V&V Reference Report
L2 ASCDS Version : 7.6.8.1

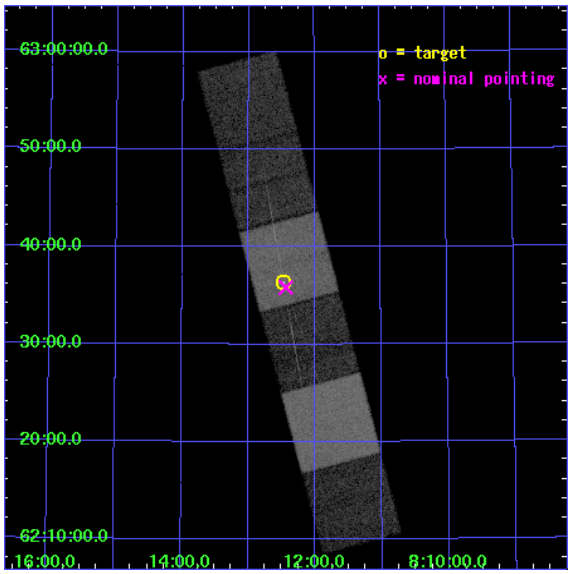
Observation 3478 - L2 Version 001
Chandra X-Ray Center

L2 Processing Date : Sep 11 2006

Contents

1 Front

seq_num	300081
obs_id	3478
title	CHANDRA GRATING SPECTROSCOPY OF DWARF NOVAE
observer	Dr Peter Wheatley
object	SU UMA
dtycycle	0
cycle	P
ra_targ	123.1175
dec_targ	62.606389
ra_nom	123.10856074056
dec_nom	62.597593435299
roll_nom	255.16457171512
revision	2
ontime	23759.999911487
livetime	23459.136486054
ontime4	23759.999911487
ontime5	23759.999911487
ontime6	23753.517971069
ontime7	23759.999911487
ontime8	23759.999911487
ontime9	23759.999911487
l2events	219646

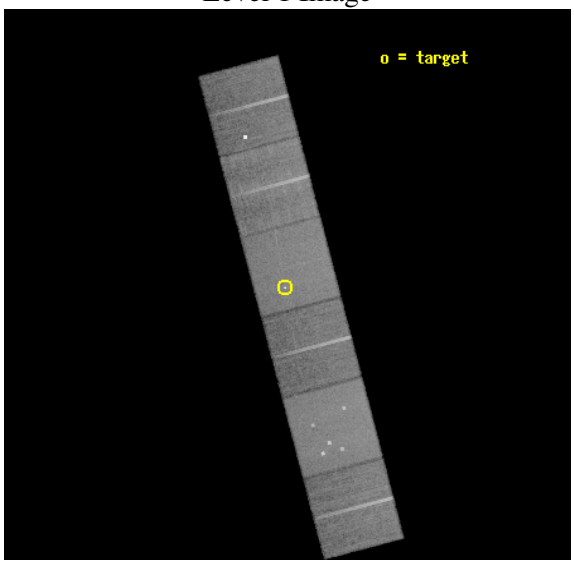


2 OBI

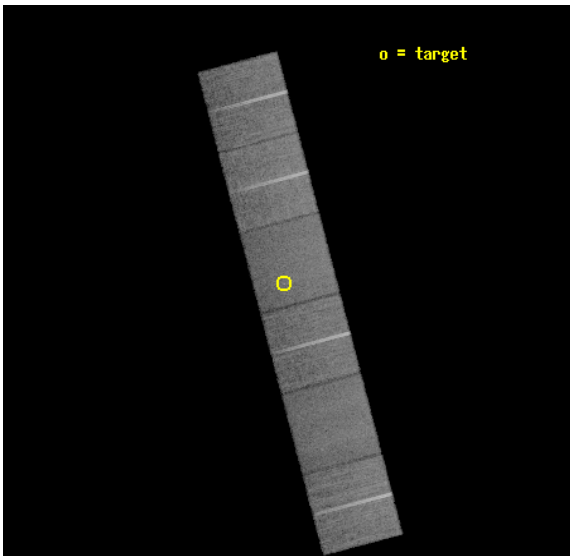
2.1 OBI

2.1.1 Images

Level 1 Image

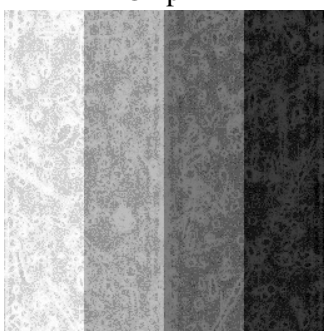


Level 1 Bad Events

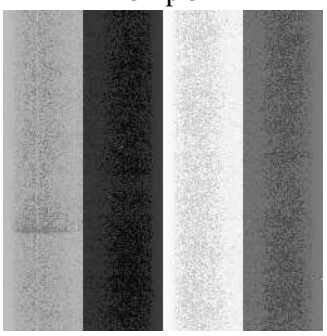


2.1.2 Bias

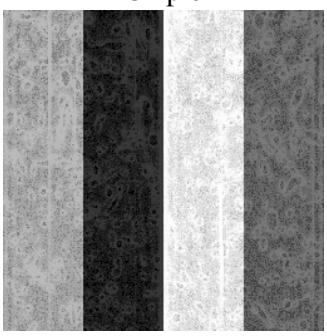
Chip 4



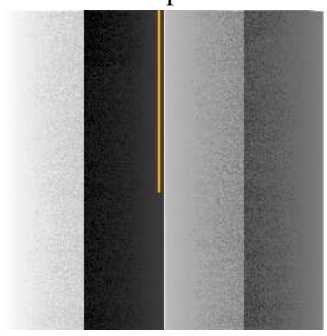
Chip 5



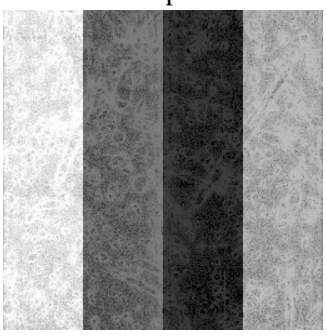
Chip 6



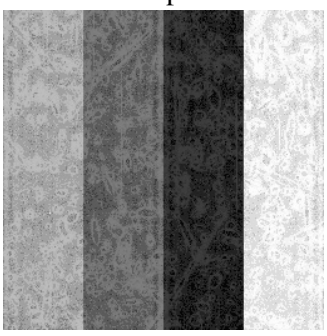
Chip 7



Chip 8



Chip 9



2.1.3 Parameters

obi_num	2
ascdsver	7.6.8.1
caldbver	3.2.3
date	2006-09-11T06:28:13
revision	2

sched_exp_time	24037.273000
ontime	23766.252306223
ontime4	23763.011316031
ontime5	23766.252306223
ontime6	23759.770365804
ontime7	23766.252306223
ontime8	23766.252306223
ontime9	23766.252306223
l1events	1059403

2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	162536	214007	147831	195148	186467	153414
rejected events	144668	119142	130386	120914	148737	129244
rejected %	89%	55%	88%	61%	79%	84%

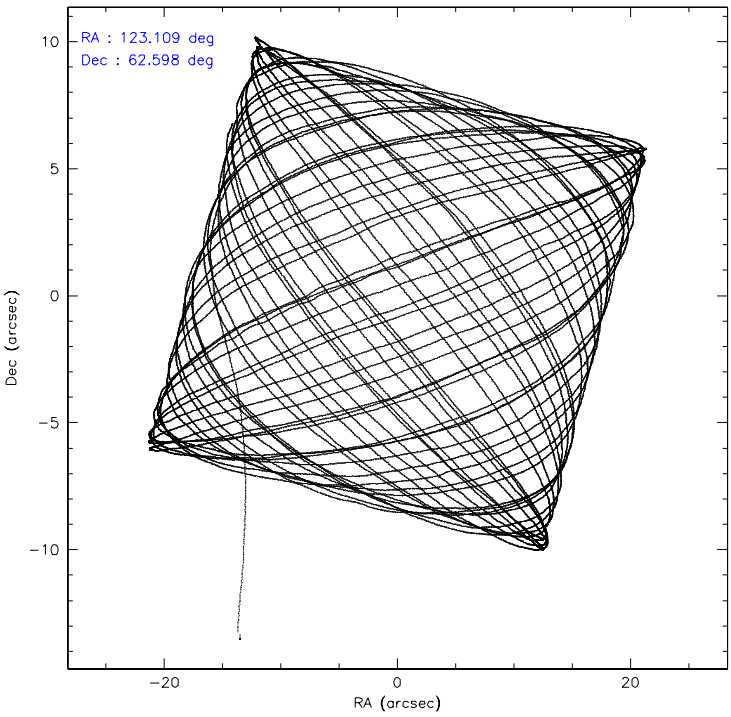
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	7064	10281	7020	4193	12180	10008
	4%	4%	4%	2%	6%	6%
grade 1 events	77	310	85	118	104	77
	0%	0%	0%	0%	0%	0%
grade 2 events	4326	27821	3497	18395	8028	7125
	2%	13%	2%	9%	4%	4%
grade 3 events	1588	2019	1748	3812	4143	1768
	0%	0%	1%	1%	2%	1%
grade 4 events	1662	1912	1754	3755	3896	1728
	1%	0%	1%	1%	2%	1%
grade 5 events	5485	10025	6337	12607	8178	6571
	3%	4%	4%	6%	4%	4%
grade 6 events	3231	52855	3432	44098	9485	3546
	1%	24%	2%	22%	5%	2%
grade 7 events	139103	108784	123958	108170	140453	122591
	85%	50%	83%	55%	75%	79%

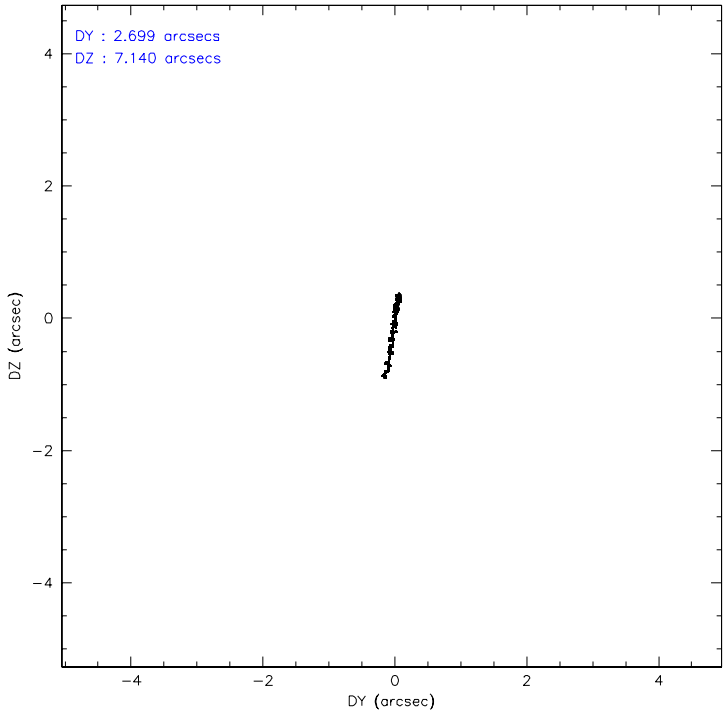
2.2 Compared Parameters

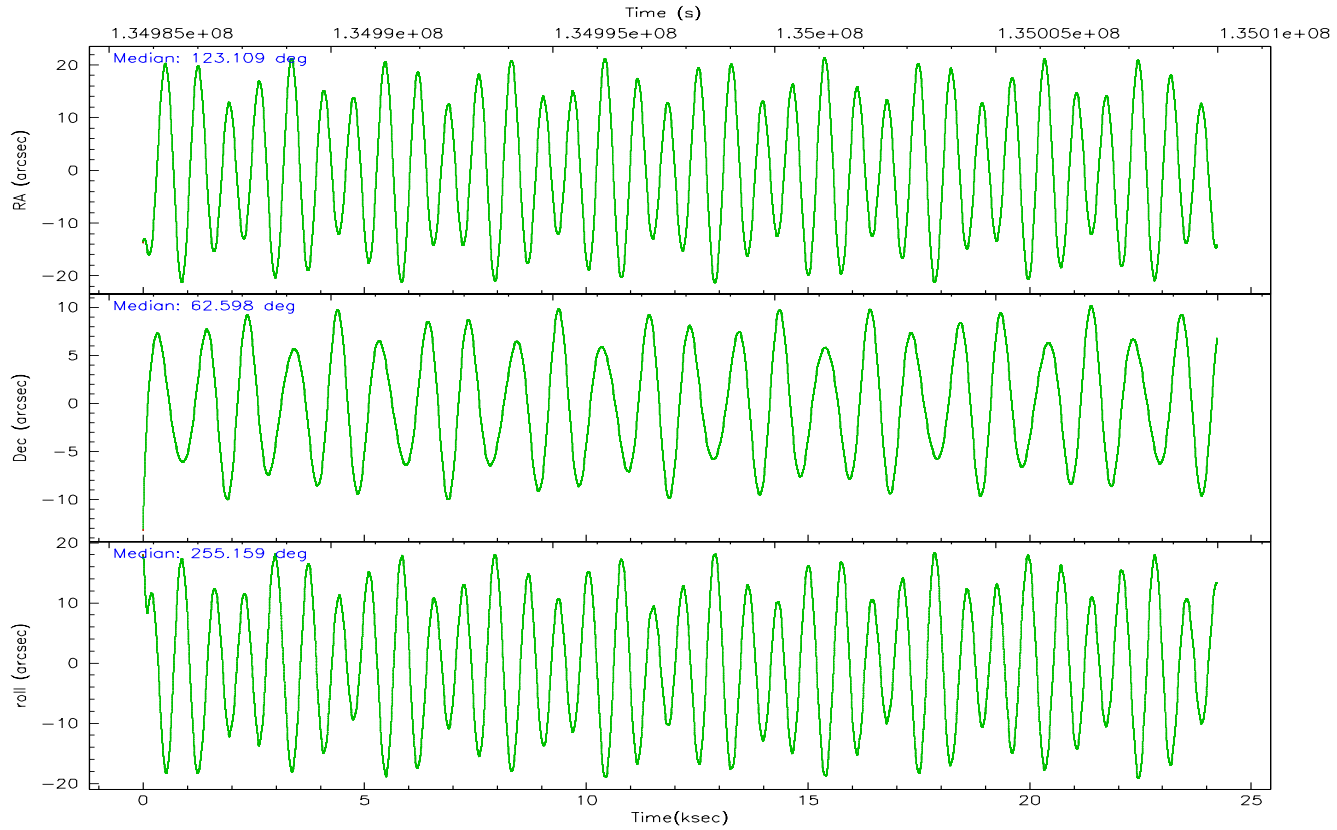
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	123.092374	123.1085607405562
Pointing Dec	62.623804	62.59759343529926
Pointing Roll	255.022309	255.1645717151198
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-187.132523	-187.1254020033014
SIM translation stage offset (mm)	-3	-3.007120579706367
Observation start time	134985953.184000	134984978.80298
Observation start date	2002-04-12T08:04:49	2002-04-12T07:49:38
Observation end time	135009990.184000	135010305.01651
Observation end date	2002-04-12T14:45:26	2002-04-12T14:51:45
Read mode	TIMED	TIMED

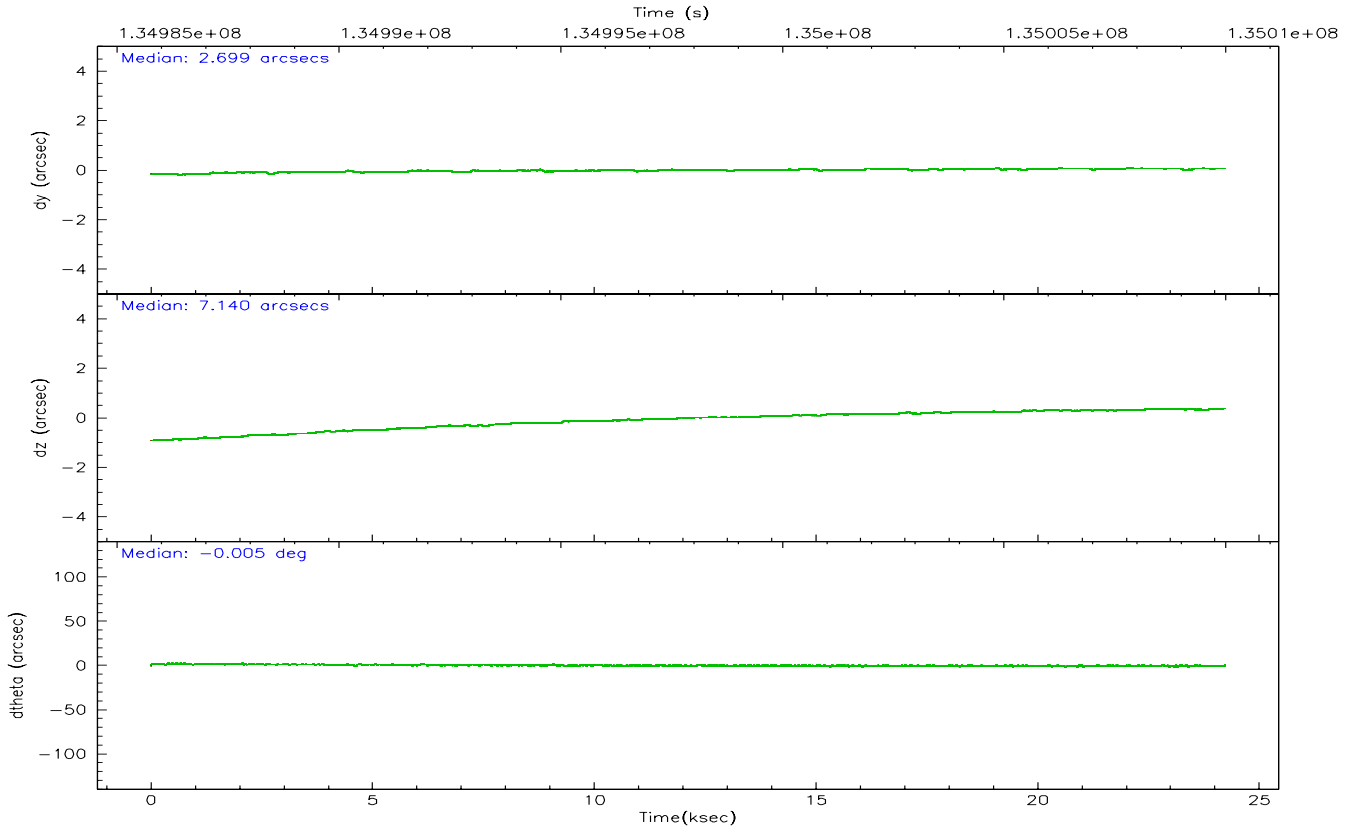
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 123.109 deg
Dec : 62.598 deg
10
5
0
−5
−10
Dec (arcsec)
−20
0
20
RA (arcsec)


DY : 2.699 arcsecs
DZ : 7.140 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
1.34985e+08
1.3499e+08
1.34995e+08
1.35e+08
1.35005e+08
1.3501e+08
Median: 123.109 deg
RA (arcsec)
Median: 62.598 deg
Dec (arcsec)
Median: 255.159 deg
roll (arcsec)
Time(ksec)

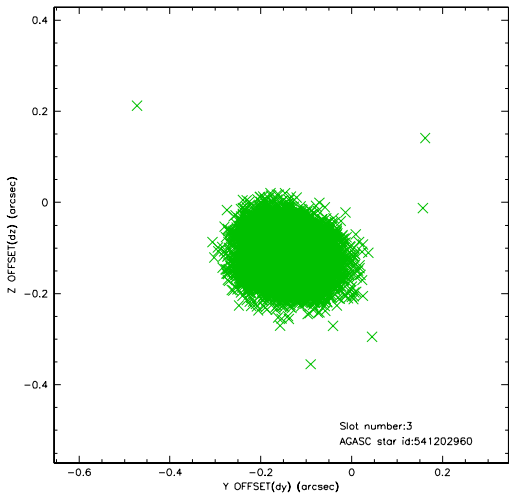

Time (s)
1.34985e+08
1.3499e+08
1.34995e+08
1.35e+08
1.35005e+08
1.3501e+08
Median: 2.699 arcsecs
dy (arcsec)
Median: 7.140 arcsecs
dz (arcsec)
Median: −0.005 deg
dtheta (arcsec)
Time(ksec)

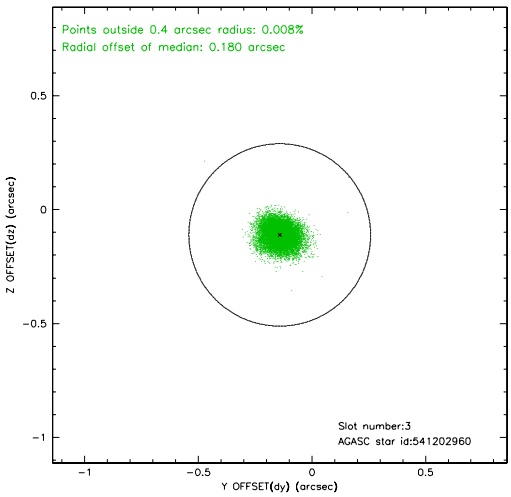
Slot Statistics

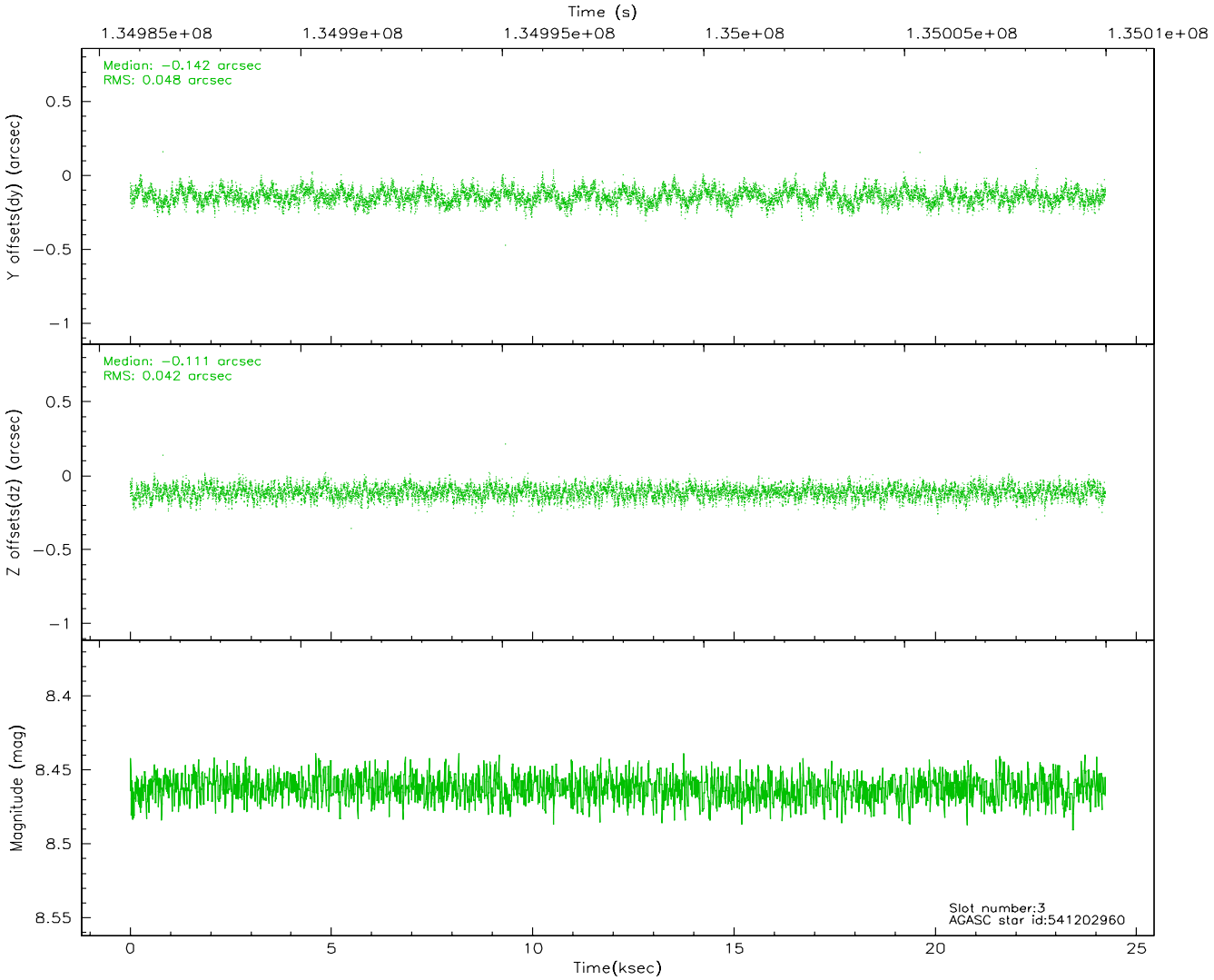
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.10	5908	-0.017	0.008	0.006	0.012	0.000000	0.000000	-755.10	-1790.29
1	FID	ACIS-S-4	7.20	5908	-0.021	0.026	0.006	0.009	0.000000	0.000000	2158.08	118.11
2	FID	ACIS-S-6	7.38	5910	0.010	-0.026	0.007	0.012	0.000000	0.000000	407.03	755.58
3	GUIDE	541202960	8.46	11819	-0.142	-0.111	0.068	0.110	123.440669	63.103953	-1816.96	100.65
4	GUIDE	541206896	8.90	11814	-0.097	0.022	0.067	0.109	122.742968	63.137211	-1638.79	-1027.46
5	GUIDE	540805584	9.04	11819	0.039	-0.055	0.108	0.173	121.852449	62.486103	994.17	-1869.11
6	GUIDE	540816416	9.06	11812	0.155	0.090	0.072	0.117	123.696049	62.036637	1775.56	1529.49
7	GUIDE	540804688	9.50	11808	0.042	0.061	0.118	0.189	124.194446	62.208412	952.86	2169.44

2.4 Star Slots

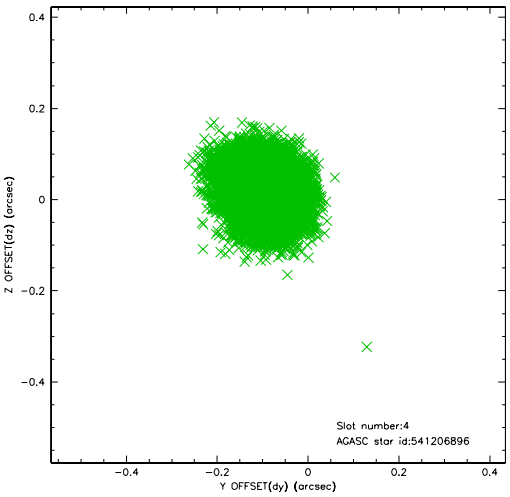
2.4.1 Slot 3

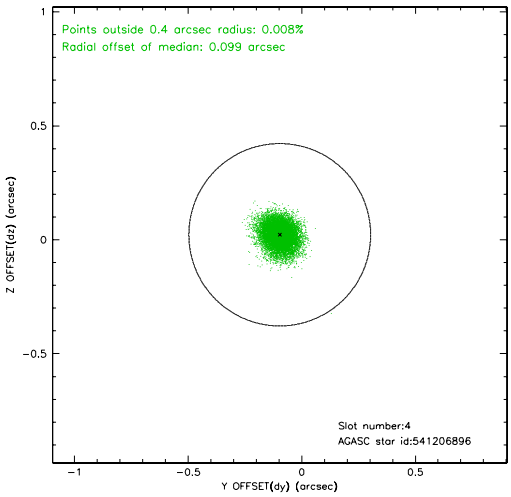


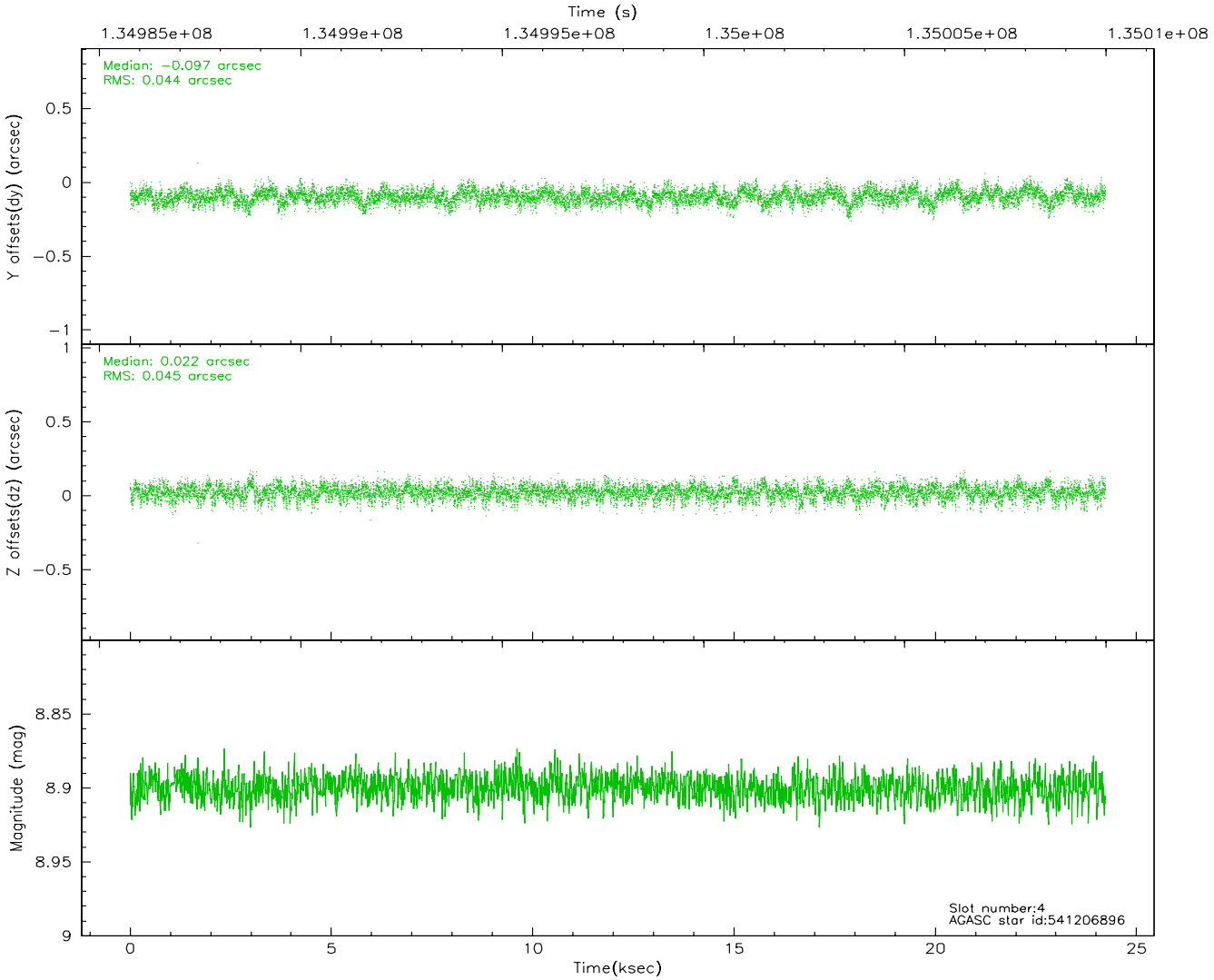




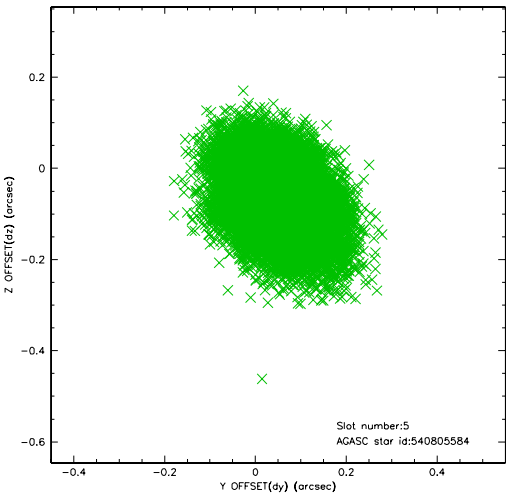
2.4.2 Slot 4

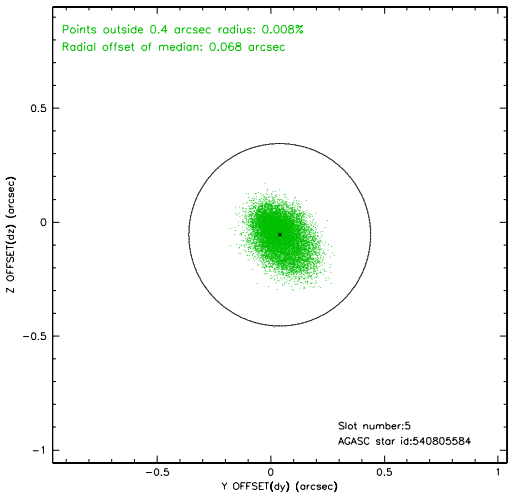

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:541206896

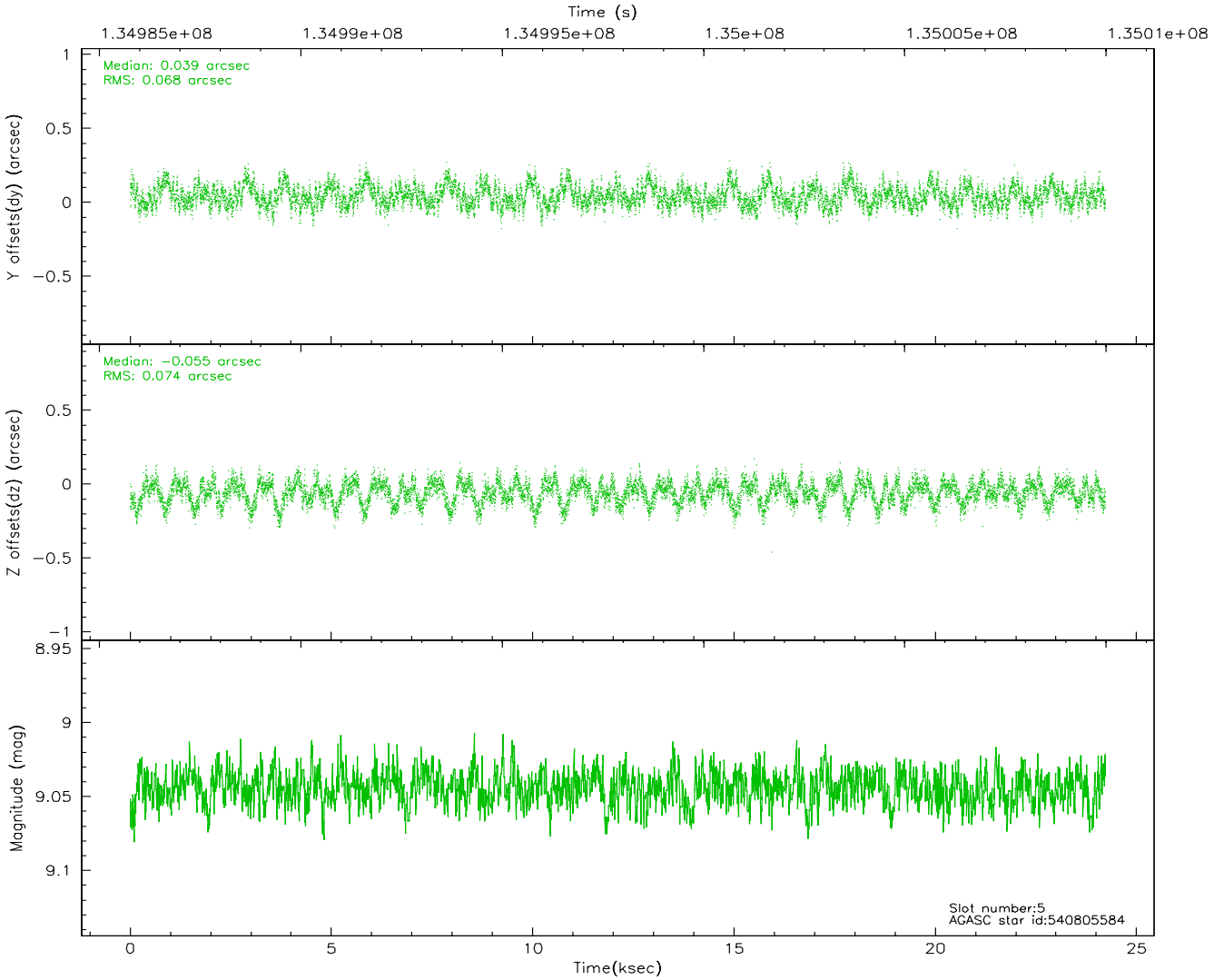

Points outside 0.4 arcsec radius: 0.008%
Radial offset of median: 0.099 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:541206896


Time (s)
Median: −0.097 arcsec
RMS: 0.044 arcsec
Y offsets(dy) (arcsec)
Median: 0.022 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:541206896
Time(ksec)

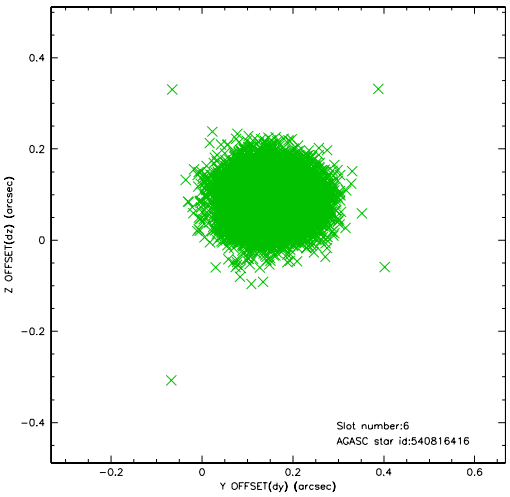
2.4.3 Slot 5

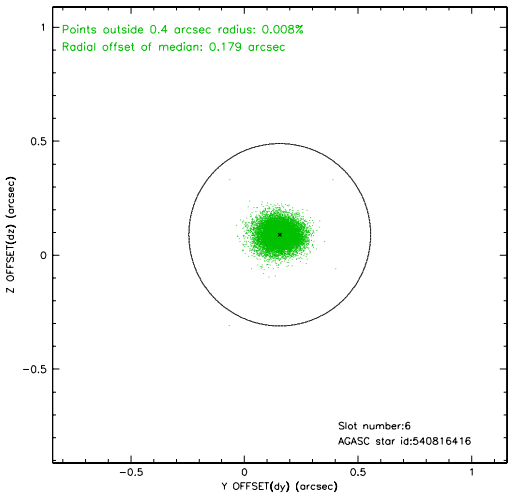

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:540805584

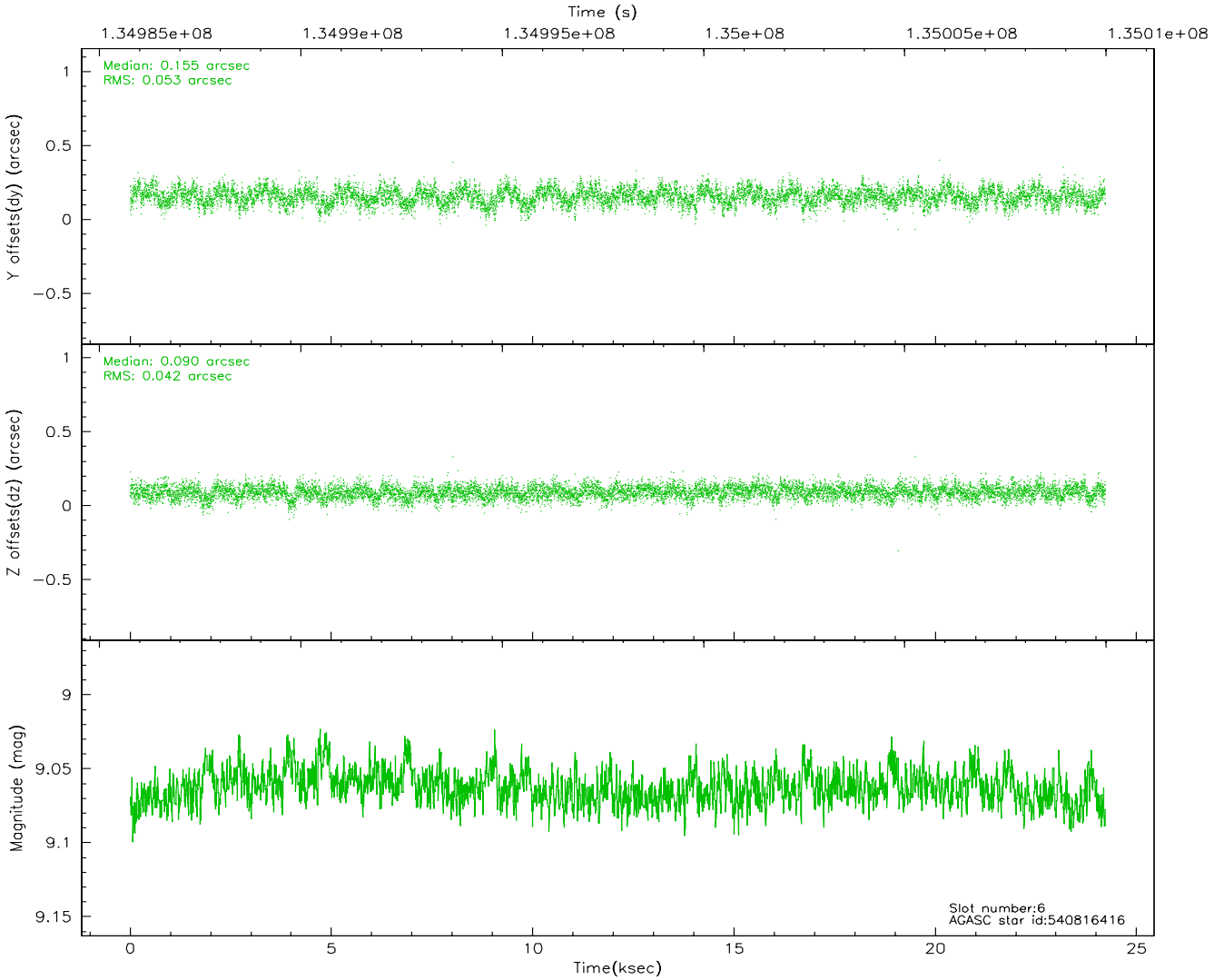

Points outside 0.4 arcsec radius: 0.008%
Radial offset of median: 0.068 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:540805584


Time (s)
1.34985e+08
1.3499e+08
1.34995e+08
1.35e+08
1.35005e+08
1.3501e+08
Median: 0.039 arcsec
RMS: 0.068 arcsec
Y offsets(dy) (arcsec)
Median: −0.055 arcsec
RMS: 0.074 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:540805584
Time(ksec)

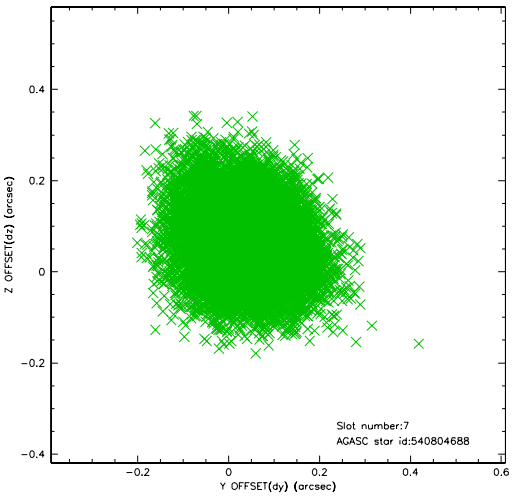
2.4.4 Slot 6

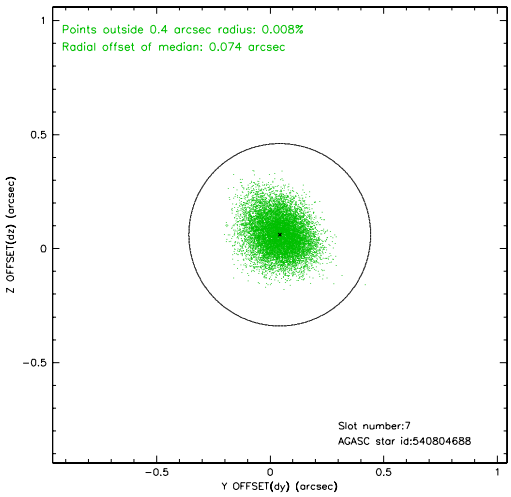

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:540816416

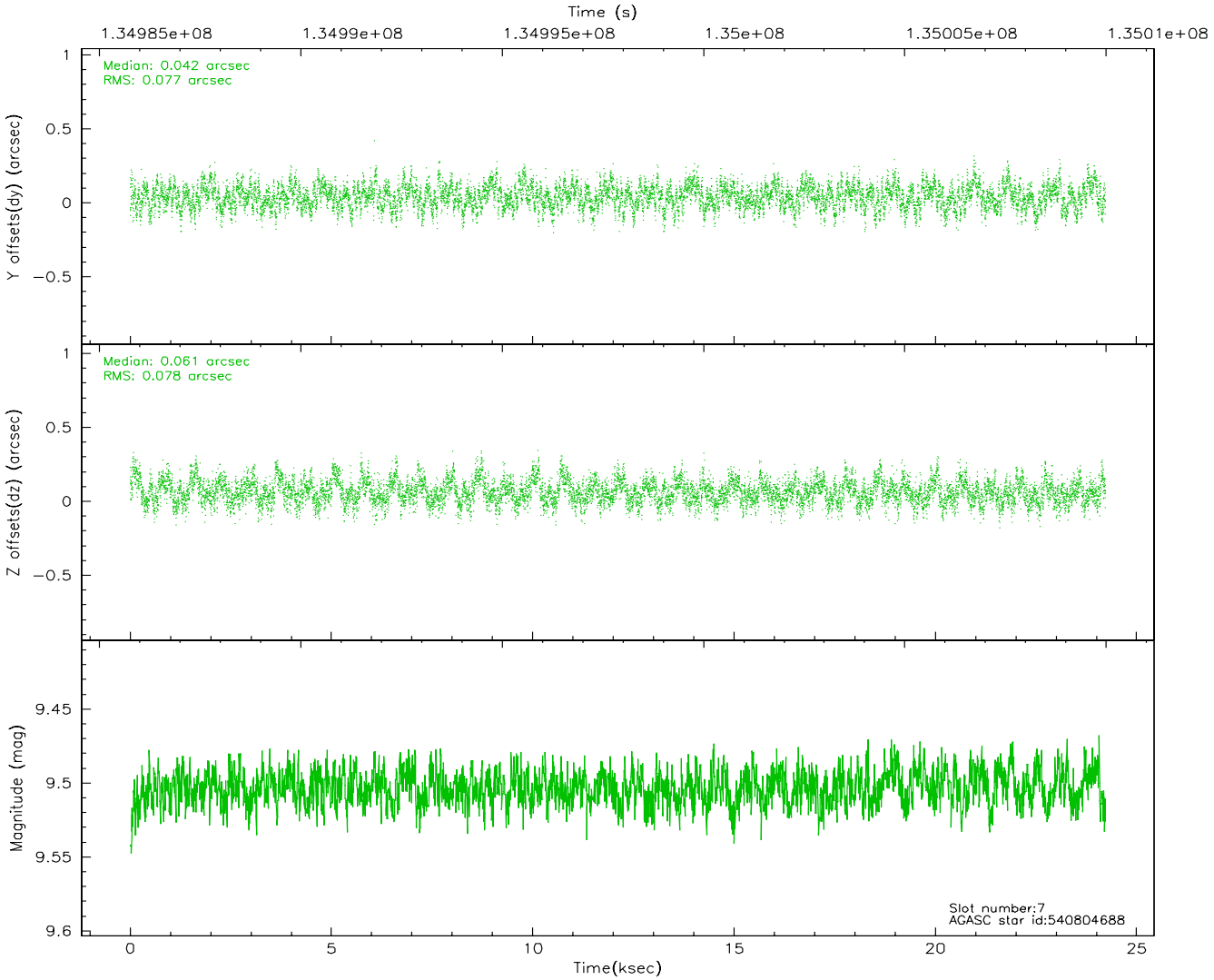

Points outside 0.4 arcsec radius: 0.008%
Radial offset of median: 0.179 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:540816416


Time (s)
Median: 0.155 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: 0.090 arcsec
RMS: 0.042 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:540816416
Time(ksec)

2.4.5 Slot 7

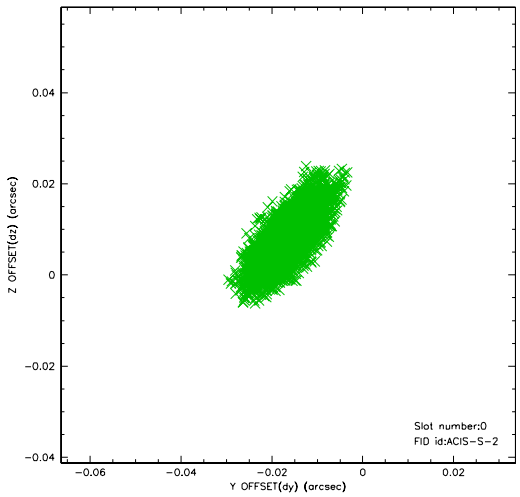

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:540804688

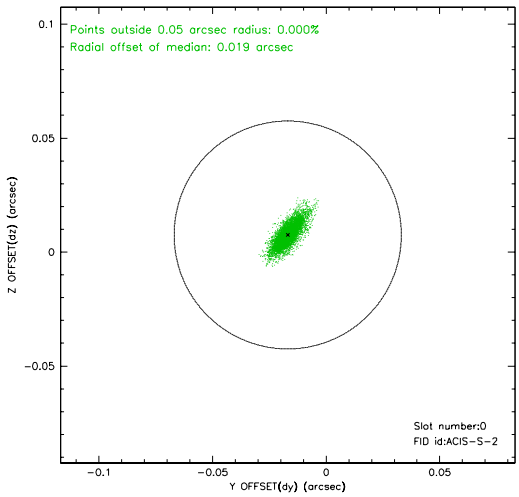

Points outside 0.4 arcsec radius: 0.008%
Radial offset of median: 0.074 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:540804688

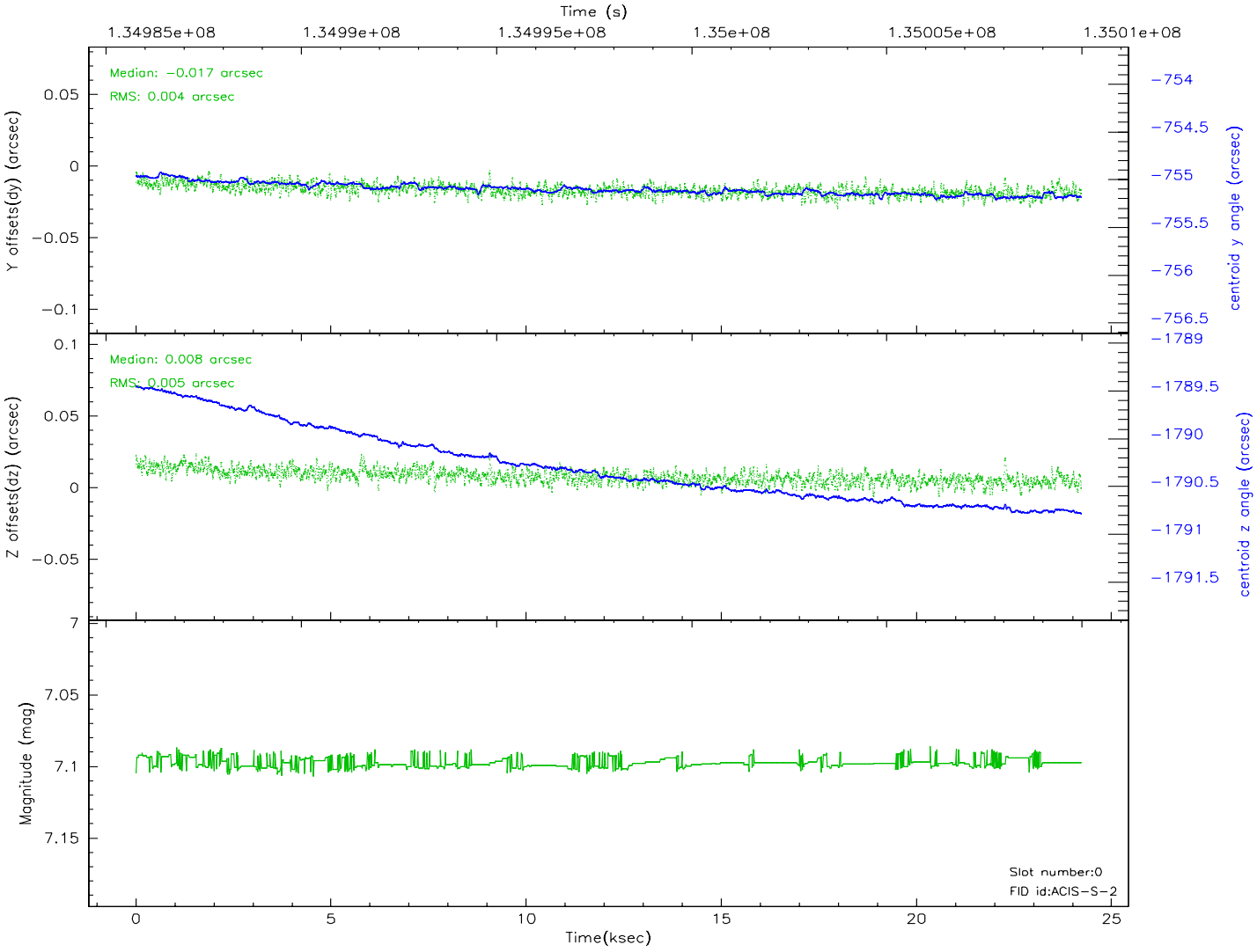

Time (s)
1.34985e+08
1.3499e+08
1.34995e+08
1.35e+08
1.35005e+08
1.3501e+08
Median: 0.042 arcsec
RMS: 0.077 arcsec
Y offsets(dy) (arcsec)
Median: 0.061 arcsec
RMS: 0.078 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:540804688
Time(ksec)

2.5 FID Slots

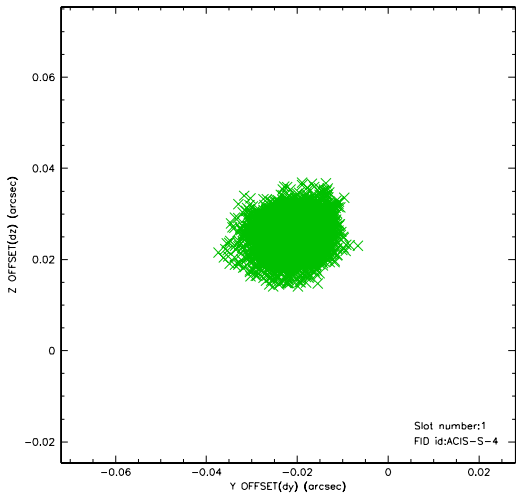
2.5.1 Slot 0

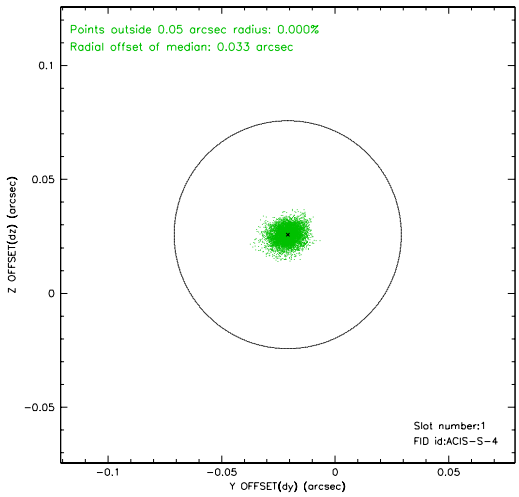


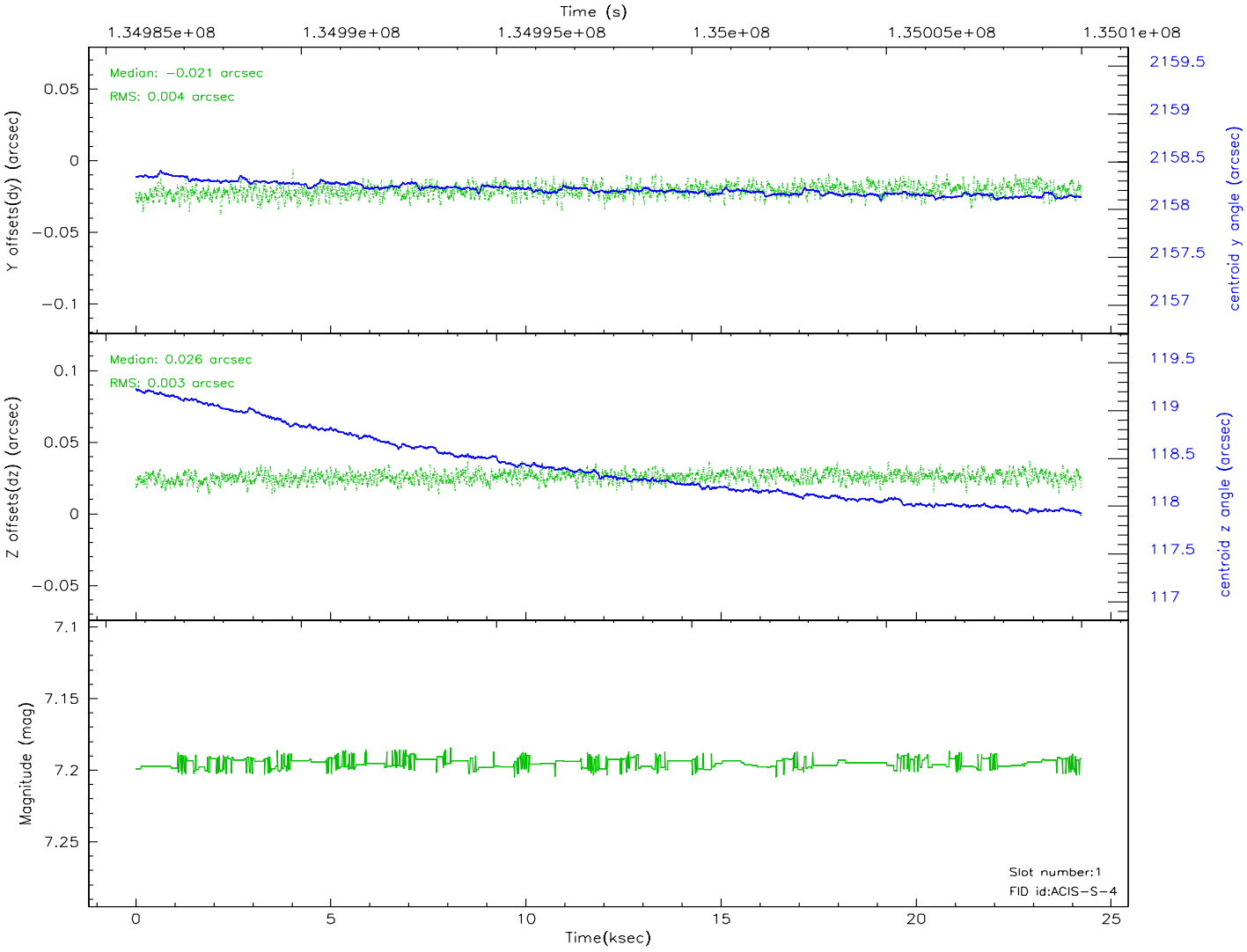




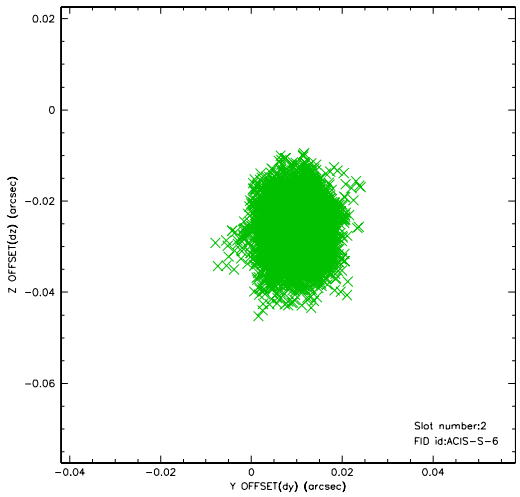
2.5.2 Slot 1

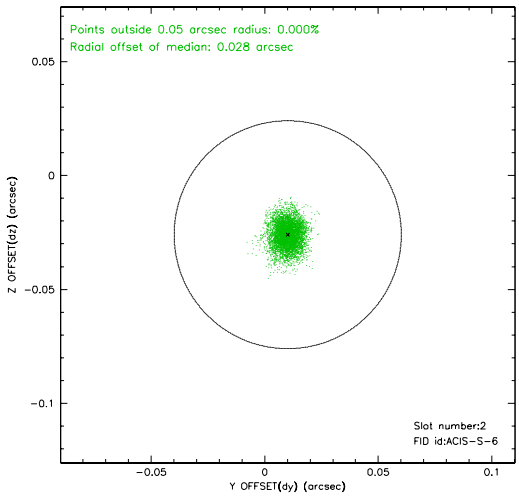

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4

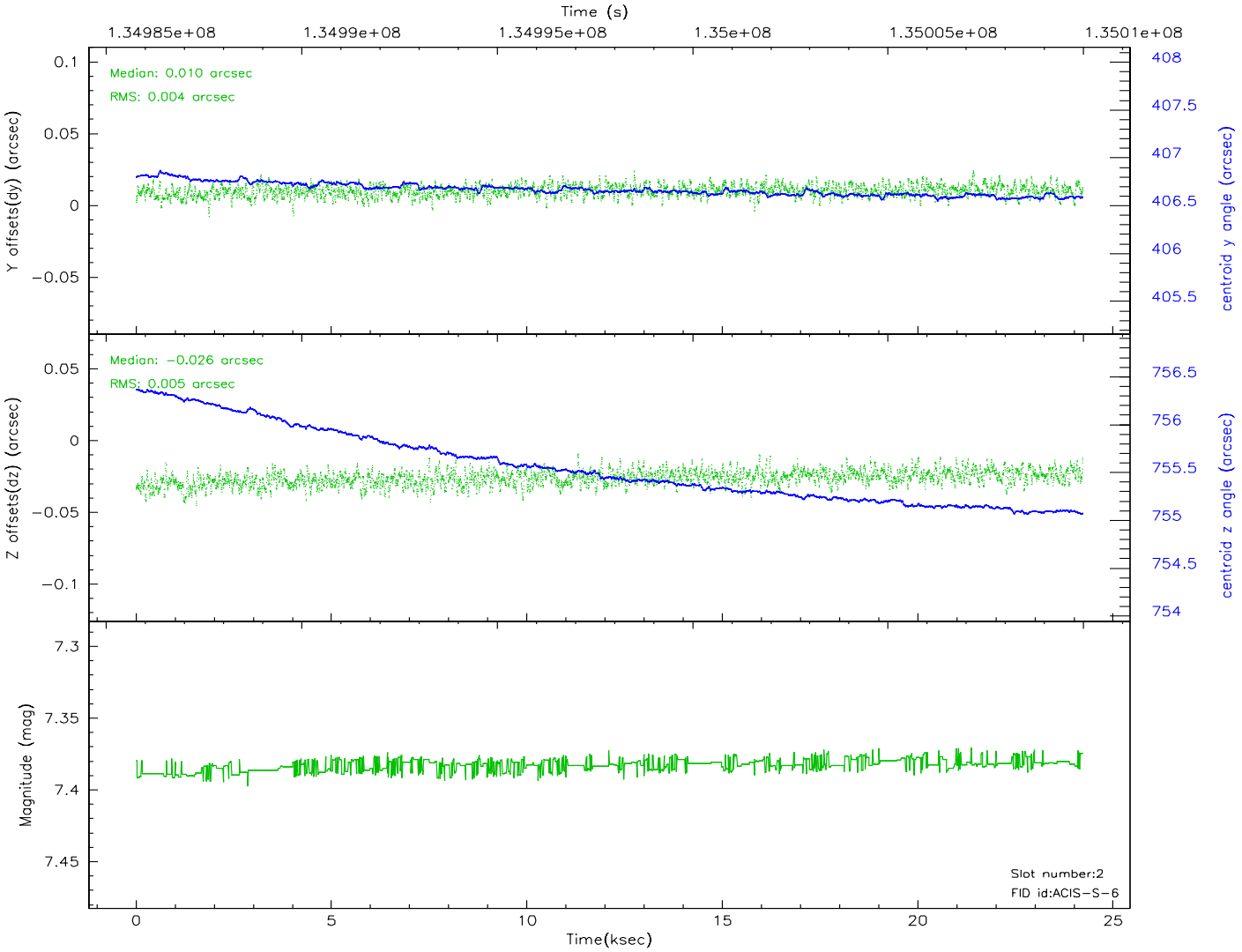

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.033 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4


Time (s)
Median: −0.021 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.026 arcsec
RMS: 0.003 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

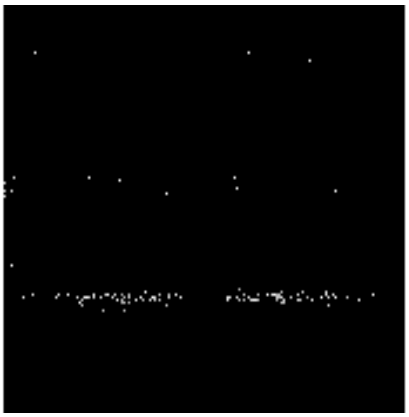

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-6


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.028 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-6

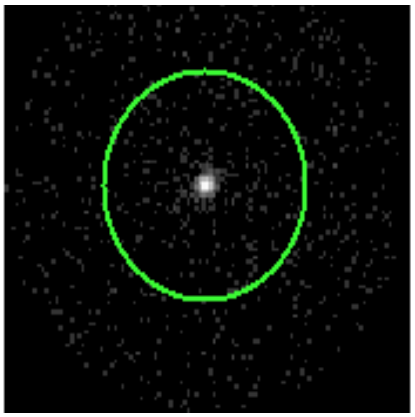

Time (s)
Median: 0.010 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.026 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-S-6
Time(ksec)

3 Gratings

3.1 HEG Arm

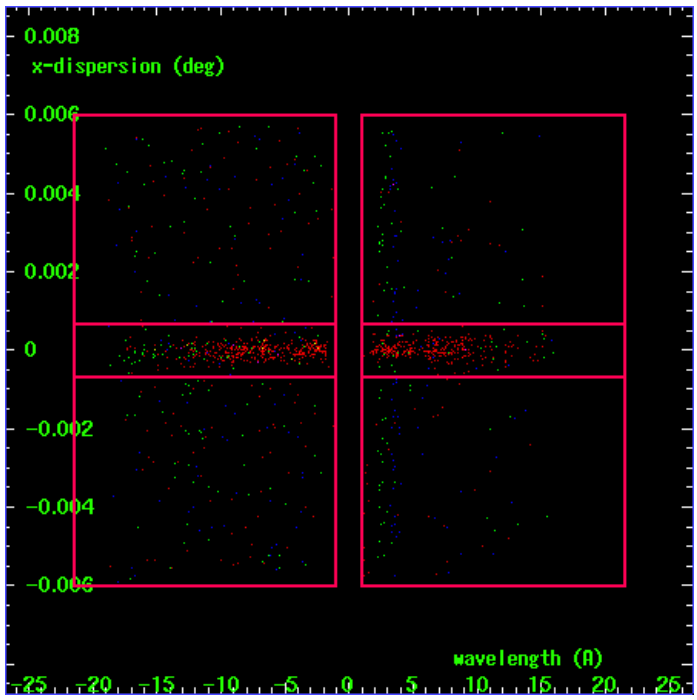


HEG Order Sort 123

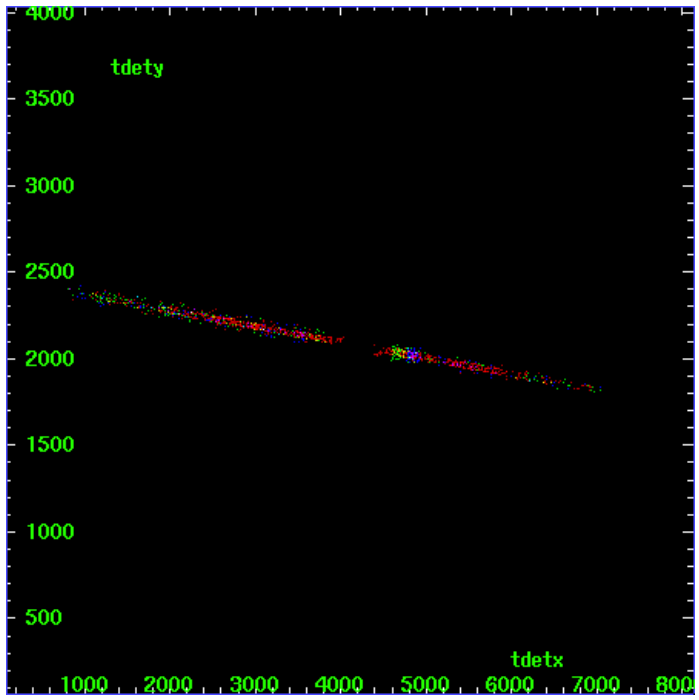


HEG Zero Order

HEG Order Sort ALL

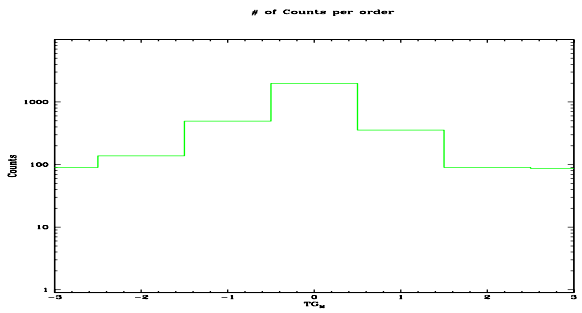


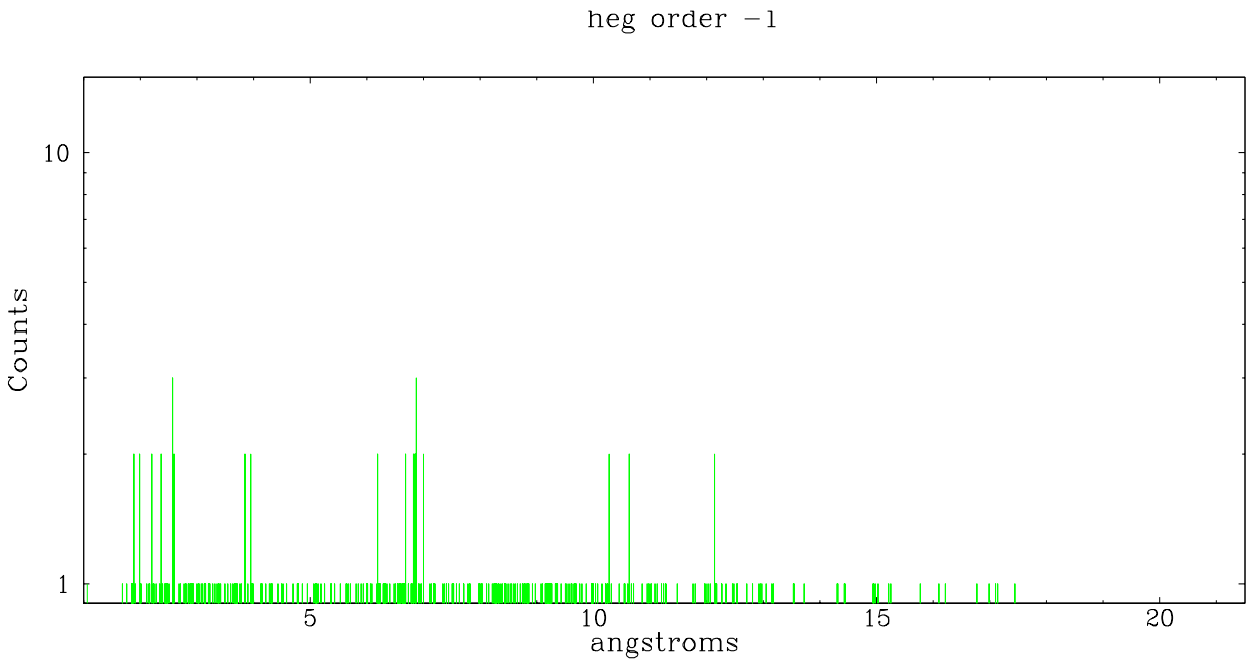
Spot Image HEG

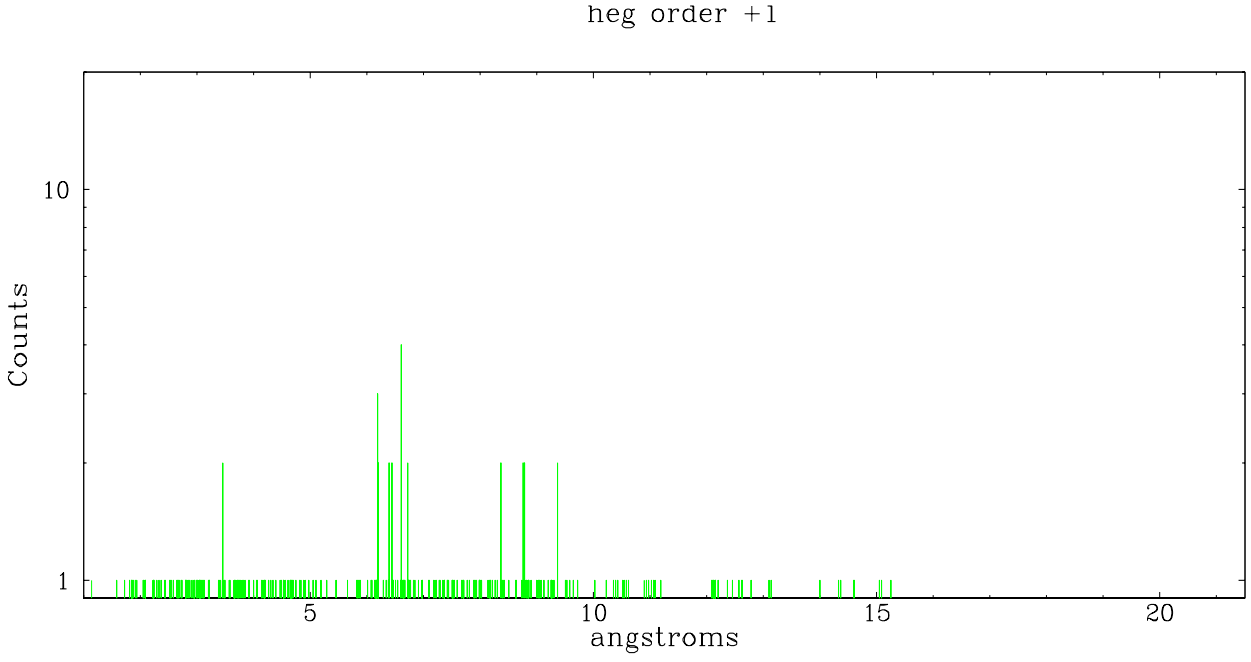


Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	90	138	496	1982	355	90	87

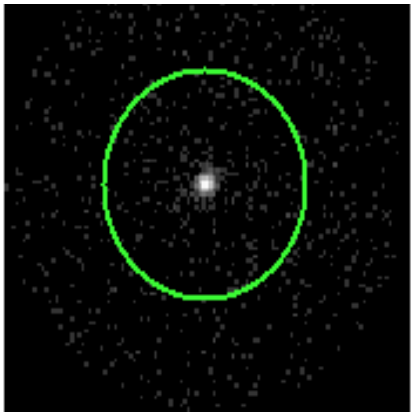



heg order −1
10
1
Counts
5
10
15
20
angstroms


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

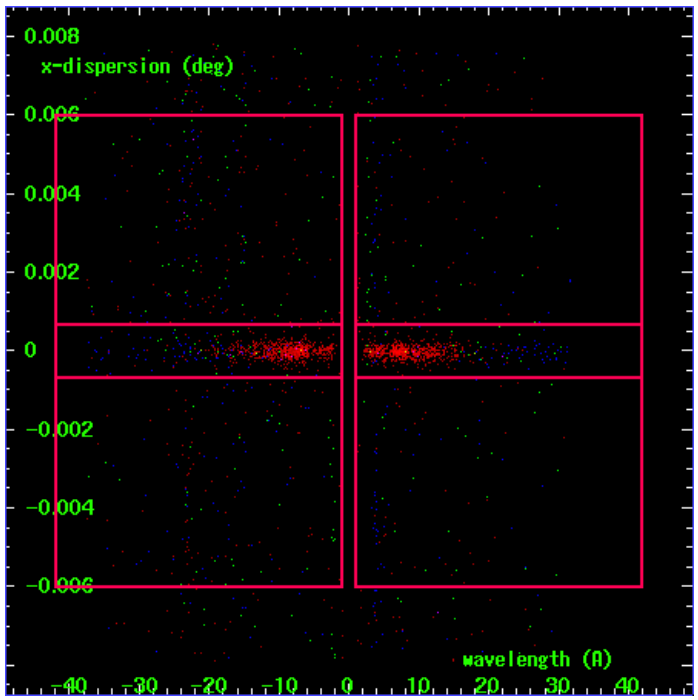
3.2 MEG Arm

MEG Order Sort 123

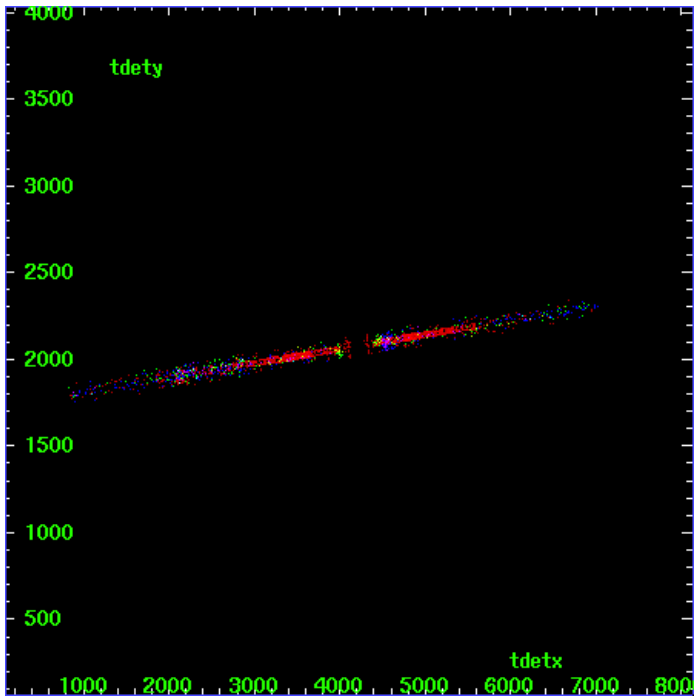


MEG Zero Order

MEG Order Sort ALL

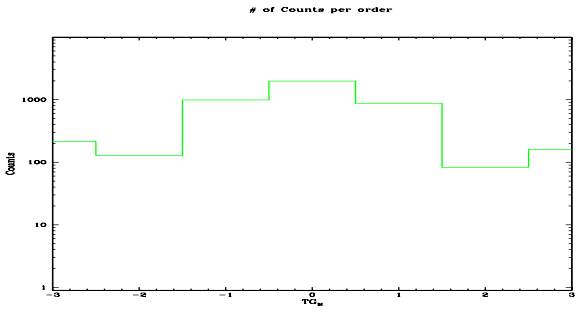


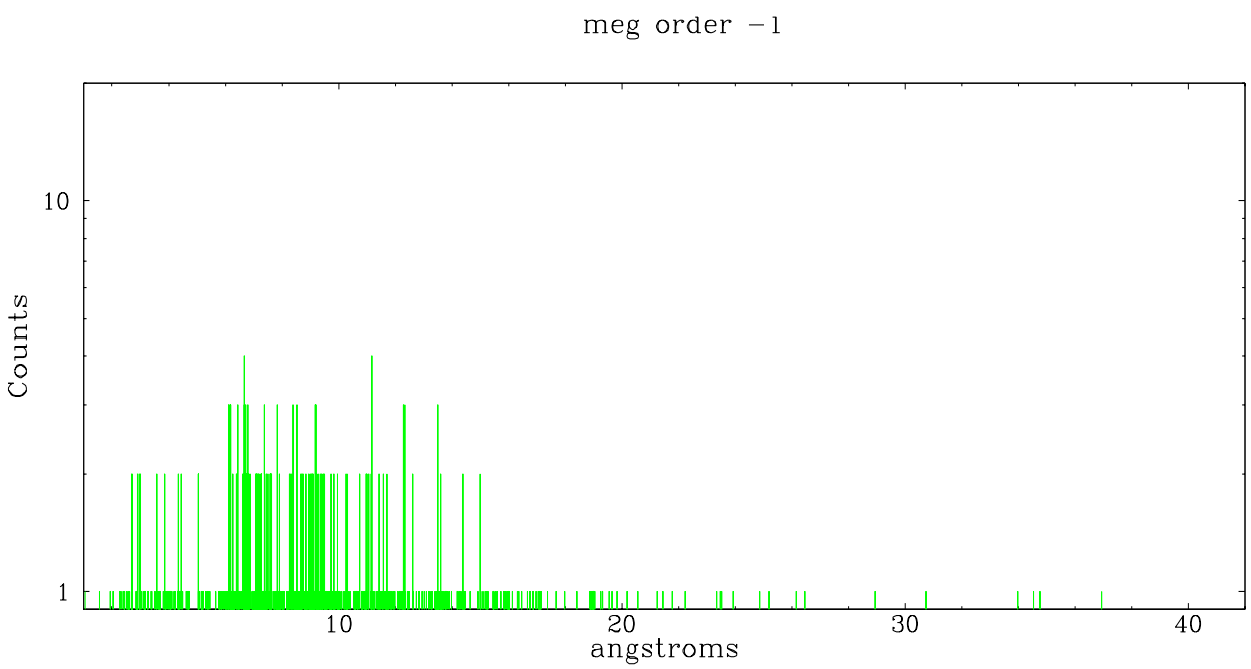
Spot Image MEG

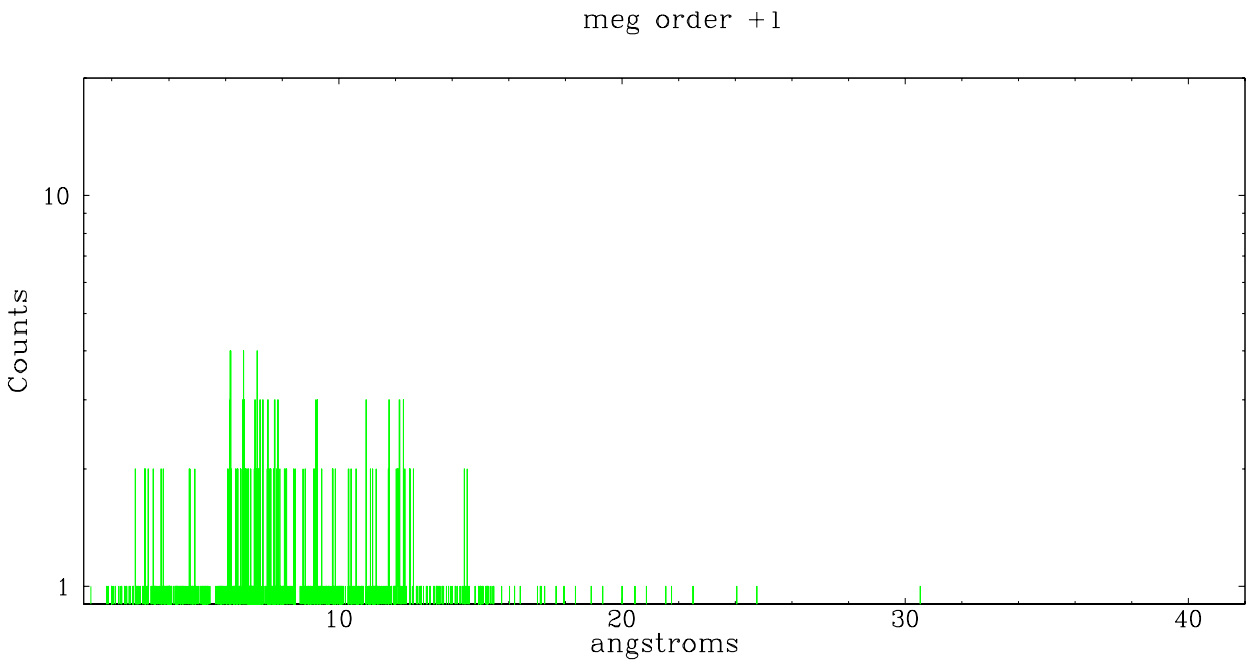


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	215	129	987	1982	873	83	159




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


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

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2006.09.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	23.763

A.2 Comments

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Target displaced toward edge of CCD by 3mm offset of the detector.
This
displacement is not enough to cause truncation of the spectral arms.
The spectral data have the expected energy coverage.
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