

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 22004 - L2 Version 2  
Chandra X-Ray Center

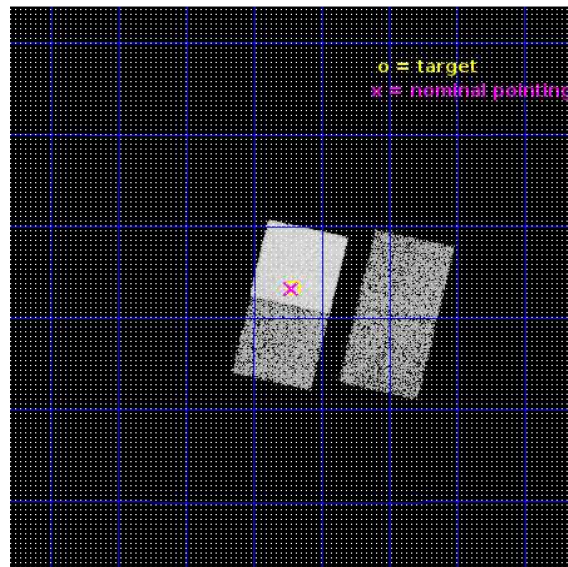
L2 Processing Date : Dec 17 2018

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# 1 Front

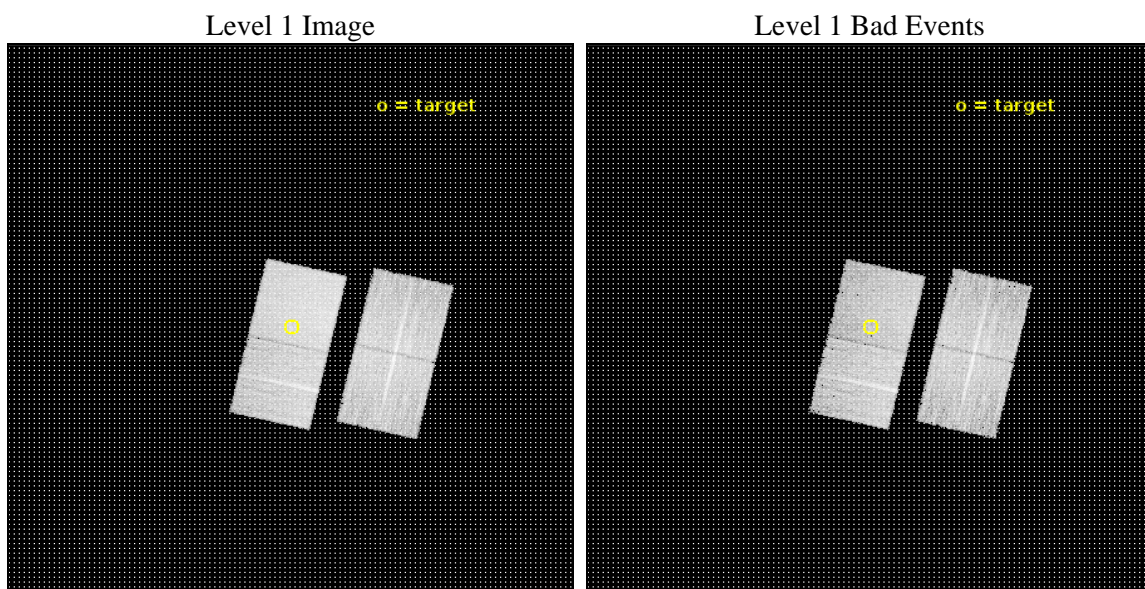
seq_num	703759	Sequence number
obs_id	22004	Observation id
title	X-raying a rare hyperluminous ultramassive black-hole at cosmic dawn	&#160
observer	Luca Zappacosta	Principal investigator
object	J03064+1853	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	46.677083	Observer's specified target RA [deg]
dec_targ	18.887722	Observer's specified target Dec [deg]
ra_nom	46.680692125154	Nominal RA [deg]
dec_nom	18.887237308298	Nominal Dec [deg]
roll_nom	283.15546234205	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10065.700077534	Sum of GTIs [s]
livetime	9934.1842957602	Livetime [s]
ontime2	10059.418076992	Sum of GTIs [s]
ontime3	10065.700077534	Sum of GTIs [s]
ontime6	10065.700077534	Sum of GTIs [s]
ontime7	10065.700077534	Sum of GTIs [s]
l2events	62461	Number of level 2 events



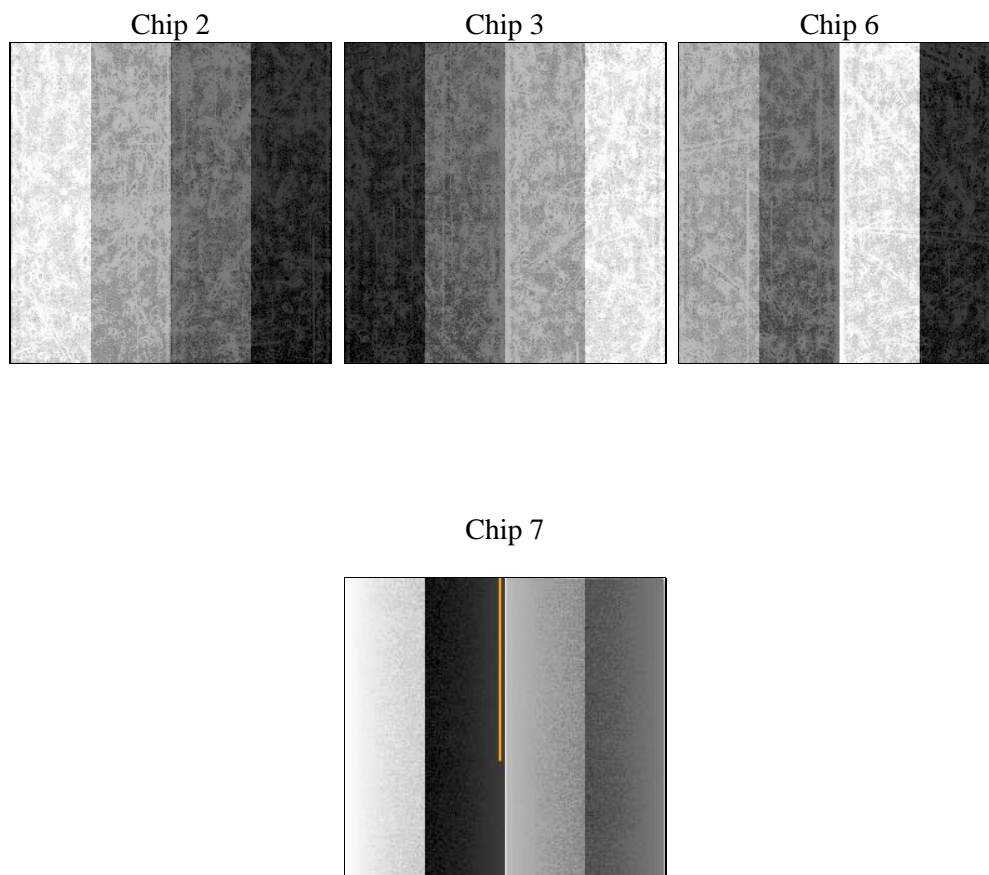
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	10065.700077534	Sum of GTIs [s]
caldsver	4.8.2	&#160	ontime2	10059.418076992	Sum of GTIs [s]
date	2018-12-17T18:51:20	Date and time of file creation	ontime3	10065.700077534	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	10065.700077534	Sum of GTIs [s]
			ontime7	10065.700077534	Sum of GTIs [s]
			l1events	315973	Number of level 1 events

### 2.1.4 Events

	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	73578	69784	75824	96787
rejected events	65379	61995	67278	54414
rejected %	88%	88%	88%	56%

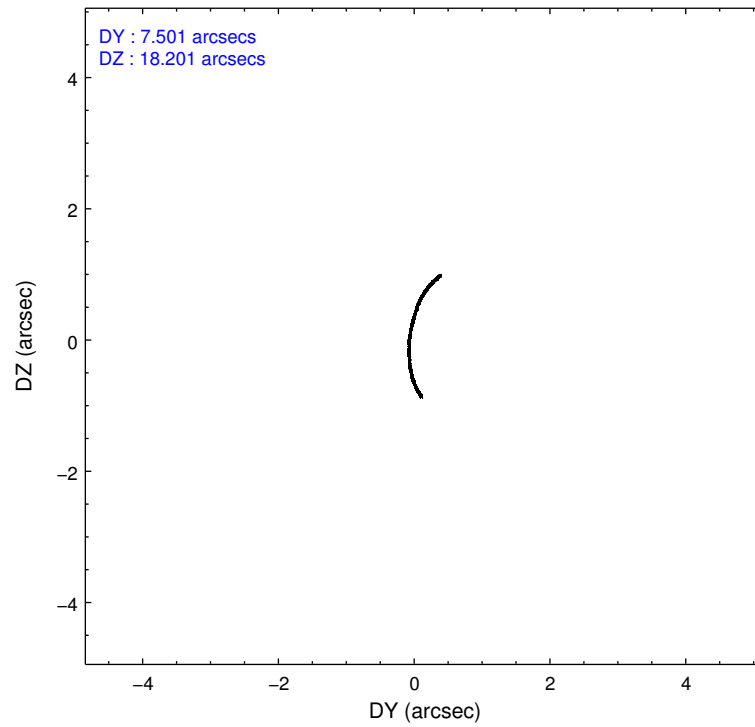
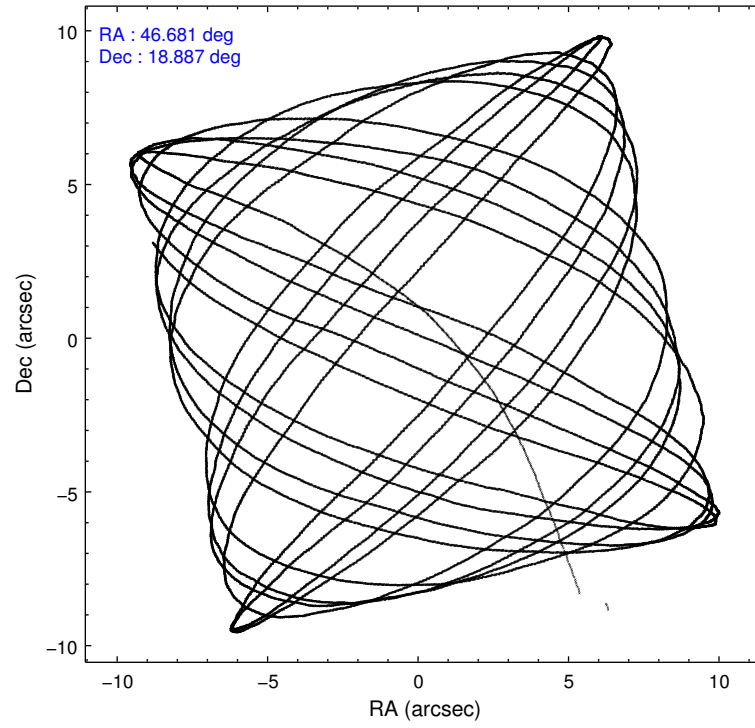
	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	2850	2829	2866	3701
	3%	4%	3%	3%
grade 1 events	46	46	50	148
	0%	0%	0%	0%
grade 2 events	2028	1734	1965	9050
	2%	2%	2%	9%
grade 3 events	820	811	874	3355
	1%	1%	1%	3%
grade 4 events	849	765	816	3263
	1%	1%	1%	3%
grade 5 events	3160	3504	3505	9594
	4%	5%	4%	9%
grade 6 events	1654	1653	2030	23037
	2%	2%	2%	23%
grade 7 events	62171	58442	63718	44639
	84%	83%	84%	46%

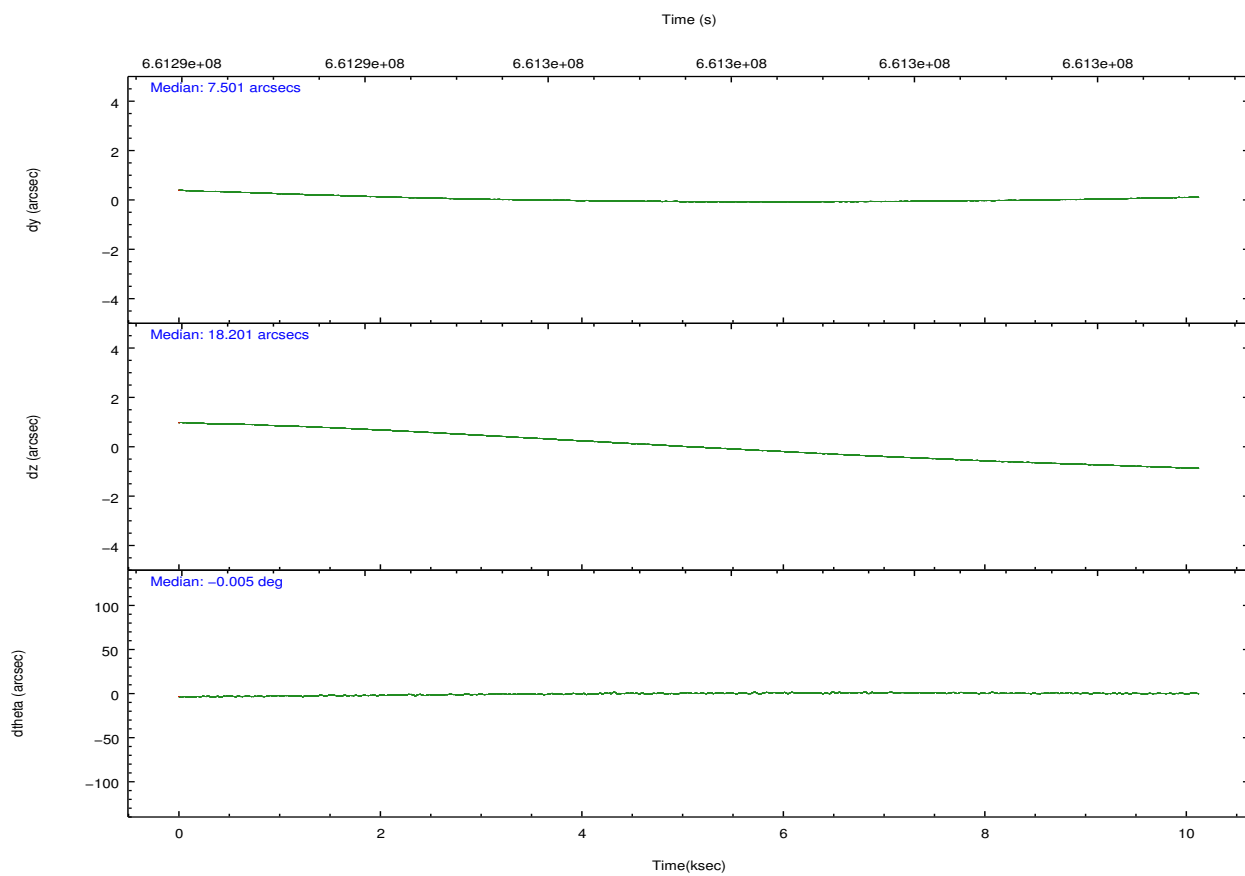
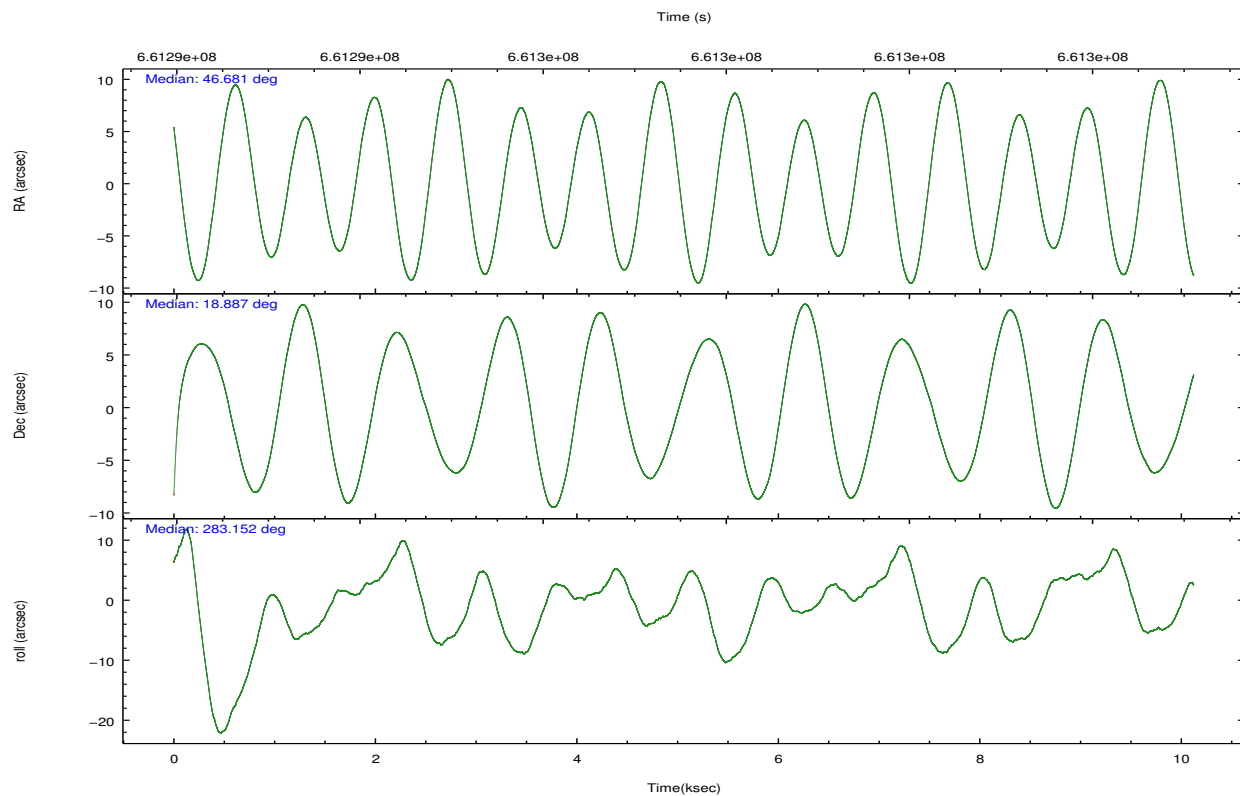


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-2367	ACIS-2367	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	46.660573	46.68069212515421	CCD I2 on	O1	Y
[deg] Pointing Dec	18.907007	18.88723730829845	CCD I3 on	Y	Y
[deg] Pointing Roll	283.005351	283.155462342054	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	N	N
[s] Observation start time (MET)	661292617.184000	661291306.17884	CCD S5 on	N	N
Observation start date	2018-12-15T20:22:28	2018-12-15T20:01:46	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	661302617.184000	661303743.52958	On-chip summing requested	N	N
Observation end date	2018-12-15T23:09:08	2018-12-15T23:29:03	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



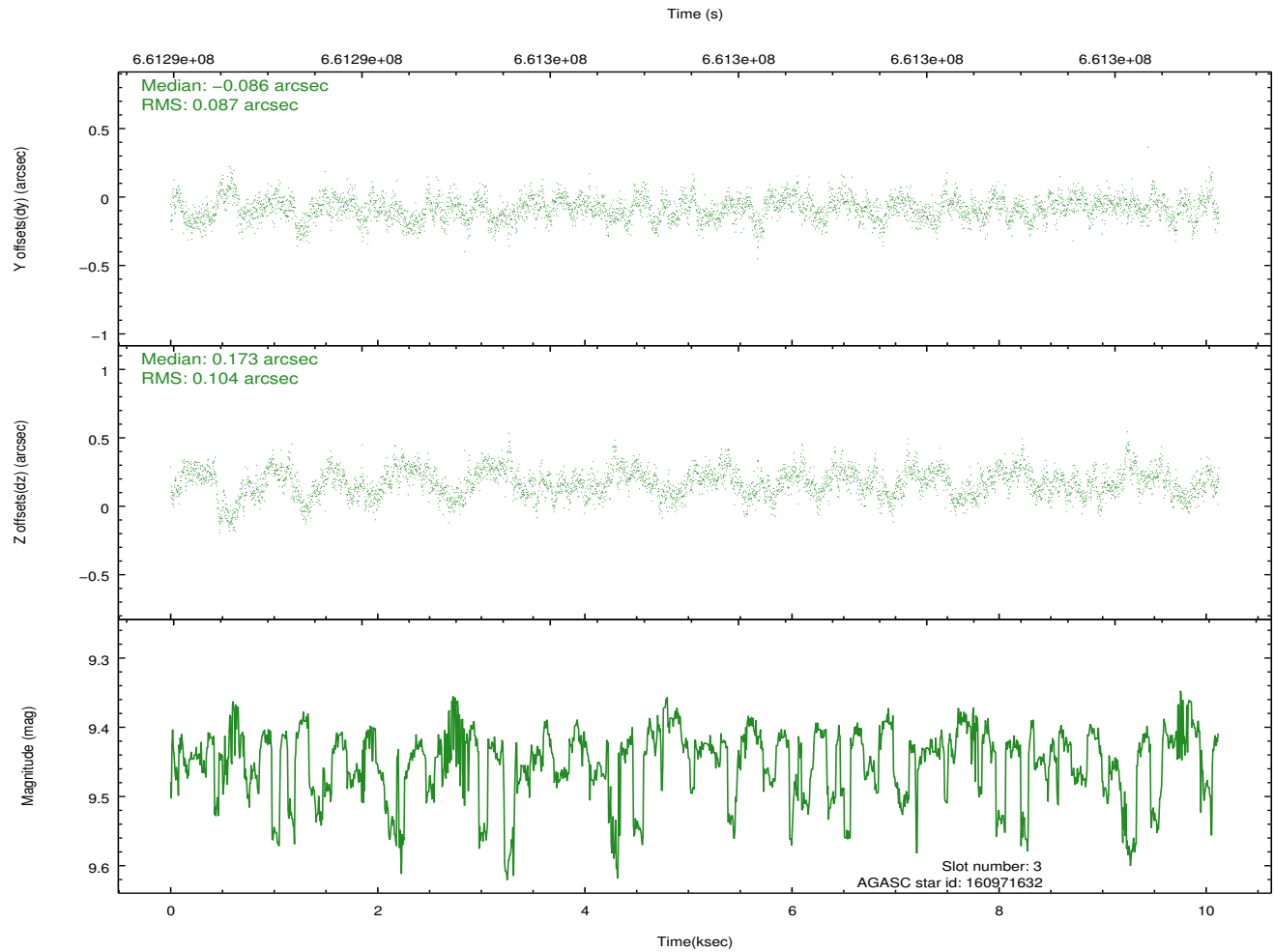
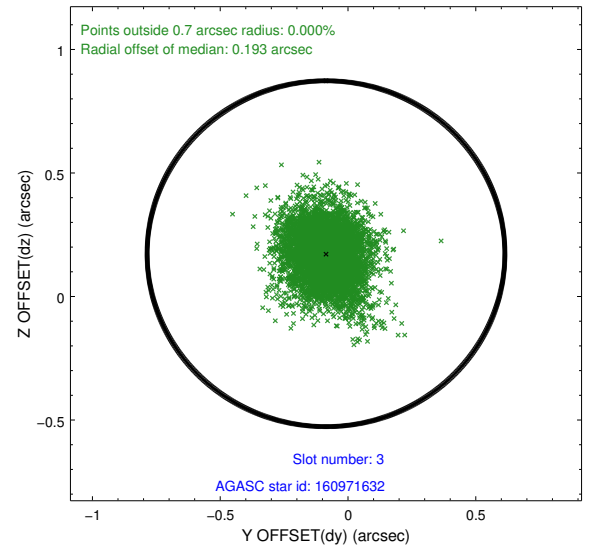
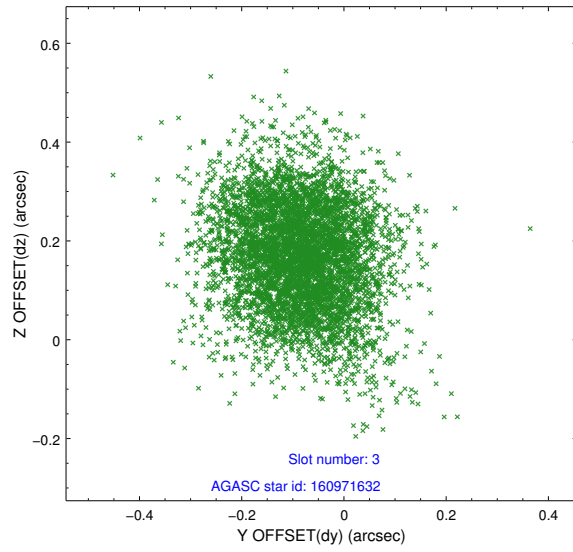


Slot Statistics

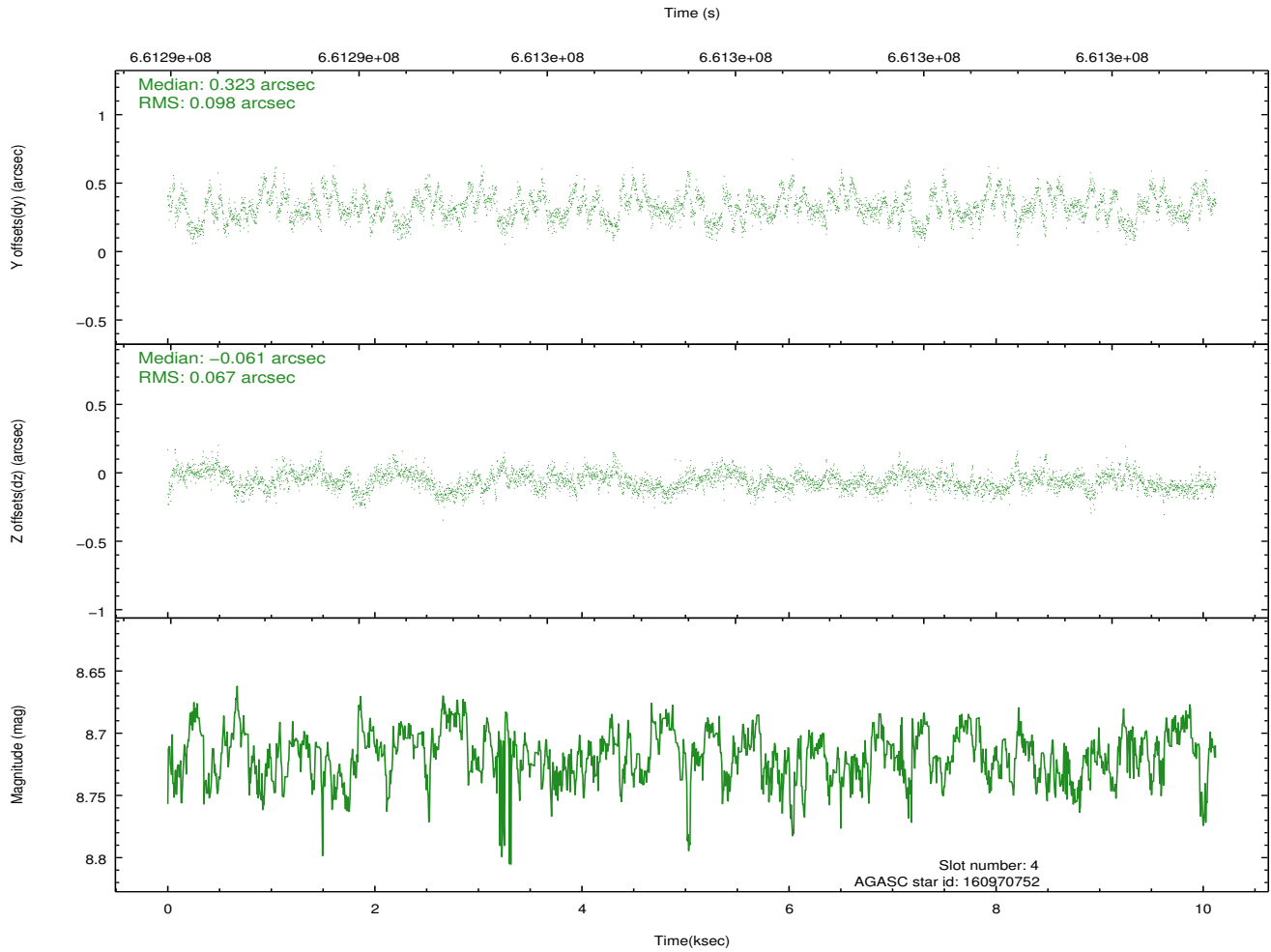
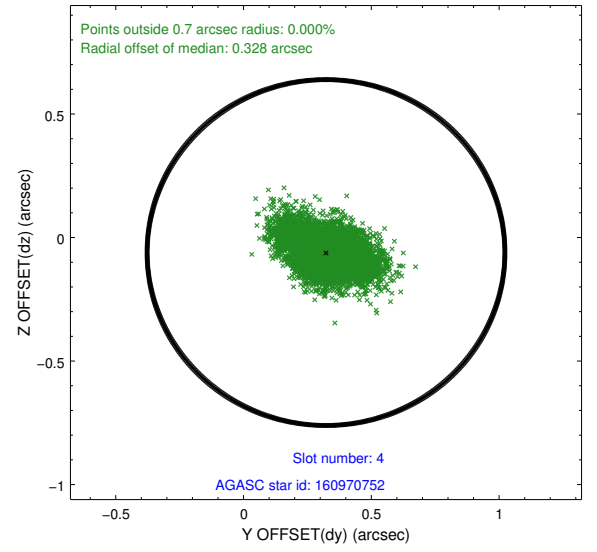
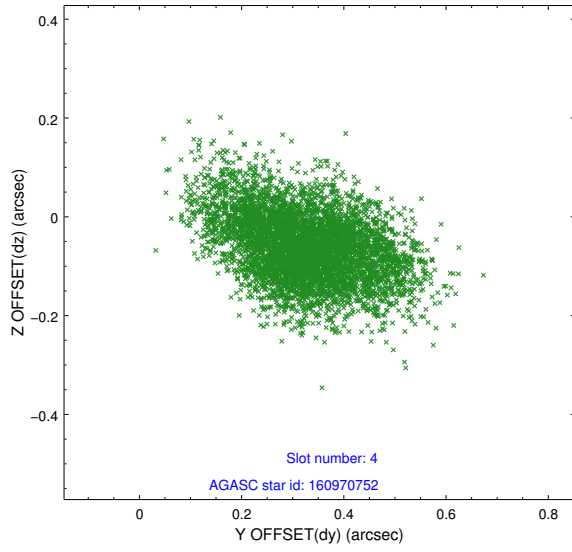
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	6.97	2469	1.000	-0.239	-0.130	0.014	0.027	0.000000	0.000000	-760.51	-1739
1	FID		ACIS-S-4	7.09	2470	1.000	0.518	0.150	0.009	0.016	0.000000	0.000000	2153.25	168
2	FID		ACIS-S-5	7.08	2469	1.000	-0.310	-0.011	0.013	0.024	0.000000	0.000000	-1812.79	162
3	GUIDE	used	160971632	9.44	4931	1.000	-0.086	0.173	0.142	0.236	46.728780	18.585125	1181.72	-33
4	GUIDE	used	160970752	8.72	4933	1.000	0.323	-0.061	0.125	0.211	46.447391	18.179789	2387.40	-1299
5	GUIDE	used	160961808	8.95	4935	1.000	-0.130	-0.148	0.129	0.214	47.007368	18.296563	2406.16	658
6	GUIDE	used	160960896	9.26	4934	1.000	-0.289	-0.238	0.173	0.271	47.061243	18.753698	844.26	1207
7	GUIDE	used	160968560	9.53	4934	1.000	0.180	0.275	0.181	0.286	46.032533	19.406042	-2233.54	-1672

## 2.4 Star Slots

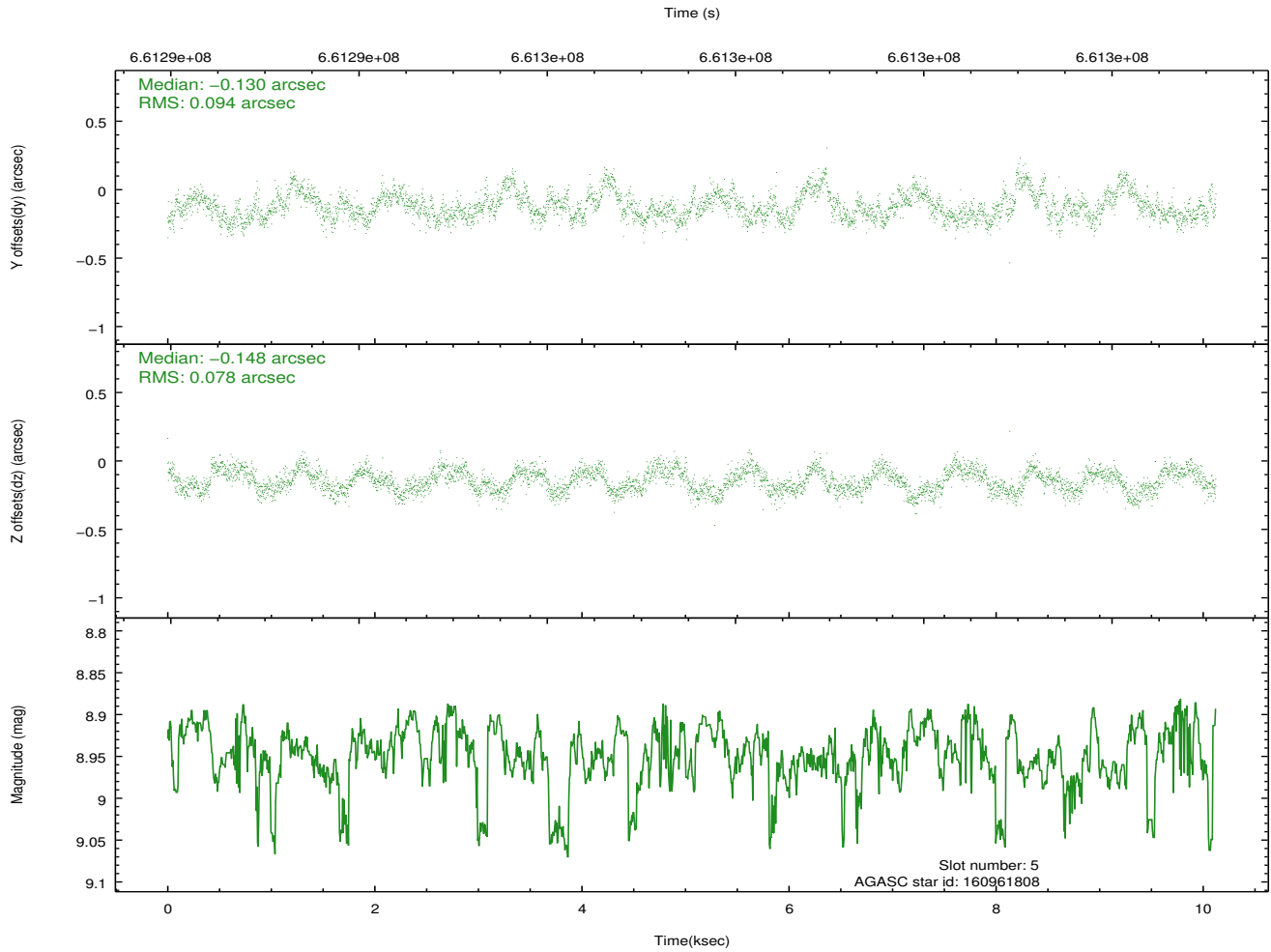
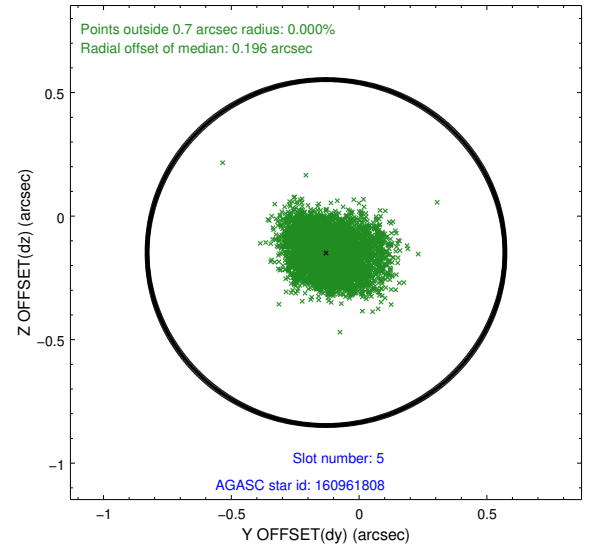
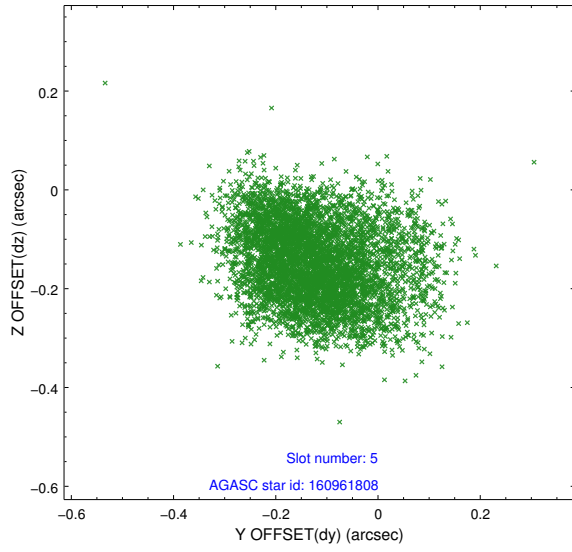
### 2.4.1 Slot 3



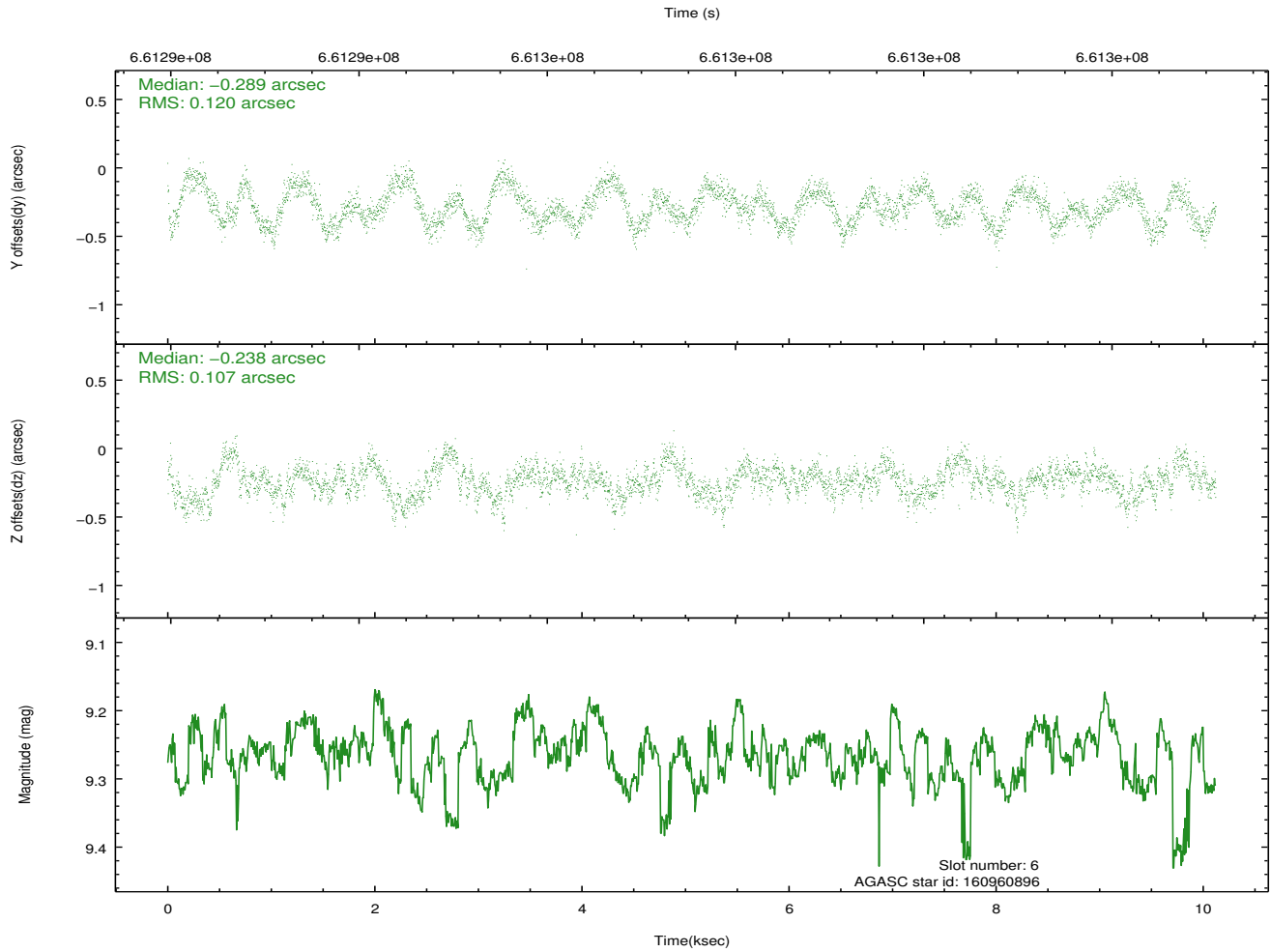
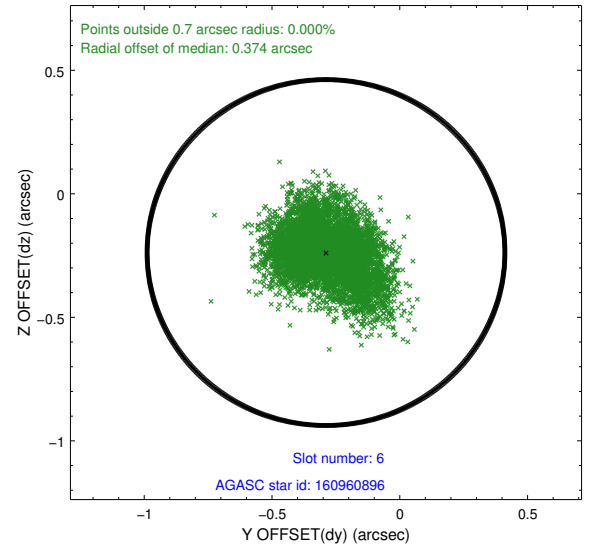
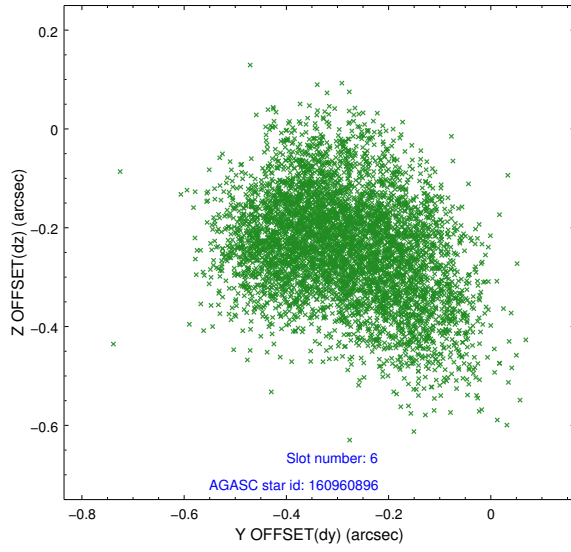
## 2.4.2 Slot 4



### 2.4.3 Slot 5

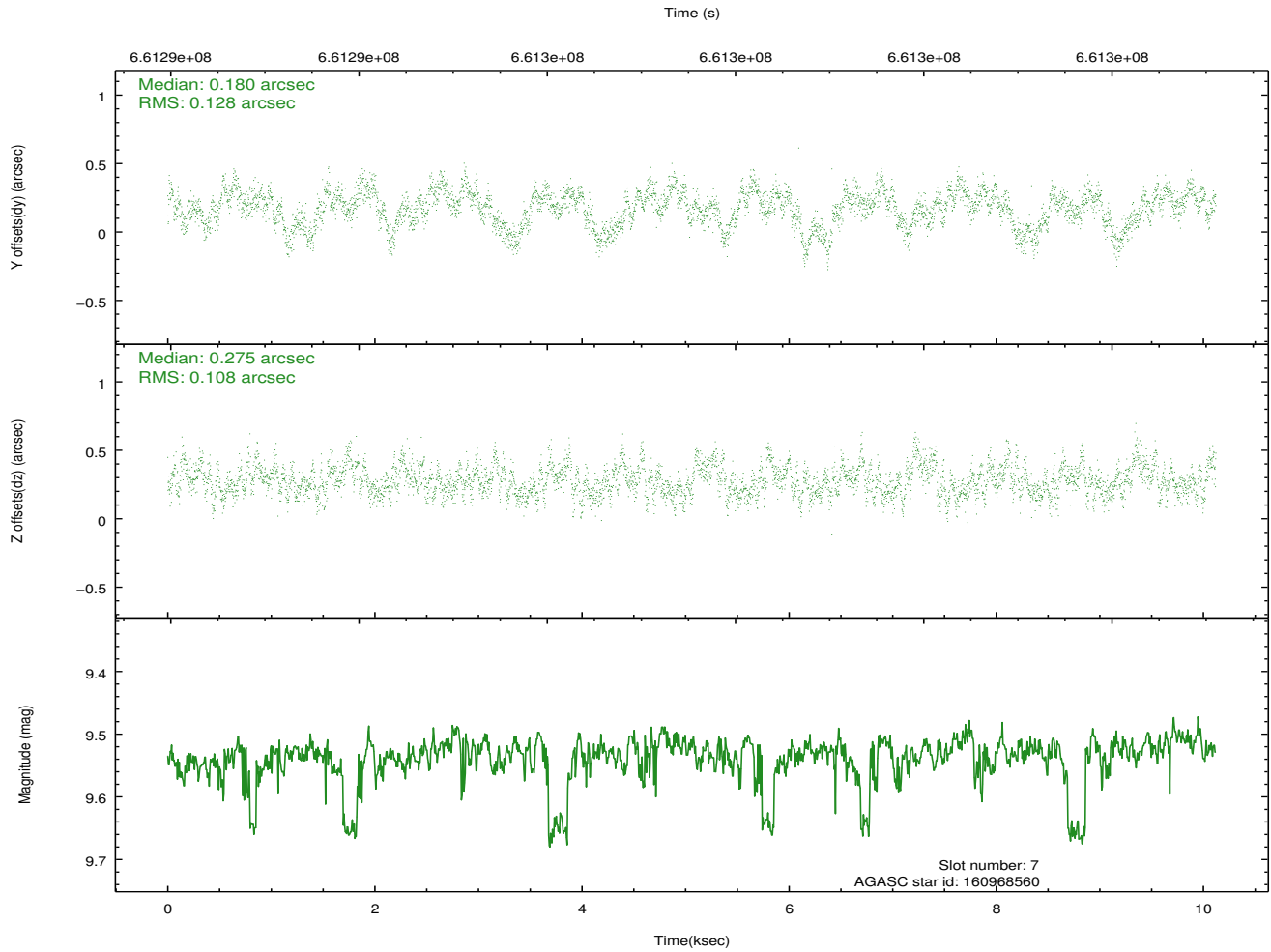
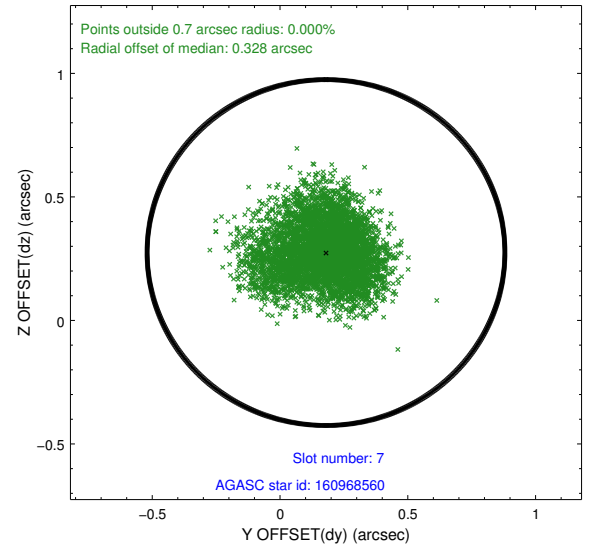
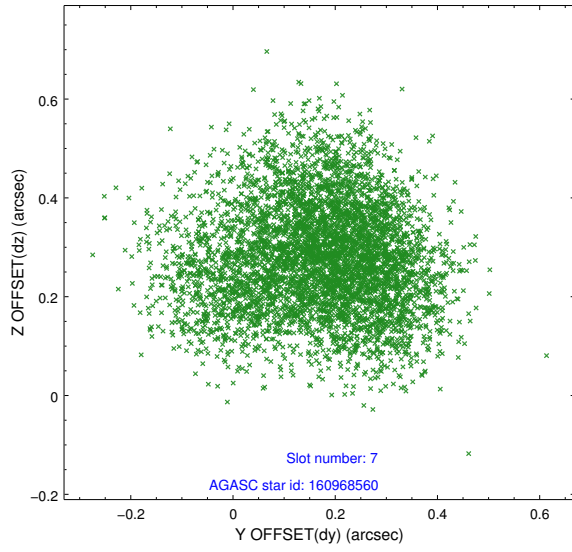


## 2.4.4 Slot 6



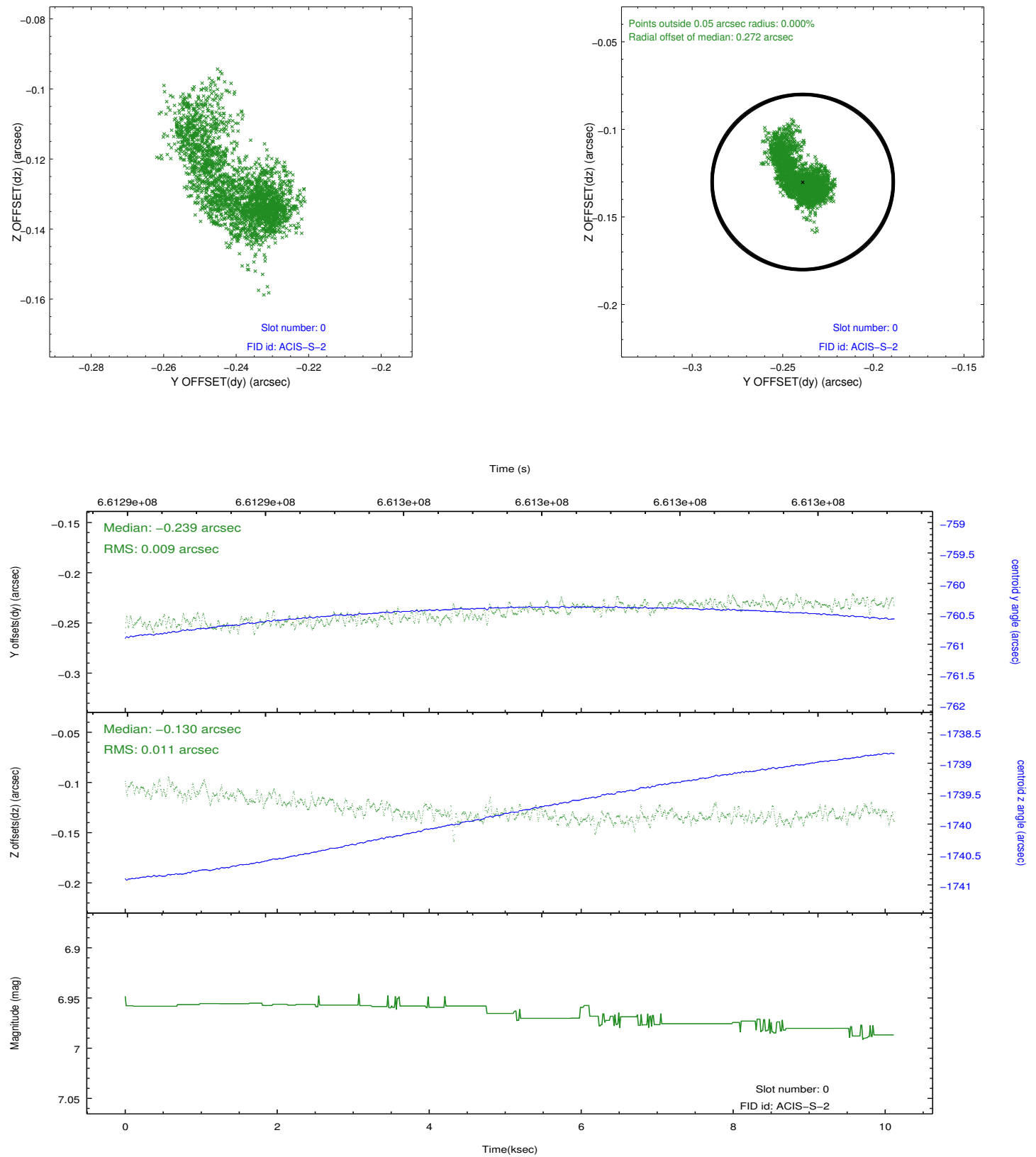


## 2.4.5 Slot 7

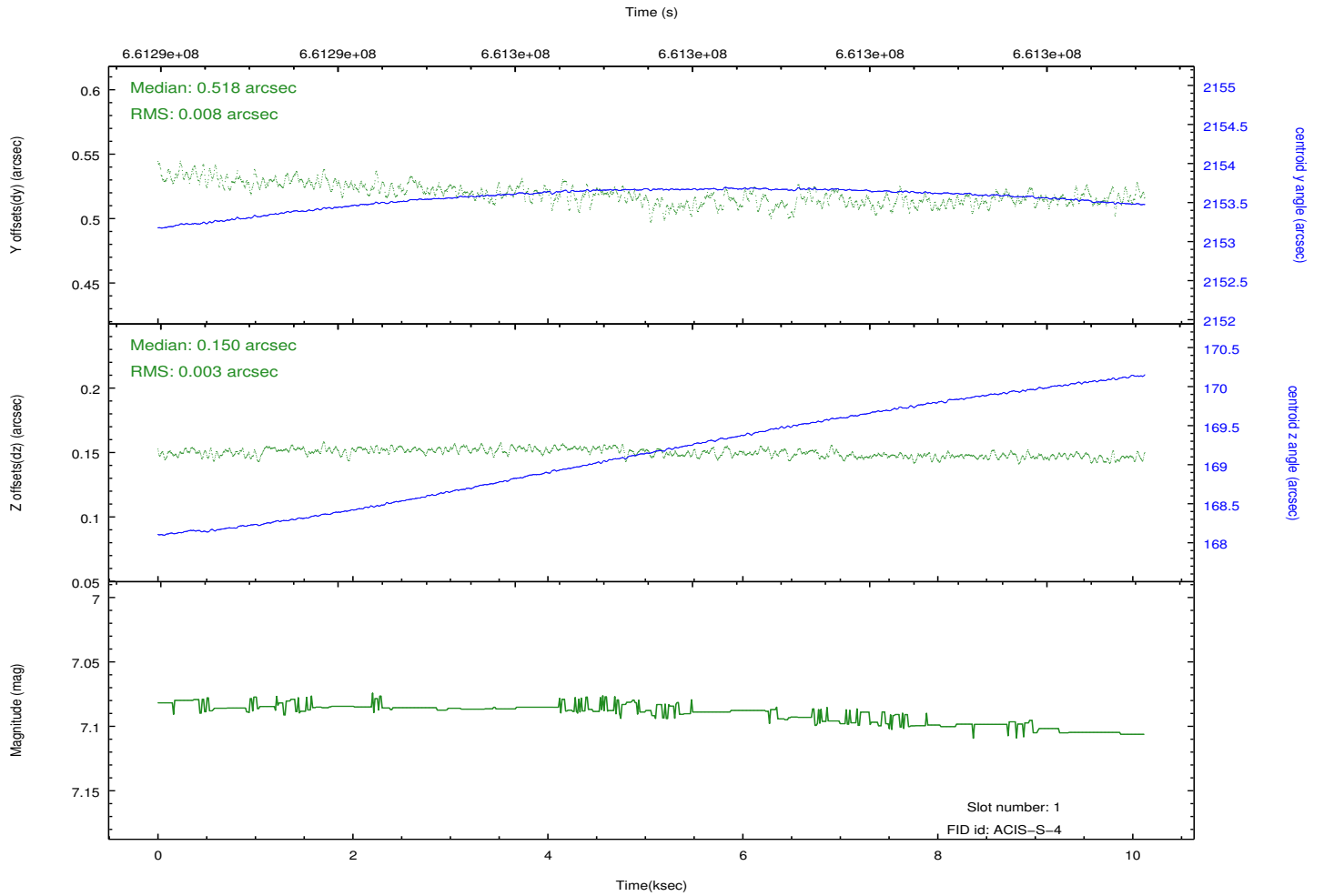
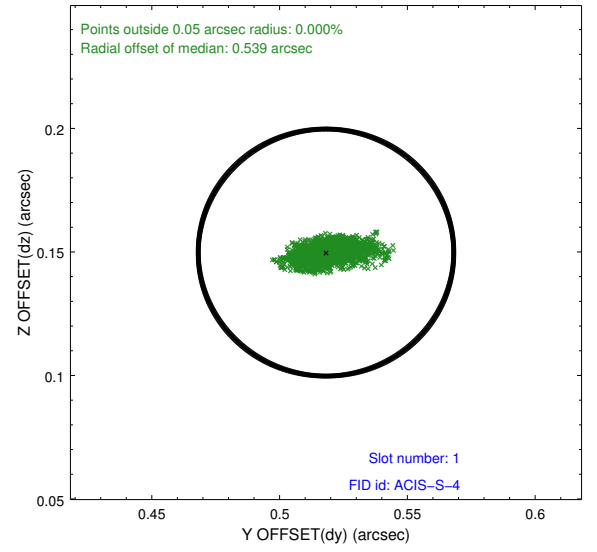
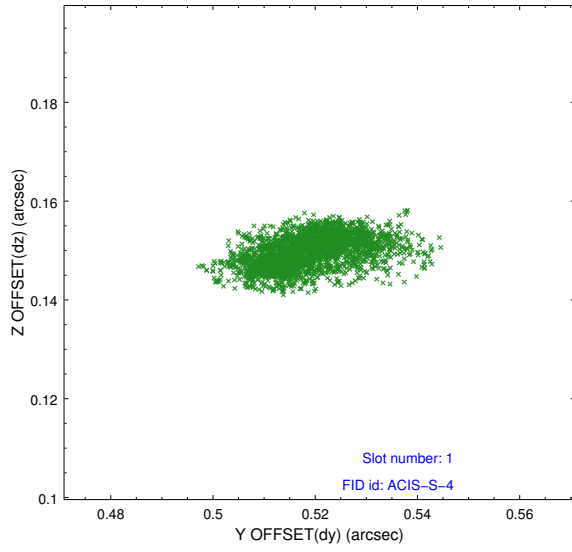


## 2.5 FID Slots

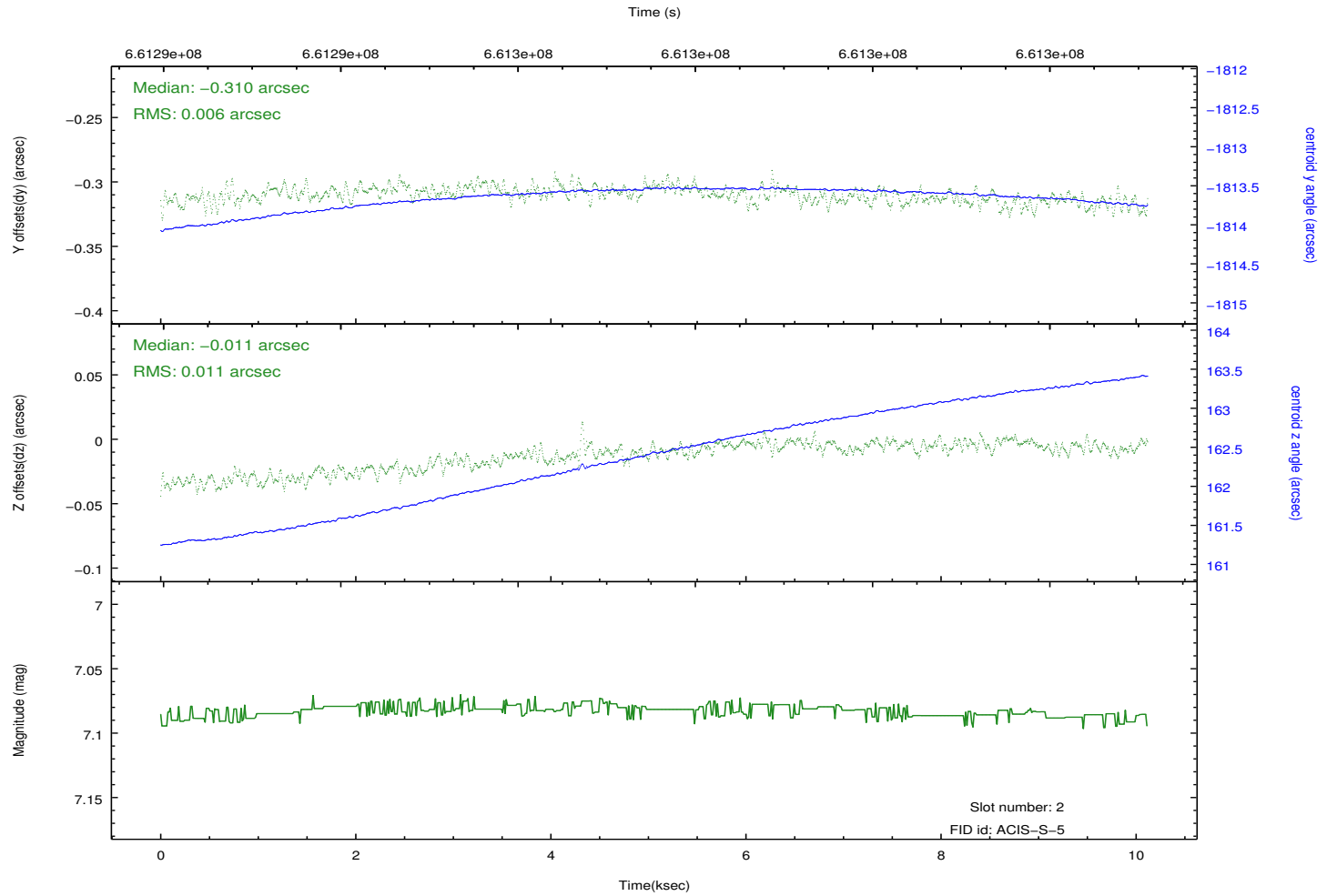
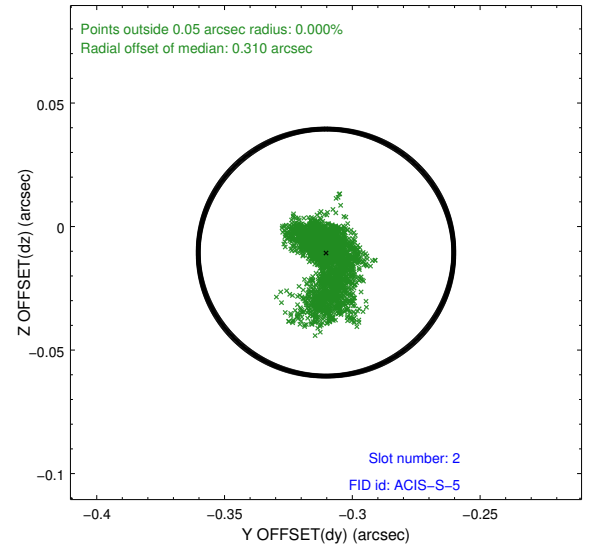
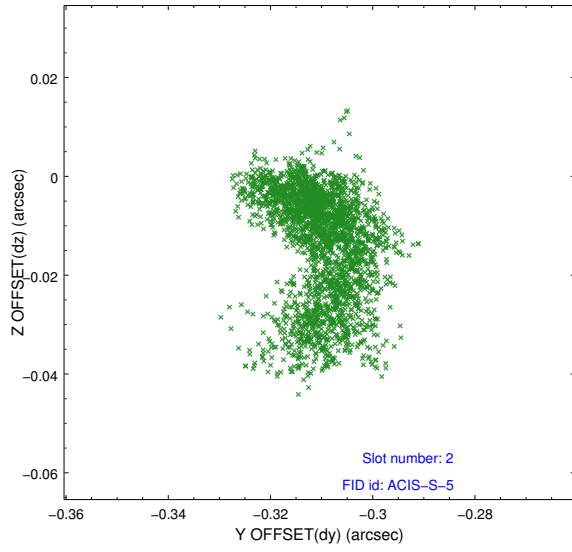
### 2.5.1 Slot 0



## 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)	2018.12.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.065700077534

## A.2 Comments

A spatial region of the original bias map for CCD = 3 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 3 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords: (46.48697,18.95965), (46.48276,18.95872), (46.51043,18.84738), (46.51464,18.84830).