V&V Reference Report
L2 ASCDS Version : 8.4.5

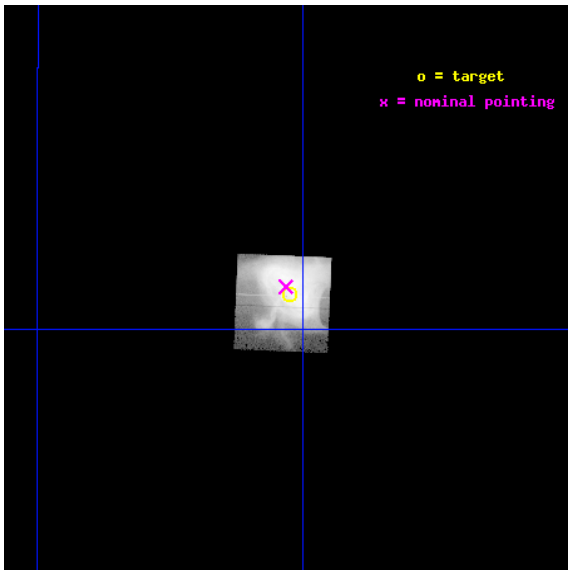
Observation 13139 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Jul 4 2012

Contents

1 Front

seq_num	501531	Sequence number
obs_id	13139	Observation id
title	Search for new spatial structure associated with the gamma-ray enhancement of the Crab	Proposal title
observer	Dr. Martin Weisskopf	Principal investigator
object	Crab Nebula	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	83.633280323747	Nominal RA [deg]
dec_nom	22.018521806698	Nominal Dec [deg]
roll_nom	92.392624675262	Nominal Roll [deg]
revision	2	Processing version of data
ontime	3465.8263792396	Sum of GTIs [s]
livetime	605.97726671323	Livetime [s]
ontime7	3465.8263792396	Sum of GTIs [s]
l2events	1699044	Number of level 2 events

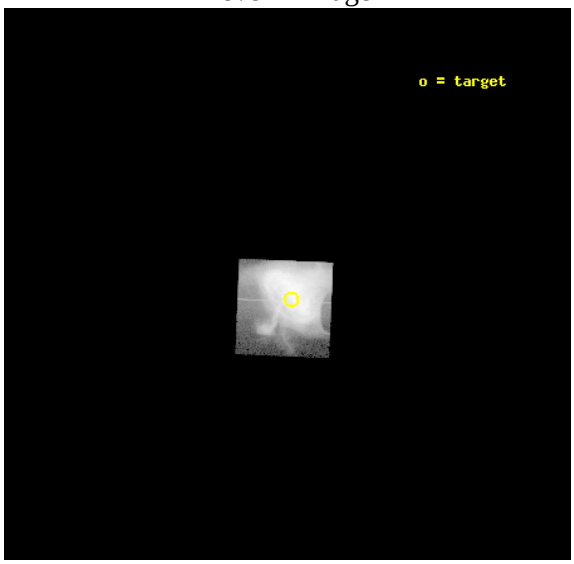


2 OBI

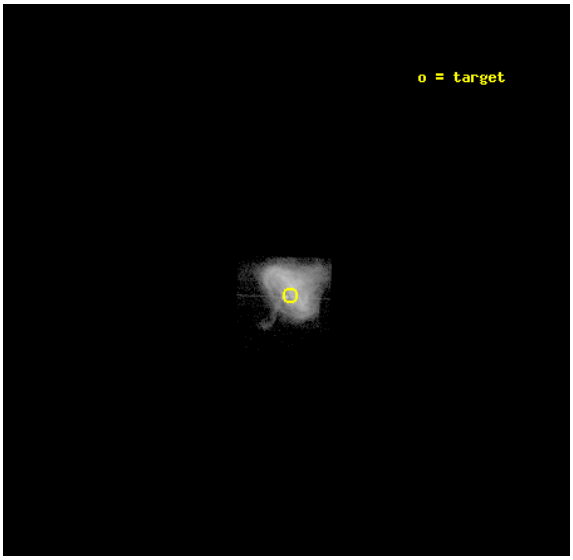
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Parameters

obi_num	0	Obi number
ascdsver	8.4.5	Processing system revision
caldbver	4.5.0	
date	2012-07-04T03:00:31	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ontime	3465.8263792396	Sum of GTIs [s]
ontime7	3465.8263792396	Sum of GTIs [s]
l1events	1884878	Number of level 1 events

2.1.3 Events

	ccd 7
level 1 events	1884878
rejected events	172028
rejected %	9%

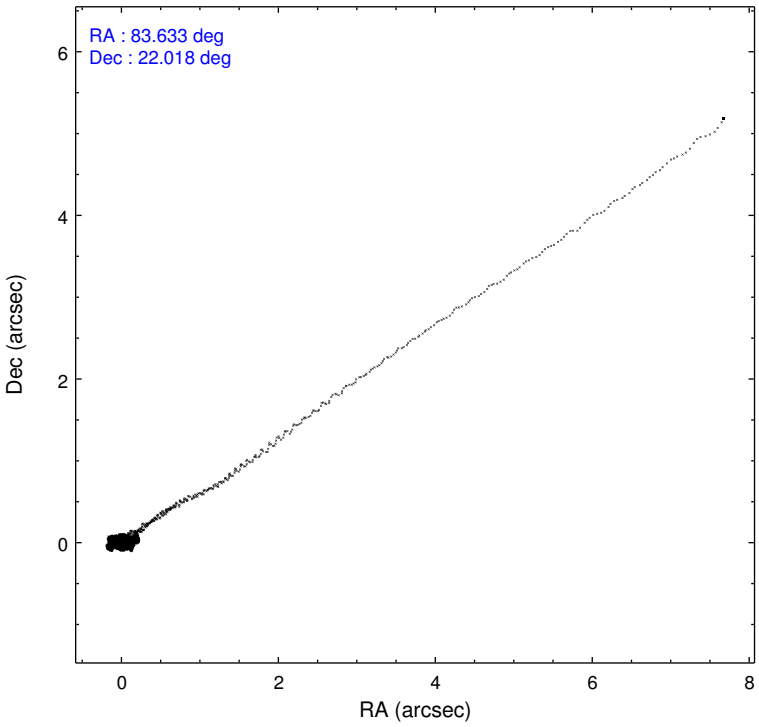
	ccd 7
grade 0 events	349862
	18%
grade 1 events	19969
	1%
grade 2 events	456650
	24%
grade 3 events	193796
	10%
grade 4 events	191204
	10%
grade 5 events	62013
	3%
grade 6 events	521930
	27%
grade 7 events	89454
	4%

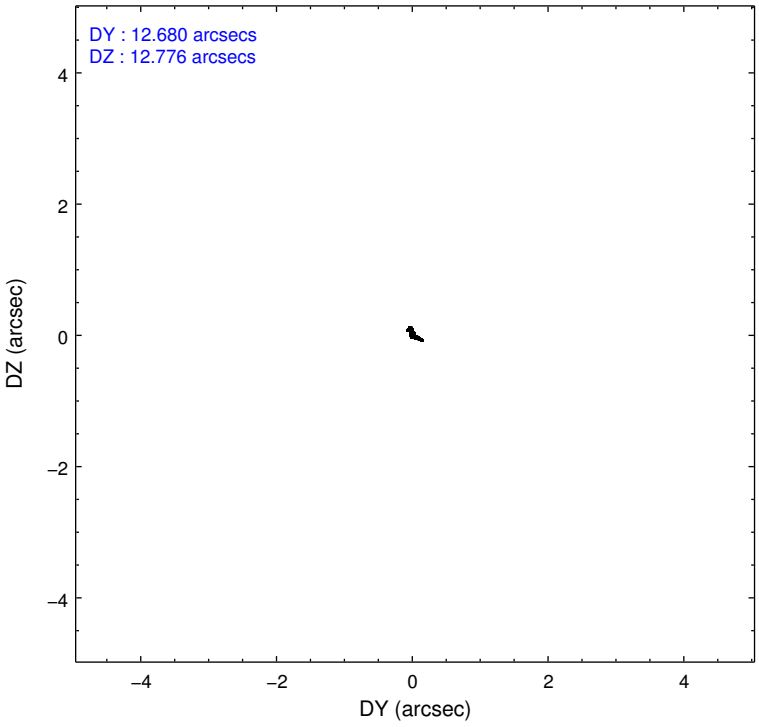
2.2 Compared Parameters

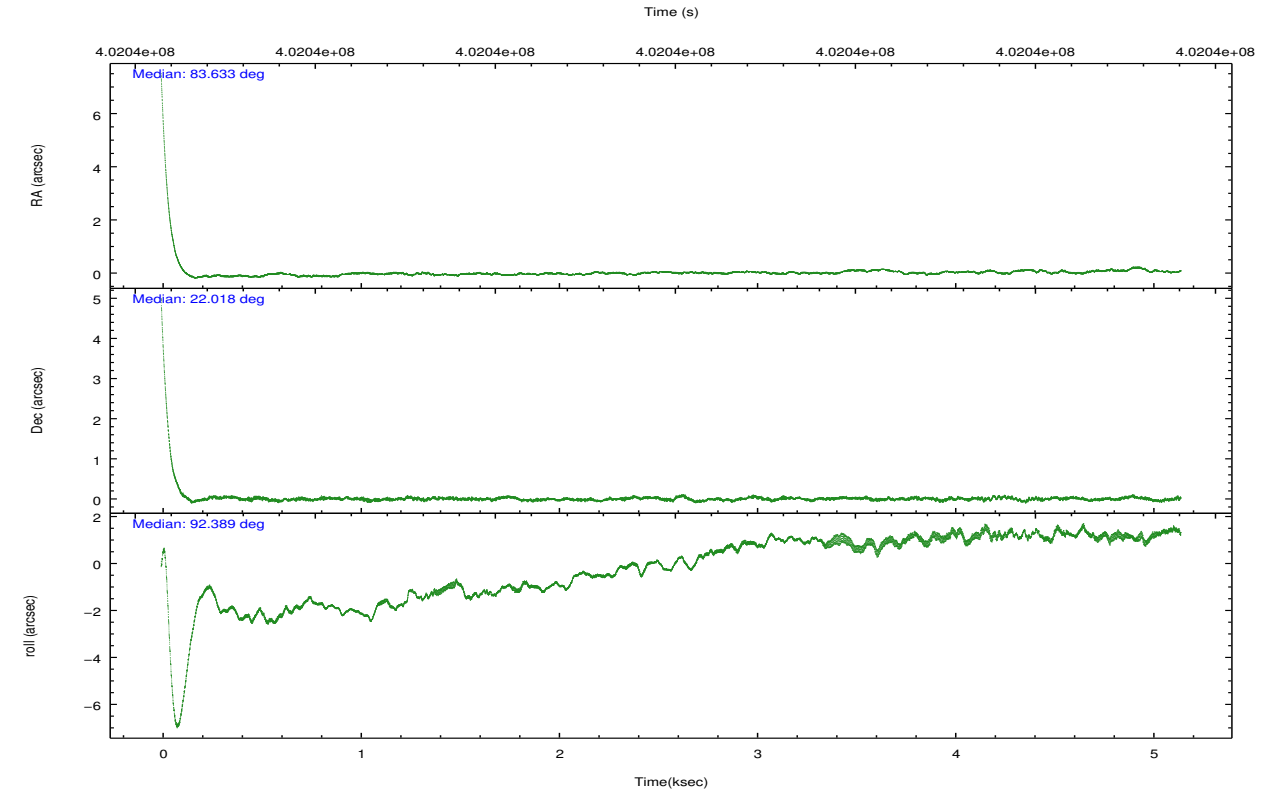
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-7	ACIS-7
Grating	NONE	NONE
Data mode	GRADED	GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	83.649420	83.63328032374704
[deg] Pointing Dec	21.995626	22.01852180669827
[deg] Pointing Roll	92.229920	92.39262467526156
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-182.366523	-182.3582601915437
[mm] SIM translation stage offset	-7.766	-7.774262391464134
[s] Observation start time (MET)	402038536.184000	402037557.22574
Observation start date	2010-09-28T05:21:10	2010-09-28T05:05:57
[s] Observation end time (MET)	402043536.184000	402044493.91359
Observation end date	2010-09-28T06:44:30	2010-09-28T07:01:33
Read mode	TIMED	TIMED

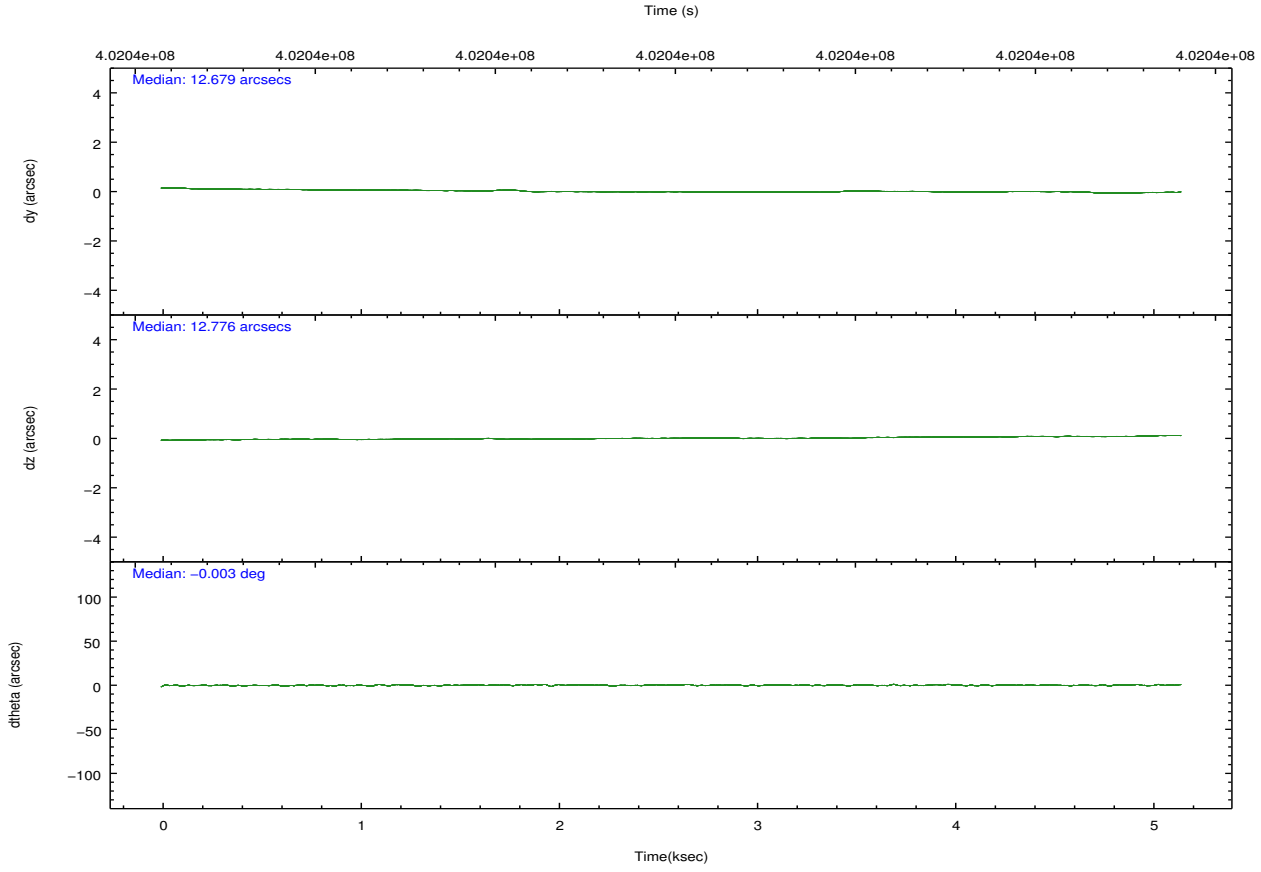
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	CUSTOM
Subarray start row	39	39
Subarray row count	300	300
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.2

2.3 Aspect


RA : 83.633 deg
Dec : 22.018 deg
Dec (arcsec)
RA (arcsec)
0
2
4
6
8


DY : 12.680 arcsecs
DZ : 12.776 arcsecs
DZ (arcsec)
DY (arcsec)
−4
−2
0
2
4


Time (s)
4.0204e+08
Median: 83.633 deg
RA (arcsec)
Median: 22.018 deg
Dec (arcsec)
Median: 92.389 deg
roll (arcsec)
Time(ksec)

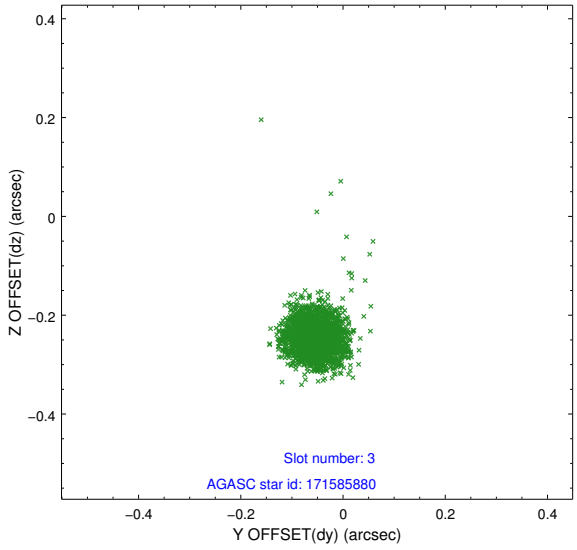

Time (s)
4.0204e+08
Median: 12.679 arcsecs
dy (arcsec)
Median: 12.776 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

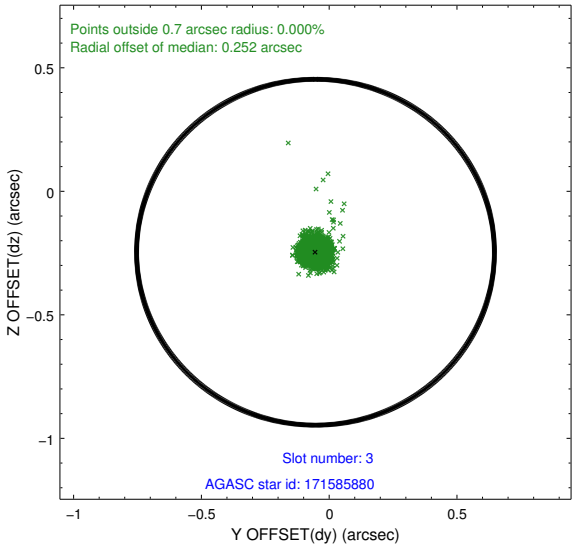
Slot Statistics

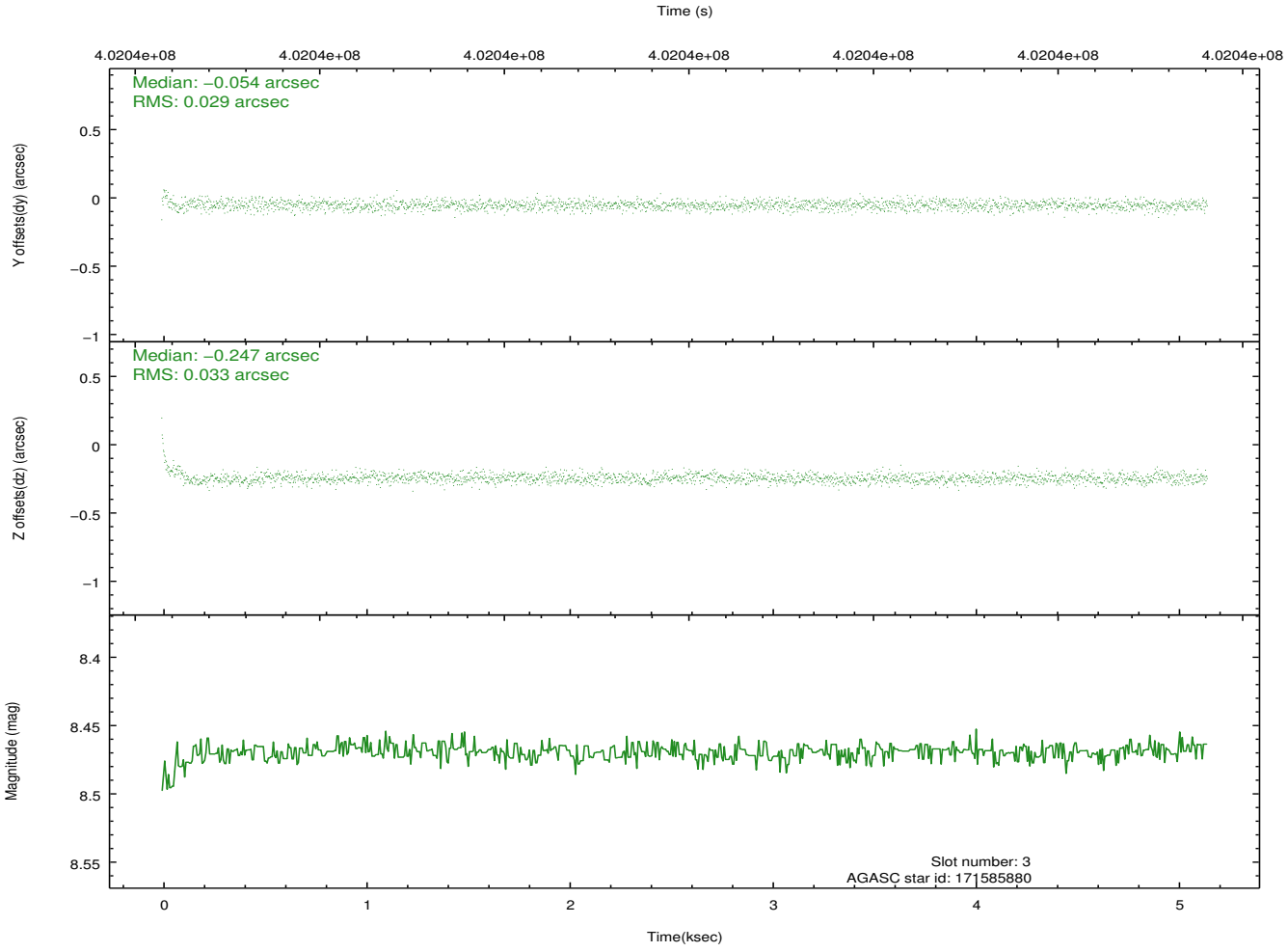
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	6.95	1256	-0.130	-0.112	0.006	0.010	0.000000	0.000000	-765.21	-1894.36
1	FID	ACIS-S-4	7.03	1256	0.165	0.044	0.006	0.011	0.000000	0.000000	2147.86	12.86
2	FID	ACIS-S-6	7.25	1256	-0.062	0.075	0.007	0.012	0.000000	0.000000	398.40	651.66
3	GUIDE	171585880	8.47	2510	-0.054	-0.247	0.043	0.070	83.676260	22.176319	646.77	-114.71
4	GUIDE	171586032	8.97	2509	-0.163	0.471	0.055	0.093	83.950197	22.083225	277.51	-1014.25
5	GUIDE	171597832	9.15	2512	0.296	-0.364	0.064	0.108	83.183230	21.366702	-2198.70	1649.16
6	GUIDE	171721904	9.20	2508	-0.094	0.122	0.063	0.102	84.272676	22.116922	359.15	-2093.18
7	GUIDE	243941560	8.47	2509	0.014	0.017	0.042	0.070	83.733264	22.568598	2050.66	-359.11

2.4 Star Slots

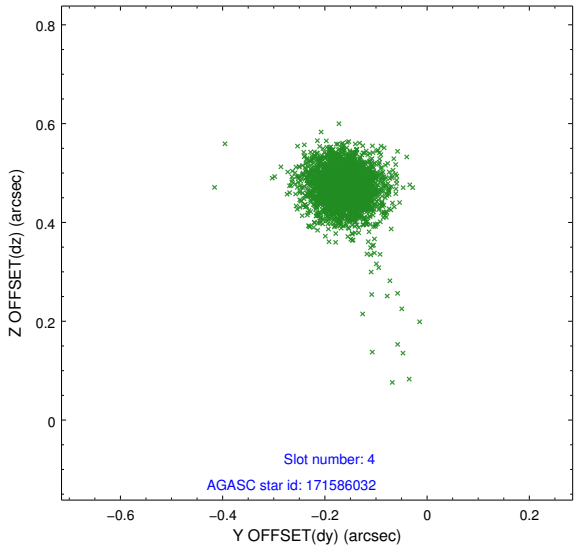
2.4.1 Slot 3

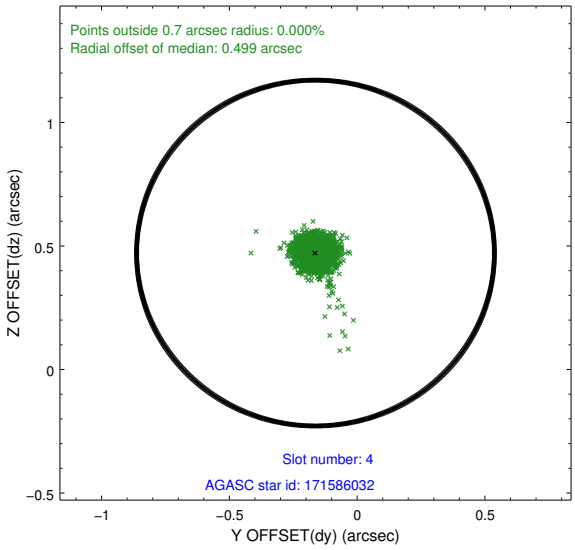


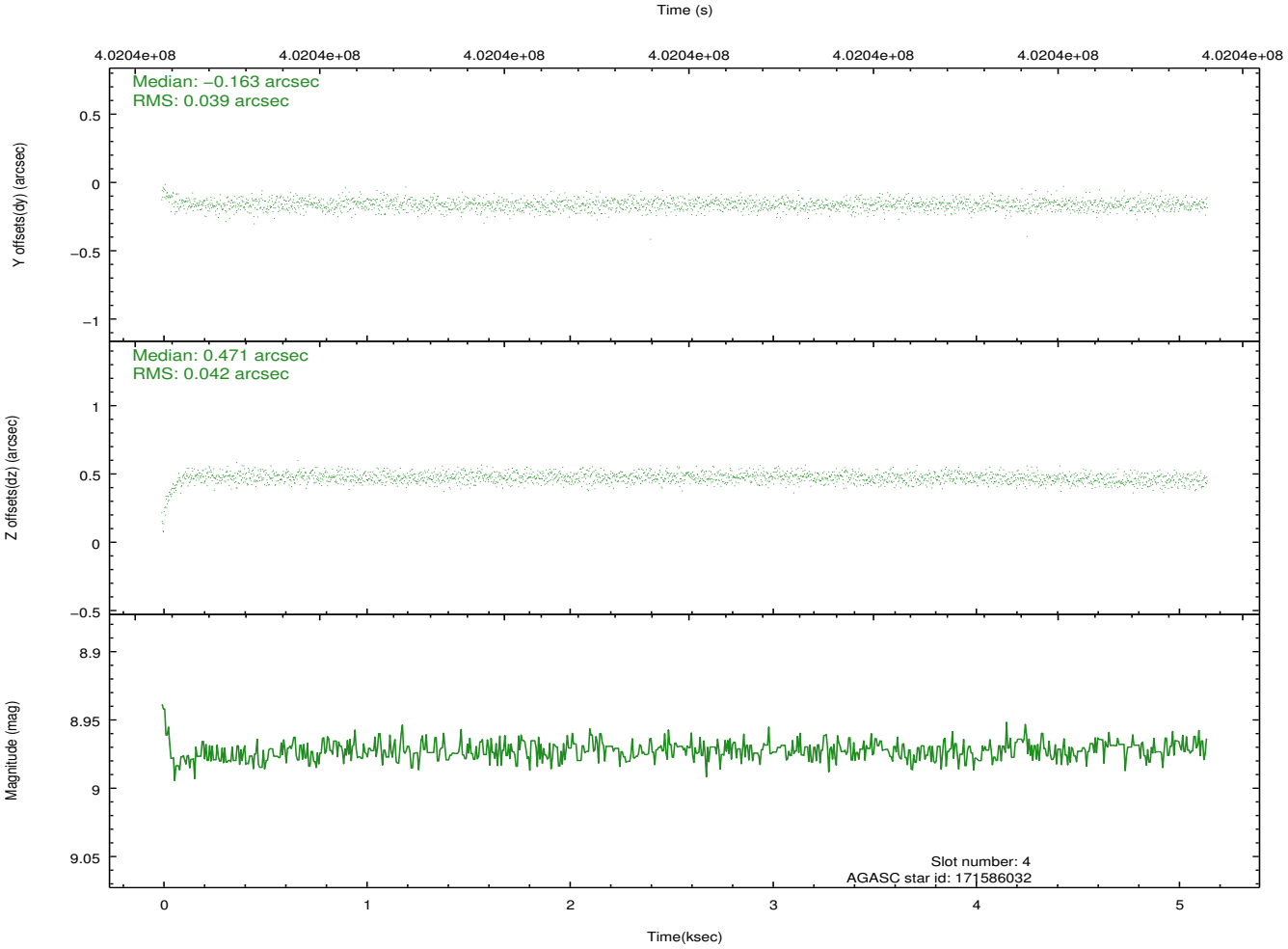




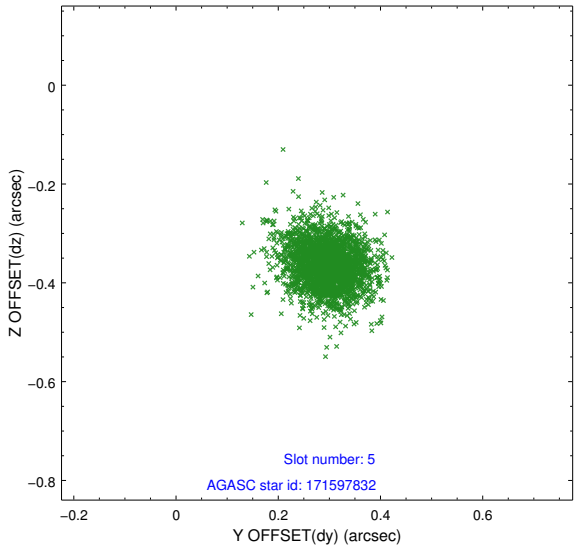
2.4.2 Slot 4

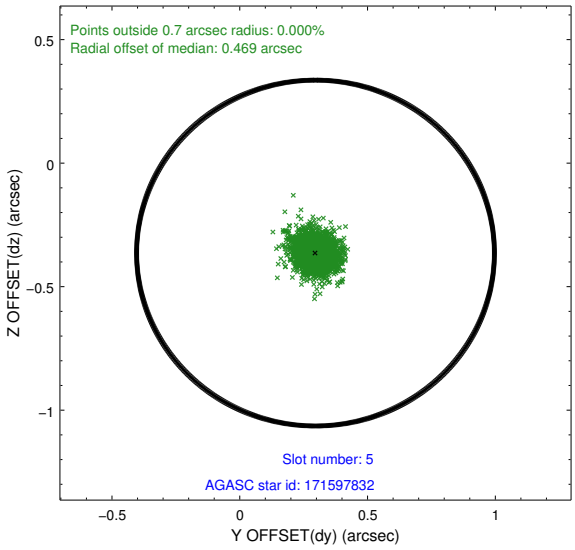

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 171586032

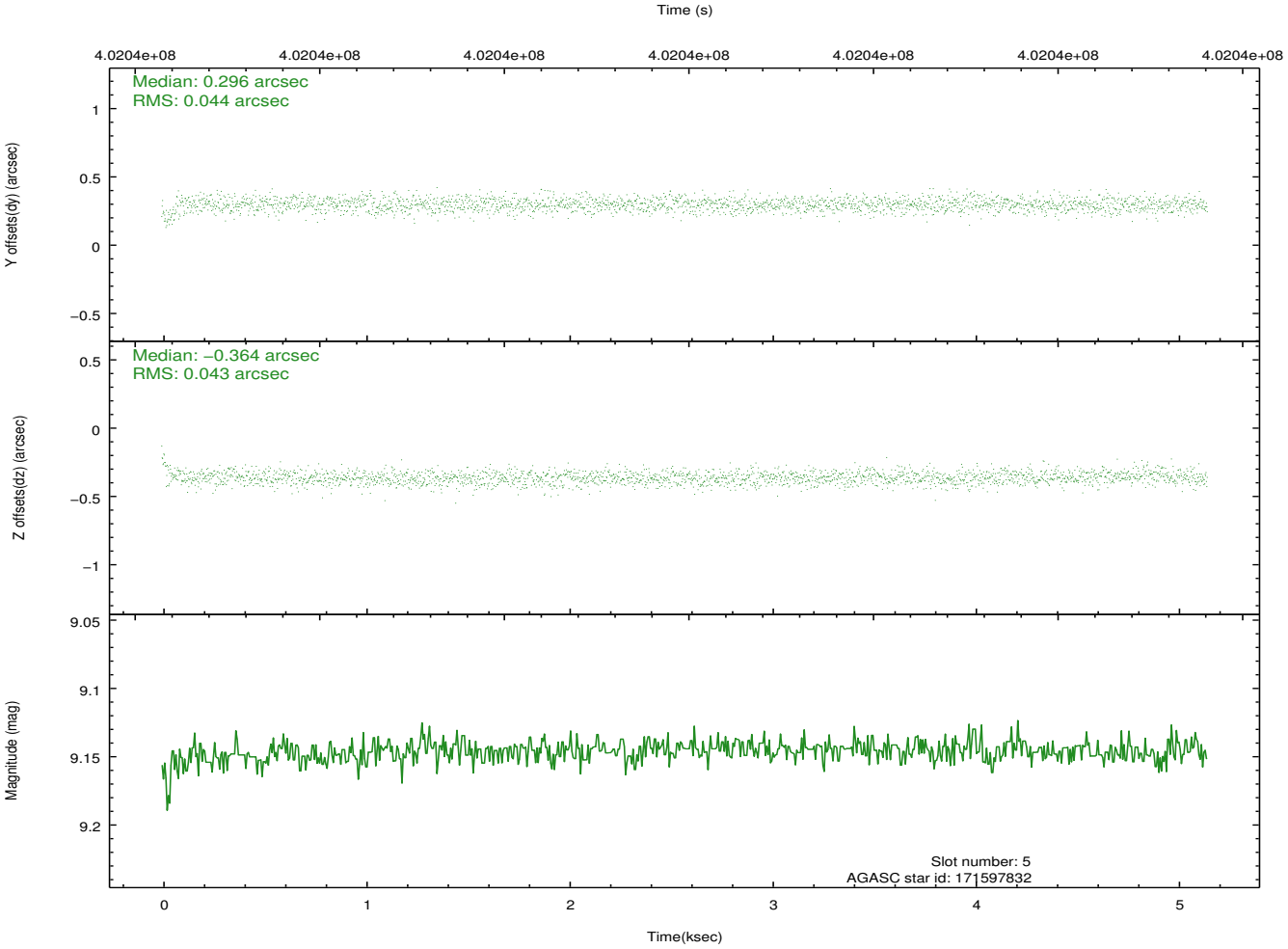

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.499 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 171586032


Time (s)
Median: −0.163 arcsec
RMS: 0.039 arcsec
Y offsets(dy) (arcsec)
Median: 0.471 arcsec
RMS: 0.042 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 171586032
Time(ksec)

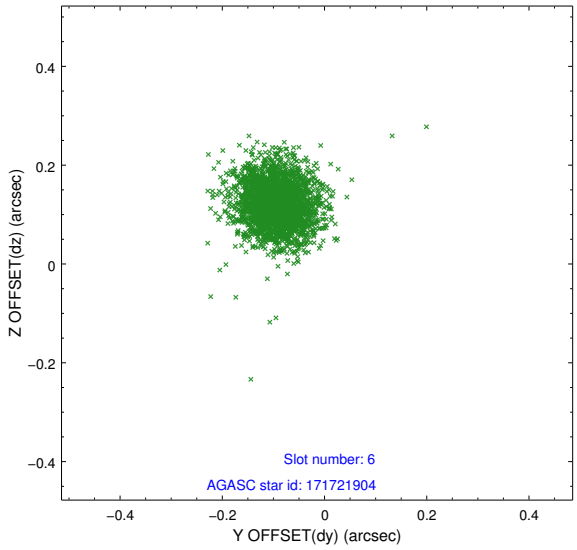
2.4.3 Slot 5

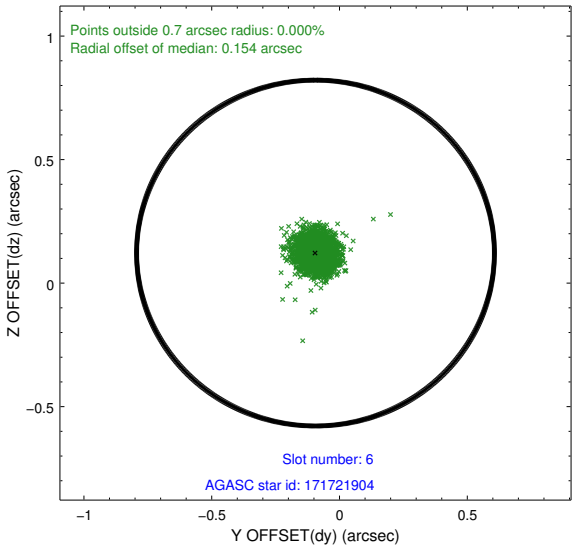

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 171597832

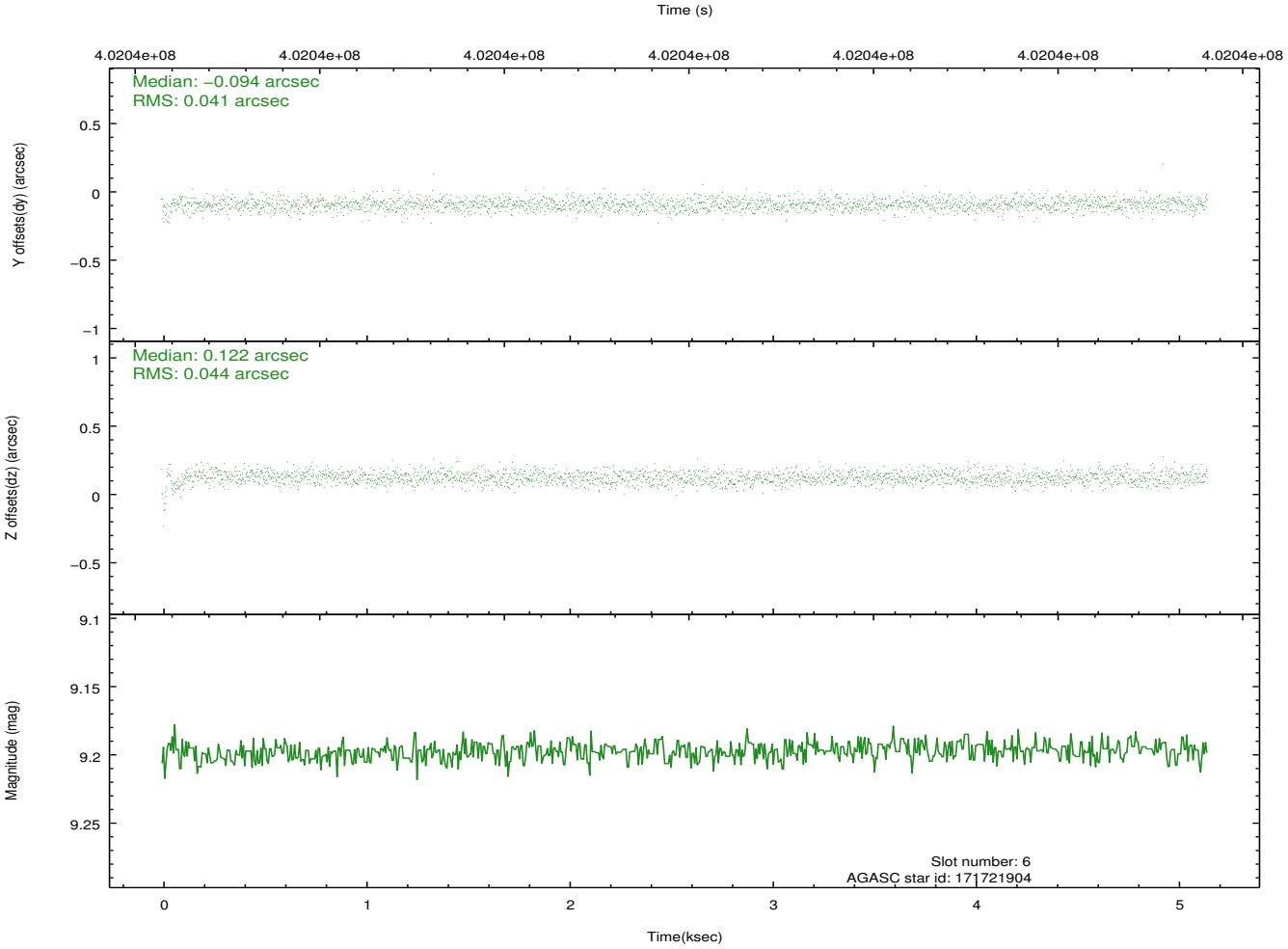

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.469 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 171597832


Time (s)
Median: 0.296 arcsec
RMS: 0.044 arcsec
Y offsets(dy) (arcsec)
Median: −0.364 arcsec
RMS: 0.043 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 171597832
Time(ksec)

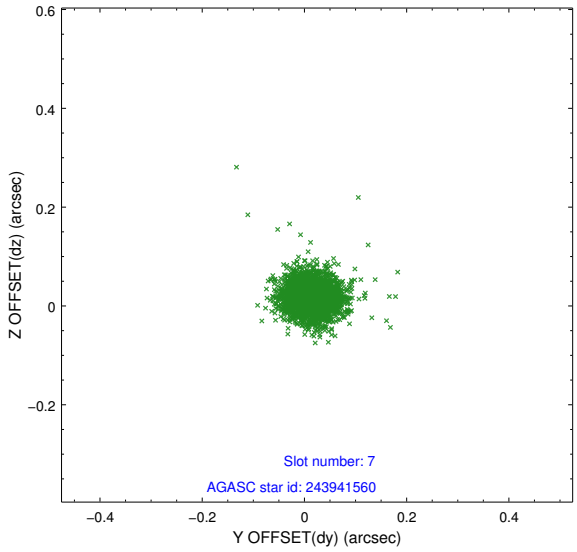
2.4.4 Slot 6

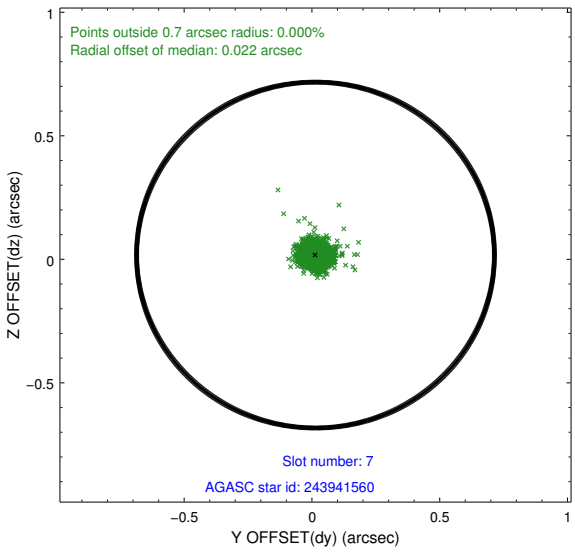

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 171721904

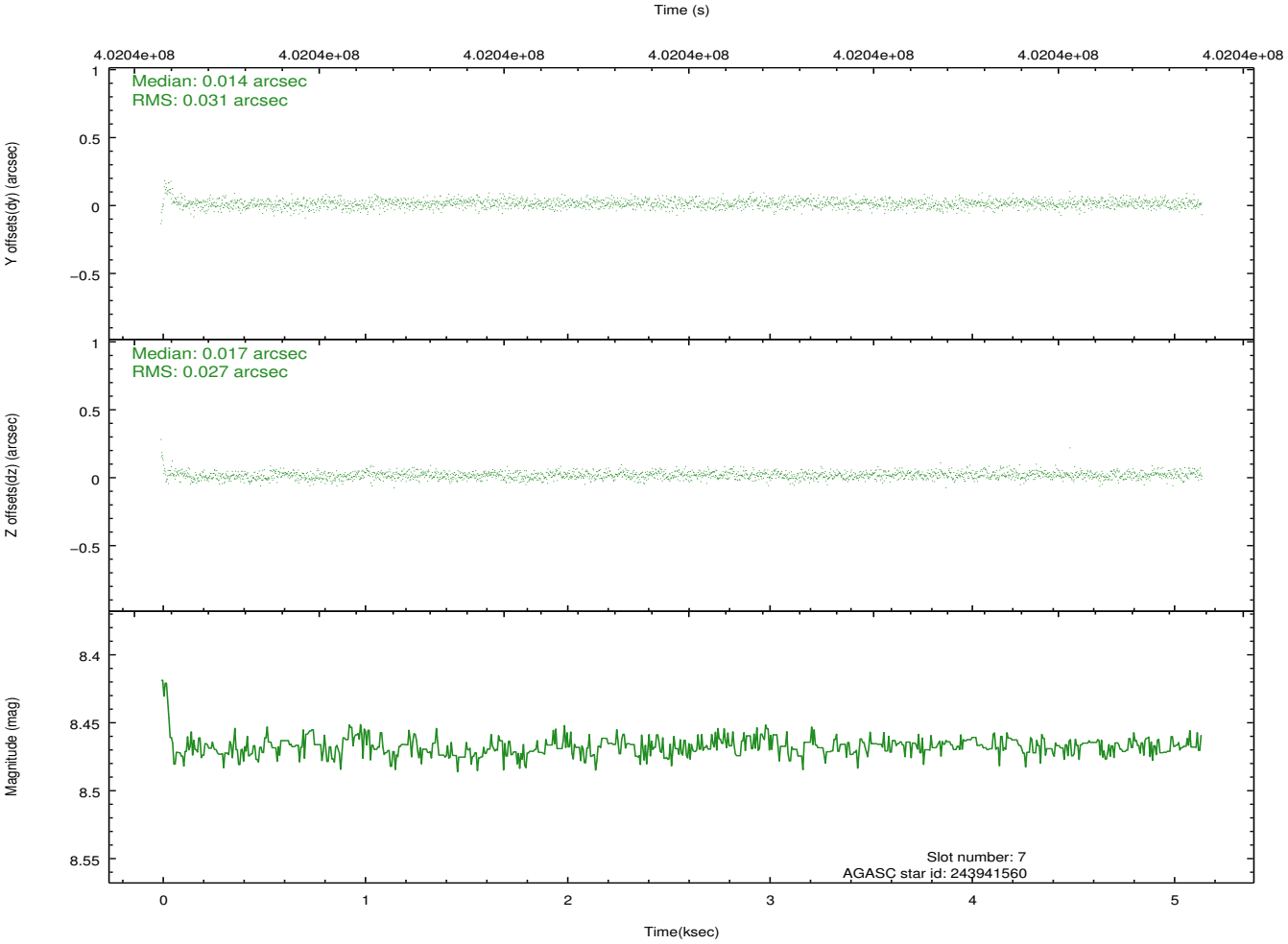

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.154 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 171721904


Time (s)
Median: −0.094 arcsec
RMS: 0.041 arcsec
Y offsets(dy) (arcsec)
Median: 0.122 arcsec
RMS: 0.044 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 171721904
Time(ksec)

2.4.5 Slot 7

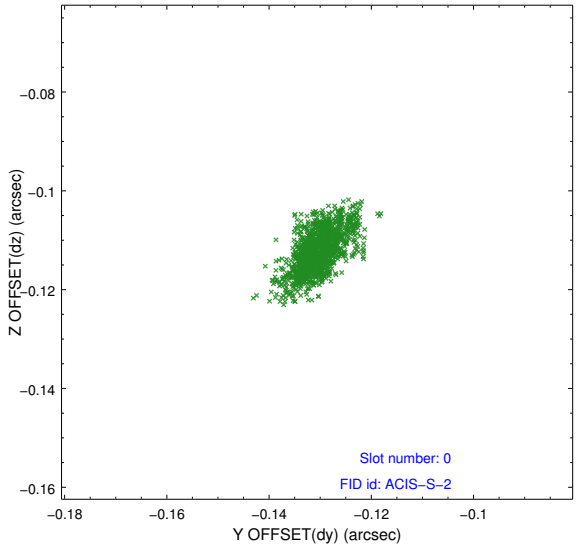

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 243941560

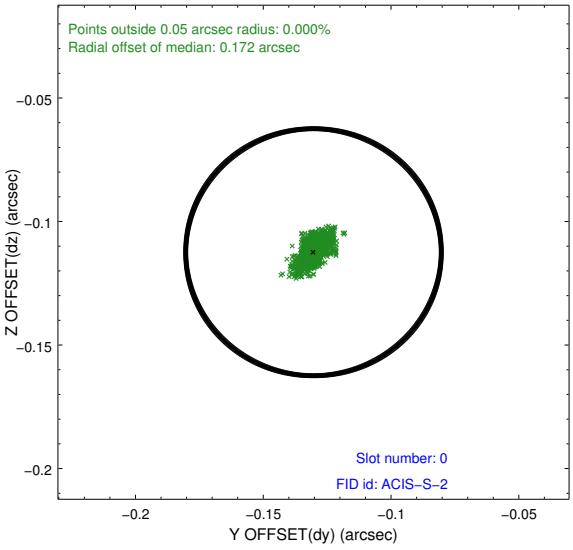

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.022 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 243941560

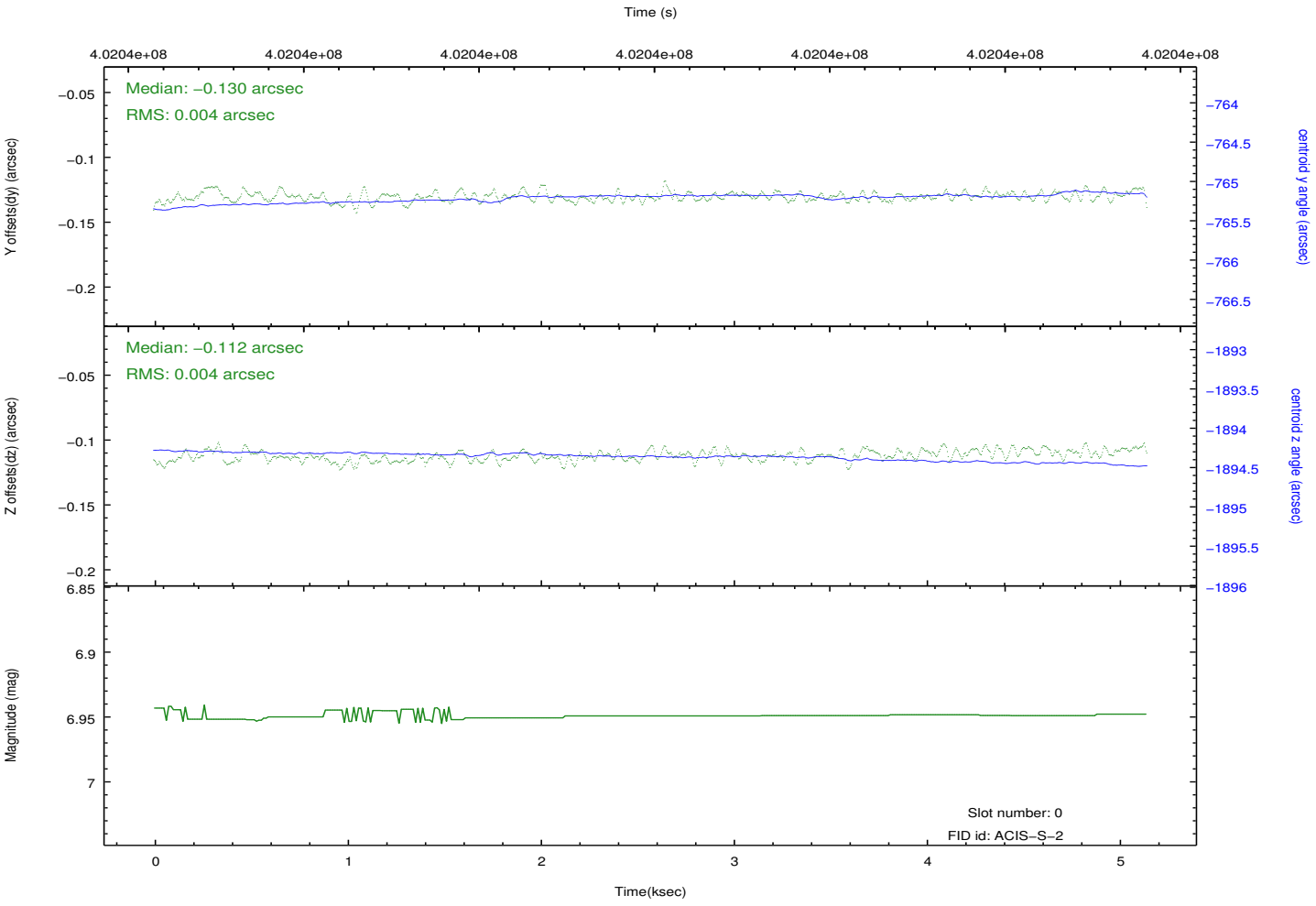

Time (s)
Median: 0.014 arcsec
RMS: 0.031 arcsec
Y offsets(dy) (arcsec)
Median: 0.017 arcsec
RMS: 0.027 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 243941560
Time(ksec)

2.5 FID Slots

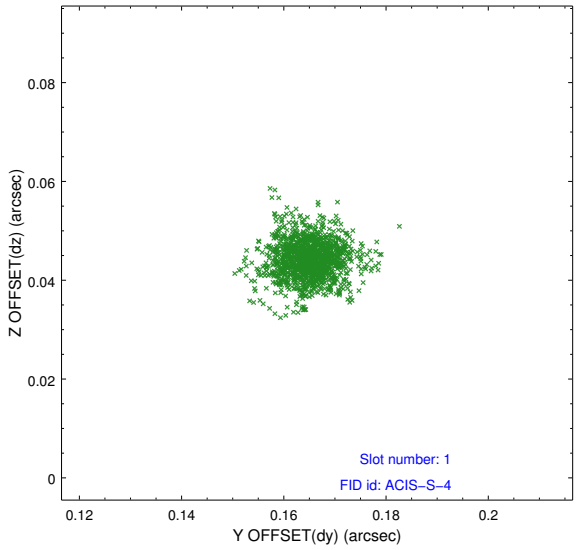
2.5.1 Slot 0

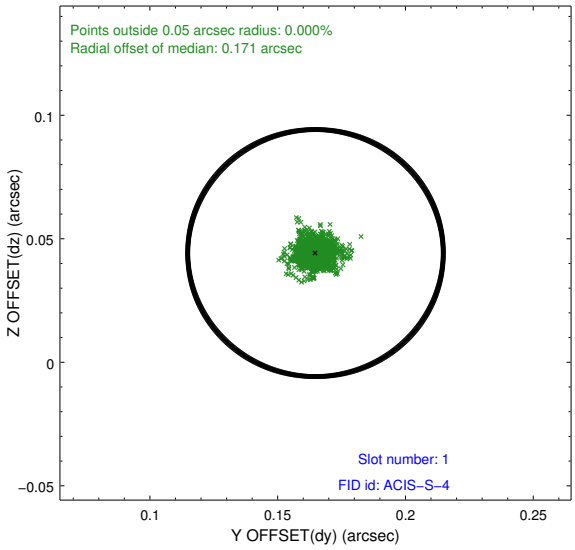


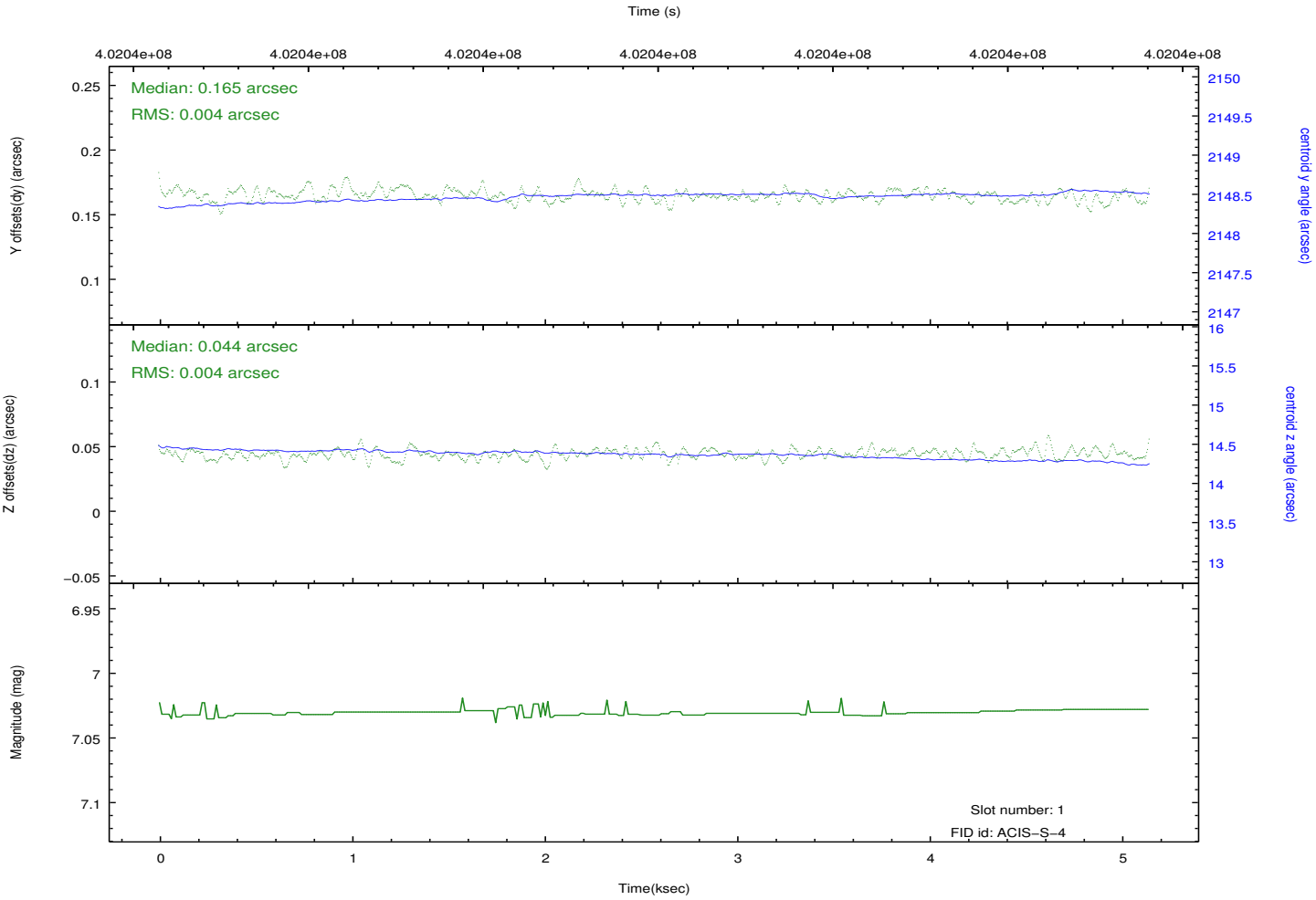




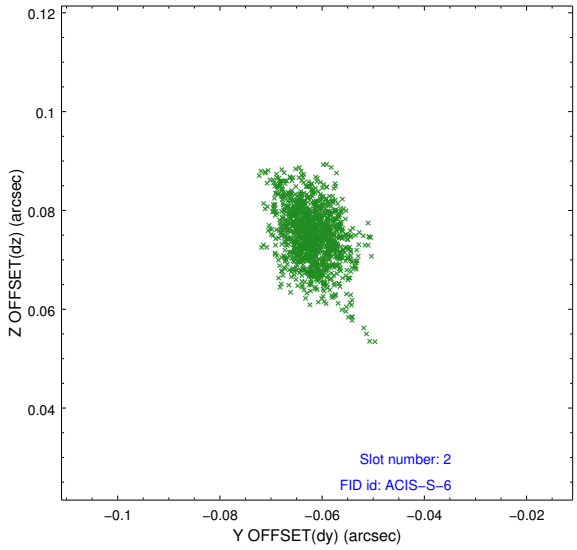
2.5.2 Slot 1

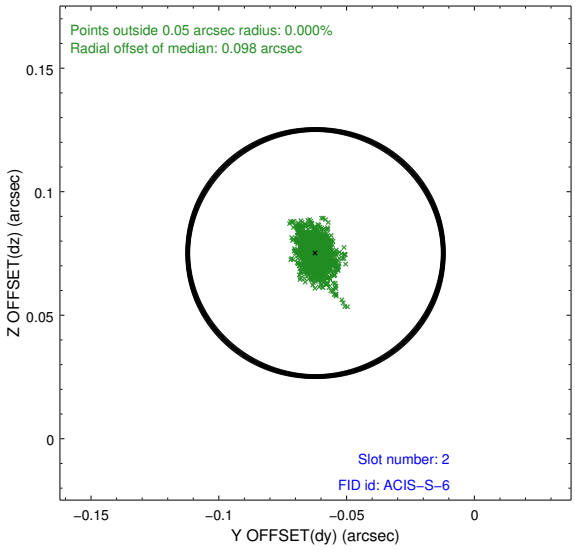

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

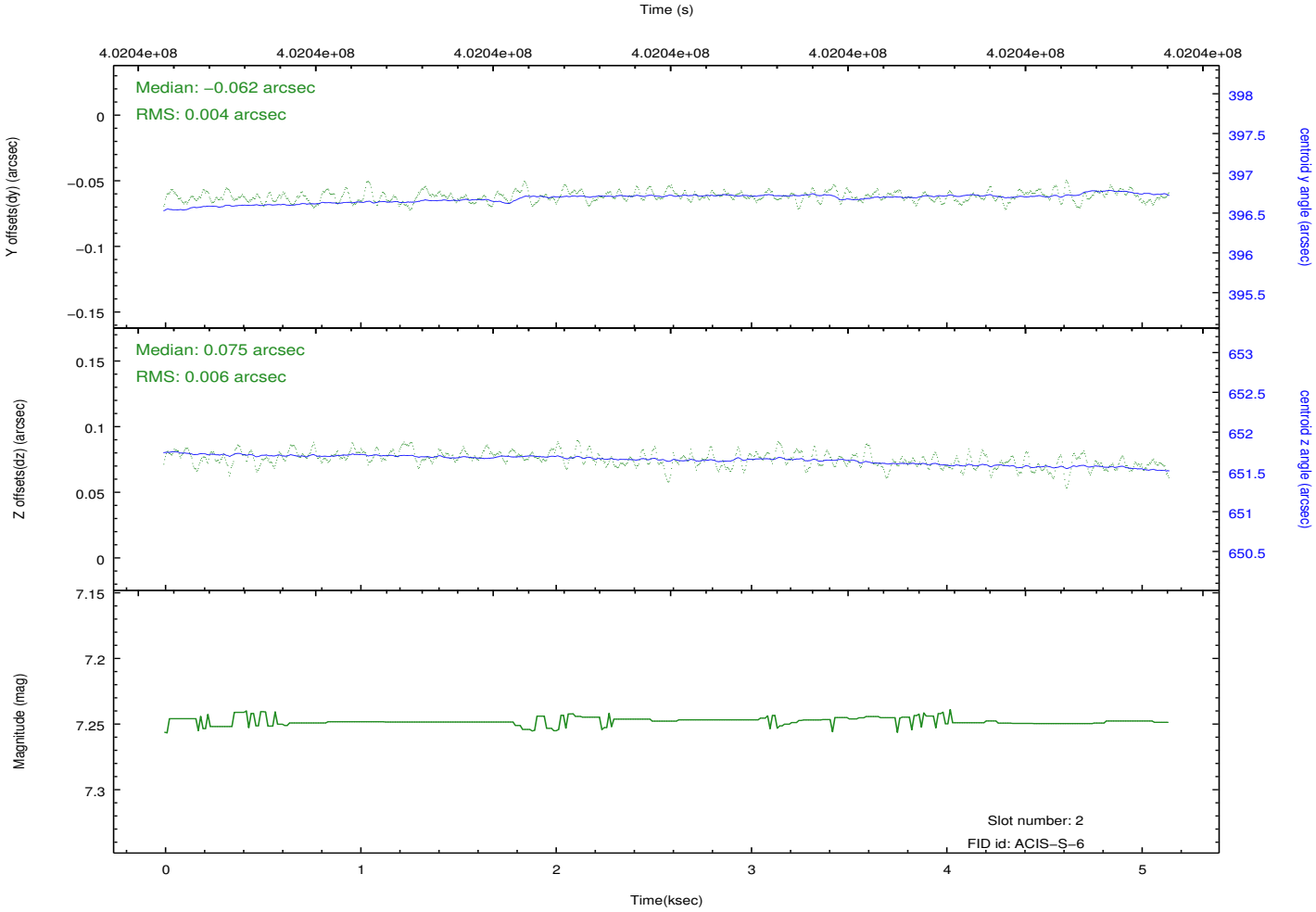

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.171 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.165 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: 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−6


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.098 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Time (s)
Median: −0.062 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.075 arcsec
RMS: 0.006 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−6
Time(ksec)

A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2012.07.12
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5

A.2 Comments

```
ONTIME of 3465.8263792396 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 3466 s, which is significantly less due to telemetry
saturation. In addition, the livetime of the detector is about 605 s,
significantly shorter than the ONTIME of 3466 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.
```