V&V Reference Report
L2 ASCDS Version : 8.5.1.1

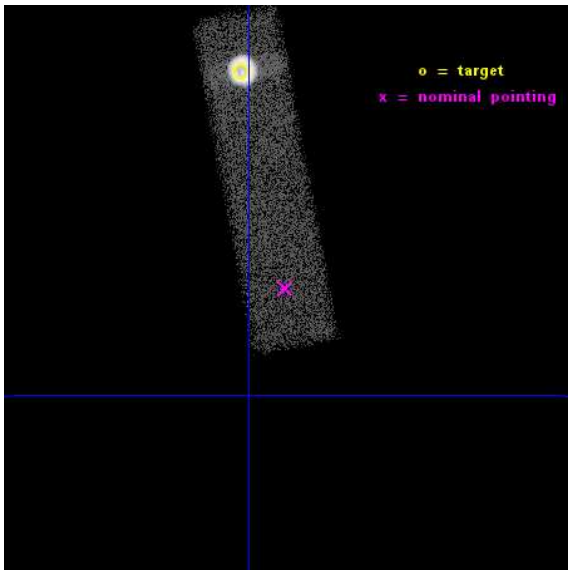
Observation 15558 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Nov 30 2014

Contents

1 Front

seq_num	590530	Sequence number
obs_id	15558	Observation id
title	AO-14 S3 Calibration Observations of E0102-72	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	E0102-72 S3,-120,-5.2,0,0	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.01	Observer's specified target RA [deg]
dec_targ	-72.032028	Observer's specified target Dec [deg]
ra_nom	15.947164539474	Nominal RA [deg]
dec_nom	-72.122480449369	Nominal Dec [deg]
roll_nom	259.07137475327	Nominal Roll [deg]
revision	2	Processing version of data
ontime	24234.214278162	Sum of GTIs [s]
livetime	23051.663919111	Livetime [s]
ontime7	24234.214278162	Sum of GTIs [s]
l2events	129667	Number of level 2 events

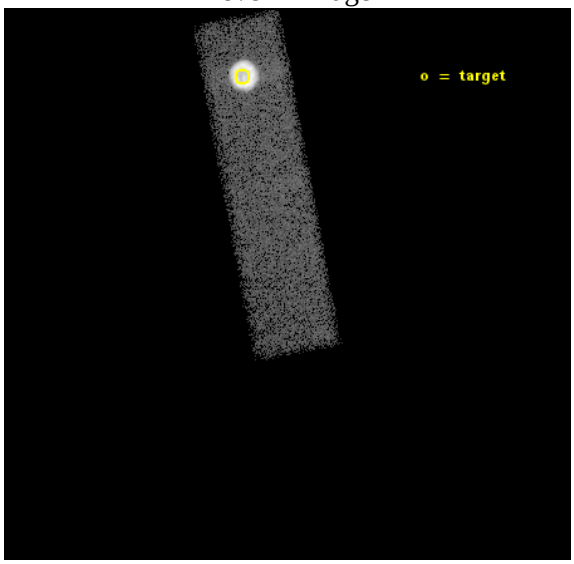


2 OBI

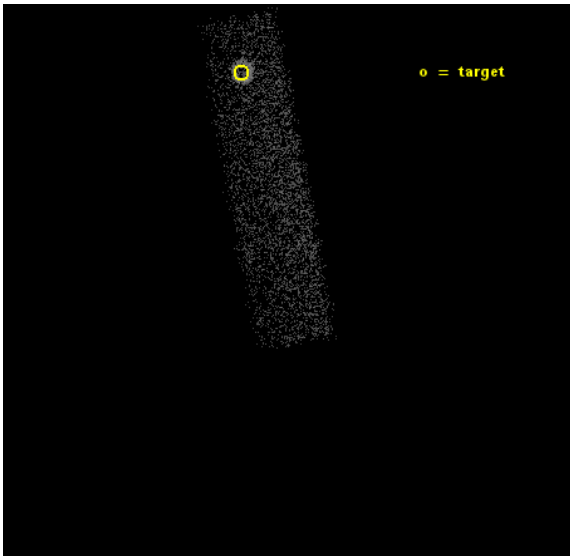
2.1 OBI

2.1.1 Images

Level 1 Image

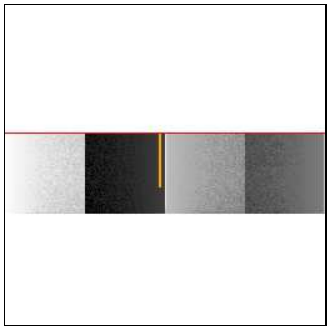


Level 1 Bad Events



2.1.2 Bias

Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.3	Processing system revision
caldbver	4.6.4	
date	2014-12-01T08:29:00	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	24173.768000	[s] Scheduled observation exposure time
ontime	24234.214278162	Sum of GTIs [s]
ontime7	24234.214278162	Sum of GTIs [s]
l1events	148480	Number of level 1 events

2.1.4 Events

	ccd 7
level 1 events	148480
rejected events	18138
rejected %	12%

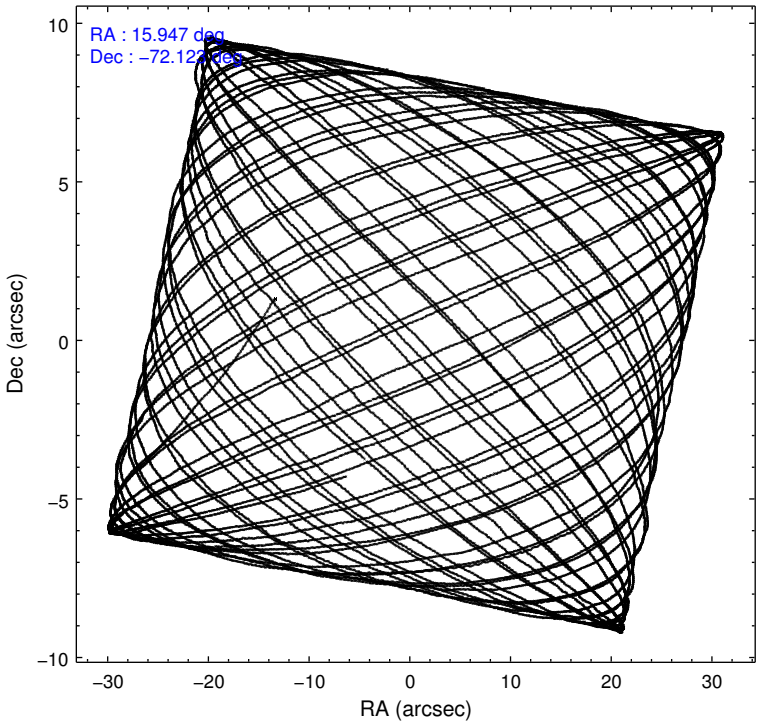
	ccd 7
grade 0 events	42838
	28%
grade 1 events	172
	0%
grade 2 events	33119
	22%
grade 3 events	15456
	10%
grade 4 events	15882
	10%
grade 5 events	4698
	3%
grade 6 events	23050
	15%
grade 7 events	13265
	8%

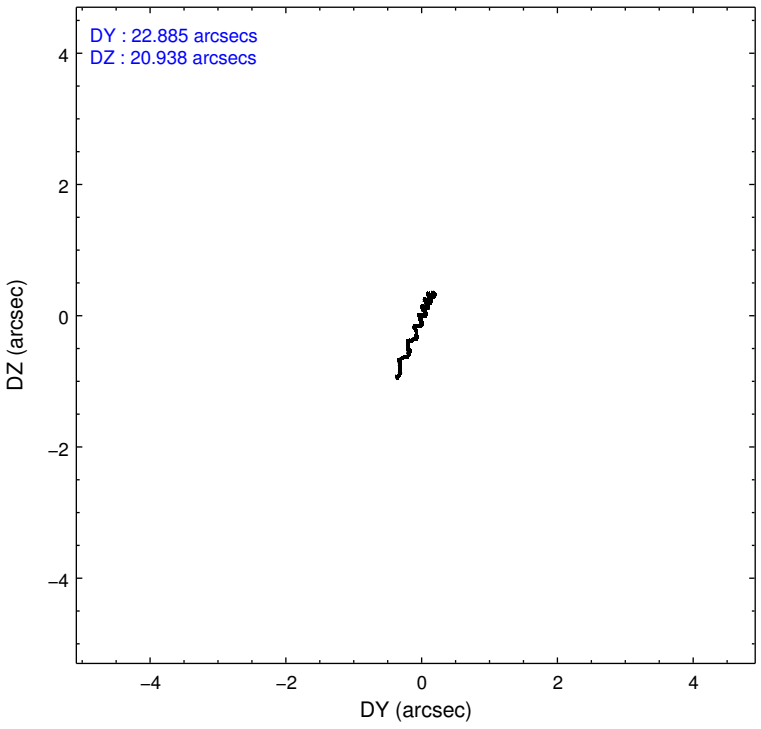
2.2 Compared Parameters

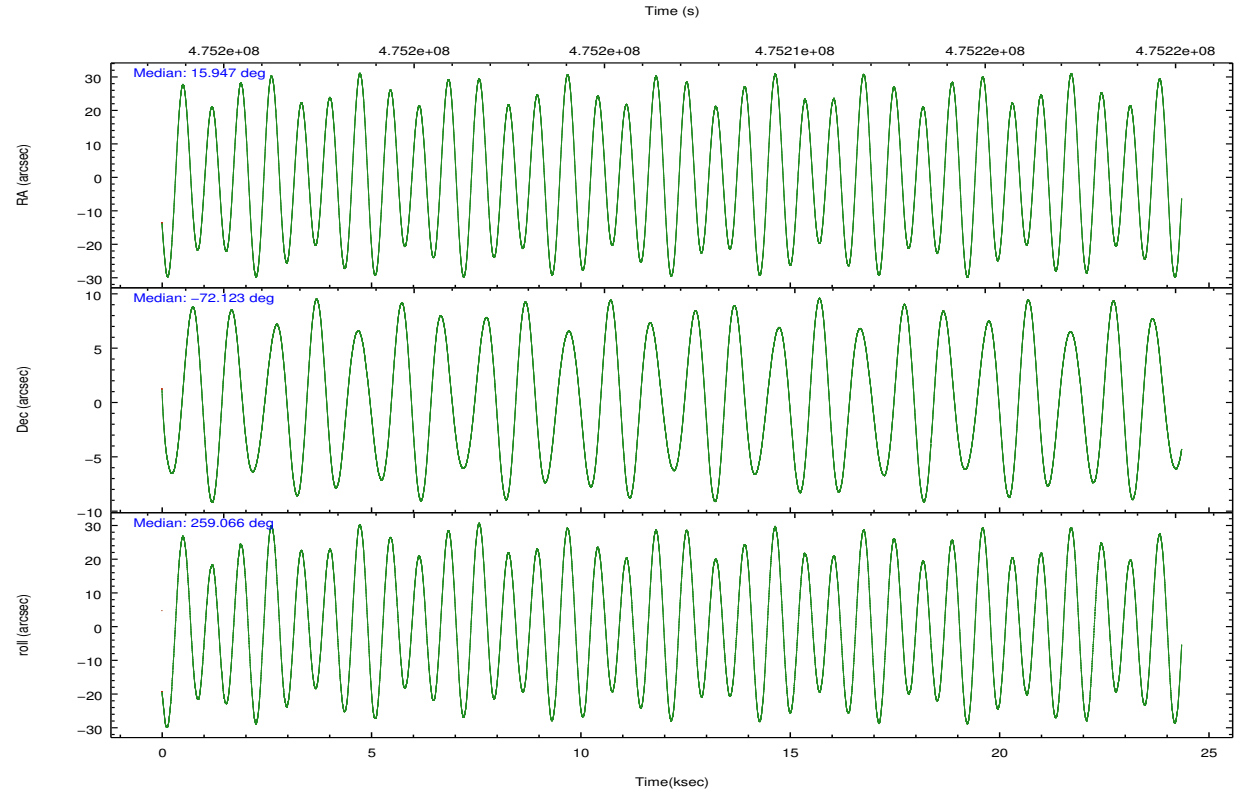
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-7	ACIS-7
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	15.917051	15.94716453947376
[deg] Pointing Dec	-72.096726	-72.12248044936864
[deg] Pointing Roll	258.886098	259.0713747532718
[s] Window start time (MET)	470707267.184000	470707267.184000
[s] Window stop time (MET)	483667267.184000	483667267.184000
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1425803651734
[mm] SIM translation stage offset	0	0.01005778216563158
[s] Observation start time (MET)	475194767.184000	475193451.51369
Observation start date	2013-01-21T22:31:40	2013-01-21T22:10:51
[s] Observation end time (MET)	475218941.184000	475219166.20258
Observation end date	2013-01-22T05:14:34	2013-01-22T05:19:26
Read mode	TIMED	TIMED

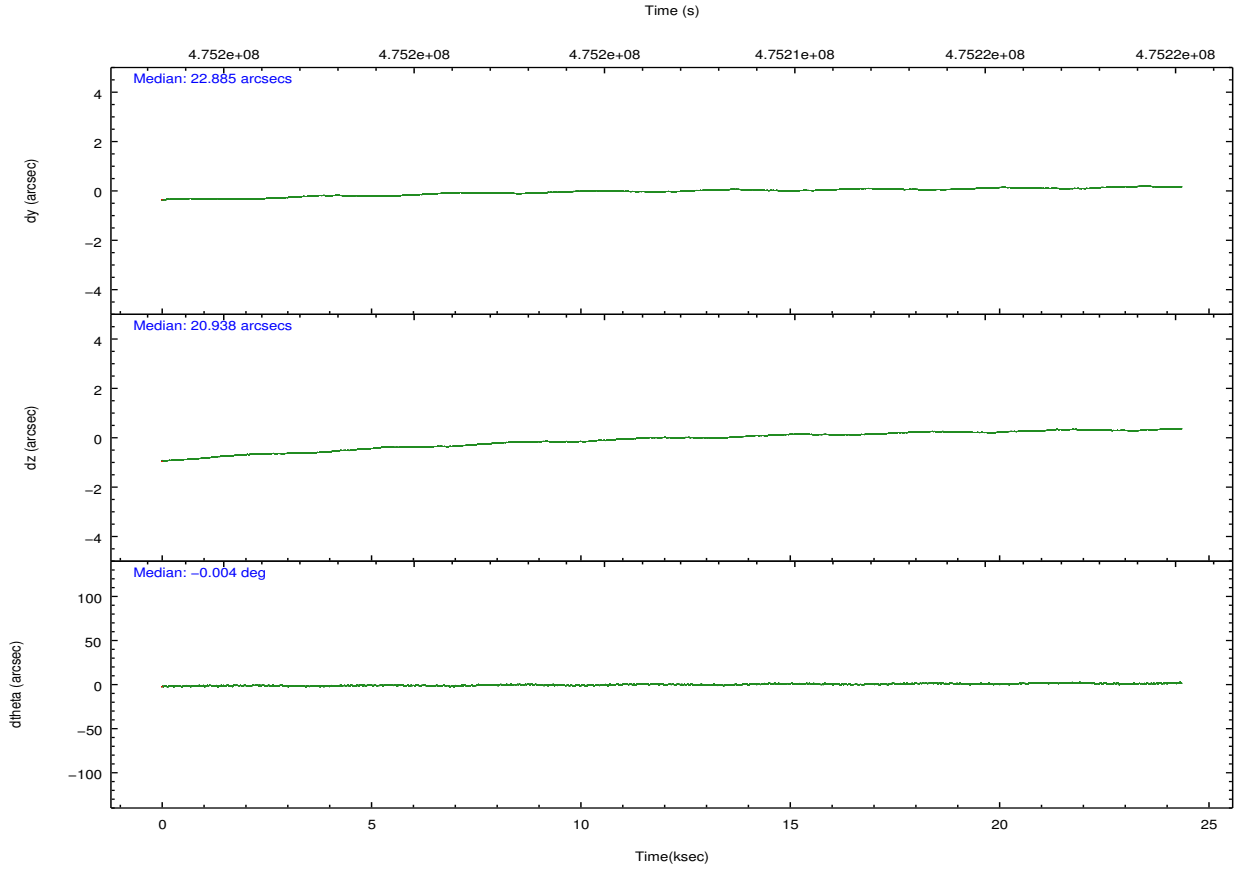
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/4
Subarray start row	360	360
Subarray row count	256	256
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.8

2.3 Aspect


RA : 15.947 deg
Dec : −72.123 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−30
−20
−10
0
10
20
30


DY : 22.885 arcsecs
DZ : 20.938 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.752e+08
4.752e+08
4.752e+08
4.7521e+08
4.7522e+08
4.7522e+08
Median: 15.947 deg
RA (arcsec)
Median: −72.123 deg
Dec (arcsec)
Median: 259.066 deg
roll (arcsec)
Time(ksec)

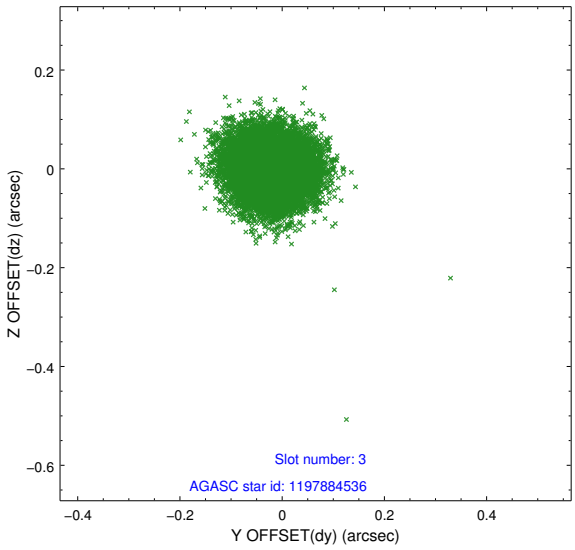

Time (s)
4.752e+08
4.752e+08
4.752e+08
4.7521e+08
4.7522e+08
4.7522e+08
Median: 22.885 arcsecs
dy (arcsec)
Median: 20.938 arcsecs
dz (arcsec)
Median: −0.004 deg
dtheta (arcsec)
Time(ksec)

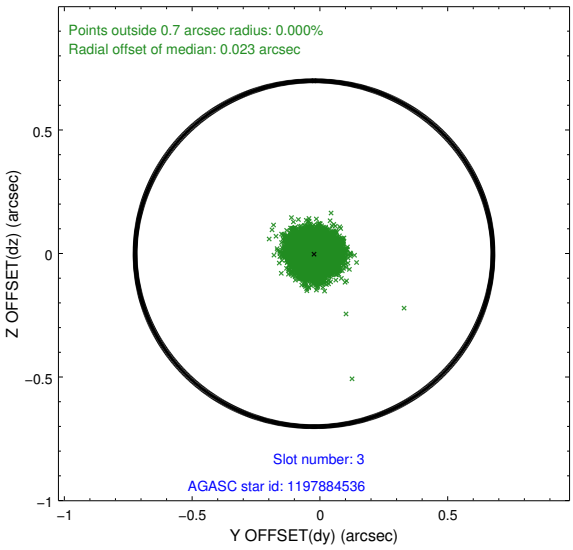
Slot Statistics

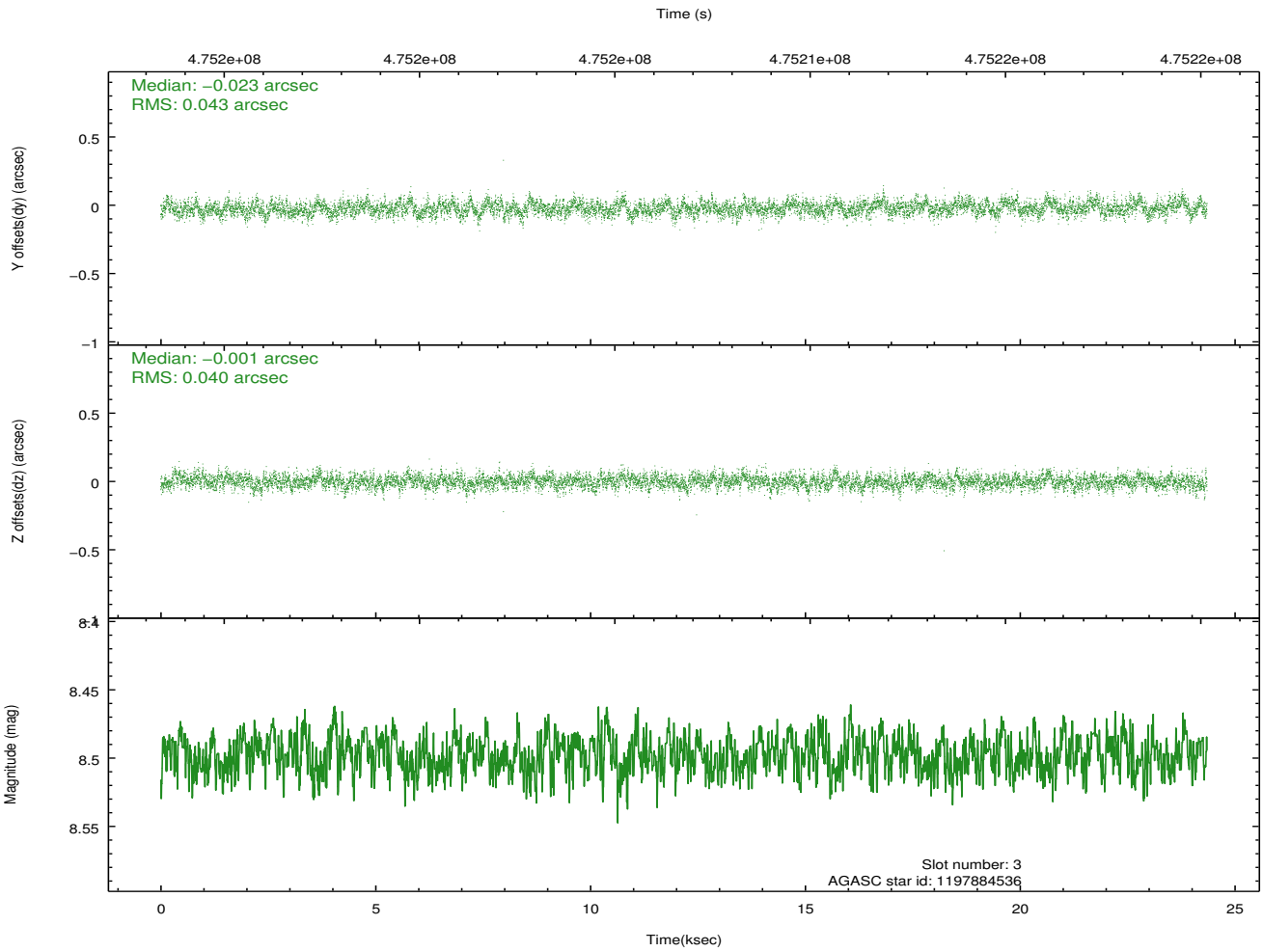
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.97	5941	-0.117	-0.025	0.009	0.013	0.000000	0.000000	-776.14	-1742.34
1	FID		ACIS-S-4	7.05	5941	0.297	0.063	0.007	0.013	0.000000	0.000000	2137.48	166.10
2	FID		ACIS-S-5	7.08	5940	-0.211	-0.029	0.011	0.019	0.000000	0.000000	-1828.92	159.81
3	GUIDE	used	1197884536	8.50	11875	-0.023	-0.001	0.063	0.101	17.160729	-71.835289	-1178.45	1190.85
4	GUIDE	used	1197885328	7.23	11880	0.089	-0.129	0.075	0.118	16.283090	-71.733943	-1360.69	154.91
5	GUIDE	used	1198189696	7.39	11879	-0.101	0.121	0.057	0.088	15.223750	-72.697522	2269.62	-309.98
6	GUIDE	used	1197750936	7.58	11881	0.173	0.247	0.067	0.102	15.387940	-71.549550	-1813.03	-970.36
7	GUIDE	used	1198283128	7.74	11880	-0.145	-0.242	0.054	0.085	17.272580	-72.642428	1662.86	1810.23

2.4 Star Slots

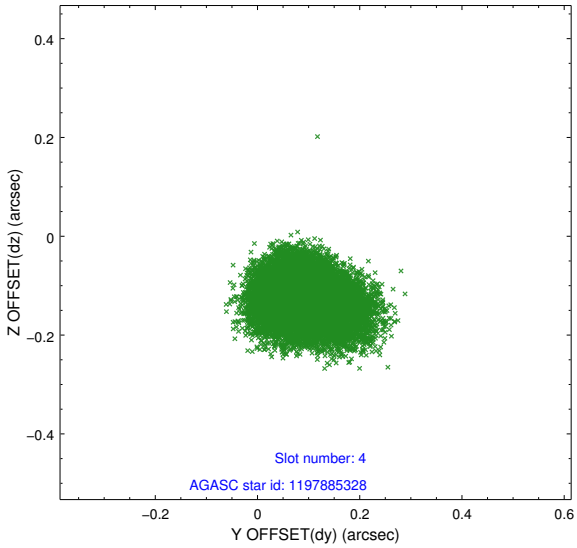
2.4.1 Slot 3

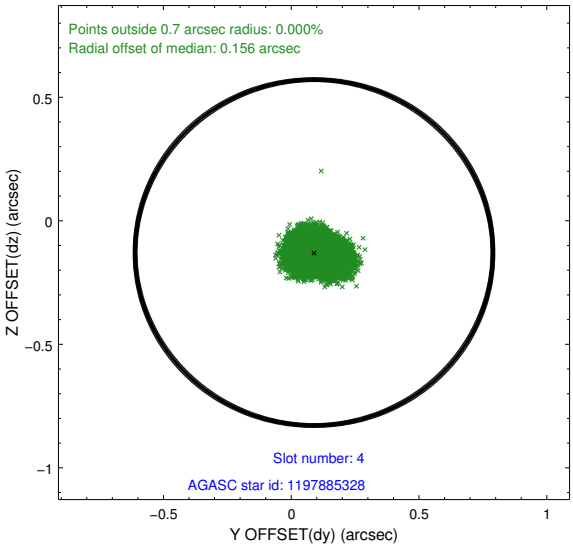


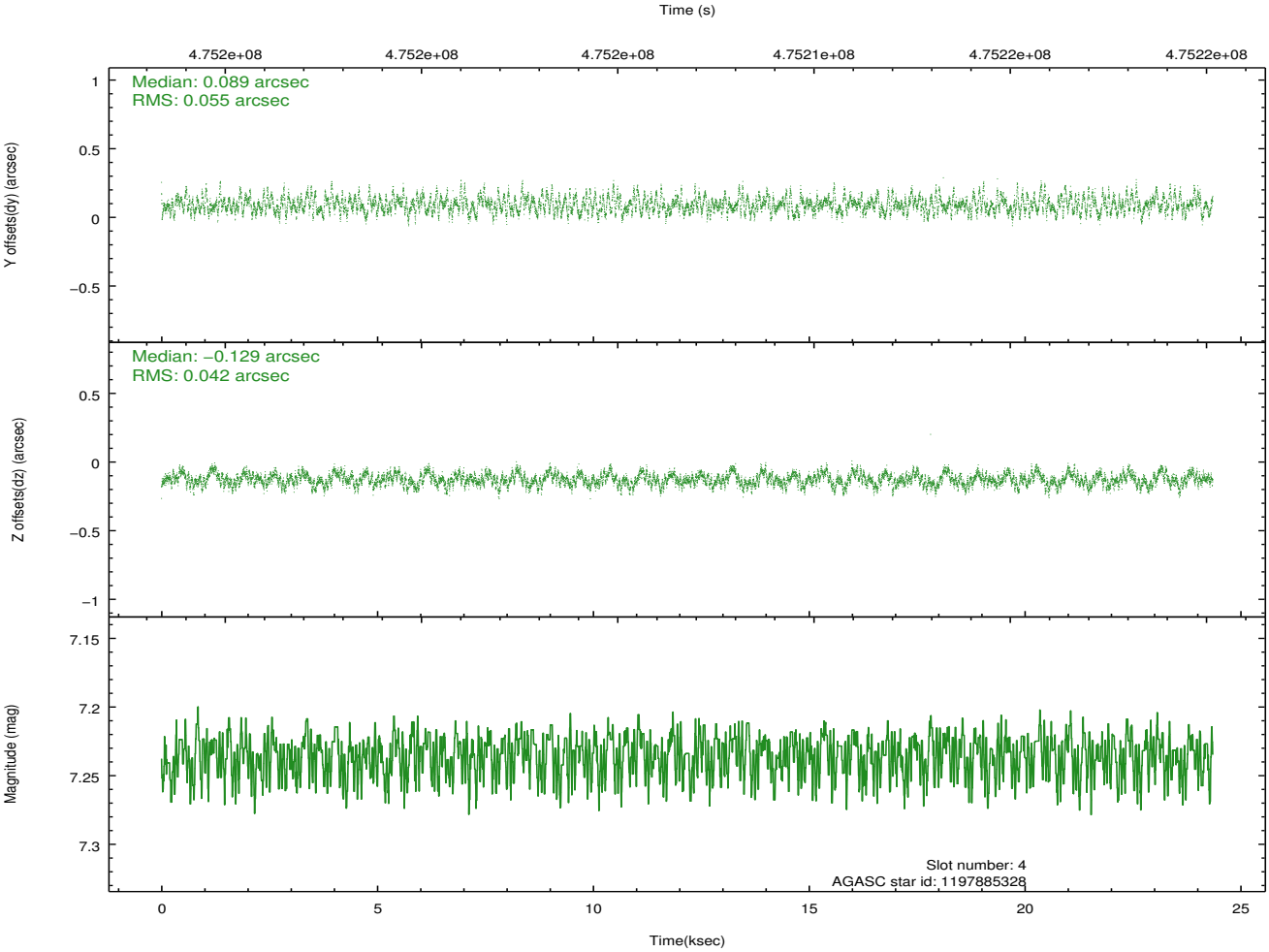




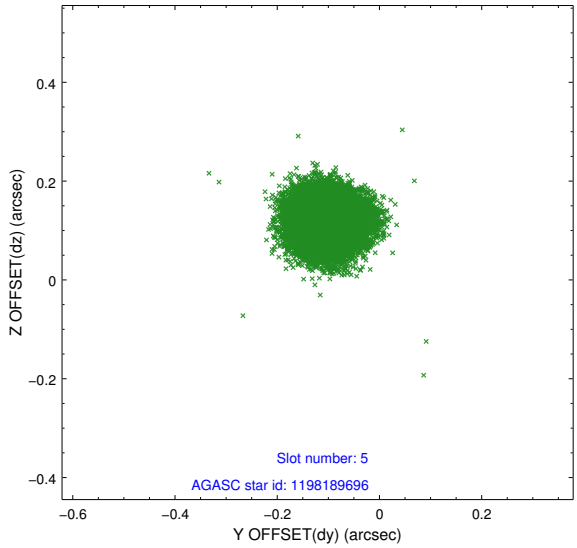
2.4.2 Slot 4

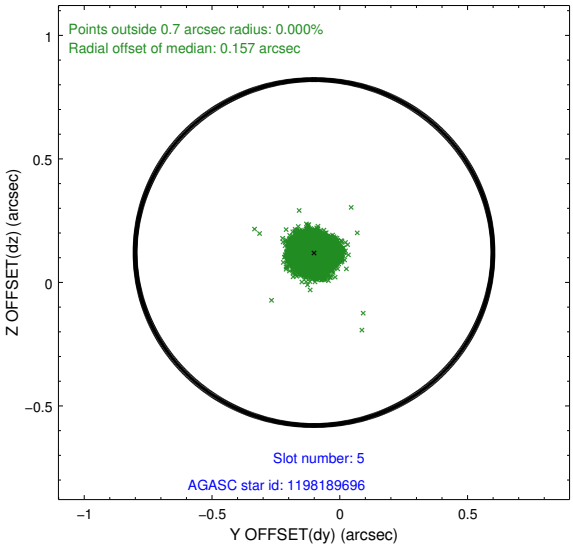

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197885328

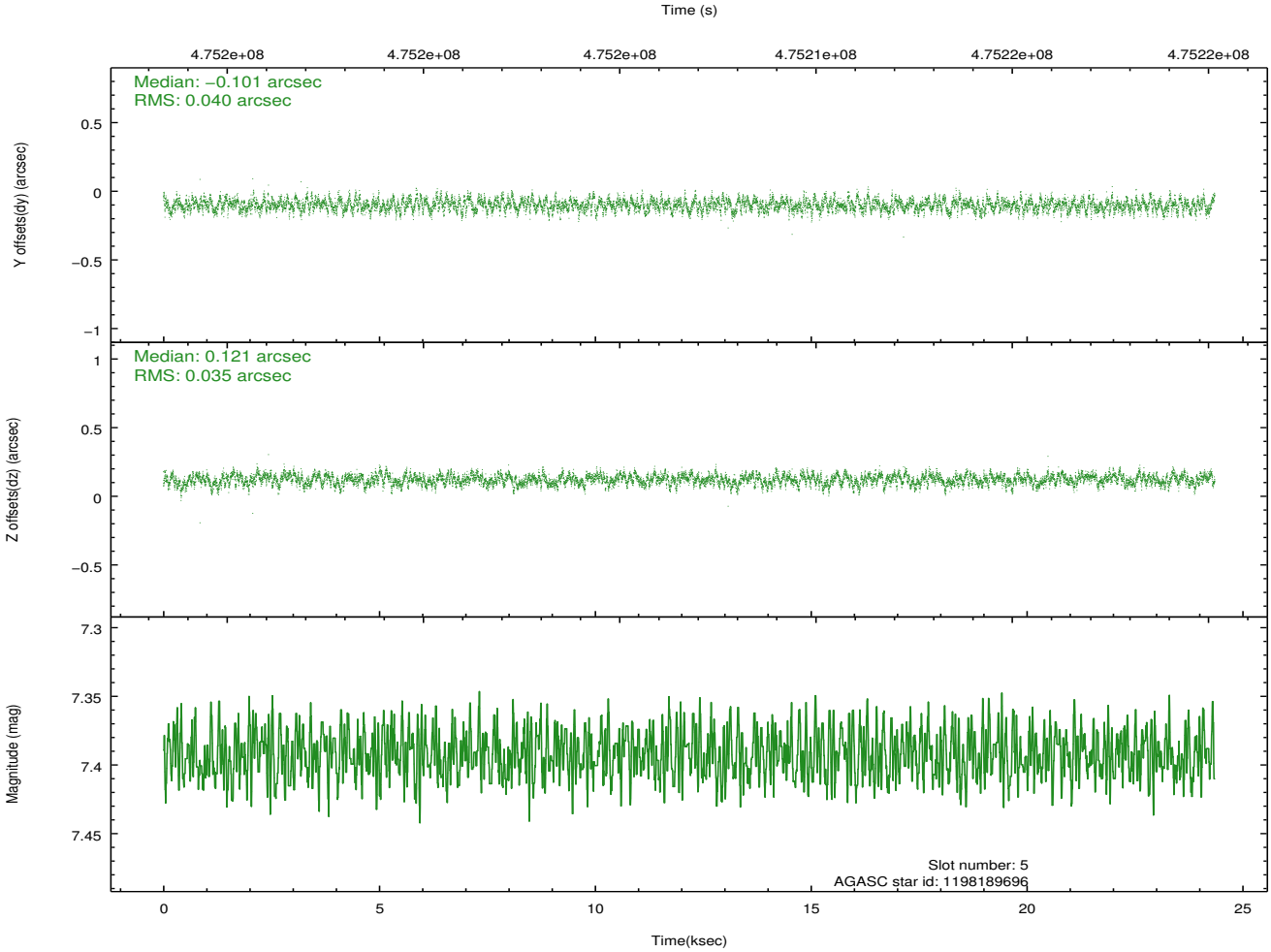

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.156 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197885328


Time (s)
Median: 0.089 arcsec
RMS: 0.055 arcsec
Y offsets(dy) (arcsec)
Median: −0.129 arcsec
RMS: 0.042 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1197885328
Time(ksec)

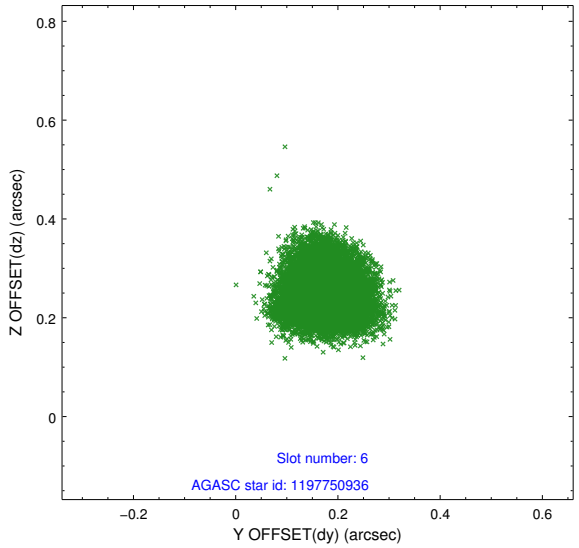
2.4.3 Slot 5

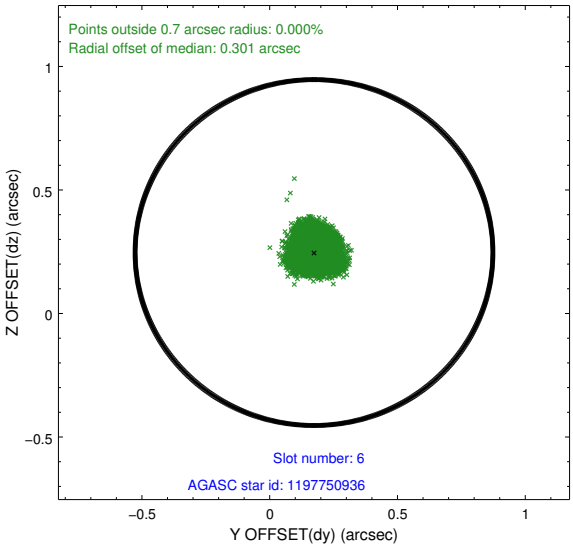

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1198189696

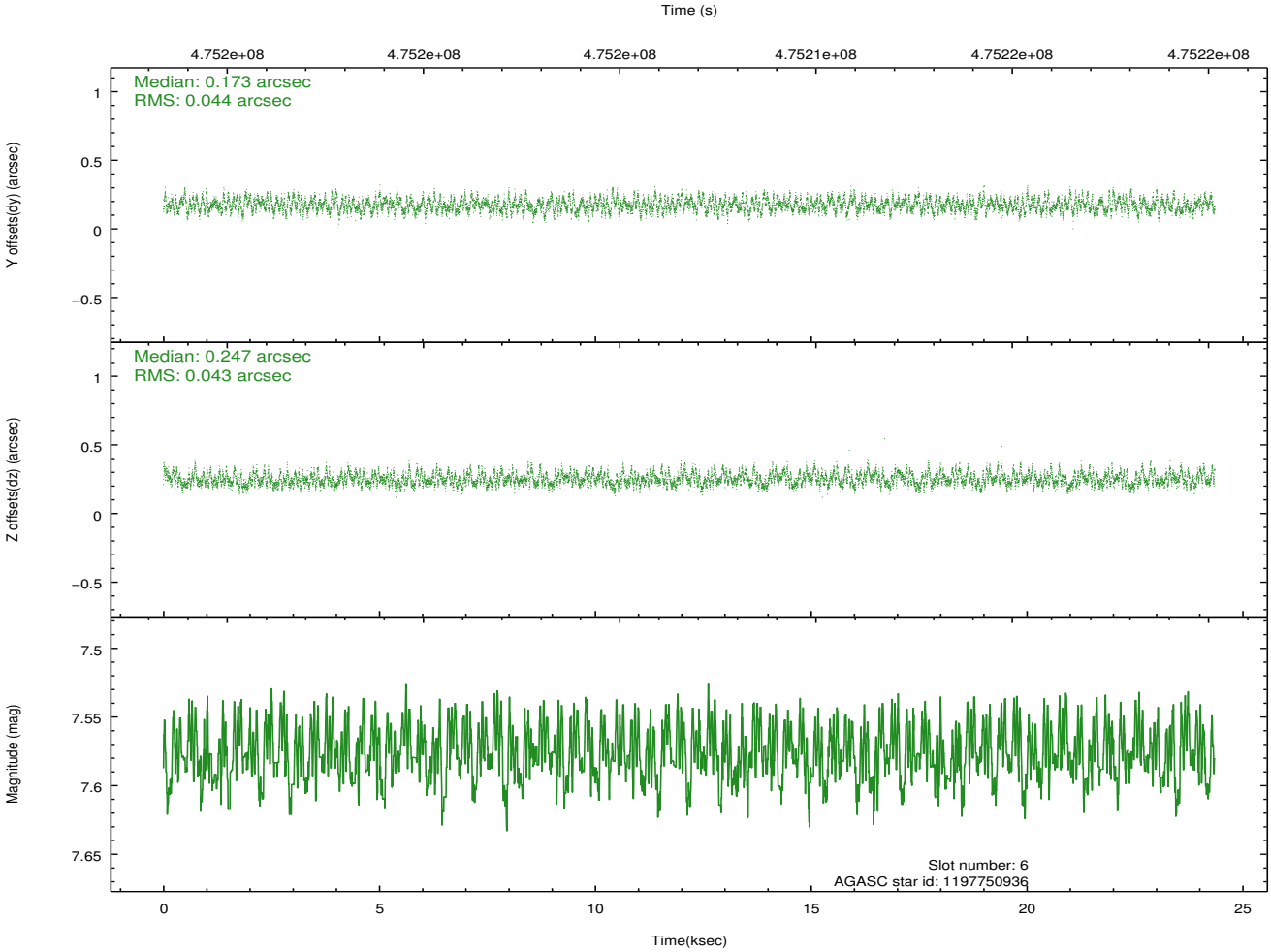

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.157 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1198189696


Time (s)
Median: −0.101 arcsec
RMS: 0.040 arcsec
Y offsets(dy) (arcsec)
Median: 0.121 arcsec
RMS: 0.035 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1198189696
Time(ksec)

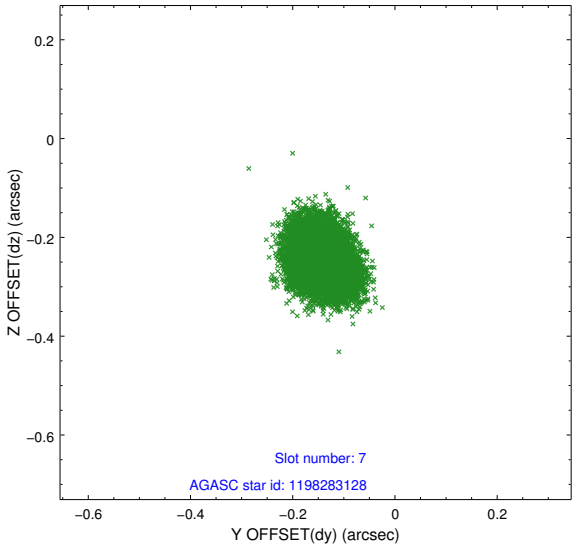
2.4.4 Slot 6

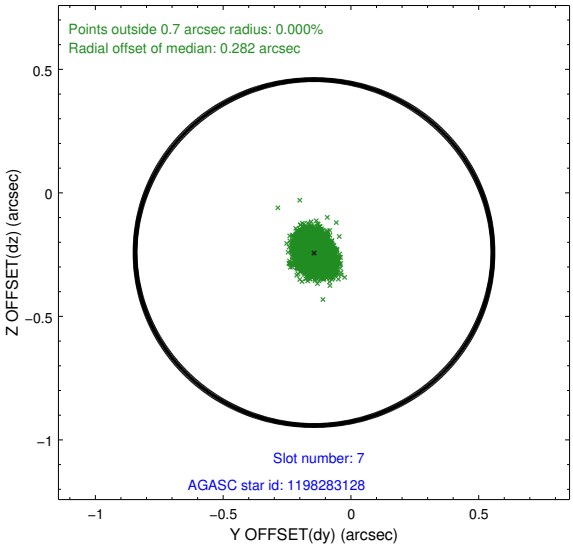

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197750936

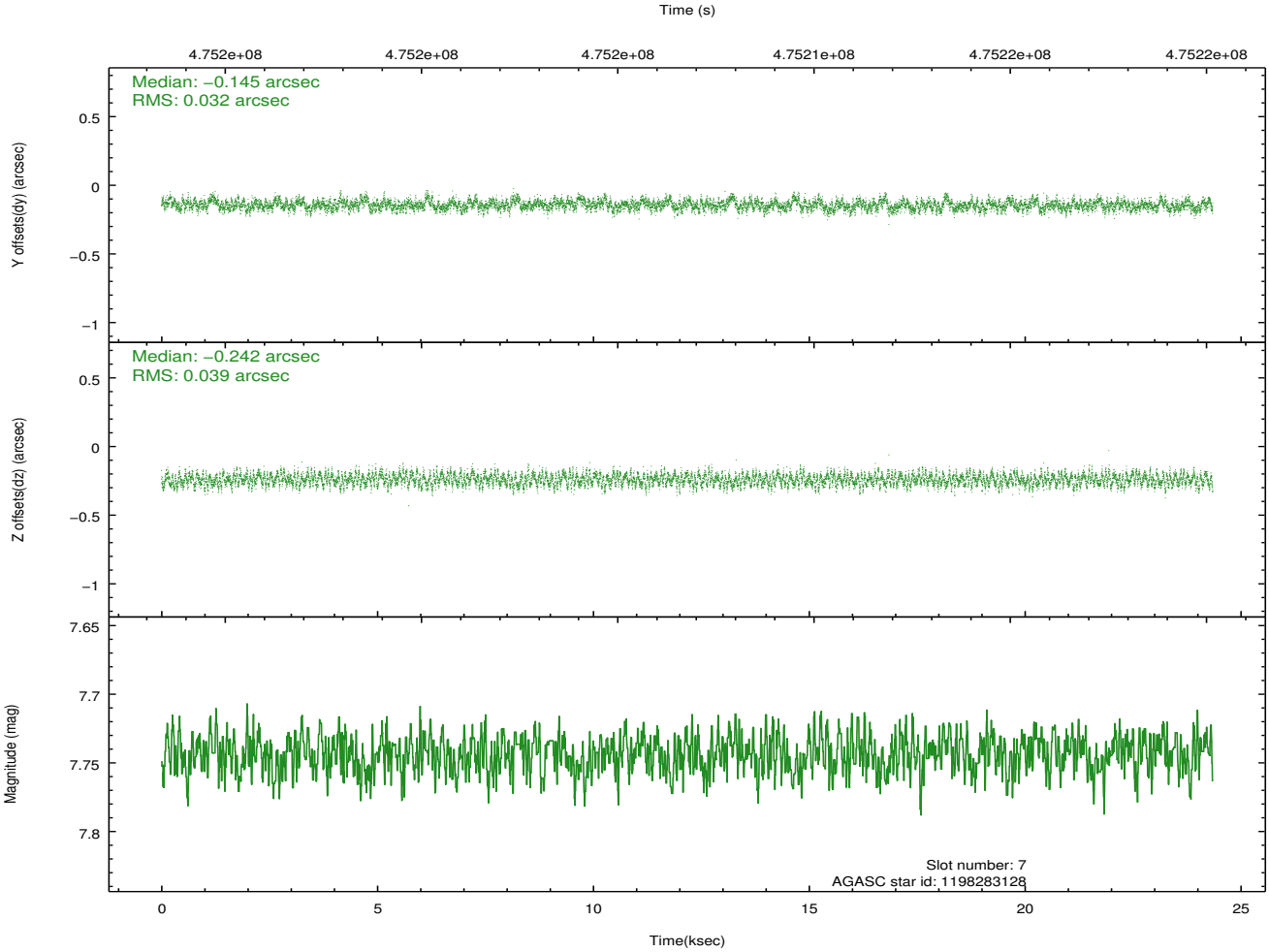

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.301 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197750936


Time (s)
Median: 0.173 arcsec
RMS: 0.044 arcsec
Y offsets(dy) (arcsec)
Median: 0.247 arcsec
RMS: 0.043 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1197750936
Time(ksec)

2.4.5 Slot 7

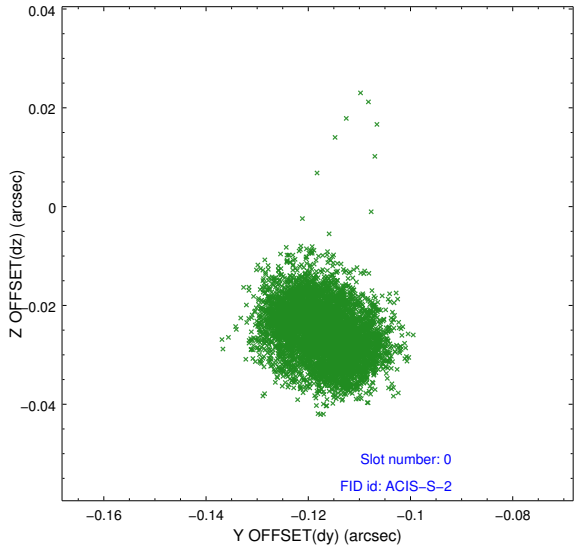

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1198283128

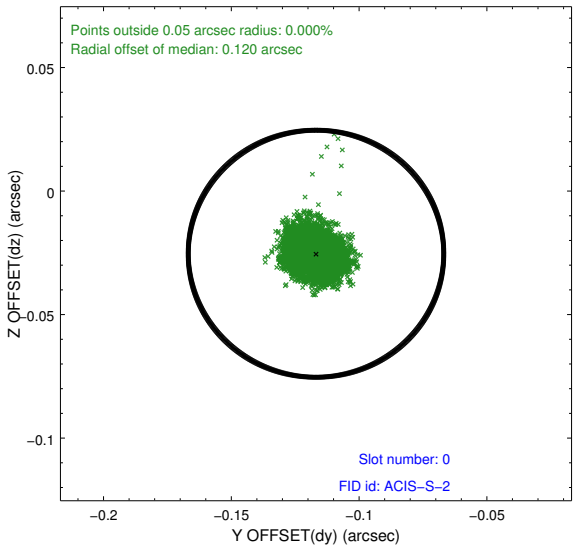

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.282 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1198283128

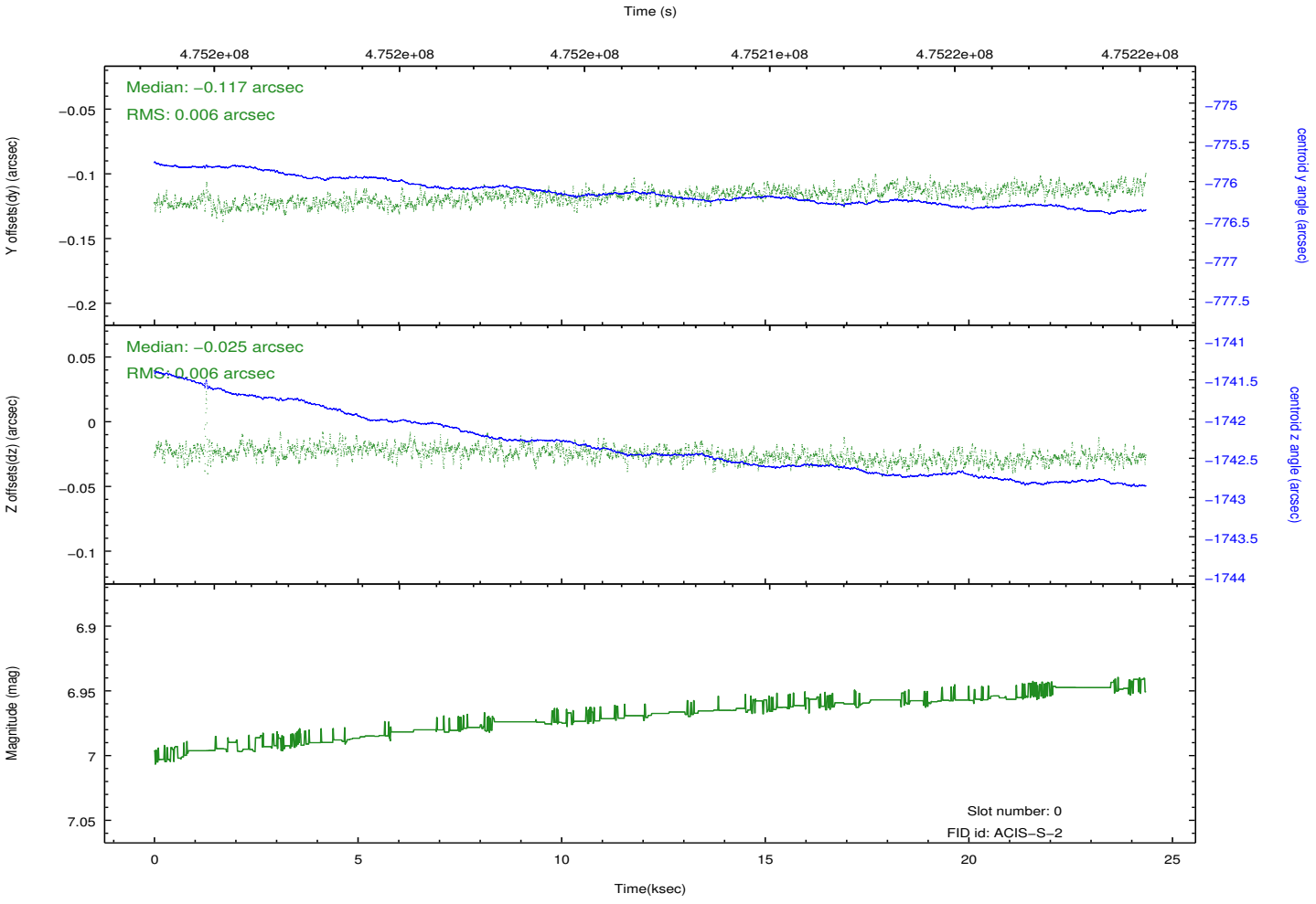

Time (s)
Median: −0.145 arcsec
RMS: 0.032 arcsec
Y offsets(dy) (arcsec)
Median: −0.242 arcsec
RMS: 0.039 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 1198283128
Time(ksec)

2.5 FID Slots

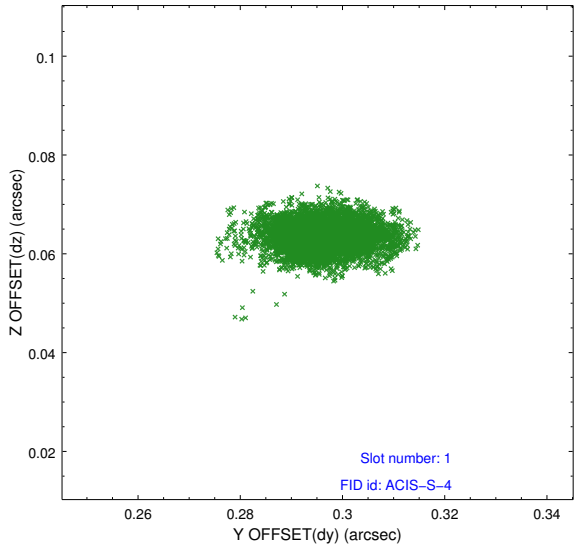
2.5.1 Slot 0

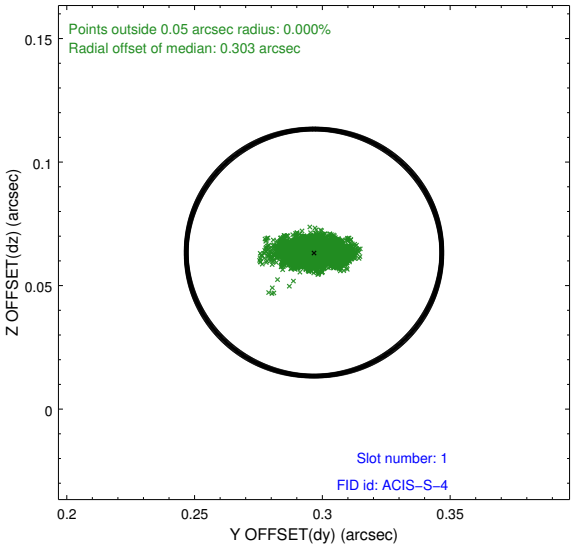


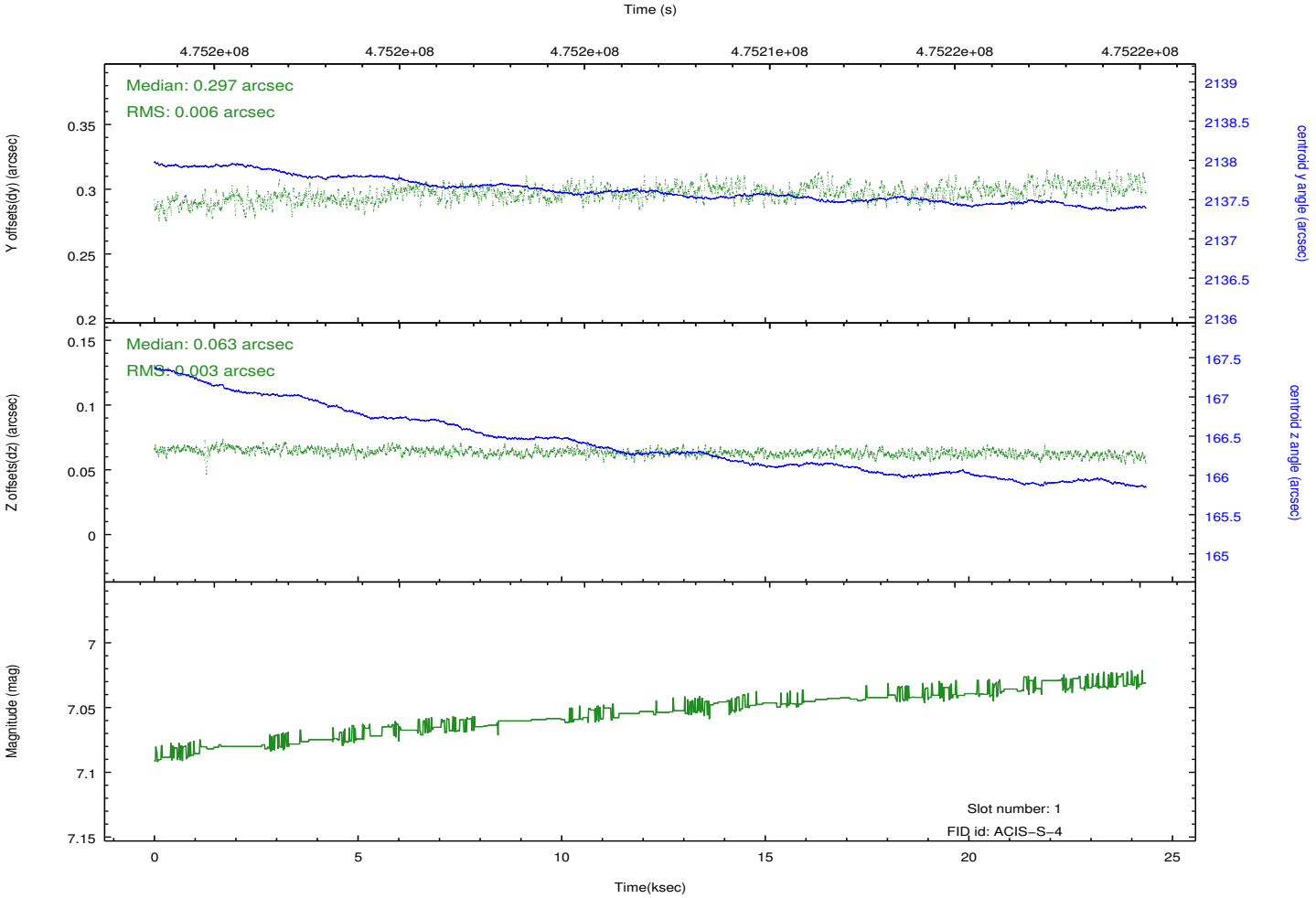




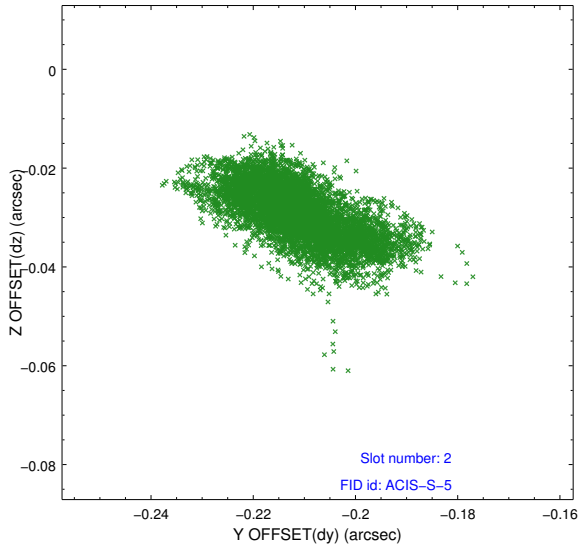
2.5.2 Slot 1

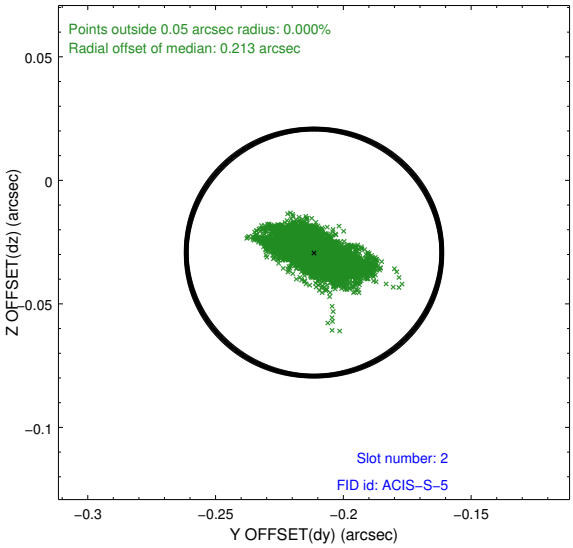

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

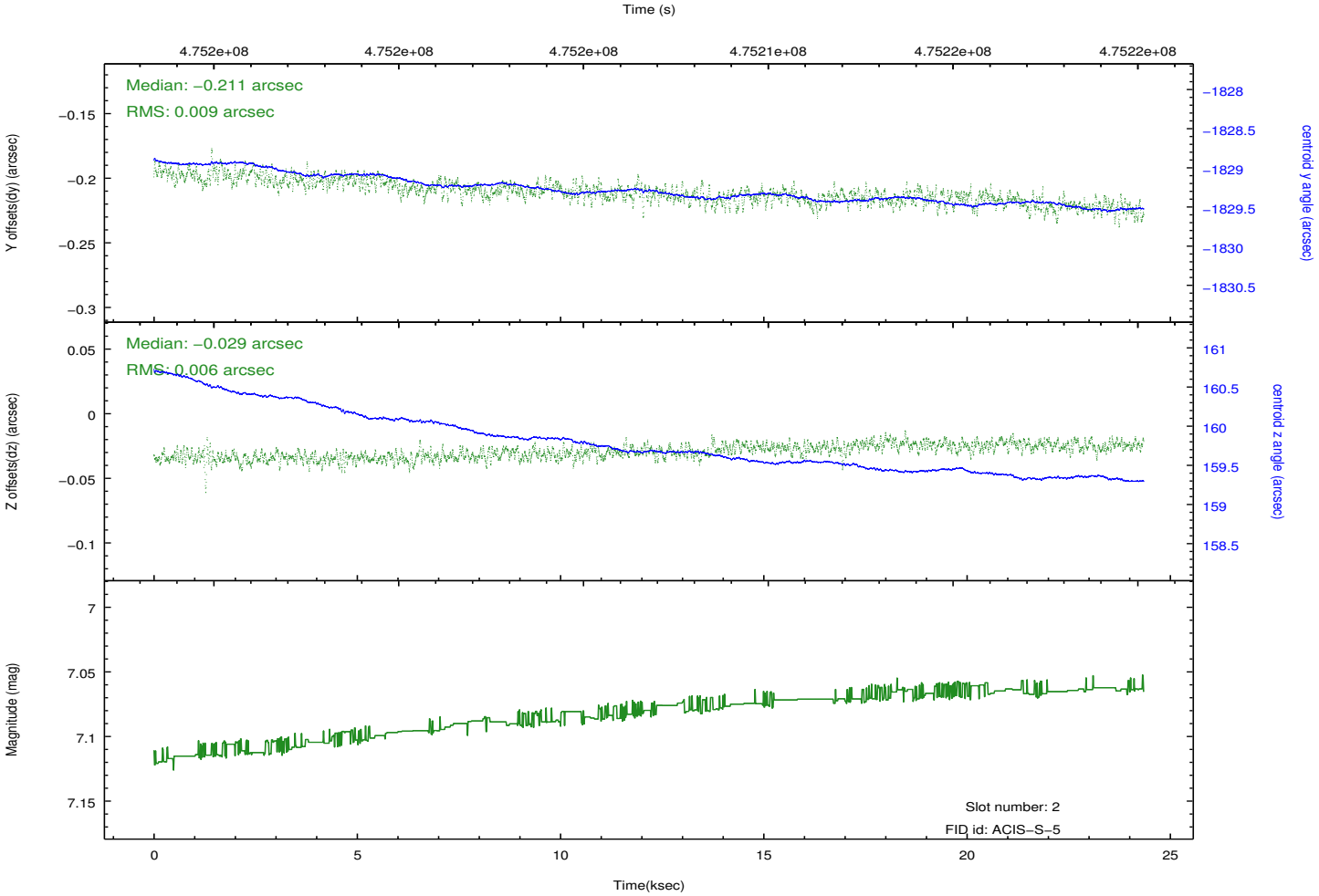

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.303 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.297 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.063 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: 0.000%
Radial offset of median: 0.213 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.211 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.029 arcsec
RMS: 0.006 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	Jen Lauer
V&V Date (YYYY-MM-DD)	2014.12.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	24.234214278162

A.2 Comments

```
Target off-axis for calibration purposes.
=======
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.
```