

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 4575 - L2 Version 4  
Chandra X-Ray Center

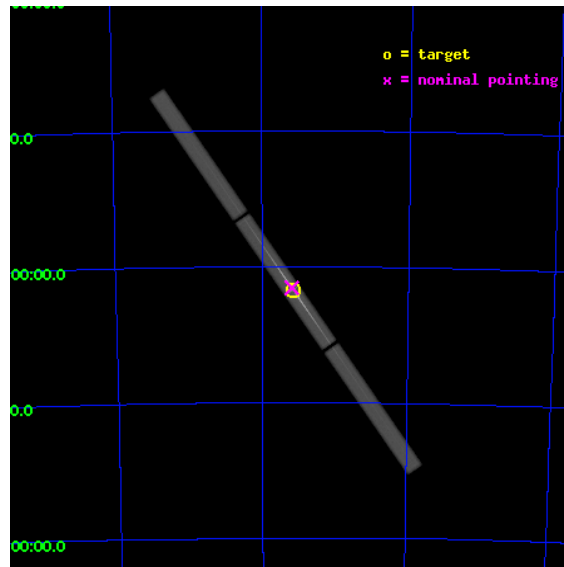
L2 Processing Date : Nov 30 2012

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# 1 Front

seq_num	400357	Sequence number
obs_id	4575	Observation id
title	High Resolution Spectroscopy of LMC X-3: Probing Local Hot X-ray Absorbing Gas	Proposal title
observer	Dr. Taotao Fang	Principal investigator
object	LMC X-3	Source name
ra_targ	84.734583	Observer's specified target RA [deg]
dec_targ	-64.084167	Observer's specified target Dec [deg]
ra_nom	84.745602475017	Nominal RA [deg]
dec_nom	-64.077058188804	Nominal Dec [deg]
roll_nom	235.07111088951	Nominal Roll [deg]
revision	4	Processing version of data
ontime	19831.957123727	[s]
livetime	19673.3037205	Ontime multiplied by DTCOR
l2events	1440388	Number of level 2 events

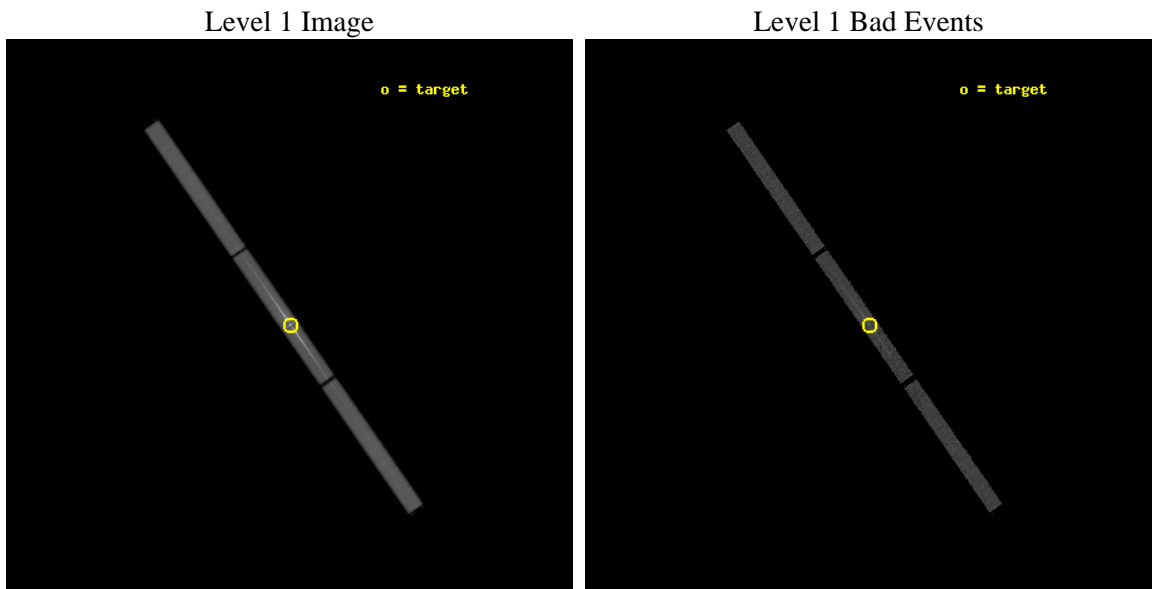




## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	20000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	19831.957123727	[s]
caldsver	4.5.2	&#160	l1events	1924505	Number of level 1 events
date	2012-11-30T16:55:06	Date and time of file creation			
revision	4	Processing version of data			

### 2.1.3 Events

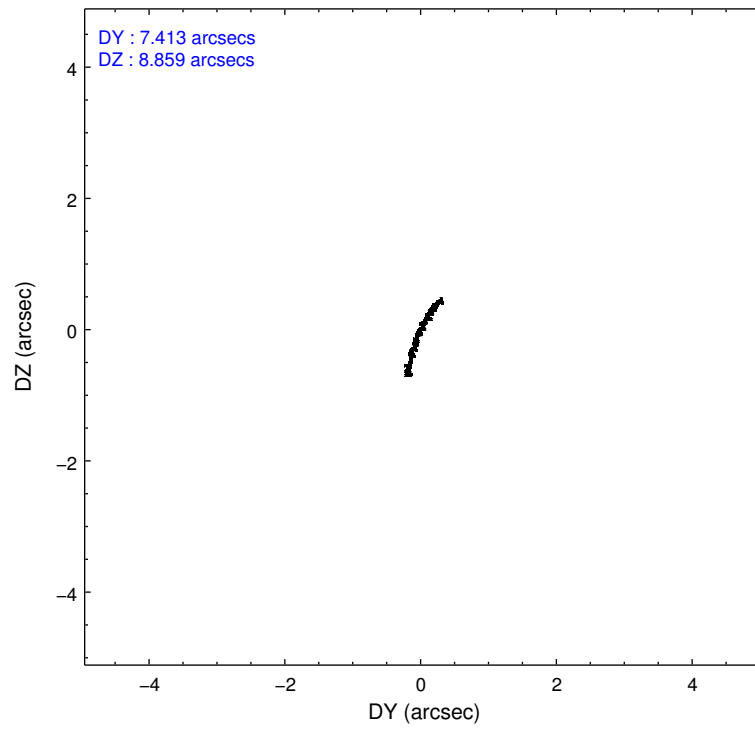
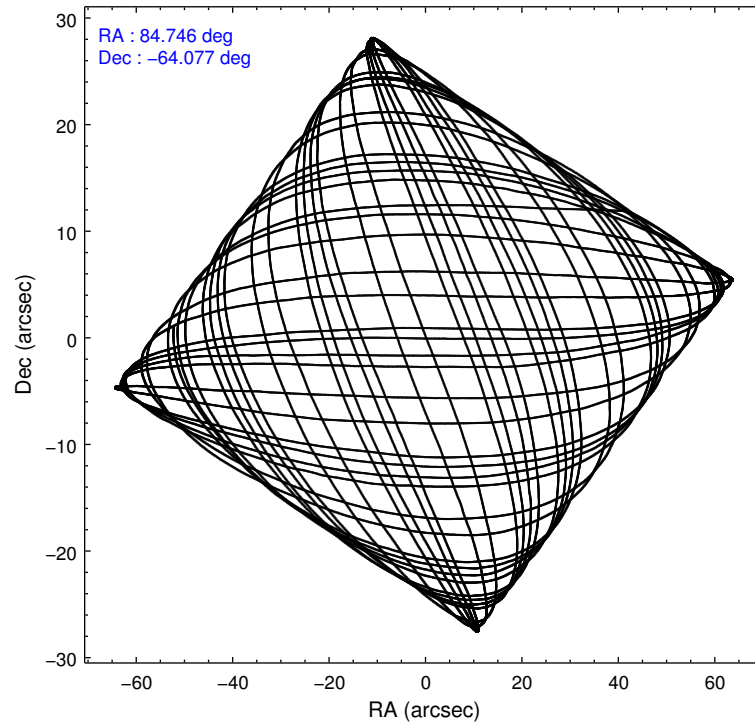
Level 1 Events

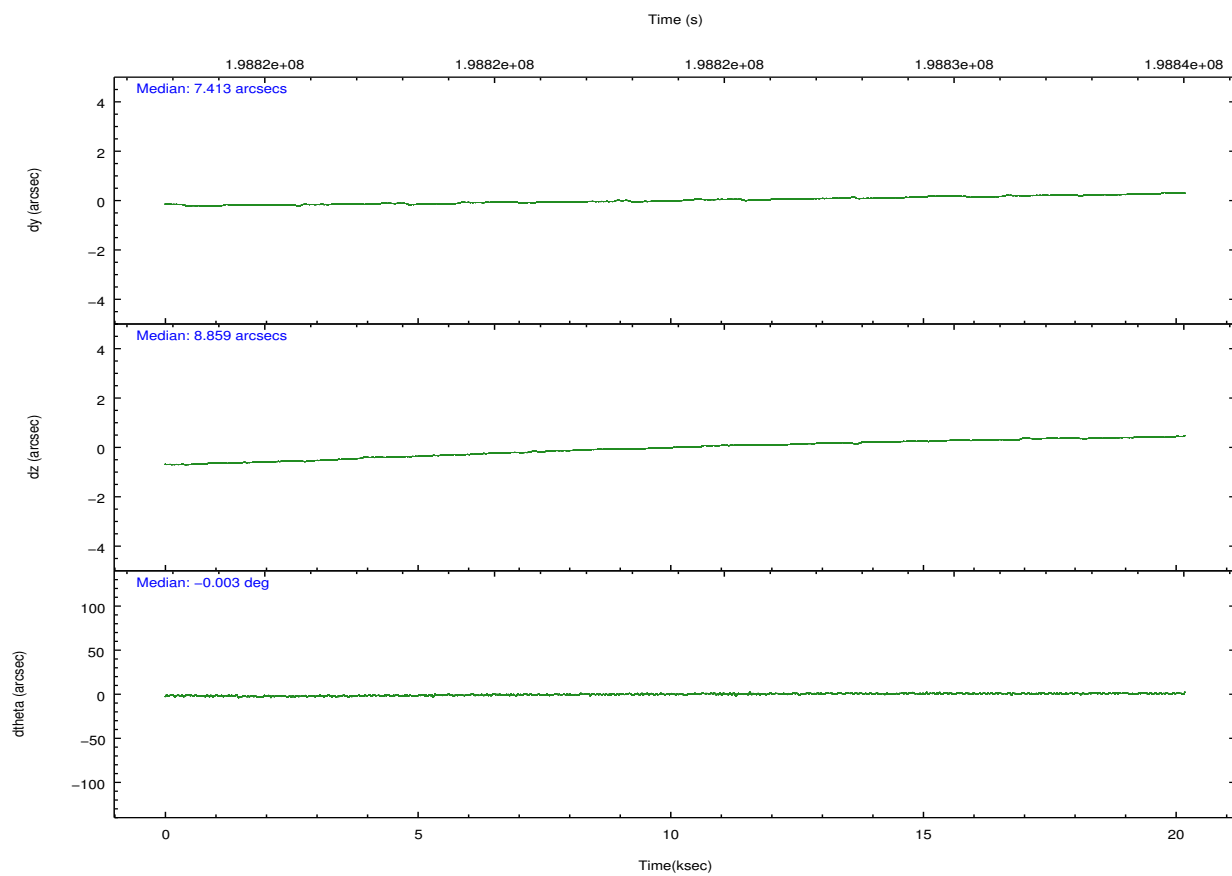
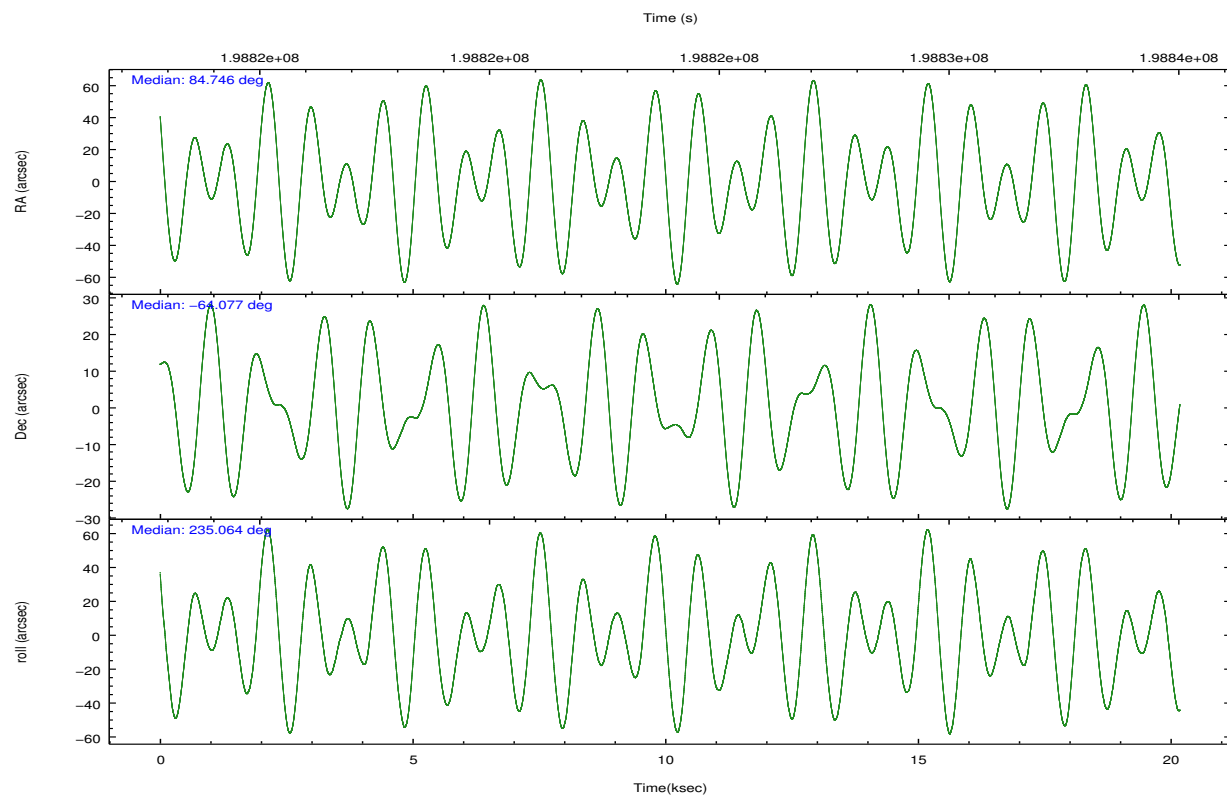
	<b>segment 1</b>	<b>segment 2</b>	<b>segment 3</b>
level 1 events	510220	897151	517134
rejected events	29740	31582	29614
rejected %	5%	3%	5%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	HRC	HRC	Obspar format version number	7	7
Detector	HRC-S	HRC-S	Obspar file type	PREDICTED	ACTUAL
Grating	LETG	LETG	Obspar update status	NONE	UPDATED
Data mode	OBSERVING	OBSERVING			
Observation mode	POINTING	POINTING			
[deg] Pointing RA	84.748080	84.74560247501699			
[deg] Pointing Dec	-64.048419	-64.07705818880399			
[deg] Pointing Roll	235.006003	235.0711108895129			
[mm] SIM focus pos	-1.429586	-1.428180813131781			
[mm] SIM defocus	0.1037507710433287	0.1051558262725154			
[mm] SIM translation stage pos	249.967976	249.9656843351905			
[mm] SIM translation stage offset	0.488	0.4902940583641566			
[s] Observation start time (MET)	198814014.184000	198813127.03941			
Observation start date	2004-04-20T02:05:50	2004-04-20T01:52:07			
[s] Observation end time (MET)	198834014.184000	198835461.27789			
Observation end date	2004-04-20T07:39:10	2004-04-20T08:04:21			

## 2.3 Aspect



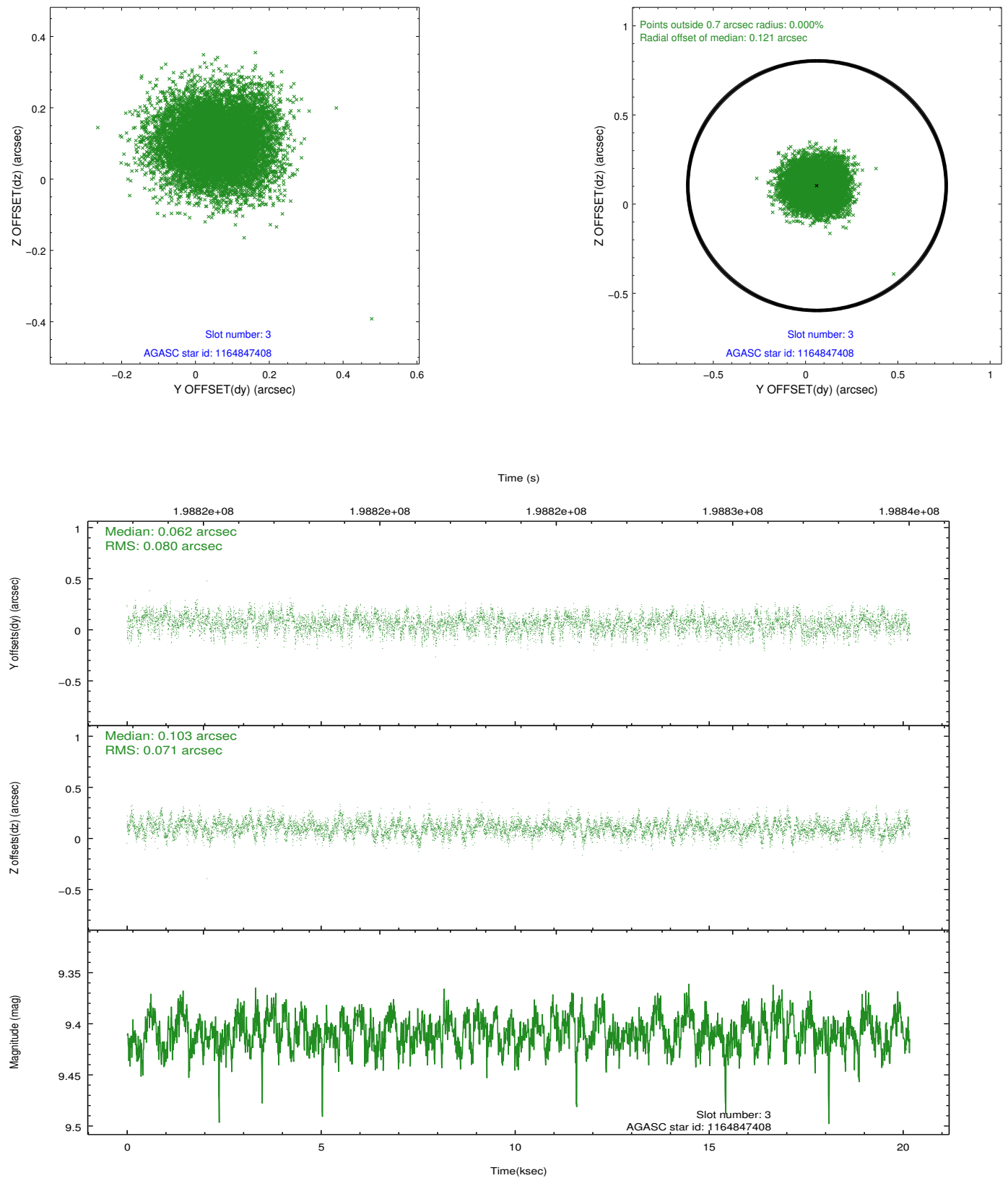


### Slot Statistics

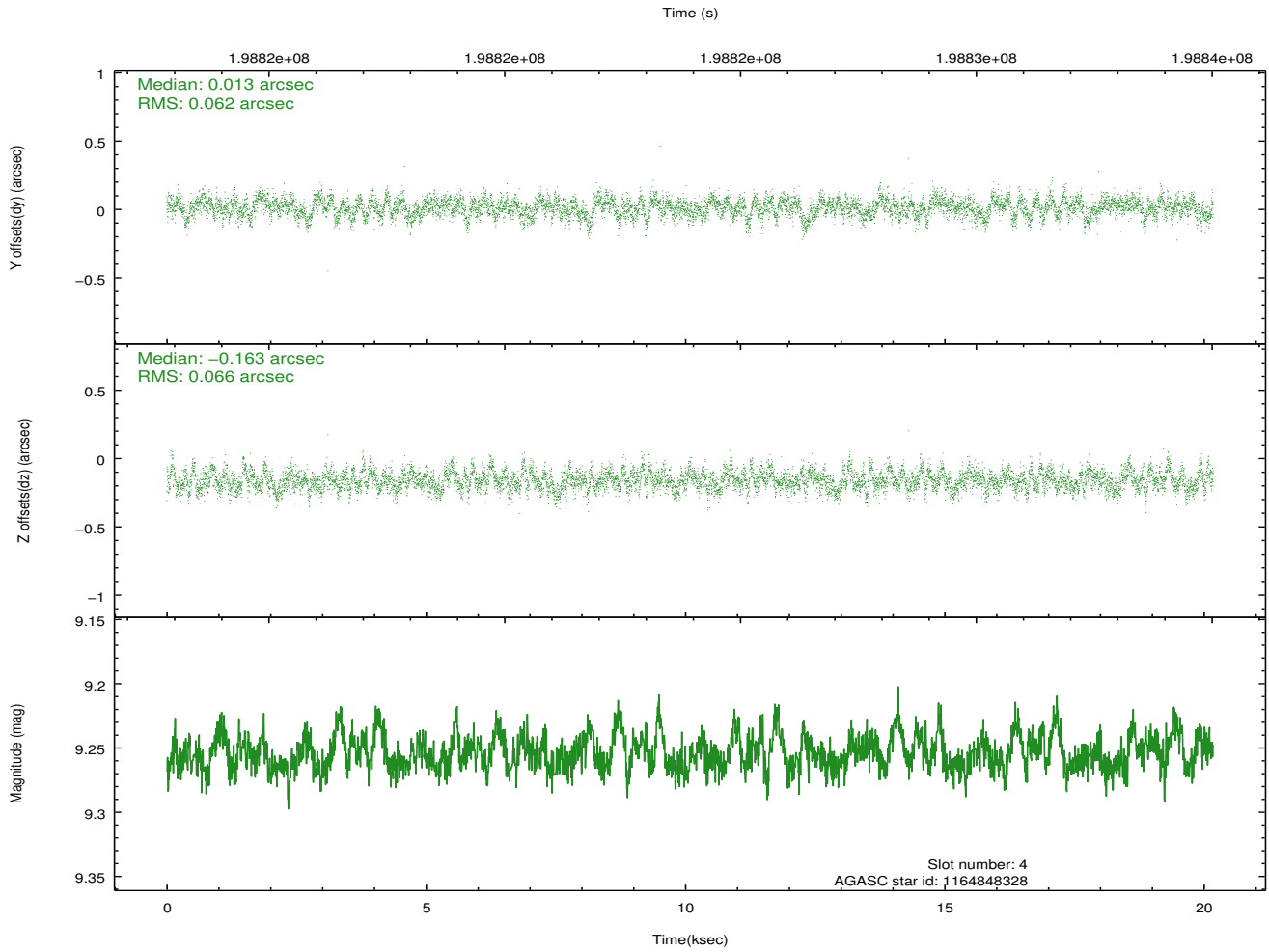
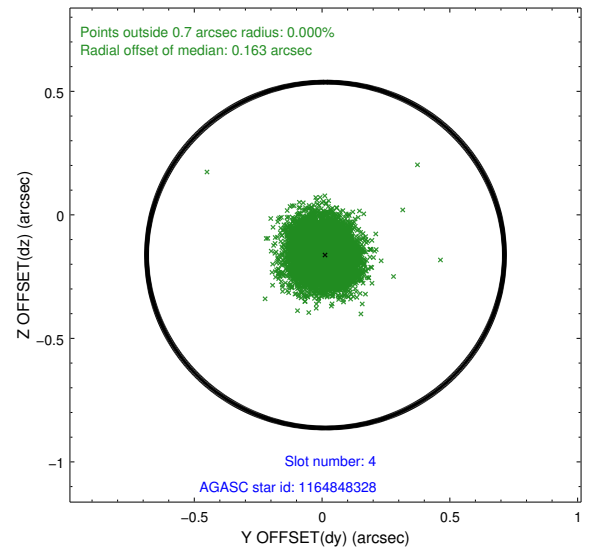
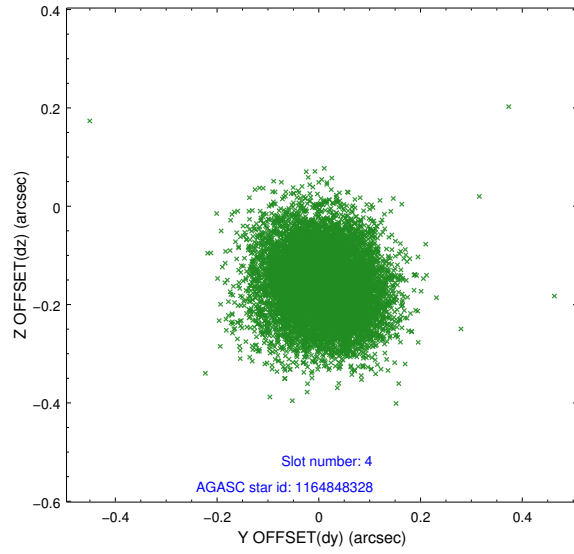
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	HRC-S-1	7.02	4922	0.145	-0.146	0.017	0.028	0.000000	0.000000	-1161.61	-447.16
1	FID	HRC-S-2	7.03	4922	0.121	-0.103	0.008	0.022	0.000000	0.000000	1237.81	-439.84
2	FID	HRC-S-3	7.04	4922	0.123	-0.052	0.015	0.026	0.000000	0.000000	-1164.11	582.38
3	GUIDE	1164847408	9.41	9840	0.062	0.103	0.114	0.183	85.132885	-64.859502	2055.75	2158.21
4	GUIDE	1164848328	9.25	9841	0.013	-0.163	0.096	0.157	84.701267	-64.093054	174.07	32.08
5	GUIDE	1166548256	8.77	9839	0.013	0.007	0.079	0.129	85.738698	-64.074093	-808.67	1337.27
6	GUIDE	1166544016	9.69	9766	-0.090	-0.209	0.140	0.231	86.089673	-64.349585	-293.16	2346.96
7	GUIDE	1164319000	10.38	9830	0.002	0.256	0.206	0.335	83.956337	-63.392005	-1197.09	-2395.99

## 2.4 Star Slots

### 2.4.1 Slot 3

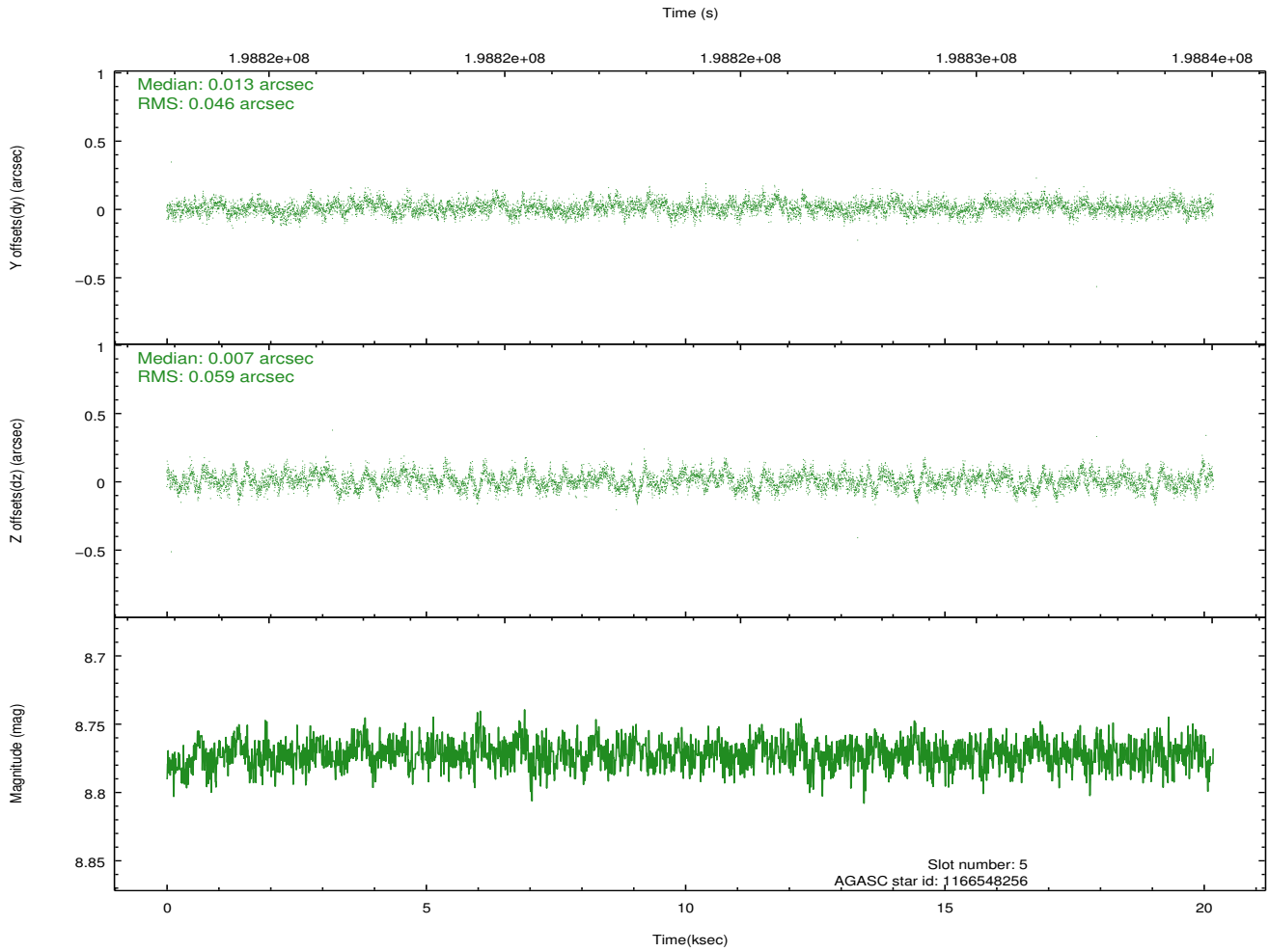
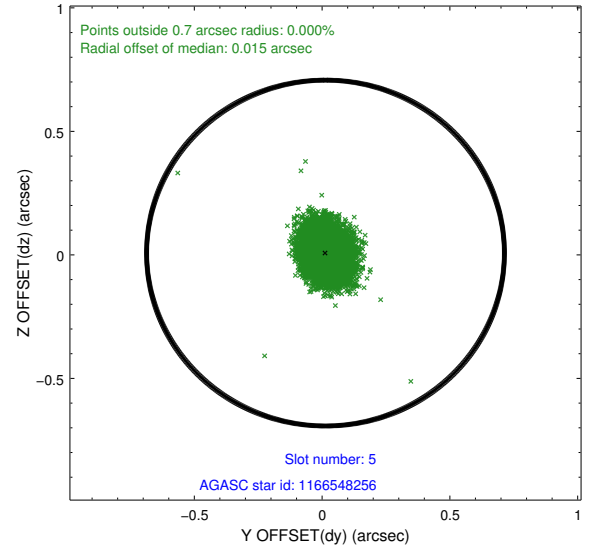
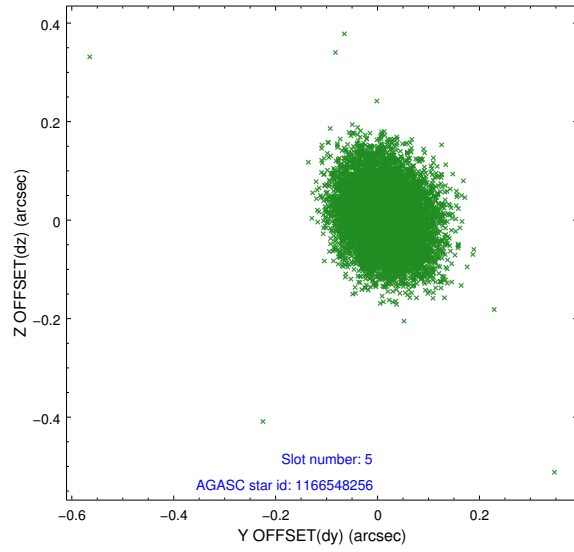


## 2.4.2 Slot 4

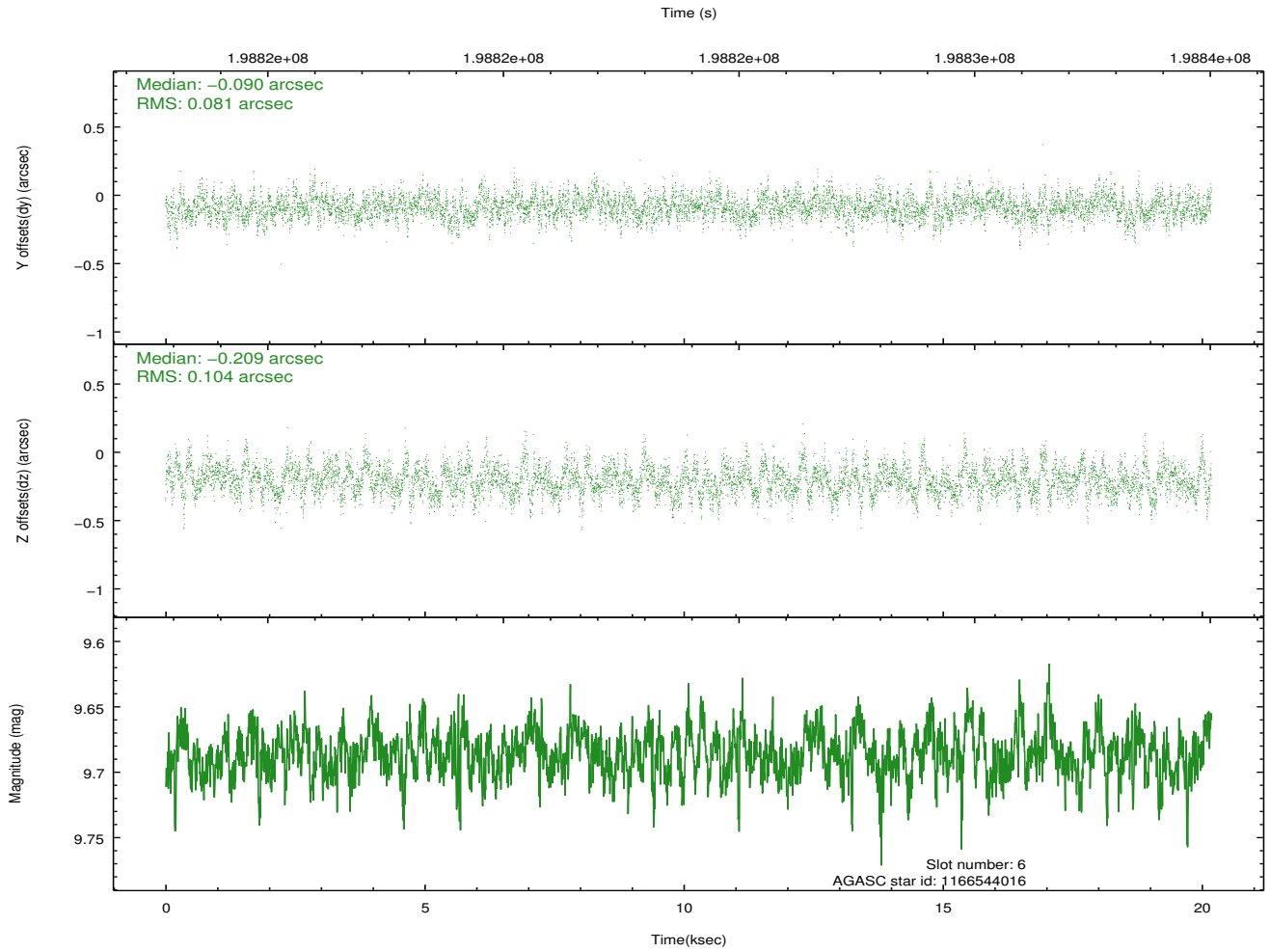
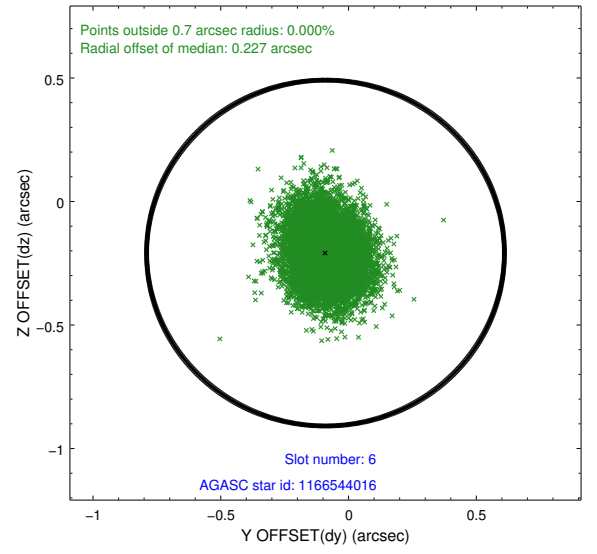
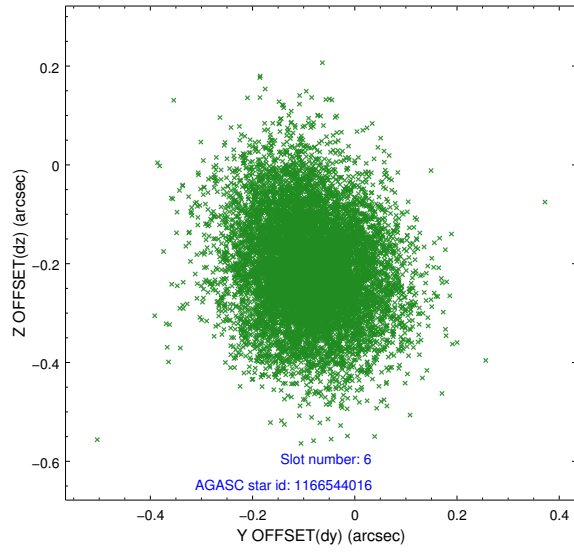




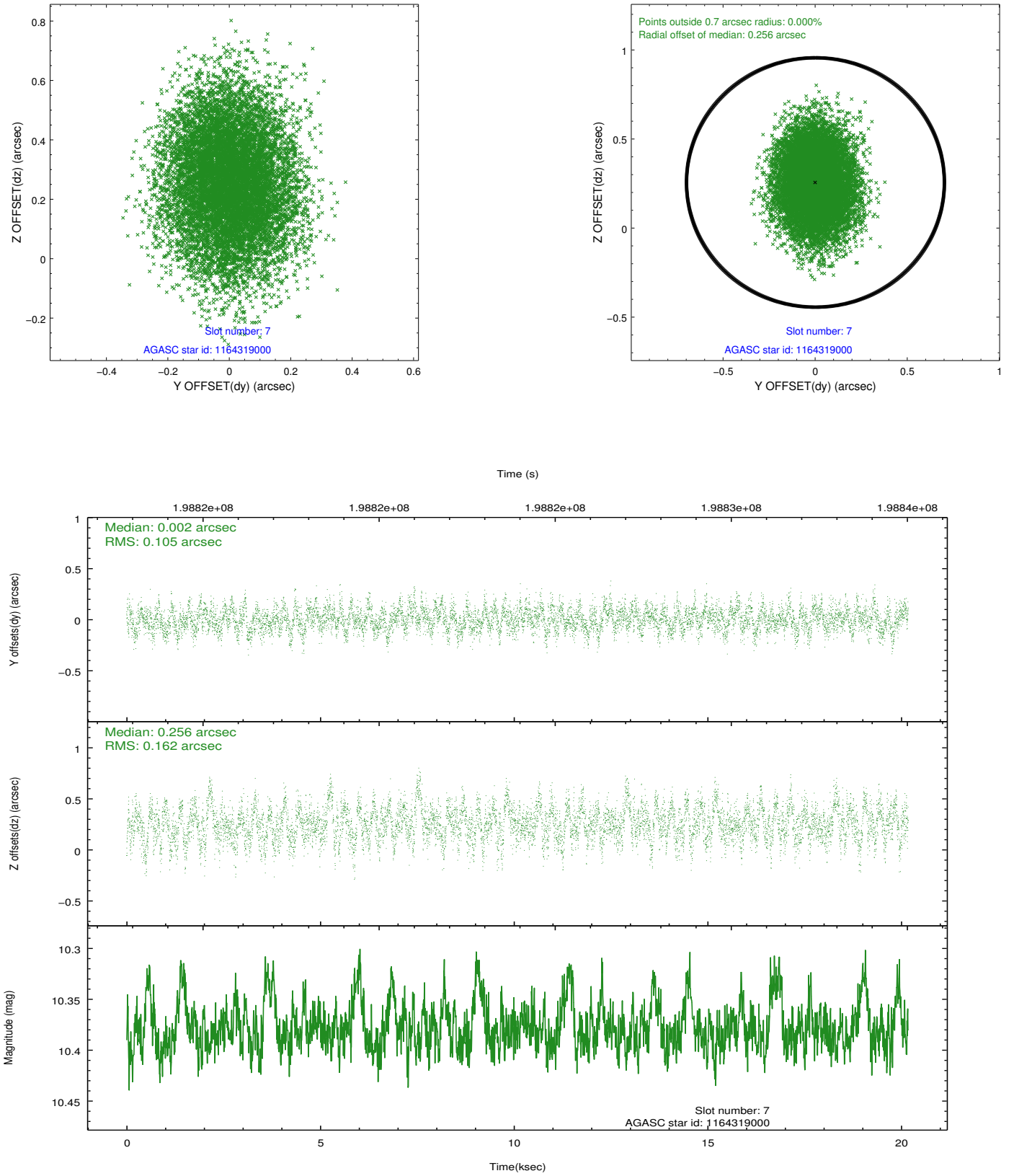
### 2.4.3 Slot 5



## 2.4.4 Slot 6

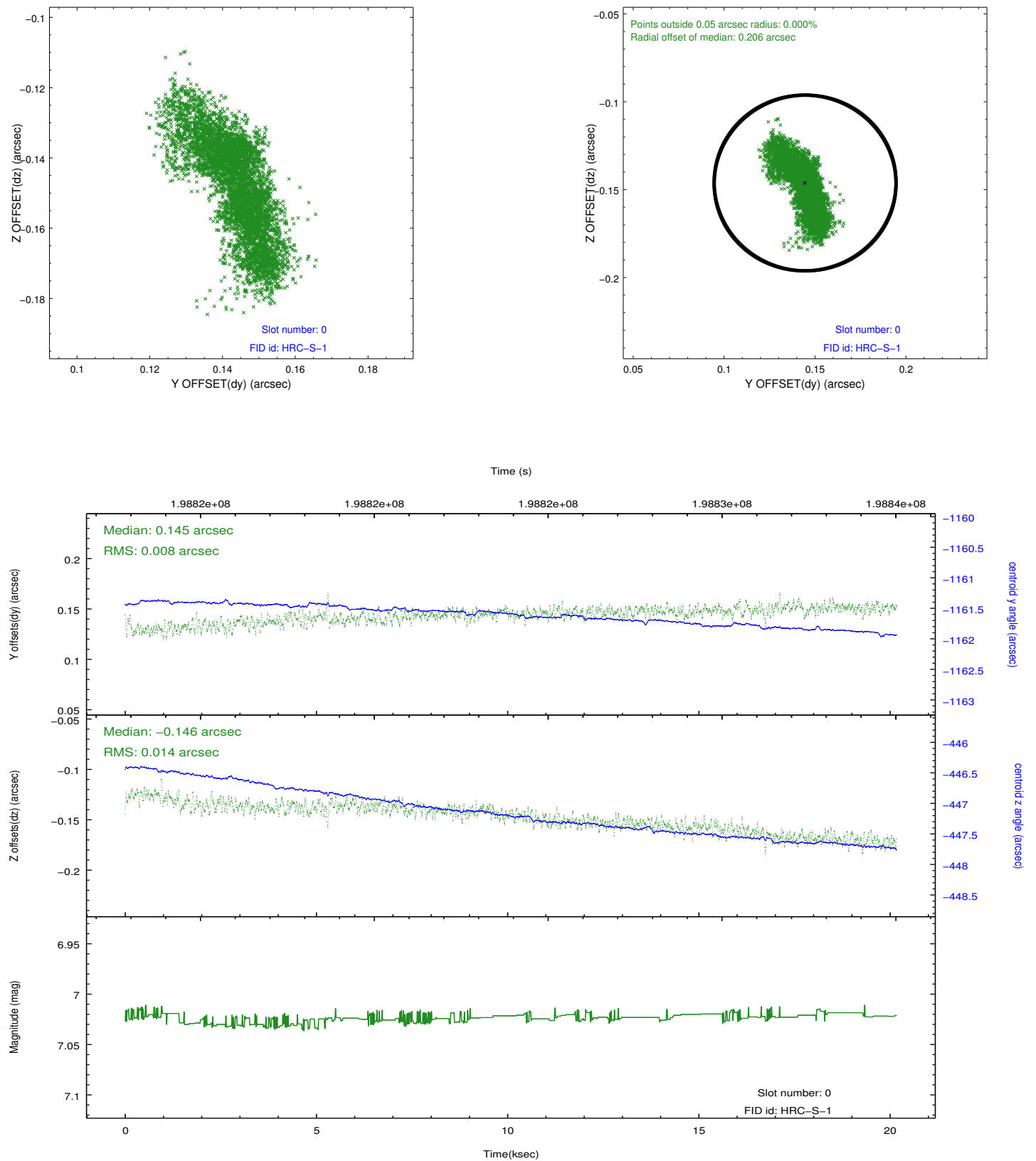


## 2.4.5 Slot 7

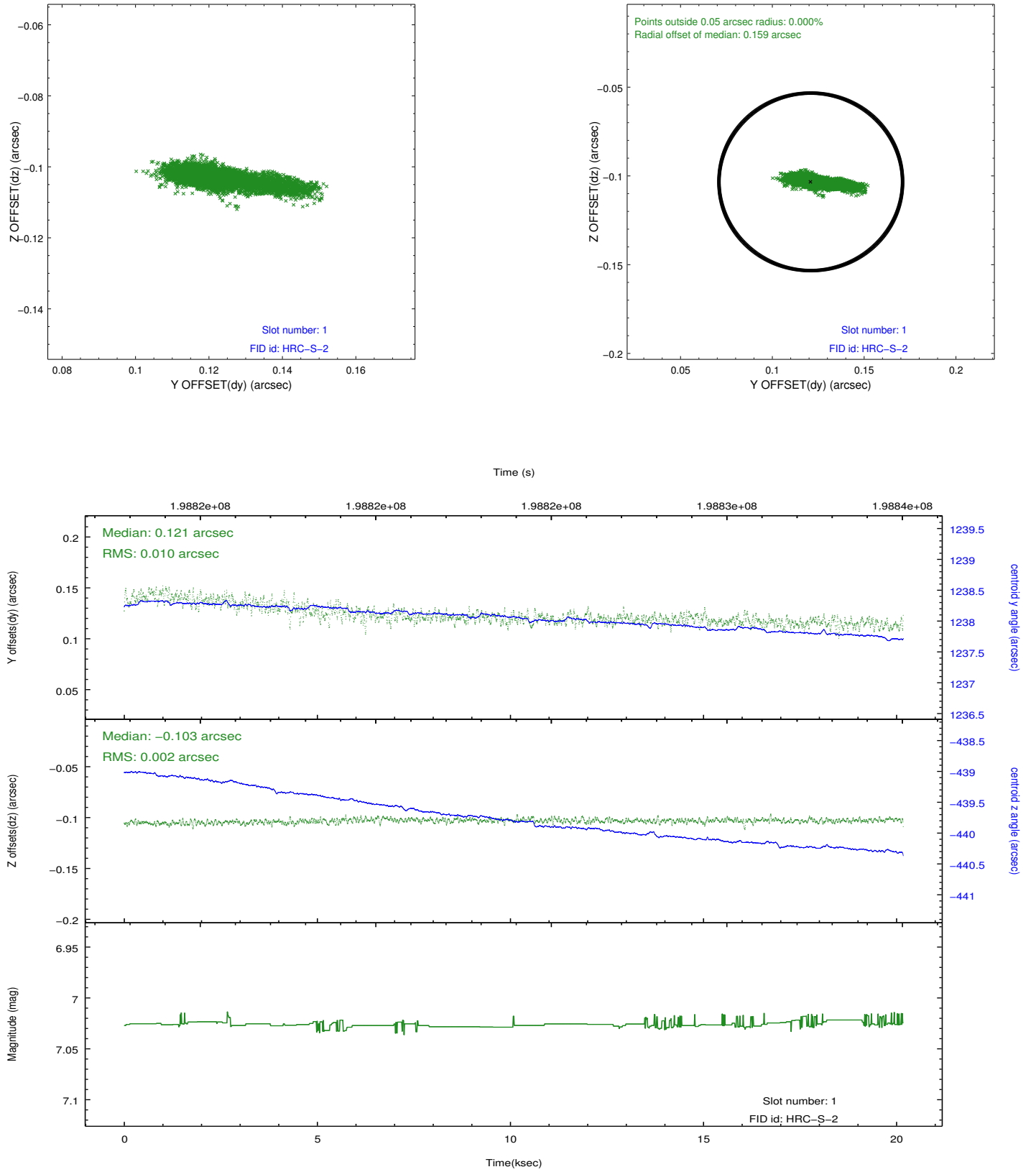


## 2.5 FID Slots

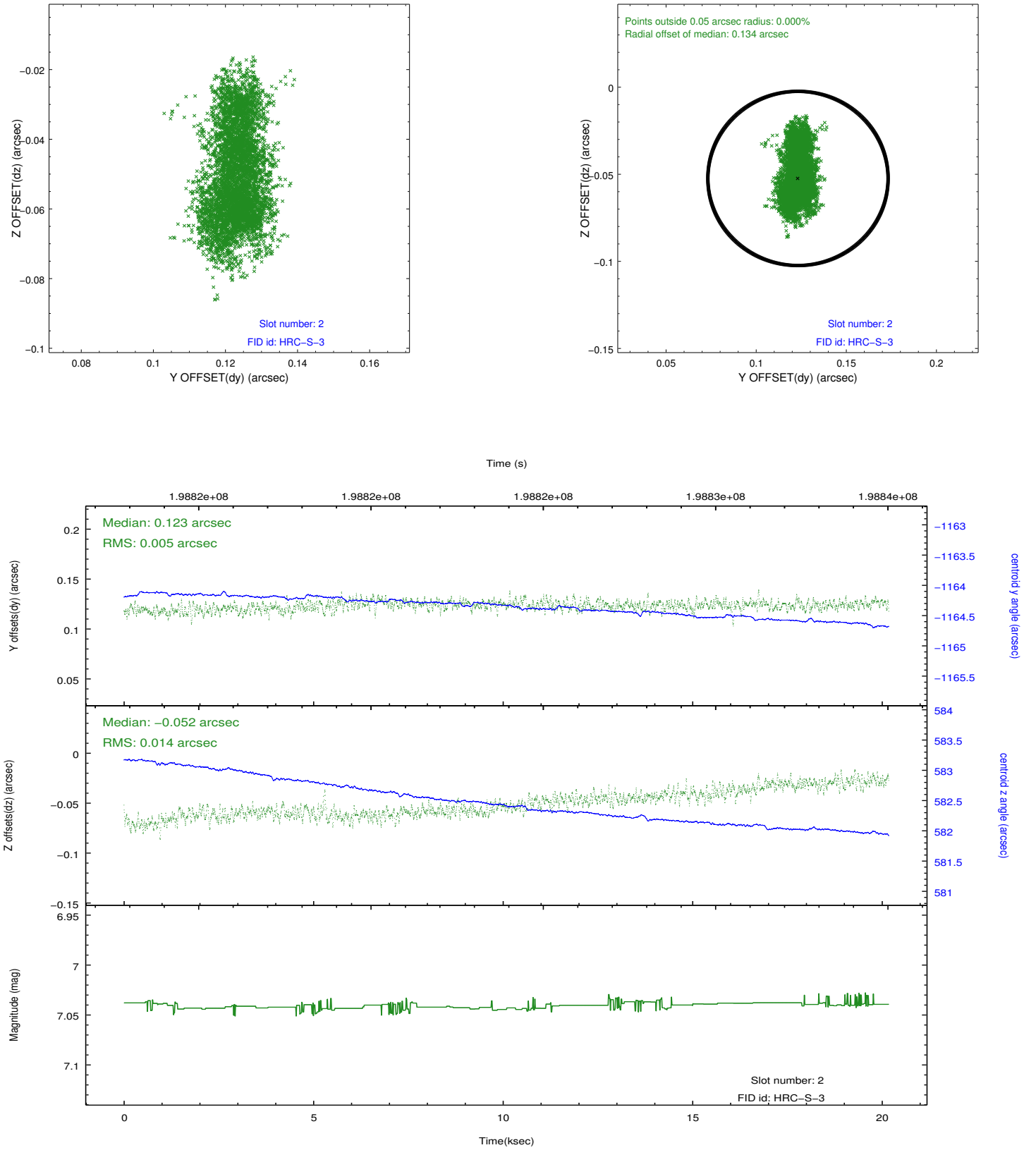
### 2.5.1 Slot 0



## 2.5.2 Slot 1

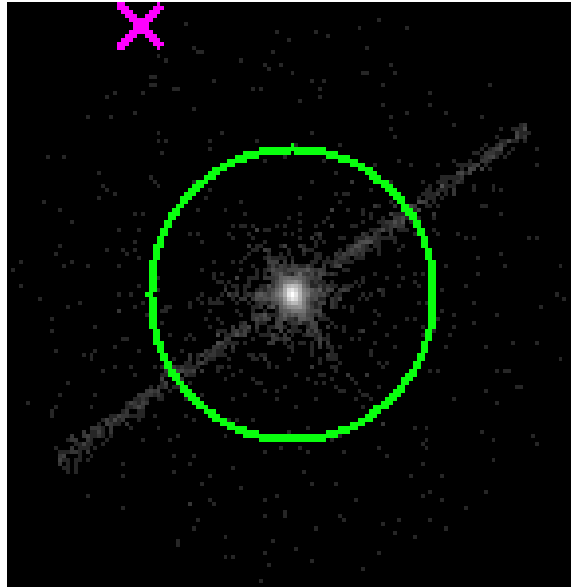


### 2.5.3 Slot 2

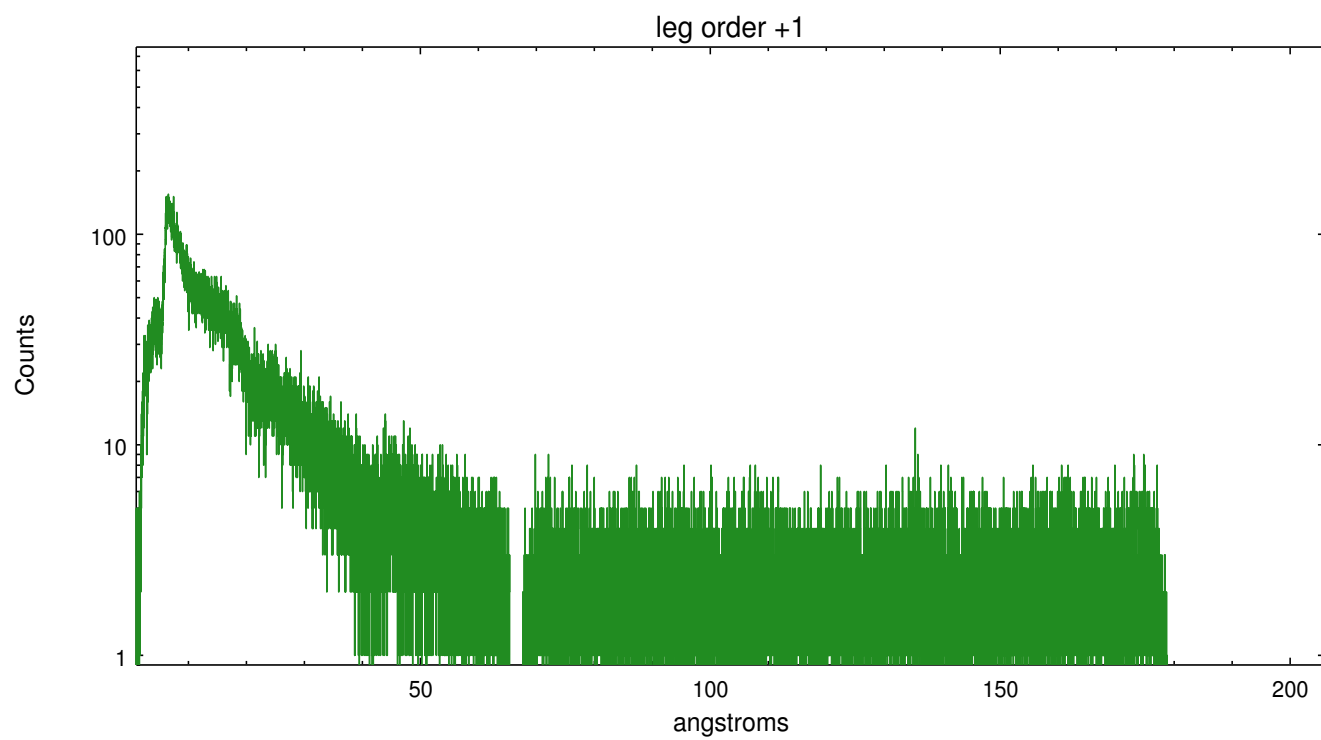
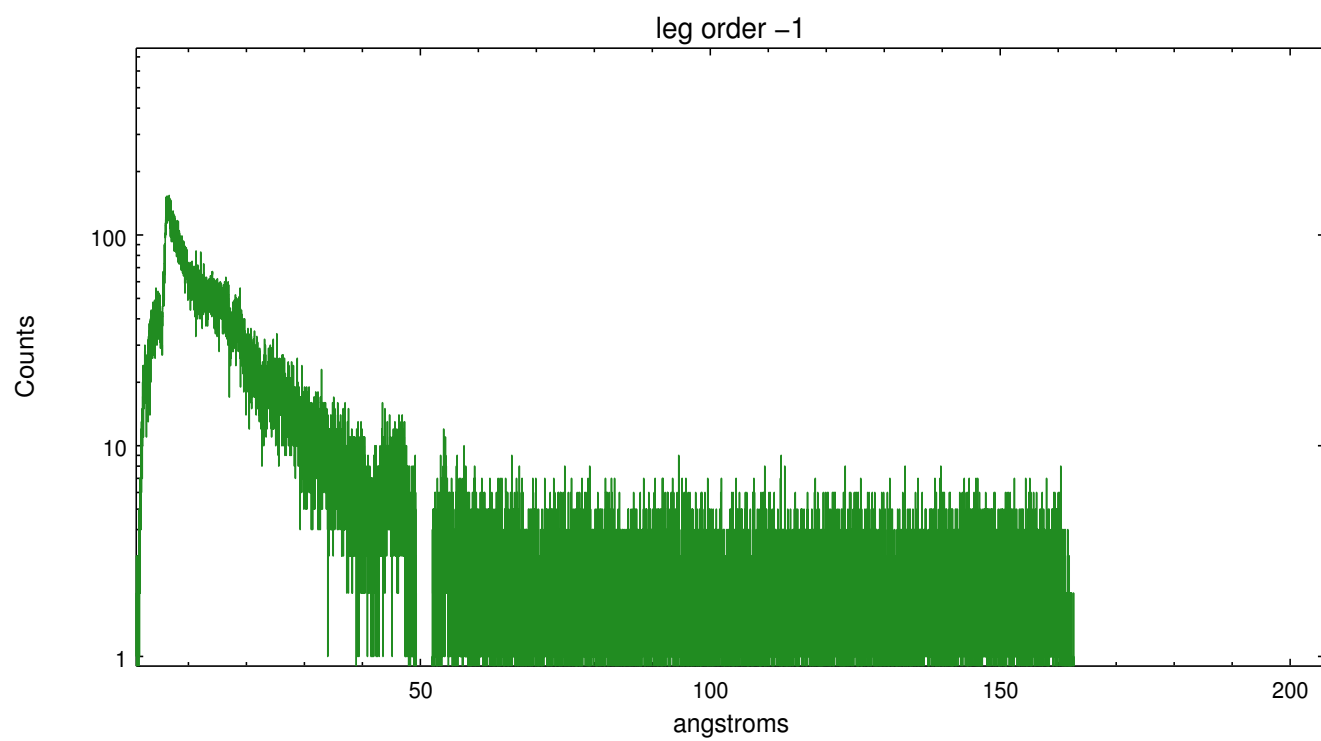


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.10
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	19.831

## A.2 Comments

Zeroth order PSF is asymmetrical. Due to the expected source brightness the zeroth order was given a Y-offset (0.8 arcmin) and a SIM-Z-offset (0.488 mm) in order to avoid a large added dose to the nominal target point. The asymmetric PSF with an extension along the dispersion direction can be attributed to an HRC instrumental effect.

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Details:

I extracted events from a 20 pixel radius crudely centered on the zeroth order

position. For each of the events I used the aspect solution to model the

event's location on the detector. Since the extension was only in the dispersion direction I only investigated possible distortions along the HRC-S

V-axis. Attached is a figure with two scatter plots: one giving the deviations

of the rawy (un-degapped V-axis coordinate) from the modeled position as a

function of modeled V-axis position and the other giving the deviations after

applying the degap. There is a distinct offset in the deviations in the

degapped coordinates at the right-hand-side gap. The extension on the image is

caused by this deviation.