V&V Reference Report
L2 ASCDS Version : 8.4.3

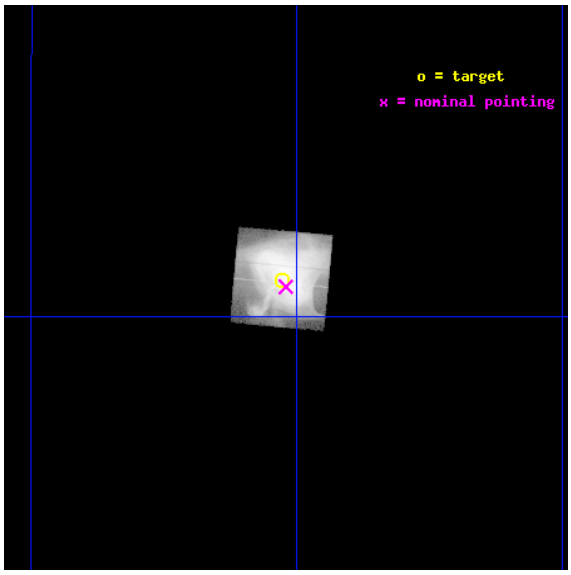
Observation 13751 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Jan 12 2012

Contents

1 Front

seq_num	501584	Sequence number
obs_id	13751	Observation id
title	Joint Chandra and HST Monitoring of the Crab Nebula	Proposal title
observer	Dr. Martin Weisskopf	Principal investigator
object	Crab	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	83.631667	Observer's specified target RA [deg]
dec_targ	22.015667	Observer's specified target Dec [deg]
ra_nom	83.630236288573	Nominal RA [deg]
dec_nom	22.012732065407	Nominal Dec [deg]
roll_nom	275.26910388627	Nominal Roll [deg]
revision	1	Processing version of data
ontime	3387.2138743401	Sum of GTIs [s]
livetime	589.42920585042	Livetime [s]
ontime7	3387.2138743401	Sum of GTIs [s]
l2events	1697573	Number of level 2 events

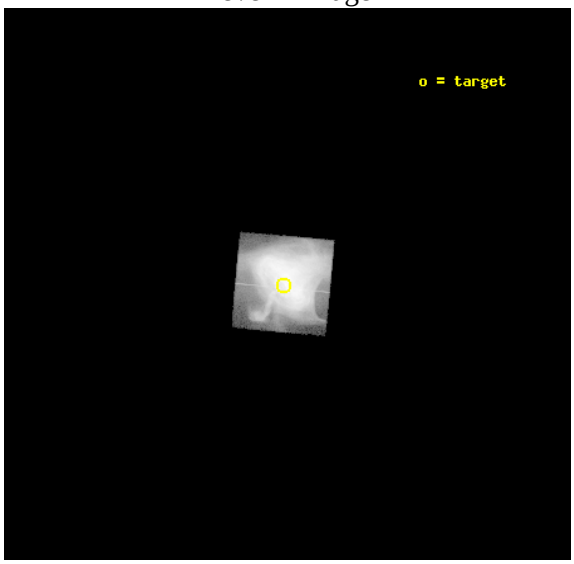


2 OBI

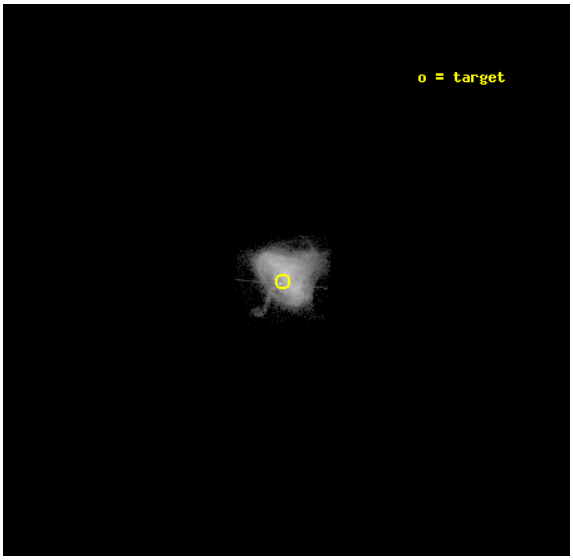
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Parameters

obi_num	0	Obi number
ascdsver	8.4.3	Processing system revision
caldbver	4.4.7	
date	2012-01-12T19:27:20	Date and time of file creation
revision	1	Processing version of data

sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ontime	3387.2138743401	Sum of GTIs [s]
ontime7	3387.2138743401	Sum of GTIs [s]
l1events	1886904	Number of level 1 events

2.1.3 Events

	ccd 7
level 1 events	1886904
rejected events	165391
rejected %	8%

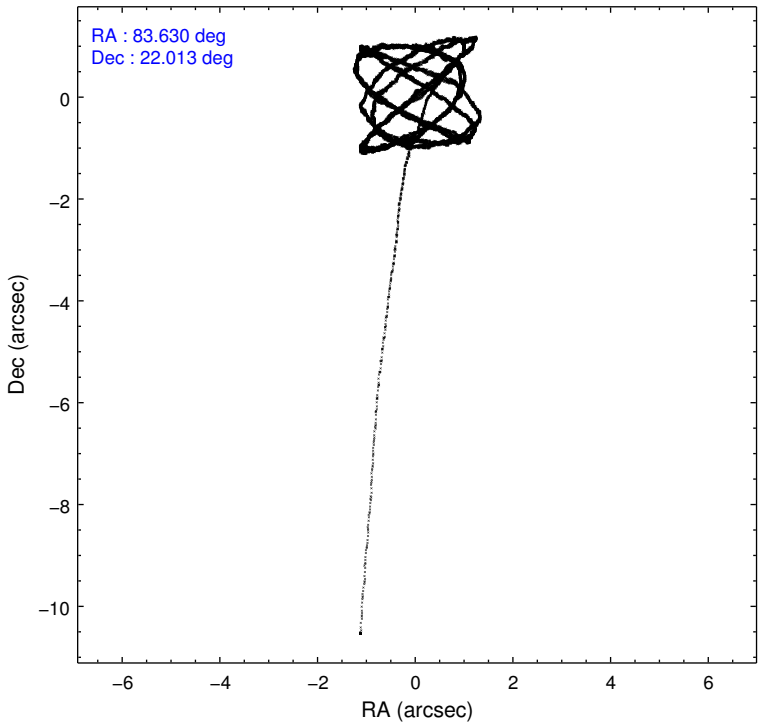
	ccd 7
grade 0 events	396157
	20%
grade 1 events	21717
	1%
grade 2 events	468747
	24%
grade 3 events	195644
	10%
grade 4 events	191797
	10%
grade 5 events	61336
	3%
grade 6 events	470304
	24%
grade 7 events	81202
	4%

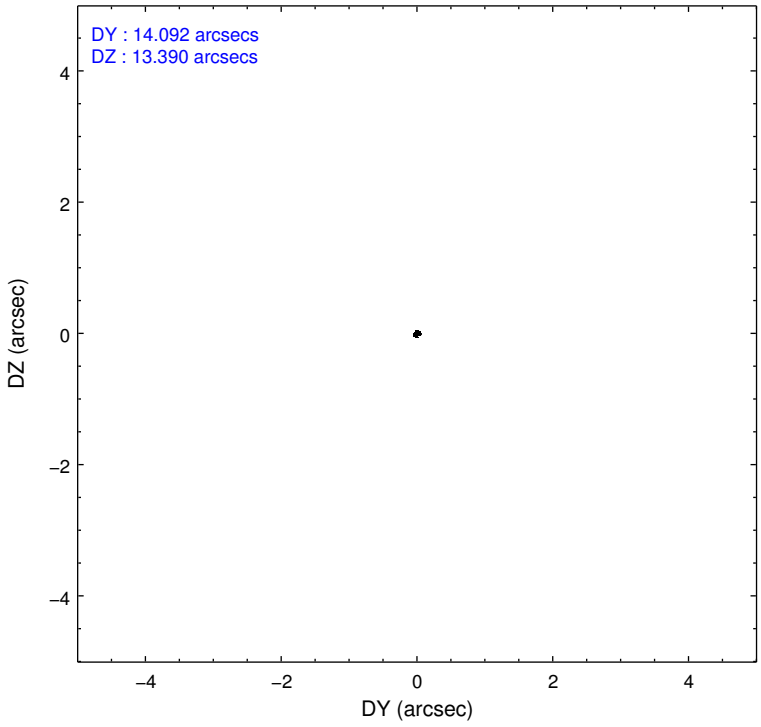
2.2 Compared Parameters

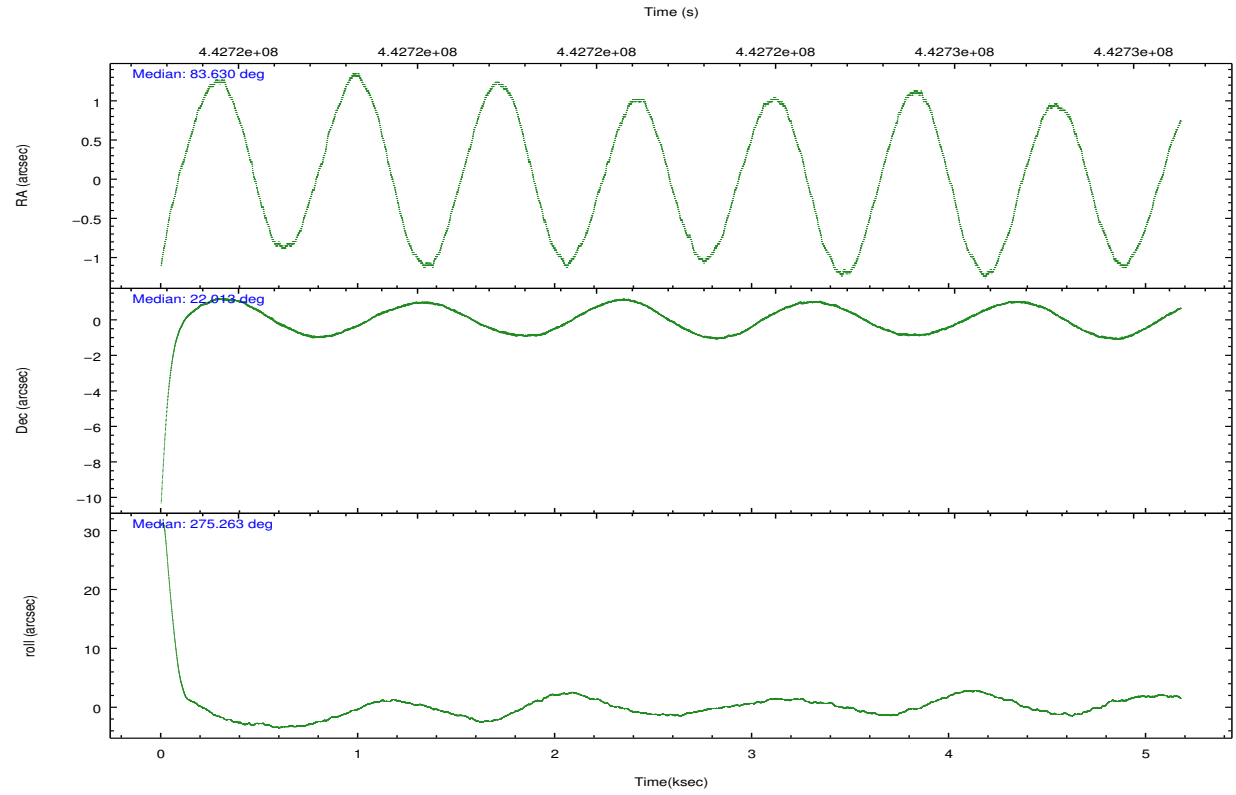
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-7	ACIS-7
Grating	NONE	NONE
Data mode	GRADED	GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	83.612843	83.63023628857258
[deg] Pointing Dec	22.034861	22.01273206540652
[deg] Pointing Roll	275.118918	275.2691038862733
[s] Window start time (MET)	442368066.184000	442368066.184000
[s] Window stop time (MET)	443318465.184000	443318465.184000
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-186.236523	-186.2403630171523
[mm] SIM translation stage offset	-3.896	-3.892159565855479
[s] Observation start time (MET)	442722004.184000	442720710.24643
Observation start date	2012-01-12T02:18:58	2012-01-12T01:58:30
[s] Observation end time (MET)	442727004.184000	442727411.18429
Observation end date	2012-01-12T03:42:18	2012-01-12T03:50:11
Read mode	TIMED	TIMED

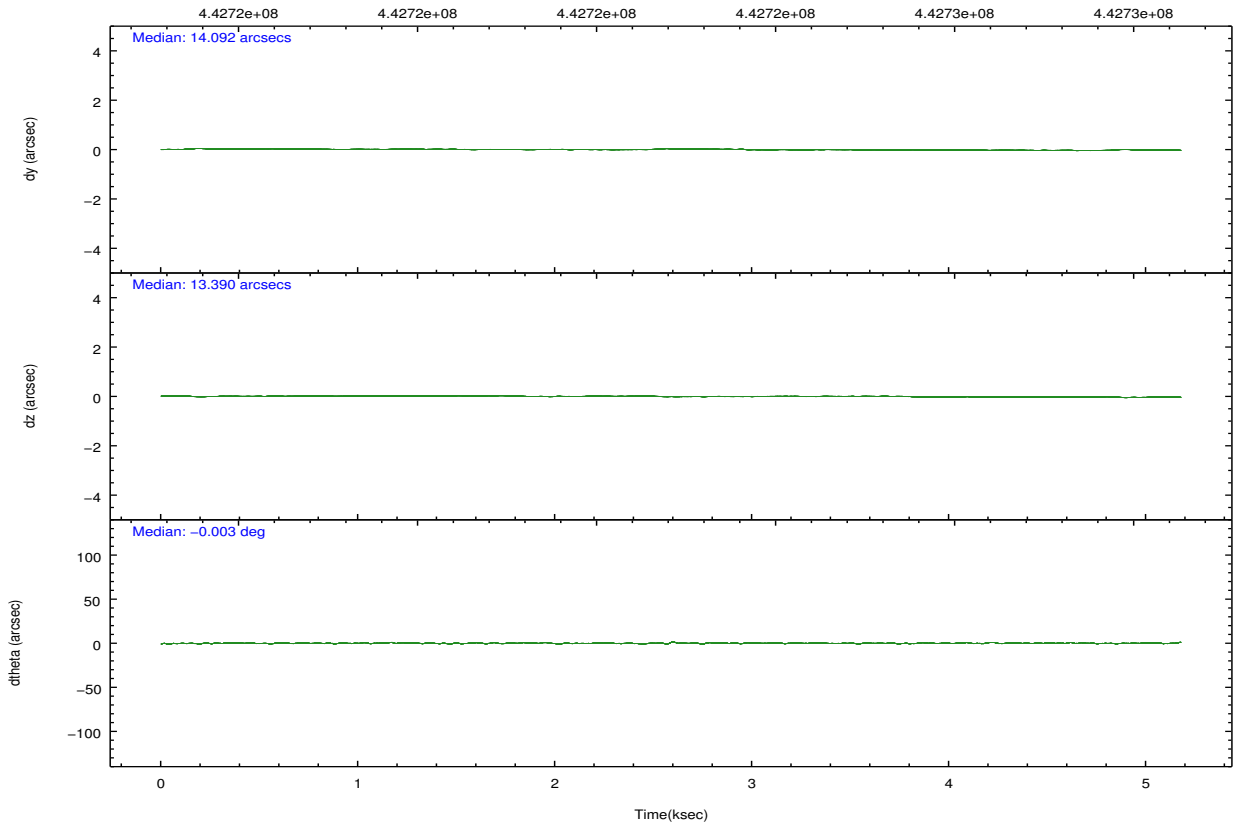
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	CUSTOM
Subarray start row	175	175
Subarray row count	300	300
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.2

2.3 Aspect


RA : 83.630 deg
Dec : 22.013 deg
Dec (arcsec)
RA (arcsec)
0
−2
−4
−6
−8
−10
−6
−4
−2
0
2
4
6


DY : 14.092 arcsecs
DZ : 13.390 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
4.4272e+08
4.4272e+08
4.4272e+08
4.4272e+08
4.4273e+08
4.4273e+08
Median: 83.630 deg
RA (arcsec)
Median: 22.913 deg
Dec (arcsec)
Median: 275.263 deg
roll (arcsec)
Time(ksec)

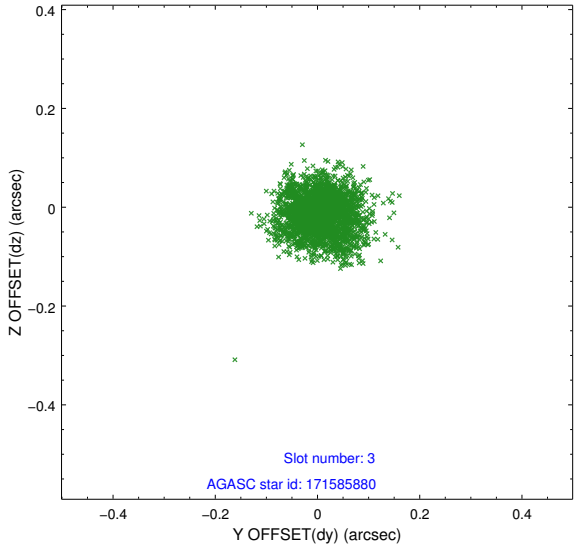

Time (s)
4.4272e+08
4.4272e+08
4.4272e+08
4.4272e+08
4.4273e+08
4.4273e+08
Median: 14.092 arcsecs
dy (arcsec)
Median: 13.390 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

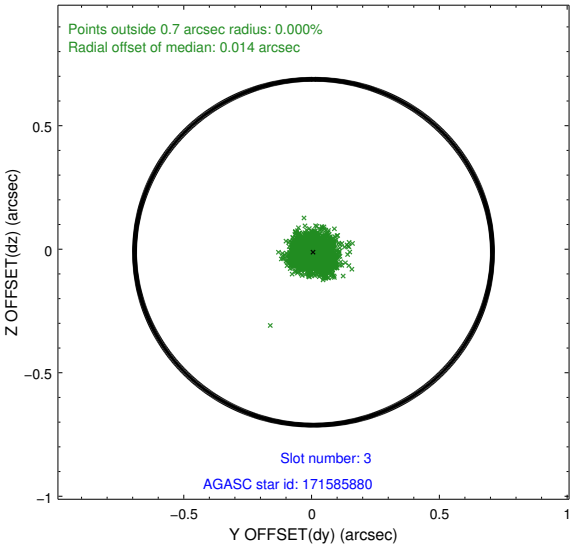
Slot Statistics

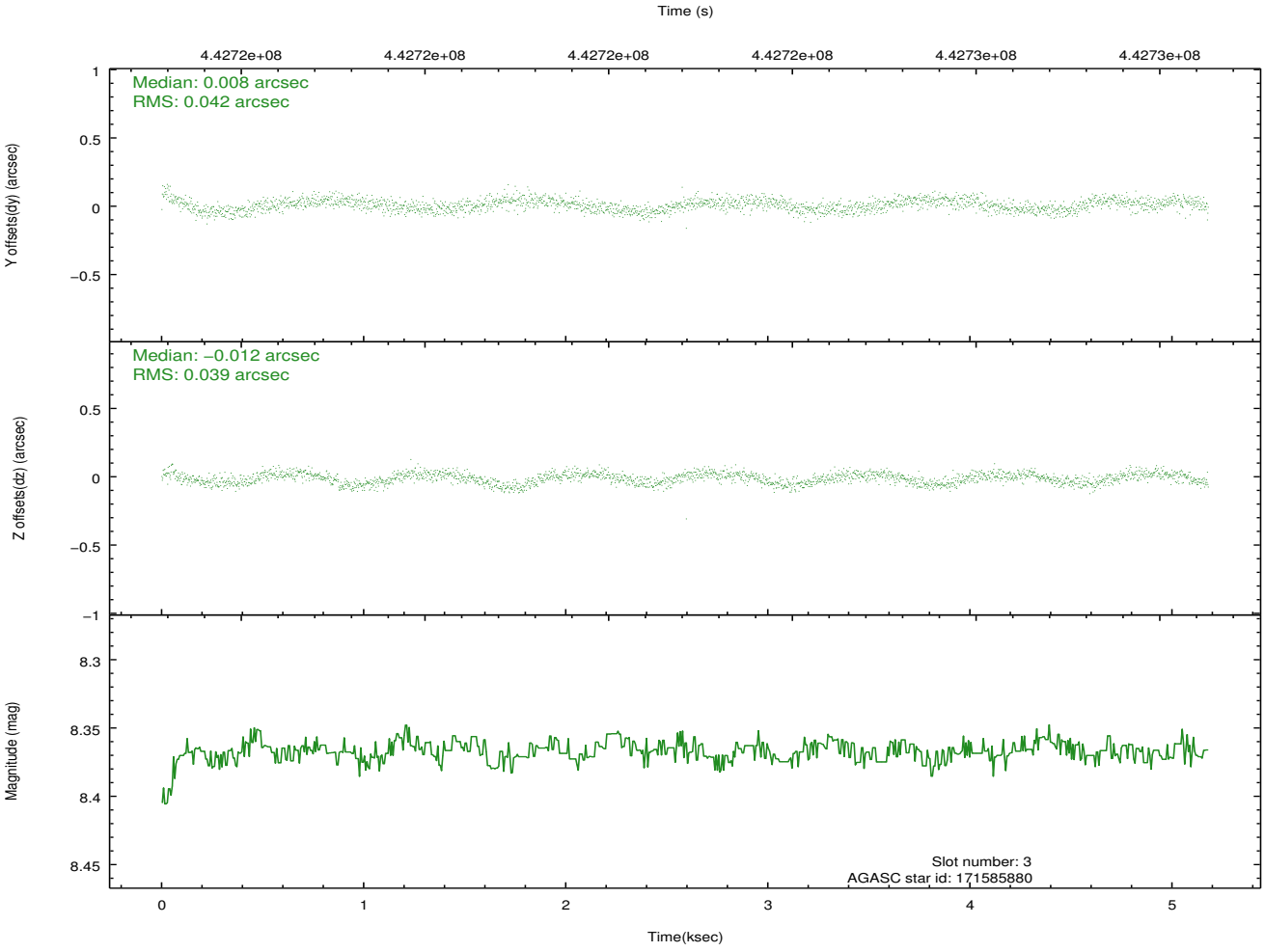
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.96	1263	-0.107	-0.118	0.006	0.010	0.000000	0.000000	-766.90	-1815.13
1	FID	ACIS-S-4	7.04	1263	0.301	0.083	0.005	0.010	0.000000	0.000000	2146.28	92.23
2	FID	ACIS-S-5	7.08	1263	-0.226	0.044	0.006	0.010	0.000000	0.000000	-1818.33	87.25
3	GUIDE	171585880	8.37	2524	0.008	-0.012	0.062	0.098	83.676260	22.176319	-488.13	256.06
4	GUIDE	171586032	8.97	2526	0.077	-0.070	0.068	0.112	83.950197	22.083225	-74.19	1136.67
5	GUIDE	171597832	9.15	2525	0.086	0.000	0.074	0.127	83.183230	21.366702	2265.83	-1648.30
6	GUIDE	171721904	9.24	2524	0.092	0.083	0.099	0.159	84.272676	22.116922	-101.59	2218.14
7	GUIDE	243941560	8.28	2525	-0.262	-0.001	0.048	0.082	83.733264	22.568598	-1878.11	570.82

2.4 Star Slots

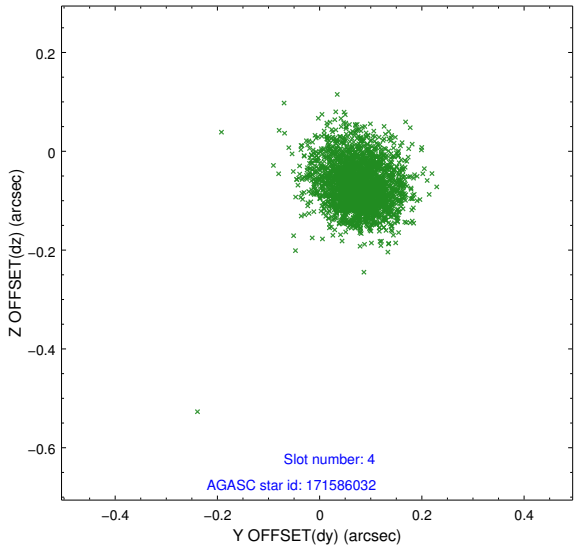
2.4.1 Slot 3

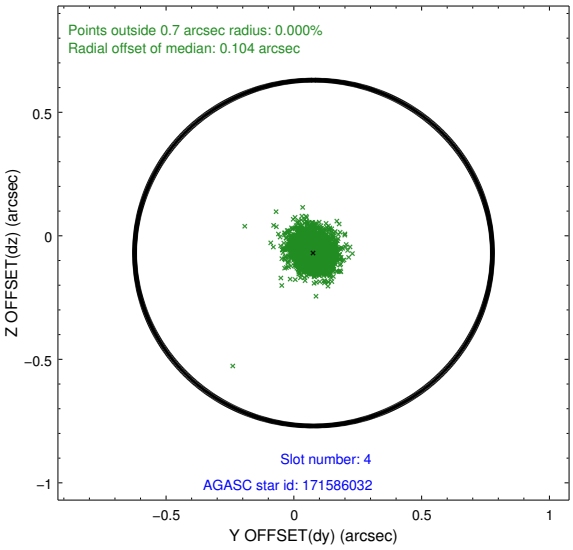


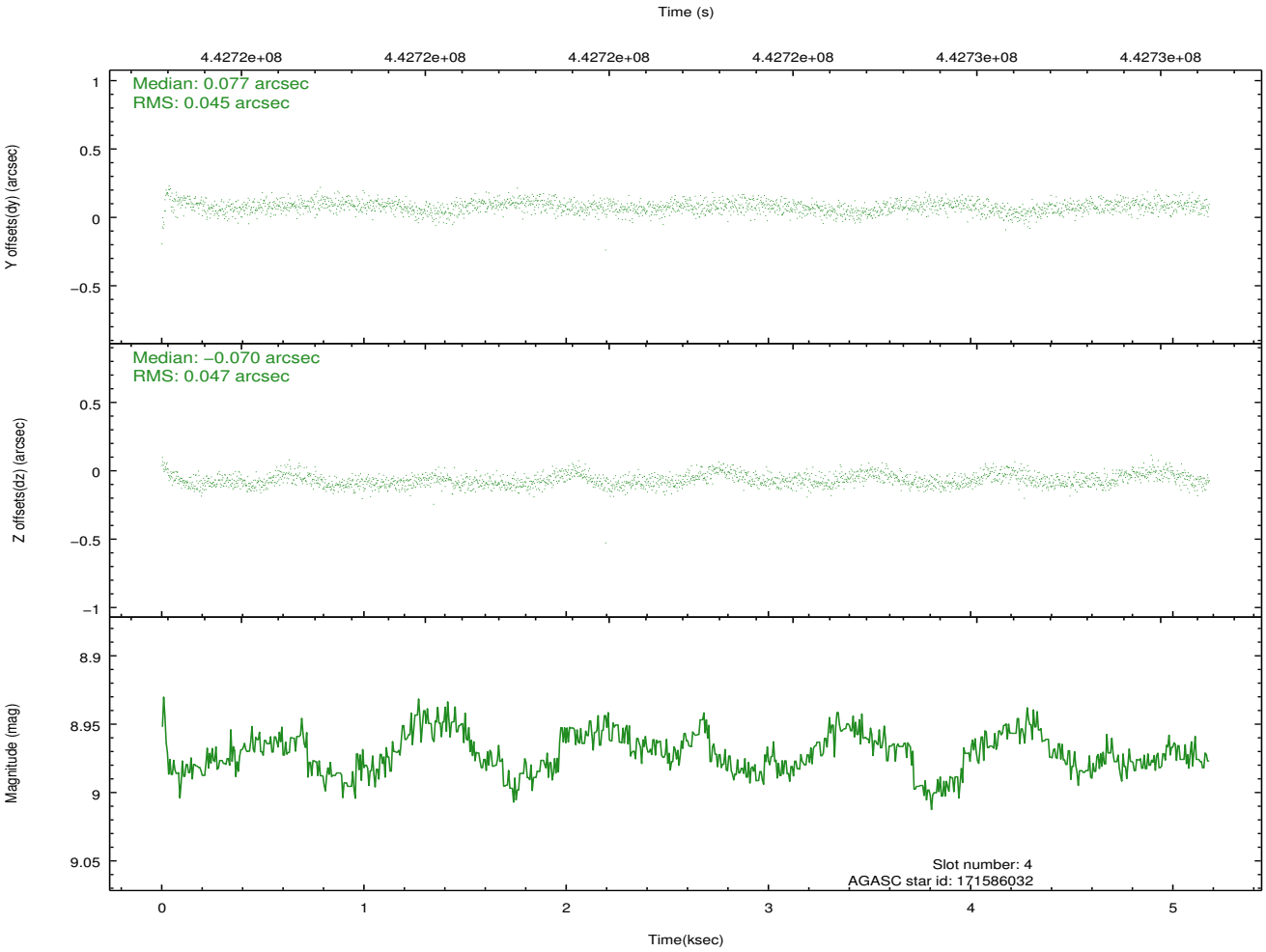




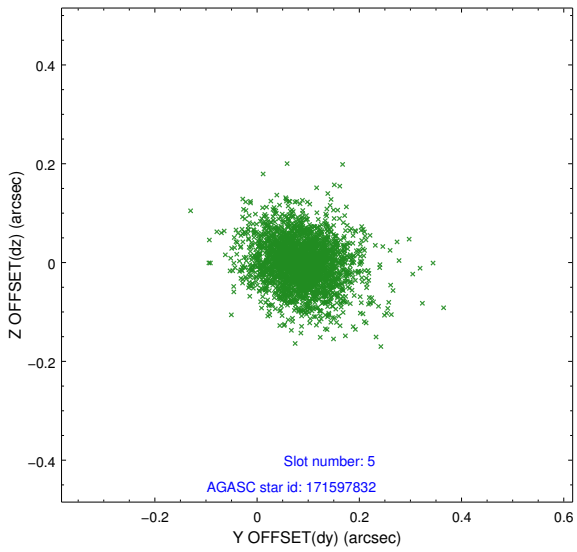
2.4.2 Slot 4

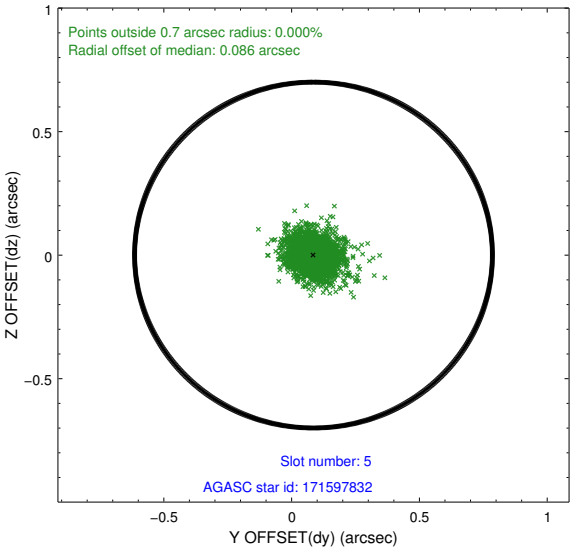

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 171586032

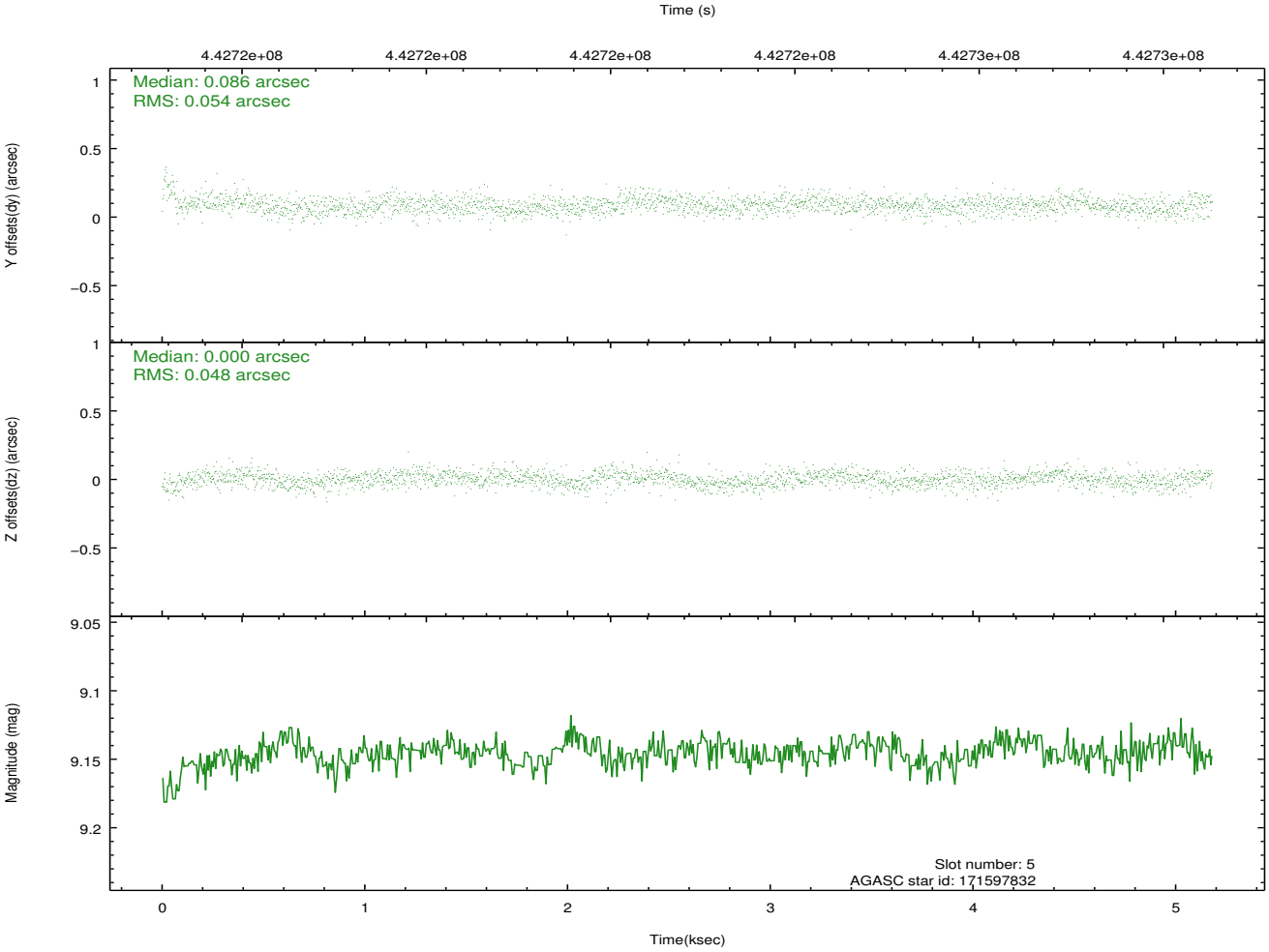

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.104 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 171586032


Time (s)
Median: 0.077 arcsec
RMS: 0.045 arcsec
Y offsets(dy) (arcsec)
Median: −0.070 arcsec
RMS: 0.047 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 171586032
Time(ksec)

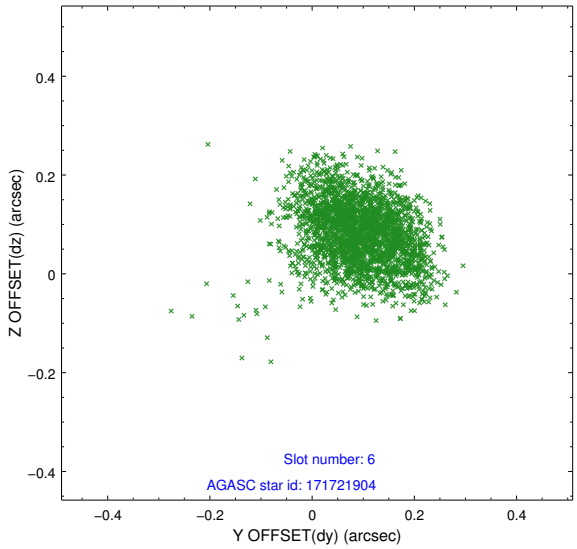
2.4.3 Slot 5

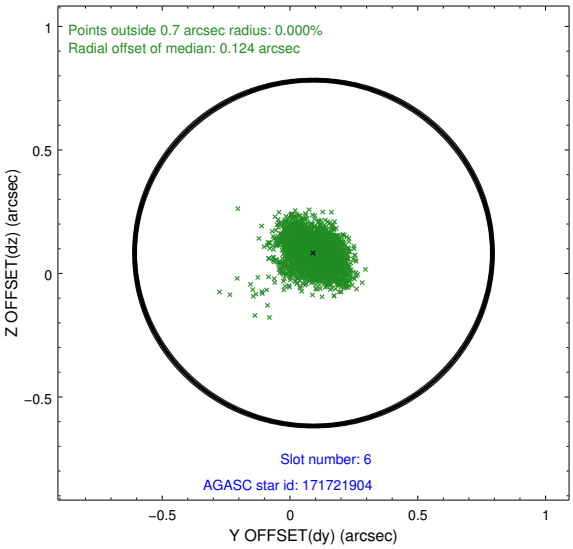

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 171597832

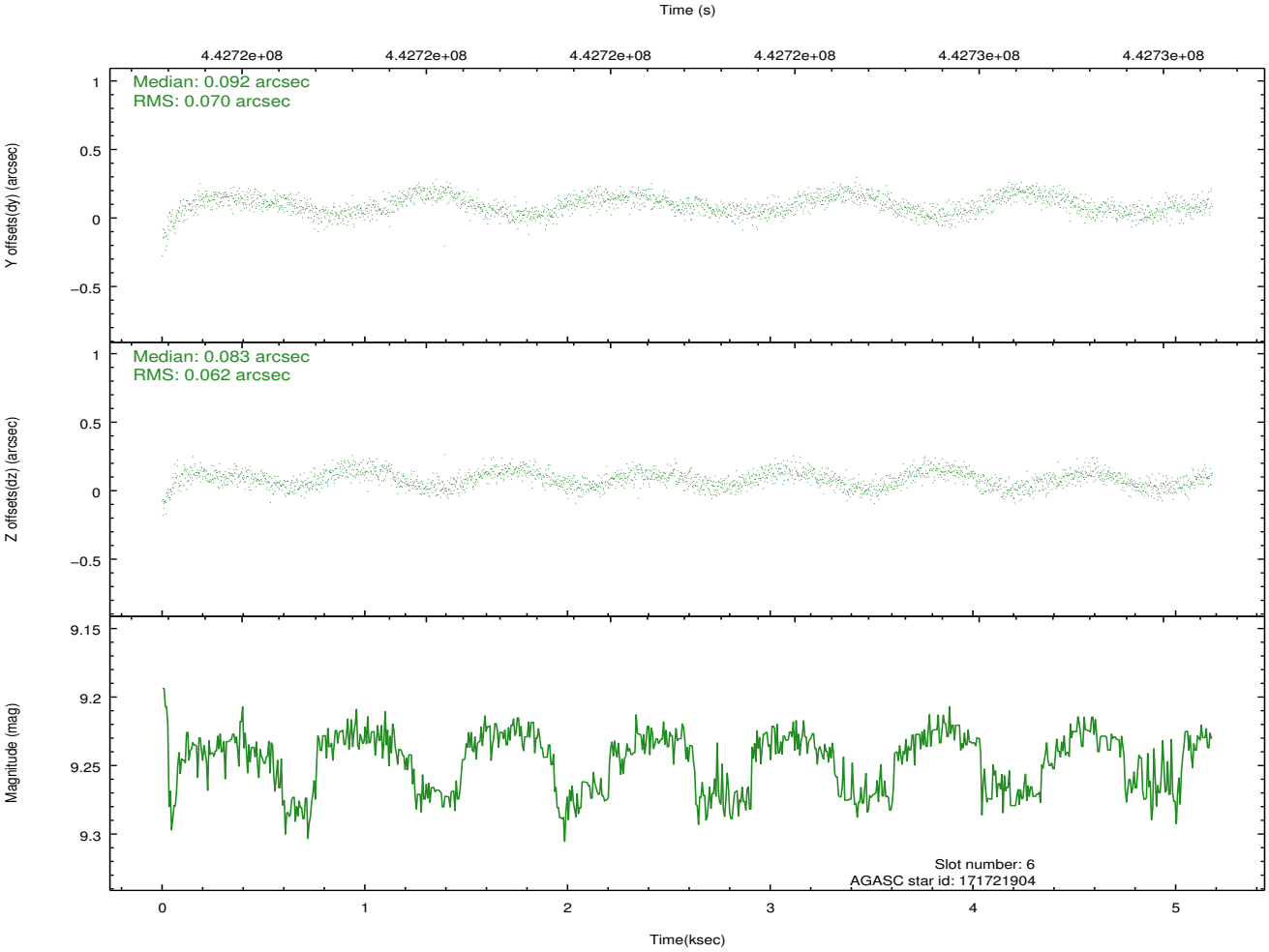

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.086 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 171597832


Time (s)
Median: 0.086 arcsec
RMS: 0.054 arcsec
Y offsets(dy) (arcsec)
Median: 0.000 arcsec
RMS: 0.048 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 171597832
Time(ksec)

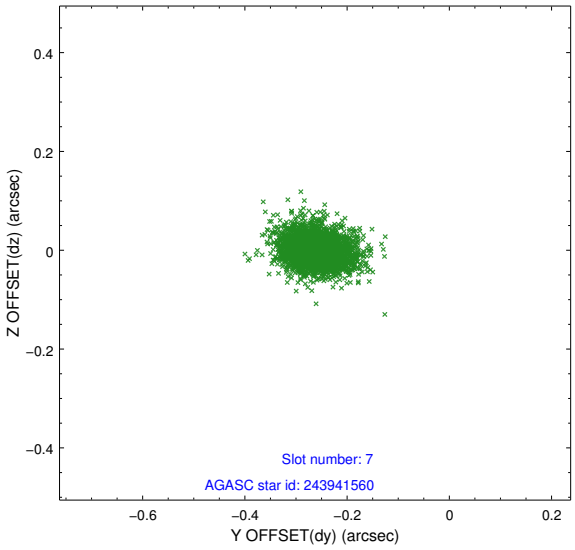
2.4.4 Slot 6

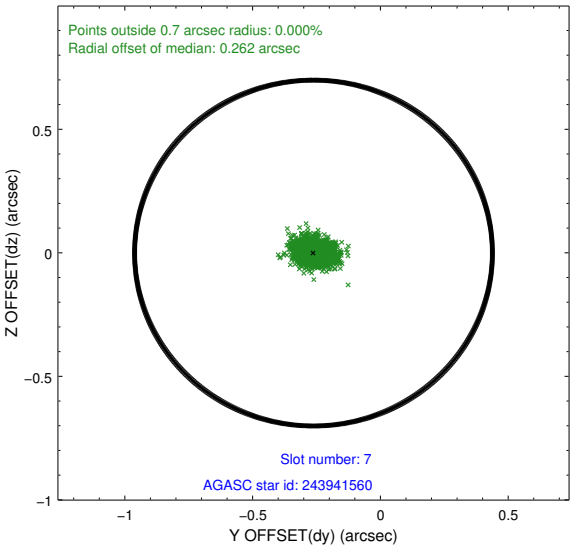

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 171721904

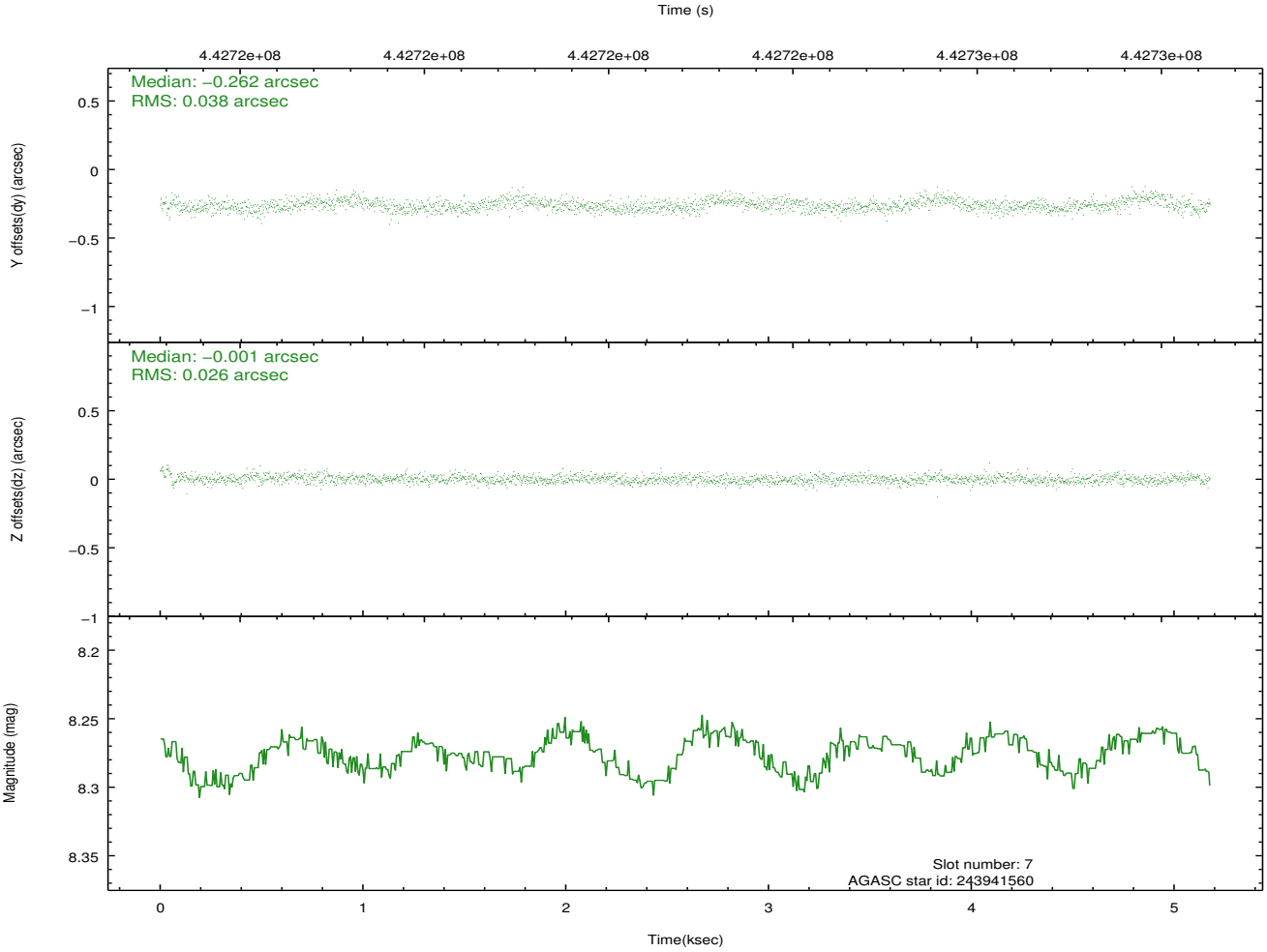

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.124 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 171721904


Time (s)
Median: 0.092 arcsec
RMS: 0.070 arcsec
Y offsets(dy) (arcsec)
Median: 0.083 arcsec
RMS: 0.062 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 171721904
Time(ksec)

2.4.5 Slot 7

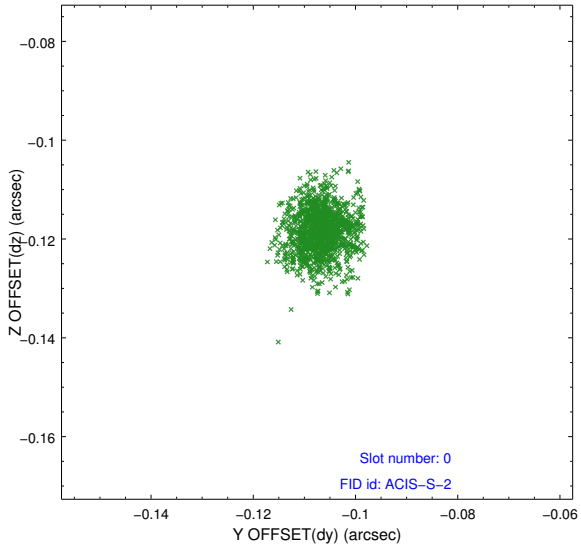

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 243941560

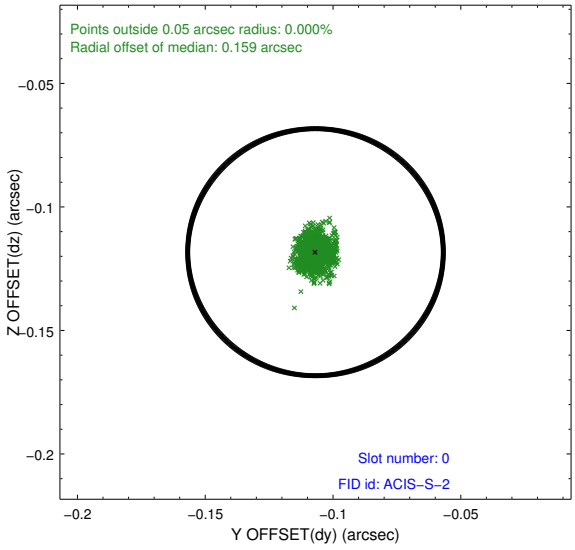

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.262 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 243941560

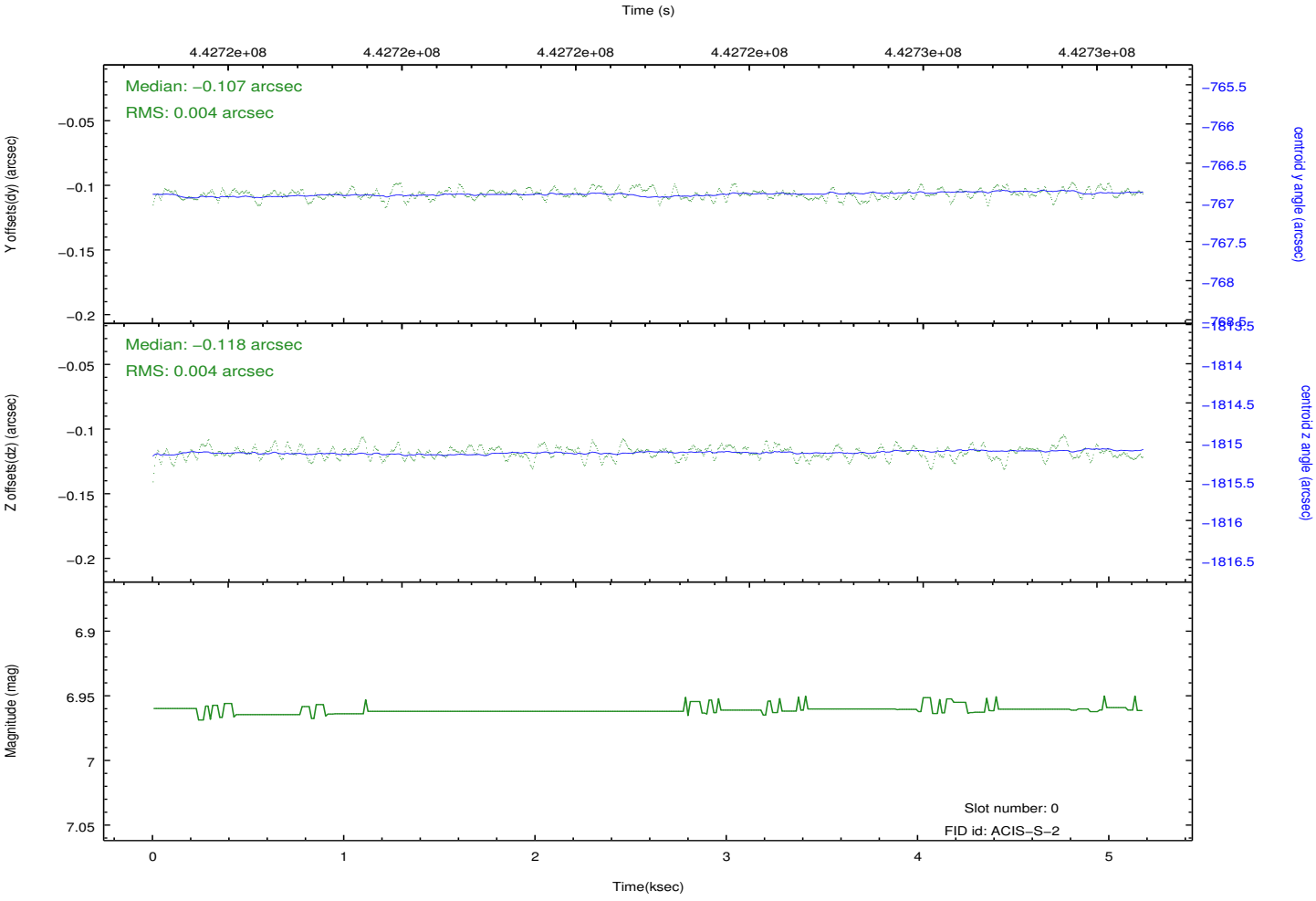

Time (s)
Median: −0.262 arcsec
RMS: 0.038 arcsec
Y offsets(dy) (arcsec)
Median: −0.001 arcsec
RMS: 0.026 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 243941560
Time(ksec)

2.5 FID Slots

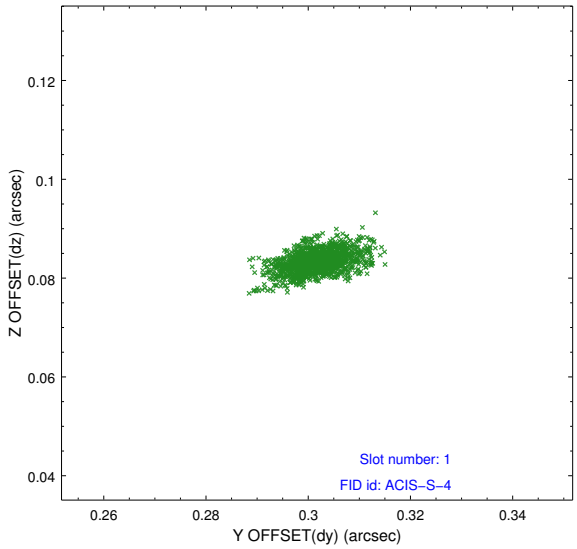
2.5.1 Slot 0

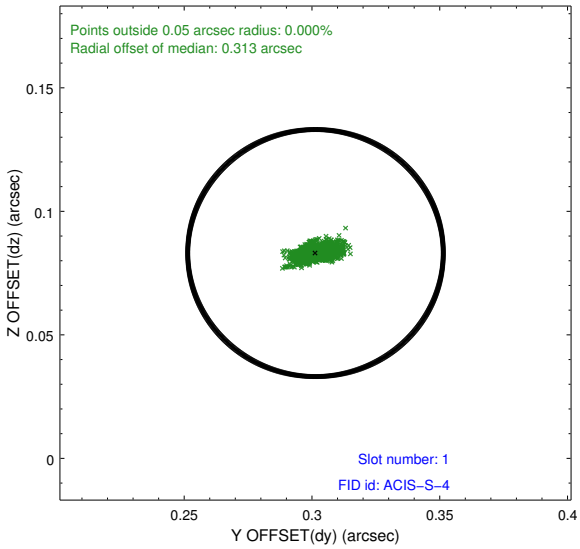


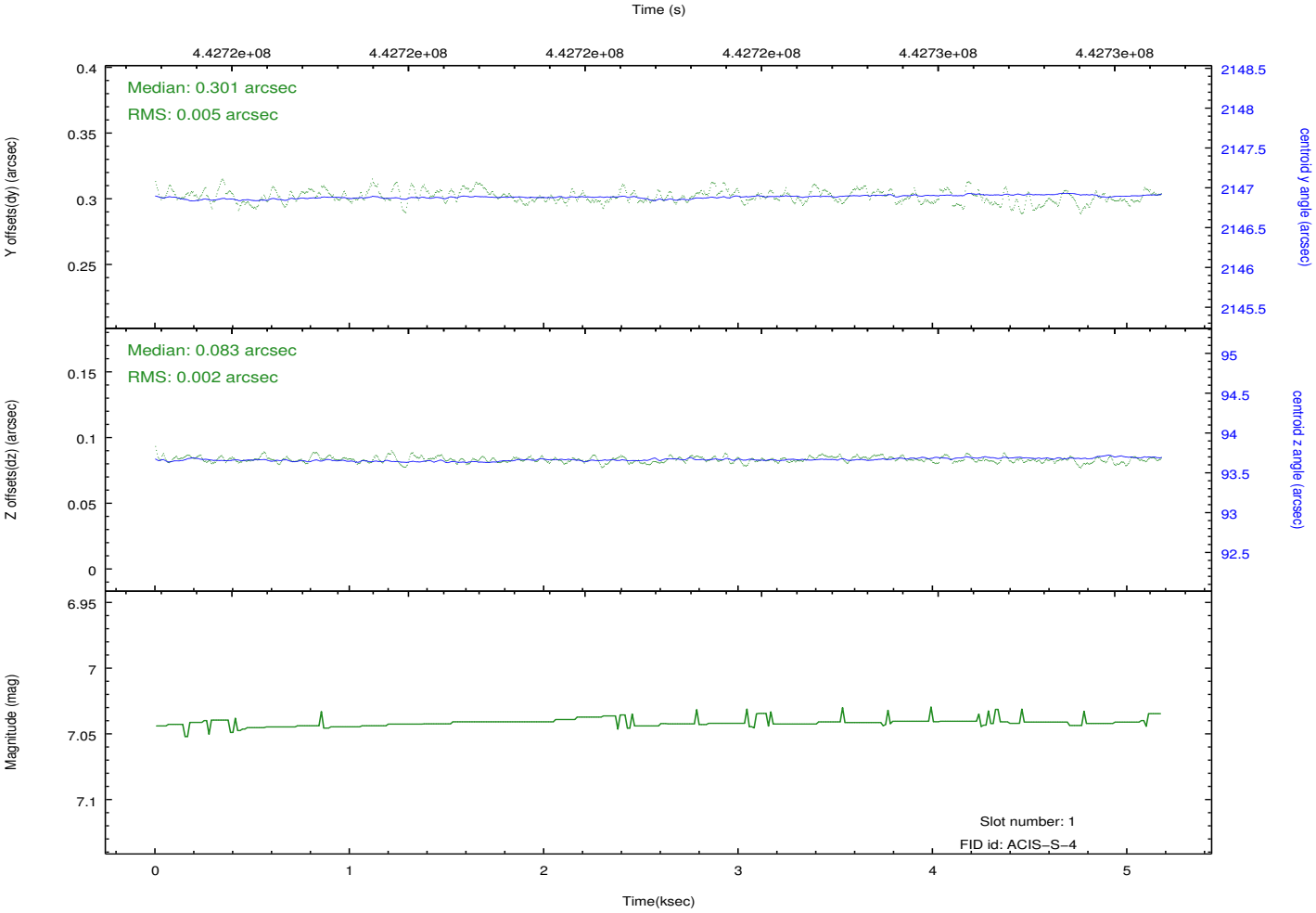




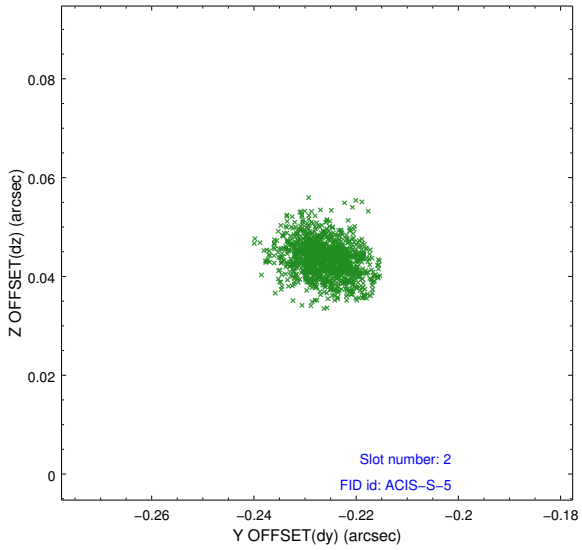
2.5.2 Slot 1

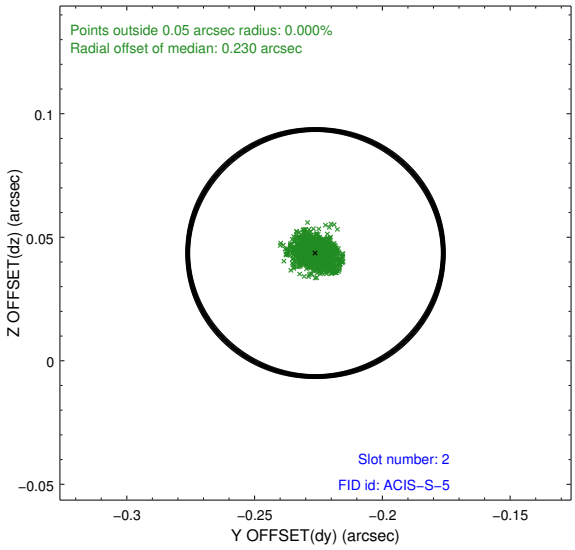

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

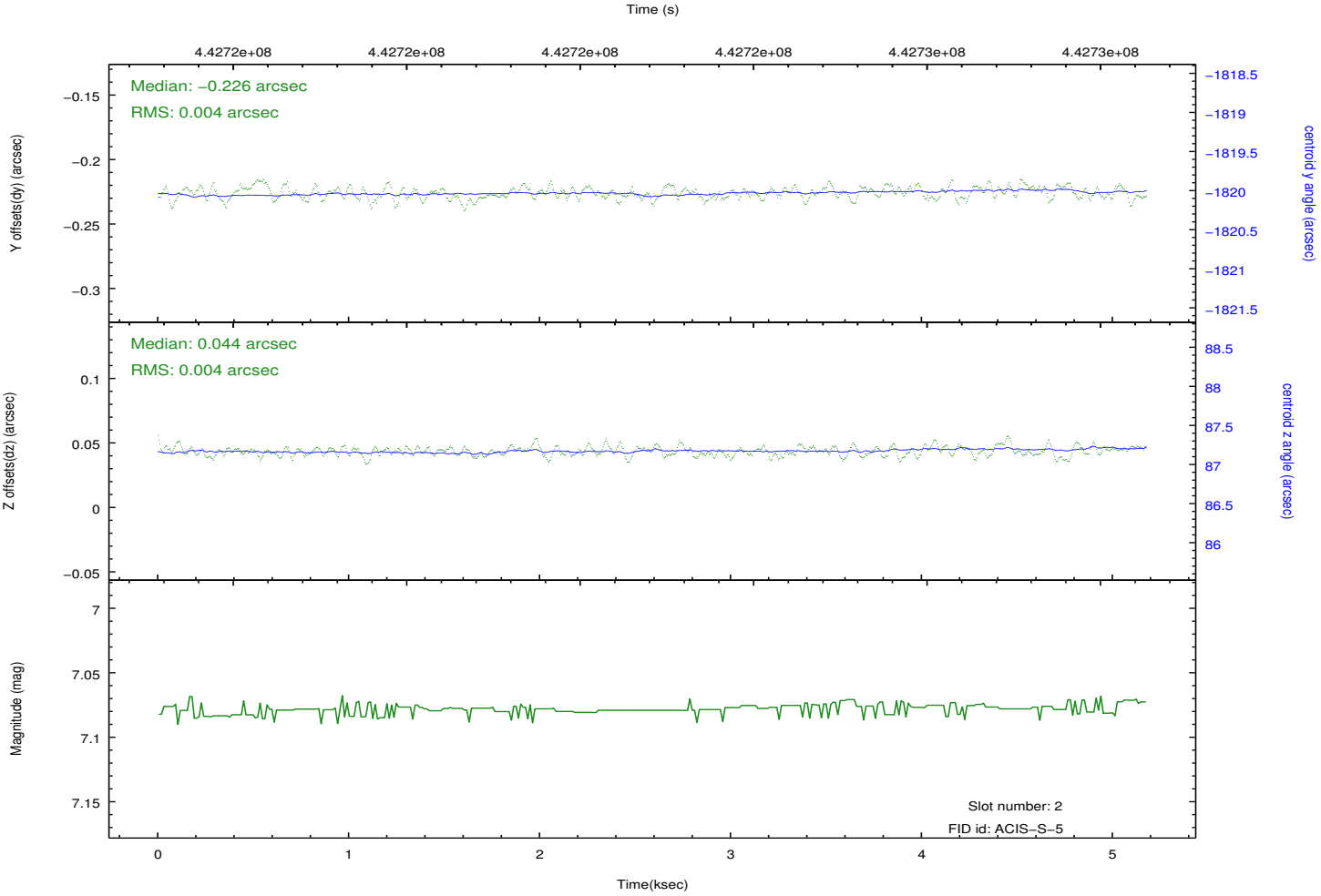

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.313 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.301 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.083 arcsec
RMS: 0.002 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: 0.230 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.226 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.044 arcsec
RMS: 0.004 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)	2012.01.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5

A.2 Comments

```
Charge time:
ONTIME of 3387.2138743401 seconds is less than 85% of expected scheduled
time of 5000 seconds
=======
Charge time is set to the scheduled time for this observation, although
the ontime is 3387s, which is significantly less due to telemetry
saturation. In addition, the livetime of the detector is about 589 s,
significantly shorter than the ONTIME of 3387.214 s. This is because the
frame time of 0.2 s is shorter than the minimum time that it takes to
read out the detector (about 0.9 s) in the specified configuration.
Therefore, there is a flush of 0.90588 s preceding each frame. This
flush time is dead time. The observation uses non-standard dither.
======
Joint Proposal: HST. Window constraint met.
```