V&V Reference Report
L2 ASCDS Version : 10

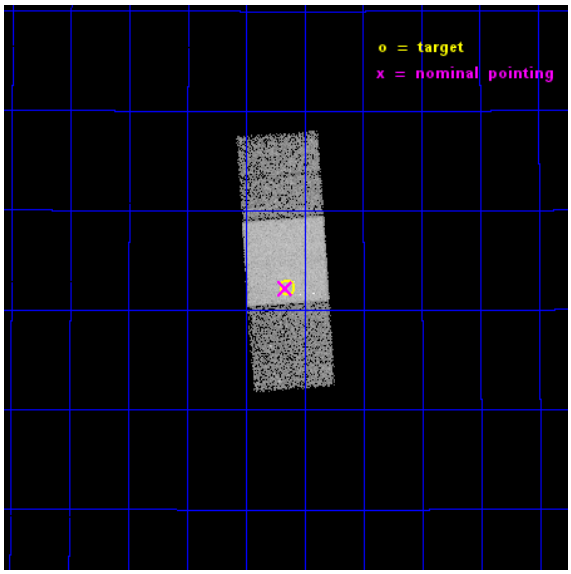
Observation 14937 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Dec 4 2014

Contents

1 Front

seq_num	601067	Sequence number
obs_id	14937	Observation id
title	Testing supermassive black hole feedback in a pristine environment	
observer	Dr. Brendan Miller	Principal investigator
object	UGC 08754	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	207.662917	Observer's specified target RA [deg]
dec_targ	35.038306	Observer's specified target Dec [deg]
ra_nom	207.66585154609	Nominal RA [deg]
dec_nom	35.036522458036	Nominal Dec [deg]
roll_nom	265.97308317208	Nominal Roll [deg]
revision	2	Processing version of data
ontime	15165.200116634	Sum of GTIs [s]
livetime	14967.055612653	Livetime [s]
ontime6	15165.200116634	Sum of GTIs [s]
ontime7	15165.200116634	Sum of GTIs [s]
ontime8	15165.200116634	Sum of GTIs [s]
l2events	58170	Number of level 2 events

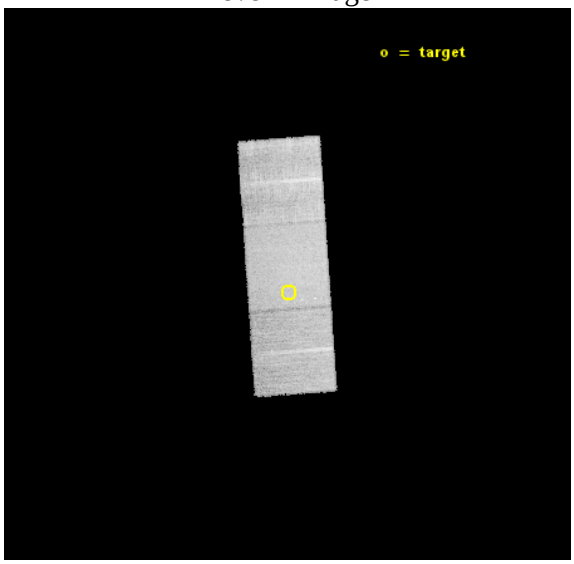


2 OBI

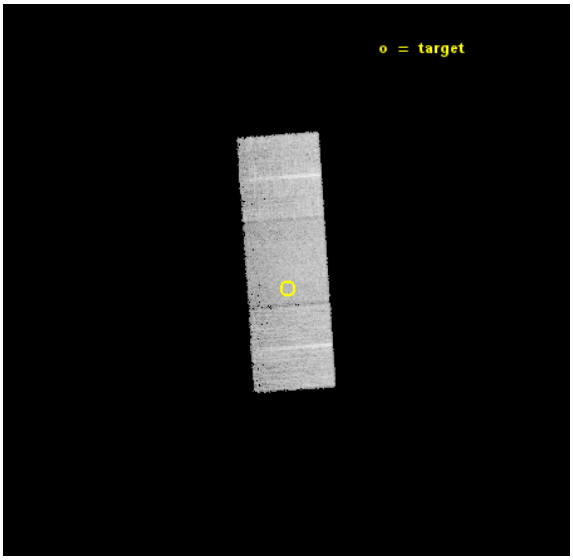
2.1 OBI

2.1.1 Images

Level 1 Image

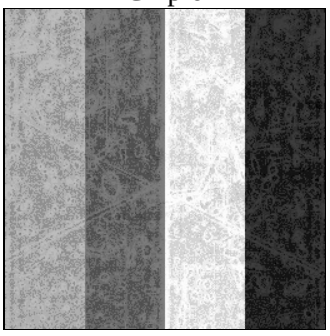


Level 1 Bad Events

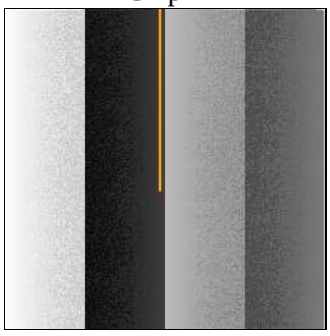


2.1.2 Bias

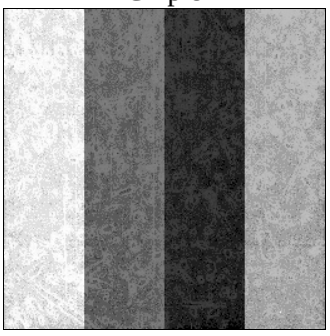
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.3	Processing system revision
caldbver	4.6.4	
date	2014-12-04T21:46:40	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	15050.239000	[s] Scheduled observation exposure time
ontime	15165.200116634	Sum of GTIs [s]
ontime6	15165.200116634	Sum of GTIs [s]
ontime7	15165.200116634	Sum of GTIs [s]
ontime8	15165.200116634	Sum of GTIs [s]
l1events	262314	Number of level 1 events

2.1.4 Events

	ccd 6	**ccd 7**	**ccd 8**
level 1 events	70422	96764	95128
rejected events	61518	54315	70411
rejected %	87%	56%	74%

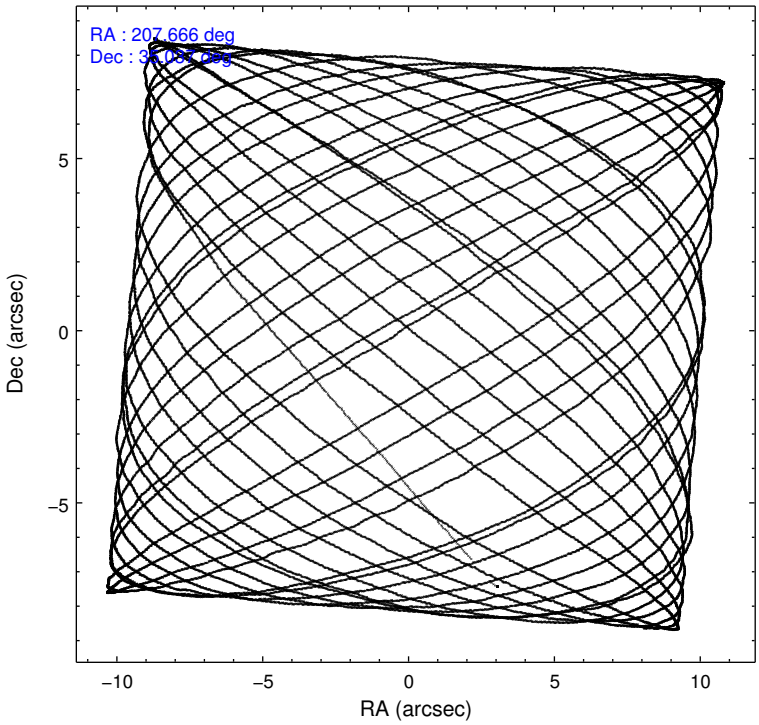
	ccd 6	**ccd 7**	**ccd 8**
grade 0 events	3027	3813	7360
	4%	3%	7%
grade 1 events	42	110	62
	0%	0%	0%
grade 2 events	2082	8520	5840
	2%	8%	6%
grade 3 events	879	3578	2576
	1%	3%	2%
grade 4 events	873	3467	2465
	1%	3%	2%
grade 5 events	3742	9992	5501
	5%	10%	5%
grade 6 events	2048	23083	6494
	2%	23%	6%
grade 7 events	57729	44201	64830
	81%	45%	68%

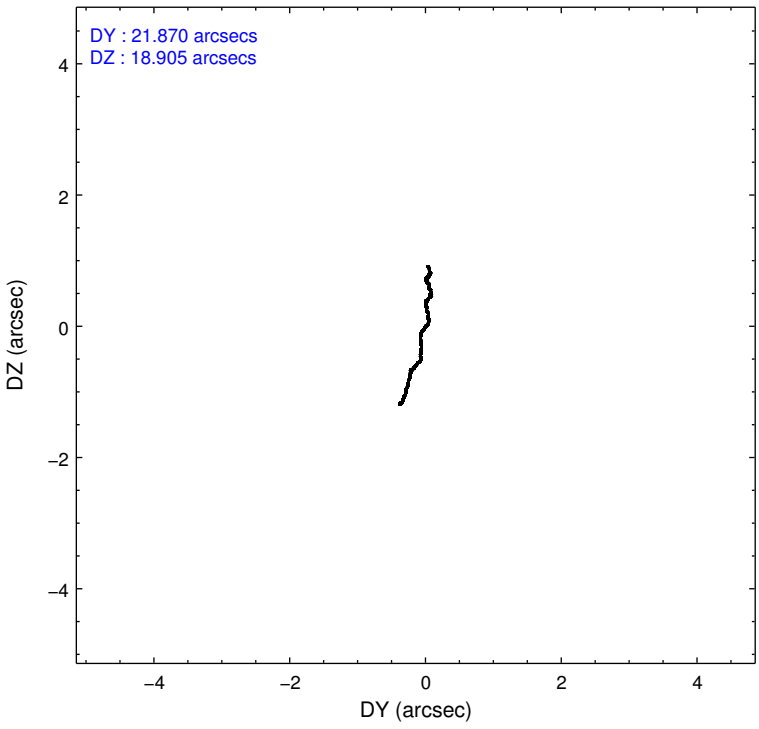
2.2 Compared Parameters

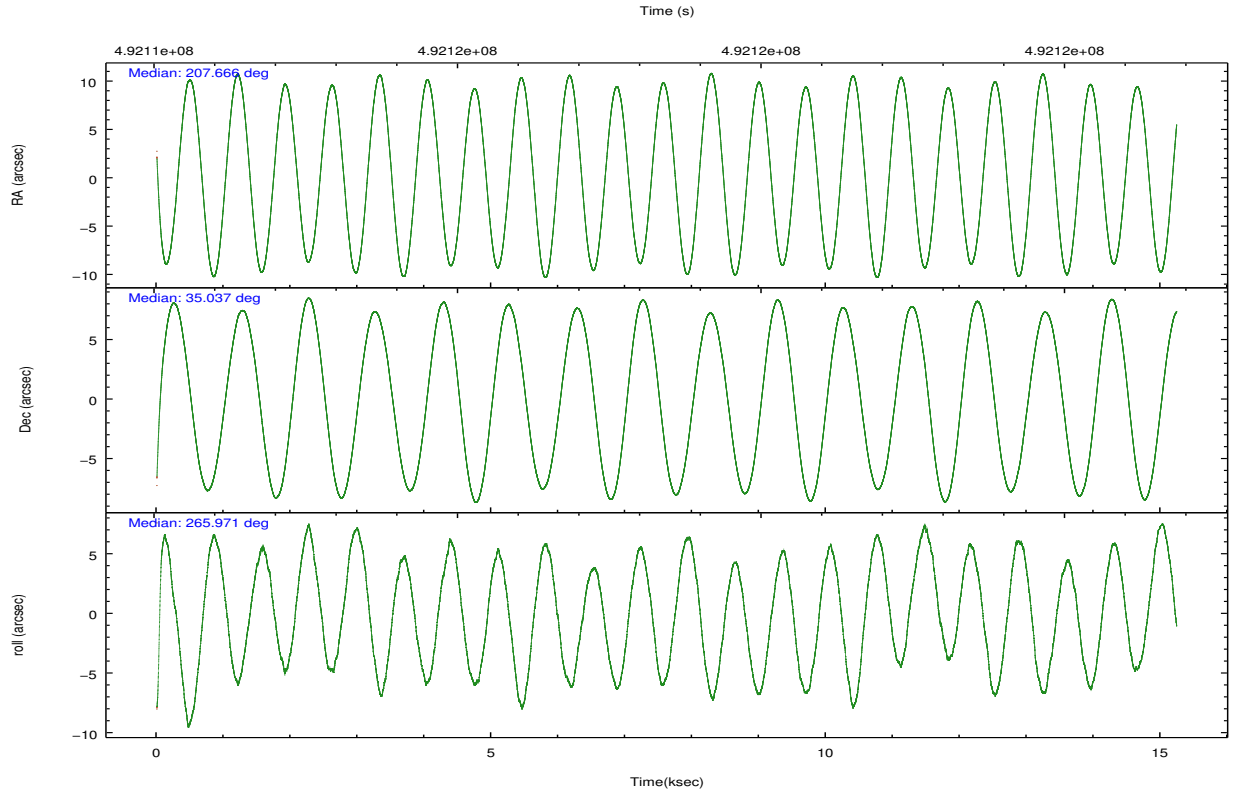
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-678	ACIS-678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	207.650849	207.6658515460872
[deg] Pointing Dec	35.060925	35.03652245803618
[deg] Pointing Roll	265.825089	265.97308317208
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1400660498719
[mm] SIM translation stage offset	0	0.00754346686406393
[s] Observation start time (MET)	492111017.184000	492109862.29308
Observation start date	2013-08-05T17:29:10	2013-08-05T17:11:02
[s] Observation end time (MET)	492126068.184000	492126293.04398
Observation end date	2013-08-05T21:40:01	2013-08-05T21:44:53
Read mode	TIMED	TIMED

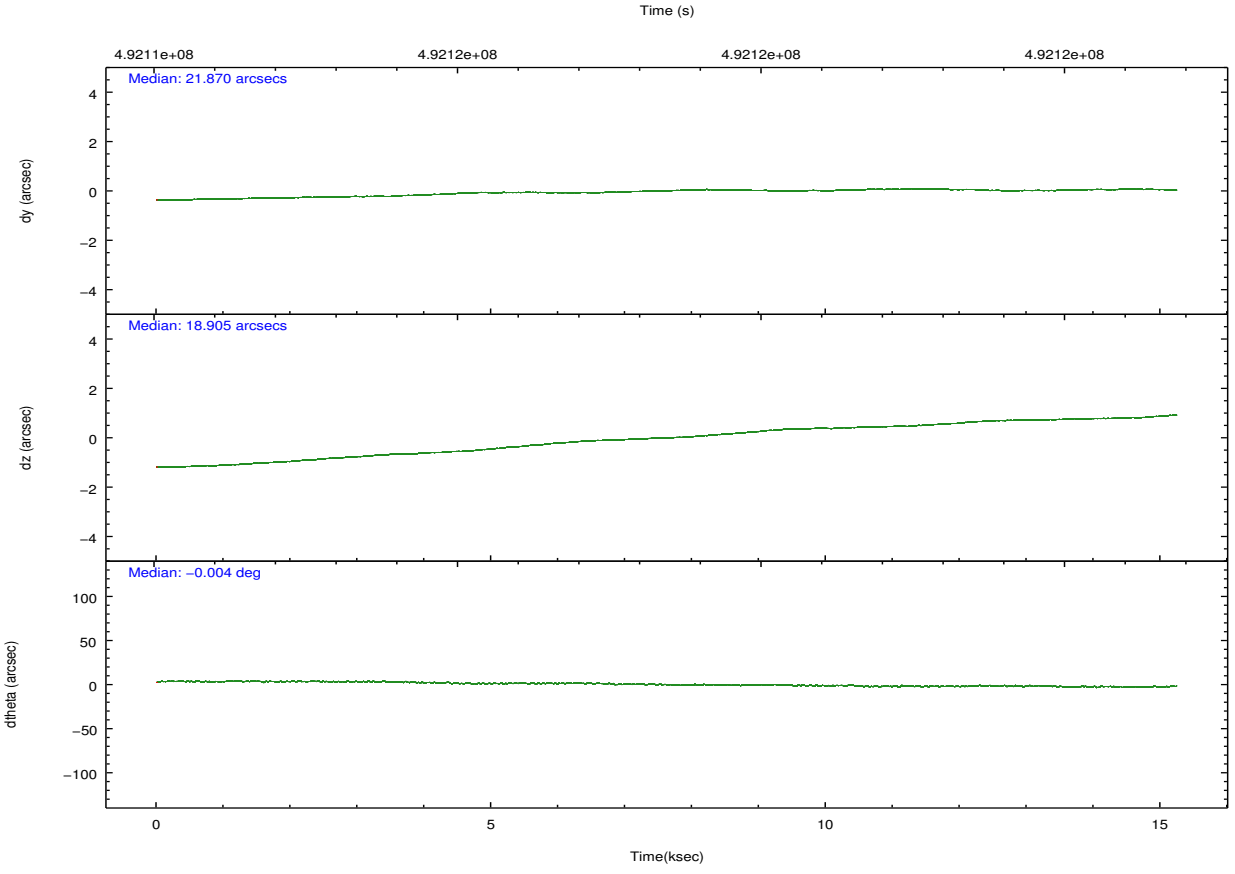
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	Y	Y
CCD S4 on	O2	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

2.3 Aspect


RA : 207.666 deg
Dec : 35.054 deg
5
0
−5
Dec (arcsec)
−10
−5
0
5
10
RA (arcsec)


DY : 21.870 arcsecs
DZ : 18.905 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
4.9211e+08
4.9212e+08
4.9212e+08
4.9212e+08
Median: 207.666 deg
RA (arcsec)
Median: 35.037 deg
Dec (arcsec)
Median: 265.971 deg
roll (arcsec)
Time(ksec)

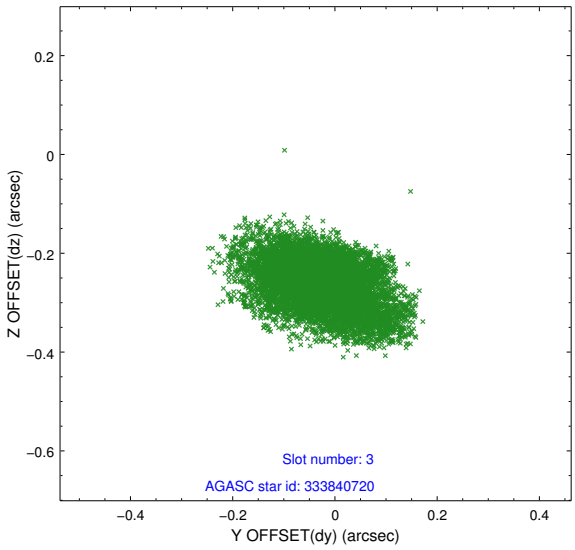

Time (s)
4.9211e+08
4.9212e+08
4.9212e+08
4.9212e+08
Median: 21.870 arcsecs
dy (arcsec)
Median: 18.905 arcsecs
dz (arcsec)
Median: −0.004 deg
dtheta (arcsec)
Time(ksec)

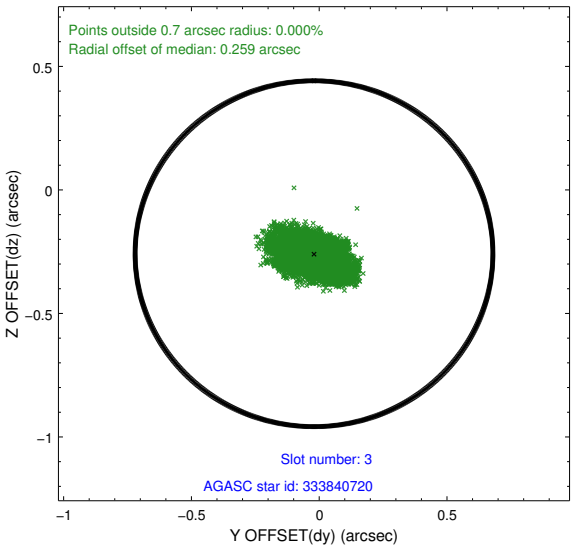
Slot Statistics

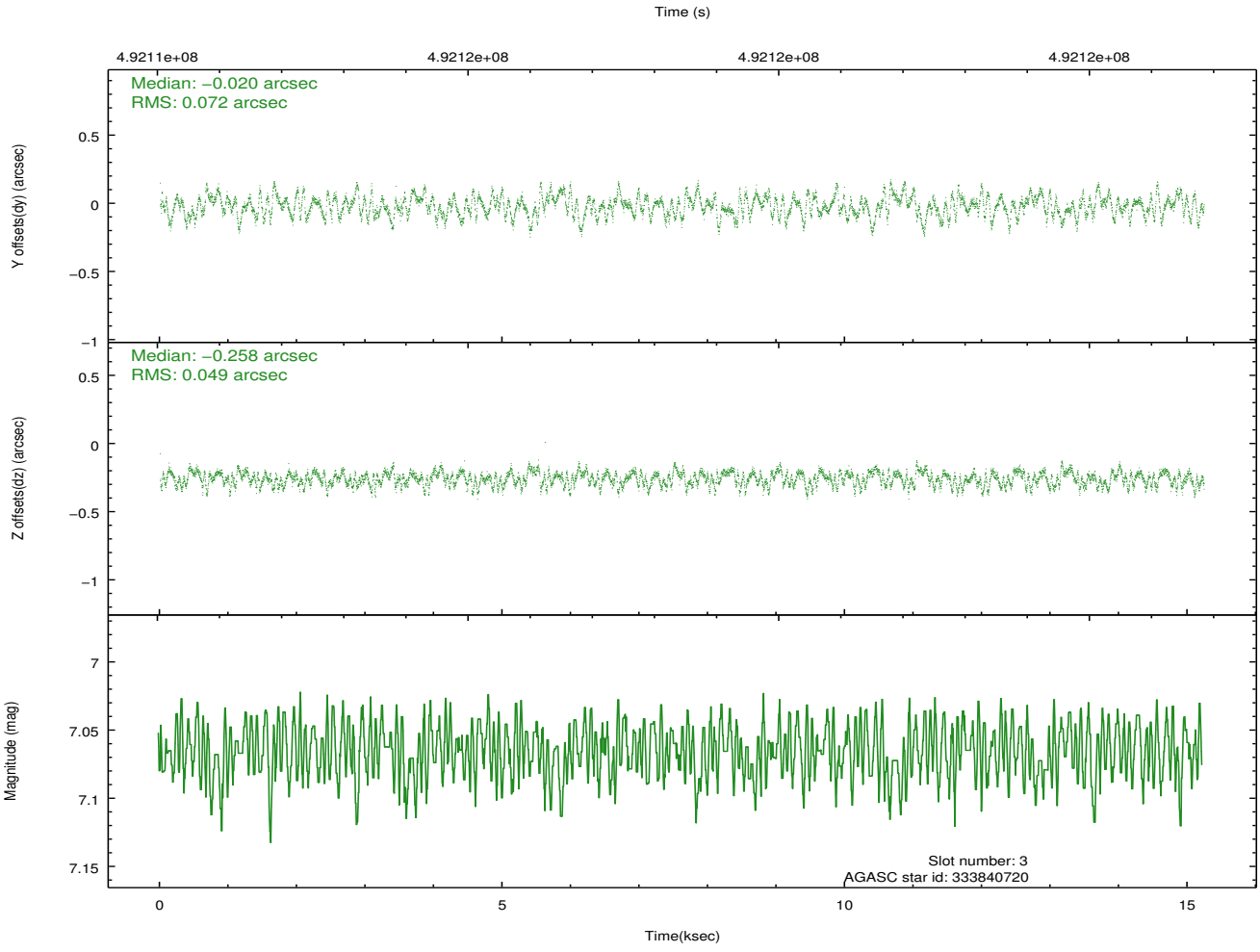
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.04	3717	-0.117	-0.069	0.019	0.030	0.000000	0.000000	-775.08	-1740.39
1	FID		ACIS-S-4	7.13	3717	0.274	0.074	0.009	0.016	0.000000	0.000000	2138.46	167.91
2	FID		ACIS-S-5	7.16	3716	-0.188	0.004	0.017	0.029	0.000000	0.000000	-1827.61	161.86
3	GUIDE	used	333840720	7.07	7432	-0.020	-0.258	0.091	0.156	207.768887	34.772519	1010.17	424.19
4	GUIDE	used	333843776	7.95	7432	0.138	0.140	0.062	0.102	207.485213	34.779805	1045.14	-414.32
5	GUIDE	used	334235744	8.46	7426	-0.107	0.046	0.083	0.137	208.109836	35.094245	-220.94	1339.66
6	GUIDE	used	334238600	9.21	7418	-0.086	-0.001	0.122	0.192	208.406974	35.386229	-1338.06	2127.42
7	GUIDE	used	334234032	9.03	7415	0.079	0.076	0.103	0.164	208.119343	35.679452	-2323.70	1204.60

2.4 Star Slots

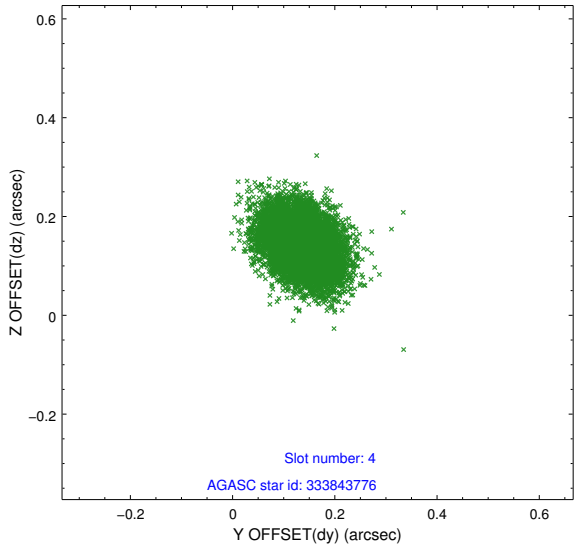
2.4.1 Slot 3

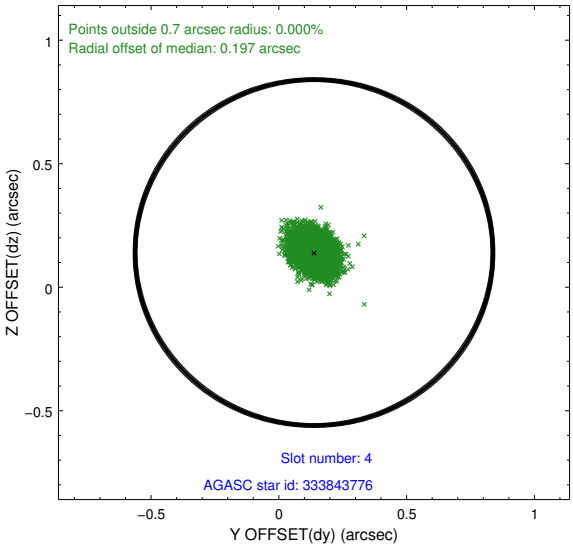


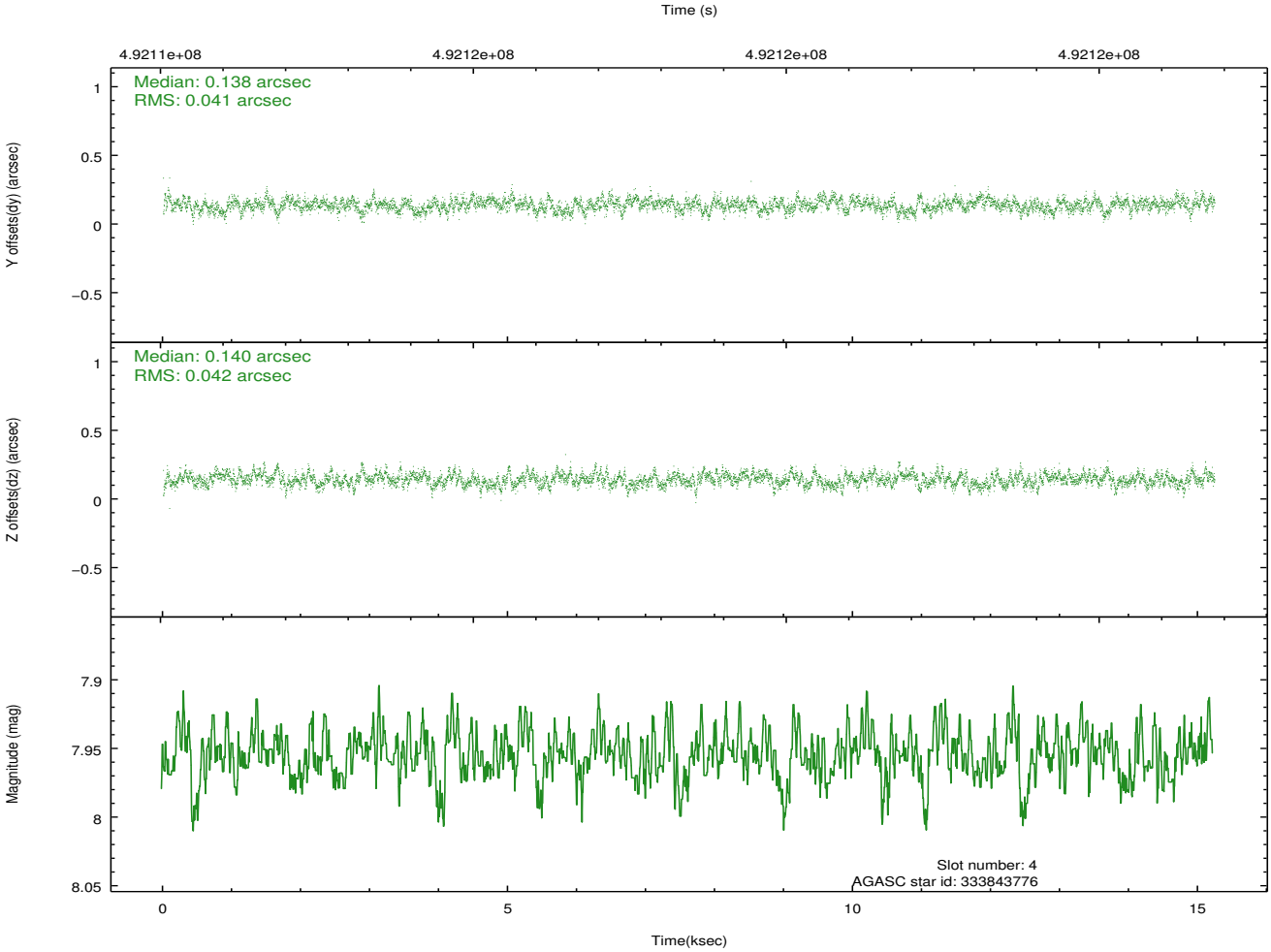




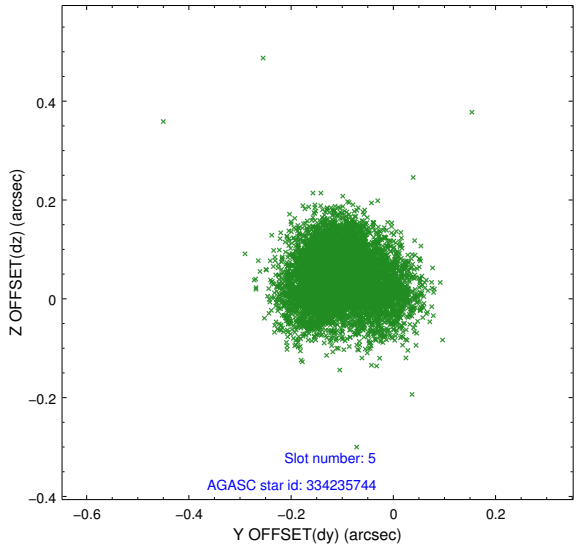
2.4.2 Slot 4

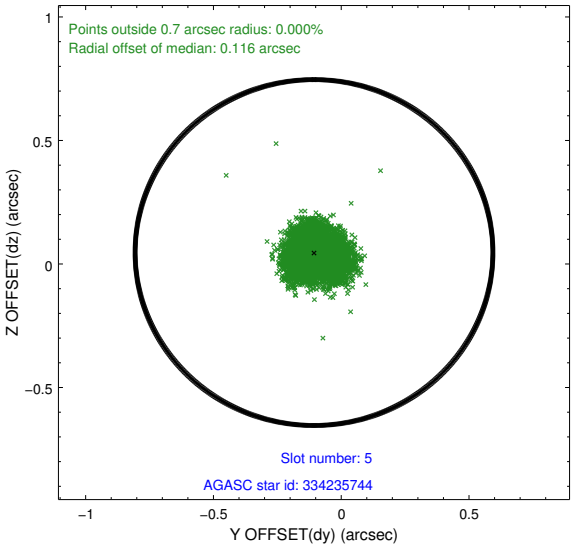

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 333843776

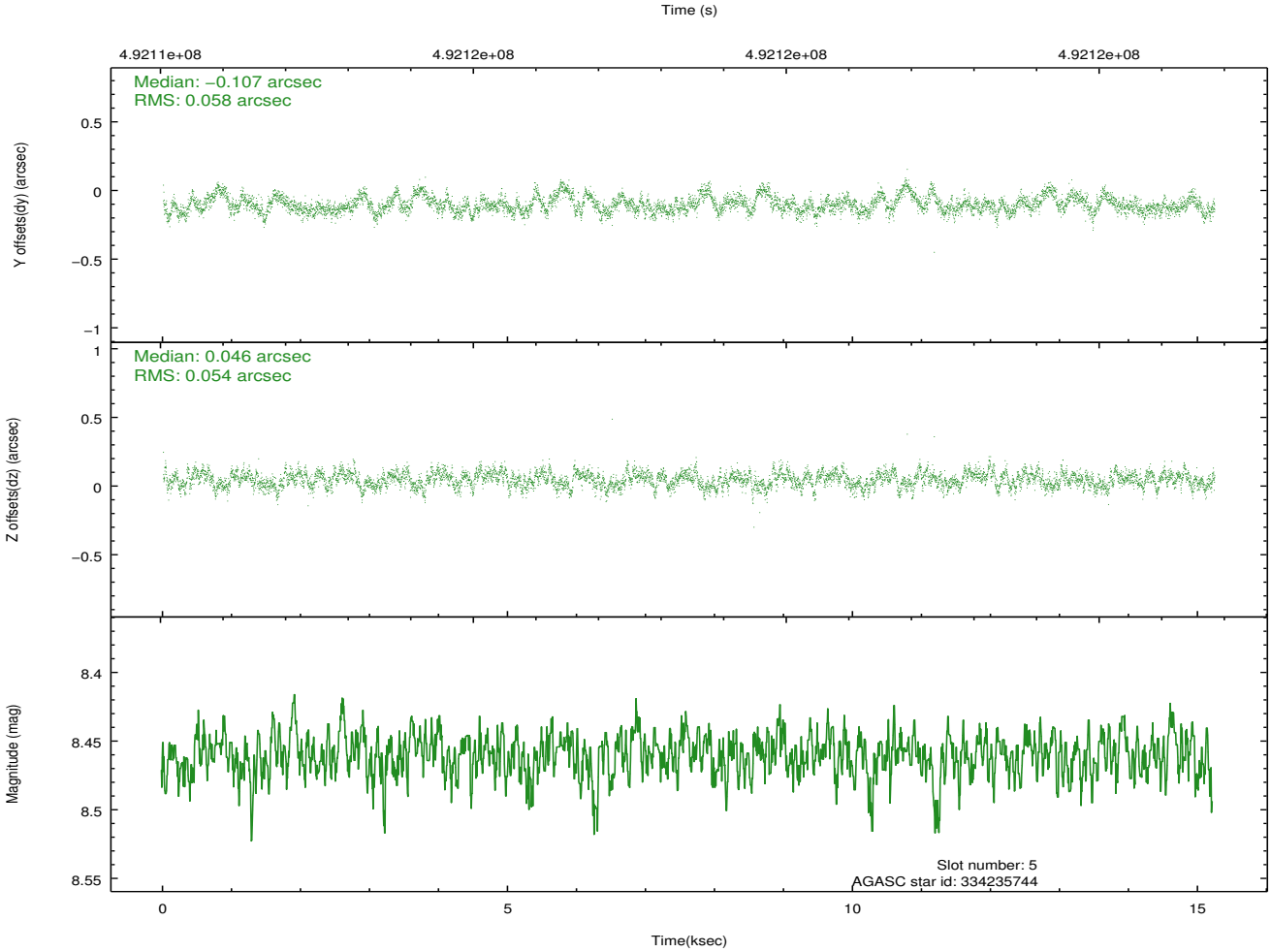

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.197 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 333843776


Time (s)
Median: 0.138 arcsec
RMS: 0.041 arcsec
Y offsets(dy) (arcsec)
Median: 0.140 arcsec
RMS: 0.042 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 333843776
Time(ksec)

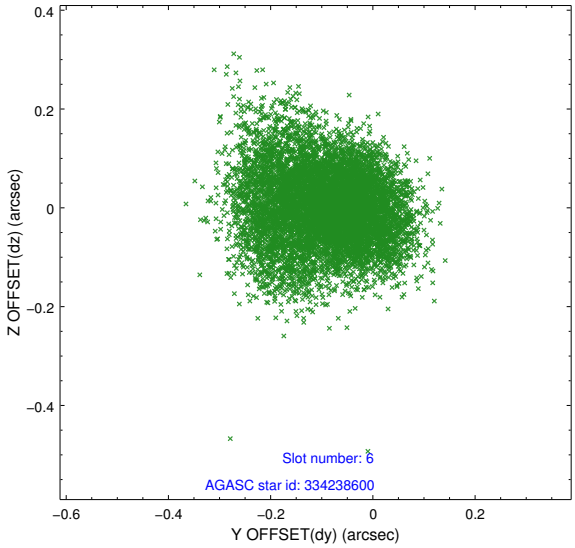
2.4.3 Slot 5

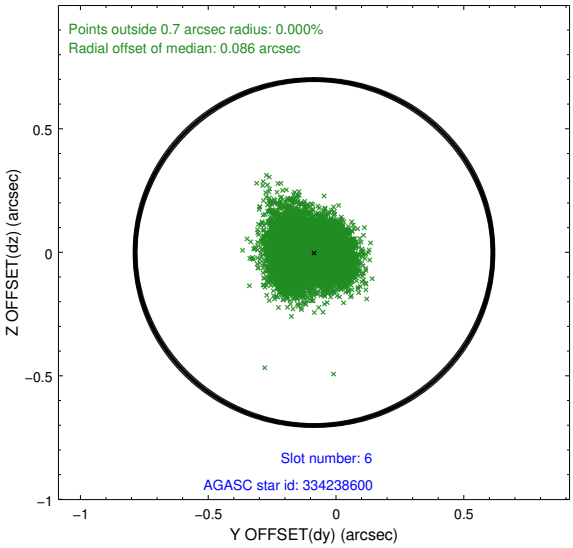

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 334235744

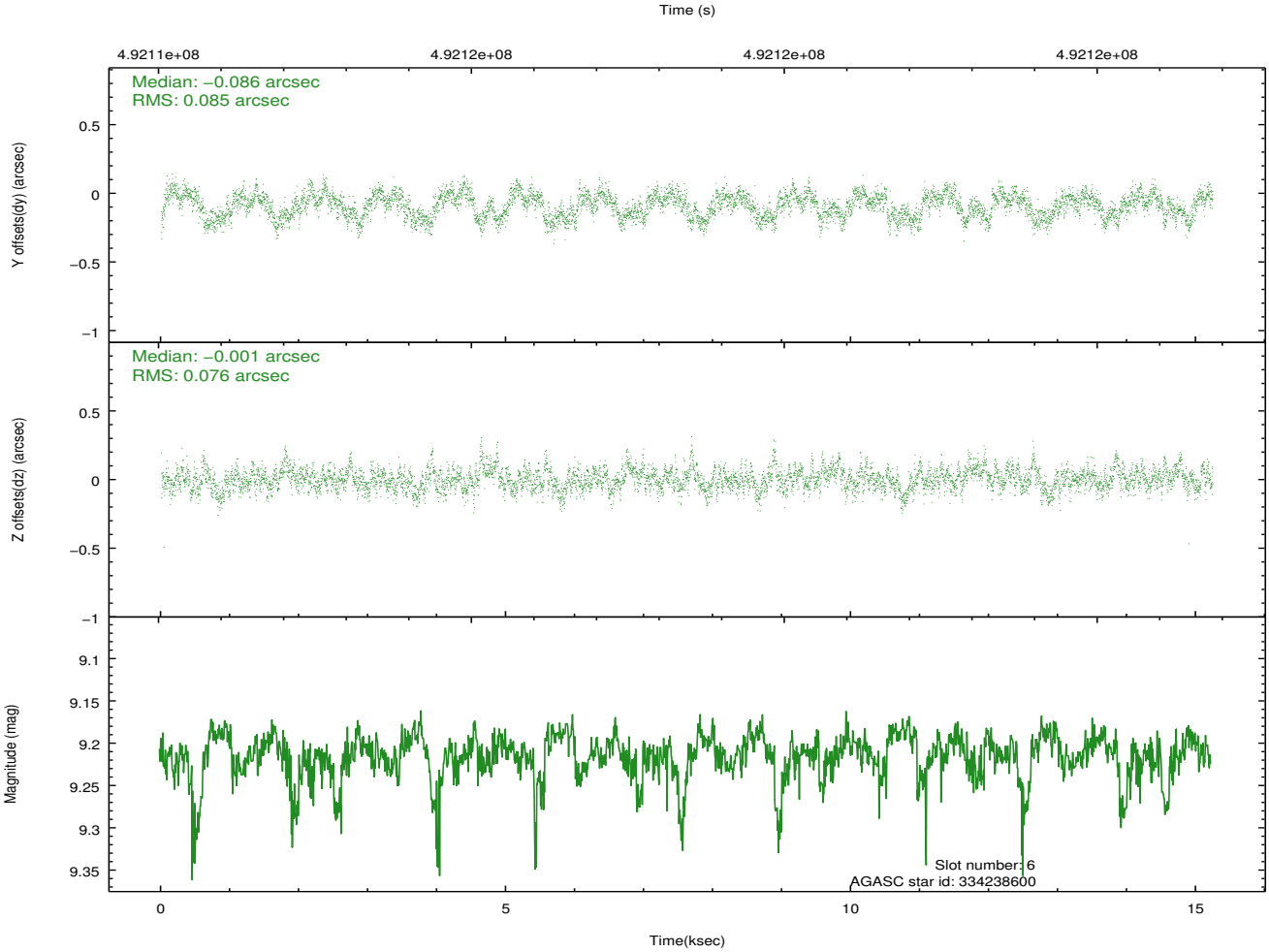

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.116 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 334235744


Time (s)
Median: −0.107 arcsec
RMS: 0.058 arcsec
Y offsets(dy) (arcsec)
Median: 0.046 arcsec
RMS: 0.054 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 334235744
Time(ksec)

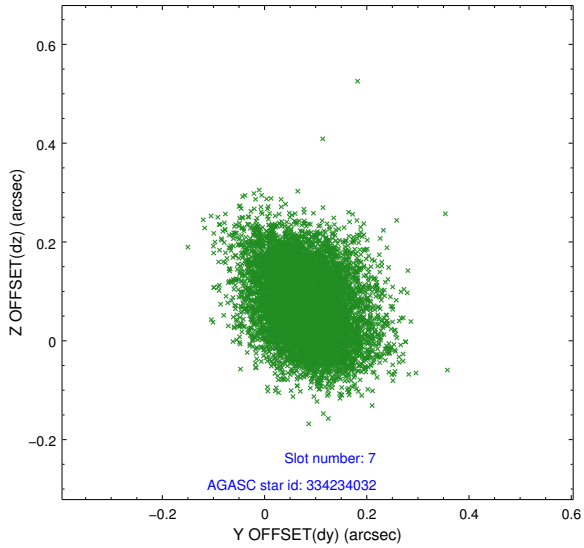
2.4.4 Slot 6

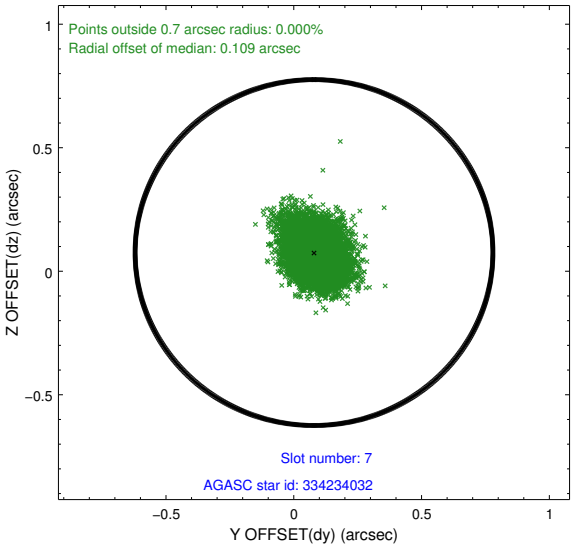

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 334238600

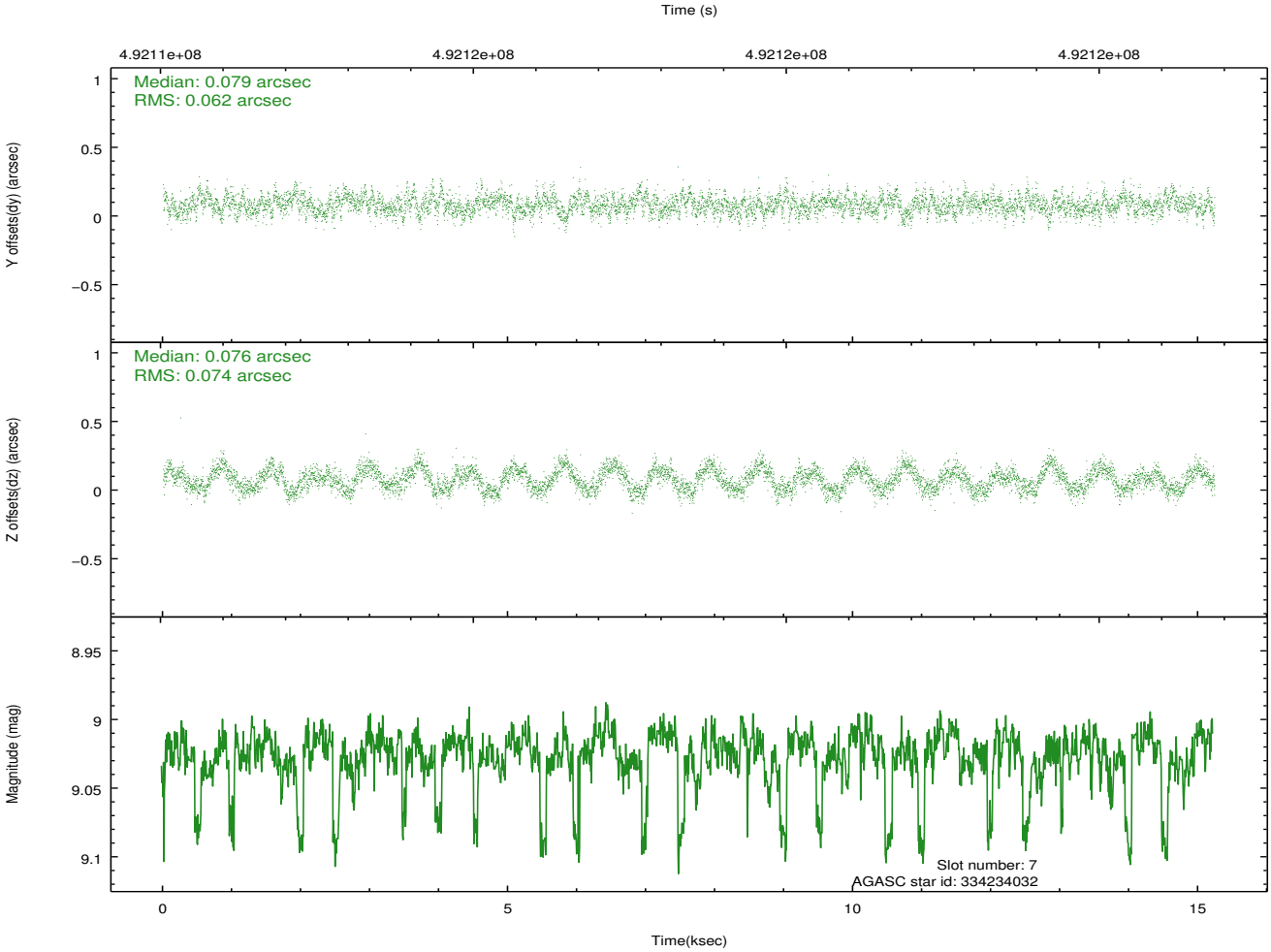

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.086 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 334238600


Time (s)
Median: −0.086 arcsec
RMS: 0.085 arcsec
Y offsets(dy) (arcsec)
Median: −0.001 arcsec
RMS: 0.076 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 334238600
Time(ksec)

2.4.5 Slot 7

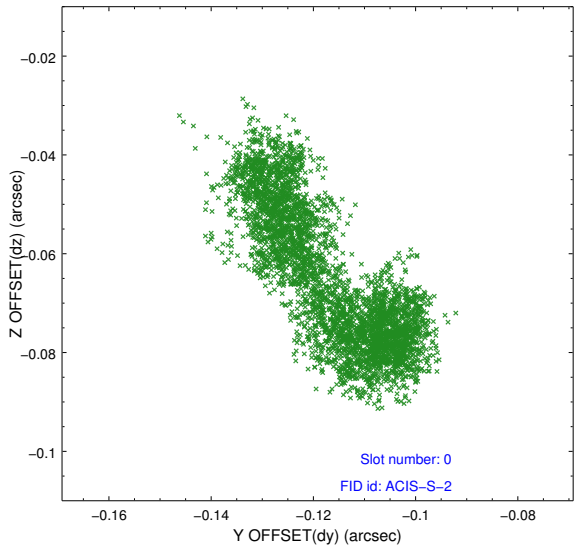

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 334234032

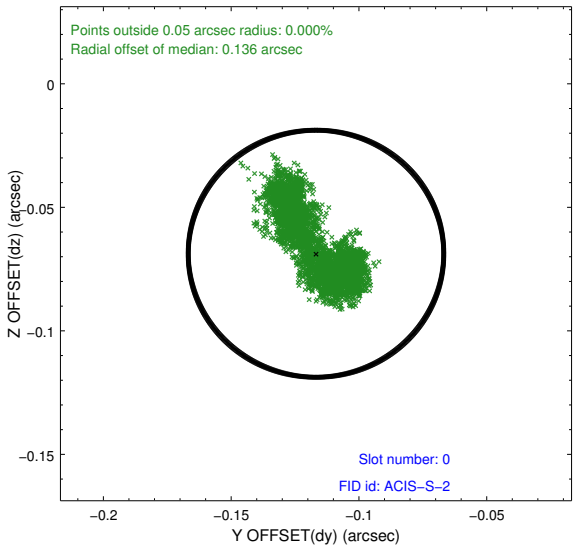

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.109 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 334234032

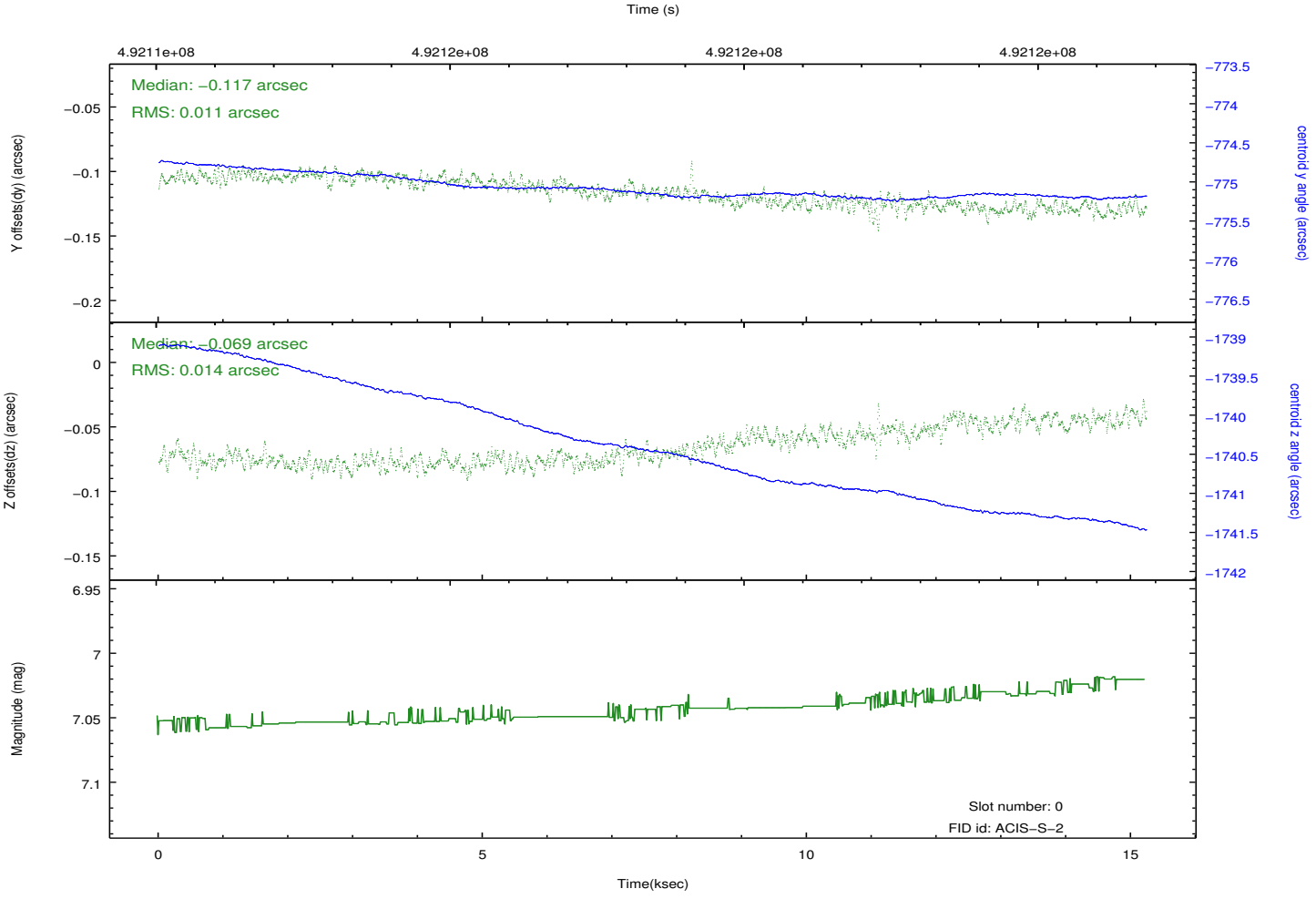

Time (s)
Median: 0.079 arcsec
RMS: 0.062 arcsec
Y offsets(dy) (arcsec)
Median: 0.076 arcsec
RMS: 0.074 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 334234032
Time(ksec)

2.5 FID Slots

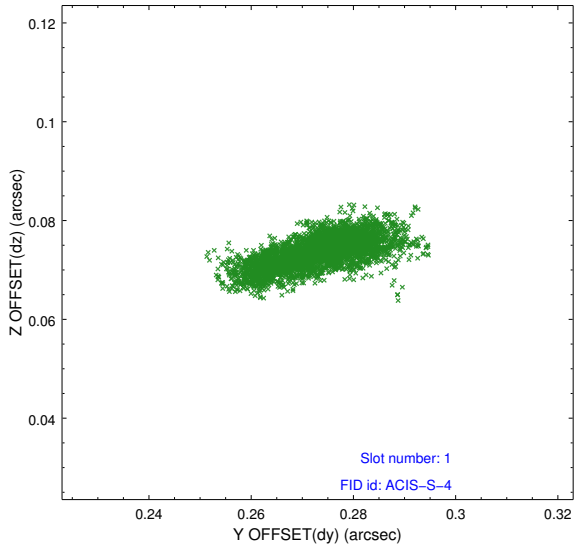
2.5.1 Slot 0

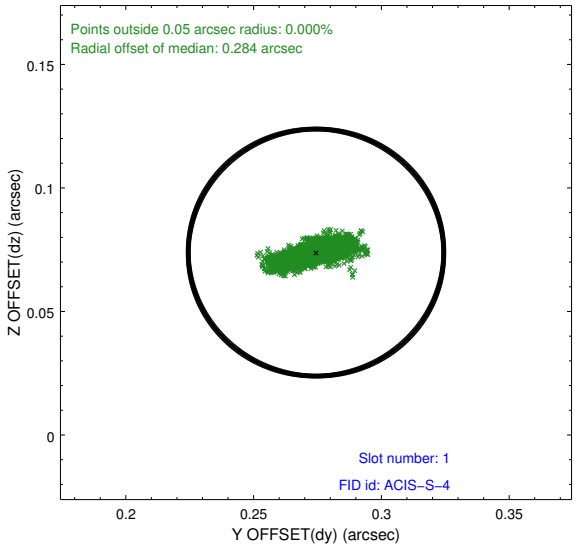


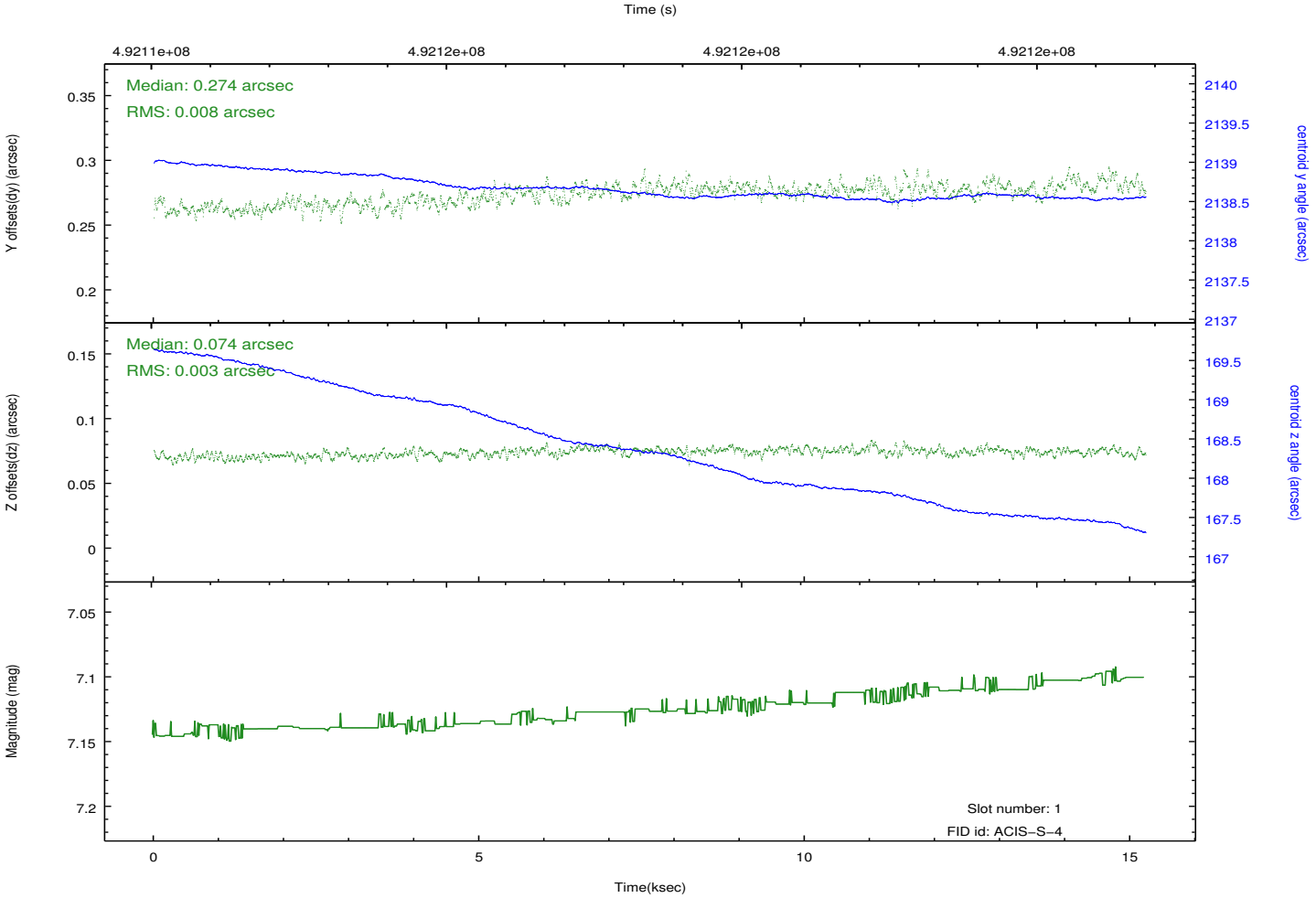




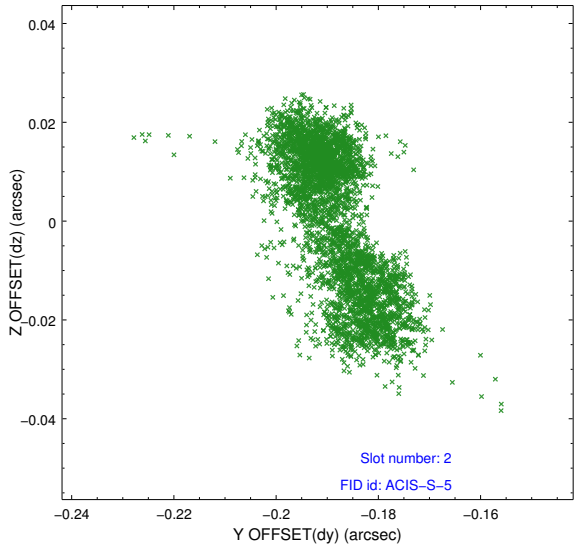
2.5.2 Slot 1

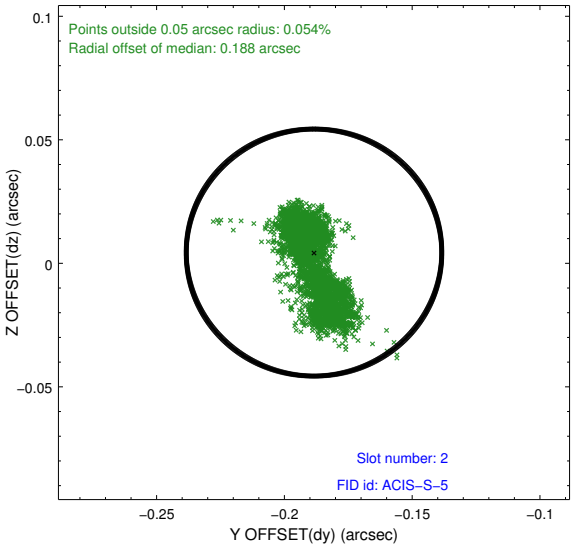

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

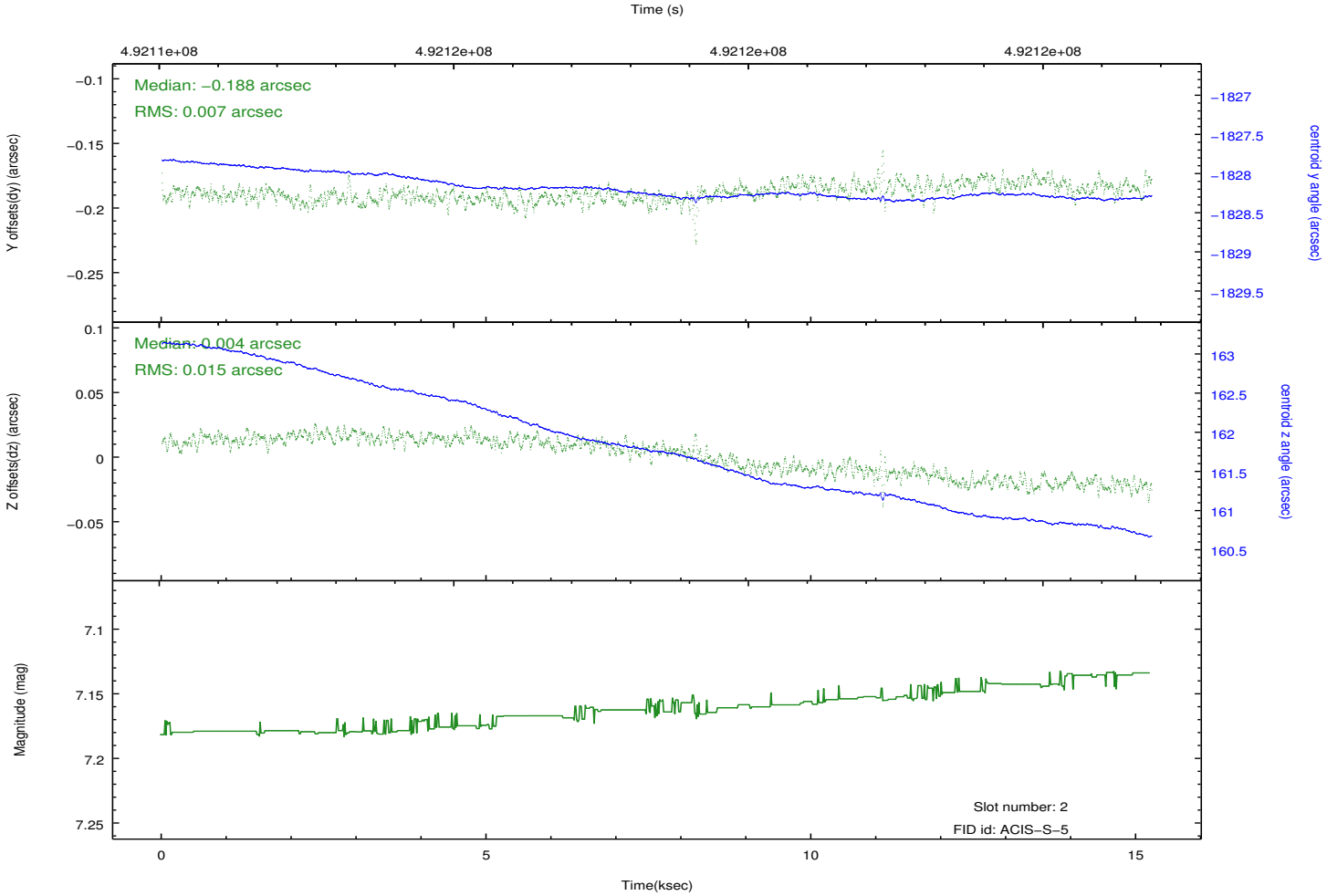

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.284 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.274 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.074 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: 0.054%
Radial offset of median: 0.188 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.188 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.004 arcsec
RMS: 0.015 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−5
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2014.12.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.165200116634

A.2 Comments

```
These data have been reprocessed with new aspect alignment calibration
files that correct small mean offsets (up to 0.4 arcsecs) and improve
overall astrometric accuracy. The new calibration was determined using
data from the time period being reprocessed and was performed using
cross-correlation of X-ray sources with radio and optical counterparts.
```