

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21983 - L2 Version 1  
Chandra X-Ray Center

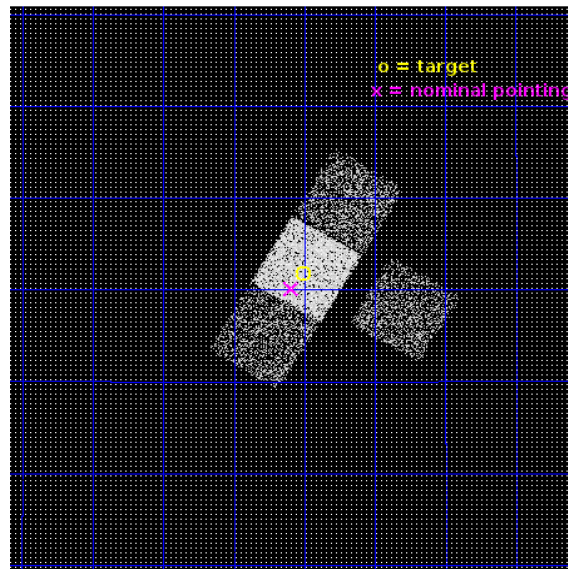
L2 Processing Date : Dec 13 2018

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# 1 Front

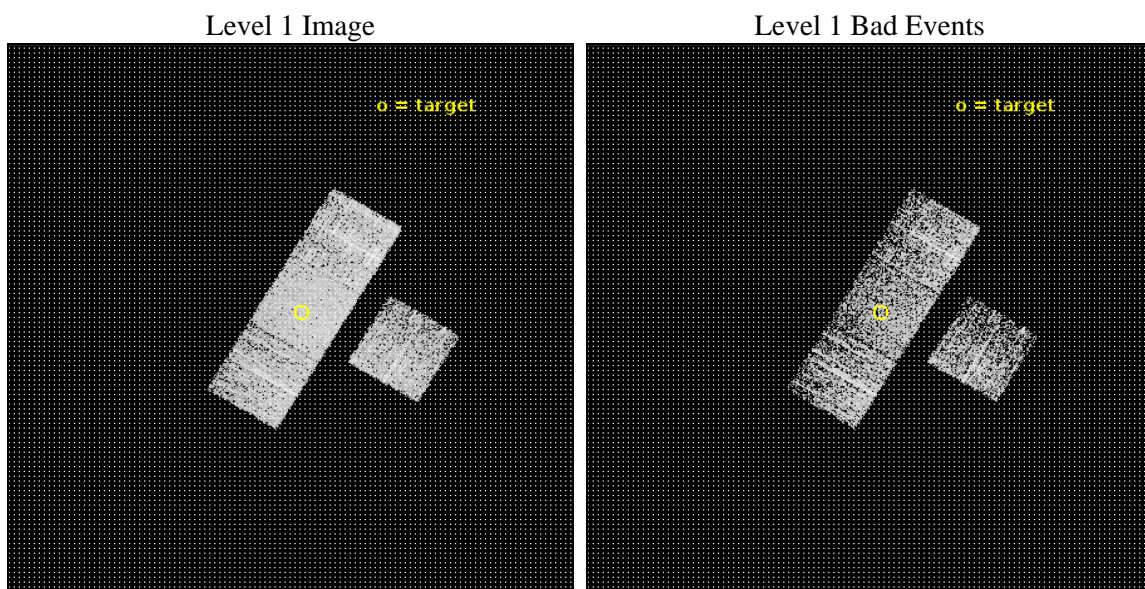
seq_num	100169	Sequence number
obs_id	21983	Observation id
title	Close encounter with comet 46P/Wirtanen: X-ray tomography of the coma	Proposal title
observer	Dennis Bodewits	Principal investigator
object	46P/Wirtanen	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.12658	Observer's specified target RA [deg]
dec_targ	10.196814	Observer's specified target Dec [deg]
ra_nom	54.147954503493	Nominal RA [deg]
dec_nom	10.168527854658	Nominal Dec [deg]
roll_nom	300.98519536665	Nominal Roll [deg]
revision	1	Processing version of data
ontime	2176.2000168562	Sum of GTIs [s]
livetime	2147.7663615408	Livetime [s]
ontime3	2176.2000168562	Sum of GTIs [s]
ontime6	2176.2000168562	Sum of GTIs [s]
ontime7	2176.2000168562	Sum of GTIs [s]
ontime8	2176.2000168562	Sum of GTIs [s]
l2events	13781	Number of level 2 events



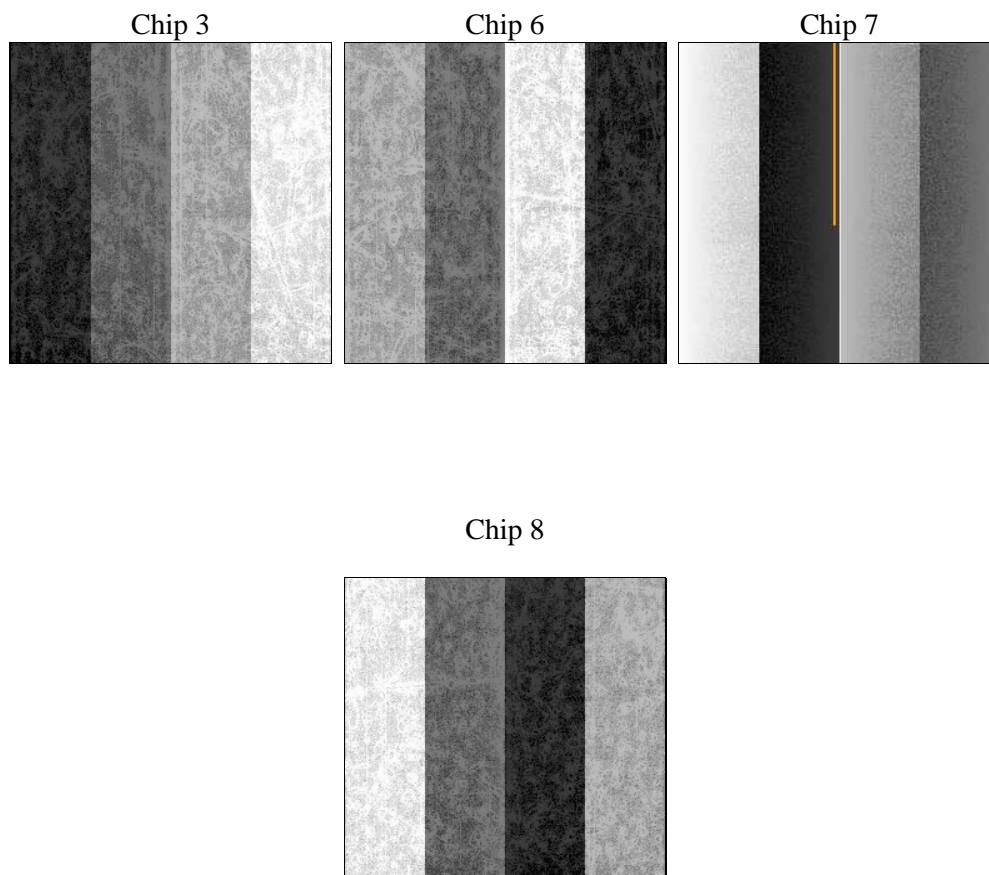
## 2 OBI

### 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	2176.2000168562	Sum of GTIs [s]
caldsver	4.8.2	&#160	ontime3	2176.2000168562	Sum of GTIs [s]
date	2018-12-14T00:49:51	Date and time of file creation	ontime6	2176.2000168562	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	2176.2000168562	Sum of GTIs [s]
			ontime8	2176.2000168562	Sum of GTIs [s]
			l1events	81885	Number of level 1 events

### 2.1.4 Events

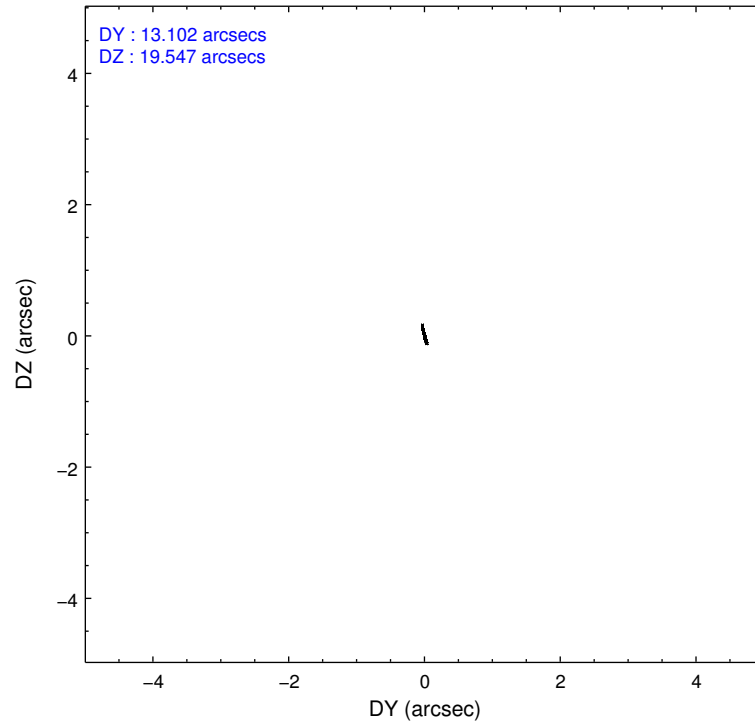
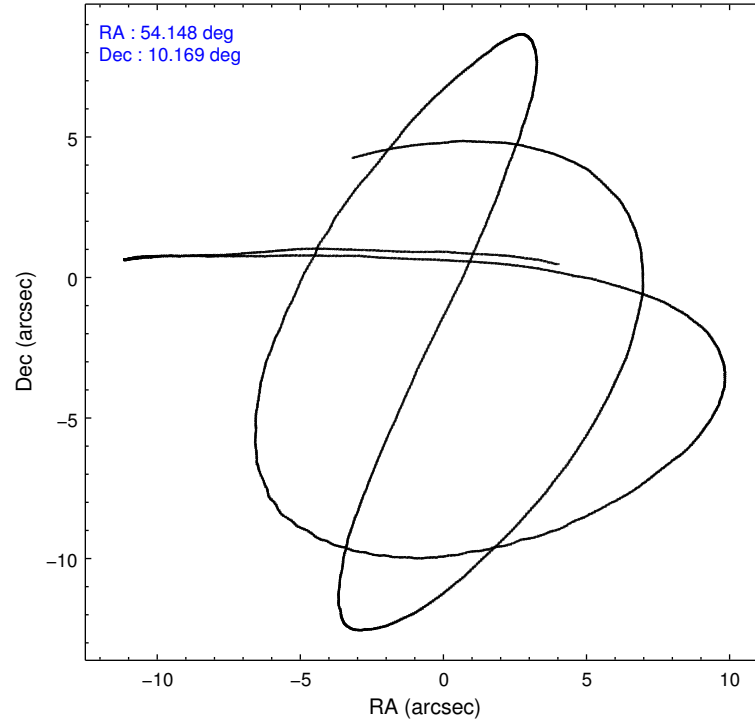
	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	16179	18714	24069	22923
rejected events	14548	16947	14870	17389
rejected %	89%	90%	61%	75%

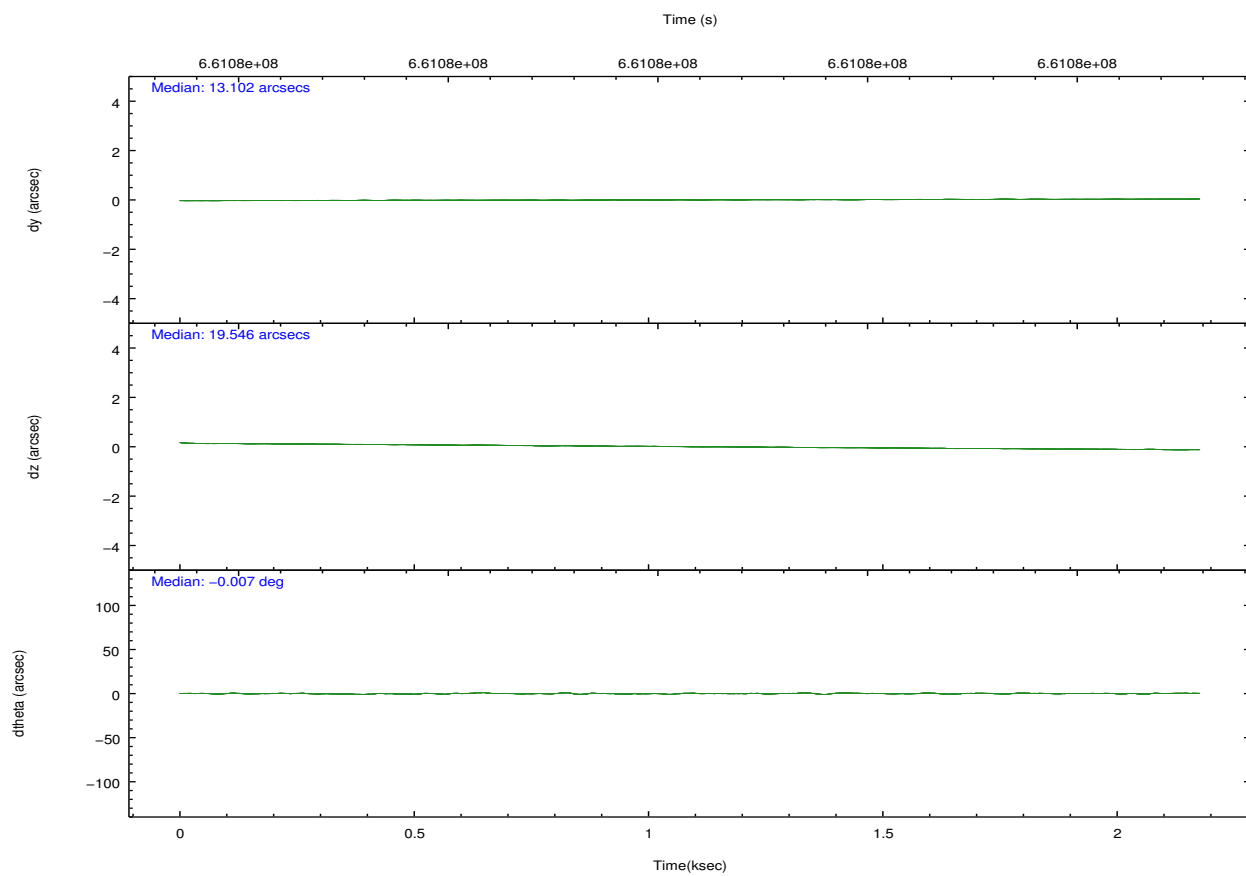
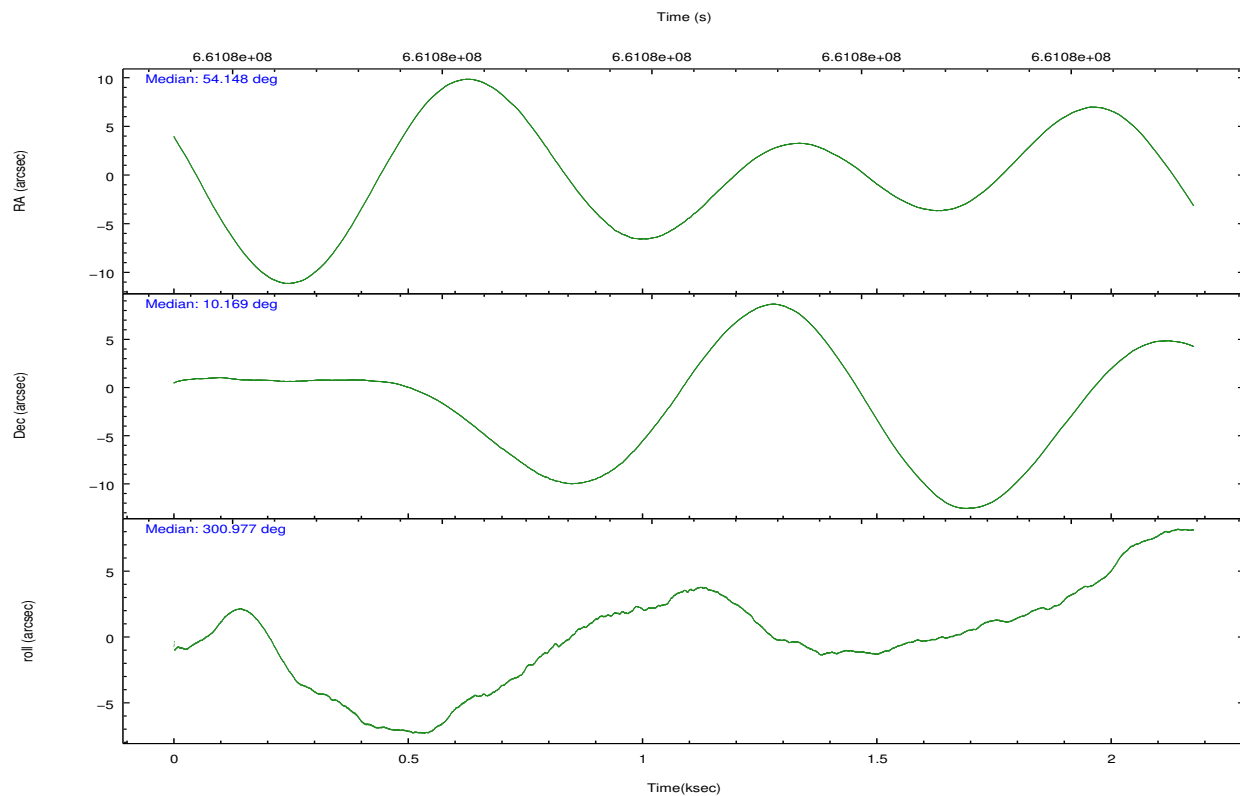
	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	654	676	878	1878
	4%	3%	3%	8%
grade 1 events	12	9	44	17
	0%	0%	0%	0%
grade 2 events	410	486	2303	1566
	2%	2%	9%	6%
grade 3 events	189	188	826	673
	1%	1%	3%	2%
grade 4 events	223	191	855	622
	1%	1%	3%	2%
grade 5 events	844	866	2361	1354
	5%	4%	9%	5%
grade 6 events	424	480	5680	1599
	2%	2%	23%	6%
grade 7 events	13423	15818	11122	15214
	82%	84%	46%	66%

## 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	54.123383	54.1479545034934	CCD I2 on	O2	N
[deg] Pointing Dec	10.181402	10.1685278546578	CCD I3 on	Y	Y
[deg] Pointing Roll	300.832936	300.9851953666524	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
[s] Window start time (MET)	660009669.184000	660009669.184000	CCD S3 on	Y	Y
[s] Window stop time (MET)	660355269.184000	660355269.184000	CCD S4 on	Y	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S5 on	N	N
[mm] SIM defocus	0	0.001444936568705701	Number of optional ACIS chips dropped	2	2
[mm] SIM translation stage pos	-190.132523	-190.1400660498719	On-chip summing requested	N	N
[mm] SIM translation stage offset	0	0.00754346686406393	Subarray requested	NONE	NONE
[s] Observation start time (MET)	661079657.184000	661079281.3286999	Alternating exposures requested	N	N
Observation start date	2018-12-13T09:13:08	2018-12-13T09:08:01	[s] Primary exposure time	0.000000	3.1
[s] Observation end time (MET)	661081657.184000	661081791.5538501			
Observation end date	2018-12-13T09:46:28	2018-12-13T09:49:51			
Read mode	TIMED	TIMED			

## 2.3 Aspect





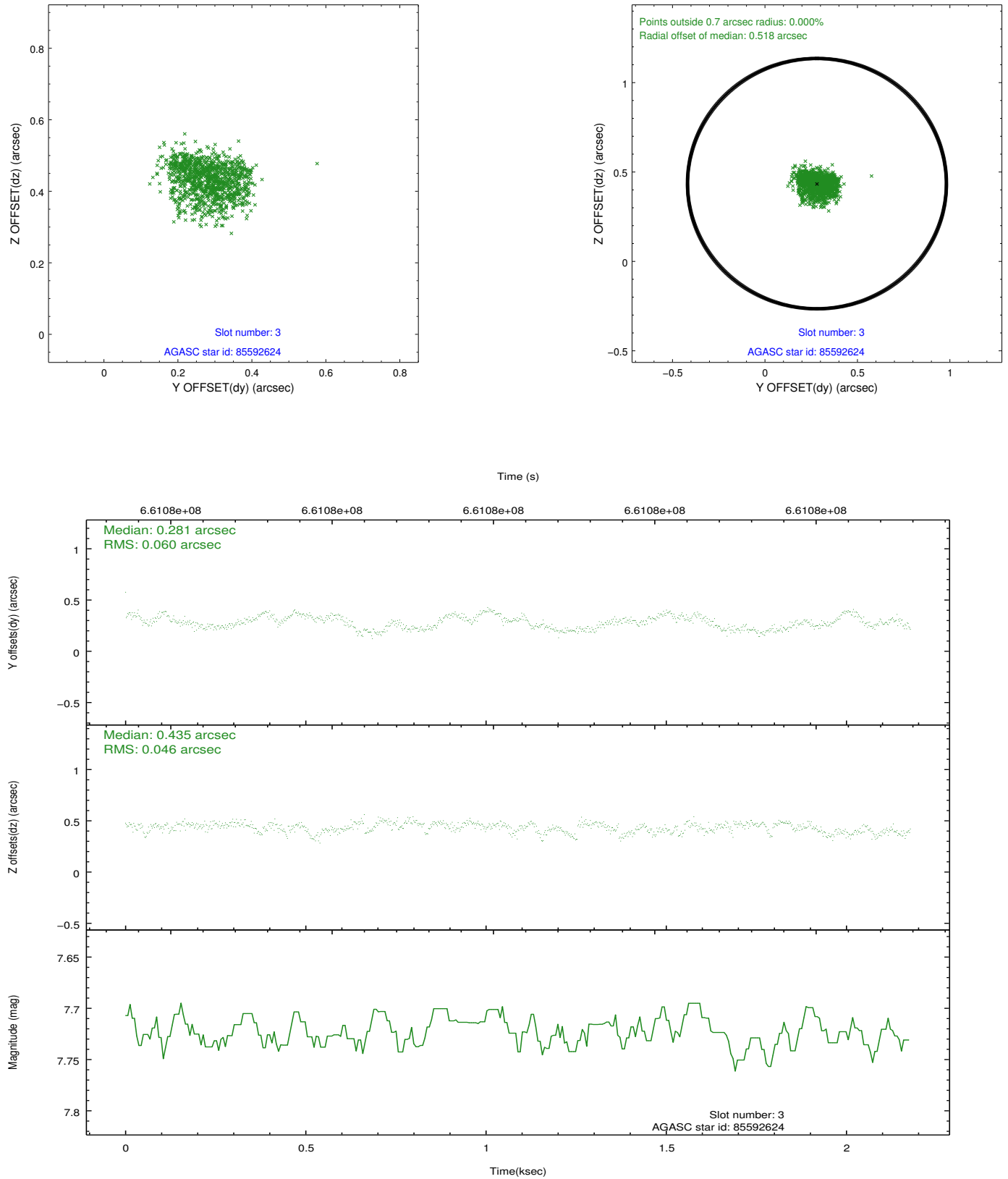
Slot Statistics

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	6.98	531	1.000	-0.270	-0.143	0.008	0.012	0.000000	0.000000	-766.21	-1741
1	FID		ACIS-S-4	7.11	531	1.000	0.697	0.168	0.005	0.010	0.000000	0.000000	2146.57	164
2	FID		ACIS-S-5	7.09	531	1.000	-0.460	-0.017	0.008	0.014	0.000000	0.000000	-1815.49	161
3	GUIDE	used	85592624	7.72	1063	1.000	0.281	0.435	0.084	0.121	53.453940	10.233788	-1378.06	-1938
4	GUIDE	used	86114760	9.37	1062	1.000	-0.030	0.200	0.176	0.278	53.682793	9.762726	492.12	-2115
5	GUIDE	used	86115264	8.64	1063	1.000	0.215	-0.088	0.118	0.187	54.191764	9.800176	1304.08	-497
6	GUIDE	used	86116984	7.00	1063	1.000	-0.312	-0.423	0.075	0.126	54.479042	9.932832	1416.28	624
7	GUIDE	used	86512984	9.03	1062	1.000	-0.157	-0.115	0.102	0.167	54.433894	10.707148	-1060.22	1914

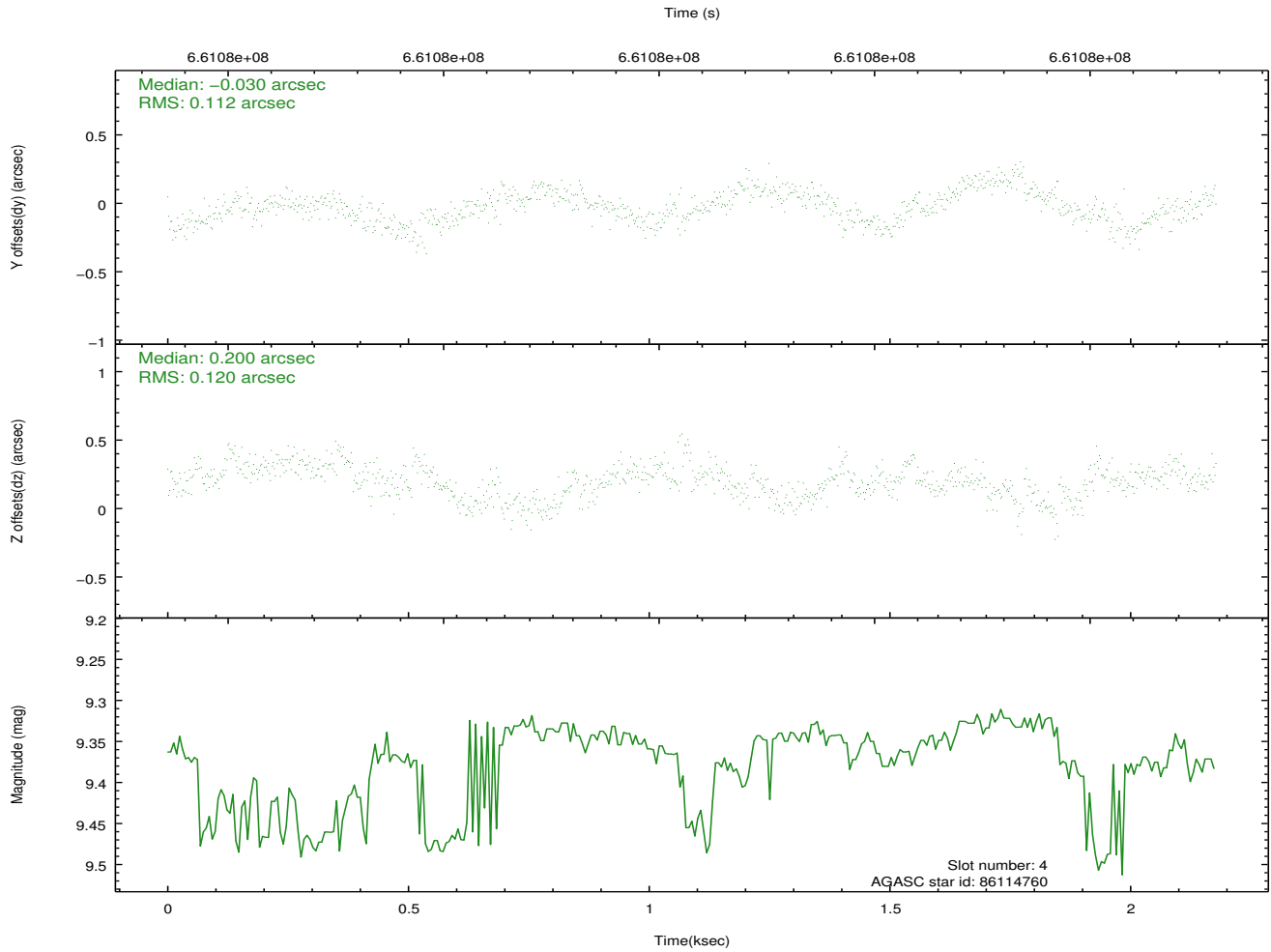
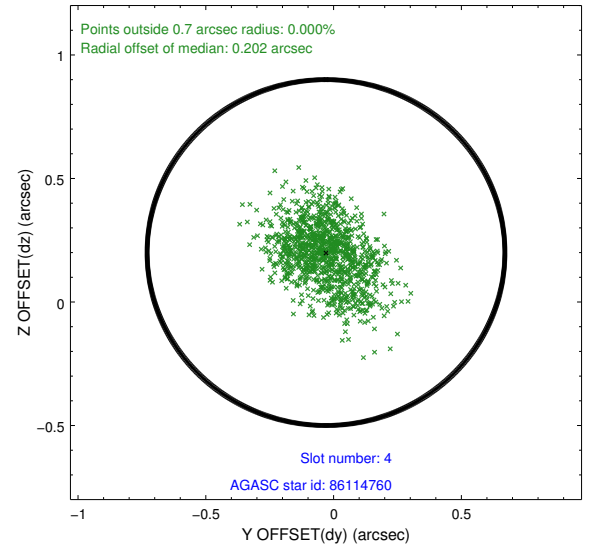
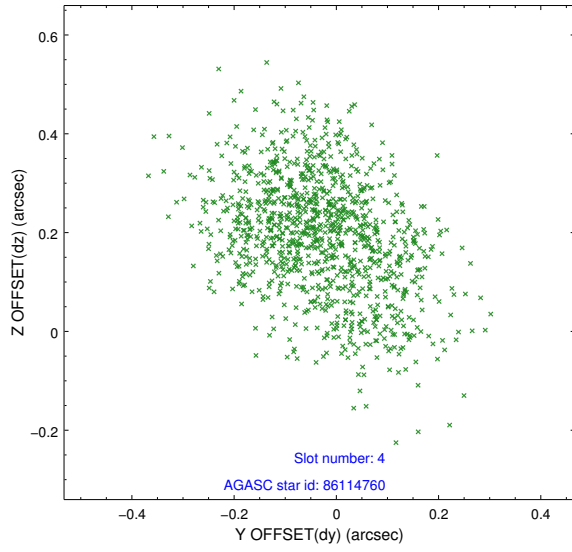


## 2.4 Star Slots

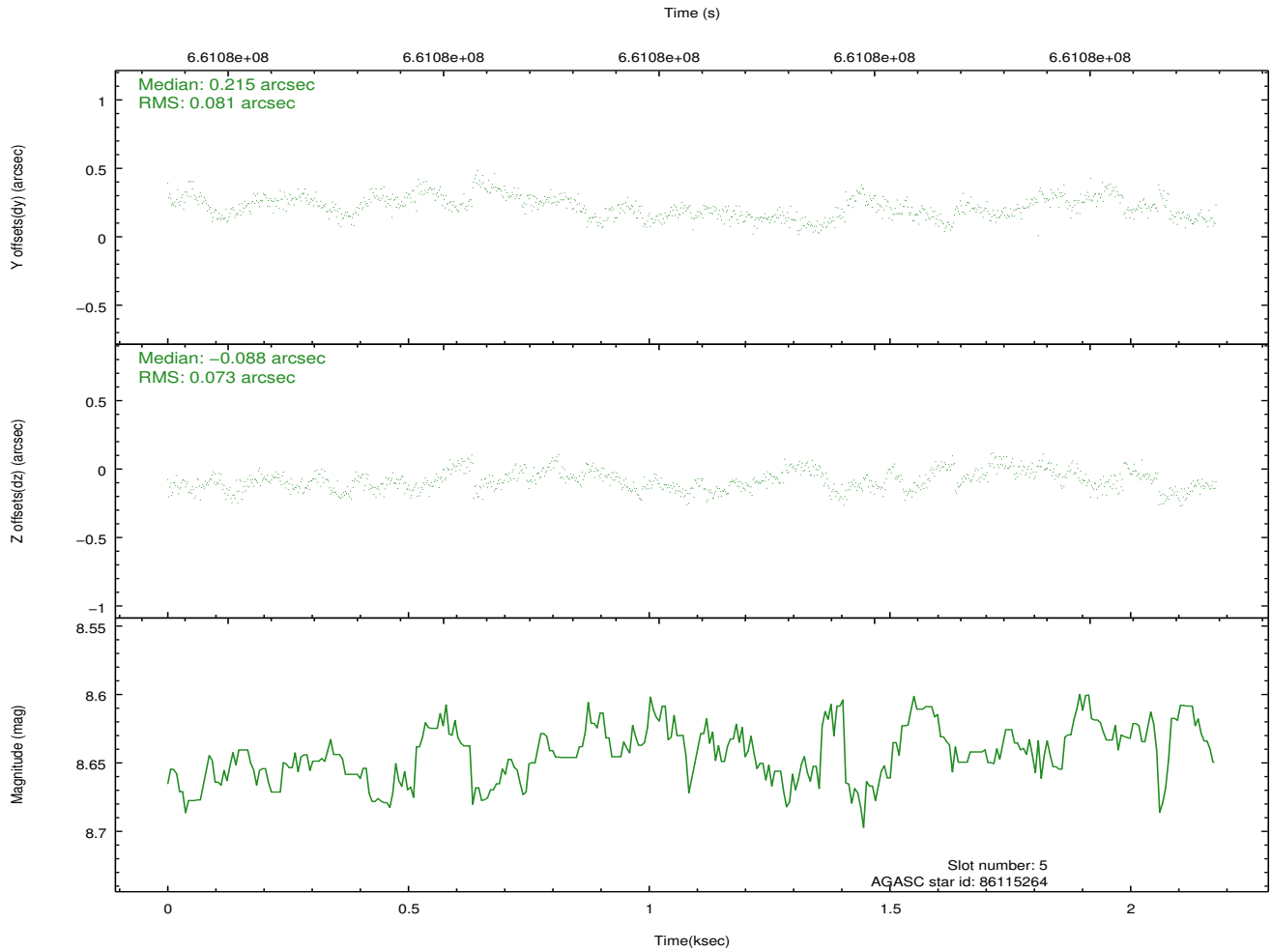
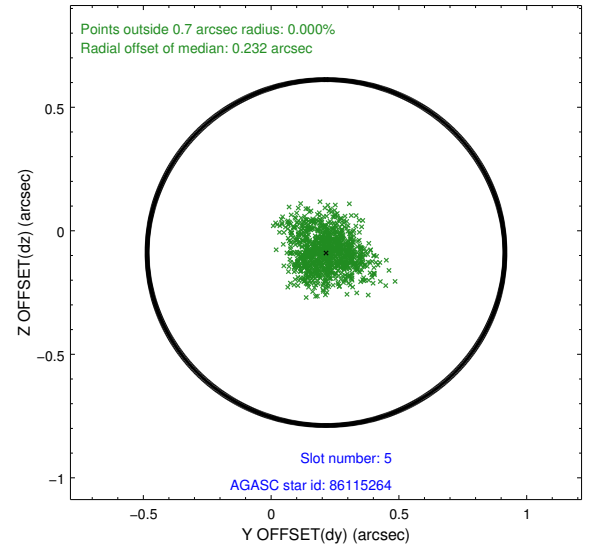
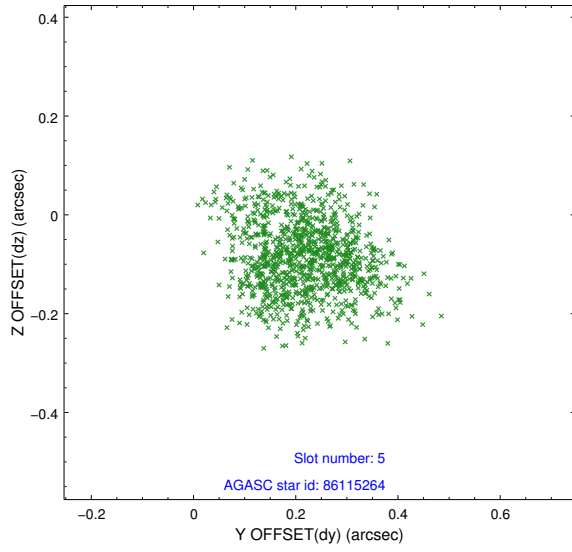
### 2.4.1 Slot 3



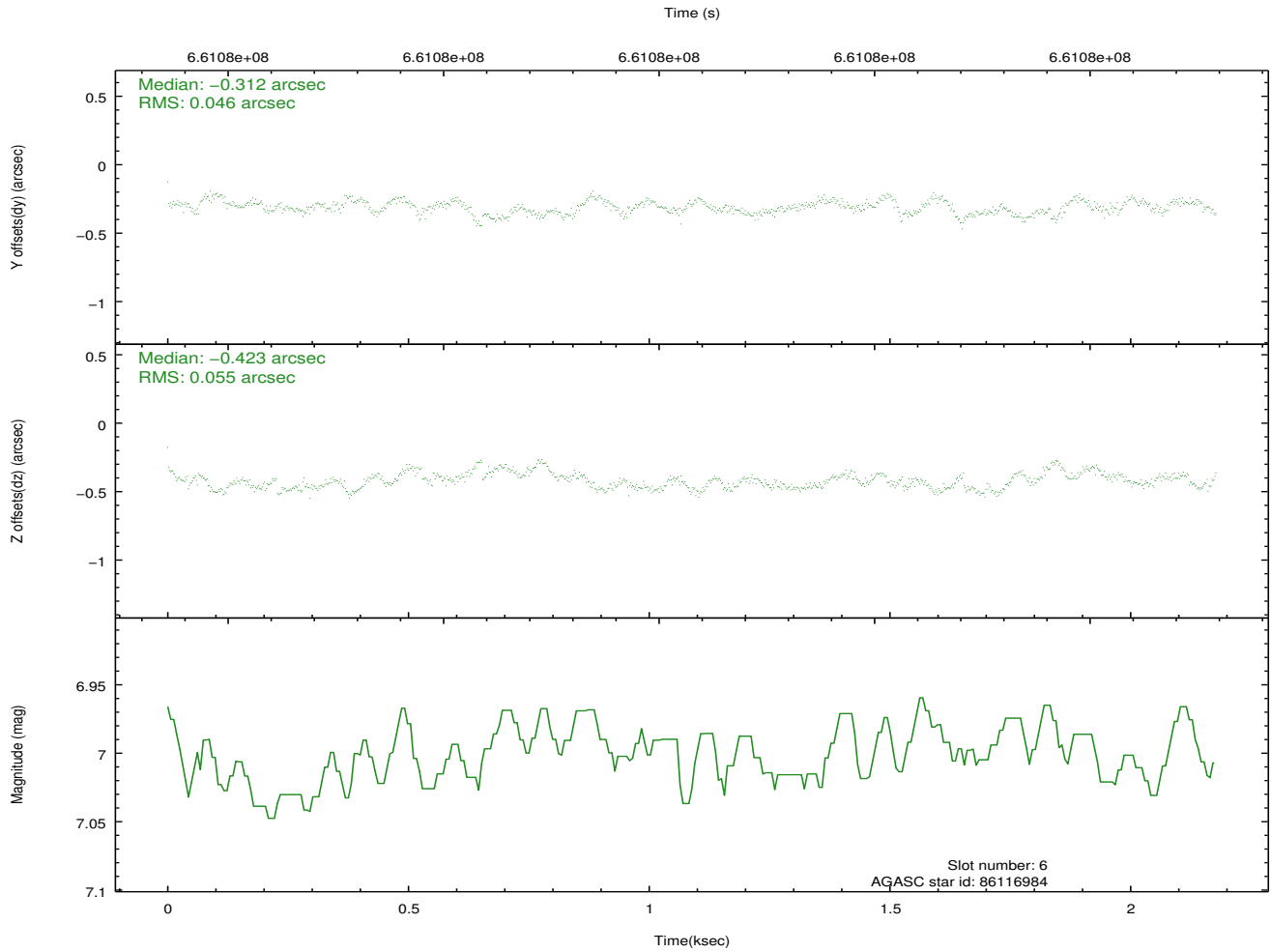
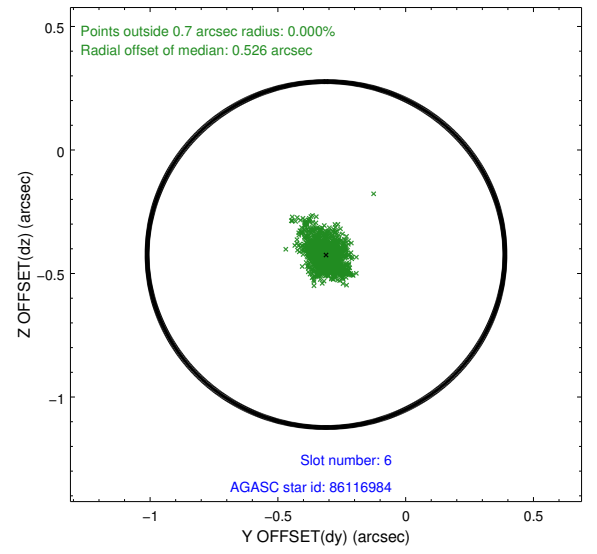
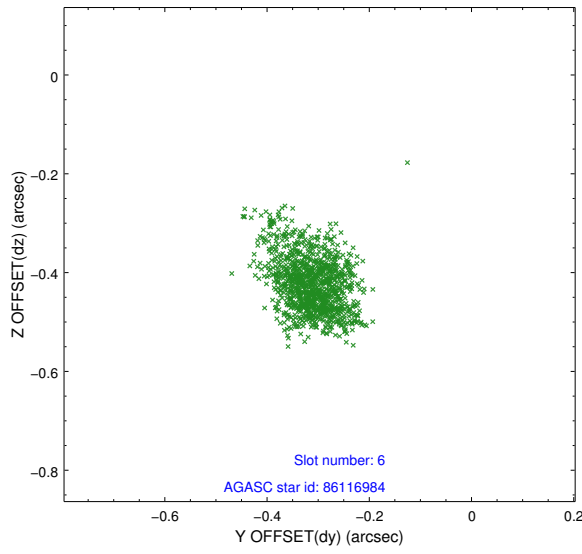
## 2.4.2 Slot 4



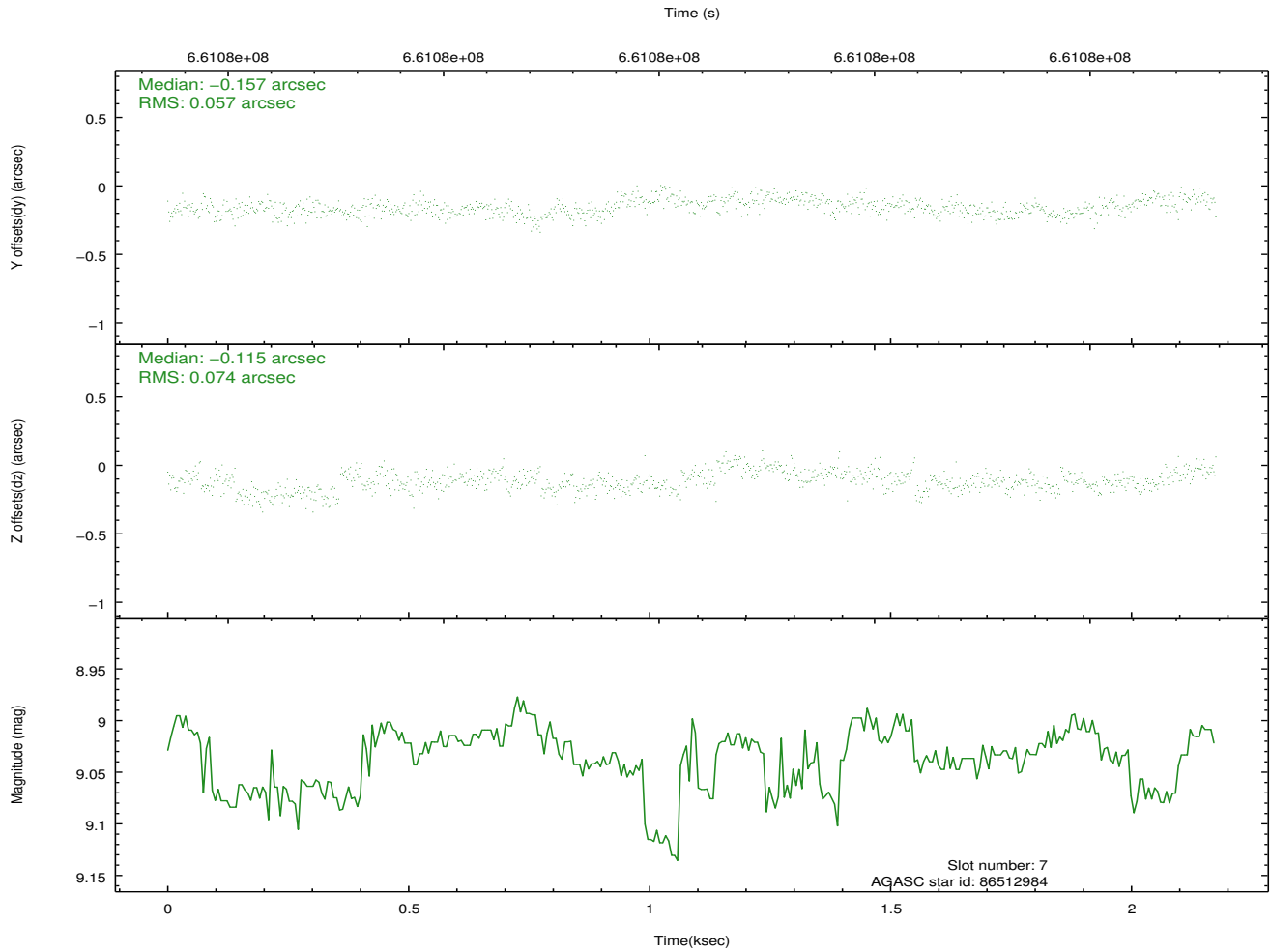
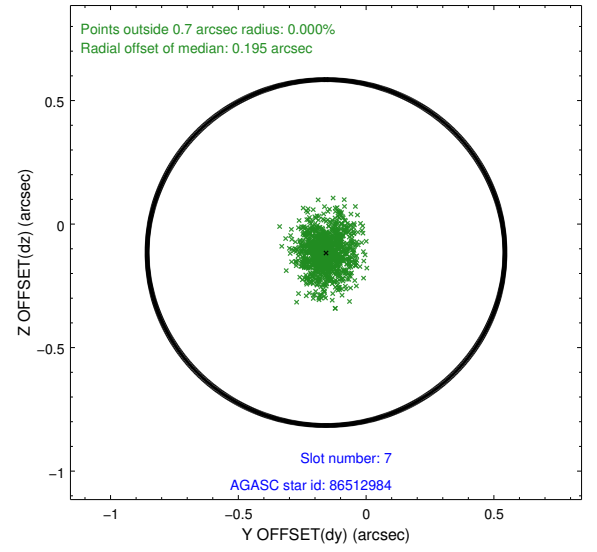
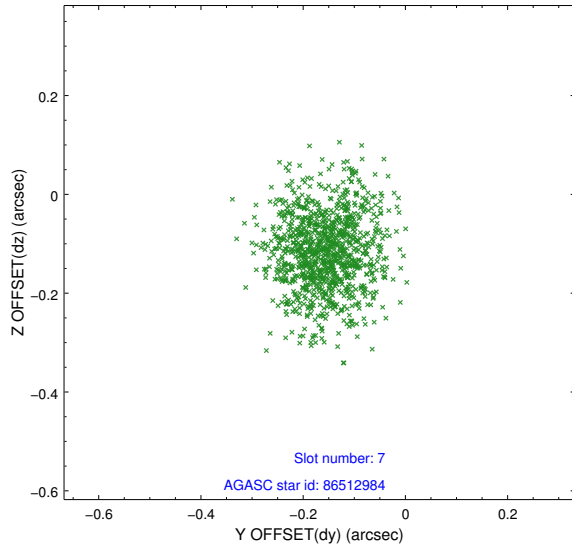
### 2.4.3 Slot 5



## 2.4.4 Slot 6

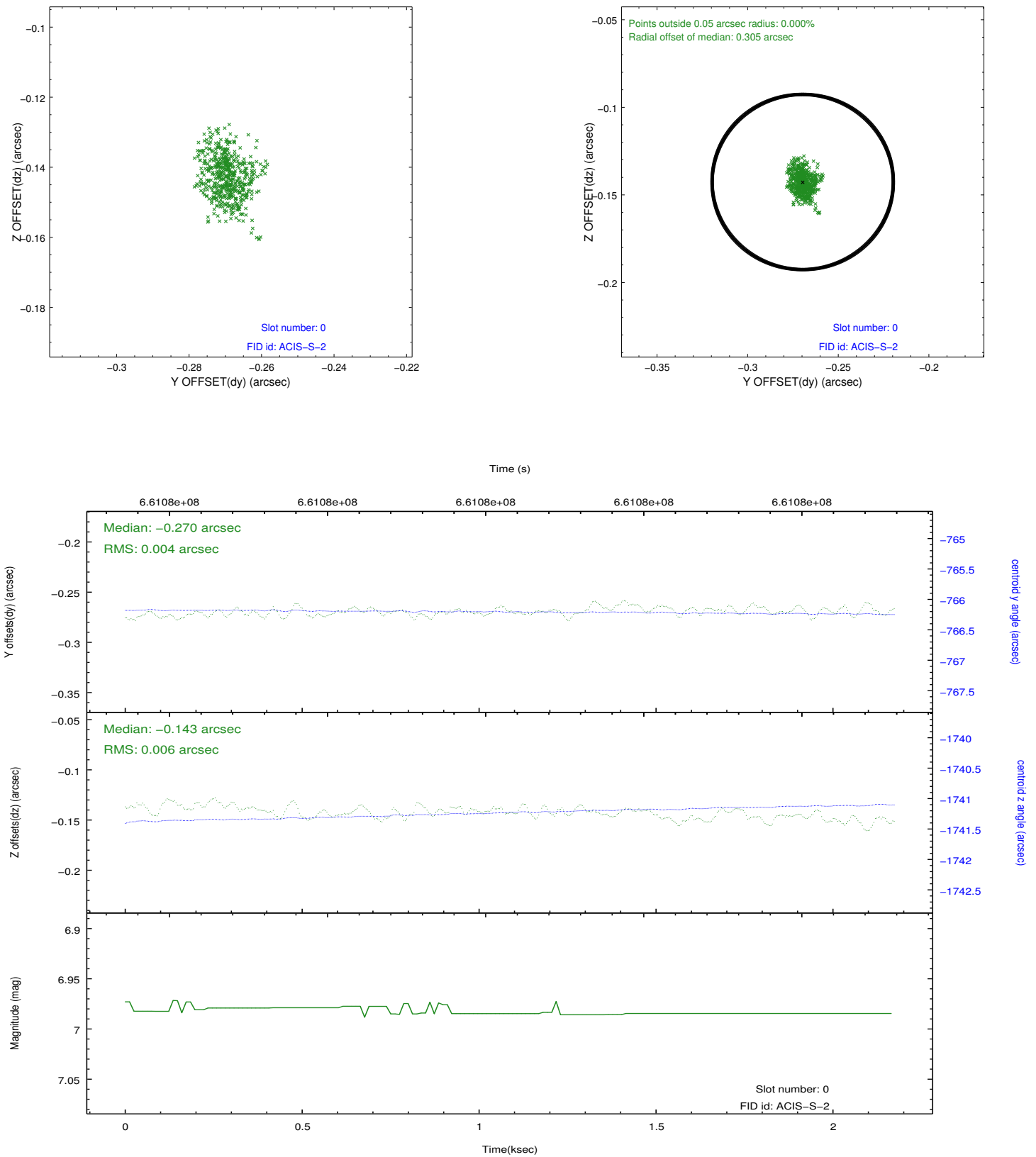


## 2.4.5 Slot 7

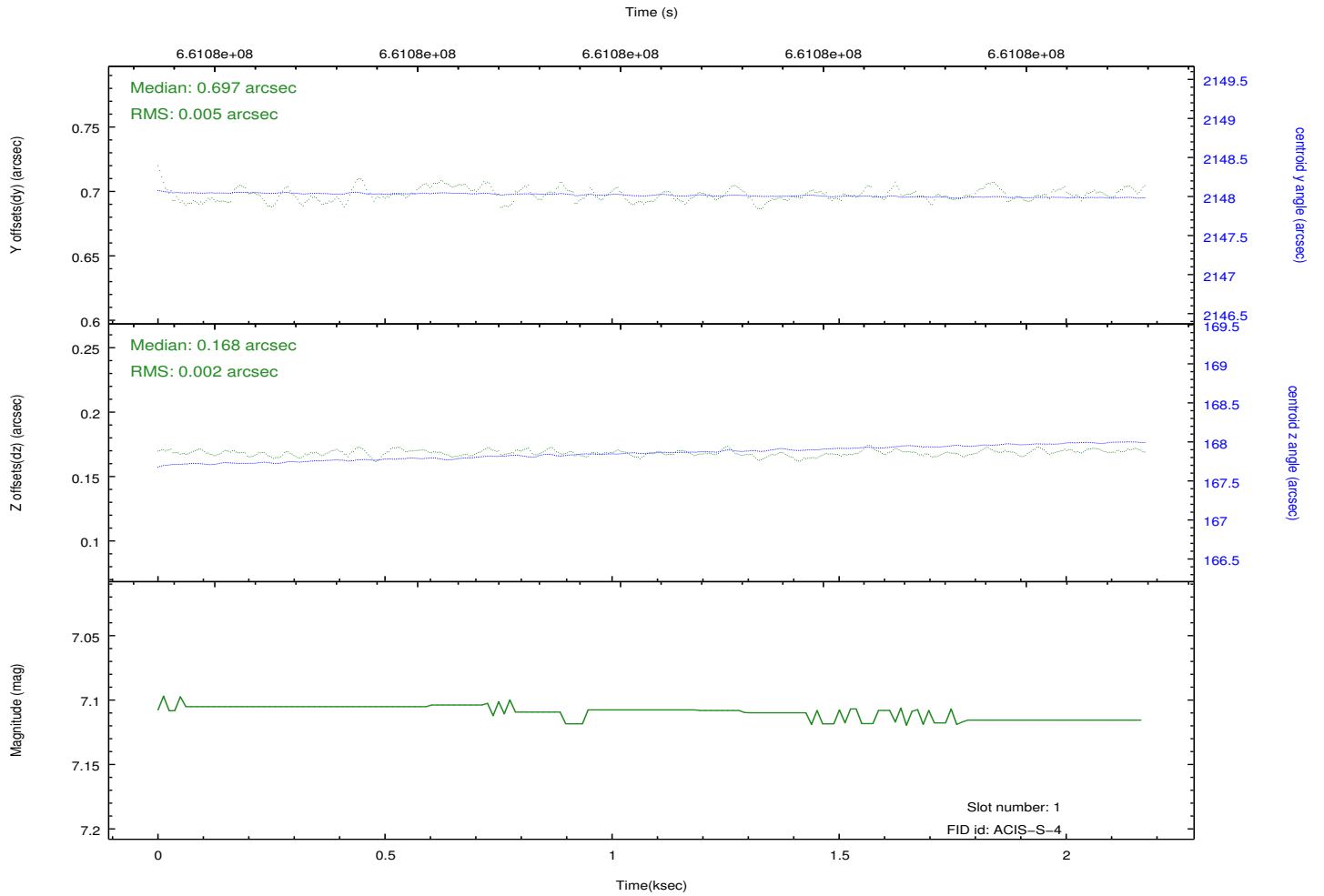
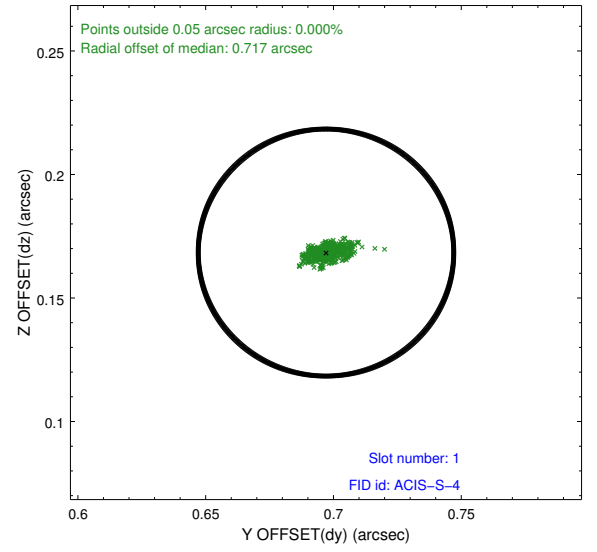
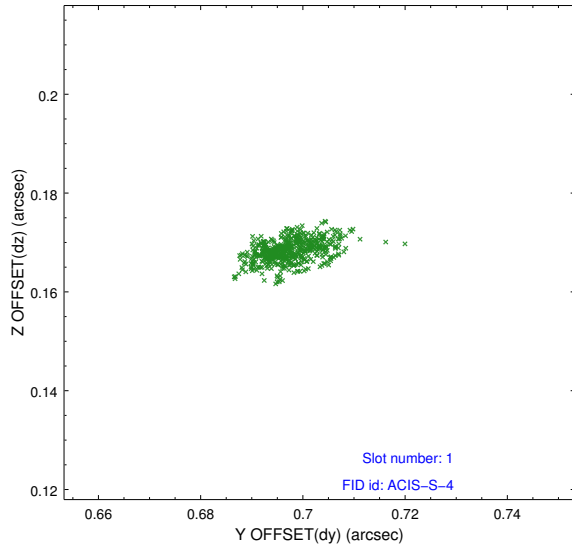


## 2.5 FID Slots

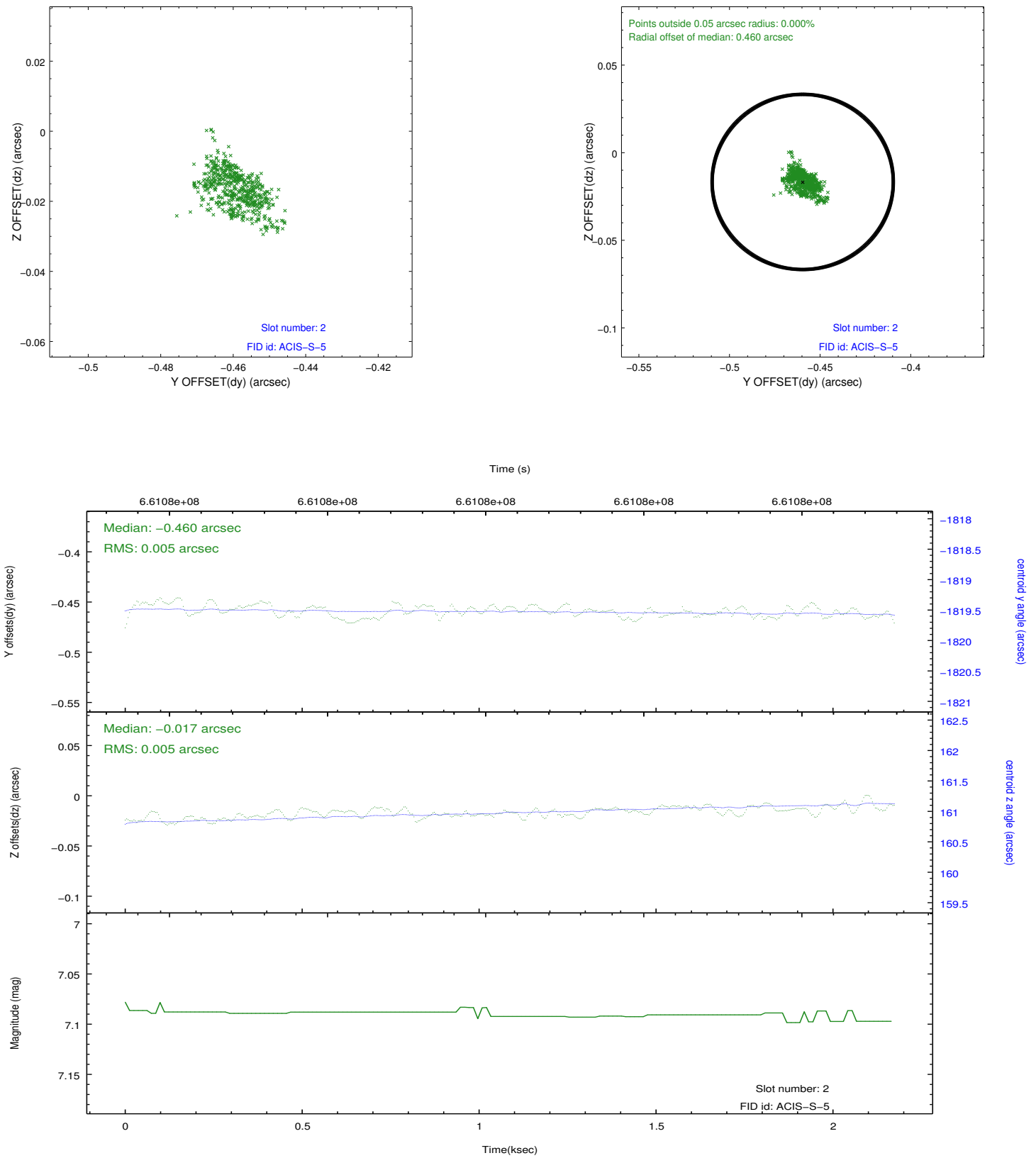
### 2.5.1 Slot 0



## 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)	2018.12.14
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.1762000168562

## A.2 Comments

Joint proposal with HST.

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.

Two optional chips were dropped.