

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21986 - L2 Version 1  
Chandra X-Ray Center

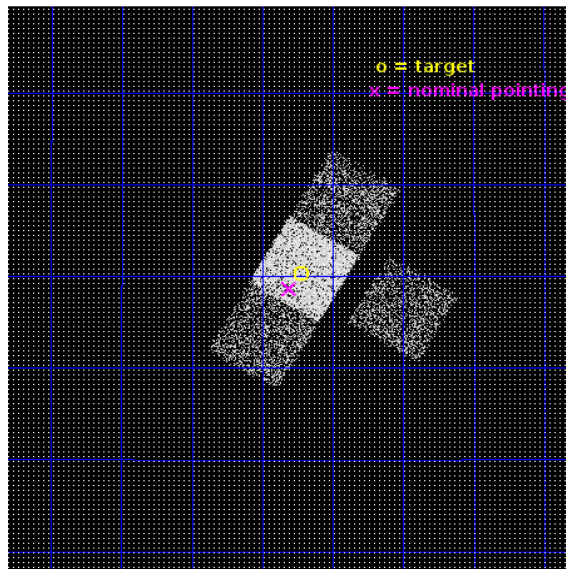
L2 Processing Date : Dec 13 2018

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# 1 Front

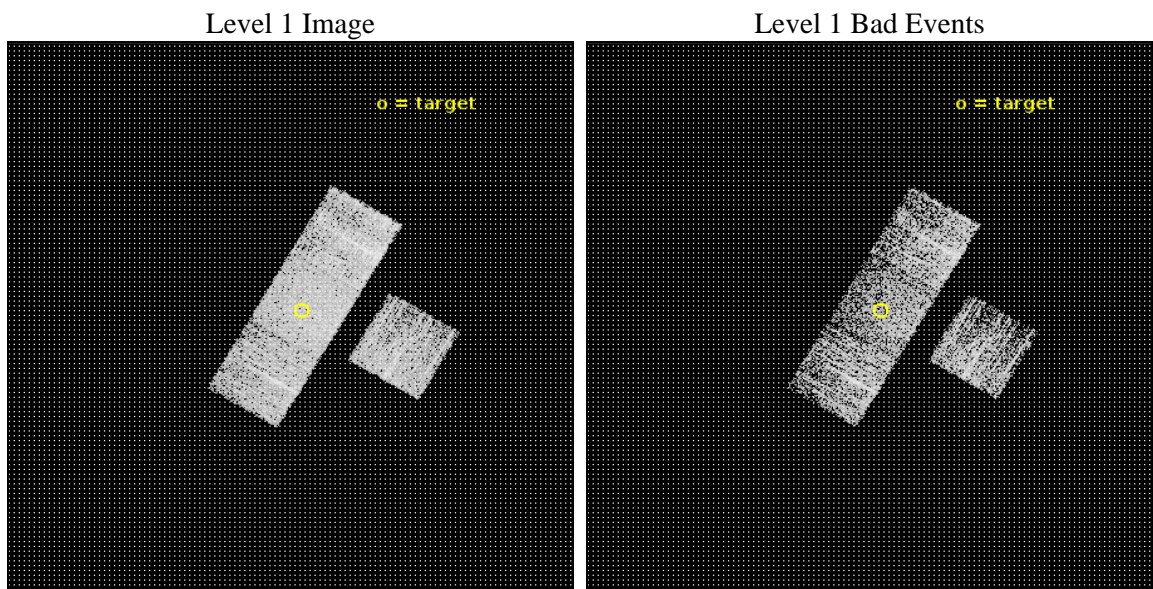
seq_num	100169	Sequence number
obs_id	21986	Observation id
title	Close encounter with comet 46P/Wirtanen: X-ray tomography of the coma	Proposal title
observer	Dennis Bodewits	Principal investigator
object	46P/Wirtanen	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.305912	Observer's specified target RA [deg]
dec_targ	10.505631	Observer's specified target Dec [deg]
ra_nom	54.327045985107	Nominal RA [deg]
dec_nom	10.477279450495	Nominal Dec [deg]
roll_nom	300.55850587823	Nominal Roll [deg]
revision	1	Processing version of data
ontime	2185.5000169277	Sum of GTIs [s]
livetime	2156.9448502649	Livetime [s]
ontime3	2185.5000169277	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	13879	Number of level 2 events



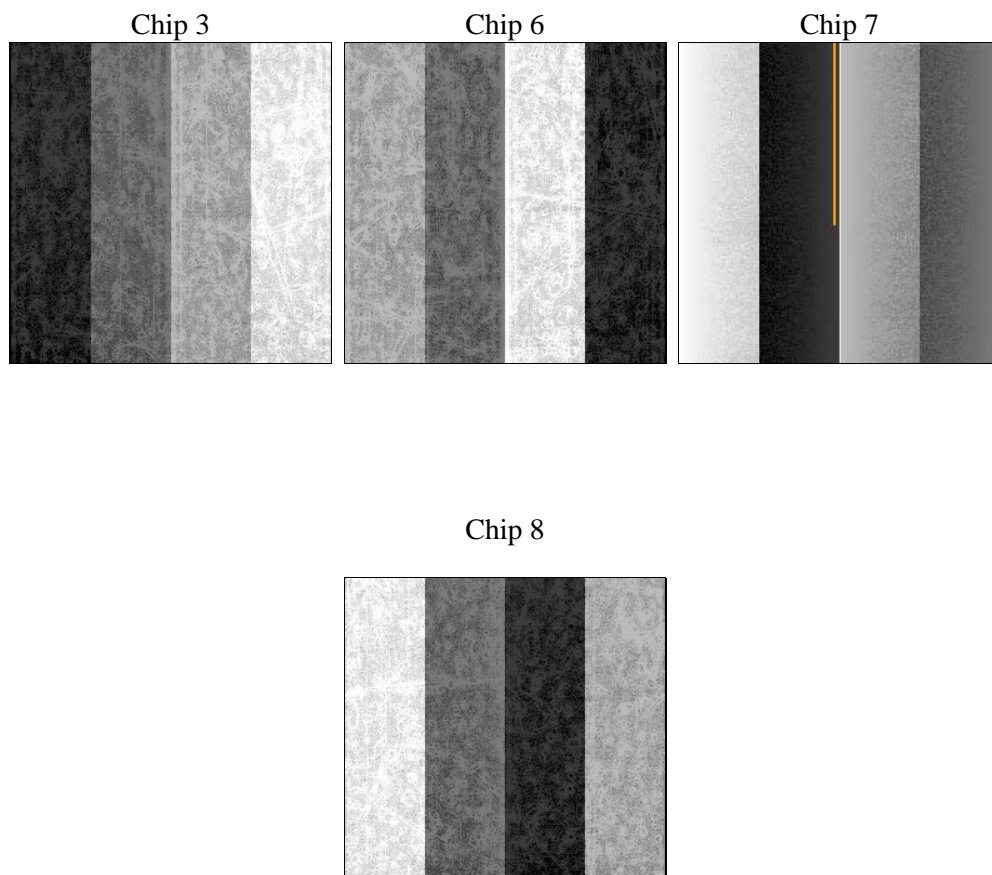
## 2 OBI

### 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	2185.5000169277	Sum of GTIs [s]
date	2018-12-14T00:50:28	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	98140	Number of level 1 events

### 2.1.4 Events

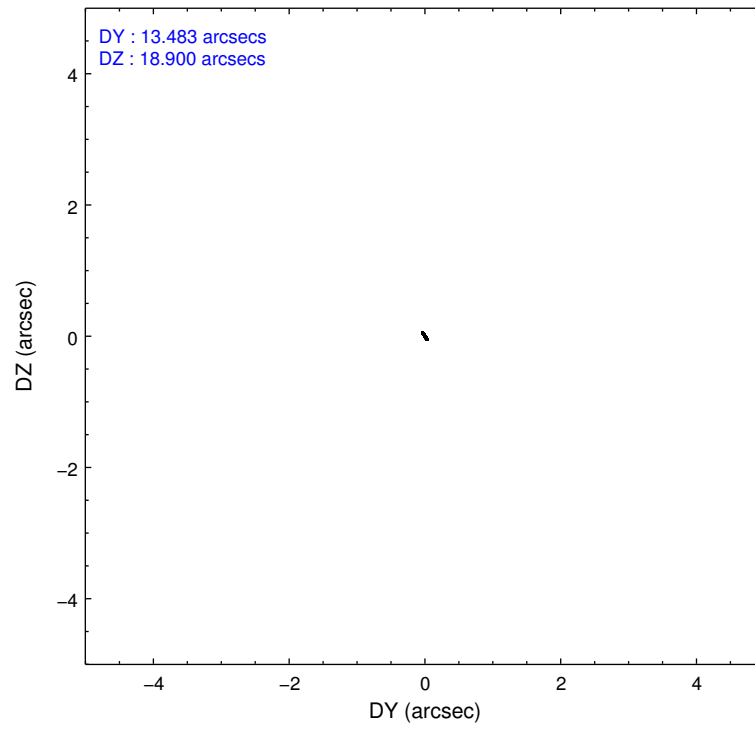
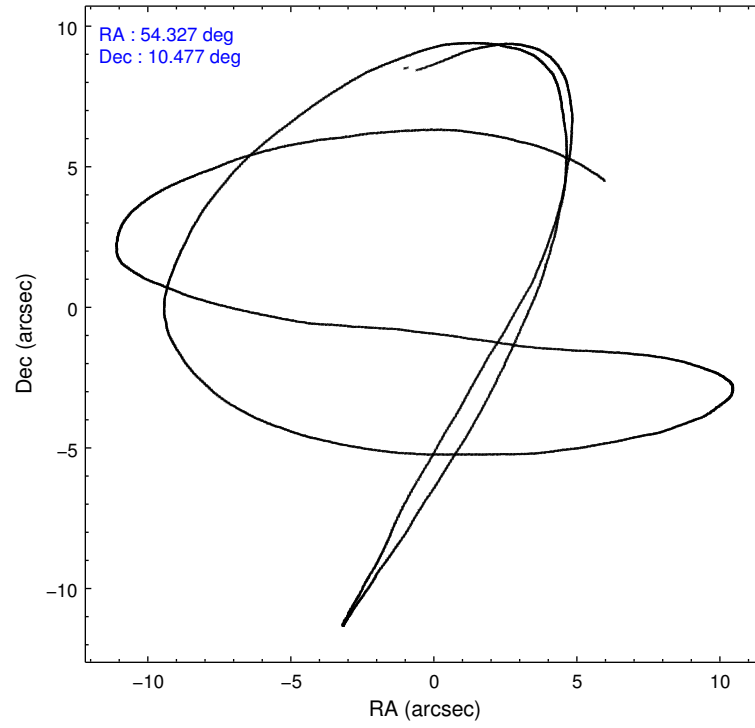
	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	21122	21137	27476	28405
rejected events	19495	19223	18380	22827
rejected %	92%	90%	66%	80%

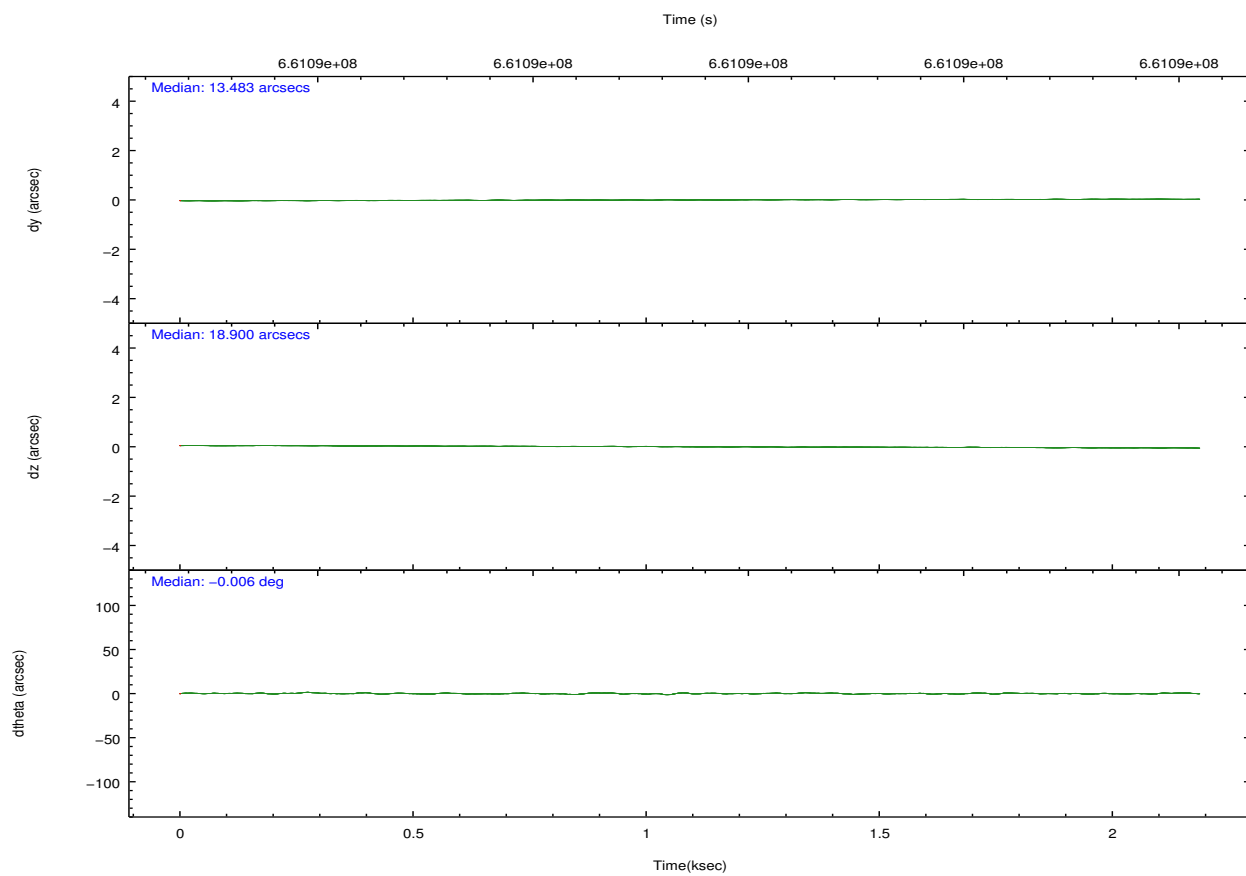
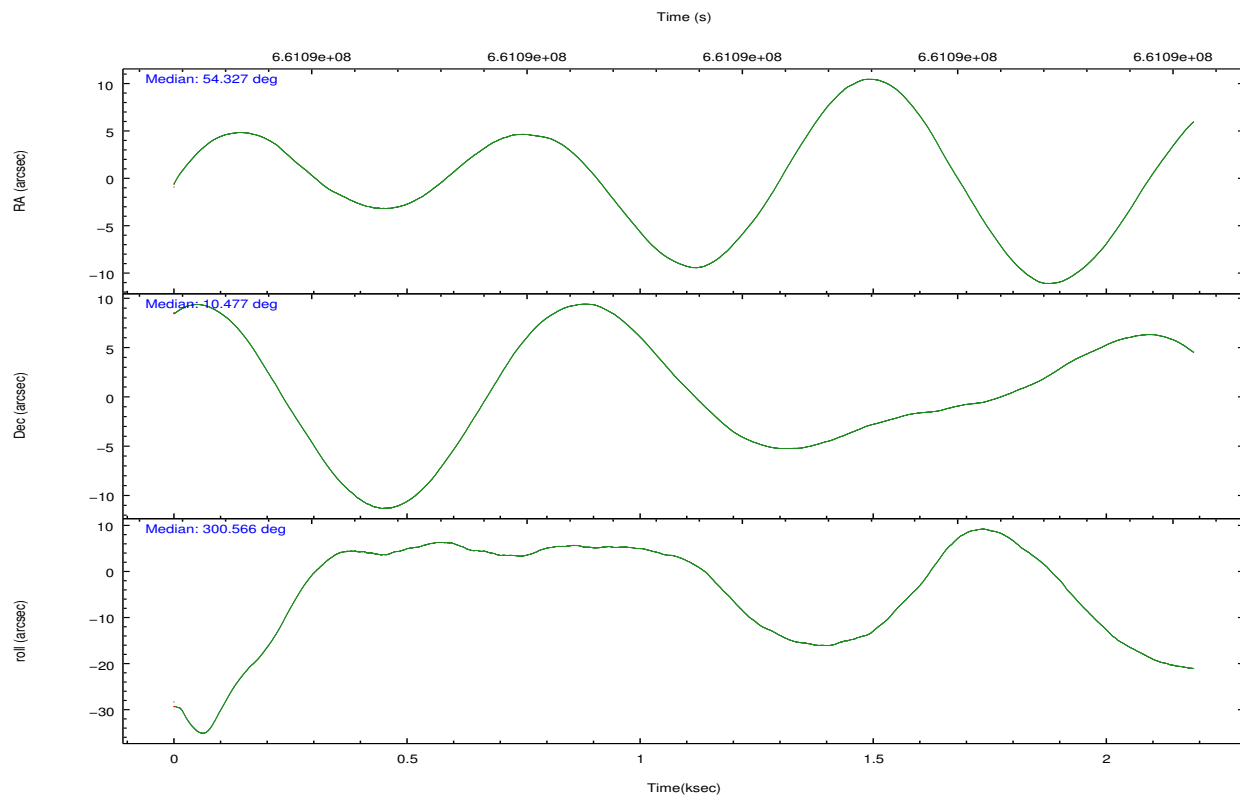
	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	726	827	942	1995
	3%	3%	3%	7%
grade 1 events	12	12	40	19
	0%	0%	0%	0%
grade 2 events	437	574	2525	1836
	2%	2%	9%	6%
grade 3 events	221	226	970	800
	1%	1%	3%	2%
grade 4 events	290	247	892	670
	1%	1%	3%	2%
grade 5 events	991	1021	2679	1569
	4%	4%	9%	5%
grade 6 events	483	614	6521	1896
	2%	2%	23%	6%
grade 7 events	17962	17616	12907	19620
	85%	83%	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	54.302521	54.32704598510665	CCD I2 on	O2	N
[deg] Pointing Dec	10.490290	10.47727945049543	CCD I3 on	Y	Y
[deg] Pointing Roll	300.406288	300.5585058782295	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)	661087956.184000	661087386.51669	On-chip summing requested	N	N
Observation start date	2018-12-13T11:31:27	2018-12-13T11:23:06	Subarray requested	NONE	NONE
[s] Observation end time (MET)	661089956.184000	661090245.24186	Alternating exposures requested	N	N
Observation end date	2018-12-13T12:04:47	2018-12-13T12:10:45	[s] Primary exposure time	0.000000	3.1
Read mode	TIMED	TIMED			

## 2.3 Aspect





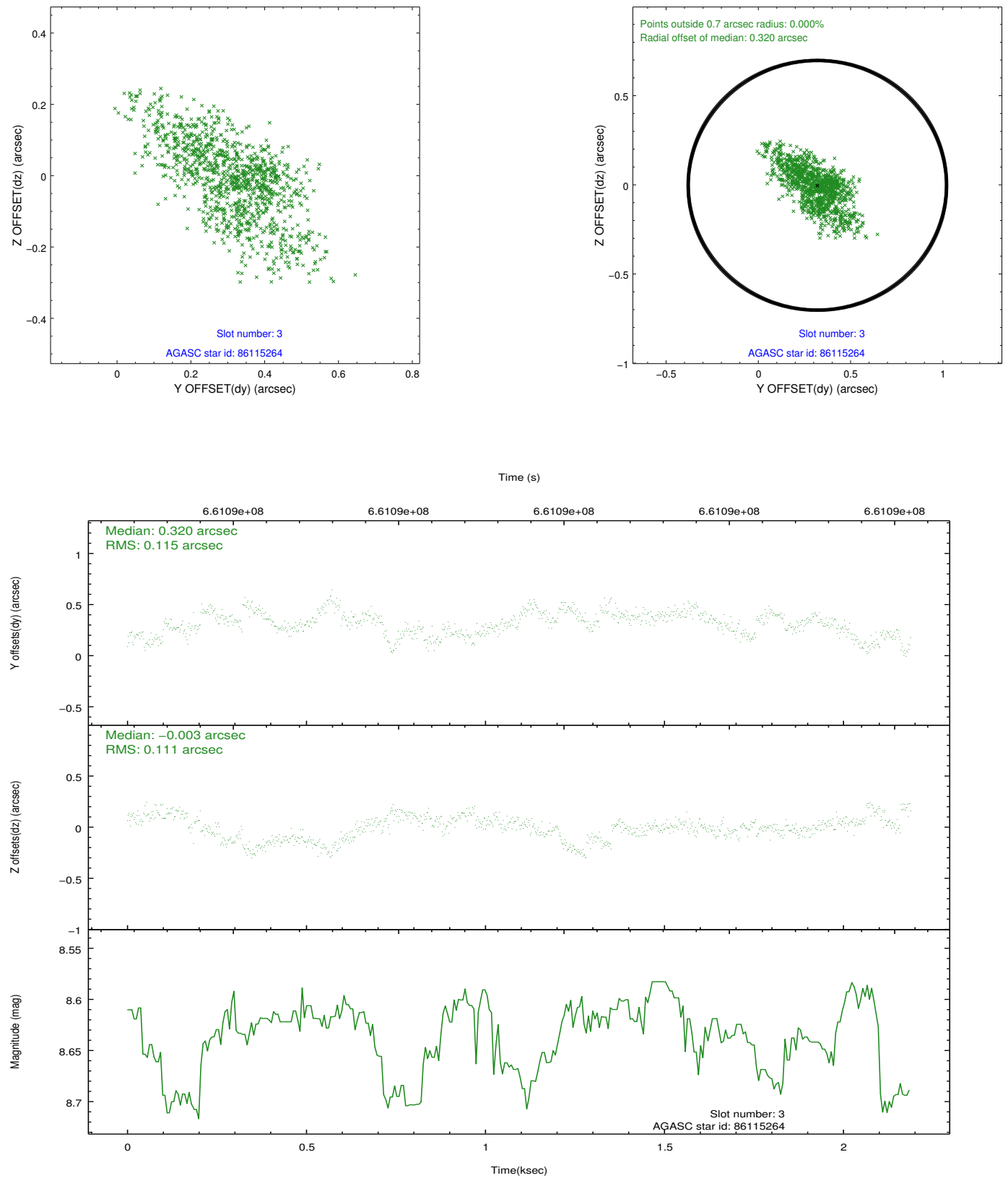
Slot Statistics

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	7.03	534	1.000	-0.274	-0.195	0.007	0.011	0.000000	0.000000	-766.62	-1740
1	FID		ACIS-S-4	7.15	534	1.000	0.748	0.185	0.006	0.009	0.000000	0.000000	2146.25	165
2	FID		ACIS-S-5	7.13	534	1.000	-0.506	0.019	0.007	0.011	0.000000	0.000000	-1815.94	162
3	GUIDE	used	86115264	8.63	1065	1.000	0.320	-0.003	0.164	0.294	54.191764	9.800176	1944.61	-1596
4	GUIDE	used	86116984	7.01	1068	1.000	-0.169	0.046	0.088	0.138	54.479042	9.932832	2050.44	-476
5	GUIDE	used	86511872	9.74	1064	1.000	0.038	0.334	0.191	0.288	54.009934	10.794884	-1466.90	-336
6	GUIDE	used	86512984	9.03	1067	1.000	-0.054	-0.188	0.173	0.267	54.433894	10.707148	-437.87	796
7	GUIDE	used	86513000	10.09	1064	1.000	-0.117	-0.182	0.232	0.394	54.069408	10.329642	80.96	-1003

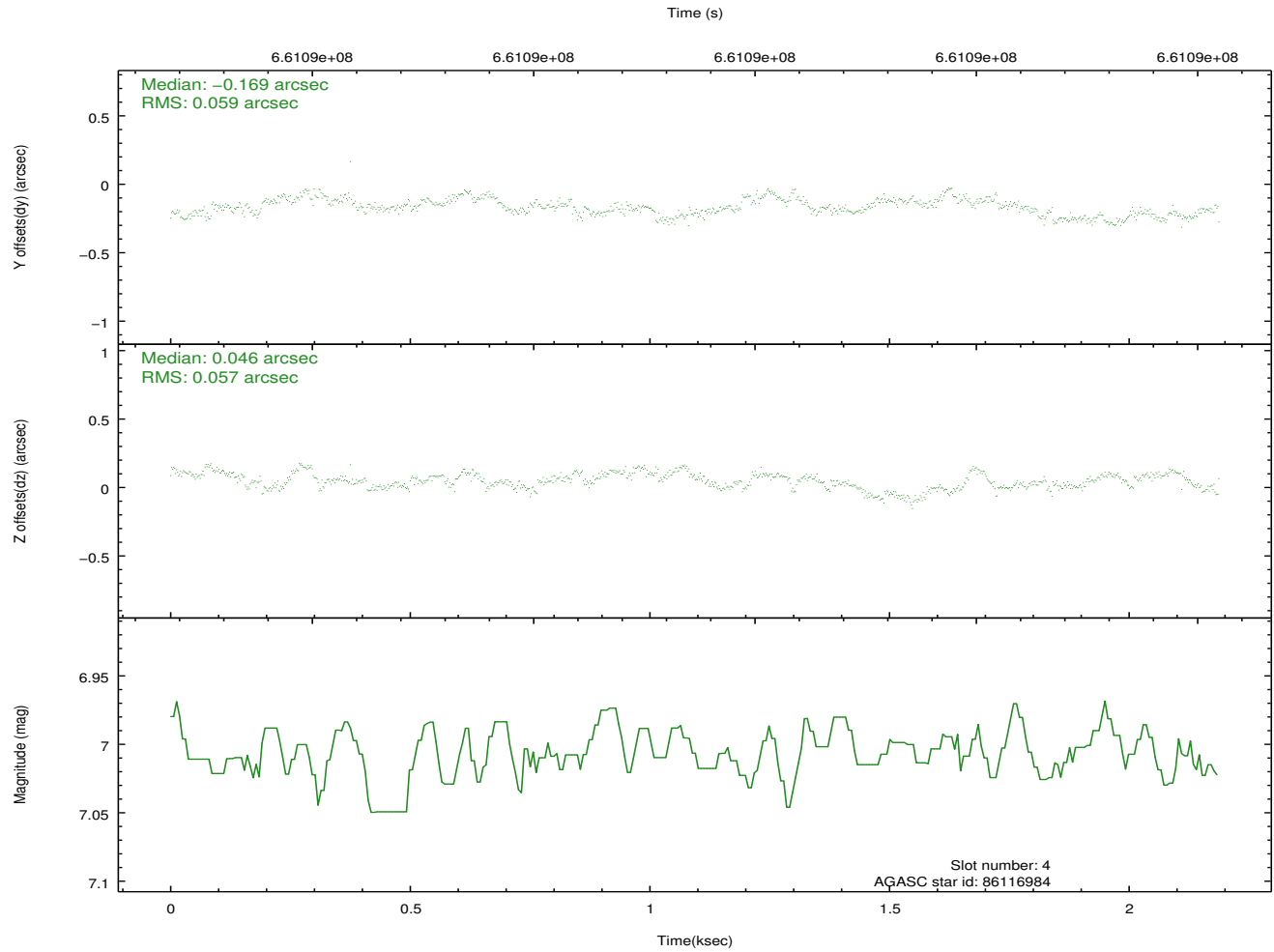
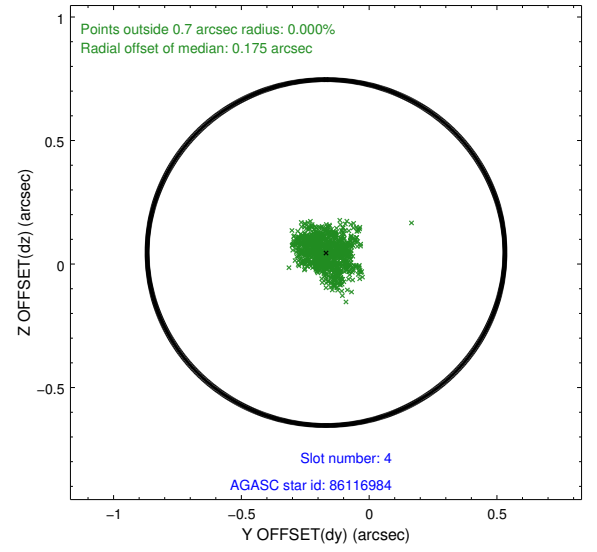
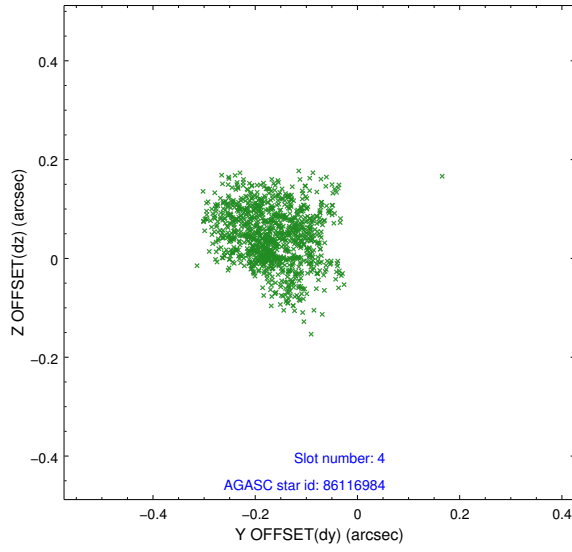


## 2.4 Star Slots

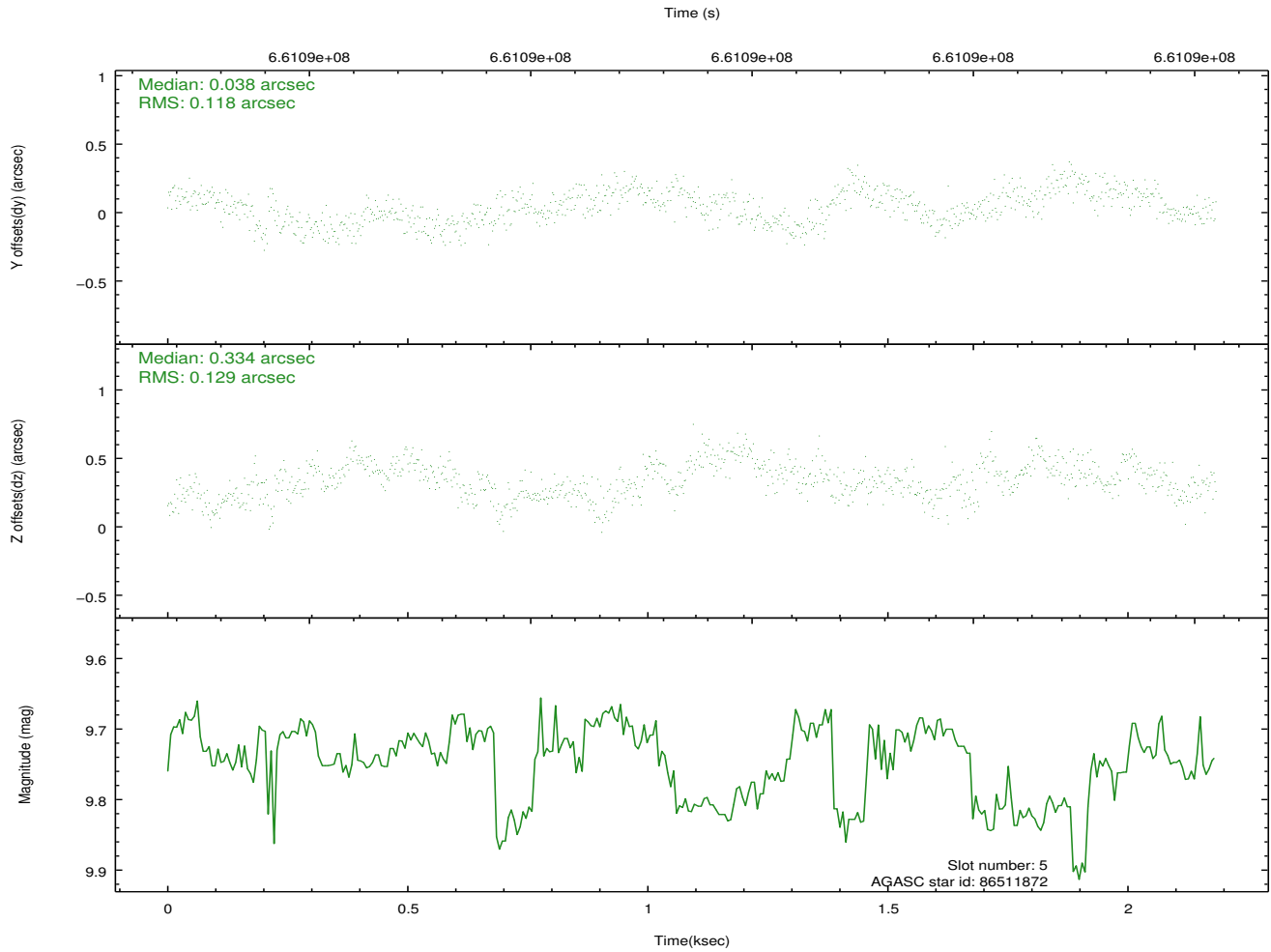
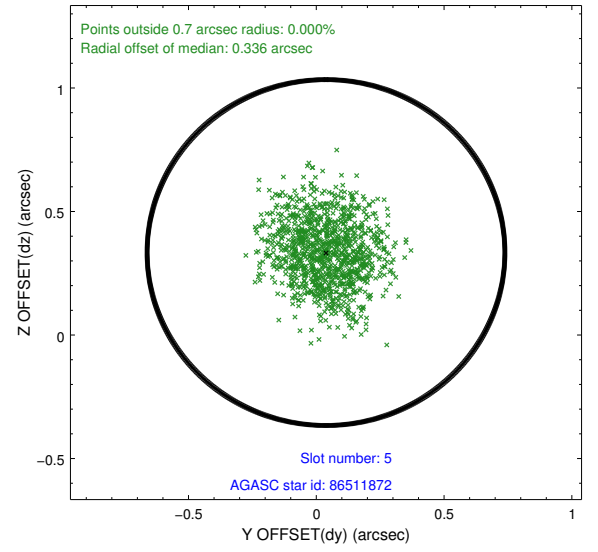
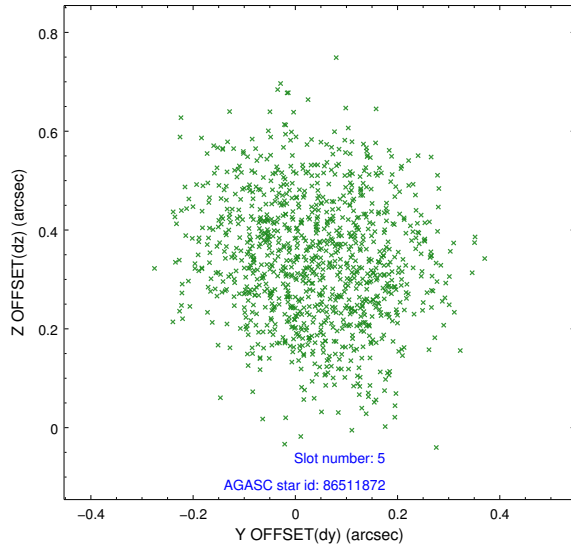
### 2.4.1 Slot 3



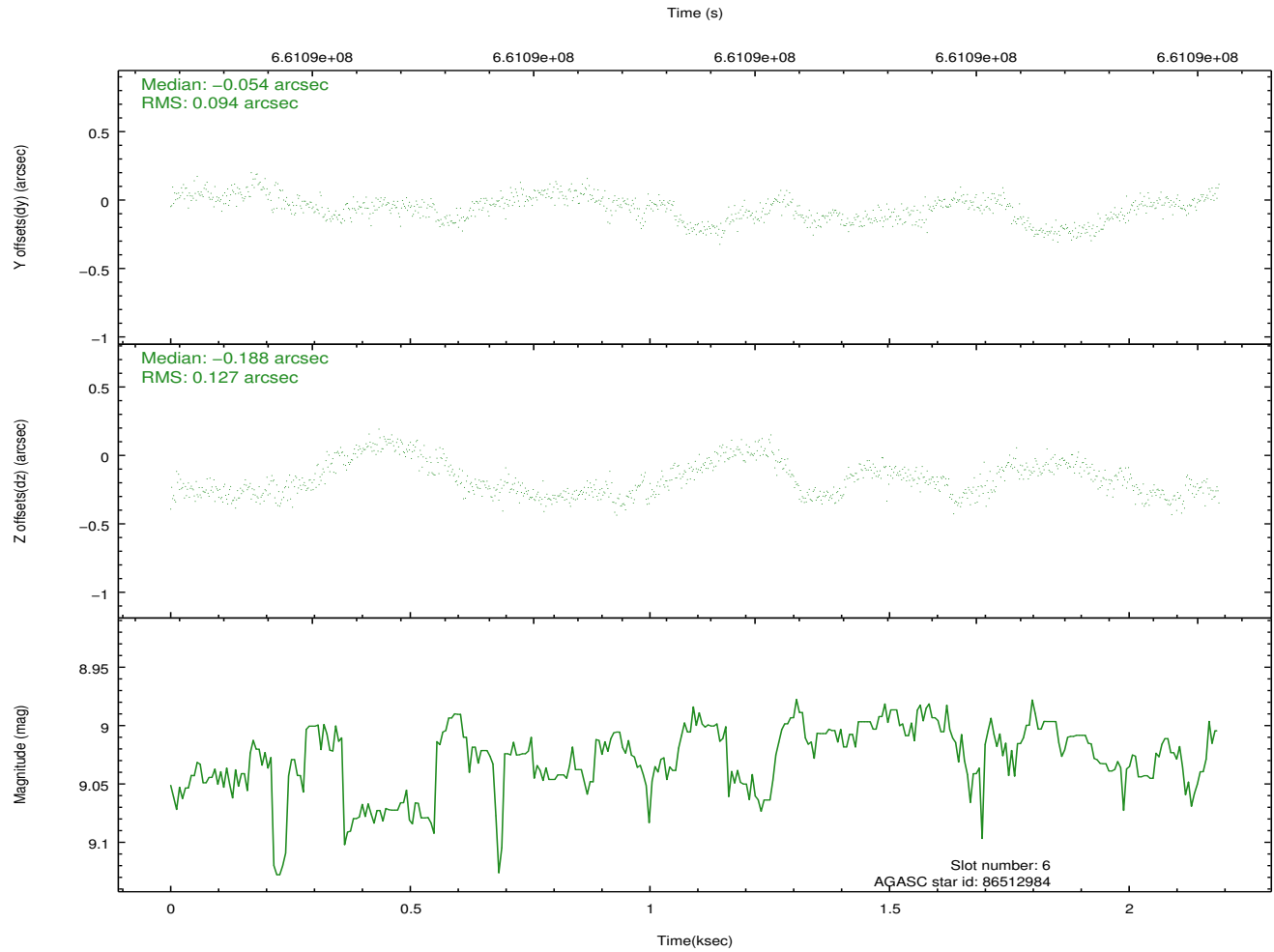
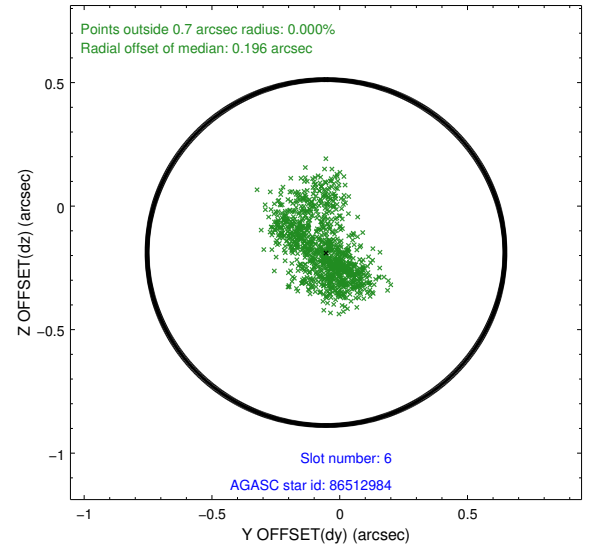
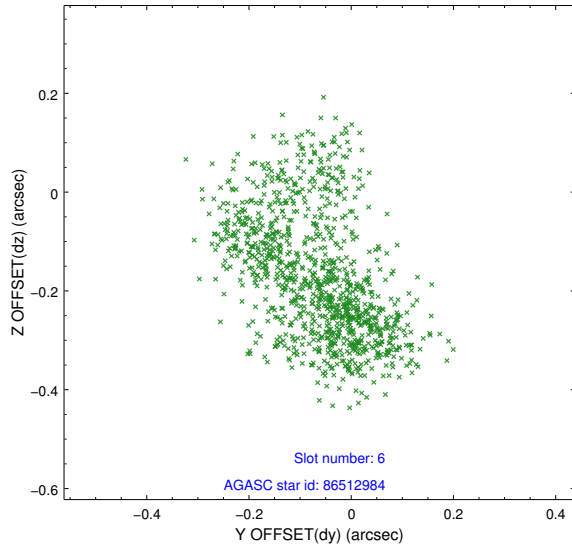
## 2.4.2 Slot 4



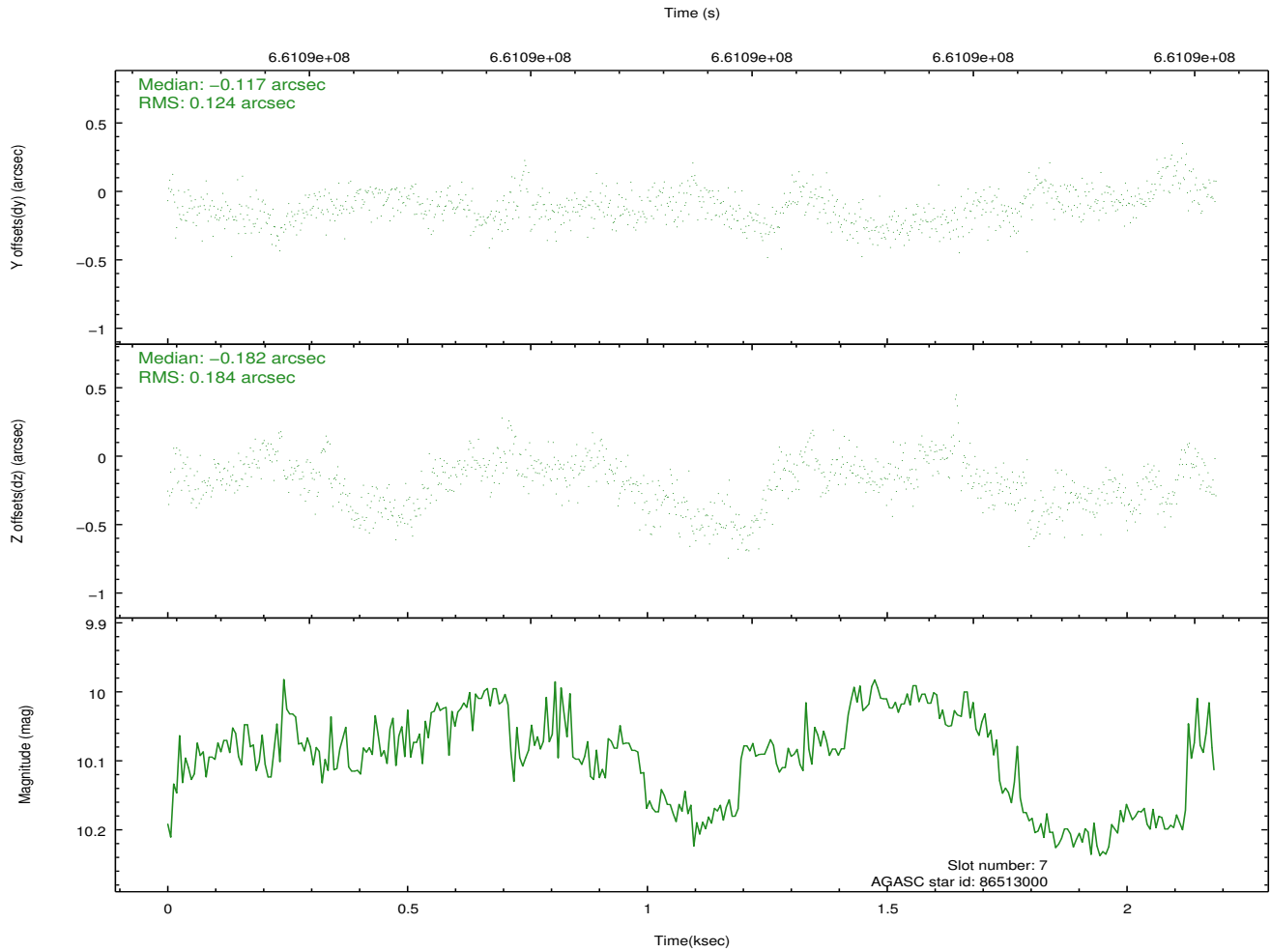
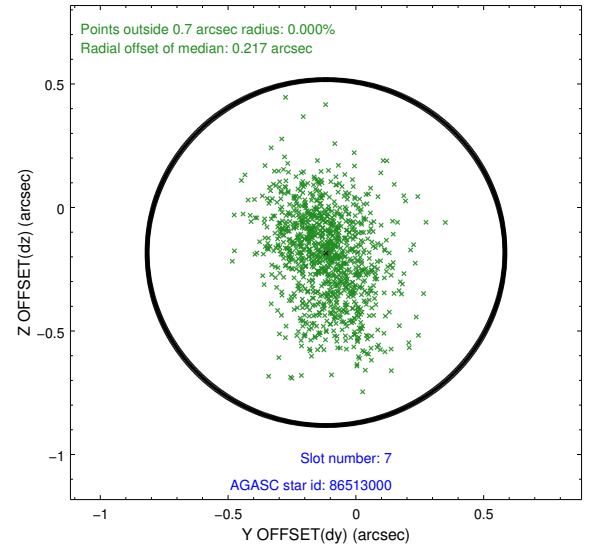
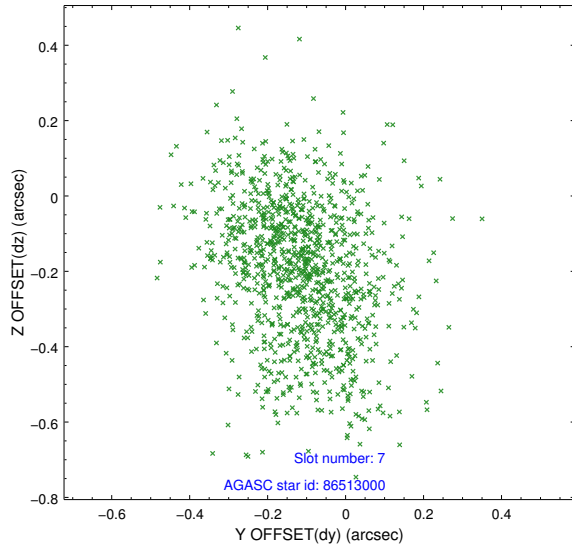
### 2.4.3 Slot 5



## 2.4.4 Slot 6

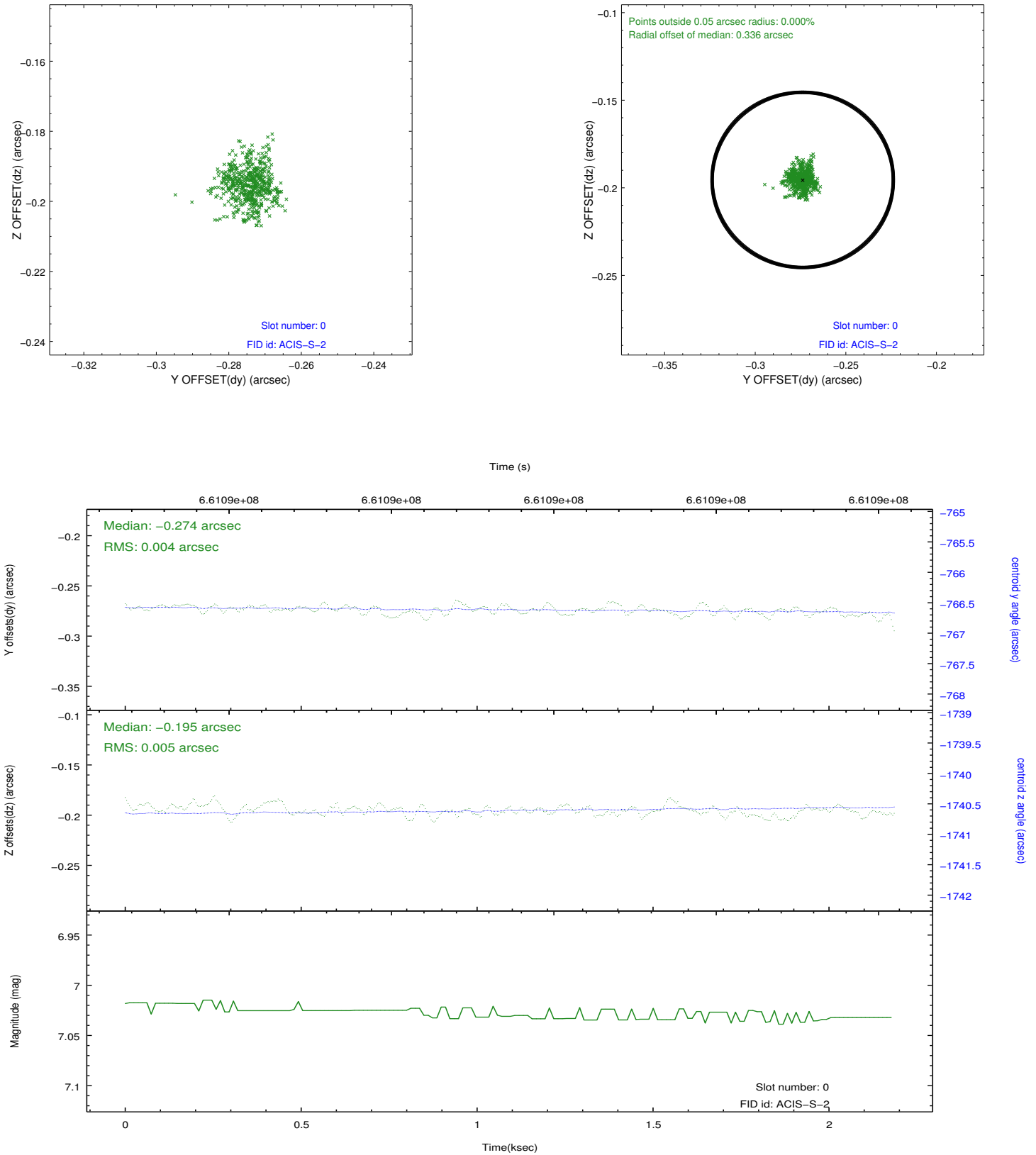


## 2.4.5 Slot 7

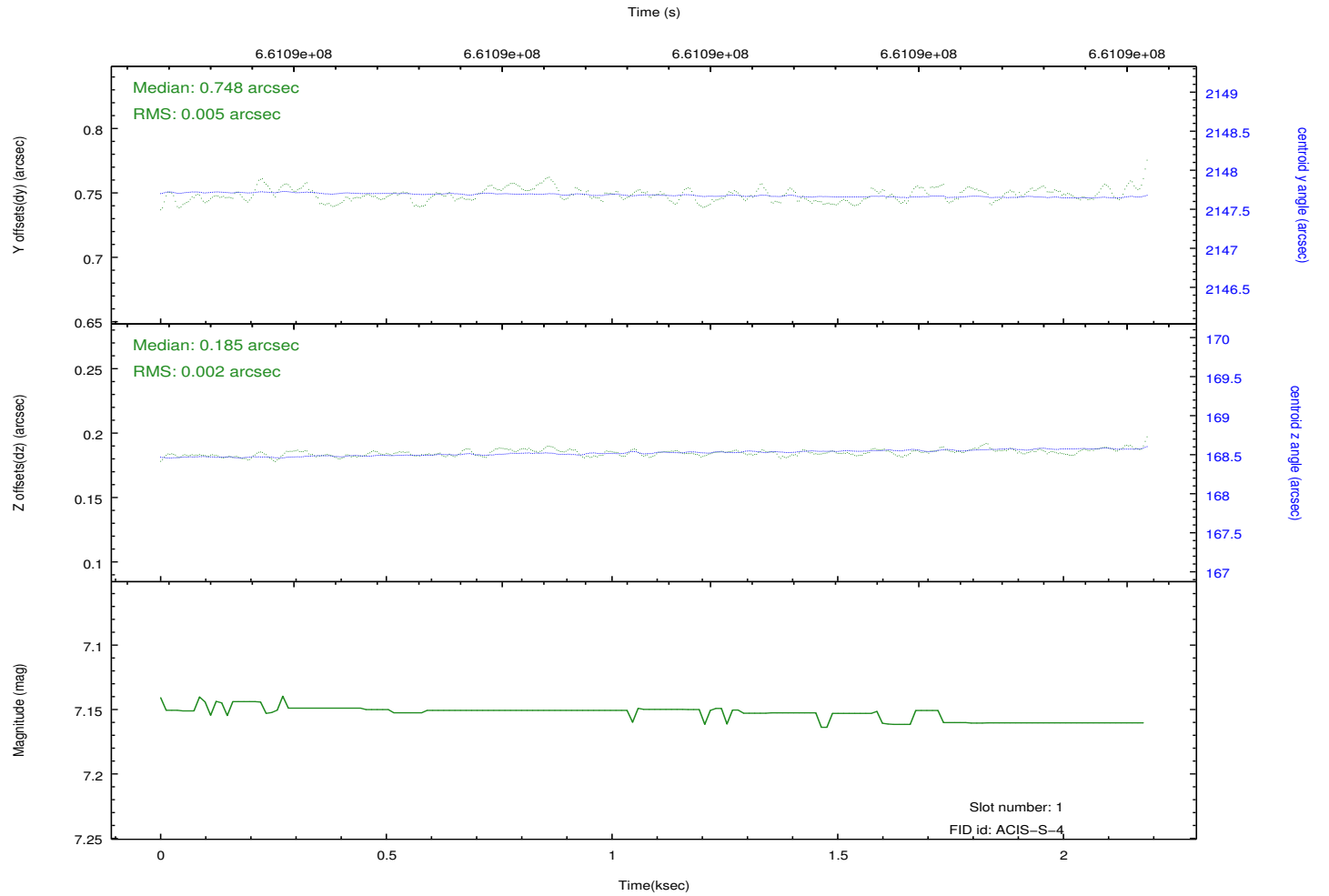
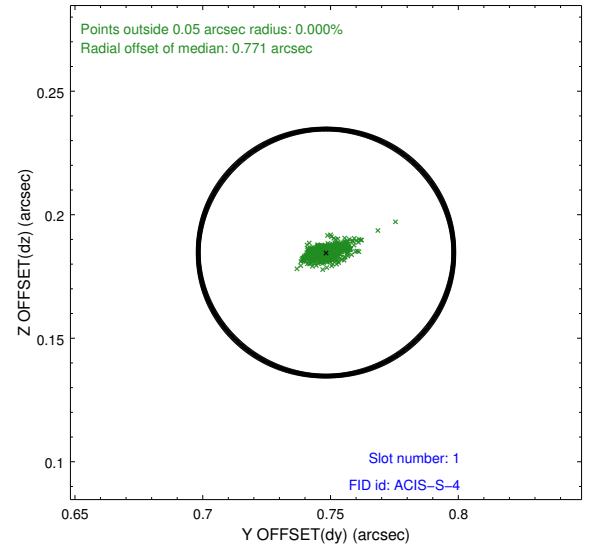
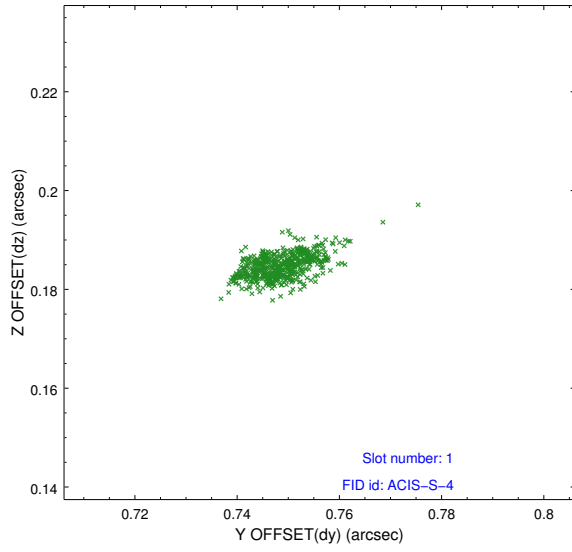


## 2.5 FID Slots

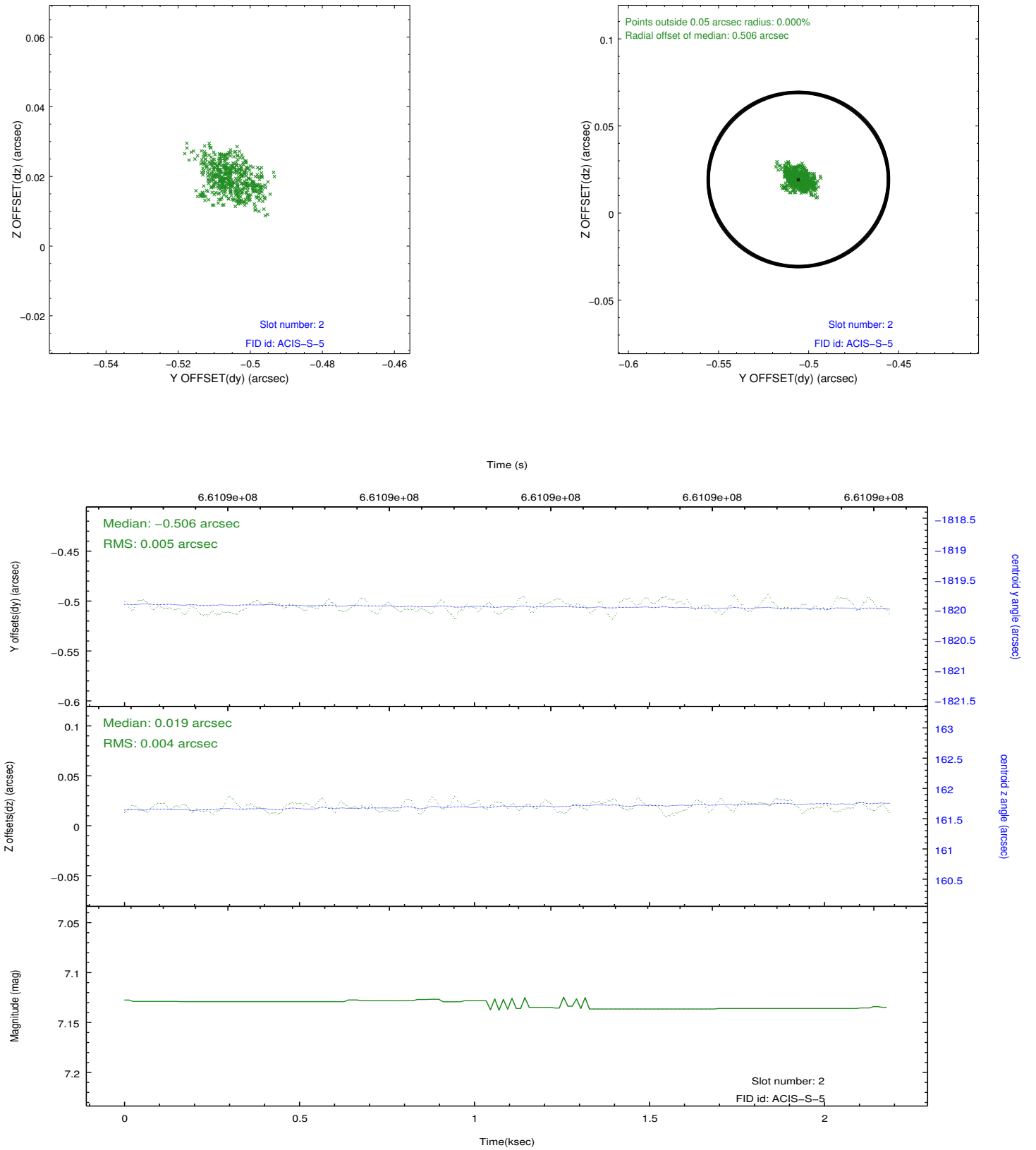
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2





# A Summary

## A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2018.12.13
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.1855000169277

## A.2 Comments

This is an observation of 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 with HST.

Two optional chips were dropped.

Window preference met.