

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21991 - L2 Version 1  
Chandra X-Ray Center

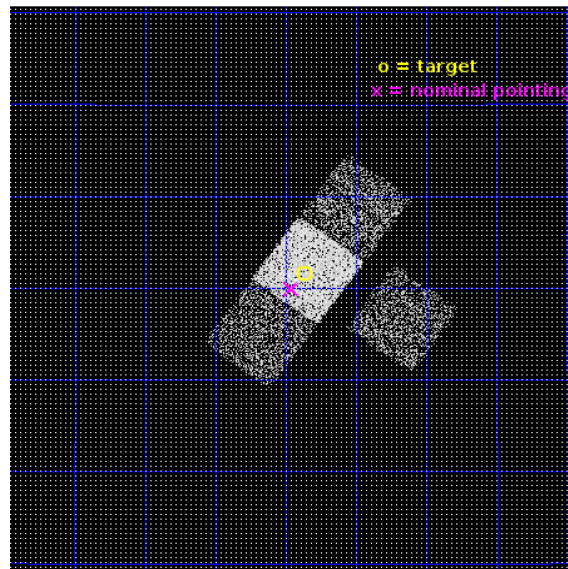
L2 Processing Date : Dec 14 2018

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# 1 Front

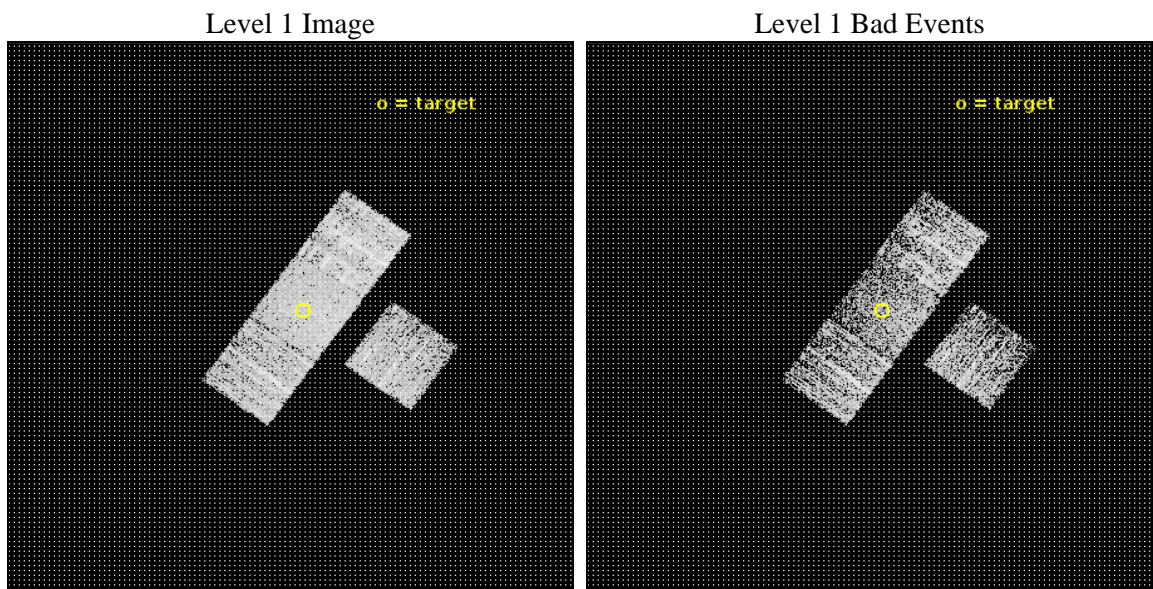
seq_num	100169	Sequence number
obs_id	21991	Observation id
title	Close encounter with comet 46P/Wirtanen: X-ray tomography of the coma	Proposal title
observer	Dennis Bodewits	Principal investigator
object	46P/Wirtanen	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.591198	Observer's specified target RA [deg]
dec_targ	11.025336	Observer's specified target Dec [deg]
ra_nom	54.614904732634	Nominal RA [deg]
dec_nom	10.998955776205	Nominal Dec [deg]
roll_nom	305.85208000984	Nominal Roll [deg]
revision	1	Processing version of data
ontime	2182.4000169039	Sum of GTIs [s]
livetime	2153.8853540235	Livetime [s]
ontime3	2182.4000169039	Sum of GTIs [s]
ontime6	2182.4000169039	Sum of GTIs [s]
ontime7	2182.4000169039	Sum of GTIs [s]
ontime8	2182.4000169039	Sum of GTIs [s]
l2events	13562	Number of level 2 events



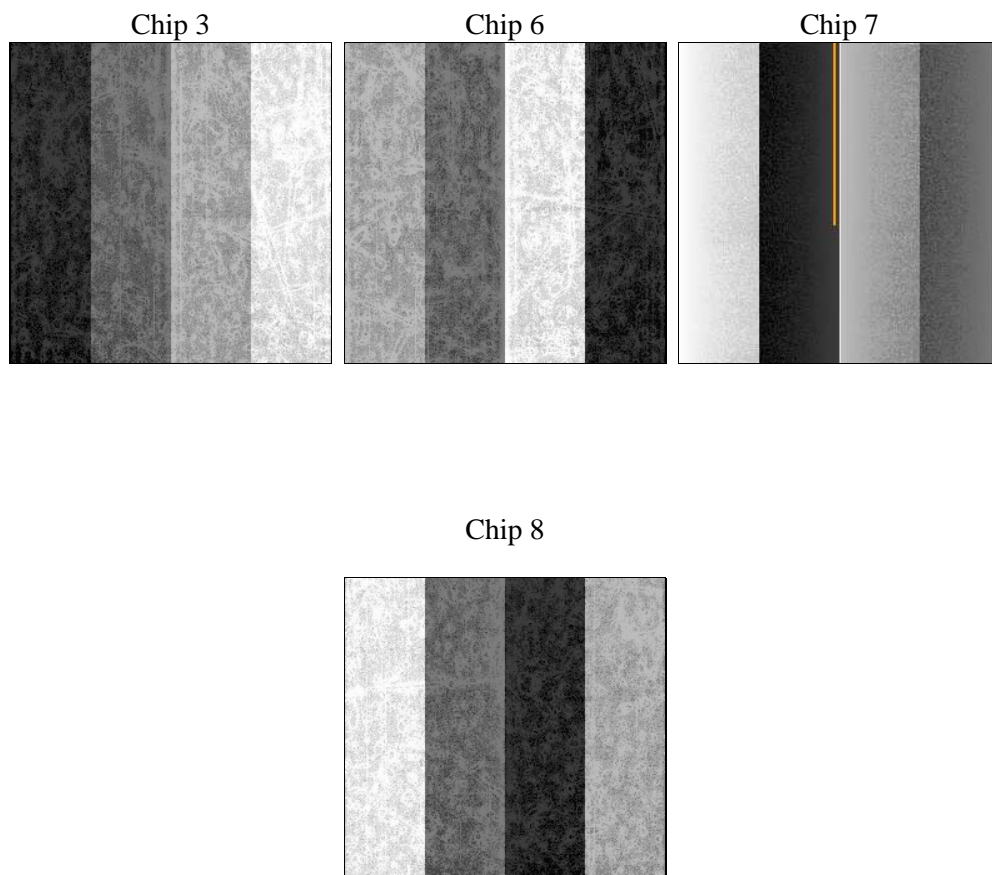
## 2 OBI

### 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	2182.4000169039	Sum of GTIs [s]
caldsver	4.8.2	&#160	ontime3	2182.4000169039	Sum of GTIs [s]
date	2018-12-14T11:54:39	Date and time of file creation	ontime6	2182.4000169039	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	2182.4000169039	Sum of GTIs [s]
			ontime8	2182.4000169039	Sum of GTIs [s]
			l1events	94596	Number of level 1 events

### 2.1.4 Events

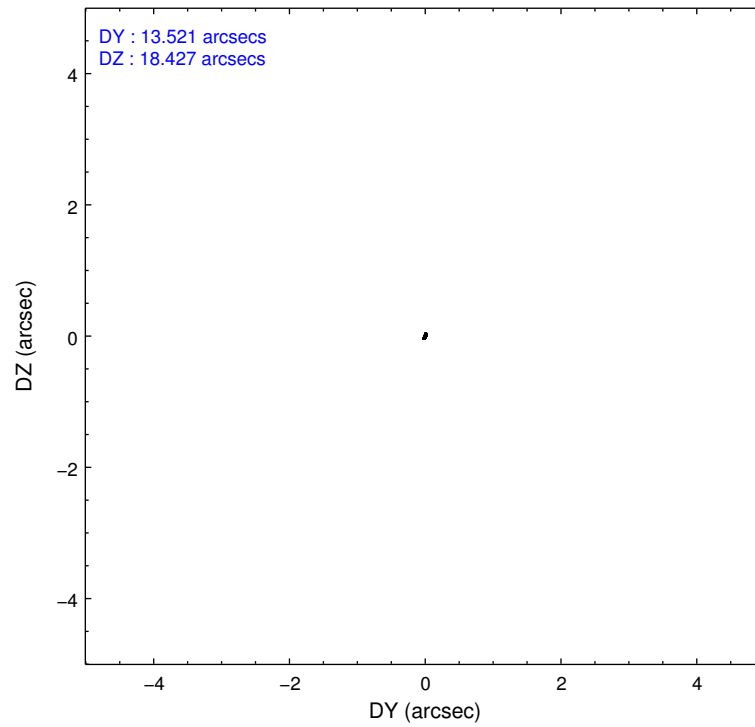
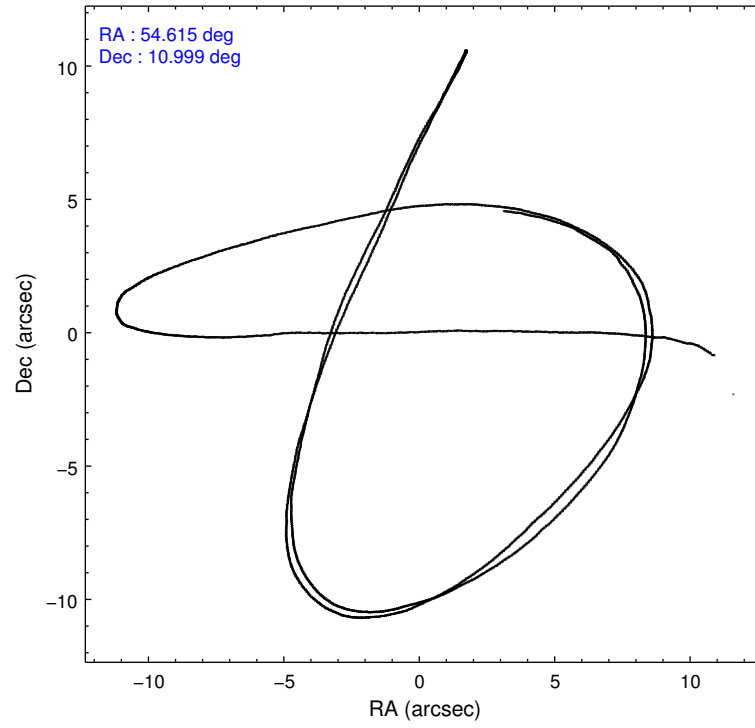
	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	19073	22100	25225	28198
rejected events	17429	20186	16417	22475
rejected %	91%	91%	65%	79%

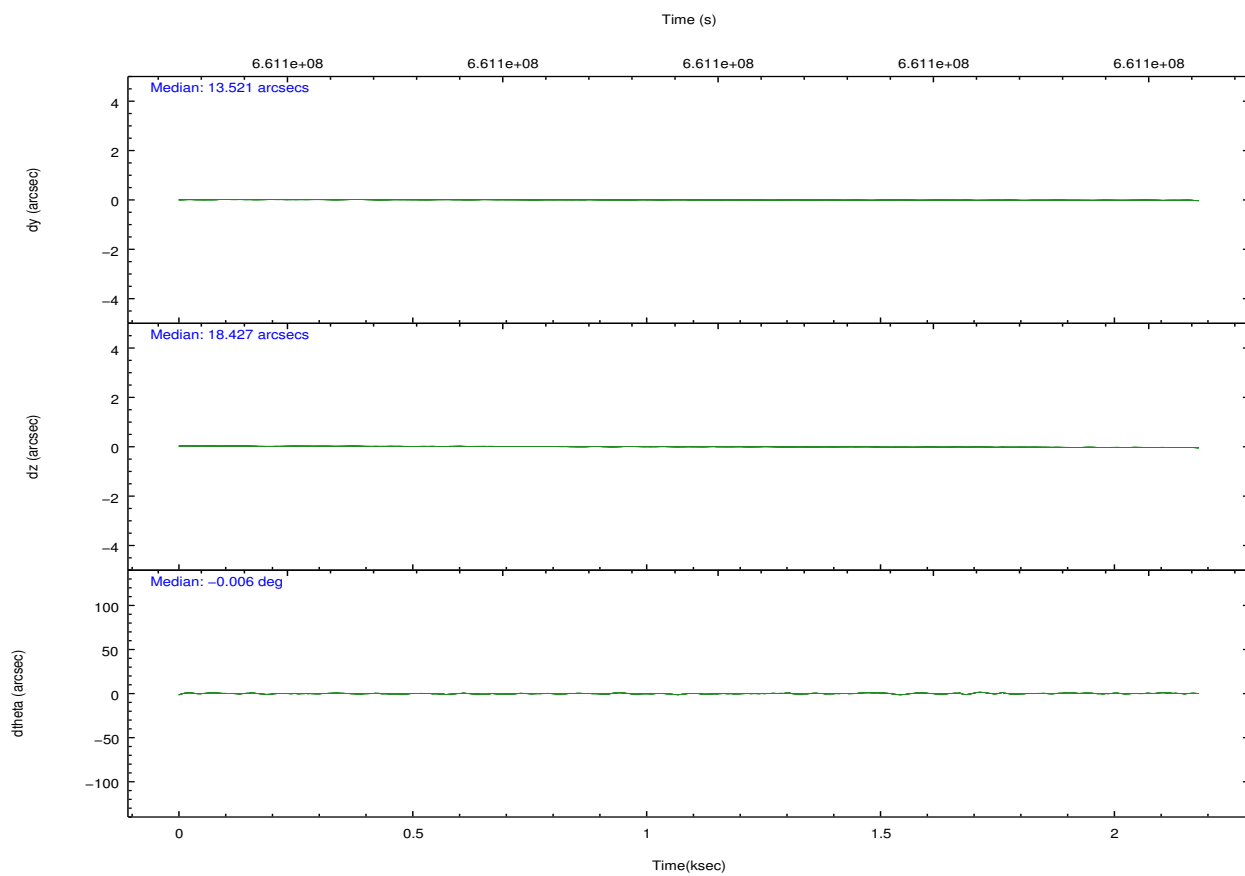
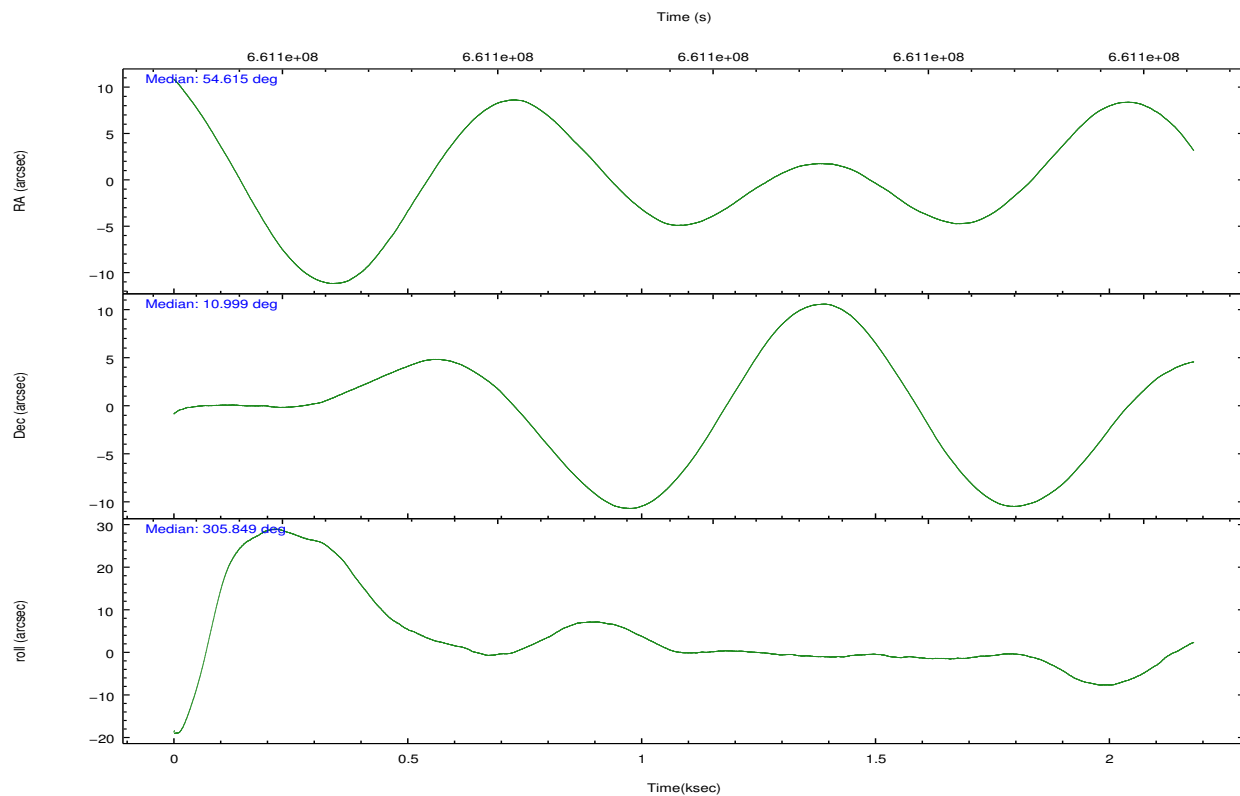
	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	744	677	888	1948
	3%	3%	3%	6%
grade 1 events	13	10	37	21
	0%	0%	0%	0%
grade 2 events	433	583	2272	1766
	2%	2%	9%	6%
grade 3 events	232	219	879	751
	1%	0%	3%	2%
grade 4 events	223	200	805	688
	1%	0%	3%	2%
grade 5 events	882	872	2489	1448
	4%	3%	9%	5%
grade 6 events	420	662	6058	2003
	2%	2%	24%	7%
grade 7 events	16126	18877	11797	19573
	84%	85%	46%	69%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-3678	ACIS-3678	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	54.589122	54.61490473263393	CCD I2 on	O2	N
[deg] Pointing Dec	11.009831	10.99895577620547	CCD I3 on	Y	Y
[deg] Pointing Roll	305.700392	305.8520800098397	CCD S0 on	N	N
[s] Window start time (MET)	660009669.184000	660009669.184000	CCD S1 on	O1	N
[s] Window stop time (MET)	660355269.184000	660355269.184000	CCD S2 on	Y	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S3 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S4 on	Y	Y
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	CCD S5 on	N	N
[mm] SIM translation stage offset	0	0.00754346686406393	Number of optional ACIS chips dropped	2	2
[s] Observation start time (MET)	661101523.184000	661101147.65501	On-chip summing requested	N	N
Observation start date	2018-12-13T15:17:34	2018-12-13T15:12:27	Subarray requested	NONE	NONE
[s] Observation end time (MET)	661103523.184000	661103833.15517	Alternating exposures requested	N	N
Observation end date	2018-12-13T15:50:54	2018-12-13T15:57:13	[s] Primary exposure time	0.000000	3.1
Read mode	TIMED	TIMED			

## 2.3 Aspect





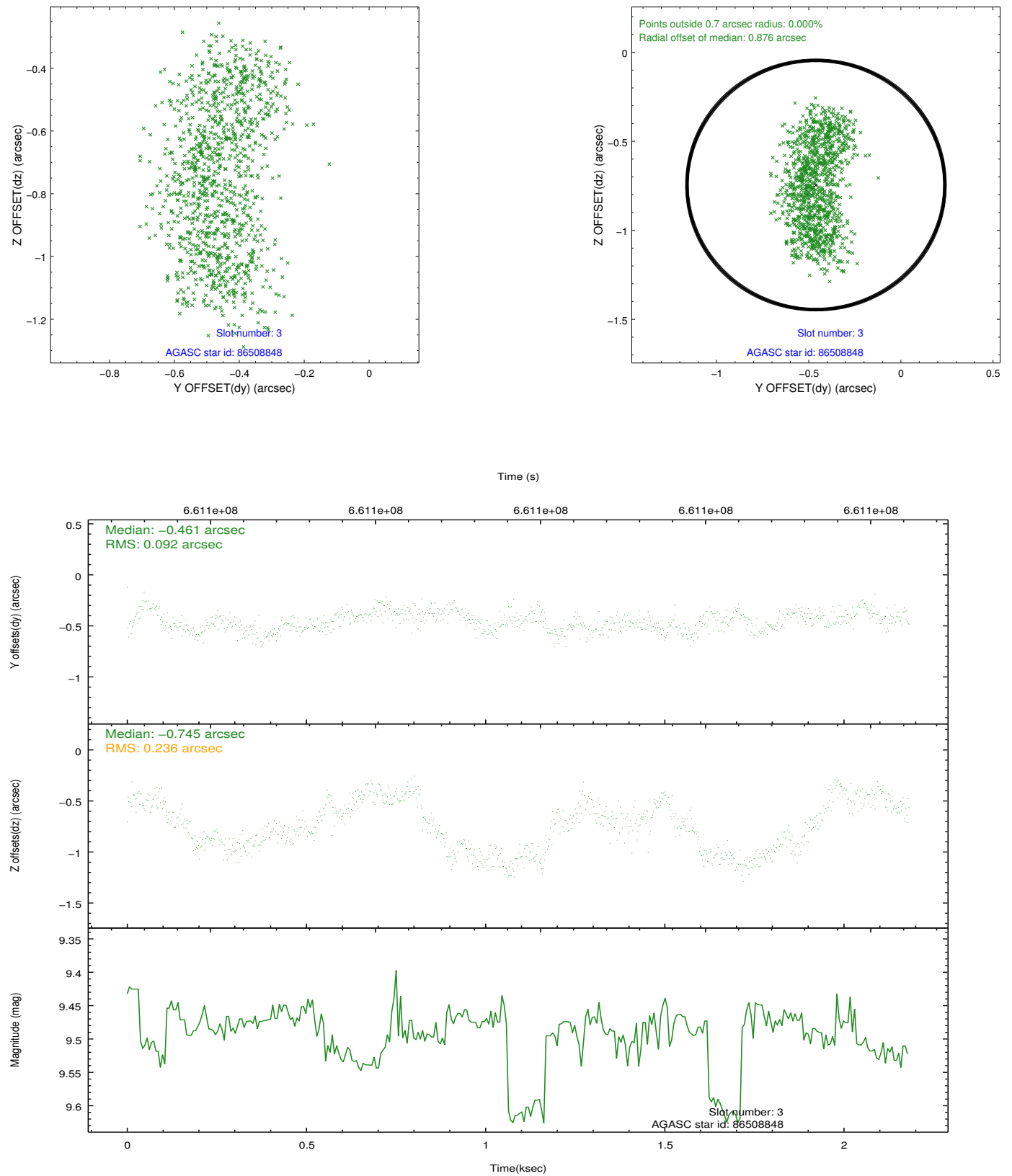
Slot Statistics

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	7.10	532	1.000	-0.271	-0.228	0.006	0.010	0.000000	0.000000	-766.66	-1740
1	FID		ACIS-S-4	7.23	532	1.000	0.764	0.191	0.004	0.008	0.000000	0.000000	2146.22	165
2	FID		ACIS-S-5	7.21	532	1.000	-0.525	0.045	0.006	0.010	0.000000	0.000000	-1815.99	162
3	GUIDE	used	86508848	9.49	1065	1.000	-0.461	-0.745	0.290	0.414	55.309555	11.150461	1071.57	2363
4	GUIDE	used	86509864	9.34	1057	1.000	0.005	-0.021	0.153	0.259	54.565929	11.706993	-2084.27	1400
5	GUIDE	used	86511872	9.75	1061	1.000	0.378	0.329	0.220	0.375	54.009934	10.794884	-569.14	-2112
6	GUIDE	used	86512984	9.04	1064	1.000	0.112	-0.096	0.158	0.265	54.433894	10.707148	565.46	-1083
7	GUIDE	used	86515104	8.10	1063	1.000	-0.003	0.530	0.120	0.181	53.764409	11.045848	-1807.91	-2289

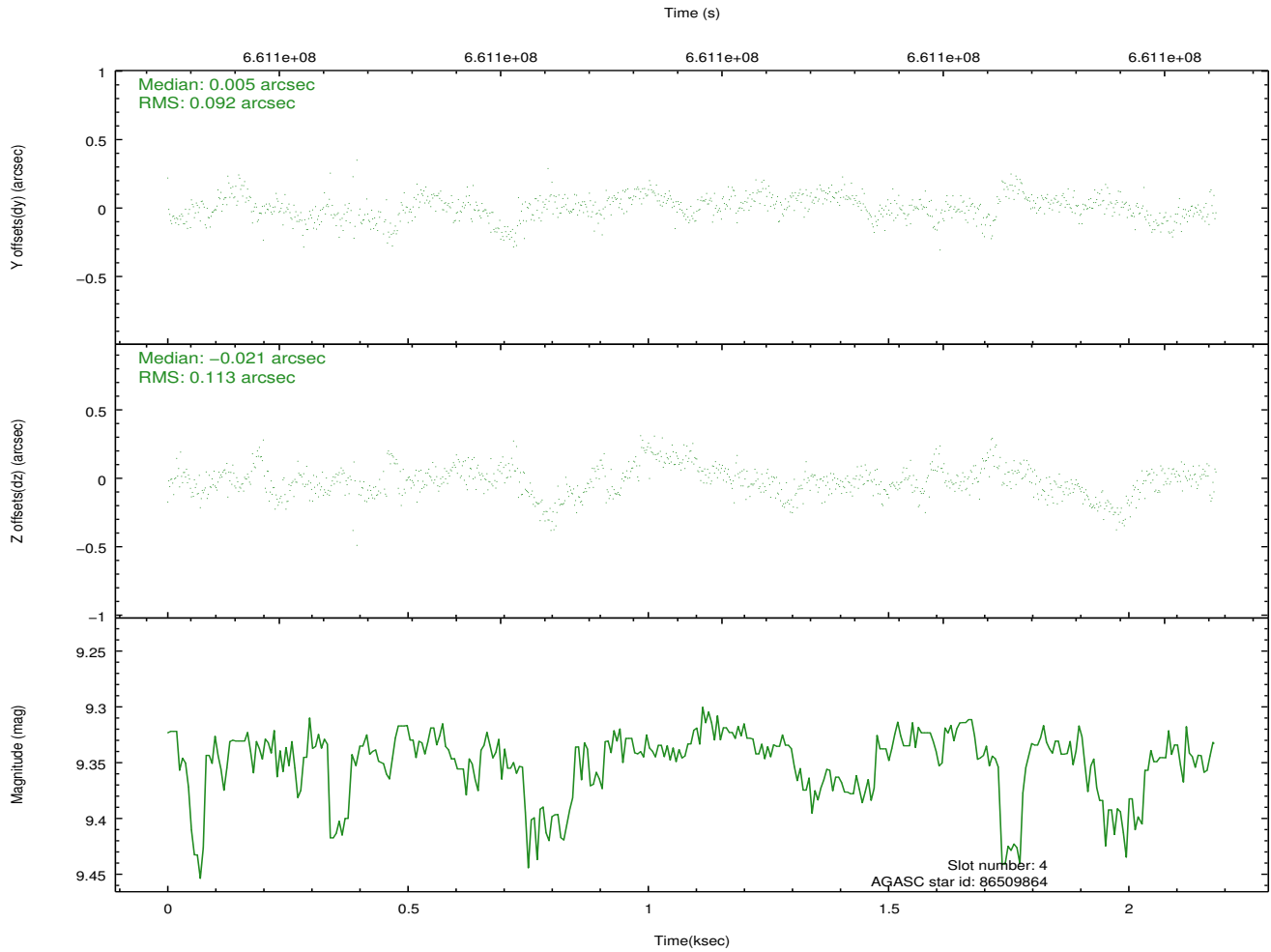
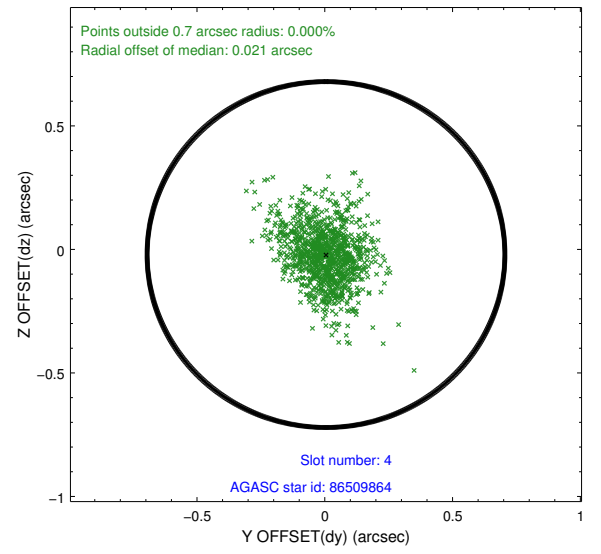
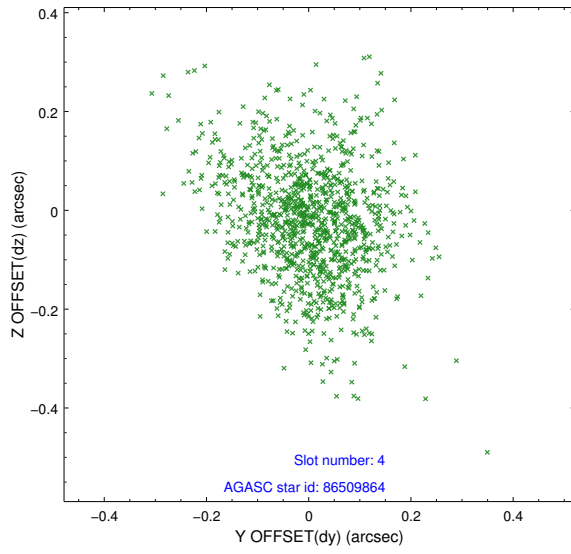


## 2.4 Star Slots

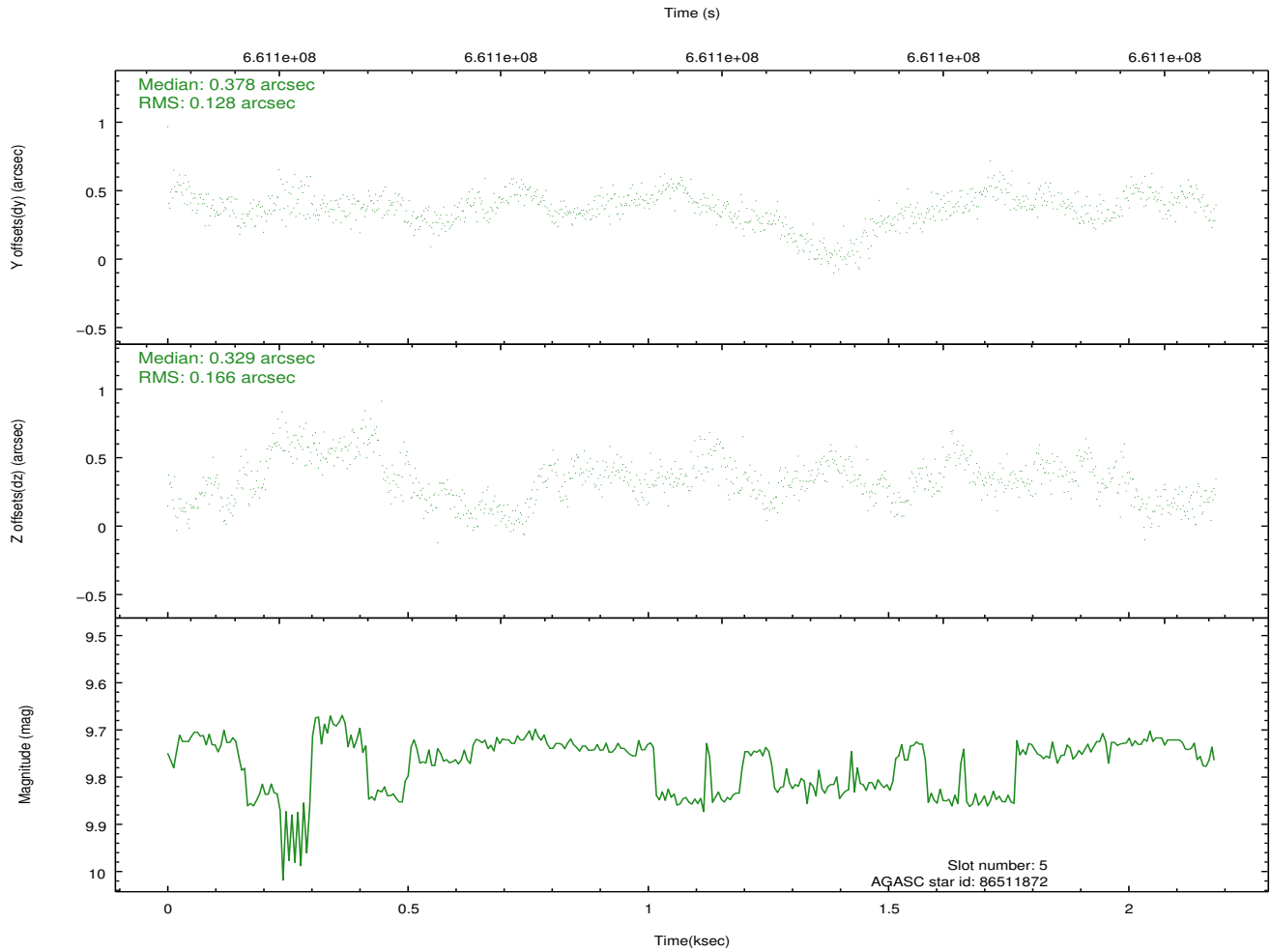
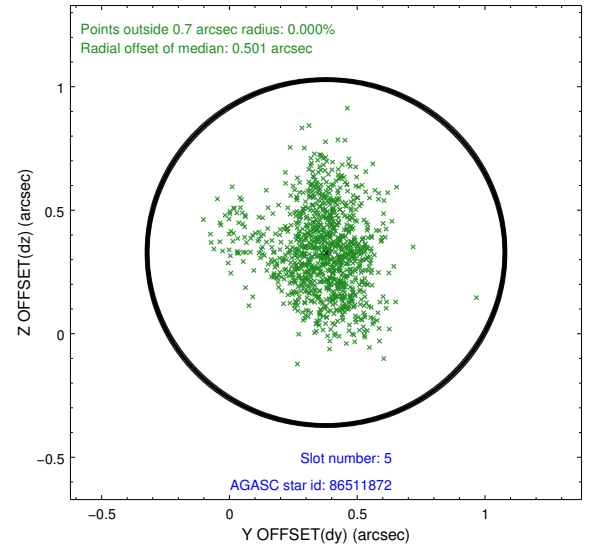
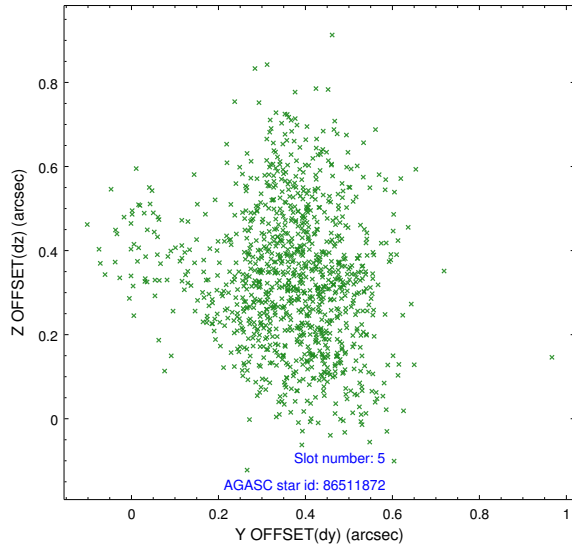
### 2.4.1 Slot 3



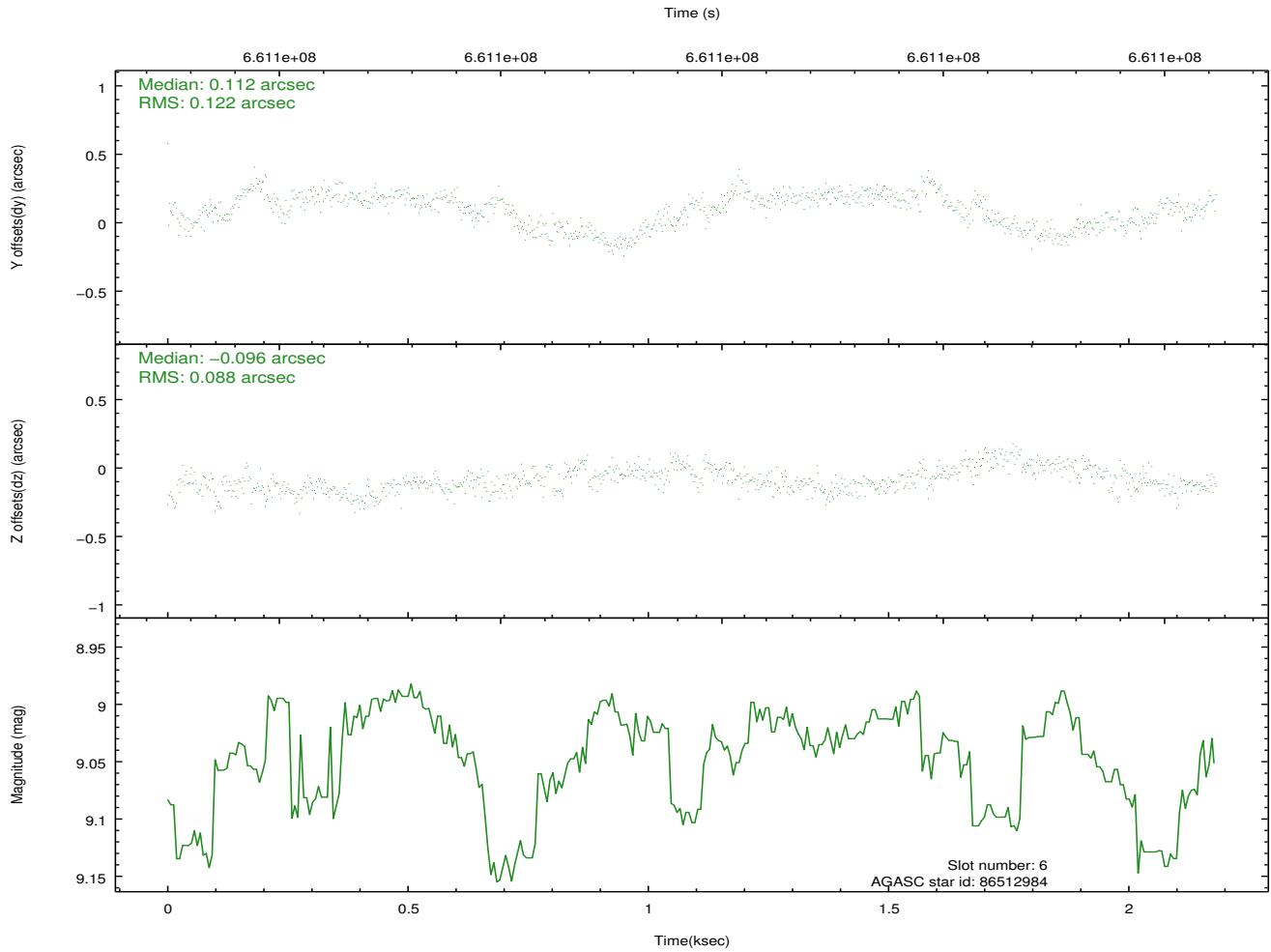
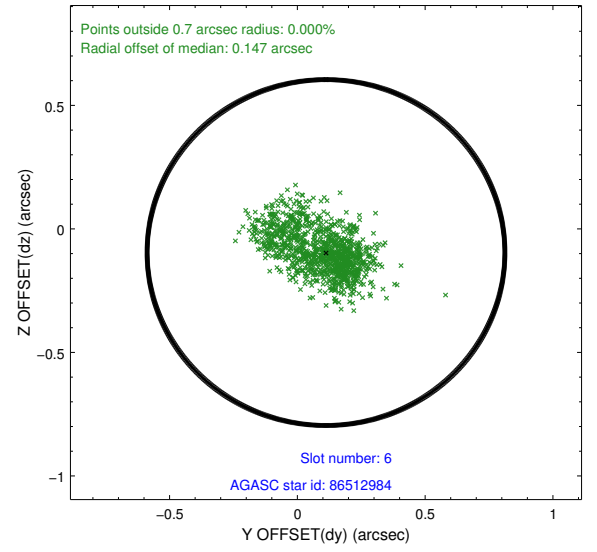
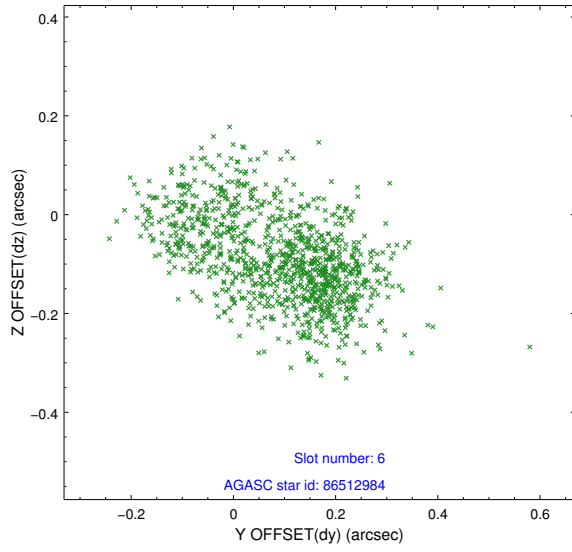
## 2.4.2 Slot 4



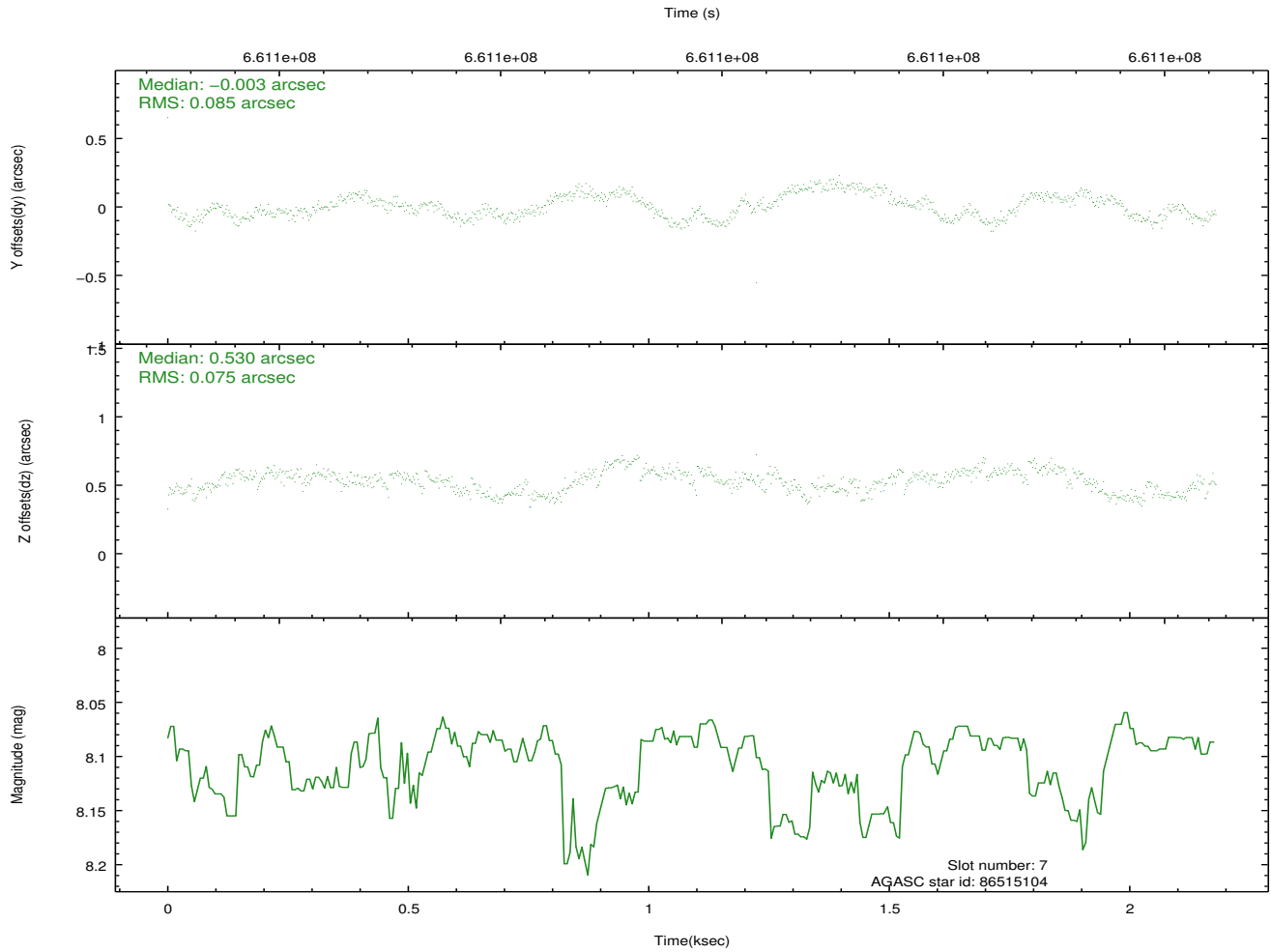
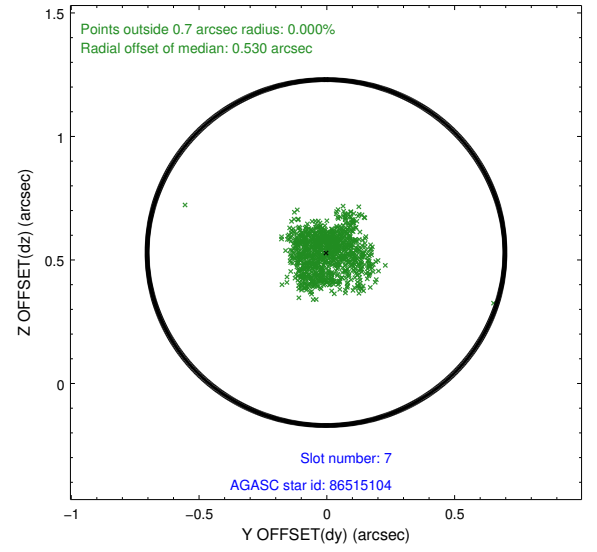
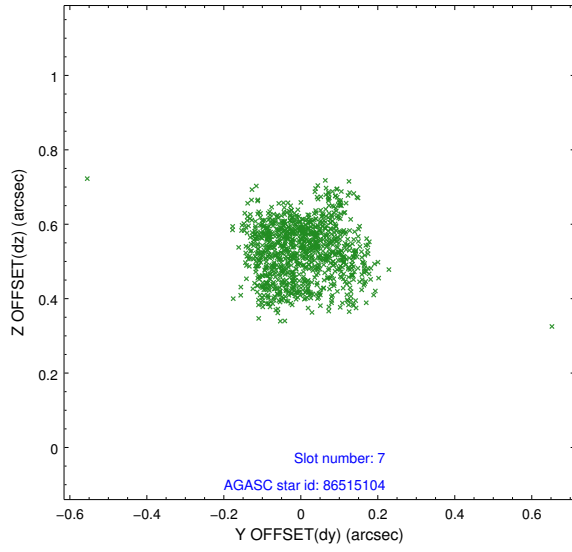
### 2.4.3 Slot 5



## 2.4.4 Slot 6

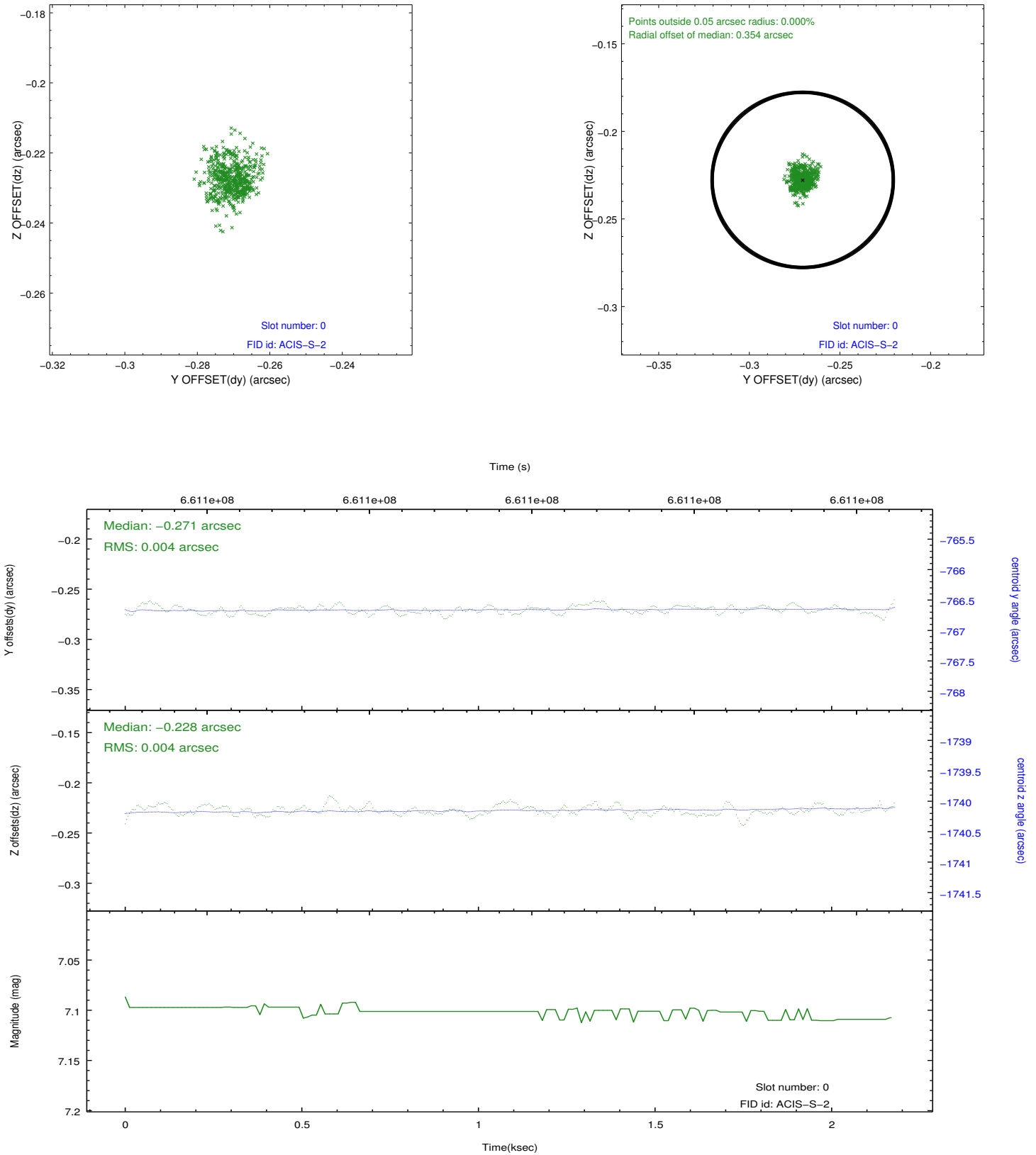


## 2.4.5 Slot 7

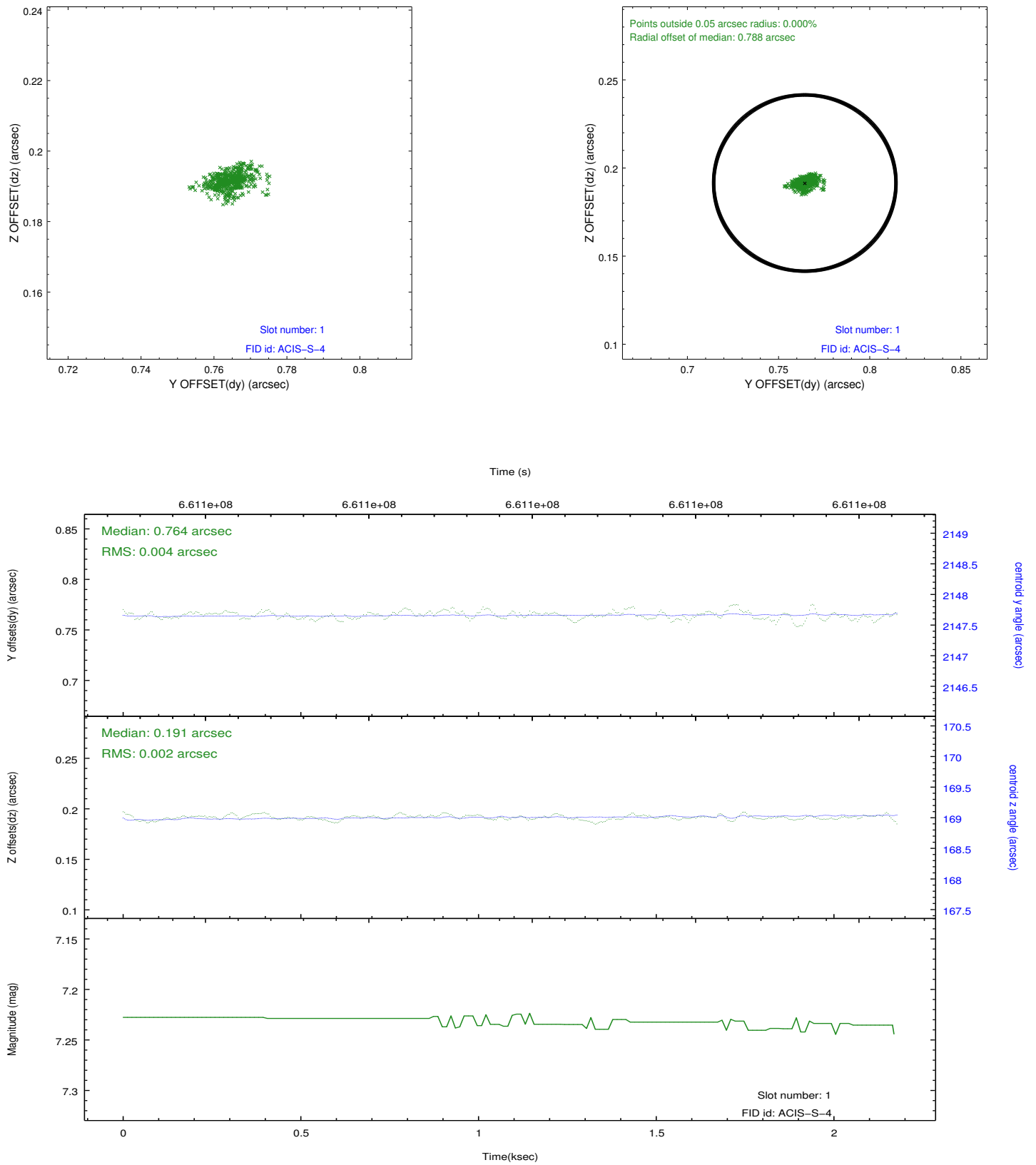


## 2.5 FID Slots

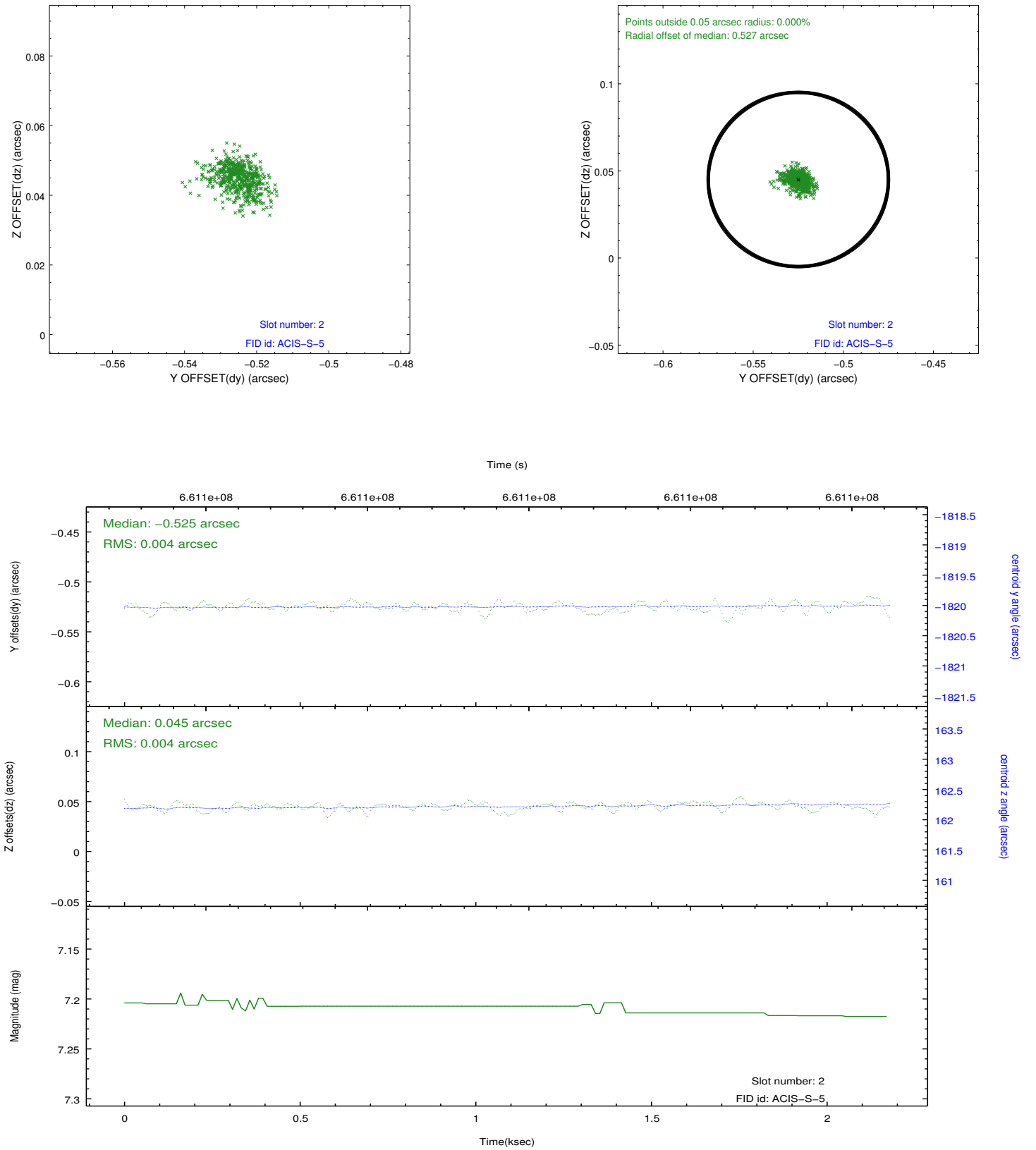
### 2.5.1 Slot 0



## 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)	2018.12.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.1824000169039

## 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.

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