

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 21292 - L2 Version 1
Chandra X-Ray Center

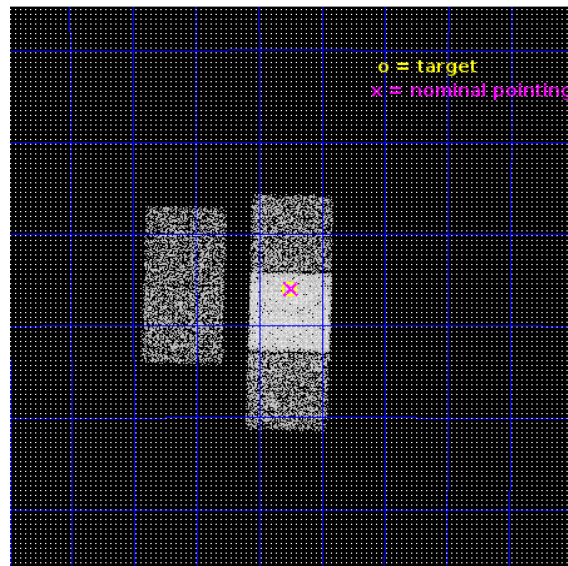
L2 Processing Date : Mar 5 2019

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

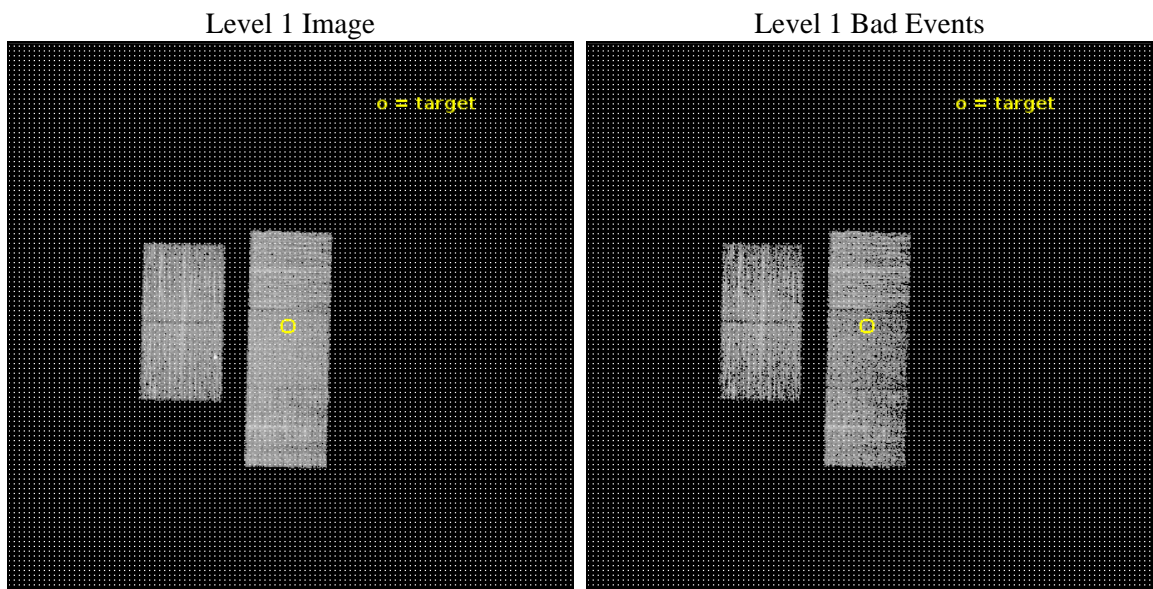
seq_num	503065	Sequence number
obs_id	21292	Observation id
title	Where Have All the Central Compact Objects Gone?	Proposal title
observer	Eric Gotthelf	Principal investigator
object	PSR J1758-2846	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	269.564167	Observer's specified target RA [deg]
dec_targ	-28.767222	Observer's specified target Dec [deg]
ra_nom	269.56043714882	Nominal RA [deg]
dec_nom	-28.766333132155	Nominal Dec [deg]
roll_nom	91.359263194471	Nominal Roll [deg]
revision	1	Processing version of data
ontime	3554.4703714848	Sum of GTIs [s]
livetime	3508.0285993183	Livetime [s]
ontime2	3554.3062114716	Sum of GTIs [s]
ontime3	3548.1062604189	Sum of GTIs [s]
ontime6	3554.4293315411	Sum of GTIs [s]
ontime7	3554.4703714848	Sum of GTIs [s]
ontime8	3554.3472515345	Sum of GTIs [s]
l2events	26994	Number of level 2 events



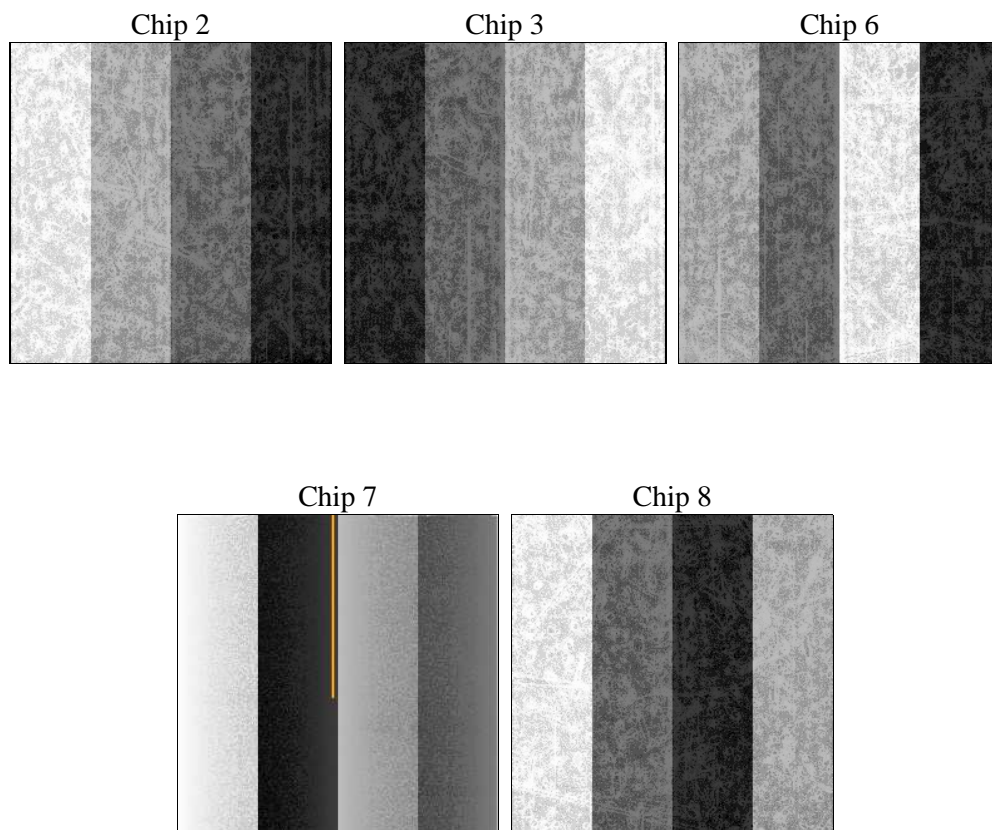
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	3500.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	3554.4703714848	Sum of GTIs [s]
caldsver	4.8.2	 	ontime2	3554.3062114716	Sum of GTIs [s]
date	2019-03-06T04:18:13	Date and time of file creation	ontime3	3548.1062604189	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	3554.4293315411	Sum of GTIs [s]
			ontime7	3554.4703714848	Sum of GTIs [s]
			ontime8	3554.3472515345	Sum of GTIs [s]
			l1events	163075	Number of level 1 events

2.1.4 Events

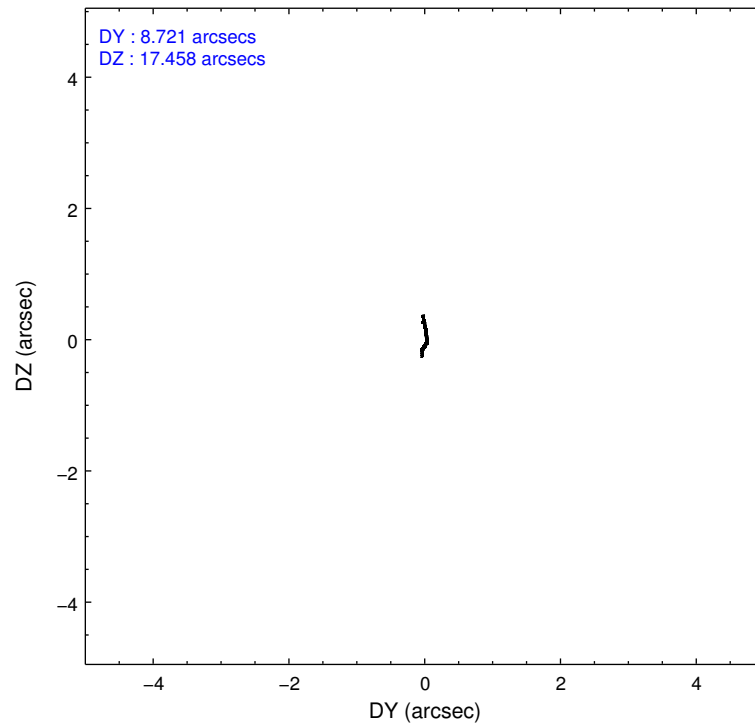
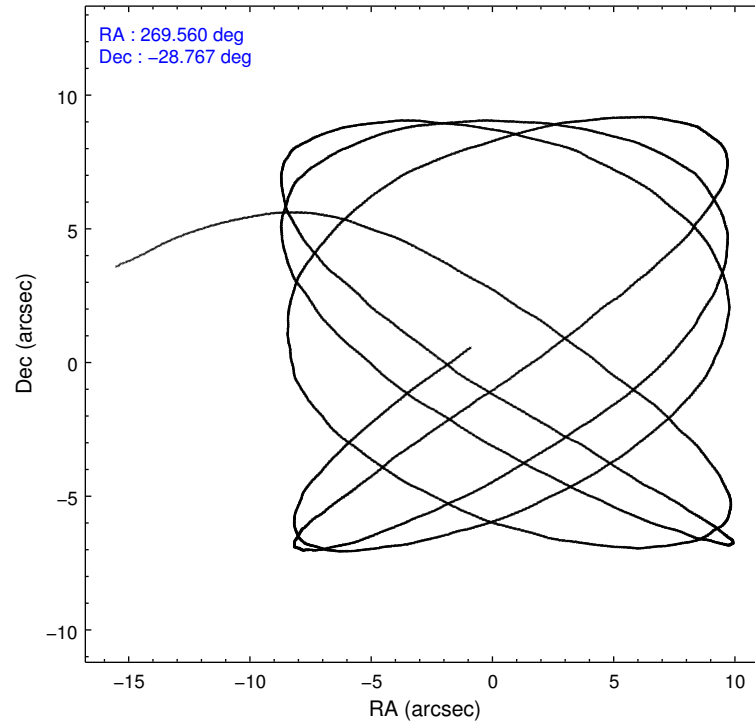
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	29193	30212	32939	35557	35174
rejected events	26138	26091	29364	20091	25577
rejected %	89%	86%	89%	56%	72%

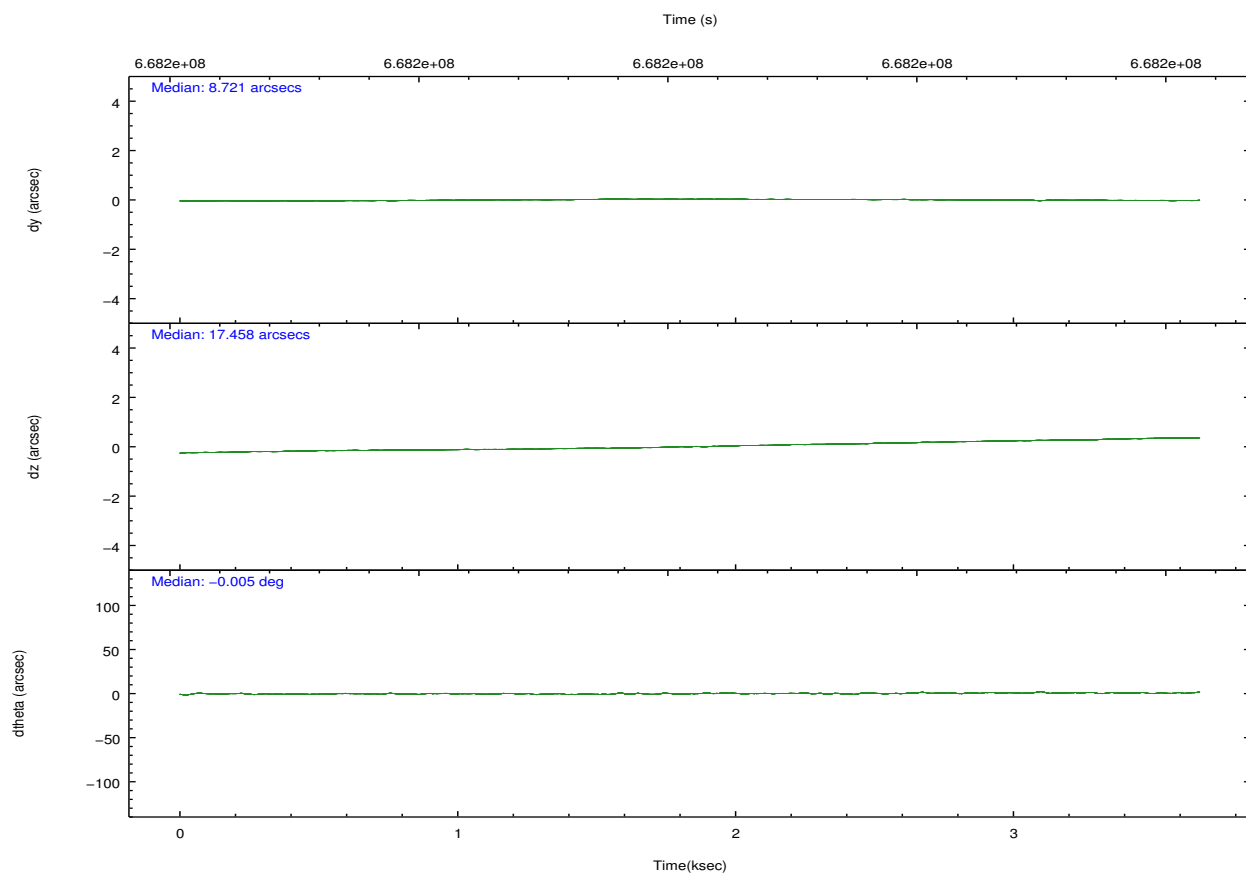
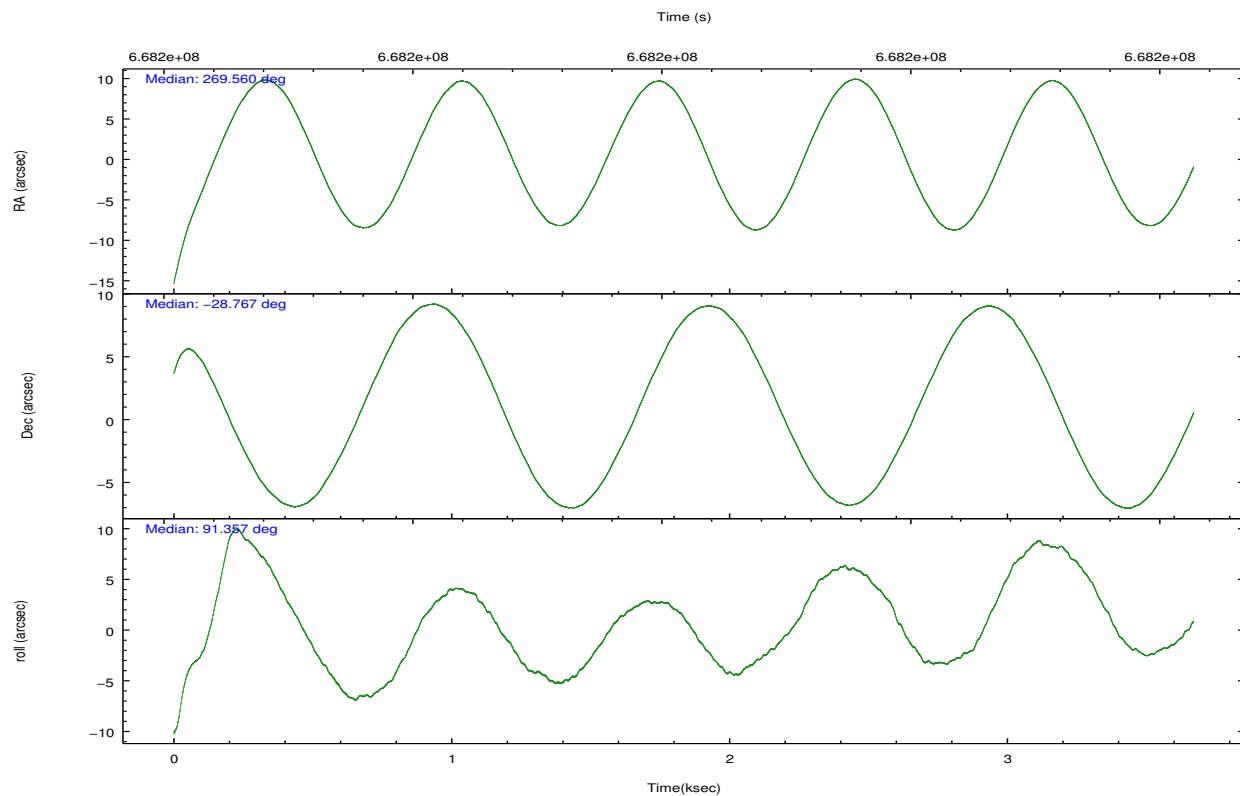
	ccd 2	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	1196	1170	1156	1412	2925
	4%	3%	3%	3%	8%
grade 1 events	12	18	14	57	30
	0%	0%	0%	0%	0%
grade 2 events	699	1704	980	3322	2277
	2%	5%	2%	9%	6%
grade 3 events	286	315	241	1202	944
	0%	1%	0%	3%	2%
grade 4 events	304	301	276	1158	870
	1%	0%	0%	3%	2%
grade 5 events	978	1193	1146	3412	1774
	3%	3%	3%	9%	5%
grade 6 events	572	636	923	8380	2587
	1%	2%	2%	23%	7%
grade 7 events	25146	24875	28203	16614	23767
	86%	82%	85%	46%	67%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-23678	ACIS-23678	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	269.577165	269.5604371488213	CCD I2 on	O1	Y
[deg] Pointing Dec	-28.789430	-28.76633313215496	CCD I3 on	O2	Y
[deg] Pointing Roll	91.210716	91.35926319447098	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	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	668199422.184000	668198554.55384	CCD S5 on	N	N
Observation start date	2019-03-05T18:55:53	2019-03-05T18:42:34	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	668202922.184000	668203506.84164	On-chip summing requested	N	N
Observation end date	2019-03-05T19:54:13	2019-03-05T20:05:06	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



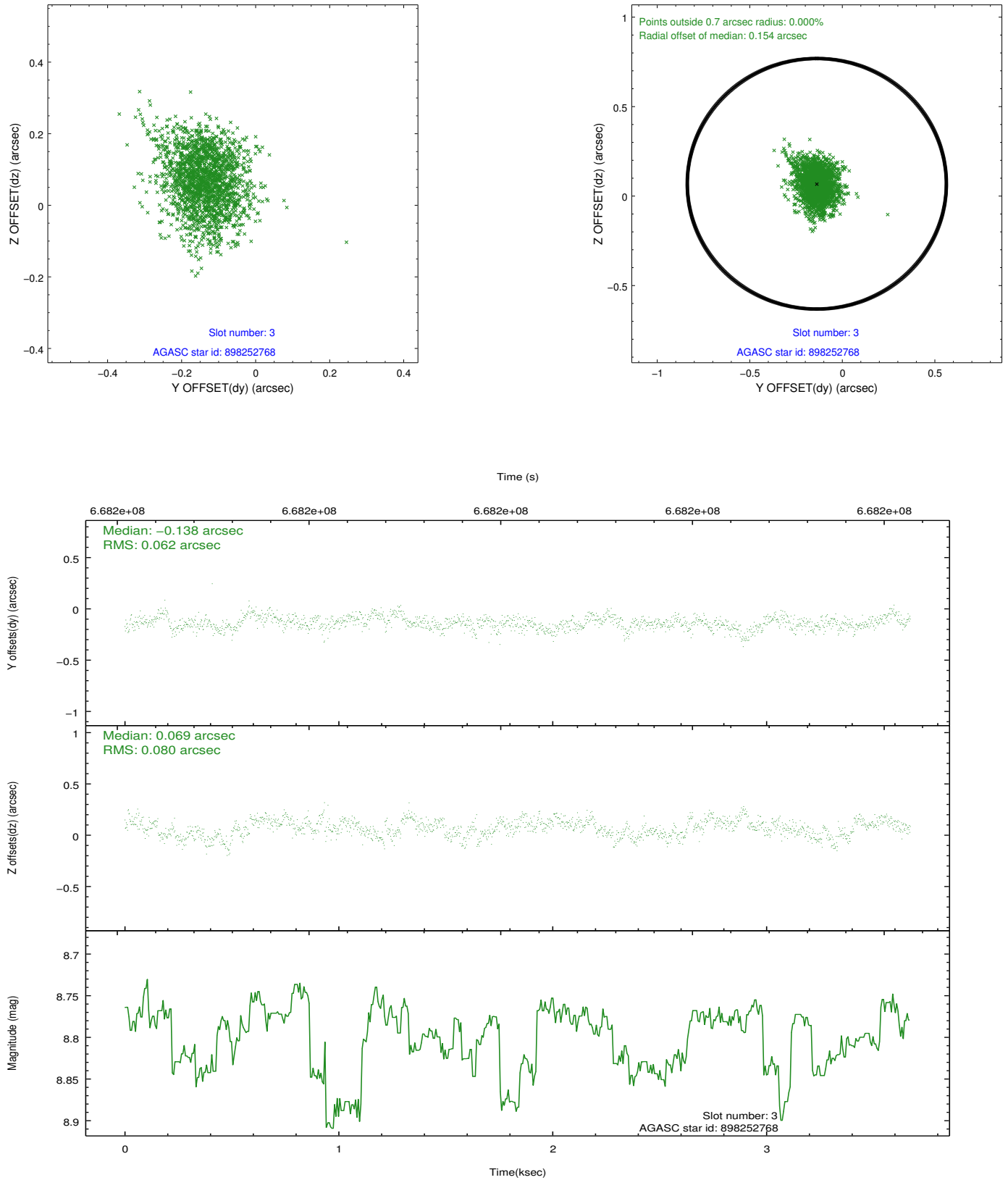


Slot Statistics

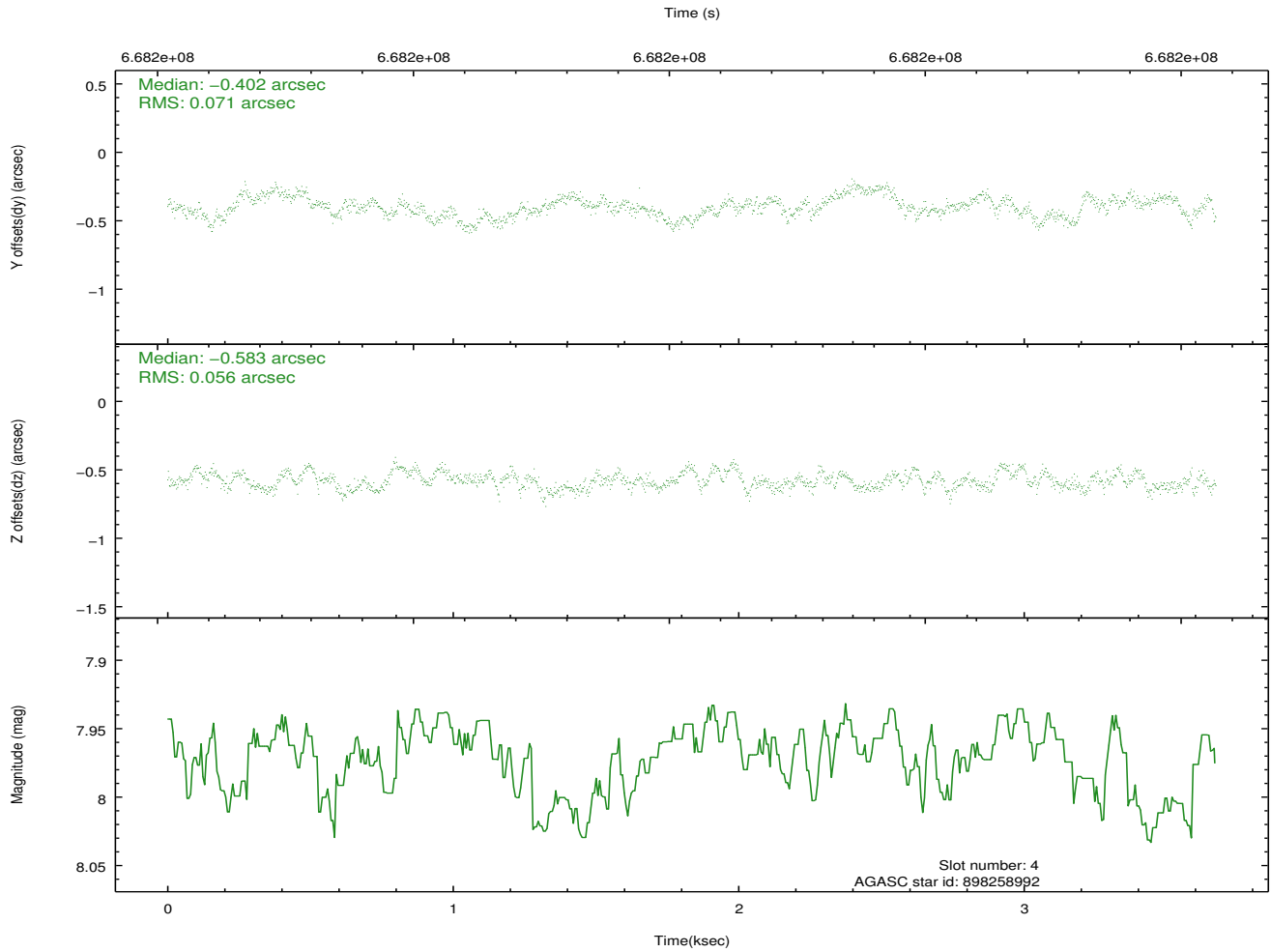
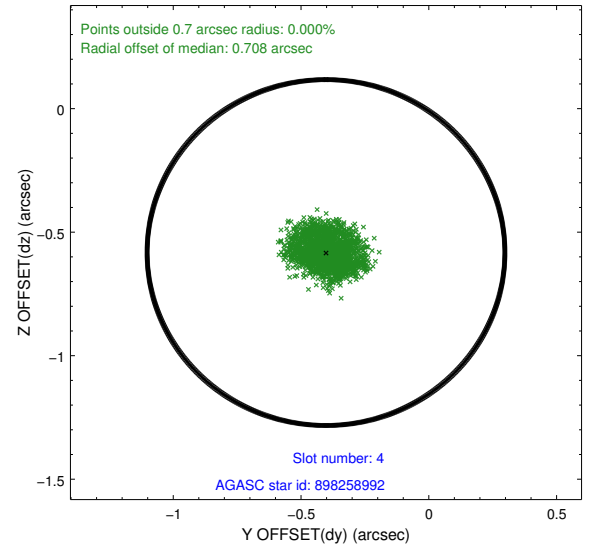
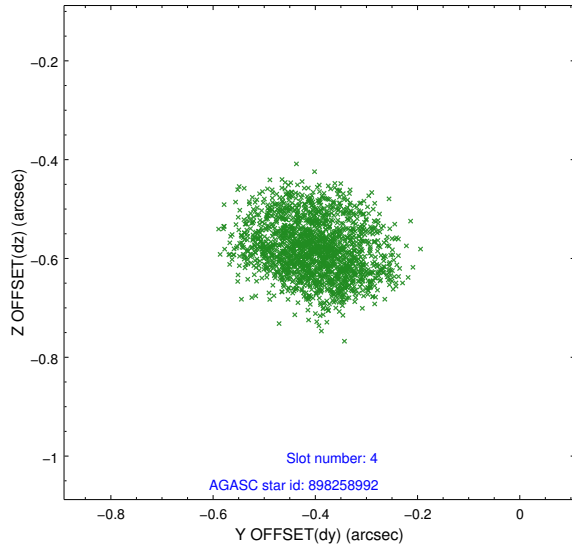
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.15	896	1.000	-0.260	-0.189	0.009	0.015	0.000000	0.000000	-761.74	-1739
1	FID		ACIS-S-4	7.27	896	1.000	0.650	0.176	0.007	0.014	0.000000	0.000000	2151.63	167
2	FID		ACIS-S-5	7.26	896	1.000	-0.422	0.022	0.009	0.015	0.000000	0.000000	-1812.58	163
3	GUIDE	used	898252768	8.80	1790	1.000	-0.138	0.069	0.107	0.177	269.910789	-28.705322	279.80	-1059
4	GUIDE	used	898258992	7.97	1792	1.000	-0.402	-0.583	0.100	0.150	269.435214	-28.570389	798.24	430
5	GUIDE	used	898266048	8.57	1791	1.000	0.003	-0.288	0.122	0.190	269.543508	-29.165642	-1350.49	134
6	GUIDE	used	898272440	6.51	1792	1.000	-0.106	0.135	0.103	0.175	269.662704	-28.759088	103.39	-272
7	GUIDE	used	898383760	8.19	1791	1.000	0.640	0.674	0.079	0.127	270.301358	-29.342458	-2045.01	-2229

2.4 Star Slots

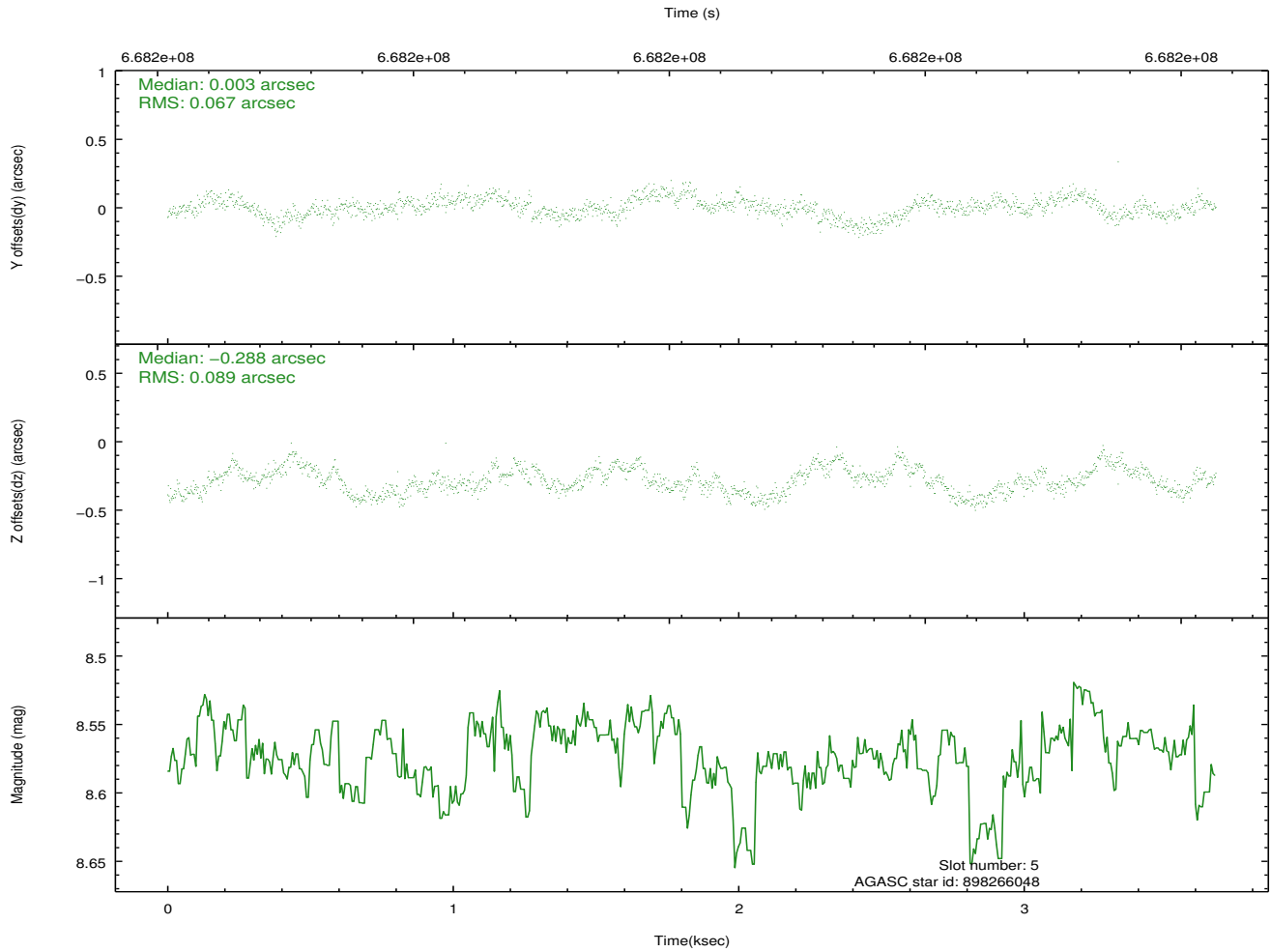
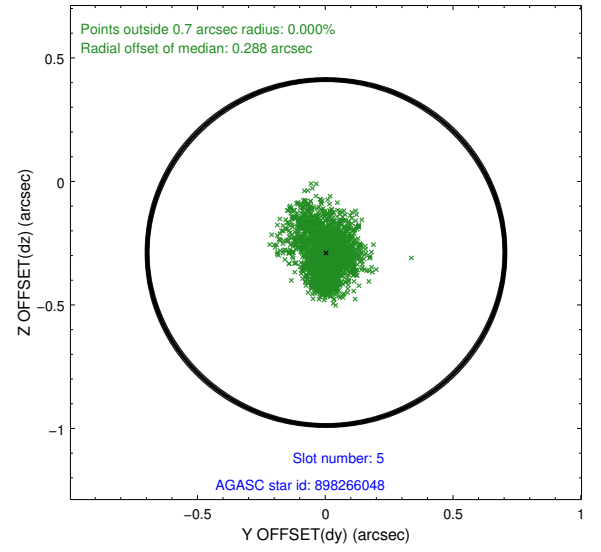
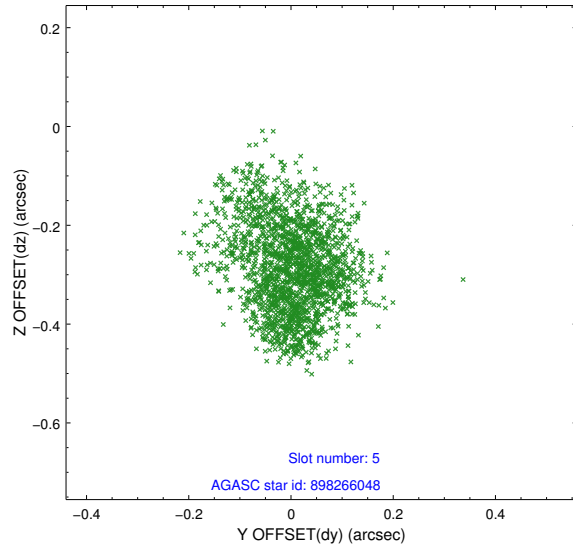
2.4.1 Slot 3



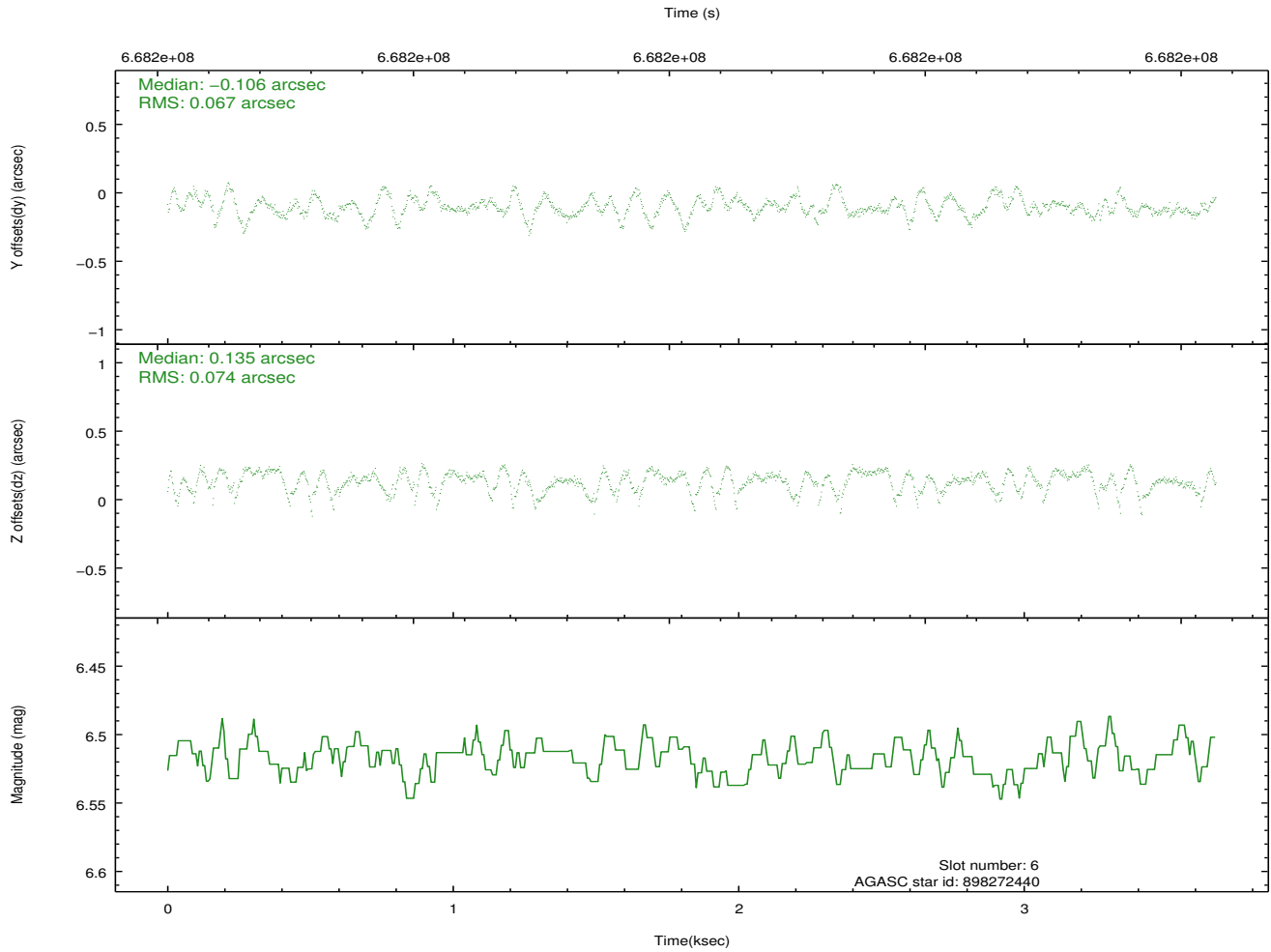
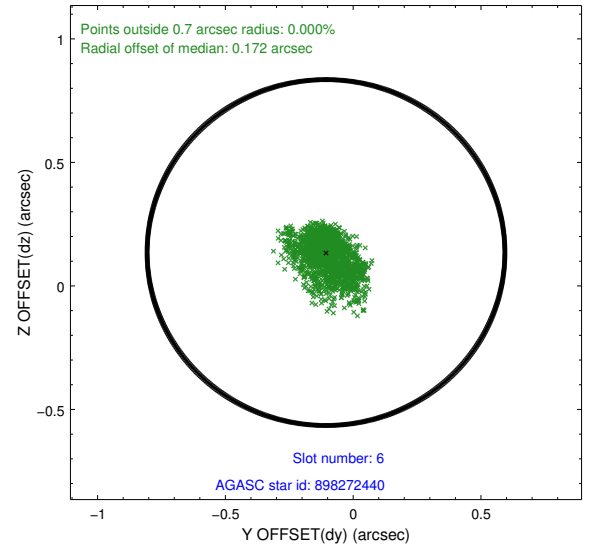
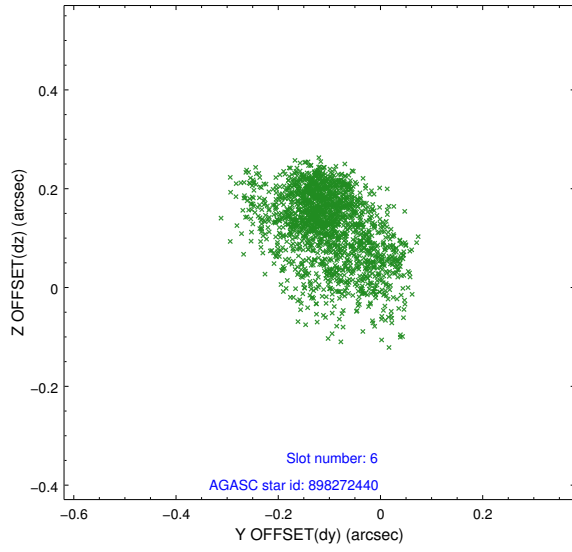
2.4.2 Slot 4



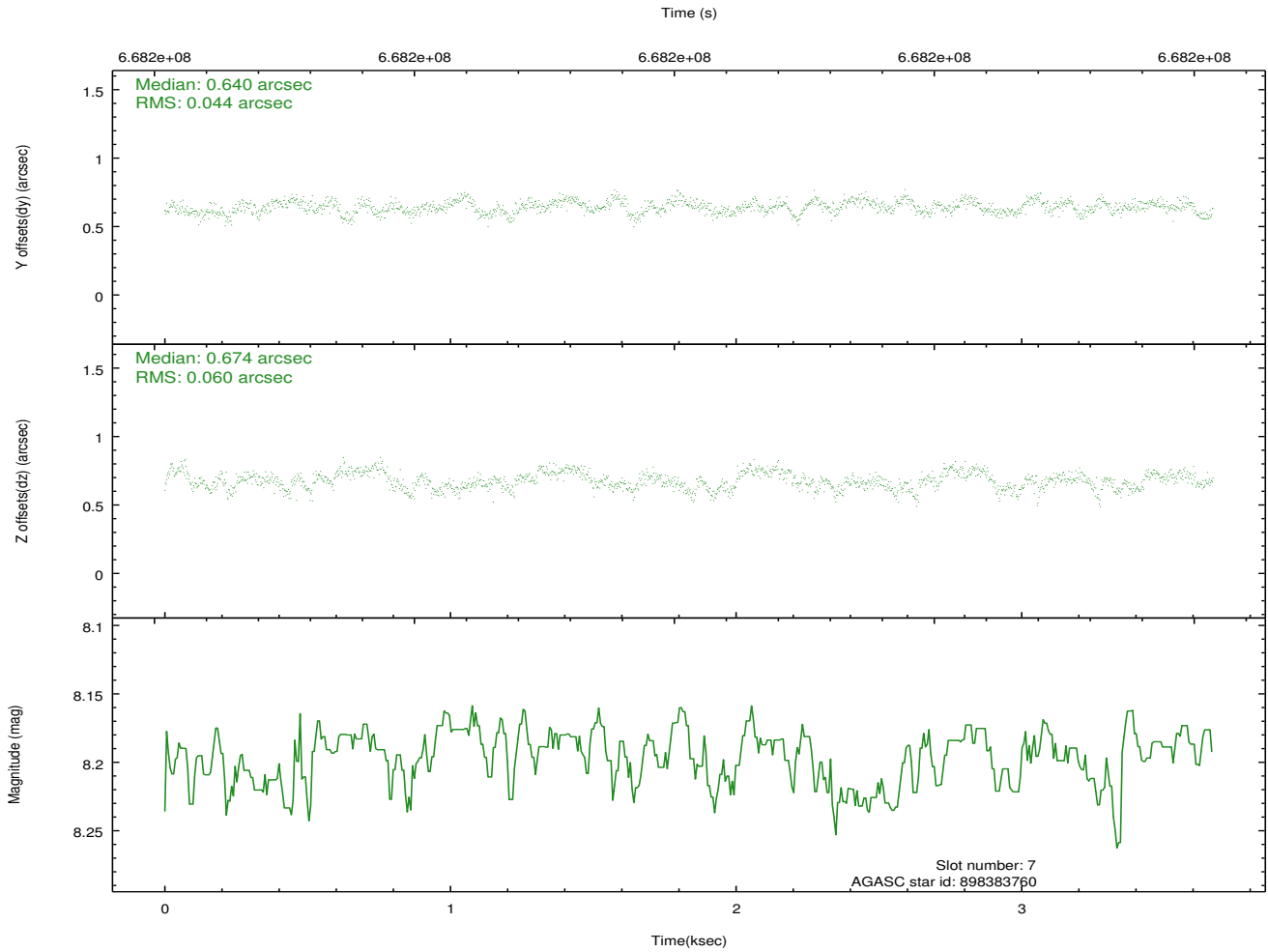
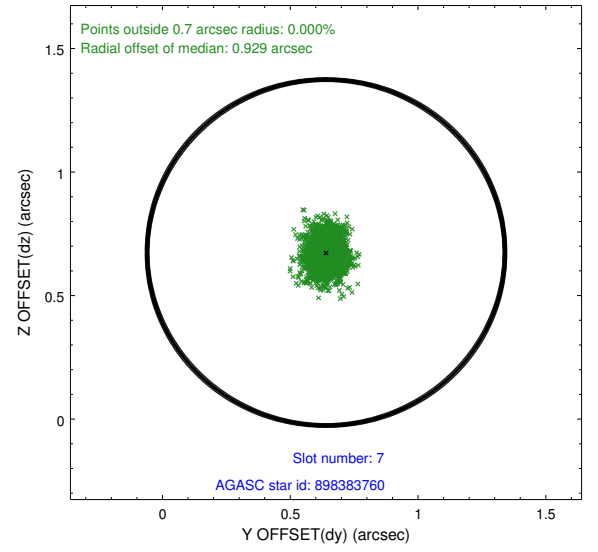
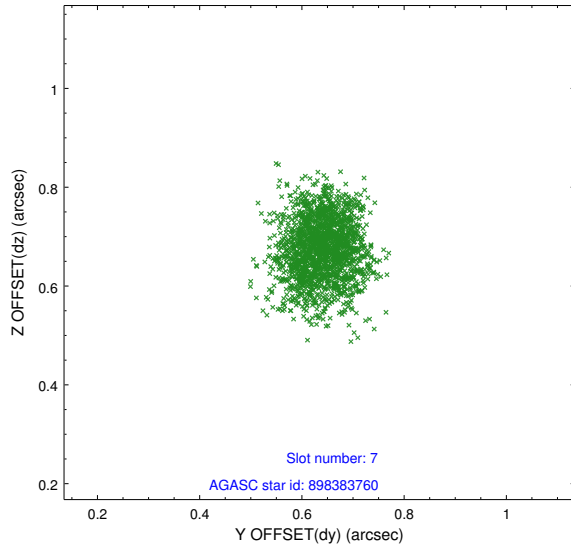
2.4.3 Slot 5



2.4.4 Slot 6

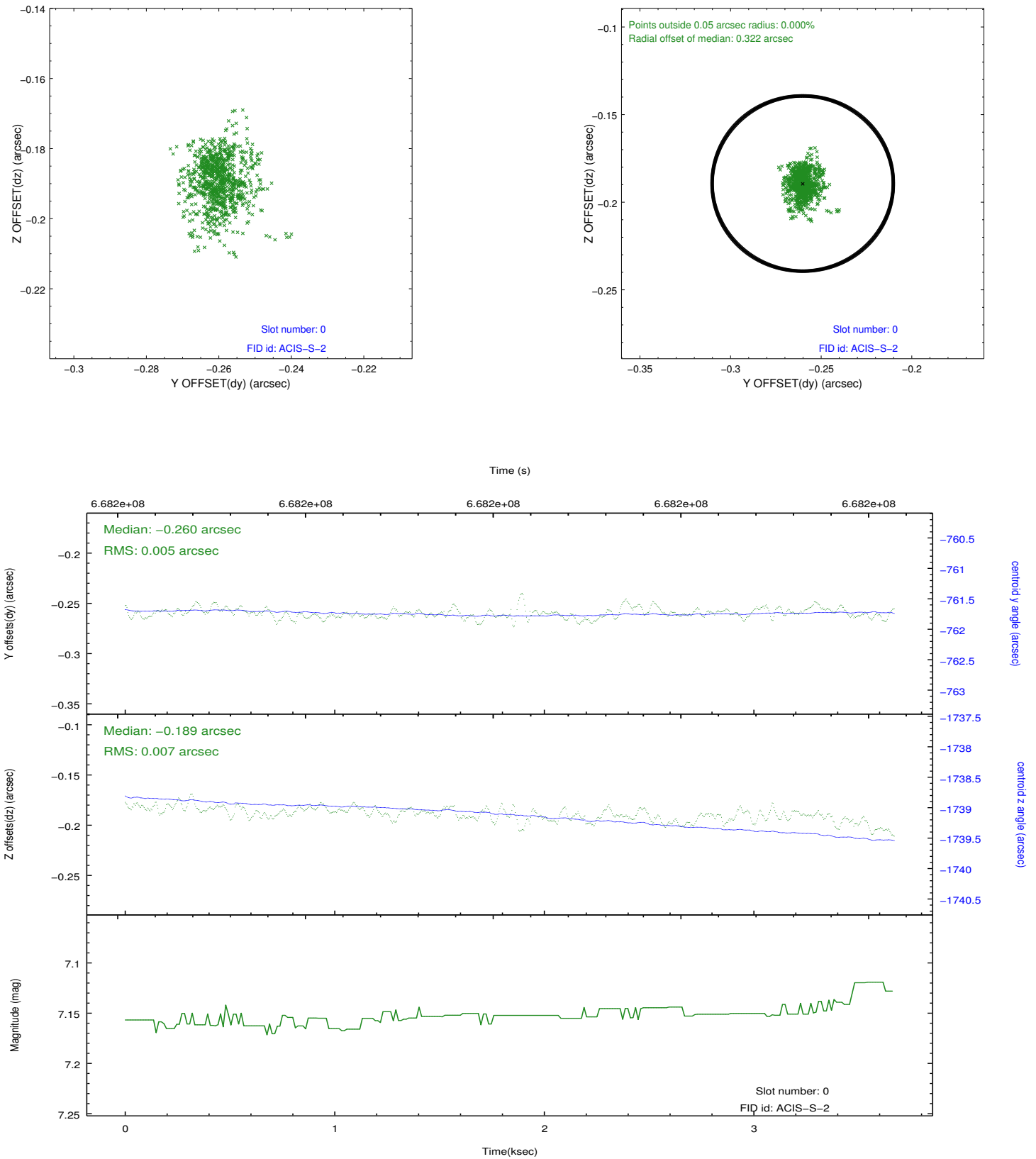


2.4.5 Slot 7

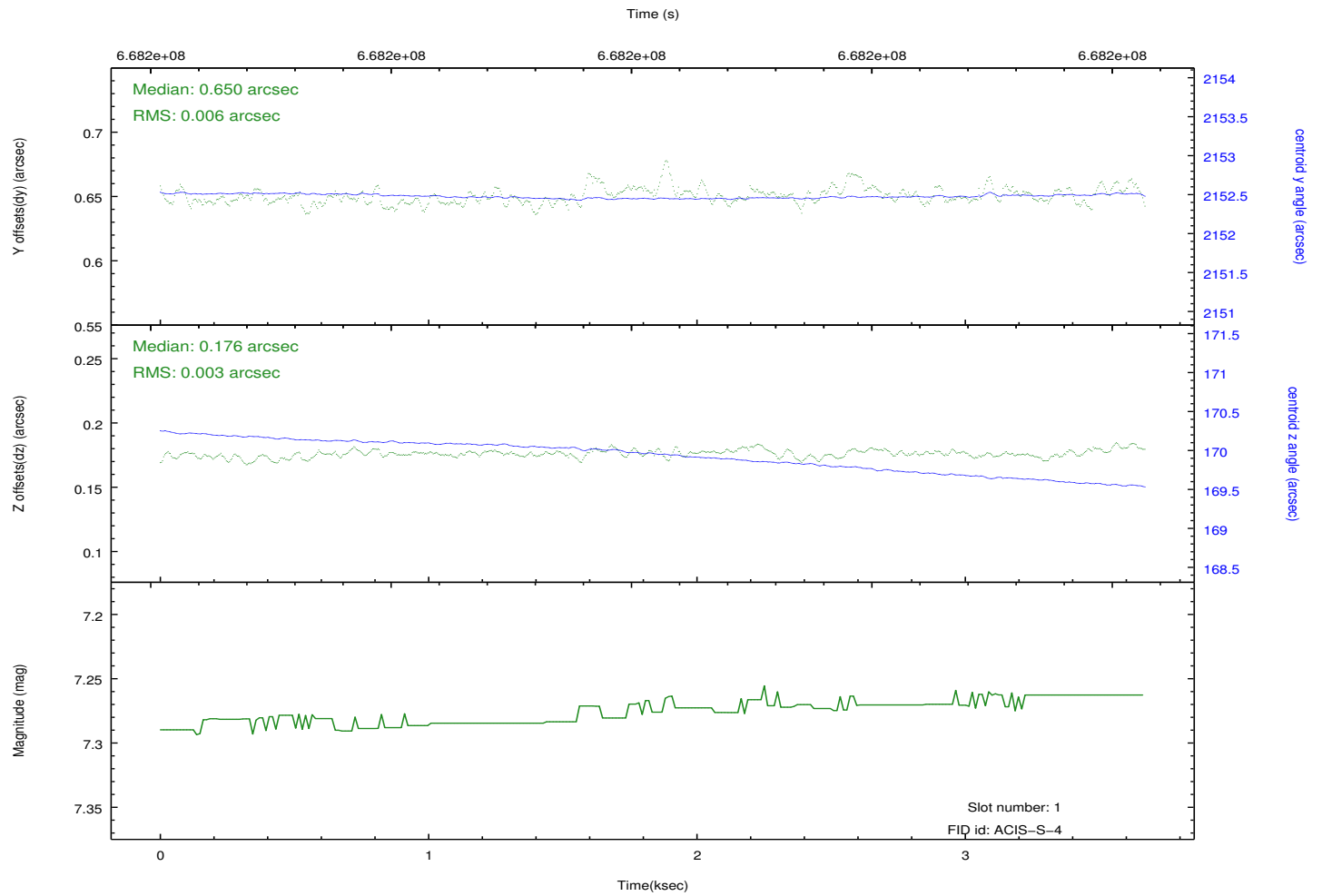
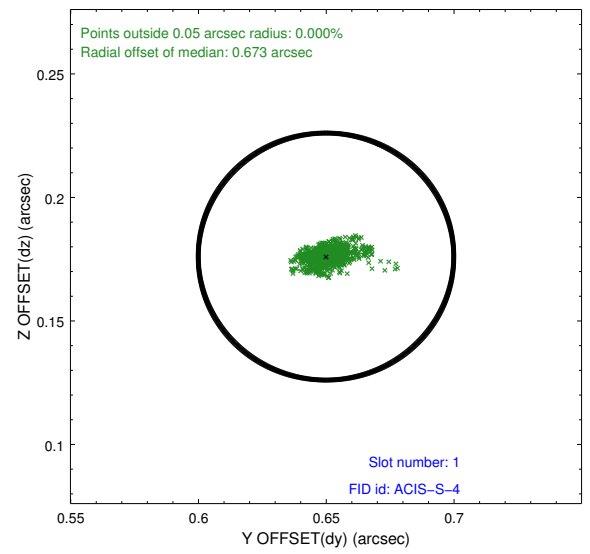
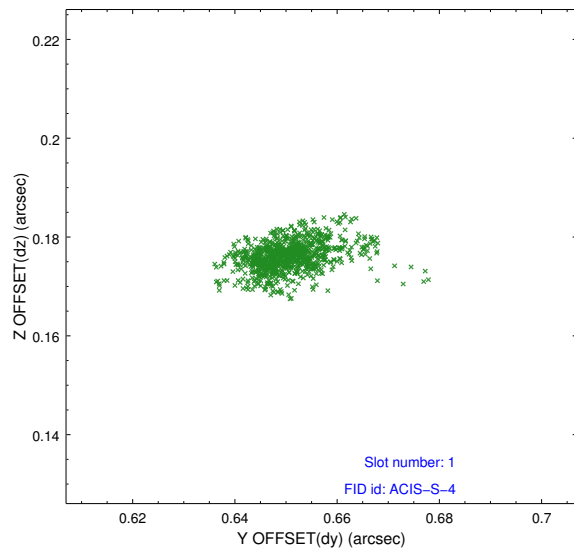


2.5 FID Slots

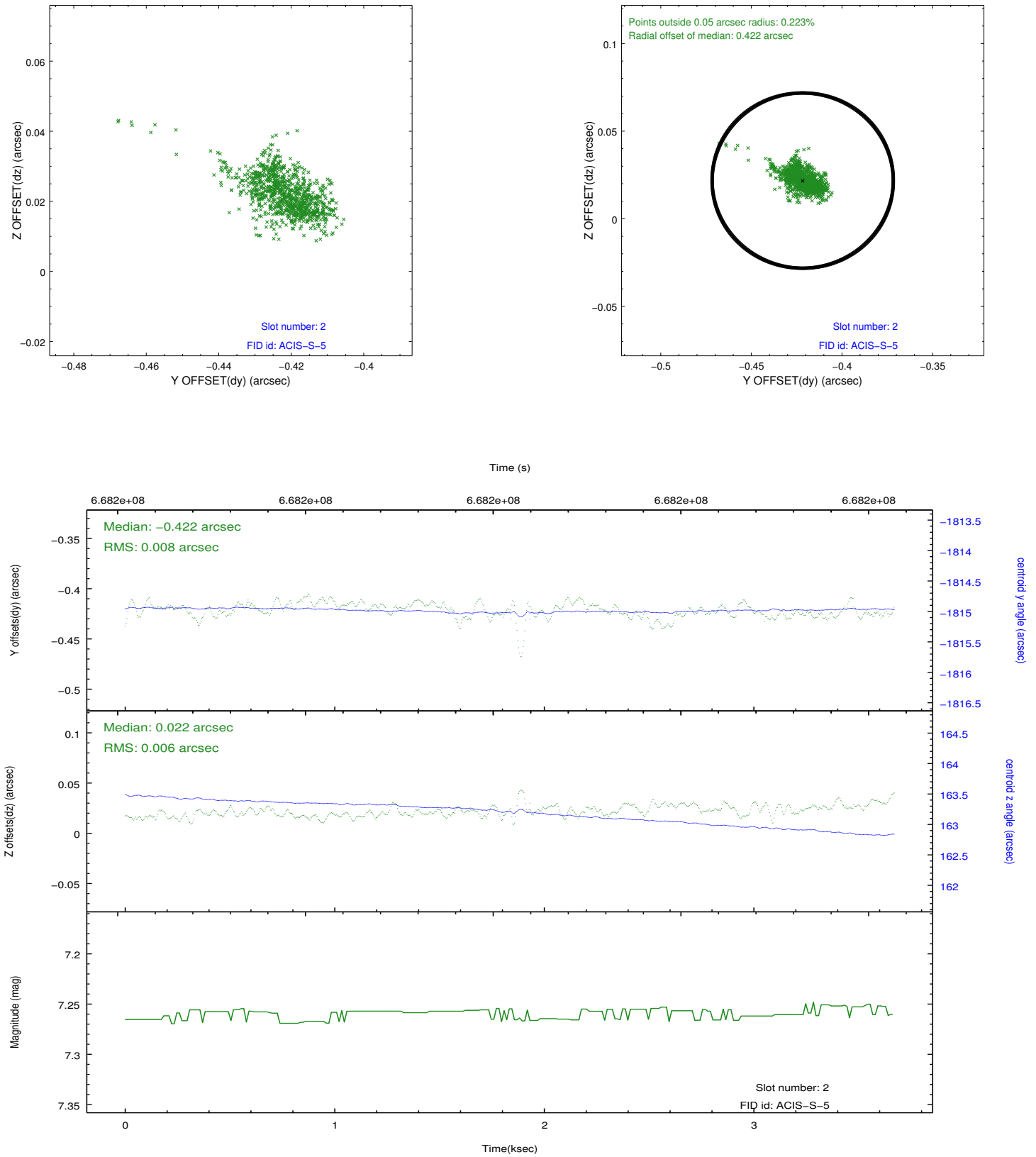
2.5.1 Slot 0



2.5.2 Slot 1



2.5.3 Slot 2



A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2019.03.06
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	3.5544703714848

A.2 Comments

The ACIS focal plane temperature is warmer than -112.0 C degrees during the interval 668199362.10 - 668202914.70 (MET s) of this observation. 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.