V&V Reference Report
L2 ASCDS Version : 10.8

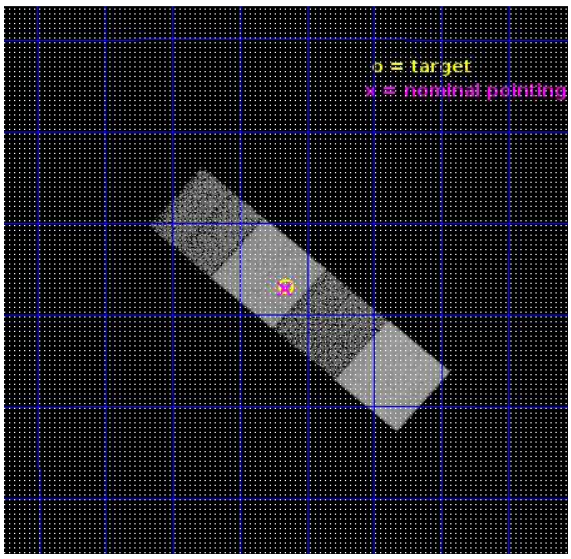
Observation 22267 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Sep 27 2019

Contents

1 Front

seq_num	703905	Sequence number
obs_id	22267	Observation id
title	C-BASS: A Chandra Legacy Survey of AGN at the Highest Spatial Resolutions	Proposal title
observer	Michael Koss	Principal investigator
object	[HB89] 0834-201	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	129.163376	Observer's specified target RA [deg]
dec_targ	-20.283201	Observer's specified target Dec [deg]
ra_nom	129.16482604847	Nominal RA [deg]
dec_nom	-20.286090350294	Nominal Dec [deg]
roll_nom	220.66020293396	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10061.739495397	Sum of GTIs [s]
livetime	9930.2754615444	Livetime [s]
ontime5	10061.698455453	Sum of GTIs [s]
ontime6	10061.65741539	Sum of GTIs [s]
ontime7	10061.739495397	Sum of GTIs [s]
ontime8	10061.616375446	Sum of GTIs [s]
l2events	115341	Number of level 2 events

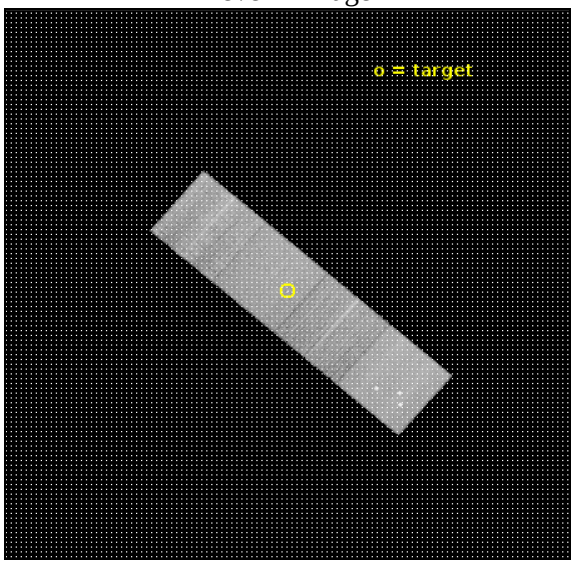


2 OBI

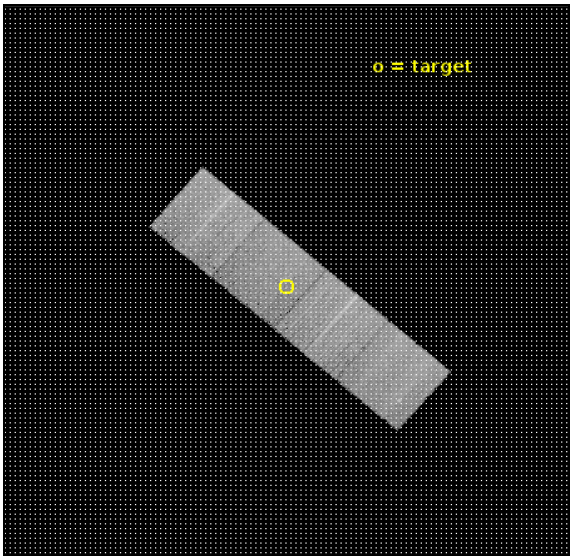
2.1 OBI

2.1.1 Images

Level 1 Image

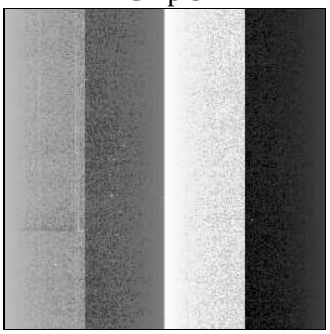


Level 1 Bad Events

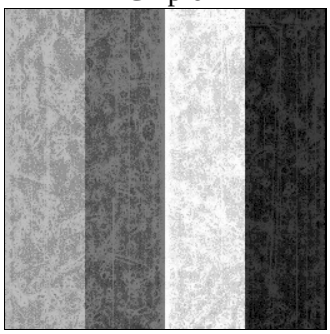


2.1.2 Bias

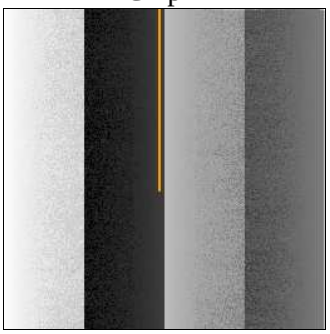
Chip 5



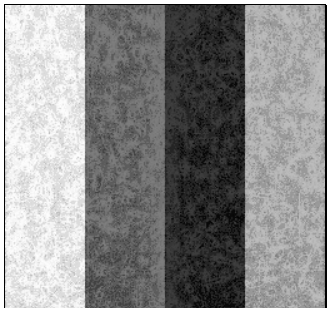
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.8	Processing system revision
caldbver	4.8.4.1	
date	2019-09-27T17:40:12	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ontime	10061.739495397	Sum of GTIs [s]
ontime5	10061.698455453	Sum of GTIs [s]
ontime6	10061.65741539	Sum of GTIs [s]
ontime7	10061.739495397	Sum of GTIs [s]
ontime8	10061.616375446	Sum of GTIs [s]
l1events	416347	Number of level 1 events

2.1.4 Events

	ccd 5	**ccd 6**	**ccd 7**	**ccd 8**
level 1 events	130104	82181	100564	103498
rejected events	66213	73294	57234	76507
rejected %	50%	89%	56%	73%

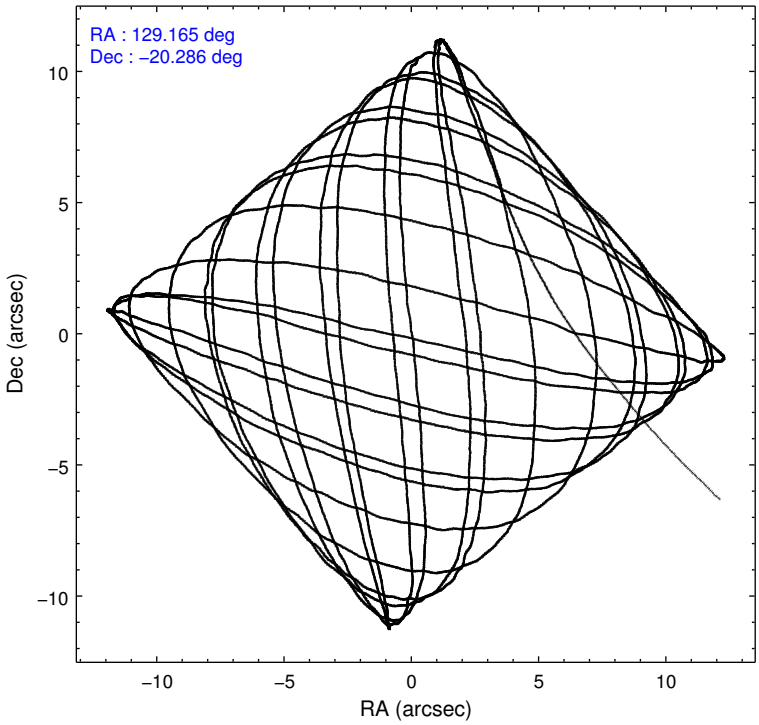
	ccd 5	**ccd 6**	**ccd 7**	**ccd 8**
grade 0 events	7919	2752	3740	7825
	6%	3%	3%	7%
grade 1 events	775	48	179	68
	0%	0%	0%	0%
grade 2 events	19171	2346	9164	6392
	14%	2%	9%	6%
grade 3 events	1709	718	3300	2698
	1%	0%	3%	2%
grade 4 events	1735	719	3246	2582
	1%	0%	3%	2%
grade 5 events	7940	3339	9609	5323
	6%	4%	9%	5%
grade 6 events	33399	2355	23894	7514
	25%	2%	23%	7%
grade 7 events	57456	69904	47432	71096
	44%	85%	47%	68%

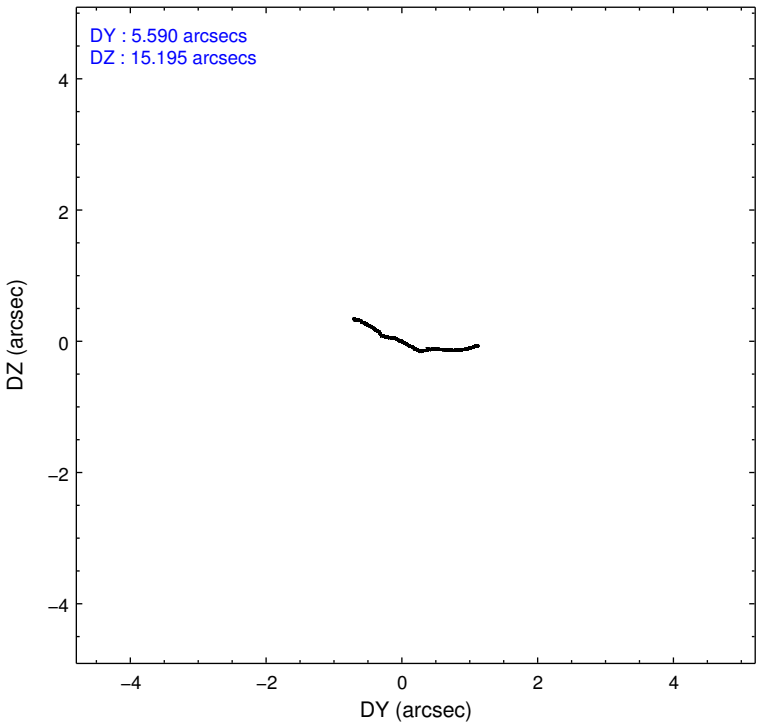
2.2 Compared Parameters

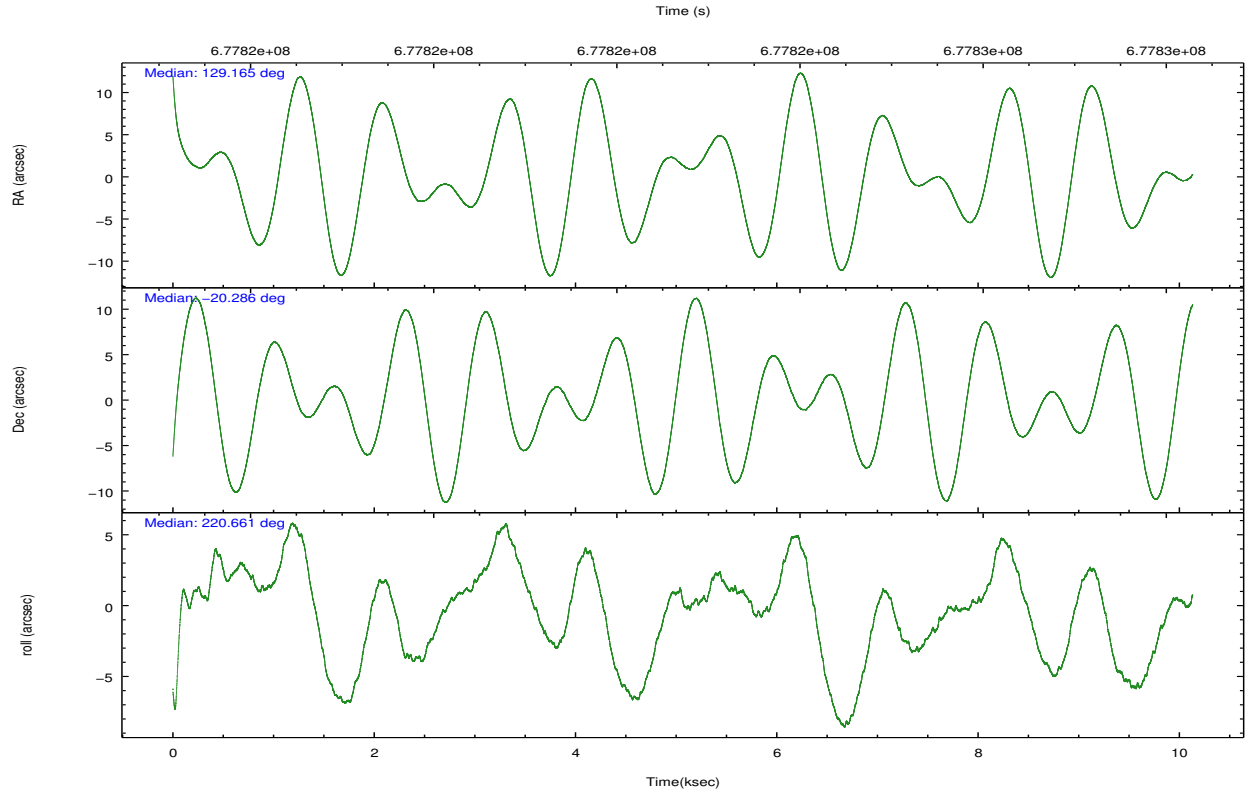
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-5678	ACIS-5678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	129.174145	129.1648260484715
[deg] Pointing Dec	-20.260096	-20.28609035029437
[deg] Pointing Roll	220.506826	220.6602029339605
[mm] 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)	677817778.184000	677816438.65491
Observation start date	2019-06-25T02:41:49	2019-06-25T02:20:38
[s] Observation end time (MET)	677827778.184000	677828754.5431401
Observation end date	2019-06-25T05:28:29	2019-06-25T05:45:54
Read mode	TIMED	TIMED

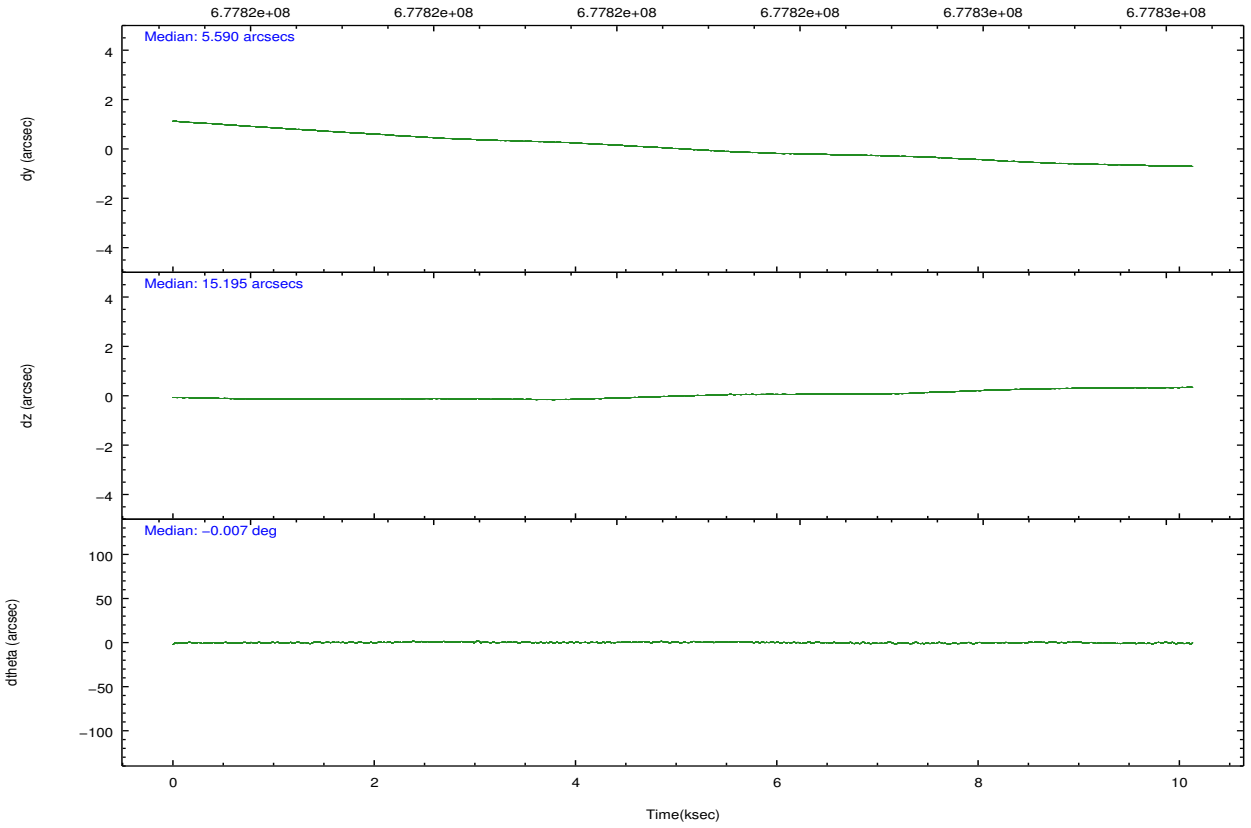
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	N	N
CCD S1 on	O1	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 129.165 deg
Dec : −20.286 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


DY : 5.590 arcsecs
DZ : 15.195 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
6.7782e+08
6.7782e+08
6.7782e+08
6.7782e+08
6.7783e+08
6.7783e+08
Median: 129.165 deg
RA (arcsec)
Median: −20.286 deg
Dec (arcsec)
Median: 220.661 deg
roll (arcsec)
Time(ksec)

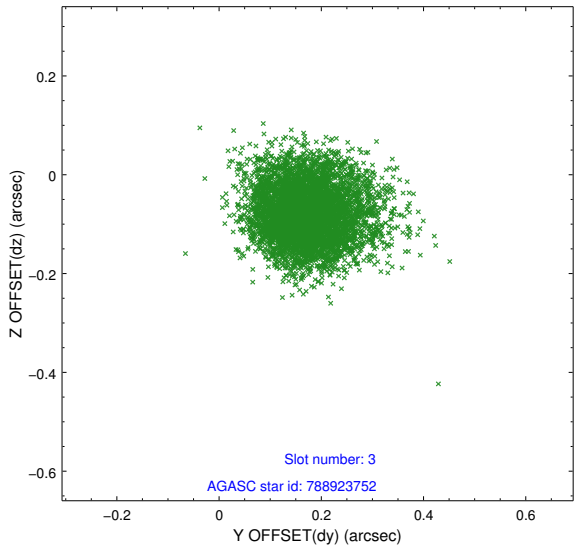

Time (s)
6.7782e+08
6.7782e+08
6.7782e+08
6.7782e+08
6.7783e+08
6.7783e+08
Median: 5.590 arcsecs
dy (arcsec)
Median: 15.195 arcsecs
dz (arcsec)
Median: −0.007 deg
dtheta (arcsec)
Time(ksec)

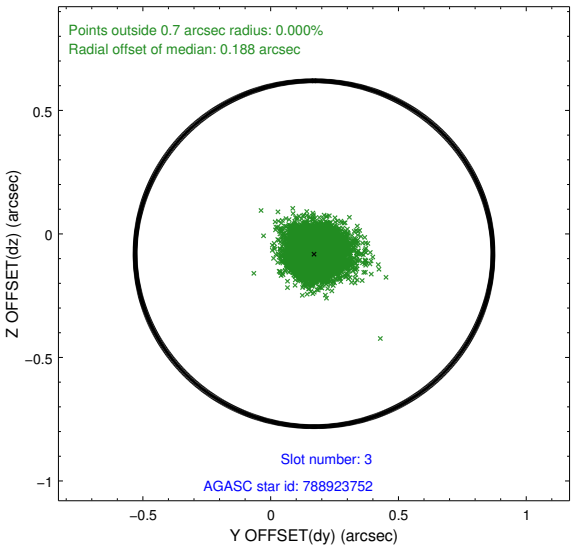
Slot Statistics

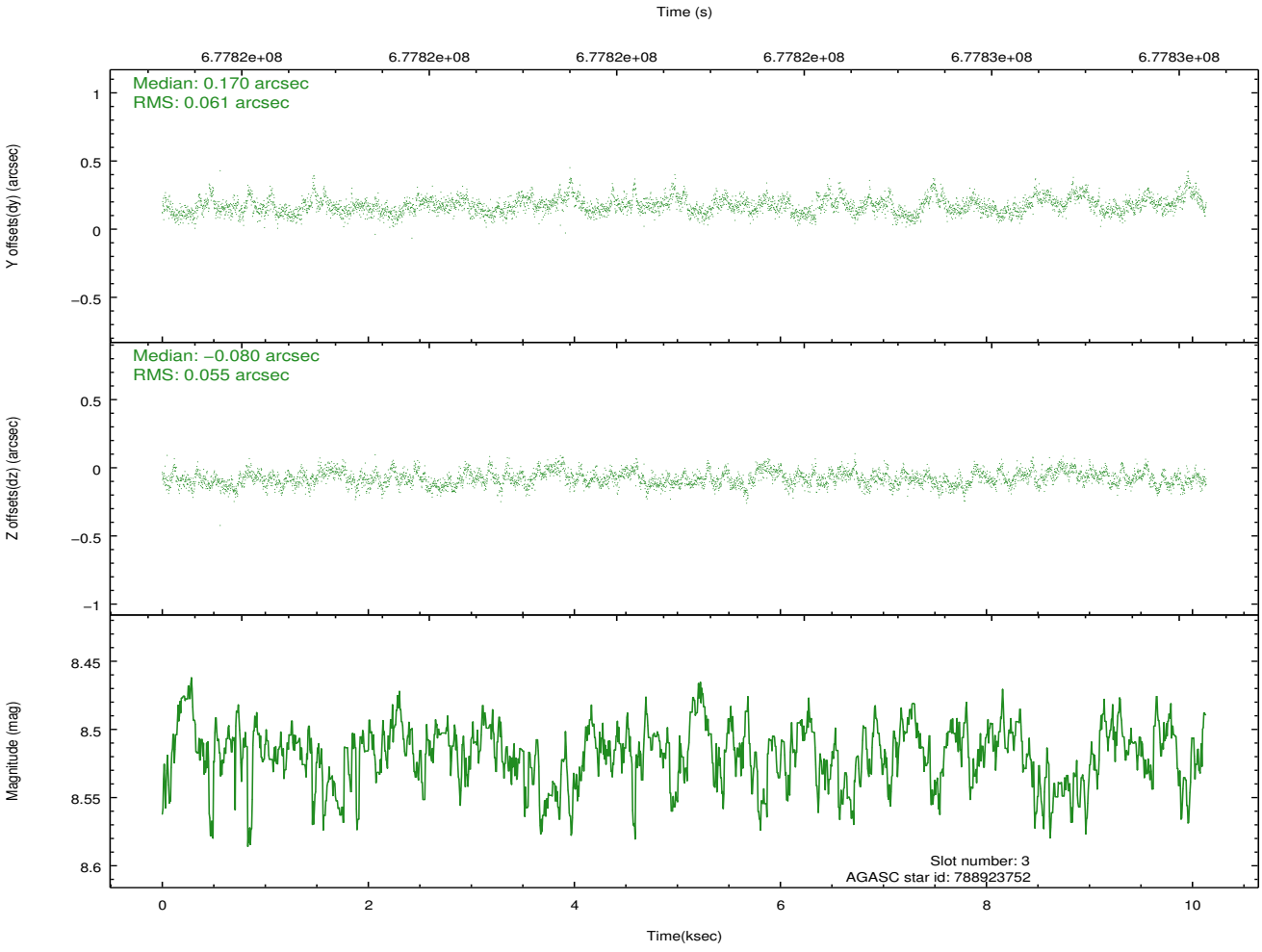
ot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-1	7.17	2472	1.000	0.103	-0.063	0.010	0.019	0.000000	0.000000	937.82	-1732
1	FID		ACIS-S-5	7.19	2471	1.000	-0.304	0.028	0.010	0.017	0.000000	0.000000	-1811.35	164
2	FID		ACIS-S-6	7.34	2472	1.000	0.180	0.047	0.010	0.014	0.000000	0.000000	402.81	809
3	GUIDE	used	788923752	8.52	4941	1.000	0.170	-0.080	0.087	0.142	128.695568	-20.560528	1931.22	-223
4	GUIDE	used	788933864	8.92	4937	1.000	-0.157	0.028	0.128	0.211	129.783847	-19.983368	-2210.70	584
5	GUIDE	used	788934200	7.06	4943	1.000	-0.191	-0.202	0.085	0.138	129.479297	-20.312168	-661.24	812
6	GUIDE	used	788938760	8.68	4940	1.000	0.100	0.010	0.119	0.190	128.871029	-20.354144	998.79	-405
7	GUIDE	used	788934064	8.28	4942	1.000	0.077	0.243	0.093	0.147	129.165349	-19.533786	-1675.20	-2006

2.4 Star Slots

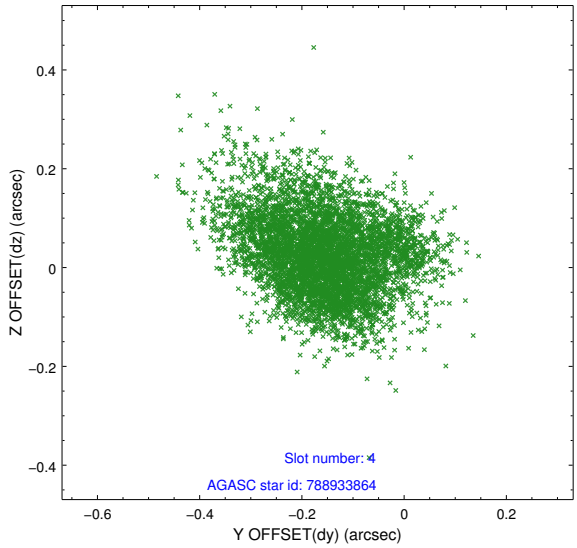
2.4.1 Slot 3

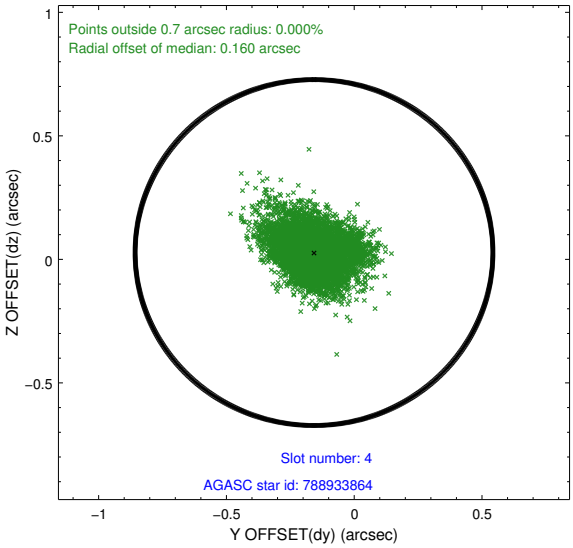


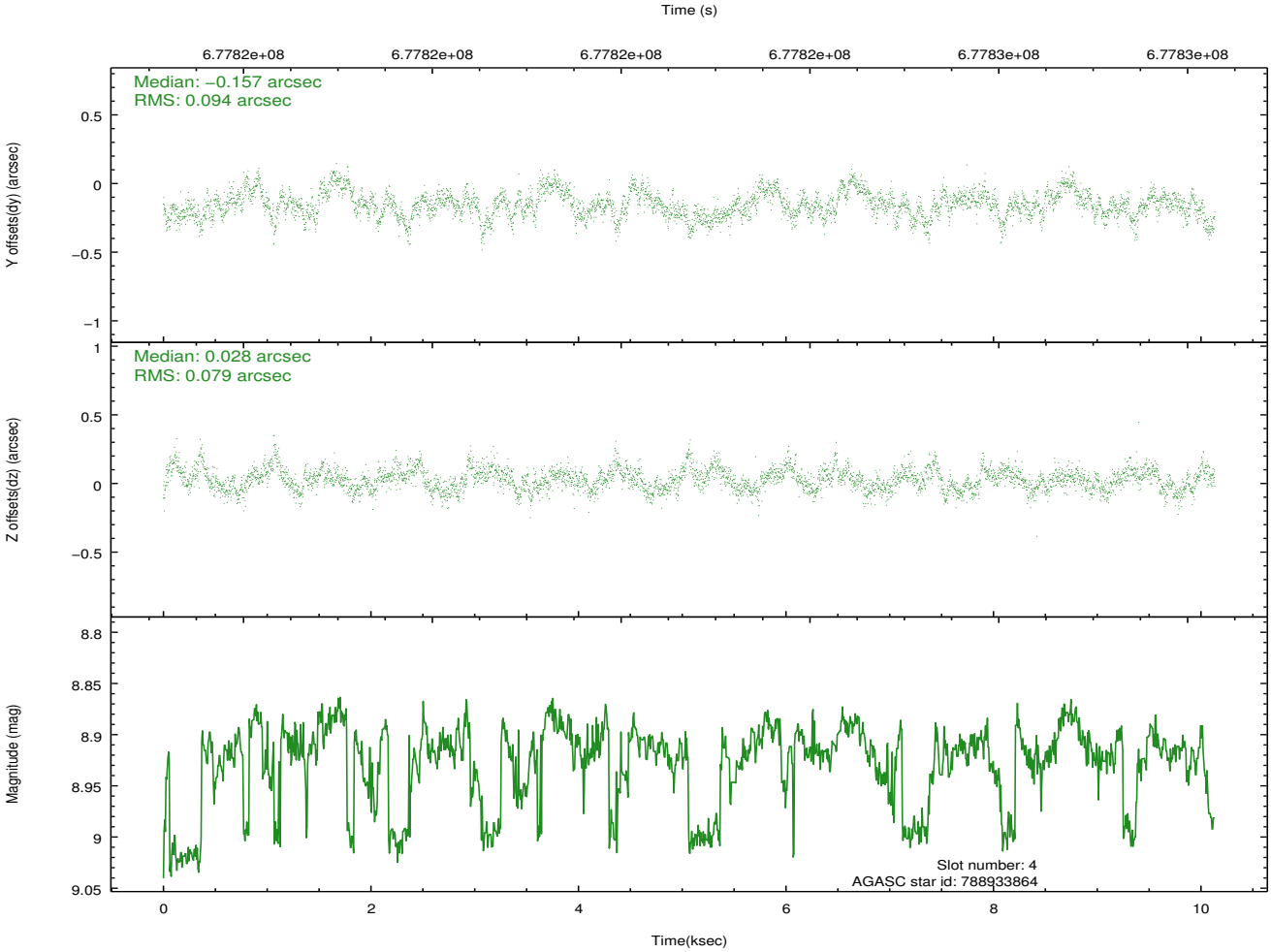




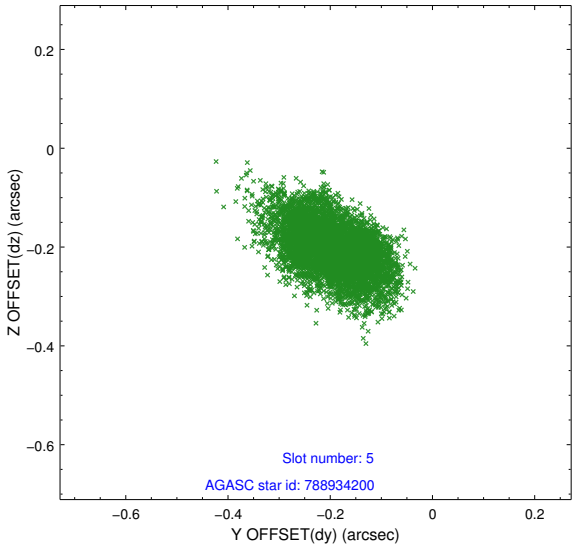
2.4.2 Slot 4

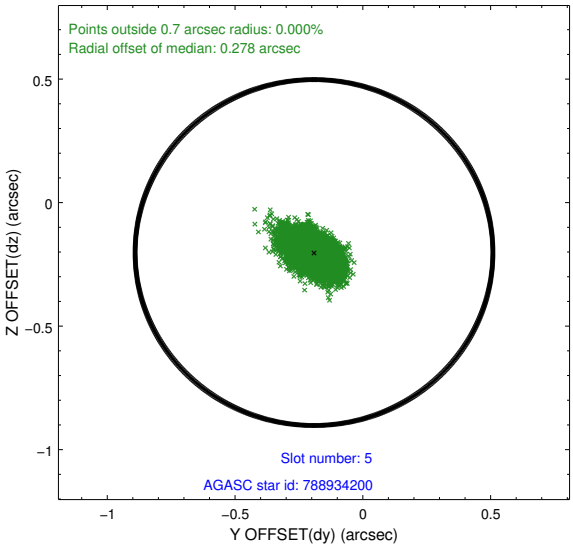

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 788933864

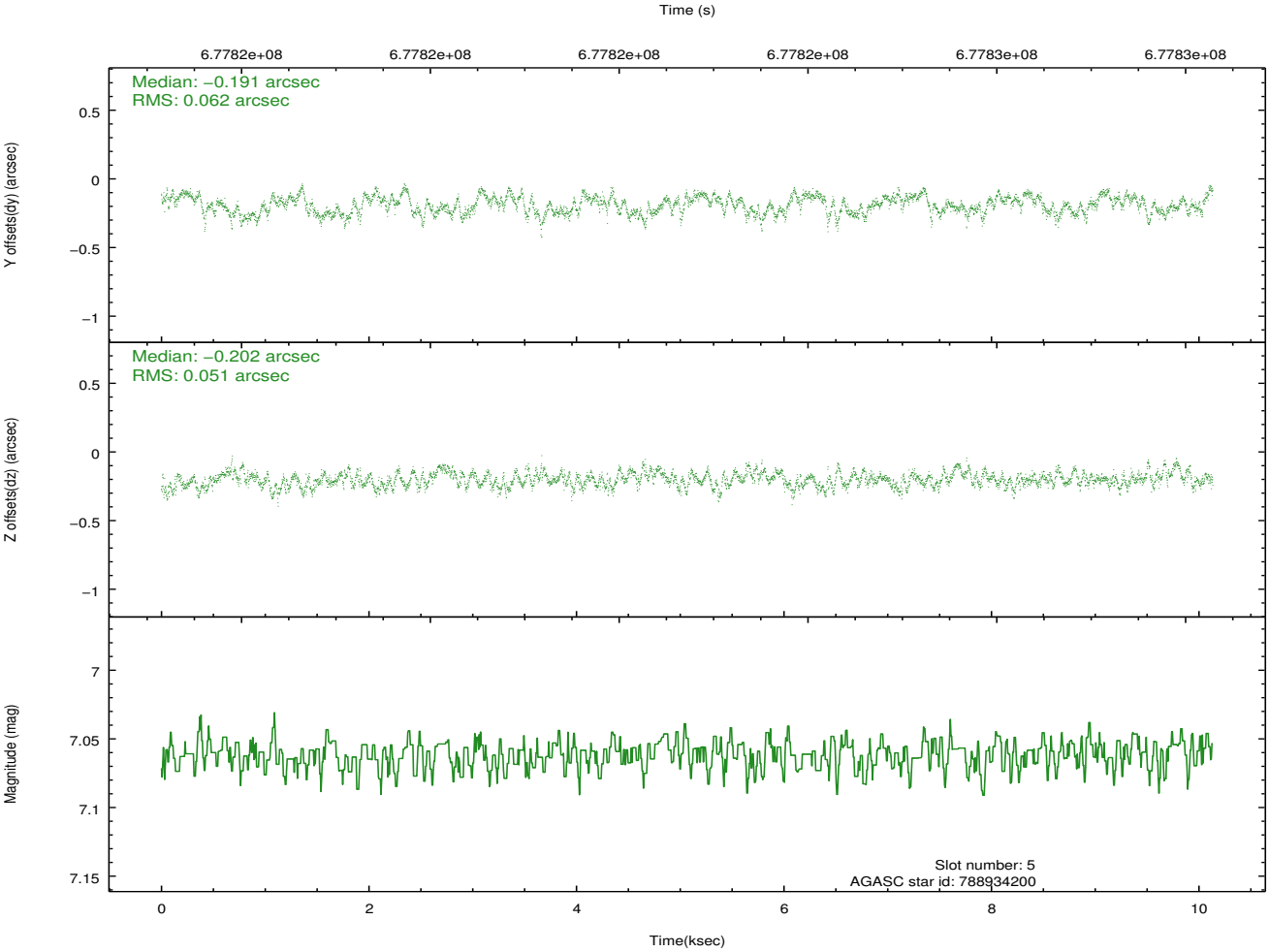

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.160 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 788933864


Time (s)
Median: −0.157 arcsec
RMS: 0.094 arcsec
Y offsets(dy) (arcsec)
Median: 0.028 arcsec
RMS: 0.079 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 788933864
Time(ksec)

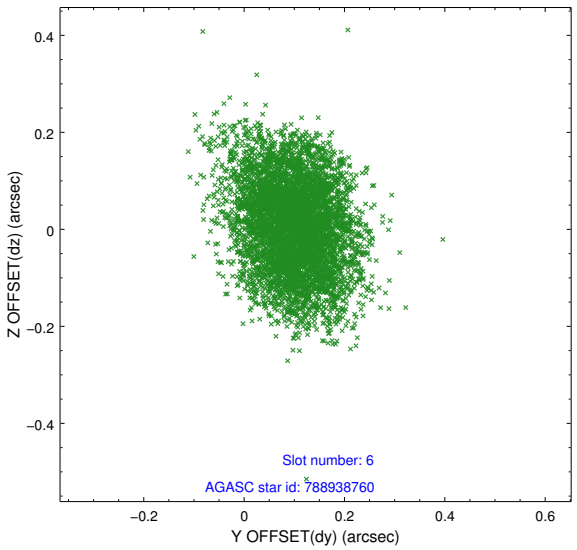
2.4.3 Slot 5

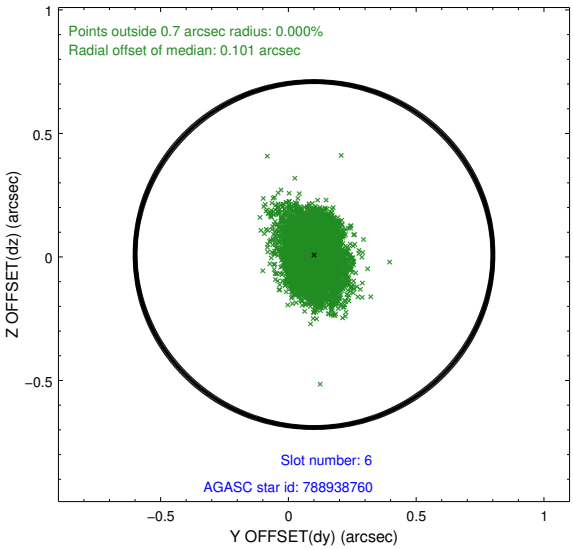

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 788934200

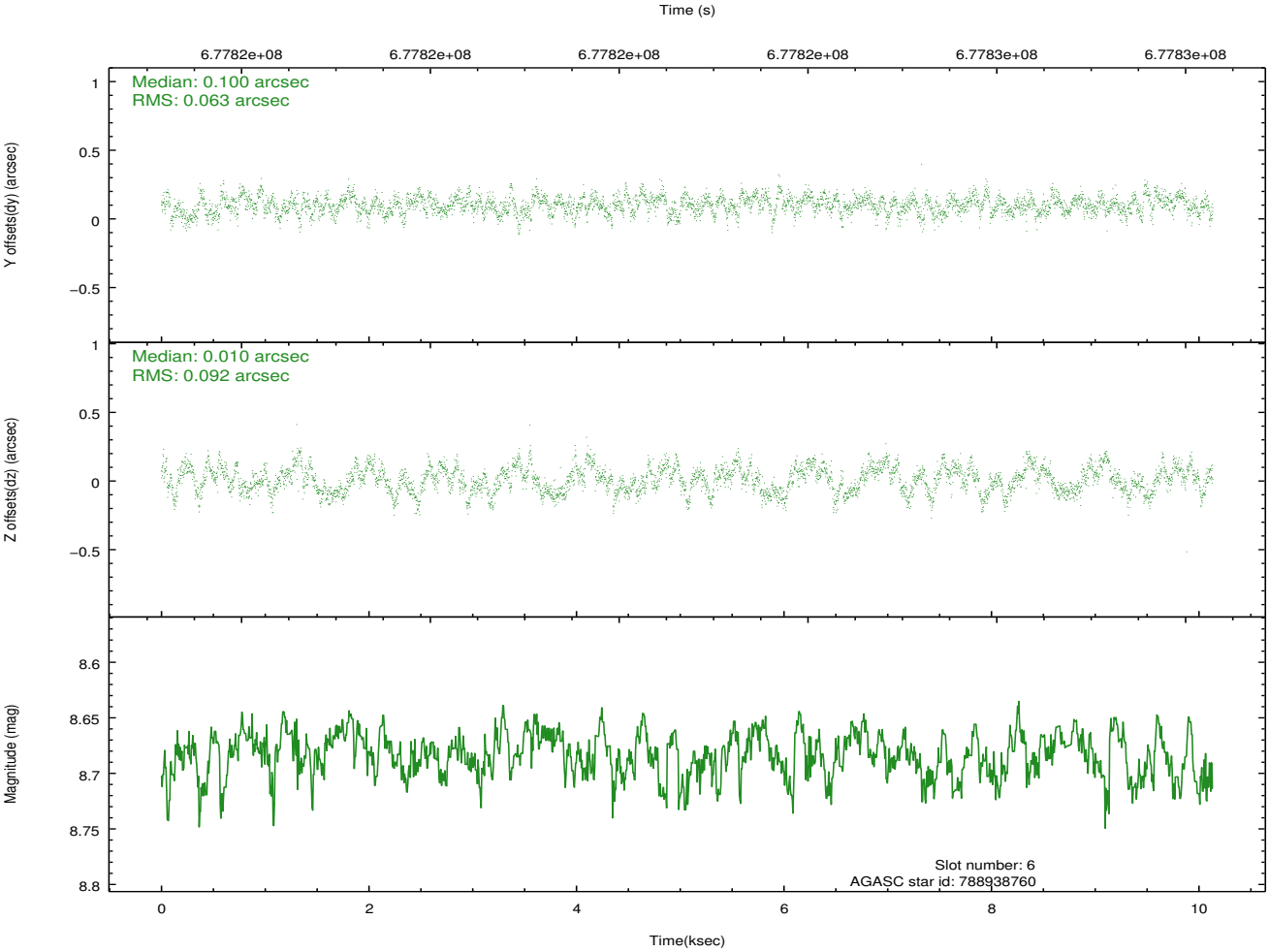

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.278 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 788934200


Time (s)
Median: −0.191 arcsec
RMS: 0.062 arcsec
Y offsets(dy) (arcsec)
Median: −0.202 arcsec
RMS: 0.051 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 788934200
Time(ksec)

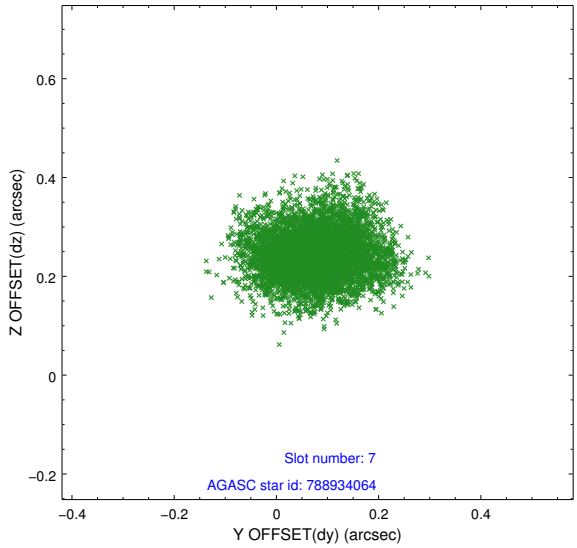
2.4.4 Slot 6

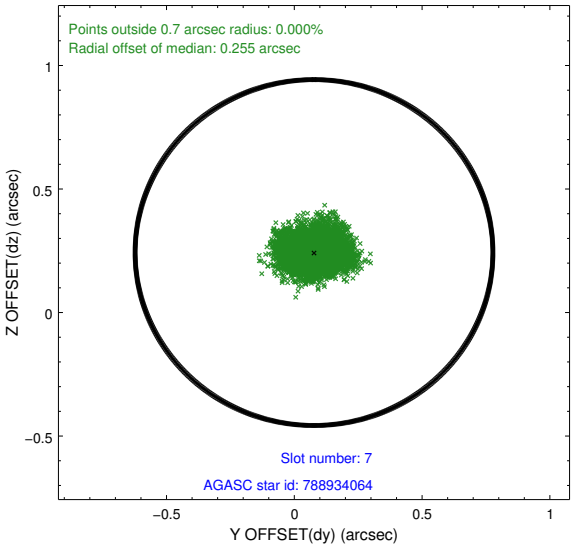

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 788938760

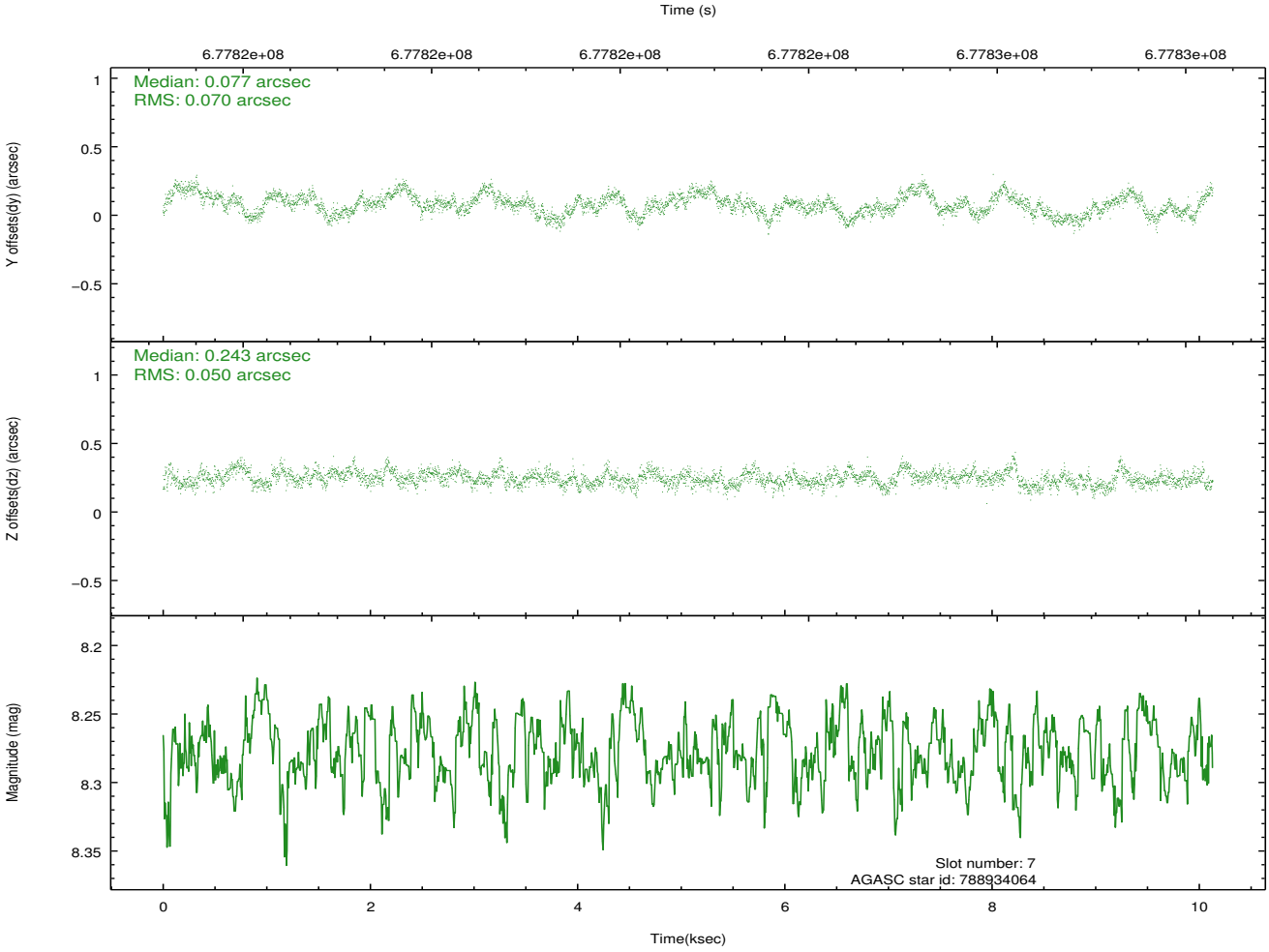

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.101 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 788938760


Time (s)
Median: 0.100 arcsec
RMS: 0.063 arcsec
Y offsets(dy) (arcsec)
Median: 0.010 arcsec
RMS: 0.092 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 788938760
Time(ksec)

2.4.5 Slot 7

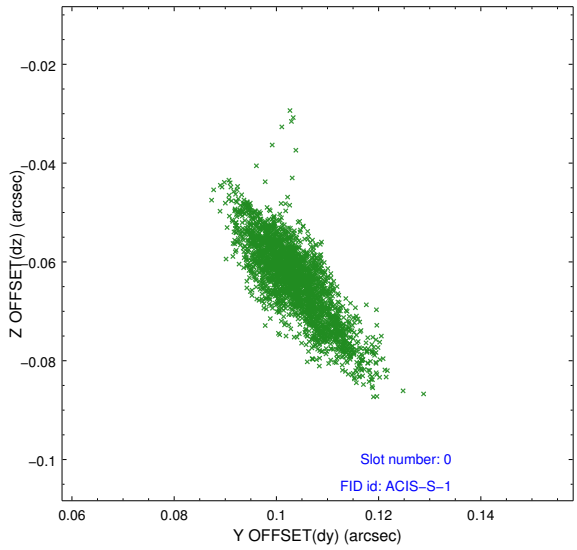

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 788934064

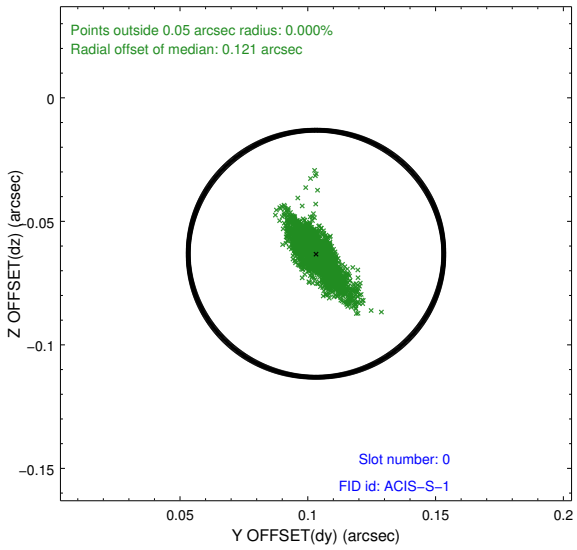

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.255 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 788934064

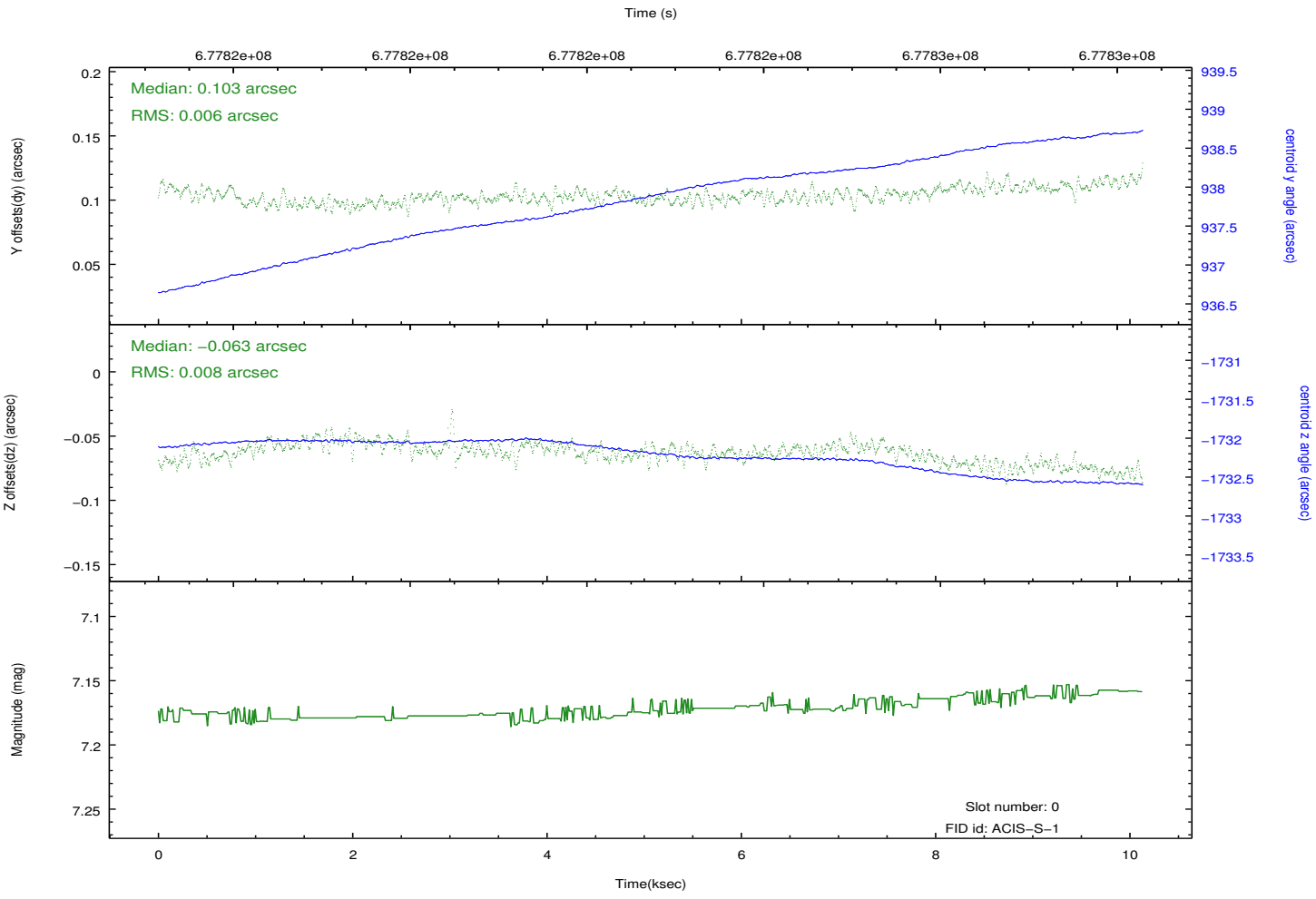

Time (s)
Median: 0.077 arcsec
RMS: 0.070 arcsec
Y offsets(dy) (arcsec)
Median: 0.243 arcsec
RMS: 0.050 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 788934064
Time(ksec)

2.5 FID Slots

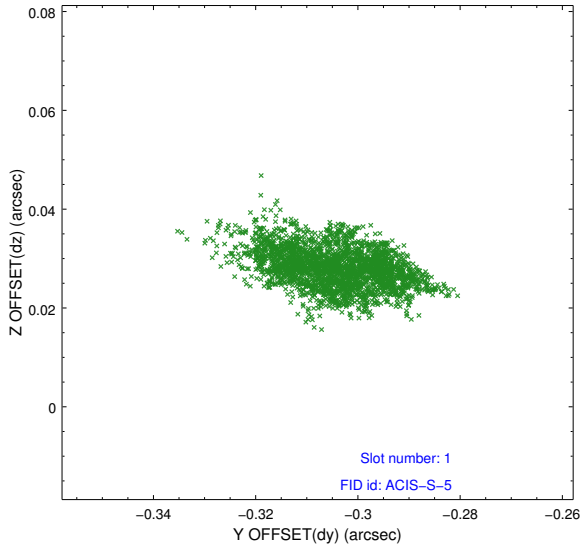
2.5.1 Slot 0

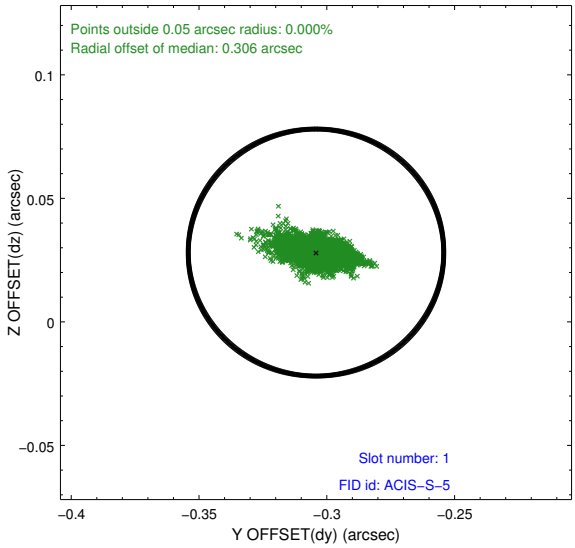


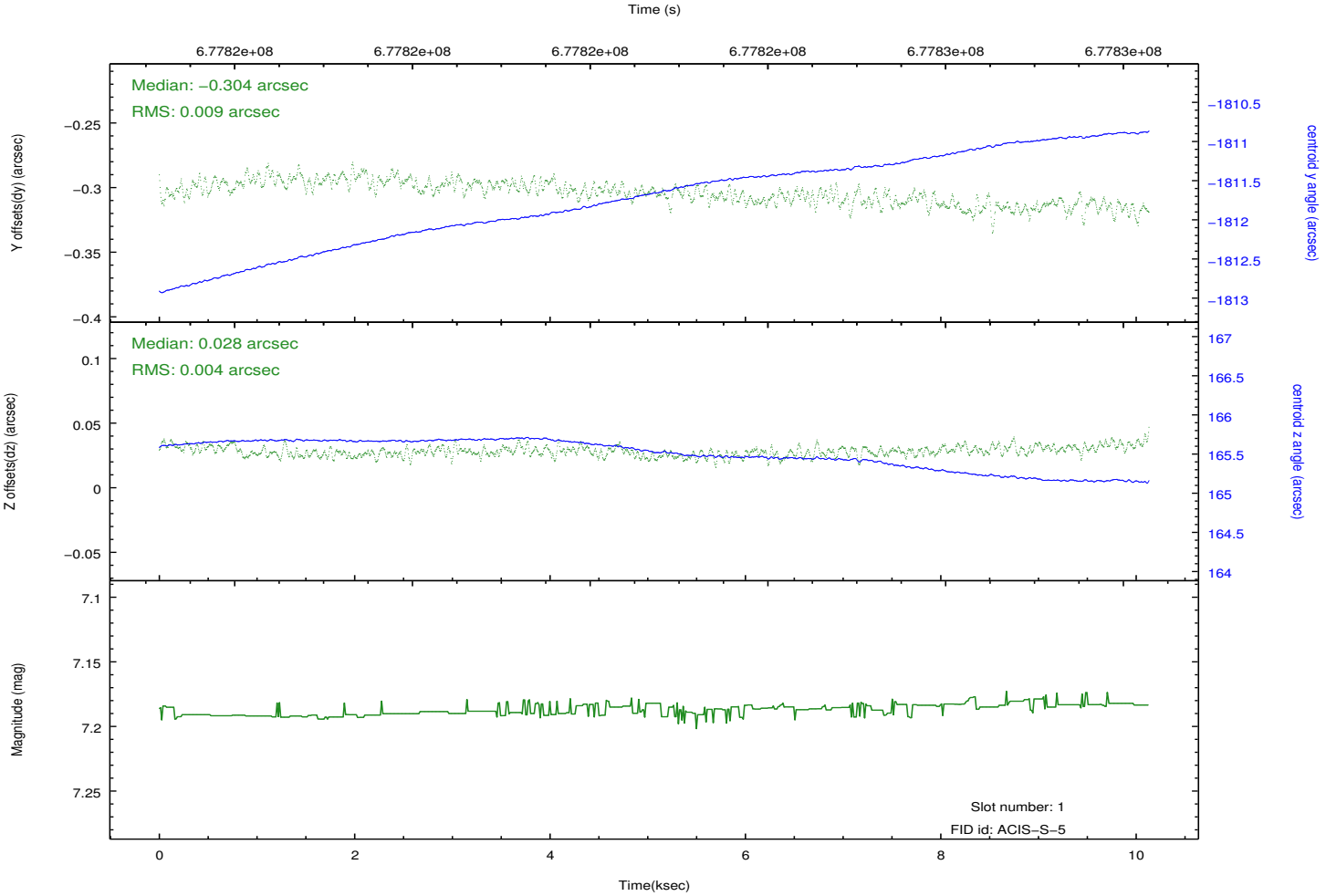




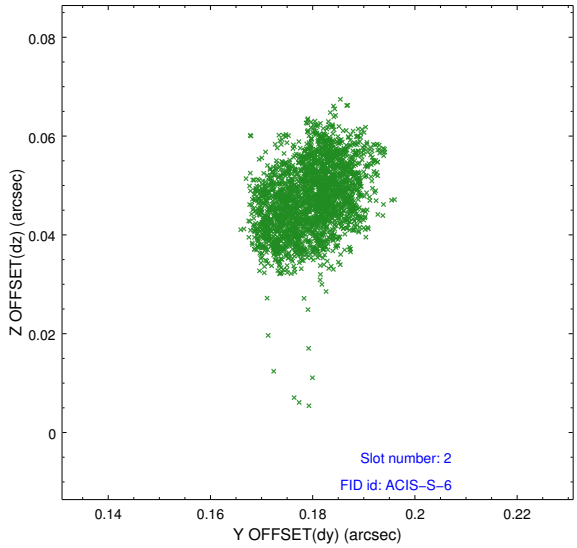
2.5.2 Slot 1

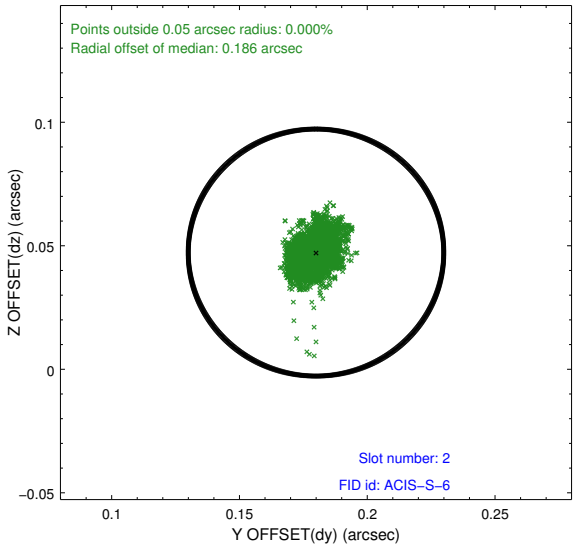

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5

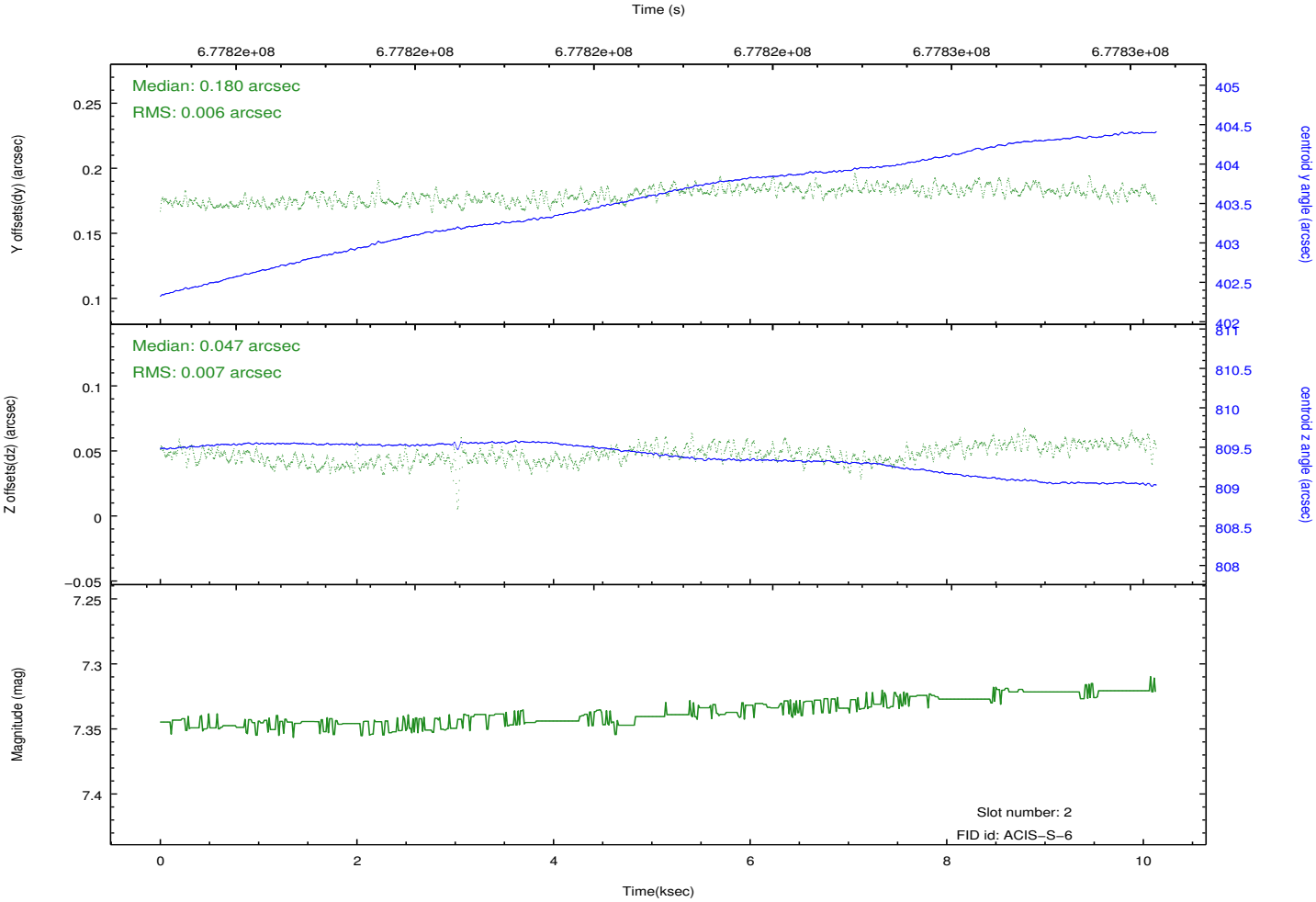

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.306 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5


Time (s)
Median: −0.304 arcsec
RMS: 0.009 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.028 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: ACIS−S−5
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: 0.186 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Time (s)
Median: 0.180 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.047 arcsec
RMS: 0.007 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	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.09.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.061739495397

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.