V&V Reference Report
L2 ASCDS Version : 7.6.8

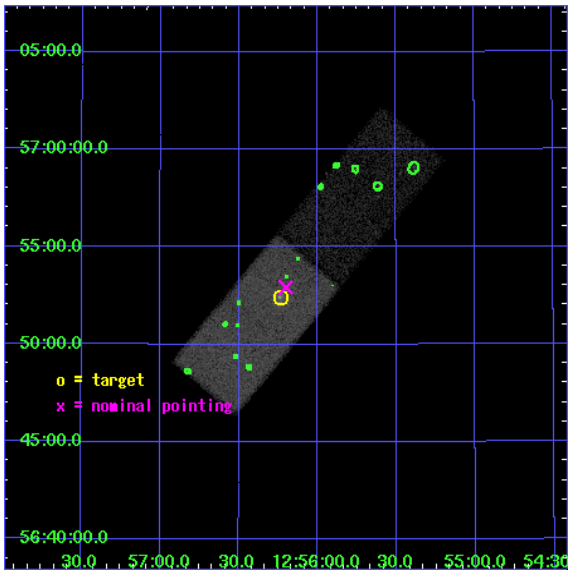
Observation 4030 - L2 Version 001
Chandra X-Ray Center

L2 Processing Date : Jul 27 2006

Contents

1 Front

seq_num	700709
obs_id	4030
title	PROBING THE NUCLEAR GEOMETRY OF THE MOST LUMINOUS GALAXY IN THE LOCAL UNIVERSE WITH CHANDRA
observer	Dr. Sarah Gallagher
object	MARKARIAN 231
dtycycle	0
cycle	P
ra_targ	194.059167
dec_targ	56.873667
ra_nom	194.05042390169
dec_nom	56.882047280299
roll_nom	129.72016192784
revision	2
ontime	36929.599862427
livetime	36006.044812974
ontime6	36927.958872288
ontime7	36929.599862427
l2events	77594

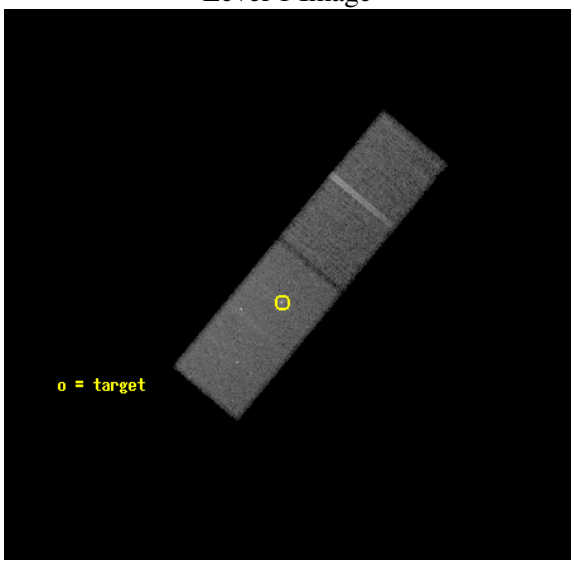


2 OBI

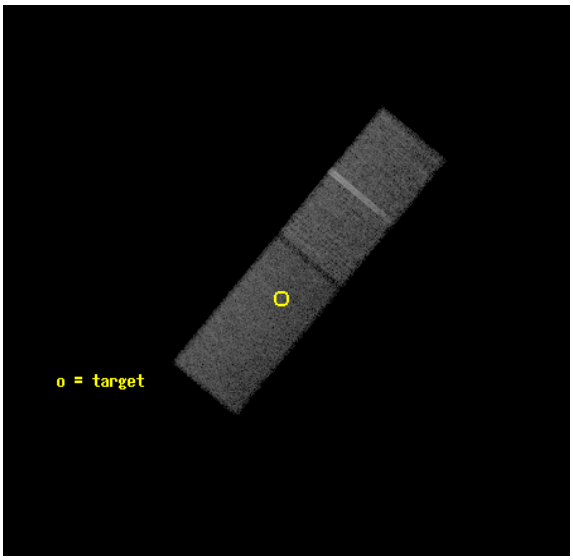
2.1 OBI

2.1.1 Images

Level 1 Image

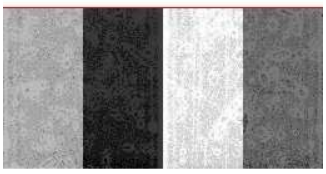


Level 1 Bad Events

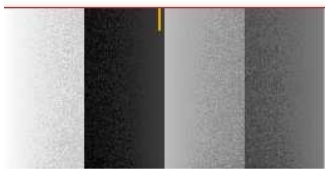


2.1.2 Bias

Chip 6



Chip 7



2.1.3 Parameters

obi_num	0
ascdsver	7.6.8
caldbver	3.2.2
date	2006-07-27T21:37:36
revision	2

sched_exp_time	36770.001000
ontime	37607.300931156
ontime6	37605.659941018
ontime7	37607.300931156
l1events	287233

2.1.4 Events

	ccd 6	ccd 7
level 1 events	126508	160725
rejected events	111759	93984
rejected %	88%	58%

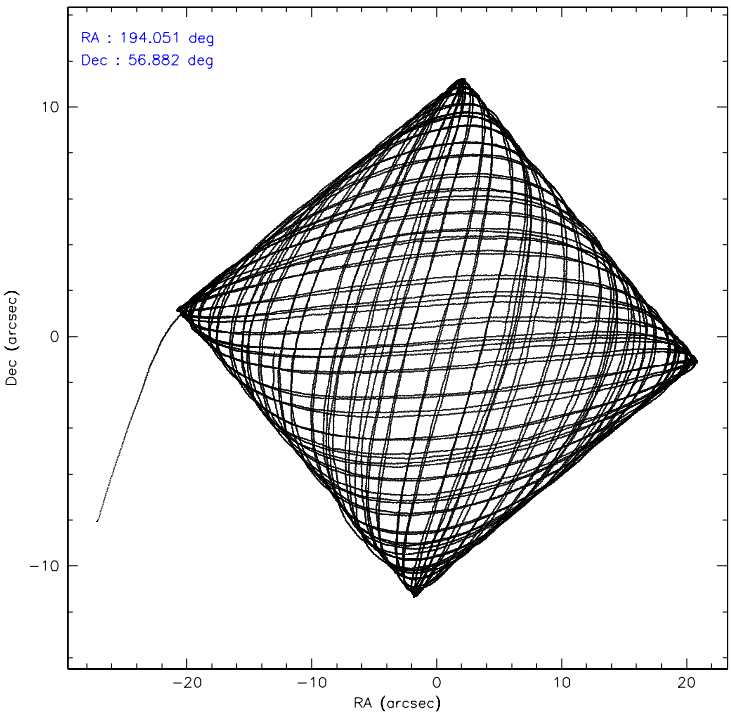
	ccd 6	ccd 7
grade 0 events	5974	5496
	4%	3%
grade 1 events	37	105
	0%	0%
grade 2 events	2678	16584
	2%	10%
grade 3 events	1754	4492
	1%	2%
grade 4 events	1780	4356
	1%	2%
grade 5 events	5355	10817
	4%	6%
grade 6 events	2834	37048
	2%	23%
grade 7 events	106096	81827
	83%	50%

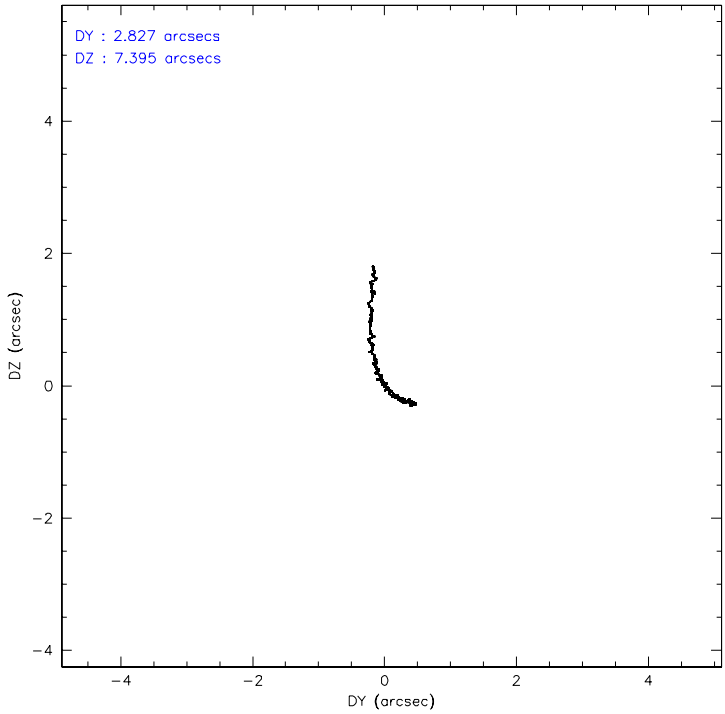
2.2 Compared Parameters

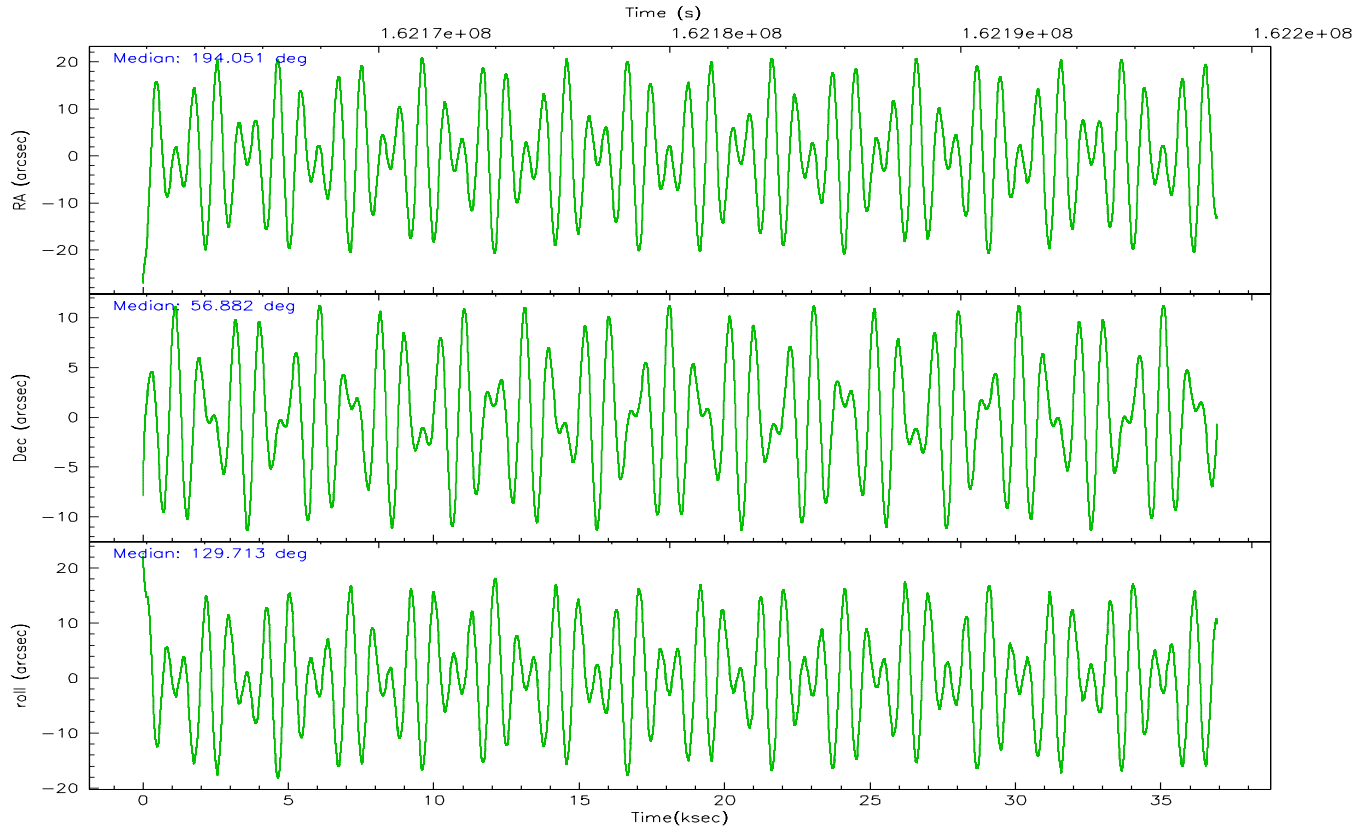
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-67	ACIS-67
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
Pointing RA	194.097391	194.0504239016901
Pointing Dec	56.872975	56.88204728029901
Pointing Roll	129.524205	129.720161927837
SIM focus pos (mm)	-0.684267	-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	162162053.184000	162161016.58898
Observation start date	2003-02-20T20:59:49	2003-02-20T20:43:36
Observation end time	162198823.184000	162199137.36558
Observation end date	2003-02-21T07:12:39	2003-02-21T07:18:57
Read mode	TIMED	TIMED

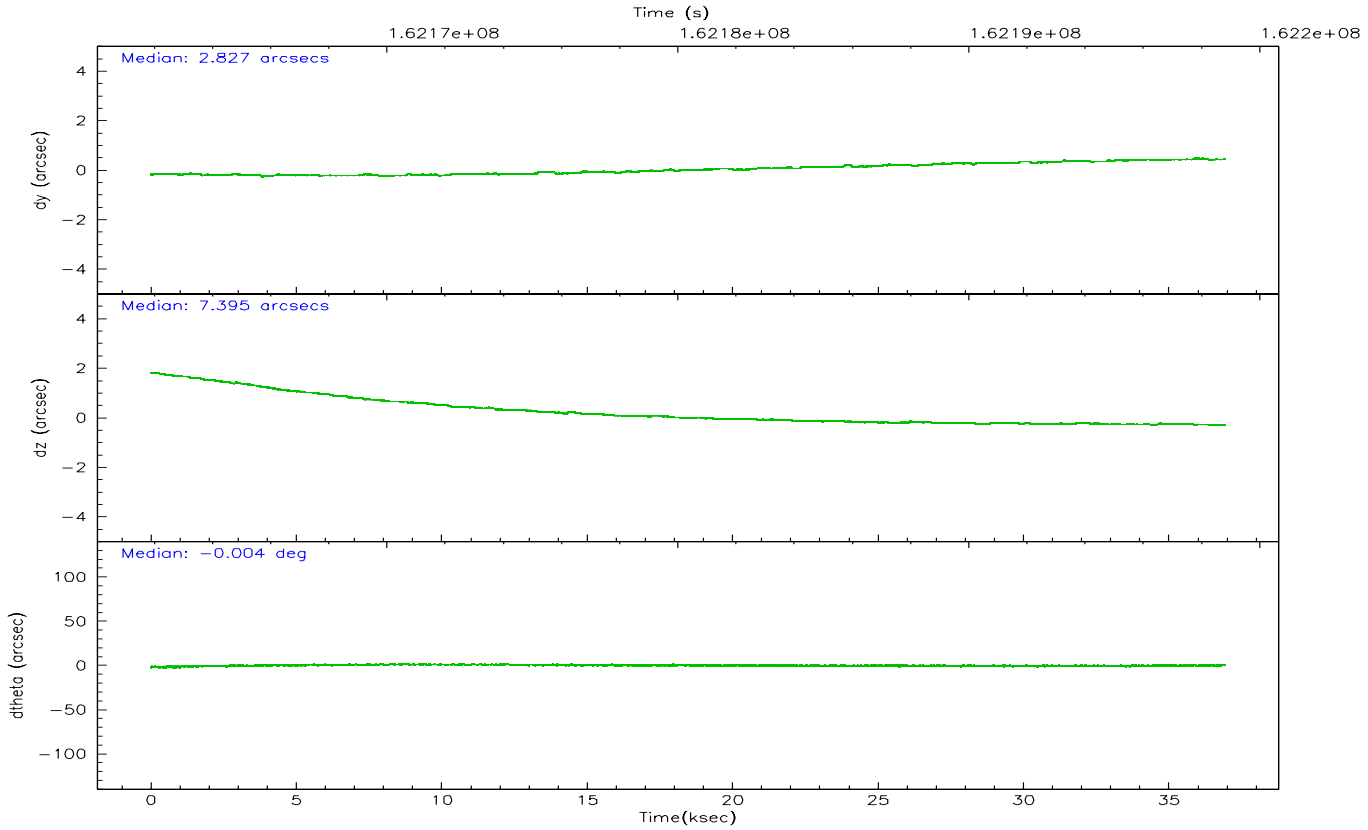
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
On-chip summing requested	N	N
Subarray requested	1/2	1/2
Subarray start row	0	257
Subarray row count	1024	512
Alternating exposures requested	N	N
Primary exposure time	0.000000	1.6

2.3 Aspect


RA : 194.051 deg
Dec : 56.882 deg
10
0
−10
Dec (arcsec)
−20
−10
0
10
20
RA (arcsec)


DY : 2.827 arcsecs
DZ : 7.395 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: 194.051 deg
RA (arcsec)
Median: 56.882 deg
Dec (arcsec)
Median: 129.713 deg
roll (arcsec)
Time(ksec)

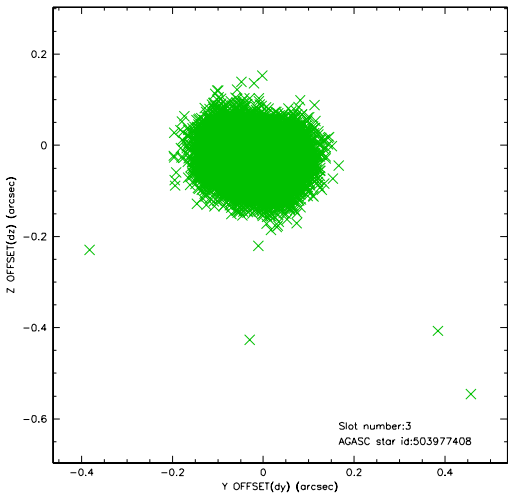

Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: 2.827 arcsecs
dy (arcsec)
Median: 7.395 arcsecs
dz (arcsec)
Median: −0.004 deg
dtheta (arcsec)
Time(ksec)

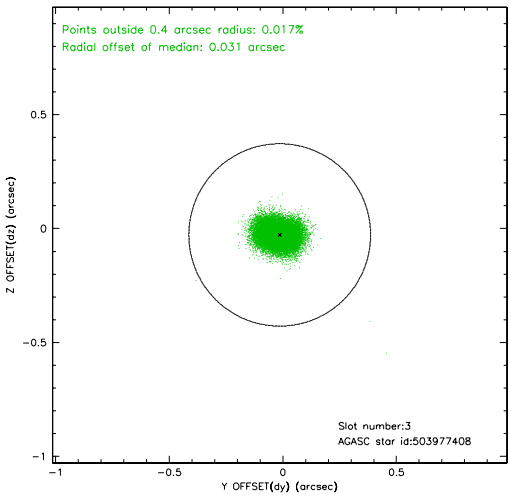
Slot Statistics

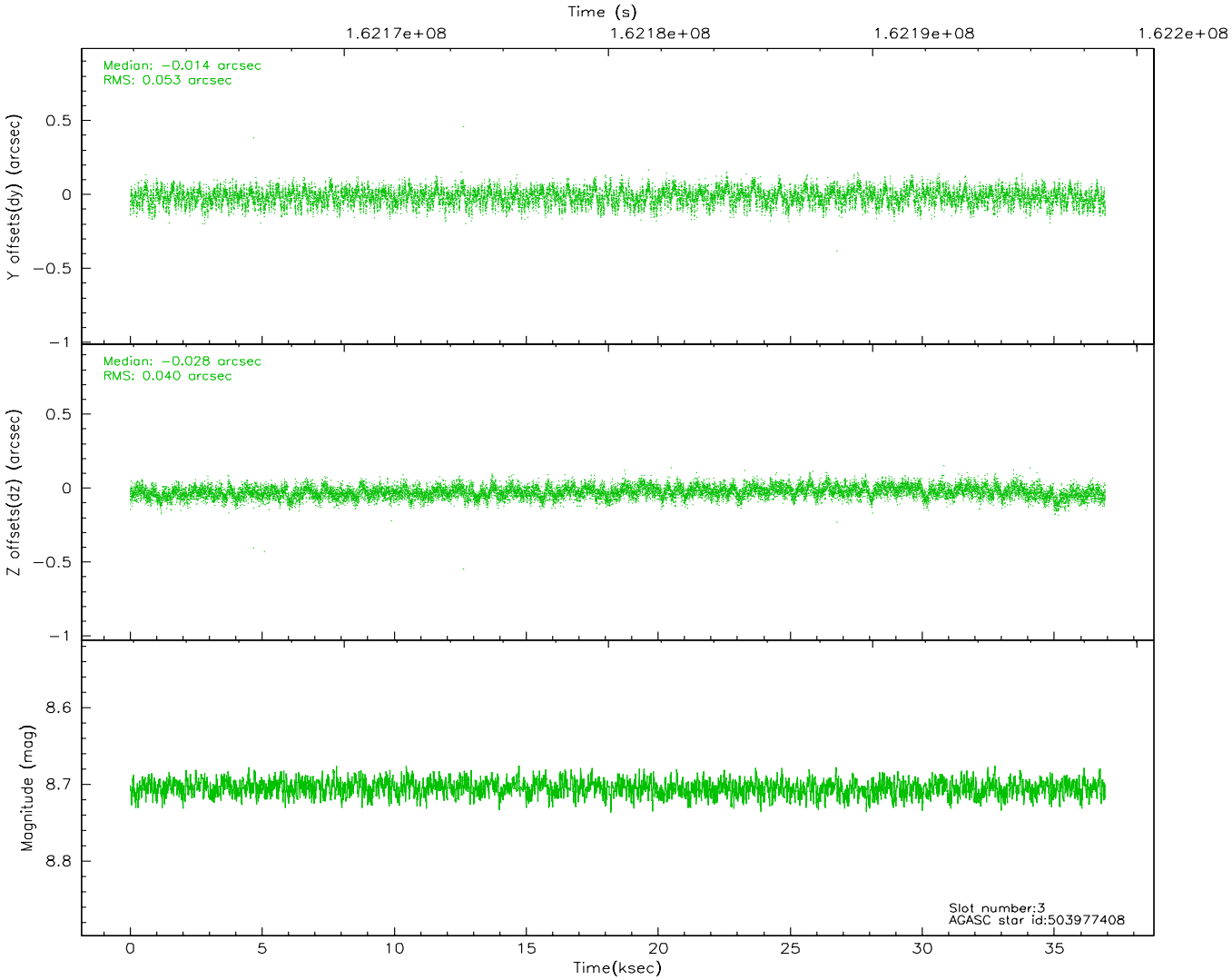
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	9007	-0.009	0.015	0.010	0.017	0.000000	0.000000	-755.52	-1728.83
1	FID	ACIS-S-4	7.21	9007	-0.048	0.001	0.014	0.026	0.000000	0.000000	2157.70	179.62
2	FID	ACIS-S-5	7.24	9008	0.024	-0.007	0.014	0.021	0.000000	0.000000	-1808.29	173.31
3	GUIDE	503977408	8.70	18011	-0.014	-0.028	0.071	0.113	192.662536	56.861423	1787.74	2186.01
4	GUIDE	503977472	8.71	18010	-0.063	-0.115	0.094	0.142	193.107383	56.634174	595.21	2050.26
5	GUIDE	503980544	9.39	18001	-0.080	0.150	0.105	0.170	195.335648	57.048690	-1037.87	-2286.48
6	GUIDE	503980752	9.56	18014	0.073	0.018	0.118	0.196	195.429177	56.932049	-1480.66	-2169.45
7	GUIDE	504368776	7.97	18015	0.080	-0.017	0.091	0.151	194.317087	57.691724	2005.57	-2202.13

2.4 Star Slots

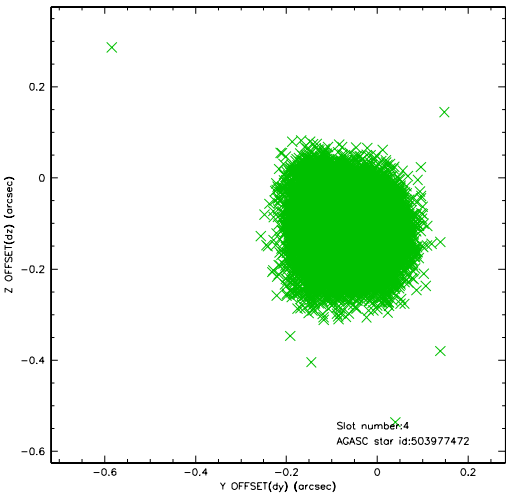
2.4.1 Slot 3

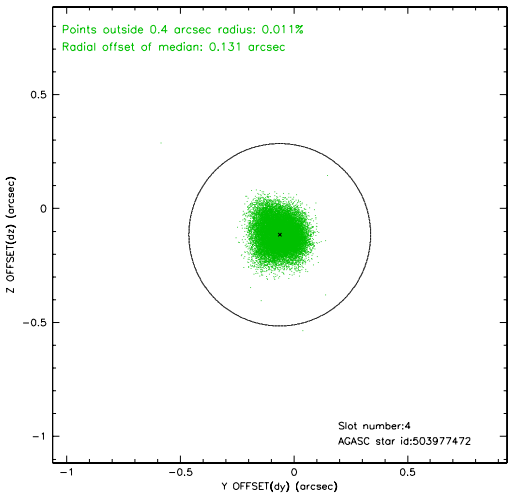


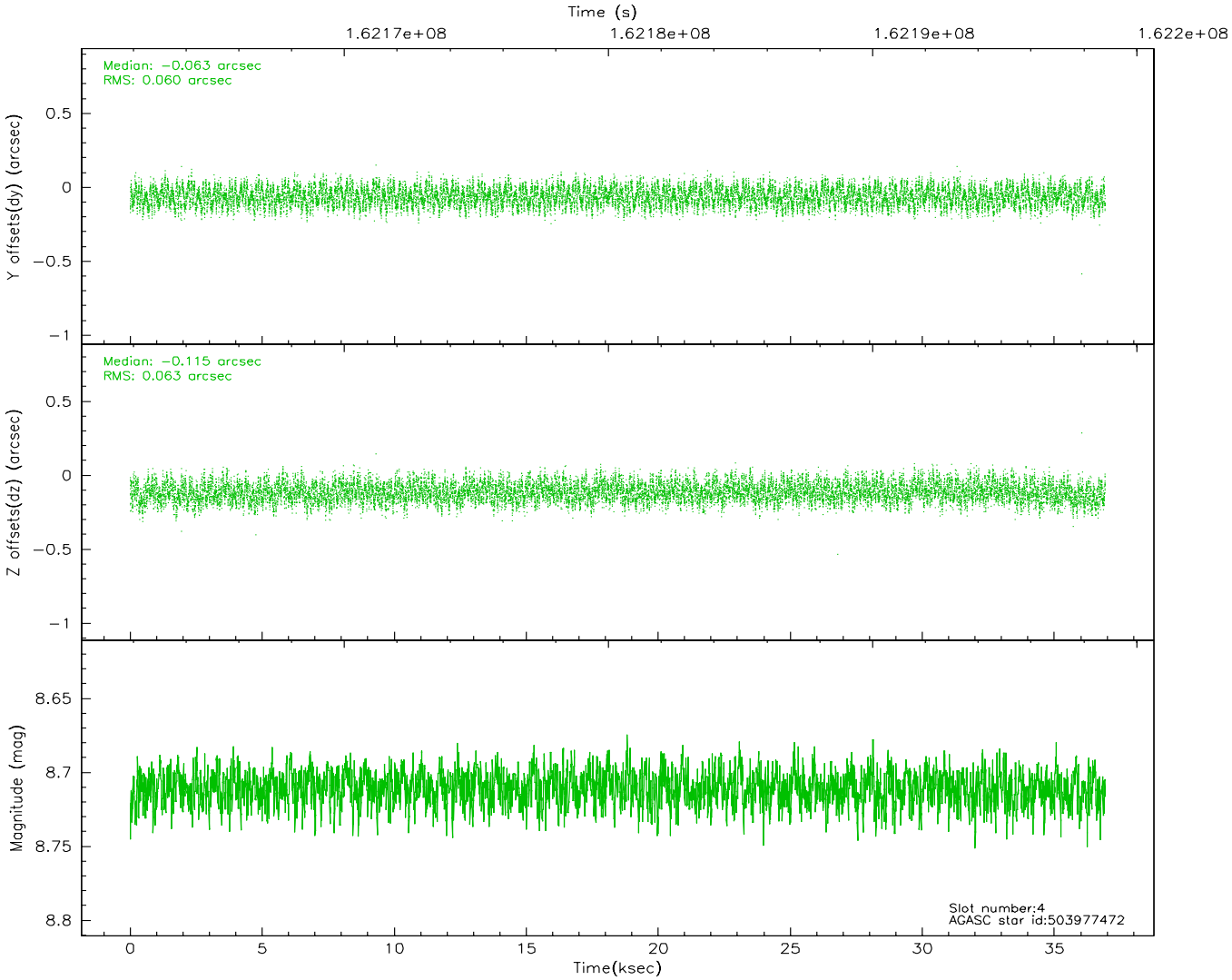




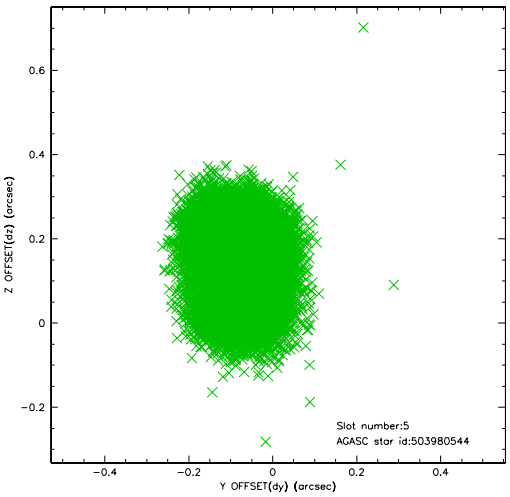
2.4.2 Slot 4

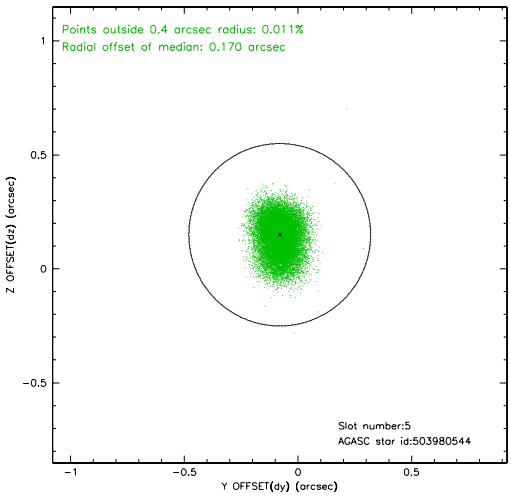

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:503977472

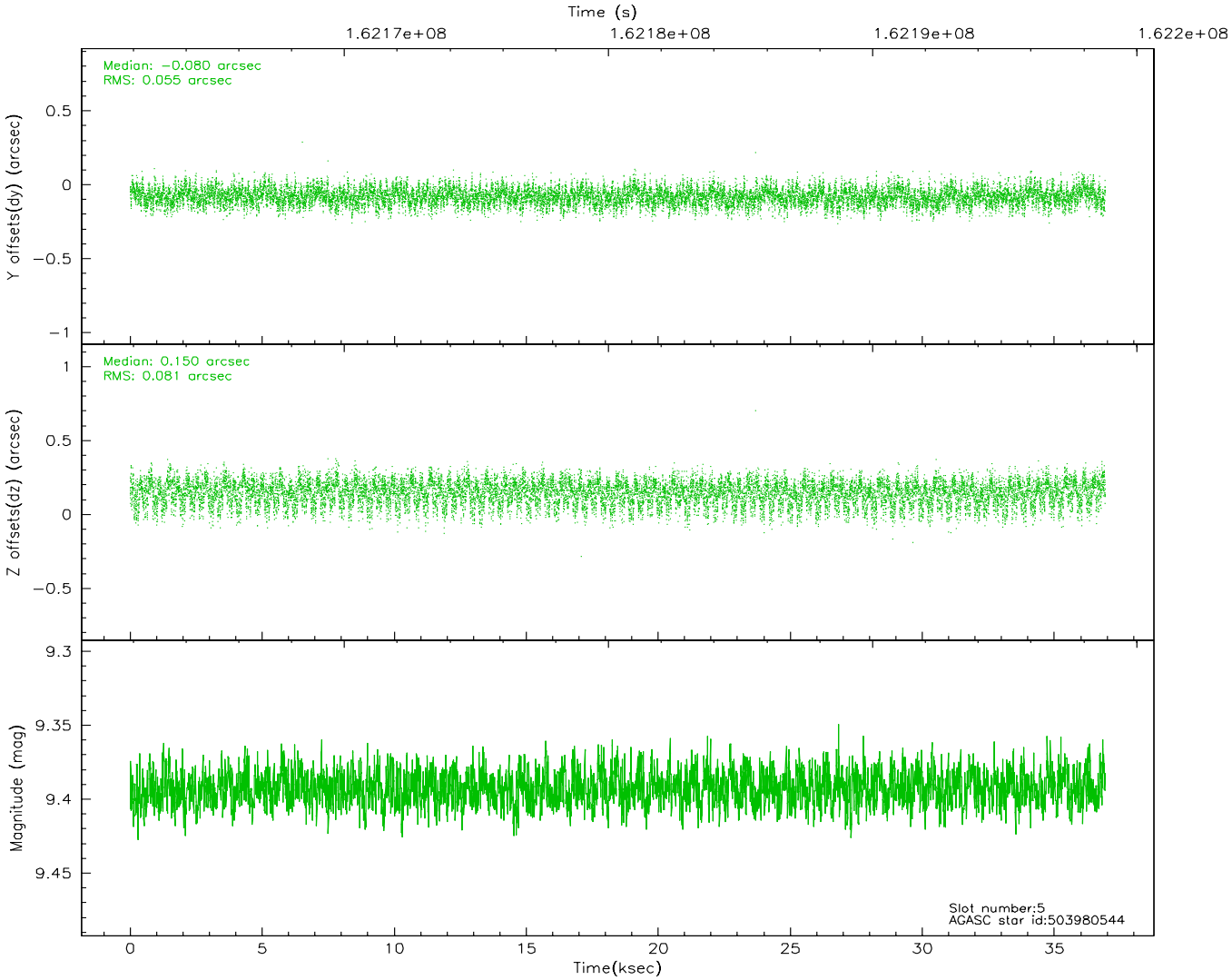

Points outside 0.4 arcsec radius: 0.011%
Radial offset of median: 0.131 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:503977472


Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: −0.063 arcsec
RMS: 0.060 arcsec
Y offsets(dy) (arcsec)
Median: −0.115 arcsec
RMS: 0.063 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:503977472
Time(ksec)

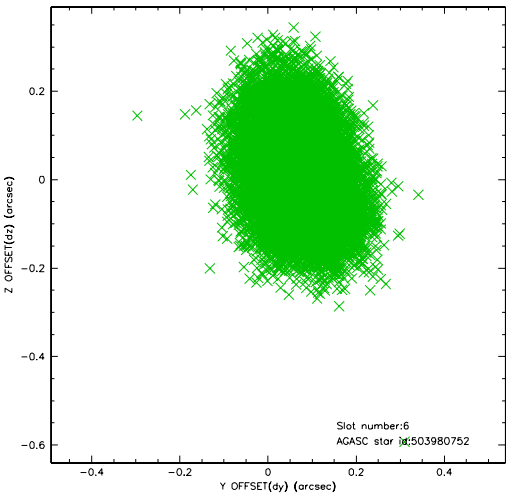
2.4.3 Slot 5

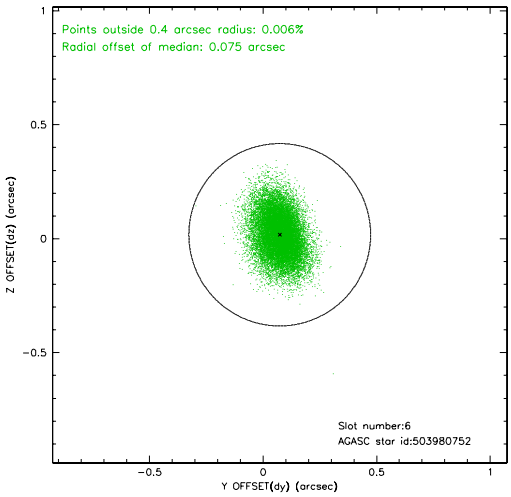

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:503980544

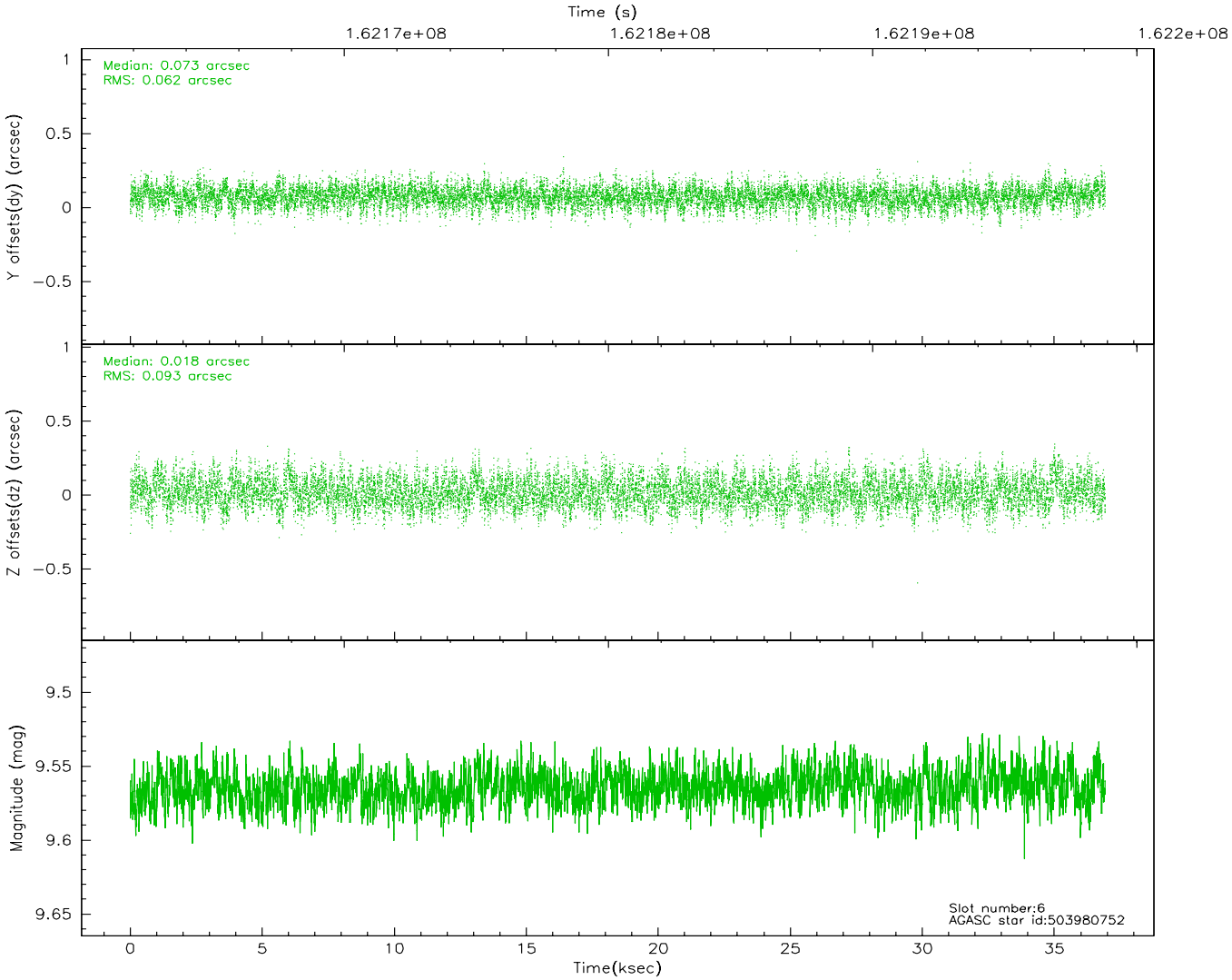

Points outside 0.4 arcsec radius: 0.011%
Radial offset of median: 0.170 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:503980544


Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: −0.080 arcsec
RMS: 0.055 arcsec
Y offsets(dy) (arcsec)
Median: 0.150 arcsec
RMS: 0.081 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:503980544
Time(ksec)

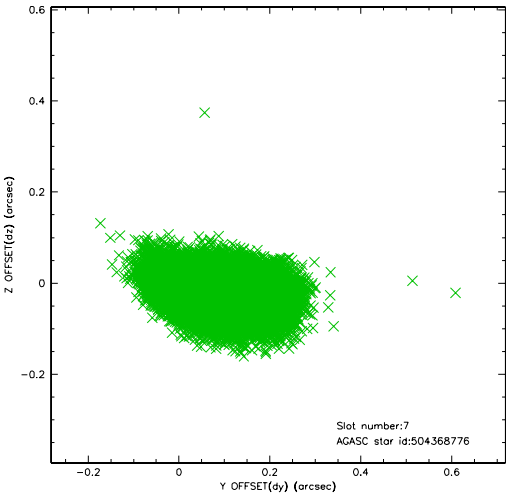
2.4.4 Slot 6

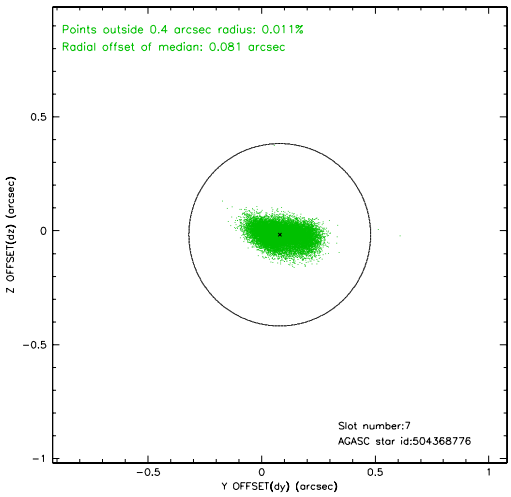

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:503980752

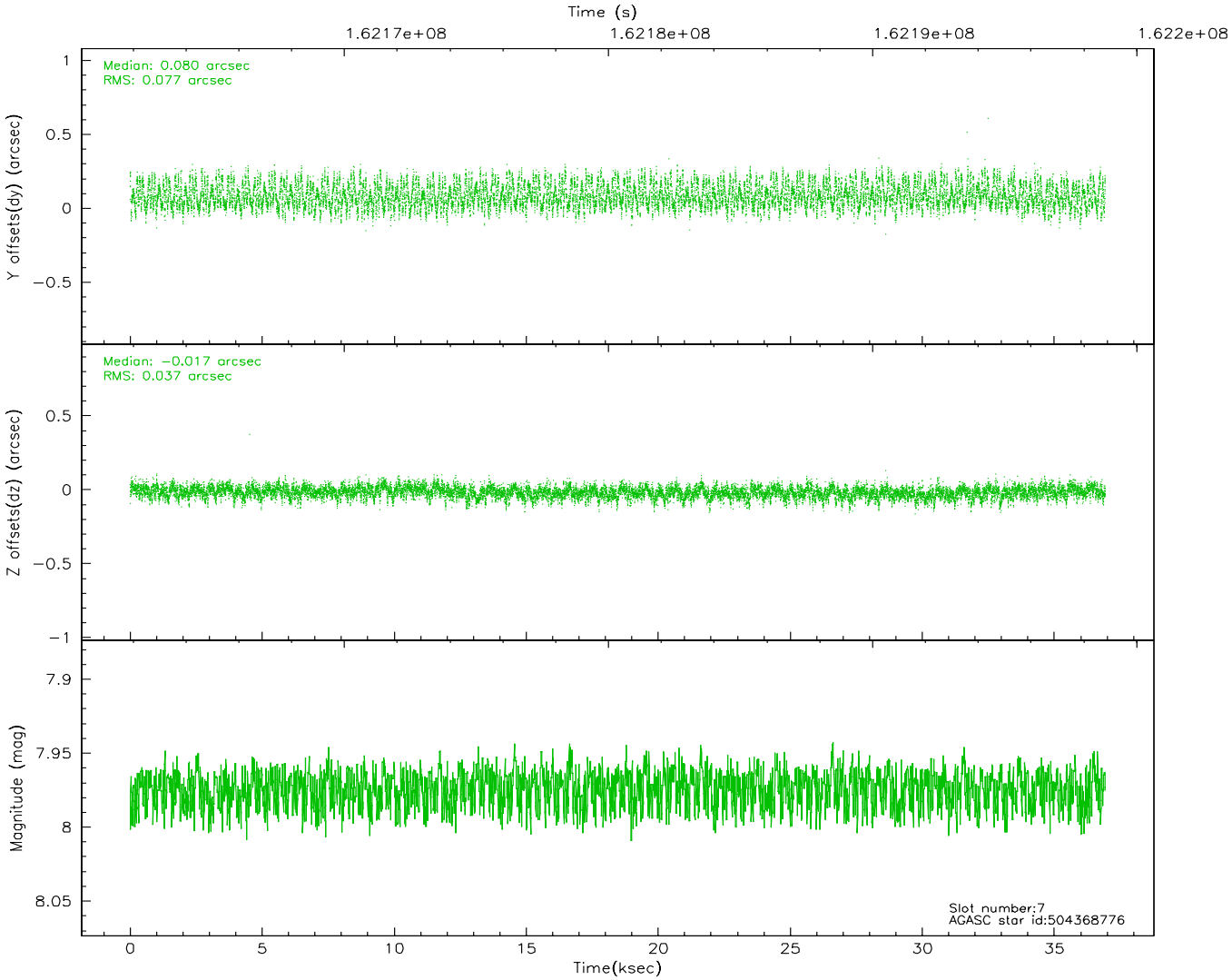

Points outside 0.4 arcsec radius: 0.006%
Radial offset of median: 0.075 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:503980752


Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: 0.073 arcsec
RMS: 0.062 arcsec
Y offsets(dy) (arcsec)
Median: 0.018 arcsec
RMS: 0.093 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:503980752
Time(ksec)

2.4.5 Slot 7

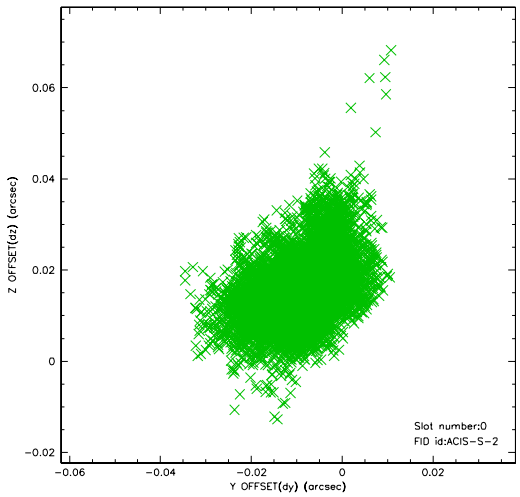

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:504368776

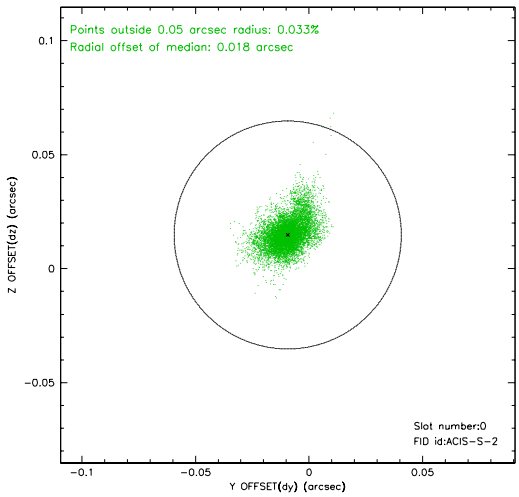

Points outside 0.4 arcsec radius: 0.011%
Radial offset of median: 0.081 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:504368776

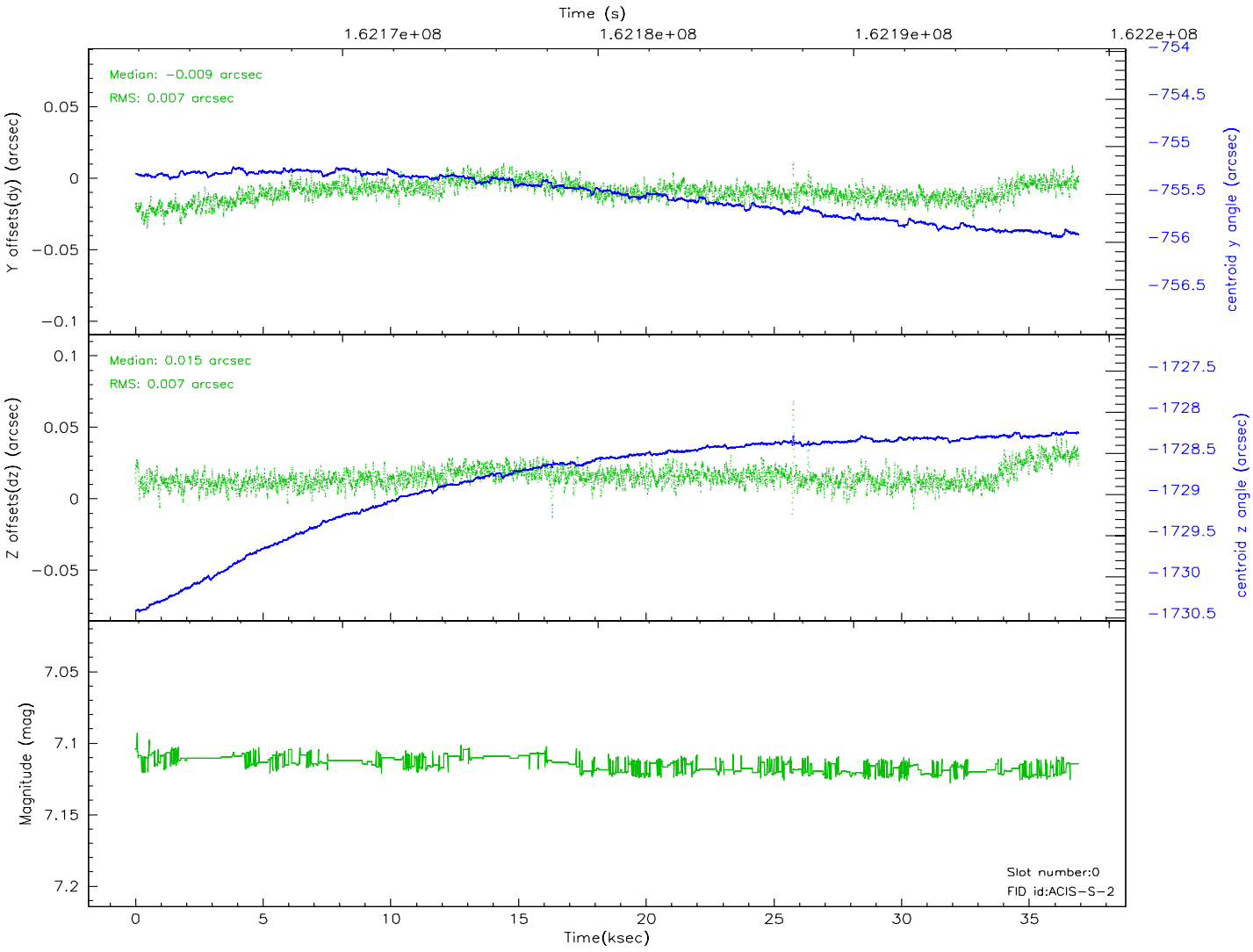

Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: 0.080 arcsec
RMS: 0.077 arcsec
Y offsets(dy) (arcsec)
Median: −0.017 arcsec
RMS: 0.037 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:504368776
Time(ksec)

2.5 FID Slots

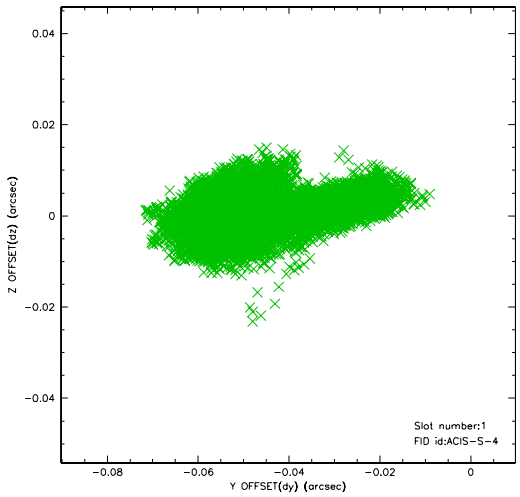
2.5.1 Slot 0

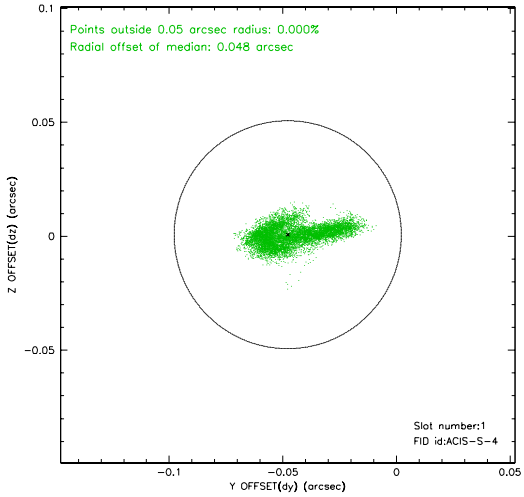


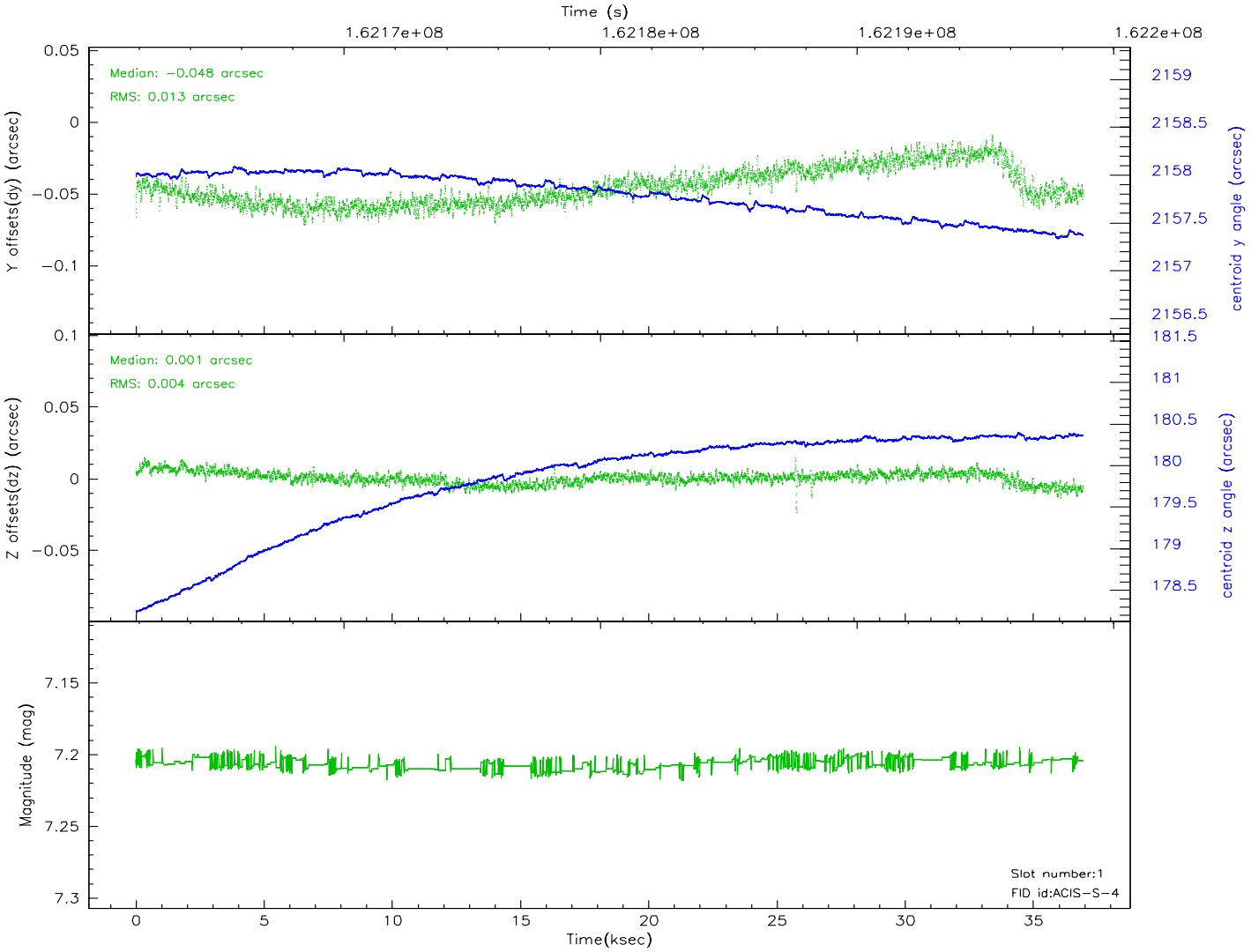




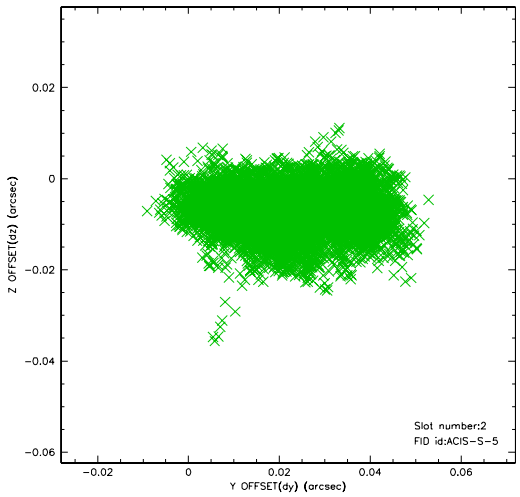
2.5.2 Slot 1

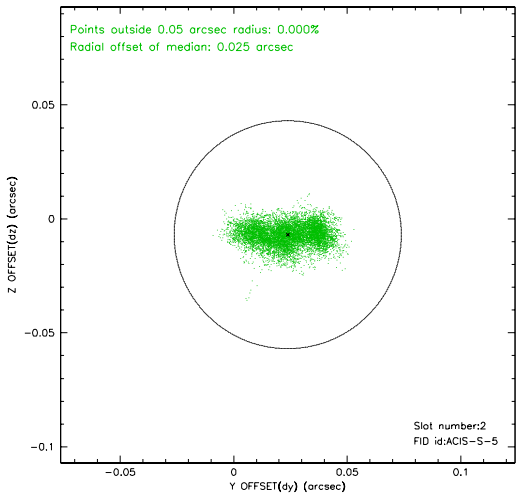

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4

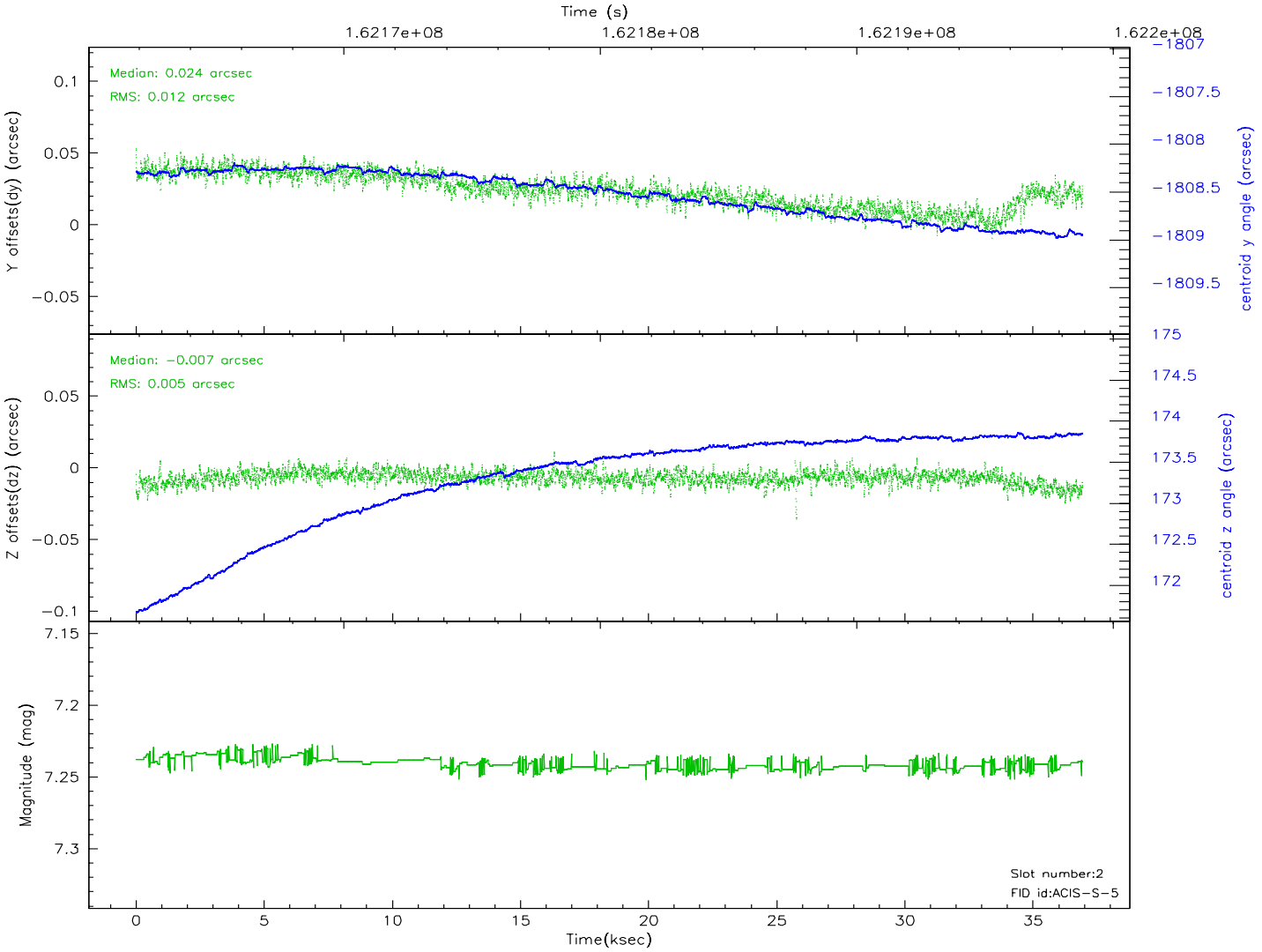

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.048 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4


Time (s)
1.6217e+08
1.6218e+08
1.6219e+08
1.622e+08
Median: −0.048 arcsec
RMS: 0.013 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.001 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:1
FID id:ACIS-S-4
Time(ksec)

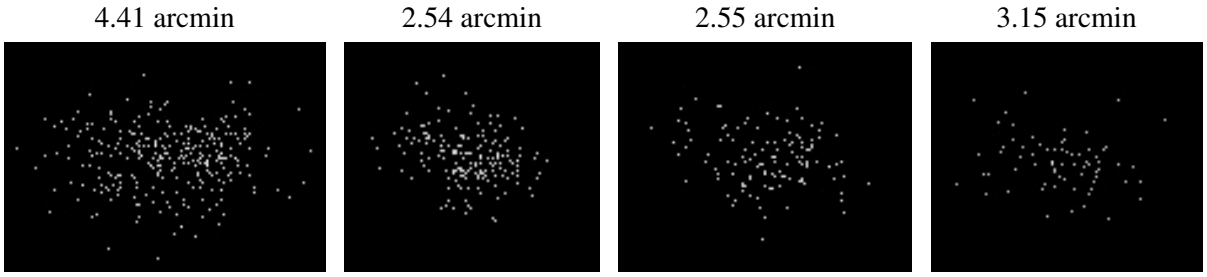
2.5.3 Slot 2


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: 0.025 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-5


Time (s)
Median: 0.024 arcsec
RMS: 0.012 arcsec
Y offsets(dy) (arcsec)
Median: −0.007 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid y angle (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-S-5
Time(ksec)

3 Point Sources



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2006.07.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	36.929

A.2 Comments

```
Monitor constraint met.
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