

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21396 - L2 Version 1
Chandra X-Ray Center

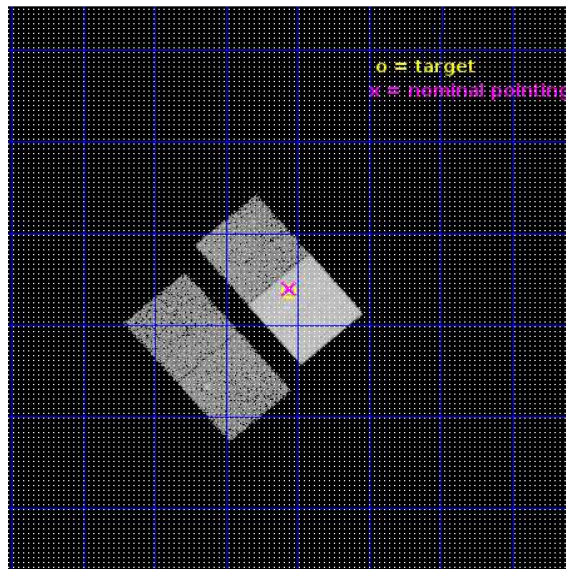
L2 Processing Date : Feb 16 2019

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1 Front

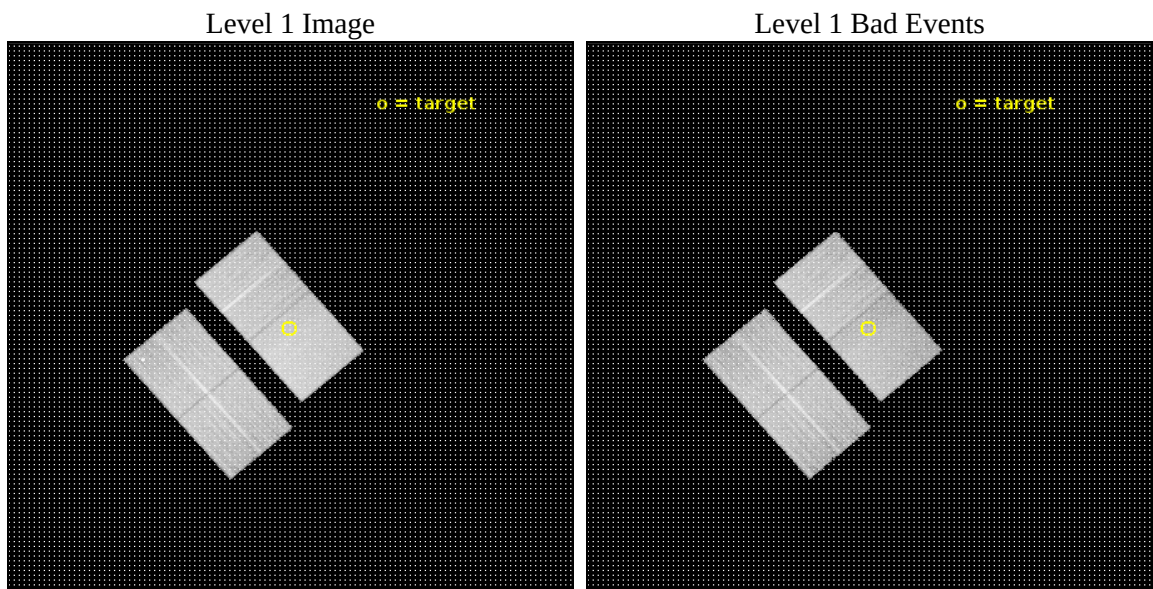
seq_num	703694	Sequence number
obs_id	21396	Observation id
title	COMPLETING THE CHANDRA EXTRAGALACTIC 3CR SURVEY	Proposal title
observer	Fr Massaro	Principal investigator
object	3CR 249.0	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	165.515833	Observer's specified target RA [deg]
dec_targ	-1.271472	Observer's specified target Dec [deg]
ra_nom	165.5145870855	Nominal RA [deg]
dec_nom	-1.266955541079	Nominal Dec [deg]
roll_nom	49.290675645088	Nominal Roll [deg]
revision	1	Processing version of data
ontime	18414.00014174	Sum of GTIs [s]
livetime	18173.407673698	Livetime [s]
ontime2	18414.00014174	Sum of GTIs [s]
ontime3	18410.859041452	Sum of GTIs [s]
ontime6	18410.859071612	Sum of GTIs [s]
ontime7	18414.00014174	Sum of GTIs [s]
l2events	113510	Number of level 2 events



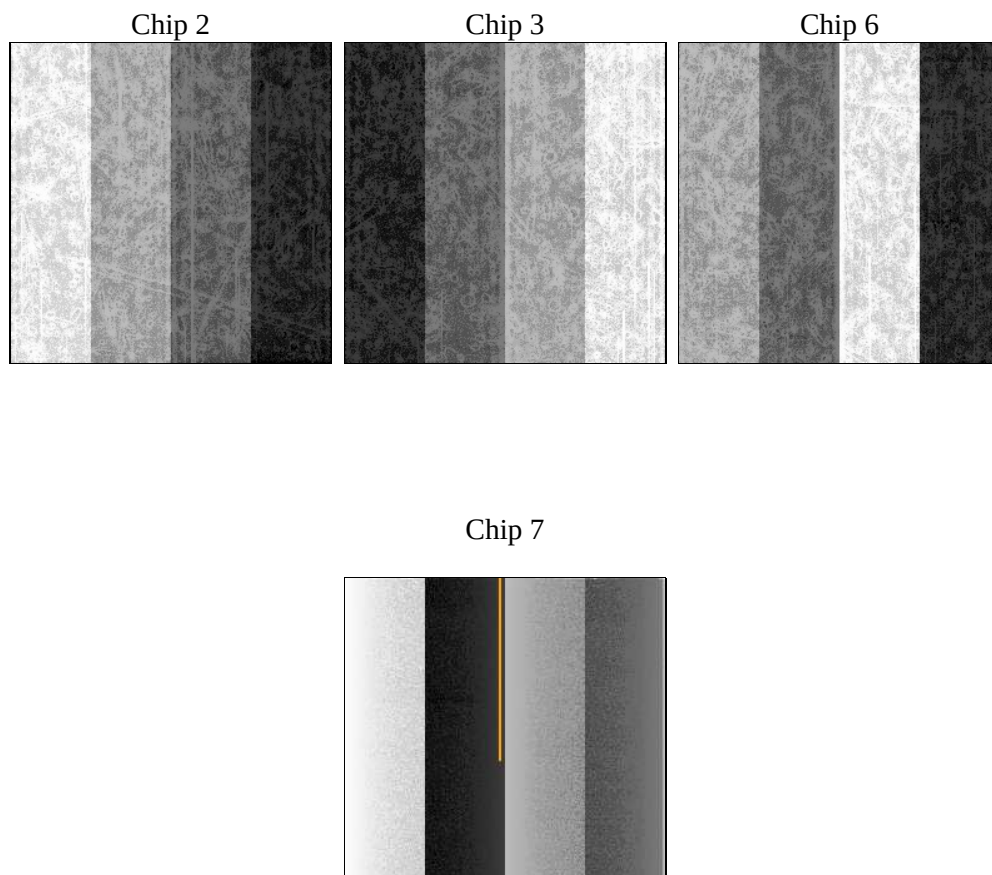
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	18350.356000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	18414.00014174	Sum of GTIs [s]
caldsver	4.8.2	 	ontime2	18414.00014174	Sum of GTIs [s]
date	2019-02-16T14:33:50	Date and time of file creation	ontime3	18410.859041452	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	18410.859071612	Sum of GTIs [s]
			ontime7	18414.00014174	Sum of GTIs [s]
			l1events	628474	Number of level 1 events

2.1.4 Events

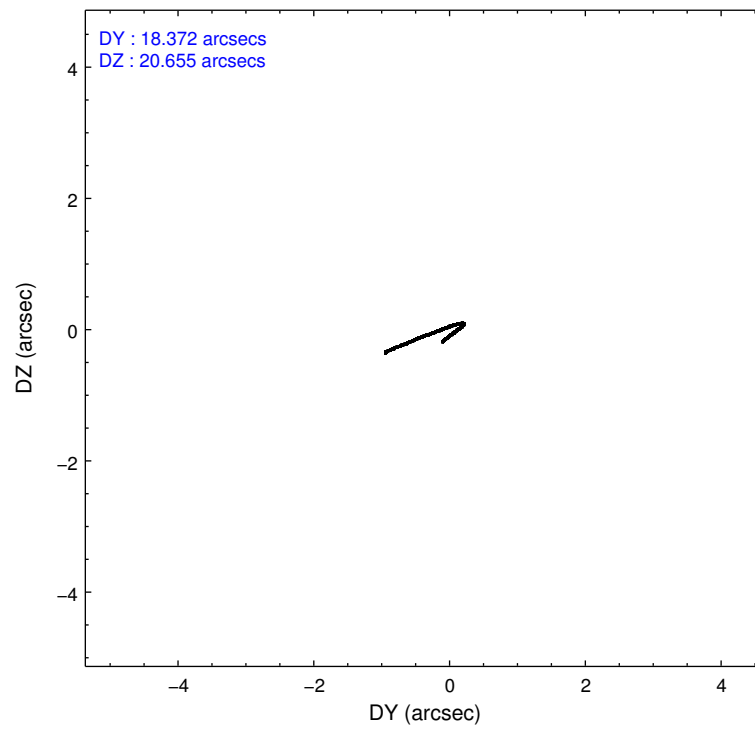
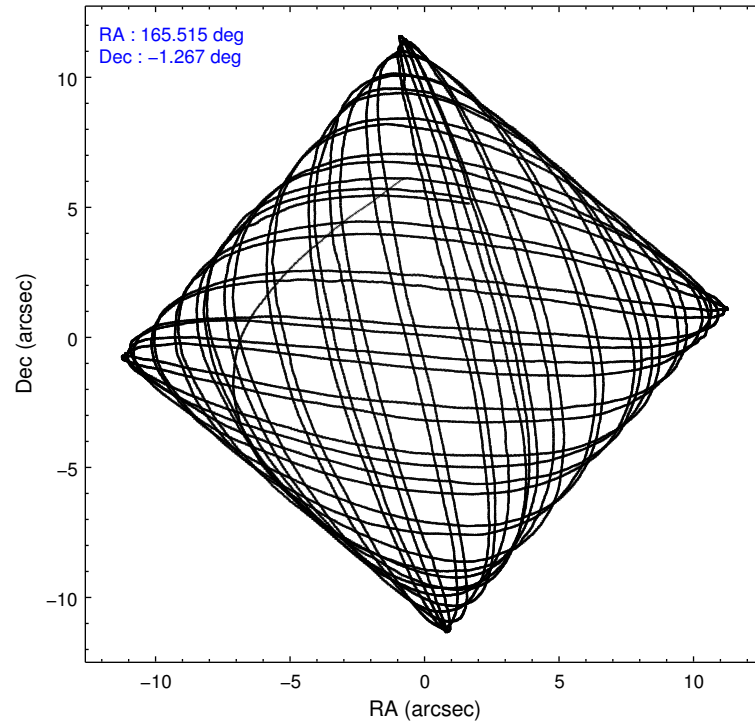
	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	150448	142970	153839	181217
rejected events	135301	129025	138131	103858
rejected %	89%	90%	89%	57%

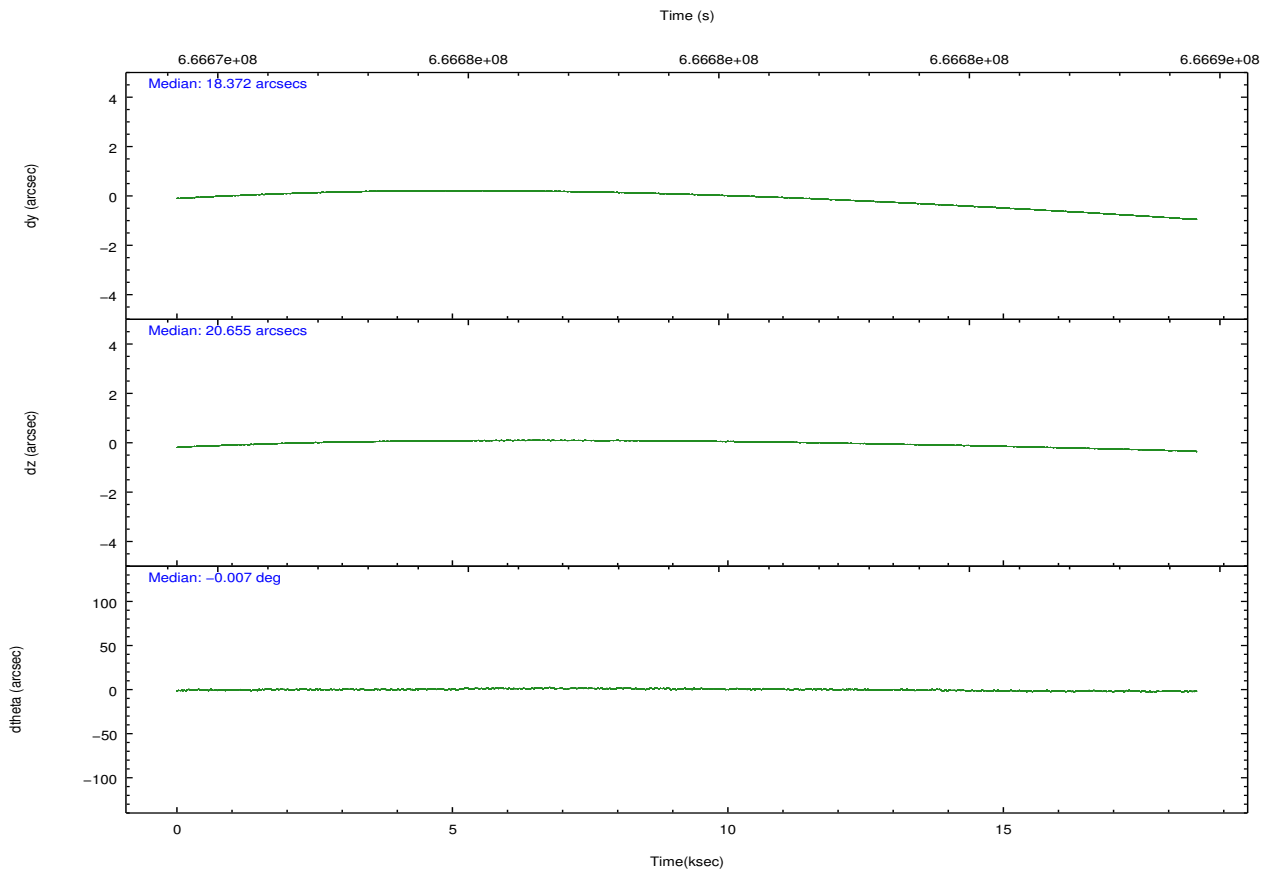
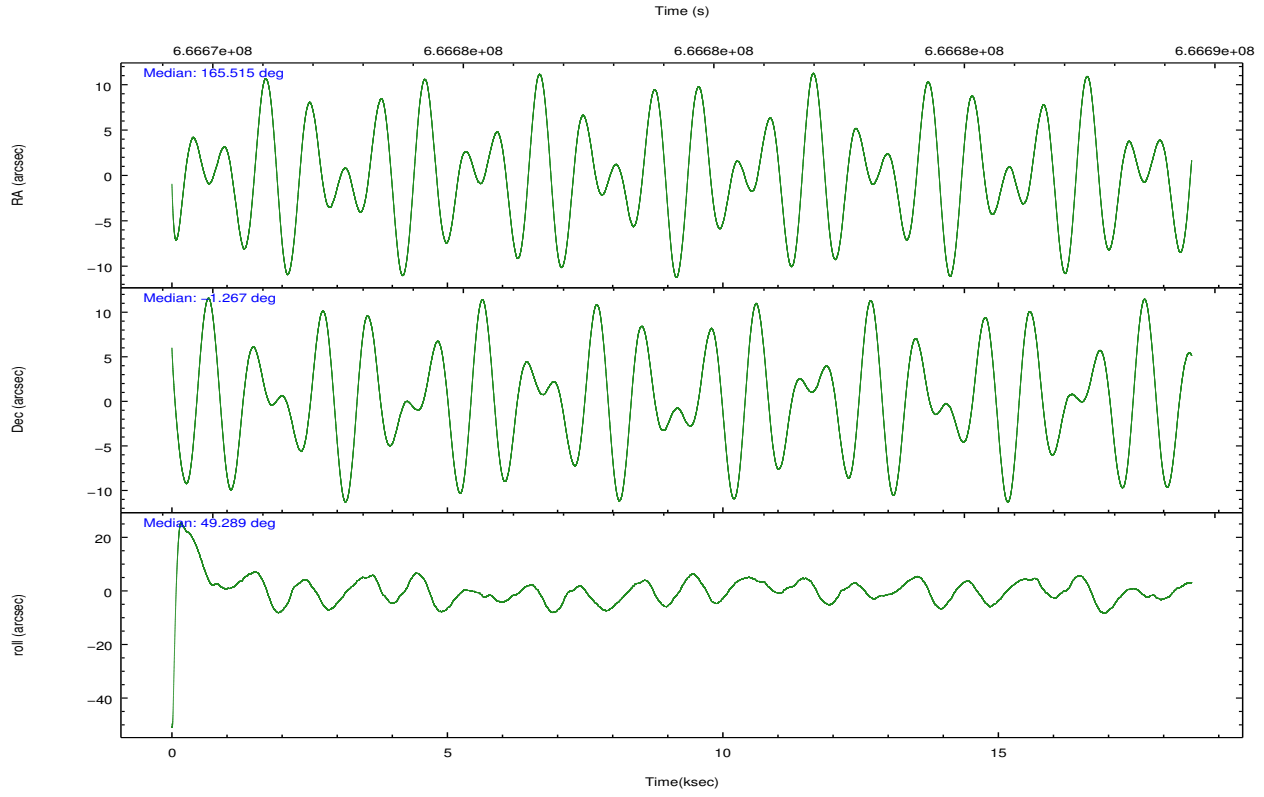
	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	6016	4732	4176	6382
	3%	3%	2%	3%
grade 1 events	80	71	57	265
	0%	0%	0%	0%
grade 2 events	3246	3118	4572	15867
	2%	2%	2%	8%
grade 3 events	1398	1369	1191	6018
	0%	0%	0%	3%
grade 4 events	1425	1407	1195	5876
	0%	0%	0%	3%
grade 5 events	4953	5820	5579	17071
	3%	4%	3%	9%
grade 6 events	3066	3322	4581	43259
	2%	2%	2%	23%
grade 7 events	130264	123131	132488	86479
	86%	86%	86%	47%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-2367	ACIS-2367	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	165.509875	165.5145870855042	CCD I2 on	O1	Y
[deg] Pointing Dec	-1.293973	-1.266955541078997	CCD I3 on	O2	Y
[deg] Pointing Roll	49.134001	49.2906756450876	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	N	N
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	N	N
[s] Observation start time (MET)	666670277.184000	666668919.2874	CCD S5 on	N	N
Observation start date	2019-02-16T02:10:08	2019-02-16T01:48:39	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	666688628.184000	666689749.85115	On-chip summing requested	N	N
Observation end date	2019-02-16T07:15:59	2019-02-16T07:35:49	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



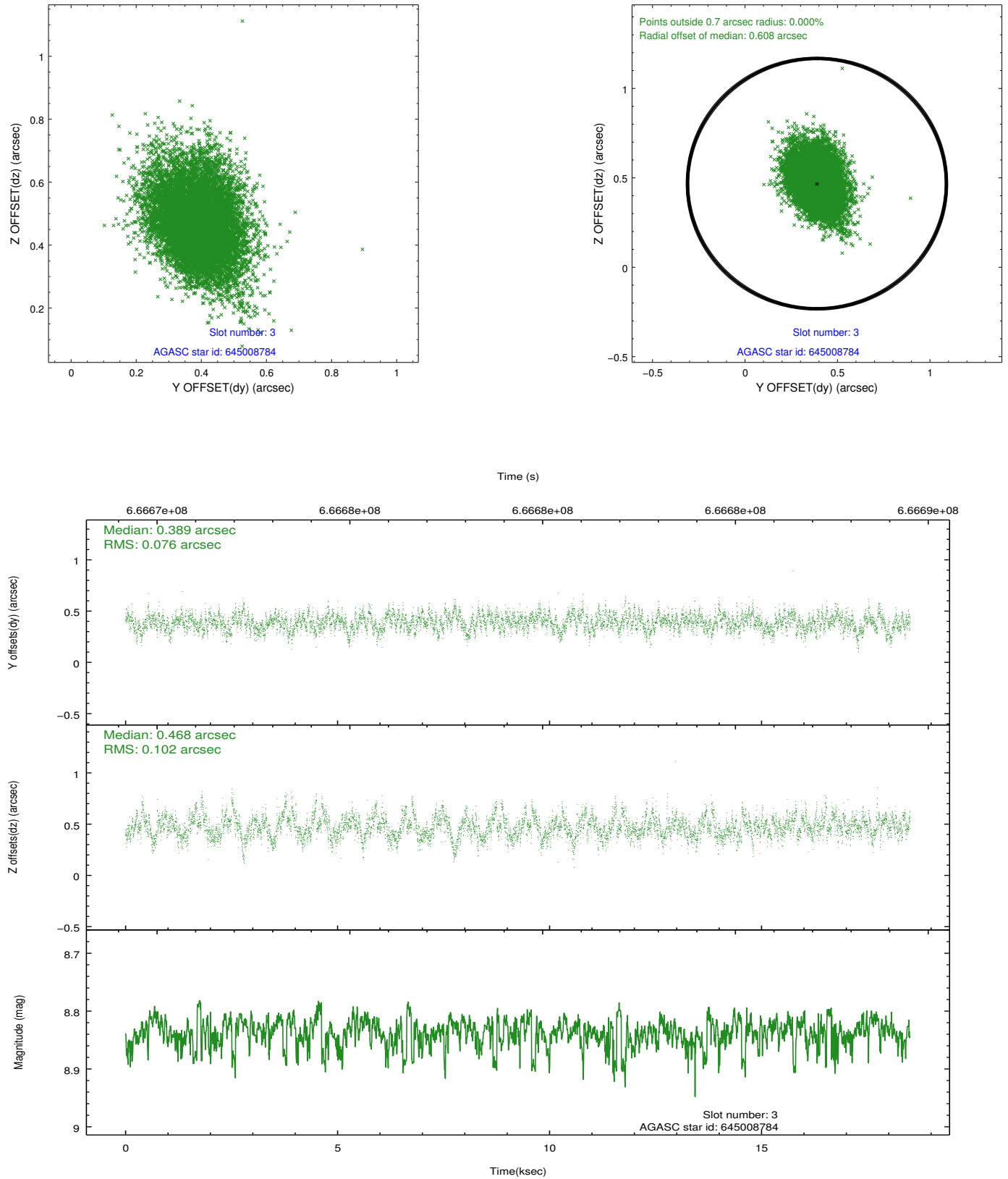


Slot Statistics

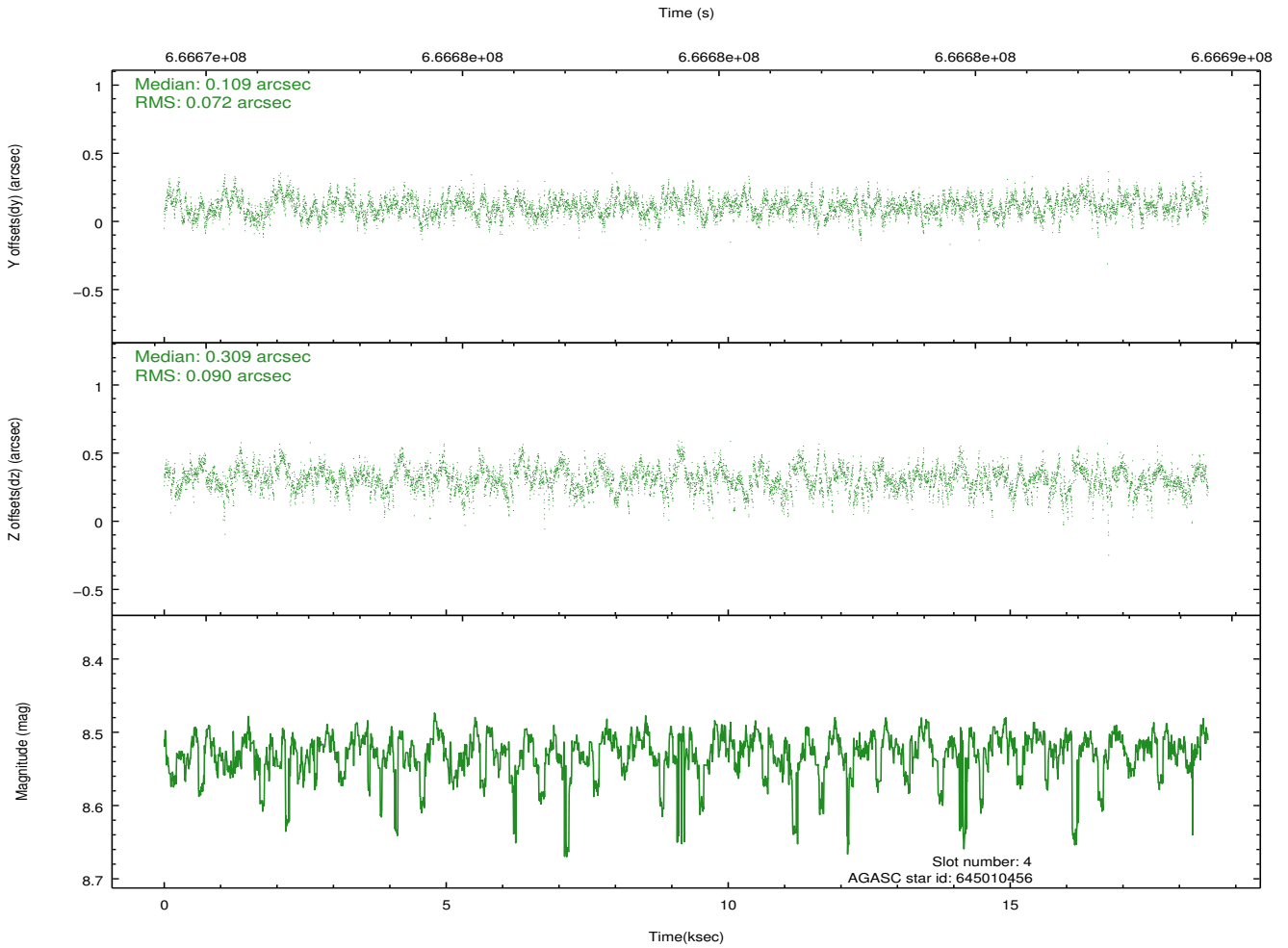
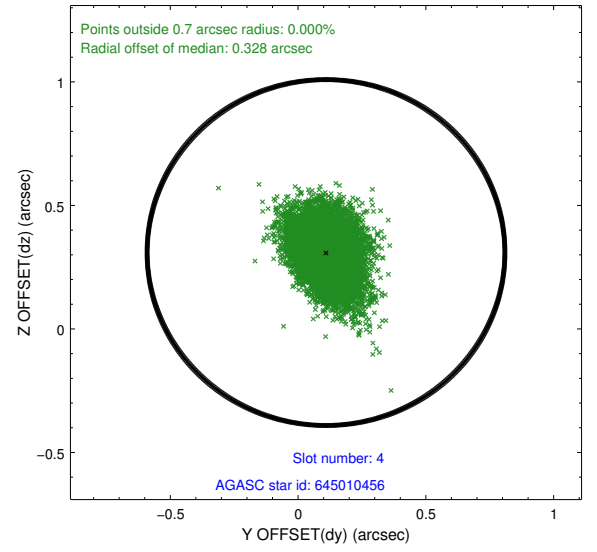
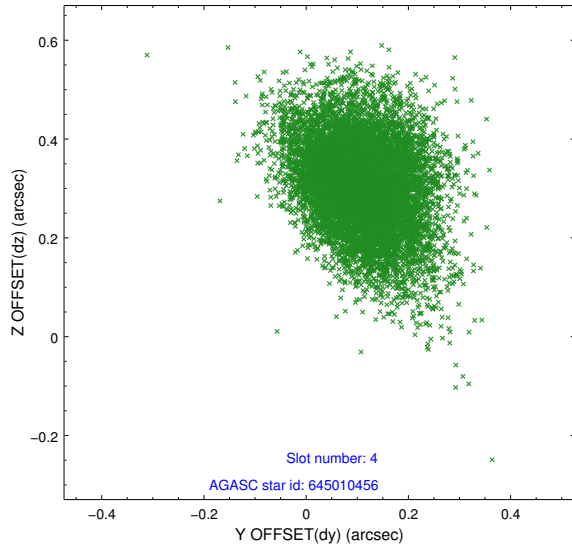
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.21	4515	1.000	-0.381	-0.288	0.013	0.022	0.000000	0.000000	-771.60	-1742
1	FID		ACIS-S-4	7.32	4515	1.000	0.868	0.261	0.009	0.015	0.000000	0.000000	2142.74	166
2	FID		ACIS-S-5	7.29	4515	1.000	-0.518	0.036	0.012	0.019	0.000000	0.000000	-1824.39	160
3	GUIDE	used	645008784	8.84	9022	1.000	0.389	0.468	0.132	0.224	165.758939	-1.575049	-178.20	-1338
4	GUIDE	used	645010456	8.53	9021	1.000	0.109	0.309	0.120	0.205	165.878714	-1.485561	347.08	-1454
5	GUIDE	used	645014776	8.90	9017	1.000	-0.316	-0.232	0.126	0.214	165.295300	-1.050125	158.23	1158
6	GUIDE	used	645014944	6.47	9030	1.000	-0.287	-0.700	0.096	0.159	165.810586	-0.752346	2180.72	455
7	GUIDE	used	645014952	7.35	9027	1.000	0.108	0.166	0.120	0.196	166.080115	-1.278222	1386.02	-1514

2.4 Star Slots

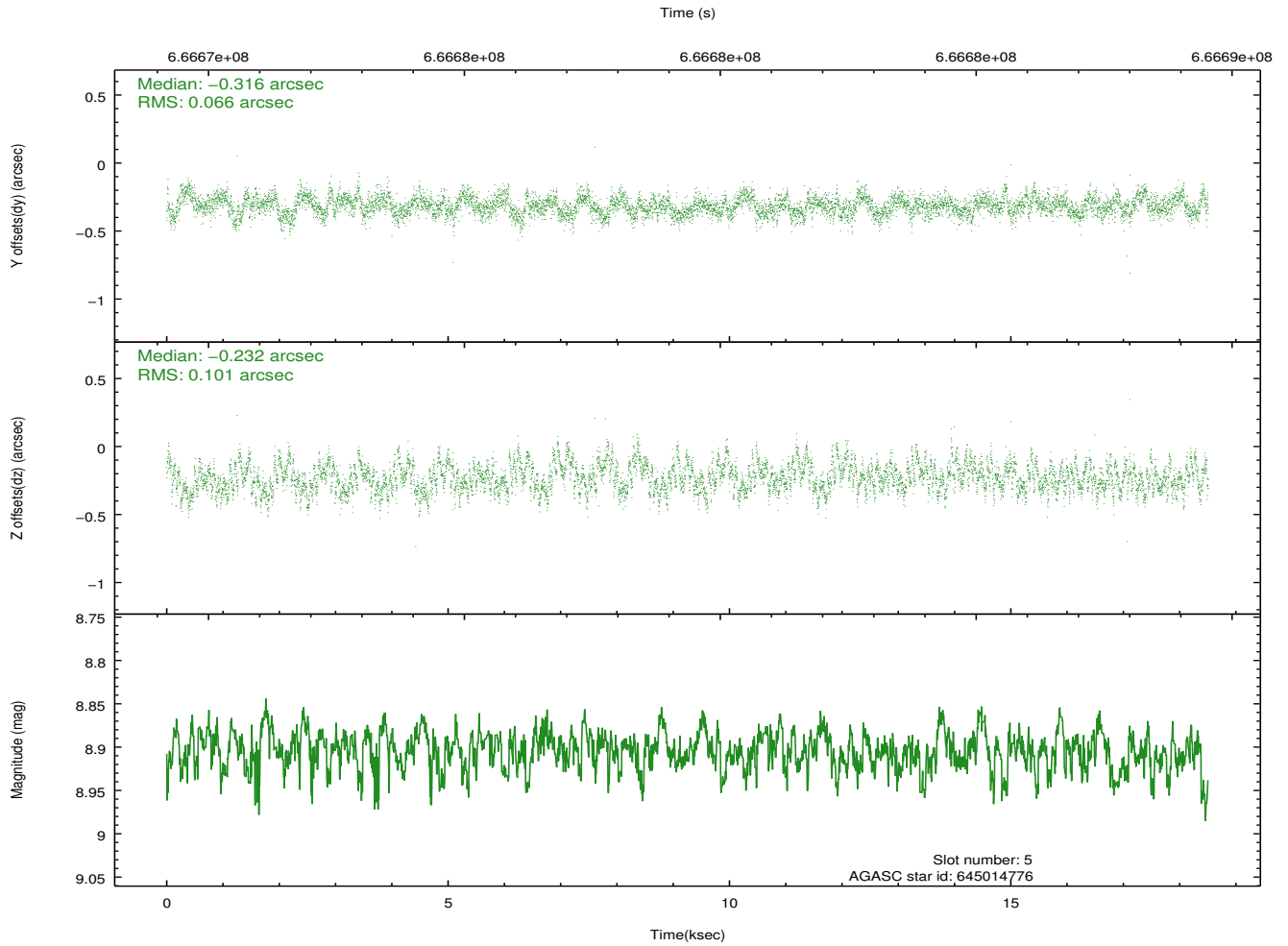
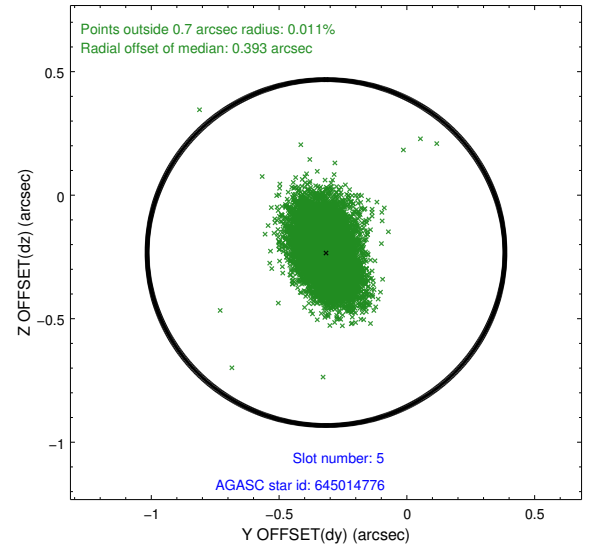
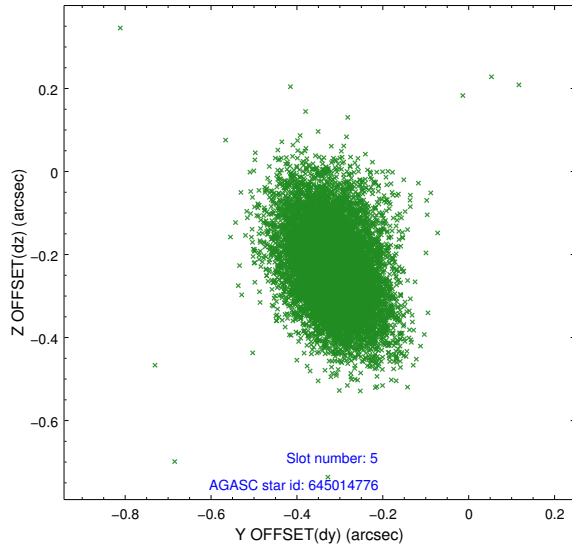
2.4.1 Slot 3



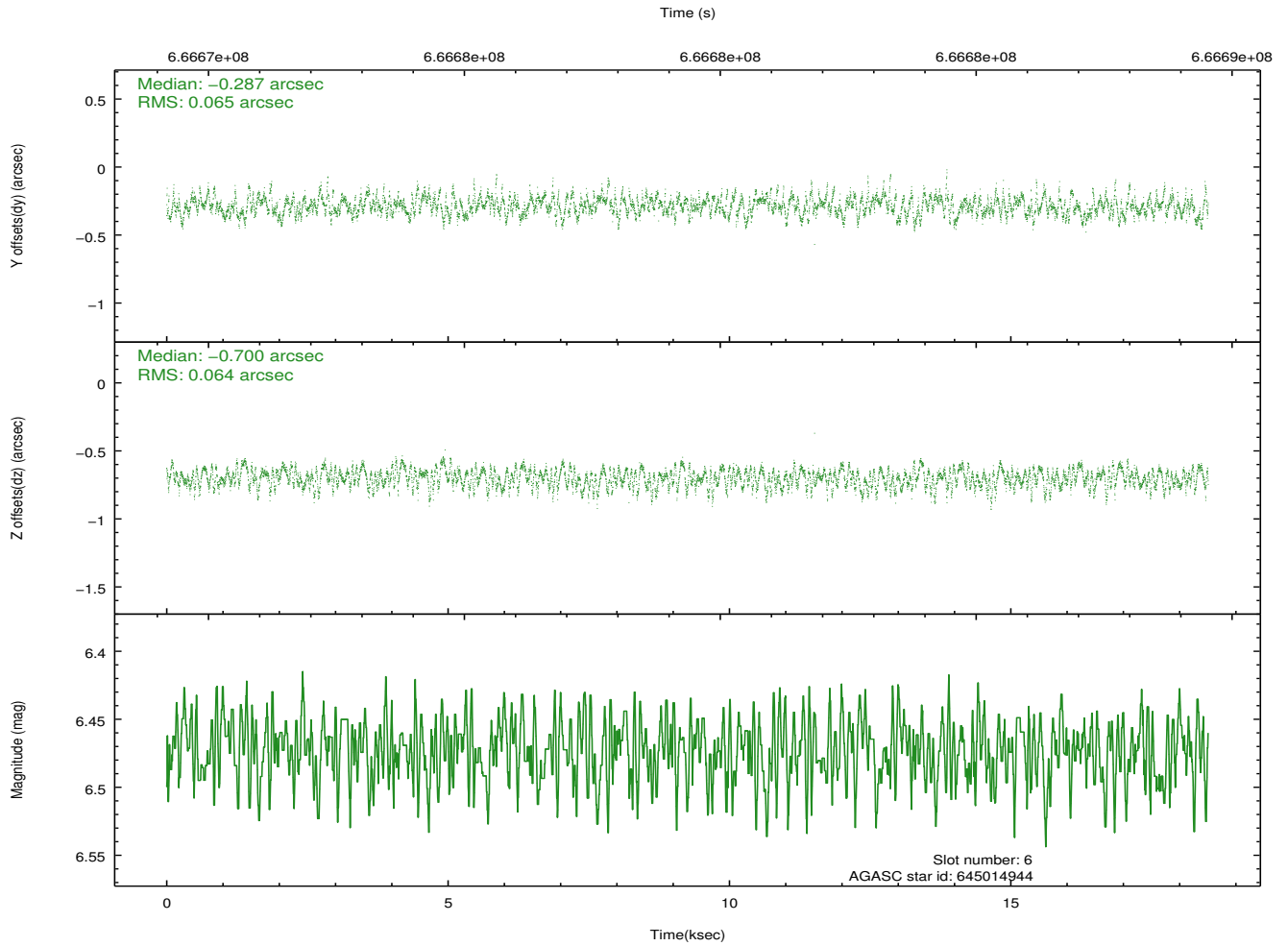
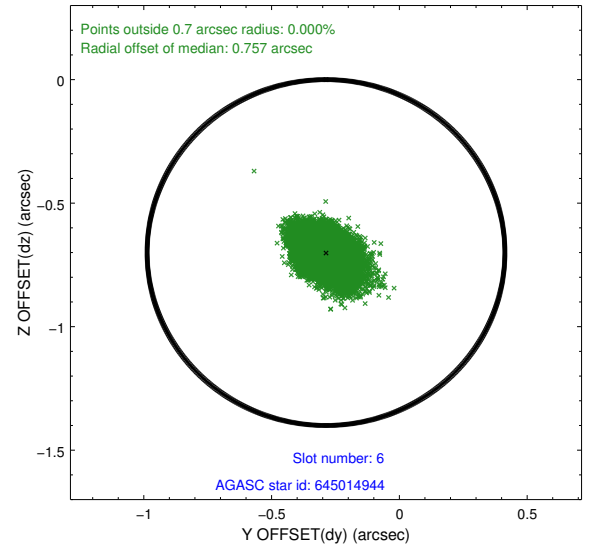
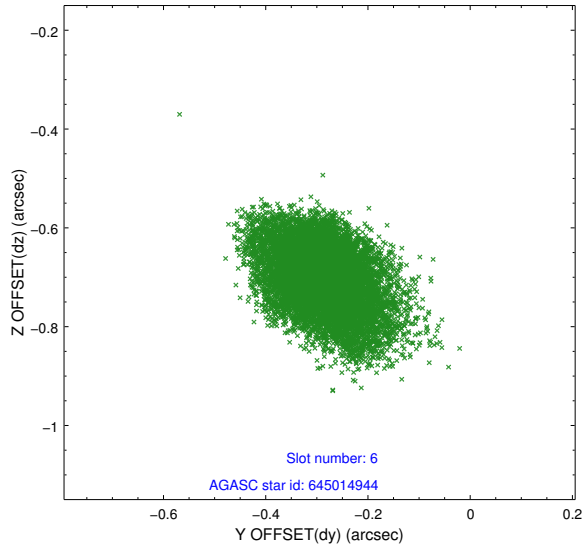
2.4.2 Slot 4



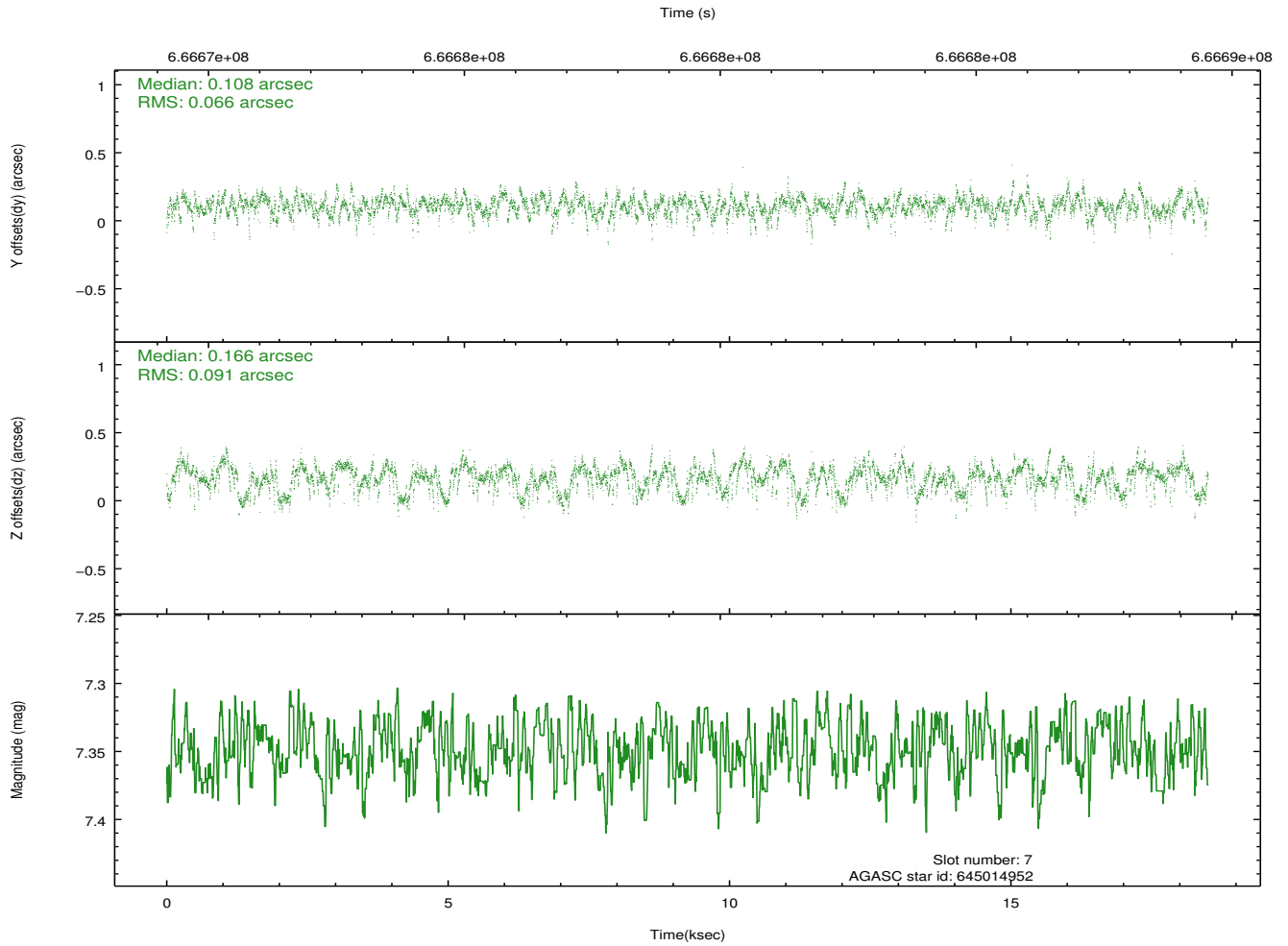
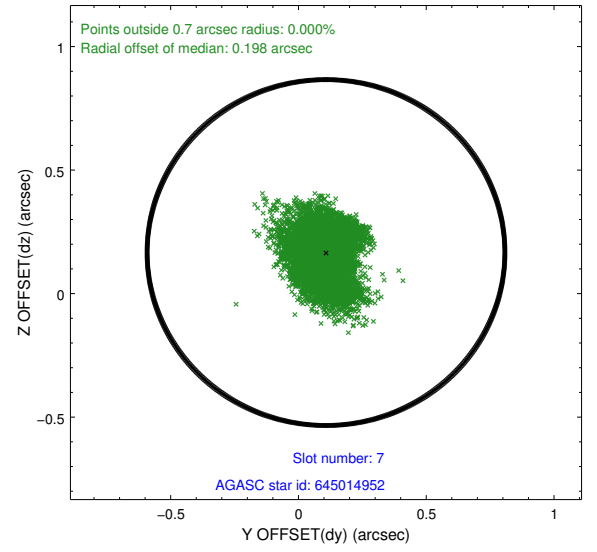
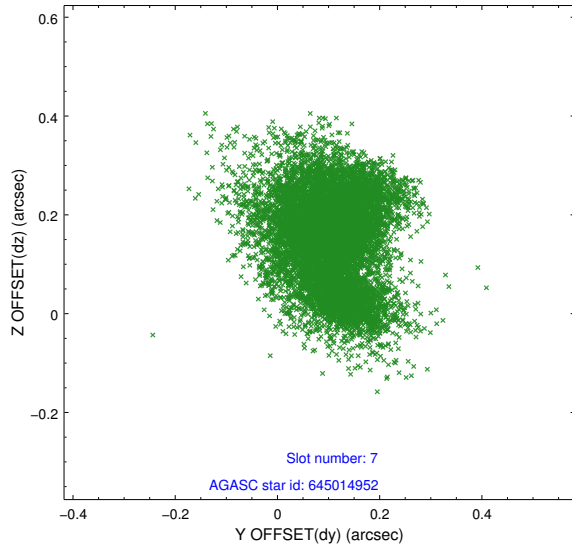
2.4.3 Slot 5



2.4.4 Slot 6

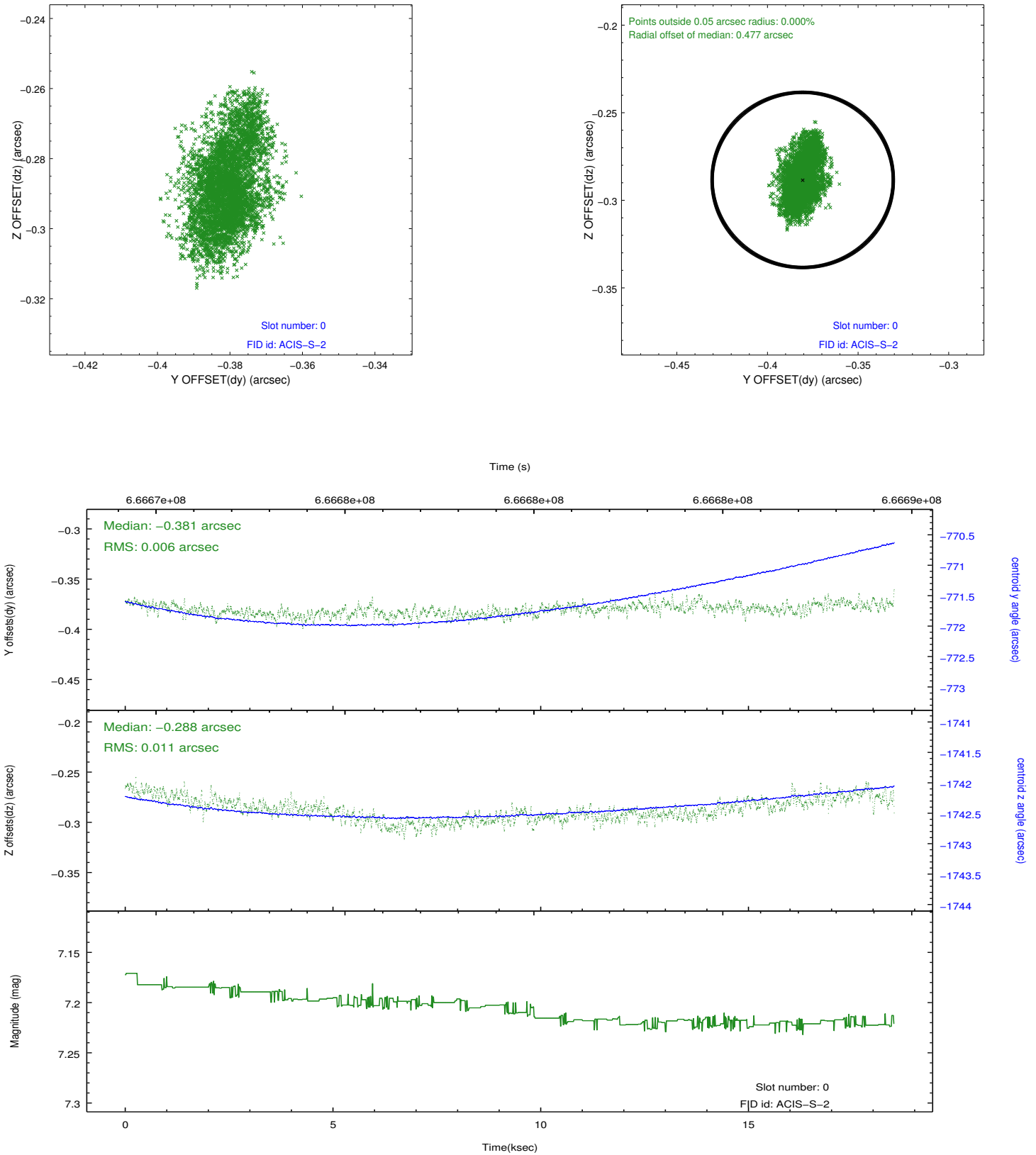


2.4.5 Slot 7

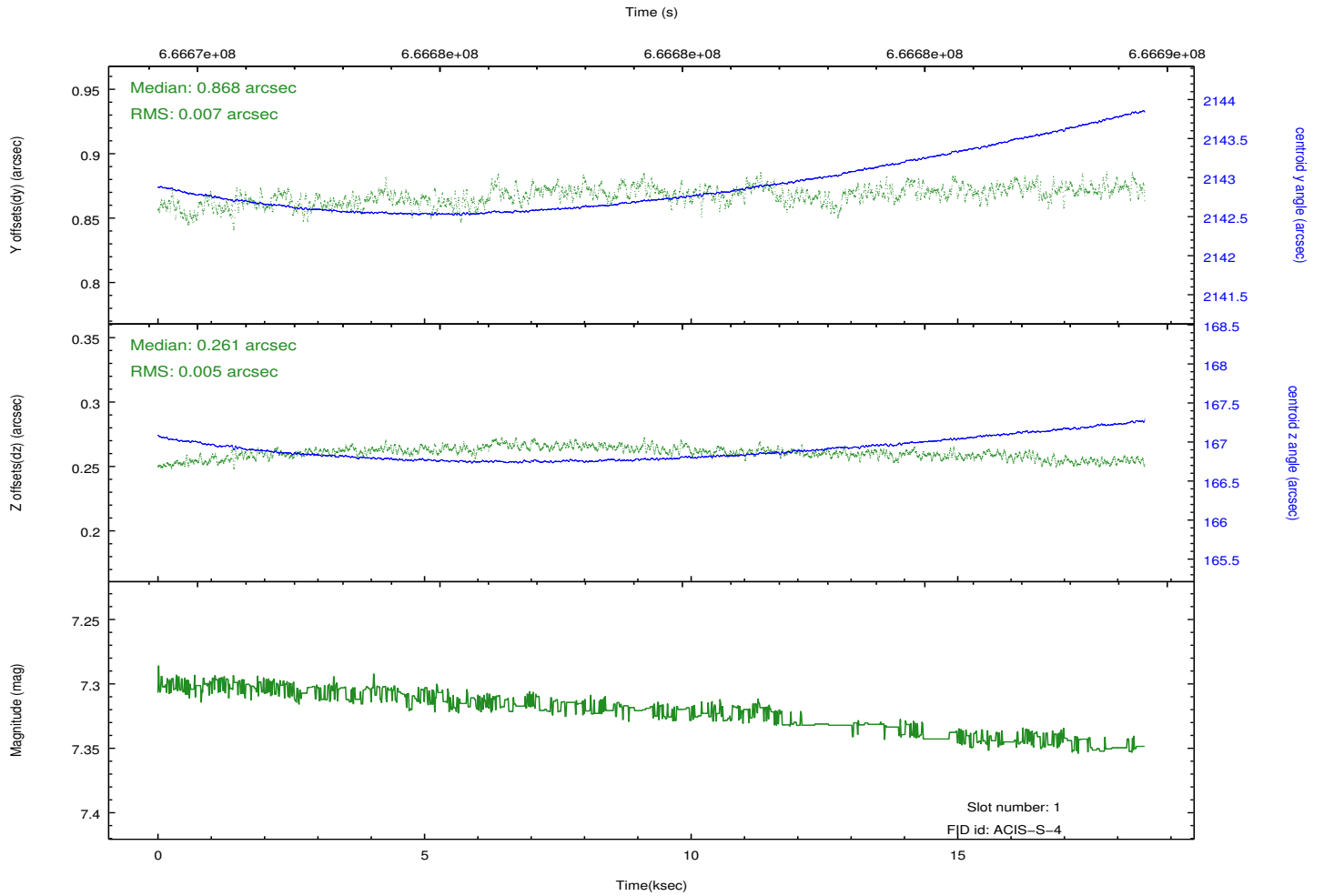
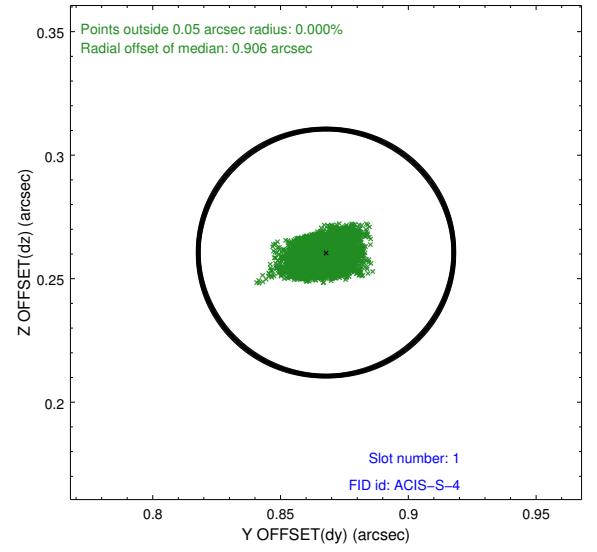
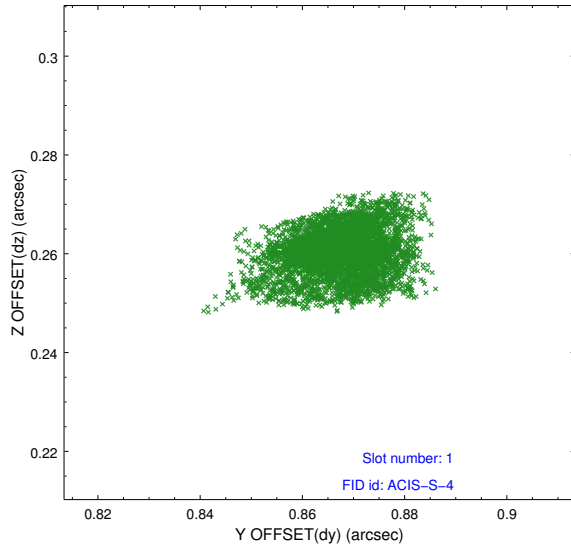


2.5 FID Slots

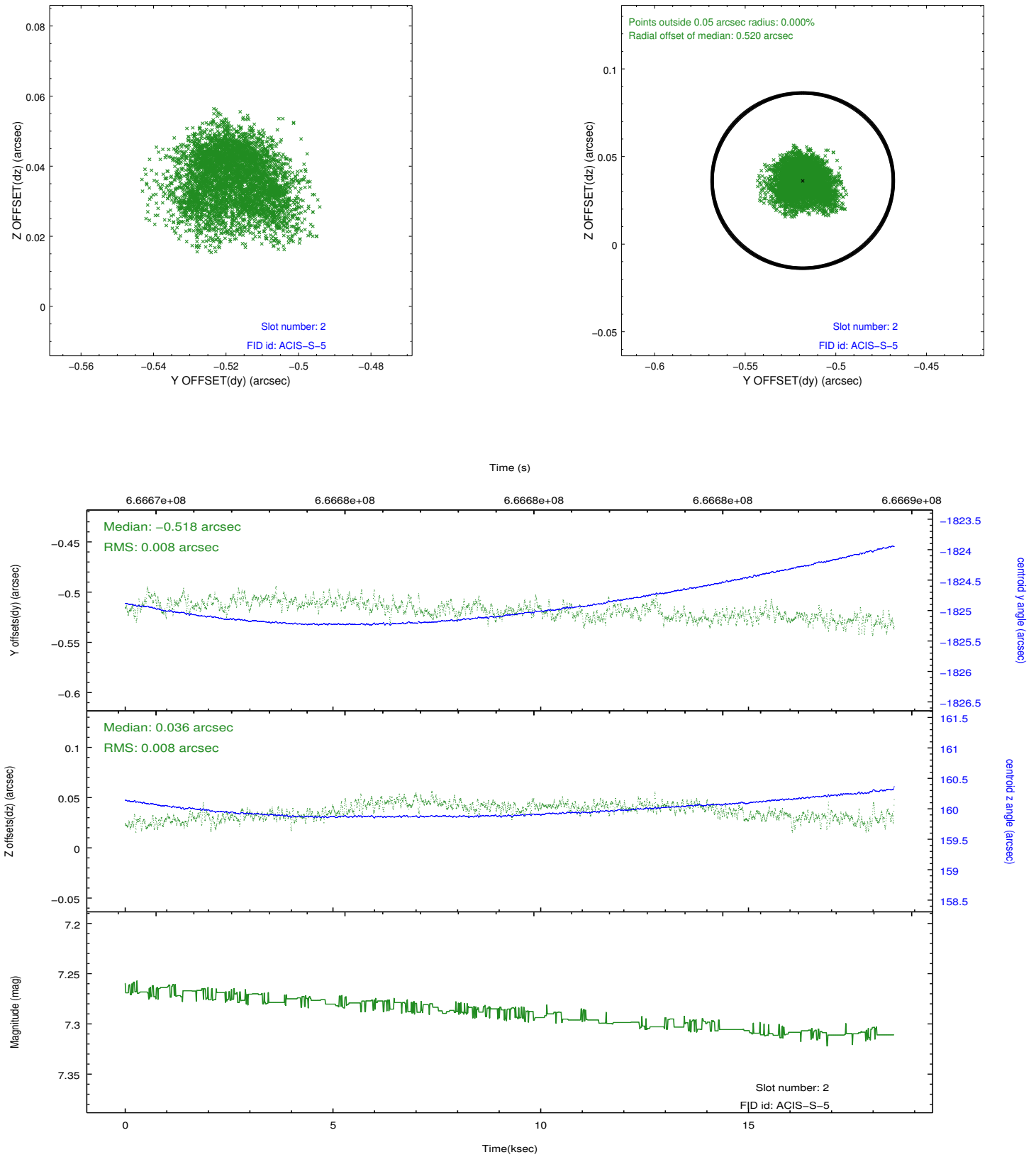
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2019.02.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	18.41400014174

A.2 Comments

The focal plane temperature during part of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -114.0 C for ACIS-I and -112.0 C for ACIS-S).

The Chandra calibration team calibrates the ACIS gain and spectral resolution using data from the external calibration source (ECS). ECS data show that the frontside-illuminated (FI) CCDs are more temperature sensitive than the backside-illuminated (BI) CCDs.

A summary of the current calibration status of the ACIS gain and spectral resolution can be found at:

http://asc.harvard.edu/cal/Acis/Cal_prods/Gain_and_Spectral_Resolution/ACIS_response_summary.html

The main points are:

- 1) The gain on BI chips remains within 0.3% (i.e., the systematic uncertainty in the ACIS gain quoted on the Chandra Calibration Status Summary web page) at all measured temperatures.
 - 2) The gain on FI chips remains within 0.3% below row 600 at all measured temperatures.
 - 3) The gain on FI chips above row 600 can be underestimated by as much as 1% for focal plane temperatures exceeding -116 C.
 - 4) The spectral resolution (i.e., FWHM) on BI chips is insensitive to the focal plane temperature.
 - 5) Warmer focal plane temperatures increase the FWHM on FI chips by up to 30 eV near row 512 and by up to 70 eV near the top of the chips.
- In summary, the user should be cautious in the spectral analysis of high S/N emission lines detected on the top half of FI chips in this observation. Default processing with the current version of the CALDB will underestimate photon energies by up to 1% and broaden emission lines by up to 70 eV.