

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 2603 - L2 Version 4  
Chandra X-Ray Center

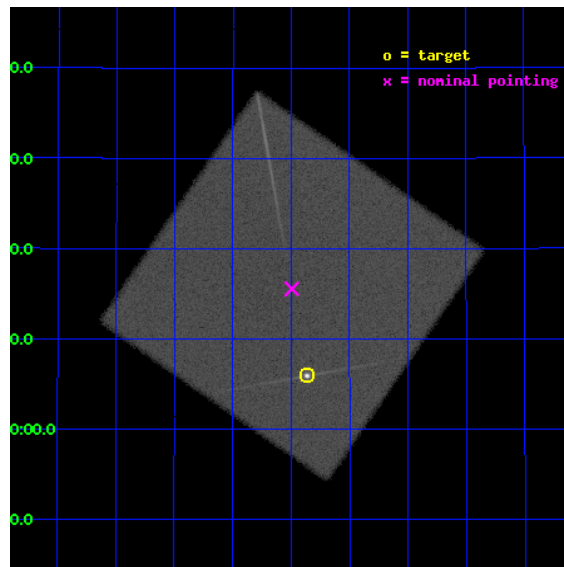
L2 Processing Date : Oct 11 2012

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# 1 Front

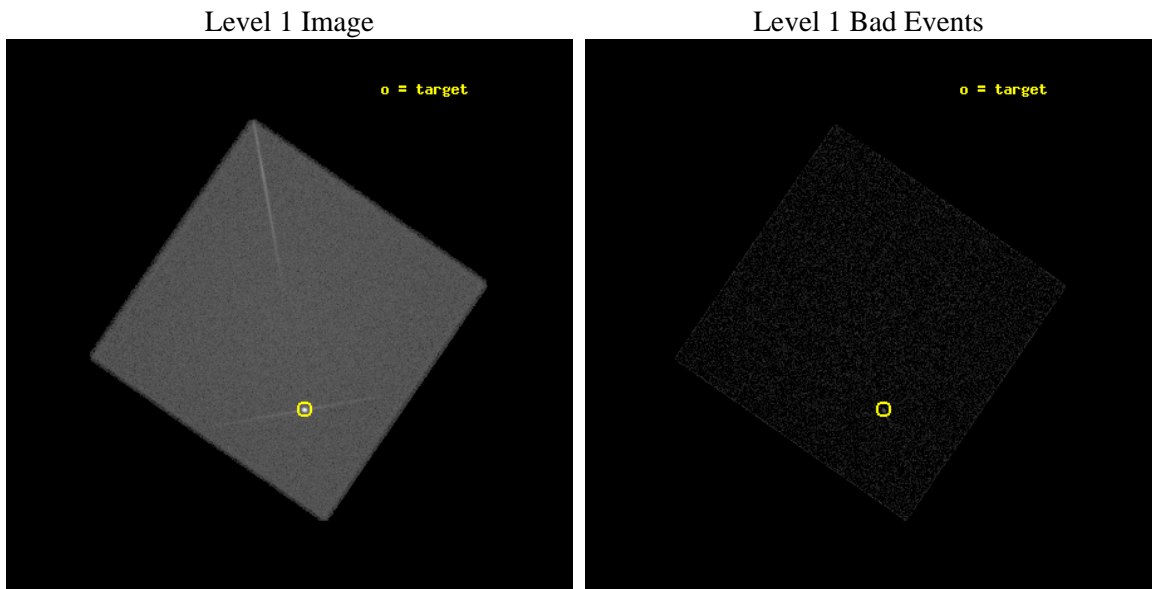
seq_num	290159	Sequence number
obs_id	2603	Observation id
title	AO3 LETG/HRC-I CALIBRATION OBSERVATIONS OF HZ43	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	HZ43	Source name
ra_targ	199.092083	Observer's specified target RA [deg]
dec_targ	29.099	Observer's specified target Dec [deg]
ra_nom	199.12332903069	Nominal RA [deg]
dec_nom	29.259417511838	Nominal Dec [deg]
roll_nom	259.63511401326	Nominal Roll [deg]
revision	4	Processing version of data
ontime	10187.73166886	[s]
livetime	10104.651733958	Ontime multiplied by DTCOR
l2events	622925	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	10000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	10187.73166886	[s]
caldsver	4.5.2	&#160	l1events	932847	Number of level 1 events
date	2012-10-11T19:34:53	Date and time of file creation			
revision	4	Processing version of data			

### 2.1.3 Events

#### Level 1 Events

	<b>segment 0</b>
level 1 events	932847
rejected events	94763
rejected %	10%

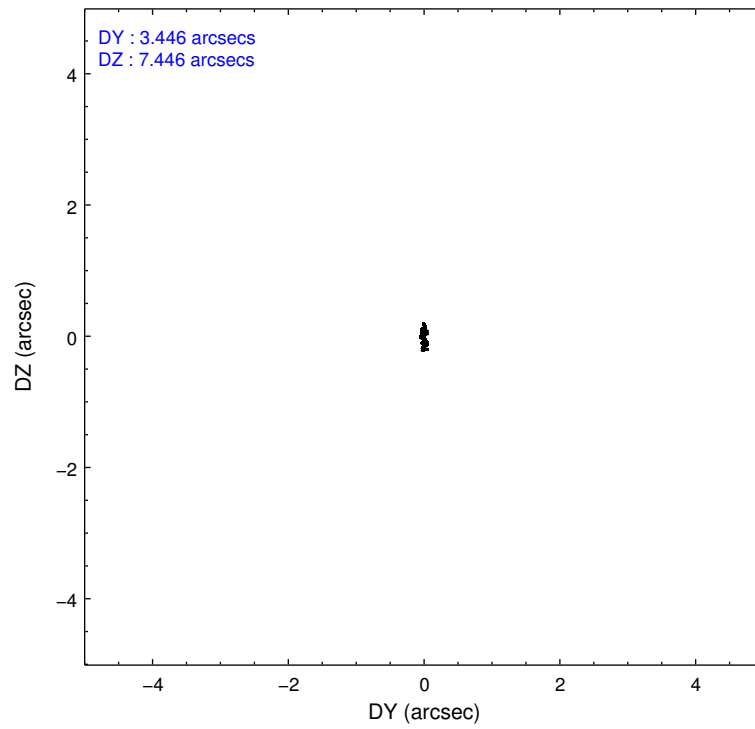
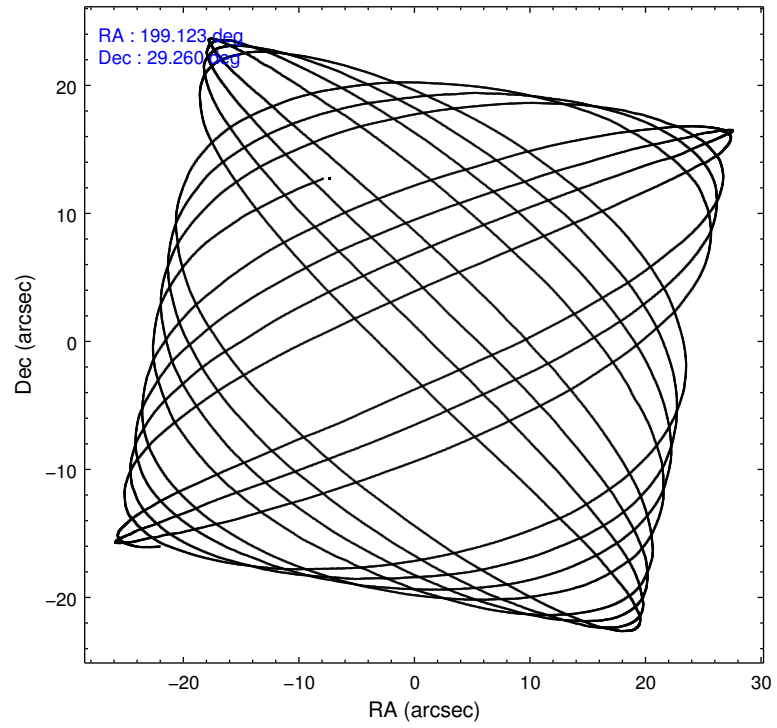


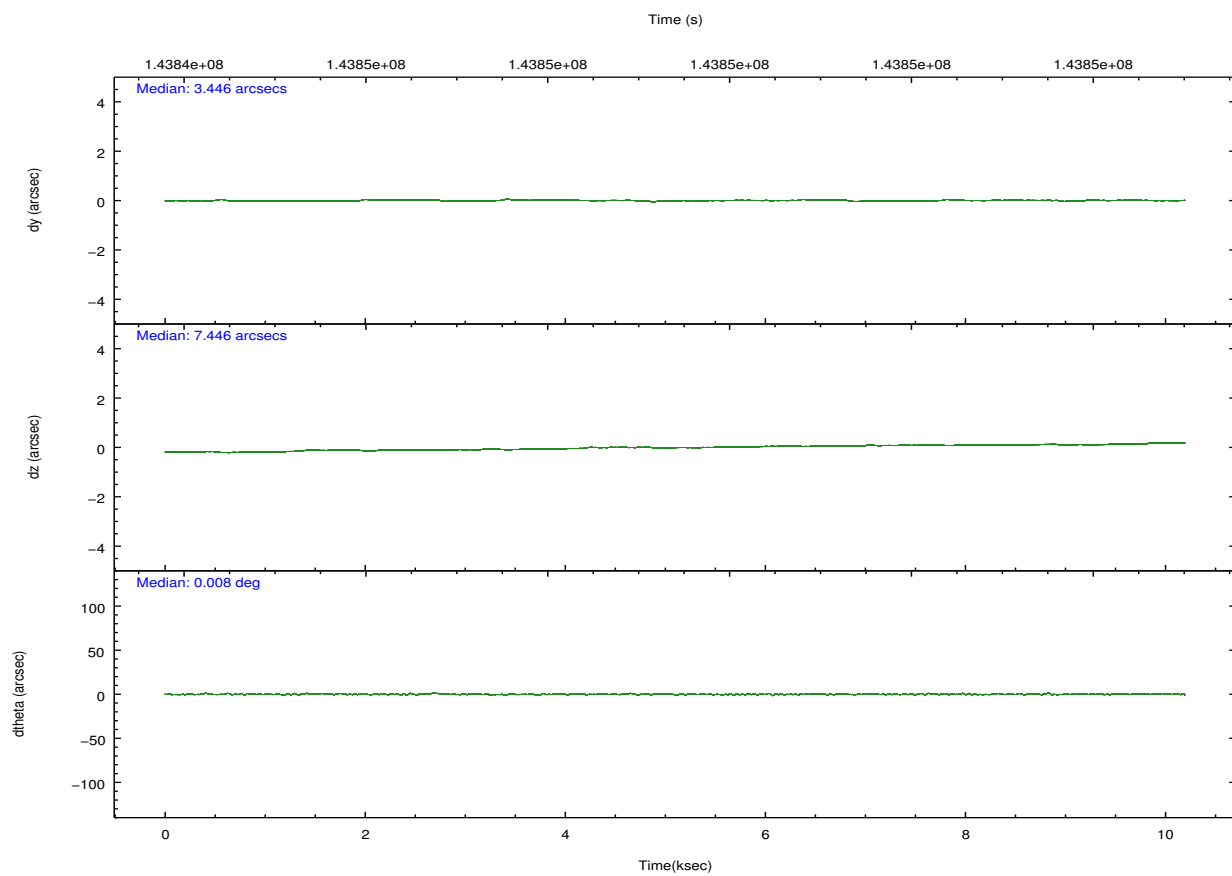
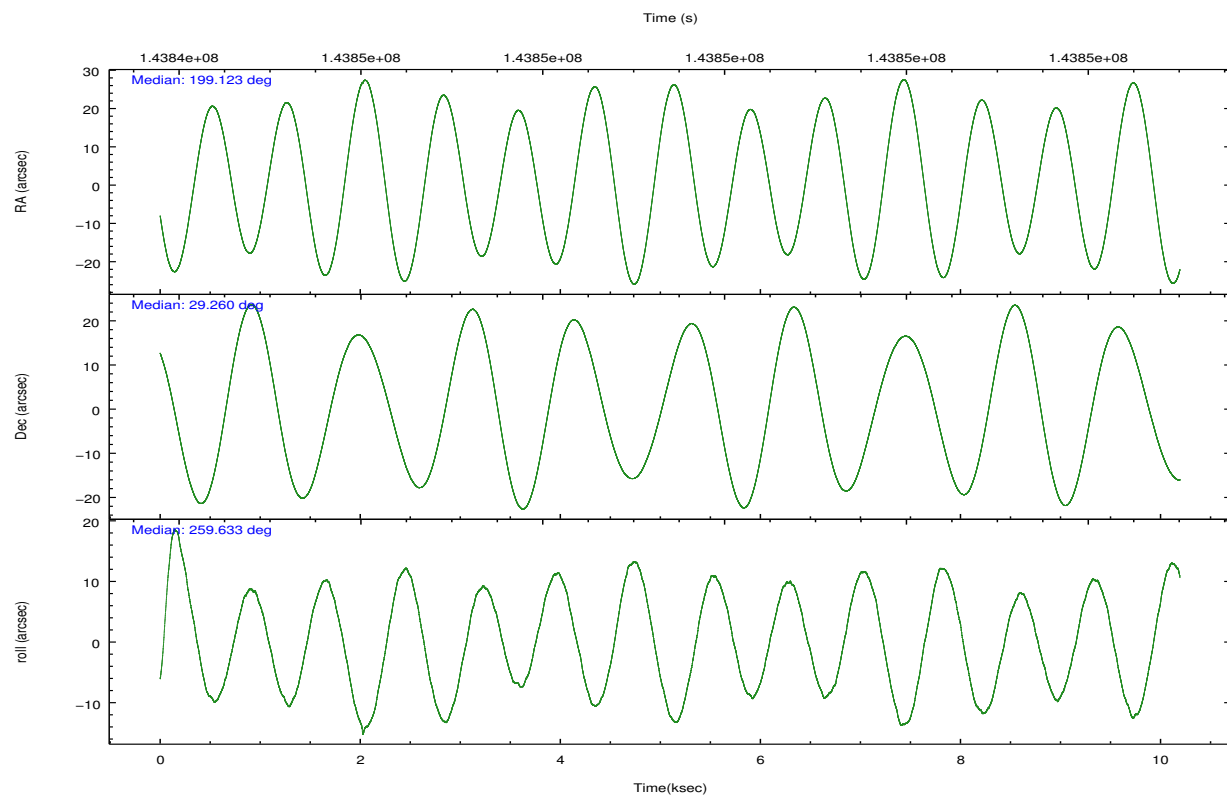
## 2.2 Compared Parameters

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	199.112369	199.1233290306945
[deg] Pointing Dec	29.284823	29.25941751183827
[deg] Pointing Roll	259.735963	259.6351140132572
[s] Window start time (MET)	141868864.184000	141868864.184000
[s] Window stop time (MET)	144460864.184000	144460864.184000
[mm] SIM focus pos	-1.040293	-1.038866356238299
[mm] SIM defocus	0	0.001426264420575141
[mm] SIM translation stage pos	126.985494	126.9854943052878
[mm] SIM translation stage offset	0	-5.413686238853188e-06
[s] Observation start time (MET)	143844498.184000	143844101.31507
Observation start date	2002-07-23T20:47:14	2002-07-23T20:41:41
[s] Observation end time (MET)	143854498.184000	143855520.84054
Observation end date	2002-07-23T23:33:54	2002-07-23T23:52:00

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

## 2.3 Aspect



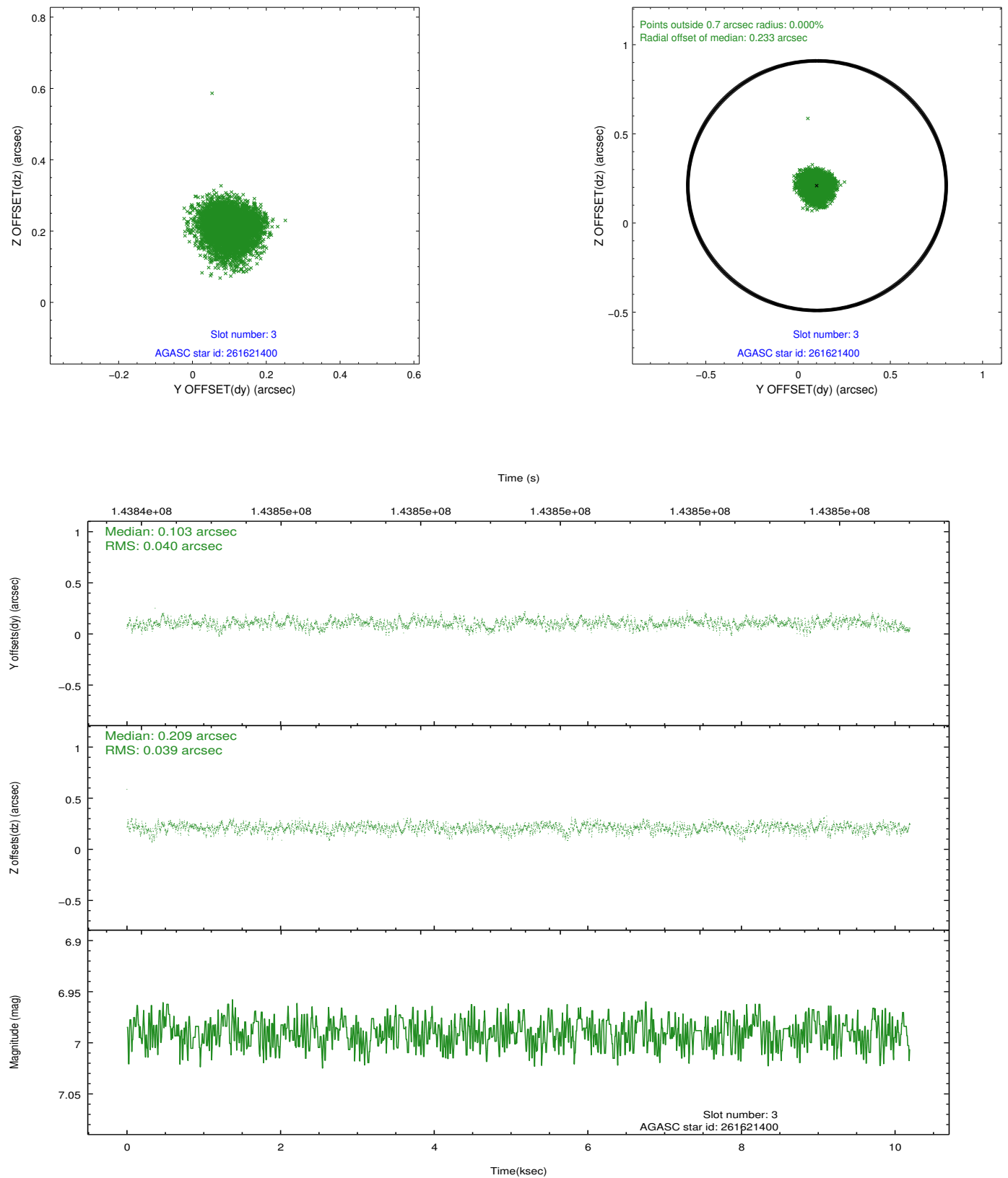


### Slot Statistics

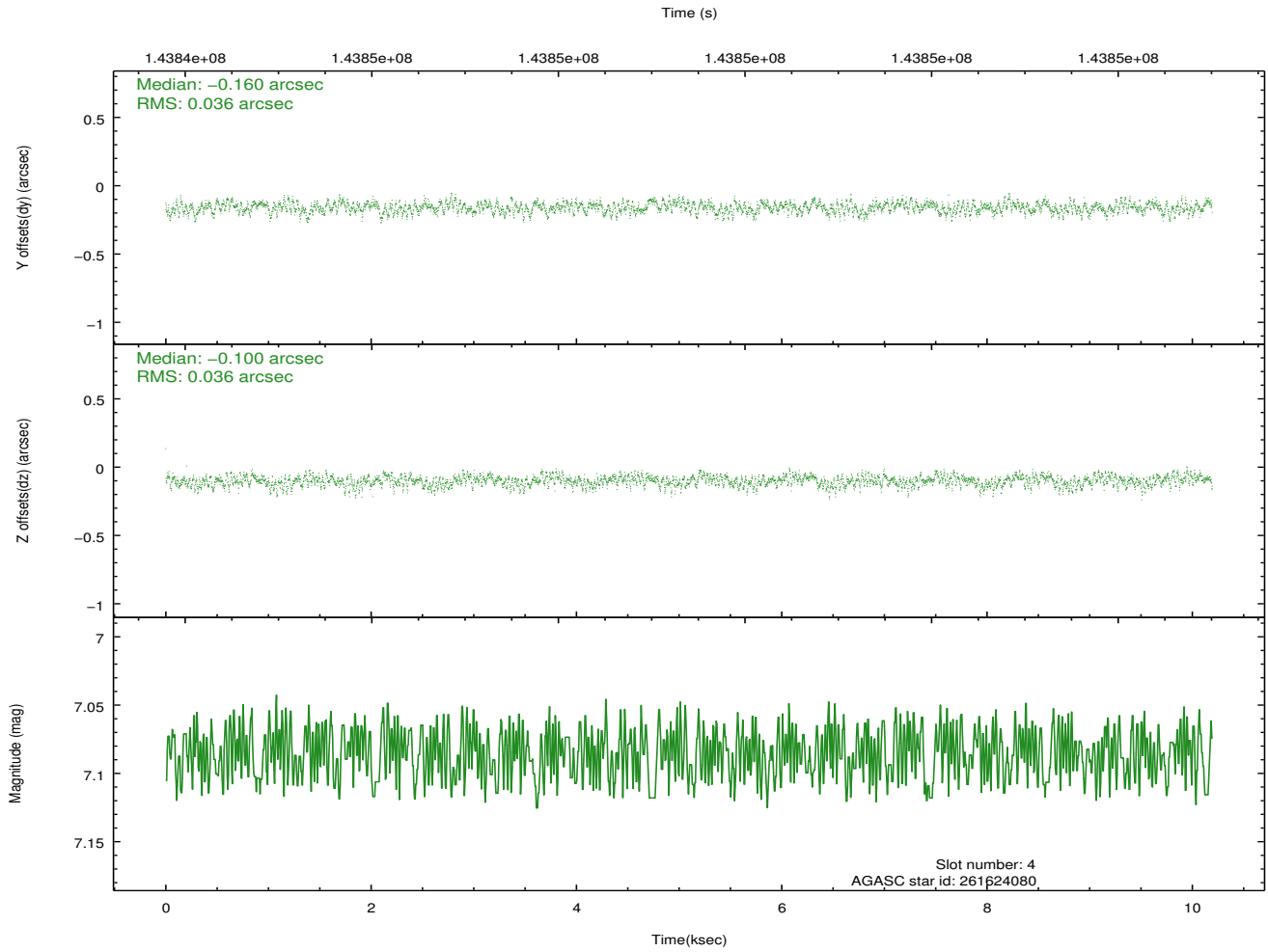
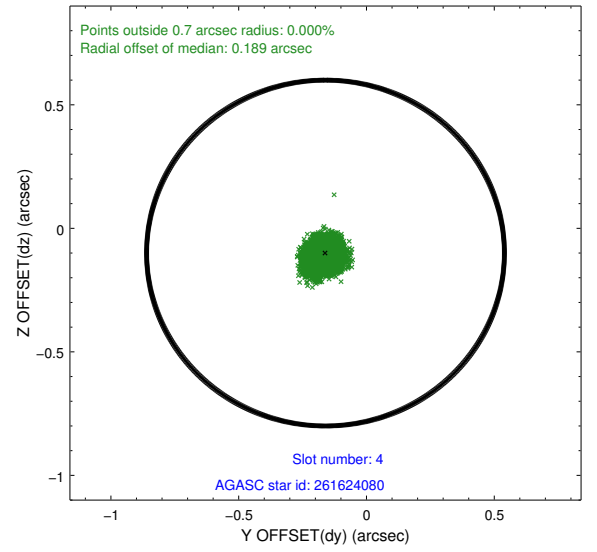
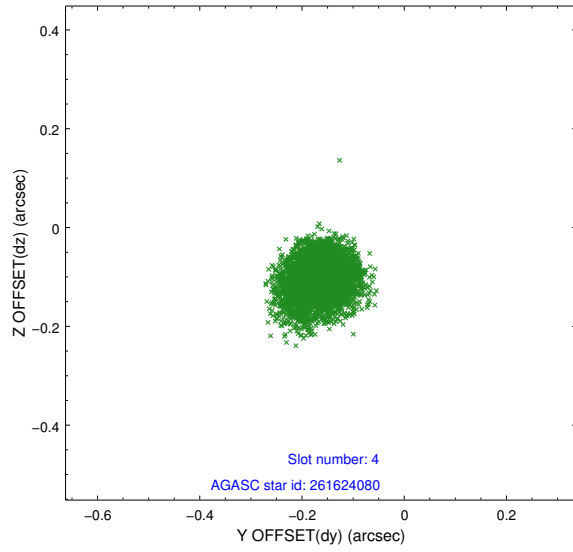
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	HRC-I-2	6.99	2486	0.090	0.002	0.007	0.012	0.000000	0.000000	853.79	-1296.91
1	FID	HRC-I-3	7.04	2486	-0.004	0.012	0.006	0.010	0.000000	0.000000	-1187.08	1008.71
2	FID	HRC-I-4	6.99	2486	0.033	-0.100	0.006	0.011	0.000000	0.000000	1283.41	1007.13
3	GUIDE	261621400	6.99	4972	0.103	0.209	0.060	0.094	198.901600	28.741982	2041.14	-305.46
4	GUIDE	261624080	7.09	4972	-0.160	-0.100	0.055	0.089	198.424651	29.817768	-1510.98	-2456.03
5	GUIDE	261629720	8.09	4972	0.138	-0.030	0.055	0.090	199.236176	29.044452	781.78	537.98
6	GUIDE	261626352	8.61	4970	-0.094	-0.029	0.091	0.141	198.417097	29.781420	-1378.38	-2456.80
7	GUIDE	261623040	9.12	4969	0.018	-0.041	0.077	0.125	198.792686	29.757643	-1498.36	-1286.35

## 2.4 Star Slots

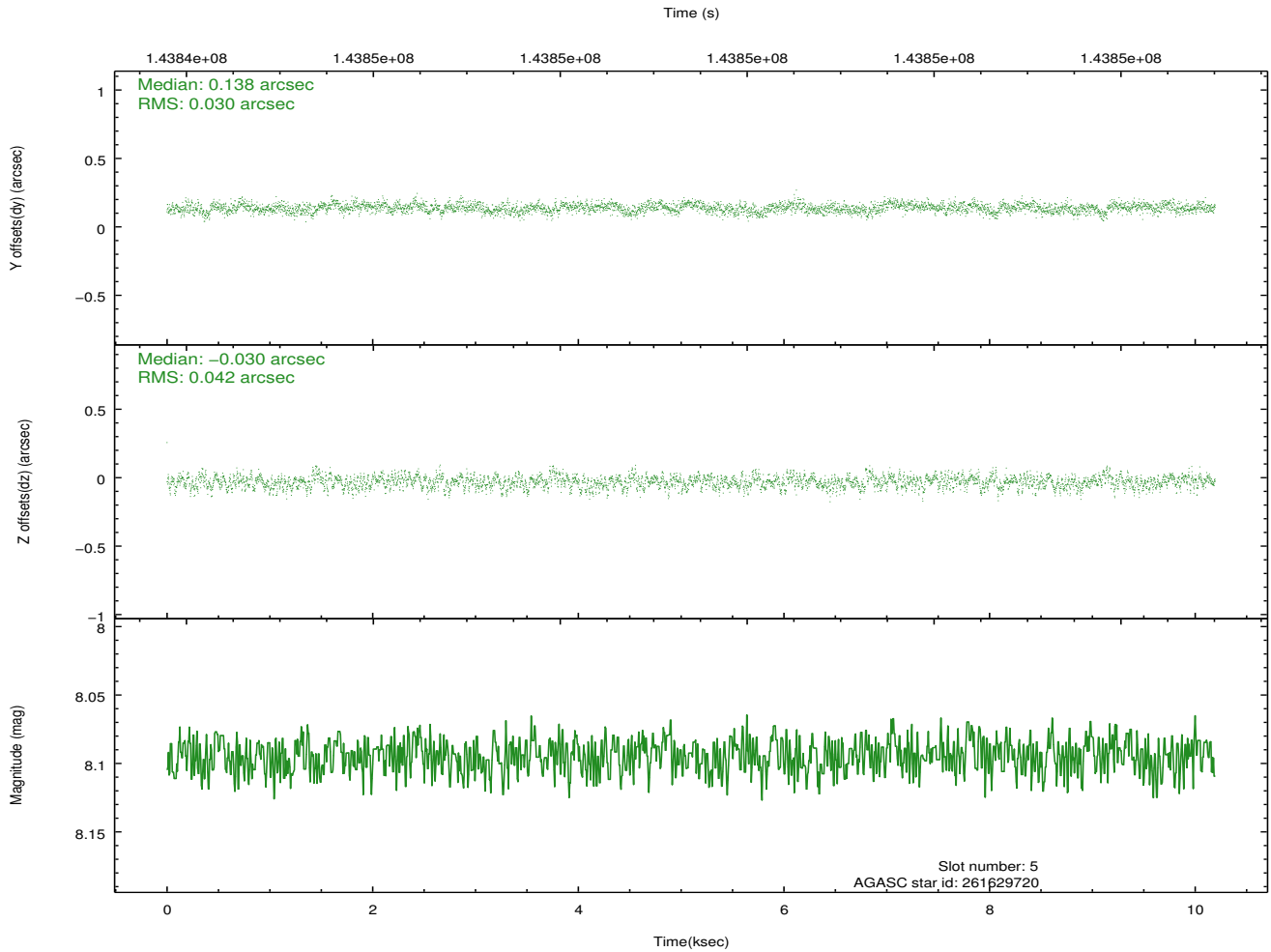
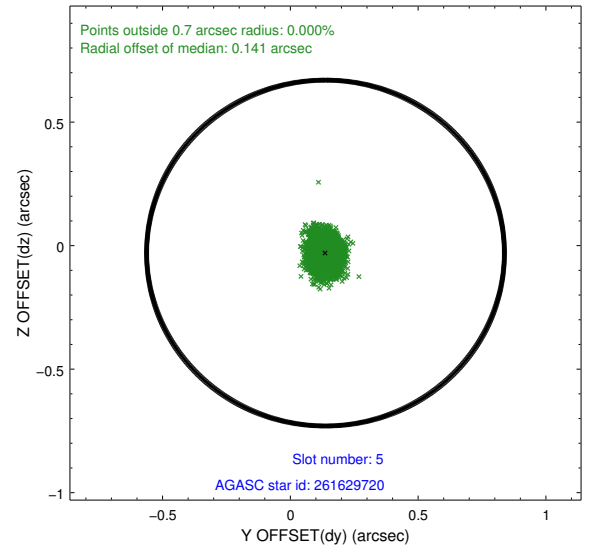
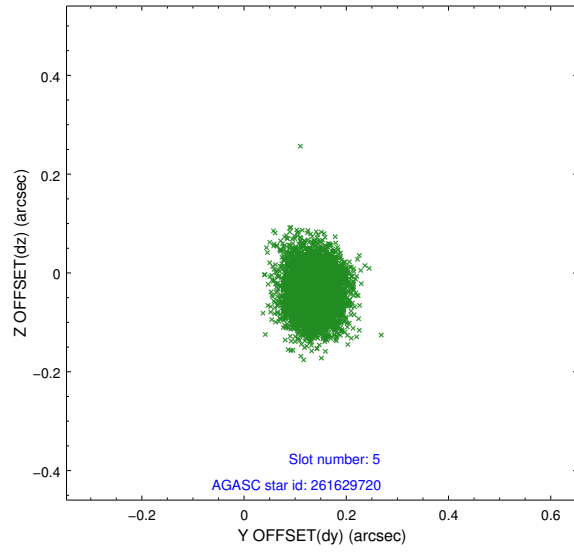
### 2.4.1 Slot 3



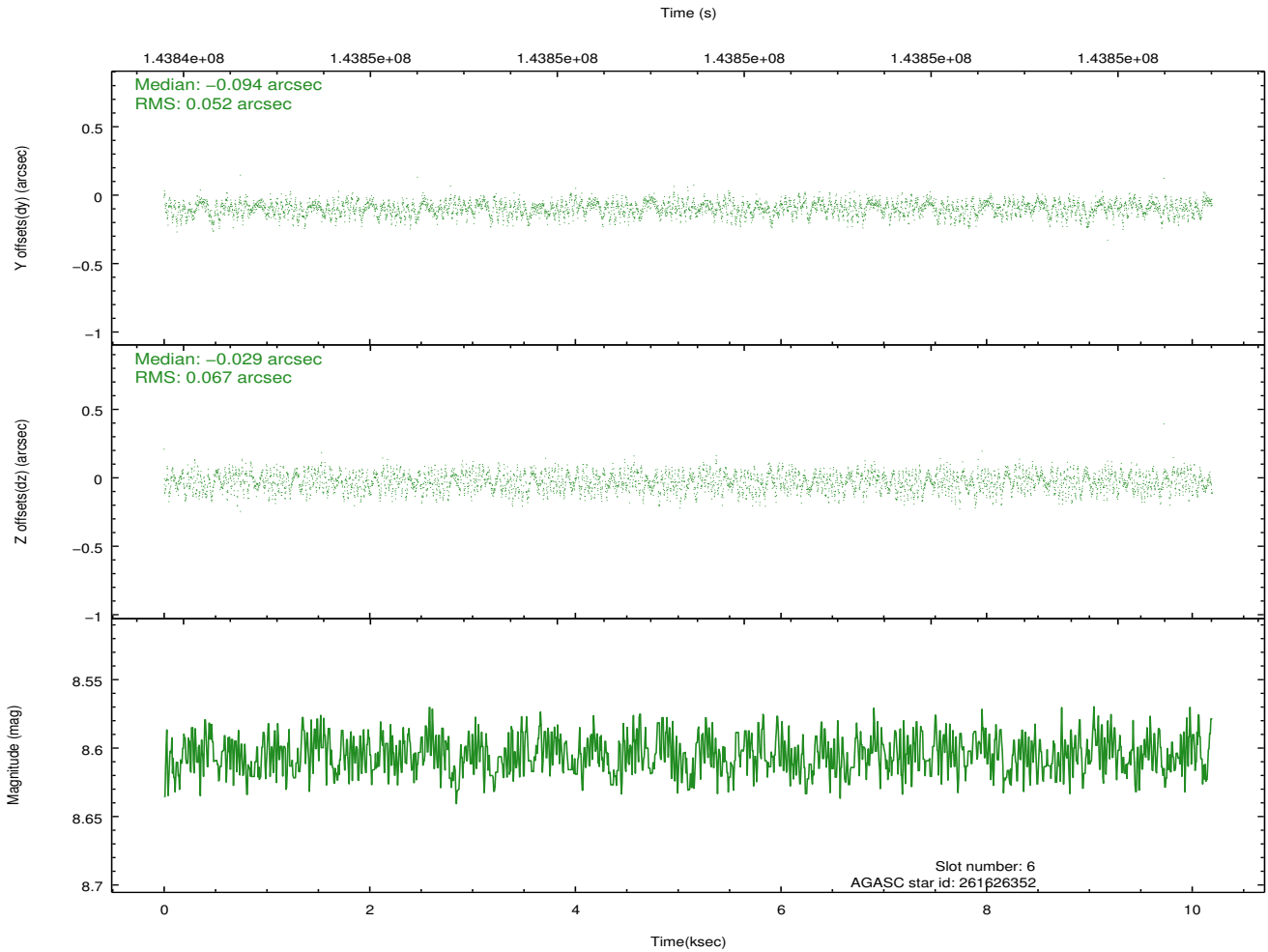
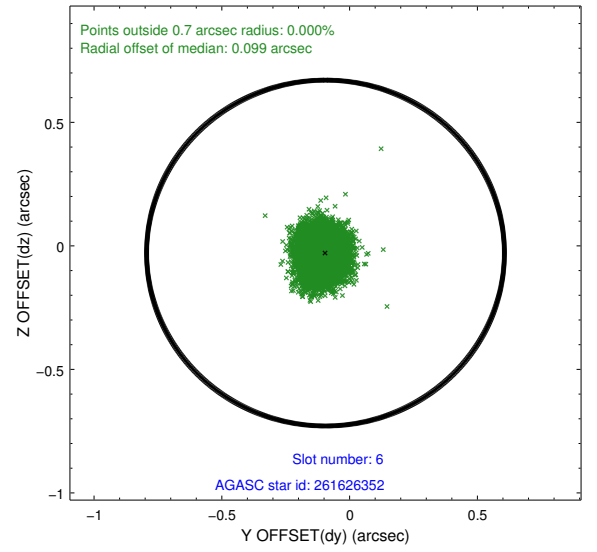
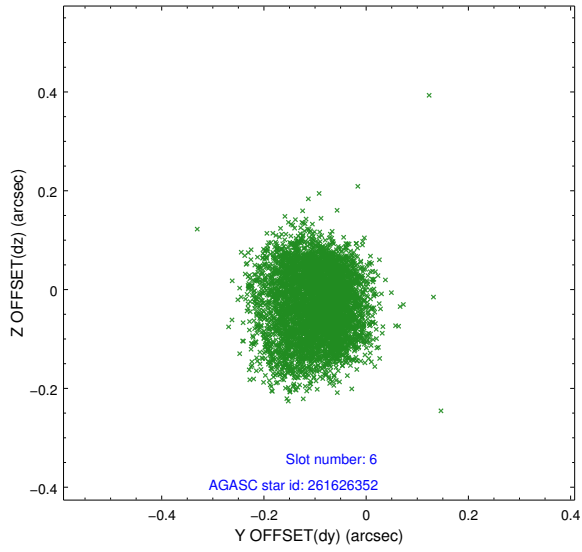
## 2.4.2 Slot 4



### 2.4.3 Slot 5

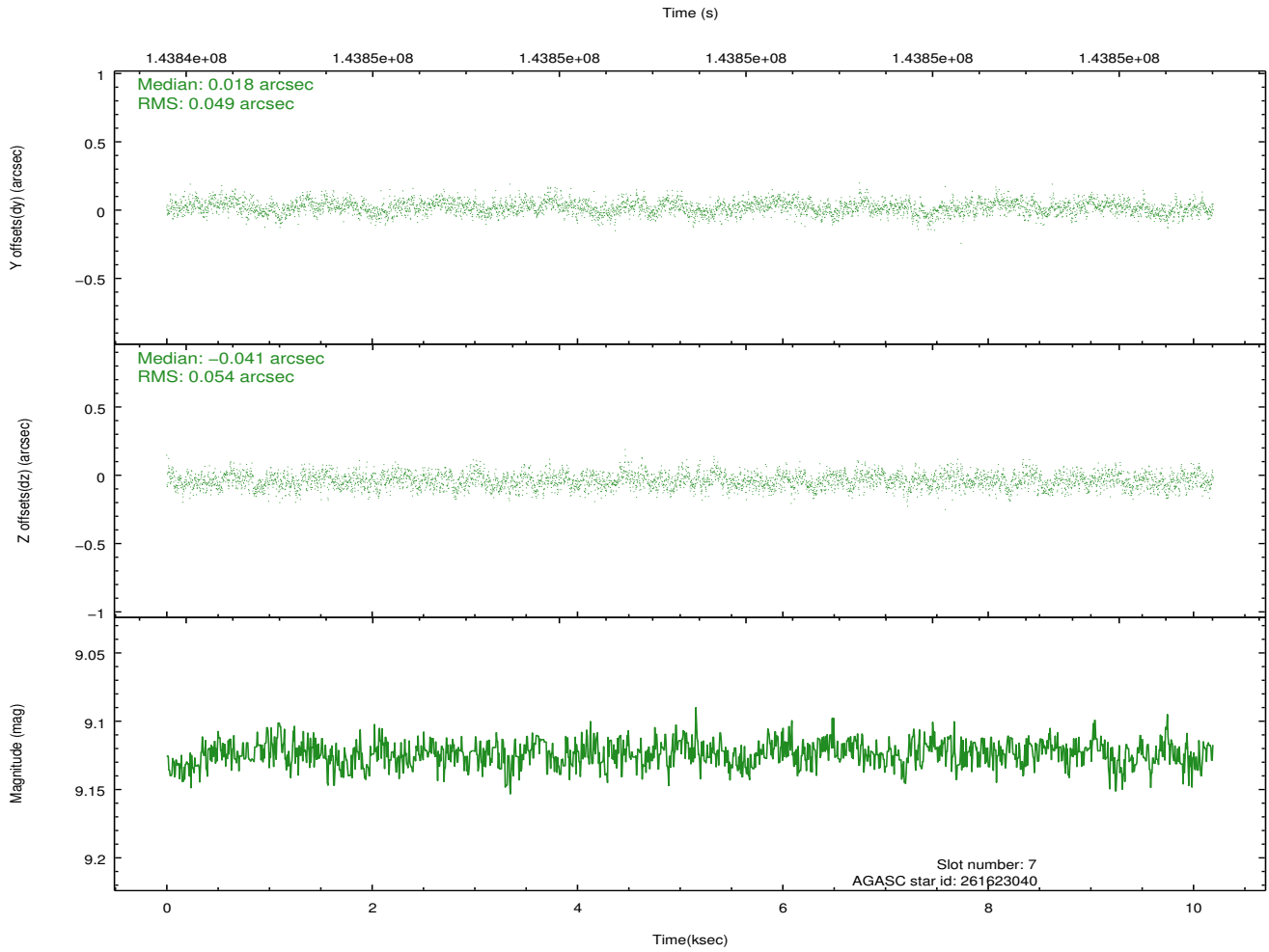
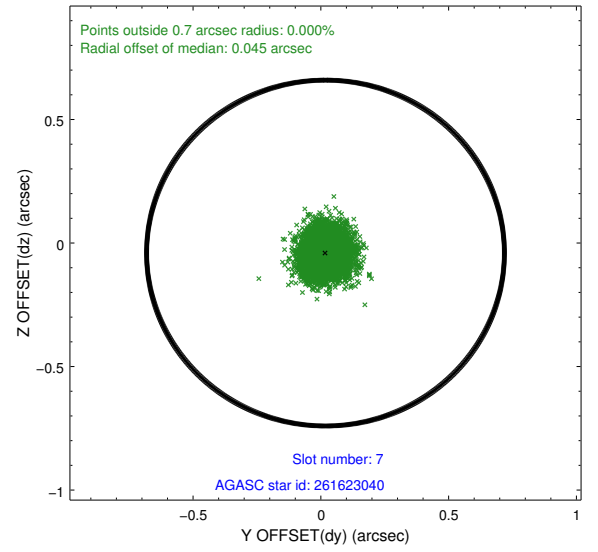
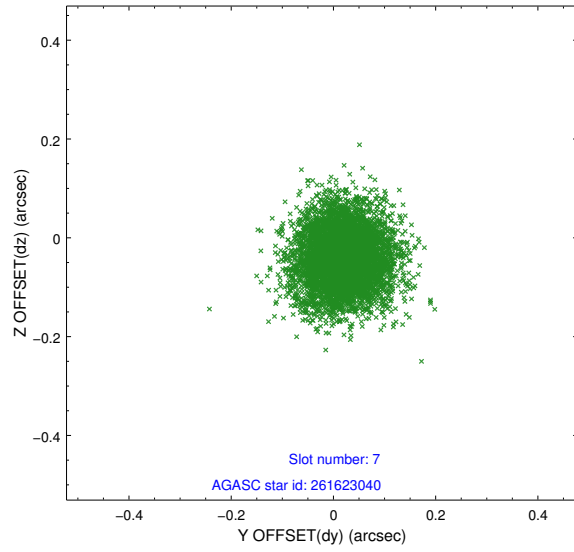


## 2.4.4 Slot 6



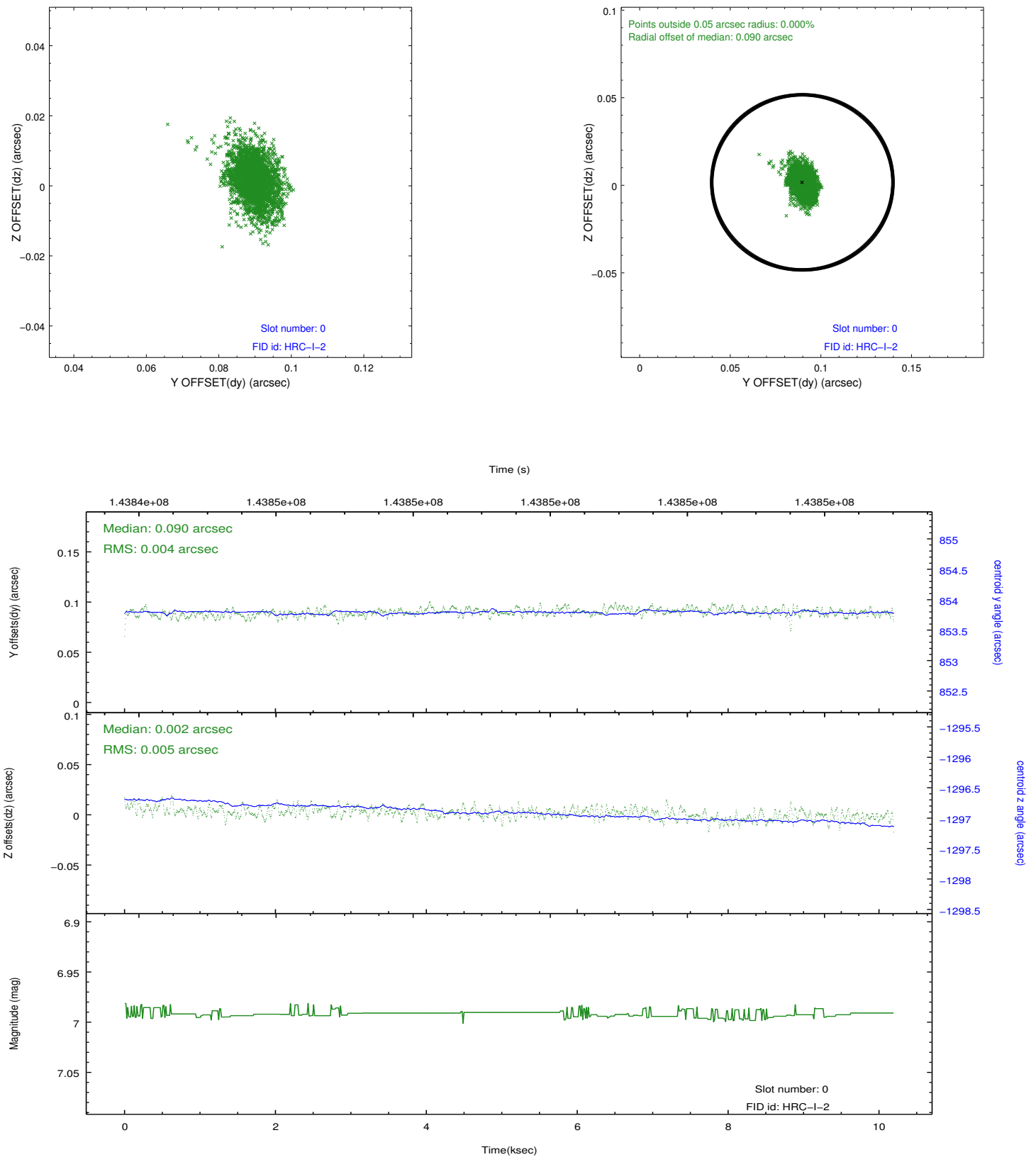


## 2.4.5 Slot 7

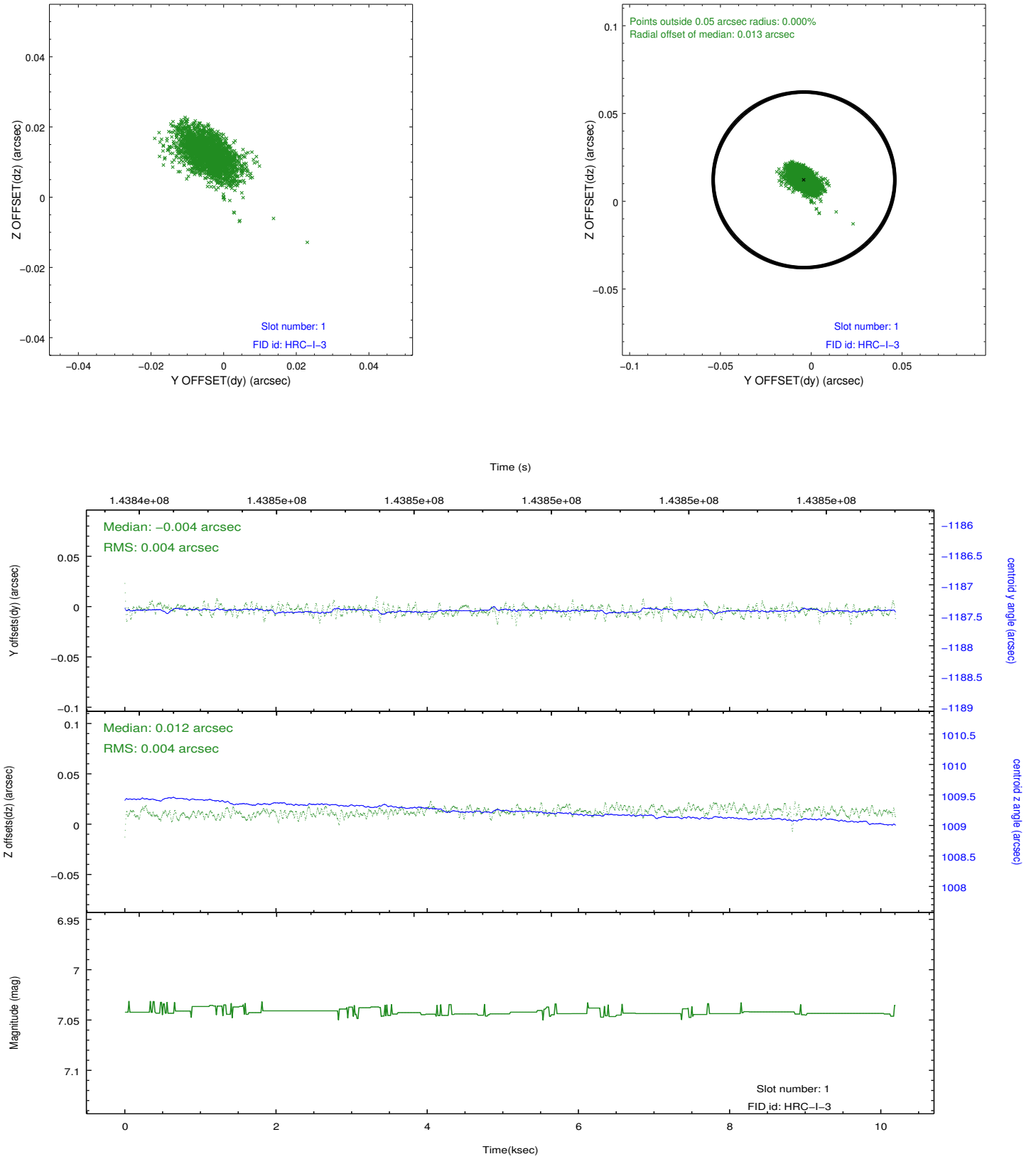


## 2.5 FID Slots

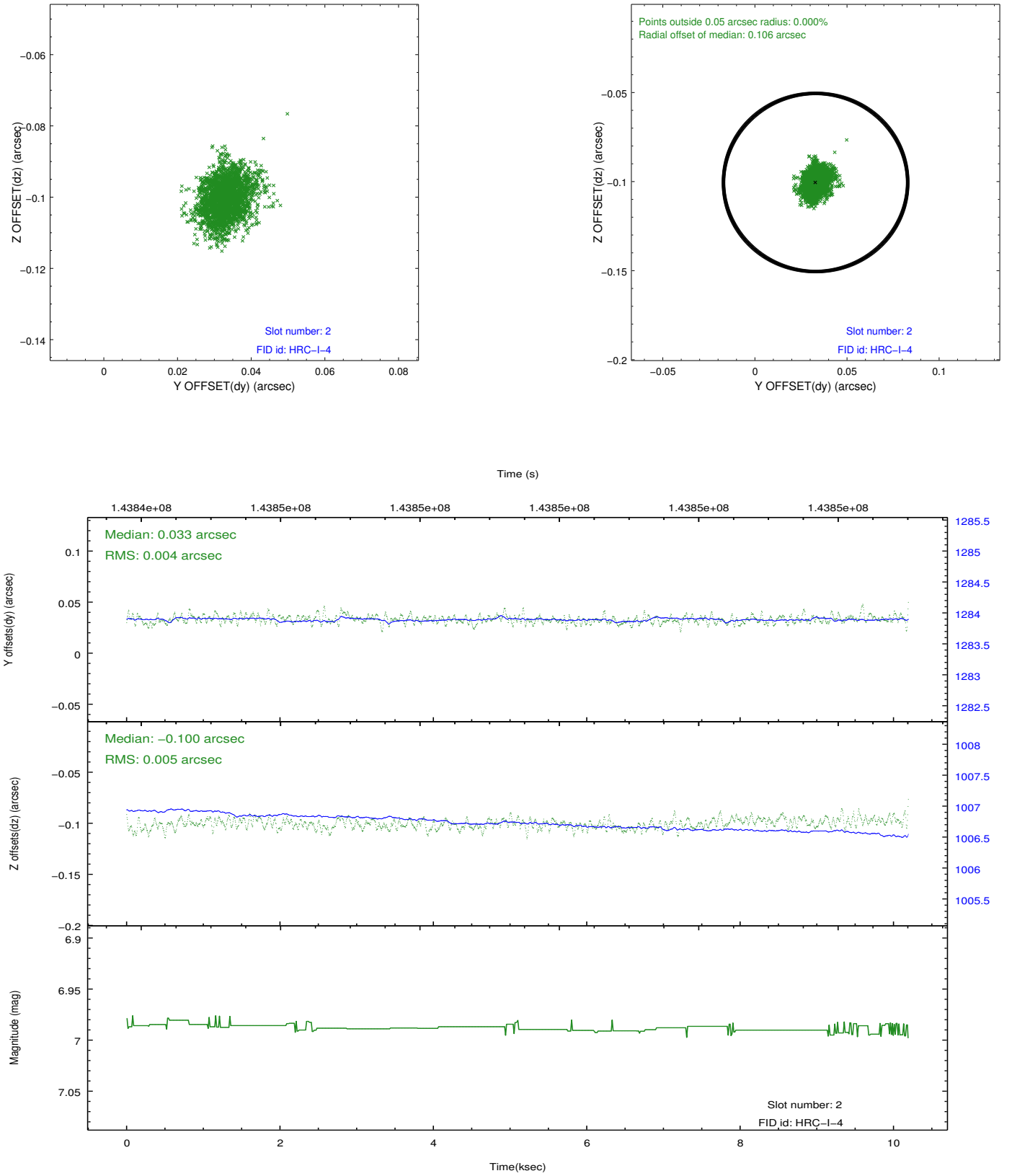
### 2.5.1 Slot 0



## 2.5.2 Slot 1

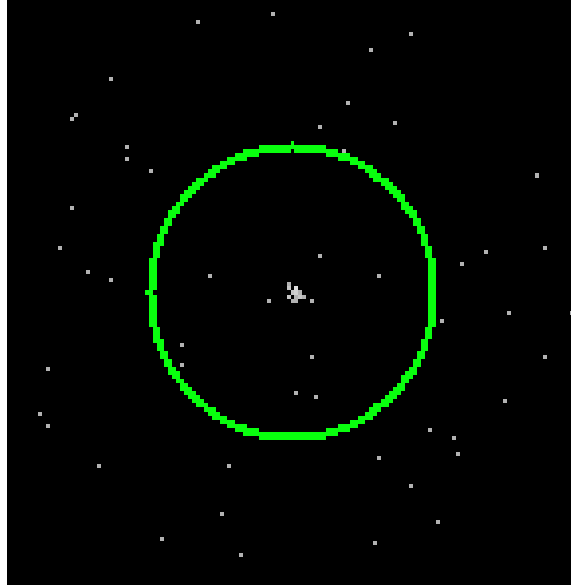


### 2.5.3 Slot 2

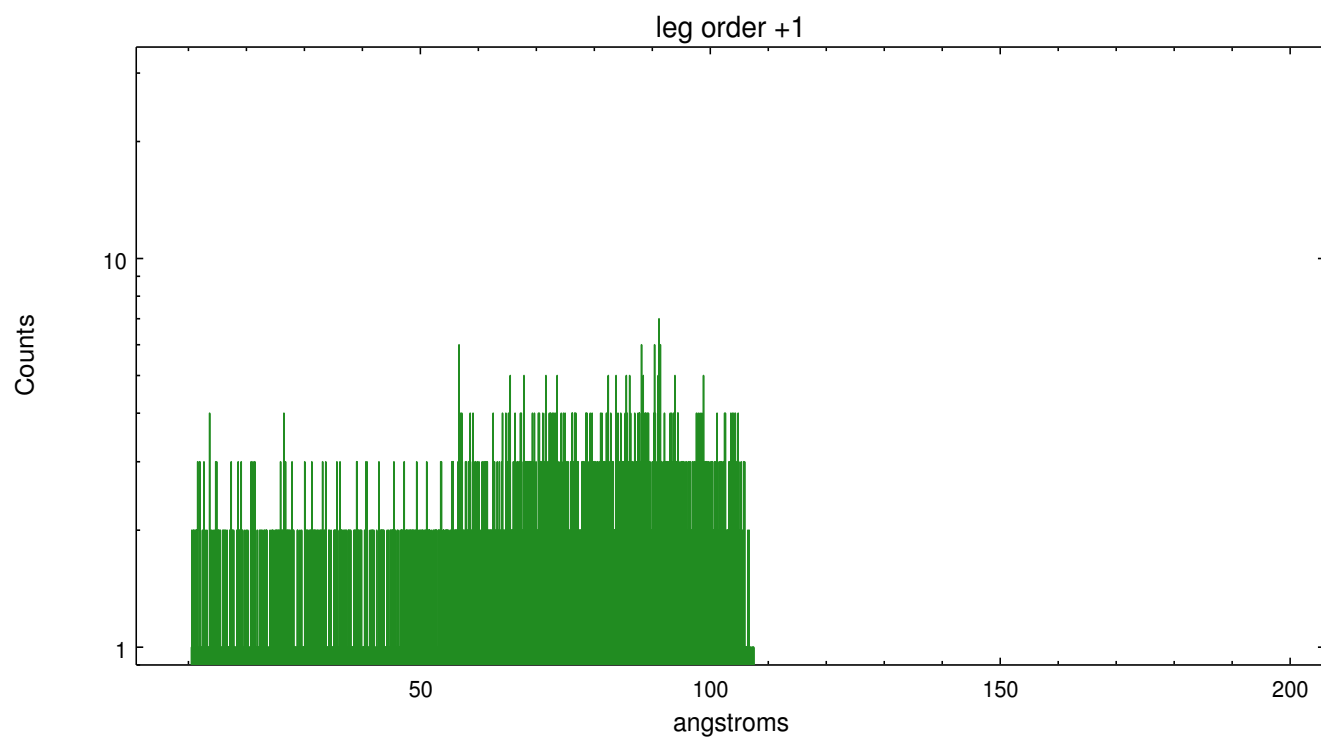
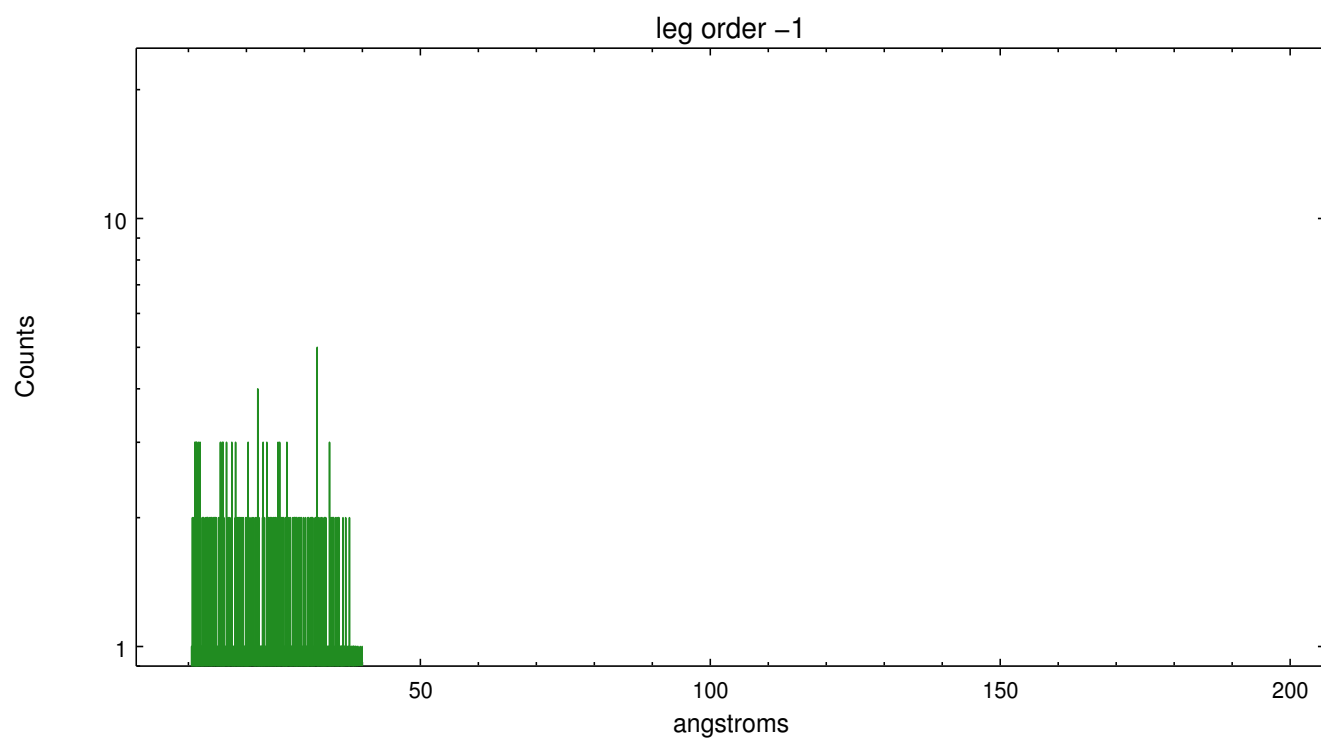


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order



# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.22
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	10.187

## A.2 Comments

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.

===

Source is quite far off-axis, and the PSF is asymmetric and contains the pattern of the struts. The zeroth order is not found at the precise center of the PSF, but is within about 1 arcsec. The off-axis position yields a minus side spectrum with energies beyond 100 Å. The plus side spectrum is truncated. === The point spread function is significantly extended by this off-axis position. 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 zeroth order position as given by the user-supplied coordinates. The tool `tgdetect` failed to find a source.