

# V&V Reference Report

## L2 ASCDS Version : 10.2.4

Observation 16645 - L2 Version 2  
Chandra X-Ray Center

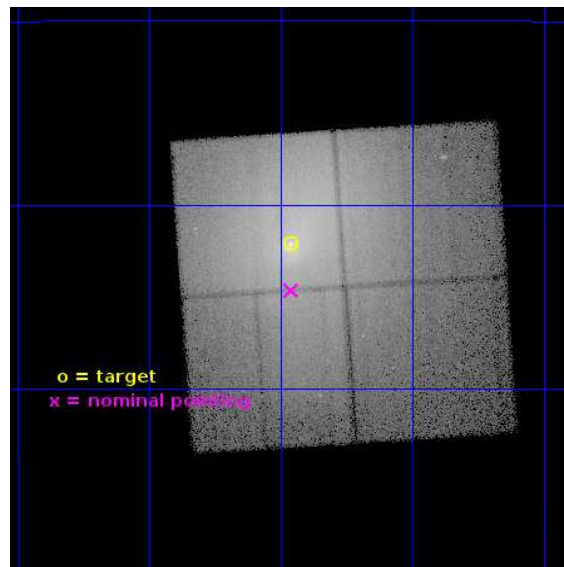
L2 Processing Date : Sep 2 2014

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# 1 Front

seq_num	801396	Sequence number
obs_id	16645	Observation id
title	A deep study of ram-pressure stripping, metal ridges, and AGN feedback in the Ophiuchus Cluster	Proposal title
observer	Steven Allen	Principal investigator
object	Ophiuchus Cluster	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	258.115417	Observer's specified target RA [deg]
dec_targ	-23.368611	Observer's specified target Dec [deg]
ra_nom	258.11491530702	Nominal RA [deg]
dec_nom	-23.410667306599	Nominal Dec [deg]
roll_nom	266.20848905928	Nominal Roll [deg]
revision	2	Processing version of data
ontime	34090.700262189	Sum of GTIs [s]
livetime	33645.280166055	Livetime [s]
ontime0	34090.700262189	Sum of GTIs [s]
ontime1	34090.700262189	Sum of GTIs [s]
ontime2	34090.700262189	Sum of GTIs [s]
ontime3	34090.700262189	Sum of GTIs [s]
l2events	955180	Number of level 2 events

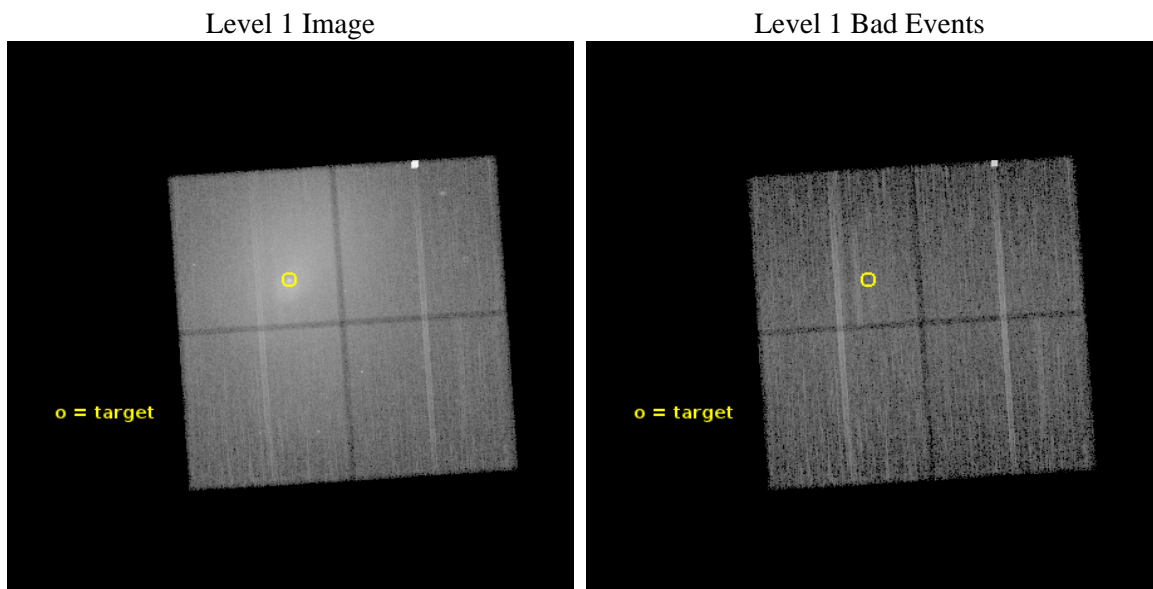




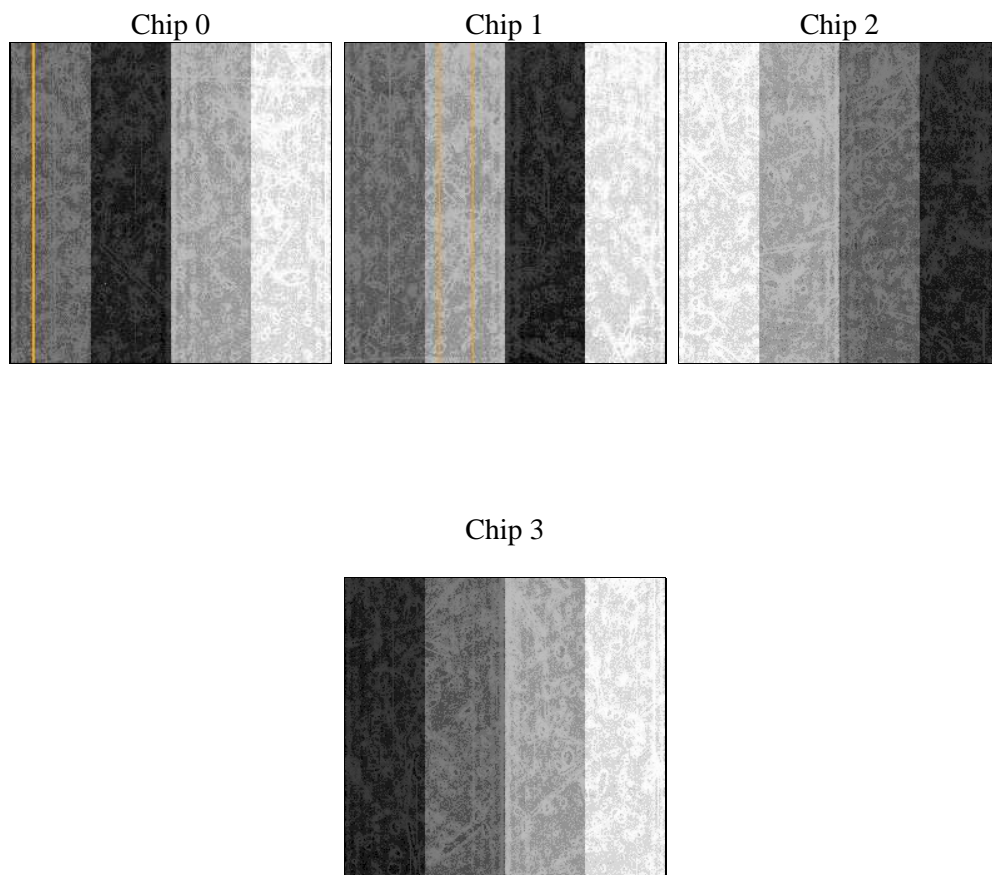
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	34000.000000	[s] Scheduled observation exposure time
ascdsver	10.2.4	Processing system revision	ontime	34090.700262189	Sum of GTIs [s]
caldsver	4.6.3	&#160	ontime0	34090.700262189	Sum of GTIs [s]
date	2014-09-02T20:02:55	Date and time of file creation	ontime1	34090.700262189	Sum of GTIs [s]
revision	2	Processing version of data	ontime2	34090.700262189	Sum of GTIs [s]
			ontime3	34090.700262189	Sum of GTIs [s]
			l1events	1615310	Number of level 1 events

### 2.1.4 Events

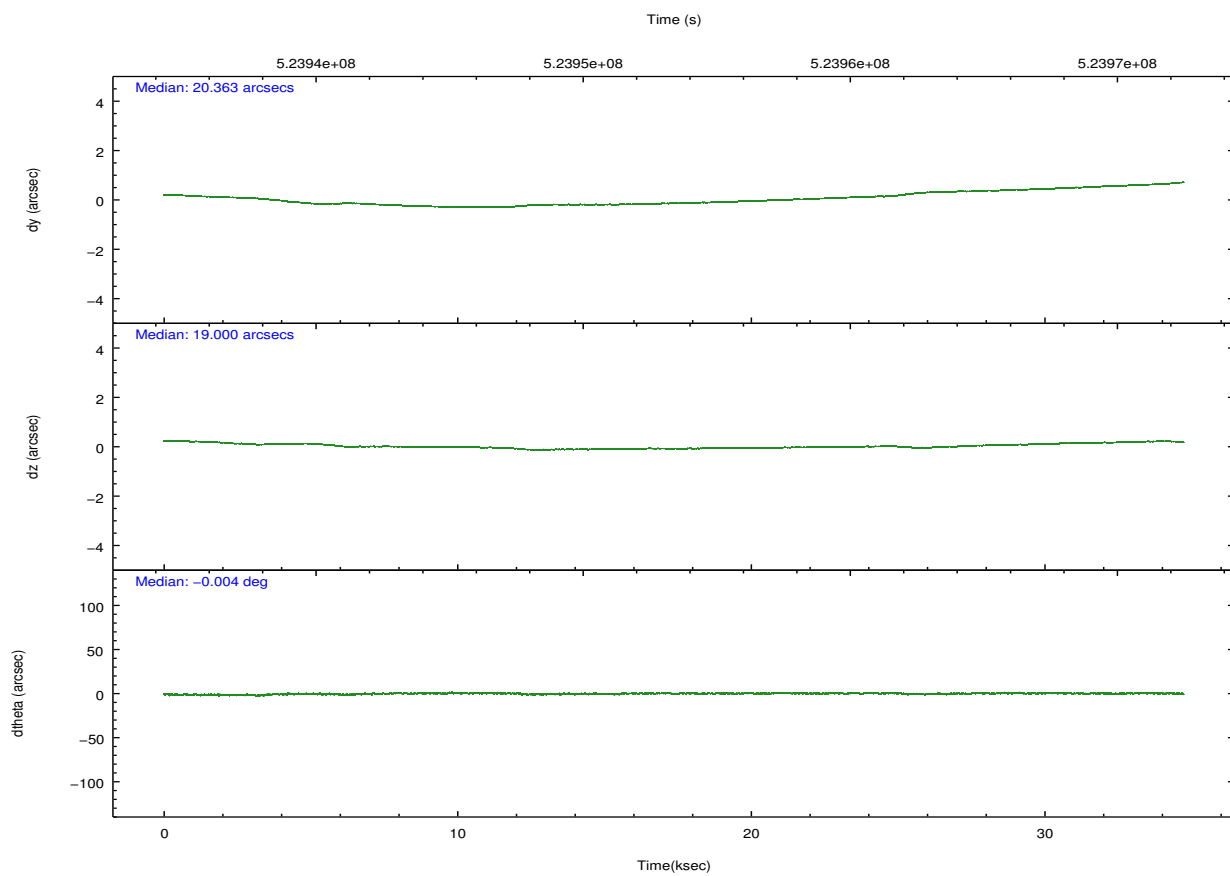
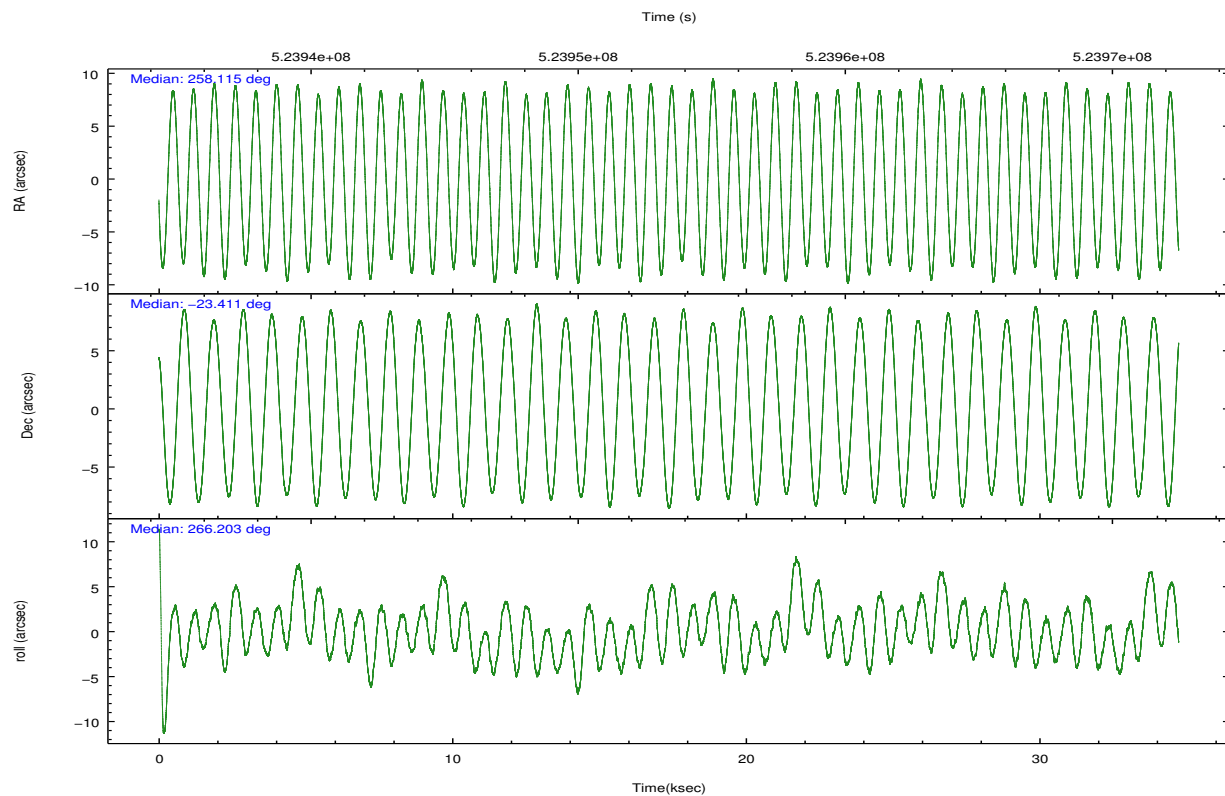
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	217918	383129	308780	705483
rejected events	130094	145556	149207	150307
rejected %	59%	37%	48%	21%

	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	59783	180303	117680	424475
	27%	47%	38%	60%
grade 1 events	285	11239	543	1838
	0%	2%	0%	0%
grade 2 events	12707	27584	19736	64543
	5%	7%	6%	9%
grade 3 events	4496	8914	6926	21370
	2%	2%	2%	3%
grade 4 events	4440	8836	6798	21694
	2%	2%	2%	3%
grade 5 events	8299	9223	8052	10640
	3%	2%	2%	1%
grade 6 events	6405	11956	8452	23148
	2%	3%	2%	3%
grade 7 events	121503	125074	140593	137775
	55%	32%	45%	19%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-0123	ACIS-0123	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	258.101544	258.1149153070211	CCD I2 on	Y	Y
[deg] Pointing Dec	-23.385932	-23.41066730659912	CCD I3 on	Y	Y
[deg] Pointing Roll	265.994491	266.2084890592846	CCD S0 on	N	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S1 on	N	N
[mm] SIM defocus	0	0.001439871863259334	CCD S2 on	O1	N
[mm] SIM translation stage pos	-227.742463	-227.734108438797	CCD S3 on	N	N
[mm] SIM translation stage offset	-5.85	-5.858344564132665	CCD S4 on	N	N
[s] Observation start time (MET)	523936756.184000	523935358.61823	CCD S5 on	N	N
Observation start date	2014-08-09T01:58:09	2014-08-09T01:35:58	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	523970756.184000	523971454.50773	On-chip summing requested	N	N
Observation end date	2014-08-09T11:24:49	2014-08-09T11:37:34	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

## 2.3 Aspect

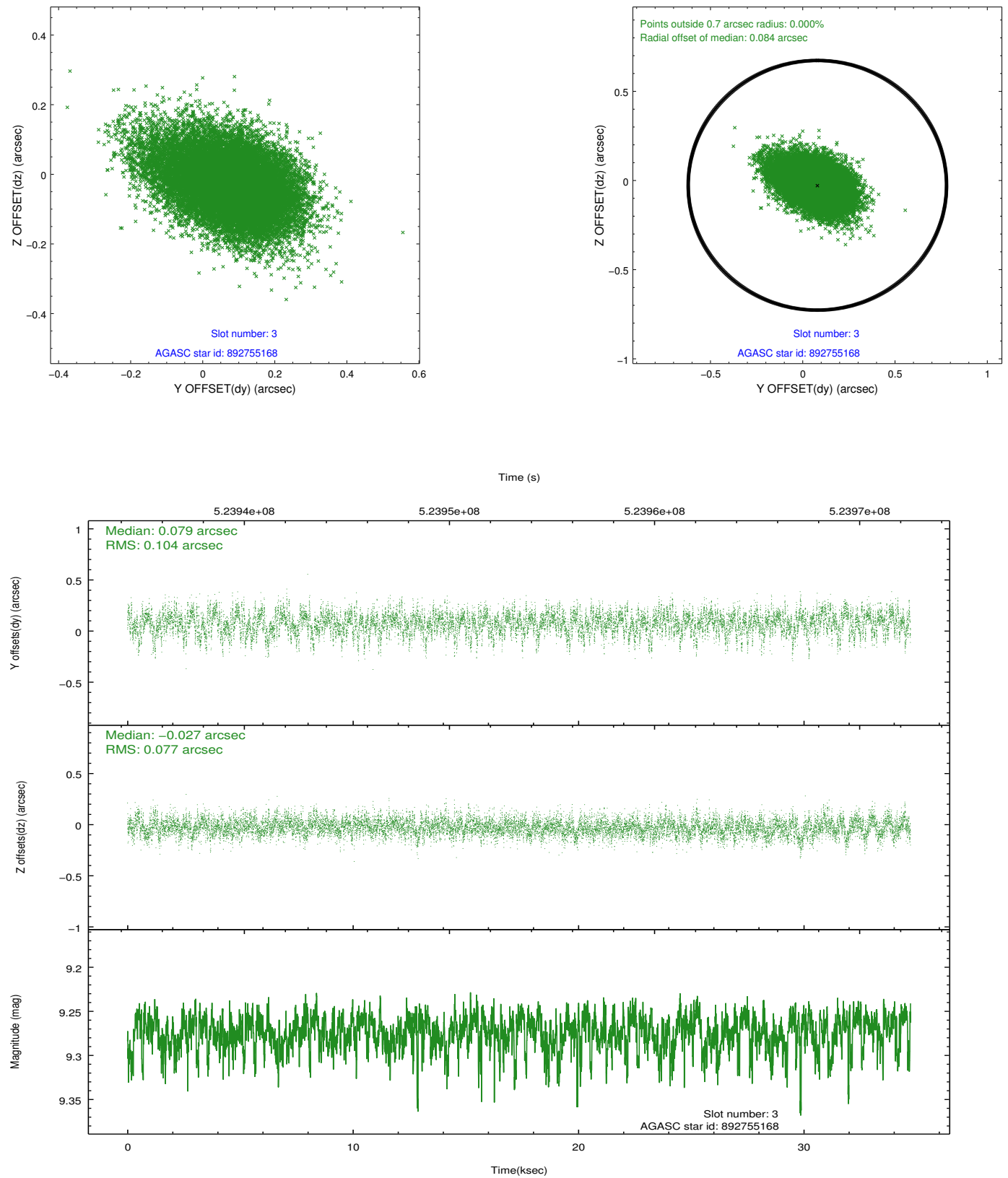


### Slot Statistics

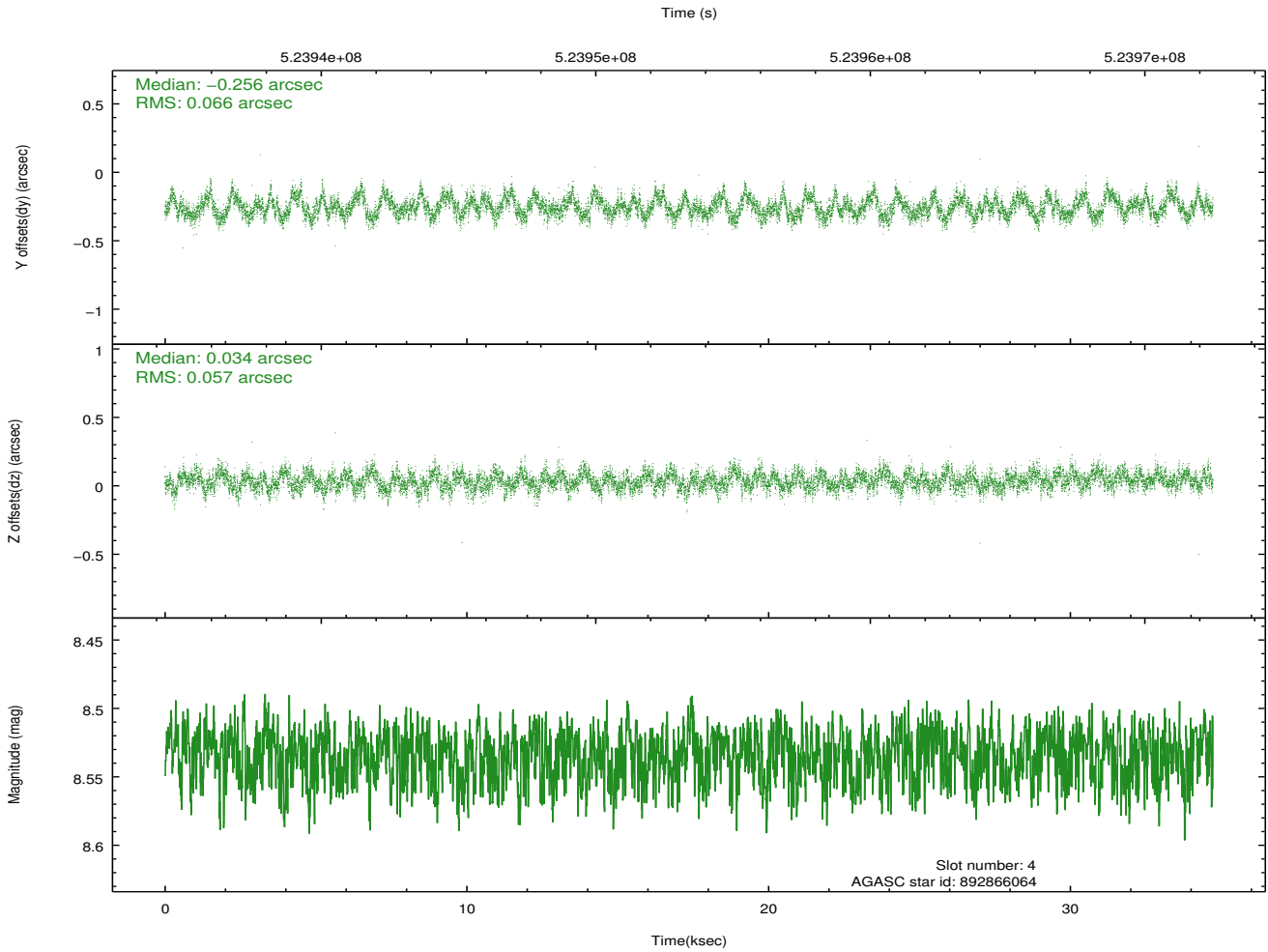
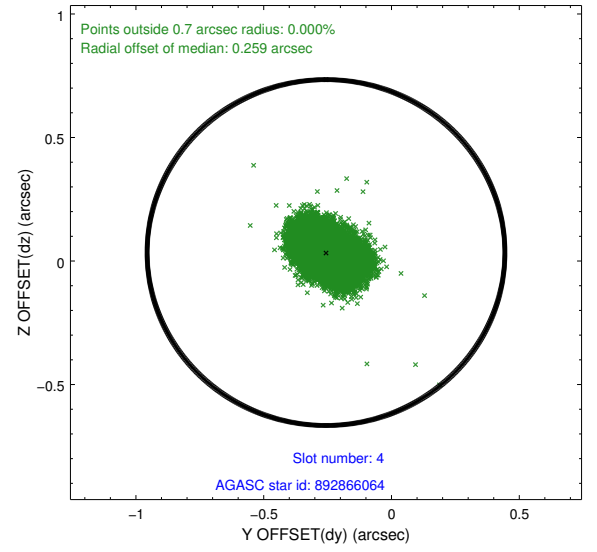
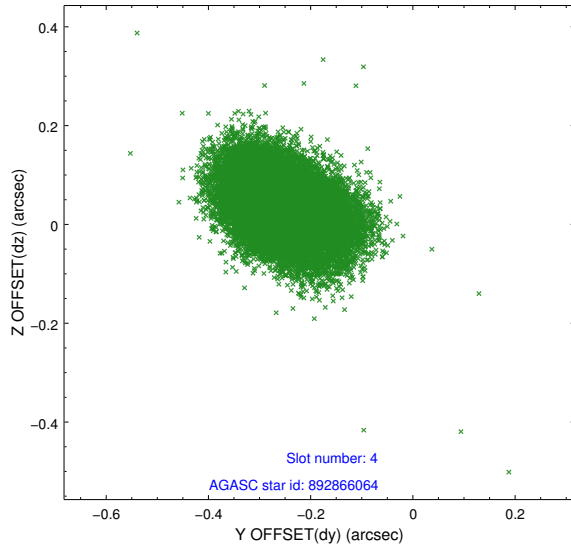
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.12	8472	0.092	-0.084	0.009	0.017	0.000000	0.000000	918.90	-963.02
1	FID	ACIS-I-5	7.11	8471	-0.317	0.056	0.007	0.013	0.000000	0.000000	-1829.66	934.47
2	FID	ACIS-I-6	7.13	8471	0.134	0.099	0.009	0.014	0.000000	0.000000	384.34	1579.15
3	GUIDE	892755168	9.27	16929	0.079	-0.027	0.133	0.231	257.345207	-23.908184	2056.82	-2351.28
4	GUIDE	892866064	8.53	16939	-0.256	0.034	0.093	0.150	258.346240	-23.232516	-606.52	768.78
5	GUIDE	892867312	9.12	16927	0.441	0.093	0.098	0.171	258.441623	-24.052318	2317.16	1283.32
6	GUIDE	892867776	8.50	16940	-0.197	-0.044	0.084	0.136	258.697515	-24.060278	2289.25	2124.51
7	GUIDE	892865960	8.50	16932	-0.063	-0.044	0.132	0.212	257.518652	-24.013697	2393.01	-1753.81

## 2.4 Star Slots

### 2.4.1 Slot 3

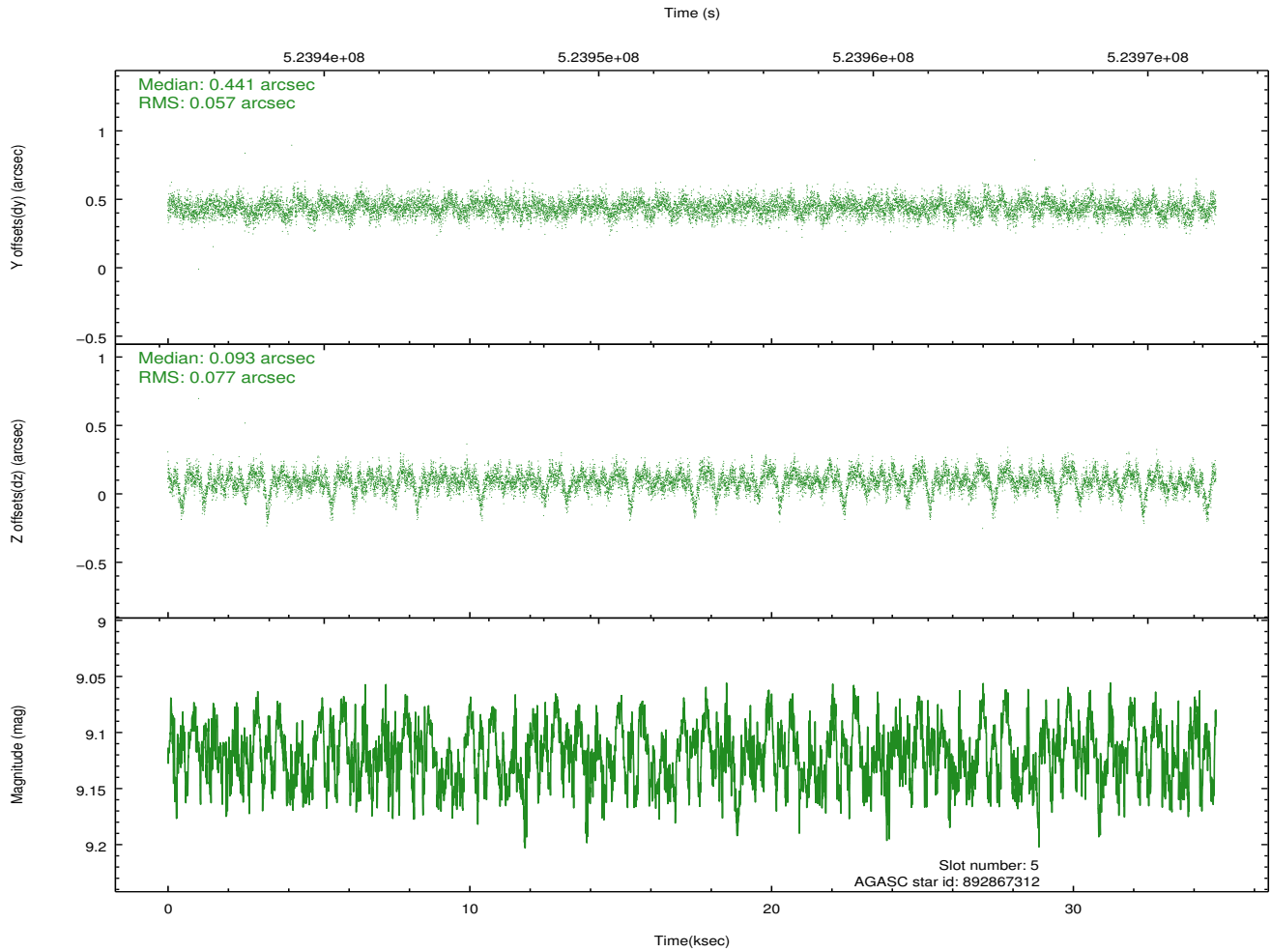
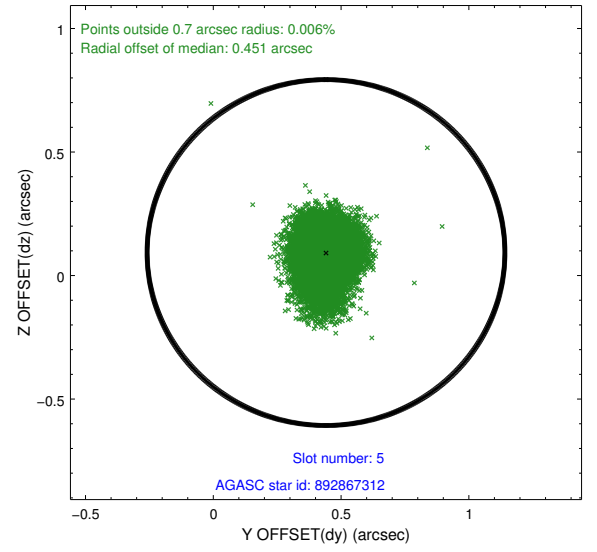
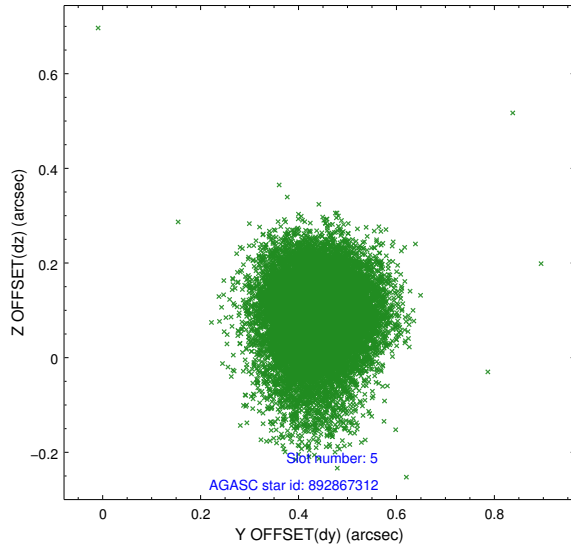


## 2.4.2 Slot 4

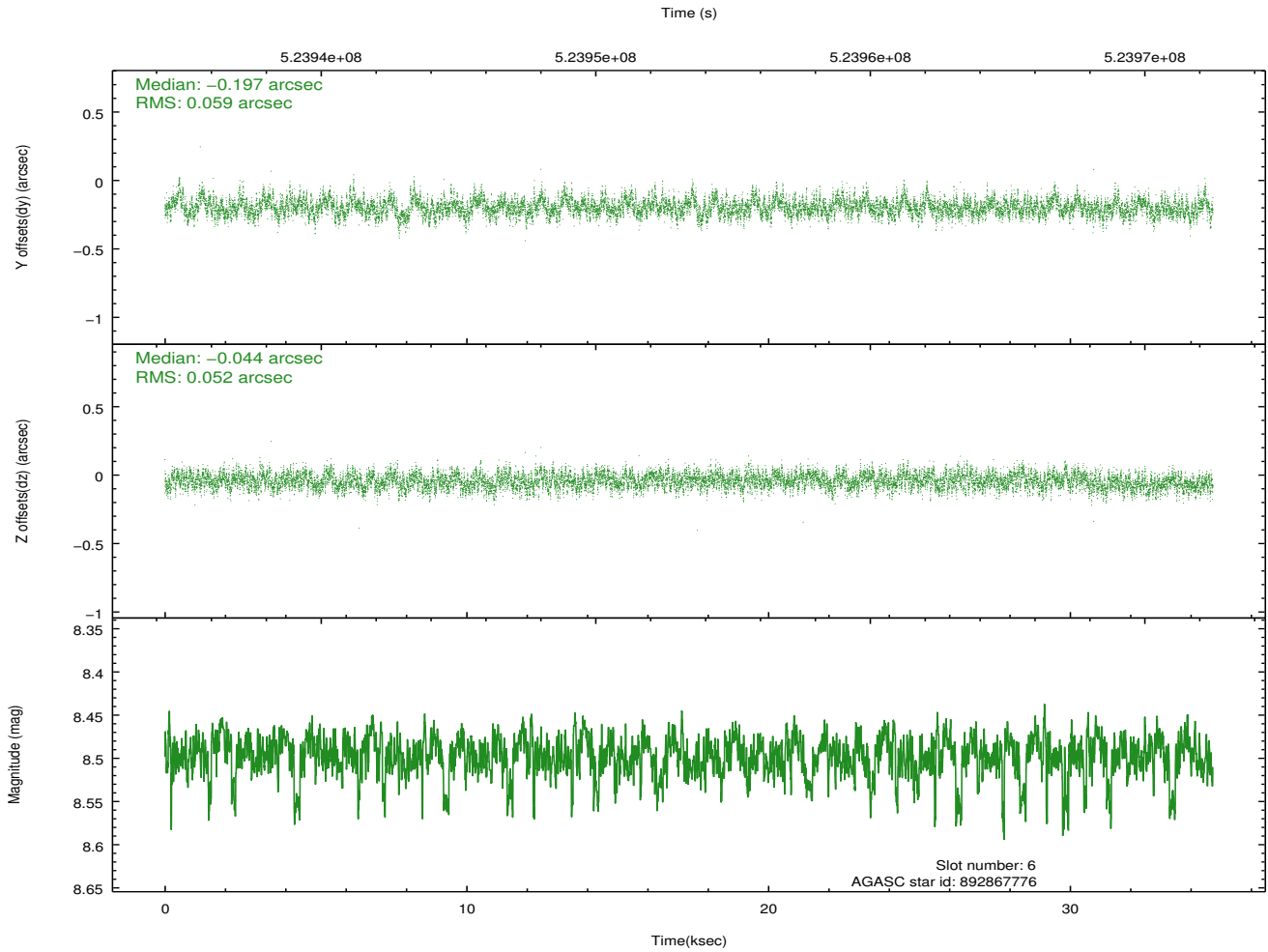
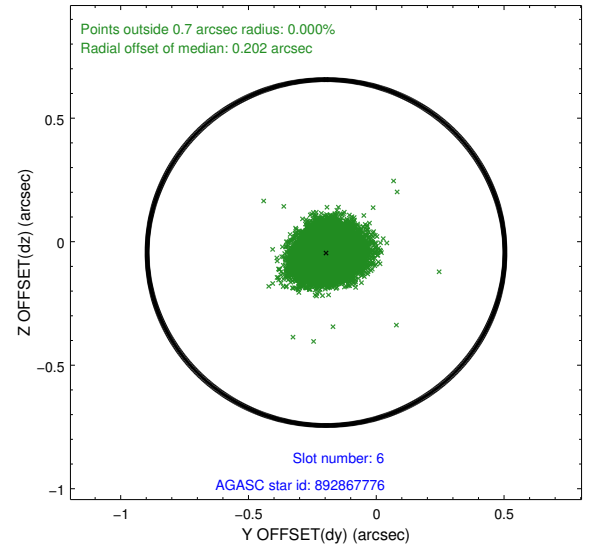
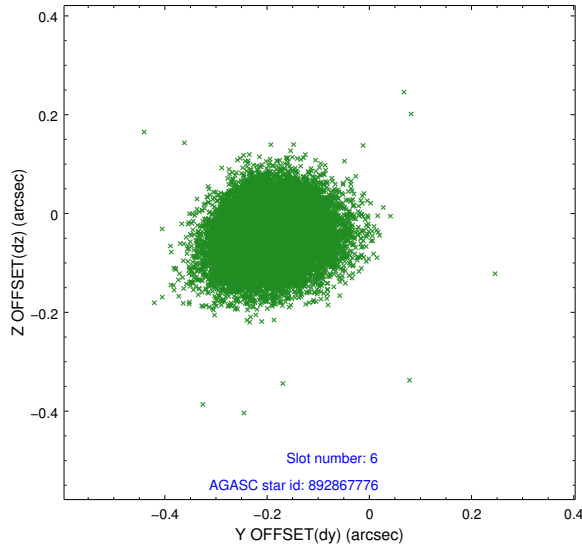




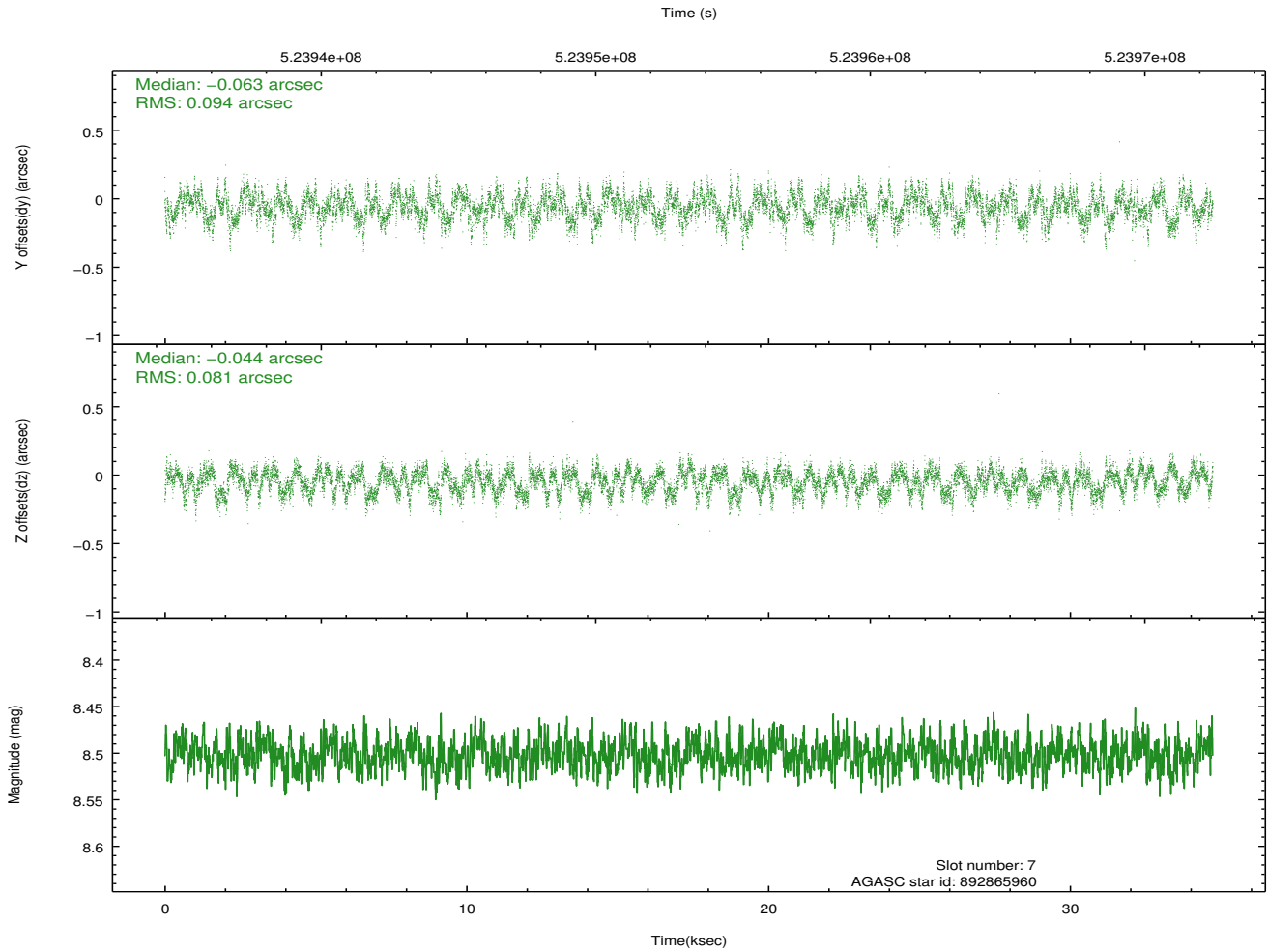
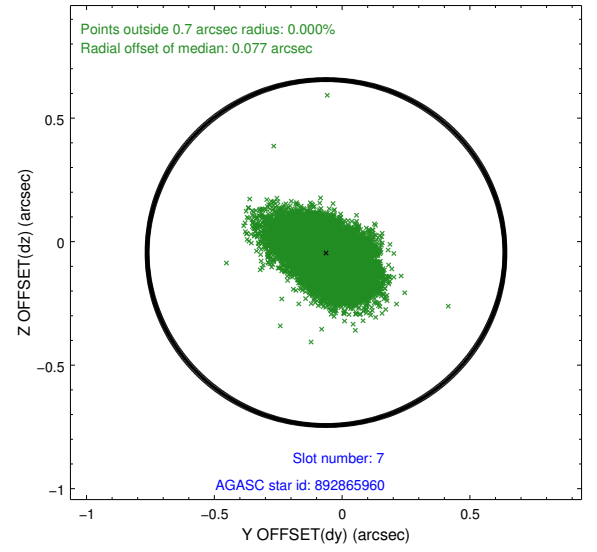
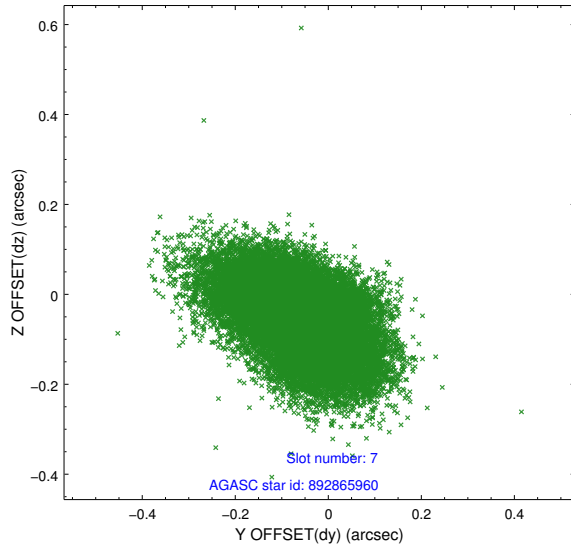
### 2.4.3 Slot 5



## 2.4.4 Slot 6

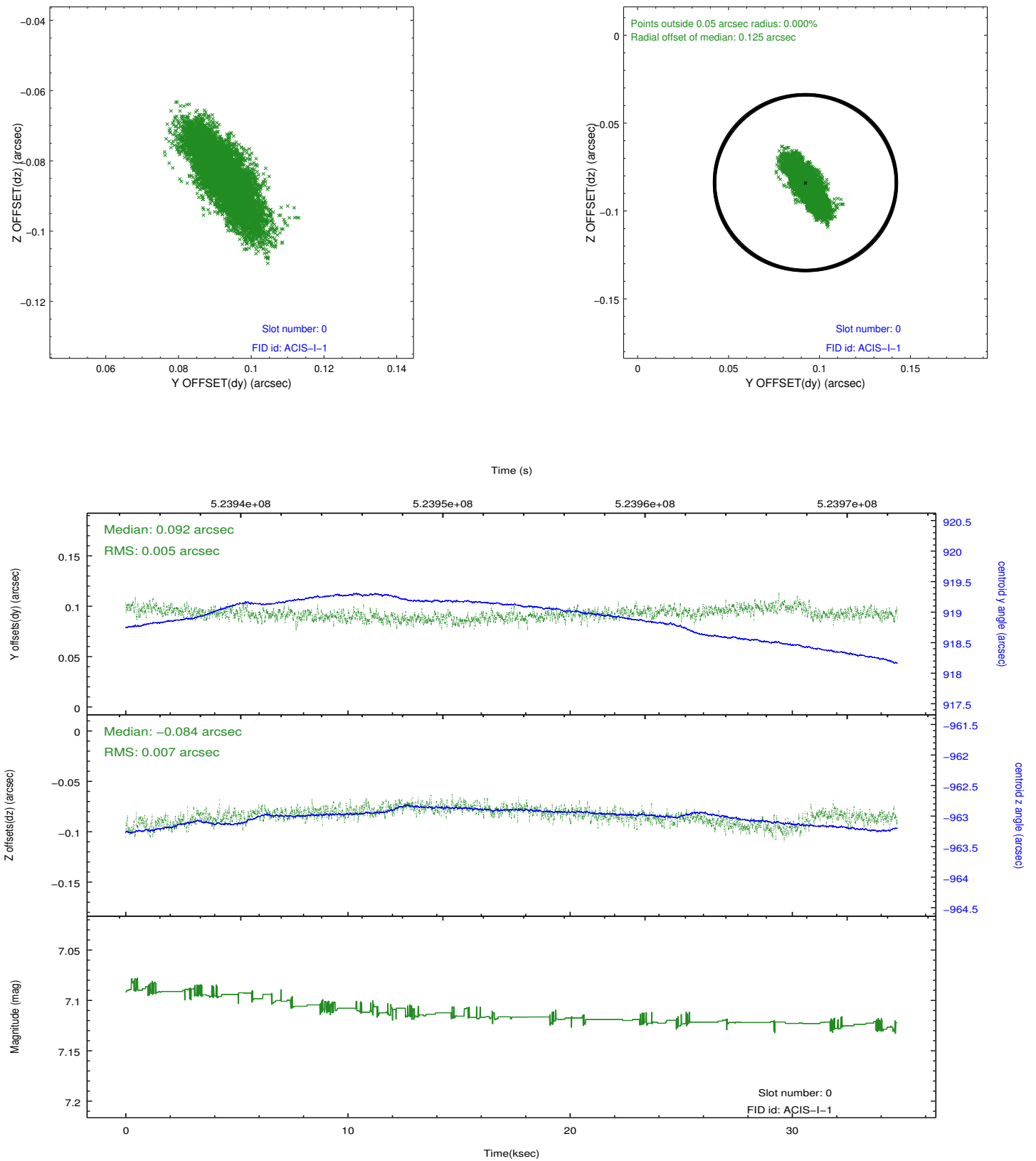


## 2.4.5 Slot 7

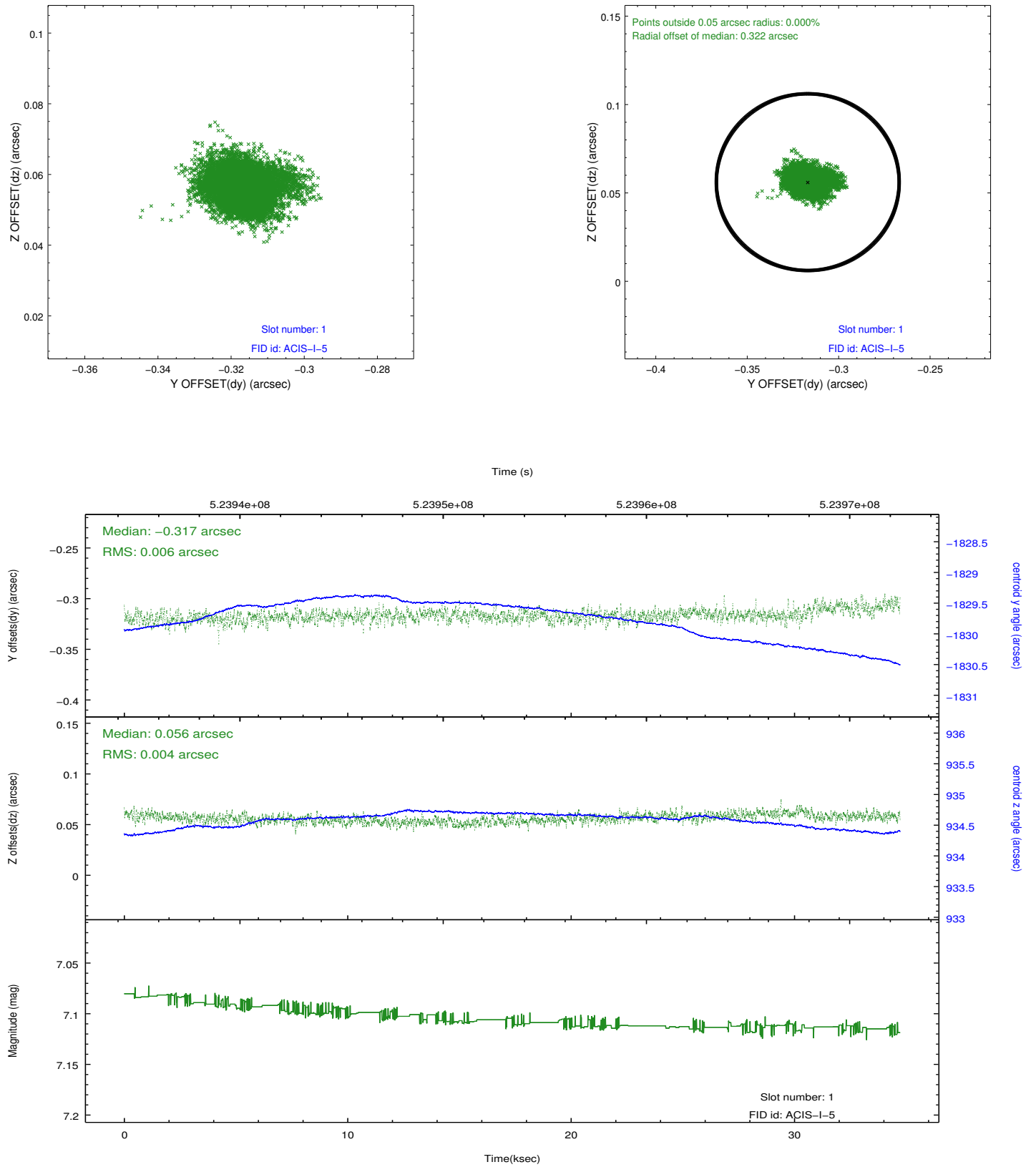


## 2.5 FID Slots

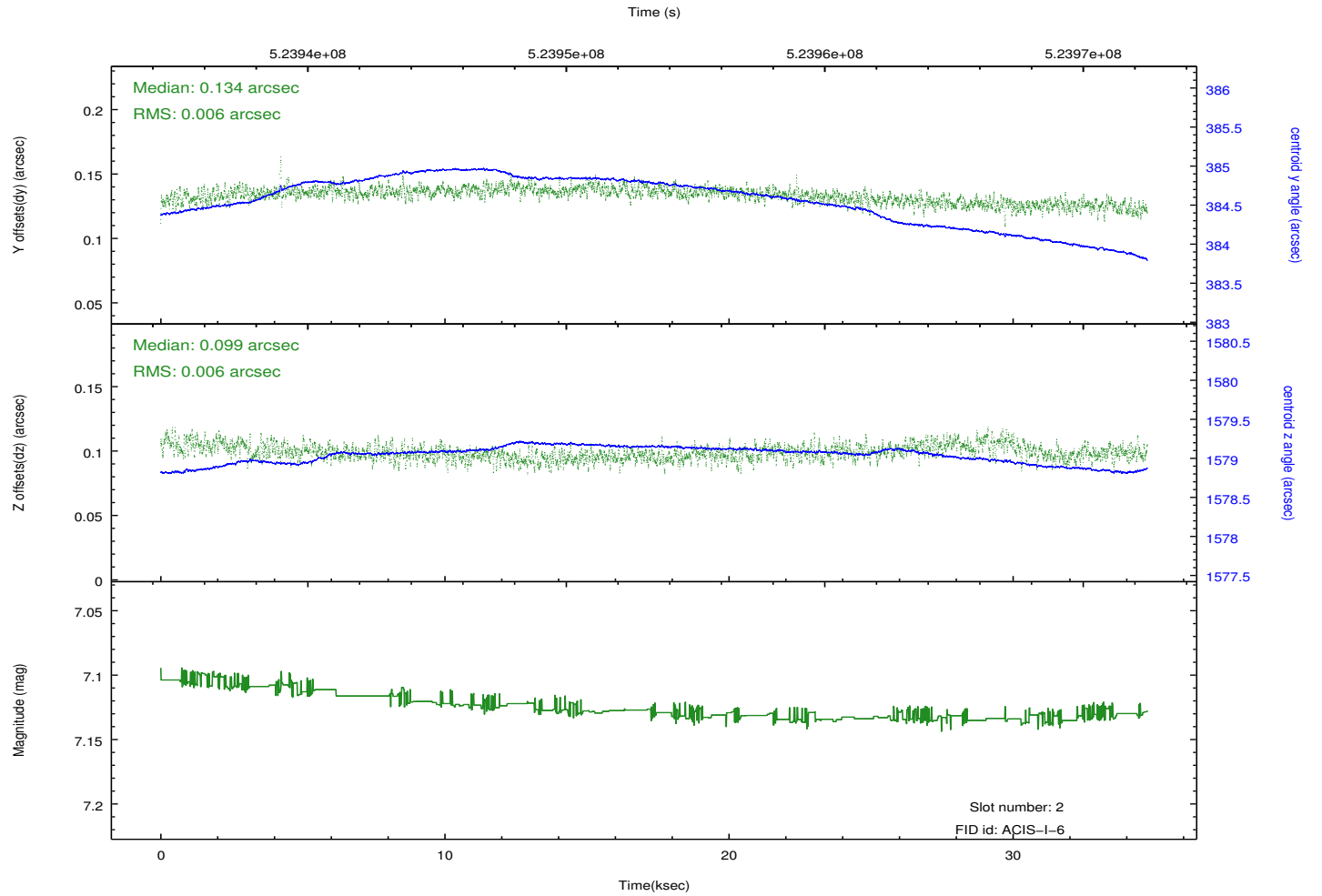
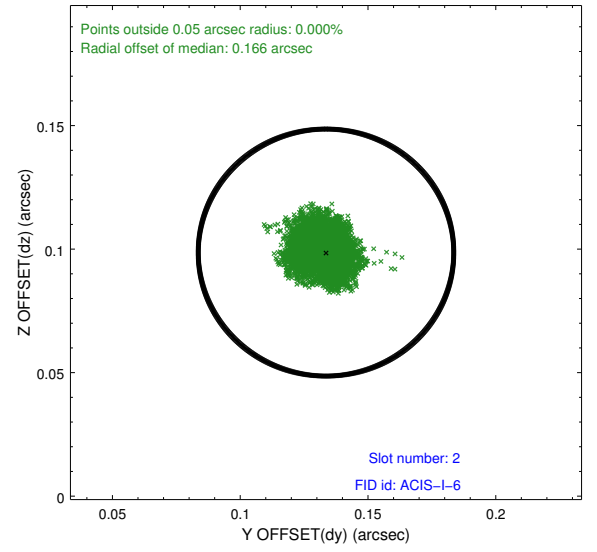
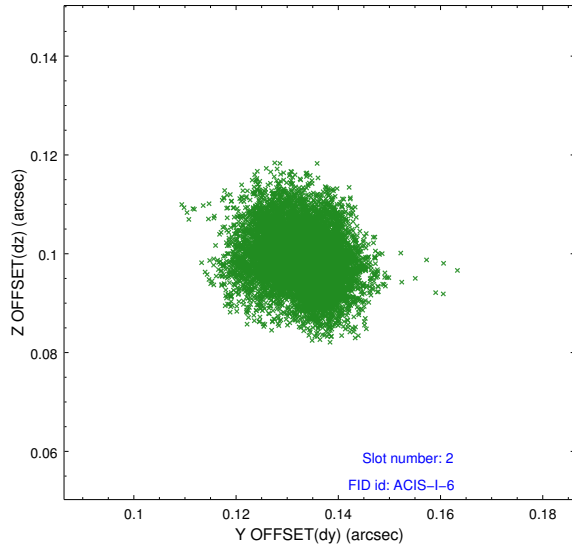
### 2.5.1 Slot 0



## 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)	2014.09.03
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	34.090700262189

## A.2 Comments

Joint proposal with NRAO.

A spatial region of the original bias maps for CCD = 2 and CCD = 3 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 maps for CCD = 2 and CCD = 3 have 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:

CCD = 2, (258.08260, -23.26710), (258.07771, -23.26679), (258.06764, -23.40594), (258.07253, -23.40625).

CCD = 3, (258.21600, -23.27548), (258.21215, -23.27524), (258.20220, -23.41441), (258.20606, -23.41465).