V&V Reference Report
L2 ASCDS Version : 8.5.1

Observation 14901 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Nov 30 2014

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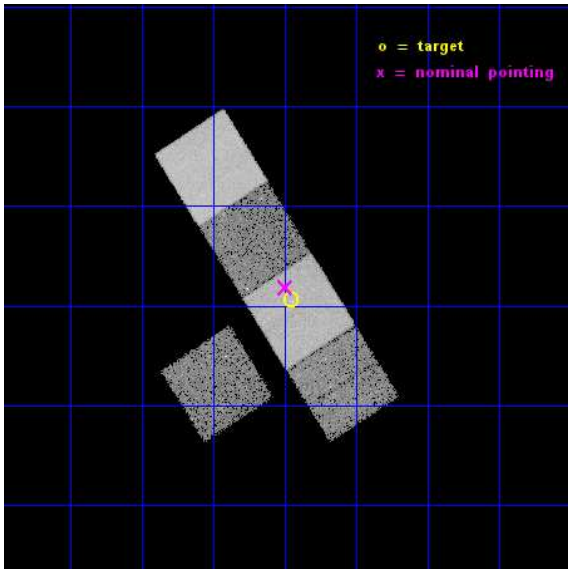
1 Front

seq_num	601031	Sequence number
obs_id	14901	Observation id
title	PROBING GALAXY FORMATION WITH FAST ROTATING ELLIPTICAL GALAXIES	Pr
observer	Rebecca Canning	Principal investigator
object	IC1024	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	217.863333	Observer's specified target RA [deg]
dec_targ	3.009111	Observer's specified target Dec [deg]
ra_nom	217.8742110234	Nominal RA [deg]
dec_nom	3.0307796558223	Nominal Dec [deg]
roll_nom	57.503498948715	Nominal Roll [deg]
revision	2	Processing version of data
ontime	20065.77491945	Sum of GTIs [s]
livetime	19803.600797919	Livetime [s]
ontime3	20062.510839045	Sum of GTIs [s]
ontime5	20065.733879447	Sum of GTIs [s]
ontime6	20062.551879048	Sum of GTIs [s]
ontime7	20065.77491945	Sum of GTIs [s]
ontime8	20062.46976918	Sum of GTIs [s]
l2events	173957	Number of level 2 events

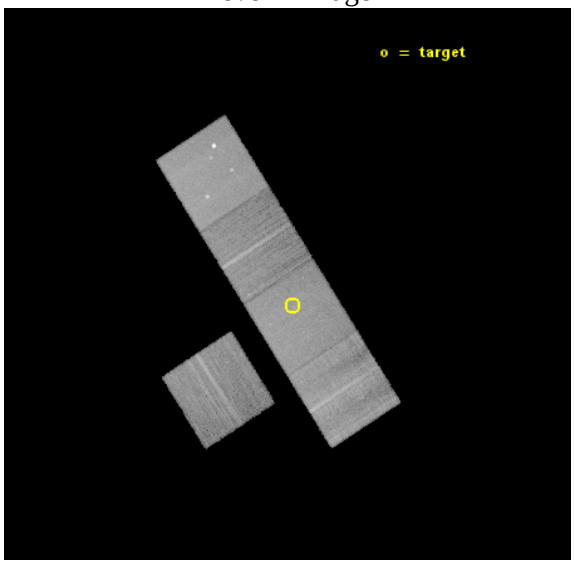


2 OBI

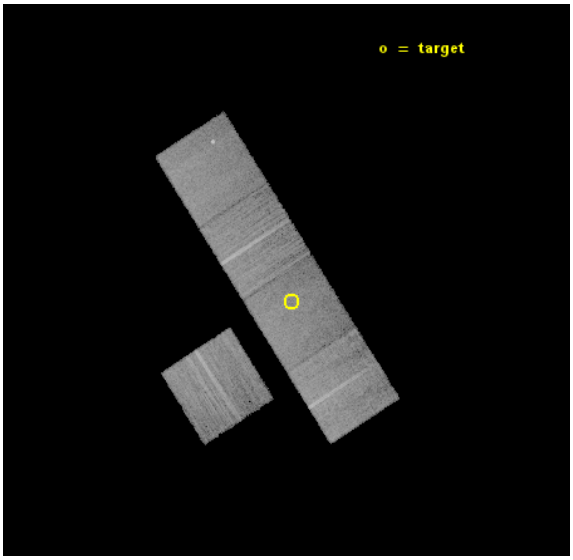
2.1 OBI

2.1.1 Images

Level 1 Image

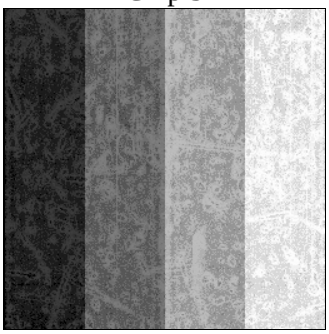


Level 1 Bad Events

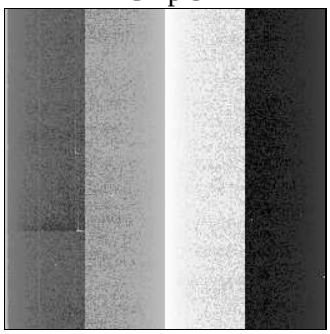


2.1.2 Bias

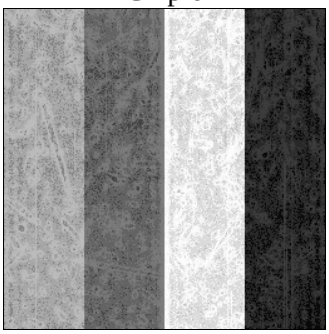
Chip 3



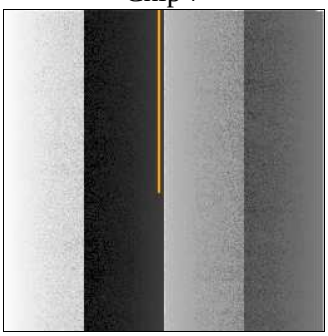
Chip 5



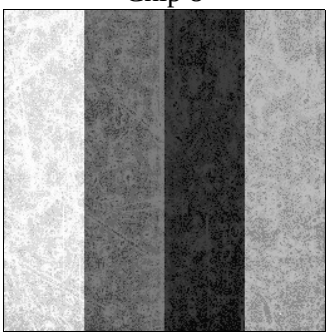
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.3	Processing system revision
caldbver	4.6.4	
date	2014-11-30T12:38:26	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ontime	20065.77491945	Sum of GTIs [s]
ontime3	20062.510839045	Sum of GTIs [s]
ontime5	20065.733879447	Sum of GTIs [s]
ontime6	20062.551879048	Sum of GTIs [s]
ontime7	20065.77491945	Sum of GTIs [s]
ontime8	20062.46976918	Sum of GTIs [s]
l1events	675721	Number of level 1 events

2.1.4 Events

	ccd 3	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
level 1 events	102017	176877	108499	141667	146661
rejected events	90538	88979	95482	79495	102111
rejected %	88%	50%	88%	56%	69%

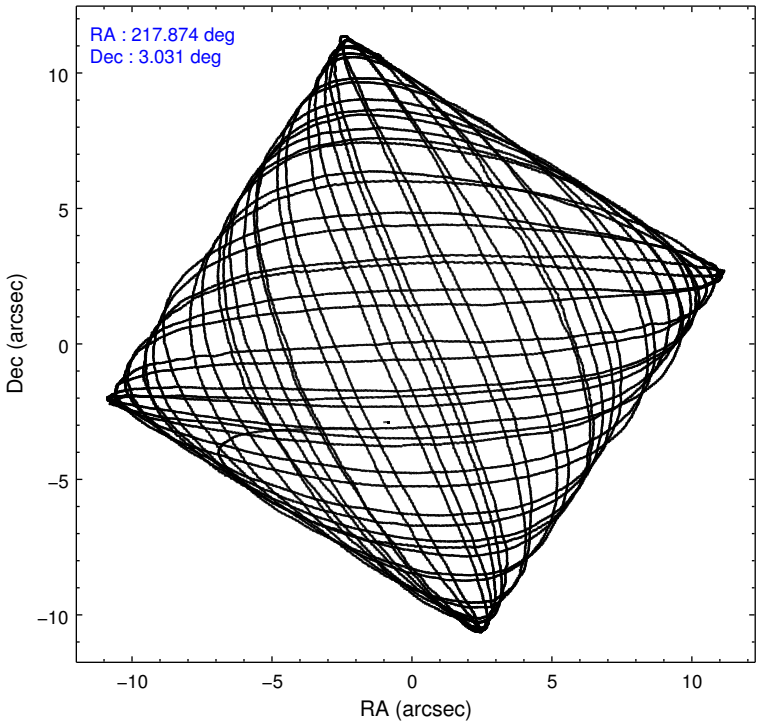
	ccd 3	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
grade 0 events	3916	8382	4704	5538	13034
	3%	4%	4%	3%	8%
grade 1 events	68	1208	49	175	133
	0%	0%	0%	0%	0%
grade 2 events	2647	29071	2945	12854	9591
	2%	16%	2%	9%	6%
grade 3 events	1281	2964	1261	5390	5346
	1%	1%	1%	3%	3%
grade 4 events	1261	2846	1300	5201	5059
	1%	1%	1%	3%	3%
grade 5 events	5437	12872	5340	14603	7926
	5%	7%	4%	10%	5%
grade 6 events	2379	44667	2810	33206	11541
	2%	25%	2%	23%	7%
grade 7 events	85028	74867	90090	64700	94031
	83%	42%	83%	45%	64%

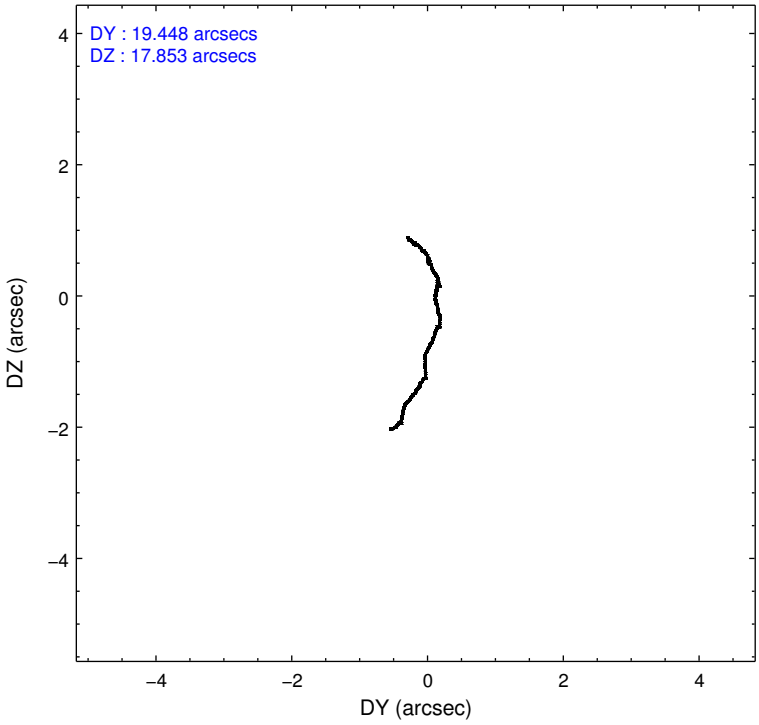
2.2 Compared Parameters

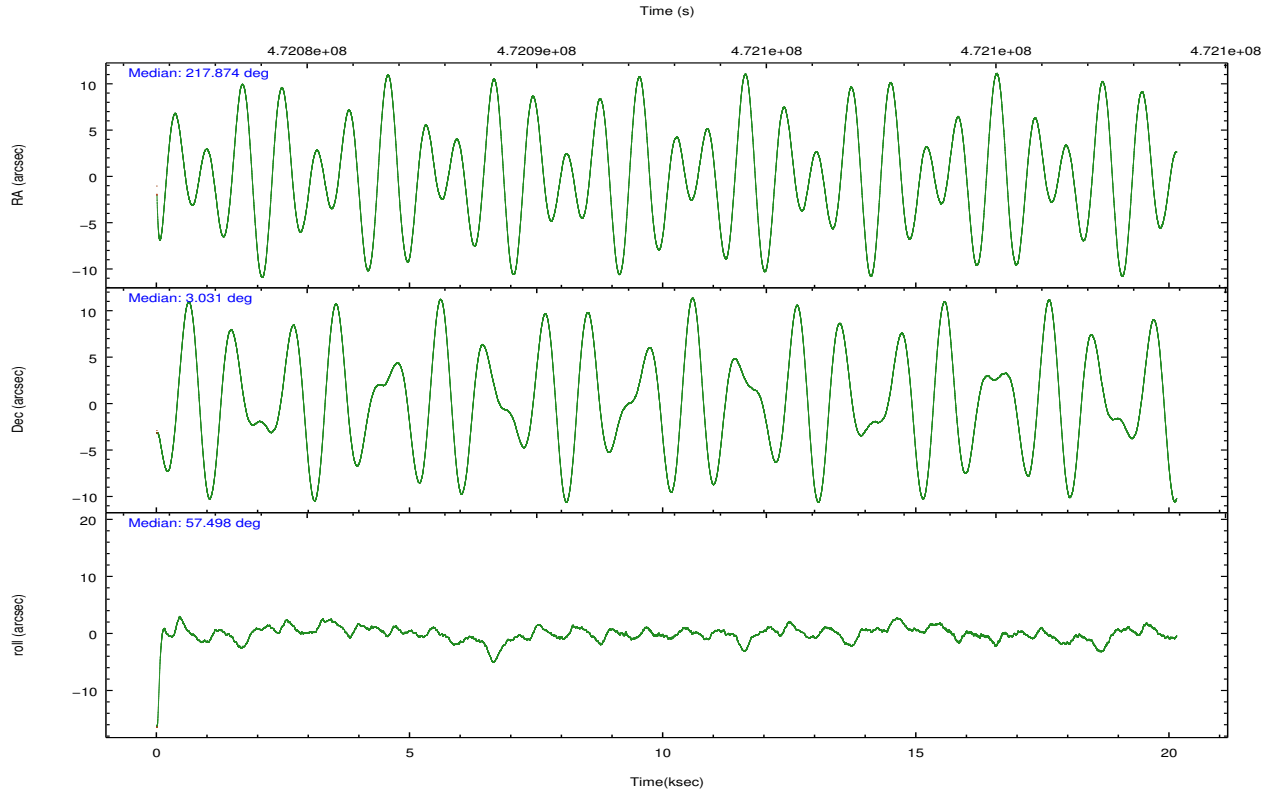
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-35678	ACIS-35678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	217.873388	217.8742110234045
[deg] Pointing Dec	3.003473	3.030779655822347
[deg] Pointing Roll	57.346925	57.50349894871464
[mm] SIM 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)	472082905.184000	472081864.99606
Observation start date	2012-12-16T22:07:18	2012-12-16T21:51:04
[s] Observation end time (MET)	472102905.184000	472103823.05974
Observation end date	2012-12-17T03:40:38	2012-12-17T03:57:03
Read mode	TIMED	TIMED

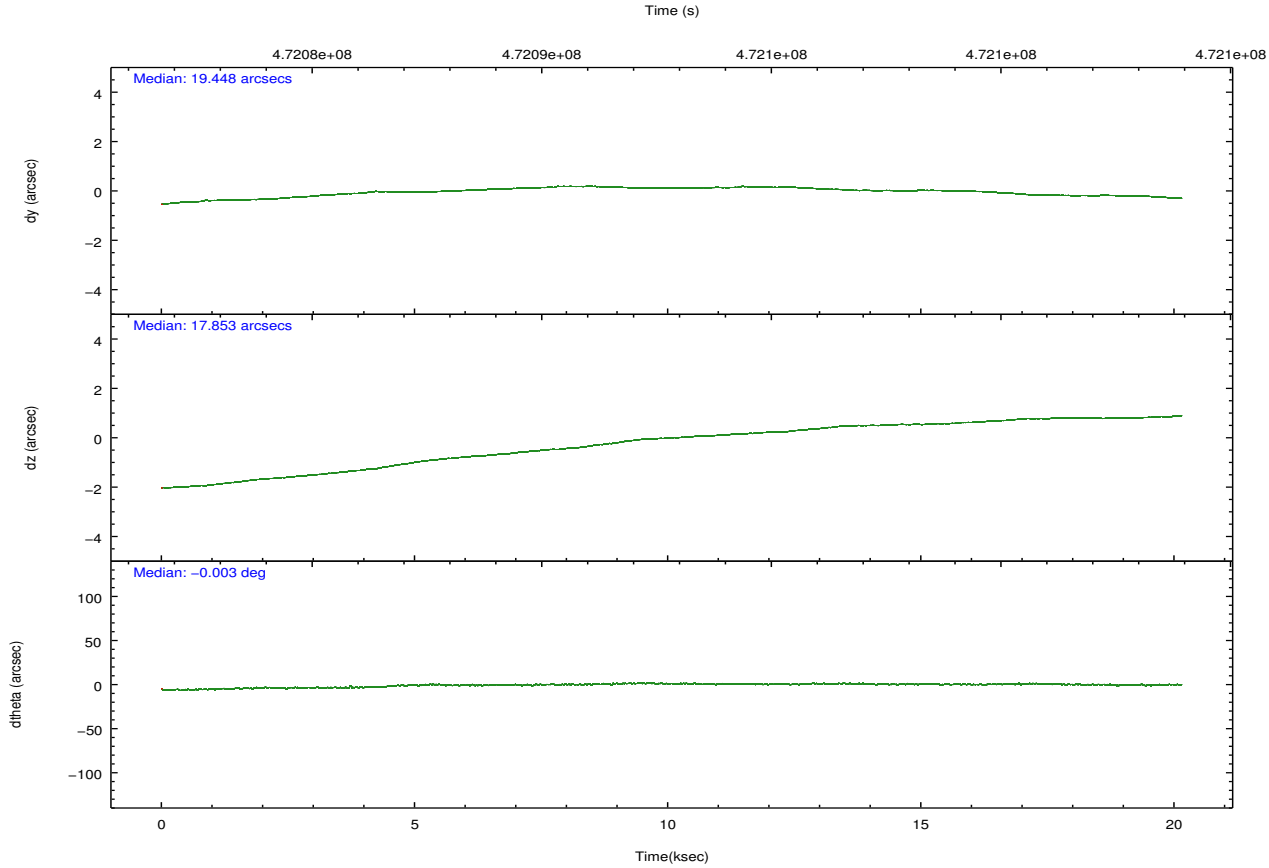
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	Y	Y
CCD S0 on	N	N
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	O1	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 217.874 deg
Dec : 3.031 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 19.448 arcsecs
DZ : 17.853 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.7208e+08
4.7209e+08
4.721e+08
4.721e+08
4.721e+08
Median: 217.874 deg
RA (arcsec)
Median: 3.031 deg
Dec (arcsec)
Median: 57.498 deg
roll (arcsec)
Time(ksec)

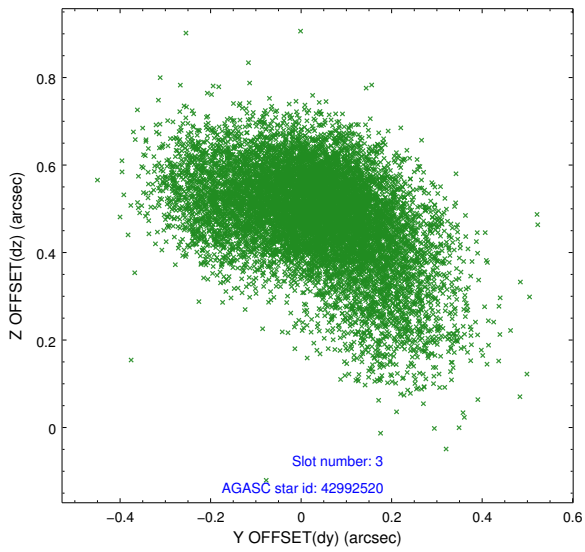

Time (s)
4.7208e+08
4.7209e+08
4.721e+08
4.721e+08
4.721e+08
Median: 19.448 arcsecs
dy (arcsec)
Median: 17.853 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

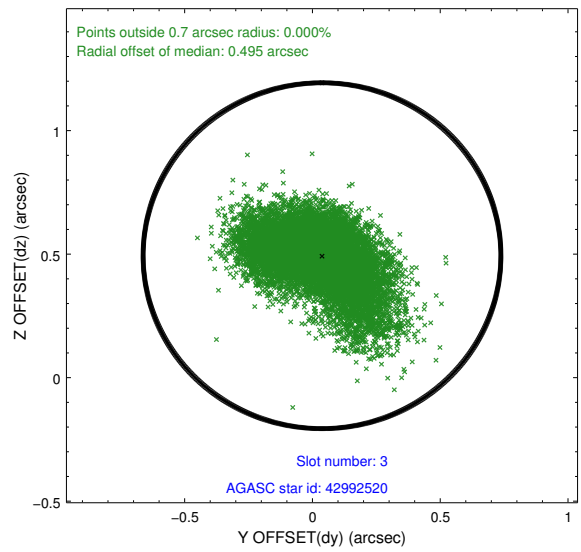
Slot Statistics

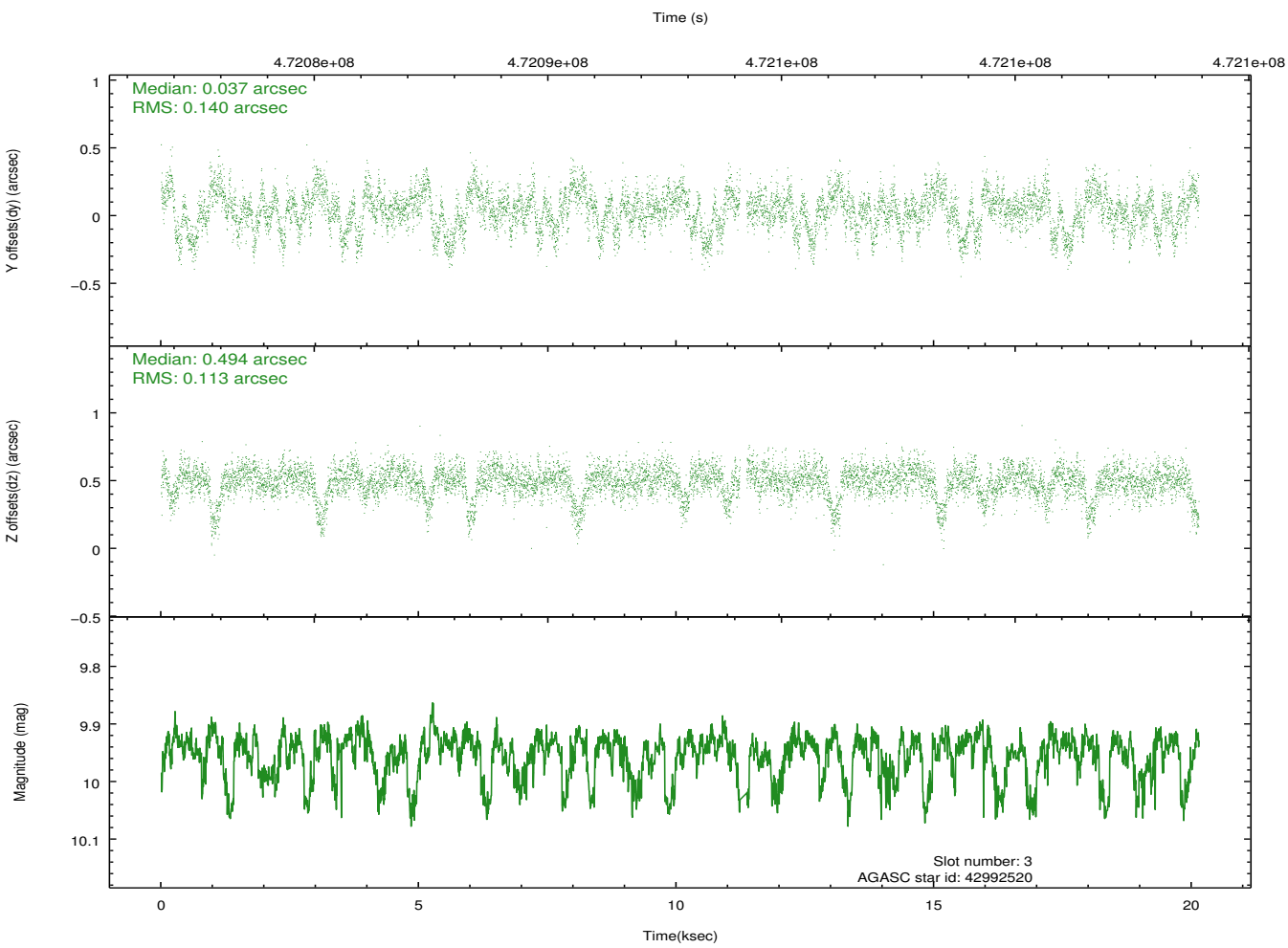
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.95	4913	-0.107	-0.047	0.019	0.044	0.000000	0.000000	-772.62	-1739.03
1	FID		ACIS-S-4	7.04	4913	0.264	0.063	0.012	0.019	0.000000	0.000000	2140.97	169.33
2	FID		ACIS-S-5	7.06	4913	-0.186	-0.008	0.017	0.038	0.000000	0.000000	-1825.28	163.19
3	GUIDE	used	42992520	9.95	9741	0.037	0.494	0.185	0.331	218.633600	3.181135	2014.27	-1953.52
4	GUIDE	used	42992696	8.37	9822	-0.428	-0.410	0.081	0.138	217.807530	3.501863	1382.95	1166.82
5	GUIDE	used	42998072	9.27	9816	0.066	0.213	0.113	0.185	218.483194	3.336327	2192.32	-1197.73
6	GUIDE	used	42074120	9.03	9791	0.491	-0.041	0.110	0.186	216.996695	2.839959	-2194.67	2336.75
7	GUIDE	used	43005456	7.78	9823	-0.154	-0.253	0.076	0.121	218.000245	3.698855	2353.39	966.83

2.4 Star Slots

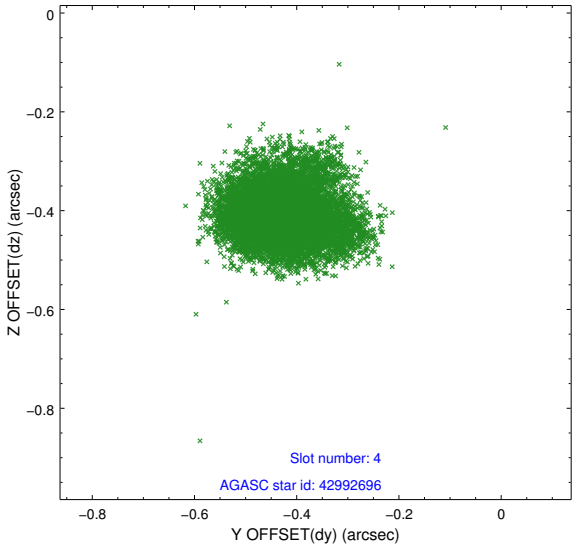
2.4.1 Slot 3

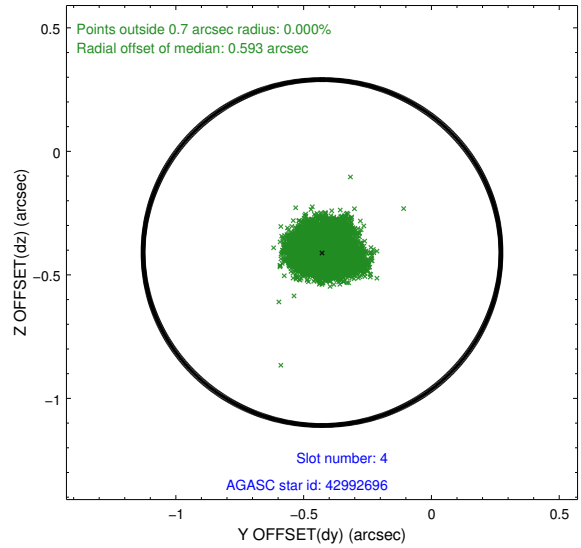


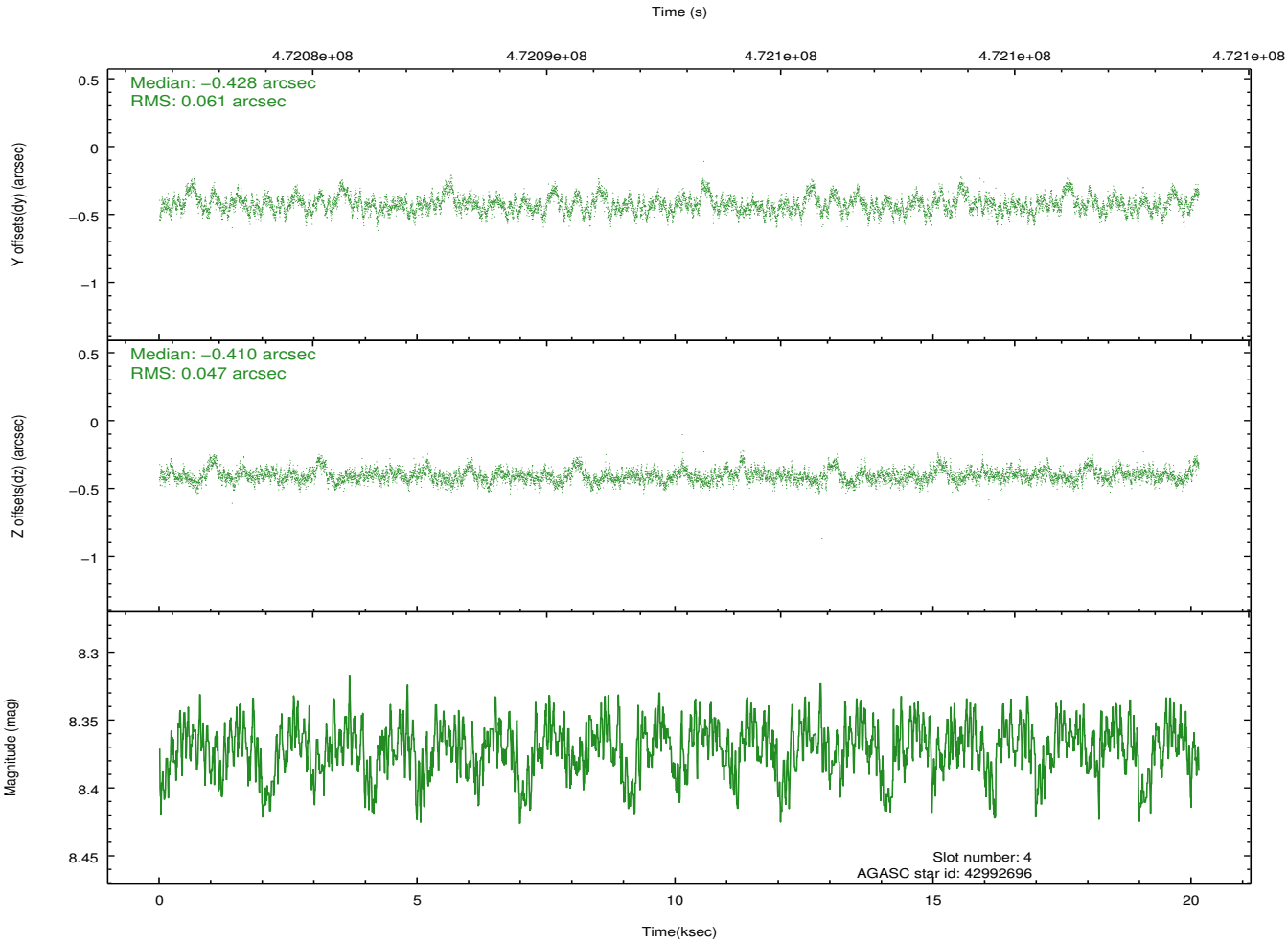




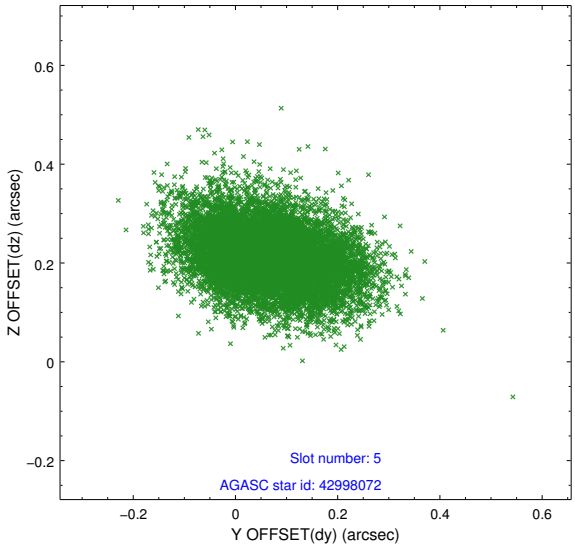
2.4.2 Slot 4

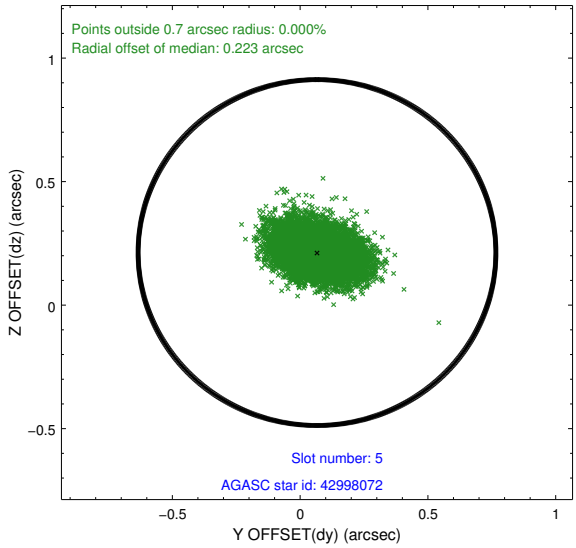

Slot number: 4
AGASC star id: 42992696
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

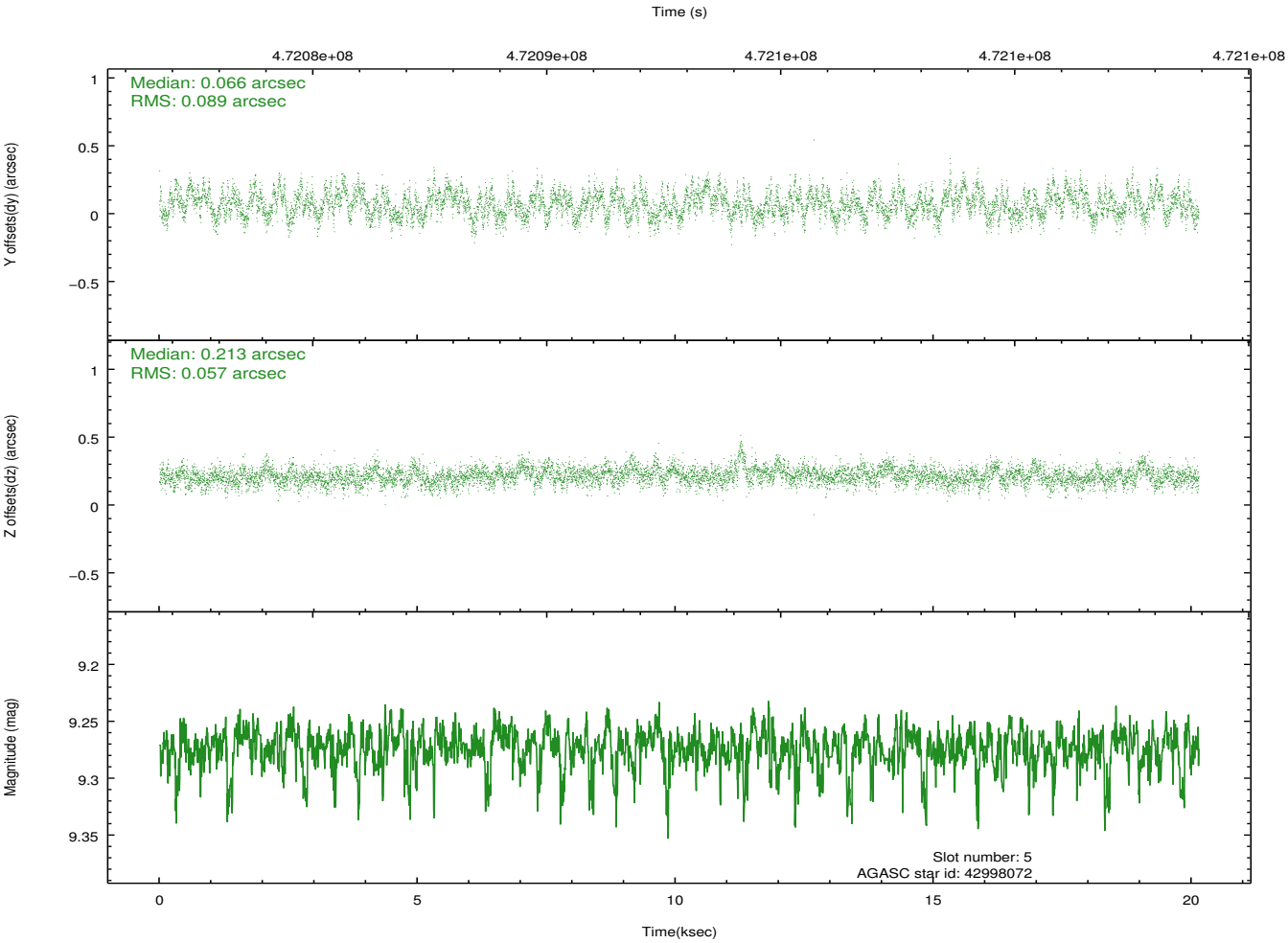

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.593 arcsec
Slot number: 4
AGASC star id: 42992696
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: −0.428 arcsec
RMS: 0.061 arcsec
Y offsets(dy) (arcsec)
Median: −0.410 arcsec
RMS: 0.047 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 42992696
Time(ksec)

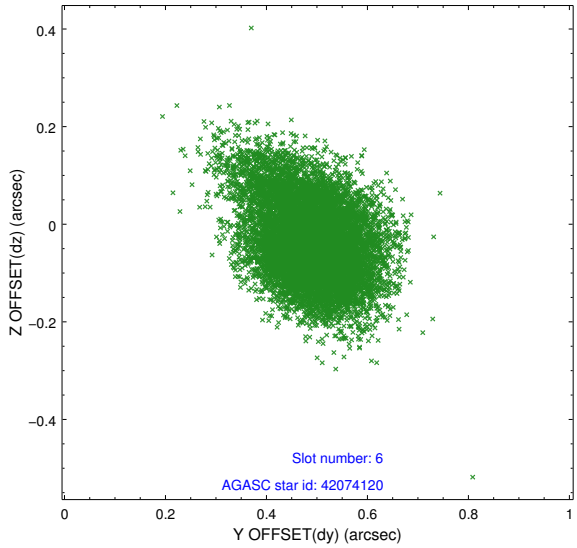
2.4.3 Slot 5

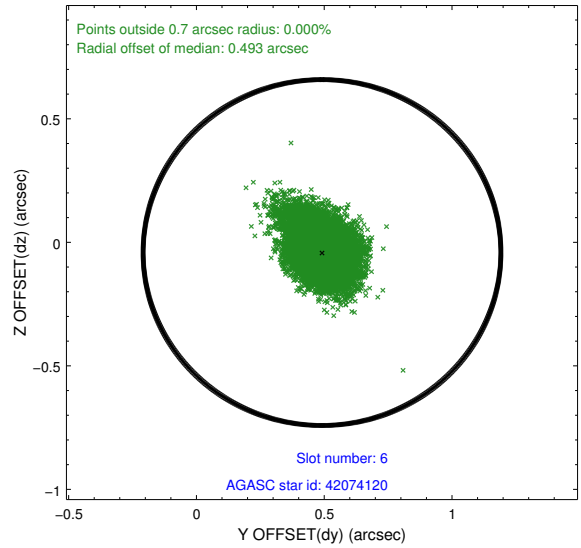

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 42998072

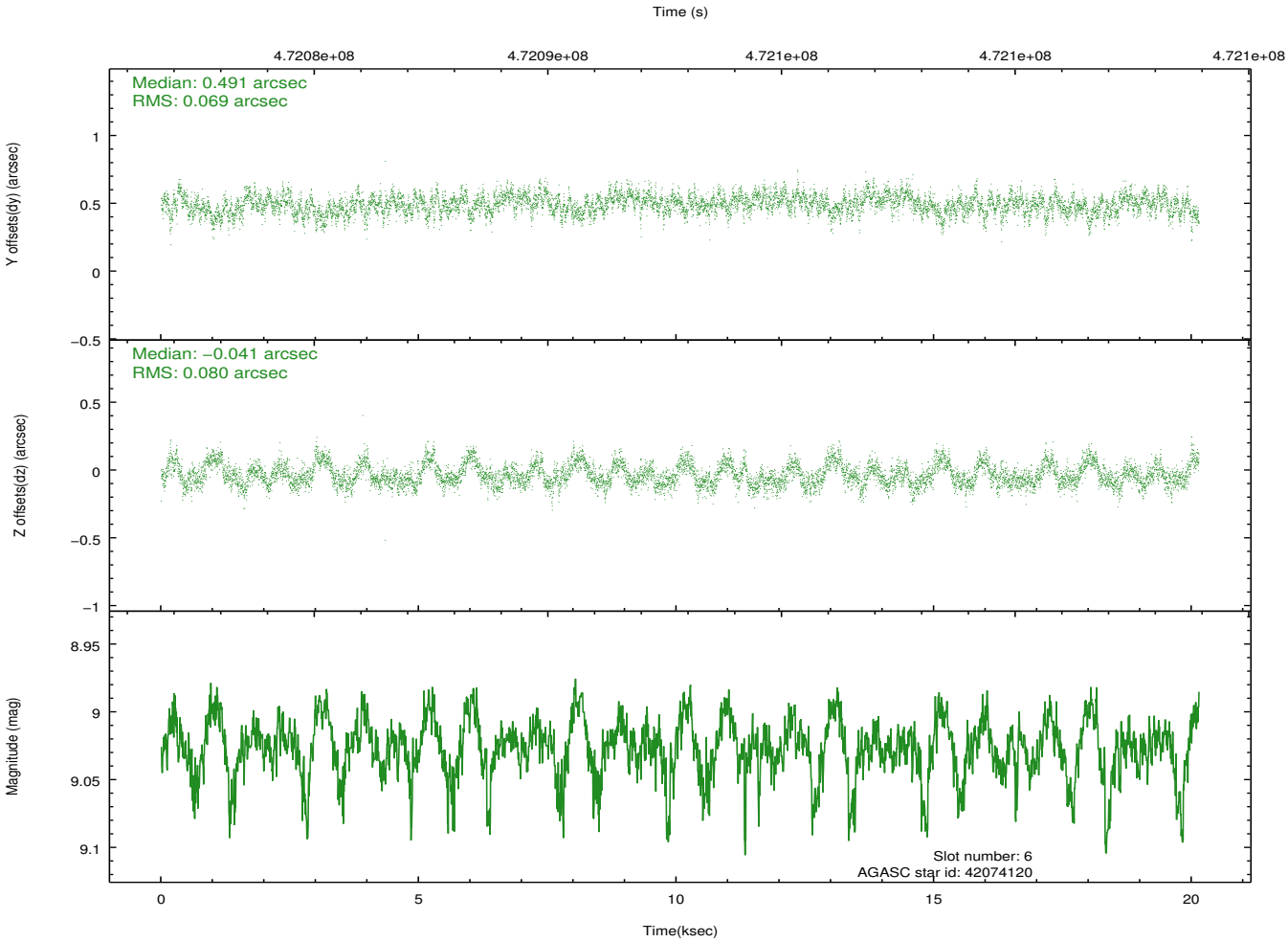

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.223 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 42998072


Time (s)
Median: 0.066 arcsec
RMS: 0.089 arcsec
Y offsets(dy) (arcsec)
Median: 0.213 arcsec
RMS: 0.057 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 42998072
Time(ksec)

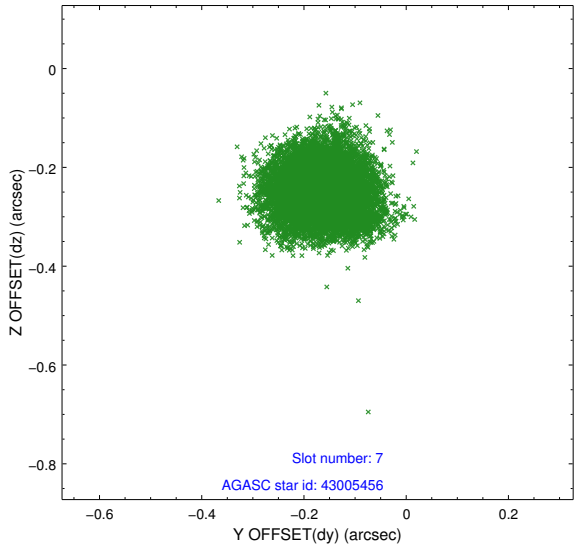
2.4.4 Slot 6

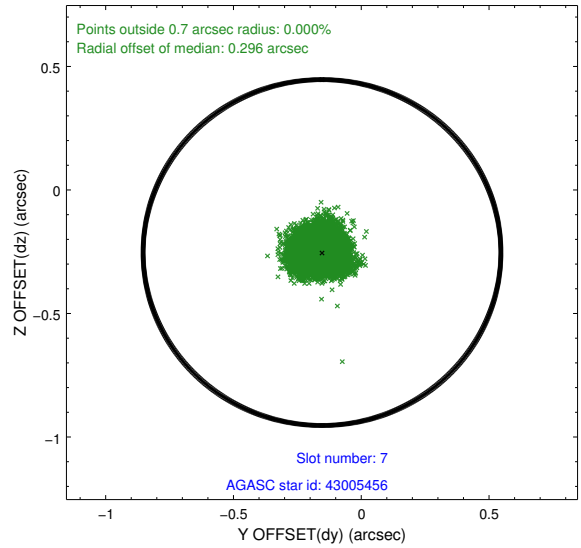

Slot number: 6
AGASC star id: 42074120
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

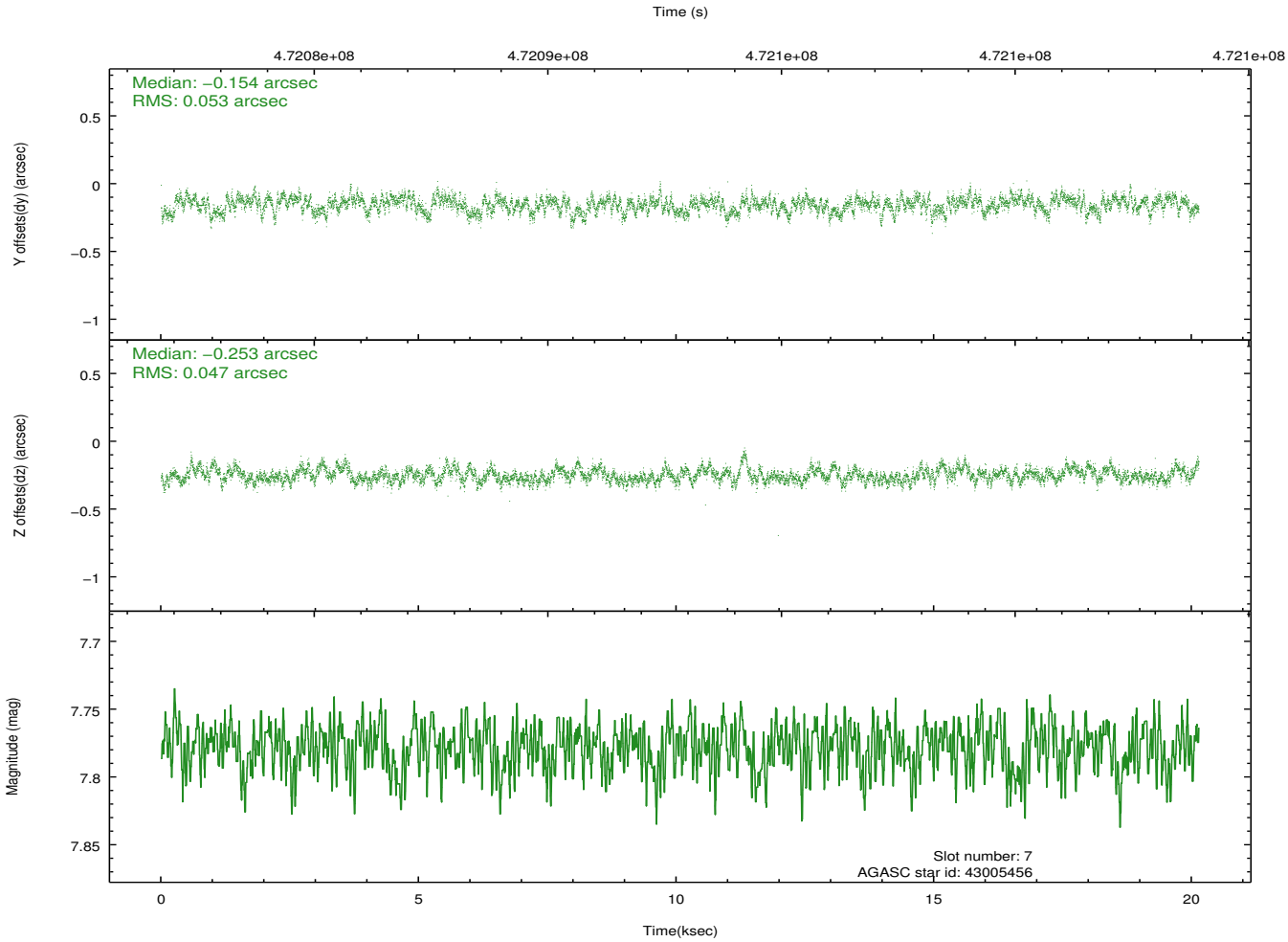

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.493 arcsec
Slot number: 6
AGASC star id: 42074120
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: 0.491 arcsec
RMS: 0.069 arcsec
Y offsets(dy) (arcsec)
Median: −0.041 arcsec
RMS: 0.080 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 42074120
Time(ksec)

2.4.5 Slot 7

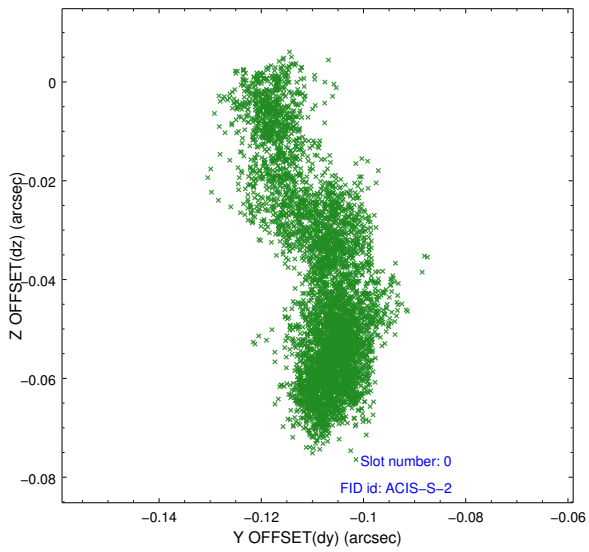

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 43005456

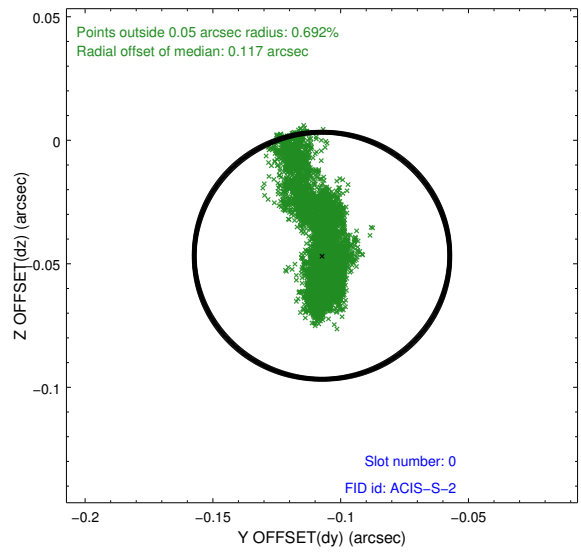

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.296 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 43005456

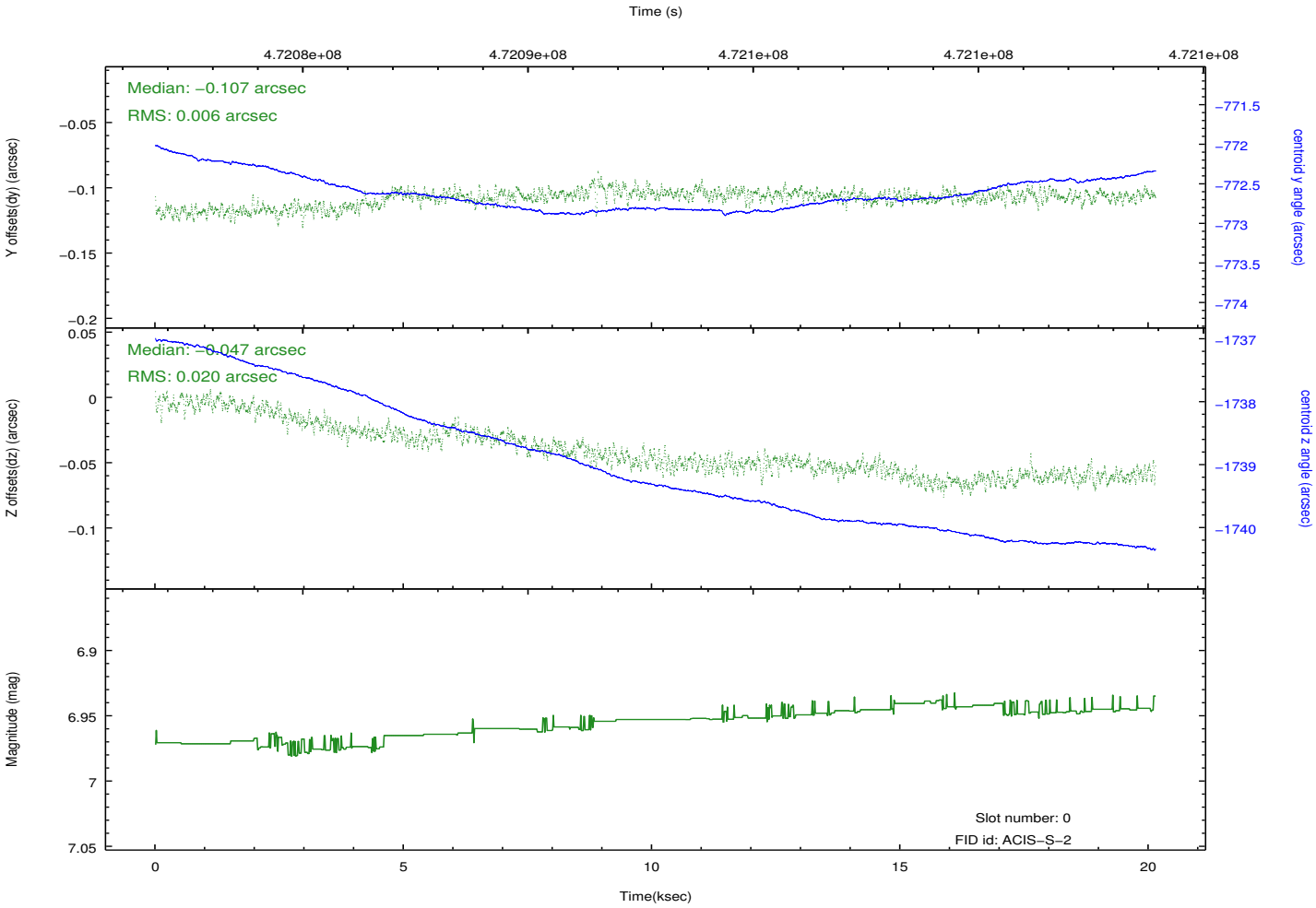

Time (s)
4.7208e+08
4.7209e+08
4.721e+08
4.721e+08
4.721e+08
Median: −0.154 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: −0.253 arcsec
RMS: 0.047 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 43005456
Time(ksec)

2.5 FID Slots

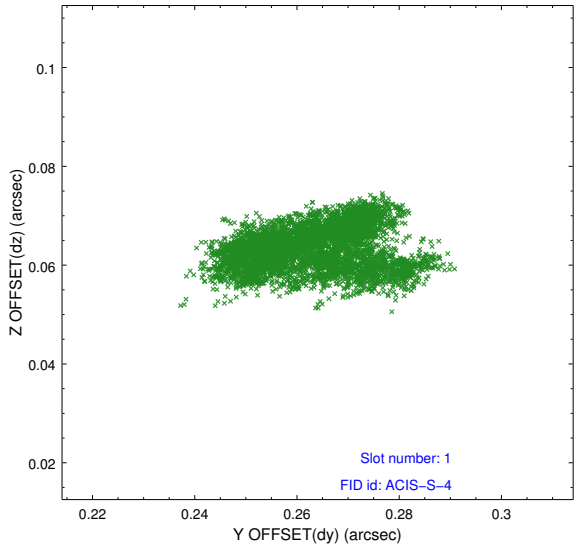
2.5.1 Slot 0

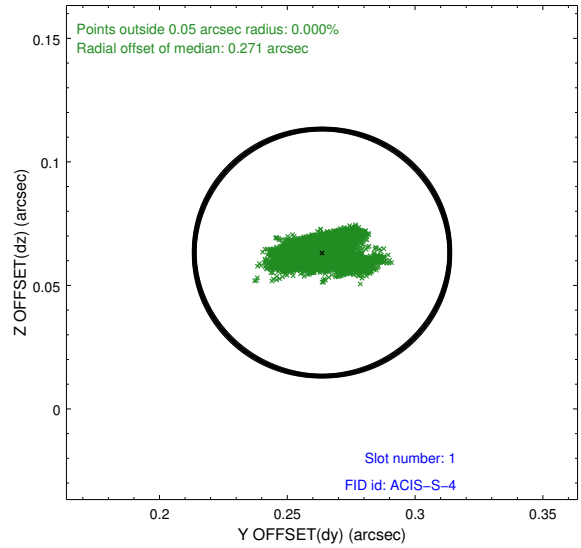


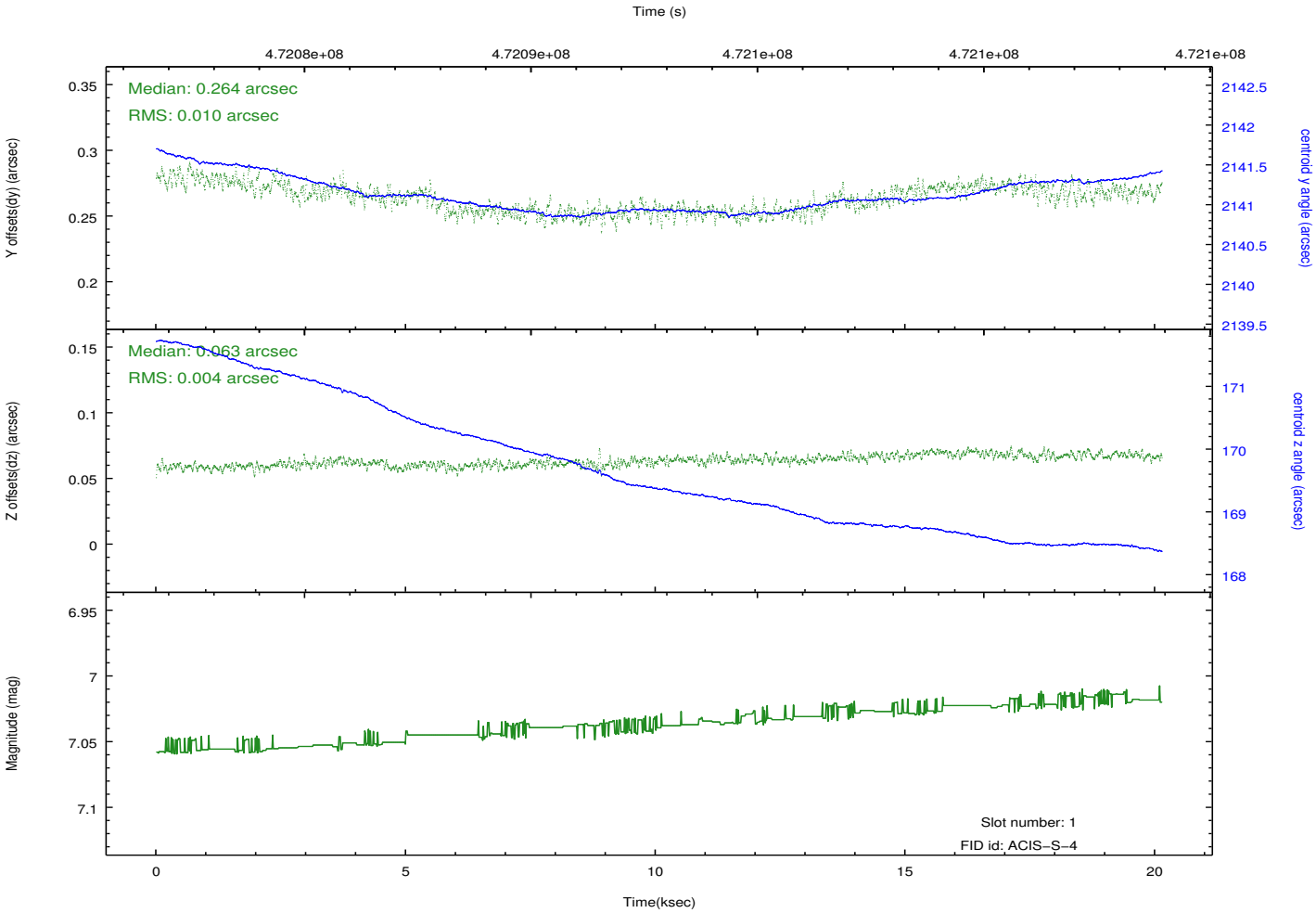




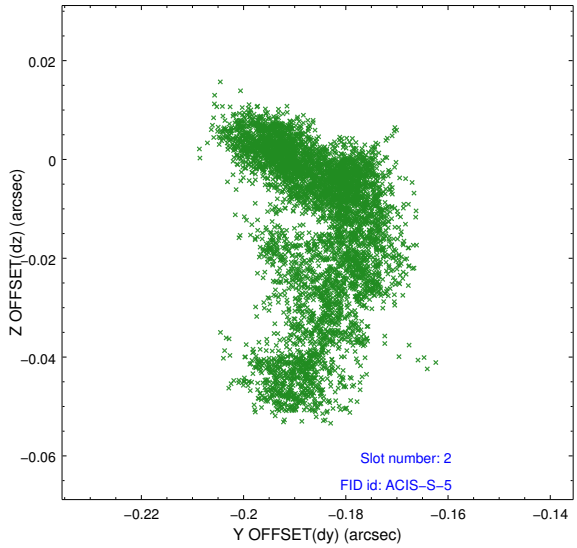
2.5.2 Slot 1

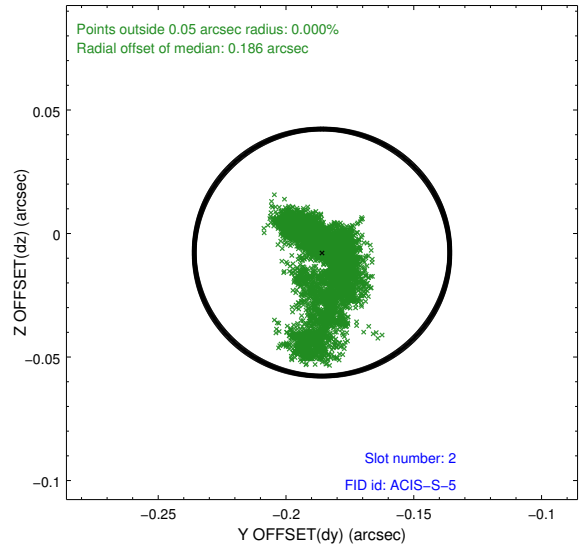

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

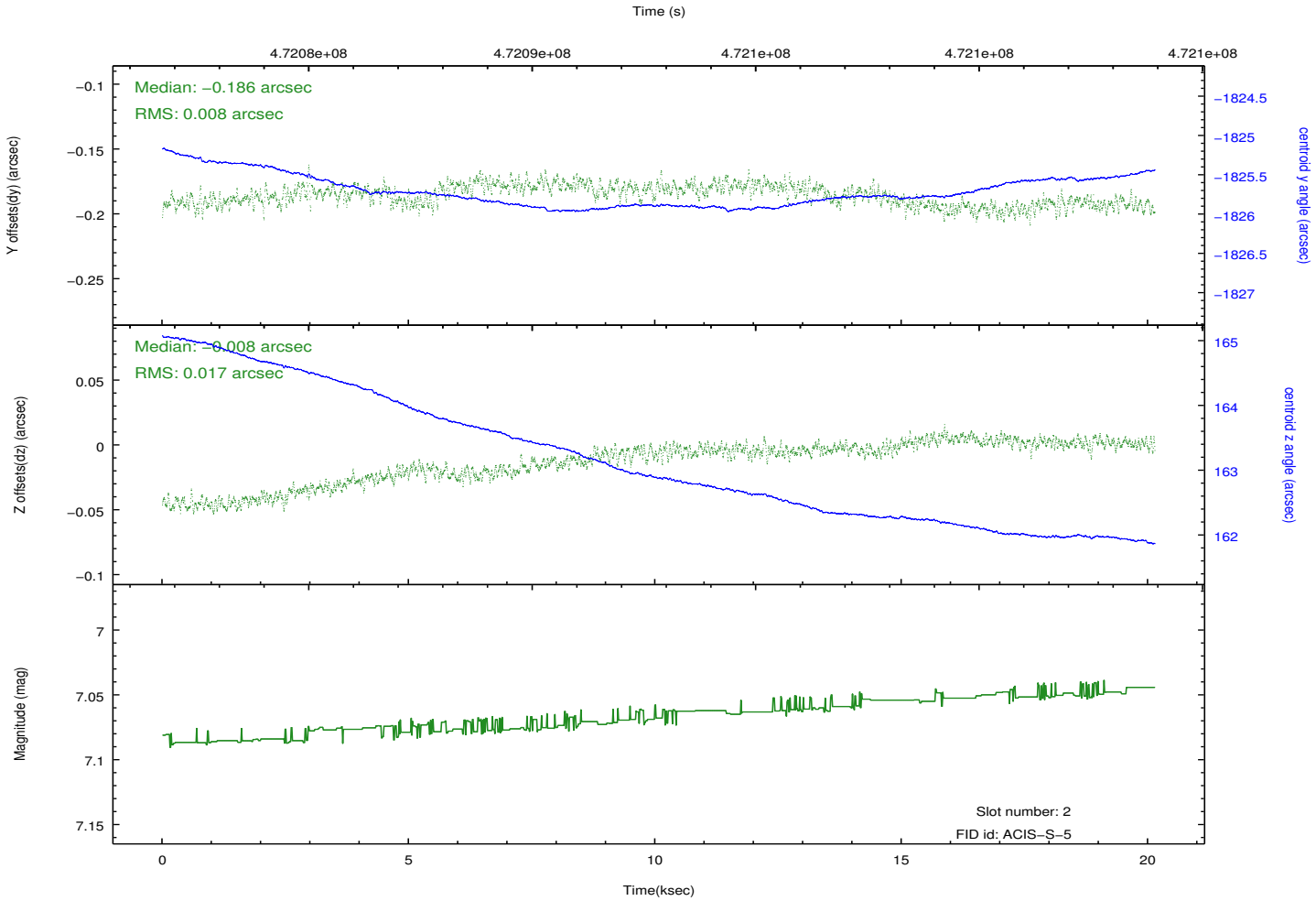

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.271 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.264 arcsec
RMS: 0.010 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.063 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: 0.186 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.186 arcsec
RMS: 0.008 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.008 arcsec
RMS: 0.017 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)	2014.12.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.06577491945

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.
```