V&V Reference Report
L2 ASCDS Version : 8.1.1

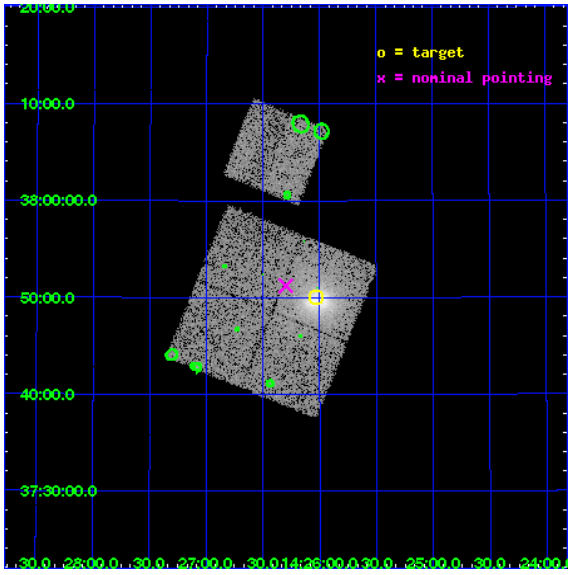
Observation 542 - L2 Version 4
Chandra X-Ray Center

L2 Processing Date : Nov 24 2009

Contents

1 Front

seq_num	800050	Sequence number
obs_id	542	Observation id
title	DETERMINATION OF H0/Q0	Proposal title
observer	DR. LEON VANSPEYBROECK	Principal investigator
object	A1914	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	216.509167	Observer's specified target RA
dec_targ	37.835	Observer's specified target Dec
ra_nom	216.57463417229	Nominal RA
dec_nom	37.853564418114	Nominal Dec
roll_nom	22.10853408874	Nominal Roll
revision	4	Processing version of data
ontime	8169.4772267416	Sum of GTIs [s]
livetime	8066.030387028	Livetime [s]
ontime0	8179.2000076175	Sum of GTIs [s]
ontime1	8175.9590473995	Sum of GTIs [s]
ontime2	8172.7180074006	Sum of GTIs [s]
ontime3	8169.4772267416	Sum of GTIs [s]
ontime6	8179.2000076175	Sum of GTIs [s]
l2events	60134	Number of level 2 events

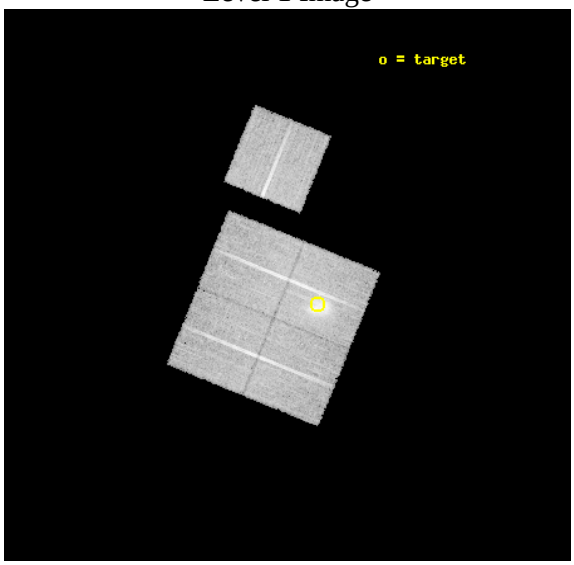


2 OBI

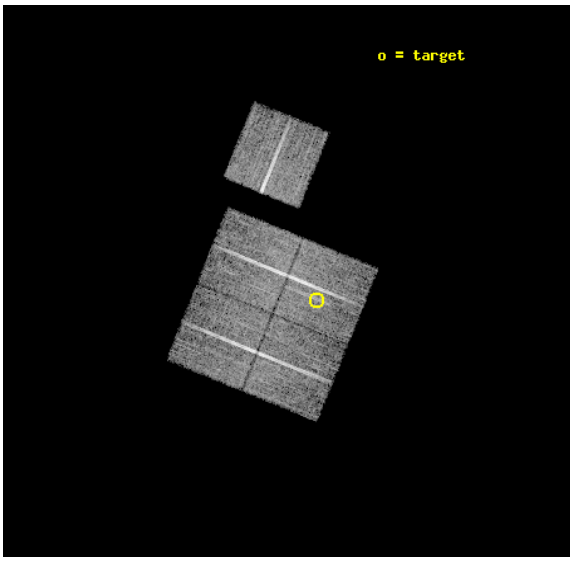
2.1 OBI

2.1.1 Images

Level 1 Image

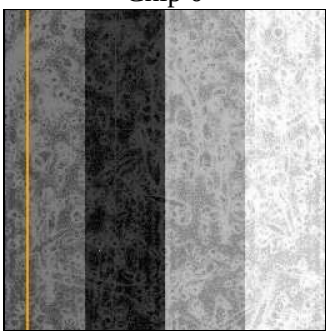


Level 1 Bad Events

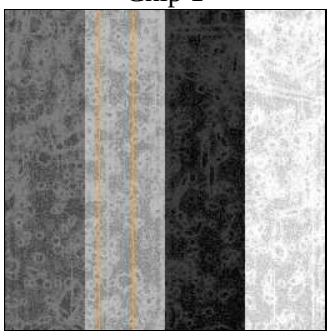


2.1.2 Bias

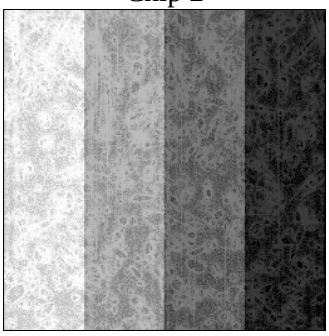
Chip 0



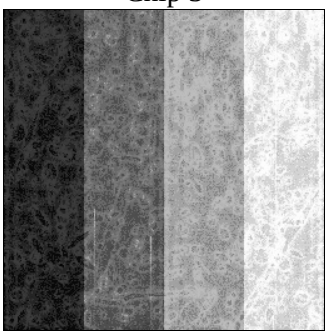
Chip 1



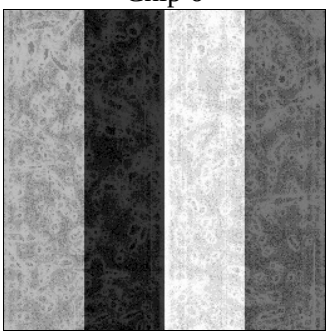
Chip 2



Chip 3



Chip 6



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	8.1.1	ASCDS version number
caldbver	4.1.4	
date	2009-11-24T13:12:54	Date and time of file creation
revision	3	Processing version of data

sched_exp_time	9000.000000	Scheduled observation exposure time
ontime	8169.4772267416	Sum of GTIs [s]
ontime0	8179.2000076175	Sum of GTIs [s]
ontime1	8175.9590473995	Sum of GTIs [s]
ontime2	8172.7180074006	Sum of GTIs [s]
ontime3	8169.4772267416	Sum of GTIs [s]
ontime6	8179.2000076175	Sum of GTIs [s]
l1events	371956	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
level 1 events	66762	66826	72477	91884	74007
rejected events	58169	57449	64342	63149	65196
rejected %	87%	85%	88%	68%	88%

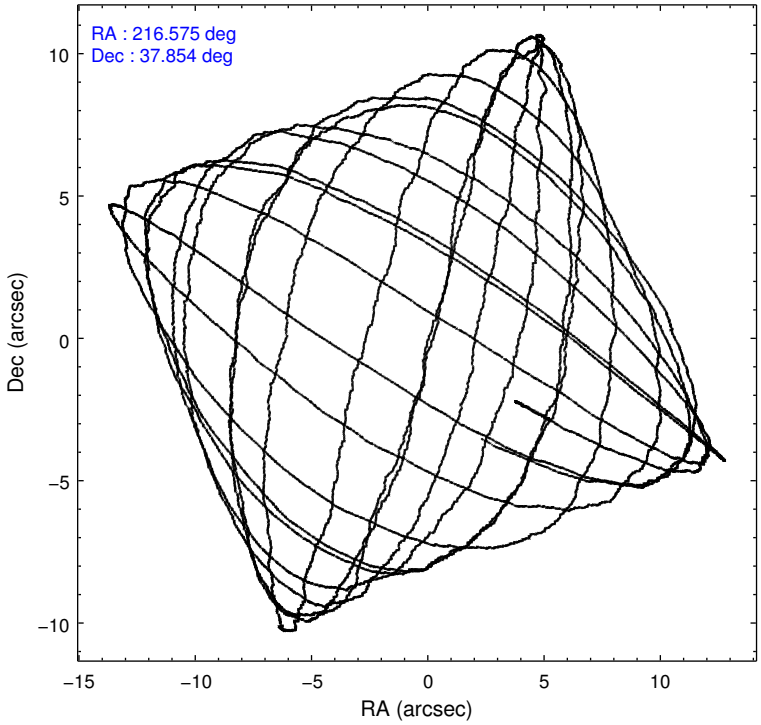
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**
grade 0 events	2195	2654	2105	15840	1989
	3%	3%	2%	17%	2%
grade 1 events	26	14	24	62	16
	0%	0%	0%	0%	0%
grade 2 events	3630	3731	3454	8696	3948
	5%	5%	4%	9%	5%
grade 3 events	513	583	445	869	448
	0%	0%	0%	0%	0%
grade 4 events	521	553	436	857	420
	0%	0%	0%	0%	0%
grade 5 events	1382	1433	1234	1495	1476
	2%	2%	1%	1%	1%
grade 6 events	1736	1864	1697	2492	2020
	2%	2%	2%	2%	2%
grade 7 events	56759	55994	63082	61573	63690
	85%	83%	87%	67%	86%

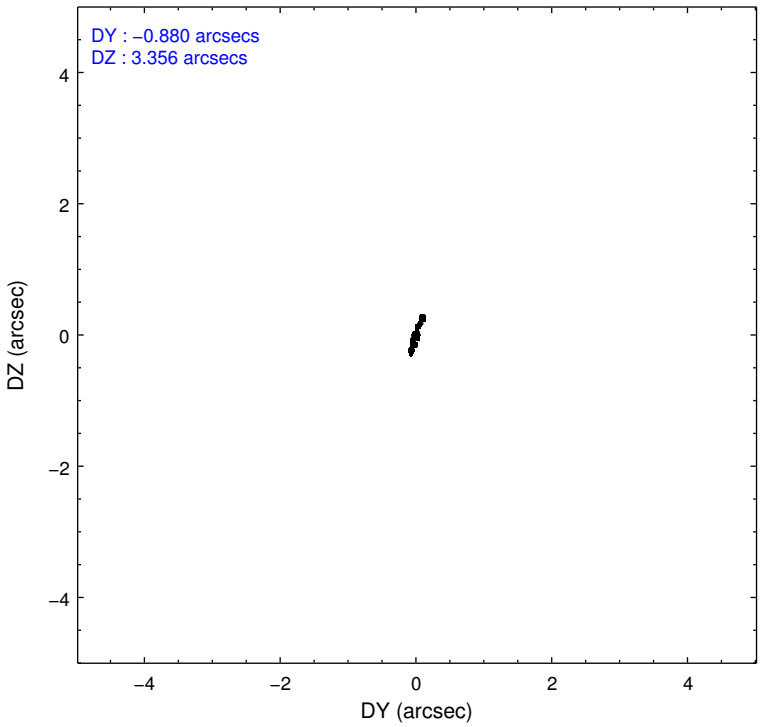
2.2 Compared Parameters

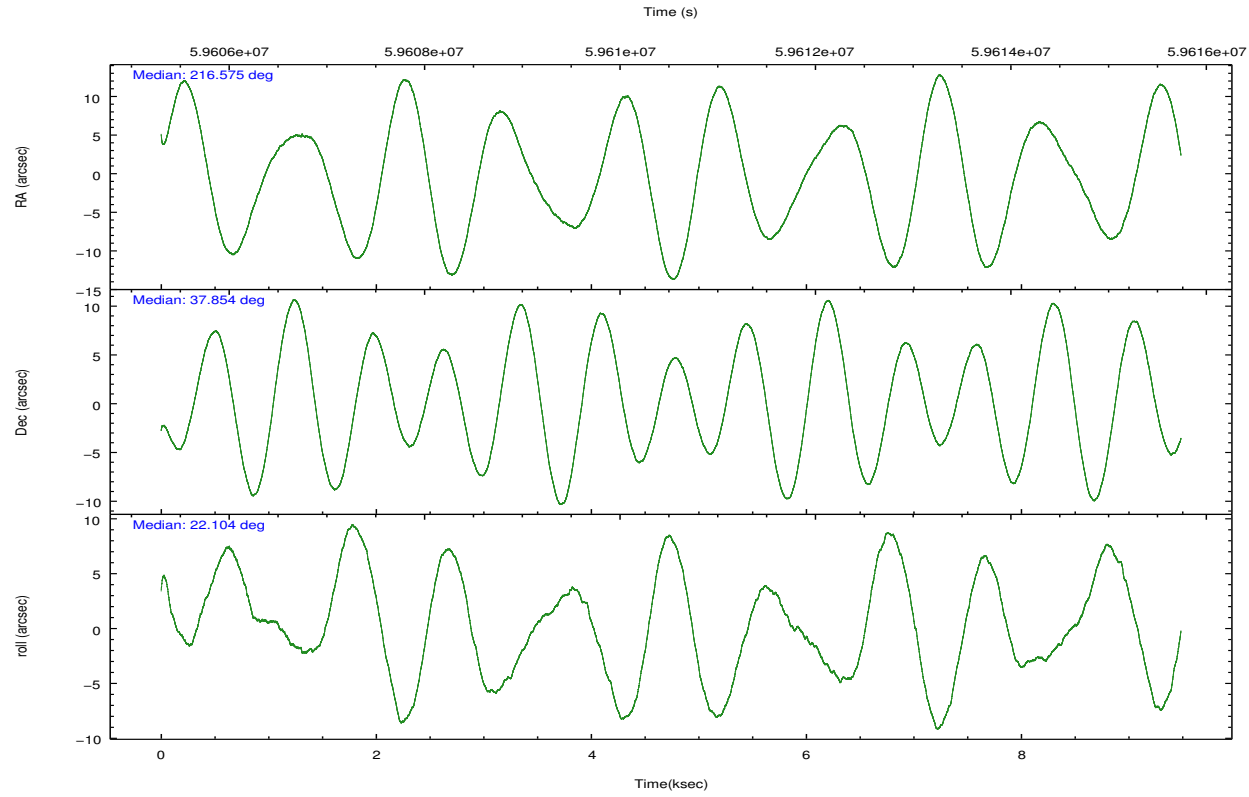
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-01236	ACIS-01236
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
Pointing RA	216.552599	216.5746341722862
Pointing Dec	37.831920	37.85356441811373
Pointing Roll	21.913374	22.10853408874025
SIM focus pos (mm)	-0.782348	-0.7809083437167272
SIM defocus (mm)	0	0.001439871863259334
SIM translation stage pos (mm)	-226.274209	-226.2707769332891
SIM translation stage offset (mm)	-7.318254	-7.321676069640603
Observation start time	59606263.184000	59605197.172416
Observation start date	1999-11-21T21:16:39	1999-11-21T20:59:57
Observation end time	59615263.184000	59616012.972807
Observation end date	1999-11-21T23:46:39	1999-11-22T00:00:12
Read mode	TIMED	TIMED

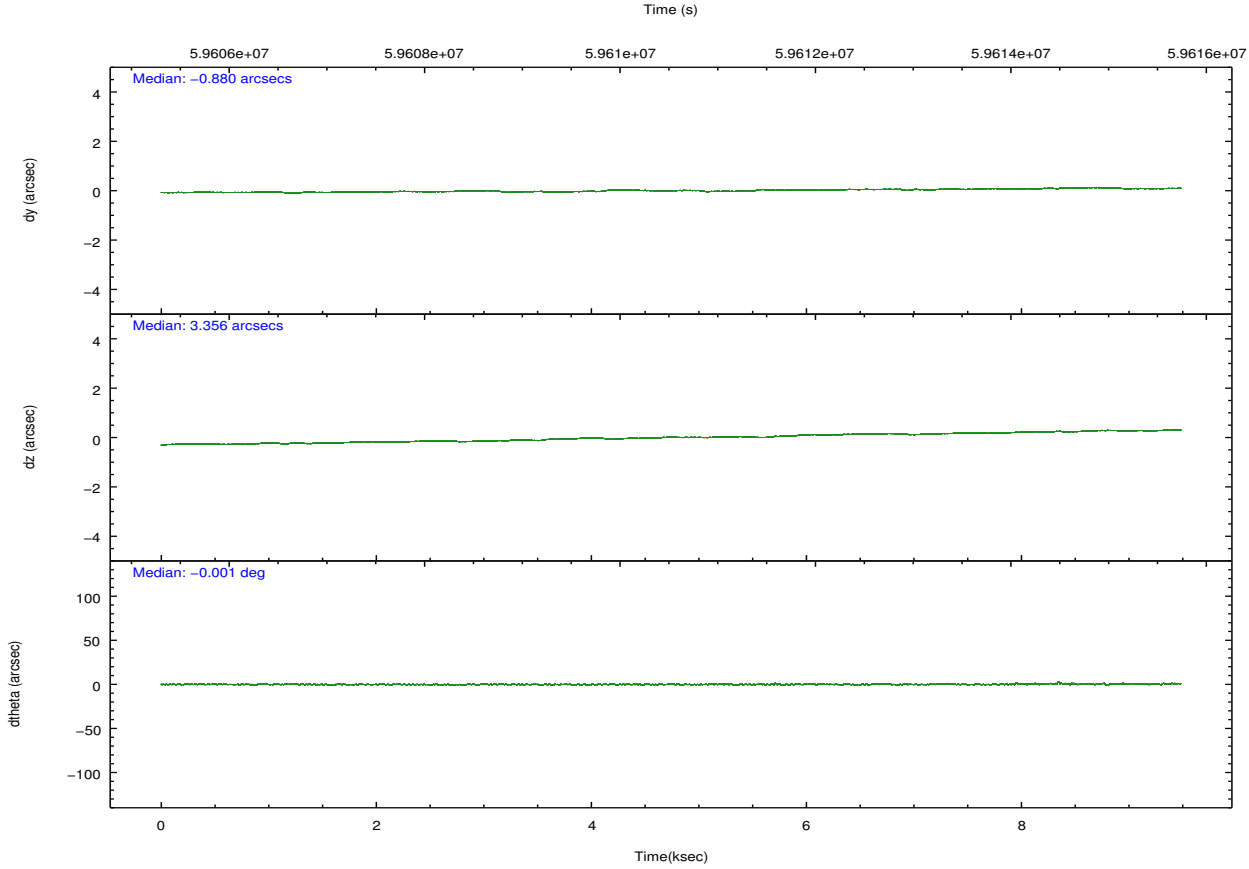
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 216.575 deg
Dec : 37.854 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−15
−10
−5
0
5
10


DY : −0.880 arcsecs
DZ : 3.356 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.9606e+07
5.9608e+07
5.961e+07
5.9612e+07
5.9614e+07
5.9616e+07
Median: 216.575 deg
RA (arcsec)
Median: 37.854 deg
Dec (arcsec)
Median: 22.104 deg
roll (arcsec)
Time(ksec)

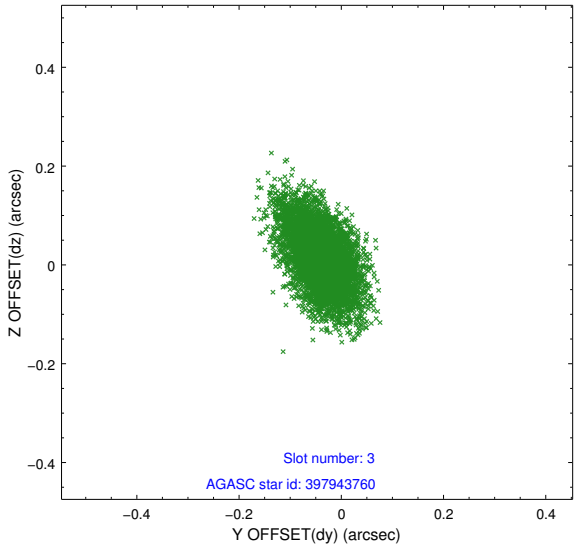

Time (s)
5.9606e+07
5.9608e+07
5.961e+07
5.9612e+07
5.9614e+07
5.9616e+07
Median: −0.880 arcsecs
dy (arcsec)
Median: 3.356 arcsecs
dz (arcsec)
Median: −0.001 deg
dtheta (arcsec)
Time(ksec)

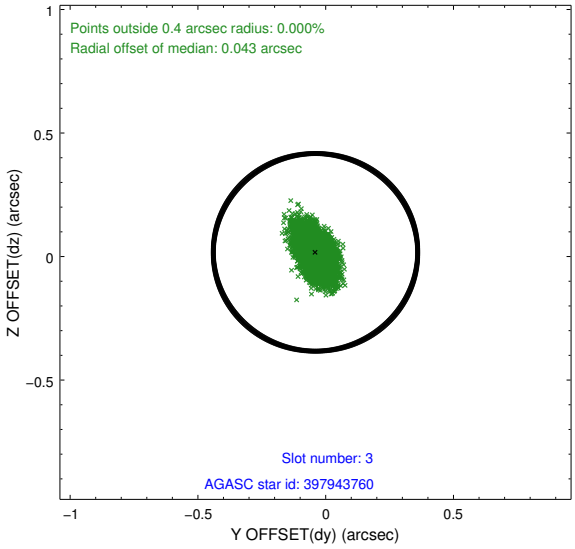
Slot Statistics

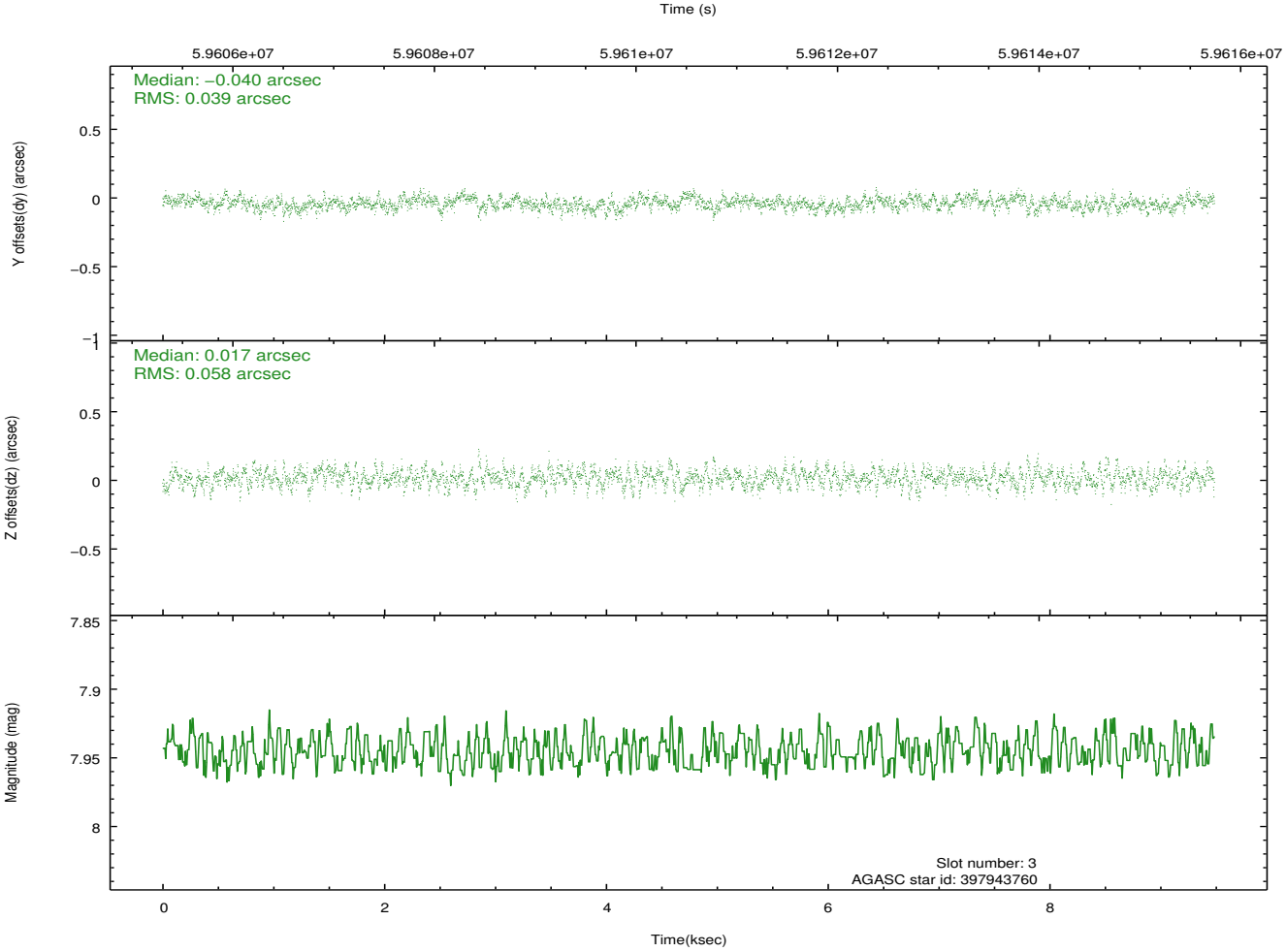
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.23	4628	0.045	-0.012	0.007	0.012	0.000000	0.000000	940.67	-976.97
1	FID	ACIS-I-5	7.23	4628	-0.193	0.055	0.006	0.011	0.000000	0.000000	-1807.54	920.48
2	FID	ACIS-I-6	7.27	4628	0.057	0.028	0.007	0.011	0.000000	0.000000	406.03	1565.17
3	GUIDE	397943760	7.95	4626	-0.040	0.017	0.073	0.125	217.039857	37.556695	920.80	-1434.46
4	GUIDE	397940208	9.76	4621	-0.100	-0.055	0.105	0.171	217.129334	38.261499	2090.58	831.15
5	GUIDE	335417192	9.76	4622	0.061	-0.031	0.099	0.164	216.237445	37.495201	-1287.36	-786.92
6	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
7	GUIDE	397935296	9.97	4625	0.077	0.071	0.125	0.203	217.007538	38.686947	2334.75	2381.98

2.4 Star Slots

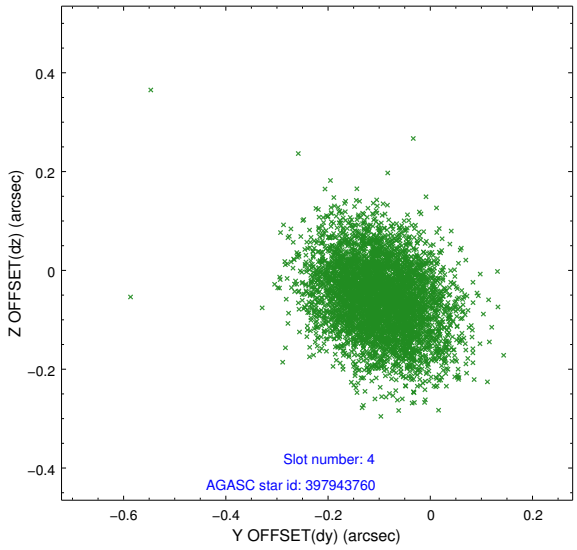
2.4.1 Slot 3

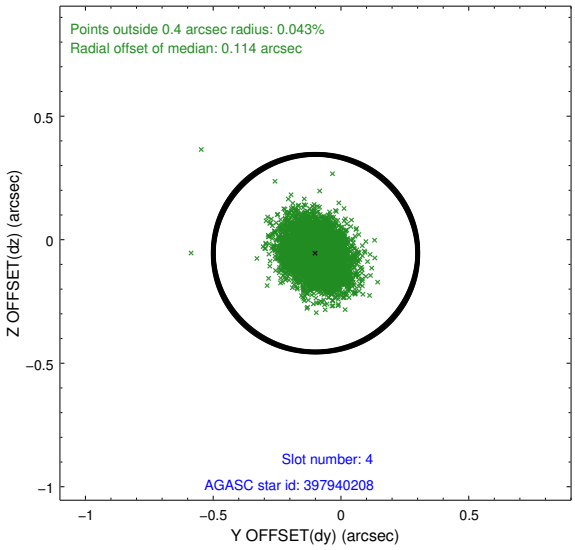


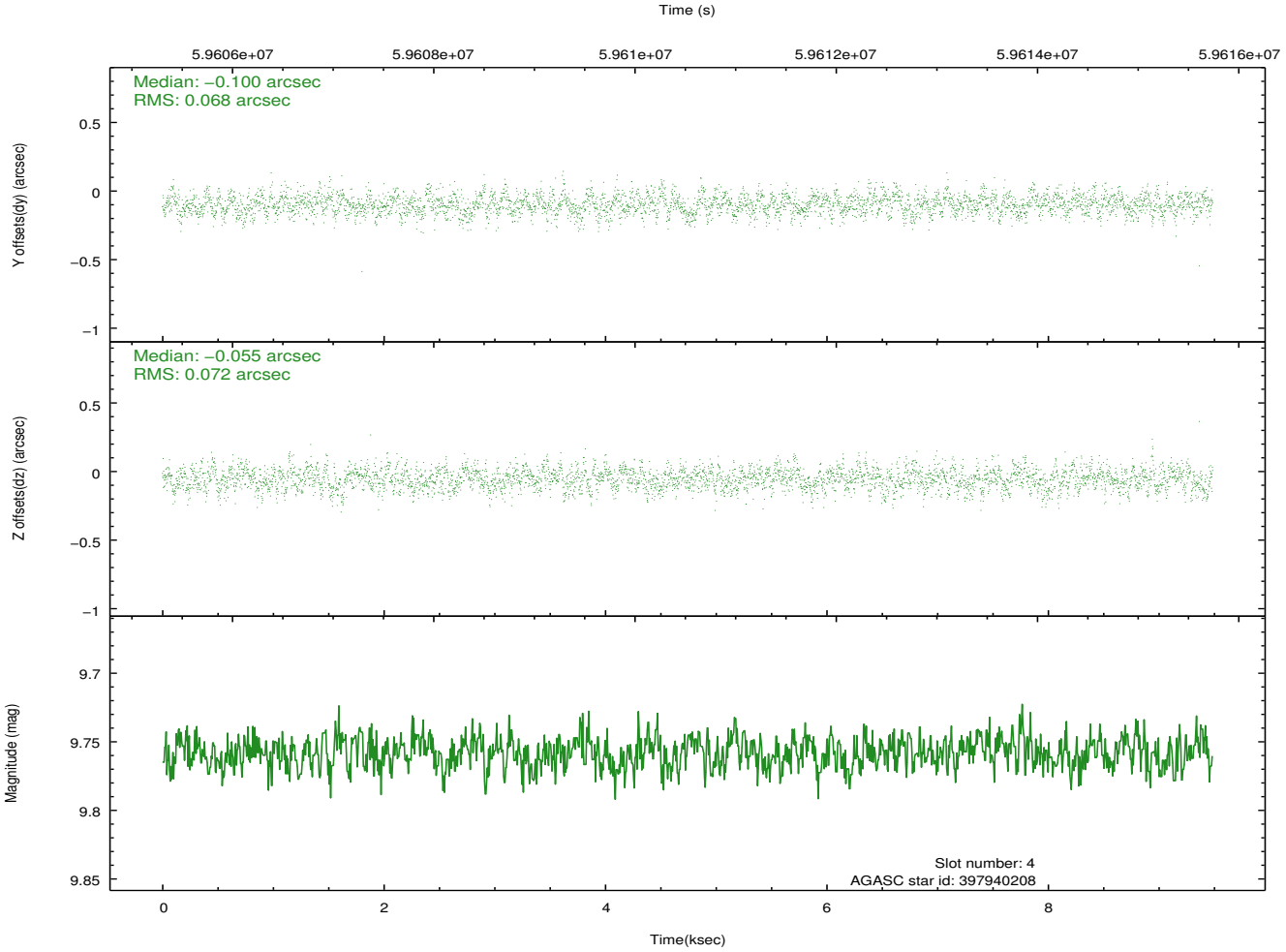




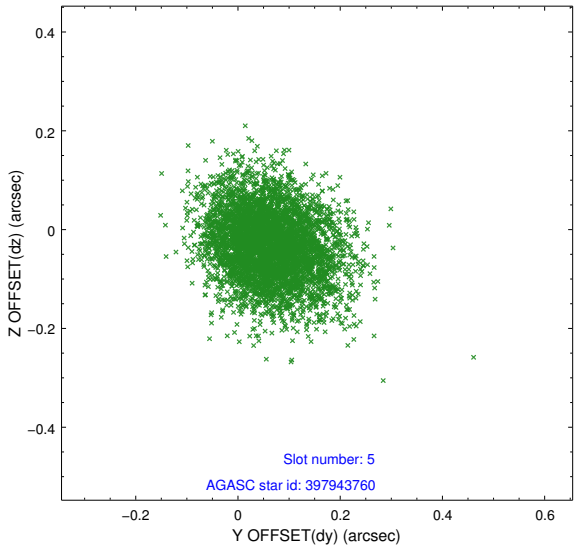
2.4.2 Slot 4

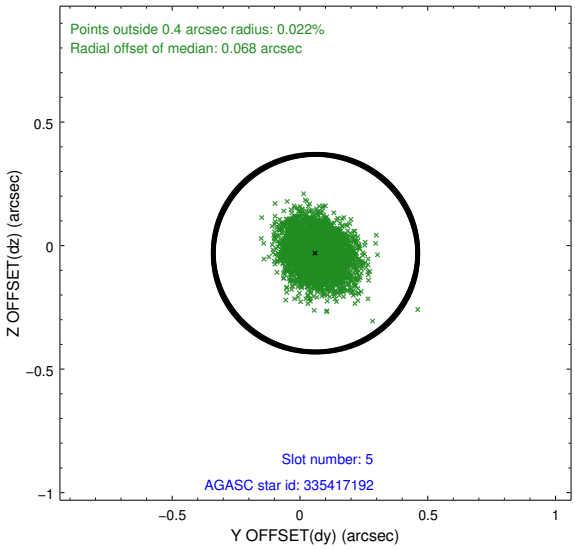

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 397943760

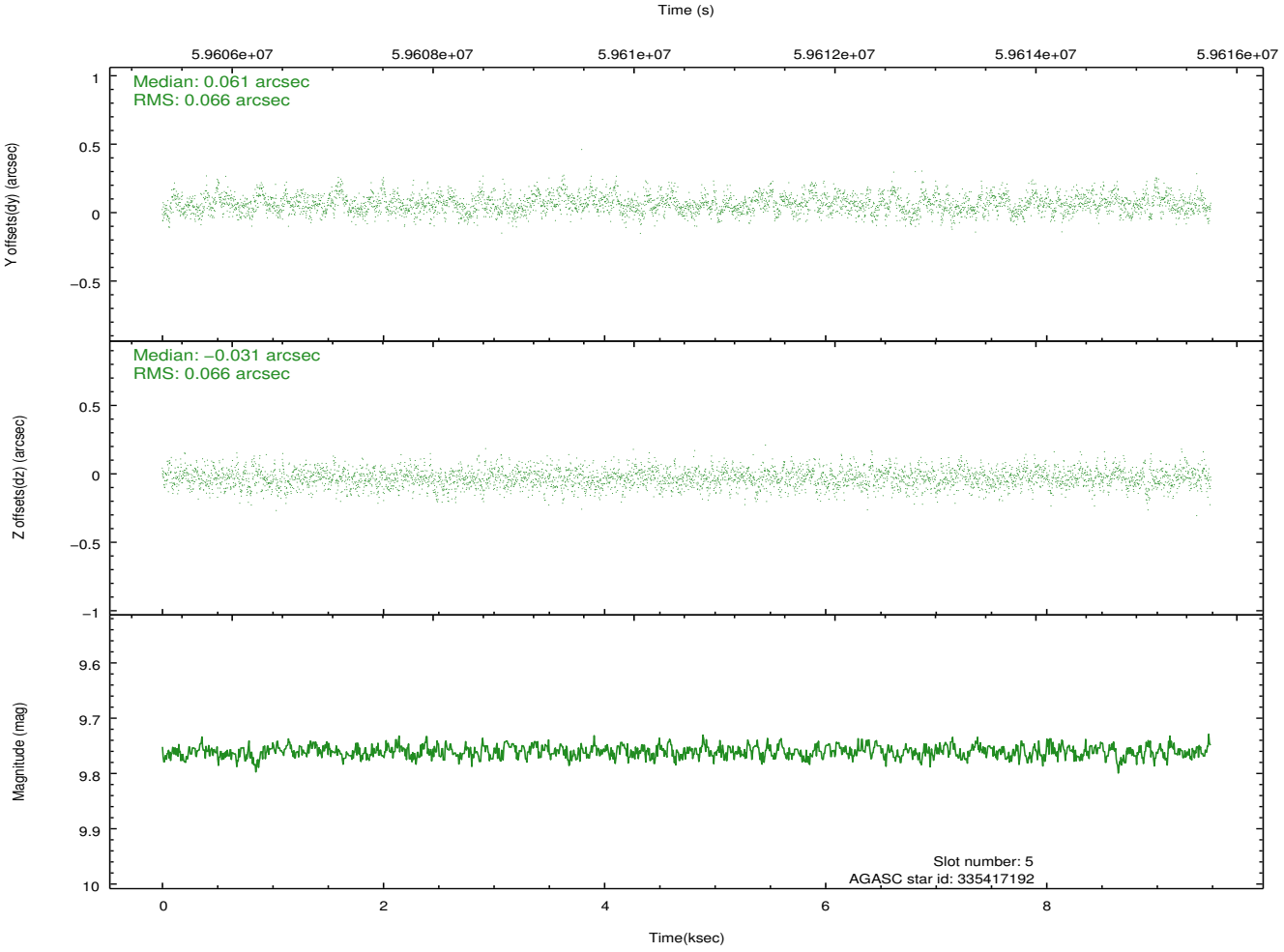

Points outside 0.4 arcsec radius: 0.043%
Radial offset of median: 0.114 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 397940208


Time (s)
Median: −0.100 arcsec
RMS: 0.068 arcsec
Y offsets(dy) (arcsec)
Median: −0.055 arcsec
RMS: 0.072 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 397940208
Time(ksec)

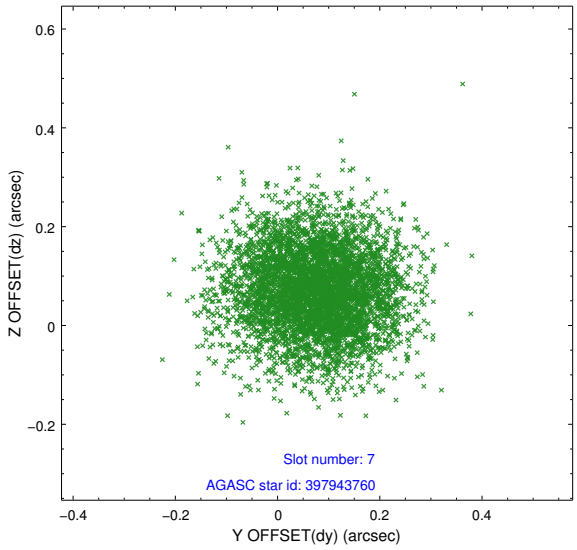
2.4.3 Slot 5

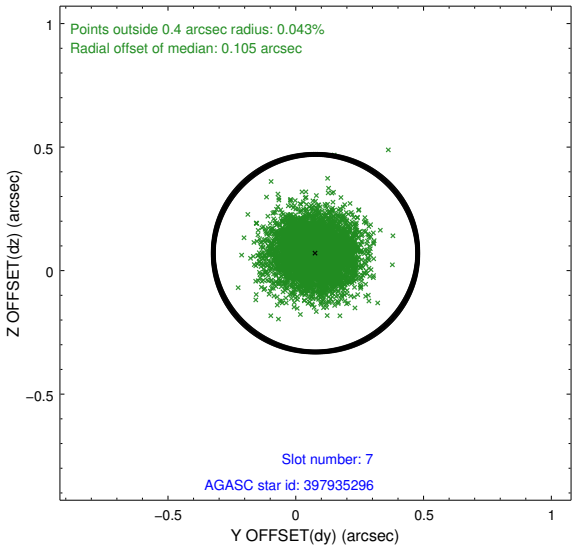

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 397943760

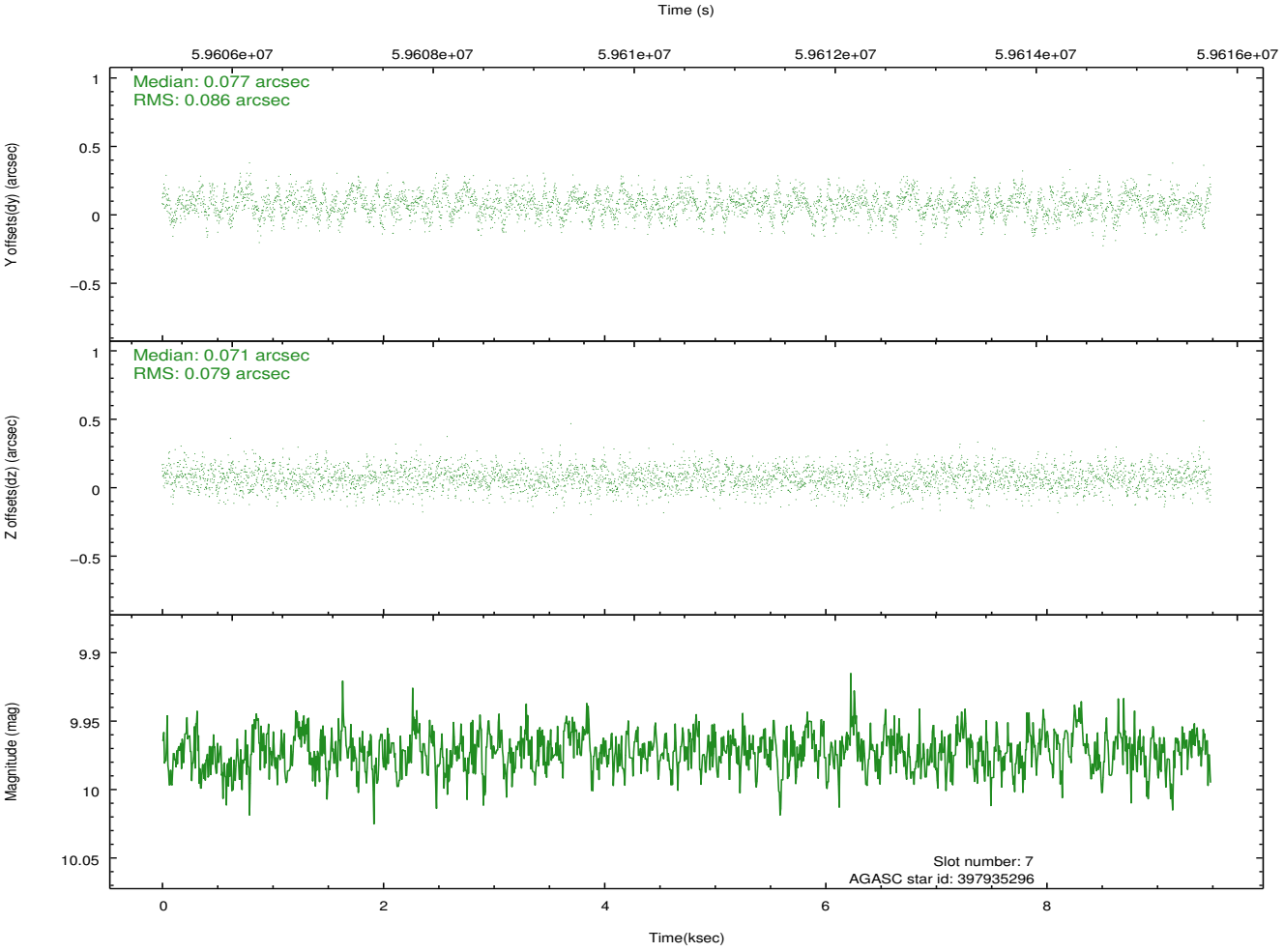

Points outside 0.4 arcsec radius: 0.022%
Radial offset of median: 0.068 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 335417192


Time (s)
Median: 0.061 arcsec
RMS: 0.066 arcsec
Y offsets(dy) (arcsec)
Median: −0.031 arcsec
RMS: 0.066 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 335417192
Time(ksec)

2.4.4 Slot 7

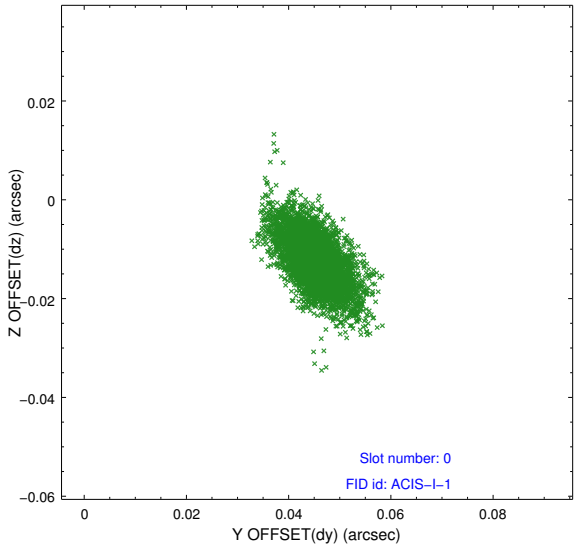

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 397943760

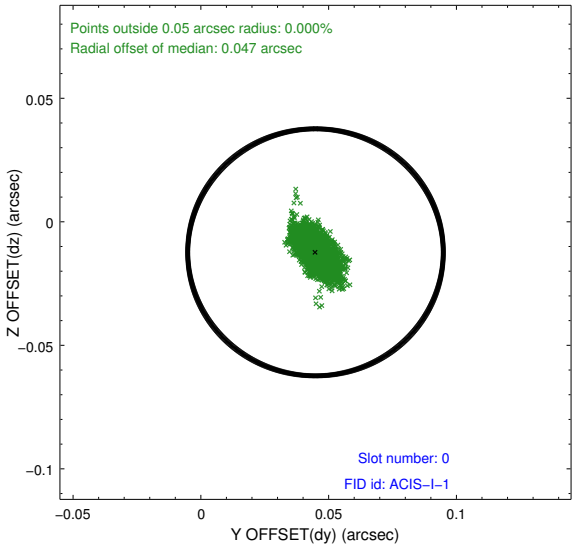

Points outside 0.4 arcsec radius: 0.043%
Radial offset of median: 0.105 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 397935296

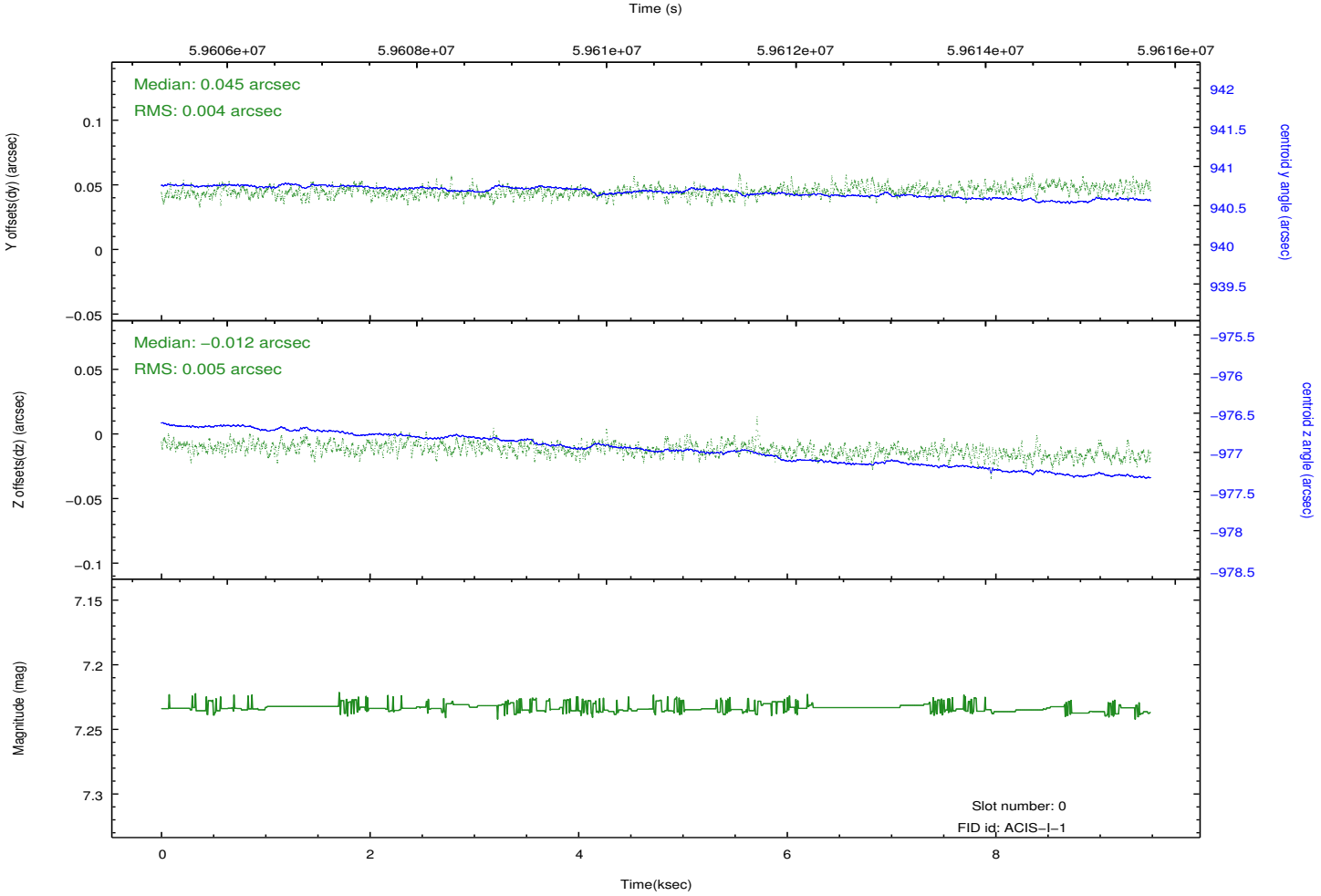

Time (s)
Median: 0.077 arcsec
RMS: 0.086 arcsec
Y offsets(dy) (arcsec)
Median: 0.071 arcsec
RMS: 0.079 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 397935296
Time(ksec)

2.5 FID Slots

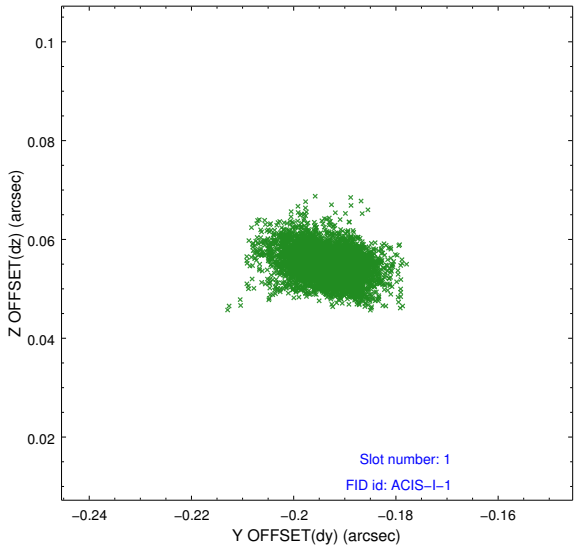
2.5.1 Slot 0

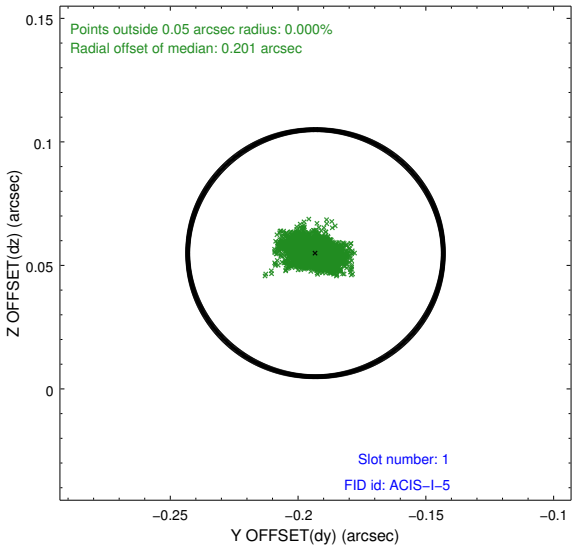


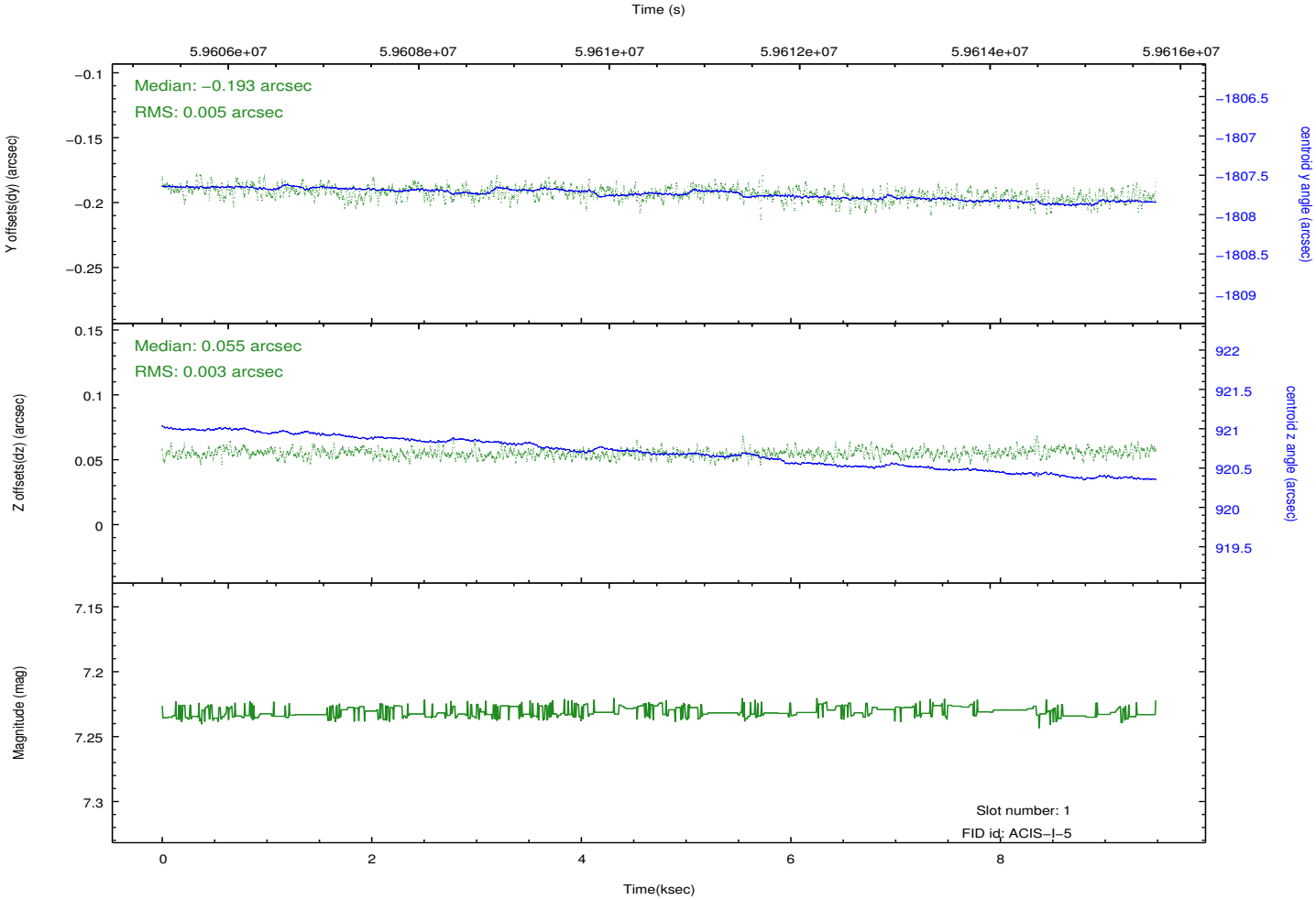




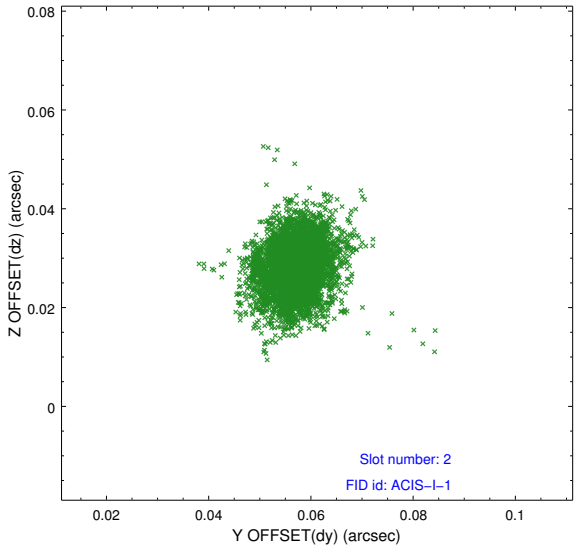
2.5.2 Slot 1

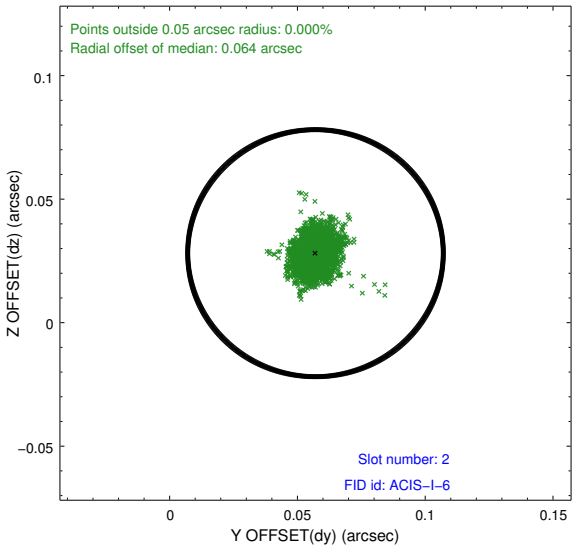

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−1

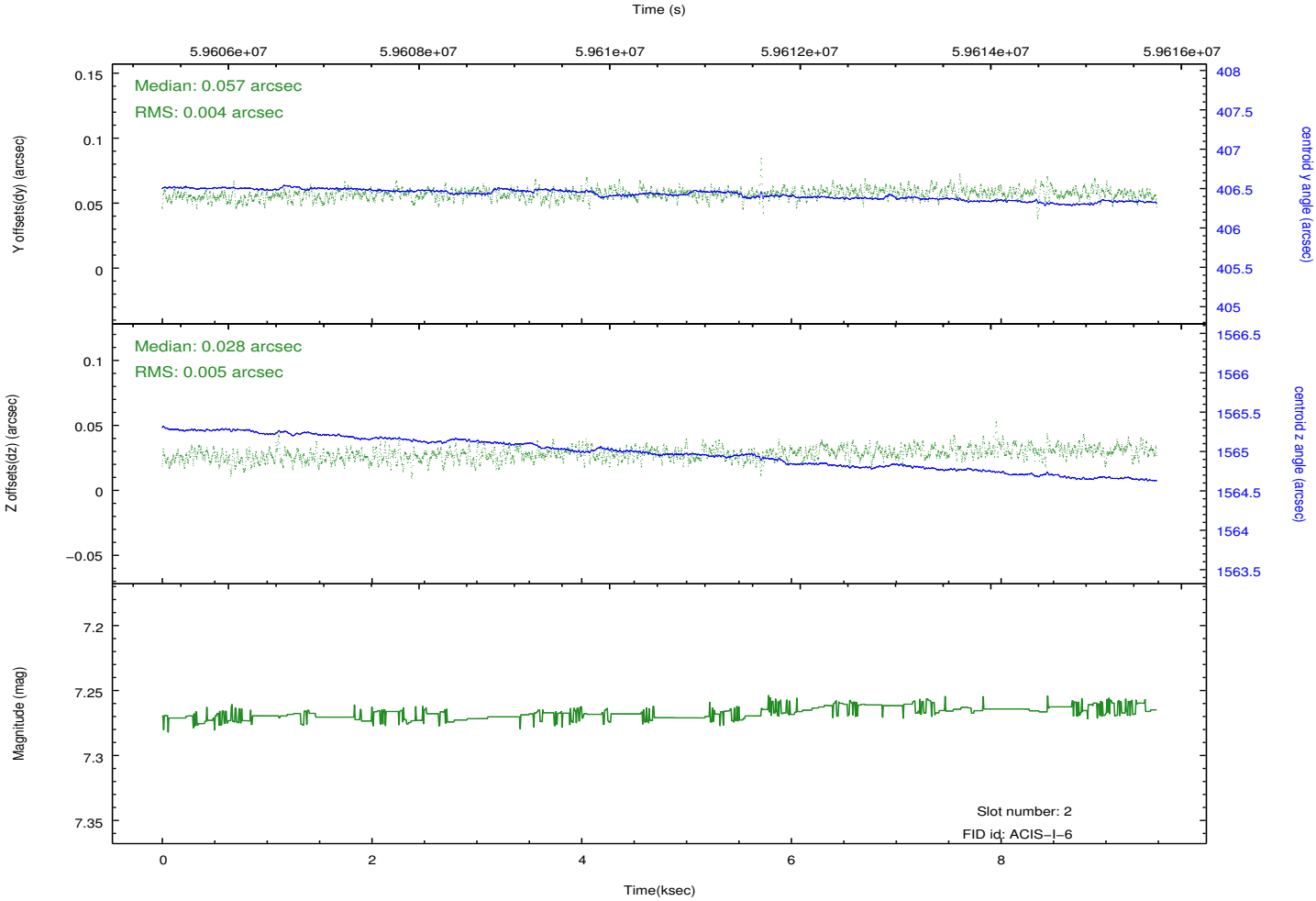

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.201 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−5


Time (s)
Median: −0.193 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.055 arcsec
RMS: 0.003 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−5
Time(ksec)

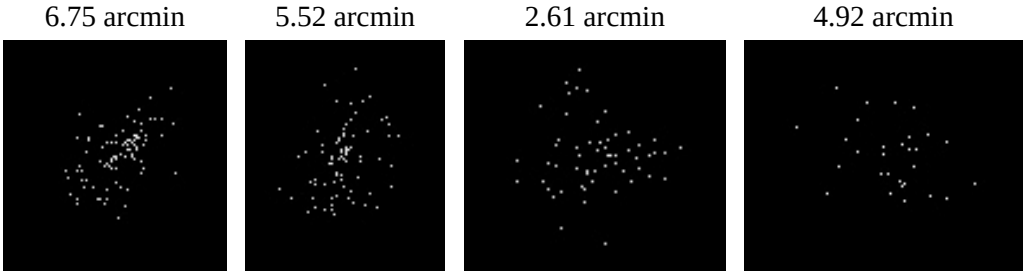
2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−1


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.064 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−6


Time (s)
Median: 0.057 arcsec
RMS: 0.004 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.028 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−6
Time(ksec)

3 Point Sources



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2009.12.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.172

A.2 Comments

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Focal plane temperature is warmer than -118.7 C degrees during the
entire observation. This temperature is the upper limit of the verified
ACIS calibration for the front-illuminated chips. The focal plane
temperature is also warmer than -116.7 degrees C for the entire
observation. This temperature is the upper limit of the verified ACIS
calibration for the back-illuminated chips. The ACIS spectral response
calibration is less accurate at these warmer temperatures than it is at
-119.7 C. Users whose science objectives depend on the most accurate
spectral response (ie: fitting line-rich spectra) may notice an effect.
Users whose science objectives do not depend on the most accurate
spectral response should not notice an effect.
==
The guide star in slot 6 was removed from the aspect solution due
to poor data quality. The aspect solution is not expected to be
degraded by removing one fid light or guide star from the solution.
```