

# V&V Reference Report

## L2 ASCDS Version : 10.1

Observation 16247 - L2 Version 3  
Chandra X-Ray Center

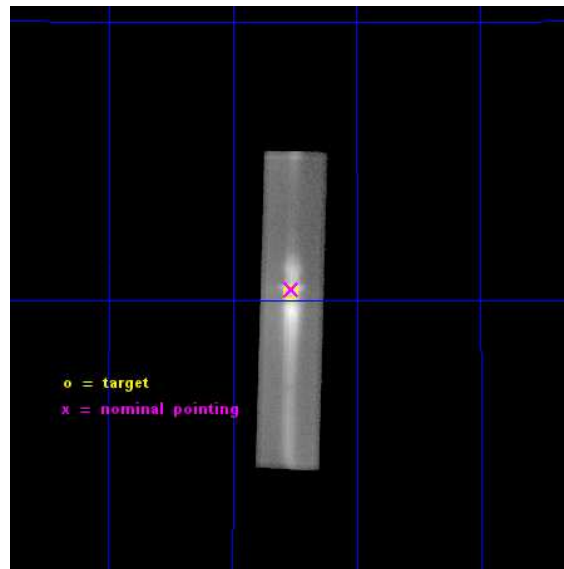
L2 Processing Date : Dec 19 2014

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# 1 Front

seq_num	502247	Sequence number
obs_id	16247	Observation id
title	Pre-Planned Target of Opportunity (ToO) Observations of the Crab Nebula upon the Occurrence of the Next Gamma-Ray Flare	Proposal titl
observer	Dr. Martin Weisskopf	Principal investigator
object	Crab	Source name
ra_targ	83.631667	Observer's specified target RA [deg]
dec_targ	22.015667	Observer's specified target Dec [deg]
ra_nom	83.631643217763	Nominal RA [deg]
dec_nom	22.020370100912	Nominal Dec [deg]
roll_nom	91.594683563105	Nominal Roll [deg]
revision	3	Processing version of data
ontime	20056.432347536	[s]
livetime	19770.145554813	Ontime multiplied by DTCOR
l2events	1451670	Number of level 2 events

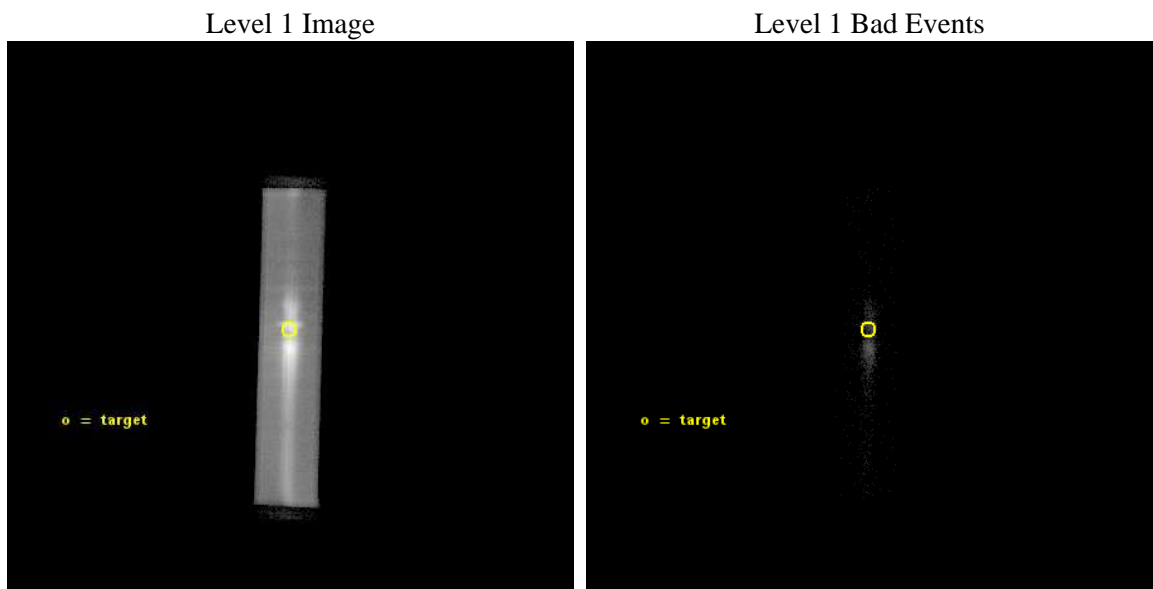




## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



### 2.1.2 Parameters

obi_num	0	Obi number	sched_exp_time	20000.124000	[s] Scheduled observation exposure time
ascdsver	10.3.1	Processing system revision	ontime	20056.432347536	[s]
caldsver	4.6.5	&#160	l1events	1674016	Number of level 1 events
date	2014-12-19T17:49:58	Date and time of file creation	tgmethod	TGDETECT	Method used to create src1a file
revision	3	Processing version of data	zo_pos	(32728.17, 32605.77)	src1a sky pixel position

### 2.1.3 Events

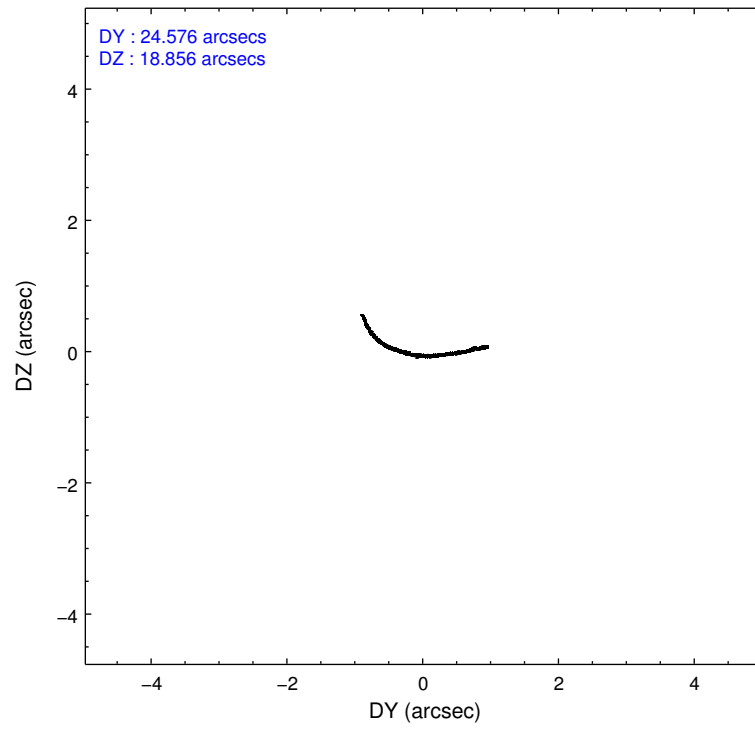
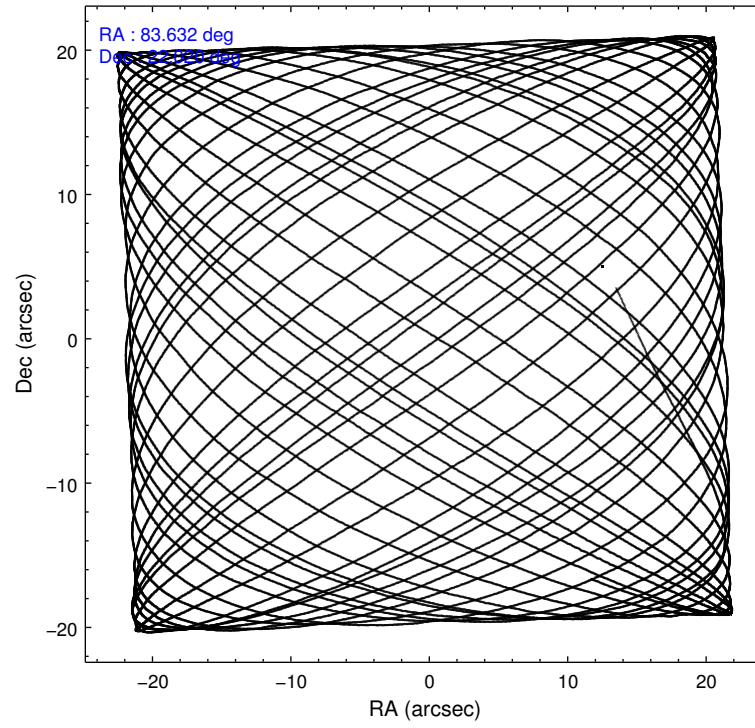
Level 1 Events

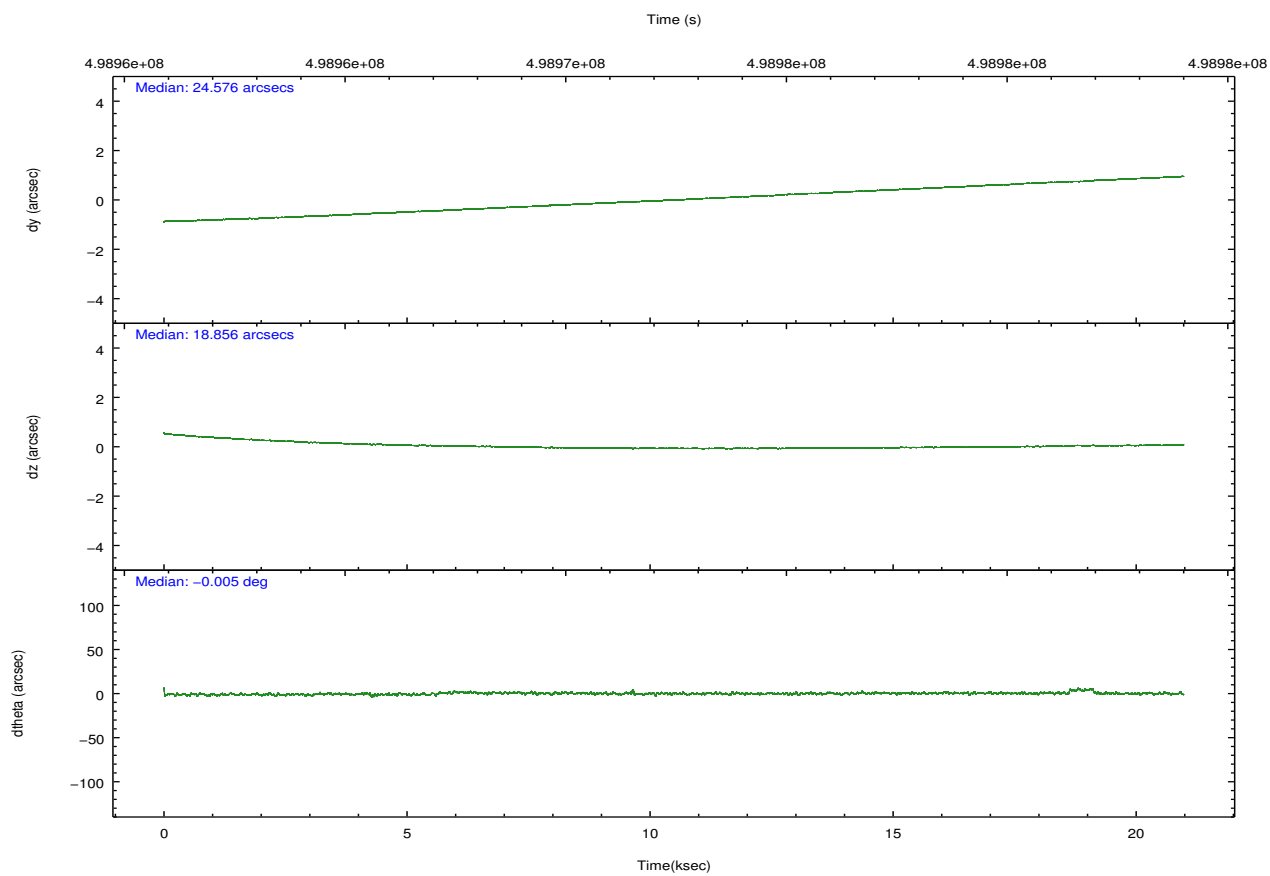
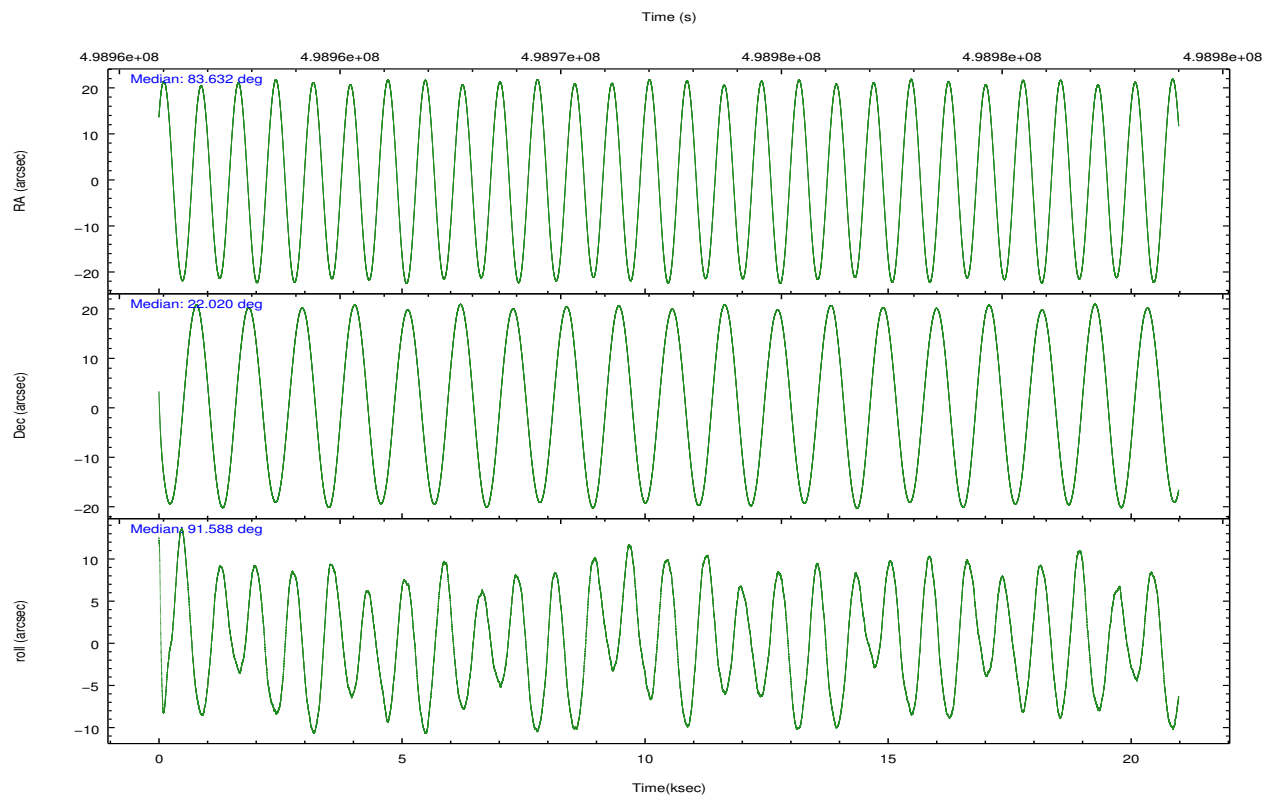
	<b>segment 1</b>	<b>segment 2</b>	<b>segment 3</b>
level 1 events	349	1673666	1
rejected events	20	56224	0
rejected %	5%	3%	0%

## 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	83.649116	83.63164321776344			
[deg] Pointing Dec	21.996759	22.02037010091162			
[deg] Pointing Roll	91.520792	91.59468356310546			
[mm] SIM focus pos	-1.429586	-1.428180813131781			
[mm] SIM defocus	0.1037507710433287	0.1051558262725154			
[mm] SIM translation stage pos	250.455976	250.466033080201			
[mm] SIM translation stage offset	0	-0.01005468664627074			
[s] Observation start time (MET)	498962089.184000	498960584.44216			
Observation start date	2013-10-24T00:33:42	2013-10-24T00:09:44			
[s] Observation end time (MET)	498982089.184000	498983746.88093			
Observation end date	2013-10-24T06:07:02	2013-10-24T06:35:46			

## 2.3 Aspect



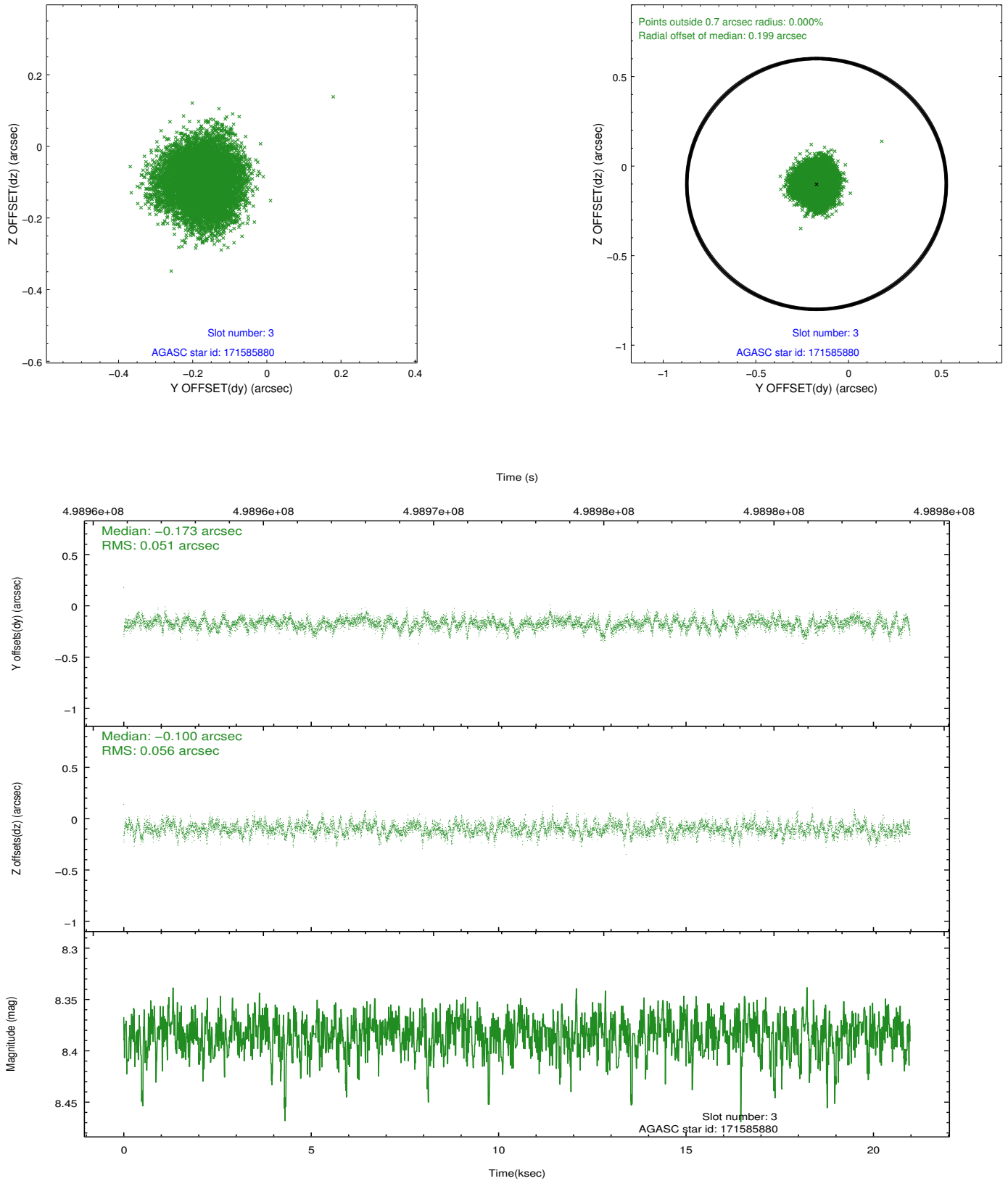


### Slot Statistics

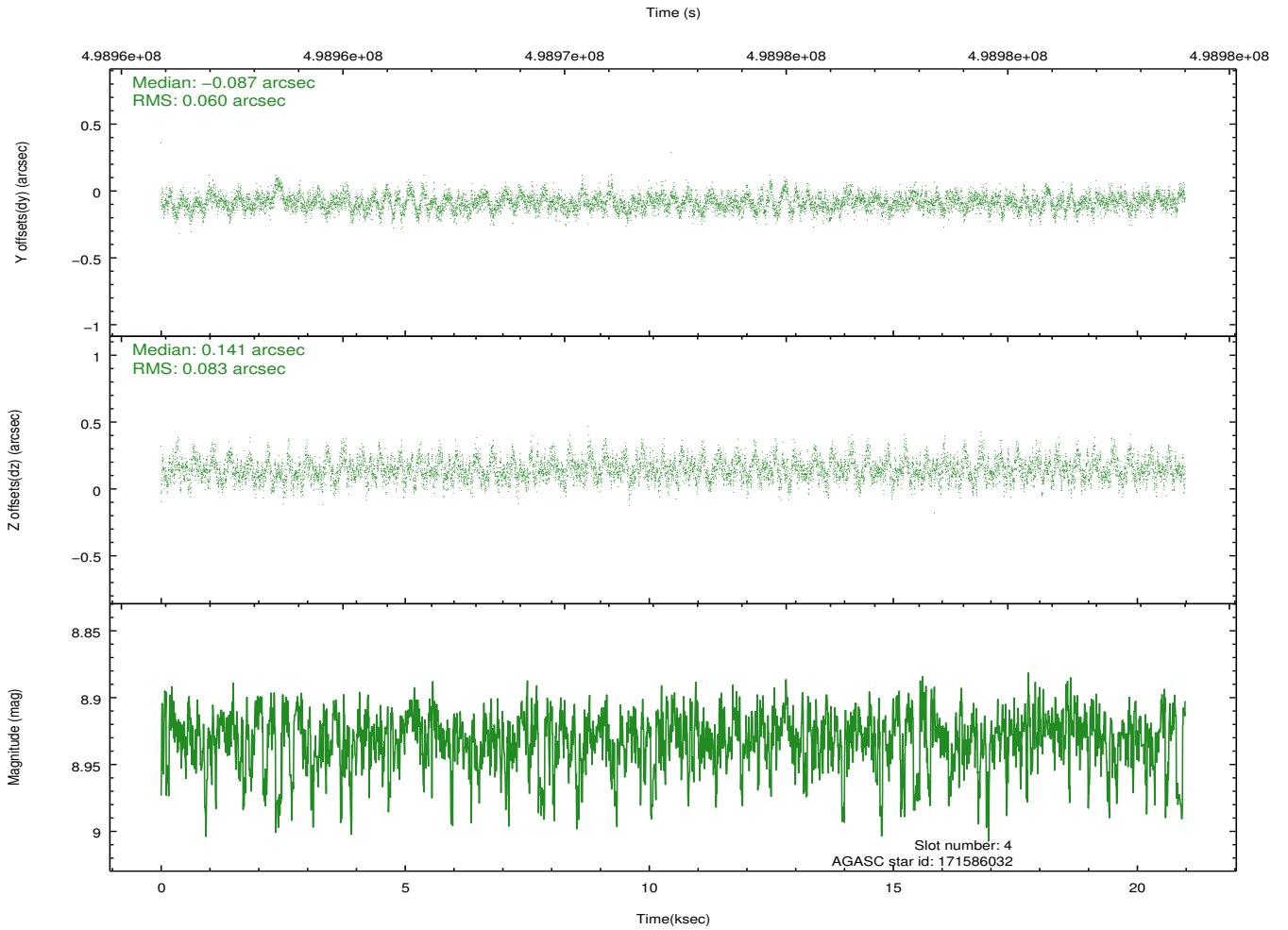
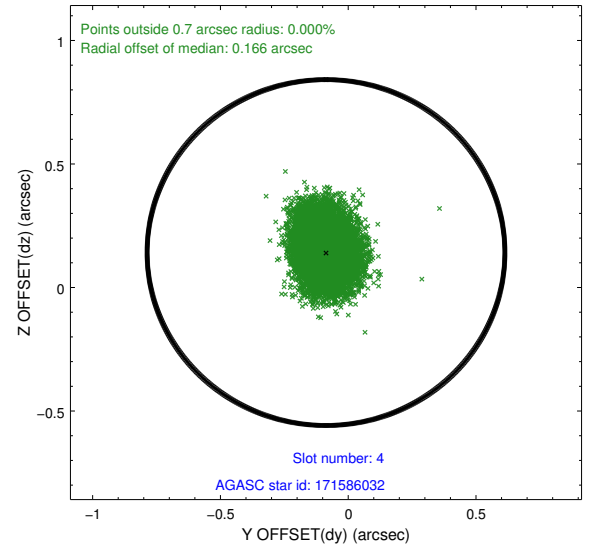
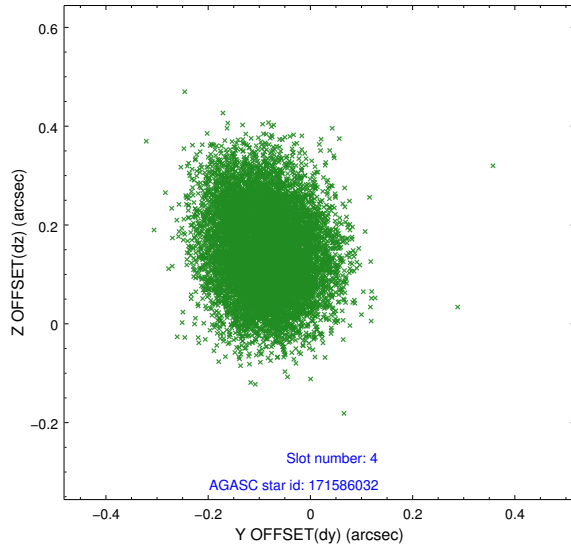
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		HRC-S-1	7.11	5117	-0.091	-0.185	0.020	0.031	0.000000	0.000000	-1179.40	-467.96
1	FID		HRC-S-2	7.07	5117	0.167	-0.116	0.023	0.034	0.000000	0.000000	1220.31	-460.56
2	FID		HRC-S-4	7.04	5117	0.326	-0.003	0.011	0.025	0.000000	0.000000	1219.48	564.29
3	GUIDE	used	171585880	8.38	10234	-0.173	-0.100	0.081	0.130	83.676260	22.176319	644.14	-107.28
4	GUIDE	used	171586032	8.93	10211	-0.087	0.141	0.108	0.178	83.950197	22.083225	286.11	-1011.75
5	GUIDE	used	171721904	9.18	10196	0.086	0.208	0.168	0.278	84.272676	22.116922	382.34	-2089.97
6	GUIDE	used	243941560	8.30	10231	-0.123	-0.023	0.096	0.154	83.733264	22.568598	2050.78	-333.74
7	GUIDE	used	171597832	9.13	10214	0.311	-0.219	0.110	0.182	83.183230	21.366702	-2222.78	1621.43

## 2.4 Star Slots

### 2.4.1 Slot 3

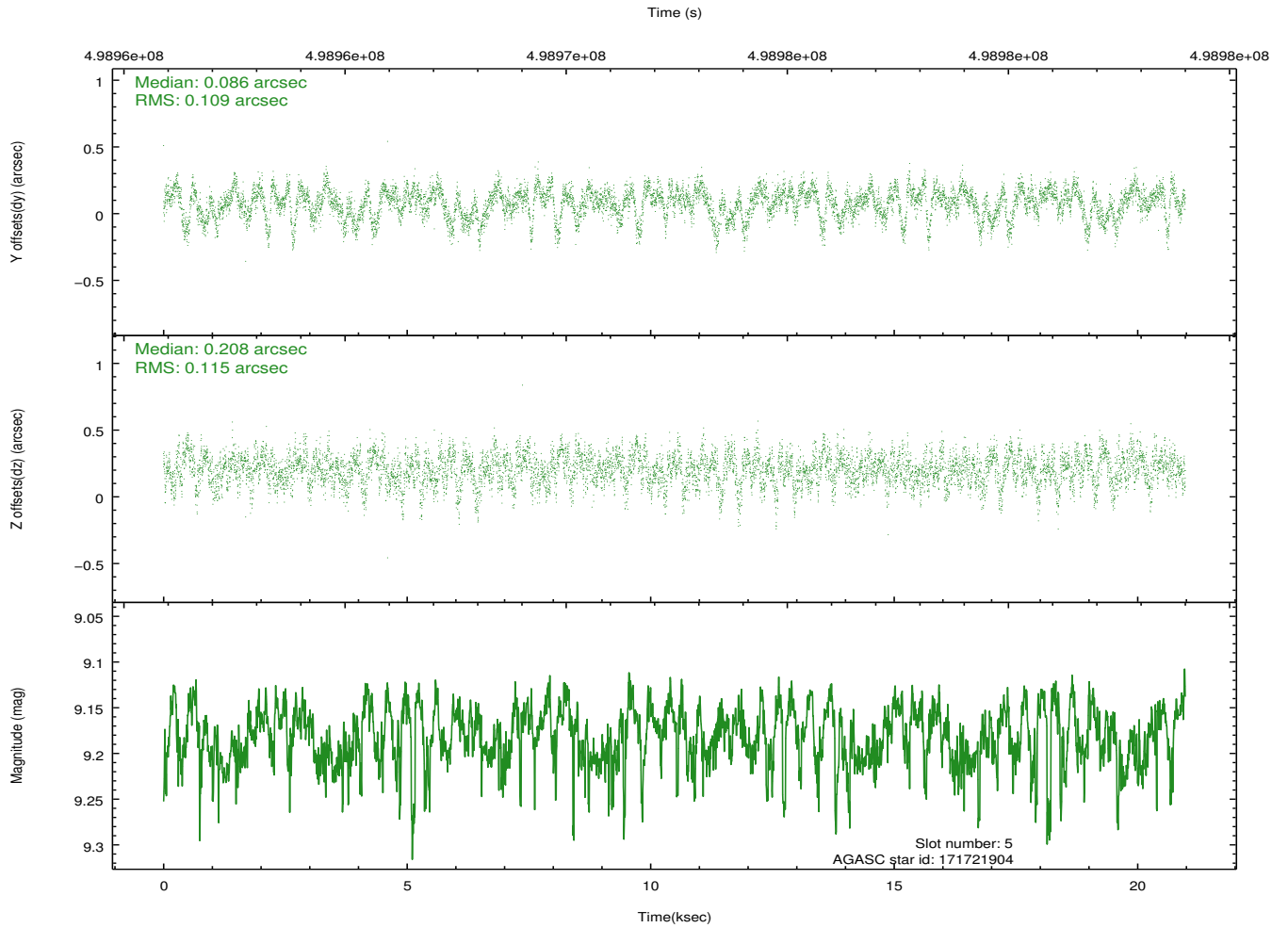
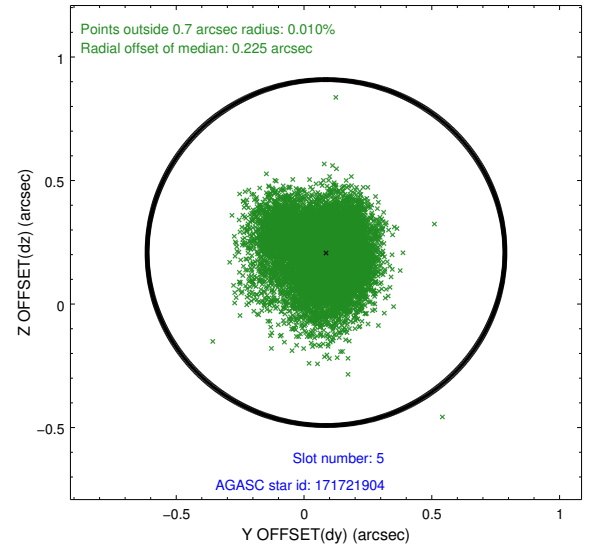
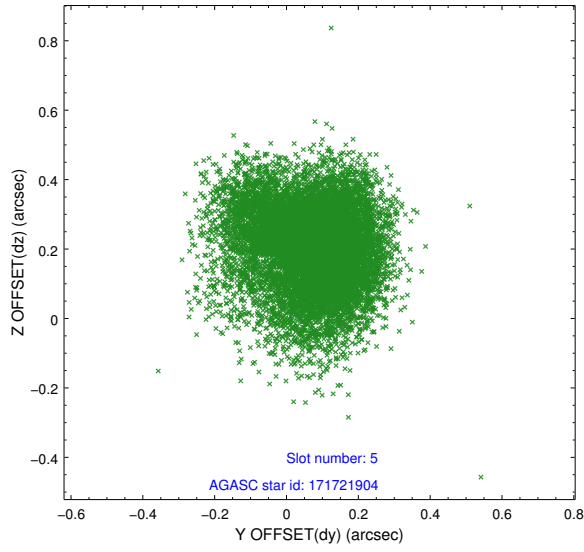


## 2.4.2 Slot 4

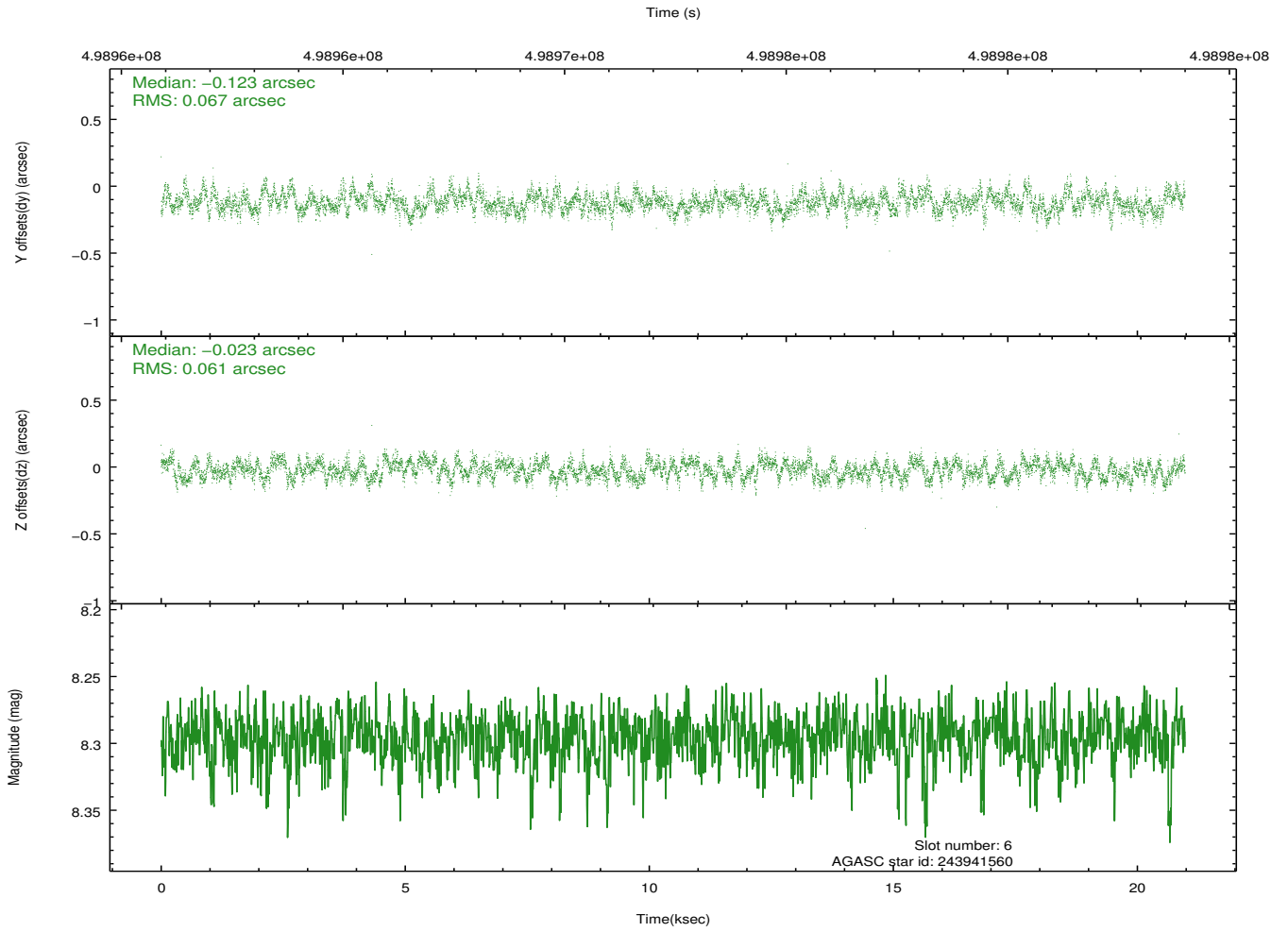
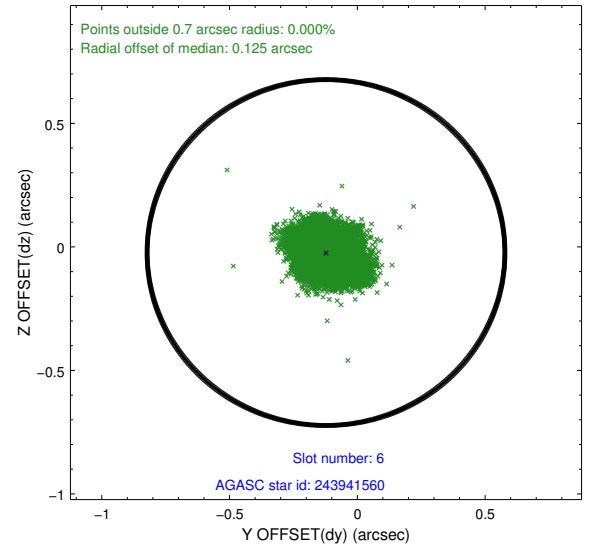
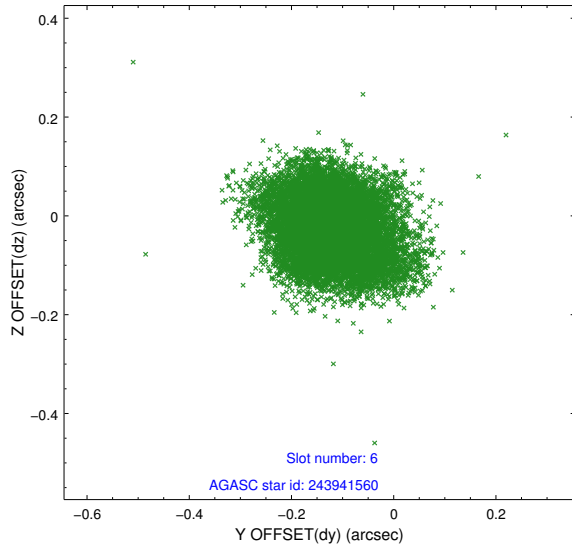




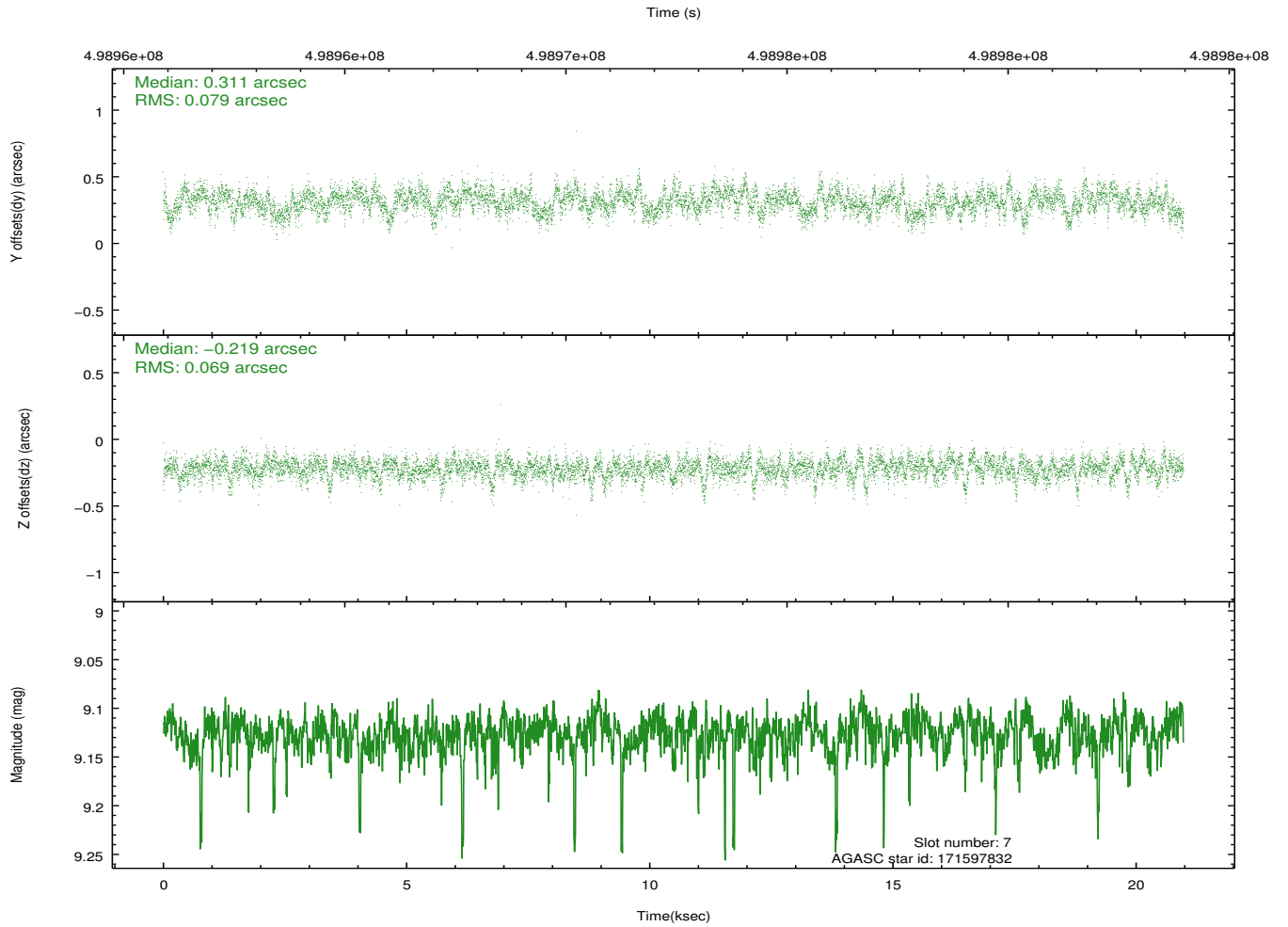
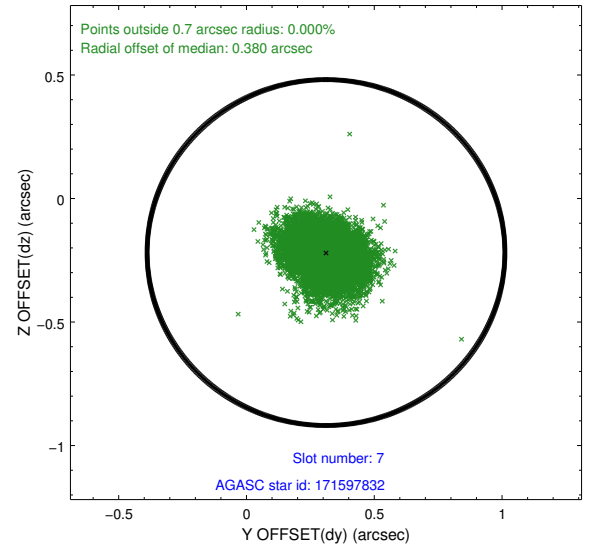
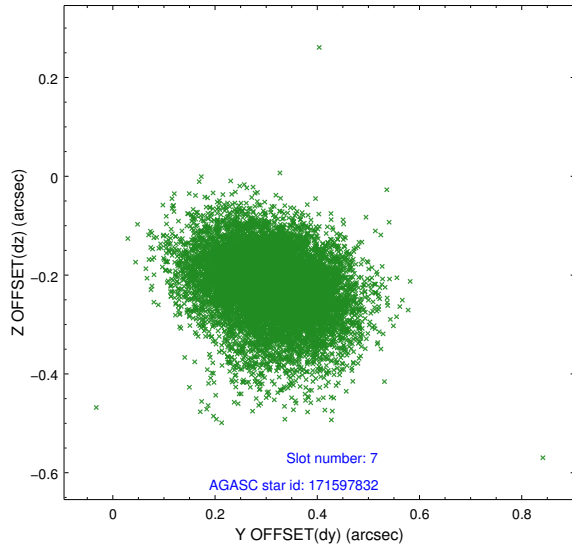
### 2.4.3 Slot 5



## 2.4.4 Slot 6

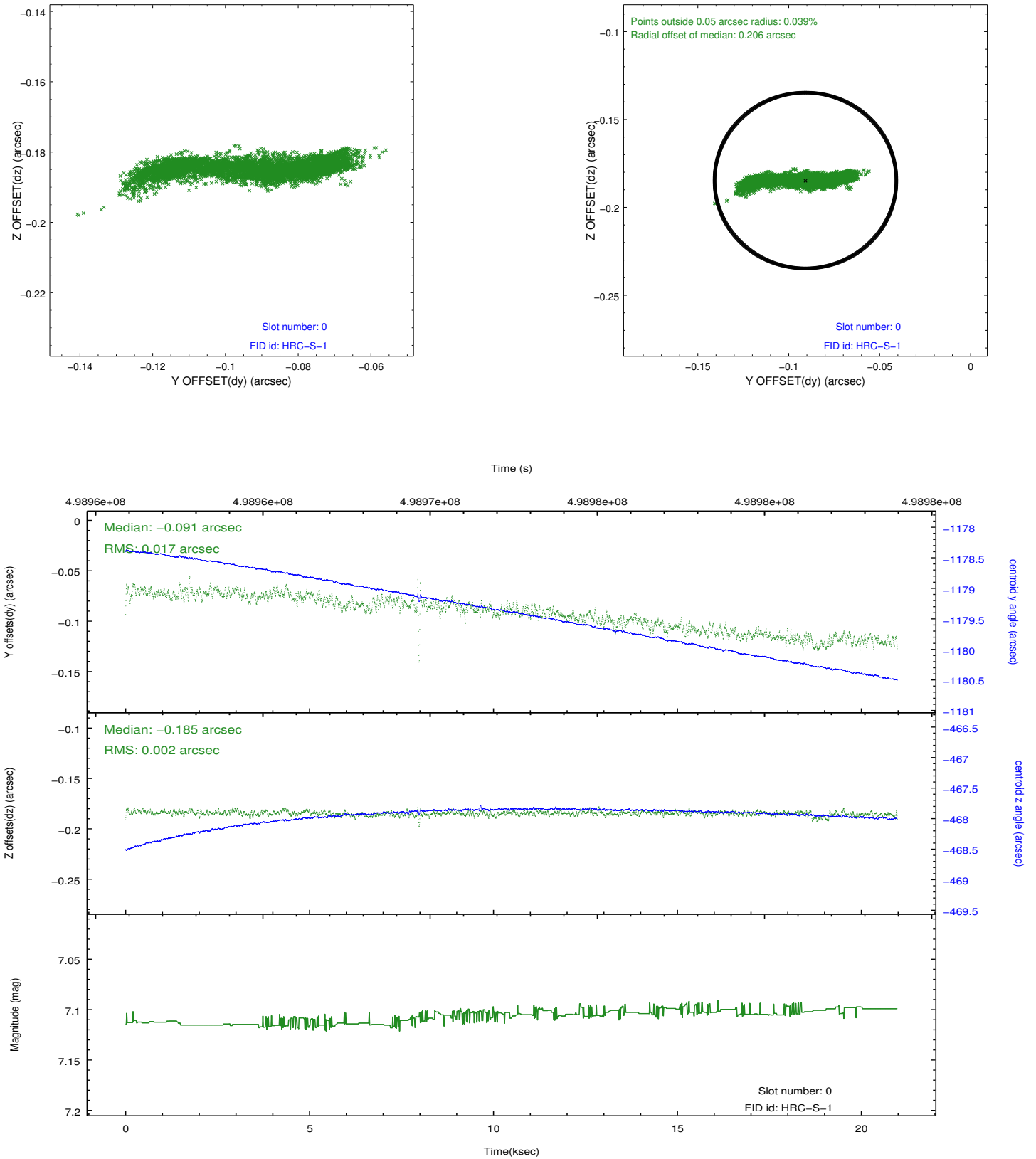


## 2.4.5 Slot 7

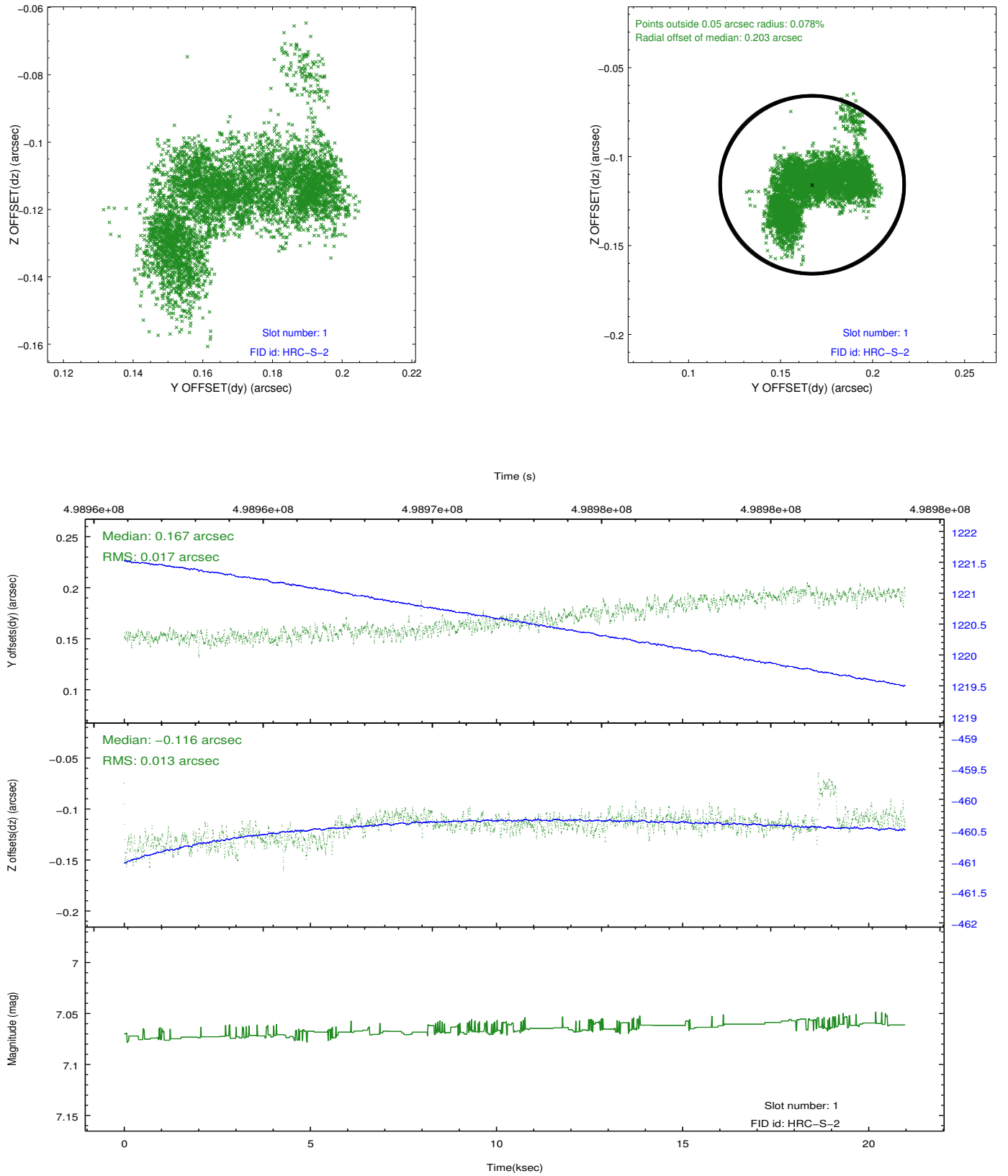


## 2.5 FID Slots

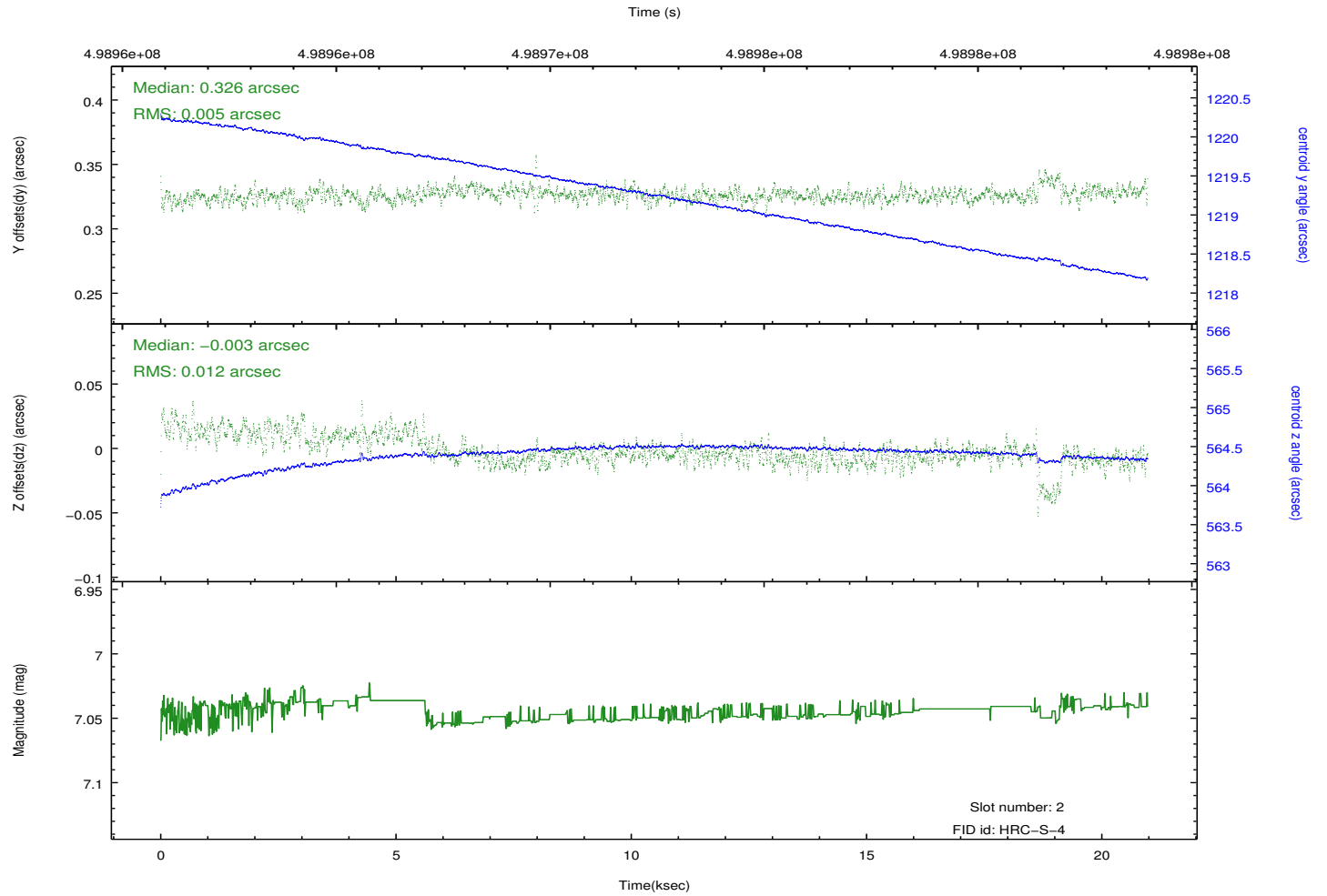
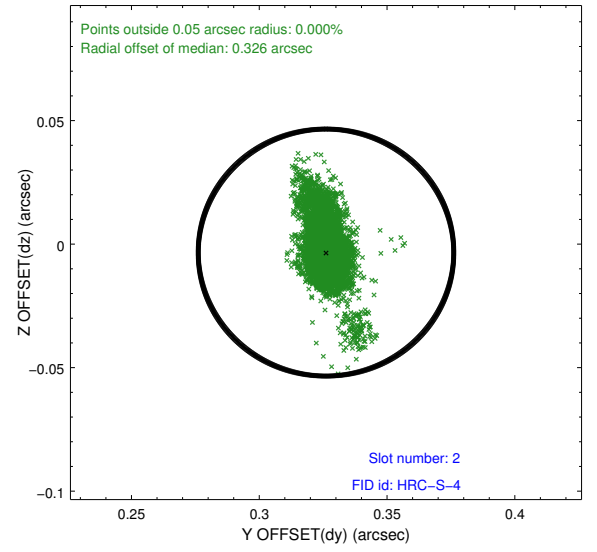
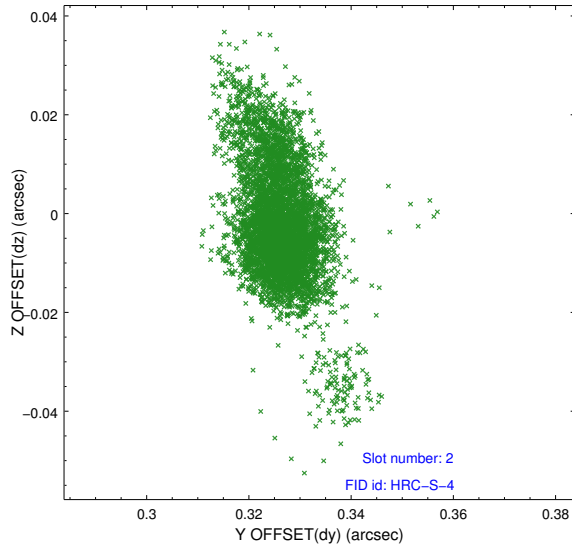
### 2.5.1 Slot 0



## 2.5.2 Slot 1

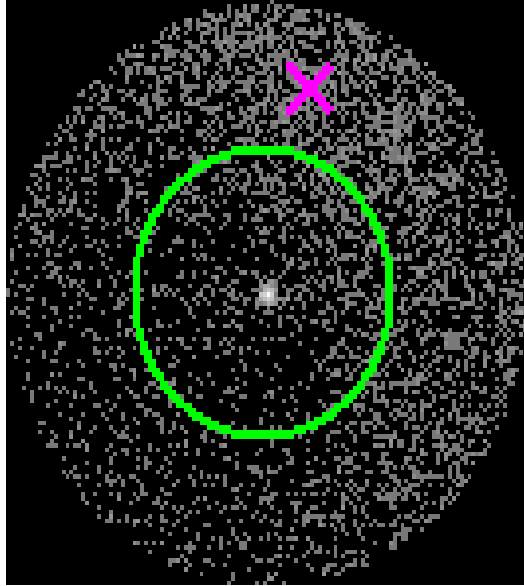


### 2.5.3 Slot 2

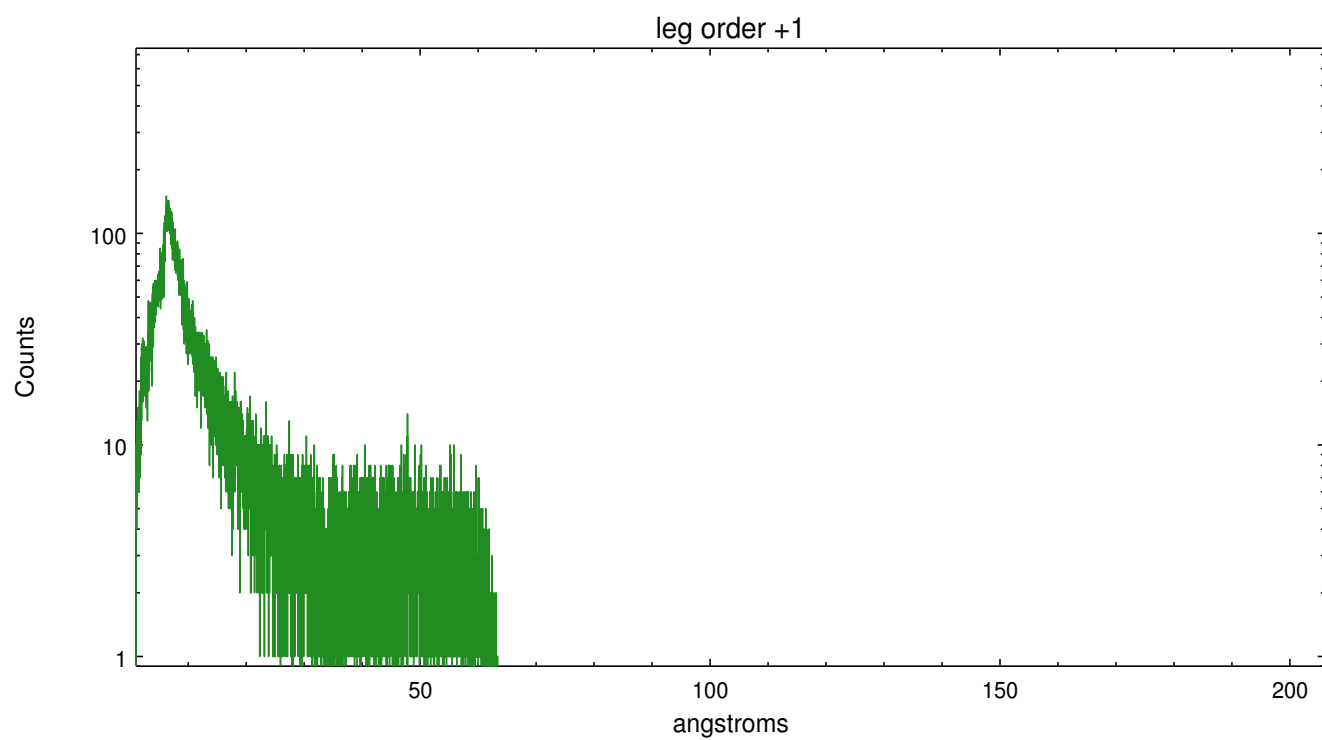
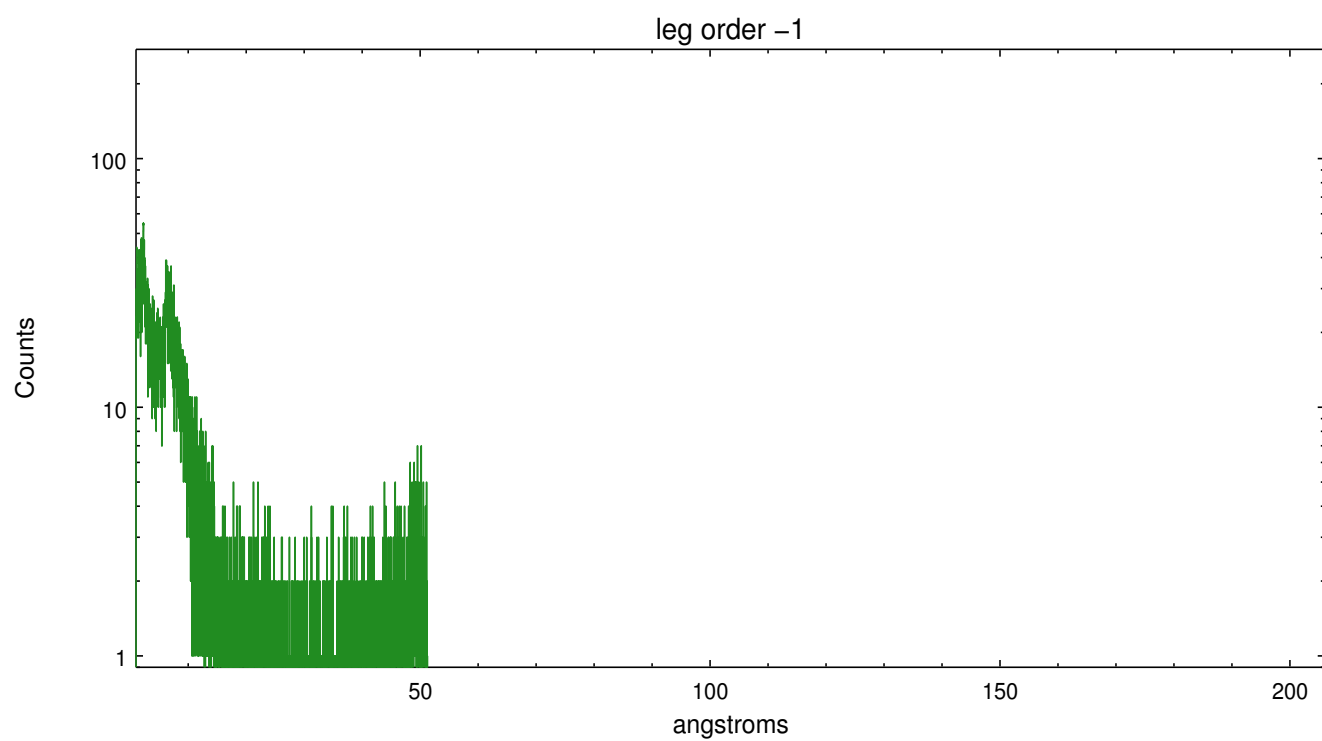


## 3 Gratings

### 3.1 LETG Arm



LETG Zero Order





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2015.11.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	20.056432347536

## A.2 Comments

The MCP HV levels and the trigger threshold of the instrument were set to non-standard values and as such the instrument is no longer 'calibrated'. Use of the LETG grating with HRC for an extended source results in a degradation of the spectral resolution. There is no longer a unique mapping between position of an event on the focal plane and wavelength. Reprocessed using custom gti limits file. pset hrc\_lev1 std\_limits='/dsops/ap/sdp.10/14687/hracs\_crab\_gtilimN0001.fits'. The default gain file was used.

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These data have been reprocessed with new aspect alignment calibration files that correct small mean offsets (up to 0.4 arcsecs) and improve overall astrometric accuracy. The new calibration was determined using data from the time period being reprocessed and was performed using cross-correlation of X-ray sources with radio and optical counterparts.