

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20558 - L2 Version 2  
Chandra X-Ray Center

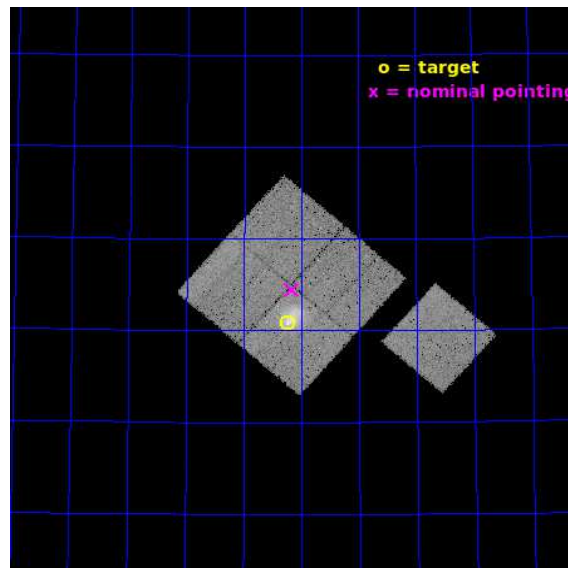
L2 Processing Date : Oct 30 2020

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>A</b>	<b>Summary</b>	<b>17</b>
A.1	Status . . . . .	17
A.2	Comments . . . . .	17

# 1 Front

seq_num	801762	Sequence number
obs_id	20558	Observation id
title	Shock structure, the electron-ion equilibration timescale and the disintegrating cool core in A2146	Proposal title
observer	Helen Russell	Principal investigator
object	Abell 2146	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	239.06125	Observer's specified target RA [deg]
dec_targ	66.346917	Observer's specified target Dec [deg]
ra_nom	239.04132836613	Nominal RA [deg]
dec_nom	66.407633703718	Nominal Dec [deg]
roll_nom	131.23465528416	Nominal Roll [deg]
revision	2	Processing version of data
ontime	27797.48711133	Sum of GTIs [s]
livetime	27434.292478008	Livetime [s]
ontime0	27797.36399138	Sum of GTIs [s]
ontime1	27797.405031323	Sum of GTIs [s]
ontime2	27797.446071386	Sum of GTIs [s]
ontime3	27797.48711133	Sum of GTIs [s]
ontime6	27797.322951317	Sum of GTIs [s]
l2events	114832	Number of level 2 events

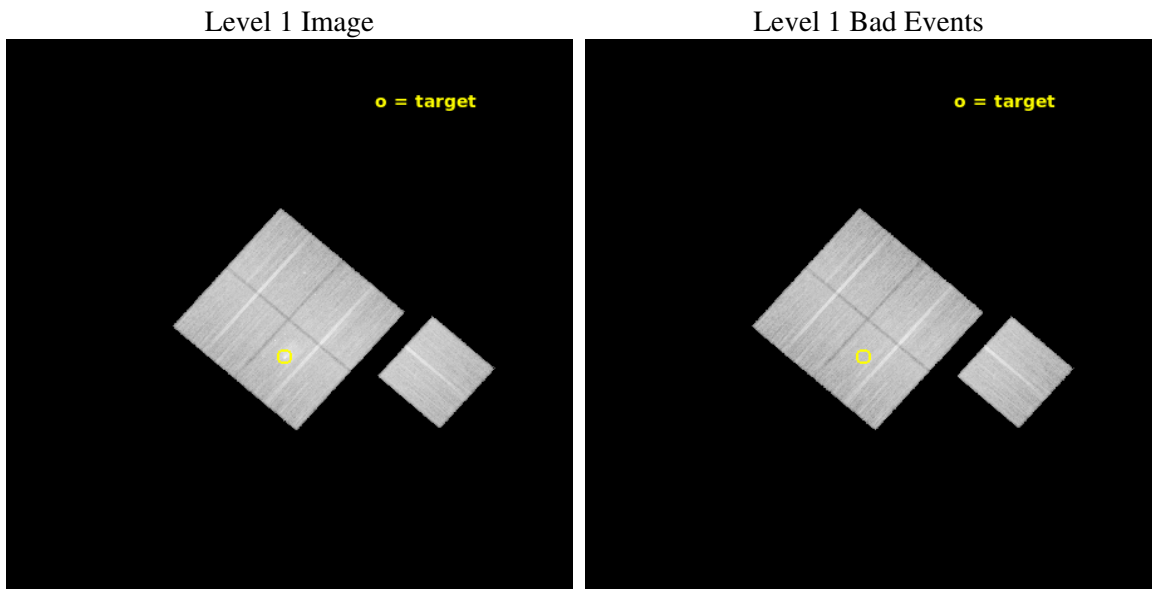




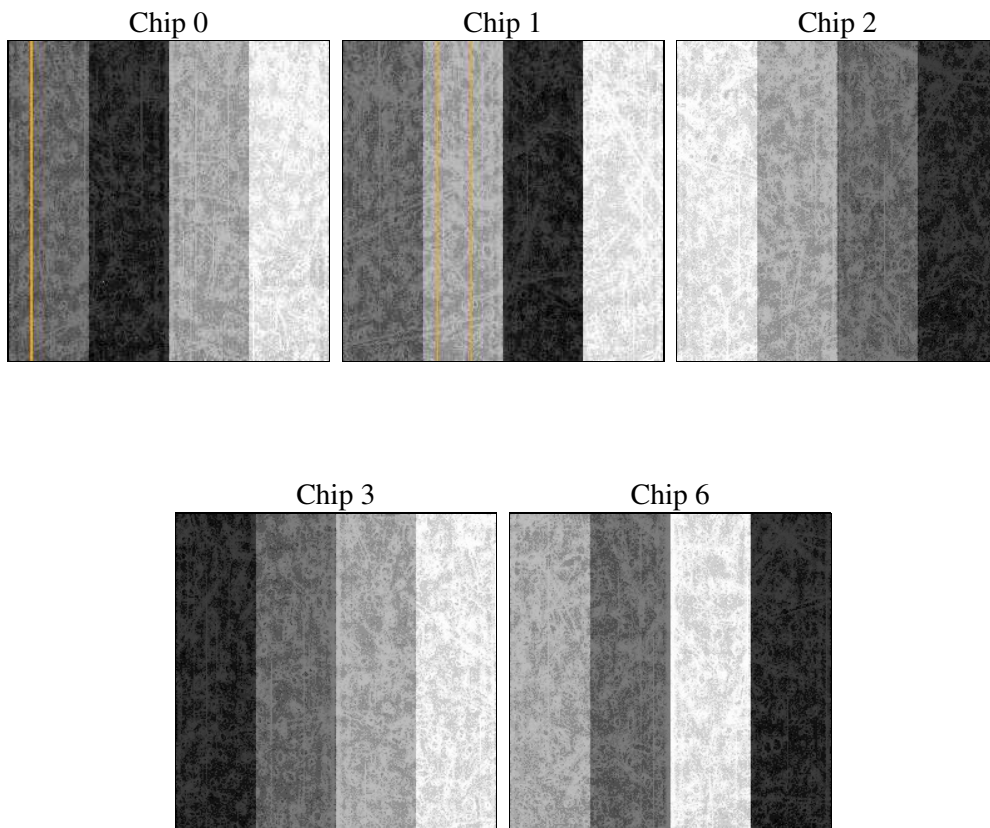
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	27733.511000	[s] Scheduled observation exposure time
ascdsver	10.9.2	Processing system revision	ontime	27797.48711133	Sum of GTIs [s]
caldsver	4.9.3	&#160	ontime0	27797.36399138	Sum of GTIs [s]
date	2020-10-30T08:31:59	Date and time of file creation	ontime1	27797.405031323	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	27797.446071386	Sum of GTIs [s]
			ontime3	27797.48711133	Sum of GTIs [s]
			ontime6	27797.322951317	Sum of GTIs [s]
			l1events	1067638	Number of level 1 events

### 2.1.4 Events

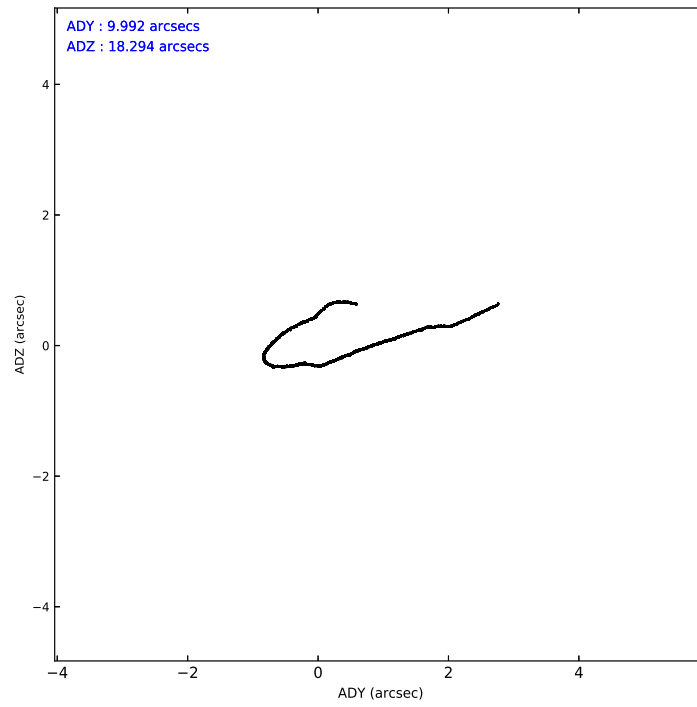
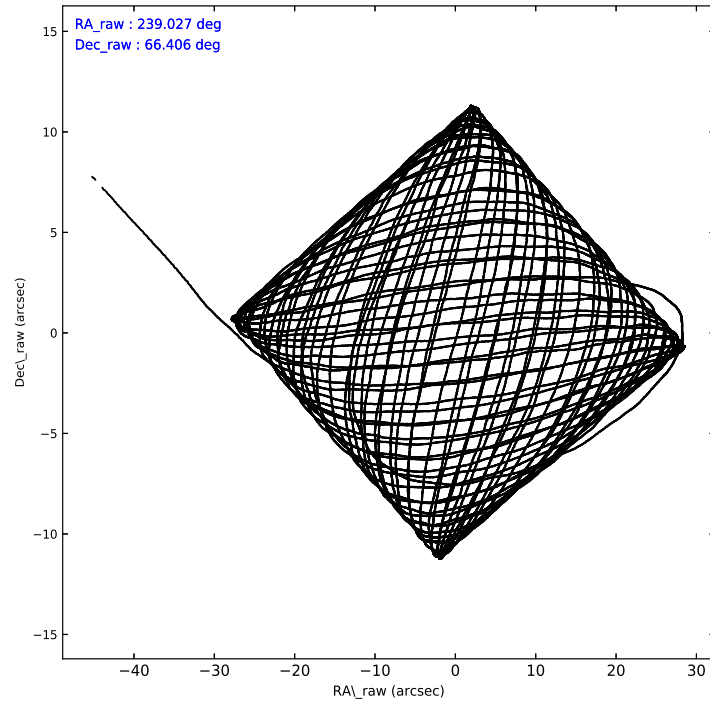
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	197992	202557	219588	226985	220516
rejected events	173638	176072	196238	190813	196501
rejected %	87%	86%	89%	84%	89%

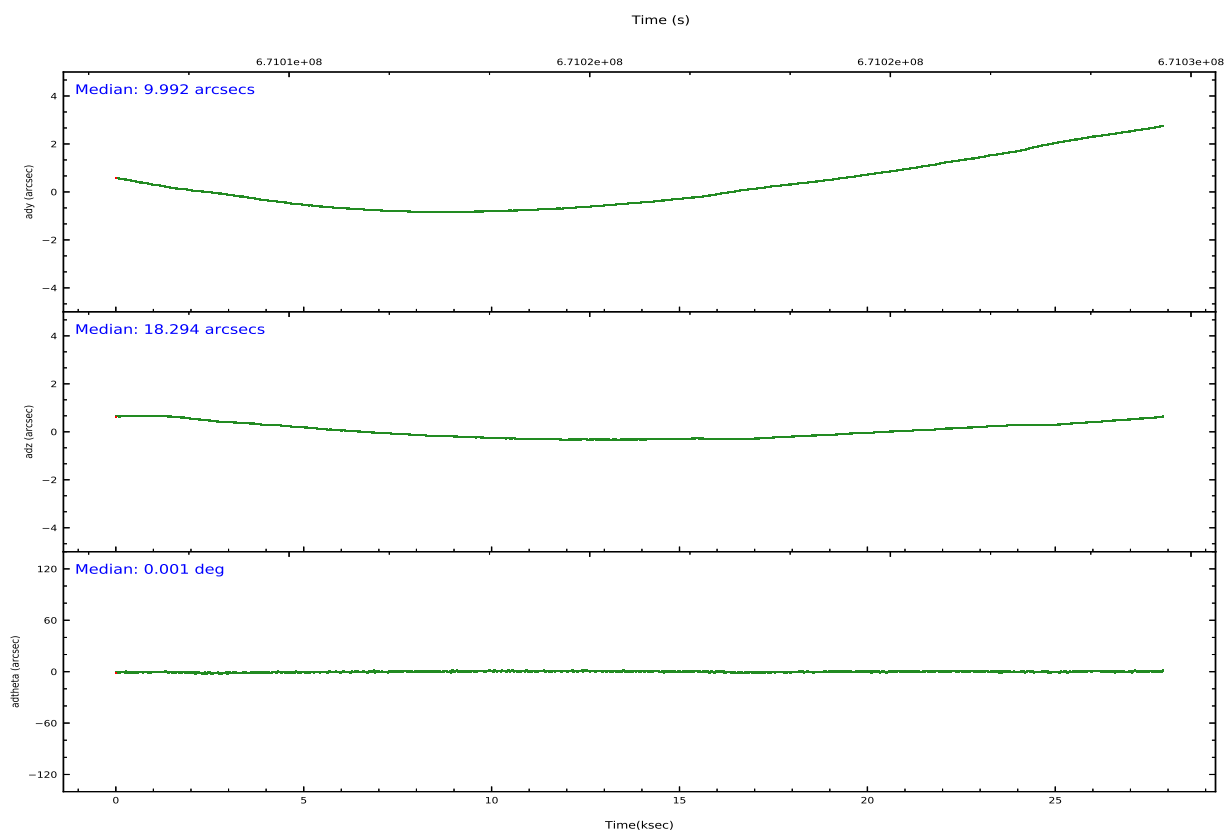
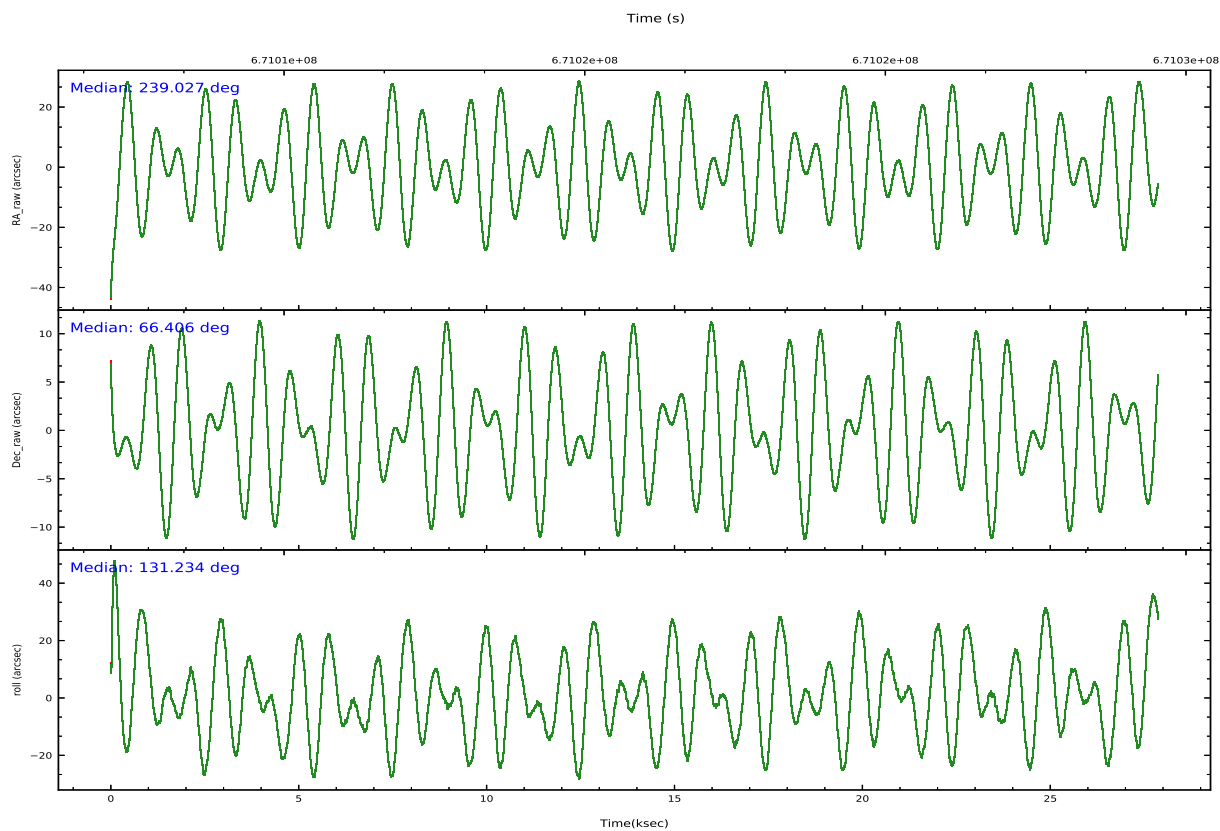
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	8256	8558	8139	18911	7671
	4%	4%	3%	8%	3%
grade 1 events	122	104	129	159	91
	0%	0%	0%	0%	0%
grade 2 events	6218	7166	5801	6399	5795
	3%	3%	2%	2%	2%
grade 3 events	2476	2426	2421	2748	2294
	1%	1%	1%	1%	1%
grade 4 events	2327	2351	2351	2827	2215
	1%	1%	1%	1%	1%
grade 5 events	8927	9401	8621	10263	9526
	4%	4%	3%	4%	4%
grade 6 events	5078	5989	4640	5291	6041
	2%	2%	2%	2%	2%
grade 7 events	164588	166562	187486	180387	186883
	83%	82%	85%	79%	84%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	239.091758	239.04132836613	CCD I2 on	Y	Y
[deg] Pointing Dec	66.397607	66.40763370371801	CCD I3 on	Y	Y
[deg] Pointing Roll	130.972055	131.23465528416	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	671003525.184000	671002536.00904	CCD S5 on	N	N
Observation start date	2019-04-07T05:50:56	2019-04-07T05:35:36	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	671031259.184000	671032063.18581	On-chip summing requested	N	N
Observation end date	2019-04-07T13:33:10	2019-04-07T13:47:43	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



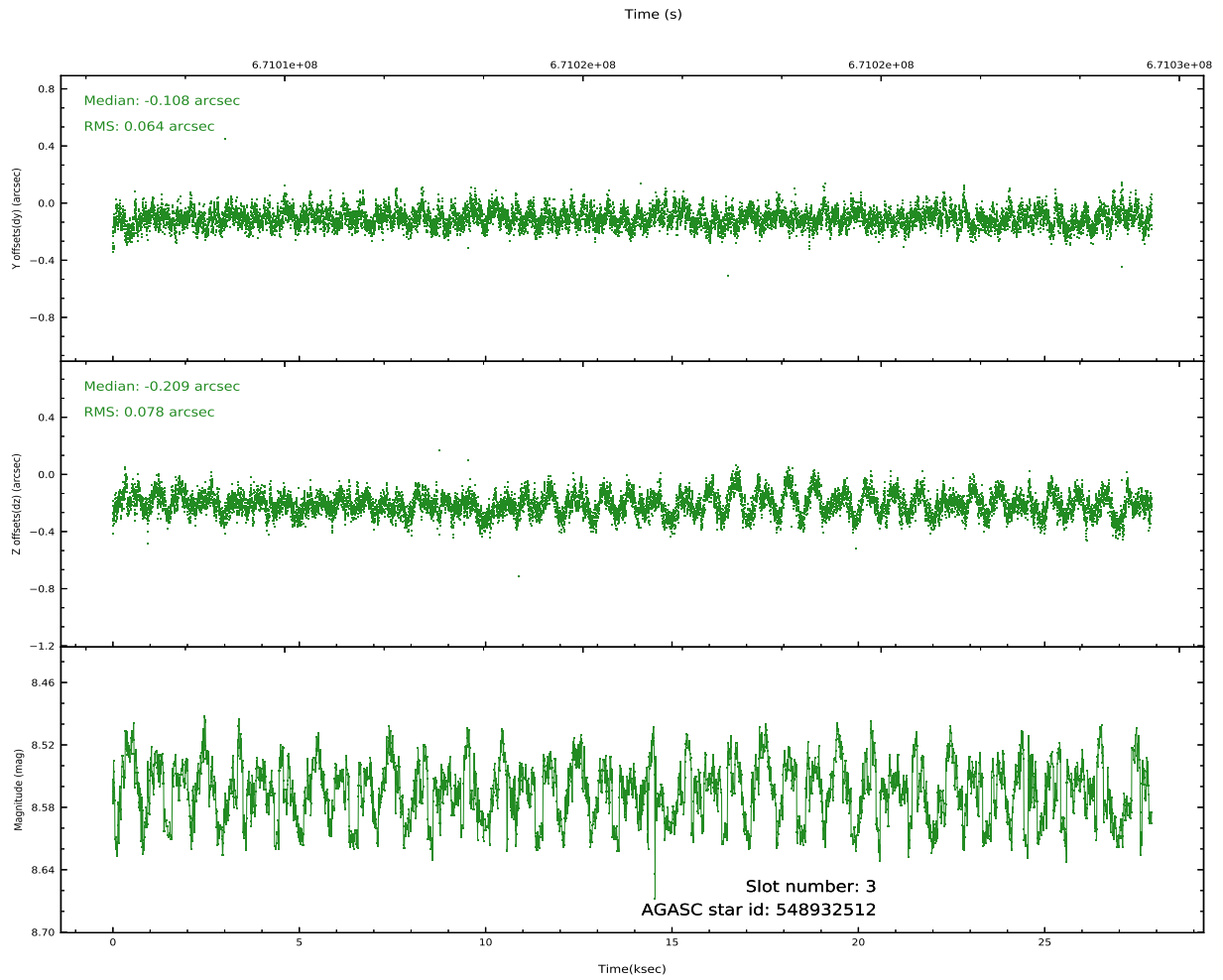
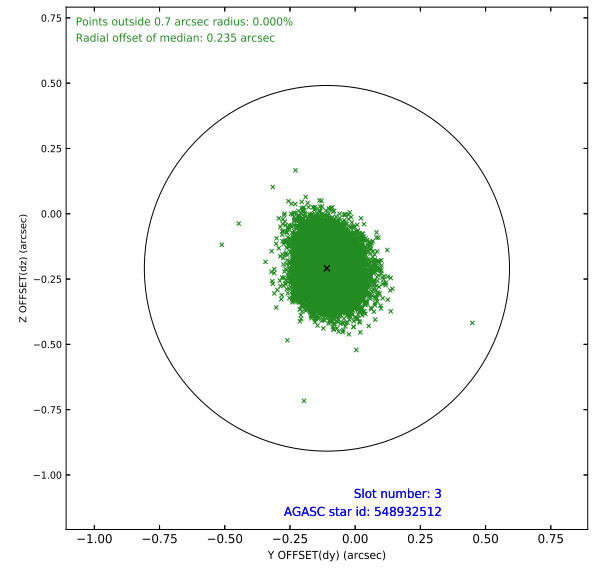
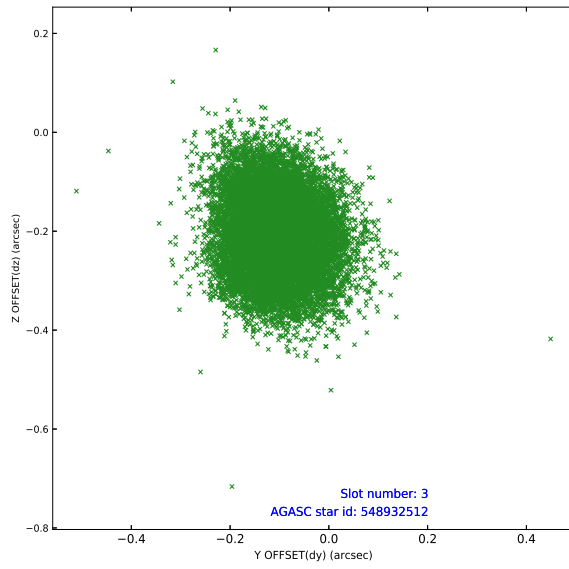


Slot Statistics

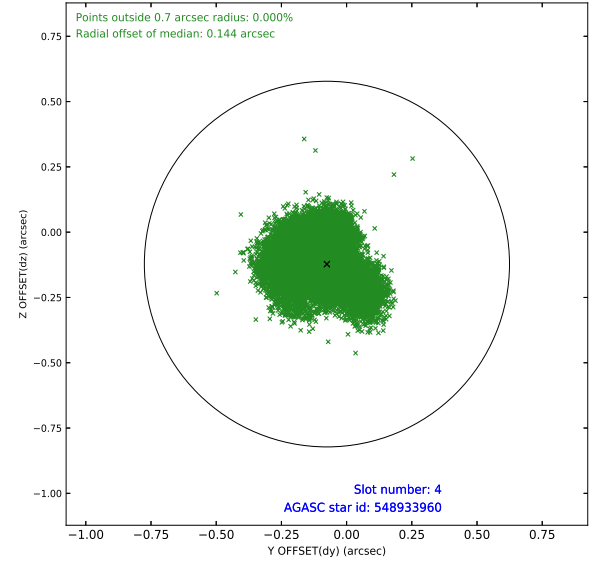
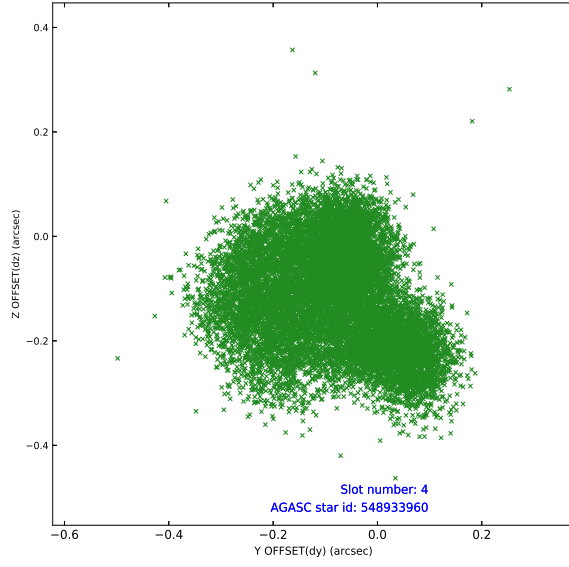
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-3	7.41	6798	1.000	0.116	0.116	0.021	0.044	0.000000	0.000000	46.79	-975
1	FID		ACIS-I-5	7.19	6796	1.000	-0.281	0.115	0.012	0.028	0.000000	0.000000	-1819.10	1055
2	FID		ACIS-I-6	7.18	6798	1.000	0.071	-0.162	0.017	0.039	0.000000	0.000000	394.91	1699
3	GUIDE	used	548932512	8.56	13588	1.000	-0.108	-0.209	0.108	0.172	239.727627	66.054972	-1536.50	103
4	GUIDE	used	548933960	8.41	13589	1.000	-0.075	-0.122	0.162	0.232	237.671184	66.428675	1441.96	1456
5	GUIDE	used	549849072	9.15	13575	1.000	0.245	-0.041	0.135	0.223	240.420863	66.802816	-118.29	-2392
6	GUIDE	used	549850840	9.27	13572	1.000	0.008	0.199	0.169	0.264	241.038865	66.468628	-1609.23	-2308
7	GUIDE	used	549850848	8.81	13581	1.000	-0.064	0.177	0.143	0.209	241.459219	66.322658	-2398.25	-2449

## 2.4 Star Slots

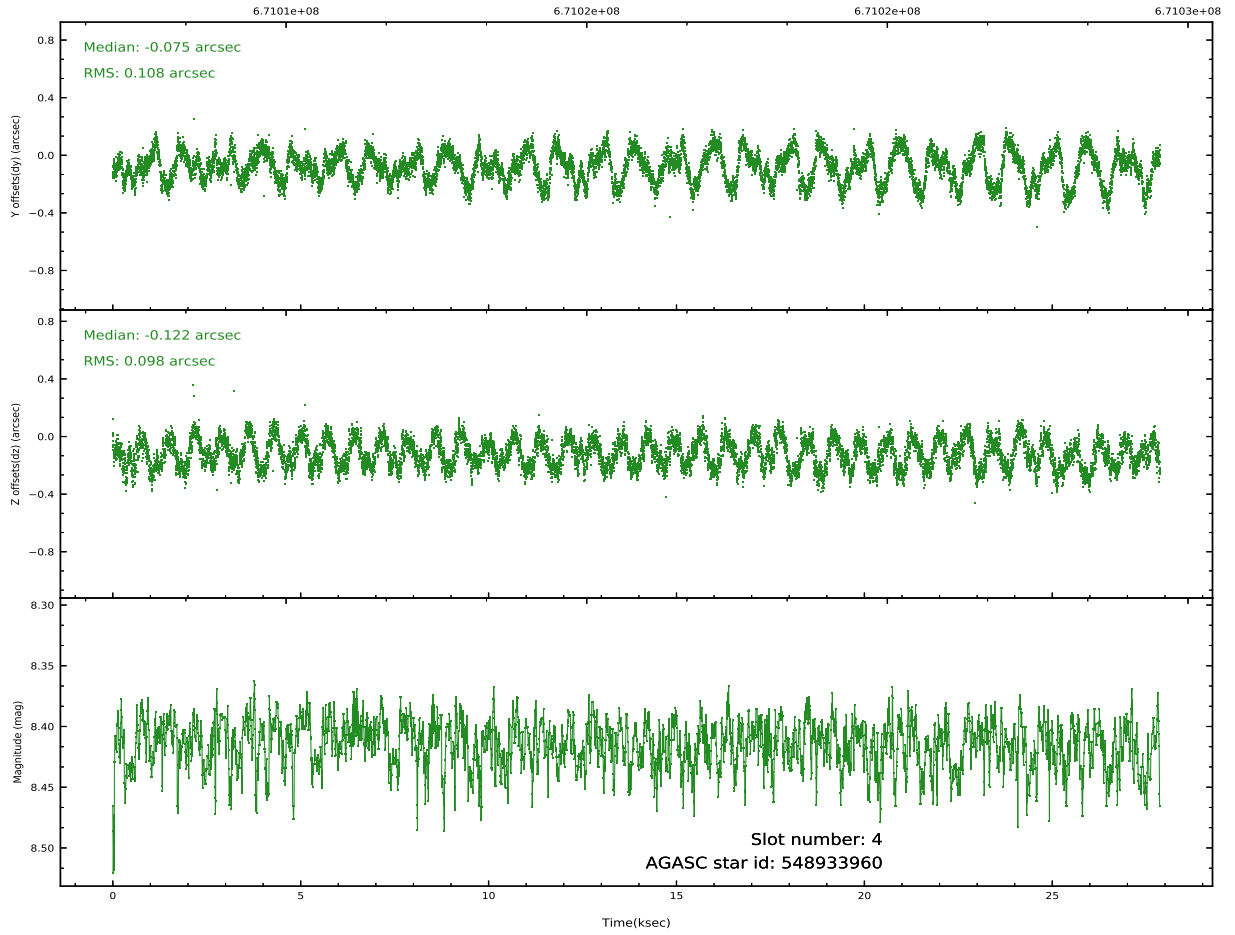
### 2.4.1 Slot 3



## 2.4.2 Slot 4

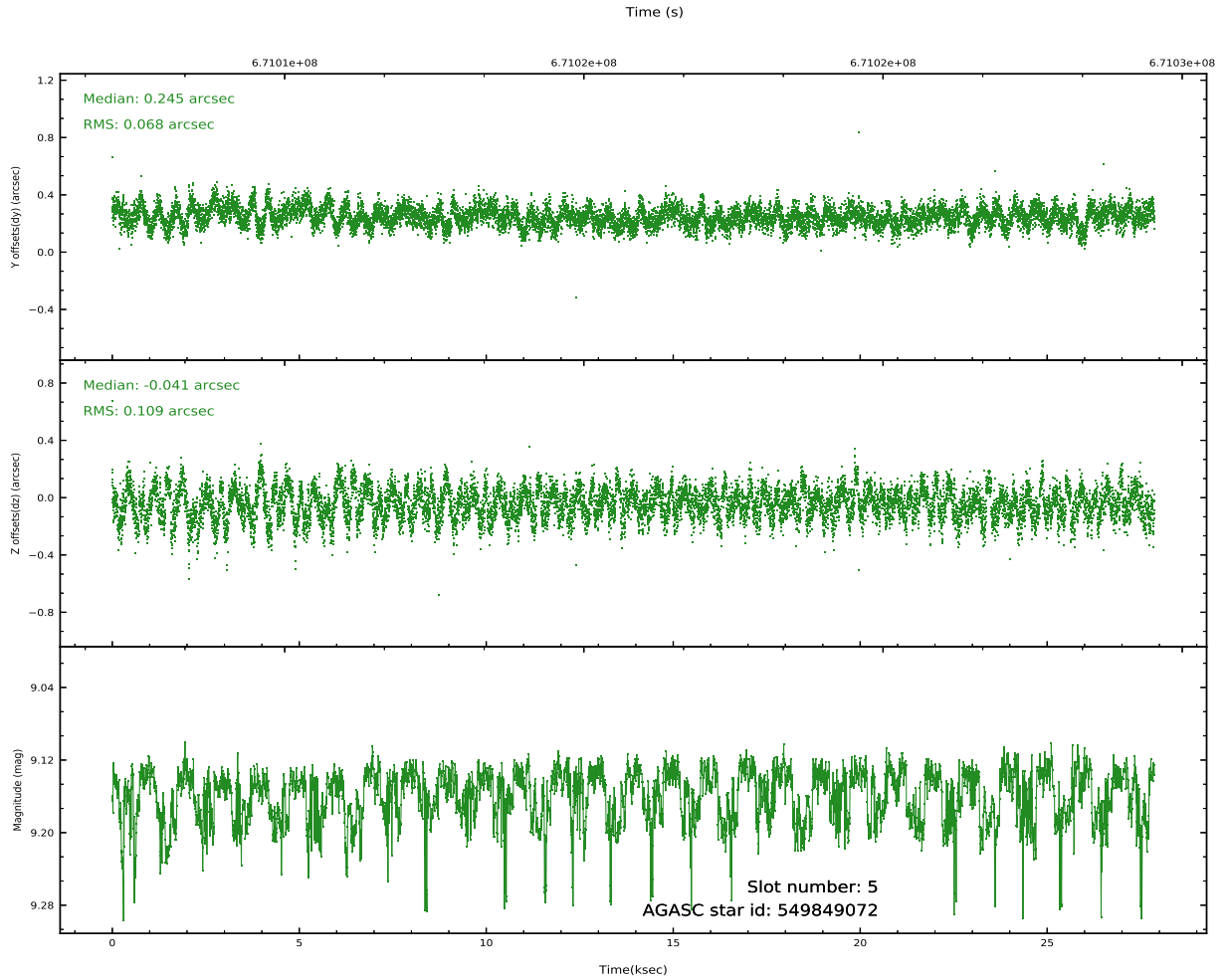
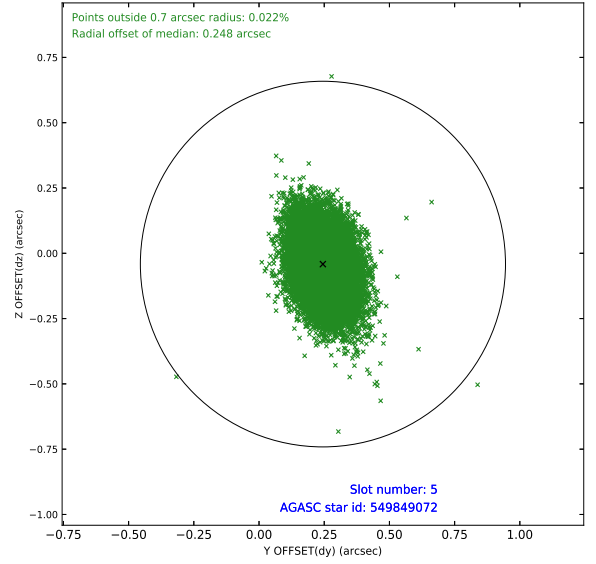
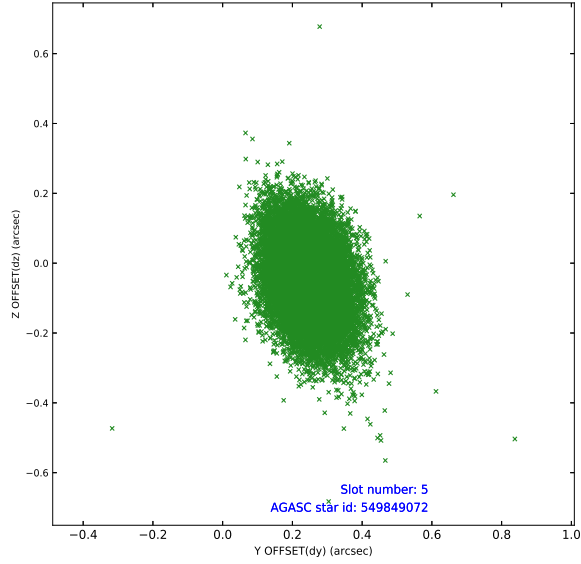


Time (s)

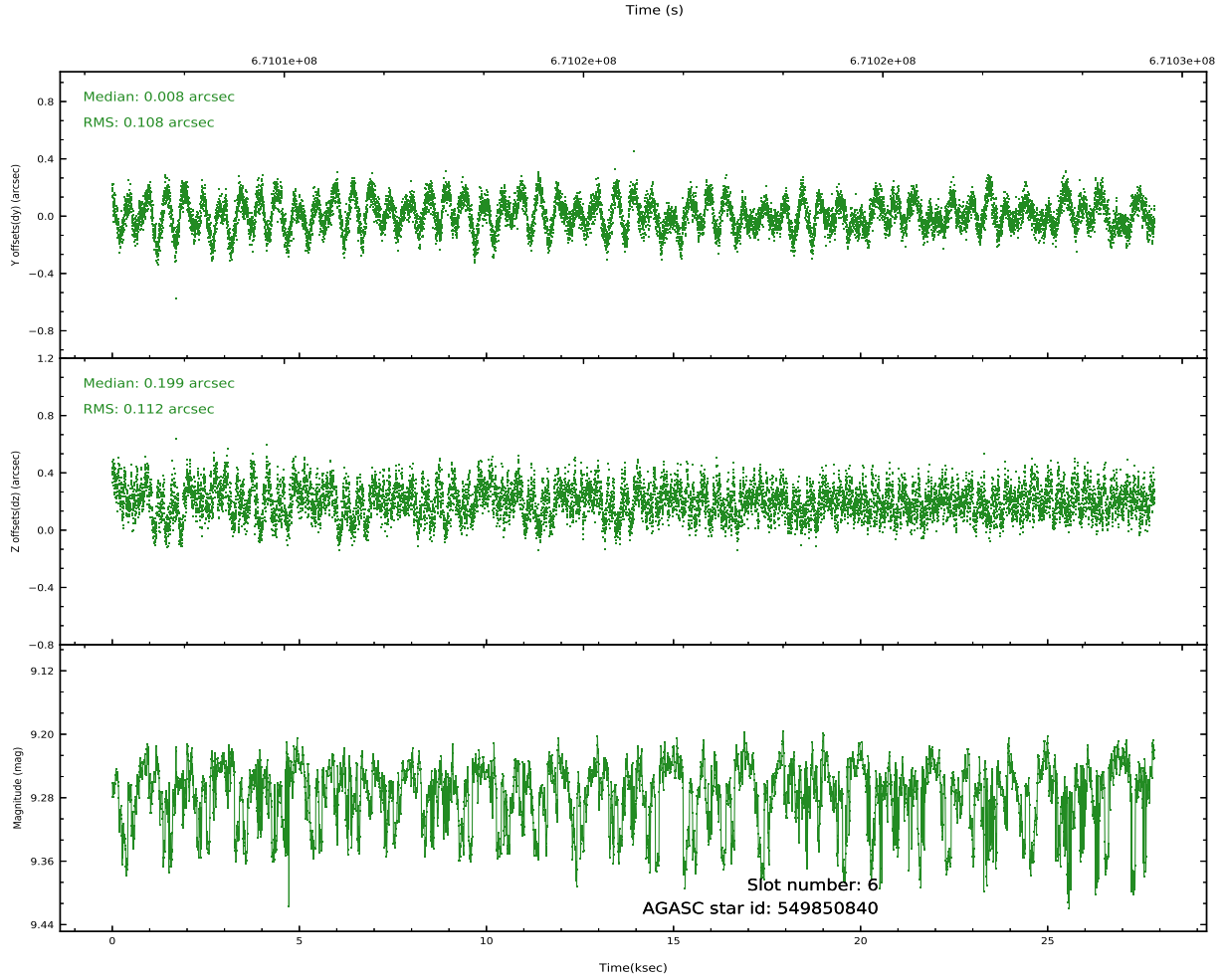
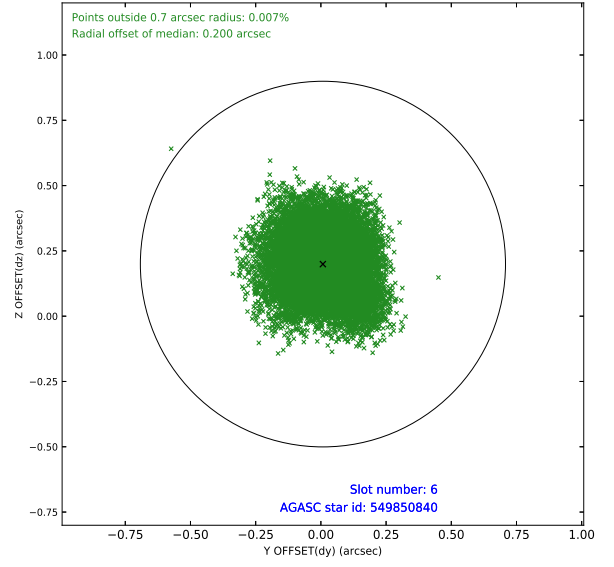
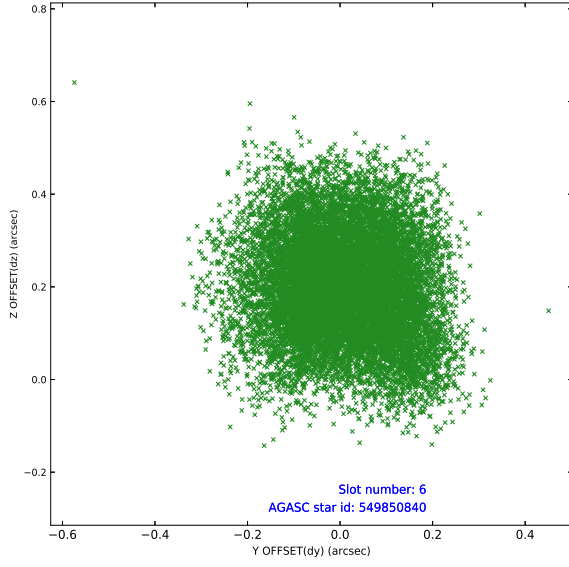




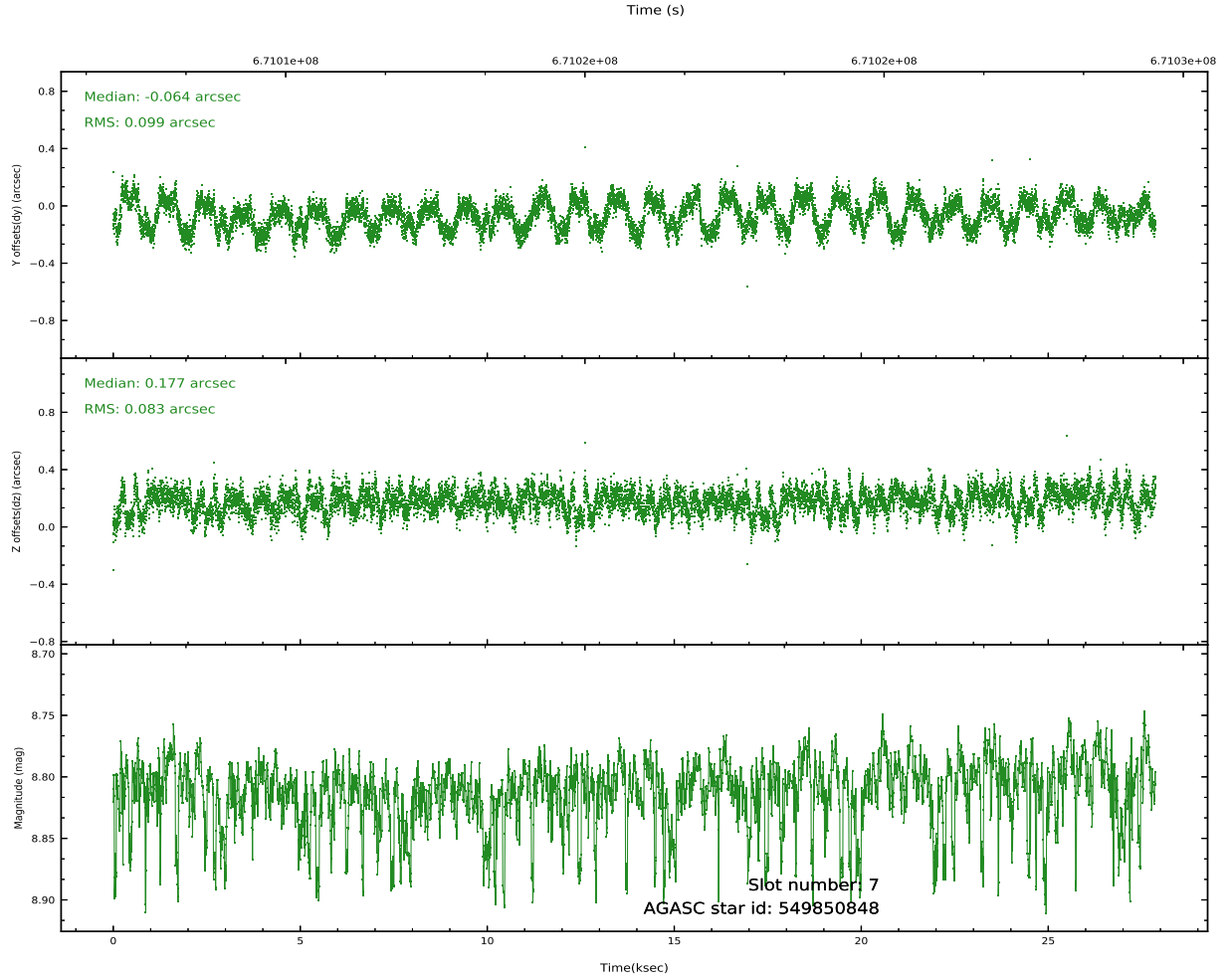
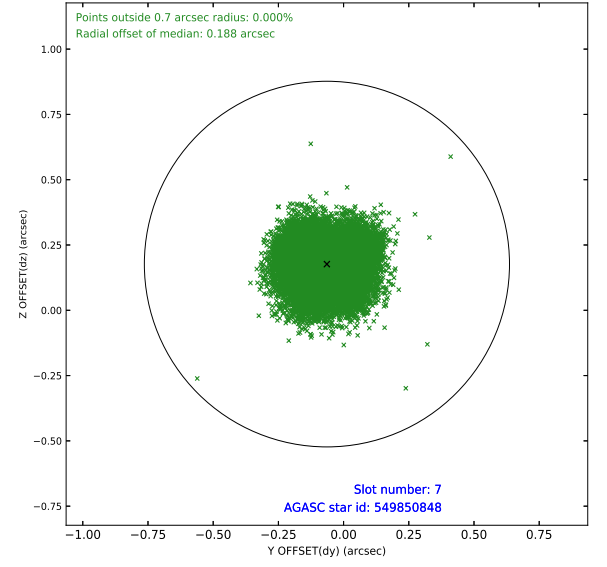
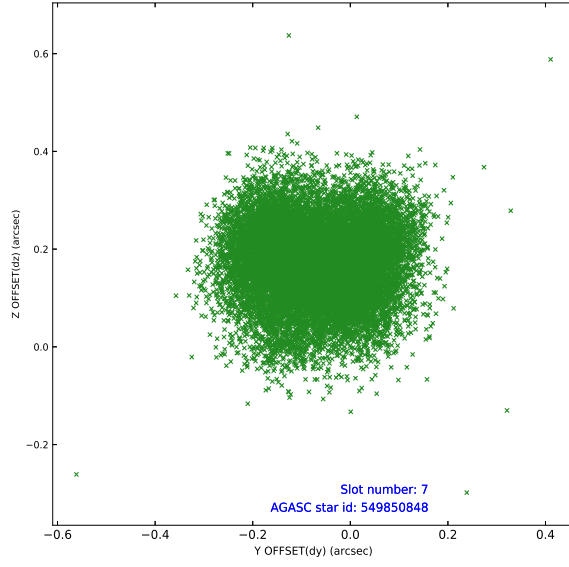
### 2.4.3 Slot 5



## 2.4.4 Slot 6

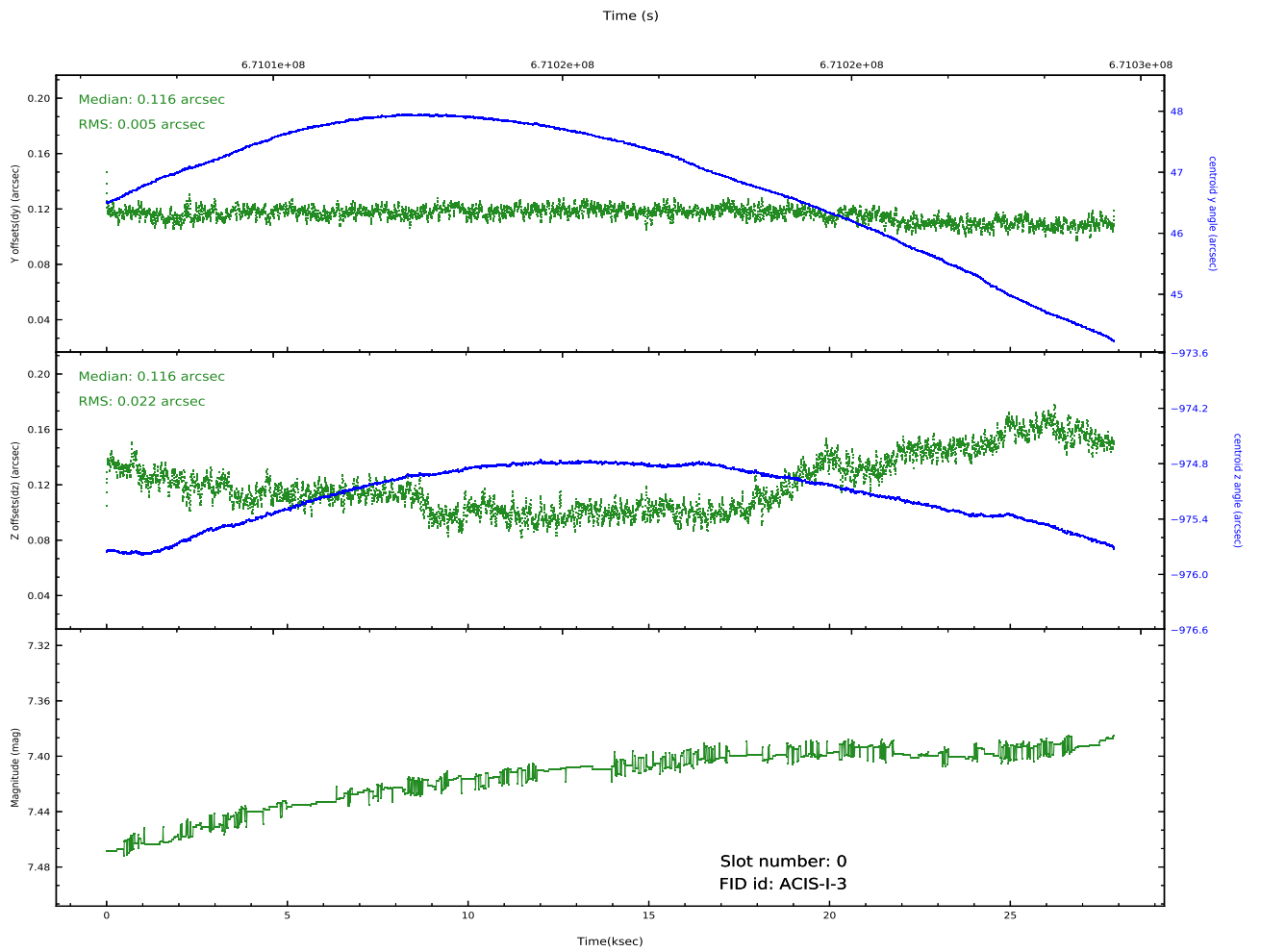
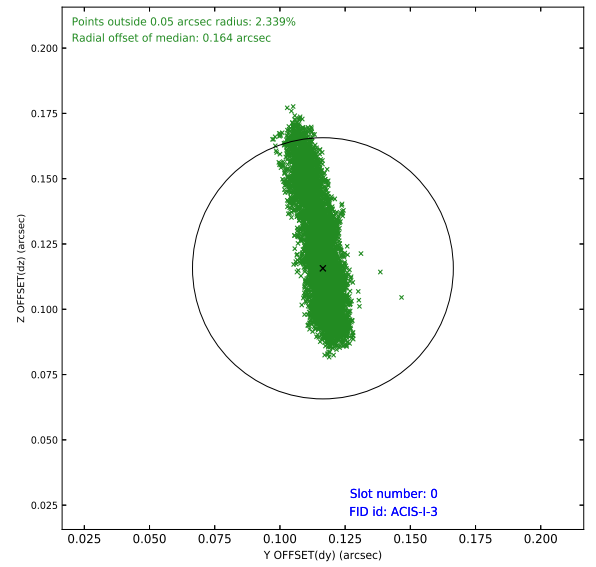
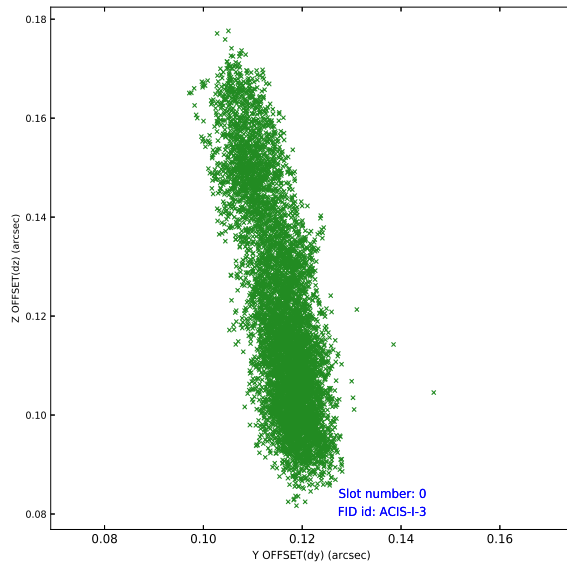


## 2.4.5 Slot 7

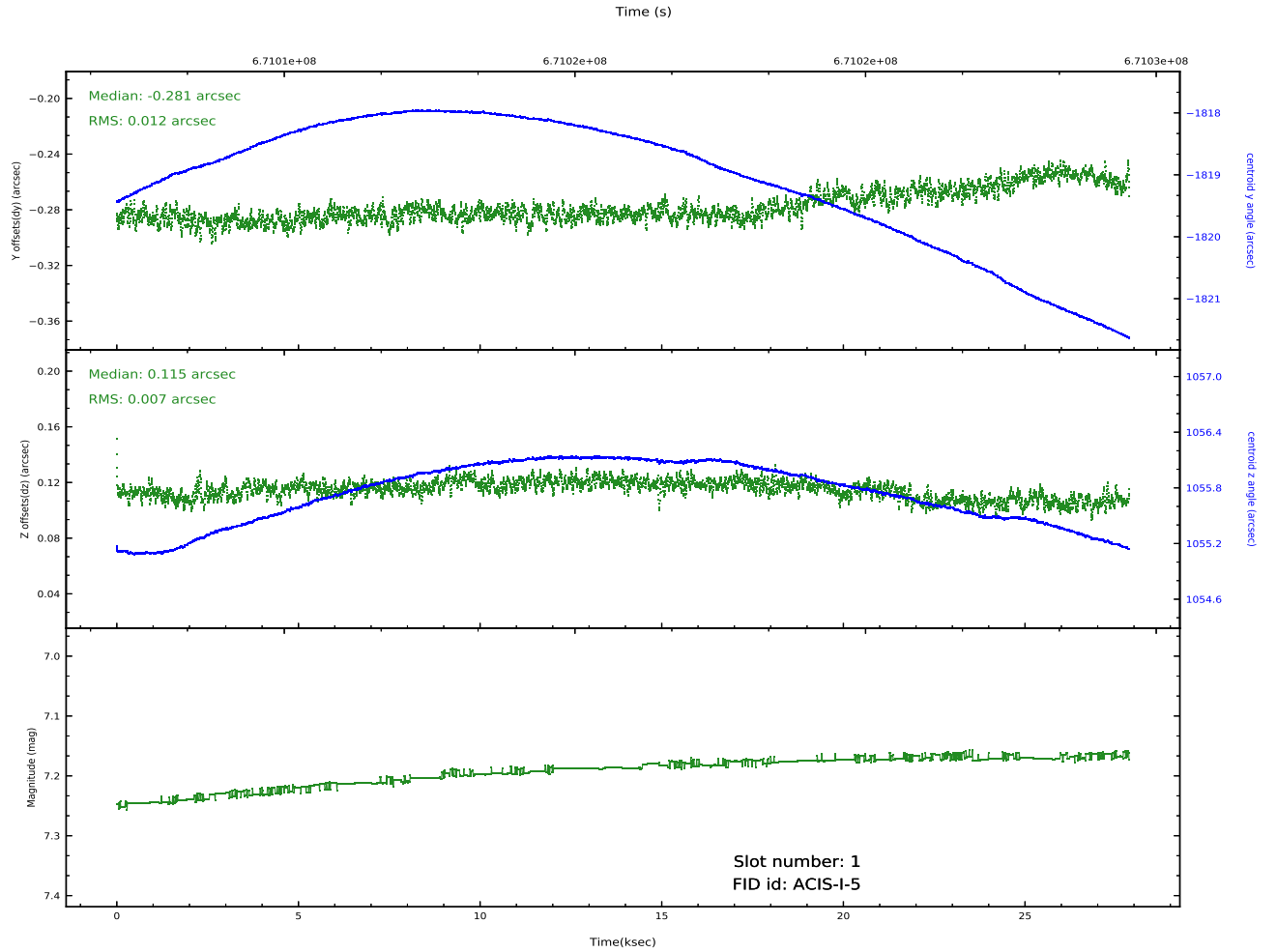
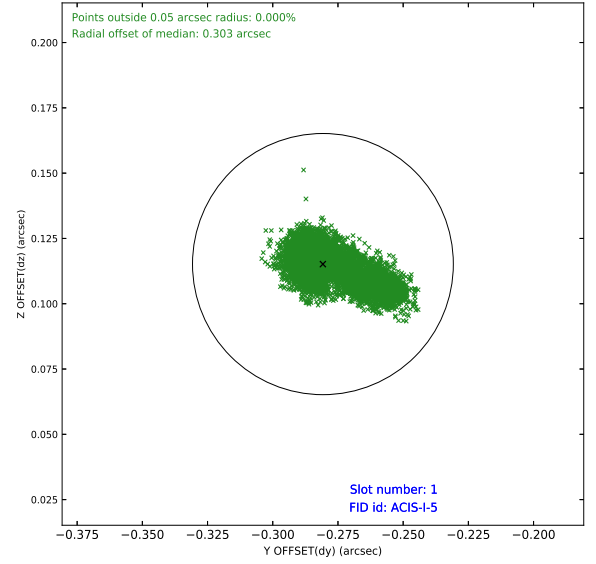
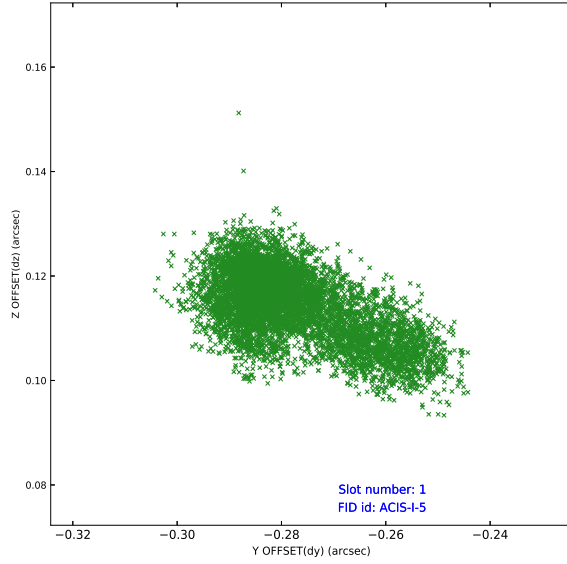


## 2.5 FID Slots

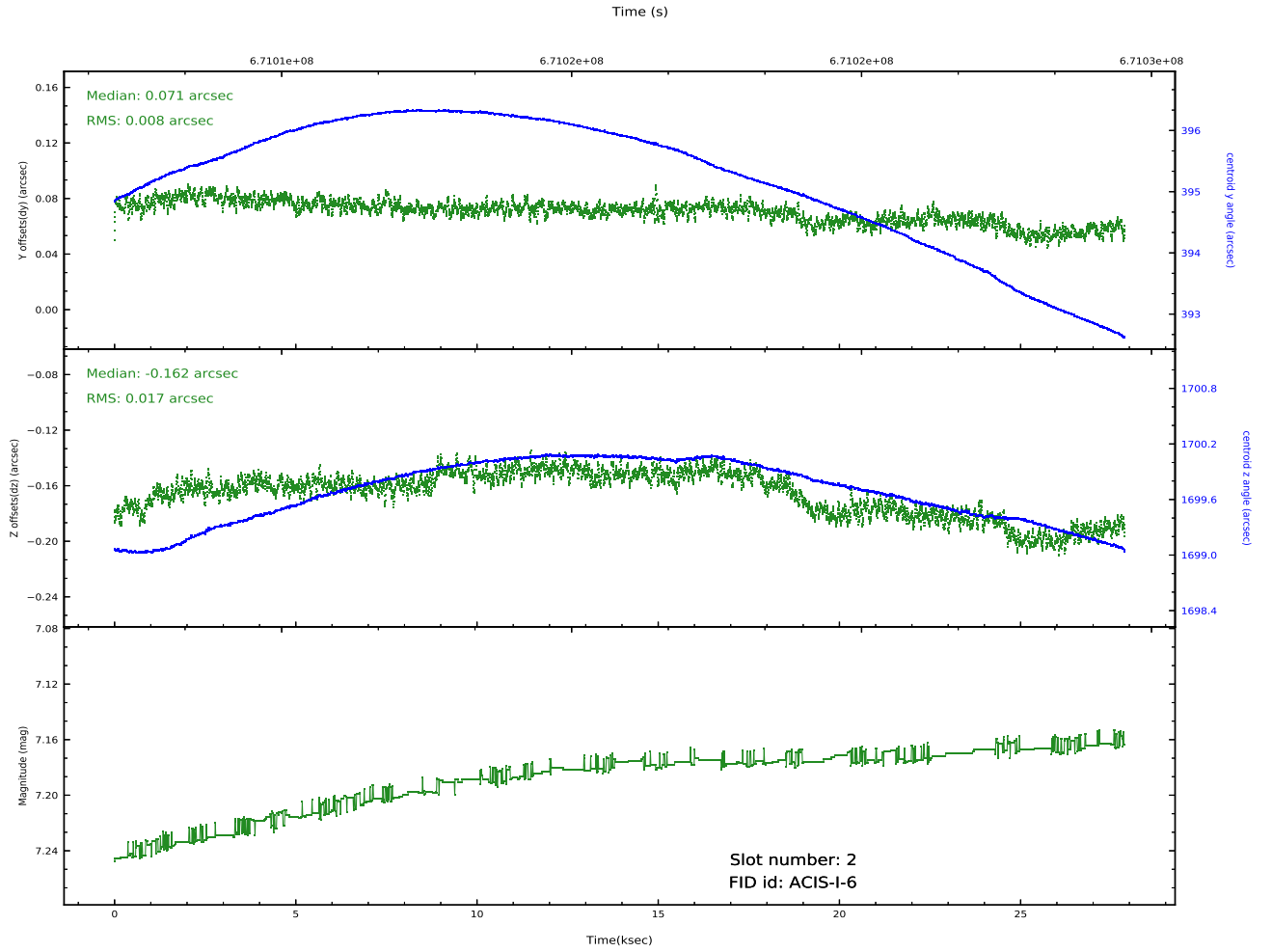
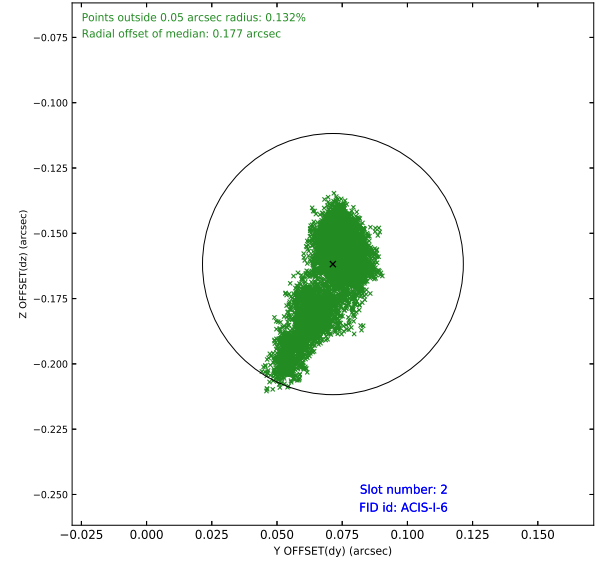
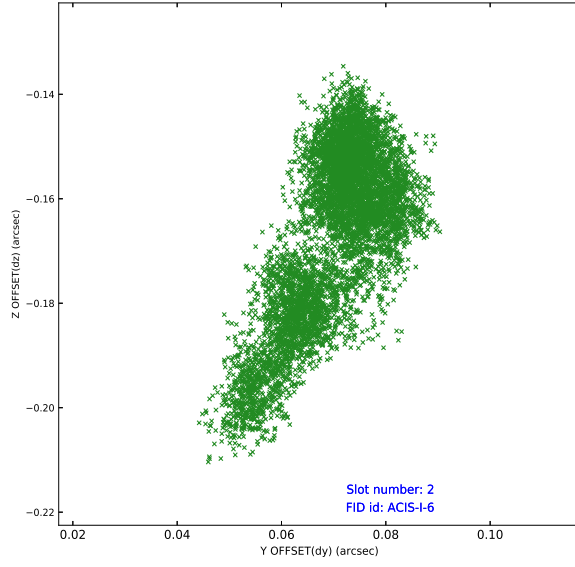
### 2.5.1 Slot 0



## 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)	2020.10.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	27.797487113833

### **A.2 Comments**