

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 5770 - L2 Version 4  
Chandra X-Ray Center

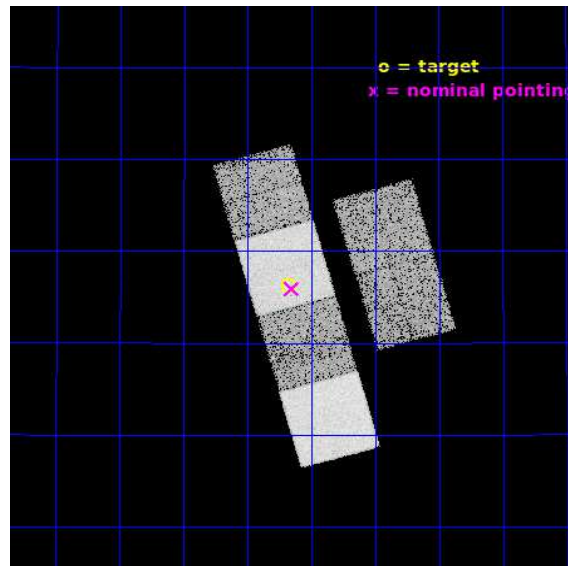
L2 Processing Date : Oct 5 2020

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# 1 Front

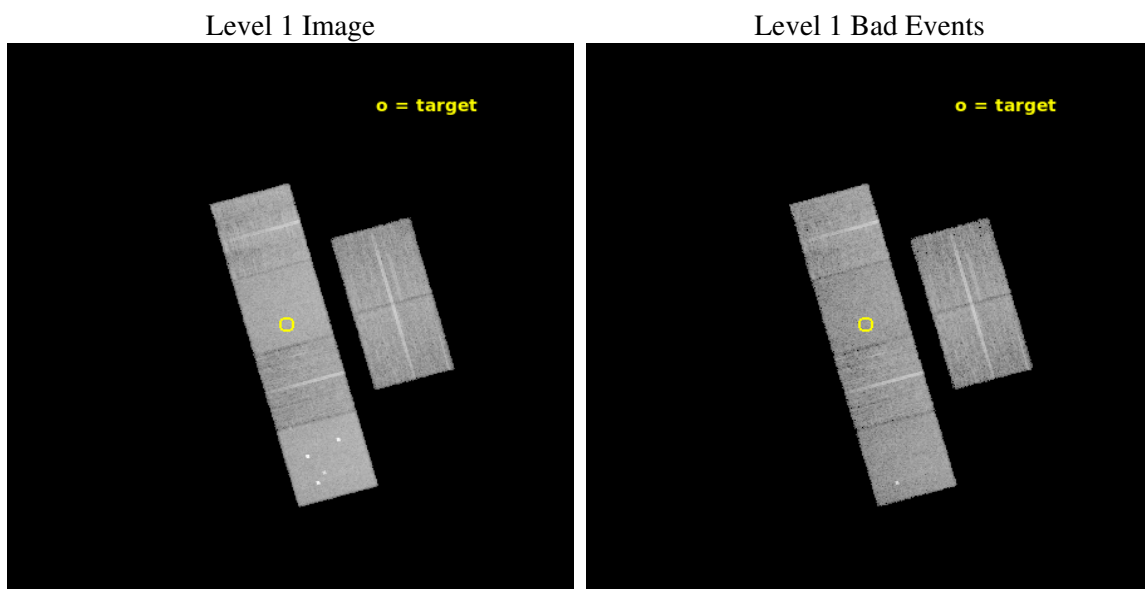
seq_num	800483	Sequence number
obs_id	5770	Observation id
title	Alternate: The Eclipsing Binary ET Tau	Proposal title
observer	Gordon Garmire	Principal investigator
object	ET Tau	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	84.420417	Observer's specified target RA [deg]
dec_targ	27.271278	Observer's specified target Dec [deg]
ra_nom	84.413149601743	Nominal RA [deg]
dec_nom	27.265410873209	Nominal Dec [deg]
roll_nom	254.20534105884	Nominal Roll [deg]
revision	4	Processing version of data
ontime	10022.399962664	Sum of GTIs [s]
livetime	9895.4902995717	Livetime [s]
ontime2	10022.399962664	Sum of GTIs [s]
ontime3	10022.399962664	Sum of GTIs [s]
ontime5	10022.399962664	Sum of GTIs [s]
ontime6	10022.399962664	Sum of GTIs [s]
ontime7	10022.399962664	Sum of GTIs [s]
ontime8	10022.399962664	Sum of GTIs [s]
l2events	123392	Number of level 2 events



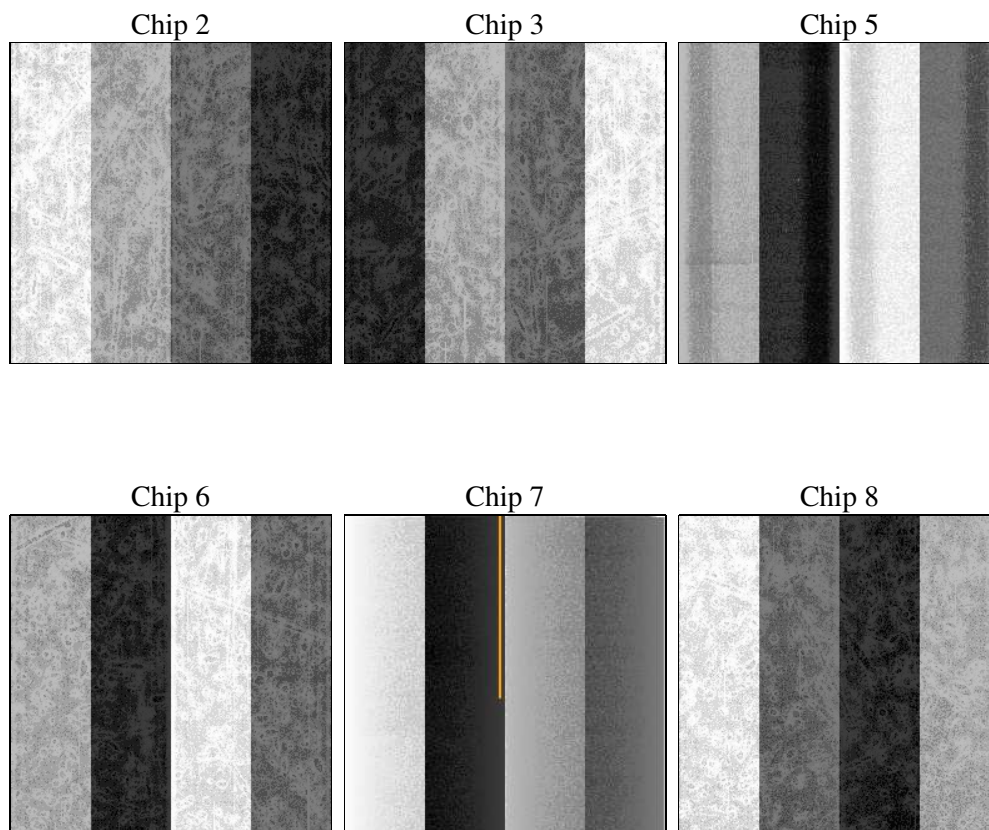
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	10022.399962664	Sum of GTIs [s]
caldsver	4.9.2	&#160	ontime2	10022.399962664	Sum of GTIs [s]
date	2020-10-05T19:30:28	Date and time of file creation	ontime3	10022.399962664	Sum of GTIs [s]
revision	4	Processing version of data	ontime5	10022.399962664	Sum of GTIs [s]
			ontime6	10022.399962664	Sum of GTIs [s]
			ontime7	10022.399962664	Sum of GTIs [s]
			ontime8	10022.399962664	Sum of GTIs [s]
			l1events	542716	Number of level 1 events

### 2.1.4 Events

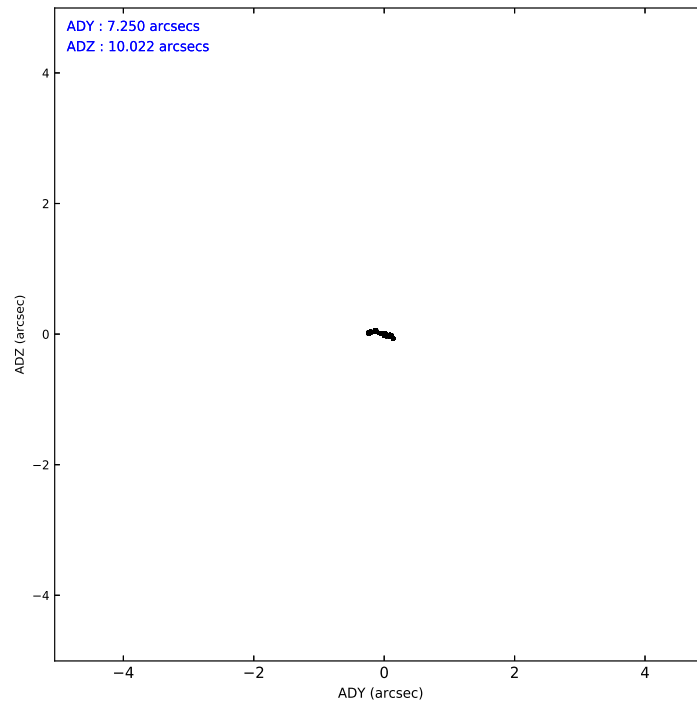
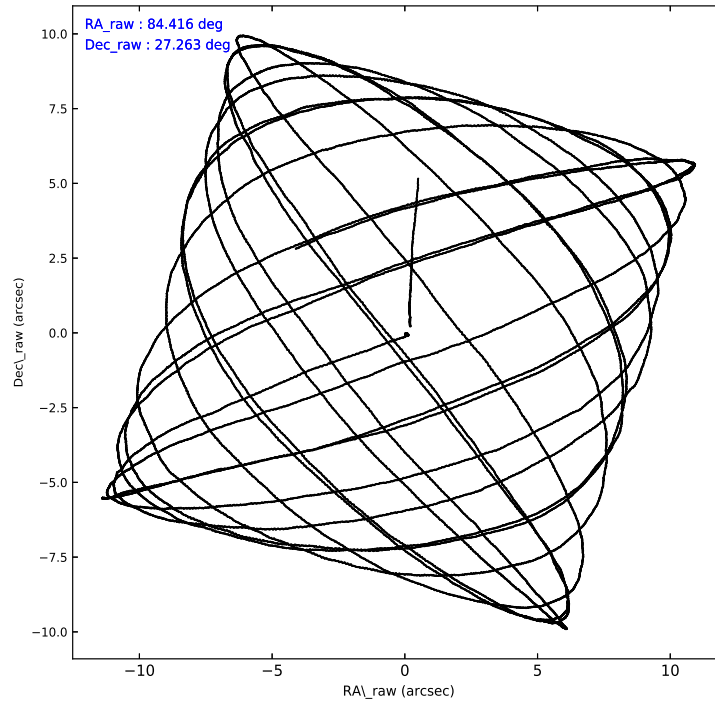
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8		ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	76659	72903	119556	74480	102853	96265	grade 0 events	4050	3984	10222	3834	3927	6981
rejected events	67467	63780	61880	65072	59750	74664		5%	5%	8%	5%	3%	7%
rejected %	88%	87%	51%	87%	58%	77%	grade 1 events	54	32	134	41	111	63
								0%	0%	0%	0%	0%	0%
							grade 2 events	1956	1727	16174	1981	8840	4637
								2%	2%	13%	2%	8%	4%
							grade 3 events	838	853	2129	911	3846	2511
								1%	1%	1%	1%	3%	2%
							grade 4 events	866	884	1990	871	3751	2184
								1%	1%	1%	1%	3%	2%
							grade 5 events	3032	3325	8394	3424	9730	4355
								3%	4%	7%	4%	9%	4%
							grade 6 events	1494	1685	27252	1832	22801	5333
								1%	2%	22%	2%	22%	5%
							grade 7 events	64369	60413	53261	61586	49847	70201
								83%	82%	44%	82%	48%	72%

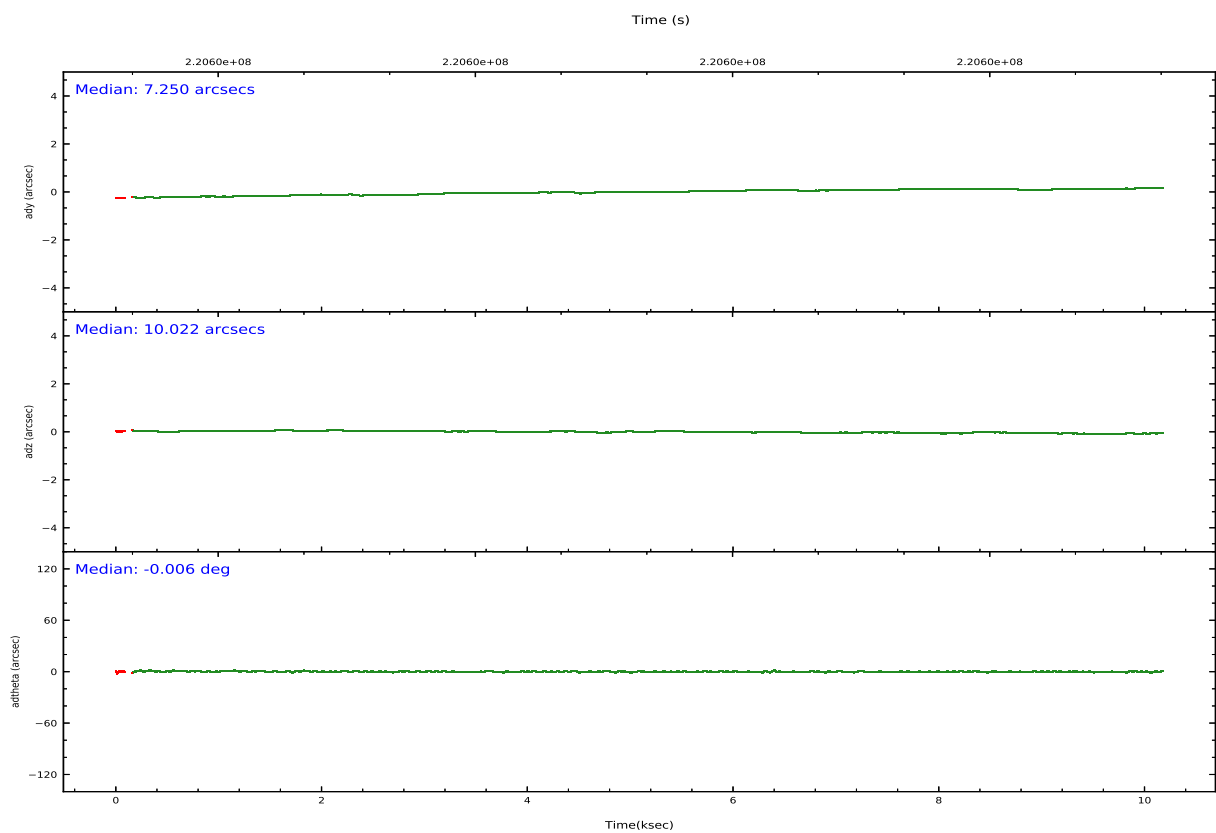
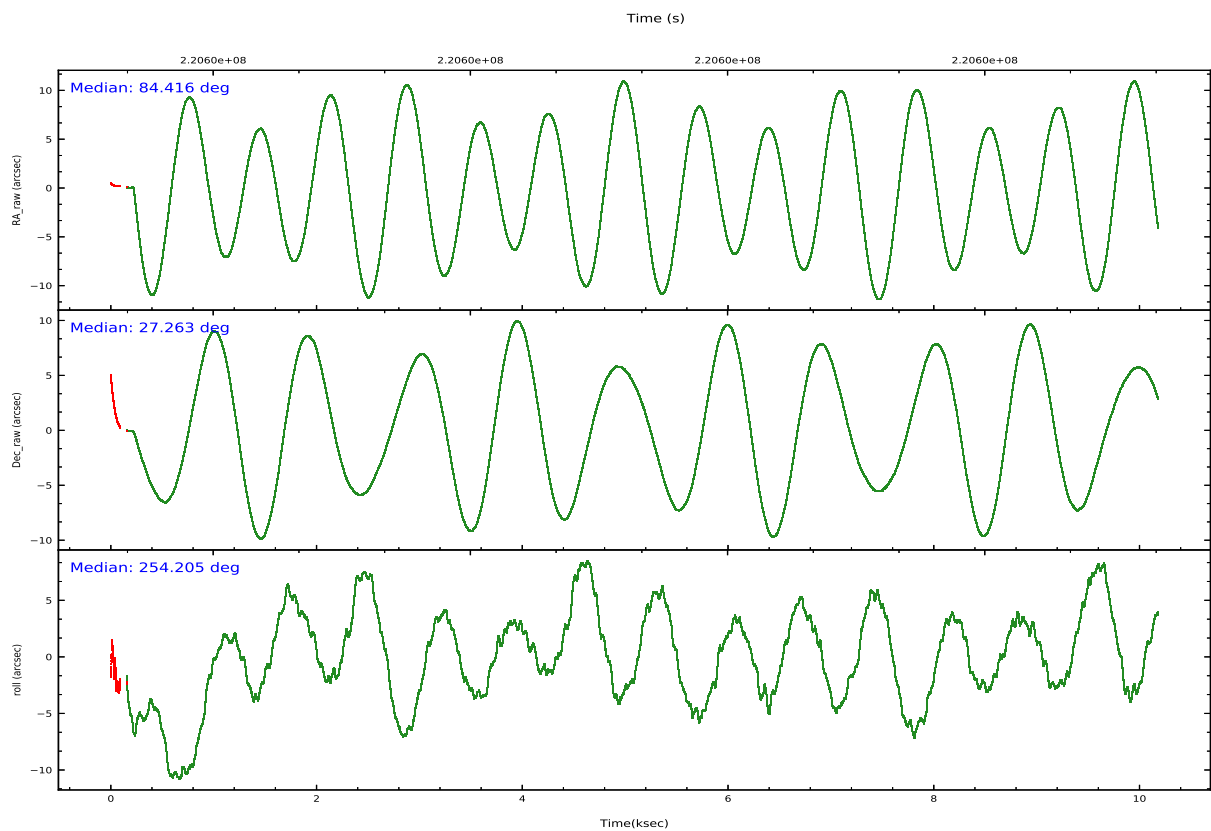


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-235678	ACIS-235678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	84.407745	84.413149601743	Subarray requested	NONE	NONE
[deg] Pointing Dec	27.288881	27.265410873209	Alternating exposures requested	N	N
[deg] Pointing Roll	254.054923	254.20534105884	[s] Primary exposure time	0.000000	3.2
[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)	220596687.184000	220595686.42217			
Observation start date	2004-12-28T04:50:23	2004-12-28T04:34:46			
[s] Observation end time (MET)	220606687.184000	220607676.87271			
Observation end date	2004-12-28T07:37:03	2004-12-28T07:54:36			
Read mode	TIMED	TIMED			

## 2.3 Aspect



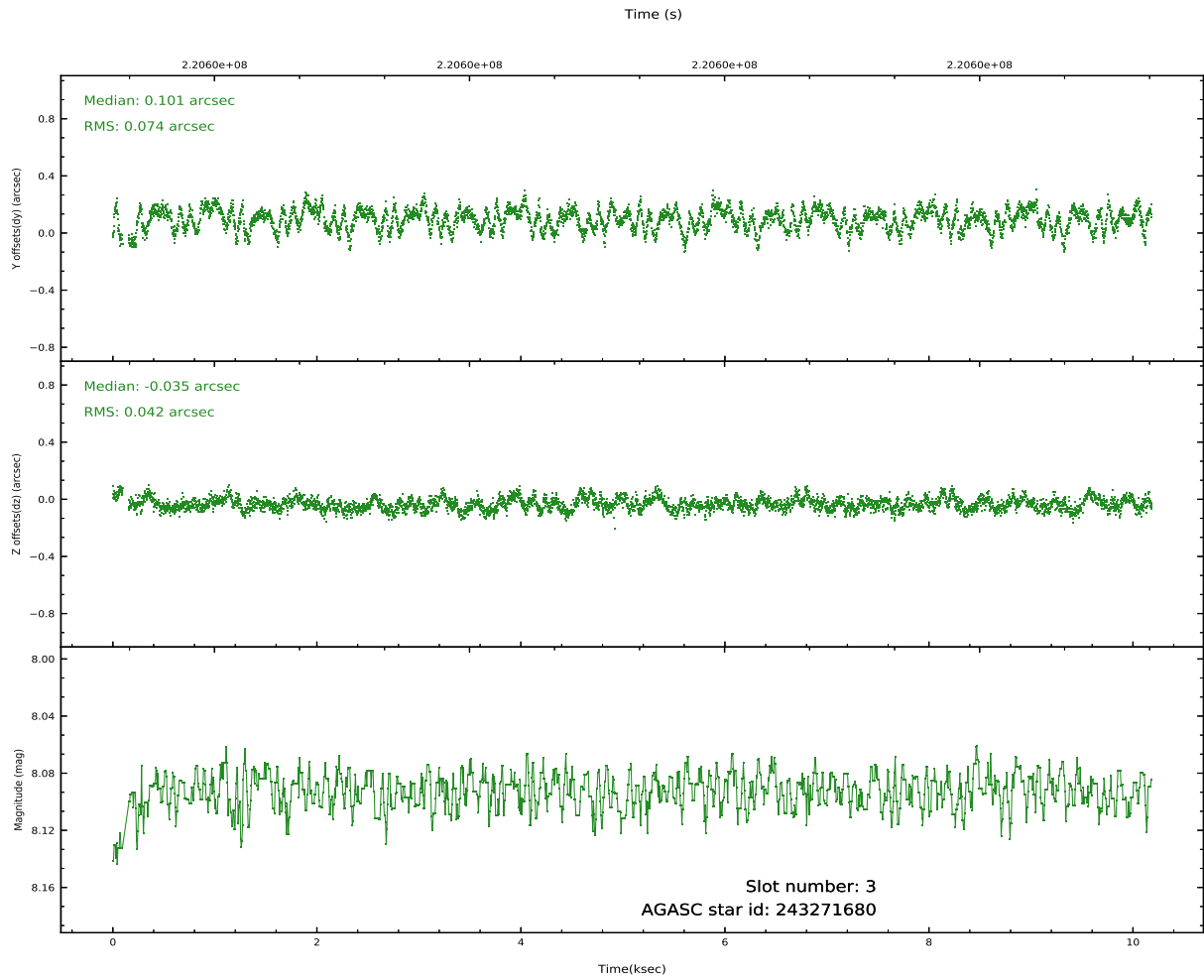
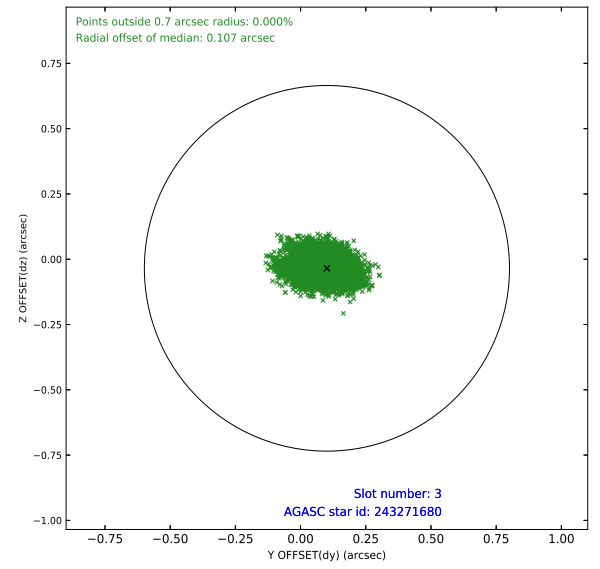
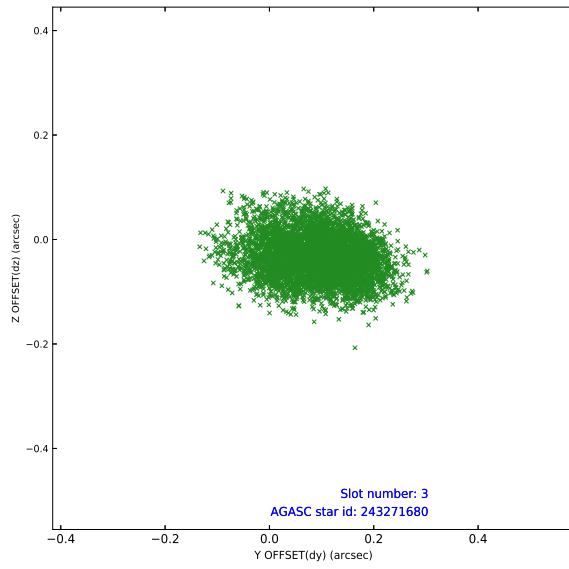


Slot Statistics

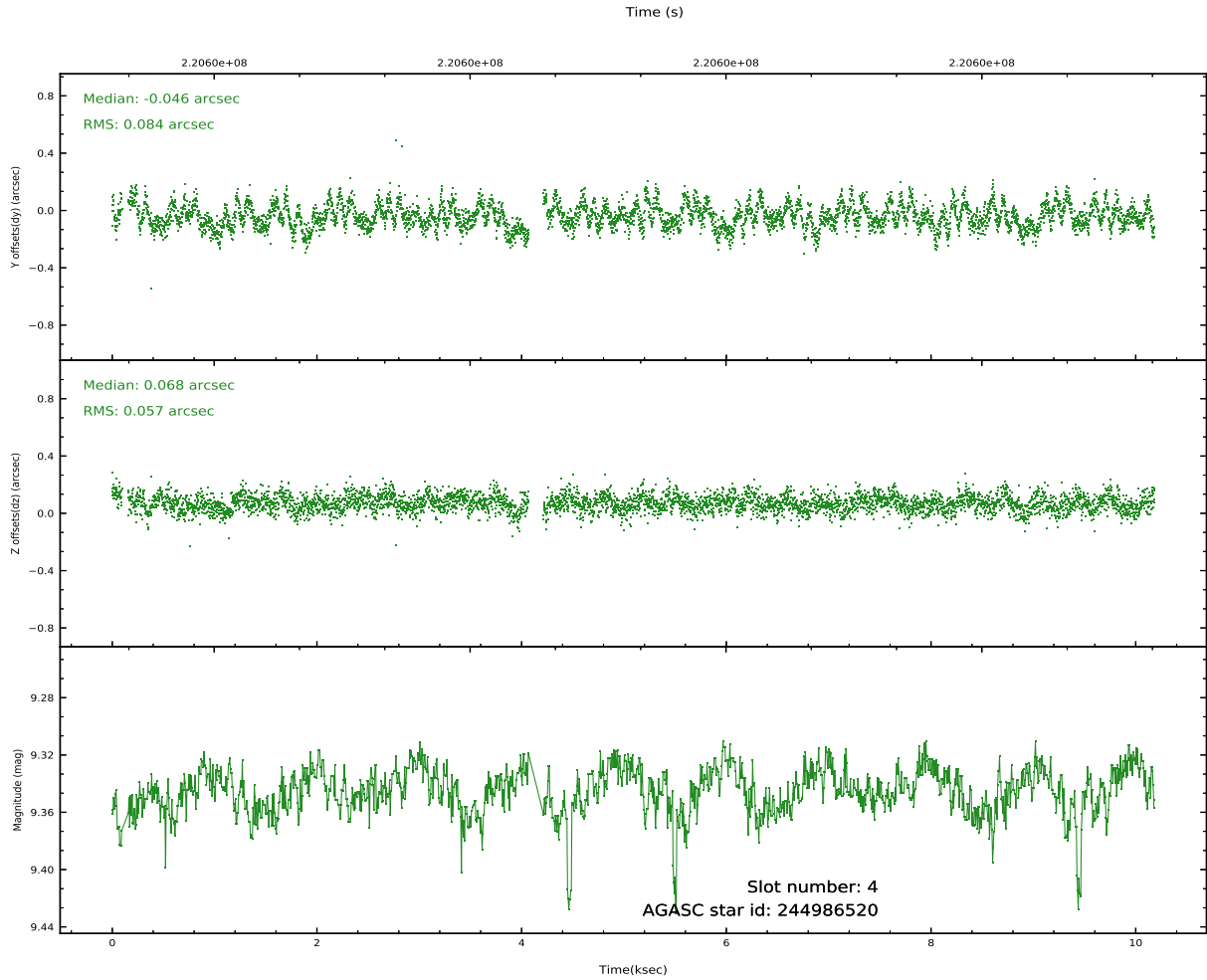
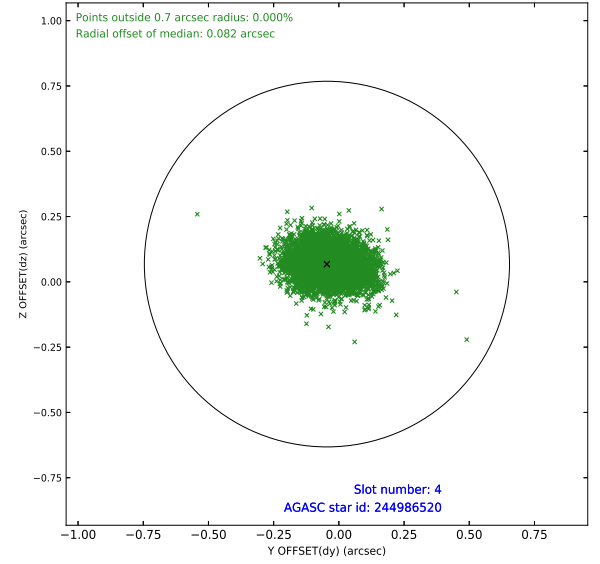
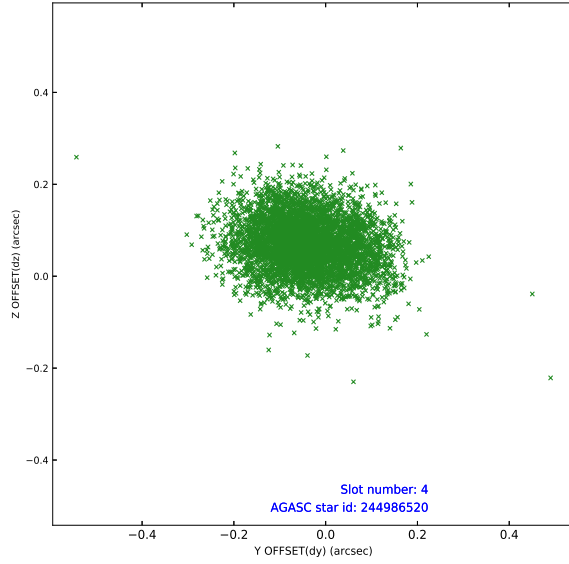
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.10	2470	1.000	-0.114	-0.093	0.006	0.011	0.000000	0.000000	-760.06	-1731
1	FID		ACIS-S-4	7.20	2469	1.000	0.102	0.055	0.006	0.011	0.000000	0.000000	2153.14	176
2	FID		ACIS-S-6	7.35	2468	1.000	-0.016	0.045	0.007	0.011	0.000000	0.000000	402.62	814
3	GUIDE	used	243271680	8.09	4938	1.000	0.101	-0.035	0.090	0.148	83.552341	26.881746	2155.71	-2240
4	GUIDE	used	244986520	9.34	4861	1.000	-0.046	0.068	0.107	0.178	85.259892	27.682776	-2118.45	2219
5	GUIDE	used	244987640	8.56	4937	1.000	-0.120	-0.058	0.061	0.096	84.165830	27.911751	-1945.49	-1355
6	GUIDE	used	244982936	8.92	4937	1.000	0.065	0.023	0.070	0.112	84.571386	26.917175	1141.98	872
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

## 2.4 Star Slots

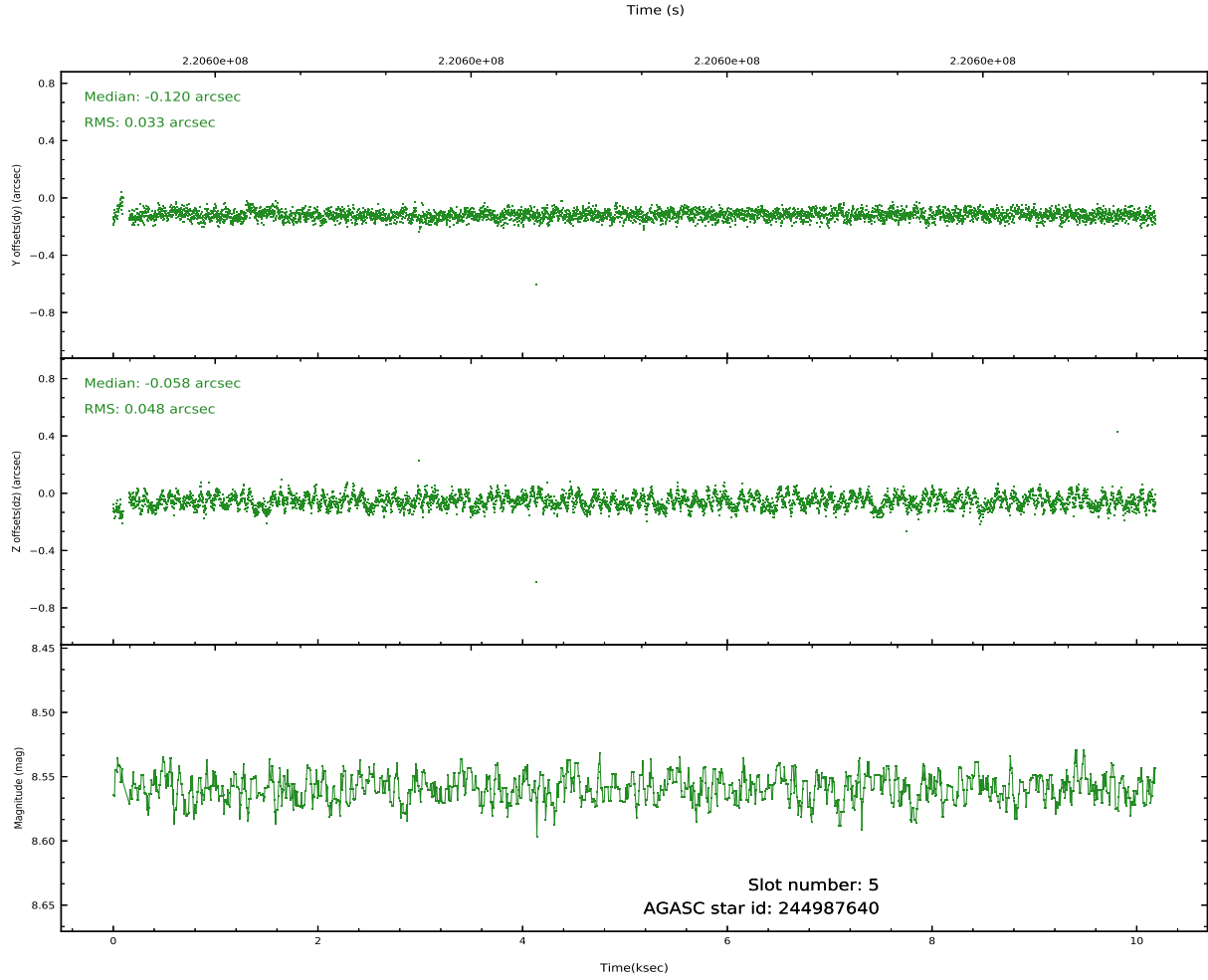
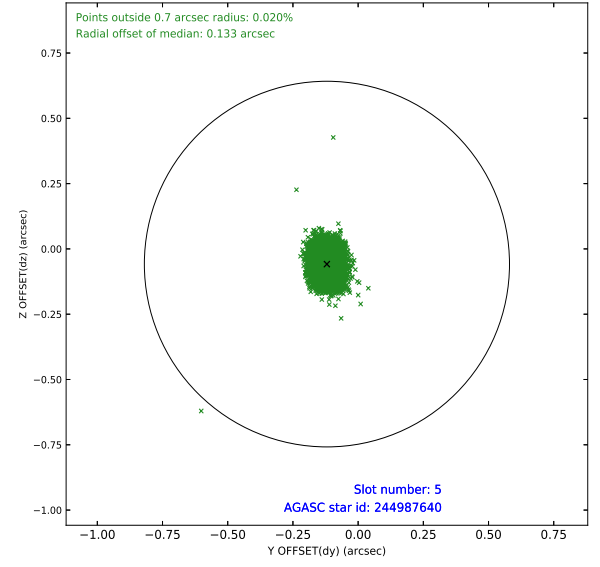
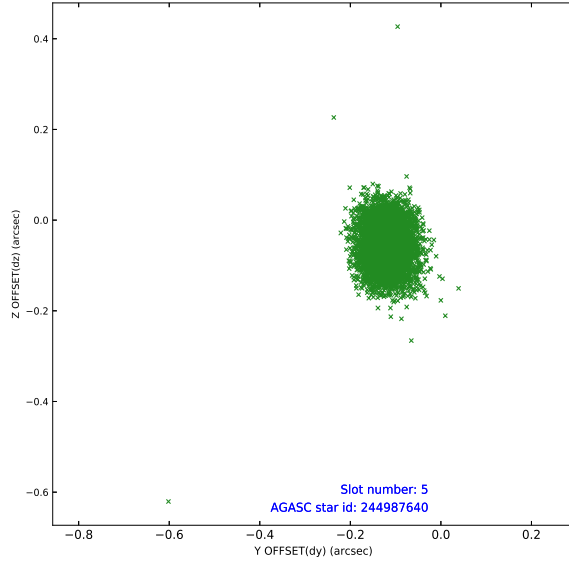
### 2.4.1 Slot 3



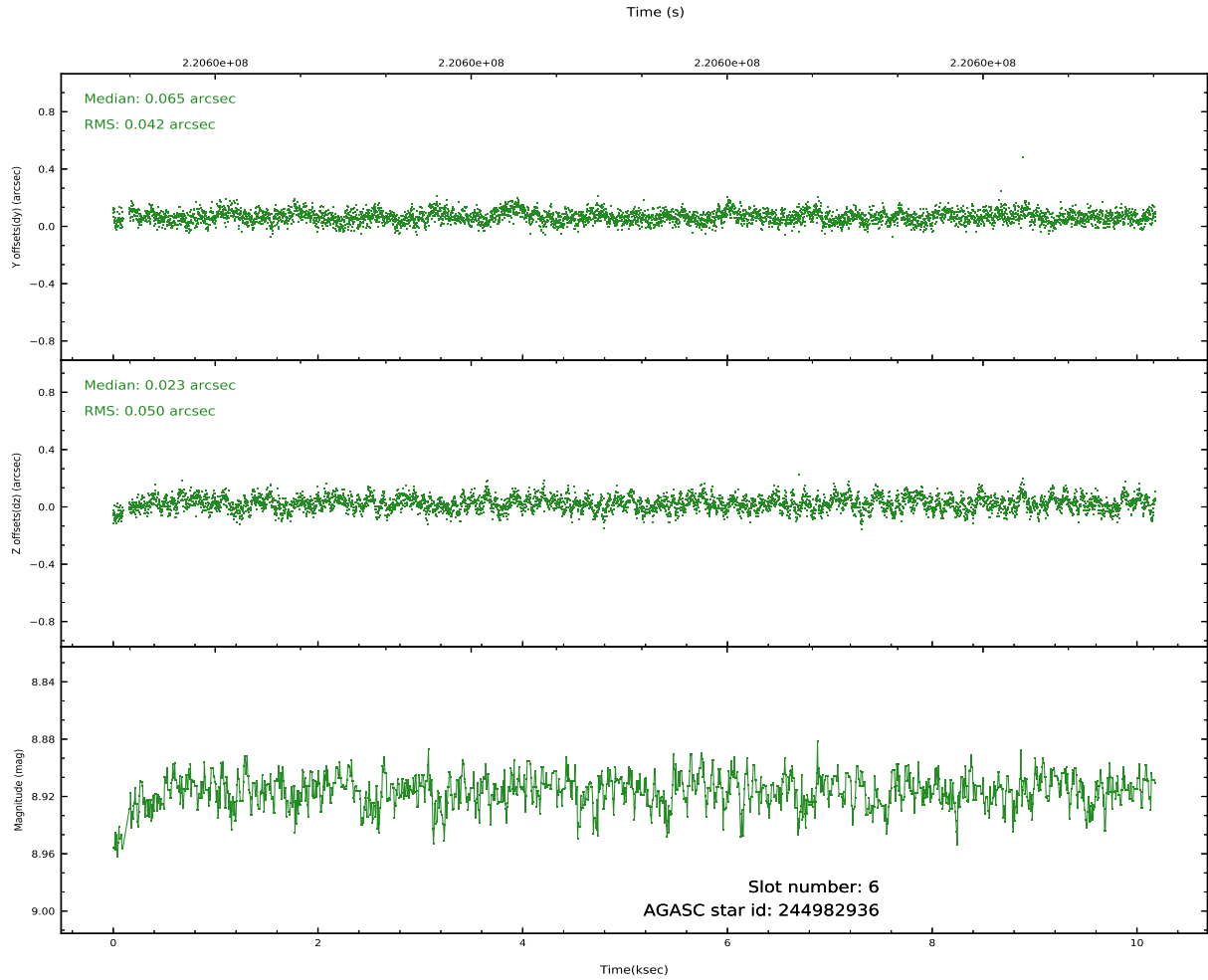
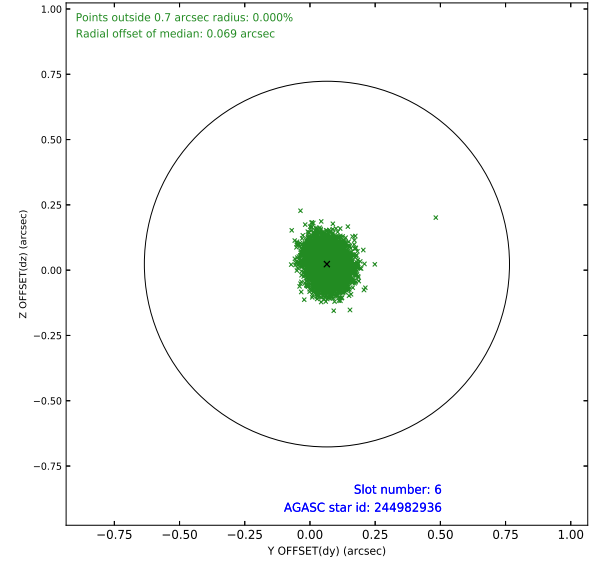
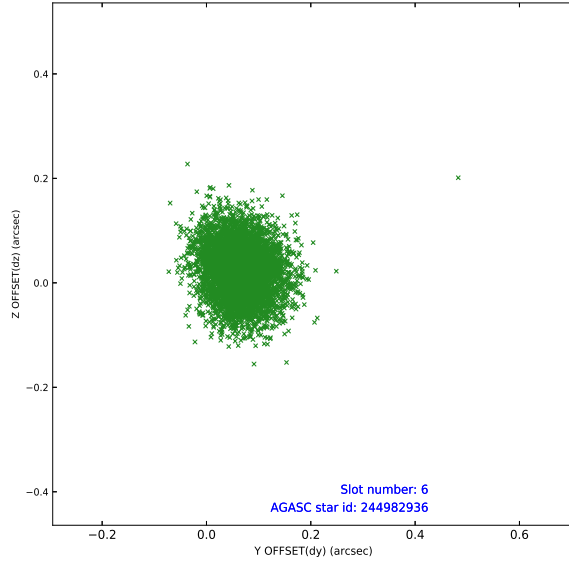
## 2.4.2 Slot 4



### 2.4.3 Slot 5



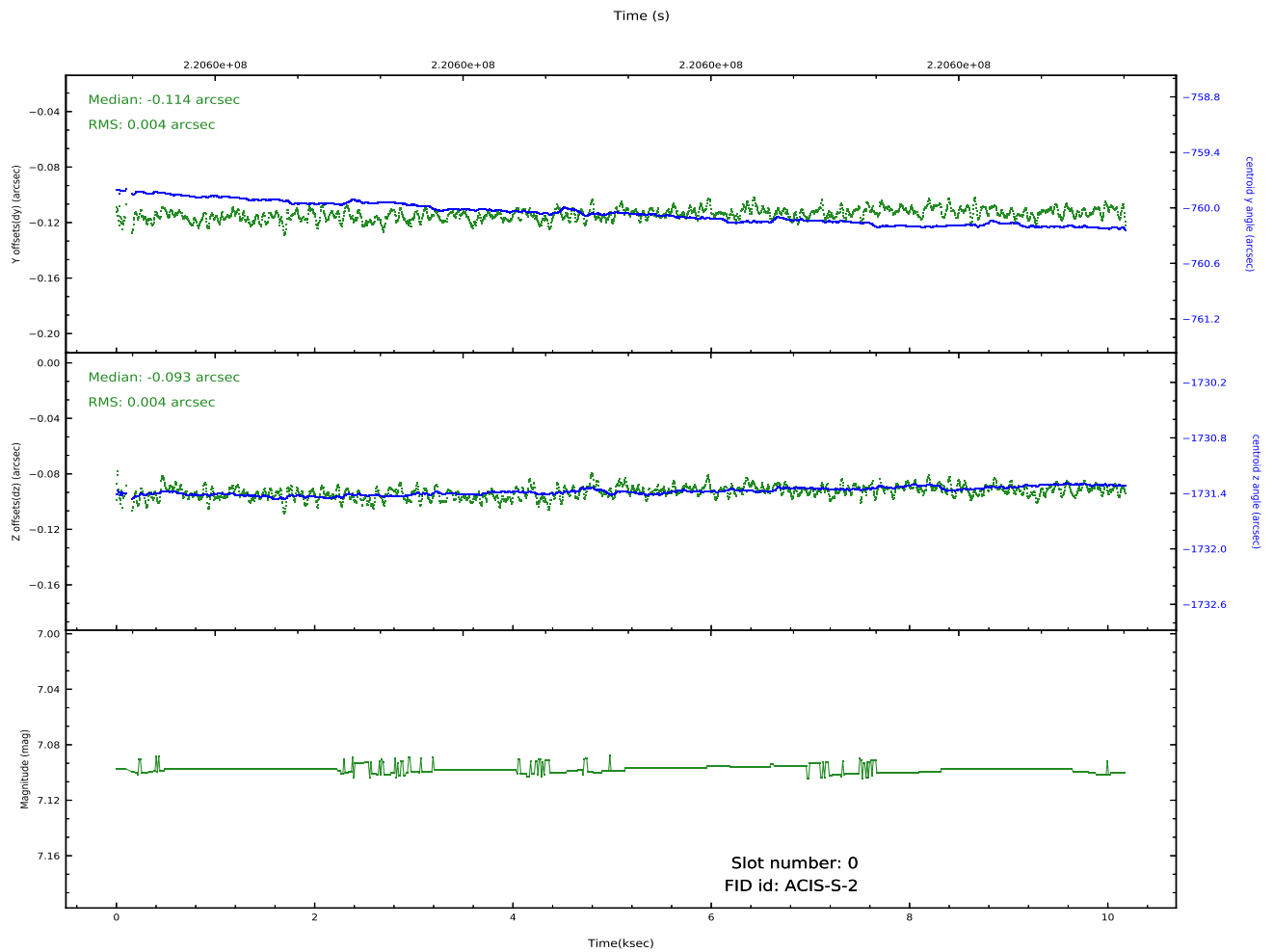
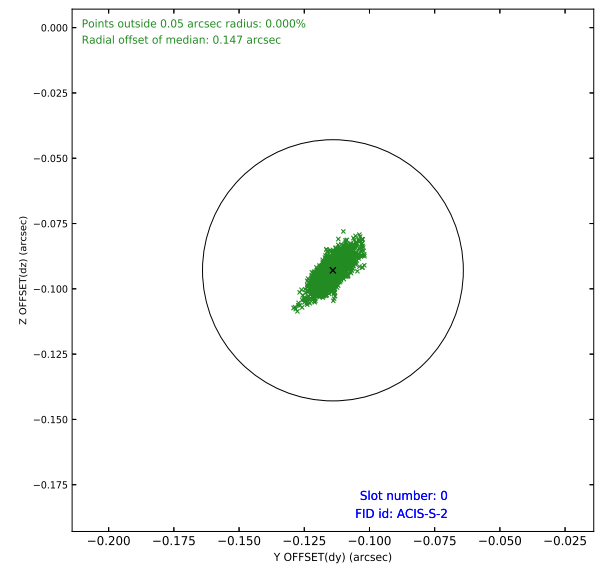
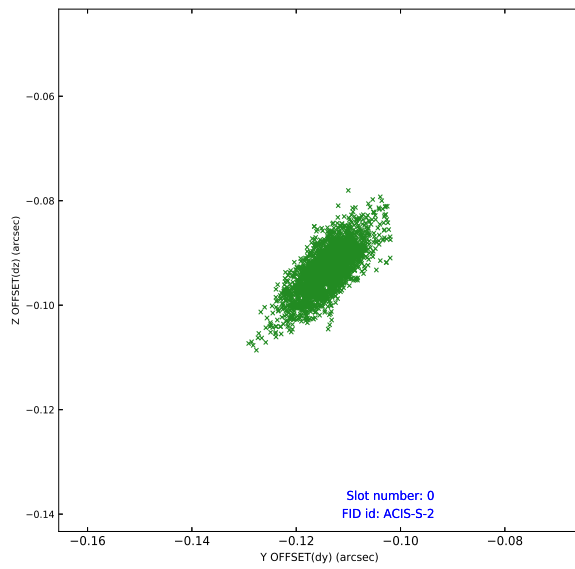
## 2.4.4 Slot 6



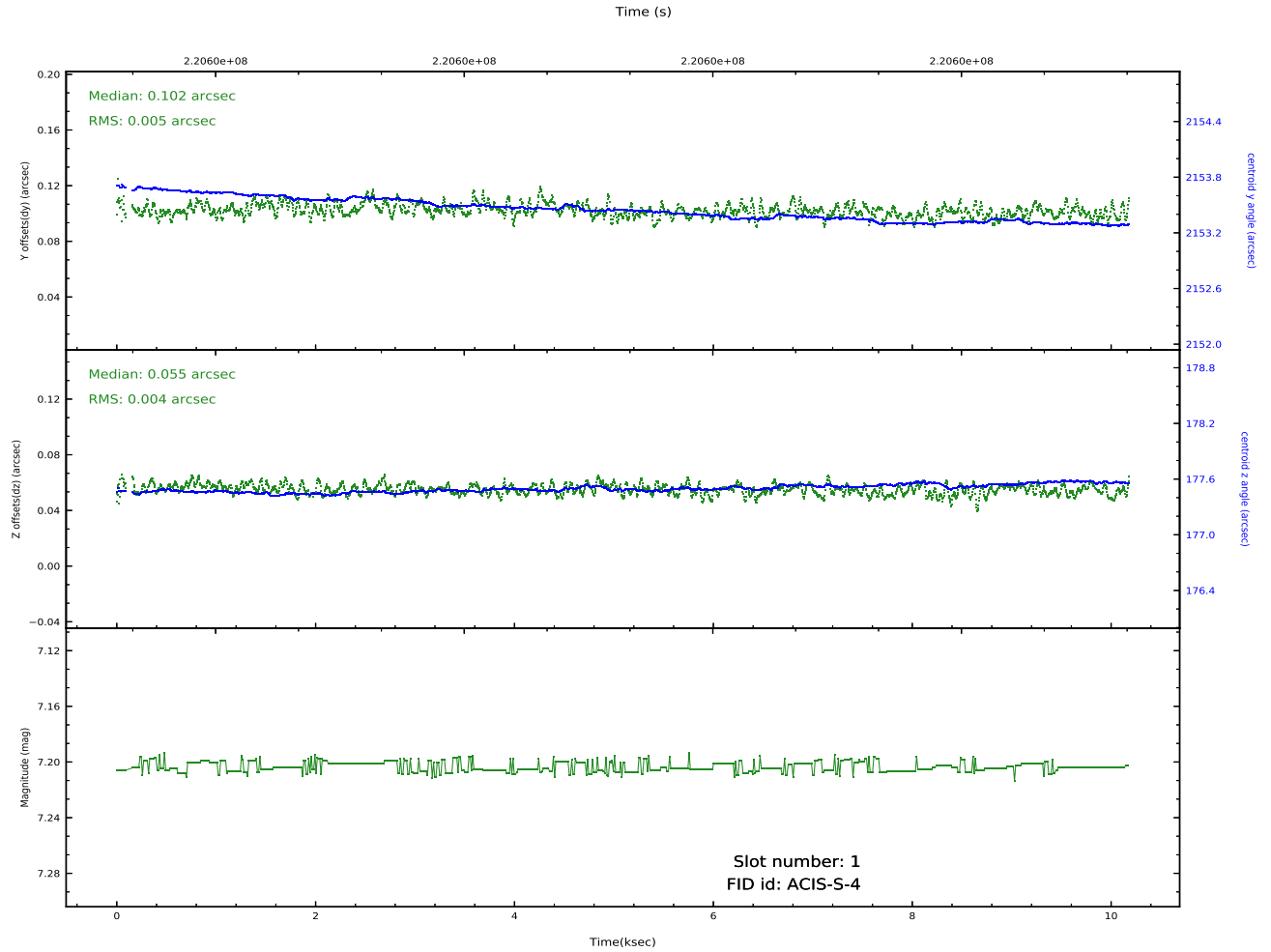
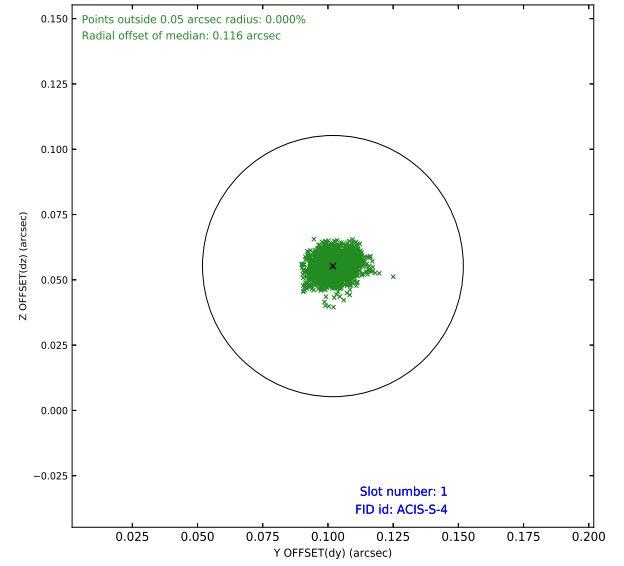
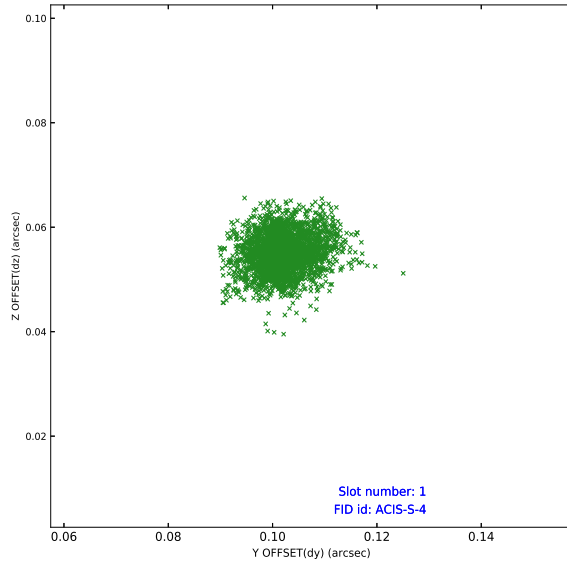


## 2.5 FID Slots

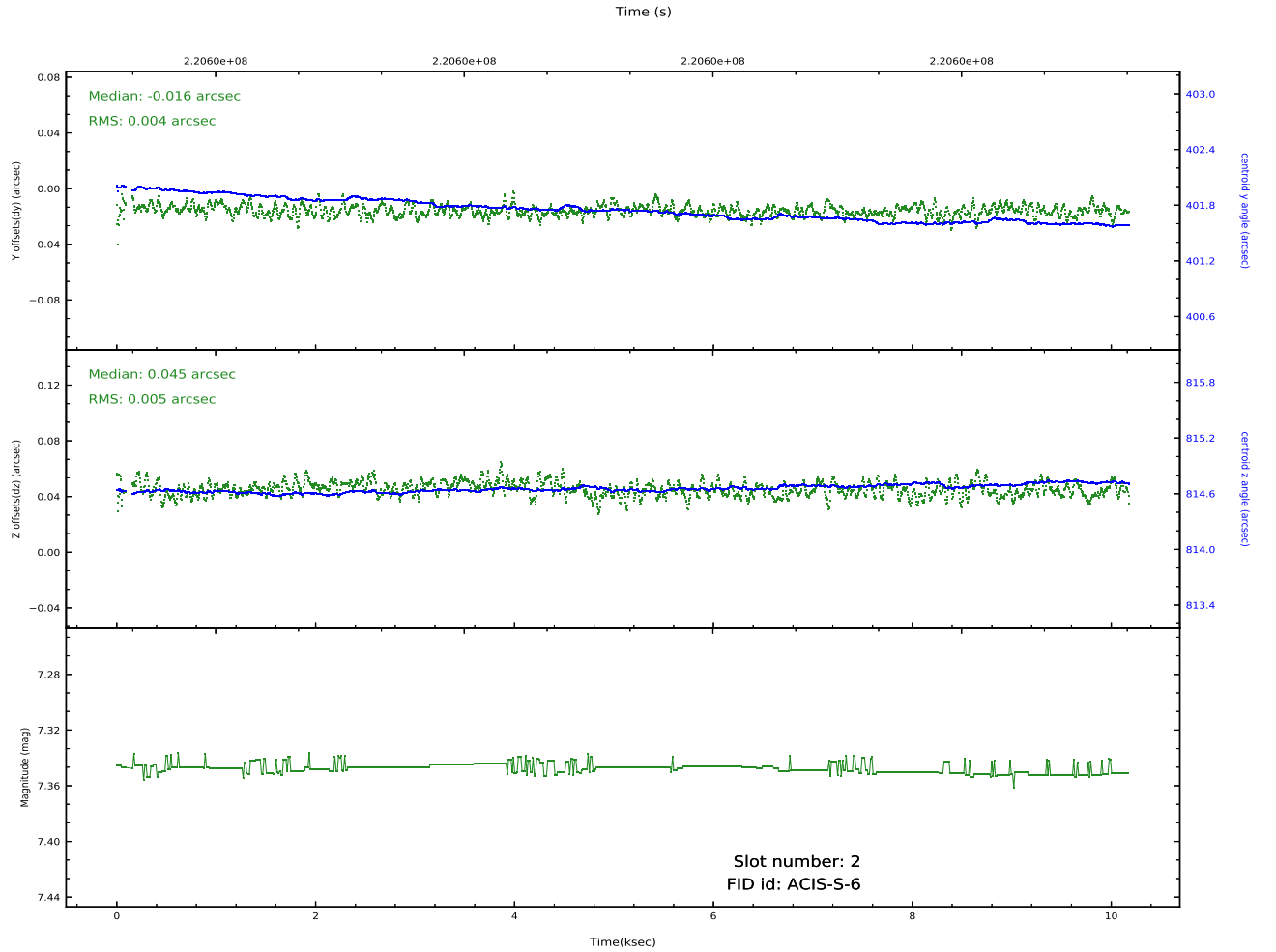
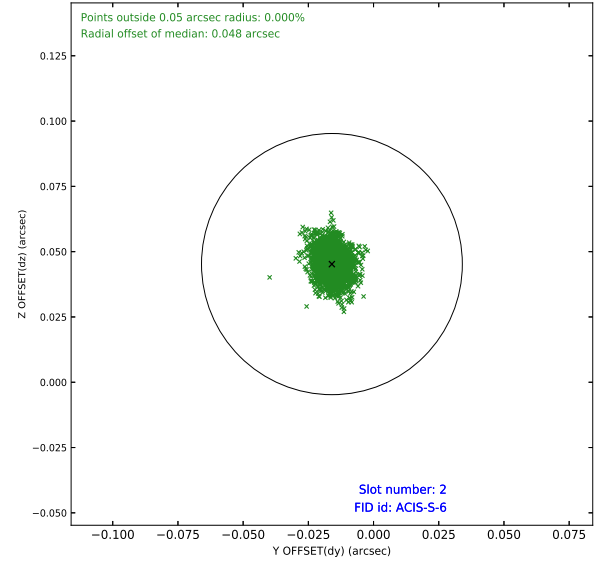
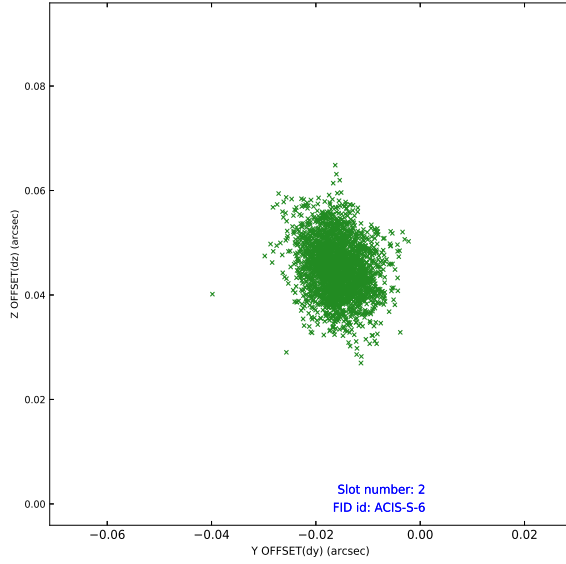
### 2.5.1 Slot 0



## 2.5.2 Slot 1



## 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2020.10.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.02239

## A.2 Comments

The ACA has the capability to devote one or more of the eight image slots to "monitor" particular sky locations. This allows simultaneous optical photometry of one or more targets in the ACA field of view. These optical sources can be slightly fainter than the ACA guide star limit of  $m_{ACA} = 10.2$  mag. The bright-end limit for monitor star photometry is  $m_{ACA}=6.2$  mag. However, since there are a fixed number of image slots, devoting a slot to photometry instead of tracking a guide star results in a degradation of the image reconstruction and celestial location accuracy (Section 5.4). Using one monitor slot represents a 15 - 25% increase in the aspect image reconstruction RMS diameter, depending on the particular guide star configuration. Two monitor slots would increase the diameter by about 50 - 60%, but this configuration is not operationally allowed under normal circumstances. The photometric accuracy which can be achieved depends primarily on the star magnitude, integration time, CCD dark current, CCD read noise, sky background, and the CCD dark current uncertainty.