

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21634 - L2 Version 1
Chandra X-Ray Center

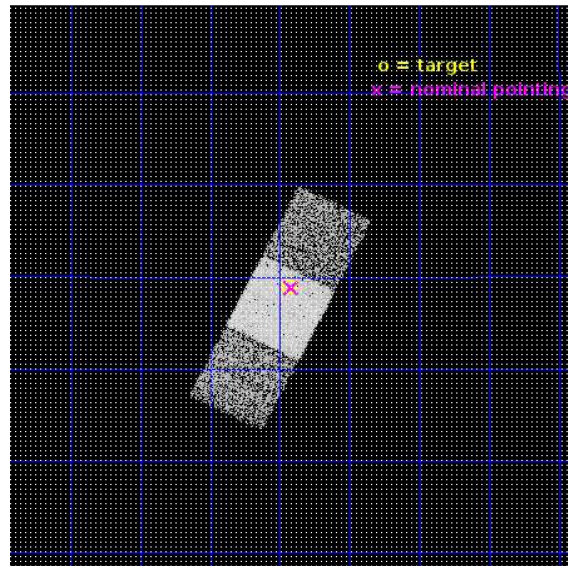
L2 Processing Date : Mar 29 2019

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1 Front

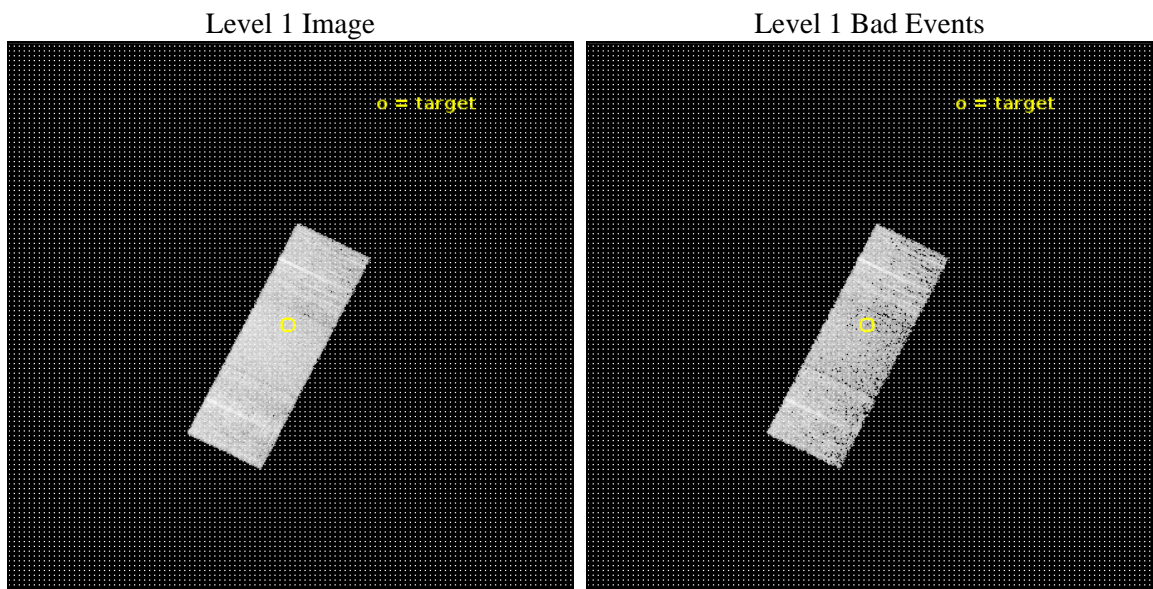
seq_num	402105	Sequence number
obs_id	21634	Observation id
title	Periodic self-lensing from accreting supermassive black hole binaries	Proposal title
observer	Daniel D'Orazio	Principal investigator
object	SDSS_J135225.80+132853.2	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	208.1075	Observer's specified target RA [deg]
dec_targ	13.481472	Observer's specified target Dec [deg]
ra_nom	208.10470887665	Nominal RA [deg]
dec_nom	13.480588235889	Nominal Dec [deg]
roll_nom	116.65729027048	Nominal Roll [deg]
revision	1	Processing version of data
ontime	5070.9770382643	Sum of GTIs [s]
livetime	5004.7209900604	Livetime [s]
ontime6	5070.9359983206	Sum of GTIs [s]
ontime7	5070.9770382643	Sum of GTIs [s]
ontime8	5070.8949582577	Sum of GTIs [s]
l2events	28694	Number of level 2 events



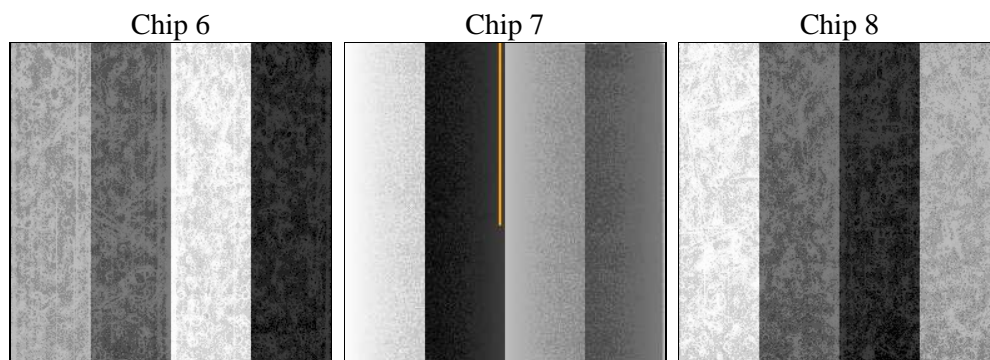
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	5000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	5070.9770382643	Sum of GTIs [s]
caldbver	4.8.2	 	ontime6	5070.9359983206	Sum of GTIs [s]
date	2019-03-29T09:29:48	Date and time of file creation	ontime7	5070.9770382643	Sum of GTIs [s]
revision	1	Processing version of data	ontime8	5070.8949582577	Sum of GTIs [s]
			l1events	138138	Number of level 1 events

2.1.4 Events

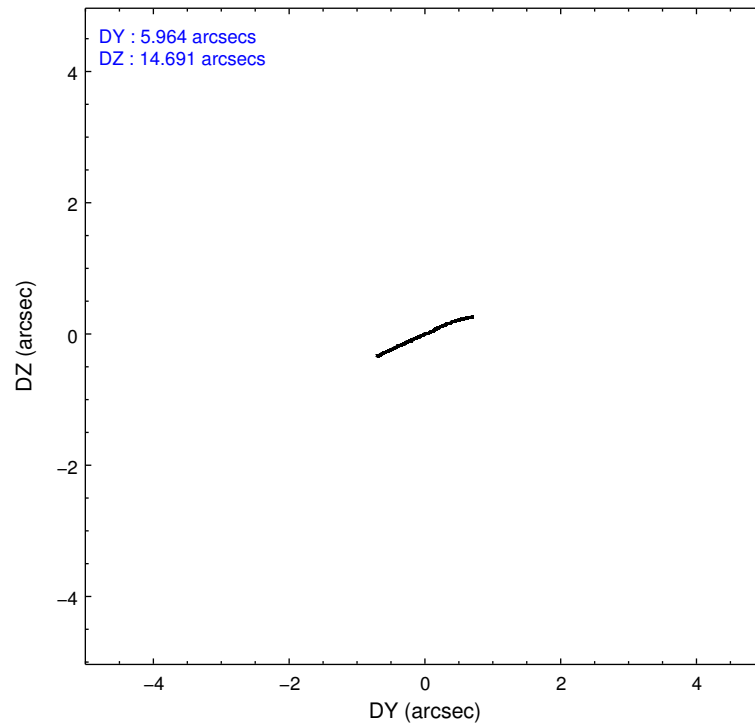
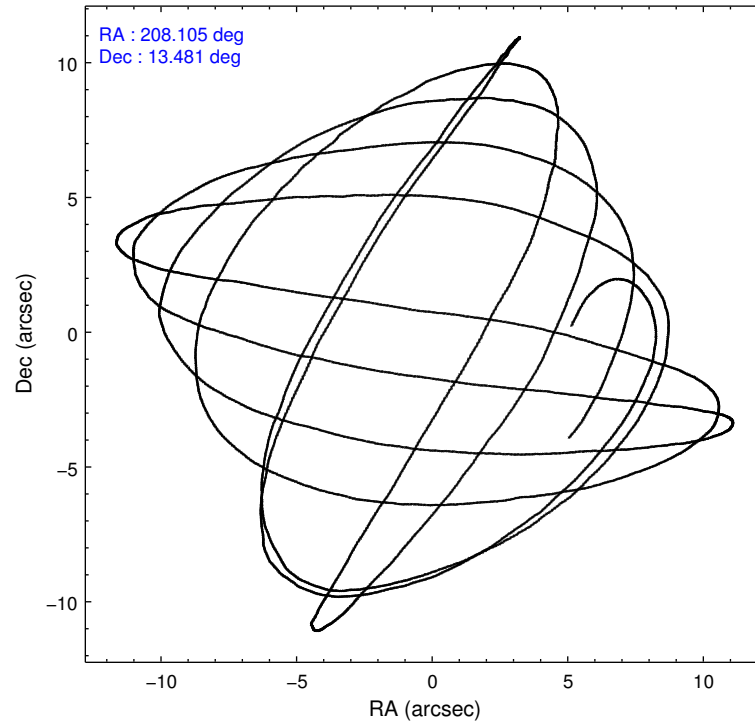
	ccd 6	ccd 7	ccd 8
level 1 events	40794	48803	48541
rejected events	36576	27587	36125
rejected %	89%	56%	74%

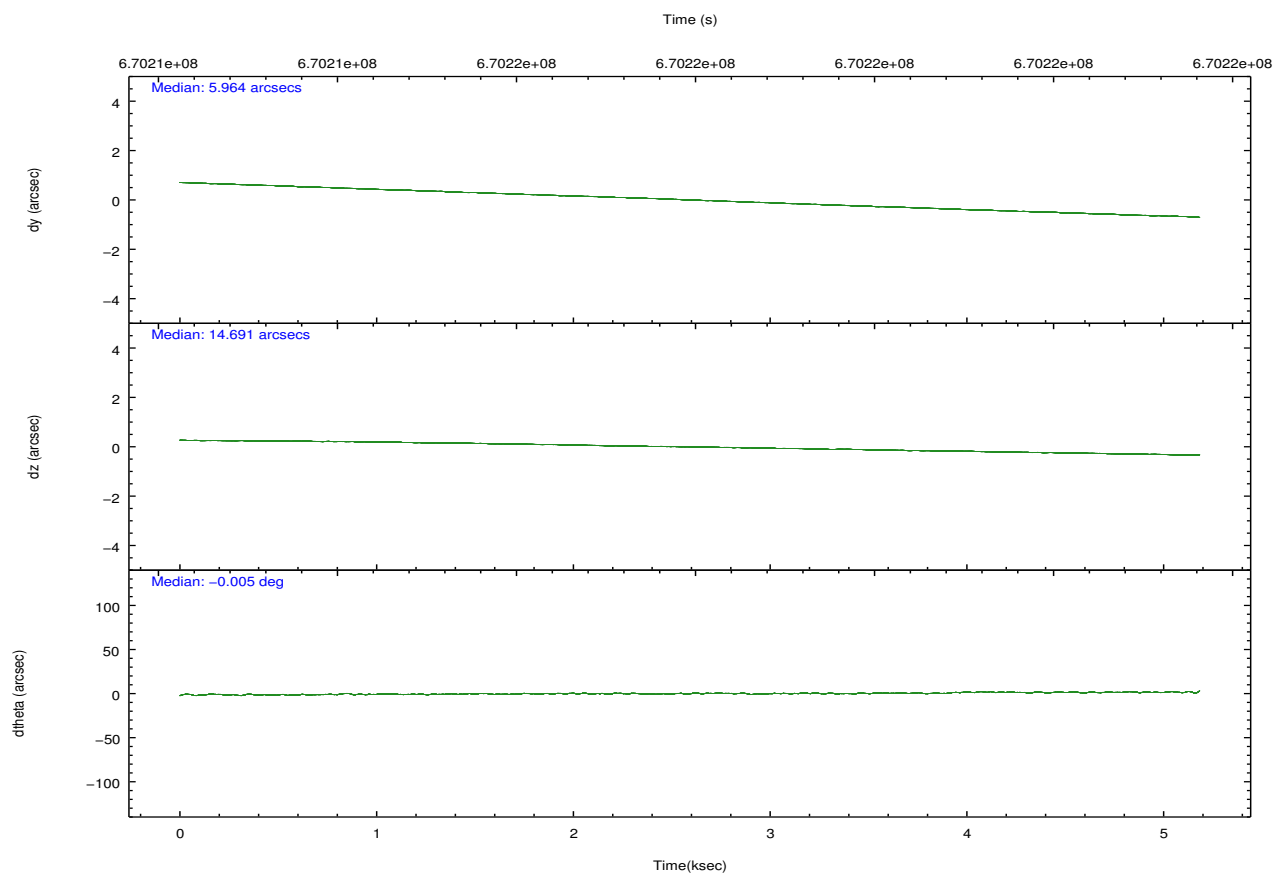
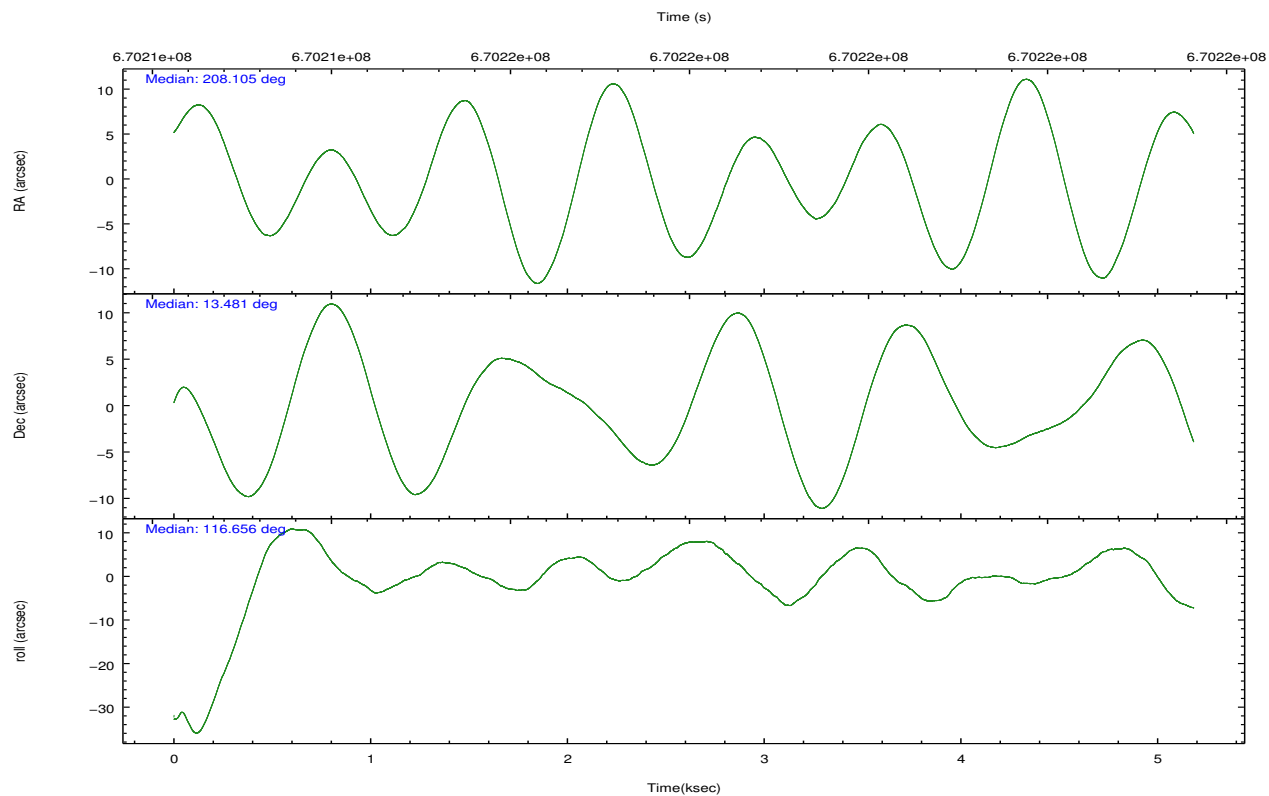
	ccd 6	ccd 7	ccd 8
grade 0 events	1135	1757	3383
	2%	3%	6%
grade 1 events	25	77	37
	0%	0%	0%
grade 2 events	1233	4386	2929
	3%	8%	6%
grade 3 events	312	1638	1280
	0%	3%	2%
grade 4 events	340	1665	1252
	0%	3%	2%
grade 5 events	1509	4749	2483
	3%	9%	5%
grade 6 events	1202	11789	3588
	2%	24%	7%
grade 7 events	35038	22742	33589
	85%	46%	69%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-678	ACIS-678	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	208.128424	208.1047088766465	Subarray requested	NONE	NONE
[deg] Pointing Dec	13.465805	13.48058823588875	Alternating exposures requested	N	N
[deg] Pointing Roll	116.495120	116.6572902704832	[s] Primary exposure time	0.000000	3.1
[s] Window start time (MET)	667785669.184000	667785669.184000			
[s] Window stop time (MET)	673056069.184000	673056069.184000			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	670213563.184000	670212674.54928			
Observation start date	2019-03-29T02:24:54	2019-03-29T02:11:14			
[s] Observation end time (MET)	670218563.184000	670219419.56218			
Observation end date	2019-03-29T03:48:14	2019-03-29T04:03:39			
Read mode	TIMED	TIMED			

2.3 Aspect



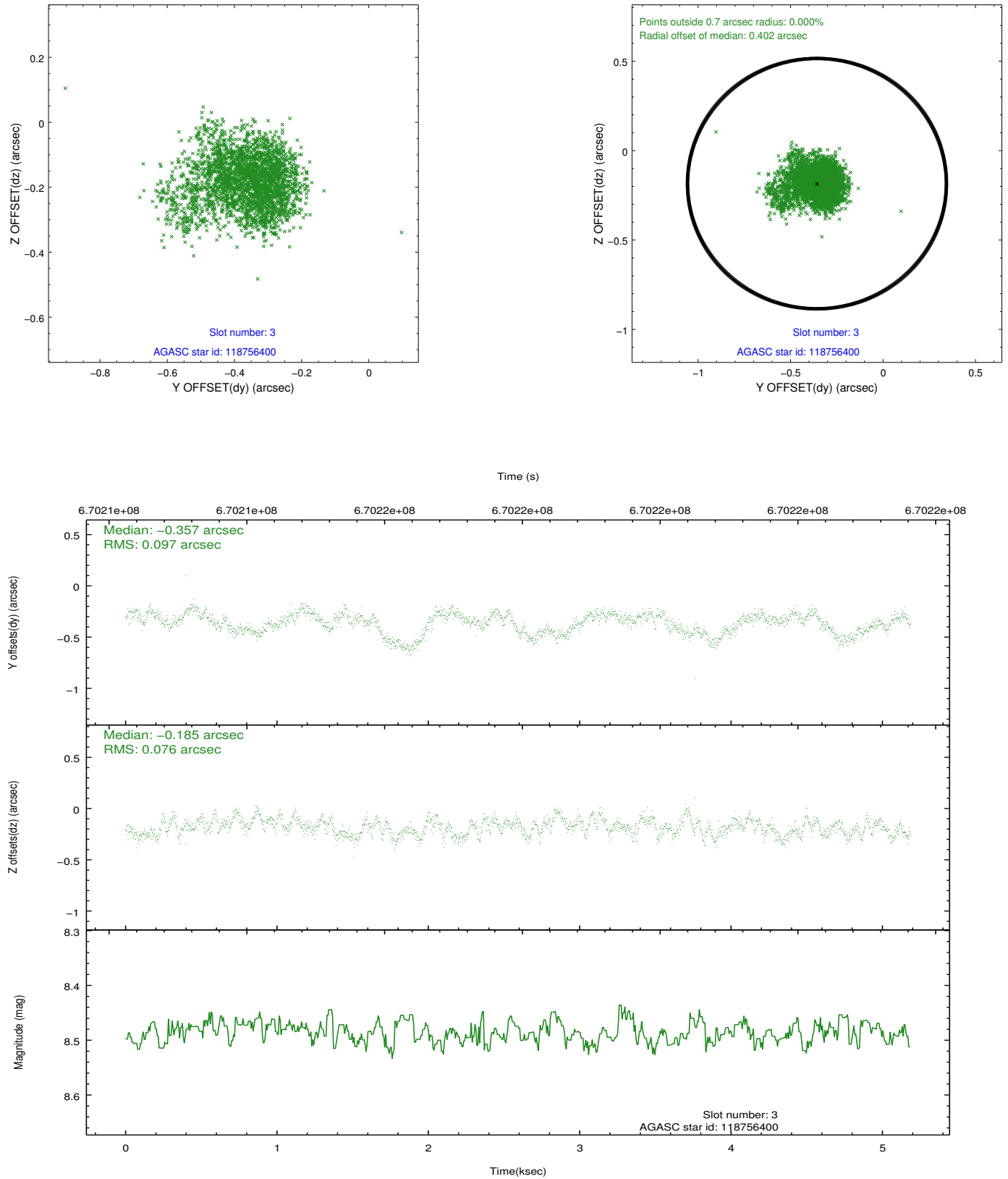


Slot Statistics

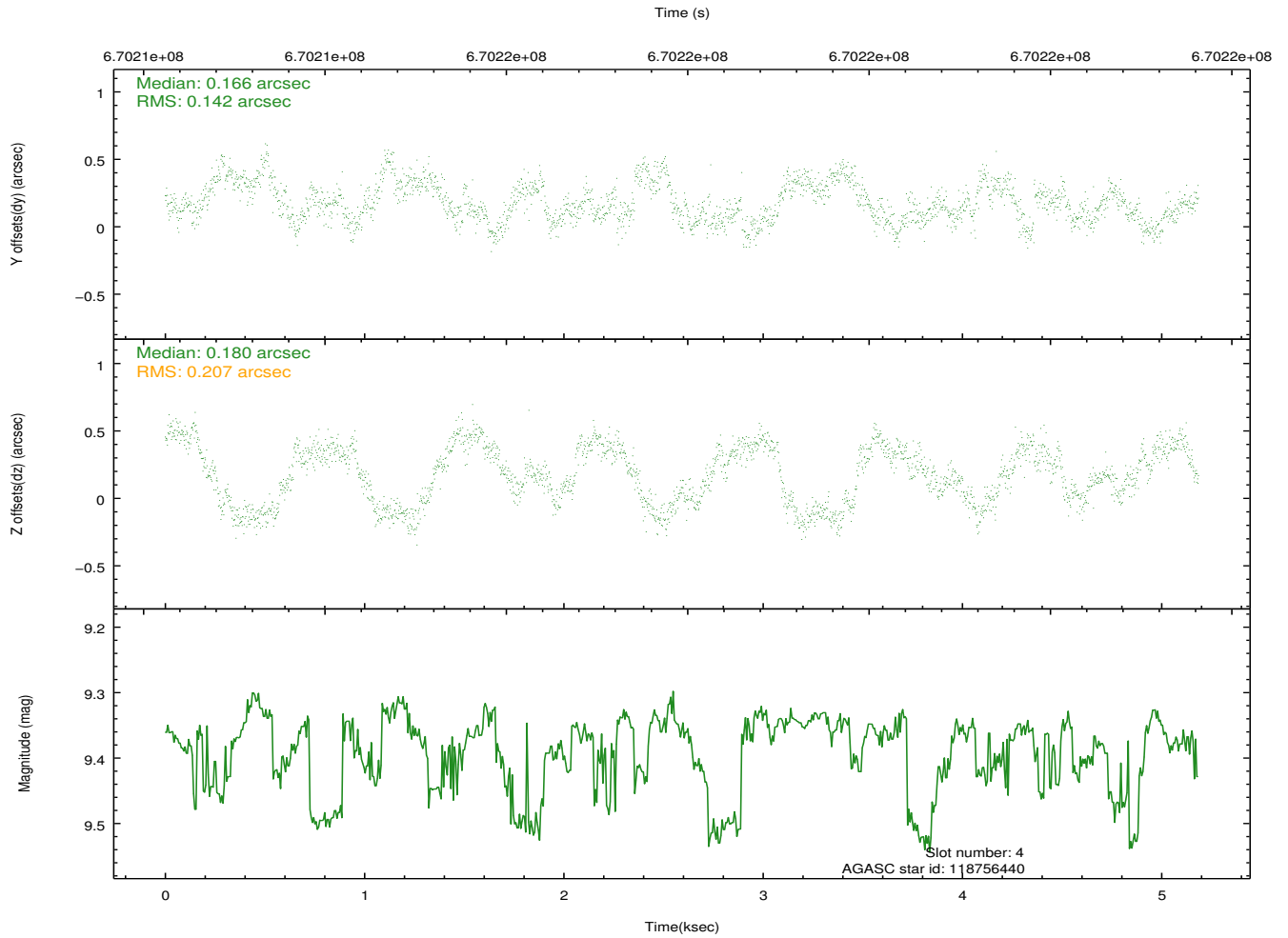
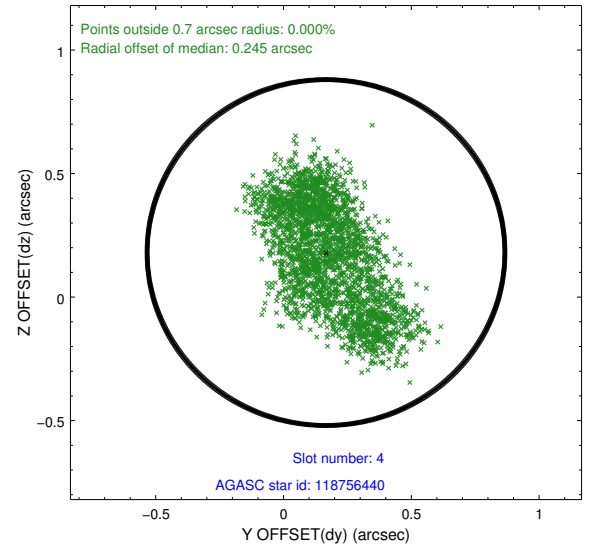
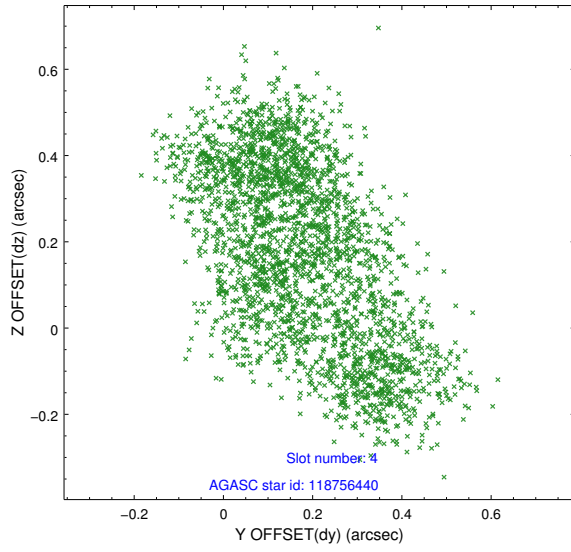
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.10	1265	1.000	-0.314	-0.137	0.012	0.017	0.000000	0.000000	-758.96	-1736
1	FID		ACIS-S-4	7.23	1265	1.000	0.639	0.189	0.009	0.018	0.000000	0.000000	2154.70	171
2	FID		ACIS-S-5	7.21	1265	1.000	-0.354	-0.043	0.010	0.018	0.000000	0.000000	-1810.38	166
3	GUIDE	used	118756400	8.49	2529	1.000	-0.357	-0.185	0.128	0.220	207.523207	13.487281	1016.90	1860
4	GUIDE	used	118756440	9.38	2522	1.000	0.166	0.180	0.277	0.417	207.948586	14.056464	2184.36	-385
5	GUIDE	used	118757488	8.23	2529	1.000	-0.047	0.212	0.104	0.164	207.988448	14.023799	2015.27	-457
6	GUIDE	used	118757672	9.68	2521	1.000	-0.124	-0.475	0.288	0.424	207.342972	13.800764	2308.76	1917
7	GUIDE	used	118757936	9.28	2527	1.000	0.363	0.274	0.150	0.242	208.247938	13.052076	-1515.68	290

2.4 Star Slots

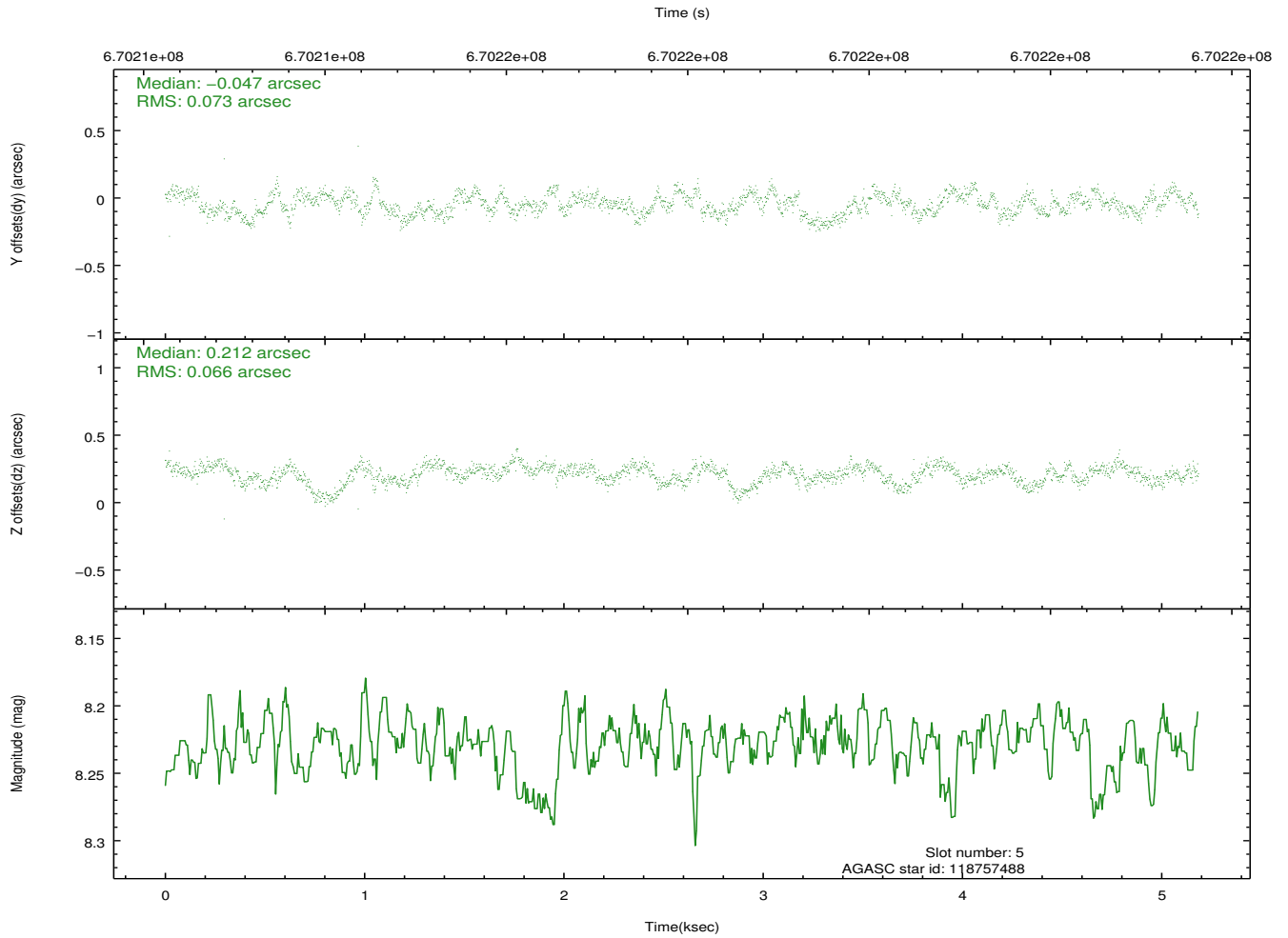
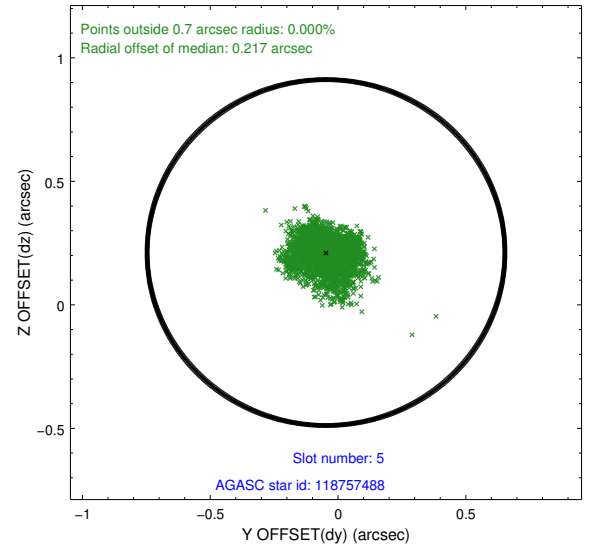
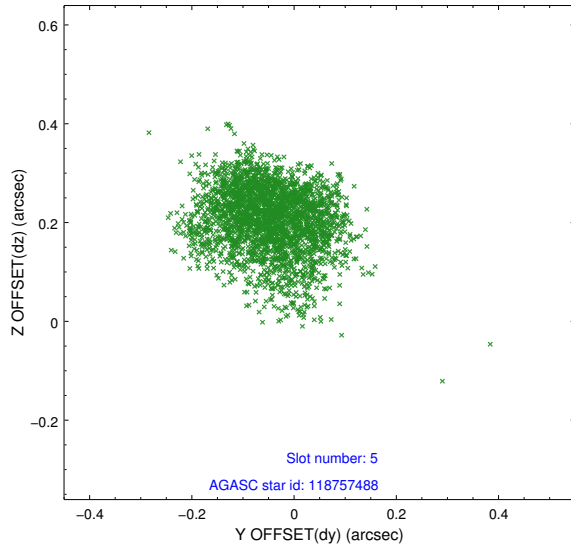
2.4.1 Slot 3



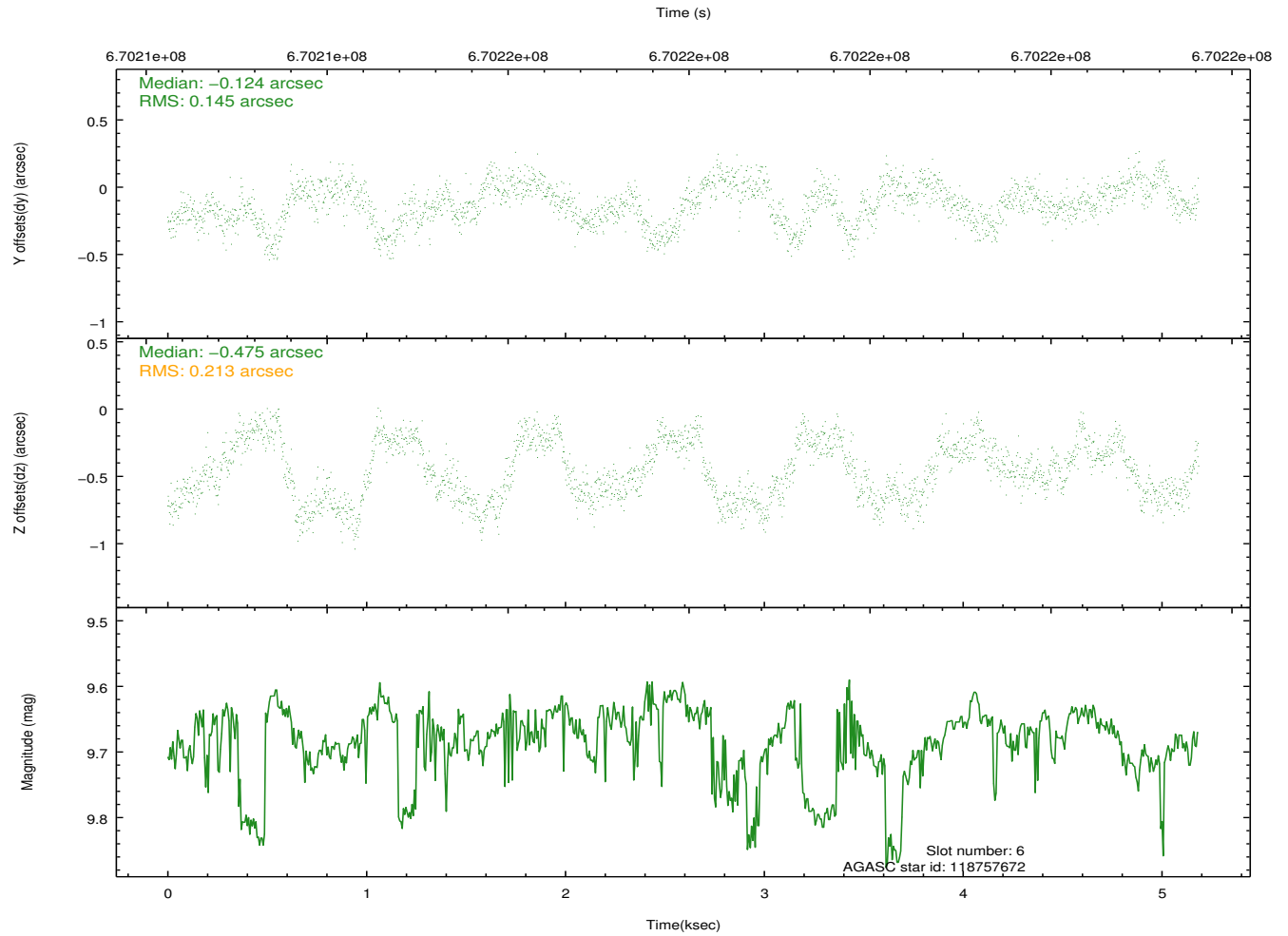
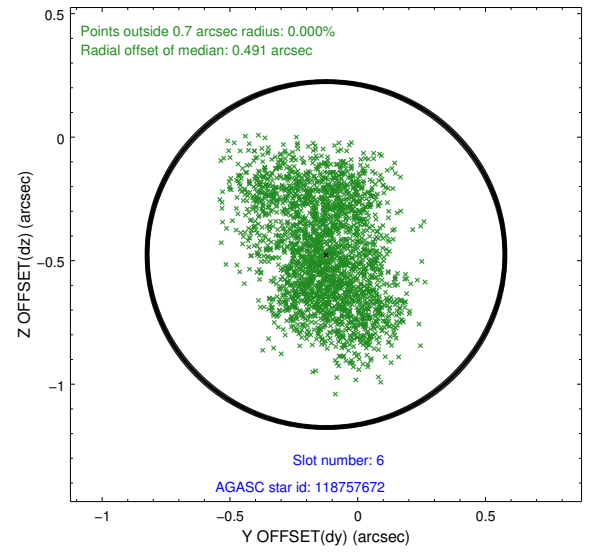
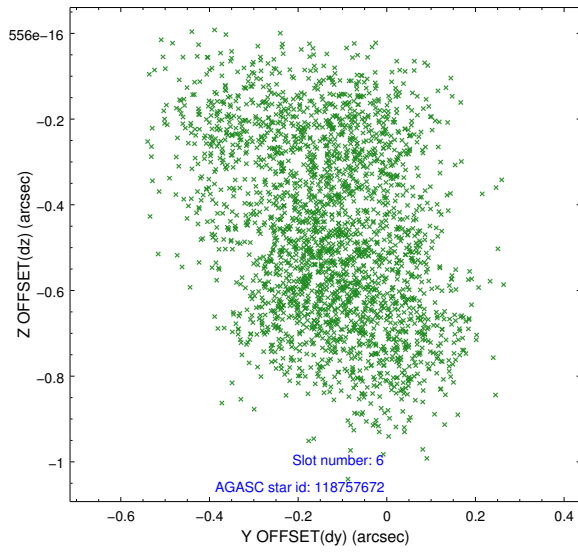
2.4.2 Slot 4



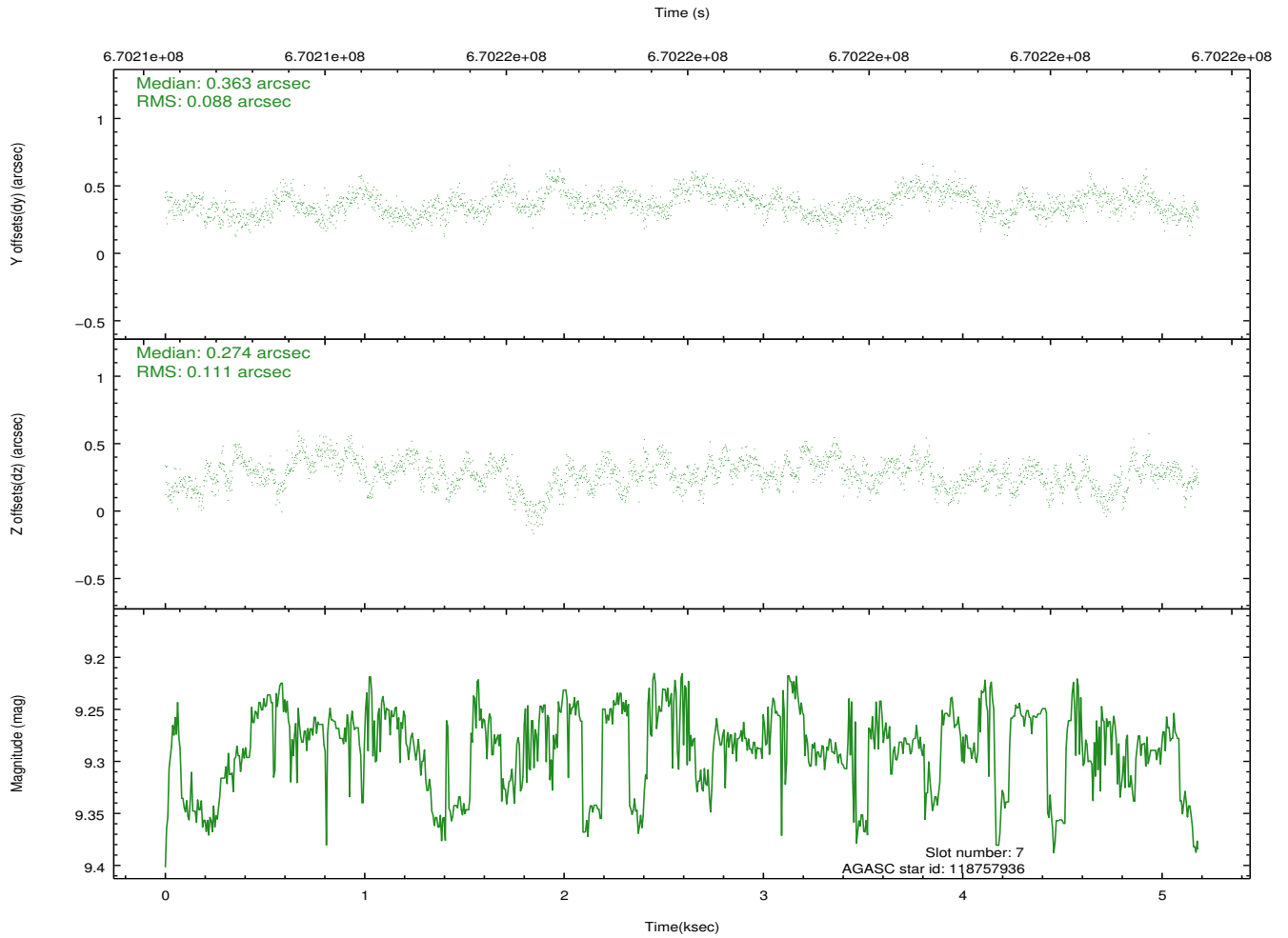
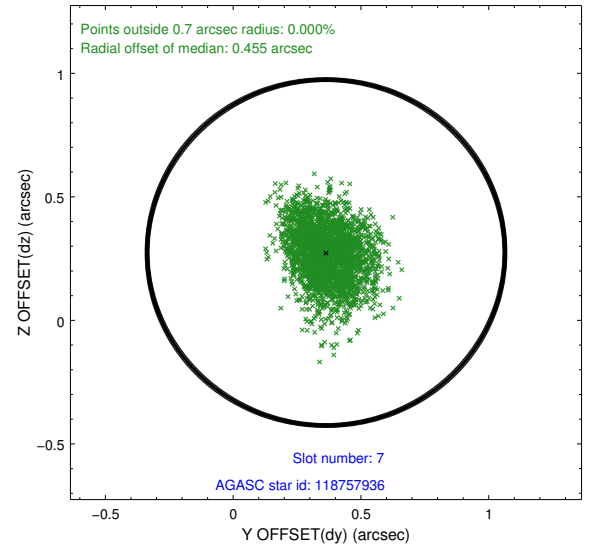
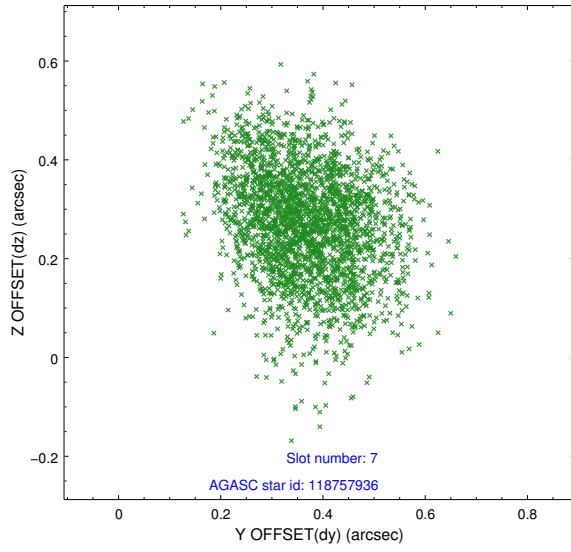
2.4.3 Slot 5



2.4.4 Slot 6

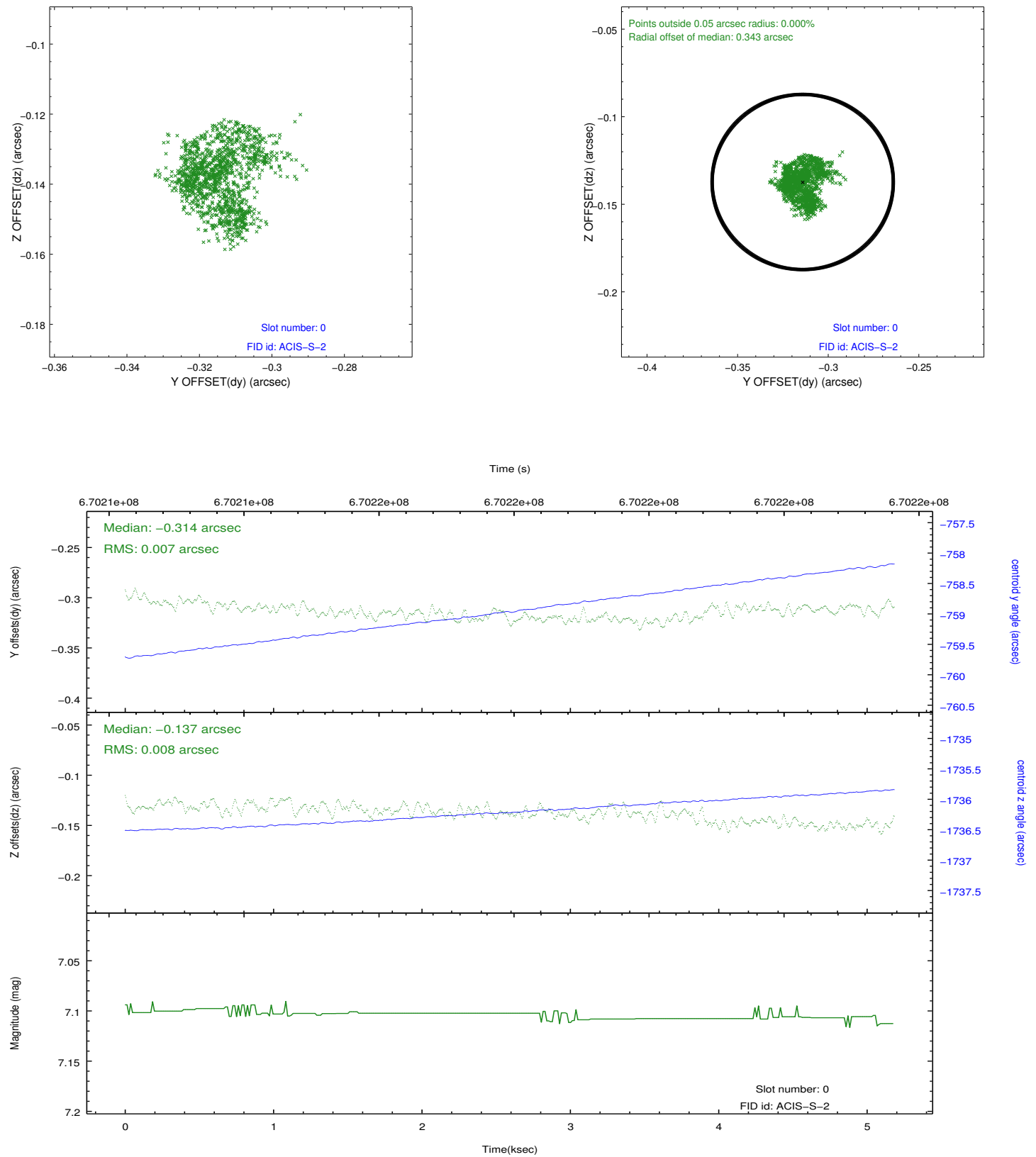


2.4.5 Slot 7

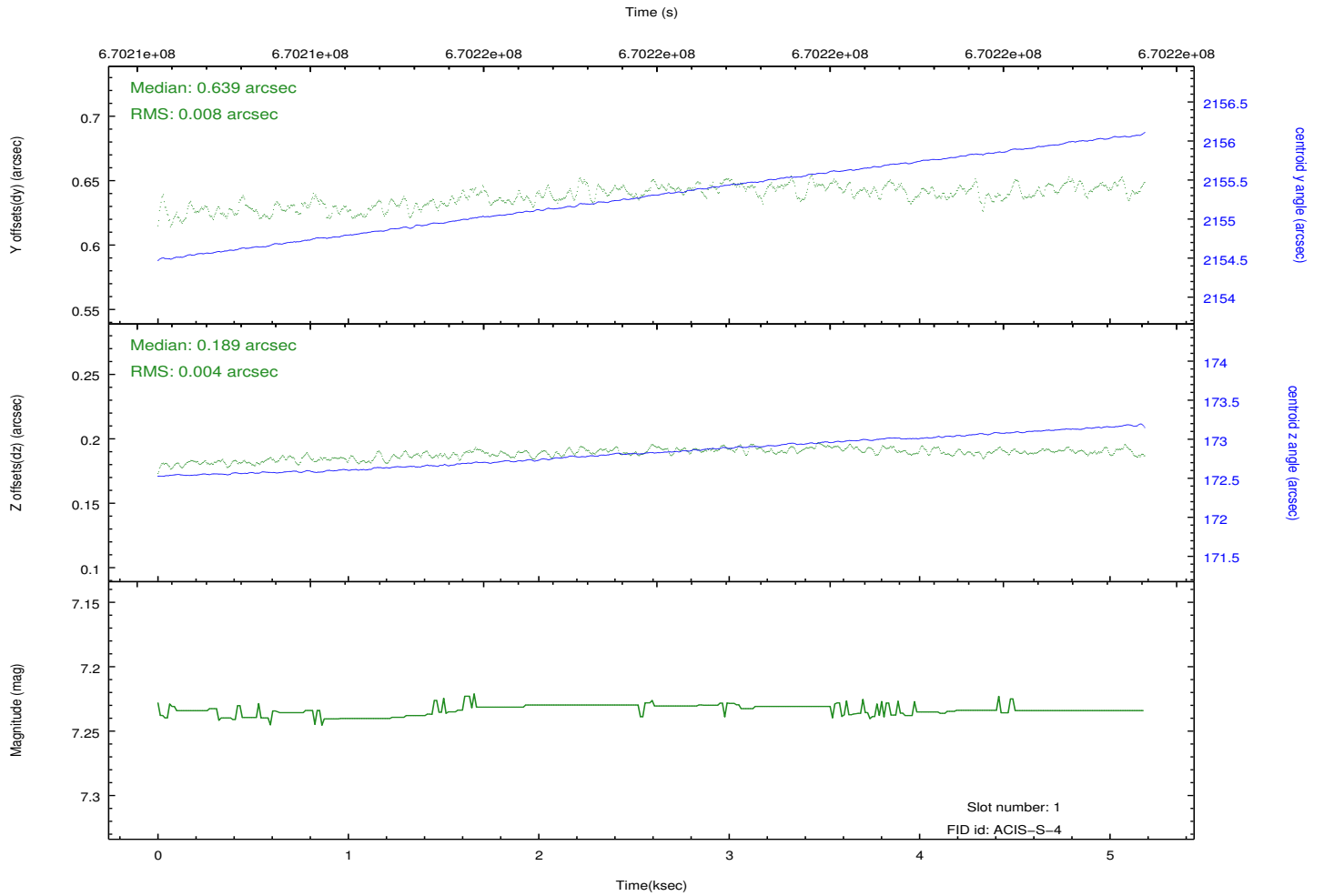
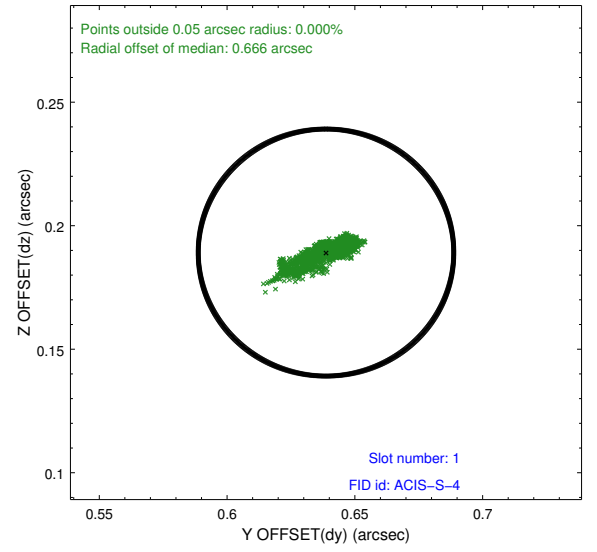
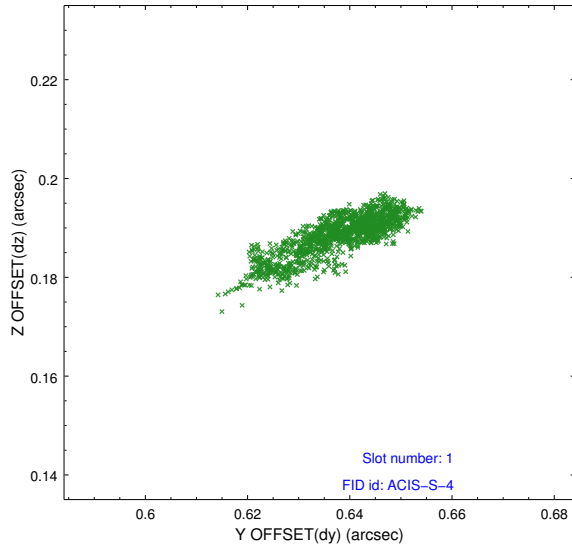


2.5 FID Slots

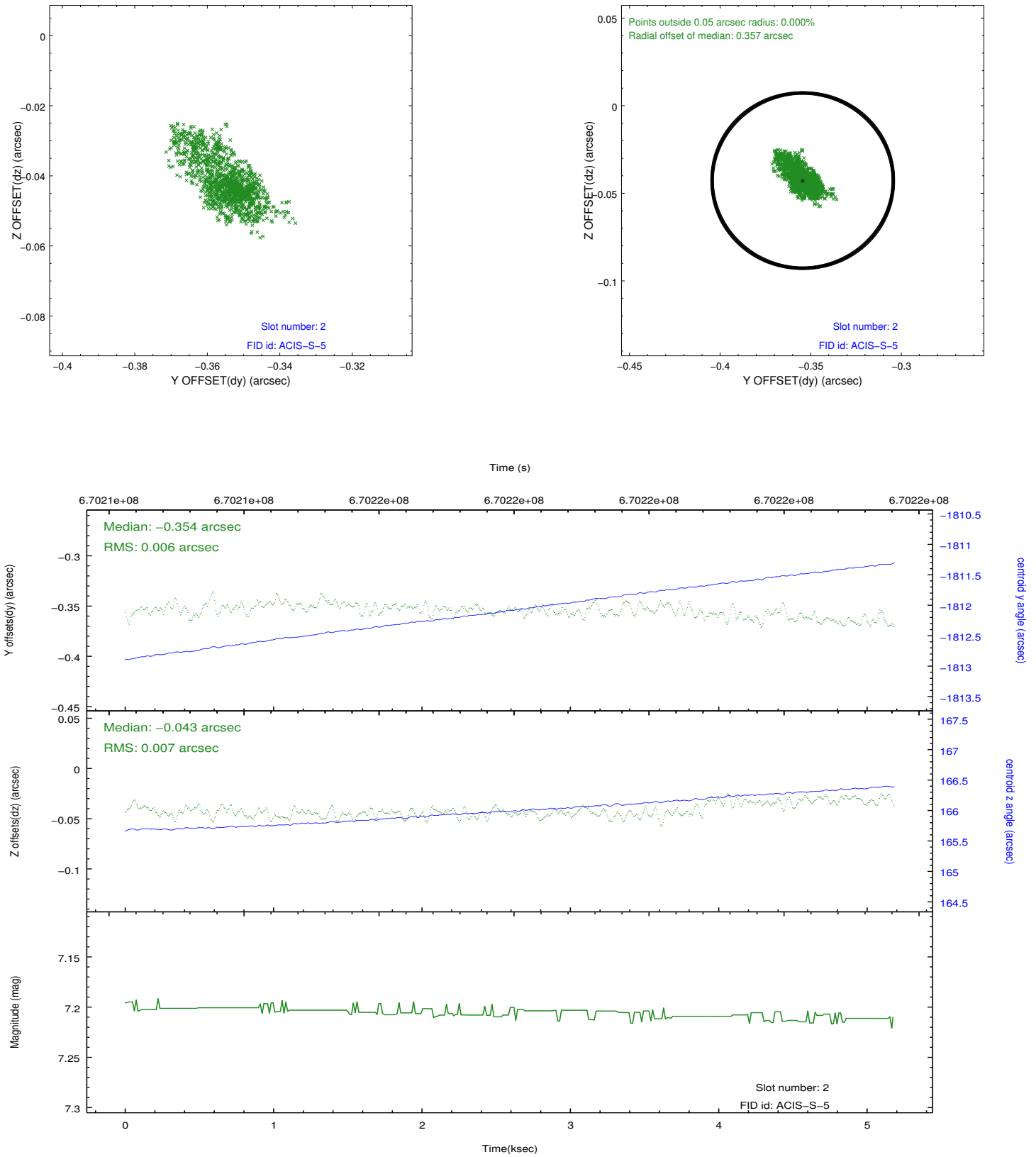
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2019.03.29
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5.0709770382643

A.2 Comments

Window constraint met.

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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/A_CIS_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.