

V&V Reference Report

L2 ASCDS Version : 10.9.1

Observation 5418 - L2 Version 4
Chandra X-Ray Center

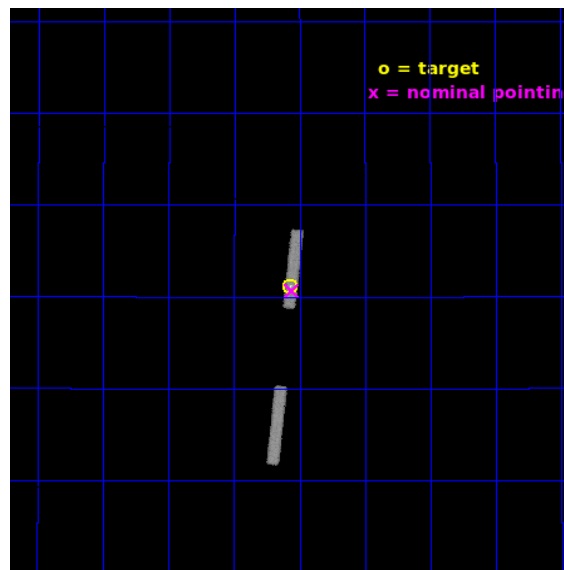
L2 Processing Date : Oct 5 2020

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1 Front

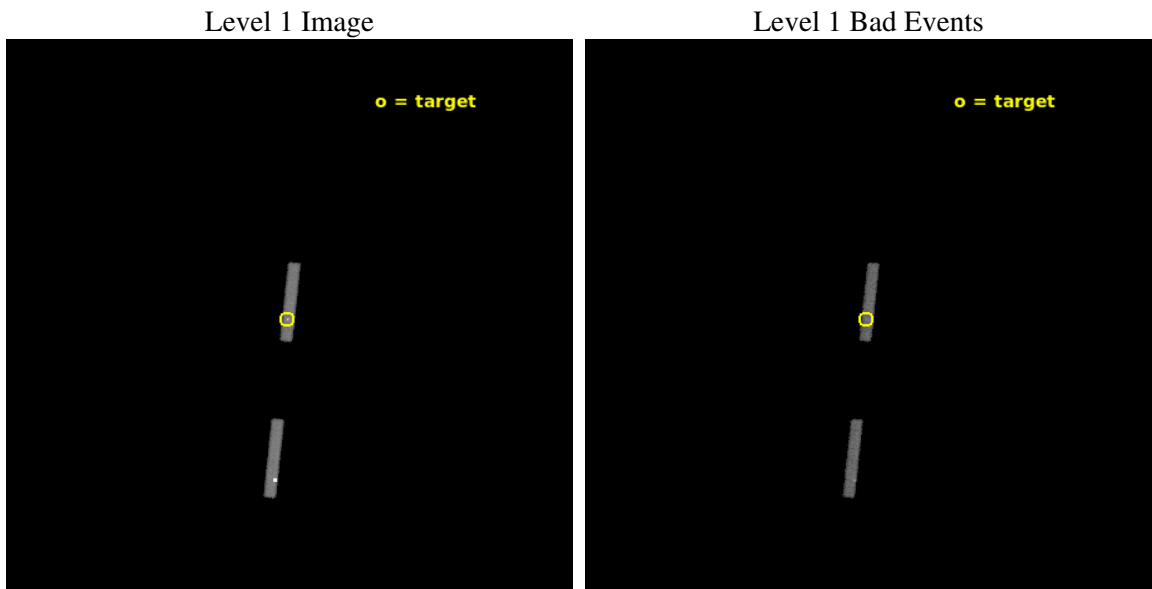
seq_num	200351	Sequence number
obs_id	5418	Observation id
title	Untangling the Accretion Spots on Classical T Tauri Stars	Proposal
observer	Dr. Andisheh Mahdavi	Principal investigator
object	GK Tau	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	68.39375	Observer's specified target RA [deg]
dec_targ	24.3525	Observer's specified target Dec [deg]
ra_nom	68.389446265323	Nominal RA [deg]
dec_nom	24.344532928809	Nominal Dec [deg]
roll_nom	275.74470678868	Nominal Roll [deg]
revision	4	Processing version of data
ontime	15029.917920023	Sum of GTIs [s]
liveltime	13889.839863987	Livetime [s]
ontime5	15029.917920023	Sum of GTIs [s]
ontime7	15029.917920023	Sum of GTIs [s]
l2events	18724	Number of level 2 events



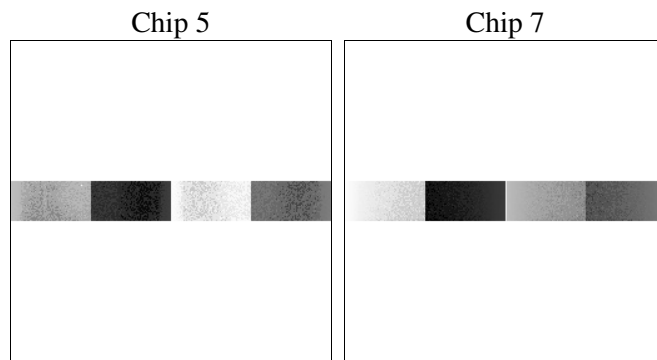
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	15000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	15029.917920023	Sum of GTIs [s]
caldbver	4.9.2	 	ontime5	15029.917920023	Sum of GTIs [s]
date	2020-10-06T03:26:48	Date and time of file creation	ontime7	15029.917920023	Sum of GTIs [s]
revision	4	Processing version of data	l1events	75743	Number of level 1 events

2.1.4 Events

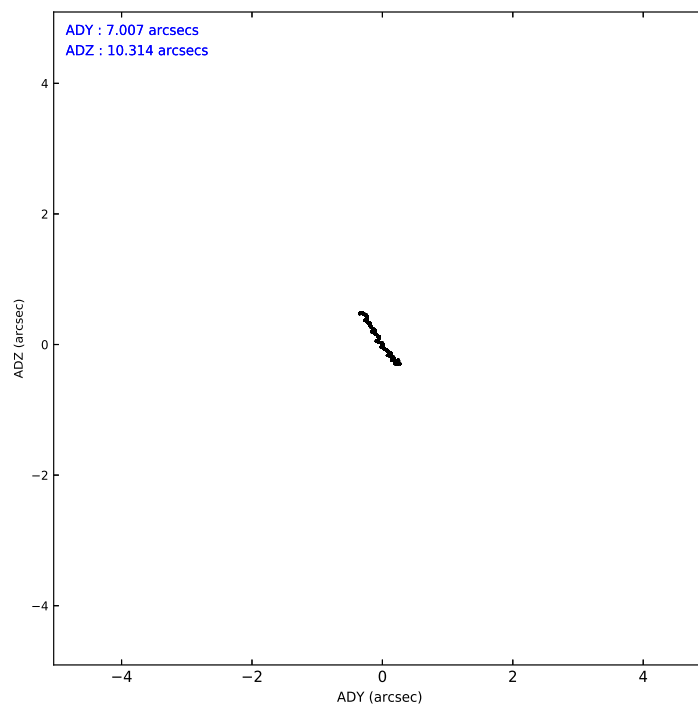
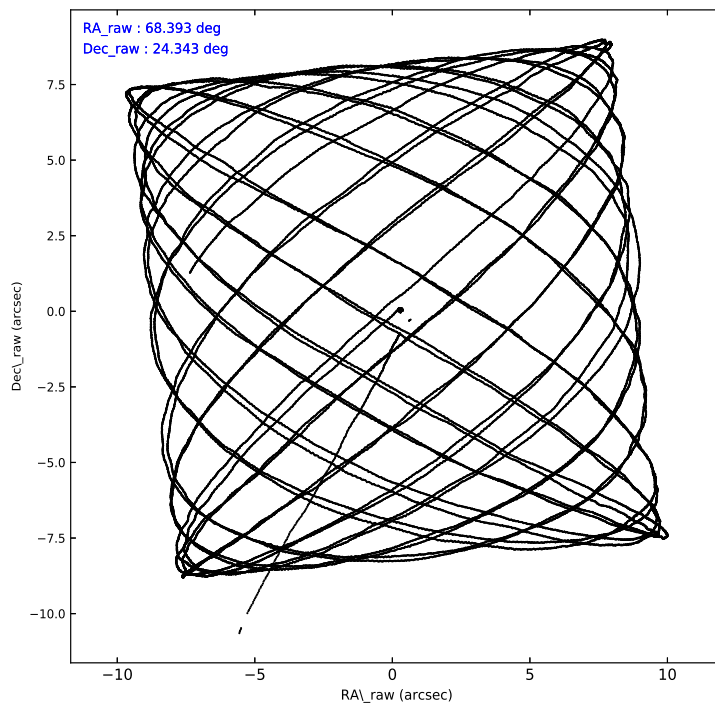
	ccd 5	ccd 7
level 1 events	53121	22622
rejected events	16207	12602
rejected %	30%	55%

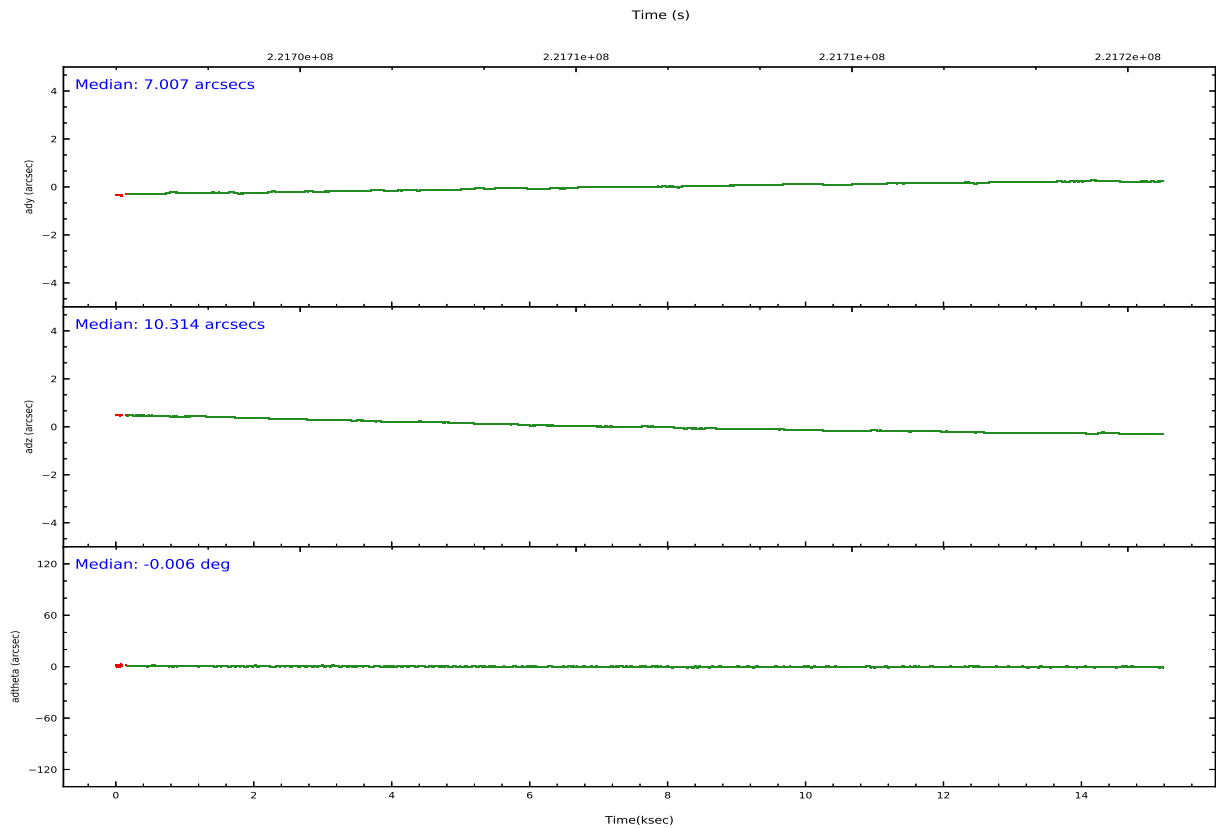
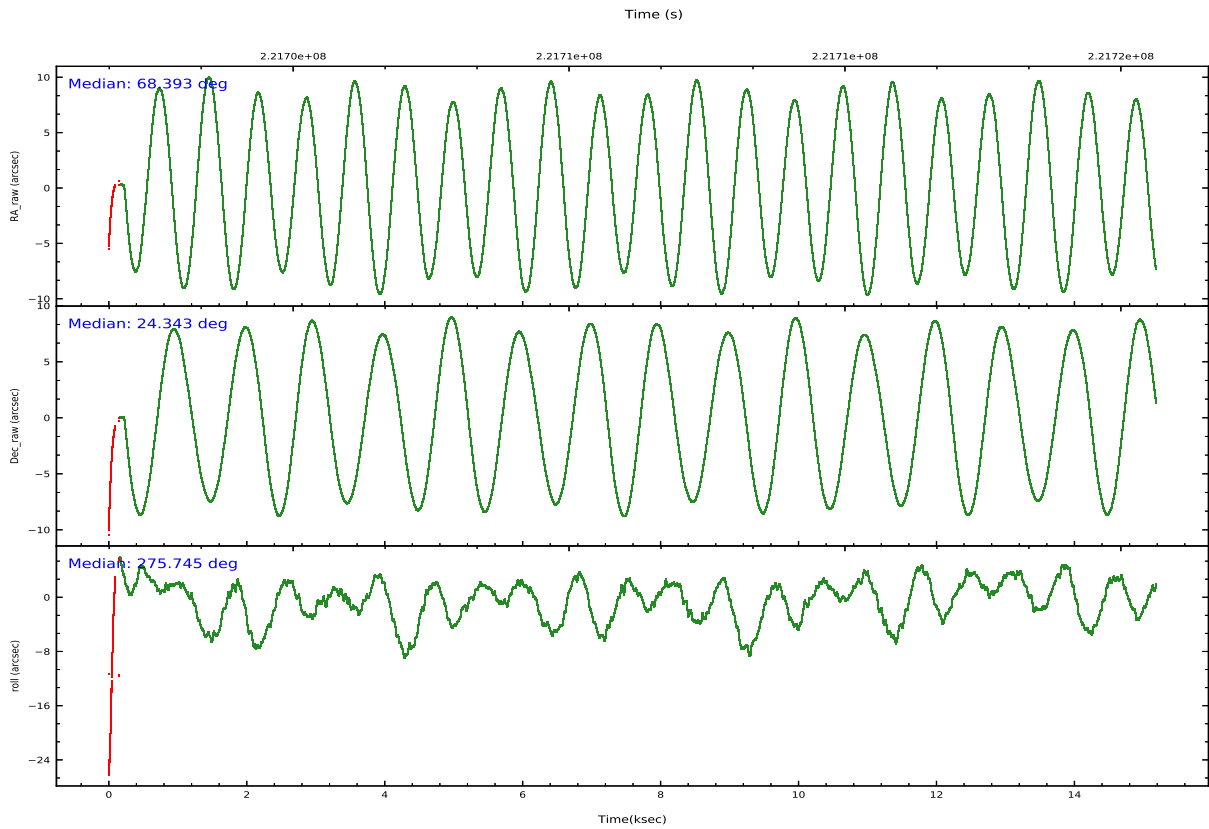
	ccd 5	ccd 7
grade 0 events	26416	1441
	49%	6%
grade 1 events	88	19
	0%	0%
grade 2 events	7570	2308
	14%	10%
grade 3 events	902	1354
	1%	5%
grade 4 events	1445	1362
	2%	6%
grade 5 events	1926	2057
	3%	9%
grade 6 events	5168	4619
	9%	20%
grade 7 events	9606	9462
	18%	41%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-57	ACIS-57	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	68.375152	68.389446265323	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	24.364744	24.344532928809	Subarray start row	449	449
[deg] Pointing Roll	275.586263	275.74470678868	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	N	N
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.000000	0.5
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	221701511.184000	221699608.39692			
Observation start date	2005-01-09T23:44:07	2005-01-09T23:13:28			
[s] Observation end time (MET)	221716511.184000	221717377.79772			
Observation end date	2005-01-10T03:54:07	2005-01-10T04:09:37			
Read mode	TIMED	TIMED			

2.3 Aspect





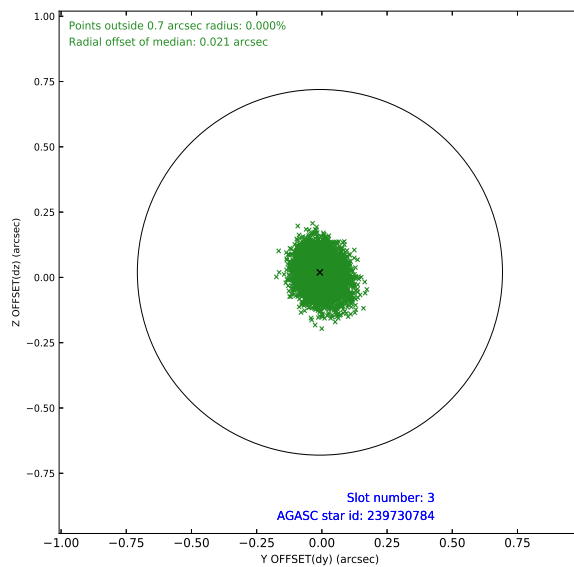
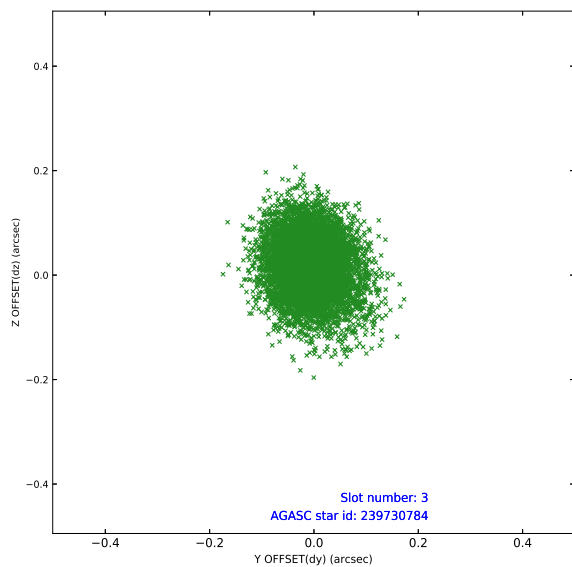
Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.10	3689	1.000	-0.084	-0.056	0.008	0.013	0.000000	0.000000	-759.77	-1731
1	FID		ACIS-S-4	7.20	3688	1.000	0.147	0.055	0.008	0.015	0.000000	0.000000	2153.53	176
2	FID		ACIS-S-5	7.23	3690	1.000	-0.094	0.009	0.012	0.018	0.000000	0.000000	-1812.31	170
3	GUIDE	used	239730784	8.97	7378	1.000	-0.007	0.019	0.073	0.121	68.709044	24.244524	536.28	1049
4	GUIDE	used	239733576	9.33	7372	1.000	0.162	0.074	0.094	0.151	68.994910	23.821766	2140.15	1841
5	GUIDE	used	240255024	9.20	7351	1.000	-0.022	-0.114	0.090	0.146	68.465897	24.501998	-462.34	344
6	GUIDE	used	240263016	8.65	7375	1.000	-0.137	0.024	0.066	0.108	68.575597	24.979042	-2137.88	866
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

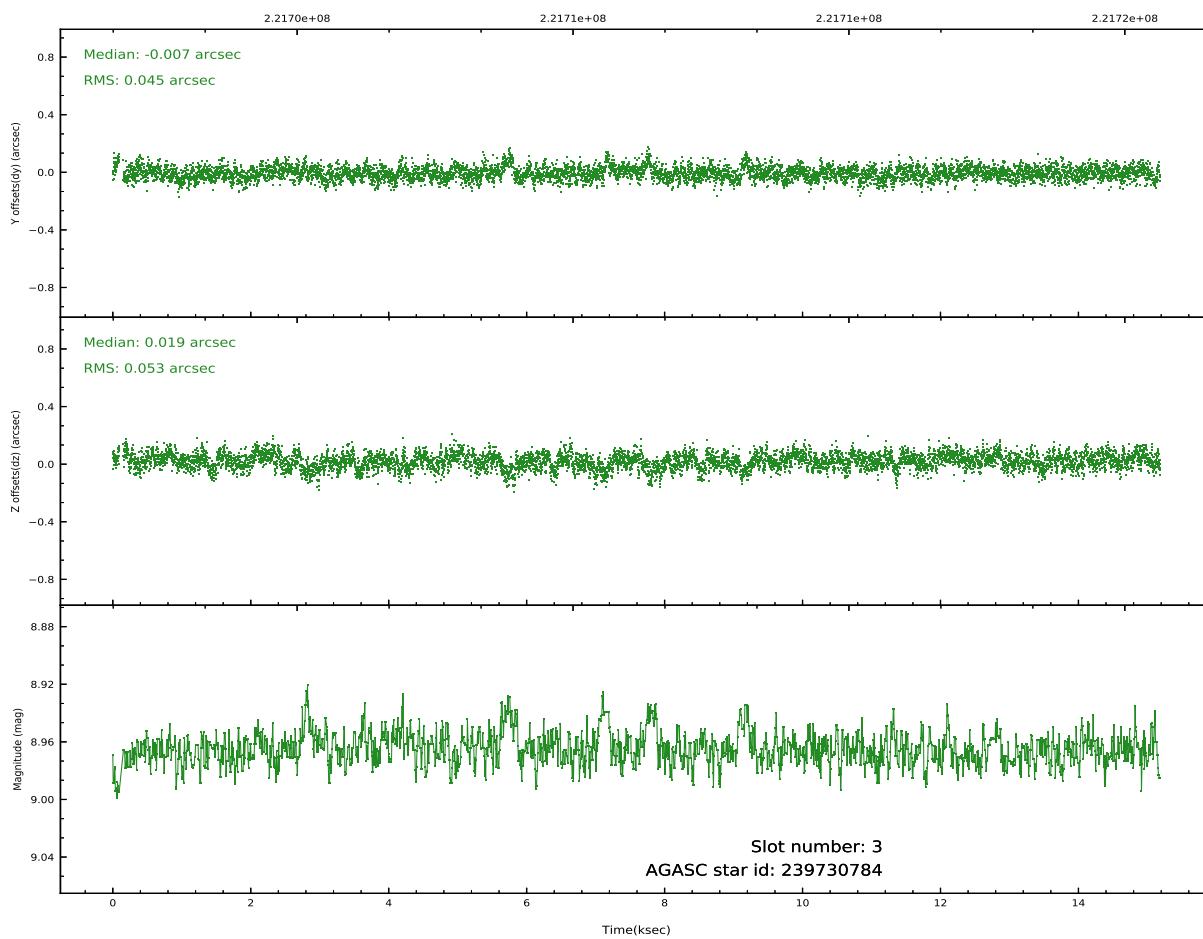
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2.4 Star Slots

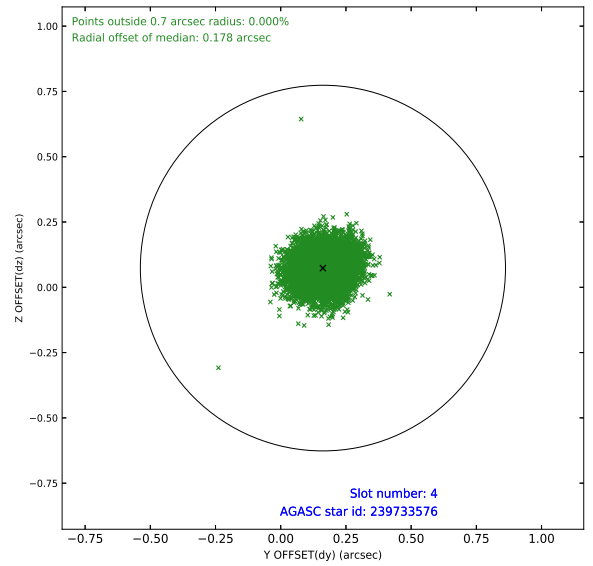
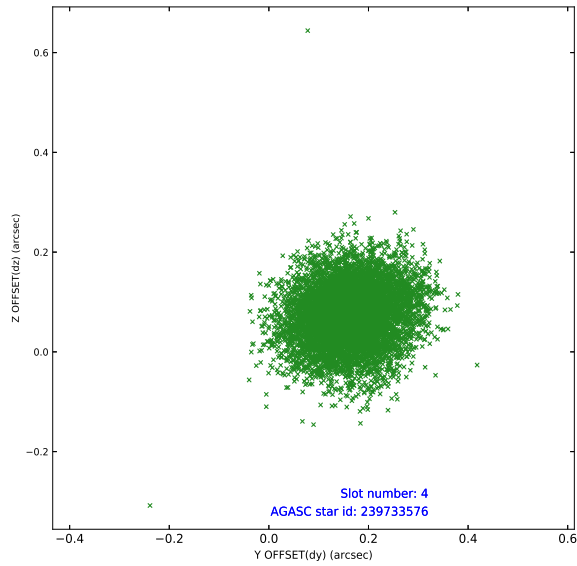
2.4.1 Slot 3



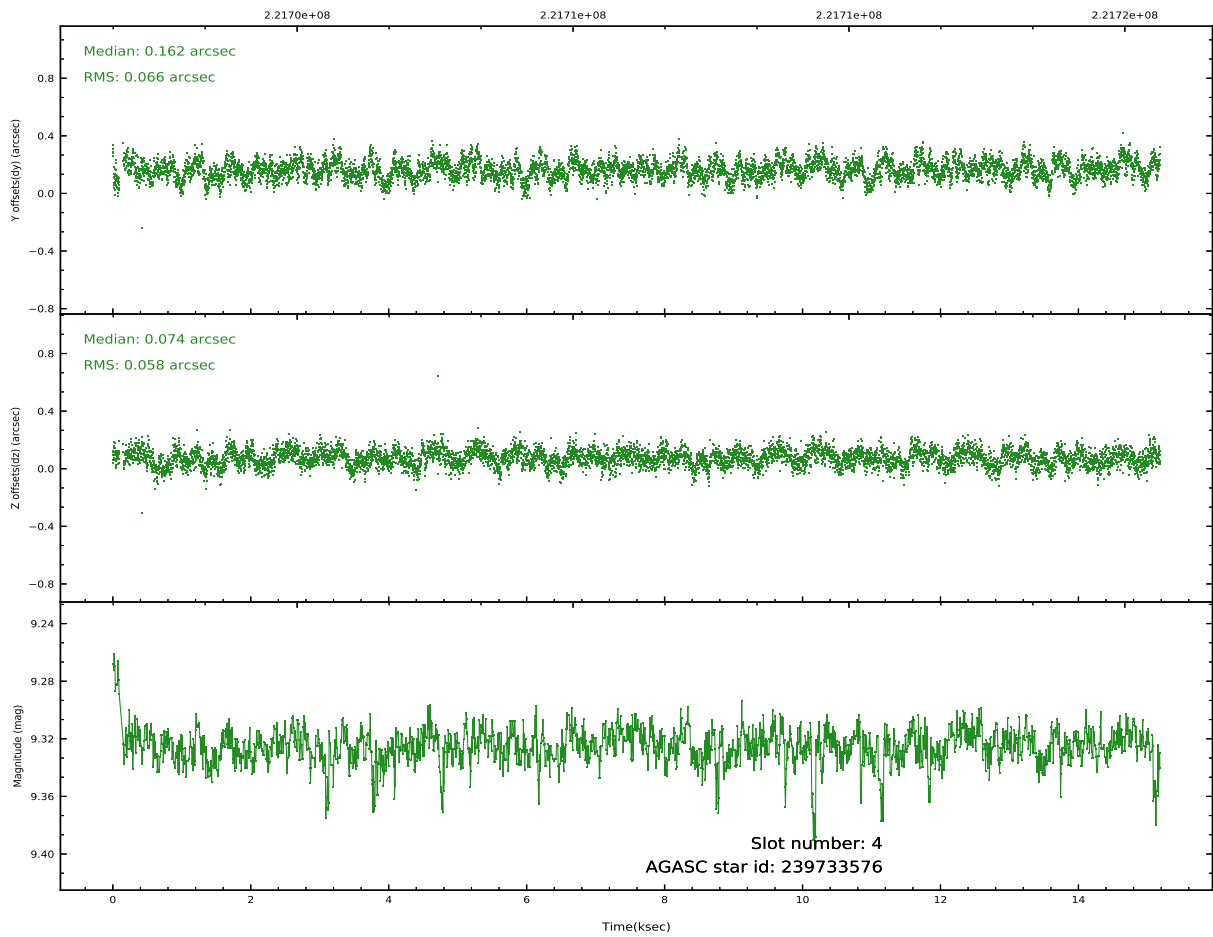
Time (s)



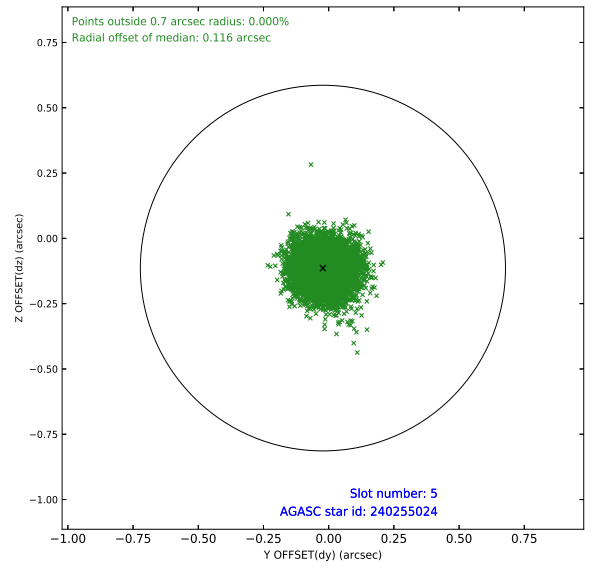
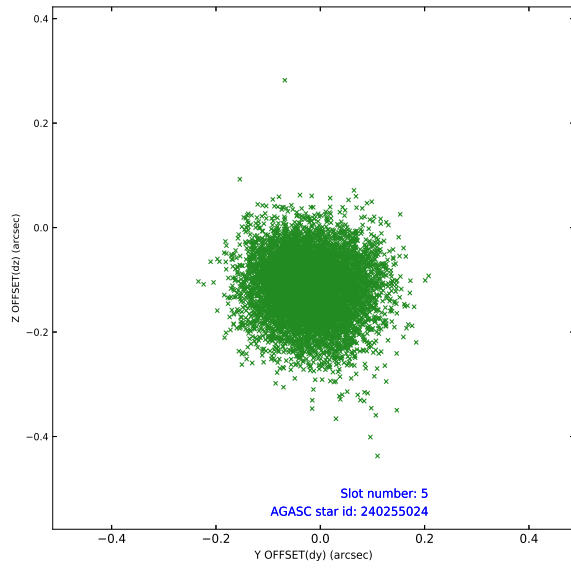
2.4.2 Slot 4



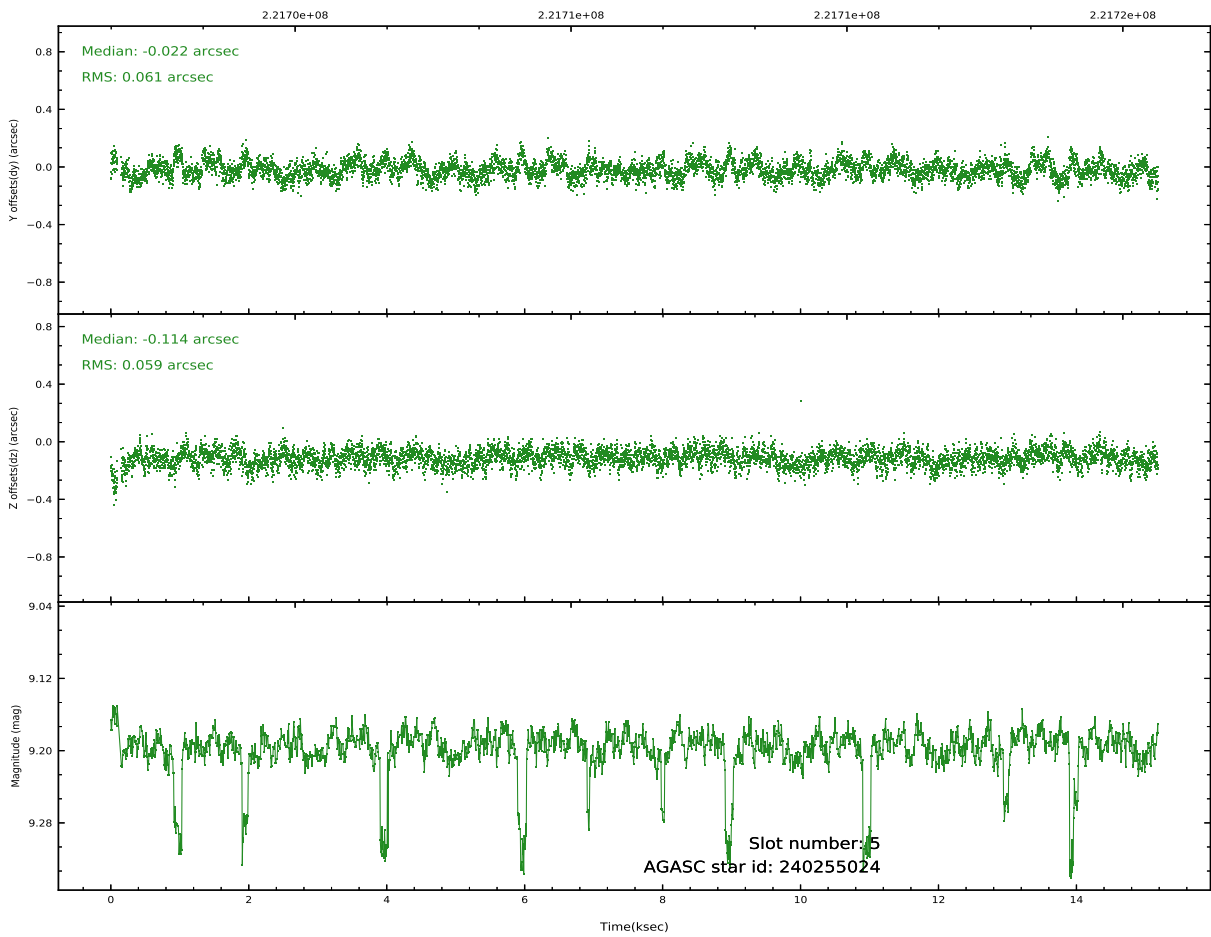
Time (s)



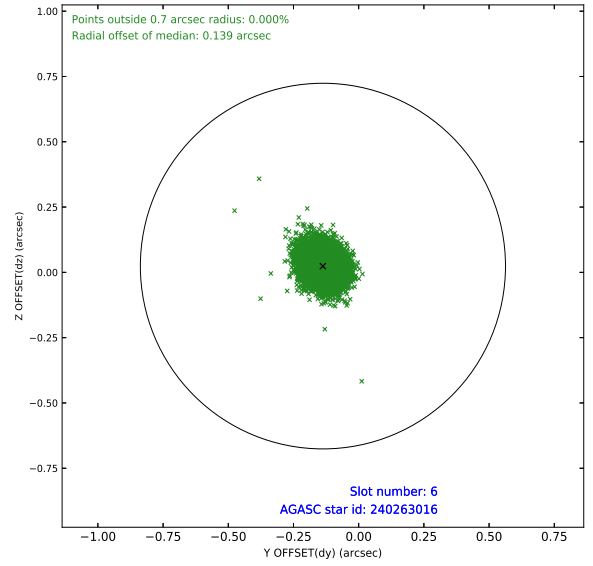
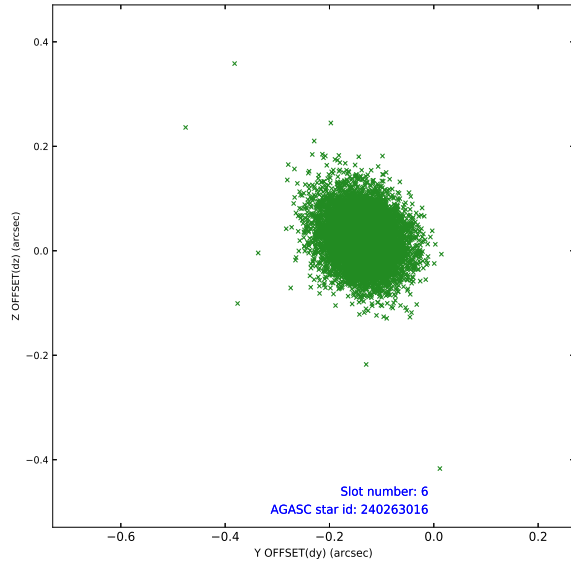
2.4.3 Slot 5



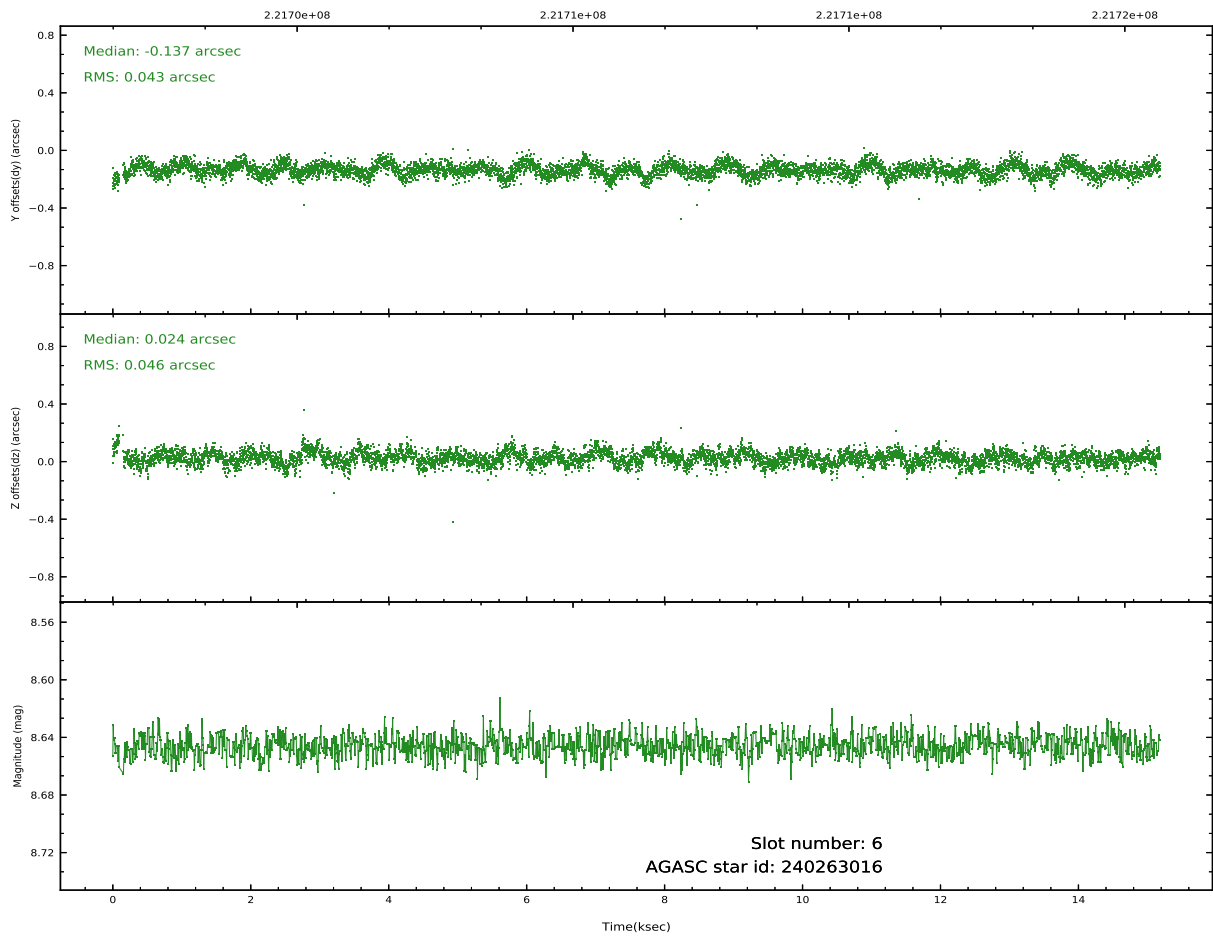
Time (s)



2.4.4 Slot 6

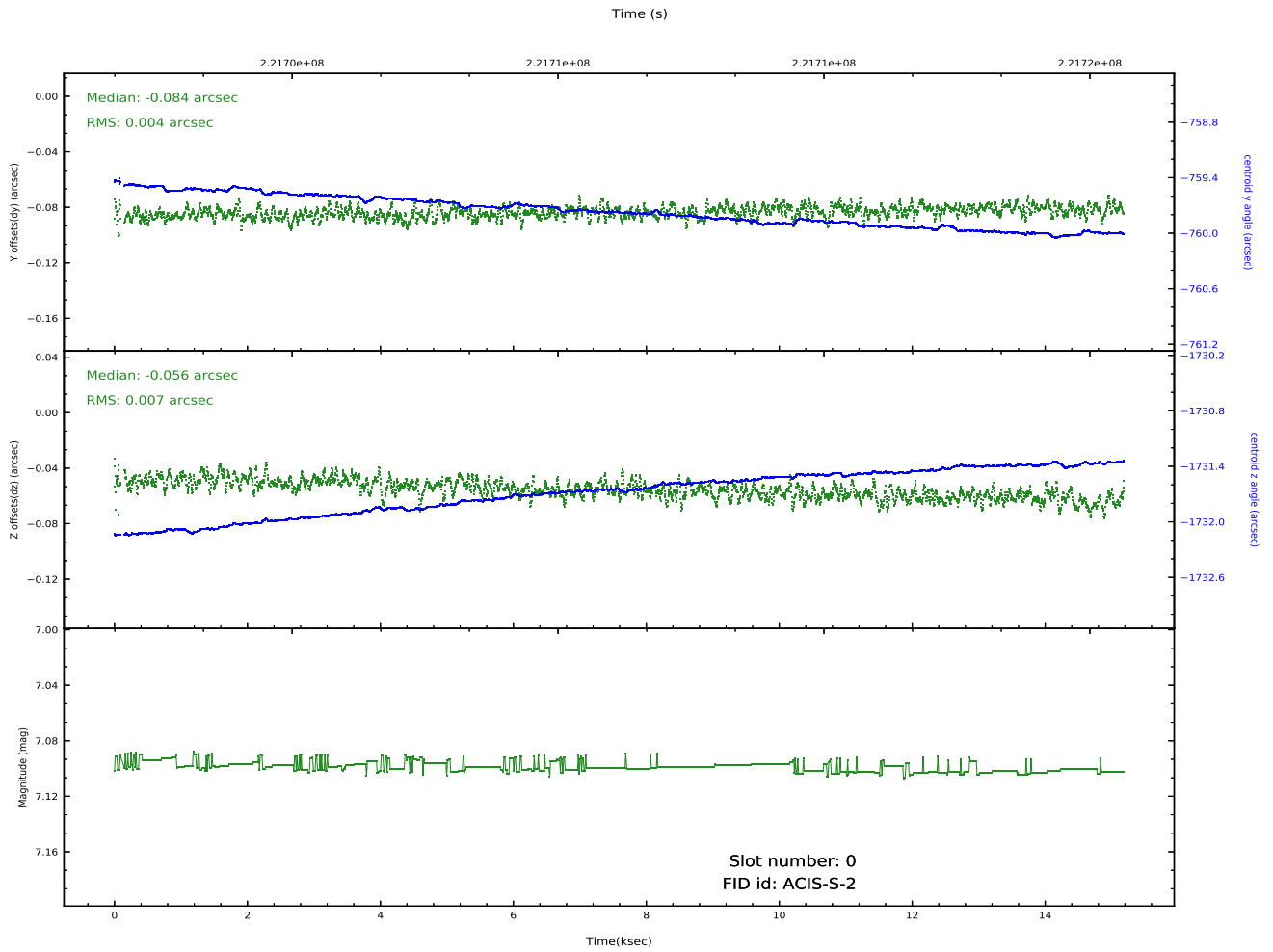
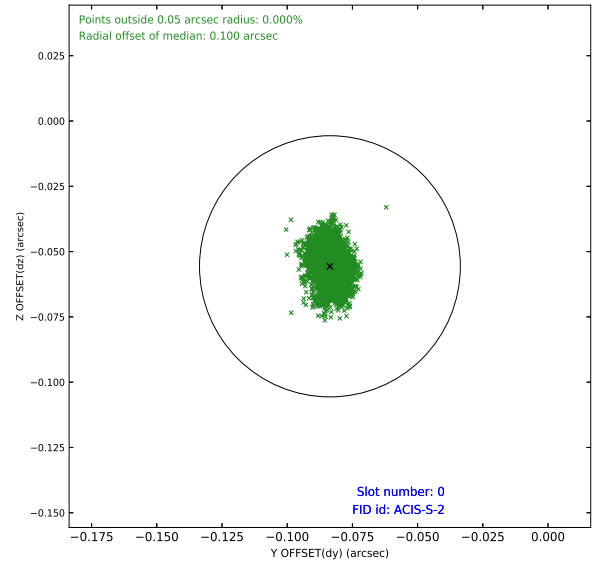
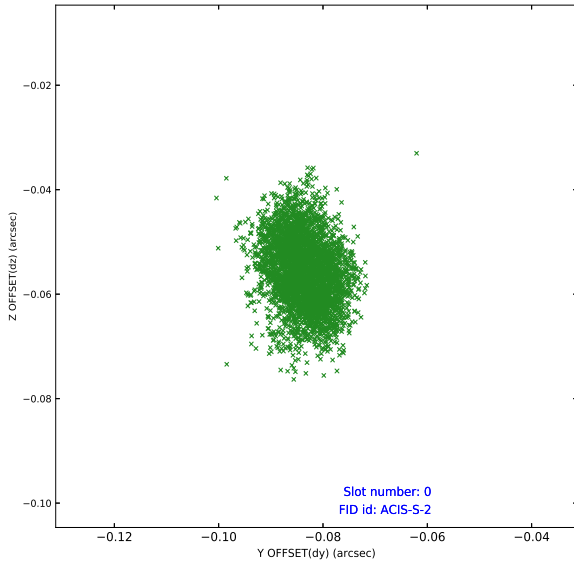


Time (s)

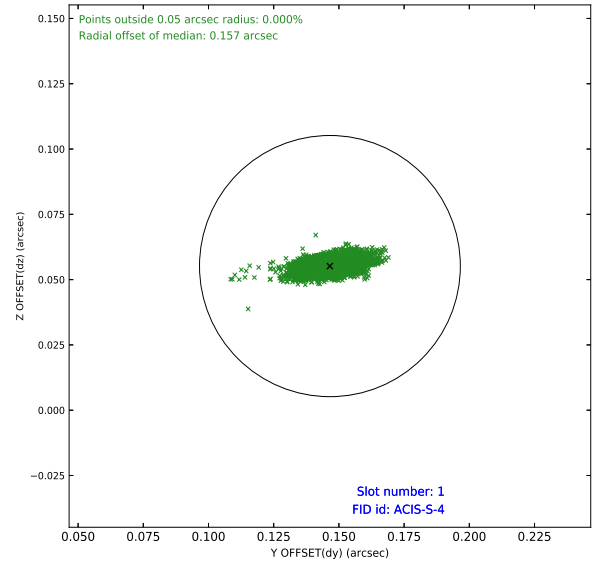
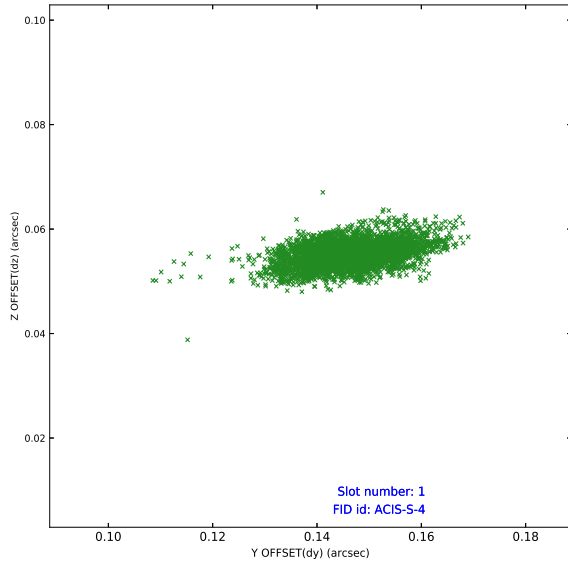


2.5 FID Slots

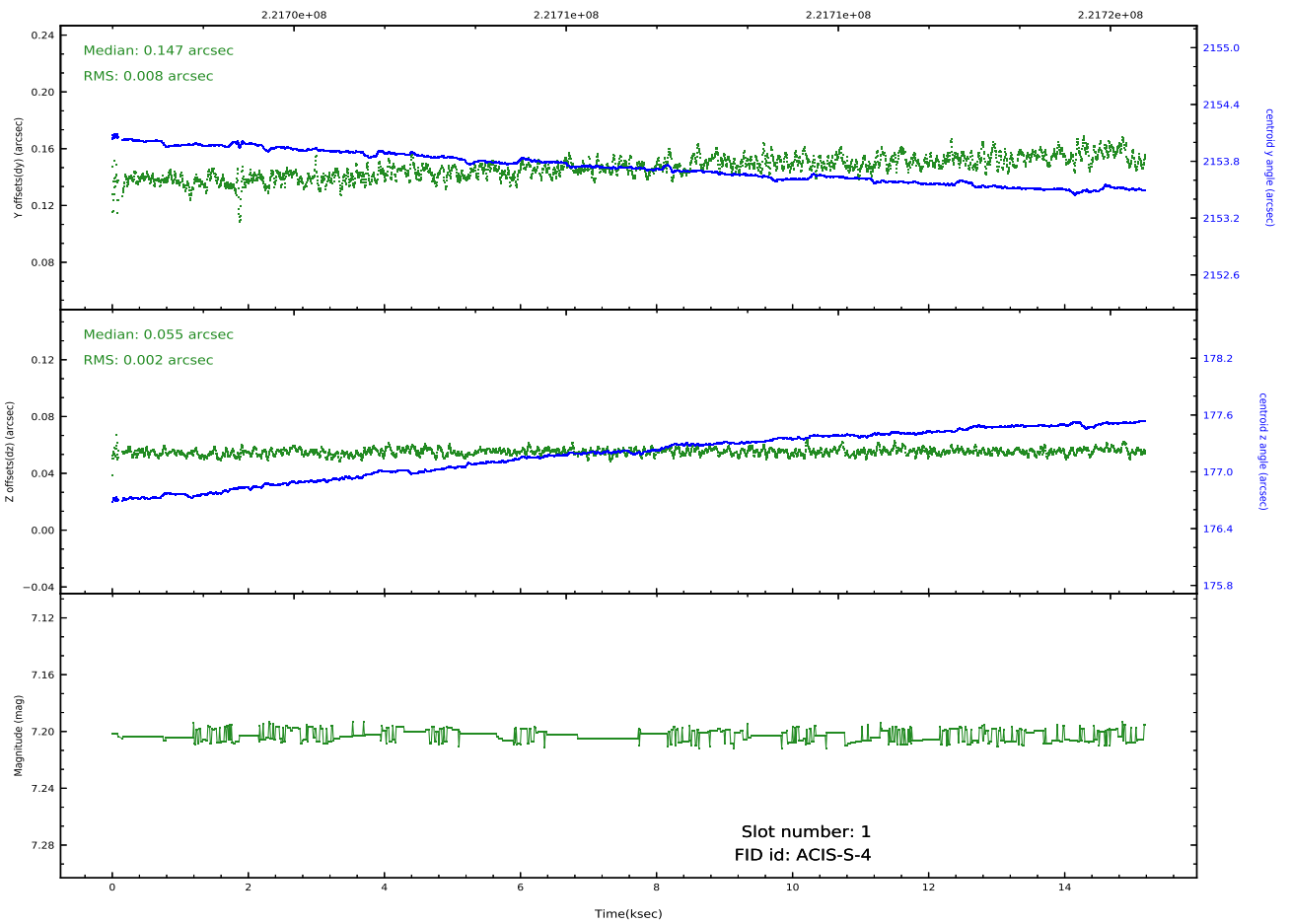
2.5.1 Slot 0



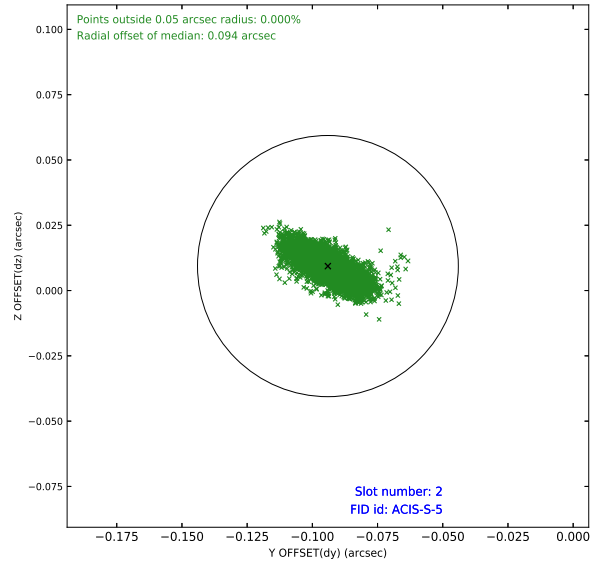
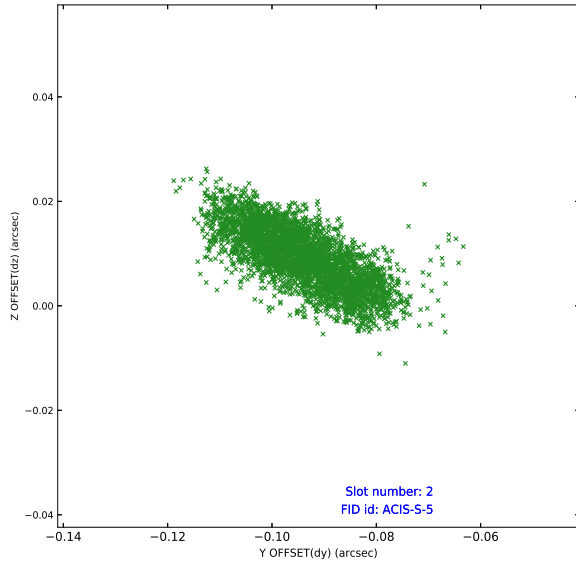
2.5.2 Slot 1



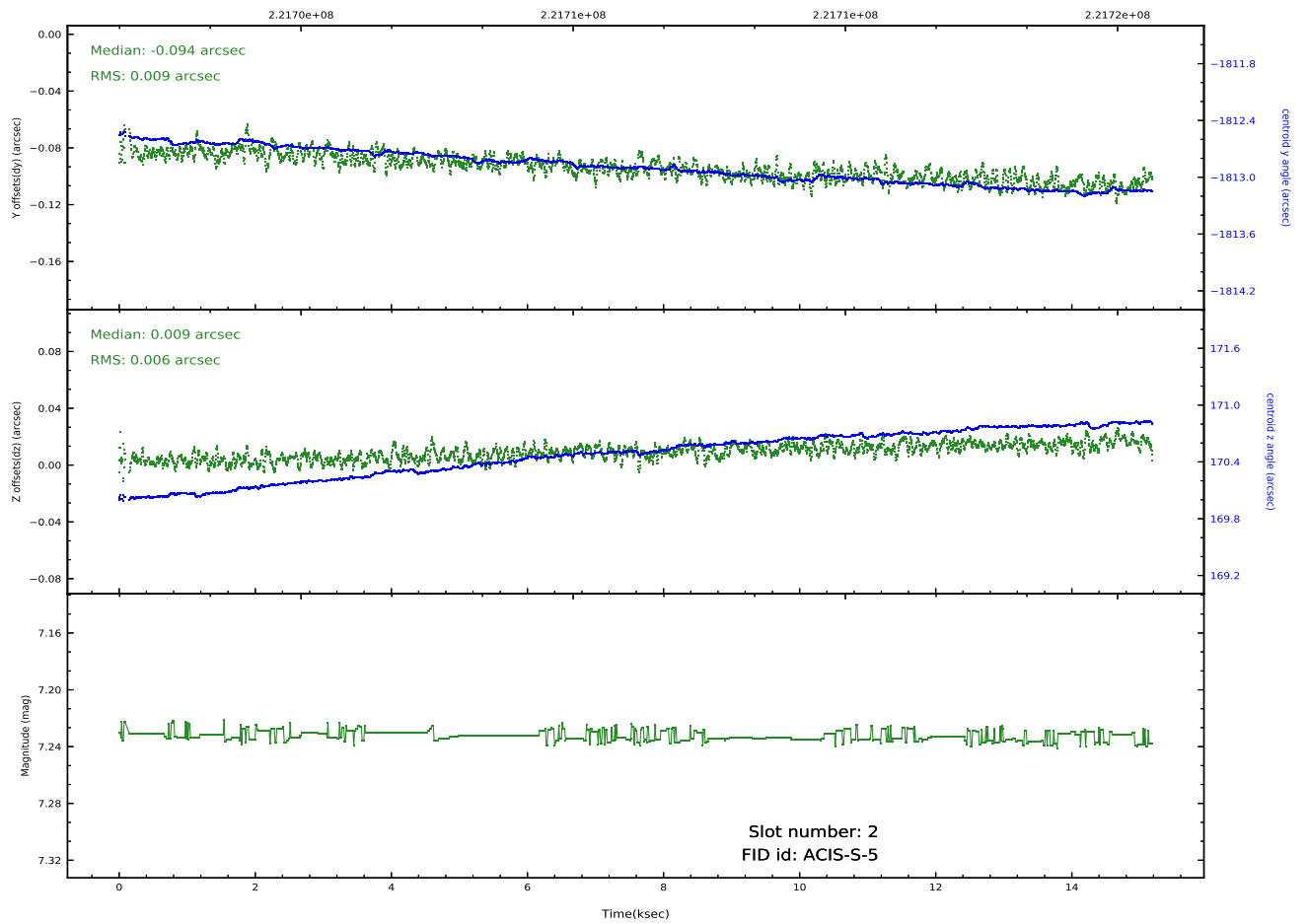
Time (s)



2.5.3 Slot 2



Time (s)



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2020.10.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.02991

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.