

V&V Reference Report

L2 ASCDS Version : 10.5.2

Observation 19939 - L2 Version 1
Chandra X-Ray Center

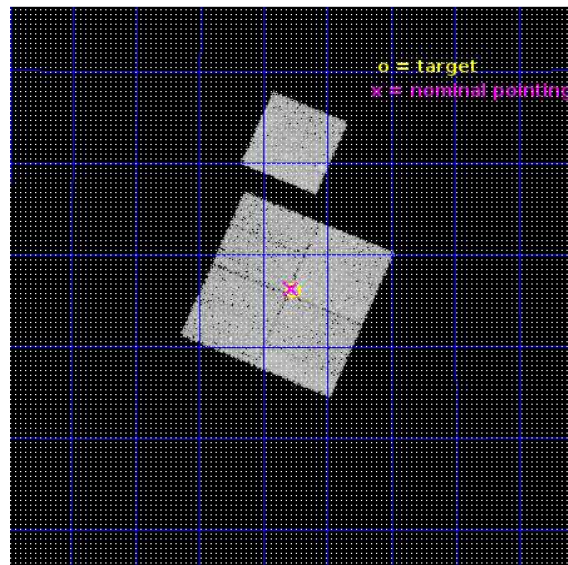
L2 Processing Date : Nov 12 2016

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

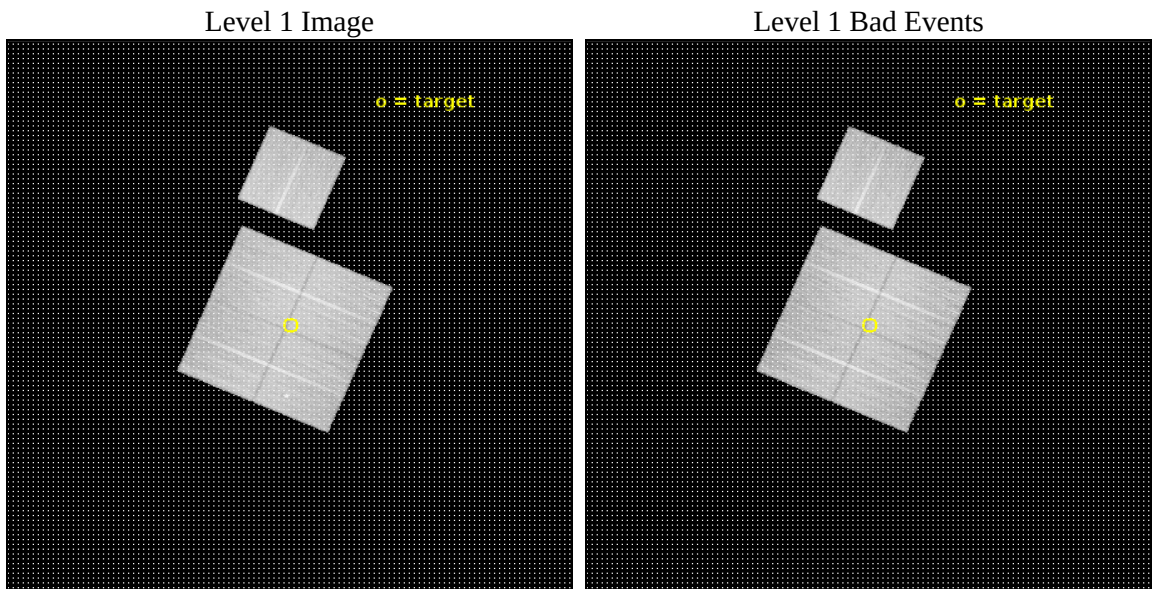
seq_num	801501	Sequence number
obs_id	19939	Observation id
title	Chandra mapping of the cosmic web converging on the virialization region of Abell 1795	Proposal title
observer	Dr Alexey Vikhlinin	Principal investigator
object	Abell 1795 outskirts	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	206.816287	Observer's specified target RA [deg]
dec_targ	26.767794	Observer's specified target Dec [deg]
ra_nom	206.82048560393	Nominal RA [deg]
dec_nom	26.7717863589	Nominal Dec [deg]
roll_nom	23.206812998182	Nominal Roll [deg]
revision	1	Processing version of data
ontime	28048.80021584	Sum of GTIs [s]
livetime	27682.321991794	Livetime [s]
ontime0	28048.80021584	Sum of GTIs [s]
ontime1	28045.659175515	Sum of GTIs [s]
ontime2	28048.80021584	Sum of GTIs [s]
ontime3	28048.80021584	Sum of GTIs [s]
ontime6	28042.518364906	Sum of GTIs [s]
l2events	92388	Number of level 2 events



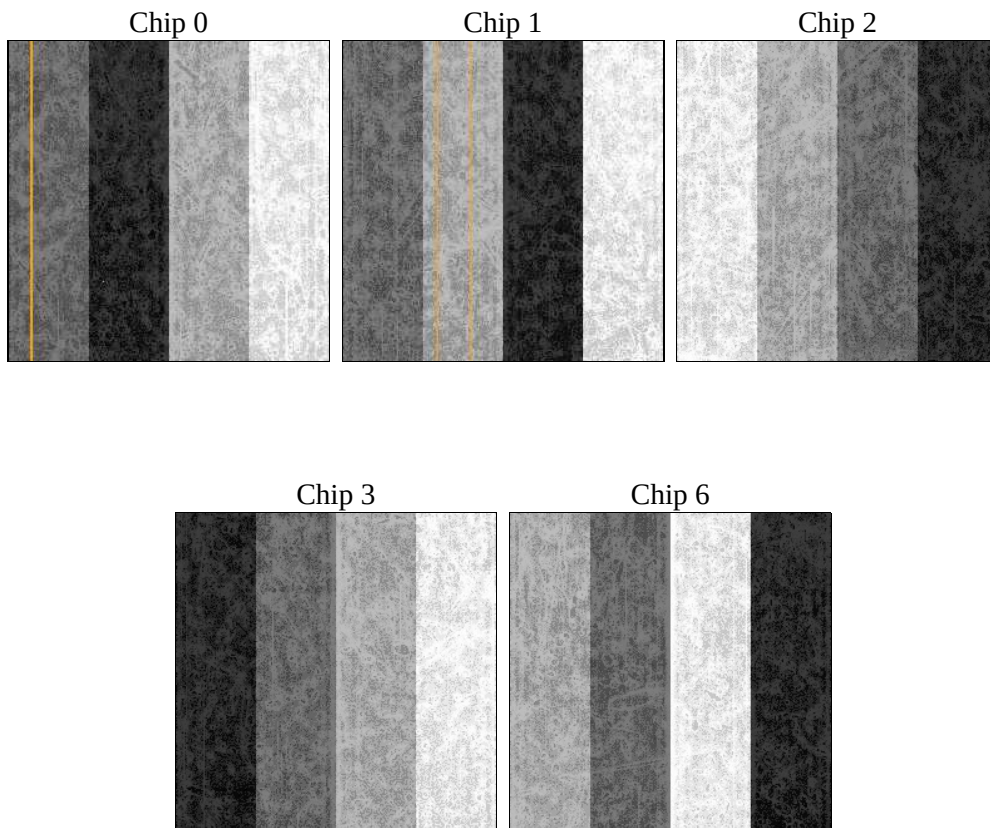
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	28000.000000	[s] Scheduled observation exposure time
ascdsver	10.5.2	Processing system revision	ontime	28048.80021584	Sum of GTIs [s]
caldsver	4.7.2	 	ontime0	28048.80021584	Sum of GTIs [s]
date	2016-11-12T19:13:57	Date and time of file creation	ontime1	28045.659175515	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	28048.80021584	Sum of GTIs [s]
			ontime3	28048.80021584	Sum of GTIs [s]
			ontime6	28042.518364906	Sum of GTIs [s]
			l1events	972567	Number of level 1 events

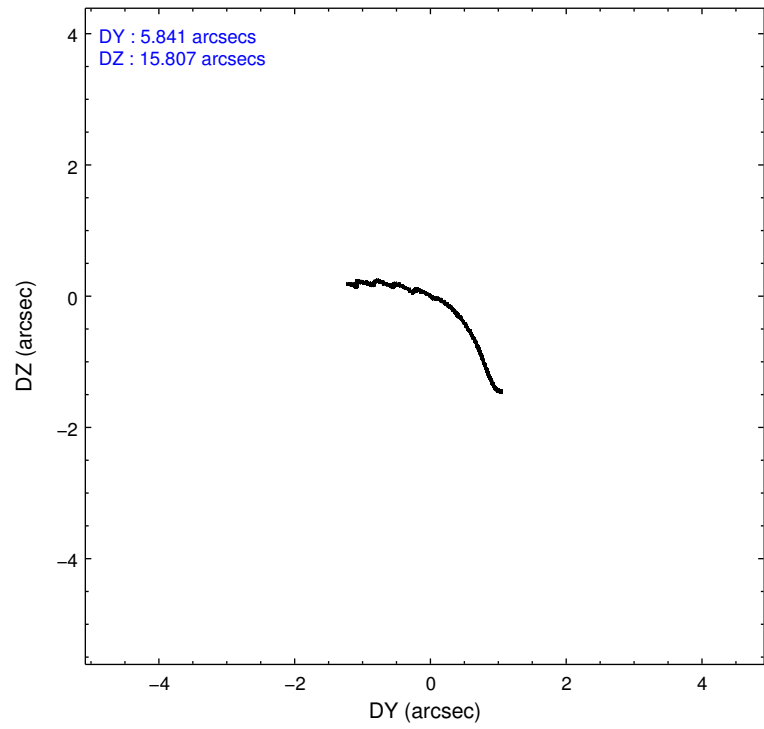
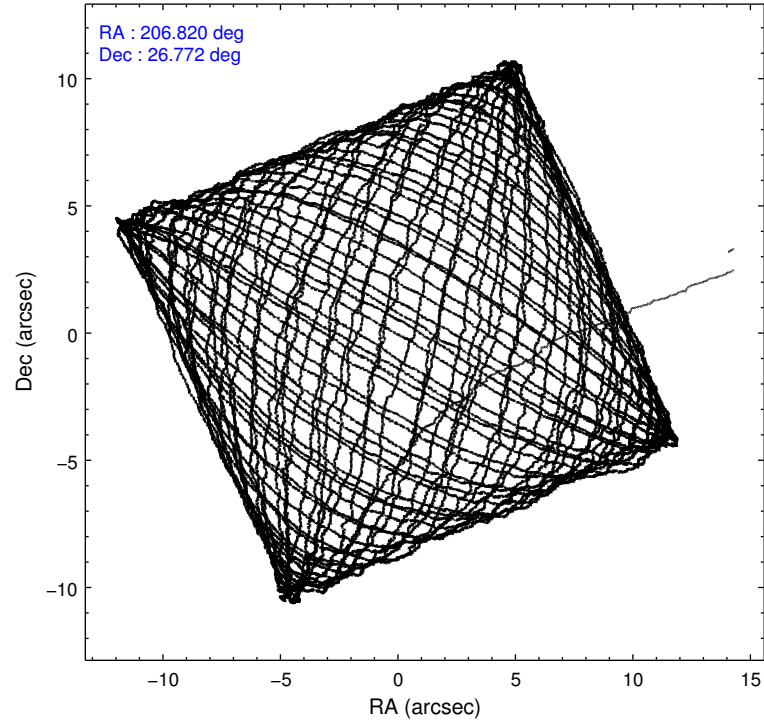
2.1.4 Events

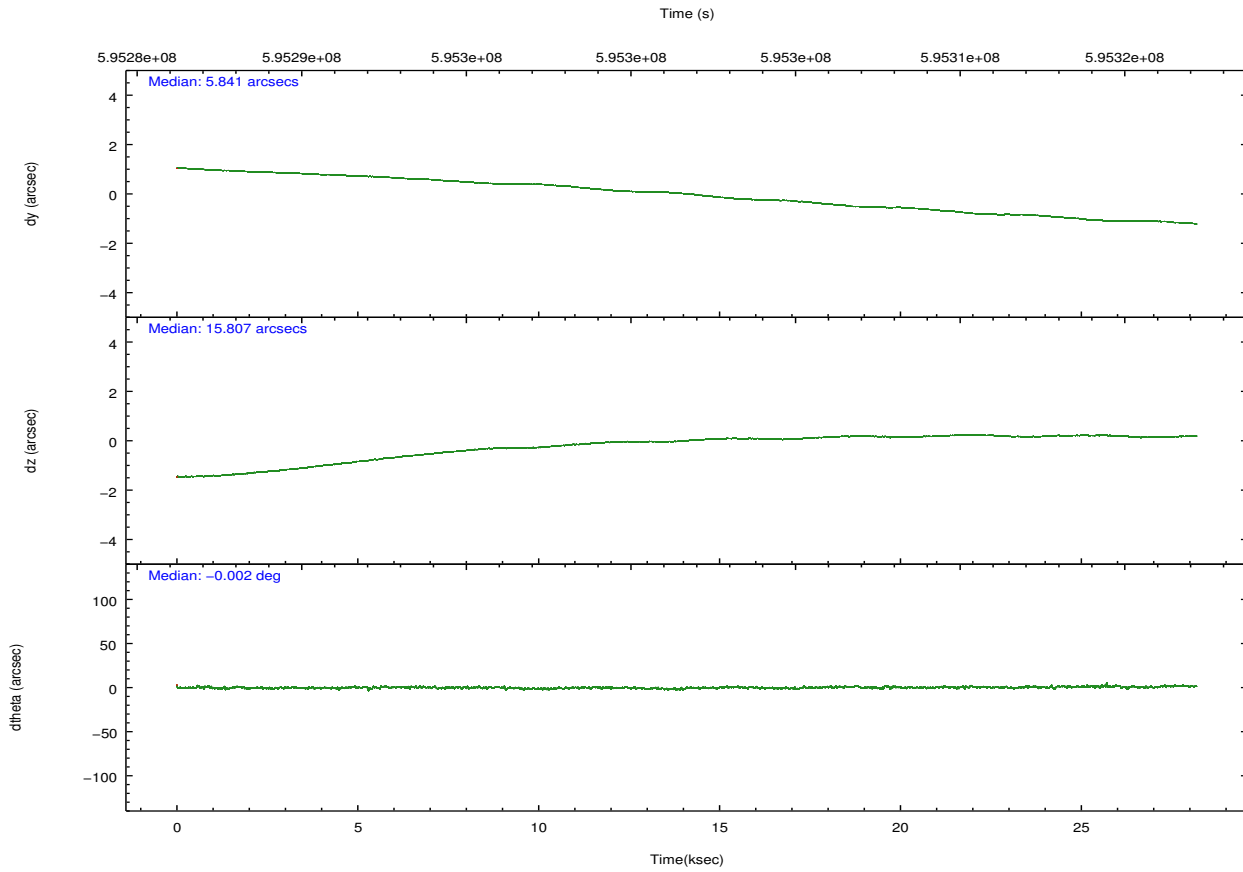
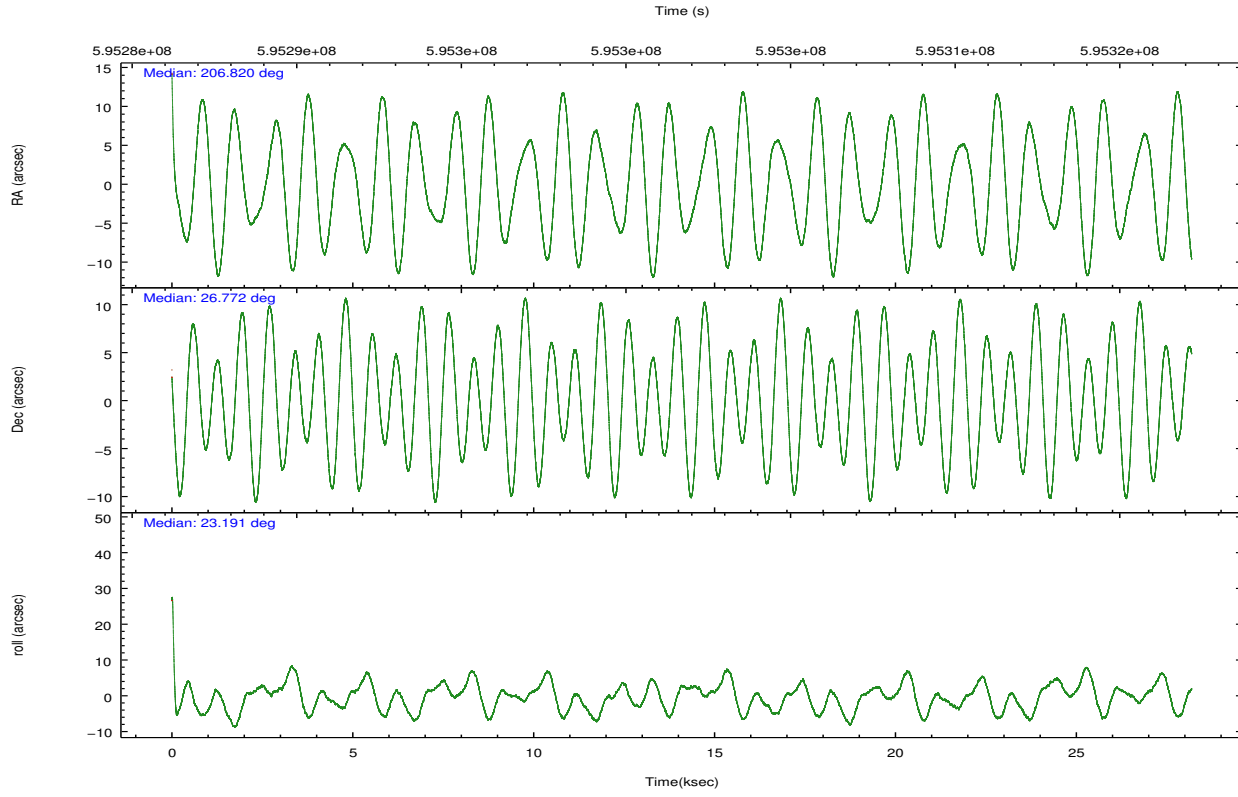
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	179866	186465	202115	200773	203348	grade 0 events	7642	9026	7324	7673	7311
rejected events	158129	161441	181633	179732	180996		4%	4%	3%	3%	3%
rejected %	87%	86%	89%	89%	89%	grade 1 events	89	98	128	118	78
							0%	0%	0%	0%	0%
						grade 2 events	5423	6217	5076	4589	5345
							3%	3%	2%	2%	2%
						grade 3 events	2114	2188	2066	2170	2081
							1%	1%	1%	1%	1%
						grade 4 events	2027	2208	2087	2183	2135
							1%	1%	1%	1%	1%
						grade 5 events	8038	8316	7279	9100	8555
							4%	4%	3%	4%	4%
						grade 6 events	4538	5394	3938	4433	5482
							2%	2%	1%	2%	2%
						grade 7 events	149995	153018	174217	170507	172361
							83%	82%	86%	84%	84%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	206.802055	206.820485603933	CCD I2 on	Y	Y
[deg] Pointing Dec	26.749623	26.77178635890014	CCD I3 on	Y	Y
[deg] Pointing Roll	23.006410	23.20681299818213	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	Y
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	N	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	595287776.184000	595286468.73821	CCD S5 on	N	N
Observation start date	2016-11-11T21:41:48	2016-11-11T21:21:08	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	595315776.184000	595316177.85243	On-chip summing requested	N	N
Observation end date	2016-11-12T05:28:28	2016-11-12T05:36:17	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



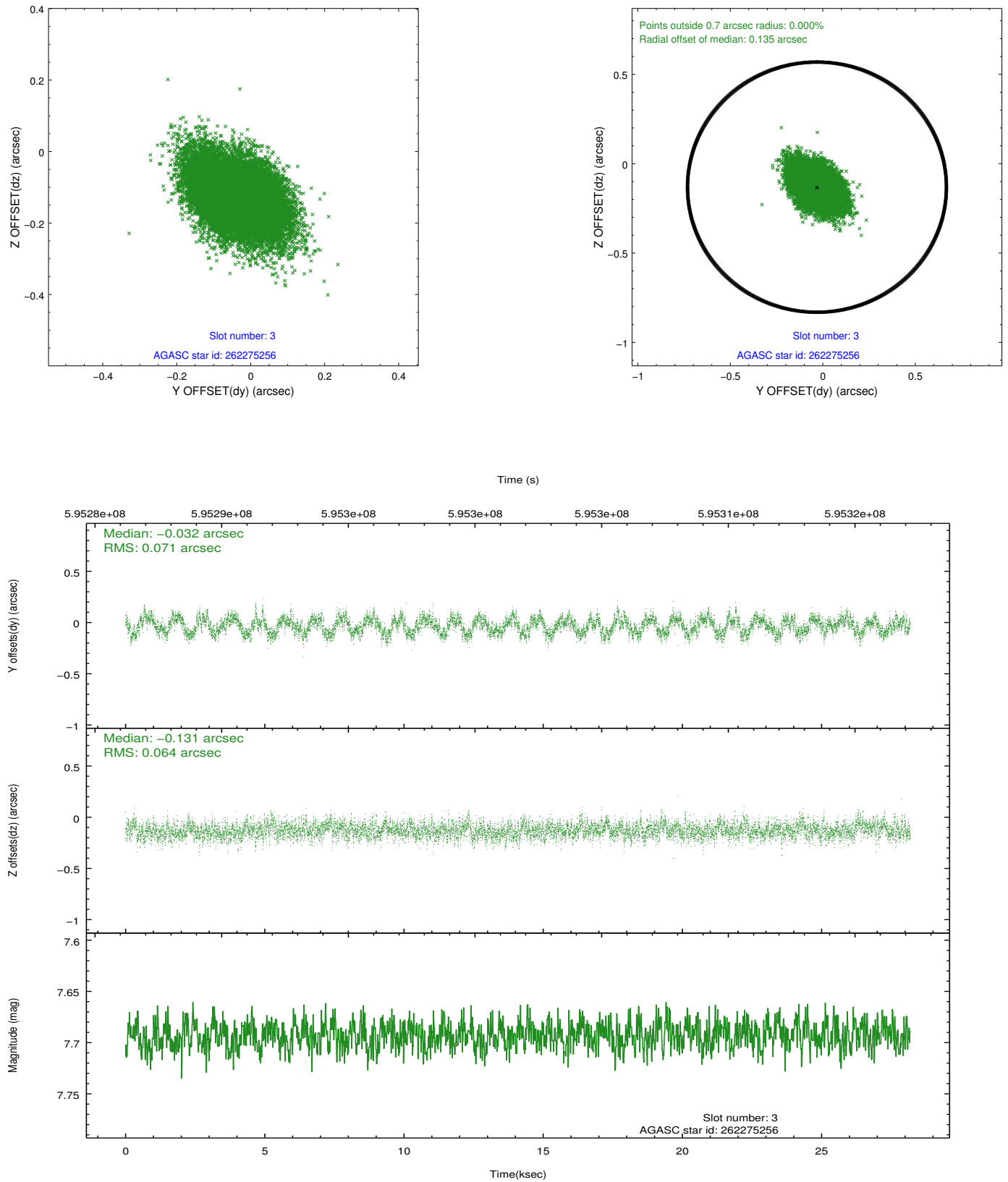


Slot Statistics

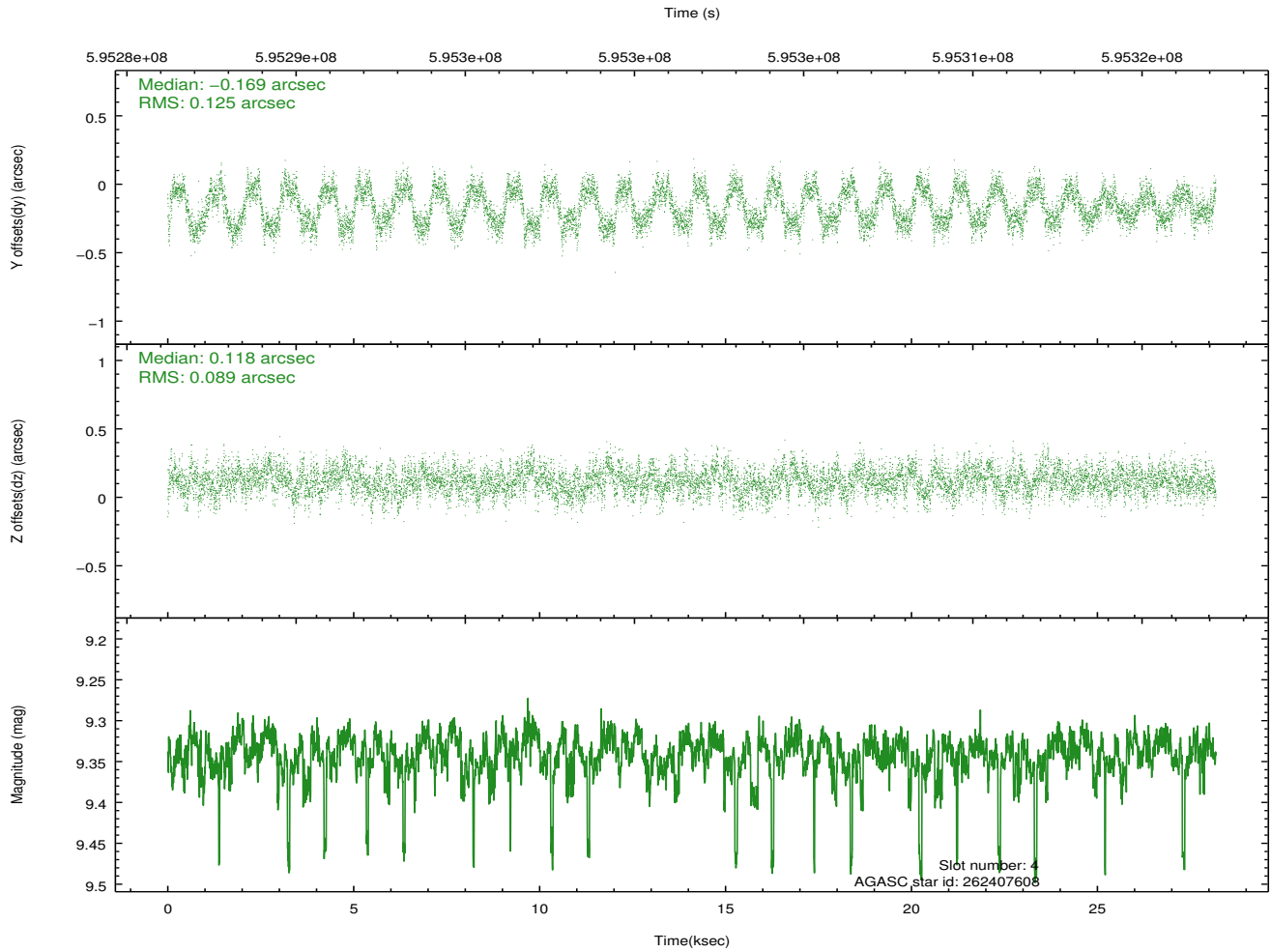
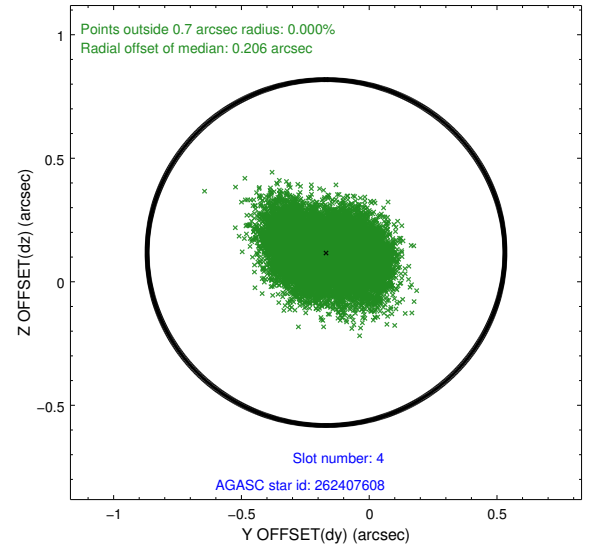
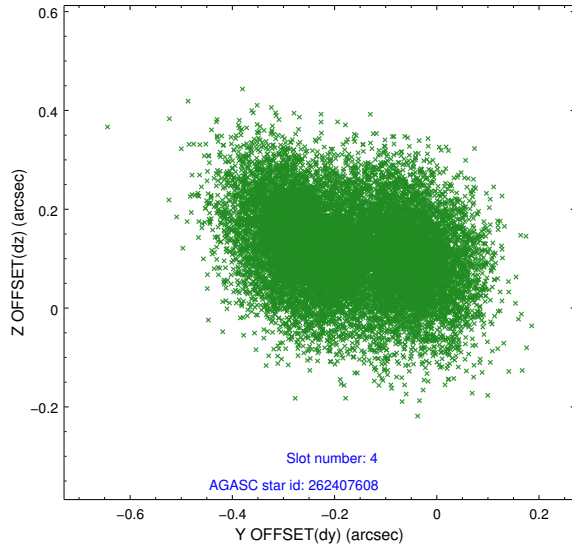
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-I-2	7.15	6876	-0.134	-0.123	0.019	0.032	0.000000	0.000000	-760.38	-845.68
1	FID		ACIS-I-4	7.18	6875	0.278	0.109	0.032	0.060	0.000000	0.000000	2154.05	1060.69
2	FID		ACIS-I-5	7.21	6876	-0.249	0.085	0.022	0.049	0.000000	0.000000	-1814.23	1058.60
3	GUIDE	used	262275256	7.69	13745	-0.032	-0.131	0.102	0.165	206.467522	27.226414	-314.44	1999.63
4	GUIDE	used	262407608	9.34	13740	-0.169	0.118	0.167	0.251	207.378401	26.435507	1270.77	-1762.67
5	GUIDE	used	262408096	9.33	13732	-0.016	0.182	0.135	0.225	207.011678	26.515421	292.64	-1038.83
6	GUIDE	used	262408936	9.63	13729	0.127	0.084	0.137	0.223	207.154731	26.726554	1012.92	-518.18
7	GUIDE	used	262409552	8.15	13746	0.091	-0.253	0.100	0.167	206.584269	27.192805	-18.21	1741.24

2.4 Star Slots

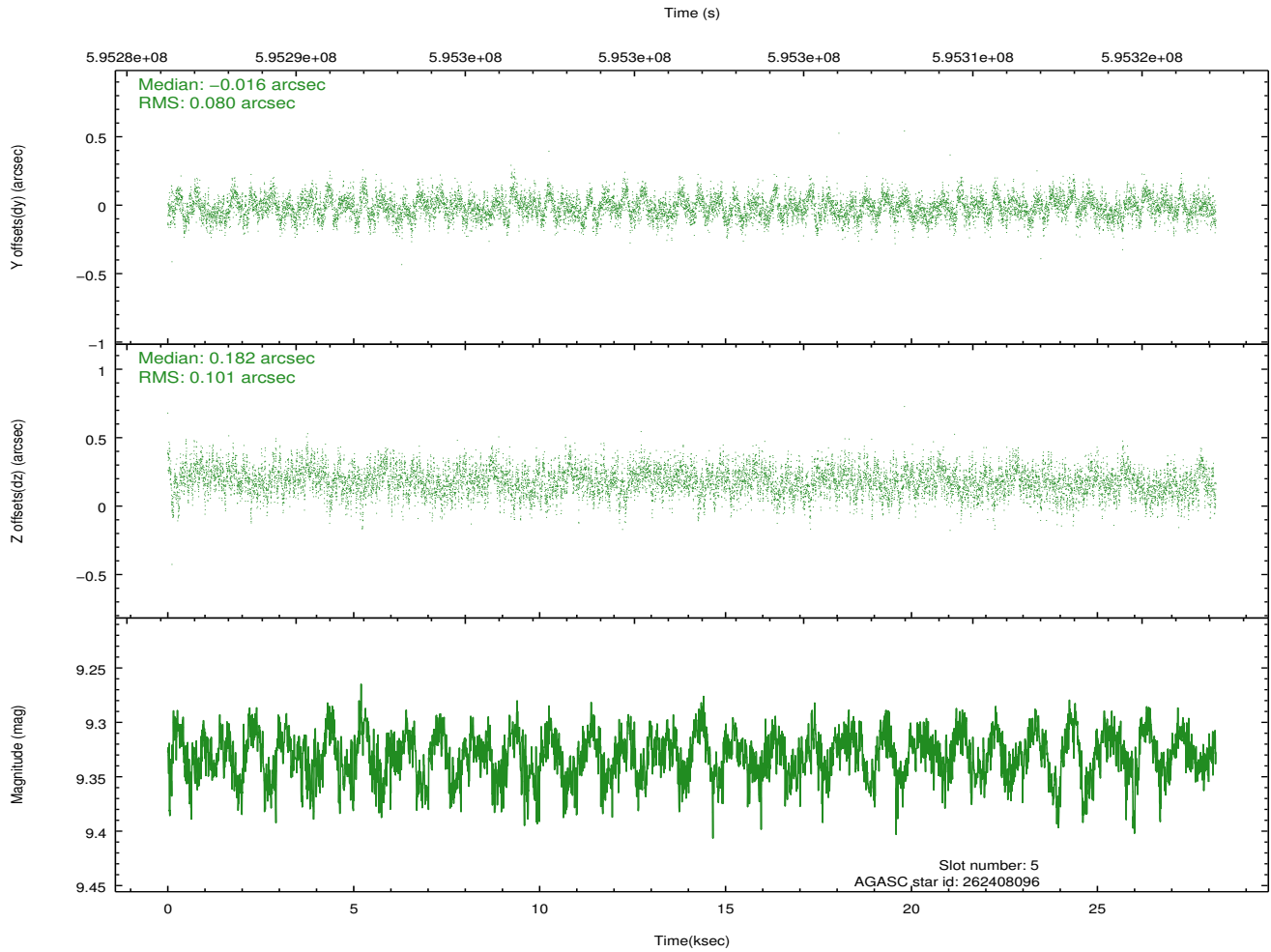
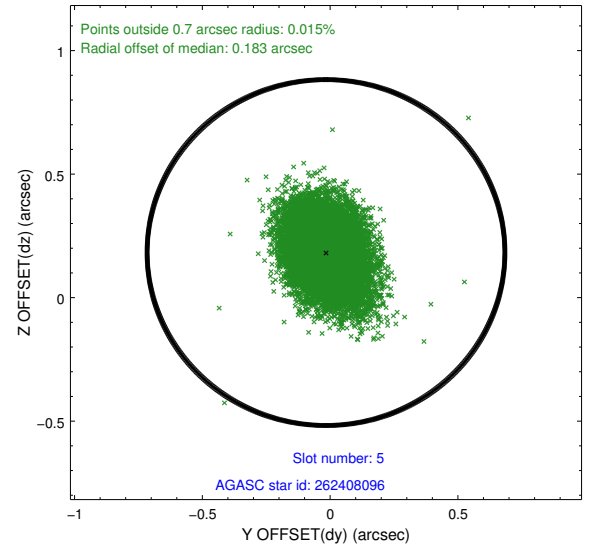
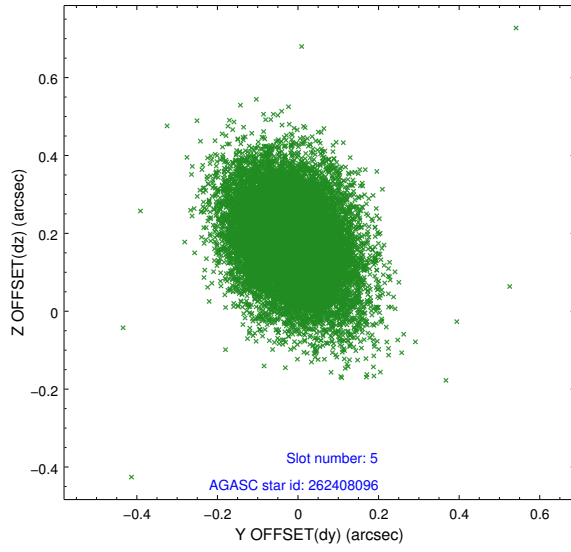
2.4.1 Slot 3



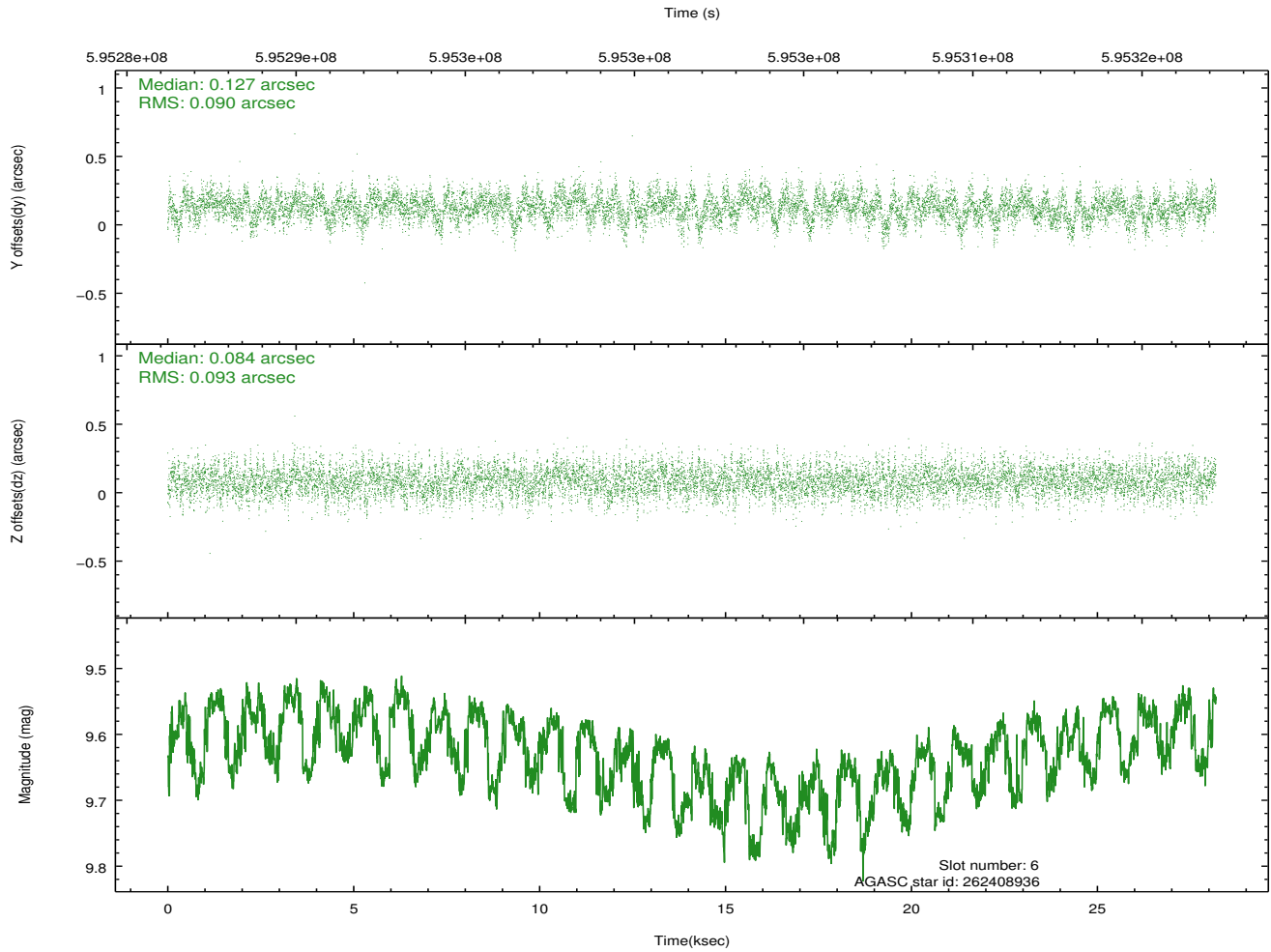
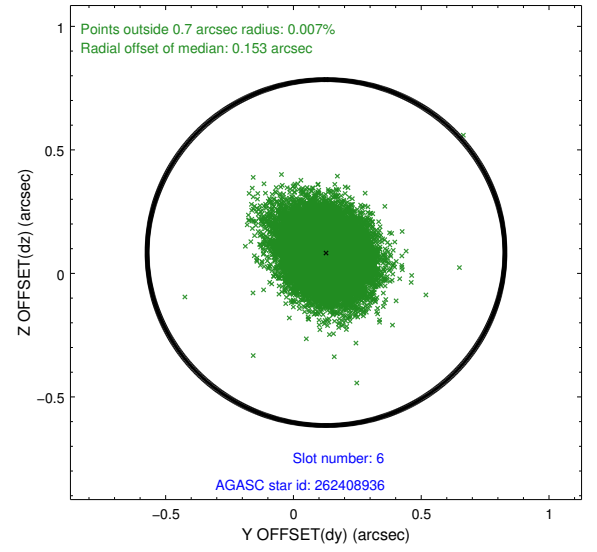
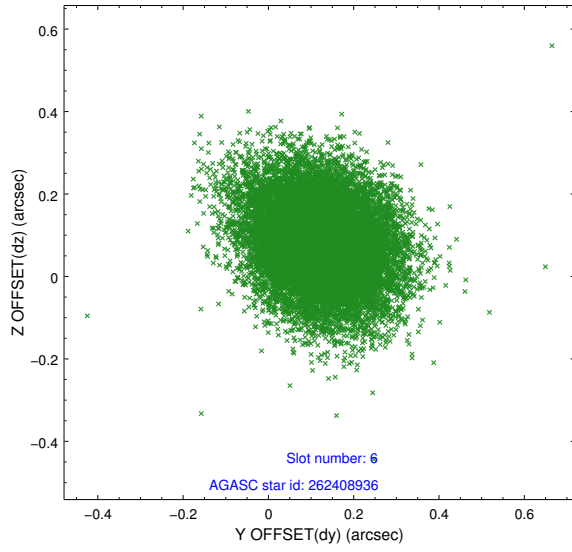
2.4.2 Slot 4



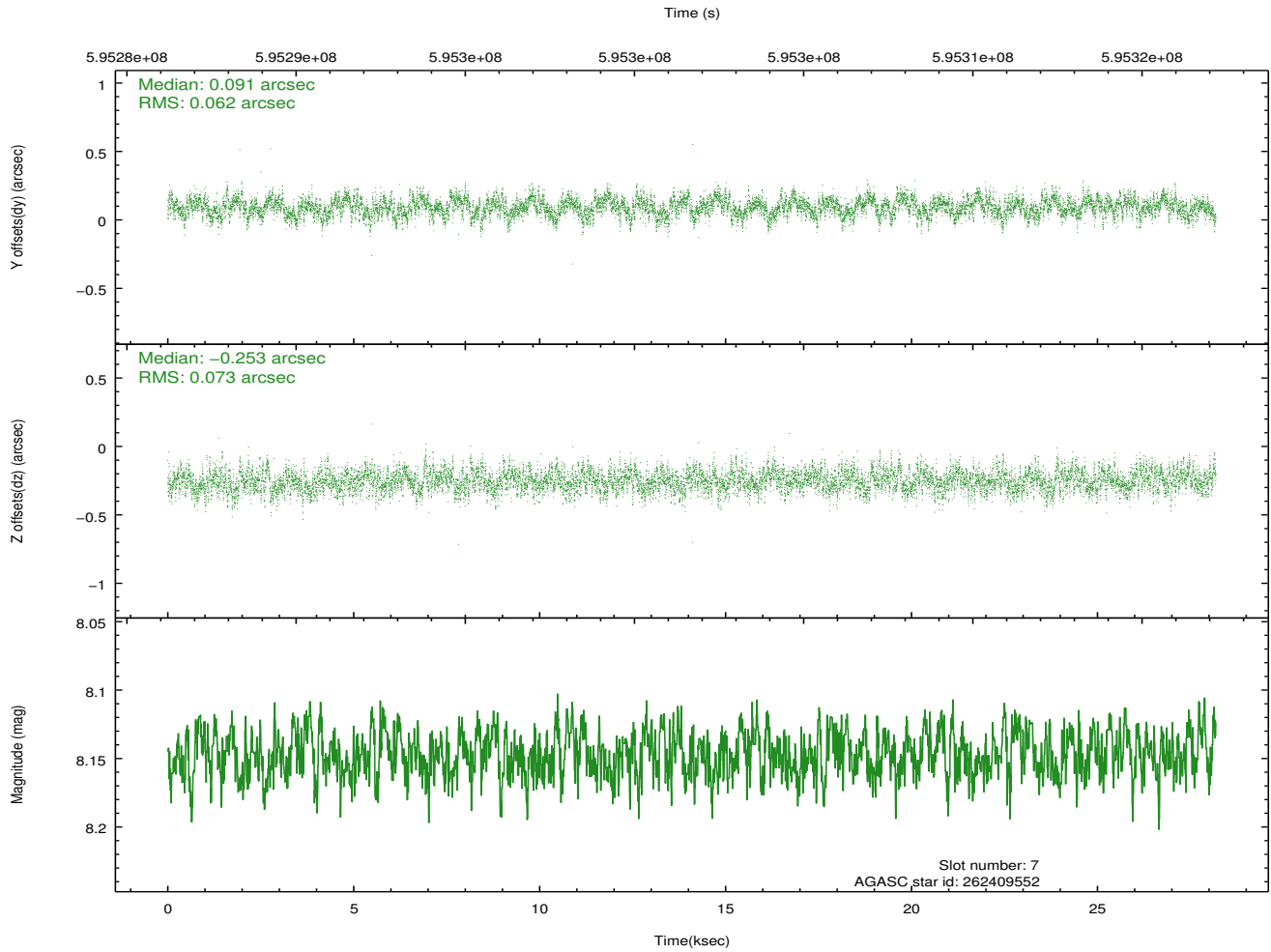
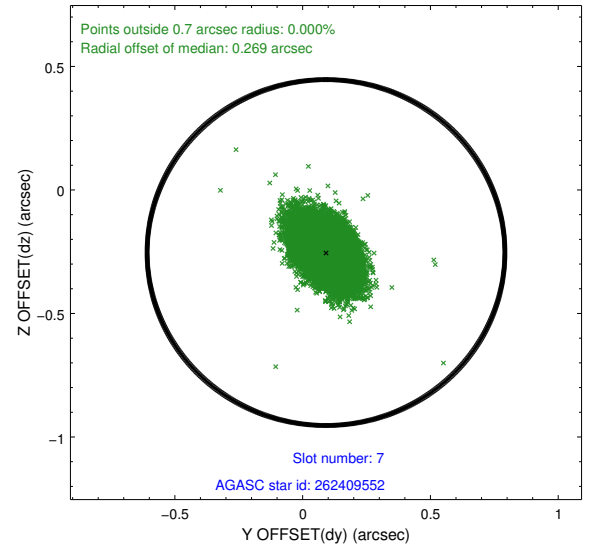
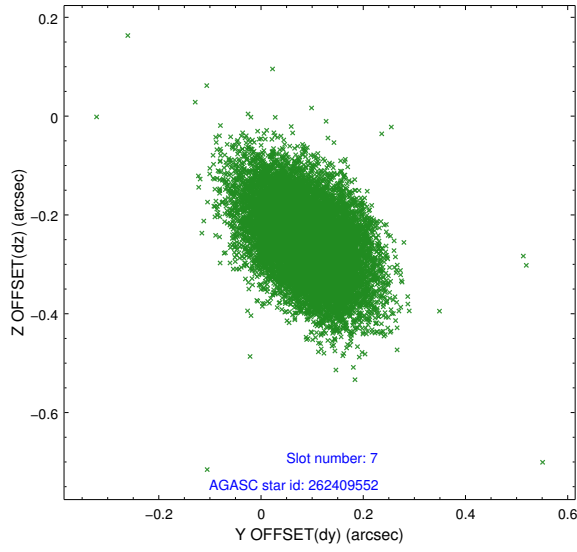
2.4.3 Slot 5



2.4.4 Slot 6

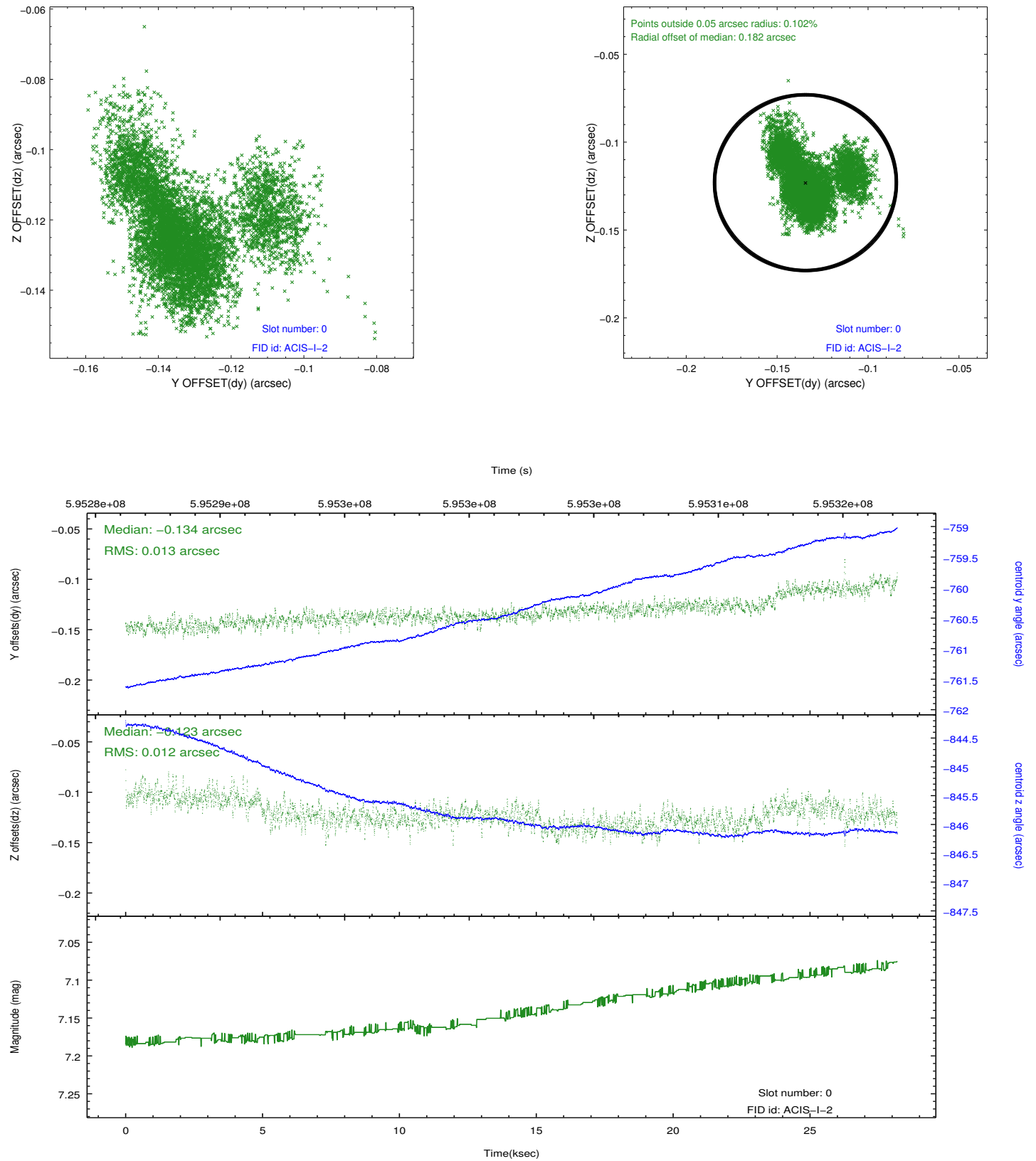


2.4.5 Slot 7

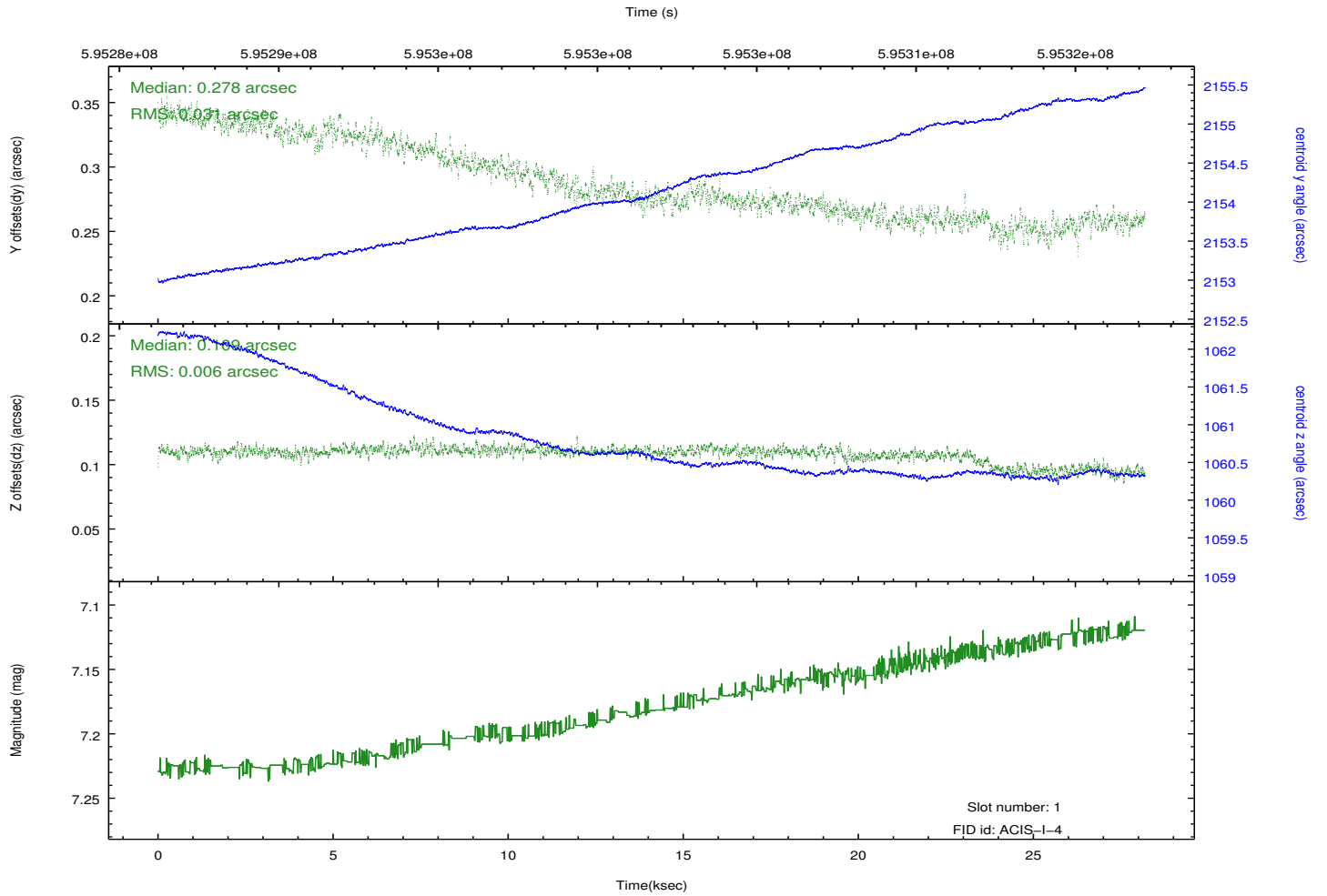
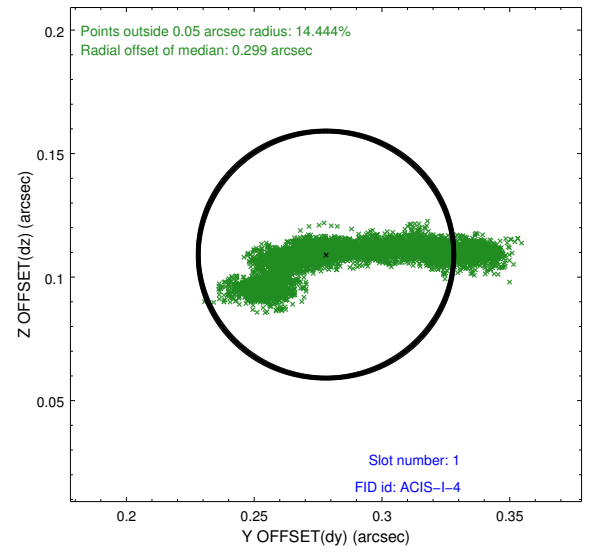
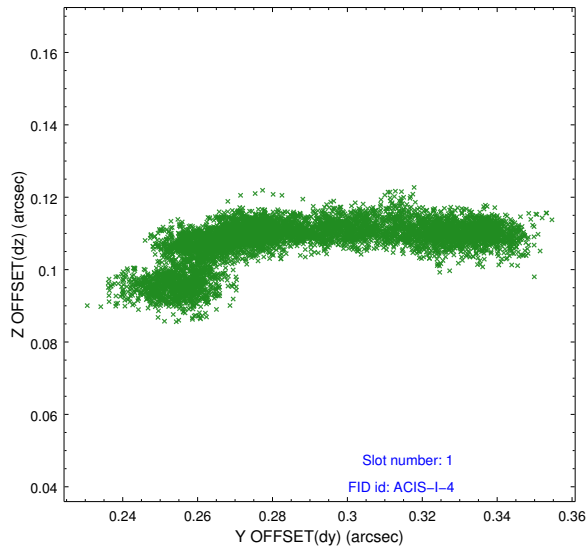


2.5 FID Slots

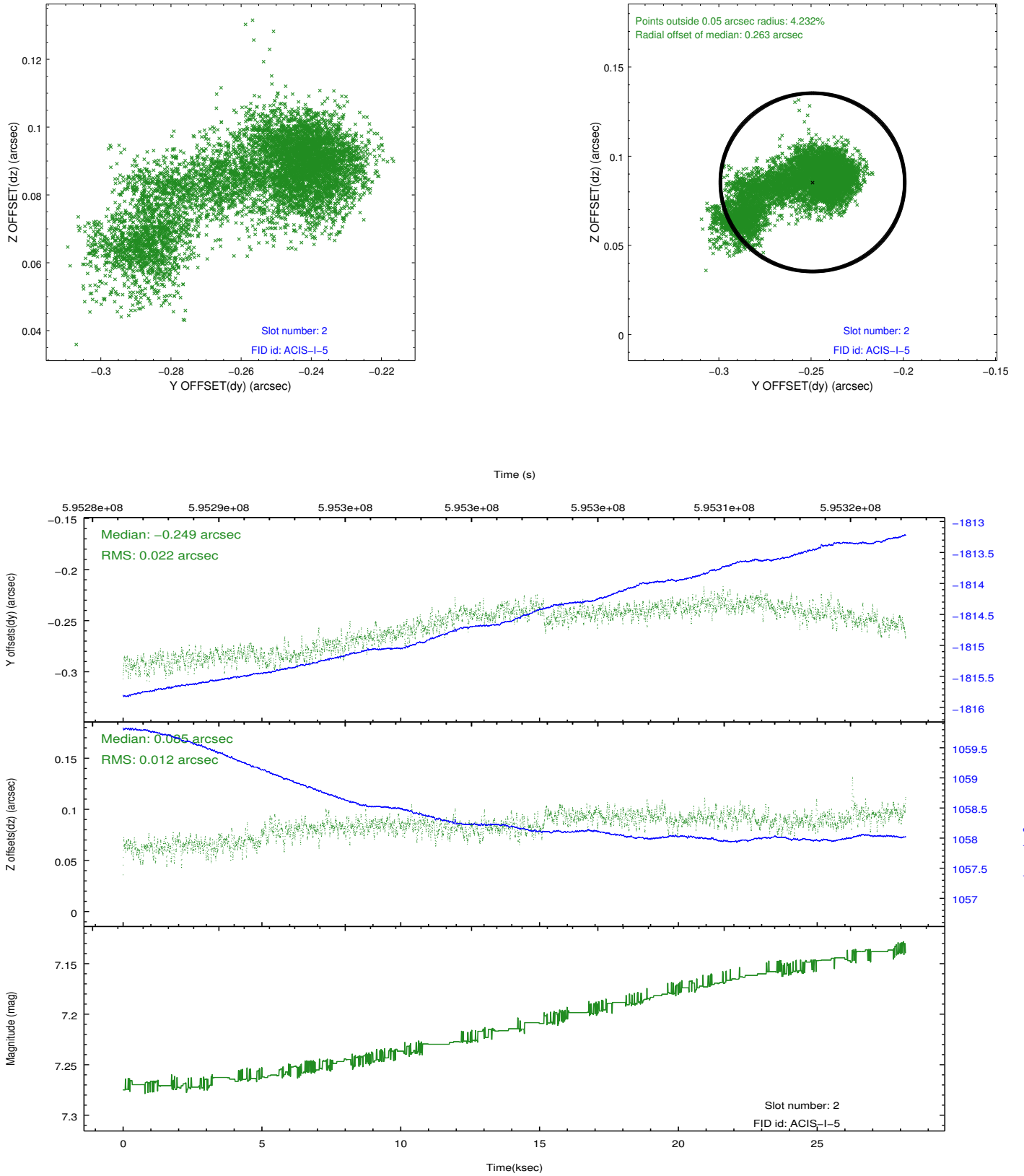
2.5.1 Slot 0



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)	2018.03.07
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	28.04880021584

A.2 Comments

Optional chip S2 was dropped.

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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/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.