

# V&V Reference Report

## L2 ASCDS Version : 10.7.1

Observation 21988 - L2 Version 2  
Chandra X-Ray Center

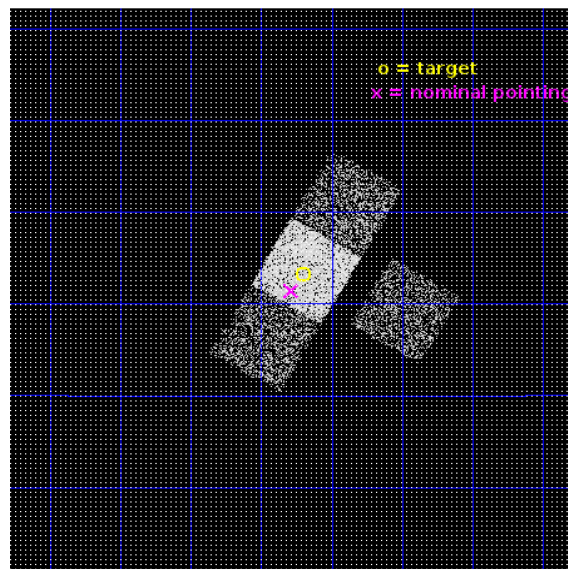
L2 Processing Date : Dec 17 2018

## 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 5 . . . . .	10
2.4.3	Slot 6 . . . . .	11
2.4.4	Slot 7 . . . . .	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

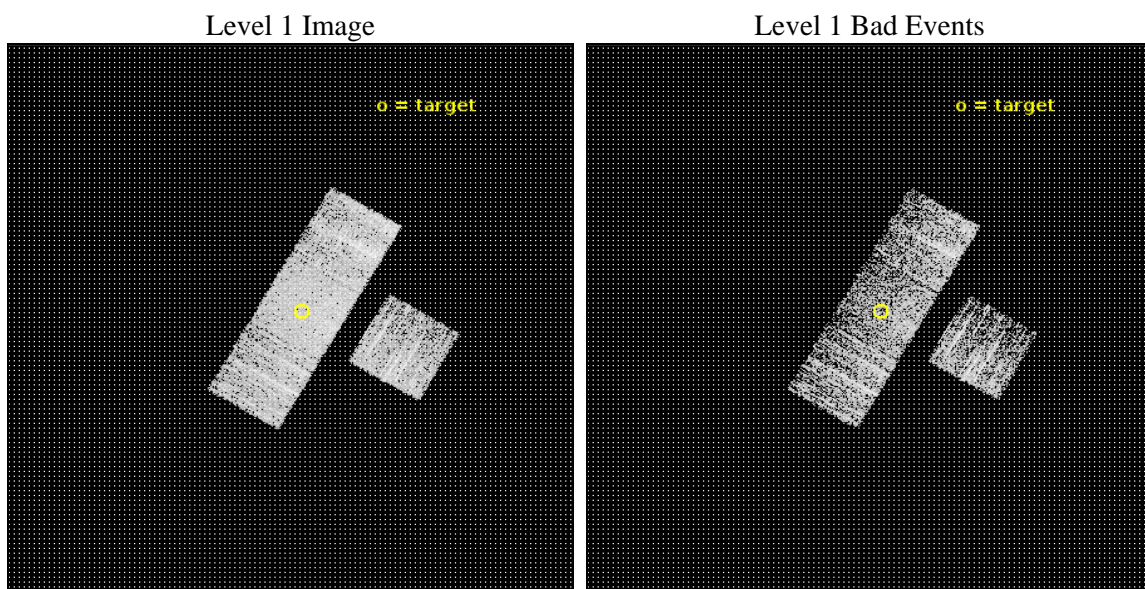
seq_num	100169	Sequence number
obs_id	21988	Observation id
title	Close encounter with comet 46P/Wirtanen: X-ray tomography of the coma	Proposal title
observer	Dennis Bodewits	Principal investigator
object	46P/Wirtanen	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	54.425449	Observer's specified target RA [deg]
dec_targ	10.719089	Observer's specified target Dec [deg]
ra_nom	54.446441670419	Nominal RA [deg]
dec_nom	10.690560377372	Nominal Dec [deg]
roll_nom	300.25569169734	Nominal Roll [deg]
revision	2	Processing version of data
ontime	2188.6000169516	Sum of GTIs [s]
livetime	2160.0043465062	Livetime [s]
ontime3	2188.6000169516	Sum of GTIs [s]
ontime6	2188.6000169516	Sum of GTIs [s]
ontime7	2188.6000169516	Sum of GTIs [s]
ontime8	2188.6000169516	Sum of GTIs [s]
l2events	13949	Number of level 2 events



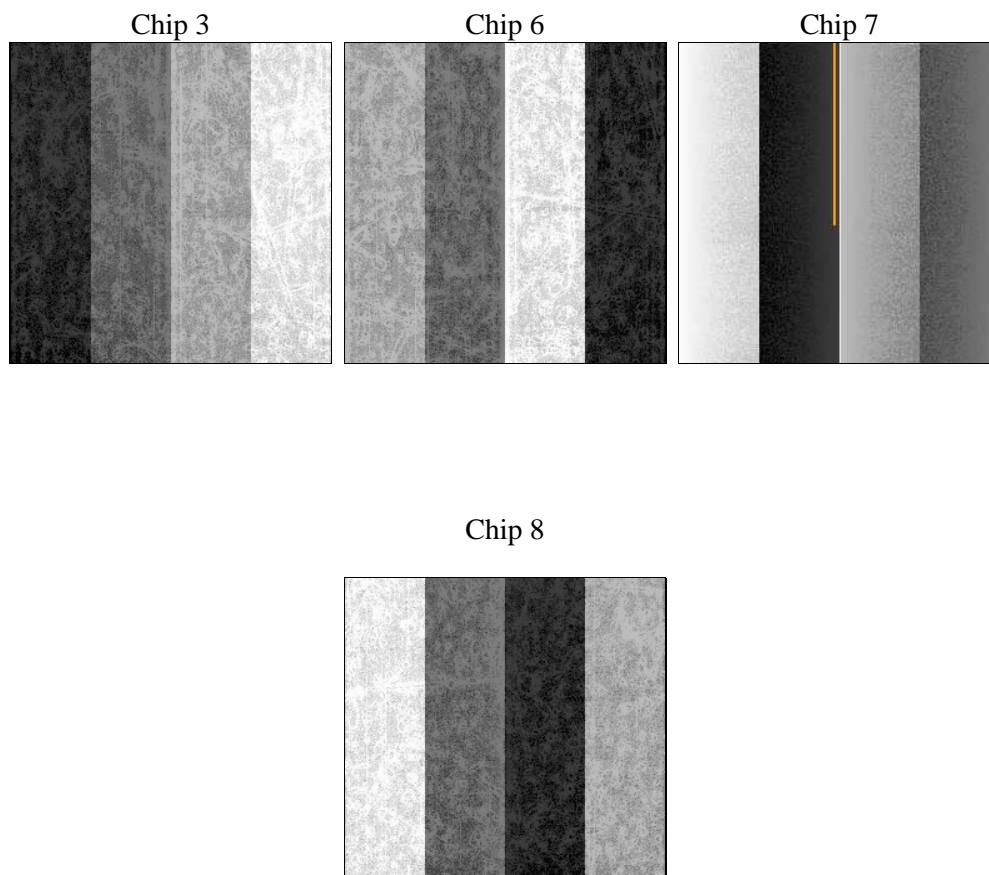
## 2 OBI

### 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	2188.6000169516	Sum of GTIs [s]
caldsver	4.8.2	&#160	ontime3	2188.6000169516	Sum of GTIs [s]
date	2018-12-17T16:04:03	Date and time of file creation	ontime6	2188.6000169516	Sum of GTIs [s]
revision	2	Processing version of data	ontime7	2188.6000169516	Sum of GTIs [s]
			ontime8	2188.6000169516	Sum of GTIs [s]
			l1events	96134	Number of level 1 events

### 2.1.4 Events

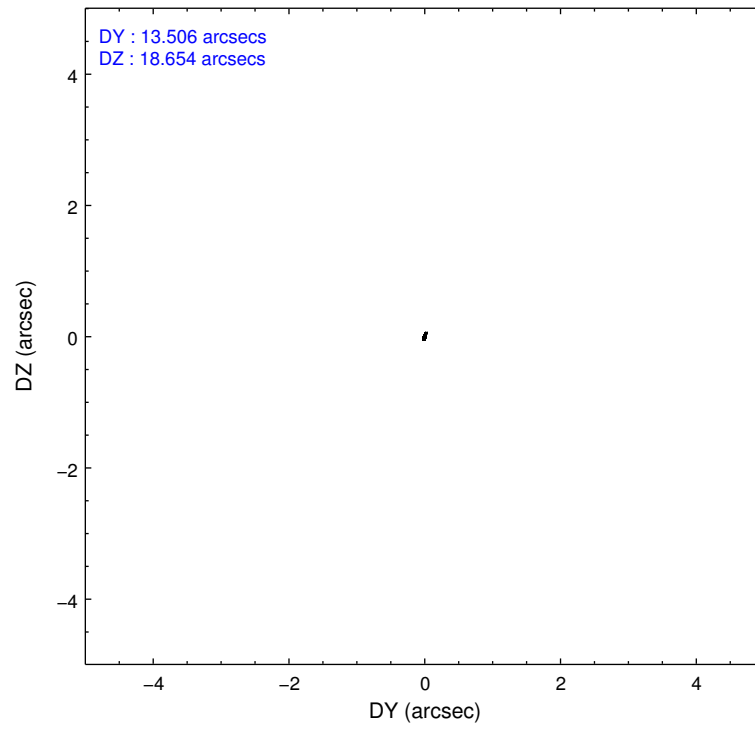
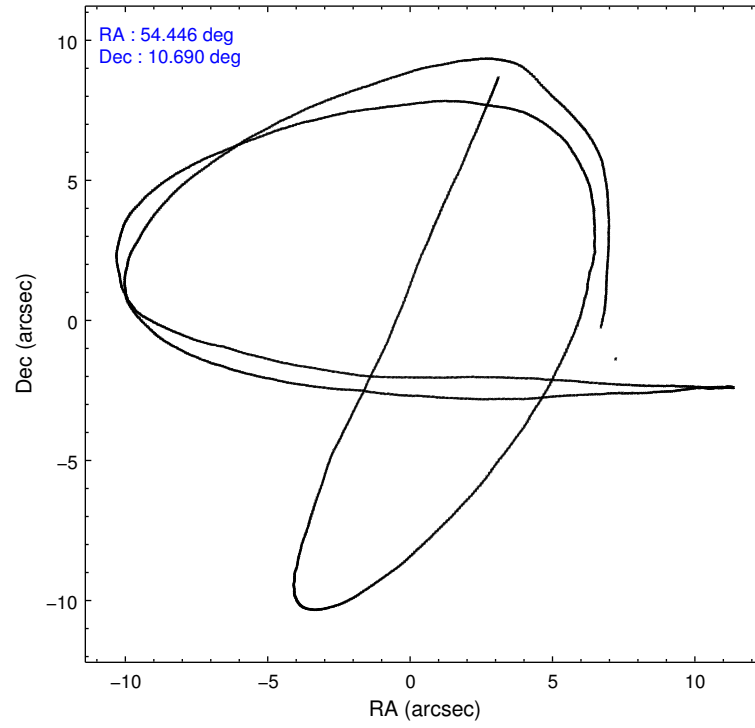
	ccd 3	ccd 6	ccd 7	ccd 8
level 1 events	19961	22103	27389	26681
rejected events	18313	20250	18192	21386
rejected %	91%	91%	66%	80%

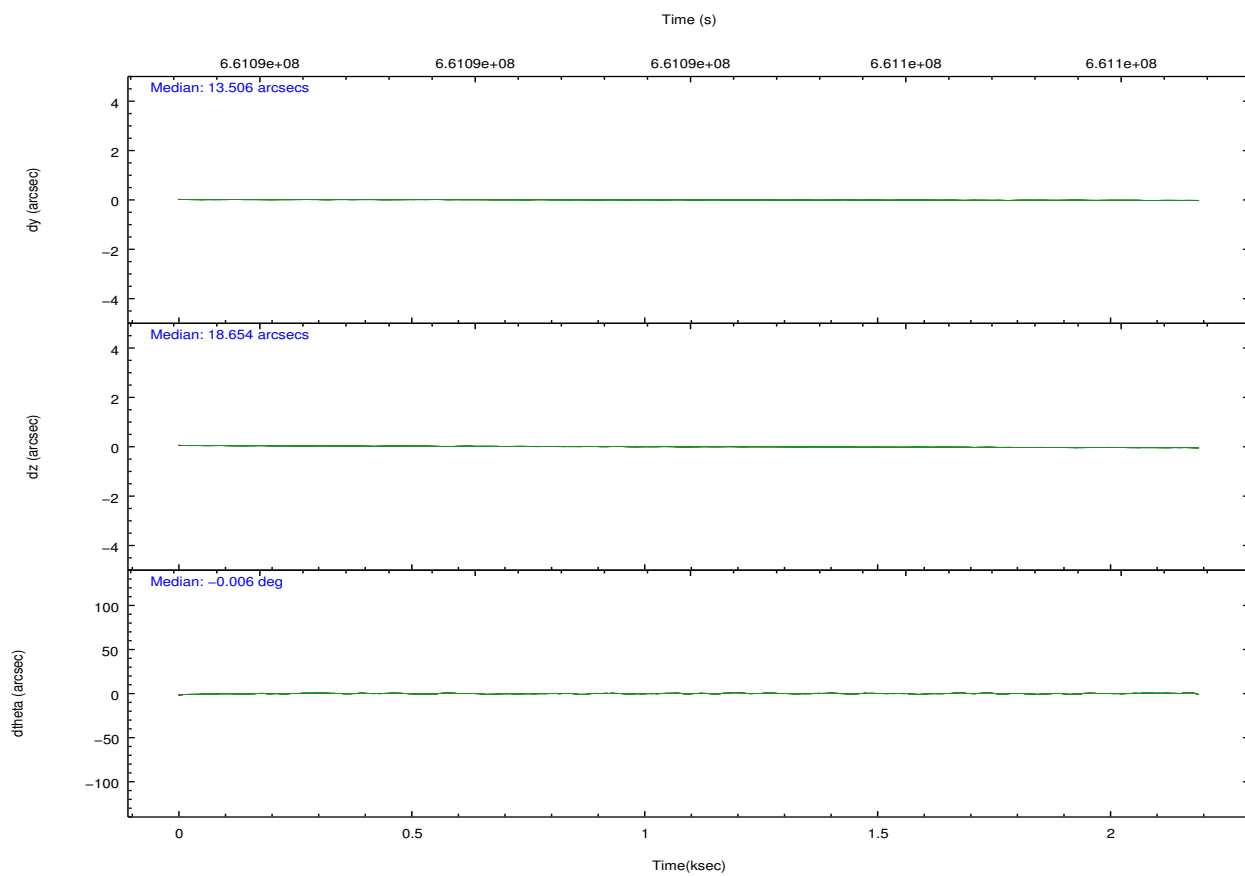
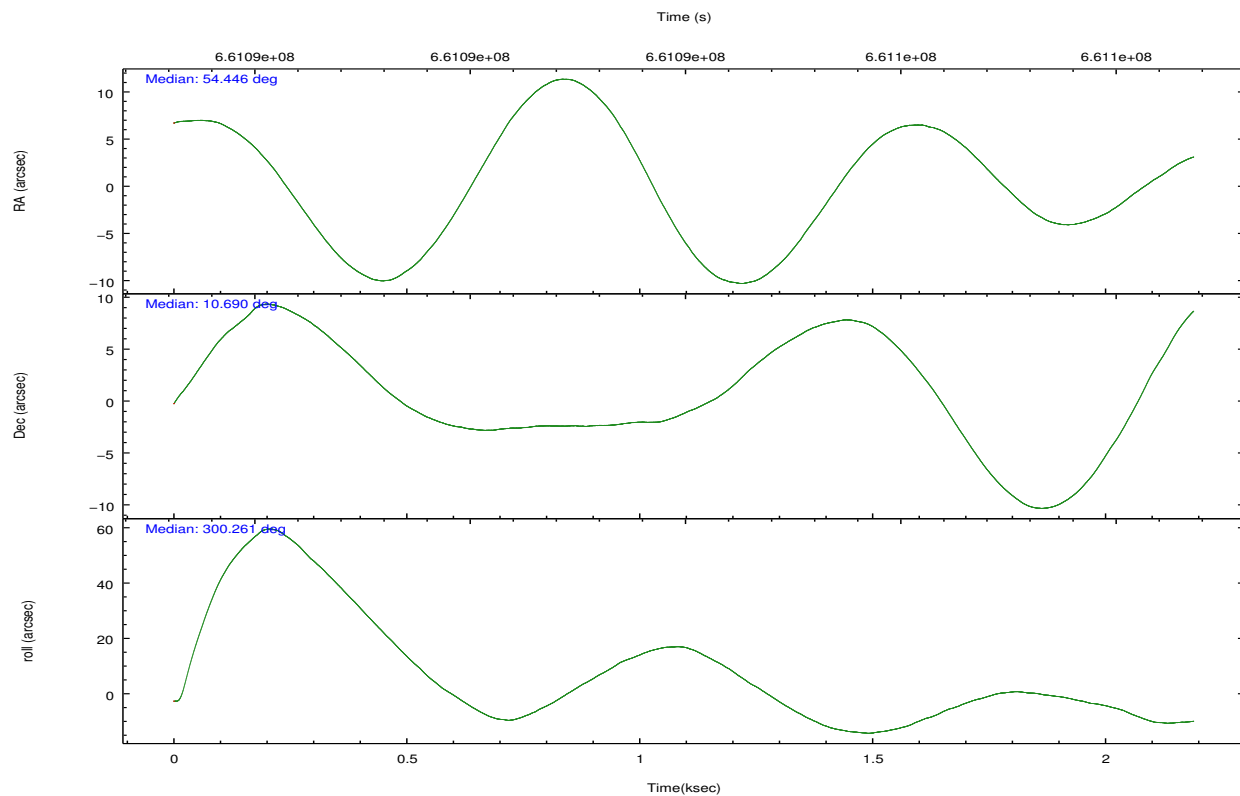
	ccd 3	ccd 6	ccd 7	ccd 8
grade 0 events	730	818	980	1920
	3%	3%	3%	7%
grade 1 events	12	16	44	14
	0%	0%	0%	0%
grade 2 events	457	569	2443	1741
	2%	2%	8%	6%
grade 3 events	217	231	926	727
	1%	1%	3%	2%
grade 4 events	233	209	870	693
	1%	0%	3%	2%
grade 5 events	1036	927	2604	1476
	5%	4%	9%	5%
grade 6 events	455	600	6589	1957
	2%	2%	24%	7%
grade 7 events	16821	18733	12933	18153
	84%	84%	47%	68%

## 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	54.421917	54.44644167041941	CCD I2 on	O2	N
[deg] Pointing Dec	10.703800	10.69056037737233	CCD I3 on	Y	Y
[deg] Pointing Roll	300.103887	300.2556916973391	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)	661093587.184000	661093061.42953	On-chip summing requested	N	N
Observation start date	2018-12-13T13:05:18	2018-12-13T12:57:41	Subarray requested	NONE	NONE
[s] Observation end time (MET)	661095587.184000	661095884.79219	Alternating exposures requested	N	N
Observation end date	2018-12-13T13:38:38	2018-12-13T13:44:44	[s] Primary exposure time	0.000000	3.1
Read mode	TIMED	TIMED			

## 2.3 Aspect





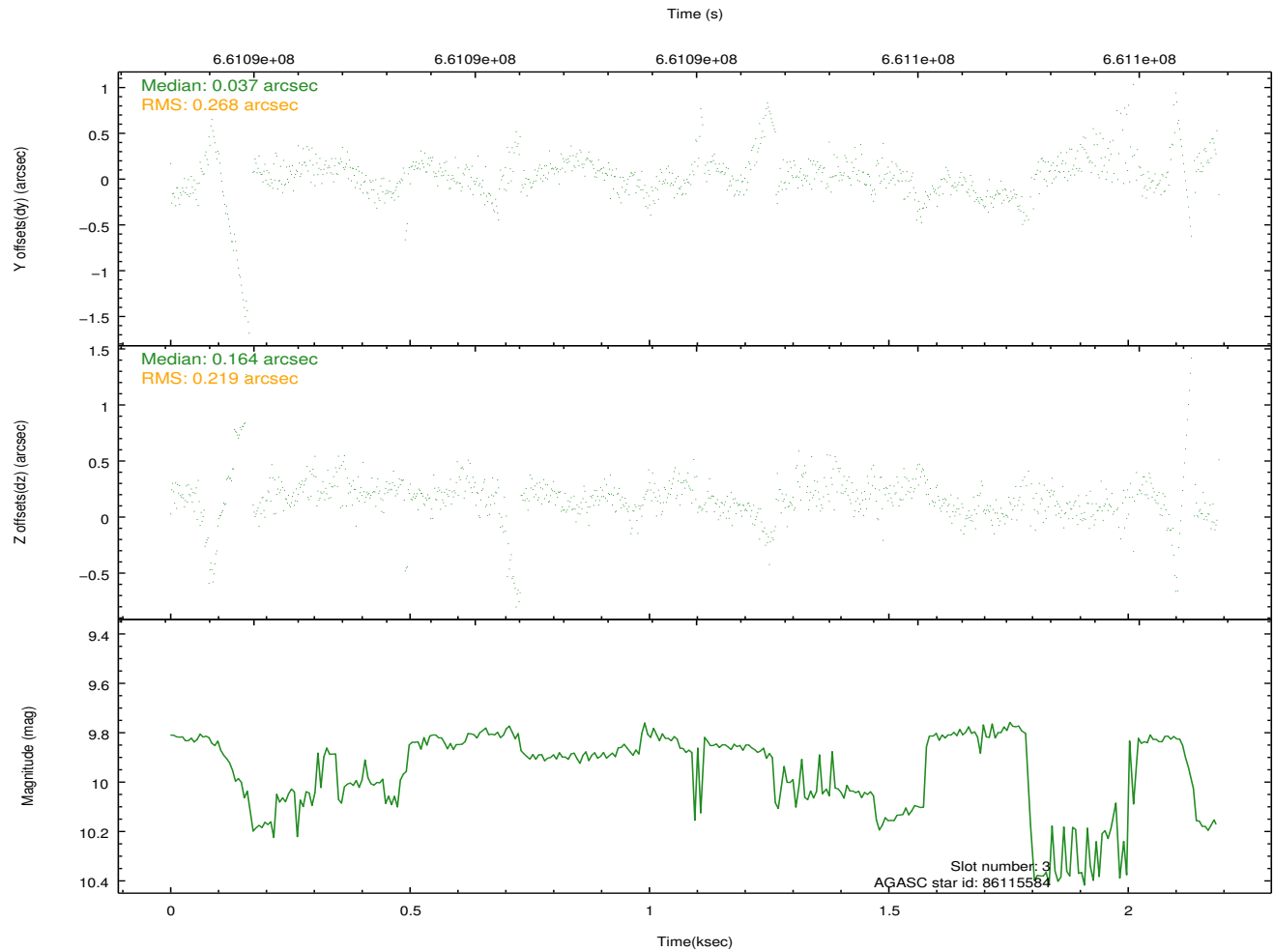
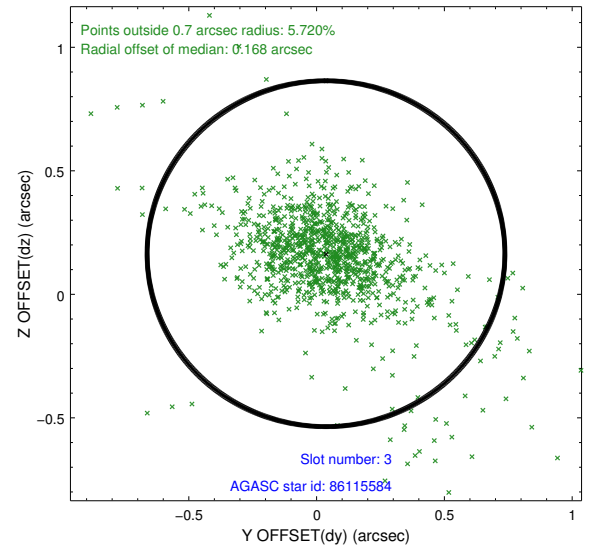
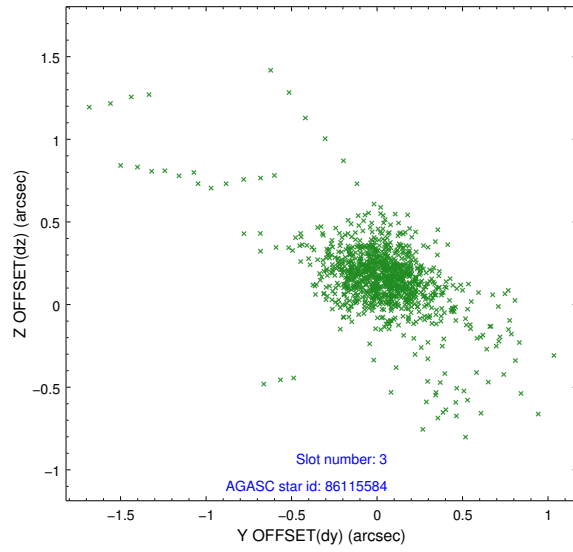
Slot Statistics

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	7.06	534	1.000	-0.271	-0.210	0.007	0.011	0.000000	0.000000	-766.64	-1740
1	FID		ACIS-S-4	7.19	535	1.000	0.746	0.187	0.006	0.011	0.000000	0.000000	2146.22	165
2	FID		ACIS-S-5	7.17	535	1.000	-0.506	0.031	0.007	0.012	0.000000	0.000000	-1815.97	162
3	GUIDE	used	86115584	9.89	1049	1.000	0.037	0.164	0.251	0.767	54.275265	9.978583	1998.56	-1758
4	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0
5	GUIDE	used	86512984	9.04	1068	1.000	-0.279	-0.293	0.204	0.324	54.433894	10.707148	14.25	42
6	GUIDE	used	86515104	8.09	1069	1.000	-0.198	0.314	0.121	0.234	53.764409	11.045848	-2232.15	-1389
7	GUIDE	used	86115264	8.69	1067	1.000	0.459	-0.185	0.243	0.424	54.191764	9.800176	2403.47	-2339

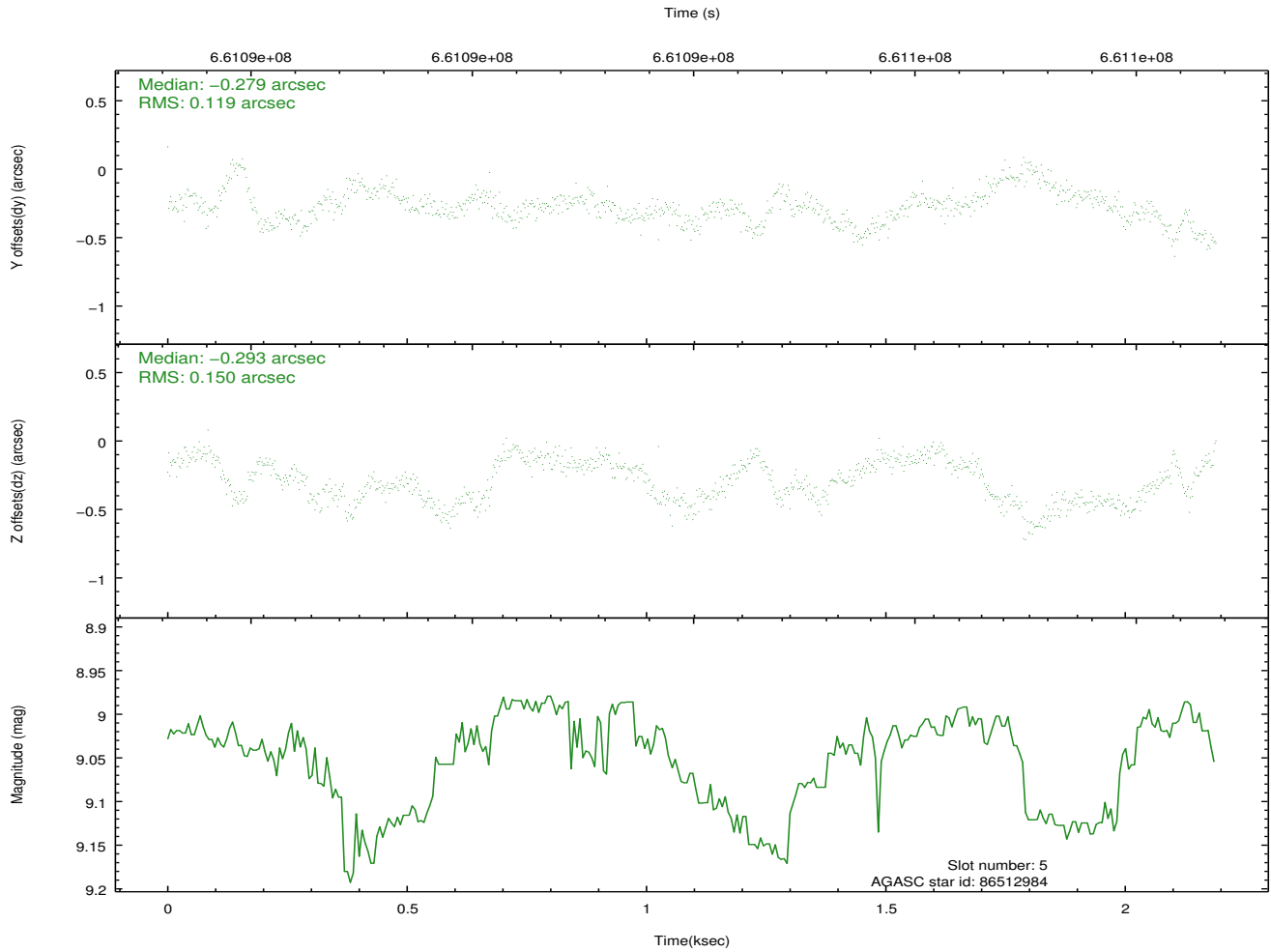
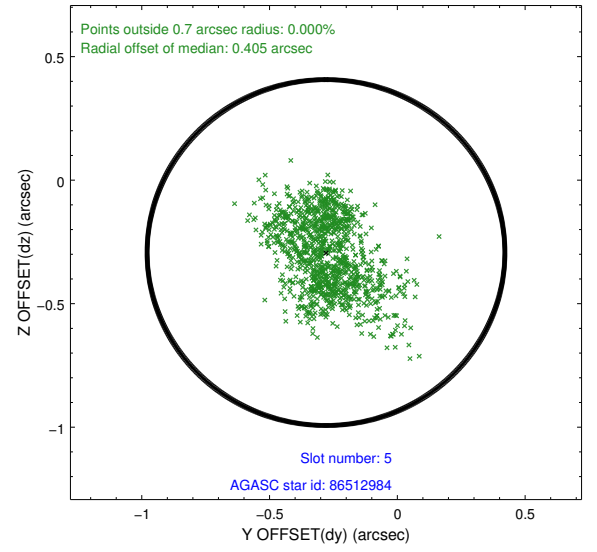
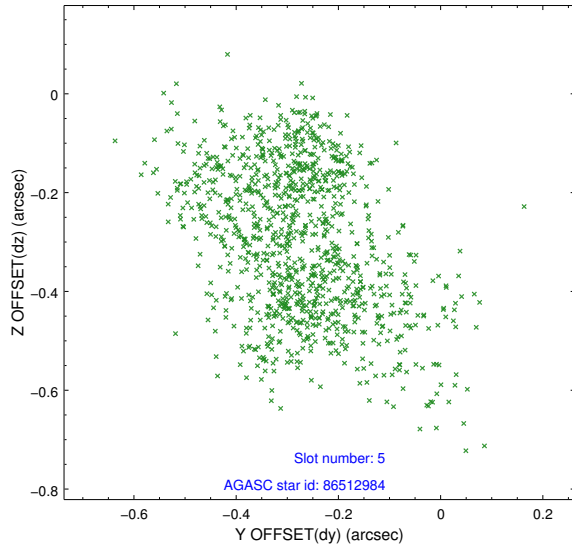


## 2.4 Star Slots

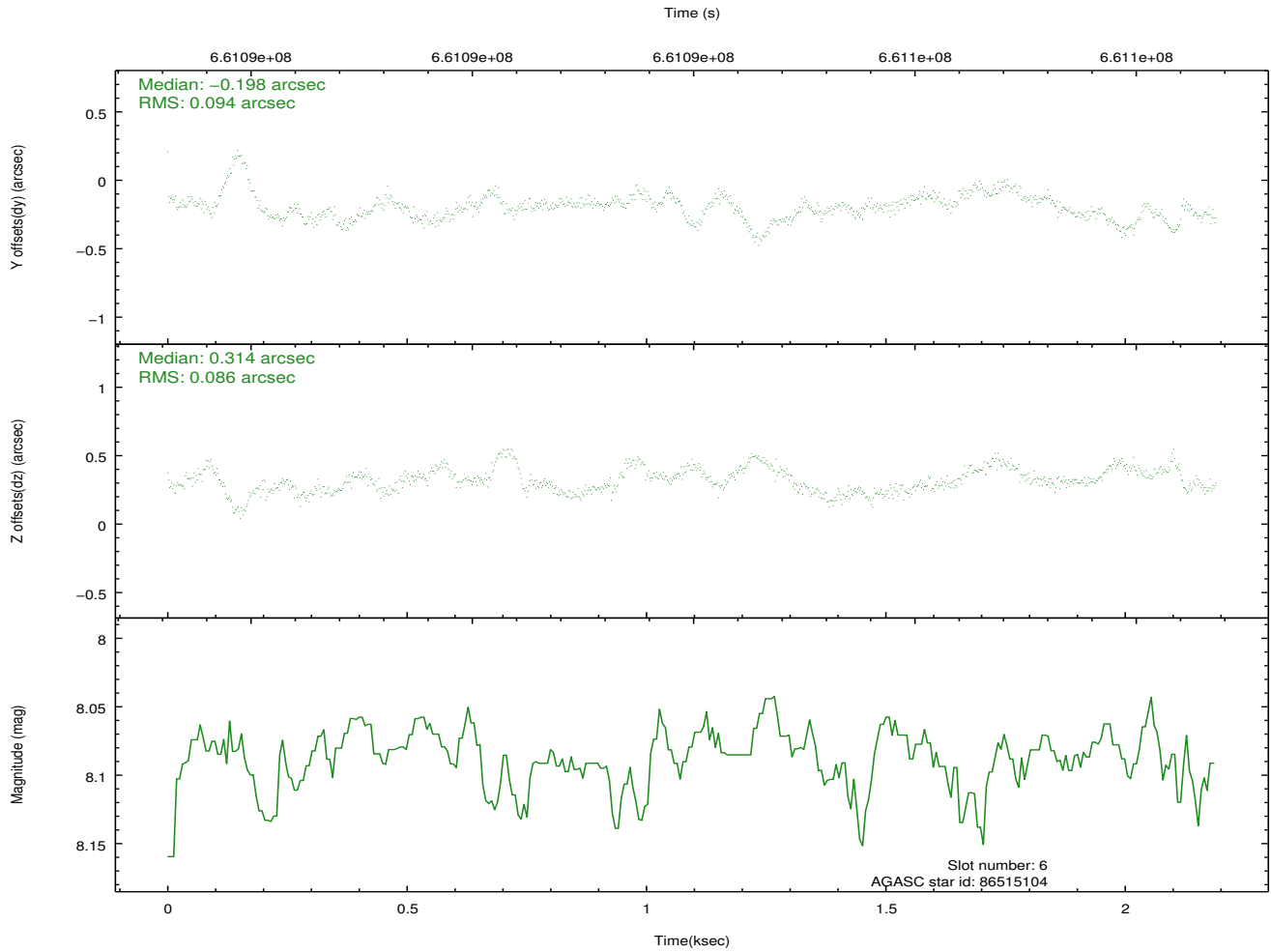
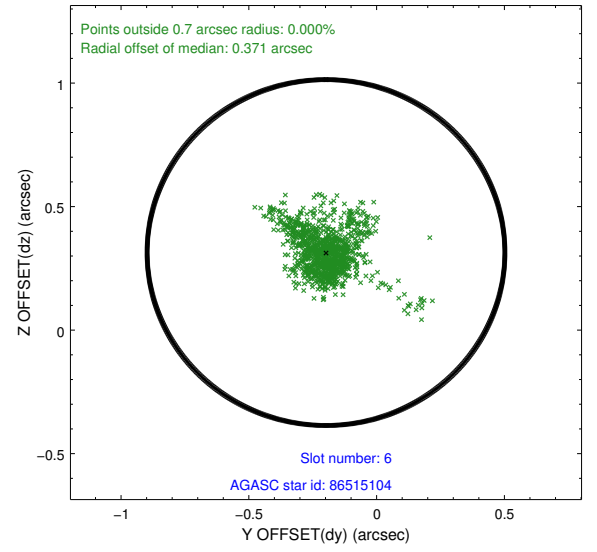
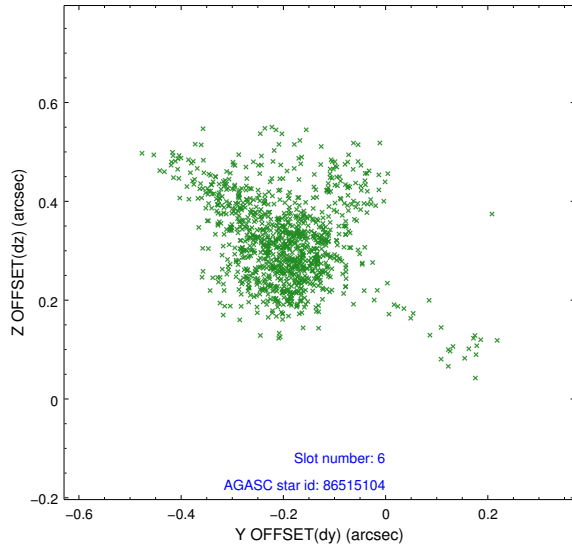
### 2.4.1 Slot 3



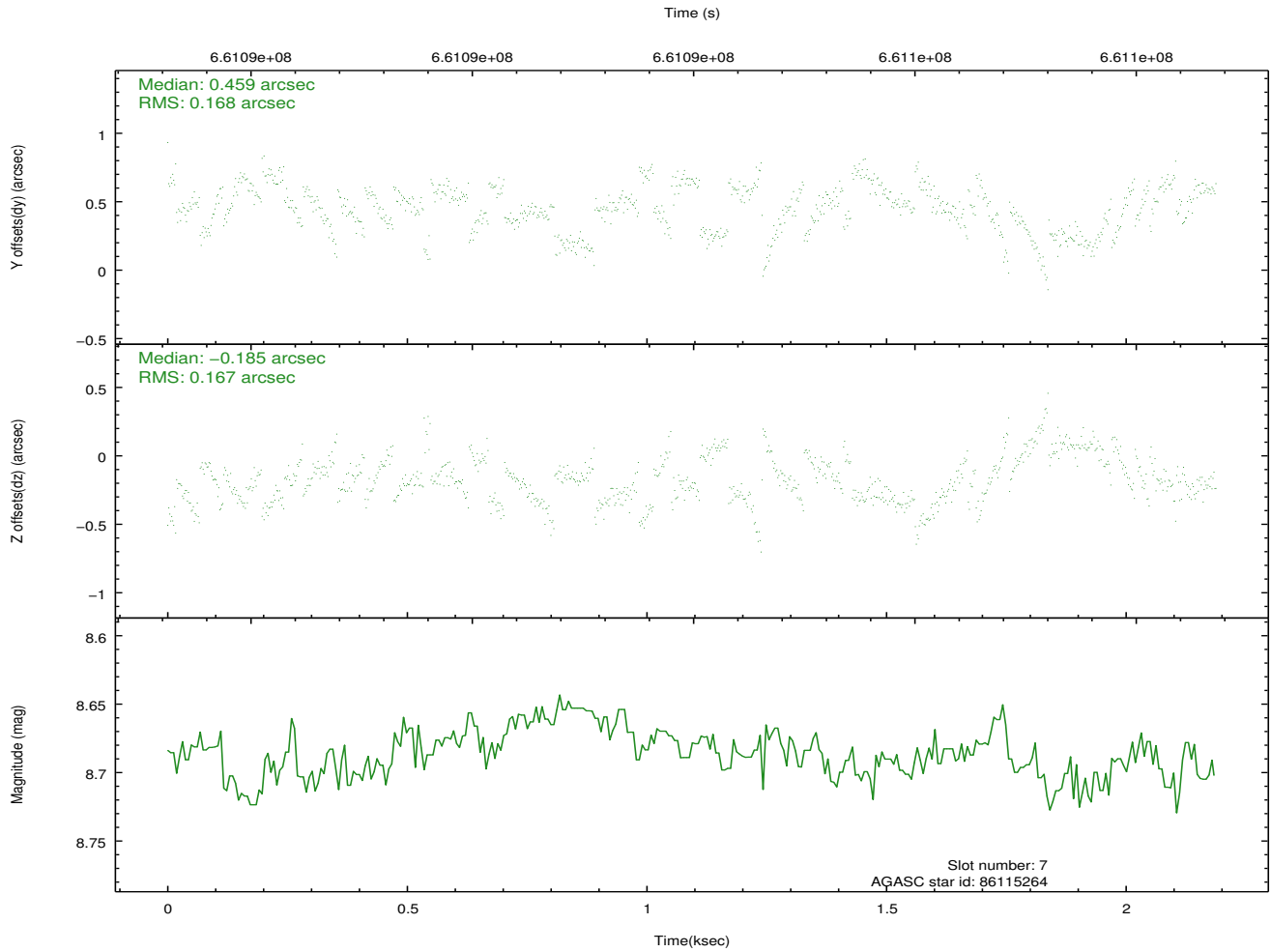
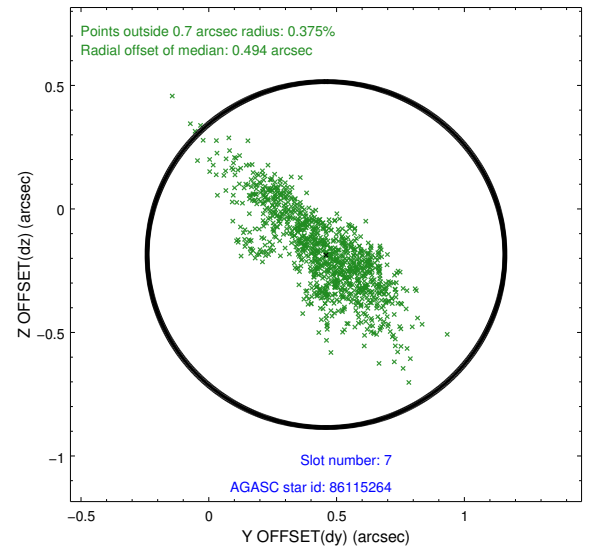
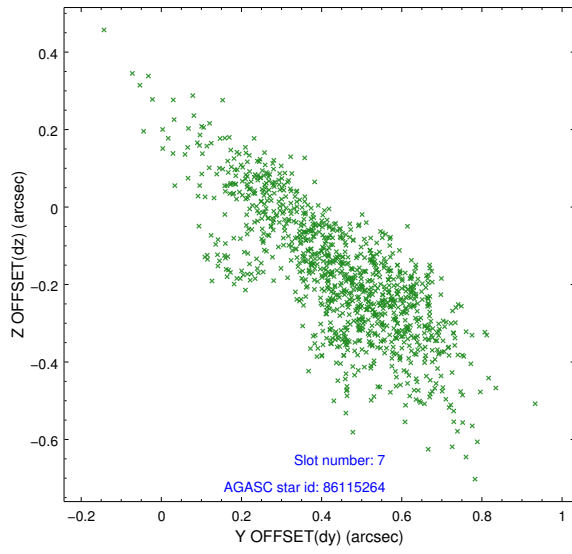
## 2.4.2 Slot 5



### 2.4.3 Slot 6

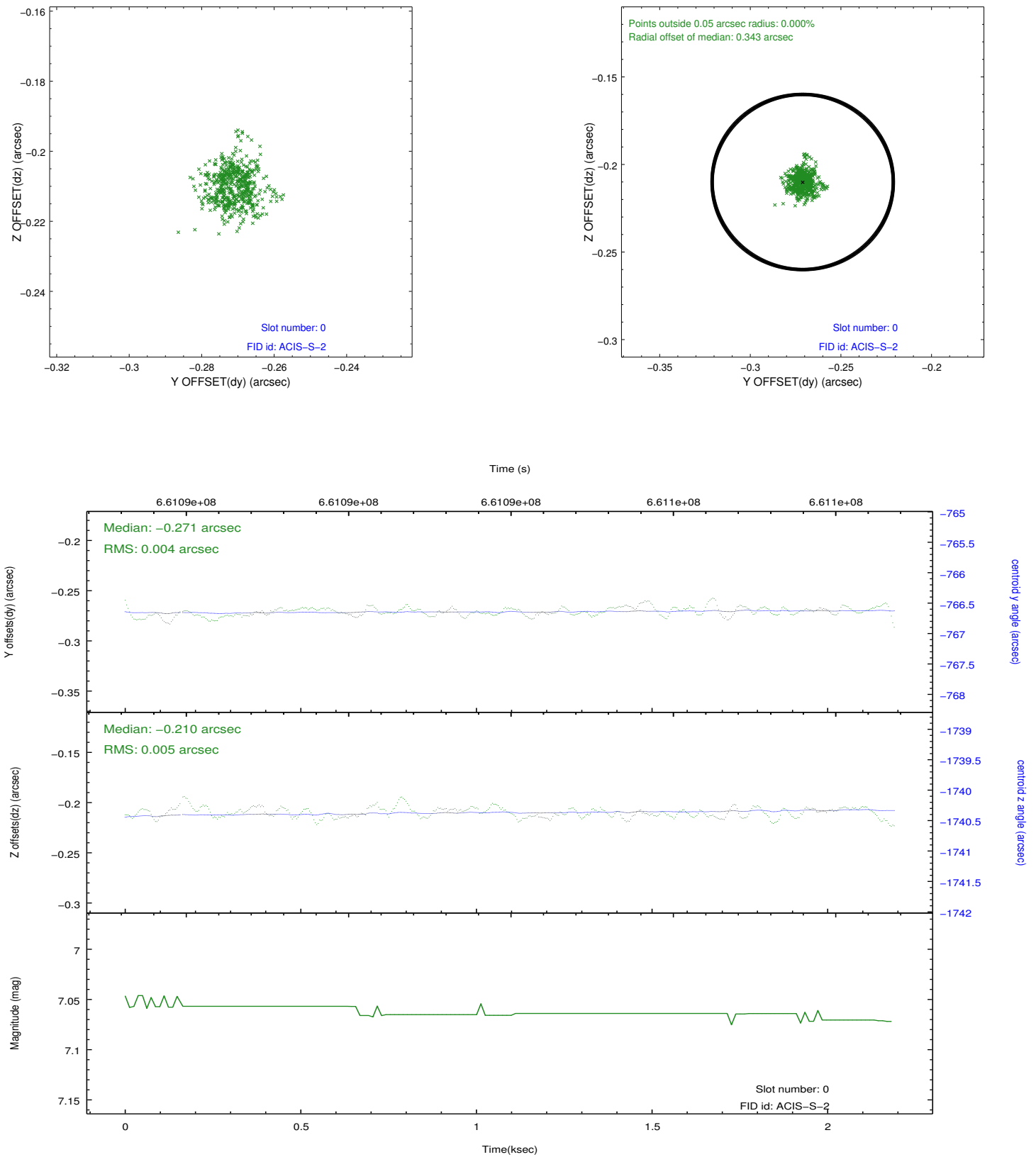


## 2.4.4 Slot 7

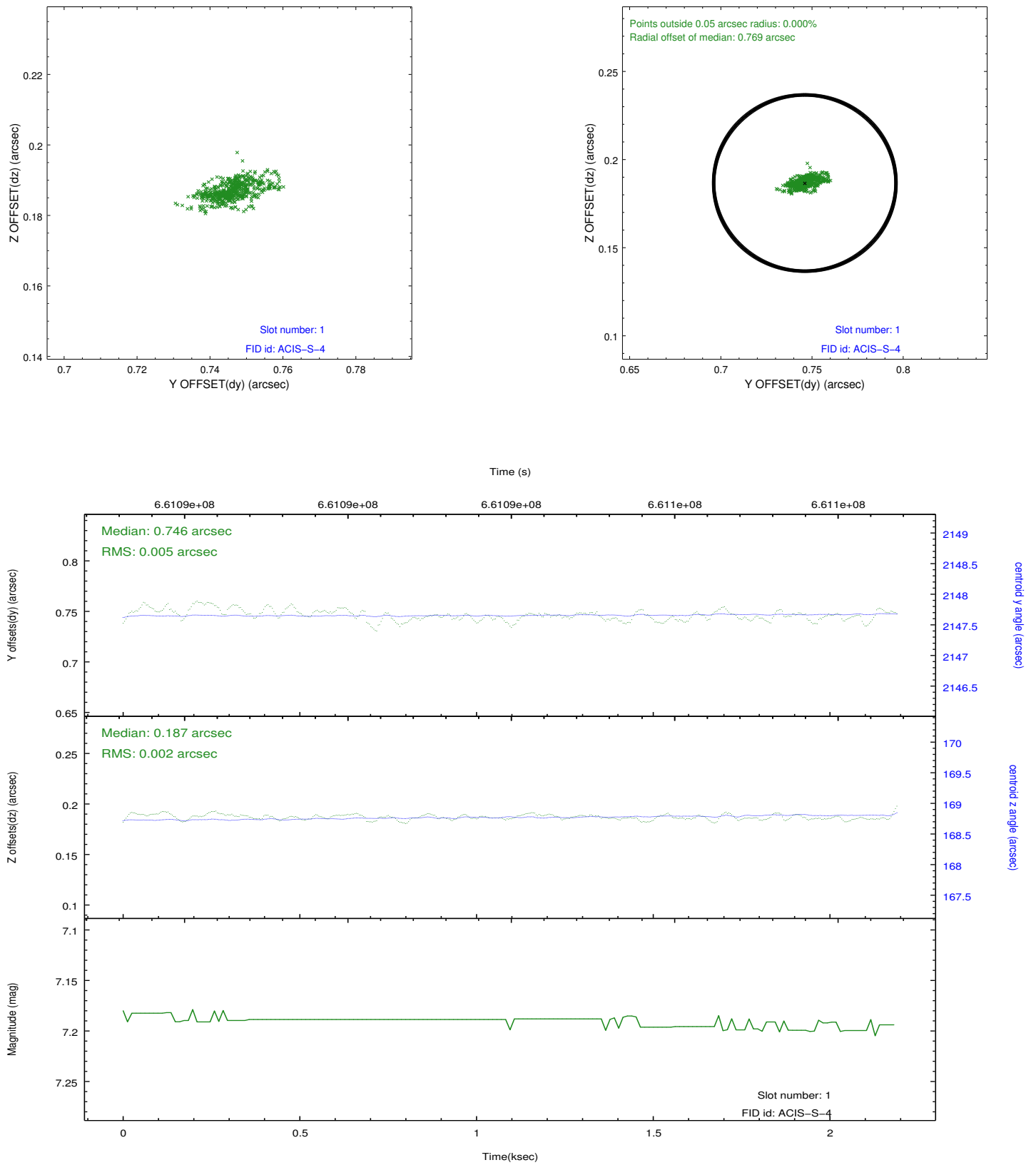


## 2.5 FID Slots

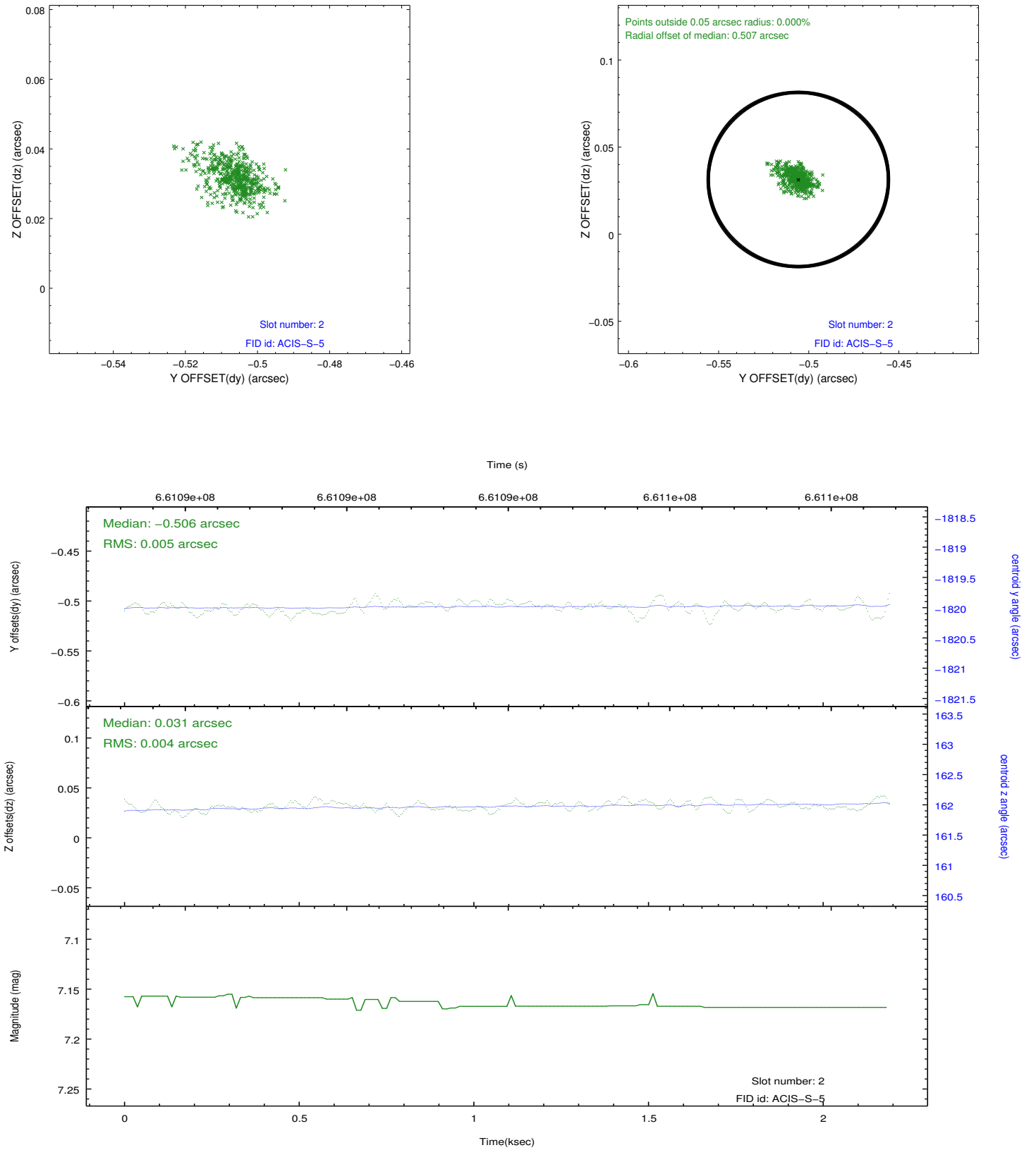
### 2.5.1 Slot 0



## 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)	2018.12.17
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	2.1886000169516

## 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.

Window preference met.

The guide star in slot 4 was removed from the aspect solution due to poor data quality. The aspect solution is improved by the removal of this slot from the solution.