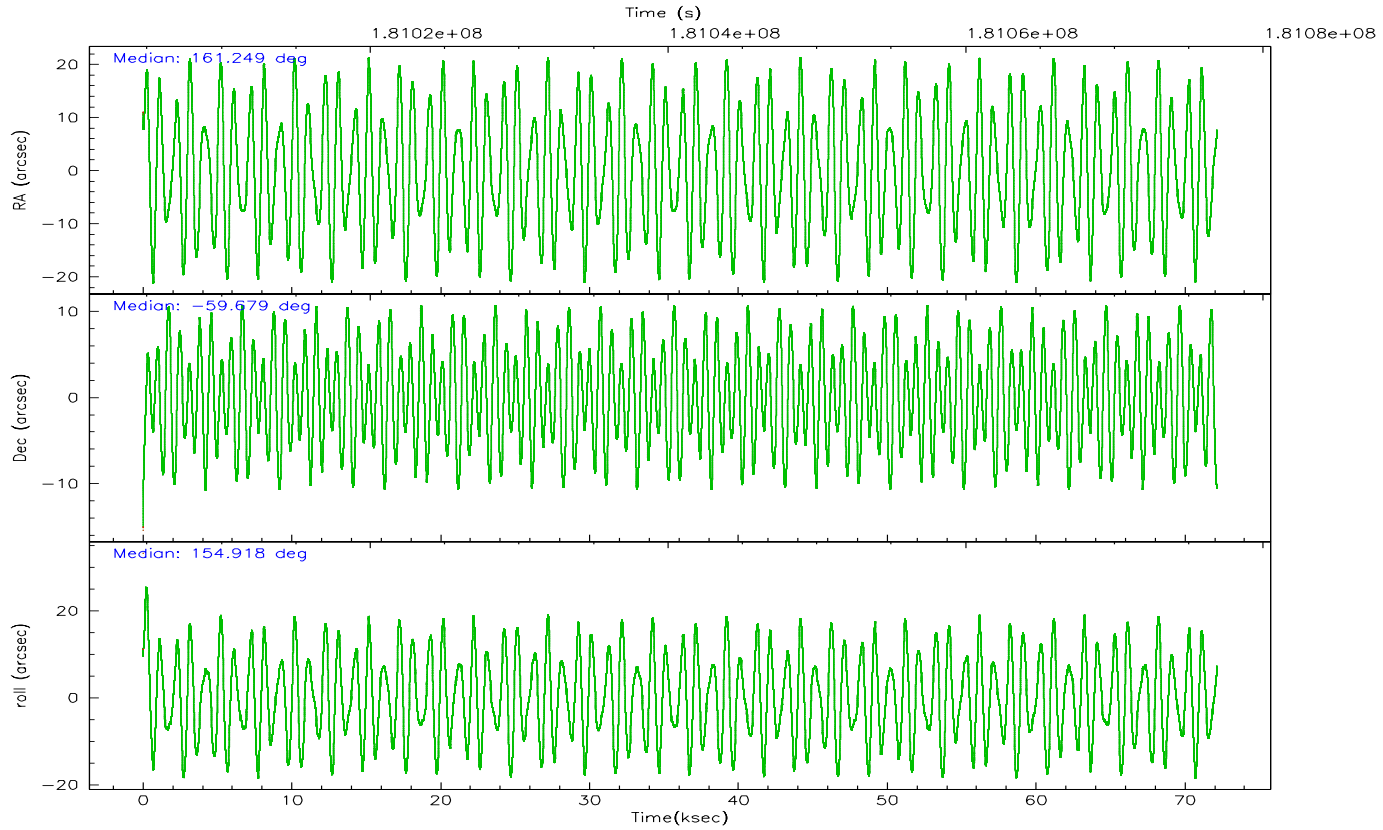
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-5678	ACIS-5678
Grating	HETG	HETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	161.303014	161.249379513613
Pointing Dec	-59.676244	-59.6789687347449
Pointing Roll	154.814437	154.9247717567142
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-183.332523	-183.3212429520412
SIM translation stage offset (mm)	-6.8	-6.811279630966652
Phase constraints	Y	Y
Phase period	2016.000000	2016.000000
Phase epoch	50794.000000	50794.000000
Phase start	0.047000	0.047000
Phase end	0.055000	0.055000
Phase start error	0.005000	0.005000
Phase end error	0.005000	0.005000
Observation start time	181004902.184000	181003616.98911
Observation start date	2003-09-26T23:07:18	2003-09-26T22:46:56
Observation end time	181076902.184000	181078687.99233
Observation end date	2003-09-27T19:07:18	2003-09-27T19:38:07
Read mode	TIMED	TIMED

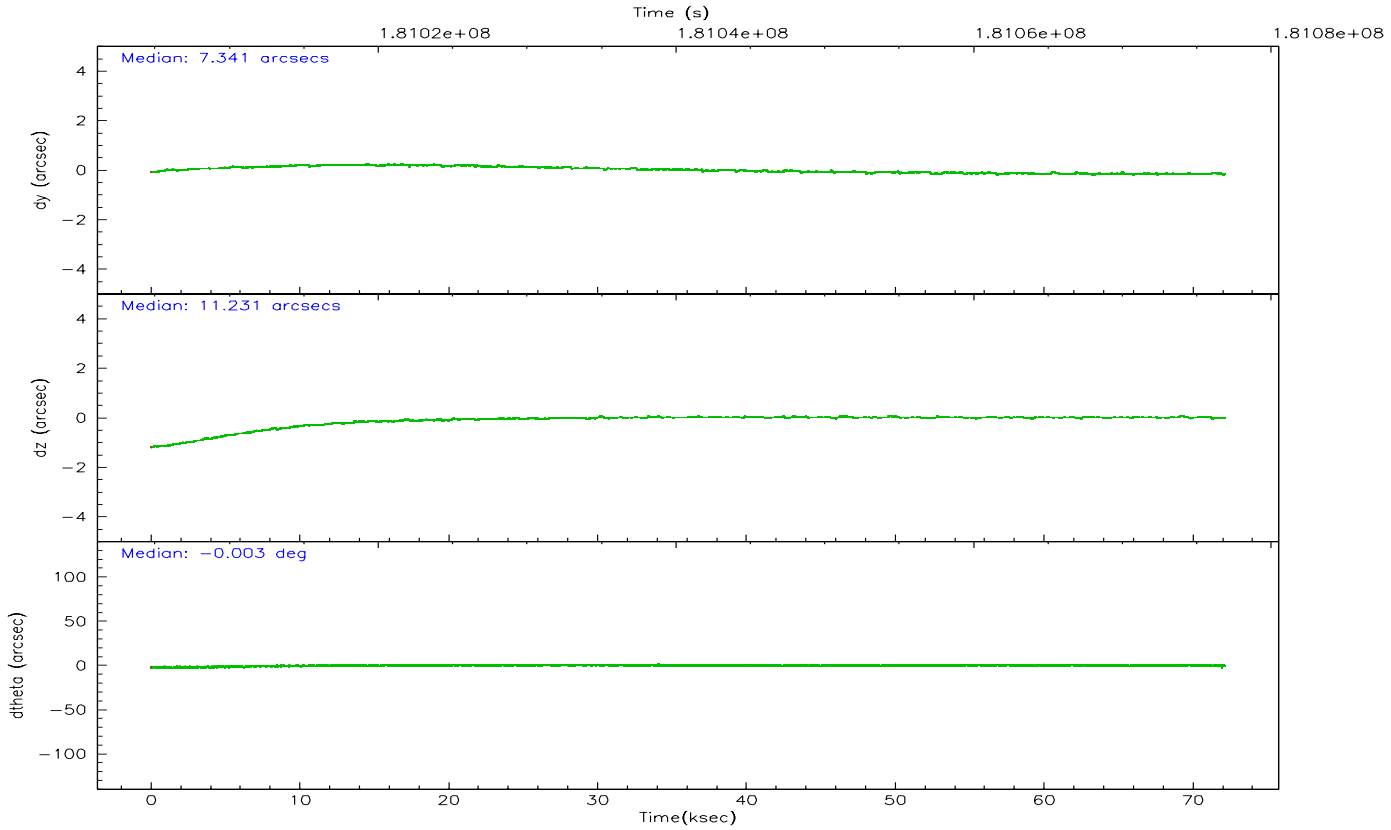
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
On-chip summing requested	N	N
Subarray requested	CUSTOM	CUSTOM
Subarray start row	15	15
Subarray row count	440	440
Alternating exposures requested	N	N
Primary exposure time	0.000000	1.4

2.3 Aspect


RA : 161.250 deg
Dec : −59.679 deg
10
0
−10
Dec (arcsec)
−20
0
20
RA (arcsec)


DY : 7.341 arcsecs
DZ : 11.231 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: 161.249 deg
RA (arcsec)
Median: −59.679 deg
Dec (arcsec)
Median: 154.918 deg
roll (arcsec)
Time(ksec)

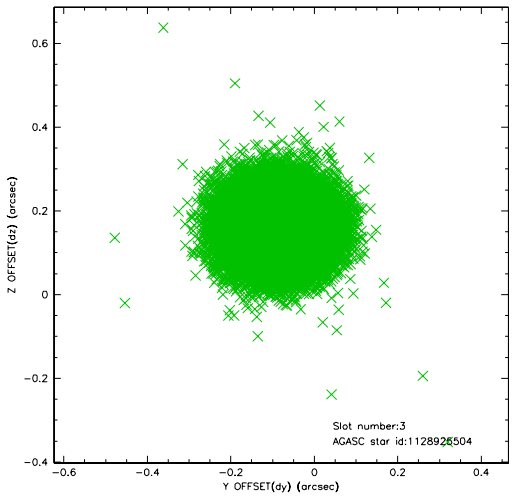

Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: 7.341 arcsecs
dy (arcsec)
Median: 11.231 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

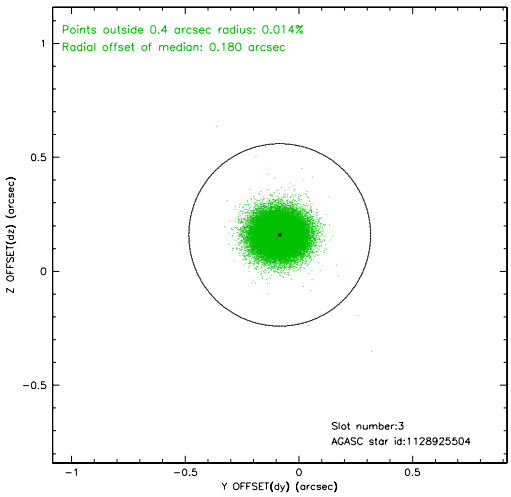
Slot Statistics

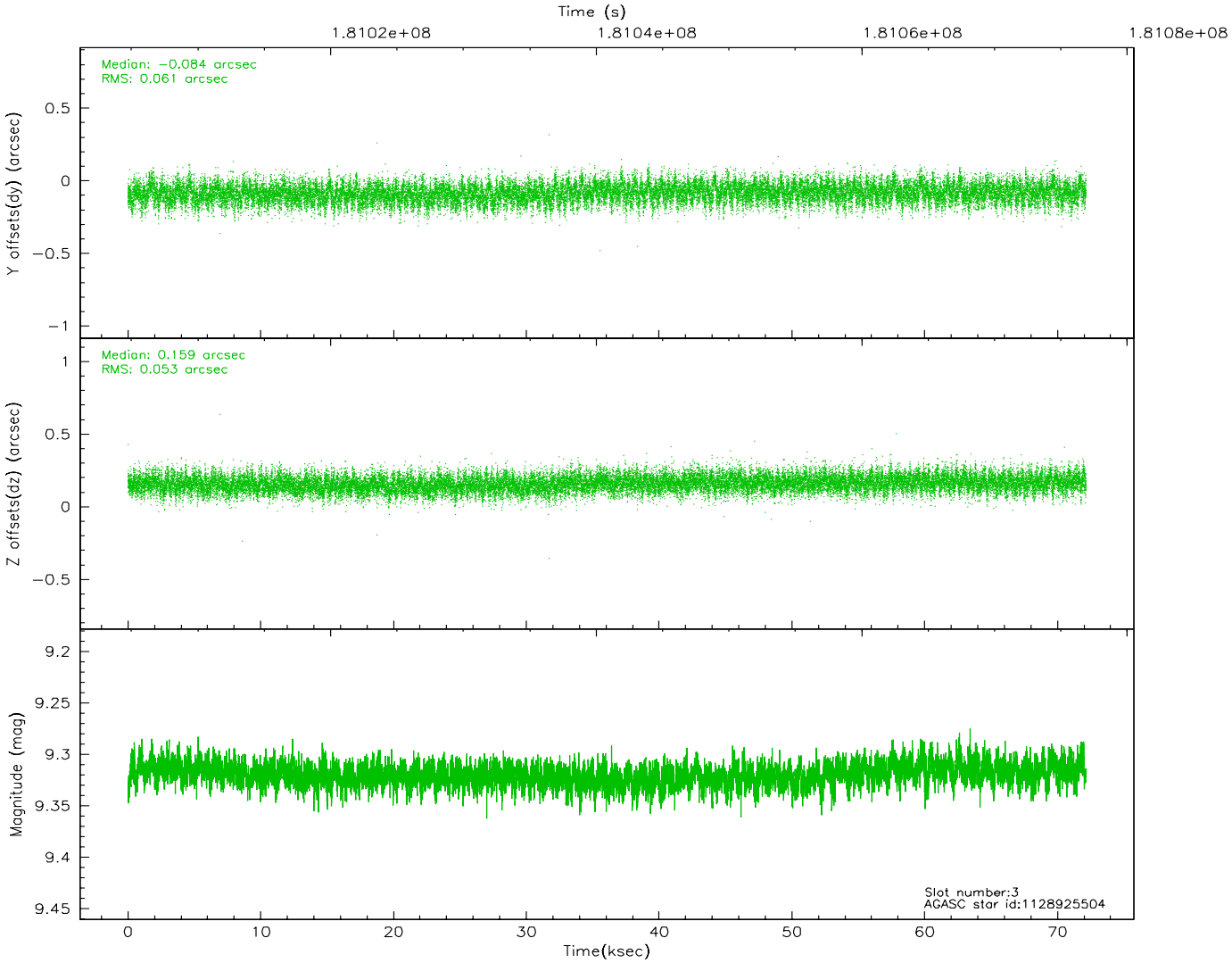
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.08	17600	-0.062	-0.122	0.016	0.044	0.000000	0.000000	-759.72	-1872.85
1	FID	ACIS-S-4	7.18	17602	0.018	0.062	0.015	0.025	0.000000	0.000000	2153.69	35.81
2	FID	ACIS-S-5	7.22	17600	0.014	0.067	0.012	0.036	0.000000	0.000000	-1812.53	29.47
3	GUIDE	1128925504	9.32	35183	-0.084	0.159	0.086	0.140	159.641491	-59.975926	2233.02	2284.35
4	GUIDE	1130639296	9.39	35185	-0.029	0.035	0.090	0.146	162.190960	-59.617844	-1377.77	-868.42
5	GUIDE	1130640288	9.16	35179	0.059	-0.087	0.089	0.146	160.869759	-59.100305	1606.51	-1532.90
6	GUIDE	1130645296	9.05	35182	-0.071	0.044	0.073	0.116	162.541185	-59.548371	-1856.92	-1358.97
7	GUIDE	1174021440	8.42	35194	0.124	-0.151	0.083	0.128	160.869011	-60.314711	-278.82	2411.38

2.4 Star Slots

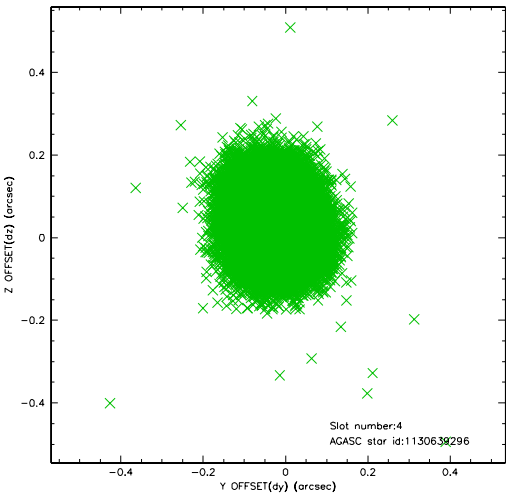
2.4.1 Slot 3

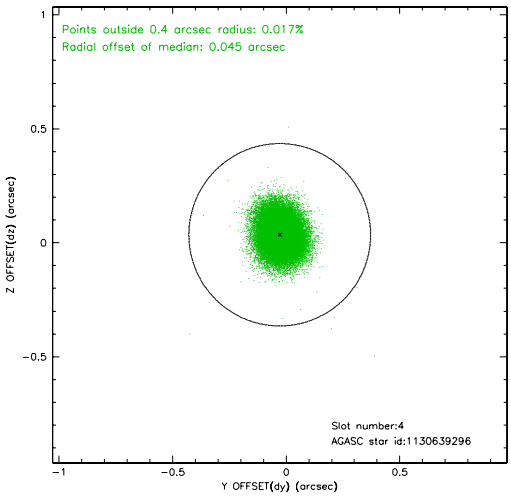


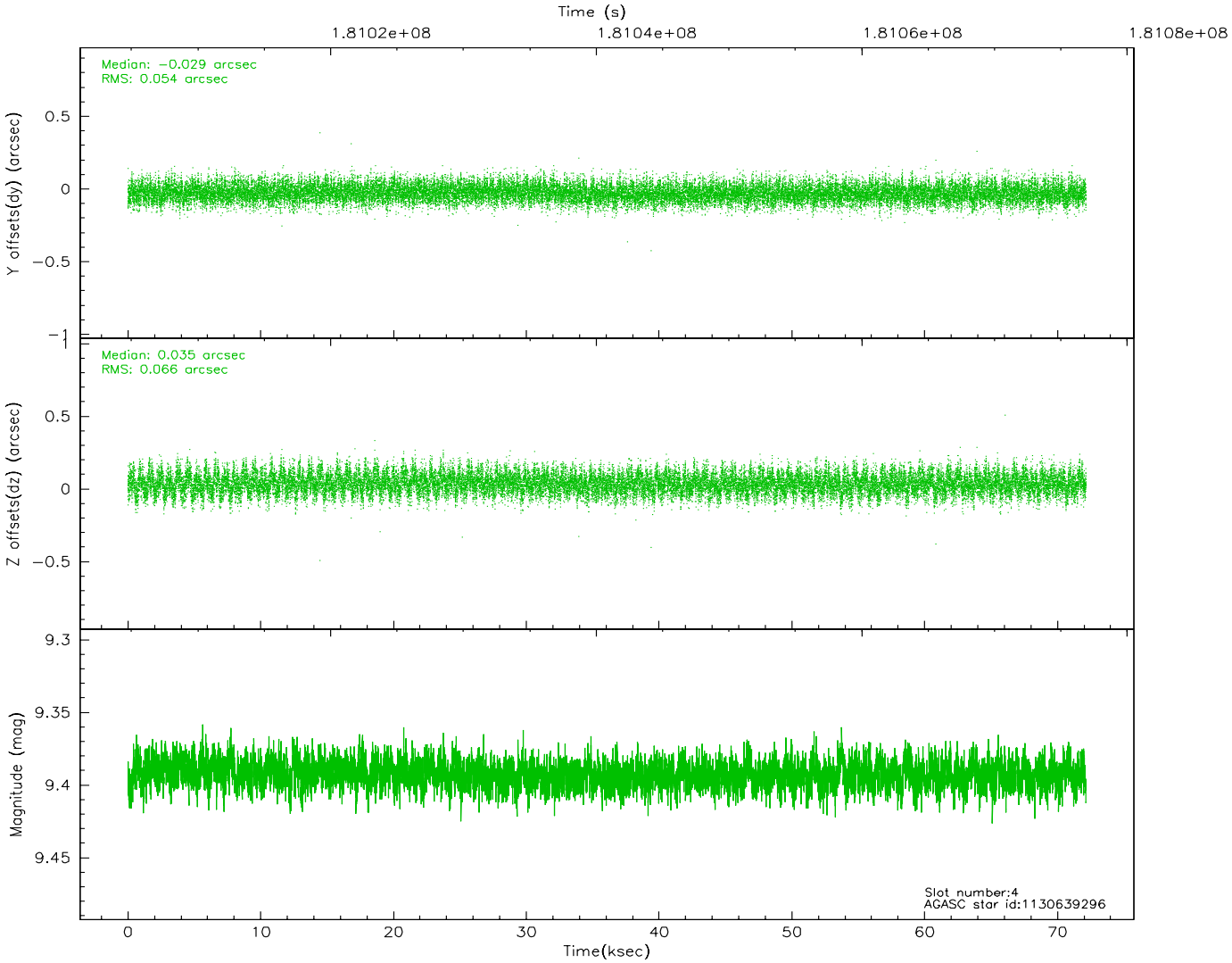




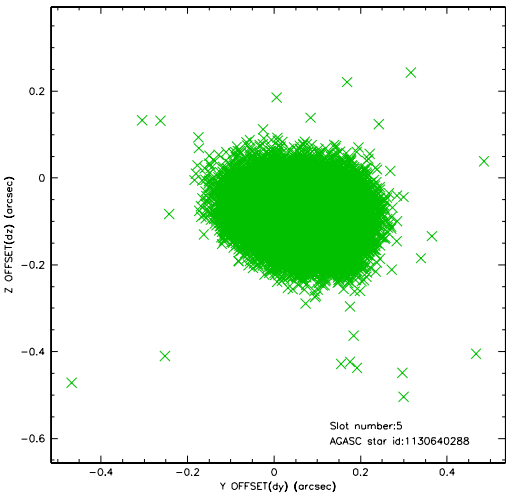
2.4.2 Slot 4

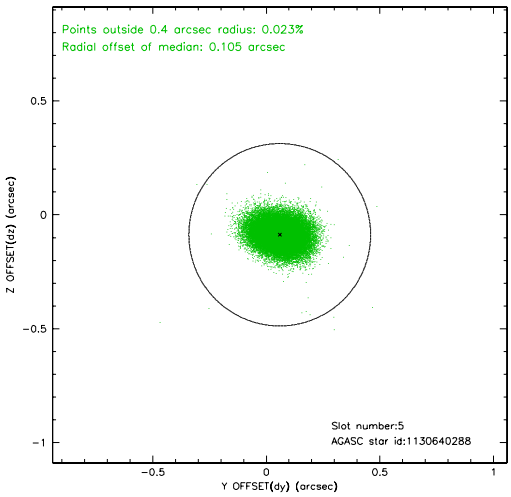

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:1130639296

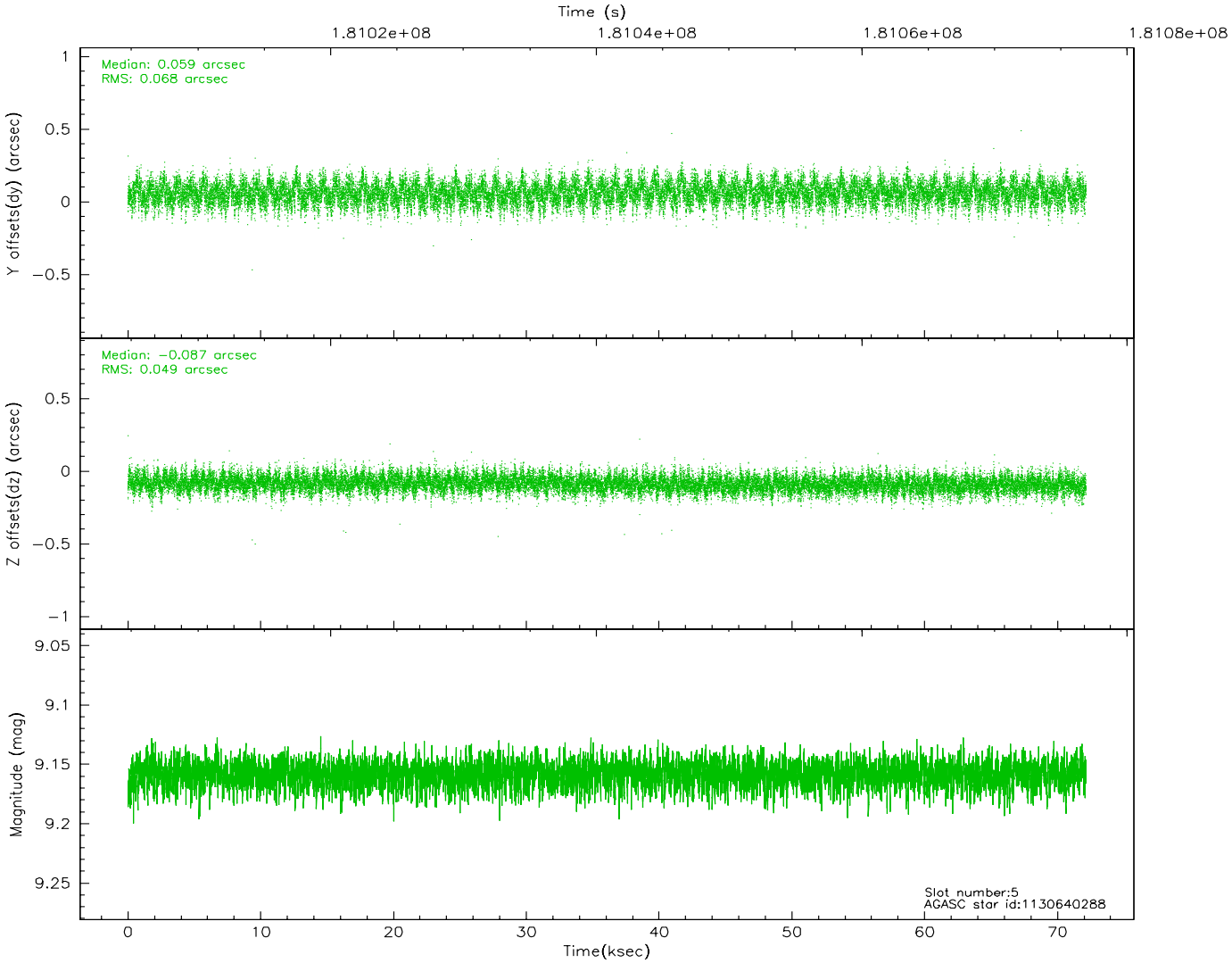

Points outside 0.4 arcsec radius: 0.017%
Radial offset of median: 0.045 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:1130639296


Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: −0.029 arcsec
RMS: 0.054 arcsec
Y offsets(dy) (arcsec)
Median: 0.035 arcsec
RMS: 0.066 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:1130639296
Time(ksec)

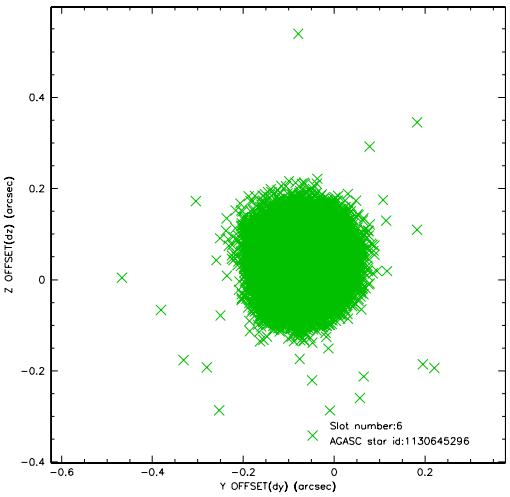
2.4.3 Slot 5

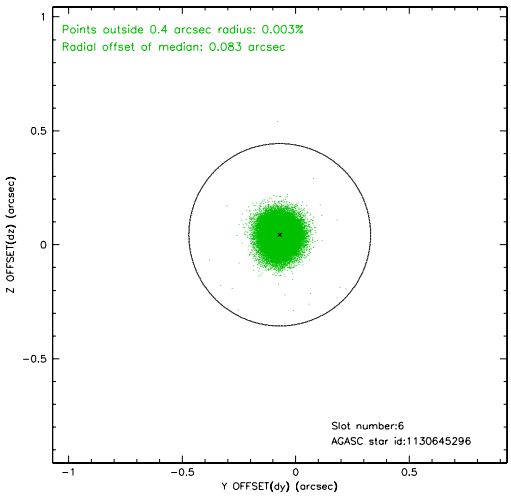

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:1130640288

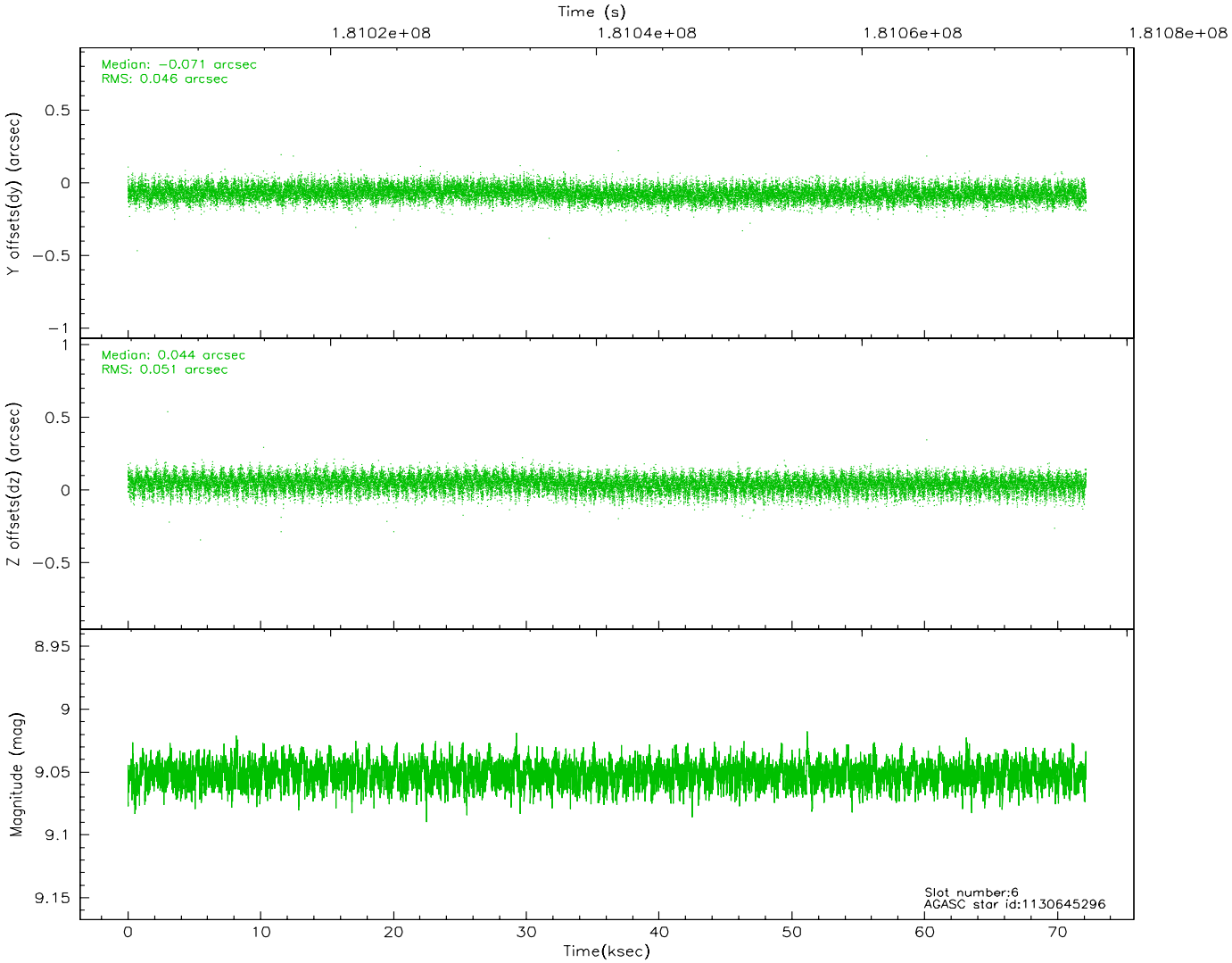

Points outside 0.4 arcsec radius: 0.023%
Radial offset of median: 0.105 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:1130640288


Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: 0.059 arcsec
RMS: 0.068 arcsec
Y offsets(dy) (arcsec)
Median: −0.087 arcsec
RMS: 0.049 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:1130640288
Time(ksec)

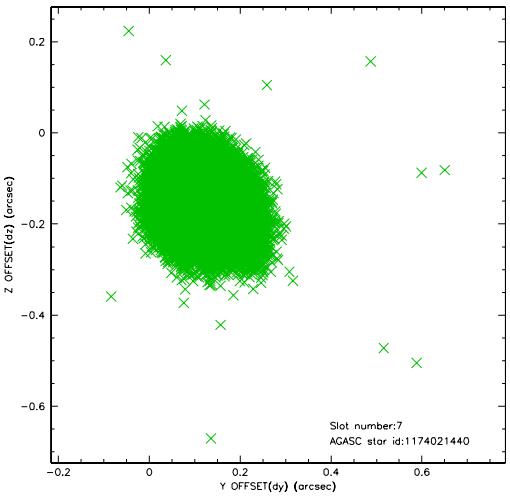
2.4.4 Slot 6

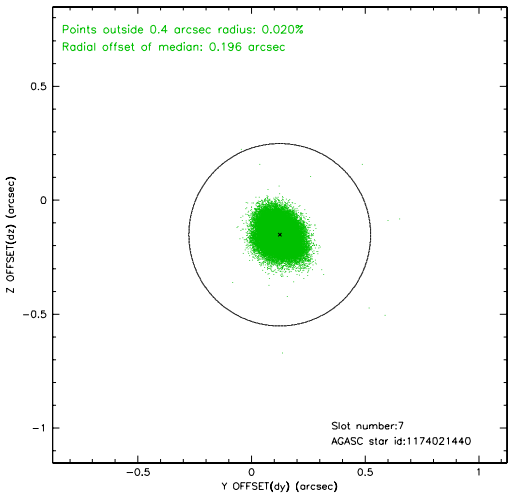

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:1130645296

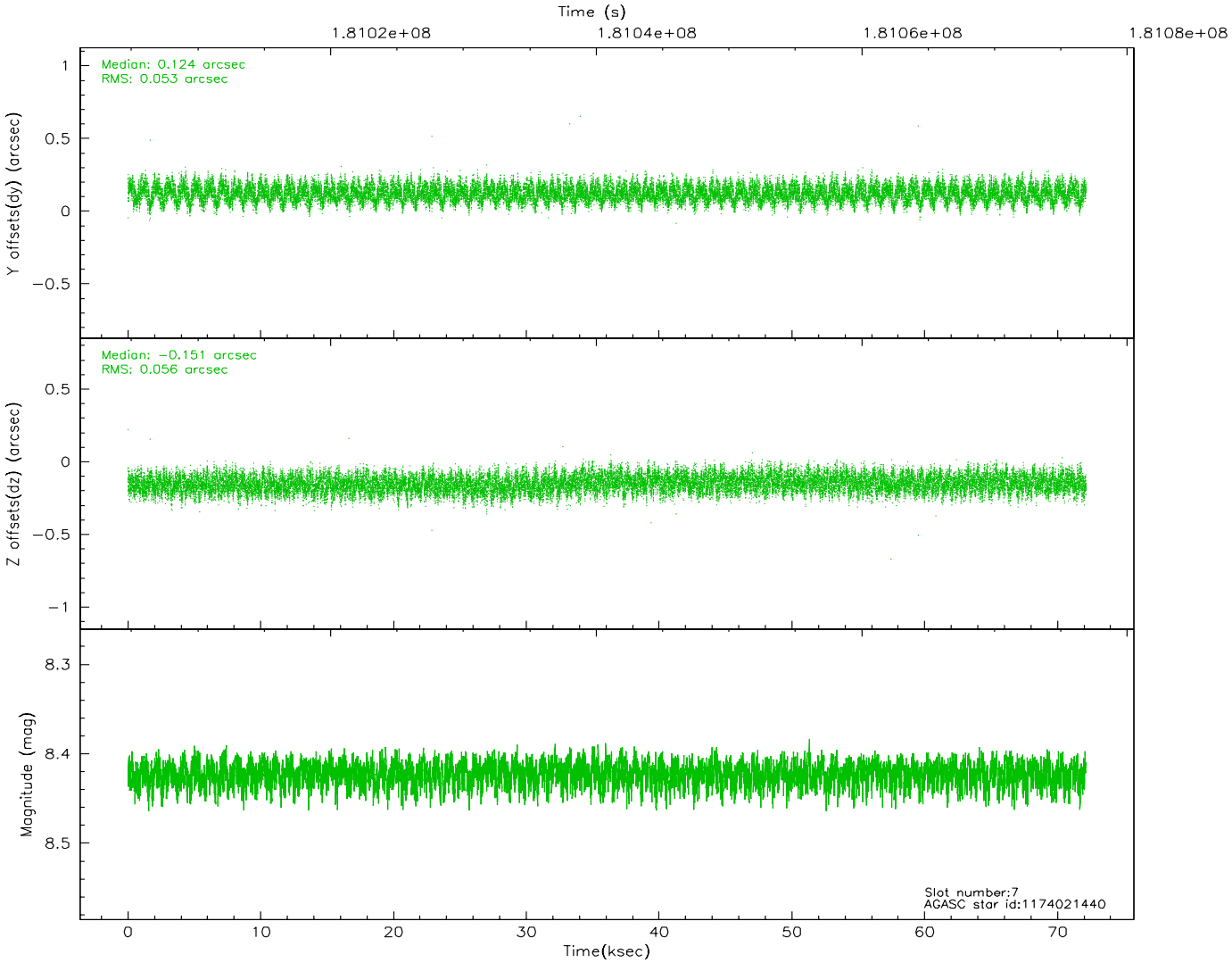

Points outside 0.4 arcsec radius: 0.003%
Radial offset of median: 0.083 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:1130645296


Time (s)
Median: −0.071 arcsec
RMS: 0.046 arcsec
Y offsets(dy) (arcsec)
Median: 0.044 arcsec
RMS: 0.051 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:1130645296
Time(ksec)

2.4.5 Slot 7

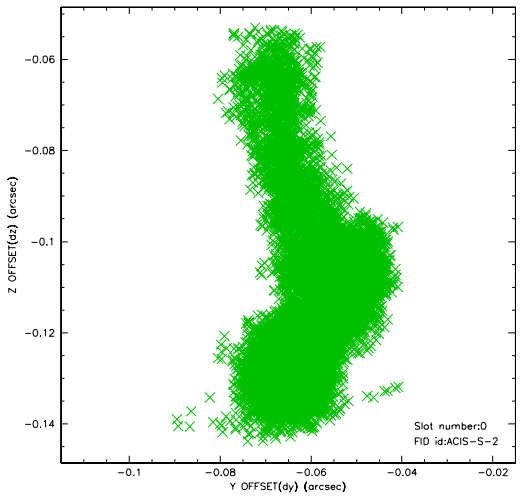

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:1174021440

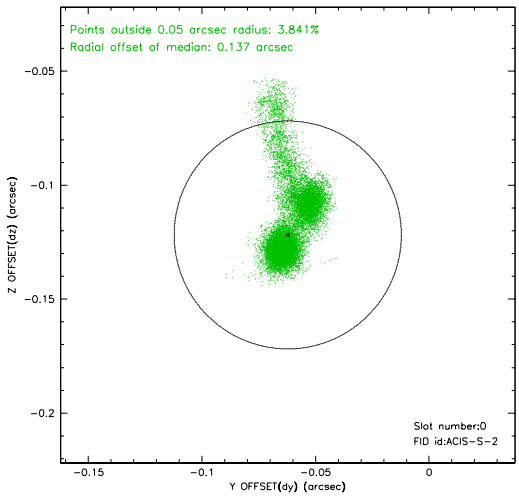

Points outside 0.4 arcsec radius: 0.020%
Radial offset of median: 0.196 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:1174021440

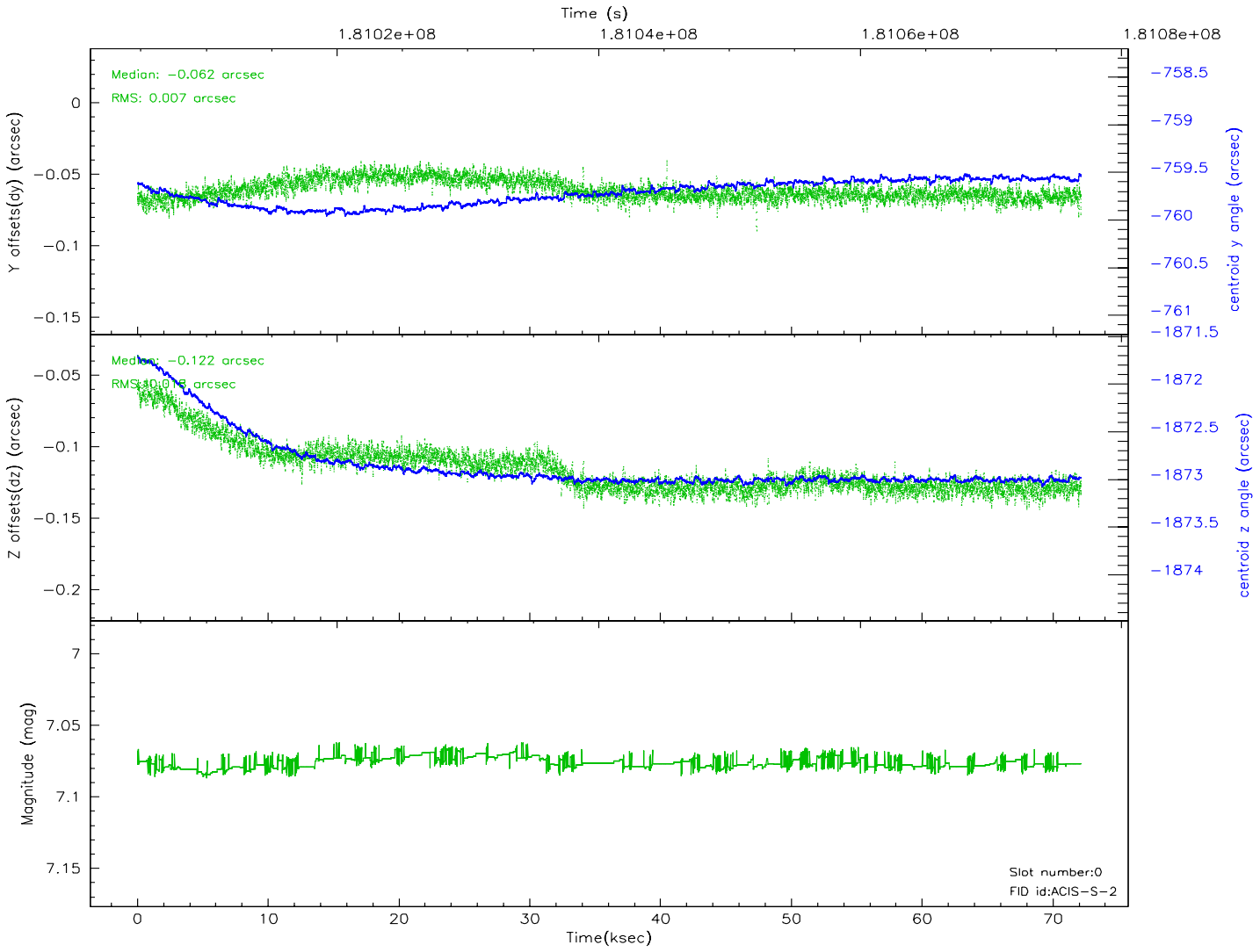

Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: 0.124 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: −0.151 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:1174021440
Time(ksec)

2.5 FID Slots

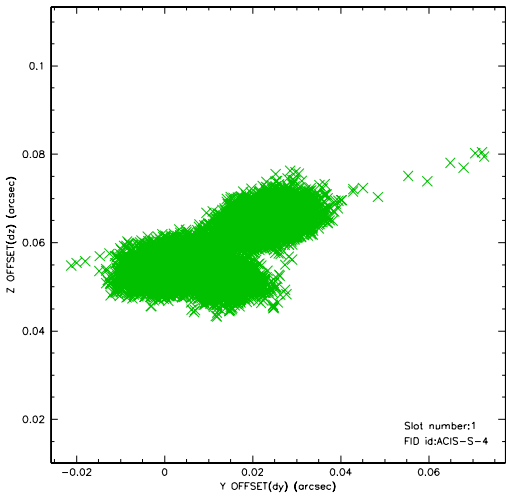
2.5.1 Slot 0

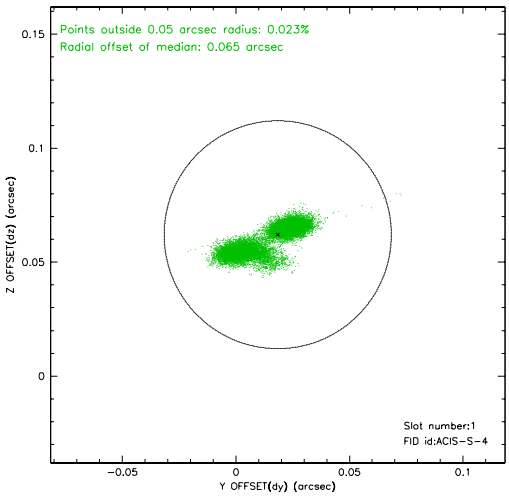


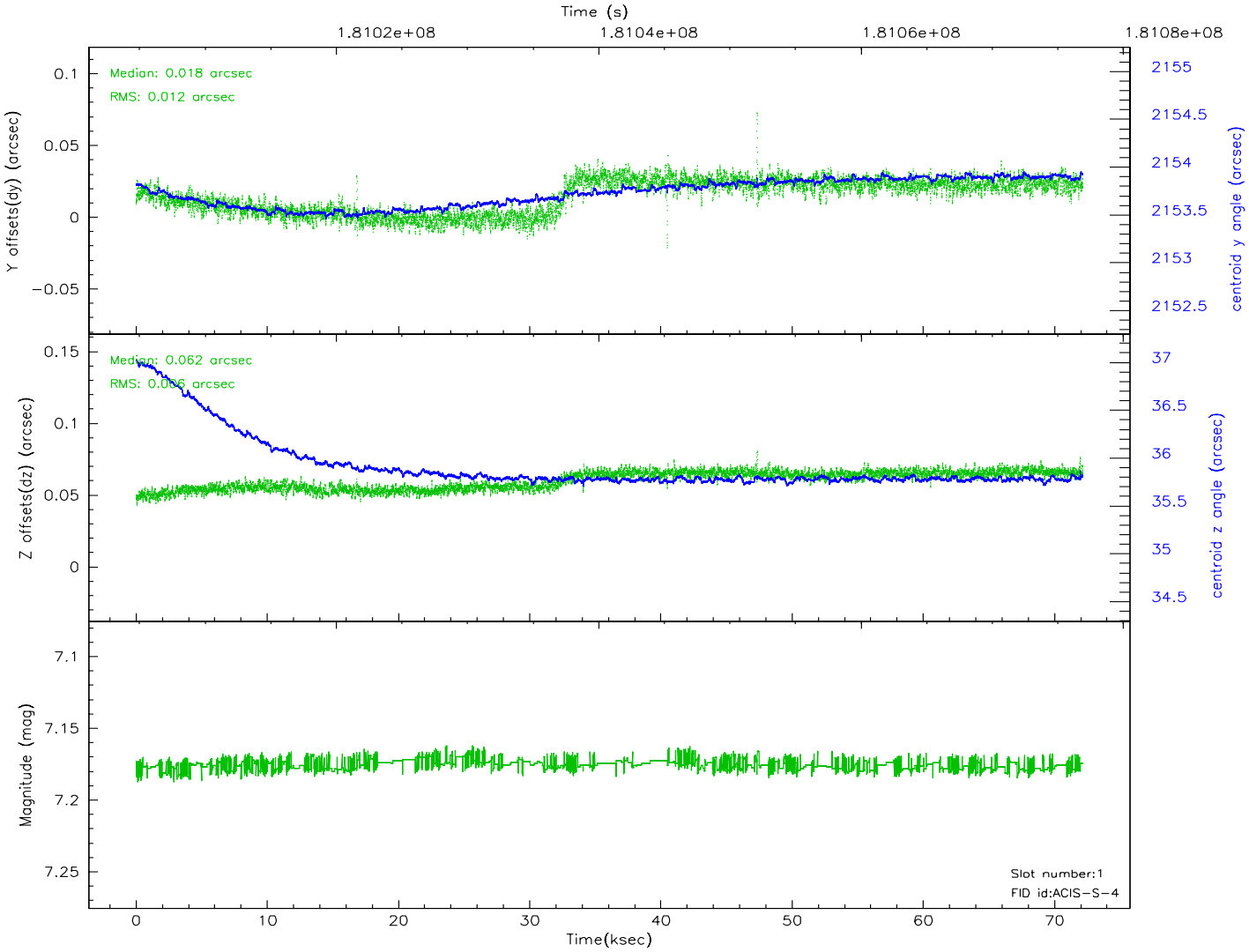




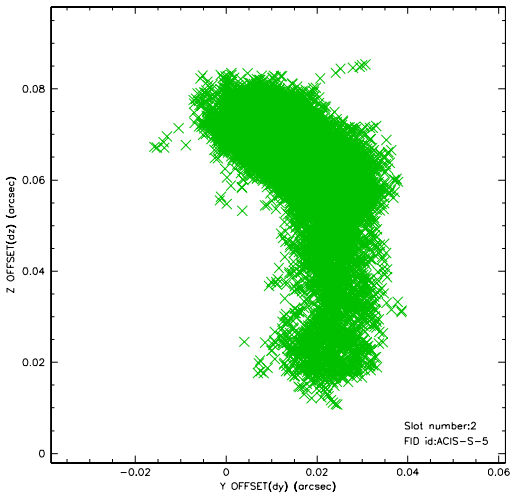
2.5.2 Slot 1

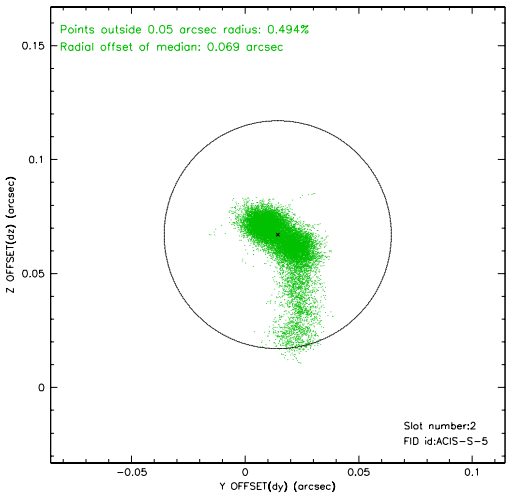

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4

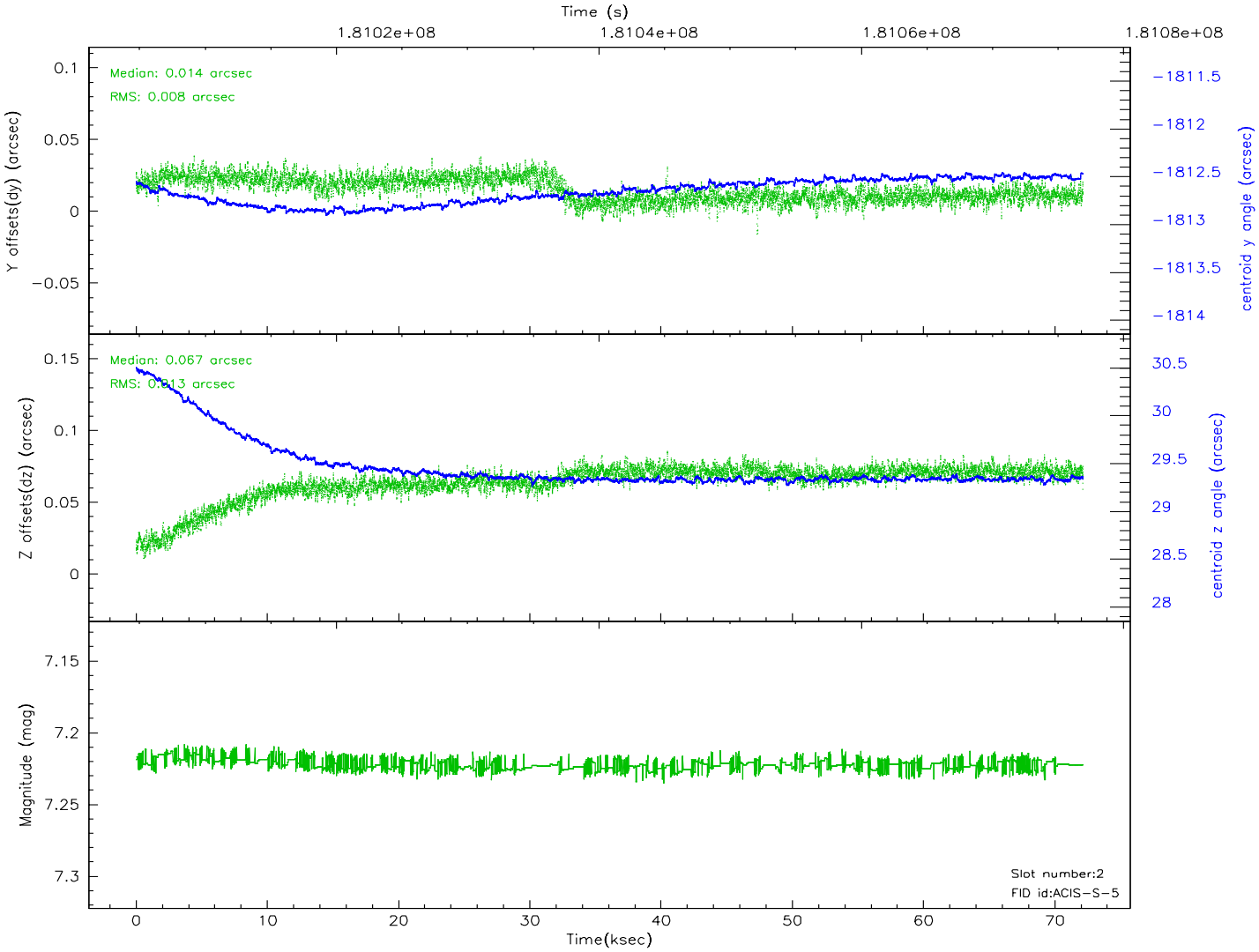

Points outside 0.05 arcsec radius: 0.023%
Radial offset of median: 0.065 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4


Time (s)
1.8102e+08
1.8104e+08
1.8106e+08
1.8108e+08
Median: 0.018 arcsec
RMS: 0.012 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.062 arcsec
RMS: 0.006 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

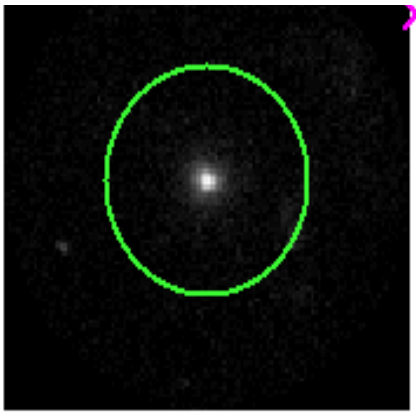

Points outside 0.05 arcsec radius: 0.494%
Radial offset of median: 0.069 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-5


Time (s)
Median: 0.014 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.067 arcsec
RMS: 0.013 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-S-5
Time(ksec)

3 Gratings

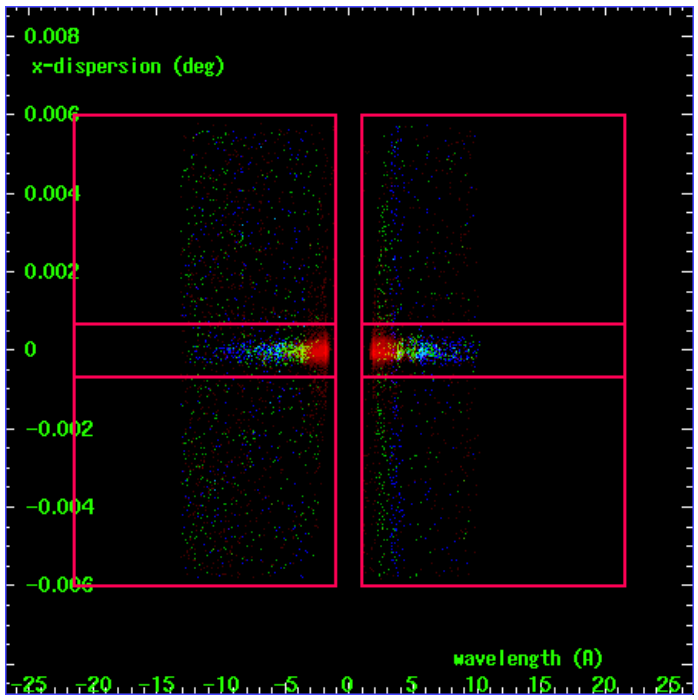
3.1 HEG Arm

HEG Order Sort 123

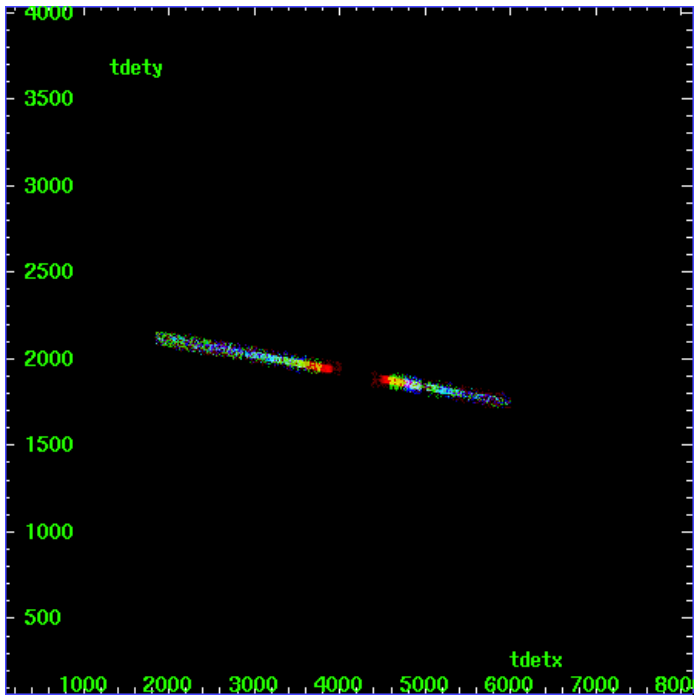


HEG Zero Order

HEG Order Sort ALL

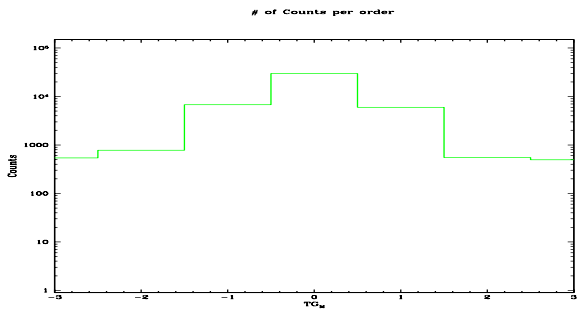


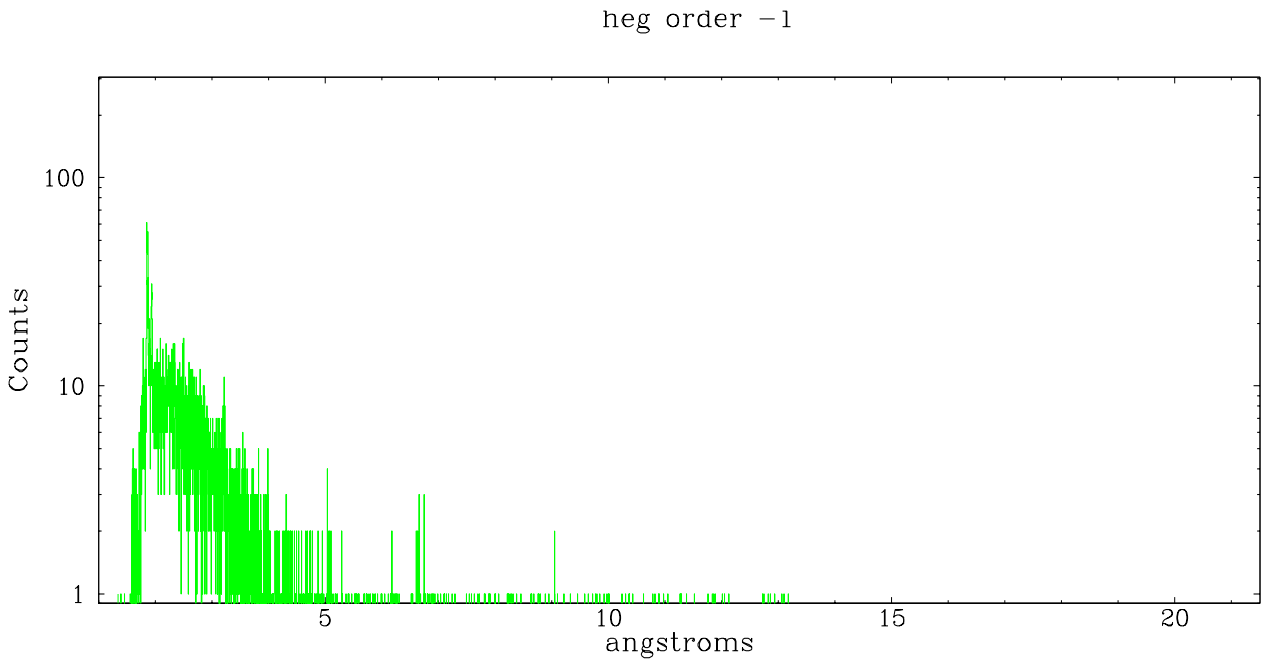
Spot Image HEG

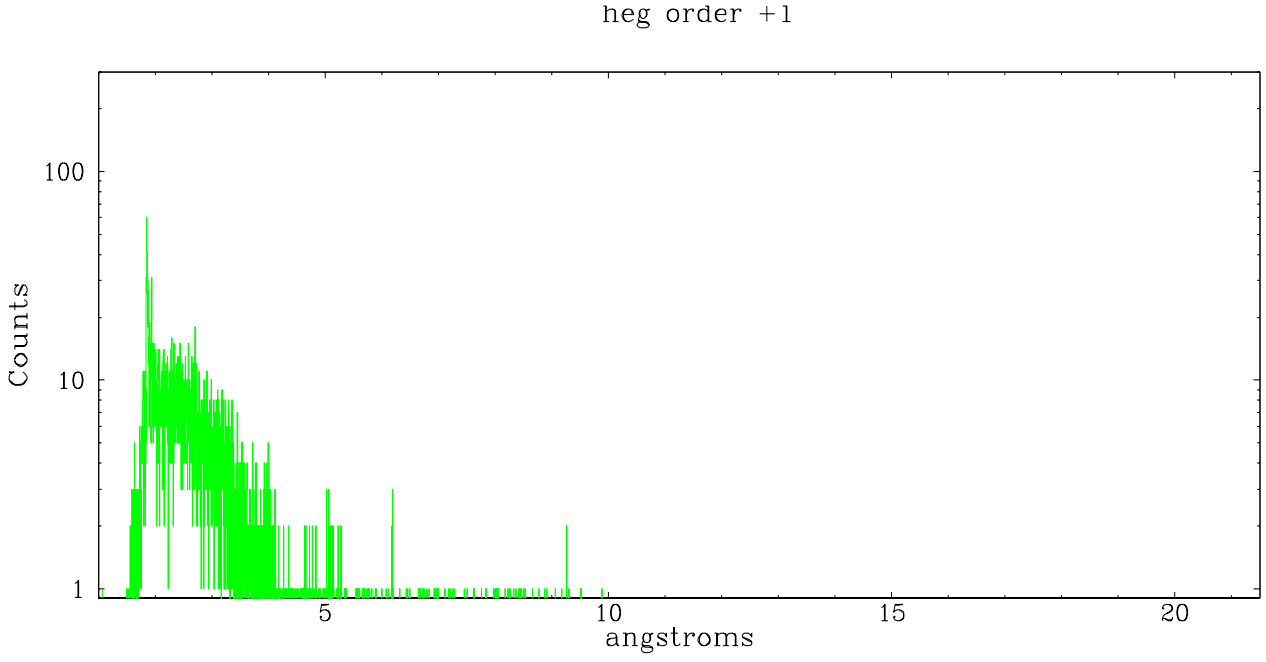


Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	542	777	6746	29747	5957	550	495

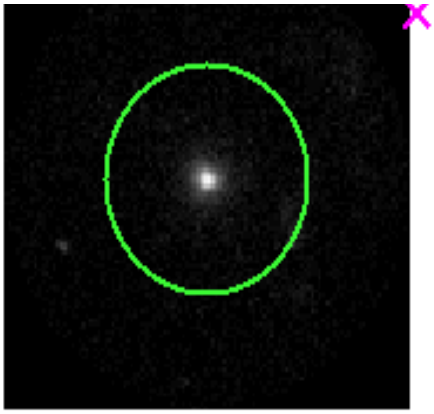



heg order −1
Counts
100
10
1
5
10
15
20
angstroms


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

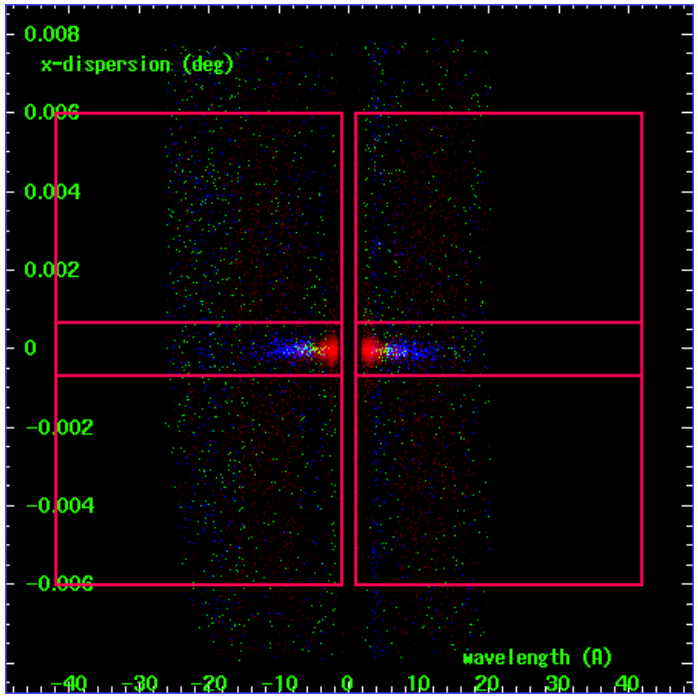
3.2 MEG Arm

MEG Order Sort 123

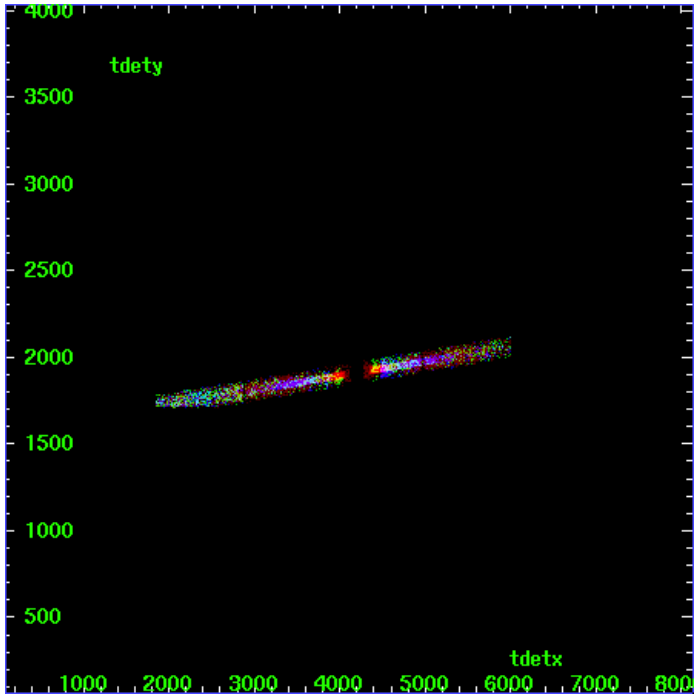


MEG Zero Order

MEG Order Sort ALL

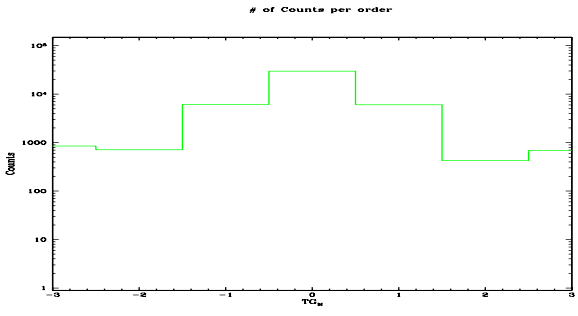


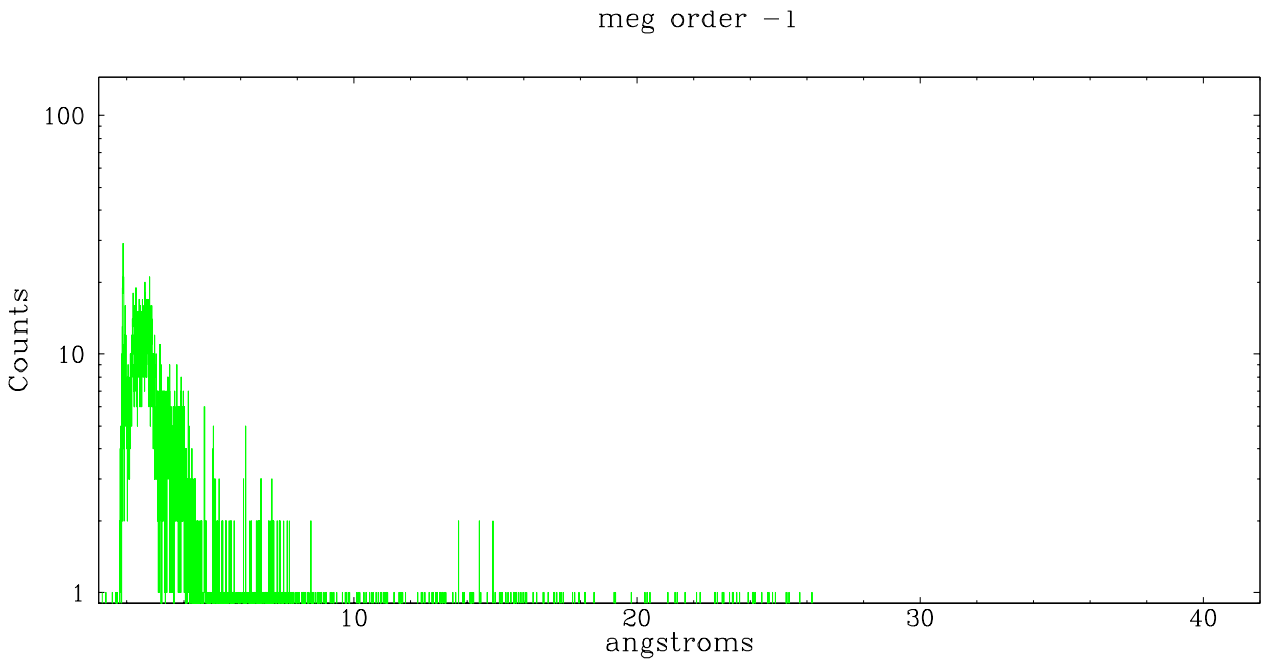
Spot Image MEG

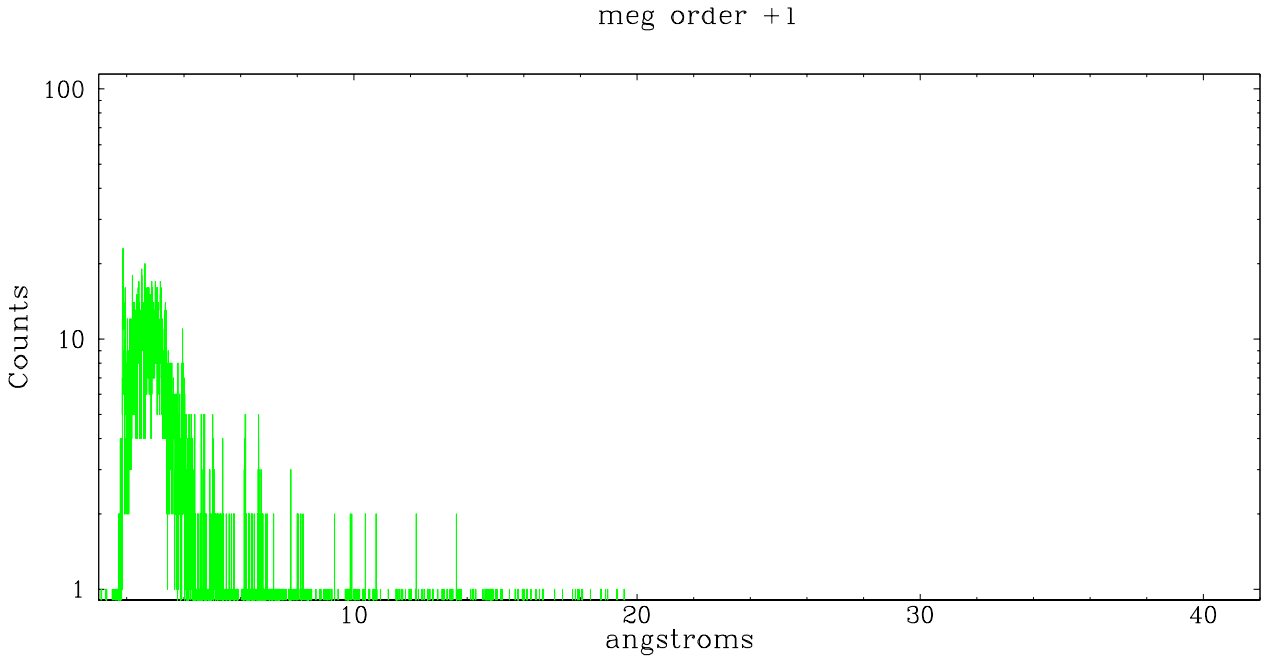


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	851	710	6076	29747	6019	425	687




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


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

A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2006.07.03
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	72.161

A.2 Comments

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Phase constraint satisfied.
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