

# V&V Reference Report

## L2 ASCDS Version : 10.2.1

Observation 16608 - L2 Version 2  
Chandra X-Ray Center

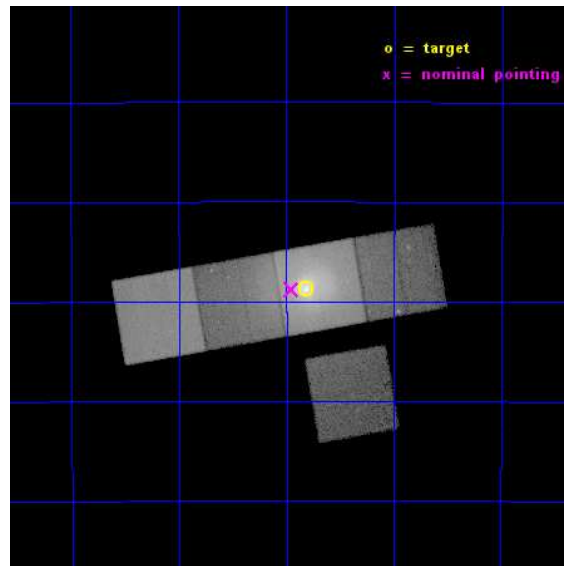
L2 Processing Date : Dec 11 2014

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# 1 Front

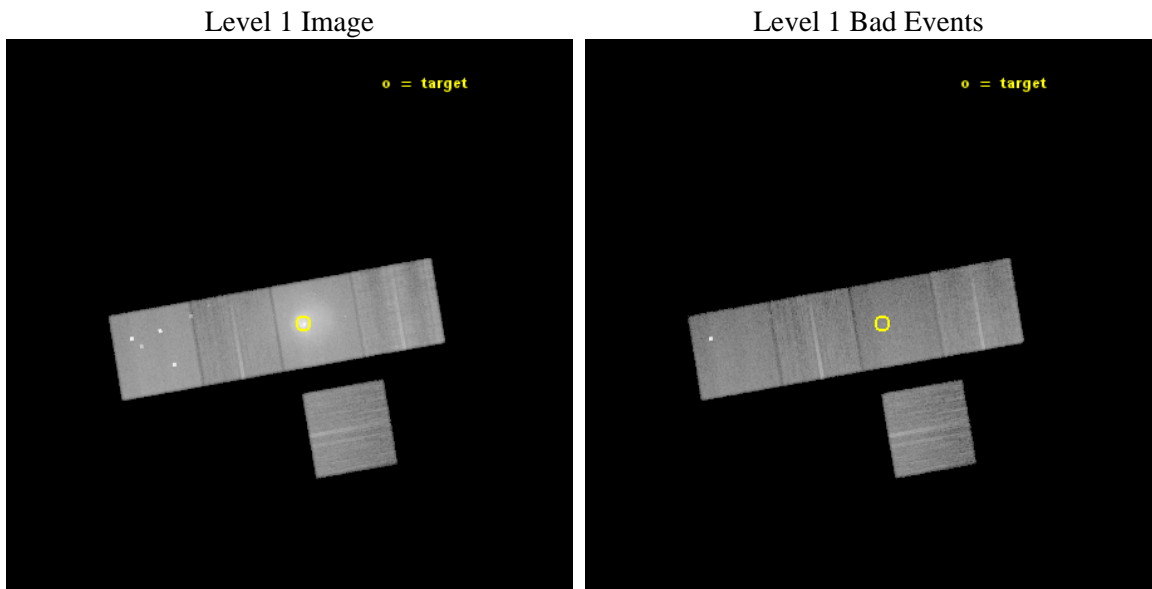
seq_num	801409	Sequence number
obs_id	16608	Observation id
title	Deep imaging and spectroscopy of the Centaurus cluster: metals and filaments	Proposal title
observer	Dr Jeremy Sanders	Principal investigator
object	Centaurus cluster	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	192.20375	Observer's specified target RA [deg]
dec_targ	-41.312167	Observer's specified target Dec [deg]
ra_nom	192.23835913844	Nominal RA [deg]
dec_nom	-41.313303579249	Nominal Dec [deg]
roll_nom	350.17948914794	Nominal Roll [deg]
revision	2	Processing version of data
ontime	34564.811137497	Sum of GTIs [s]
livetime	34113.196433742	Livetime [s]
ontime3	34564.688017488	Sum of GTIs [s]
ontime5	34564.770097494	Sum of GTIs [s]
ontime6	34564.729057491	Sum of GTIs [s]
ontime7	34564.811137497	Sum of GTIs [s]
ontime8	34564.646977484	Sum of GTIs [s]
l2events	734402	Number of level 2 events



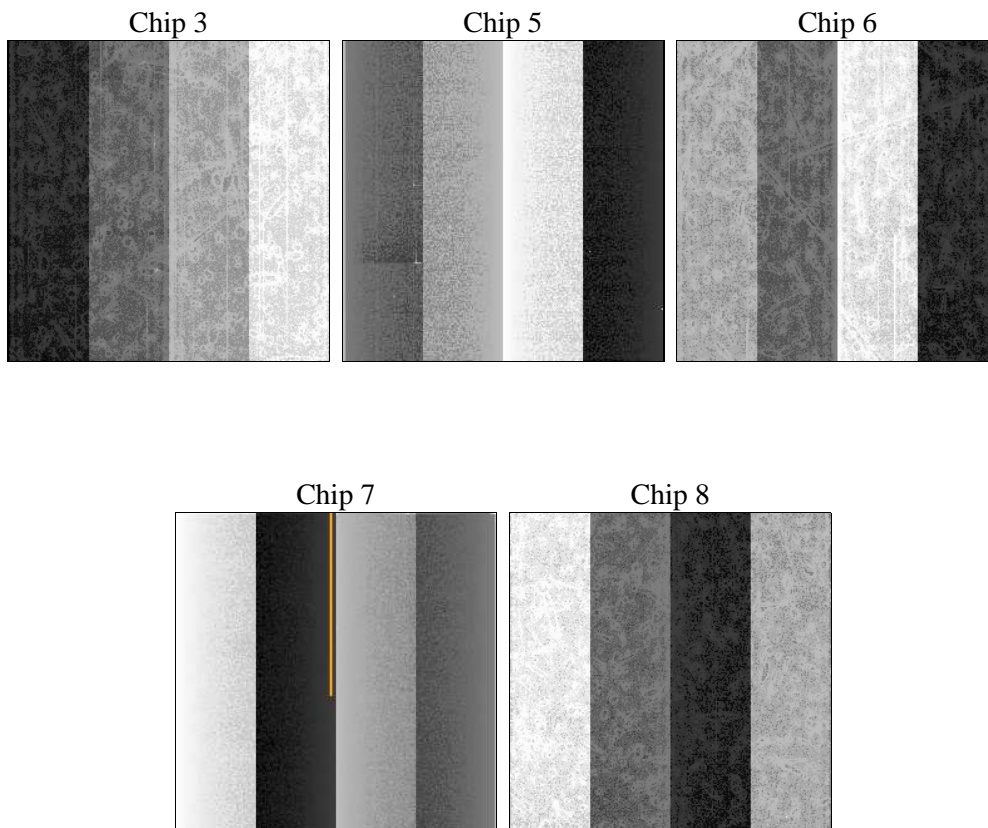
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	34500.000000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	34564.811137497	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime3	34564.688017488	Sum of GTIs [s]
date	2014-12-11T05:42:43	Date and time of file creation	ontime5	34564.770097494	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	34564.729057491	Sum of GTIs [s]
			ontime7	34564.811137497	Sum of GTIs [s]
			ontime8	34564.646977484	Sum of GTIs [s]
			l1events	1559718	Number of level 1 events

### 2.1.4 Events

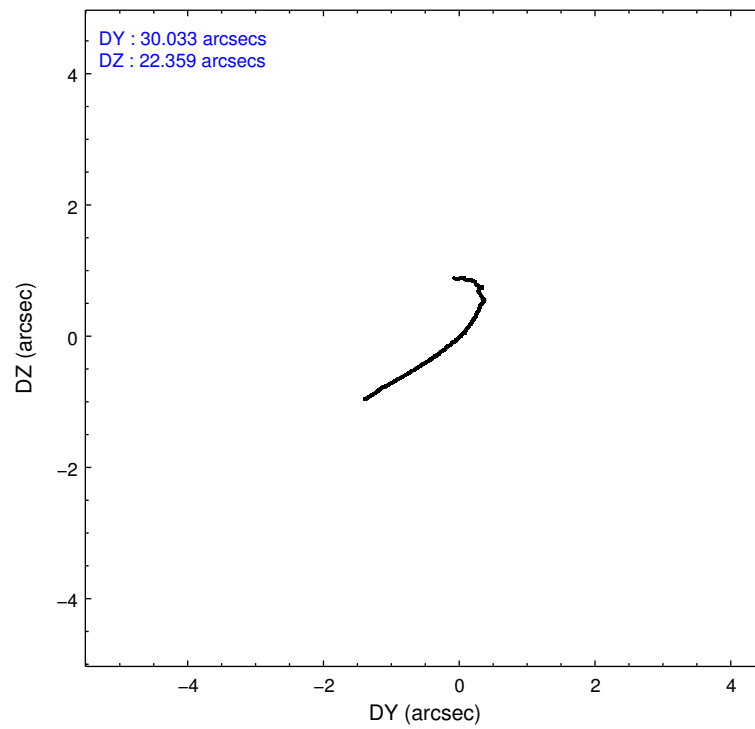
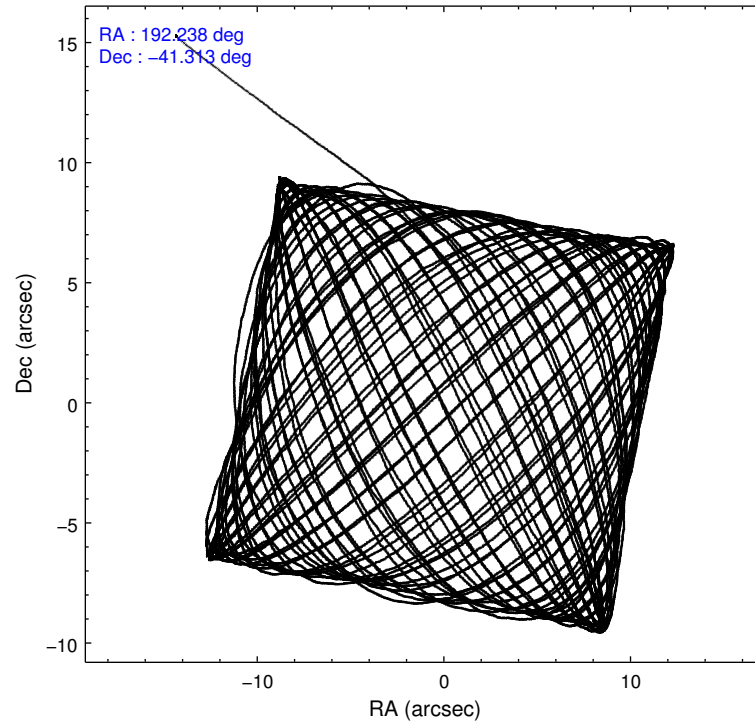
	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	169374	326653	238085	555397	270209
rejected events	136878	152689	144180	128049	160582
rejected %	80%	46%	60%	23%	59%

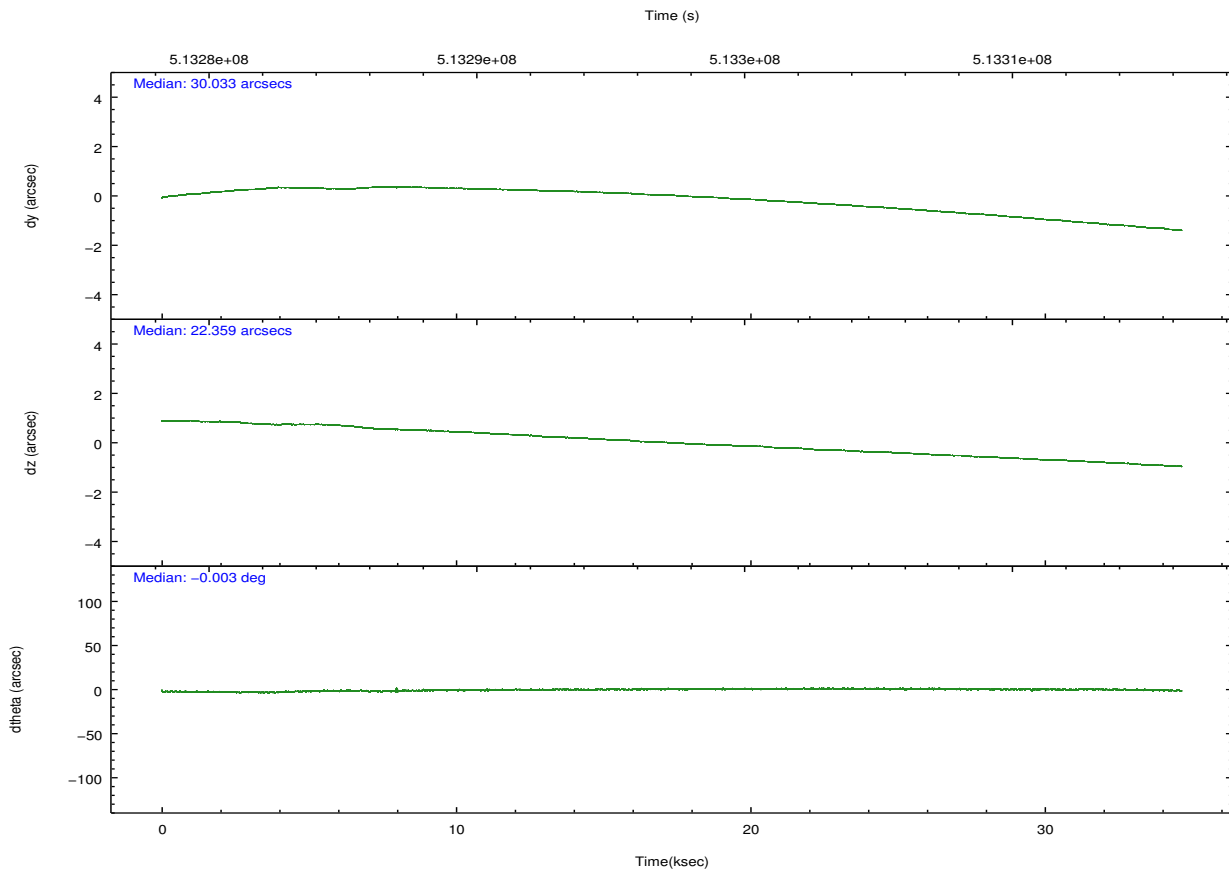
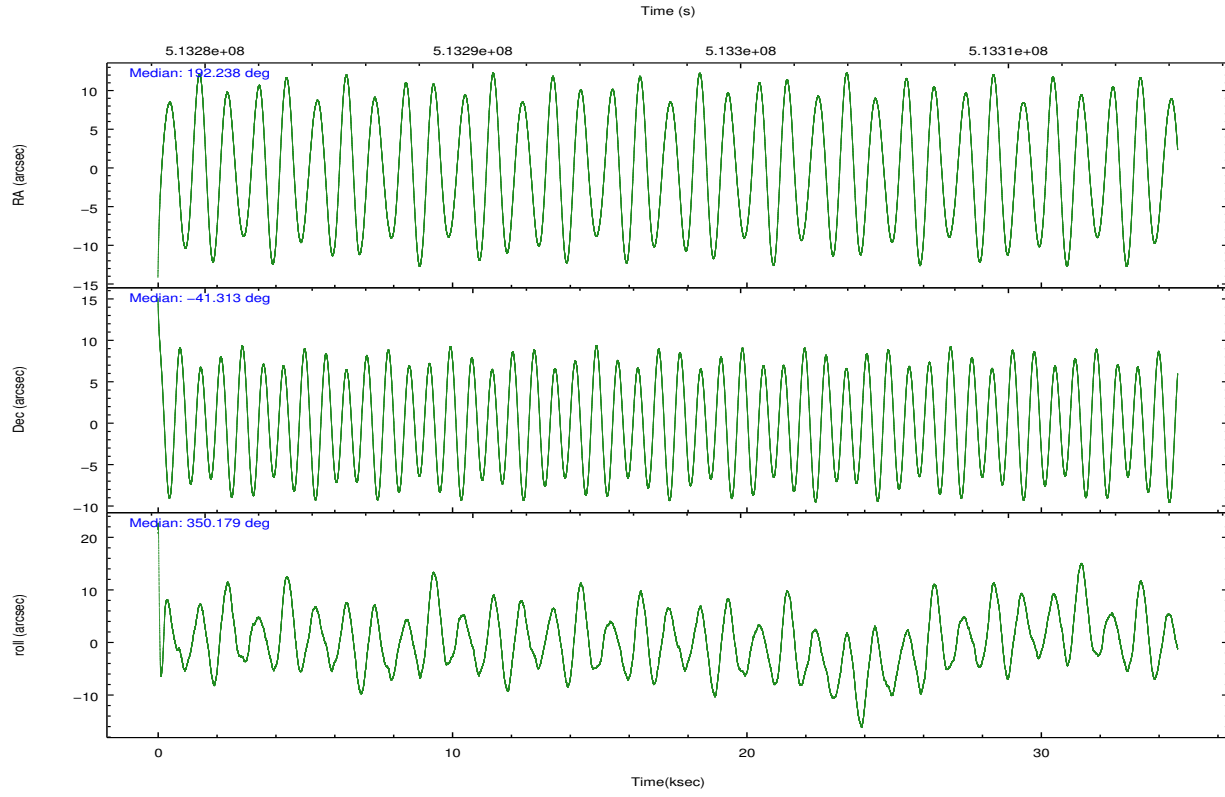
	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	17927	38627	66311	103206	48005
	10%	11%	27%	18%	17%
grade 1 events	114	616	264	328	274
	0%	0%	0%	0%	0%
grade 2 events	5616	48559	12420	109670	19422
	3%	14%	5%	19%	7%
grade 3 events	2386	6677	4243	46726	11454
	1%	2%	1%	8%	4%
grade 4 events	2379	6442	4258	46374	10670
	1%	1%	1%	8%	3%
grade 5 events	8457	20235	8675	24794	12738
	4%	6%	3%	4%	4%
grade 6 events	4193	73692	6686	121443	20084
	2%	22%	2%	21%	7%
grade 7 events	128302	131805	135228	102856	147562
	75%	40%	56%	18%	54%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-35678	ACIS-35678	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	192.204346	192.2383591384366	CCD I2 on	N	N
[deg] Pointing Dec	-41.323075	-41.3133035792487	CCD I3 on	O1	Y
[deg] Pointing Roll	350.000388	350.1794891479417	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[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	O2	Y
[s] Observation start time (MET)	513280100.184000	513279077.24154	CCD S5 on	N	N
Observation start date	2014-04-07T17:47:13	2014-04-07T17:31:17	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	513314600.184000	513315562.63106	On-chip summing requested	N	N
Observation end date	2014-04-08T03:22:13	2014-04-08T03:39:22	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



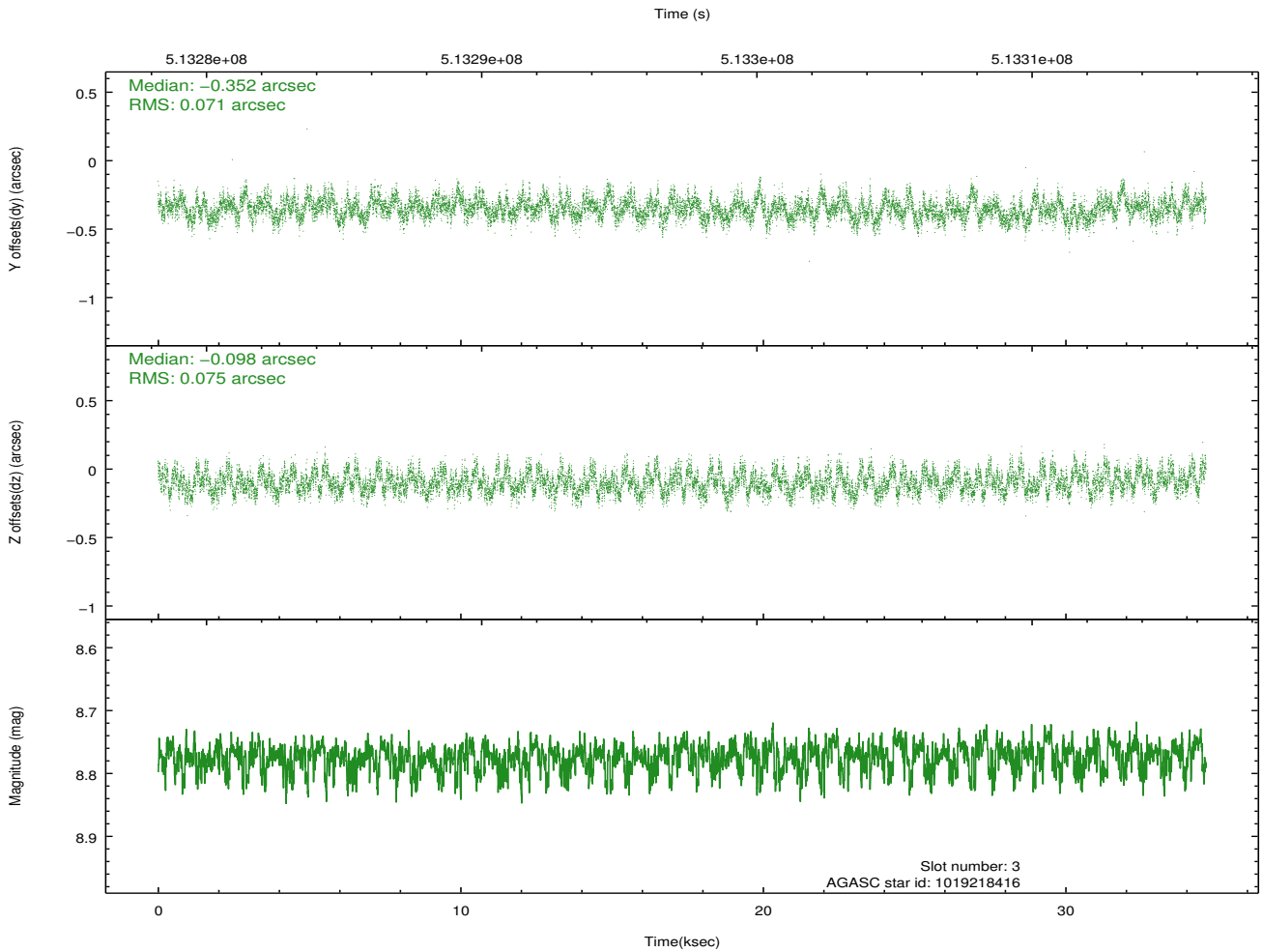
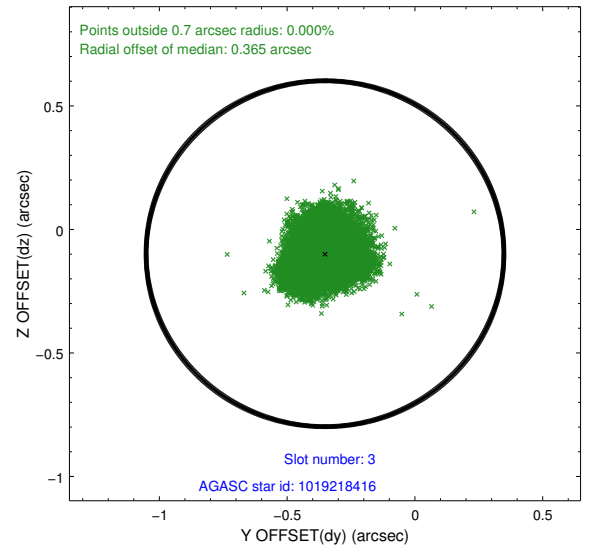
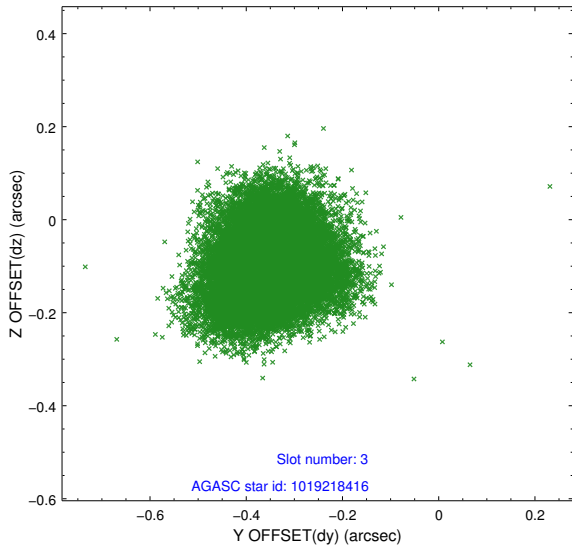


### Slot Statistics

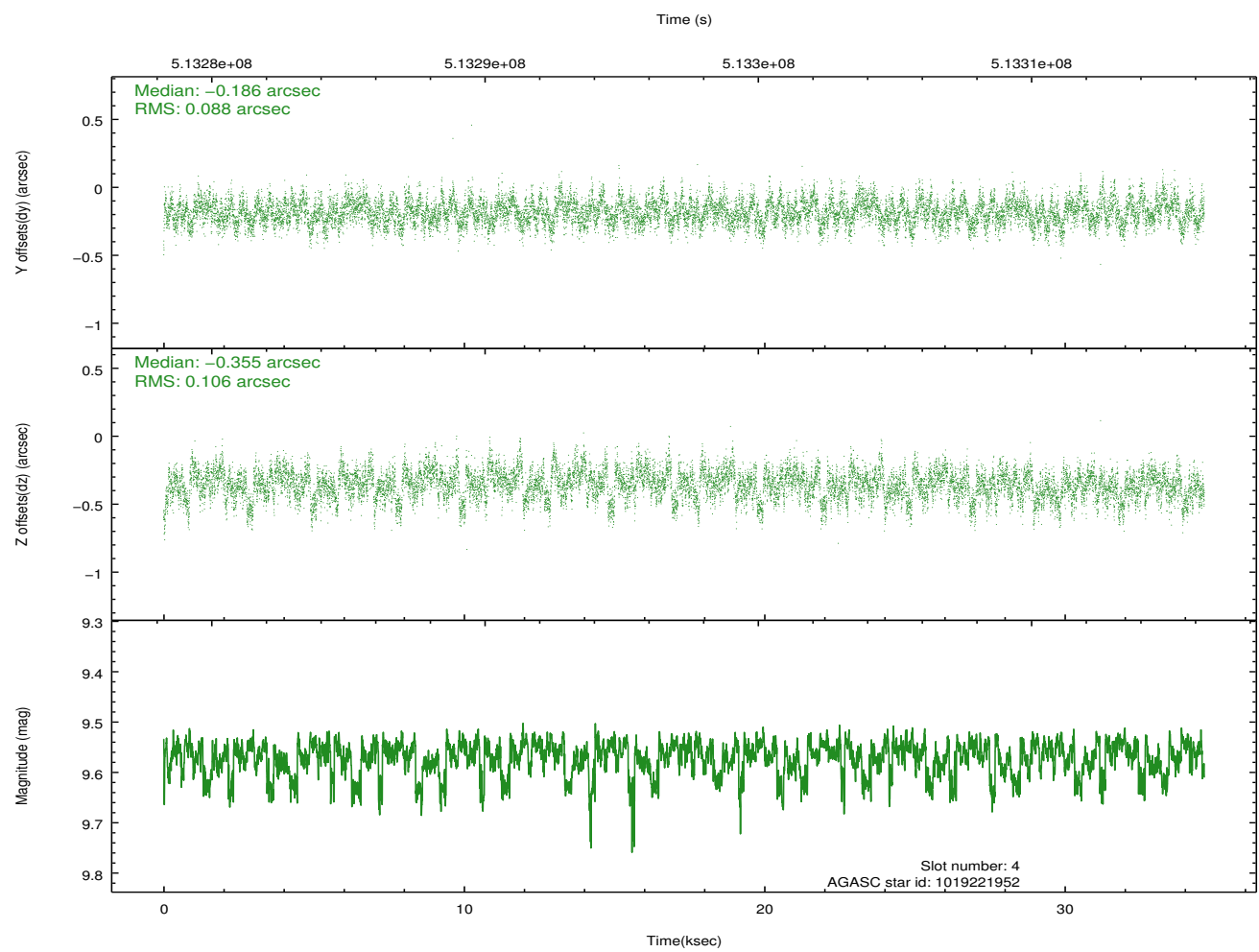
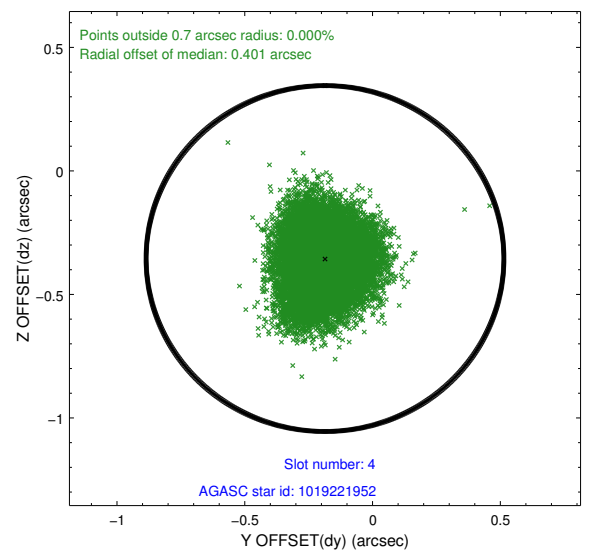
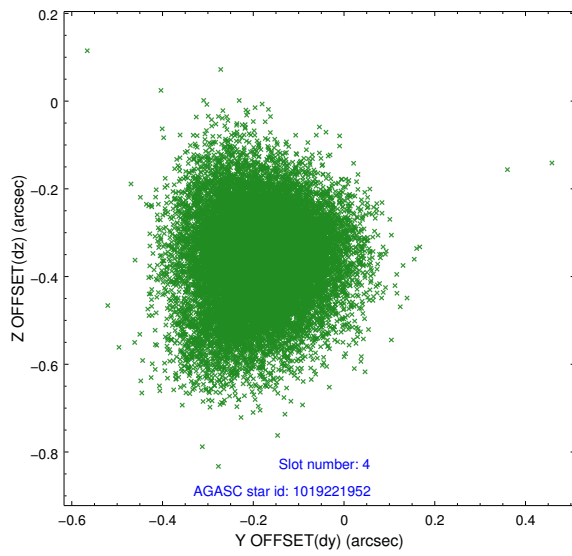
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.91	8449	-0.224	-0.047	0.016	0.028	0.000000	0.000000	-783.45	-1743.99
1	FID		ACIS-S-4	7.00	8449	0.423	0.120	0.008	0.014	0.000000	0.000000	2130.47	164.59
2	FID		ACIS-S-5	7.03	8449	-0.230	-0.065	0.014	0.021	0.000000	0.000000	-1836.23	158.16
3	GUIDE	used	1019218416	8.77	16890	-0.352	-0.098	0.112	0.172	193.142850	-40.941016	2276.84	1783.92
4	GUIDE	used	1019221952	9.57	16881	-0.186	-0.355	0.146	0.240	192.906873	-41.032646	1698.88	1353.21
5	GUIDE	used	1019615024	8.48	16894	0.388	0.289	0.092	0.141	191.349086	-41.365736	-2246.04	-563.35
6	GUIDE	used	1019740808	8.78	16885	0.002	-0.134	0.125	0.196	192.766173	-41.251253	1453.41	513.65
7	GUIDE	used	1019743536	8.66	16893	0.145	0.295	0.128	0.192	192.632057	-41.696442	1366.89	-1126.76

## 2.4 Star Slots

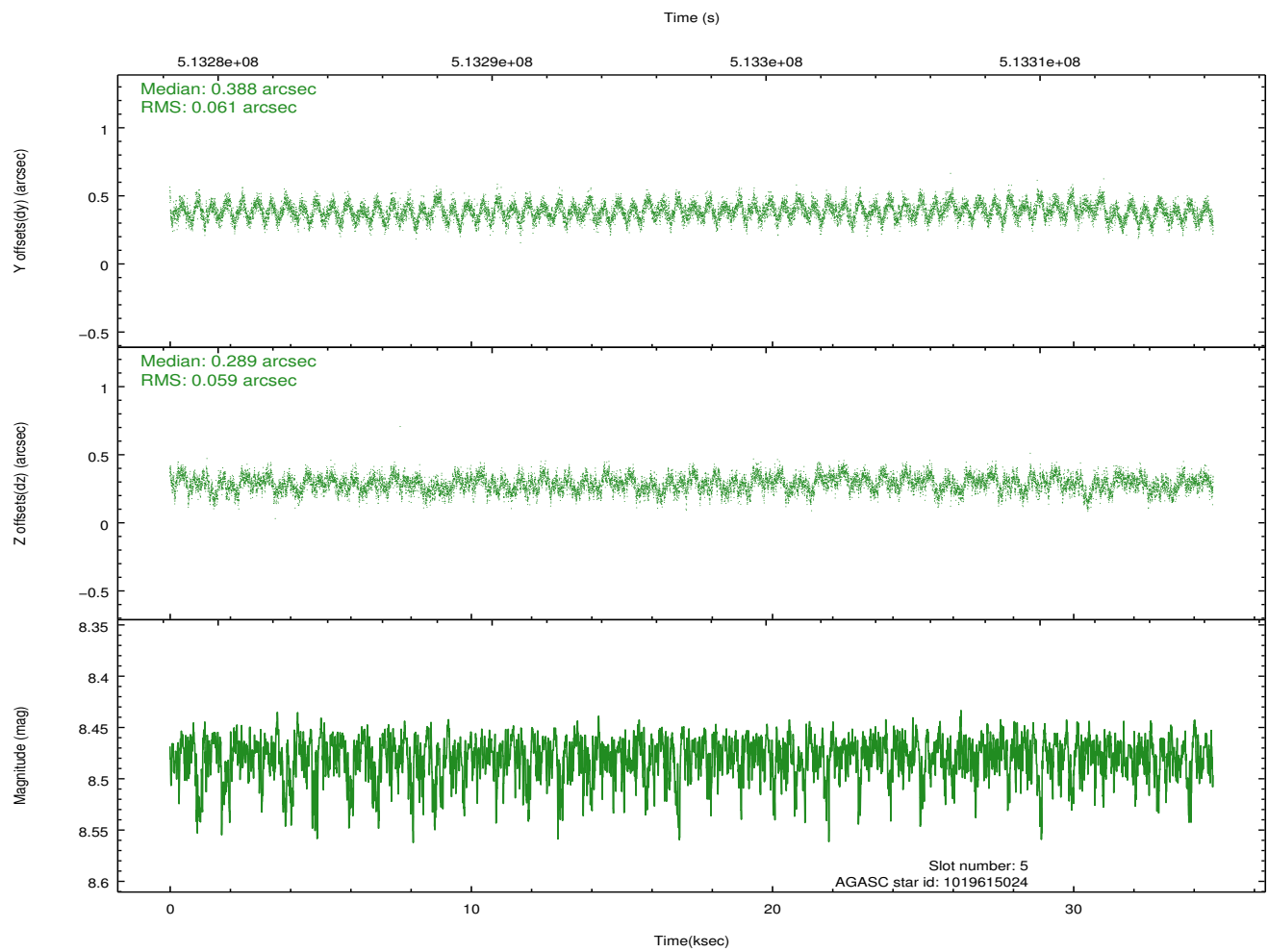
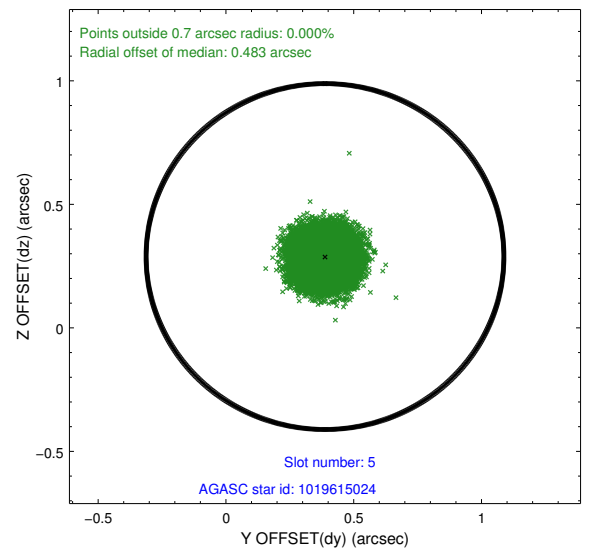
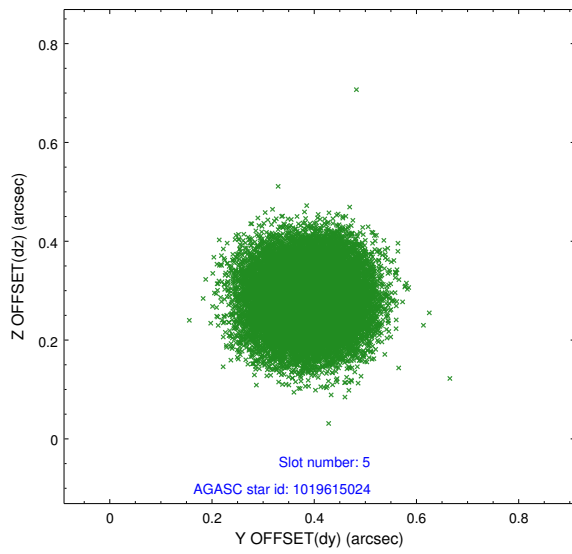
### 2.4.1 Slot 3



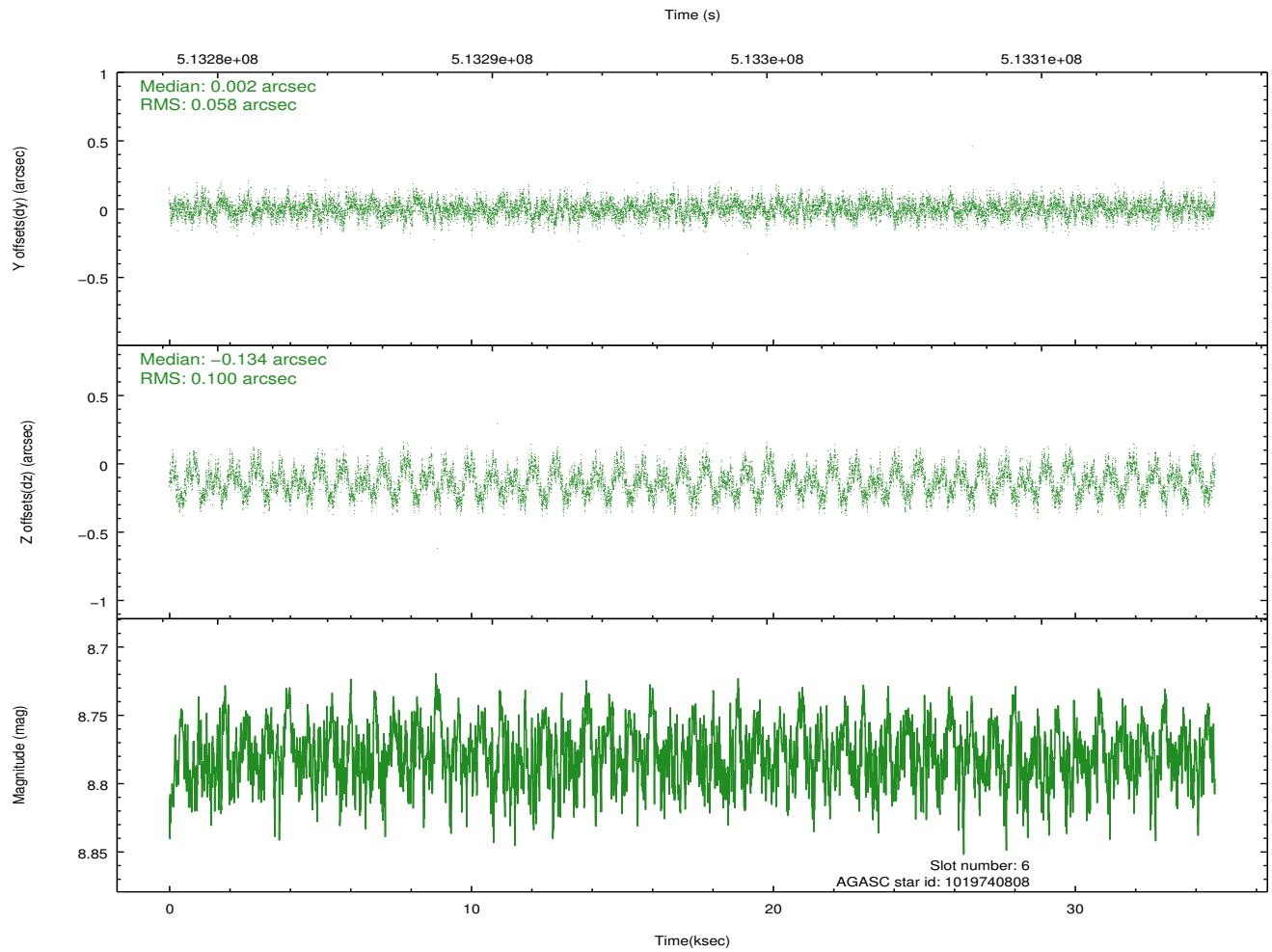
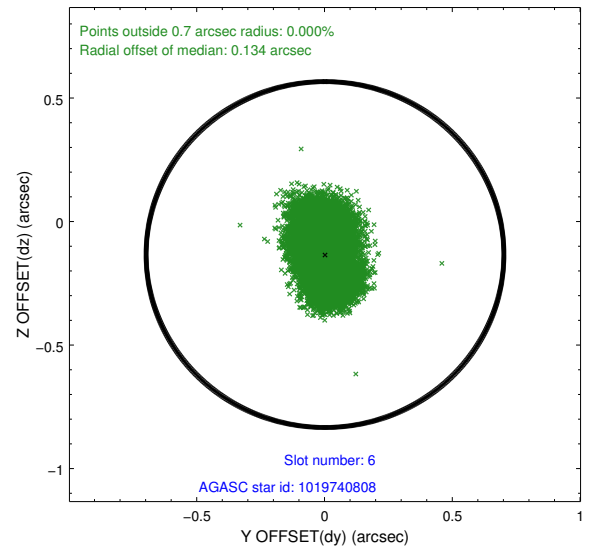
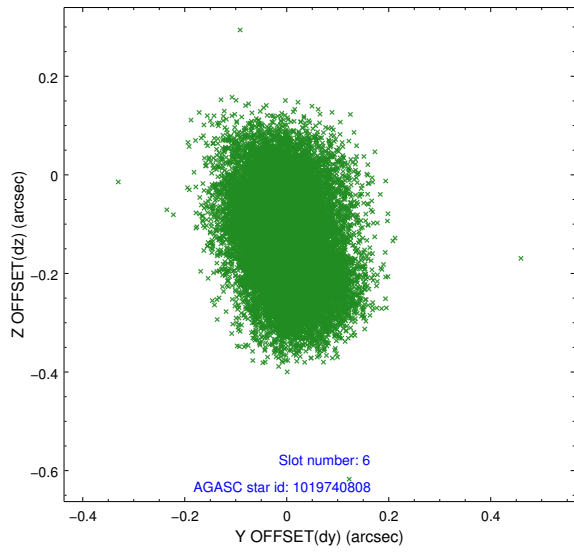
## 2.4.2 Slot 4



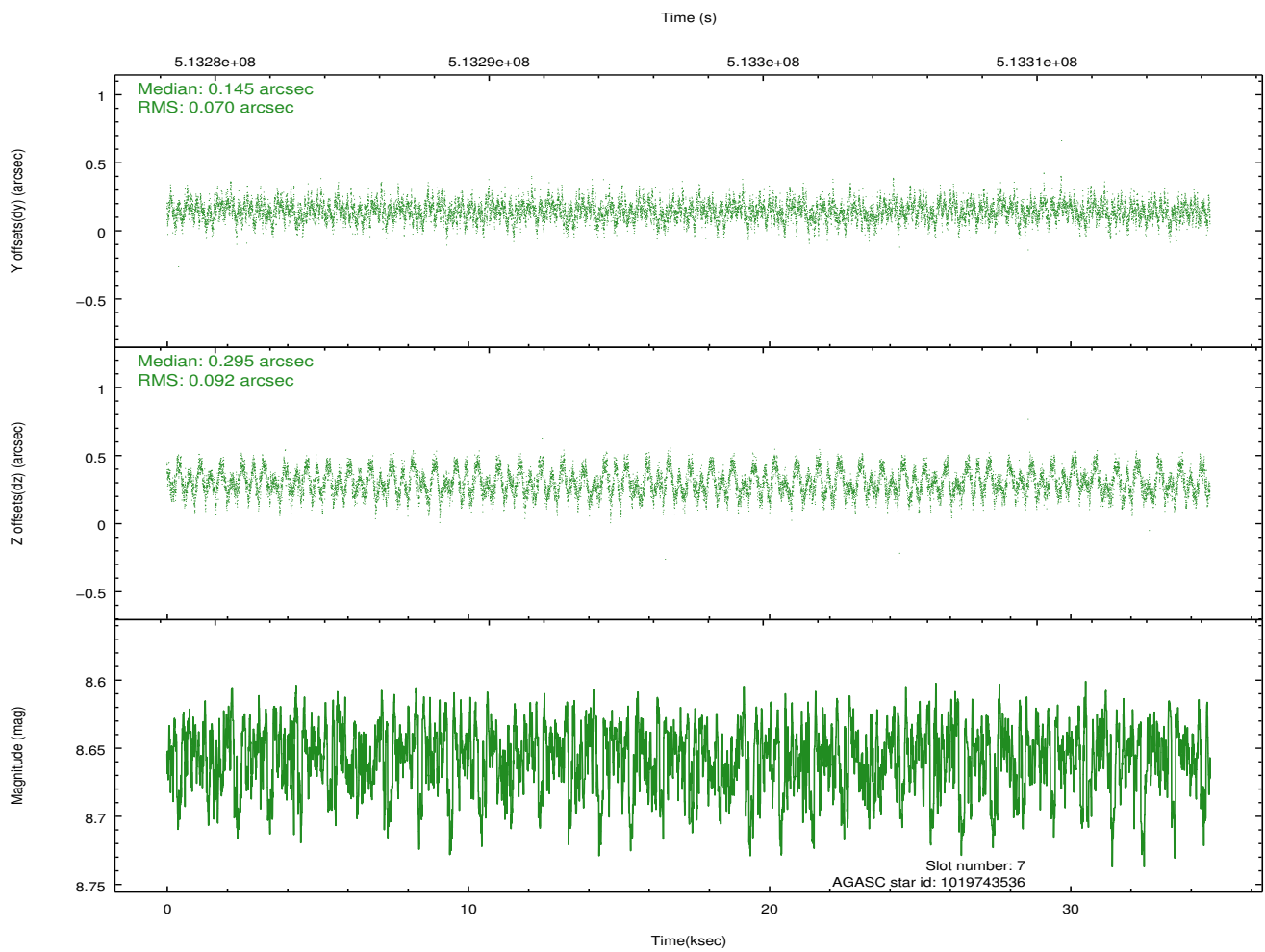
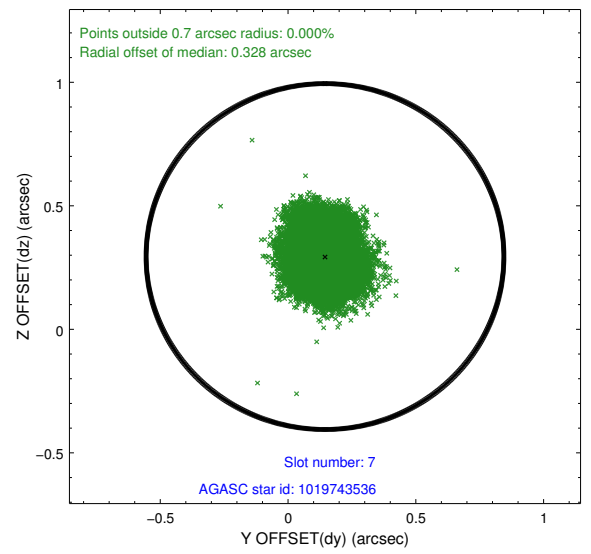
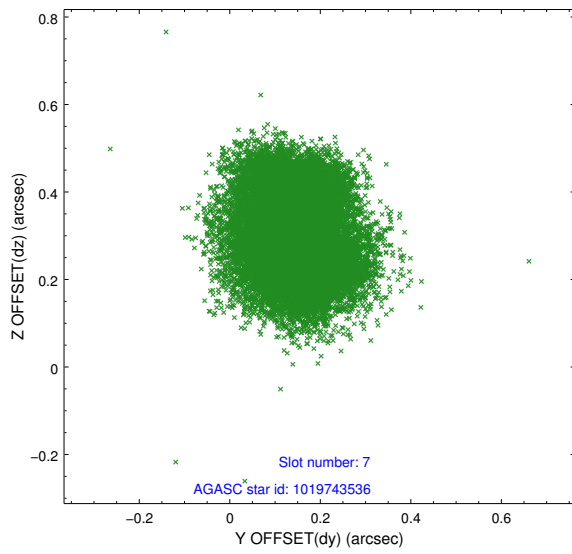
### 2.4.3 Slot 5



## 2.4.4 Slot 6

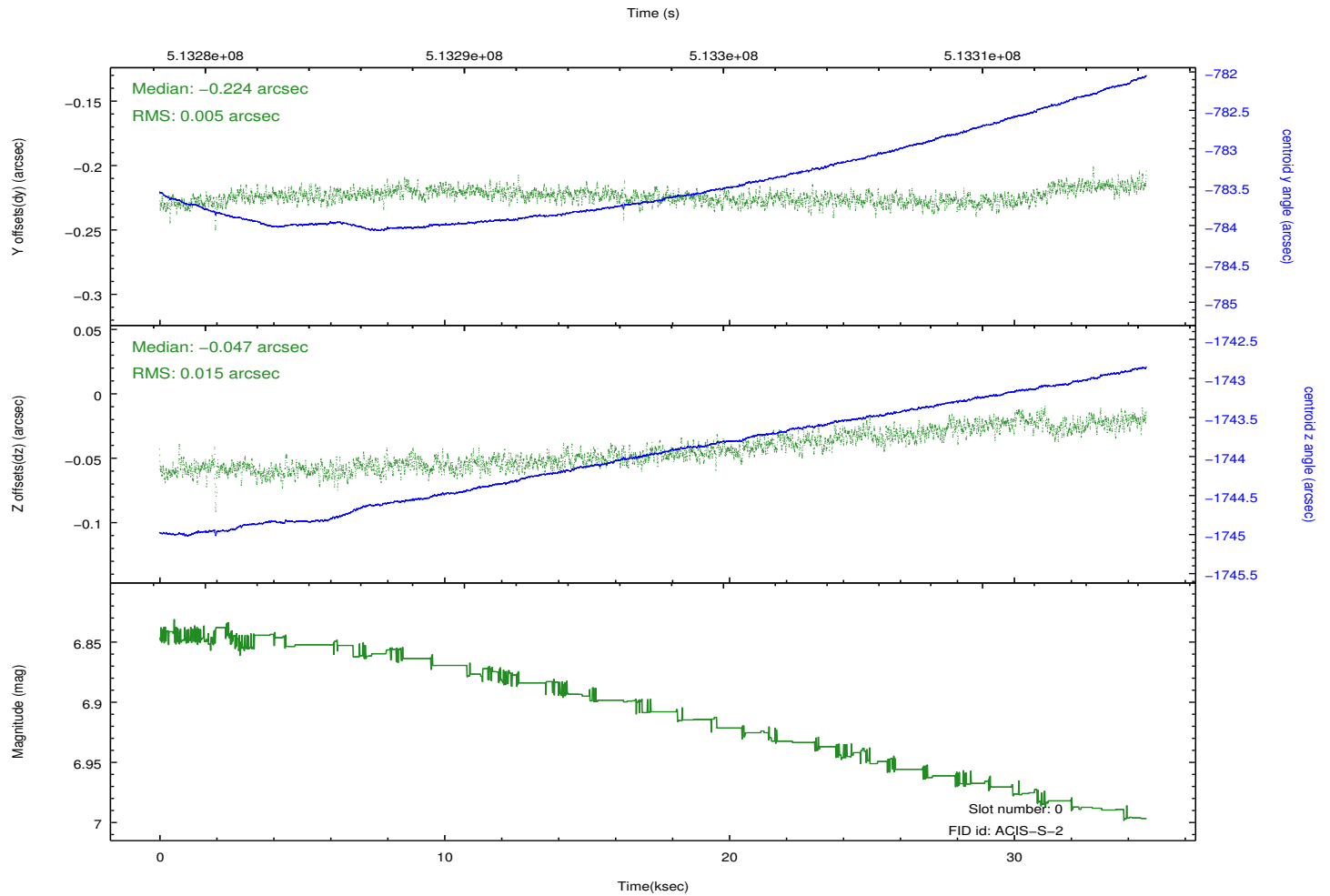
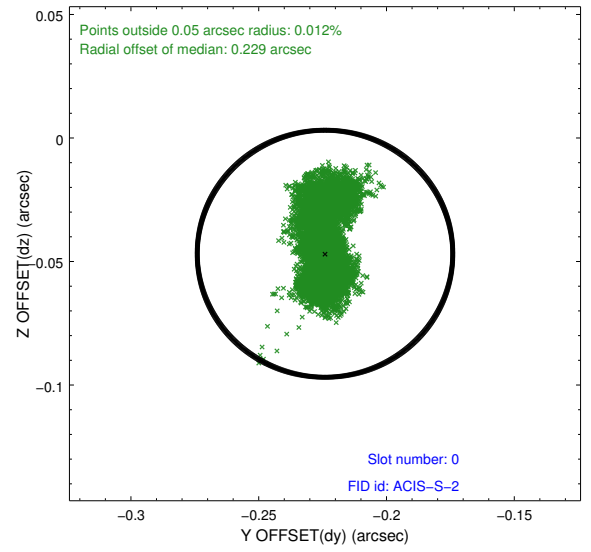
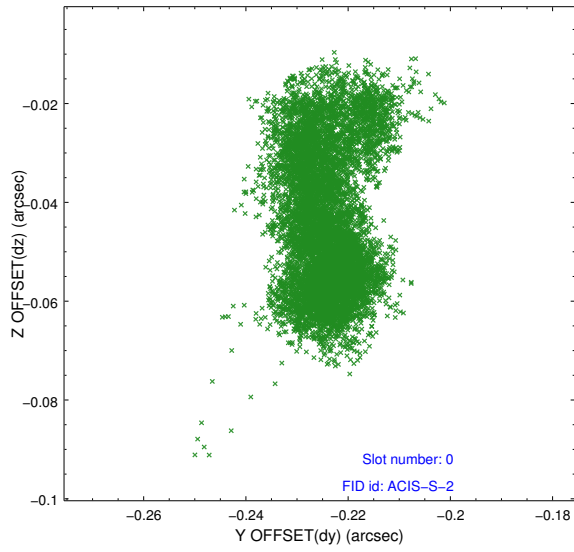


## 2.4.5 Slot 7

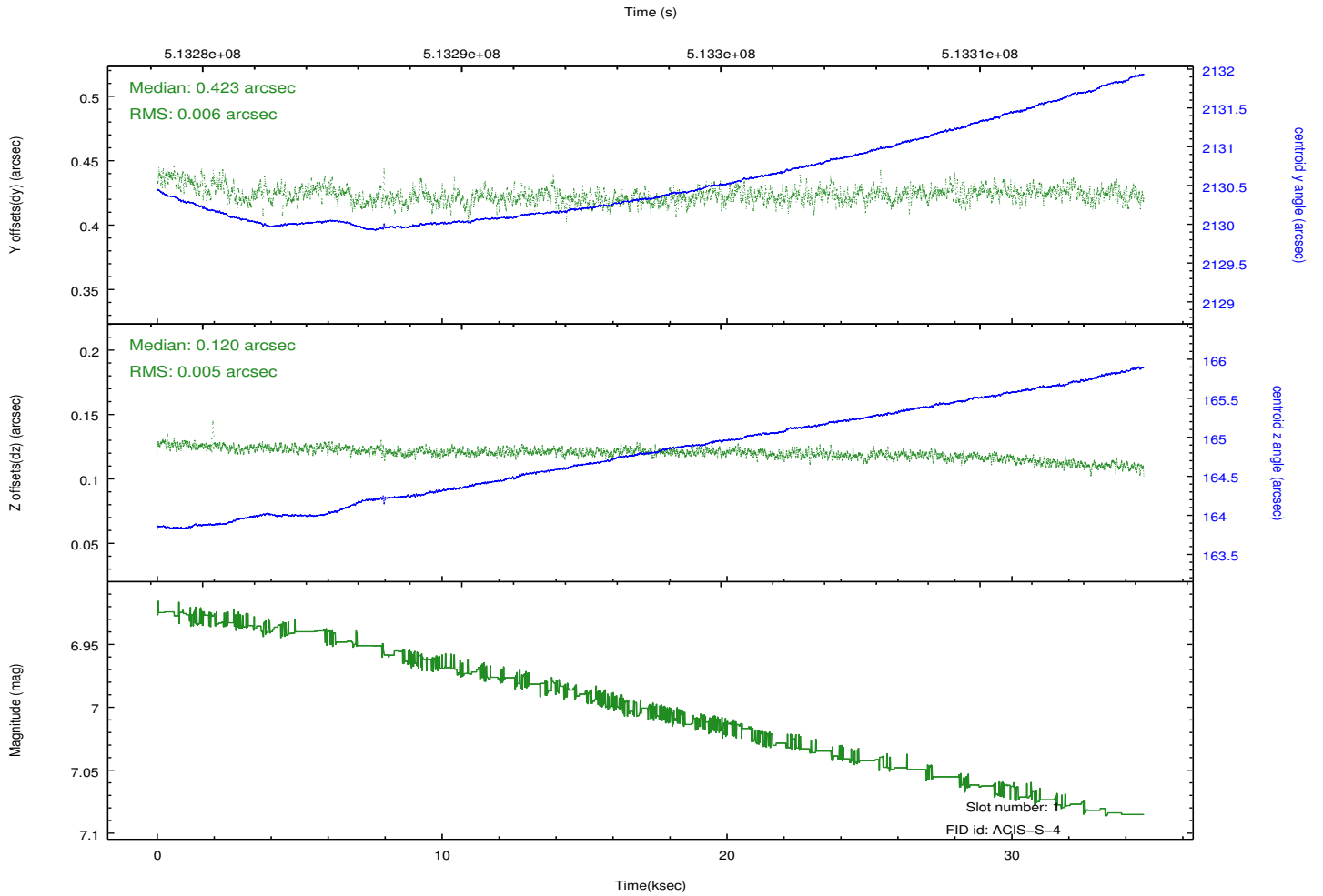
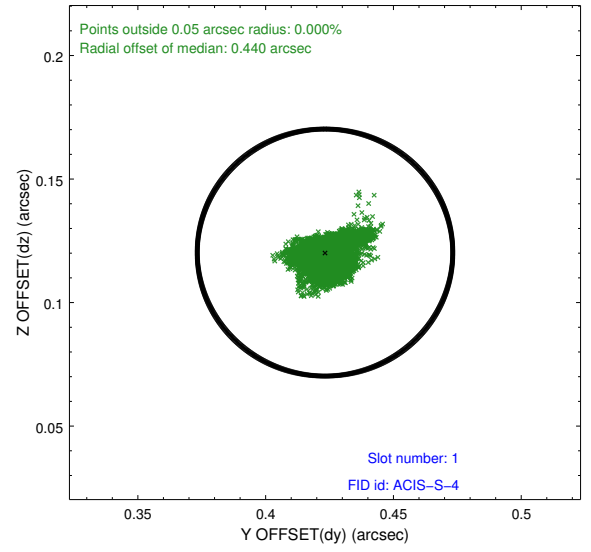
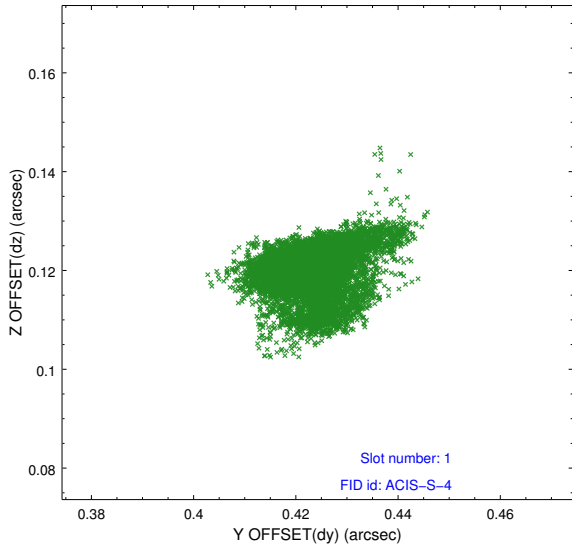


## 2.5 FID Slots

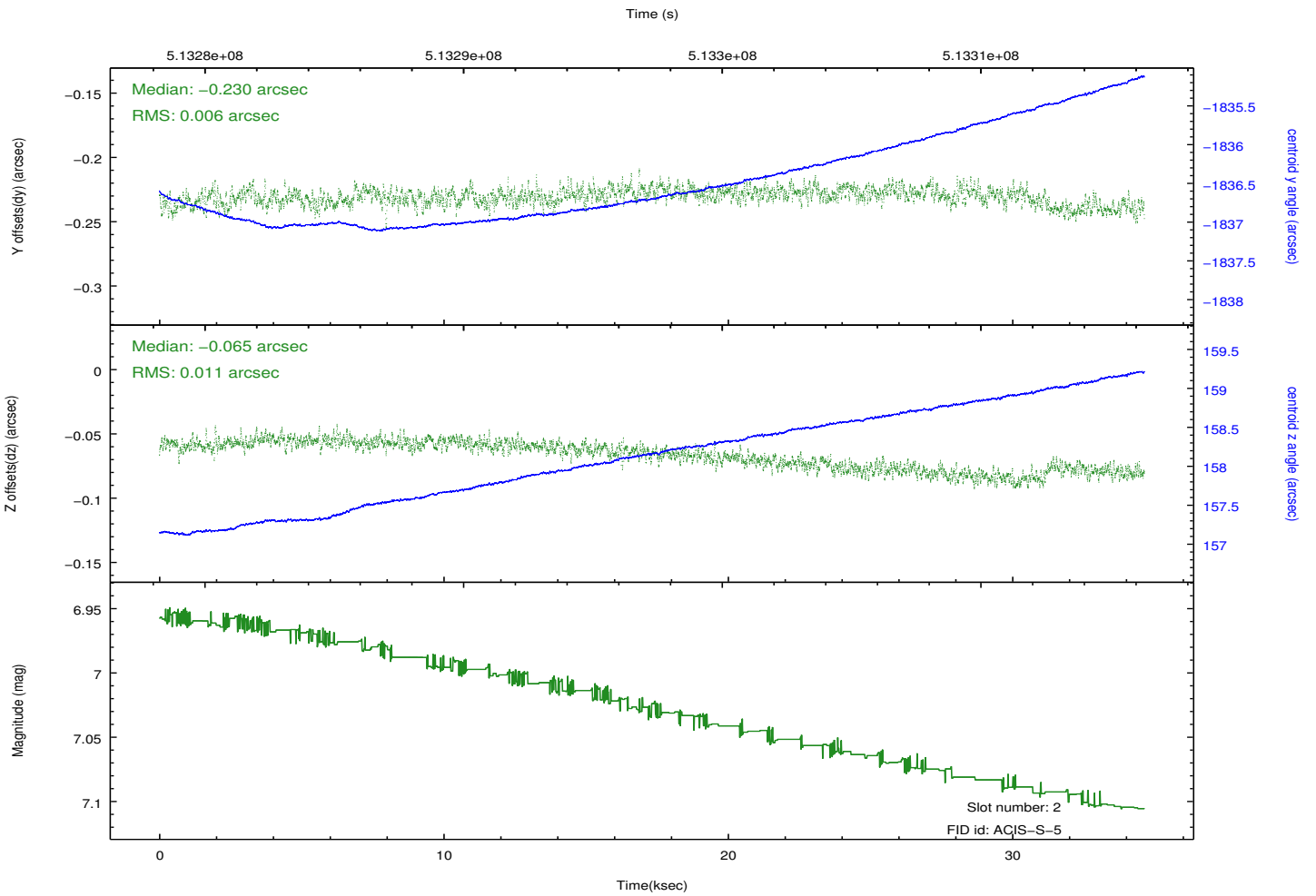
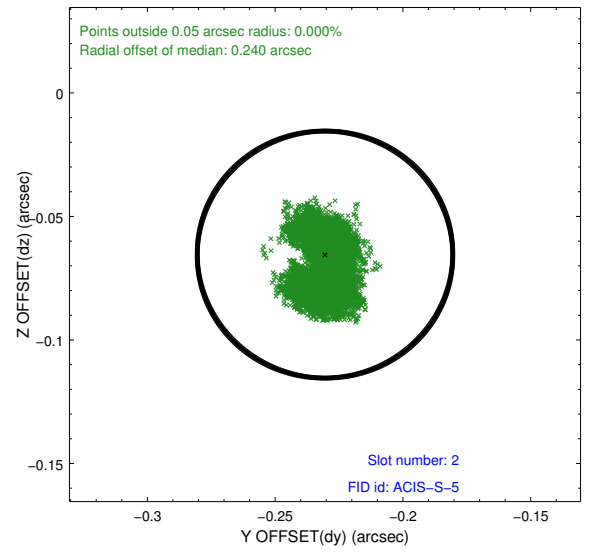
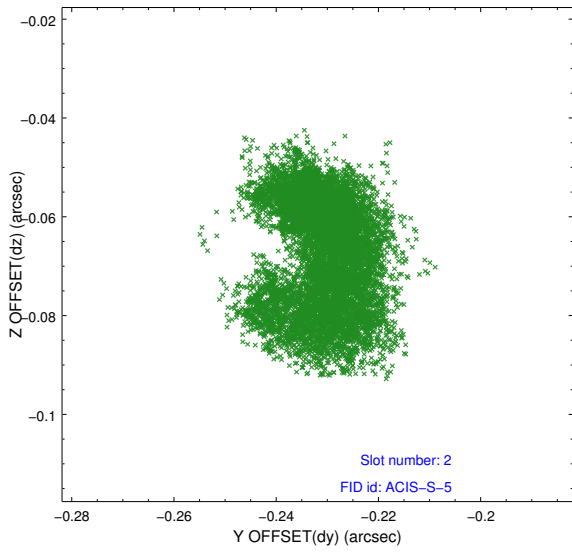
### 2.5.1 Slot 0



## 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)	2014.12.18
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	34.564811137497

## A.2 Comments

Joint proposal with NRAO.

These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.