

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21992 - L2 Version 1  
Chandra X-Ray Center

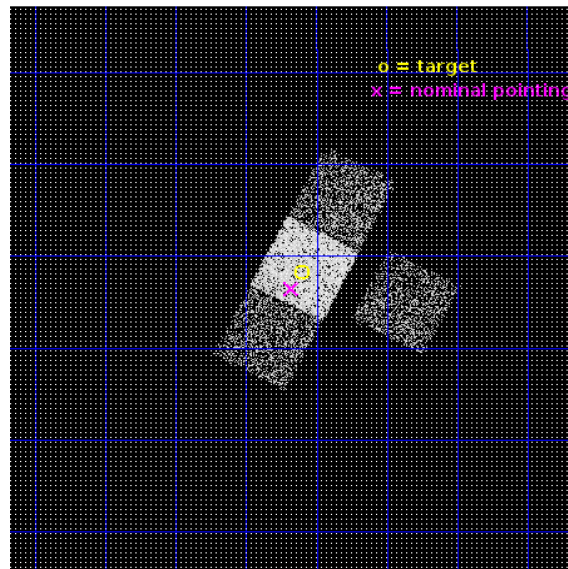
L2 Processing Date : Dec 14 2018

## 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
2.5	FID Slots . . . . .	13
2.5.1	Slot 0 . . . . .	13
2.5.2	Slot 1 . . . . .	14
2.5.3	Slot 2 . . . . .	15
<b>A</b>	<b>Summary</b>	<b>16</b>
A.1	Status . . . . .	16
A.2	Comments . . . . .	16

# 1 Front

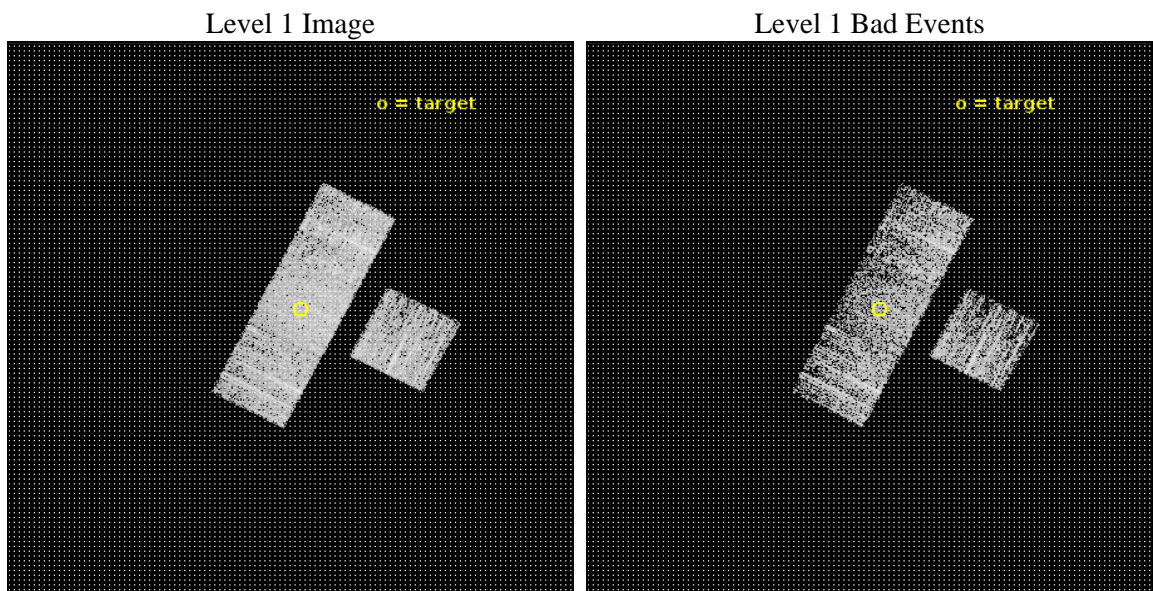
seq_num	100169	Sequence number
obs_id	21992	Observation id
title	Close encounter with comet 46P/Wirtanen: X-ray tomography of the coma	Proposal title
observer	Dennis Bodewits	Principal investigator
object	46P/Wirtanen	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.650213	Observer's specified target RA [deg]
dec_targ	11.137293	Observer's specified target Dec [deg]
ra_nom	54.669615910986	Nominal RA [deg]
dec_nom	11.107606775548	Nominal Dec [deg]
roll_nom	297.15268311693	Nominal Roll [deg]
revision	1	Processing version of data
ontime	2185.5000169277	Sum of GTIs [s]
livetime	2156.9448502649	Livetime [s]
ontime3	2182.3589165211	Sum of GTIs [s]
ontime6	2185.5000169277	Sum of GTIs [s]
ontime7	2185.5000169277	Sum of GTIs [s]
ontime8	2185.5000169277	Sum of GTIs [s]
l2events	13846	Number of level 2 events



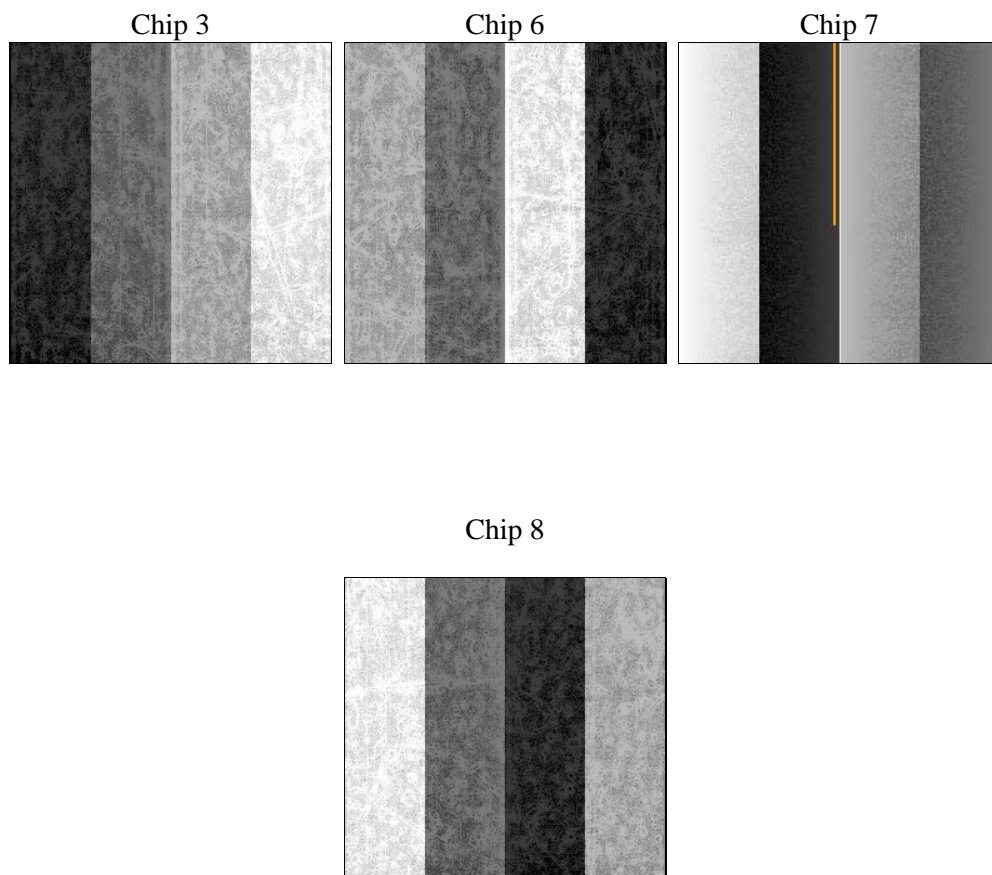
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	2000.000000	[s] Scheduled observation exposure time
ascdsver	10.7.1	Processing system revision	ontime	2185.5000169277	Sum of GTIs [s]
caldsver	4.8.2	&#160	ontime3	2182.3589165211	Sum of GTIs [s]
date	2018-12-14T11:54:39	Date and time of file creation	ontime6	2185.5000169277	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	2185.5000169277	Sum of GTIs [s]
			ontime8	2185.5000169277	Sum of GTIs [s]
			l1events	88436	Number of level 1 events

### 2.1.4 Events

	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	19356	19875	24967	24238
rejected events	17729	18031	15694	19019
rejected %	91%	90%	62%	78%

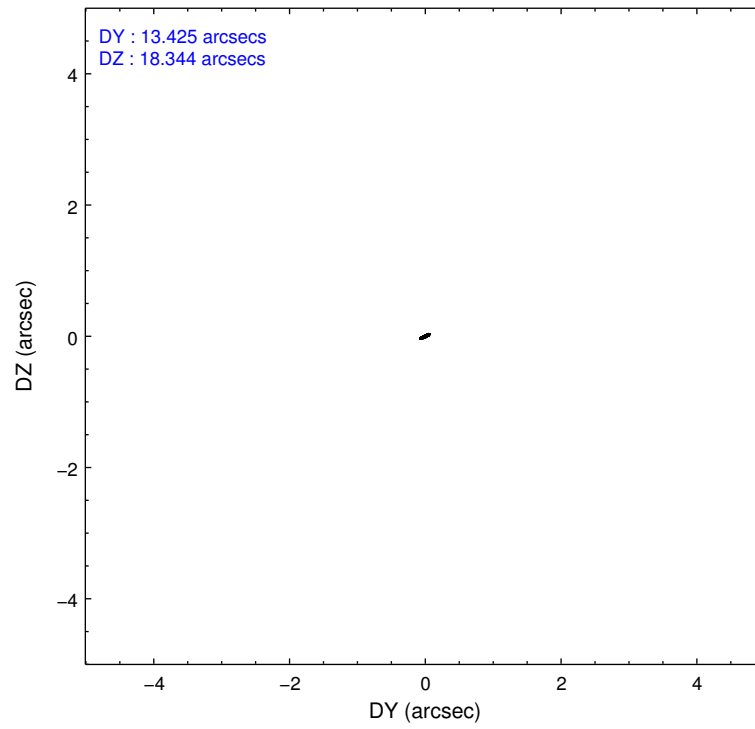
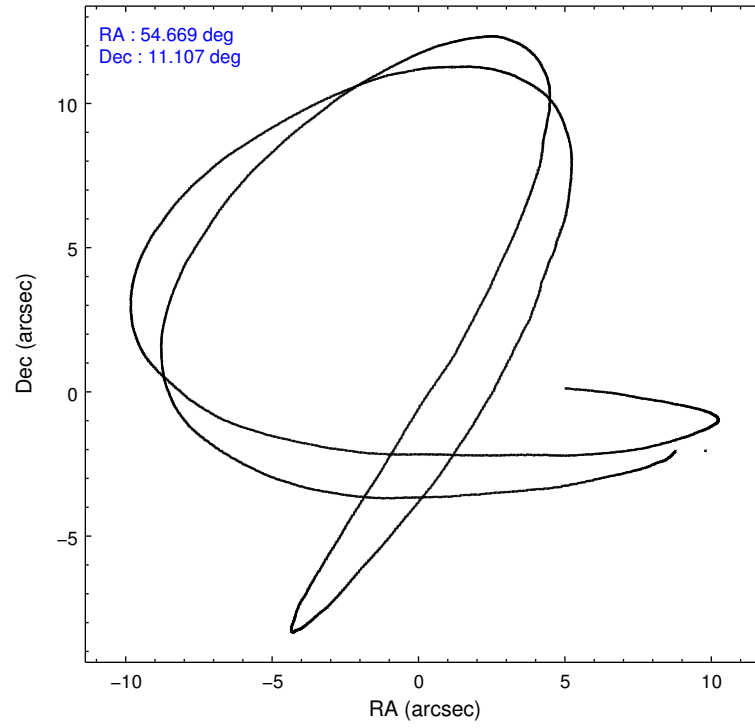
	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	633	594	893	1701
	3%	2%	3%	7%
grade 1 events	6	7	45	21
	0%	0%	0%	0%
grade 2 events	411	568	2228	1489
	2%	2%	8%	6%
grade 3 events	203	187	828	668
	1%	0%	3%	2%
grade 4 events	215	181	816	626
	1%	0%	3%	2%
grade 5 events	844	837	2385	1317
	4%	4%	9%	5%
grade 6 events	456	564	5974	1648
	2%	2%	23%	6%
grade 7 events	16588	16937	11798	16768
	85%	85%	47%	69%

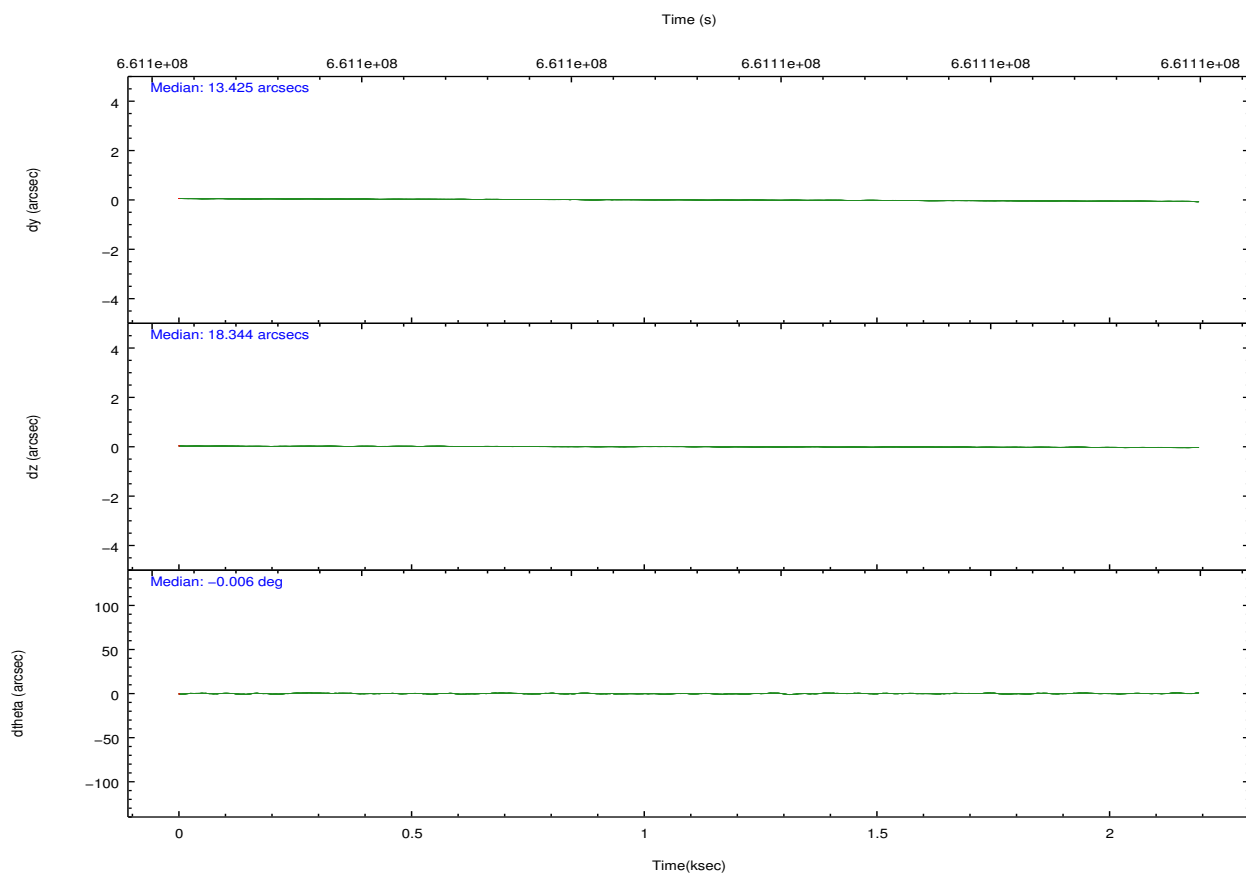
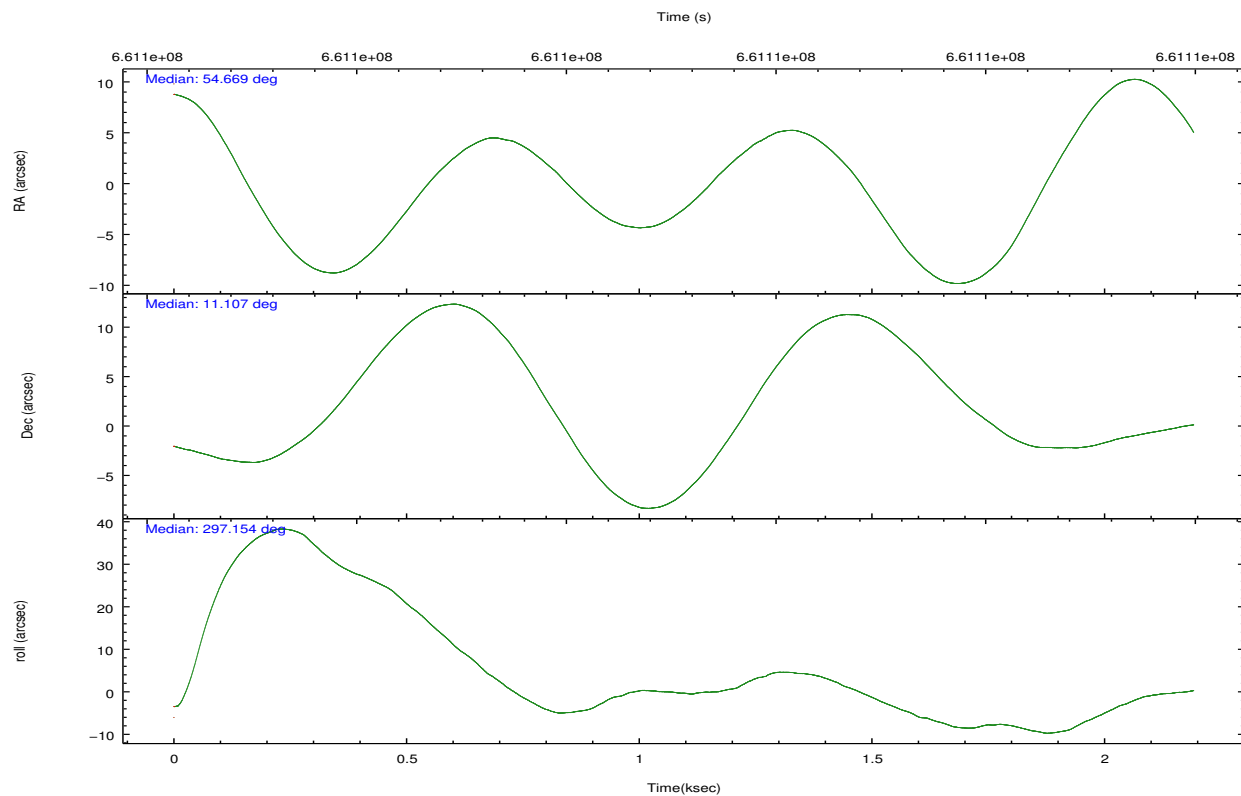
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-3678	ACIS-3678
Grating	NONE	NONE
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	54.645742	54.66961591098626
[deg] Pointing Dec	11.122294	11.10760677554839
[deg] Pointing Roll	297.000856	297.152683116934
[s] Window start time (MET)	660009669.184000	660009669.184000
[s] Window stop time (MET)	660355269.184000	660355269.184000
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-190.132523	-190.1400660498719
[mm] SIM translation stage offset	0	0.00754346686406393
[s] Observation start time (MET)	661104384.184000	661103833.15517
Observation start date	2018-12-13T16:05:15	2018-12-13T15:57:13
[s] Observation end time (MET)	661106384.184000	661106518.6553299
Observation end date	2018-12-13T16:38:35	2018-12-13T16:41:58
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	O2	N
CCD I3 on	O3	Y
CCD S0 on	N	N
CCD S1 on	O1	N
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	N	N
Number of optional ACIS chips dropped	2	2
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect





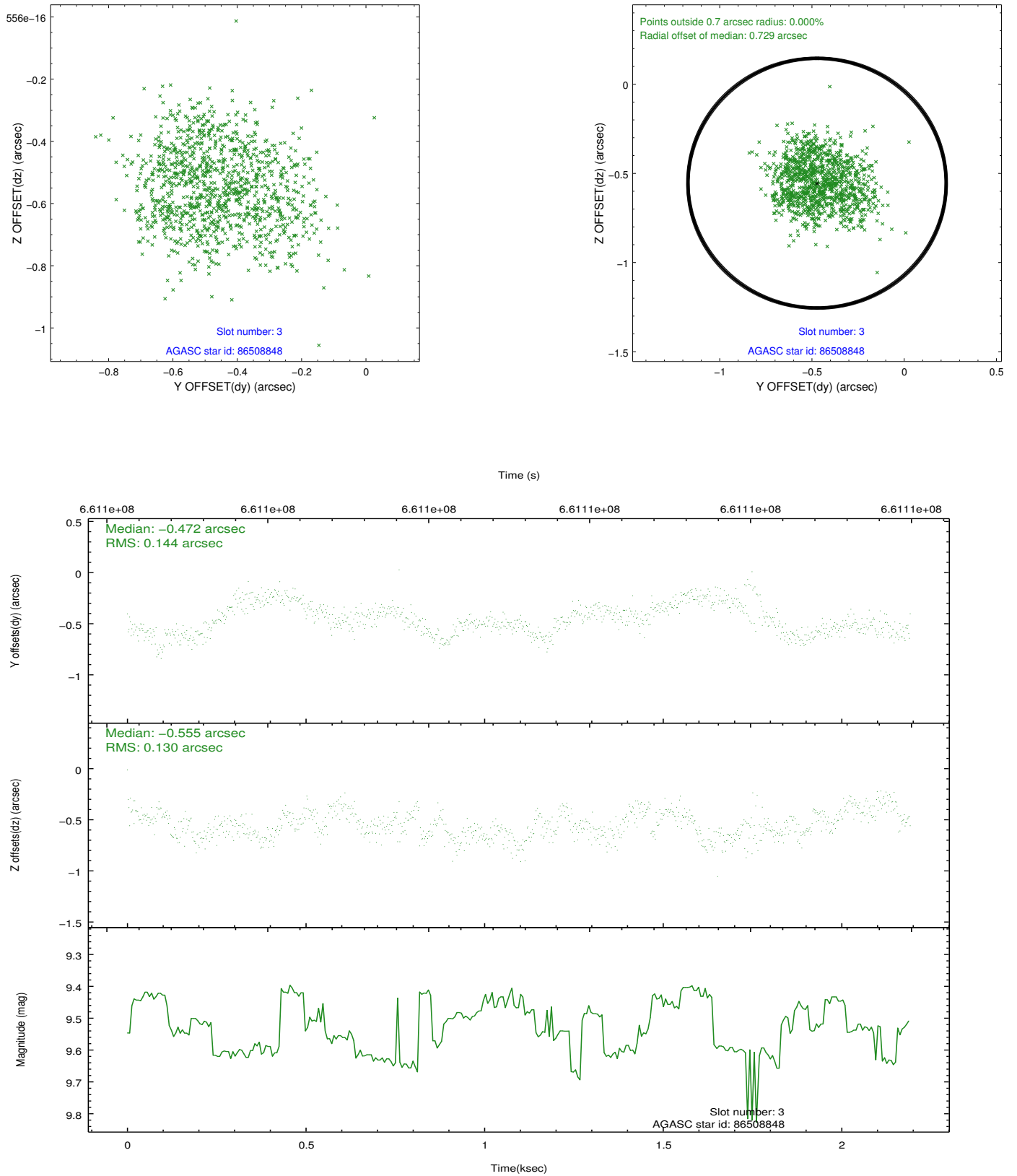
Slot Statistics

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	7.12	535	1.000	-0.261	-0.225	0.006	0.012	0.000000	0.000000	-766.55	-1740
1	FID		ACIS-S-4	7.25	535	1.000	0.742	0.186	0.005	0.010	0.000000	0.000000	2146.30	165
2	FID		ACIS-S-5	7.22	535	1.000	-0.512	0.047	0.006	0.010	0.000000	0.000000	-1815.90	162
3	GUIDE	used	86508848	9.54	1068	1.000	-0.472	-0.555	0.208	0.319	55.309555	11.150461	971.69	2136
4	GUIDE	used	86509864	9.33	1069	1.000	0.037	0.047	0.114	0.195	54.565929	11.706993	-2002.05	707
5	GUIDE	used	86512984	9.06	1070	1.000	0.194	-0.000	0.143	0.234	54.433894	10.707148	990.40	-1344
6	GUIDE	used	86513304	8.38	1068	1.000	0.233	0.493	0.144	0.209	53.830317	11.396732	-2187.45	-2111
7	UNUSED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

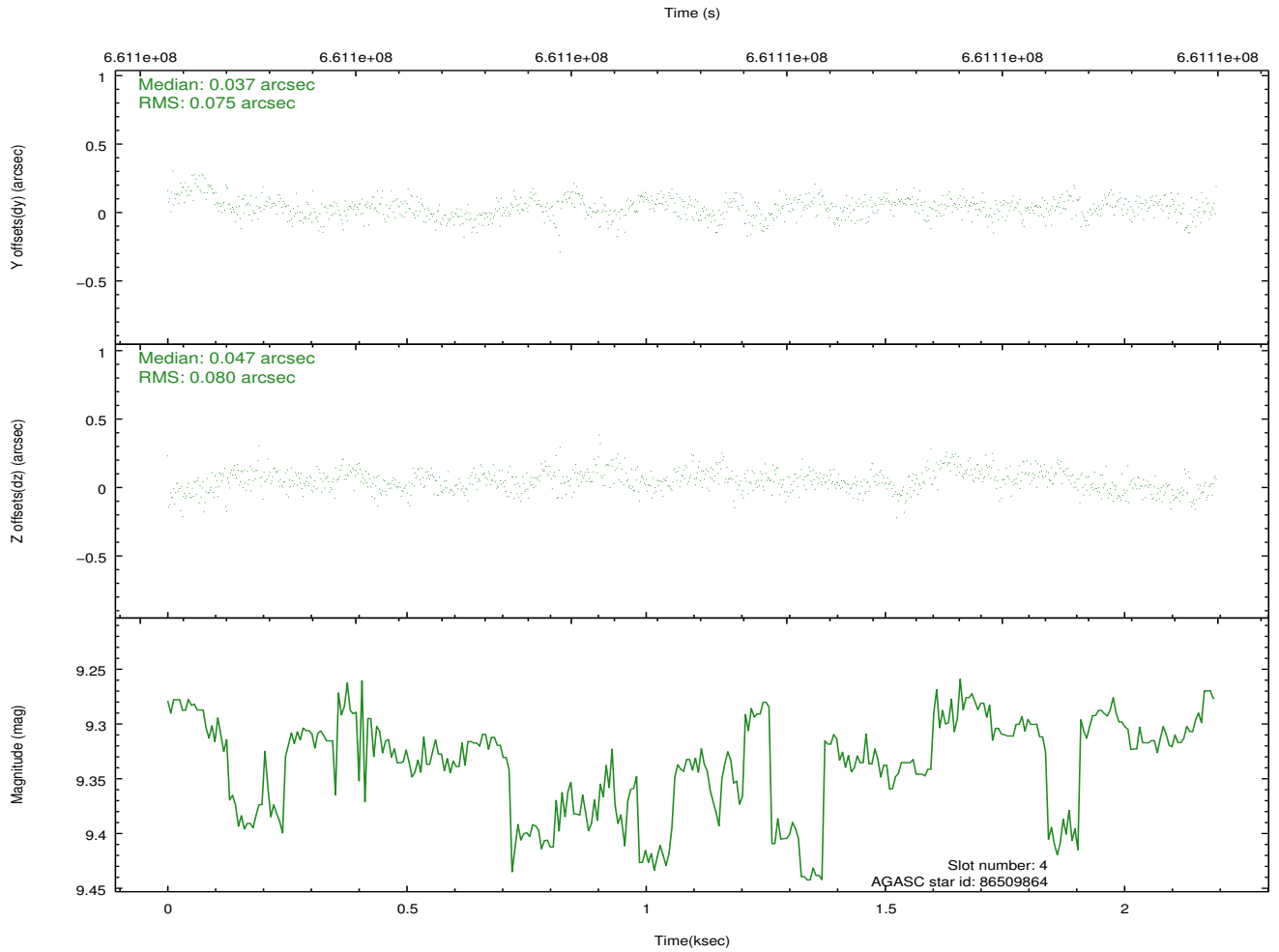
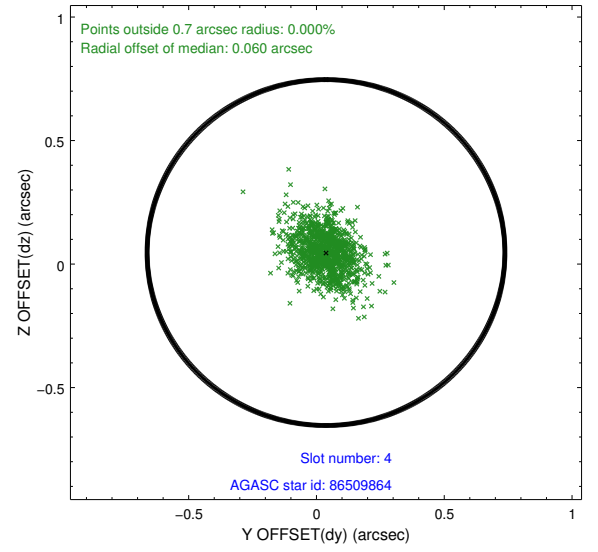
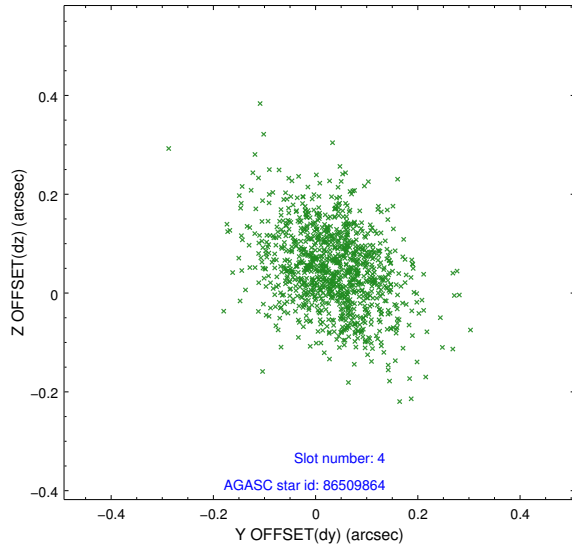


## 2.4 Star Slots

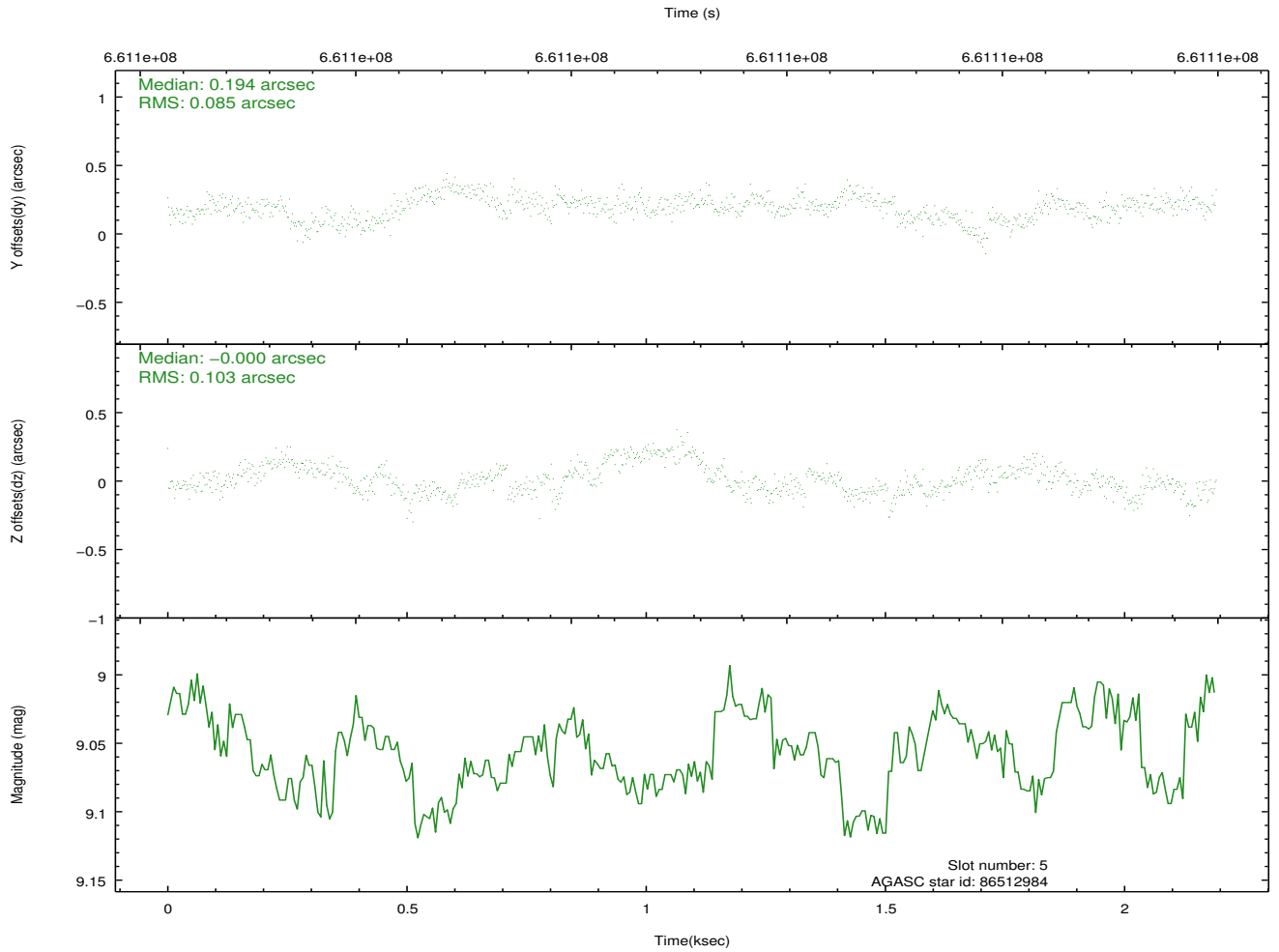
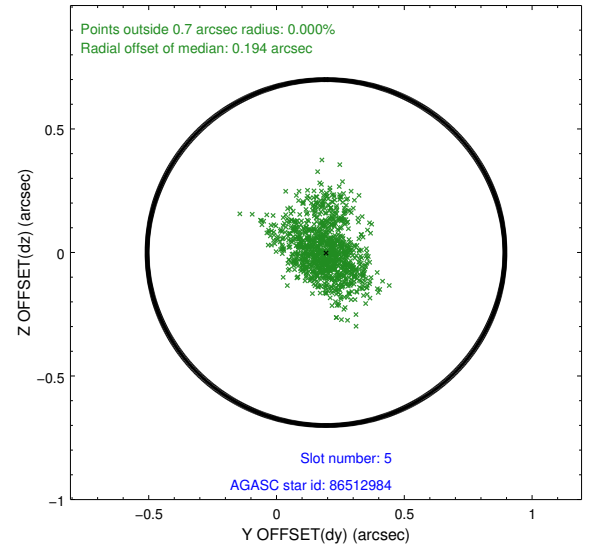
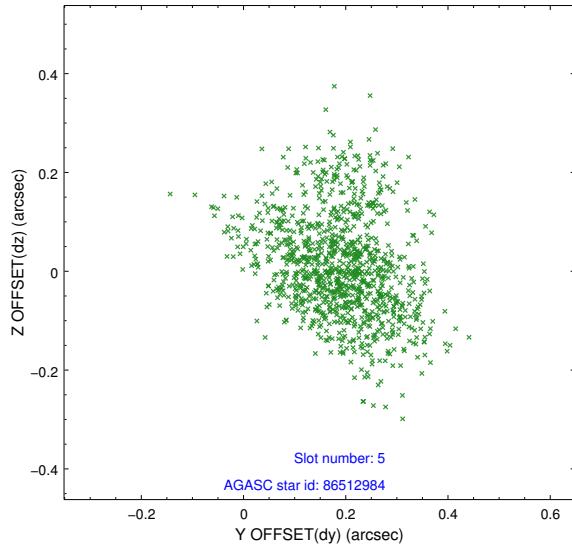
### 2.4.1 Slot 3



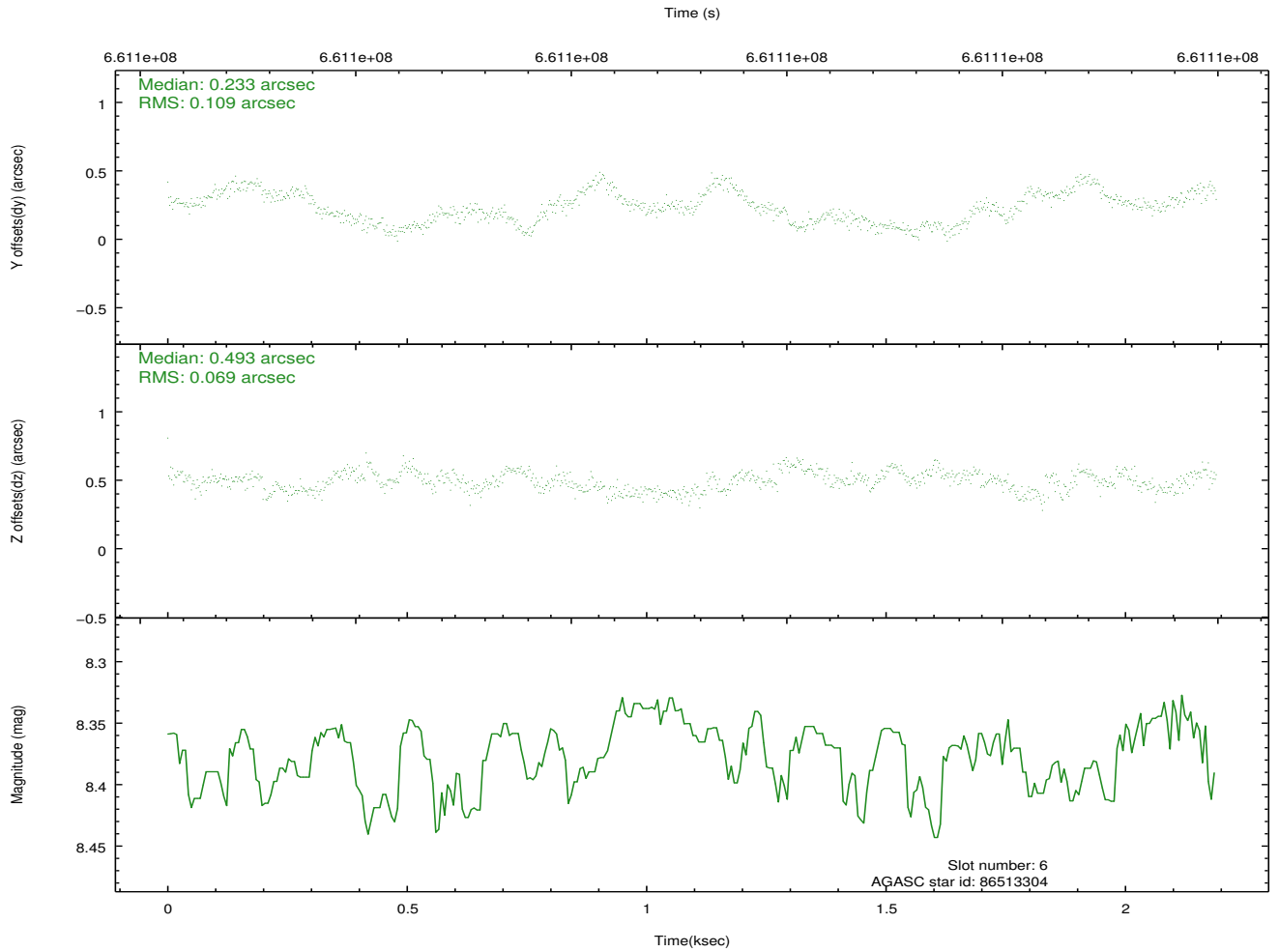
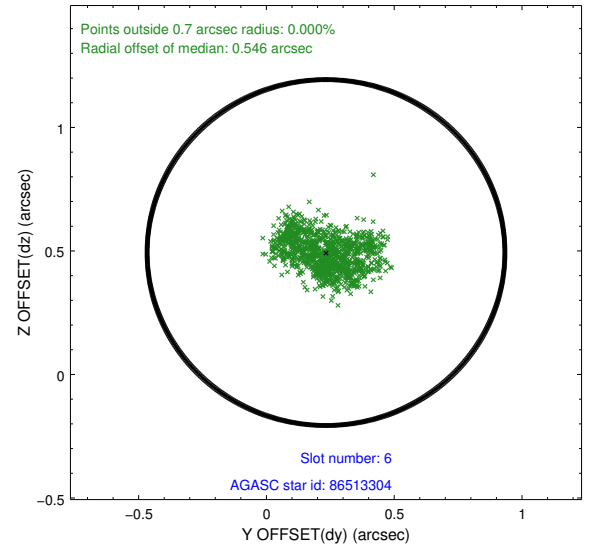
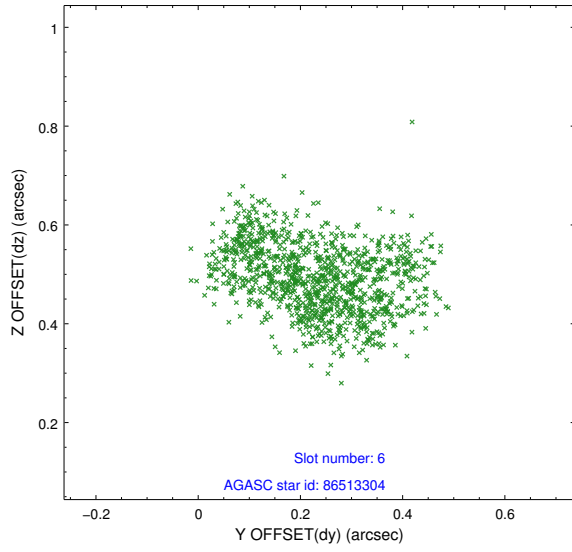
## 2.4.2 Slot 4



### 2.4.3 Slot 5

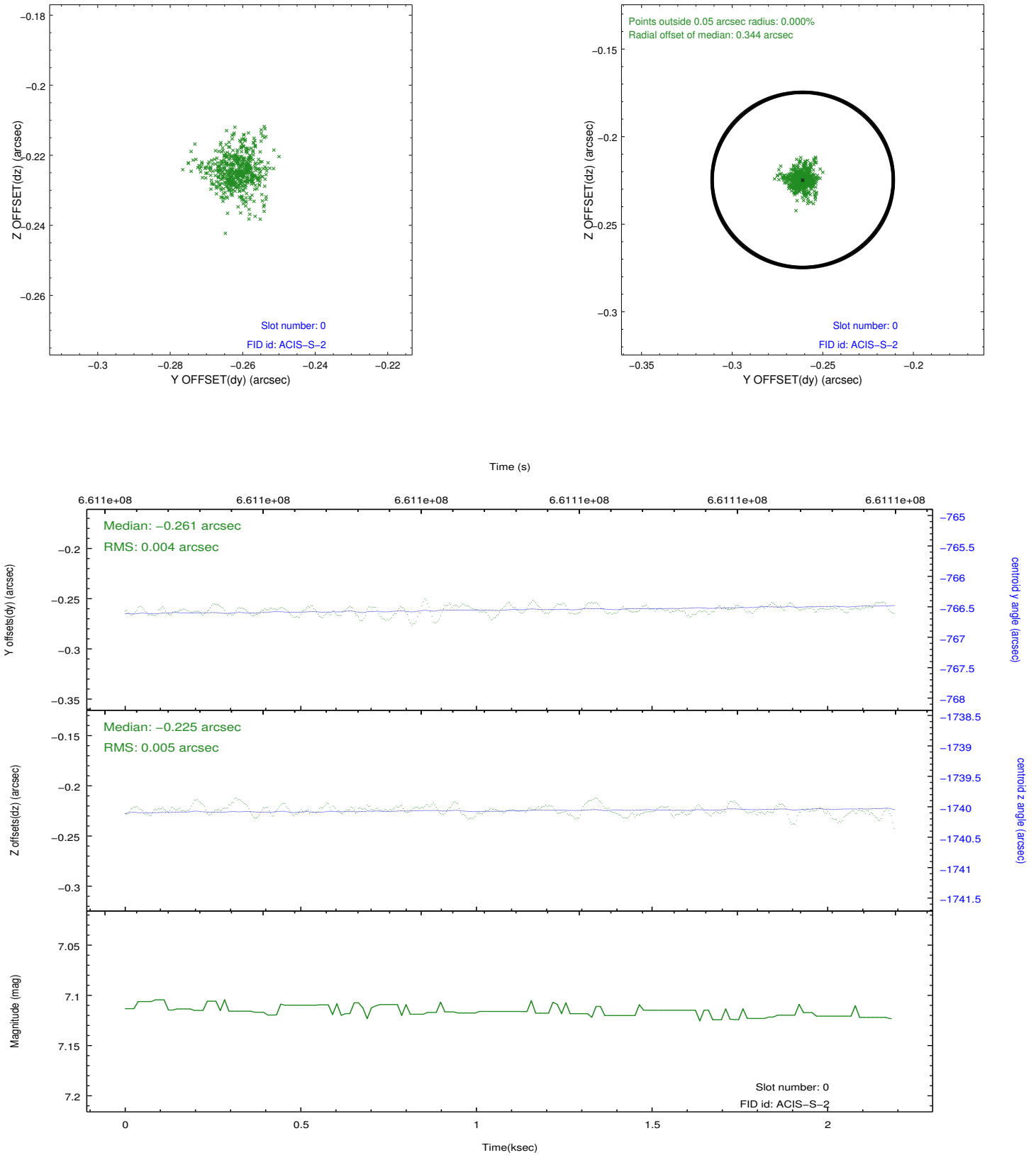


## 2.4.4 Slot 6

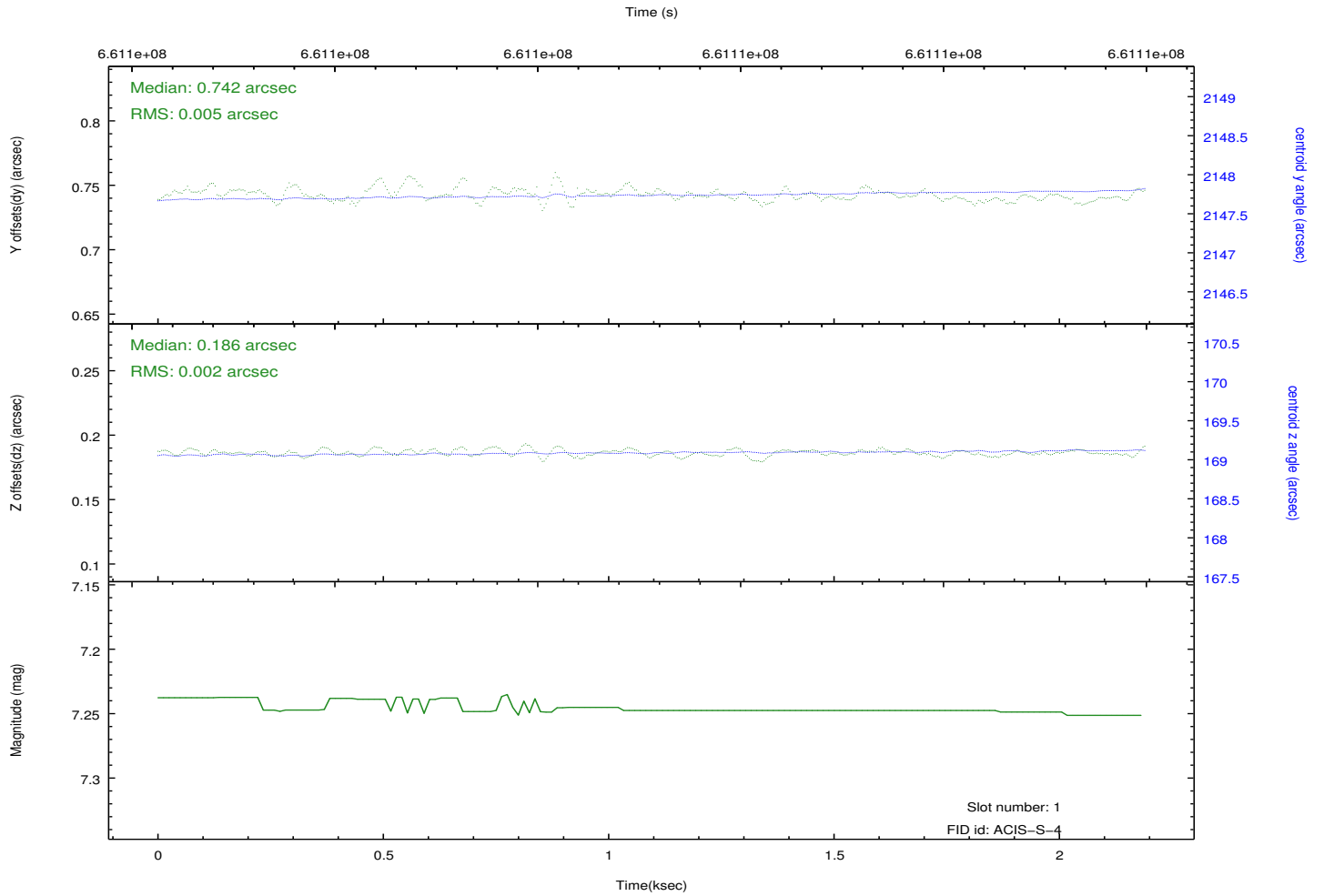
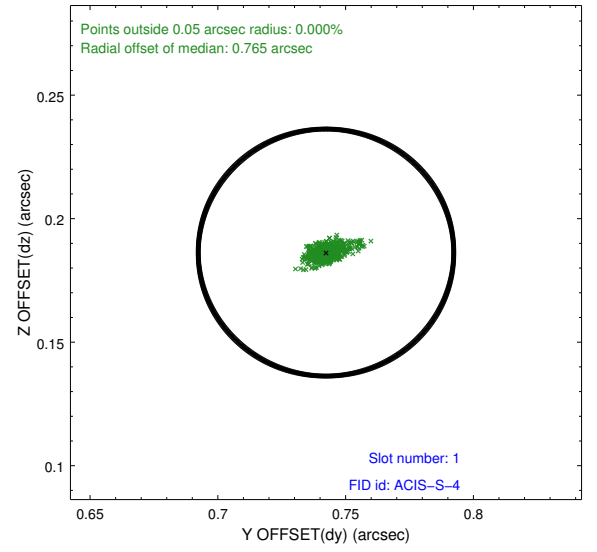
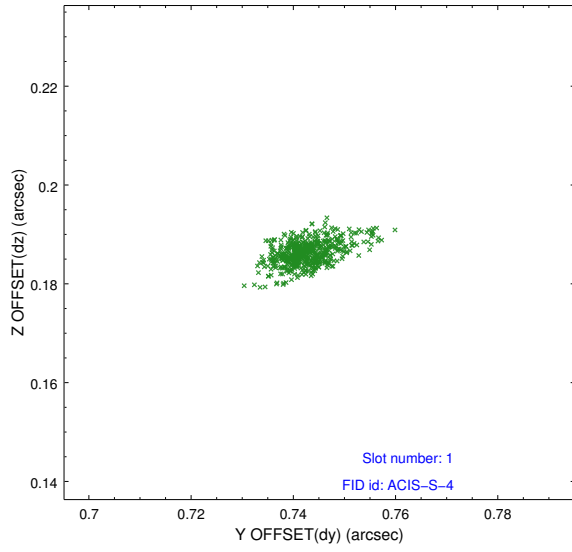


## 2.5 FID Slots

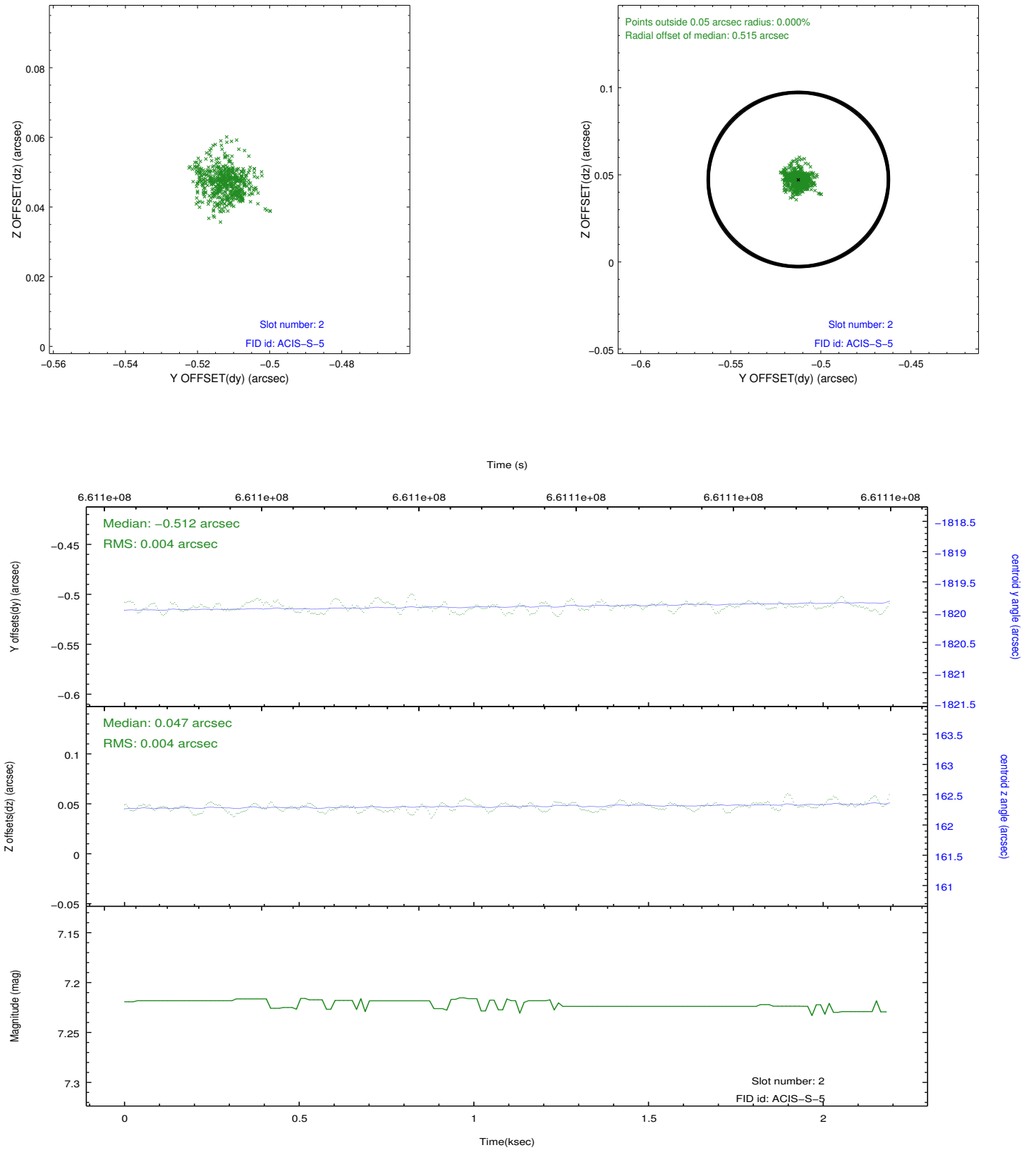
### 2.5.1 Slot 0



## 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)	2018.12.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.1855000169277

## A.2 Comments

This is a moving target. Users will need to run sso\_freeze or similar software to position the events in the reference frame of the target.

=====

Joint Proposal: HST. Optional chips S1 and I2 not included. Window constraint met.

=====

The use of 4 guide stars instead of 5 was necessary and approved by the Aspect Team