V&V Reference Report
L2 ASCDS Version : 8.4.3

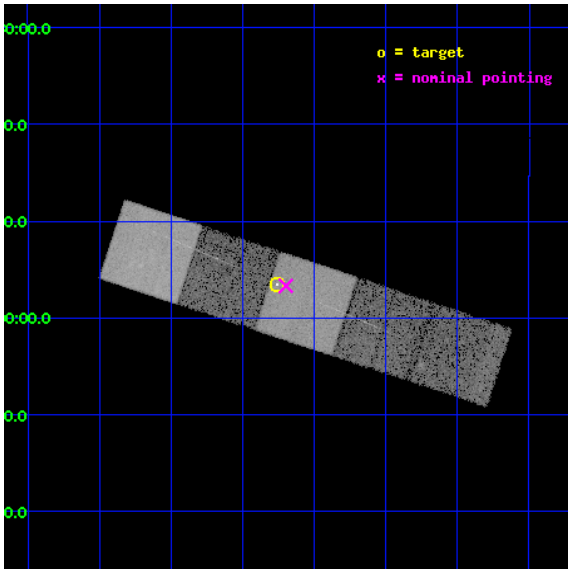
Observation 14374 - L2 Version 3
Chandra X-Ray Center

L2 Processing Date : Feb 28 2012

Contents

1 Front

seq_num	200757	Sequence number
obs_id	14374	Observation id
title	A systematic measurement of the mass-loss rate of Zeta Ori	Proposa
observer	Dr. Maurice Leutenegger	Principal investigator
object	Zeta Orionis	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	85.189583	Observer's specified target RA [deg]
dec_targ	-1.942556	Observer's specified target Dec [deg]
ra_nom	85.17447171817	Nominal RA [deg]
dec_nom	-1.9447808542778	Nominal Dec [deg]
roll_nom	18.15610904142	Nominal Roll [deg]
revision	3	Processing version of data
ontime	15539.895573616	Sum of GTIs [s]
livetime	15336.855397642	Livetime [s]
ontime5	15539.854533613	Sum of GTIs [s]
ontime6	15539.813493609	Sum of GTIs [s]
ontime7	15539.895573616	Sum of GTIs [s]
ontime8	15539.772453606	Sum of GTIs [s]
ontime9	15536.590363264	Sum of GTIs [s]
l2events	159906	Number of level 2 events

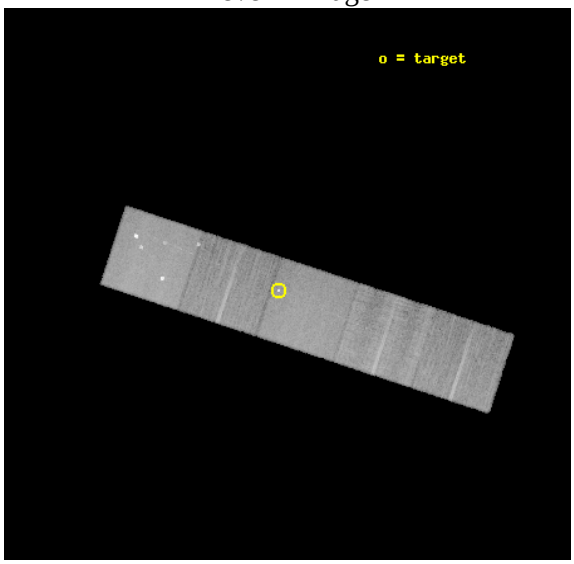


2 OBI

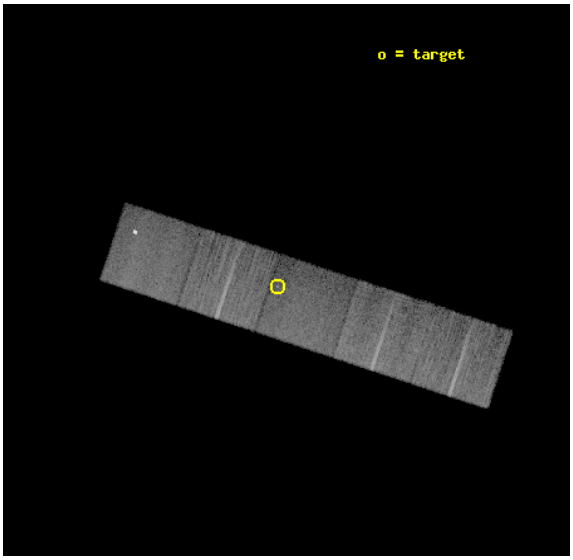
2.1 OBI

2.1.1 Images

Level 1 Image

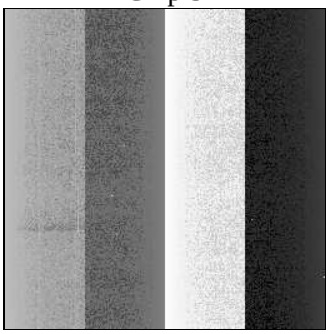


Level 1 Bad Events

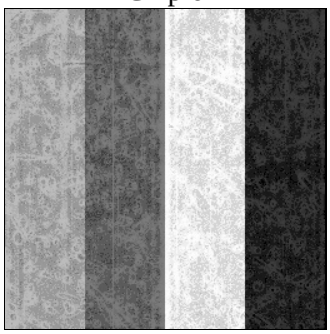


2.1.2 Bias

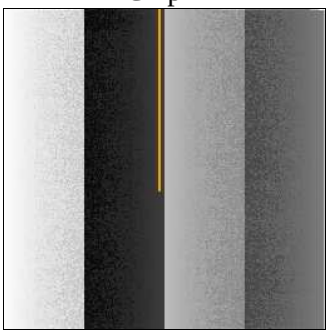
Chip 5



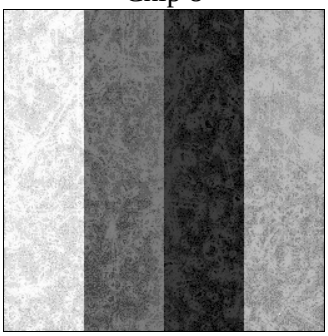
Chip 6



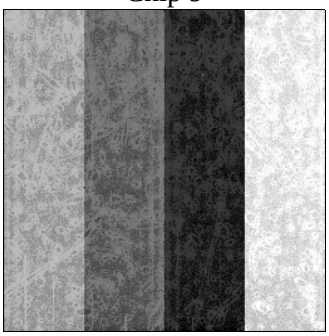
Chip 7



Chip 8



Chip 9



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.8	
date	2012-02-28T00:55:25	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	15500.000000	[s] Scheduled observation exposure time
ontime	15539.895573616	Sum of GTIs [s]
ontime5	15539.854533613	Sum of GTIs [s]
ontime6	15539.813493609	Sum of GTIs [s]
ontime7	15539.895573616	Sum of GTIs [s]
ontime8	15539.772453606	Sum of GTIs [s]
ontime9	15536.590363264	Sum of GTIs [s]
l1events	616614	Number of level 1 events

2.1.4 Events

	ccd 5	**ccd 6**	**ccd 7**	**ccd 8**	**ccd 9**
level 1 events	164294	101240	127406	123928	99746
rejected events	81426	89410	70664	92979	87570
rejected %	49%	88%	55%	75%	87%

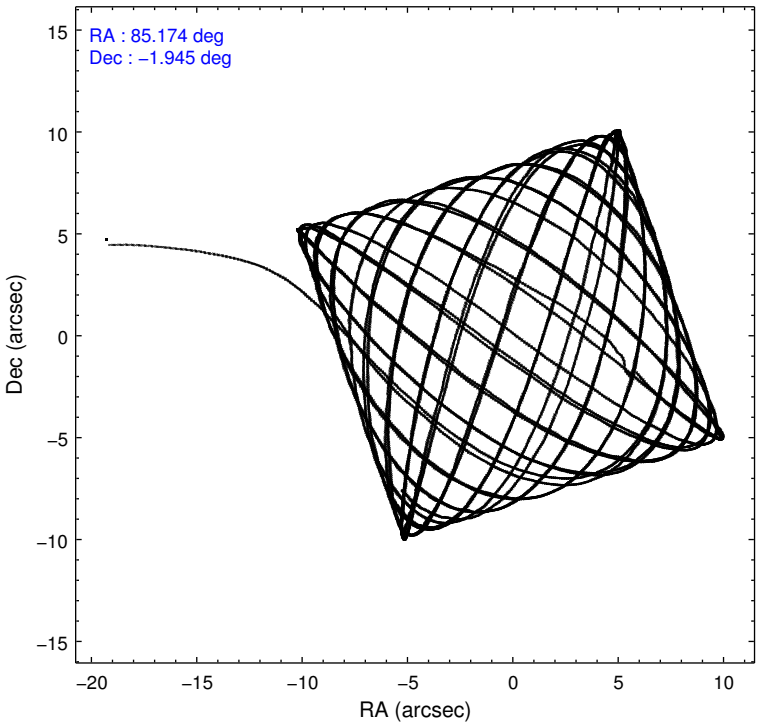
	ccd 5	**ccd 6**	**ccd 7**	**ccd 8**	**ccd 9**
grade 0 events	11759	4304	5391	8955	4485
	7%	4%	4%	7%	4%
grade 1 events	412	42	166	97	63
	0%	0%	0%	0%	0%
grade 2 events	24752	2597	11765	7359	2614
	15%	2%	9%	5%	2%
grade 3 events	2602	1140	5009	3337	1310
	1%	1%	3%	2%	1%
grade 4 events	2613	1212	4829	3067	1217
	1%	1%	3%	2%	1%
grade 5 events	11344	4528	12831	6667	5236
	6%	4%	10%	5%	5%
grade 6 events	41181	2584	29772	8233	2553
	25%	2%	23%	6%	2%
grade 7 events	69631	84833	57643	86213	82268
	42%	83%	45%	69%	82%

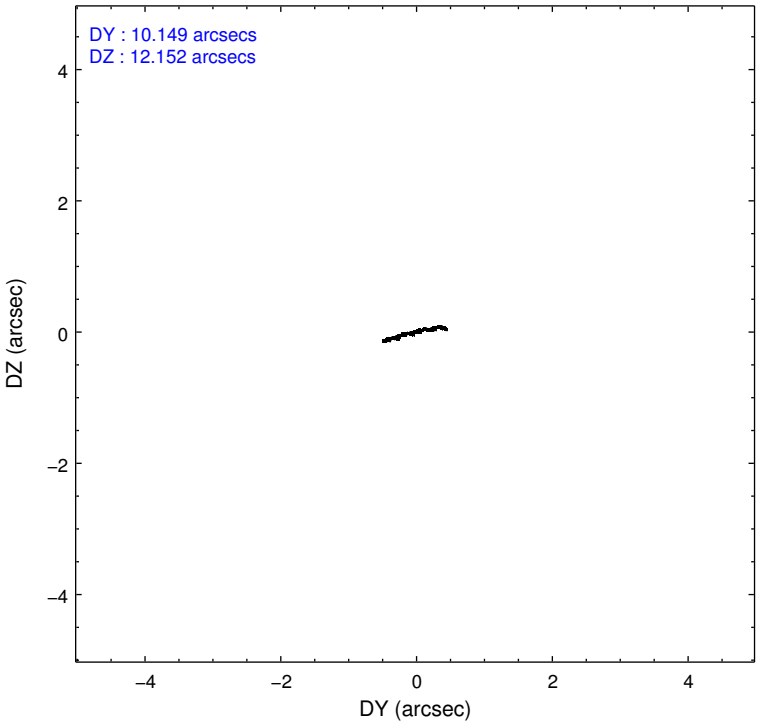
2.2 Compared Parameters

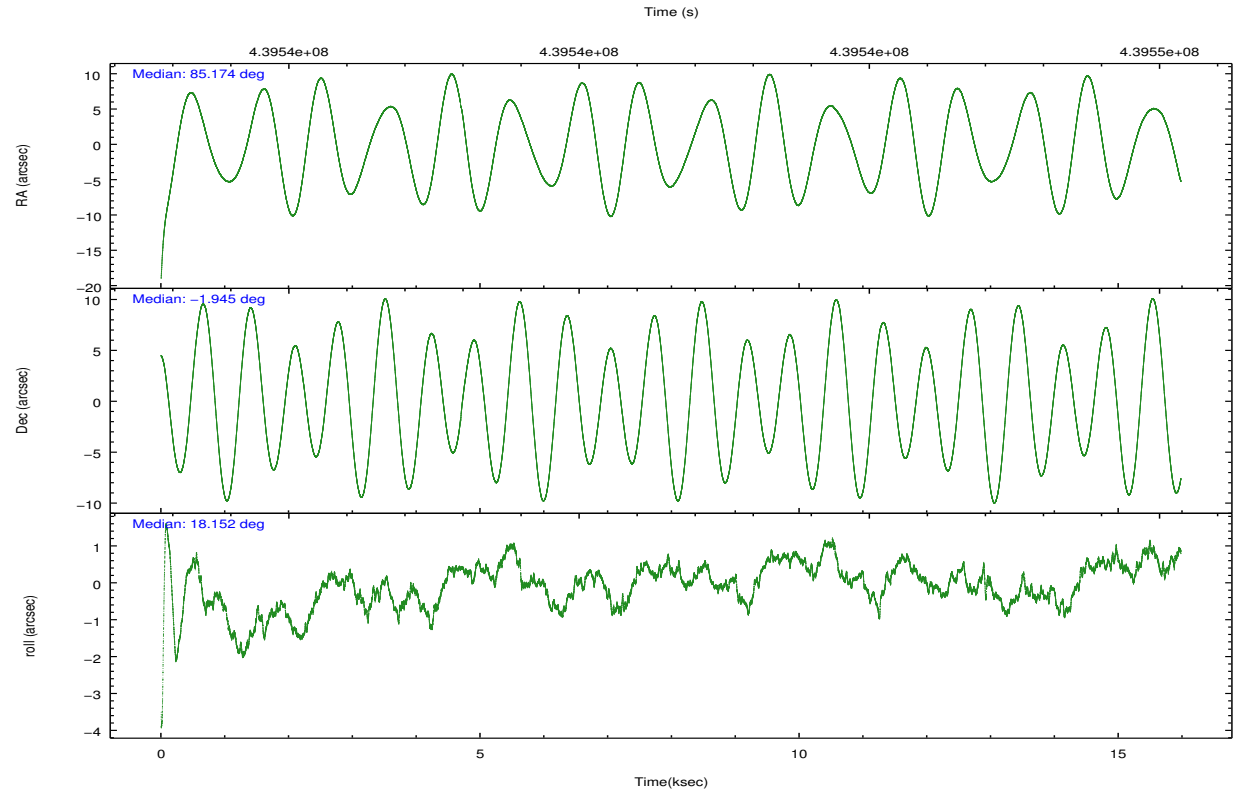
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-56789	ACIS-56789
Grating	HETG	HETG
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	85.156506	85.1744717181701
[deg] Pointing Dec	-1.965388	-1.944780854277805
[deg] Pointing Roll	17.998876	18.15610904142029
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-187.132523	-187.1254020033014
[mm] SIM translation stage offset	-3	-3.007120579706367
[s] Observation start time (MET)	439534084.184000	439532856.55308
Observation start date	2011-12-06T04:46:58	2011-12-06T04:27:36
[s] Observation end time (MET)	439549584.184000	439550382.51651
Observation end date	2011-12-06T09:05:18	2011-12-06T09:19:42
Read mode	TIMED	TIMED

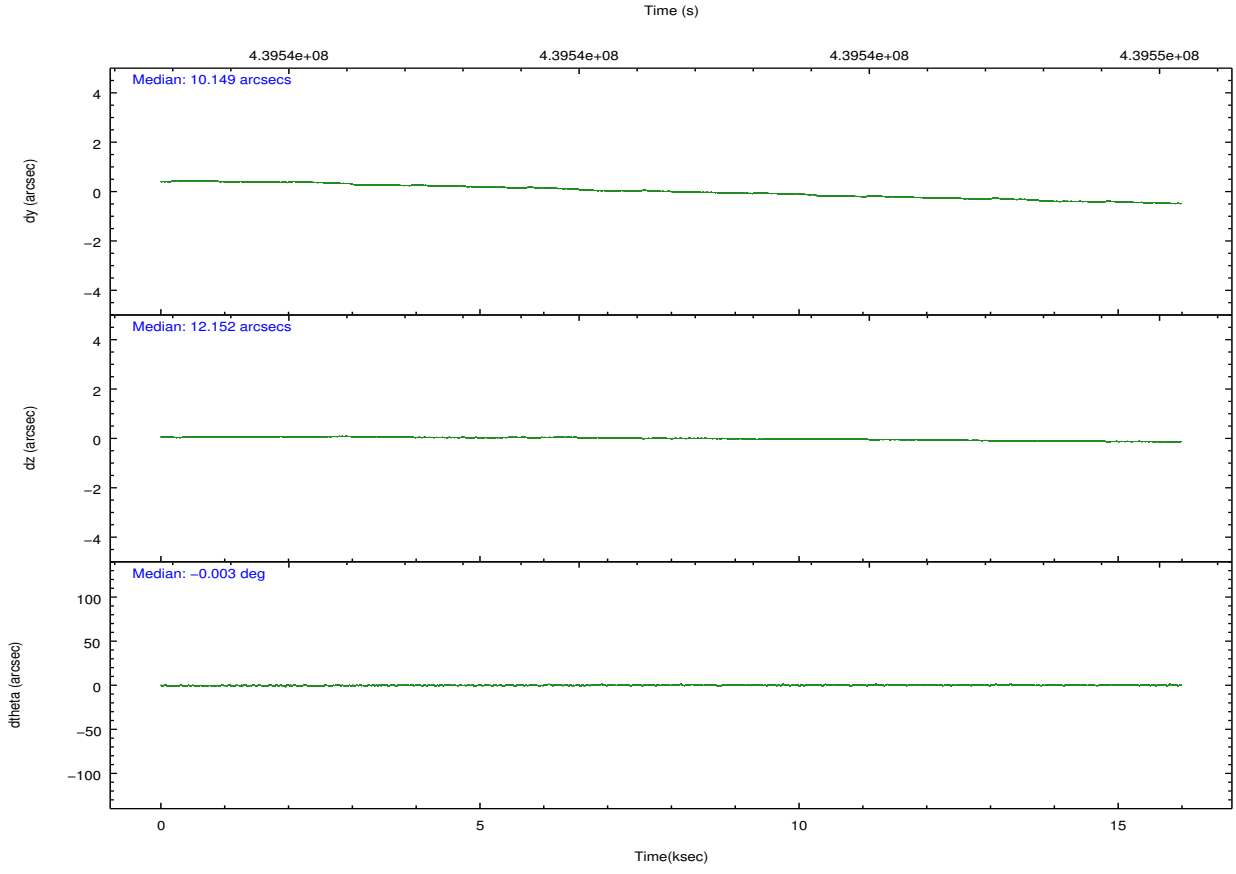
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	N
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	O2	Y
Number of optional ACIS chips dropped	1	1
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

2.3 Aspect


RA : 85.174 deg
Dec : −1.945 deg
Dec (arcsec)
RA (arcsec)
15
10
5
0
−5
−10
−15
−20
−15
−10
−5
0
5
10


DY : 10.149 arcsecs
DZ : 12.152 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: 85.174 deg
RA (arcsec)
Median: −1.945 deg
Dec (arcsec)
Median: 18.152 deg
roll (arcsec)
Time(ksec)

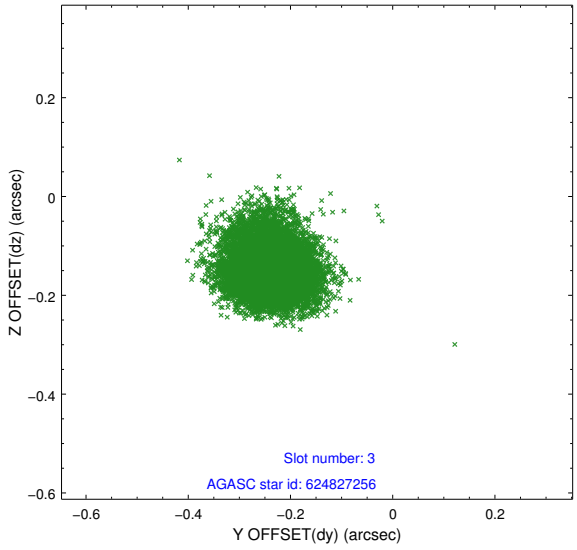

Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: 10.149 arcsecs
dy (arcsec)
Median: 12.152 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

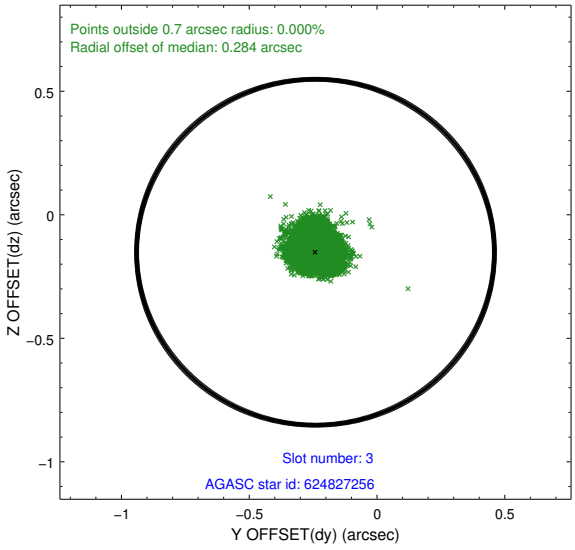
Slot Statistics

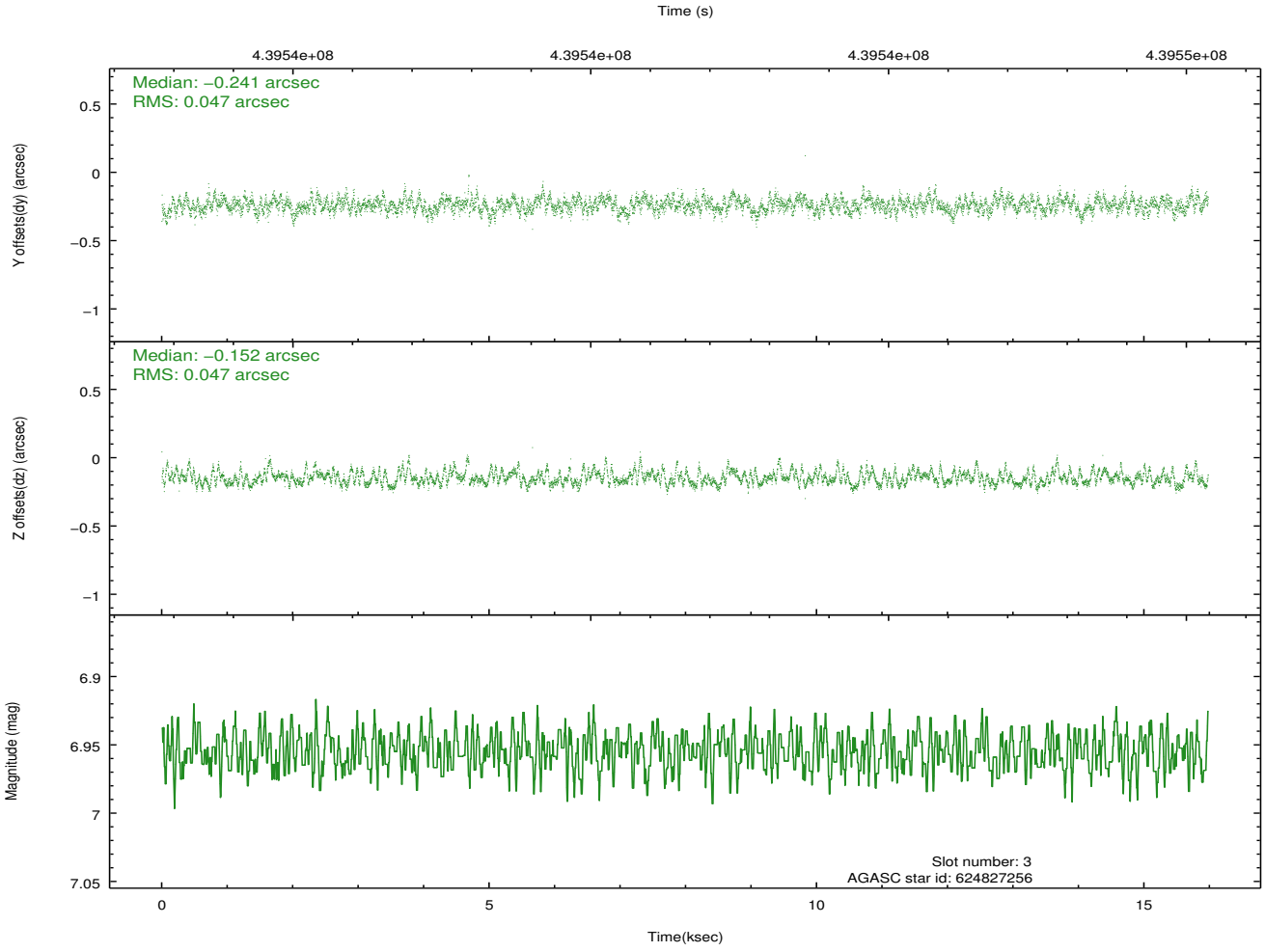
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.03	3898	-0.126	-0.104	0.008	0.014	0.000000	0.000000	-762.93	-1795.62
1	FID	ACIS-S-4	7.12	3898	0.312	0.089	0.007	0.012	0.000000	0.000000	2150.69	112.71
2	FID	ACIS-S-5	7.15	3898	-0.219	0.024	0.009	0.016	0.000000	0.000000	-1815.49	106.68
3	GUIDE	624827256	6.95	7796	-0.241	-0.152	0.071	0.114	85.016618	-1.425471	121.65	2004.16
4	GUIDE	624828488	9.18	7789	-0.046	-0.128	0.100	0.157	85.333320	-1.326548	1315.98	1991.04
5	GUIDE	624829760	8.90	7792	0.127	-0.007	0.093	0.152	85.013848	-1.712852	-206.84	1023.64
6	GUIDE	625353096	8.76	7792	0.079	0.182	0.089	0.141	84.812755	-2.527118	-1800.35	-1541.08
7	GUIDE	625353336	8.49	7792	0.084	0.103	0.093	0.142	84.756223	-2.648990	-2129.38	-1896.06

2.4 Star Slots

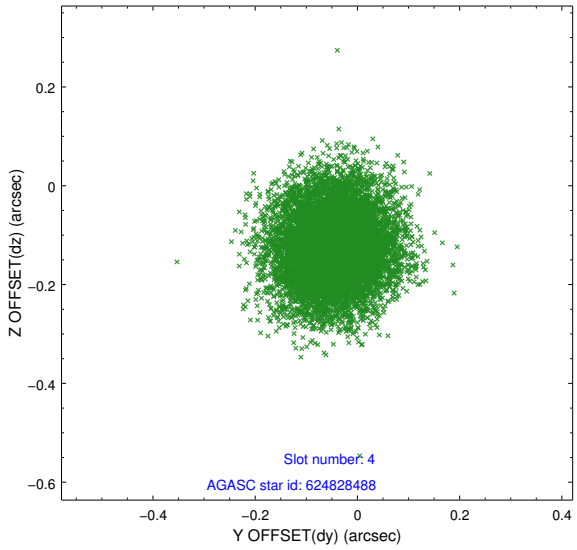
2.4.1 Slot 3

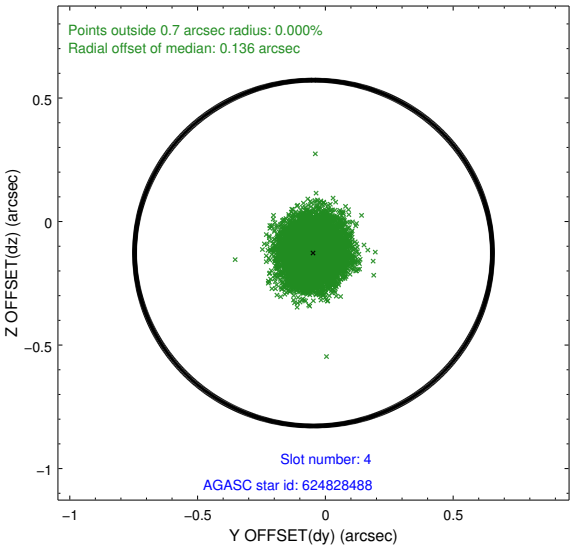


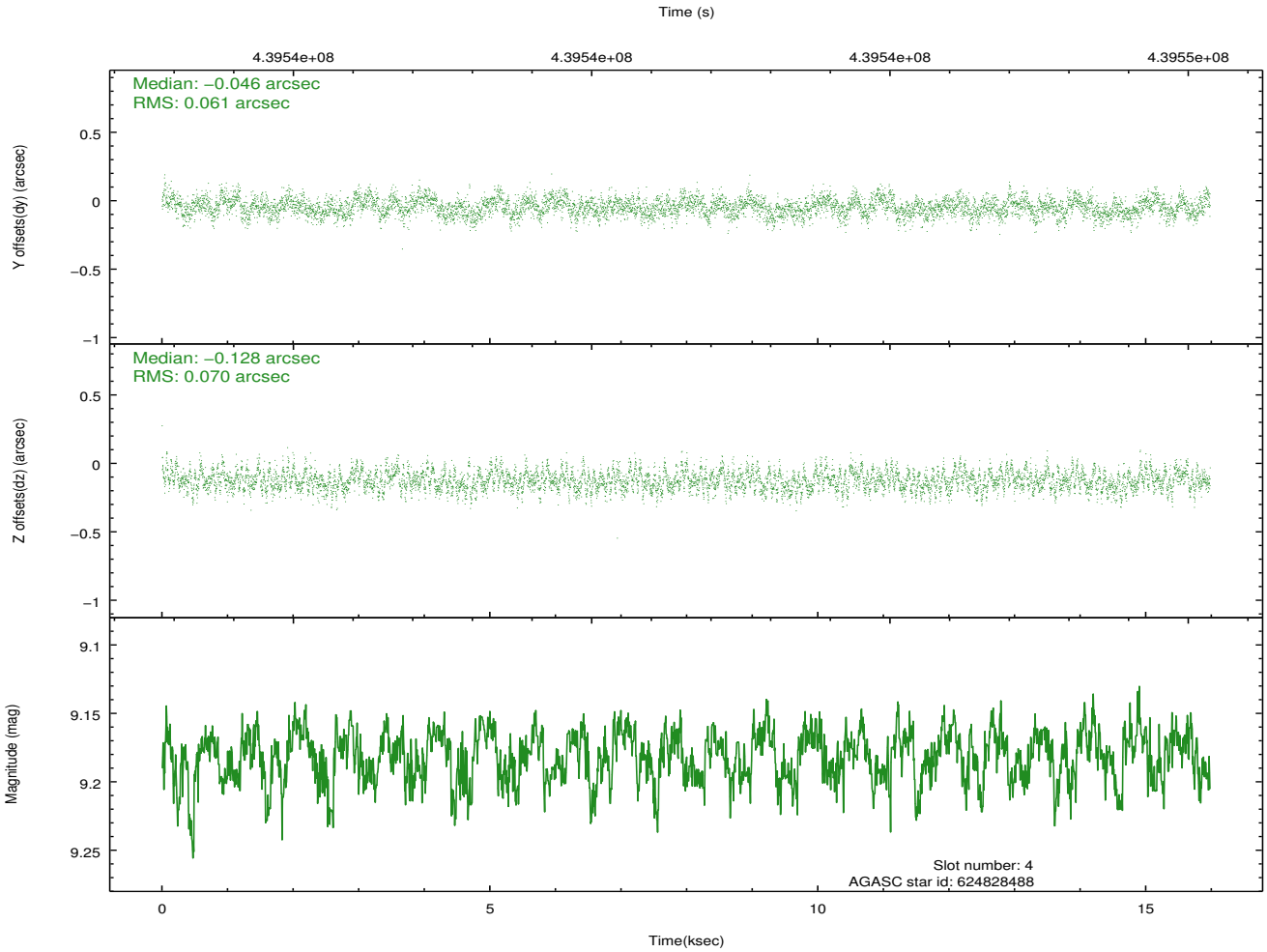




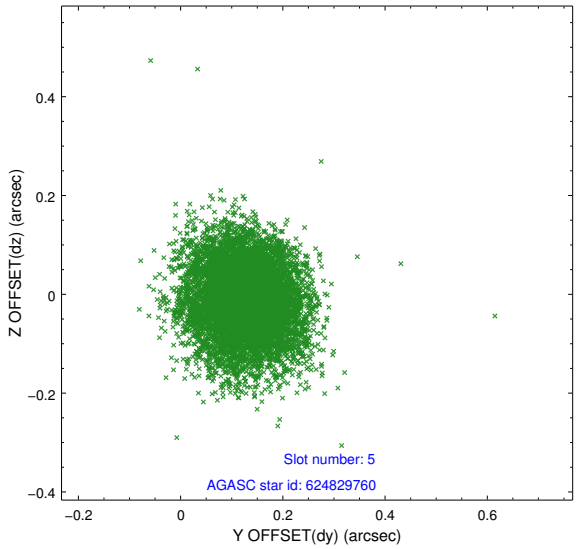
2.4.2 Slot 4

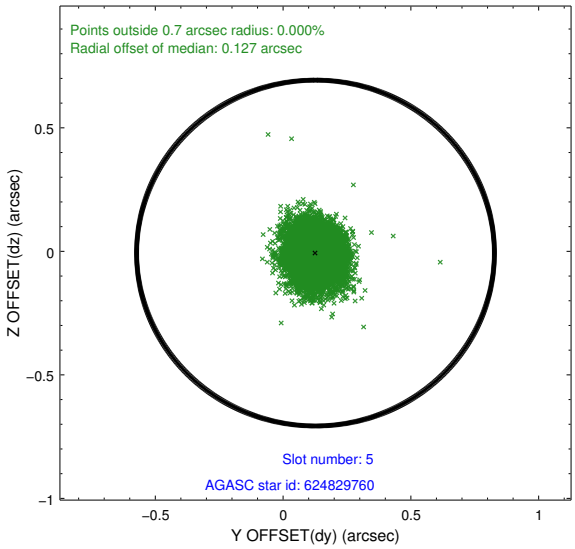

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 624828488

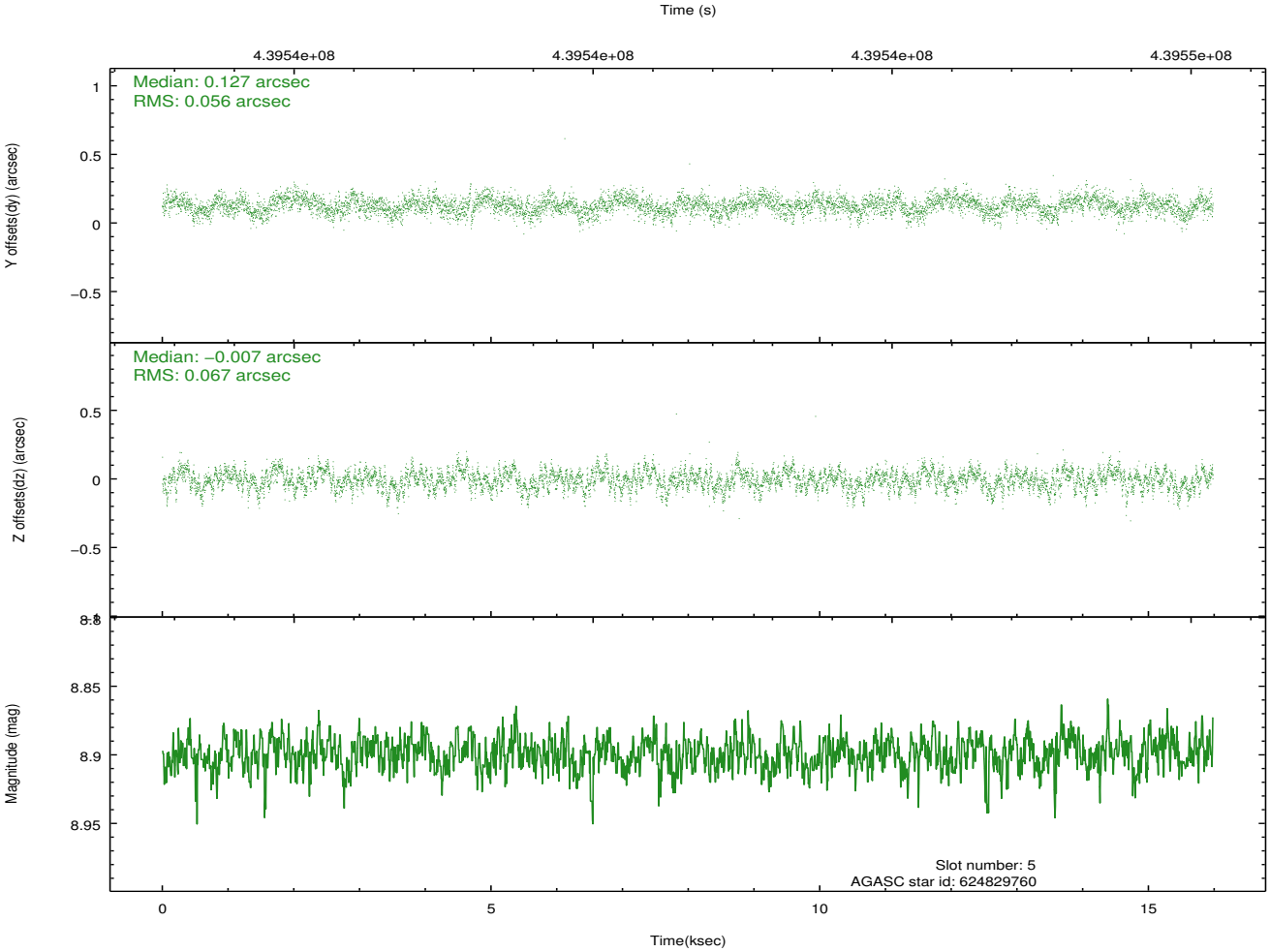

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.136 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 624828488


Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: −0.046 arcsec
RMS: 0.061 arcsec
Y offsets(dy) (arcsec)
Median: −0.128 arcsec
RMS: 0.070 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 624828488
Time(ksec)

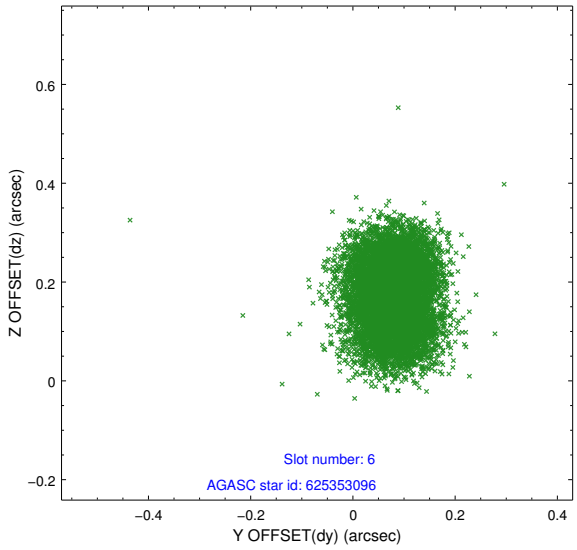
2.4.3 Slot 5

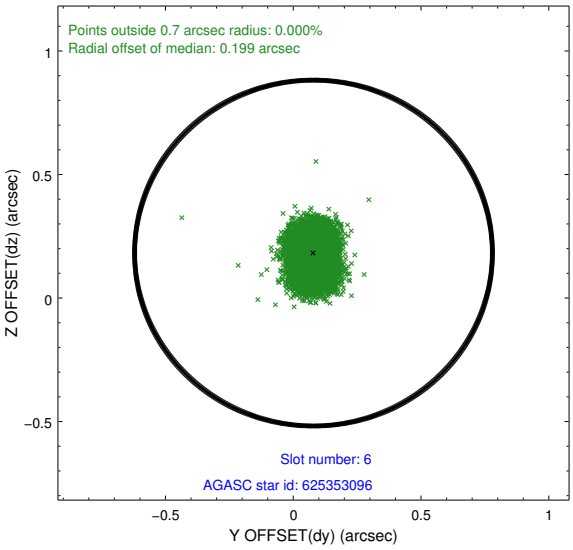

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 624829760

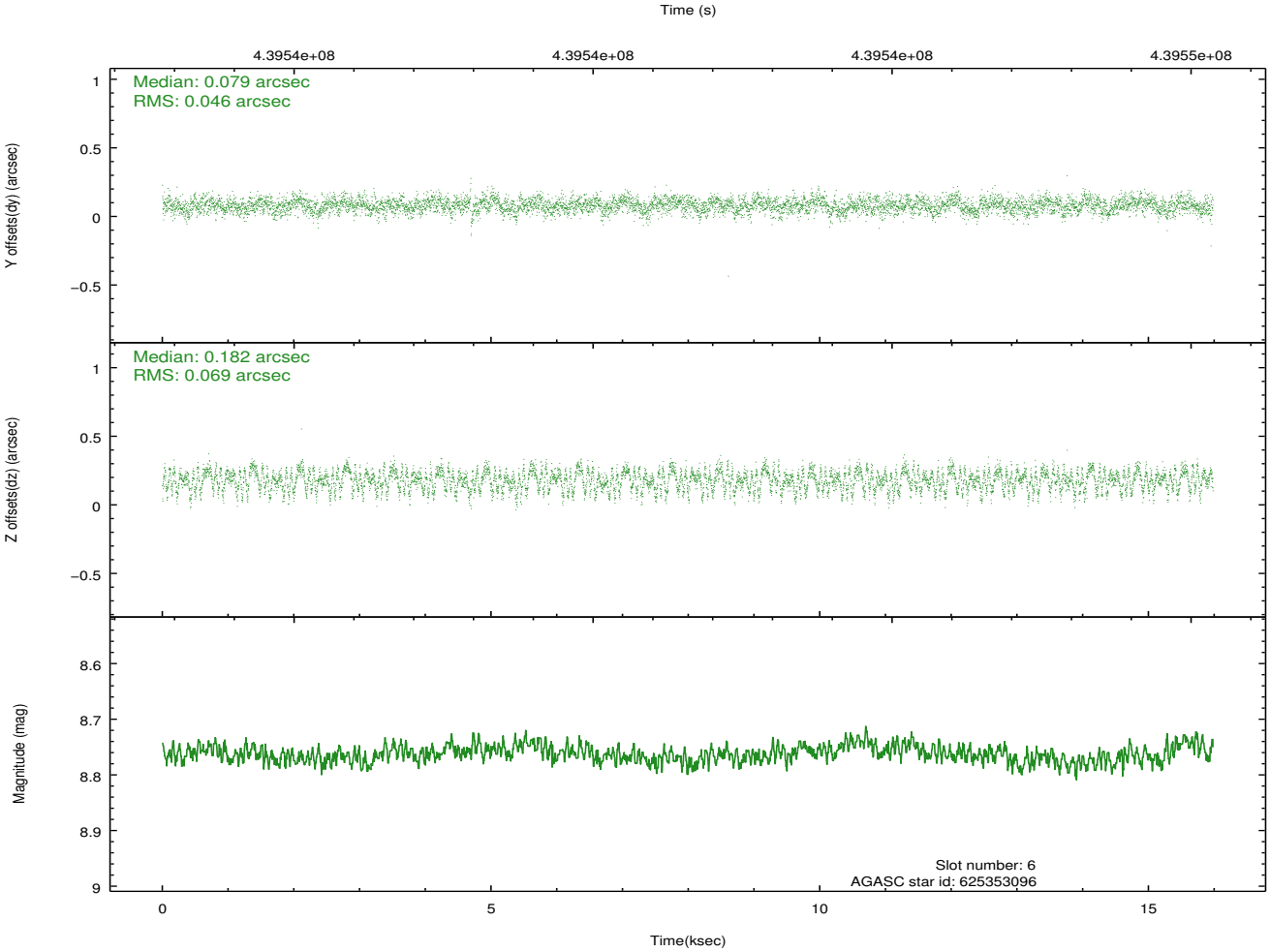

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.127 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 624829760


Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: 0.127 arcsec
RMS: 0.056 arcsec
Y offsets(dy) (arcsec)
Median: −0.007 arcsec
RMS: 0.067 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 624829760
Time(ksec)

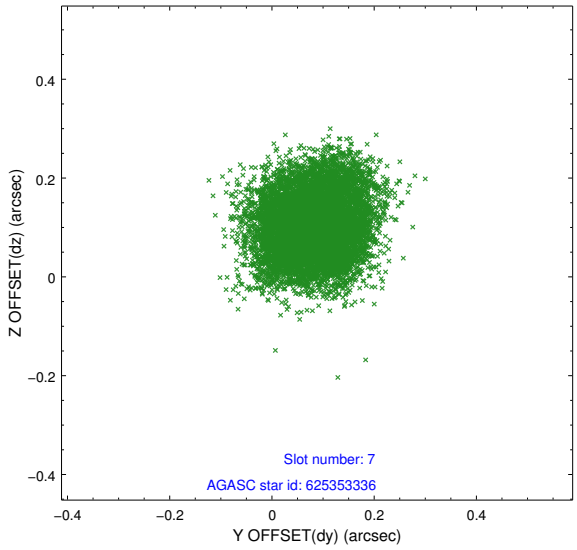
2.4.4 Slot 6

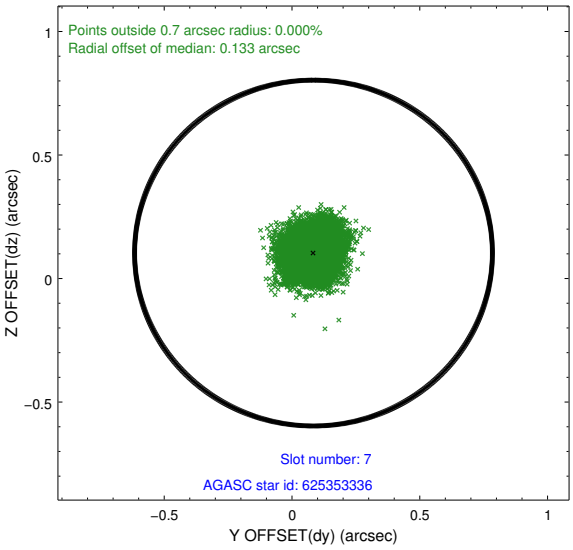

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 625353096

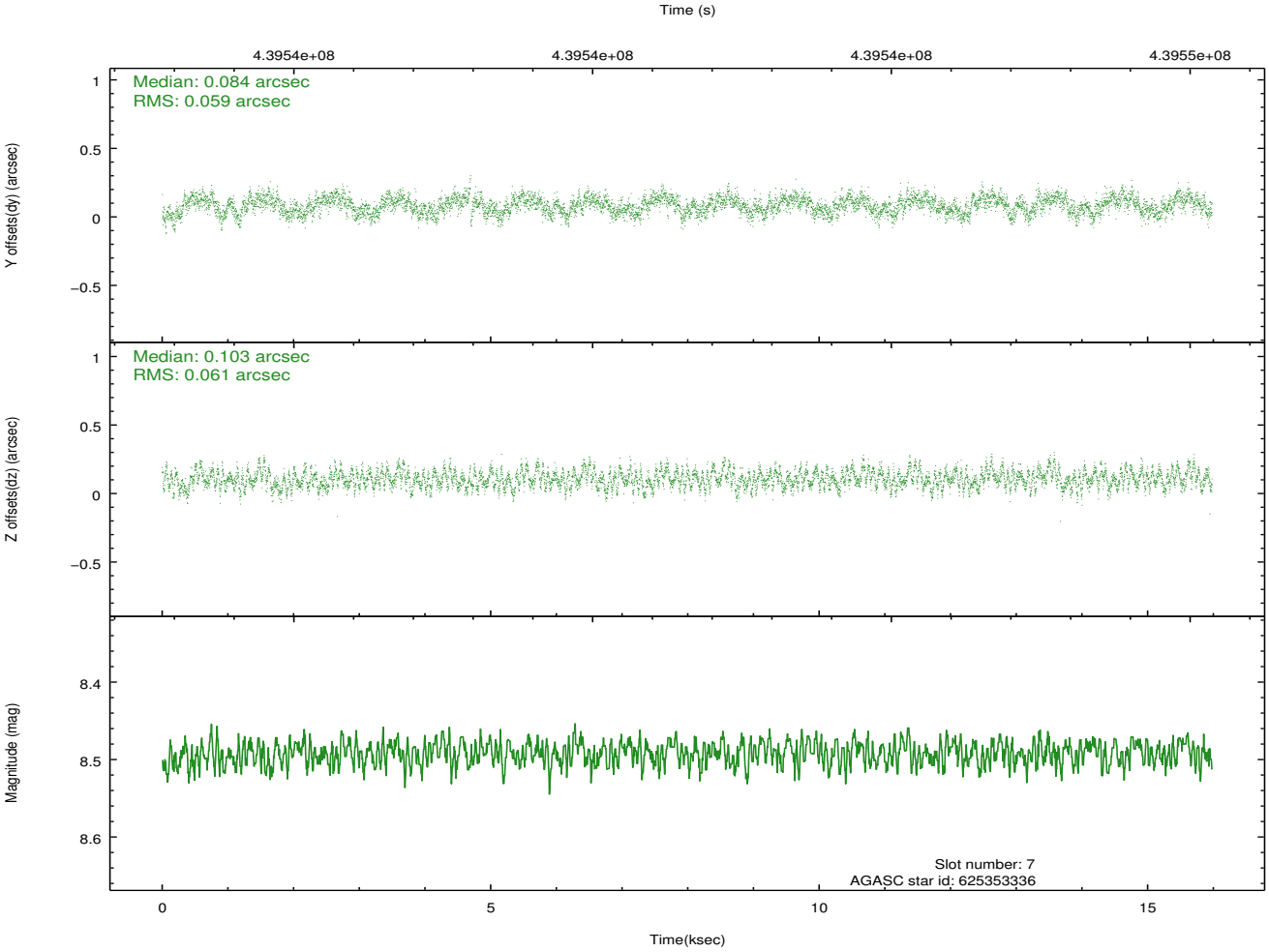

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.199 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 625353096


Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: 0.079 arcsec
RMS: 0.046 arcsec
Y offsets(dy) (arcsec)
Median: 0.182 arcsec
RMS: 0.069 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 625353096
Time(ksec)

2.4.5 Slot 7

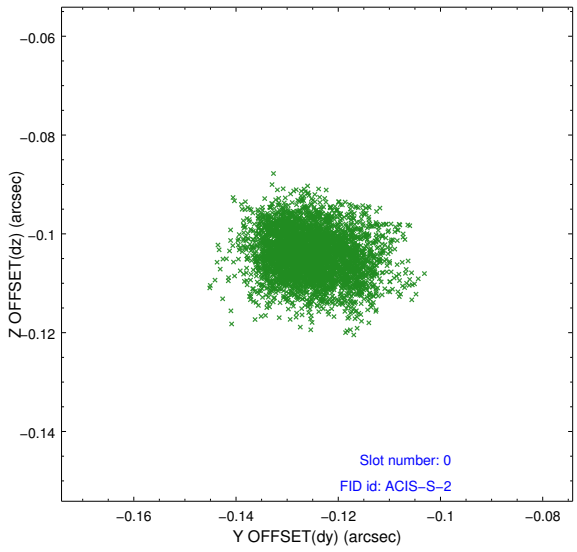

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 625353336

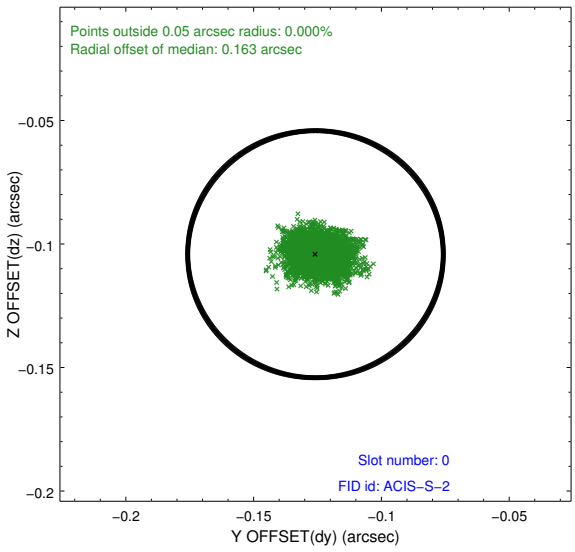

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.133 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 625353336

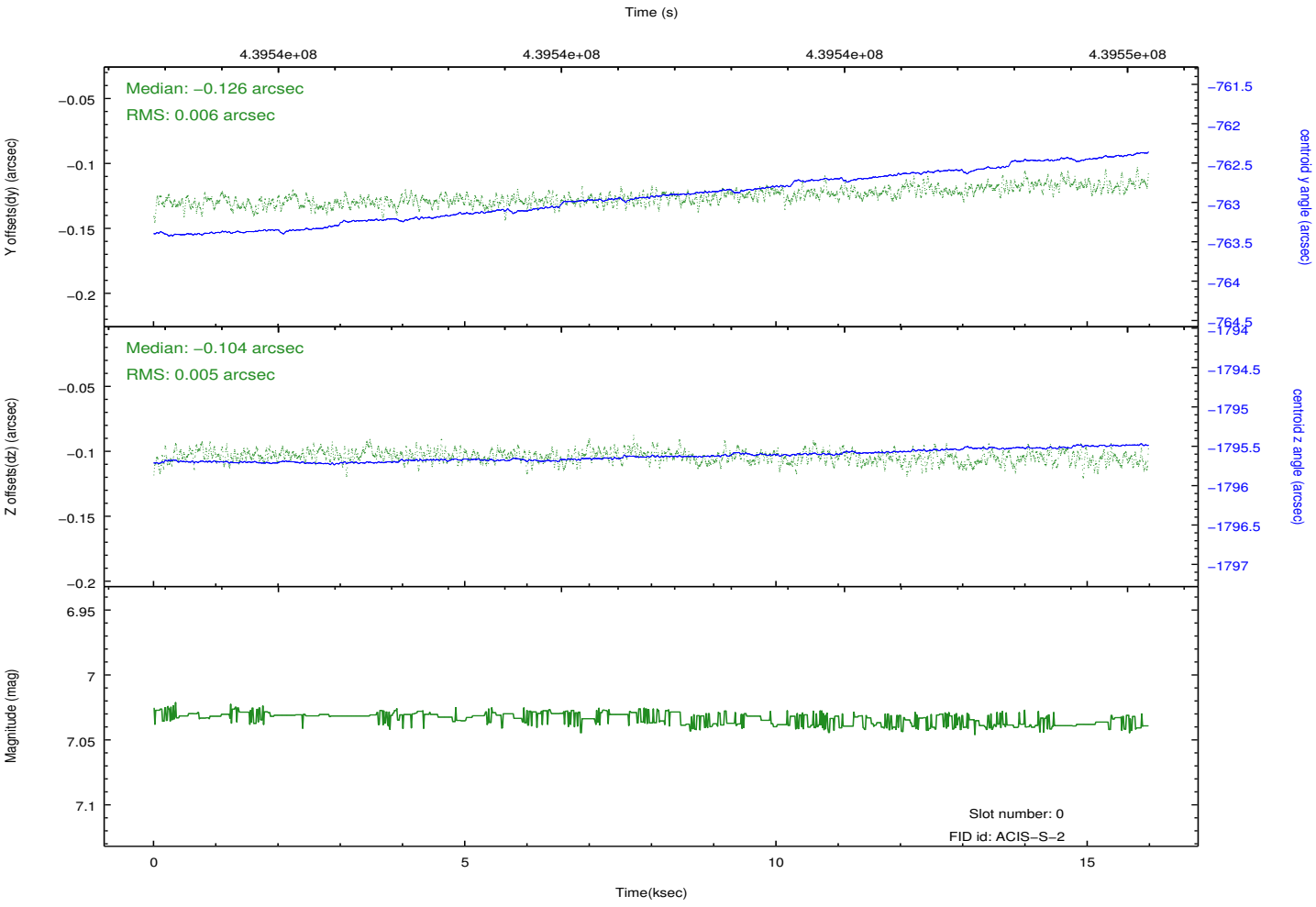

Time (s)
4.3954e+08
4.3954e+08
4.3954e+08
4.3955e+08
Median: 0.084 arcsec
RMS: 0.059 arcsec
Y offsets(dy) (arcsec)
Median: 0.103 arcsec
RMS: 0.061 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 625353336
Time(ksec)

2.5 FID Slots

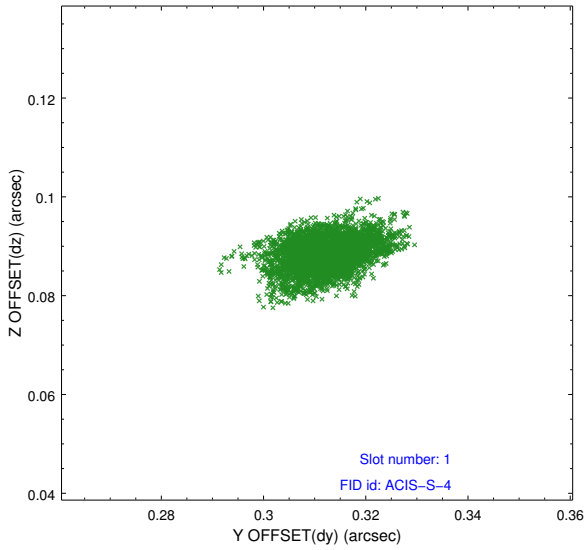
2.5.1 Slot 0

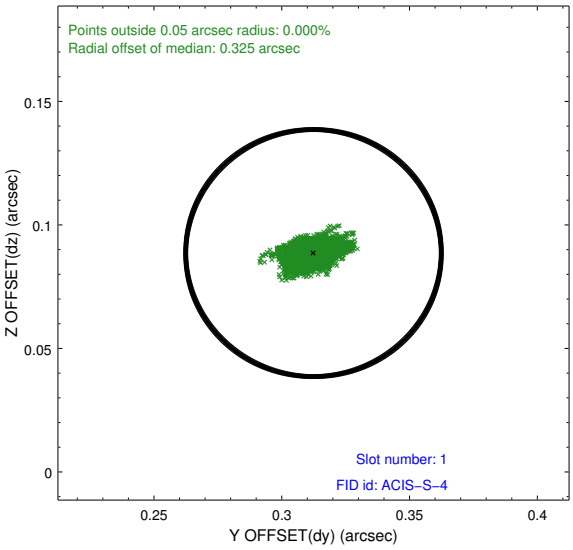


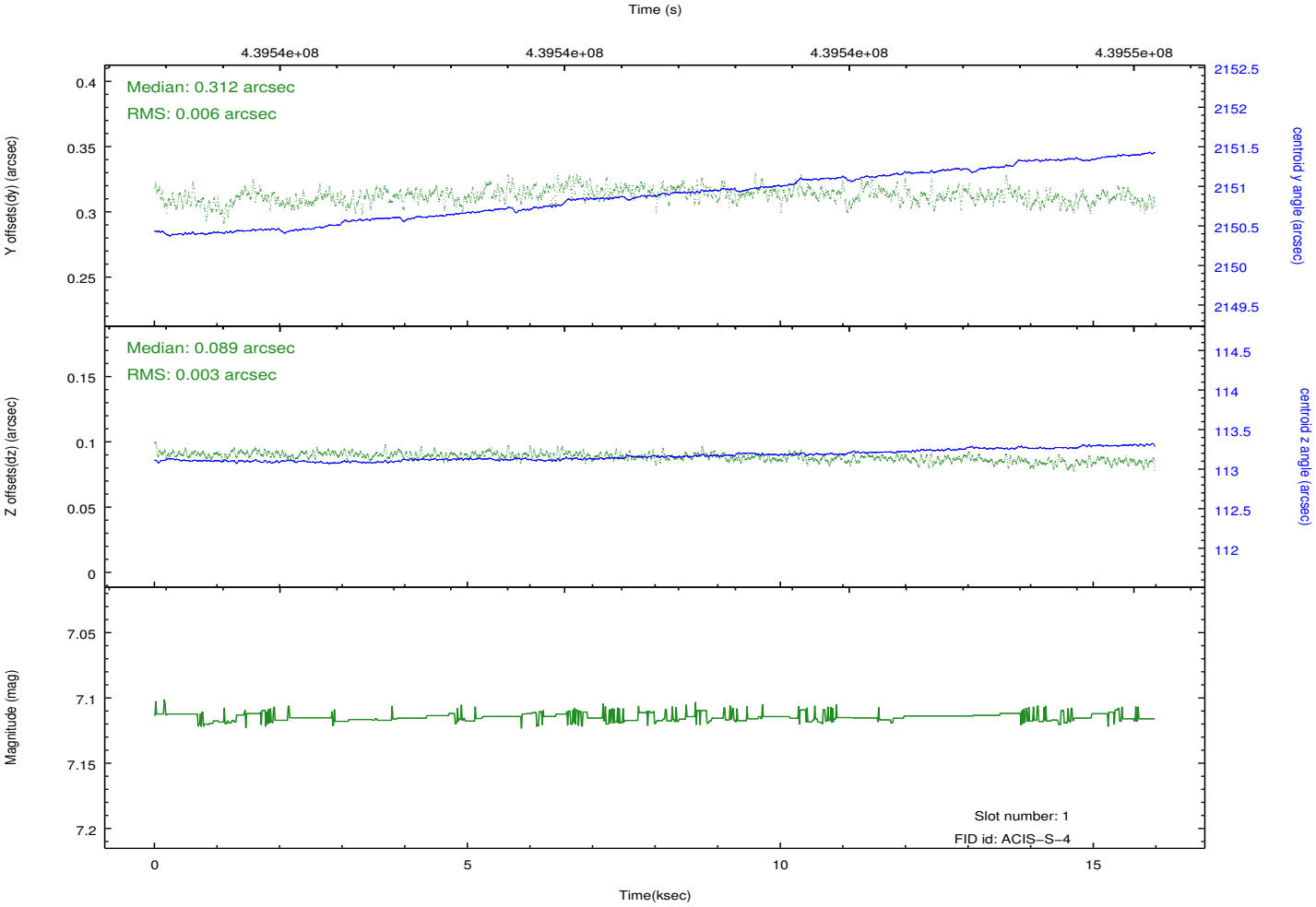




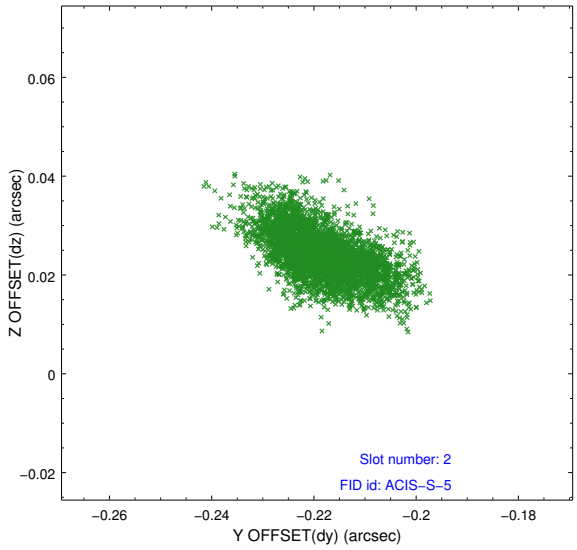
2.5.2 Slot 1

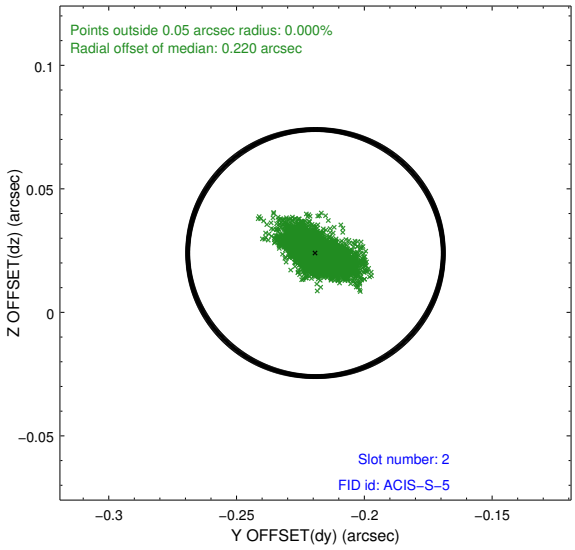

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

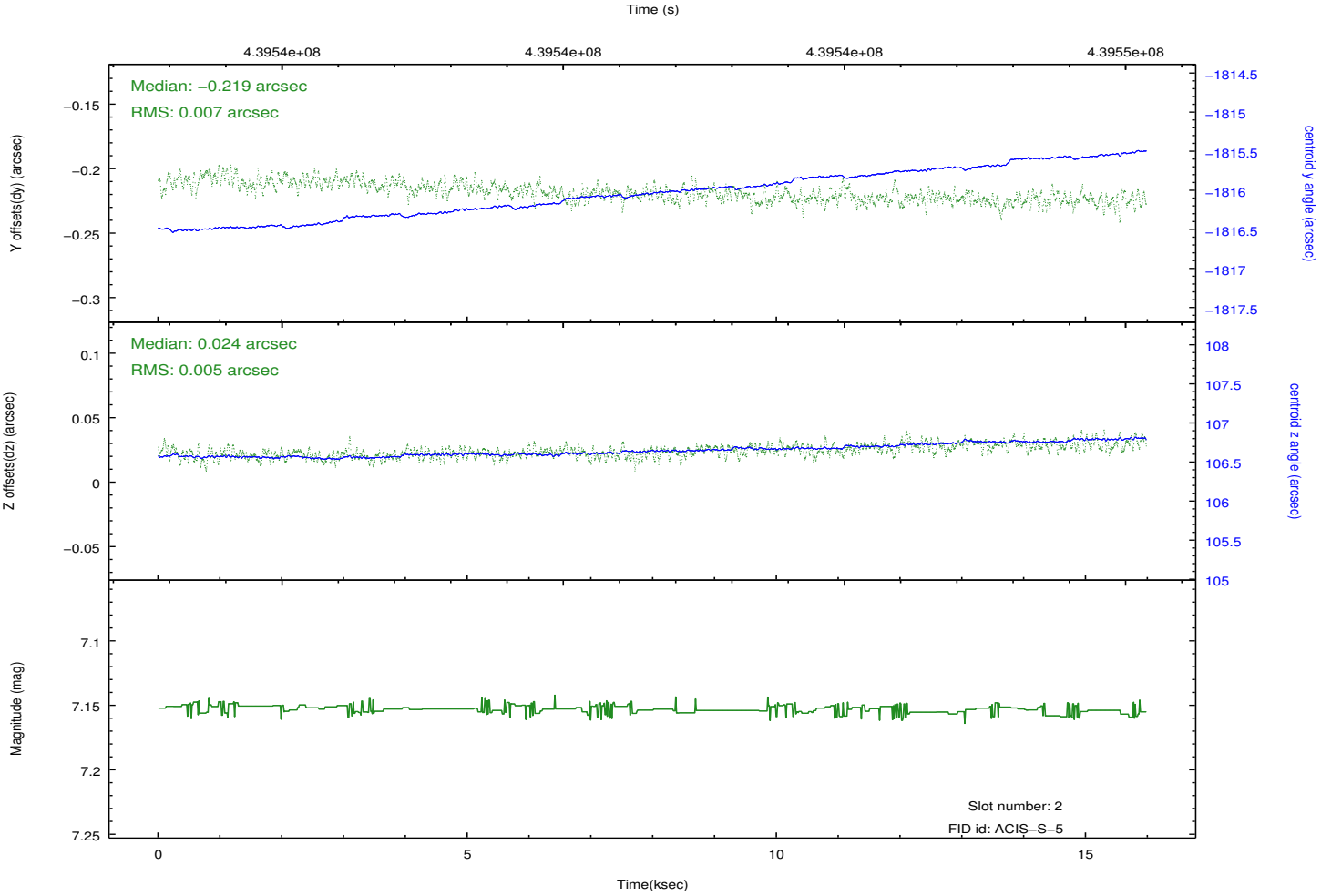

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.325 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.312 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.089 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−5

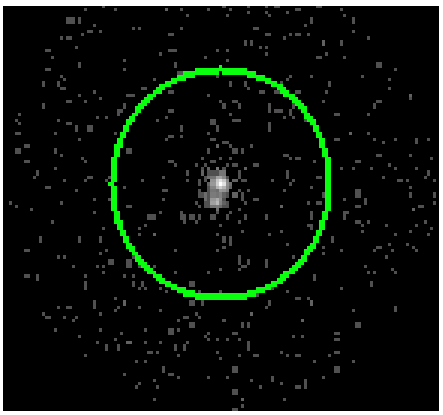

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.220 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.219 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.024 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−5
Time(ksec)

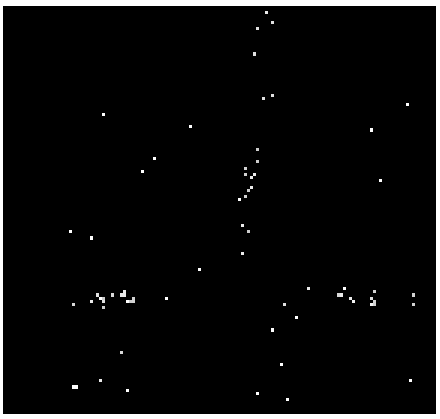
3 Gratings

3.1 HEG Arm

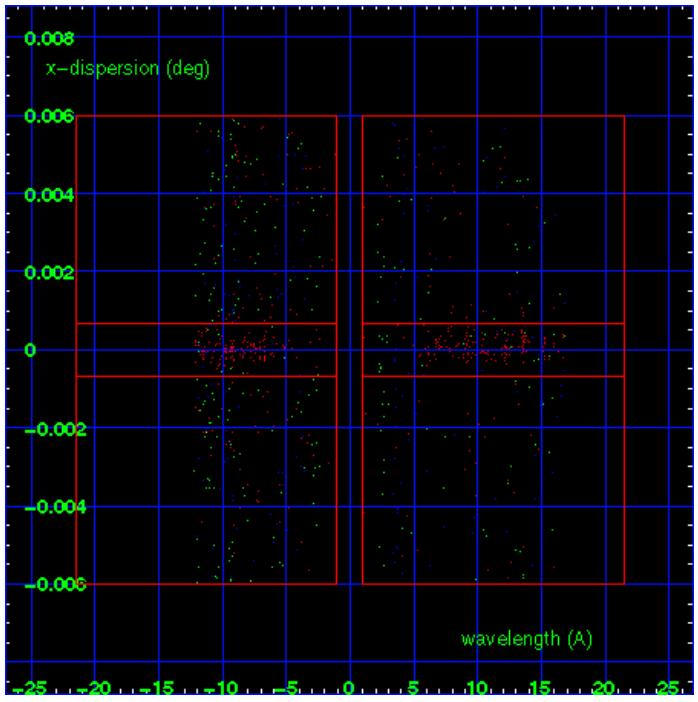
HEG Order Sort 123



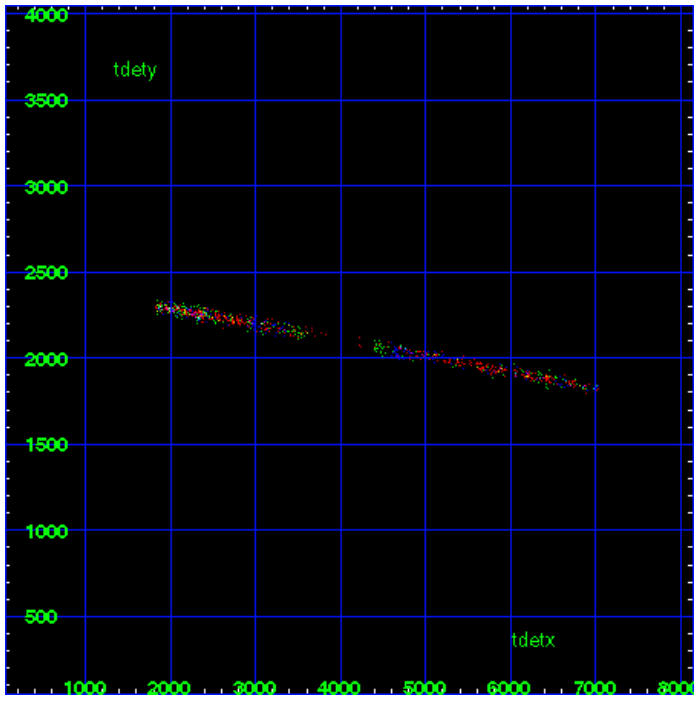
HEG Zero Order



HEG Order Sort ALL

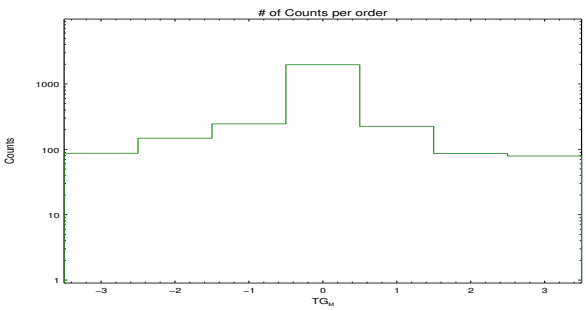


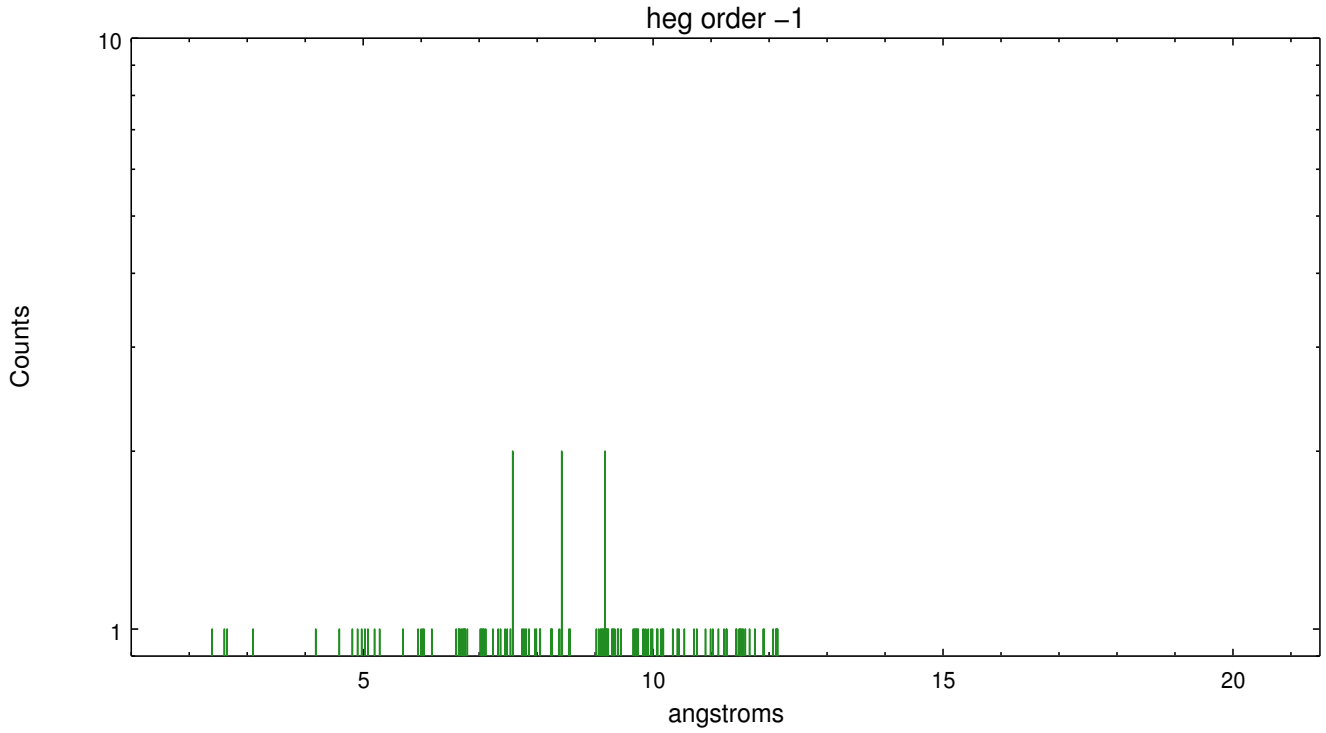
Spot Image HEG

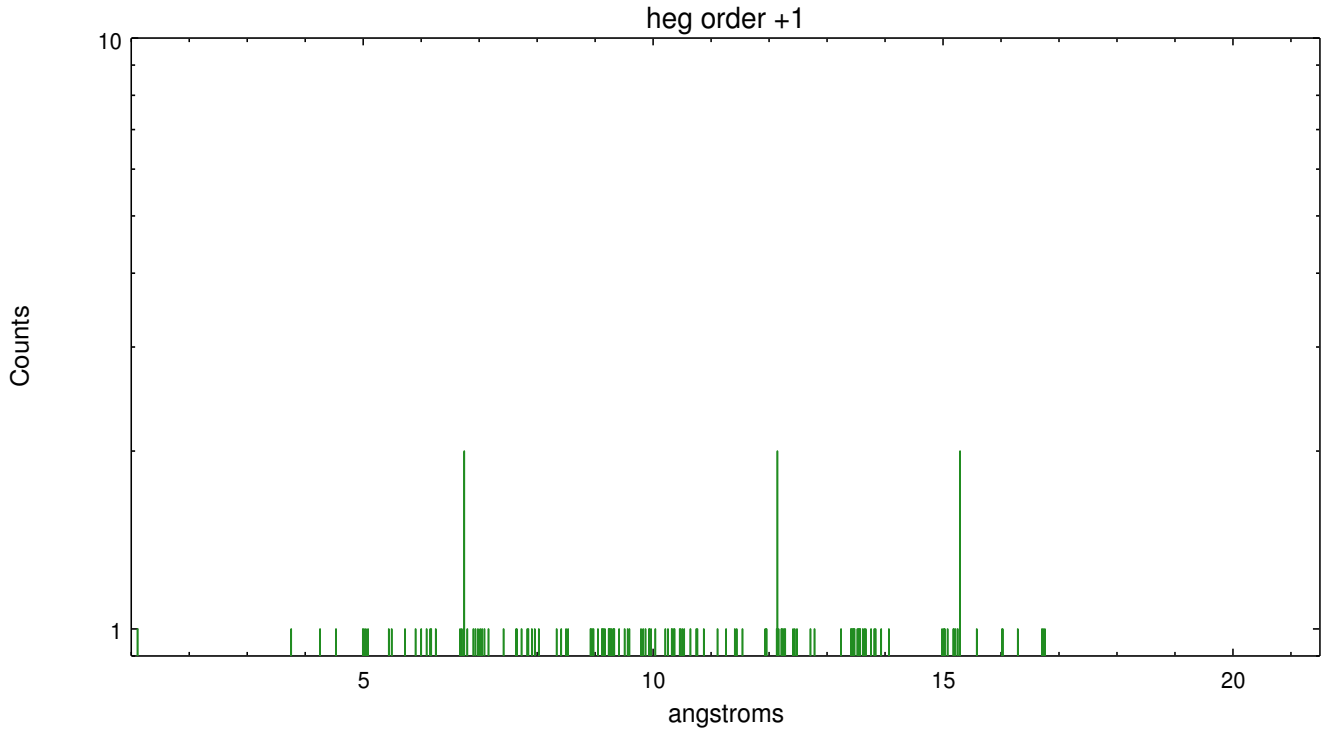


Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	87	148	245	1967	225	86	79

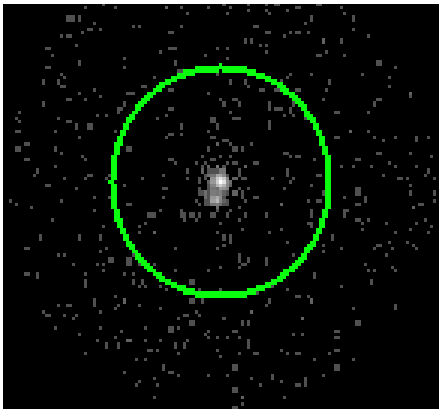



heg order −1
10
1
Counts
5
10
15
20
angstroms

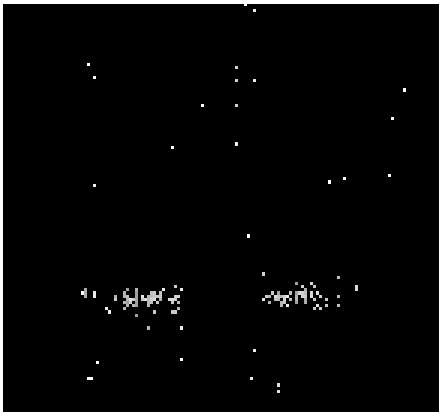

heg order +1
10
1
Counts
5
10
15
20
angstroms

3.2 MEG Arm

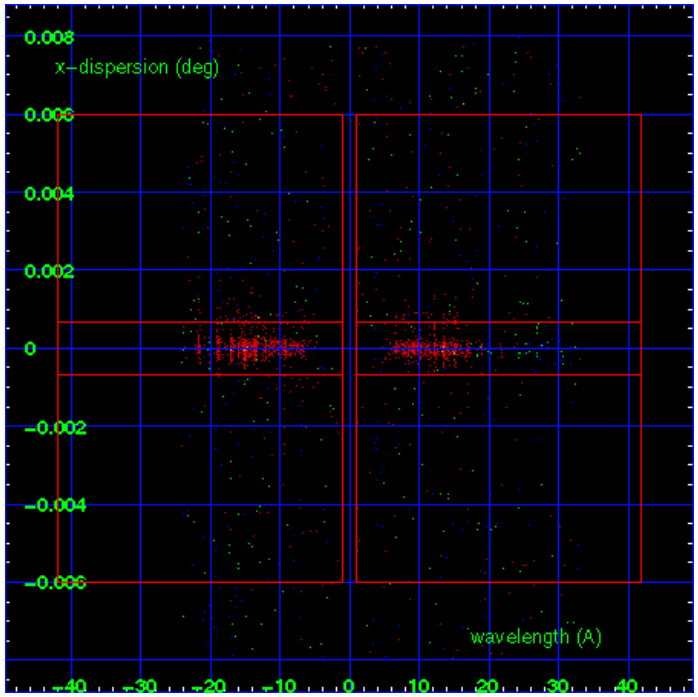
MEG Order Sort 123



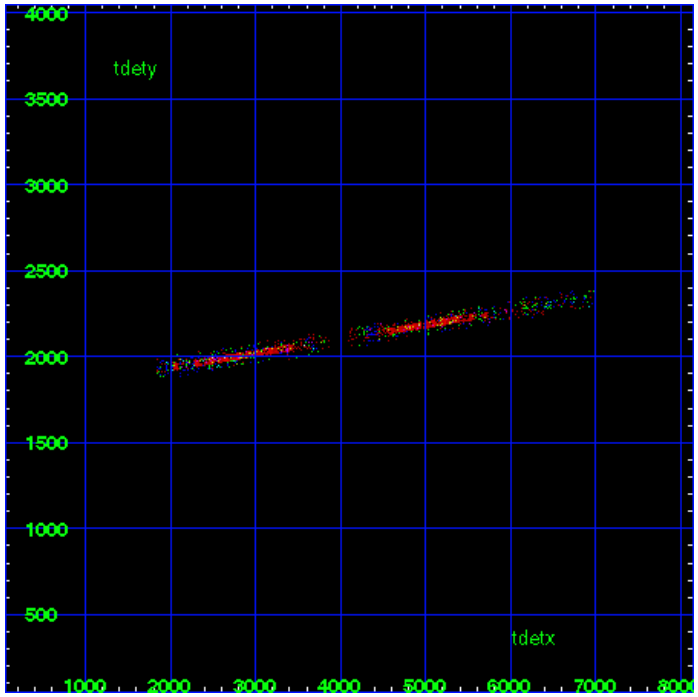
MEG Zero Order



MEG Order Sort ALL

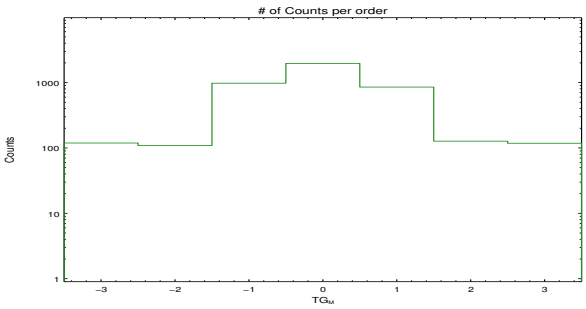


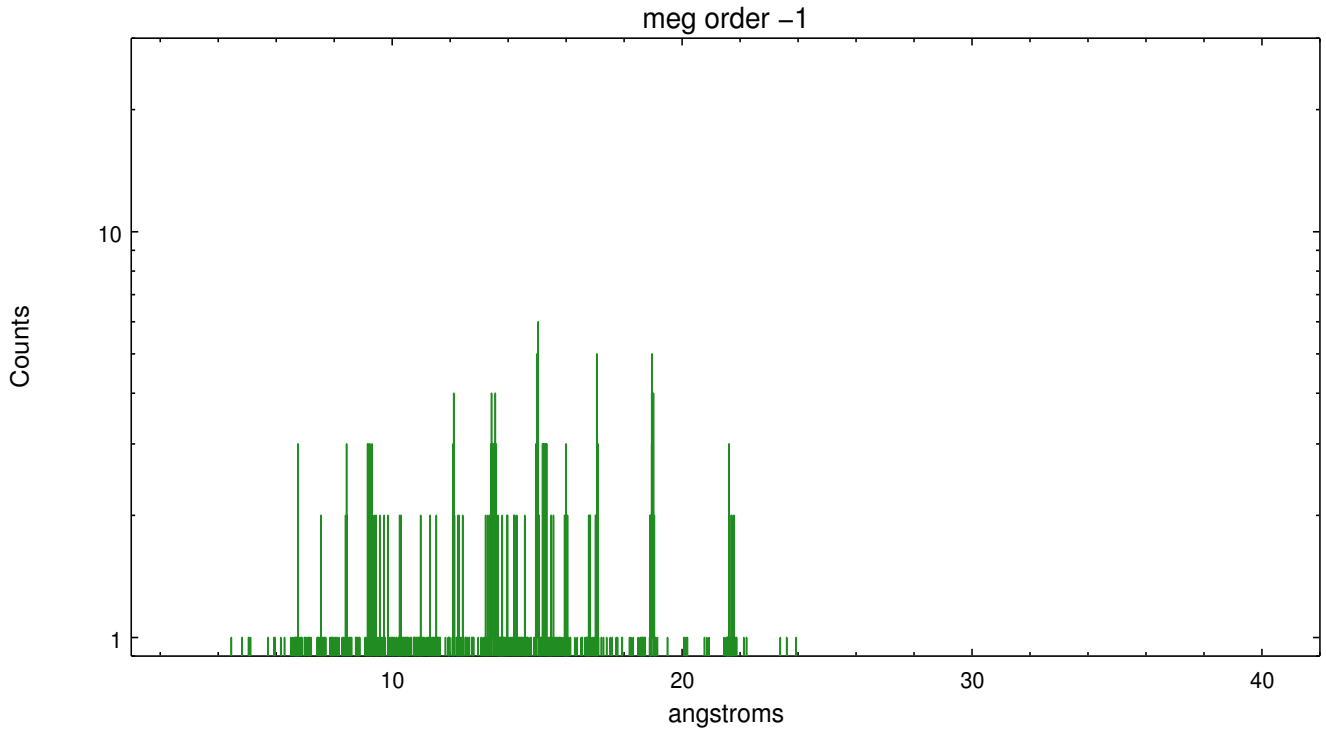
Spot Image MEG

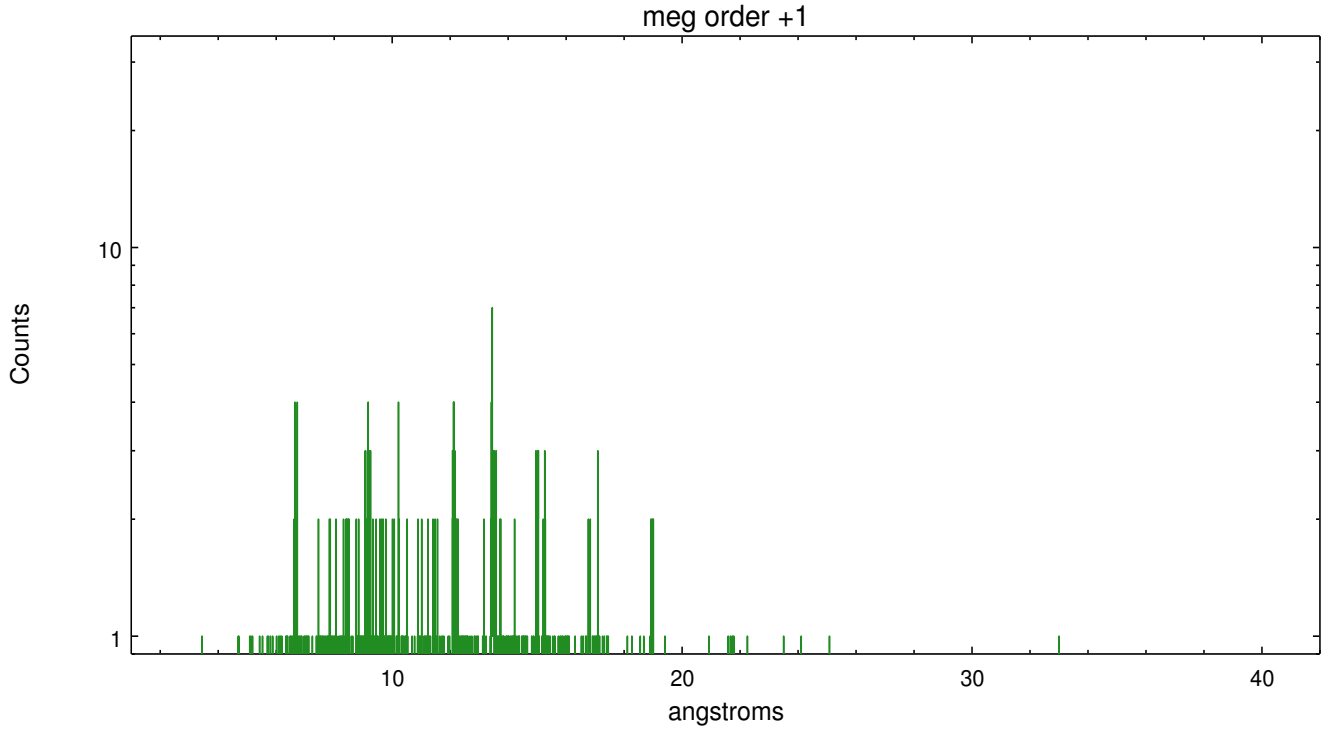


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	119	109	978	1967	854	127	118




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)	2012.03.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.539895574272

A.2 Comments

```
Spectral extraction is centered on the brighter source. Note: there is
a fainter source about 3 arcsec from the brighter source used to center
the spectral extraction. However, the extracted spectrum will contain
some contribution from this faint source. Custom analysis may be
required to determine the relative contributions.
```