V&V Reference Report
L2 ASCDS Version : 10.8

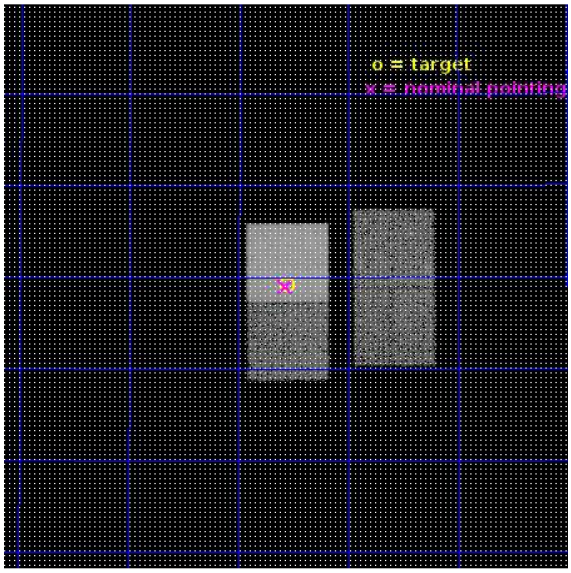
Observation 21398 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Sep 26 2019

Contents

1 Front

seq_num	703696	Sequence number
obs_id	21398	Observation id
title	COMPLETING THE CHANDRA EXTRAGALACTIC 3CR SURVEY	Proposal title
observer	Francesco Massaro	Principal investigator
object	3CR 280.1	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	195.13875	Observer's specified target RA [deg]
dec_targ	40.152139	Observer's specified target Dec [deg]
ra_nom	195.14394913922	Nominal RA [deg]
dec_nom	40.149386299286	Nominal Dec [deg]
roll_nom	269.70247227507	Nominal Roll [deg]
revision	2	Processing version of data
ontime	17067.831475735	Sum of GTIs [s]
livetime	16844.827692349	Livetime [s]
ontime2	17067.708355784	Sum of GTIs [s]
ontime3	17064.608415365	Sum of GTIs [s]
ontime6	17055.226284504	Sum of GTIs [s]
ontime7	17067.831475735	Sum of GTIs [s]
l2events	106920	Number of level 2 events

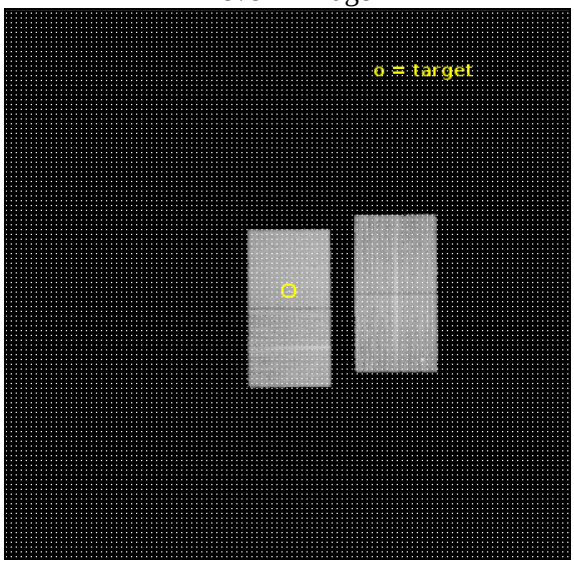


2 OBI

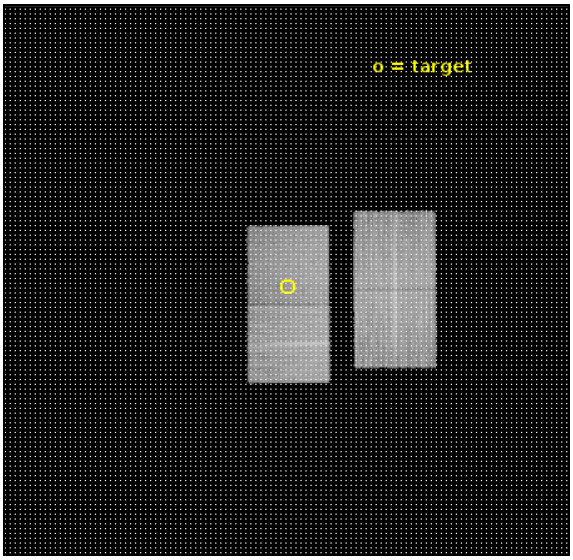
2.1 OBI

2.1.1 Images

Level 1 Image

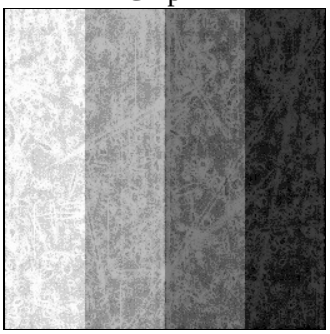


Level 1 Bad Events

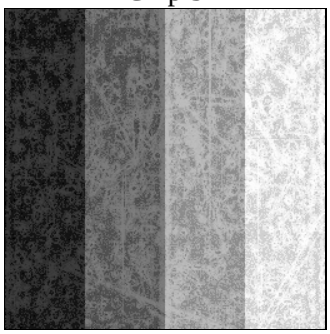


2.1.2 Bias

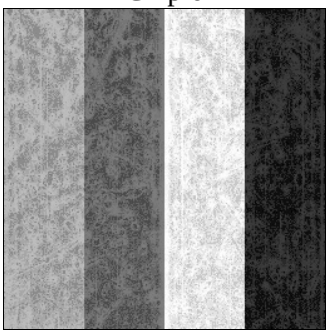
Chip 2



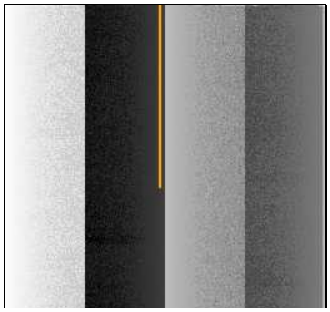
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.8	Processing system revision
caldbver	4.8.4.1	
date	2019-09-26T16:27:57	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	17000.000000	[s] Scheduled observation exposure time
ontime	17067.831475735	Sum of GTIs [s]
ontime2	17067.708355784	Sum of GTIs [s]
ontime3	17064.608415365	Sum of GTIs [s]
ontime6	17055.226284504	Sum of GTIs [s]
ontime7	17067.831475735	Sum of GTIs [s]
l1events	568093	Number of level 1 events

2.1.4 Events

	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	135139	127052	138365	167537
rejected events	121003	113602	123521	95034
rejected %	89%	89%	89%	56%

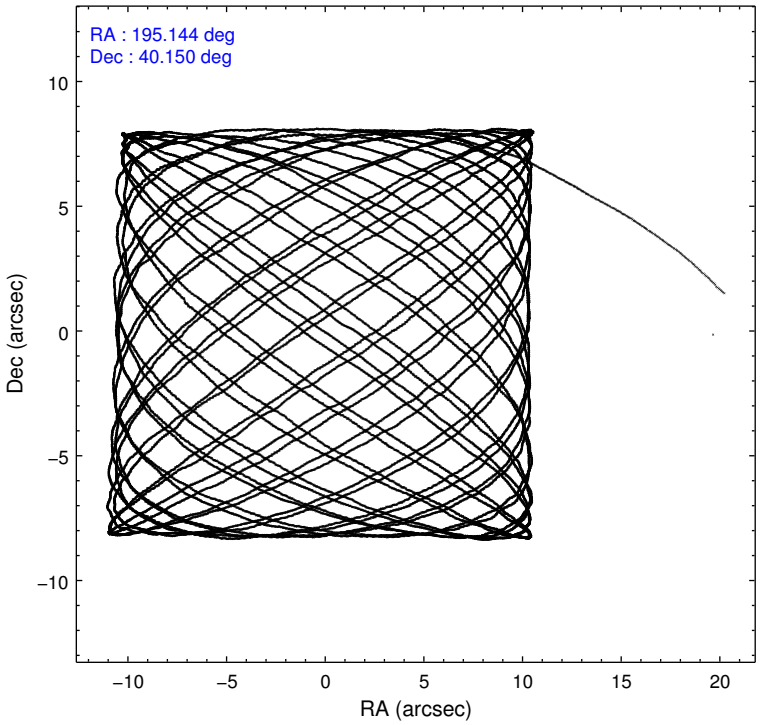
	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	5411	4792	4122	6083
	4%	3%	2%	3%
grade 1 events	63	66	57	270
	0%	0%	0%	0%
grade 2 events	3268	3012	4231	15358
	2%	2%	3%	9%
grade 3 events	1313	1360	1194	5671
	0%	1%	0%	3%
grade 4 events	1289	1344	1246	5496
	0%	1%	0%	3%
grade 5 events	4866	5632	5478	15972
	3%	4%	3%	9%
grade 6 events	2855	2945	4053	39905
	2%	2%	2%	23%
grade 7 events	116074	107901	117984	78782
	85%	84%	85%	47%

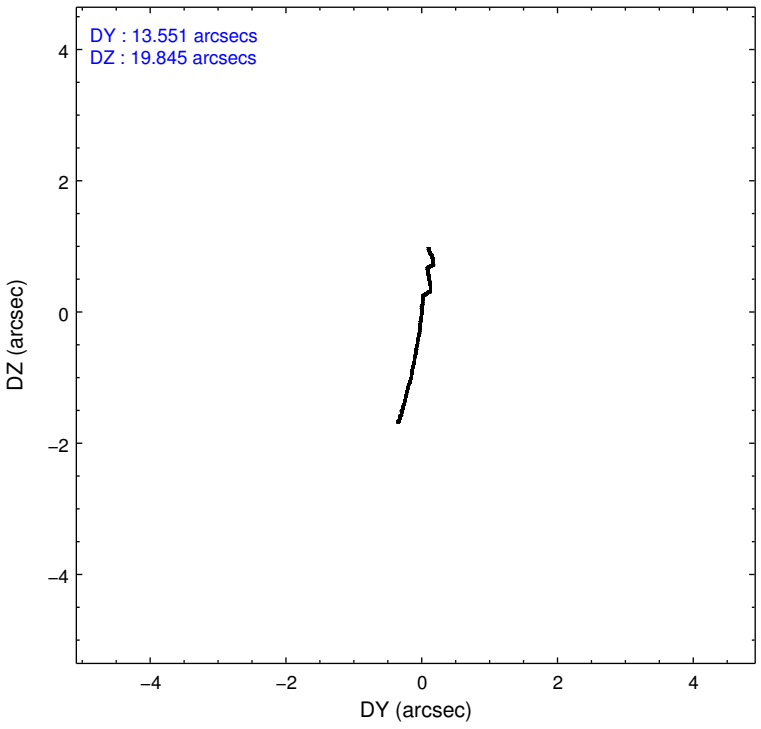
2.2 Compared Parameters

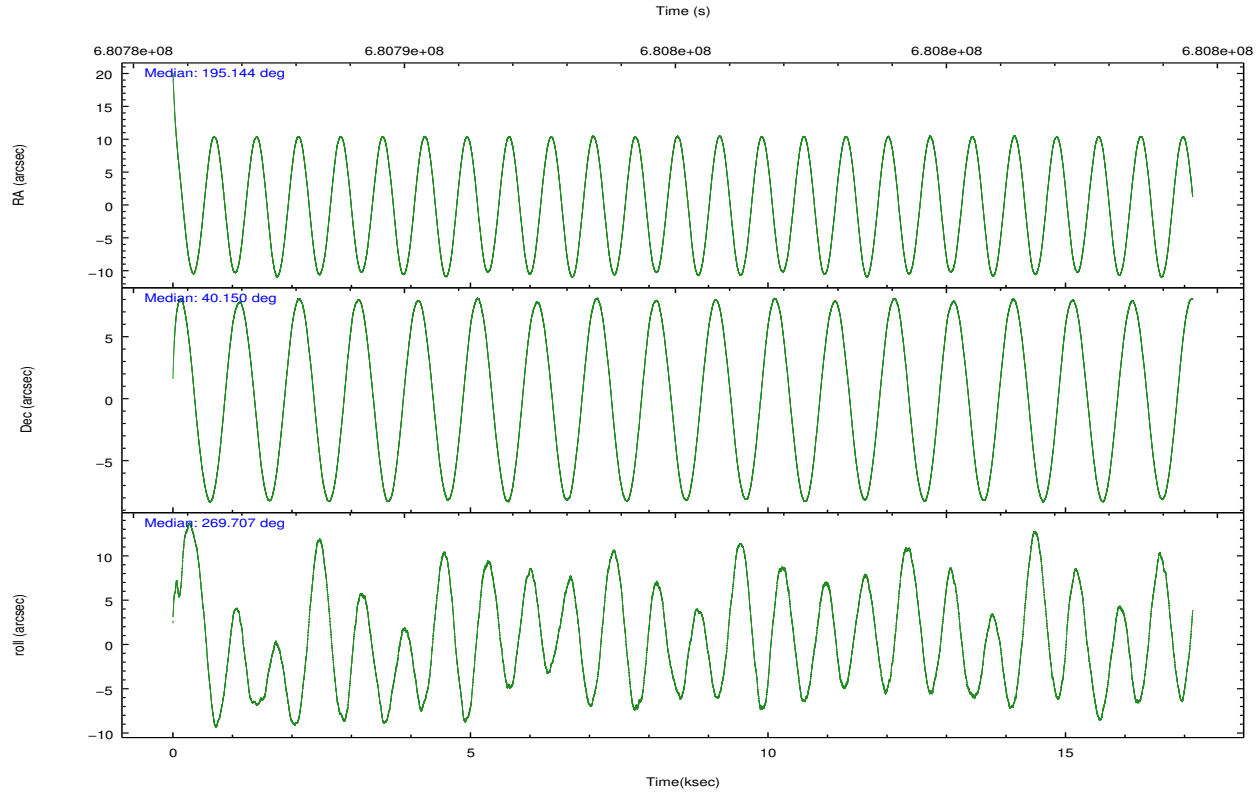
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-2367	ACIS-2367
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	195.125725	195.1439491392187
[deg] Pointing Dec	40.173035	40.14938629928641
[deg] Pointing Roll	269.557599	269.7024722750711
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1425803651734
[mm] SIM translation stage offset	0	0.01005778216563158
[s] Observation start time (MET)	680786709.184000	680785562.99571
Observation start date	2019-07-29T11:24:00	2019-07-29T11:06:02
[s] Observation end time (MET)	680803709.184000	680804686.93436
Observation end date	2019-07-29T16:07:20	2019-07-29T16:24:46
Read mode	TIMED	TIMED

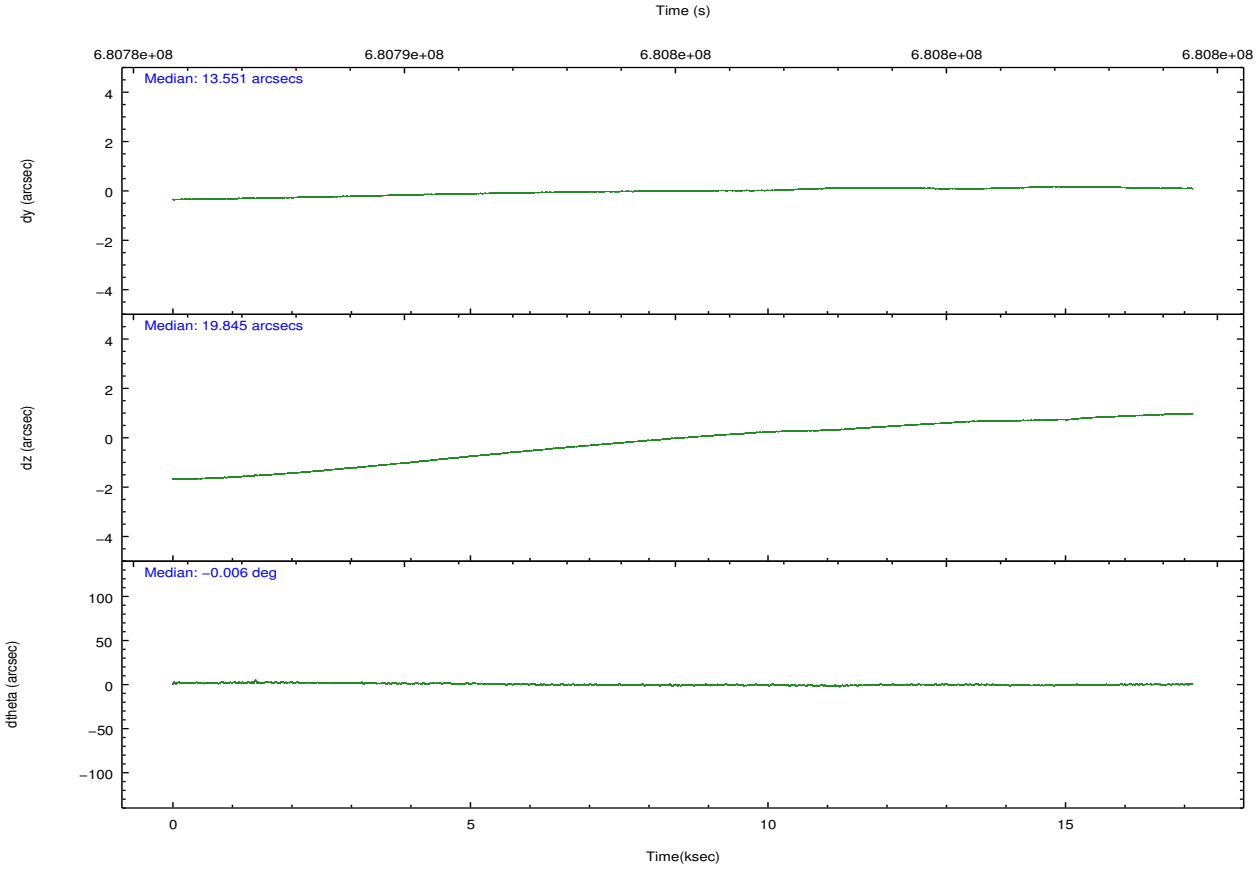
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	O1	Y
CCD I3 on	O2	Y
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	N	N
CCD S5 on	N	N
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

2.3 Aspect


RA : 195.144 deg
Dec : 40.150 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10
15
20


DY : 13.551 arcsecs
DZ : 19.845 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
6.8078e+08
6.8079e+08
6.808e+08
6.808e+08
6.808e+08
Median: 195.144 deg
RA (arcsec)
Median: 40.150 deg
Dec (arcsec)
Median: 269.707 deg
roll (arcsec)
Time(ksec)

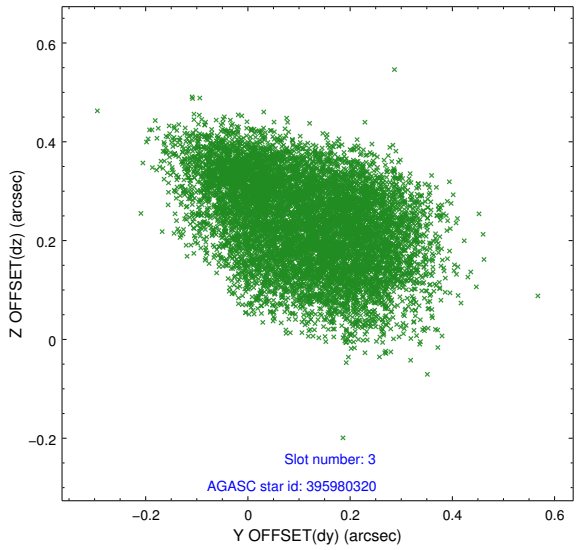

Time (s)
6.8078e+08
6.8079e+08
6.808e+08
6.808e+08
6.808e+08
Median: 13.551 arcsecs
dy (arcsec)
Median: 19.845 arcsecs
dz (arcsec)
Median: −0.006 deg
dtheta (arcsec)
Time(ksec)

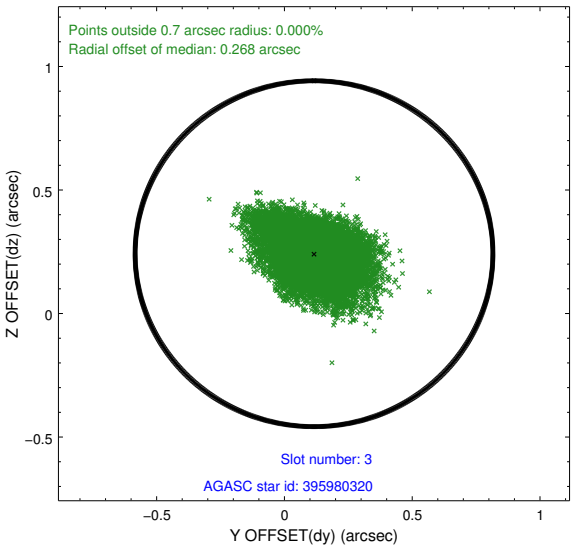
Slot Statistics

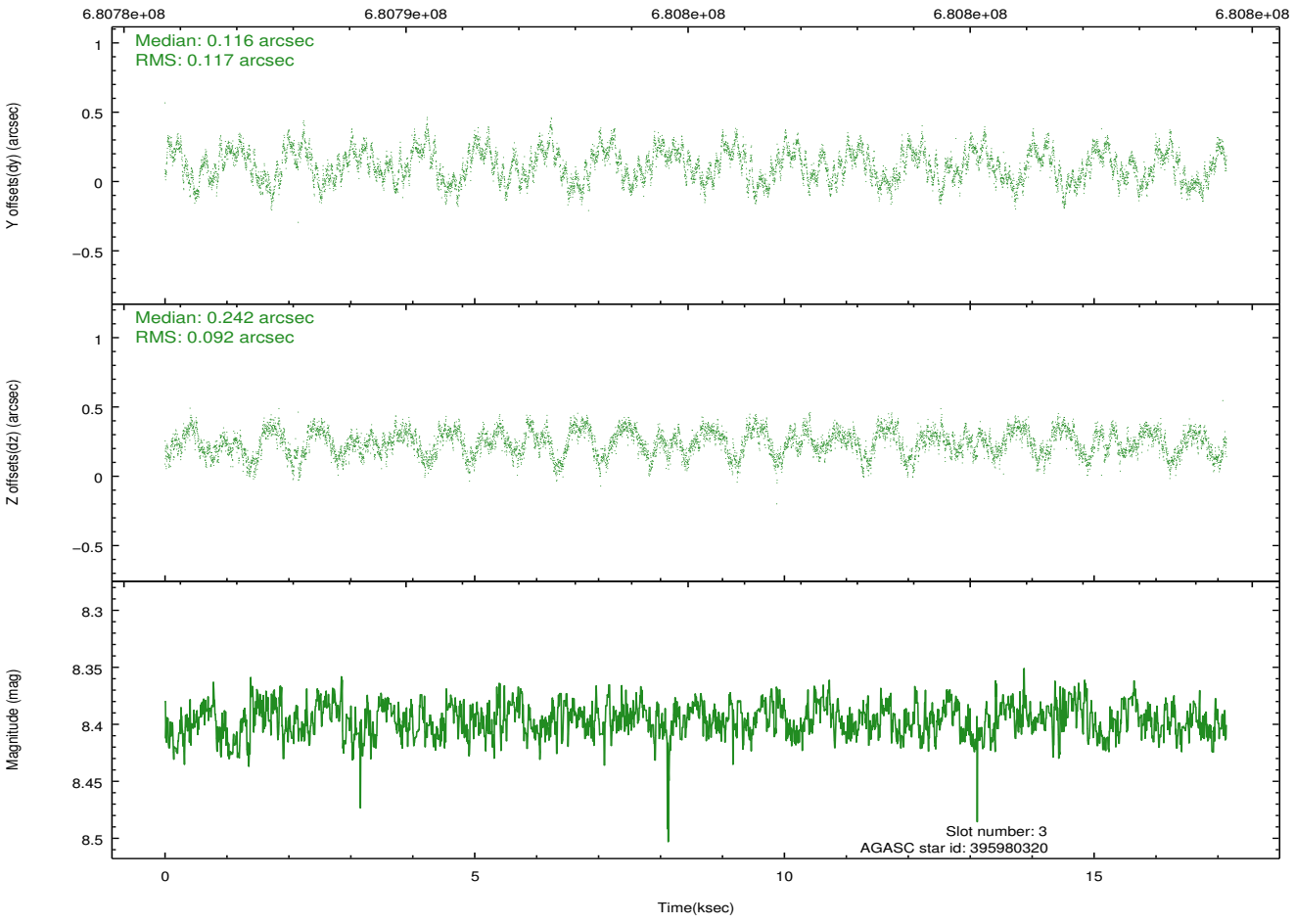
ot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.15	4180	1.000	-0.257	-0.209	0.022	0.052	0.000000	0.000000	-766.64	-1741
1	FID		ACIS-S-4	7.29	4180	1.000	0.767	0.179	0.012	0.031	0.000000	0.000000	2147.47	167
2	FID		ACIS-S-5	7.24	4180	1.000	-0.547	0.037	0.028	0.046	0.000000	0.000000	-1819.53	161
3	GUIDE	used	395980320	8.40	8357	1.000	0.116	0.242	0.162	0.246	194.933176	40.474833	-1082.00	-535
4	GUIDE	used	395981608	8.88	8357	1.000	0.134	0.032	0.194	0.338	194.879366	39.869227	1097.98	-672
5	GUIDE	used	395981808	6.78	8360	1.000	0.128	0.004	0.150	0.260	194.736329	39.844276	1190.08	-1067
6	GUIDE	used	396109520	9.45	8346	1.000	-0.232	-0.326	0.279	0.522	195.364958	40.059416	404.01	662
7	GUIDE	used	396114080	9.14	8351	1.000	-0.152	0.083	0.257	0.367	195.420616	40.815190	-2318.69	786

2.4 Star Slots

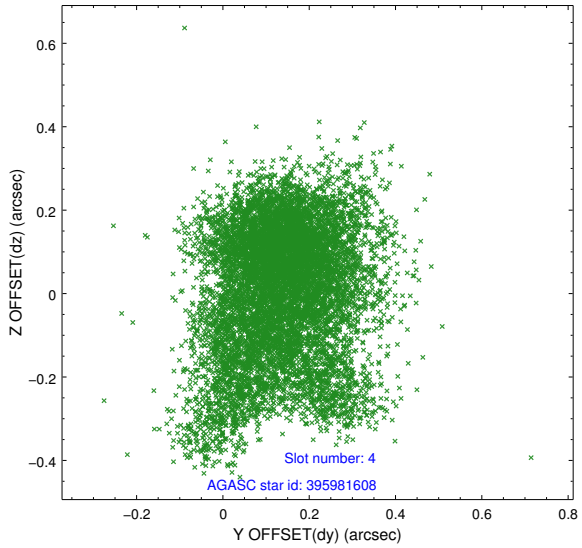
2.4.1 Slot 3

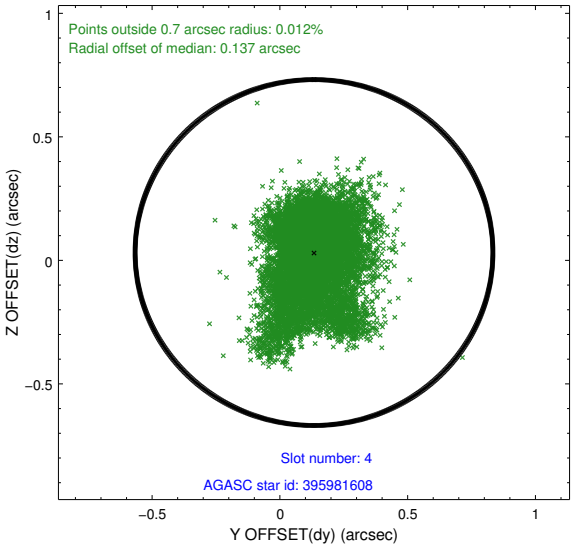


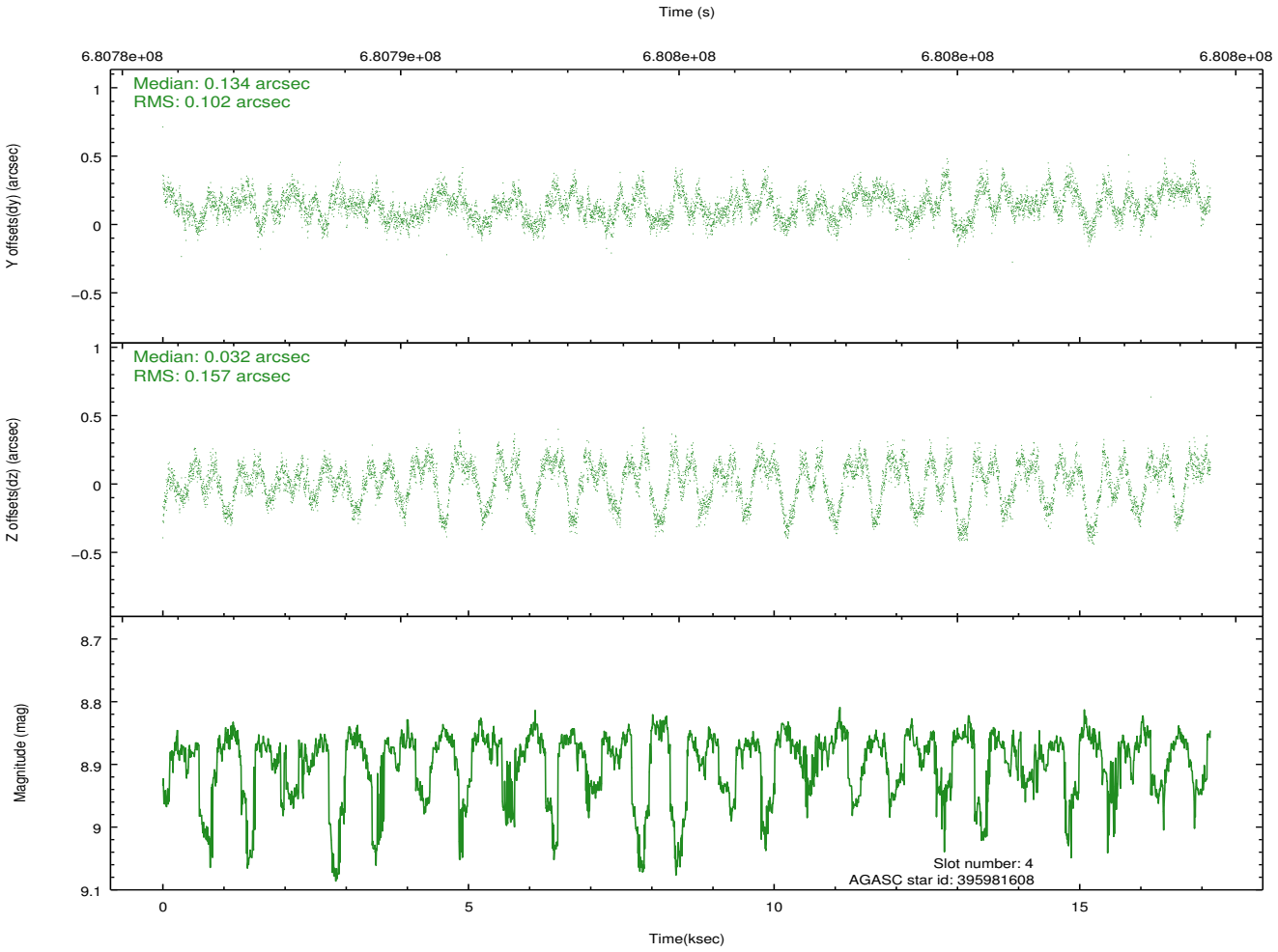




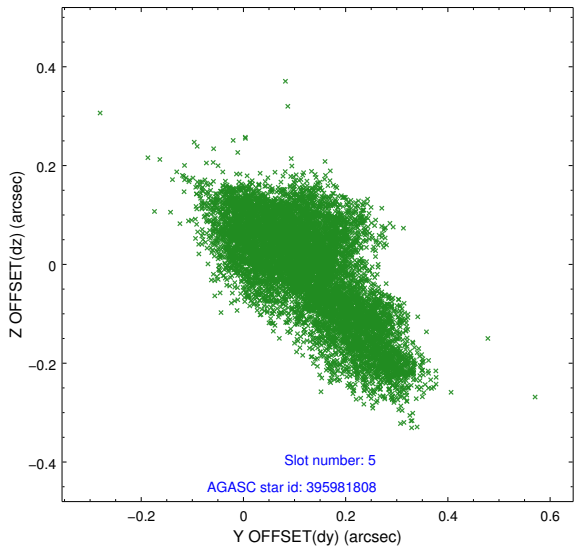
2.4.2 Slot 4

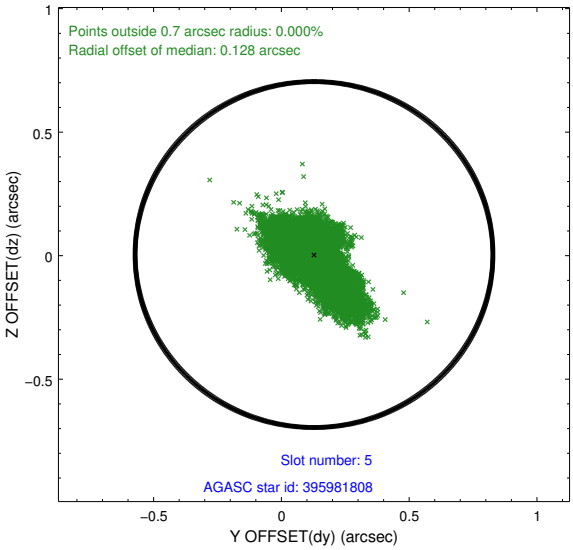

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 395981608

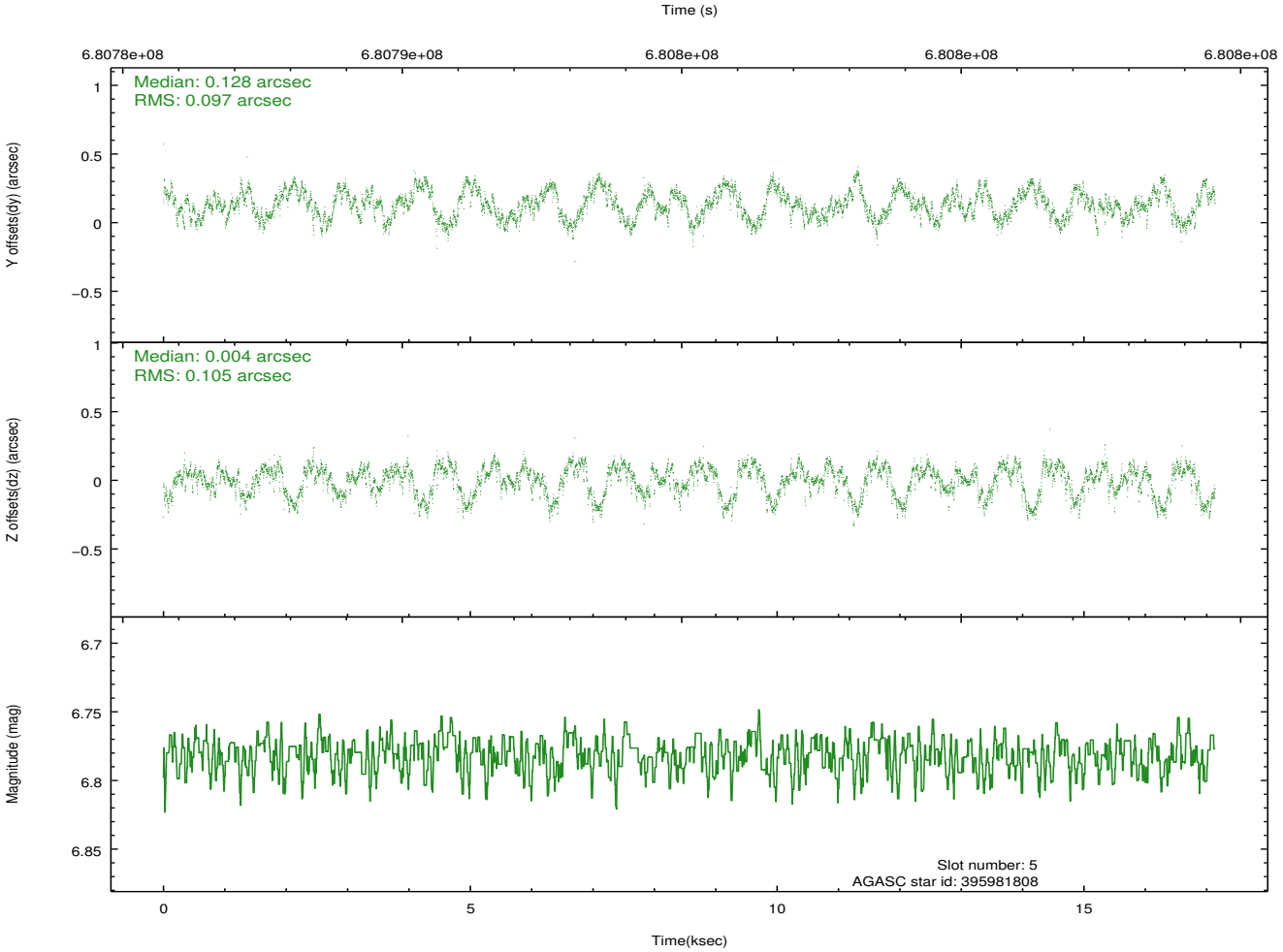

Points outside 0.7 arcsec radius: 0.012%
Radial offset of median: 0.137 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 395981608


Time (s)
Median: 0.134 arcsec
RMS: 0.102 arcsec
Y offsets(dy) (arcsec)
Median: 0.032 arcsec
RMS: 0.157 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 395981608
Time(ksec)

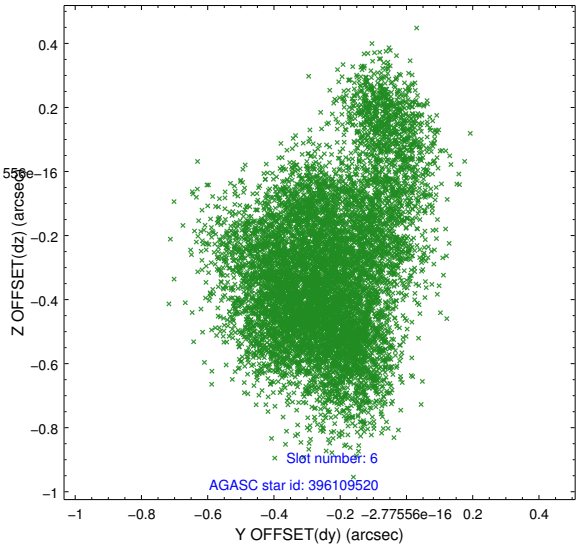
2.4.3 Slot 5

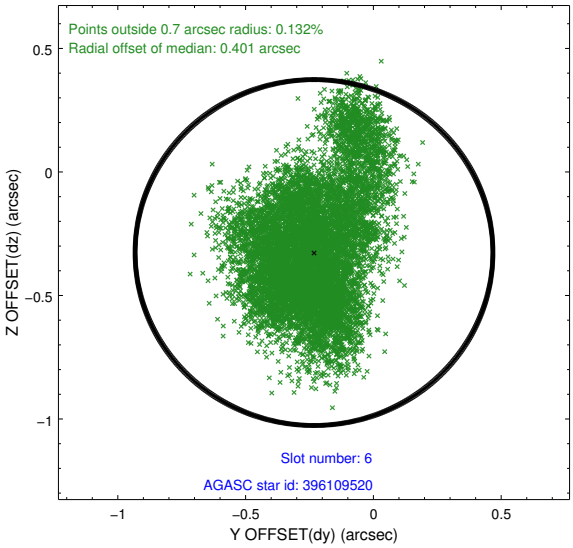

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 395981808

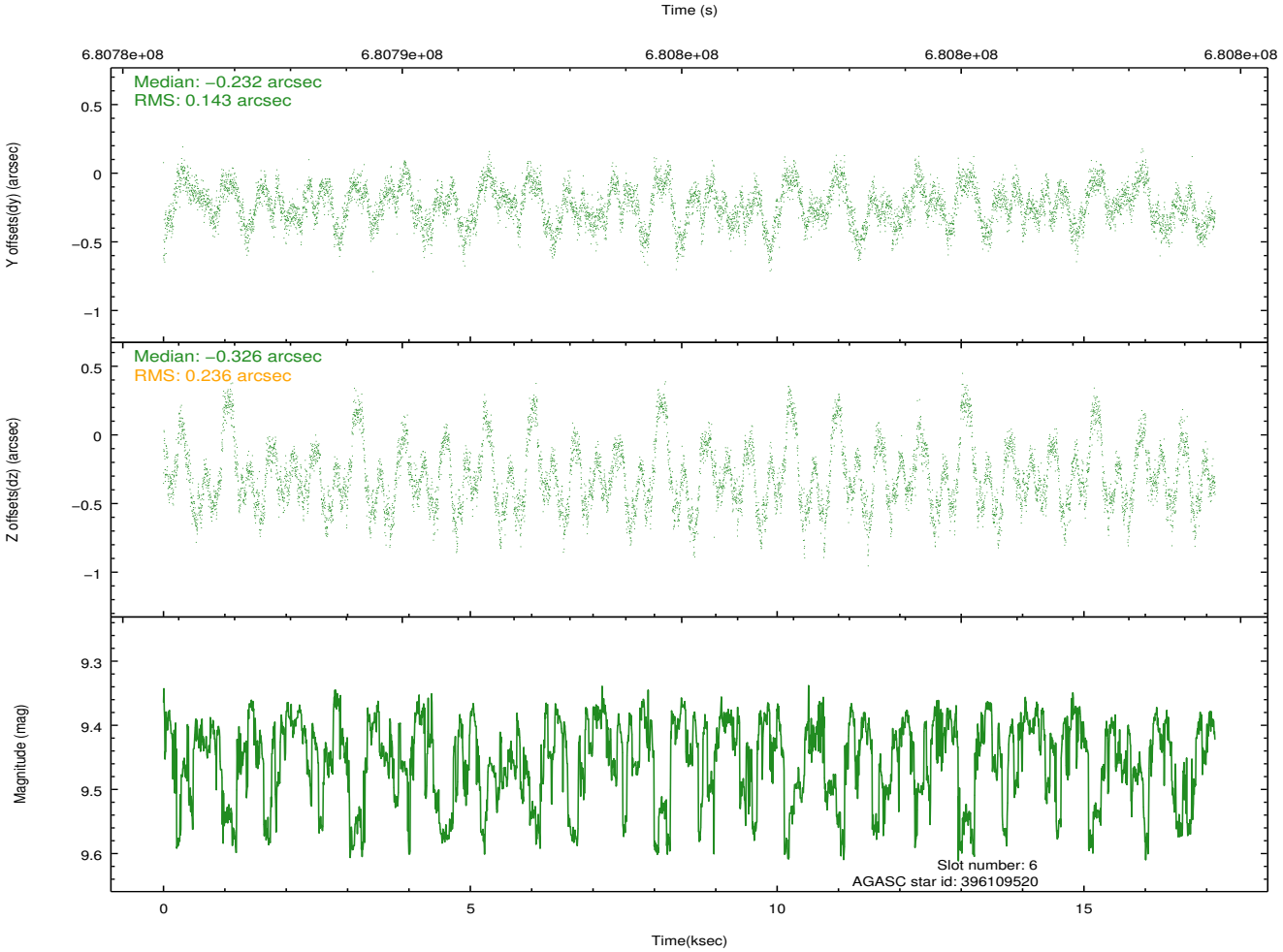

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.128 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 395981808


Time (s)
Median: 0.128 arcsec
RMS: 0.097 arcsec
Y offsets(dy) (arcsec)
Median: 0.004 arcsec
RMS: 0.105 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 395981808
Time(ksec)

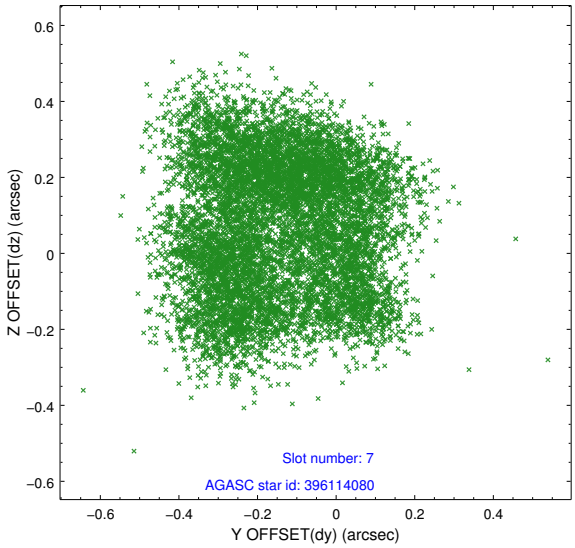
2.4.4 Slot 6

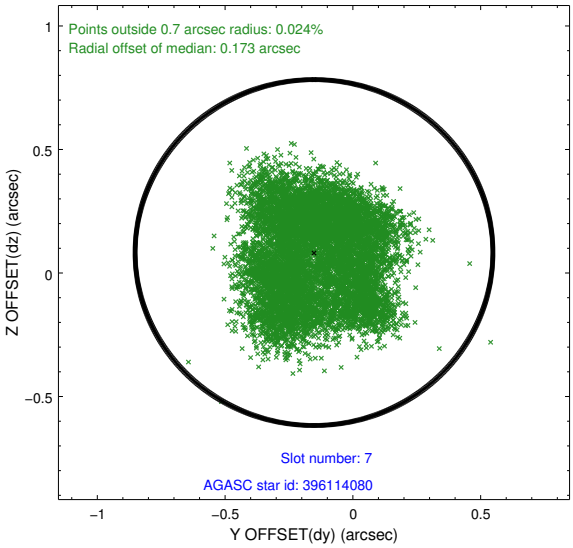

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 396109520

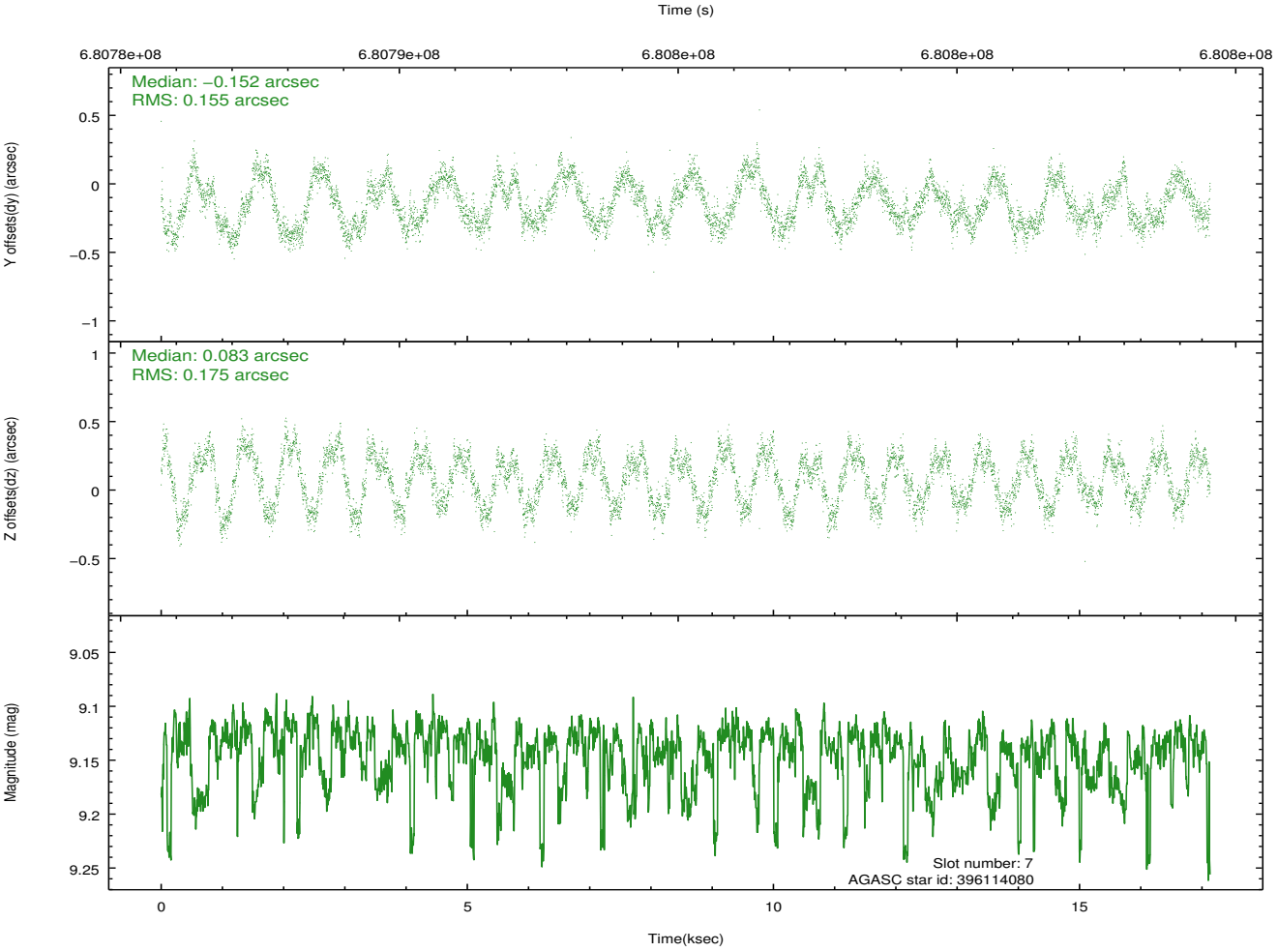

Points outside 0.7 arcsec radius: 0.132%
Radial offset of median: 0.401 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 396109520


Time (s)
Median: −0.232 arcsec
RMS: 0.143 arcsec
Y offsets(dy) (arcsec)
Median: −0.326 arcsec
RMS: 0.236 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 396109520
Time(ksec)

2.4.5 Slot 7

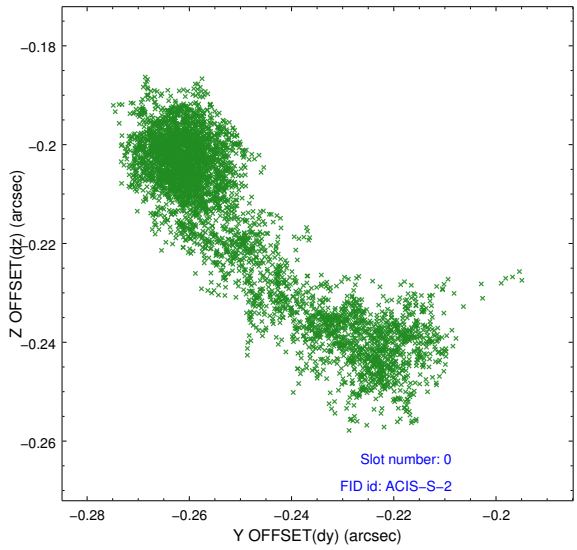

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 396114080

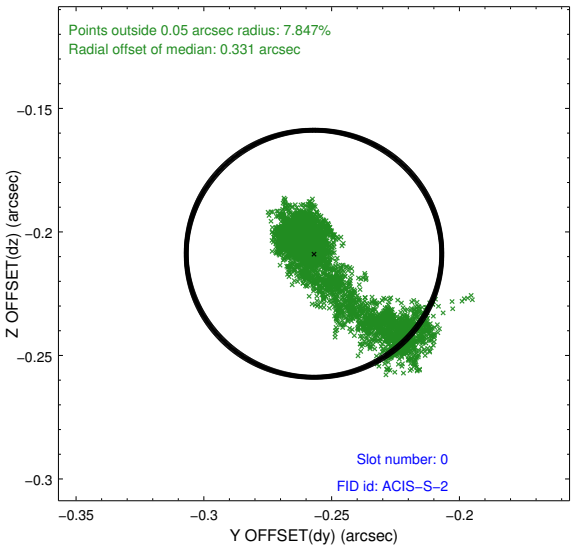

Points outside 0.7 arcsec radius: 0.024%
Radial offset of median: 0.173 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 396114080

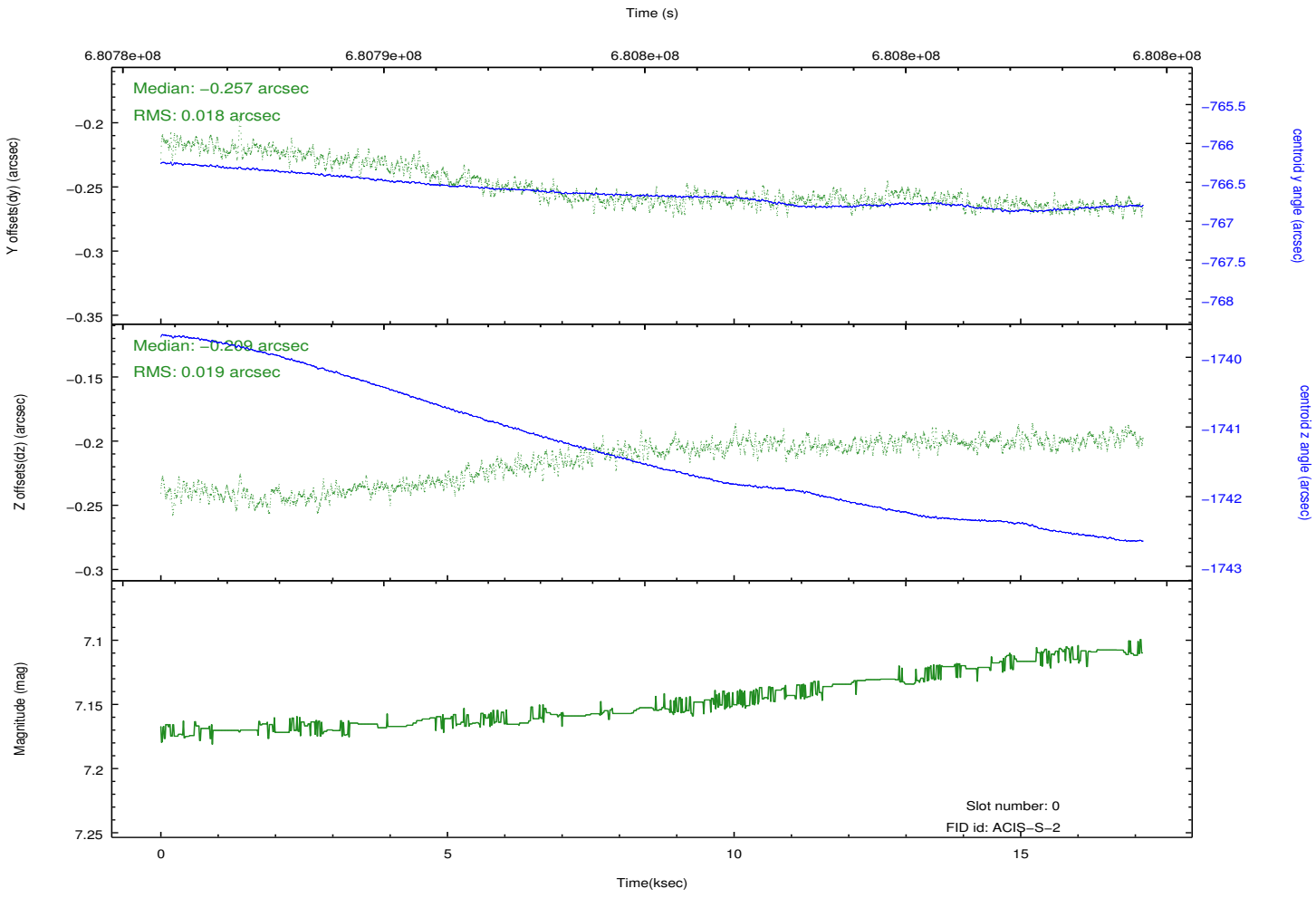

Time (s)
Median: −0.152 arcsec
RMS: 0.155 arcsec
Y offsets(dy) (arcsec)
Median: 0.083 arcsec
RMS: 0.175 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 396114080
Time(ksec)

2.5 FID Slots

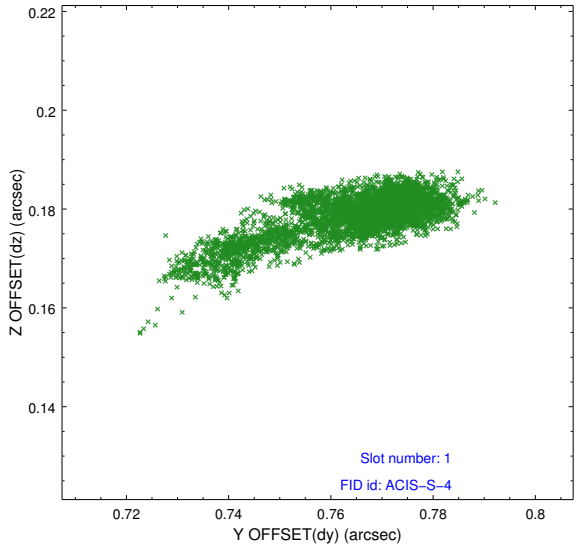
2.5.1 Slot 0

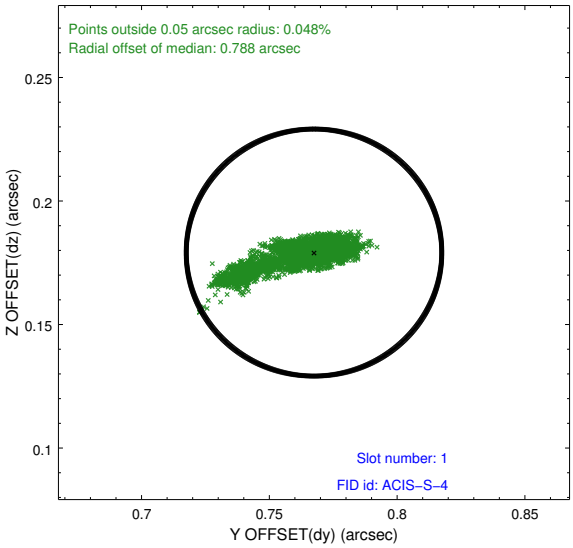


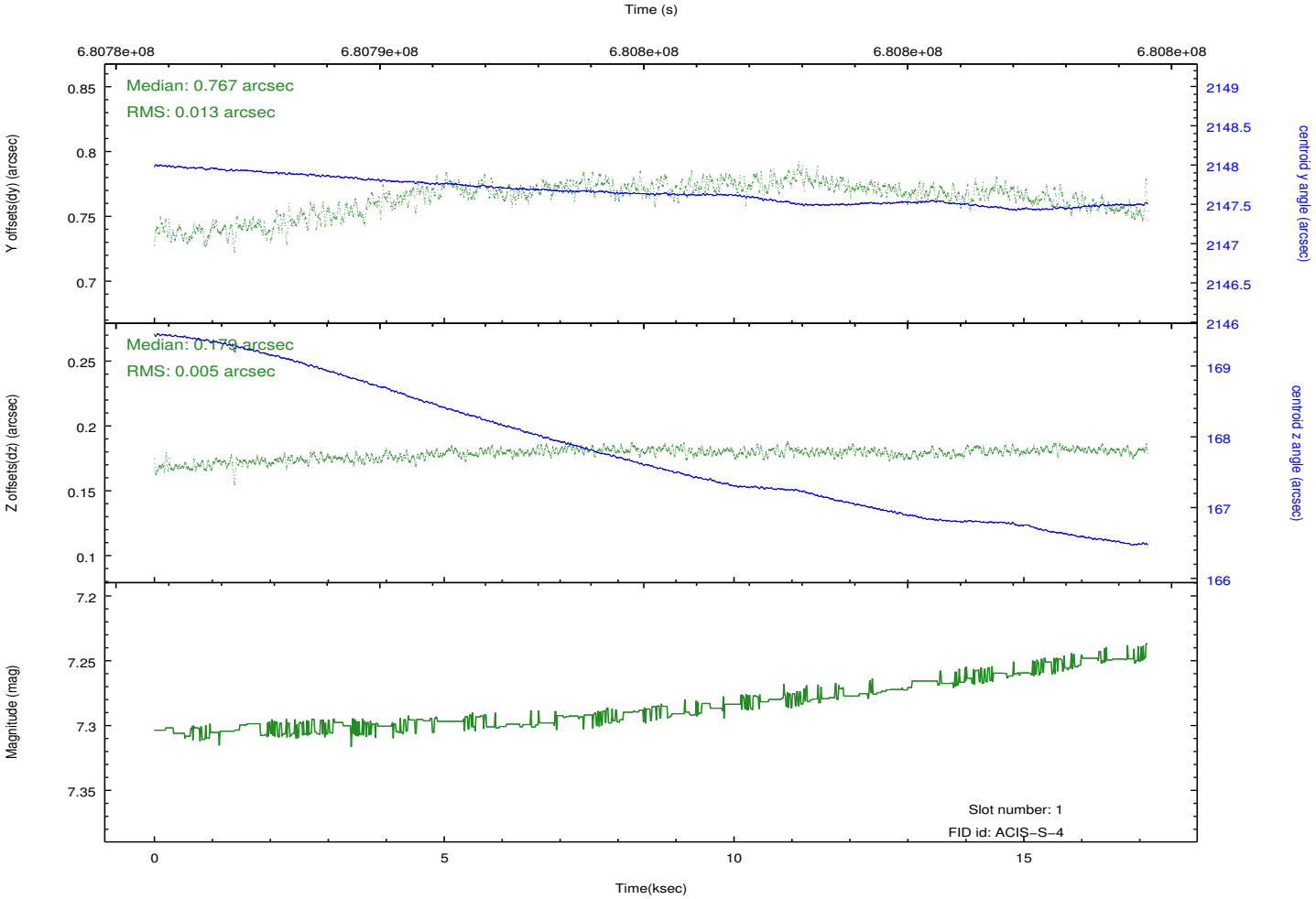




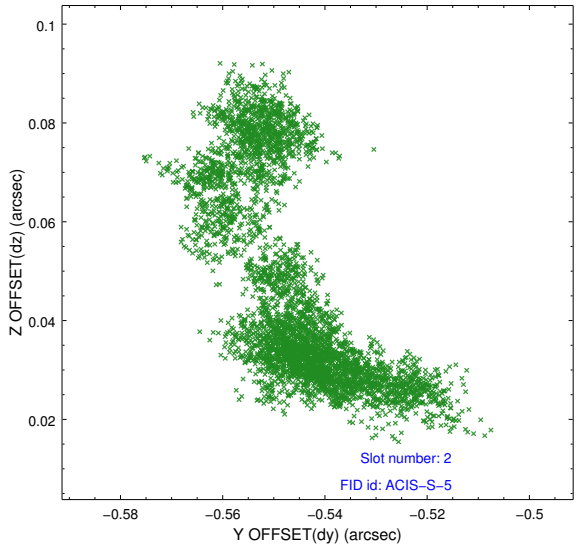
2.5.2 Slot 1

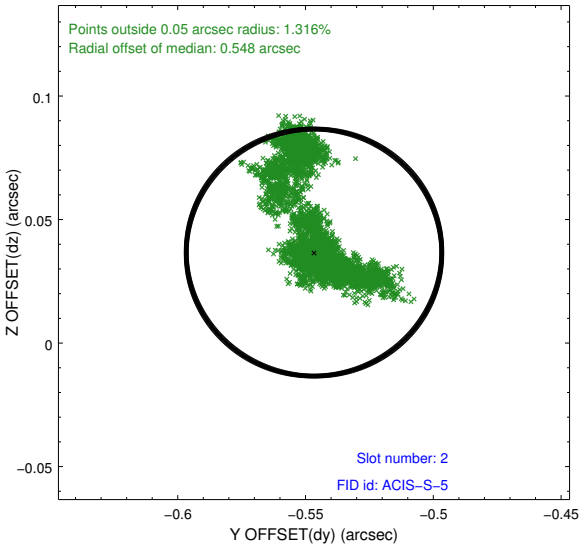

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

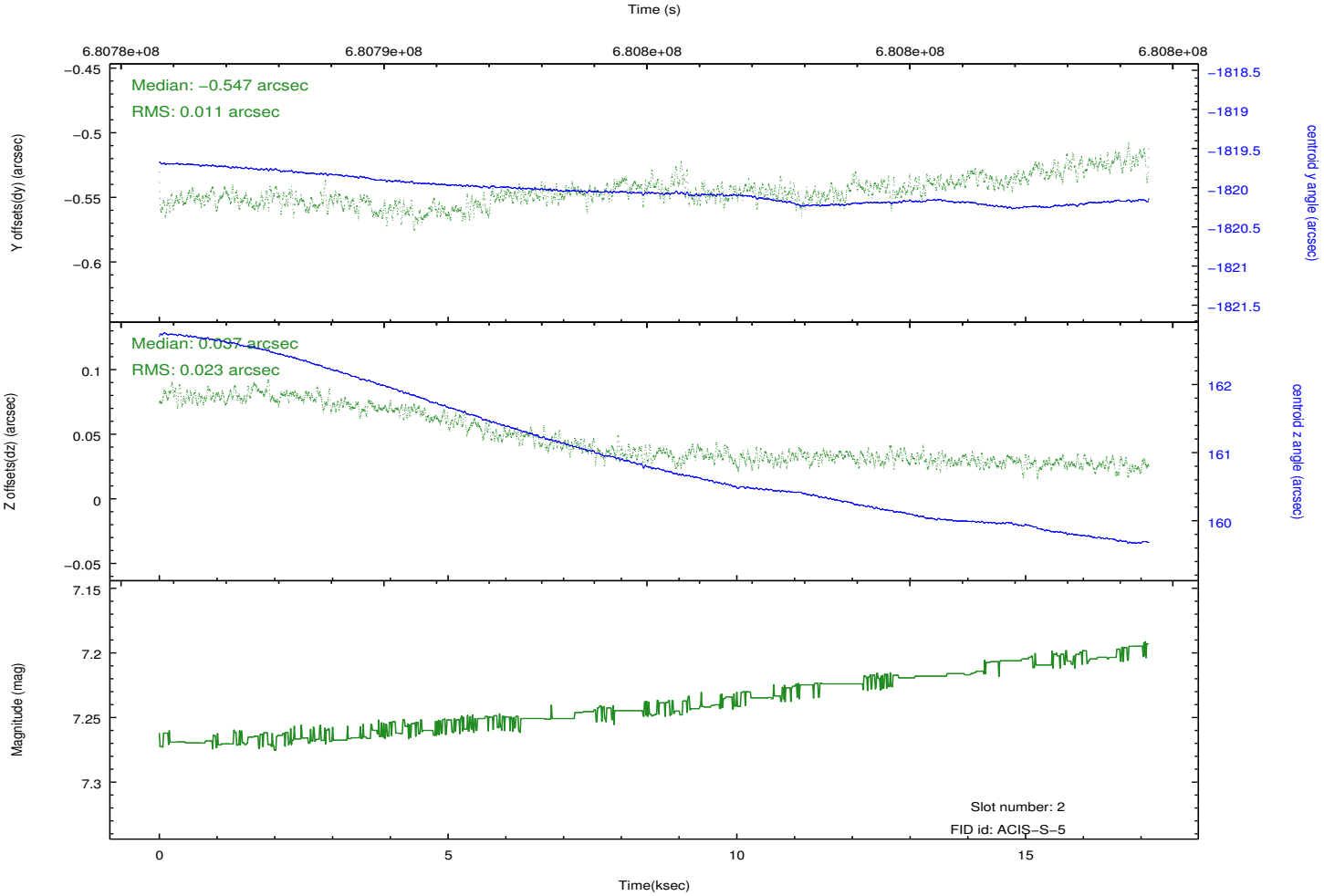

Points outside 0.05 arcsec radius: 0.048%
Radial offset of median: 0.788 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.767 arcsec
RMS: 0.013 arcsec
Median: 0.179 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
Z offsets(dz) (arcsec)
centroid y angle (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: 1.316%
Radial offset of median: 0.548 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Time (s)
Median: −0.547 arcsec
RMS: 0.011 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.037 arcsec
RMS: 0.023 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	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.09.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	17.067831475735

A.2 Comments

ACIS T_GAIN files released in CalDB 4.8.3 (23 May 2019) and CalDB 4.8.4 (03 September 2019) have errors in the T_GAIN corrections for ACIS-I chips 0, 1, 2, and 3, and ACIS-S chip 6 (S2). All ACIS OBS_IDs including those chips, which were processed (or reprocessed) in SDP between 2019-05-24T01:06:00 and 2019-09-06T17:31:43 with CalDB 4.8.3, 4.8.3.1, or 4.8.4, were affected. The errors in the T_GAINs, which produce a 1%-2% reduction in the PHA and hence the ENERGY column values for dithered observations, result from alternating real value and zero value columns in CHIPX space across FI chips ACIS-0, 1, 2, 3, and 6. The error has been corrected in this version of the data products.