

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 598 - L2 Version 4  
Chandra X-Ray Center

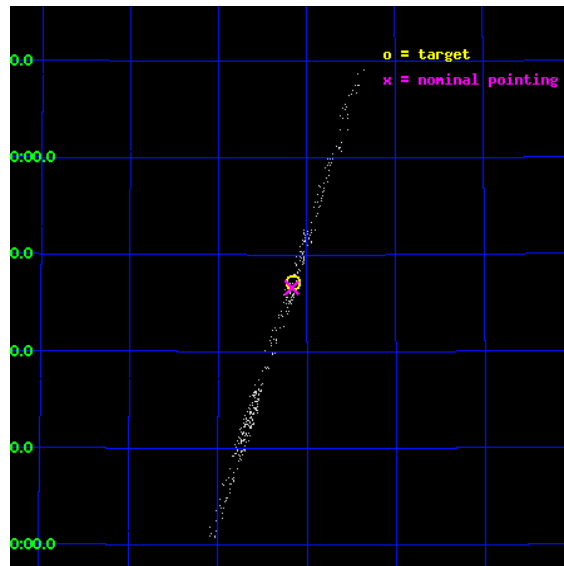
L2 Processing Date : Sep 5 2012

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI Primary</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>3</b>	<b>OBI Secondary</b>	<b>17</b>
3.1	OBI . . . . .	17
3.1.1	Images . . . . .	17
3.1.2	Bias . . . . .	17
3.1.3	Parameters . . . . .	18
3.1.4	Events . . . . .	18
<b>A</b>	<b>Summary</b>	<b>19</b>
A.1	Status . . . . .	19
A.2	Comments . . . . .	19

# 1 Front

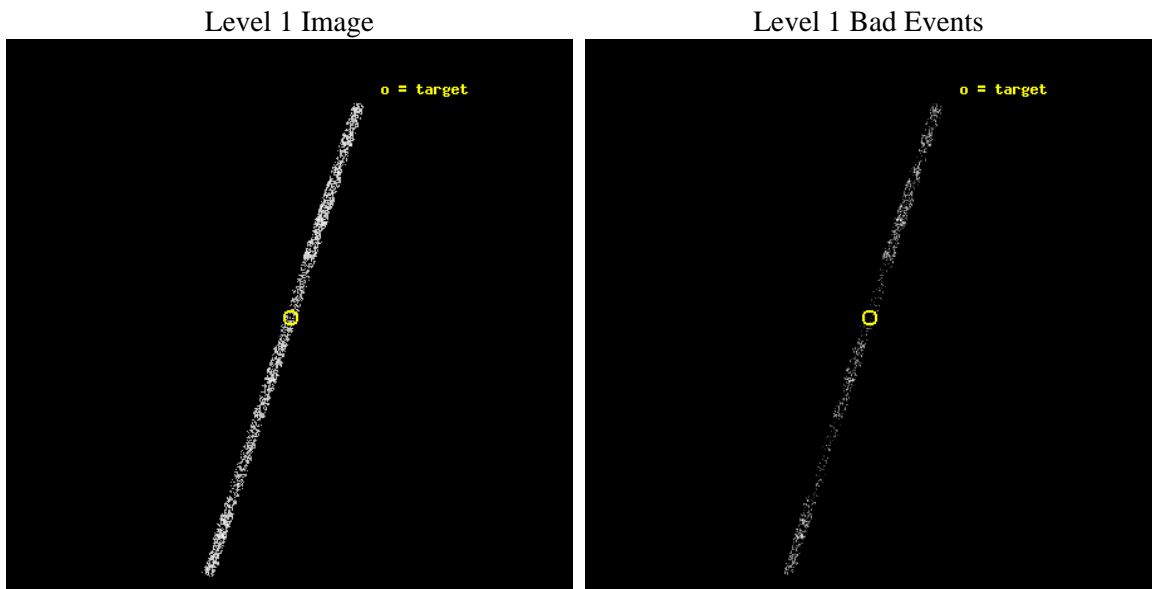
seq_num	500084	Sequence number
obs_id	598	Observation id
title	X-RAY POSITIONS AND AFTERGLOWS OF GAMMA-RAY BURSTS	Proposal title
observer	Dr Luigi Piro	Principal investigator
object	GRB000926	Source name
dtcycle	0	&#160
cycle	P	events are from which exps? P[primary] S[econdar
ra_targ	256.040417	Observer's specified target RA [deg]
dec_targ	51.786389	Observer's specified target Dec [deg]
ra_nom	256.04247697029	Nominal RA [deg]
dec_nom	51.776568921181	Nominal Dec [deg]
roll_nom	287.92399363184	Nominal Roll [deg]
revision	4	Processing version of data
ontime	1395.6159579307	Sum of GTIs [s]
livetime	177.75829910468	Livetime [s]
ontime4	1395.6159579307	Sum of GTIs [s]
ontime5	1395.6159579307	Sum of GTIs [s]
ontime6	1395.6460442394	Sum of GTIs [s]
ontime7	1395.6159579307	Sum of GTIs [s]
ontime8	1395.6870842427	Sum of GTIs [s]
ontime9	1395.728124246	Sum of GTIs [s]
l2events	381	Number of level 2 events



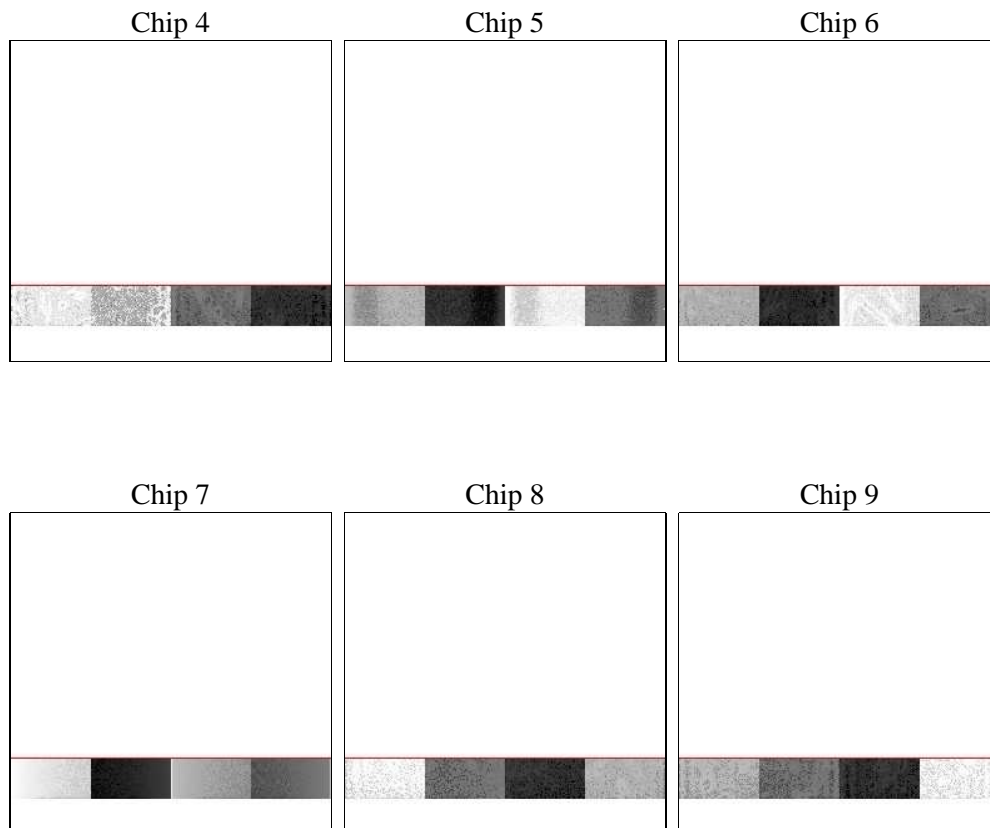
## 2 OBI Primary

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	12875.957000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	1395.6159579307	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	1395.6159579307	Sum of GTIs [s]
date	2012-09-05T15:03:04	Date and time of file creation	ontime5	1395.6159579307	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	1395.6460442394	Sum of GTIs [s]
			ontime7	1395.6159579307	Sum of GTIs [s]
			ontime8	1395.6870842427	Sum of GTIs [s]
			ontime9	1395.728124246	Sum of GTIs [s]
			l1events	5746	Number of level 1 events

### 2.1.4 Events

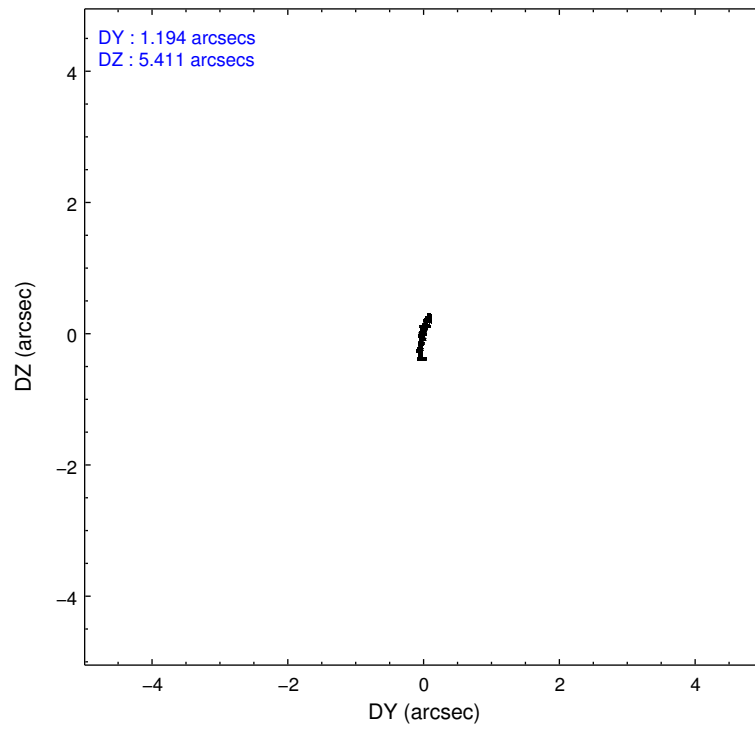
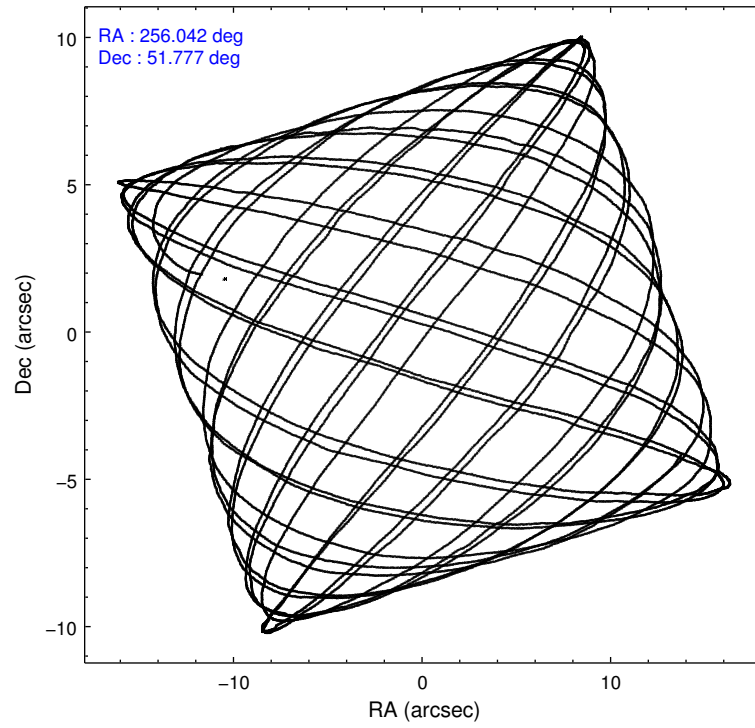
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	1209	492	984	465	1510	1086
rejected events	1137	331	926	347	1390	1026
rejected %	94%	67%	94%	74%	92%	94%

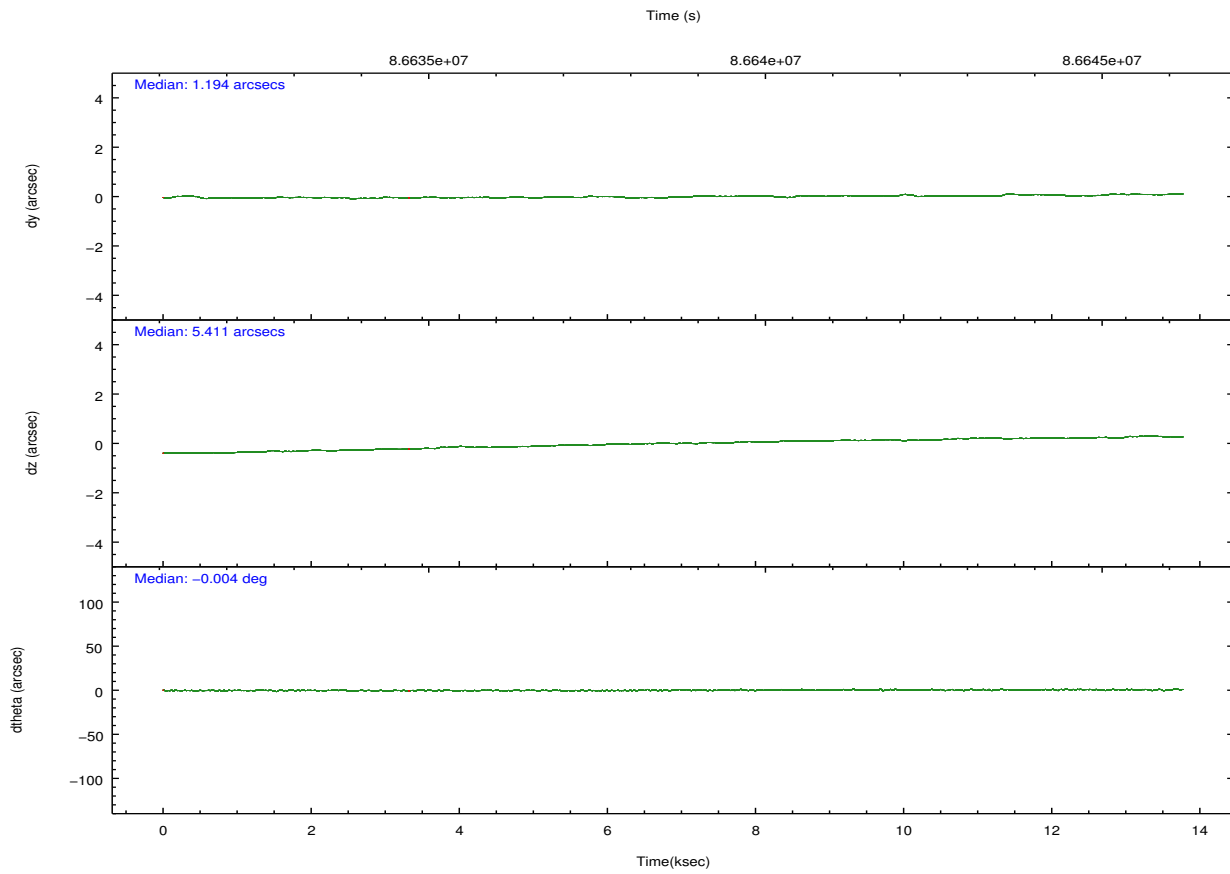
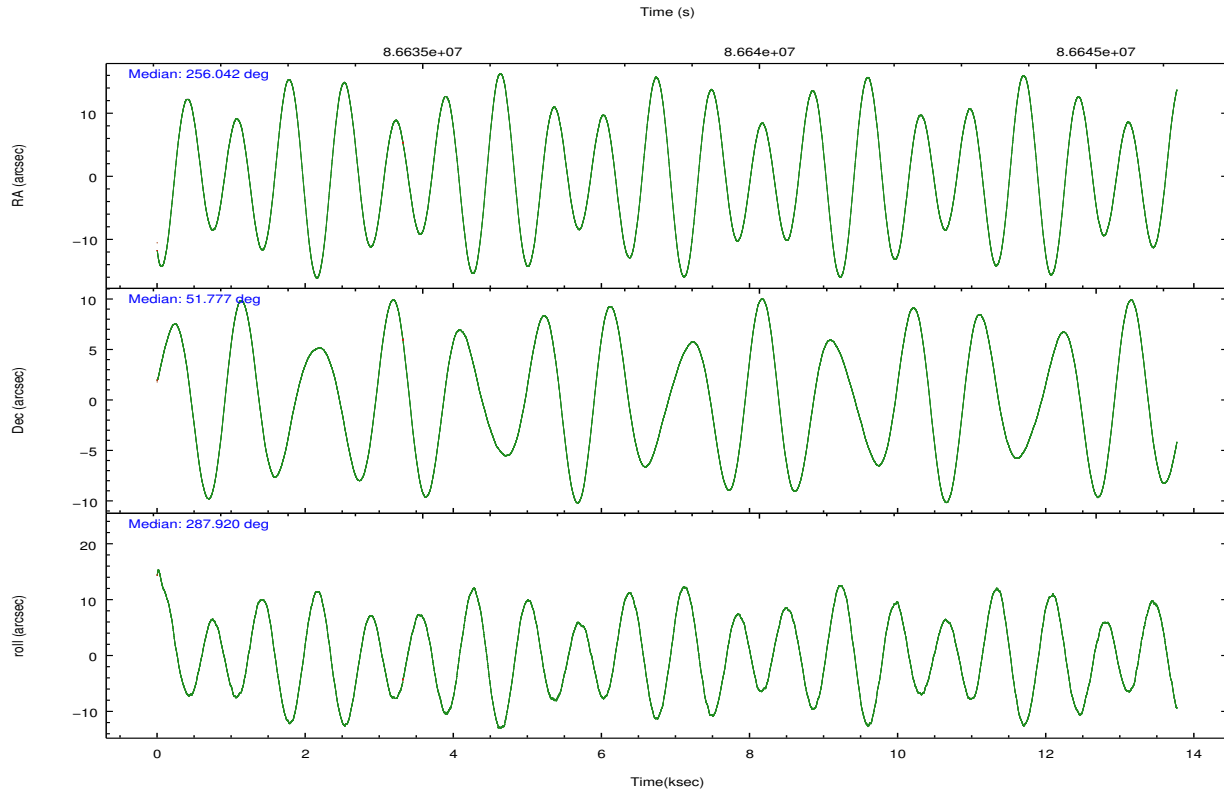
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	9	12	6	12	10	3
	0%	2%	0%	2%	0%	0%
grade 1 events	0	0	0	0	0	0
	0%	0%	0%	0%	0%	0%
grade 2 events	10	30	6	24	18	10
	0%	6%	0%	5%	1%	0%
grade 3 events	19	22	20	26	22	20
	1%	4%	2%	5%	1%	1%
grade 4 events	20	23	19	24	17	25
	1%	4%	1%	5%	1%	2%
grade 5 events	9	32	17	30	20	13
	0%	6%	1%	6%	1%	1%
grade 6 events	16	75	10	32	54	7
	1%	15%	1%	6%	3%	0%
grade 7 events	1126	298	906	317	1369	1008
	93%	60%	92%	68%	90%	92%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	256.009474	256.0424769702916	Subarray requested	CUSTOM	1/8
[deg] Pointing Dec	51.794778	51.7765689211813	Subarray start row	115	115
[deg] Pointing Roll	287.793294	287.923993631837	Subarray row count	128	128
[mm] SIM focus pos	-0.684267	-0.6828225247311905	Alternating exposures requested	Y	Y
[mm] SIM defocus	0	0.001444936568705701	[s] Primary exposure time	0.100000	0.1
[mm] SIM translation stage pos	-182.132523	-182.1344861297048	[s] Secondary exposure time	0.700000	0.7
[mm] SIM translation stage offset	-8	-7.998036453302973	Duty cycle	9	9
[s] Observation start time (MET)	86632888.184000	86631450.60726599			
Observation start date	2000-09-29T16:40:24	2000-09-29T16:17:30			
[s] Observation end time (MET)	86645764.184000	86647791.157882			
Observation end date	2000-09-29T20:15:00	2000-09-29T20:49:51			
Read mode	TIMED	TIMED			

## 2.3 Aspect



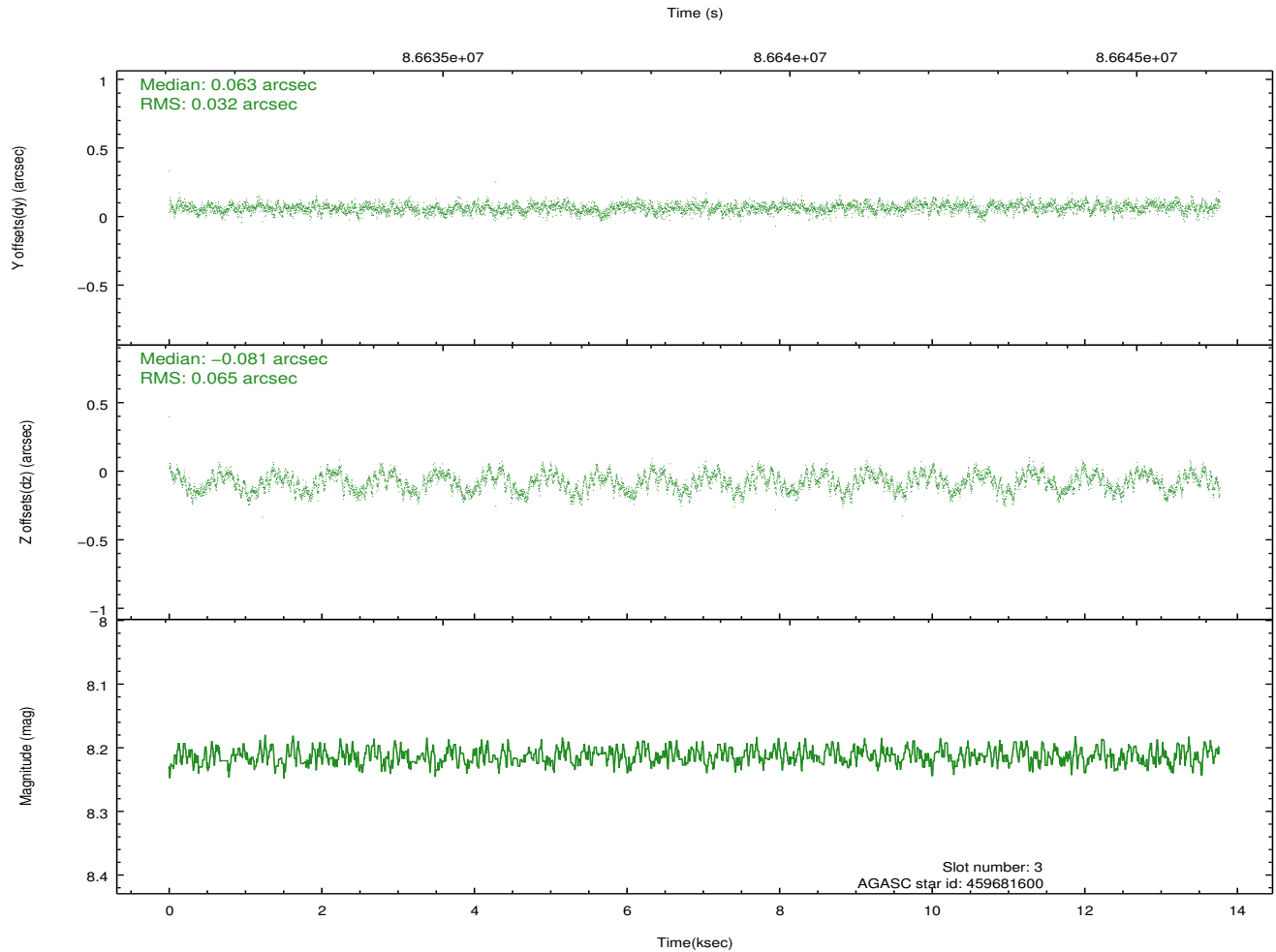
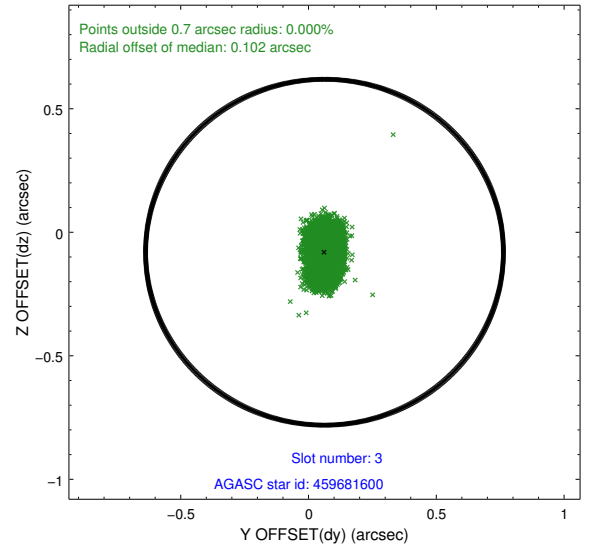
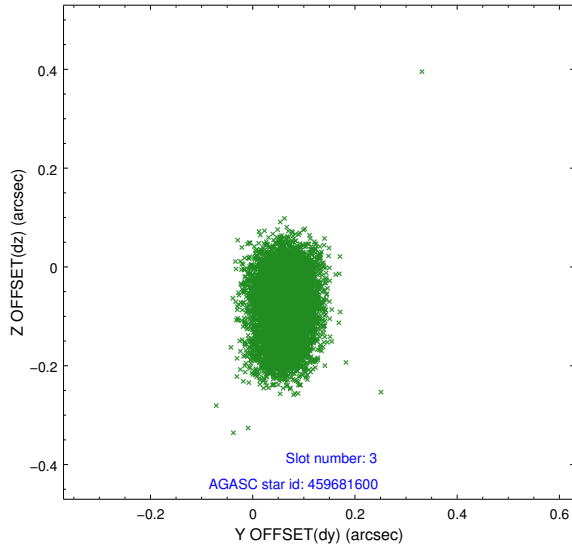


### Slot Statistics

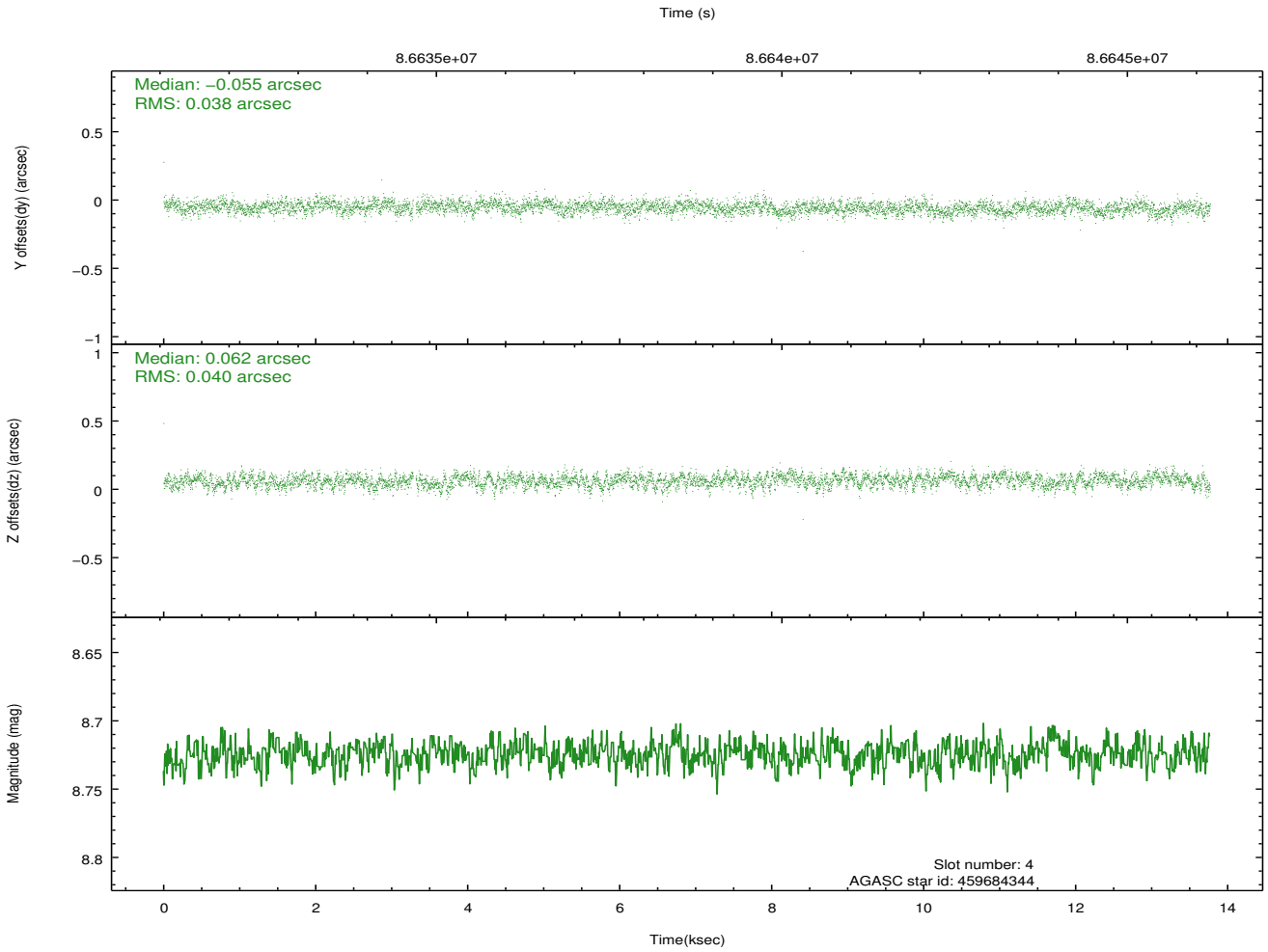
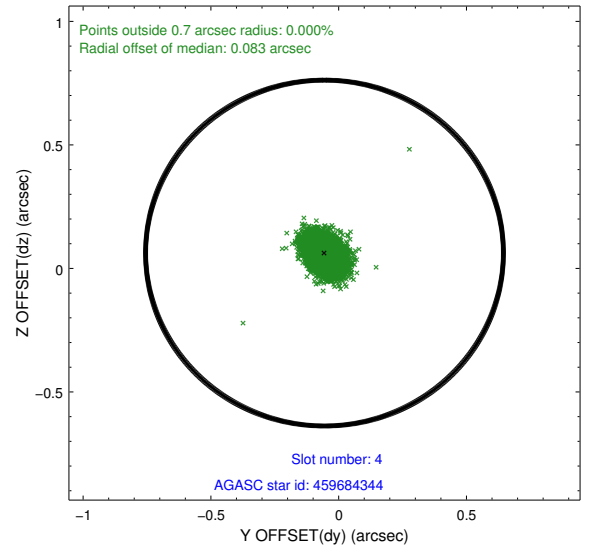
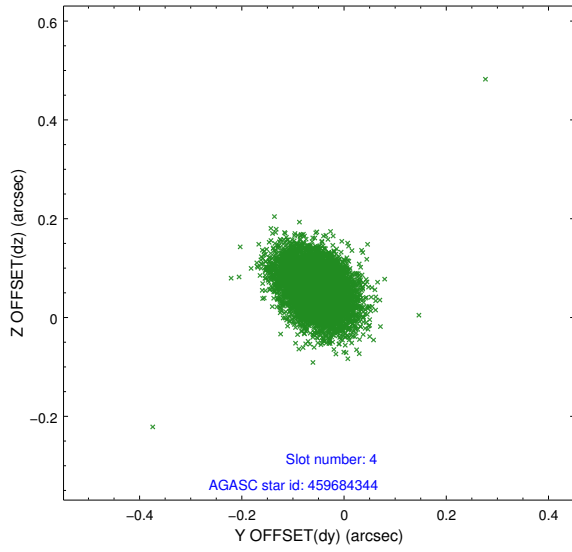
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.09	3351	-0.070	-0.073	0.012	0.017	0.000000	0.000000	-753.29	-1891.34
1	FID	ACIS-S-4	7.19	3351	0.074	0.053	0.022	0.029	0.000000	0.000000	2159.98	16.84
2	FID	ACIS-S-5	7.22	3351	-0.034	0.027	0.014	0.020	0.000000	0.000000	-1805.64	10.89
3	GUIDE	459681600	8.21	6701	0.063	-0.081	0.078	0.124	255.534425	51.942325	-829.96	-839.89
4	GUIDE	459684344	8.72	6701	-0.055	0.062	0.057	0.096	255.938505	51.246844	1830.21	-754.27
5	GUIDE	459672144	8.96	6698	-0.120	-0.011	0.068	0.110	255.593658	51.982291	-925.71	-670.25
6	GUIDE	459676416	9.30	6697	0.034	0.009	0.081	0.131	256.346375	52.353302	-1688.91	1320.86
7	GUIDE	459672016	9.39	6698	0.074	0.024	0.077	0.123	256.647891	51.557718	1244.12	1102.72

## 2.4 Star Slots

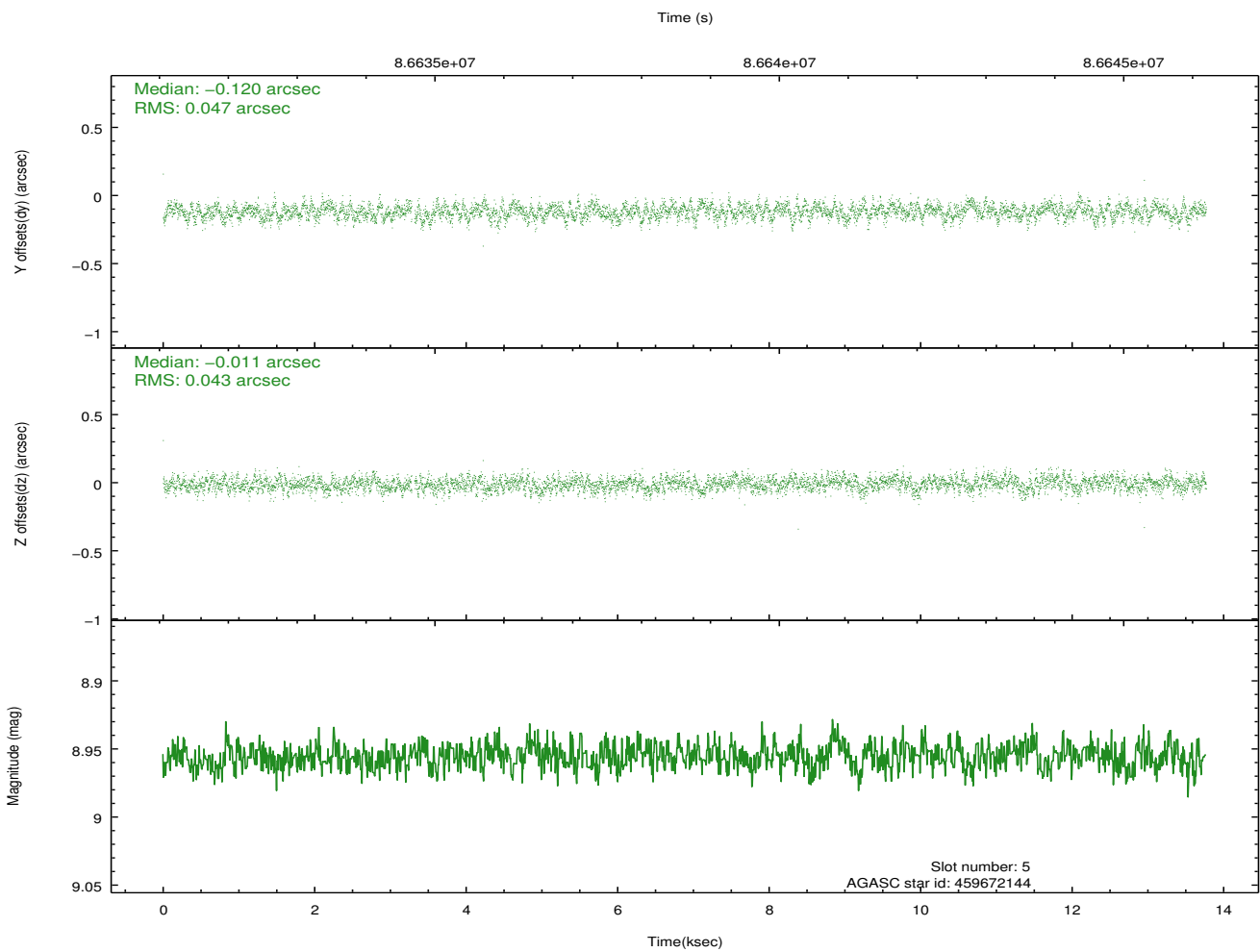
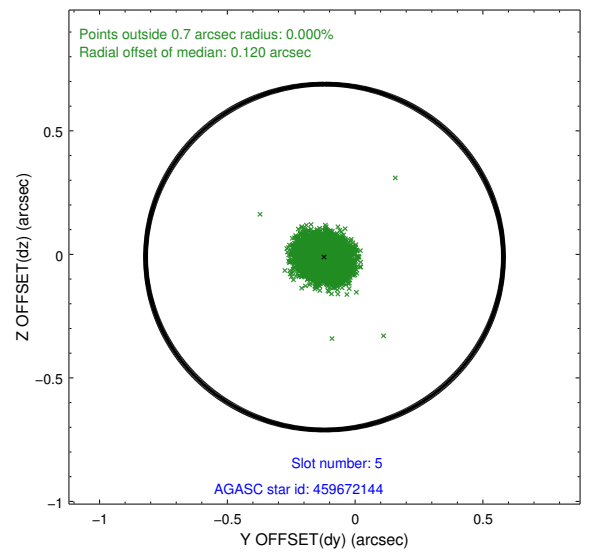
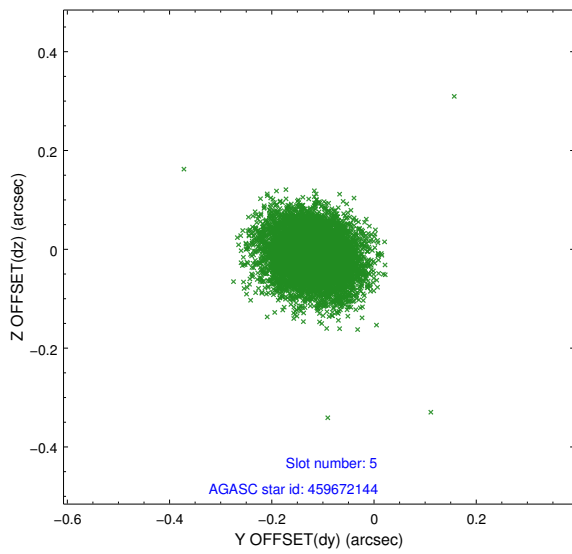
### 2.4.1 Slot 3



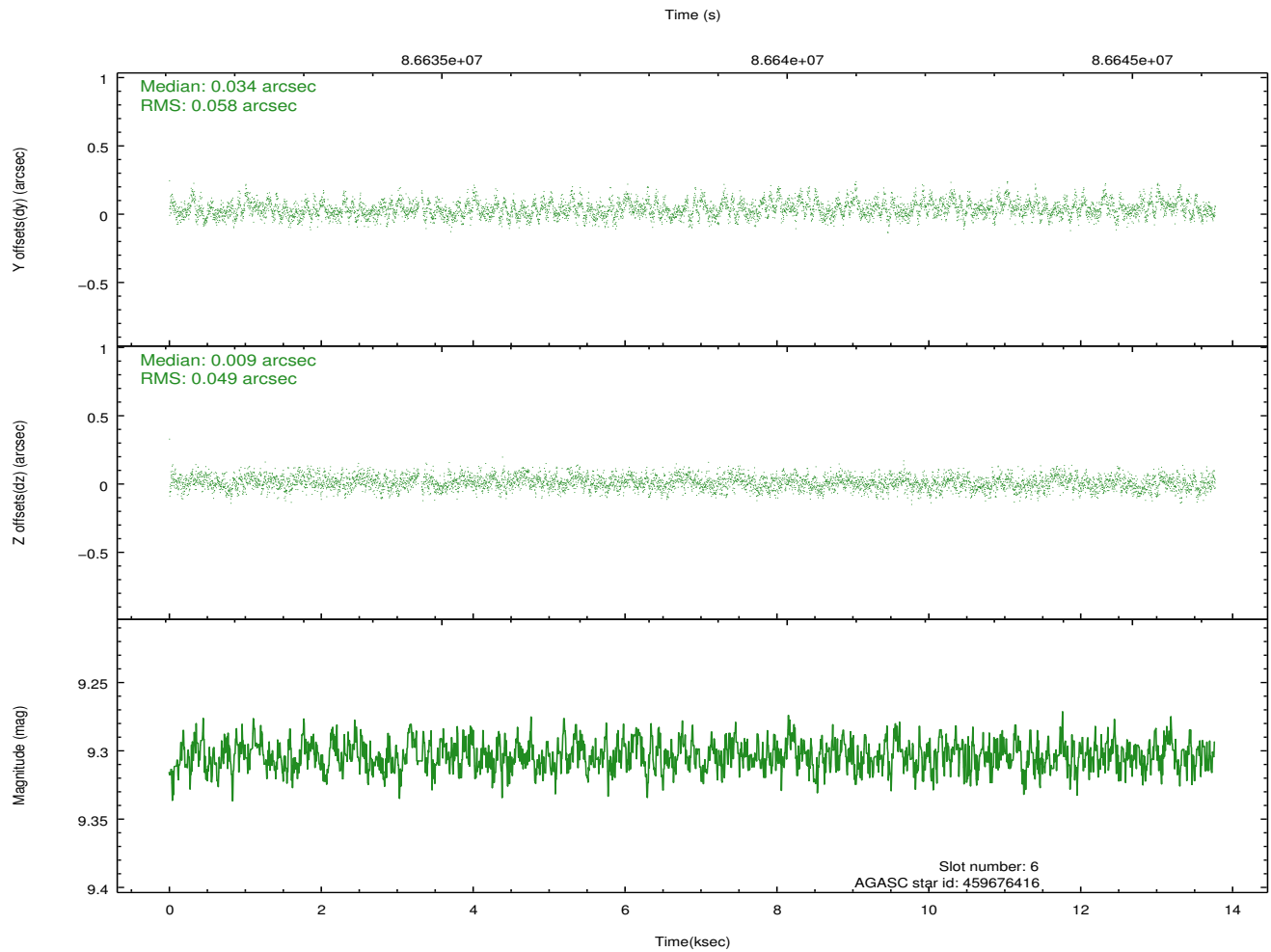
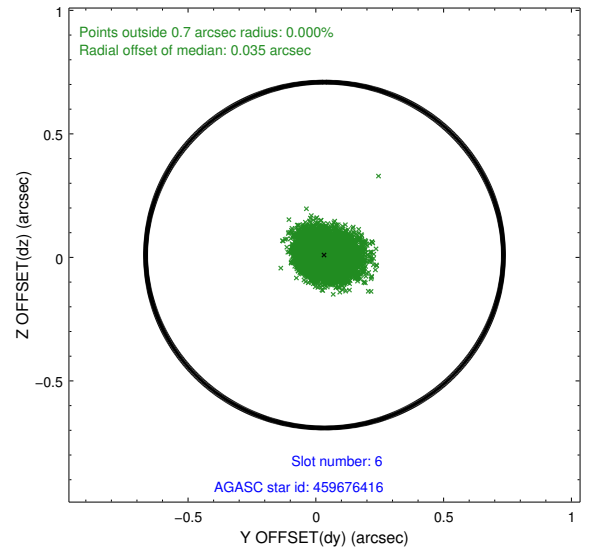
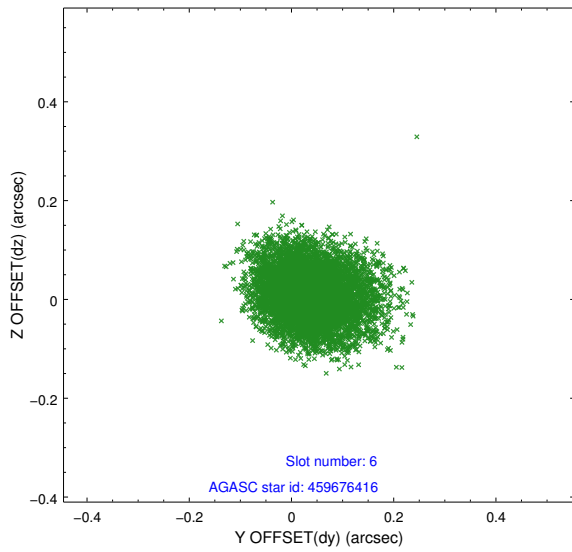
### 2.4.2 Slot 4



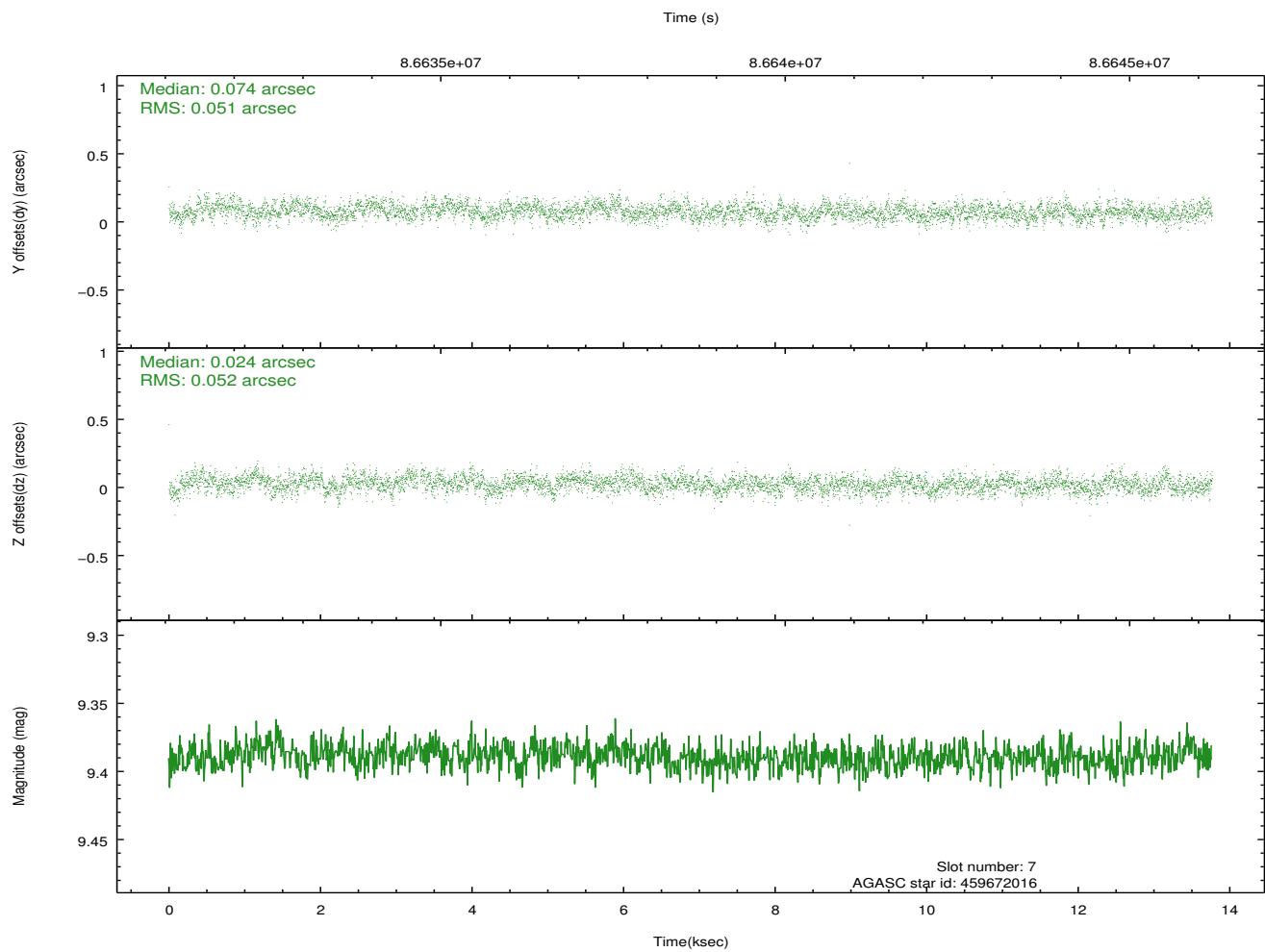
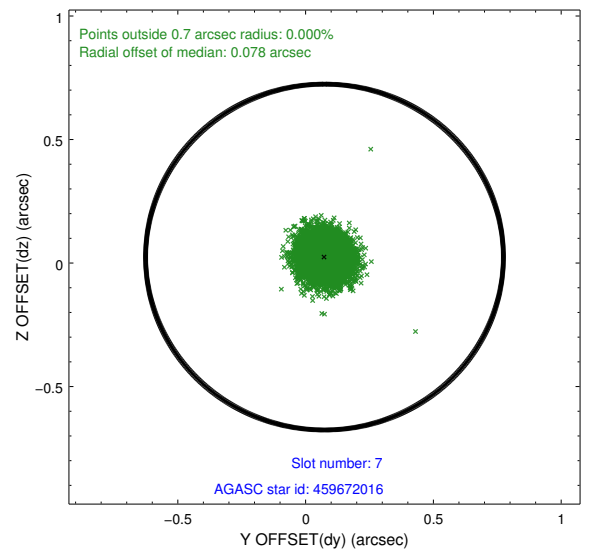
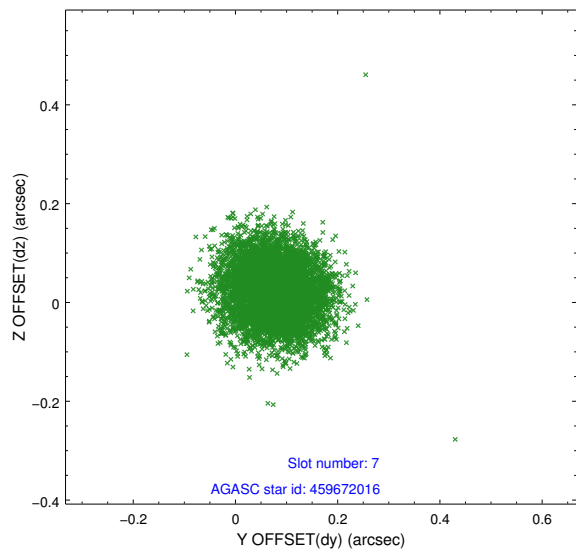
### 2.4.3 Slot 5



## 2.4.4 Slot 6

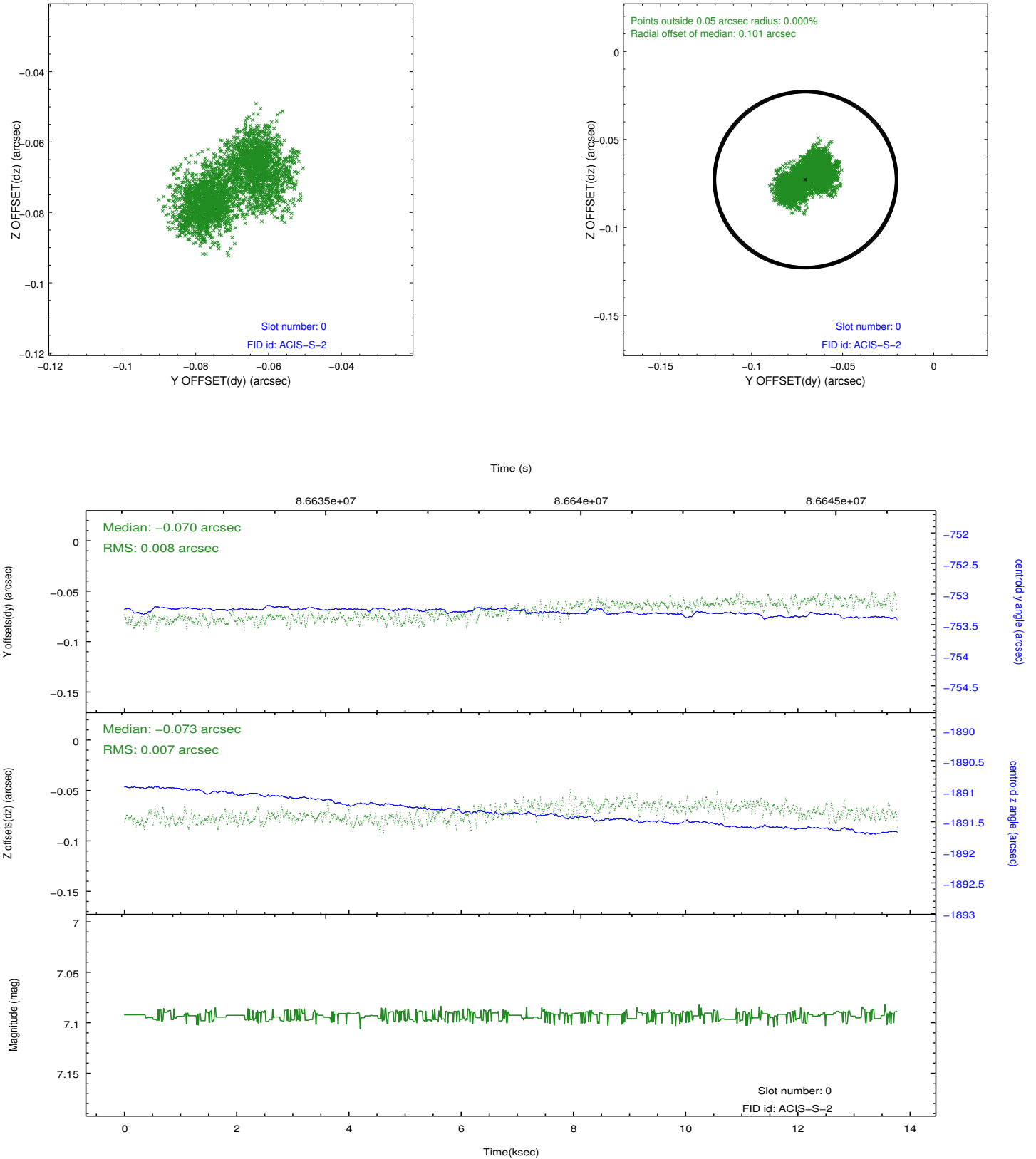


## 2.4.5 Slot 7

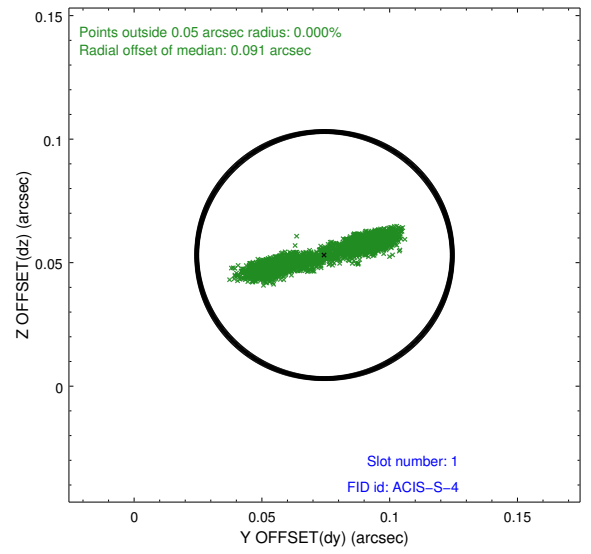
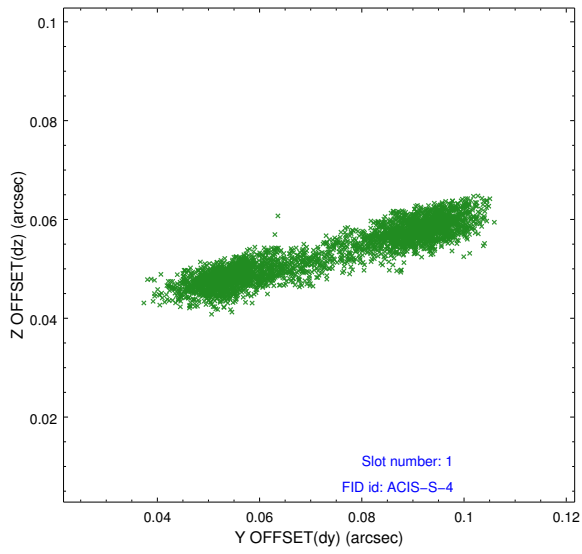


## 2.5 FID Slots

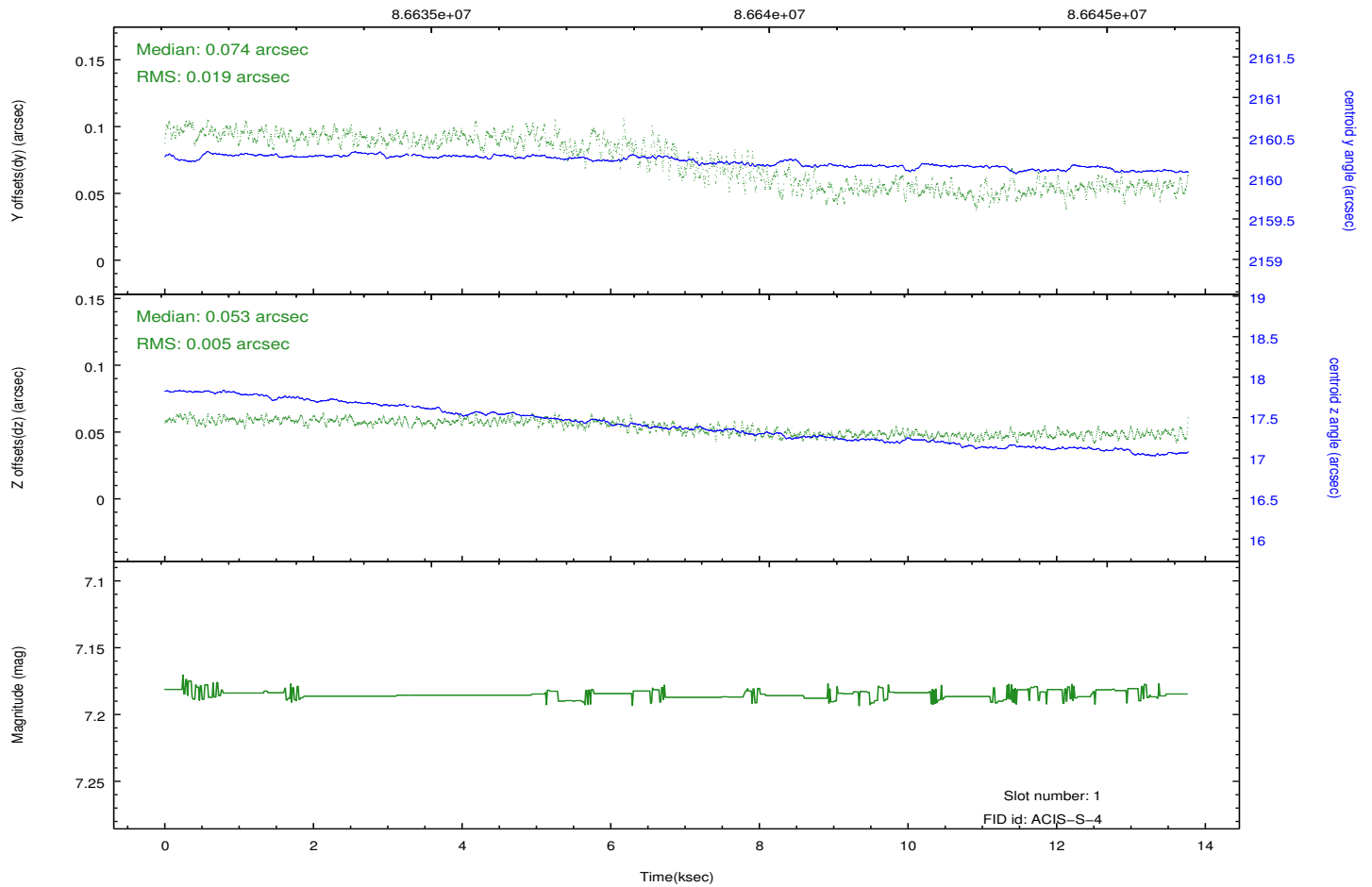
### 2.5.1 Slot 0



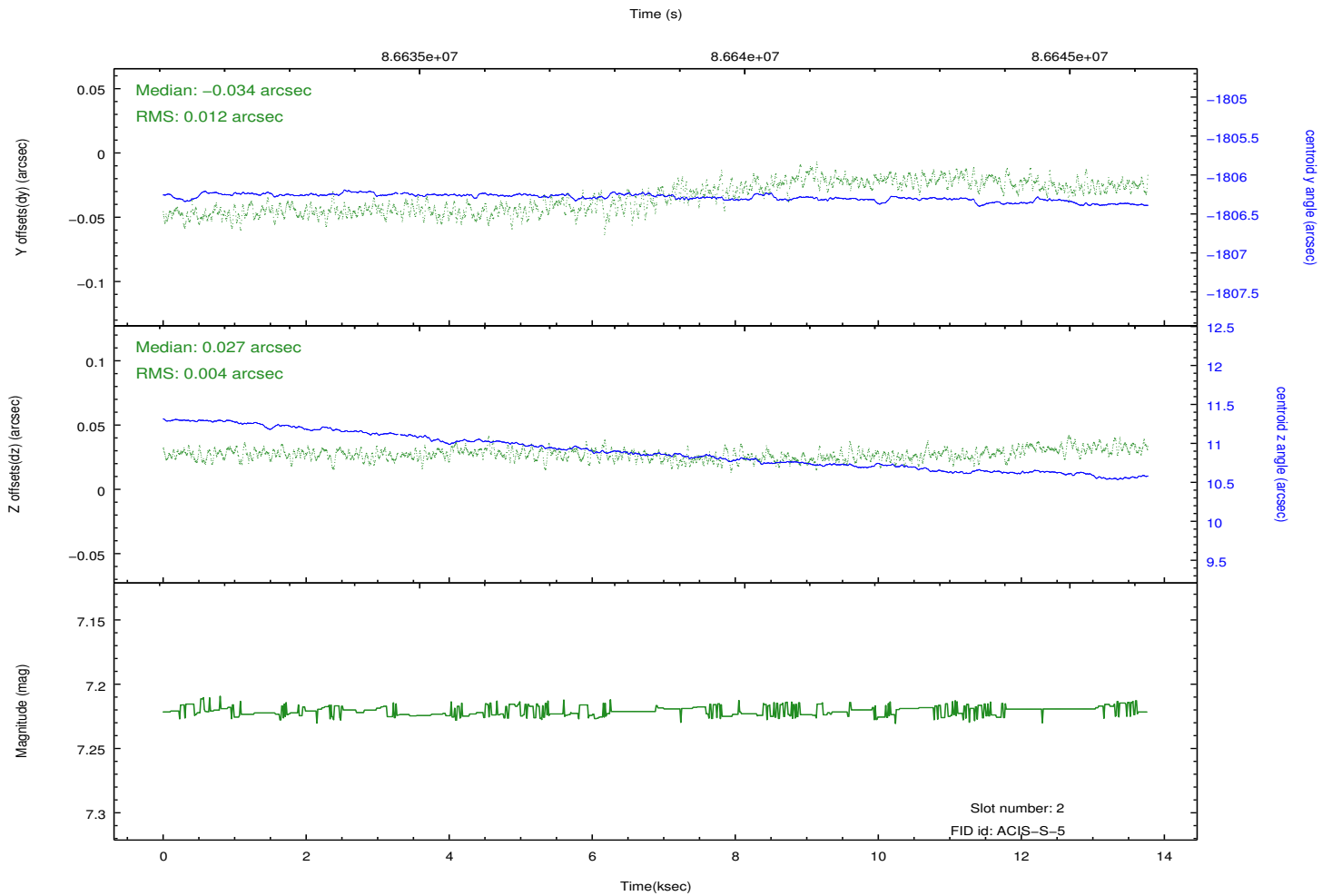
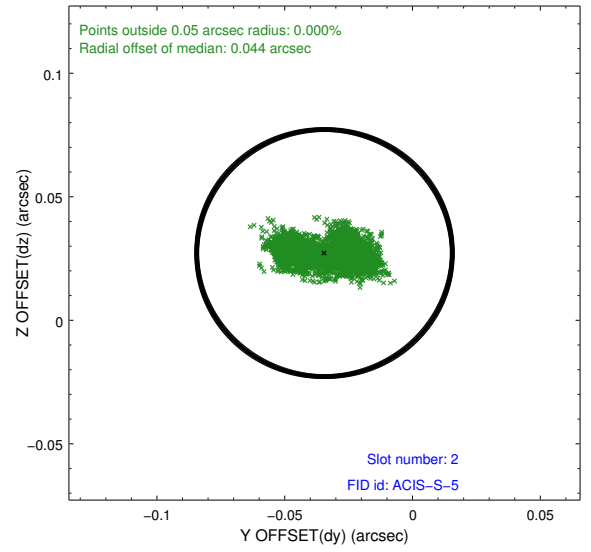
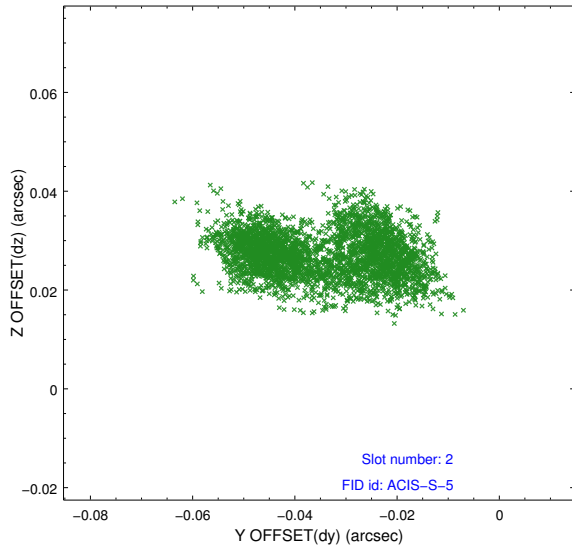
## 2.5.2 Slot 1



Time (s)



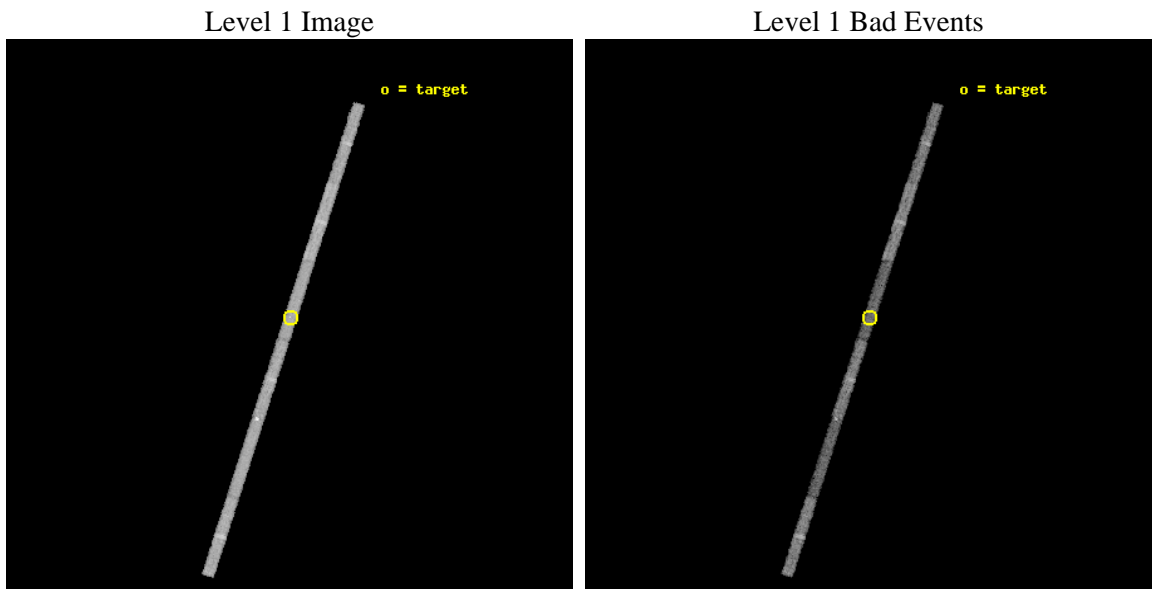
### 2.5.3 Slot 2



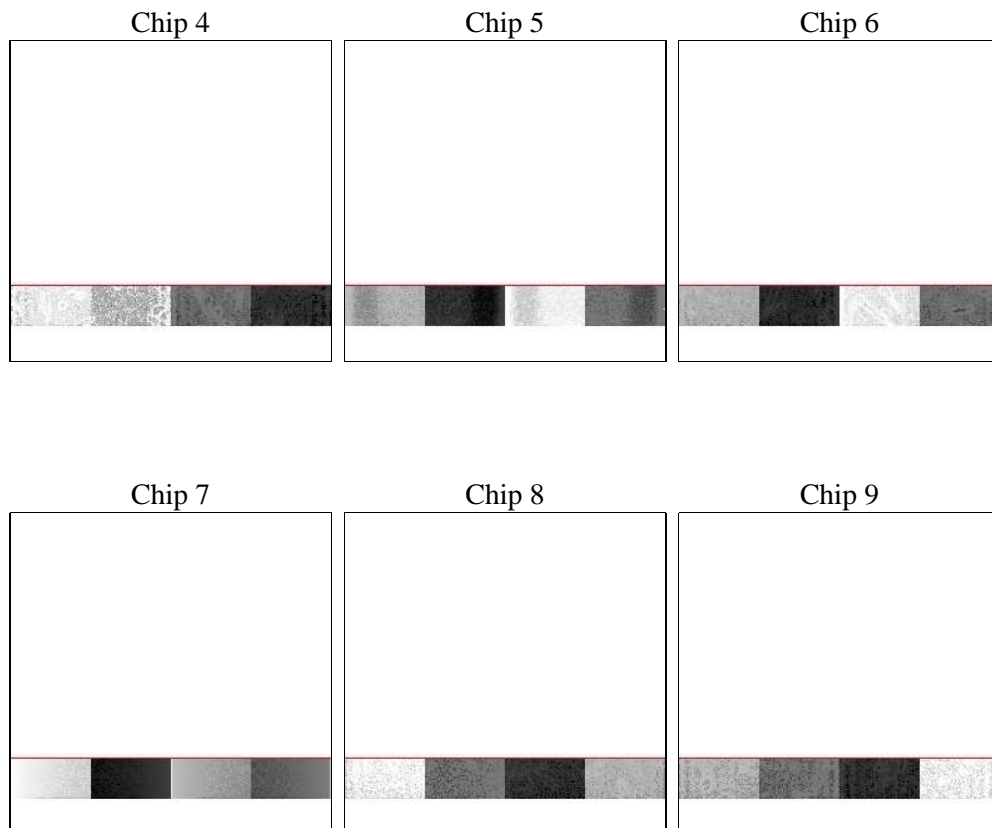
### 3 OBI Secondary

#### 3.1 OBI

##### 3.1.1 Images



##### 3.1.2 Bias



### 3.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	12875.957000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	11867.865342021	Sum of GTIs [s]
caldbver	4.5.1.1	&#160	ontime4	11867.865112916	Sum of GTIs [s]
date	2012-09-05T15:04:47	Date and time of file creation	ontime5	11867.864833385	Sum of GTIs [s]
revision	4	Processing version of data	ontime6	11867.865681201	Sum of GTIs [s]
			ontime7	11867.865342021	Sum of GTIs [s]
			ontime8	11867.86512278	Sum of GTIs [s]
			ontime9	11867.824522853	Sum of GTIs [s]
			l1events	85885	Number of level 1 events

### 3.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	15023	14372	13479	12598	18022	12391
rejected events	13551	6803	12204	6836	15351	11168
rejected %	90%	47%	90%	54%	85%	90%

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	467	1300	392	688	688	420
	3%	9%	2%	5%	3%	3%
grade 1 events	2	177	3	9	6	2
	0%	1%	0%	0%	0%	0%
grade 2 events	309	1953	206	1153	471	175
	2%	13%	1%	9%	2%	1%
grade 3 events	252	574	236	691	341	252
	1%	3%	1%	5%	1%	2%
grade 4 events	233	591	226	628	333	200
	1%	4%	1%	4%	1%	1%
grade 5 events	297	1240	339	1035	450	341
	1%	8%	2%	8%	2%	2%
grade 6 events	231	3264	234	2711	914	210
	1%	22%	1%	21%	5%	1%
grade 7 events	13232	5273	11843	5683	14819	10791
	88%	36%	87%	45%	82%	87%

# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.11
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	13.26

## A.2 Comments

FOR PRIMARY EXPOSURE ONLY:

The livetime for each chip is about 177.75s instead of 1395.6s for each chip because the use of a 0.1 s frame time for the selection of chips and rows used during the observation is shorter than the time it takes to read out one frame of data. The frame time must be at least 0.7 s to avoid 'flushing' the detector before each frame of data is collected. The time required to flush the detector is specified on p. 120 of the ACIS Science Instrument Software User's Guide:

<http://acis.mit.edu/swuserA/swuser.pdf> Events that occur during such a flush are discarded onboard. The flush time is effectively 'dead time.' For this reason, most of the 1395.6s of the observation was spent flushing the detectors instead of collecting data. Had the frame time been 0.7 s or longer, there would have been about 1395.6s of exposure instead of only about 177.75s.