V&V Reference Report
L2 ASCDS Version : 8.1.2

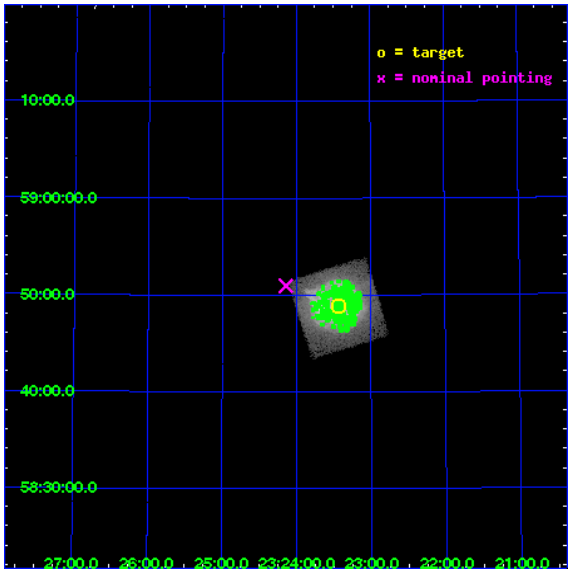
Observation 209 - L2 Version 3
Chandra X-Ray Center

L2 Processing Date : Dec 17 2009

Contents

1 Front

seq_num	590077	Sequence number
obs_id	209	Observation id
title	ACIS CHIP RESPONSE TO CAS A, JAN. 99	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	CAS A [Chip I2, T=100, Offsets=5,3,0 Off-ax Eff A]	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	350.8575	Observer's specified target RA
dec_targ	58.814833	Observer's specified target Dec
ra_nom	351.03608470379	Nominal RA
dec_nom	58.849442045538	Nominal Dec
roll_nom	162.77585235373	Nominal Roll
revision	3	Processing version of data
ontime	1815.6698341891	Sum of GTIs [s]
livetime	1792.6787294835	Livetime [s]
ontime0	2350.5097906068	Sum of GTIs [s]
ontime1	2350.4687506109	Sum of GTIs [s]
ontime2	1815.6698341891	Sum of GTIs [s]
ontime3	2350.3866706118	Sum of GTIs [s]
ontime6	2350.3456306085	Sum of GTIs [s]
ontime7	2350.5508306101	Sum of GTIs [s]
l2events	402282	Number of level 2 events

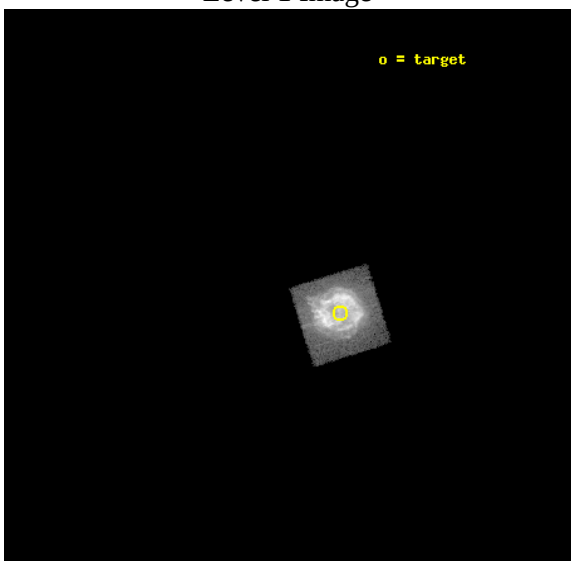


2 OBI

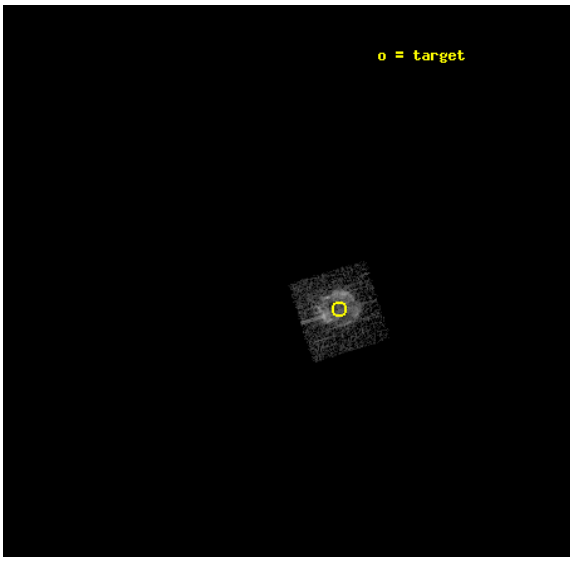
2.1 OBI

2.1.1 Images

Level 1 Image

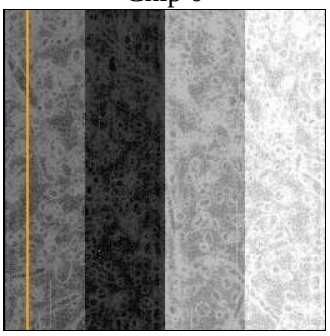


Level 1 Bad Events

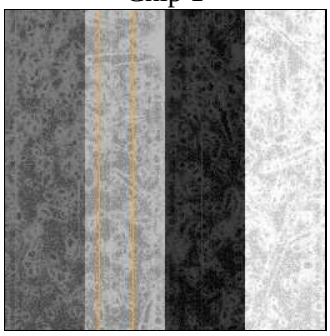


2.1.2 Bias

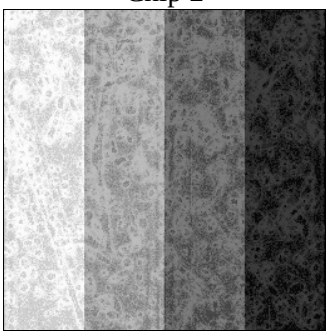
Chip 0



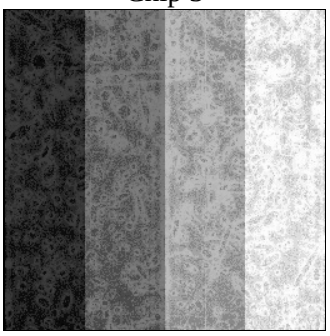
Chip 1



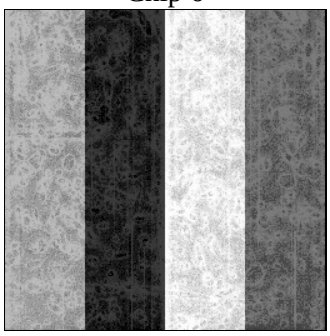
Chip 2



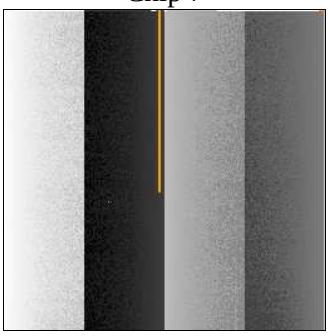
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	1	Obi number
ascdsver	8.1.2	ASCDS version number
caldbver	4.1.4	
date	2009-12-17T07:21:05	Date and time of file creation
revision	3	Processing version of data

sched_exp_time	2000.000000	Scheduled observation exposure time
ontime	1815.6698341891	Sum of GTIs [s]
ontime0	2350.5097906068	Sum of GTIs [s]
ontime1	2350.4687506109	Sum of GTIs [s]
ontime2	1815.6698341891	Sum of GTIs [s]
ontime3	2350.3866706118	Sum of GTIs [s]
ontime6	2350.3456306085	Sum of GTIs [s]
ontime7	2350.5508306101	Sum of GTIs [s]
l1events	443516	Number of level 1 events

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	0	0	443516	0	0	0
rejected events	0	0	32325	0	0	0
rejected %	0%	0%	7%	0%	0%	0%

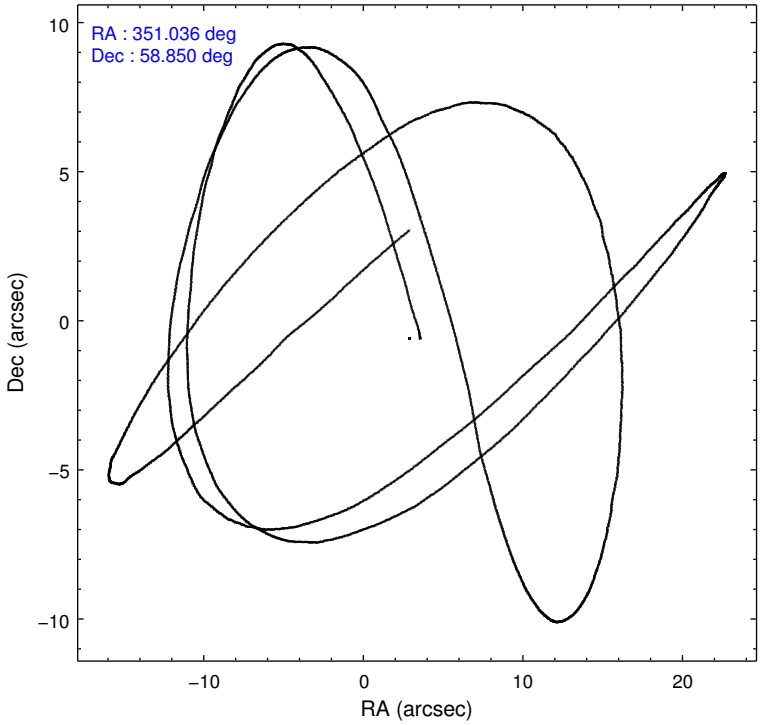
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	0	0	327848	0	0	0
	0%	0%	73%	0%	0%	0%
grade 1 events	0	0	5189	0	0	0
	0%	0%	1%	0%	0%	0%
grade 2 events	0	0	45592	0	0	0
	0%	0%	10%	0%	0%	0%
grade 3 events	0	0	14473	0	0	0
	0%	0%	3%	0%	0%	0%
grade 4 events	0	0	14467	0	0	0
	0%	0%	3%	0%	0%	0%
grade 5 events	0	0	3194	0	0	0
	0%	0%	0%	0%	0%	0%
grade 6 events	0	0	10290	0	0	0
	0%	0%	2%	0%	0%	0%
grade 7 events	0	0	22463	0	0	0
	0%	0%	5%	0%	0%	0%

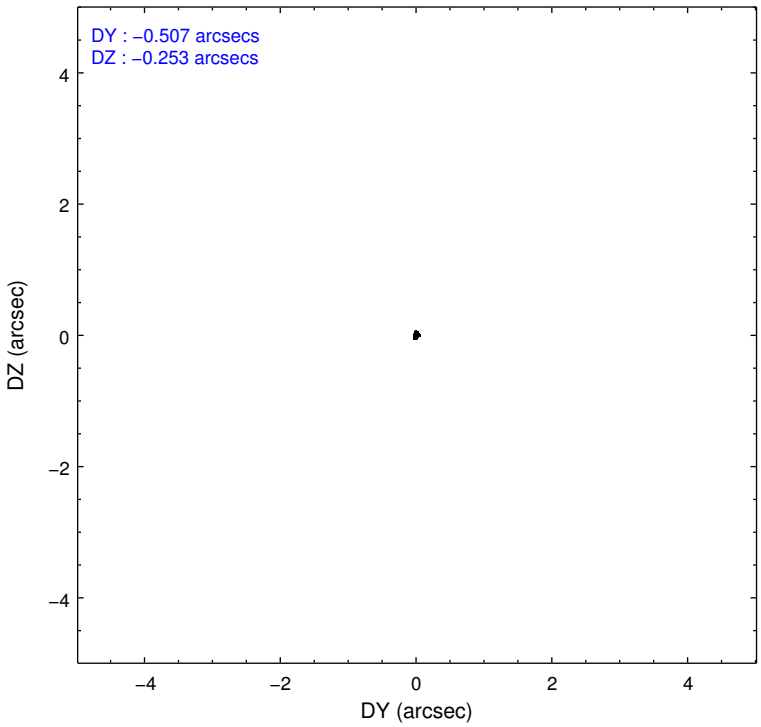
2.2 Compared Parameters

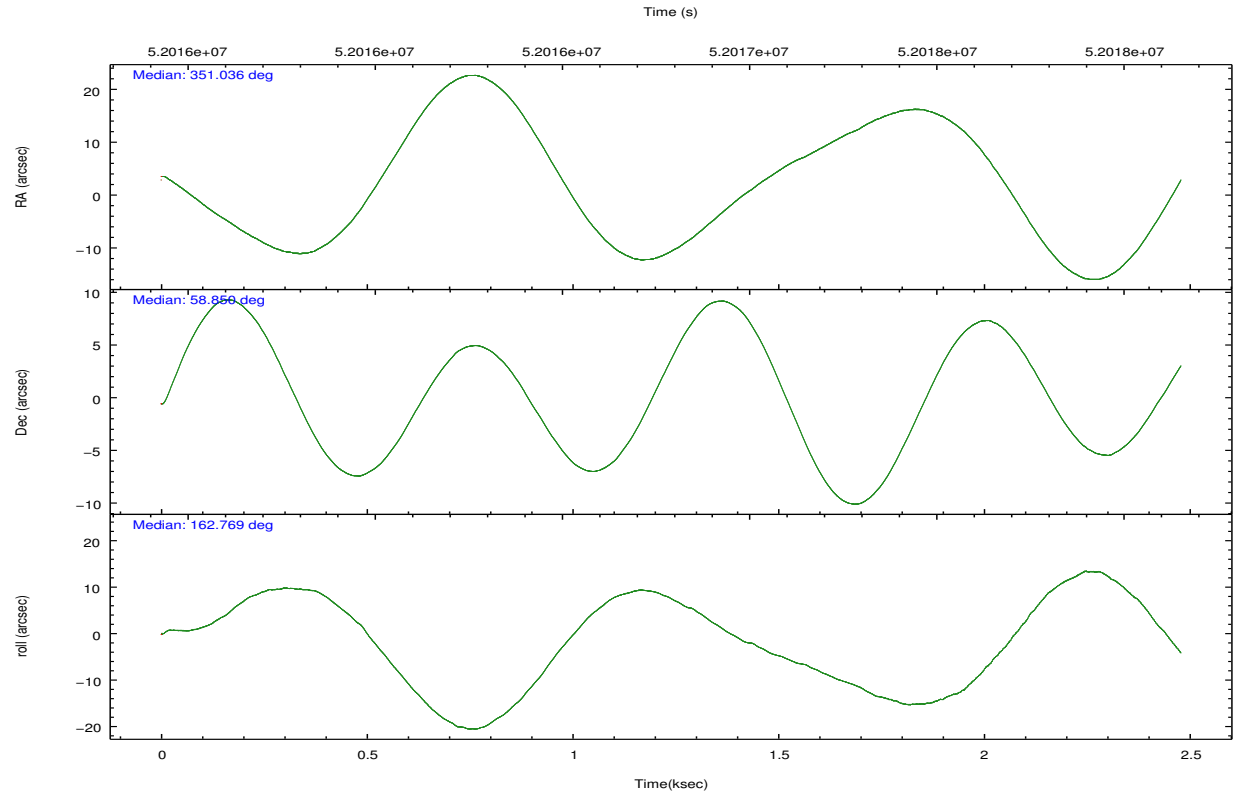
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-2	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	351.089530	351.0360847037892
Pointing Dec	58.854793	58.84944204553831
Pointing Roll	162.521409	162.775852353731
Window start time	49852864.184000	49852864.184000
Window stop time	55036864.184000	55036864.184000
SIM focus pos (mm)	-0.782348	-0.7362356599963374
SIM defocus (mm)	0	0.04611255558364913
SIM translation stage pos (mm)	-233.592463	-233.5874344608287
SIM translation stage offset (mm)	0	-0.005018542100998502
Observation start time	52016029.184000	52015362.993786
Observation start date	1999-08-26T00:52:45	1999-08-26T00:42:42
Observation end time	52018029.184000	52019386.118931
Observation end date	1999-08-26T01:26:05	1999-08-26T01:49:46
Read mode	TIMED	TIMED

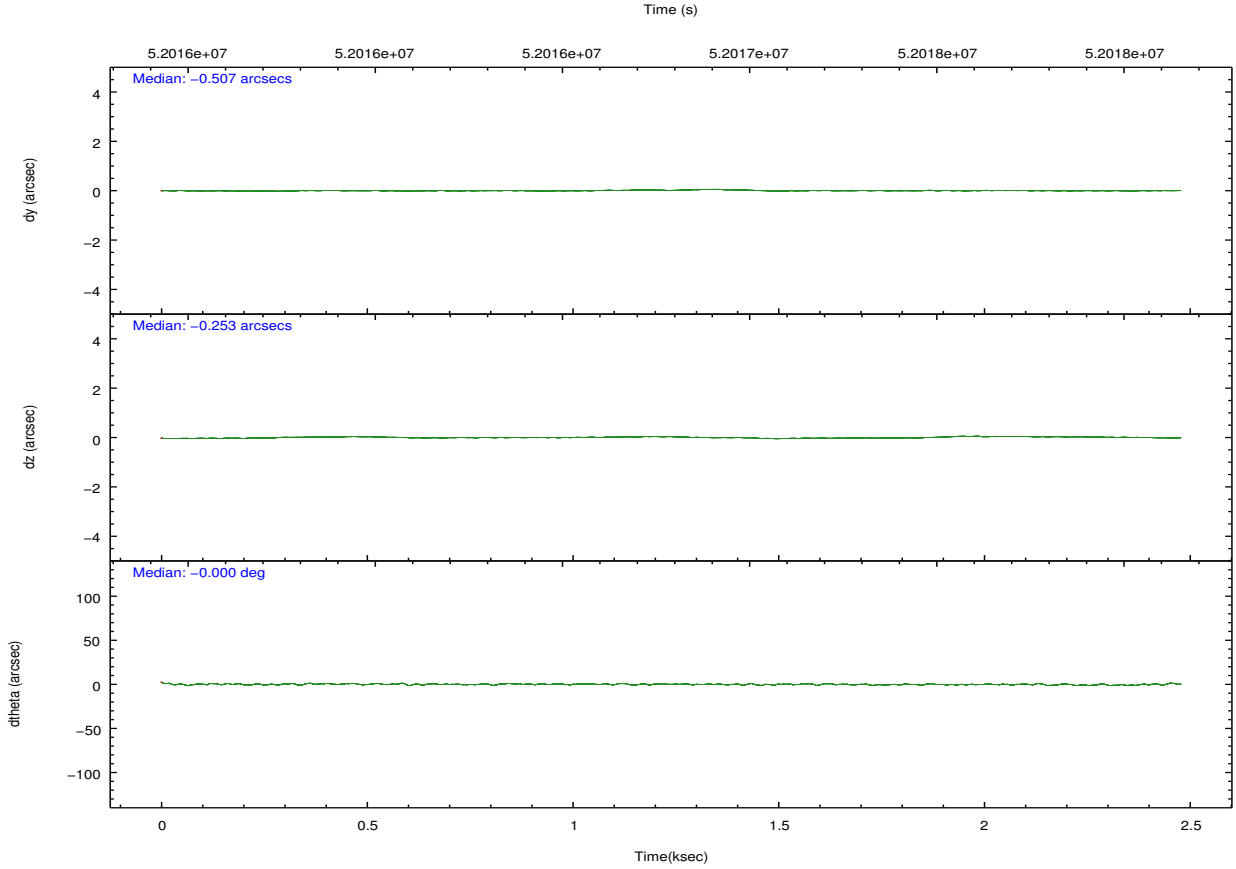
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	Y
CCD I1 on	N	Y
CCD I2 on	Y	Y
CCD I3 on	N	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	N	Y
CCD S3 on	N	Y
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect


RA : 351.036 deg
Dec : 58.850 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
0
10
20


DY : −0.507 arcsecs
DZ : −0.253 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.2016e+07
5.2016e+07
5.2016e+07
5.2017e+07
5.2018e+07
5.2018e+07
Median: 351.036 deg
RA (arcsec)
Median: 58.850 deg
Dec (arcsec)
Median: 162.769 deg
roll (arcsec)
Time(ksec)

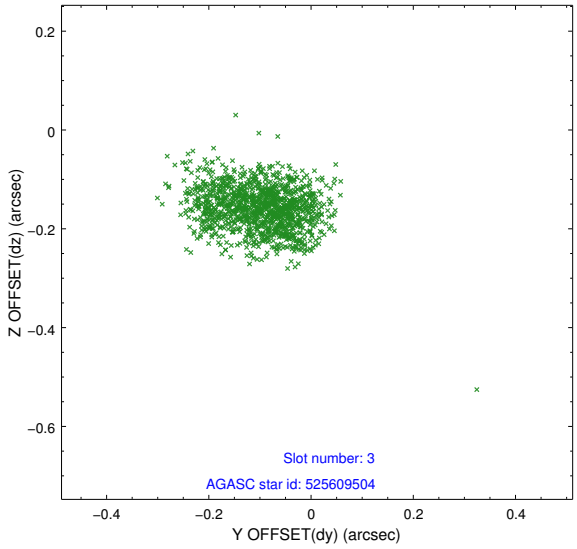

Time (s)
5.2016e+07
5.2016e+07
5.2016e+07
5.2017e+07
5.2018e+07
5.2018e+07
Median: −0.507 arcsecs
dy (arcsec)
Median: −0.253 arcsecs
dz (arcsec)
Median: −0.000 deg
dtheta (arcsec)
Time(ksec)

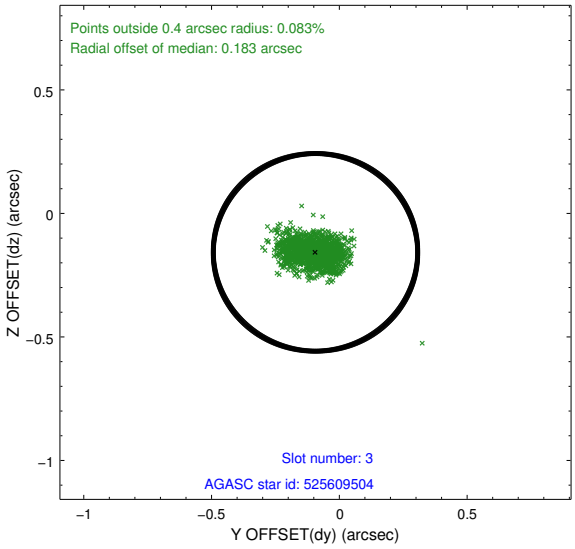
Slot Statistics

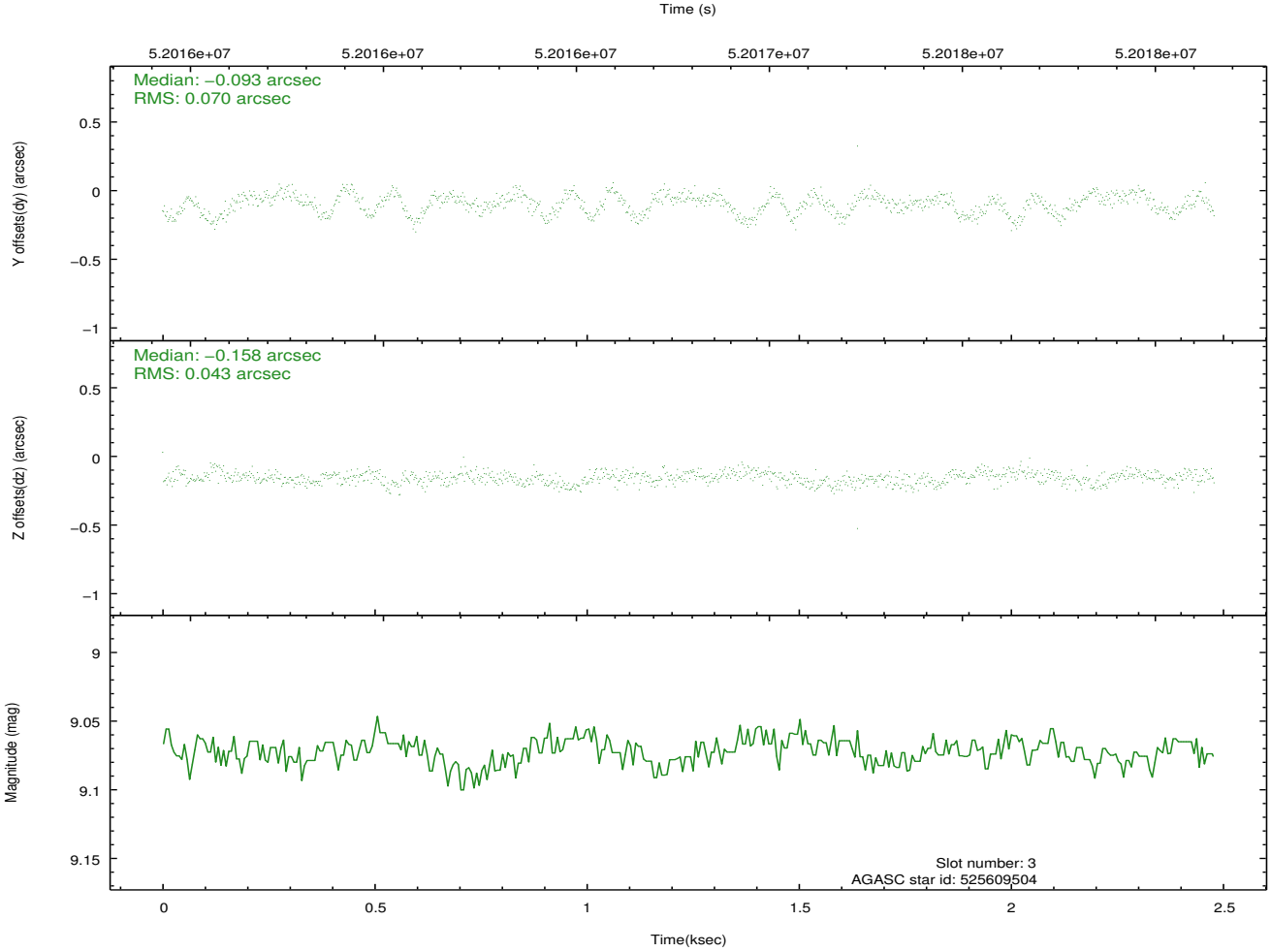
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-3	7.44	1210	0.048	0.168	0.011	0.018	0.000000	0.000000	57.83	-956.01
1	FID	ACIS-I-4	7.23	1210	0.102	-0.088	0.008	0.013	0.000000	0.000000	2160.55	1076.00
2	FID	ACIS-I-5	7.23	1209	-0.248	-0.011	0.008	0.014	0.000000	0.000000	-1806.24	1075.55
3	GUIDE	525609504	9.07	1210	-0.093	-0.158	0.088	0.138	349.896632	58.356658	1614.55	2368.42
4	GUIDE	525732528	9.37	1205	0.003	0.008	0.092	0.143	351.607241	59.298932	-426.12	-1812.17
5	GUIDE	525207384	9.74	1210	0.038	-0.005	0.127	0.210	351.880308	58.083642	-2268.78	2186.05
6	GUIDE	525732896	9.64	1210	0.028	0.113	0.093	0.153	351.456486	59.410070	-43.25	-2108.17
7	GUIDE	525739240	9.62	1208	0.018	0.036	0.087	0.135	350.642893	59.099564	1051.78	-596.39

2.4 Star Slots

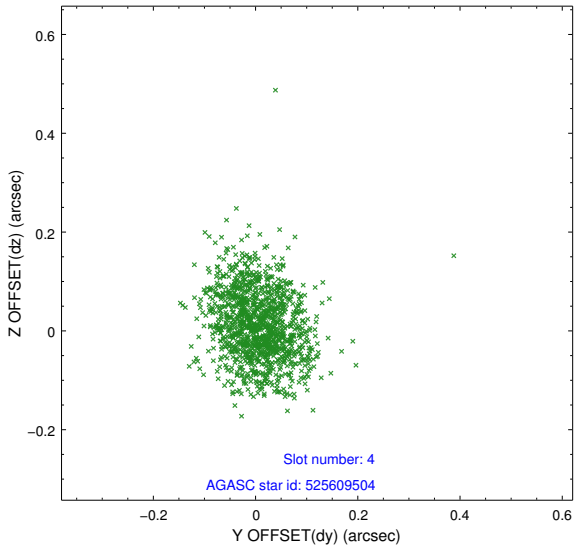
2.4.1 Slot 3

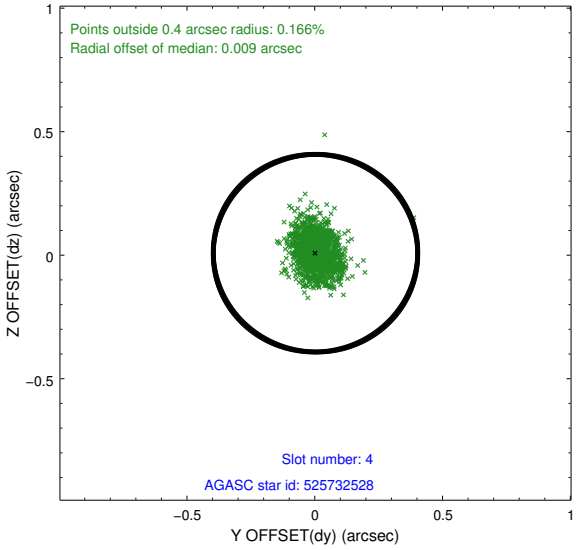


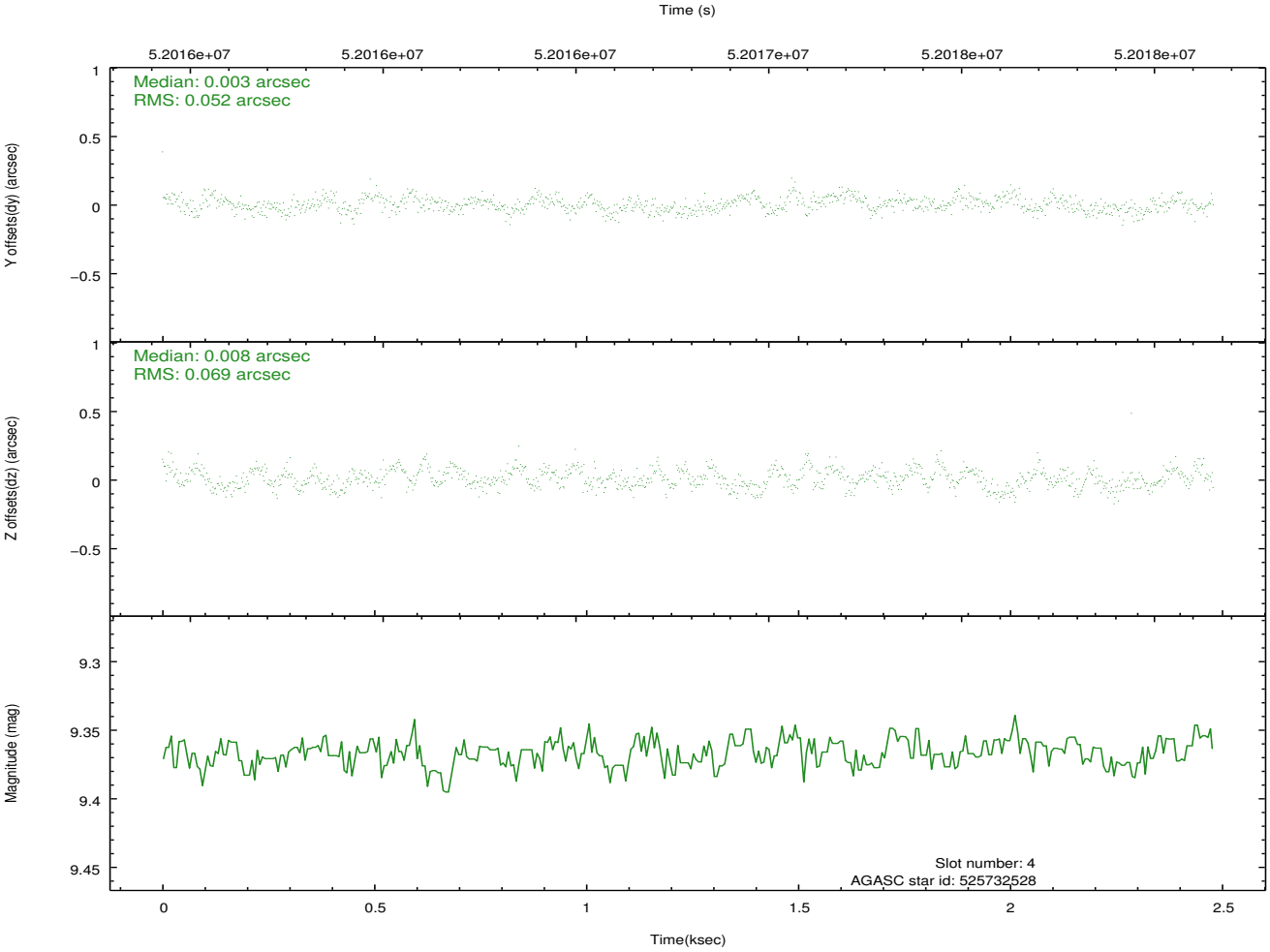




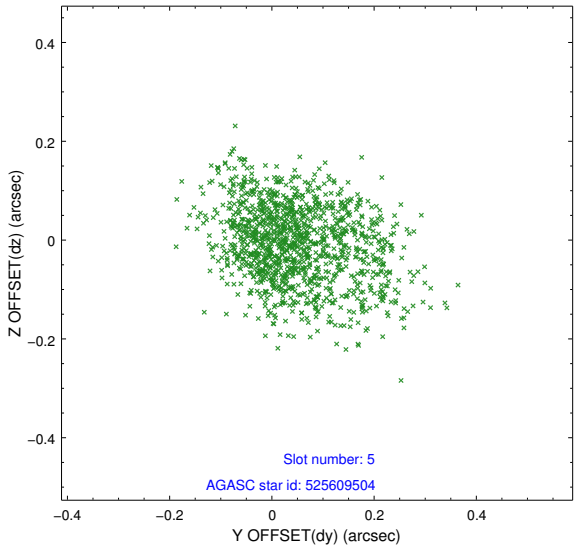
2.4.2 Slot 4

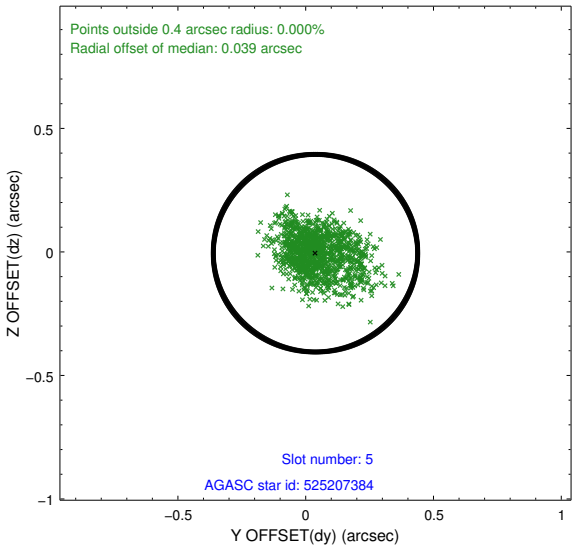

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 525609504

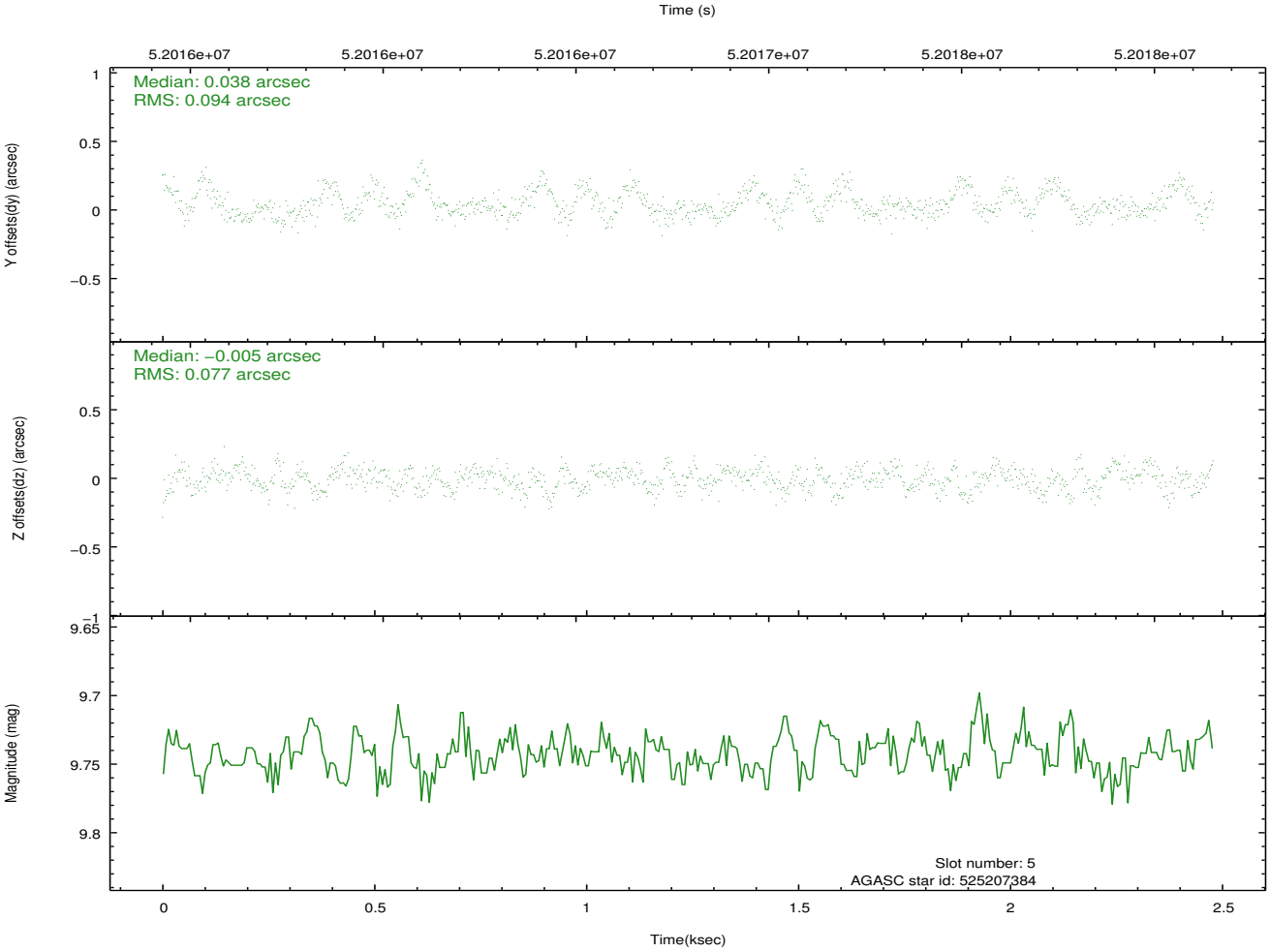

Points outside 0.4 arcsec radius: 0.166%
Radial offset of median: 0.009 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 525732528


Time (s)
Median: 0.003 arcsec
RMS: 0.052 arcsec
Y offsets(dy) (arcsec)
Median: 0.008 arcsec
RMS: 0.069 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 525732528
Time(ksec)

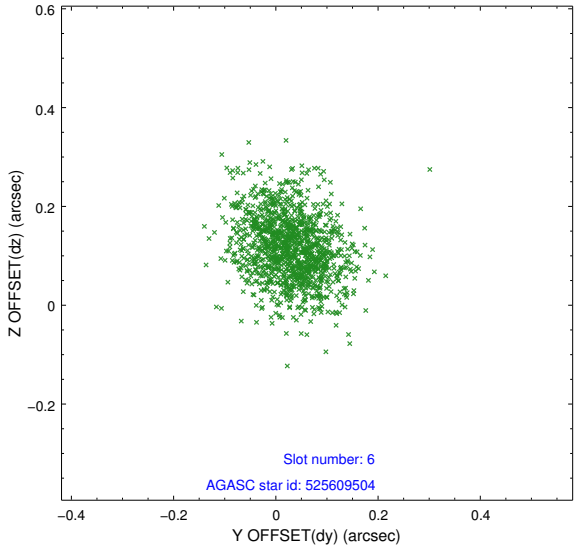
2.4.3 Slot 5

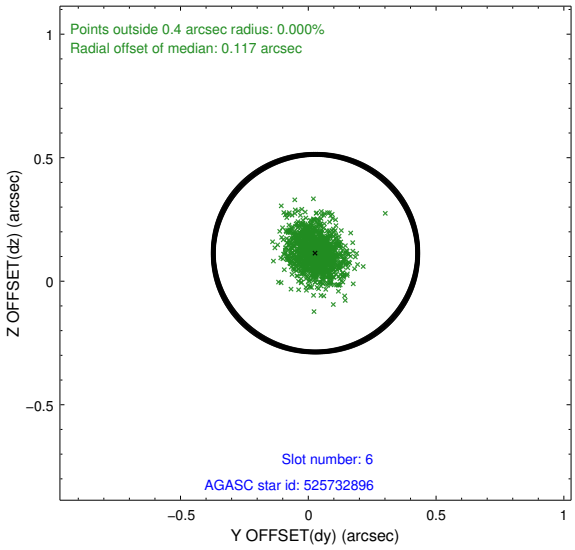

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 525609504

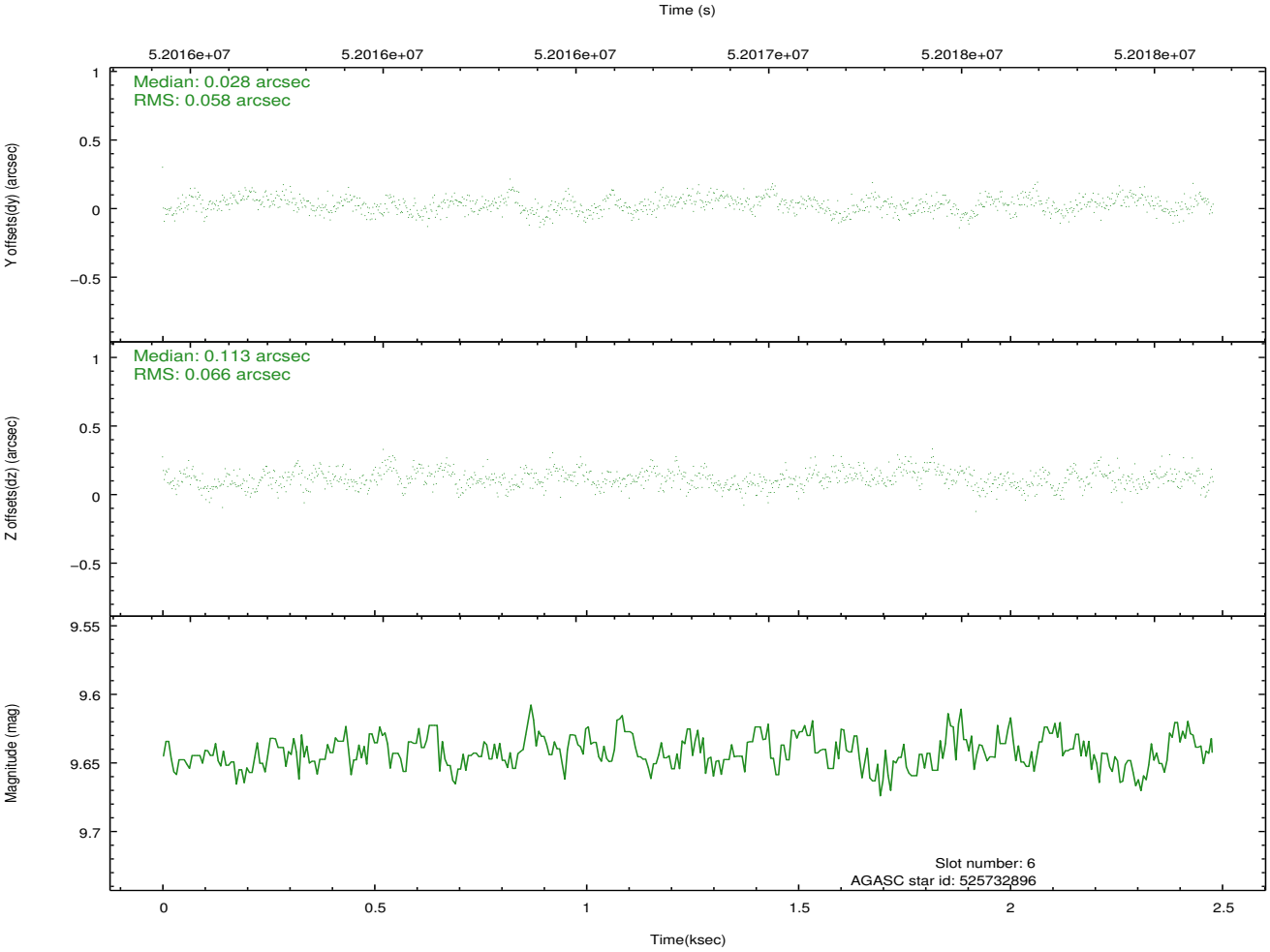

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.039 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 525207384


Time (s)
Median: 0.038 arcsec
RMS: 0.094 arcsec
Y offsets(dy) (arcsec)
Median: −0.005 arcsec
RMS: 0.077 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 525207384
Time(ksec)

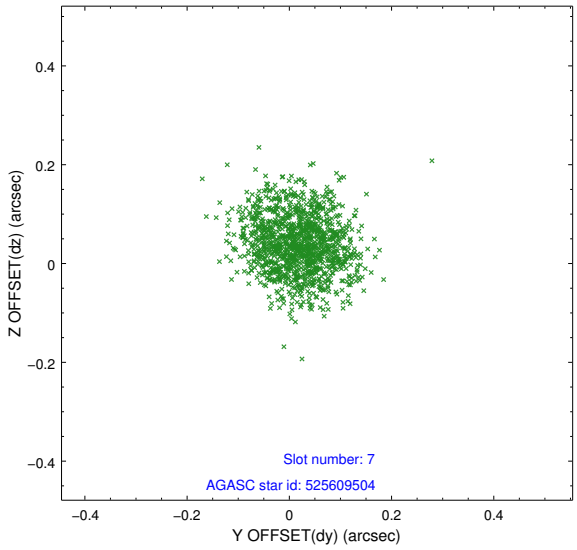
2.4.4 Slot 6

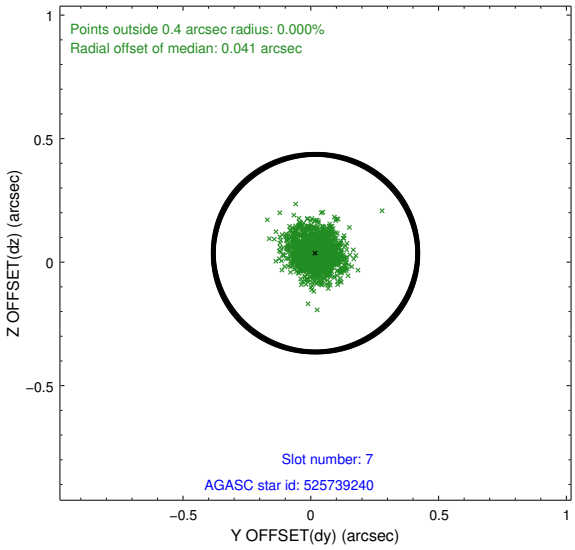

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 525609504

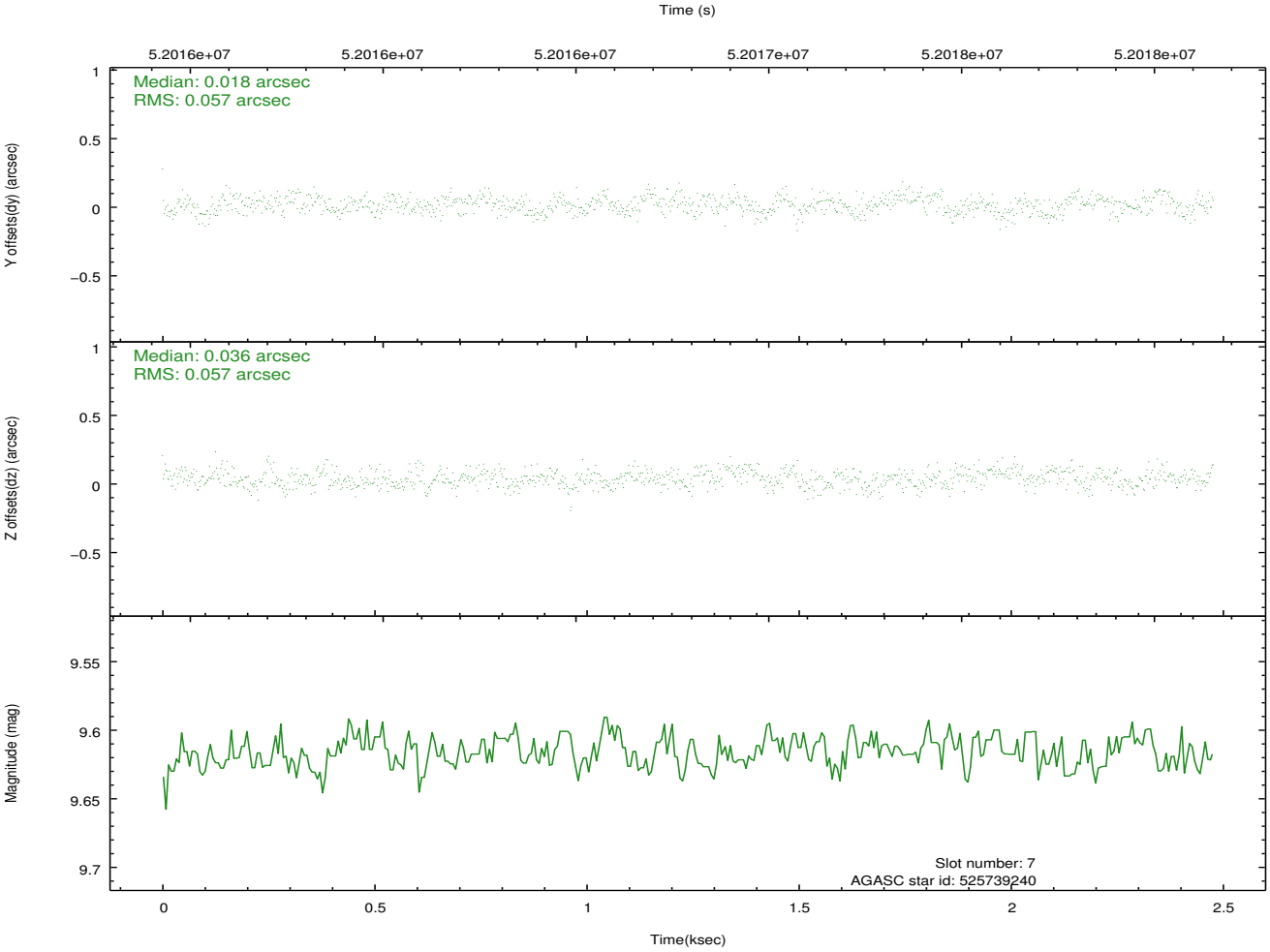

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.117 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 525732896


Time (s)
Median: 0.028 arcsec
RMS: 0.058 arcsec
Y offsets(dy) (arcsec)
Median: 0.113 arcsec
RMS: 0.066 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 525732896
Time(ksec)

2.4.5 Slot 7

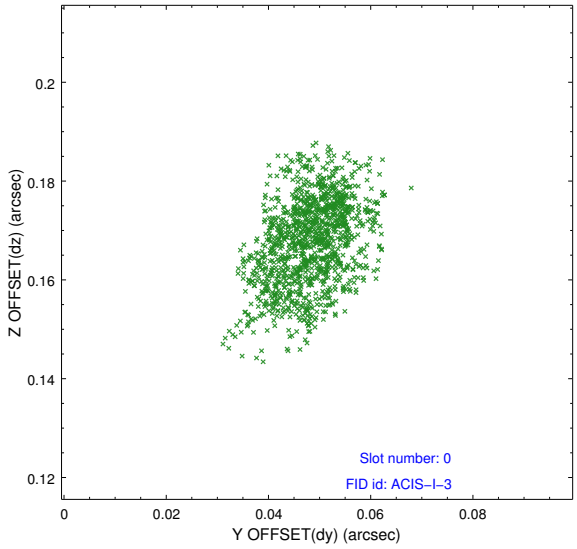

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 525609504

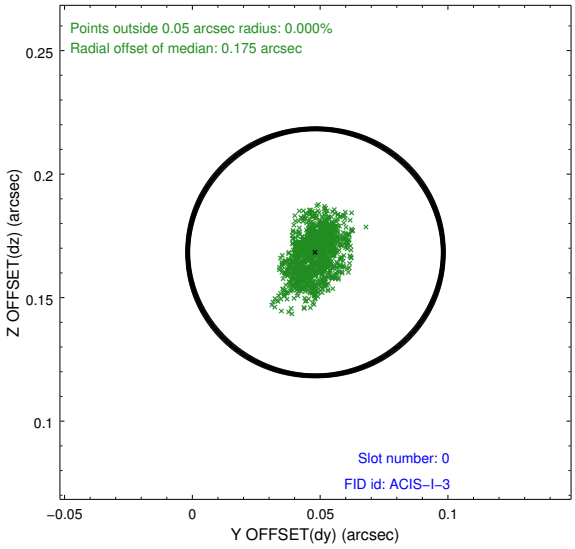

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.041 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 525739240

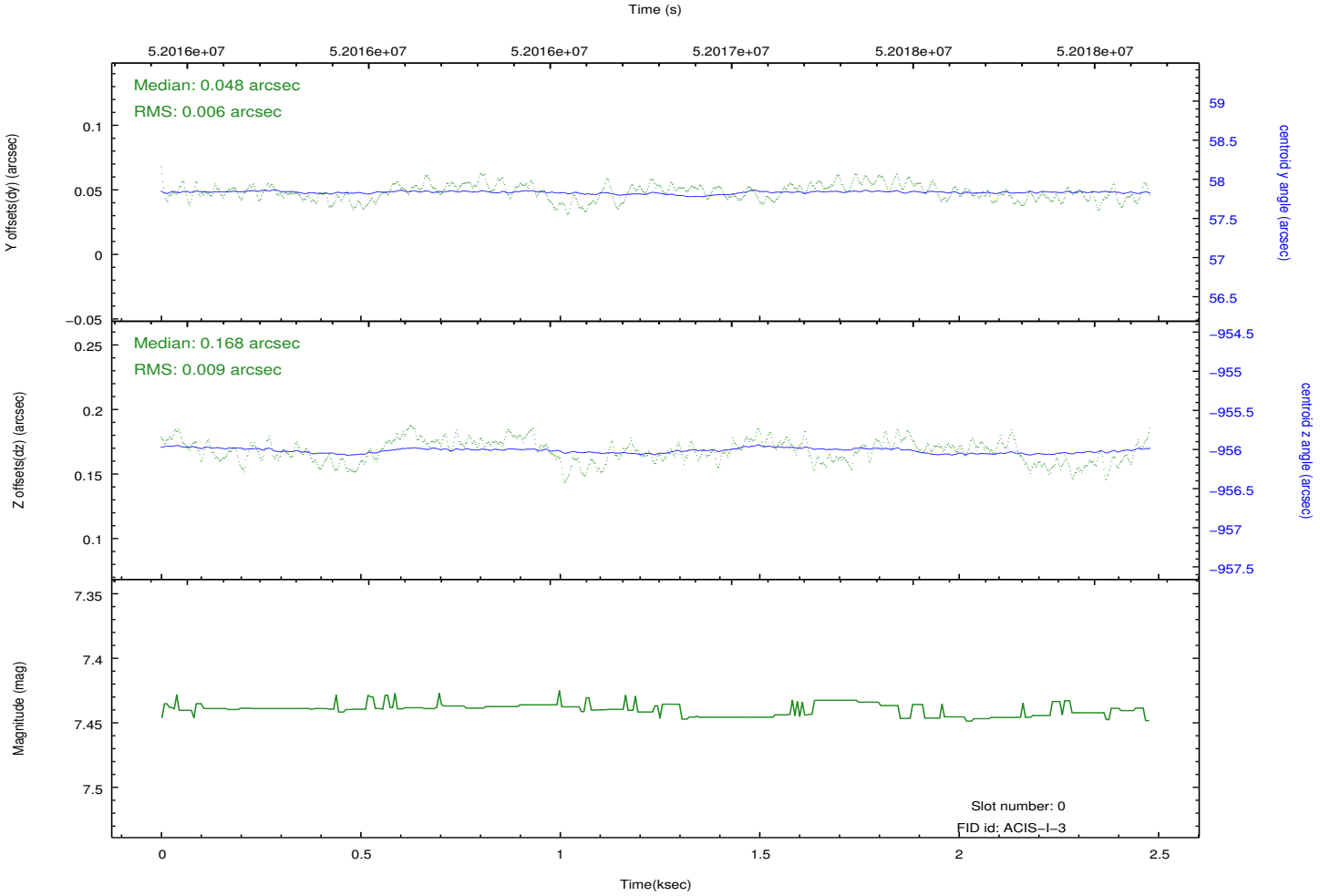

Time (s)
Median: 0.018 arcsec
RMS: 0.057 arcsec
Y offsets(dy) (arcsec)
Median: 0.036 arcsec
RMS: 0.057 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 525739240
Time(ksec)

2.5 FID Slots

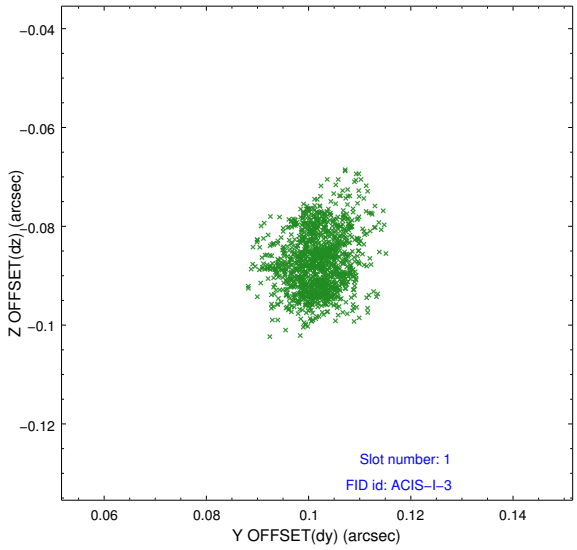
2.5.1 Slot 0

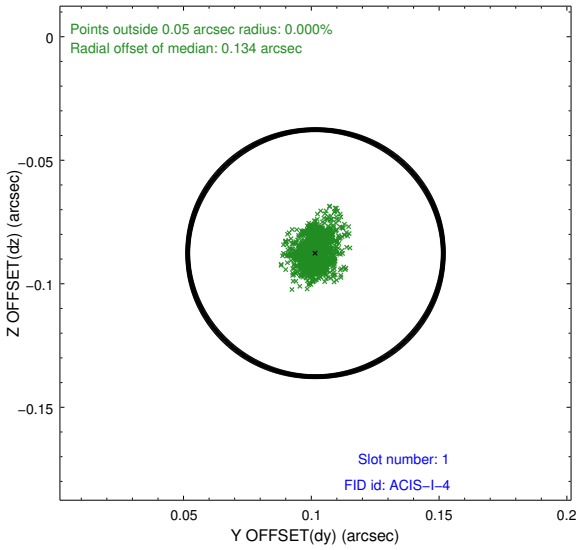


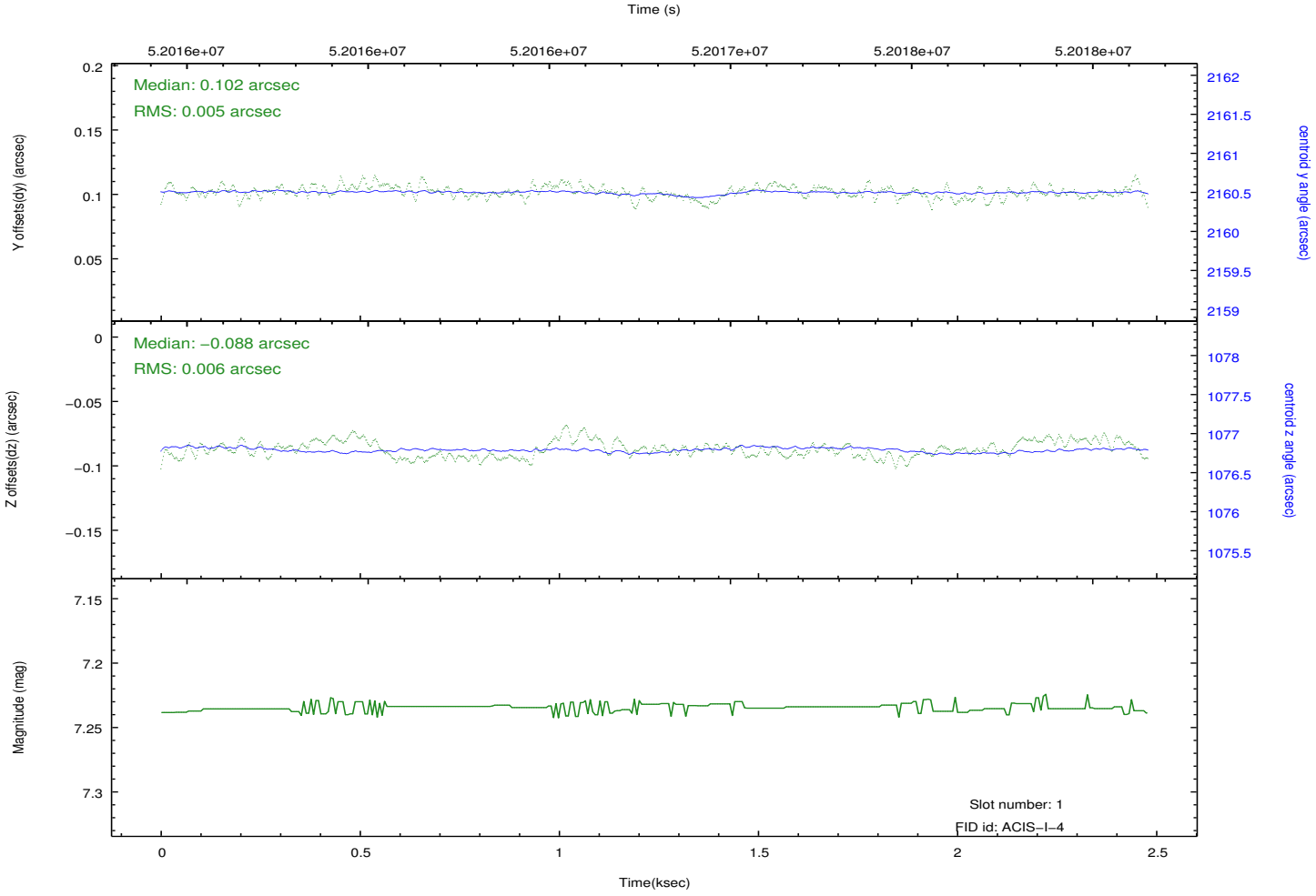




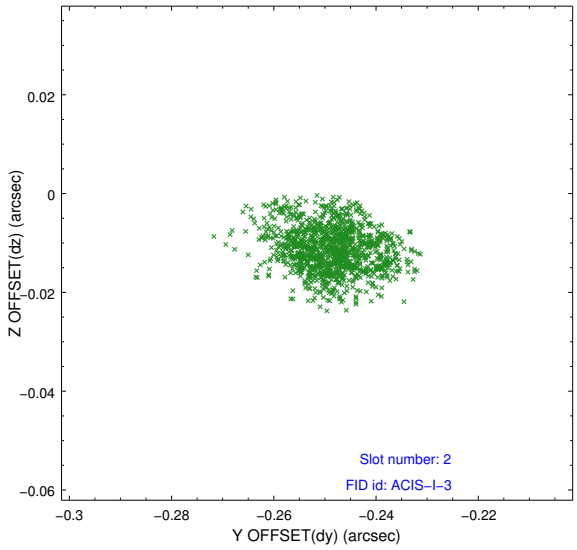
2.5.2 Slot 1

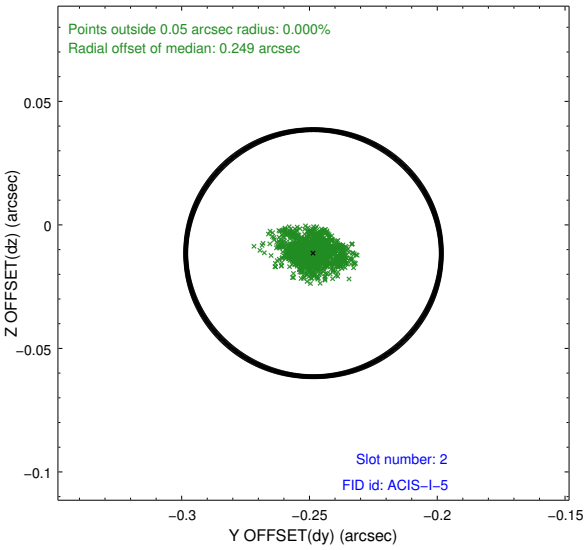

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−3

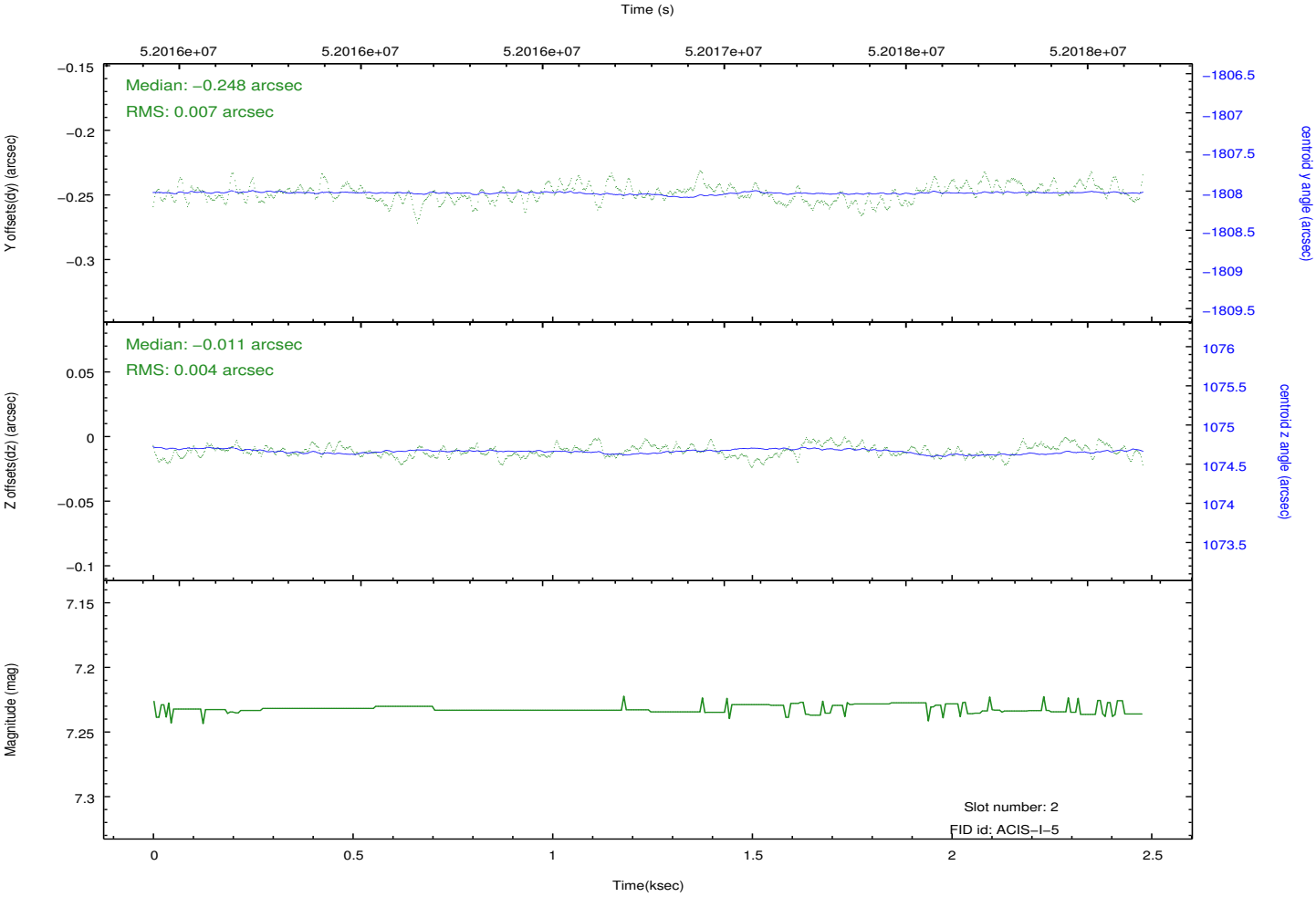

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.134 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−I−4


Time (s)
Median: 0.102 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.088 arcsec
RMS: 0.006 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−I−4
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−3


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.249 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−I−5


Time (s)
Median: −0.248 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
Median: −0.011 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid y angle (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−I−5
Time(ksec)

3 Point Sources

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2010.04.01
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	1.824

A.2 Comments

```
Off-axis ACIS effective area measurement using Cas A on chip I2. Only
I2 chip has data.
===
Pileup throughout most of observation.
===
Charge time for this ObsId remains at previous value of 1.824 ksec,
although
with the current processing the charge time would have been 1.815 ksec.
==
The focal plane temperature is approximately -100 C during this
observation. This reprocessing of the data applies no CTI correction
because none is available for this temperature at present.

The ACIS CTI correction has not been calibrated at this temperature,
because it was early in the mission, and ACIS had not yet been lowered
to the standard -119.7 C. Both front and back illuminated chips are
affected. However a T_GAIN correction has been applied to the BI chips
(ACIS-5 and ACIS-7) data included here.

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.
```