V&V Reference Report
L2 ASCDS Version : 8.4.5

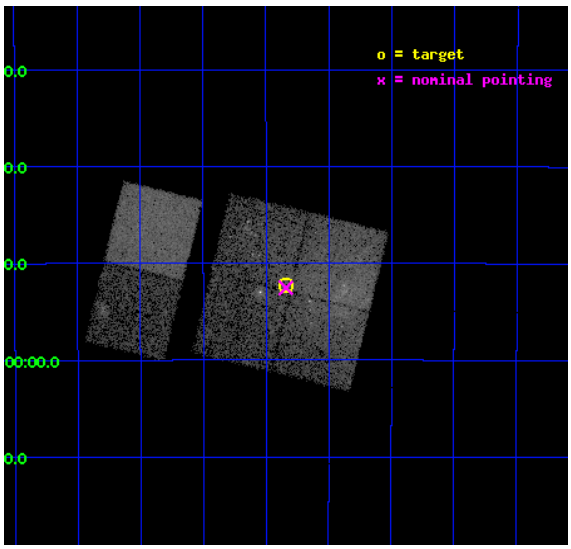
Observation 2273 - L2 Version 4
Chandra X-Ray Center

L2 Processing Date : Oct 18 2012

Contents

1 Front

seq_num	900100	Sequence number
obs_id	2273	Observation id
title	CHANDRA SURVEY OF THE GALACTIC RIDGE AROUND THE MILKY WAY CENTER	P
observer	Prof. Q. Daniel Wang	Principal investigator
object	GCS 10	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	266.7111	Observer's specified target RA [deg]
dec_targ	-28.871	Observer's specified target Dec [deg]
ra_nom	266.71023933414	Nominal RA [deg]
dec_nom	-28.875700428436	Nominal Dec [deg]
roll_nom	283.80727876718	Nominal Roll [deg]
revision	4	Processing version of data
ontime	11756.7590307	Sum of GTIs [s]
livetime	11607.887868783	Livetime [s]
ontime0	11756.759040698	Sum of GTIs [s]
ontime1	11760.000010937	Sum of GTIs [s]
ontime2	11760.000010937	Sum of GTIs [s]
ontime3	11756.7590307	Sum of GTIs [s]
ontime6	11760.000010937	Sum of GTIs [s]
ontime7	11760.000010937	Sum of GTIs [s]
l2events	70301	Number of level 2 events

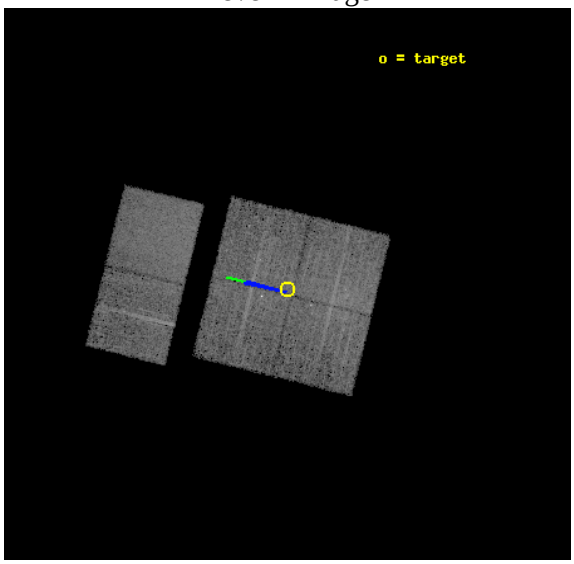


2 OBI

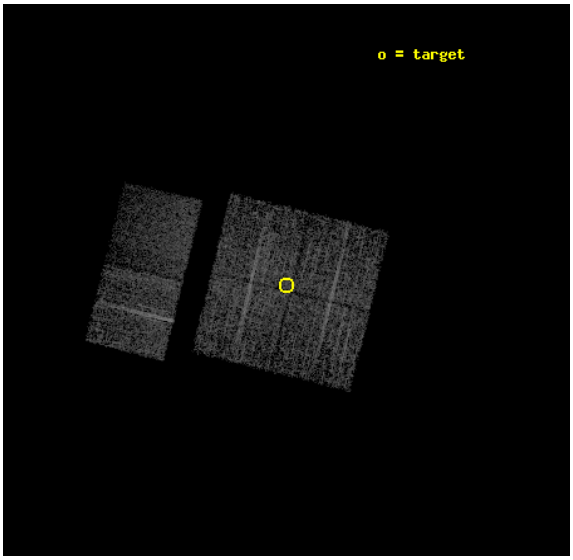
2.1 OBI

2.1.1 Images

Level 1 Image

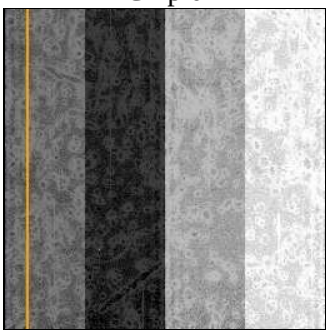


Level 1 Bad Events

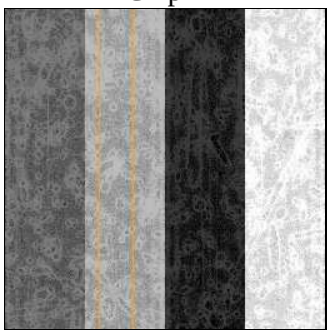


2.1.2 Bias

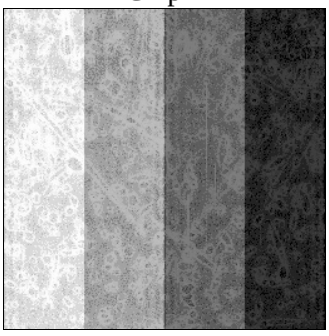
Chip 0



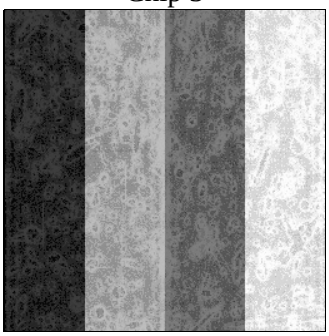
Chip 1



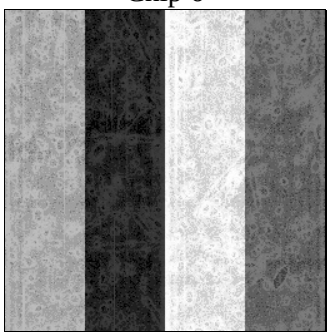
Chip 2



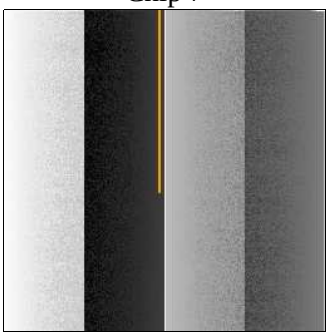
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.4.5	Processing system revision
caldbver	4.5.2	
date	2012-10-18T20:44:32	Date and time of file creation
revision	4	Processing version of data

sched_exp_time	12000.000000	[s] Scheduled observation exposure time
ontime	11756.7590307	Sum of GTIs [s]
ontime0	11756.759040698	Sum of GTIs [s]
ontime1	11760.000010937	Sum of GTIs [s]
ontime2	11760.000010937	Sum of GTIs [s]
ontime3	11756.7590307	Sum of GTIs [s]
ontime6	11760.000010937	Sum of GTIs [s]
ontime7	11760.000010937	Sum of GTIs [s]
l1events	219244	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	35846	42904	34929	34321	31953	39291
rejected events	24212	24392	26156	25297	26253	18165
rejected %	67%	56%	74%	73%	82%	46%

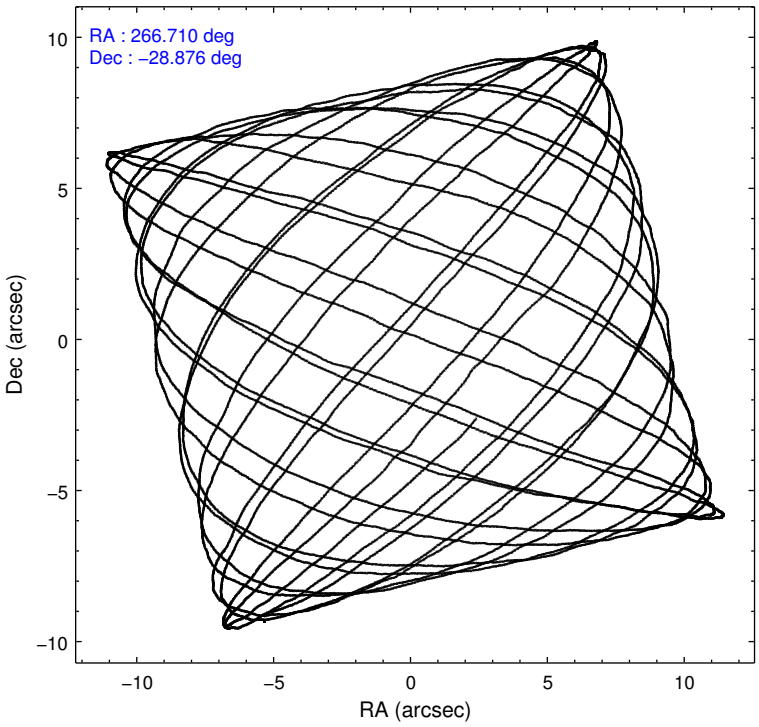
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	7044	11892	4897	5119	2694	2037
	19%	27%	14%	14%	8%	5%
grade 1 events	51	88	80	40	24	49
	0%	0%	0%	0%	0%	0%
grade 2 events	1869	2782	1509	1532	1115	4251
	5%	6%	4%	4%	3%	10%
grade 3 events	738	1004	617	669	482	2026
	2%	2%	1%	1%	1%	5%
grade 4 events	728	1058	624	605	441	1990
	2%	2%	1%	1%	1%	5%
grade 5 events	1175	1447	1202	1450	1431	4405
	3%	3%	3%	4%	4%	11%
grade 6 events	1256	1779	1130	1100	969	10827
	3%	4%	3%	3%	3%	27%
grade 7 events	22985	22854	24870	23806	24797	13706
	64%	53%	71%	69%	77%	34%

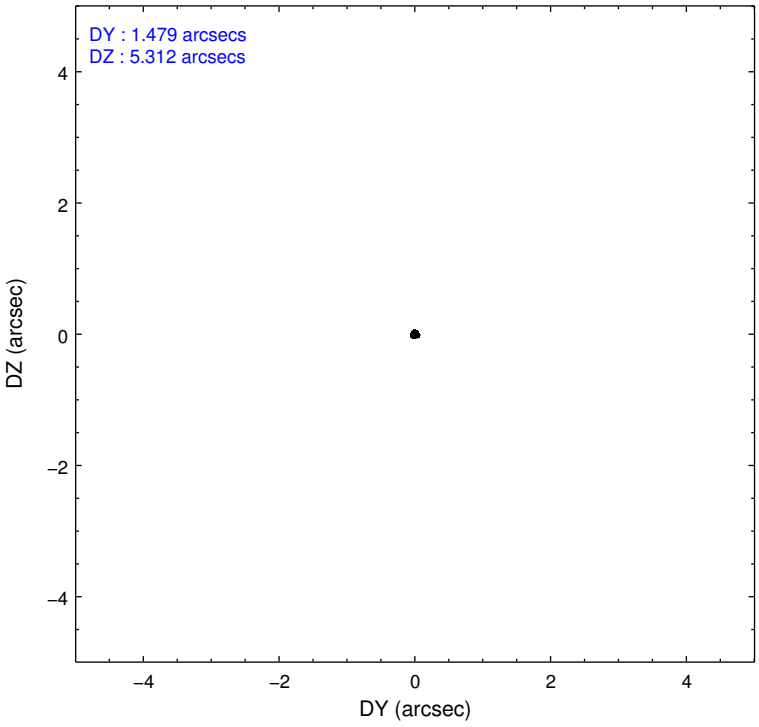
2.2 Compared Parameters

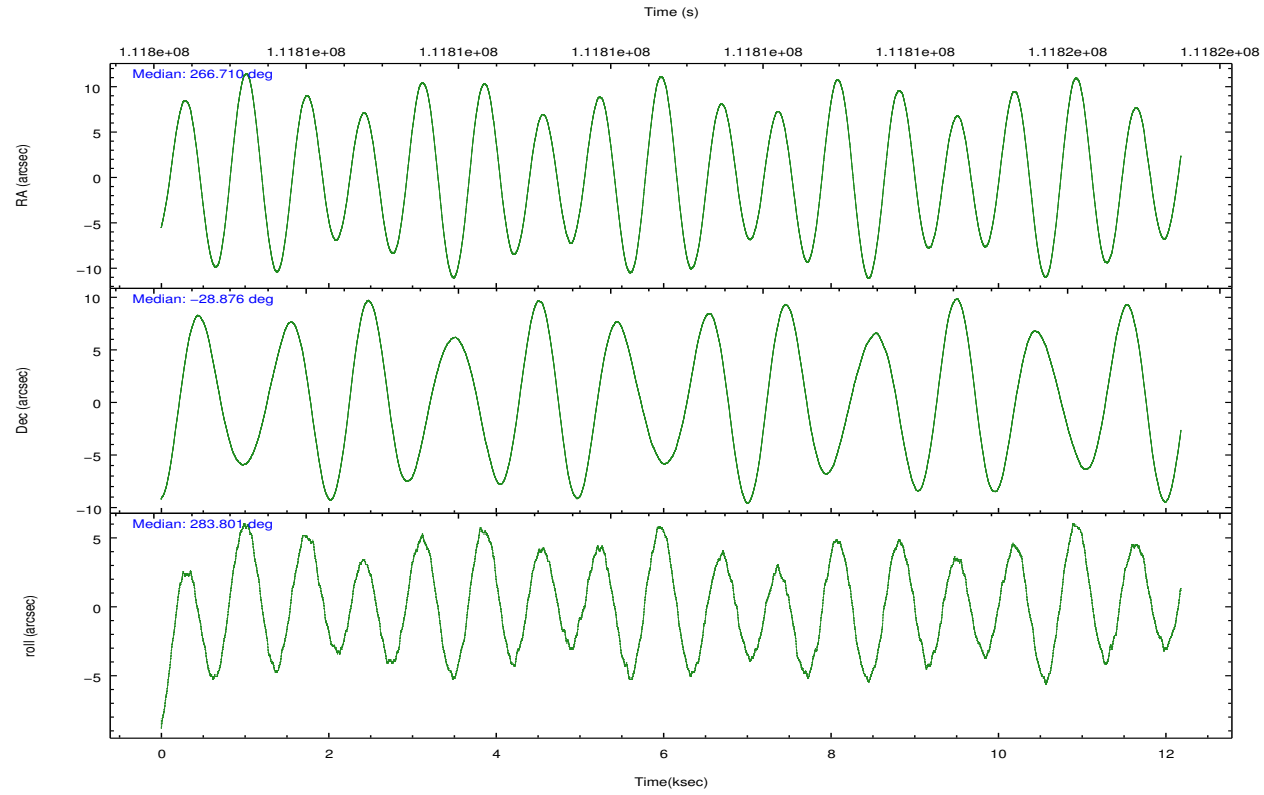
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	266.688524	266.7102393341404
[deg] Pointing Dec	-28.855888	-28.87570042843618
[deg] Pointing Roll	283.588104	283.807278767184
[deg] Roll angle	283.600000	283.600000
[deg] Roll tolerance	2.000000	2.000000
Roll constraint allows 180D rotation	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272
[mm] SIM defocus	0	0.001439871863259334
[mm] SIM translation stage pos	-233.592463	-233.5874344608287
[mm] SIM translation stage offset	0	-0.005018542100998502
[s] Observation start time (MET)	111804884.184000	111804508.57671
Observation start date	2001-07-18T00:53:40	2001-07-18T00:48:28
[s] Observation end time (MET)	111816884.184000	111817018.1897
Observation end date	2001-07-18T04:13:40	2001-07-18T04:16:58
Read mode	TIMED	TIMED

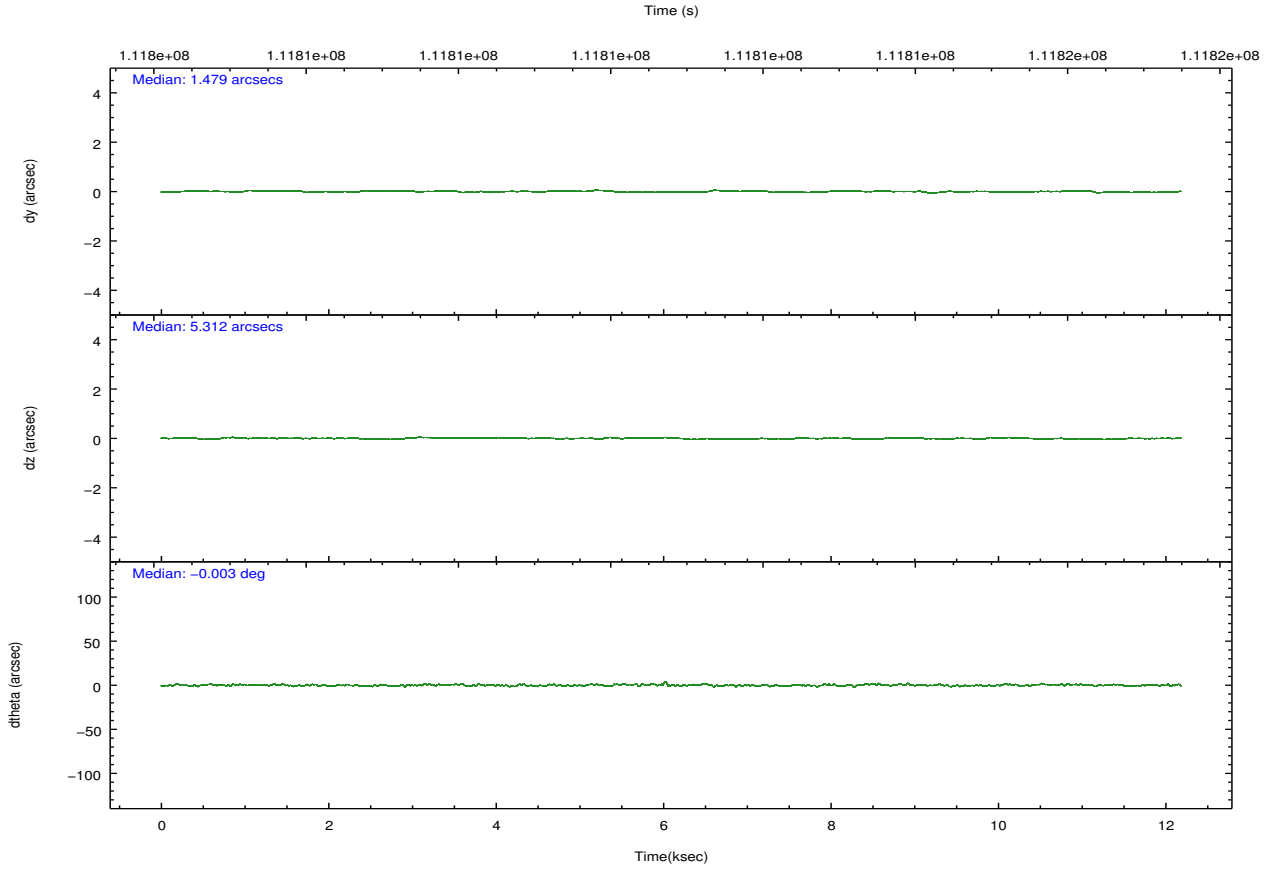
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 266.710 deg
Dec : −28.876 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 1.479 arcsecs
DZ : 5.312 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
1.118e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1182e+08
1.1182e+08
Median: 266.710 deg
Median: −28.876 deg
Median: 283.801 deg
RA (arcsec)
Dec (arcsec)
roll (arcsec)
Time(ksec)

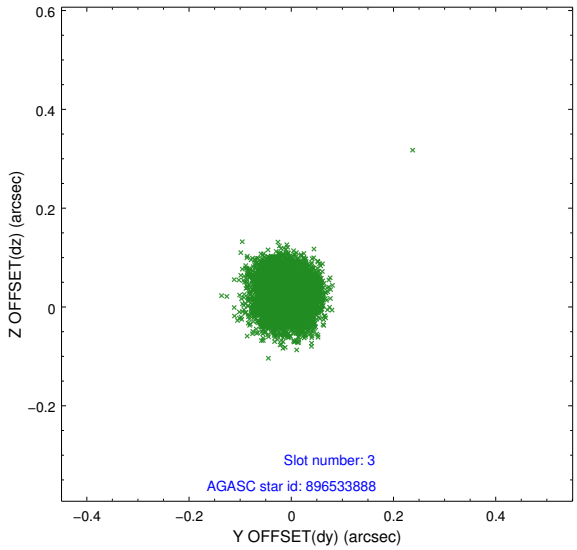

Time (s)
1.118e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1181e+08
1.1182e+08
1.1182e+08
Median: 1.479 arcsecs
Median: 5.312 arcsecs
Median: −0.003 deg
dy (arcsec)
dz (arcsec)
dtheta (arcsec)
Time(ksec)

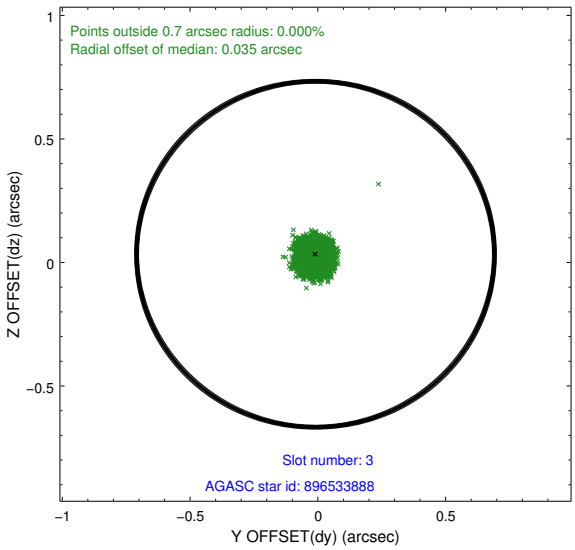
Slot Statistics

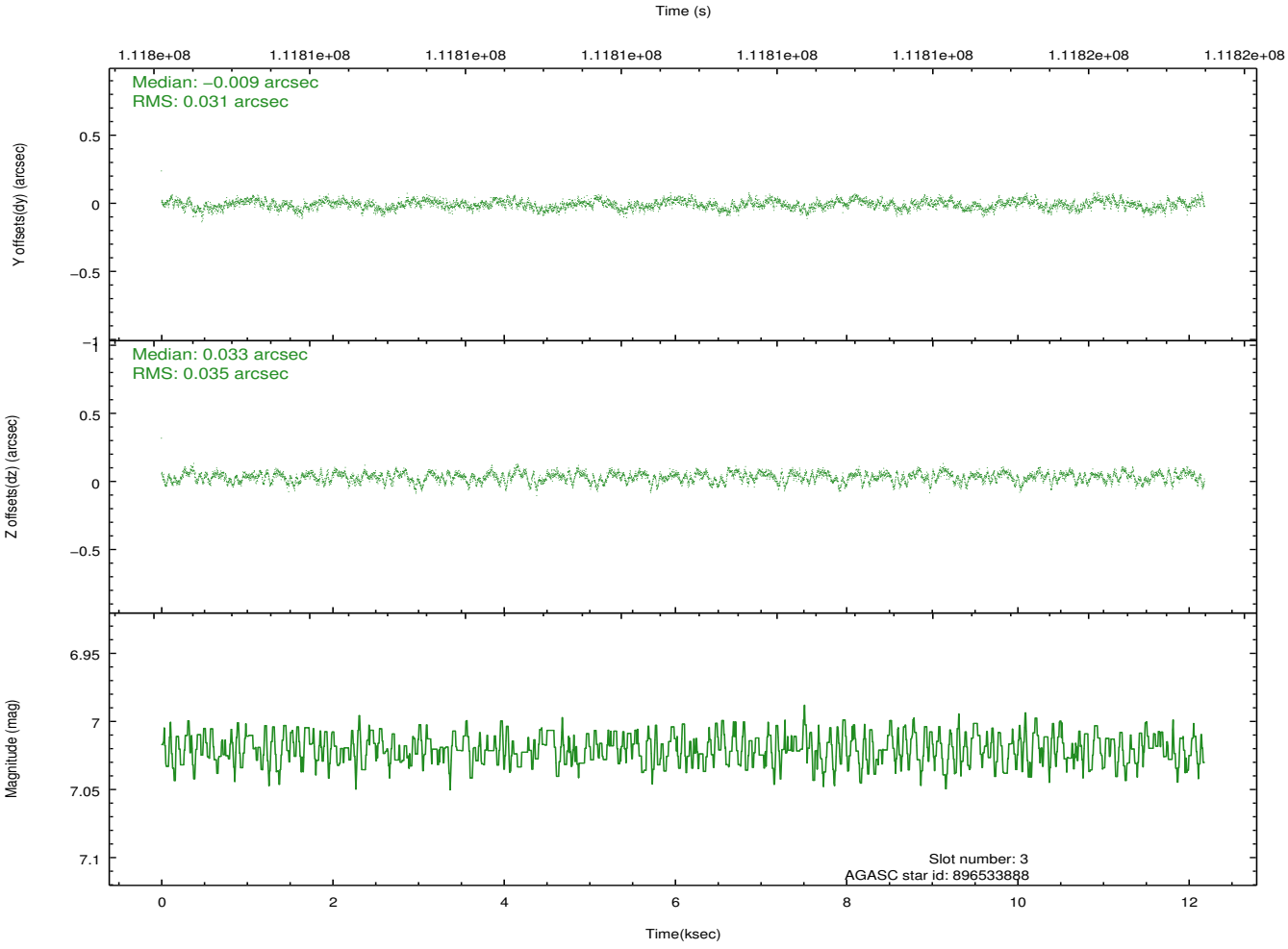
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-2	7.15	2972	-0.021	-0.046	0.012	0.021	0.000000	0.000000	-755.83	-835.08
1	FID	ACIS-I-4	7.19	2972	-0.026	0.034	0.009	0.016	0.000000	0.000000	2158.02	1071.00
2	FID	ACIS-I-5	7.23	2972	-0.054	0.081	0.014	0.022	0.000000	0.000000	-1809.18	1069.32
3	GUIDE	896533888	7.02	5944	-0.009	0.033	0.050	0.080	266.666434	-29.392757	1862.25	-520.43
4	GUIDE	896538208	7.96	5944	-0.015	0.024	0.061	0.097	267.176969	-28.671626	-279.30	1655.39
5	GUIDE	896537176	8.02	5943	-0.024	0.020	0.052	0.087	266.498272	-28.678259	-762.46	-432.97
6	GUIDE	896536320	8.97	5944	0.033	-0.064	0.064	0.106	266.369048	-29.307026	1344.24	-1355.96
7	GUIDE	896535464	9.34	5938	0.017	-0.012	0.075	0.121	266.962550	-28.408631	-1360.31	1221.87

2.4 Star Slots

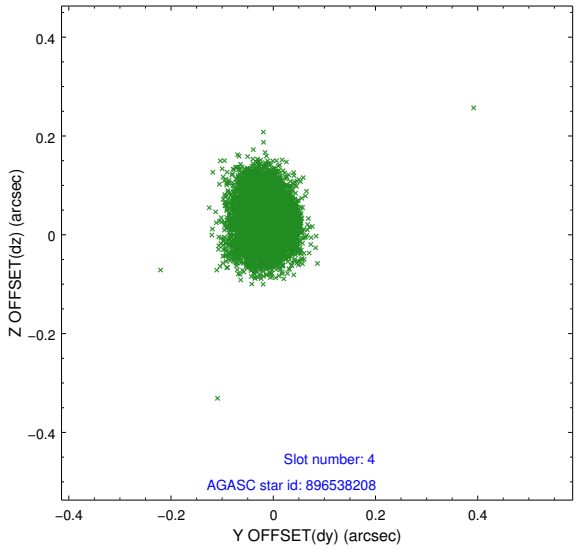
2.4.1 Slot 3

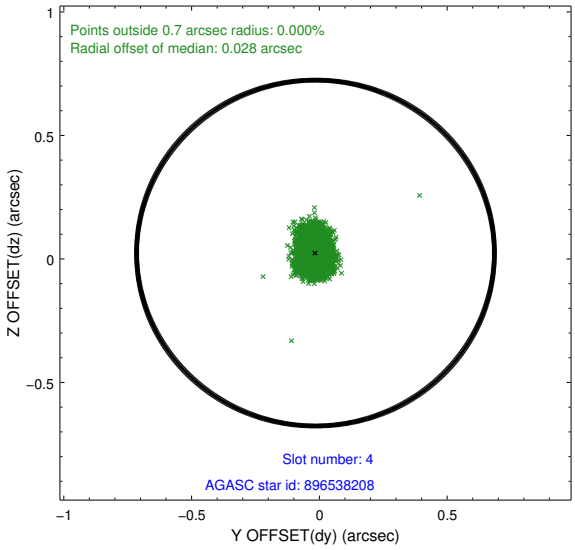


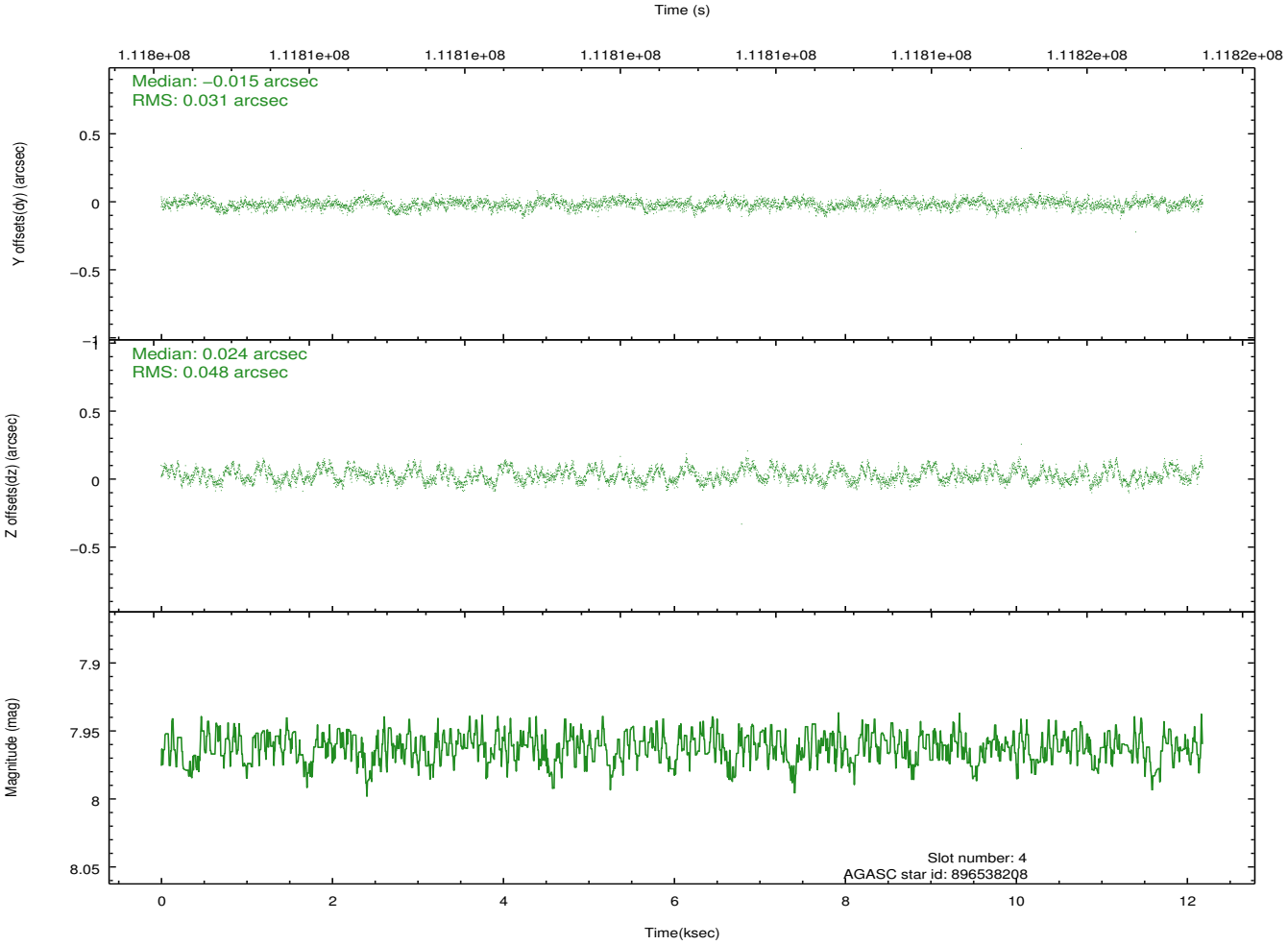




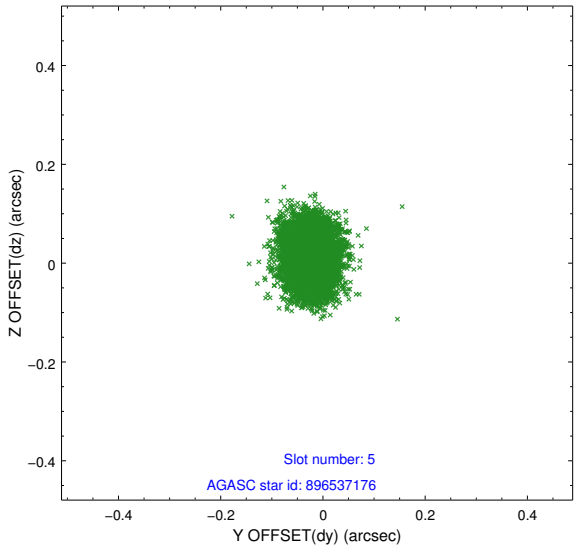
2.4.2 Slot 4

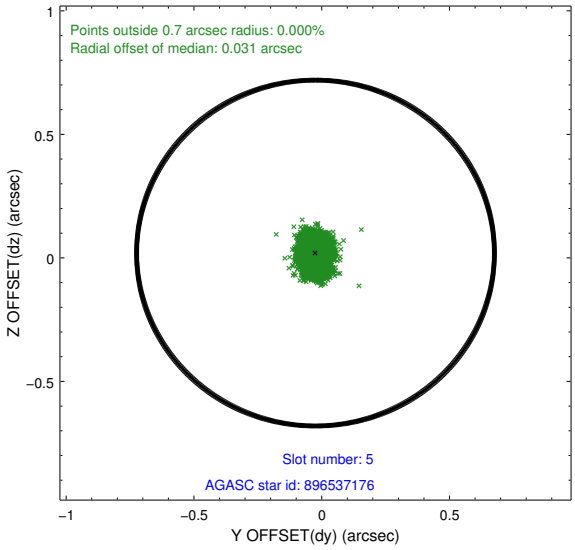

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 896538208

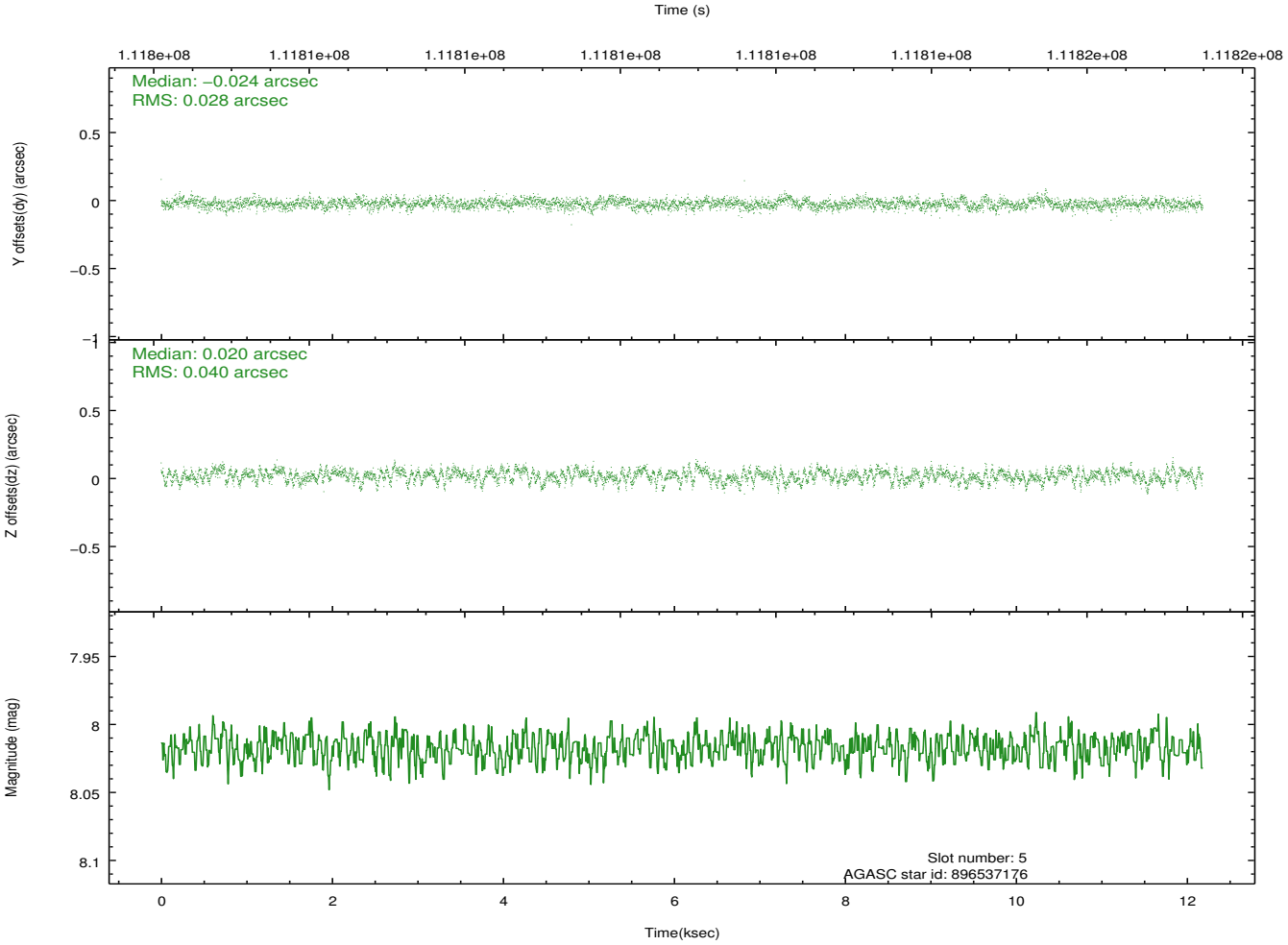

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.028 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 896538208


Time (s)
Median: −0.015 arcsec
RMS: 0.031 arcsec
Y offsets(dy) (arcsec)
Median: 0.024 arcsec
RMS: 0.048 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 896538208
Time(ksec)

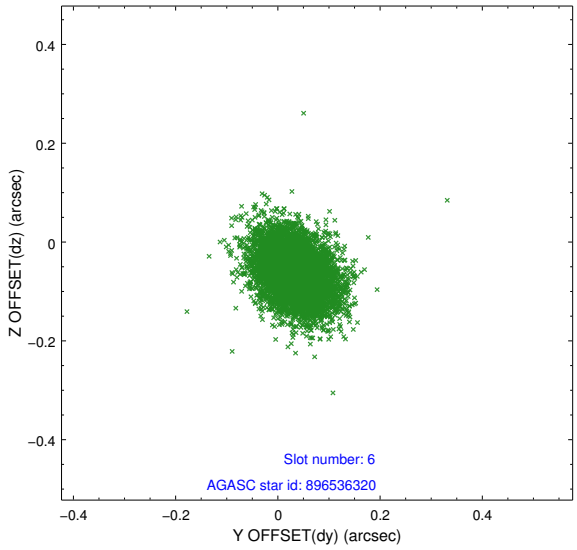
2.4.3 Slot 5

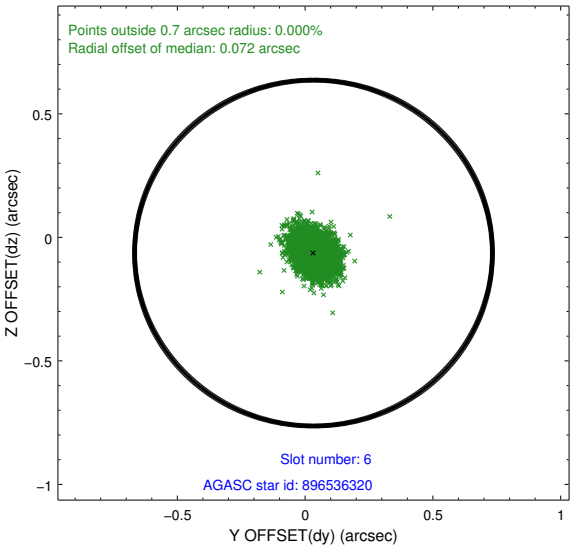

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 896537176

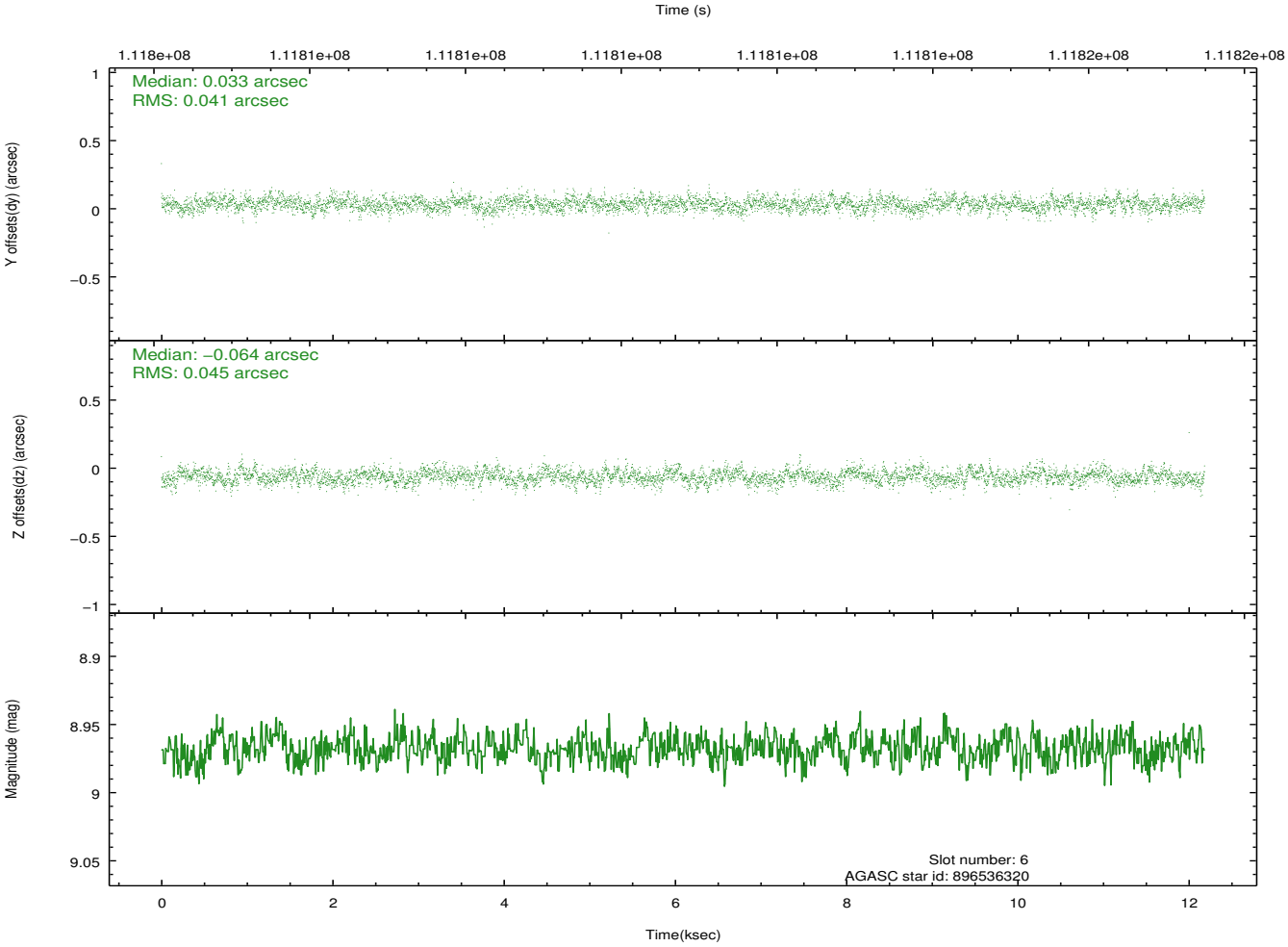

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.031 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 896537176


Time (s)
Median: −0.024 arcsec
RMS: 0.028 arcsec
Y offsets(dy) (arcsec)
Median: 0.020 arcsec
RMS: 0.040 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 896537176
Time(ksec)

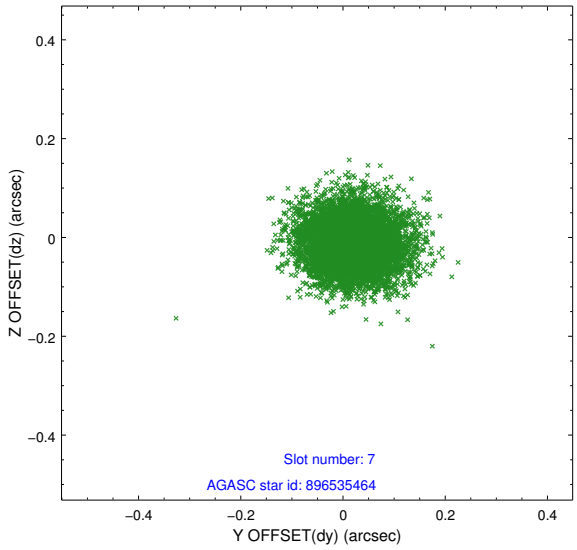
2.4.4 Slot 6

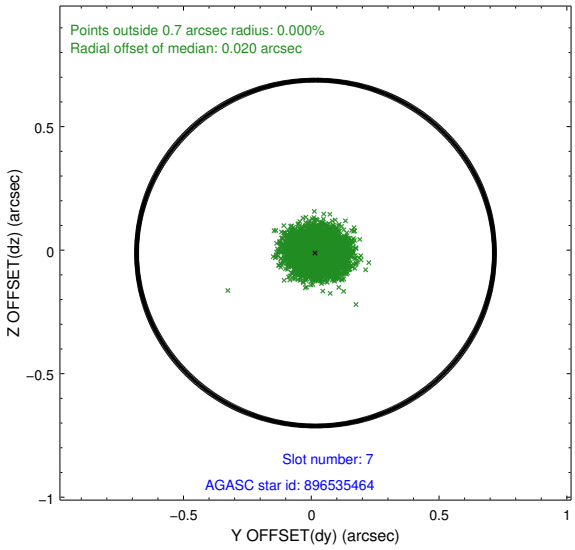

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 896536320

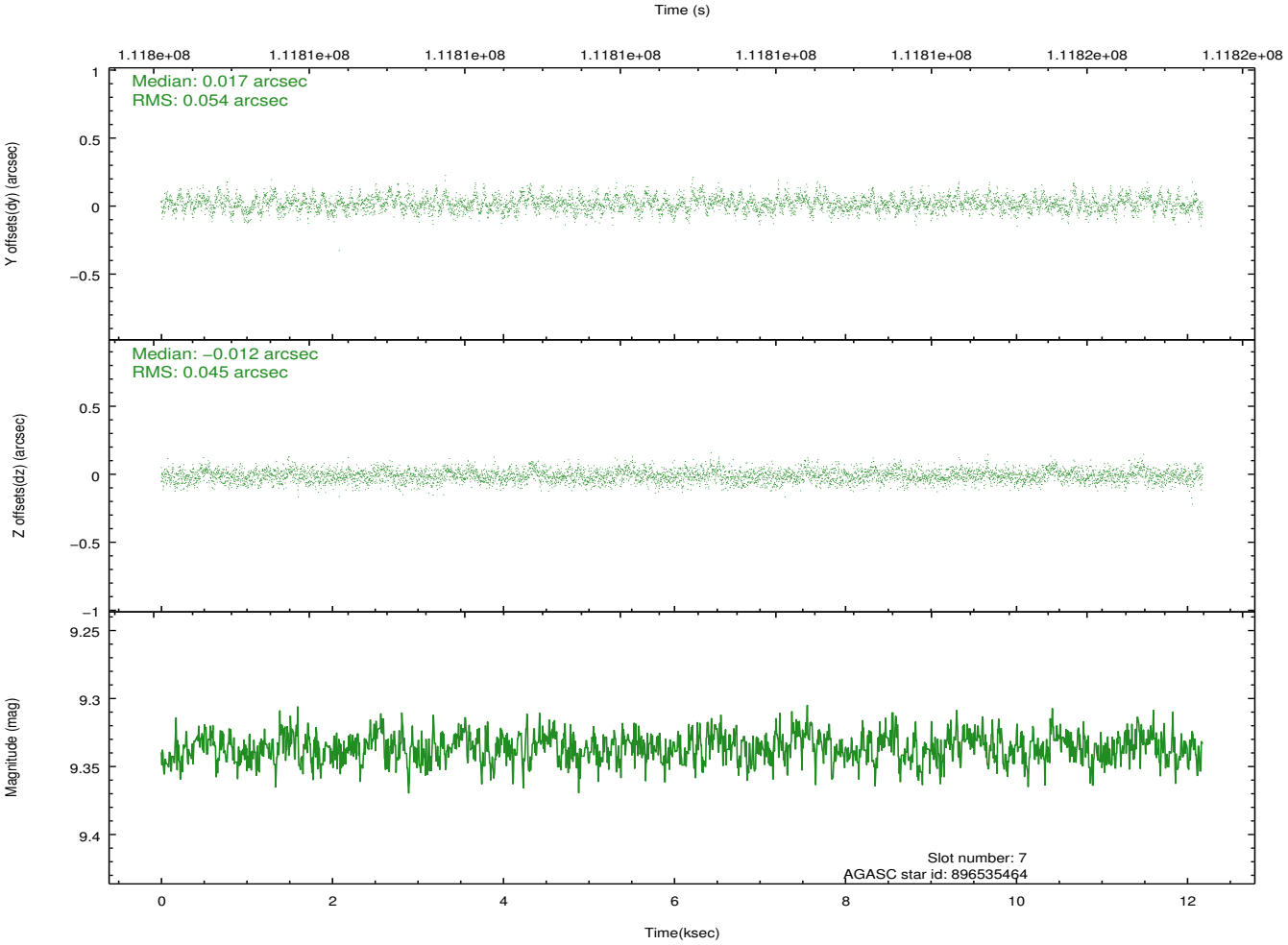

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.072 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 896536320


Time (s)
Median: 0.033 arcsec
RMS: 0.041 arcsec
Y offsets(dy) (arcsec)
Median: −0.064 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 896536320
Time(ksec)

2.4.5 Slot 7

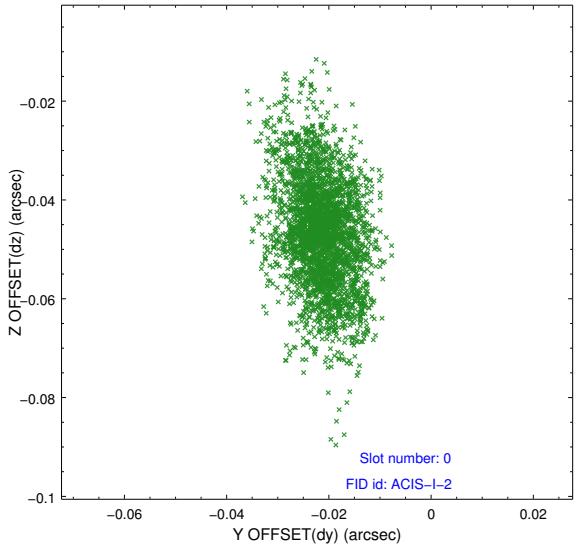

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 896535464

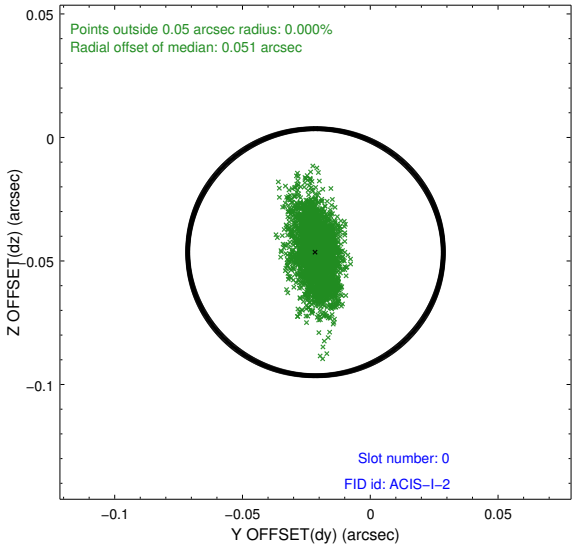

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.020 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 896535464

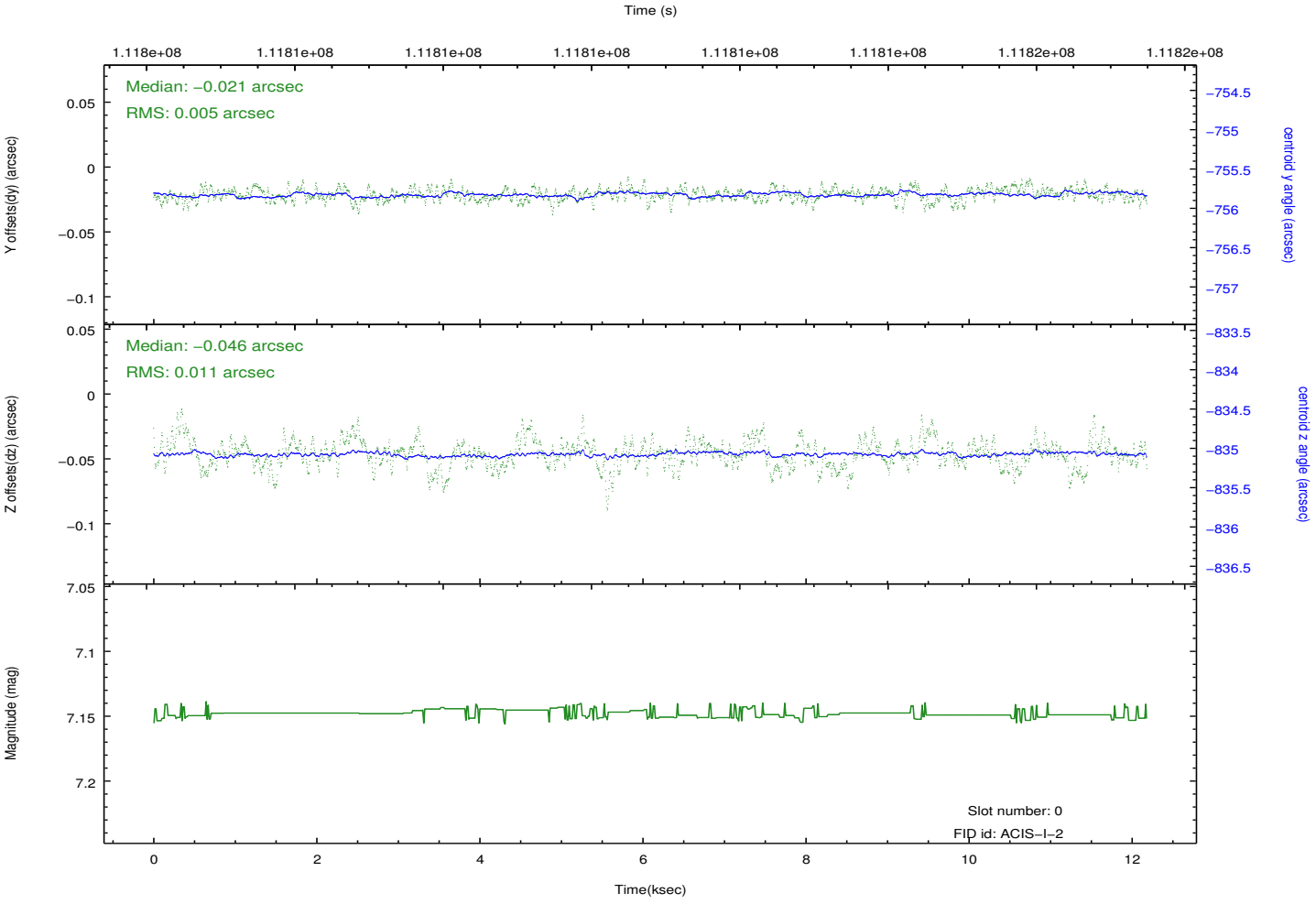

Time (s)
Median: 0.017 arcsec
RMS: 0.054 arcsec
Y offsets(dy) (arcsec)
Median: −0.012 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 896535464
Time(ksec)

2.5 FID Slots

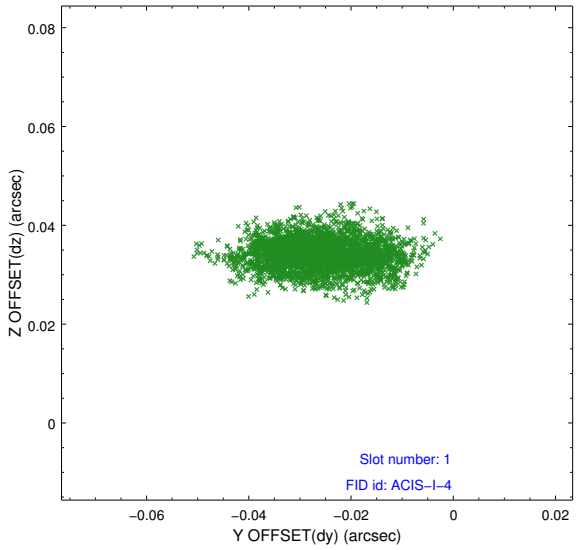
2.5.1 Slot 0

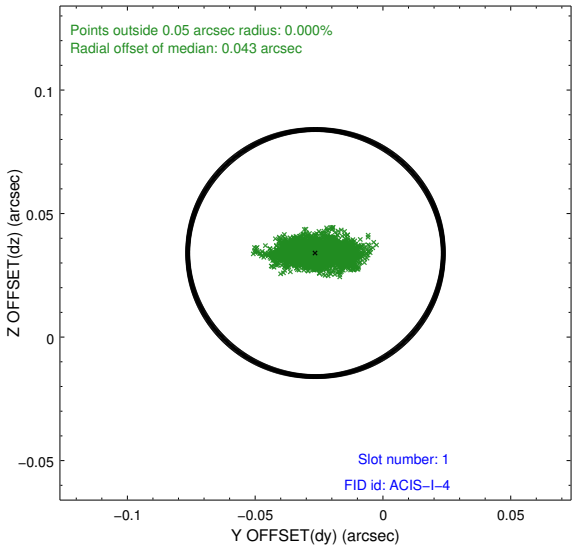


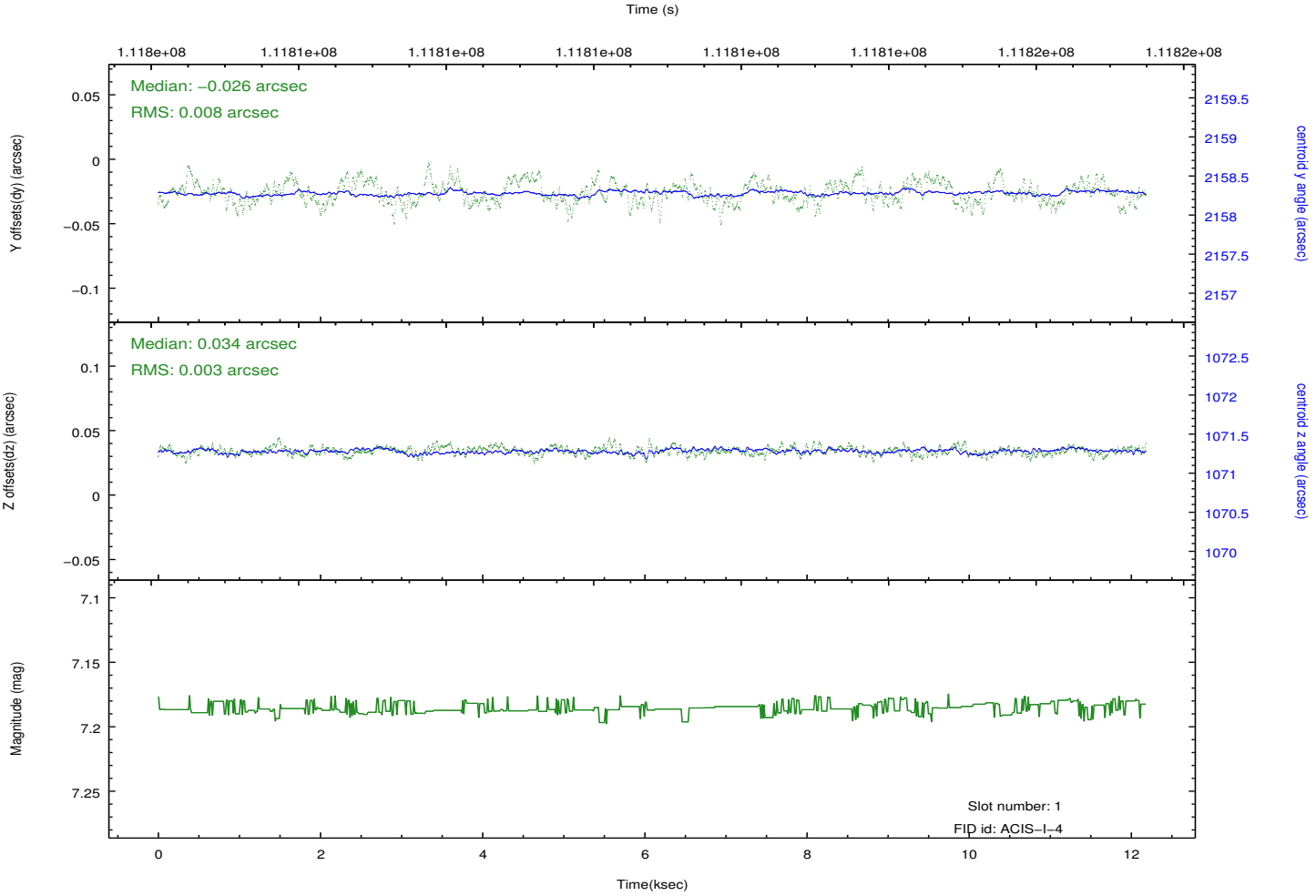




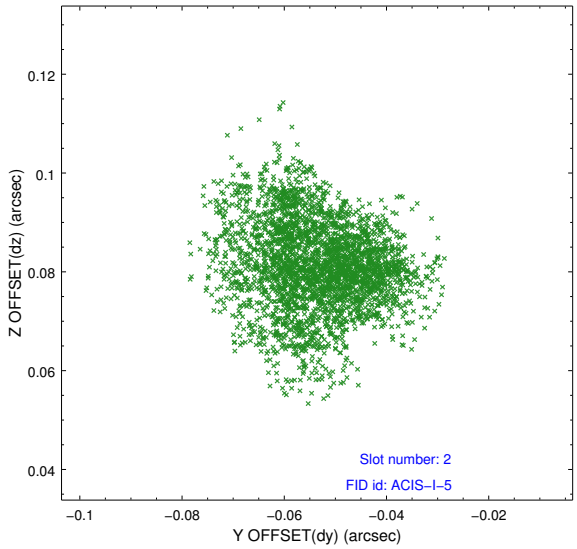
2.5.2 Slot 1

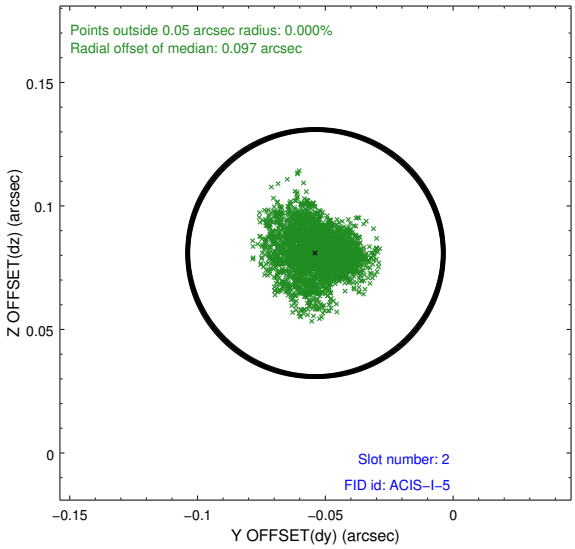

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4

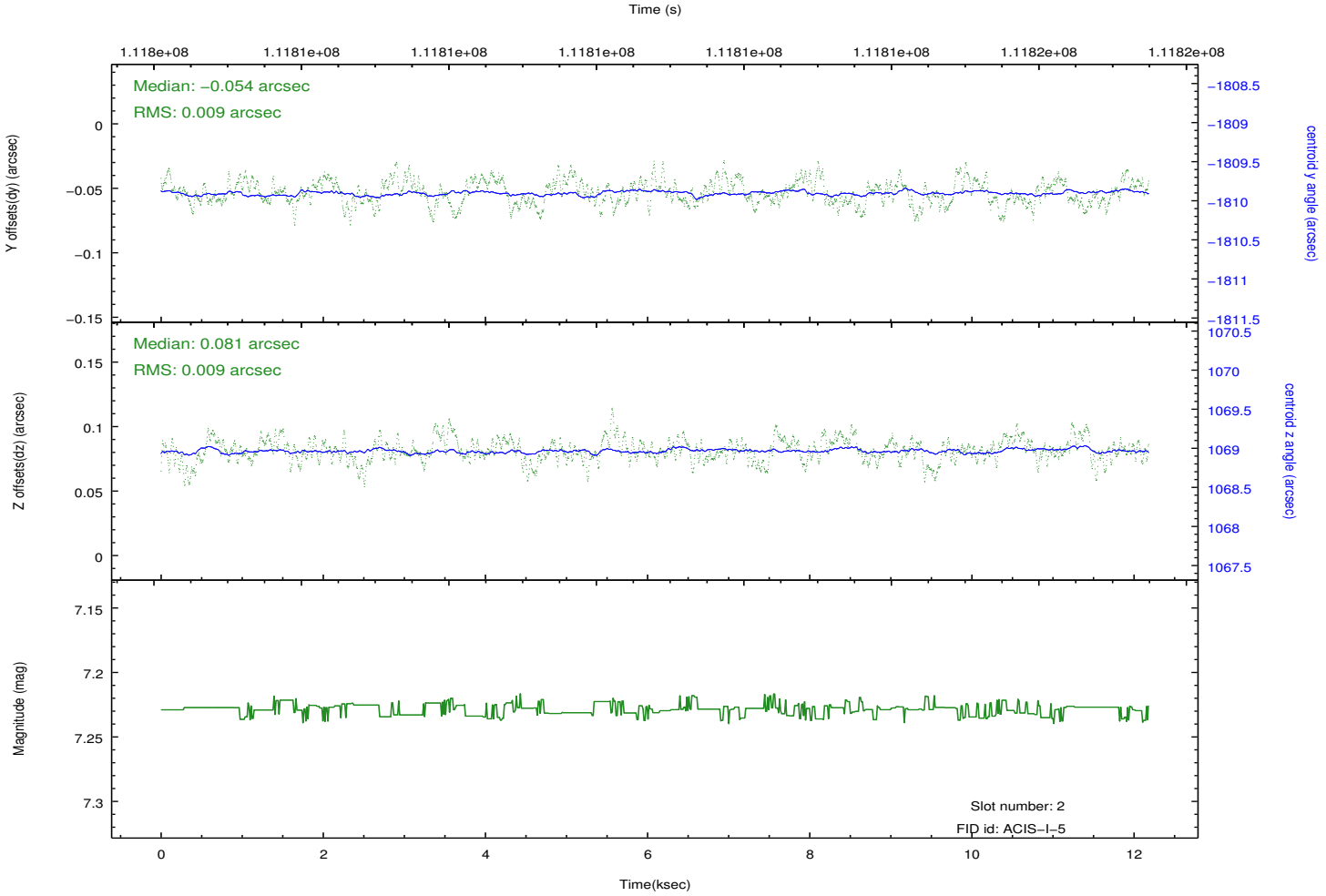

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.043 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4


Time (s)
Median: −0.026 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.034 arcsec
RMS: 0.003 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−5


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.097 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.054 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.081 arcsec
RMS: 0.009 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2012.10.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	11.759

A.2 Comments

```
Roll constraint met.
==========
A spatial region of the original bias map for CCD = 1 suffered from
anomalously high data values. Pixels in the event data that were
bias-corrected by one of the original affected bias pixels may have an
apparent energy shift. While the change in energy is expected to be
small (~20 eV), it depends on many parameters that have not yet been
fully explored for this bias anomaly. The bias map for CCD = 1 has been
reconstructed for this processing to remove this anomaly using scaled
data from a comparable bias map from another observation. The pixels
affected by the anomaly are bounded by sky coords:
(266.59972,-28.75962),(266.59549,-28.76054),(266.59989,-28.77630),(266.6
0412,-28.77538)
```