V&V Reference Report
L2 ASCDS Version : 10.6

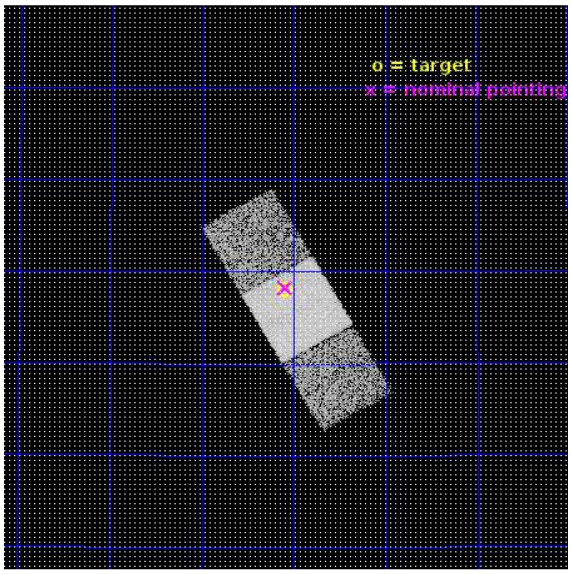
Observation 19460 - L2 Version 1
Chandra X-Ray Center

L2 Processing Date : Dec 5 2017

Contents

1 Front

seq_num	703309	Sequence number
obs_id	19460	Observation id
title	Searching for intermediate-mass black holes in extremely-metal poor galaxies	Proposal title
observer	Mar Mezcua	Principal investigator
object	J114506.3+501802.4	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	176.27625	Observer's specified target RA [deg]
dec_targ	50.300667	Observer's specified target Dec [deg]
ra_nom	176.27320029213	Nominal RA [deg]
dec_nom	50.304705017901	Nominal Dec [deg]
roll_nom	60.159015750364	Nominal Roll [deg]
revision	1	Processing version of data
ontime	8071.9234937429	Sum of GTIs [s]
livetime	7966.4578708336	Livetime [s]
ontime6	8071.8824537992	Sum of GTIs [s]
ontime7	8071.9234937429	Sum of GTIs [s]
ontime8	8071.8414137363	Sum of GTIs [s]
l2events	42276	Number of level 2 events

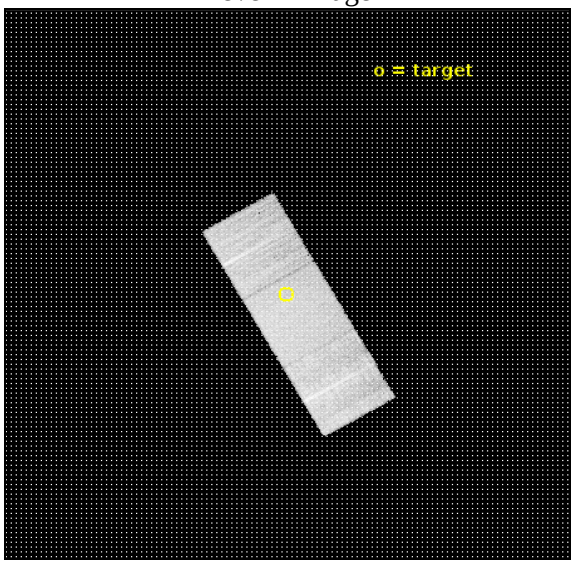


2 OBI

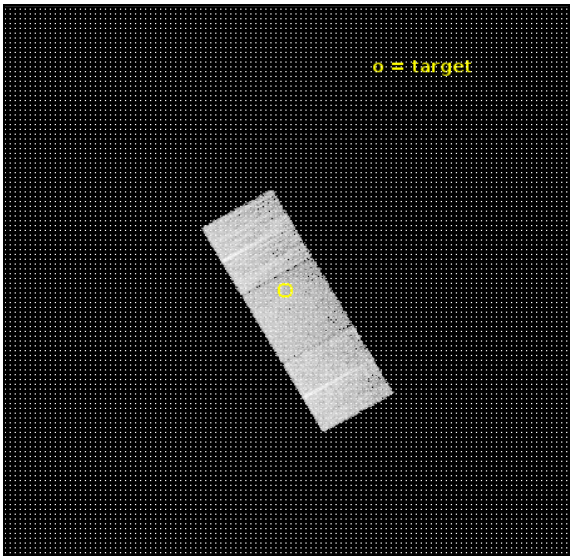
2.1 OBI

2.1.1 Images

Level 1 Image

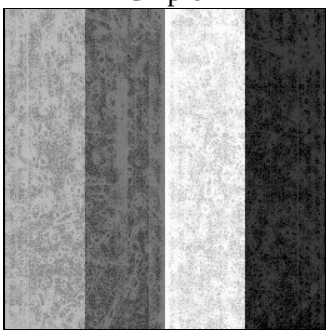


Level 1 Bad Events

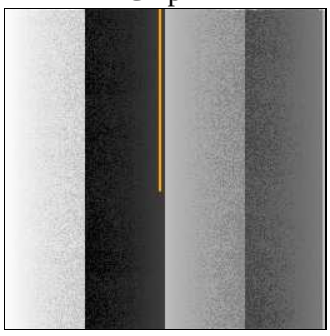


2.1.2 Bias

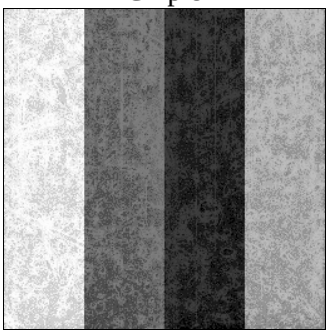
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.6	Processing system revision
caldbver	4.7.6	
date	2017-12-05T23:18:06	Date and time of file creation
revision	1	Processing version of data

sched_exp_time	8000.000000	[s] Scheduled observation exposure time
ontime	8071.9234937429	Sum of GTIs [s]
ontime6	8071.8824537992	Sum of GTIs [s]
ontime7	8071.9234937429	Sum of GTIs [s]
ontime8	8071.8414137363	Sum of GTIs [s]
l1events	207744	Number of level 1 events

2.1.4 Events

	ccd 6	**ccd 7**	**ccd 8**
level 1 events	60654	72970	74120
rejected events	54126	41350	55727
rejected %	89%	56%	75%

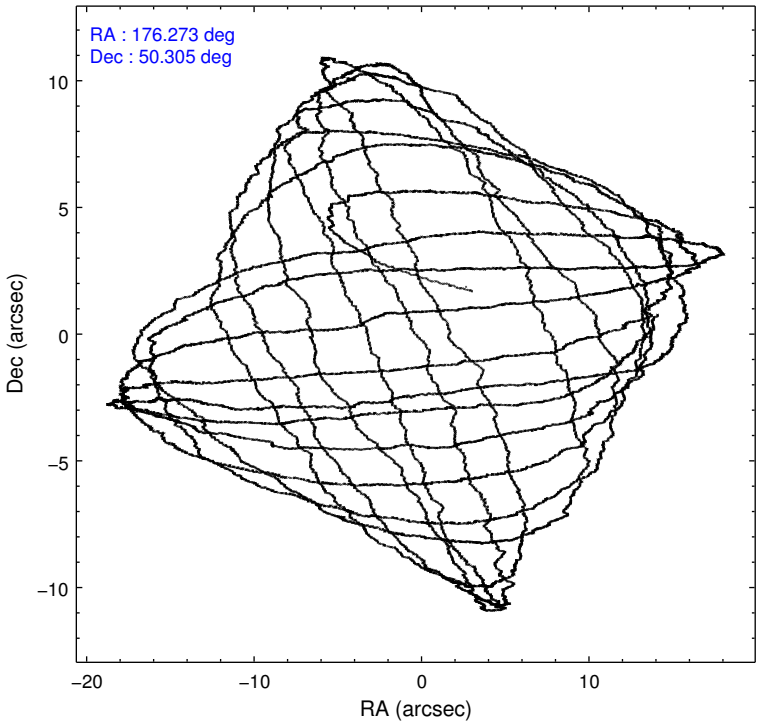
	ccd 6	**ccd 7**	**ccd 8**
grade 0 events	1911	2806	5048
	3%	3%	6%
grade 1 events	22	82	53
	0%	0%	0%
grade 2 events	1765	6328	4470
	2%	8%	6%
grade 3 events	588	2578	1884
	0%	3%	2%
grade 4 events	574	2486	1713
	0%	3%	2%
grade 5 events	2445	7231	4035
	4%	9%	5%
grade 6 events	1693	17429	5286
	2%	23%	7%
grade 7 events	51656	34030	51631
	85%	46%	69%

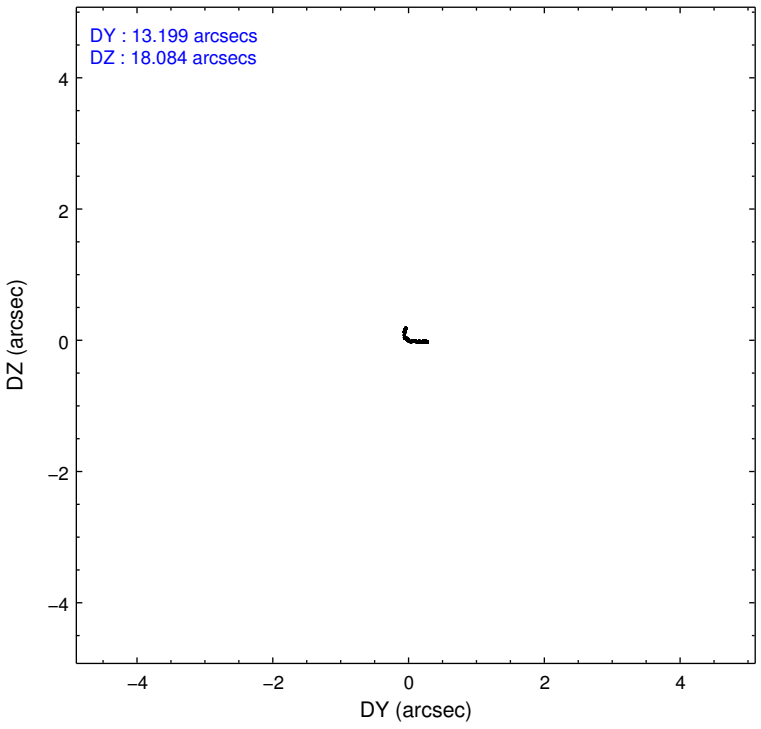
2.2 Compared Parameters

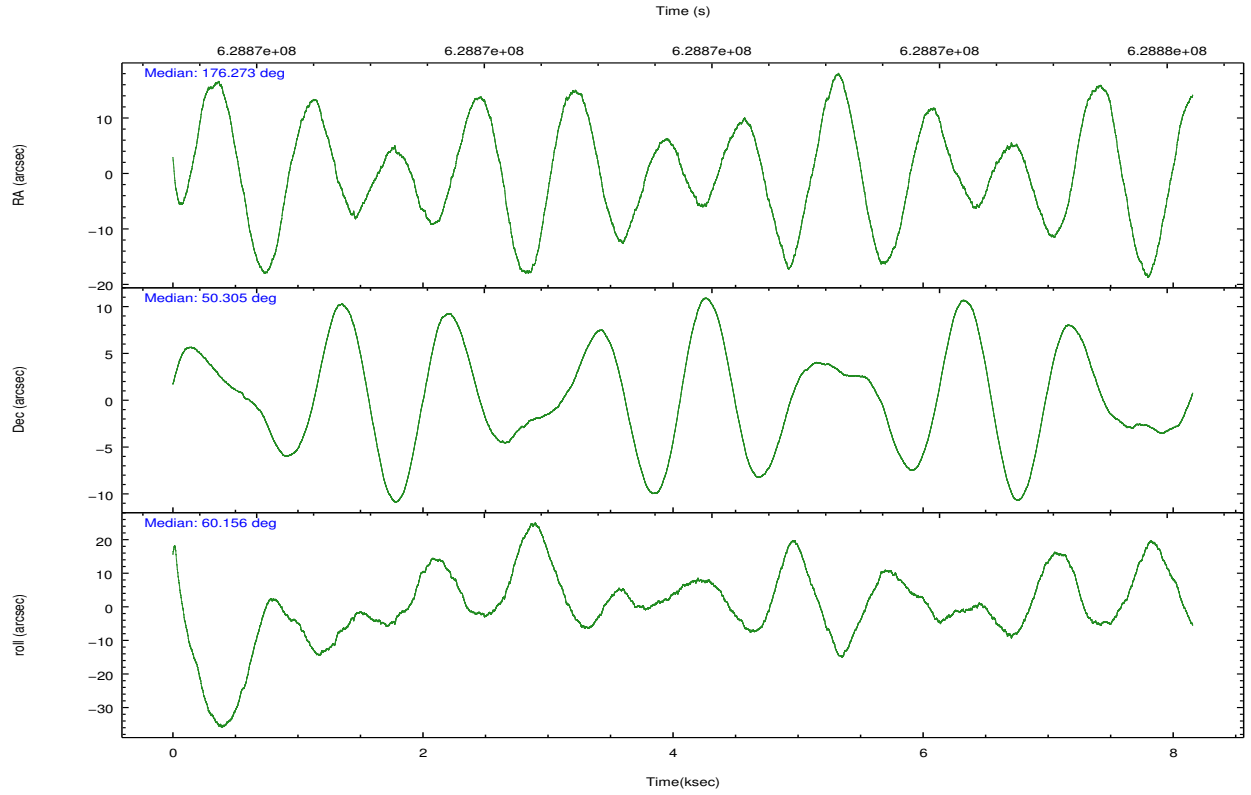
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-678	ACIS-678
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	176.273874	176.2732002921316
[deg] Pointing Dec	50.277249	50.30470501790064
[deg] Pointing Roll	60.001828	60.15901575036357
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1400660498719
[mm] SIM translation stage offset	0	0.00754346686406393
[s] Observation start time (MET)	628867828.184000	628866645.34273
Observation start date	2017-12-05T13:29:19	2017-12-05T13:10:45
[s] Observation end time (MET)	628875828.184000	628876359.2683001
Observation end date	2017-12-05T15:42:39	2017-12-05T15:52:39
Read mode	TIMED	TIMED

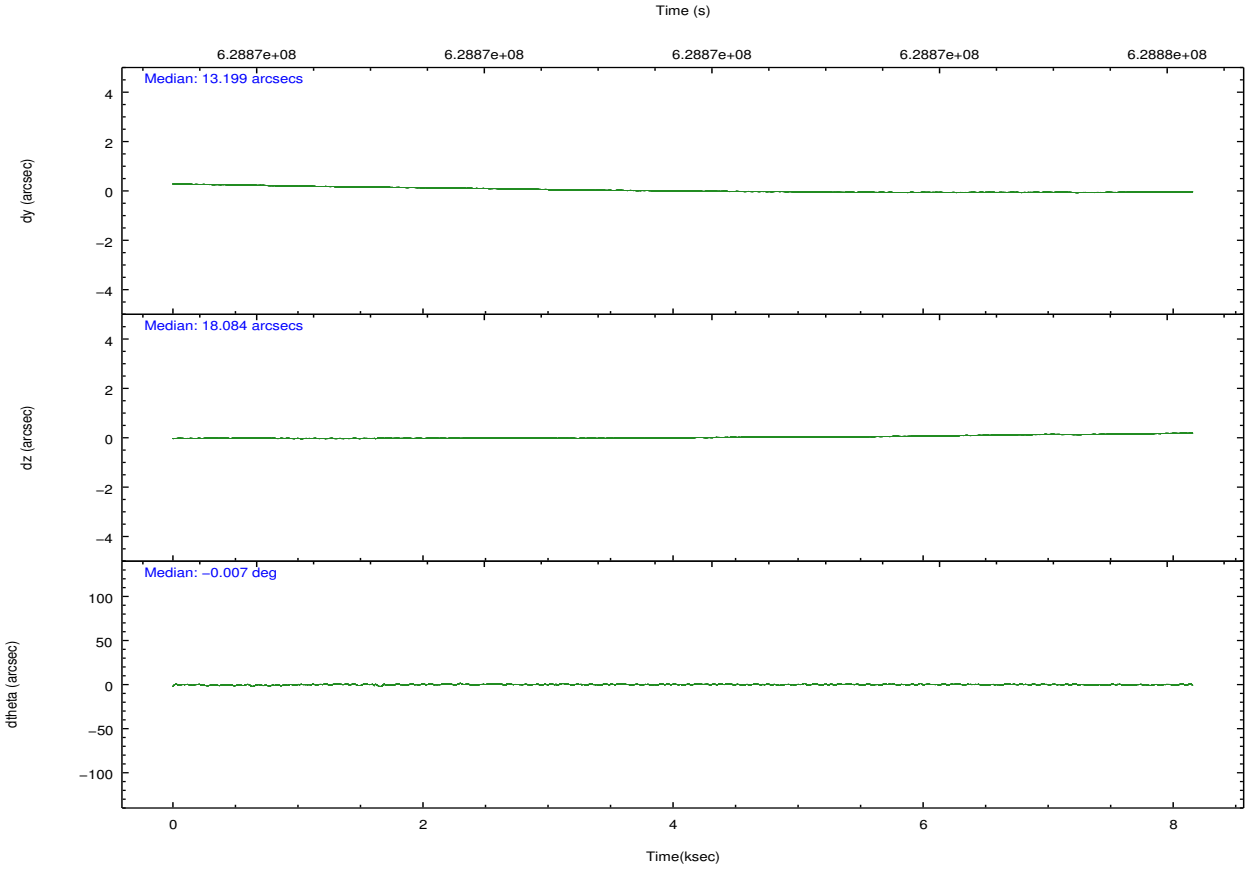
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	N	N
CCD S1 on	N	N
CCD S2 on	O1	Y
CCD S3 on	Y	Y
CCD S4 on	O2	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	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 : 176.273 deg
Dec : 50.305 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−20
−10
0
10


DY : 13.199 arcsecs
DZ : 18.084 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
6.2887e+08
6.2887e+08
6.2887e+08
6.2887e+08
6.2888e+08
Median: 176.273 deg
RA (arcsec)
Median: 50.305 deg
Dec (arcsec)
Median: 60.156 deg
roll (arcsec)
Time(ksec)

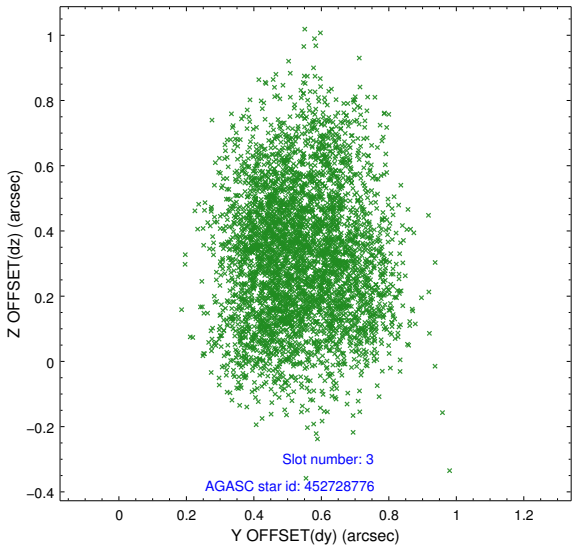

Time (s)
6.2887e+08
6.2887e+08
6.2887e+08
6.2887e+08
6.2888e+08
Median: 13.199 arcsecs
dy (arcsec)
Median: 18.084 arcsecs
dz (arcsec)
Median: −0.007 deg
dtheta (arcsec)
Time(ksec)

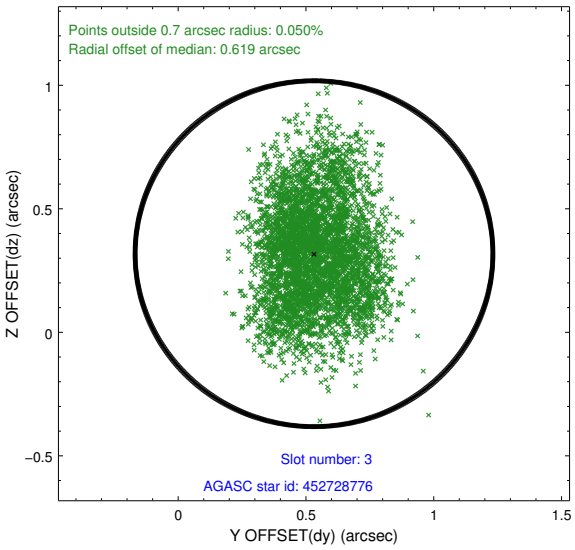
Slot Statistics

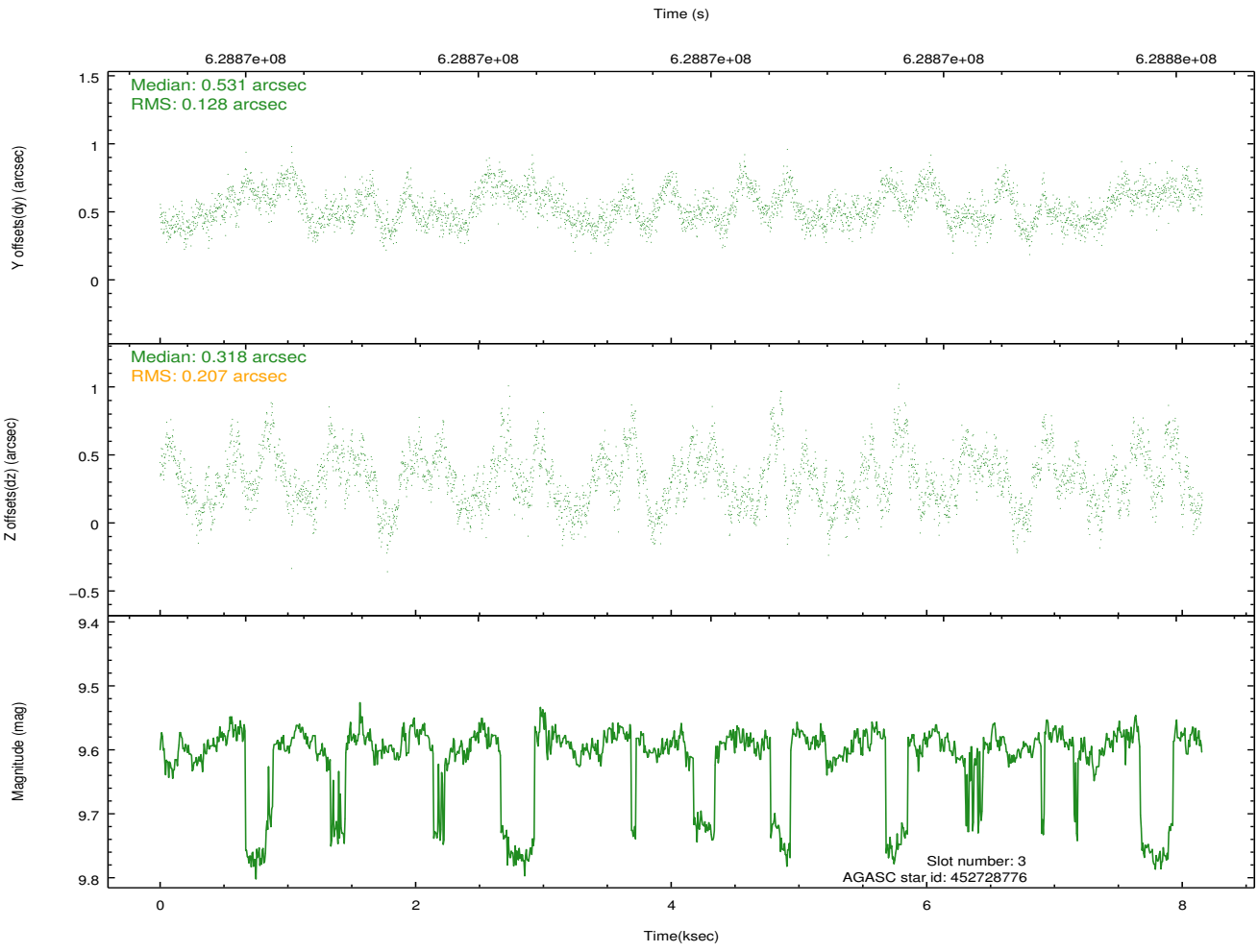
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.22	1990	0.170	-0.038	0.008	0.016	0.000000	0.000000	930.10	-1735.22
1	FID		ACIS-S-5	7.24	1990	-0.329	0.103	0.008	0.013	0.000000	0.000000	-1819.07	161.68
2	FID		ACIS-S-6	7.38	1990	0.137	-0.054	0.008	0.016	0.000000	0.000000	394.80	806.33
3	GUIDE	used	452728776	9.60	3971	0.531	0.318	0.261	0.415	176.447311	49.864240	-1085.35	-1090.96
4	GUIDE	used	452735280	9.45	3974	-0.245	0.066	0.201	0.316	176.795376	50.785533	2180.63	-110.45
5	GUIDE	used	452738872	9.23	3974	-0.118	-0.291	0.196	0.308	175.827129	50.610480	531.84	1484.90
6	GUIDE	used	452735088	9.39	3973	-0.417	-0.374	0.168	0.273	176.087412	51.094482	2337.44	1836.52
7	GUIDE	used	452731824	9.40	3973	0.243	0.283	0.213	0.334	176.163449	49.903259	-1292.56	-450.28

2.4 Star Slots

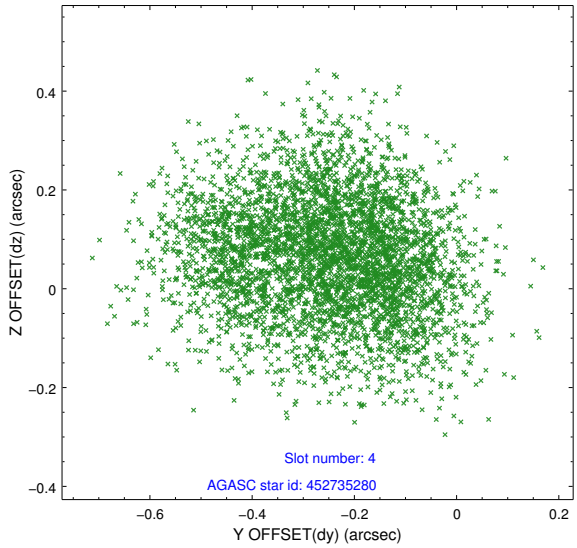
2.4.1 Slot 3

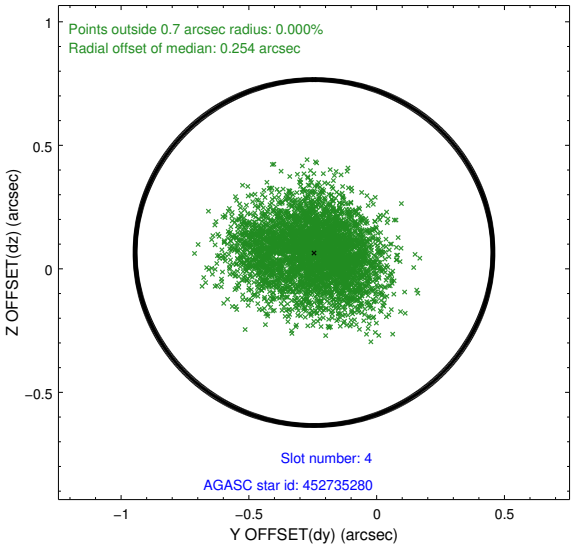


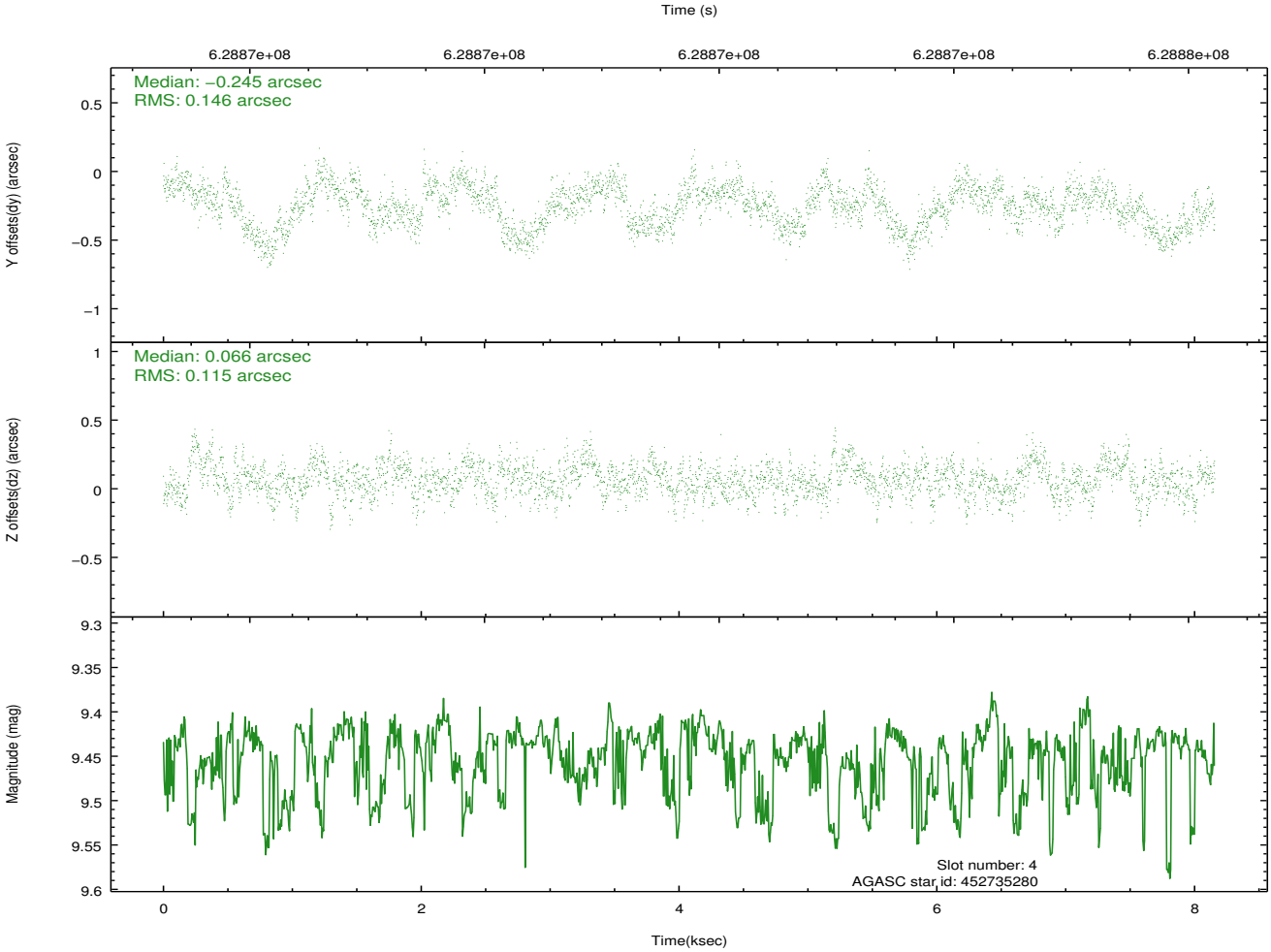




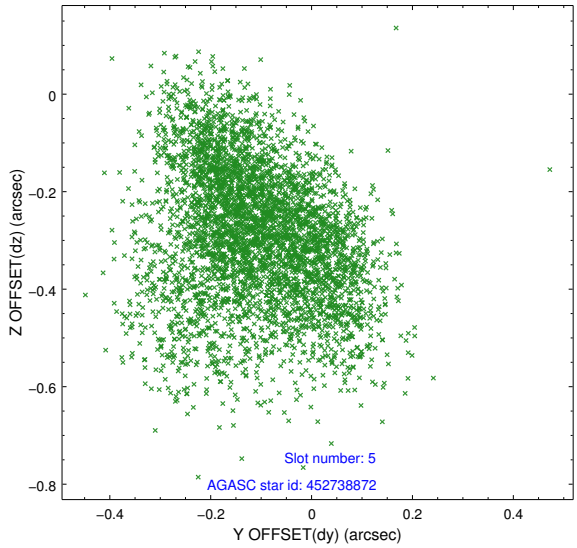
2.4.2 Slot 4

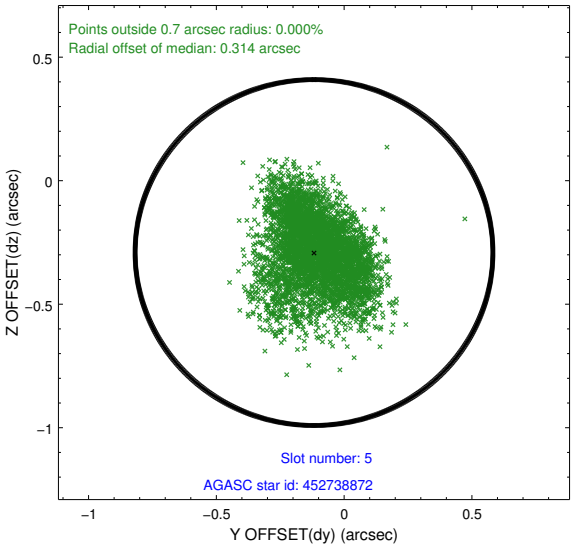

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 452735280

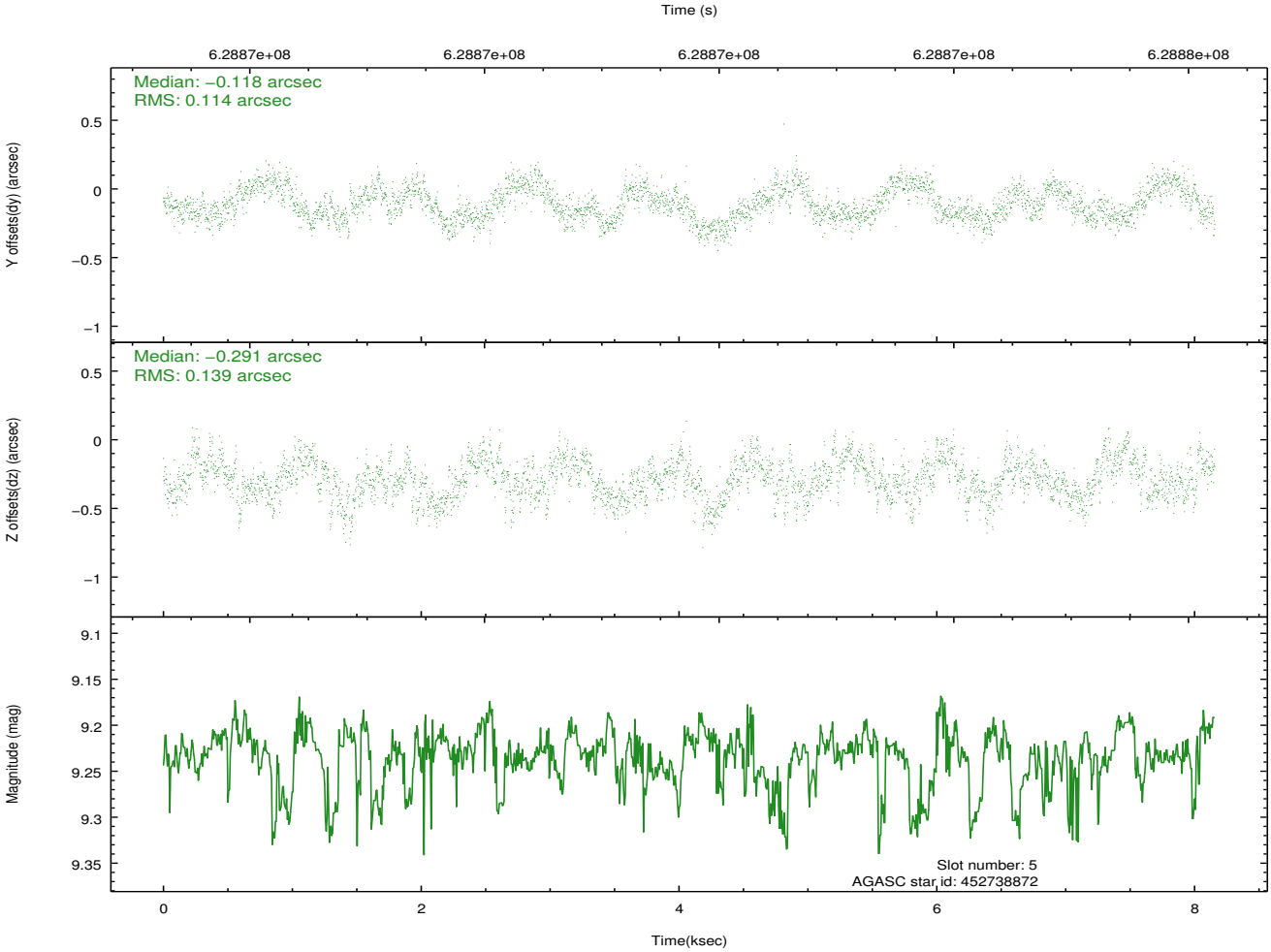

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.254 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 452735280


Time (s)
Median: −0.245 arcsec
RMS: 0.146 arcsec
Y offsets(dy) (arcsec)
Median: 0.066 arcsec
RMS: 0.115 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 452735280
Time(ksec)

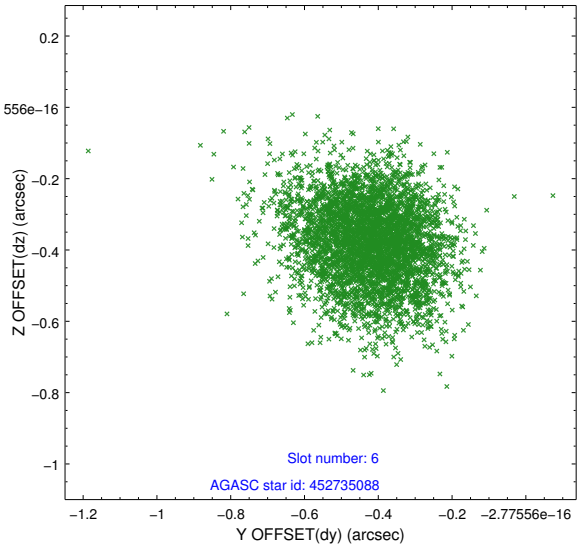
2.4.3 Slot 5

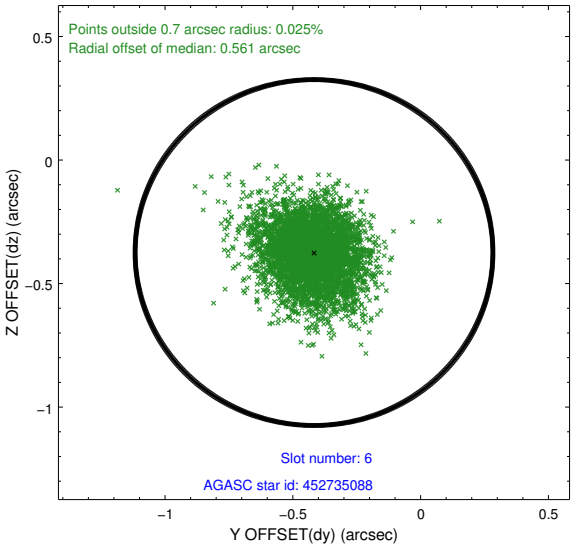

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 452738872

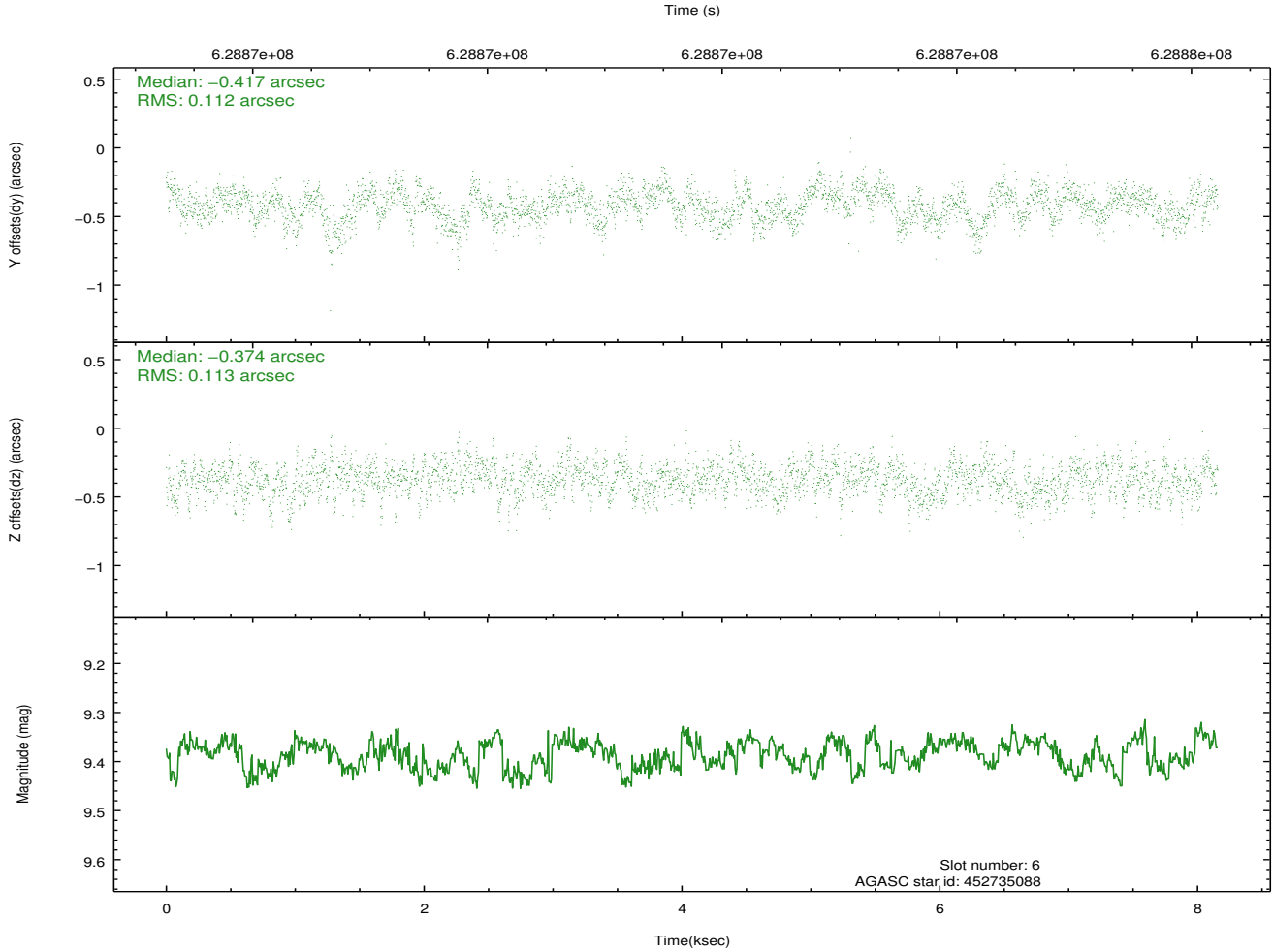

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.314 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 452738872


Time (s)
6.2887e+08
6.2887e+08
6.2887e+08
6.2887e+08
6.2888e+08
Median: −0.118 arcsec
RMS: 0.114 arcsec
Y offsets(dy) (arcsec)
Median: −0.291 arcsec
RMS: 0.139 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 452738872
Time(ksec)

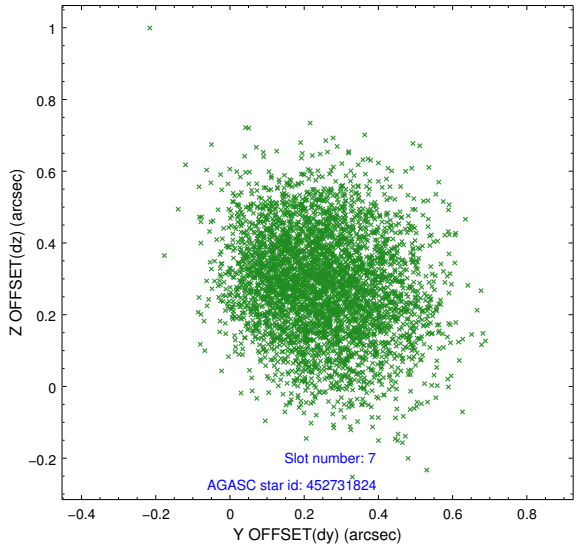
2.4.4 Slot 6

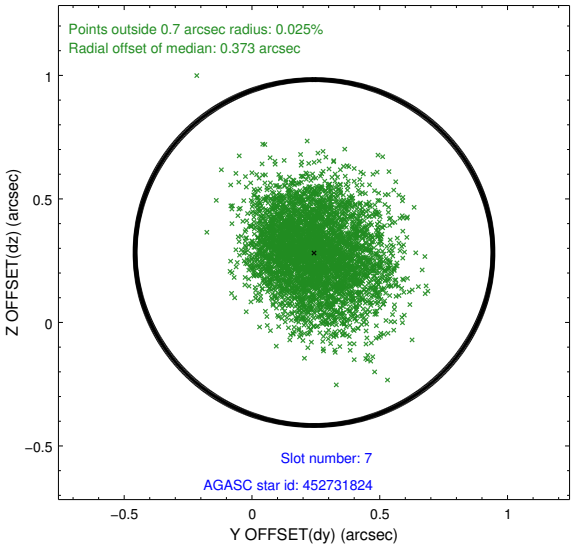

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 452735088

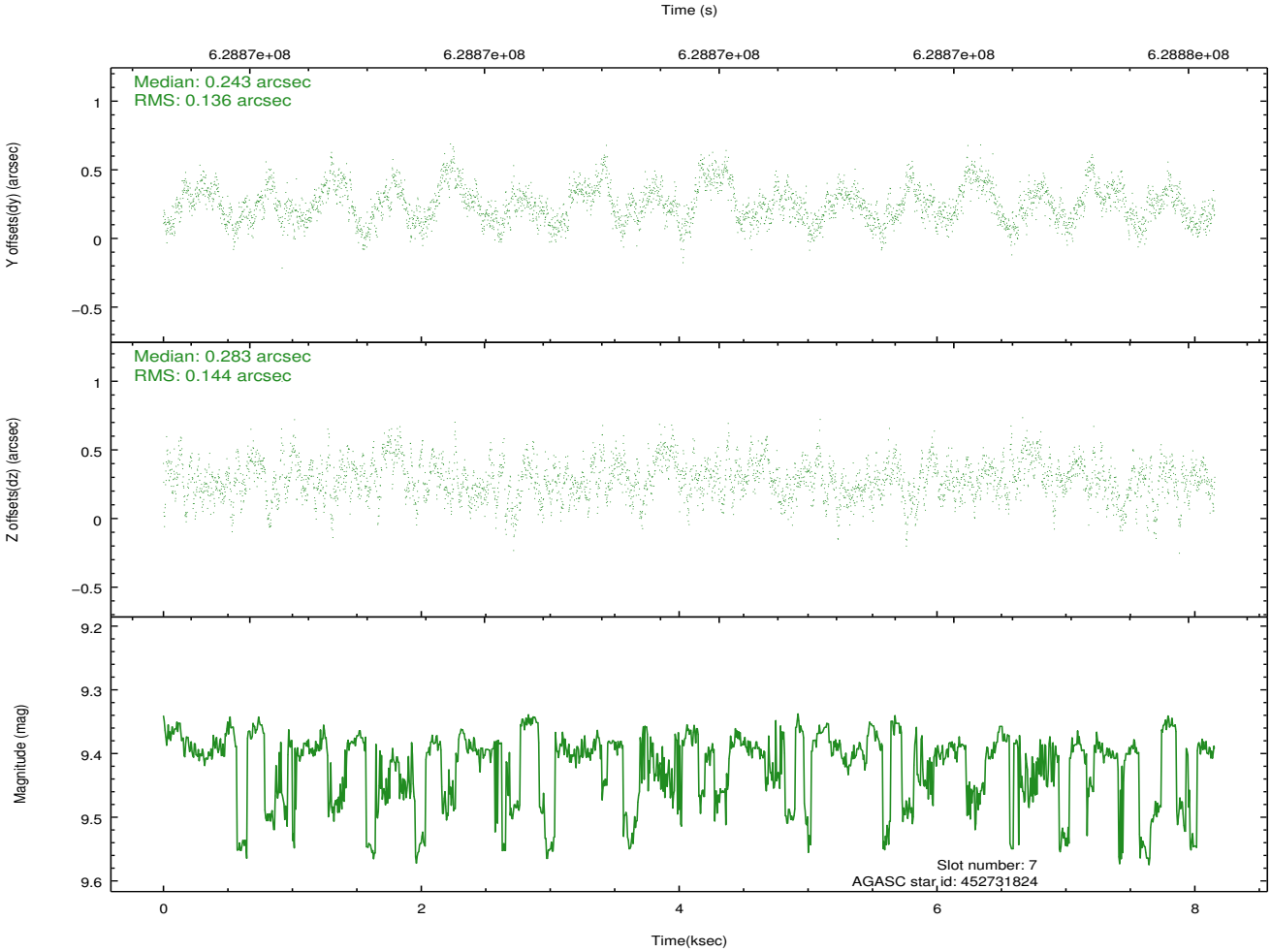

Points outside 0.7 arcsec radius: 0.025%
Radial offset of median: 0.561 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 452735088


Time (s)
Median: −0.417 arcsec
RMS: 0.112 arcsec
Y offsets(dy) (arcsec)
Median: −0.374 arcsec
RMS: 0.113 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 452735088
Time(ksec)

2.4.5 Slot 7

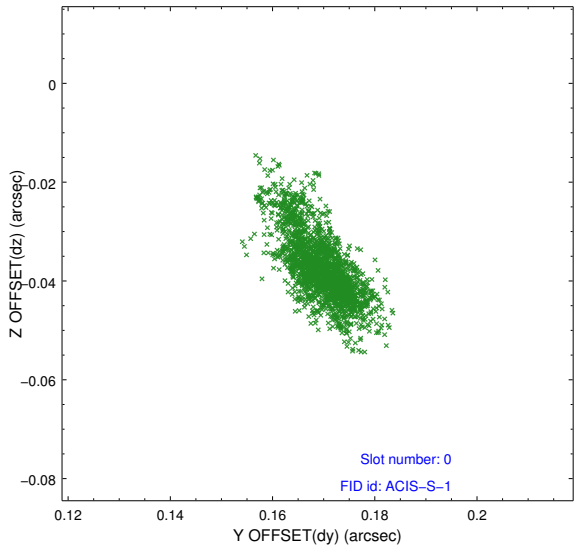

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 452731824

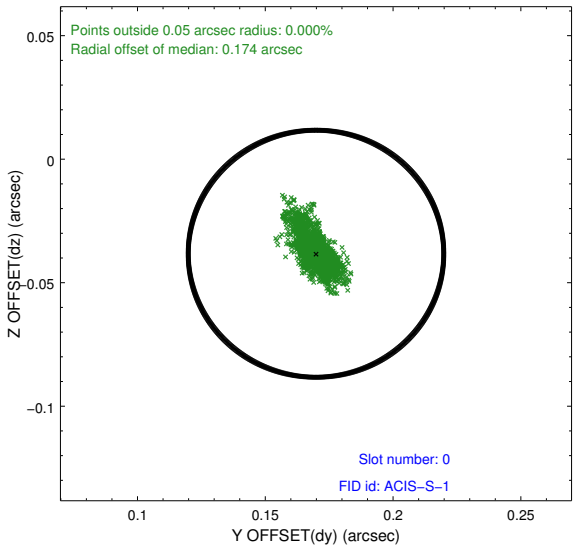

Points outside 0.7 arcsec radius: 0.025%
Radial offset of median: 0.373 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 452731824

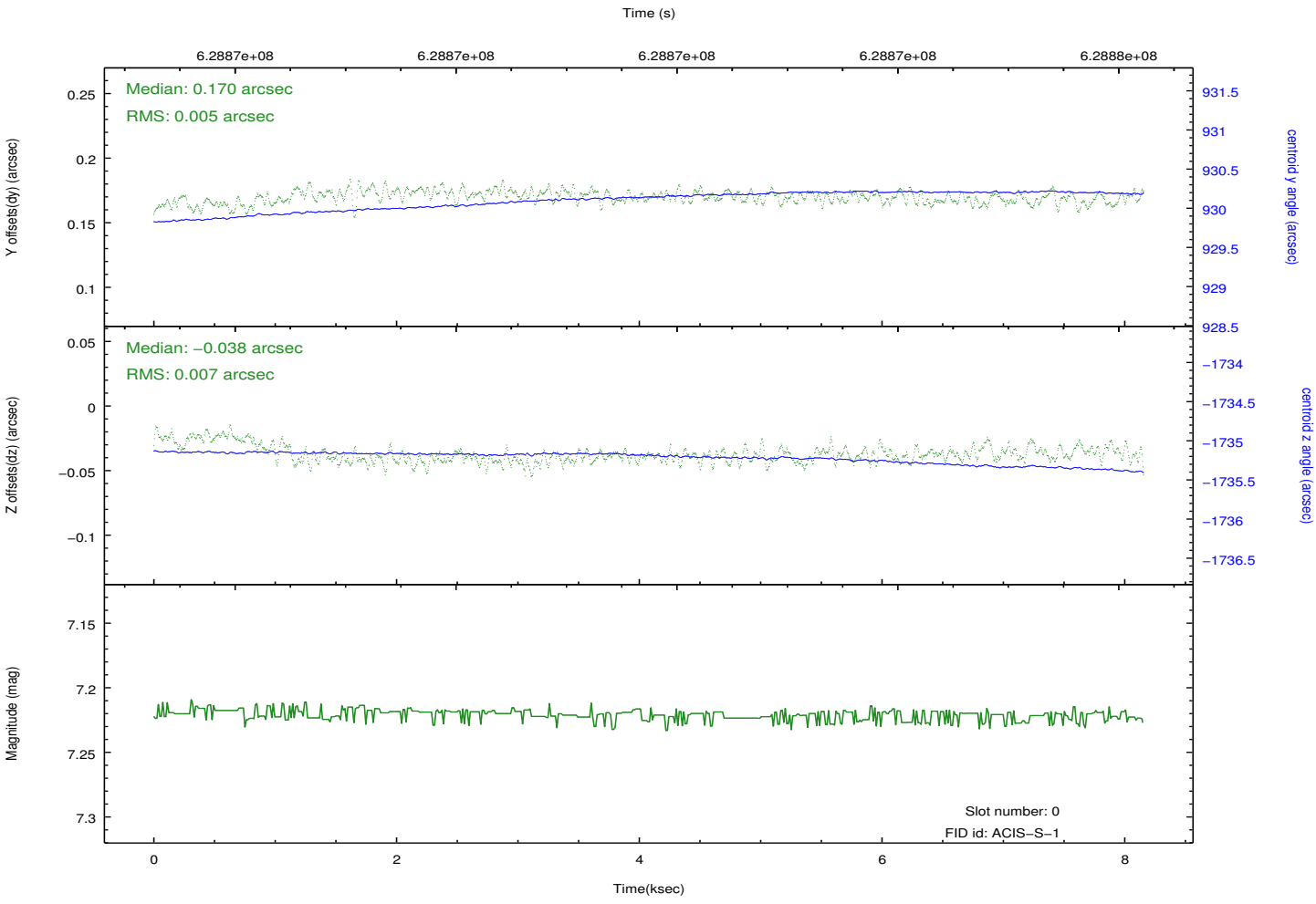

Time (s)
6.2887e+08
6.2887e+08
6.2887e+08
6.2887e+08
6.2888e+08
Median: 0.243 arcsec
RMS: 0.136 arcsec
Y offsets(dy) (arcsec)
Median: 0.283 arcsec
RMS: 0.144 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 452731824
Time(ksec)

2.5 FID Slots

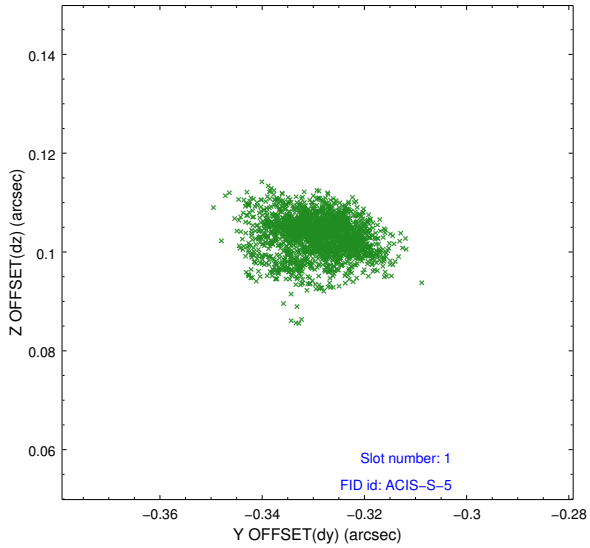
2.5.1 Slot 0

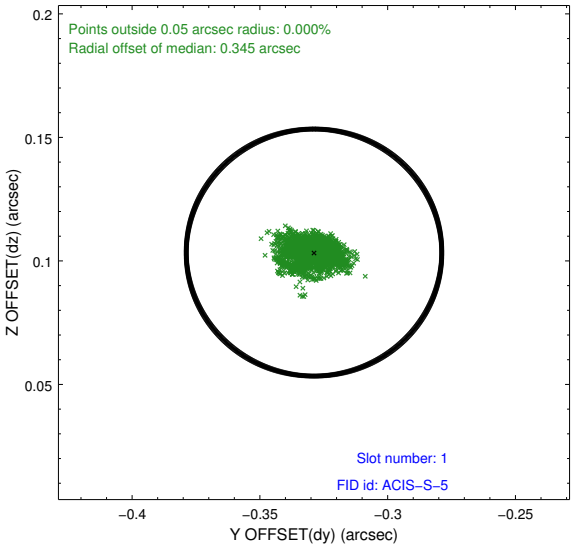


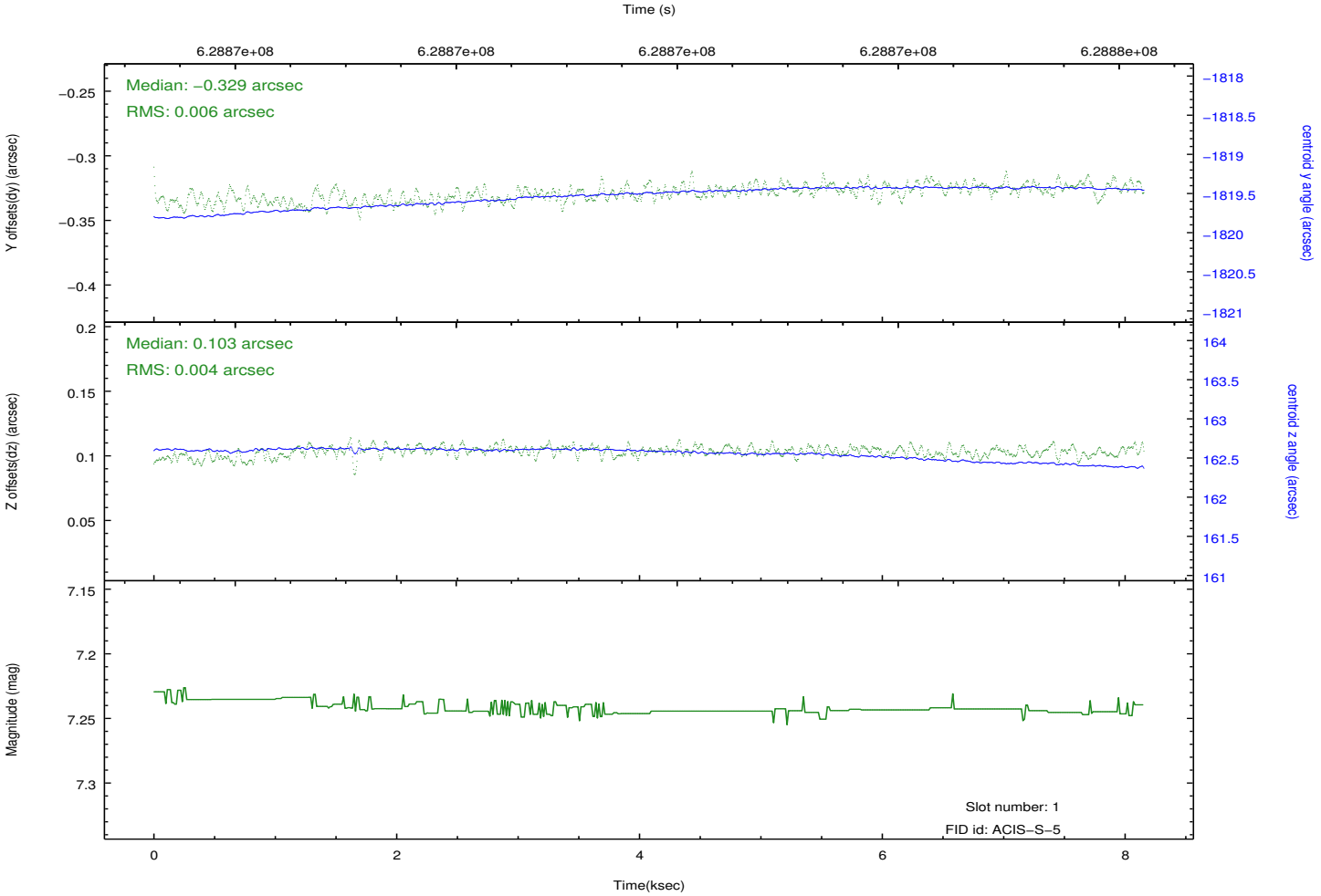




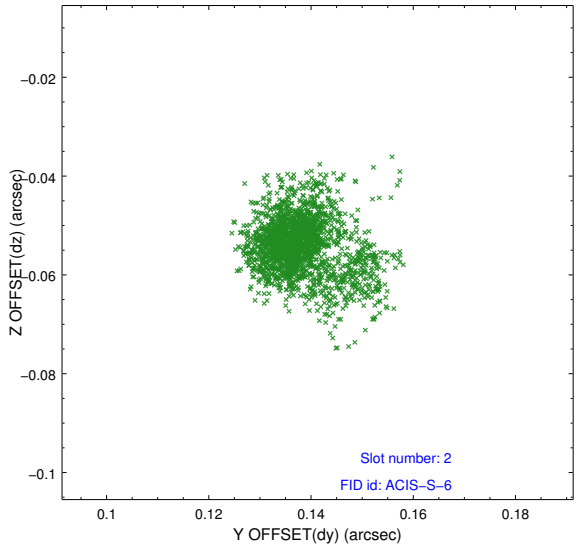
2.5.2 Slot 1

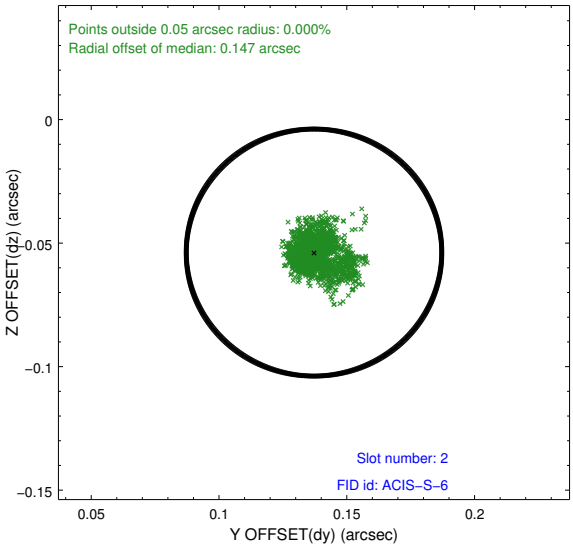

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5

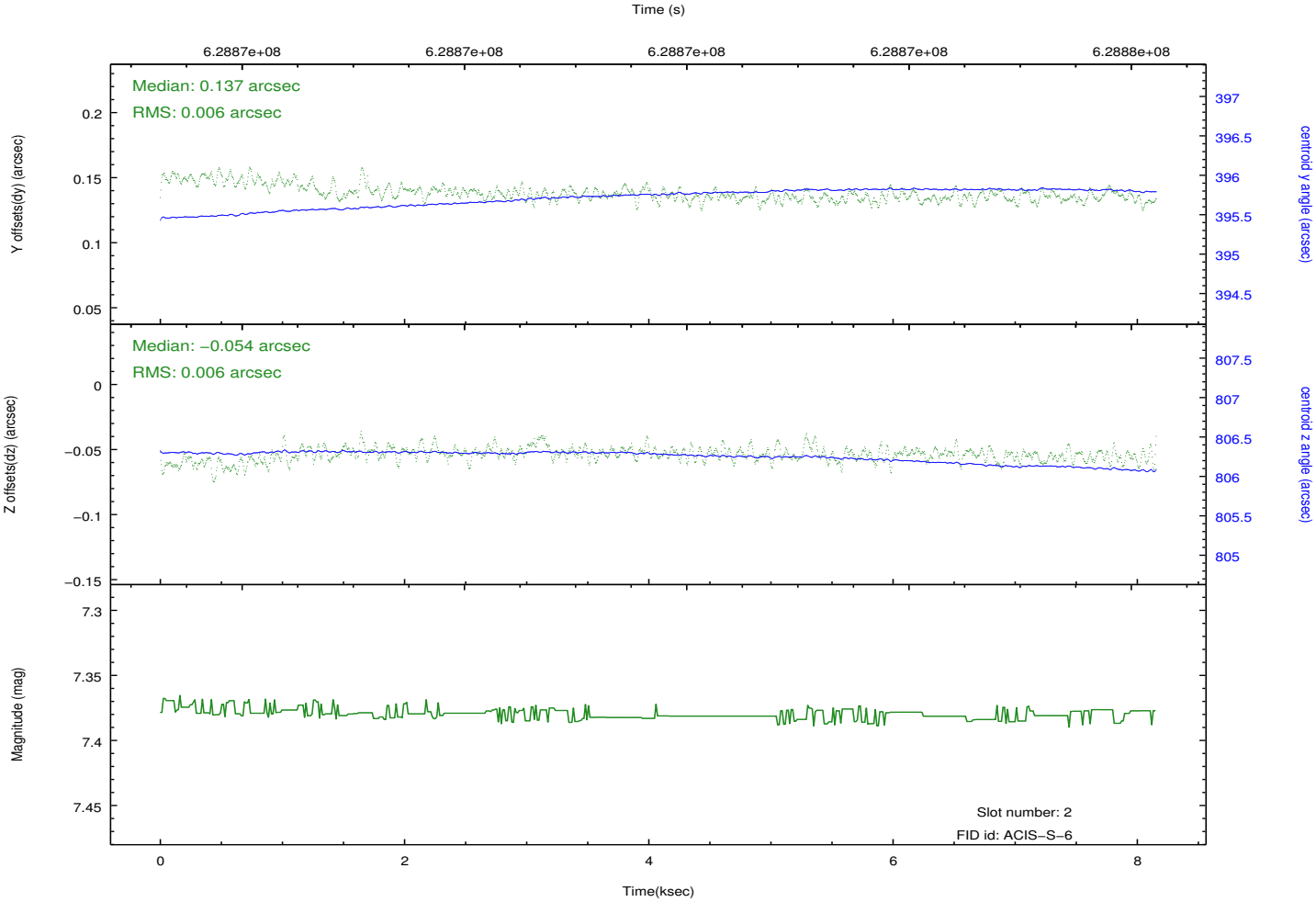

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.345 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−5


Time (s)
Median: −0.329 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
Median: 0.103 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid y angle (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: 0.147 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−6


Time (s)
Median: 0.137 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.054 arcsec
RMS: 0.006 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)	2017.12.06
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	8.0719234937429

A.2 Comments

A spatial region of the bias map for CCD = 6 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small (~20 eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. In this case, the bias map for CCD = 6 could not be improved because no suitable data at a compatible temperature and time range are available to use as replacement values. The bias map used in this processing is the original bias map telemetered with the observation.