

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 13929 - L2 Version 2  
Chandra X-Ray Center

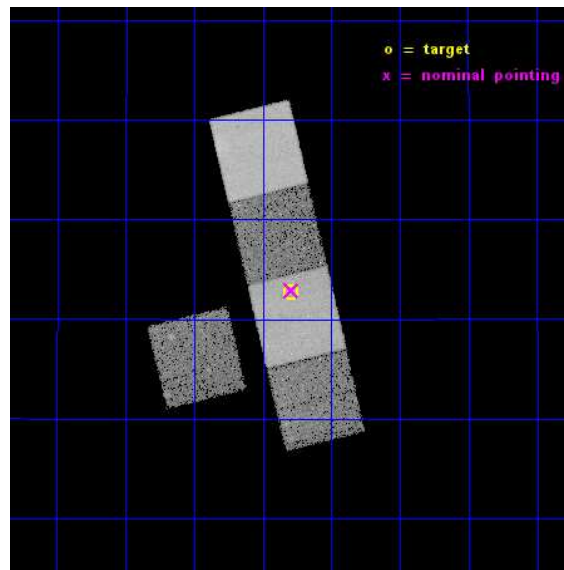
L2 Processing Date : Nov 30 2014

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# 1 Front

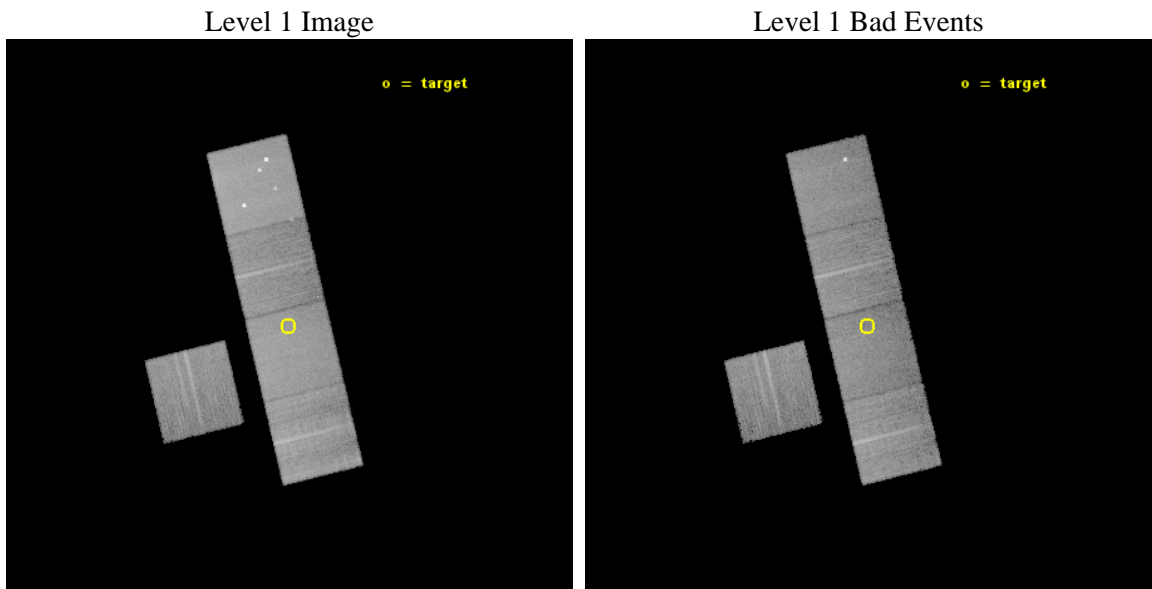
seq_num	702653	Sequence number
obs_id	13929	Observation id
title	Probing the Early Evolution of Galaxies and Massive Black Holes With Nearby Star-Forming Dwarfs	Proposal title
observer	Dr. Amy Reines	Principal investigator
object	Mrk 709	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	147.325	Observer's specified target RA [deg]
dec_targ	16.879444	Observer's specified target Dec [deg]
ra_nom	147.32280218073	Nominal RA [deg]
dec_nom	16.88160319859	Nominal Dec [deg]
roll_nom	76.418035823207	Nominal Roll [deg]
revision	2	Processing version of data
ontime	21064.325119019	Sum of GTIs [s]
livetime	20789.104204008	Livetime [s]
ontime3	21064.201999009	Sum of GTIs [s]
ontime5	21064.284079015	Sum of GTIs [s]
ontime6	21064.243039012	Sum of GTIs [s]
ontime7	21064.325119019	Sum of GTIs [s]
ontime8	21057.878888309	Sum of GTIs [s]
l2events	192683	Number of level 2 events



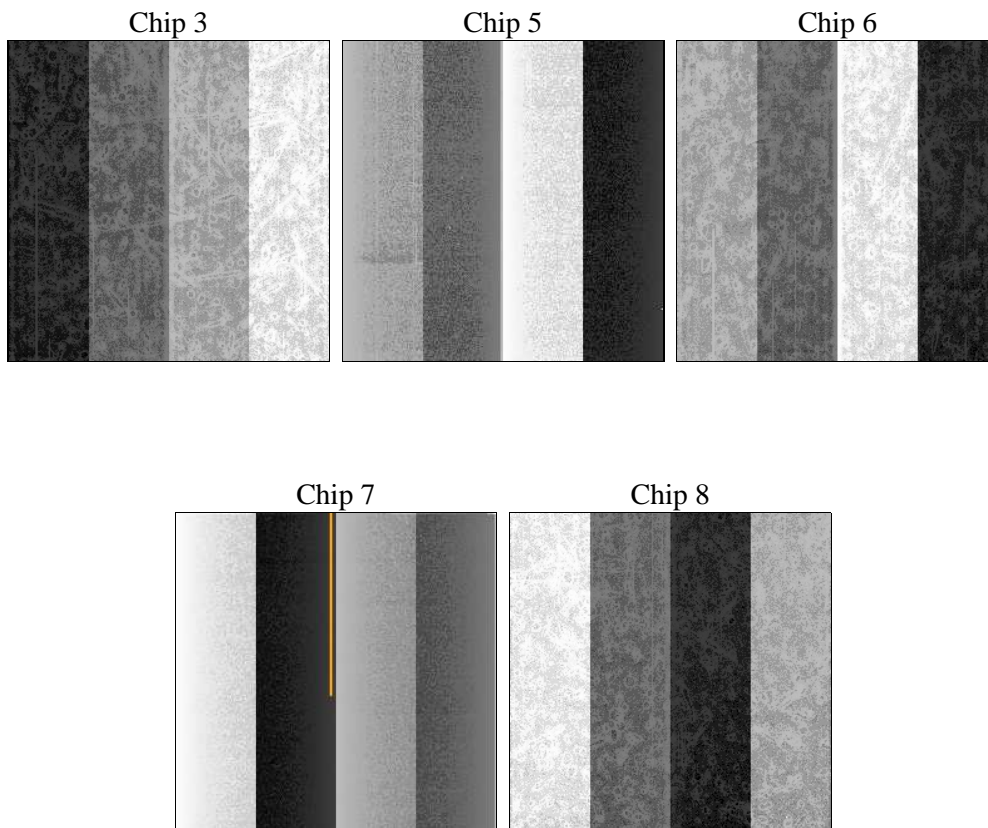
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	21000.000000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	21064.325119019	Sum of GTIs [s]
caldbver	4.6.4	&#160	ontime3	21064.201999009	Sum of GTIs [s]
date	2014-12-01T02:05:25	Date and time of file creation	ontime5	21064.284079015	Sum of GTIs [s]
revision	2	Processing version of data	ontime6	21064.243039012	Sum of GTIs [s]
			ontime7	21064.325119019	Sum of GTIs [s]
			ontime8	21057.878888309	Sum of GTIs [s]
			l1events	739887	Number of level 1 events

### 2.1.4 Events

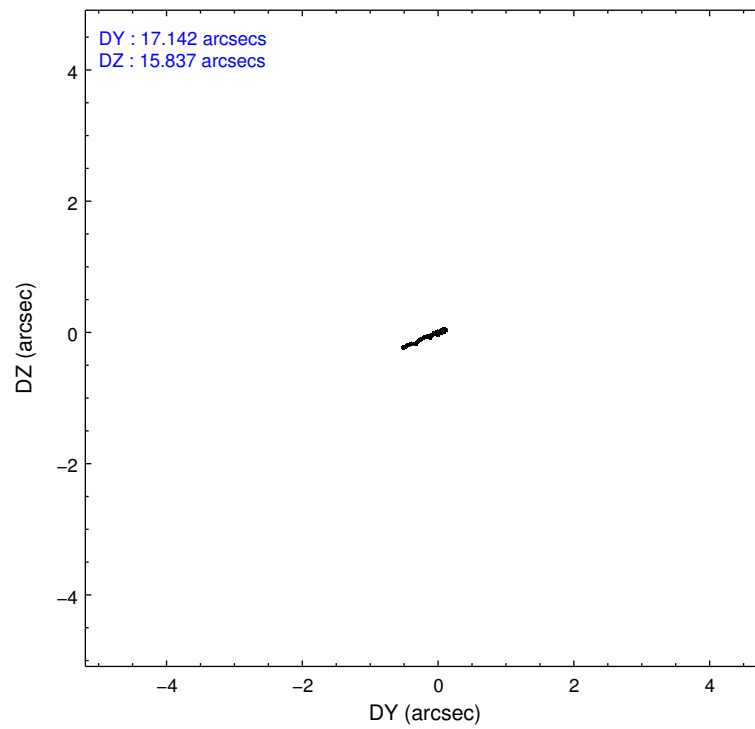
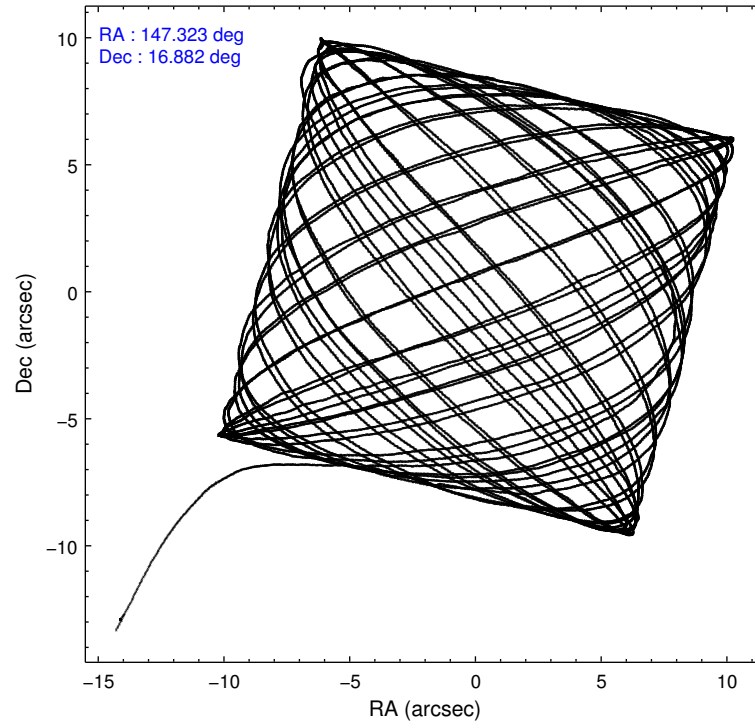
	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	109107	204129	116067	156588	153996
rejected events	96294	101587	101524	88365	113704
rejected %	88%	49%	87%	56%	73%

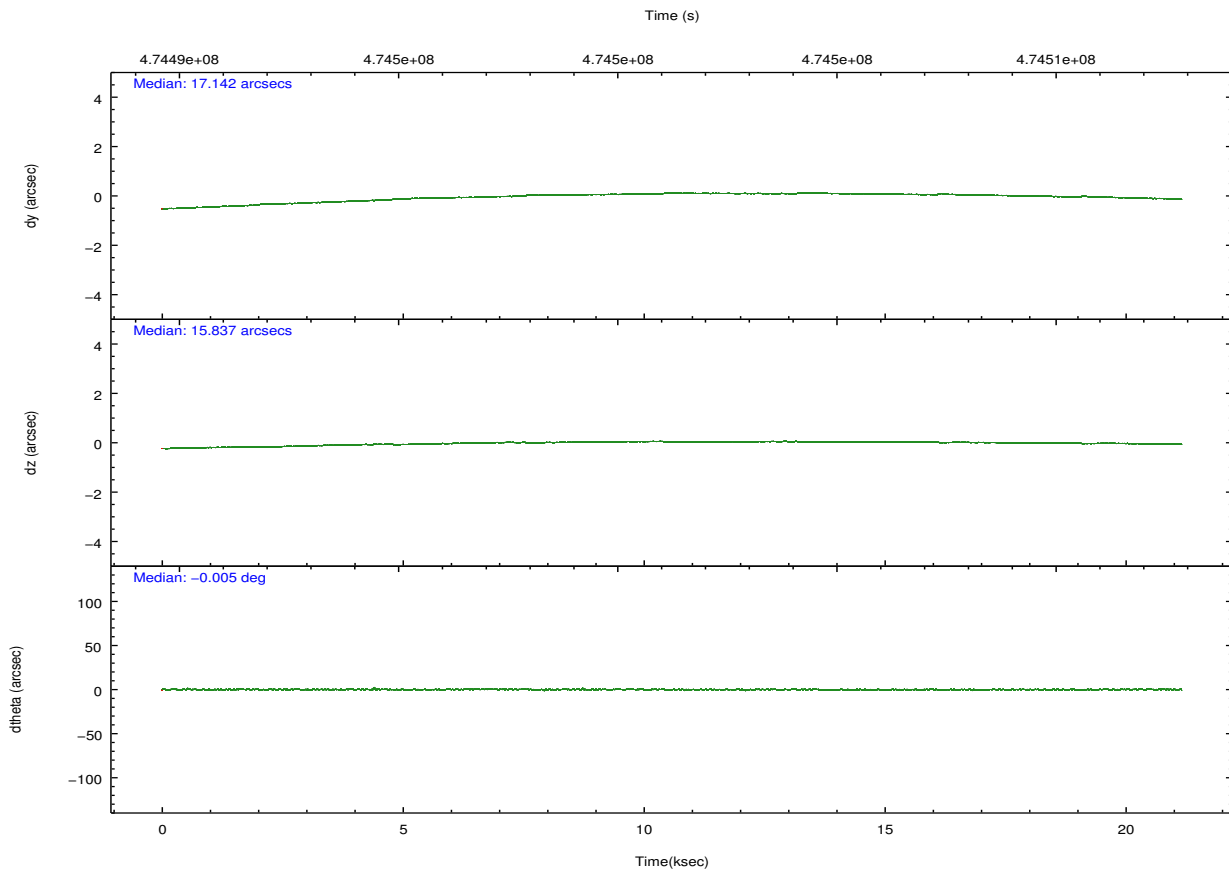
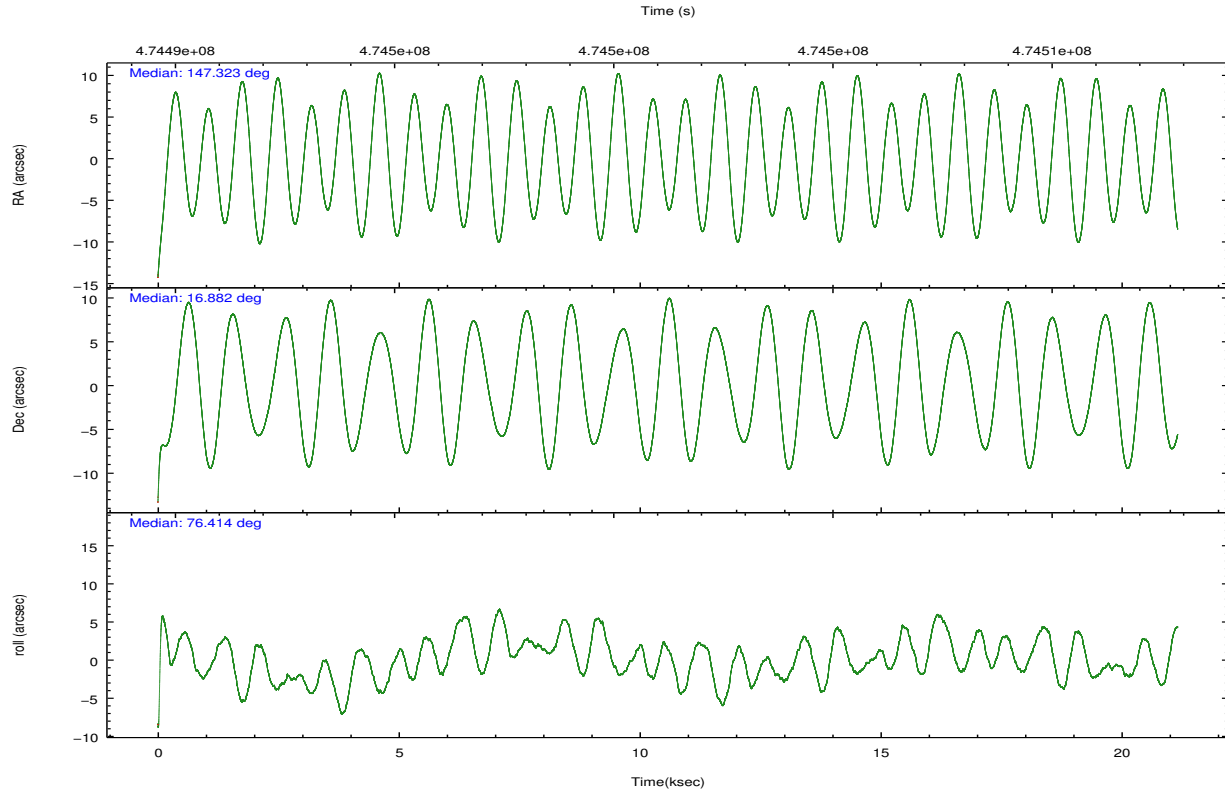
	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	4542	16228	5155	5951	10998
	4%	7%	4%	3%	7%
grade 1 events	73	355	59	169	107
	0%	0%	0%	0%	0%
grade 2 events	2848	30039	3255	14132	9854
	2%	14%	2%	9%	6%
grade 3 events	1418	3352	1534	5894	4207
	1%	1%	1%	3%	2%
grade 4 events	1354	3204	1393	5773	3980
	1%	1%	1%	3%	2%
grade 5 events	6007	14332	6044	16152	8516
	5%	7%	5%	10%	5%
grade 6 events	2653	49753	3217	36494	11268
	2%	24%	2%	23%	7%
grade 7 events	90212	86866	95410	72023	105066
	82%	42%	82%	45%	68%

## 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	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	147.331257	147.3228021807281	CCD I2 on	N	N
[deg] Pointing Dec	16.855501	16.88160319859045	CCD I3 on	O1	Y
[deg] Pointing Roll	76.258966	76.41803582320718	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	O4	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	O3	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)	474490809.184000	474489810.50081	CCD S5 on	N	N
Observation start date	2013-01-13T18:59:02	2013-01-13T18:43:30	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	474511809.184000	474512510.15204	On-chip summing requested	N	N
Observation end date	2013-01-14T00:49:02	2013-01-14T01:01:50	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





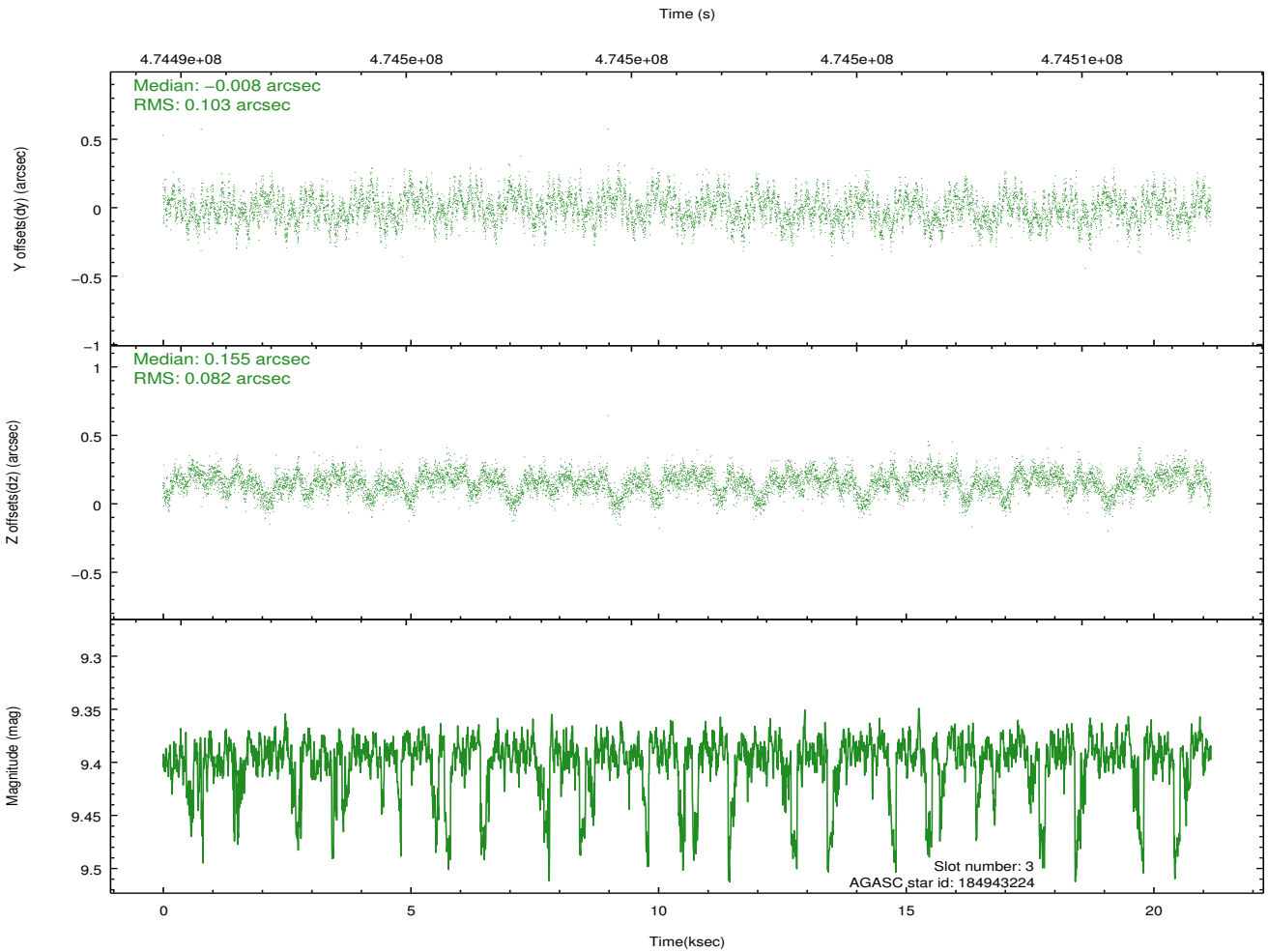
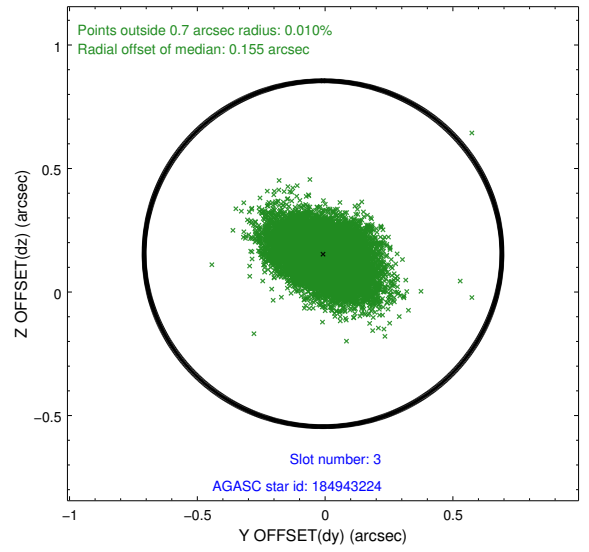
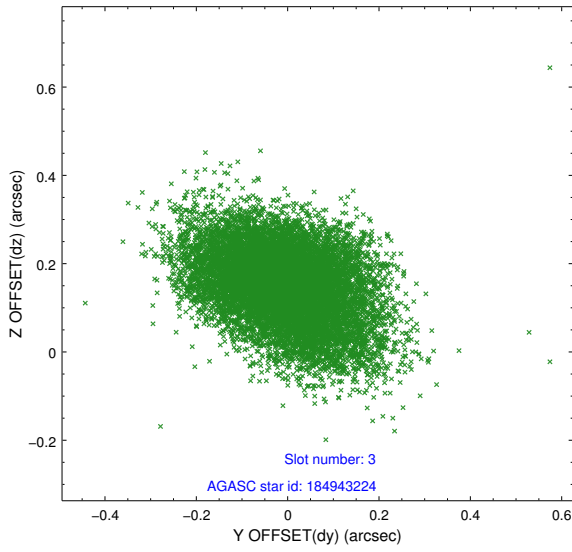
### Slot Statistics

slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.01	5162	-0.109	-0.004	0.008	0.014	0.000000	0.000000	-770.20	-1737.22
1	FID		ACIS-S-4	7.09	5162	0.231	0.054	0.007	0.013	0.000000	0.000000	2143.32	171.17
2	FID		ACIS-S-5	7.12	5162	-0.154	-0.041	0.009	0.016	0.000000	0.000000	-1822.89	164.90
3	GUIDE	used	184943224	9.39	10278	-0.008	0.155	0.139	0.232	147.948365	17.351606	2241.87	-1634.27
4	GUIDE	used	184943368	9.29	10283	-0.263	-0.298	0.141	0.259	147.131863	17.041809	489.35	826.13
5	GUIDE	used	184945576	9.25	10316	0.071	-0.286	0.123	0.189	147.062507	16.898087	-70.24	935.48
6	GUIDE	used	184946632	7.60	10320	0.106	0.261	0.076	0.120	147.807278	16.320002	-1479.48	-2054.73
7	GUIDE	used	184948112	9.16	10292	0.093	0.158	0.122	0.190	147.419365	16.370527	-1623.78	-709.64

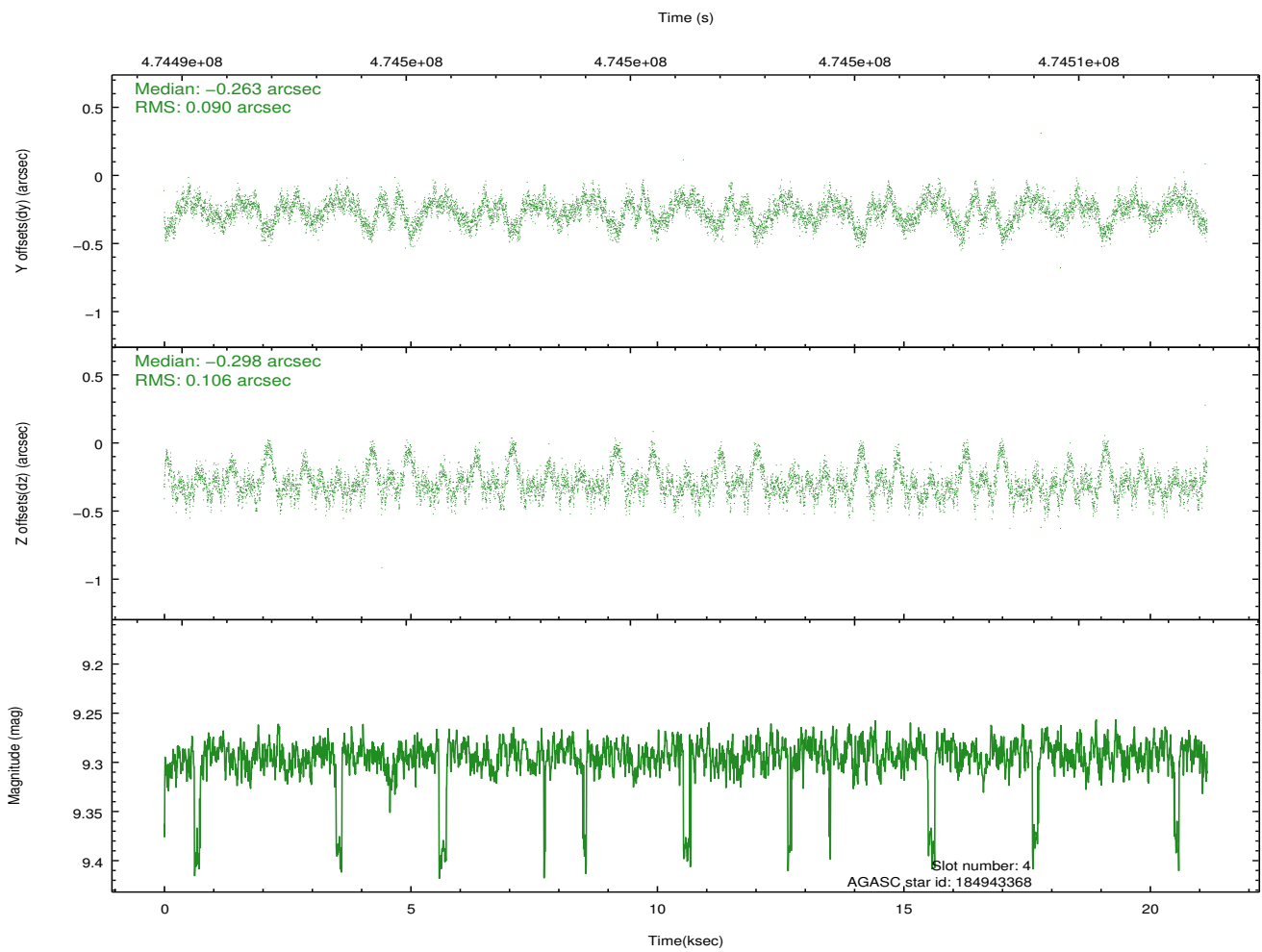
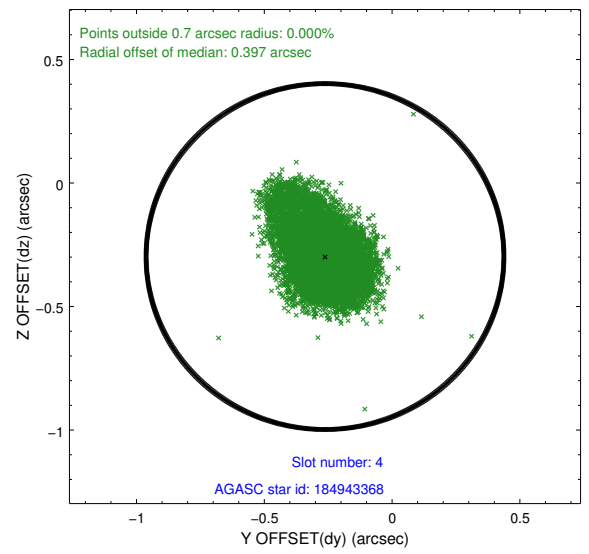
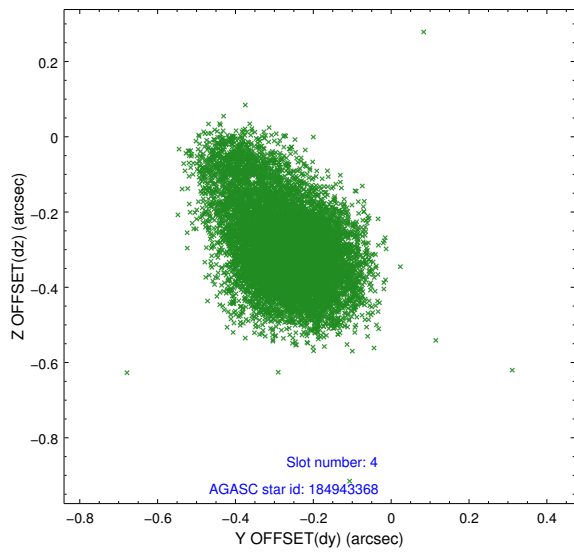
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## 2.4 Star Slots

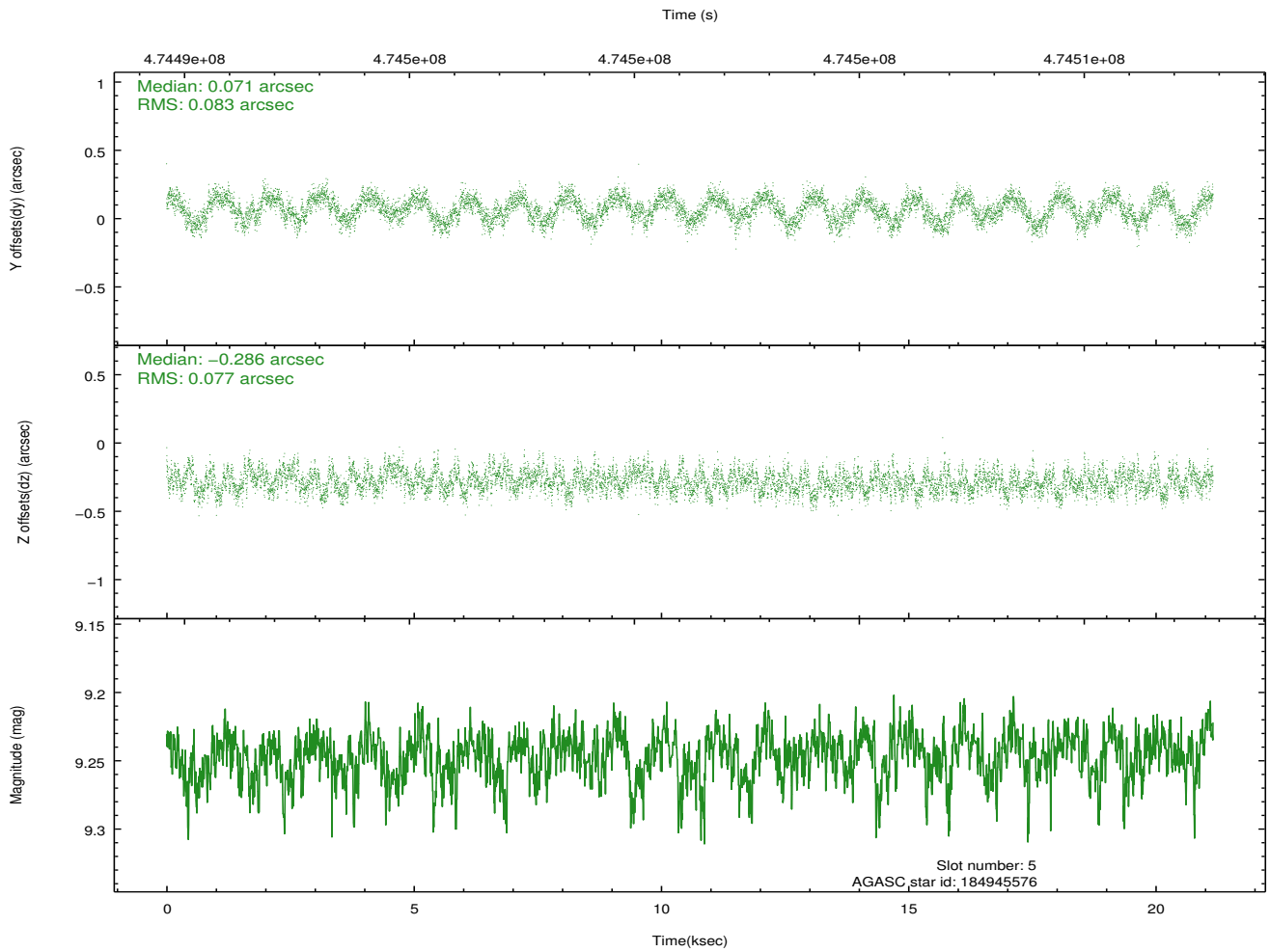
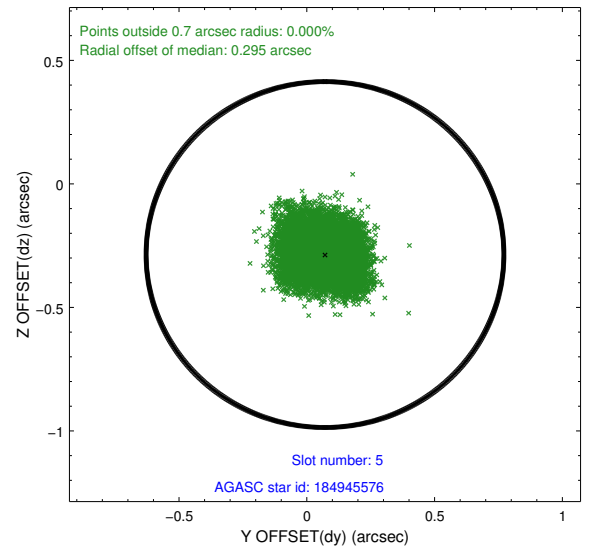
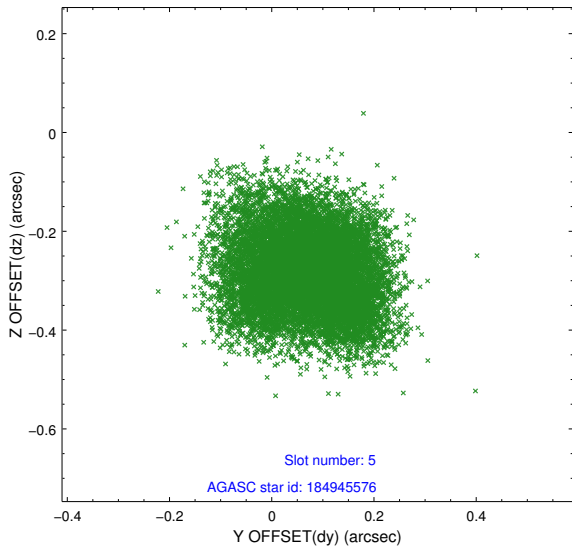
### 2.4.1 Slot 3



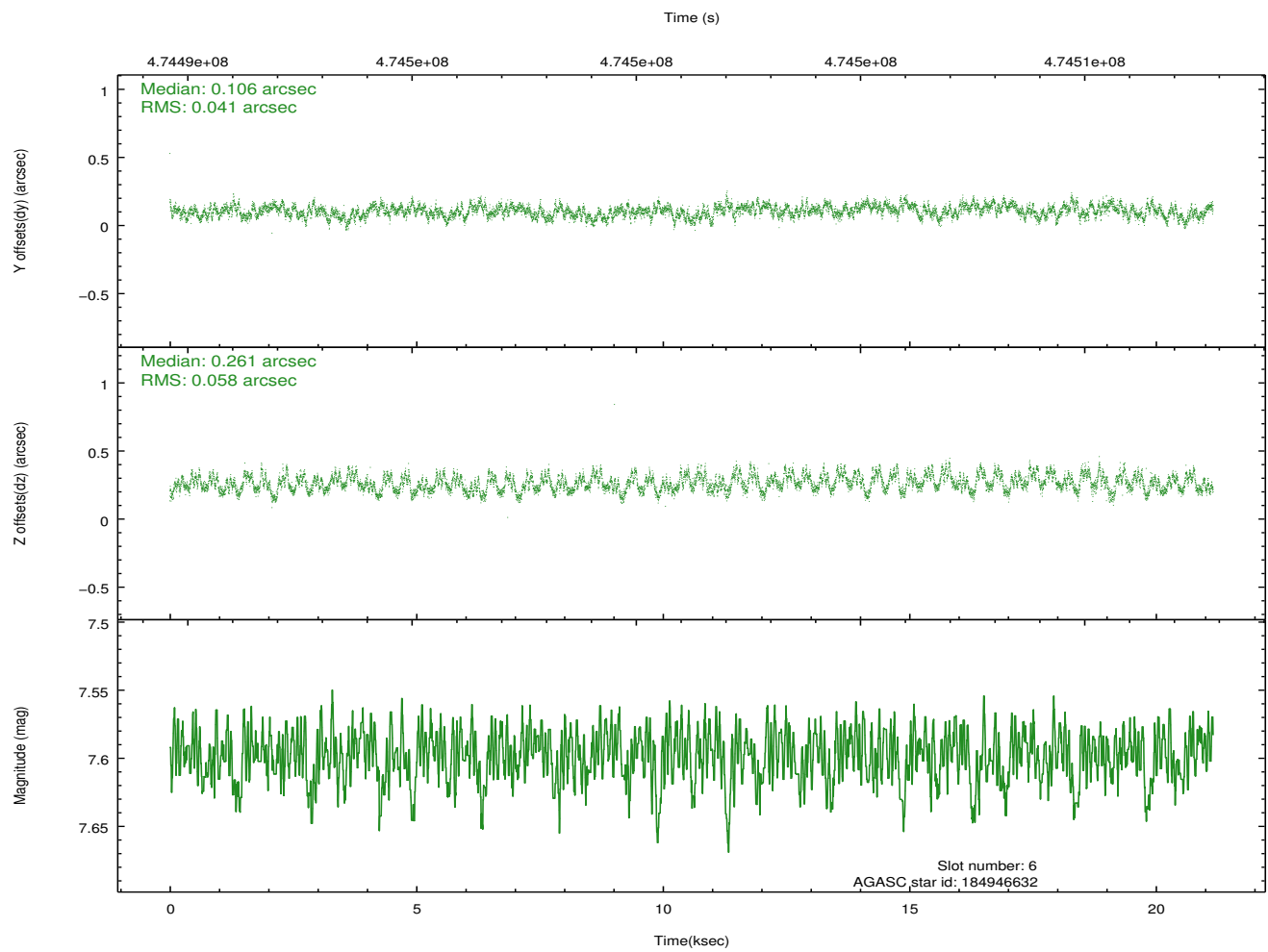
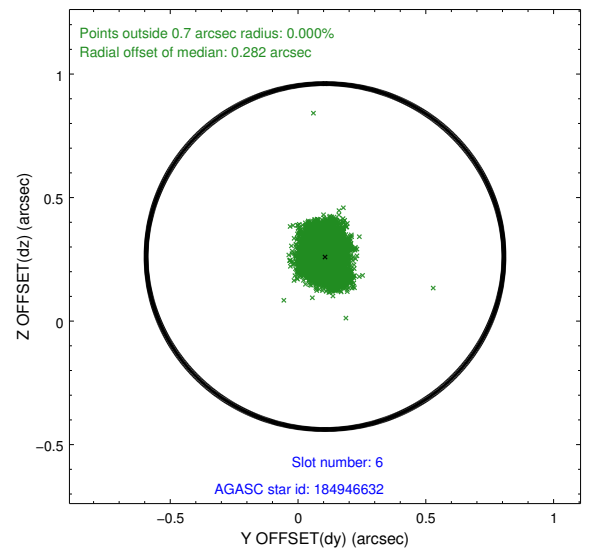
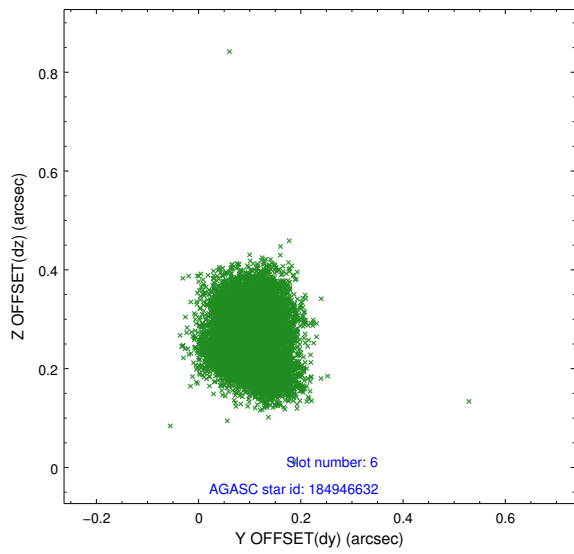
## 2.4.2 Slot 4



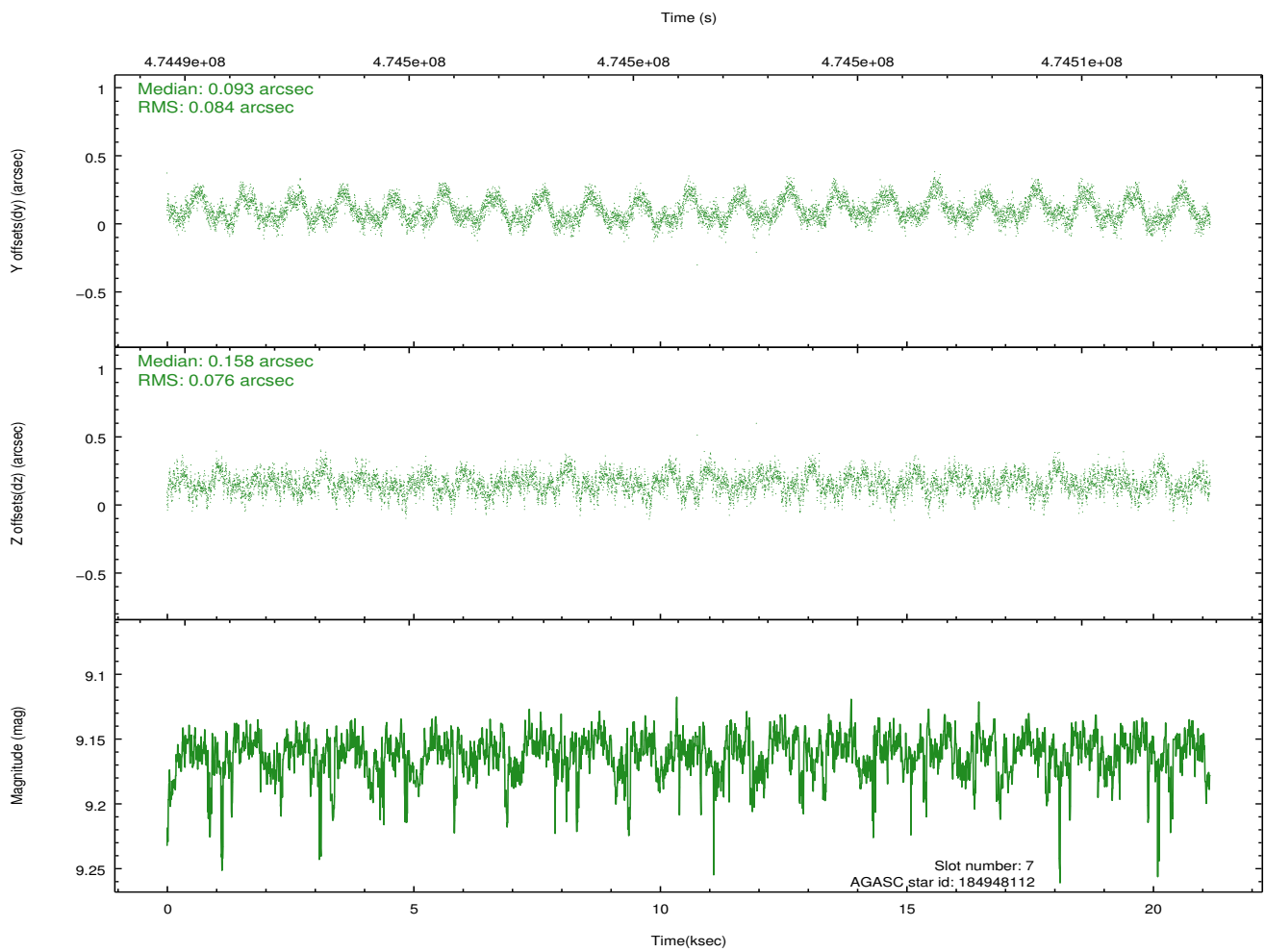
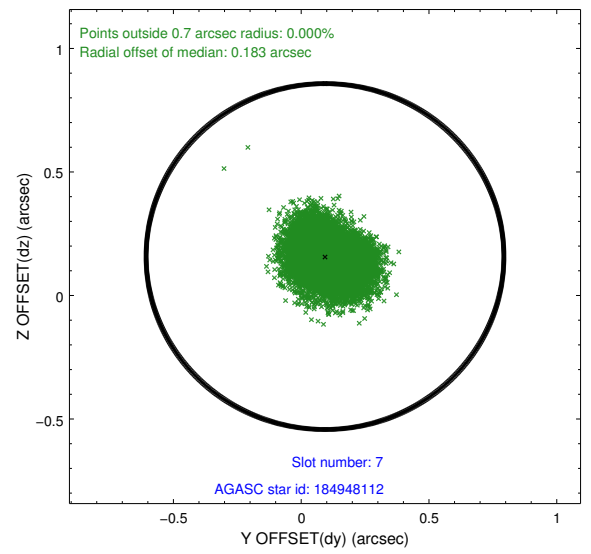
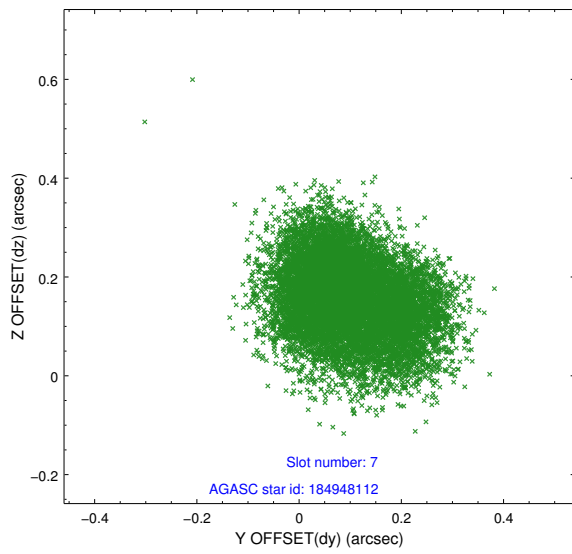
### 2.4.3 Slot 5



### 2.4.4 Slot 6

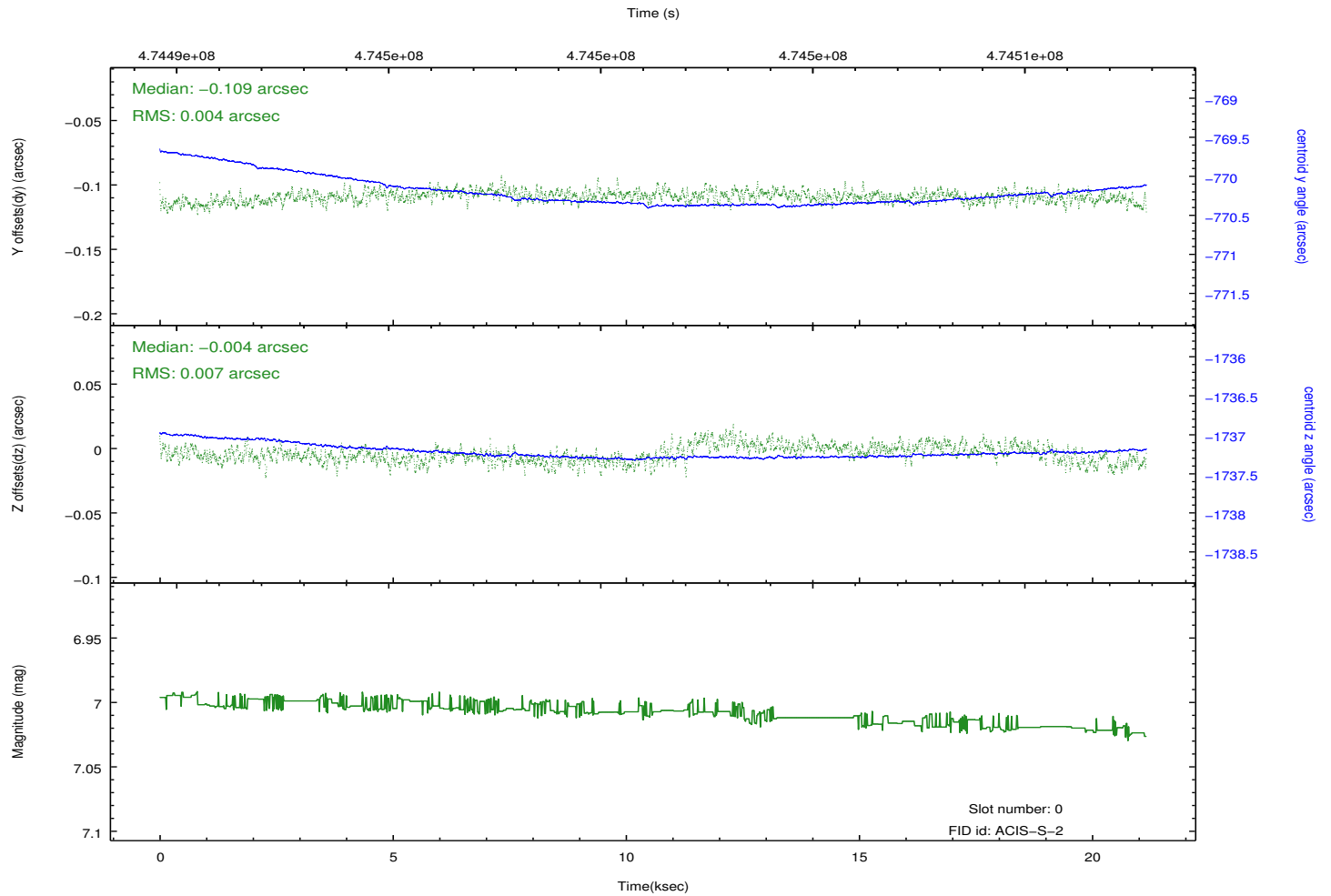
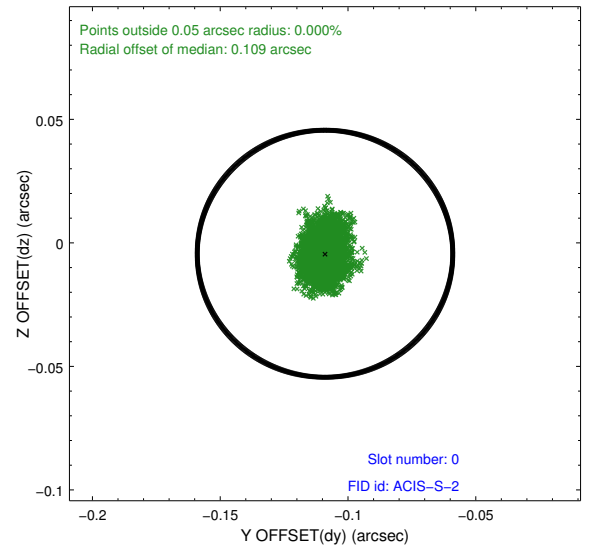
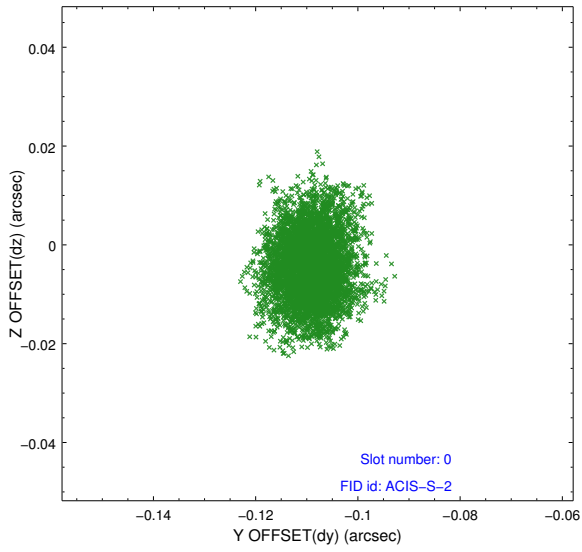


## 2.4.5 Slot 7

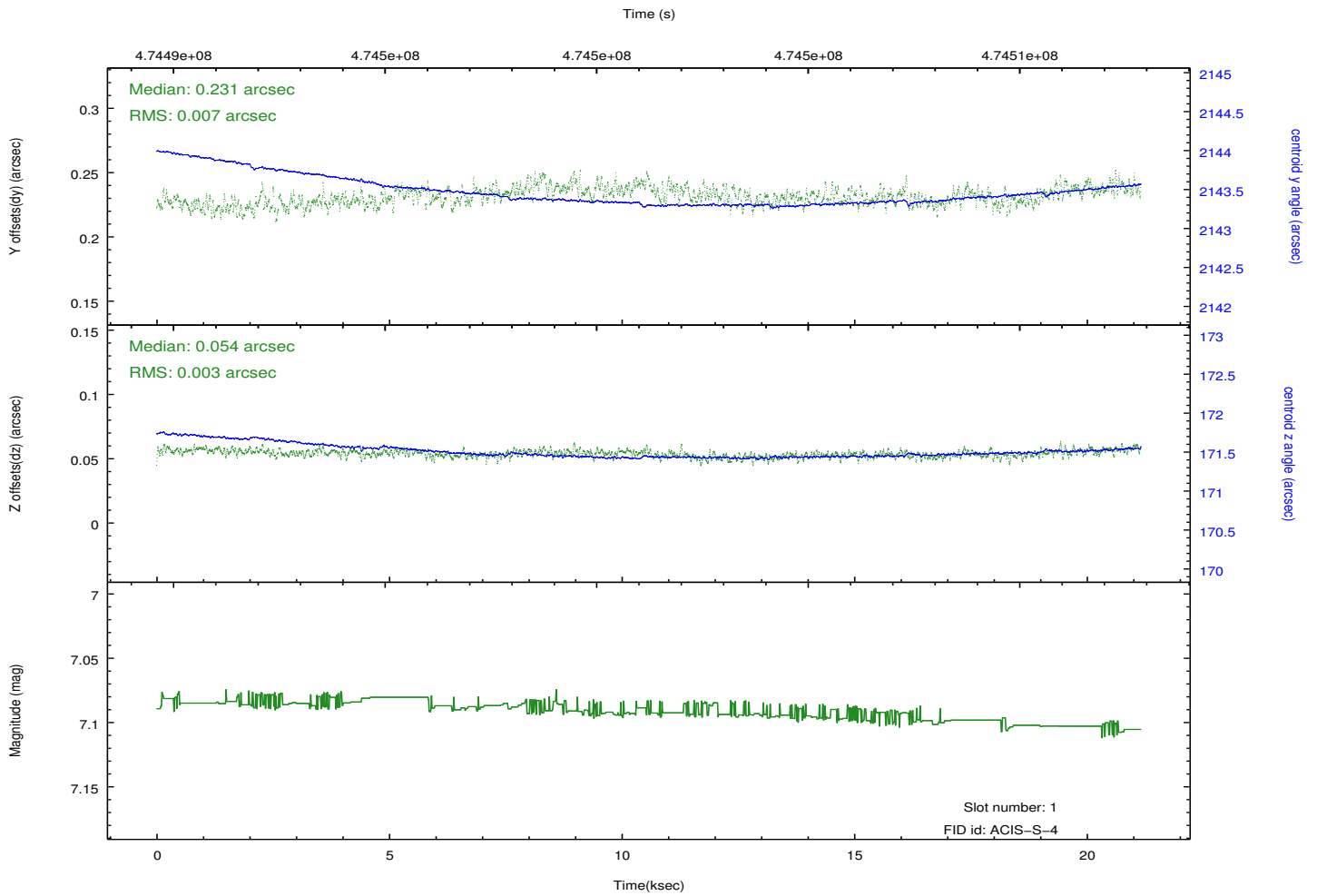
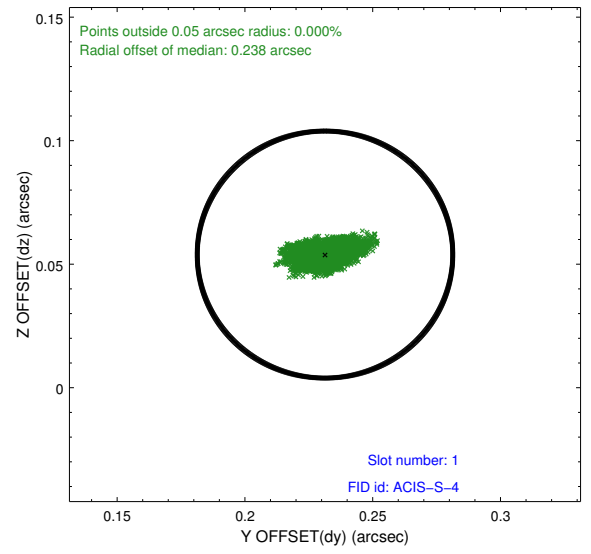
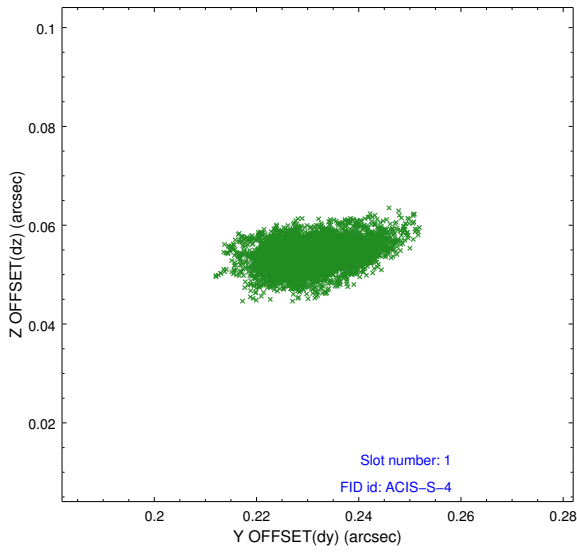


## 2.5 FID Slots

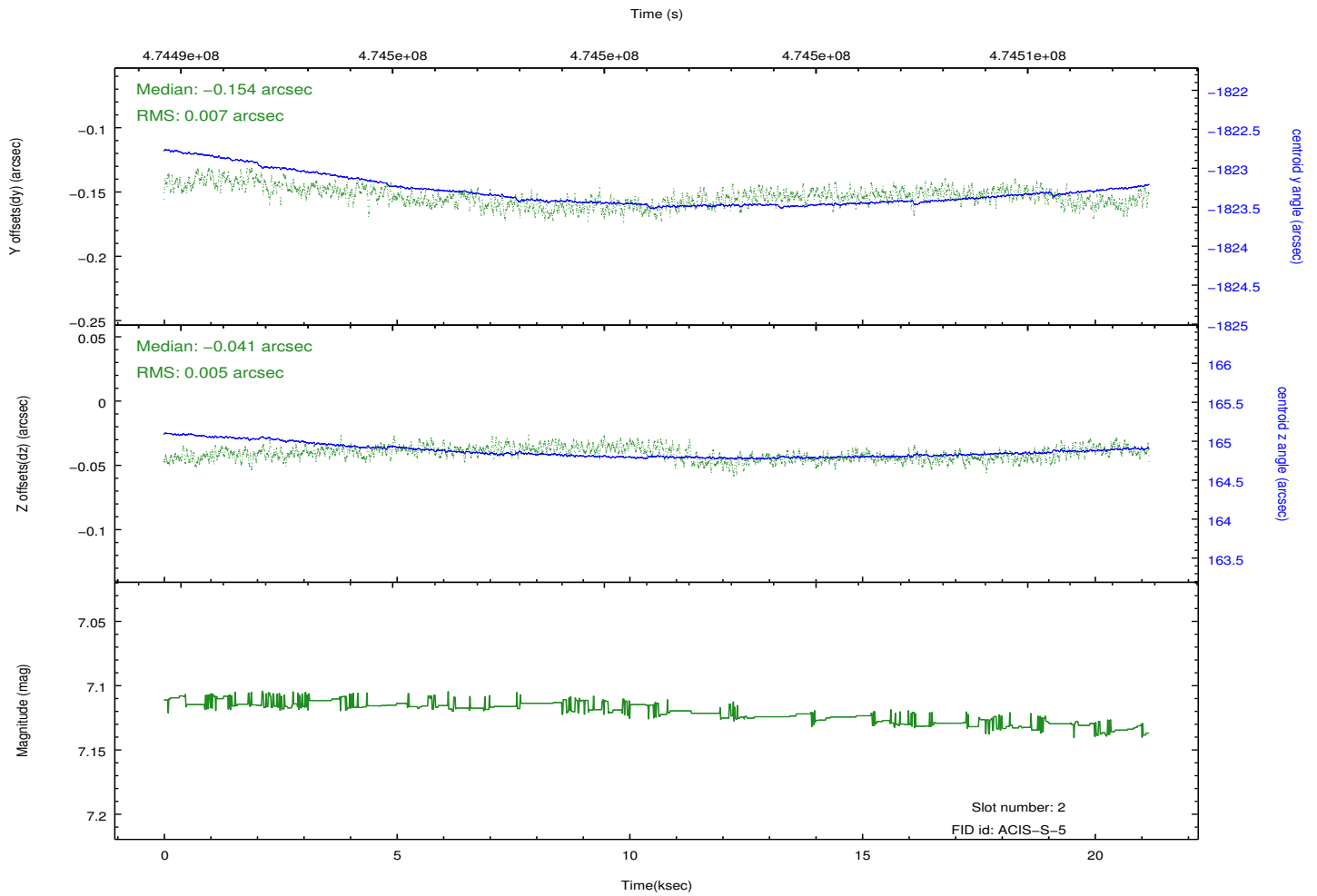
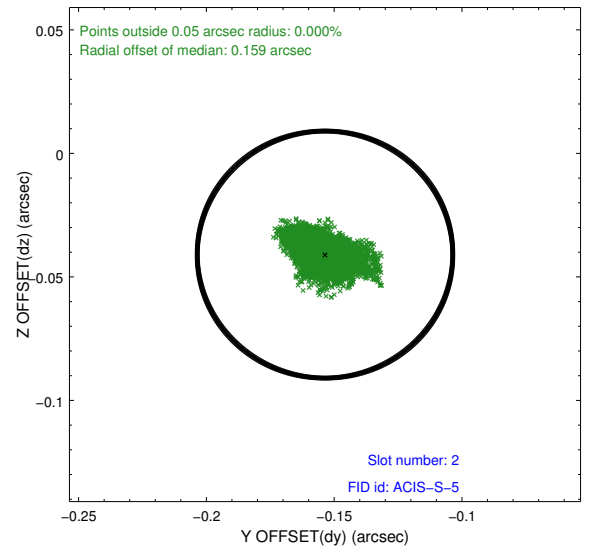
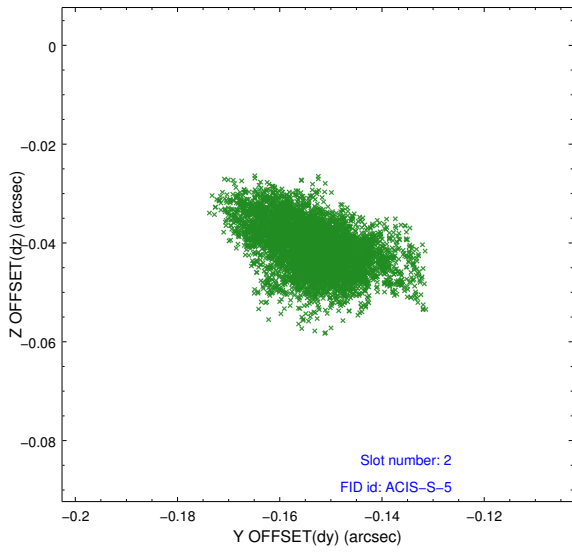
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2014.12.08
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	21.064325119019

## A.2 Comments

Joint proposal with NRAO.

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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.