V&V Reference Report
L2 ASCDS Version : 7.6.7

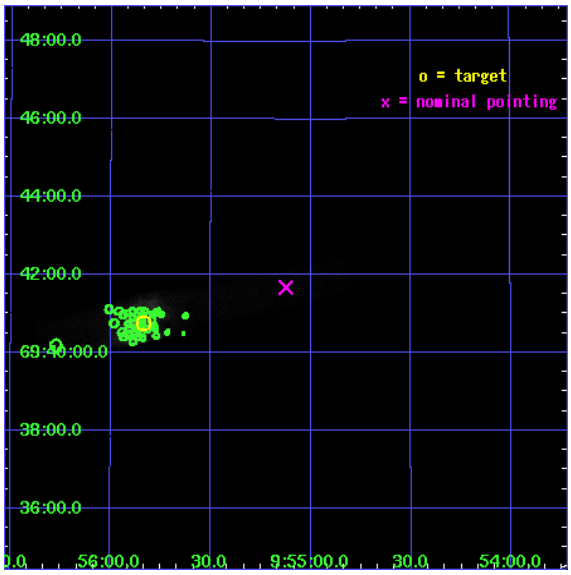
Observation 6097 - L2 Version 002
Chandra X-Ray Center

L2 Processing Date: Feb 21 2006

Contents

1 Front

seq_num	600475
obs_id	6097
title	A State Transition of the Ultraluminous X-Ray Source in M82
observer	Prof. Philip Kaaret
object	M82 ULX
dtycycle	0
cycle	P
ra_targ	148.959167
dec_targ	69.679722
ra_nom	148.78135553357
dec_nom	69.69472526767
roll_nom	168.08531185279
revision	2
ontime	58188.000867069
livetime	52773.445371911
ontime7	58188.000867069
l2events	208811

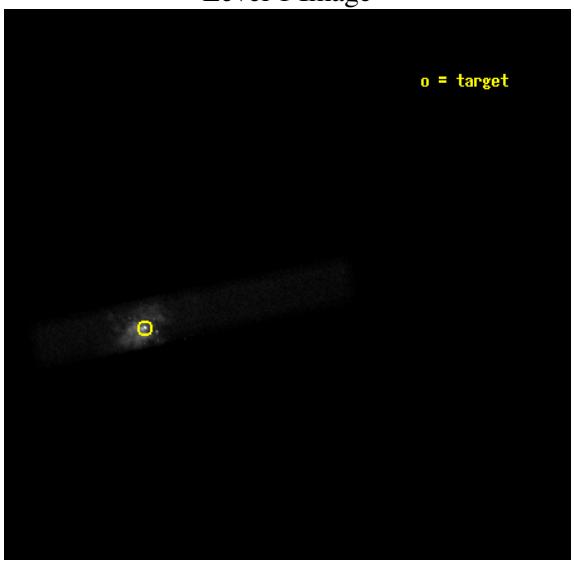


2 OBI

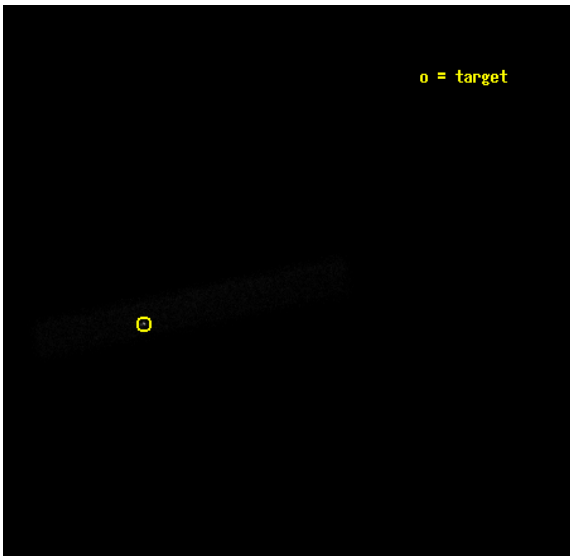
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Bias

Chip 7

2.1.3 Parameters

obi_num	0
ascdsver	7.6.7
caldbver	3.2.1
date	2006-02-21T23:25:01
revision	2

sched_exp_time	58000.000000
ontime	58576.599749088
ontime7	58576.599749088
l1events	258578

2.1.4 Events

	ccd 7
level 1 events	258578
rejected events	48024
rejected %	18%

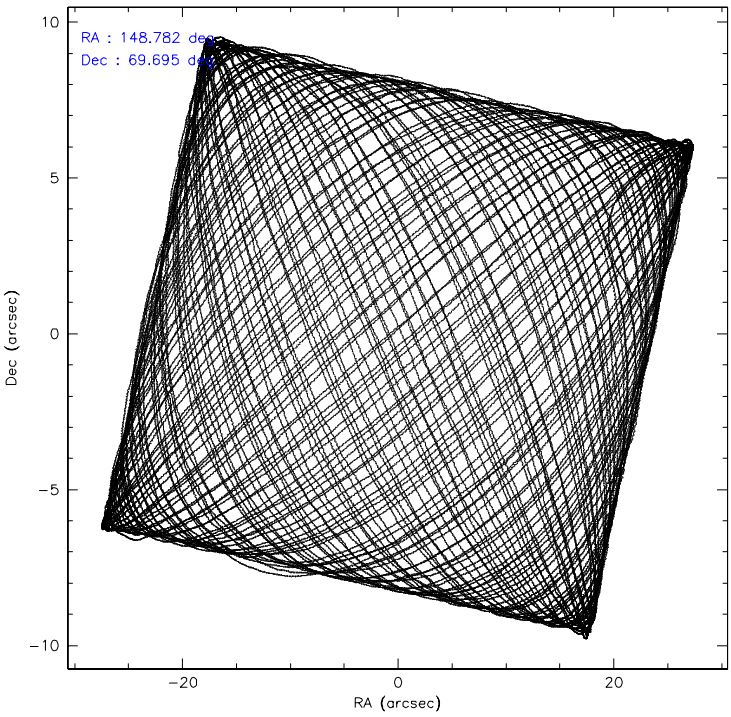
	ccd 7
grade 0 events	51058
	19%
grade 1 events	437
	0%
grade 2 events	56040
	21%
grade 3 events	22998
	8%
grade 4 events	23695
	9%
grade 5 events	7137
	2%
grade 6 events	57360
	22%
grade 7 events	39853
	15%

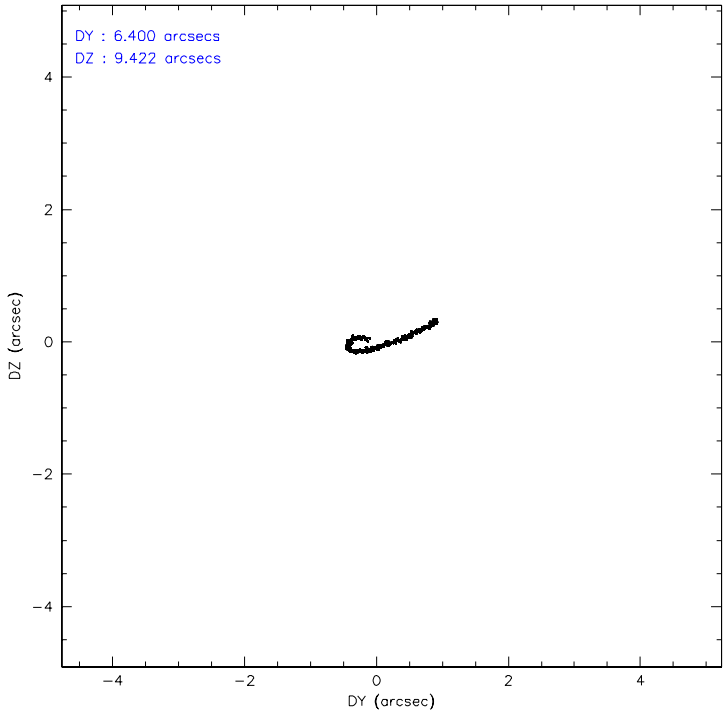
2.2 Compared Parameters

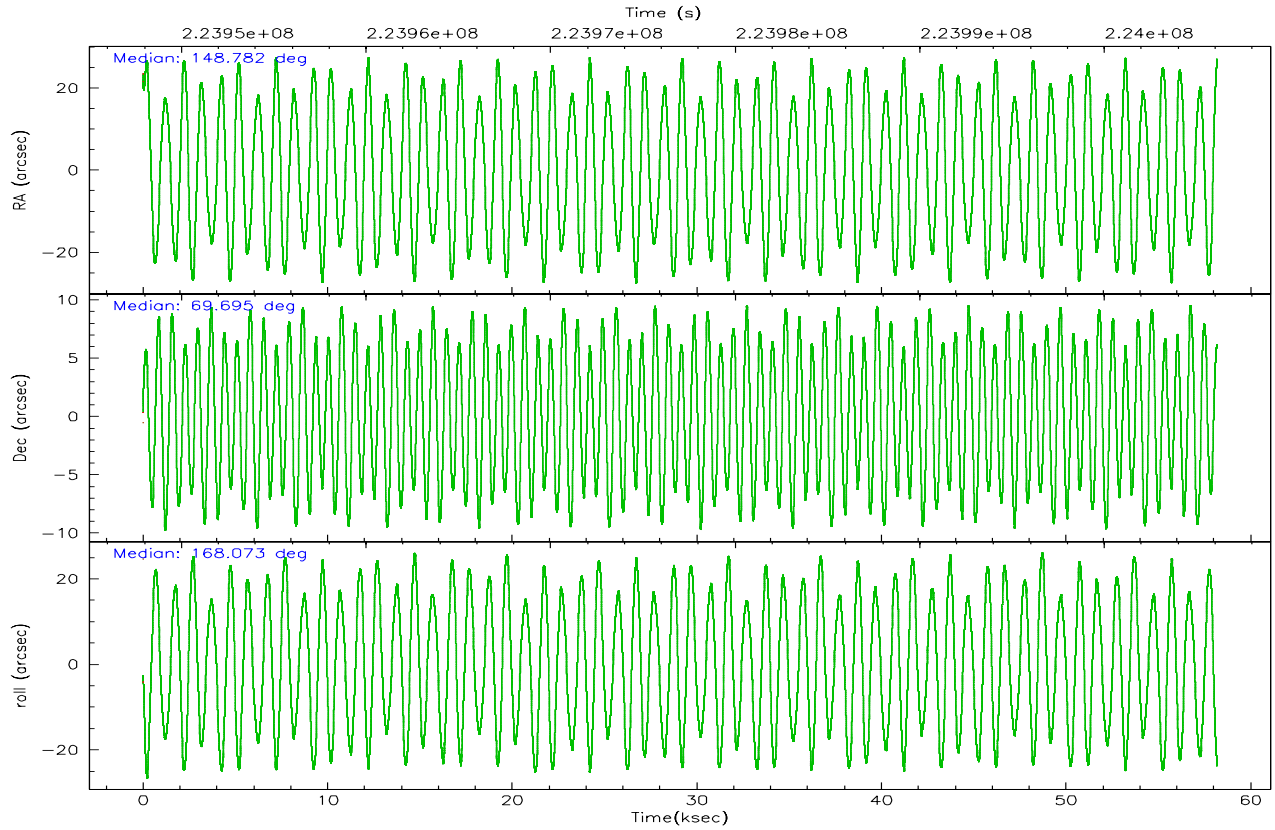
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-7	ACIS-7
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	148.855569	148.7813555335705
Pointing Dec	69.703504	69.69472526767041
Pointing Roll	167.859083	168.0853118527921
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-190.132523	-190.1400660498719
SIM translation stage offset (mm)	0	0.00754346686406393
Observation start time	223948108.184000	223947280.77341
Observation start date	2005-02-04T23:47:24	2005-02-04T23:34:40
Observation end time	224006108.184000	224006993.17611
Observation end date	2005-02-05T15:54:04	2005-02-05T16:09:53
Read mode	TIMED	TIMED

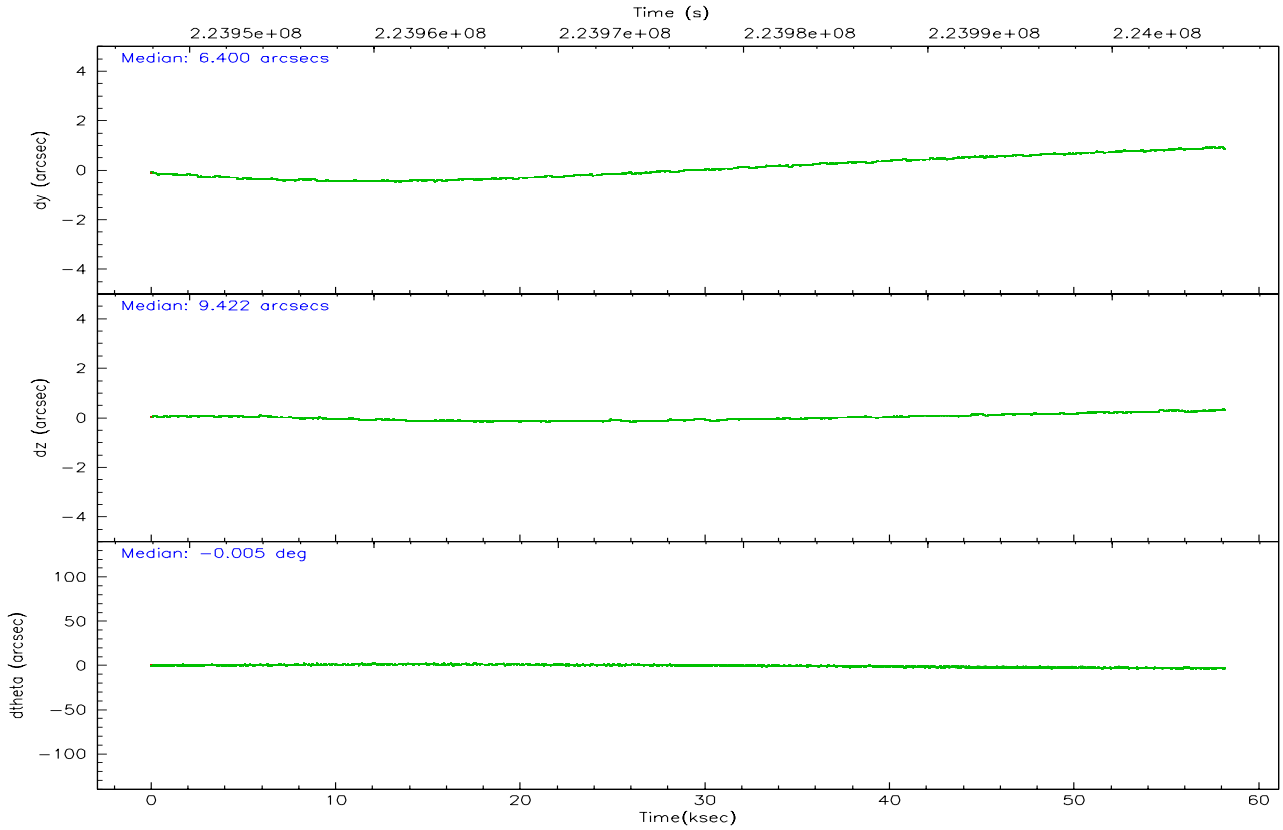
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
On-chip summing requested	N	N
Subarray requested	1/8	1/8
Subarray start row	0	449
Subarray row count	1024	128
Alternating exposures requested	N	N
Primary exposure time	0.000000	0.4

2.3 Aspect


RA : 148.782 deg
Dec : 69.695 deg
10
5
0
−5
−10
−20
0
20
Dec (arcsec)
RA (arcsec)


DY : 6.400 arcsecs
DZ : 9.422 arcsecs
4
2
0
−2
−4
−4
−2
0
2
4
DZ (arcsec)
DY (arcsec)


Time (s)
2.2395e+08
2.2396e+08
2.2397e+08
2.2398e+08
2.2399e+08
2.24e+08
Median: 148.782 deg
RA (arcsec)
Median: 69.695 deg
Dec (arcsec)
Median: 168.073 deg
roll (arcsec)
Time(ksec)

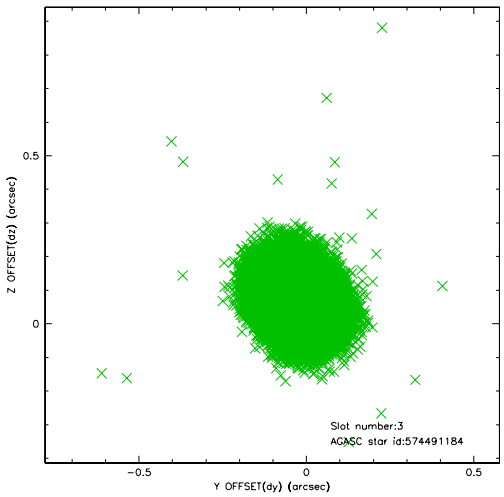

Time (s)
2.2395e+08
2.2396e+08
2.2397e+08
2.2398e+08
2.2399e+08
2.24e+08
Median: 6.400 arcsecs
dy (arcsec)
Median: 9.422 arcsecs
dz (arcsec)
Median: −0.005 deg
dtheta (arcsec)
Time(ksec)

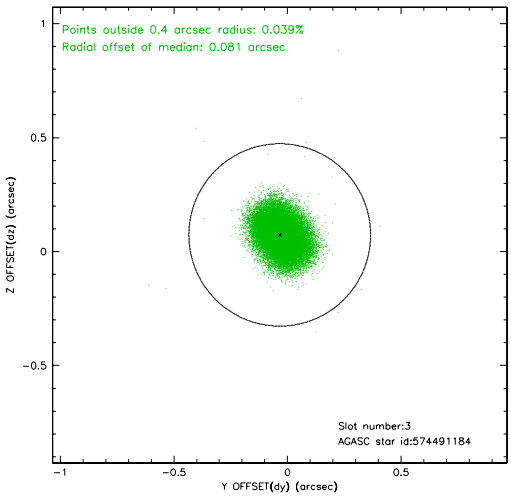
Slot Statistics

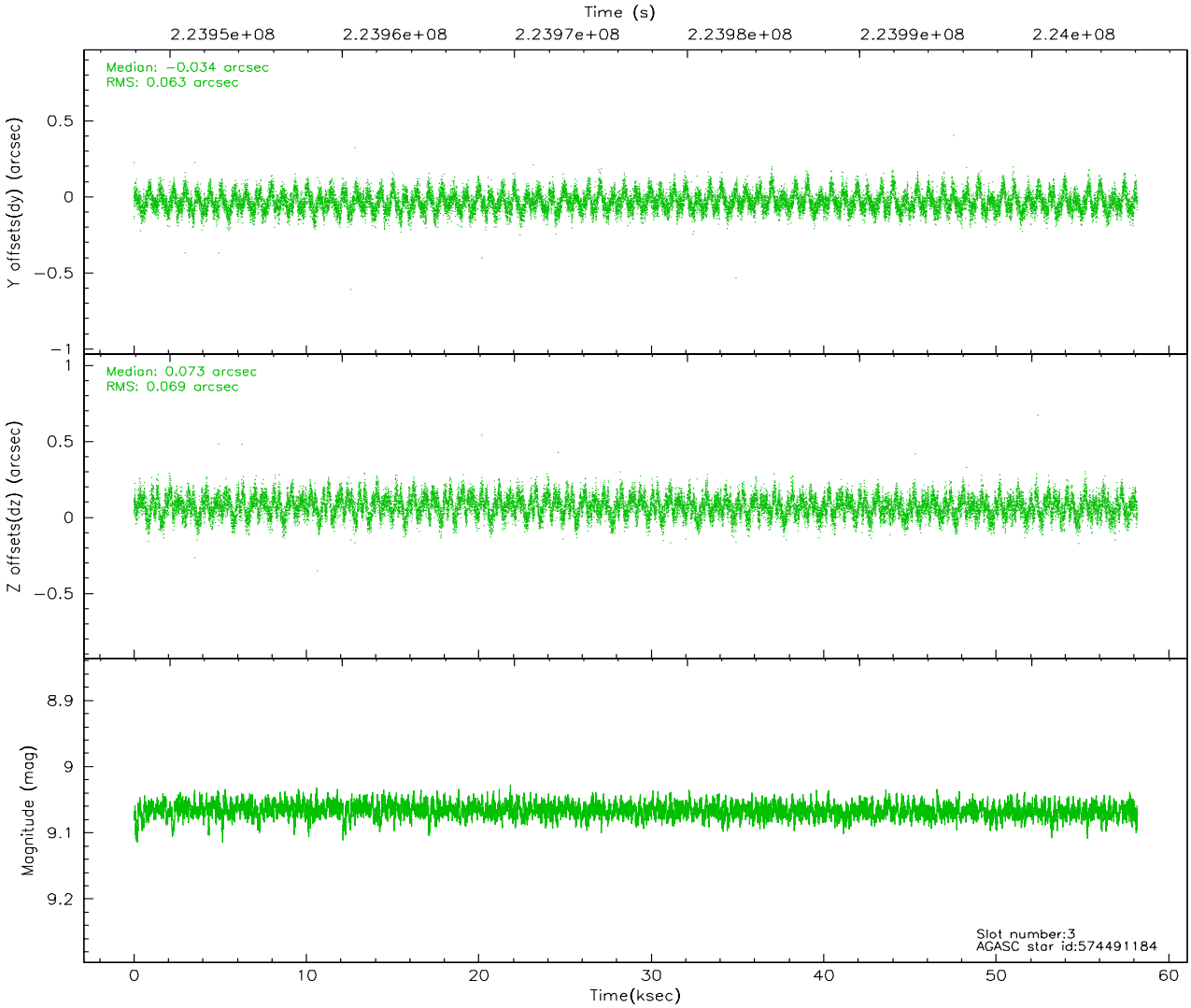
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.19	14193	0.011	0.011	0.012	0.023	0.000000	0.000000	936.81	-1726.29
1	FID	ACIS-S-5	7.24	14193	-0.045	0.014	0.015	0.022	0.000000	0.000000	-1812.26	171.32
2	FID	ACIS-S-6	7.35	14192	0.012	-0.013	0.016	0.025	0.000000	0.000000	402.43	815.20
3	GUIDE	574491184	9.07	28371	-0.034	0.073	0.101	0.157	148.582453	69.768699	382.19	-158.38
4	GUIDE	574491280	9.33	28361	-0.052	0.058	0.090	0.150	148.611567	69.450135	110.26	956.84
5	GUIDE	574491872	9.28	28361	0.026	-0.135	0.083	0.139	147.207613	69.765453	2058.56	188.58
6	GUIDE	574885216	8.52	28306	0.032	0.066	0.091	0.156	147.834547	70.411352	1743.76	-2241.60
7	GUIDE	574886496	8.49	28377	0.028	-0.064	0.063	0.101	148.945563	70.041136	148.22	-1211.68

2.4 Star Slots

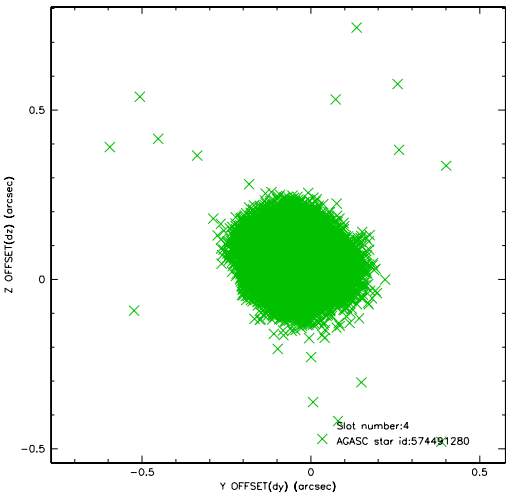
2.4.1 Slot 3

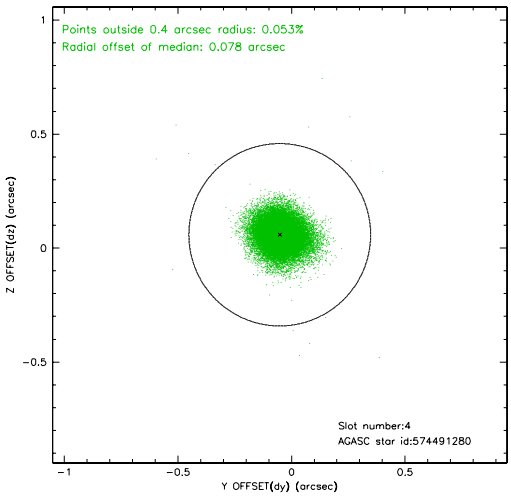


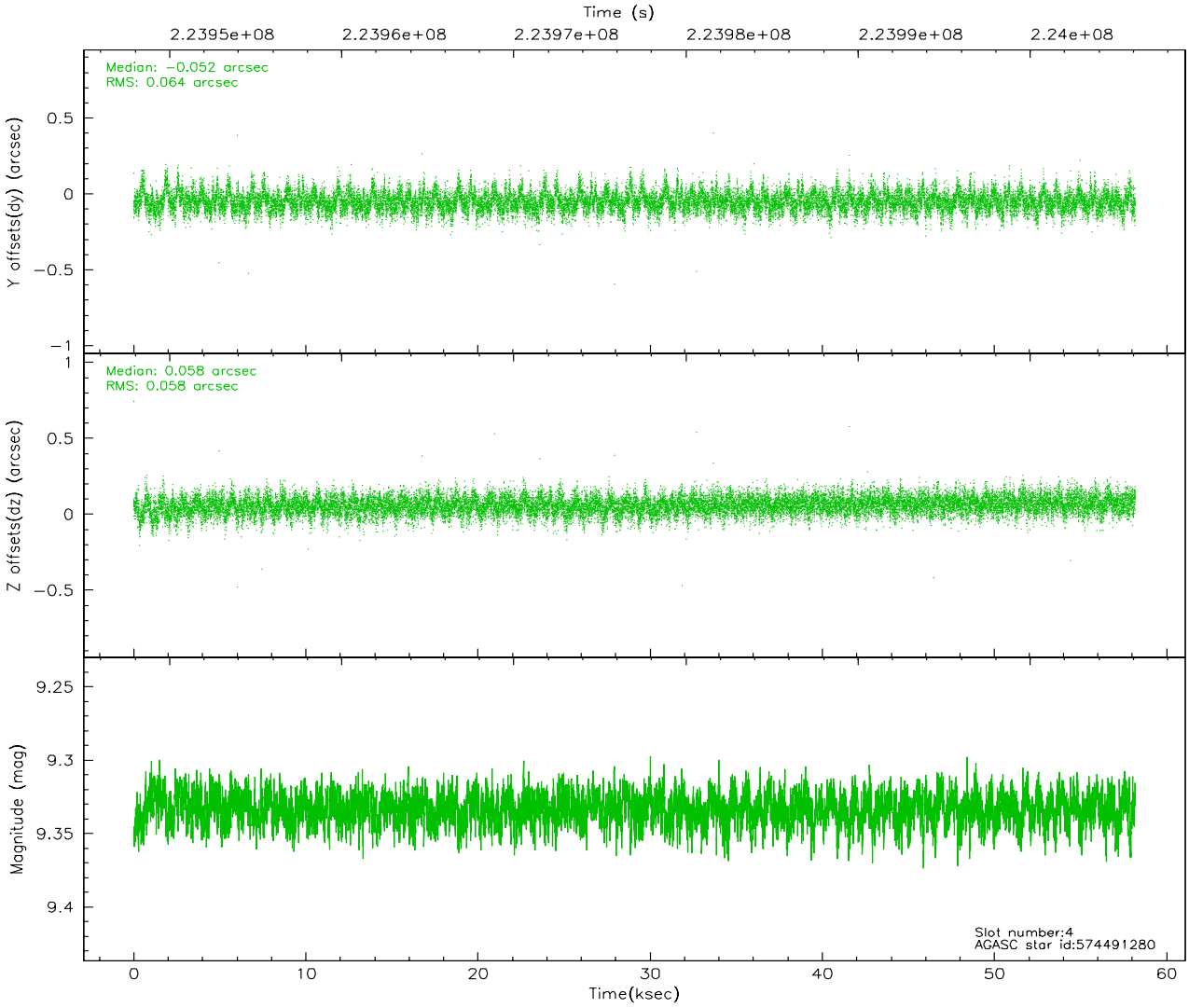




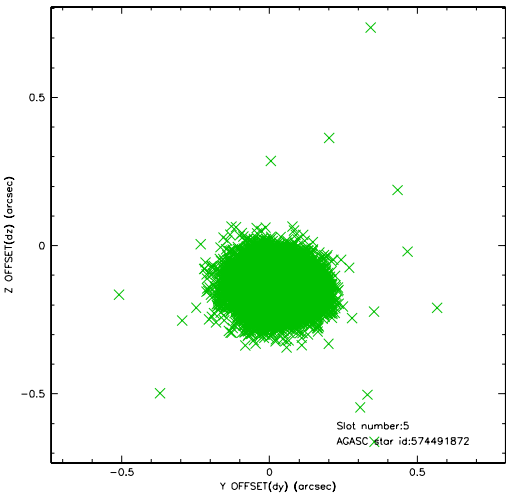
2.4.2 Slot 4

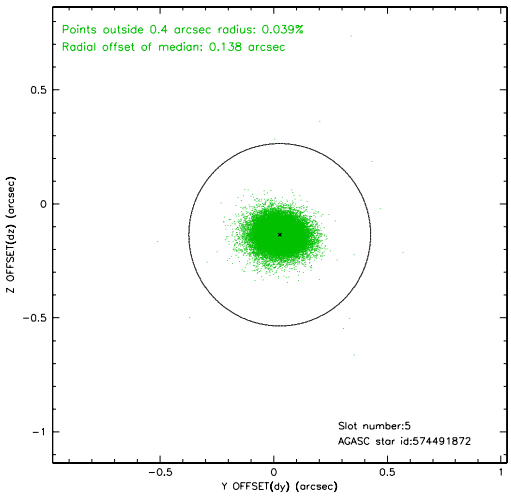

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:574491280

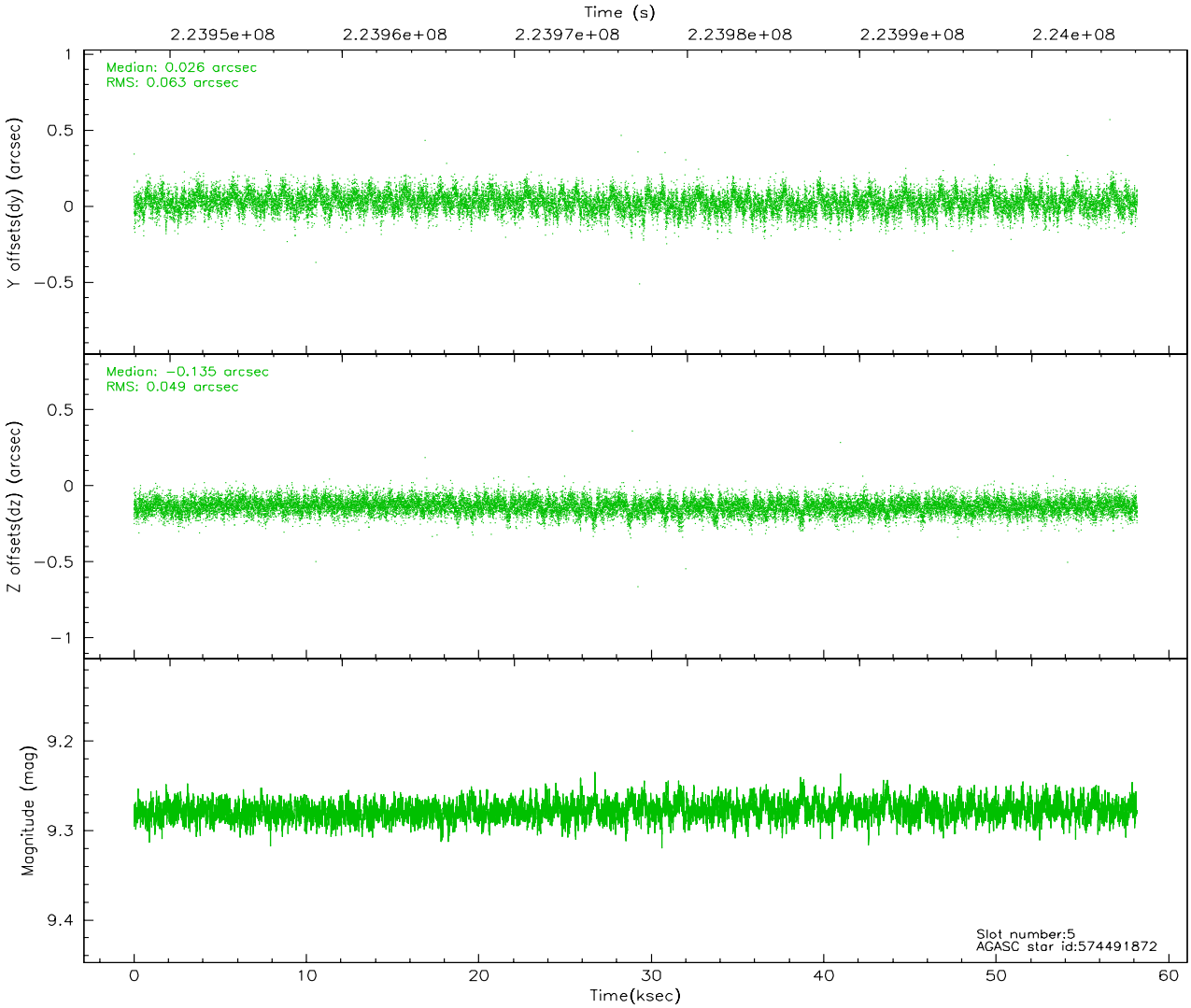

Points outside 0.4 arcsec radius: 0.053%
Radial offset of median: 0.078 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:574491280


Time (s)
2.2395e+08
2.2396e+08
2.2397e+08
2.2398e+08
2.2399e+08
2.24e+08
Median: −0.052 arcsec
RMS: 0.064 arcsec
Y offsets(dy) (arcsec)
Median: 0.058 arcsec
RMS: 0.058 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:574491280
Time(ksec)

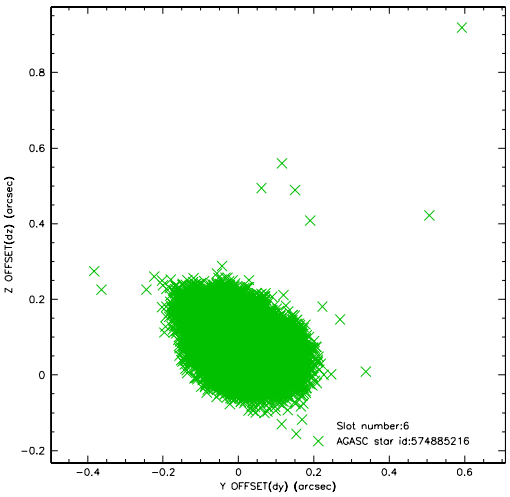
2.4.3 Slot 5

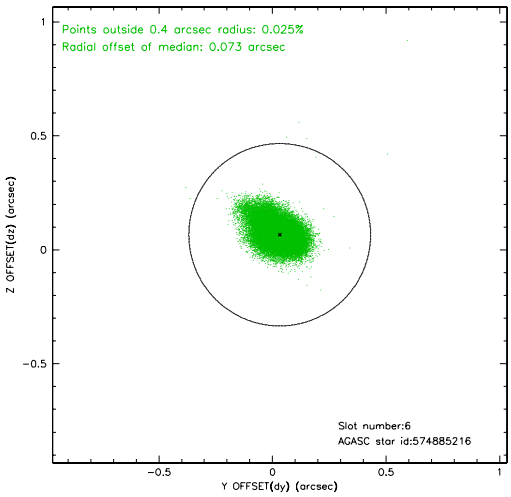

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:574491872

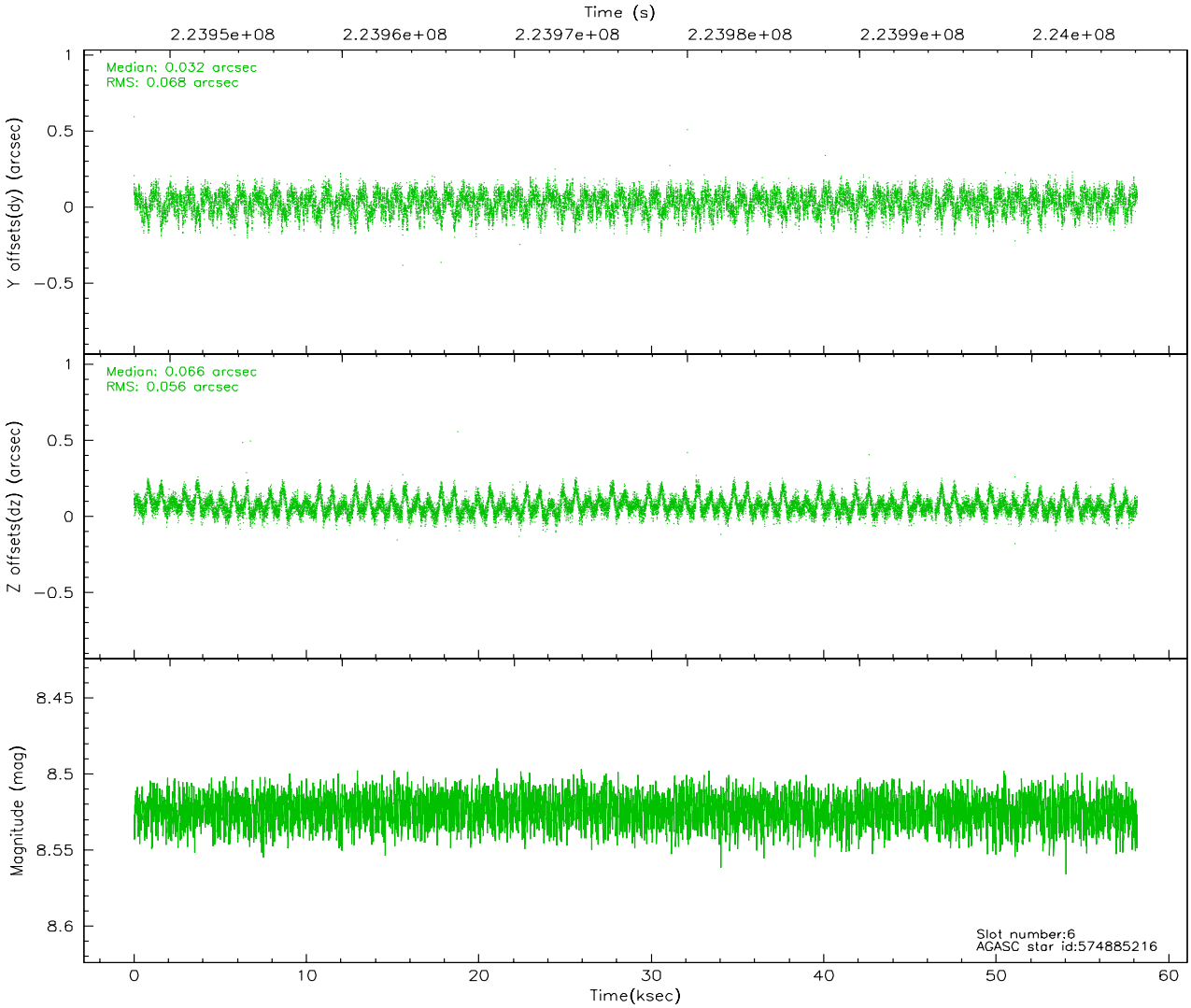

Points outside 0.4 arcsec radius: 0.039%
Radial offset of median: 0.138 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:574491872


Time (s)
Median: 0.026 arcsec
RMS: 0.063 arcsec
Y offsets(dy) (arcsec)
Median: −0.135 arcsec
RMS: 0.049 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:574491872
Time(ksec)

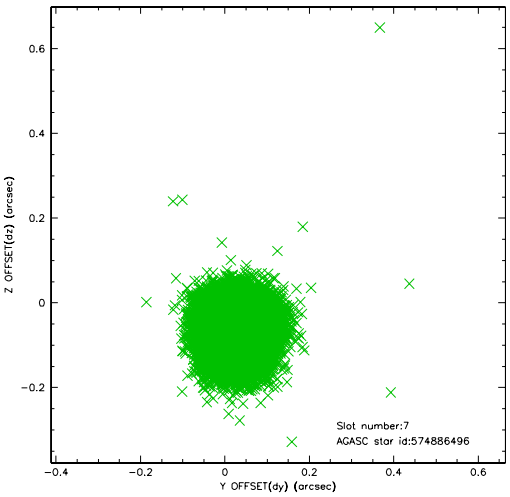
2.4.4 Slot 6

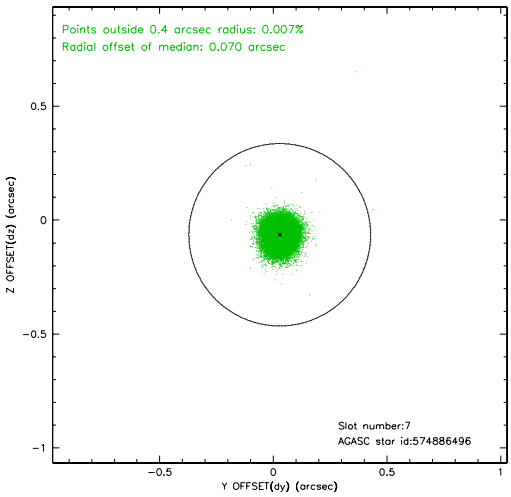

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:574885216

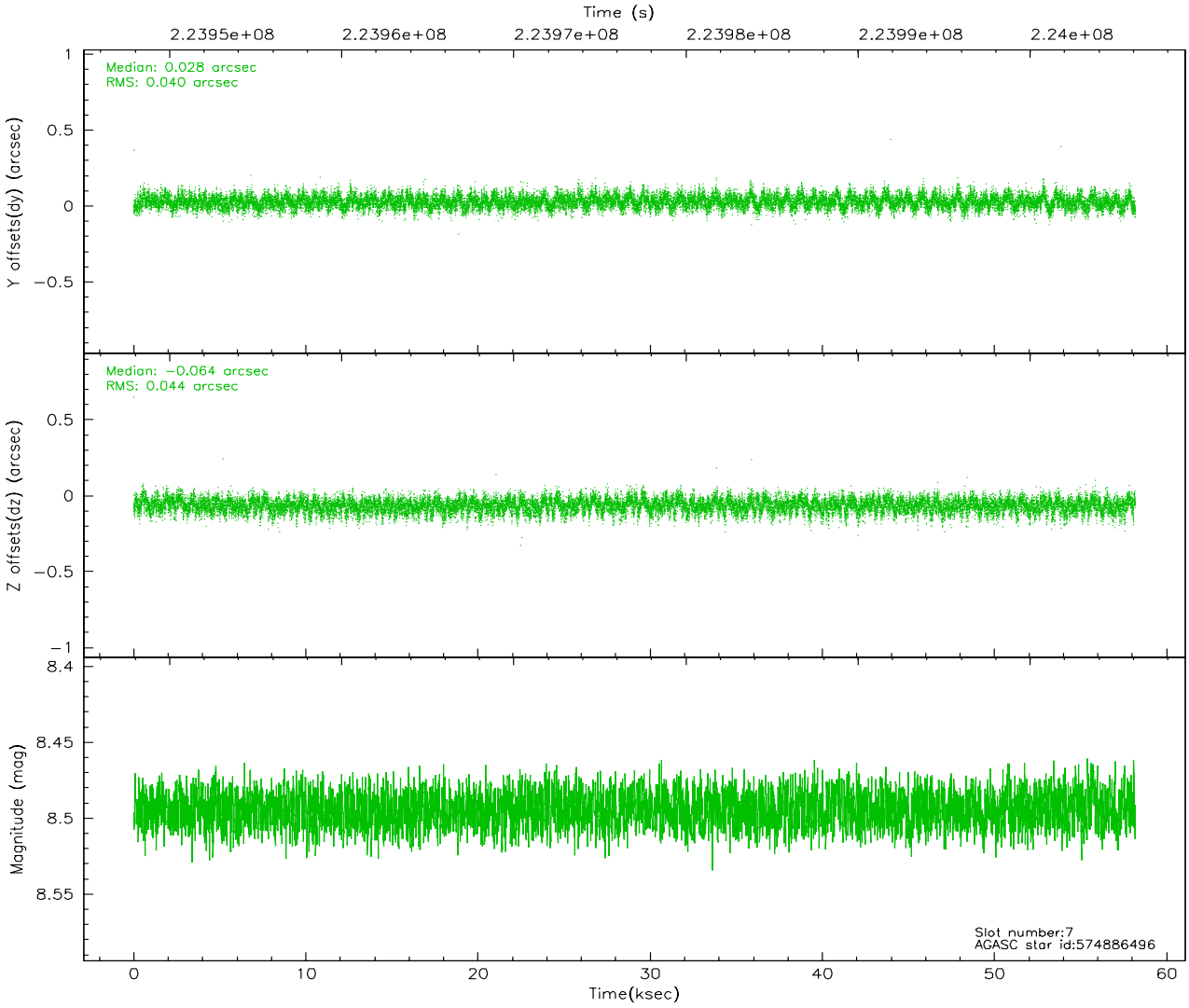

Points outside 0.4 arcsec radius: 0.025%
Radial offset of median: 0.073 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:574885216


Time (s)
2.2395e+08
2.2396e+08
2.2397e+08
2.2398e+08
2.2399e+08
2.24e+08
Median: 0.032 arcsec
RMS: 0.068 arcsec
Y offsets(dy) (arcsec)
Median: 0.066 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:574885216
Time(ksec)

2.4.5 Slot 7

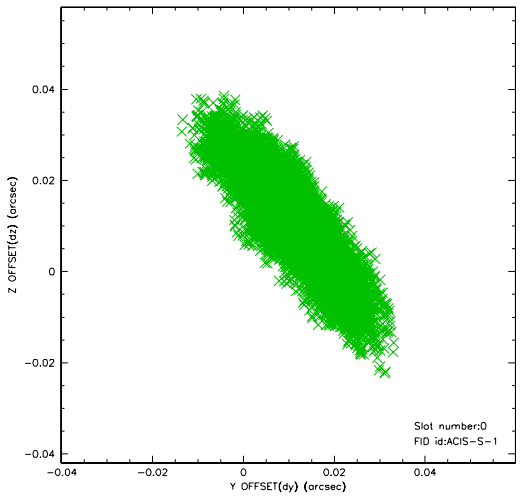

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:574886496

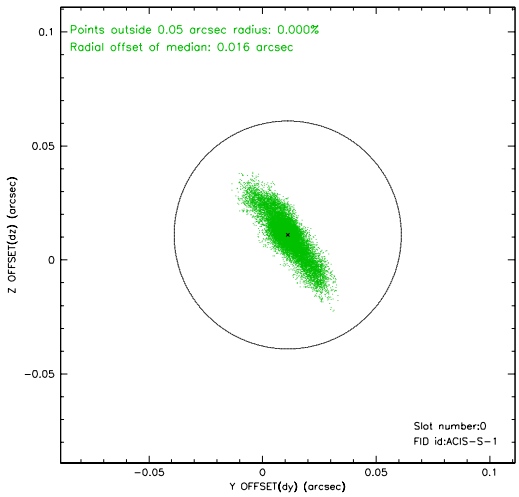

Points outside 0.4 arcsec radius: 0.007%
Radial offset of median: 0.070 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:574886496

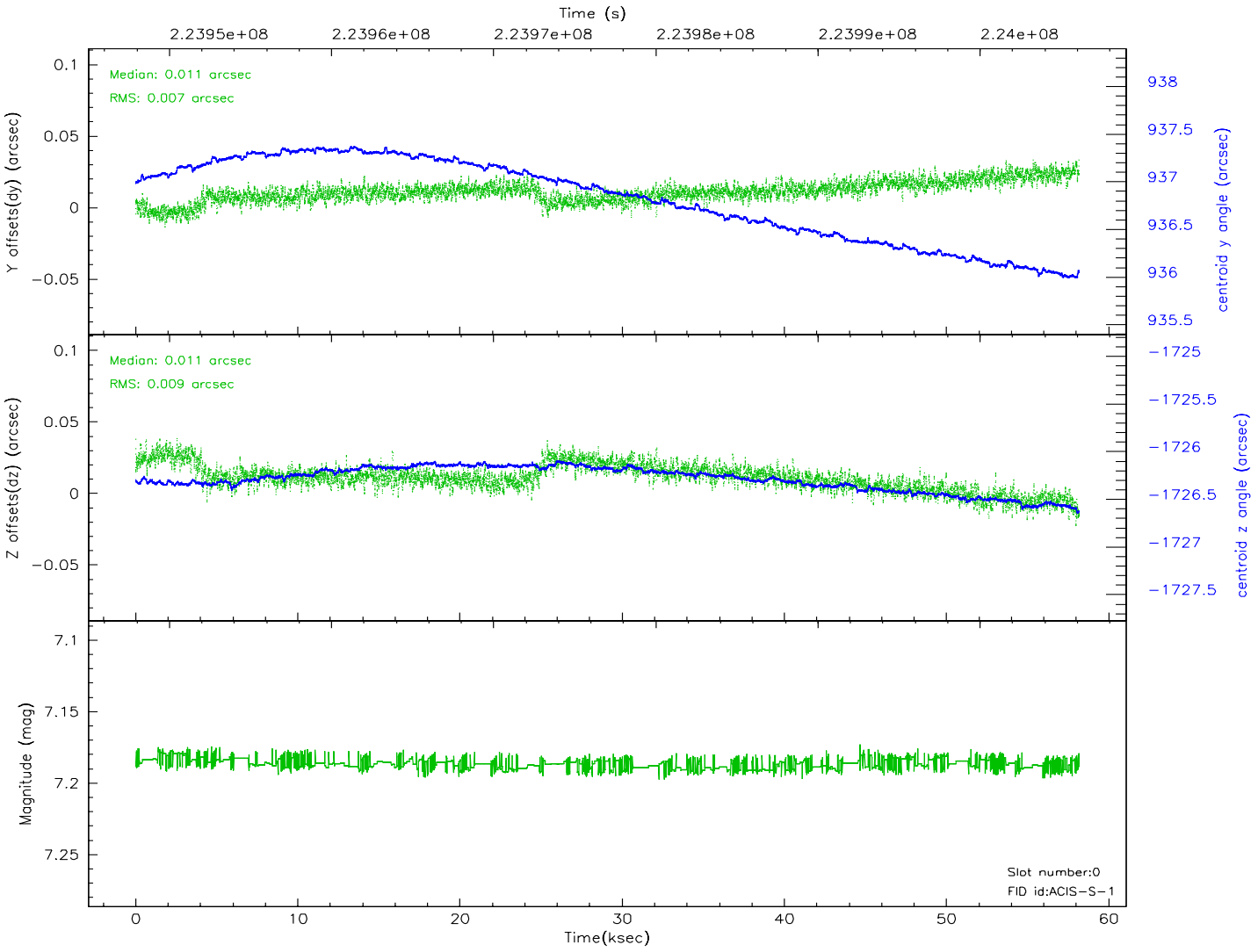

Time (s)
2.2395e+08
2.2396e+08
2.2397e+08
2.2398e+08
2.2399e+08
2.24e+08
Median: 0.028 arcsec
RMS: 0.040 arcsec
Y offsets(dy) (arcsec)
Median: −0.064 arcsec
RMS: 0.044 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:574886496
Time(ksec)

2.5 FID Slots

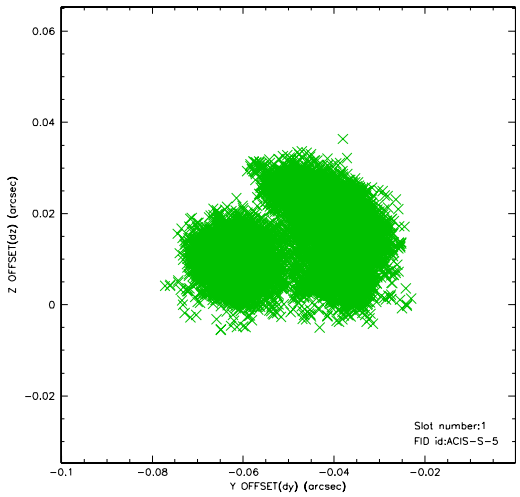
2.5.1 Slot 0

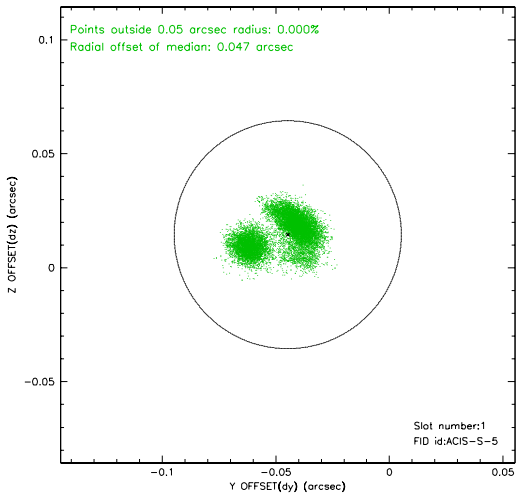


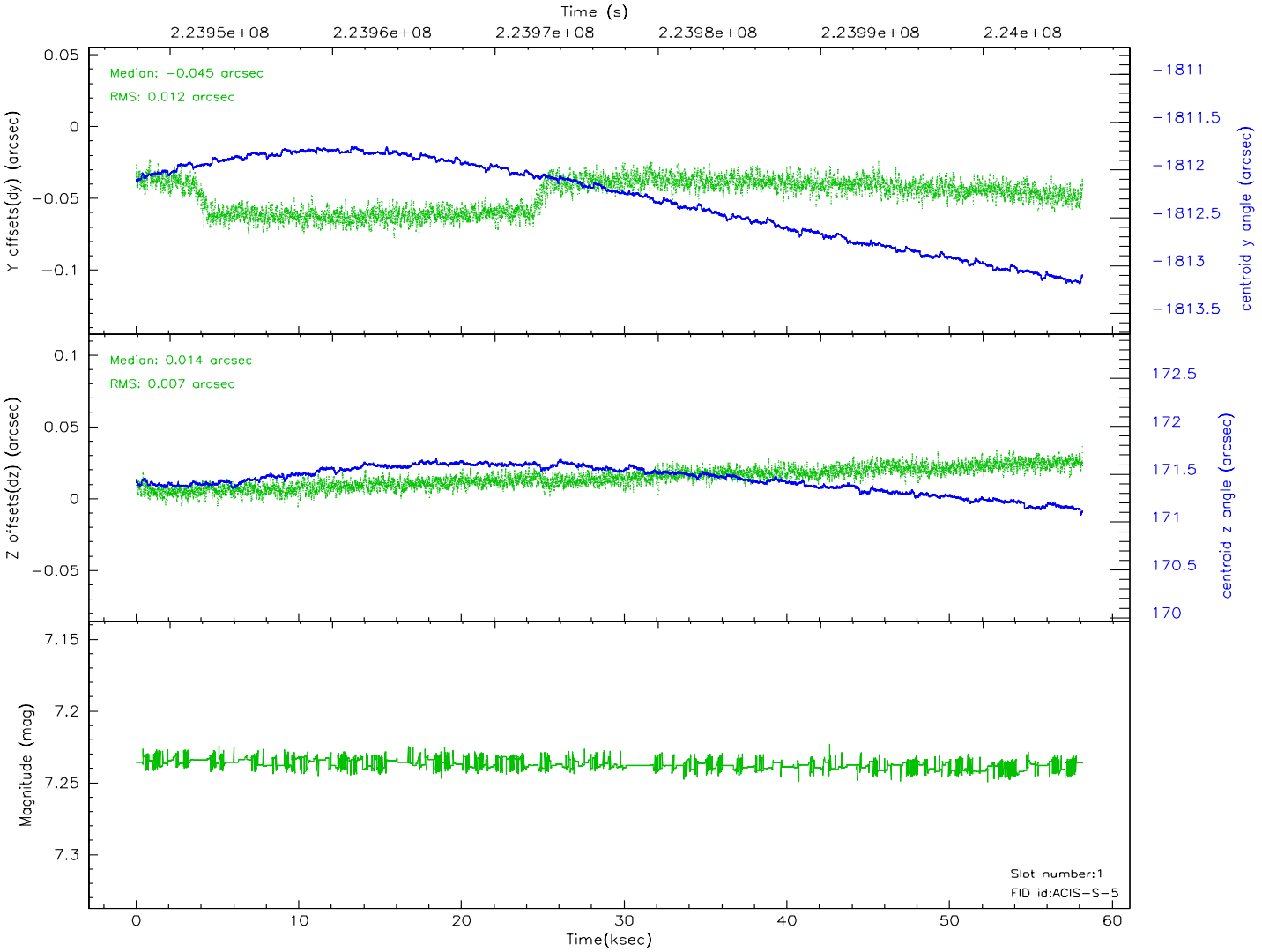




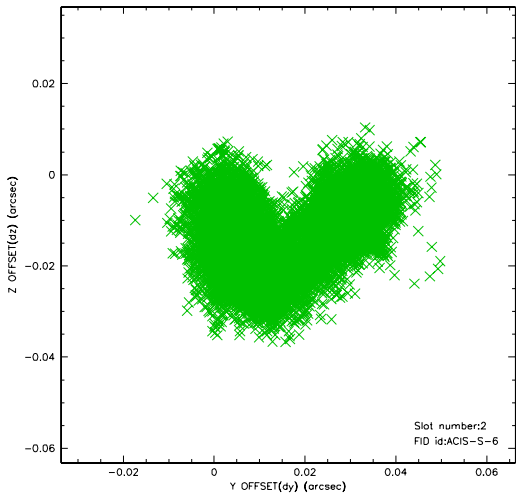
2.5.2 Slot 1

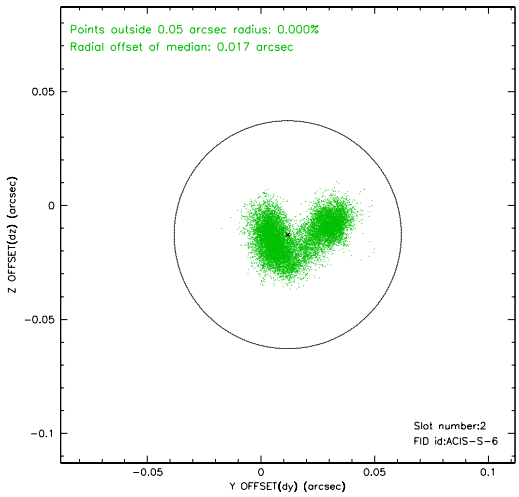

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-5

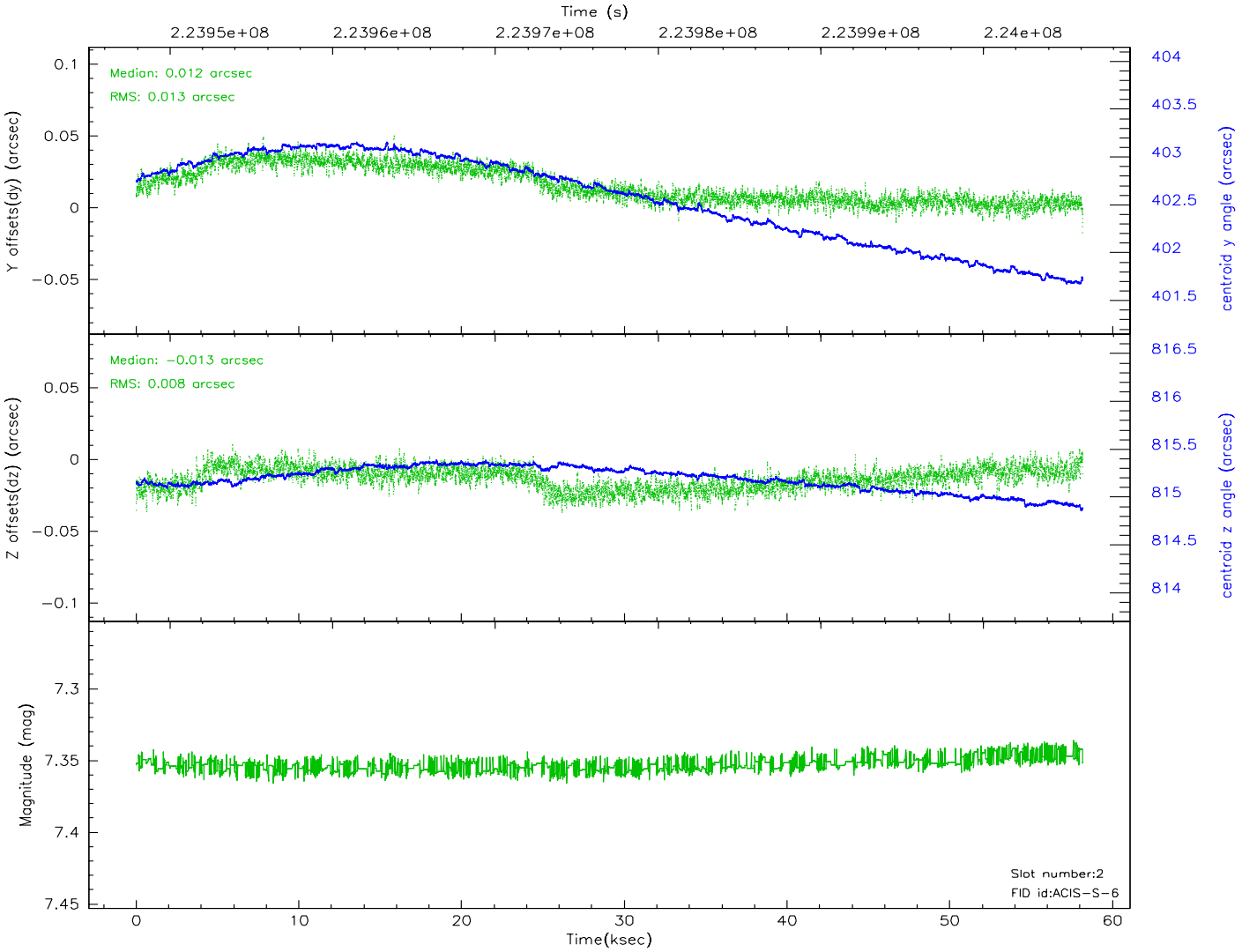

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.047 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-5


Time (s)
Median: −0.045 arcsec
RMS: 0.012 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.014 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:1
FID id:ACIS-S-5
Time(ksec)

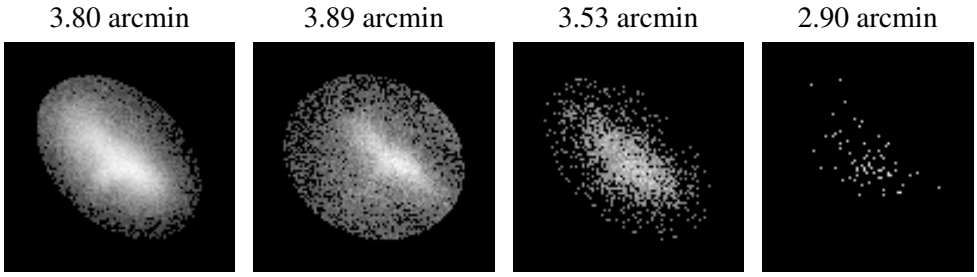
2.5.3 Slot 2


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


Time (s)
Median: 0.012 arcsec
RMS: 0.013 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.013 arcsec
RMS: 0.008 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-S-6
Time(ksec)

3 Point Sources



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2006.02.22
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	58.188

A.2 Comments

```
Requested target ra = 148.855 Nominal ra of observation is 148.78135
Observer requested ~4 arcmin offset from aim point in order to spread
out the PSF and reduce pileup of the sources. The sources are elliptical
in shape and were verified to be consistent with the off-axis PSF
expected in this case.
```