V&V Reference Report
L2 ASCDS Version : 7.6.11.2

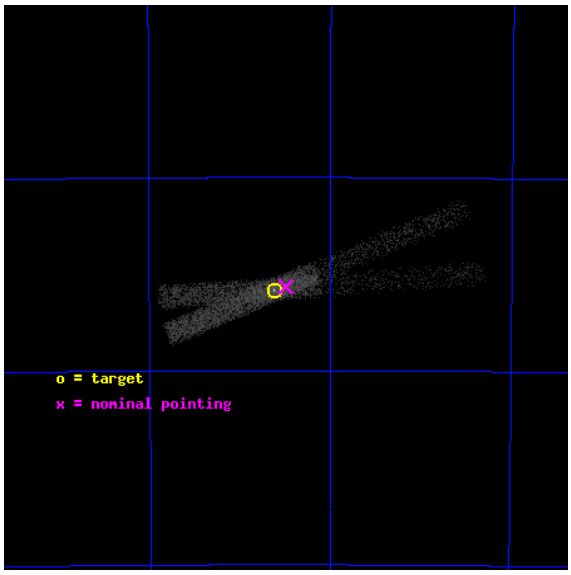
Observation 82 - L2 Version 8
Chandra X-Ray Center

L2 Processing Date : Jul 6 2011

Contents

1 Front

seq_num	300007	Sequence number
obs_id	82	Observation id
title	SUPER-SOFT X-RAY SOURCES	Proposal title
observer	Dr. Stephen Murray	Principal investigator
object	1E 0056.8-7154	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	14.654167	Observer's specified target RA
dec_targ	-71.596667	Observer's specified target Dec
ra_nom	14.623078180477	Nominal RA
dec_nom	-71.594098173687	Nominal Dec
roll_nom	175.81853645986	Nominal Roll
revision	8	Processing version of data
ontime	14169.475380301	Sum of GTIs [s]
livetime	13094.665256082	Livetime [s]
ontime6	14169.434340298	Sum of GTIs [s]
ontime7	14169.475380301	Sum of GTIs [s]
l2events	11765	Number of level 2 events

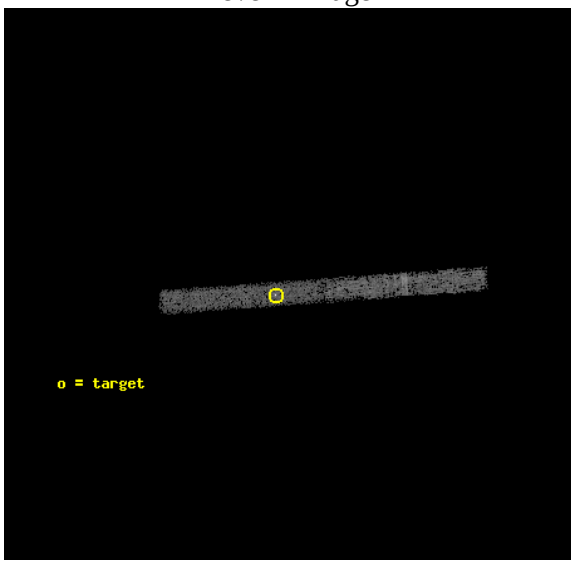


2 OBI

2.1 OBI

2.1.1 Images

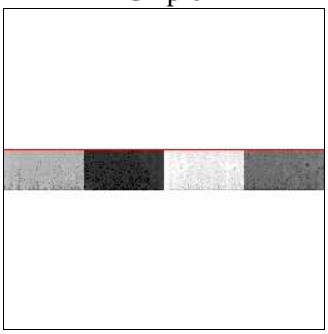
Level 1 Image



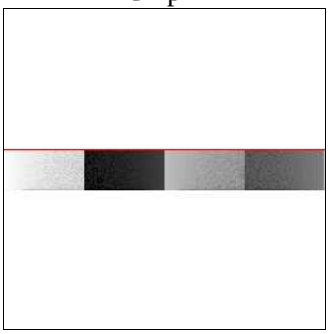
Level 1 Bad Events

2.1.2 Bias

Chip 6



Chip 7



2.1.3 Parameters

obi_num	1	Obi number
ascdsver	8.4	ASCDS version number
caldbver	4.4.4	
date	2011-07-06T21:16:49	Date and time of file creation
revision	5	Processing version of data

sched_exp_time	5271.081000	Scheduled observation exposure time
ontime	5696.5	Sum of GTIs [s]
ontime6	5696.5	Sum of GTIs [s]
ontime7	5696.5	Sum of GTIs [s]
l1events	18669	Number of level 1 events

2.1.4 Events

	ccd 6	**ccd 7**
level 1 events	10115	8554
rejected events	9393	4373
rejected %	92%	51%

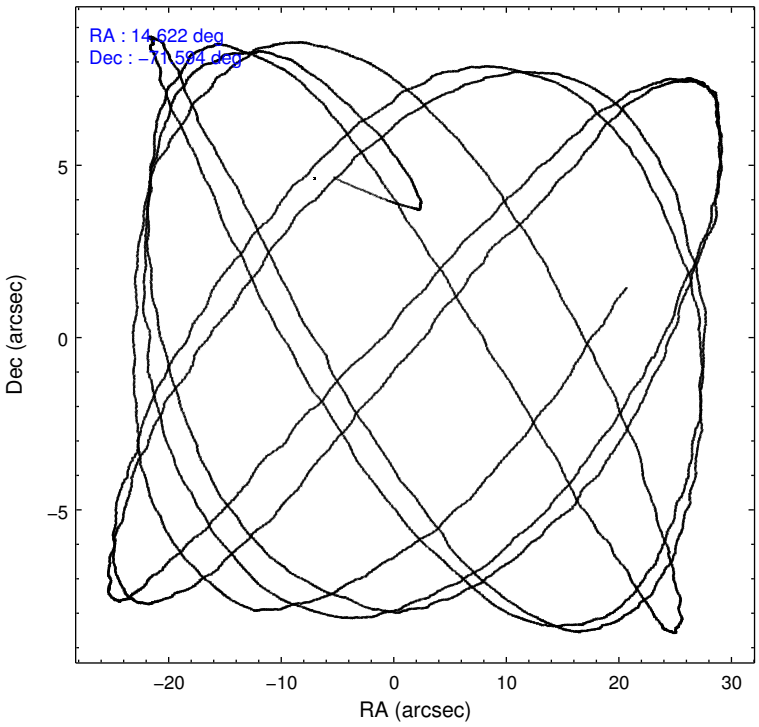
	ccd 6	**ccd 7**
grade 0 events	265	1424
	2%	16%
grade 1 events	1	21
	0%	0%
grade 2 events	118	832
	1%	9%
grade 3 events	163	499
	1%	5%
grade 4 events	192	471
	1%	5%
grade 5 events	205	667
	2%	7%
grade 6 events	122	1518
	1%	17%
grade 7 events	9049	3122
	89%	36%

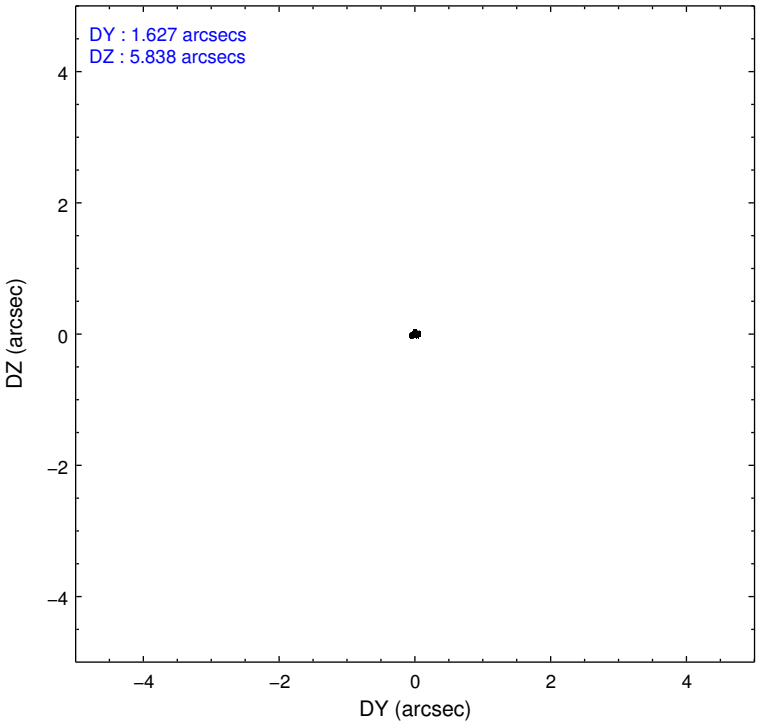
2.2 Compared Parameters

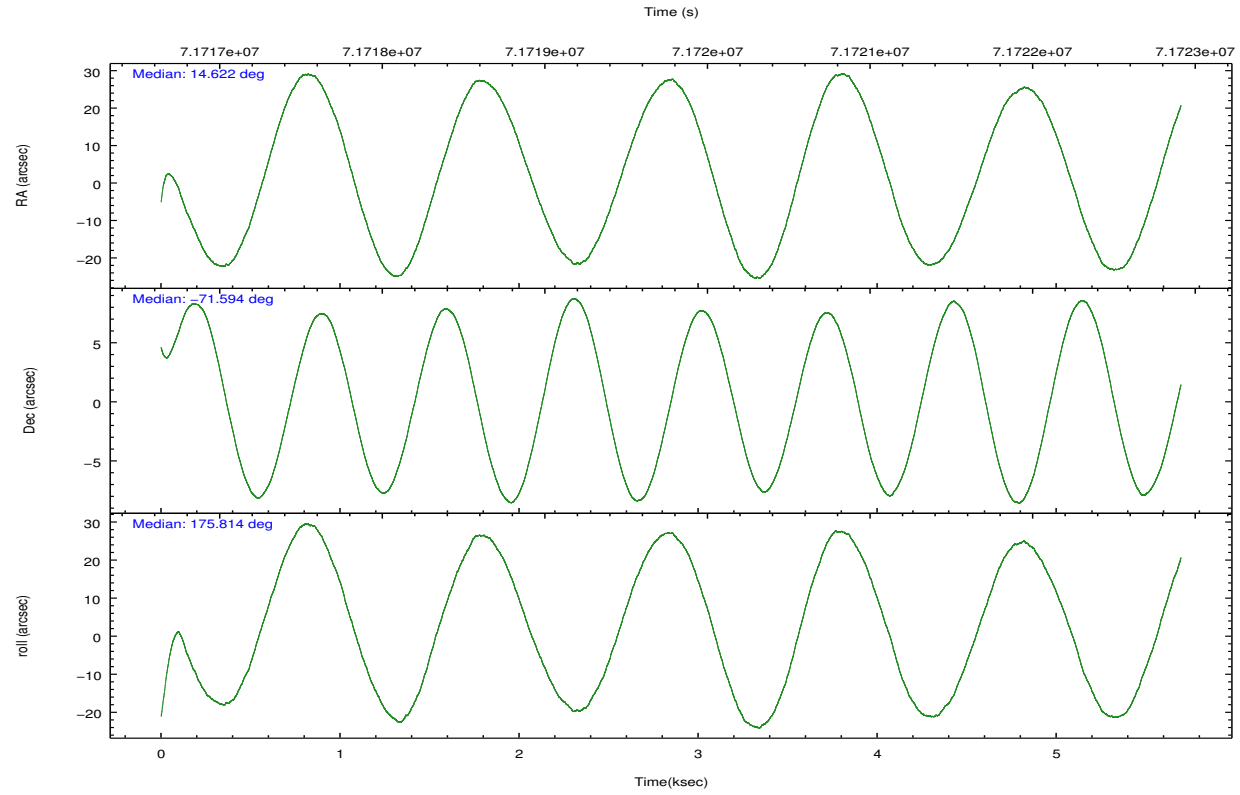
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-67	ACIS-67
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
Pointing RA	14.701567	14.62307818047742
Pointing Dec	-71.582070	-71.594098173687
Pointing Roll	175.736427	175.8185364598626
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-190.132523	-190.1425803651734
SIM translation stage offset (mm)	0	0.01005778216563158
Observation start time	71717359.184000	71715905.79193801
Observation start date	2000-04-10T01:28:15	2000-04-10T01:05:05
Observation end time	71722630.184000	71722939.342196
Observation end date	2000-04-10T02:56:06	2000-04-10T03:02:19
Read mode	TIMED	TIMED

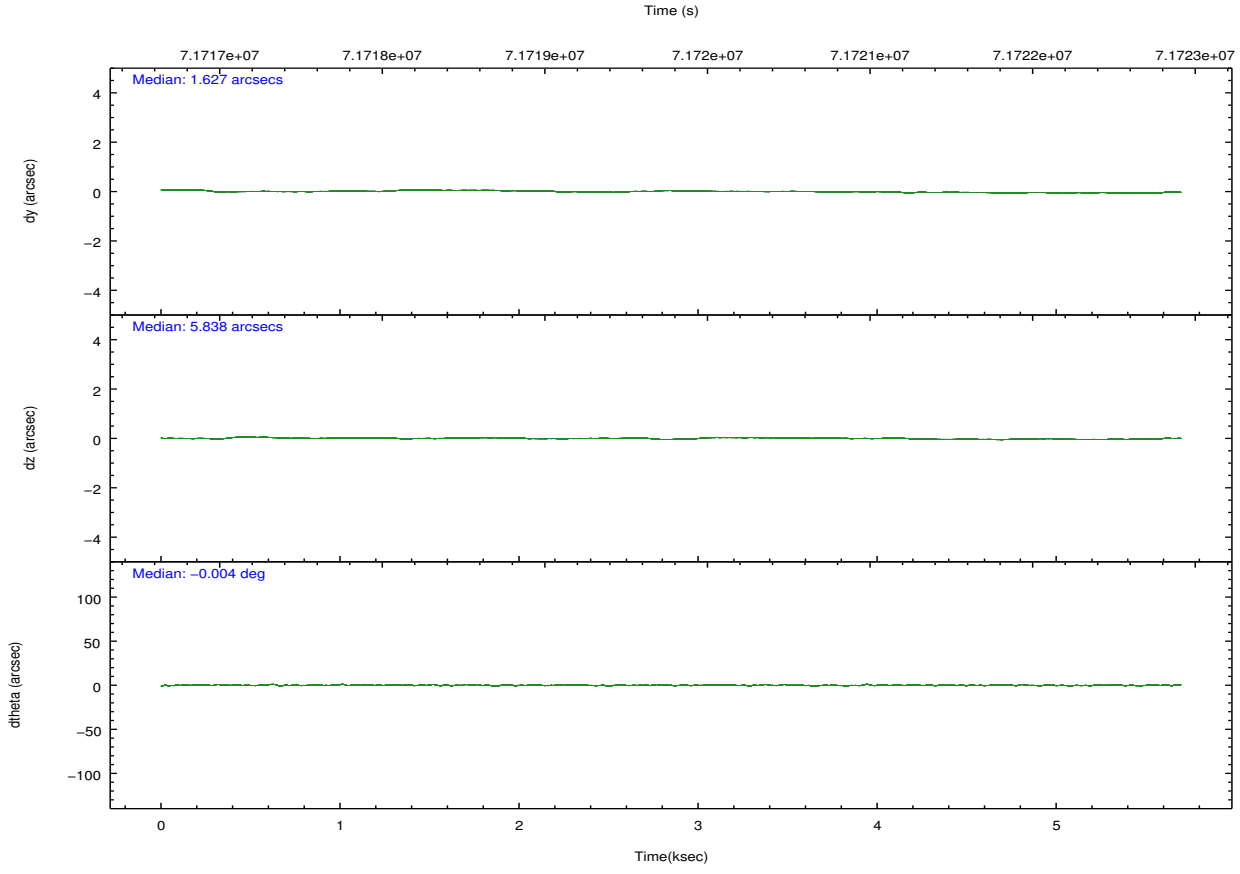
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/8
Subarray start row	448	448
Subarray row count	128	128
Alternating exposures requested	N	N
Primary exposure time	0.000000	0.5

2.3 Aspect


RA : 14.622 deg
Dec : −71.594 deg
Dec (arcsec)
RA (arcsec)
5
0
−5
−20
−10
0
10
20
30


DY : 1.627 arcsecs
DZ : 5.838 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
7.1717e+07
7.1718e+07
7.1719e+07
7.172e+07
7.1721e+07
7.1722e+07
7.1723e+07
Median: 14.622 deg
RA (arcsec)
Median: −71.594 deg
Dec (arcsec)
Median: 175.814 deg
roll (arcsec)
Time(ksec)

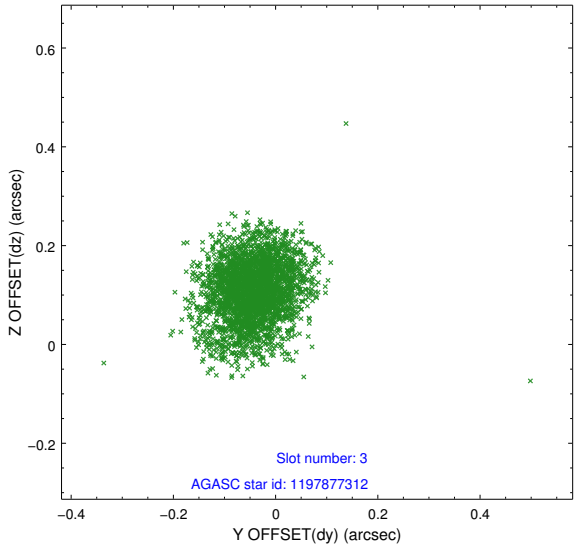

Time (s)
7.1717e+07
7.1718e+07
7.1719e+07
7.172e+07
7.1721e+07
7.1722e+07
7.1723e+07
Median: 1.627 arcsecs
dy (arcsec)
Median: 5.838 arcsecs
dz (arcsec)
Median: −0.004 deg
dtheta (arcsec)
Time(ksec)

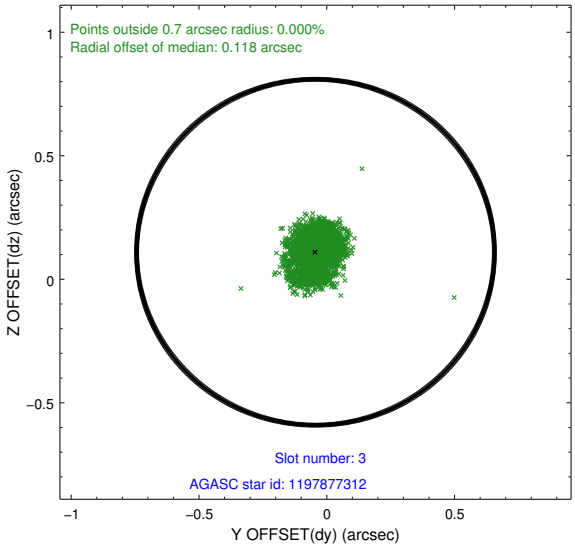
Slot Statistics

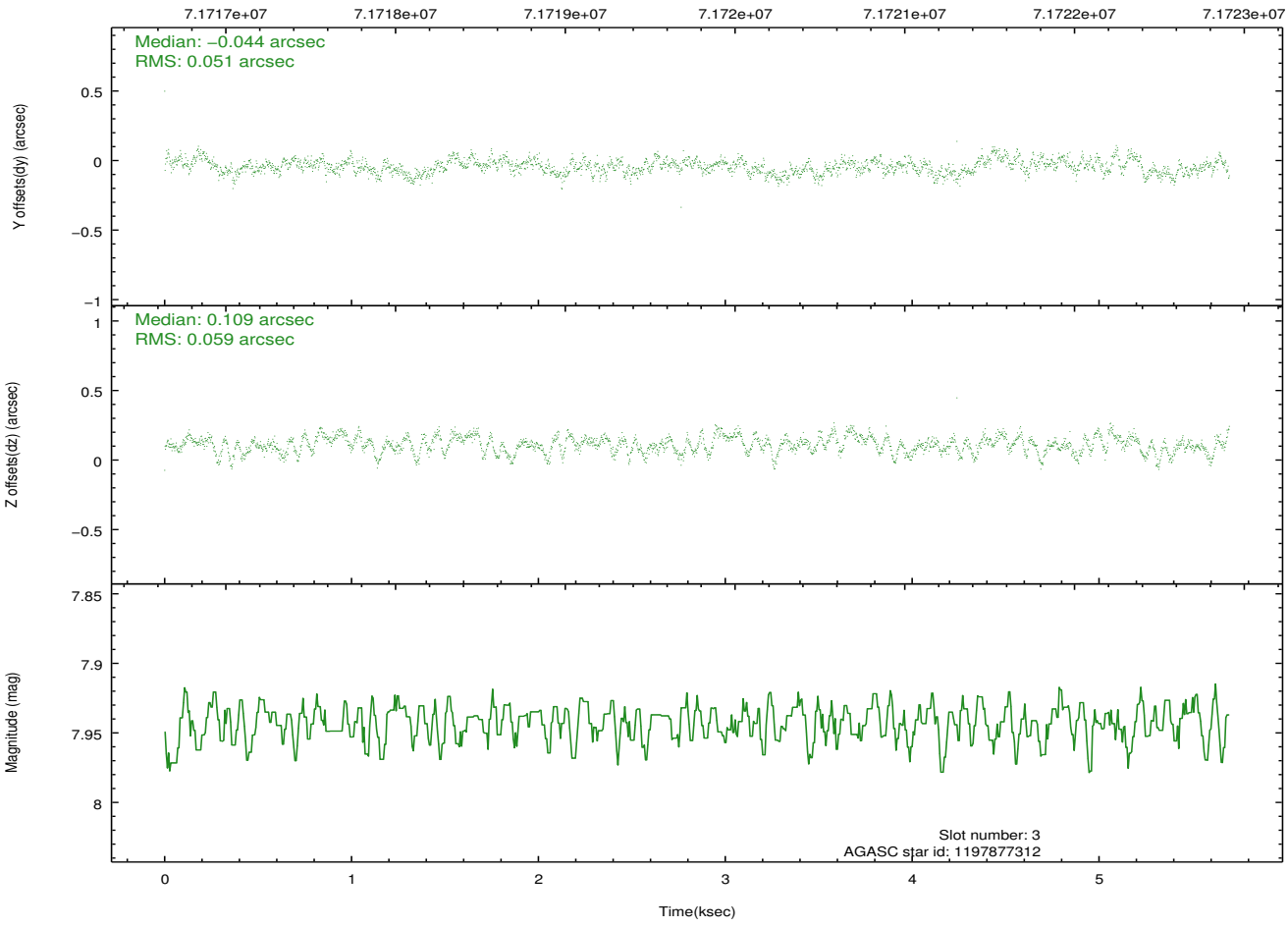
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-3	7.36	1390	-0.052	-0.038	0.007	0.011	0.000000	0.000000	58.92	-1856.02
1	FID	ACIS-S-4	7.21	1390	0.007	0.046	0.006	0.011	0.000000	0.000000	2159.17	180.43
2	FID	ACIS-S-5	7.24	1390	0.017	0.002	0.006	0.011	0.000000	0.000000	-1805.70	175.35
3	GUIDE	1197877312	7.94	2780	-0.044	0.109	0.082	0.134	16.362782	-70.933298	-1777.64	-2447.73
4	GUIDE	1197878768	9.62	2778	0.155	-0.003	0.107	0.175	16.656786	-71.304581	-2179.76	-1128.66
5	GUIDE	1197749416	10.25	2779	0.086	-0.029	0.190	0.295	13.610513	-71.871242	1138.42	1139.53
6	GUIDE	1197750160	10.24	2779	-0.062	0.044	0.156	0.258	12.997994	-71.773722	1858.33	858.08
7	GUIDE	1197750544	10.73	2773	-0.127	-0.128	0.161	0.264	13.428125	-72.143881	1249.44	2136.38

2.4 Star Slots

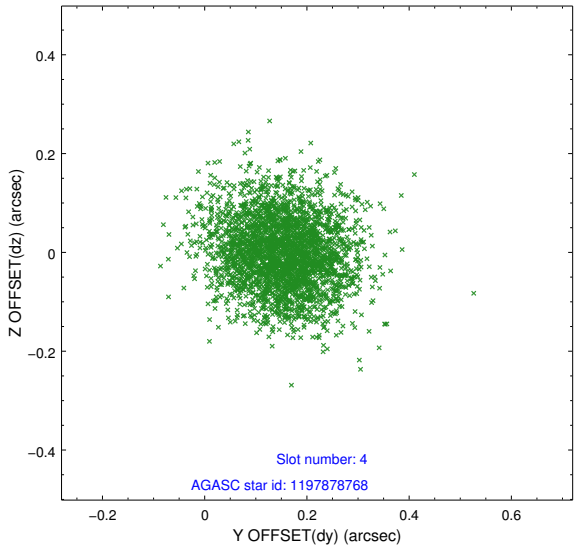
2.4.1 Slot 3

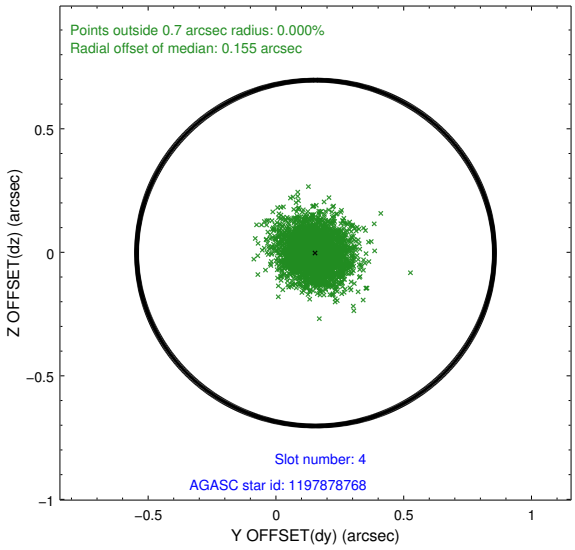


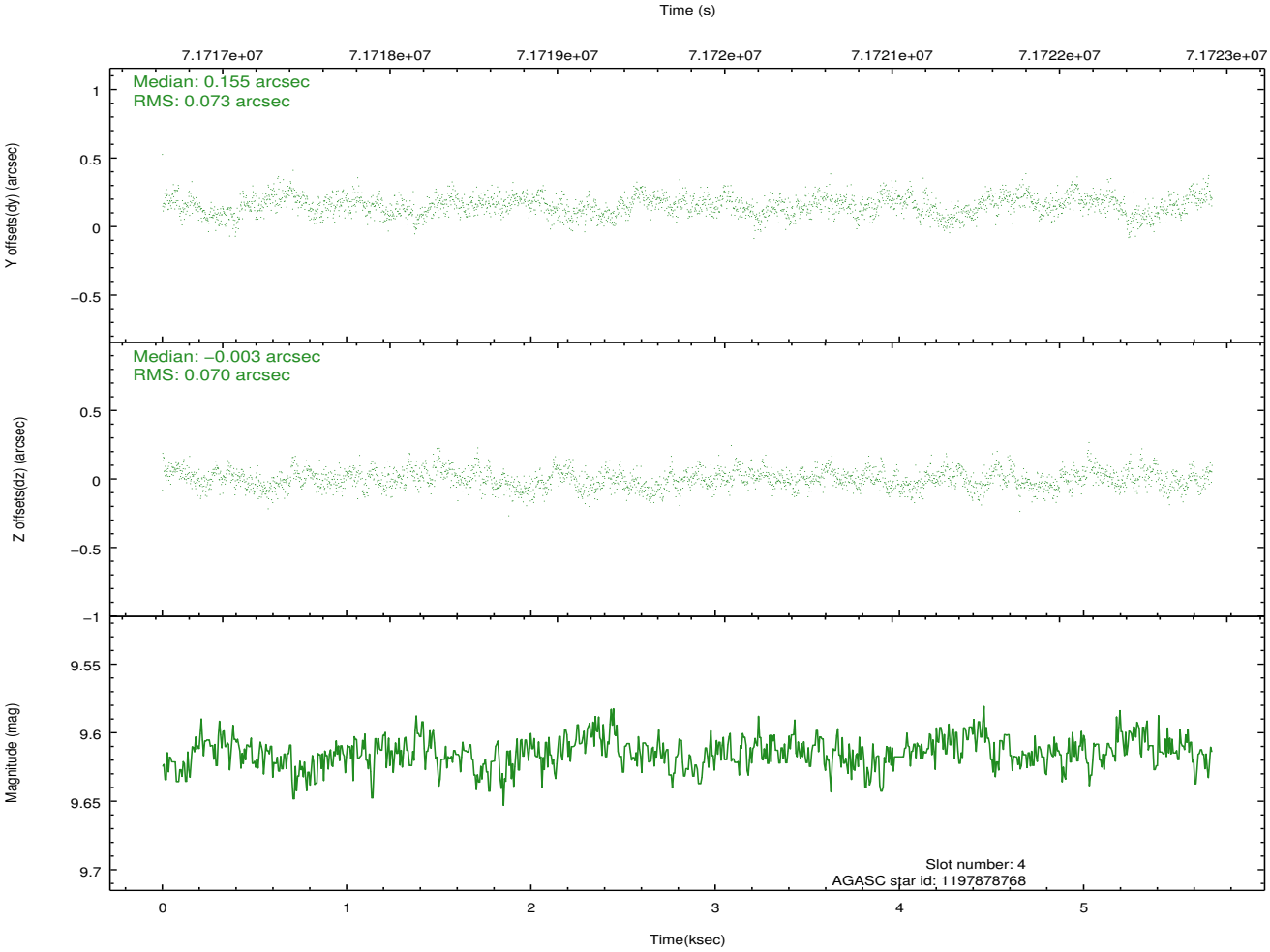




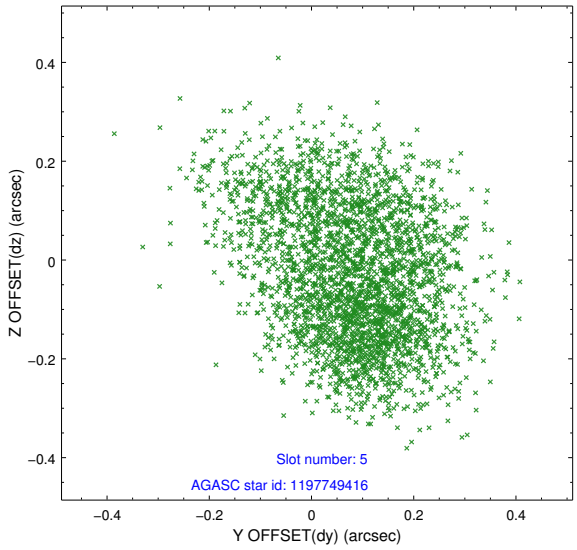
2.4.2 Slot 4

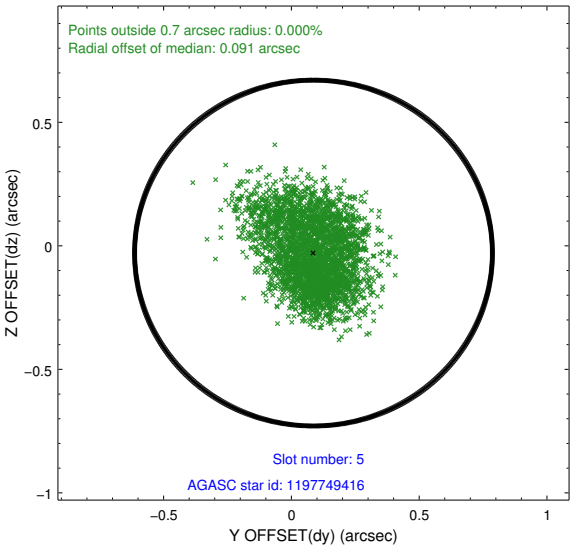

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197878768

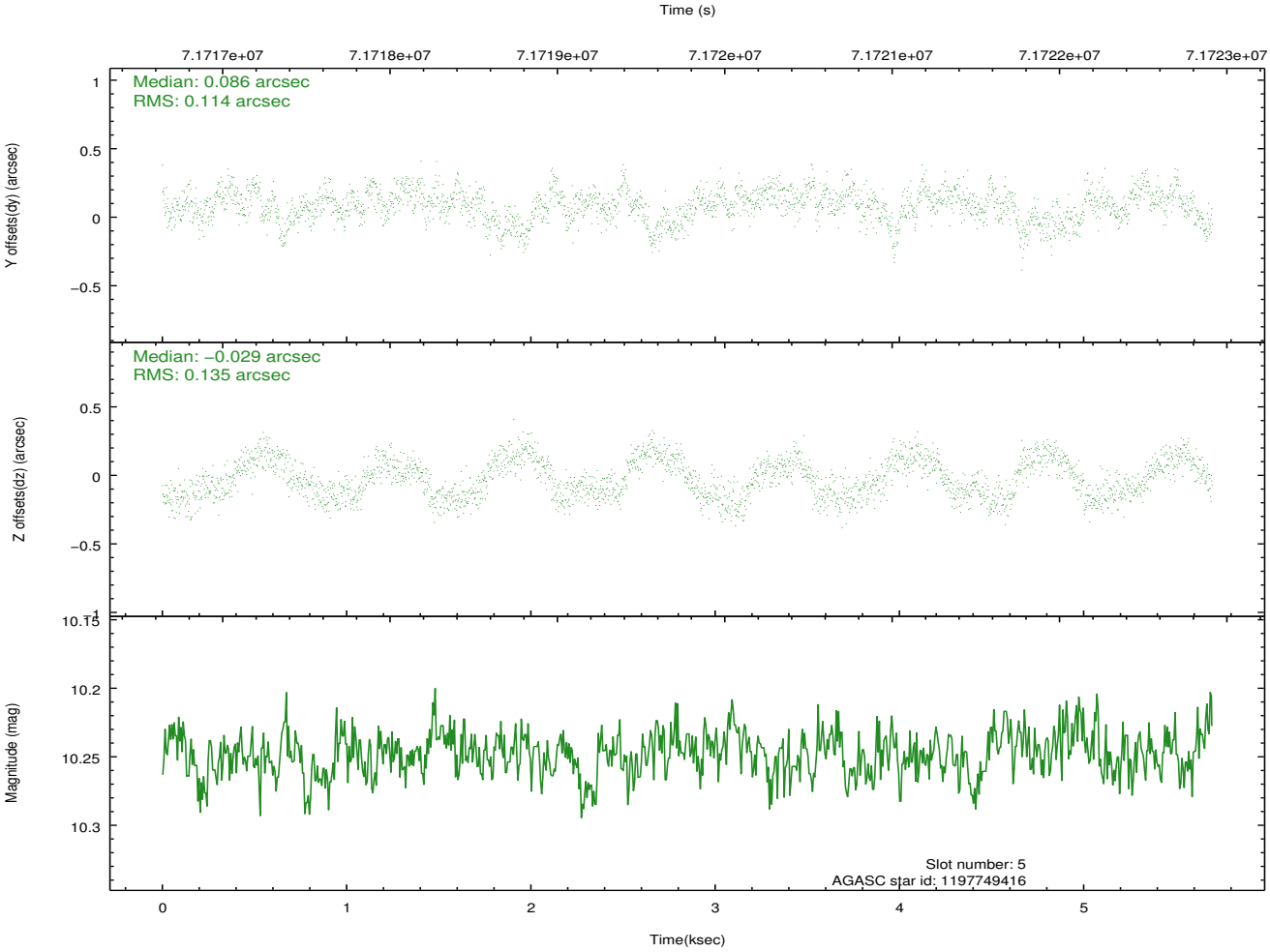

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.155 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197878768


Time (s)
Median: 0.155 arcsec
RMS: 0.073 arcsec
Y offsets(dy) (arcsec)
Median: −0.003 arcsec
RMS: 0.070 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1197878768
Time(ksec)

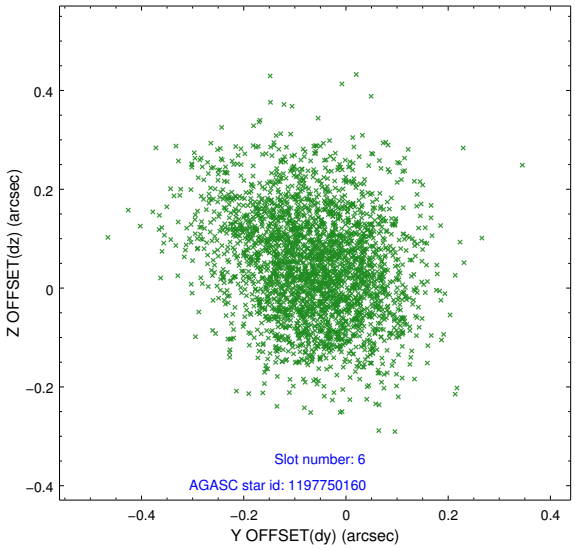
2.4.3 Slot 5

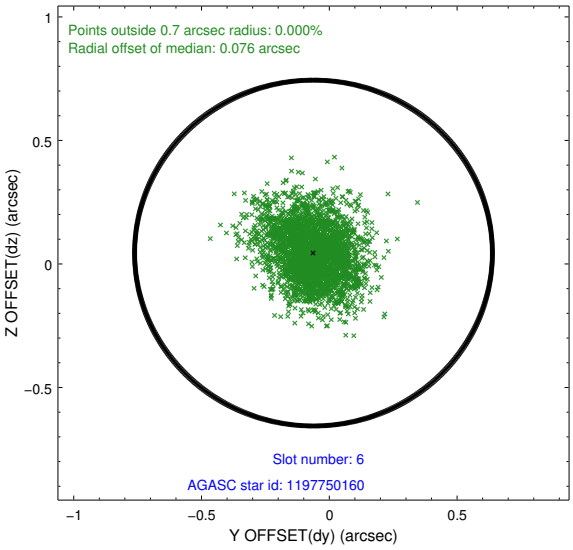

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1197749416

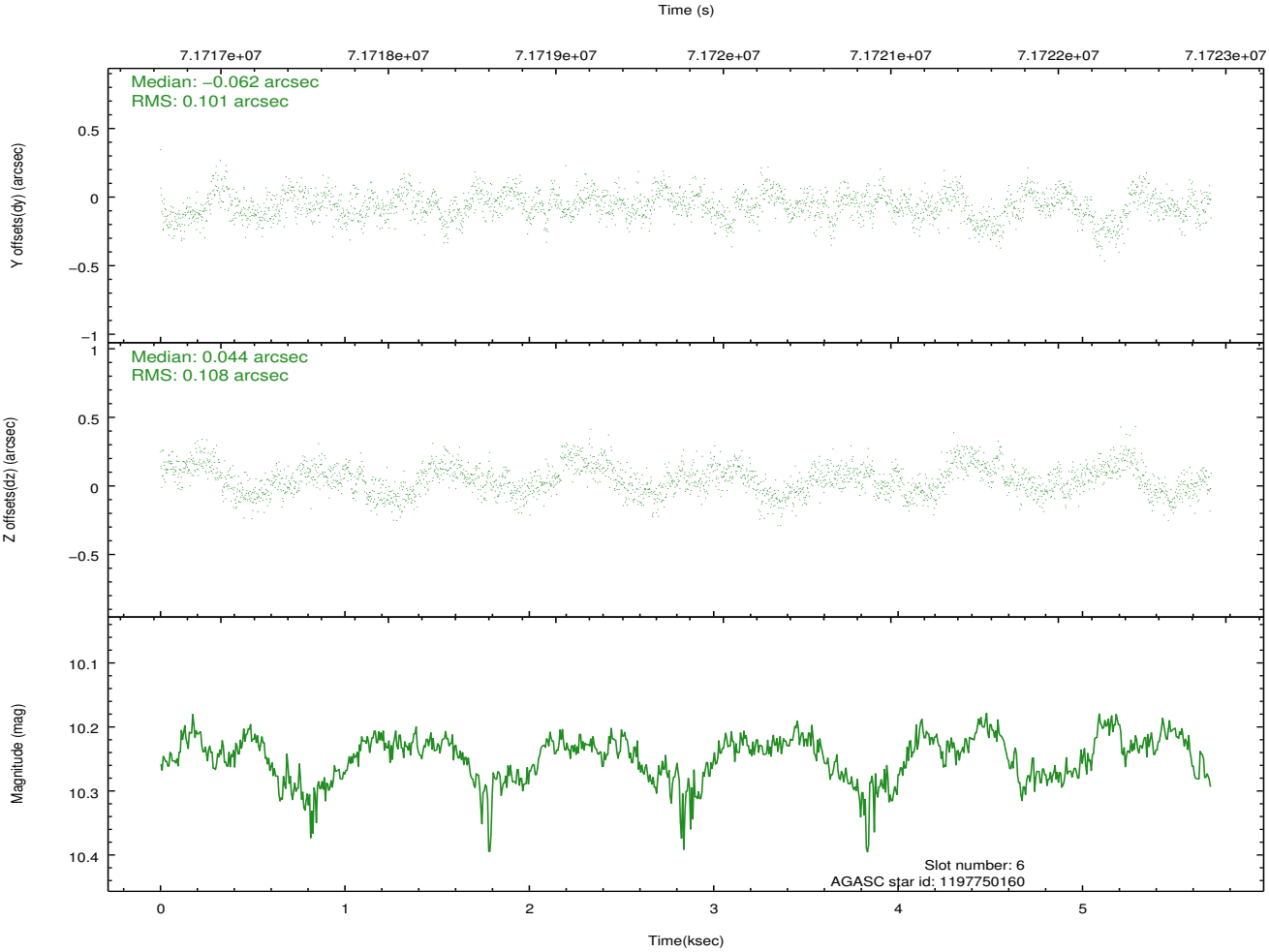

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.091 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1197749416


Time (s)
Median: 0.086 arcsec
RMS: 0.114 arcsec
Y offsets(dy) (arcsec)
Median: −0.029 arcsec
RMS: 0.135 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1197749416
Time(ksec)

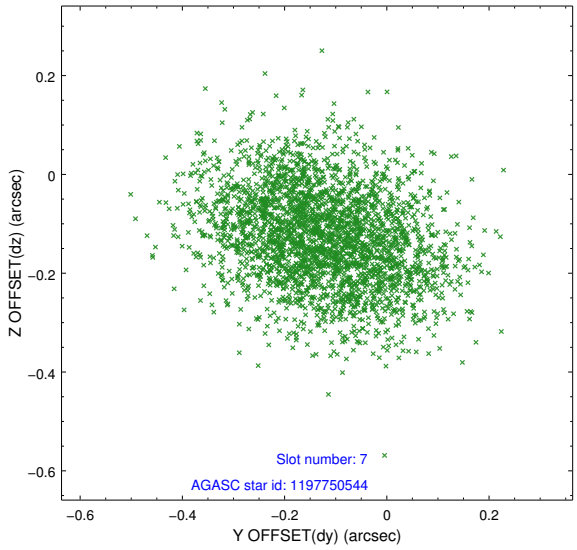
2.4.4 Slot 6

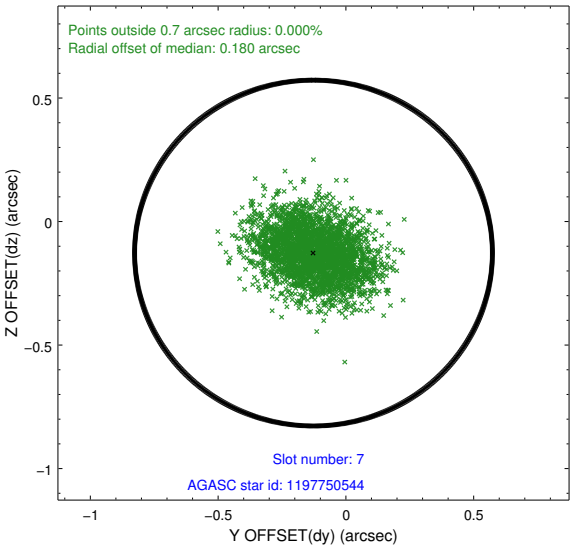

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197750160

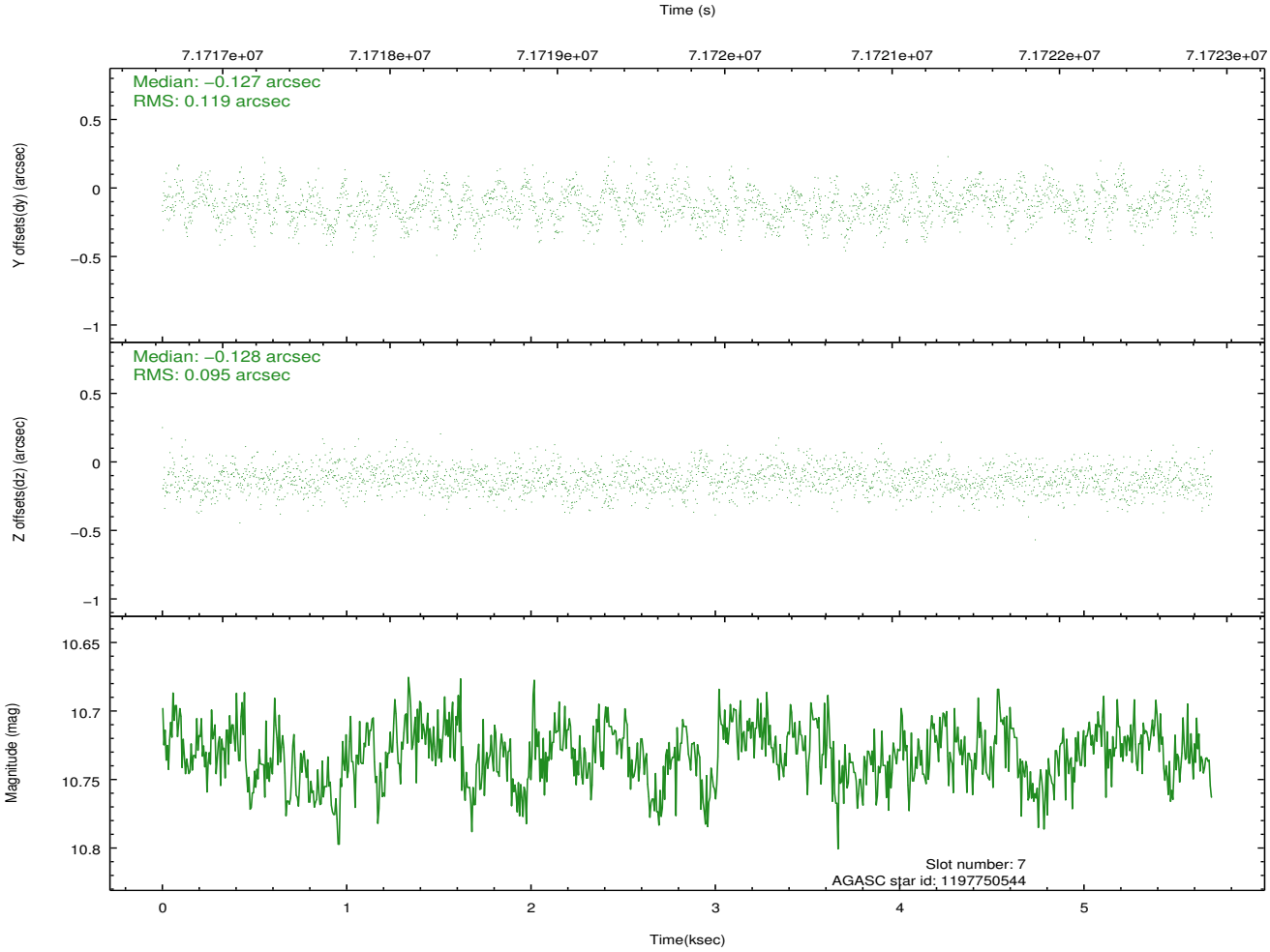

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.076 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197750160


Time (s)
Median: −0.062 arcsec
RMS: 0.101 arcsec
Y offsets(dy) (arcsec)
Median: 0.044 arcsec
RMS: 0.108 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1197750160
Time(ksec)

2.4.5 Slot 7

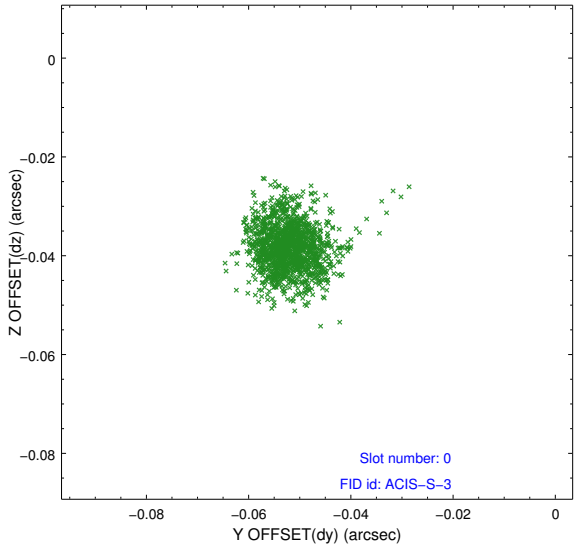

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1197750544

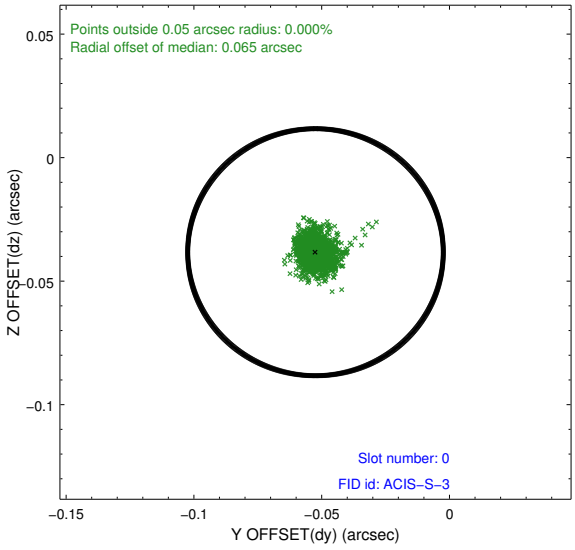

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.180 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 1197750544

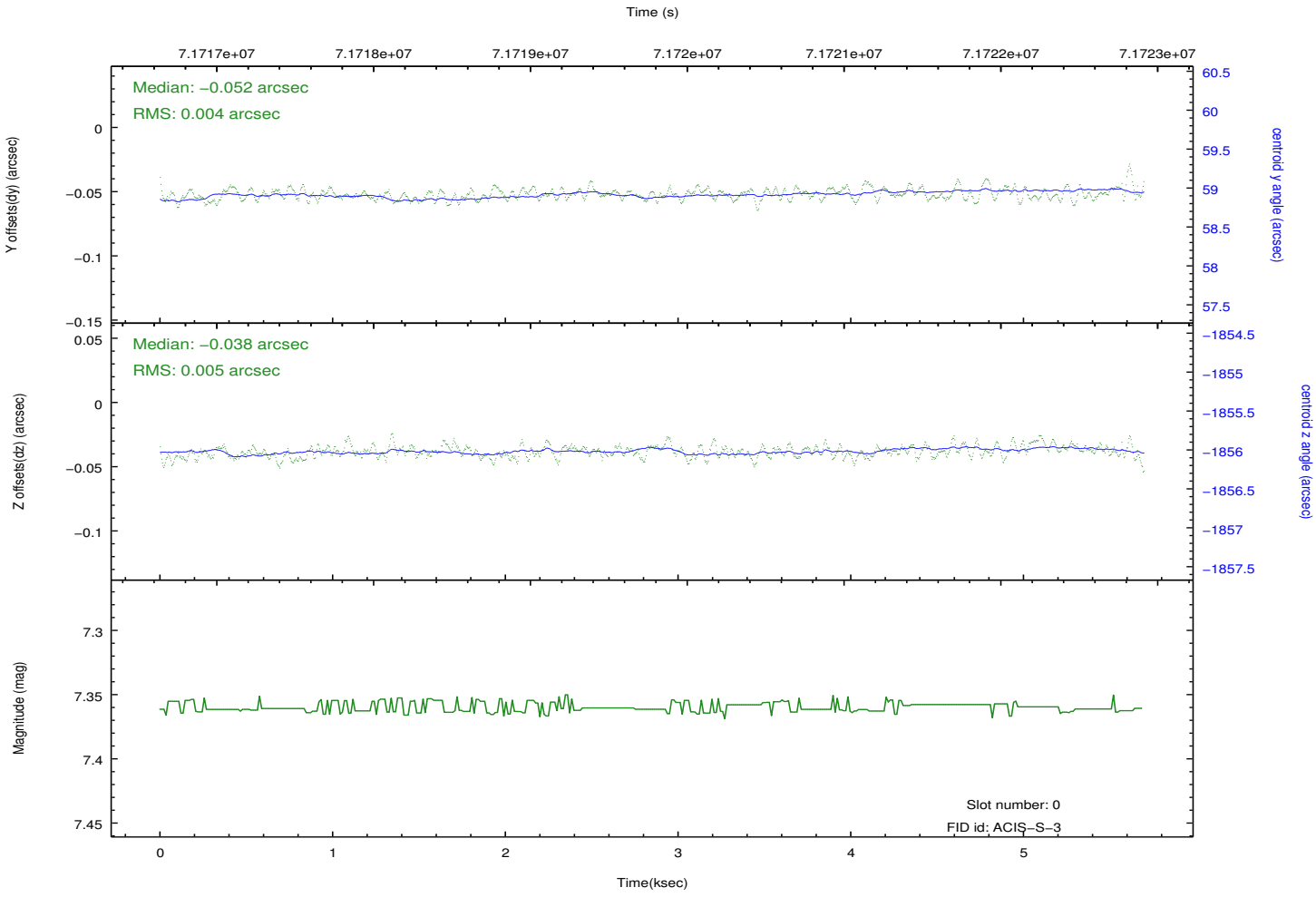

Time (s)
Median: −0.127 arcsec
RMS: 0.119 arcsec
Y offsets(dy) (arcsec)
Median: −0.128 arcsec
RMS: 0.095 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 1197750544
Time(ksec)

2.5 FID Slots

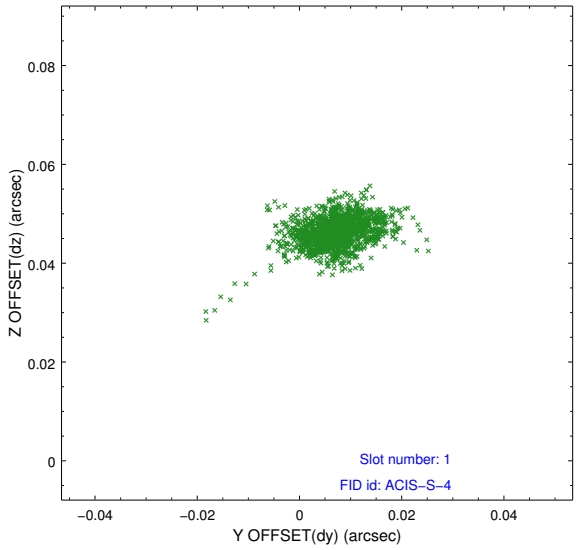
2.5.1 Slot 0

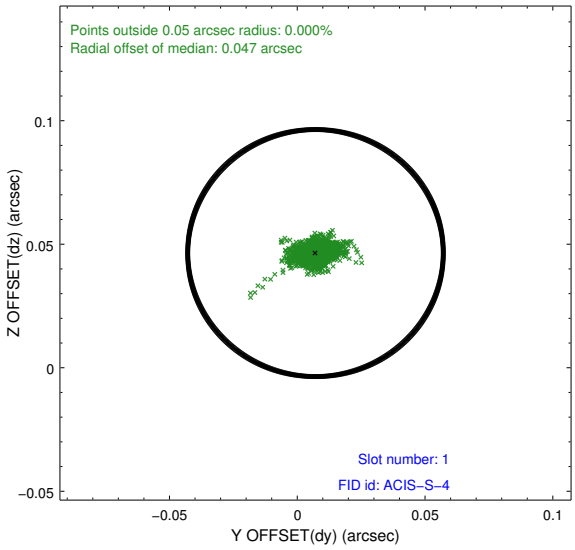


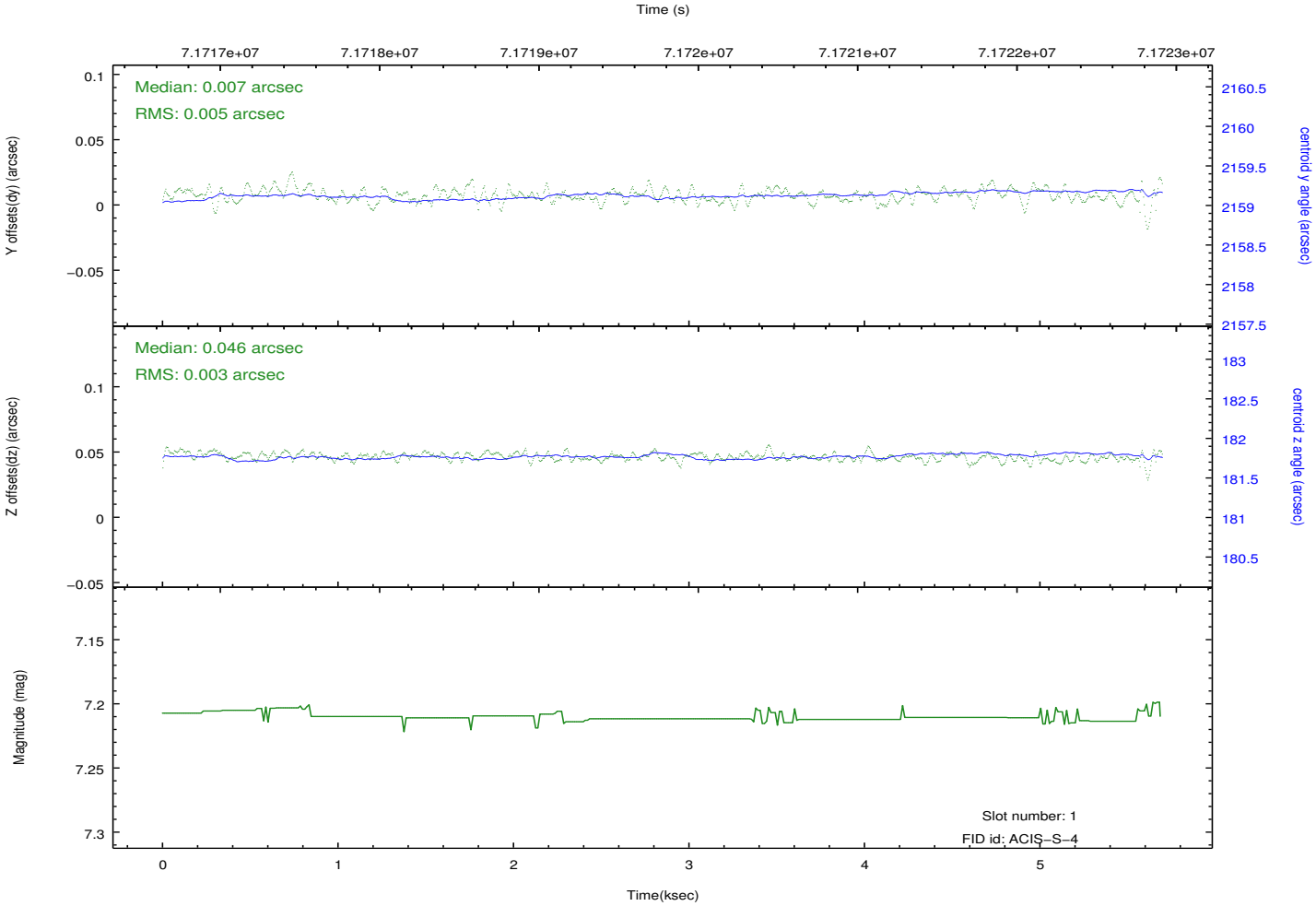




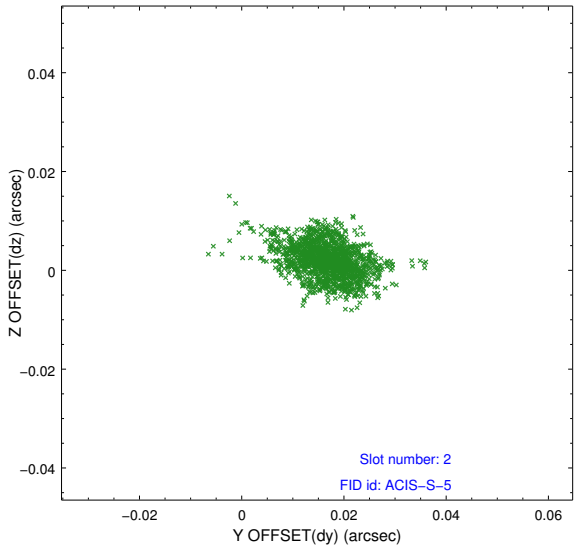
2.5.2 Slot 1

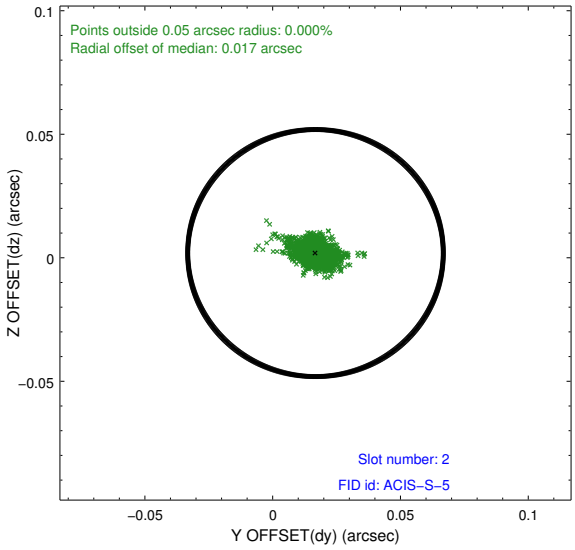

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

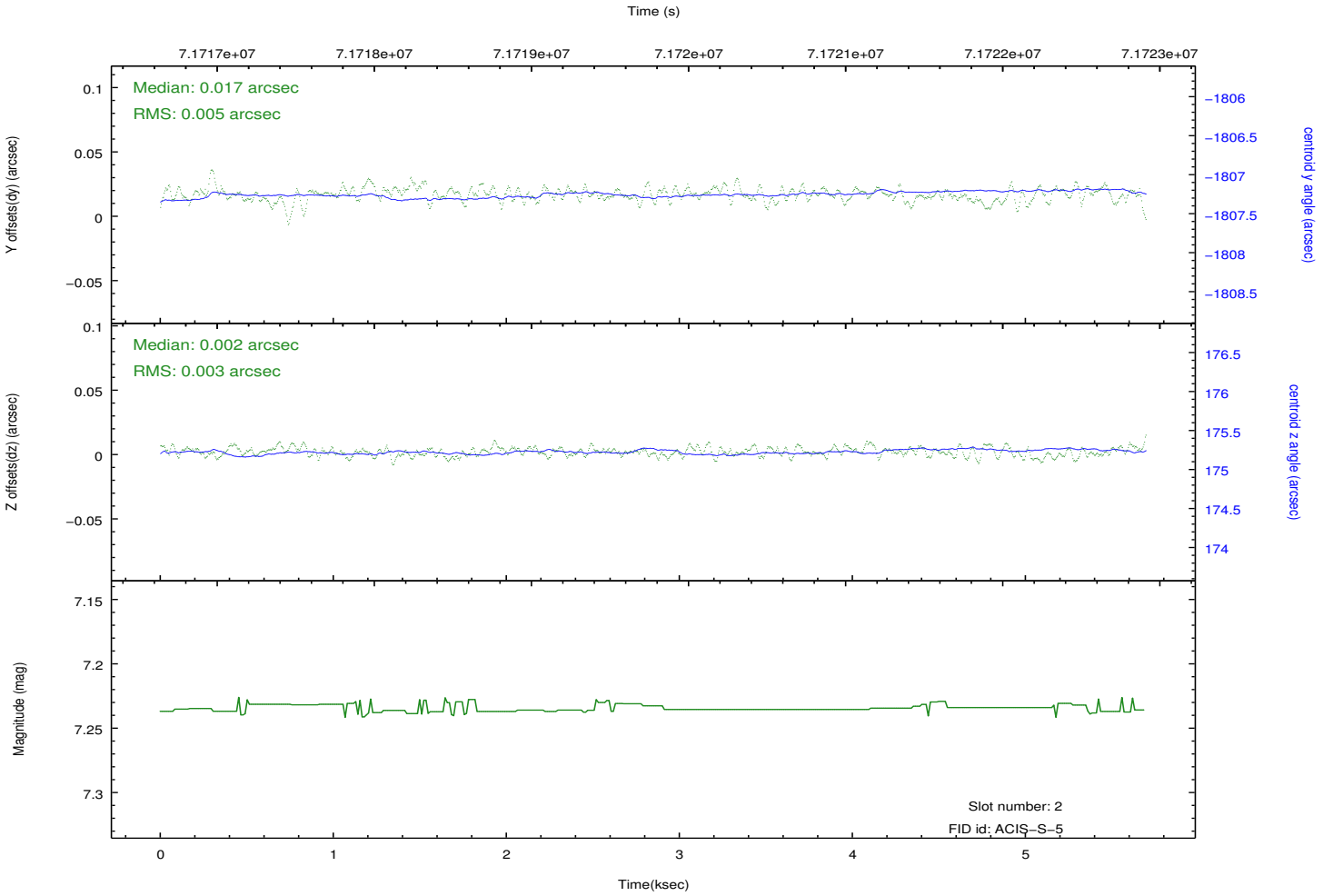

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.047 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.007 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.046 arcsec
RMS: 0.003 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: 0.017 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5

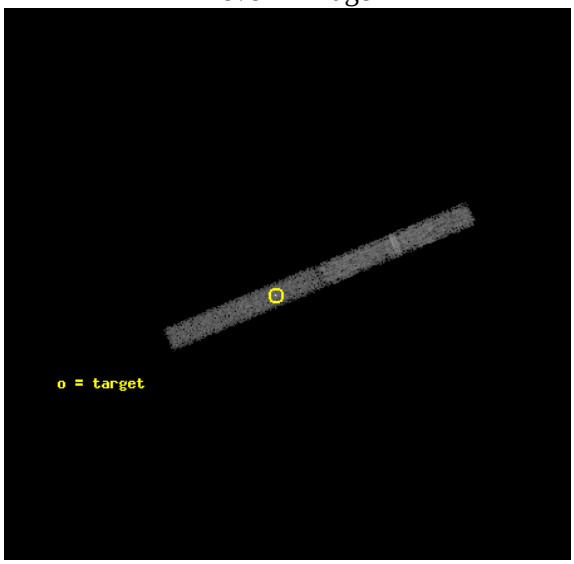

Time (s)
Median: 0.017 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.002 arcsec
RMS: 0.003 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−5
Time(ksec)

3 OBI

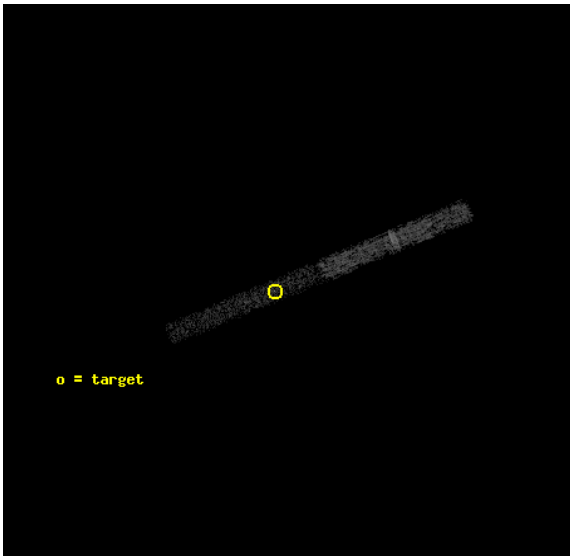
3.1 OBI

3.1.1 Images

Level 1 Image

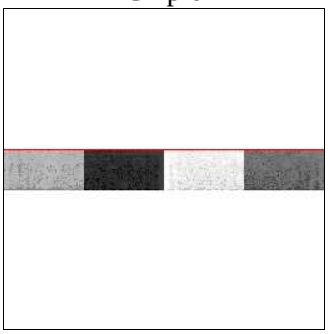


Level 1 Bad Events

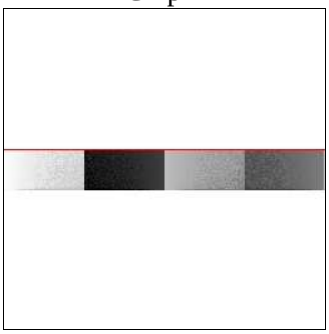


3.1.2 Bias

Chip 6



Chip 7



3.1.3 Parameters

obi_num	2	Obi number
ascdsver	8.4	ASCDS version number
caldbver	4.4.4	
date	2011-07-06T21:25:01	Date and time of file creation
revision	6	Processing version of data

sched_exp_time	8600.000000	Scheduled observation exposure time
ontime	8472.9753803015	Sum of GTIs [s]
ontime6	8472.9343402982	Sum of GTIs [s]
ontime7	8472.9753803015	Sum of GTIs [s]
l1events	25524	Number of level 1 events

3.1.4 Events

	ccd 6	**ccd 7**
level 1 events	13781	11743
rejected events	12592	5279
rejected %	91%	44%

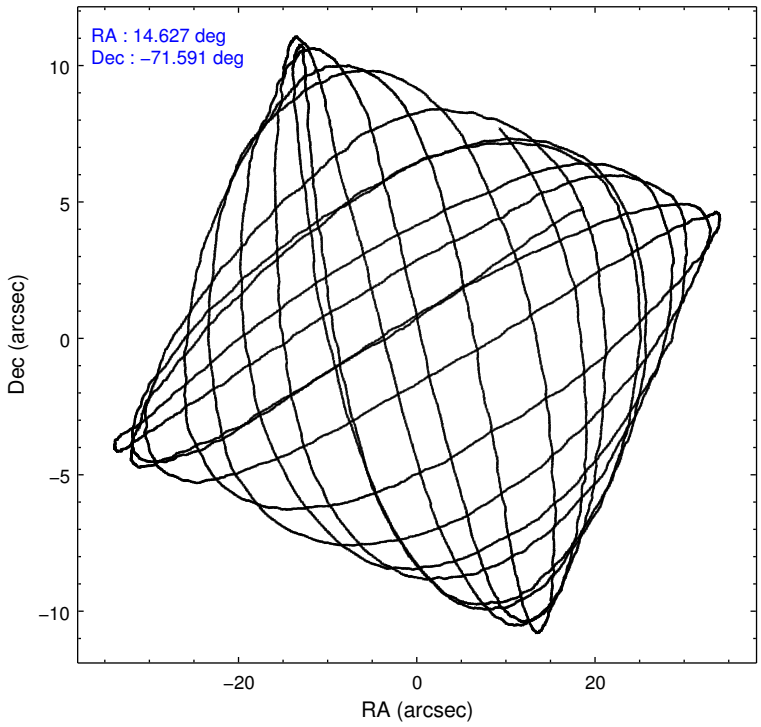
	ccd 6	**ccd 7**
grade 0 events	352	2011
	2%	17%
grade 1 events	5	38
	0%	0%
grade 2 events	162	1046
	1%	8%
grade 3 events	264	674
	1%	5%
grade 4 events	245	669
	1%	5%
grade 5 events	275	952
	1%	8%
grade 6 events	166	2065
	1%	17%
grade 7 events	12312	4288
	89%	36%

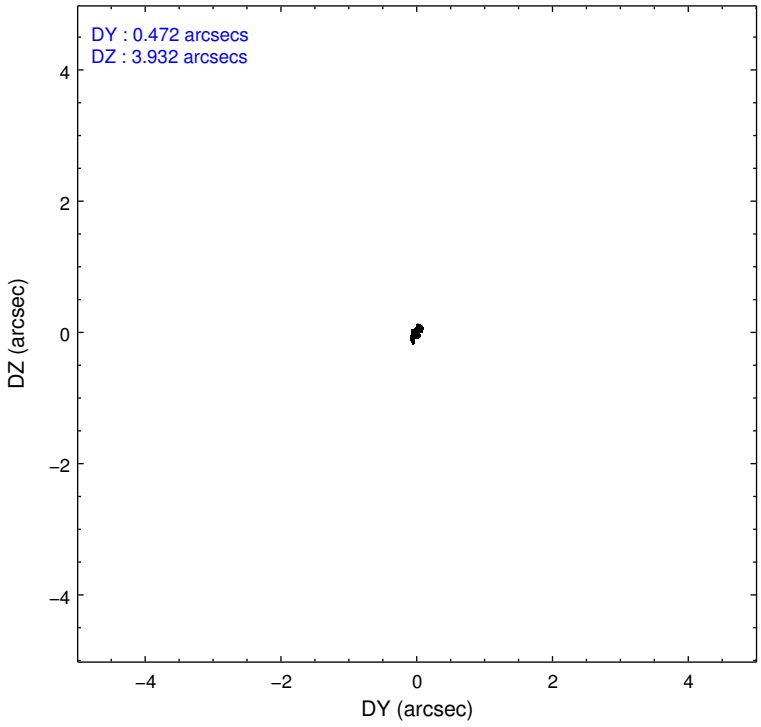
3.2 Compared Parameters

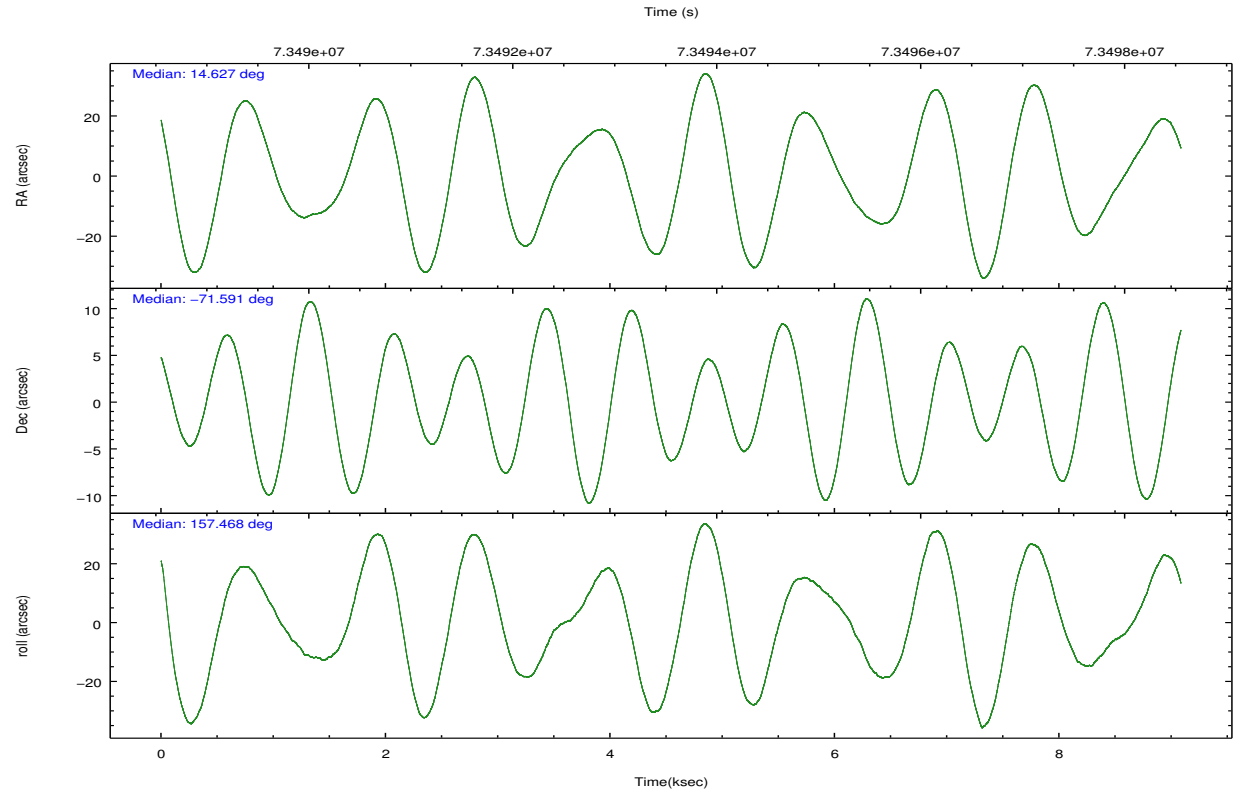
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-67	ACIS-67
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
Pointing RA	14.713698	14.62752415545015
Pointing Dec	-71.587533	-71.59121381052194
Pointing Roll	157.401226	157.476083660261
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-190.132523	-190.1425803651734
SIM translation stage offset (mm)	0	0.01005778216563158
Observation start time	73489496.184000	73488824.269466
Observation start date	2000-04-30T13:43:52	2000-04-30T13:33:44
Observation end time	73498096.184000	73498855.432335
Observation end date	2000-04-30T16:07:12	2000-04-30T16:20:55
Read mode	TIMED	TIMED

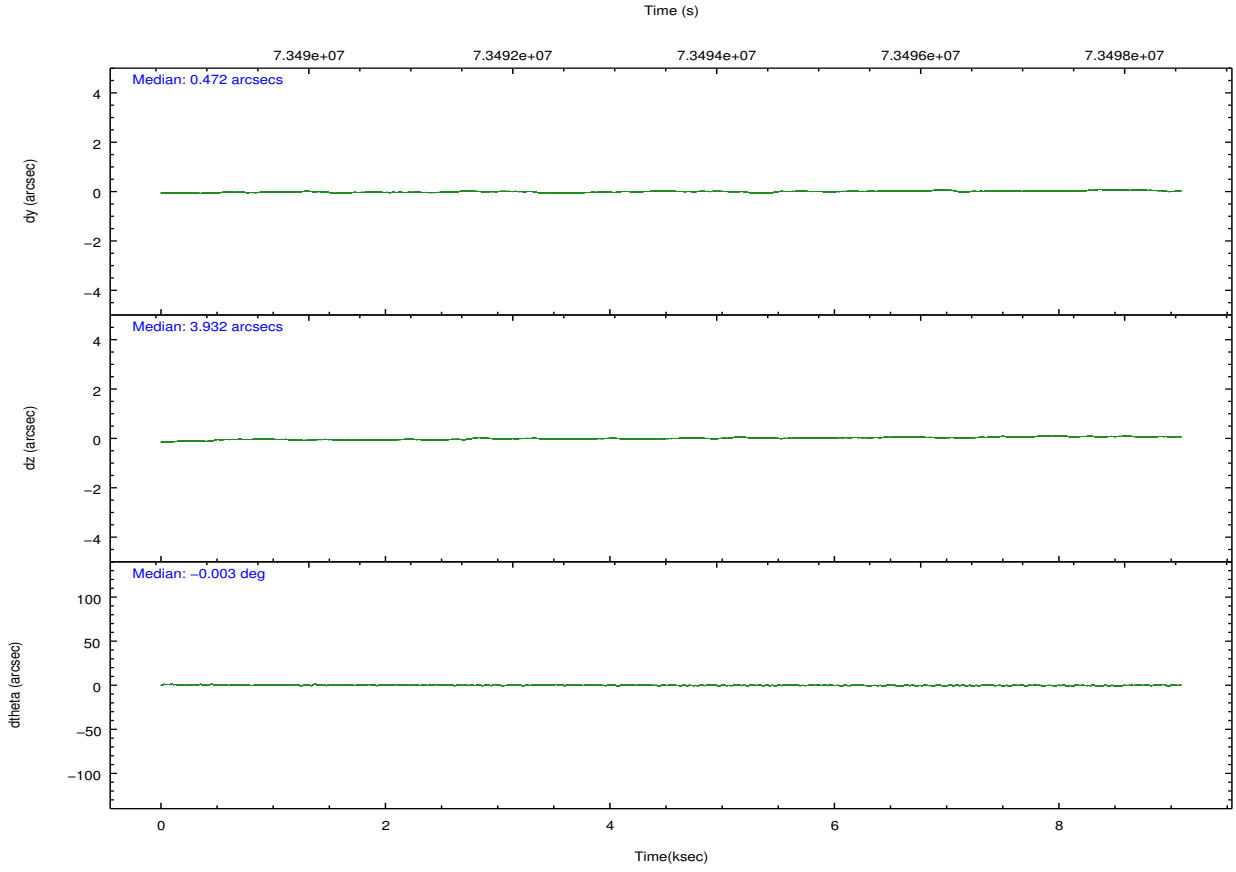
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/8
Subarray start row	448	448
Subarray row count	128	128
Alternating exposures requested	N	N
Primary exposure time	0.000000	0.5

3.3 Aspect


RA : 14.627 deg
Dec : –71.591 deg
10
5
0
–5
–10
Dec (arcsec)
–20
0
20
RA (arcsec)


DY : 0.472 arcsecs
DZ : 3.932 arcsecs
4
2
0
–2
–4
DZ (arcsec)
–4
–2
0
2
4
DY (arcsec)


Time (s)
7.349e+07
7.3492e+07
7.3494e+07
7.3496e+07
7.3498e+07
Median: 14.627 deg
RA (arcsec)
Median: −71.591 deg
Dec (arcsec)
Median: 157.468 deg
roll (arcsec)
Time(ksec)

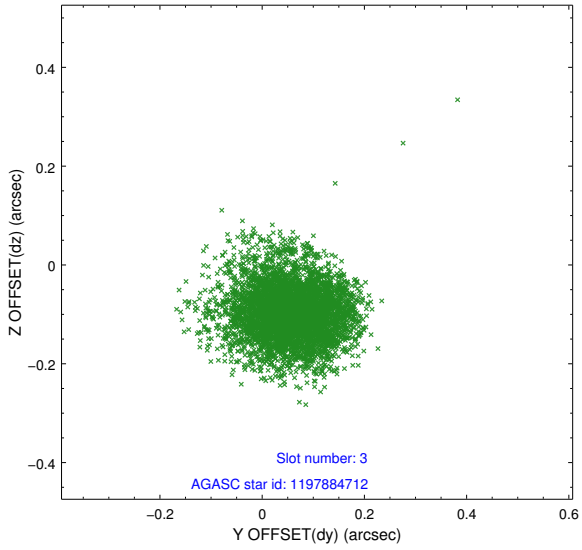

Time (s)
7.349e+07
7.3492e+07
7.3494e+07
7.3496e+07
7.3498e+07
Median: 0.472 arcsecs
dy (arcsec)
Median: 3.932 arcsecs
dz (arcsec)
Median: −0.003 deg
dtheta (arcsec)
Time(ksec)

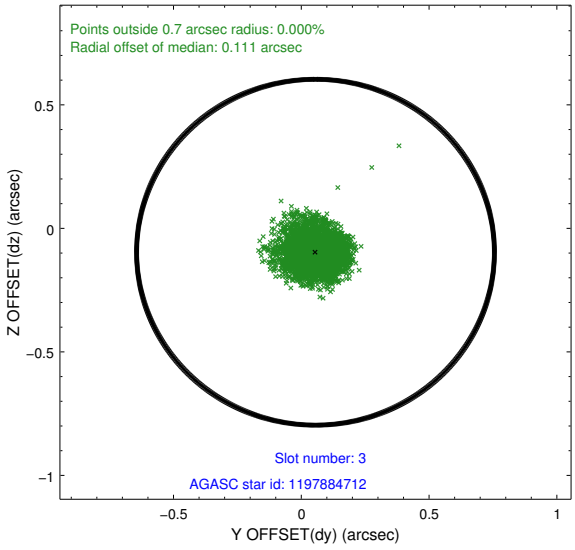
Slot Statistics

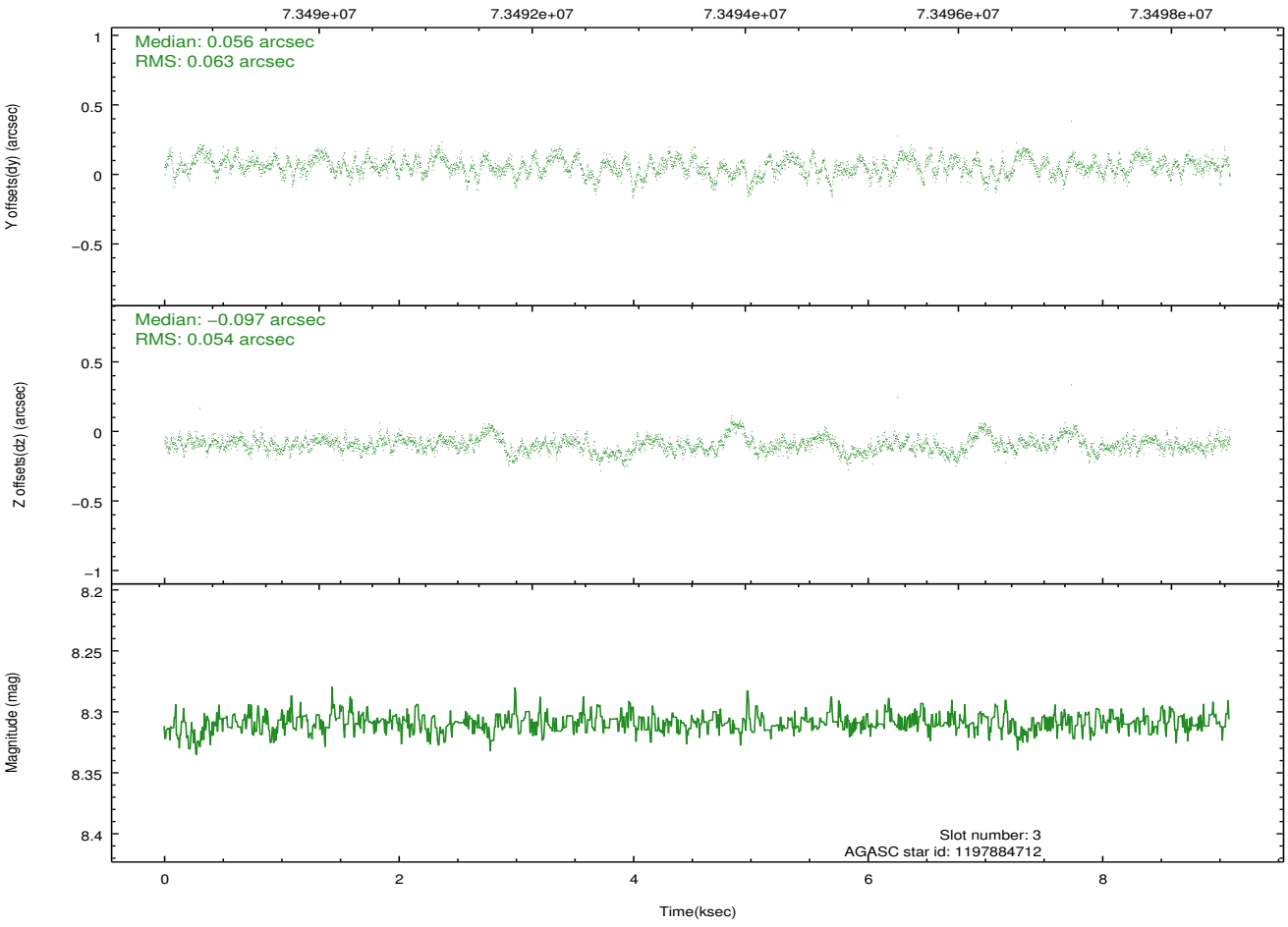
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-3	7.36	1390	-0.052	-0.038	0.007	0.011	0.000000	0.000000	58.92	-1856.02
1	FID	ACIS-S-4	7.21	1390	0.007	0.046	0.006	0.011	0.000000	0.000000	2159.17	180.43
2	FID	ACIS-S-5	7.24	1390	0.017	0.002	0.006	0.011	0.000000	0.000000	-1805.70	175.35
3	GUIDE	1197877312	7.94	2780	-0.044	0.109	0.082	0.134	16.362782	-70.933298	-1777.64	-2447.73
4	GUIDE	1197878768	9.62	2778	0.155	-0.003	0.107	0.175	16.656786	-71.304581	-2179.76	-1128.66
5	GUIDE	1197749416	10.25	2779	0.086	-0.029	0.190	0.295	13.610513	-71.871242	1138.42	1139.53
6	GUIDE	1197750160	10.24	2779	-0.062	0.044	0.156	0.258	12.997994	-71.773722	1858.33	858.08
7	GUIDE	1197750544	10.73	2773	-0.127	-0.128	0.161	0.264	13.428125	-72.143881	1249.44	2136.38

3.4 Star Slots

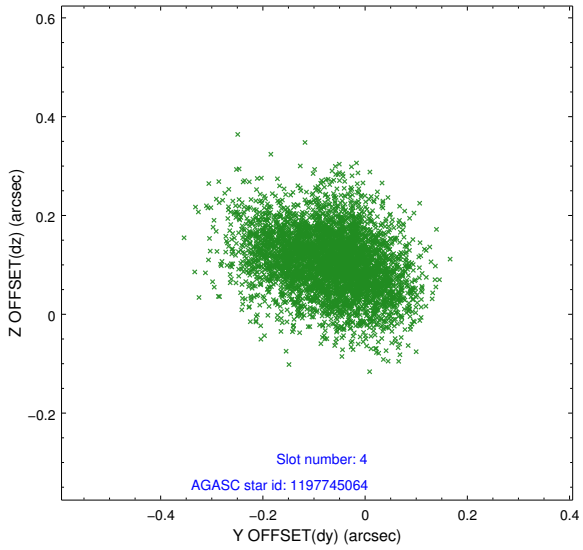
3.4.1 Slot 3

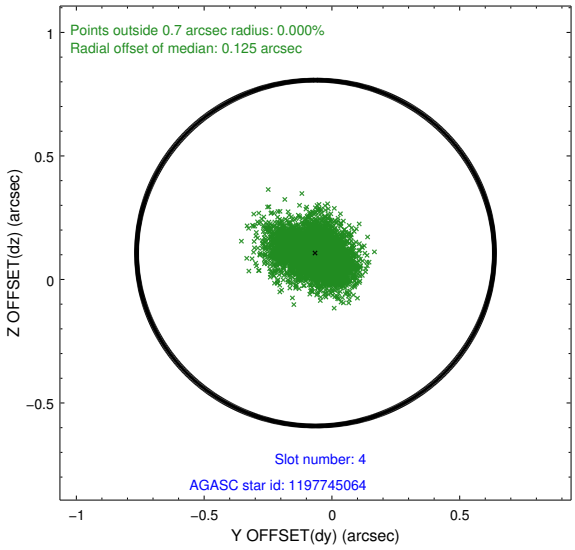


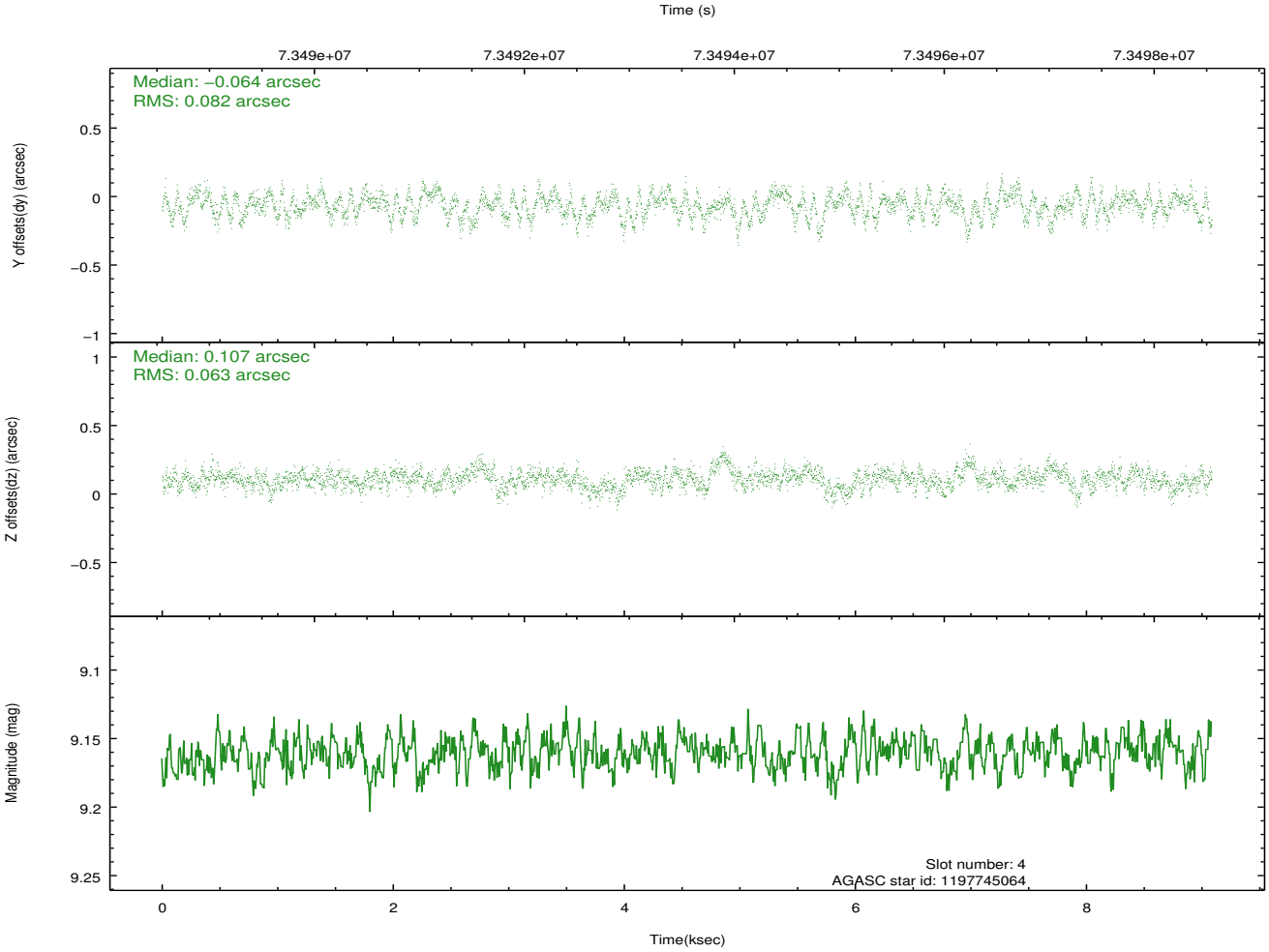




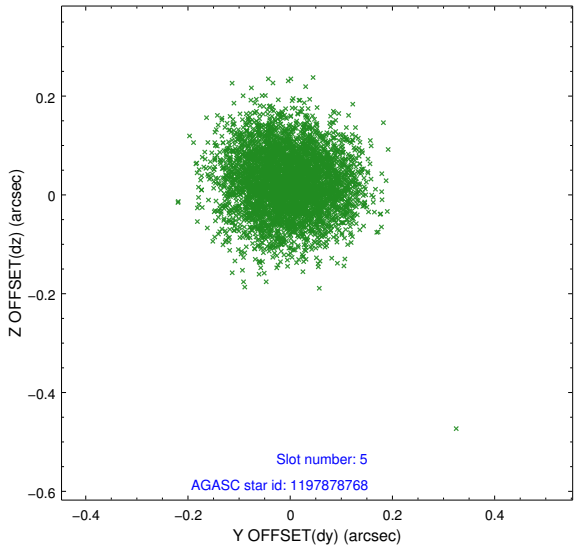
3.4.2 Slot 4

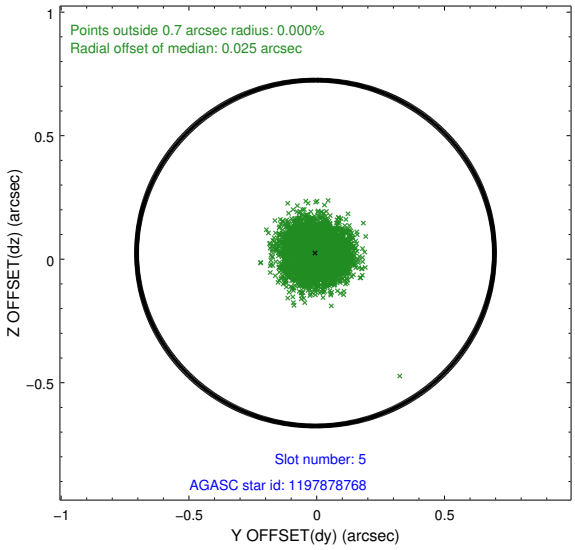

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197745064

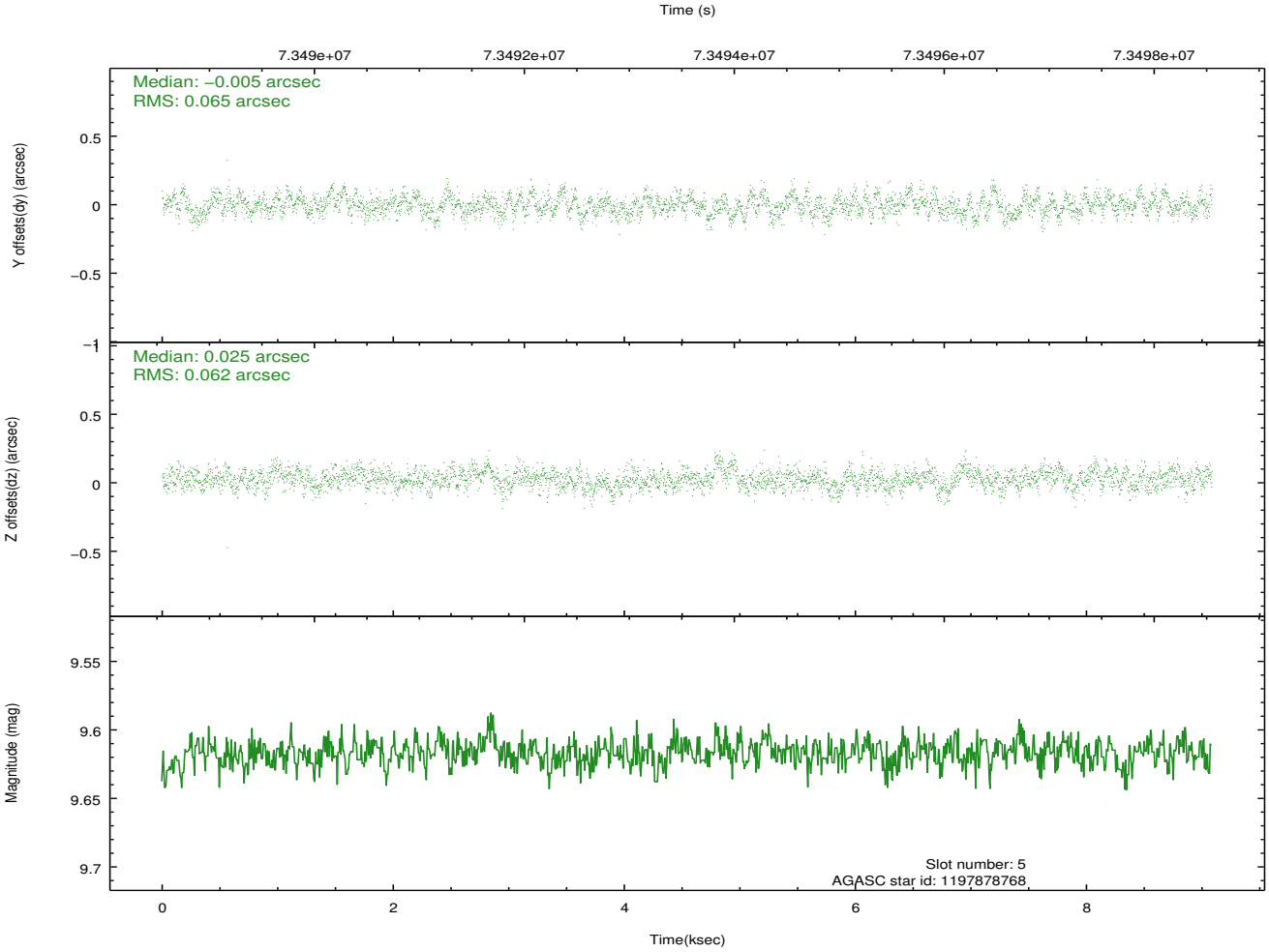

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.125 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 1197745064


Time (s)
Median: −0.064 arcsec
RMS: 0.082 arcsec
Y offsets(dy) (arcsec)
Median: 0.107 arcsec
RMS: 0.063 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 1197745064
Time(ksec)

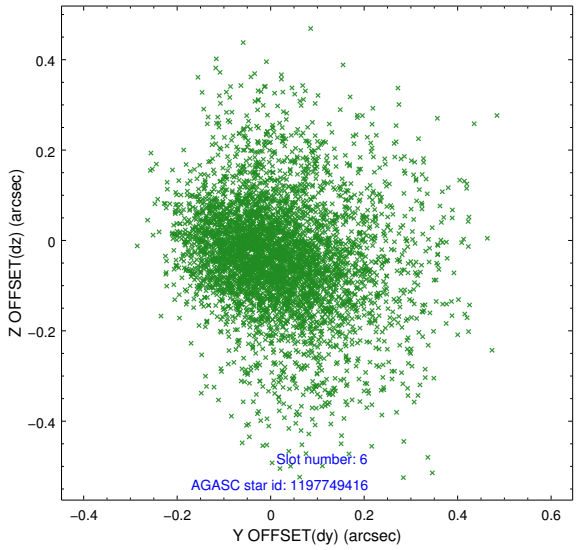
3.4.3 Slot 5

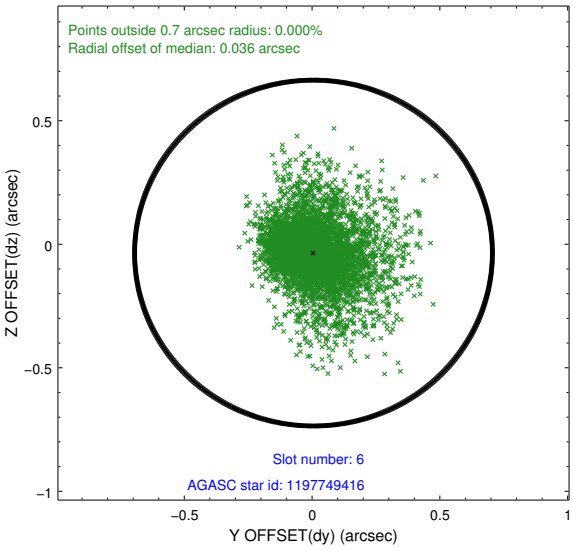

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1197878768

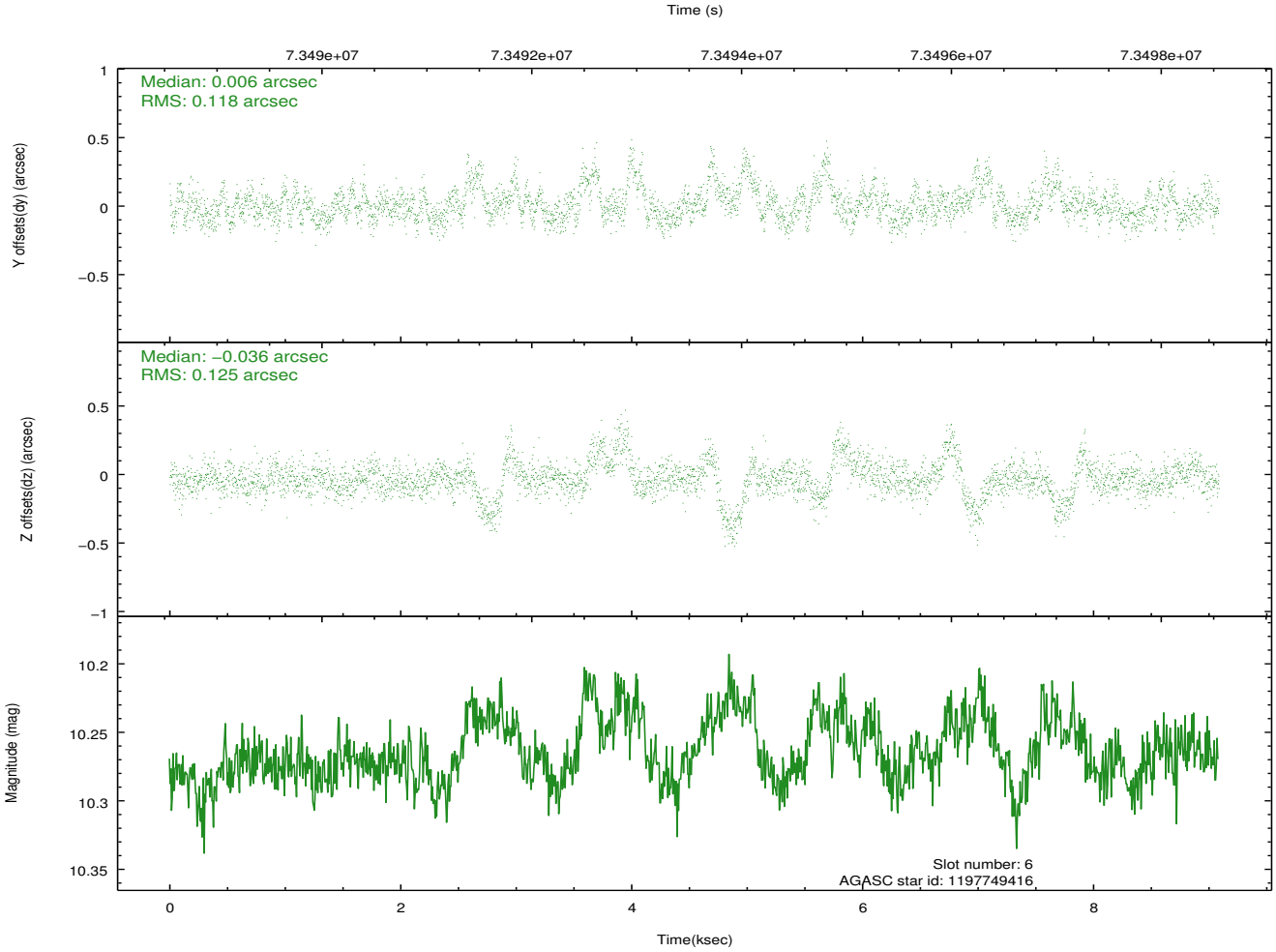

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.025 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 1197878768


Time (s)
Median: −0.005 arcsec
RMS: 0.065 arcsec
Y offsets(dy) (arcsec)
Median: 0.025 arcsec
RMS: 0.062 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 1197878768
Time(ksec)

3.4.4 Slot 6

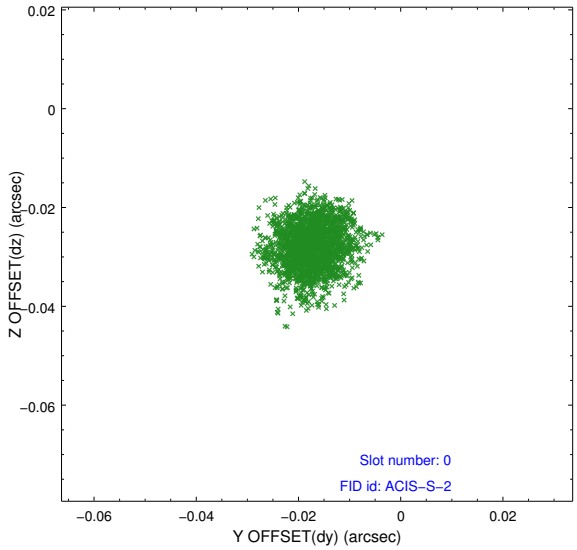

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197749416

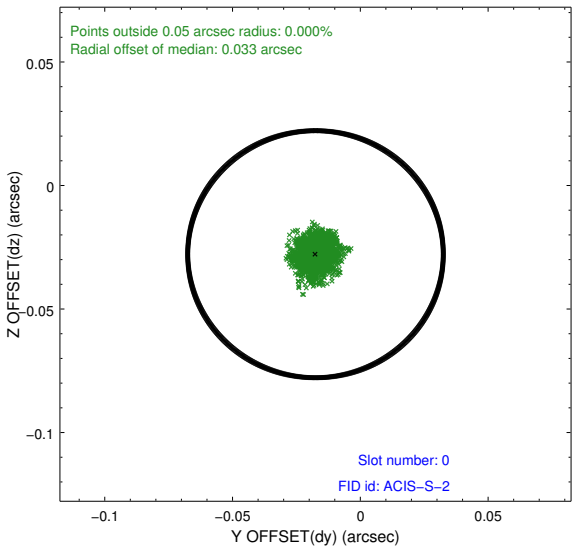

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.036 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 1197749416

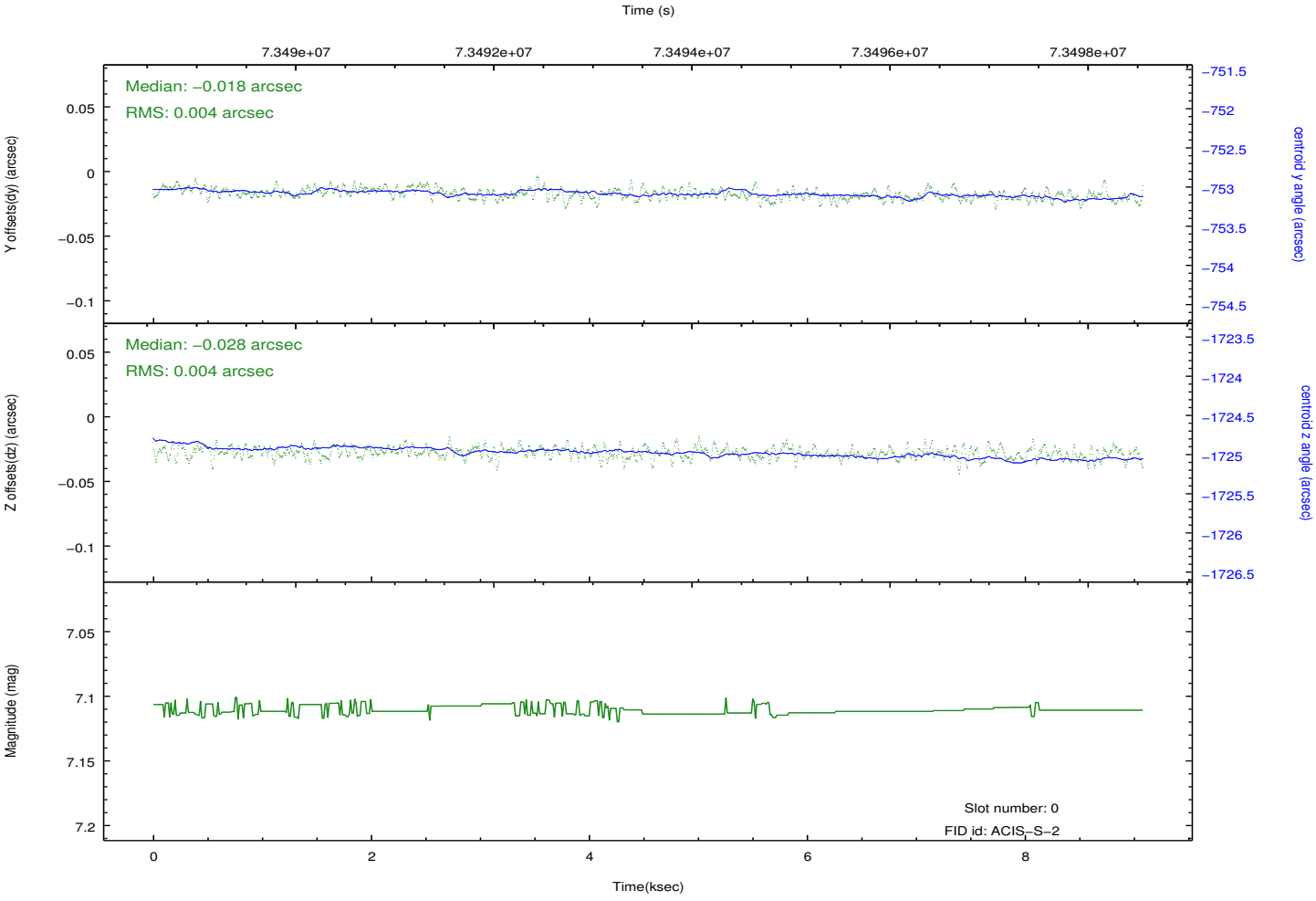

Time (s)
Median: 0.006 arcsec
RMS: 0.118 arcsec
Y offsets(dy) (arcsec)
Median: −0.036 arcsec
RMS: 0.125 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 1197749416
Time(ksec)

3.5 FID Slots

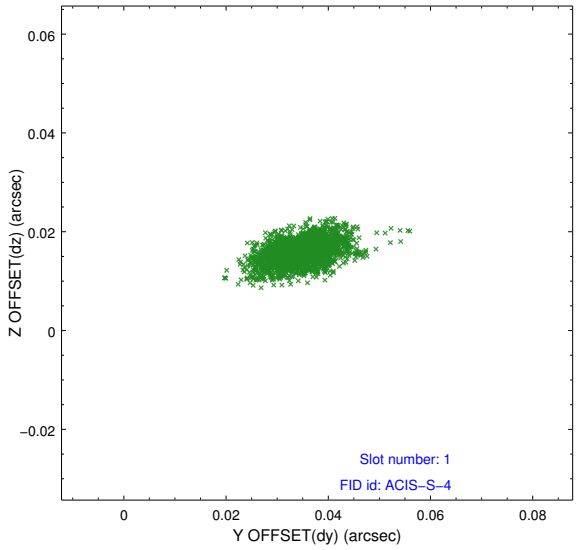
3.5.1 Slot 0

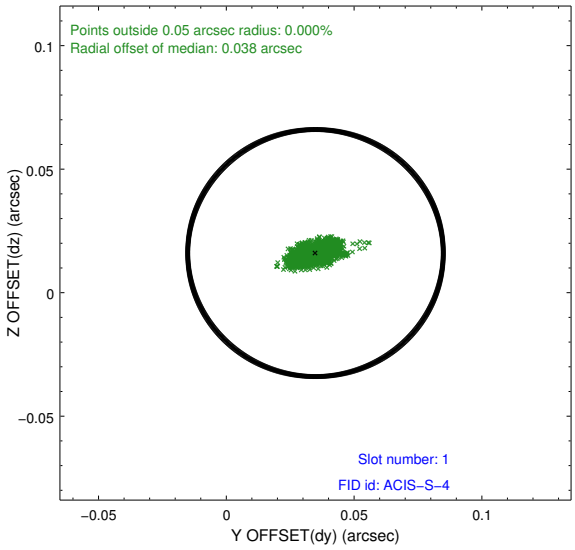


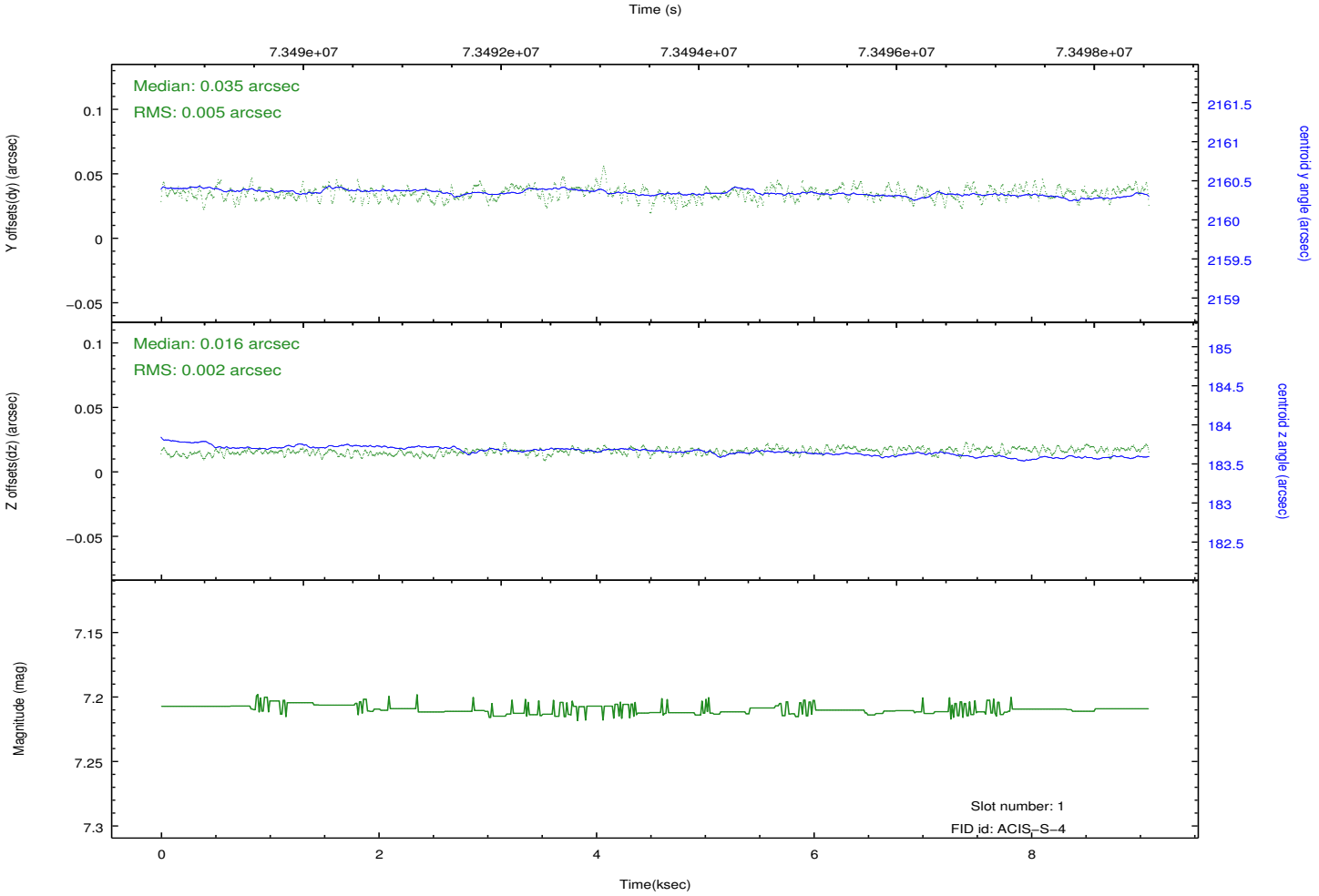




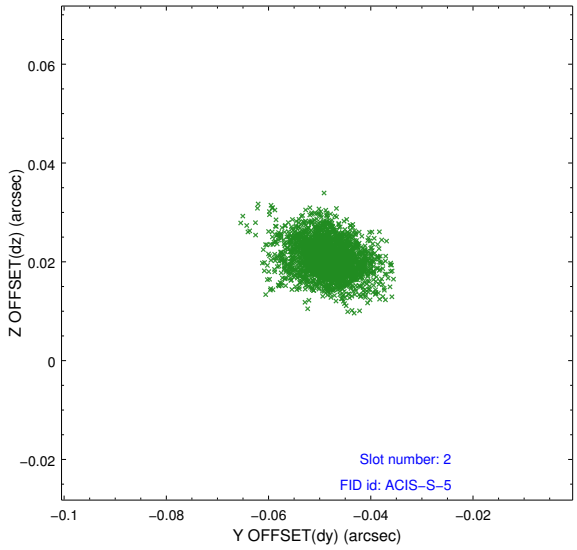
3.5.2 Slot 1

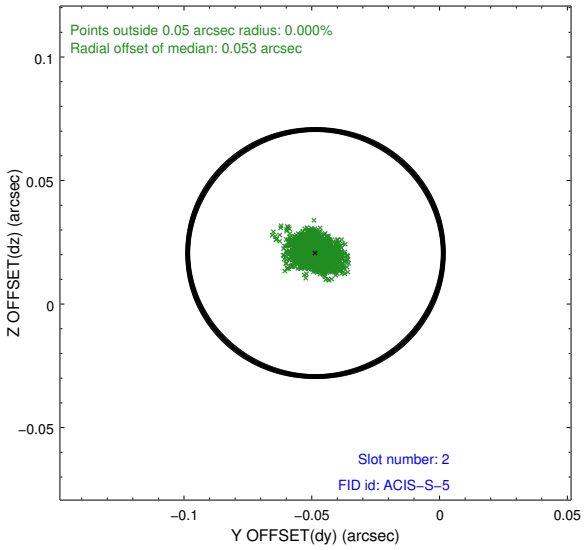

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

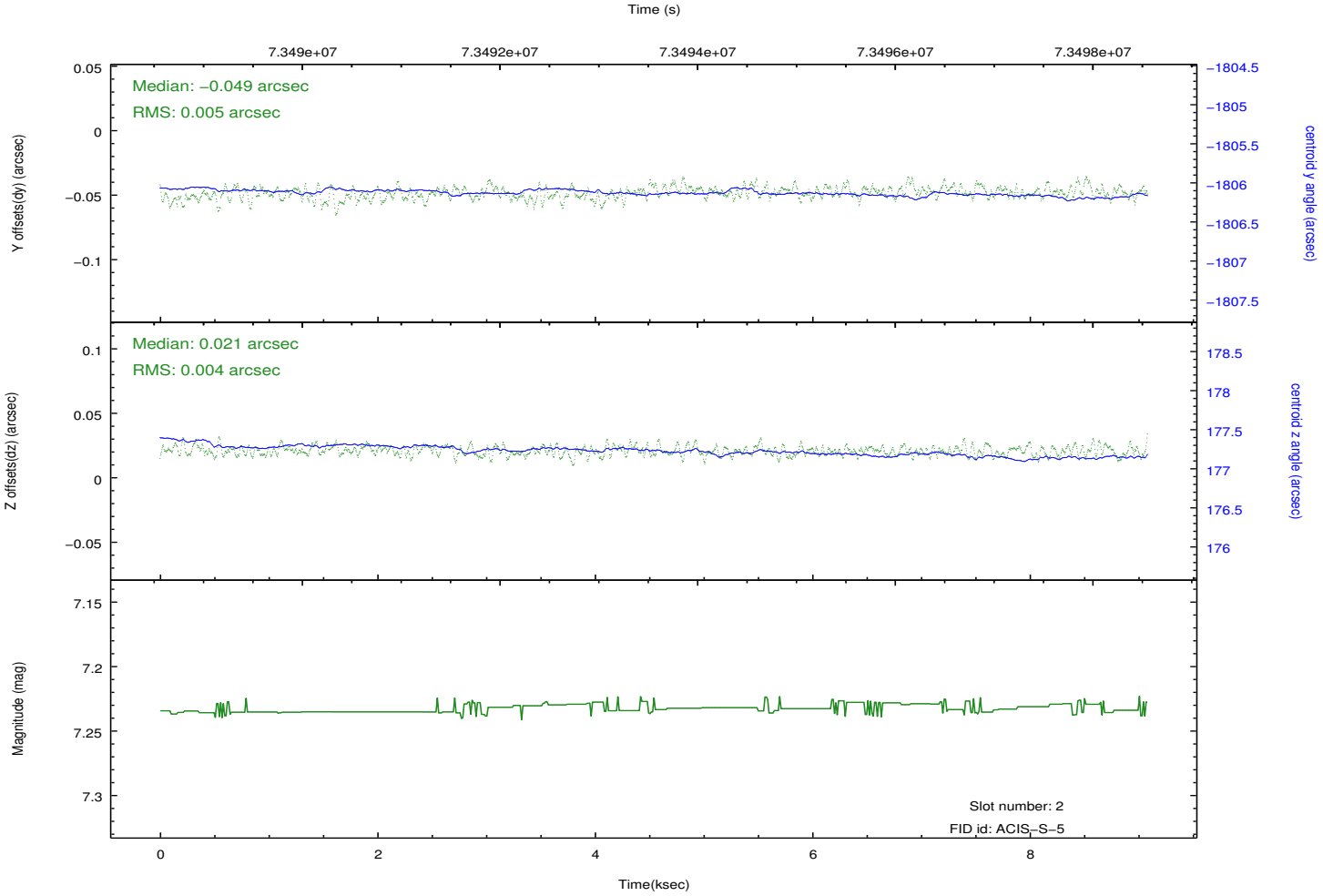

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.038 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.035 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.016 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)

3.5.3 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: 0.053 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.049 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.021 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	Joy Nichols
V&V Date (YYYY-MM-DD)	2011.07.20
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	14.17

A.2 Comments

```
The guide star in slot 7 for obi=2 was eliminated from the aspect
solution
for that observation because of poor data quality. Four guide stars
were
used in the aspect solution for obi=2, but all five guide stars were
good
quality and used in the aspect solution for obi=1.
```