V&V Reference Report
L2 ASCDS Version : 10.9.1

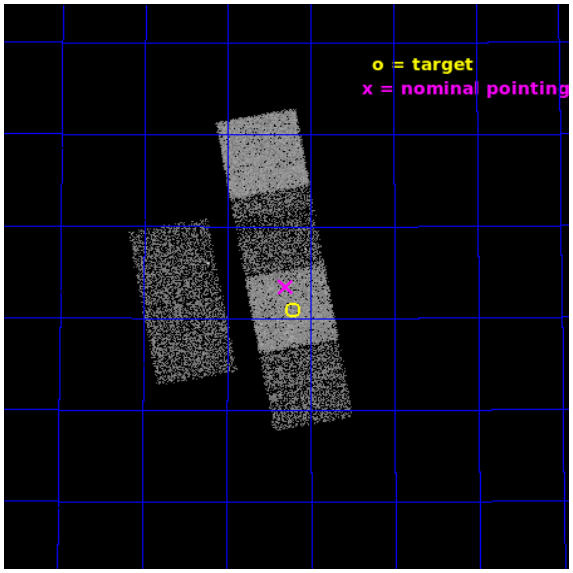
Observation 5296 - L2 Version 6
Chandra X-Ray Center

L2 Processing Date : Sep 23 2020

Contents

1 Front

seq_num	600386	Sequence number
obs_id	5296	Observation id
title	An Ultra-Deep Study of M101	Proposal title
observer	Dr. K.D. Kuntz	Principal investigator
object	M101	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	210.80375	Observer's specified target RA [deg]
dec_targ	54.348778	Observer's specified target Dec [deg]
ra_nom	210.82446047537	Nominal RA [deg]
dec_nom	54.391133926104	Nominal Dec [deg]
roll_nom	79.743643713806	Nominal Roll [deg]
revision	6	Processing version of data
ontime	3134.6460606158	Sum of GTIs [s]
livetime	3094.953284739	Livetime [s]
ontime2	3134.6871006191	Sum of GTIs [s]
ontime3	3134.5229406059	Sum of GTIs [s]
ontime5	3134.6050206125	Sum of GTIs [s]
ontime6	3134.5639806092	Sum of GTIs [s]
ontime7	3134.6460606158	Sum of GTIs [s]
ontime8	3134.4819006324	Sum of GTIs [s]
l2events	37671	Number of level 2 events

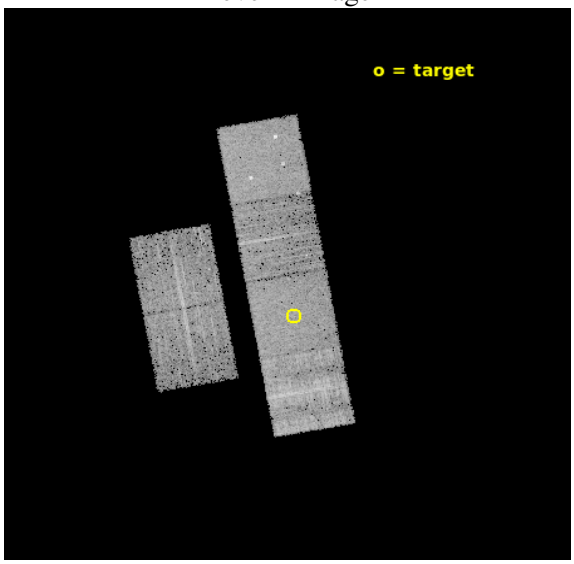


2 OBI

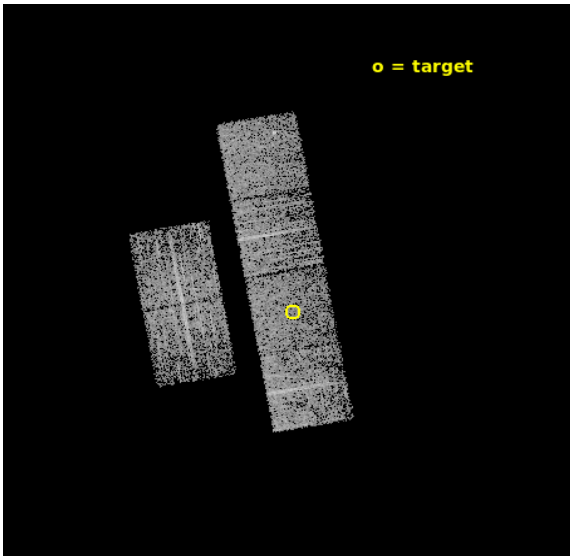
2.1 OBI

2.1.1 Images

Level 1 Image

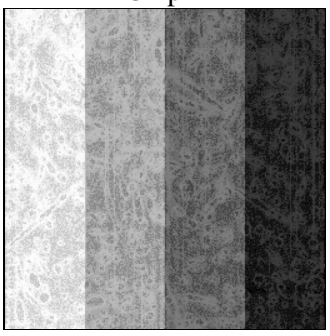


Level 1 Bad Events

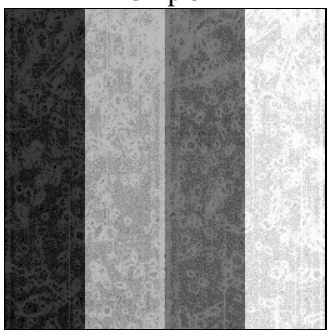


2.1.2 Bias

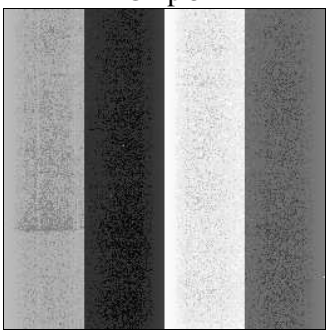
Chip 2



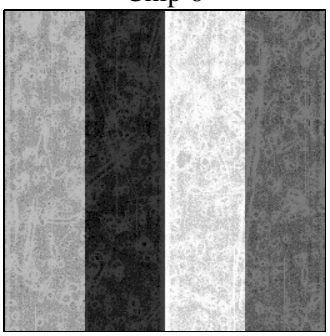
Chip 3



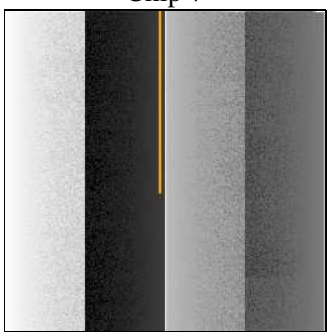
Chip 5



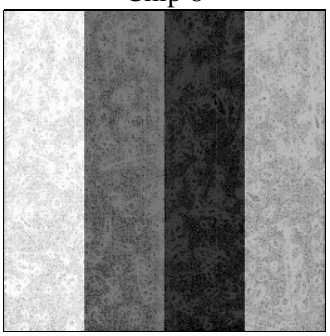
Chip 6



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	2020-09-23T14:38:24	Date and time of file creation
revision	6	Processing version of data

sched_exp_time	61270.000000	[s] Scheduled observation exposure time
ontime	3134.6460606158	Sum of GTIs [s]
ontime2	3134.6871006191	Sum of GTIs [s]
ontime3	3134.5229406059	Sum of GTIs [s]
ontime5	3134.6050206125	Sum of GTIs [s]
ontime6	3134.5639806092	Sum of GTIs [s]
ontime7	3134.6460606158	Sum of GTIs [s]
ontime8	3134.4819006324	Sum of GTIs [s]
l1events	168136	Number of level 1 events

2.1.4 Events

	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
level 1 events	22901	20982	33567	23194	28828	38664
rejected events	19162	17542	18446	19481	16715	21619
rejected %	83%	83%	54%	83%	57%	55%

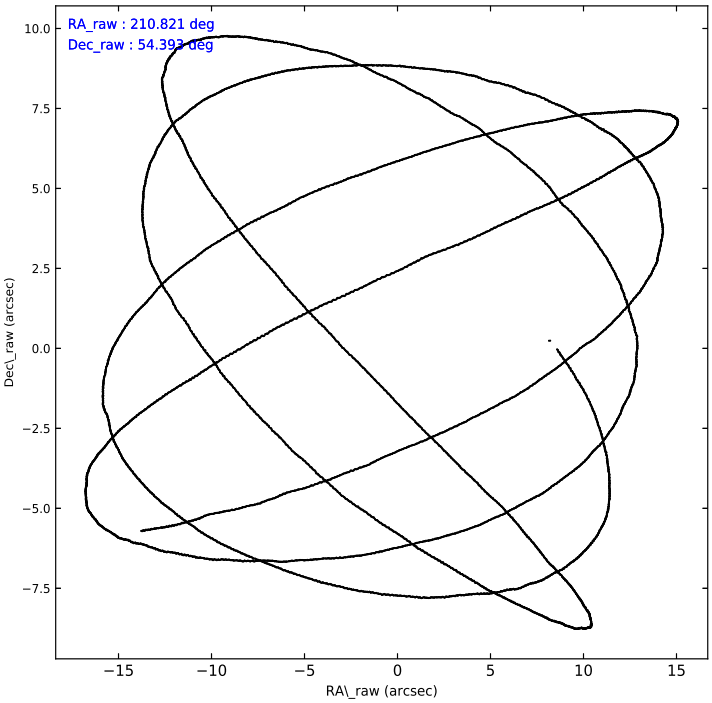
	ccd 2	**ccd 3**	**ccd 5**	**ccd 6**	**ccd 7**	**ccd 8**
grade 0 events	1747	1350	1953	1521	1321	6266
	7%	6%	5%	6%	4%	16%
grade 1 events	26	13	77	14	30	59
	0%	0%	0%	0%	0%	0%
grade 2 events	782	910	4655	963	2480	2246
	3%	4%	13%	4%	8%	5%
grade 3 events	241	235	640	249	1106	3143
	1%	1%	1%	1%	3%	8%
grade 4 events	270	236	641	286	1098	2846
	1%	1%	1%	1%	3%	7%
grade 5 events	837	875	2348	964	2616	1316
	3%	4%	6%	4%	9%	3%
grade 6 events	732	743	7403	728	6221	2692
	3%	3%	22%	3%	21%	6%
grade 7 events	18266	16620	15850	18469	13956	20096
	79%	79%	47%	79%	48%	51%

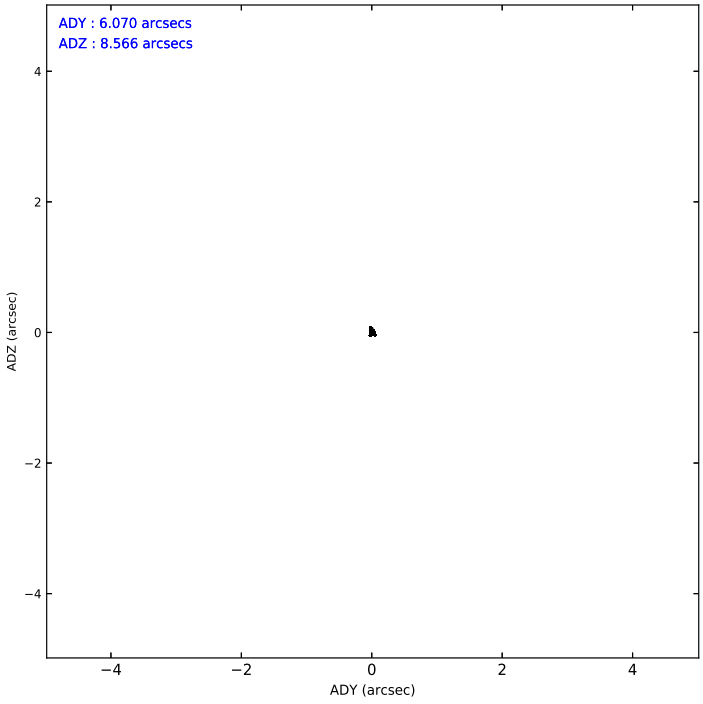
2.2 Compared Parameters

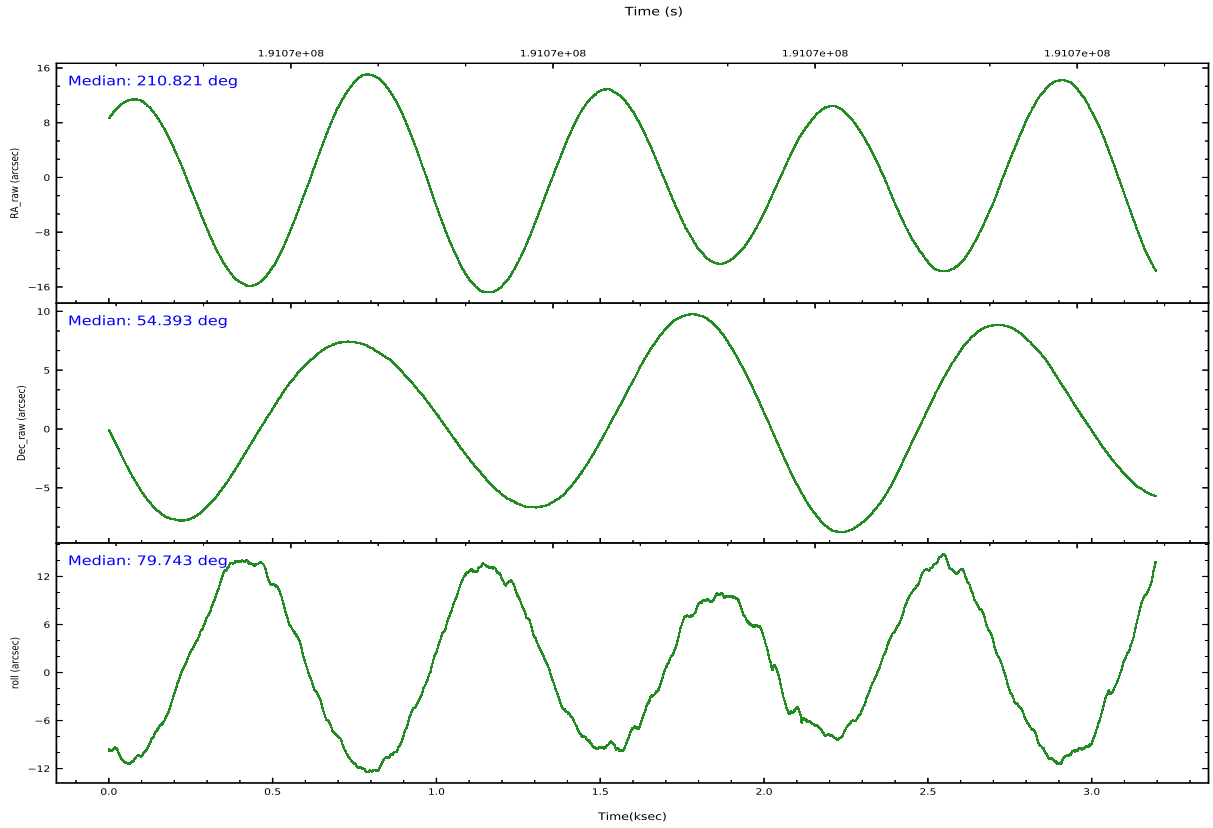
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-235678	ACIS-235678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	210.837114	210.82446047537
[deg] Pointing Dec	54.367910	54.391133926104
[deg] Pointing Roll	79.572882	79.74364371380599
[mm] SIM focus pos	-0.6828225247311905	-0.6828225247311905
[mm] SIM defocus	0.001444942264670179	0.001444942264670179
[mm] SIM translation stage pos	-190.1425803651734	-190.1425803651734
[mm] SIM translation stage offset	0.01005726120618533	0.01005726120618533
[s] Observation start time (MET)	191069843.184000	191069843.184
Observation start date	2004-01-21T10:56:19	2004-01-21T10:57:23
[s] Observation end time (MET)	191073042.000000	191073042
Observation end date	2004-01-21T11:50:42	2004-01-21T11:50:42
Read mode	TIMED	TIMED

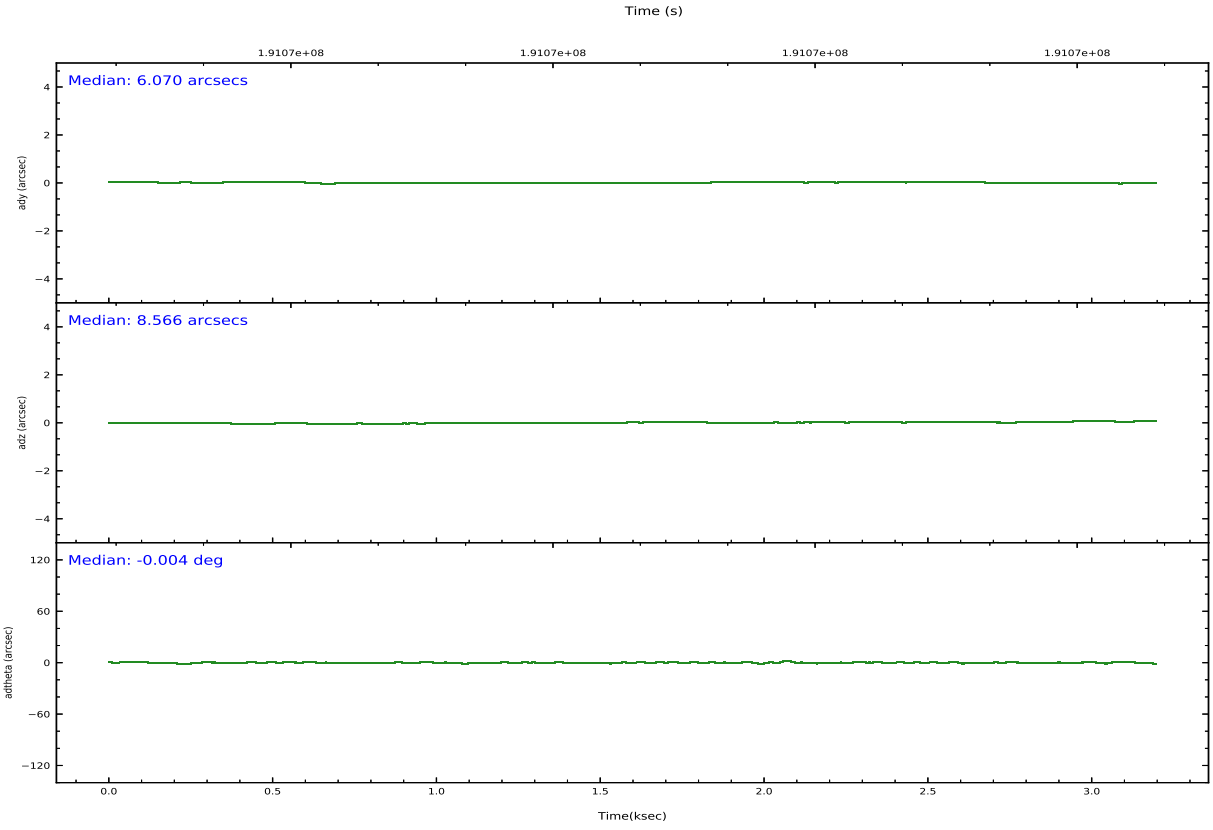
Parameter	Planned	Actual
Obspar format version number	8	8
Obspar file type	PREDICTED	ACTUAL
Obspar update status	OVERRIDE	OVERRIDE
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	3.2	3.2

2.3 Aspect


RA_raw : 210.821 deg
Dec_raw : 54.393 deg
Dec_raw (arcsec)
RA_raw (arcsec)


ADY : 6.070 arcsecs
ADZ : 8.566 arcsecs
ADZ (arcsec)
ADY (arcsec)


Time (s)
1.9107e+08
1.9107e+08
1.9107e+08
1.9107e+08
Median: 210.821 deg
RA_raw (arcsec)
Median: 54.393 deg
Dec_raw (arcsec)
Median: 79.743 deg
roll (arcsec)
Time(ksec)

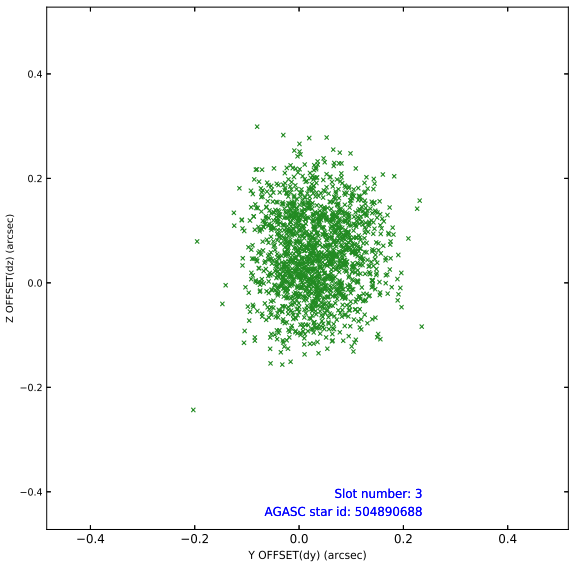

Time (s)
1.9107e+08
1.9107e+08
1.9107e+08
1.9107e+08
Median: 6.070 arcsecs
ady (arcsec)
Median: 8.566 arcsecs
adz (arcsec)
Median: -0.004 deg
adtheta (arcsec)
Time(ksec)

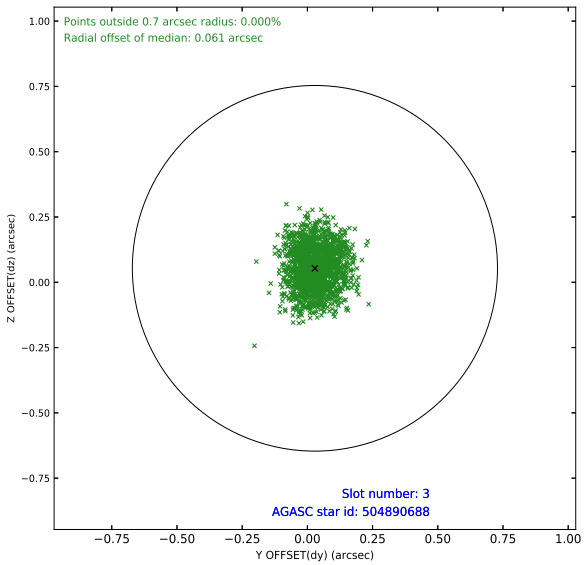
Slot Statistics

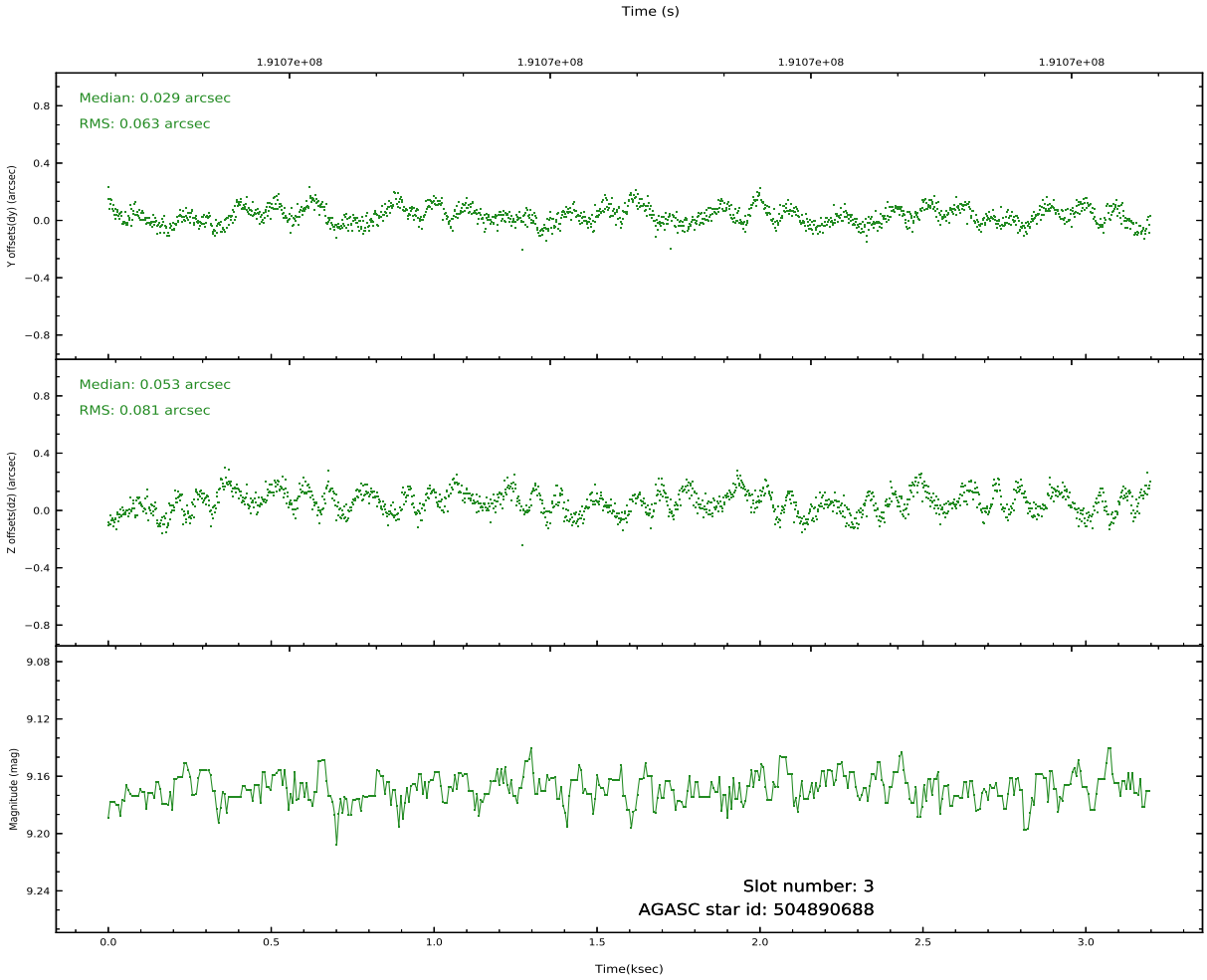
ot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.10	781	1.000	-0.107	-0.077	0.006	0.011	0.000000	0.000000	-758.90	-1729
1	FID		ACIS-S-4	7.21	780	1.000	0.081	0.063	0.007	0.011	0.000000	0.000000	2153.65	176
2	FID		ACIS-S-6	7.35	780	1.000	-0.002	0.022	0.008	0.012	0.000000	0.000000	405.74	816
3	GUIDE	used	504890688	9.17	1561	1.000	0.029	0.053	0.112	0.172	211.697686	53.837149	-1536.99	-2141
4	GUIDE	used	504890776	9.27	1560	1.000	0.003	0.162	0.086	0.140	211.095934	54.816966	1687.57	-235
5	GUIDE	used	504891480	8.07	1560	1.000	0.038	-0.120	0.071	0.105	210.708012	54.666096	1008.93	458
6	GUIDE	used	504894856	8.99	1561	1.000	0.031	-0.043	0.083	0.131	209.819510	54.132689	-1205.01	1961
7	GUIDE	used	505292416	9.33	1560	1.000	-0.101	-0.055	0.094	0.152	210.920759	55.040479	2412.42	270

2.4 Star Slots

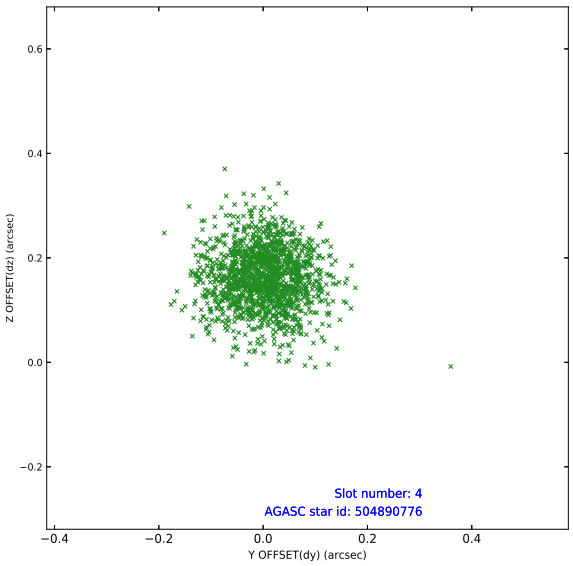
2.4.1 Slot 3

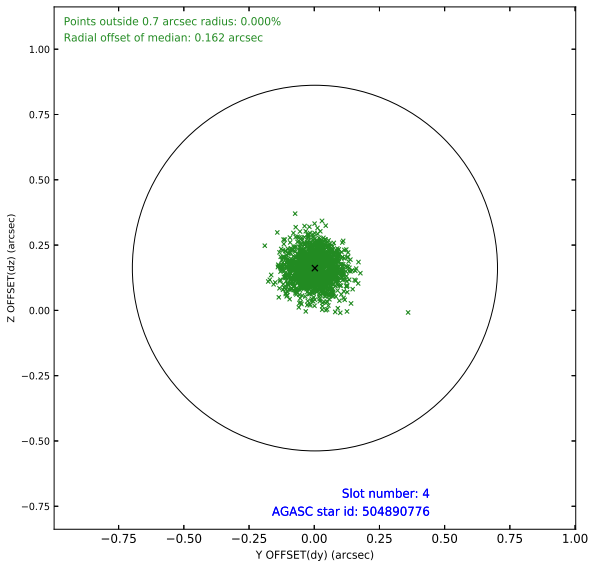


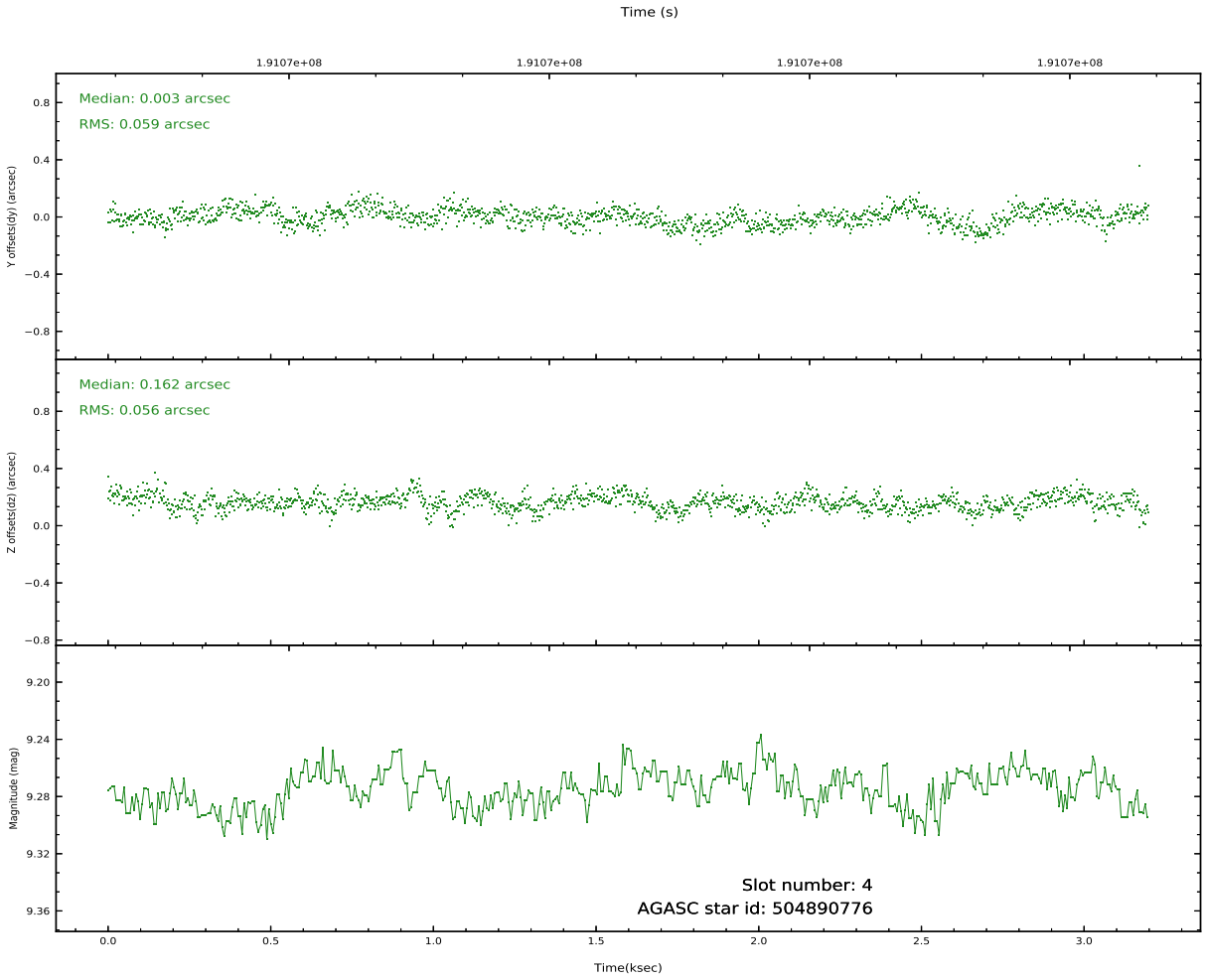




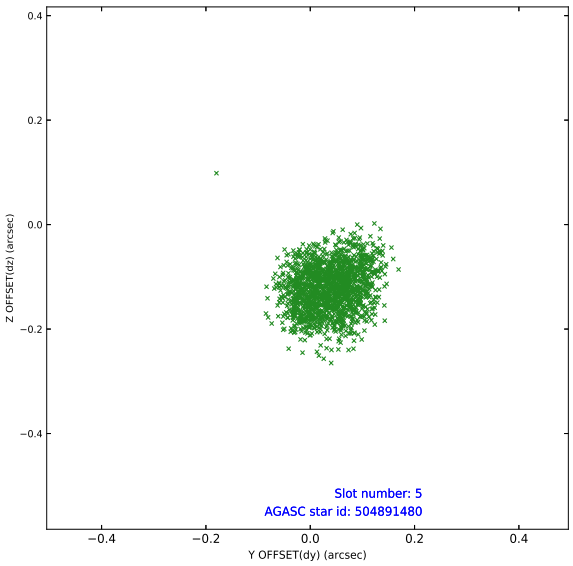
2.4.2 Slot 4

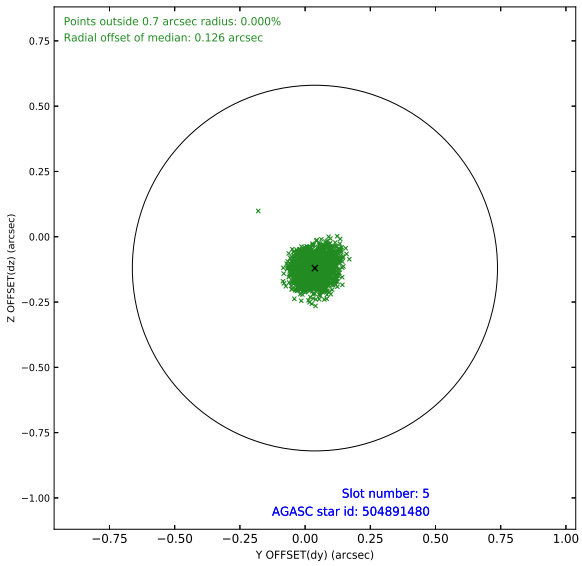

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 504890776

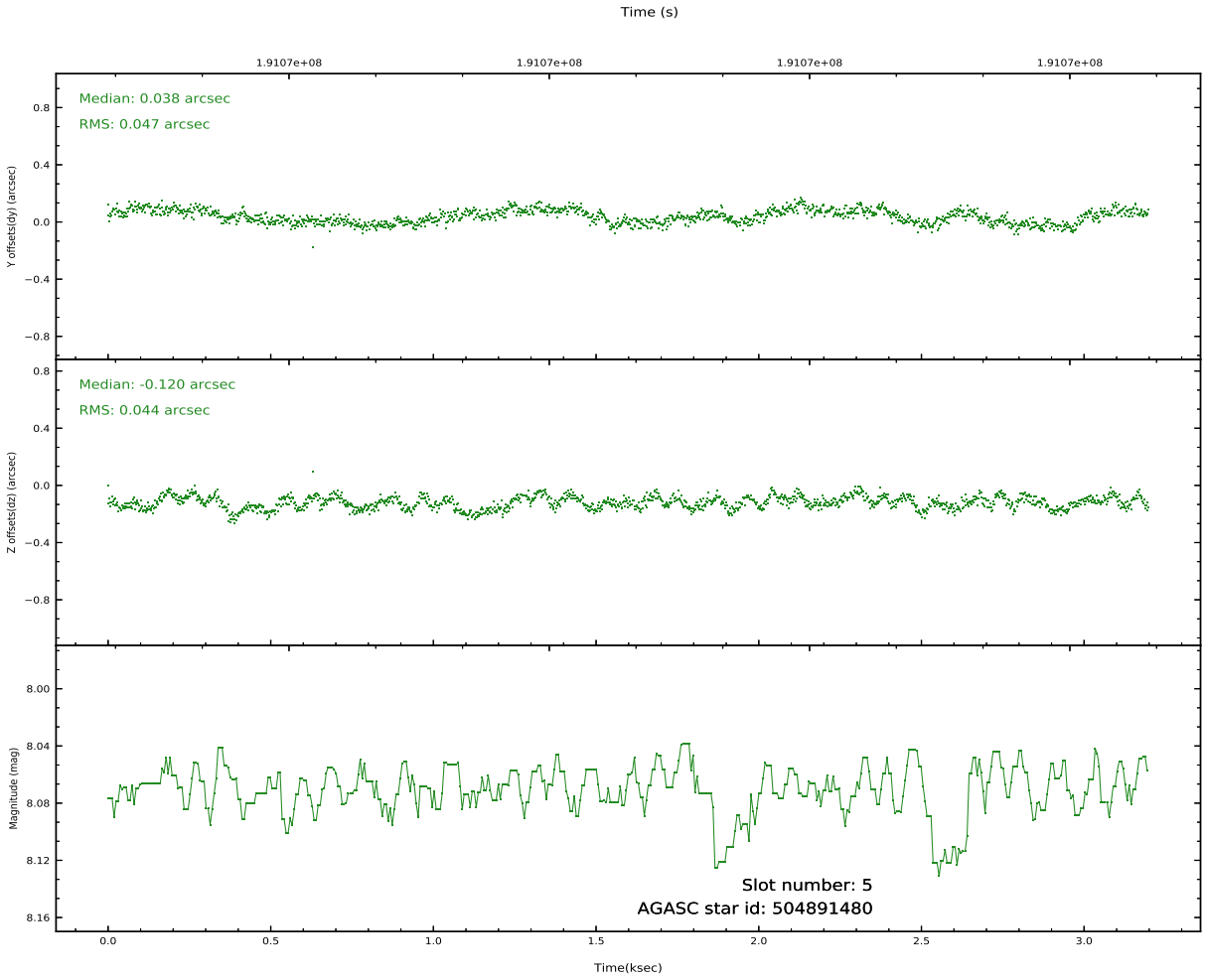

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.162 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 504890776


Time (s)
1.9107e+08
Median: 0.003 arcsec
RMS: 0.059 arcsec
Y offsets(dy) (arcsec)
Median: 0.162 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 504890776
Time(ksec)

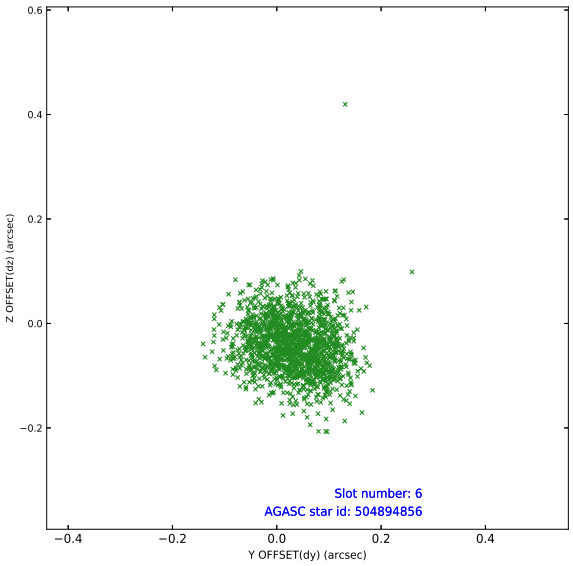
2.4.3 Slot 5

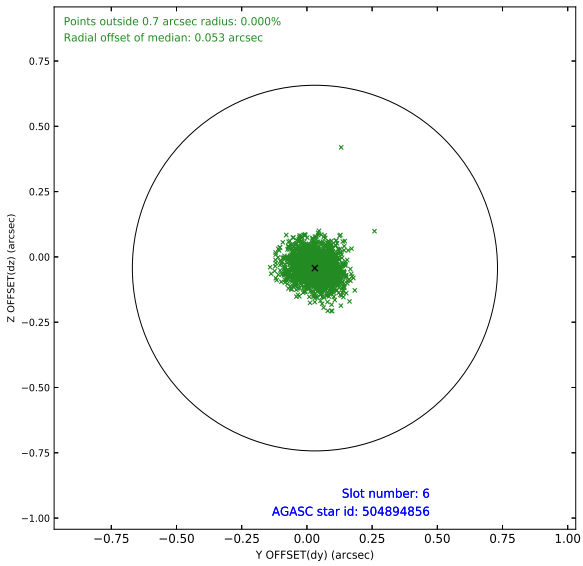

Slot number: 5
AGASC star id: 504891480
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)

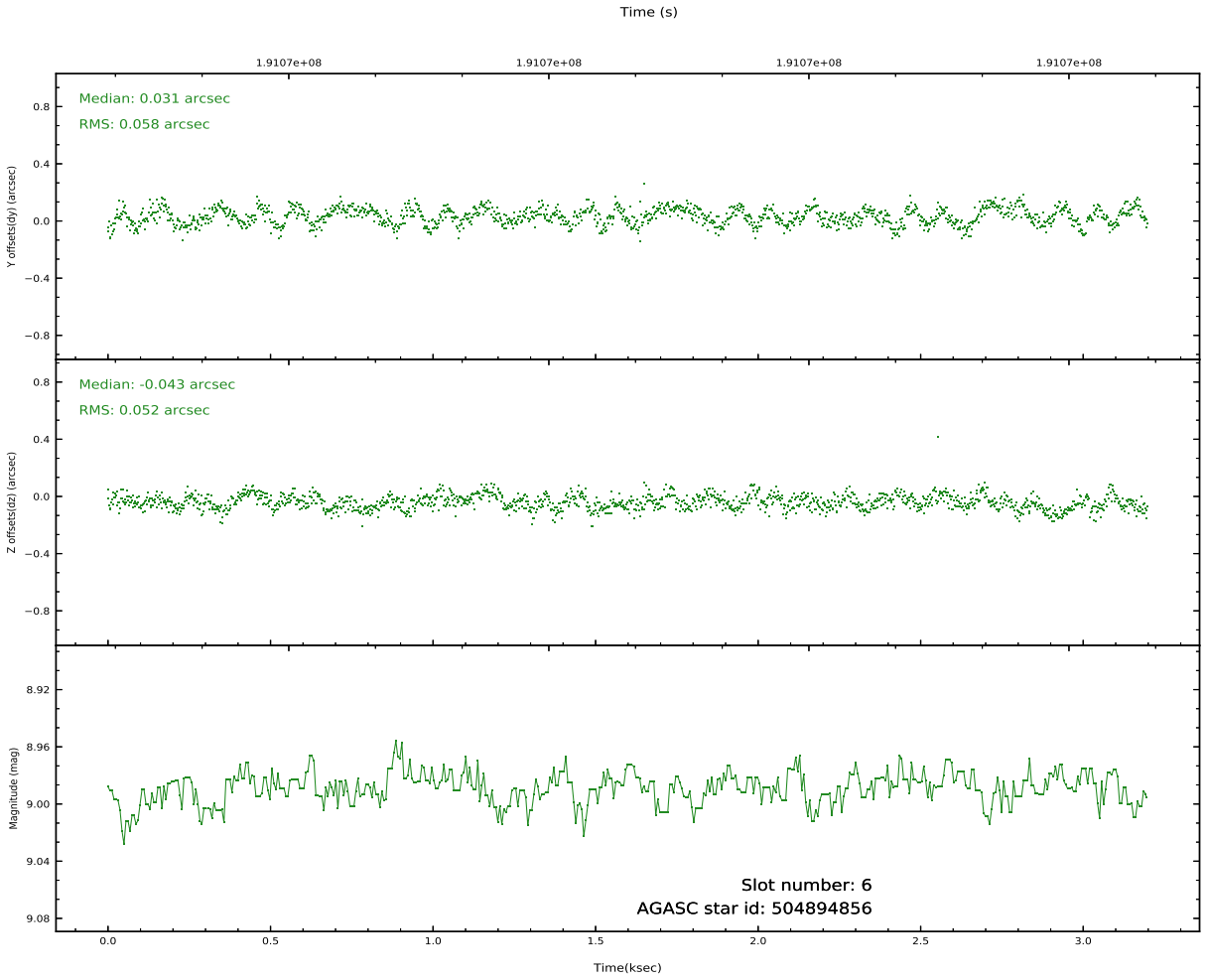

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.126 arcsec
Slot number: 5
AGASC star id: 504891480
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
1.9107e+08
Median: 0.038 arcsec
RMS: 0.047 arcsec
Y offsets(dy) (arcsec)
Median: -0.120 arcsec
RMS: 0.044 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 504891480
Time(ksec)

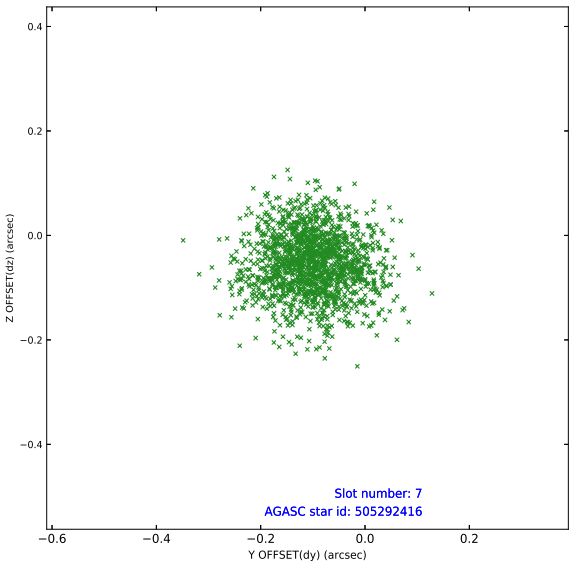
2.4.4 Slot 6

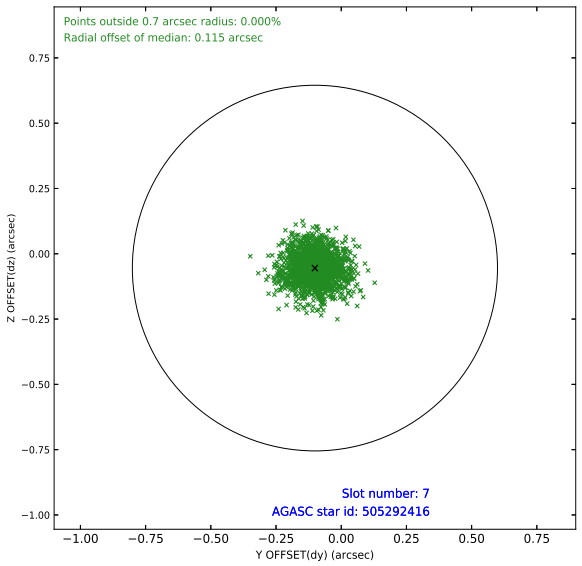

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 504894856

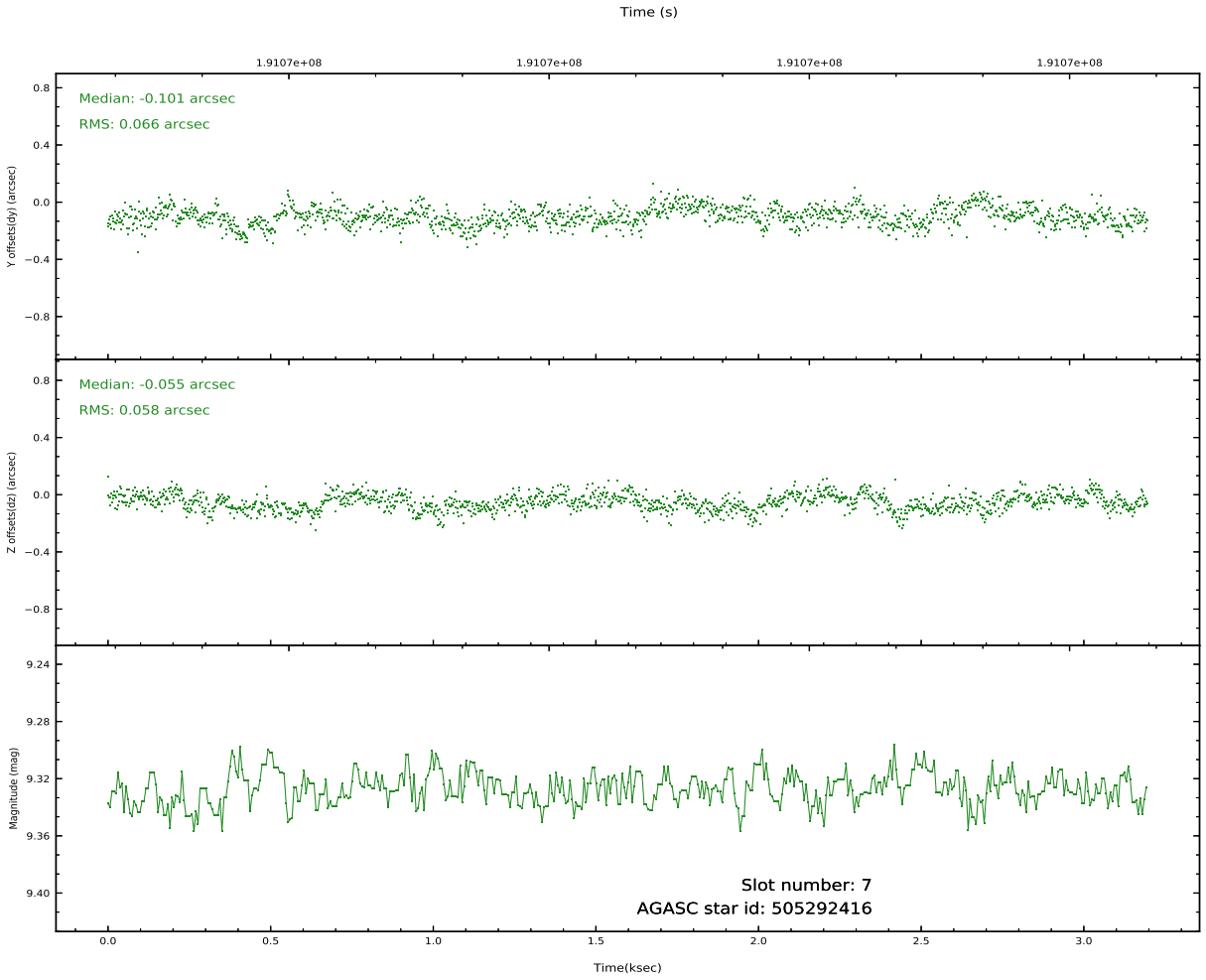

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.053 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 504894856


Time (s)
1.9107e+08
Median: 0.031 arcsec
RMS: 0.058 arcsec
Y offsets(dy) (arcsec)
Median: -0.043 arcsec
RMS: 0.052 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 504894856
Time(ksec)

2.4.5 Slot 7

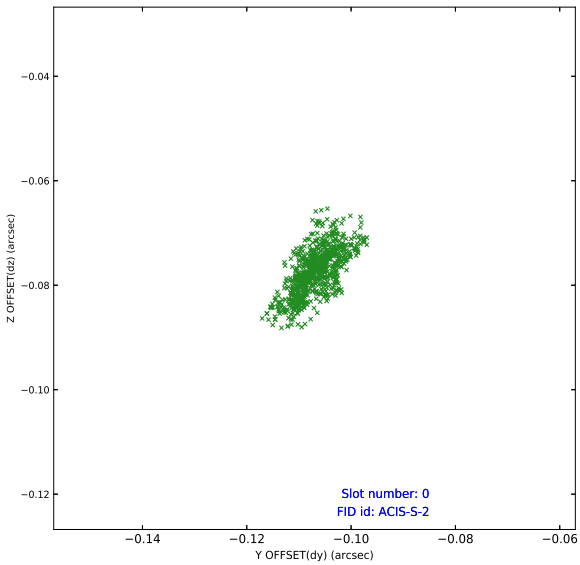

Slot number: 7
AGASC star id: 505292416
Y OFFSET(dy) (arcsec)
Z OFFSET(dz) (arcsec)

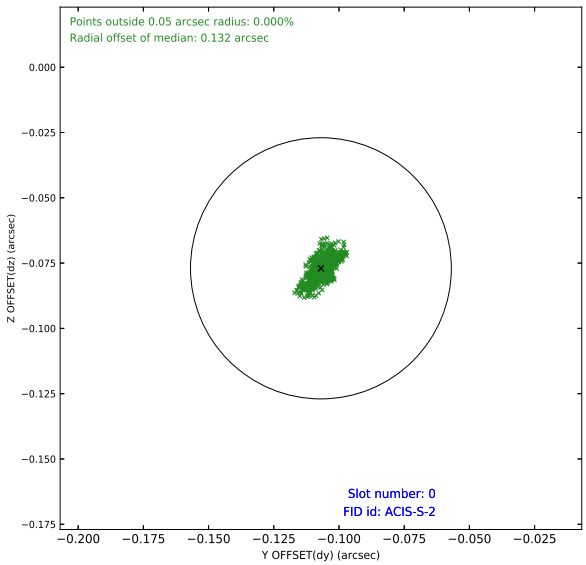

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.115 arcsec
Slot number: 7
AGASC star id: 505292416
Y OFFSET(dy) (arcsec)
Z OFFSET(dz) (arcsec)

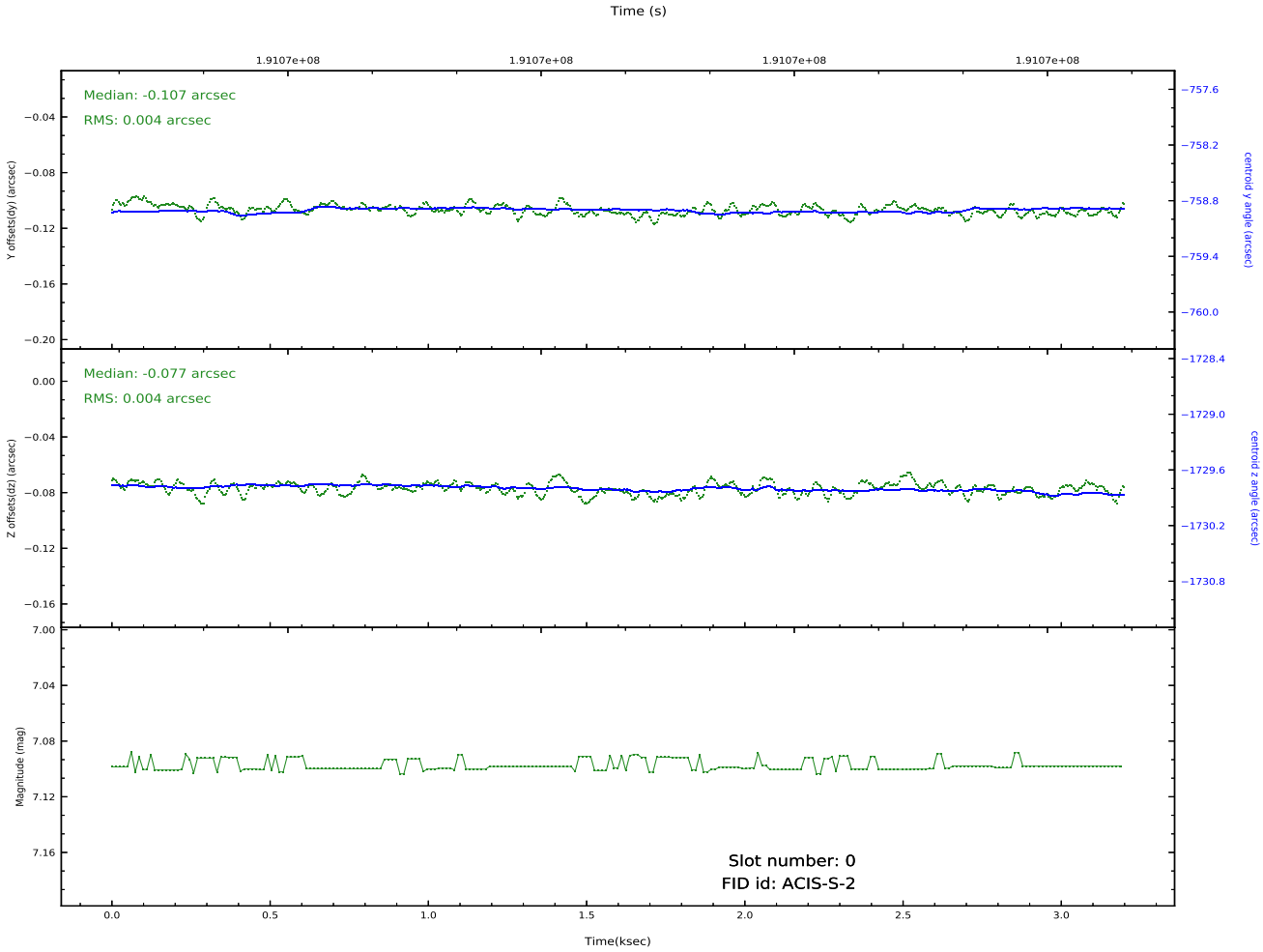

Time (s)
1.9107e+08
Median: -0.101 arcsec
RMS: 0.066 arcsec
Y offsets(dy) (arcsec)
Median: -0.055 arcsec
RMS: 0.058 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 505292416
Time(ksec)

2.5 FID Slots

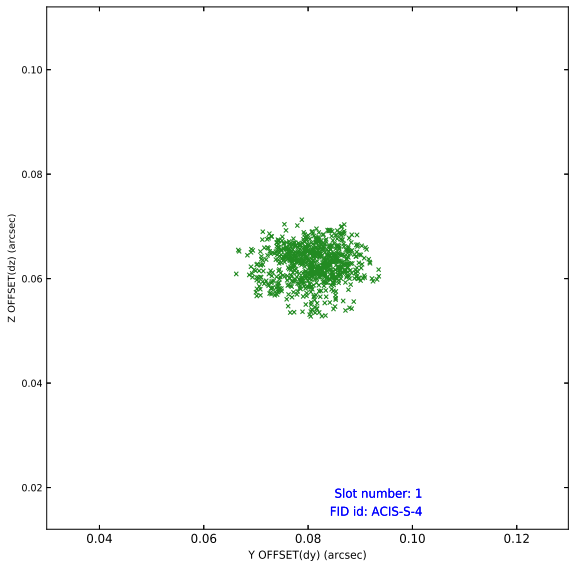
2.5.1 Slot 0

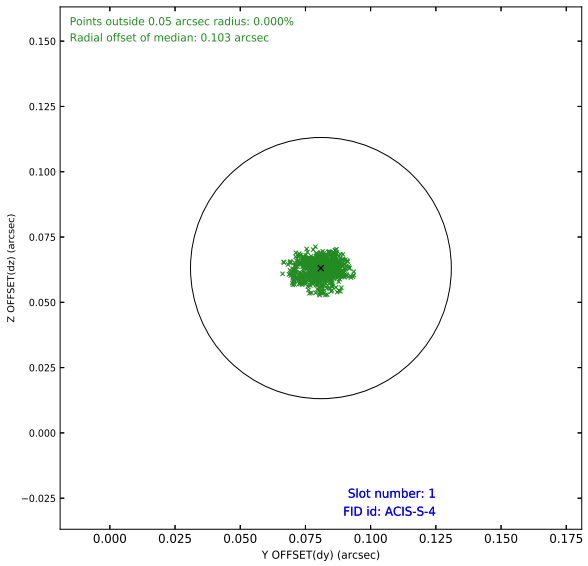


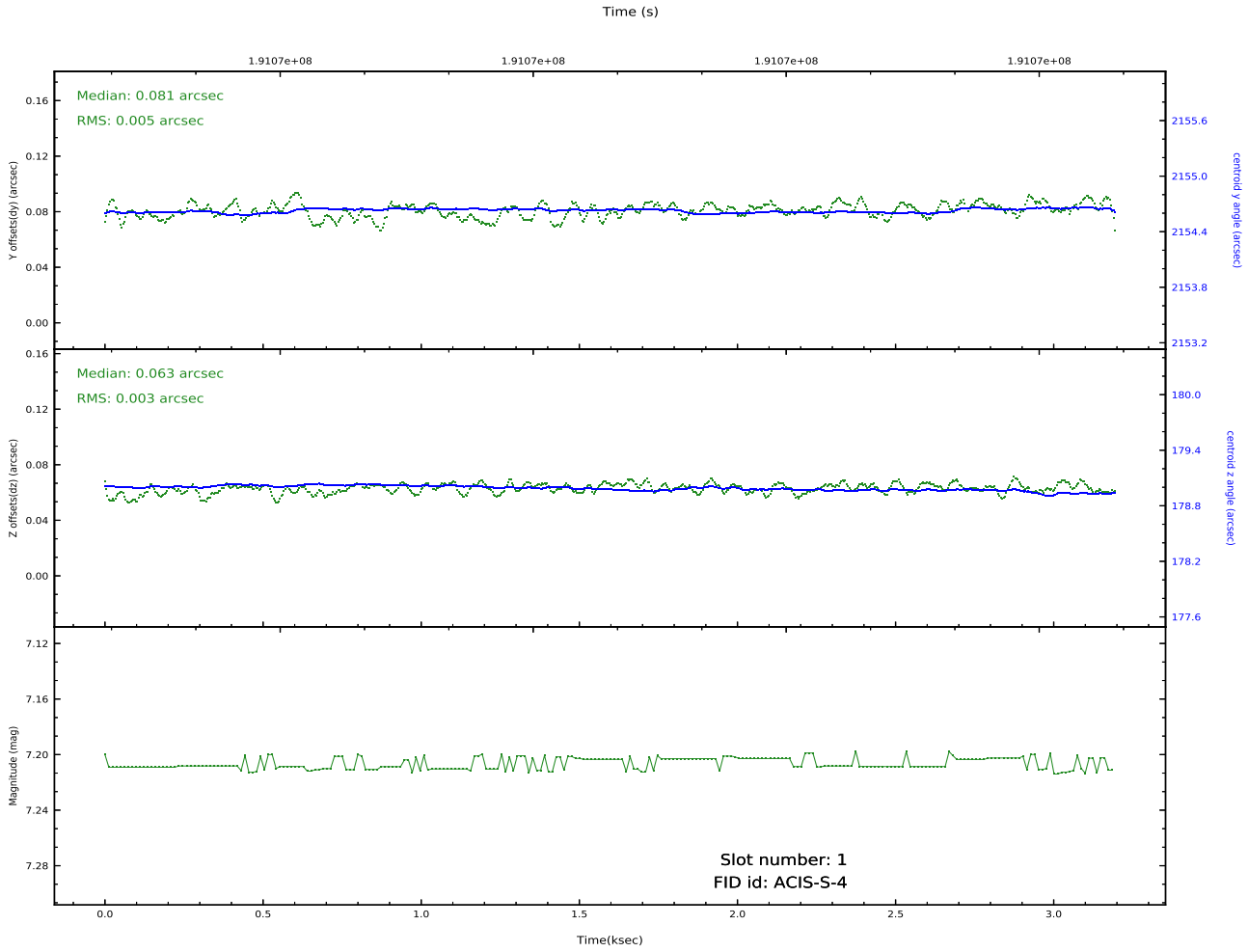




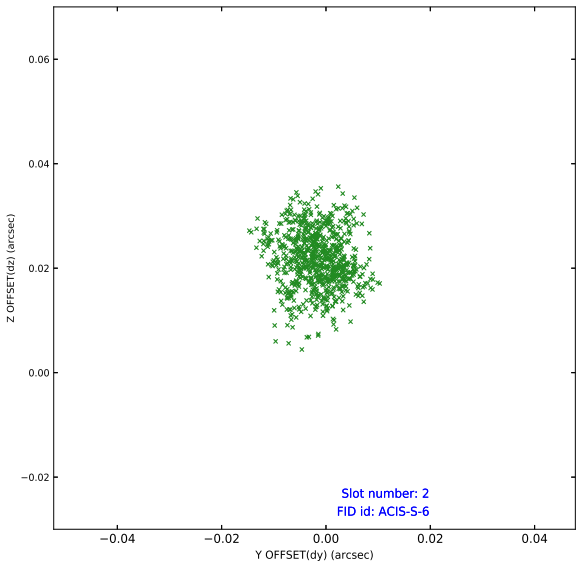
2.5.2 Slot 1

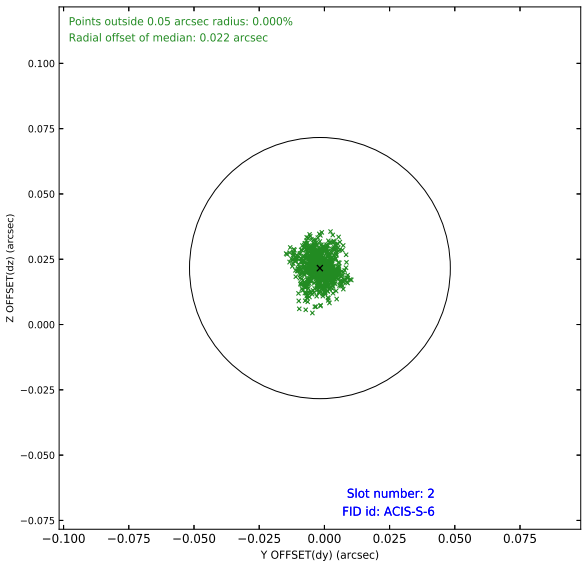

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS-S-4

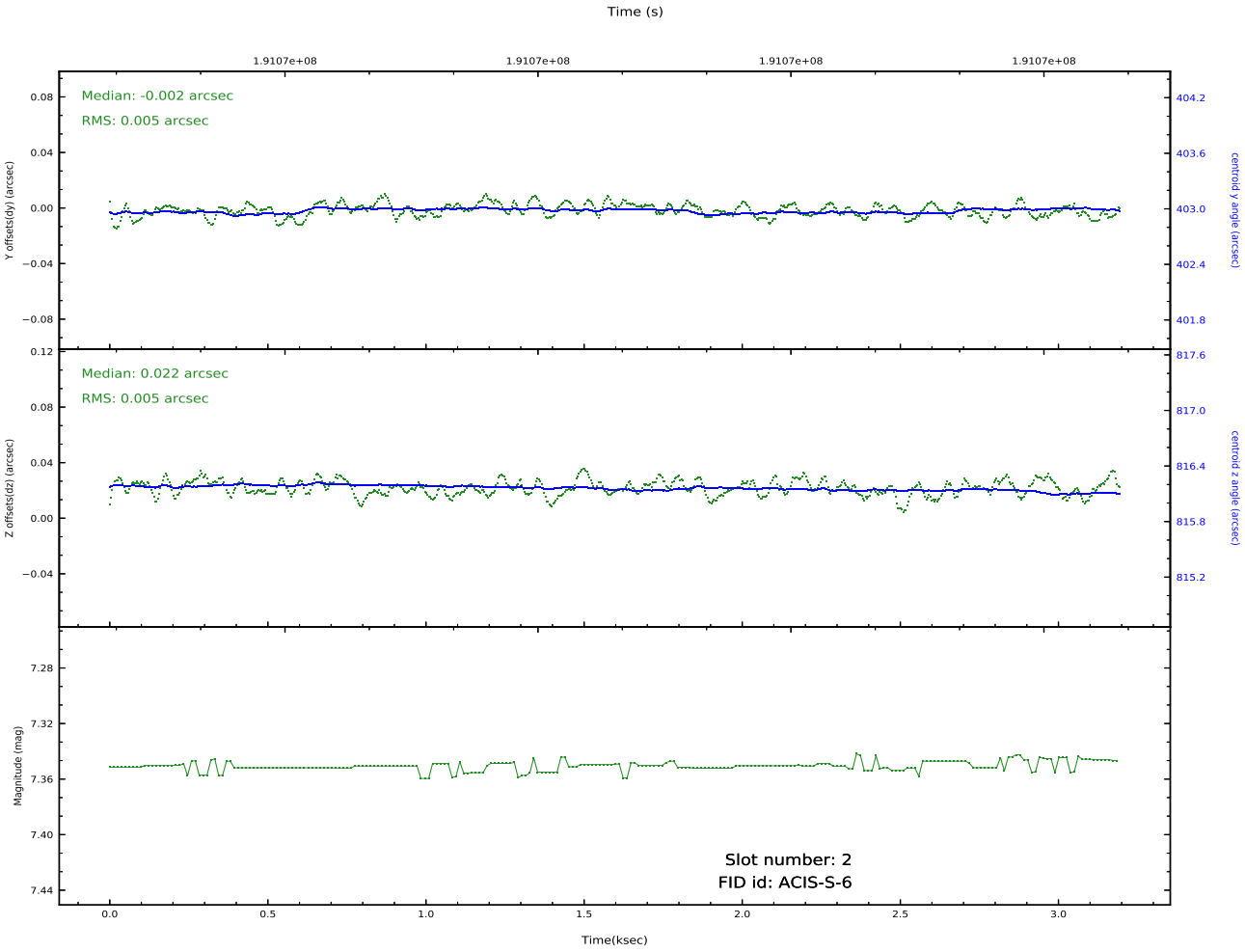

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.103 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS-S-4


Time (s)
Median: 0.081 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.063 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-6
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.022 arcsec
Slot number: 2
FID id: ACIS-S-6
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)


Time (s)
Median: -0.002 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.022 arcsec
RMS: 0.005 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)	2020.09.23
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	3.231

A.2 Comments

Charge time for this observation remains at previous value of 3.231 ks, although with the current processing the charge time would have been 3.13 ksec.
This observation was interrupted by safing of the science instruments due to high solar radiation environment. The observation was interrupted at 2004:021:12:03:33 UT. Due to a high radiation environment, the instruments were safed and the observation terminated early. This observation has been reprocessed so that the aspect solution correctly handles the instrument safing and maneuver activites at the end of the observation.