

# V&V Reference Report

## L2 ASCDS Version : 10.7

Observation 21158 - L2 Version 2  
Chandra X-Ray Center

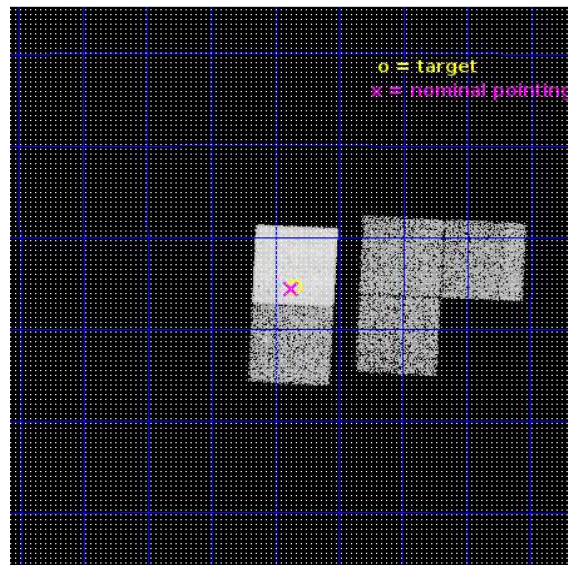
L2 Processing Date : Nov 15 2018

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# 1 Front

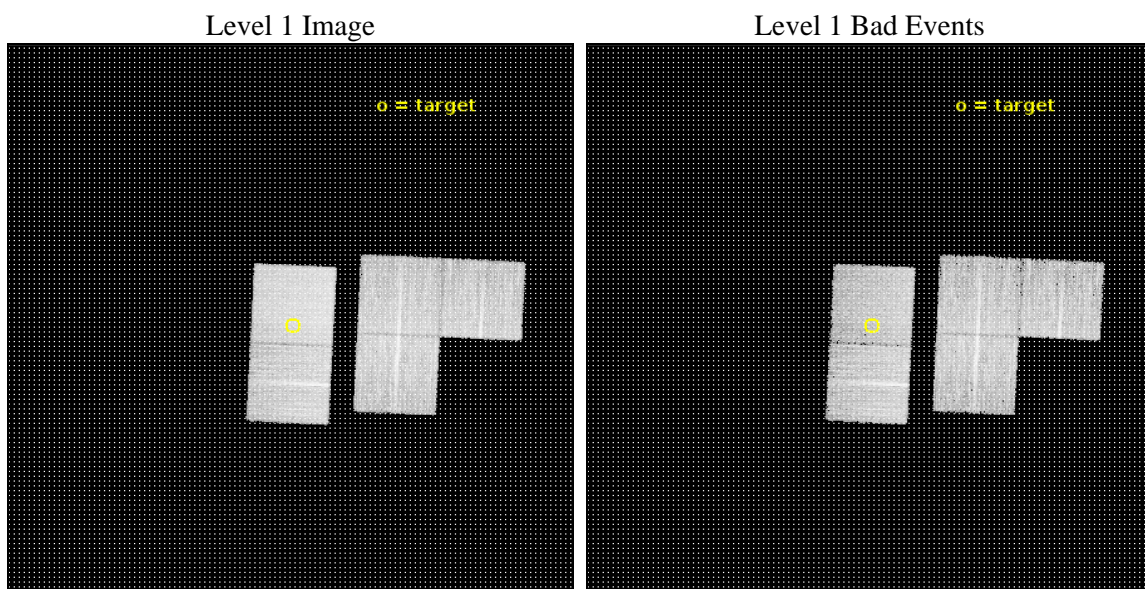
seq_num	201214	Sequence number
obs_id	21158	Observation id
title	Spin-down, dynamos and habitability: Chandra/K2 exploration of nearby M dwarfs	Proposal title
observer	Beate Stelzer	Principal investigator
object	EPIC 214269391	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	282.588333	Observer's specified target RA [deg]
dec_targ	-26.923611	Observer's specified target Dec [deg]
ra_nom	282.59331881592	Nominal RA [deg]
dec_nom	-26.927021522633	Nominal Dec [deg]
roll_nom	272.78734123879	Nominal Roll [deg]
revision	2	Processing version of data
ontime	10107.884478807	Sum of GTIs [s]
livetime	9975.8175267755	Livetime [s]
ontime1	10107.720318794	Sum of GTIs [s]
ontime2	10107.761358857	Sum of GTIs [s]
ontime3	10107.802398801	Sum of GTIs [s]
ontime6	10104.702448726	Sum of GTIs [s]
ontime7	10107.884478807	Sum of GTIs [s]
l2events	72647	Number of level 2 events



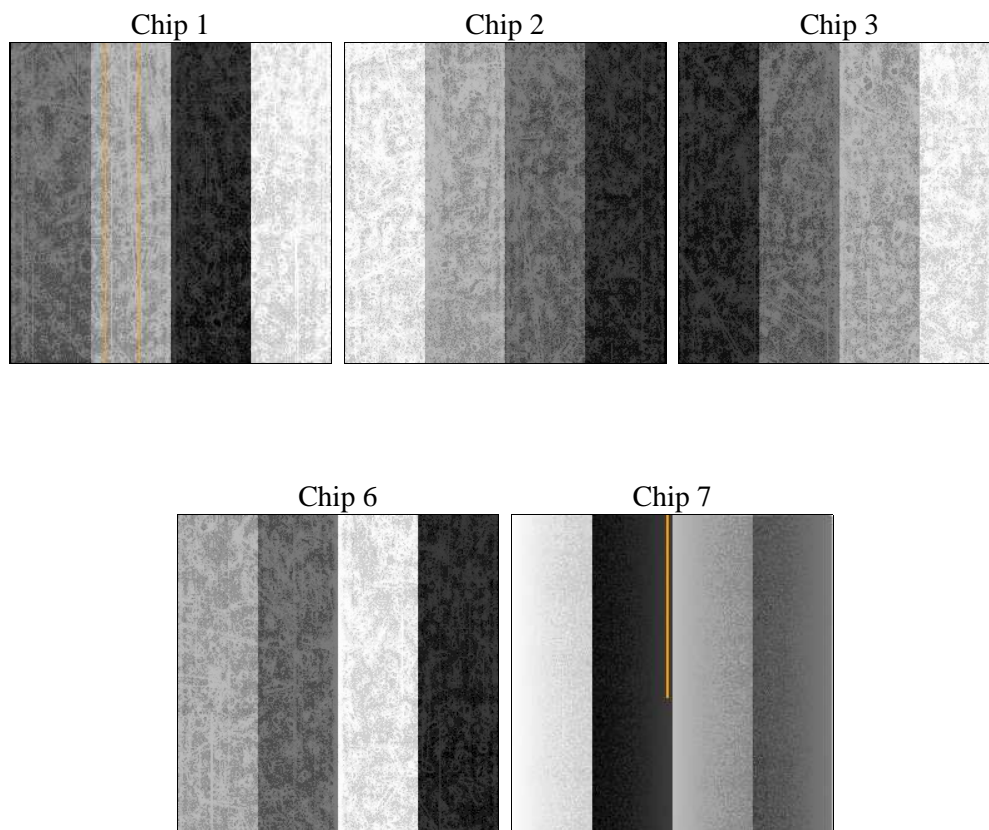
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10013.573000	[s] Scheduled observation exposure time
ascdsver	10.7	Processing system revision	ontime	10107.884478807	Sum of GTIs [s]
caldsver	4.8.0.1	&#160	ontime1	10107.720318794	Sum of GTIs [s]
date	2018-11-15T20:55:19	Date and time of file creation	ontime2	10107.761358857	Sum of GTIs [s]
revision	2	Processing version of data	ontime3	10107.802398801	Sum of GTIs [s]
			ontime6	10104.702448726	Sum of GTIs [s]
			ontime7	10107.884478807	Sum of GTIs [s]
			l1events	394590	Number of level 1 events

### 2.1.4 Events

	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
level 1 events	69983	76025	71106	79477	97999
rejected events	60558	67714	62867	70189	54343
rejected %	86%	89%	88%	88%	55%

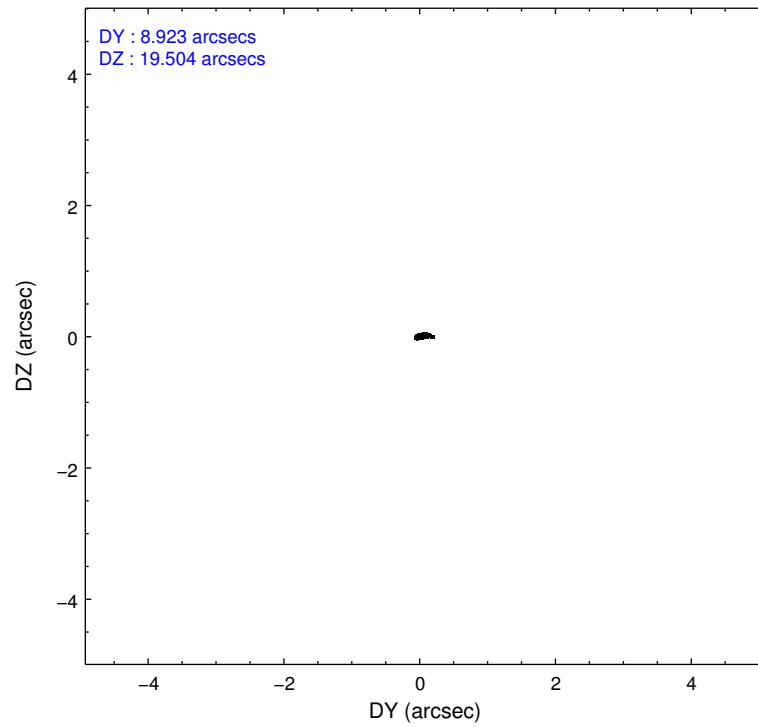
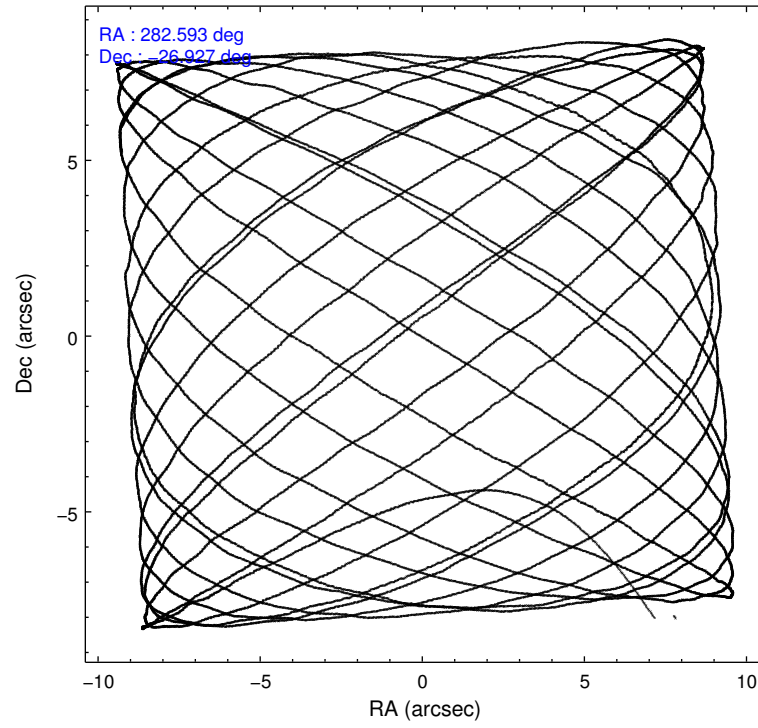
	ccd 1	ccd 2	ccd 3	ccd 6	ccd 7
grade 0 events	3329	2911	3009	3261	3856
	4%	3%	4%	4%	3%
grade 1 events	45	45	46	44	131
	0%	0%	0%	0%	0%
grade 2 events	2340	2168	1798	2122	9535
	3%	2%	2%	2%	9%
grade 3 events	874	809	831	890	3459
	1%	1%	1%	1%	3%
grade 4 events	842	802	844	917	3497
	1%	1%	1%	1%	3%
grade 5 events	3370	3110	3634	3649	9921
	4%	4%	5%	4%	10%
grade 6 events	2051	1627	1765	2100	23329
	2%	2%	2%	2%	23%
grade 7 events	57132	64553	59179	66494	44271
	81%	84%	83%	83%	45%

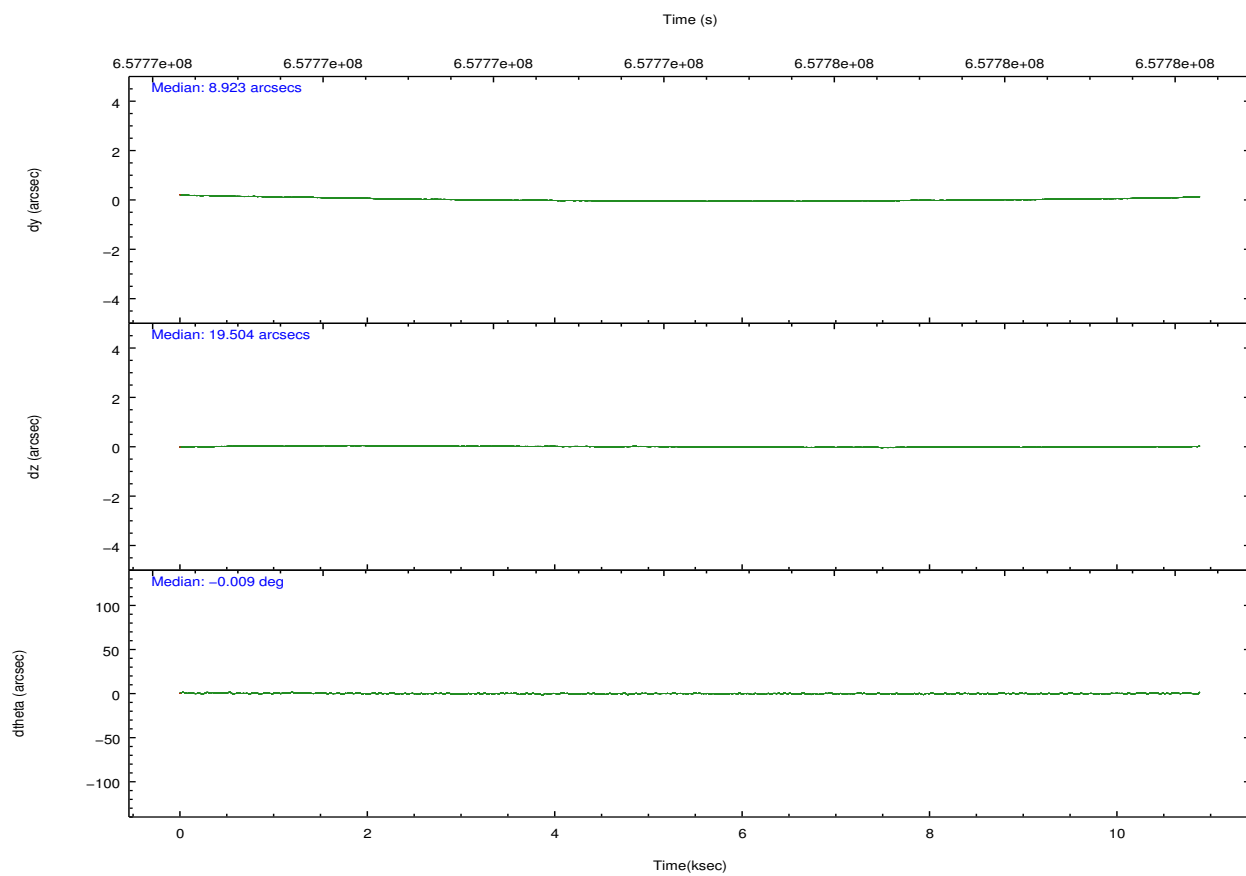
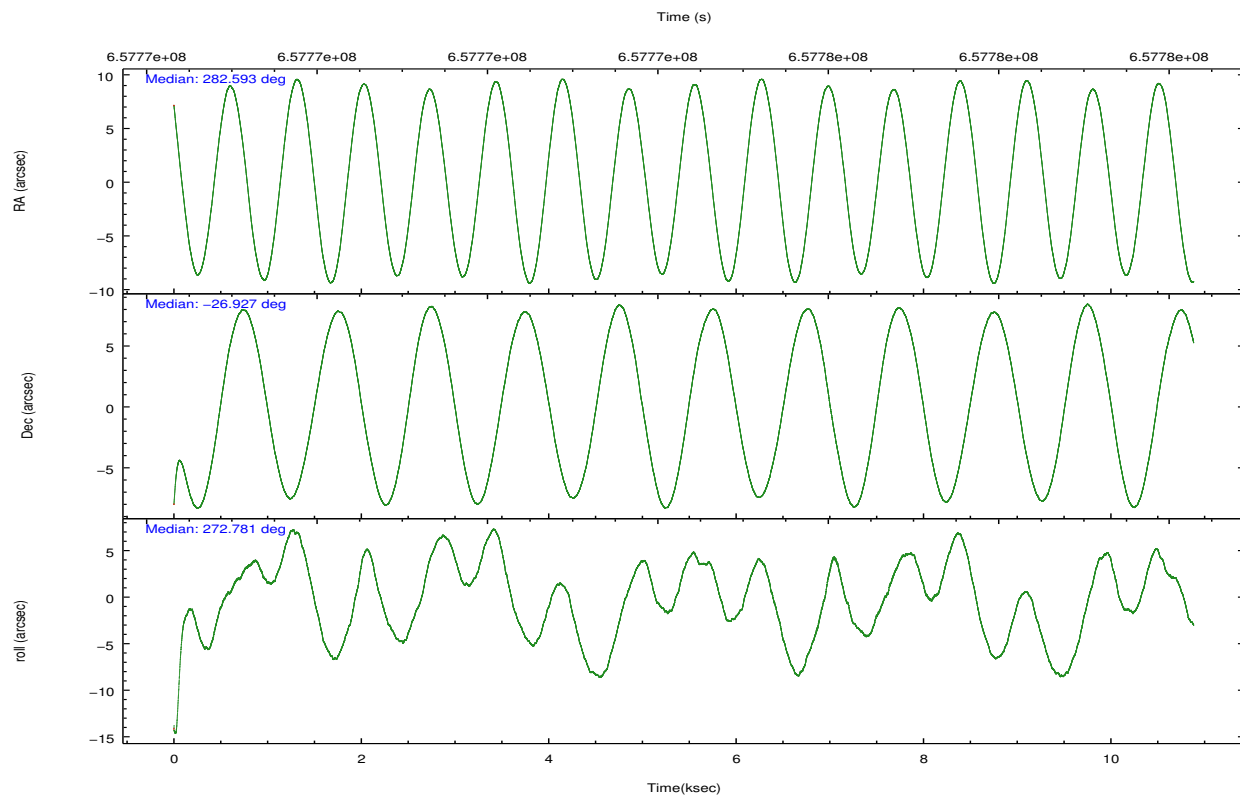


## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-12367	ACIS-12367	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	O1	N
Observation mode	POINTING	POINTING	CCD I1 on	O2	Y
[deg] Pointing RA	282.576341	282.5933188159172	CCD I2 on	O3	Y
[deg] Pointing Dec	-26.904123	-26.92702152263314	CCD I3 on	O4	Y
[deg] Pointing Roll	272.623051	272.7873412387917	CCD S0 on	N	N
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	N	N
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	O5	Y
[mm] SIM translation stage pos	-190.132523	-190.1425803651734	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.01005778216563158	CCD S4 on	N	N
[s] Observation start time (MET)	657769749.184000	657768439.39398	CCD S5 on	N	N
Observation start date	2018-11-05T01:48:00	2018-11-05T01:27:19	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	657779763.184000	657780404.21969	On-chip summing requested	N	N
Observation end date	2018-11-05T04:34:54	2018-11-05T04:46:44	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect



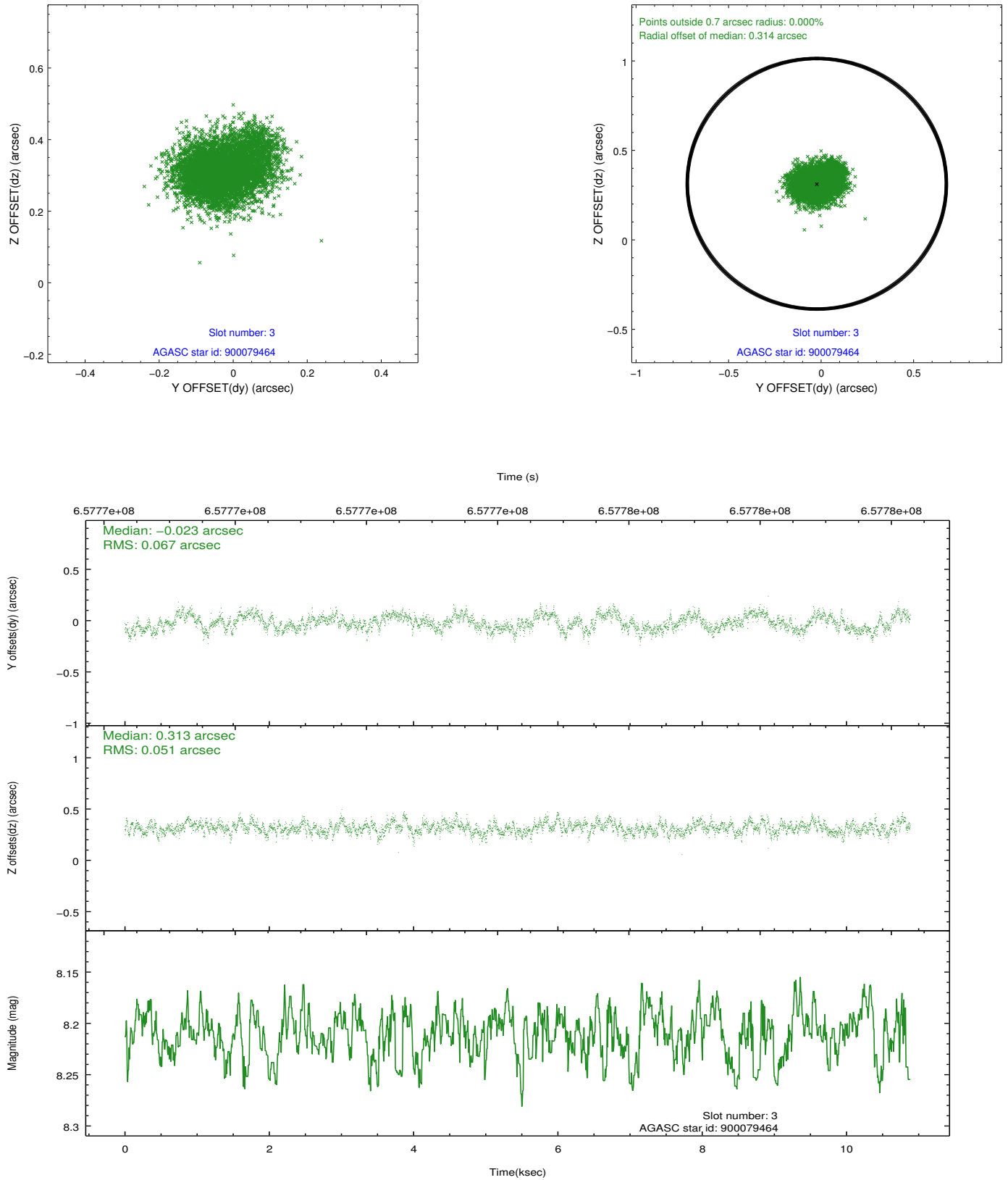


Slot Statistics

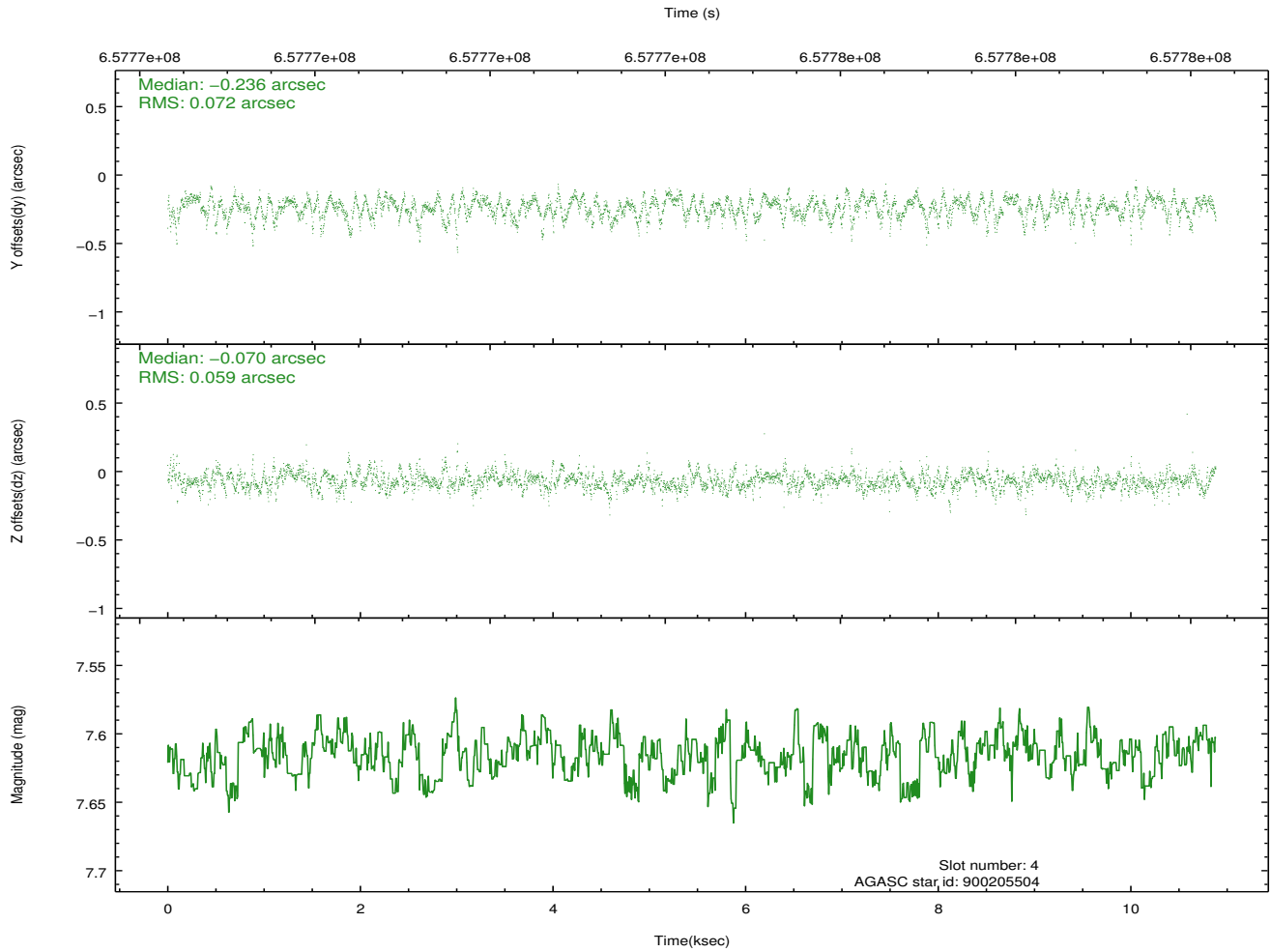
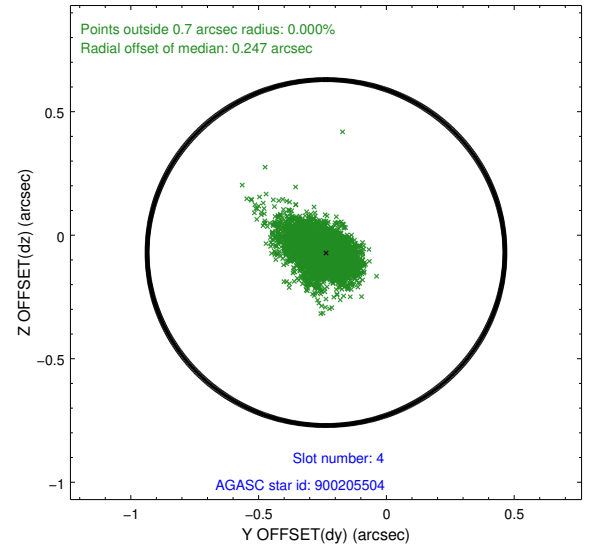
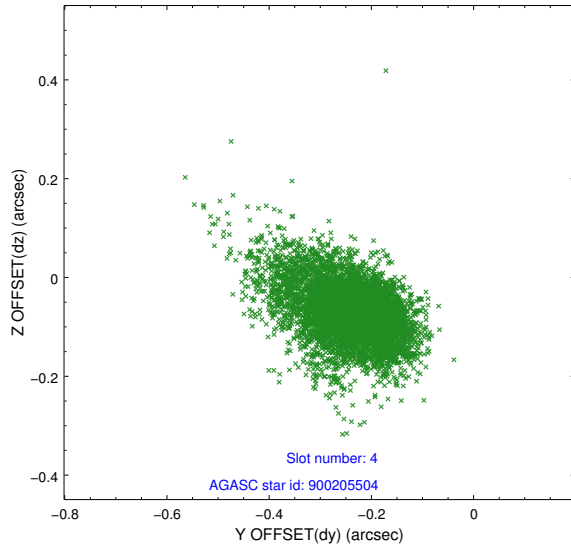
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-1	7.08	2655	1.000	0.112	-0.042	0.007	0.012	0.000000	0.000000	934.50	-1736
1	FID		ACIS-S-5	7.12	2655	1.000	-0.371	0.024	0.007	0.014	0.000000	0.000000	-1814.82	160
2	FID		ACIS-S-6	7.25	2654	1.000	0.237	0.030	0.007	0.012	0.000000	0.000000	399.53	805
3	GUIDE	used	900079464	8.21	5307	1.000	-0.023	0.313	0.091	0.144	282.283309	-26.403078	-1843.78	-860
4	GUIDE	used	900205504	7.62	5309	1.000	-0.236	-0.070	0.093	0.165	283.239152	-26.390990	-1742.45	2219
5	GUIDE	used	900210576	6.95	5309	1.000	-0.132	-0.414	0.079	0.125	282.860003	-27.164237	978.23	865
6	GUIDE	used	900073736	9.02	5309	1.000	0.150	0.290	0.111	0.176	281.821009	-26.420988	-1840.77	-2352
7	GUIDE	used	900078016	8.84	5303	1.000	0.249	-0.120	0.121	0.229	281.844946	-27.351030	1507.35	-2410

## 2.4 Star Slots

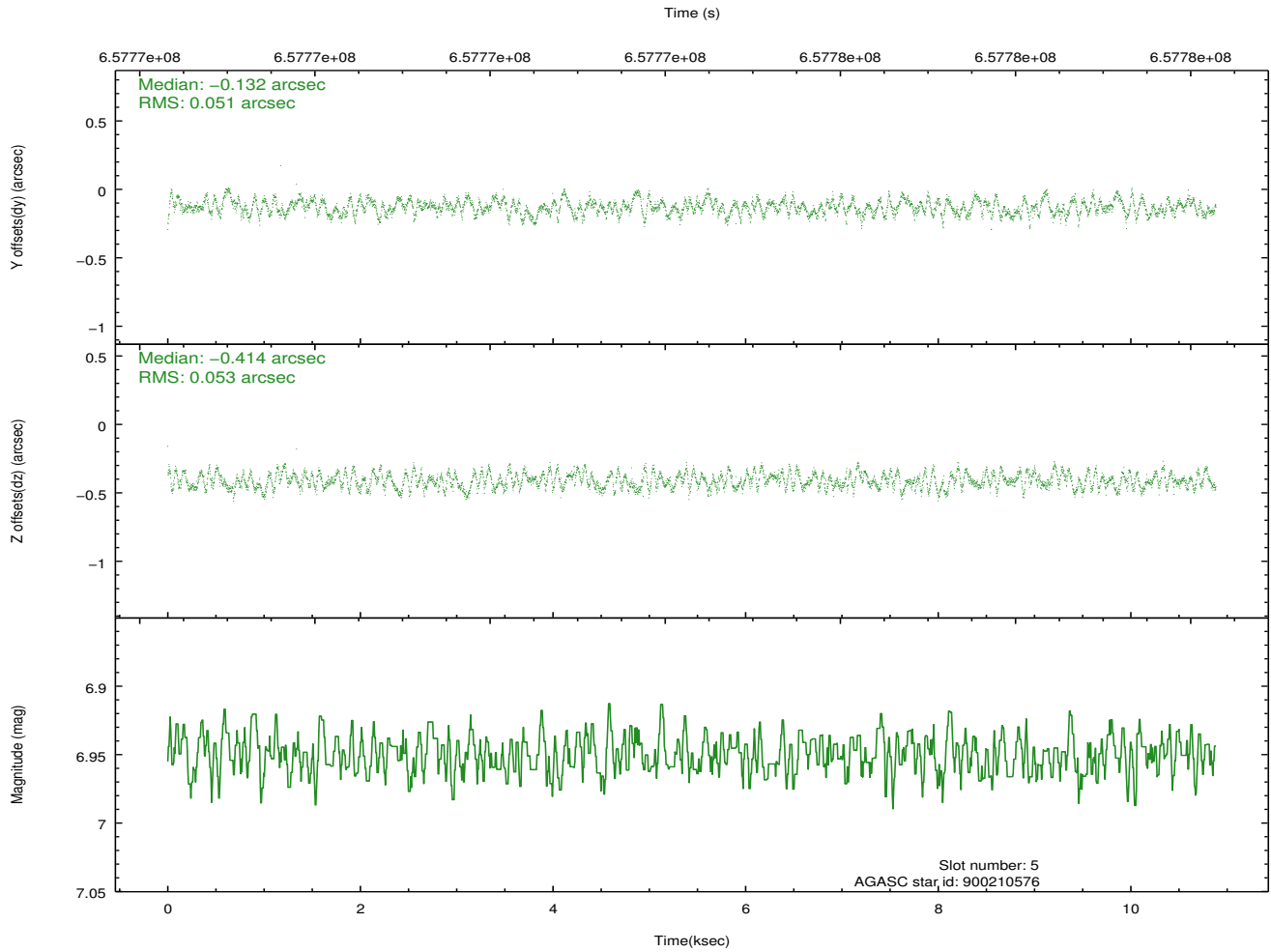
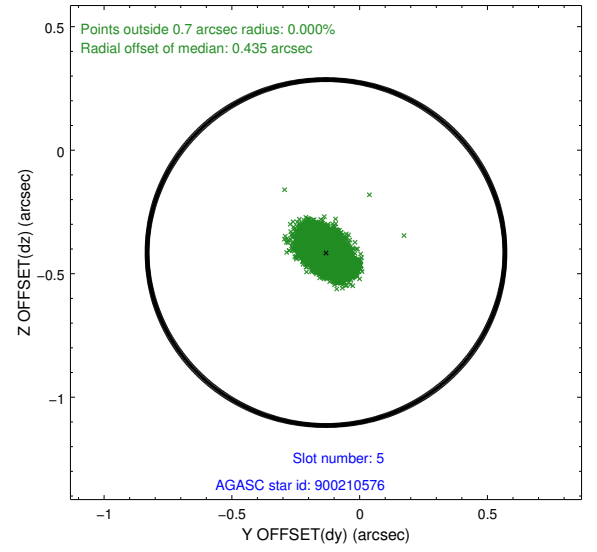
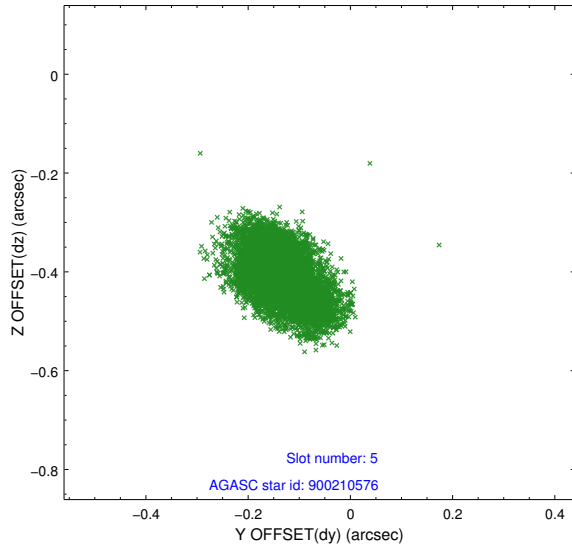
### 2.4.1 Slot 3



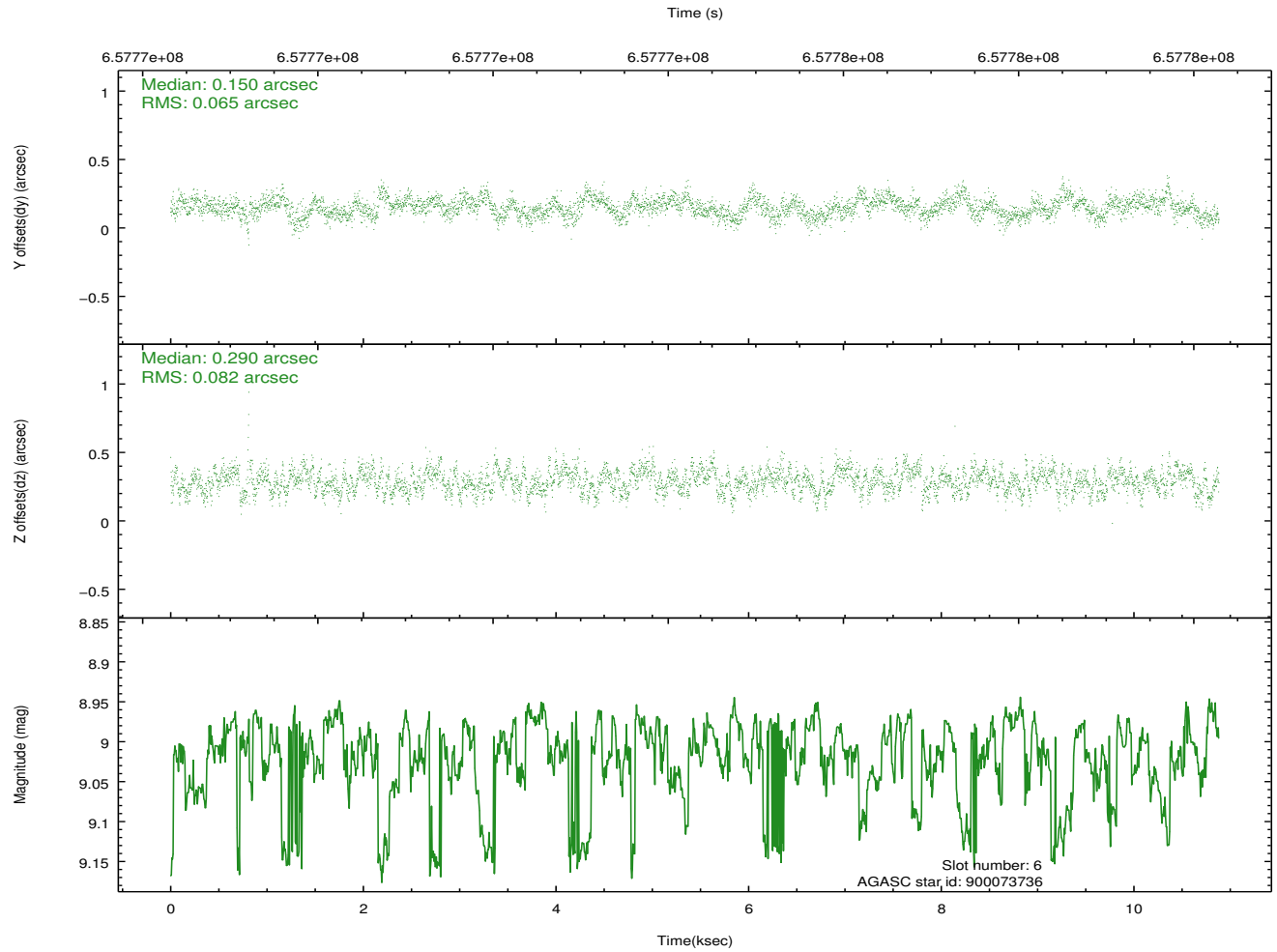
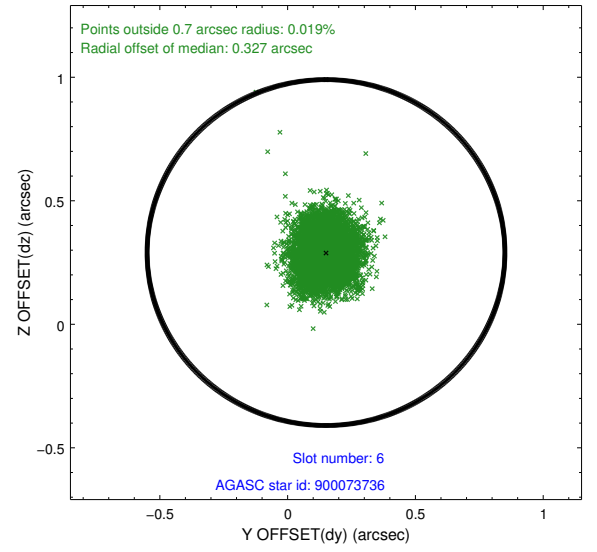
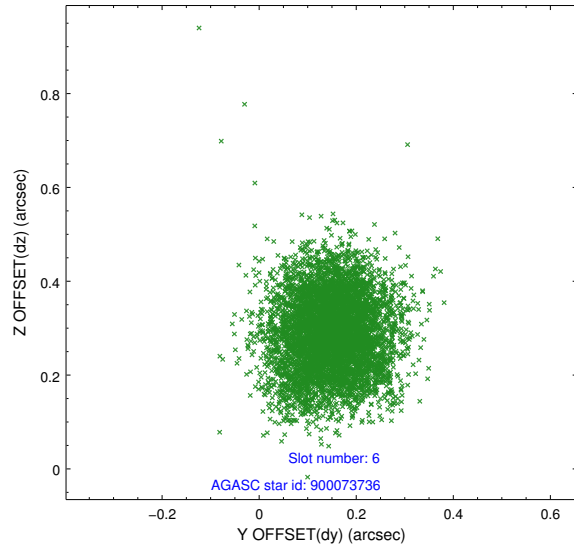
## 2.4.2 Slot 4



### 2.4.3 Slot 5

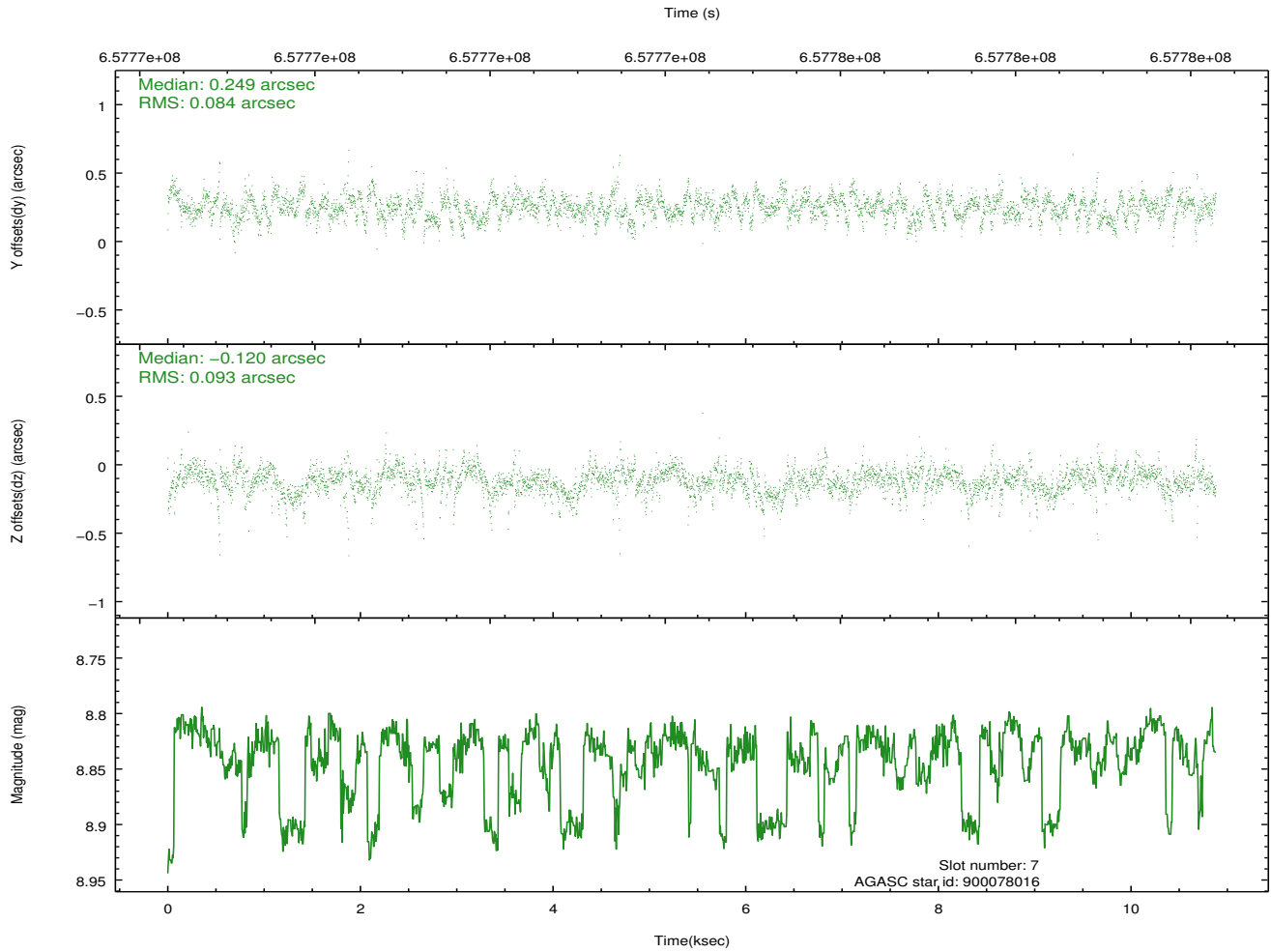
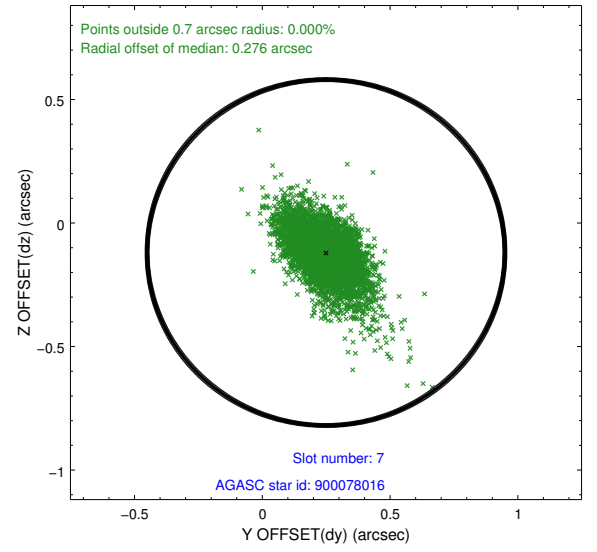
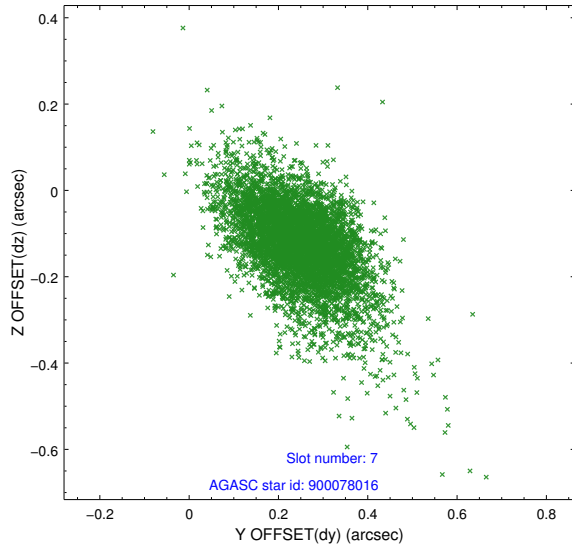


## 2.4.4 Slot 6



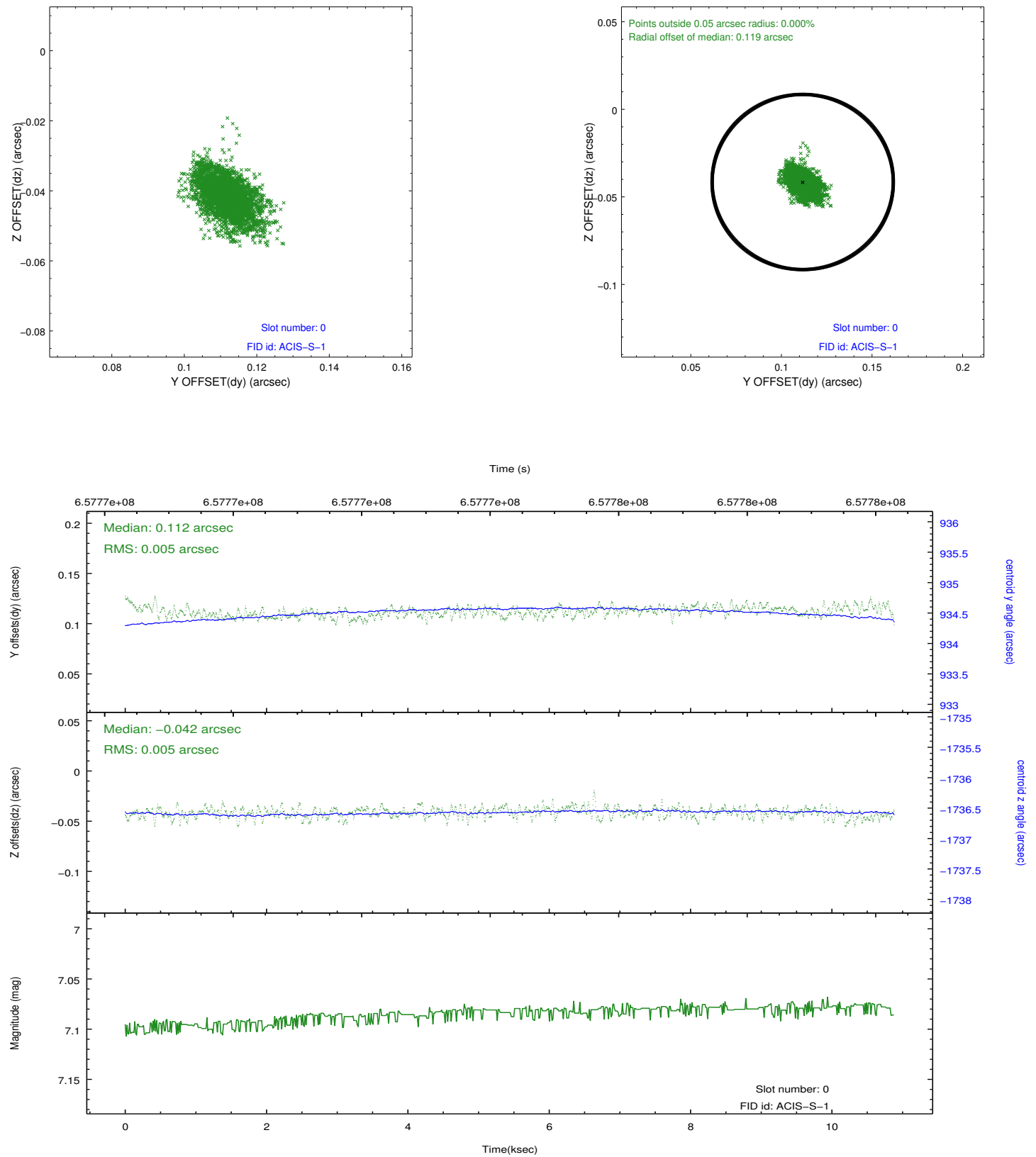


## 2.4.5 Slot 7

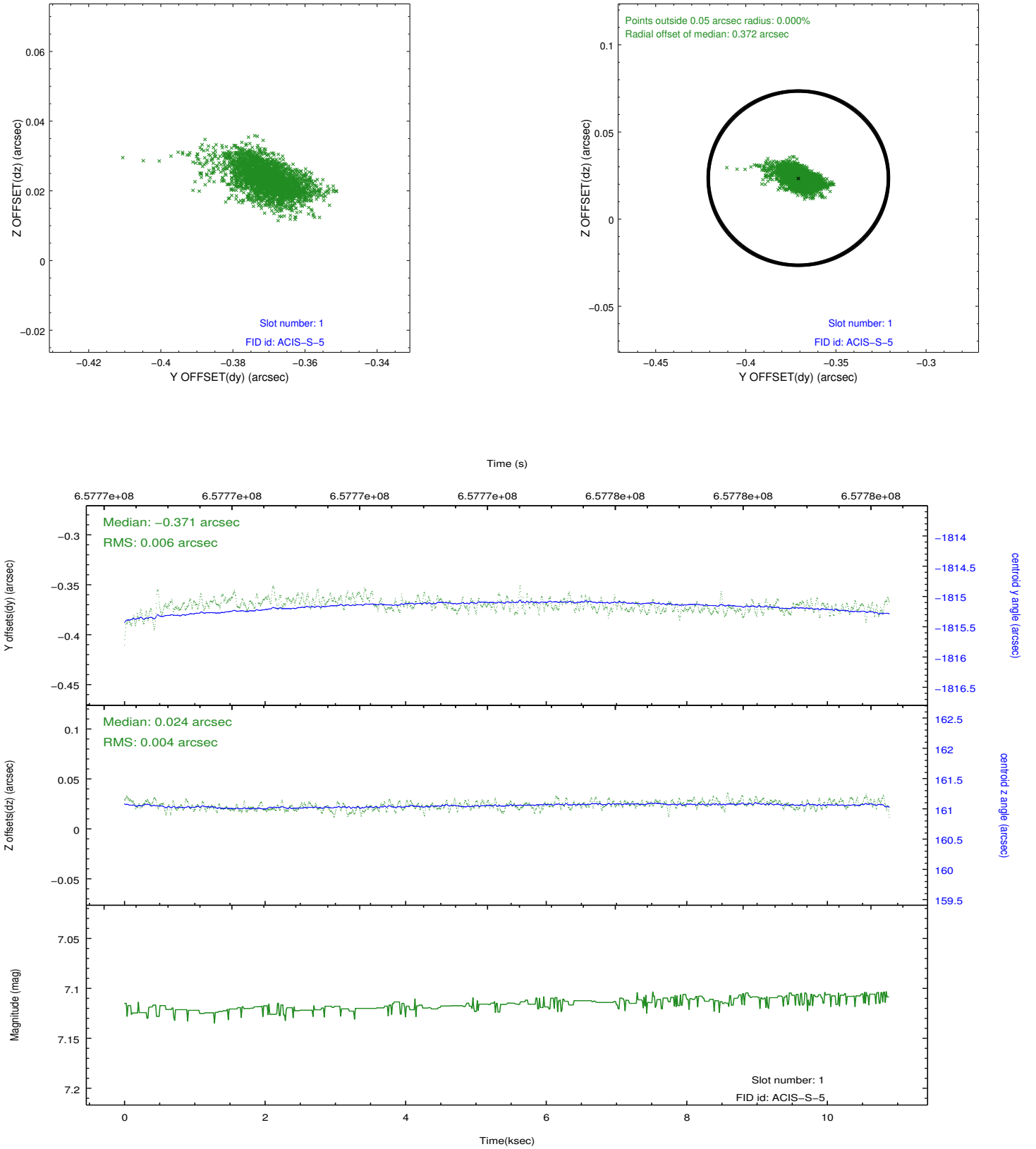


## 2.5 FID Slots

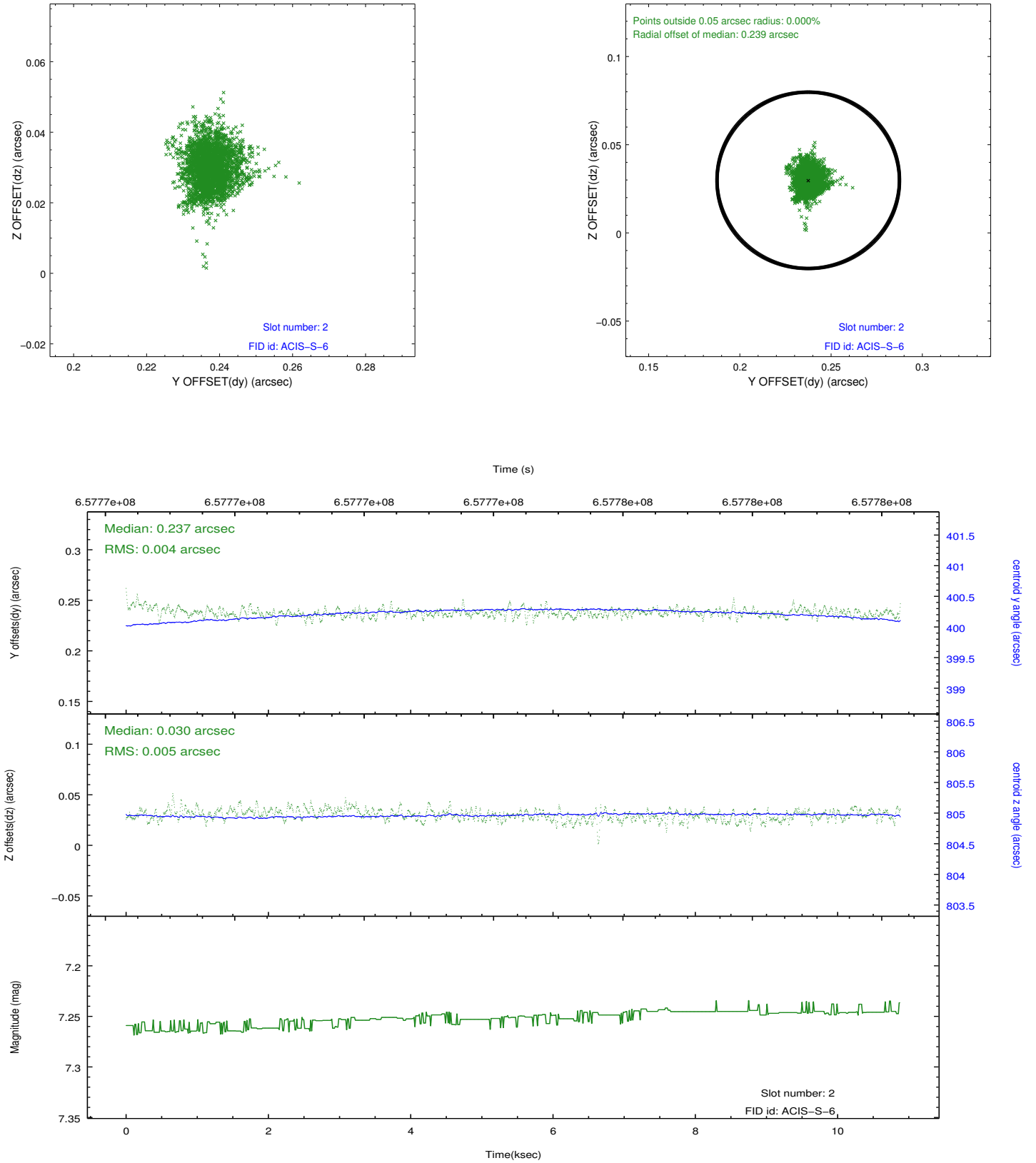
### 2.5.1 Slot 0



## 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)	2018.11.16
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.107884478807

## A.2 Comments

One optional chip was dropped.

A spatial region of the original bias map for CCD = 2 suffered from anomalously high data values. Pixels in the event data that were bias-corrected by one of the original affected bias pixels may have an apparent energy shift. While the change in energy is expected to be small ( $\sim 20$  eV), it depends on many parameters that have not yet been fully explored for this bias anomaly. The bias map for CCD = 2 has been reconstructed for this processing to remove this anomaly using scaled data from a comparable bias map from another observation. The pixels affected by the anomaly are bounded by sky coords:  
(282.34772,-27.02541), (282.35567,-27.02506), (282.35201,-26.95534),  
(282.34424,-26.95895).