

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 1800 - L2 Version 6  
Chandra X-Ray Center

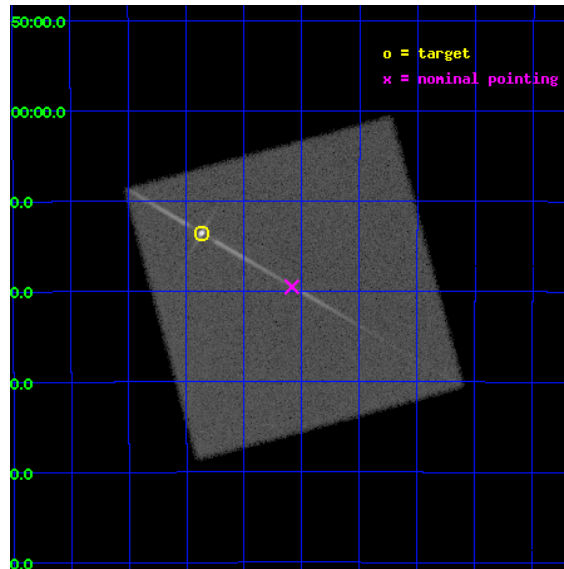
L2 Processing Date : Aug 31 2012

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# 1 Front

seq_num	390018	Sequence number
obs_id	1800	Observation id
title	GRATINGS CALIBRATION OBSERVATIONS OF PKS2155-304	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	PKS2155-304	Source name
ra_targ	329.716667	Observer's specified target RA [deg]
dec_targ	-30.225556	Observer's specified target Dec [deg]
ra_nom	329.52126693271	Nominal RA [deg]
dec_nom	-30.324957453	Nominal Dec [deg]
roll_nom	29.854841550756	Nominal Roll [deg]
revision	6	Processing version of data
ontime	19869.881991237	[s]
livetime	19783.852309582	Ontime multiplied by DTCOR
l2events	463755	Number of level 2 events

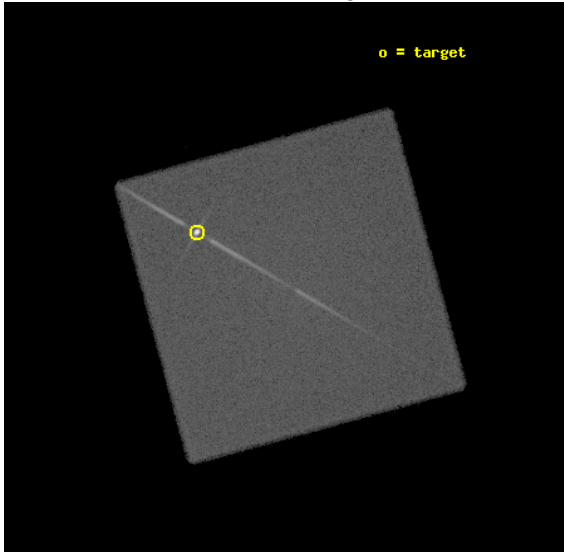


## 2 OBI

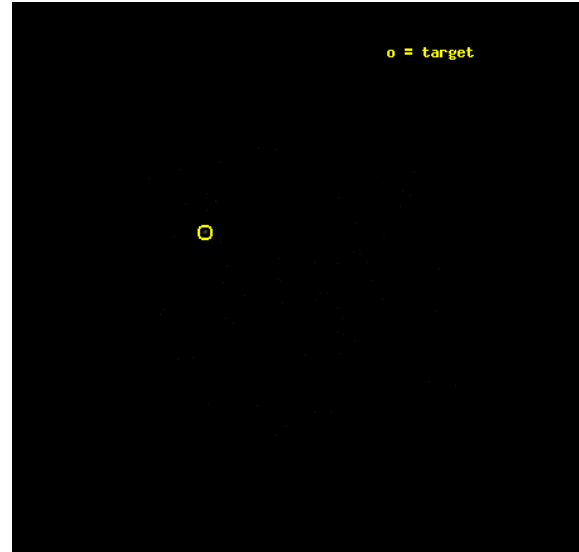
### 2.1 OBI

#### 2.1.1 Images

Level 1 Image



Level 1 Bad Events



### 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	19869.881992236	[s]
caldbver	4.5.1.1	&#160	l1events	678778	Number of level 1 events
date	2012-08-31T13:42:23	Date and time of file creation			
revision	6	Processing version of data			

### 2.1.3 Events

#### Level 1 Events

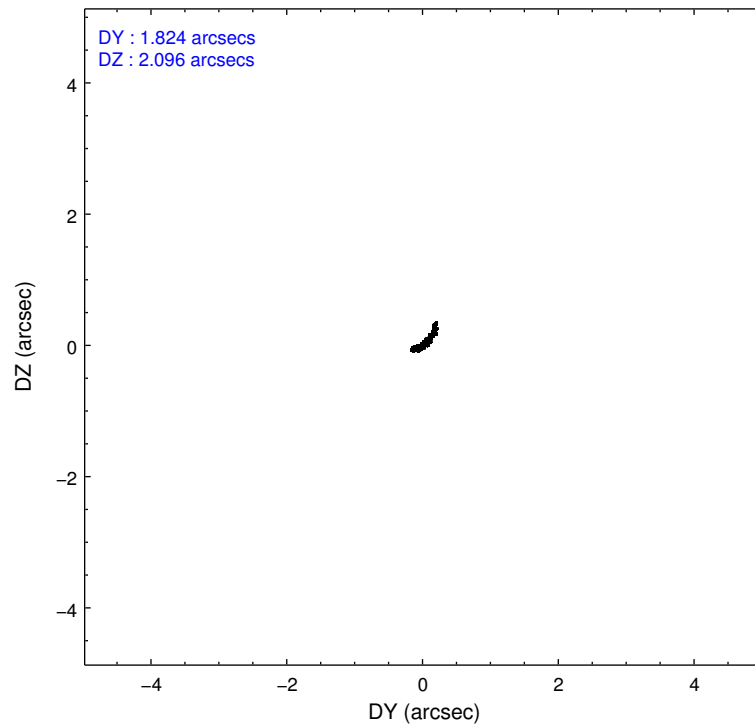
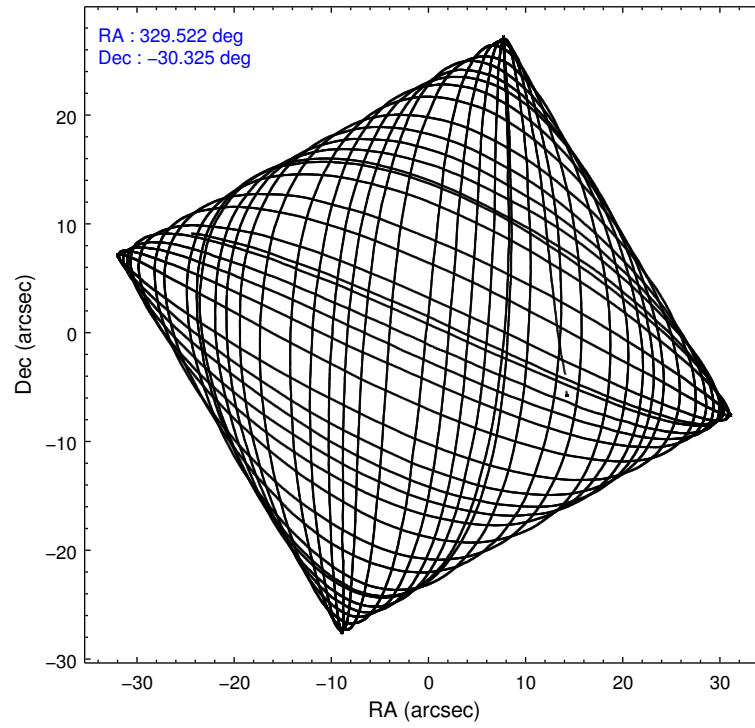
	<b>segment 0</b>
level 1 events	678778
rejected events	2378
rejected %	0%

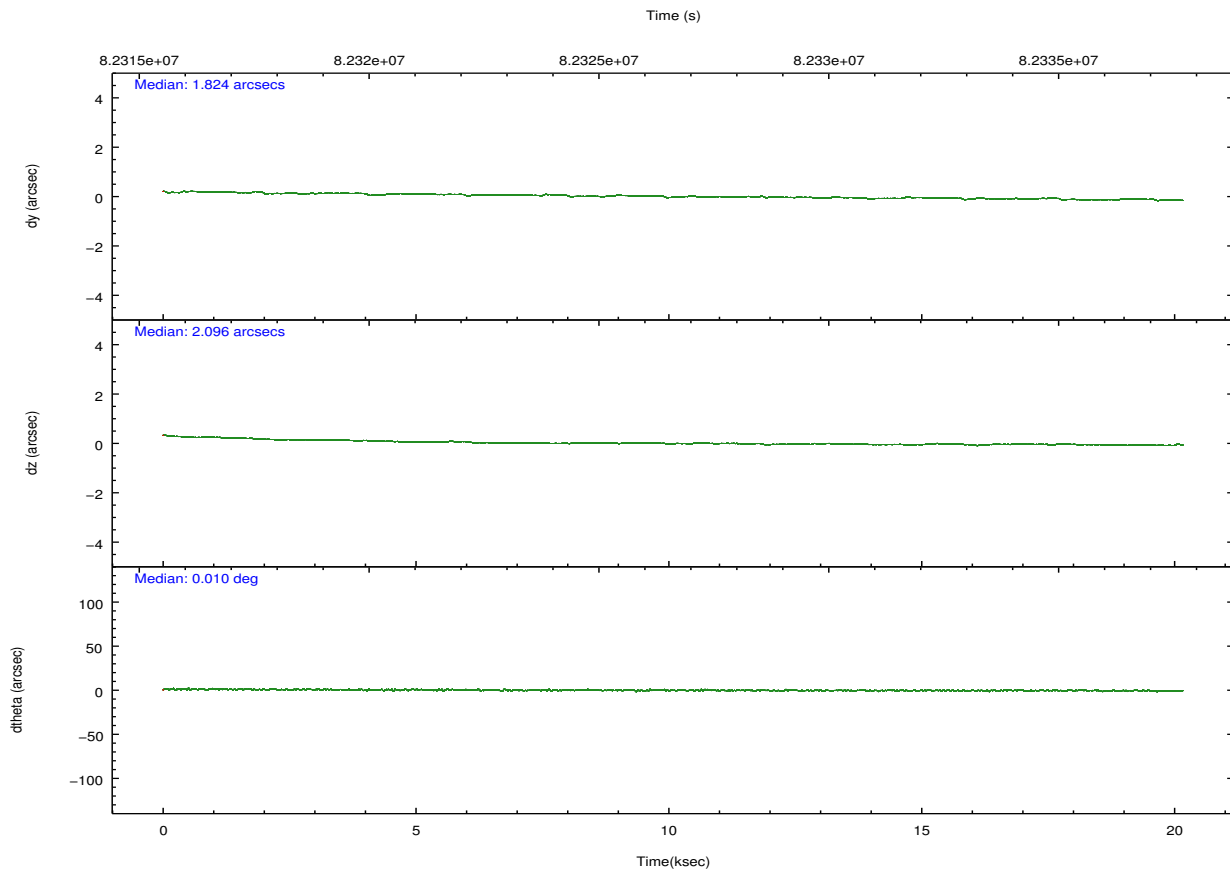
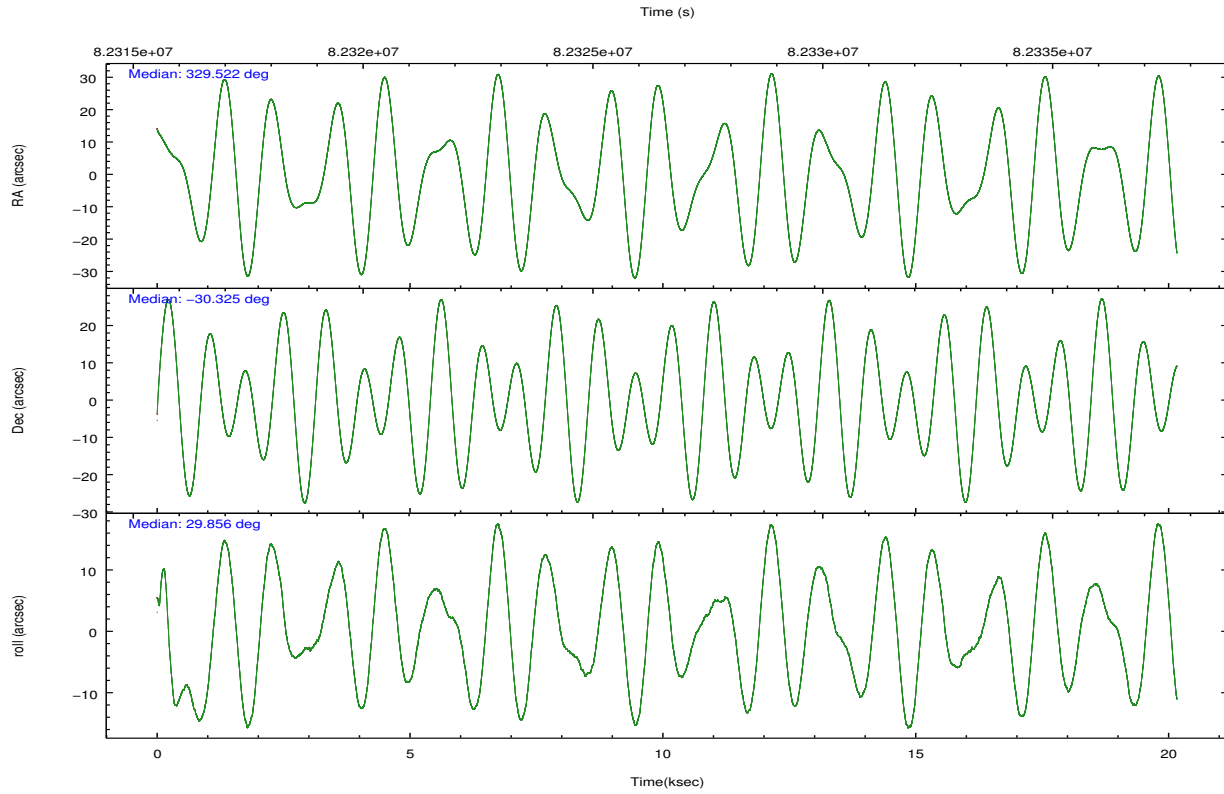
## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	HRC	HRC
Detector	HRC-I	HRC-I
Grating	LETG	LETG
Data mode	OBSERVING	OBSERVING
Observation mode	POINTING	POINTING
[deg] Pointing RA	329.505758	329.5212669327133
[deg] Pointing Dec	-30.348778	-30.32495745300044
[deg] Pointing Roll	29.942491	29.85484155075632
[mm] SIM focus pos	-1.040293	-1.038866356238299
[mm] SIM defocus	0	0.001426264420575141
[mm] SIM translation stage pos	126.985494	126.9829799899862
[mm] SIM translation stage offset	0	0.002508901615314585
[s] Observation start time (MET)	82316693.184000	82316295.770224
Observation start date	2000-08-10T17:43:49	2000-08-10T17:38:15
[s] Observation end time (MET)	82336693.184000	82336827.545991
Observation end date	2000-08-10T23:17:09	2000-08-10T23:20:27

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED

## 2.3 Aspect



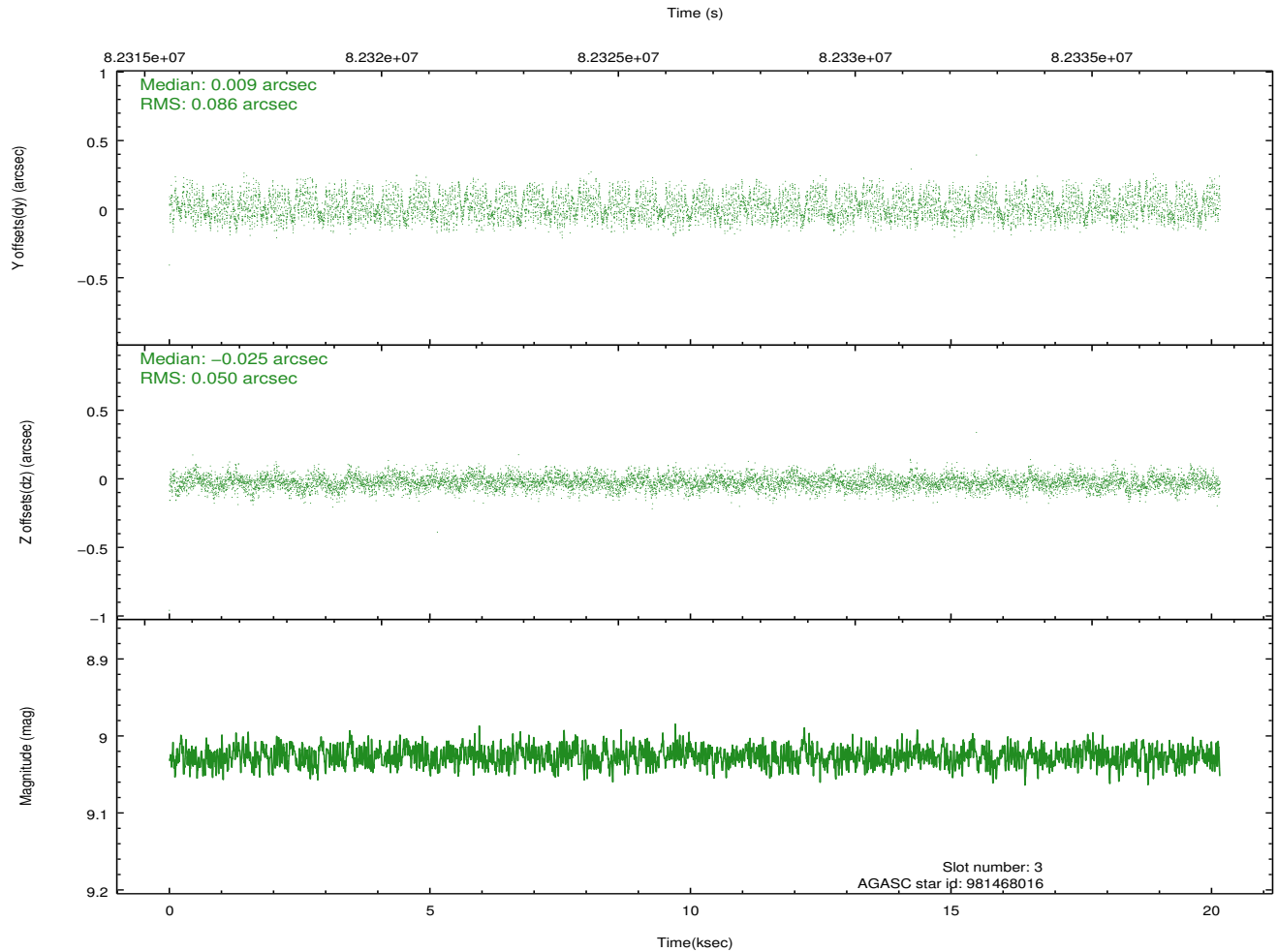
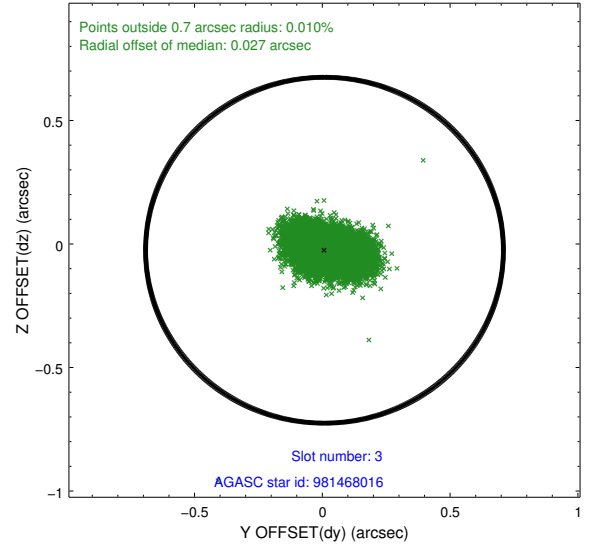
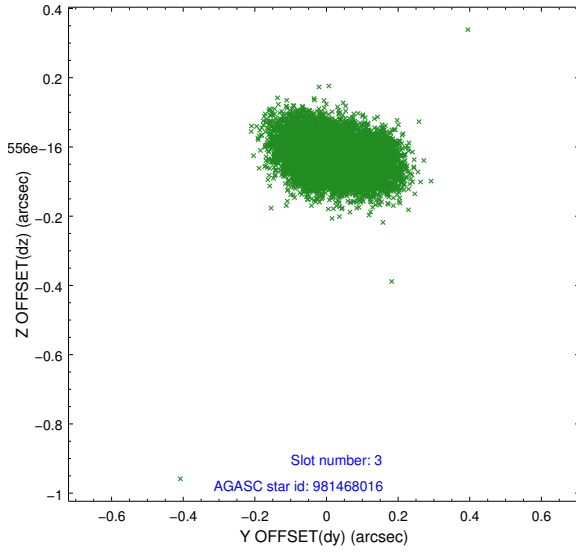


### Slot Statistics

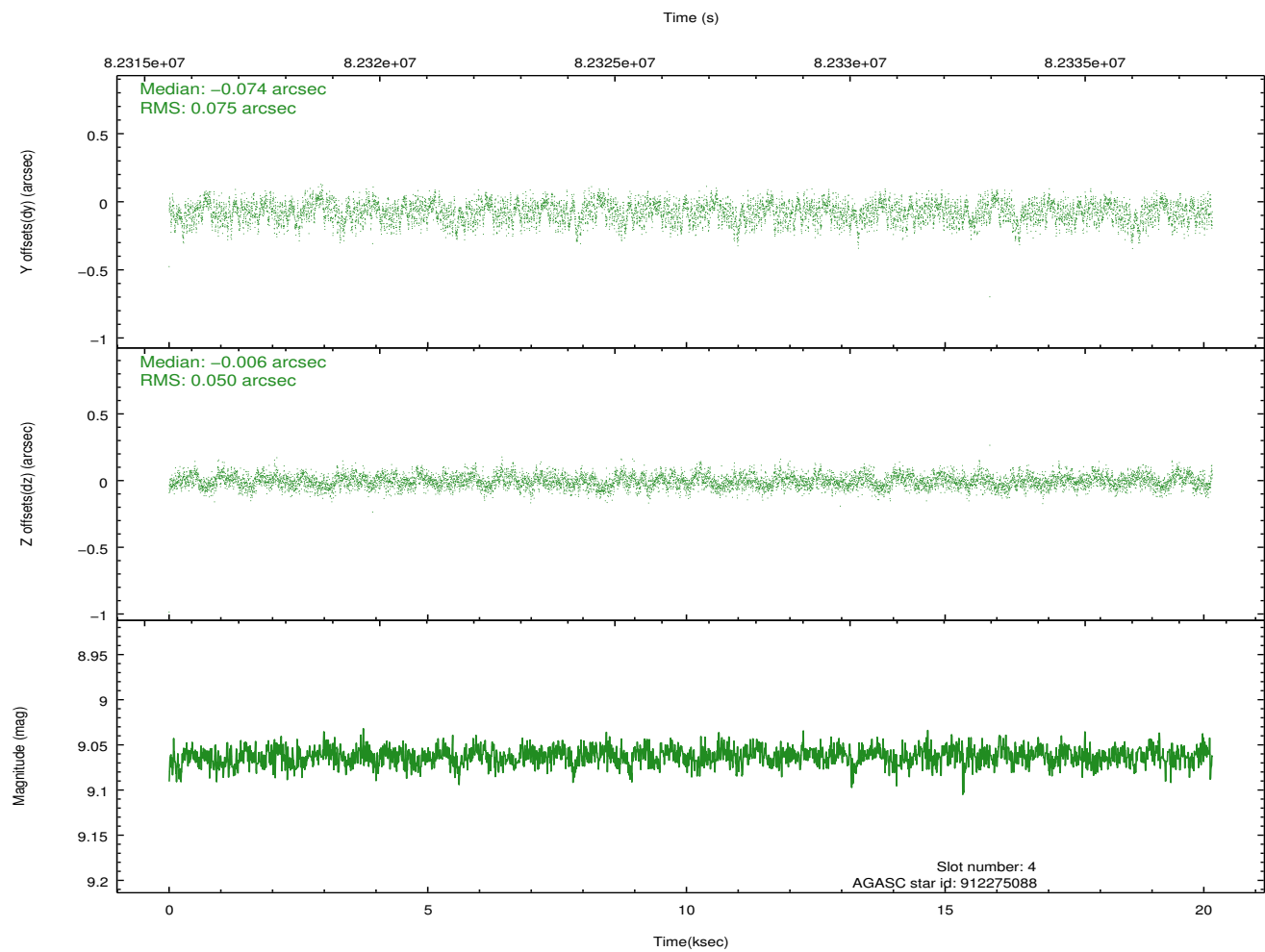
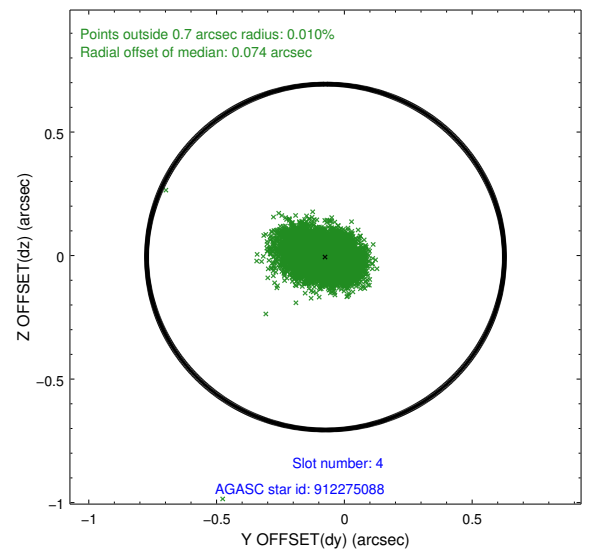
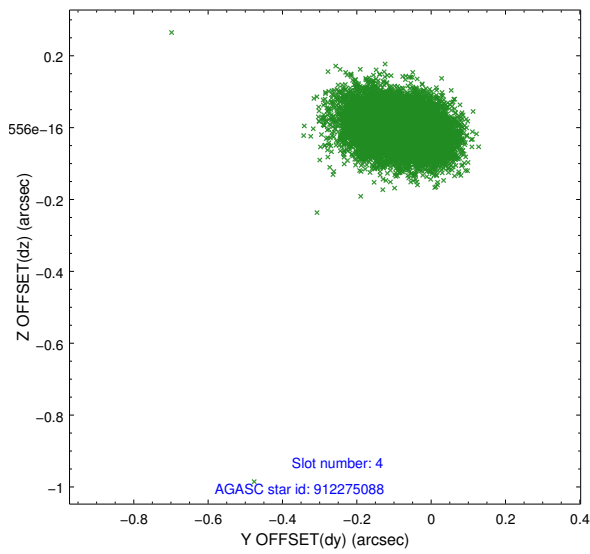
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	HRC-I-1	6.96	4919	0.063	-0.011	0.006	0.011	0.000000	0.000000	-757.25	-1289.82
1	FID	HRC-I-3	7.05	4918	0.028	-0.021	0.007	0.012	0.000000	0.000000	-1185.88	1014.48
2	FID	HRC-I-4	7.00	4918	0.023	-0.057	0.006	0.009	0.000000	0.000000	1285.31	1012.46
3	GUIDE	981468016	9.03	9833	0.009	-0.025	0.106	0.170	328.842457	-30.034984	-1230.86	2006.16
4	GUIDE	912275088	9.06	9837	-0.074	-0.006	0.094	0.154	329.619228	-29.738698	1402.95	1726.82
5	GUIDE	981468288	9.21	9832	0.049	0.022	0.101	0.159	328.608359	-30.257017	-2258.91	1670.36
6	GUIDE	981468128	9.36	9834	0.050	-0.026	0.084	0.140	329.756350	-30.158334	1017.10	204.80
7	GUIDE	981469488	9.60	9834	-0.035	0.032	0.105	0.198	329.261199	-30.045155	-115.55	1327.56

## 2.4 Star Slots

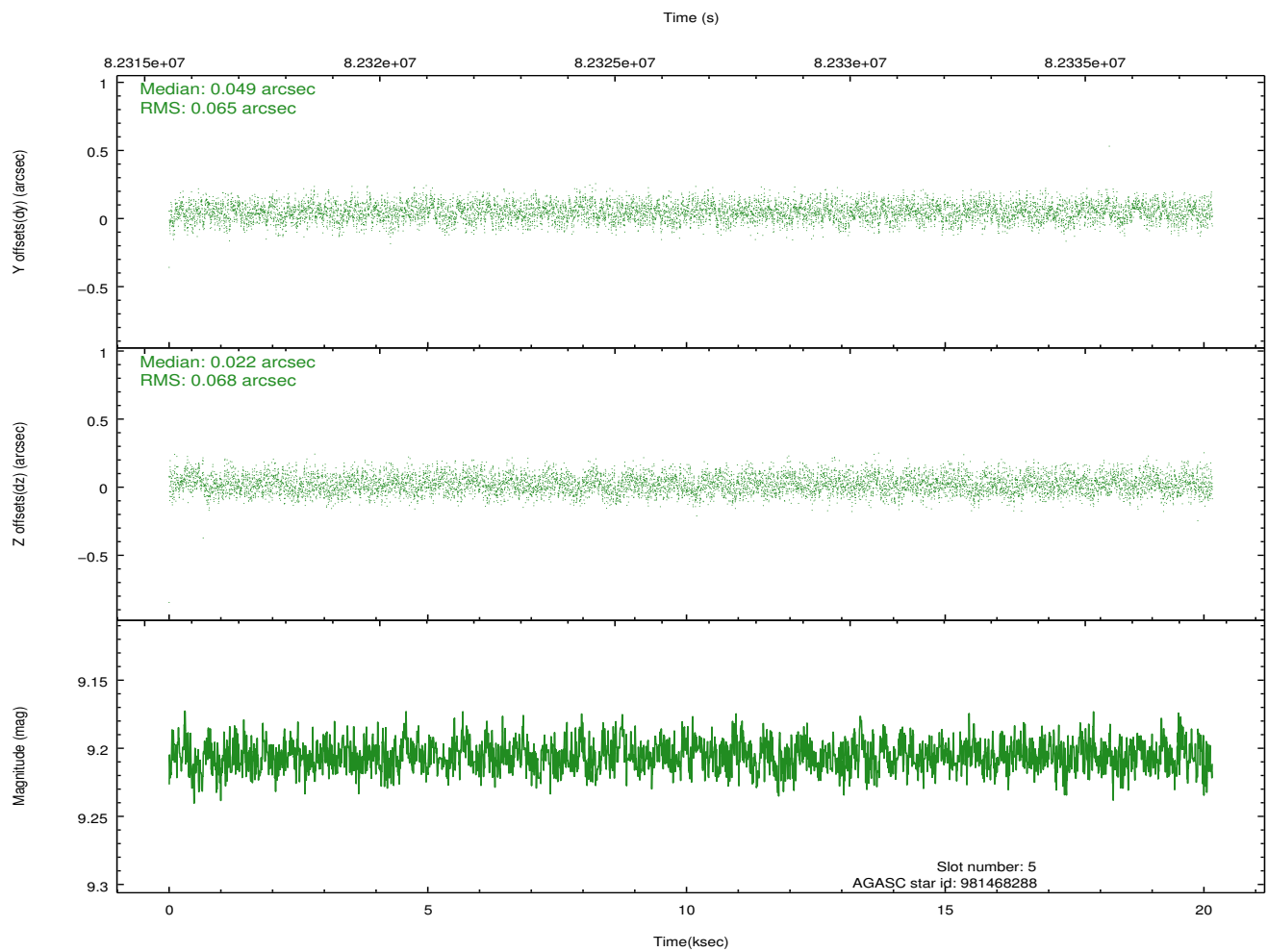
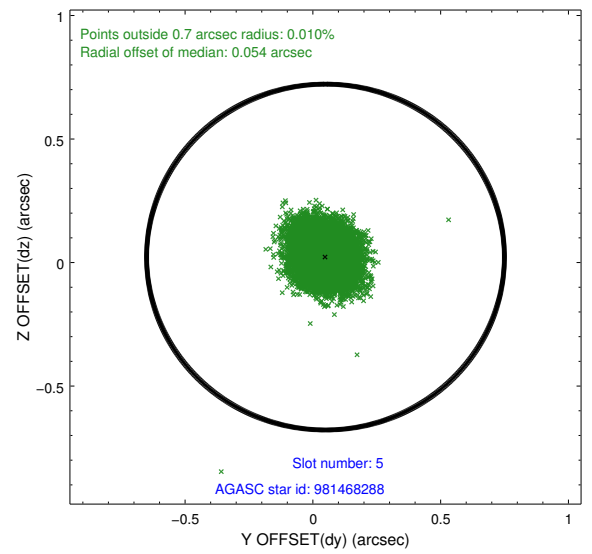
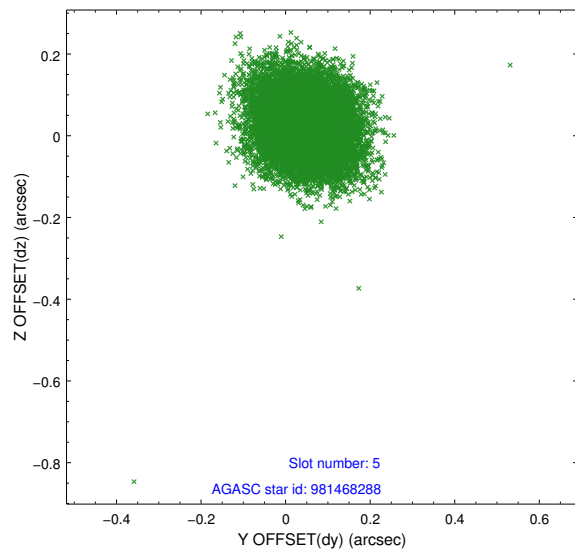
### 2.4.1 Slot 3



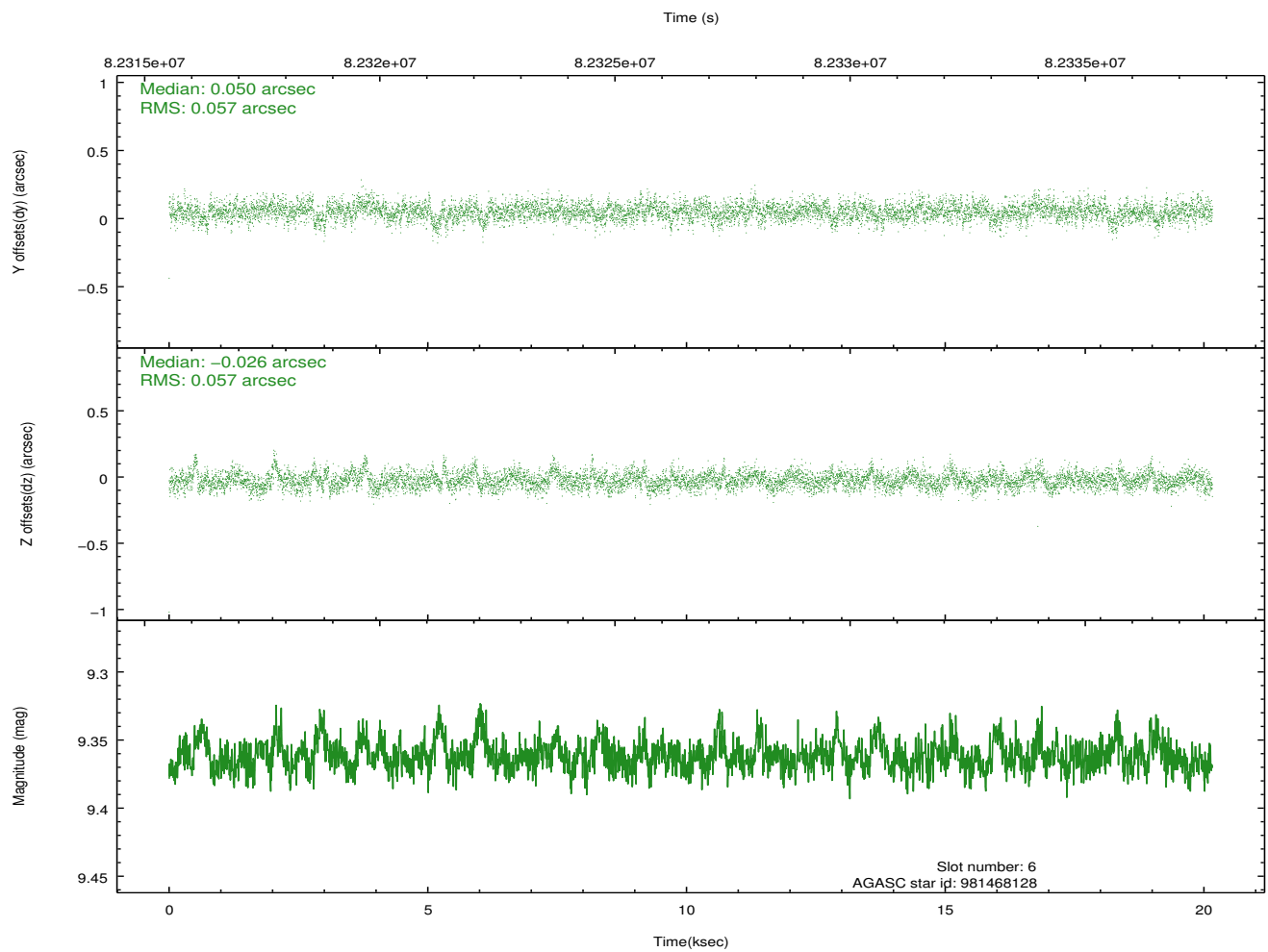
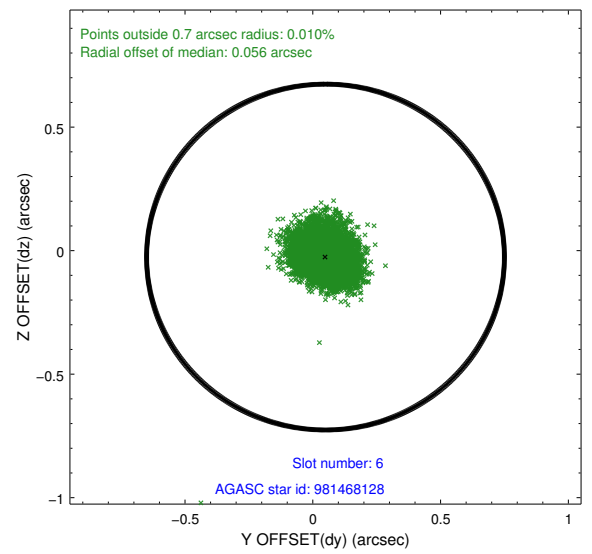
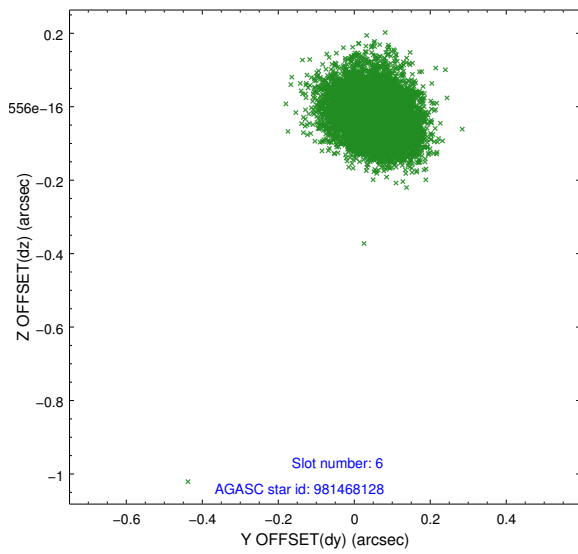
## 2.4.2 Slot 4



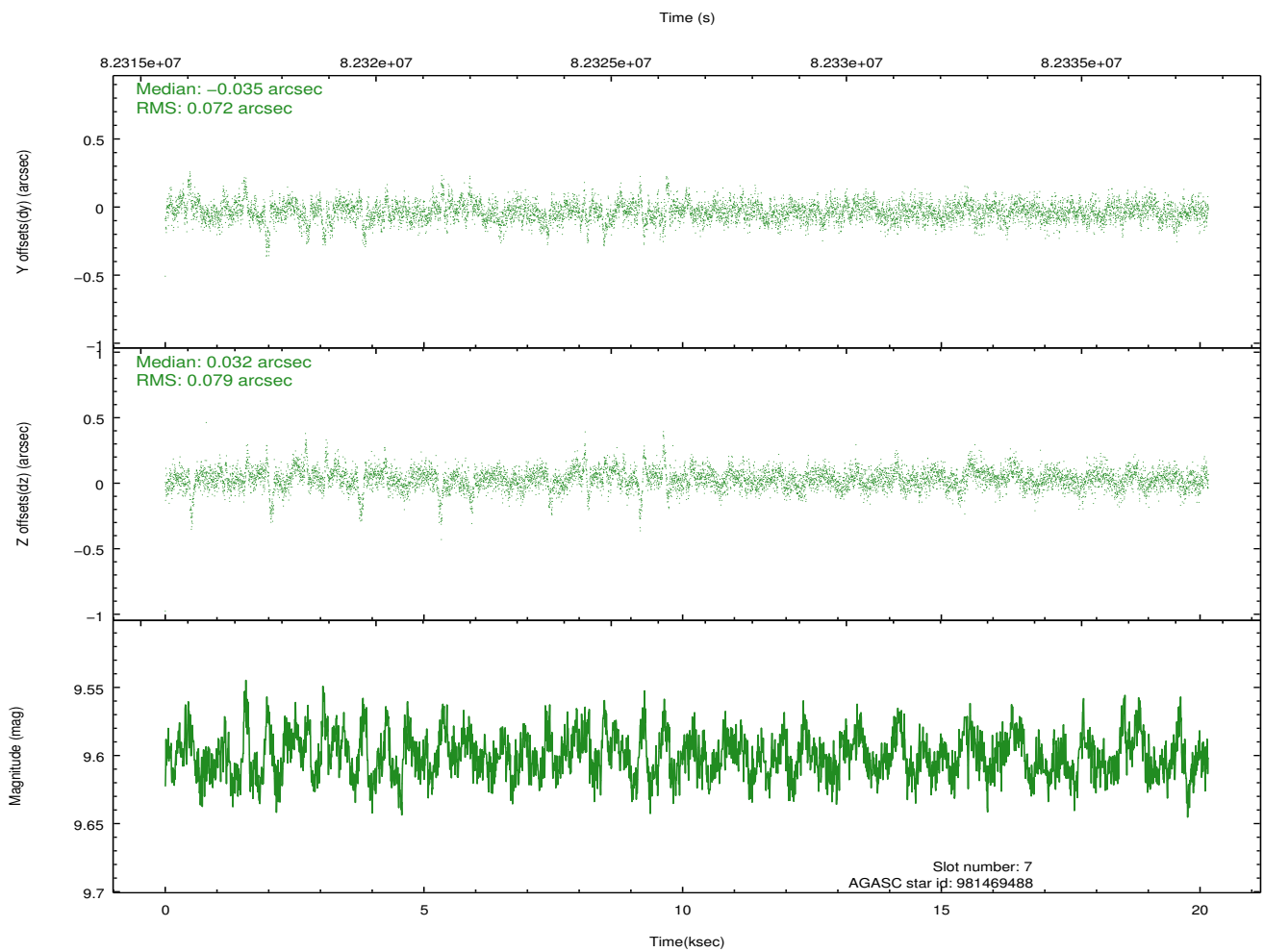
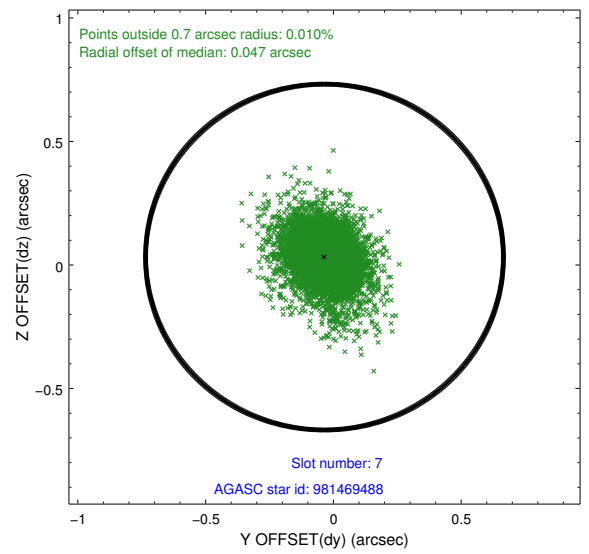
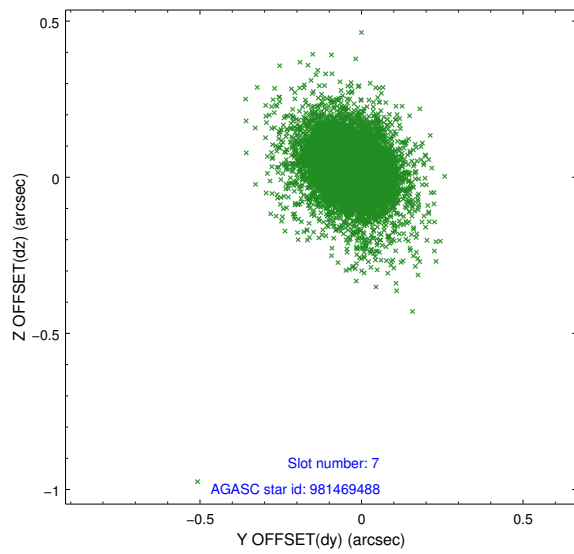
### 2.4.3 Slot 5



## 2.4.4 Slot 6

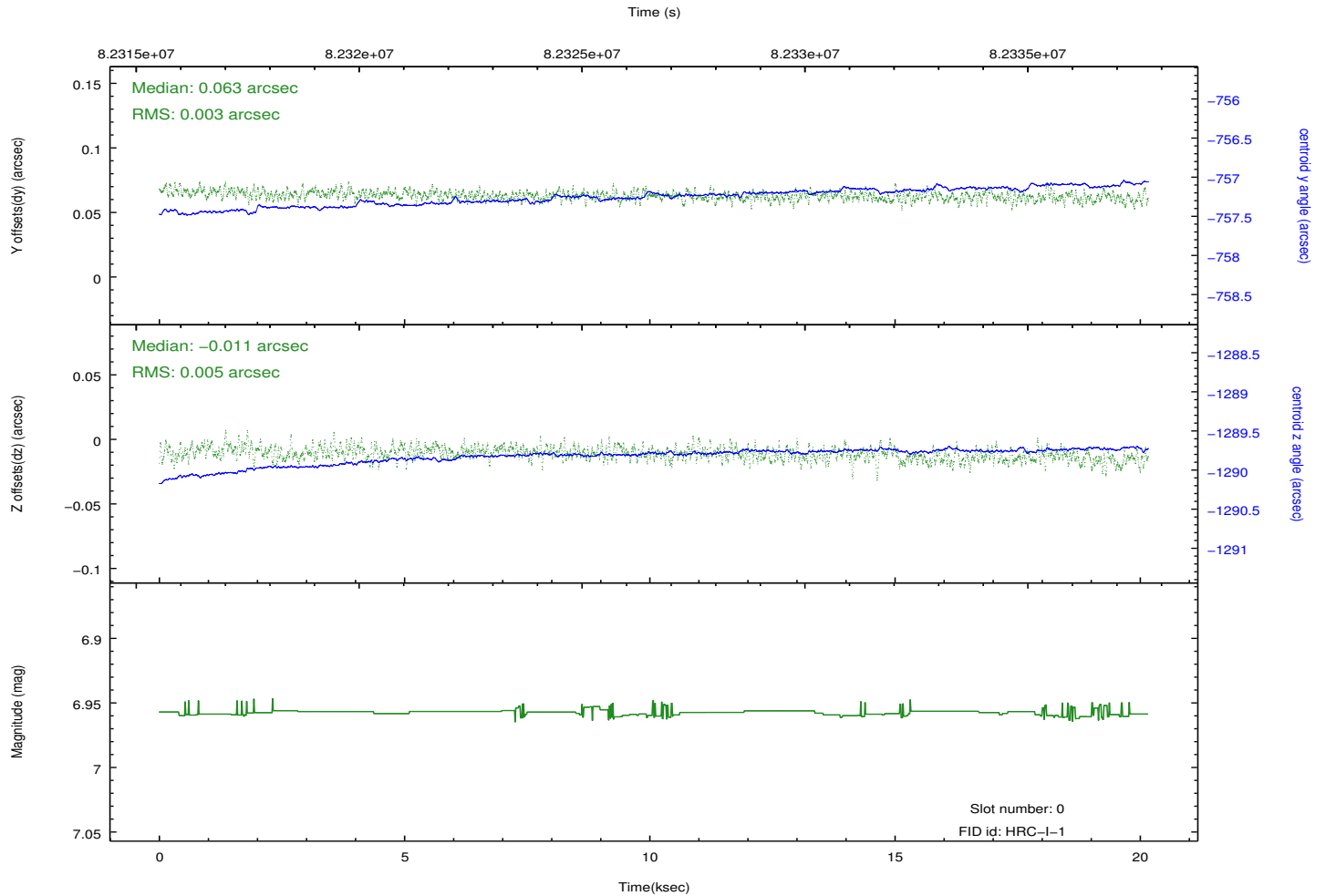
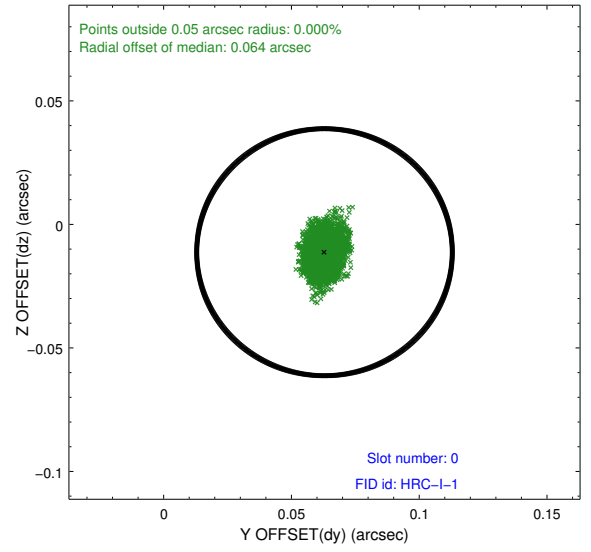
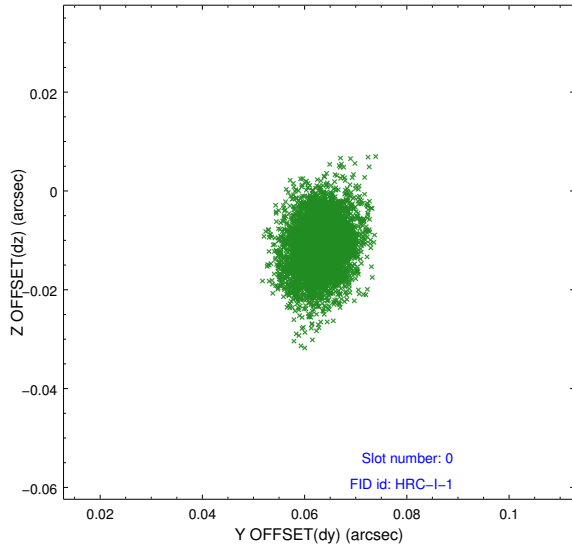


## 2.4.5 Slot 7

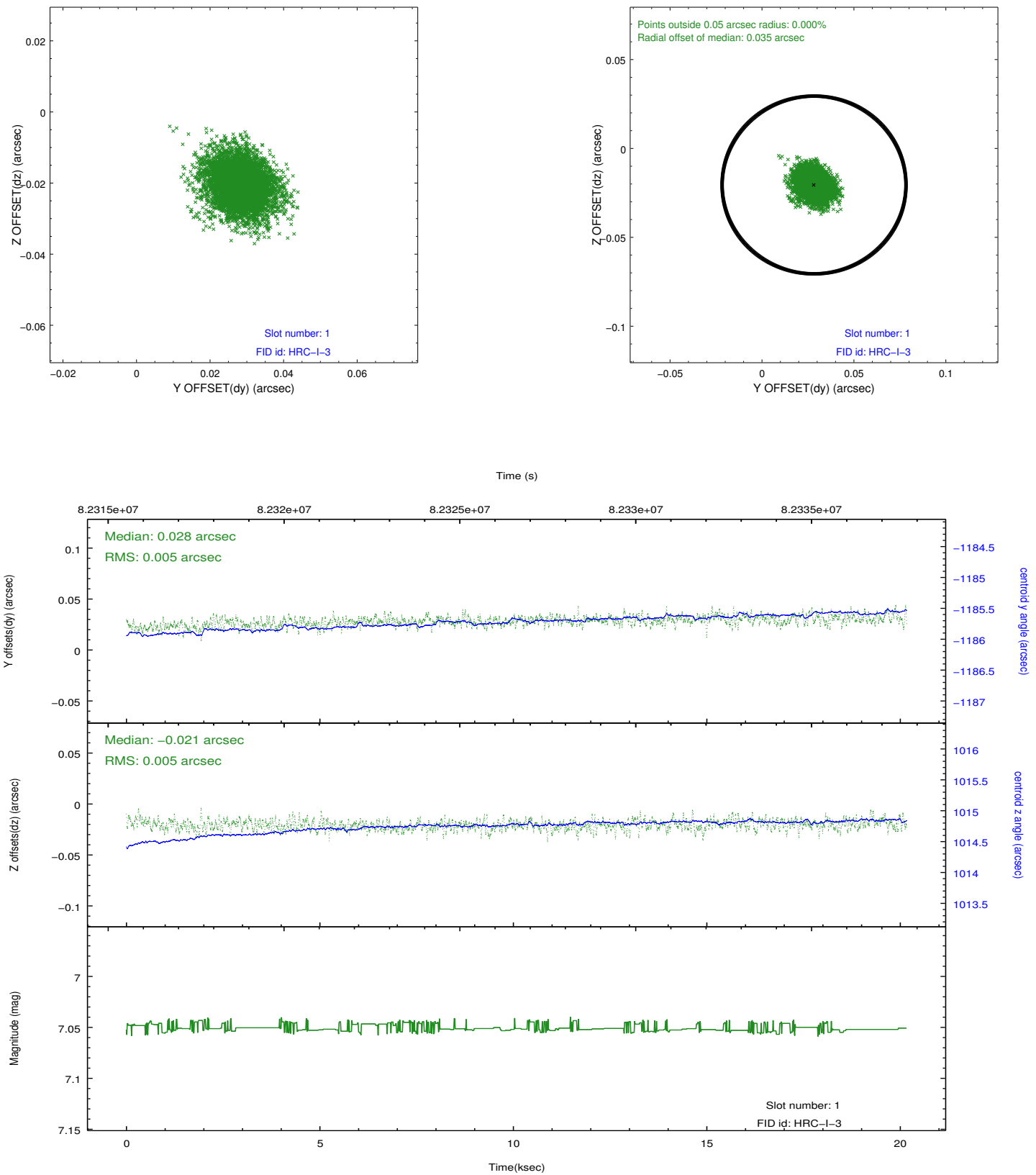


## 2.5 FID Slots

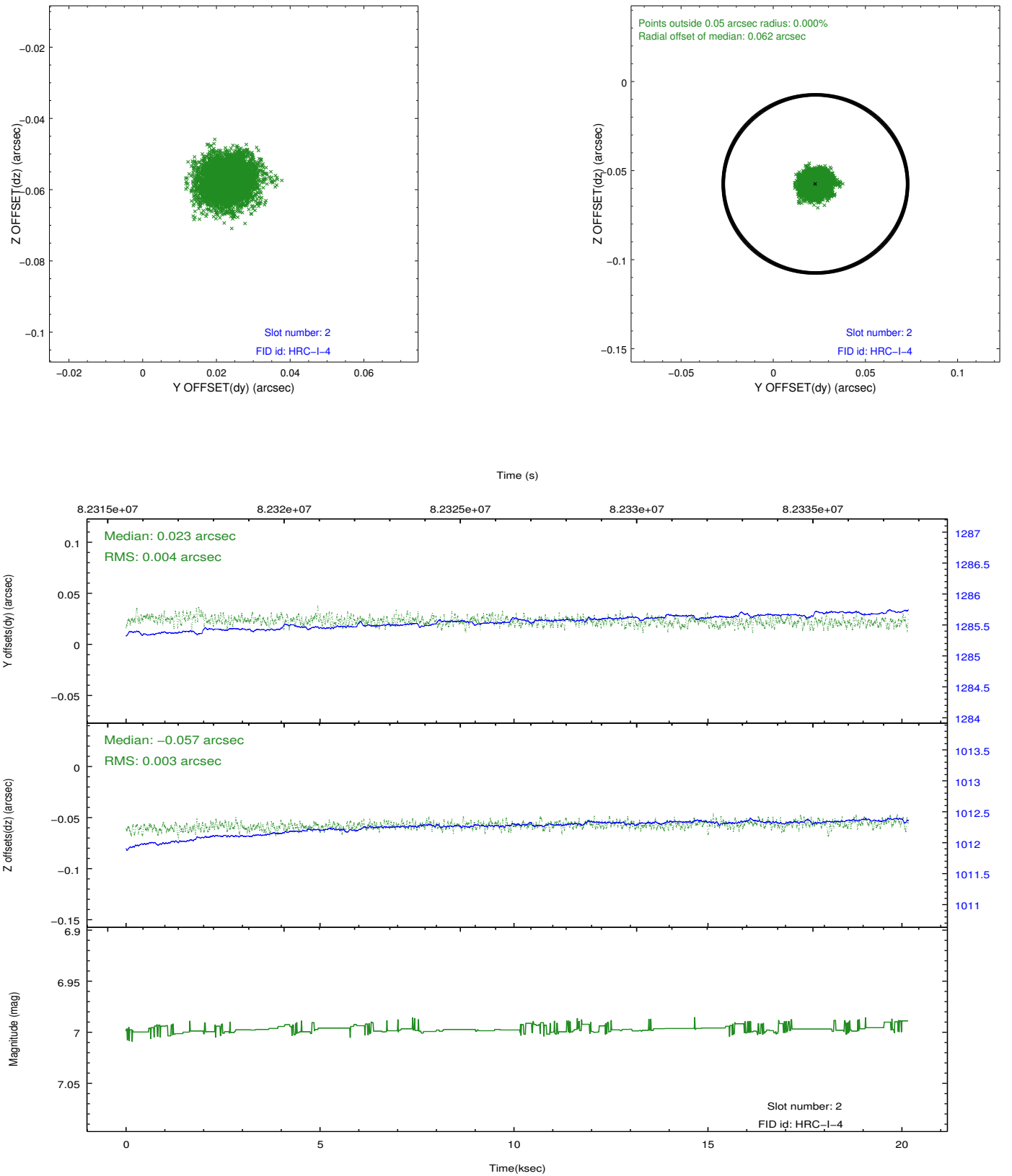
### 2.5.1 Slot 0



## 2.5.2 Slot 1

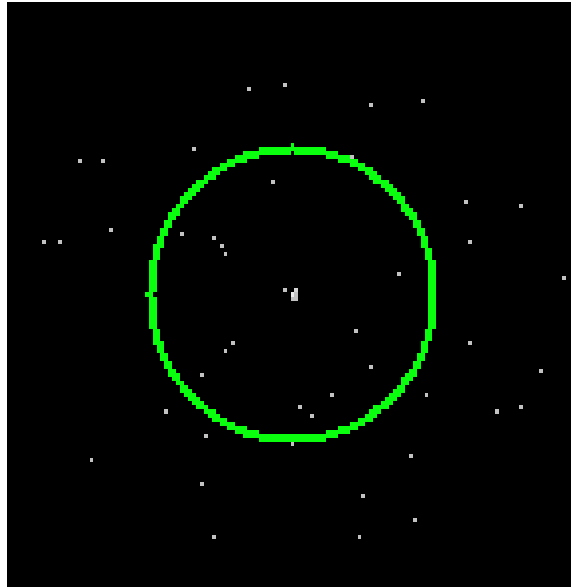


### 2.5.3 Slot 2



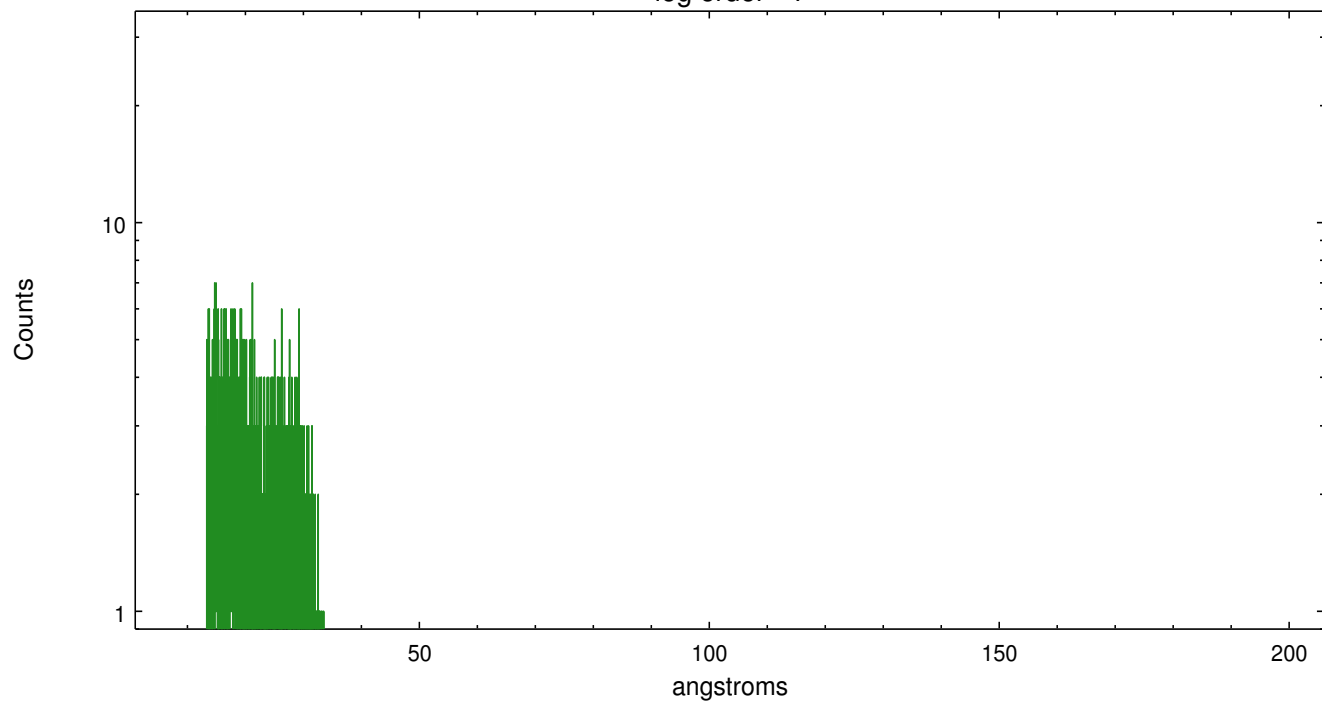
### 3 Gratings

#### 3.1 LETG Arm

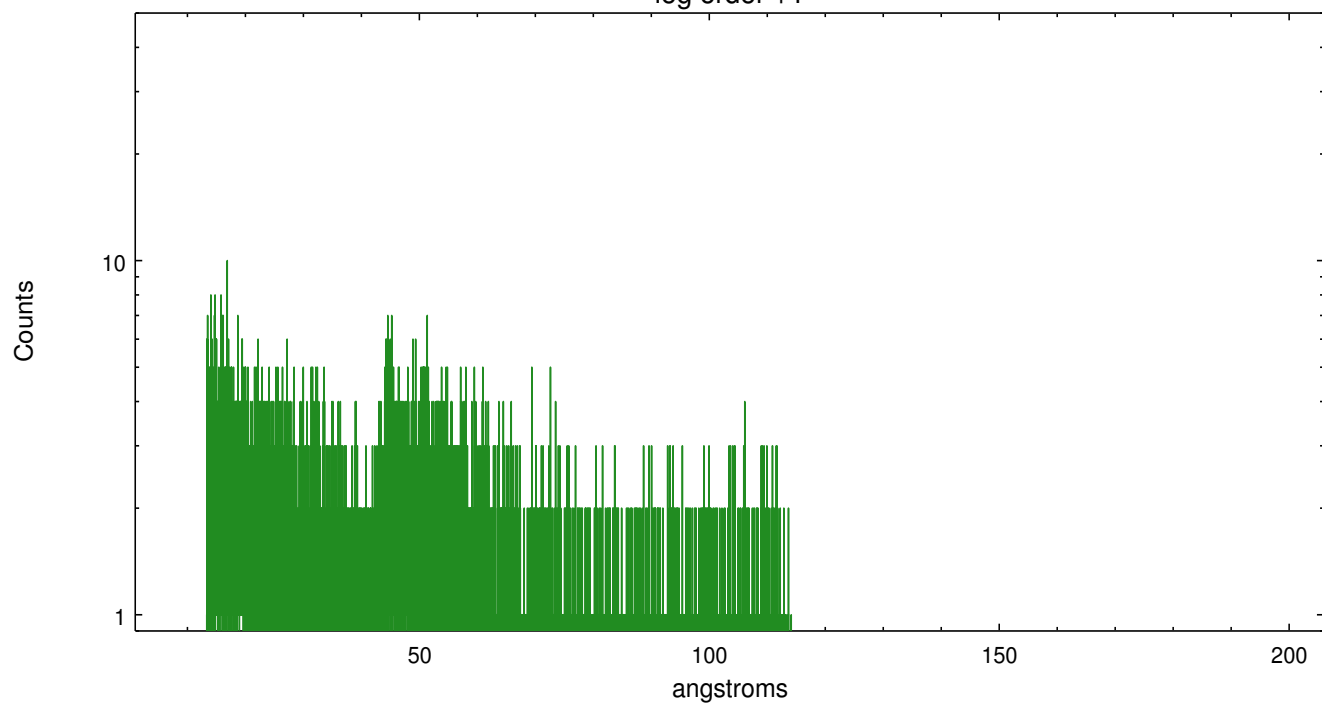


LETG Zero Order

leg order -1



leg order +1



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.12
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	19.863

## A.2 Comments

Source is placed about 12 arcmin off-axis toward the corner of the detector. Due to the off-axis position, the negative spectral order is truncated at about 30 A and the positive spectral order extends to about 115 A.

===

The point spread function is significantly extended by this off-axis position.

Standard software processing technique using the tool `tgdetect` failed to determine an accurate position for the zeroth order for this observation. The source is extended and asymmetric. The processing software defaulted to the coordinates supplied by the user for the position of the zeroth order for the grating spectral extraction.

===

Off-axis source gratings observation: WARNING: there are no standard CIAO tools for analysis of grating spectra from extended sources. The shape of an emission 'line' will be the shape of the zero order spatial structure convolved with the instrumental LSF. Grating extractions can be used, but need to be combined with custom spatial-spectral analysis, since wavelength is multi-valued at any particular diffraction angle. WARNING: The user will need to deconvolve the PSF of the off-axis source to get an accurate determination of the zeroth order position, then use software tools such as CIAO to specify the coordinates of the zeroth order before running the tools to resolve the dispersed events. The spectral data supplied in this processing are only energy-calibrated for the results of `tgdetect`, which uses the user-supplied coordinates for the zeroth order position.