

# V&V Reference Report

## L2 ASCDS Version : 10.8.4

Observation 23231 - L2 Version 1  
Chandra X-Ray Center

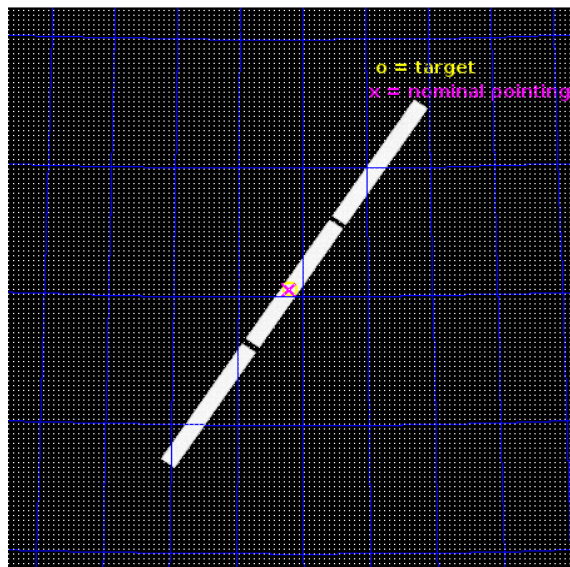
L2 Processing Date : Apr 29 2020

## 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	Parameters . . . . .	4
2.1.3	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>3</b>	<b>Gratings</b>	<b>16</b>
3.1	LETG Arm . . . . .	16
<b>A</b>	<b>Summary</b>	<b>18</b>
A.1	Status . . . . .	18
A.2	Comments . . . . .	18

# 1 Front

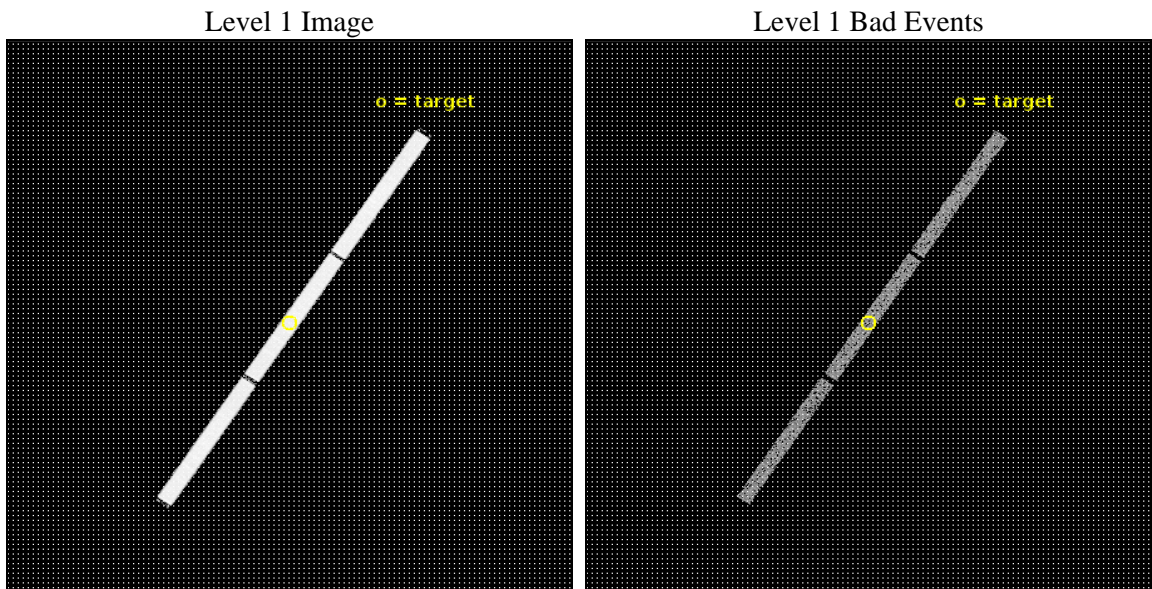
seq_num	100193	Sequence number
obs_id	23231	Observation id
title	Grating spectroscopy of the unexpectedly bright comet C/2019 Y4 ATLAS	Proposal title
observer	Dennis Bodewits	Principal investigator
object	C/2019 Y4 ATLAS	Source name
ra_targ	81.602976	Observer's specified target RA [deg]
dec_targ	61.028372	Observer's specified target Dec [deg]
ra_nom	81.6031991003	Nominal RA [deg]
dec_nom	61.0265546442	Nominal Dec [deg]
roll_nom	304.036081399	Nominal Roll [deg]
revision	1	Processing version of data
ontime	3494.4814623594	[s]
livetime	3456.0812703108	Ontime multiplied by DTCOR
l2events	356272	Number of level 2 events



## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	3300.000000	[s] Scheduled observation exposure time
ascdsver	10.8.4	Processing system revision	ontime	3494.4814623594	[s]
caldsver	4.9.1	&#160	l1events	470554	Number of level 1 events
date	2020-04-29T11:01:46	Date and time of file creation	tgmethod	USER	Method used to create src1a file
revision	1	Processing version of data	zo_pos	(32771.64, 32818.35)	src1a sky pixel position

### 2.1.3 Events

Level 1 Events

	<b>segment 1</b>	<b>segment 2</b>	<b>segment 3</b>
level 1 events	159101	155302	156151
rejected events	13597	13050	12901
rejected %	8%	8%	8%

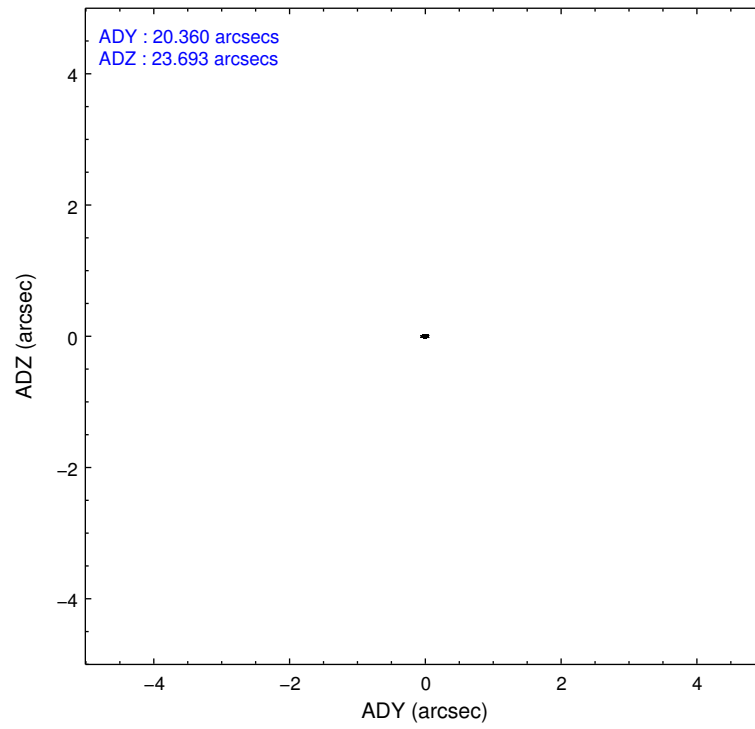
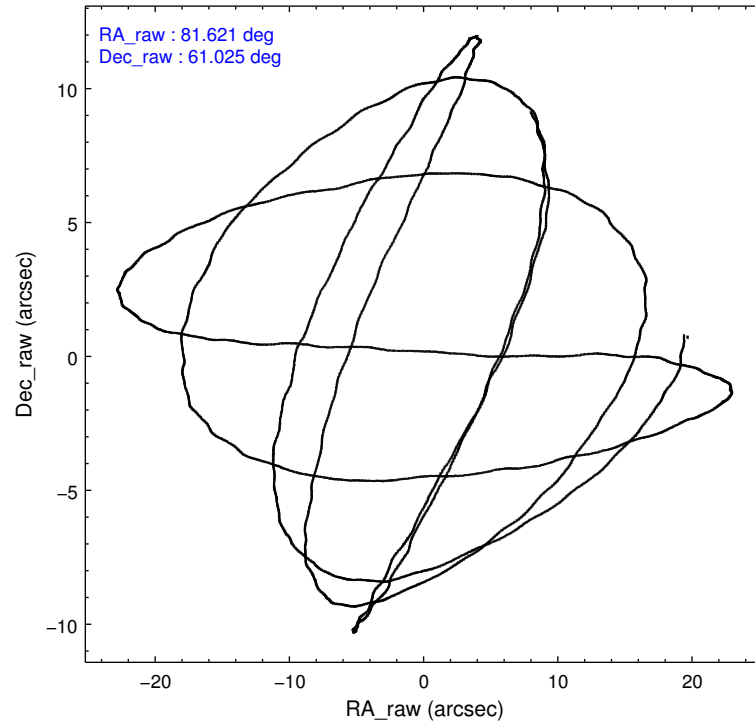


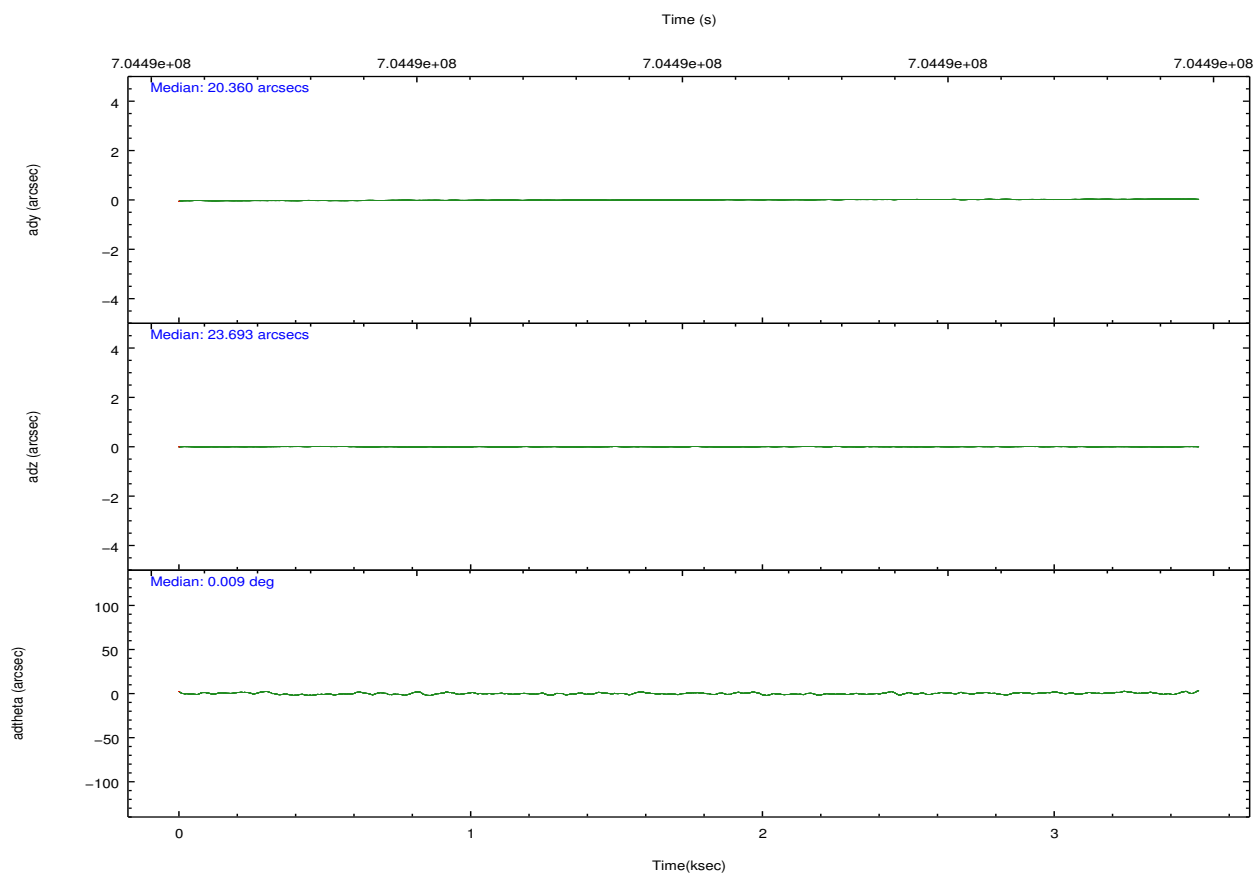
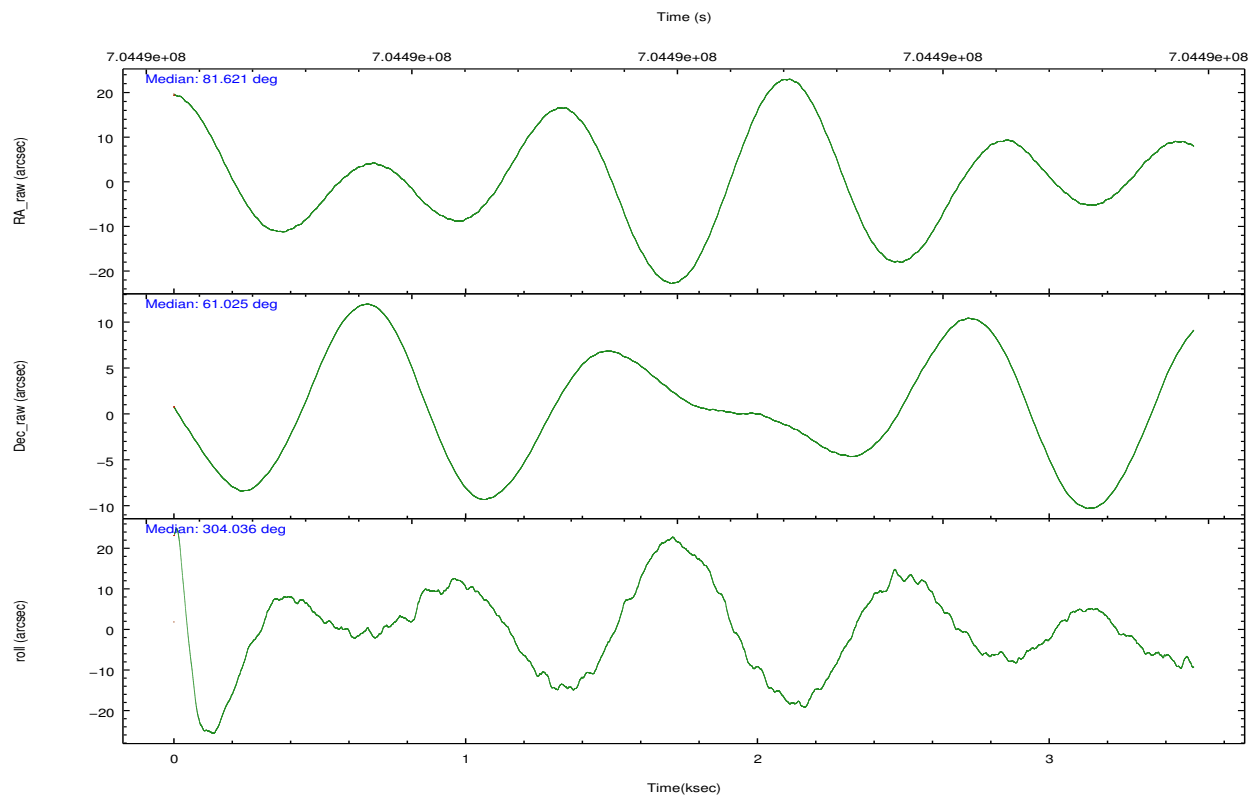
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	HRC	HRC
Detector	HRC-S	HRC-S
Grating	LETG	LETG
Data mode	OBSERVING	OBSERVING
Observation mode	POINTING	POINTING
[deg] Pointing RA	81.566973	81.6031991003
[deg] Pointing Dec	61.036864	61.0265546442
[deg] Pointing Roll	304.031497	304.036081399
[mm] SIM focus pos	-1.429586	-1.428180813131781
[mm] SIM defocus	0.1037507710433287	0.1051558262725154
[mm] SIM translation stage pos	251.395976	251.3913011111175
[mm] SIM translation stage offset	-0.9399999999999999	-0.9353227176203518
[s] Observation start time (MET)	704487446.184000	704487070.4398299
Observation start date	2020-04-28T18:56:17	2020-04-28T18:51:10
[s] Observation end time (MET)	704490746.184000	704490880.36506
Observation end date	2020-04-28T19:51:17	2020-04-28T19:54:40

Parameter	Planned	Actual
Obspar version number	8	8
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED

## 2.3 Aspect



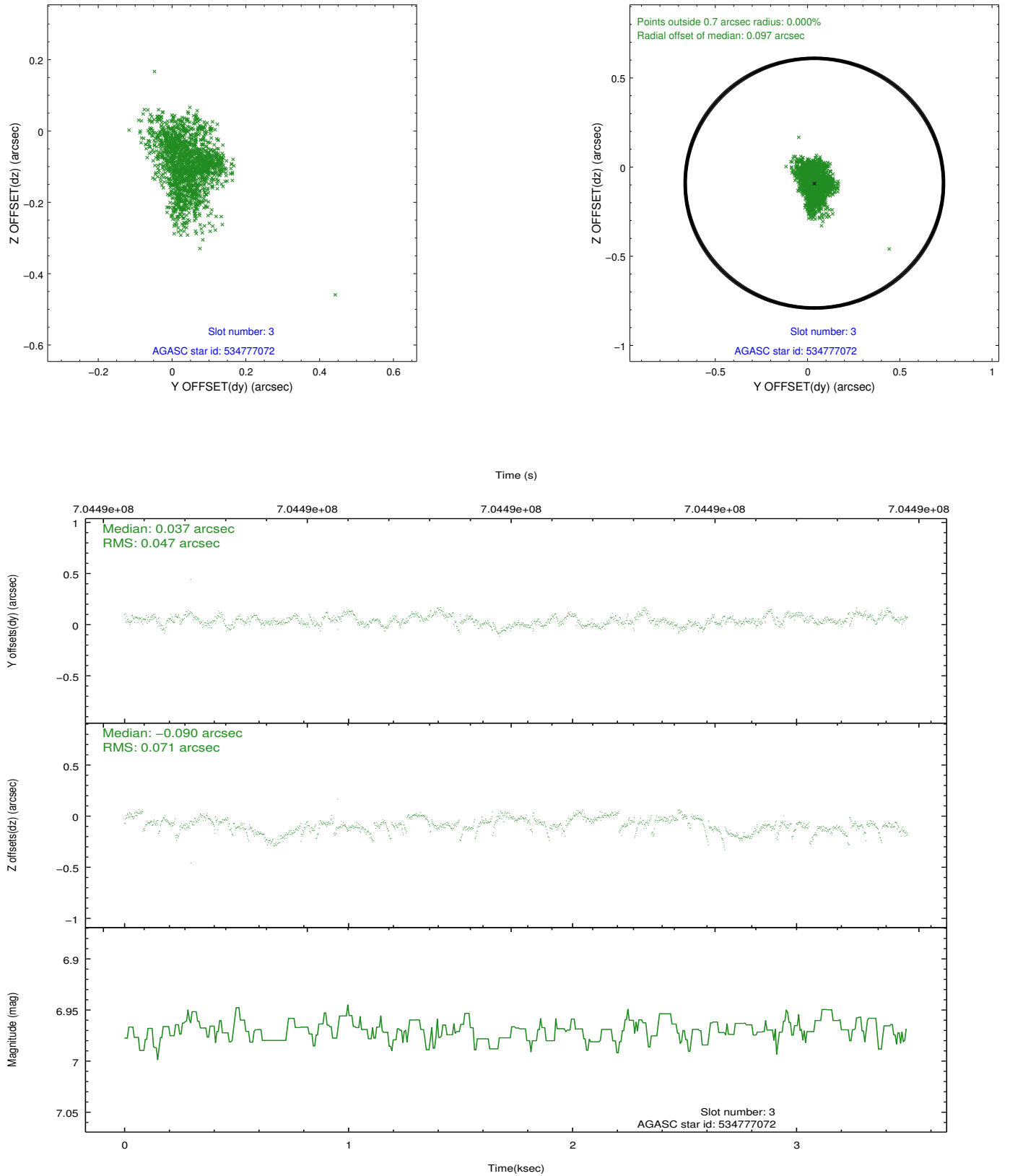


Slot Statistics

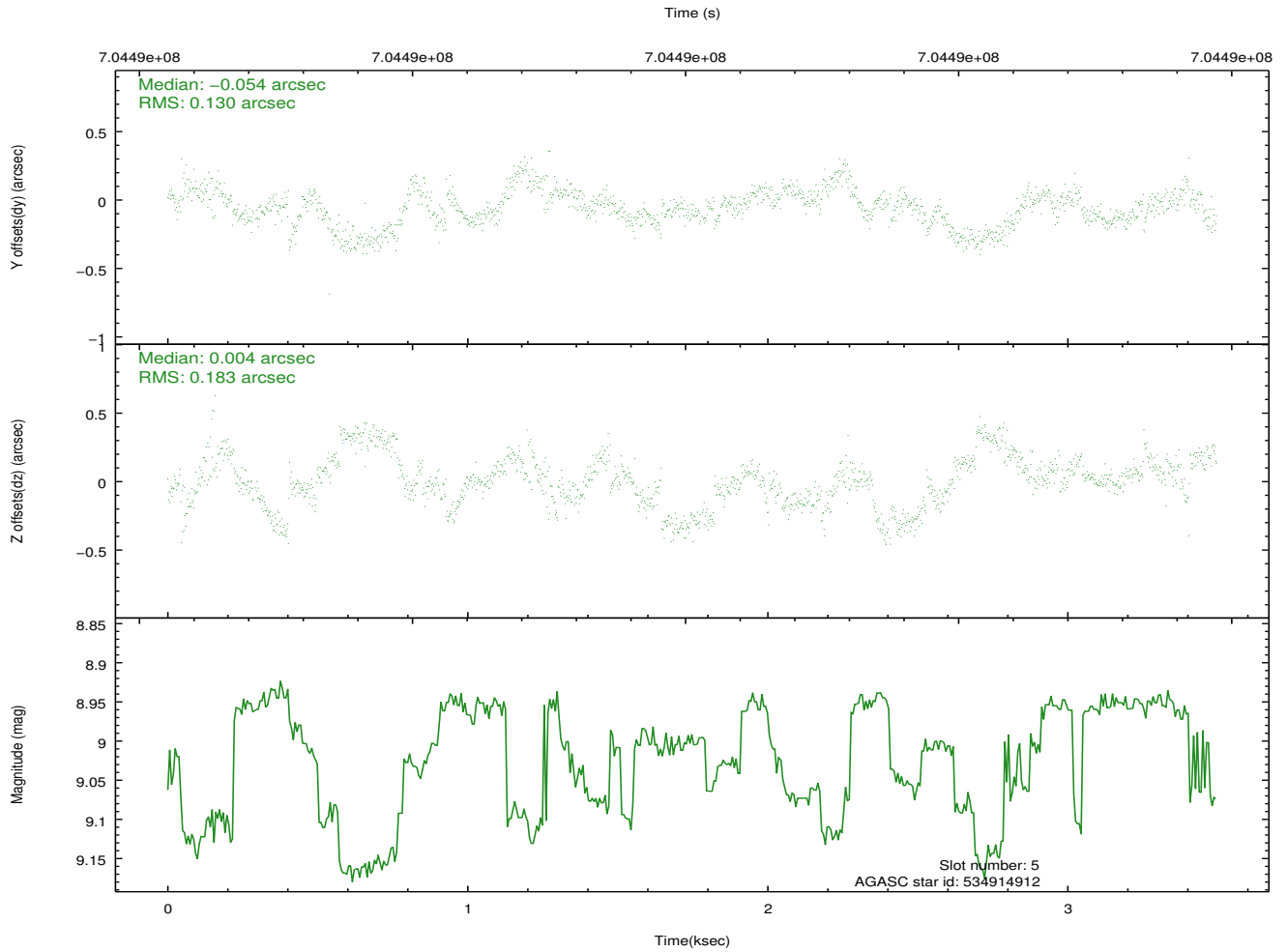
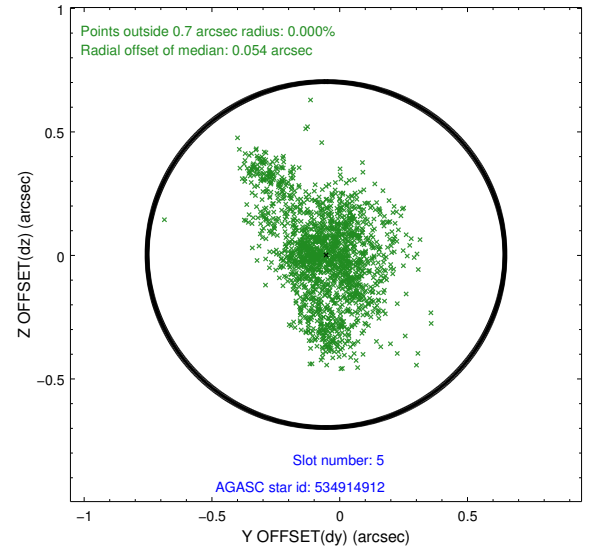
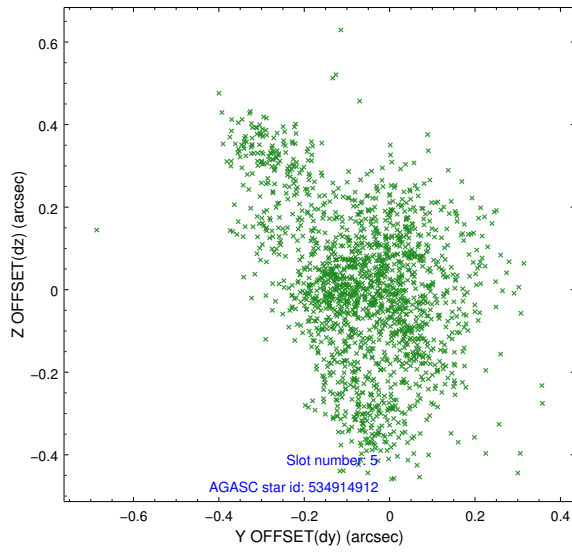
pt	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		HRC-S-1	7.08	852	1.000	0.045	-0.073	0.005	0.010	0.000000	0.000000	-1174.96	-491
1	FID		HRC-S-2	7.06	853	1.000	0.292	-0.219	0.010	0.015	0.000000	0.000000	1223.59	-485
2	FID		HRC-S-4	7.06	853	1.000	0.066	-0.012	0.009	0.014	0.000000	0.000000	1224.97	539
3	GUIDE	used	534777072	6.97	1705	1.000	0.037	-0.090	0.090	0.146	80.934101	60.721041	315.20	-1556
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	534914912	9.01	1697	1.000	-0.054	0.004	0.237	0.411	81.829238	61.781311	-1971.61	1869
6	GUIDE	used	534916944	8.91	1706	1.000	-0.183	0.158	0.163	0.255	81.479781	61.783099	-2308.55	1385
7	GUIDE	used	534922520	8.39	1705	1.000	0.204	-0.063	0.121	0.197	81.531321	61.241488	-640.48	360

## 2.4 Star Slots

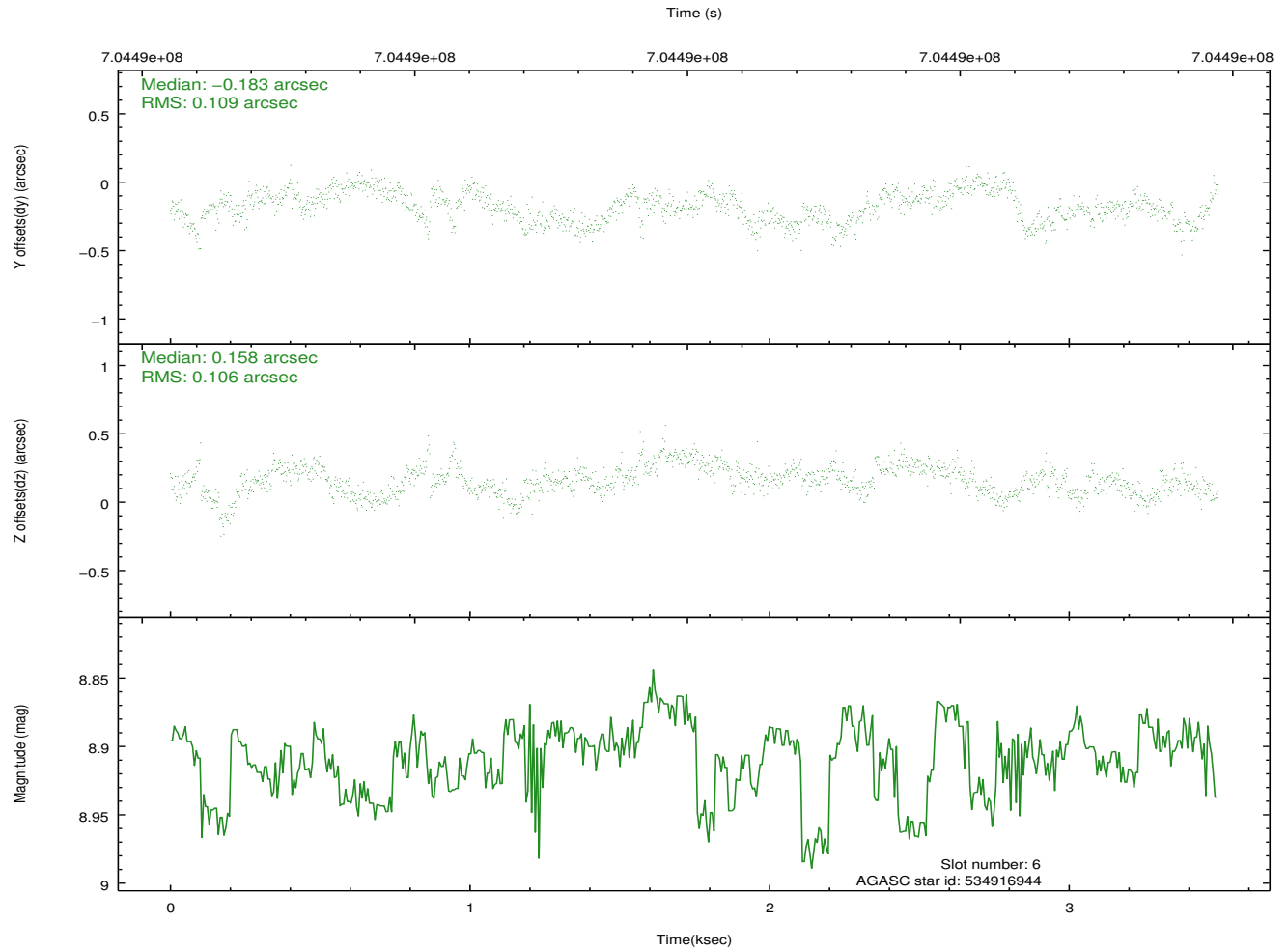
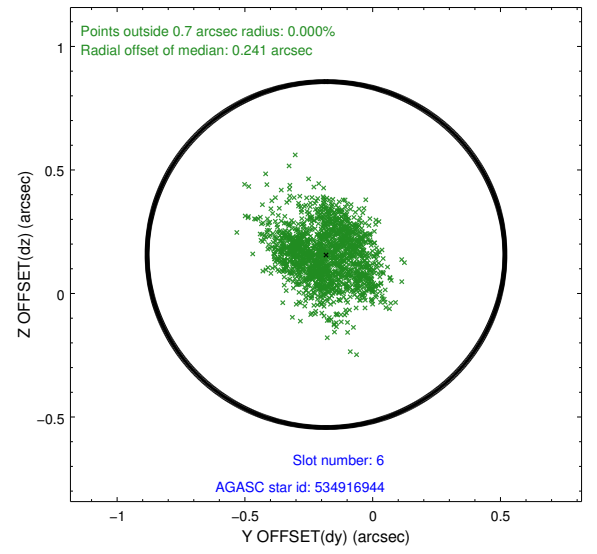
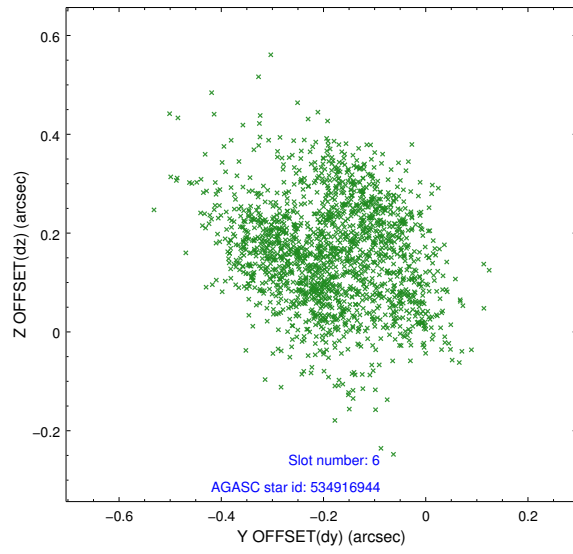
### 2.4.1 Slot 3



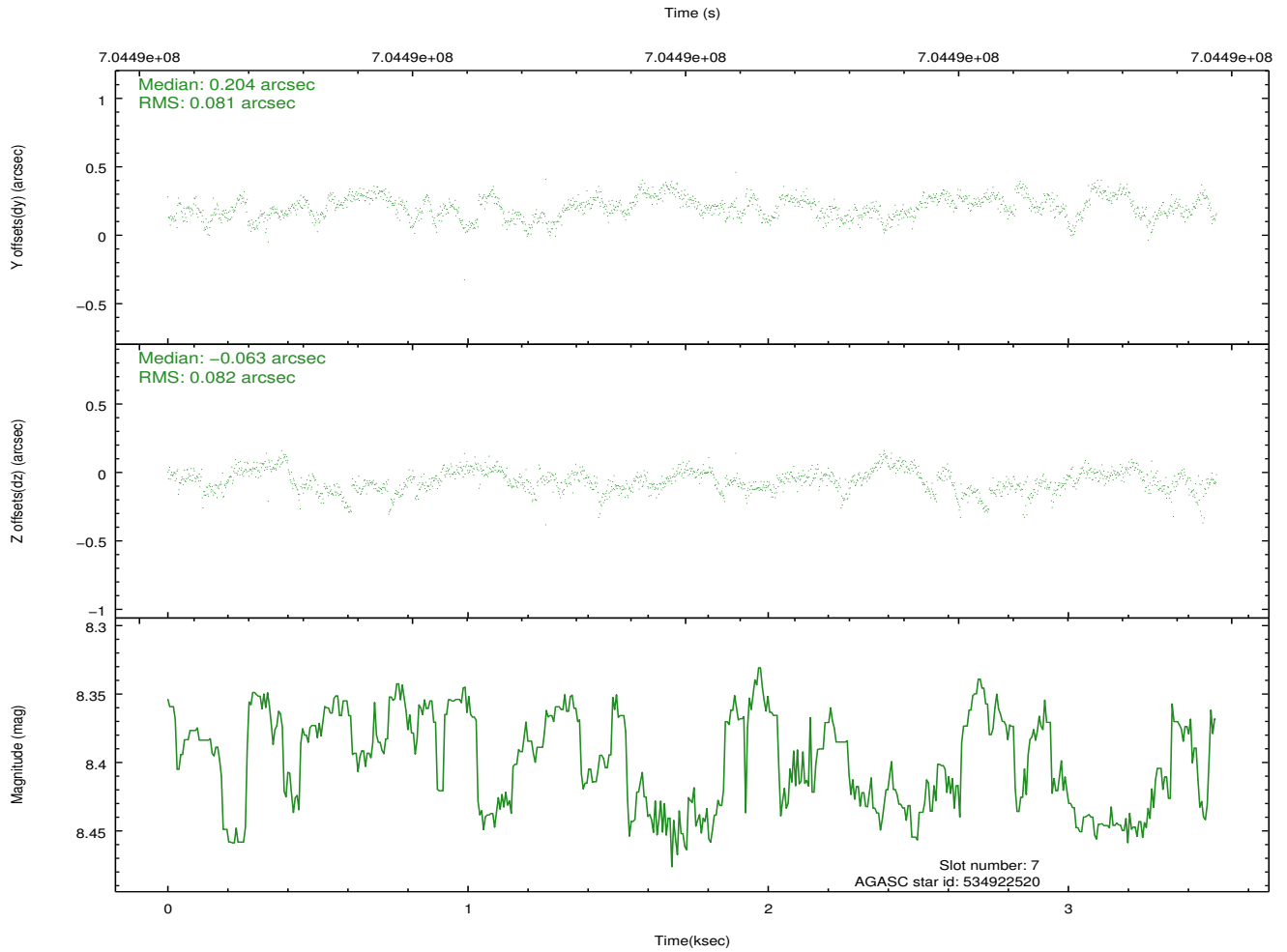
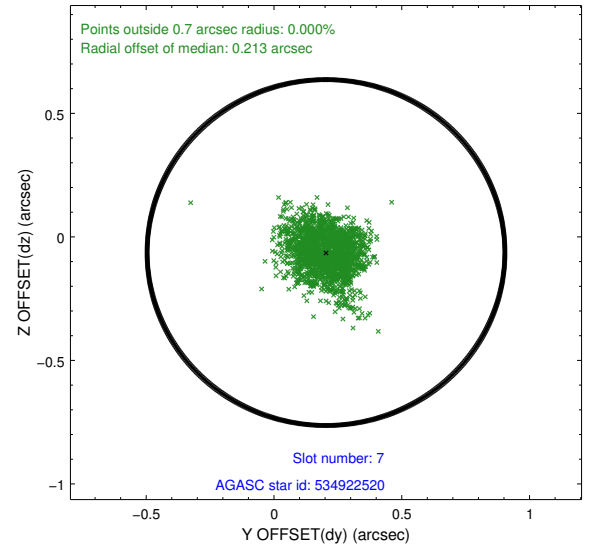
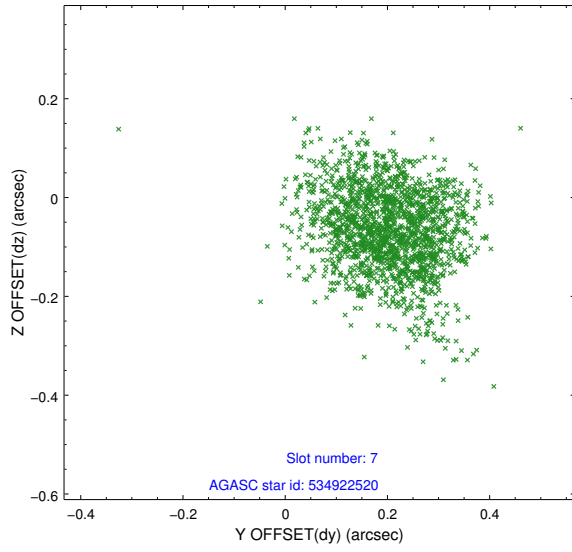
## 2.4.2 Slot 5



### 2.4.3 Slot 6



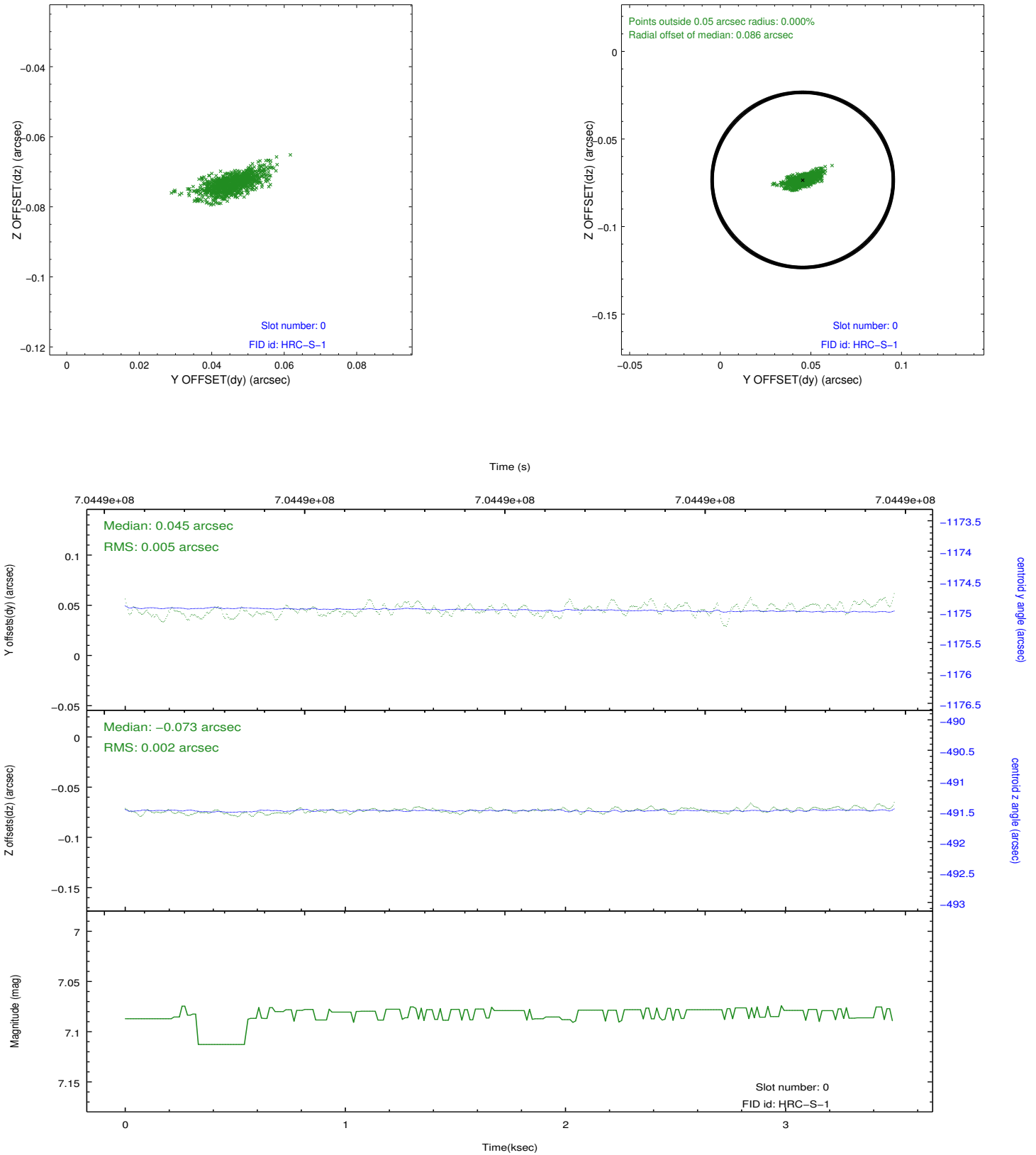
## 2.4.4 Slot 7



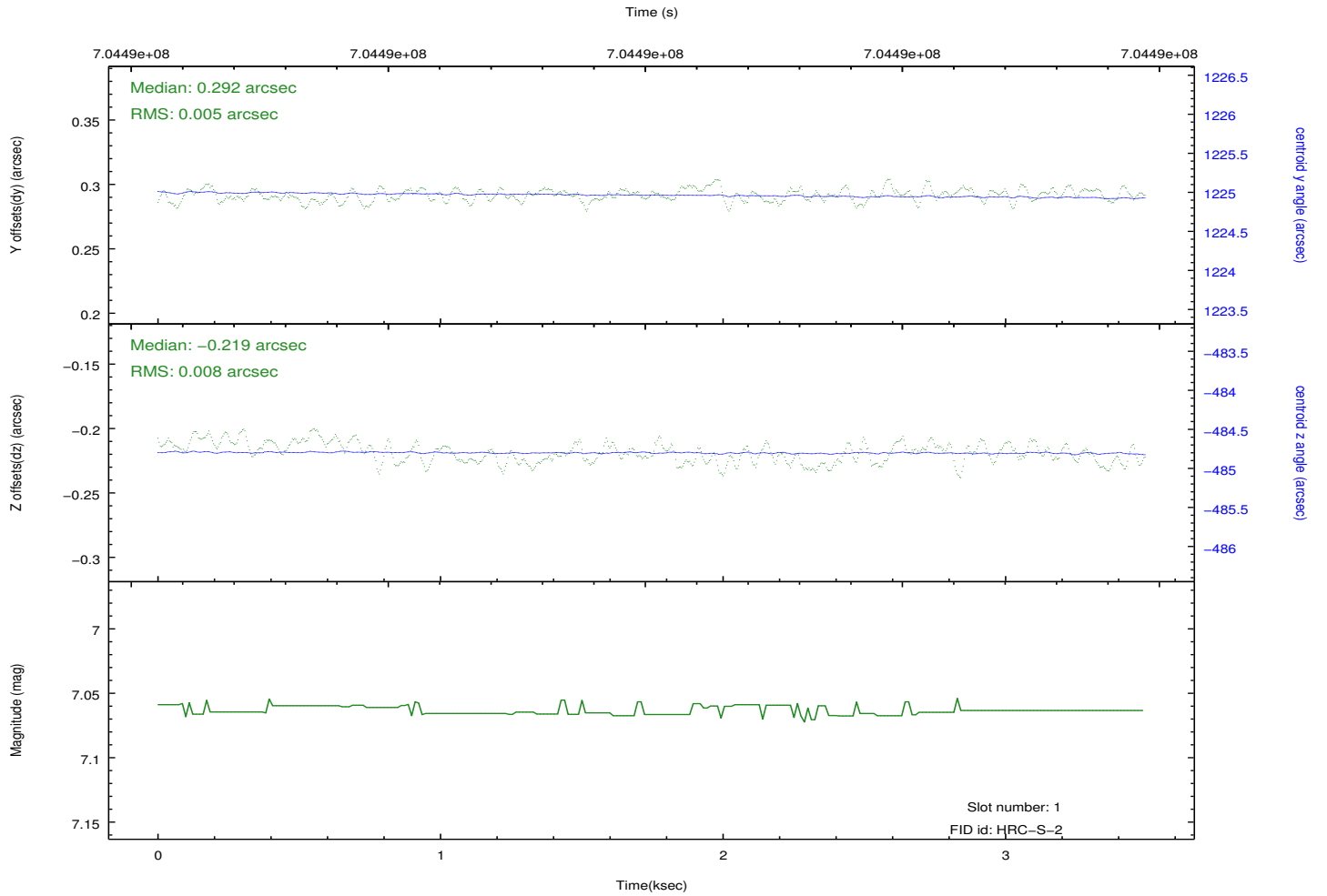
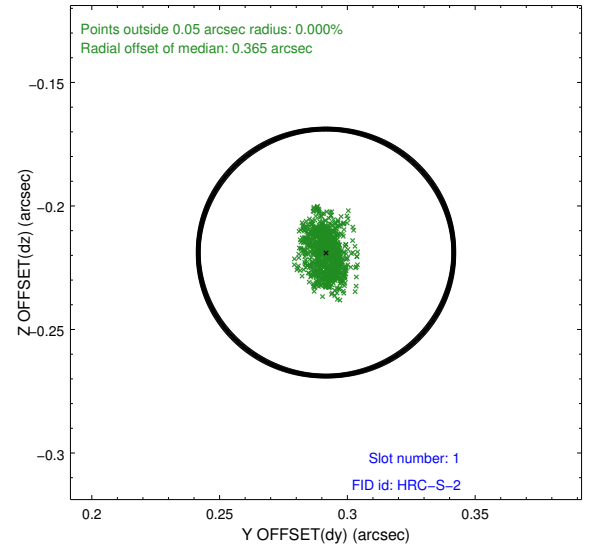
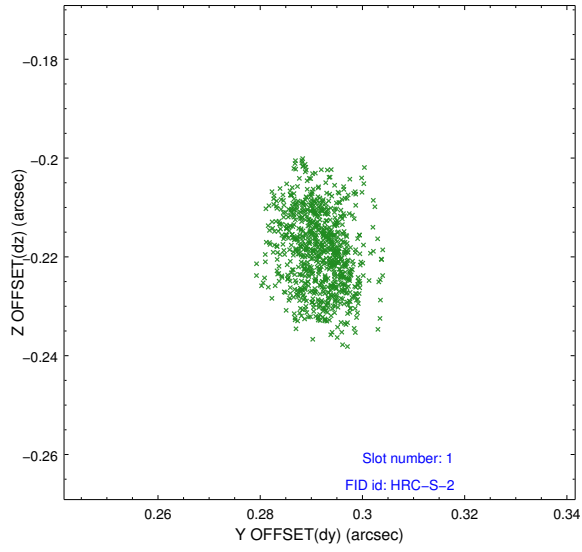


## 2.5 FID Slots

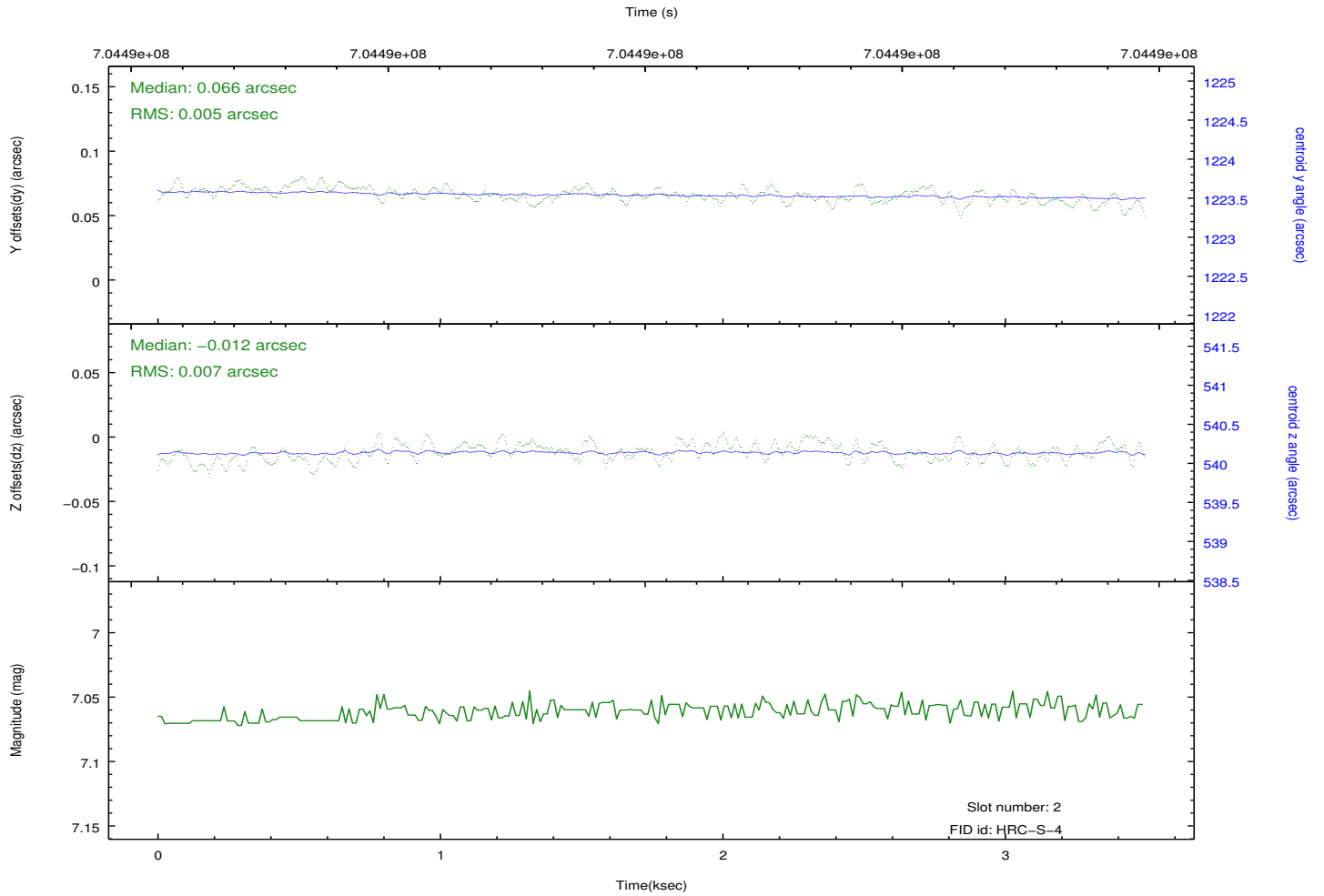
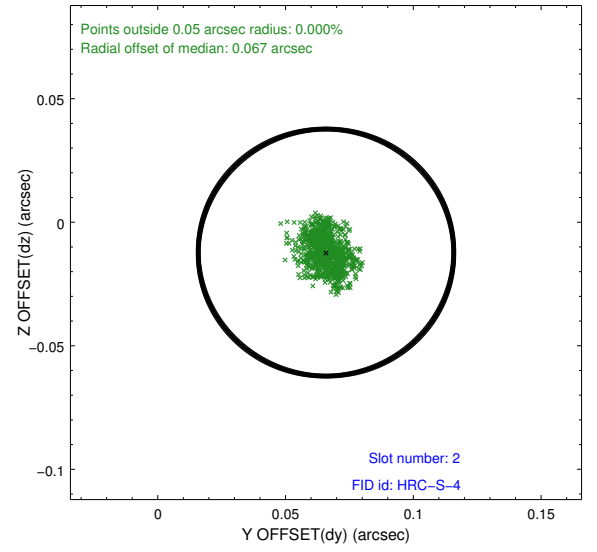
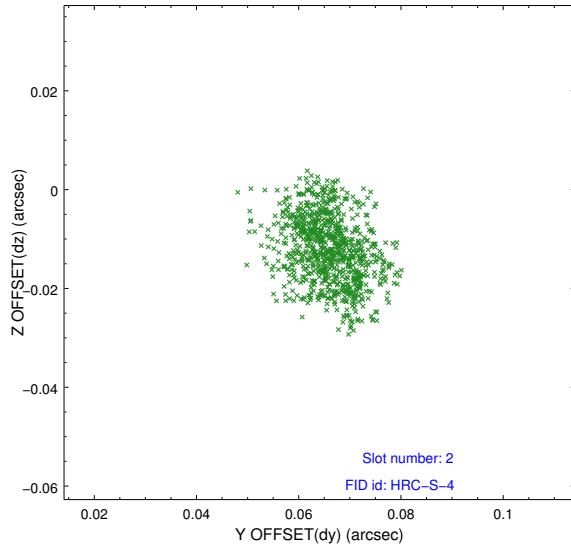
### 2.5.1 Slot 0



## 2.5.2 Slot 1

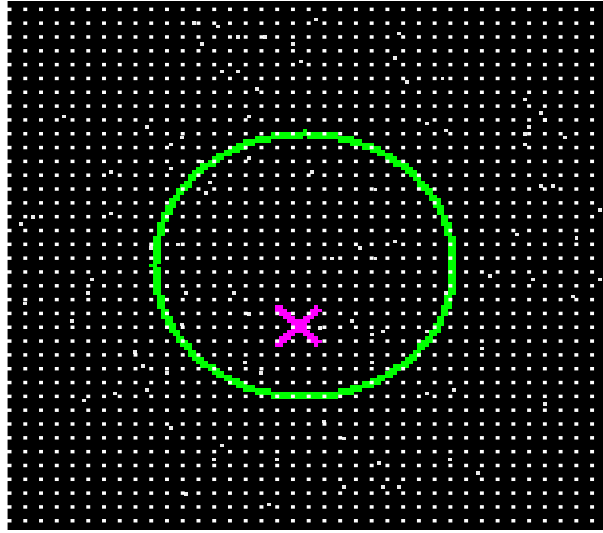


### 2.5.3 Slot 2

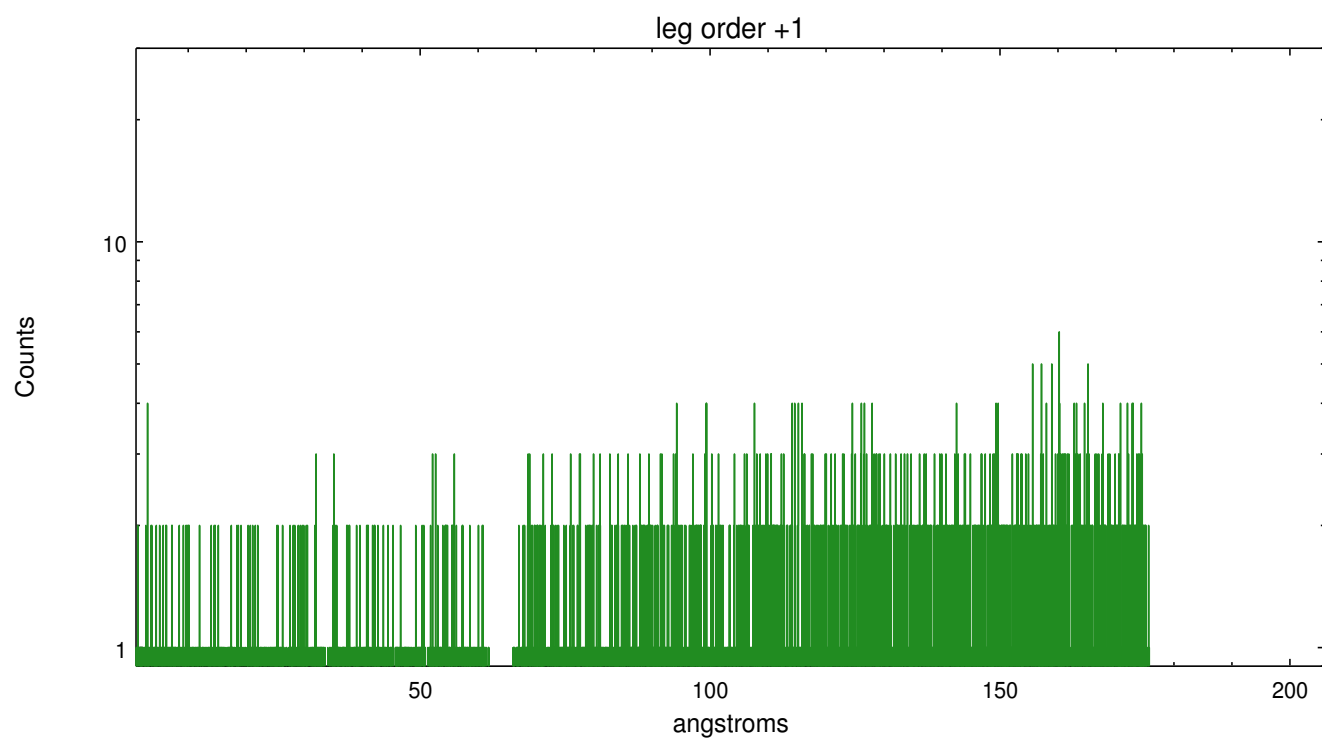
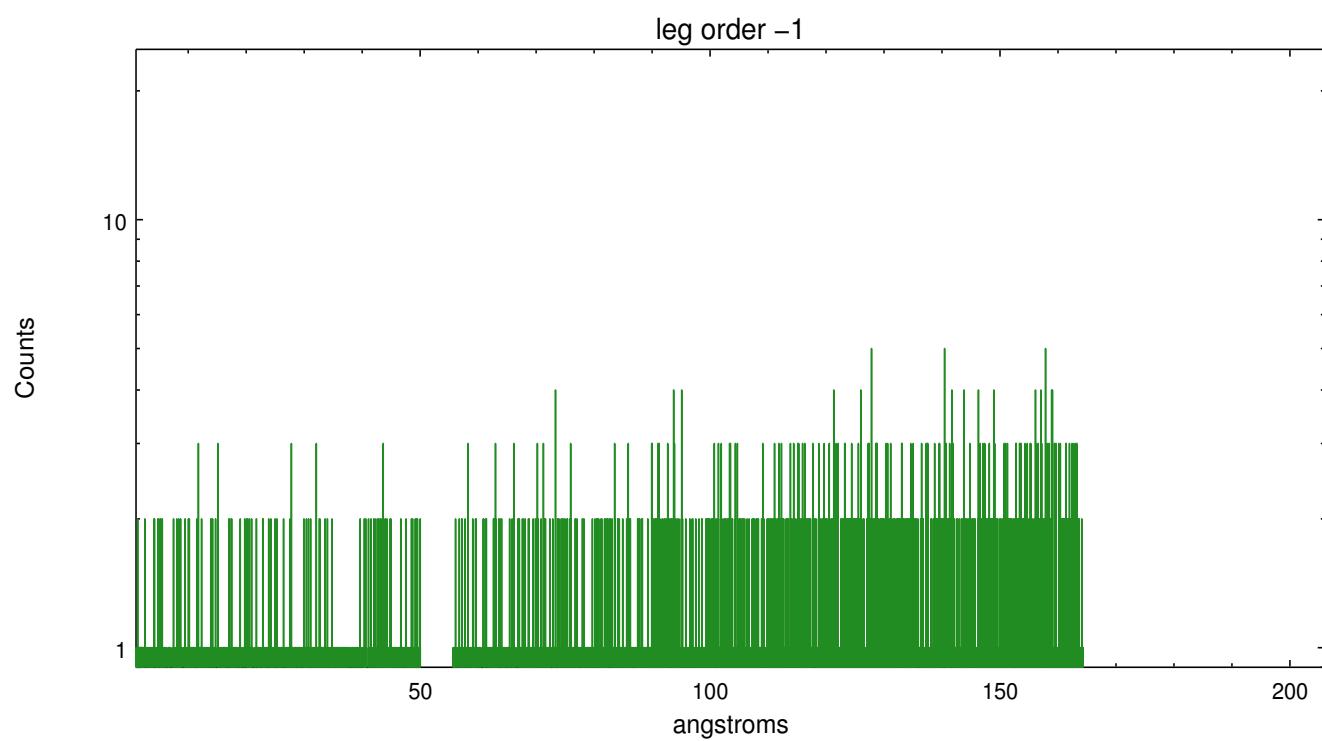


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order



# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2020.05.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	3.4944814623594

## A.2 Comments

WARNING: this is a moving, extended object; it was processed as if a stationary point source at the nominal source coordinates. Custom methods will be required (such as `sso_freeze`); it is unlikely that existing ciao programs will compute grating diffraction coordinates for a moving source (even with the modified aspect solution from `sso_freeze`).