V&V Reference Report
L2 ASCDS Version : 10.9.1

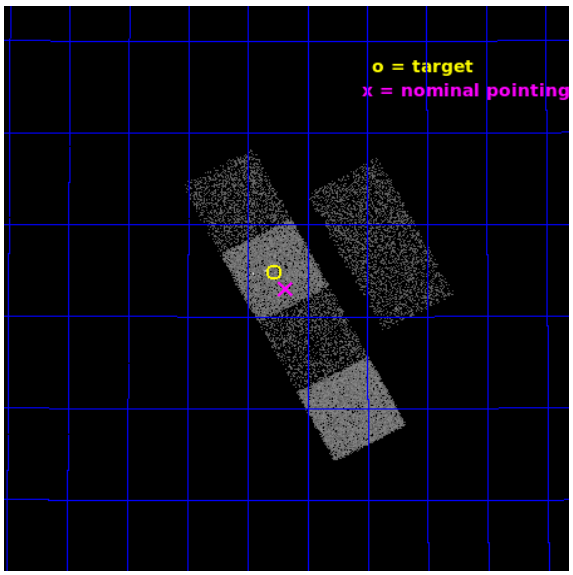
Observation 7104 - L2 Version 3
Chandra X-Ray Center

L2 Processing Date : Oct 11 2020

Contents

1 Front

seq_num	600542	Sequence number
obs_id	7104	Observation id
title	A Complete Sample of ULX Host Galaxies	Proposal title
observer	Douglas Swartz	Principal investigator
object	NGC 0925	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	36.820417	Observer's specified target RA [deg]
dec_targ	33.579194	Observer's specified target Dec [deg]
ra_nom	36.795105761423	Nominal RA [deg]
dec_nom	33.550585520195	Nominal Dec [deg]
roll_nom	241.91112363153	Nominal Roll [deg]
revision	3	Processing version of data
ontime	2271.9999915361	Sum of GTIs [s]
livetime	2243.2305596092	Livetime [s]
ontime2	2271.9999915361	Sum of GTIs [s]
ontime3	2271.9999915361	Sum of GTIs [s]
ontime5	2271.9999915361	Sum of GTIs [s]
ontime6	2271.9999915361	Sum of GTIs [s]
ontime7	2271.9999915361	Sum of GTIs [s]
ontime8	2271.9999915361	Sum of GTIs [s]
l2events	29814	Number of level 2 events

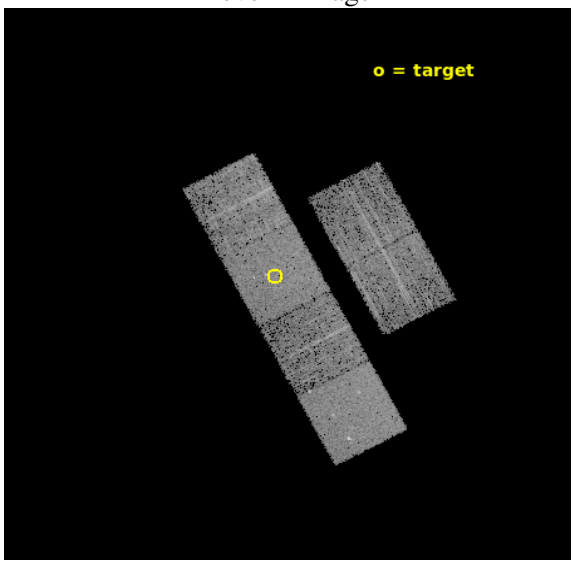


2 OBI

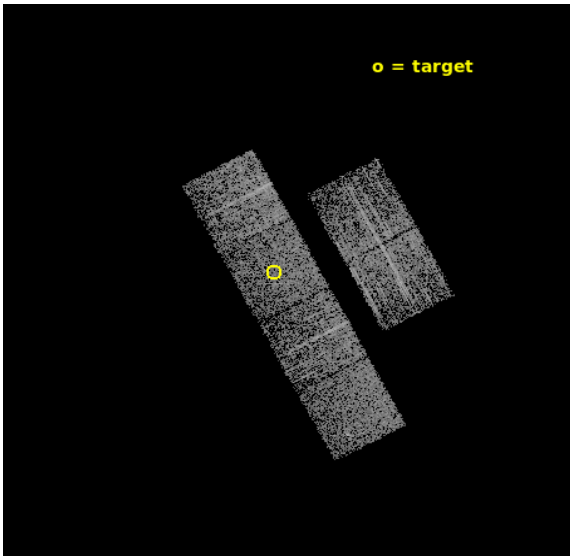
2.1 OBI

2.1.1 Images

Level 1 Image

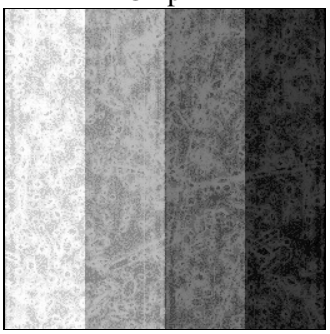


Level 1 Bad Events

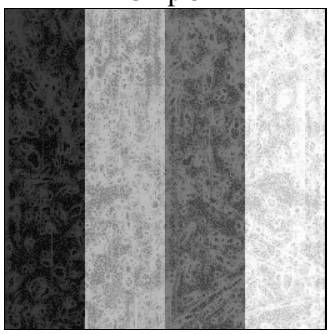


2.1.2 Bias

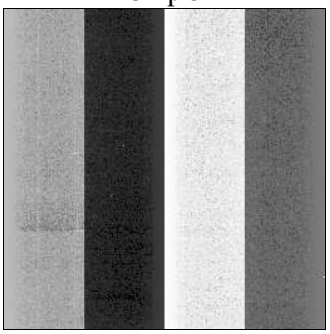
Chip 2



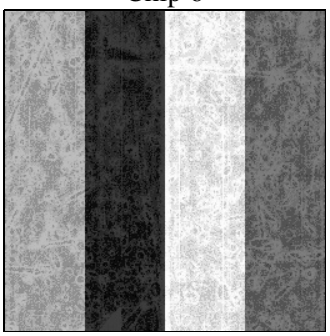
Chip 3



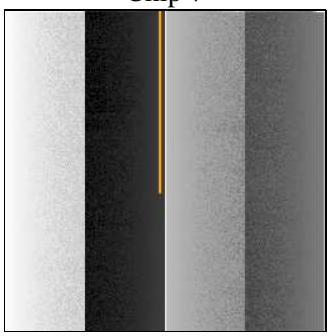
Chip 5



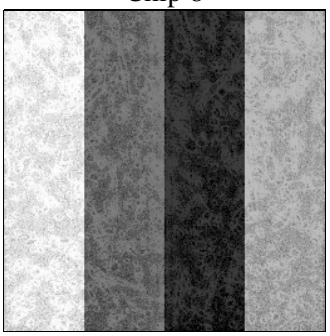
Chip 6



Chip 7



Chip 8



2.1.3 Parameters

obi_num	0	Obi number
ascdsver	10.9.1	Processing system revision
caldbver	4.9.2	
date	2020-10-11T15:59:37	Date and time of file creation
revision	3	Processing version of data

sched_exp_time	2320.000000	[s] Scheduled observation exposure time
ontime	2271.9999915361	Sum of GTIs [s]
ontime2	2271.9999915361	Sum of GTIs [s]
ontime3	2271.9999915361	Sum of GTIs [s]
ontime5	2271.9999915361	Sum of GTIs [s]
ontime6	2271.9999915361	Sum of GTIs [s]
ontime7	2271.9999915361	Sum of GTIs [s]
ontime8	2271.9999915361	Sum of GTIs [s]
l1events	131980	Number of level 1 events

2.1.4 Events

	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
level 1 events	19850	17550	27782	17866	25456	23476
rejected events	17738	15409	15000	15715	14678	18705
rejected %	89%	87%	53%	87%	57%	79%

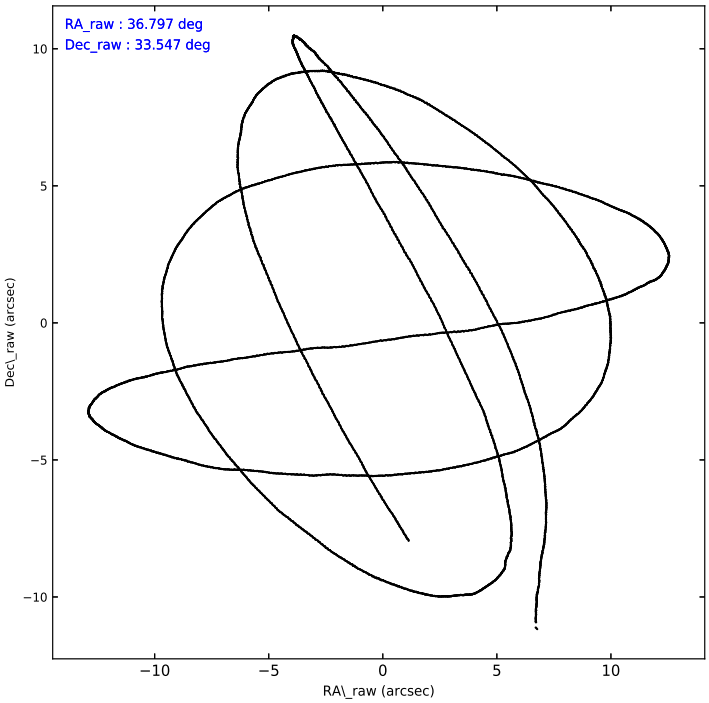
	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
grade 0 events	920	907	1246	836	1055	1510
	4%	5%	4%	4%	4%	6%
grade 1 events	17	15	49	7	18	24
	0%	0%	0%	0%	0%	0%
grade 2 events	444	405	3893	452	2267	1081
	2%	2%	14%	2%	8%	4%
grade 3 events	204	203	491	222	955	469
	1%	1%	1%	1%	3%	1%
grade 4 events	191	233	492	184	939	399
	0%	1%	1%	1%	3%	1%
grade 5 events	695	856	2046	858	2372	1119
	3%	4%	7%	4%	9%	4%
grade 6 events	362	406	6689	468	5588	1330
	1%	2%	24%	2%	21%	5%
grade 7 events	17017	14525	12876	14839	12262	17544
	85%	82%	46%	83%	48%	74%

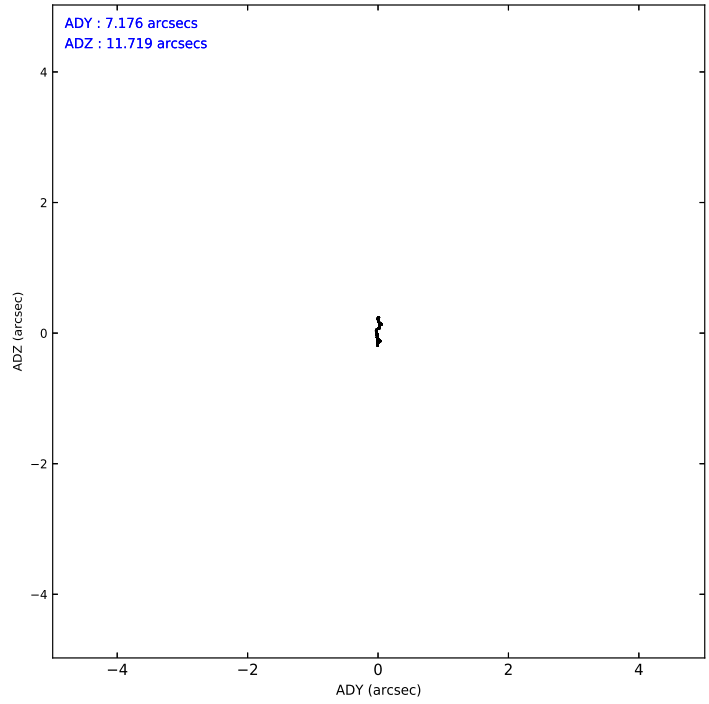
2.2 Compared Parameters

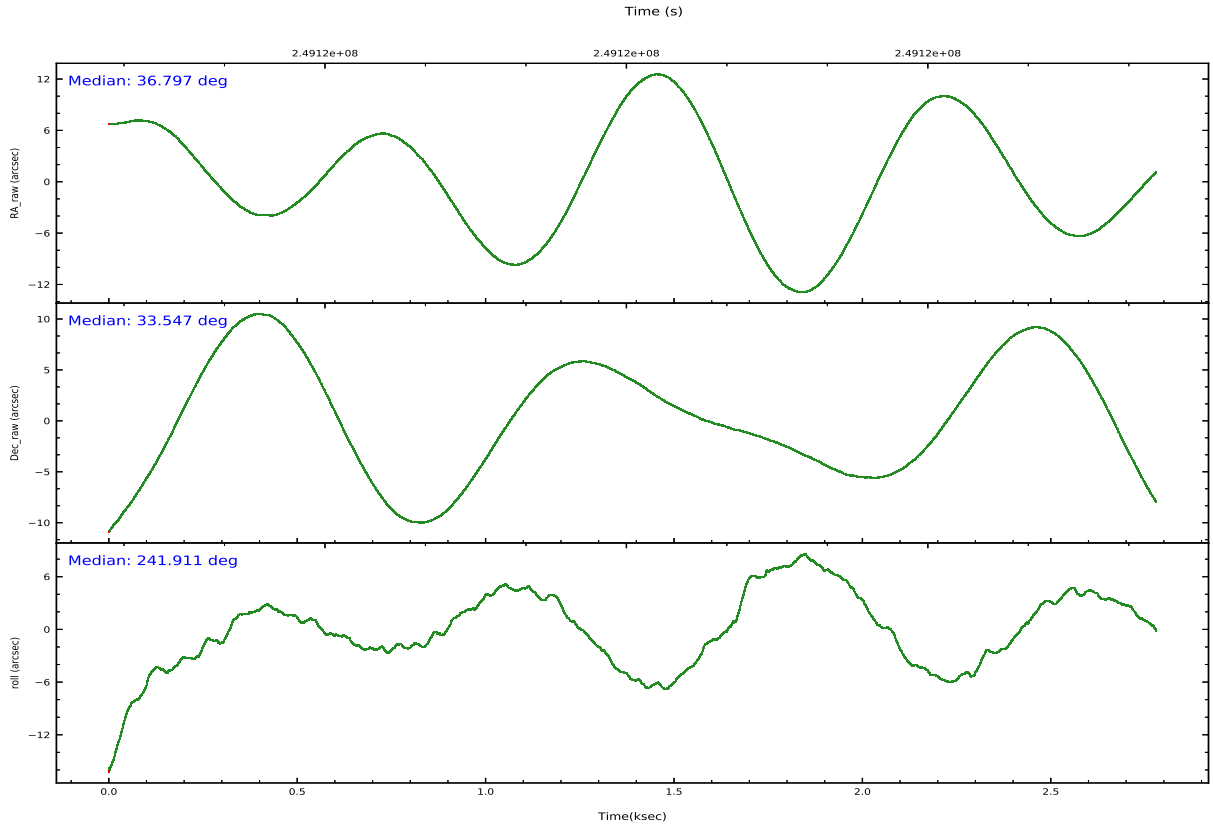
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	36.795899	36.795105761423
[deg] Pointing Dec	33.574278	33.550585520195
[deg] Pointing Roll	241.751893	241.91112363153
[mm] SIM focus 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)	249120687.184000	249119589.6489
Observation start date	2005-11-23T08:10:23	2005-11-23T07:53:09
[s] Observation end time (MET)	249123007.184000	249123425.19908
Observation end date	2005-11-23T08:49:03	2005-11-23T08:57:05
Read mode	TIMED	TIMED

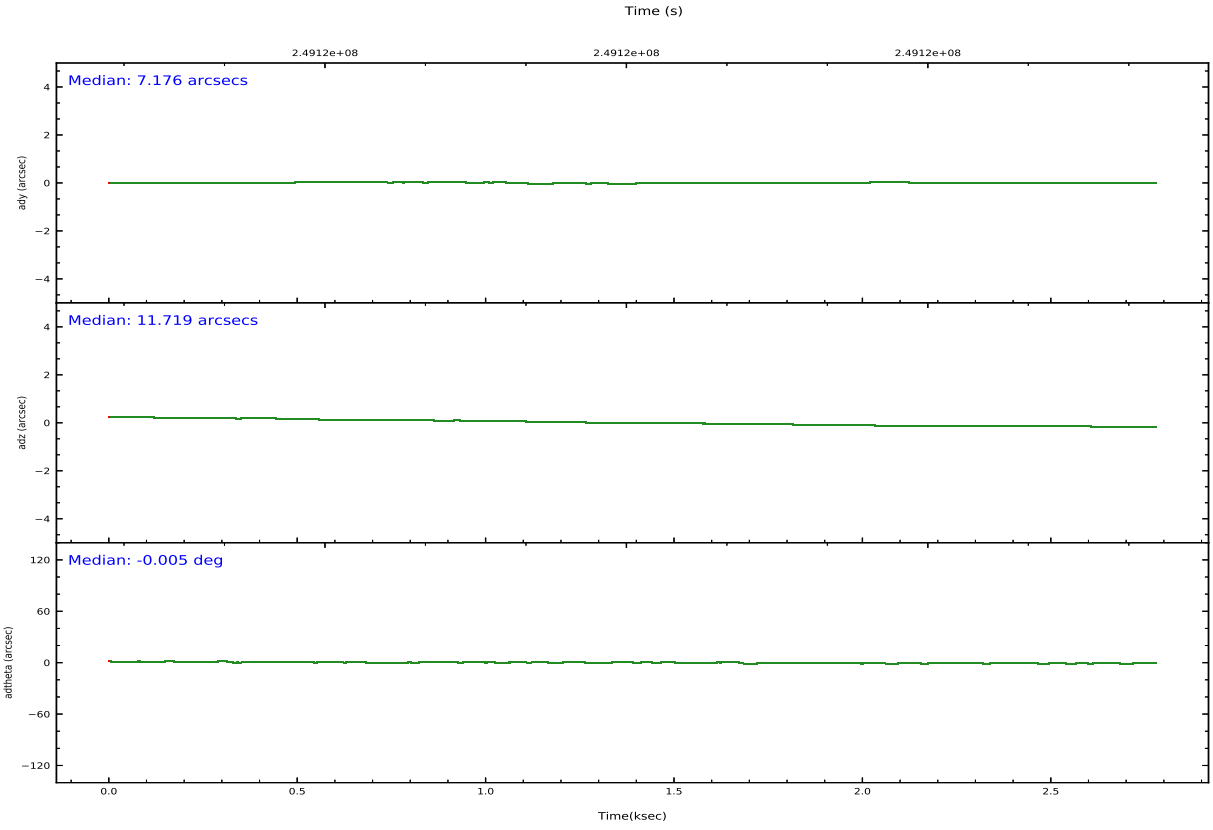
Parameter	Planned	Actual
Obspar version number	8	8
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect


RA_raw : 36.797 deg
Dec_raw : 33.547 deg
Dec_raw (arcsec)
RA_raw (arcsec)
10
5
0
−5
−10
−10
−5
0
5
10


ADY : 7.176 arcsecs
ADZ : 11.719 arcsecs
ADZ (arcsec)
ADY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
2.4912e+08
2.4912e+08
2.4912e+08
Median: 36.797 deg
RA_raw (arcsec)
Median: 33.547 deg
Dec_raw (arcsec)
Median: 241.911 deg
roll (arcsec)
Time(ksec)

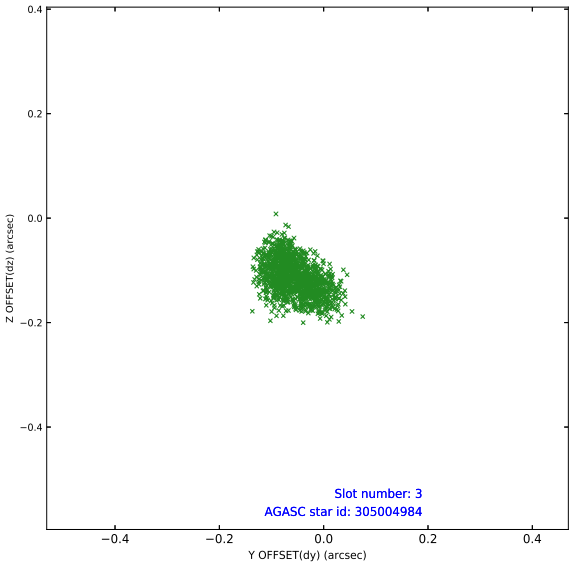

Time (s)
2.4912e+08
2.4912e+08
2.4912e+08
Median: 7.176 arcsecs
ady (arcsec)
Median: 11.719 arcsecs
adz (arcsec)
Median: -0.005 deg
adtheta (arcsec)
Time(ksec)

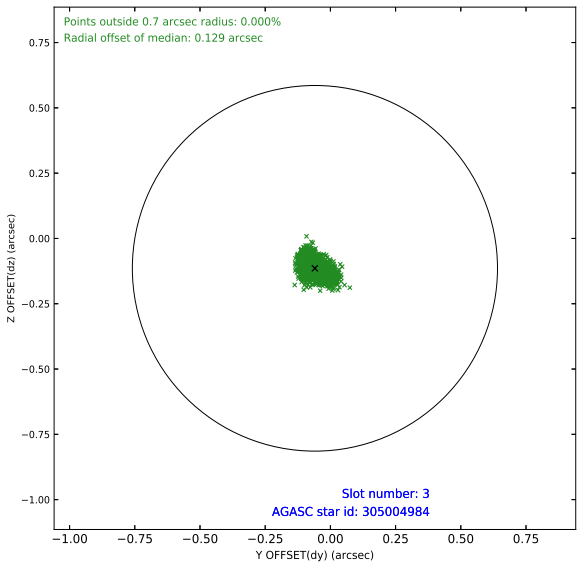
Slot Statistics

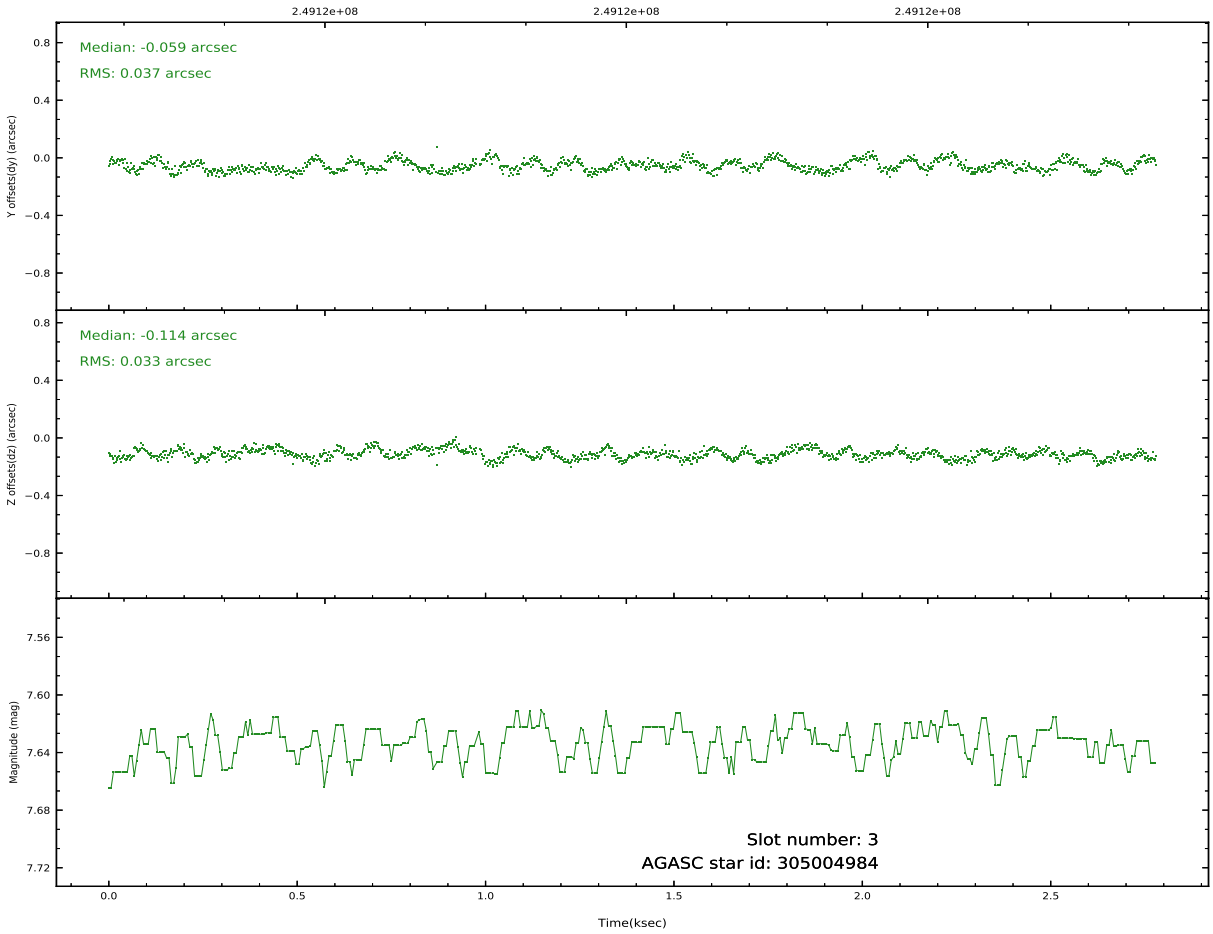
ot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.10	679	1.000	-0.066	-0.062	0.008	0.012	0.000000	0.000000	-759.96	-1733
1	FID		ACIS-S-4	7.20	679	1.000	0.141	0.048	0.006	0.010	0.000000	0.000000	2152.43	173
2	FID		ACIS-S-5	7.23	678	1.000	-0.106	0.023	0.009	0.015	0.000000	0.000000	-1809.91	169
3	GUIDE	used	305004984	7.63	1352	1.000	-0.059	-0.114	0.054	0.085	37.558257	33.498591	-850.08	2140
4	GUIDE	used	305007992	8.70	1356	1.000	-0.049	-0.040	0.061	0.100	37.225986	33.704025	-1023.61	914
5	GUIDE	used	305016912	8.64	1355	1.000	0.085	0.062	0.055	0.086	36.784615	32.877002	2227.28	1159
6	GUIDE	used	305019816	8.73	1357	1.000	0.052	-0.000	0.087	0.137	37.530455	33.406494	-517.40	2227
7	GUIDE	used	305535352	7.36	1356	1.000	-0.037	0.088	0.049	0.076	37.062178	34.195534	-2346.22	-358

2.4 Star Slots

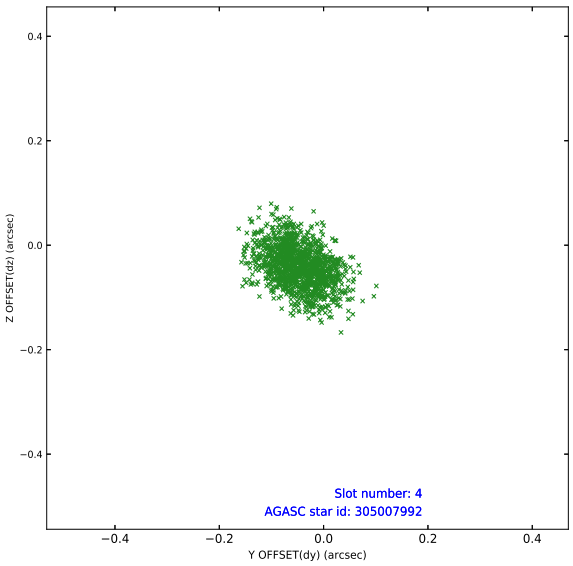
2.4.1 Slot 3

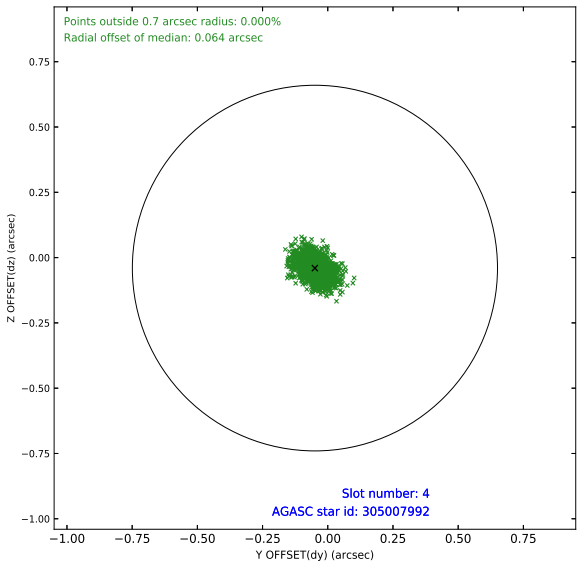


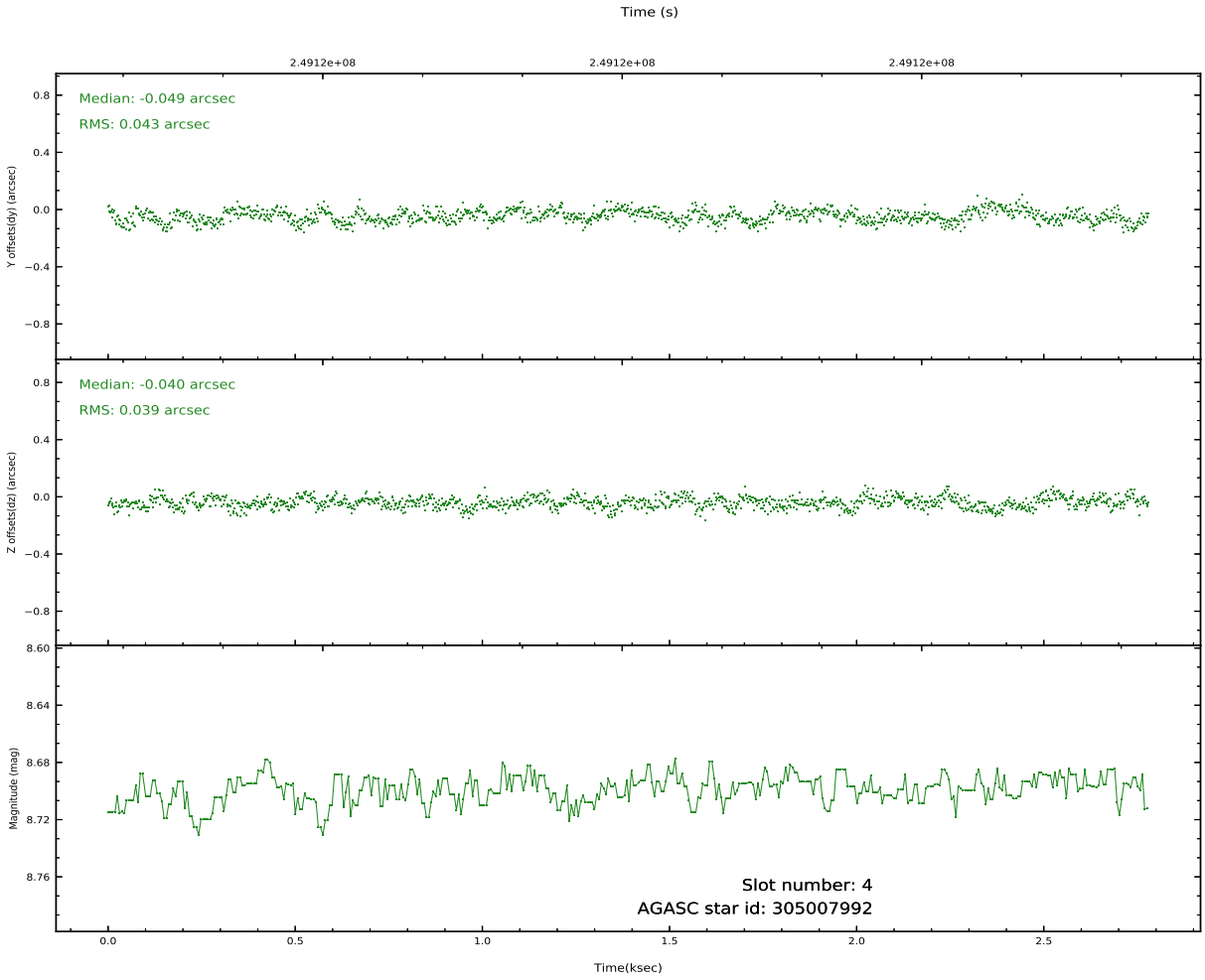




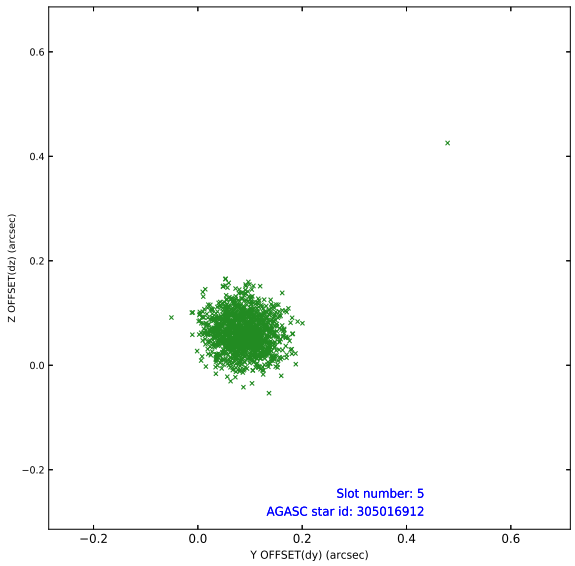
2.4.2 Slot 4

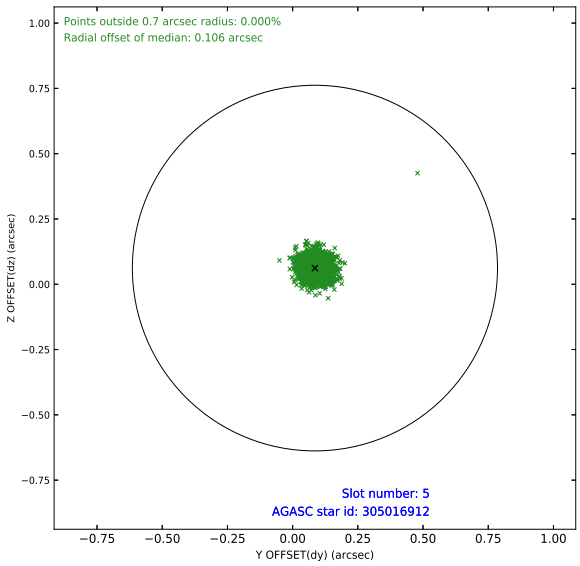

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 305007992

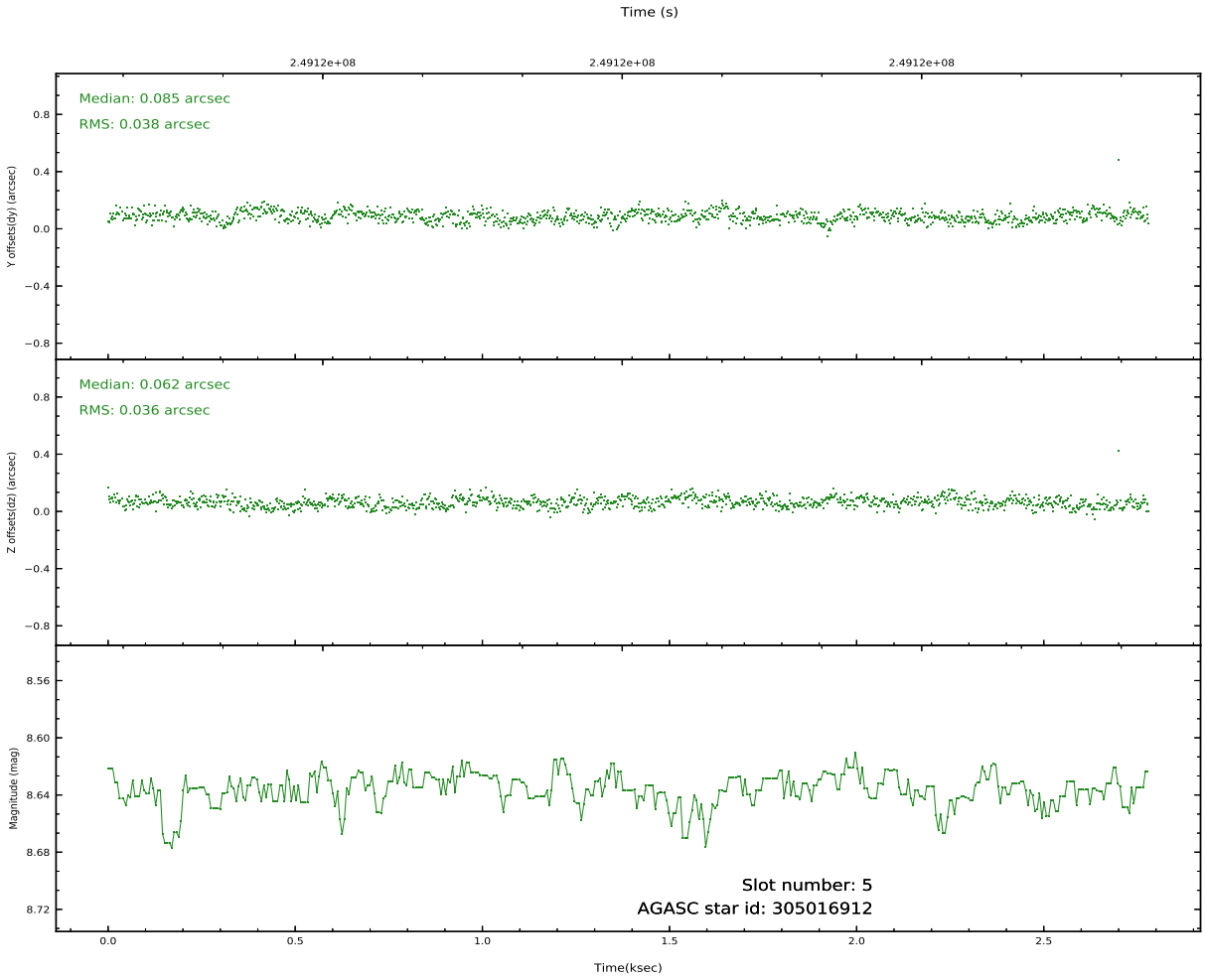

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.064 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 305007992


Time (s)
2.4912e+08
Median: -0.049 arcsec
RMS: 0.043 arcsec
Y offsets(dy) (arcsec)
Median: -0.040 arcsec
RMS: 0.039 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 305007992
Time(ksec)

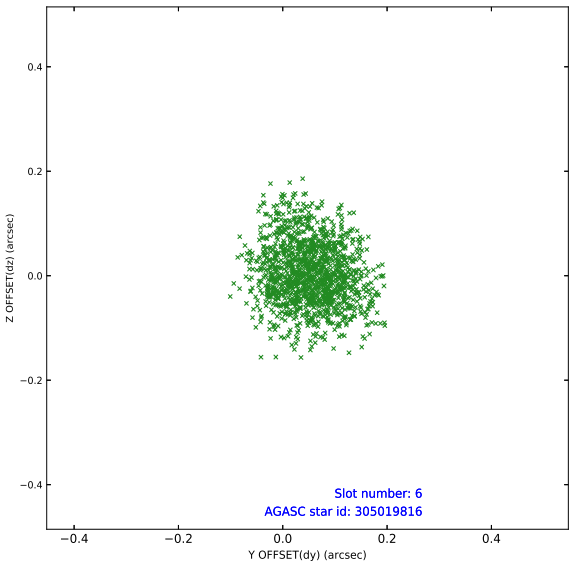
2.4.3 Slot 5

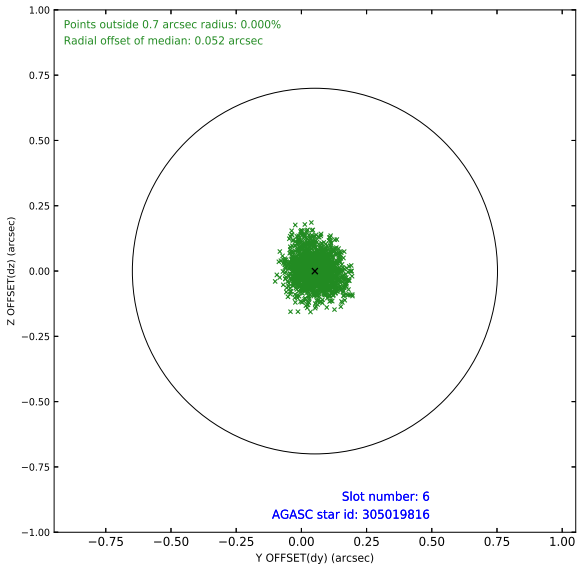

Slot number: 5
AGASC star id: 305016912
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

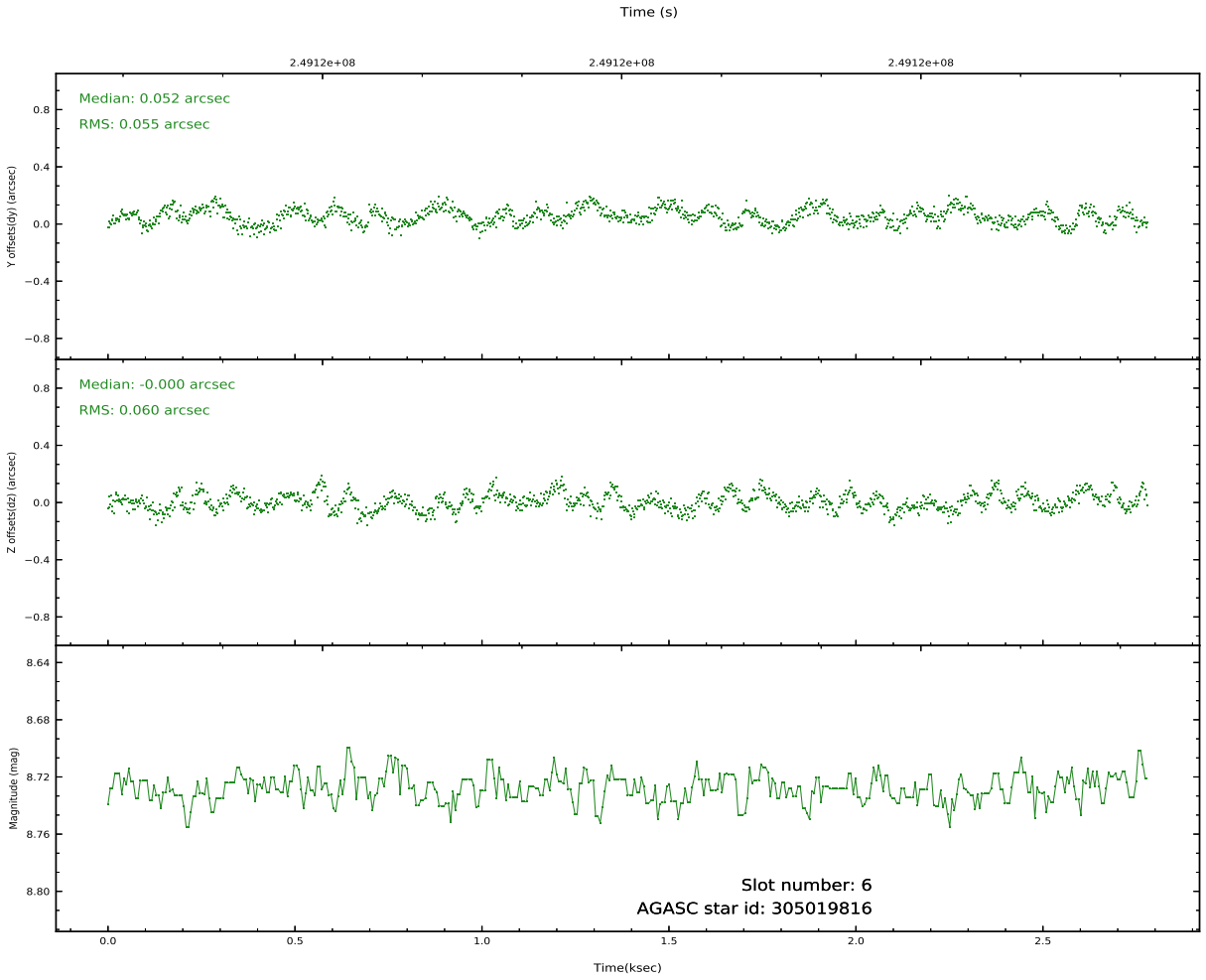

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.106 arcsec
Slot number: 5
AGASC star id: 305016912
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
2.4912e+08
2.4912e+08
2.4912e+08
Median: 0.085 arcsec
RMS: 0.038 arcsec
Y offsets(dy) (arcsec)
Median: 0.062 arcsec
RMS: 0.036 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 305016912
Time(ksec)

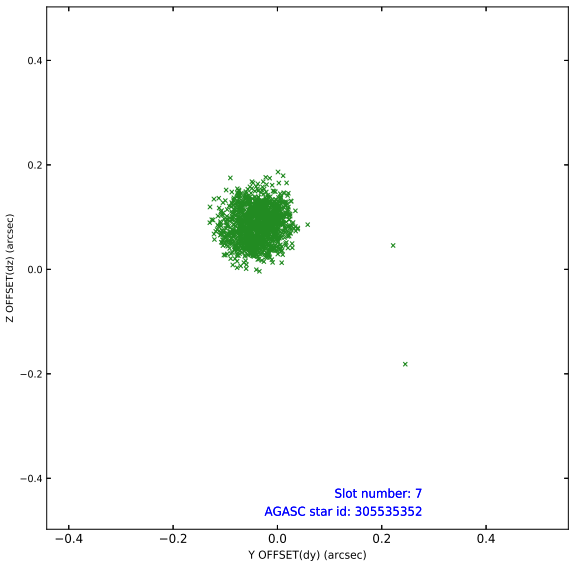
2.4.4 Slot 6

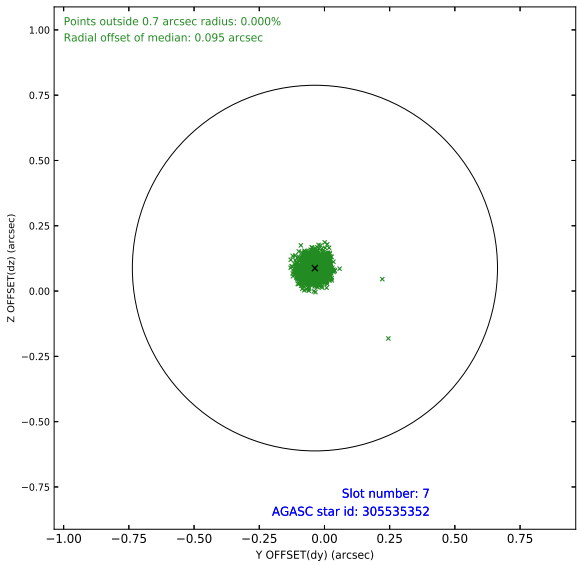

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 305019816

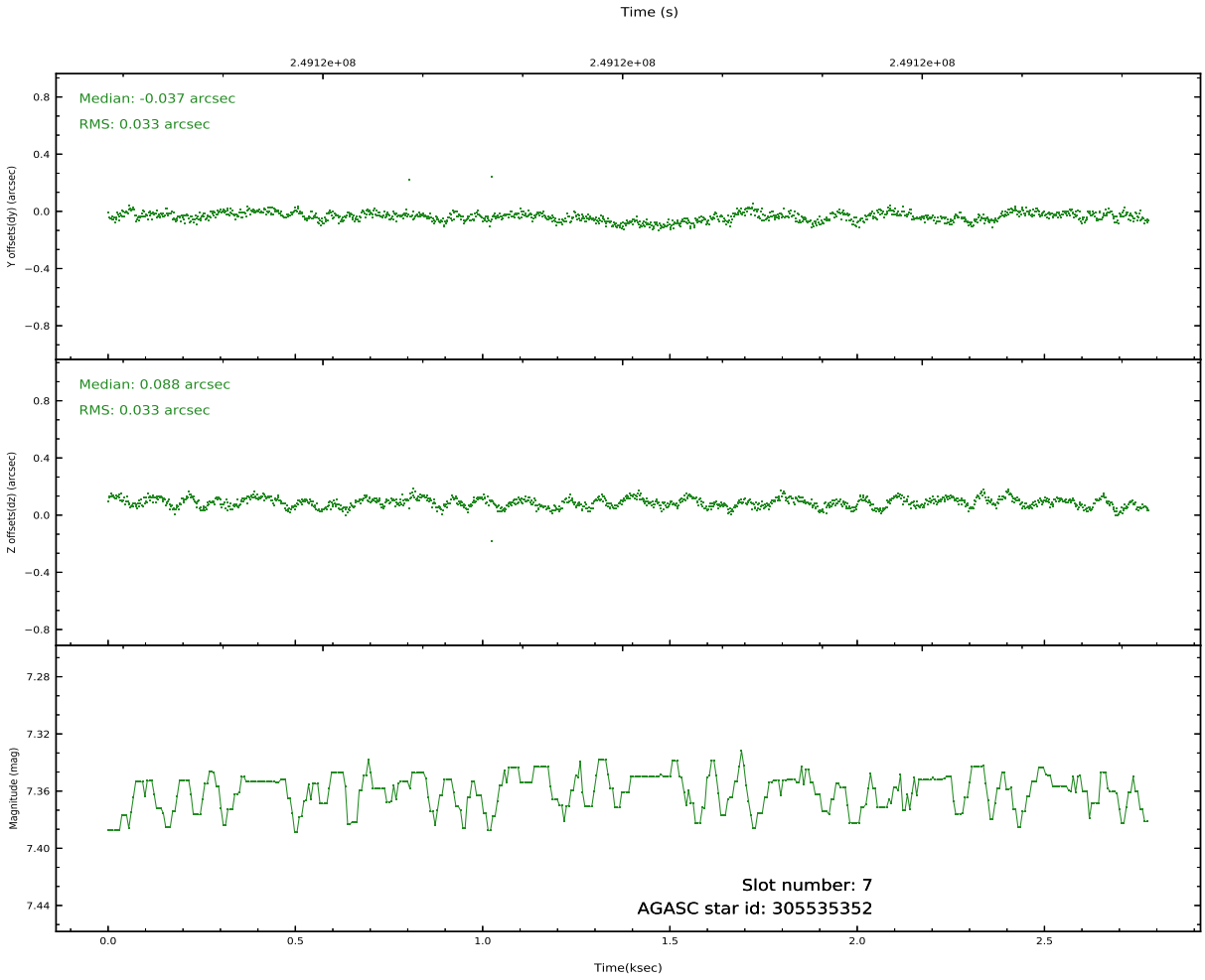

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.052 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 305019816


Time (s)
2.4912e+08
2.4912e+08
2.4912e+08
Median: 0.052 arcsec
RMS: 0.055 arcsec
Y offsets(dy) (arcsec)
Median: -0.000 arcsec
RMS: 0.060 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 305019816
Time(ksec)

2.4.5 Slot 7

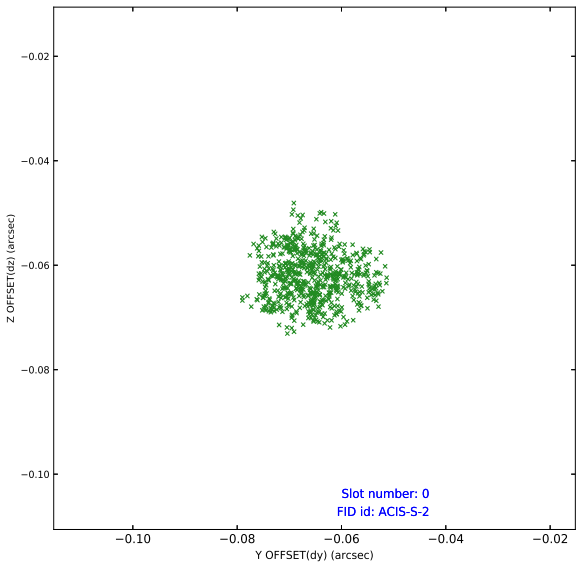

Slot number: 7
AGASC star id: 305535352
Y OFFSET(dy) (arcsec)
Z OFFSET(dz) (arcsec)

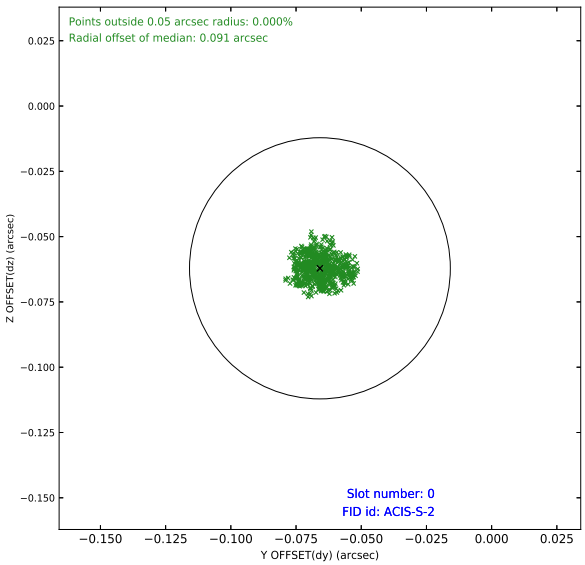

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.095 arcsec
Slot number: 7
AGASC star id: 305535352
Y OFFSET(dy) (arcsec)
Z OFFSET(dz) (arcsec)

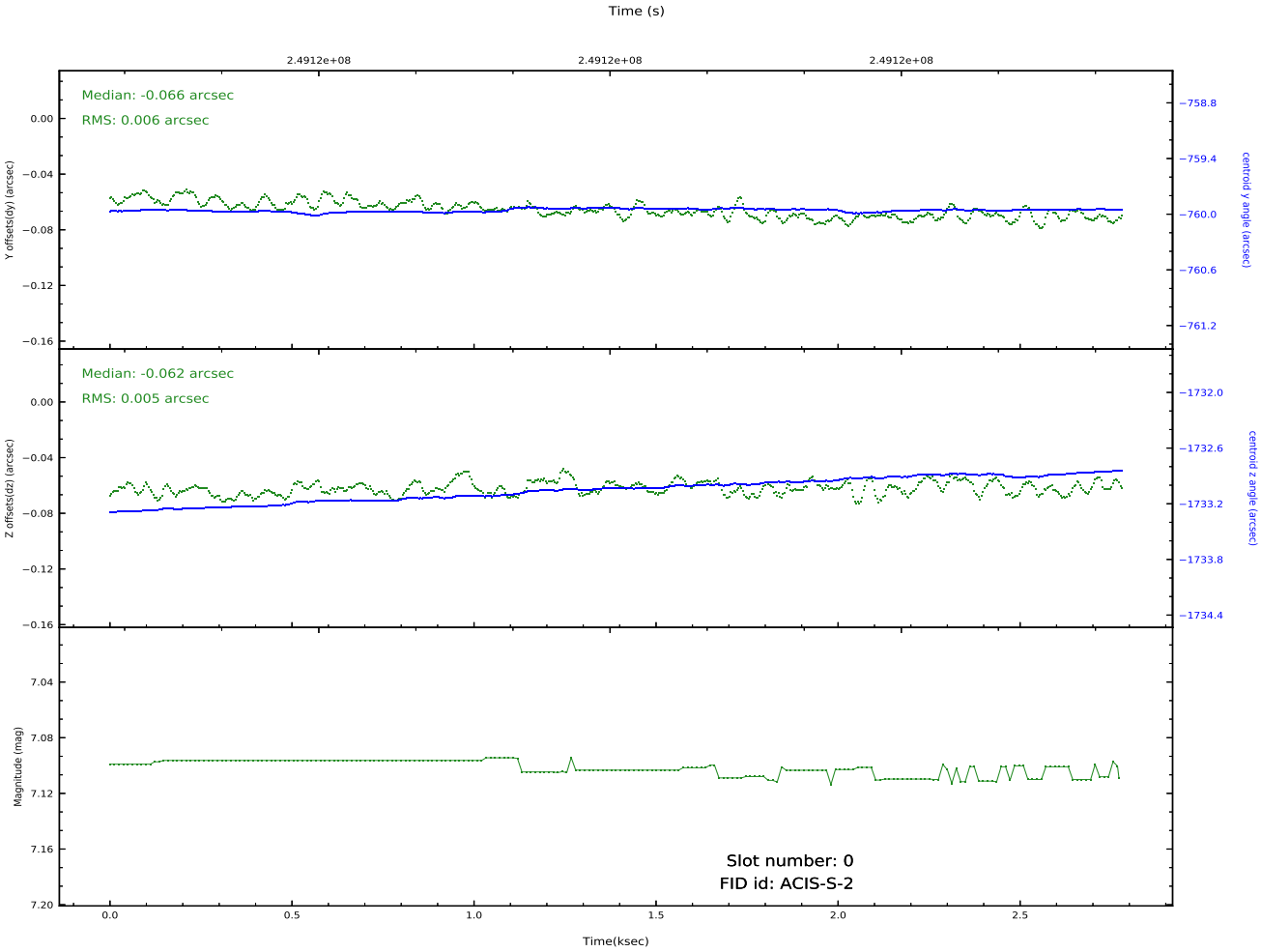

Time (s)
2.4912e+08
Median: -0.037 arcsec
RMS: 0.033 arcsec
Y offsets(dy) (arcsec)
Median: 0.088 arcsec
RMS: 0.033 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 305535352
Time(ksec)

2.5 FID Slots

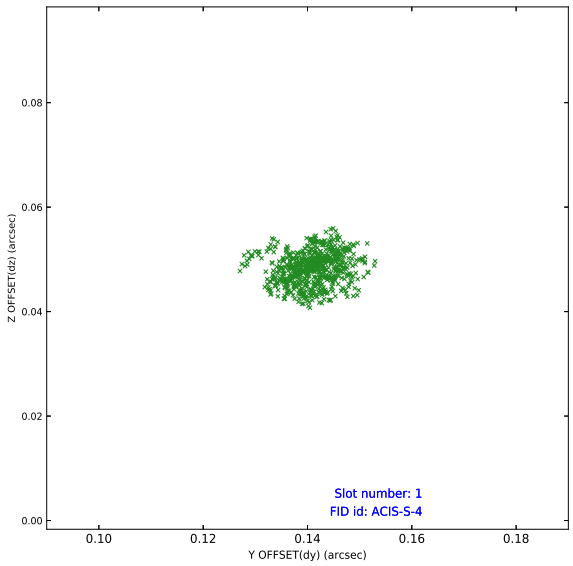
2.5.1 Slot 0

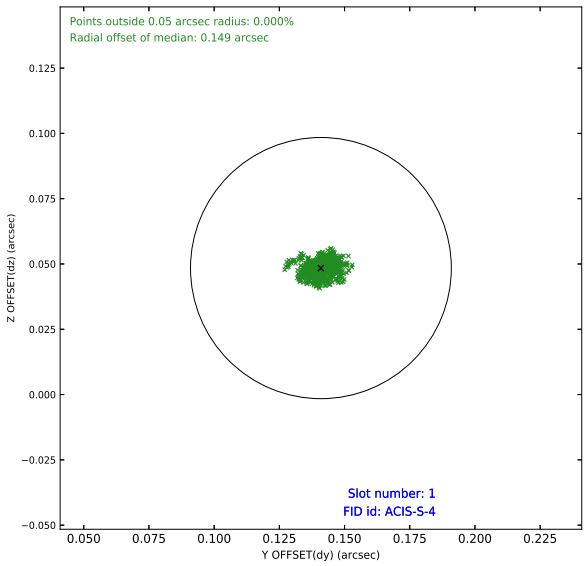


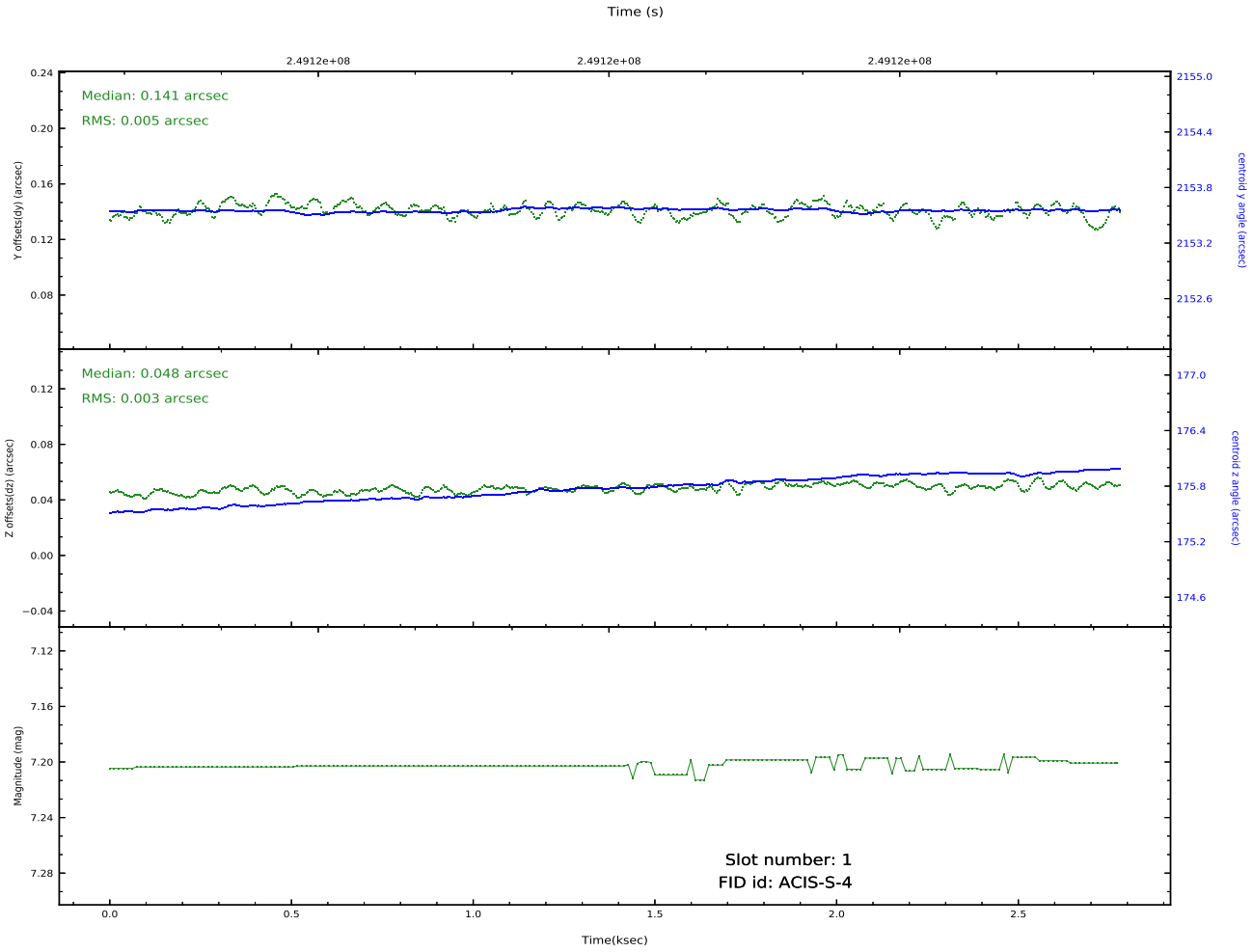




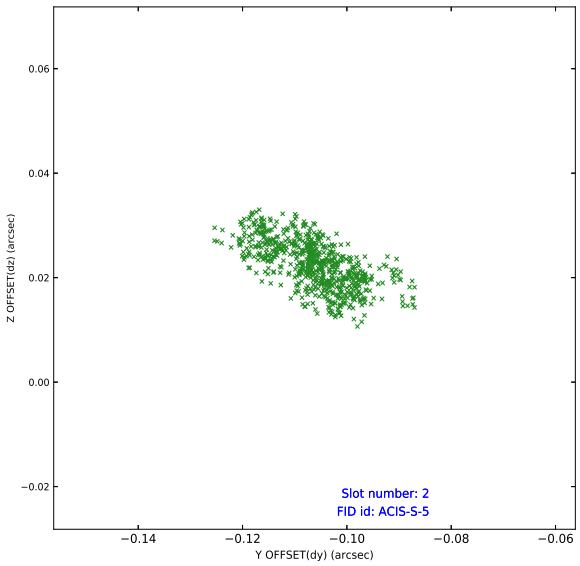
2.5.2 Slot 1

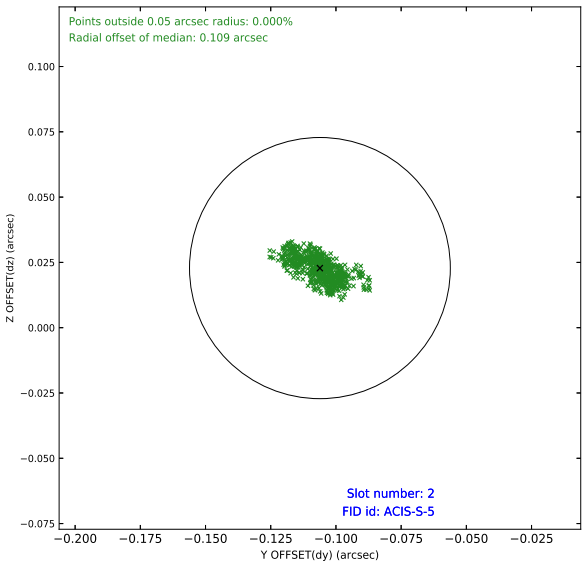

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS-S-4

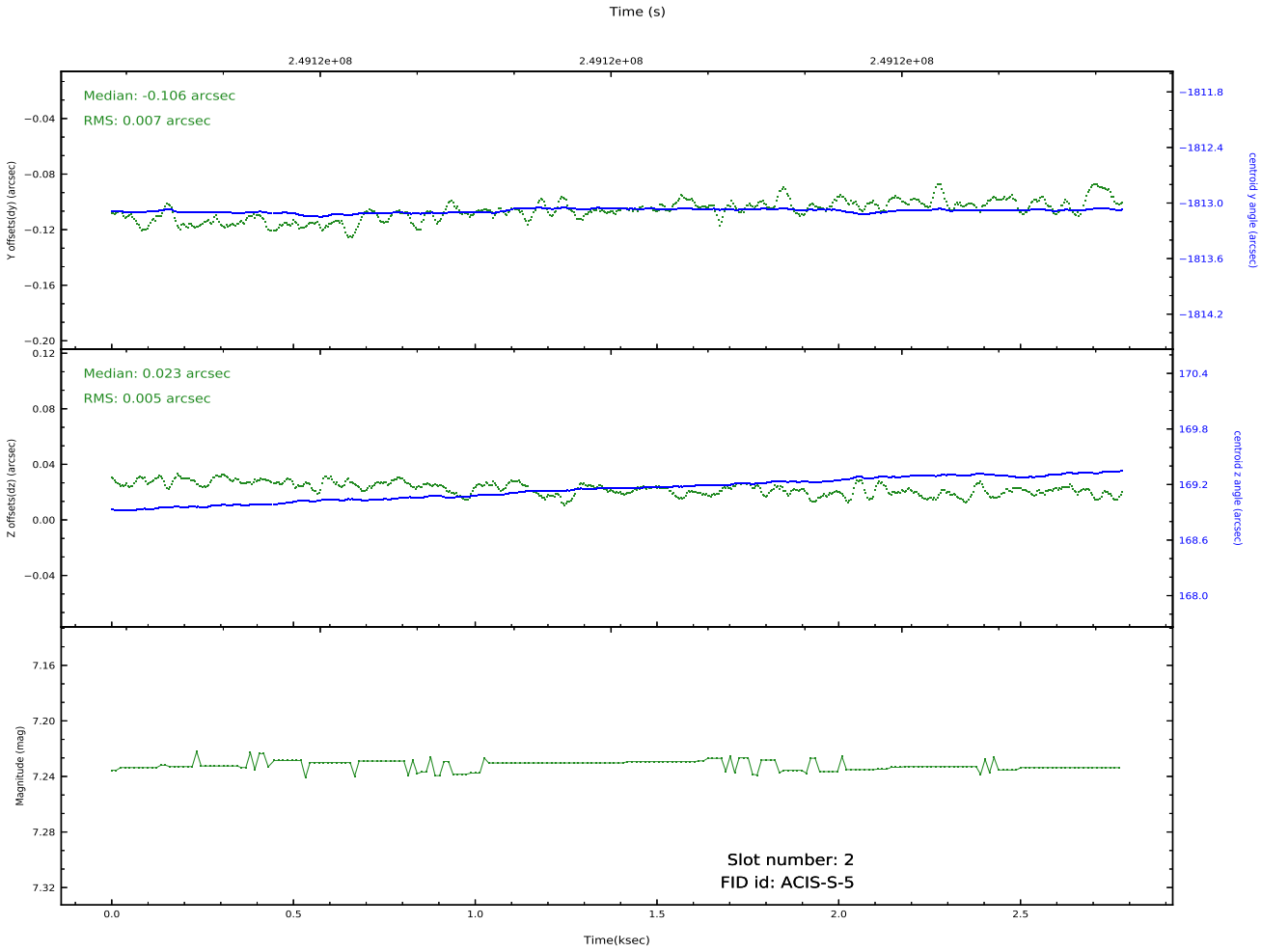

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.149 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS-S-4


Time (s)
2.4912e+08
Median: 0.141 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.048 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


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


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.109 arcsec
Slot number: 2
FID id: ACIS-S-5
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
2.4912e+08
Median: -0.106 arcsec
RMS: 0.007 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.023 arcsec
RMS: 0.005 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	Jen Lauer
V&V Date (YYYY-MM-DD)	2020.10.15
V&V Edition	1
V&V Disposition and Status	Repr+DD
V&V Charge Time	2.271999

A.2 Comments

```
SAP: please reprocess with the replacement biases for CCD_IDs = 3 and
6.
==========
The bias maps for CCD_ID = 3 and 6 suffer from anomalously high bias
values in an 'exacto-knife'-shaped area of the bias file. Pixels in the
event data that have been bias-corrected by one of the 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. The bias maps for
CCD_ID = 3 and 6 will be recreated to remove this anomaly and the data
will be reprocessed.
```