

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 5171 - L2 Version 3  
Chandra X-Ray Center

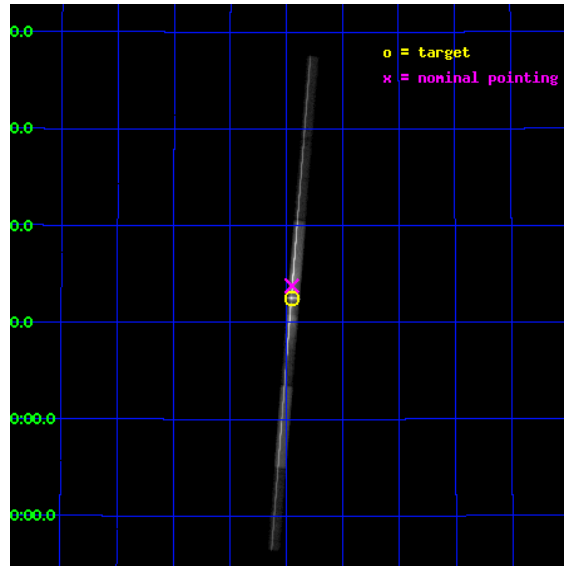
L2 Processing Date : Dec 15 2012

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# 1 Front

seq_num	790091	Sequence number
obs_id	5171	Observation id
title	AO5 Calibration Observations of PKS2155-304	Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	Mkn 421	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.11269251741	Nominal RA [deg]
dec_nom	38.229789903645	Nominal Dec [deg]
roll_nom	274.57623540539	Nominal Roll [deg]
revision	3	Processing version of data
ontime	67154.401000679	Sum of GTIs [s]
livetime	63877.485970397	Livetime [s]
ontime4	67154.401000679	Sum of GTIs [s]
ontime5	67154.401000679	Sum of GTIs [s]
ontime6	67154.401000679	Sum of GTIs [s]
ontime7	67154.401000679	Sum of GTIs [s]
ontime8	67154.401000679	Sum of GTIs [s]
ontime9	67154.401000679	Sum of GTIs [s]
l2events	1604534	Number of level 2 events

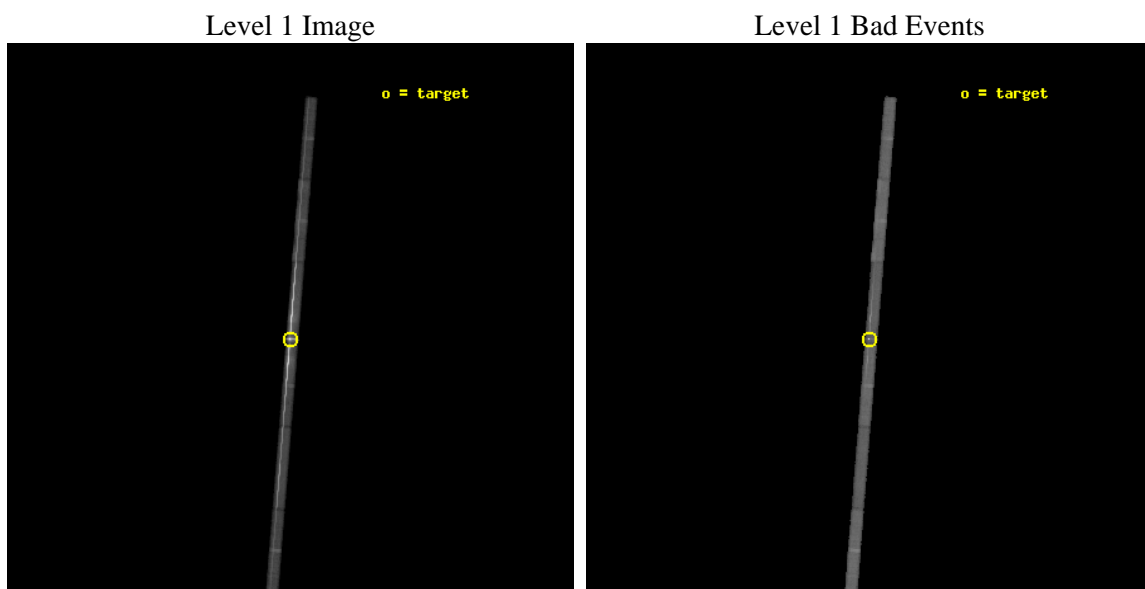




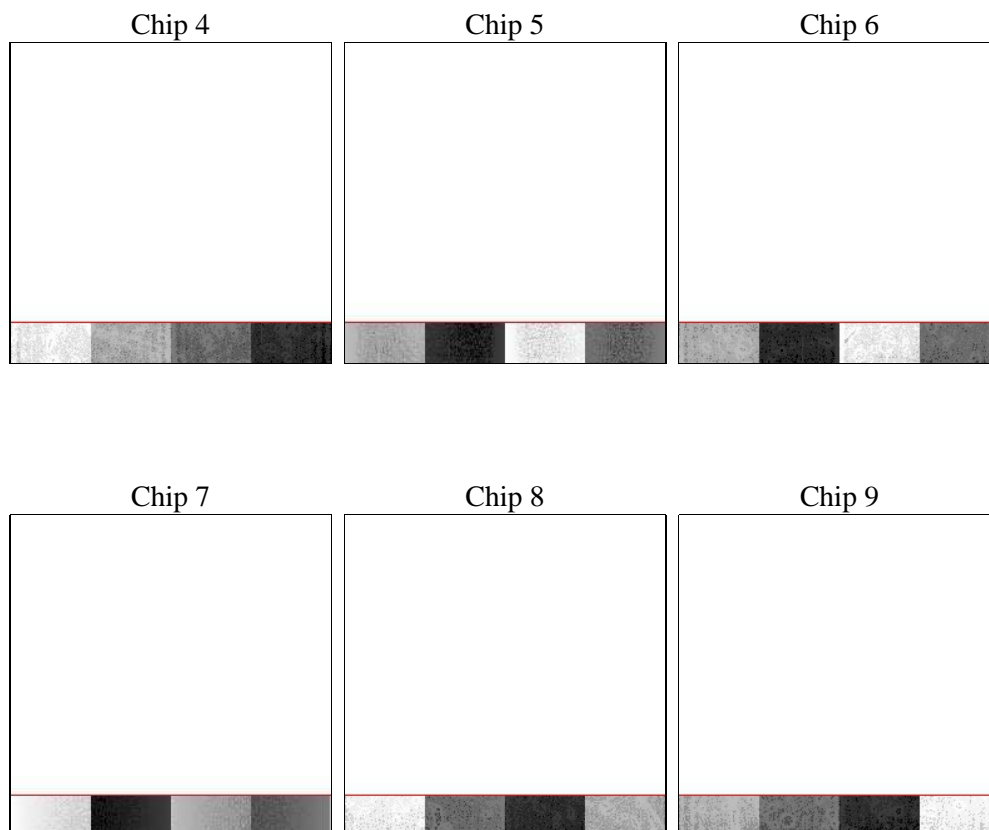
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	67000.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	67154.401000679	Sum of GTIs [s]
caldsver	4.5.2	&#160	ontime4	67154.401000679	Sum of GTIs [s]
date	2012-12-04T00:26:24	Date and time of file creation	ontime5	67154.401000679	Sum of GTIs [s]
revision	3	Processing version of data	ontime6	67154.401000679	Sum of GTIs [s]
			ontime7	67154.401000679	Sum of GTIs [s]
			ontime8	67154.401000679	Sum of GTIs [s]
			ontime9	67154.401000679	Sum of GTIs [s]
			l1events	2143899	Number of level 1 events

### 2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	102062	185356	606447	1010875	152309	86850	grade 0 events	16440	59784	425069	217447	43240	17241
rejected events	77318	47270	74947	137239	86109	61471		16%	32%	70%	21%	28%	19%
rejected %	75%	25%	12%	13%	56%	70%	grade 1 events	48	161	2663	3738	91	28
								0%	0%	0%	0%	0%	0%
							grade 2 events	3234	29768	55133	222201	8029	2937
								3%	16%	9%	21%	5%	3%
							grade 3 events	1764	10788	19093	103629	3906	1832
								1%	5%	3%	10%	2%	2%
							grade 4 events	1717	10795	18964	101816	3861	1827
								1%	5%	3%	10%	2%	2%
							grade 5 events	2318	8447	4296	24551	3352	2575
								2%	4%	0%	2%	2%	2%
							grade 6 events	1765	27943	14449	231072	7449	1731
								1%	15%	2%	22%	4%	1%
							grade 7 events	74776	37670	66780	106421	82381	58679
								73%	20%	11%	10%	54%	67%

## 2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	LETG	LETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	166.092632	166.1126925174091
[deg] Pointing Dec	38.252011	38.22978990364522
[deg] Pointing Roll	274.432023	274.5762354053894
[s] Window start time (MET)	202435264.184000	202435264.184000
[s] Window stop time (MET)	207619264.184000	207619264.184000
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-178.632523	-178.6345592299333
[mm] SIM translation stage offset	-11.5	-11.49796335307448
[s] Observation start time (MET)	206127838.184000	206126444.9627
Observation start date	2004-07-13T17:42:54	2004-07-13T17:20:44
[s] Observation end time (MET)	206194838.184000	206194972.36574
Observation end date	2004-07-14T12:19:34	2004-07-14T12:22:52
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/8
Subarray start row	1	1
Subarray row count	128	128
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0.8

## 2.3 Aspect

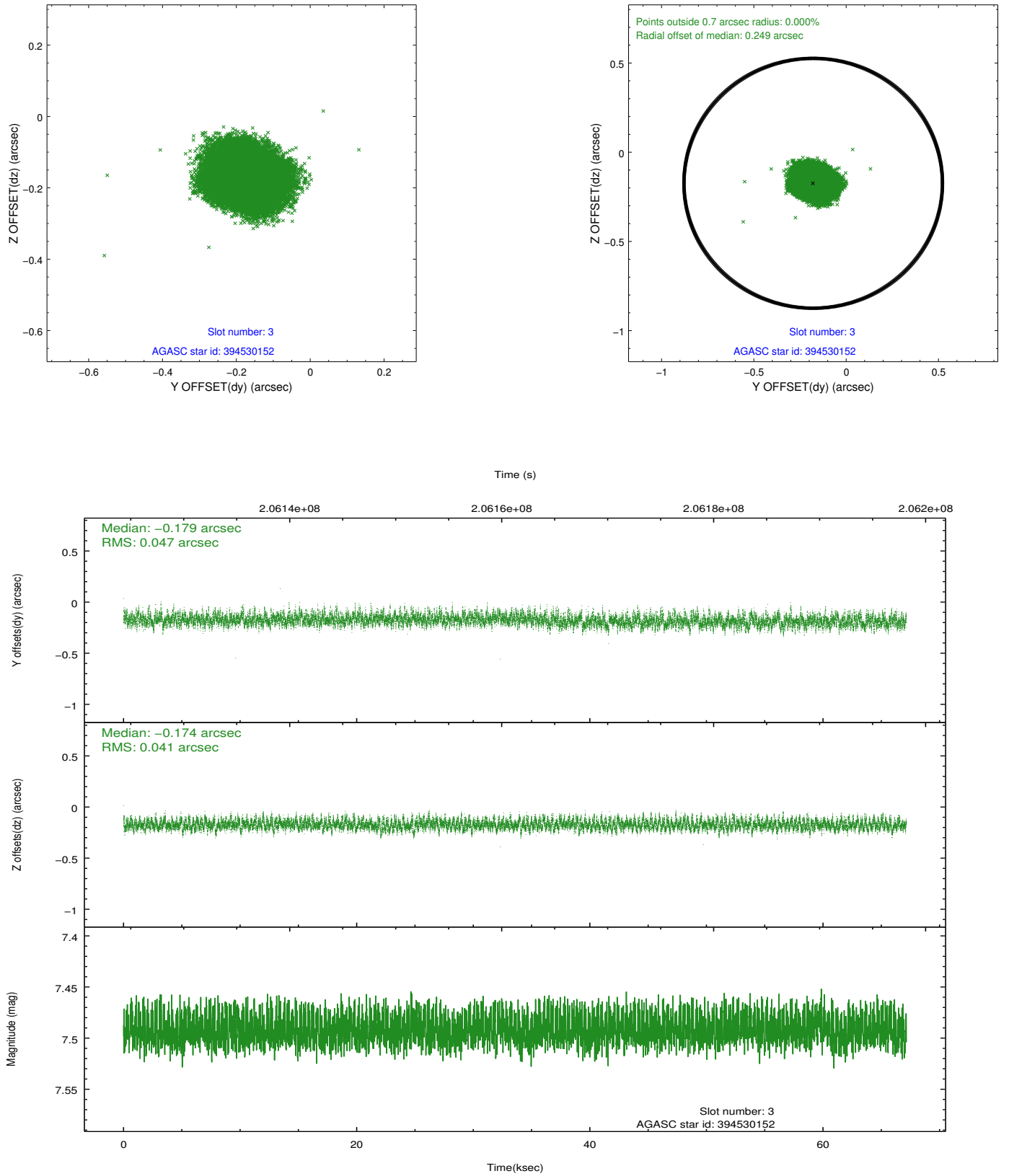


### Slot Statistics

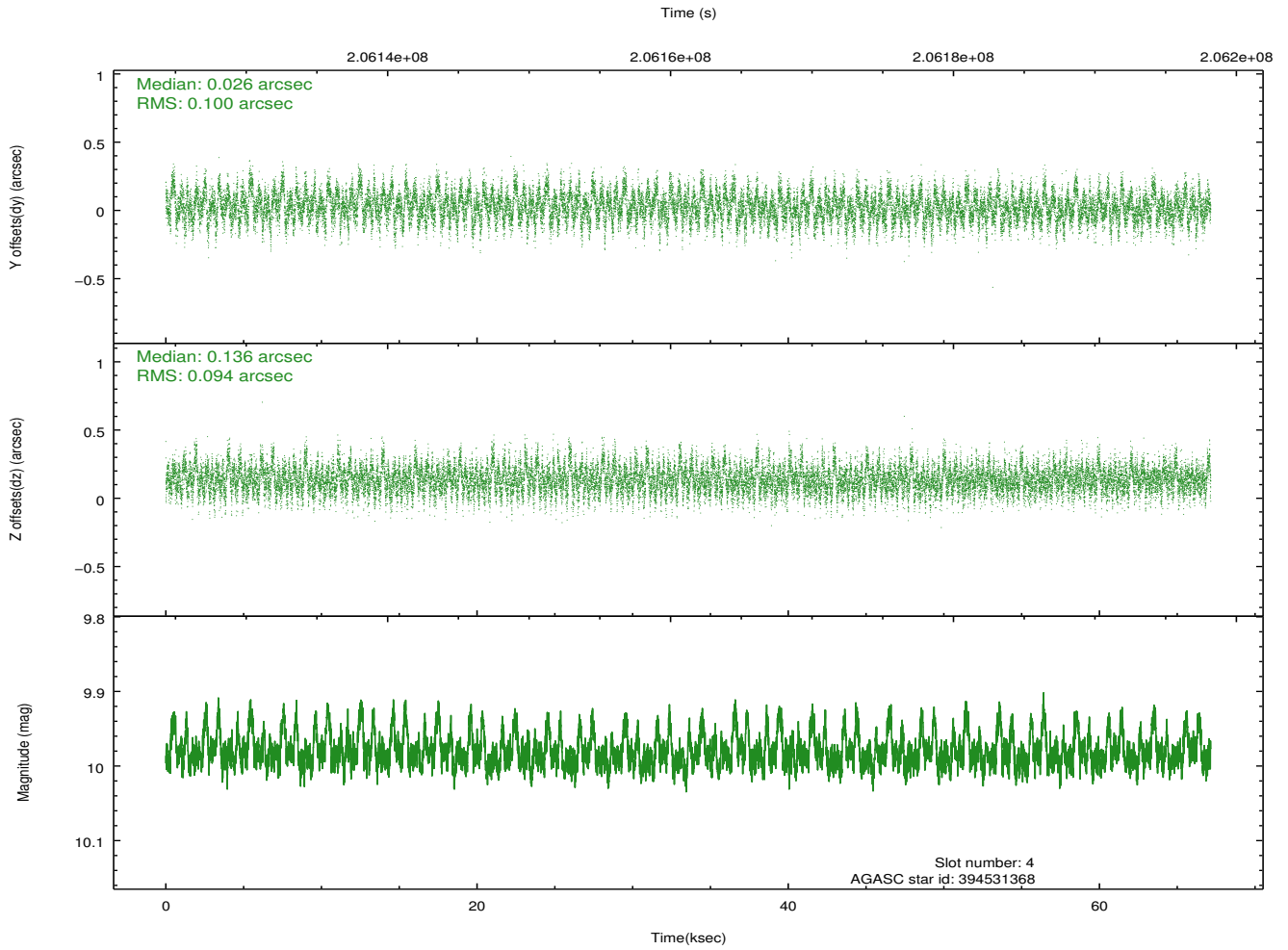
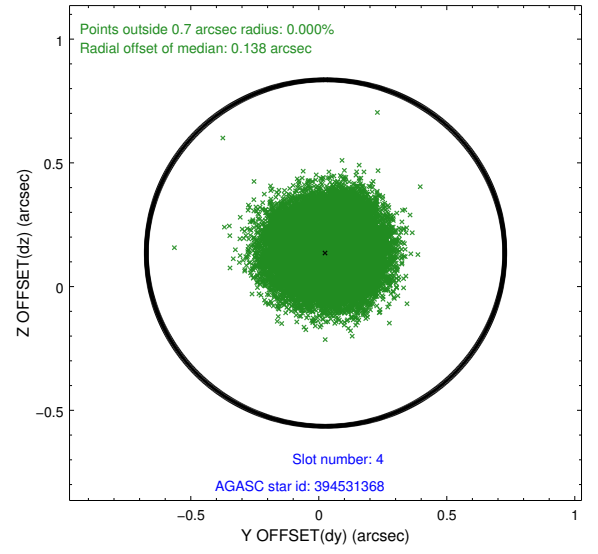
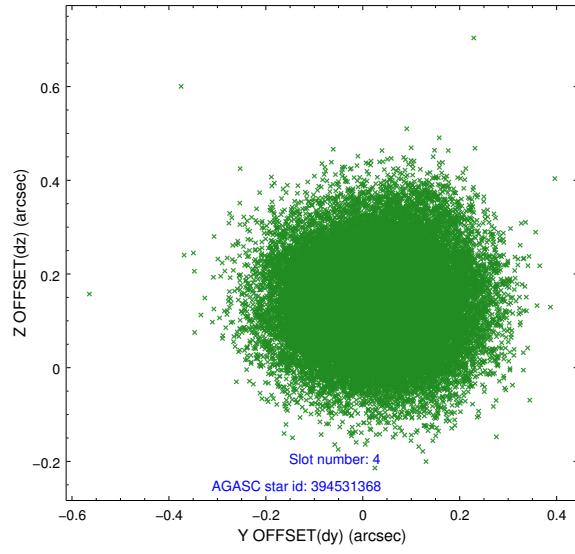
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-1	7.18	16380	0.121	0.100	0.011	0.018	0.000000	0.000000	938.36	-1964.31
1	FID	ACIS-S-5	7.23	16379	-0.127	0.139	0.008	0.015	0.000000	0.000000	-1810.83	-66.57
2	FID	ACIS-S-6	7.43	16380	-0.016	-0.228	0.010	0.016	0.000000	0.000000	403.95	576.86
3	GUIDE	394530152	7.49	32757	-0.179	-0.174	0.067	0.107	166.075805	38.868252	-2215.44	124.32
4	GUIDE	394531368	9.98	32723	0.026	0.136	0.148	0.236	165.794613	38.837127	-2165.81	-670.12
5	GUIDE	394533848	8.71	32746	0.181	0.068	0.080	0.134	166.382906	38.276007	-24.12	823.47
6	GUIDE	394543960	9.80	32720	0.046	-0.050	0.119	0.192	165.802757	37.787371	1603.05	-951.09
7	GUIDE	394546712	6.60	32757	-0.077	0.018	0.056	0.090	166.451462	38.394357	-434.46	1049.03

## 2.4 Star Slots

### 2.4.1 Slot 3

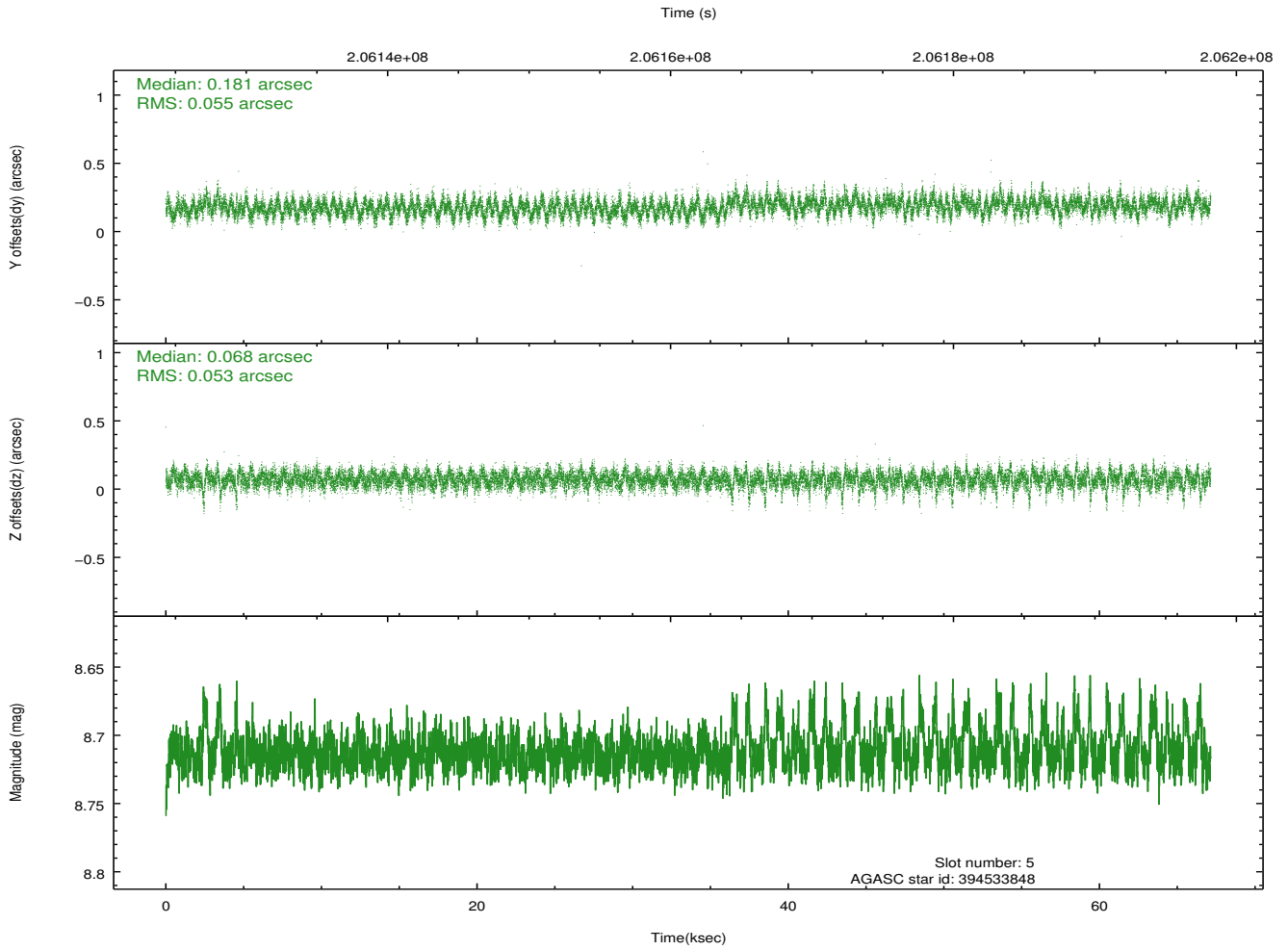
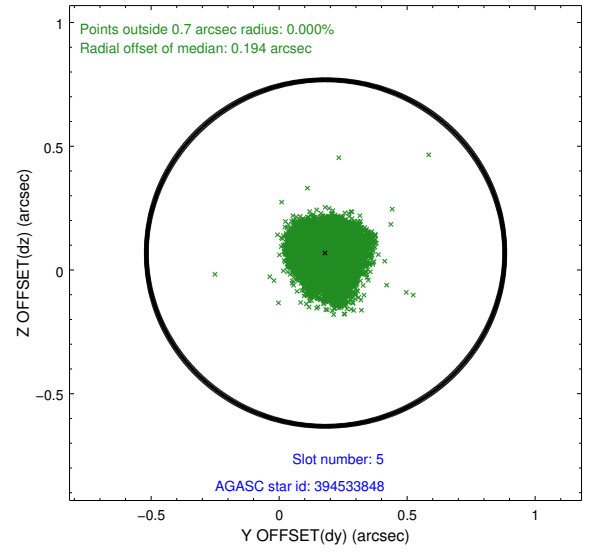
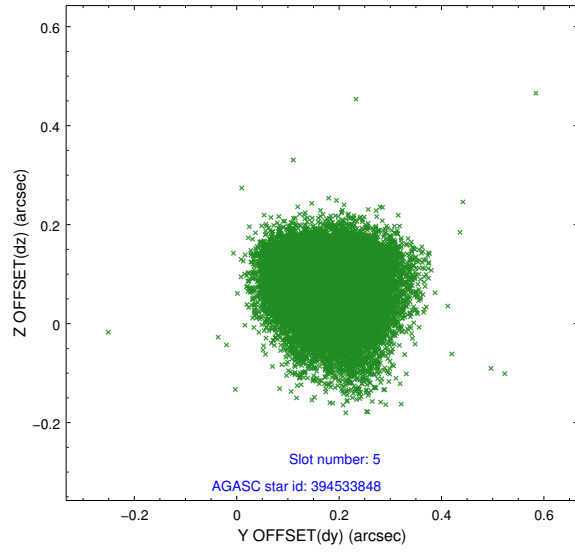


## 2.4.2 Slot 4

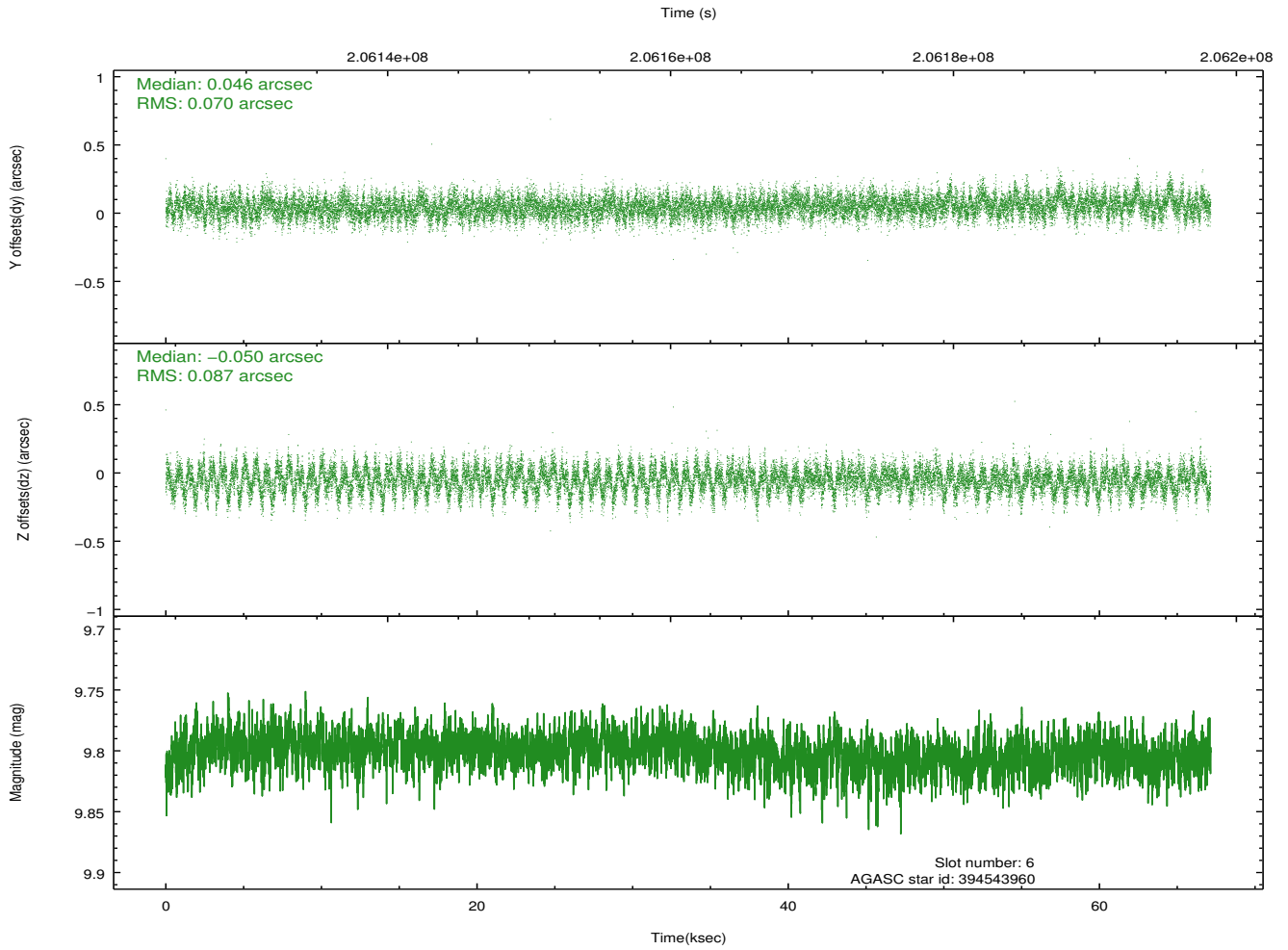
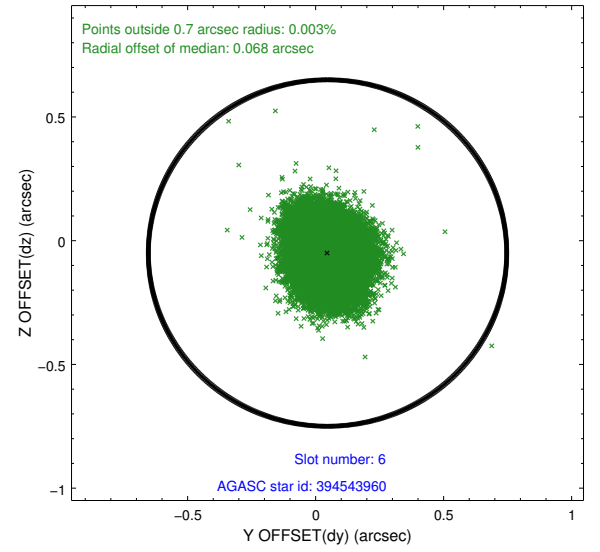
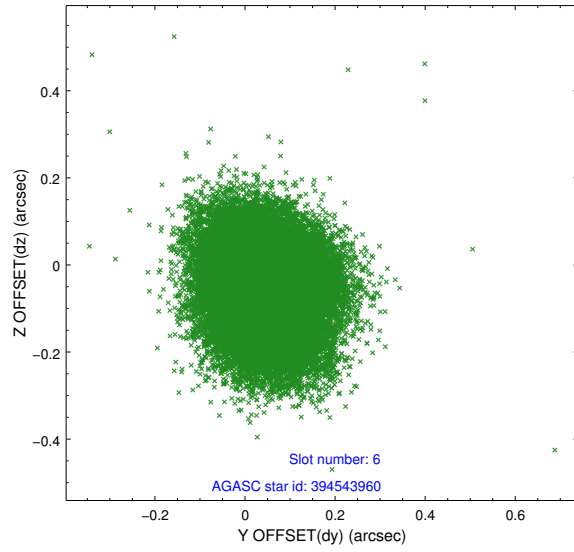




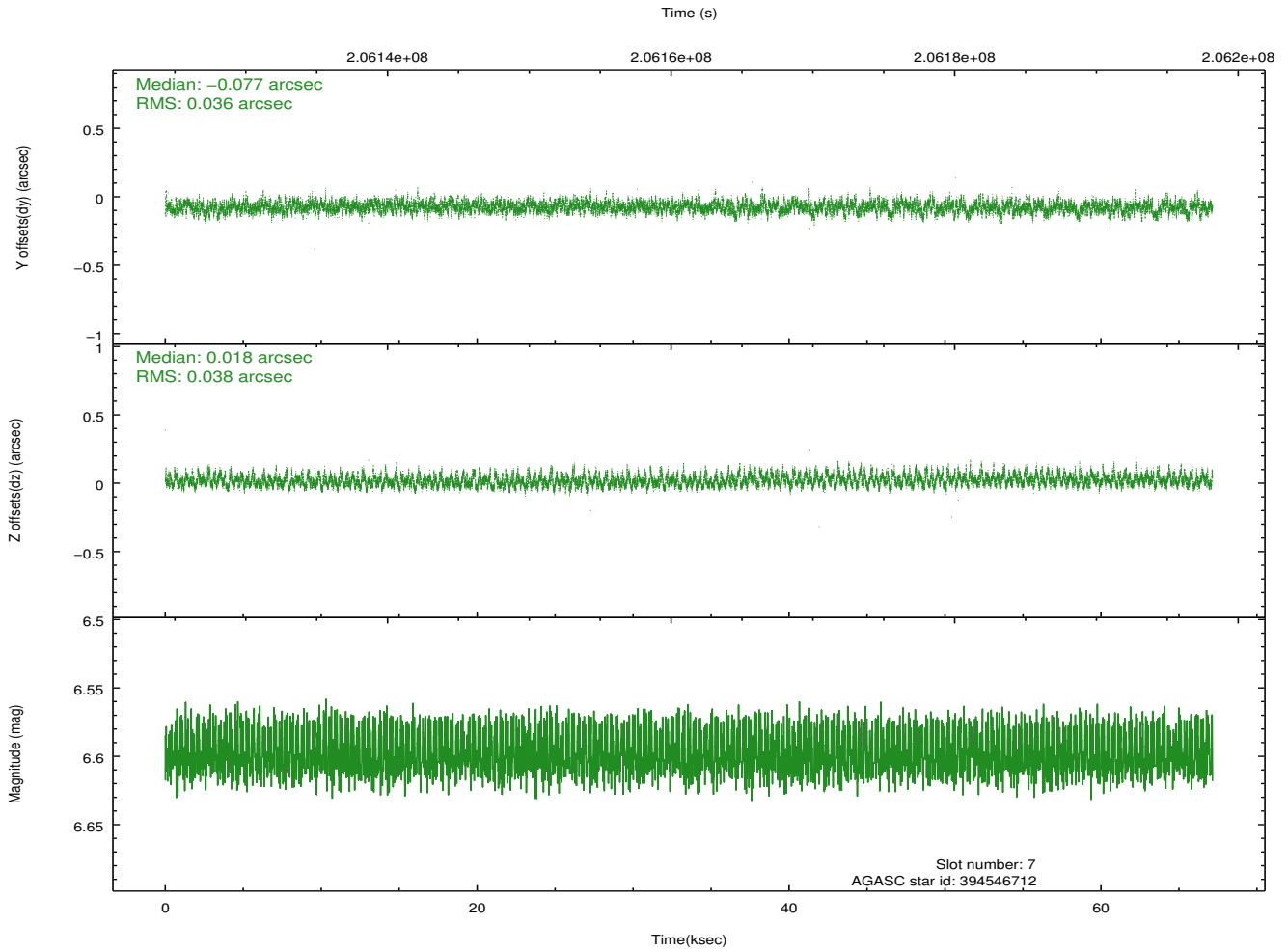
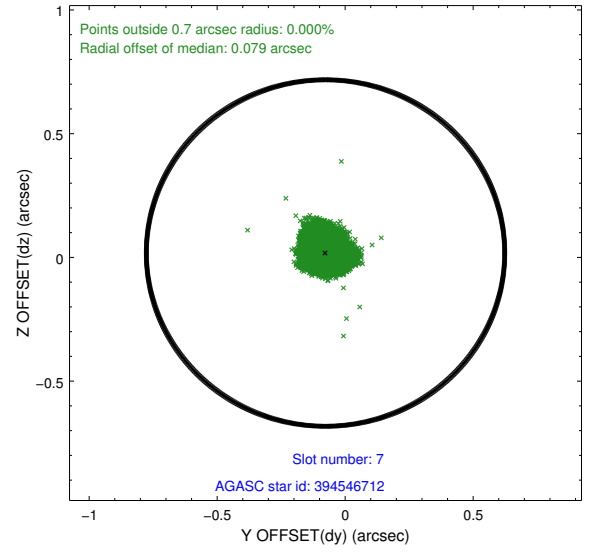
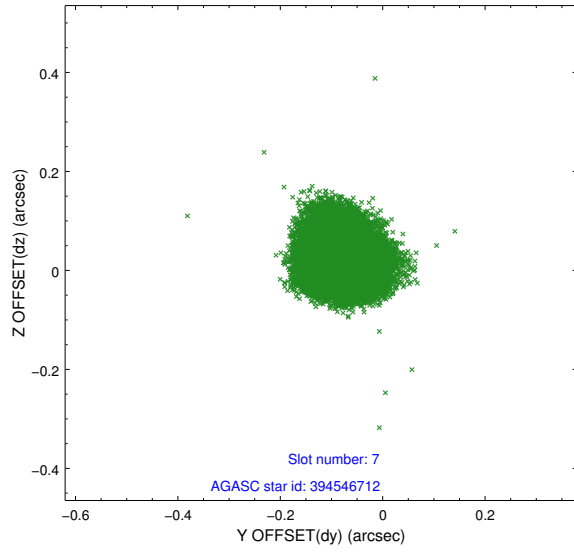
### 2.4.3 Slot 5



## 2.4.4 Slot 6

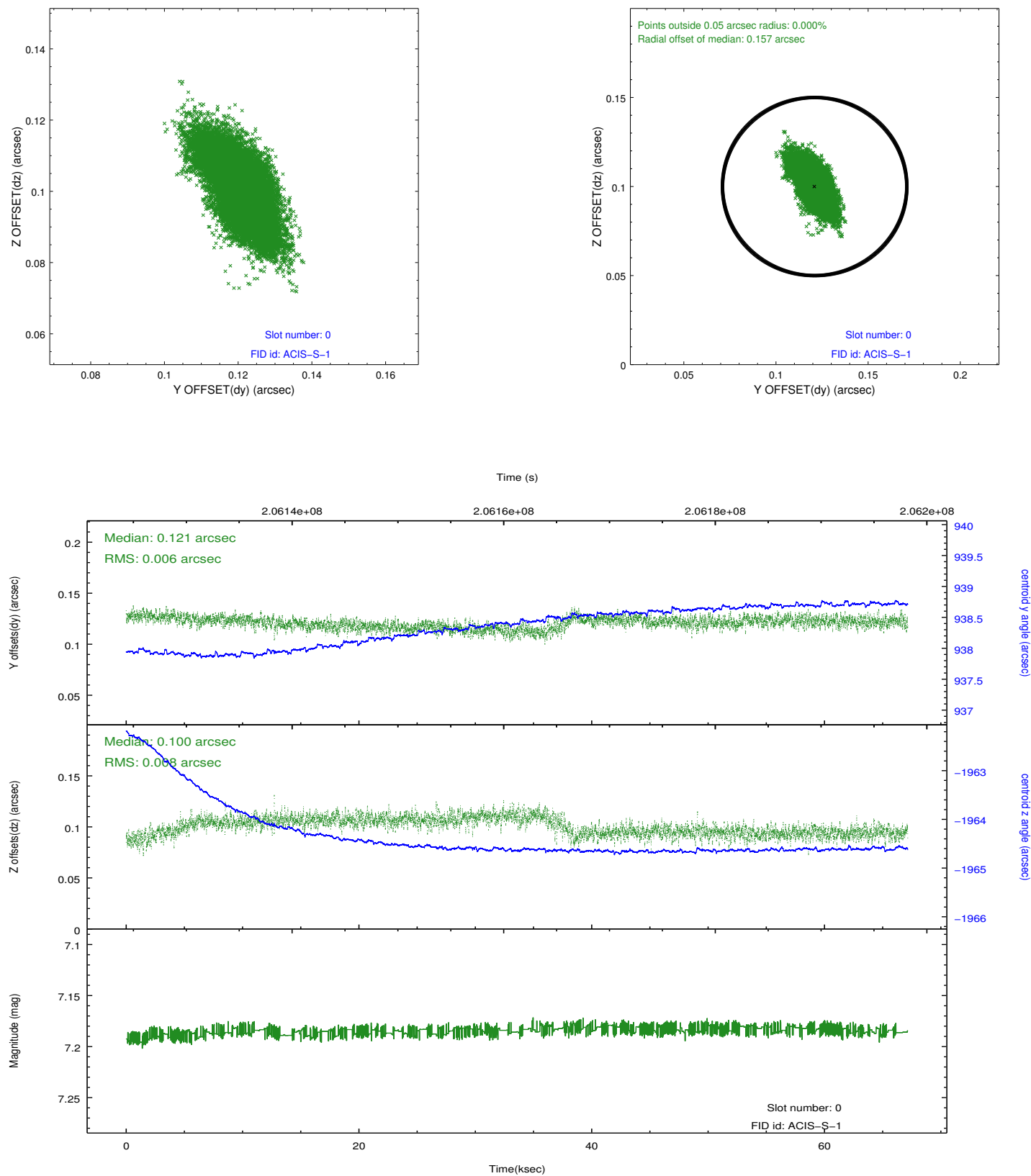


## 2.4.5 Slot 7

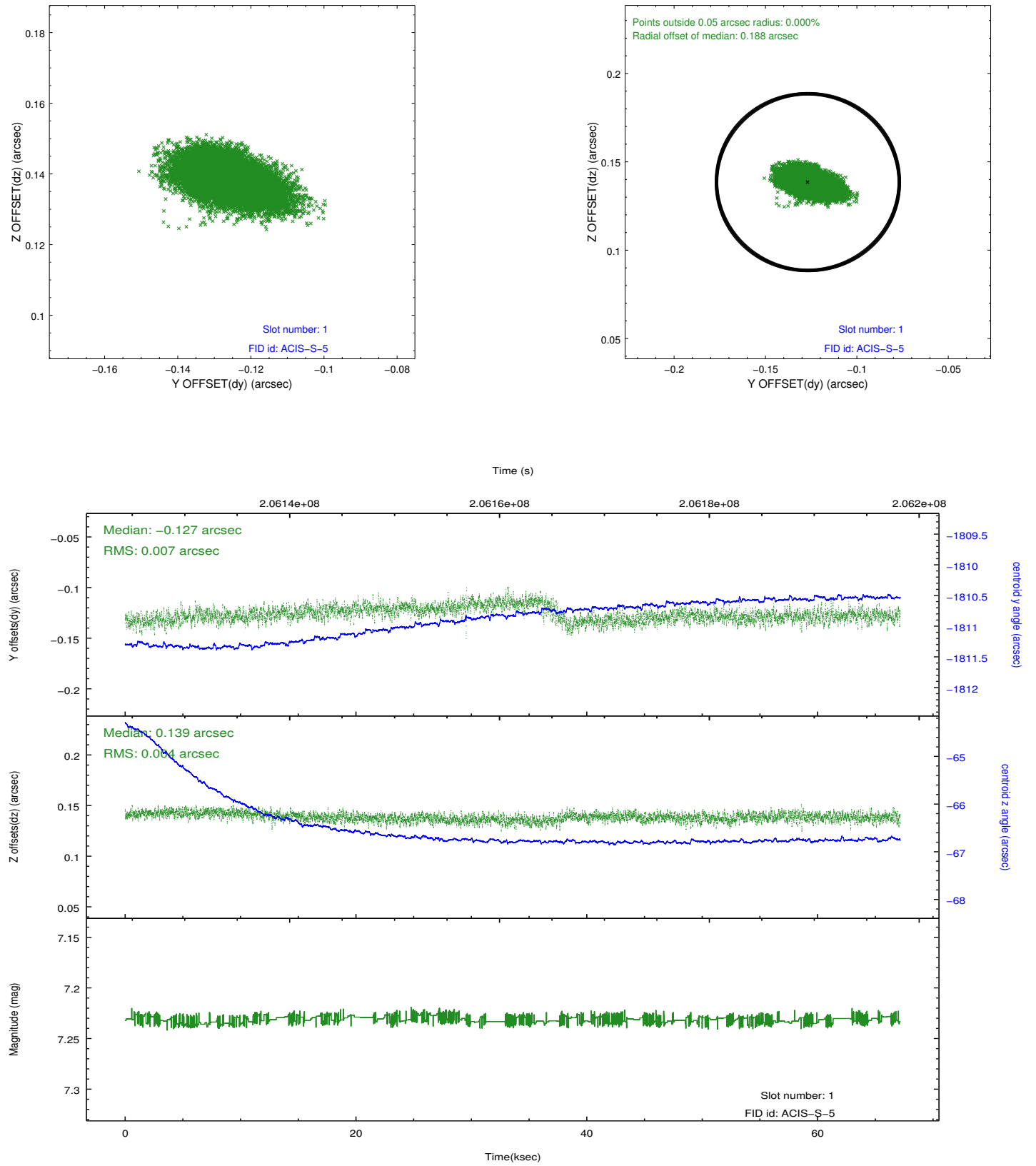


## 2.5 FID Slots

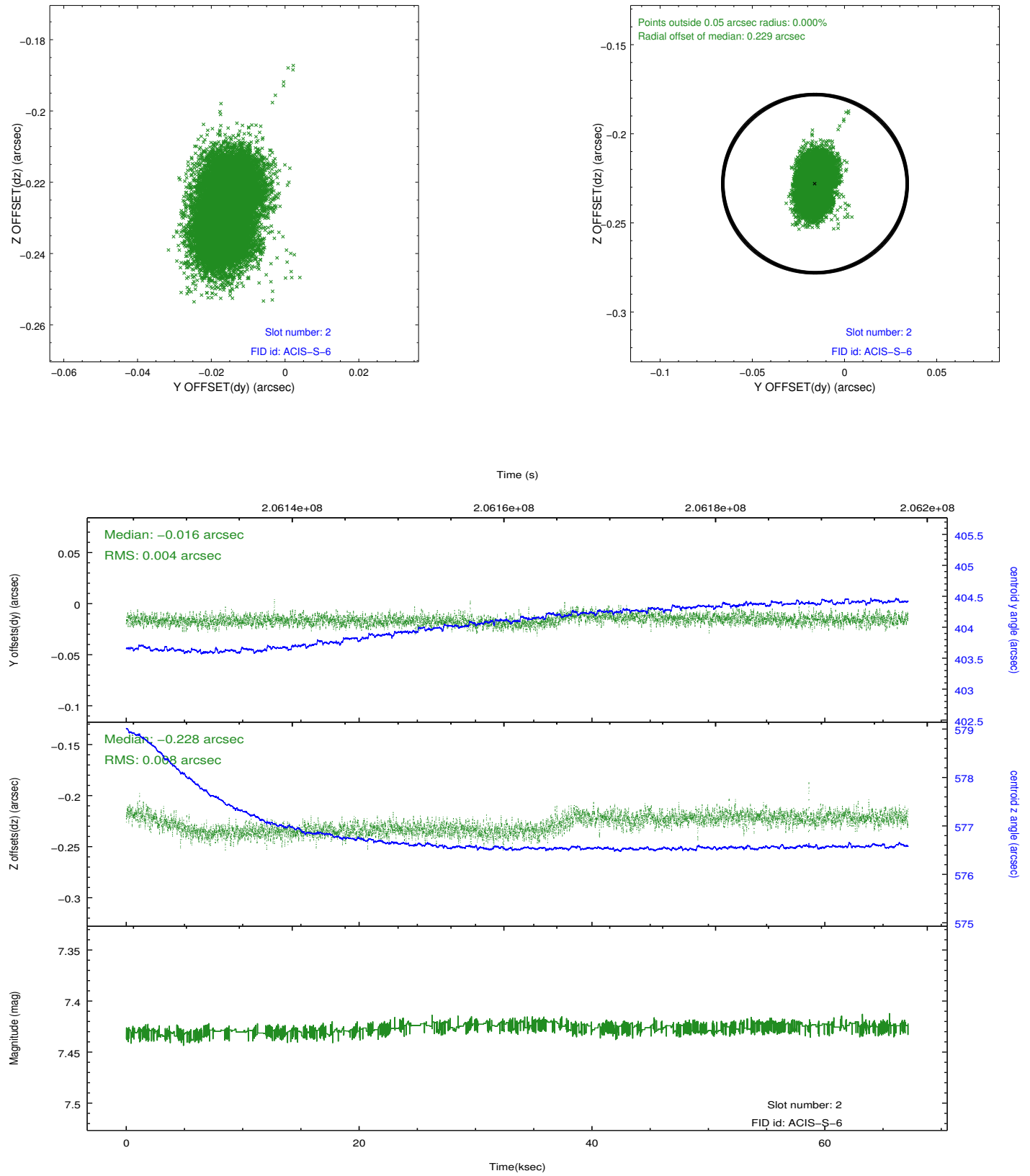
### 2.5.1 Slot 0



## 2.5.2 Slot 1



### 2.5.3 Slot 2

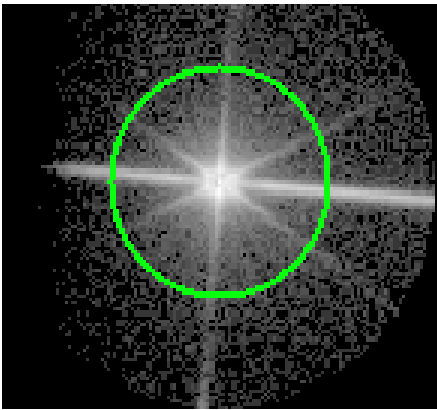


# 3 Gratings

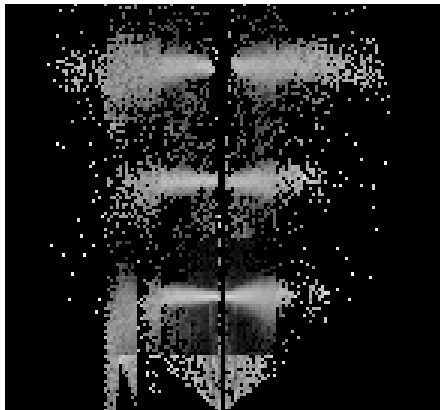
## 3.1 LETG Arm



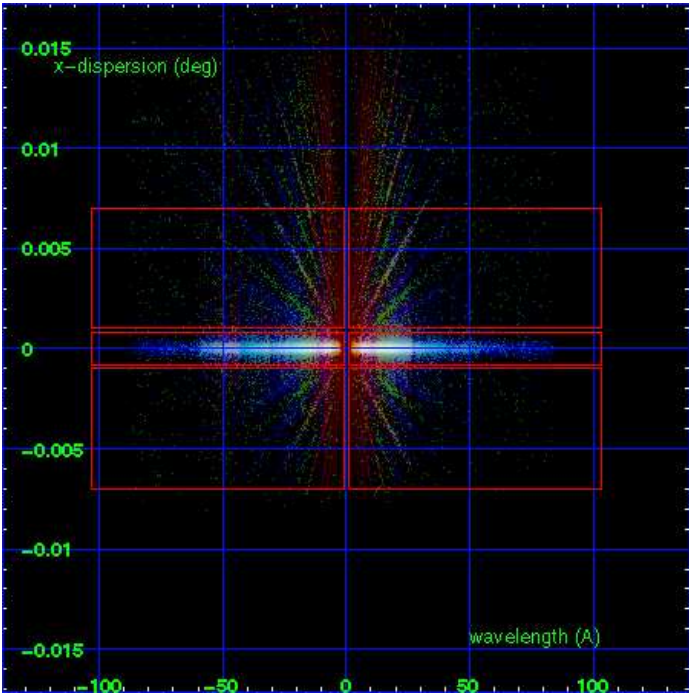
LETG Order Sort 123



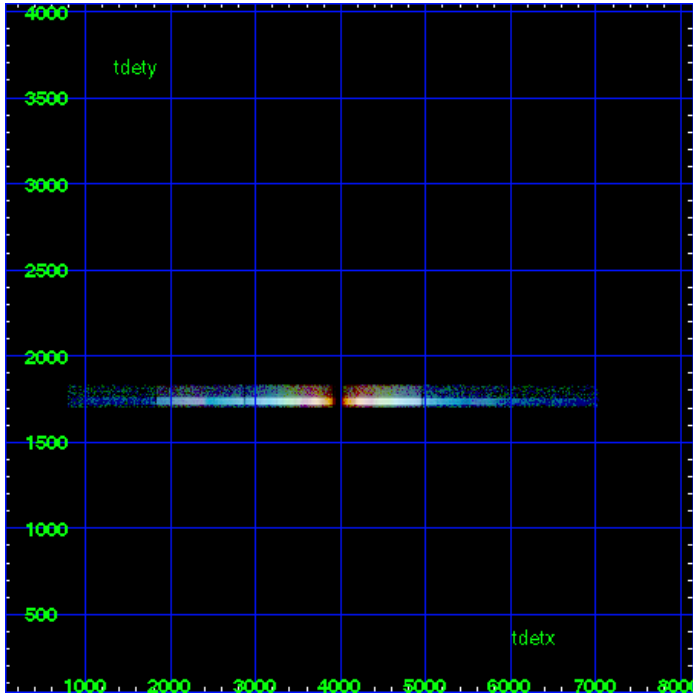
LETG Zero Order



LETG Order Sort ALL

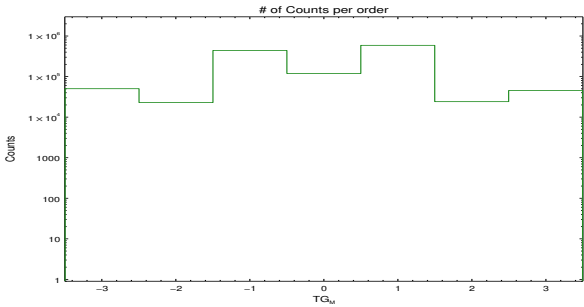


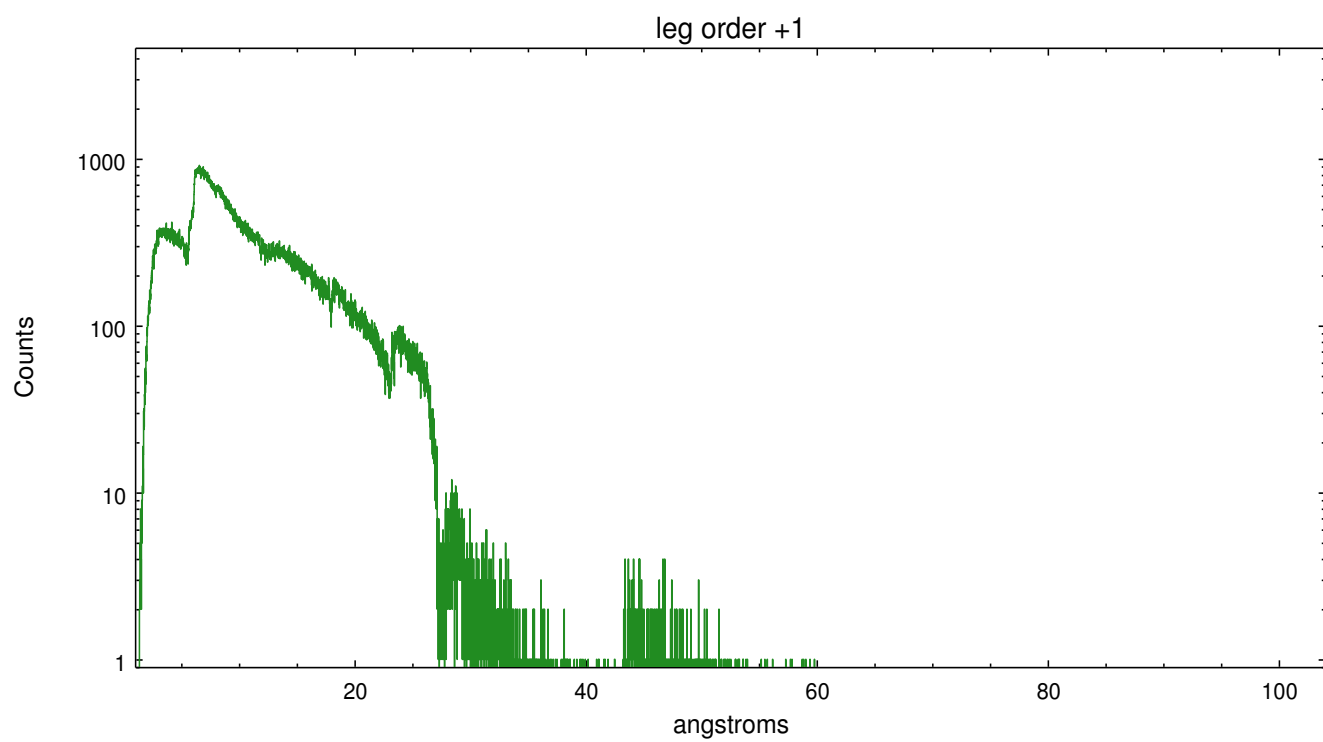
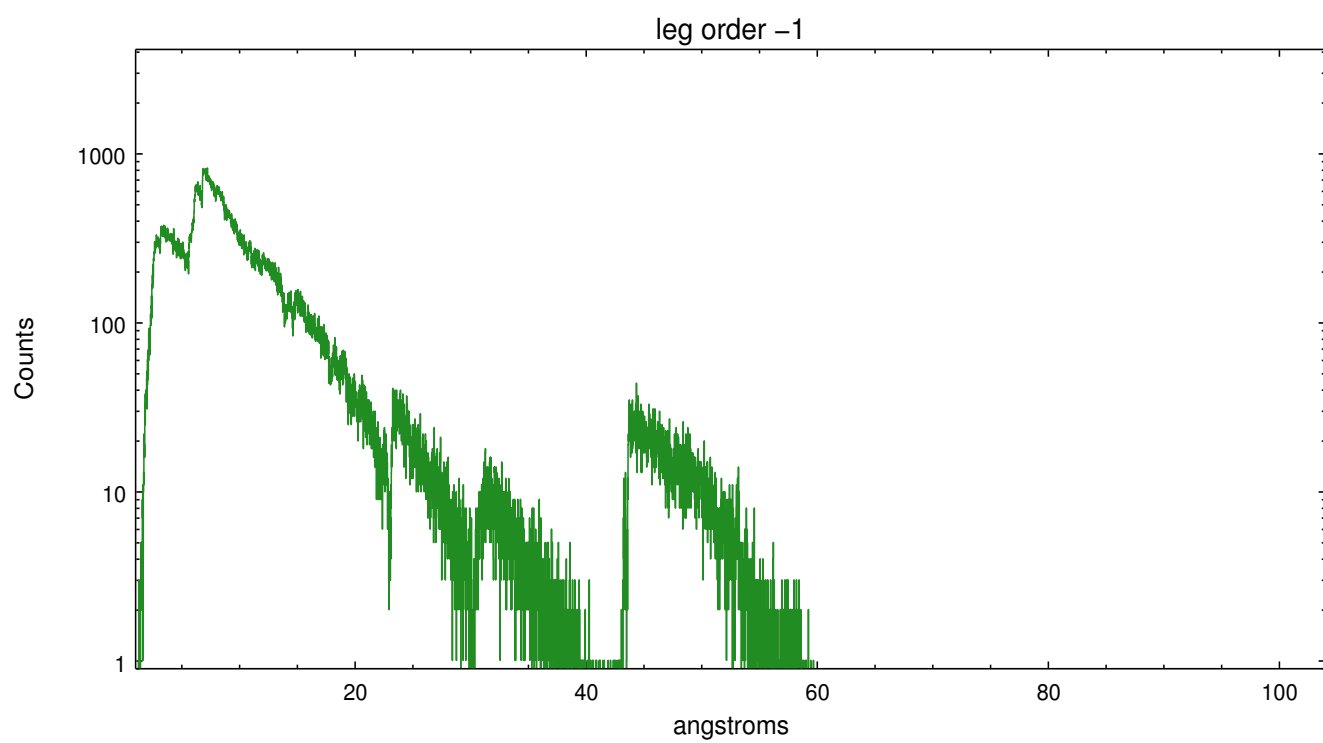
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	50632	23014	445422	120140	595044	24244	45650







# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.01.15
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	67.154

## A.2 Comments

Target placed near the edge of the chip for calibration purposes.

===

Zeroth order piled up. Standard data processing software did not correctly locate the zeroth order due to pileup. Manual intervention was used to input the correct sky coordinates (x=4089.53, y=3943.26) into the \*src1a.fits file table. These corrected coordinates were determined using a software tool developed by CXC called tg\_findzo, available in CIAO. The tool calculates the point of intersection of the readout streak and the leg arm. The zeroth order source position determined by the standard pipeline processing using the tool tgdetect was not used in this processing. The newly determined zeroth order coordinates have been placed in the \*src1a.fits file, replacing the coordinates determined by tgdetect. Note that these corrected coordinates of the zeroth order cannot be reproduced by running tgdetect on the data.