

V&V Reference Report

L2 ASCDS Version : 10.8.1

Observation 22880 - L2 Version 1
Chandra X-Ray Center

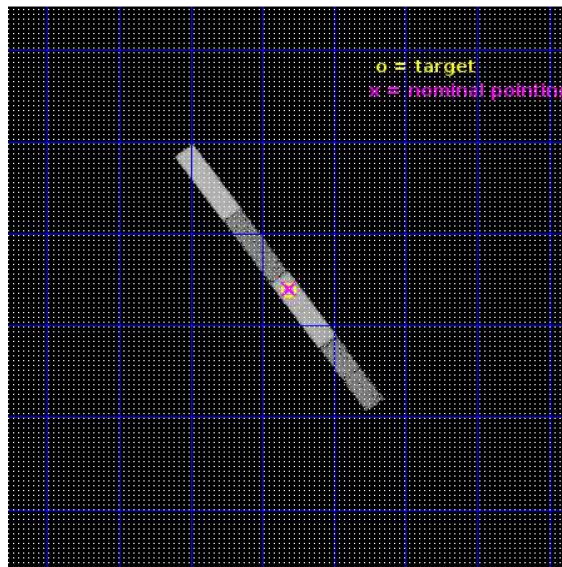
L2 Processing Date : Oct 25 2019

Contents

1	Front	2
2	OBI	3
2.1	OBI	3
2.1.1	Images	3
2.1.2	Bias	3
2.1.3	Parameters	4
2.1.4	Events	4
2.2	Compared Parameters	5
2.3	Aspect	6
2.4	Star Slots	9
2.4.1	Slot 3	9
2.4.2	Slot 4	10
2.4.3	Slot 5	11
2.4.4	Slot 6	12
2.4.5	Slot 7	13
2.5	FID Slots	14
2.5.1	Slot 0	14
2.5.2	Slot 1	15
2.5.3	Slot 2	16
A	Summary	17
A.1	Status	17
A.2	Comments	17

1 Front

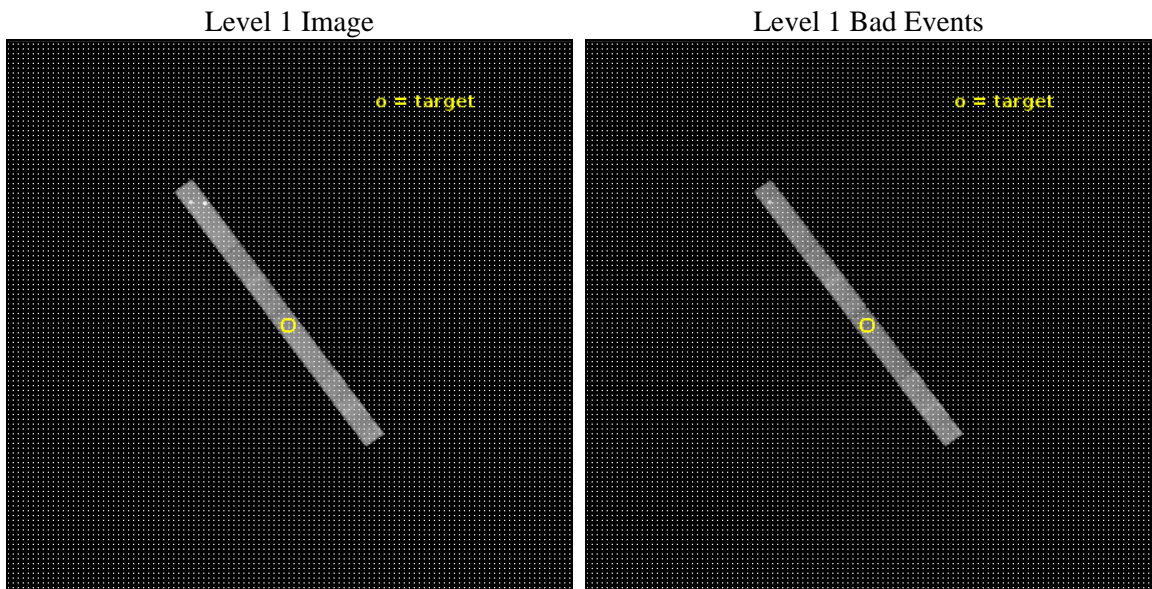
seq_num	703940	Sequence number
obs_id	22880	Observation id
title	Mapping NGC 1194: a Compton Thick AGN in the nearby Universe	Propo
observer	Tracey Turner	Principal investigator
object	NGC 1194	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	45.954583	Observer's specified target RA [deg]
dec_targ	-1.103608	Observer's specified target Dec [deg]
ra_nom	45.952795342461	Nominal RA [deg]
dec_nom	-1.099729697415	Nominal Dec [deg]
roll_nom	54.156585403714	Nominal Roll [deg]
revision	1	Processing version of data
ontime	20848.0	Sum of GTIs [s]
liveltime	20026.127718435	Livetime [s]
ontime5	20847.976680875	Sum of GTIs [s]
ontime6	20847.935640812	Sum of GTIs [s]
ontime7	20848.0	Sum of GTIs [s]
ontime8	20847.894600868	Sum of GTIs [s]
l2events	65168	Number of level 2 events



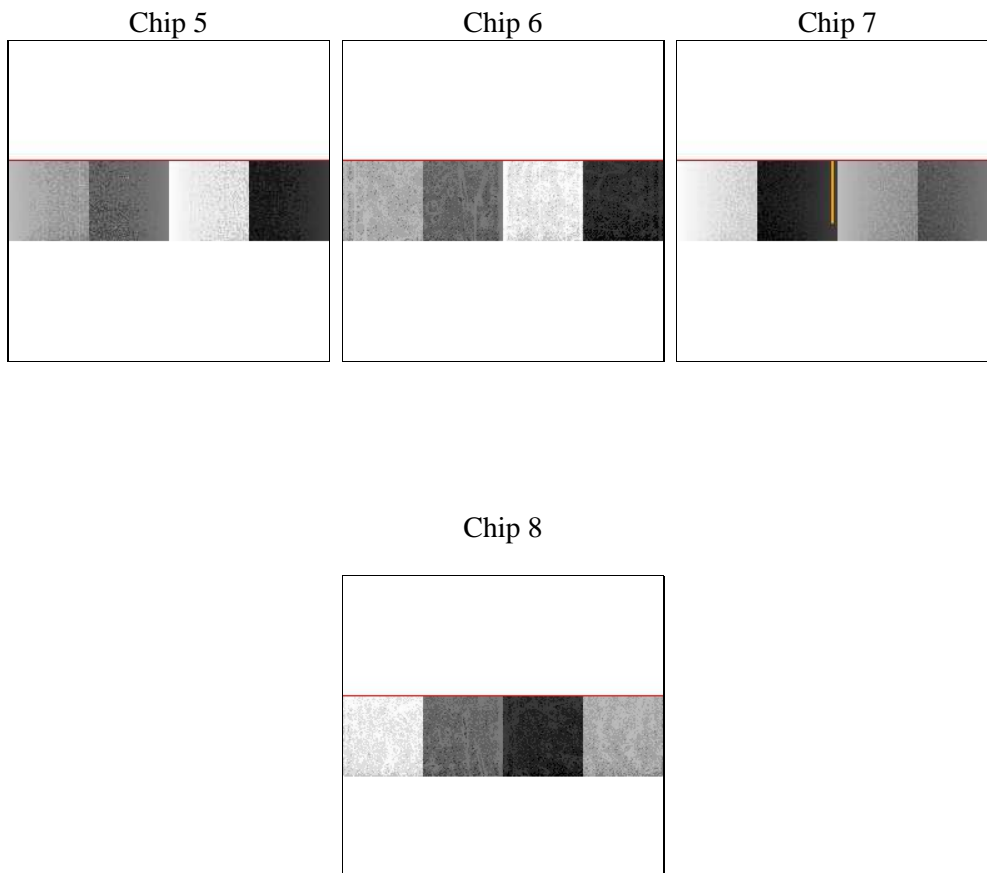
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	20766.727000	[s] Scheduled observation exposure time
ascdsver	10.8.1	Processing system revision	ontime	20848.0	Sum of GTIs [s]
caldbver	4.8.4.2	 	ontime5	20847.976680875	Sum of GTIs [s]
date	2019-10-25T20:43:58	Date and time of file creation	ontime6	20847.935640812	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	20848.0	Sum of GTIs [s]
			ontime8	20847.894600868	Sum of GTIs [s]
			l1events	265801	Number of level 1 events

2.1.4 Events

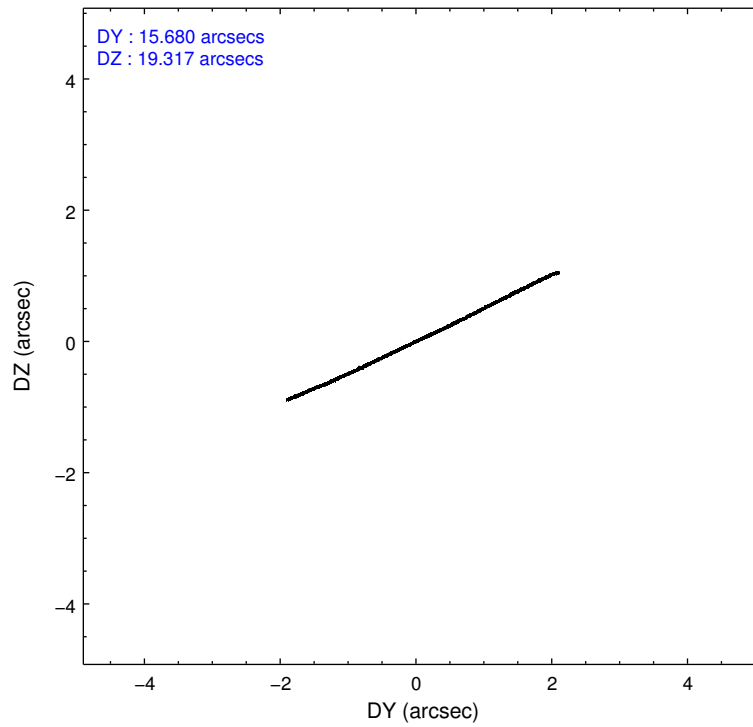
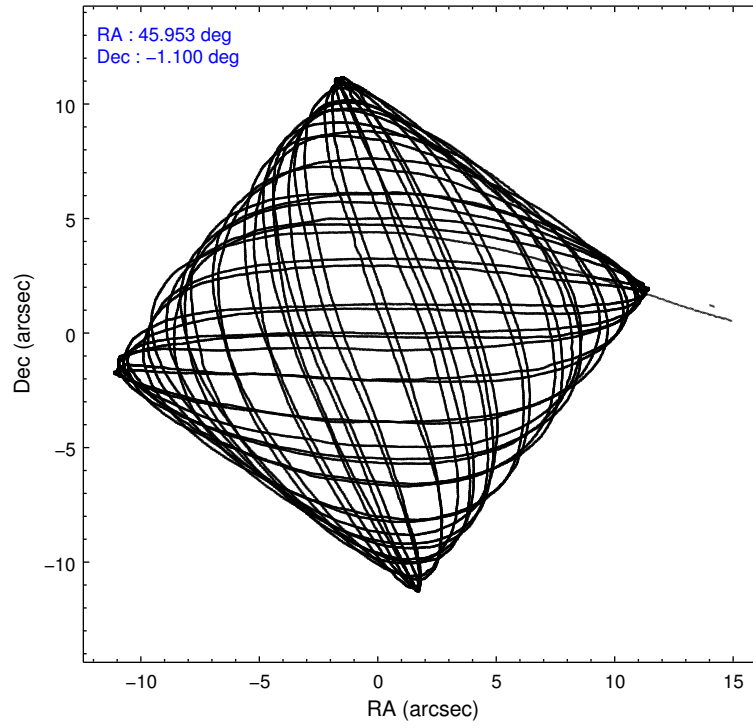
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	98122	47972	56583	63124
rejected events	39713	42657	30835	48877
rejected %	40%	88%	54%	77%

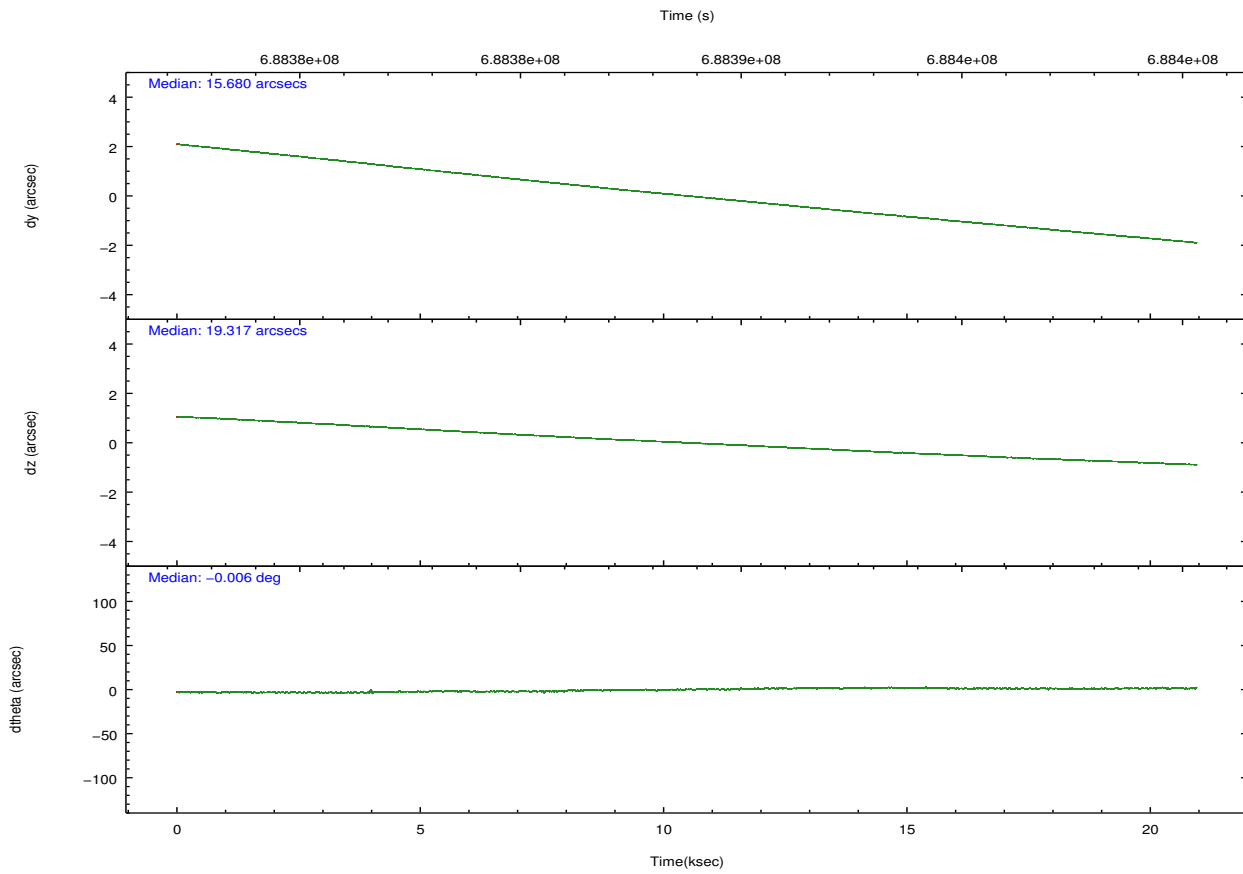
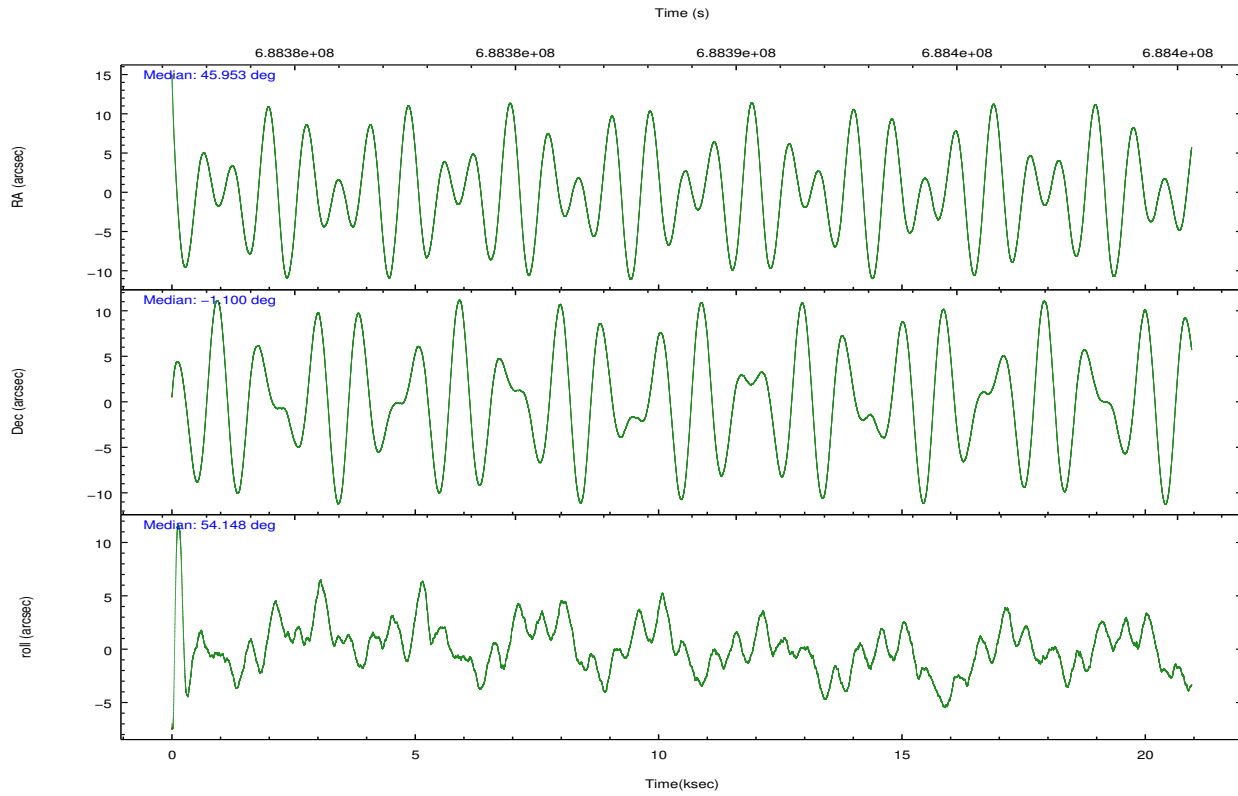
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	20309	1433	2502	3641
	20%	2%	4%	5%
grade 1 events	234	15	97	41
	0%	0%	0%	0%
grade 2 events	17724	1141	5208	3201
	18%	2%	9%	5%
grade 3 events	1301	740	2678	1558
	1%	1%	4%	2%
grade 4 events	1256	711	2652	1468
	1%	1%	4%	2%
grade 5 events	6835	1737	5595	2797
	6%	3%	9%	4%
grade 6 events	17822	1290	12708	4379
	18%	2%	22%	6%
grade 7 events	32641	40905	25143	46039
	33%	85%	44%	72%

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	45.950379	45.95279534246085	Subarray requested	CUSTOM	1/4
[deg] Pointing Dec	-1.127076	-1.099729697414997	Subarray start row	385	385
[deg] Pointing Roll	53.999923	54.15658540371374	Subarray row count	256	256
[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	1
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	688378474.184000	688377568.81515			
Observation start date	2019-10-25T08:13:25	2019-10-25T07:59:28			
[s] Observation end time (MET)	688399241.184000	688400626.19154			
Observation end date	2019-10-25T13:59:32	2019-10-25T14:23:46			
Read mode	TIMED	TIMED			

2.3 Aspect





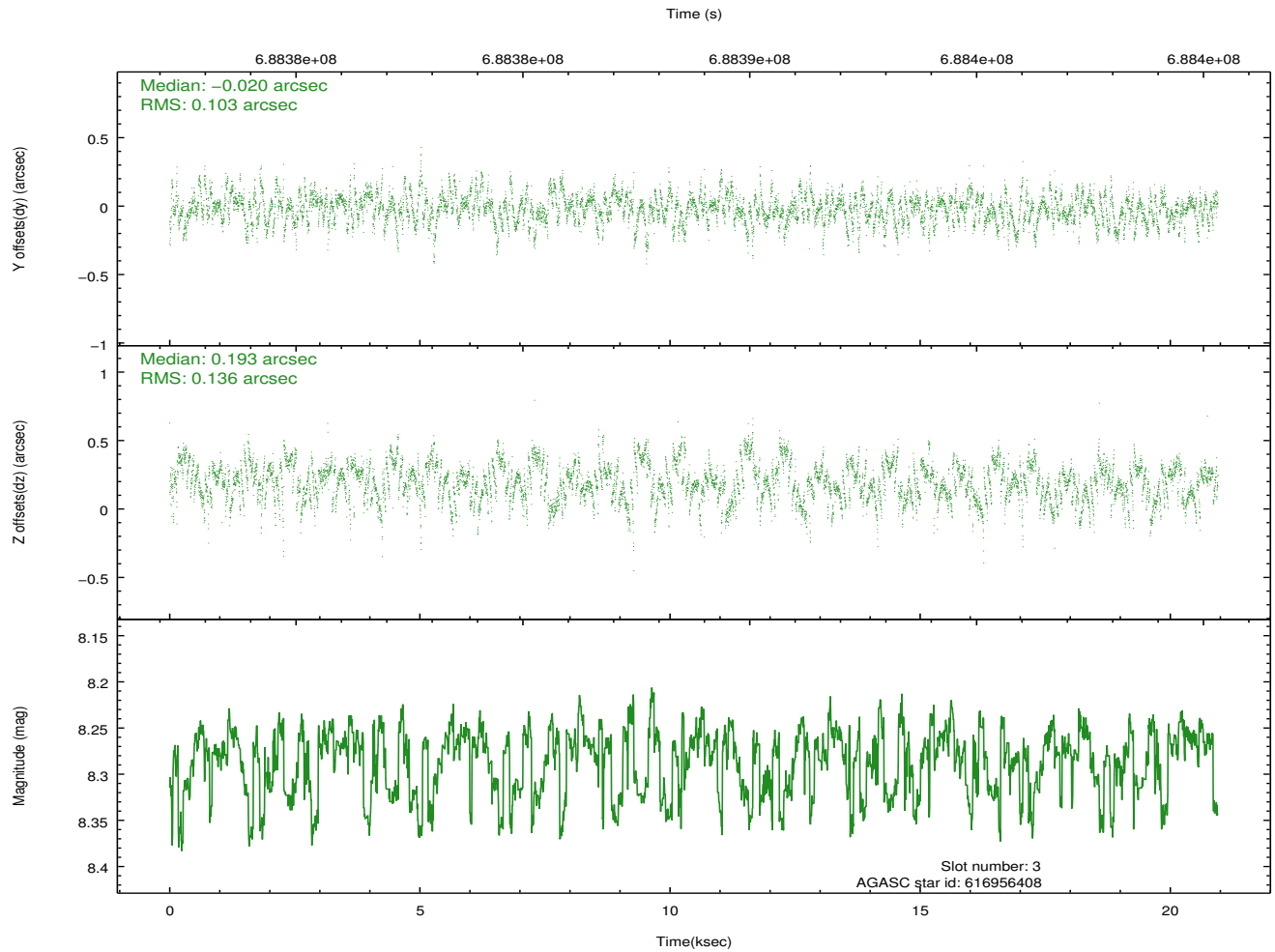
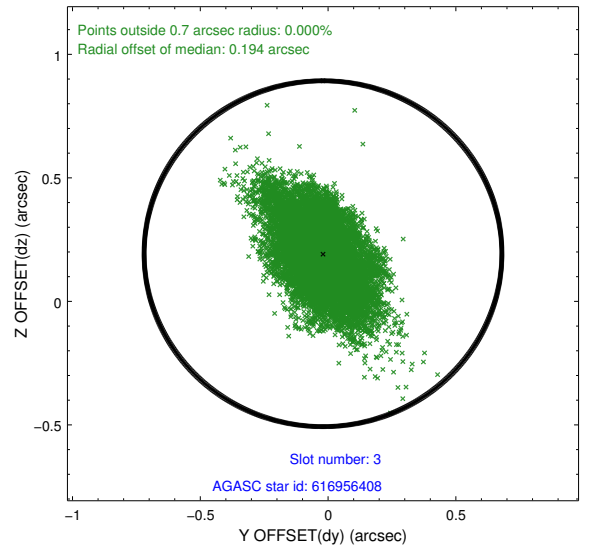
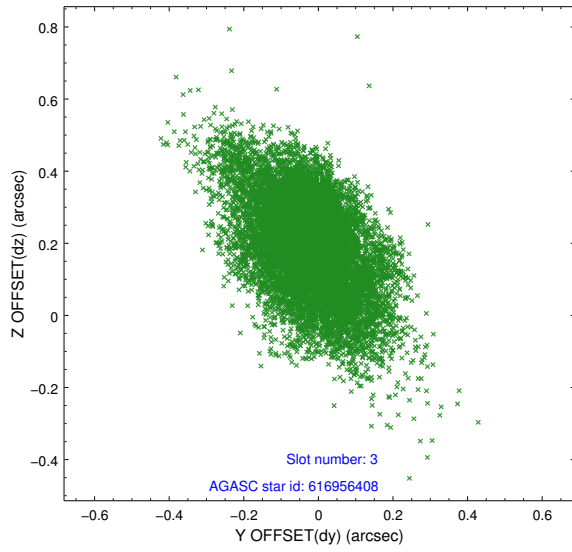
Slot Statistics

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	7.14	5111	1.000	-0.318	-0.238	0.022	0.055	0.000000	0.000000	-768.95	-1741
1	FID		ACIS-S-4	7.26	5111	1.000	0.834	0.216	0.017	0.036	0.000000	0.000000	2145.32	167
2	FID		ACIS-S-5	7.21	5111	1.000	-0.552	0.029	0.023	0.041	0.000000	0.000000	-1821.89	161
3	GUIDE	used	616956408	8.28	10217	1.000	-0.020	0.193	0.176	0.305	46.730739	-1.155158	1569.38	-2331
4	GUIDE	used	616958784	9.62	10190	1.000	0.233	0.267	0.263	0.431	46.208963	-1.316678	-4.40	-1155
5	GUIDE	used	616958888	9.91	10192	1.000	-0.226	-0.369	0.361	0.544	46.053481	-0.698653	1465.83	605
6	GUIDE	used	616961464	8.30	10216	1.000	0.068	0.143	0.173	0.264	45.458874	-1.162529	-1142.84	1356
7	GUIDE	used	616962800	8.02	10146	1.000	-0.038	-0.239	0.171	0.277	45.469553	-0.918492	-410.04	1840

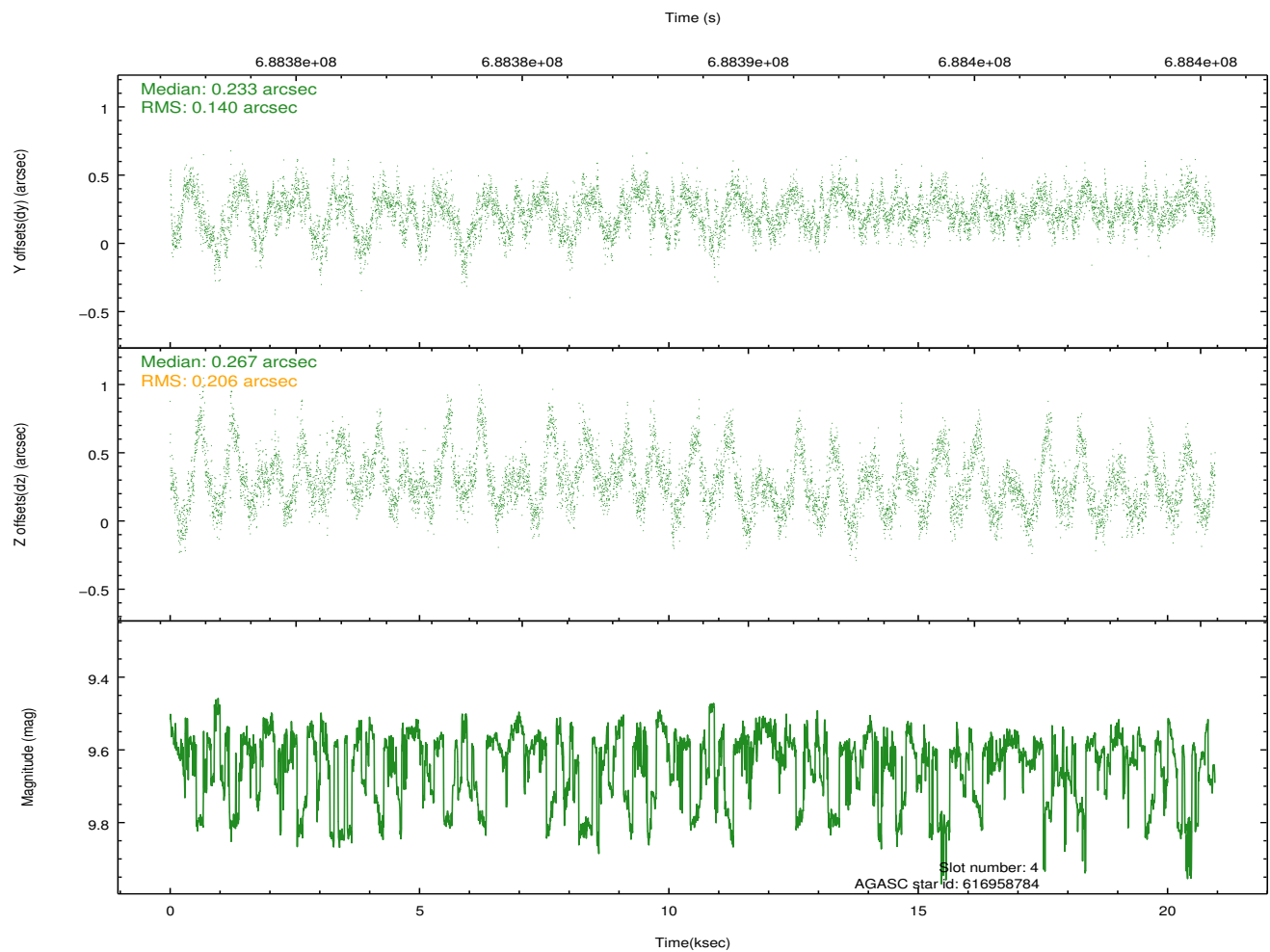
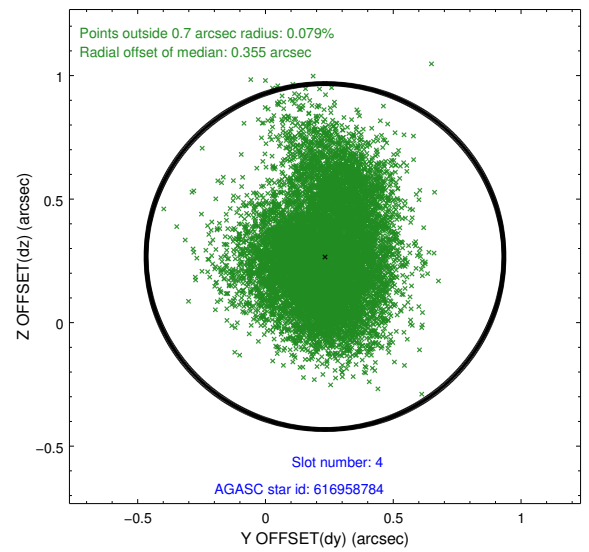
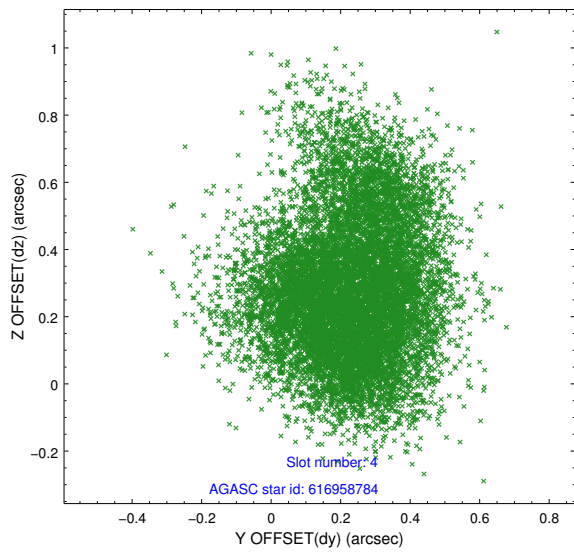
∞

2.4 Star Slots

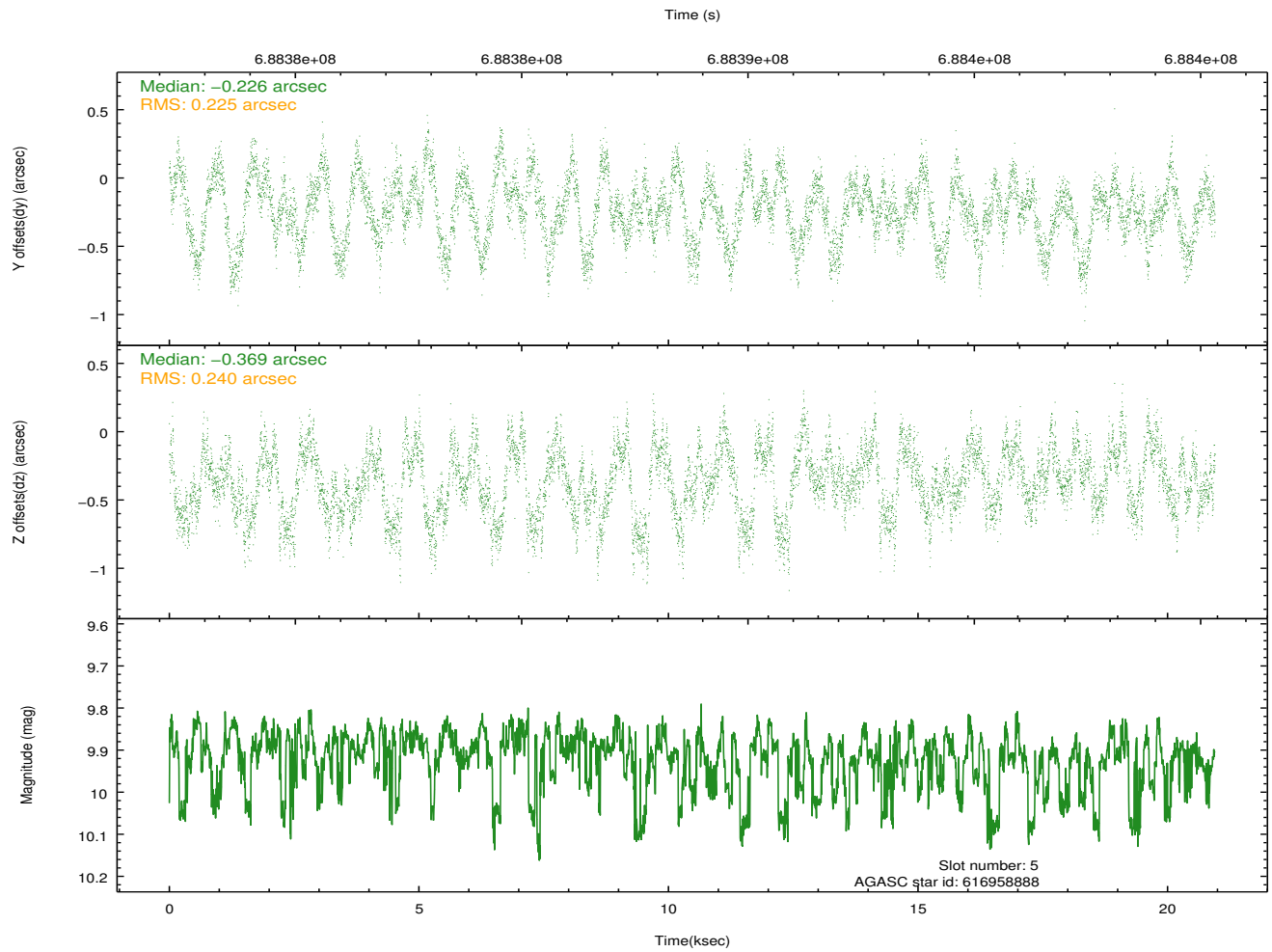
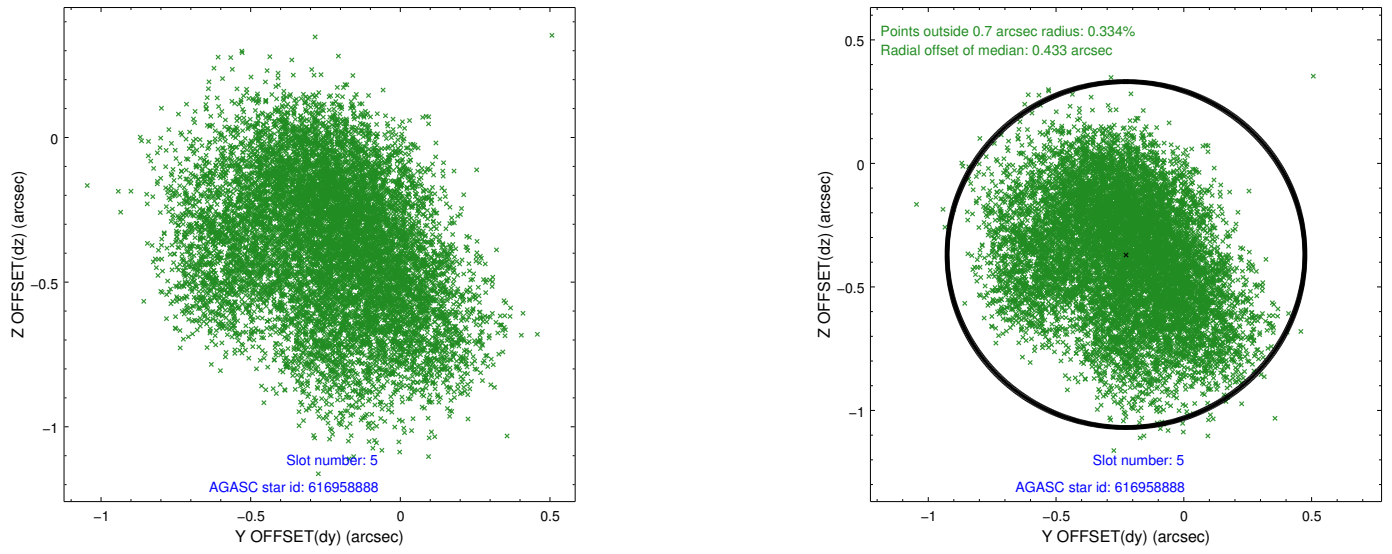
2.4.1 Slot 3



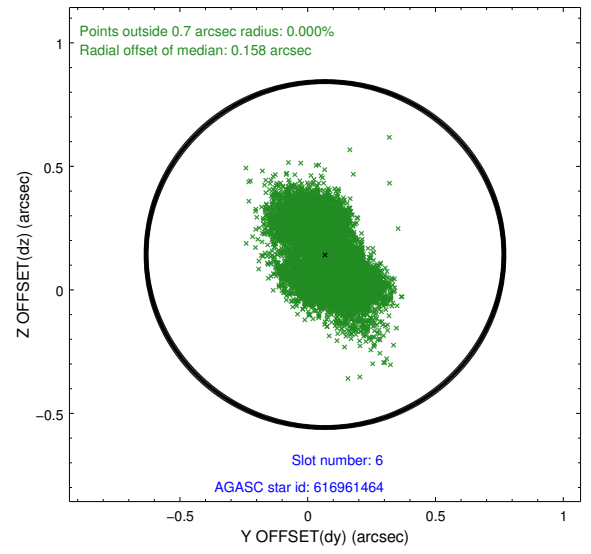
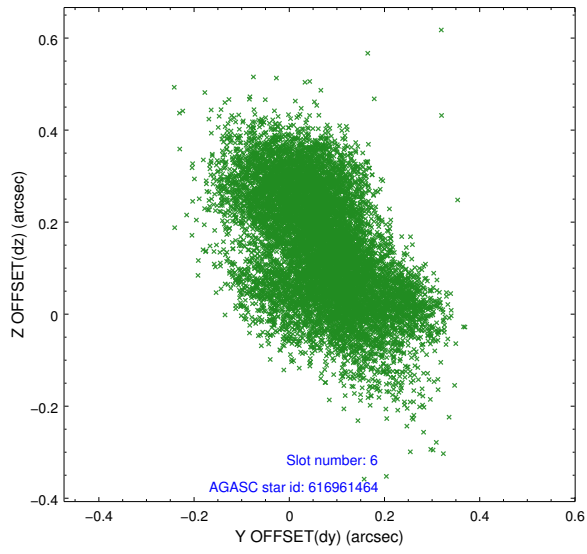
2.4.2 Slot 4



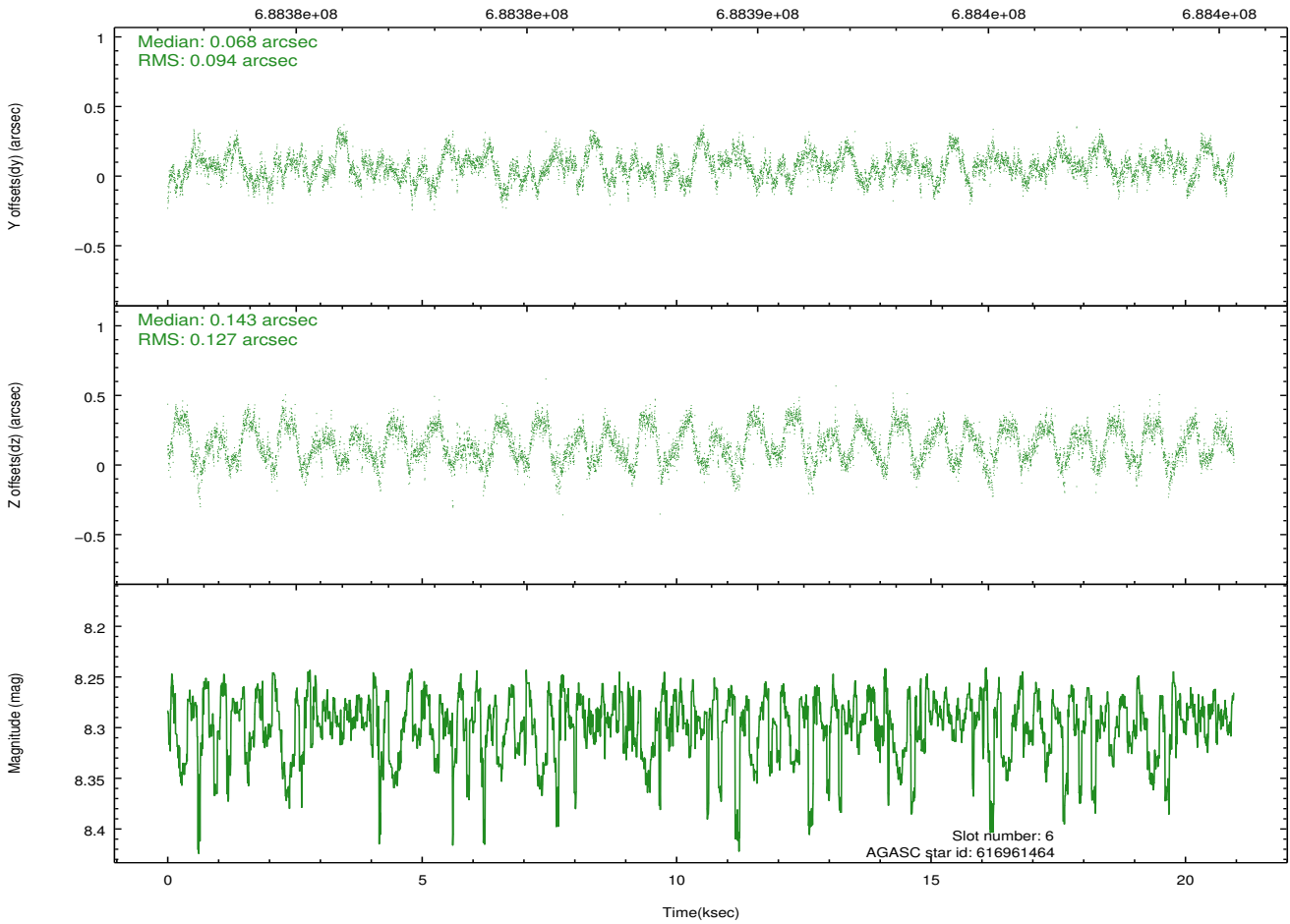
2.4.3 Slot 5



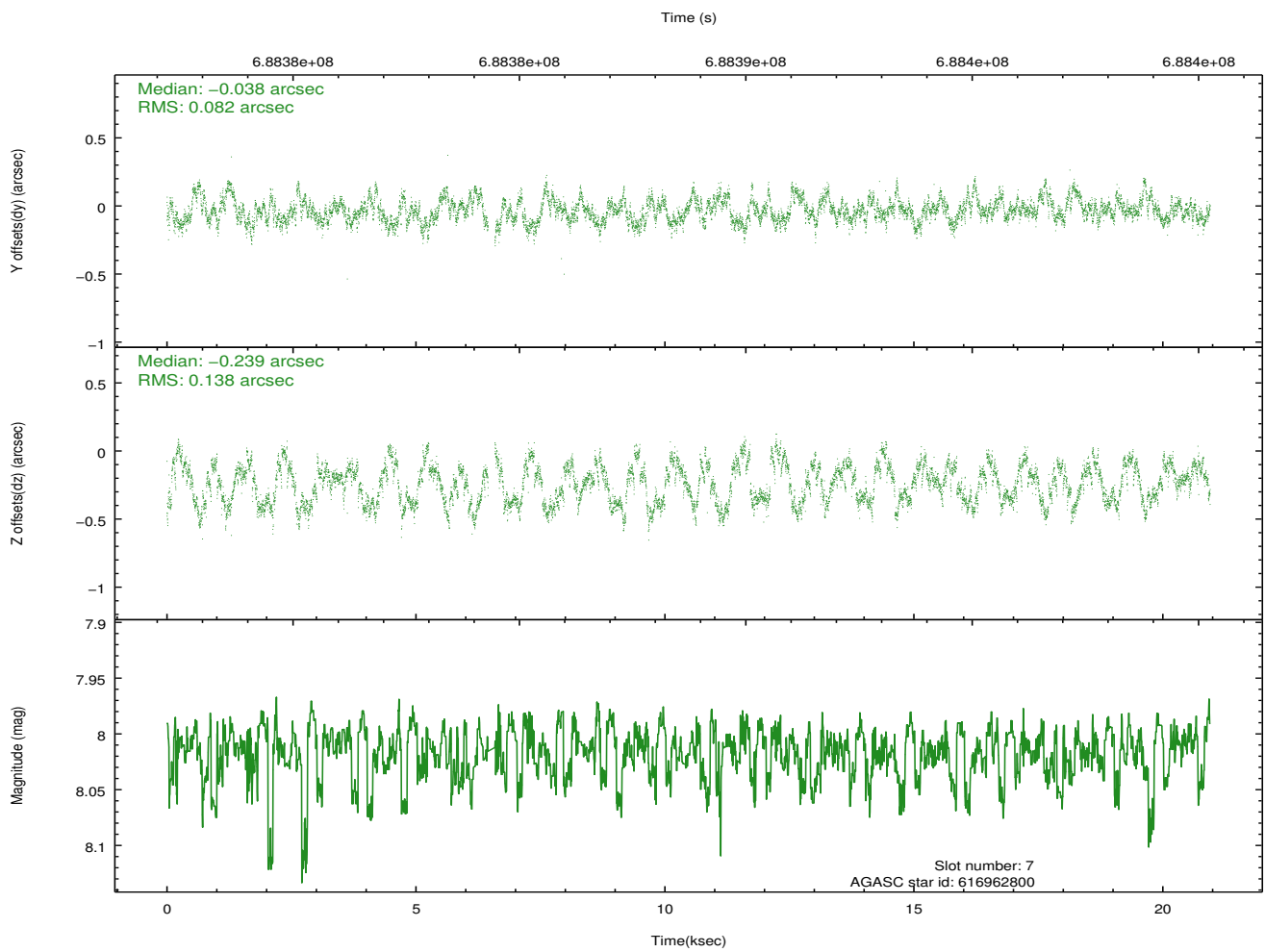
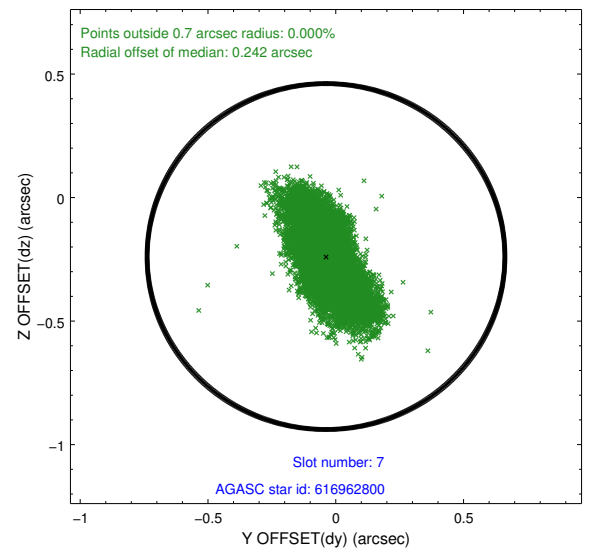
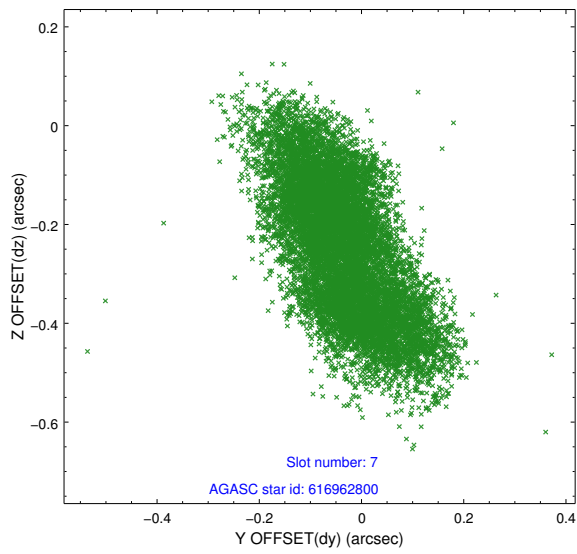
2.4.4 Slot 6



Time (s)

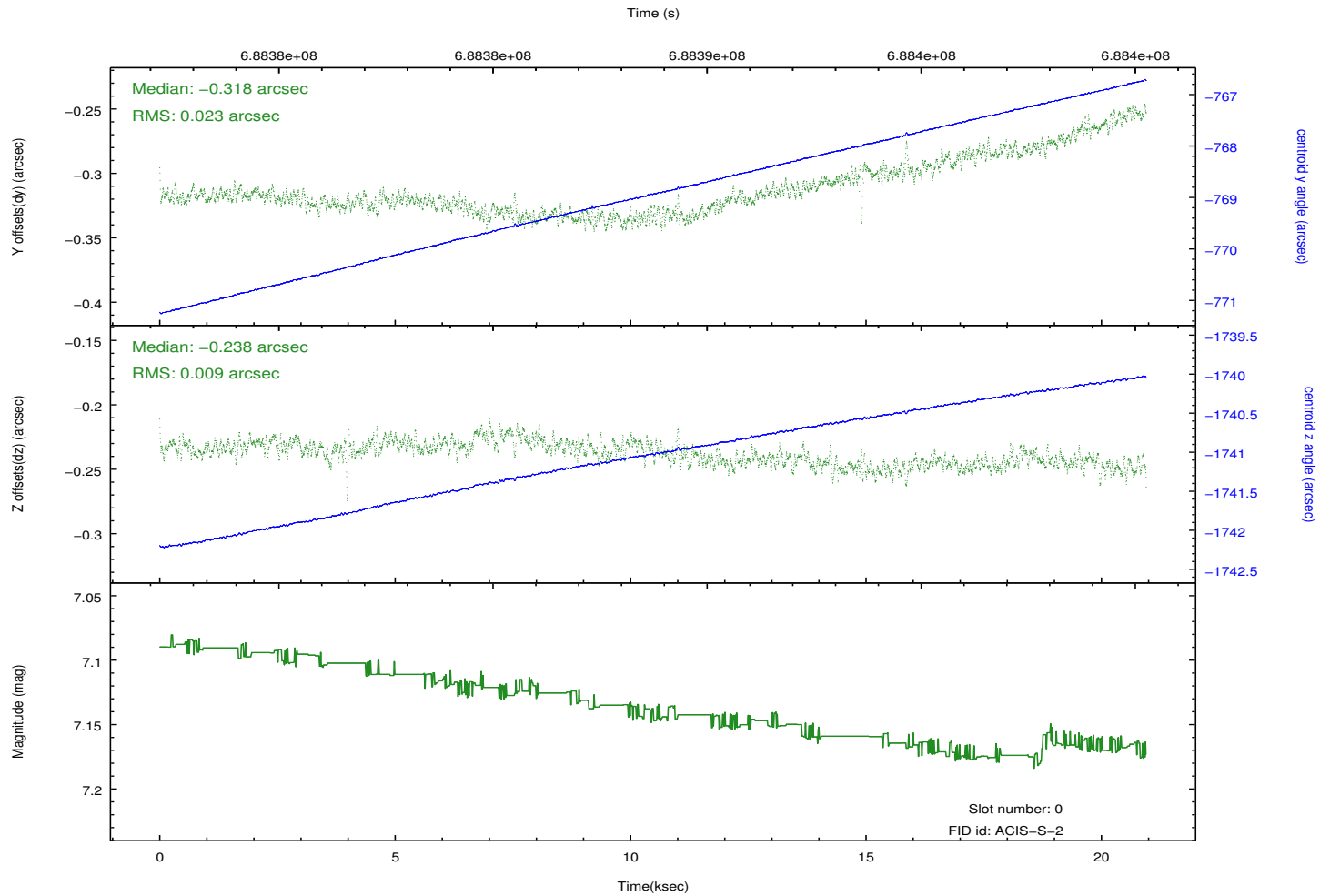
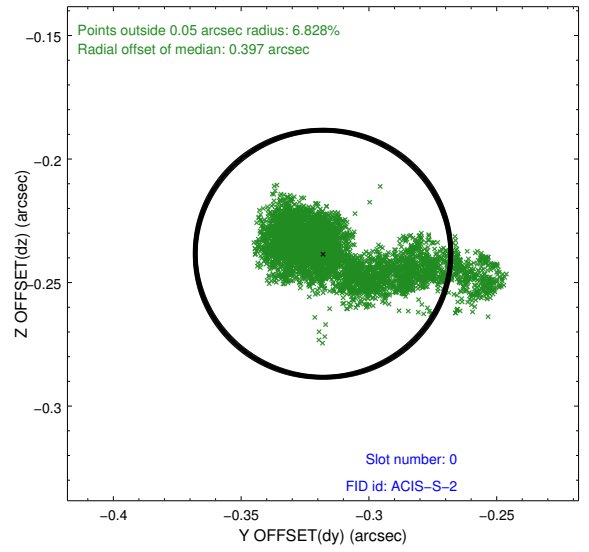
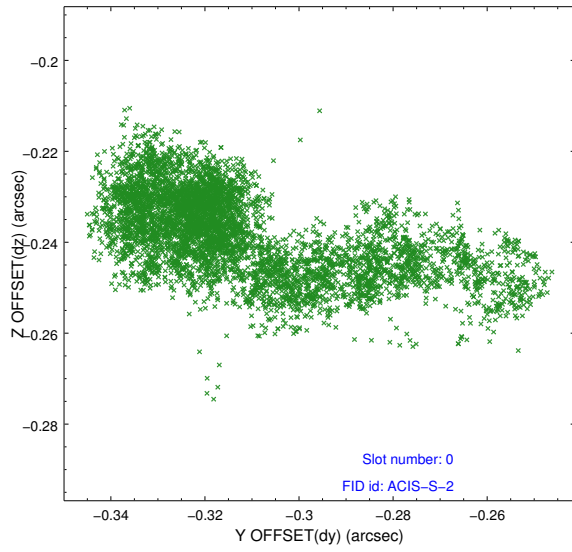


2.4.5 Slot 7

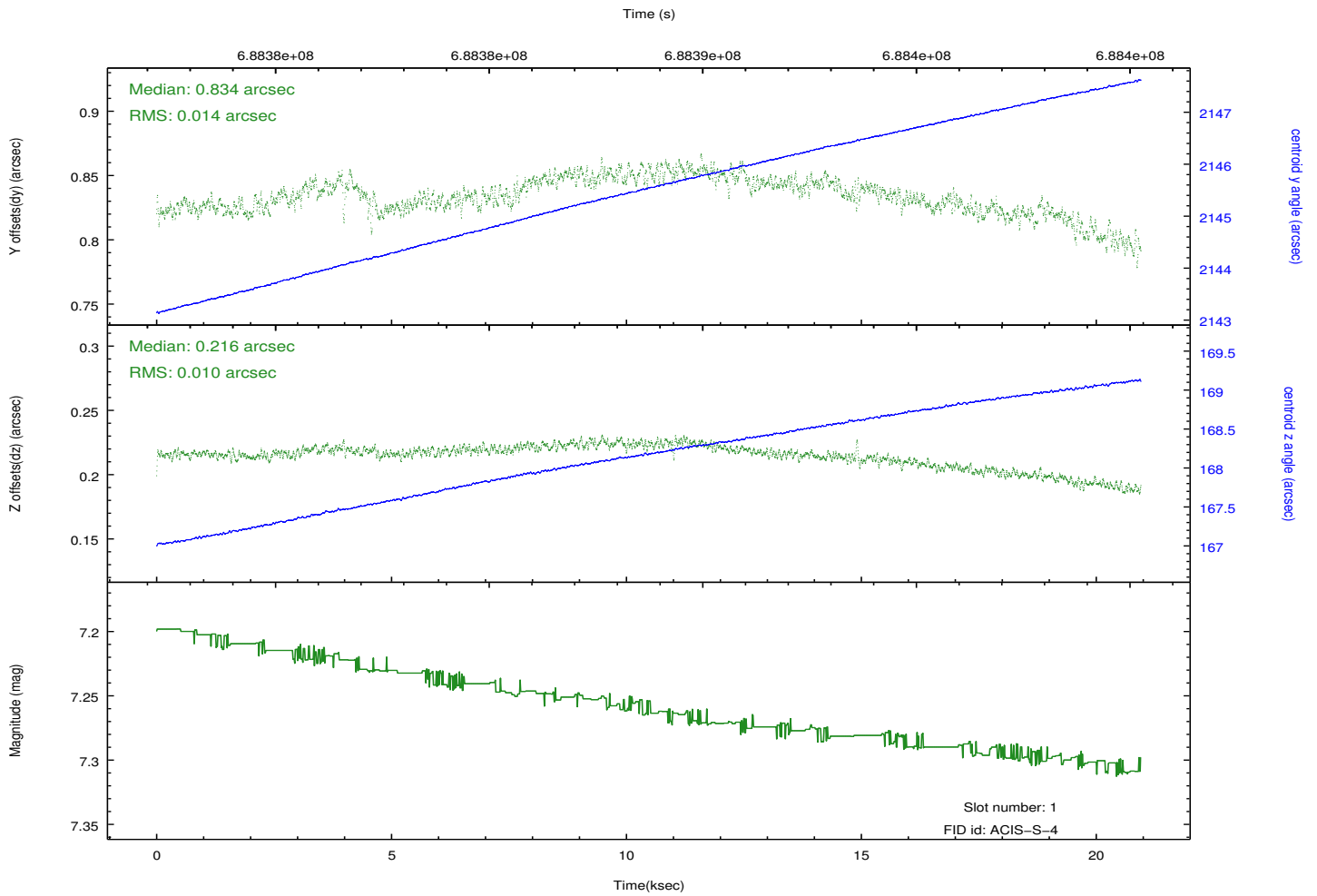
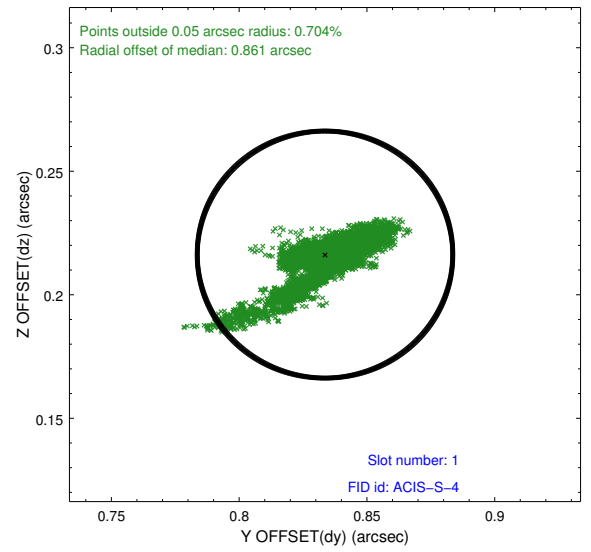
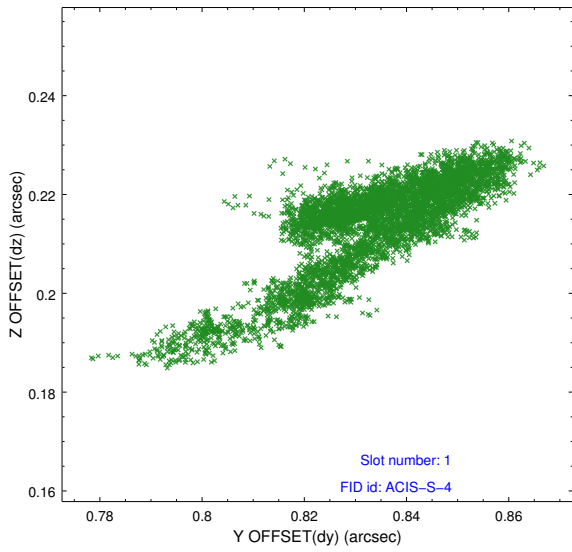


2.5 FID Slots

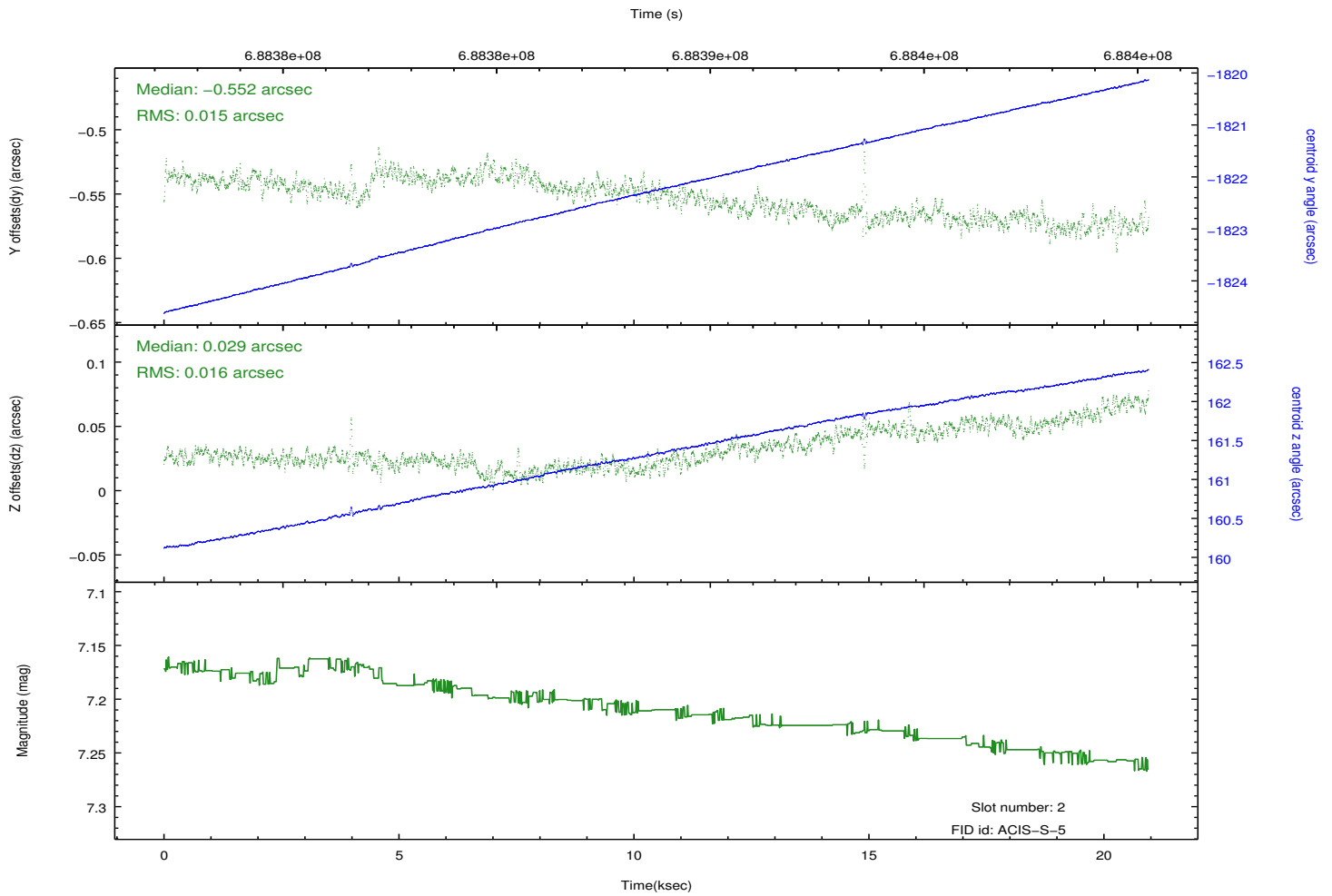
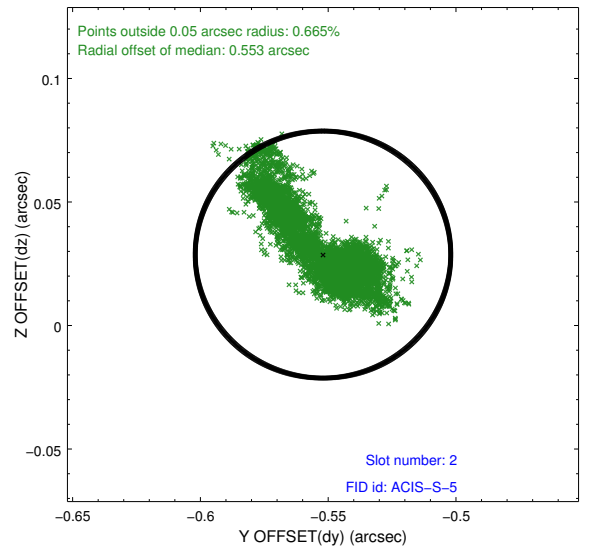
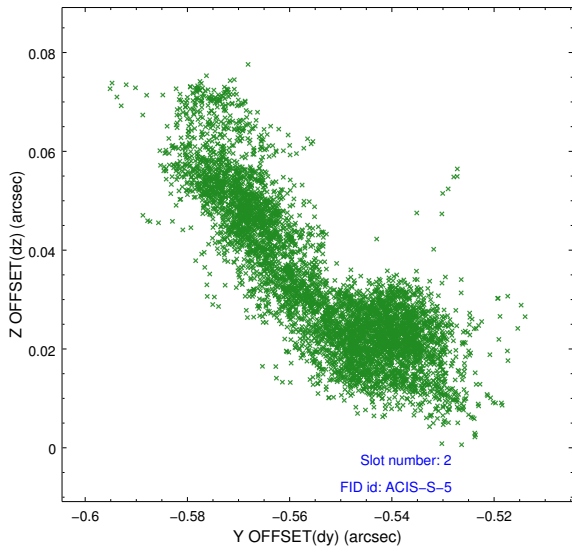
2.5.1 Slot 0



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)	2019.10.27
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.848

A.2 Comments

The focal plane temperature during the interval 688397911.32 - 688399239.32 (MET s) of this observation was warmer than the upper limit for optimum calibration of the ACIS gain and spectral resolution (i.e., -111.0 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.