

# V&V Reference Report

## L2 ASCDS Version : 10.9.2

Observation 20975 - L2 Version 3  
Chandra X-Ray Center

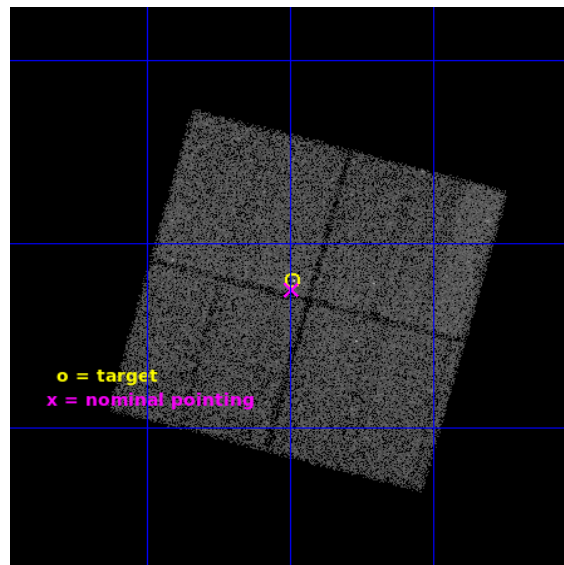
L2 Processing Date : Oct 26 2020

## 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

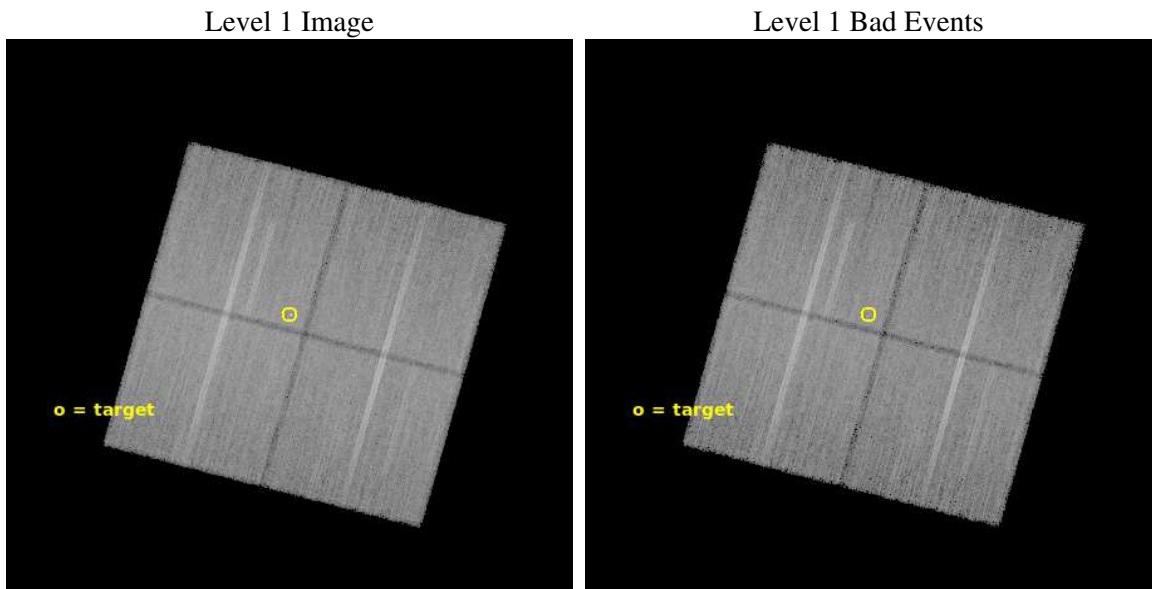
seq_num	402023	Sequence number
obs_id	20975	Observation id
title	X-RAY IMAGING OF THE HIGH-MASS GAMMA-RAY BINARY HESS J0632+057	Pro
observer	Oleg Kargaltsev	Principal investigator
object	HESS J0632+057	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	98.2475	Observer's specified target RA [deg]
dec_targ	5.799972	Observer's specified target Dec [deg]
ra_nom	98.248148905511	Nominal RA [deg]
dec_nom	5.7917462739192	Nominal Dec [deg]
roll_nom	285.19707548221	Nominal Roll [deg]
revision	3	Processing version of data
ontime	42070.018203497	Sum of GTIs [s]
livetime	41520.342444171	Livetime [s]
ontime0	42070.018173099	Sum of GTIs [s]
ontime1	42073.159253359	Sum of GTIs [s]
ontime2	42073.159253478	Sum of GTIs [s]
ontime3	42070.018203497	Sum of GTIs [s]
l2events	113233	Number of level 2 events



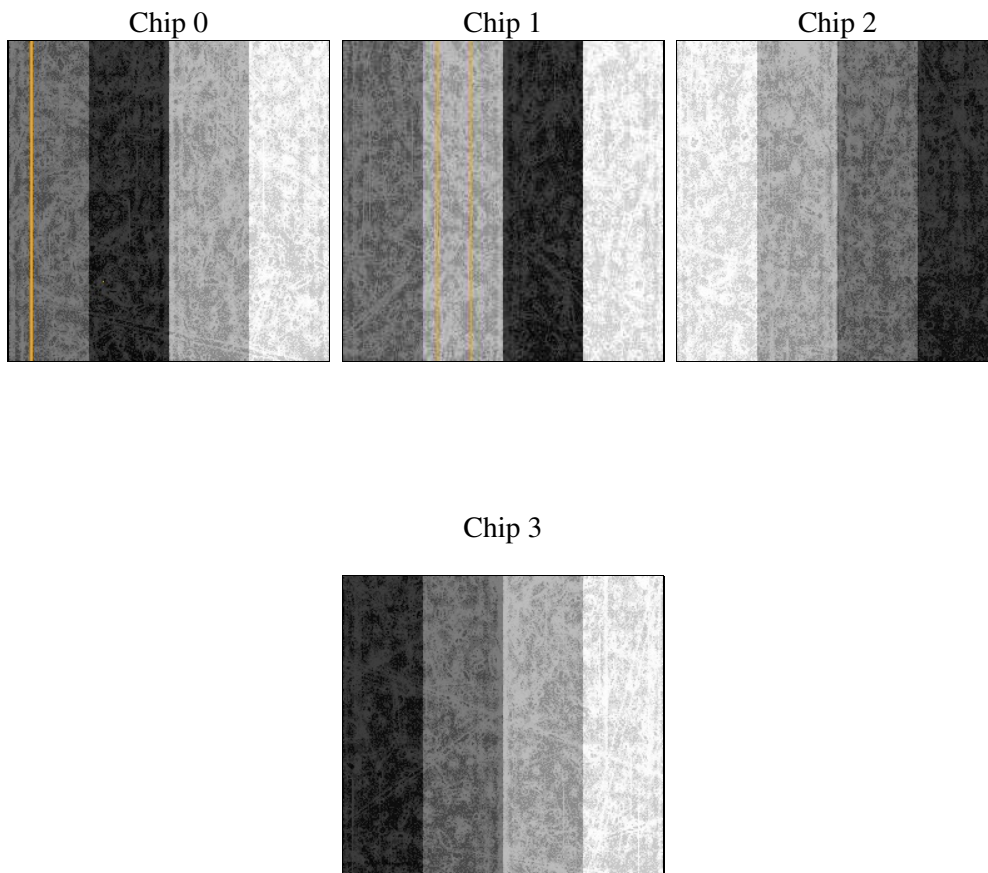
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	42000.000000	[s] Scheduled observation exposure time
ascdsver	10.9.2	Processing system revision	ontime	42070.018203497	Sum of GTIs [s]
caldsver	4.9.3	&#160	ontime0	42070.018173099	Sum of GTIs [s]
date	2020-10-27T00:13:53	Date and time of file creation	ontime1	42073.159253359	Sum of GTIs [s]
revision	3	Processing version of data	ontime2	42073.159253478	Sum of GTIs [s]
			ontime3	42070.018203497	Sum of GTIs [s]
			l1events	1228156	Number of level 1 events

### 2.1.4 Events

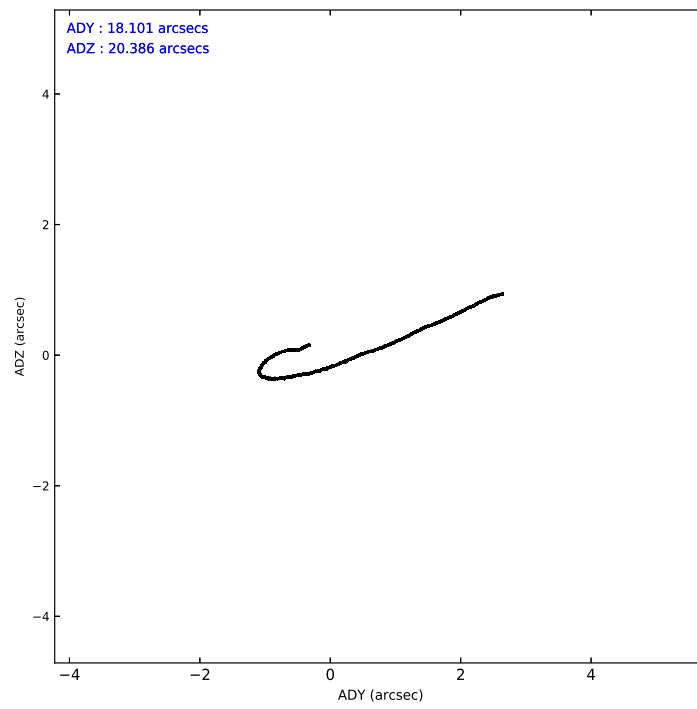
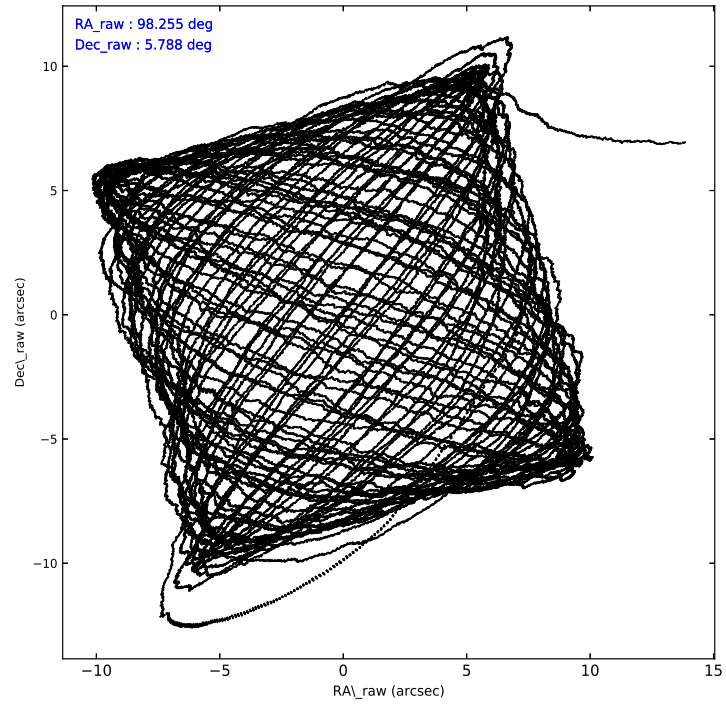
	ccd 0	ccd 1	ccd 2	ccd 3
level 1 events	294930	291216	325547	316463
rejected events	261464	254353	294006	283406
rejected %	88%	87%	90%	89%

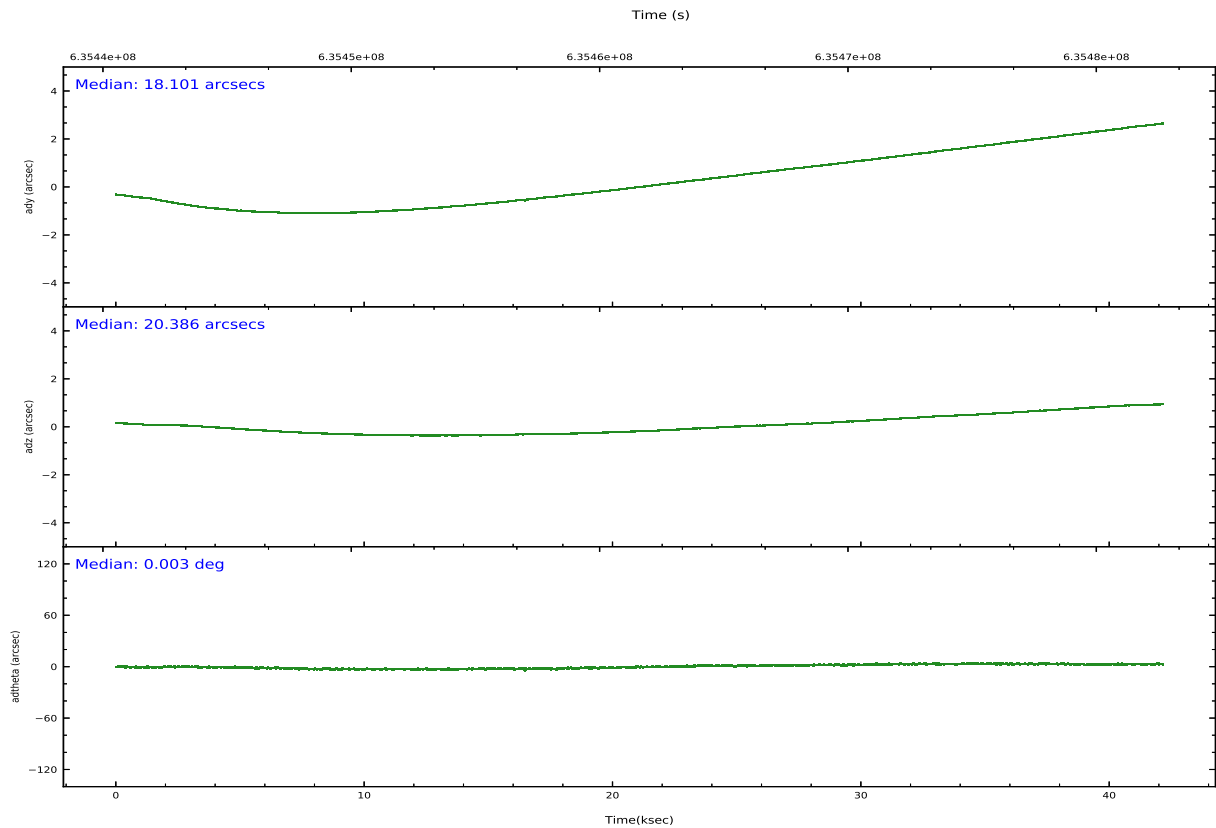
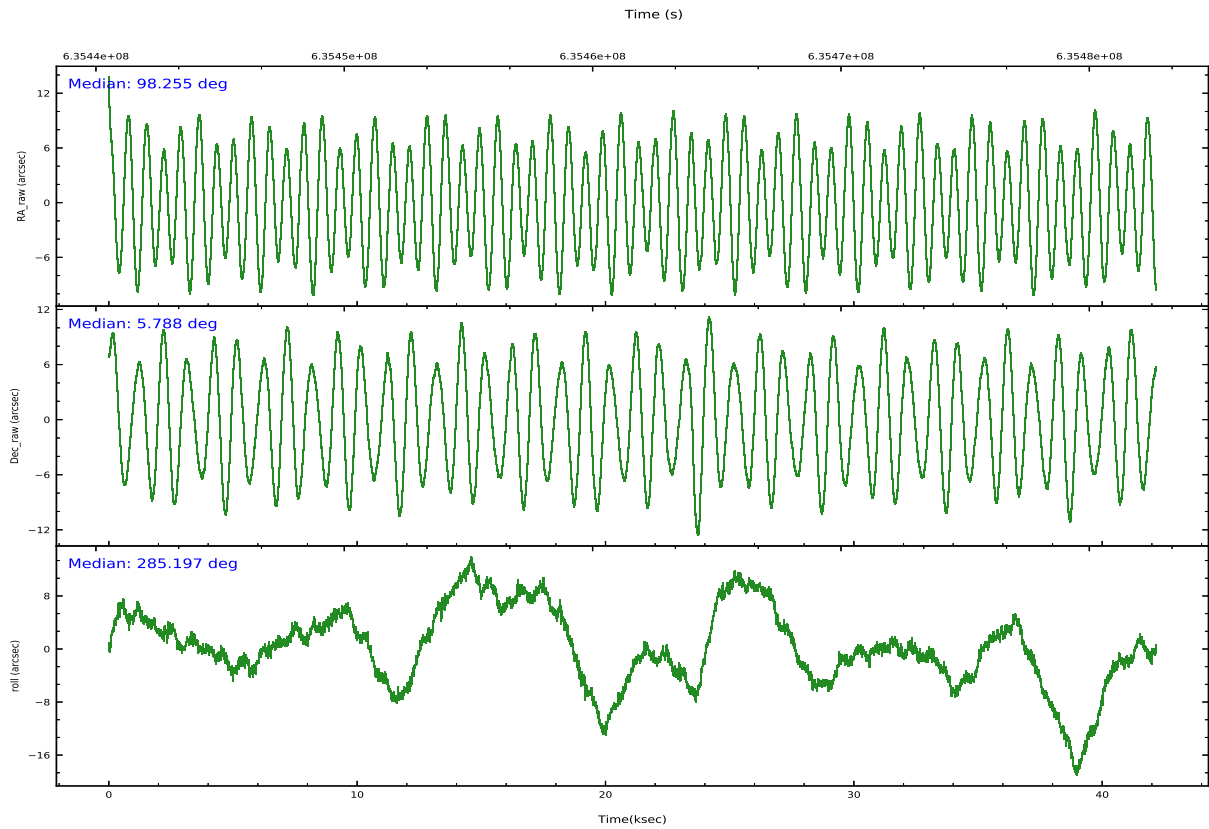
	ccd 0	ccd 1	ccd 2	ccd 3
grade 0 events	11223	11630	11156	11995
	3%	3%	3%	3%
grade 1 events	138	112	197	212
	0%	0%	0%	0%
grade 2 events	8400	9953	7596	7165
	2%	3%	2%	2%
grade 3 events	3434	3389	3145	3540
	1%	1%	0%	1%
grade 4 events	3215	3285	3261	3443
	1%	1%	1%	1%
grade 5 events	12340	12705	11484	14394
	4%	4%	3%	4%
grade 6 events	7198	8613	6389	6923
	2%	2%	1%	2%
grade 7 events	248982	241529	282319	268791
	84%	82%	86%	84%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar version number	8	8
Detector	ACIS-0123	ACIS-0123	Obspar file type	PREDICTED	ACTUAL
Grating	NONE	NONE	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	Y	Y
Observation mode	POINTING	POINTING	CCD I1 on	Y	Y
[deg] Pointing RA	98.235460	98.248148905511	CCD I2 on	Y	Y
[deg] Pointing Dec	5.807471	5.7917462739192	CCD I3 on	Y	Y
[deg] Pointing Roll	285.001221	285.19707548221	CCD S0 on	N	N
[s] Window start time (MET)	633960069.184000	633960069.184000	CCD S1 on	N	N
[s] Window stop time (MET)	635601669.184000	635601669.184000	CCD S2 on	O1	N
[mm] SIM focus pos	-0.782348	-0.7809083437167272	CCD S3 on	O2	N
[mm] SIM defocus	0	0.001439871863259334	CCD S4 on	N	N
[mm] SIM translation stage pos	-232.127463	-232.1190743247176	CCD S5 on	N	N
[mm] SIM translation stage offset	-1.465	-1.473378678212043	Number of optional ACIS chips dropped	2	2
[s] Observation start time (MET)	635440691.184000	635439901.02946	On-chip summing requested	N	N
Observation start date	2018-02-19T15:17:02	2018-02-19T15:05:01	Subarray requested	NONE	NONE
[s] Observation end time (MET)	635482691.184000	635483742.84454	Alternating exposures requested	N	N
Observation end date	2018-02-20T02:57:02	2018-02-20T03:15:42	[s] Primary exposure time	0.000000	3.1
Read mode	TIMED	TIMED			

## 2.3 Aspect





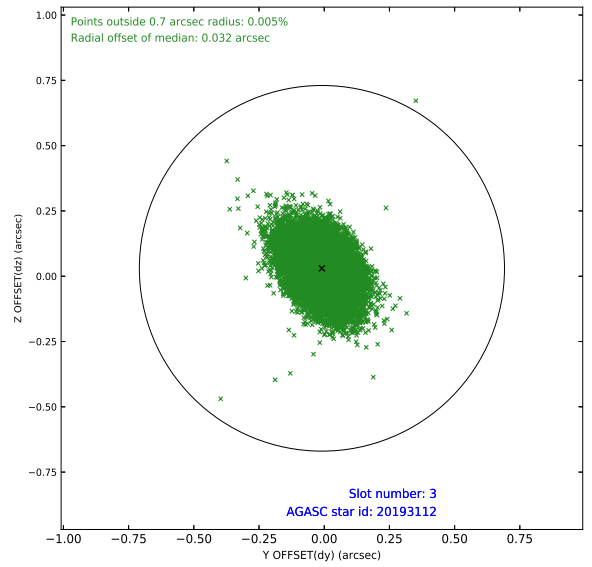
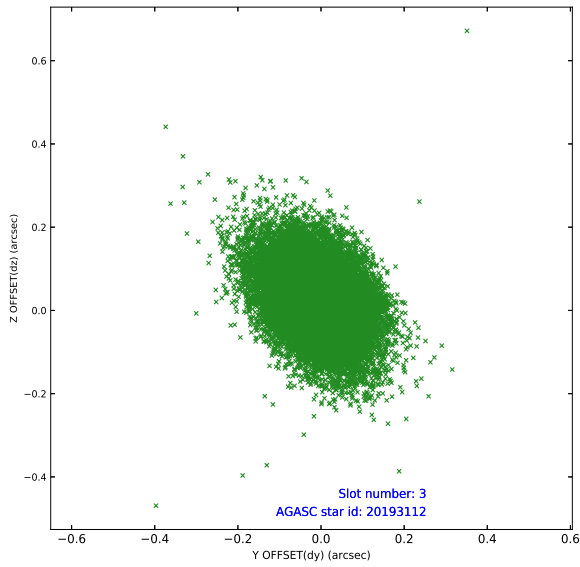
### Slot Statistics

slot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-I-1	7.22	10284	1.000	0.231	-0.172	0.013	0.026	0.000000	0.000000	921.10	-874
1	FID		ACIS-I-5	7.21	10286	1.000	-0.322	0.192	0.012	0.029	0.000000	0.000000	-1827.40	1023
2	FID		ACIS-I-6	7.22	10285	1.000	-0.002	0.050	0.015	0.034	0.000000	0.000000	386.61	1667
3	GUIDE	used	20193112	8.48	20564	1.000	-0.009	0.030	0.109	0.184	98.537870	5.430651	1591.45	695
4	GUIDE	used	20193464	7.20	20572	1.000	-0.076	0.027	0.093	0.161	98.229775	5.396674	1423.97	-402
5	GUIDE	used	20727600	6.74	20572	1.000	-0.150	0.205	0.114	0.198	97.637242	5.866998	-761.95	-2013
6	GUIDE	used	20192040	8.29	20566	1.000	0.396	-0.296	0.147	0.243	97.909981	5.026773	2413.46	-1855
7	GUIDE	used	20193288	7.09	20499	1.000	-0.164	0.035	0.128	0.215	98.869961	5.512572	1613.00	1921

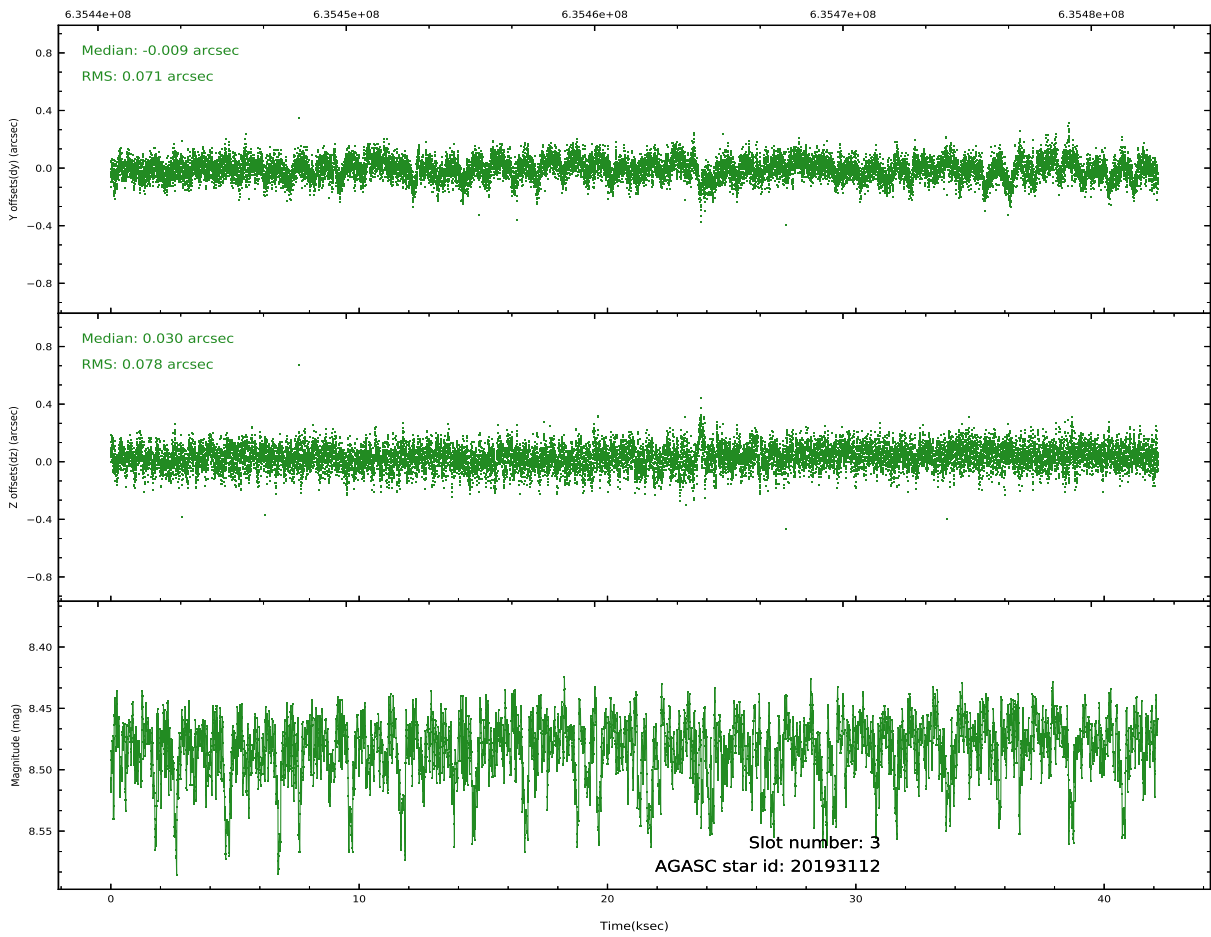
∞

## 2.4 Star Slots

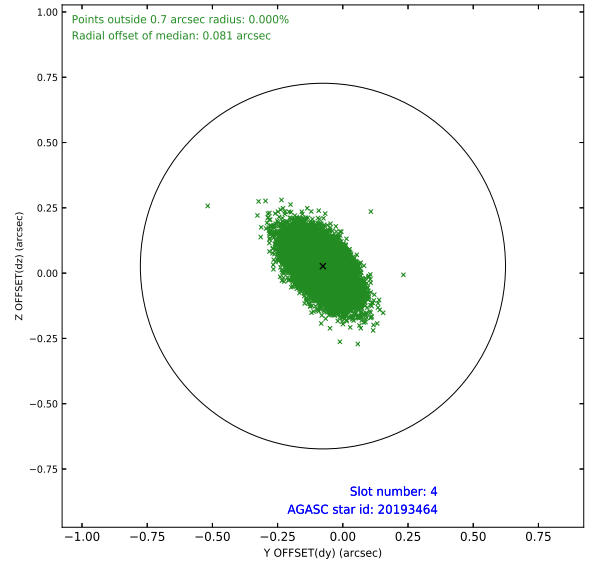
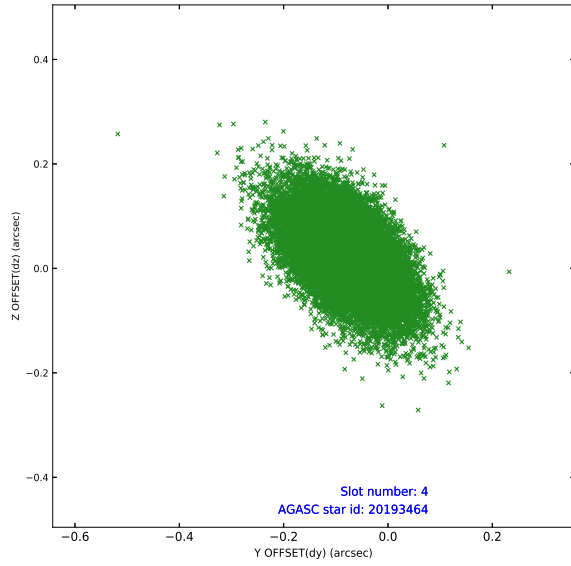
### 2.4.1 Slot 3



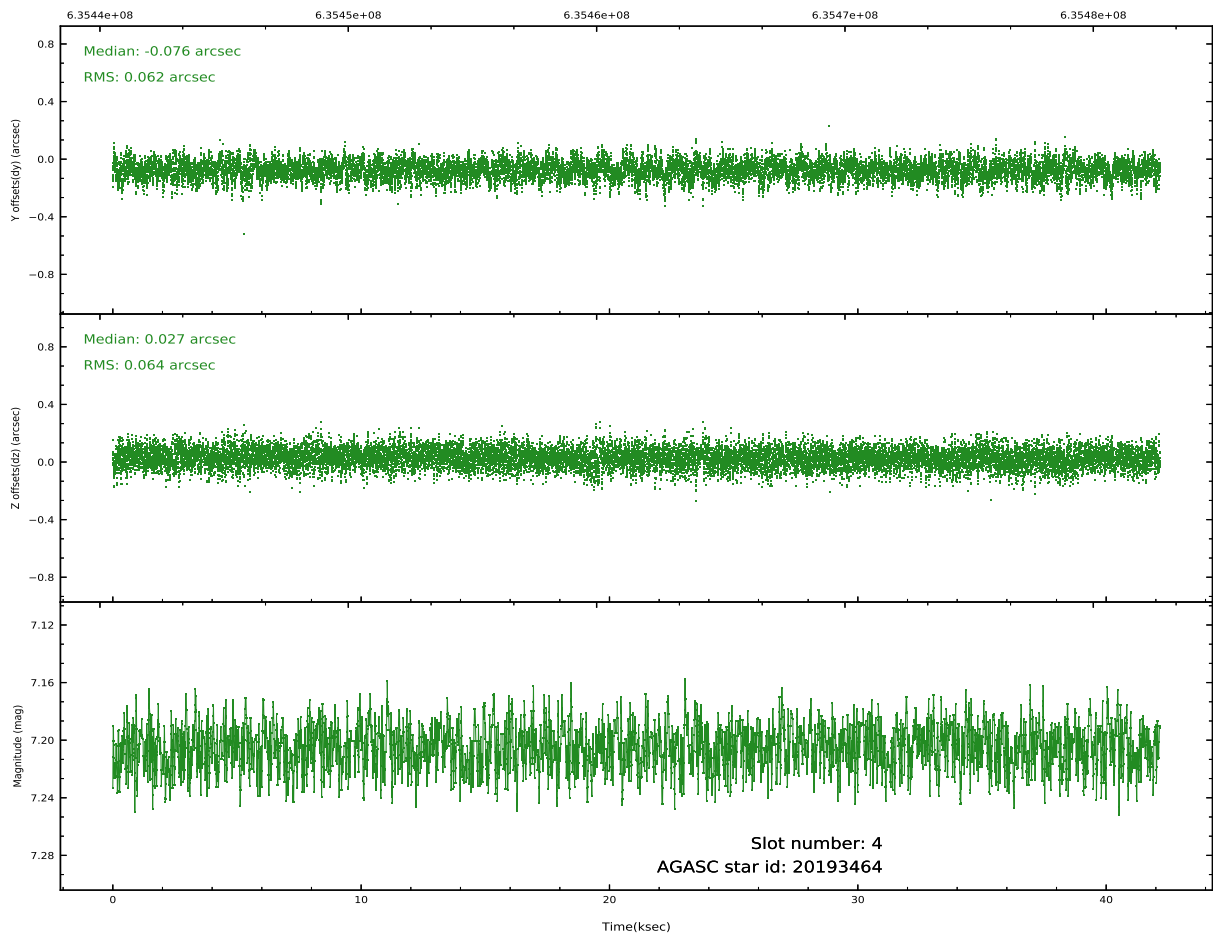
Time (s)



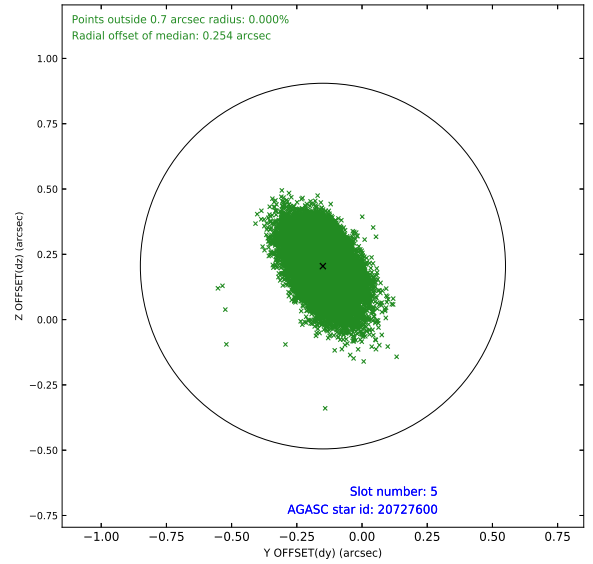
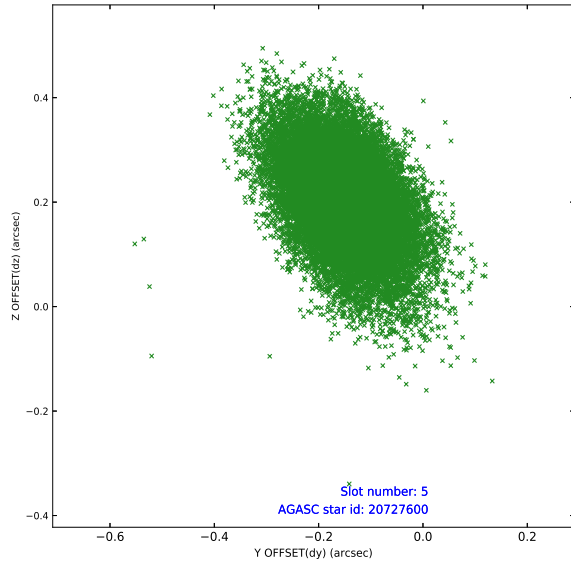
## 2.4.2 Slot 4



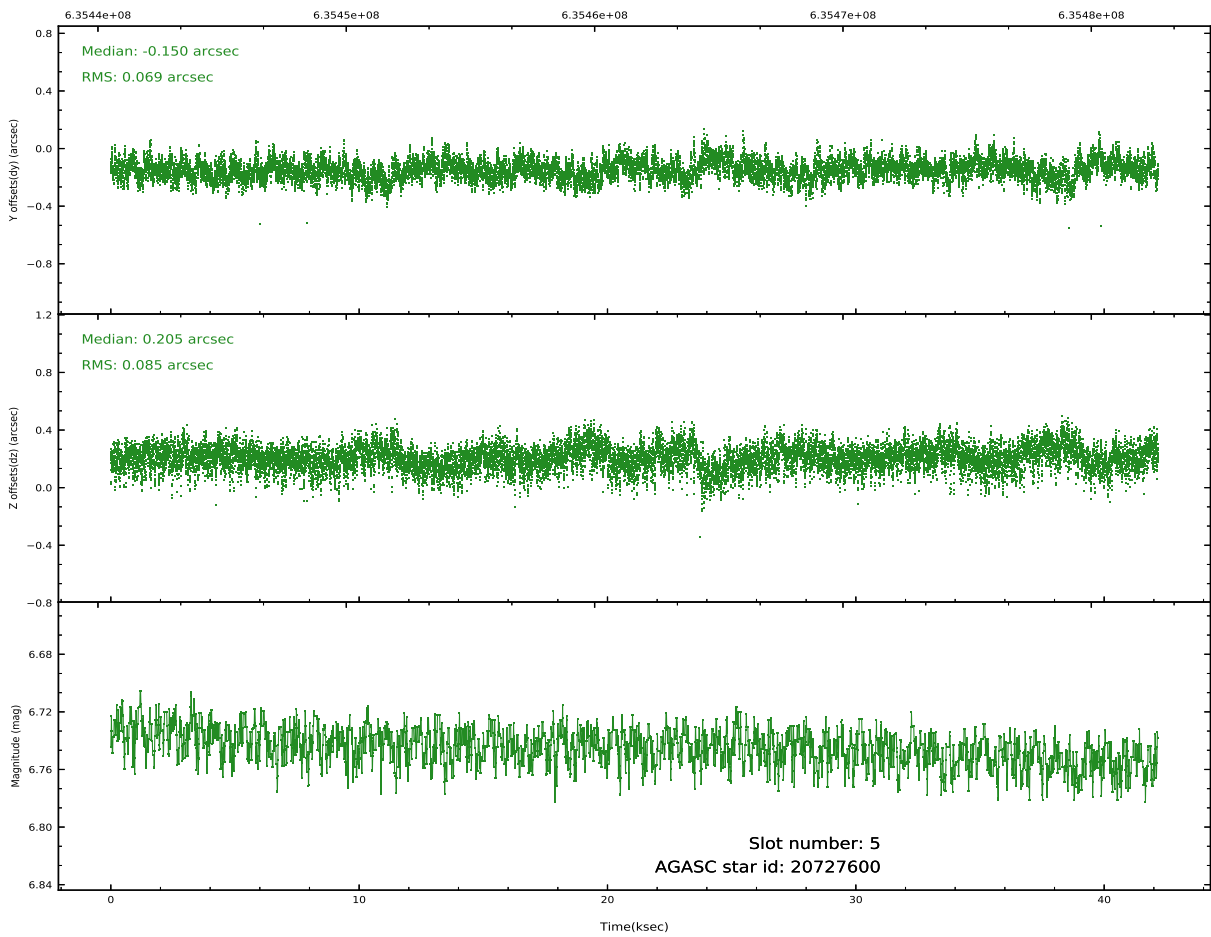
Time (s)



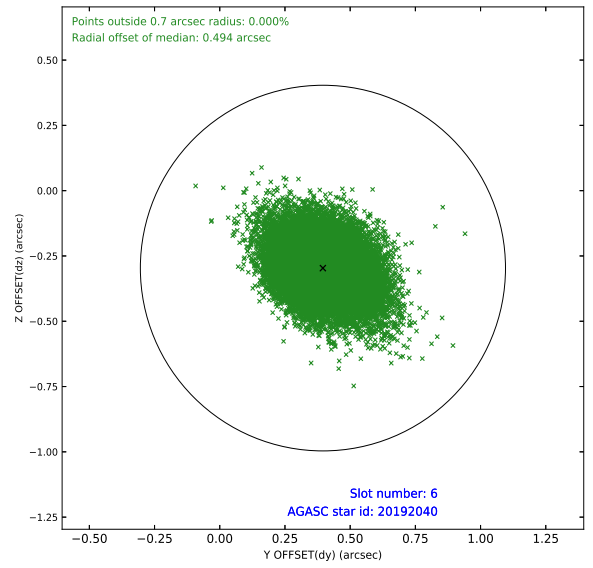
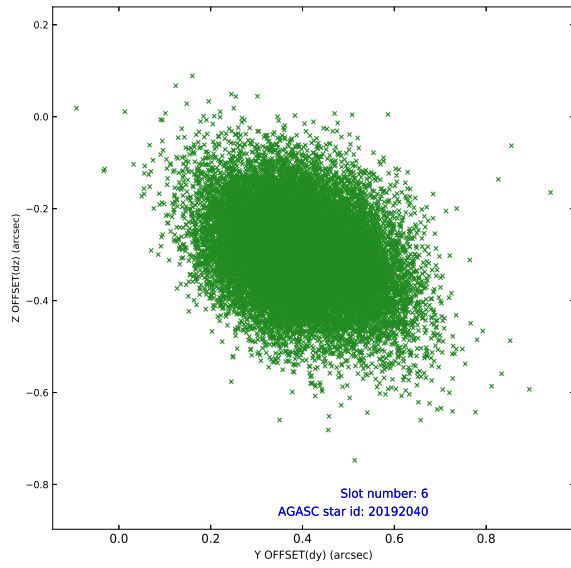
### 2.4.3 Slot 5



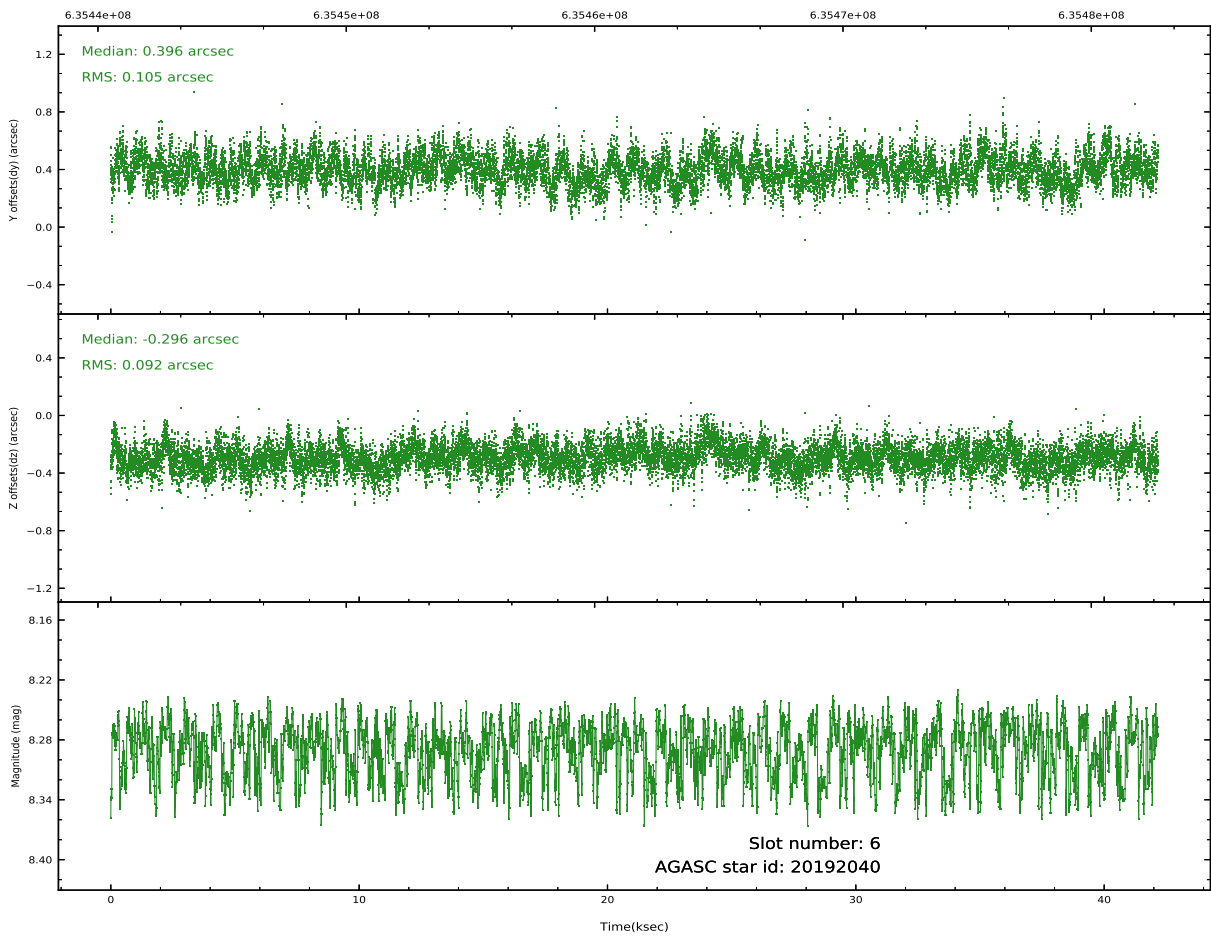
Time (s)



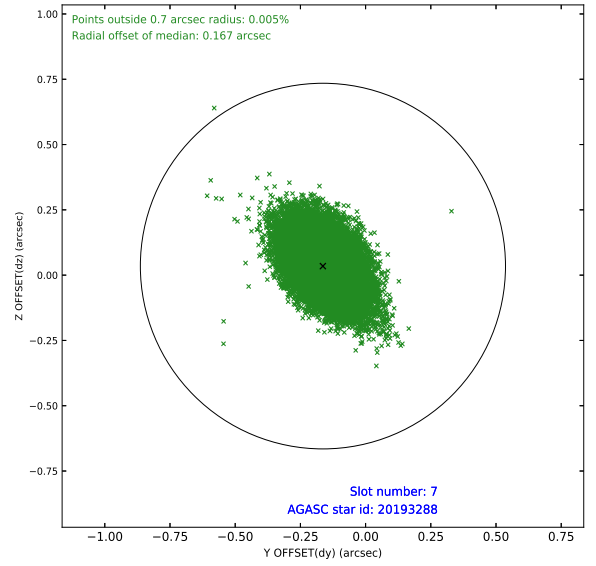
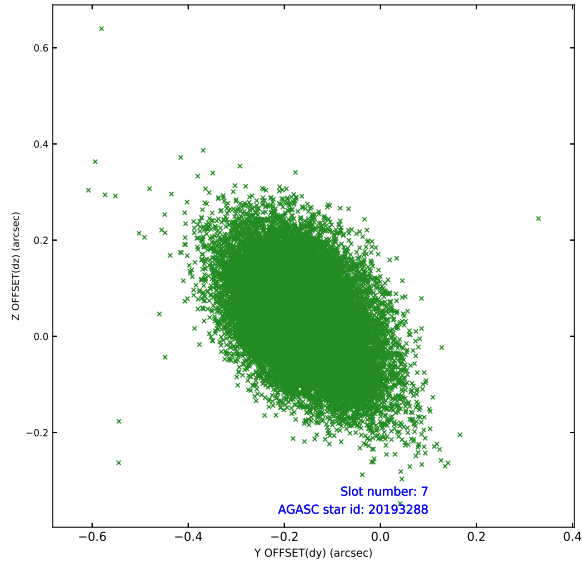
## 2.4.4 Slot 6



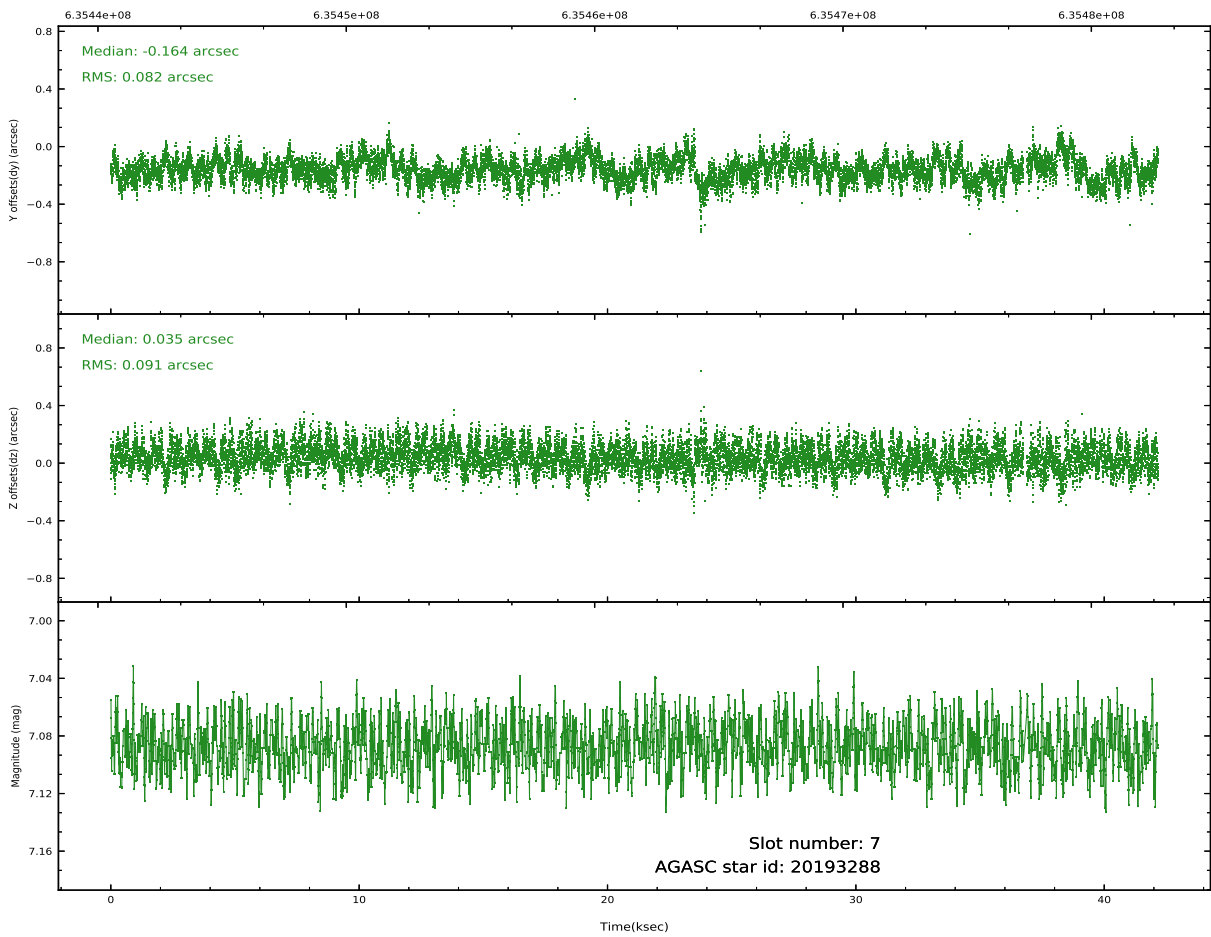
Time (s)



## 2.4.5 Slot 7

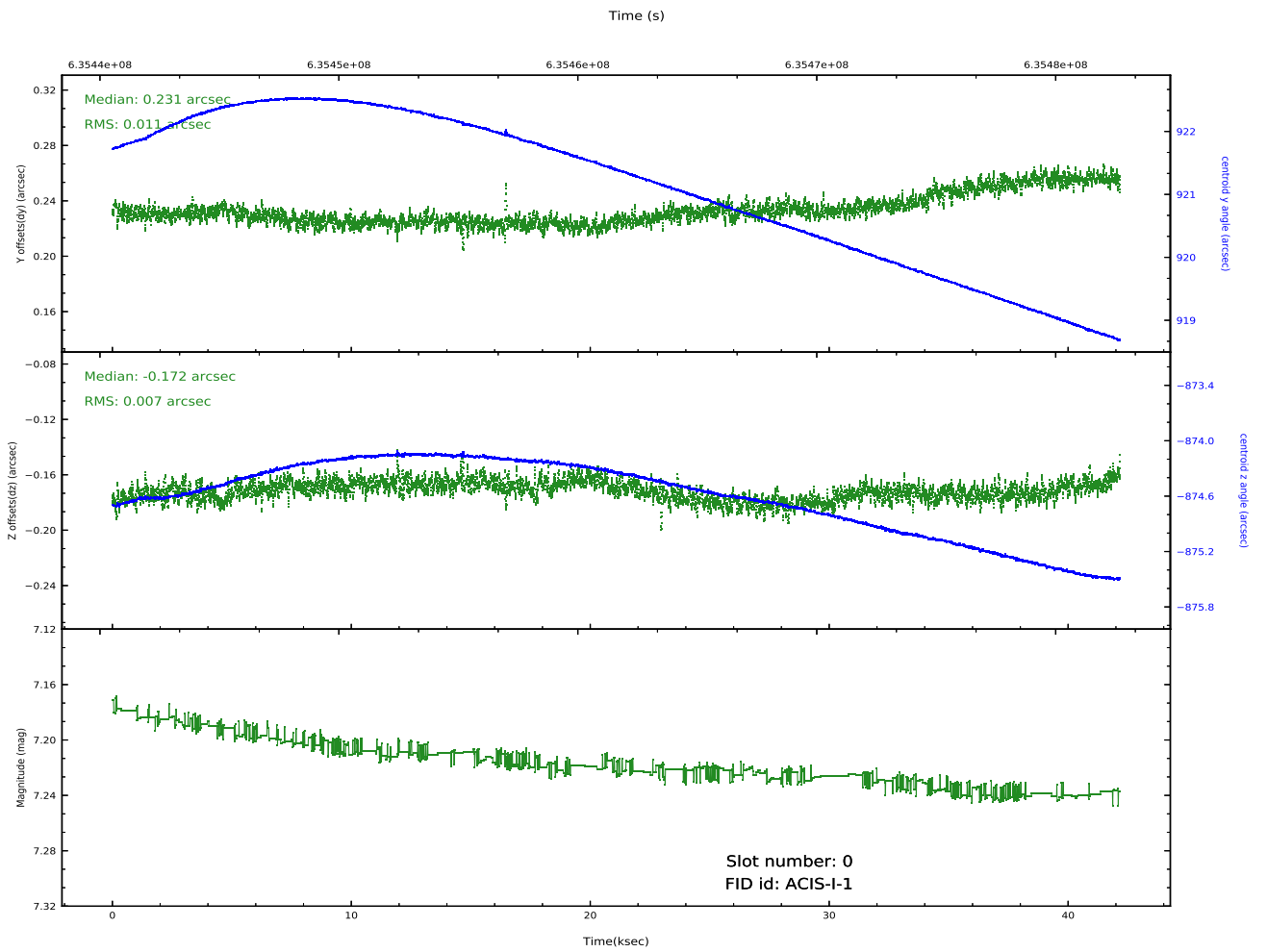
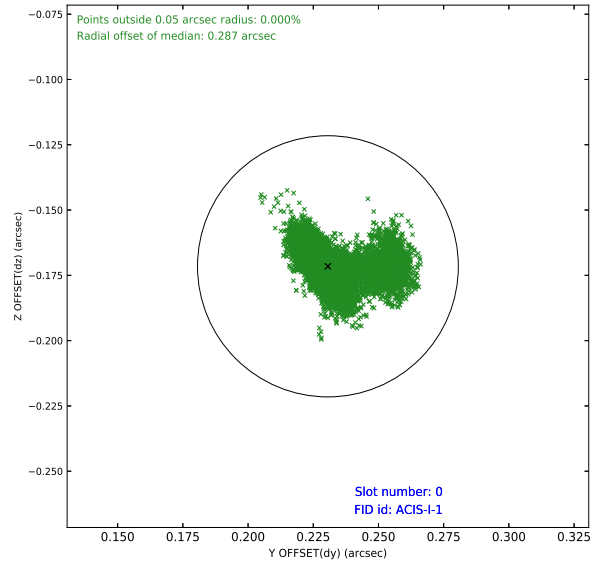
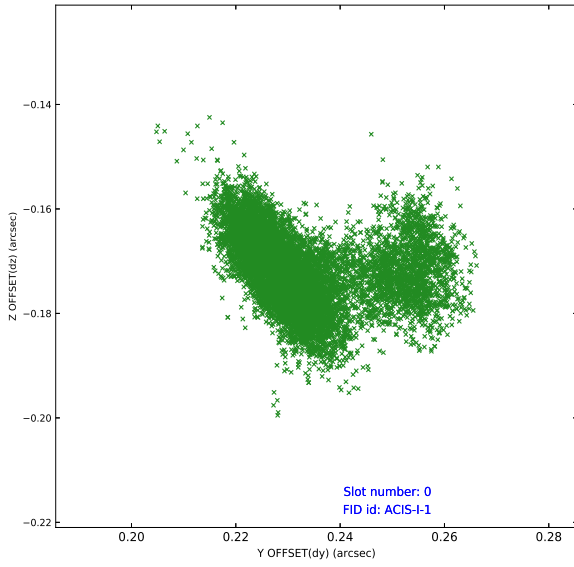


Time (s)

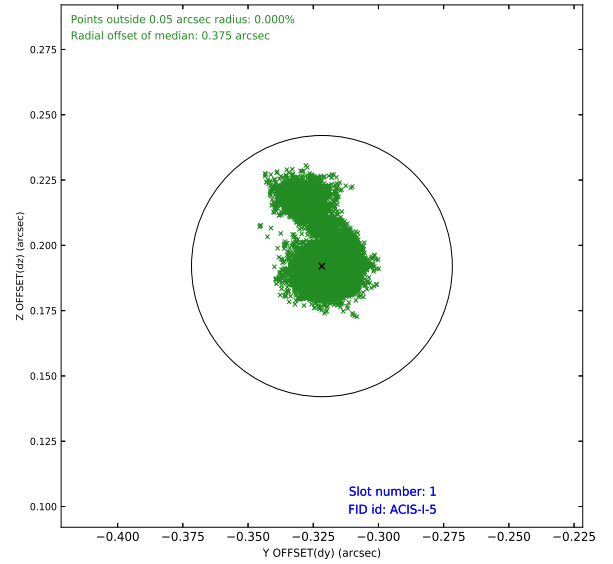
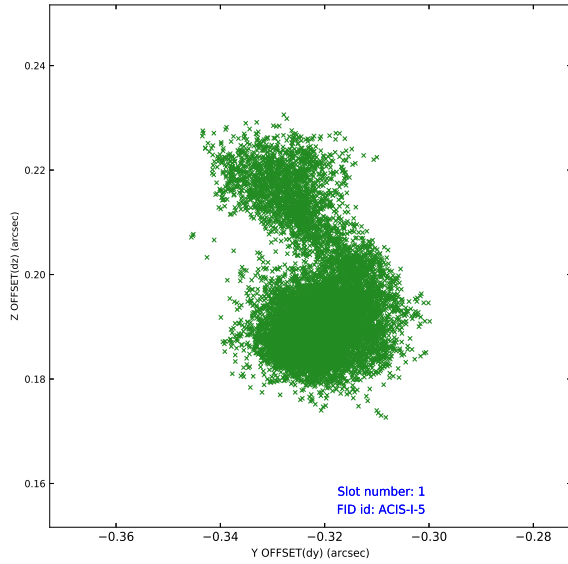


## 2.5 FID Slots

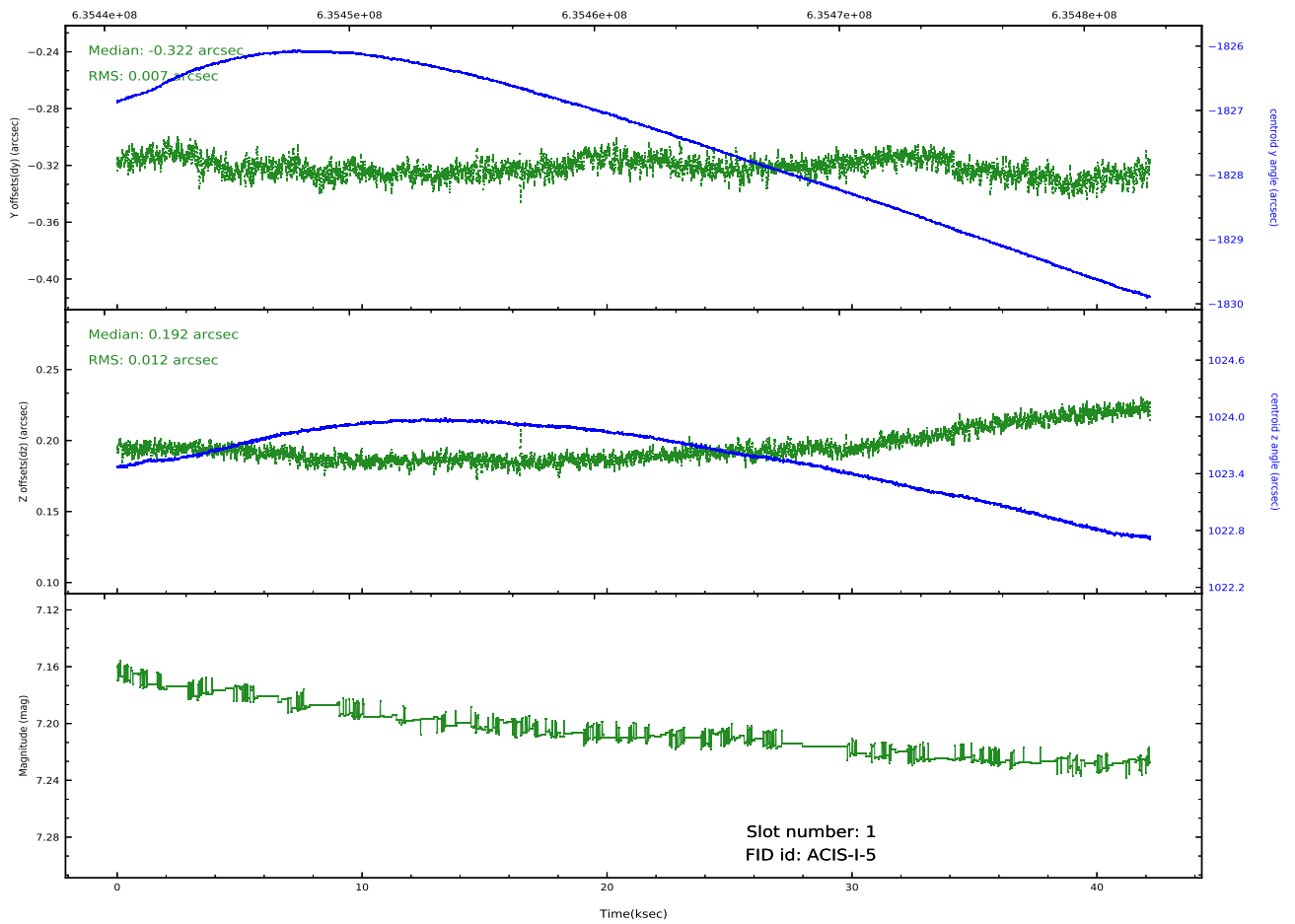
### 2.5.1 Slot 0



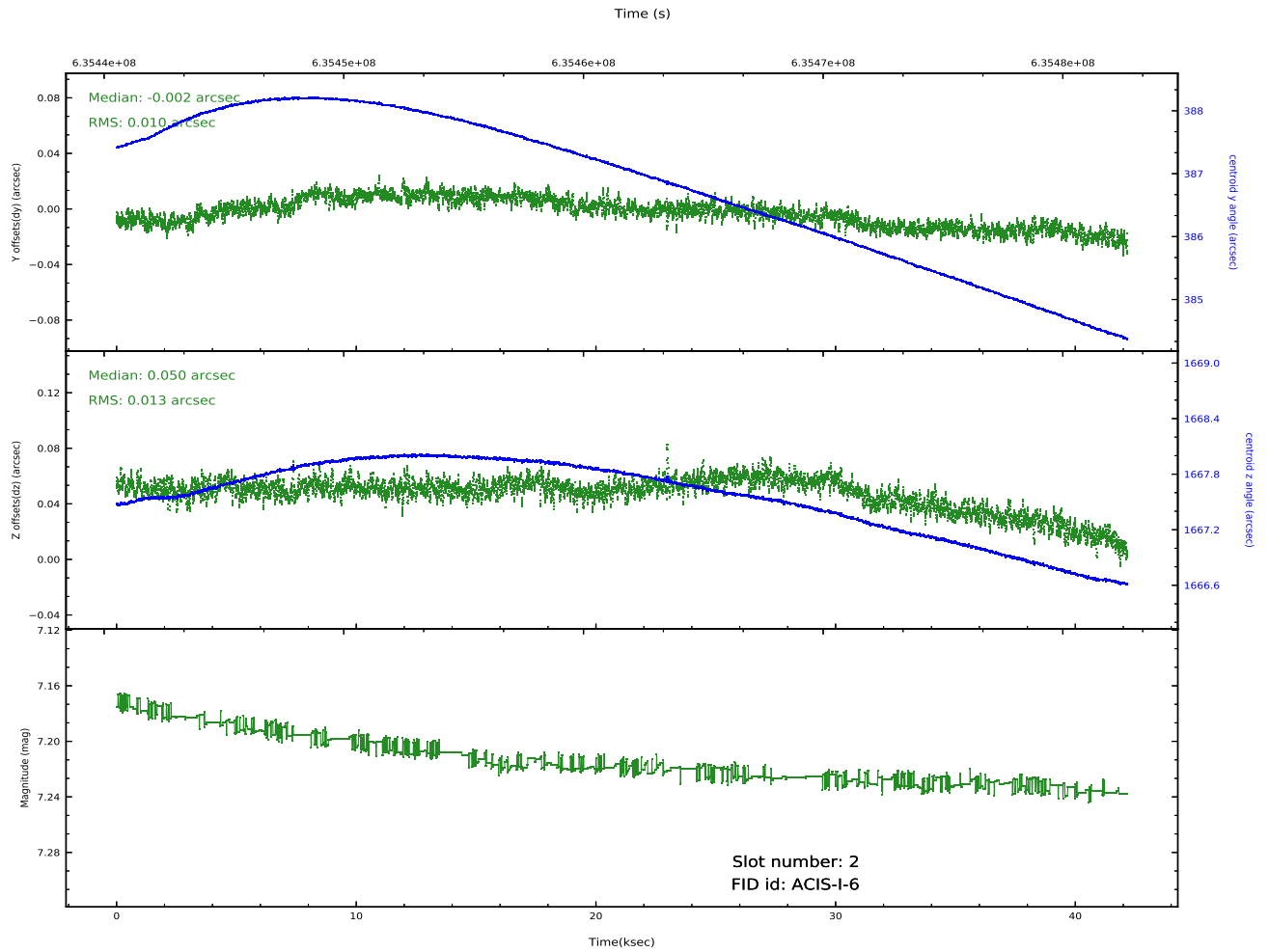
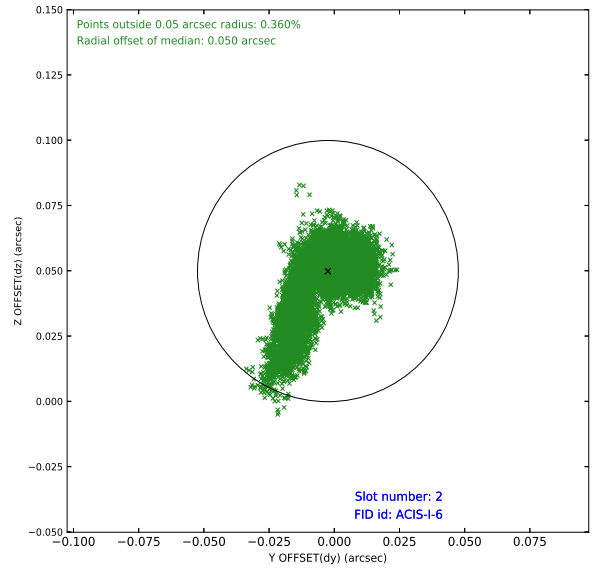
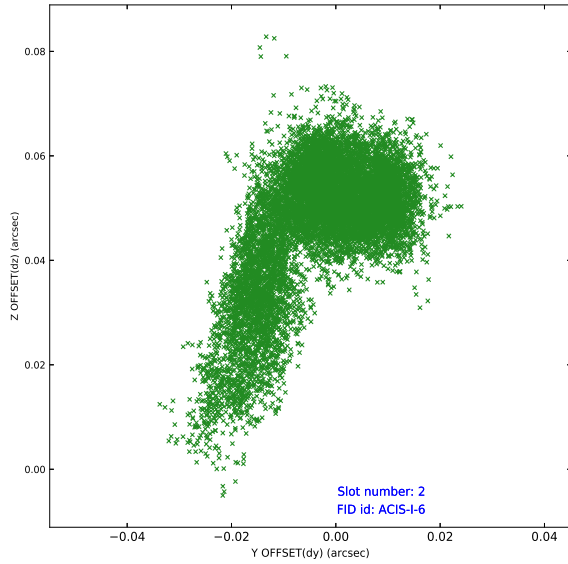
## 2.5.2 Slot 1



Time (s)



### 2.5.3 Slot 2



# A Summary

## A.1 Status

V&V Scientist	Beth Sundheim
V&V Date (YYYY-MM-DD)	2020.10.29
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	42.070018203497

## A.2 Comments

Window constraint was met.

===

Two optional chips were dropped.

===

A spatial region of the original bias map for CCD = 0 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 = 0 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: (98.13508,5.60929), (98.13759,5.60997), (98.12885,5.64194), (98.12645,5.64087).