

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 1770 - L2 Version 5
Chandra X-Ray Center

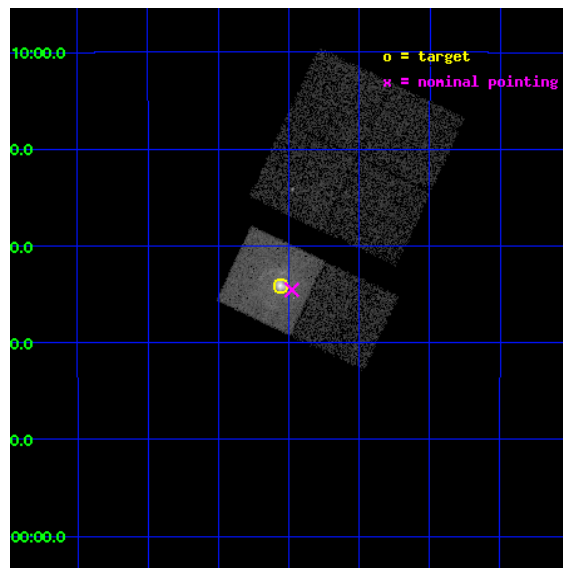
L2 Processing Date : Aug 30 2012

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

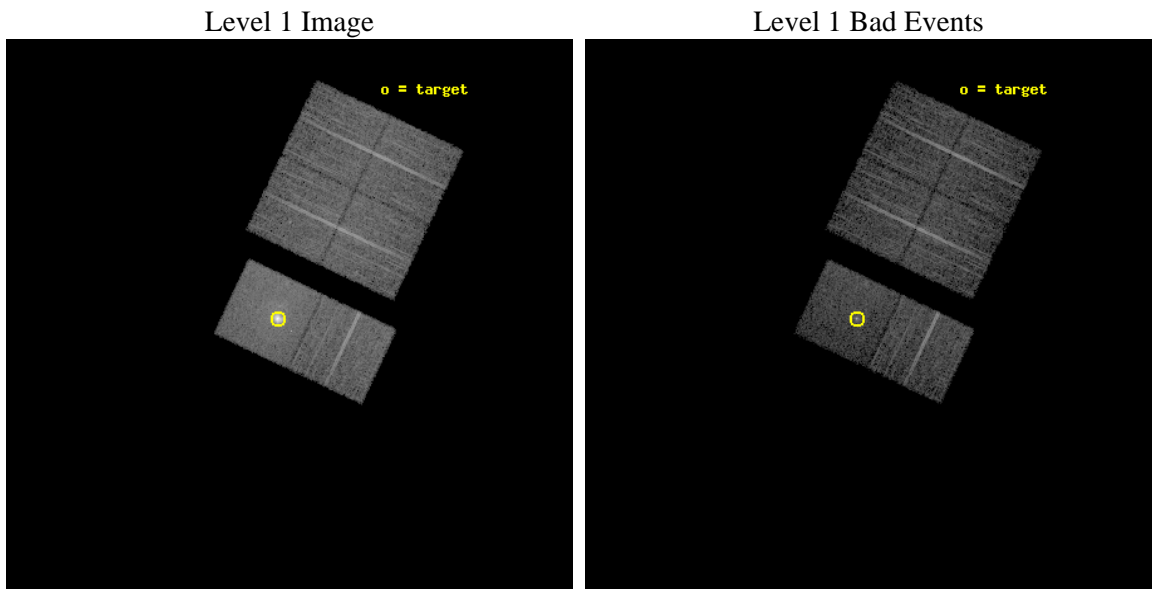
seq_num	590196	Sequence number
obs_id	1770	Observation id
title	HRC RESPONSE TO CONTINUUM SOURCE.	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	G21.5-0.9 [Chip S3, T=110, Offsets=-1,0,0]	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	278.389583	Observer's specified target RA [deg]
dec_targ	-10.568528	Observer's specified target Dec [deg]
ra_nom	278.36953601559	Nominal RA [deg]
dec_nom	-10.575837754566	Nominal Dec [deg]
roll_nom	205.32909070027	Nominal Roll [deg]
revision	5	Processing version of data
ontime	7308.7335641384	Sum of GTIs [s]
livetime	7216.1859789583	Livetime [s]
ontime0	7312.0000067949	Sum of GTIs [s]
ontime1	7311.8103743792	Sum of GTIs [s]
ontime2	7311.8514143825	Sum of GTIs [s]
ontime3	7311.8924543858	Sum of GTIs [s]
ontime6	7311.9334943742	Sum of GTIs [s]
ontime7	7308.7335641384	Sum of GTIs [s]
l2events	71720	Number of level 2 events



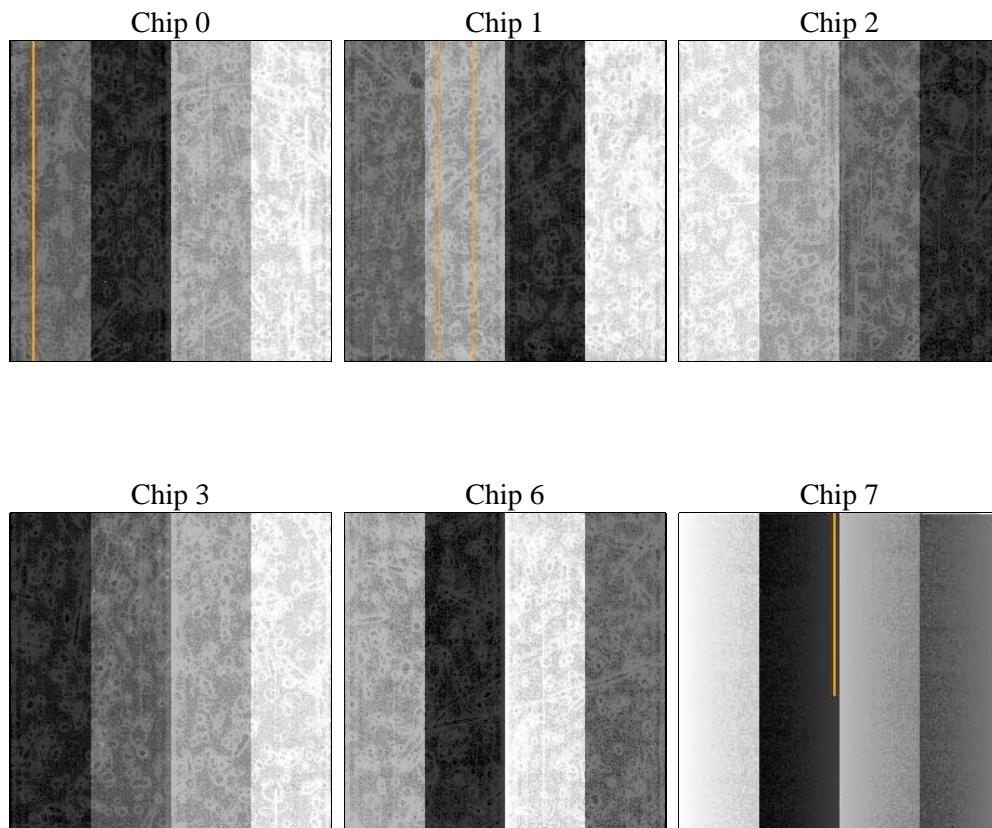
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	7560.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	7308.7335641384	Sum of GTIs [s]
caldsver	4.5.1.1	 	ontime0	7312.0000067949	Sum of GTIs [s]
date	2012-08-30T03:41:48	Date and time of file creation	ontime1	7311.8103743792	Sum of GTIs [s]
revision	5	Processing version of data	ontime2	7311.8514143825	Sum of GTIs [s]
			ontime3	7311.8924543858	Sum of GTIs [s]
			ontime6	7311.9334943742	Sum of GTIs [s]
			ontime7	7308.7335641384	Sum of GTIs [s]
			l1events	333438	Number of level 1 events

2.1.4 Events

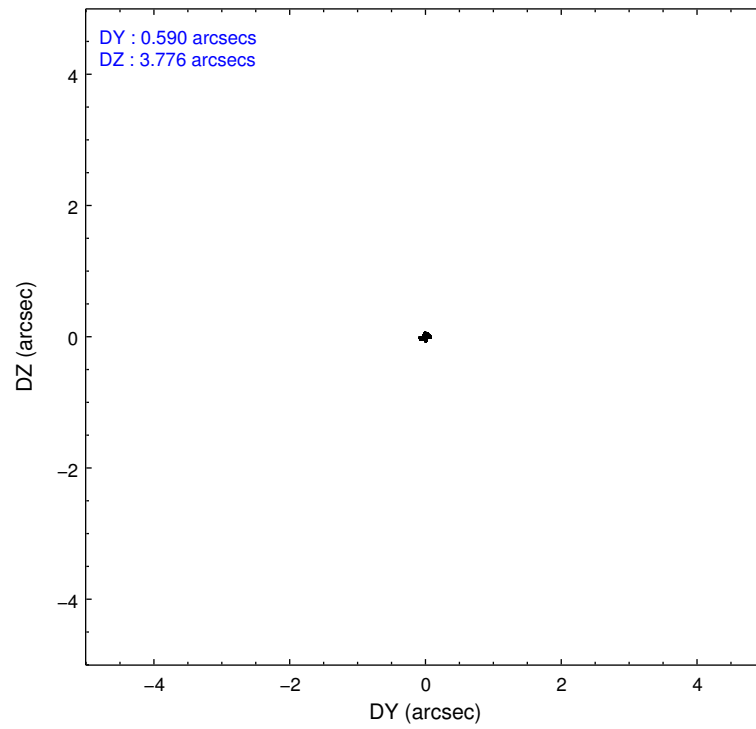
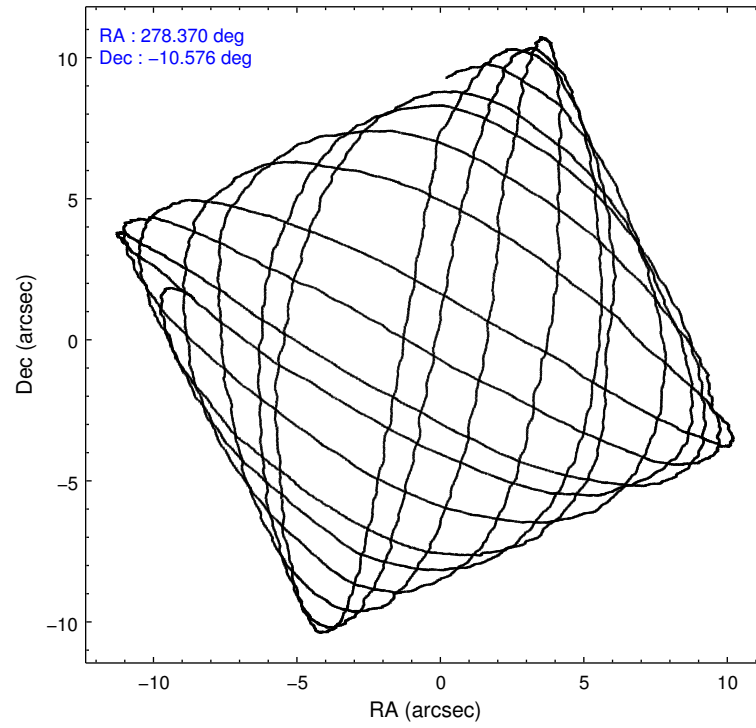
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7		ccd 0	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	47855	46450	51948	49391	52207	85587	grade 0 events	1321	1356	1167	1445	1184	6845
rejected events	42560	40901	46931	43885	46551	36458		2%	2%	2%	2%	2%	7%
rejected %	88%	88%	90%	88%	89%	42%	grade 1 events	14	6	8	6	6	57
								0%	0%	0%	0%	0%	0%
							grade 2 events	1996	2068	2028	2142	2245	11717
								4%	4%	3%	4%	4%	13%
							grade 3 events	393	417	344	316	348	4427
								0%	0%	0%	0%	0%	5%
							grade 4 events	317	366	299	298	332	3894
								0%	0%	0%	0%	0%	4%
							grade 5 events	1027	988	870	1017	1189	3798
								2%	2%	1%	2%	2%	4%
							grade 6 events	1274	1346	1183	1308	1547	22283
								2%	2%	2%	2%	2%	26%
							grade 7 events	41513	39903	46049	42859	45356	32566
								86%	85%	88%	86%	86%	38%

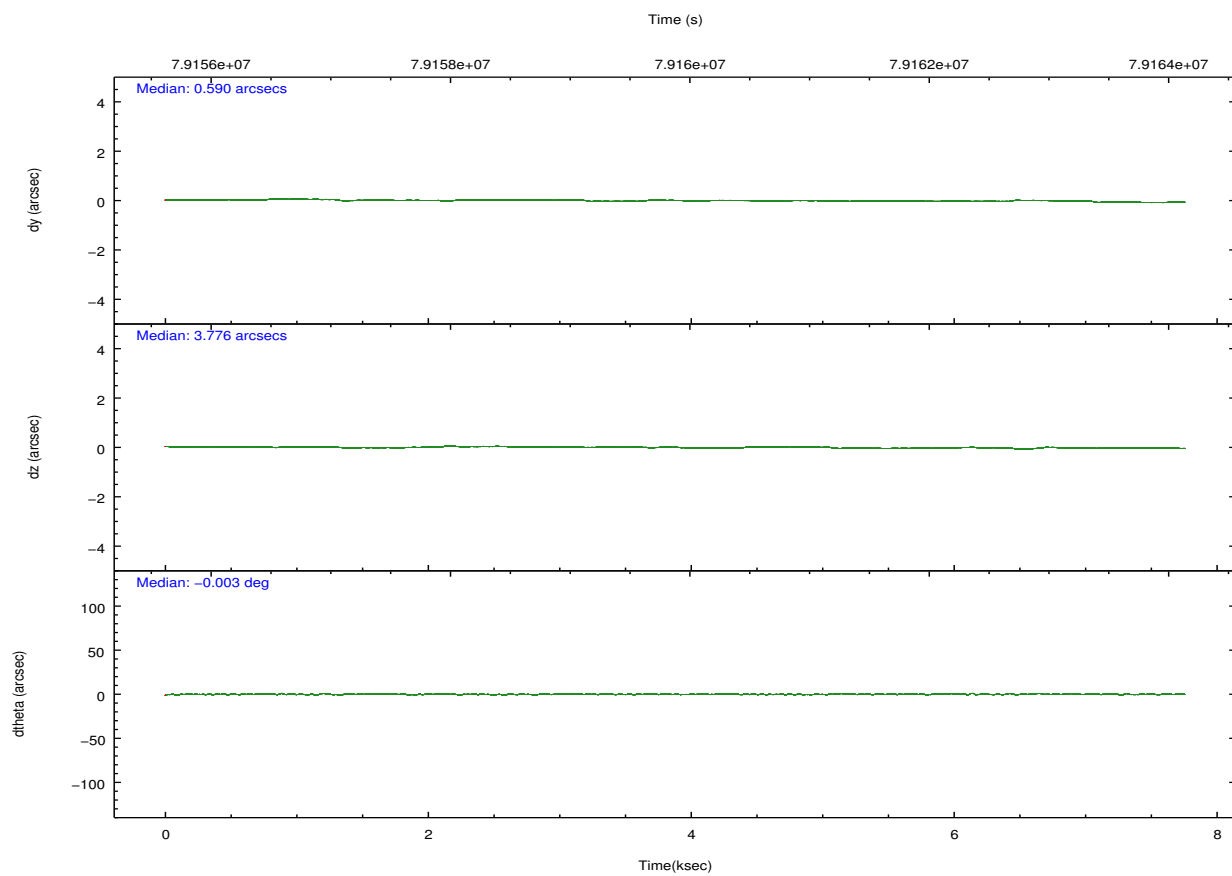
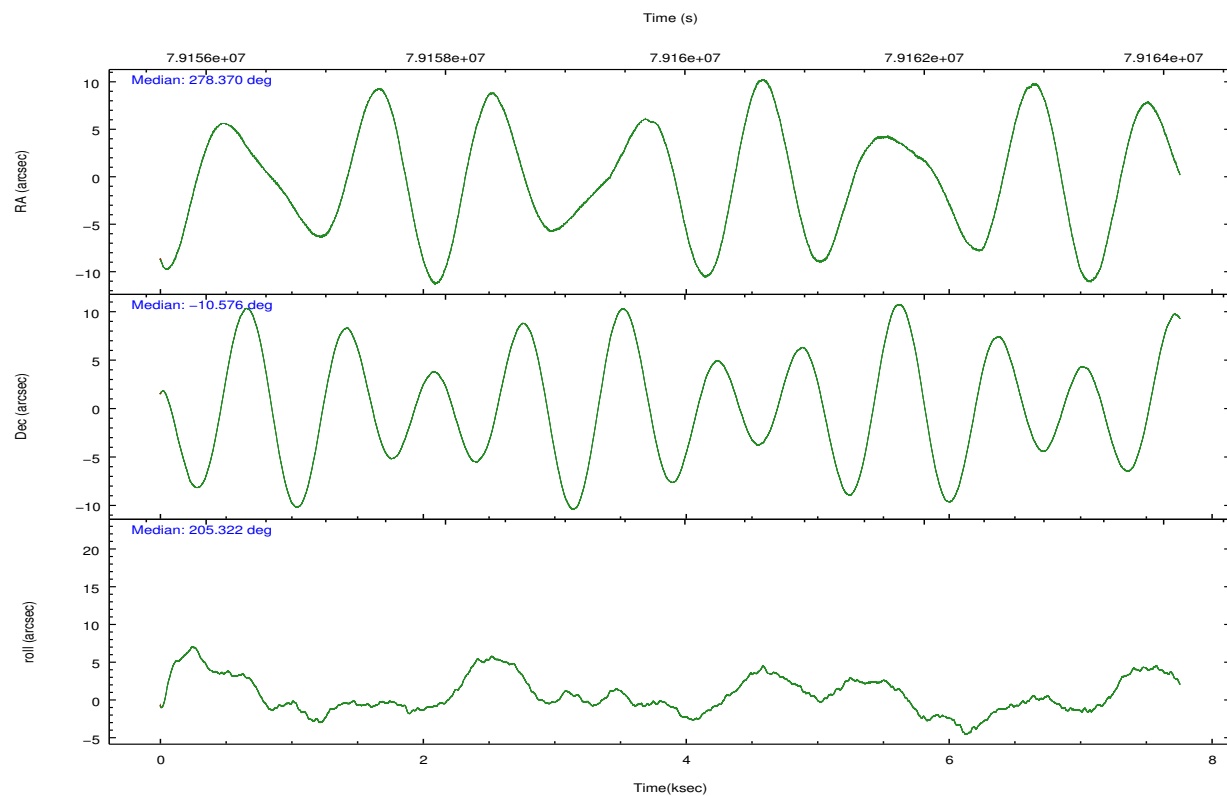
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	278.385261	278.3695360155946
[deg] Pointing Dec	-10.553212	-10.57583775456621
[deg] Pointing Roll	205.175343	205.3290907002722
[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)	79156196.184000	79155819.877986
Observation start date	2000-07-05T03:48:52	2000-07-05T03:43:39
[s] Observation end time (MET)	79163756.184000	79163890.215784
Observation end date	2000-07-05T05:54:52	2000-07-05T05:58:10
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.2

2.3 Aspect



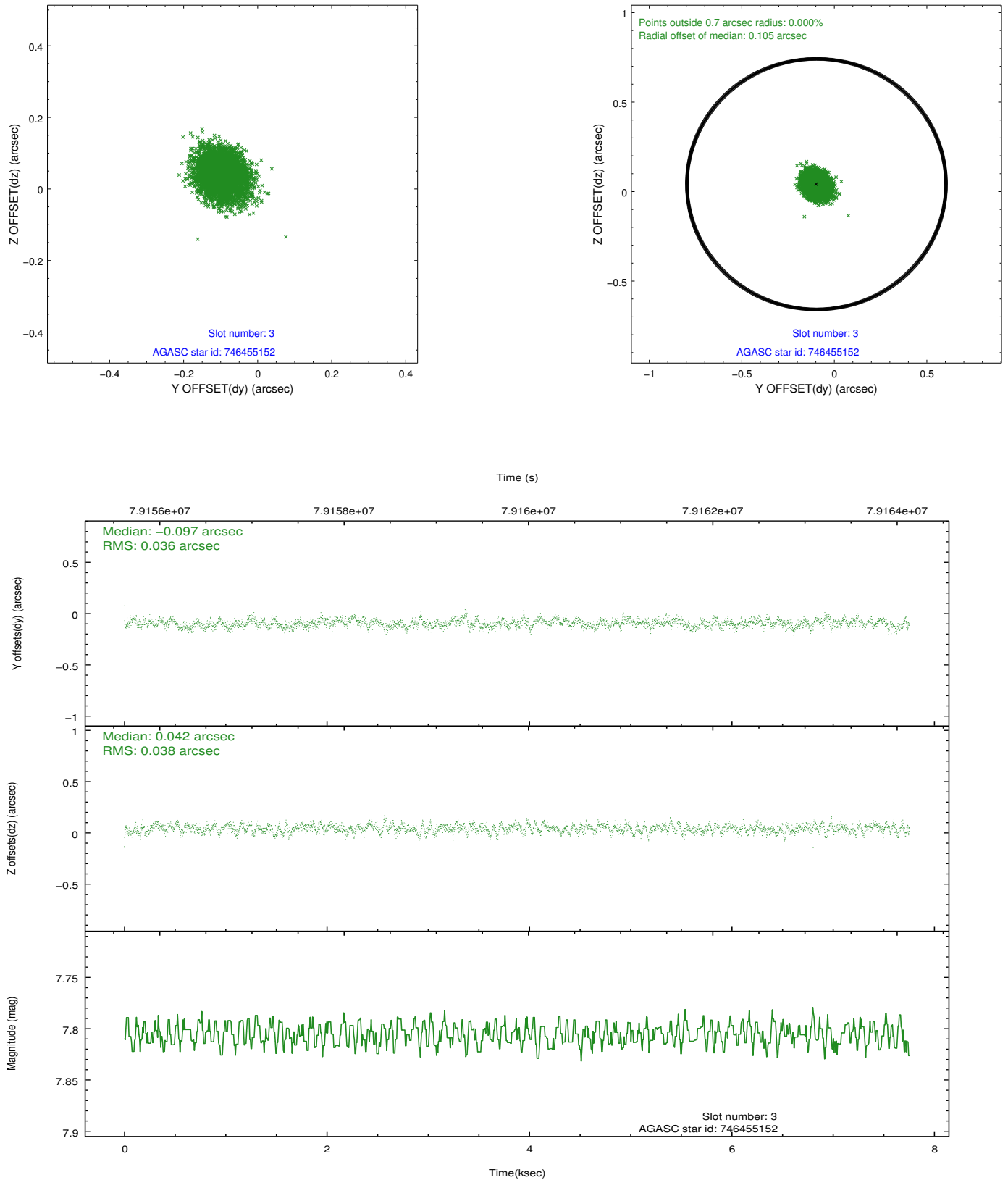


Slot Statistics

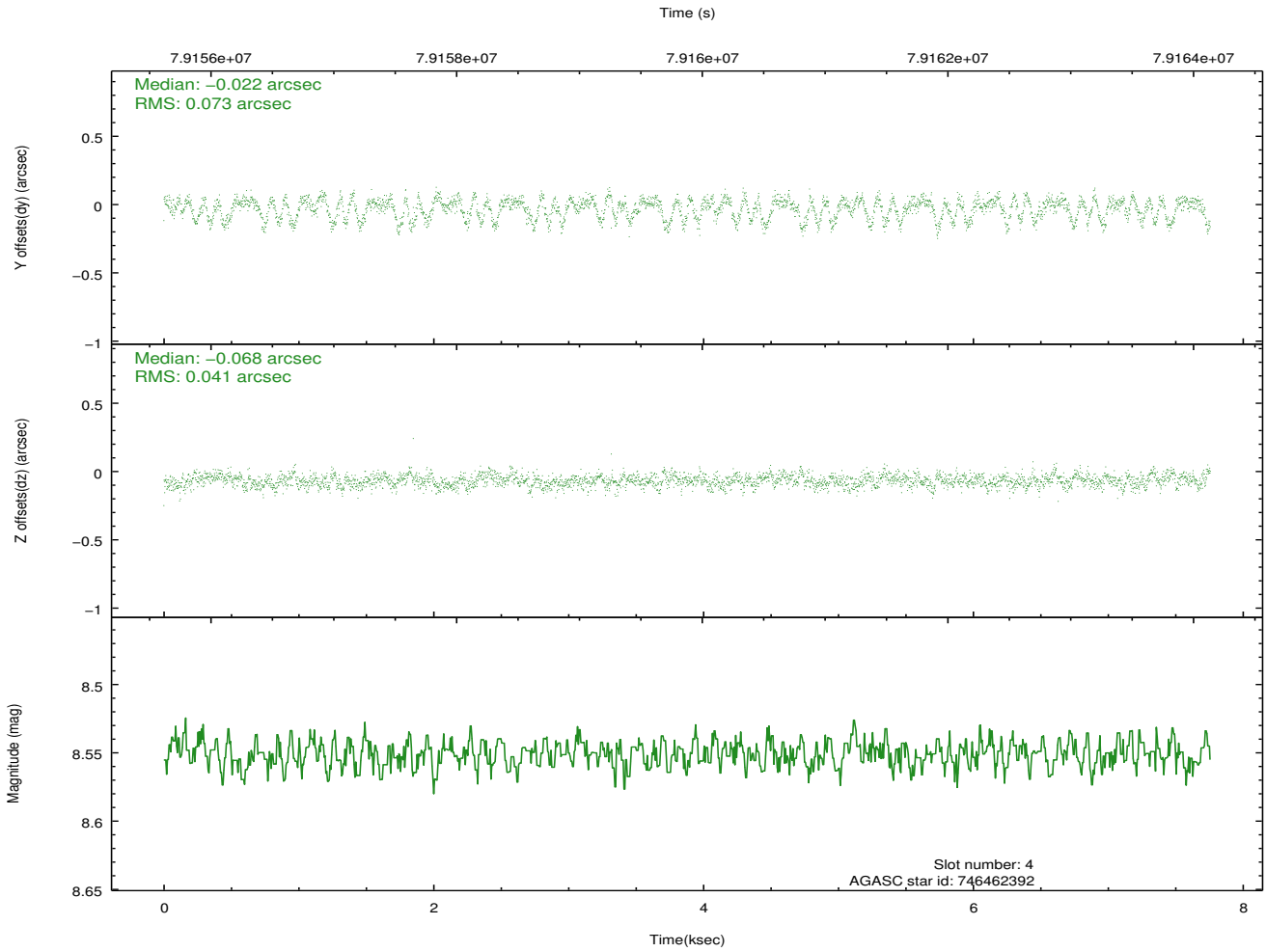
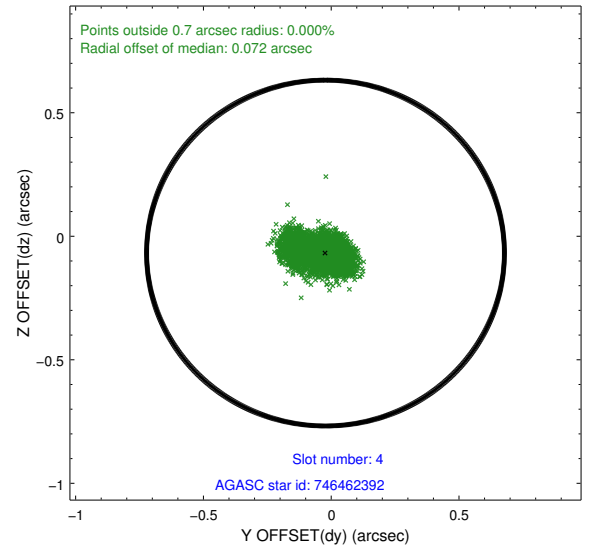
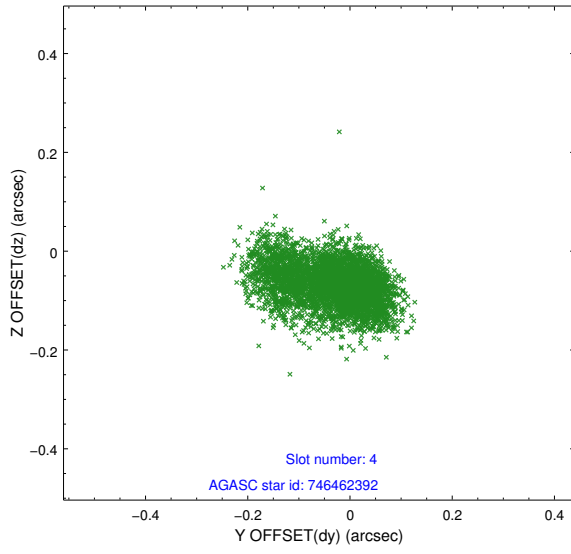
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	1892	-0.020	-0.031	0.007	0.012	0.000000	0.000000	-753.21	-1724.87
1	FID	ACIS-S-4	7.21	1890	0.031	0.018	0.006	0.011	0.000000	0.000000	2159.82	182.86
2	FID	ACIS-S-5	7.24	1891	-0.043	0.022	0.007	0.012	0.000000	0.000000	-1805.10	177.43
3	GUIDE	746455152	7.80	3781	-0.097	0.042	0.056	0.090	278.447893	-9.976732	-1083.76	-1783.61
4	GUIDE	746462392	8.55	3782	-0.022	-0.068	0.087	0.151	279.038421	-10.890715	-1572.50	2083.67
5	GUIDE	746455112	8.94	3779	0.219	-0.097	0.082	0.135	278.266531	-10.703234	609.55	310.91
6	GUIDE	746460328	9.81	3779	-0.031	0.038	0.088	0.144	278.603974	-9.898096	-1704.86	-1804.08
7	GUIDE	746995400	9.72	3778	-0.061	0.086	0.111	0.180	278.078957	-11.289885	2106.32	1940.70

2.4 Star Slots

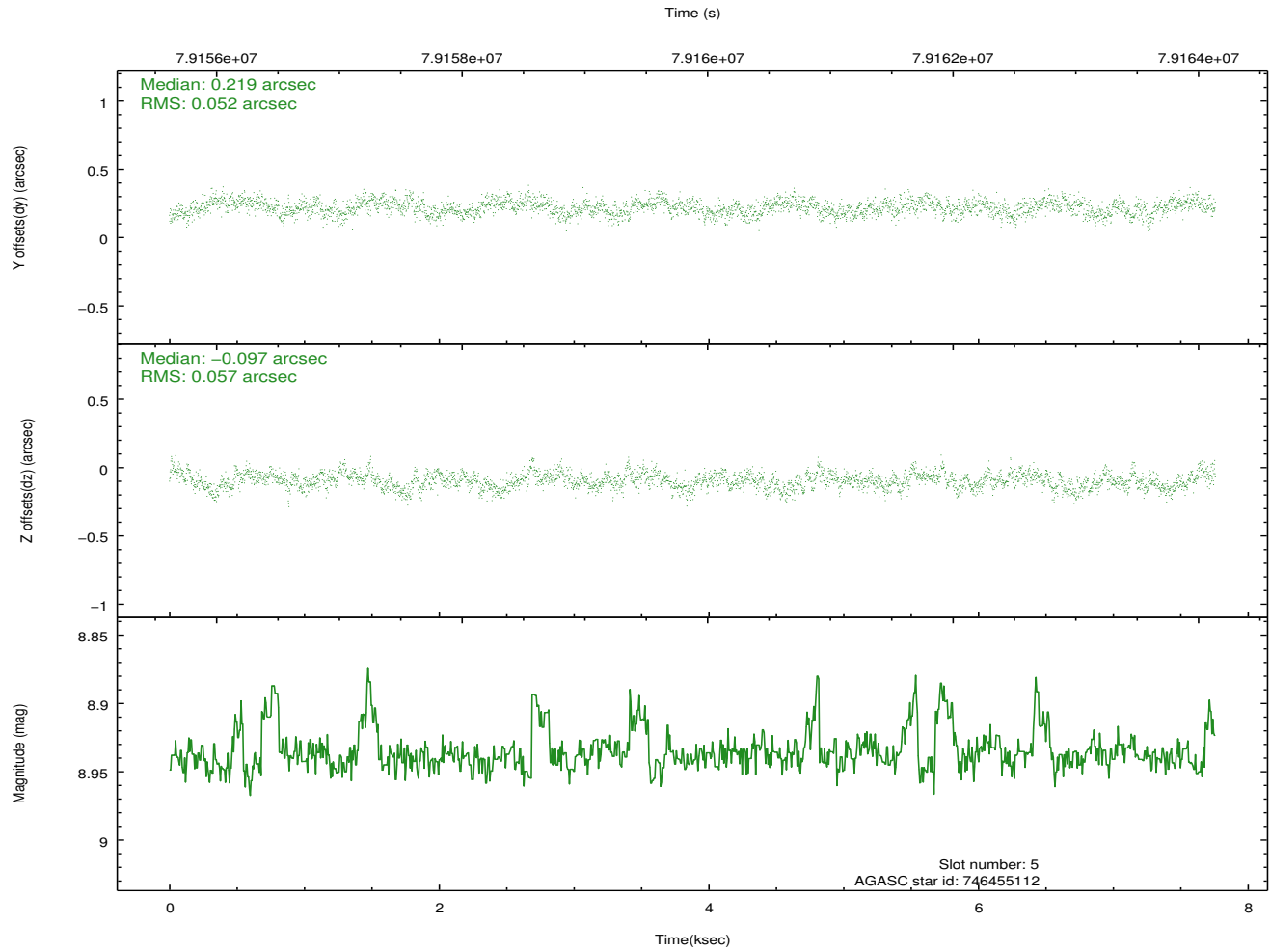
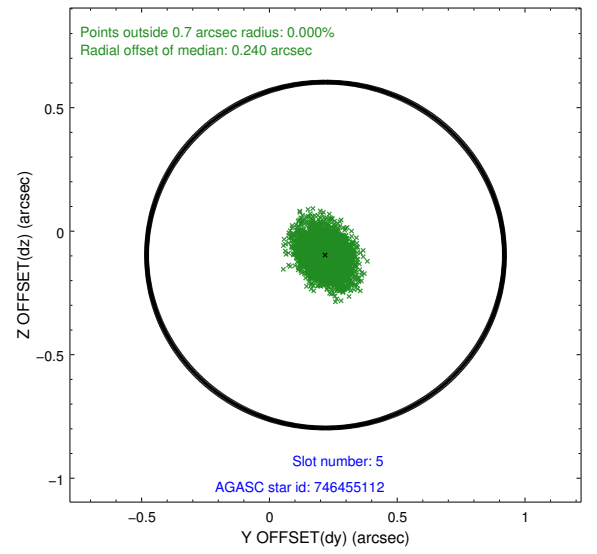
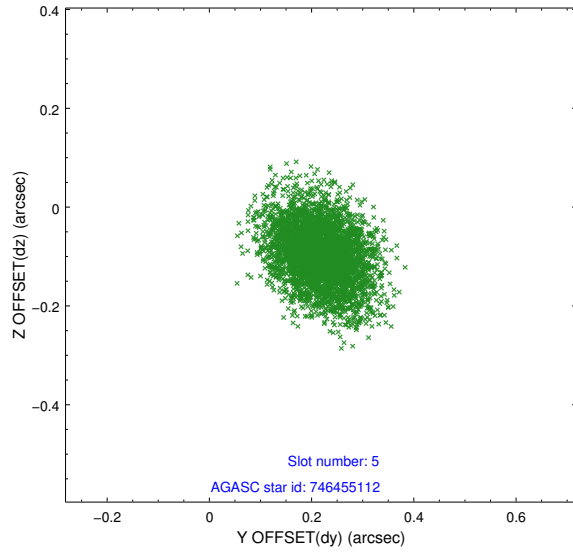
2.4.1 Slot 3



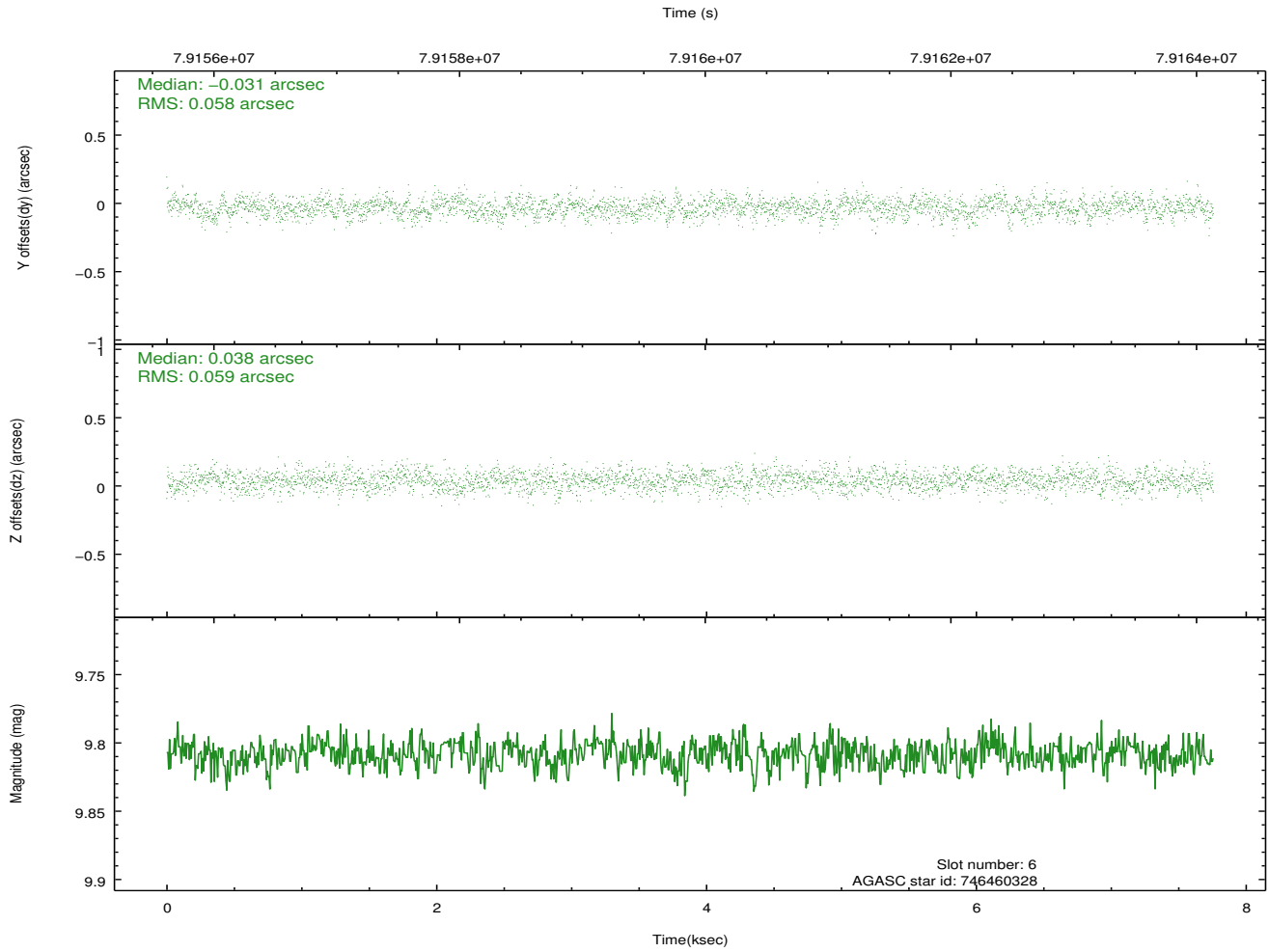
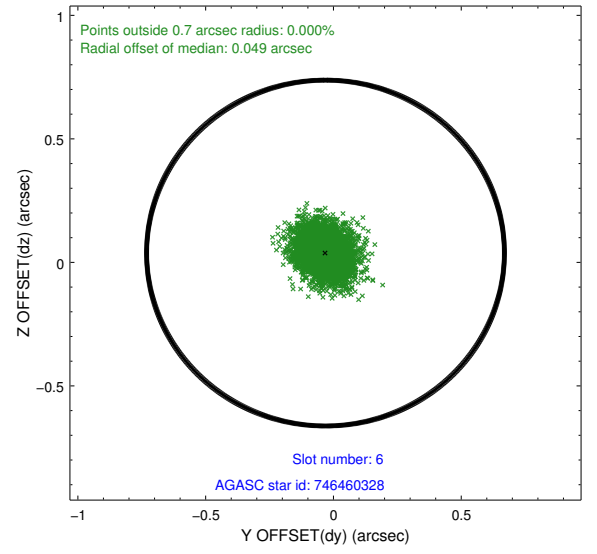
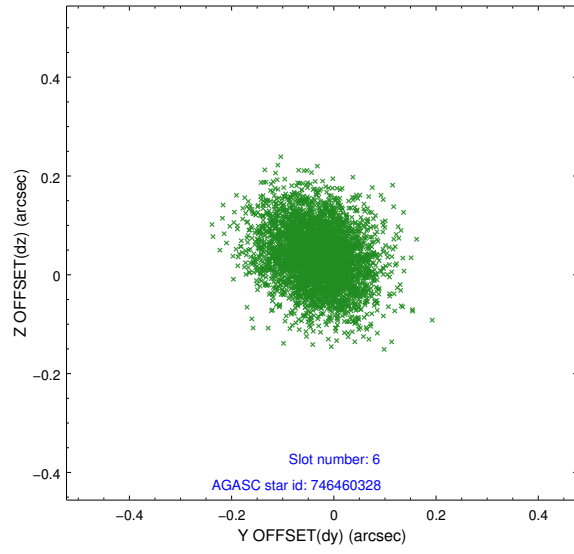
2.4.2 Slot 4



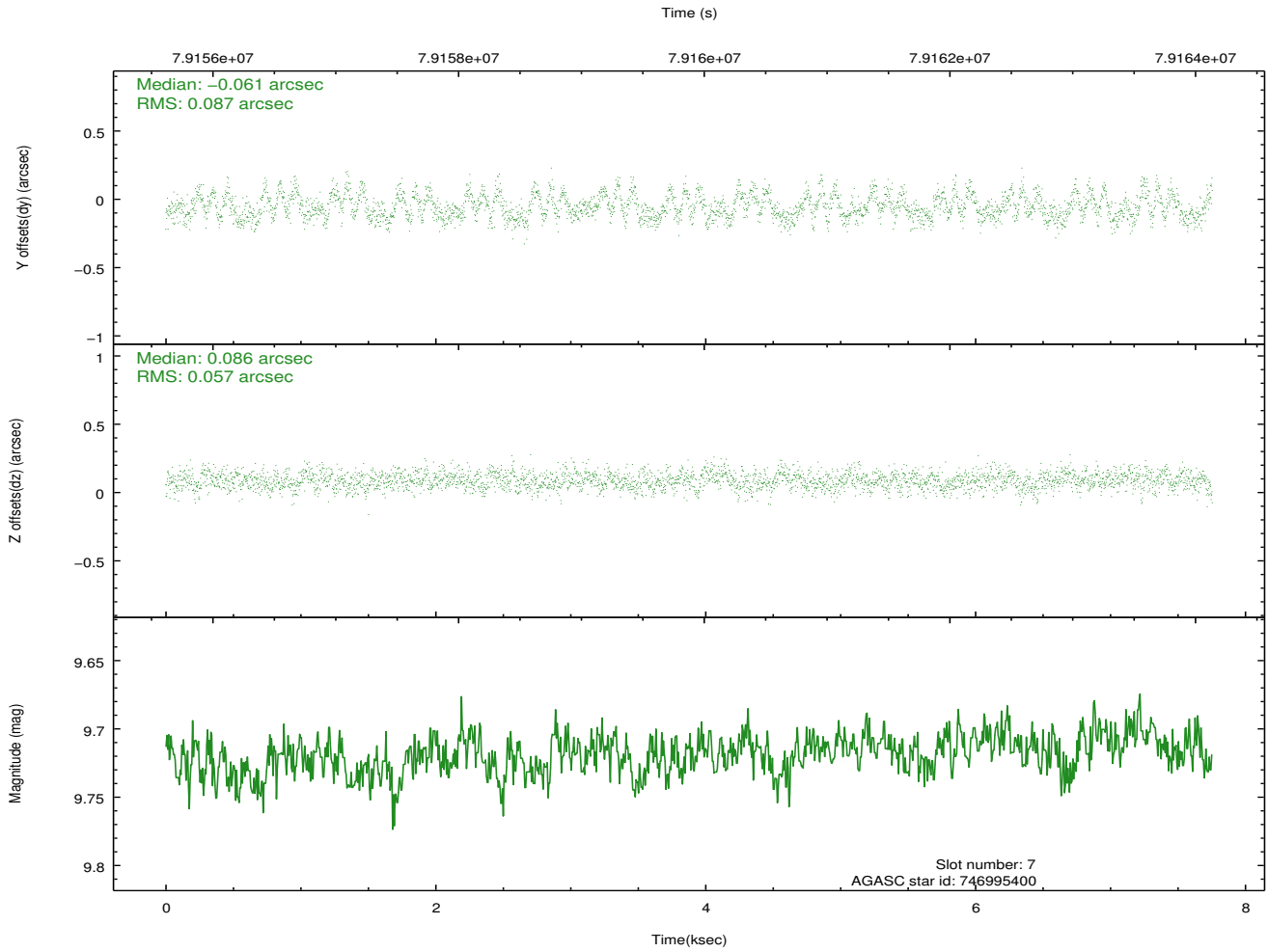
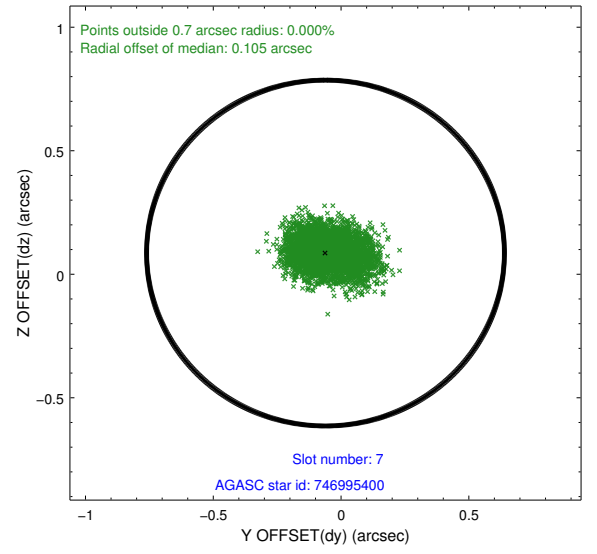
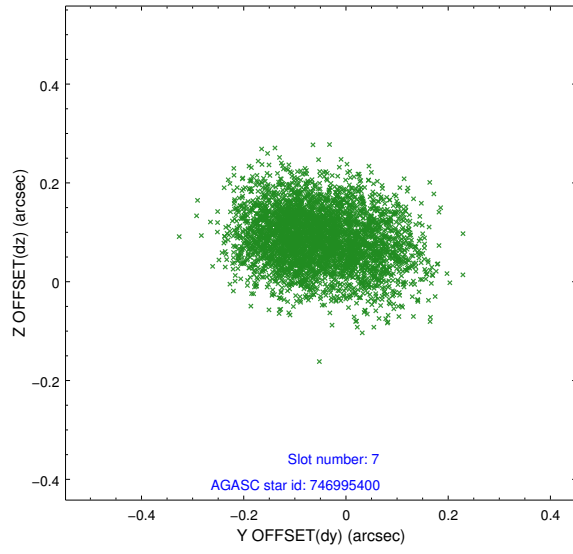
2.4.3 Slot 5



2.4.4 Slot 6

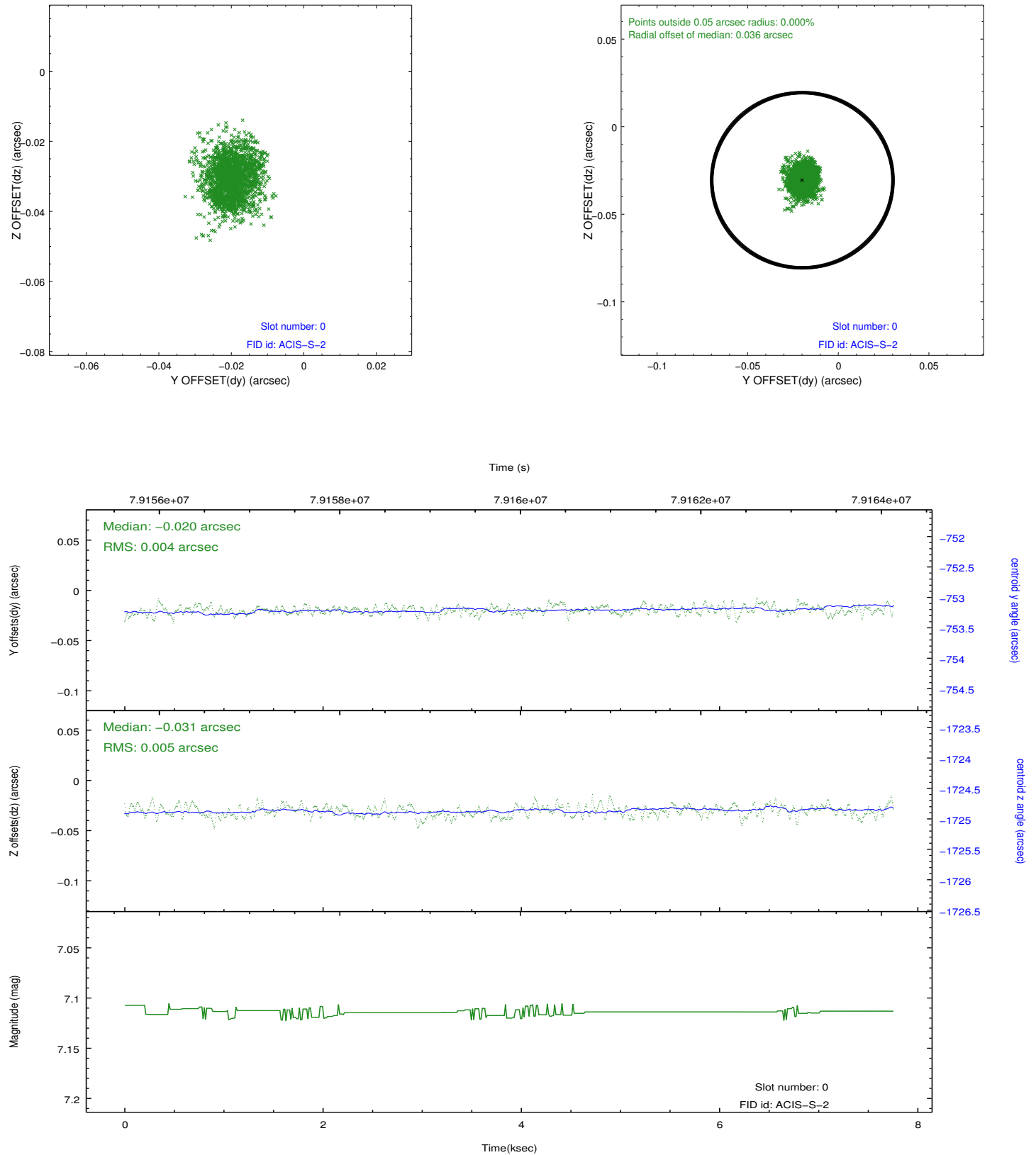


2.4.5 Slot 7

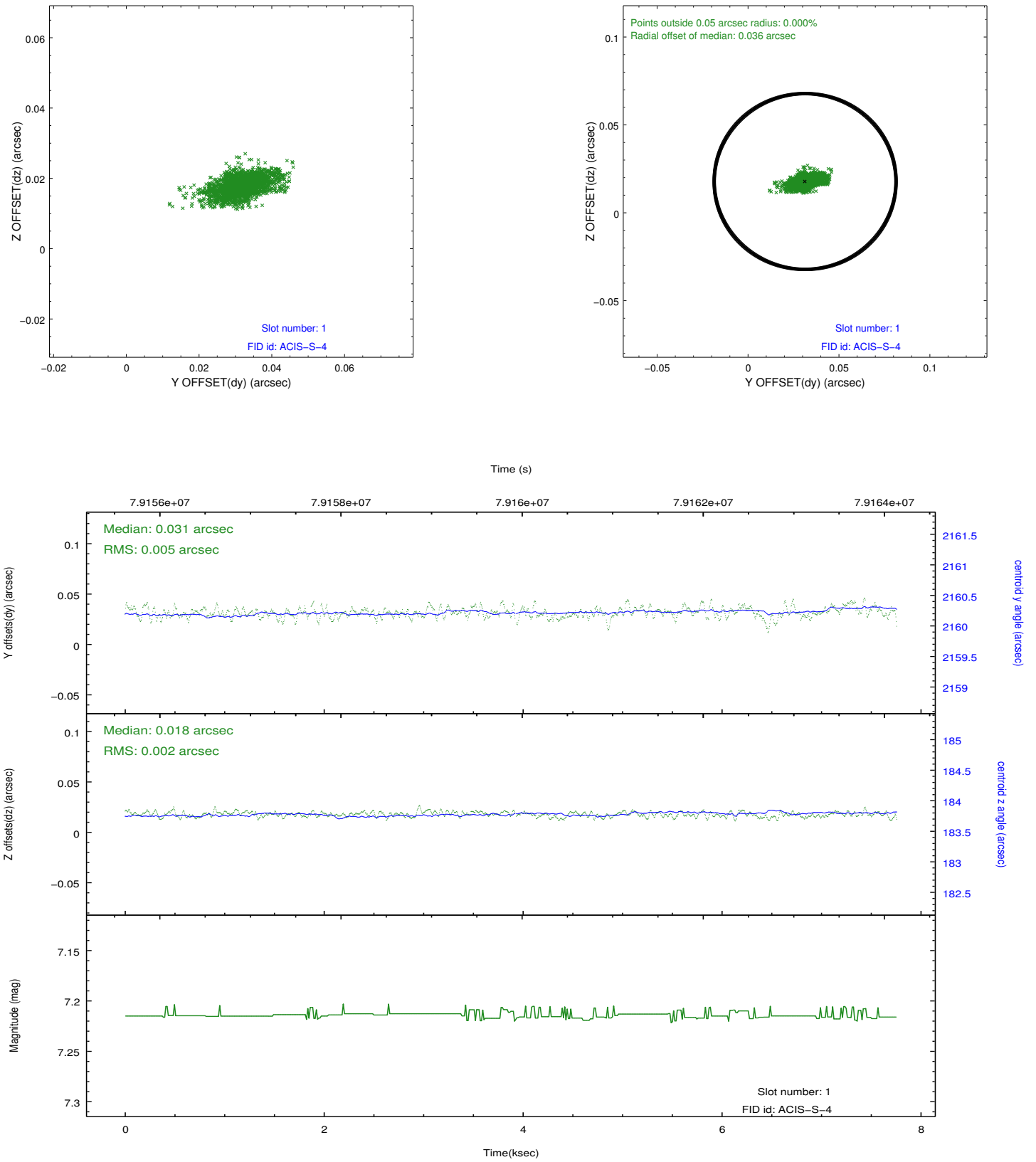


2.5 FID Slots

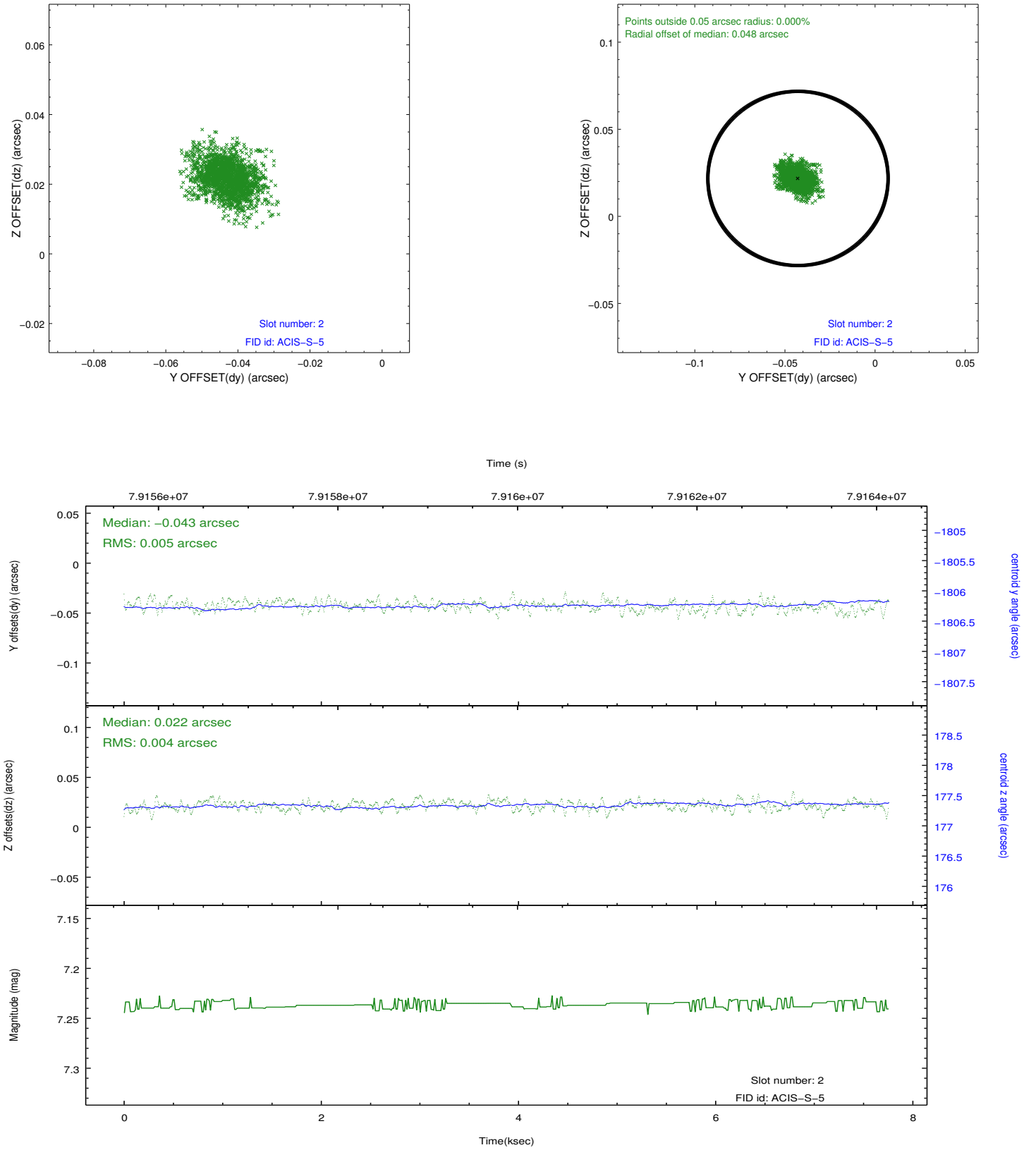
2.5.1 Slot 0



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)	2018.03.05
V&V Edition	2
V&V Disposition and Status	OK
V&V Charge Time	7.315

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.