

V&V Reference Report

L2 ASCDS Version : 10.6.4.1

Observation 21071 - L2 Version 1
Chandra X-Ray Center

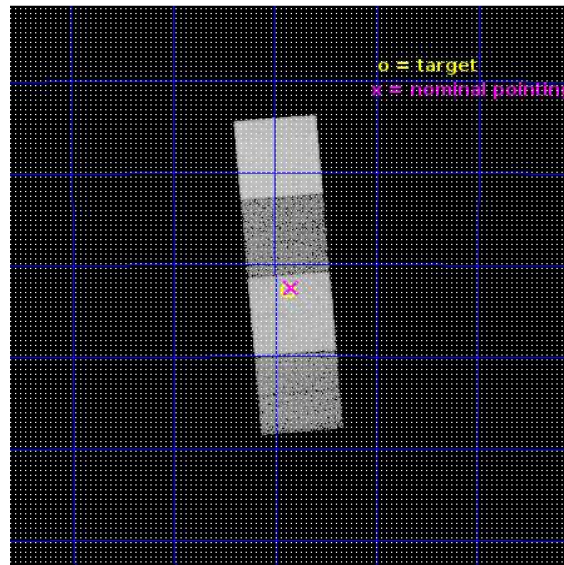
L2 Processing Date : Sep 30 2018

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1 Front

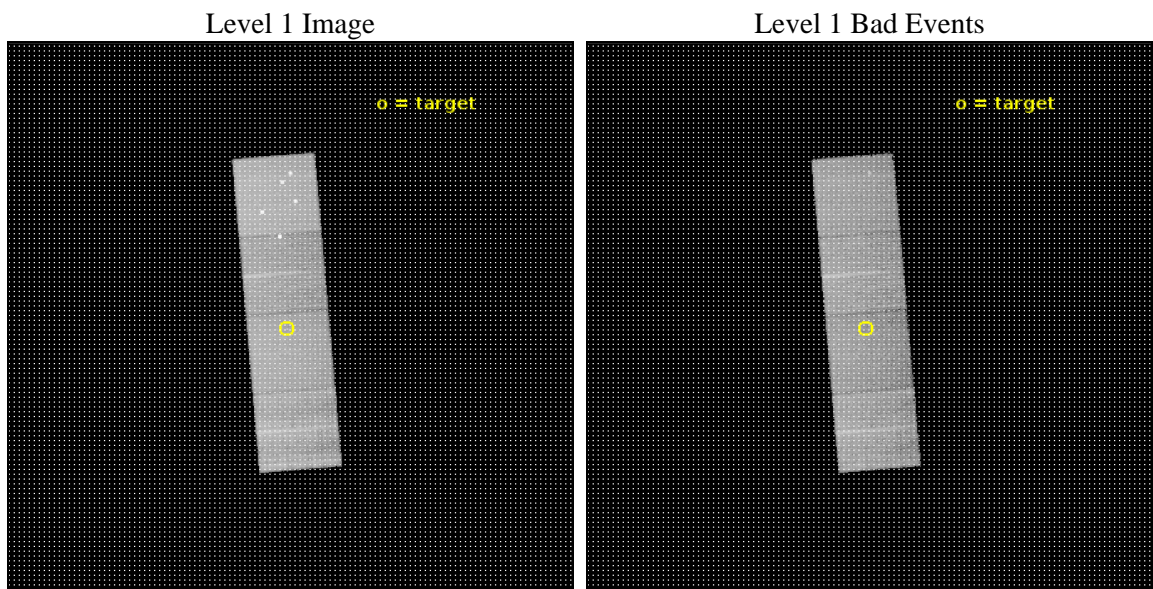
seq_num	201179	Sequence number
obs_id	21071	Observation id
title	Beyond Proxima b: Characterizing the X-ray Environments of the Next Three Nearest Potentially Habitable Exoplanets	Proposal title
observer	Edward Guinan	Principal investigator
object	Kapteyn's Star	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	77.966363	Observer's specified target RA [deg]
dec_targ	-45.047864	Observer's specified target Dec [deg]
ra_nom	77.959808023762	Nominal RA [deg]
dec_nom	-45.042121403157	Nominal Dec [deg]
roll_nom	85.151969362931	Nominal Roll [deg]
revision	1	Processing version of data
ontime	16023.900123358	Sum of GTIs [s]
livetime	15814.536071622	Livetime [s]
ontime5	16023.900123358	Sum of GTIs [s]
ontime6	16023.900123358	Sum of GTIs [s]
ontime7	16023.900123358	Sum of GTIs [s]
ontime8	16023.900123358	Sum of GTIs [s]
l2events	181762	Number of level 2 events



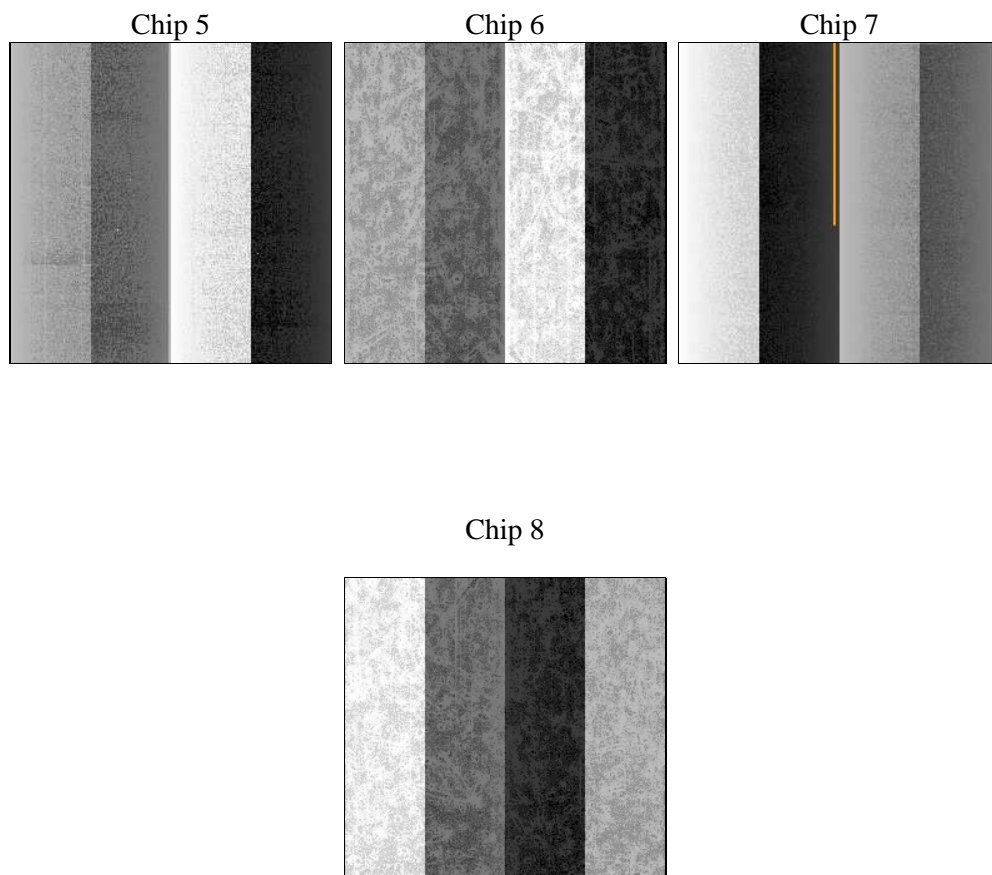
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	16000.000000	[s] Scheduled observation exposure time
ascdsver	10.6.4.1	Processing system revision	ontime	16023.900123358	Sum of GTIs [s]
caldsver	4.8.0	 	ontime5	16023.900123358	Sum of GTIs [s]
date	2018-10-01T01:19:19	Date and time of file creation	ontime6	16023.900123358	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	16023.900123358	Sum of GTIs [s]
			ontime8	16023.900123358	Sum of GTIs [s]
			l1events	644964	Number of level 1 events

2.1.4 Events

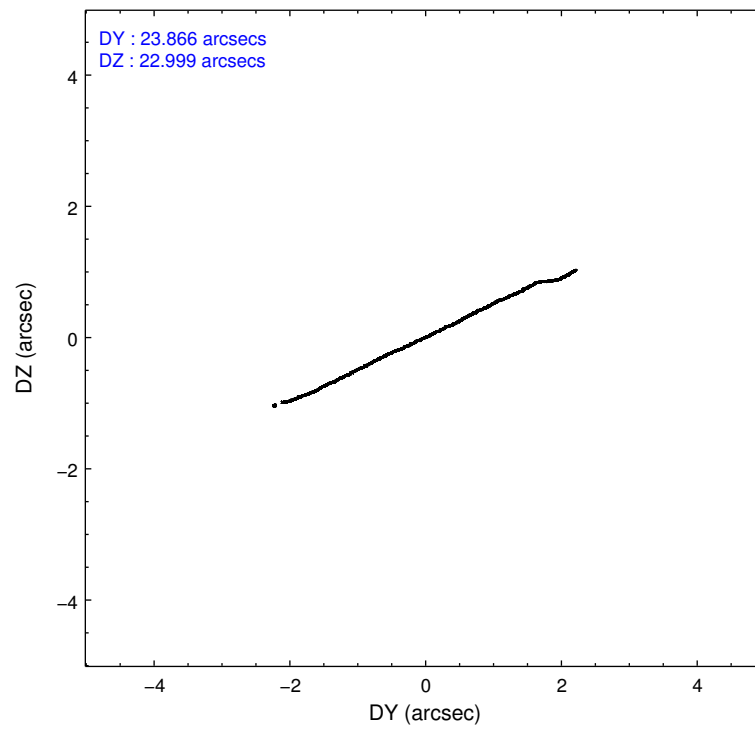
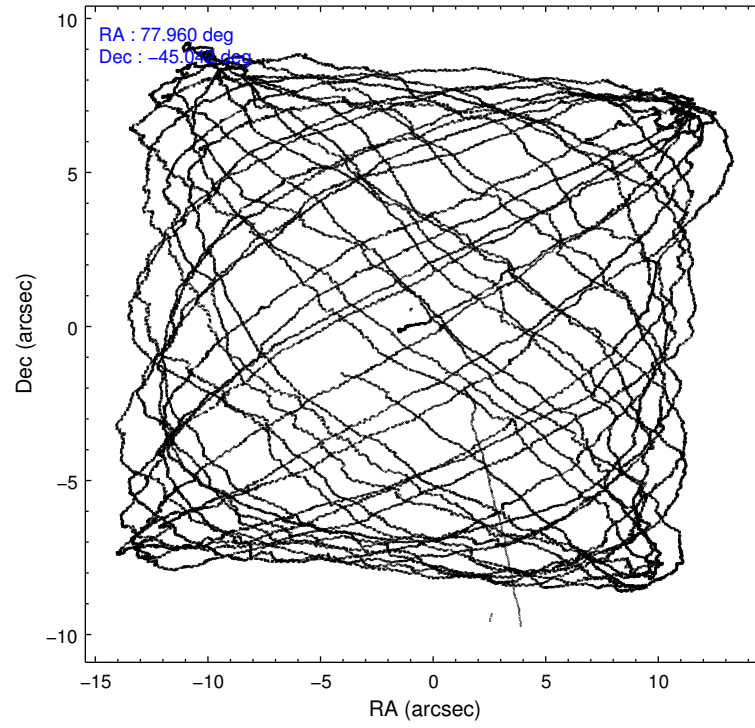
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	203067	127862	154116	159919
rejected events	99872	108969	86345	115325
rejected %	49%	85%	56%	72%

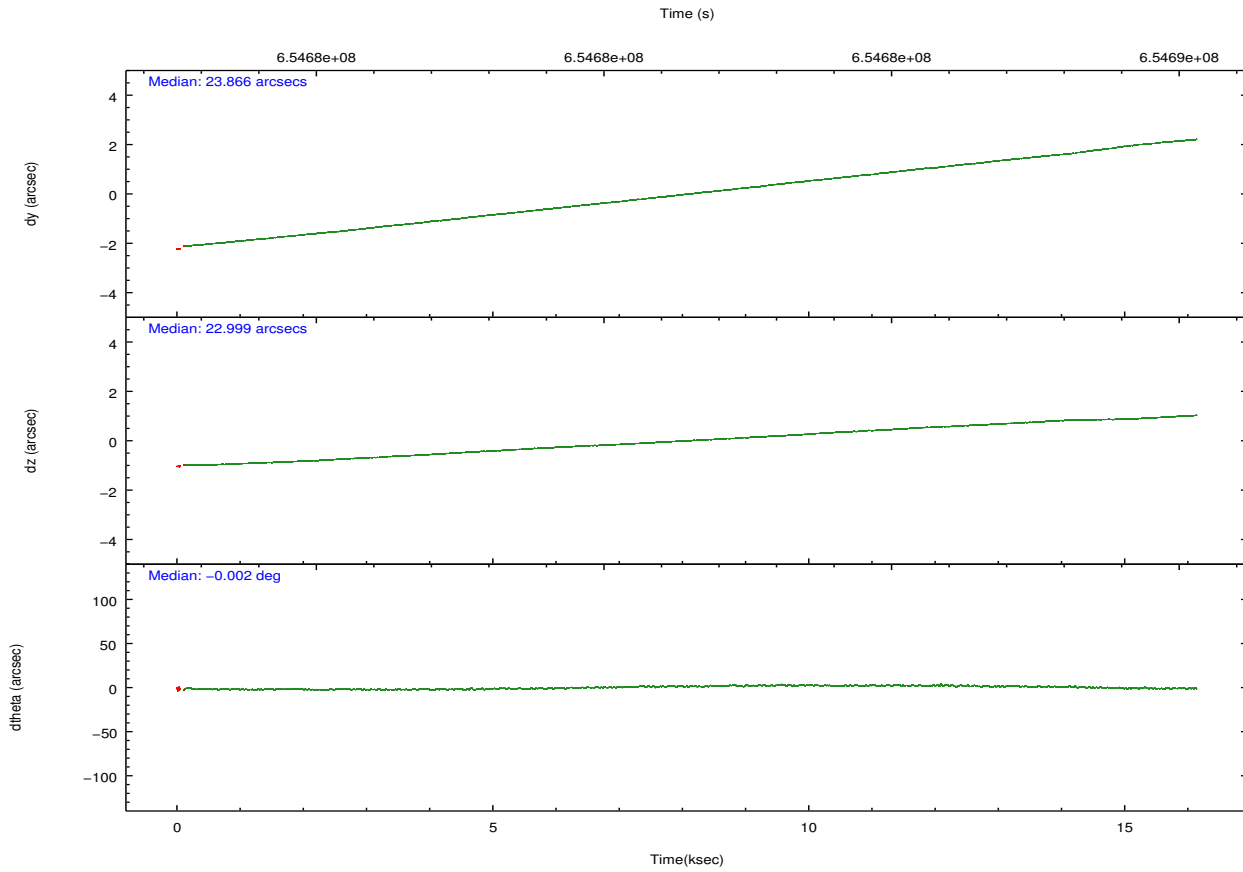
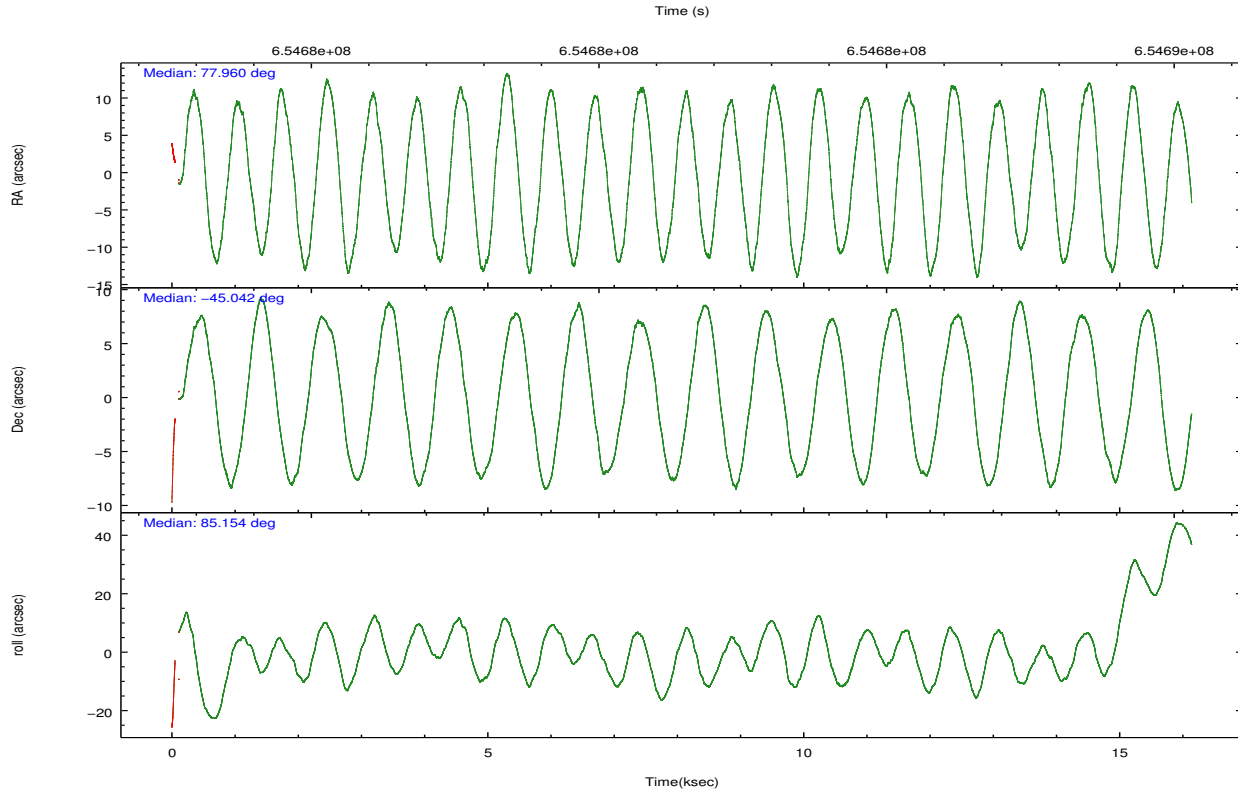
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	16957	9700	5814	12977
	8%	7%	3%	8%
grade 1 events	860	89	226	131
	0%	0%	0%	0%
grade 2 events	29729	3263	14811	10701
	14%	2%	9%	6%
grade 3 events	2928	1378	5313	4749
	1%	1%	3%	2%
grade 4 events	2730	1402	5369	4517
	1%	1%	3%	2%
grade 5 events	13571	5855	15462	8572
	6%	4%	10%	5%
grade 6 events	51183	3216	36658	11744
	25%	2%	23%	7%
grade 7 events	85109	102959	70463	106528
	41%	80%	45%	66%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
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	77.976747	77.95980802376154	Subarray requested	NONE	NONE
[deg] Pointing Dec	-45.066800	-45.042121403157	Alternating exposures requested	N	N
[deg] Pointing Roll	85.007343	85.15196936293083	[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)	654673518.184000	654672279.02996			
Observation start date	2018-09-30T05:44:09	2018-09-30T05:24:39			
[s] Observation end time (MET)	654689518.184000	654690667.01855			
Observation end date	2018-09-30T10:10:49	2018-09-30T10:31:07			
Read mode	TIMED	TIMED			

2.3 Aspect



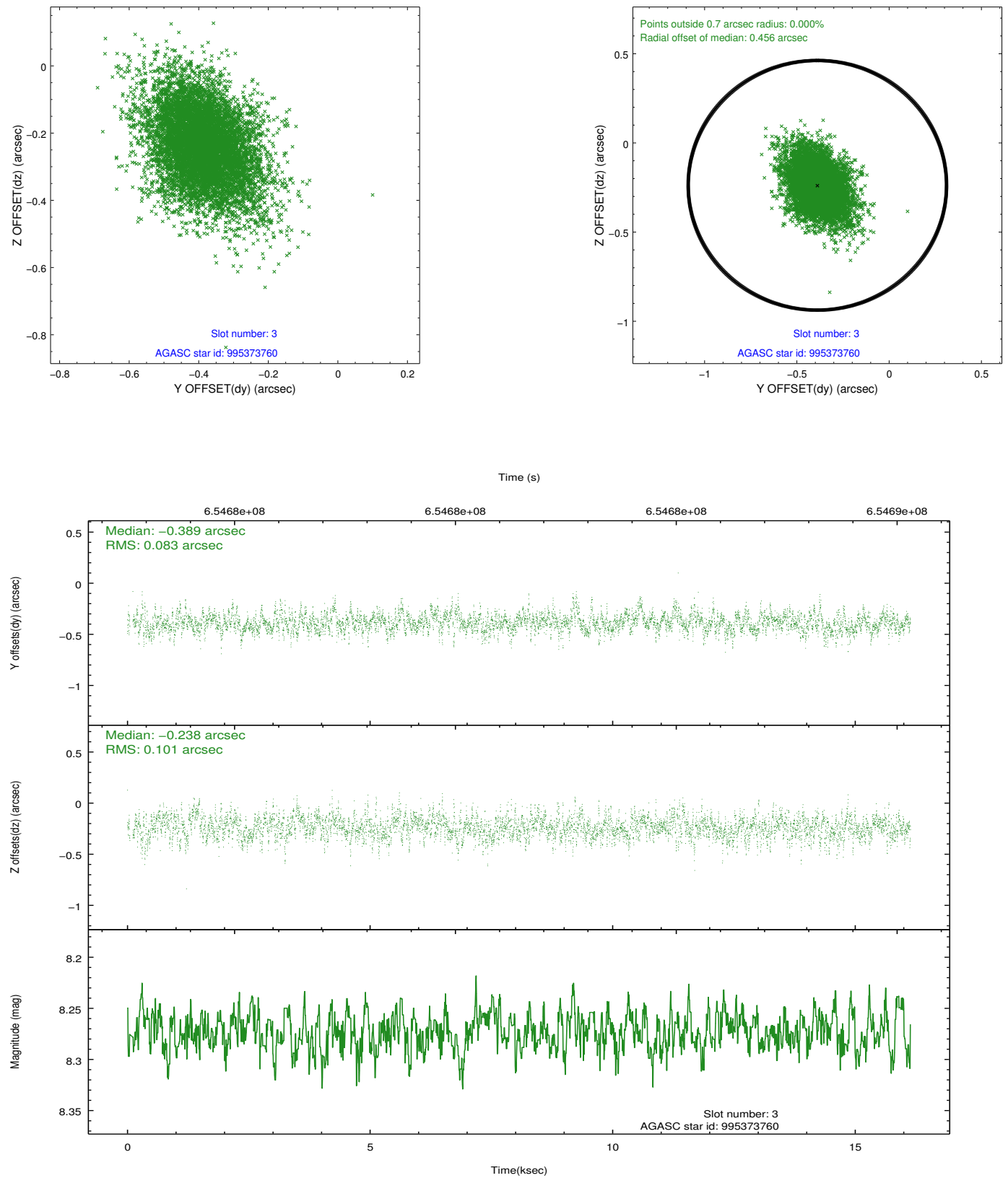


Slot Statistics

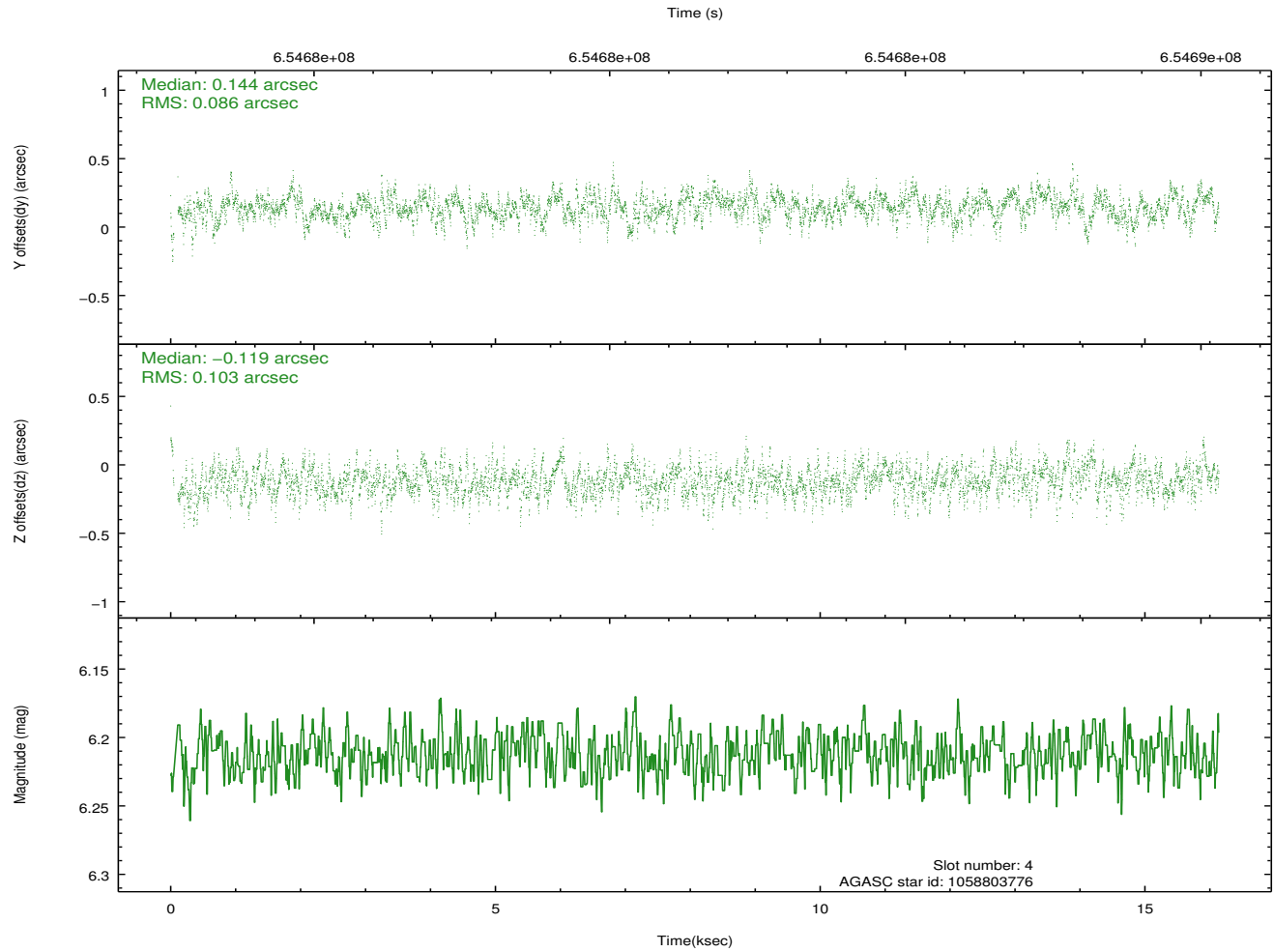
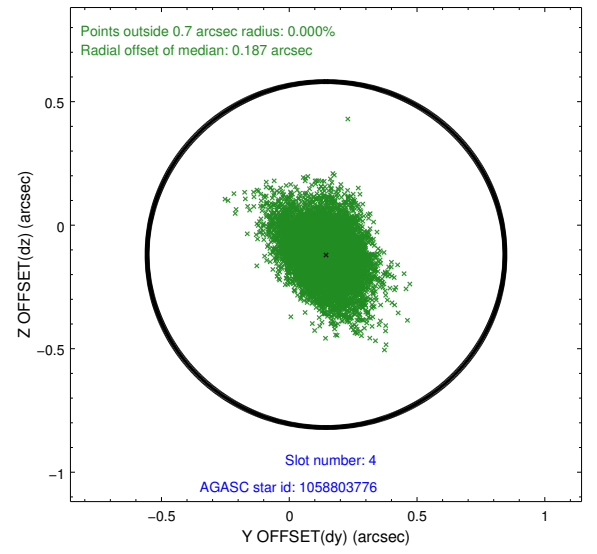
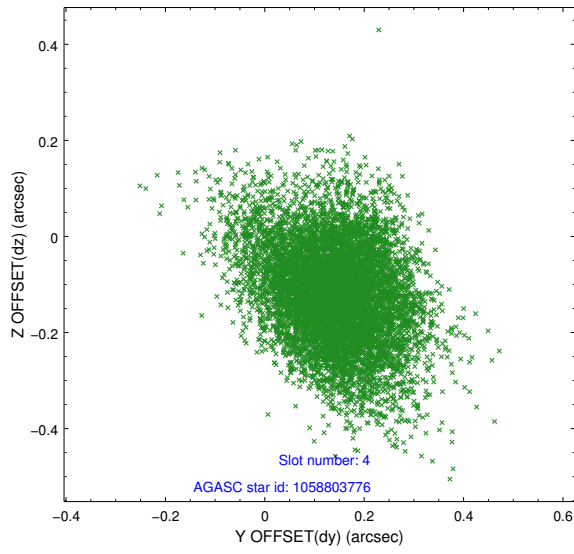
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-1	7.12	3922	1.000	0.066	0.041	0.031	0.038	0.000000	0.000000	918.91	-1740
1	FID		ACIS-S-2	7.03	3923	1.000	-0.451	-0.269	0.029	0.071	0.000000	0.000000	-777.36	-1745
2	FID		ACIS-S-4	7.13	3923	1.000	0.365	0.219	0.047	0.069	0.000000	0.000000	2136.43	163
3	GUIDE	used	995373760	8.27	7830	1.000	-0.389	-0.238	0.135	0.236	77.456283	-44.874180	570.93	1382
4	GUIDE	used	1058803776	6.21	7845	1.000	0.144	-0.119	0.140	0.240	77.797996	-45.577588	-1871.07	289
5	GUIDE	used	1058806384	9.12	7833	1.000	0.547	0.614	0.224	0.352	78.307326	-45.516544	-1541.24	-970
6	GUIDE	used	995368032	8.70	7839	1.000	-0.301	-0.252	0.161	0.276	77.679596	-44.571782	1710.99	912
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

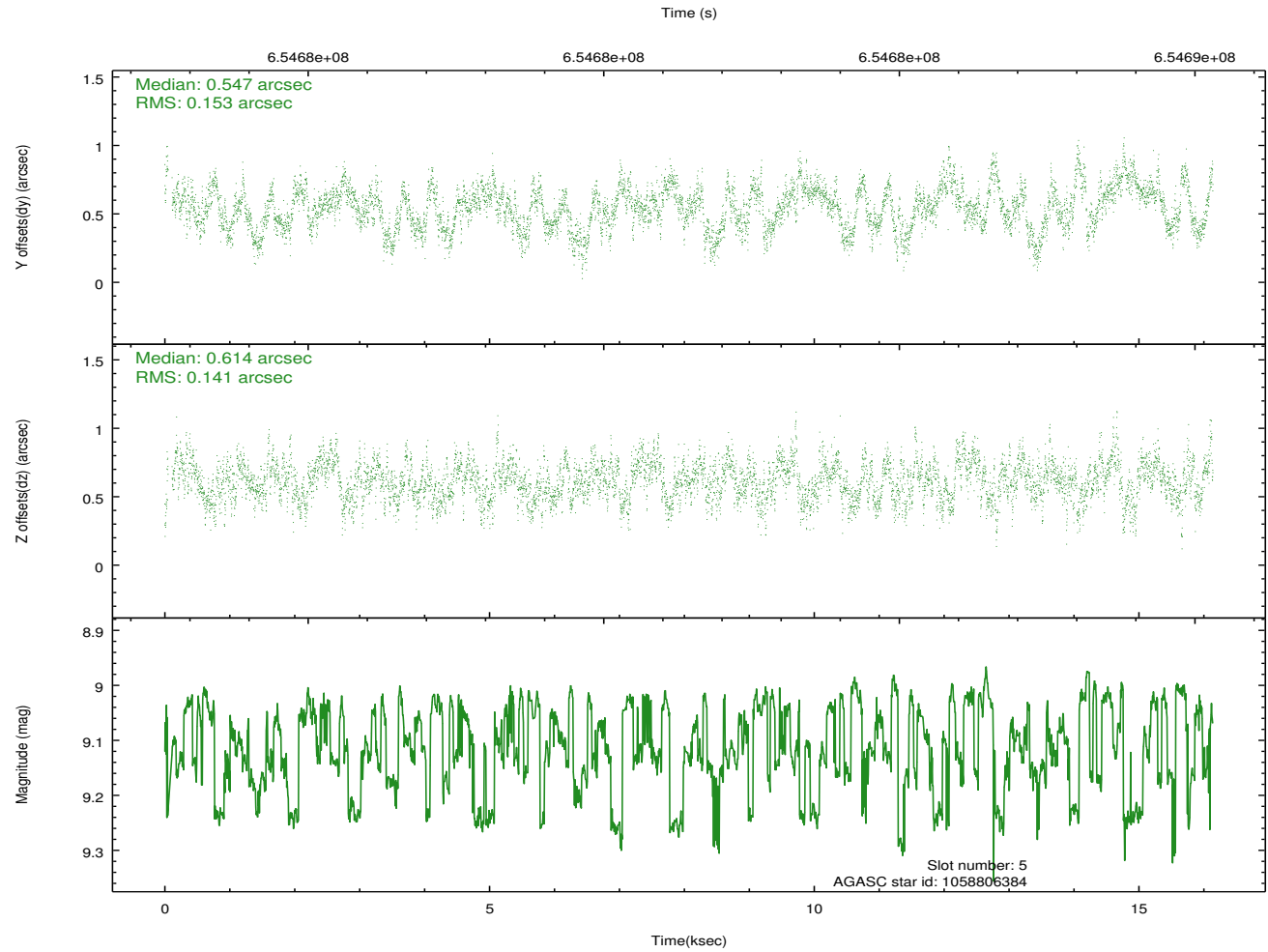
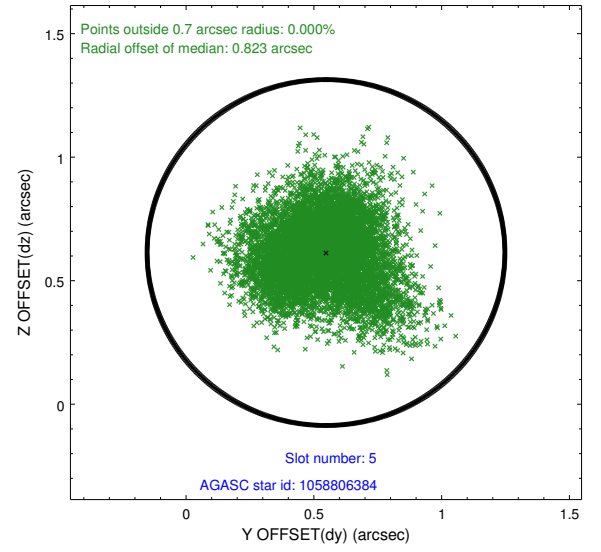
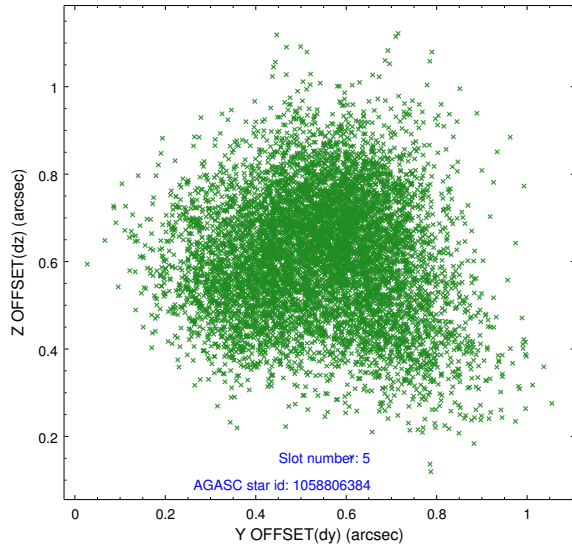
2.4.1 Slot 3



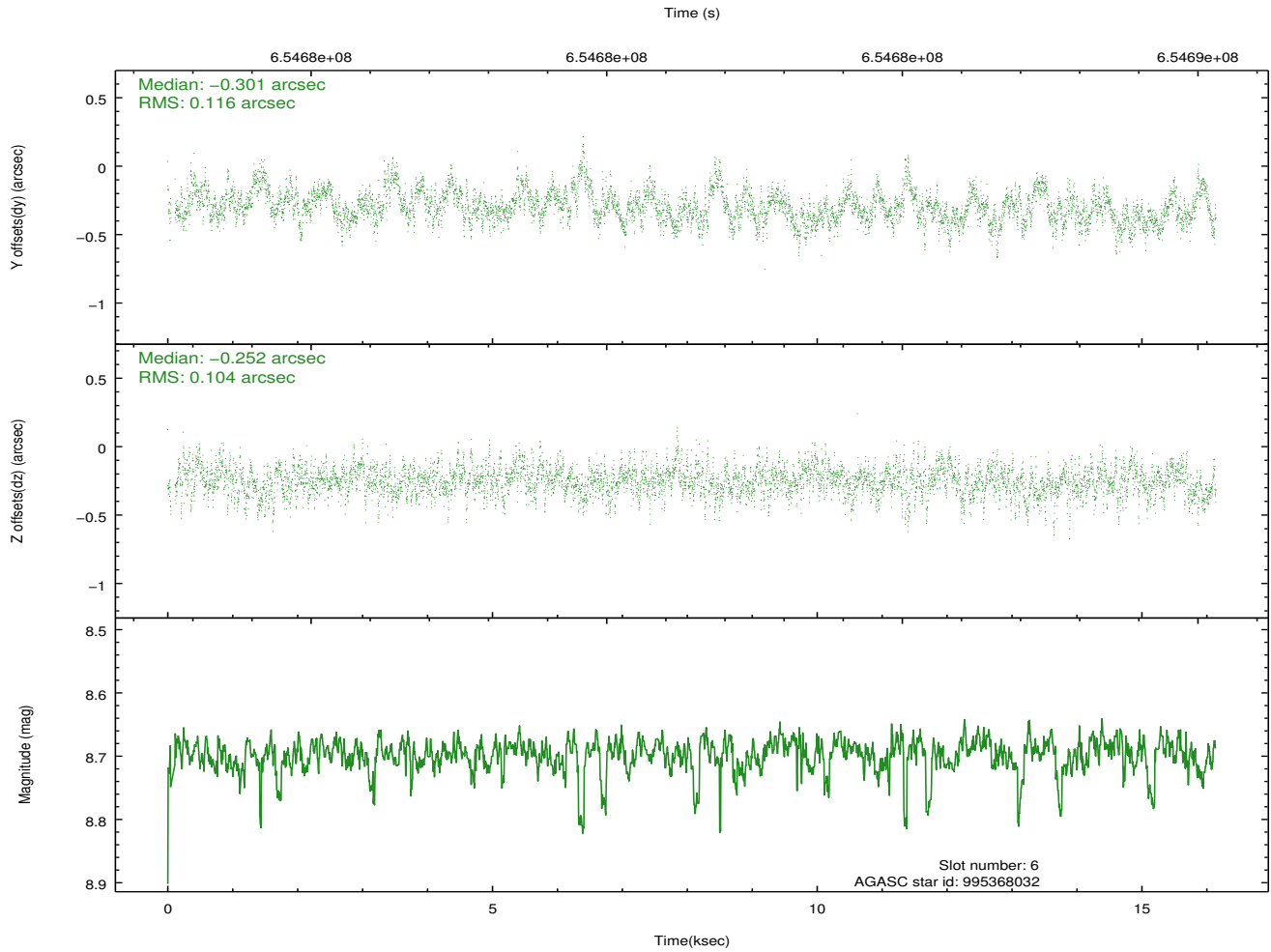
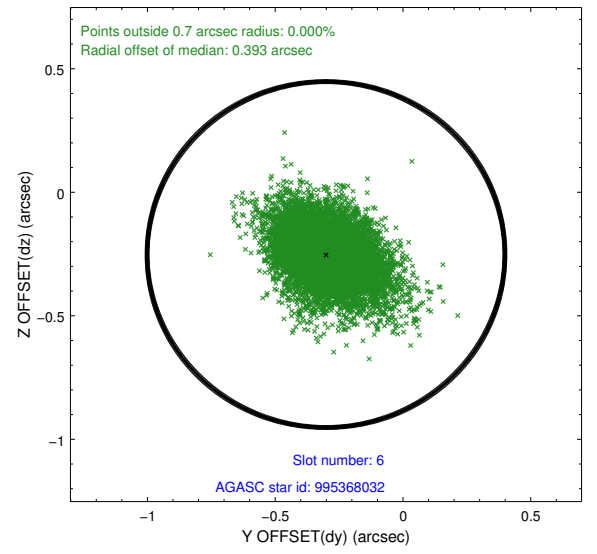
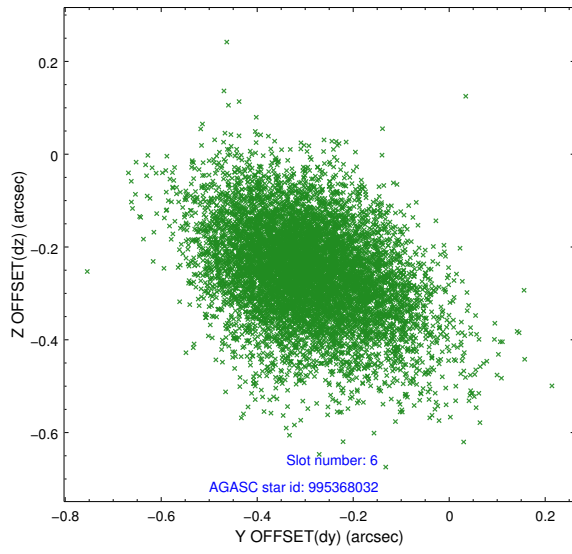
2.4.2 Slot 4



2.4.3 Slot 5

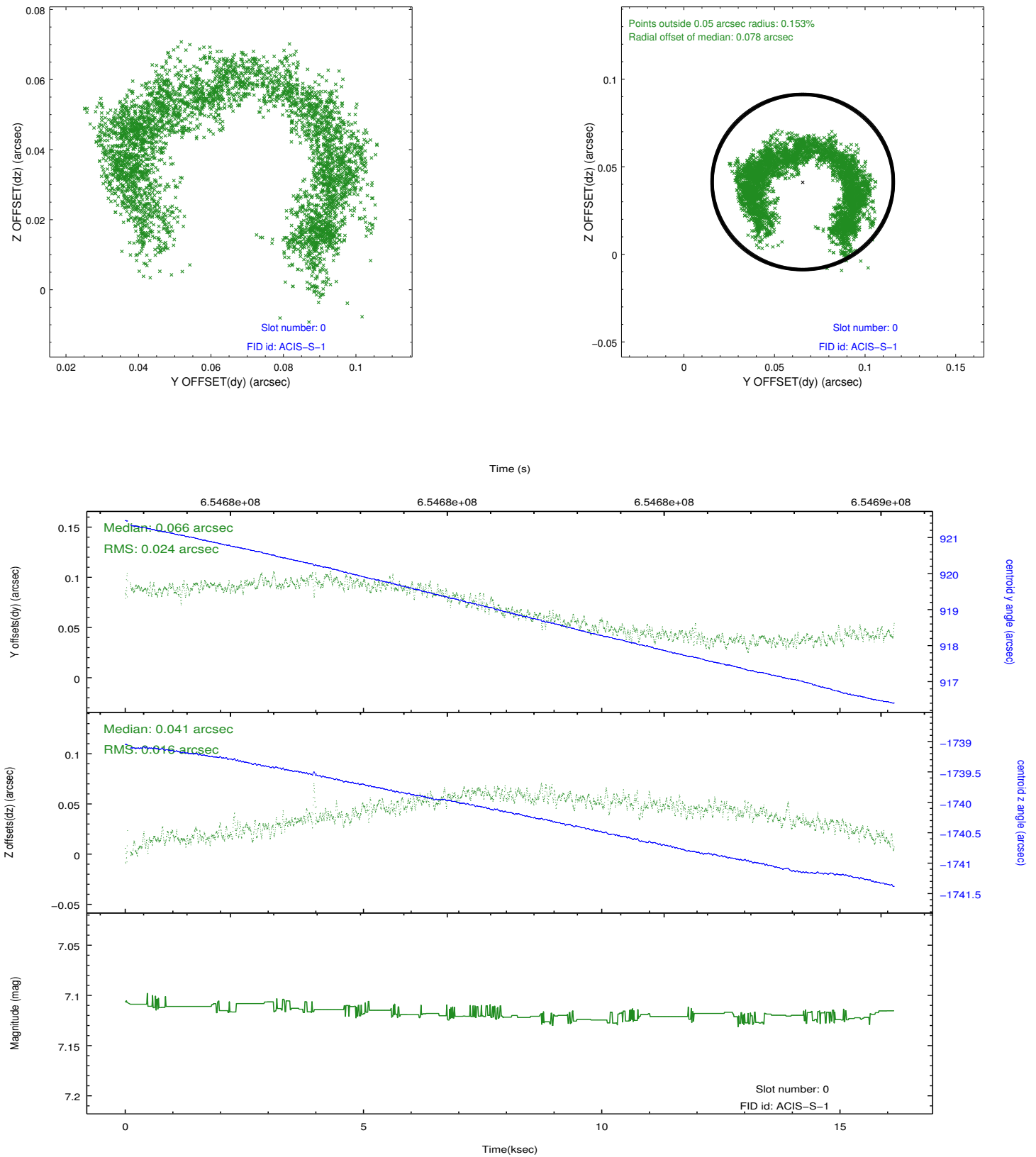


2.4.4 Slot 6

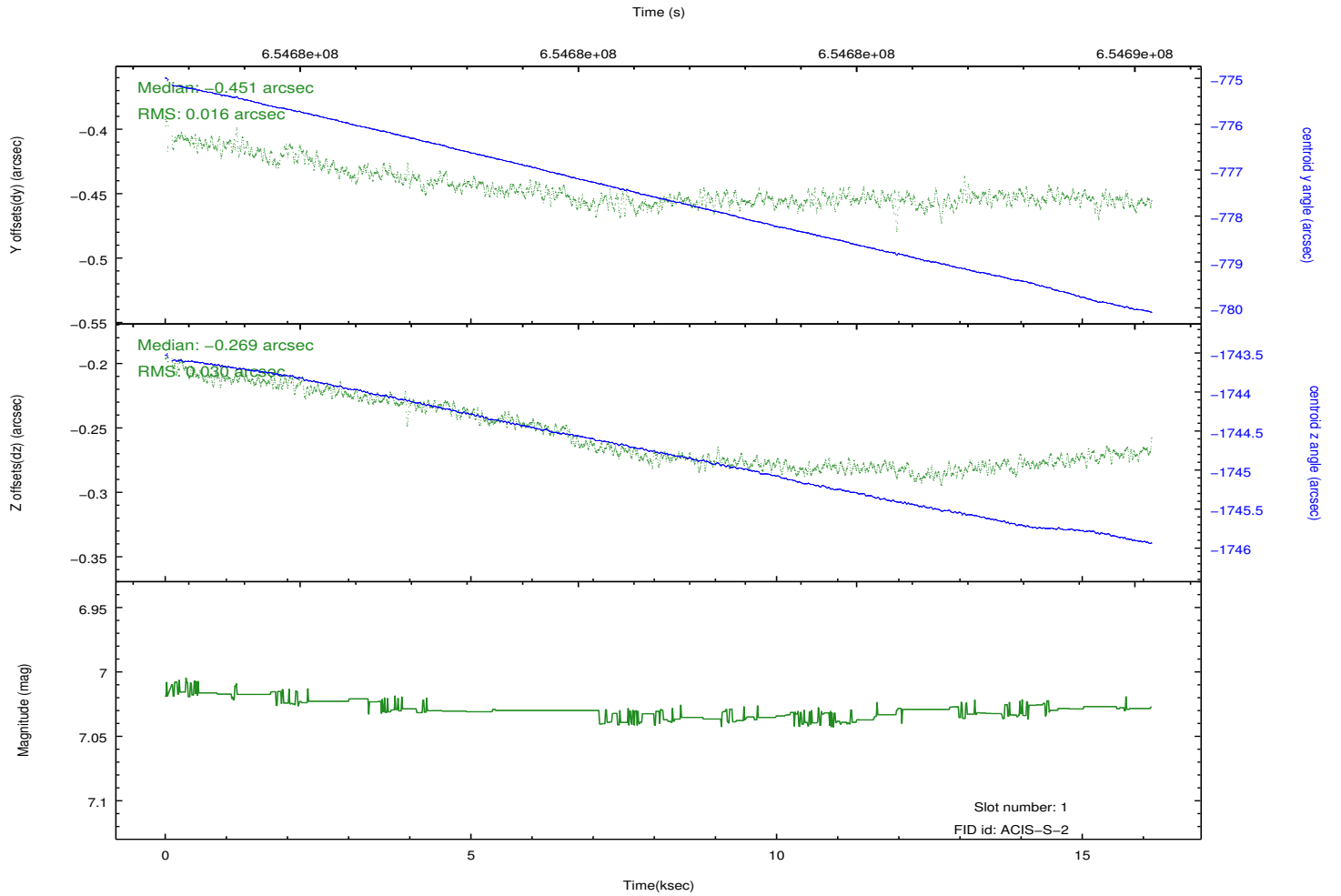
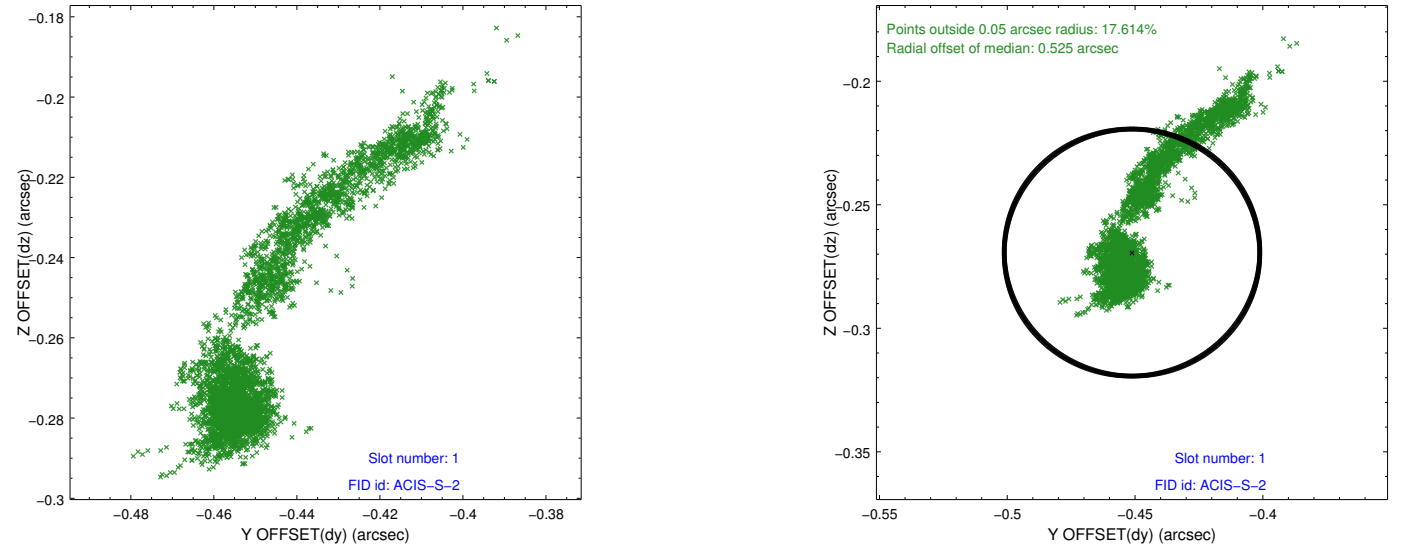


2.5 FID Slots

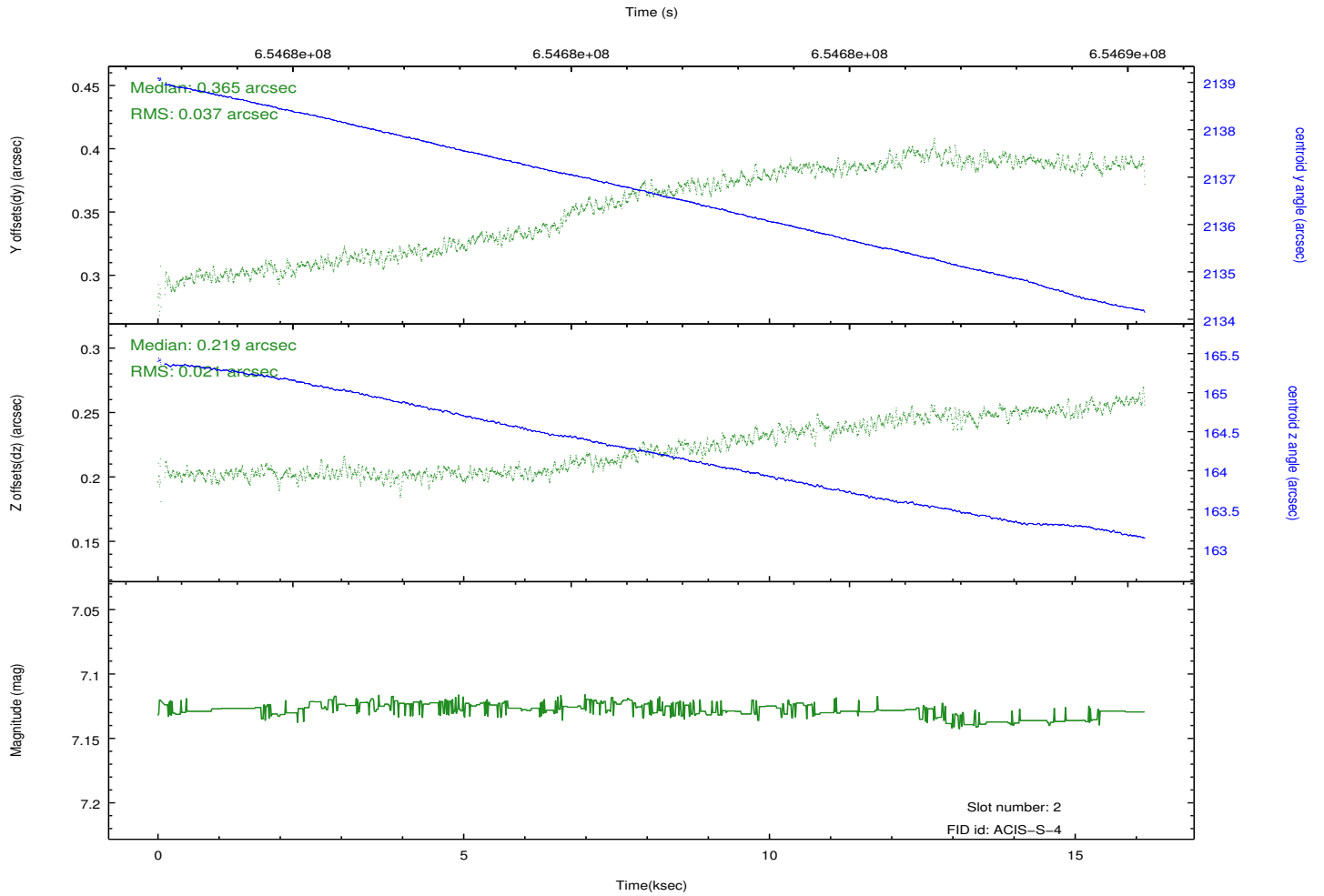
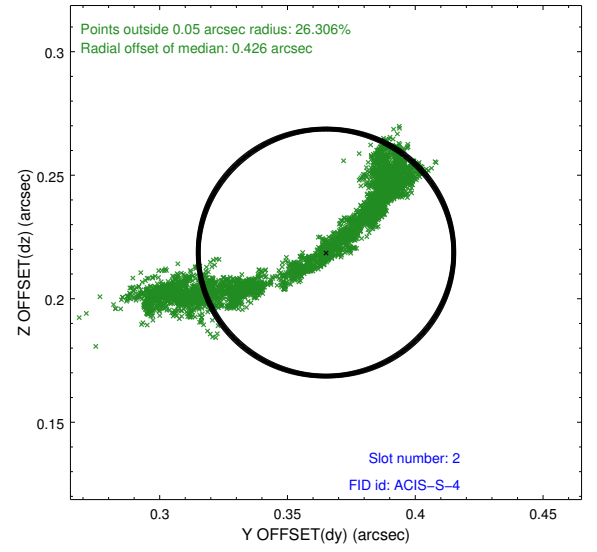
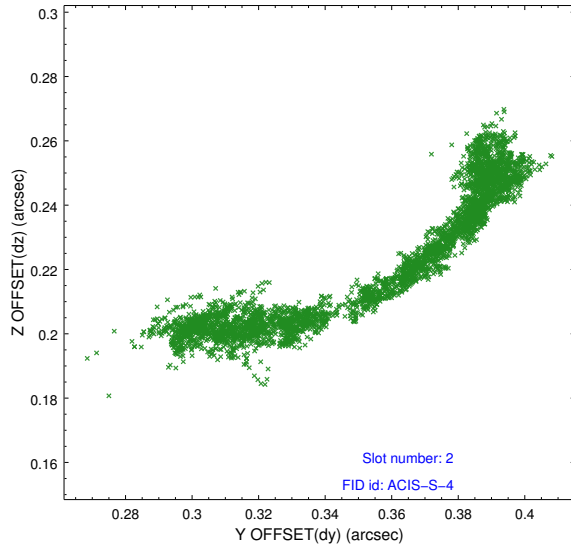
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2018.10.01
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	16.023900123358

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.