

V&V Reference Report

L2 ASCDS Version : 10.7.1

Observation 20618 - L2 Version 1
Chandra X-Ray Center

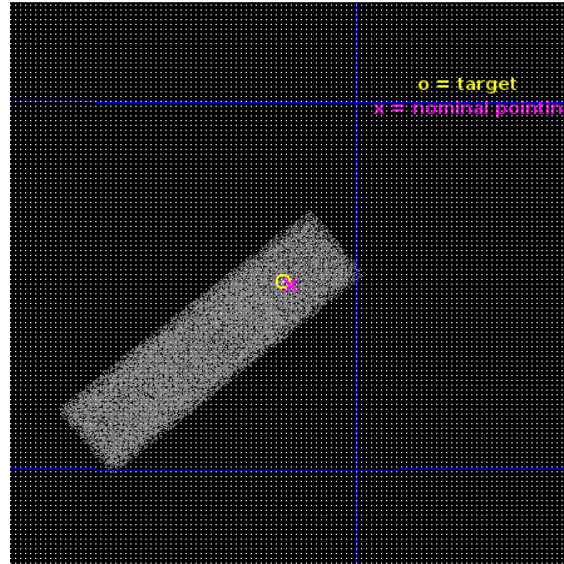
L2 Processing Date : Mar 8 2019

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1 Front

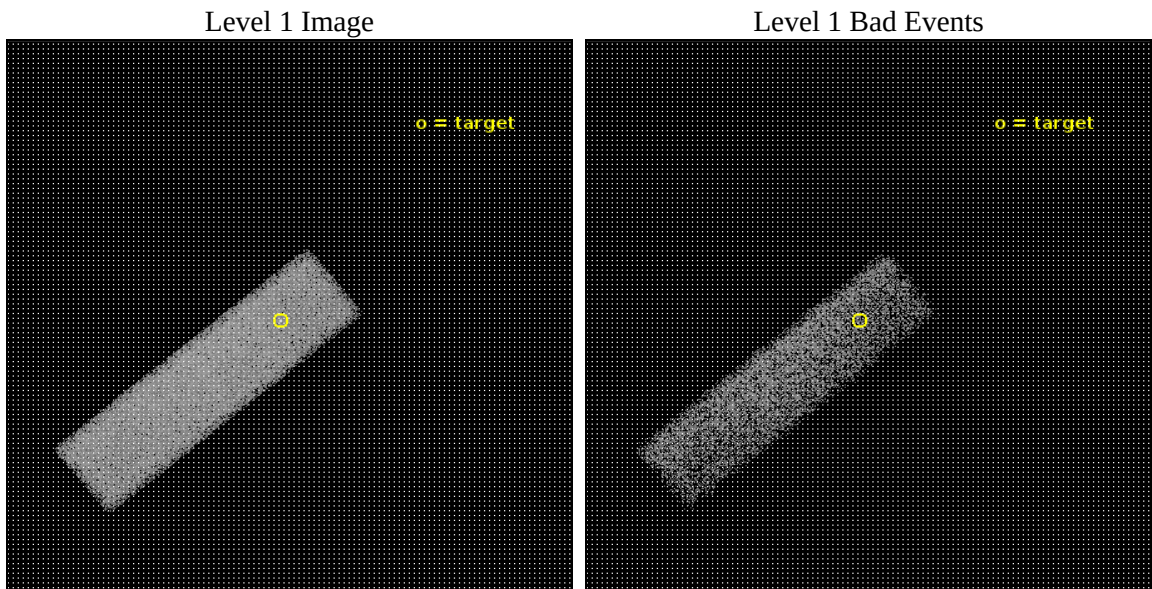
seq_num	201190	Sequence number
obs_id	20618	Observation id
title	Mega-MUSCLES Treasury Survey: Measurements of the Ultraviolet Spectral Characteristics of Low-mass Exoplanetary Systems	Proposal titl
observer	Cynthia Froning	Principal investigator
object	LHS2686	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	197.5475	Observer's specified target RA [deg]
dec_targ	47.751917	Observer's specified target Dec [deg]
ra_nom	197.54191059615	Nominal RA [deg]
dec_nom	47.750403561052	Nominal Dec [deg]
roll_nom	140.47237454892	Nominal Roll [deg]
revision	1	Processing version of data
ontime	28059.998327494	Sum of GTIs [s]
livetime	26690.762225334	Livetime [s]
ontime7	28059.998327494	Sum of GTIs [s]
l2events	32350	Number of level 2 events



2 OBI

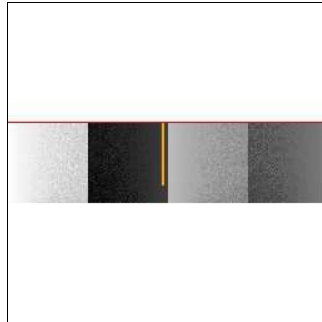
2.1 OBI

2.1.1 Images



2.1.2 Bias

Chip 7



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	28000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	28059.998327494	Sum of GTIs [s]
caldsver	4.8.2	 	ontime7	28059.998327494	Sum of GTIs [s]
date	2019-03-09T02:35:33	Date and time of file creation	l1events	71298	Number of level 1 events
revision	1	Processing version of data			

2.1.4 Events

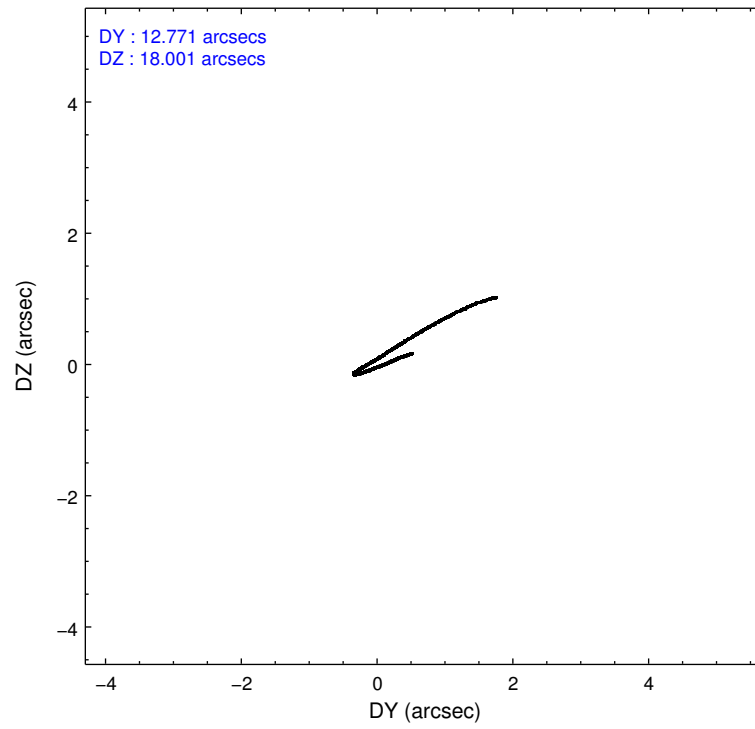
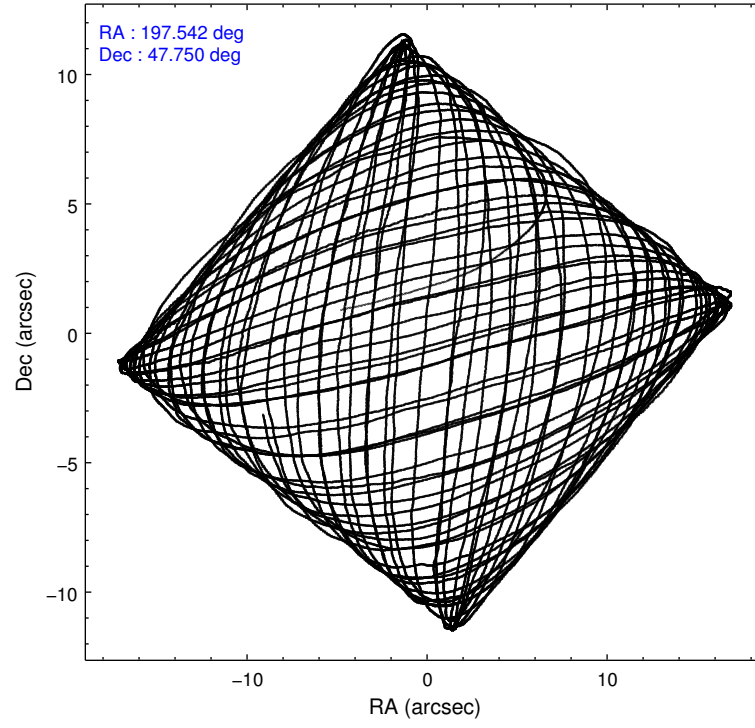
	ccd 7
level 1 events	71298
rejected events	37816
rejected %	53%

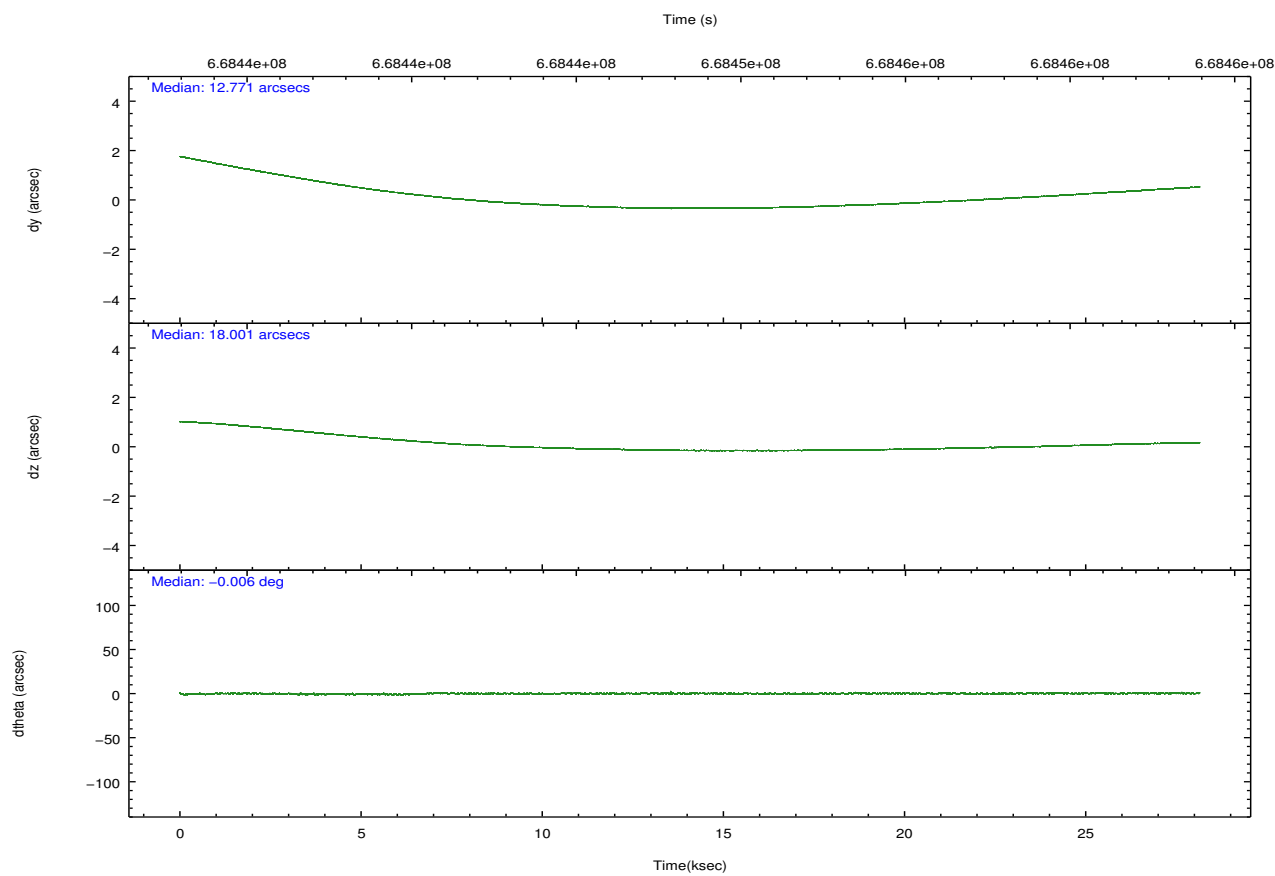
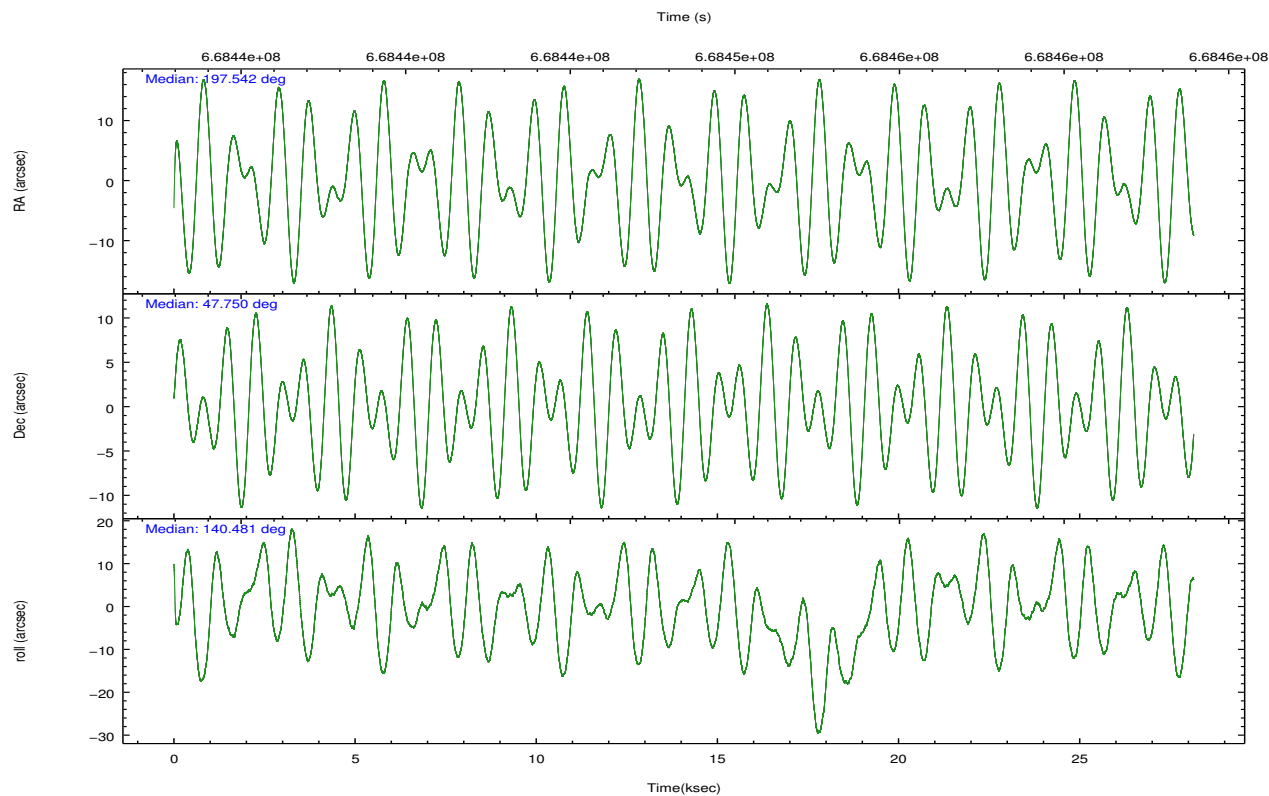
	ccd 7
grade 0 events	3217
	4%
grade 1 events	110
	0%
grade 2 events	6471
	9%
grade 3 events	3725
	5%
grade 4 events	3507
	4%
grade 5 events	7072
	9%
grade 6 events	16566
	23%
grade 7 events	30630
	42%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-7	ACIS-7	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	197.582256	197.5419105961479	Subarray requested	CUSTOM	1/4
[deg] Pointing Dec	47.746213	47.75040356105227	Subarray start row	385	385
[deg] Pointing Roll	140.285876	140.4723745489221	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	0.8
[mm] SIM translation stage pos	-190.132523	-190.1425803651734			
[mm] SIM translation stage offset	0	0.01005778216563158			
[s] Observation start time (MET)	668434520.184000	668433487.64289			
Observation start date	2019-03-08T12:14:11	2019-03-08T11:58:07			
[s] Observation end time (MET)	668462520.184000	668463541.66969			
Observation end date	2019-03-08T20:00:51	2019-03-08T20:19:01			
Read mode	TIMED	TIMED			

2.3 Aspect



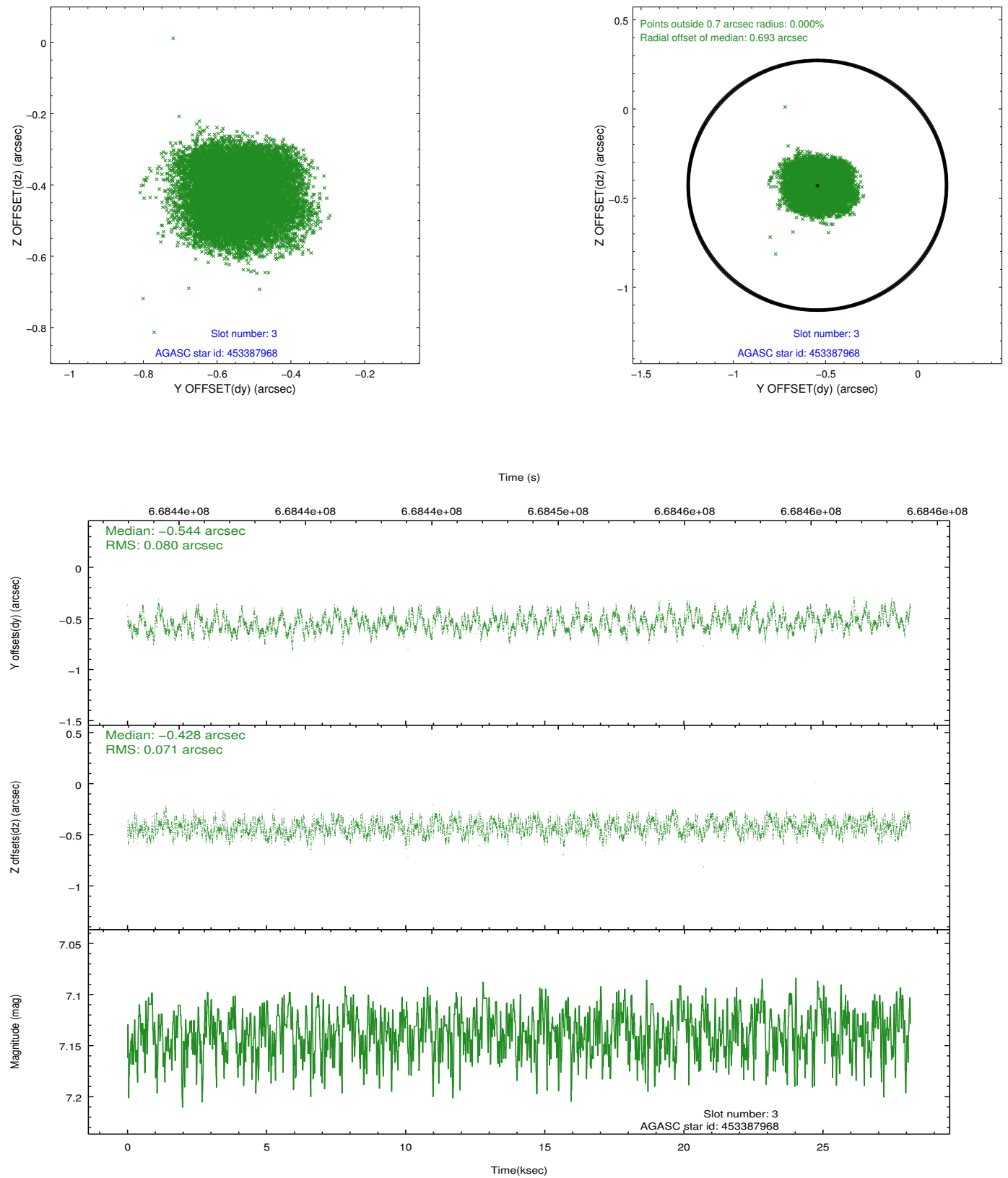


Slot Statistics

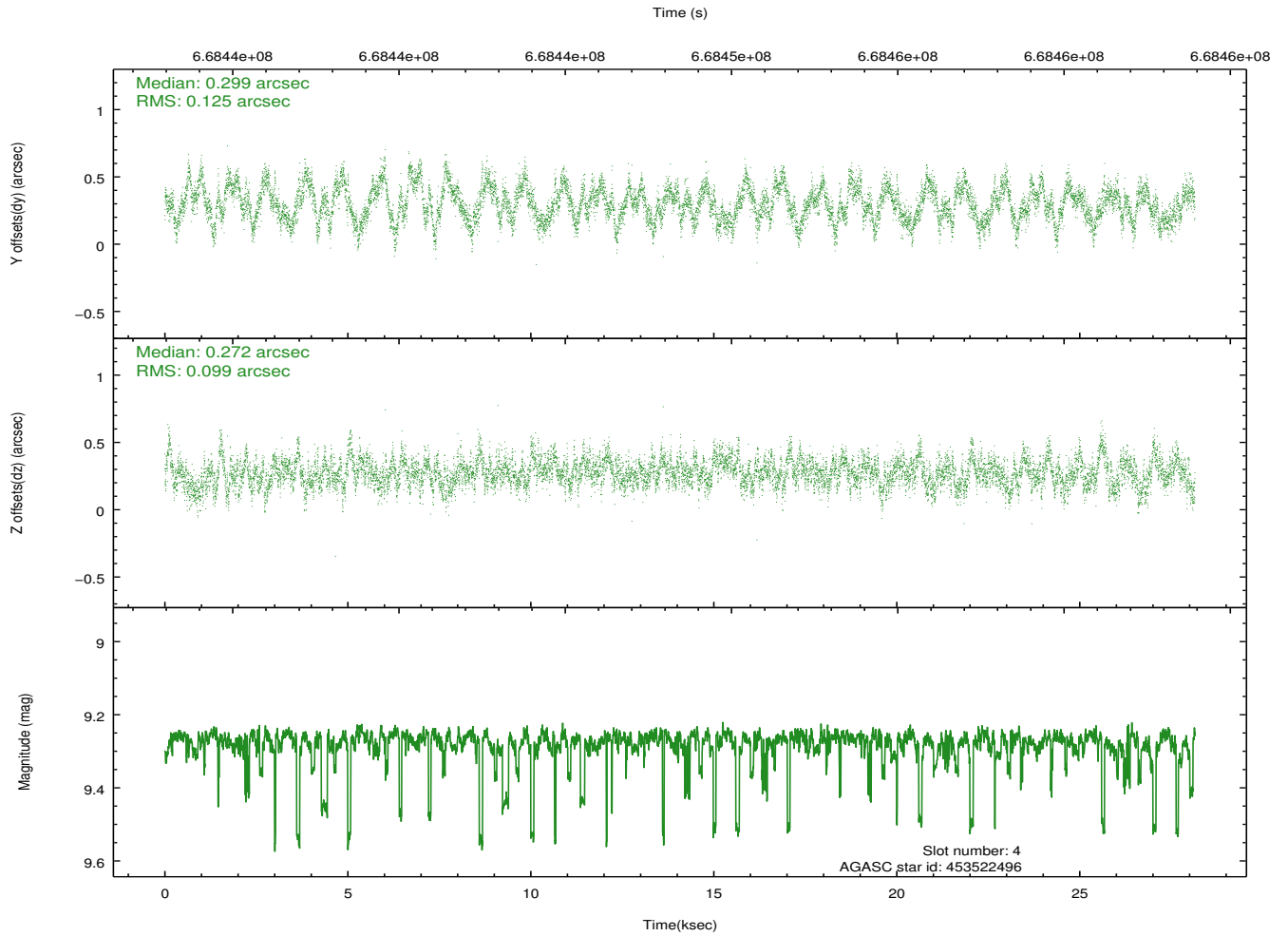
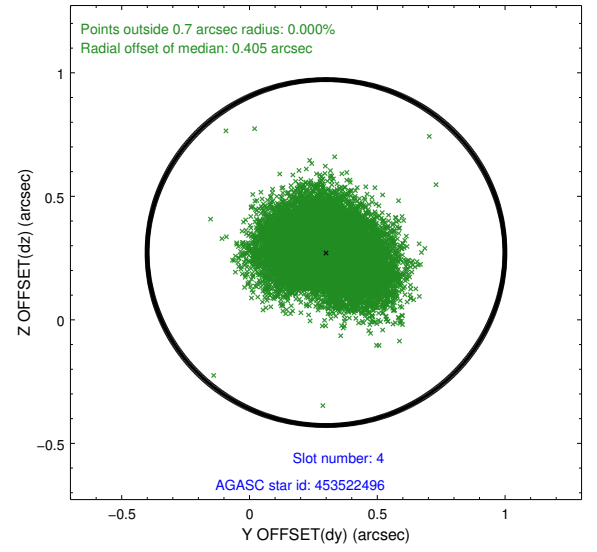
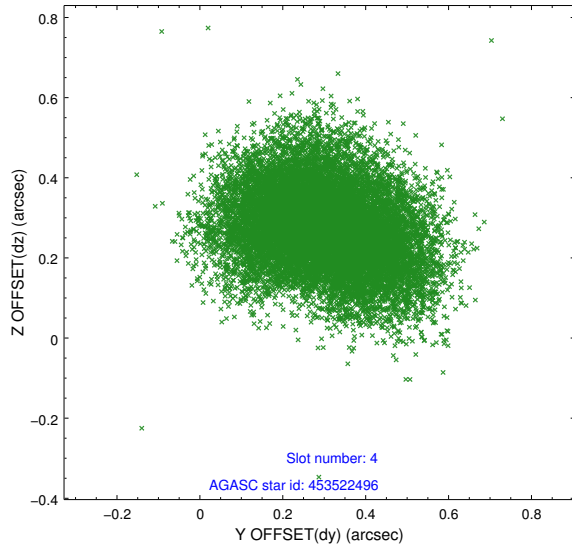
id	status	used	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_x
0	FID		ACIS-S-2	7.15	6861	1.000	-0.257	-0.241	0.017	0.070	0.000000	0.000000	-766.05 -1739
1	FID		ACIS-S-4	7.29	6864	1.000	0.762	0.188	0.019	0.084	0.000000	0.000000	2148.16 169
2	FID		ACIS-S-5	7.26	6864	1.000	-0.540	0.058	0.019	0.031	0.000000	0.000000	-1819.12 162
3	GUIDE	used	453387968	7.14	13728	1.000	-0.544	-0.428	0.117	0.175	196.441696	47.778251	2208.06 1658
4	GUIDE	used	453522496	9.28	13703	1.000	0.299	0.272	0.173	0.273	198.044965	47.752116	-845.12 -733
5	GUIDE	used	453524624	9.23	13644	1.000	0.097	0.004	0.186	0.318	198.193206	47.313288	-2136.20 244
6	GUIDE	used	453524992	8.19	13725	1.000	-0.074	-0.097	0.110	0.206	197.874605	46.952147	-2378.01 1739
7	GUIDE	used	453527904	9.23	13709	1.000	0.213	0.250	0.197	0.315	198.045612	47.556000	-1300.69 -192

2.4 Star Slots

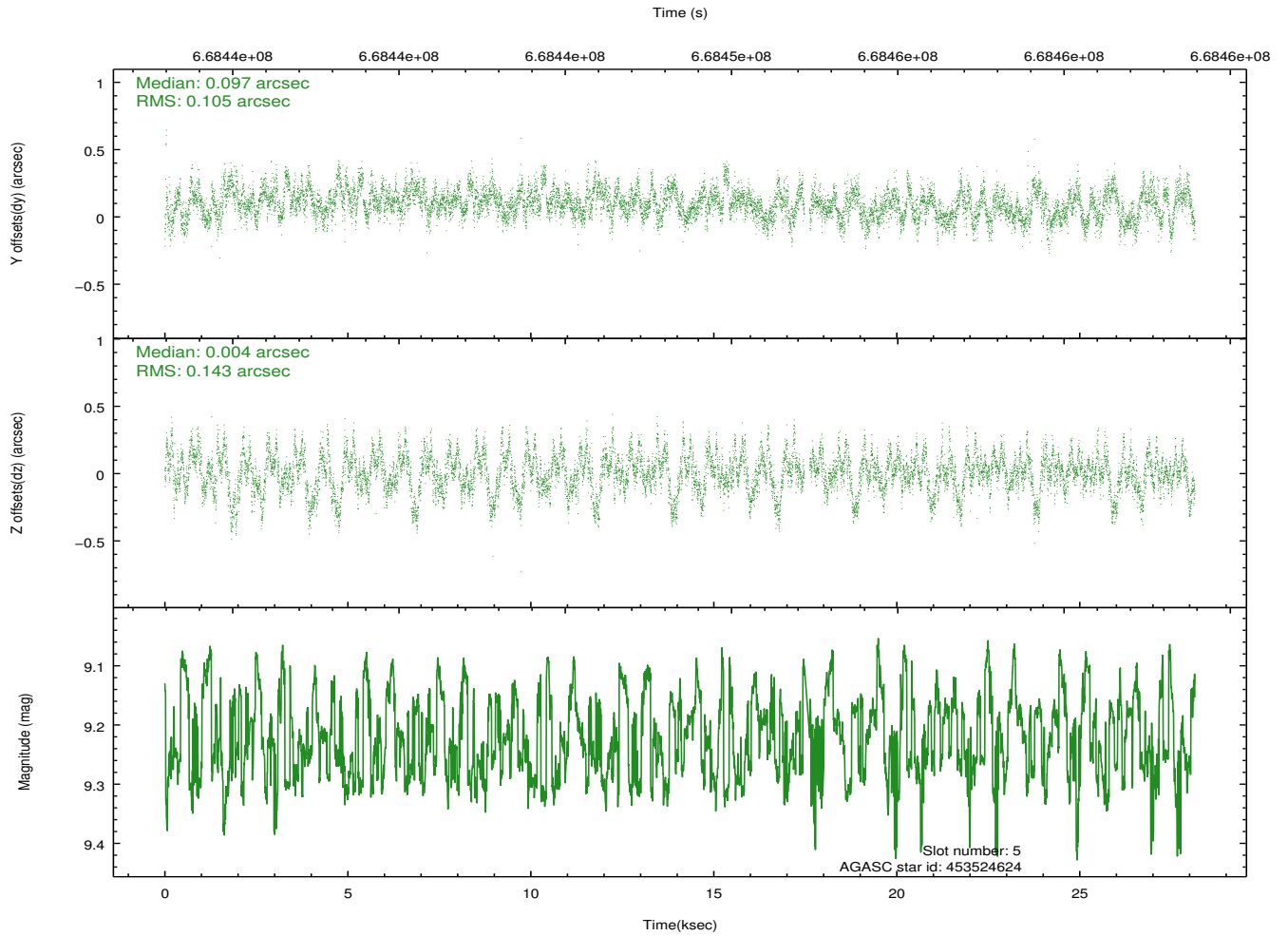
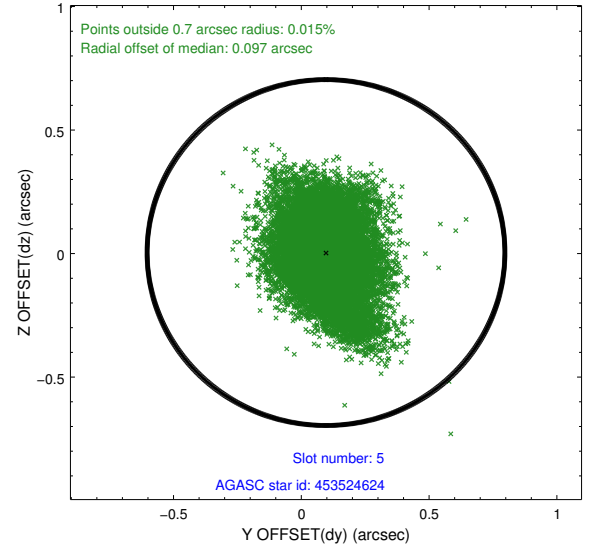
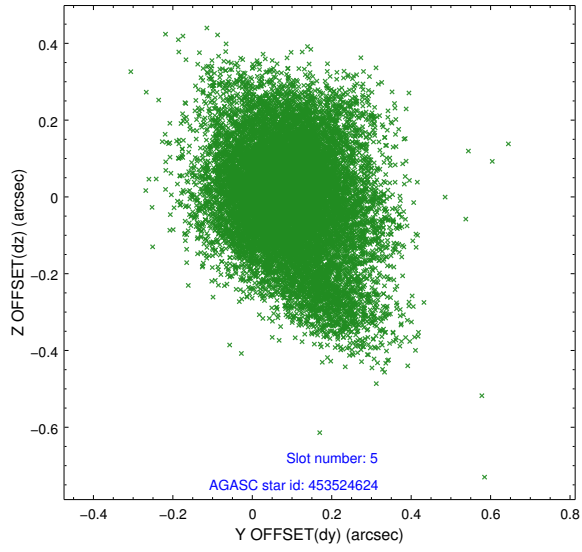
2.4.1 Slot 3



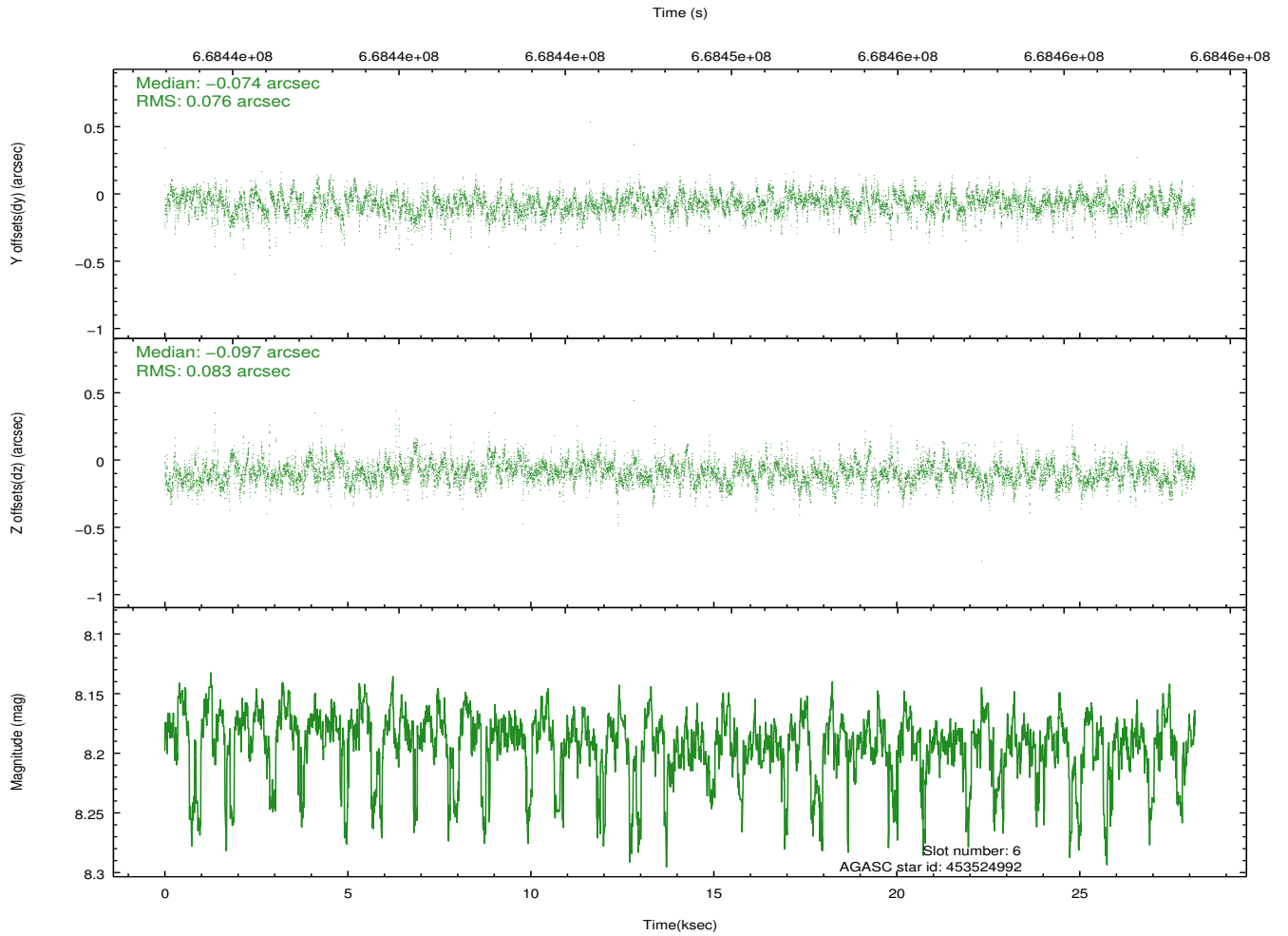
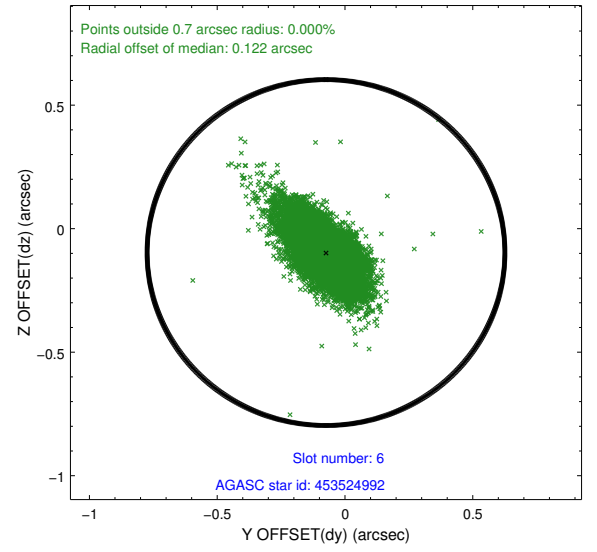
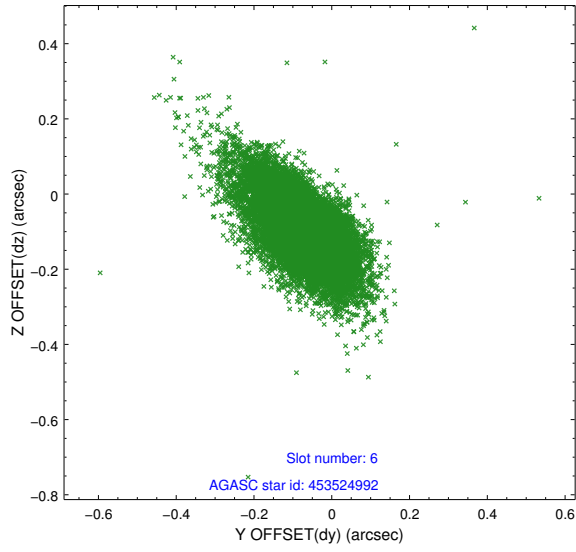
2.4.2 Slot 4



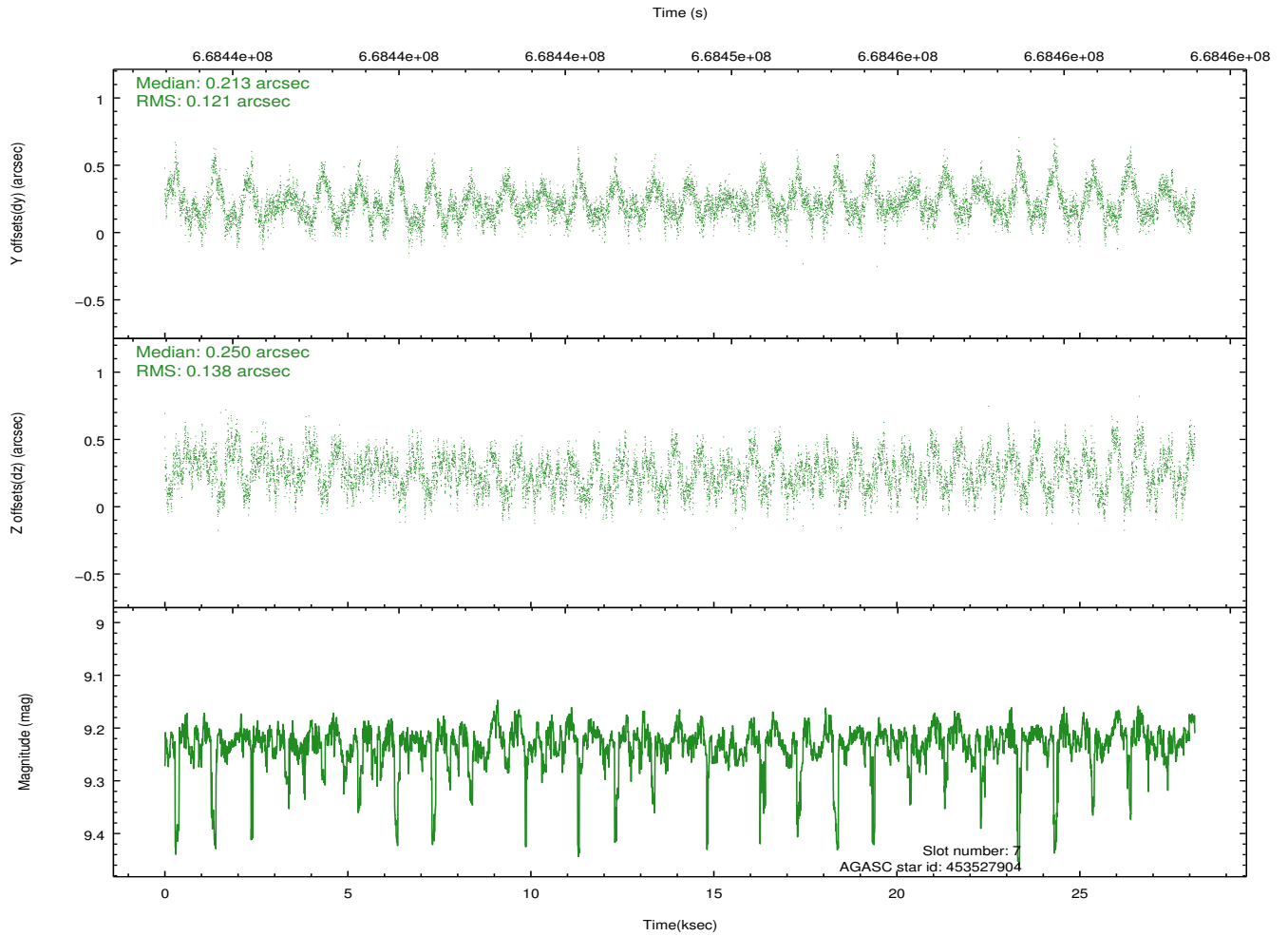
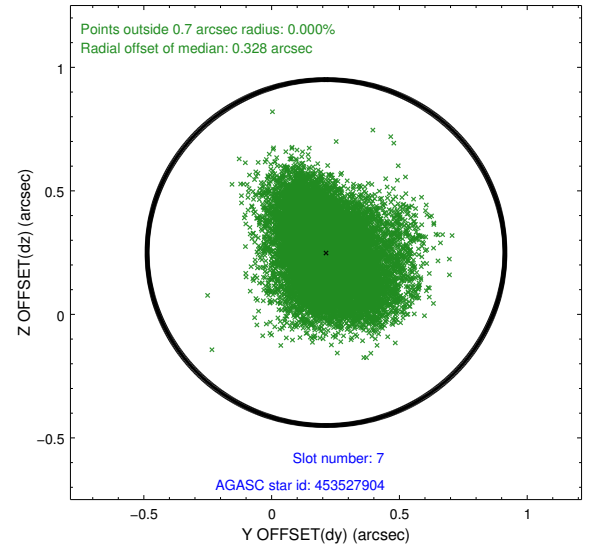
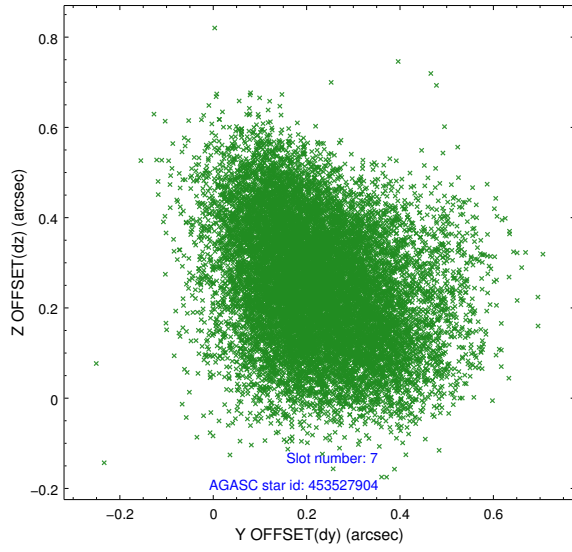
2.4.3 Slot 5



2.4.4 Slot 6

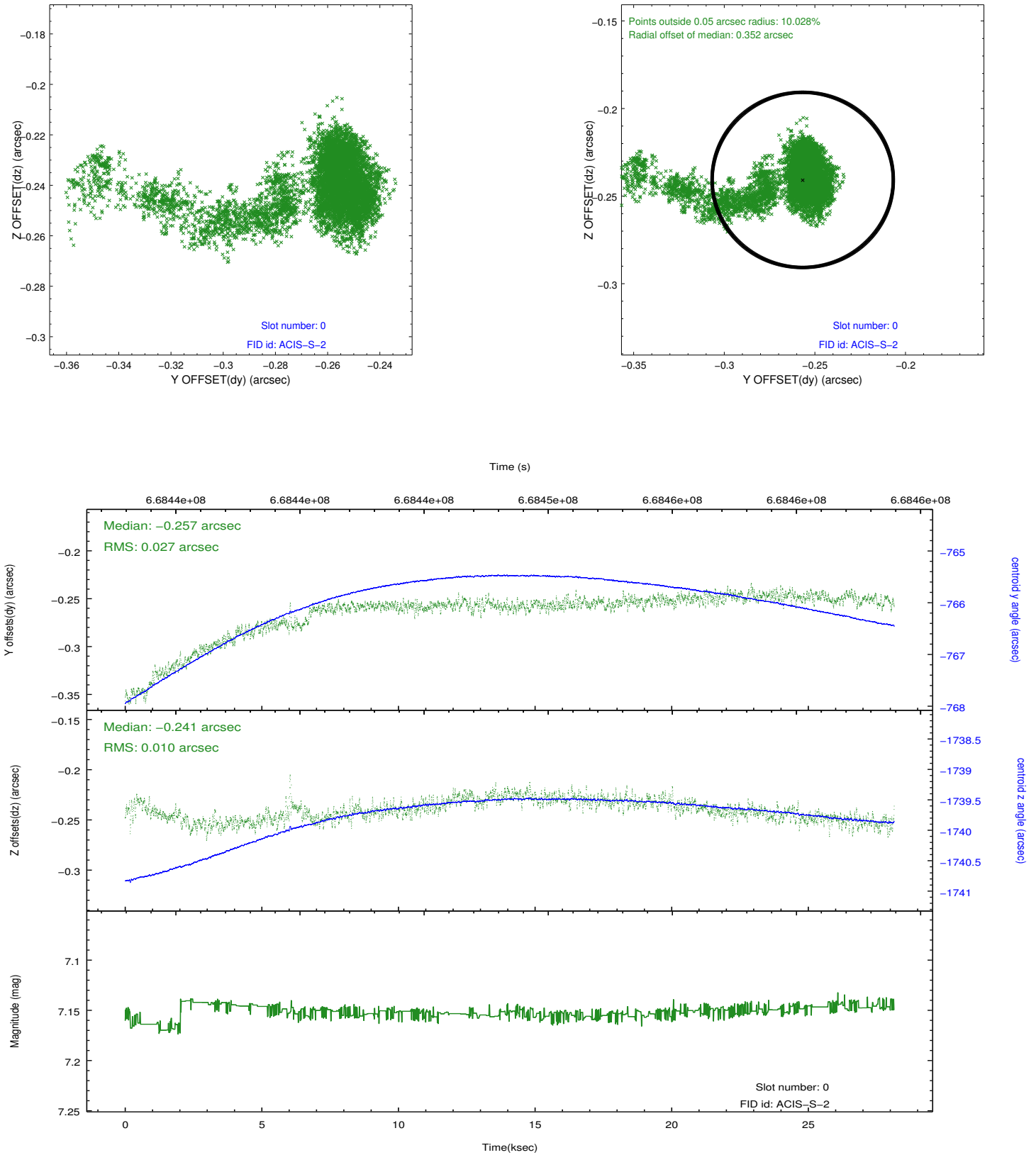


2.4.5 Slot 7

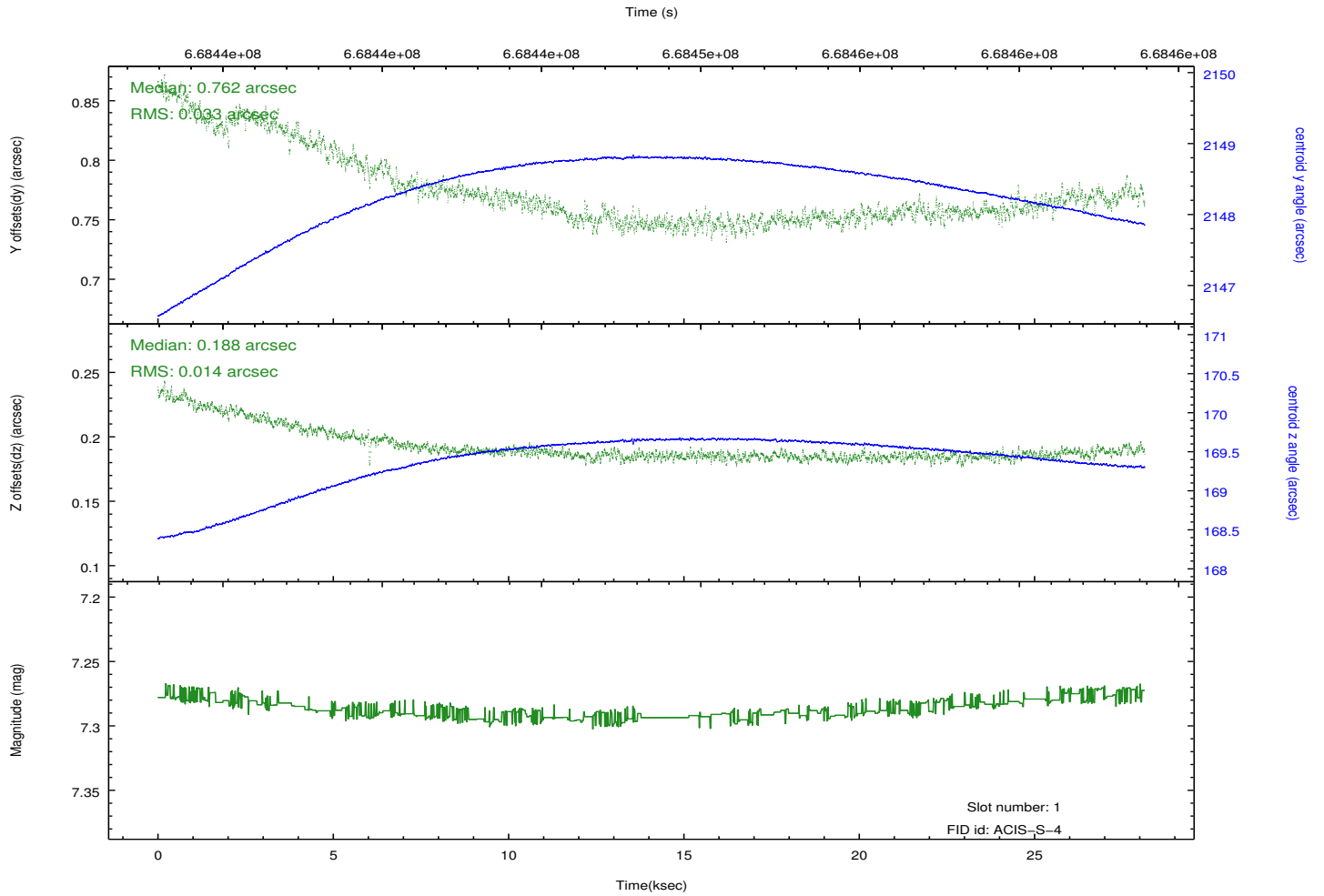
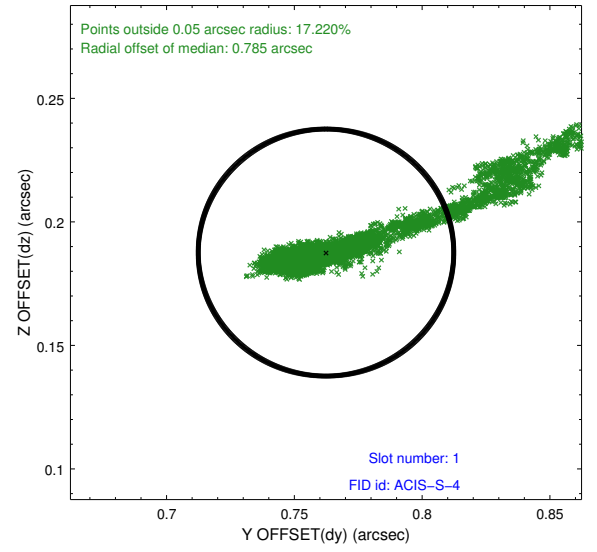
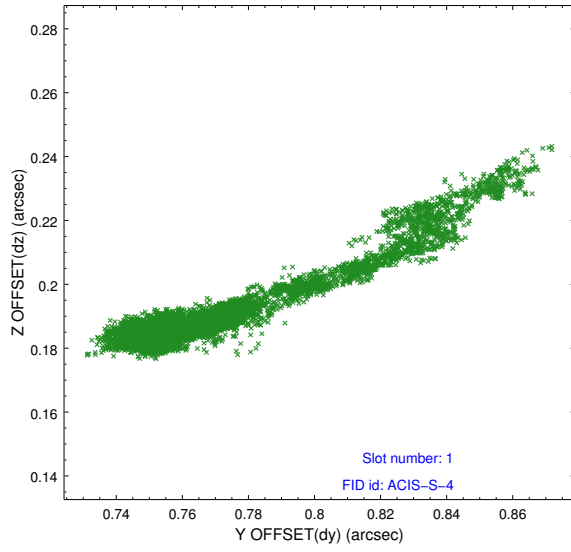


2.5 FID Slots

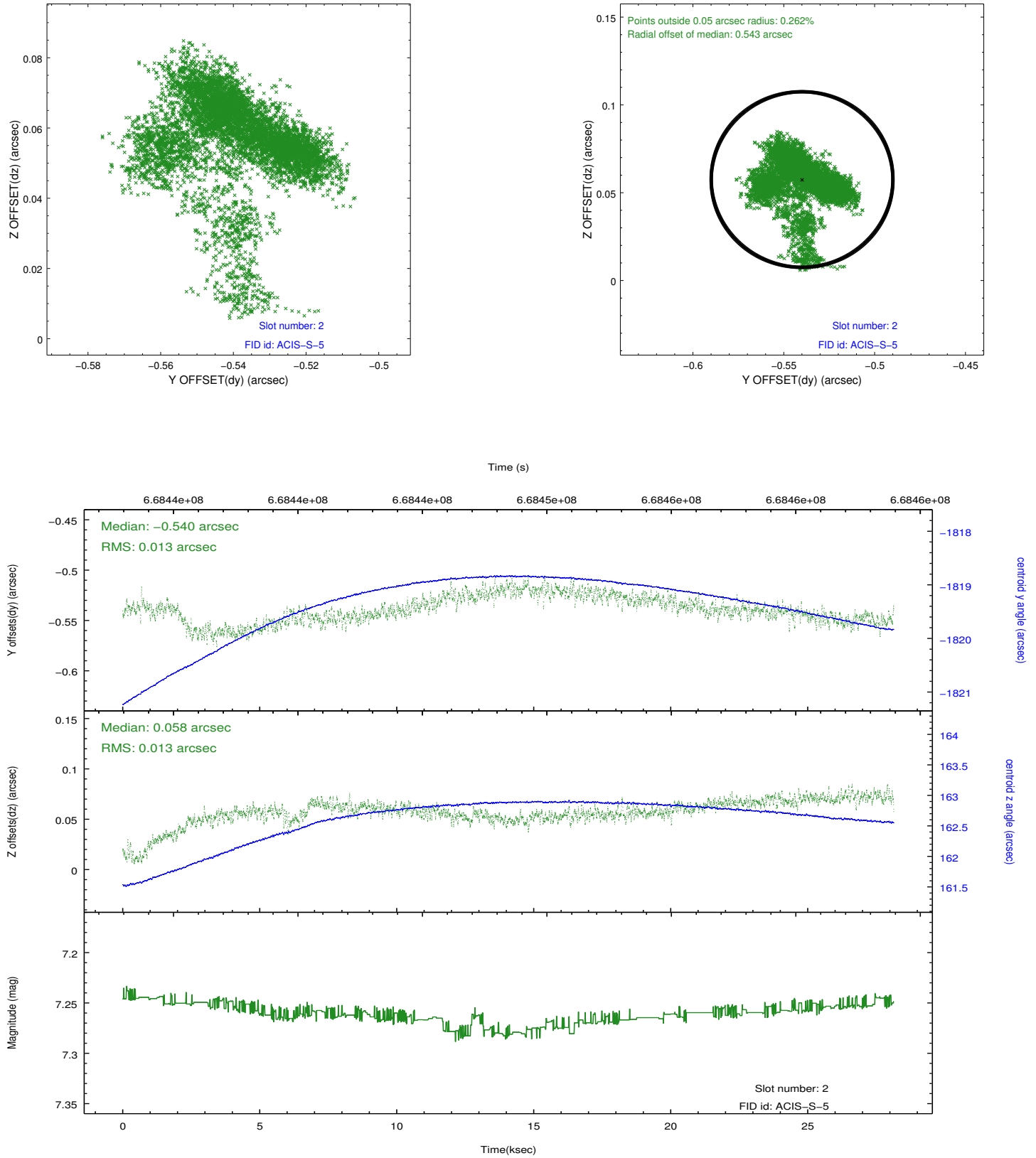
2.5.1 Slot 0



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)	2019.03.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.059998327494

A.2 Comments

Joint proposal with HST.

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.