

# V&V Reference Report

## L2 ASCDS Version : 8.5.1.1

Observation 15070 - L2 Version 3  
Chandra X-Ray Center

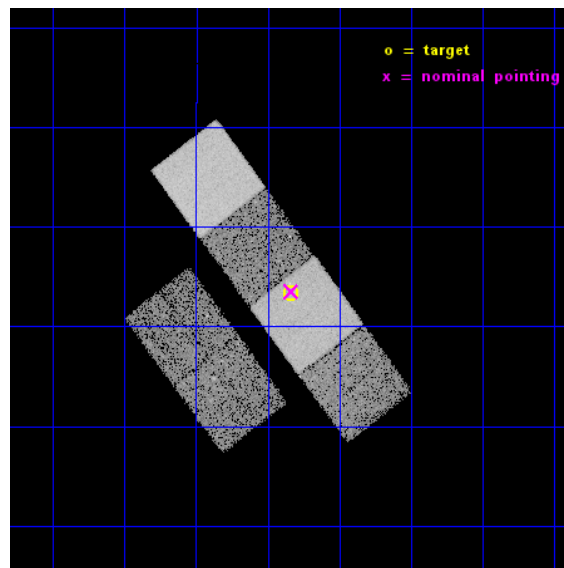
L2 Processing Date : Nov 30 2014

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
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 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>A</b>	<b>Summary</b>	<b>17</b>
A.1	Status . . . . .	17
A.2	Comments . . . . .	17

# 1 Front

seq_num	702877	Sequence number
obs_id	15070	Observation id
title	C-GOALS: The Chandra-RBGS Survey of a Complete Sample of Major-Merger LIRGs	Proposal title
observer	Professor David Sanders	Principal investigator
object	IC 563/4	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	146.584583	Observer's specified target RA [deg]
dec_targ	3.056111	Observer's specified target Dec [deg]
ra_nom	146.58353486435	Nominal RA [deg]
dec_nom	3.0589886197057	Nominal Dec [deg]
roll_nom	53.020085053905	Nominal Roll [deg]
revision	3	Processing version of data
ontime	15151.999943614	Sum of GTIs [s]
livetime	14960.136196889	Livetime [s]
ontime2	15151.999943614	Sum of GTIs [s]
ontime3	15148.758893251	Sum of GTIs [s]
ontime5	15151.999943614	Sum of GTIs [s]
ontime6	15145.517972767	Sum of GTIs [s]
ontime7	15151.999943614	Sum of GTIs [s]
ontime8	15145.517973065	Sum of GTIs [s]
l2events	145735	Number of level 2 events

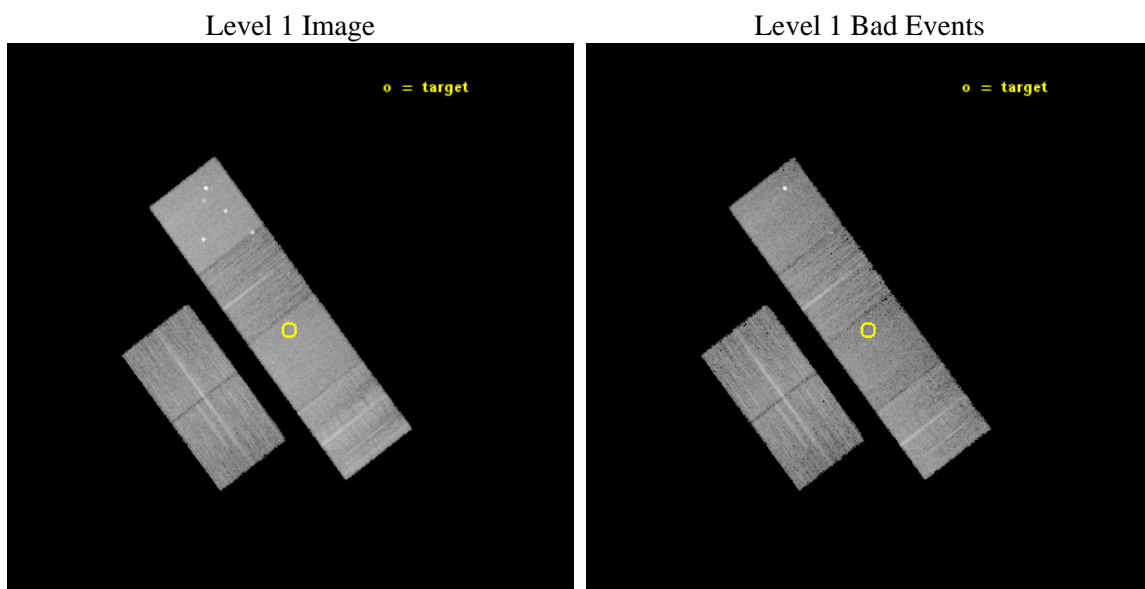




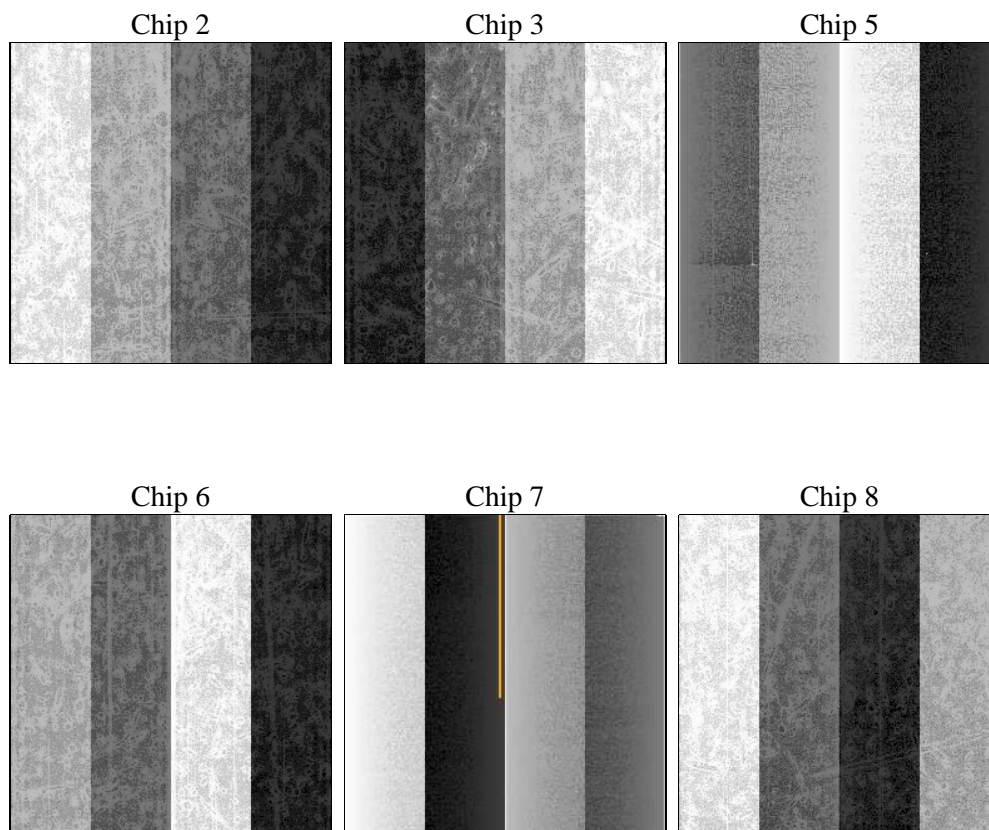
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	15397.890000	[s] Scheduled observation exposure time
ascdsver	10.3	Processing system revision	ontime	15151.999943614	Sum of GTIs [s]
caldsver	4.6.4	&#160	ontime2	15151.999943614	Sum of GTIs [s]
date	2014-12-01T08:27:04	Date and time of file creation	ontime3	15148.758893251	Sum of GTIs [s]
revision	3	Processing version of data	ontime5	15151.999943614	Sum of GTIs [s]
			ontime6	15145.517972767	Sum of GTIs [s]
			ontime7	15151.999943614	Sum of GTIs [s]
			ontime8	15145.517973065	Sum of GTIs [s]
			l1events	620528	Number of level 1 events

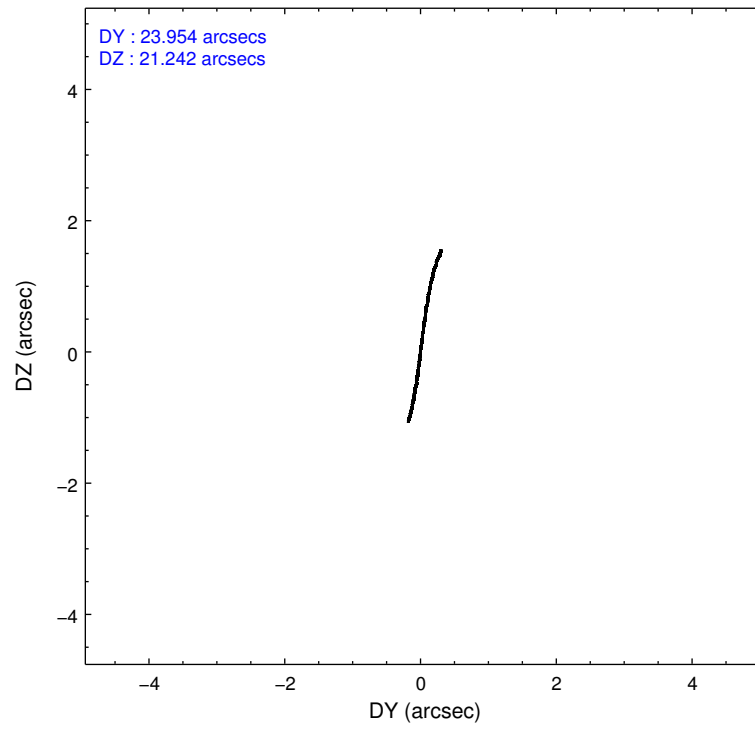
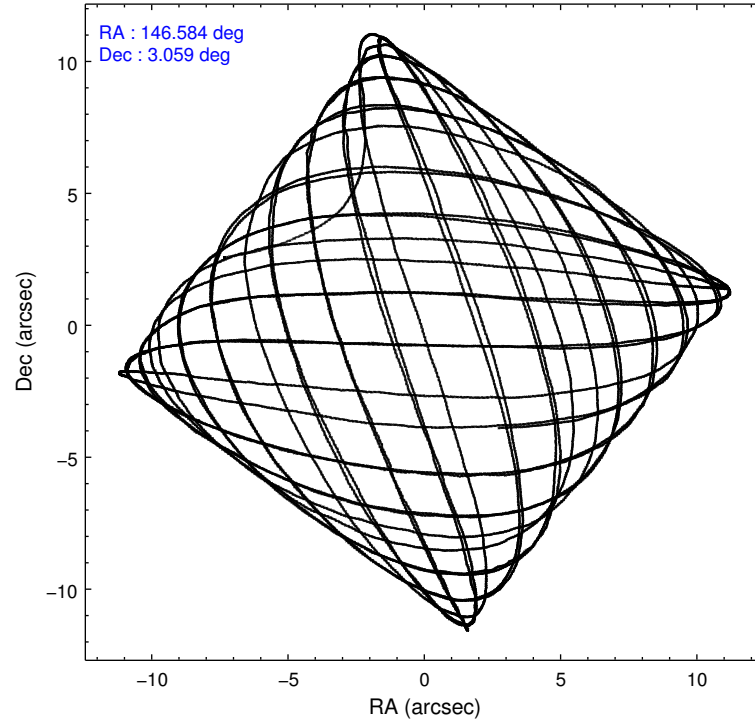
### 2.1.4 Events

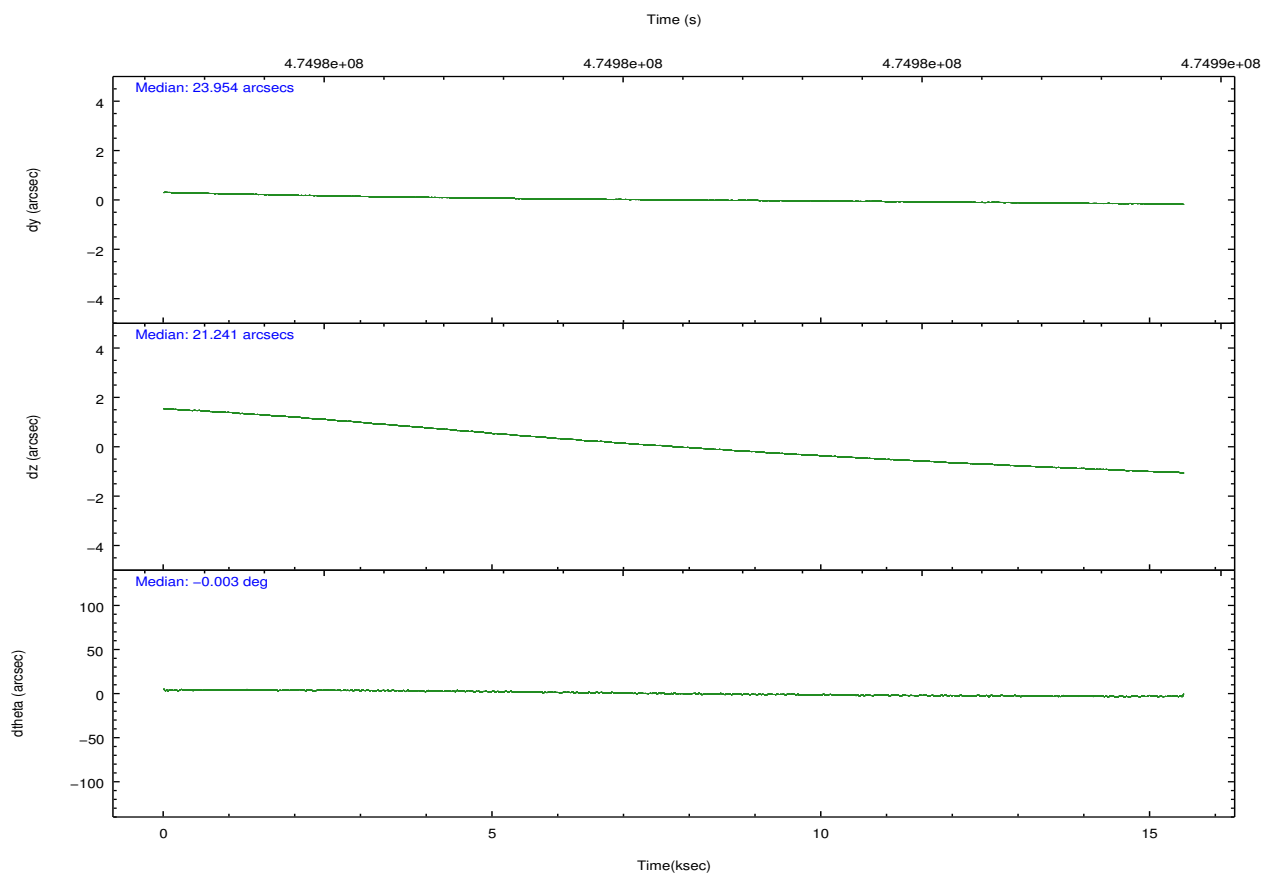
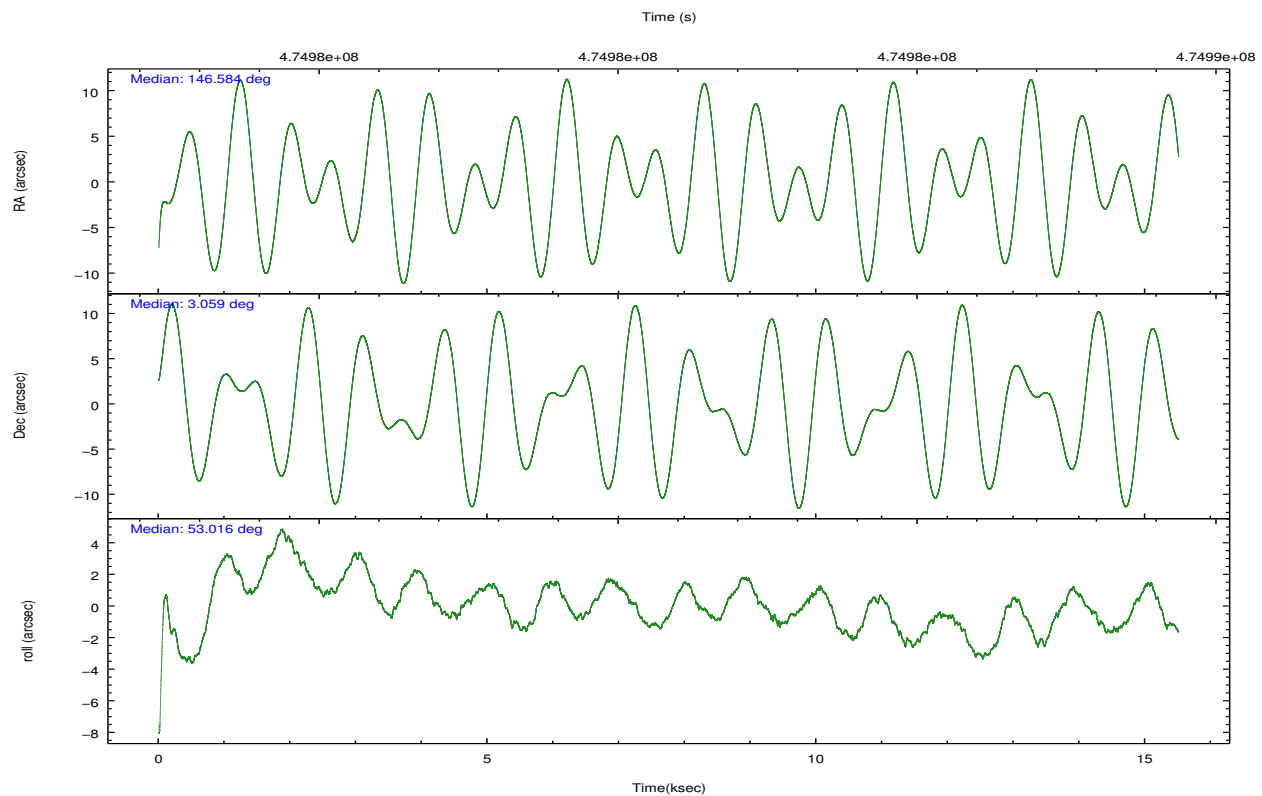
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8		ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	82607	76632	143870	82999	109772	124648	grade 0 events	3791	3448	10013	3990	4424	14564
rejected events	72679	67344	73246	72474	60414	82965		4%	4%	6%	4%	4%	11%
rejected %	87%	87%	50%	87%	55%	66%	grade 1 events	58	42	322	38	135	148
								0%	0%	0%	0%	0%	0%
							grade 2 events	2427	1986	20939	2323	10215	7334
								2%	2%	14%	2%	9%	5%
							grade 3 events	906	961	2516	1005	4247	5841
								1%	1%	1%	1%	3%	4%
							grade 4 events	1007	979	2486	968	4167	5505
								1%	1%	1%	1%	3%	4%
							grade 5 events	3628	4119	10239	4156	11056	6049
								4%	5%	7%	5%	10%	4%
							grade 6 events	1803	1917	34704	2243	26327	8446
								2%	2%	24%	2%	23%	6%
							grade 7 events	68987	63180	62651	68276	49201	76761
								83%	82%	43%	82%	44%	61%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-235678	ACIS-235678	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	146.580560	146.5835348643549	CCD I2 on	O2	Y
[deg] Pointing Dec	3.031763	3.058988619705726	CCD I3 on	Y	Y
[deg] Pointing Roll	52.863623	53.02008505390528	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	O1	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	Y	Y
[s] Observation start time (MET)	474973209.184000	474971962.83926	CCD S5 on	N	N
Observation start date	2013-01-19T08:59:02	2013-01-19T08:39:22	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	474988607.184000	474988833.82767	On-chip summing requested	N	N
Observation end date	2013-01-19T13:15:40	2013-01-19T13:20:33	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.2

## 2.3 Aspect



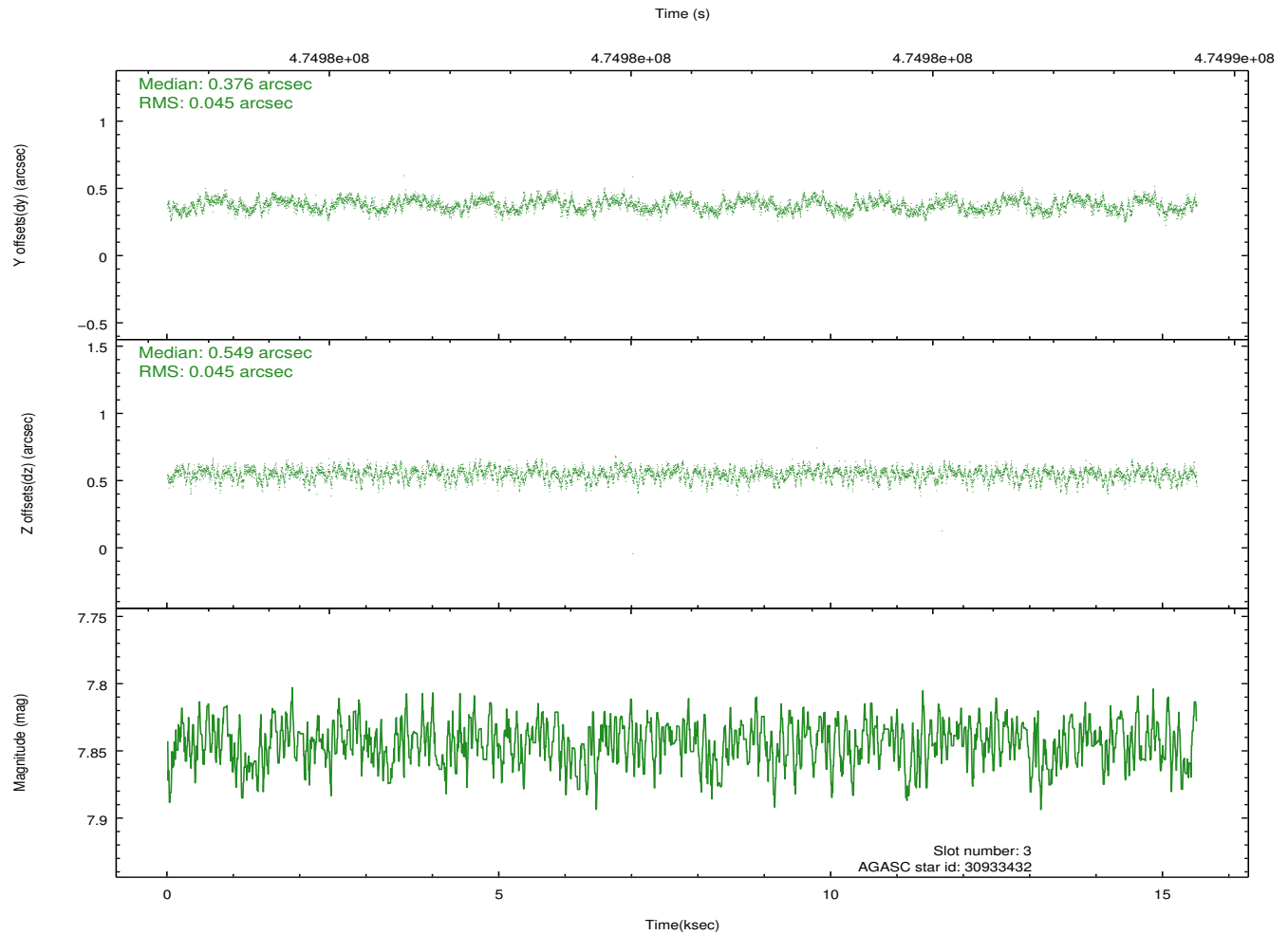
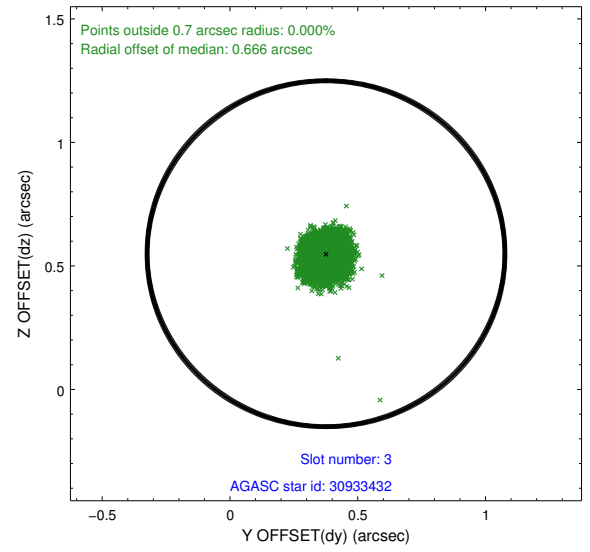
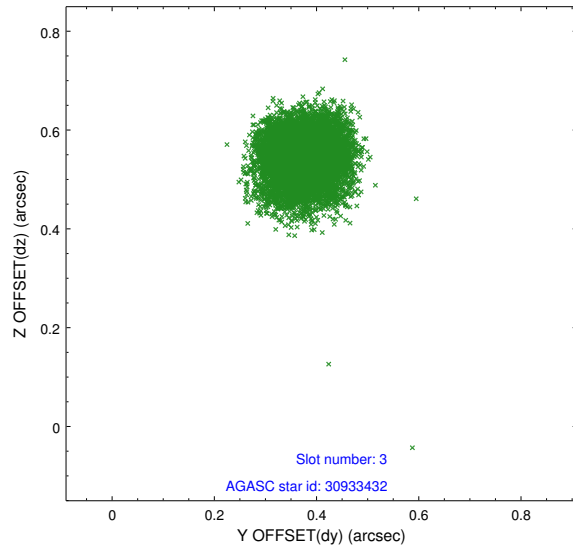


### Slot Statistics

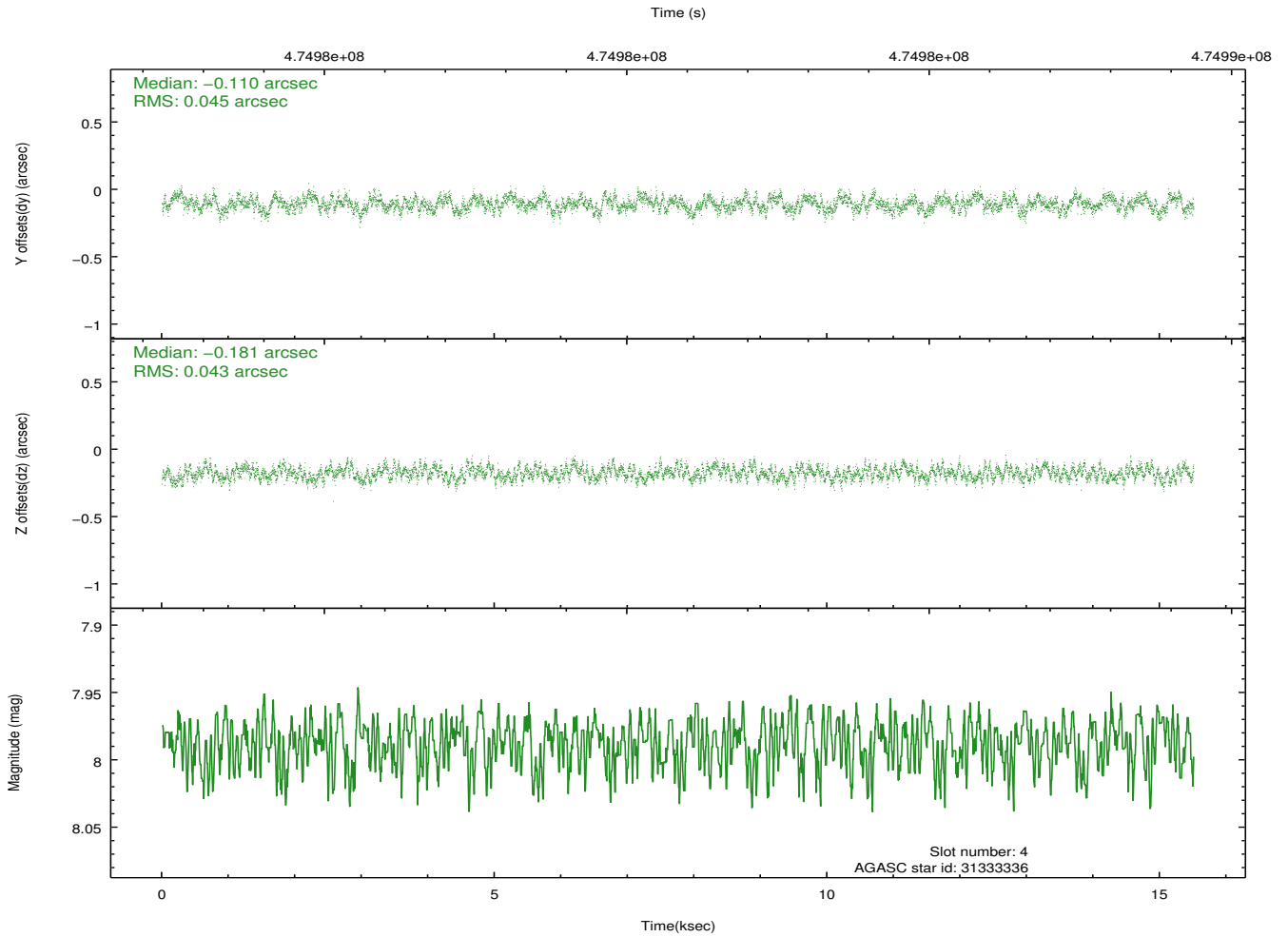
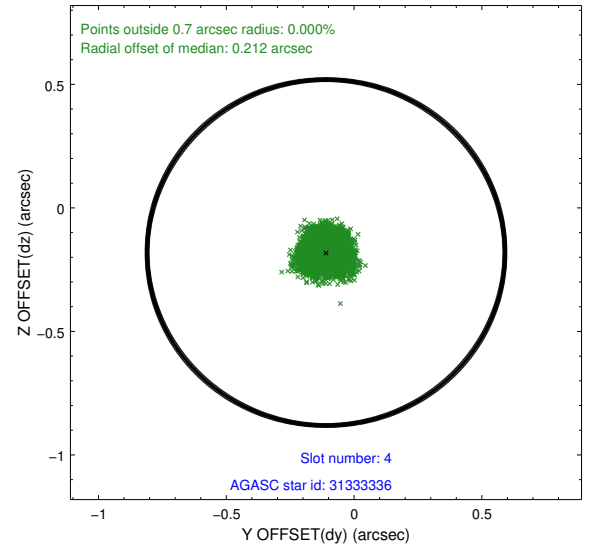
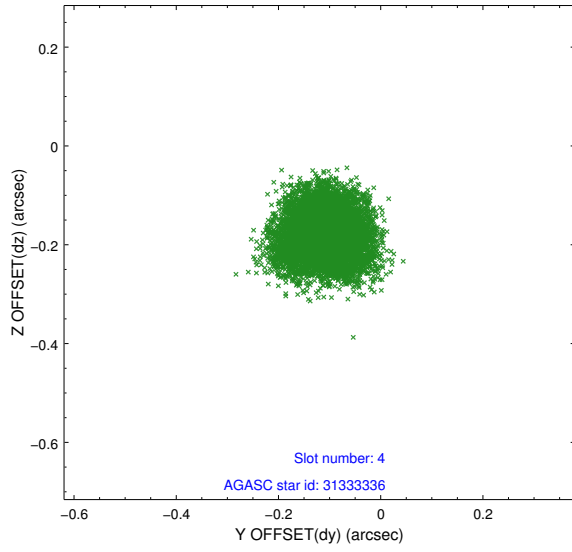
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.95	3783	-0.134	-0.012	0.021	0.044	0.000000	0.000000	-777.34	-1742.86
1	FID		ACIS-S-4	7.03	3783	0.309	0.070	0.008	0.013	0.000000	0.000000	2136.27	165.38
2	FID		ACIS-S-5	7.06	3782	-0.206	-0.049	0.020	0.040	0.000000	0.000000	-1829.87	159.32
3	GUIDE	used	30933432	7.84	7566	0.376	0.549	0.068	0.106	146.845439	2.315188	-1480.05	-2317.21
4	GUIDE	used	31333336	7.99	7566	-0.110	-0.181	0.068	0.105	146.778355	3.416032	1531.70	268.14
5	GUIDE	used	31337832	8.09	7561	-0.153	-0.190	0.083	0.131	146.235579	3.370843	224.24	1725.36
6	GUIDE	used	31343384	8.43	7563	-0.091	-0.161	0.072	0.113	146.430308	3.544577	1144.92	1545.12
7	GUIDE	used	31345128	9.12	7540	-0.013	-0.022	0.131	0.221	146.522729	3.441441	1050.38	1056.28

## 2.4 Star Slots

### 2.4.1 Slot 3

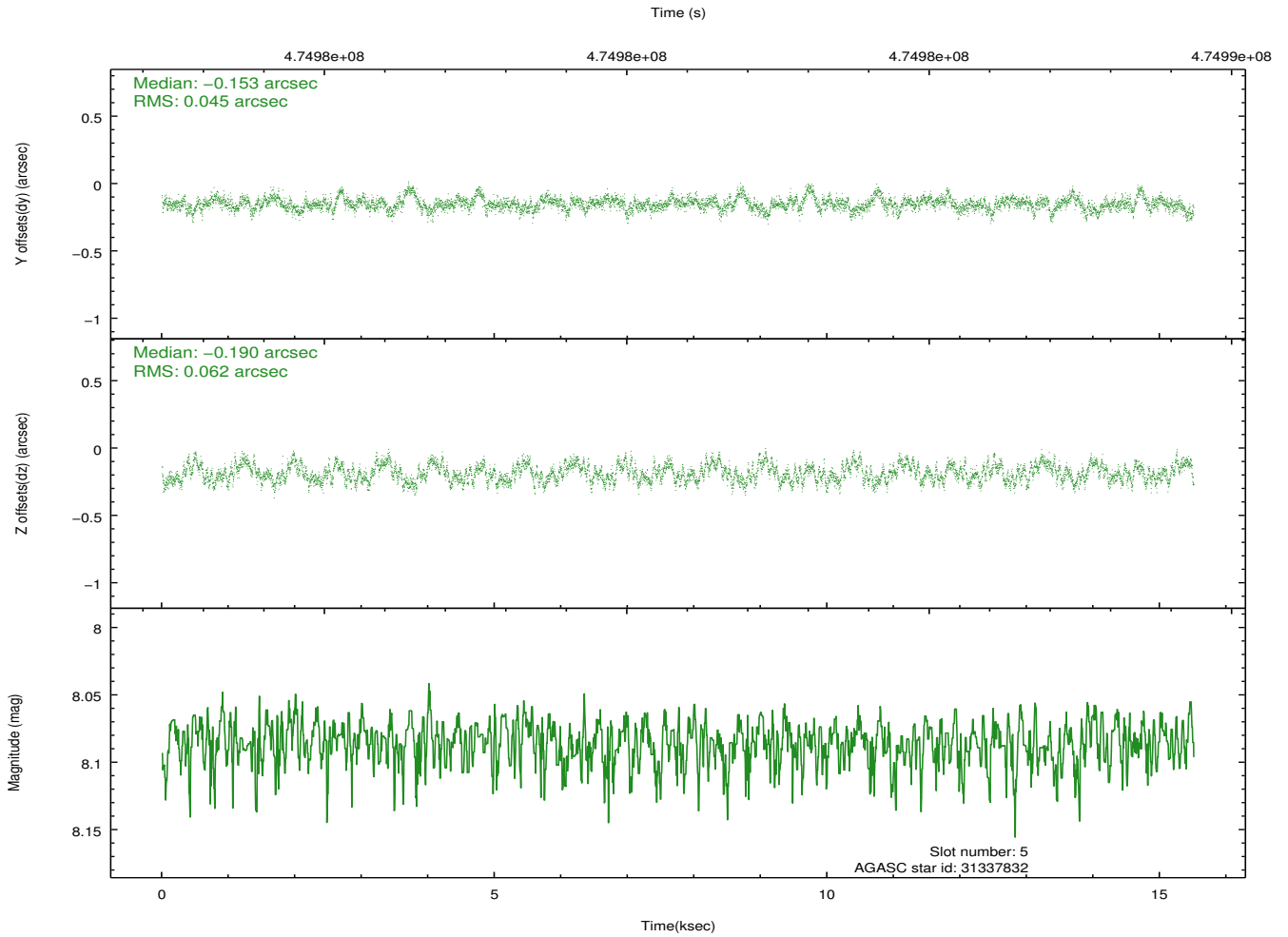
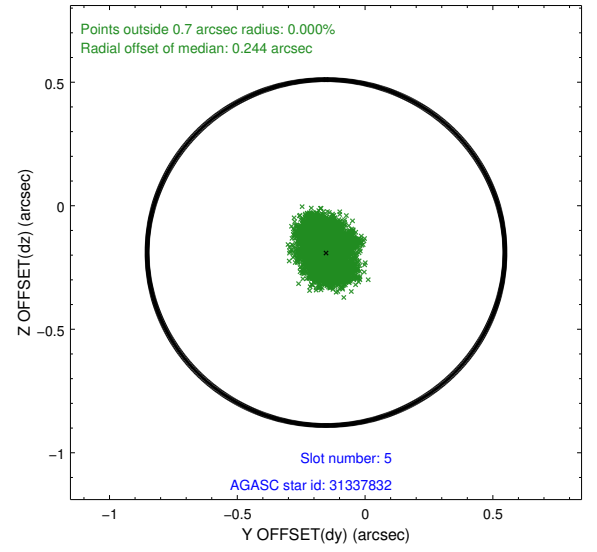
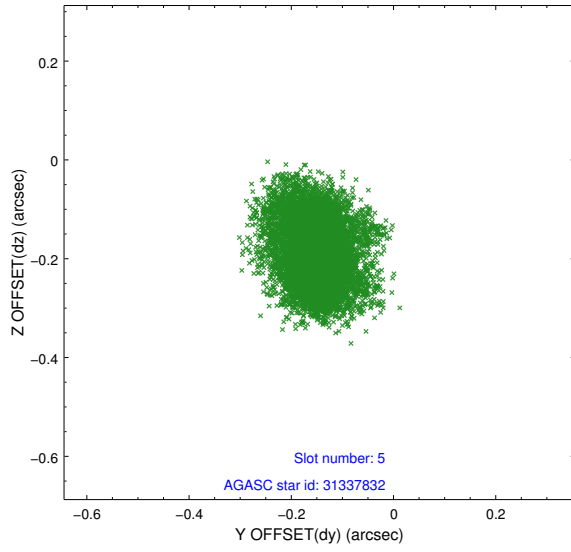


## 2.4.2 Slot 4

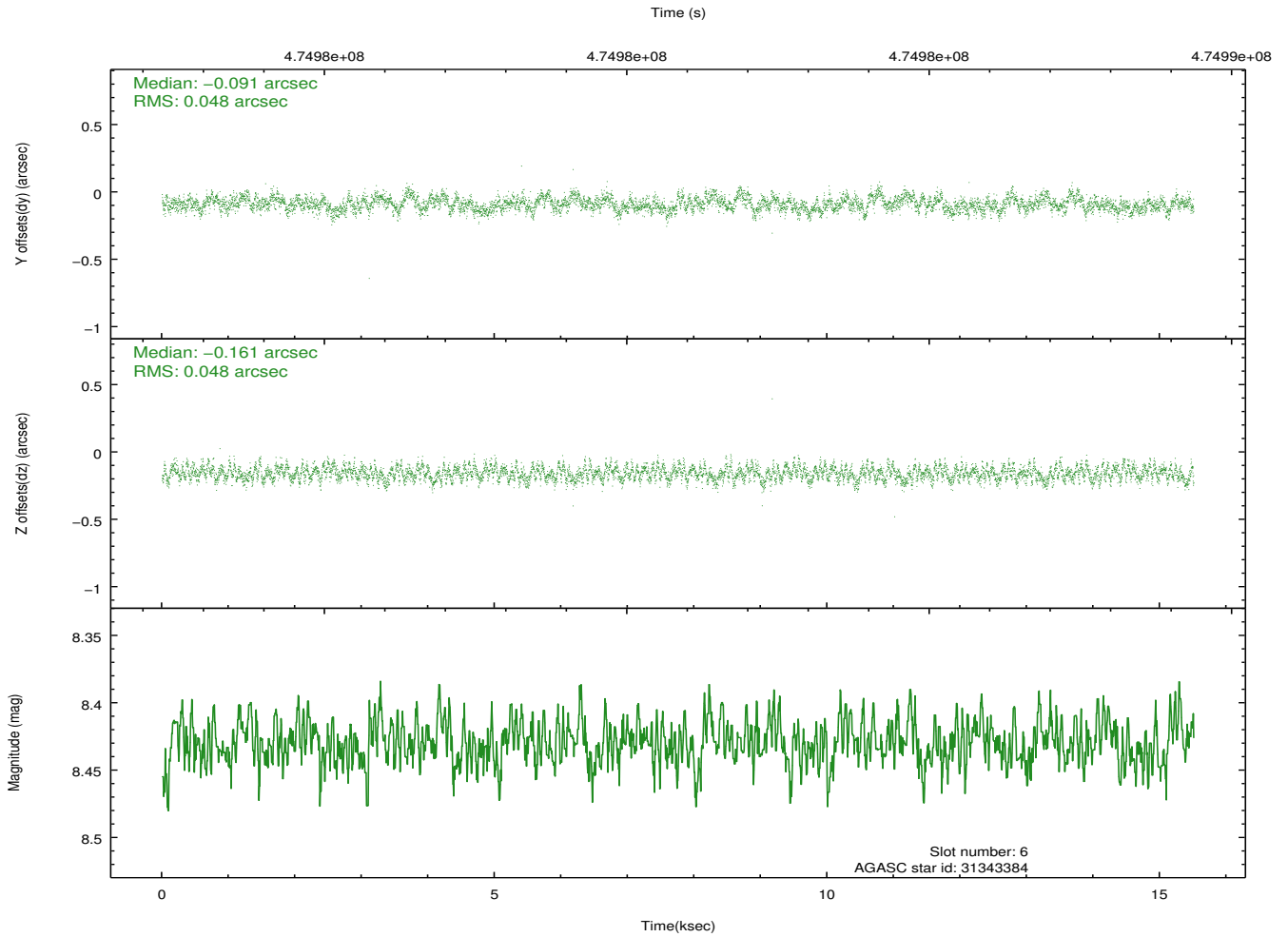
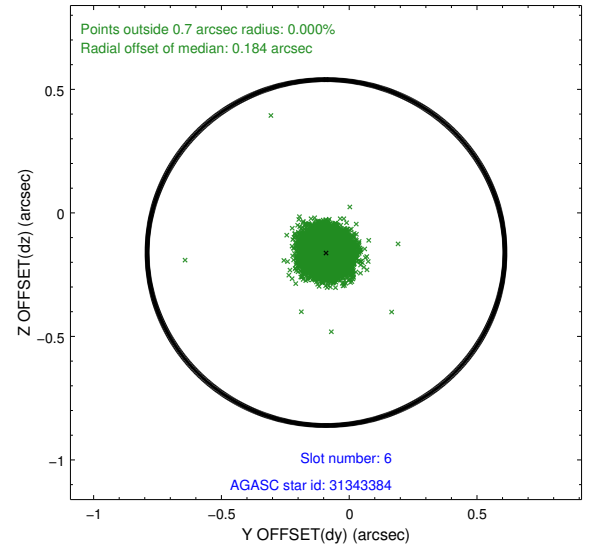
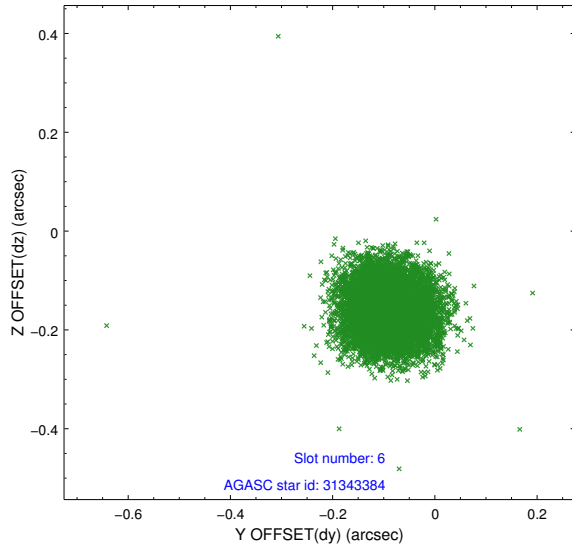




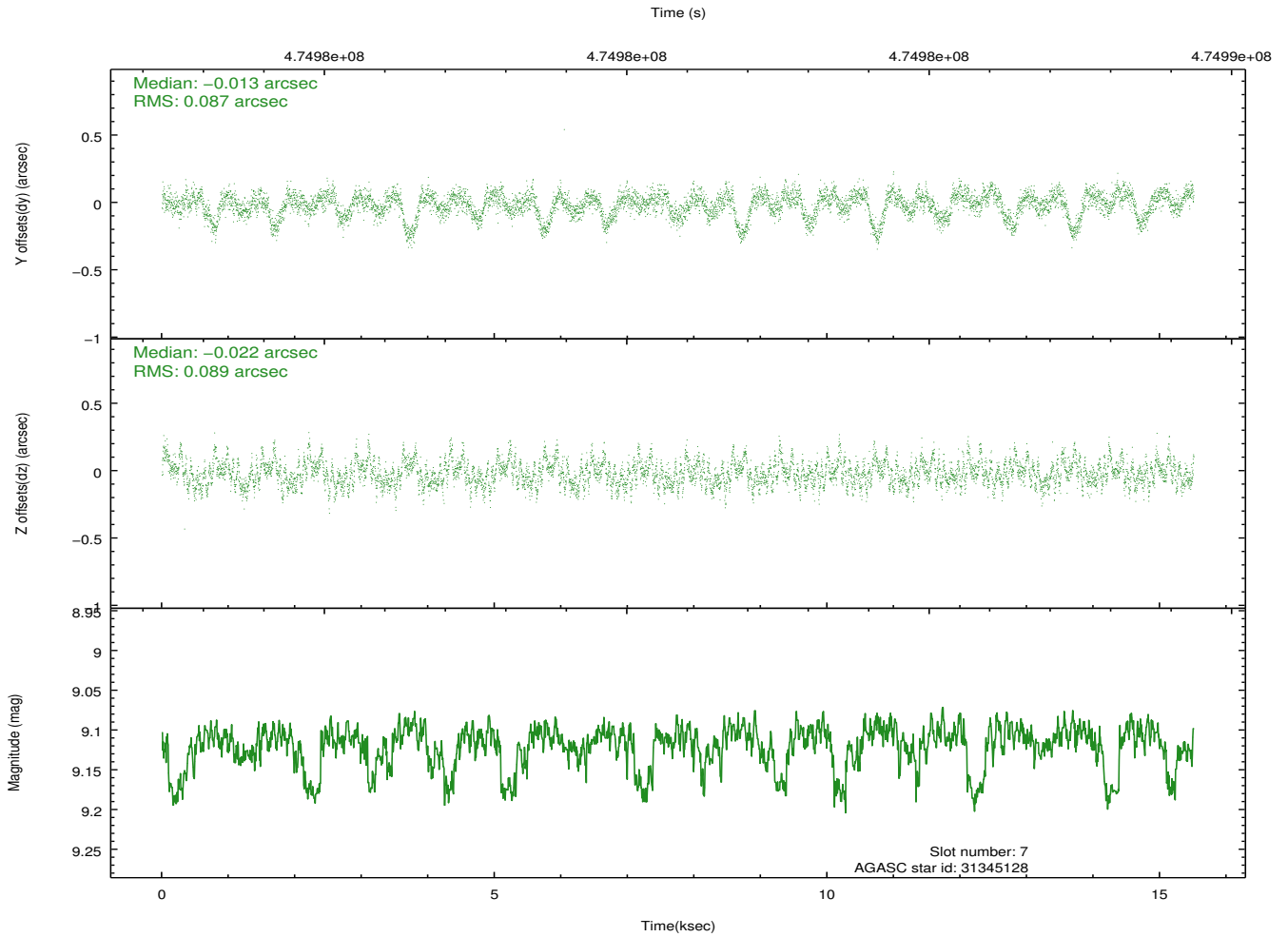
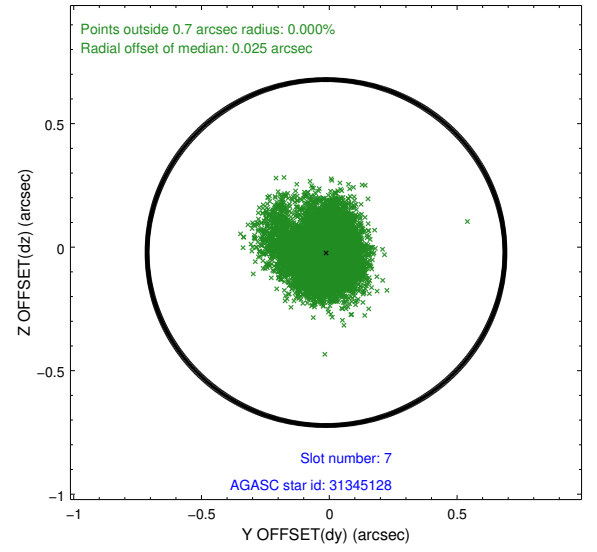
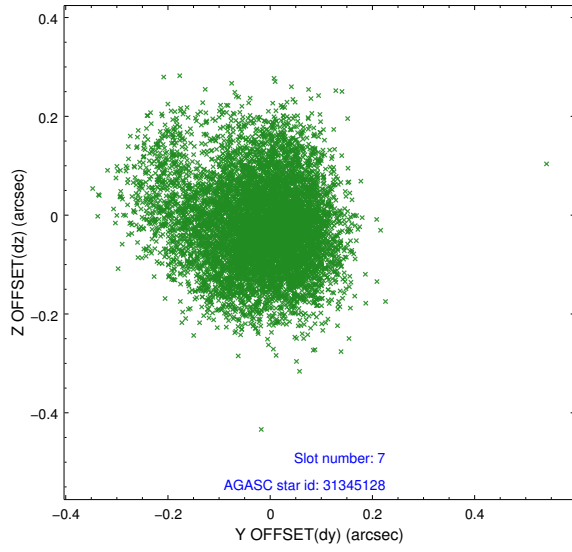
### 2.4.3 Slot 5



## 2.4.4 Slot 6

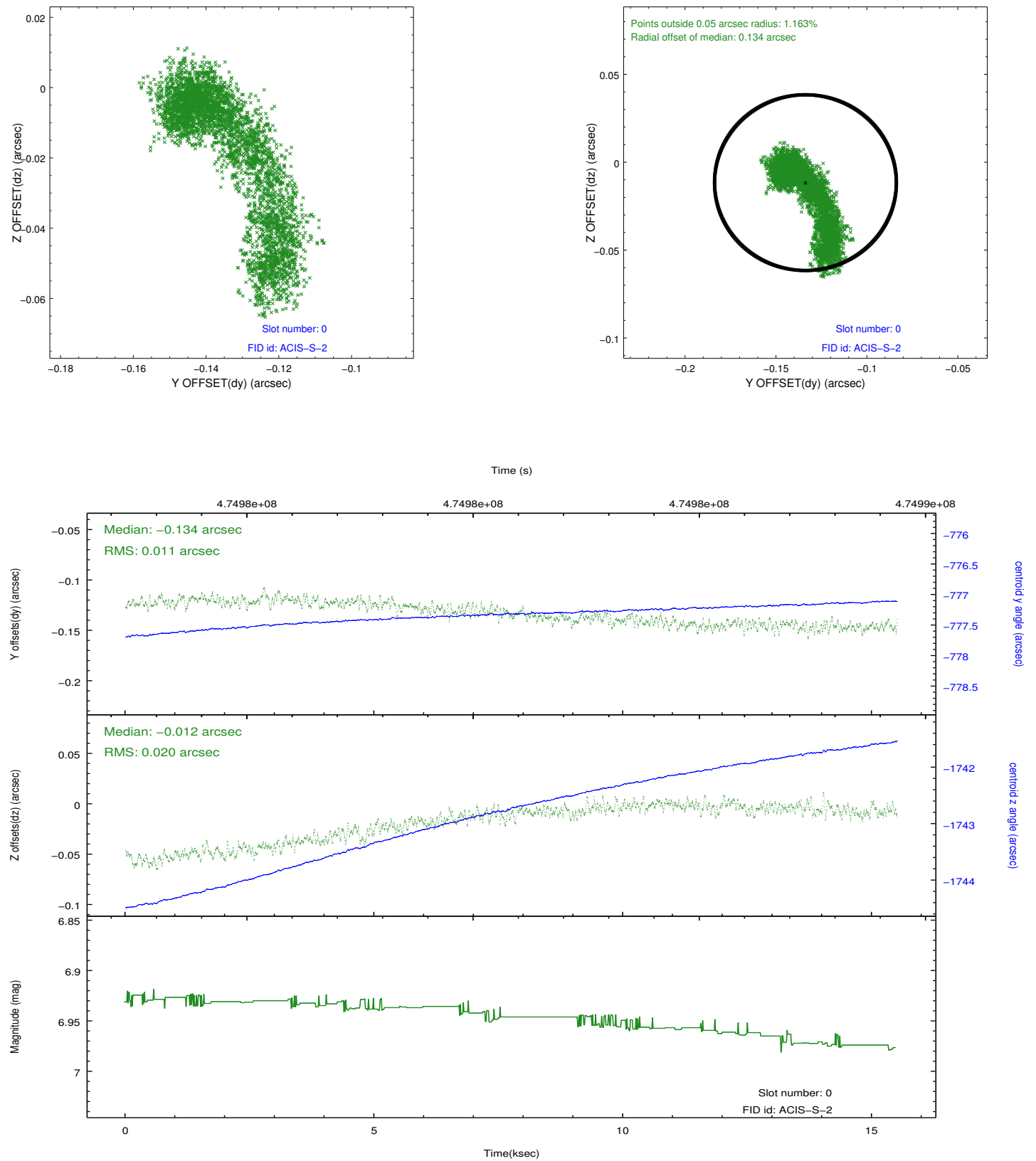


## 2.4.5 Slot 7

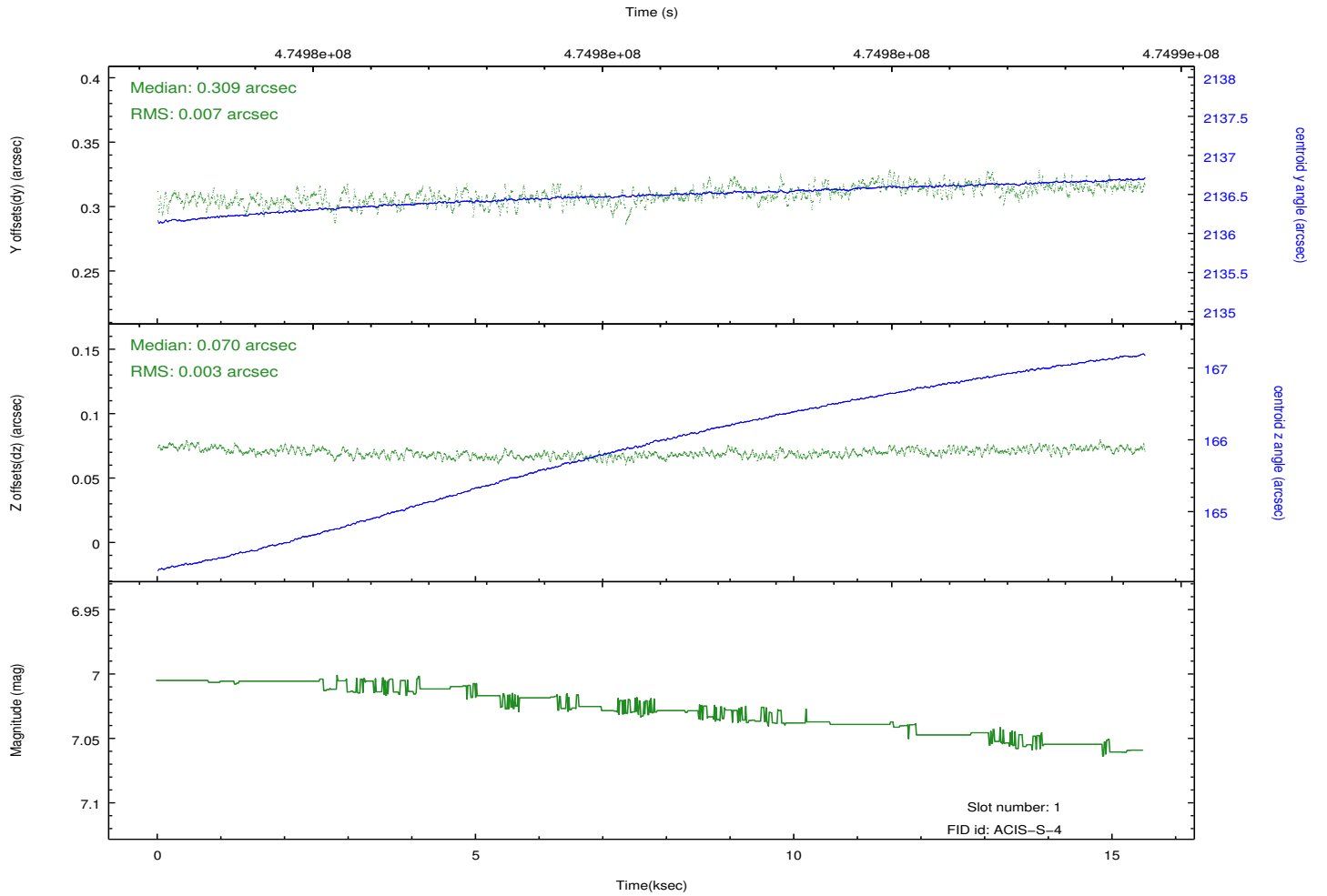
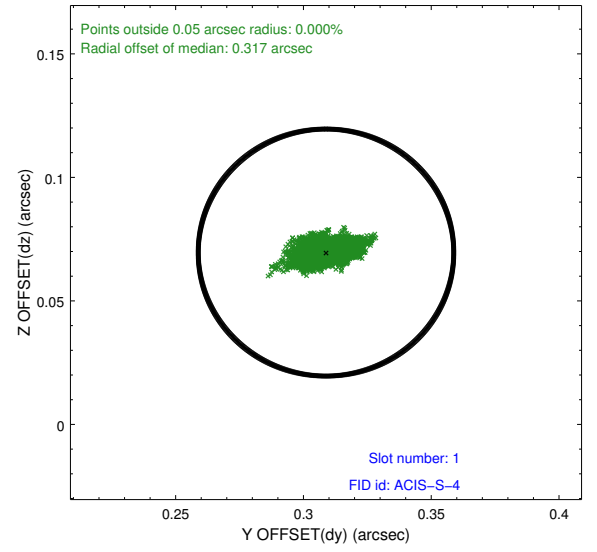
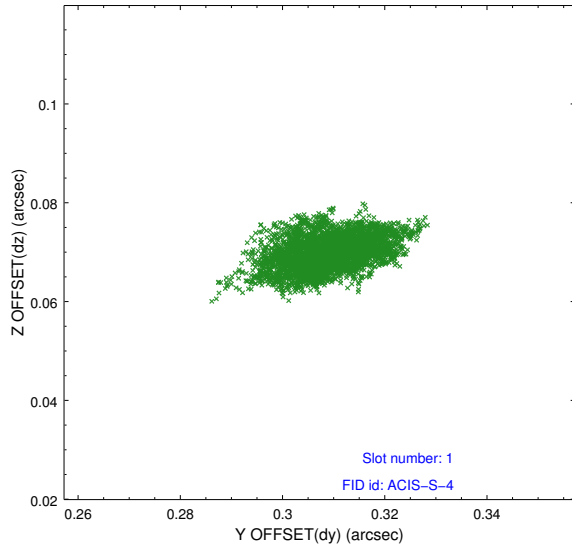


## 2.5 FID Slots

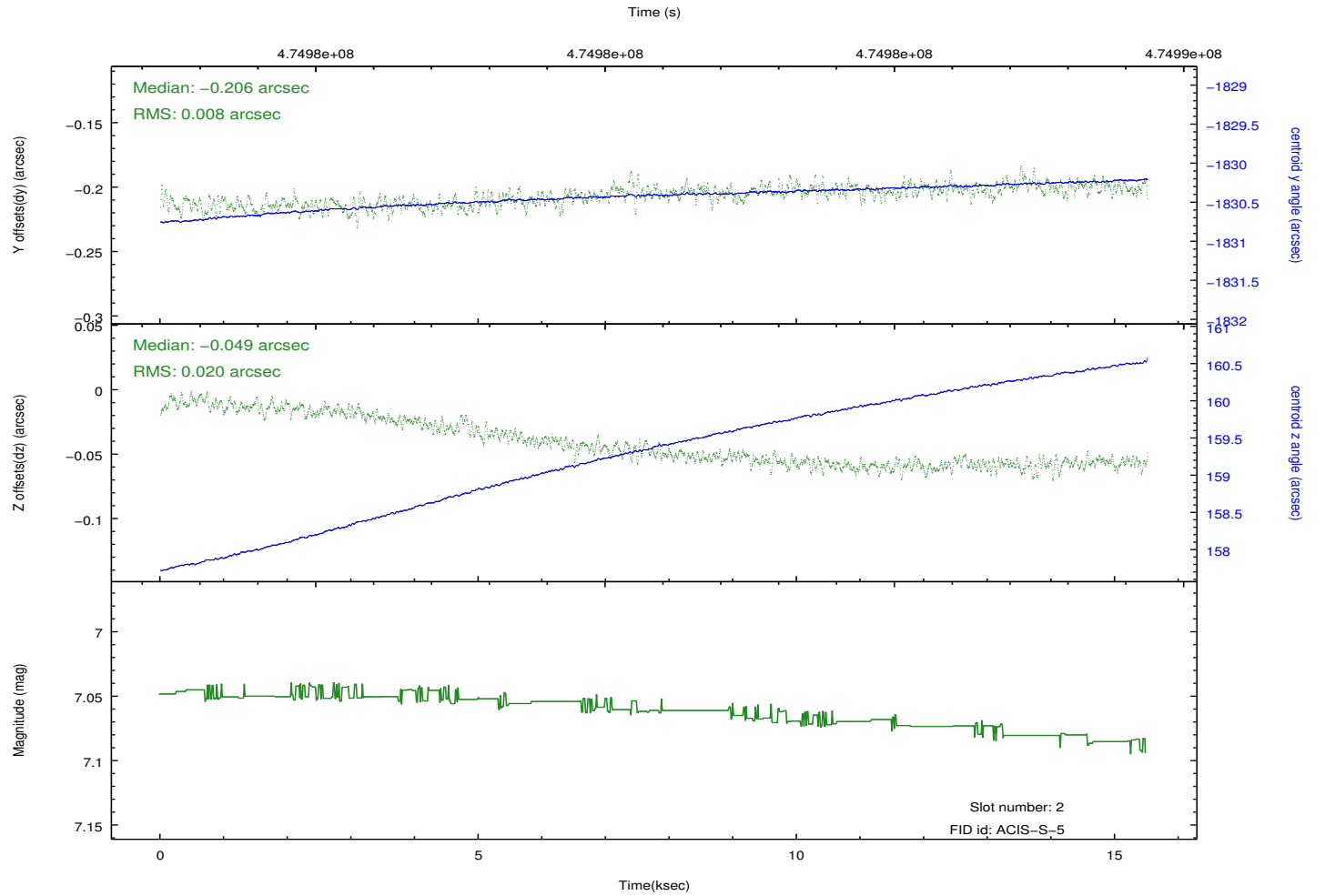
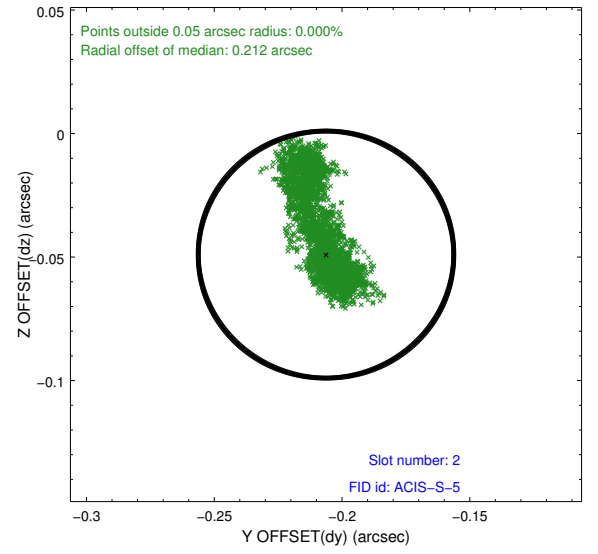
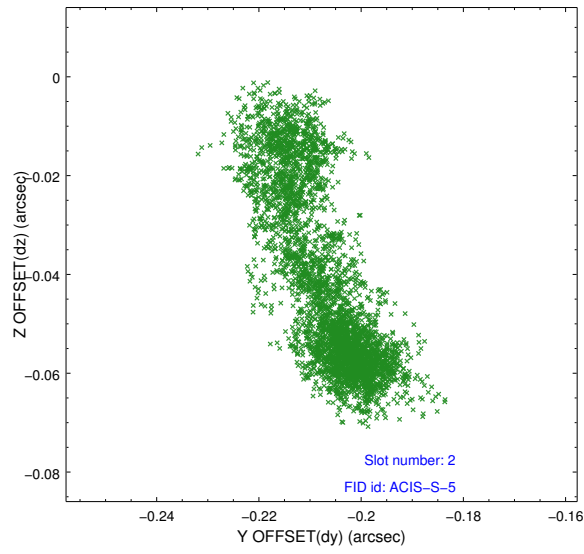
### 2.5.1 Slot 0



## 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)	2014.12.19
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	15.151999943614

## A.2 Comments

A spatial region of the original bias map for CCD = 6 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 = 6 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:  
(146.62993,3.23113),(146.62821,3.22884),(146.73998,3.14494),(146.74171,3.14724)

=====

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.