

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 21013 - L2 Version 2  
Chandra X-Ray Center

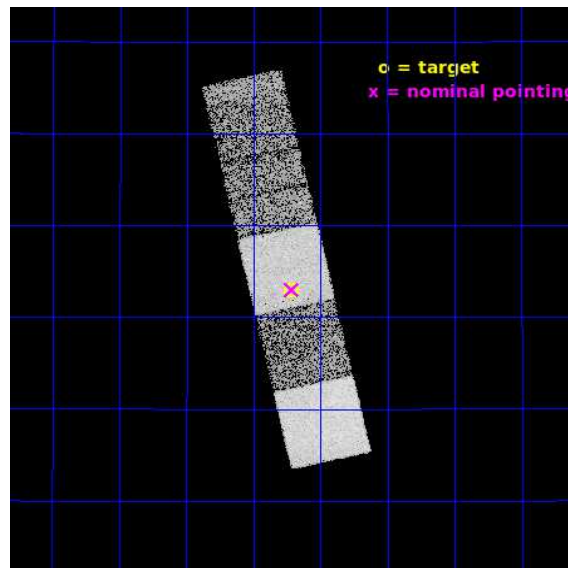
L2 Processing Date : Oct 26 2020

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# 1 Front

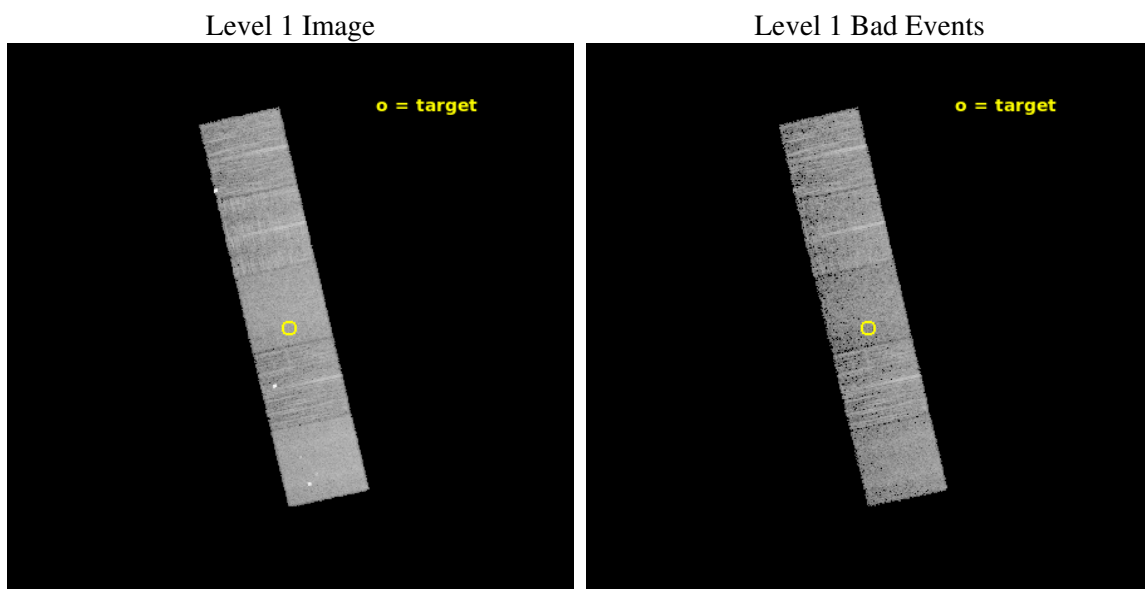
seq_num	703654	Sequence number
obs_id	21013	Observation id
title	LOW SURFACE BRIGHTNESS GALAXIES AND THE BLACK HOLE OCCUPATION FRACTION	Proposal title
observer	Elena Gallo	Principal investigator
object	UGC 05629	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	156.054583	Observer's specified target RA [deg]
dec_targ	21.049722	Observer's specified target Dec [deg]
ra_nom	156.0534770467	Nominal RA [deg]
dec_nom	21.050013647572	Nominal Dec [deg]
roll_nom	257.25566864265	Nominal Roll [deg]
revision	2	Processing version of data
ontime	6150.2137018442	Sum of GTIs [s]
livetime	6069.8566321082	Livetime [s]
ontime5	6150.1726619005	Sum of GTIs [s]
ontime6	6150.1316218376	Sum of GTIs [s]
ontime7	6150.2137018442	Sum of GTIs [s]
ontime8	6150.0905818939	Sum of GTIs [s]
ontime9	6150.049541831	Sum of GTIs [s]
l2events	72926	Number of level 2 events



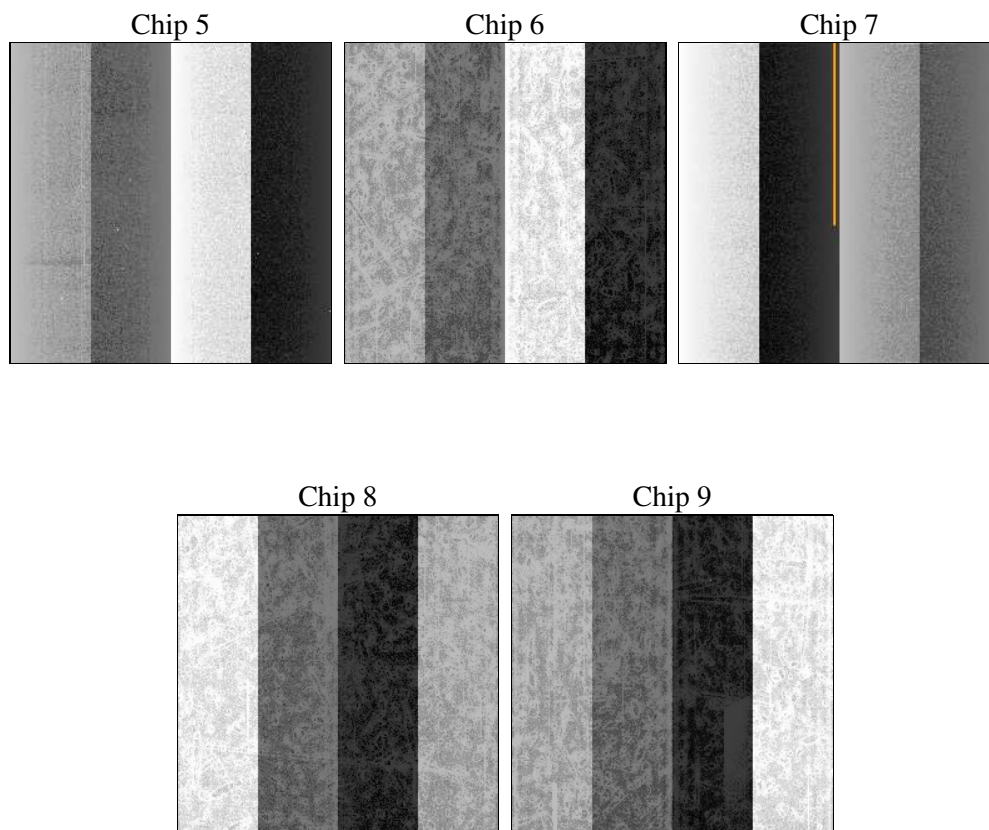
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	6100.000000	[s] Scheduled observation exposure time
ascdsver	10.9.2	Processing system revision	ontime	6150.2137018442	Sum of GTIs [s]
caldsver	4.9.3	&#160	ontime5	6150.1726619005	Sum of GTIs [s]
date	2020-10-26T16:23:58	Date and time of file creation	ontime6	6150.1316218376	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	6150.2137018442	Sum of GTIs [s]
			ontime8	6150.0905818939	Sum of GTIs [s]
			ontime9	6150.049541831	Sum of GTIs [s]
			l1events	298325	Number of level 1 events

### 2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	74700	51172	60187	61812	50454
rejected events	38671	44106	34283	45841	43037
rejected %	51%	86%	56%	74%	85%

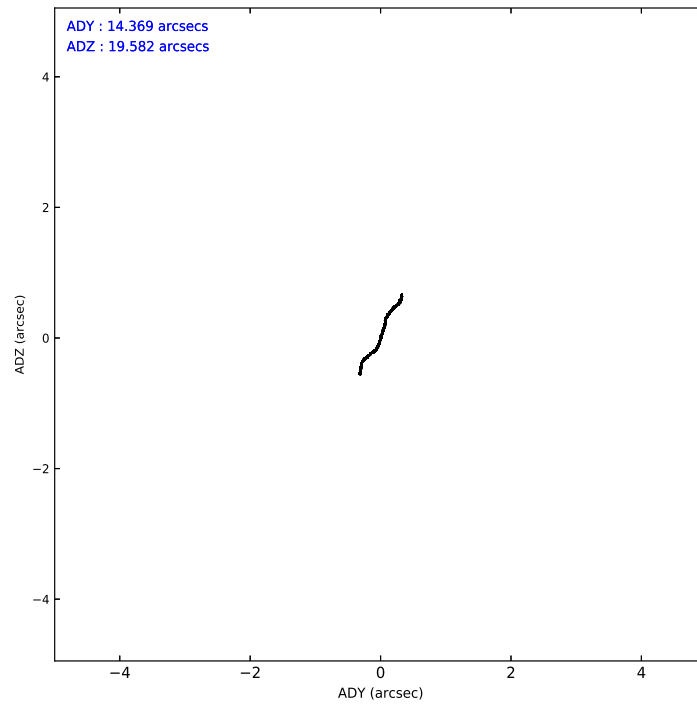
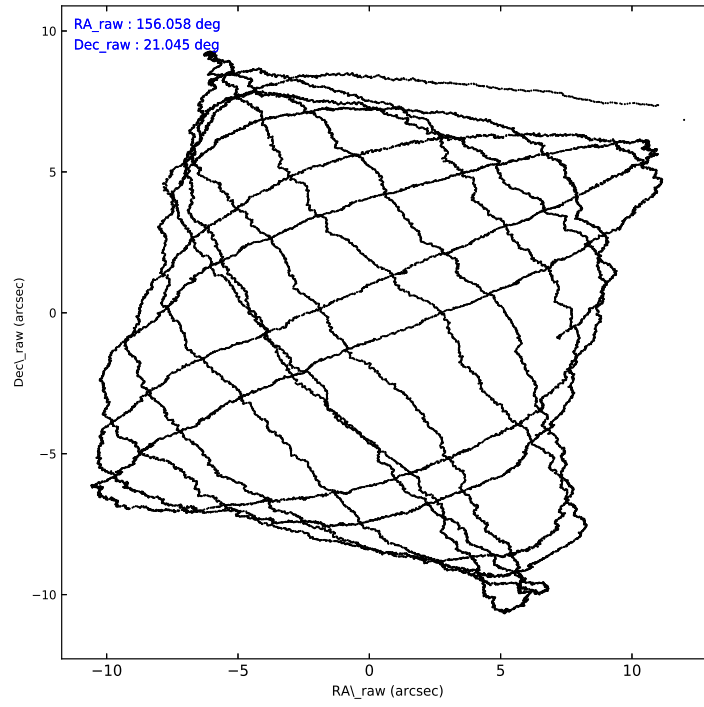
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	2780	3516	2128	4471	3709
	3%	6%	3%	7%	7%
grade 1 events	239	24	112	49	44
	0%	0%	0%	0%	0%
grade 2 events	10846	1320	5459	3790	1285
	14%	2%	9%	6%	2%
grade 3 events	1294	477	2118	1573	591
	1%	0%	3%	2%	1%
grade 4 events	1174	477	2022	1632	561
	1%	0%	3%	2%	1%
grade 5 events	4774	2069	5950	3253	2281
	6%	4%	9%	5%	4%
grade 6 events	19966	1284	14201	4513	1280
	26%	2%	23%	7%	2%
grade 7 events	33627	42005	28197	42531	40703
	45%	82%	46%	68%	80%

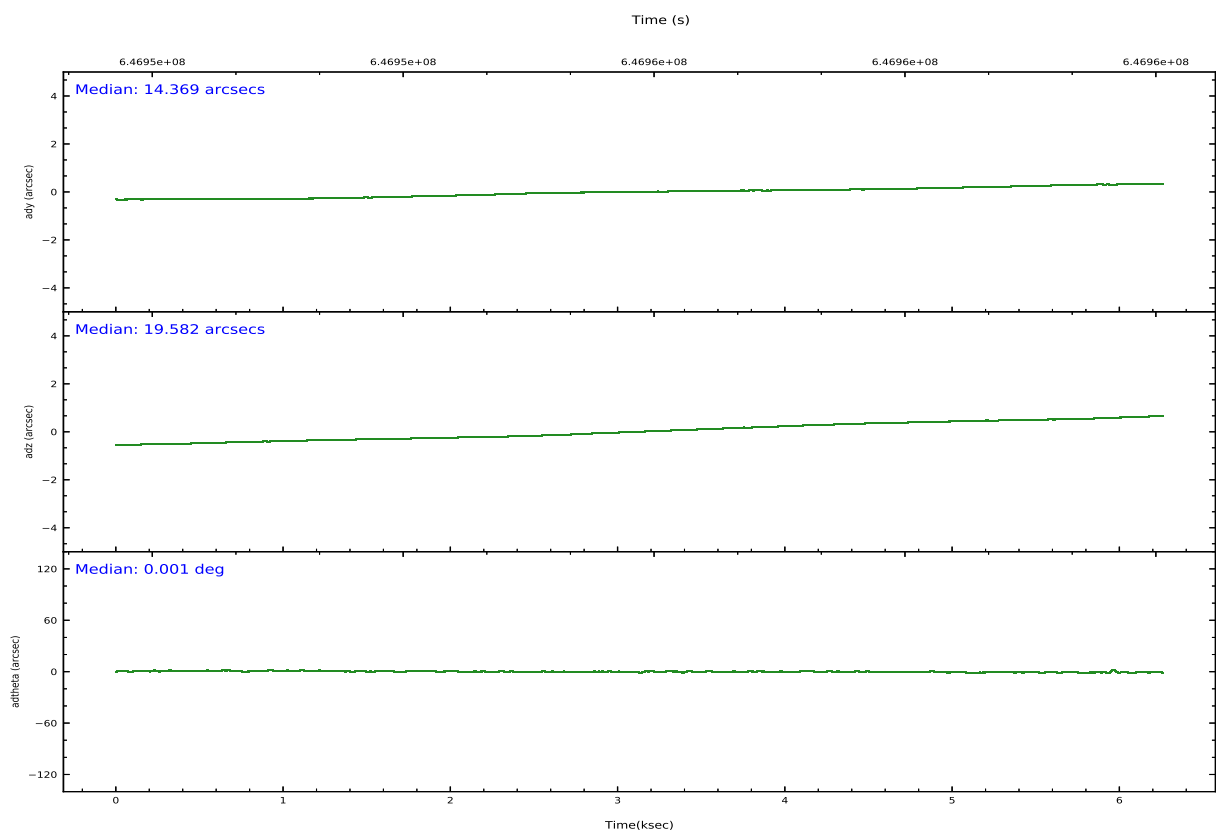
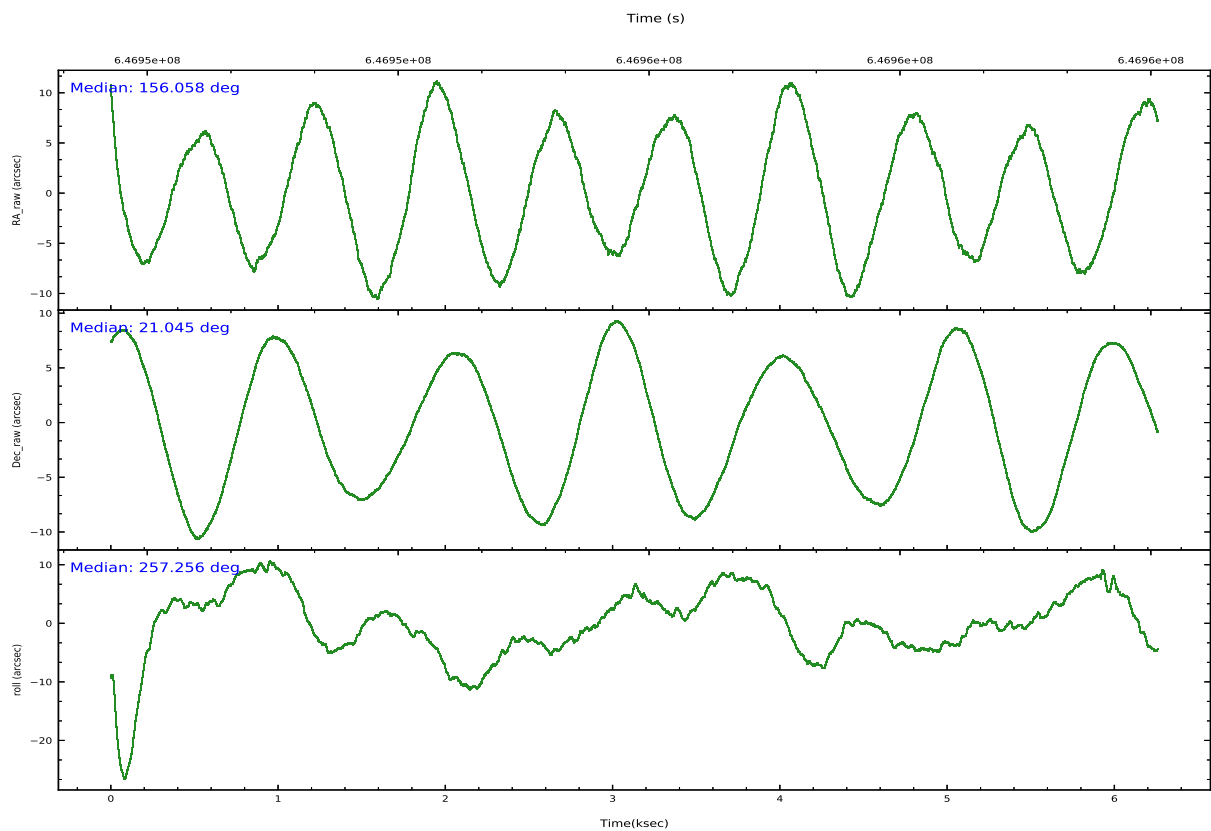
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-56789	ACIS-56789
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	156.049257	156.0534770467
[deg] Pointing Dec	21.070734	21.050013647572
[deg] Pointing Roll	257.106878	257.25566864265
[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)	646952444.184000	646951186.24682
Observation start date	2018-07-02T20:59:35	2018-07-02T20:39:46
[s] Observation end time (MET)	646958544.184000	646959474.9098099
Observation end date	2018-07-02T22:41:15	2018-07-02T22:57:54
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar version number	8	8
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	O2	Y
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



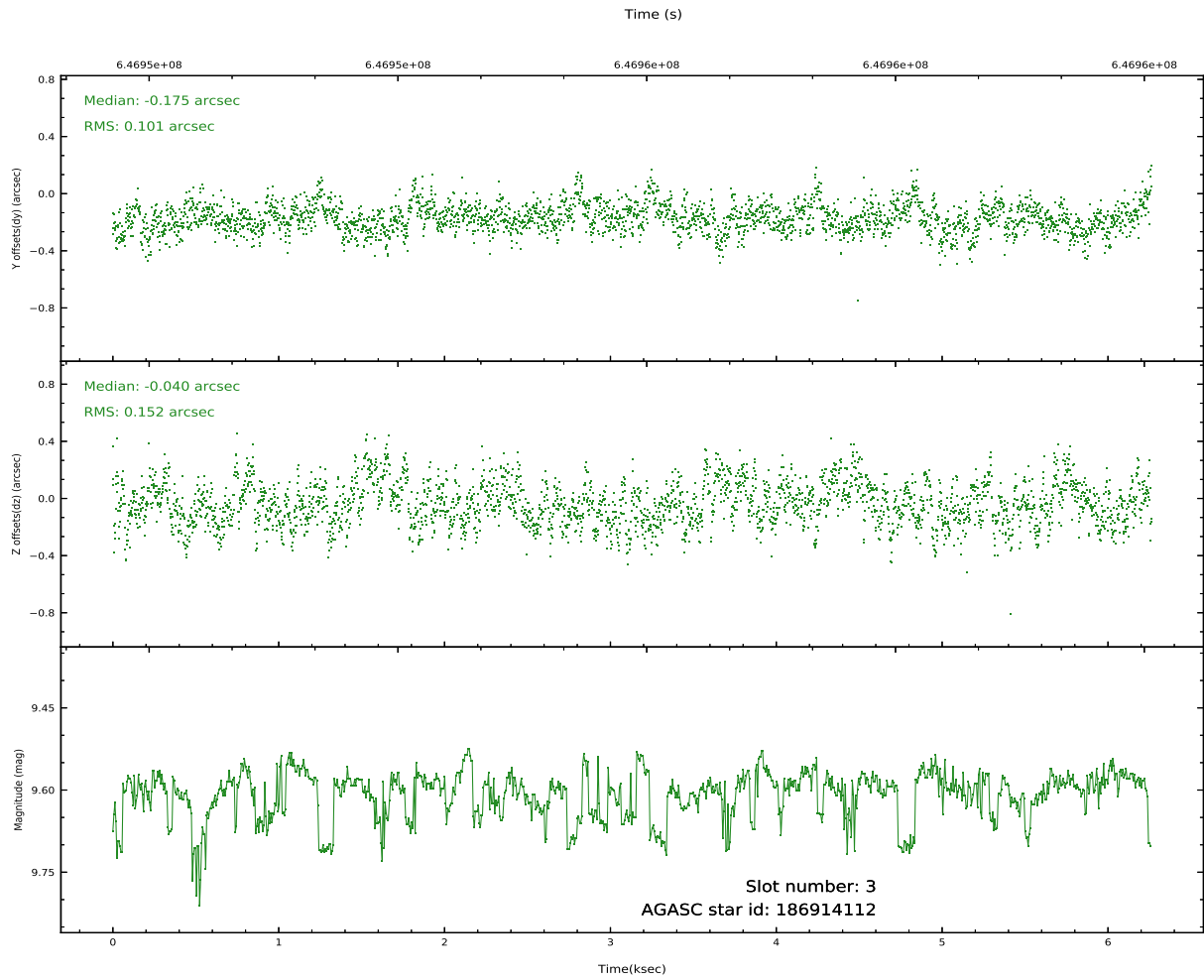
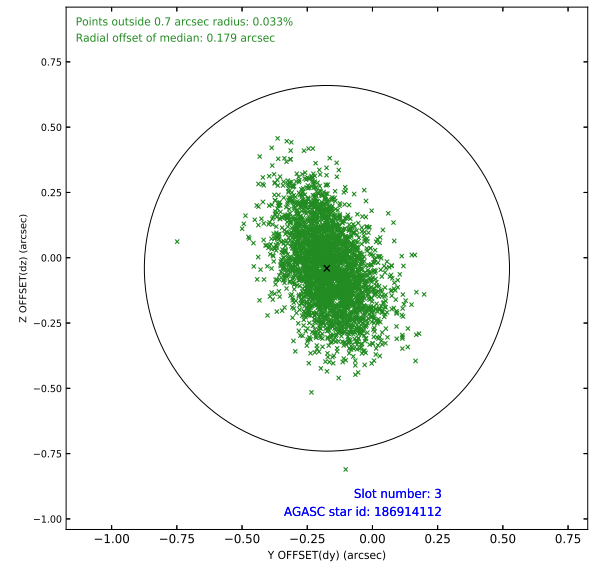
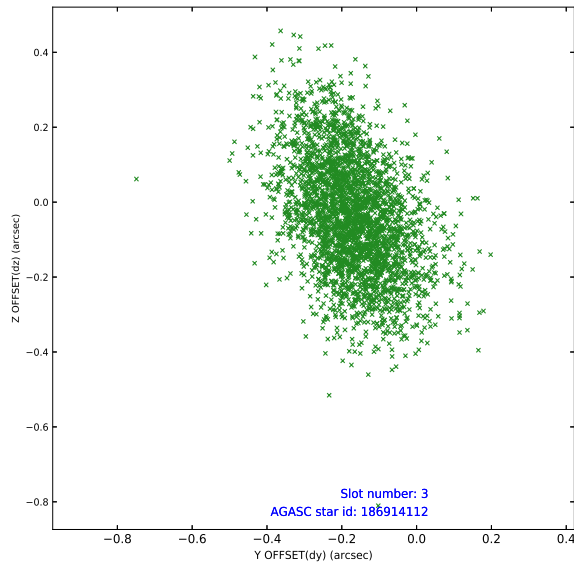


Slot Statistics

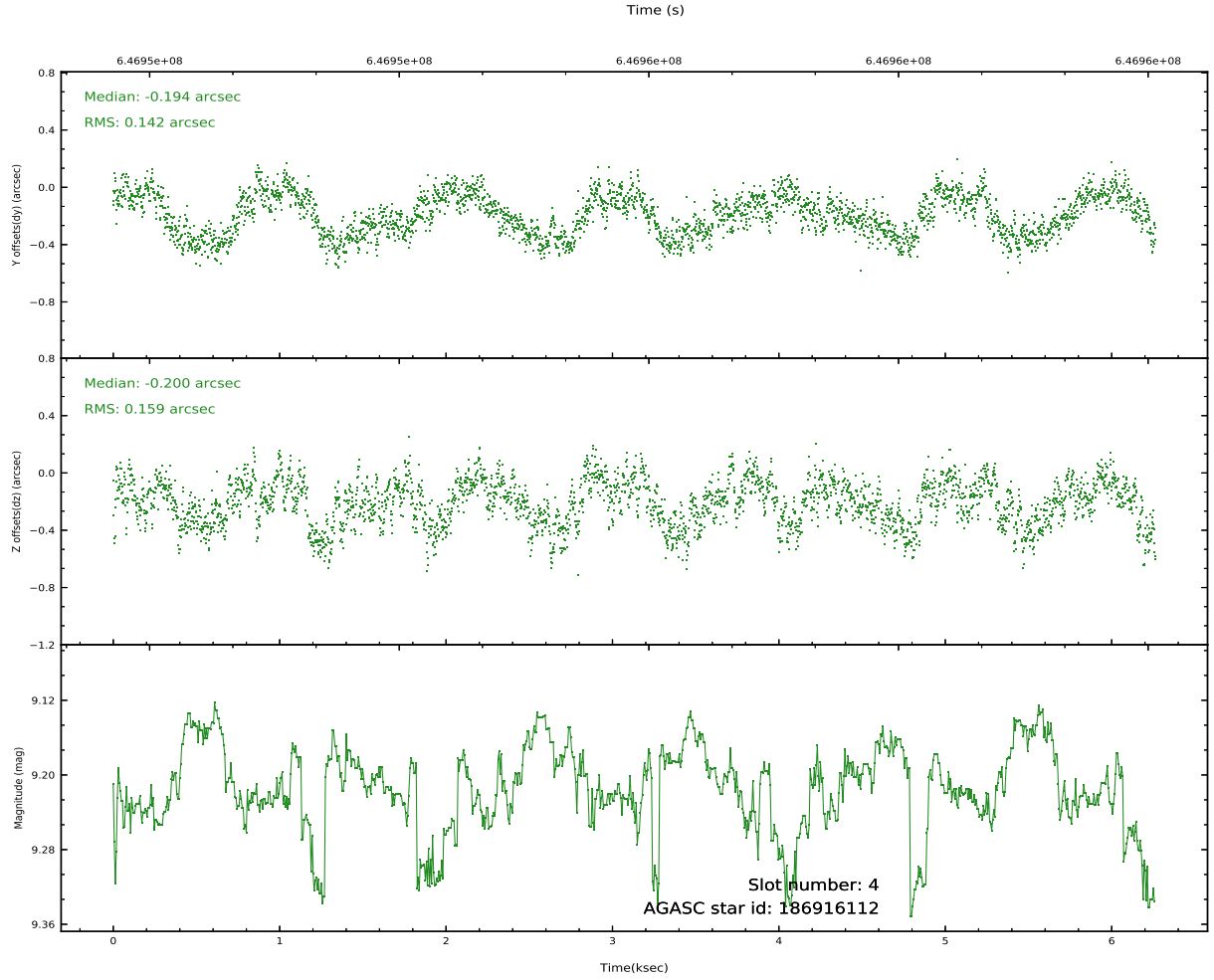
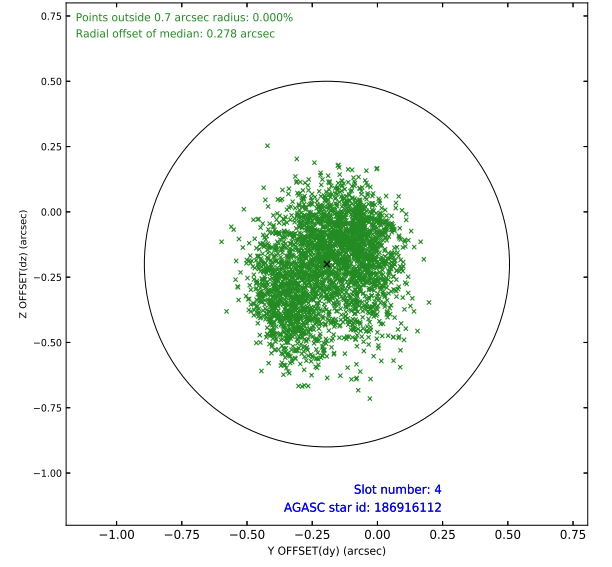
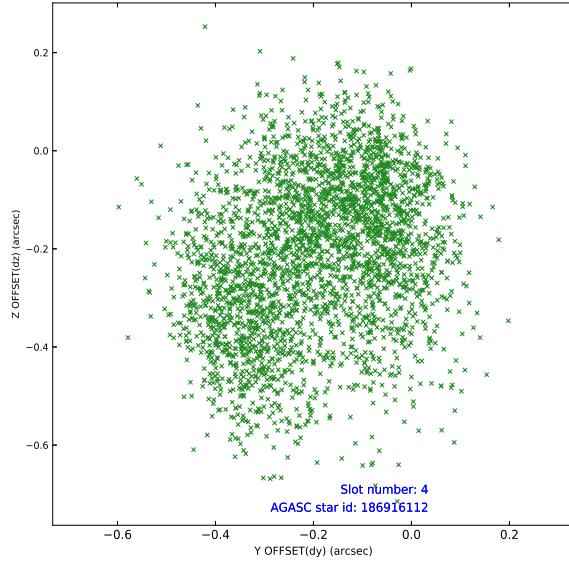
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.11	1528	1.000	0.056	-0.090	0.018	0.027	0.000000	0.000000	-767.41	-1741
1	FID		ACIS-S-4	7.22	1527	1.000	0.191	-0.002	0.007	0.012	0.000000	0.000000	2145.75	166
2	FID		ACIS-S-5	7.20	1528	1.000	-0.275	0.100	0.020	0.034	0.000000	0.000000	-1819.21	161
3	GUIDE	used	186914112	9.60	3049	1.000	-0.175	-0.040	0.191	0.326	155.554039	21.133922	147.28	-1672
4	GUIDE	used	186916112	9.21	3052	1.000	-0.194	-0.200	0.235	0.346	156.247087	20.725946	1061.50	925
5	GUIDE	used	186917568	9.76	3046	1.000	0.033	0.066	0.258	0.405	156.493532	20.349036	2197.79	2042
6	GUIDE	used	186911048	9.21	3048	1.000	0.088	-0.064	0.157	0.265	155.458376	21.346993	-528.92	-2154
7	GUIDE	used	186916944	9.13	3034	1.000	0.233	0.251	0.319	0.460	156.549178	20.276162	2410.55	2283

## 2.4 Star Slots

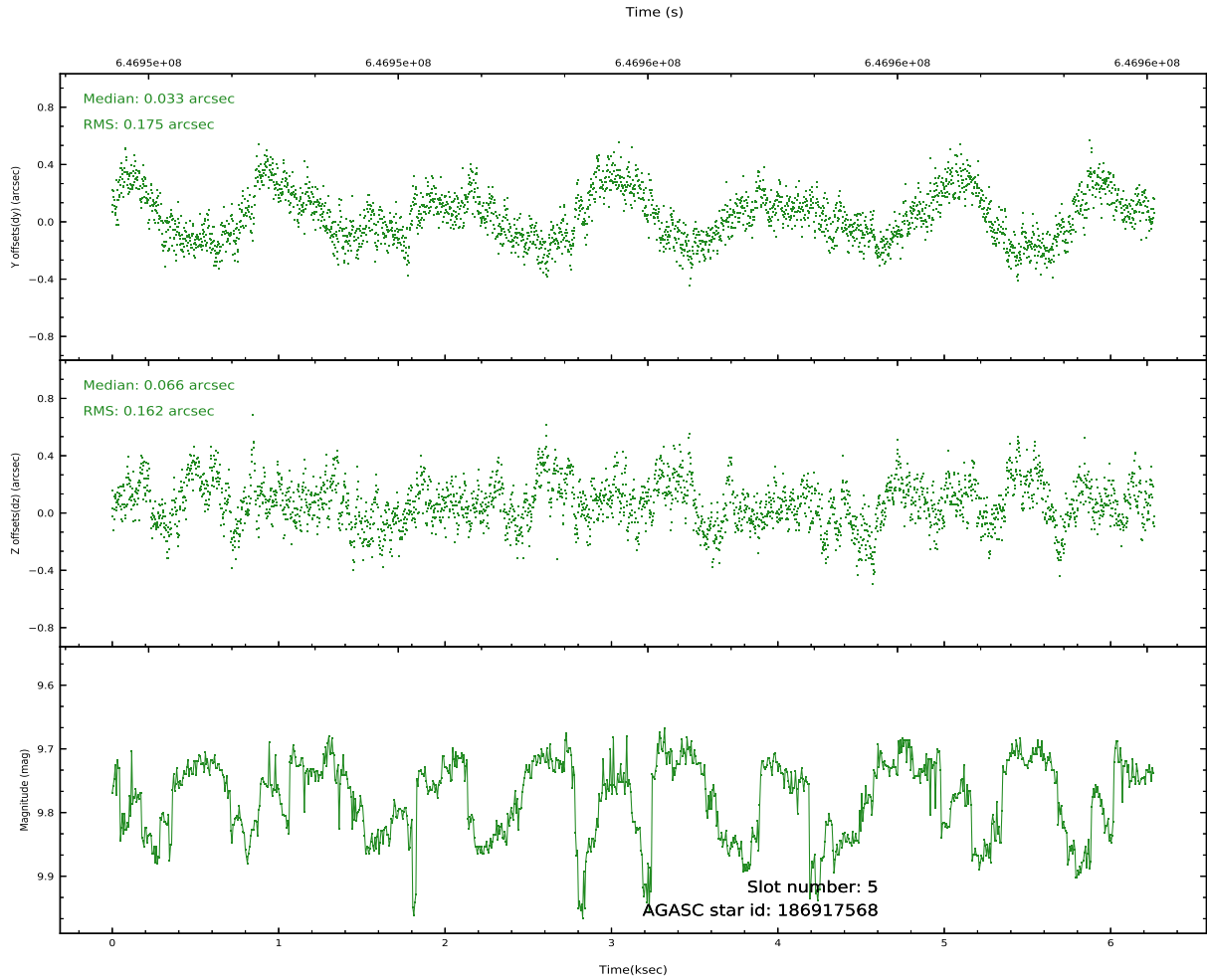
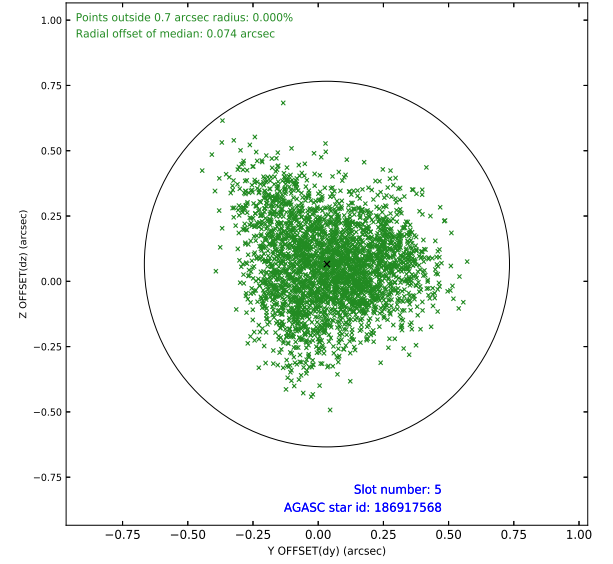
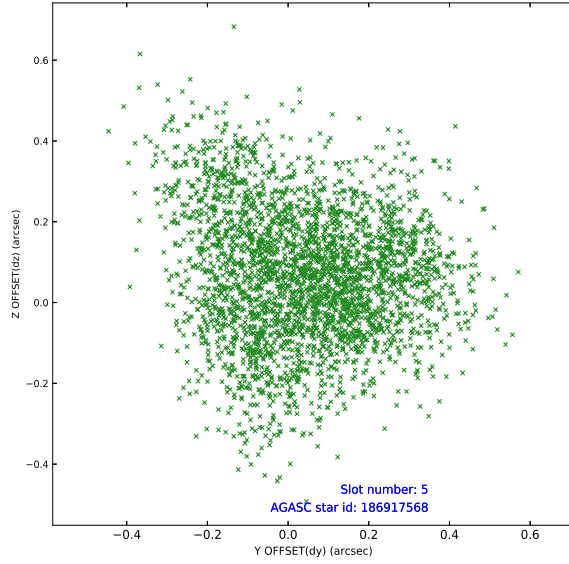
### 2.4.1 Slot 3



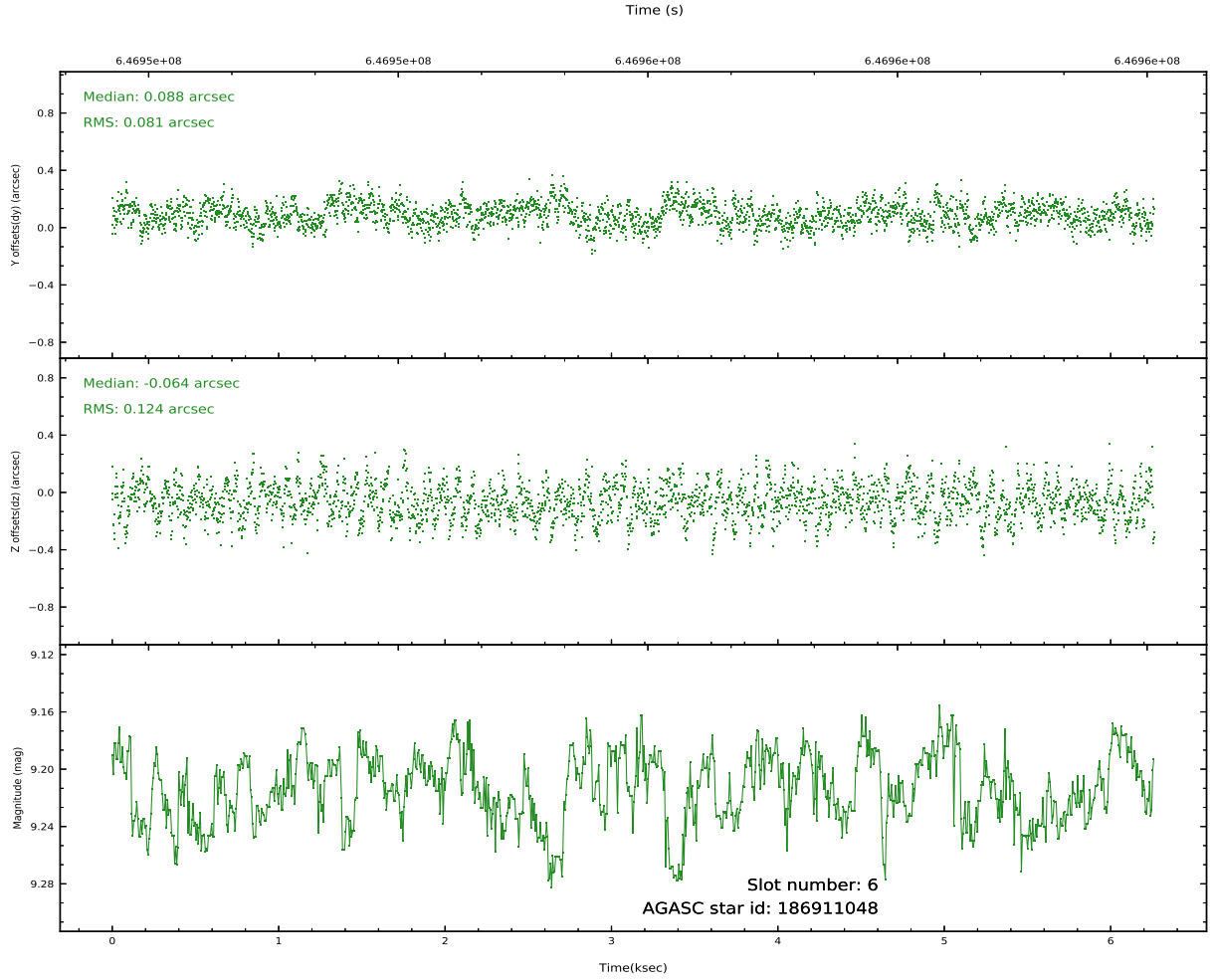
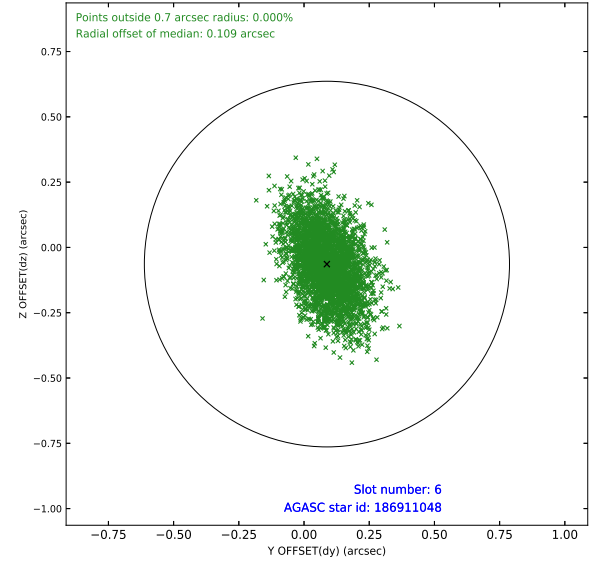
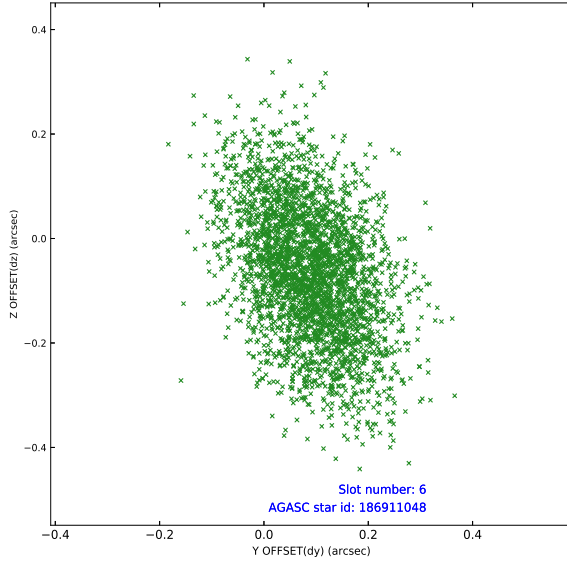
## 2.4.2 Slot 4



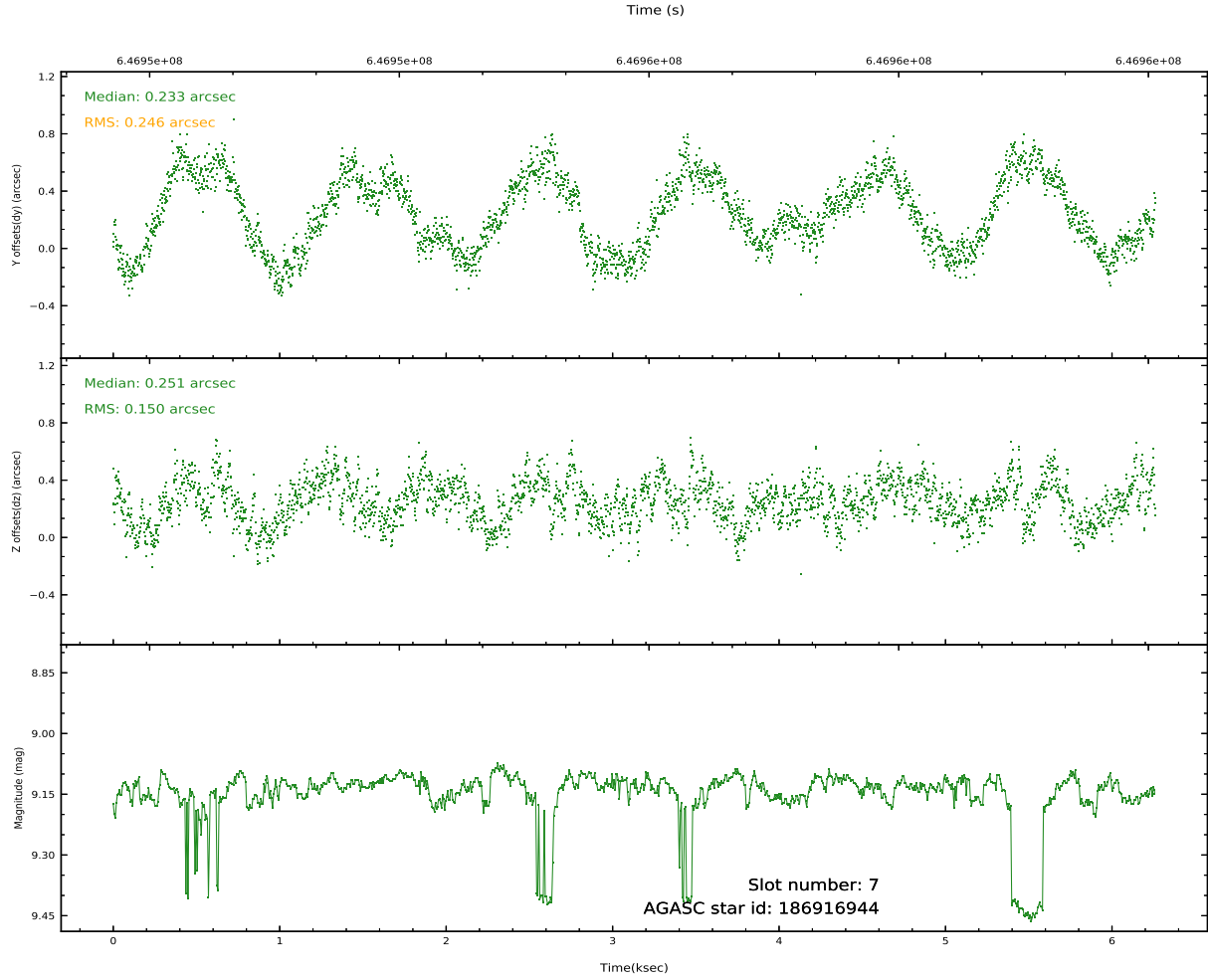
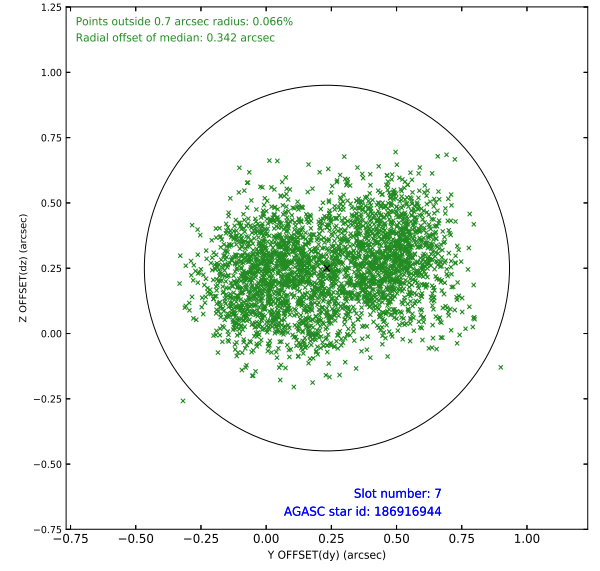
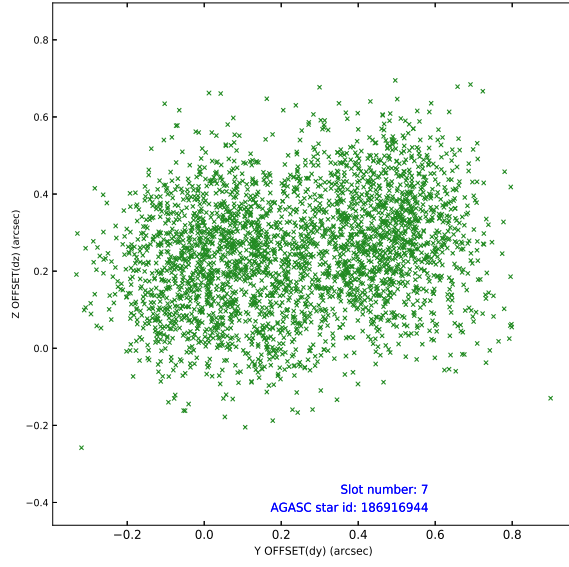
### 2.4.3 Slot 5



## 2.4.4 Slot 6

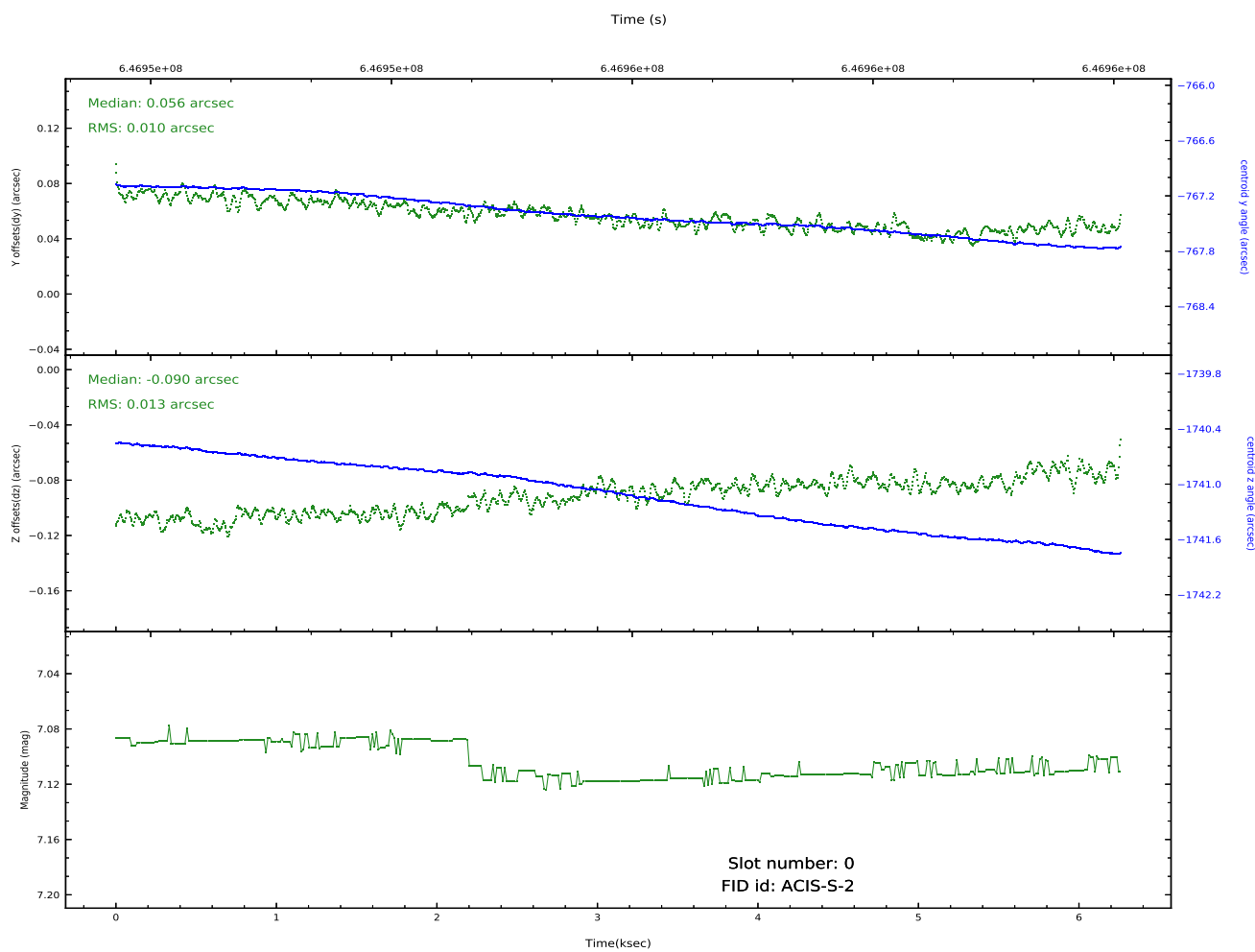
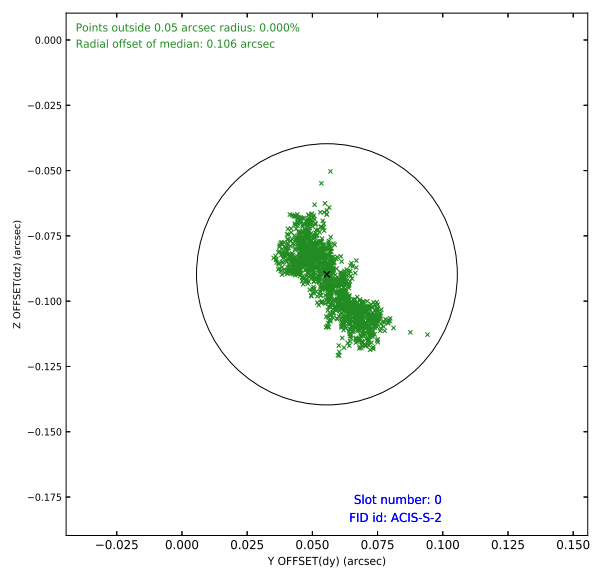
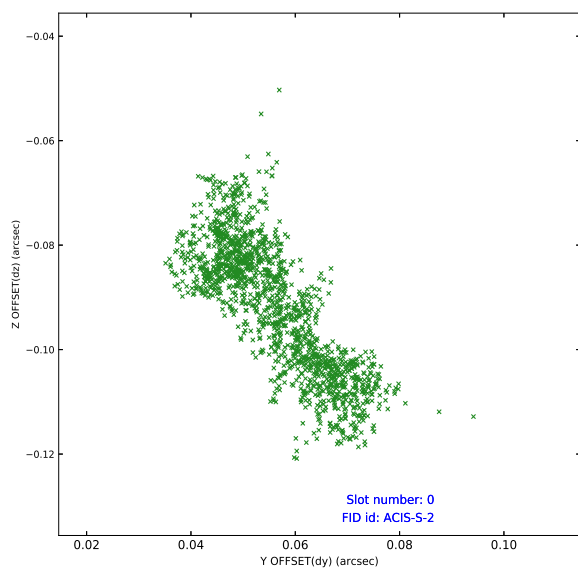


## 2.4.5 Slot 7

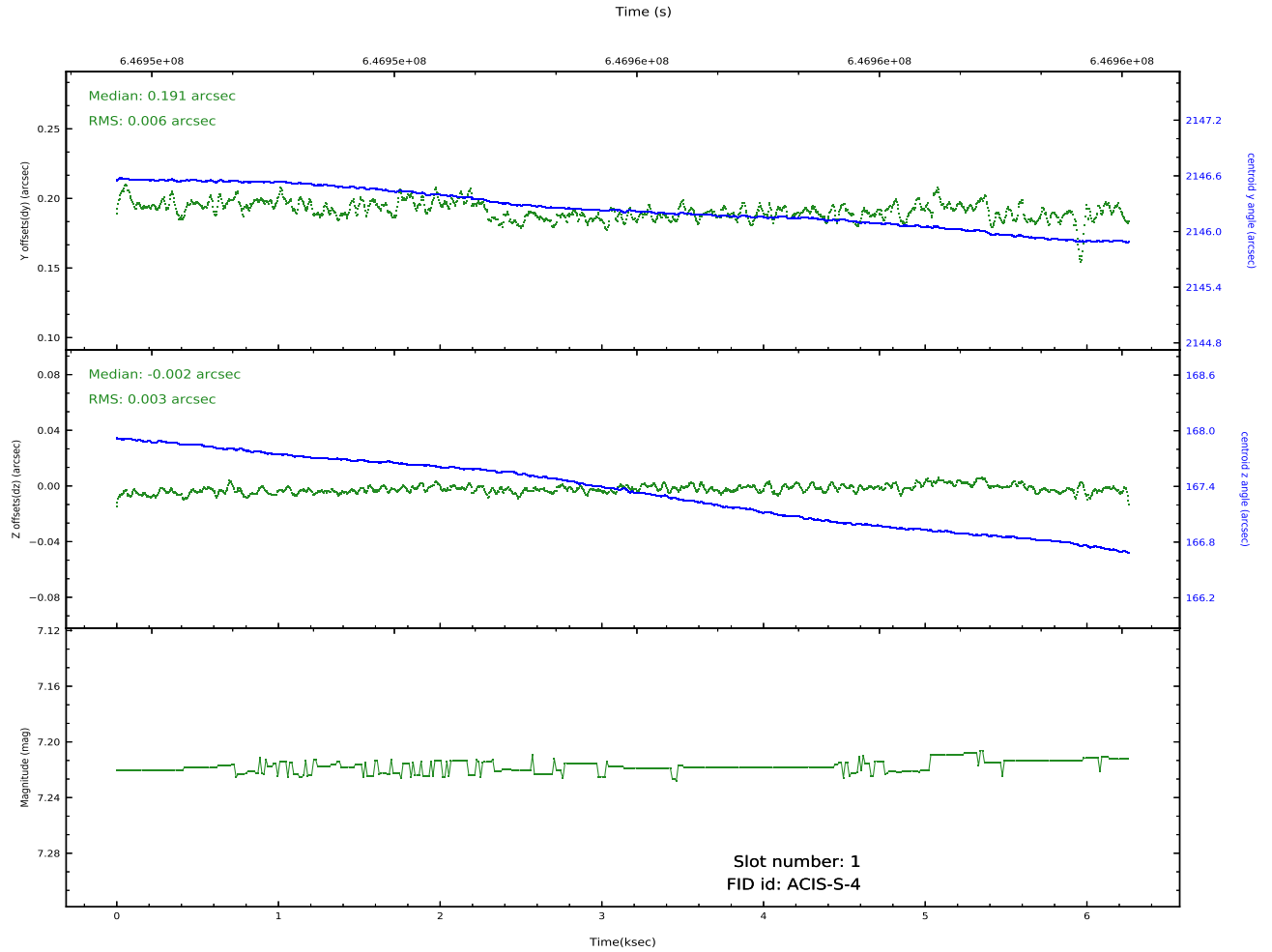
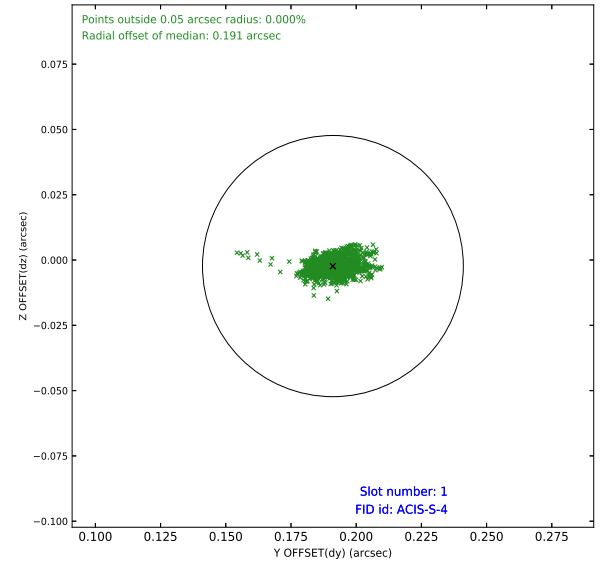
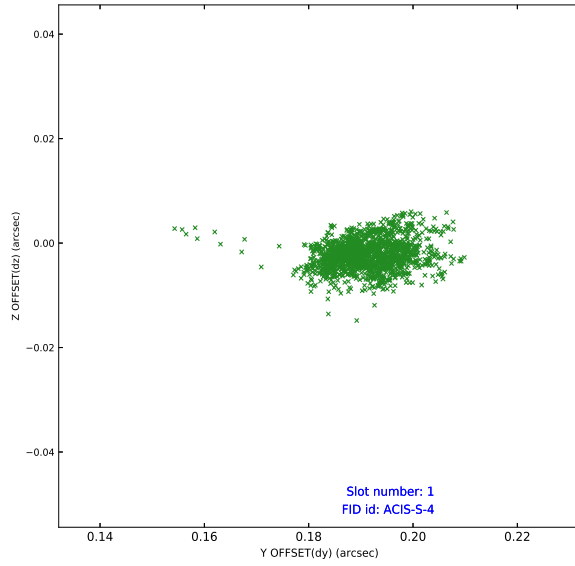


## 2.5 FID Slots

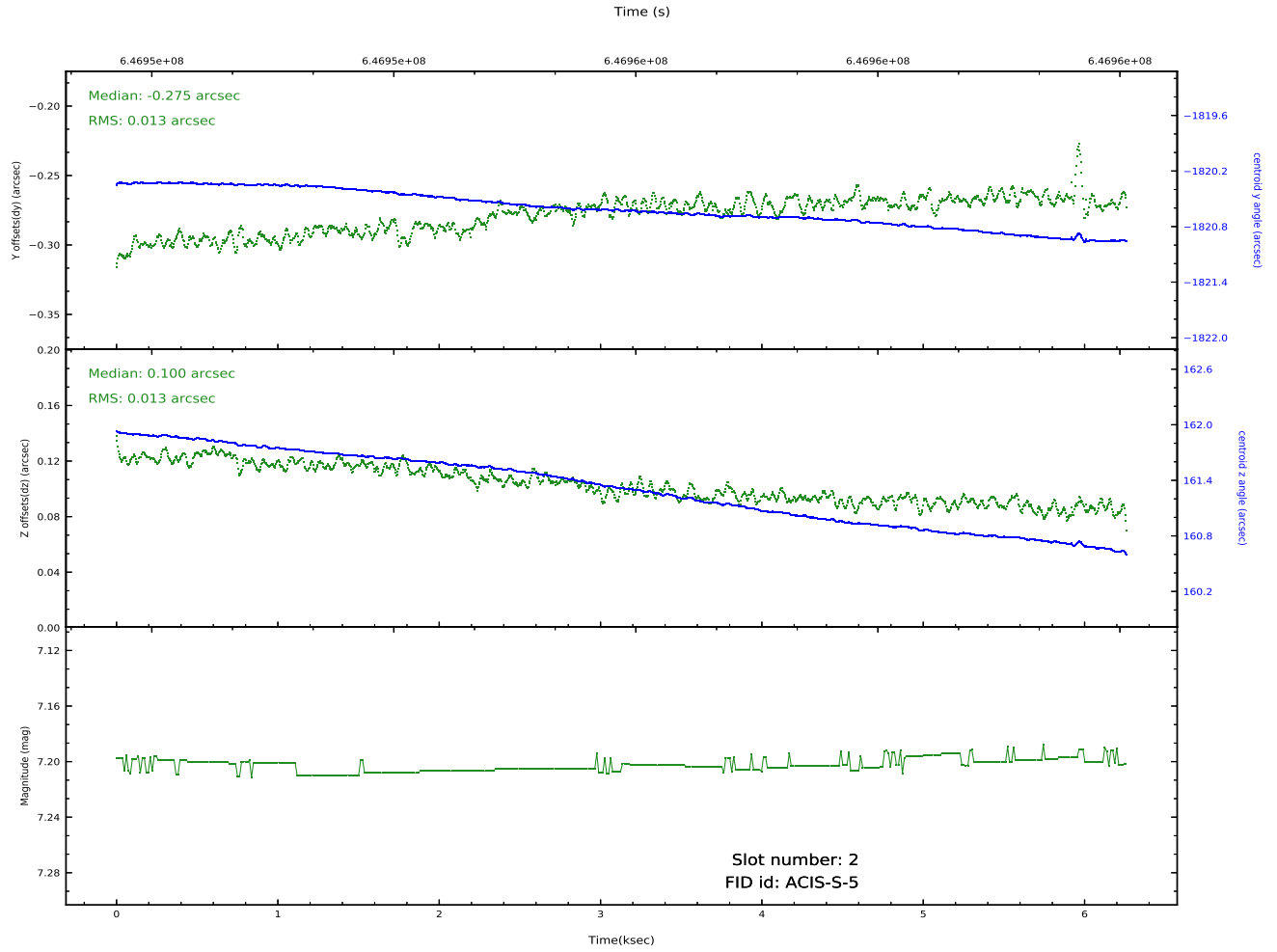
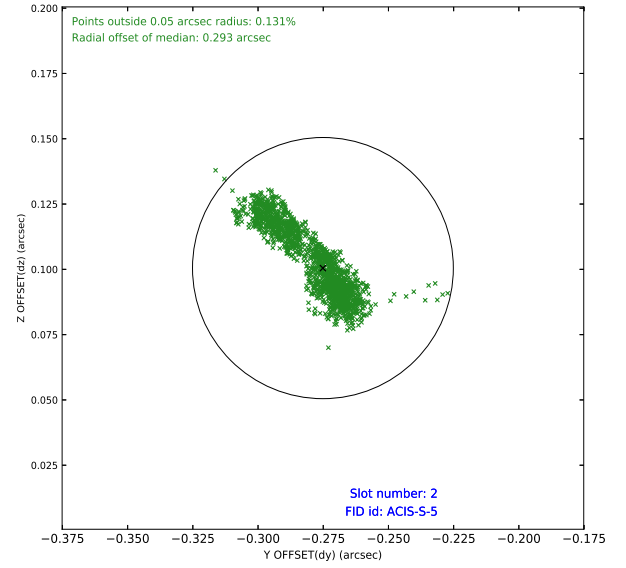
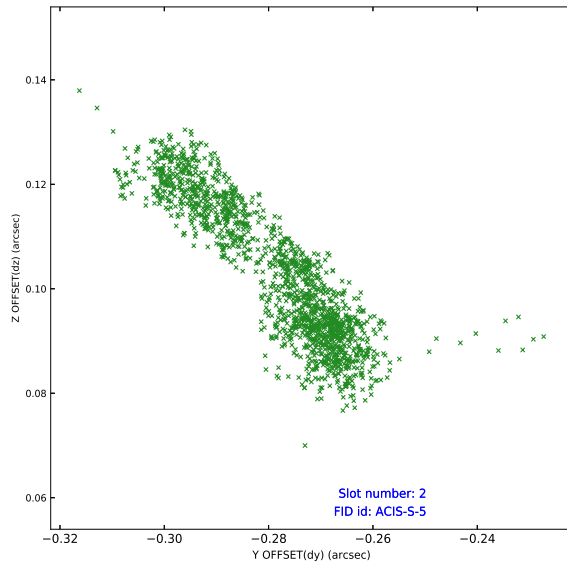
### 2.5.1 Slot 0



## 2.5.2 Slot 1



## 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2020.10.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	6.1502137025595

## A.2 Comments

A spatial region of the original bias map for CCD = 9 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 ( $\sim 20$  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 = 9 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.