

V&V Reference Report

L2 ASCDS Version : 10.6.4.1

Observation 21865 - L2 Version 1
Chandra X-Ray Center

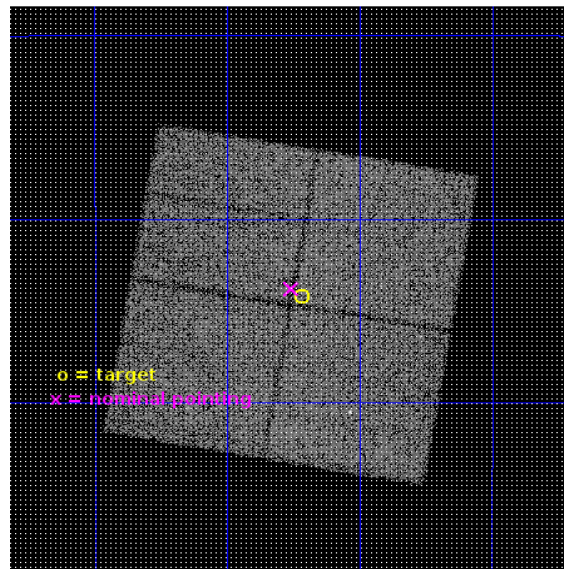
L2 Processing Date : Oct 7 2018

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 5	10
2.4.3	Slot 6	11
2.4.4	Slot 7	12
2.5	FID Slots	13
2.5.1	Slot 0	13
2.5.2	Slot 1	14
2.5.3	Slot 2	15
A	Summary	16
A.1	Status	16
A.2	Comments	16

1 Front

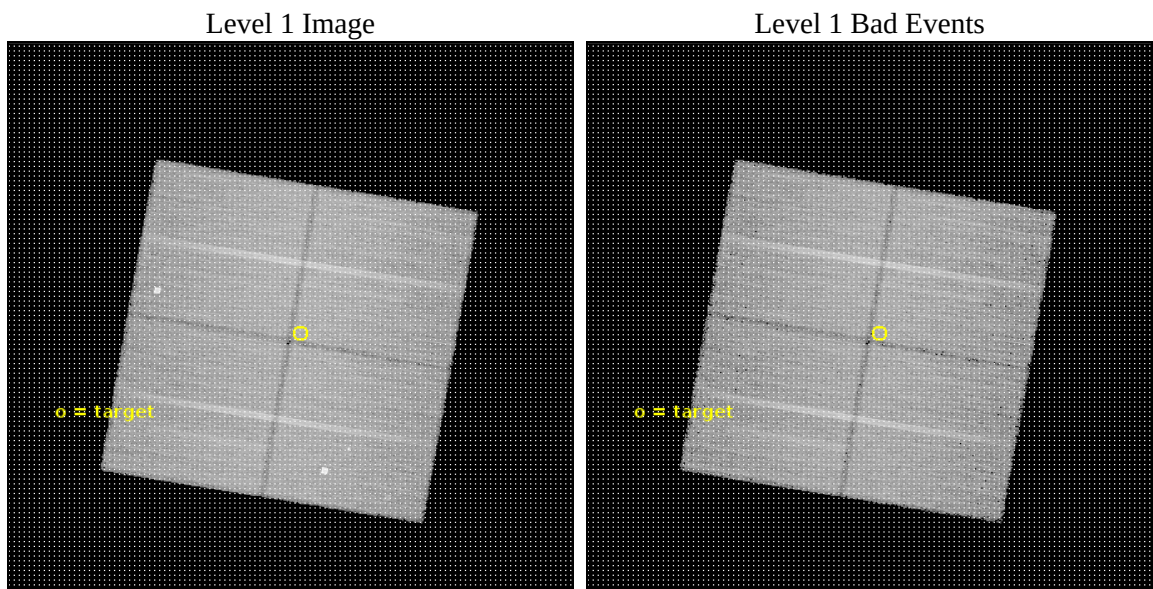
seq_num	801799	Sequence number
obs_id	21865	Observation id
title	Mapping of cosmic web filaments around A133	Proposal title
observer	Ralph Kraft	Principal investigator
object	A133 filament	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	16.054525	Observer's specified target RA [deg]
dec_targ	-22.403292	Observer's specified target Dec [deg]
ra_nom	16.064438445298	Nominal RA [deg]
dec_nom	-22.39645954976	Nominal Dec [deg]
roll_nom	9.712476518484	Nominal Roll [deg]
revision	1	Processing version of data
ontime	39332.800302625	Sum of GTIs [s]
livetime	38818.888310285	Livetime [s]
ontime0	39326.458091021	Sum of GTIs [s]
ontime1	39323.358030677	Sum of GTIs [s]
ontime2	39320.236051559	Sum of GTIs [s]
ontime3	39332.800302625	Sum of GTIs [s]
l2events	108452	Number of level 2 events



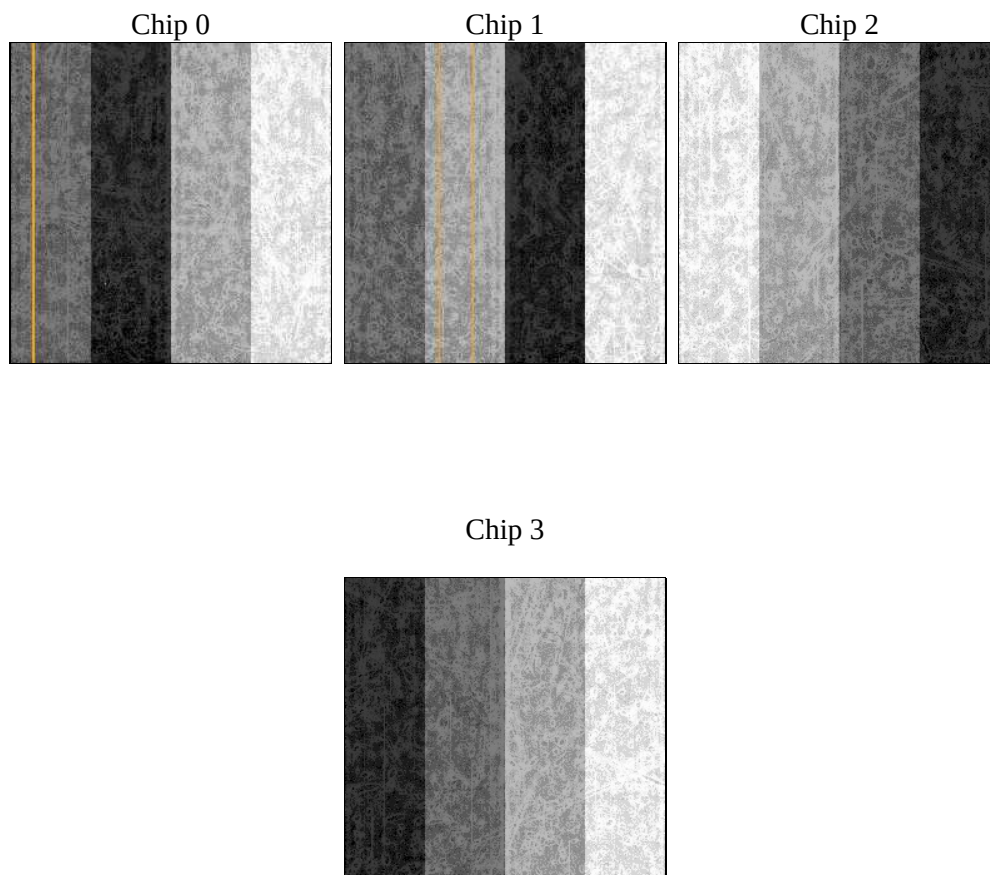
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	39423.465000	[s] Scheduled observation exposure time
ascdsver	10.6.4.1	Processing system revision	ontime	39332.800302625	Sum of GTIs [s]
caldsver	4.8.0	 	ontime0	39326.458091021	Sum of GTIs [s]
date	2018-10-07T17:19:55	Date and time of file creation	ontime1	39323.358030677	Sum of GTIs [s]
revision	1	Processing version of data	ontime2	39320.236051559	Sum of GTIs [s]
			ontime3	39332.800302625	Sum of GTIs [s]
			l1events	1171474	Number of level 1 events

2.1.4 Events

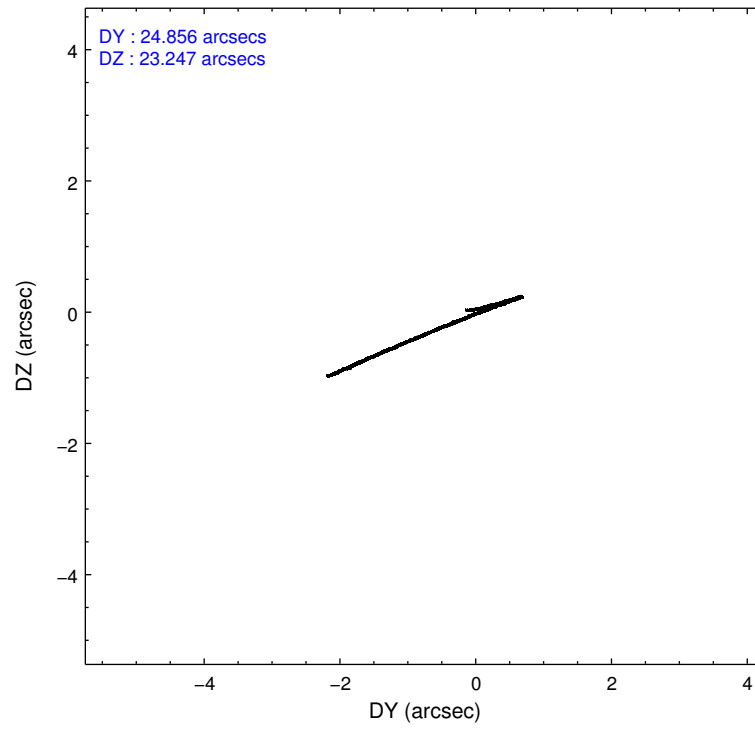
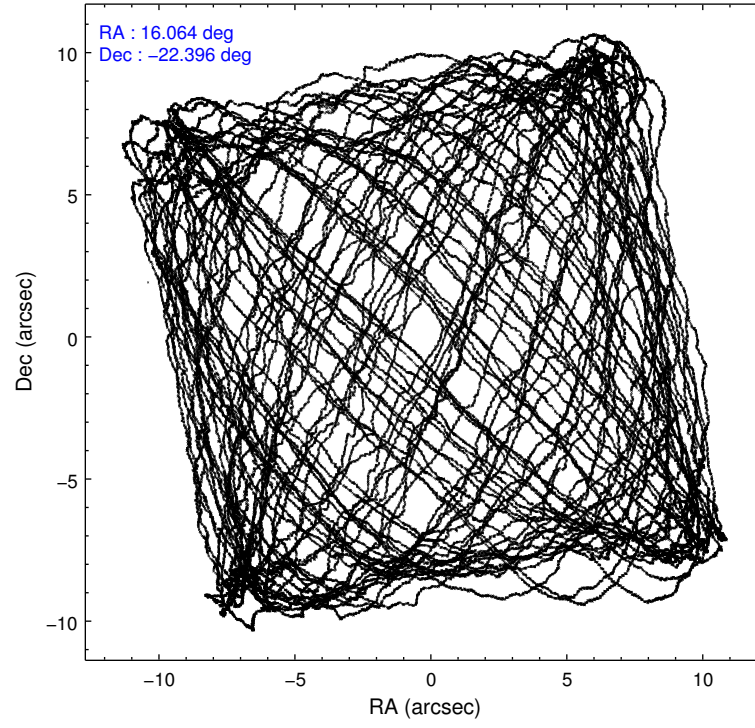
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	275945	288868	308148	298513
rejected events	243315	248416	272495	267593
rejected %	88%	85%	88%	89%

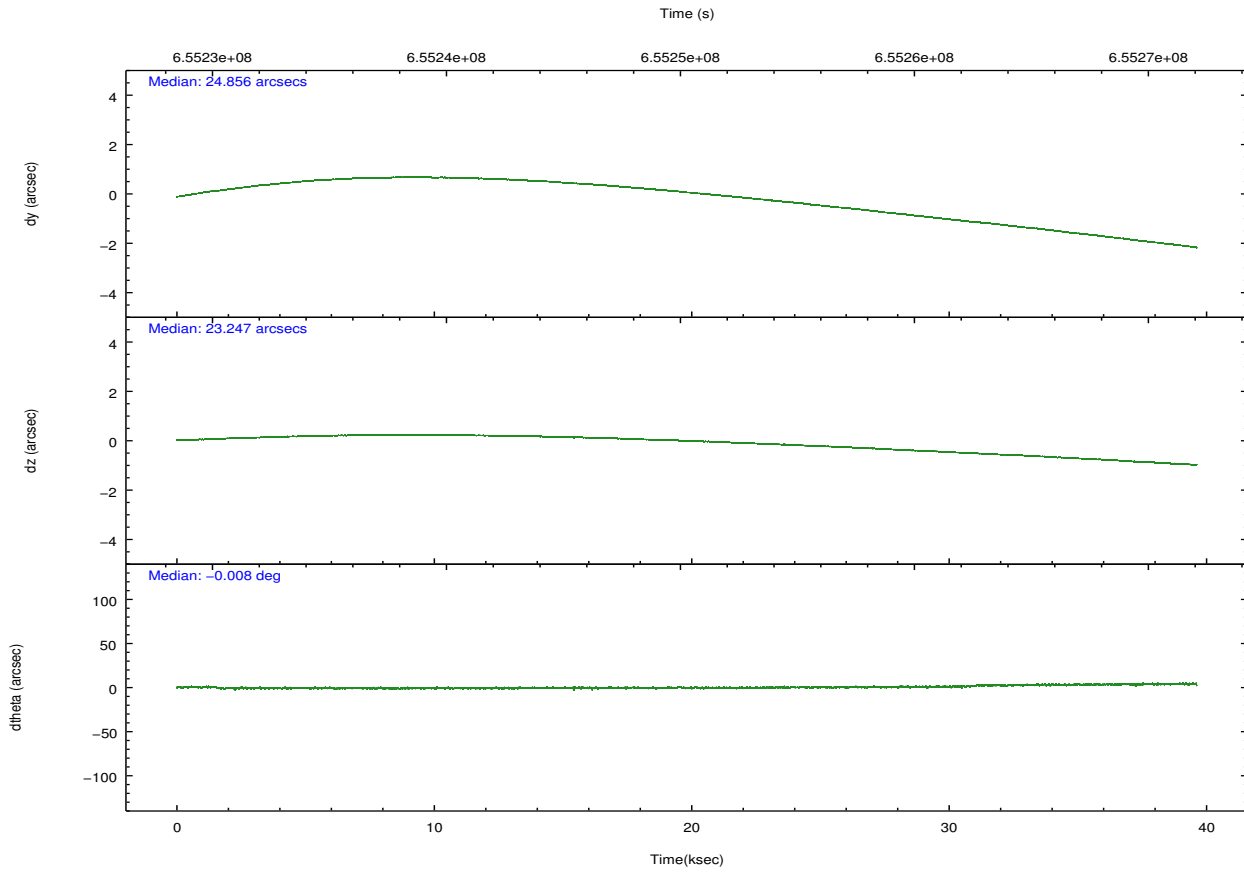
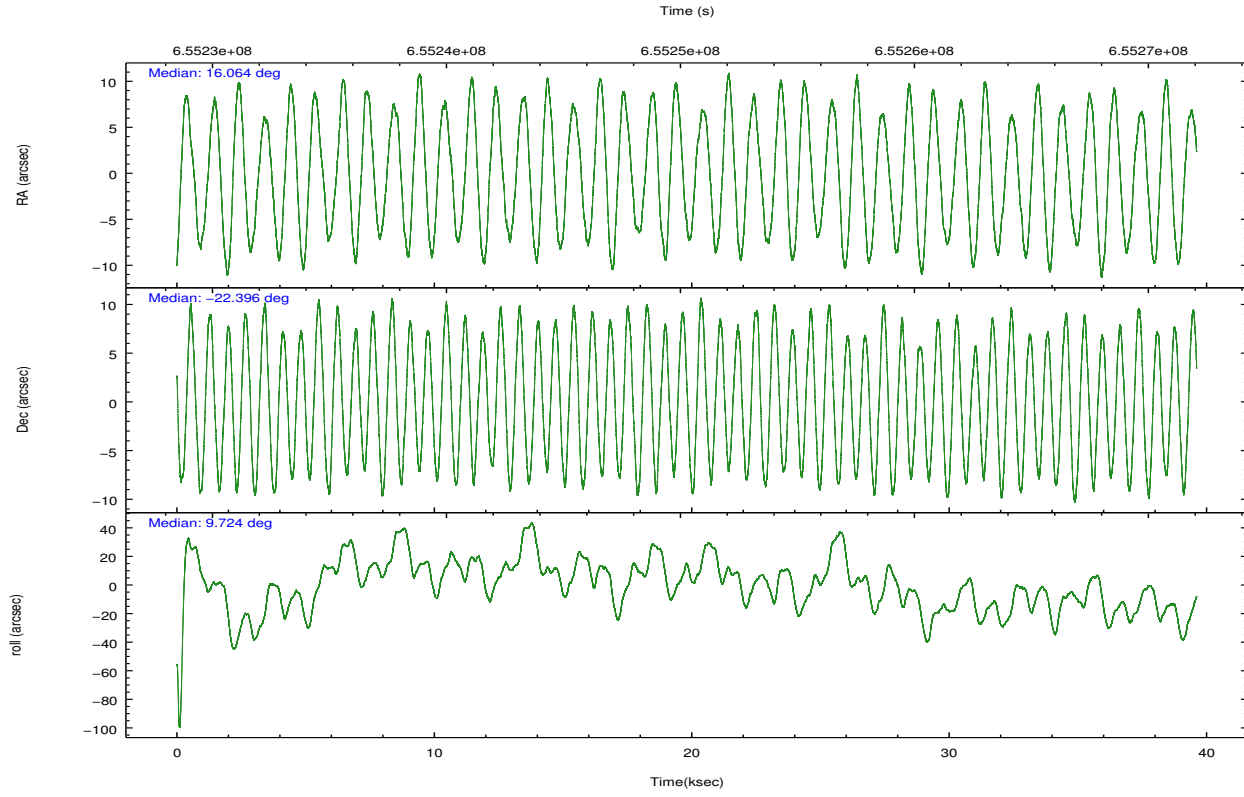
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	10874	16612	15190	10692
	3%	5%	4%	3%
grade 1 events	125	191	182	182
	0%	0%	0%	0%
grade 2 events	8313	8773	7787	6862
	3%	3%	2%	2%
grade 3 events	3240	3473	3170	3343
	1%	1%	1%	1%
grade 4 events	3235	3335	3216	3347
	1%	1%	1%	1%
grade 5 events	12059	12722	11249	13799
	4%	4%	3%	4%
grade 6 events	6971	8267	6293	6681
	2%	2%	2%	2%
grade 7 events	231128	235495	261061	253607
	83%	81%	84%	84%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-0123	ACIS-0123	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	16.041523	16.0644384452984	CCD I2 on	Y	Y
[deg] Pointing Dec	-22.414177	-22.39645954976011	CCD I3 on	Y	Y
[deg] Pointing Roll	9.495046	9.71247651848401	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	O2	N
[mm] SIM translation stage pos	-233.592463	-233.5874344608287	CCD S3 on	O1	N
[mm] SIM translation stage offset	0	-0.005018542100998502	CCD S4 on	N	N
[s] Observation start time (MET)	655230650.184000	655230235.25062	CCD S5 on	N	N
Observation start date	2018-10-06T16:29:41	2018-10-06T16:23:55	Number of optional ACIS chips dropped	2	2
[s] Observation end time (MET)	655270073.184000	655271115.32806	On-chip summing requested	N	N
Observation end date	2018-10-07T03:26:44	2018-10-07T03:45:15	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



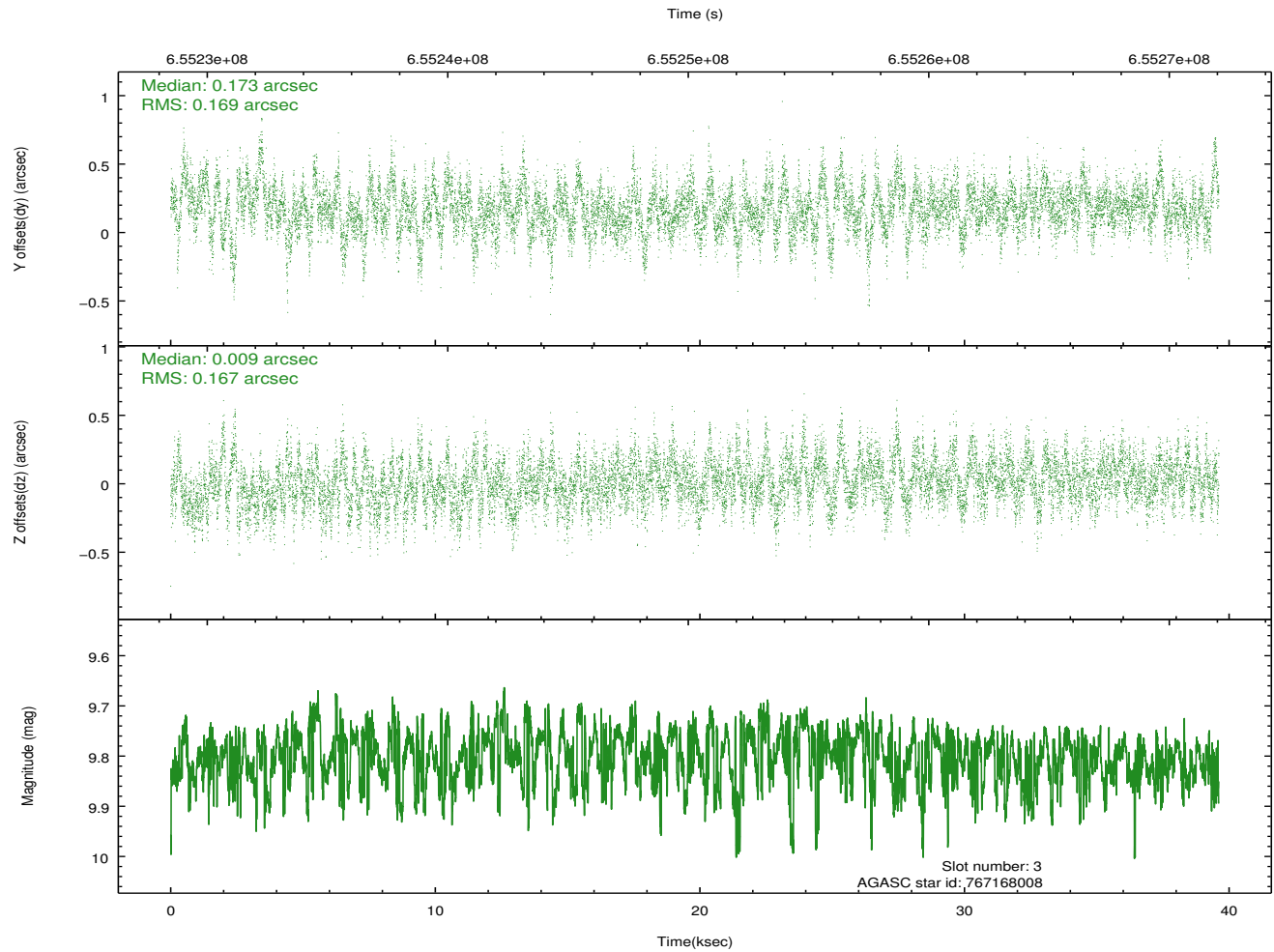
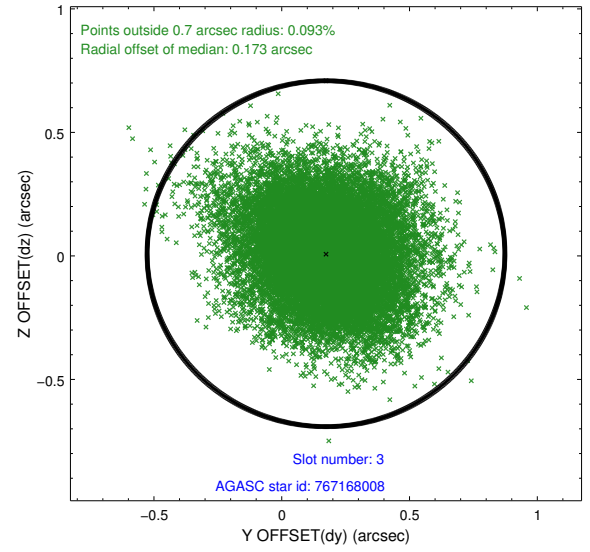
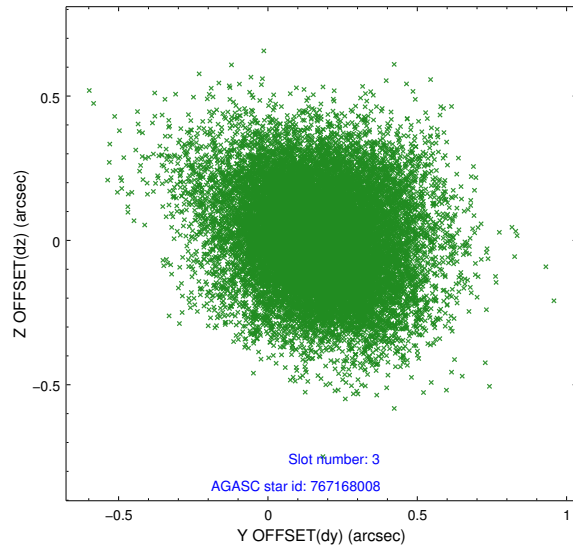


Slot Statistics

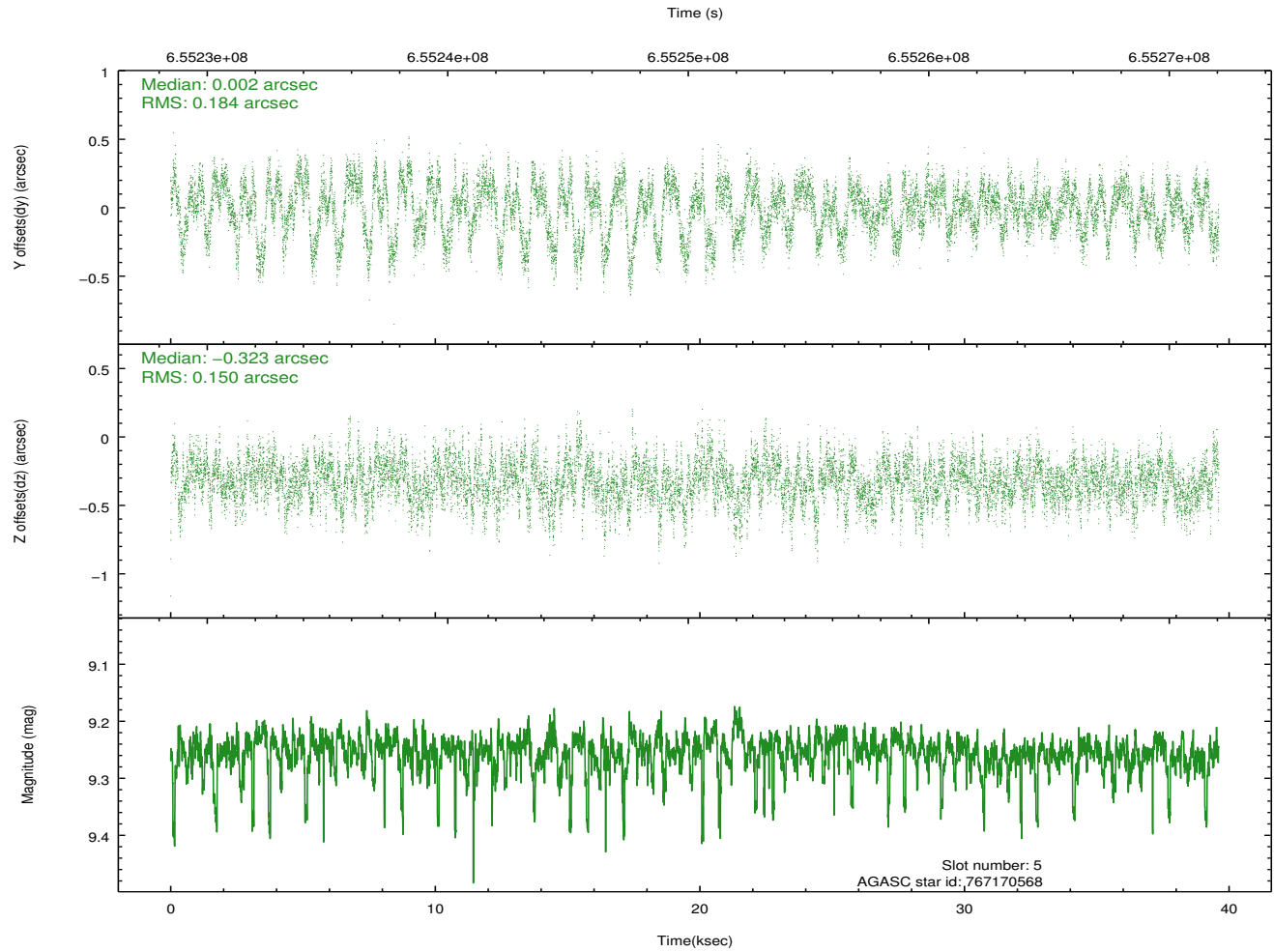
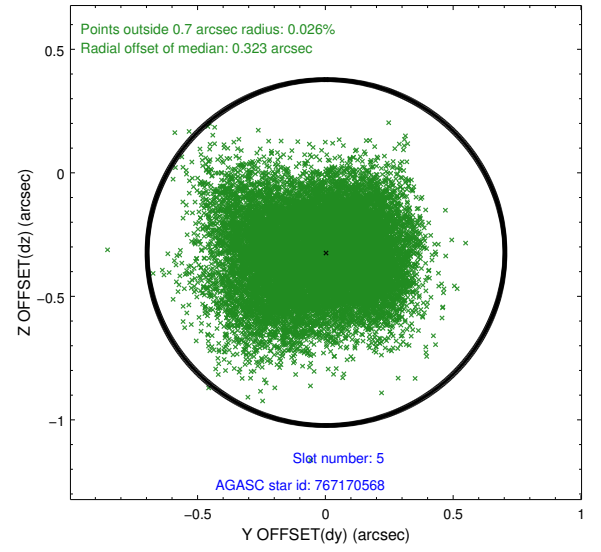
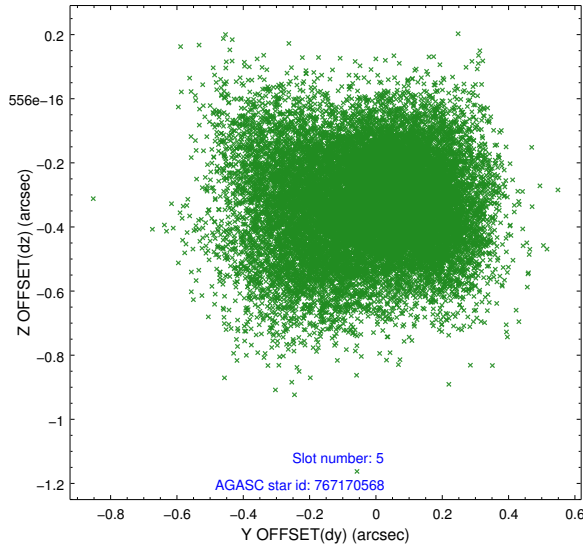
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.21	9662	1.000	0.064	0.005	0.019	0.059	0.000000	0.000000	914.77	-846
1	FID		ACIS-I-5	7.19	9663	1.000	-0.448	0.007	0.013	0.020	0.000000	0.000000	-1834.02	1050
2	FID		ACIS-I-6	7.22	9662	1.000	0.294	0.061	0.014	0.042	0.000000	0.000000	380.27	1695
3	GUIDE	used	767168008	9.80	19291	1.000	0.173	0.009	0.249	0.421	16.508534	-22.453162	1512.15	-400
4	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0
5	GUIDE	used	767170568	9.25	19299	1.000	0.002	-0.323	0.249	0.420	16.585715	-21.675711	2234.28	2315
6	GUIDE	used	767171568	9.94	19268	1.000	-0.386	0.031	0.315	0.491	16.035890	-22.108834	162.92	1086
7	GUIDE	used	841745408	8.60	19309	1.000	0.207	0.282	0.255	0.413	16.162435	-22.504118	343.39	-385

2.4 Star Slots

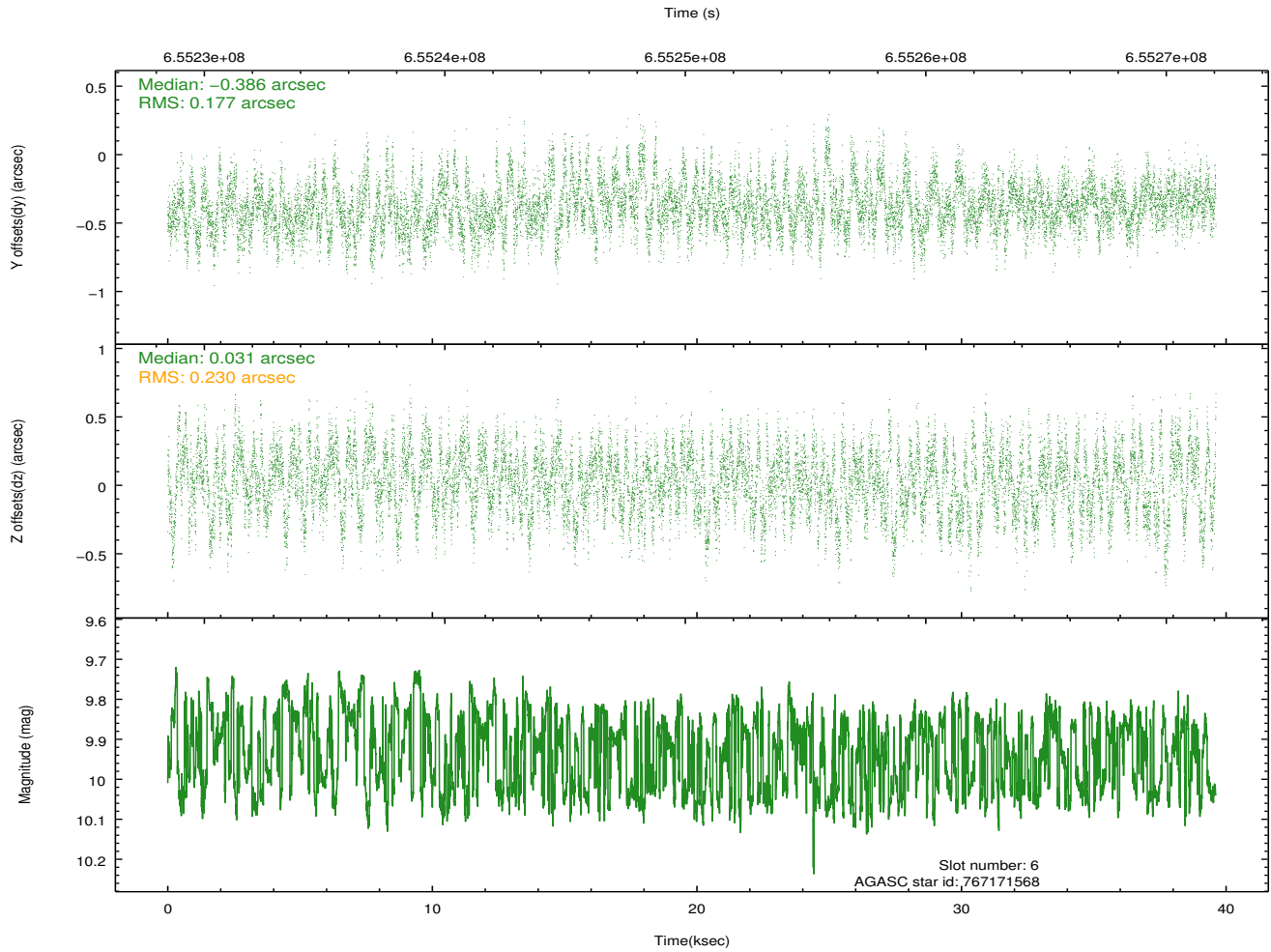
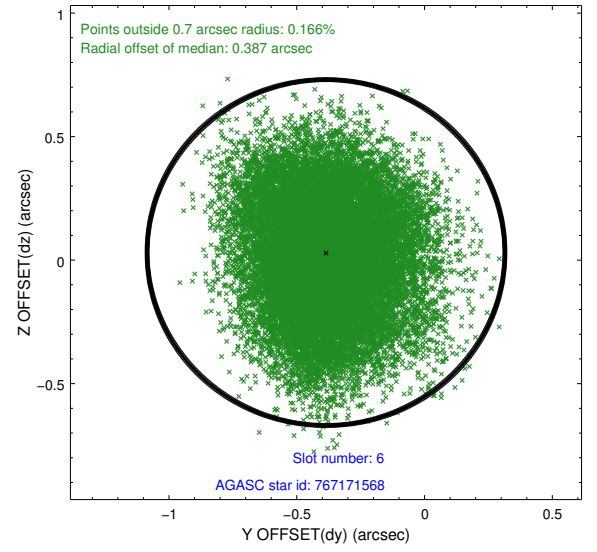
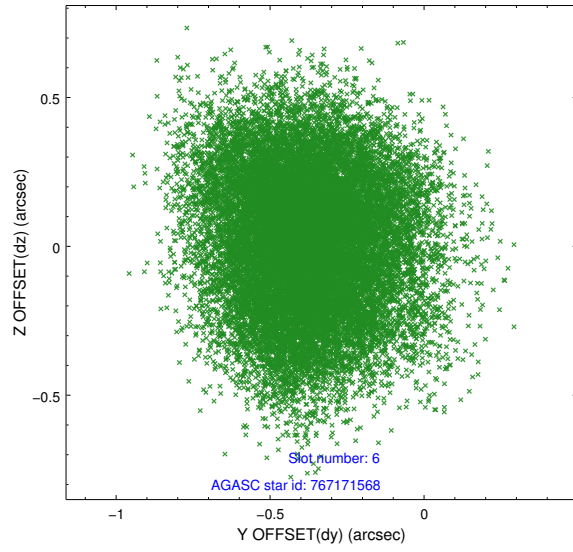
2.4.1 Slot 3



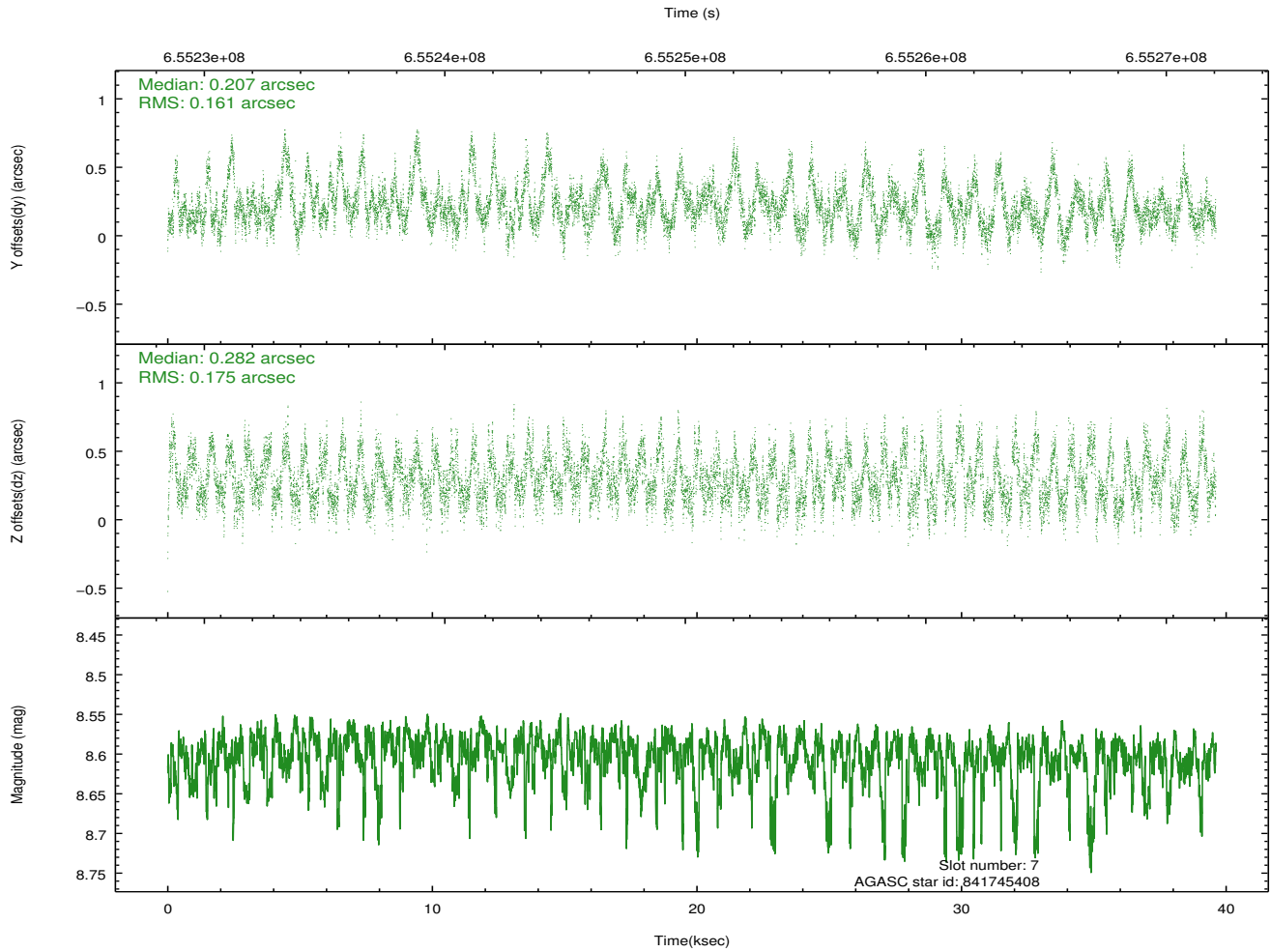
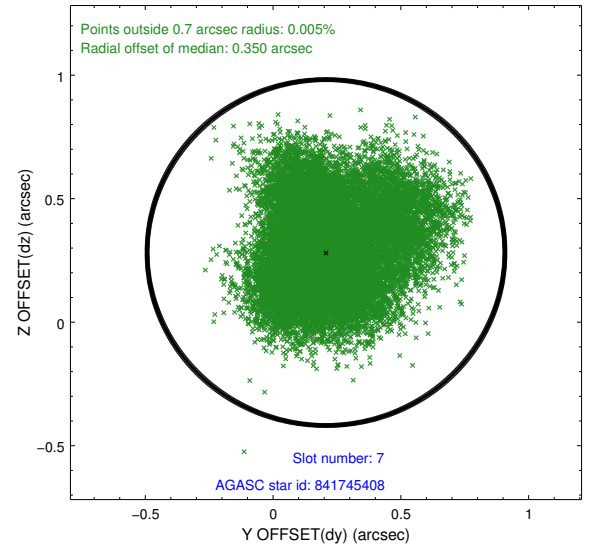
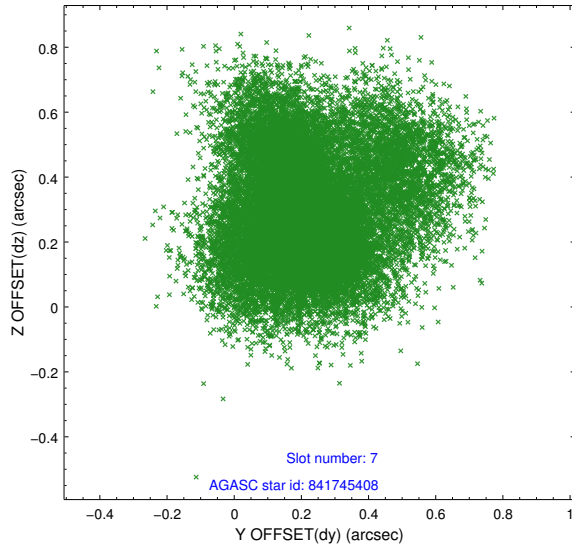
2.4.2 Slot 5



2.4.3 Slot 6

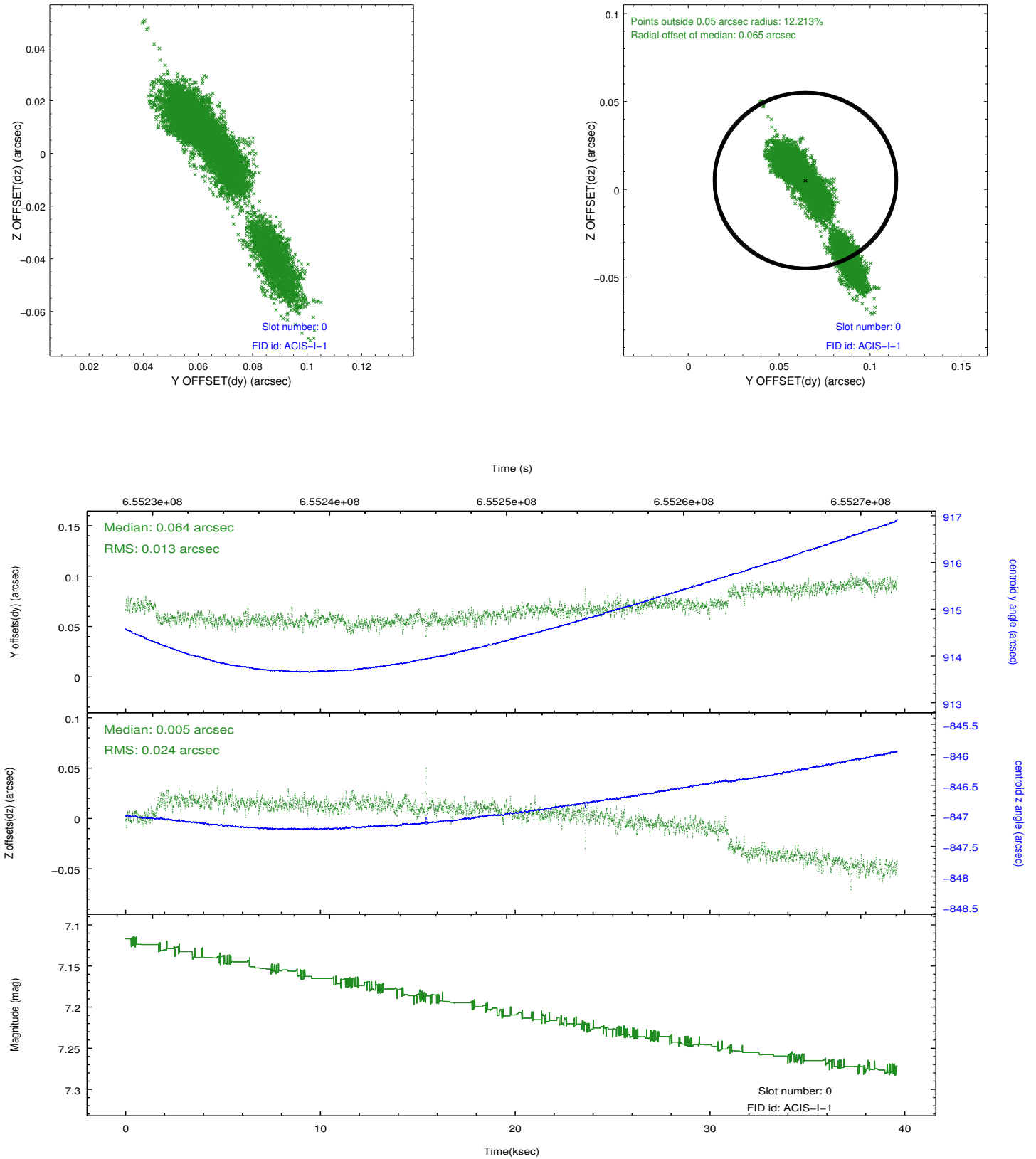


2.4.4 Slot 7

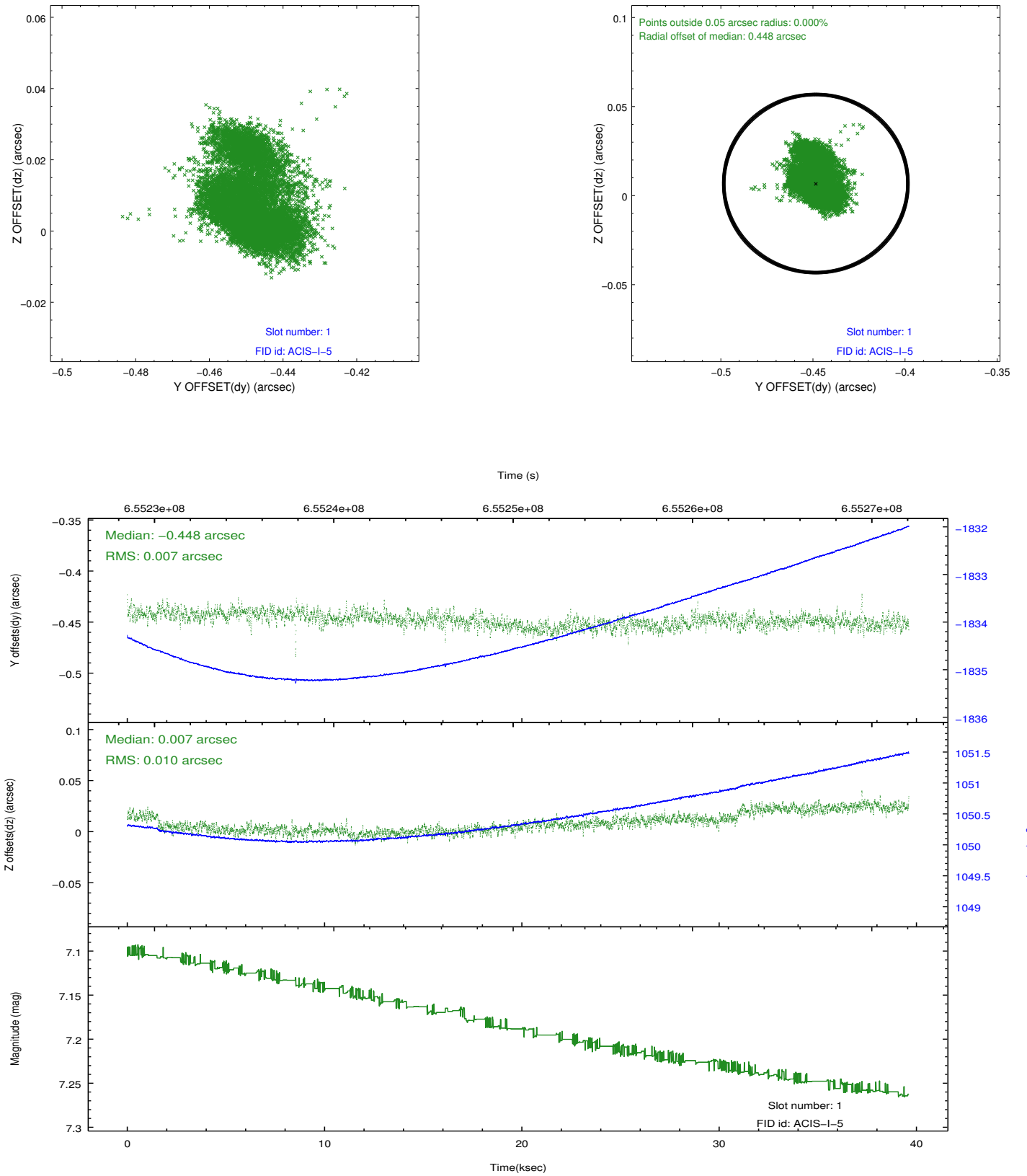


2.5 FID Slots

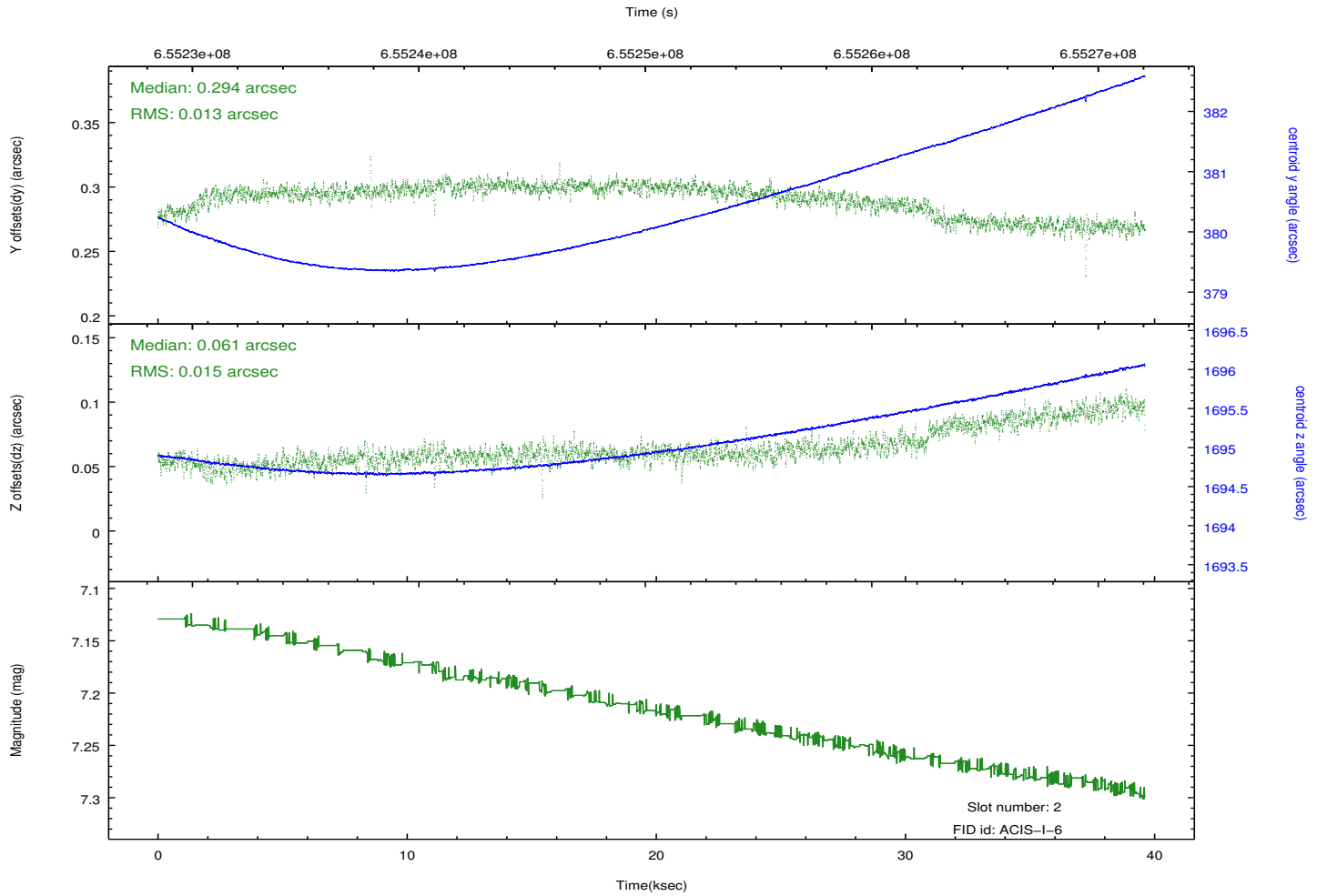
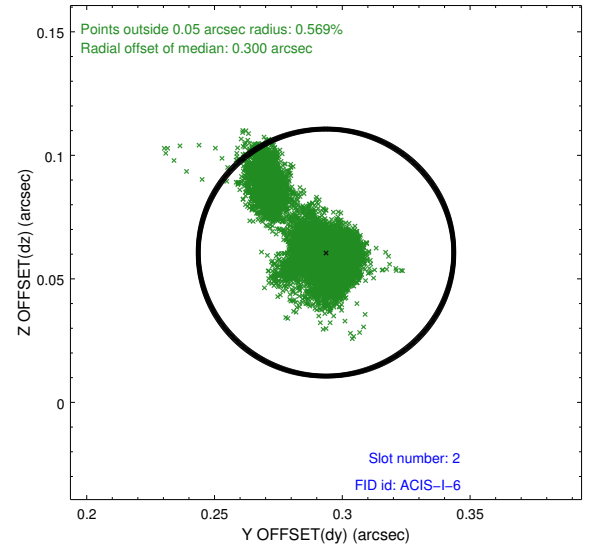
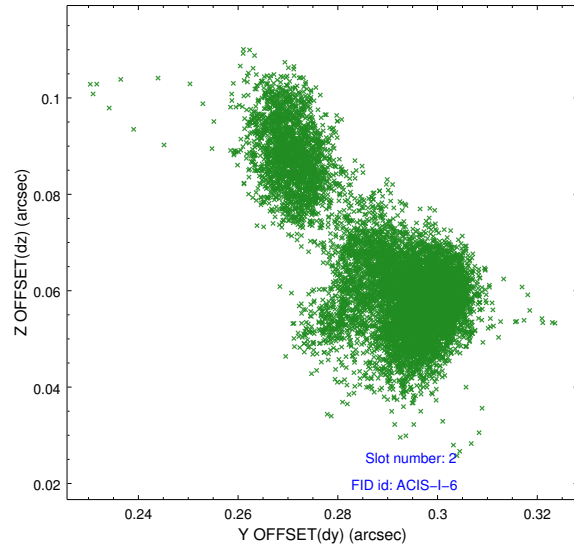
2.5.1 Slot 0



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)	2018.10.07
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	39.332800302625

A.2 Comments

Two optional chips were dropped.

The guide star in slot 4 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.

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.