V&V Reference Report
L2 ASCDS Version : 8.1.1

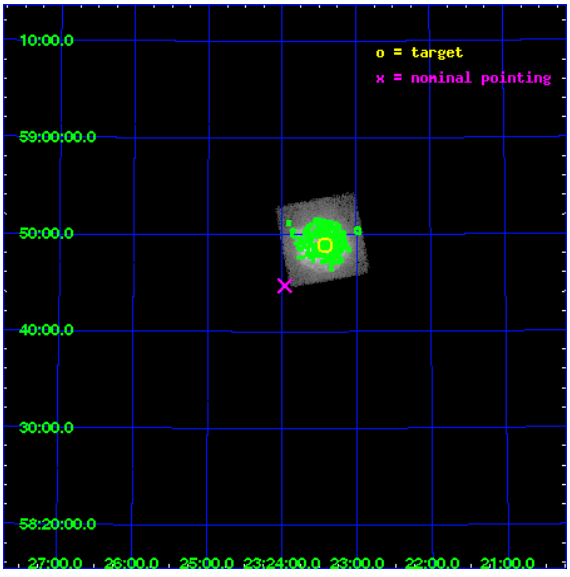
Observation 1445 - L2 Version 4
Chandra X-Ray Center

L2 Processing Date : Nov 24 2009

Contents

1 Front

seq_num	580395	Sequence number
obs_id	1445	Observation id
title	ACIS CHIP RESPONSE TO CAS A, JAN. 99	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	CAS A [Chip I1, T=110, Offsets=-3,-5,0]	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	350.8575	Observer's specified target RA
dec_targ	58.814833	Observer's specified target Dec
ra_nom	350.99117116941	Nominal RA
dec_nom	58.745404291796	Nominal Dec
roll_nom	259.26812365592	Nominal Roll
revision	4	Processing version of data
ontime	1893.9337899908	Sum of GTIs [s]
livetime	1869.951659952	Livetime [s]
ontime0	2350.949841179	Sum of GTIs [s]
ontime1	1893.9337899908	Sum of GTIs [s]
ontime2	2350.8677611798	Sum of GTIs [s]
ontime3	2350.826721184	Sum of GTIs [s]
ontime6	2350.7856811807	Sum of GTIs [s]
ontime7	2350.9908811823	Sum of GTIs [s]
l2events	406003	Number of level 2 events



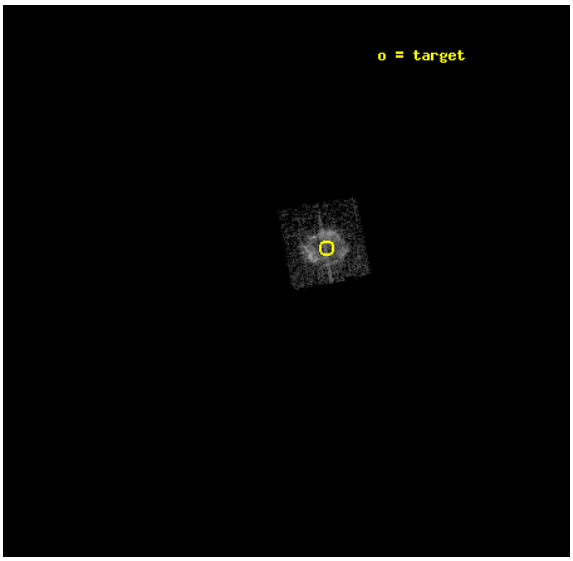
2 OBI

2.1 OBI

2.1.1 Images

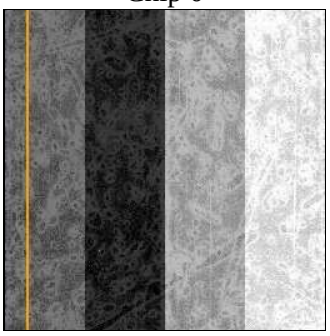
Level 1 Image

Level 1 Bad Events

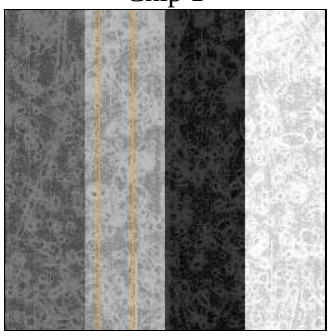


2.1.2 Bias

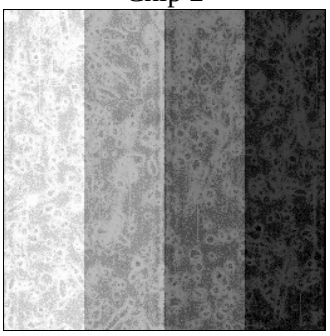
Chip 0



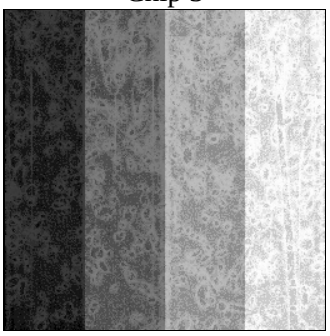
Chip 1



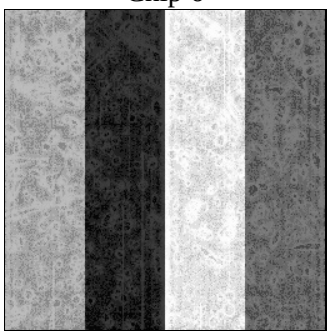
Chip 2



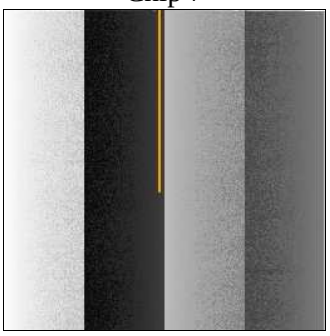
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.1.1	ASCDS version number
caldbver	4.1.4	
date	2009-11-24T13:01:27	Date and time of file creation
revision	3	Processing version of data

sched_exp_time	2000.000000	Scheduled observation exposure time
ontime	1893.9337899908	Sum of GTIs [s]
ontime0	2350.949841179	Sum of GTIs [s]
ontime1	1893.9337899908	Sum of GTIs [s]
ontime2	2350.8677611798	Sum of GTIs [s]
ontime3	2350.826721184	Sum of GTIs [s]
ontime6	2350.7856811807	Sum of GTIs [s]
ontime7	2350.9908811823	Sum of GTIs [s]
l1events	443010	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	0	443010	0	0	0	0
rejected events	0	29415	0	0	0	0
rejected %	0%	6%	0%	0%	0%	0%

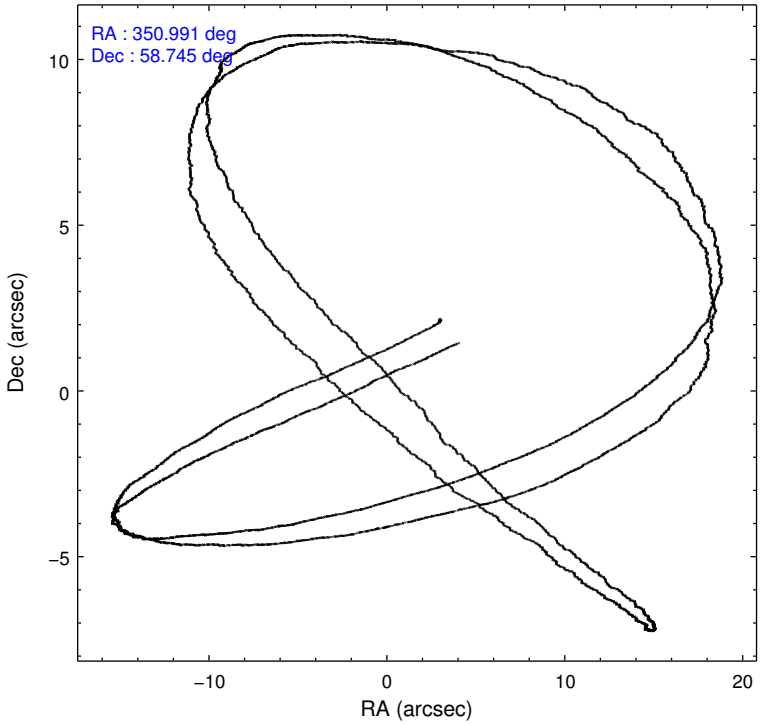
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	0	288863	0	0	0	0
	0%	65%	0%	0%	0%	0%
grade 1 events	0	3989	0	0	0	0
	0%	0%	0%	0%	0%	0%
grade 2 events	0	90955	0	0	0	0
	0%	20%	0%	0%	0%	0%
grade 3 events	0	11453	0	0	0	0
	0%	2%	0%	0%	0%	0%
grade 4 events	0	11310	0	0	0	0
	0%	2%	0%	0%	0%	0%
grade 5 events	0	3624	0	0	0	0
	0%	0%	0%	0%	0%	0%
grade 6 events	0	12491	0	0	0	0
	0%	2%	0%	0%	0%	0%
grade 7 events	0	20325	0	0	0	0
	0%	4%	0%	0%	0%	0%

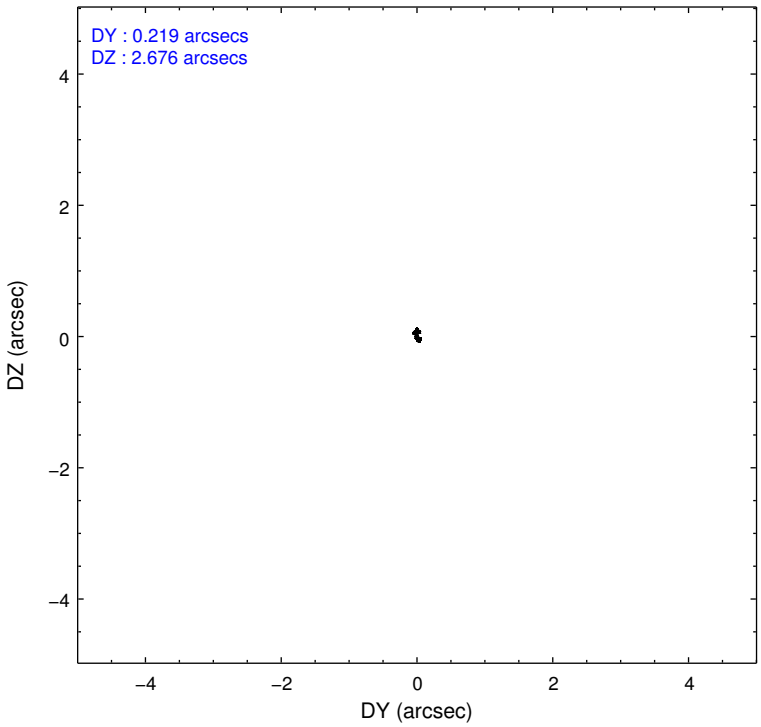
2.2 Compared Parameters

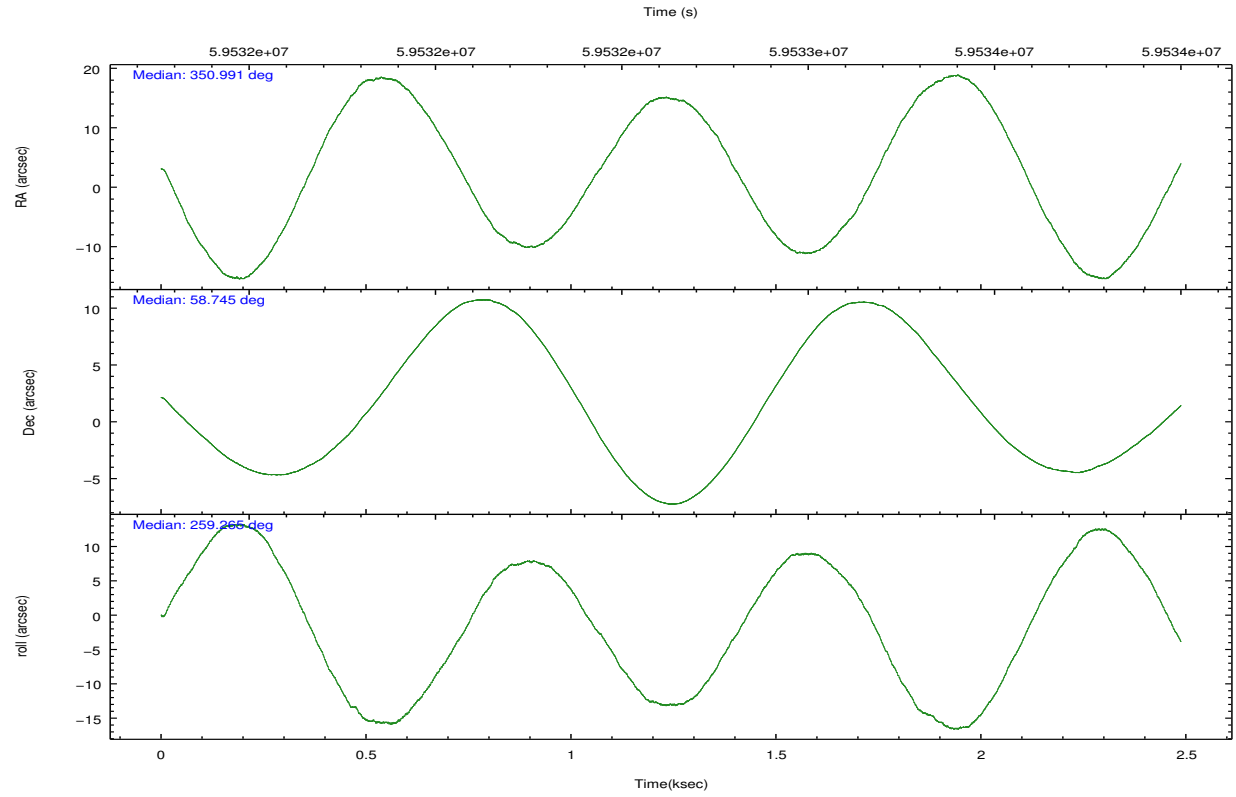
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	350.974585	350.9911711694069
Pointing Dec	58.771946	58.74540429179554
Pointing Roll	259.073612	259.2681236559209
SIM focus pos (mm)	-0.782348	-0.7809083437167272
SIM defocus (mm)	0	0.001439871863259334
SIM translation stage pos (mm)	-233.592463	-233.5874344608287
SIM translation stage offset (mm)	0	-0.005018542100998502
Observation start time	59531877.184000	59531211.644742
Observation start date	1999-11-21T00:36:53	1999-11-21T00:26:51
Observation end time	59533877.184000	59534011.432343
Observation end date	1999-11-21T01:10:13	1999-11-21T01:13:31
Read mode	TIMED	TIMED

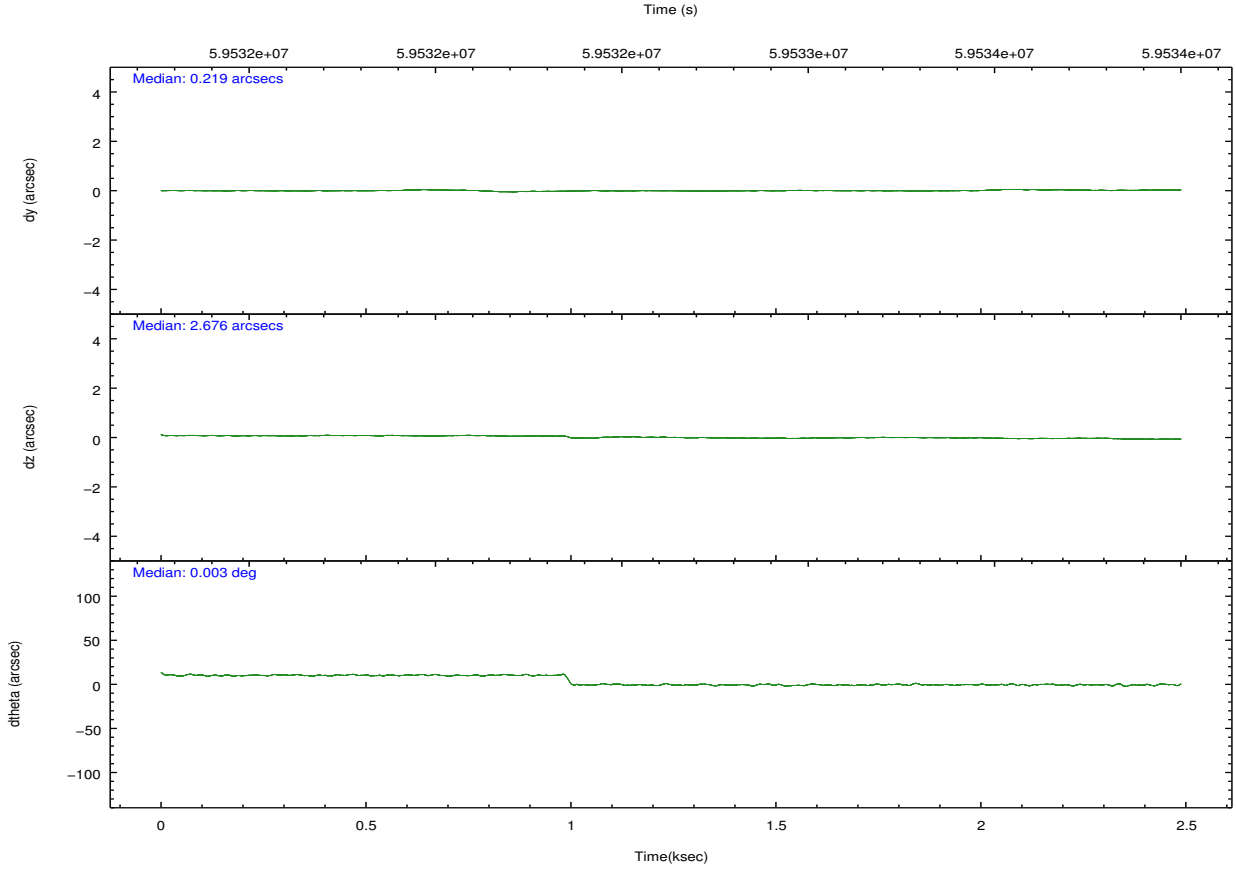
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 350.991 deg
Dec : 58.745 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
0
10
20


DY : 0.219 arcsecs
DZ : 2.676 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.9532e+07
5.9532e+07
5.9532e+07
5.9533e+07
5.9534e+07
5.9534e+07
Median: 350.991 deg
RA (arcsec)
Median: 58.745 deg
Dec (arcsec)
Median: 259.265 deg
roll (arcsec)
Time(ksec)

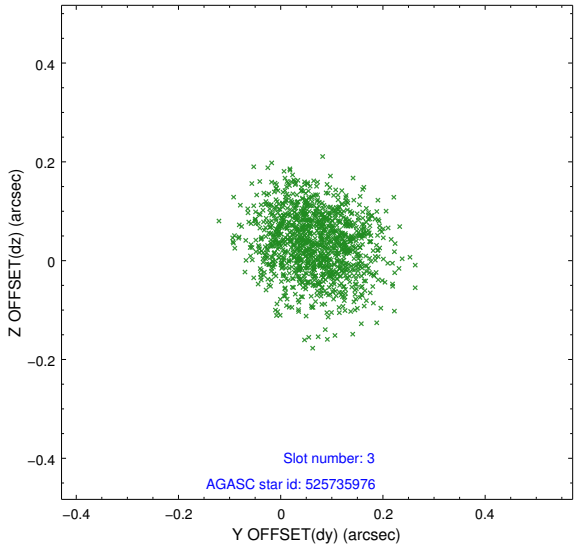

Time (s)
5.9532e+07
5.9532e+07
5.9532e+07
5.9533e+07
5.9534e+07
5.9534e+07
Median: 0.219 arcsecs
dy (arcsec)
Median: 2.676 arcsecs
dz (arcsec)
Median: 0.003 deg
dtheta (arcsec)
Time(ksec)

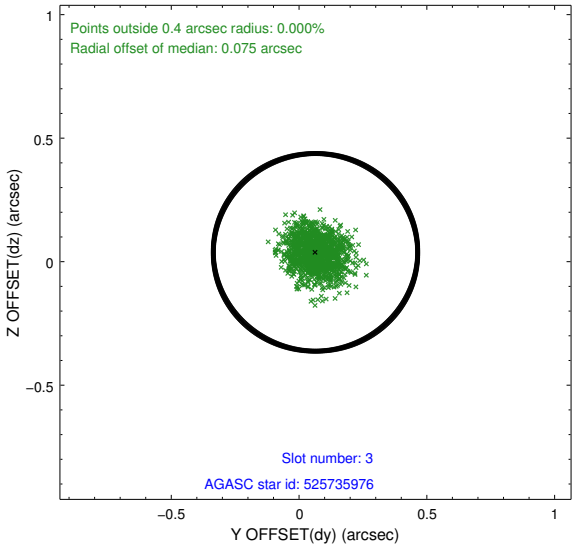
Slot Statistics

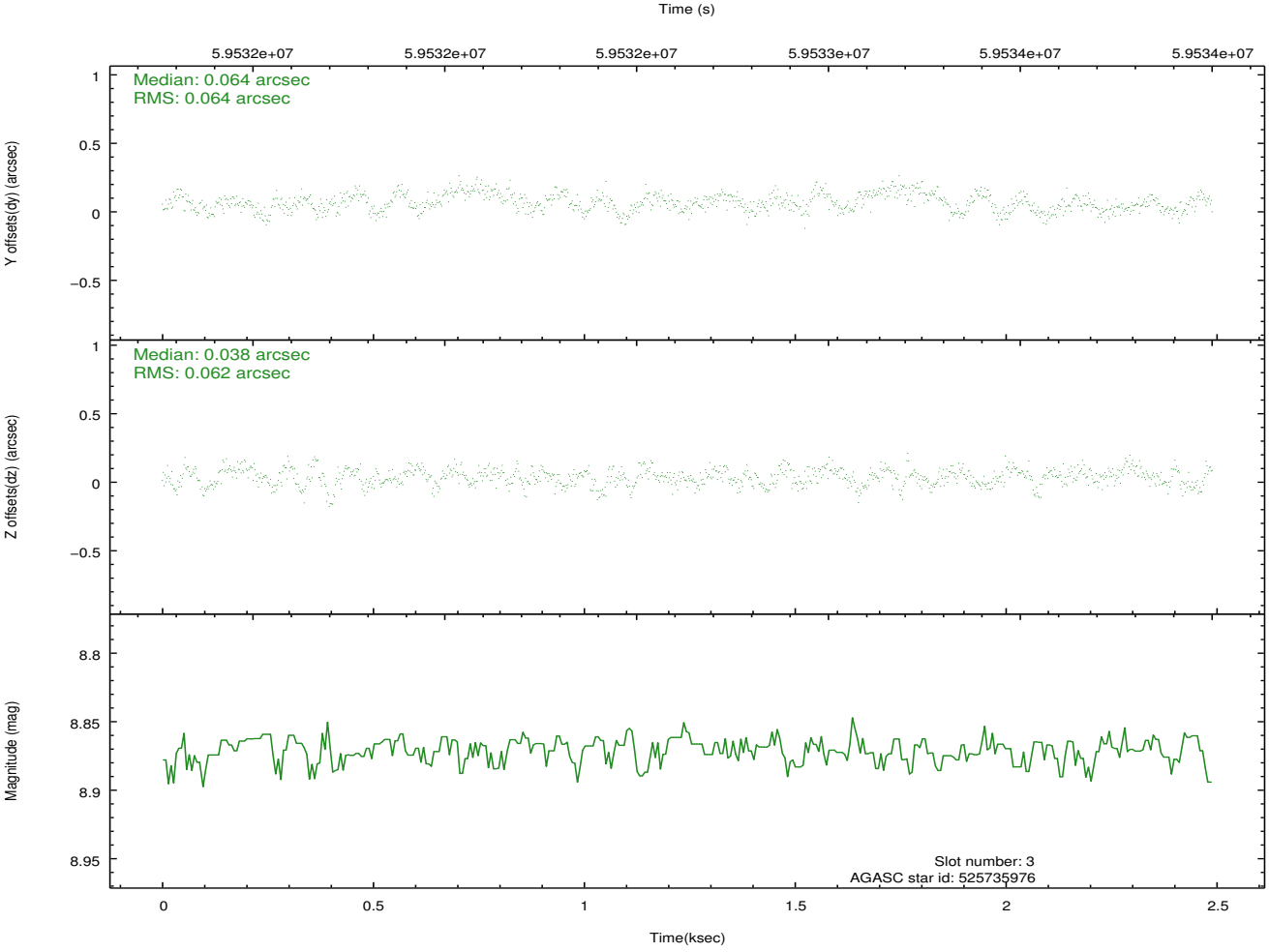
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.20	1215	-0.027	0.055	0.054	0.063	0.000000	0.000000	-754.63	-832.18
1	FID	ACIS-I-4	7.22	1215	0.078	0.011	0.030	0.035	0.000000	0.000000	2159.17	1073.01
2	FID	ACIS-I-5	7.23	1215	-0.148	0.002	0.048	0.057	0.000000	0.000000	-1806.83	1072.66
3	GUIDE	525735976	8.87	1213	0.064	0.038	0.096	0.151	350.142956	58.277622	2035.98	-1209.11
4	GUIDE	525737208	9.36	1215	-0.002	0.021	0.090	0.148	351.154109	59.407897	-2309.32	-111.29
5	GUIDE	525734296	9.49	1214	0.052	0.014	0.088	0.147	351.276372	58.418153	1139.26	800.78
6	GUIDE	525601208	9.21	1215	-0.174	-0.148	0.086	0.141	349.910779	59.483724	-2162.02	-2396.79
7	GUIDE	525207384	9.73	1213	0.049	0.075	0.108	0.176	351.880308	58.083642	2092.72	2159.29

2.4 Star Slots

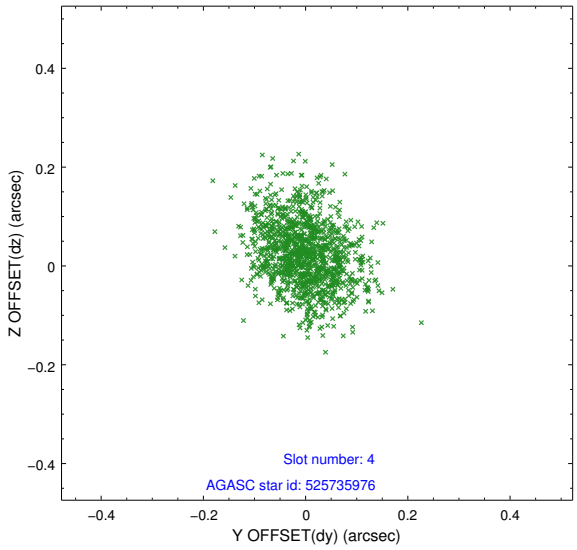
2.4.1 Slot 3

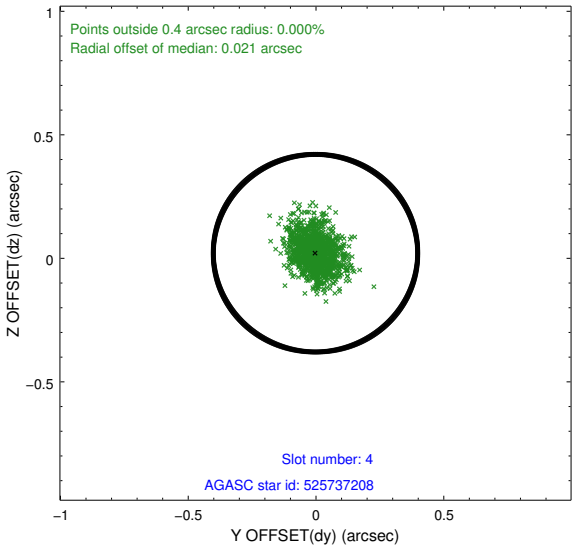


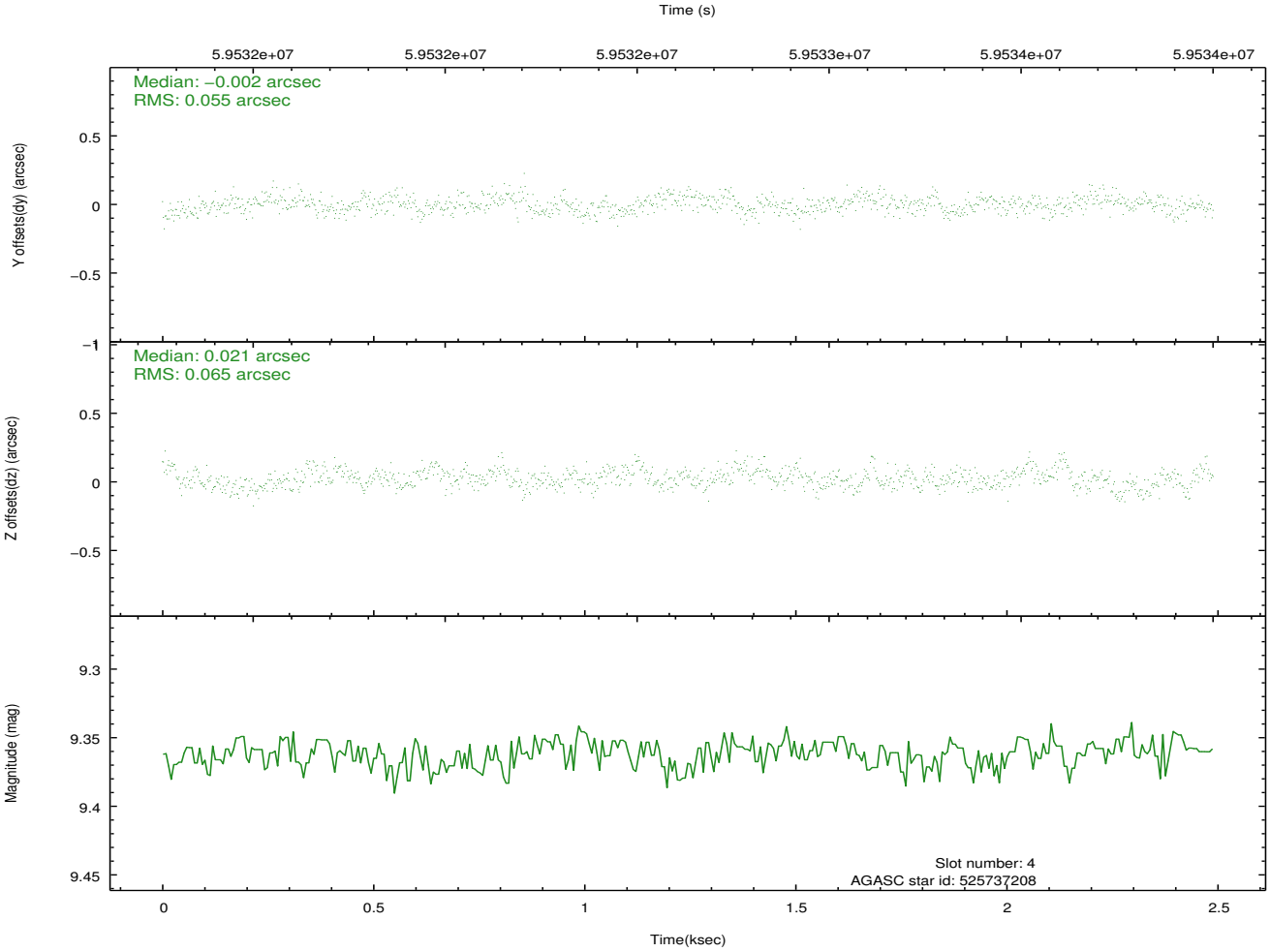




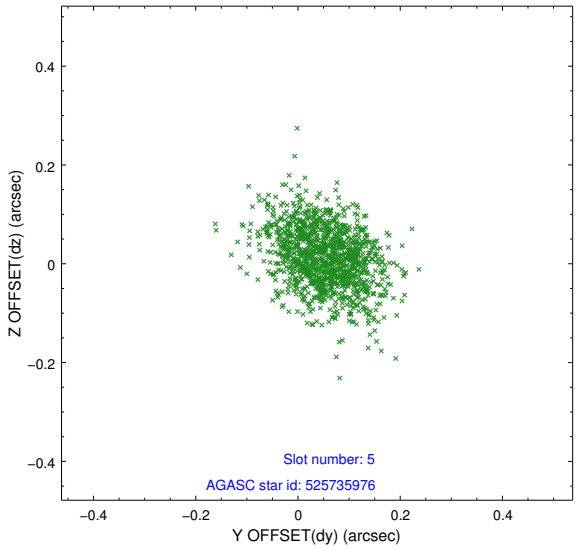
2.4.2 Slot 4

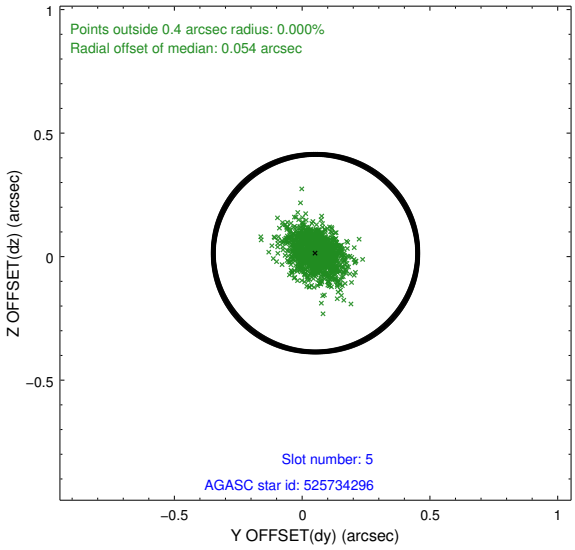

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 525735976

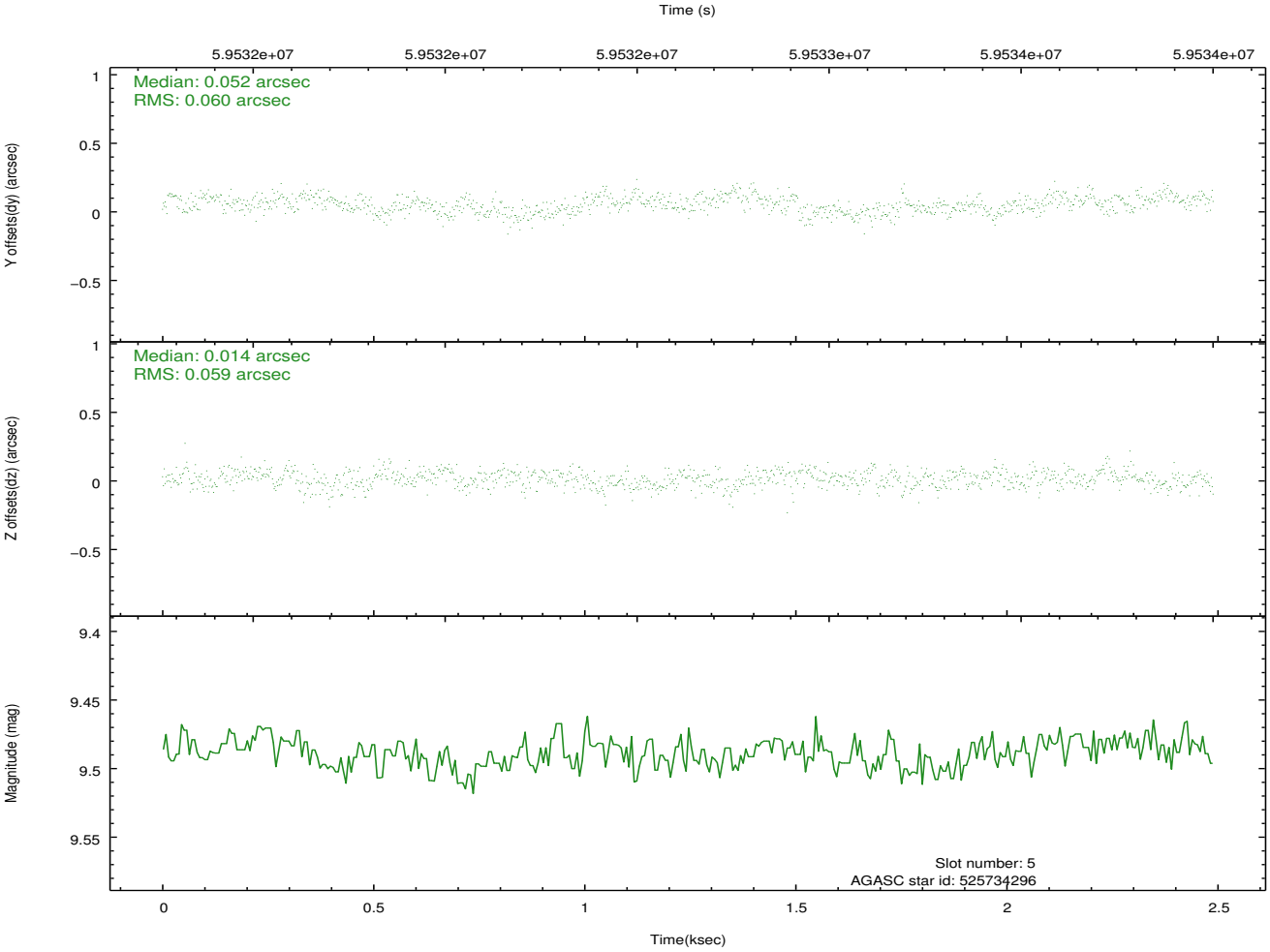

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.021 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 525737208


Time (s)
Median: −0.002 arcsec
RMS: 0.055 arcsec
Y offsets(dy) (arcsec)
Median: 0.021 arcsec
RMS: 0.065 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 525737208
Time(ksec)

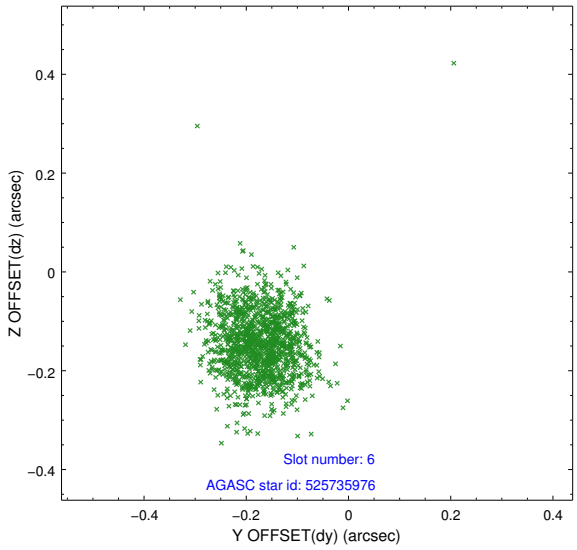
2.4.3 Slot 5

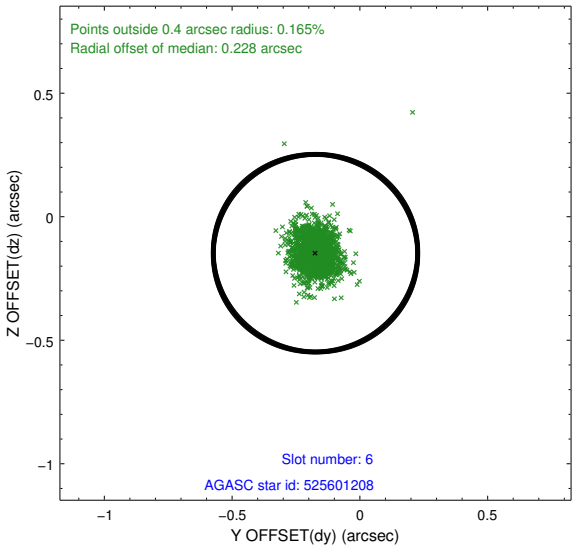

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 525735976

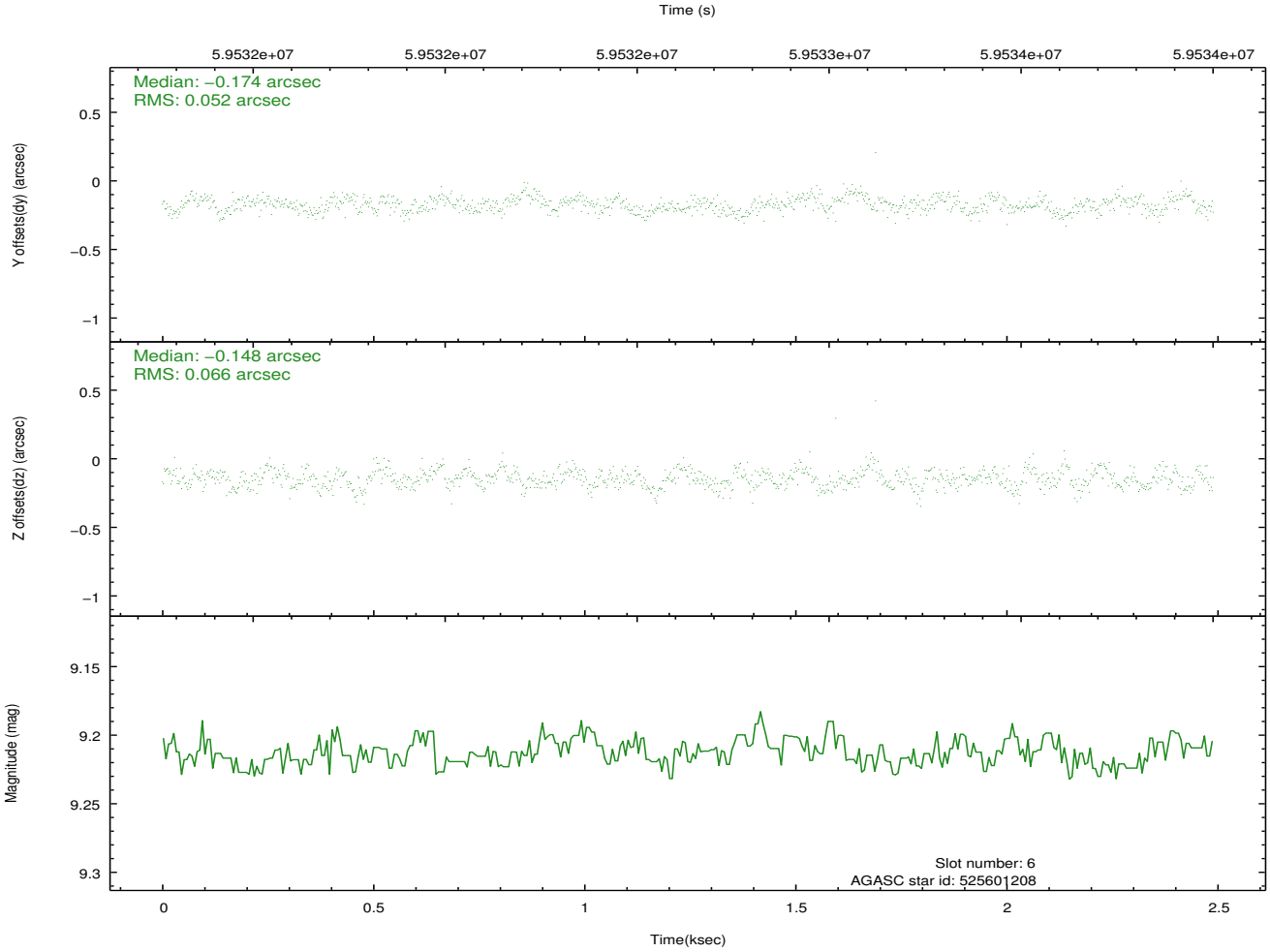

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.054 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 525734296


Time (s)
Median: 0.052 arcsec
RMS: 0.060 arcsec
Y offsets(dy) (arcsec)
Median: 0.014 arcsec
RMS: 0.059 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 525734296
Time(ksec)

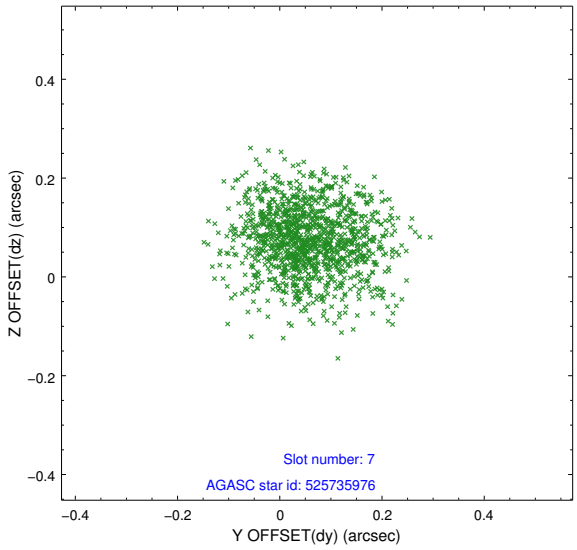
2.4.4 Slot 6

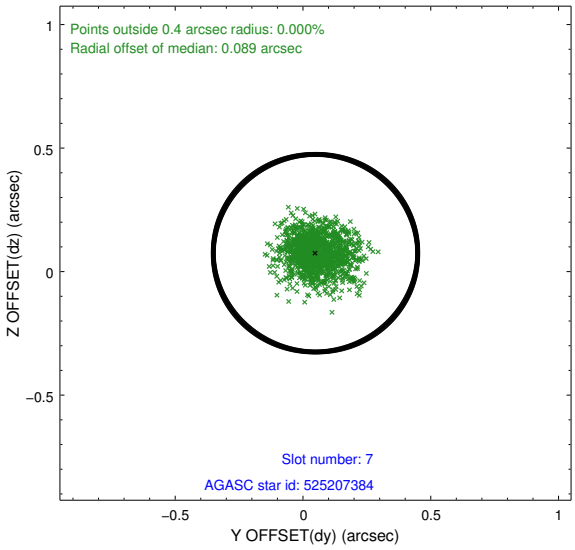

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 525735976

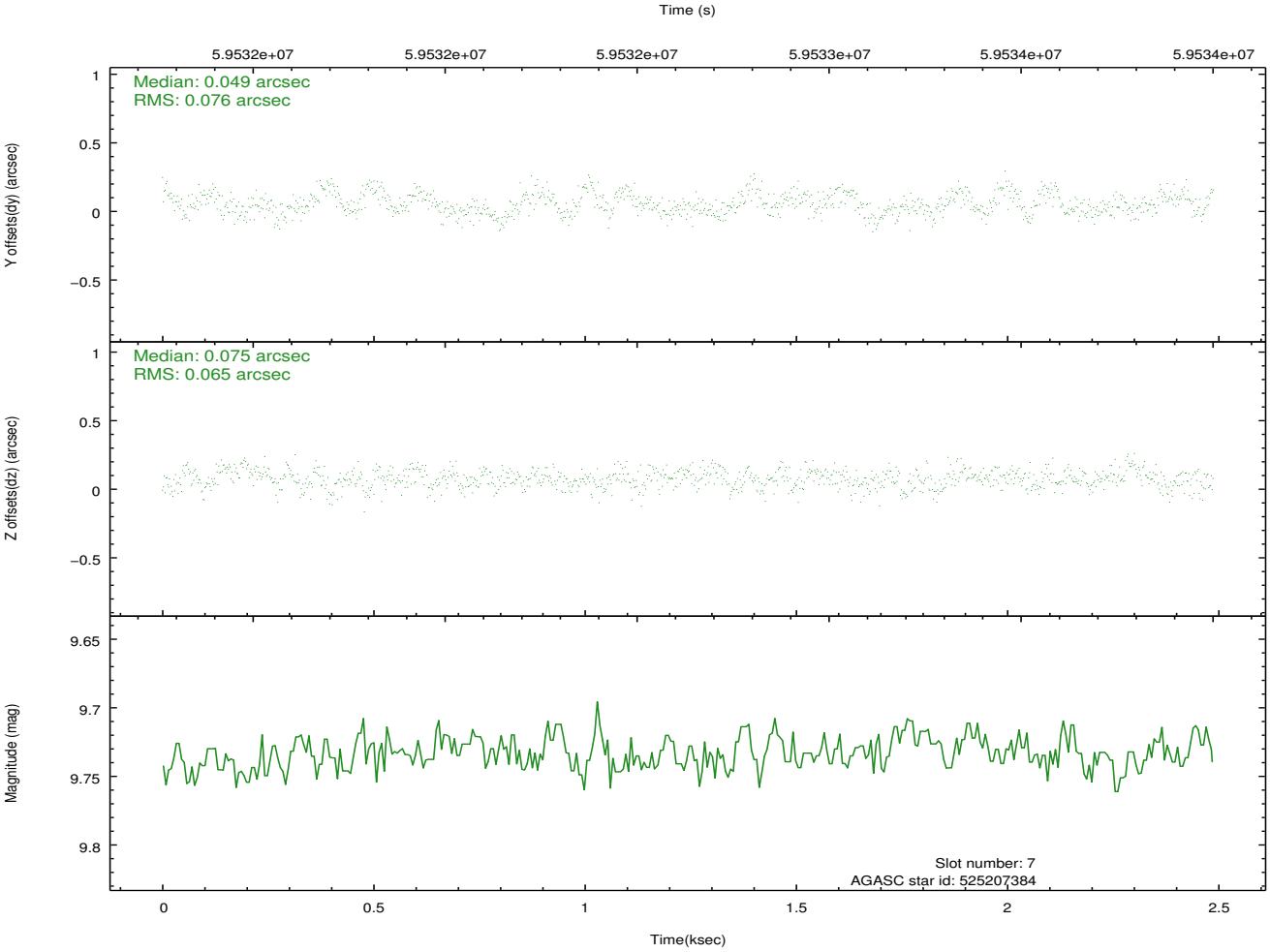

Points outside 0.4 arcsec radius: 0.165%
Radial offset of median: 0.228 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 525601208


Time (s)
Median: −0.174 arcsec
RMS: 0.052 arcsec
Y offsets(dy) (arcsec)
Median: −0.148 arcsec
RMS: 0.066 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 525601208
Time(ksec)

2.4.5 Slot 7

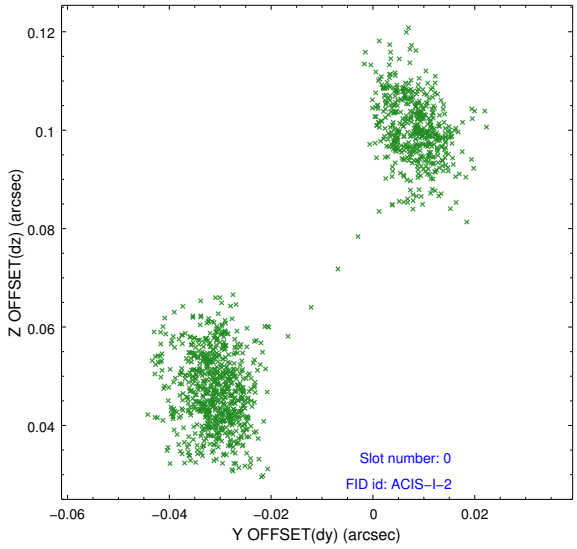

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 525735976

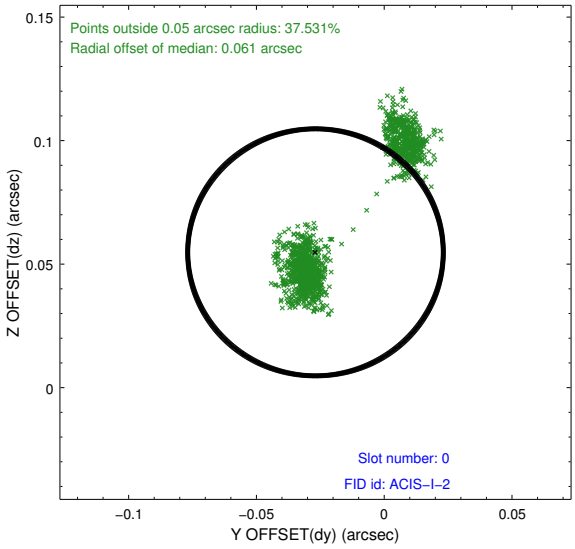

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.089 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 525207384

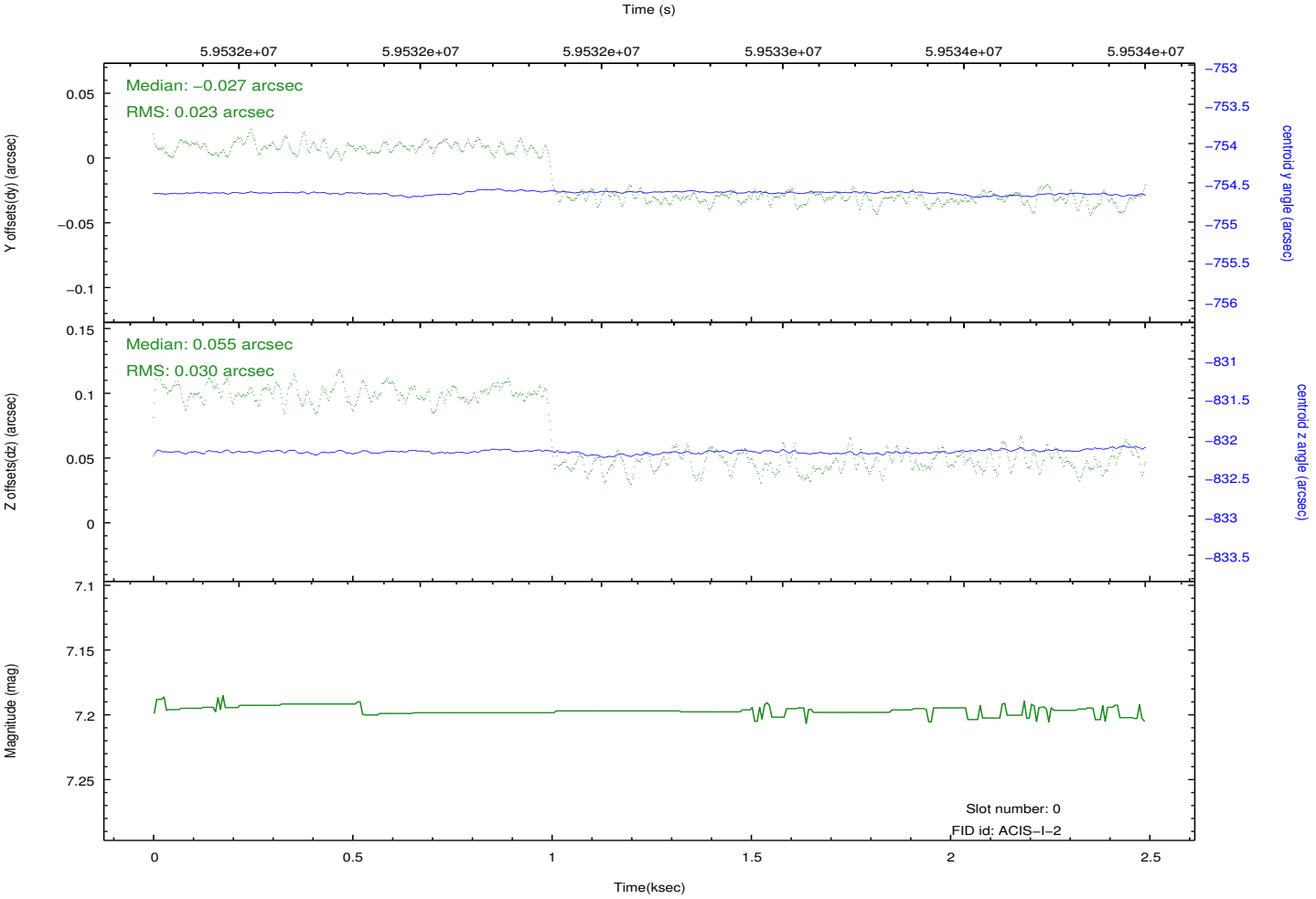

Time (s)
Median: 0.049 arcsec
RMS: 0.076 arcsec
Y offsets(dy) (arcsec)
Median: 0.075 arcsec
RMS: 0.065 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 525207384
Time(ksec)

2.5 FID Slots

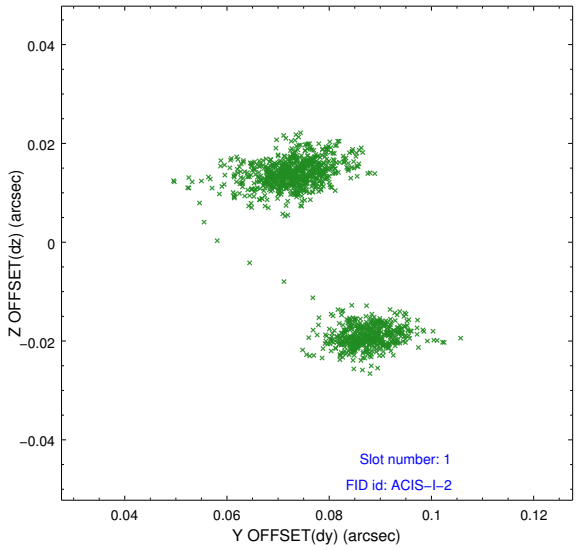
2.5.1 Slot 0

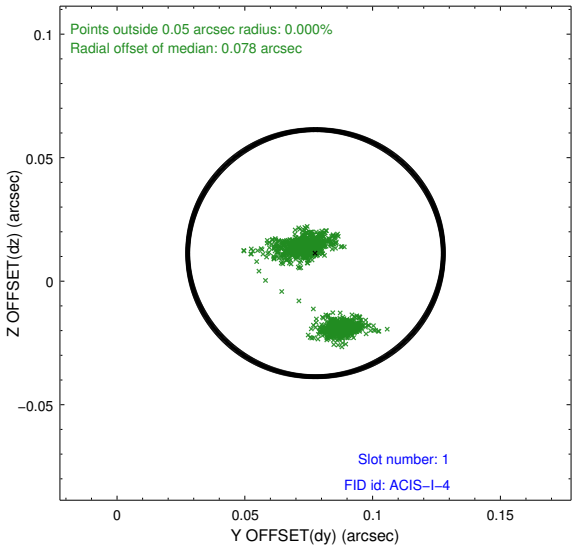


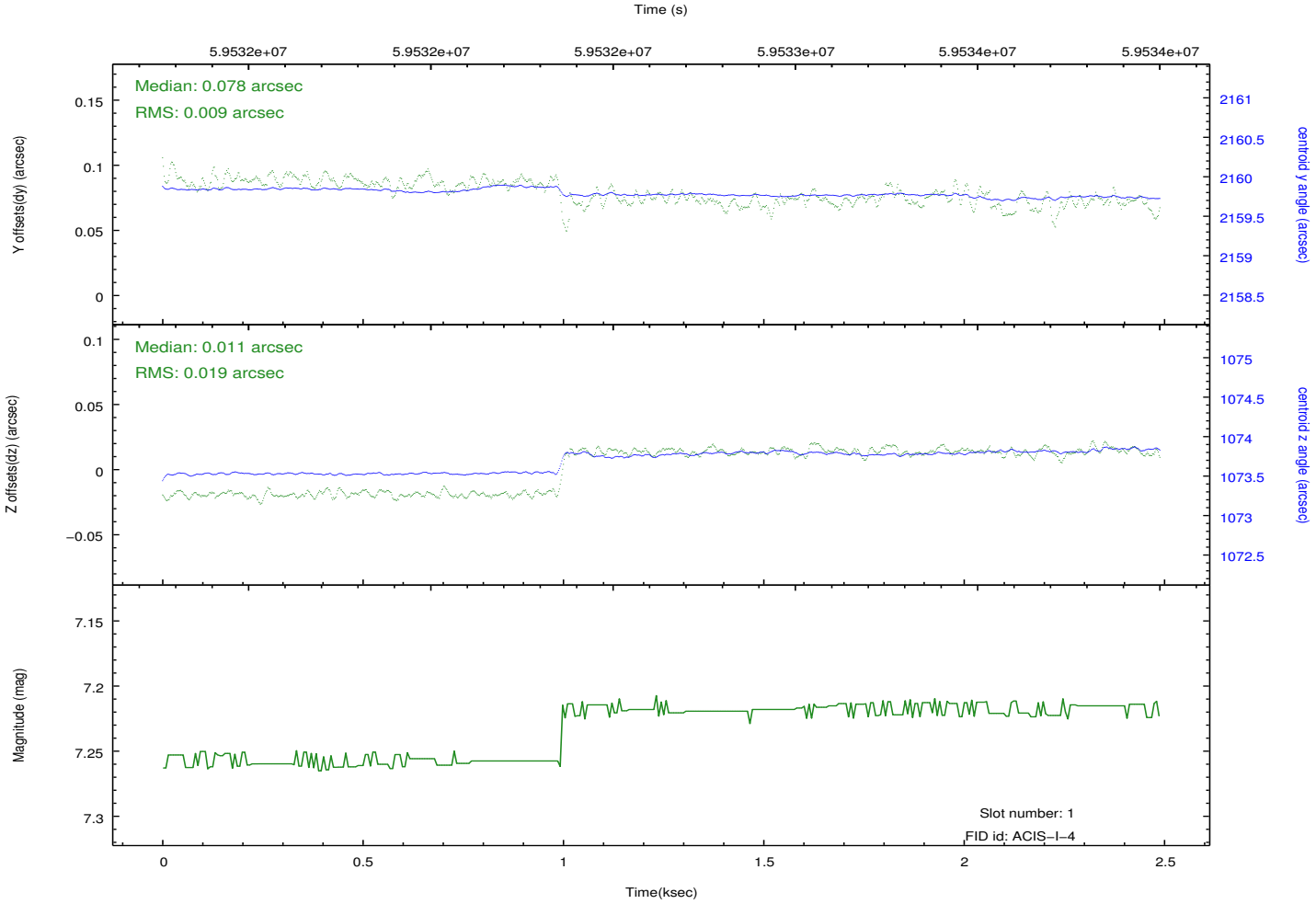




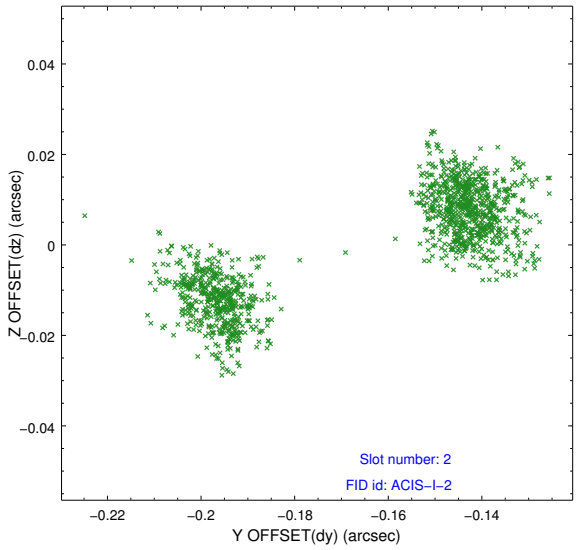
2.5.2 Slot 1

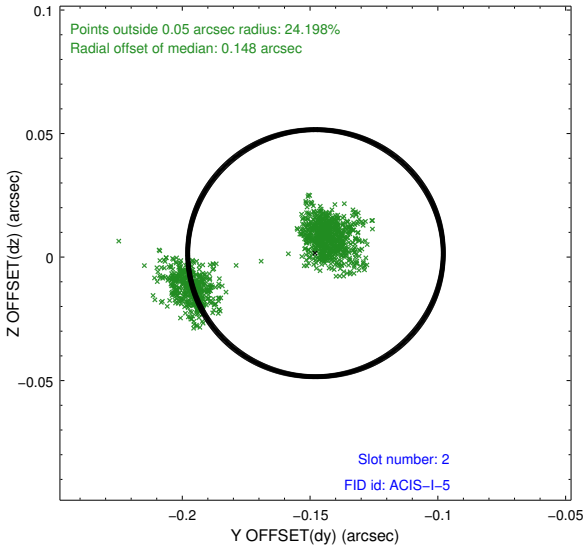

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−2

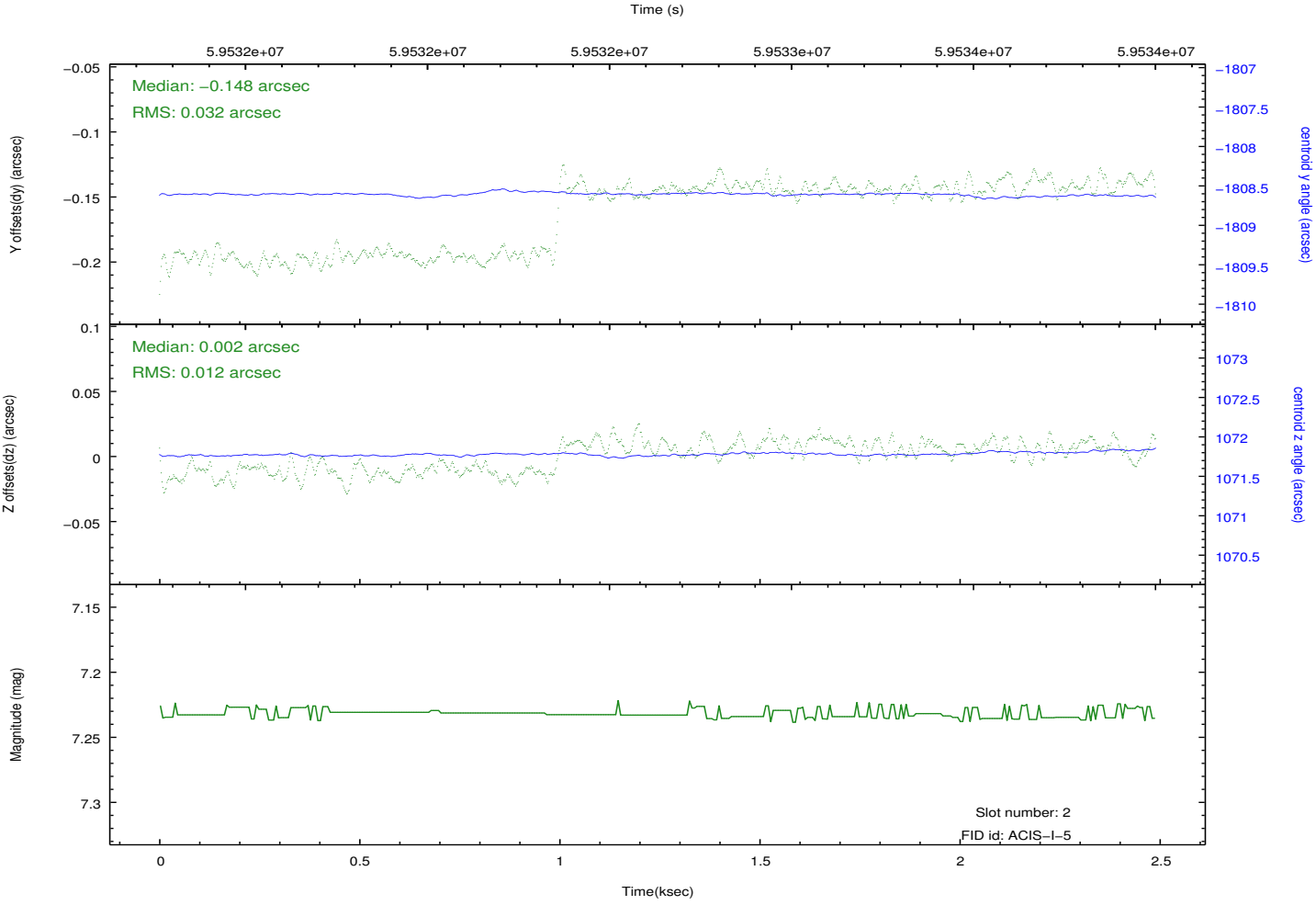

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.078 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4


Time (s)
Median: 0.078 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.011 arcsec
RMS: 0.019 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−4
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−2


Points outside 0.05 arcsec radius: 24.198%
Radial offset of median: 0.148 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.148 arcsec
RMS: 0.032 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.002 arcsec
RMS: 0.012 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

3 Point Sources

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2010.03.31
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	1.9

A.2 Comments

```
Off-axis ACIS response to Cas A on chip I1. Only I1 chip
read out.
====
SIM dtheta discontinuity about 1 ksec into the observation, which
produces an offset in the fid light positions after that time.
===
Pileup throughout most of the observation.
===
Charge time for this ObsId remains at previous value of 1.9 ksec,
although with the current processing the charge time would have been
1.8 ksec.
==
The focal plane temperature is approximately -110 C during this
observation. This reprocessing of the data applies no CTI correction
because none is available for this temperature at present.

The ACIS CTI correction has not been calibrated at this temperature,
because it was early in the mission, and ACIS had not yet been lowered
to the standard -119.7 C. Both front and back illuminated chips are
affected. However a T_GAIN correction has been applied to the BI chips
(ACIS-5 and ACIS-7) data included here.

The ACIS spectral response calibration is less accurate at these warmer
temperatures than it is at -119.7 C. Users whose science objectives
depend on the most accurate spectral response (ie: fitting line-rich
spectra) may notice an effect. Users whose science objectives do not
depend on the most accurate spectral response should not notice an
effect.
```