

# V&V Reference Report

## L2 ASCDS Version : 10.9.1

Observation 6102 - L2 Version 4  
Chandra X-Ray Center

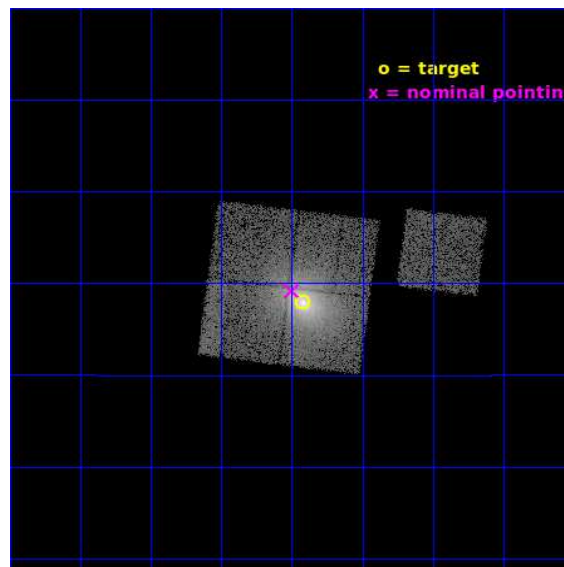
L2 Processing Date : Oct 1 2020

## 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 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>A</b>	<b>Summary</b>	<b>17</b>
A.1	Status . . . . .	17
A.2	Comments . . . . .	17

# 1 Front

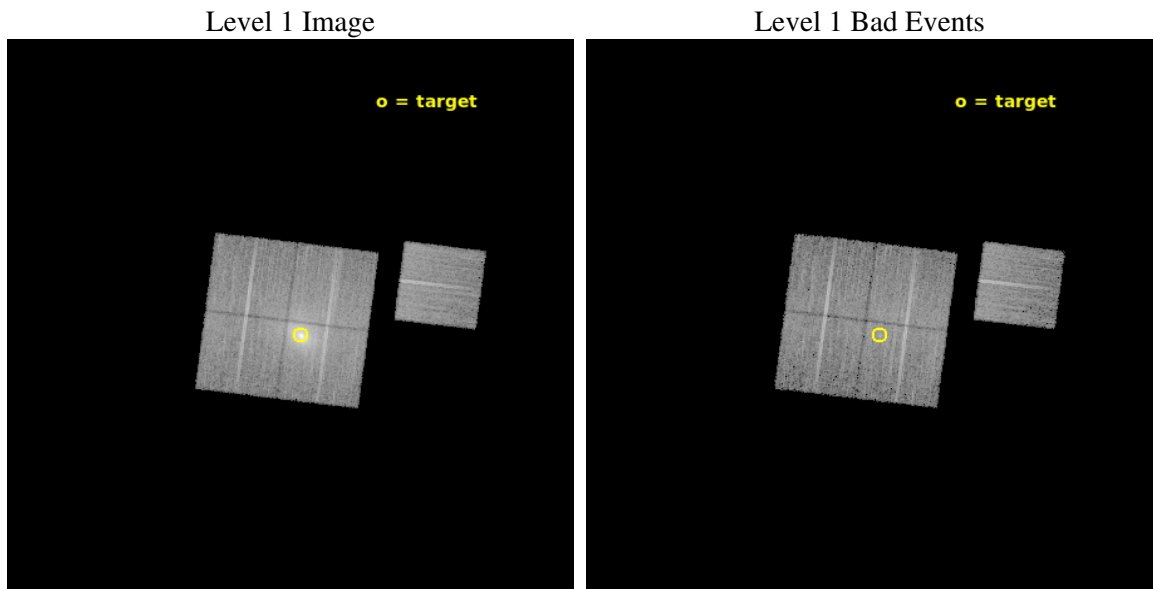
seq_num	800550	Sequence number
obs_id	6102	Observation id
title	Probing dark energy using the X-ray gas mass fraction in dynamically relaxed galaxy clusters	Proposal title
observer	Steve Allen	Principal investigator
object	Abell 478	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	63.355417	Observer's specified target RA [deg]
dec_targ	10.465194	Observer's specified target Dec [deg]
ra_nom	63.374845384857	Nominal RA [deg]
dec_nom	10.486576101646	Nominal Dec [deg]
roll_nom	97.24900574013	Nominal Roll [deg]
revision	4	Processing version of data
ontime	10127.699980497	Sum of GTIs [s]
livetime	9995.3741243479	Livetime [s]
ontime0	10127.699980497	Sum of GTIs [s]
ontime1	10127.699980497	Sum of GTIs [s]
ontime2	10127.699980497	Sum of GTIs [s]
ontime3	10127.699980497	Sum of GTIs [s]
ontime6	10124.559020251	Sum of GTIs [s]
l2events	106146	Number of level 2 events



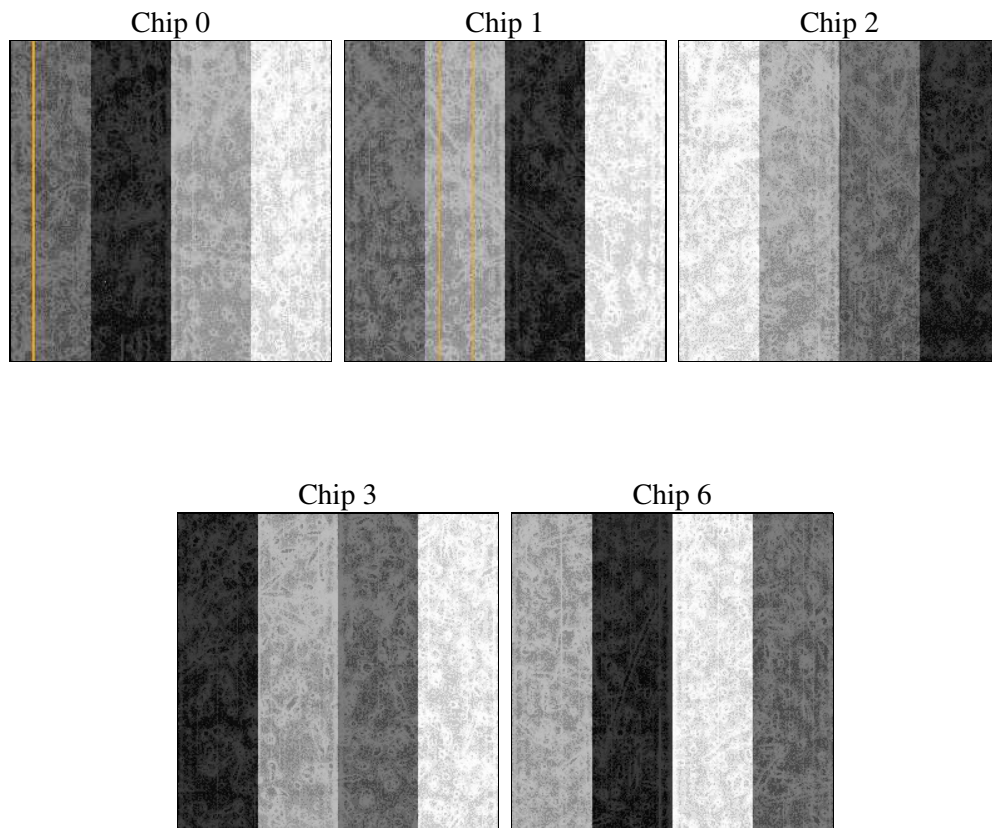
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	10000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.1	Processing system revision	ontime	10127.699980497	Sum of GTIs [s]
caldbver	4.9.2	&#160	ontime0	10127.699980497	Sum of GTIs [s]
date	2020-10-02T00:31:29	Date and time of file creation	ontime1	10127.699980497	Sum of GTIs [s]
revision	4	Processing version of data	ontime2	10127.699980497	Sum of GTIs [s]
			ontime3	10127.699980497	Sum of GTIs [s]
			ontime6	10124.559020251	Sum of GTIs [s]
			l1events	480633	Number of level 1 events

### 2.1.4 Events

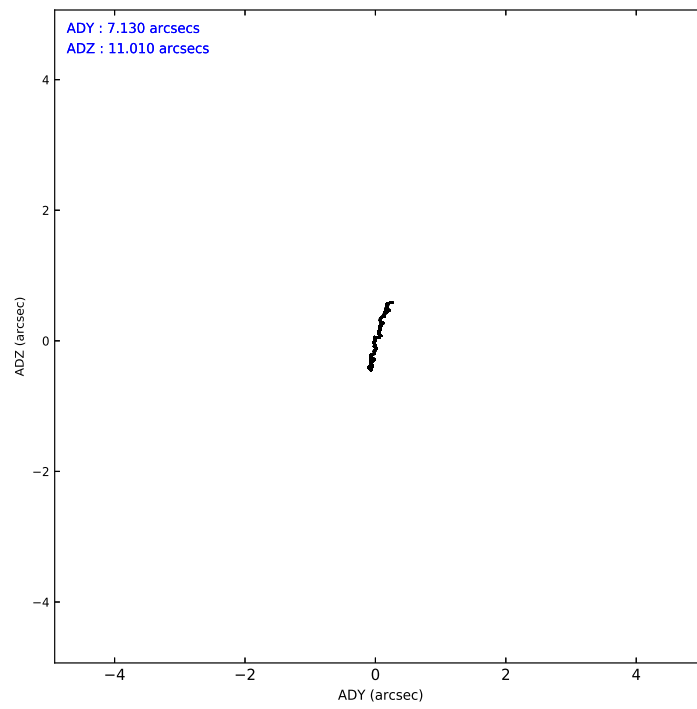
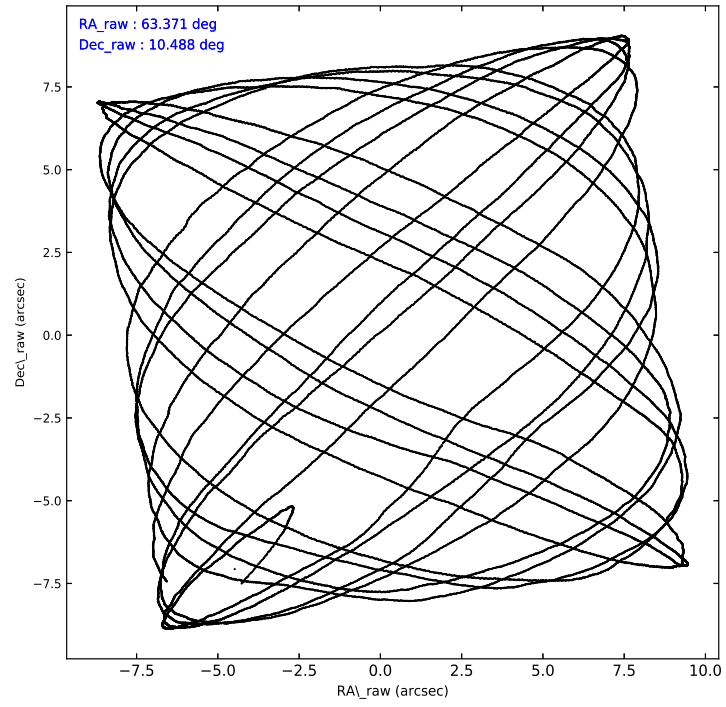
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
level 1 events	78355	81050	96090	140273	84865
rejected events	66302	65527	78270	75670	75514
rejected %	84%	80%	81%	53%	88%

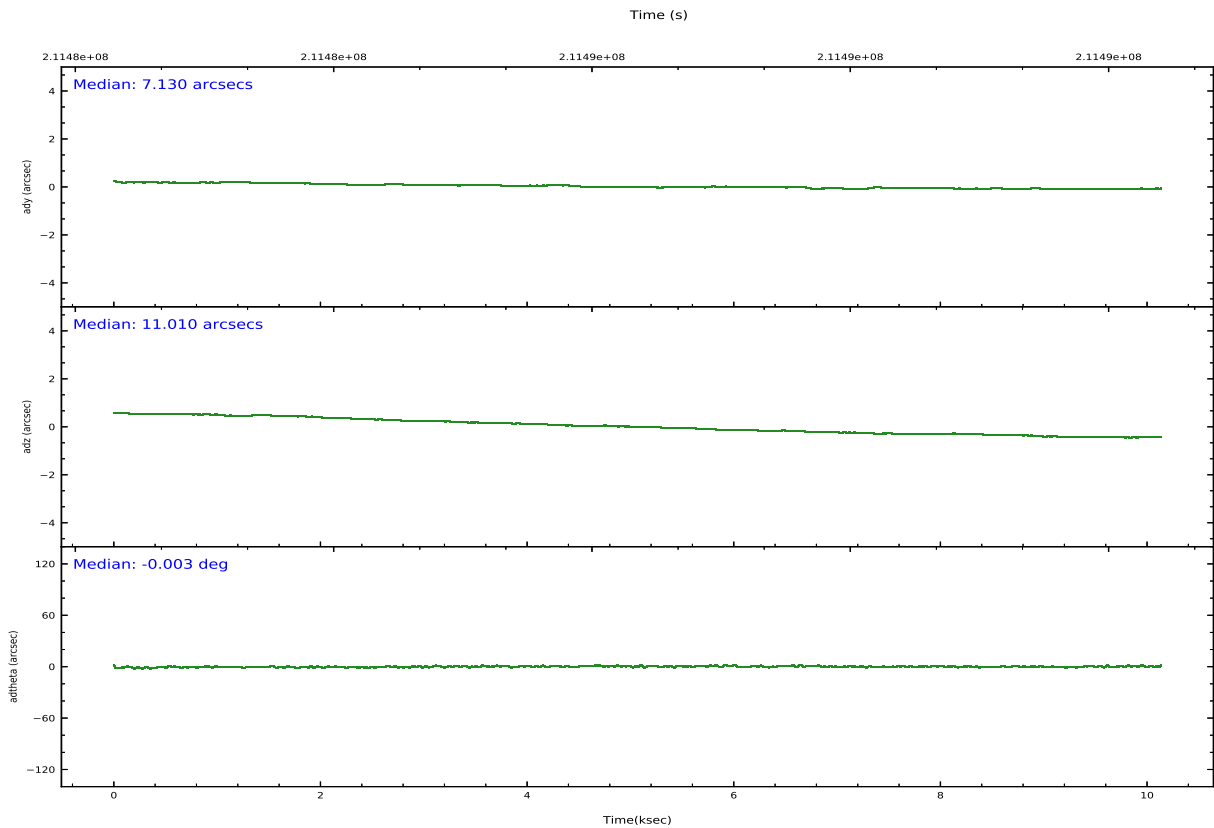
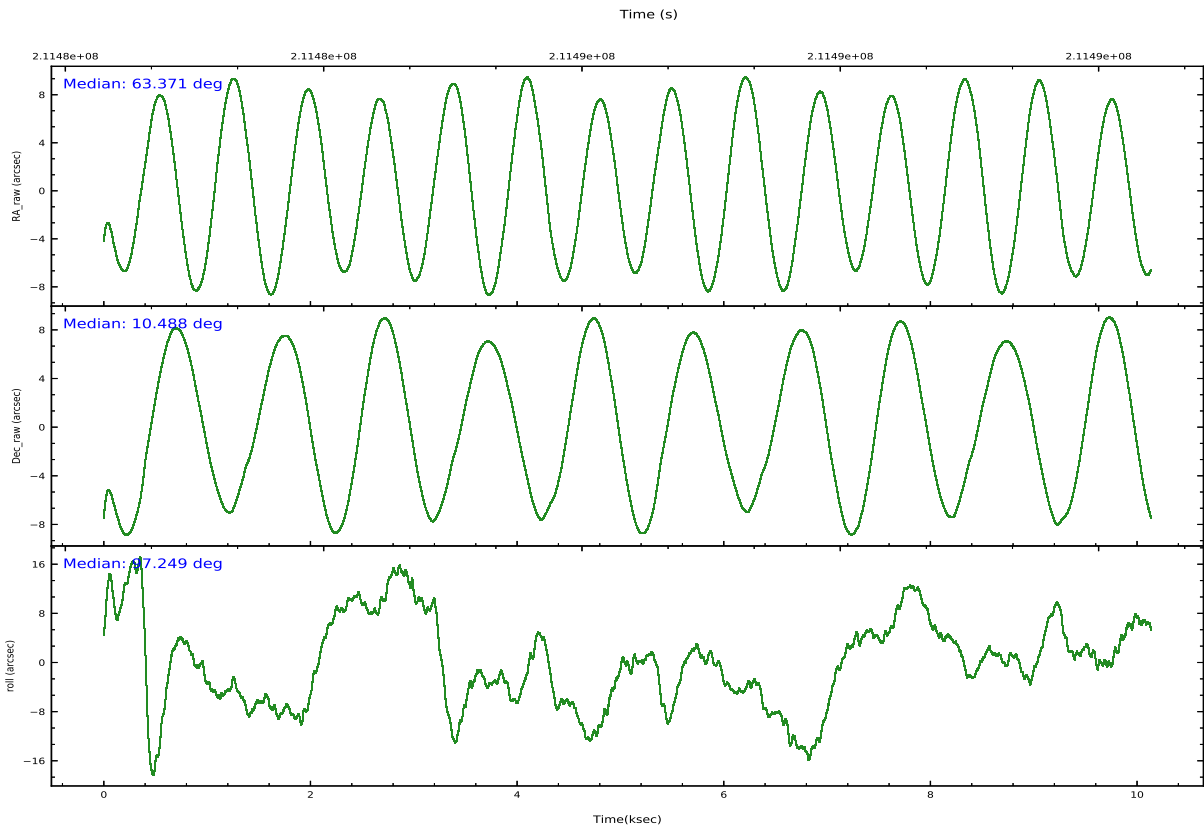
	ccd 0	ccd 1	ccd 2	ccd 3	ccd 6
grade 0 events	6599	8643	11188	49961	4376
	8%	10%	11%	35%	5%
grade 1 events	81	62	96	403	34
	0%	0%	0%	0%	0%
grade 2 events	2492	3063	3039	7702	2177
	3%	3%	3%	5%	2%
grade 3 events	969	1171	1081	2709	825
	1%	1%	1%	1%	0%
grade 4 events	895	1063	1443	2667	798
	1%	1%	1%	1%	0%
grade 5 events	2448	2673	2322	2894	2707
	3%	3%	2%	2%	3%
grade 6 events	1469	2058	1581	2968	1495
	1%	2%	1%	2%	1%
grade 7 events	63402	62317	75340	70969	72453
	80%	76%	78%	50%	85%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-01236	ACIS-01236	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	63.388379	63.374845384857	Subarray requested	NONE	NONE
[deg] Pointing Dec	10.466520	10.486576101646	Alternating exposures requested	N	N
[deg] Pointing Roll	97.044840	97.24900574013	[s] Primary exposure time	0.000000	3.1
[mm] SIM focus pos	-0.782348	-0.7809083437167272			
[mm] SIM defocus	0	0.001439871863259334			
[mm] SIM translation stage pos	-233.592463	-233.5874344608287			
[mm] SIM translation stage offset	0	-0.005018542100998502			
[s] Observation start time (MET)	211483008.184000	211481851.87601			
Observation start date	2004-09-13T17:15:44	2004-09-13T16:57:31			
[s] Observation end time (MET)	211493008.184000	211493998.12656			
Observation end date	2004-09-13T20:02:24	2004-09-13T20:19:58			
Read mode	TIMED	TIMED			

## 2.3 Aspect





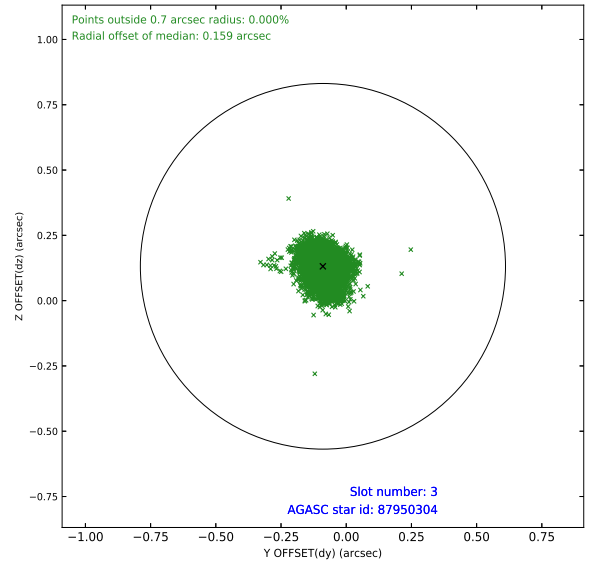
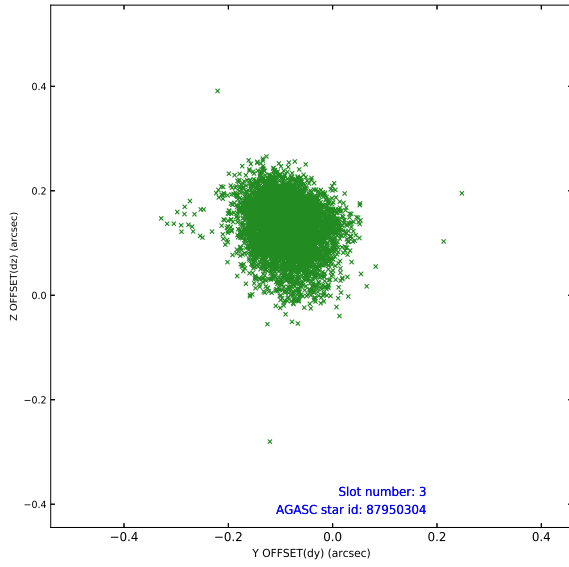
### Slot Statistics

	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	m
	FID		ACIS-I-2	7.14	2473	1.000	-0.106	-0.127	0.015	0.024	0.000000	0.000000	-761.75	-8
	FID		ACIS-I-4	7.18	2473	1.000	0.194	0.096	0.010	0.017	0.000000	0.000000	2152.35	10
	FID		ACIS-I-5	7.22	2473	1.000	-0.189	0.100	0.010	0.016	0.000000	0.000000	-1815.02	10
	GUIDE	used	87950304	8.04	4946	1.000	-0.089	0.131	0.073	0.121	63.753878	10.748130	848.69	-14
	GUIDE	used	87953912	6.67	4946	1.000	0.072	-0.105	0.094	0.154	63.394036	10.212467	-909.80	
	GUIDE	used	87954016	9.26	4945	1.000	0.172	-0.068	0.086	0.141	63.197646	10.607026	584.84	6
	GUIDE	used	87955152	7.69	4870	1.000	-0.195	0.084	0.069	0.114	63.504124	11.027236	1953.48	-6
	BAD	used	87955344	10.62	4705	1.000	0.024	-0.036	0.174	0.294	63.321713	10.049181	-1461.53	4

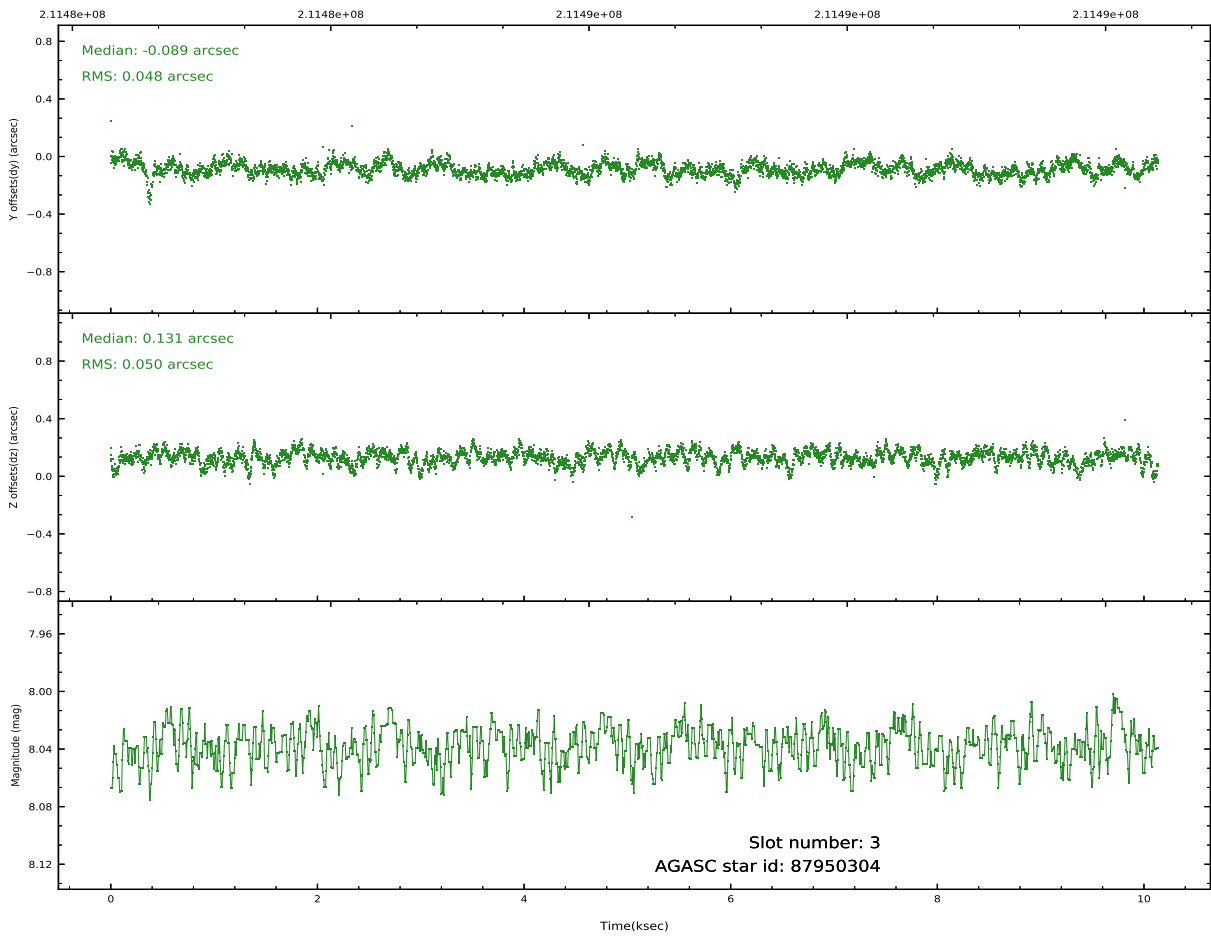
∞

## 2.4 Star Slots

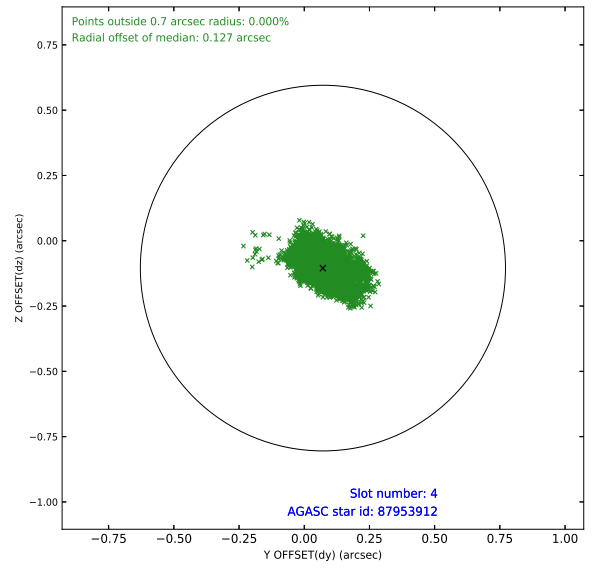
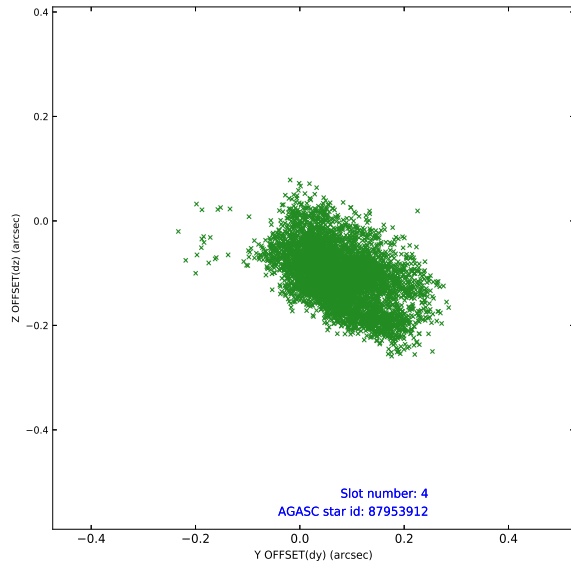
### 2.4.1 Slot 3



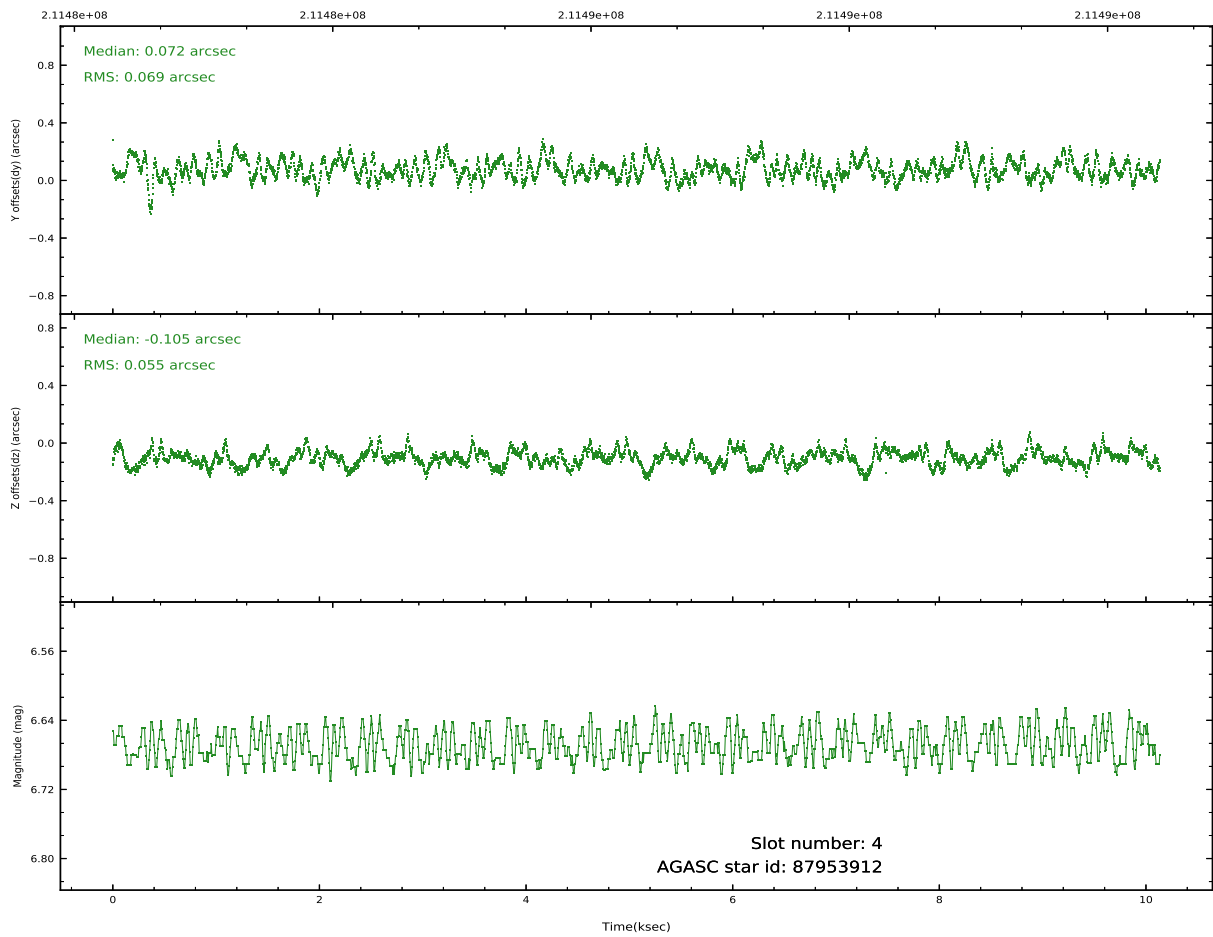
Time (s)



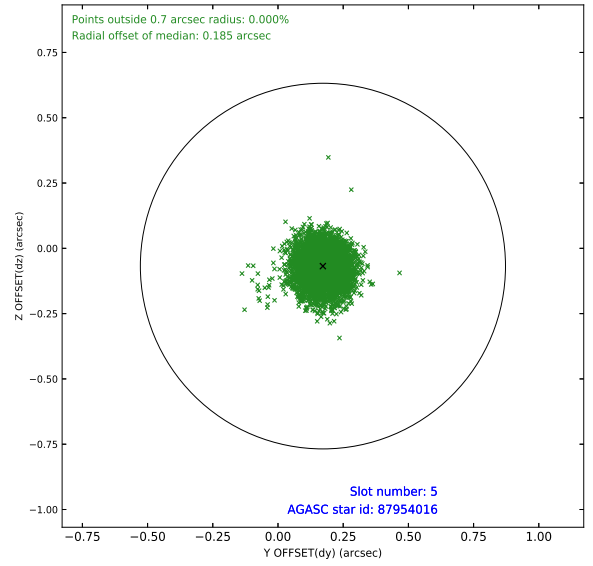
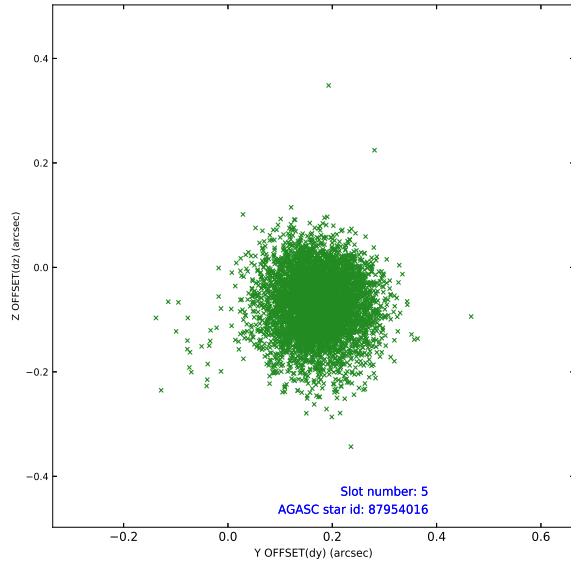
## 2.4.2 Slot 4



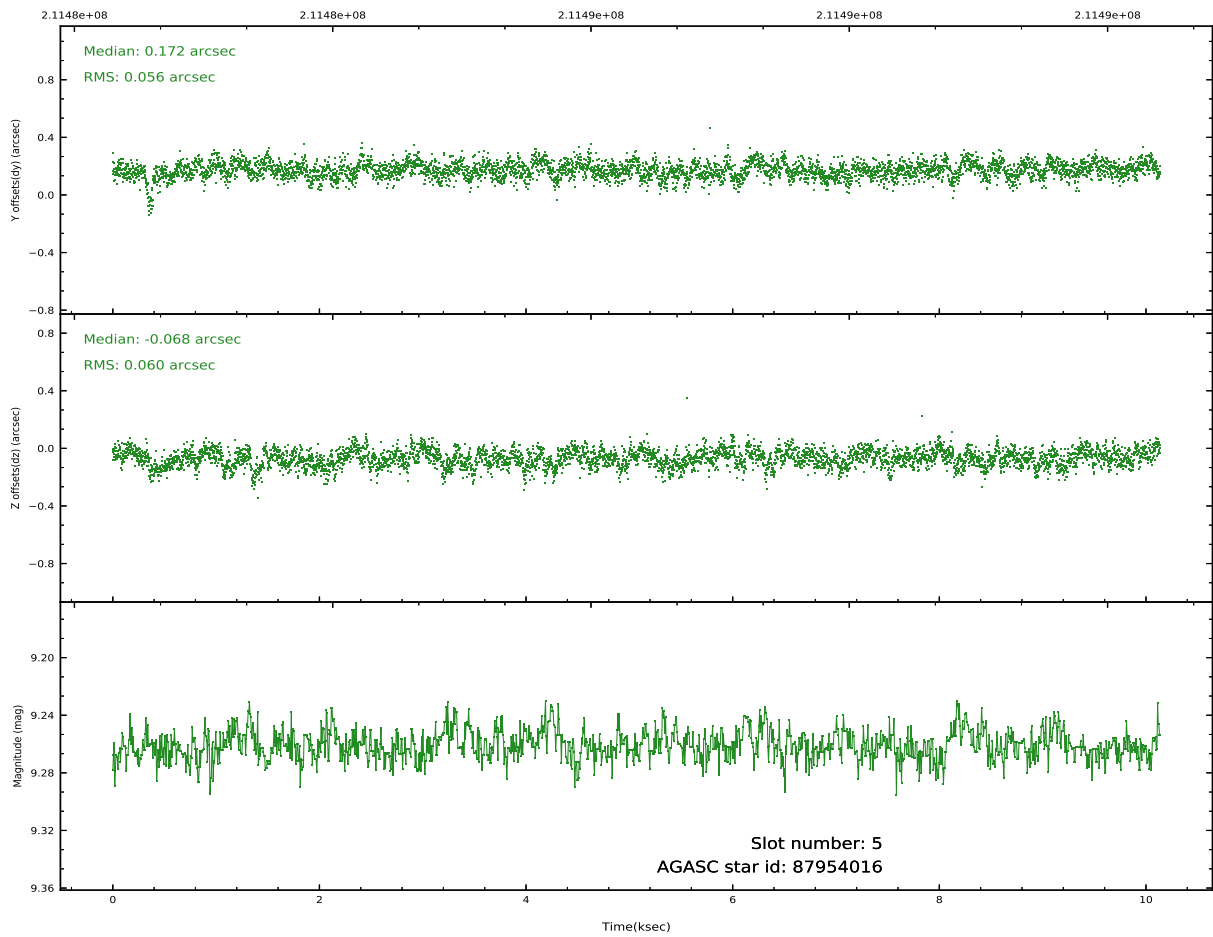
Time (s)



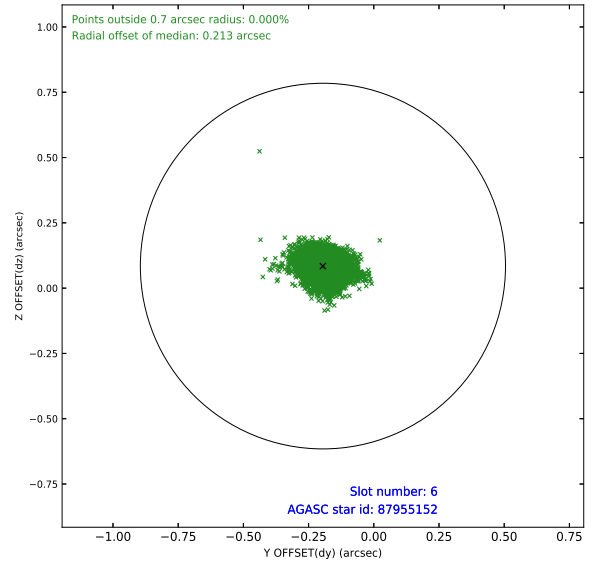
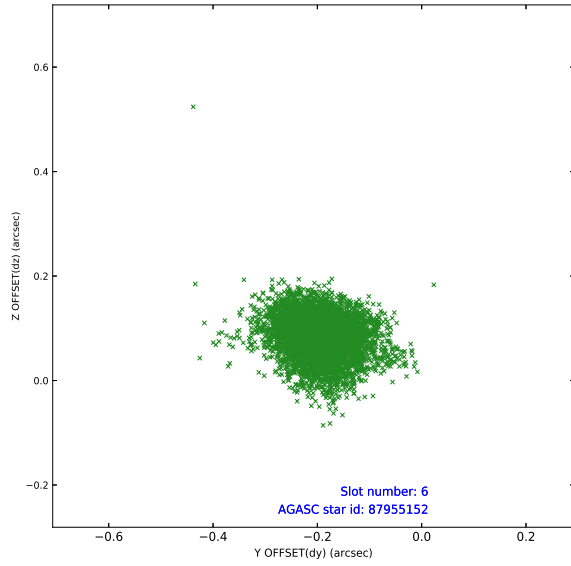
### 2.4.3 Slot 5



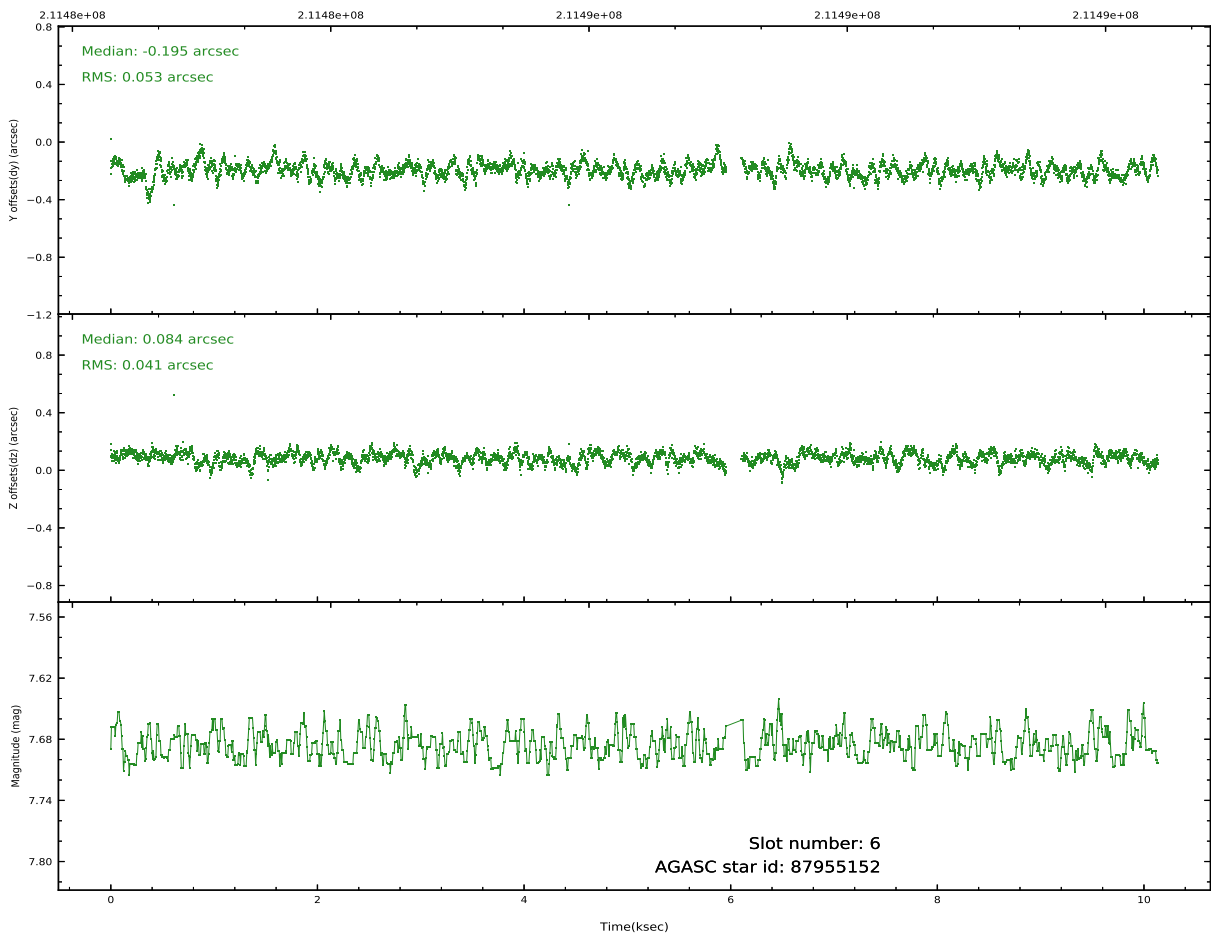
Time (s)



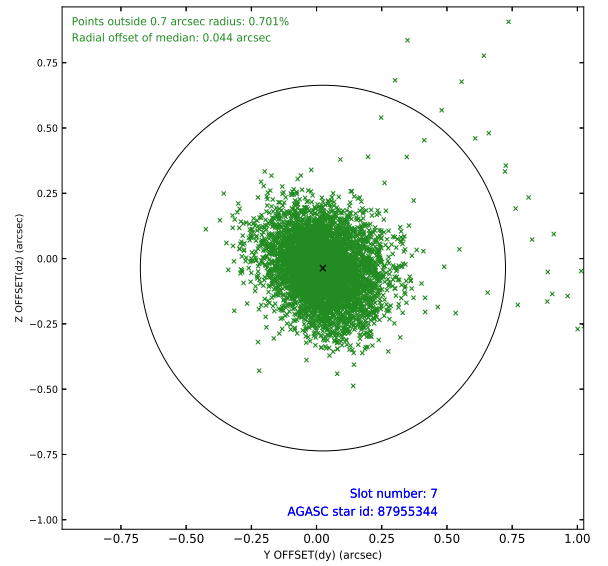
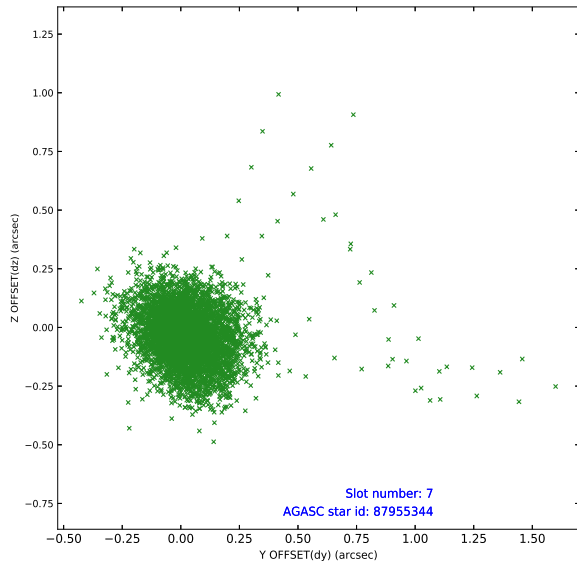
## 2.4.4 Slot 6



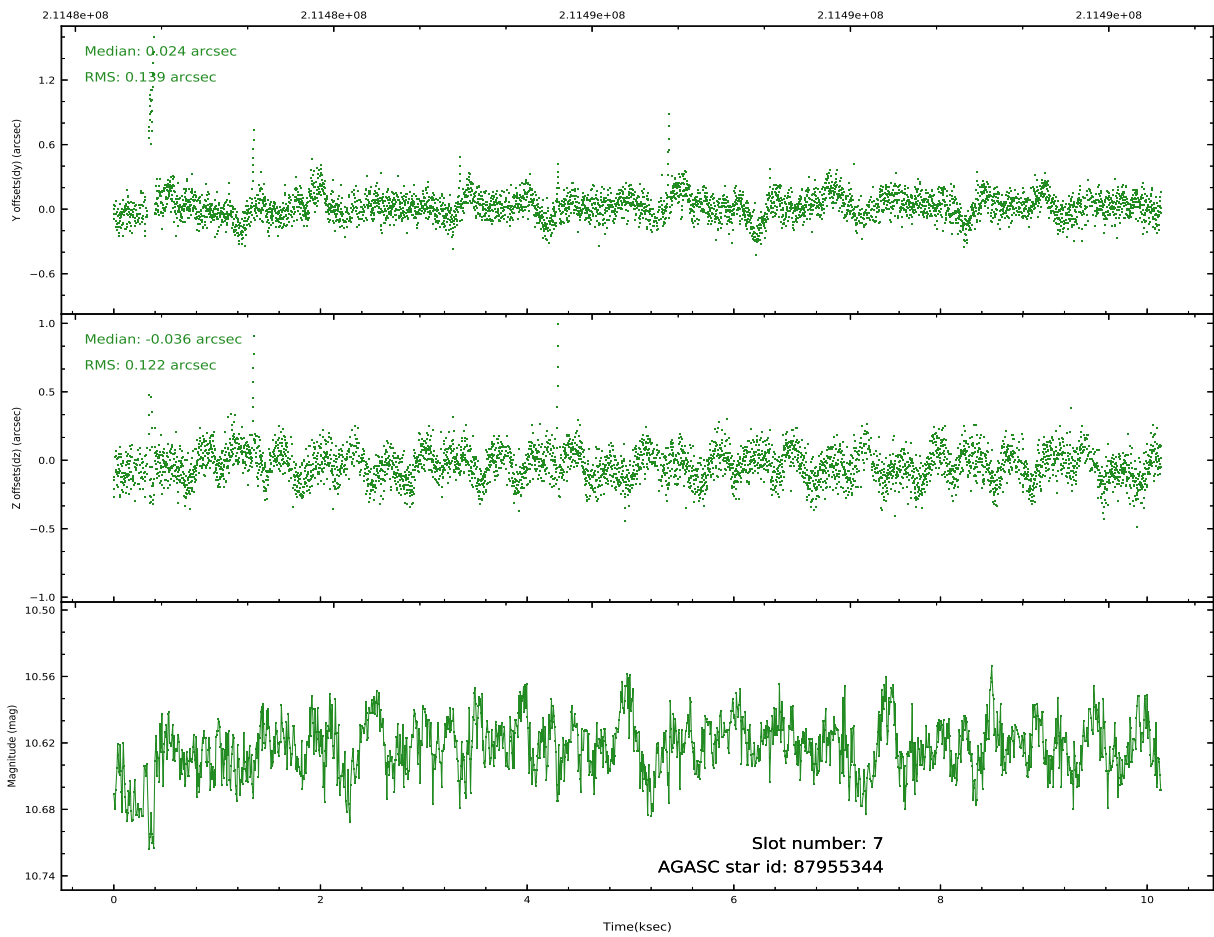
Time (s)



## 2.4.5 Slot 7

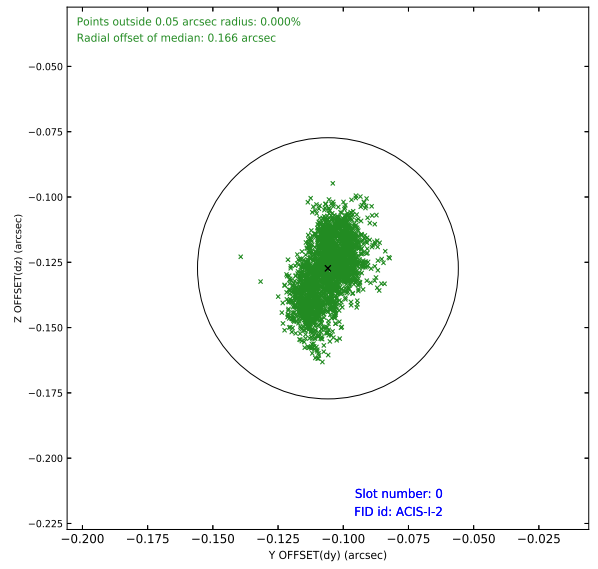
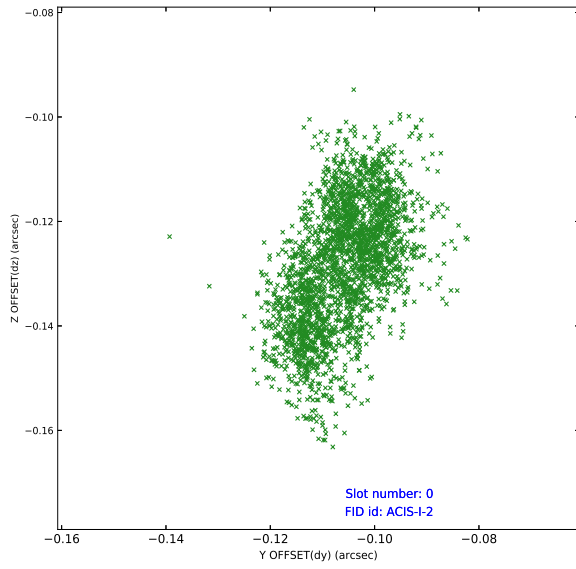


Time (s)

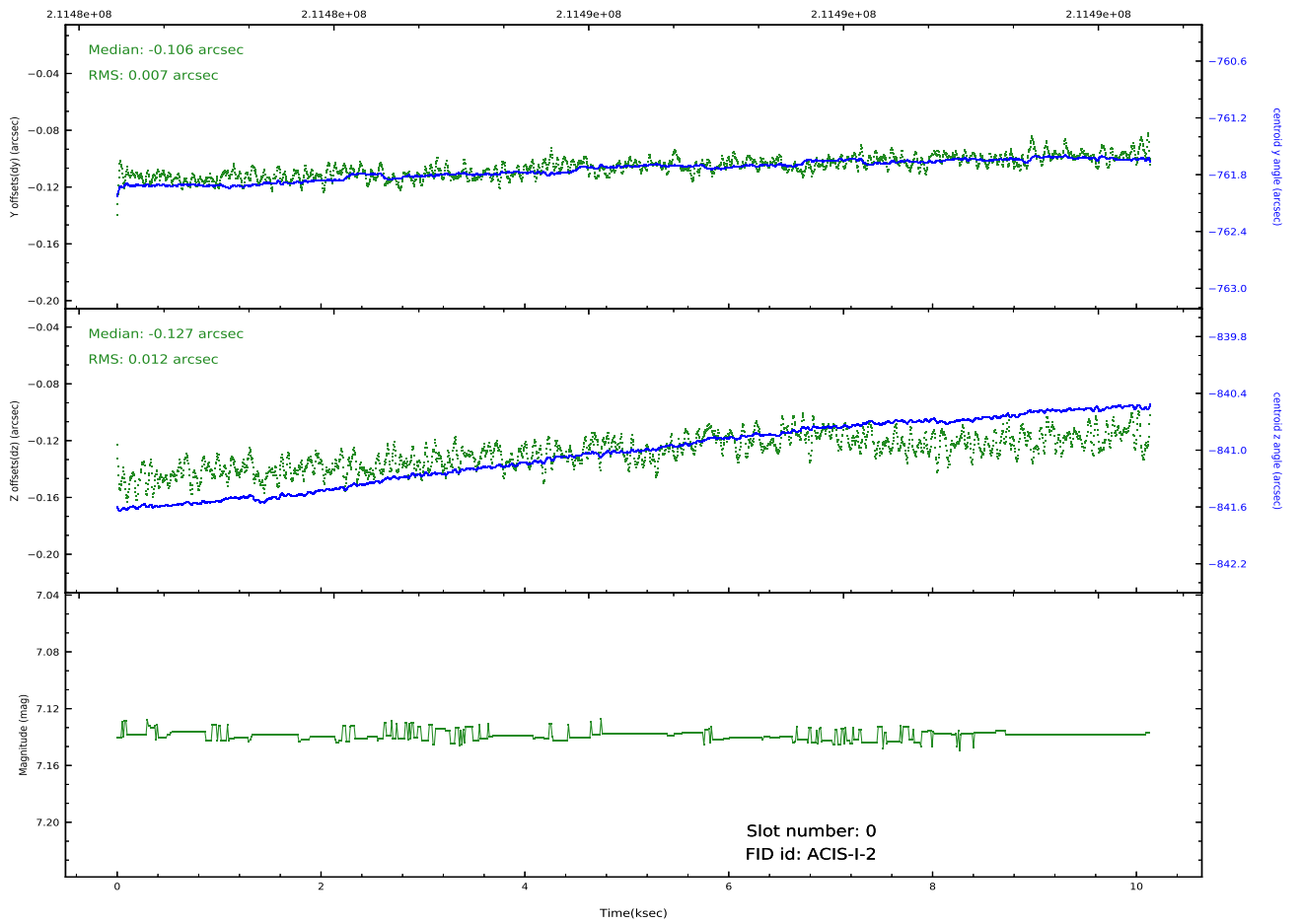


## 2.5 FID Slots

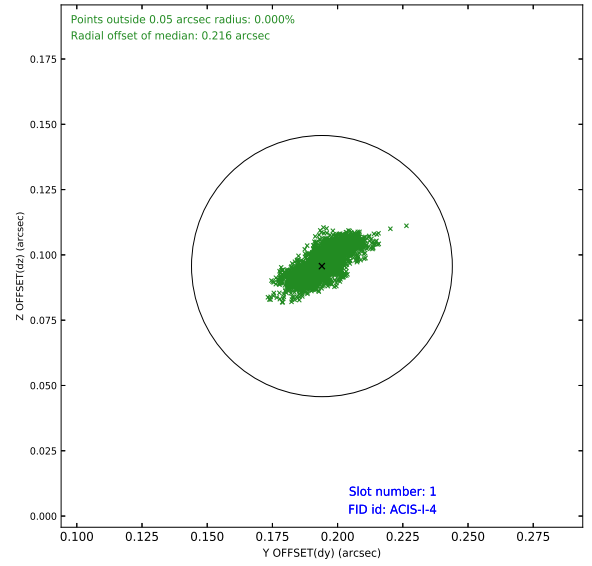
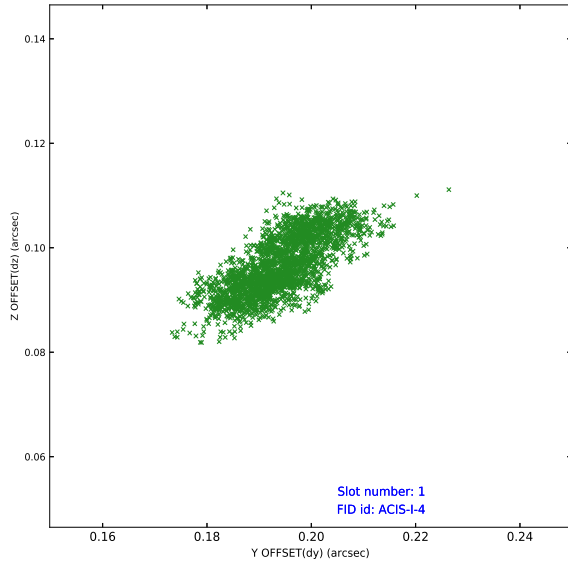
### 2.5.1 Slot 0



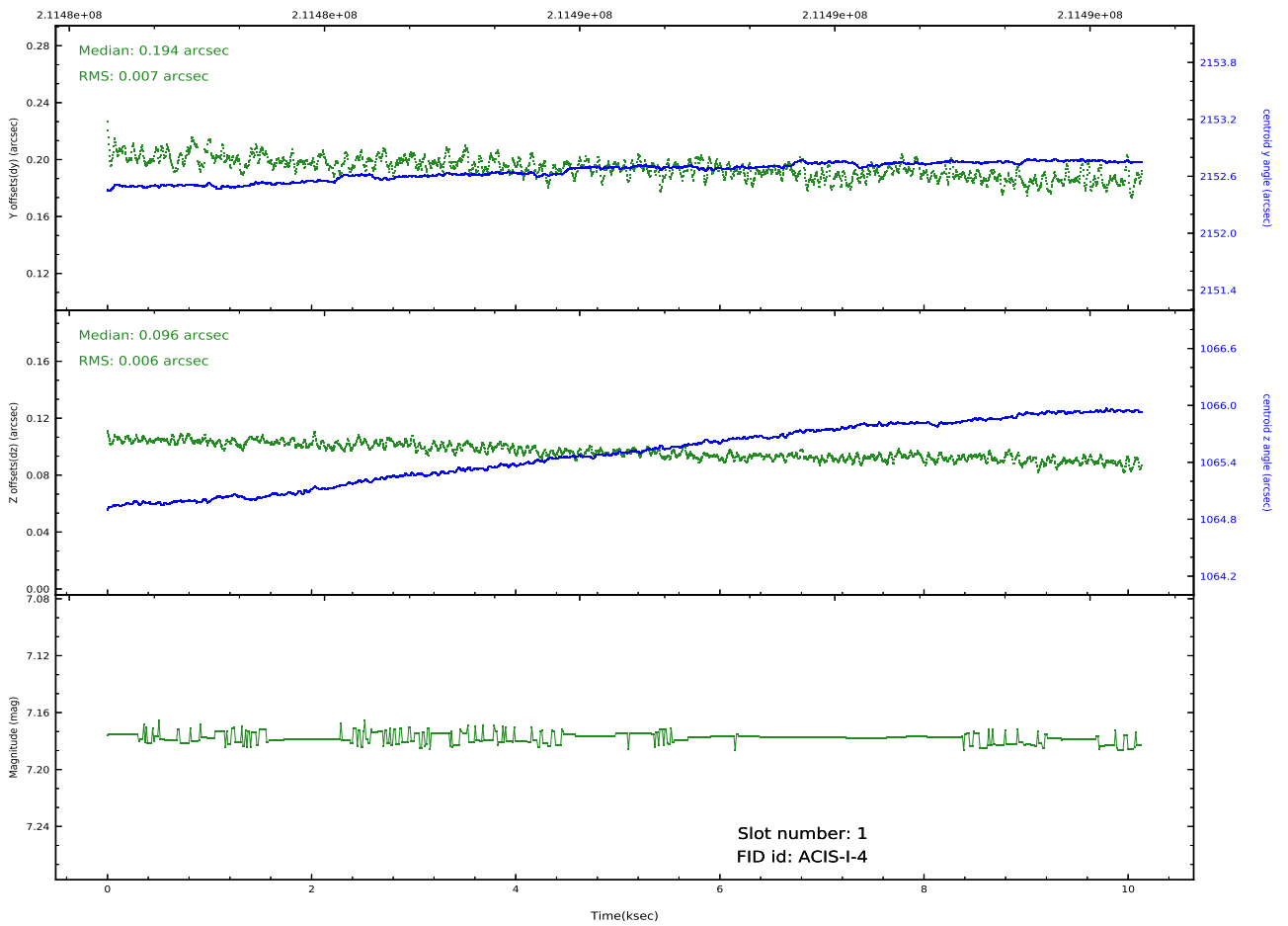
Time (s)



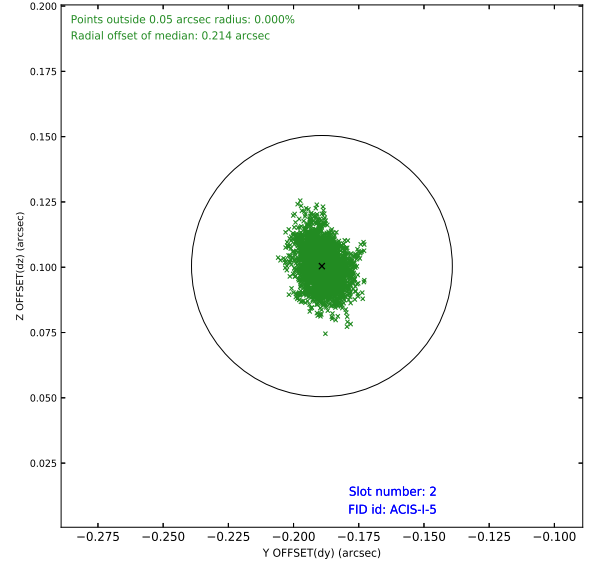
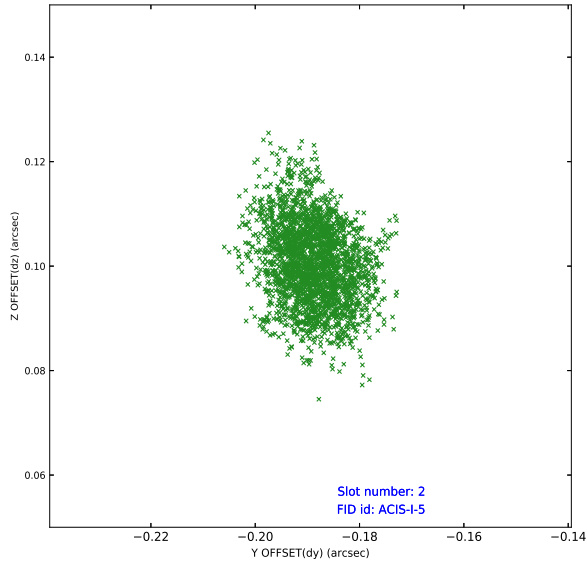
## 2.5.2 Slot 1



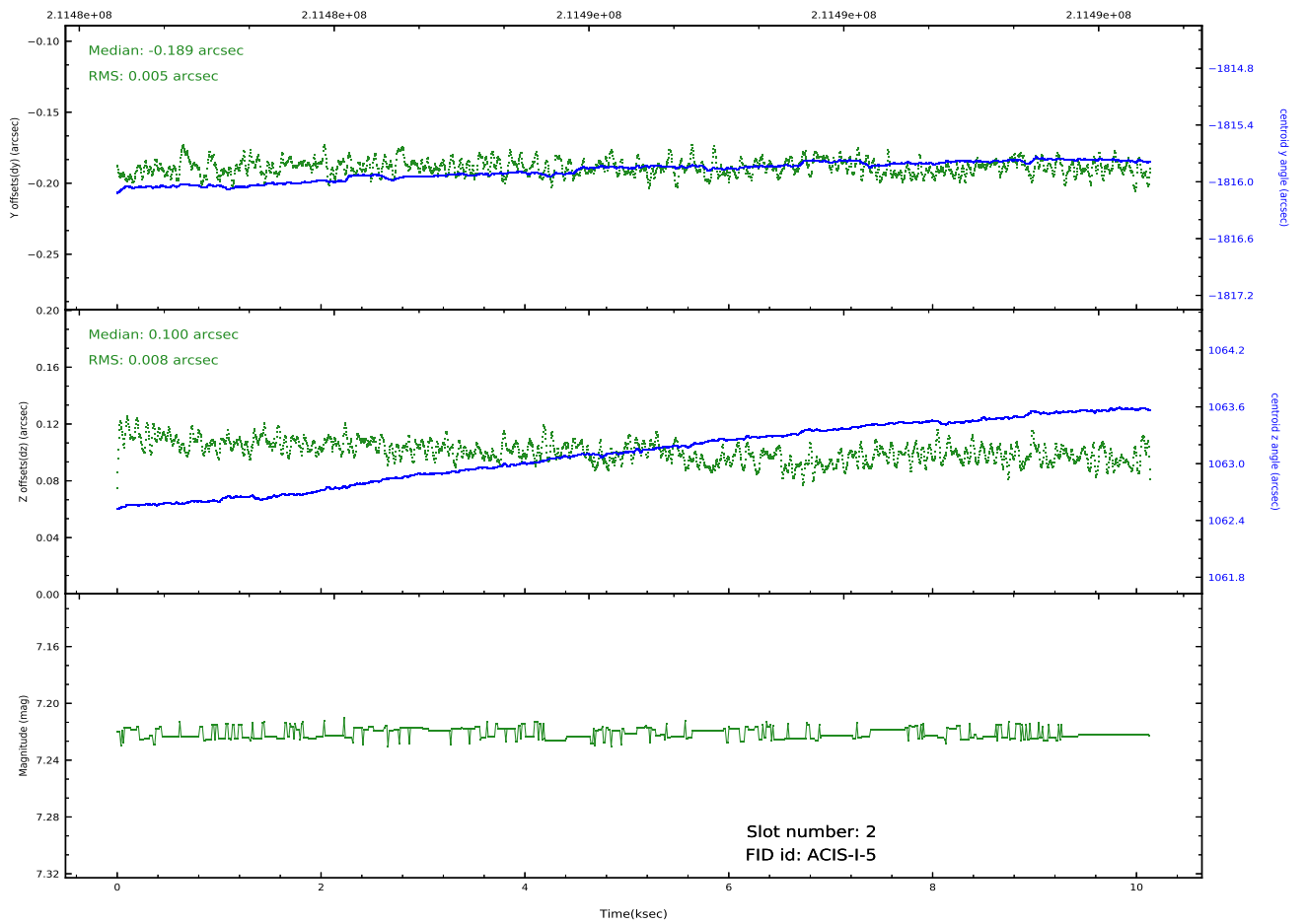
Time (s)



### 2.5.3 Slot 2



Time (s)



# A Summary

## A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2020.10.02
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.127

## A.2 Comments