

V&V Reference Report

L2 ASCDS Version : 10.9.2

Observation 20163 - L2 Version 2
Chandra X-Ray Center

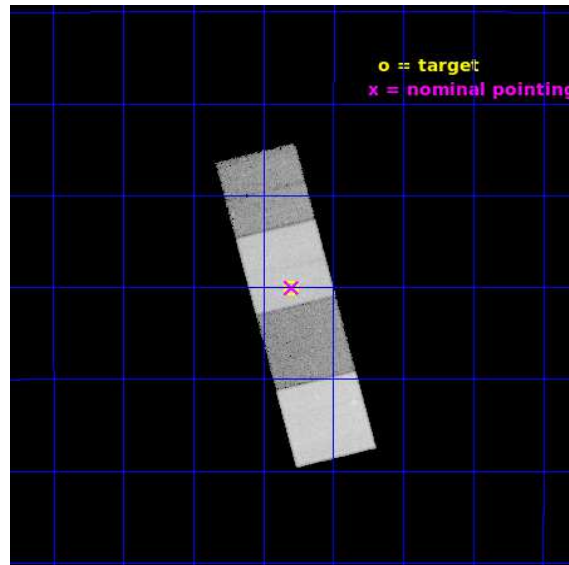
L2 Processing Date : Oct 26 2020

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1 Front

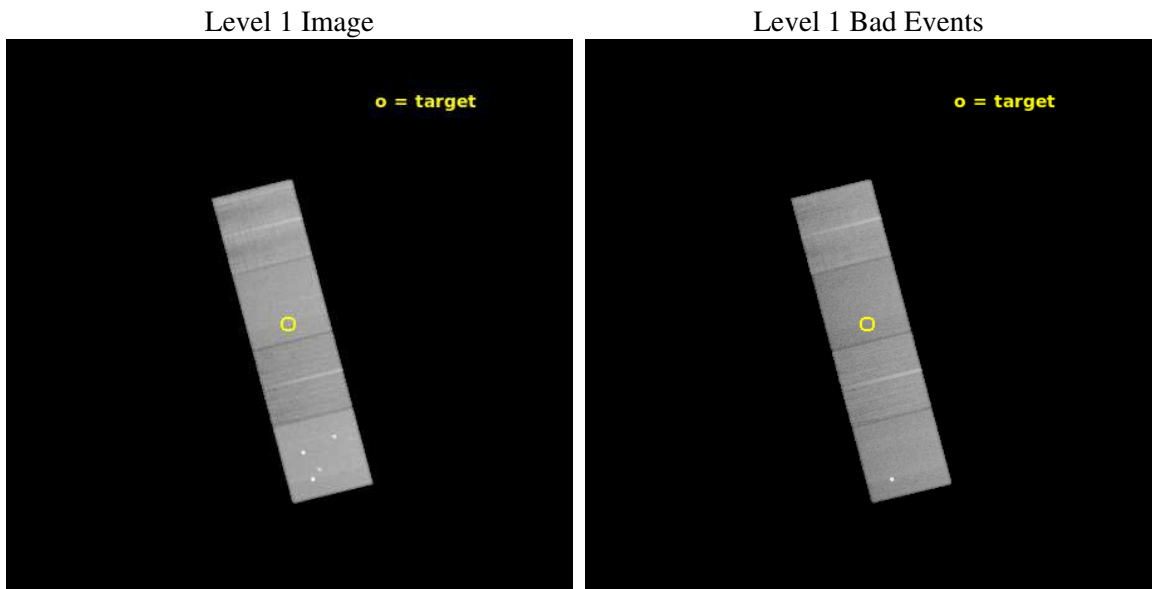
seq_num	201180	Sequence number
obs_id	20163	Observation id
title	Beyond Proxima b: Characterizing the X-ray Environments of the Next Three Nearest Potentially Habitable Exoplanets	Proposal title
observer	Edward Guinan	Principal investigator
object	Wolf 1061	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	247.57475	Observer's specified target RA [deg]
dec_targ	-12.668672	Observer's specified target Dec [deg]
ra_nom	247.57385690506	Nominal RA [deg]
dec_nom	-12.667601041774	Nominal Dec [deg]
roll_nom	255.66041325625	Nominal Roll [deg]
revision	2	Processing version of data
ontime	39016.600300193	Sum of GTIs [s]
livetime	38506.819693668	Livetime [s]
ontime5	39016.600300193	Sum of GTIs [s]
ontime6	39016.600300193	Sum of GTIs [s]
ontime7	39016.600300193	Sum of GTIs [s]
ontime8	39016.600300193	Sum of GTIs [s]
l2events	440719	Number of level 2 events



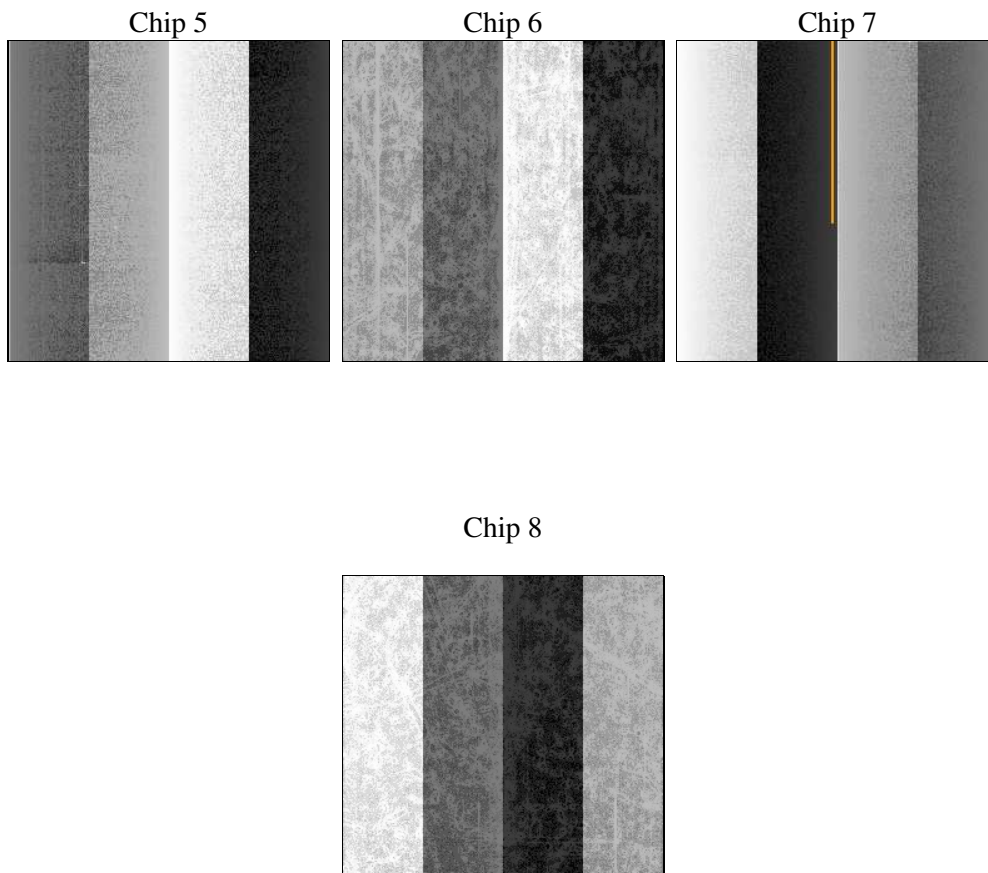
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	39000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.2	Processing system revision	ontime	39016.600300193	Sum of GTIs [s]
caldsver	4.9.3	 	ontime5	39016.600300193	Sum of GTIs [s]
date	2020-10-26T21:38:28	Date and time of file creation	ontime6	39016.600300193	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	39016.600300193	Sum of GTIs [s]
			ontime8	39016.600300193	Sum of GTIs [s]
			l1events	1567695	Number of level 1 events

2.1.4 Events

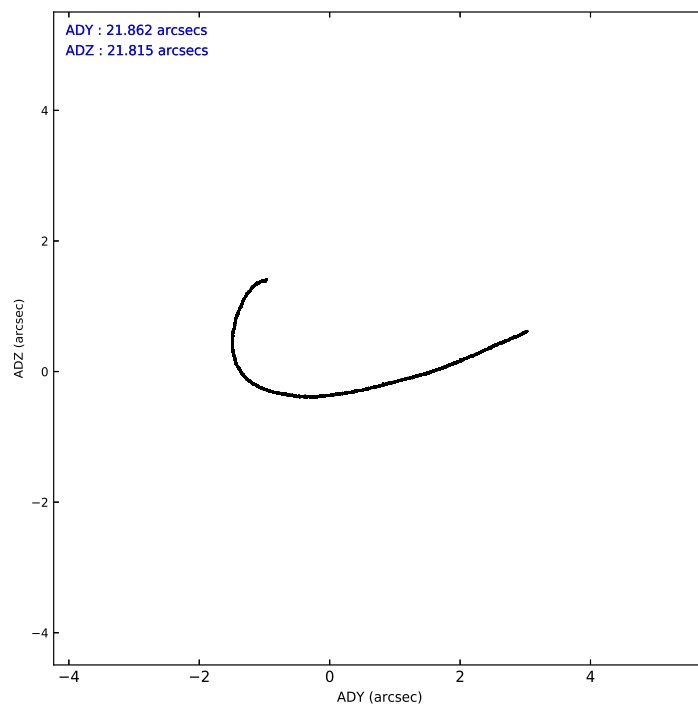
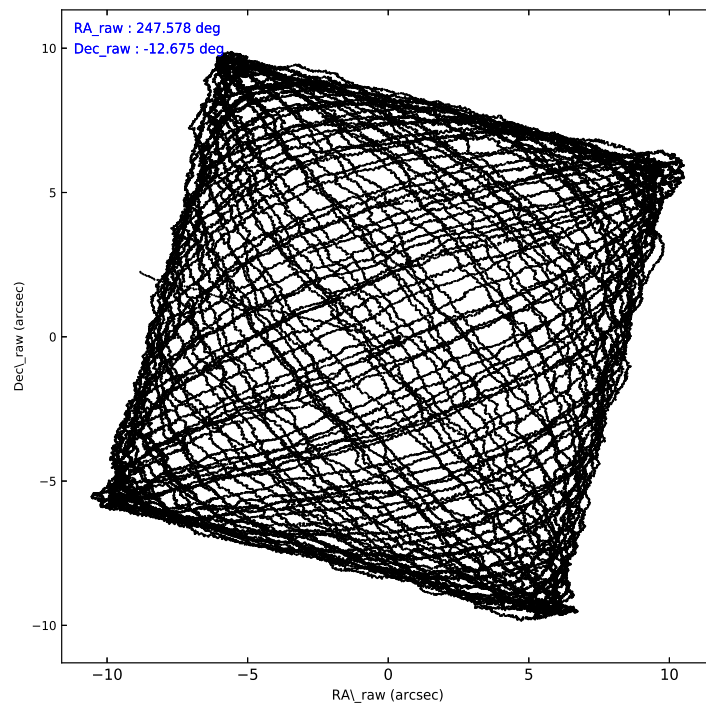
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	500584	291706	379489	395916
rejected events	254398	257560	212952	285451
rejected %	50%	88%	56%	72%

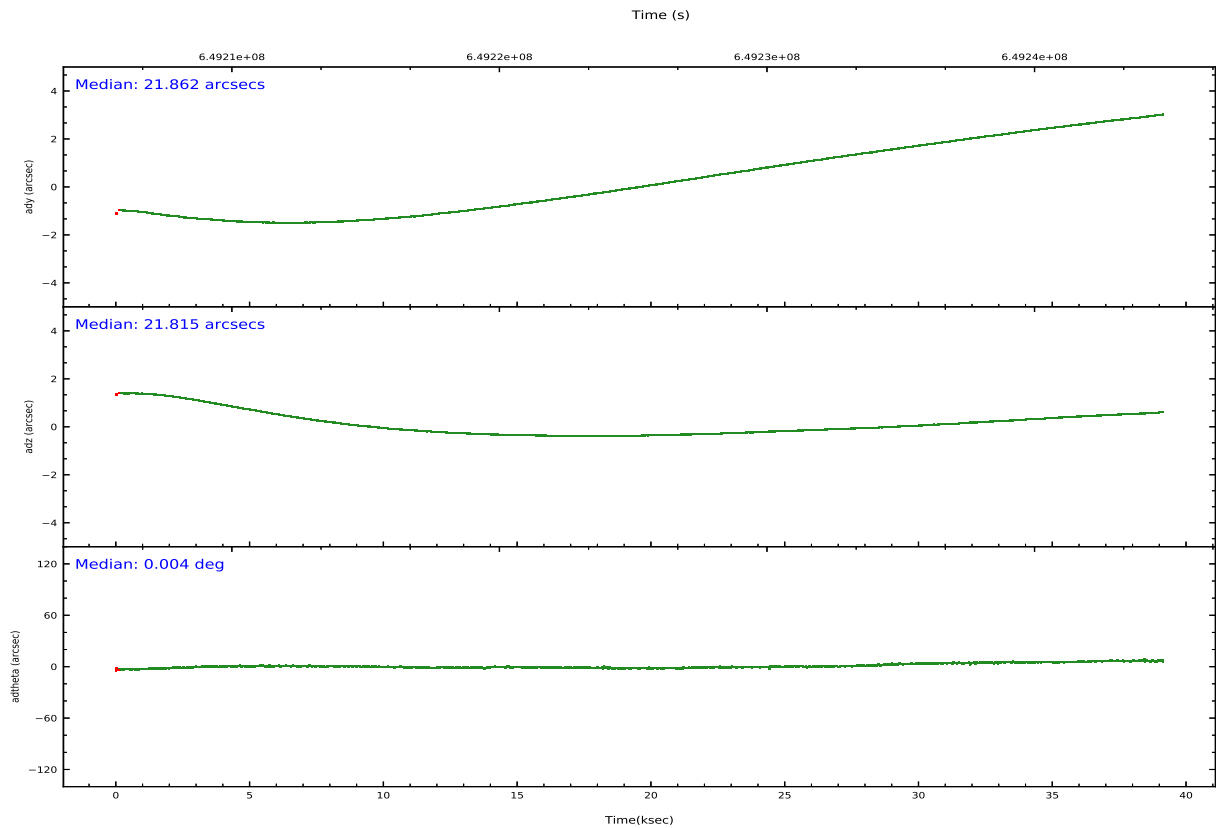
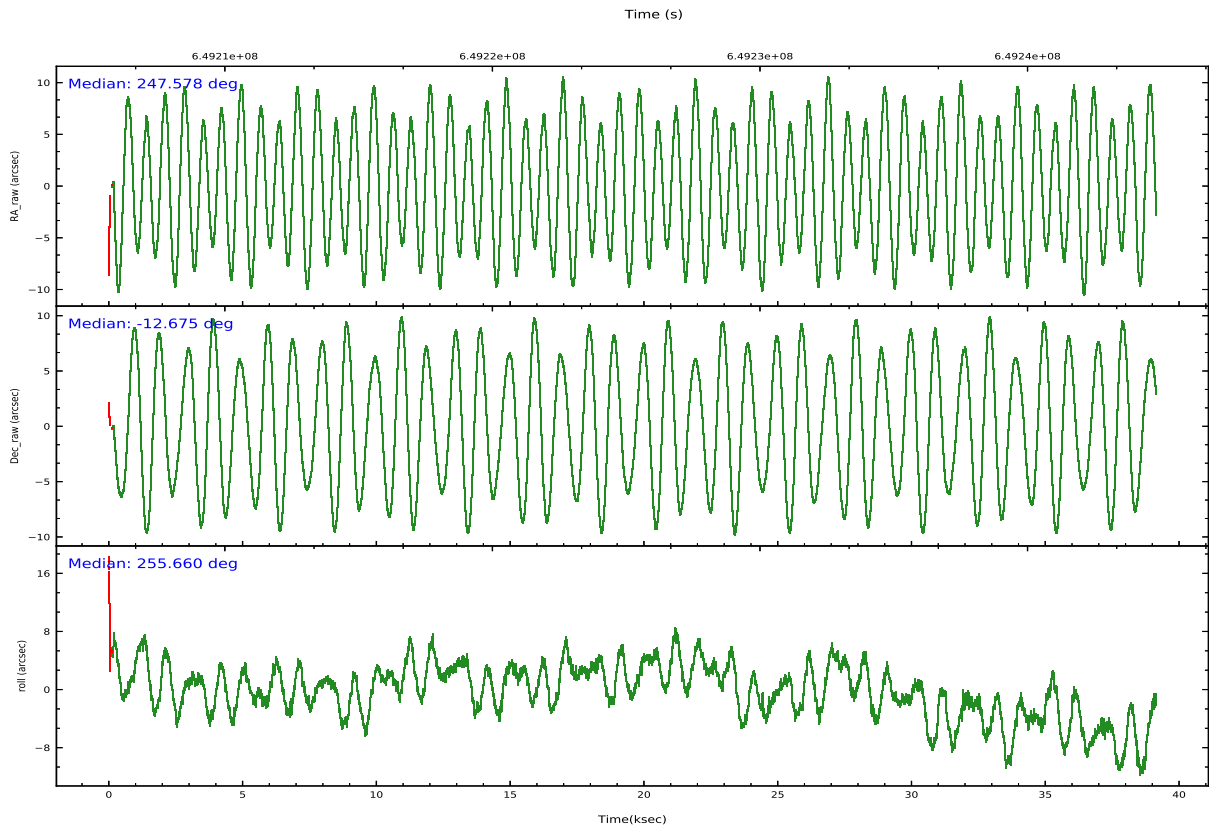
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	33913	11551	14176	32052
	6%	3%	3%	8%
grade 1 events	1121	154	572	344
	0%	0%	0%	0%
grade 2 events	74197	7934	35642	26794
	14%	2%	9%	6%
grade 3 events	7322	3516	13457	11380
	1%	1%	3%	2%
grade 4 events	6985	3324	13457	10488
	1%	1%	3%	2%
grade 5 events	34674	14042	37795	21320
	6%	4%	9%	5%
grade 6 events	124084	7871	90016	29869
	24%	2%	23%	7%
grade 7 events	218288	243314	174374	263669
	43%	83%	45%	66%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-5678	ACIS-5678	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	247.570586	247.57385690506	Subarray requested	NONE	NONE
[deg] Pointing Dec	-12.649079	-12.667601041774	Alternating exposures requested	N	N
[deg] Pointing Roll	255.514695	255.66041325625	[s] Primary exposure time	0.000000	3.1
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	649205807.184000	649204728.31783			
Observation start date	2018-07-28T22:55:38	2018-07-28T22:38:48			
[s] Observation end time (MET)	649244807.184000	649245327.03274			
Observation end date	2018-07-29T09:45:38	2018-07-29T09:55:27			
Read mode	TIMED	TIMED			

2.3 Aspect





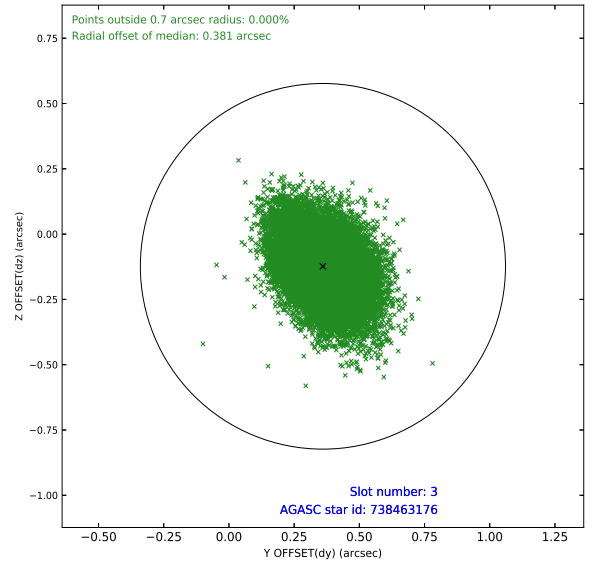
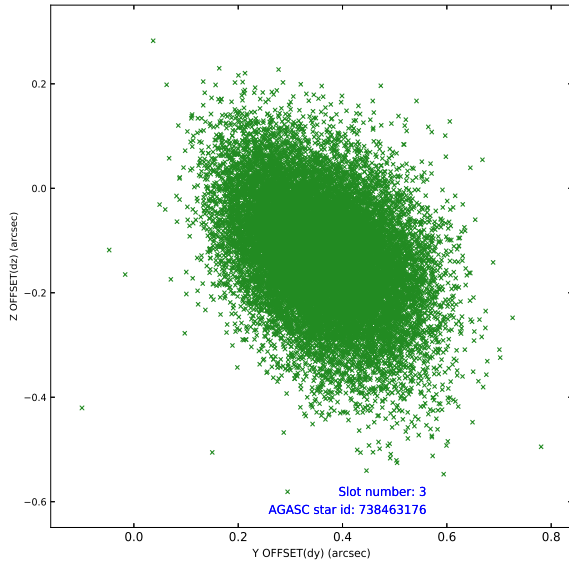
Slot Statistics

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-1	7.04	9531	1.000	0.291	-0.098	0.041	0.059	0.000000	0.000000	920.73	-1739
1	FID		ACIS-S-4	7.07	9532	1.000	-0.024	-0.077	0.027	0.035	0.000000	0.000000	2138.14	164
2	FID		ACIS-S-5	7.06	9532	1.000	-0.291	0.176	0.027	0.048	0.000000	0.000000	-1828.39	159
3	GUIDE	used	738463176	8.72	19041	1.000	0.360	-0.123	0.148	0.248	247.010689	-13.102908	2076.03	-1491
4	GUIDE	used	738591040	7.92	19049	1.000	-0.295	0.245	0.105	0.182	248.015991	-12.119473	-2236.39	1041
5	GUIDE	used	738599112	9.06	19042	1.000	-0.098	0.023	0.134	0.234	248.162338	-12.688543	-380.06	2048
6	GUIDE	used	738594888	9.25	19029	1.000	0.022	-0.135	0.179	0.312	247.672384	-13.116334	1541.49	766
7	MONITOR	unused		0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

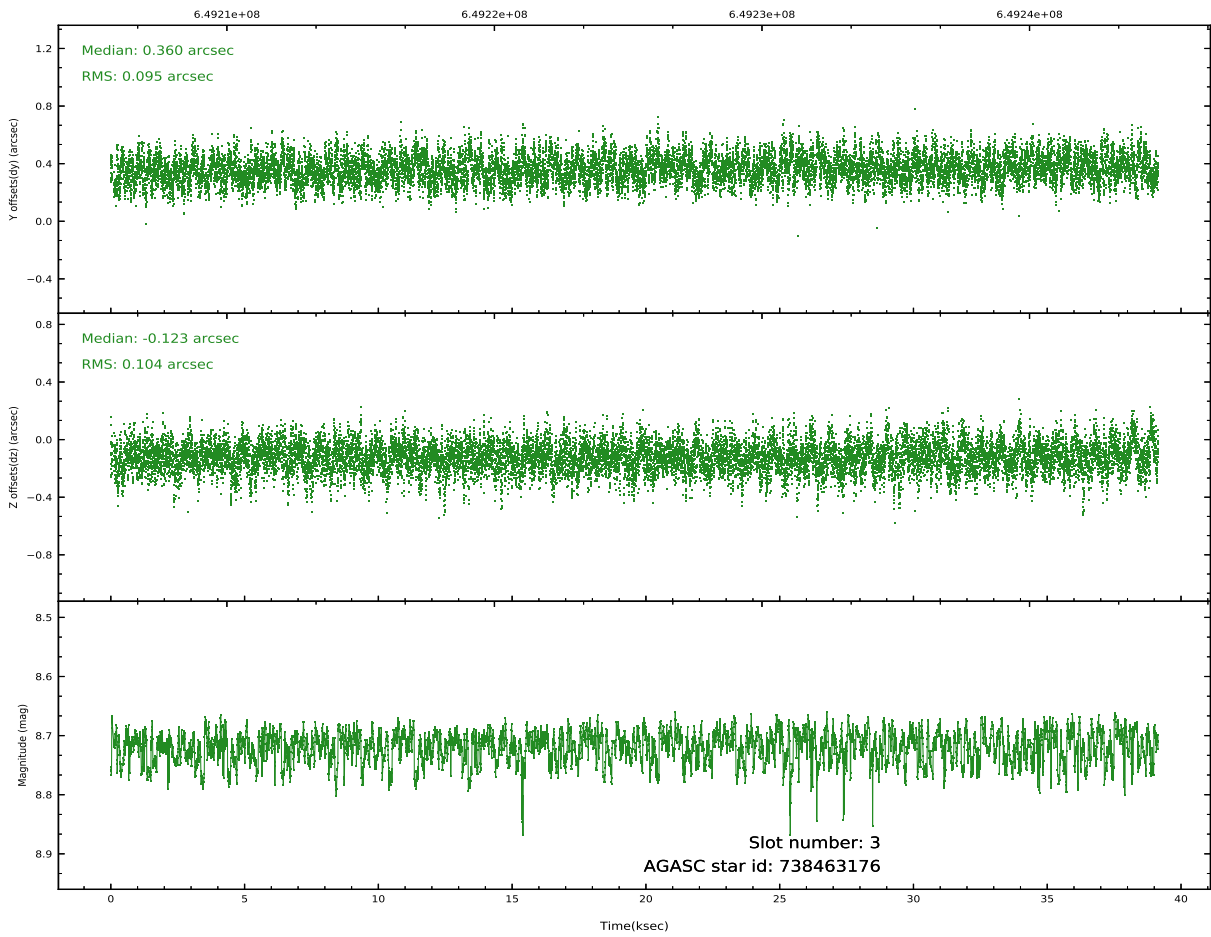
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2.4 Star Slots

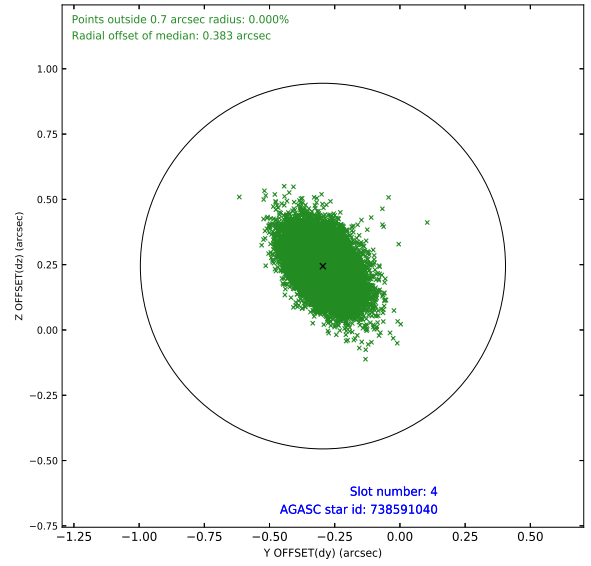
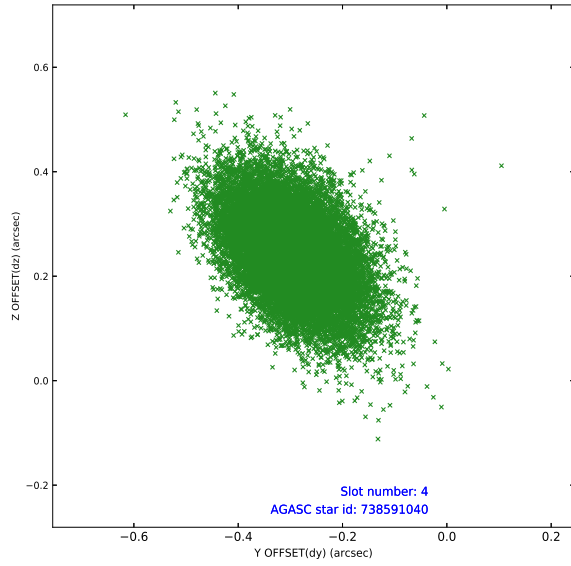
2.4.1 Slot 3



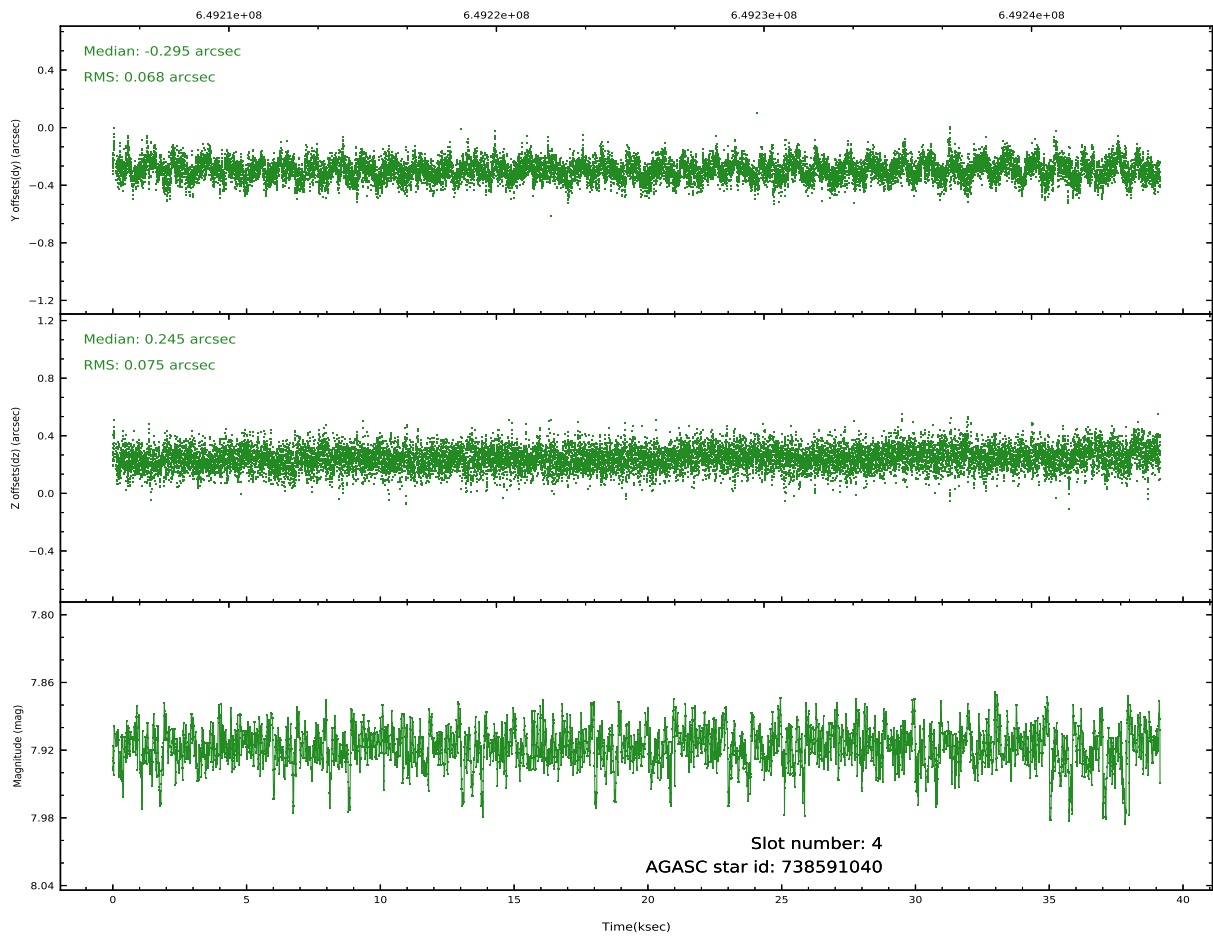
Time (s)



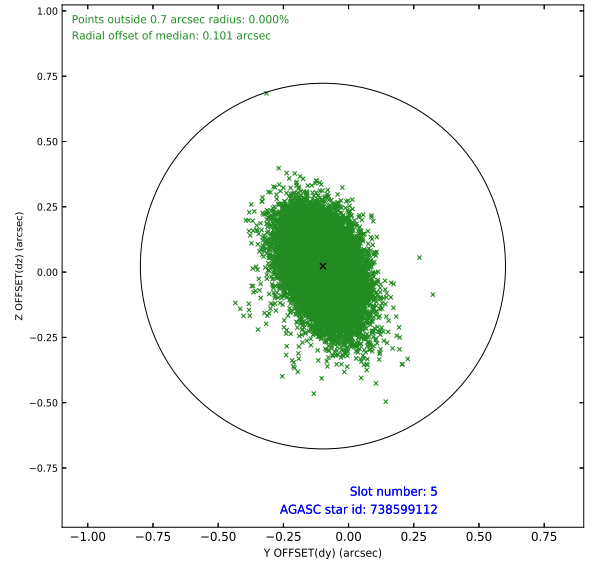
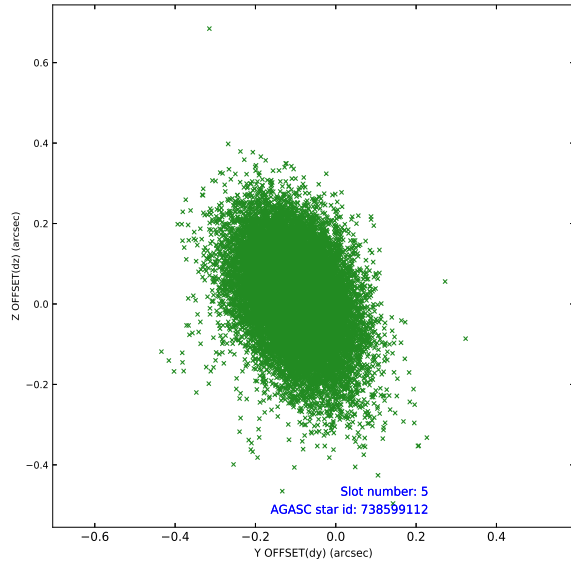
2.4.2 Slot 4



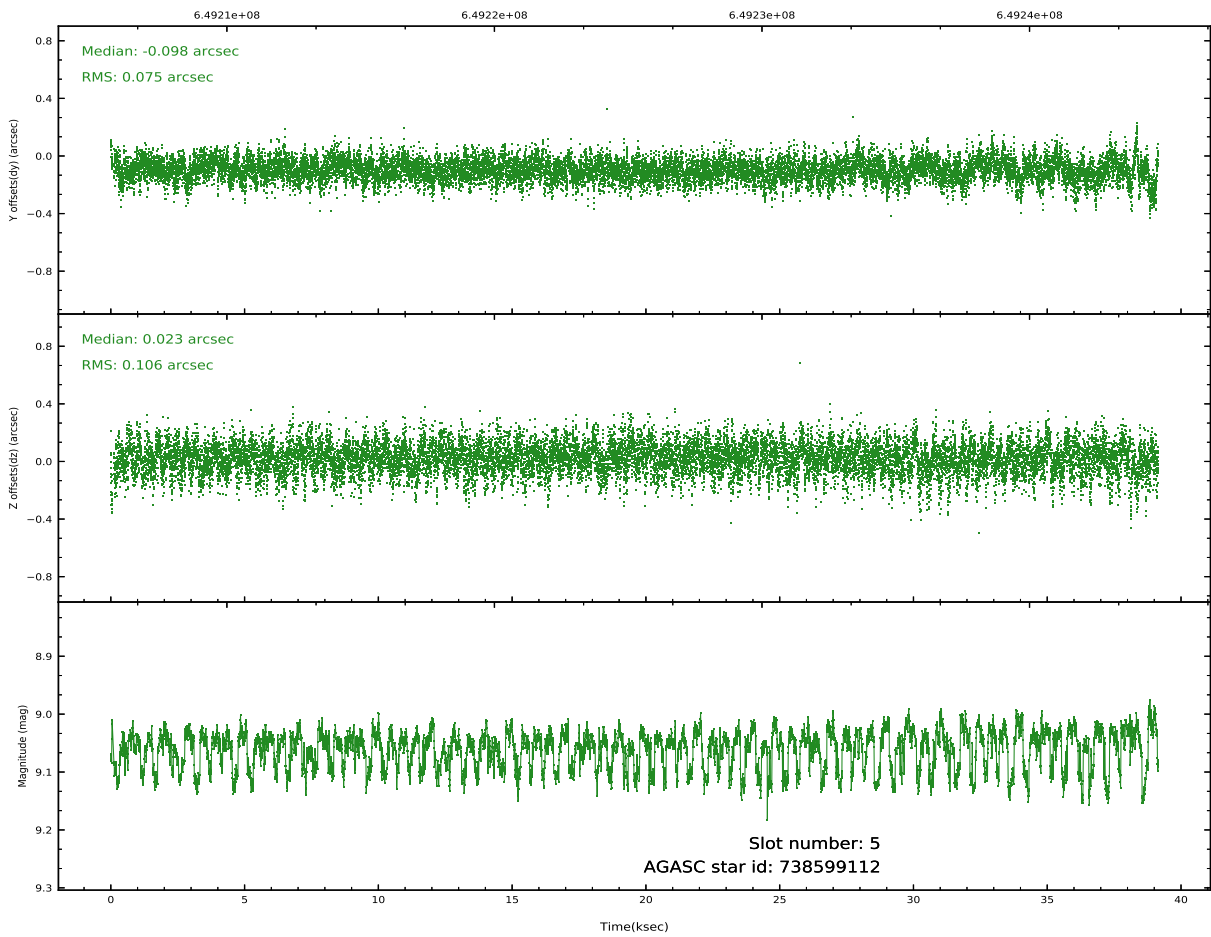
Time (s)



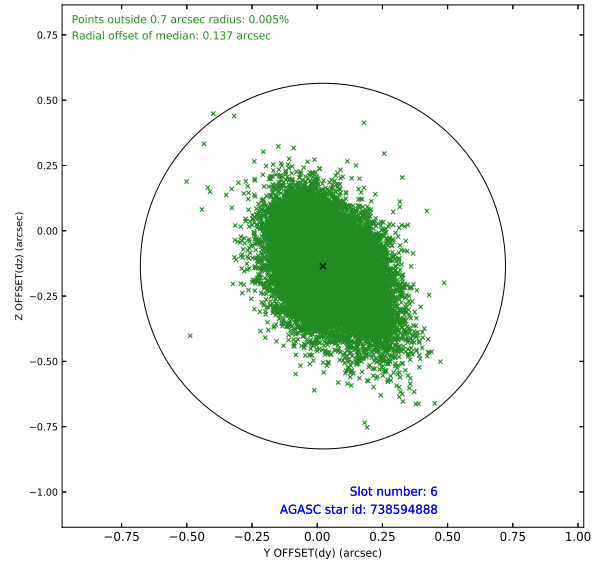
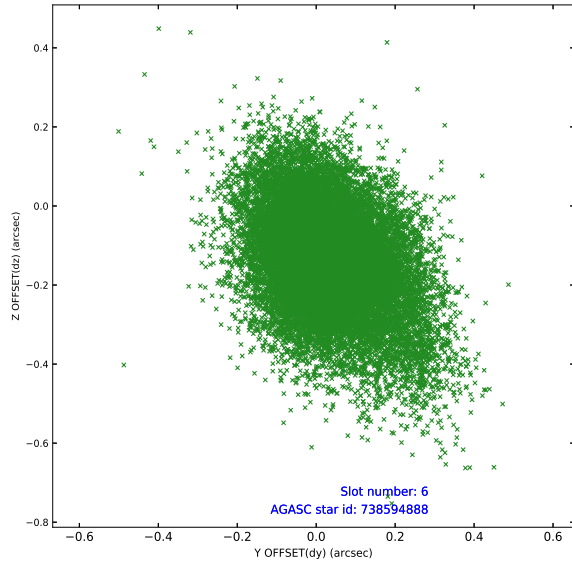
2.4.3 Slot 5



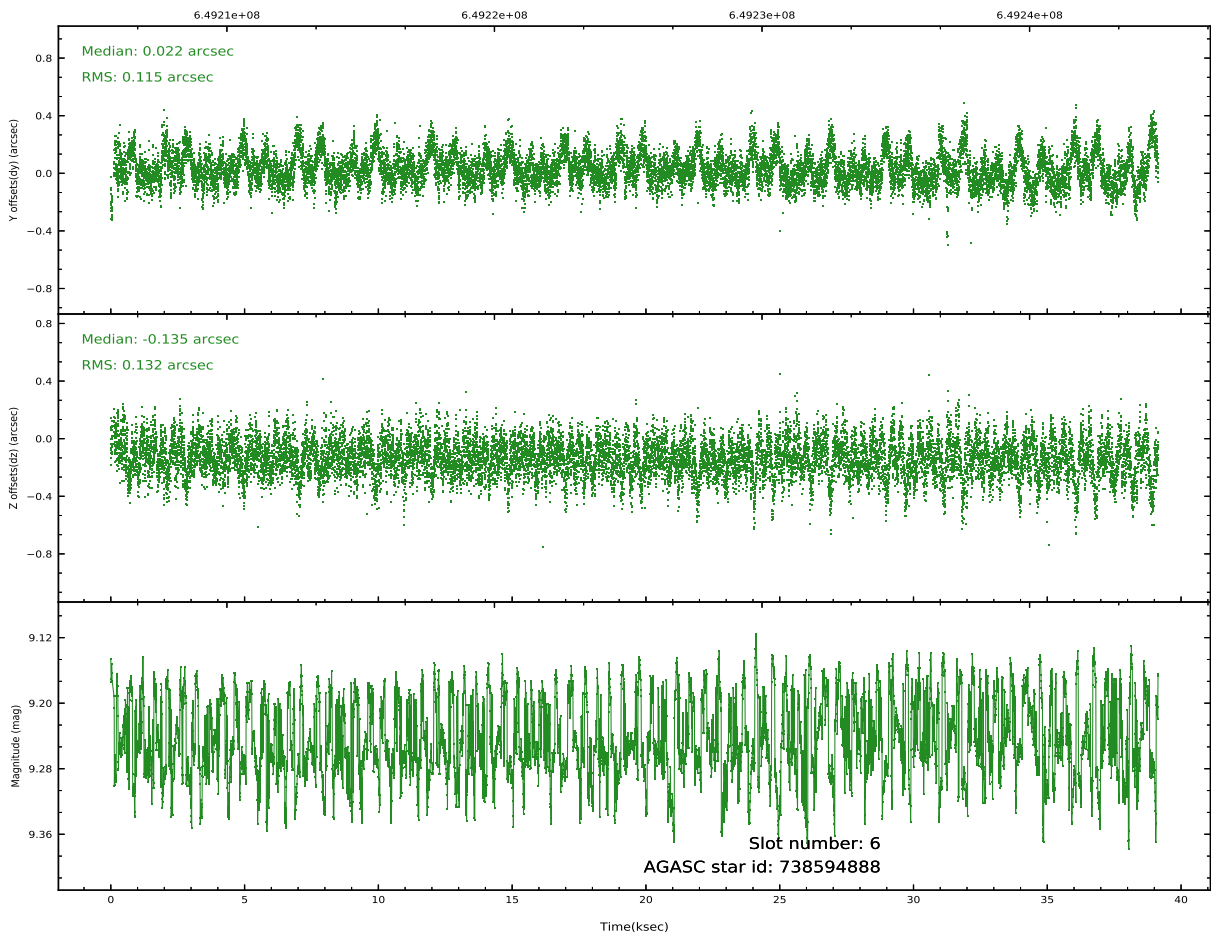
Time (s)



2.4.4 Slot 6

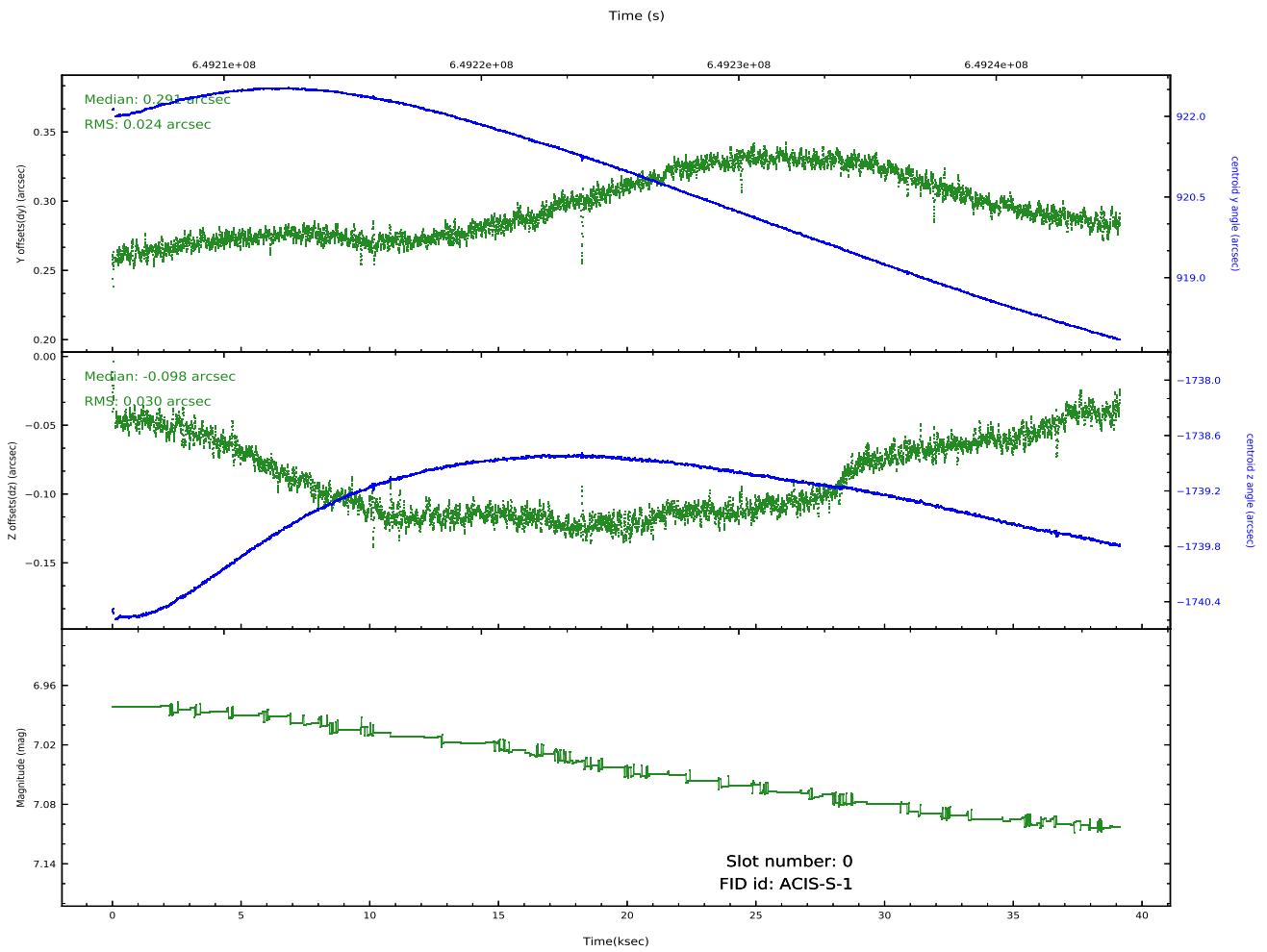
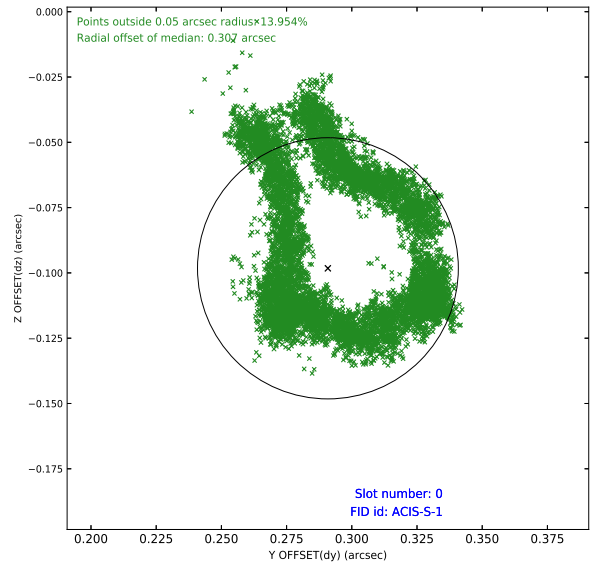
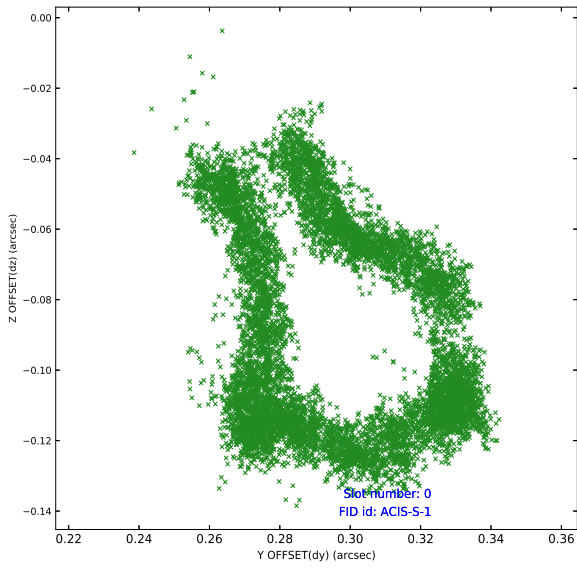


Time (s)

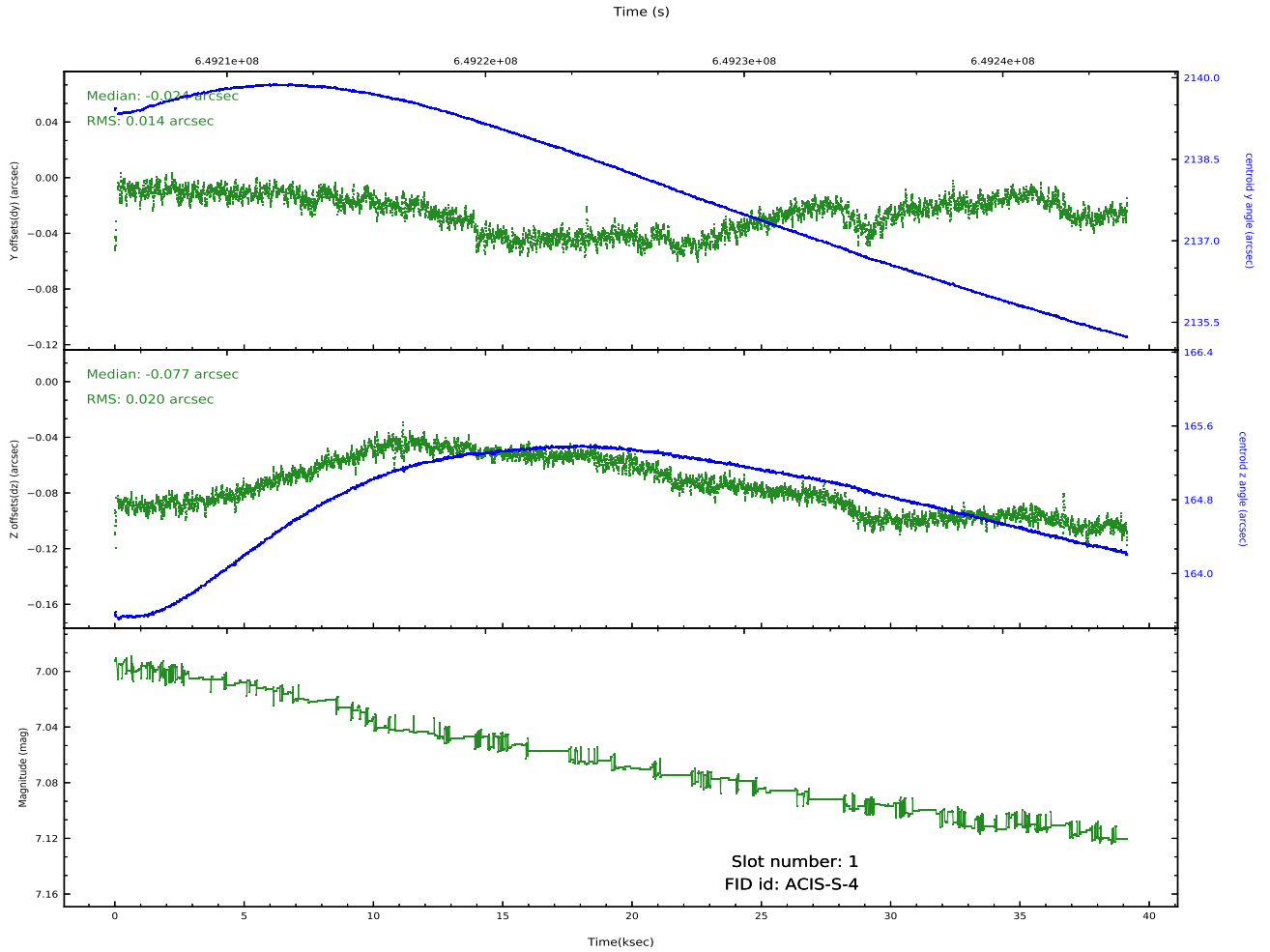
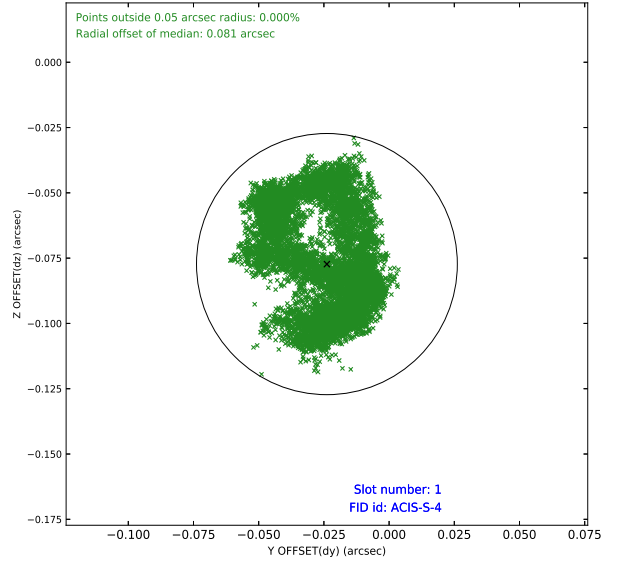
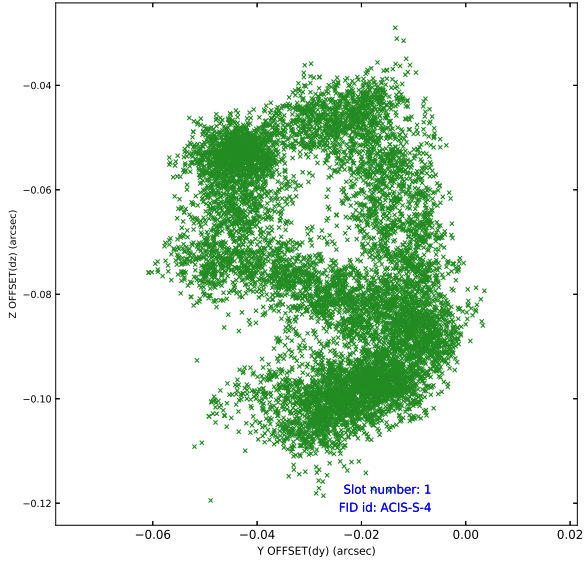


2.5 FID Slots

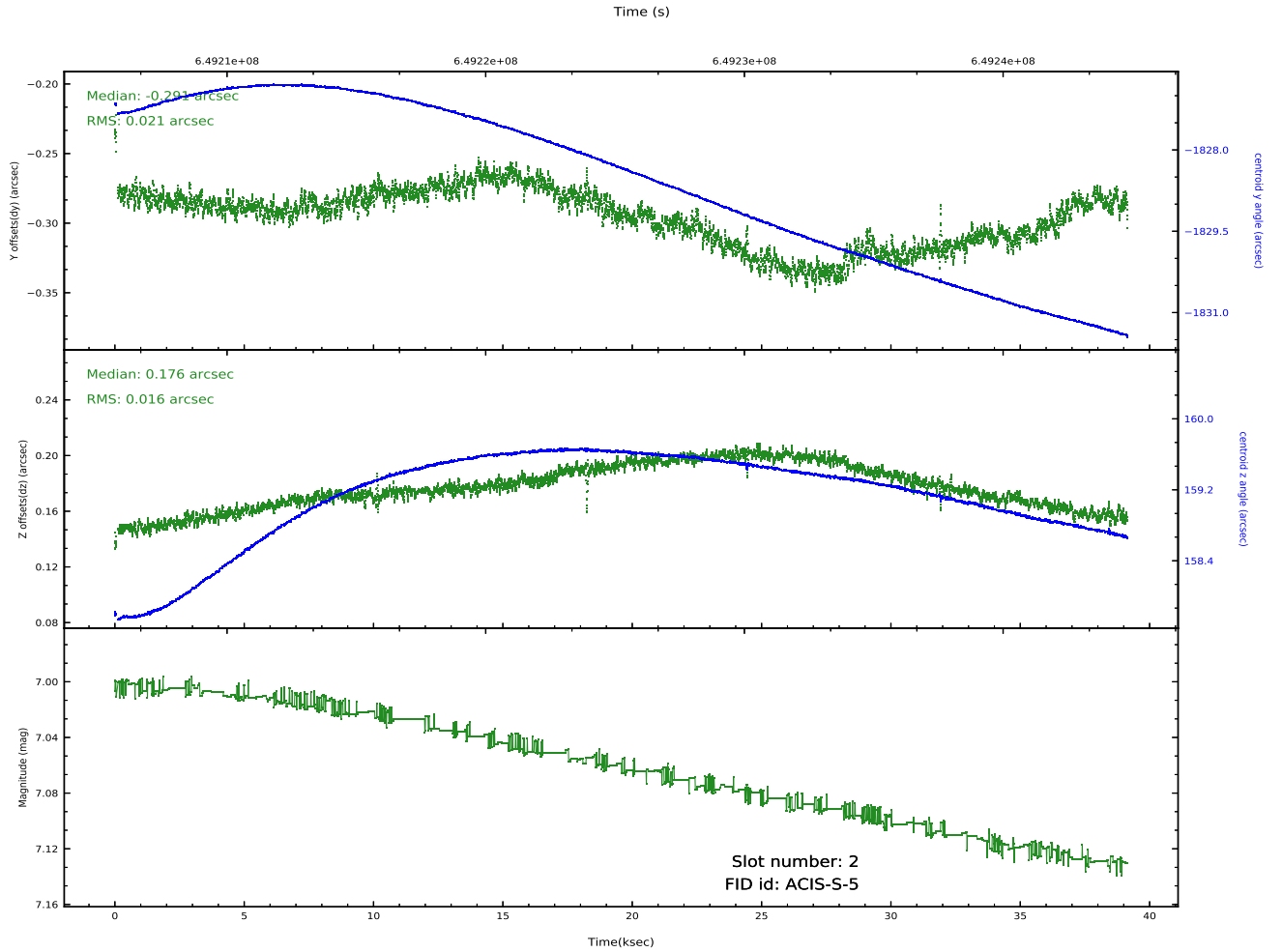
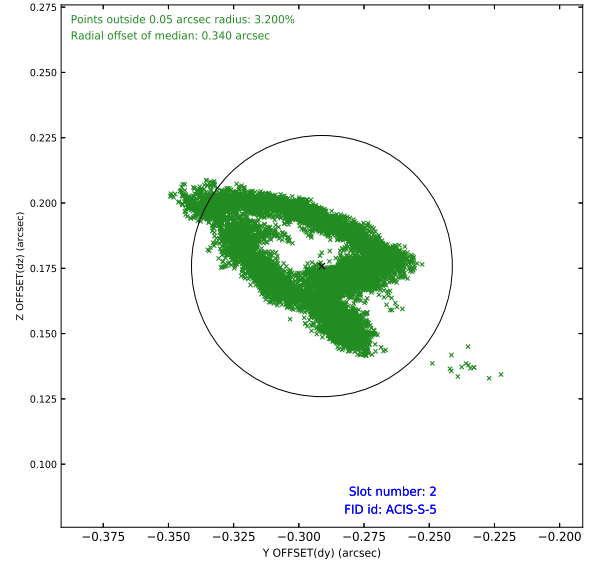
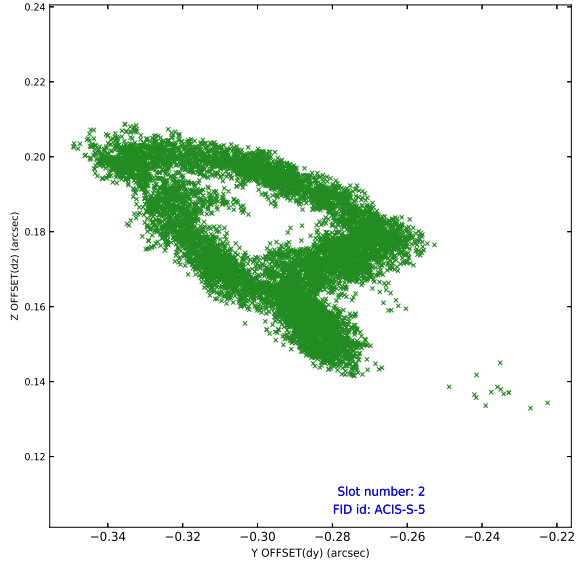
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2020.10.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	39.016600300193

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.