

# V&V Reference Report

## L2 ASCDS Version : 8.4.5

Observation 3414 - L2 Version 3  
Chandra X-Ray Center

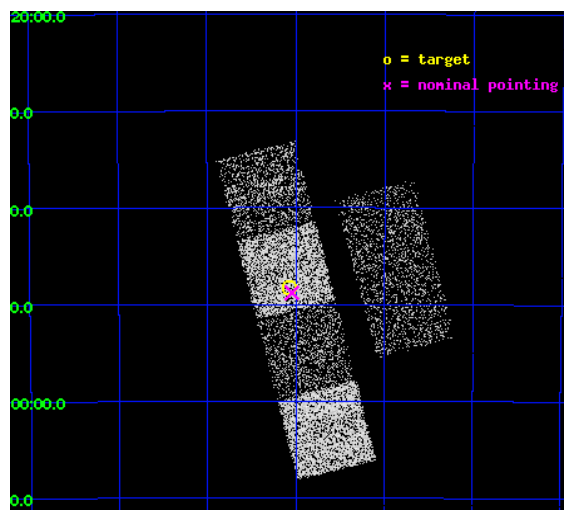
L2 Processing Date : Sep 29 2012

## Contents

<b>1</b>	<b>Front</b>	<b>2</b>
<b>2</b>	<b>OBI</b>	<b>3</b>
2.1	OBI . . . . .	3
2.1.1	Images . . . . .	3
2.1.2	Bias . . . . .	3
2.1.3	Parameters . . . . .	4
2.1.4	Events . . . . .	4
2.2	Compared Parameters . . . . .	5
2.3	Aspect . . . . .	6
2.4	Star Slots . . . . .	9
2.4.1	Slot 3 . . . . .	9
2.4.2	Slot 4 . . . . .	10
2.4.3	Slot 5 . . . . .	11
2.4.4	Slot 6 . . . . .	12
2.4.5	Slot 7 . . . . .	13
2.5	FID Slots . . . . .	14
2.5.1	Slot 0 . . . . .	14
2.5.2	Slot 1 . . . . .	15
2.5.3	Slot 2 . . . . .	16
<b>3</b>	<b>Gratings</b>	<b>17</b>
3.1	LETG Arm . . . . .	17
<b>A</b>	<b>Summary</b>	<b>19</b>
A.1	Status . . . . .	19
A.2	Comments . . . . .	19

# 1 Front

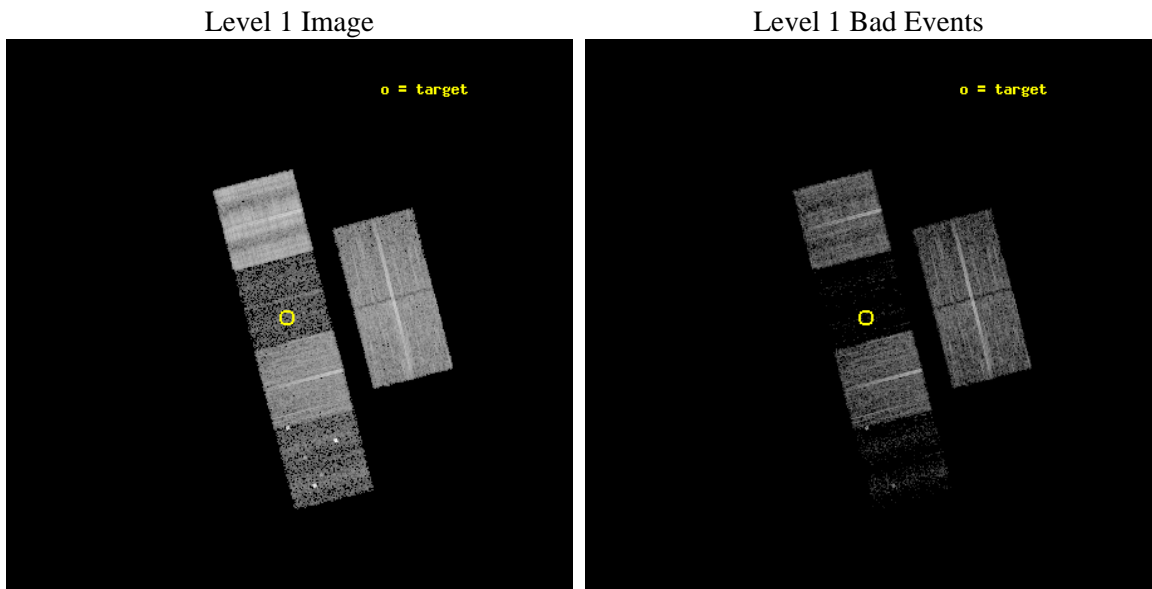
seq_num	100030	Sequence number
obs_id	3414	Observation id
title	ACIS-S LOW ENERGY SPECTROSCOPY AND PHOTOMETRIC IMAGING OF CHARGE EXCHANGE X-RAY EMISSION FROM COMET C/LINEAR WM1 (2000)	Proposal titl
observer	Dr. Carey Lisse	Principal investigator
object	C/LINEAR WM1 (2000)	Source name
dtcycle	0	&#160
cycle	P	events from which exps? Prim/Second/Both
ra_targ	333.51743	Observer's specified target RA [deg]
dec_targ	-51.80457	Observer's specified target Dec [deg]
ra_nom	333.51094705249	Nominal RA [deg]
dec_nom	-51.813402248155	Nominal Dec [deg]
roll_nom	255.48366223896	Nominal Roll [deg]
revision	3	Processing version of data
ontime	8505.6000079066	Sum of GTIs [s]
livetime	8397.896979149	Livetime [s]
ontime2	8505.6000079066	Sum of GTIs [s]
ontime3	8505.5287897587	Sum of GTIs [s]
ontime5	8505.6000079066	Sum of GTIs [s]
ontime6	8505.569829762	Sum of GTIs [s]
ontime7	8505.6000079066	Sum of GTIs [s]
ontime8	8499.0057794154	Sum of GTIs [s]
l2events	15731	Number of level 2 events



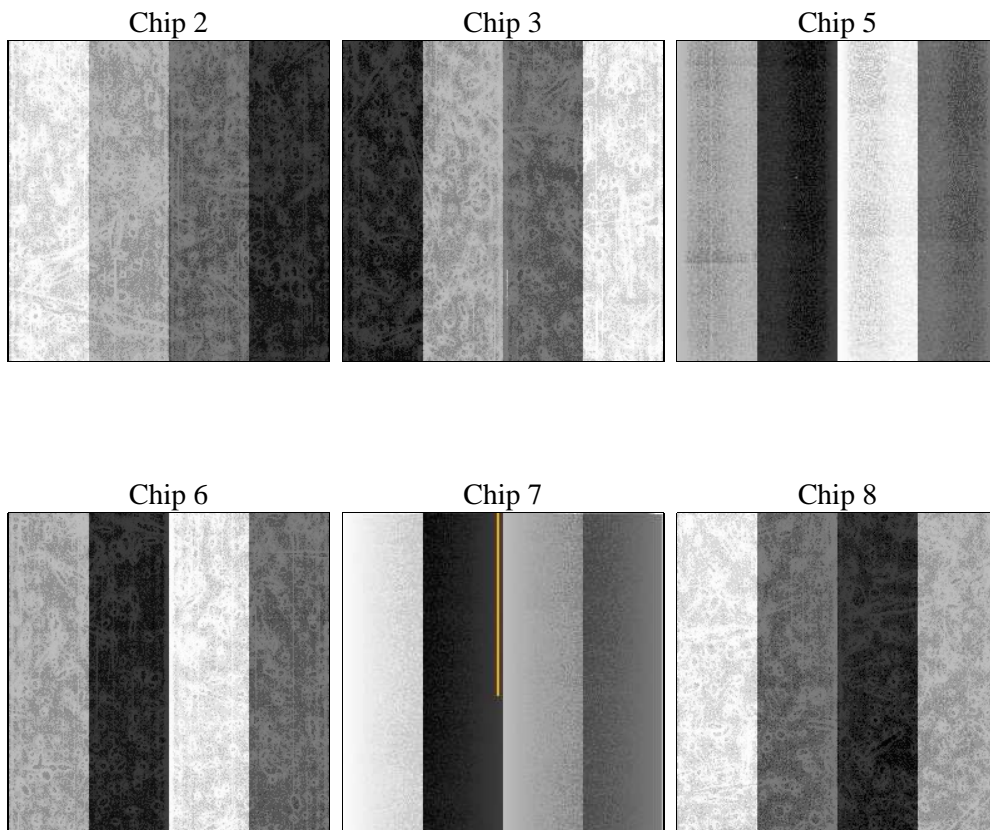
## 2 OBI

### 2.1 OBI

#### 2.1.1 Images



#### 2.1.2 Bias



### 2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	8750.000000	[s] Scheduled observation exposure time
ascdsver	8.4.5	Processing system revision	ontime	8505.6000079066	Sum of GTIs [s]
caldbver	4.5.2	&#160	ontime2	8505.6000079066	Sum of GTIs [s]
date	2012-09-29T15:32:42	Date and time of file creation	ontime3	8505.5287897587	Sum of GTIs [s]
revision	3	Processing version of data	ontime5	8505.6000079066	Sum of GTIs [s]
			ontime6	8505.569829762	Sum of GTIs [s]
			ontime7	8505.6000079066	Sum of GTIs [s]
			ontime8	8499.0057794154	Sum of GTIs [s]
			l1events	224088	Number of level 1 events

### 2.1.4 Events

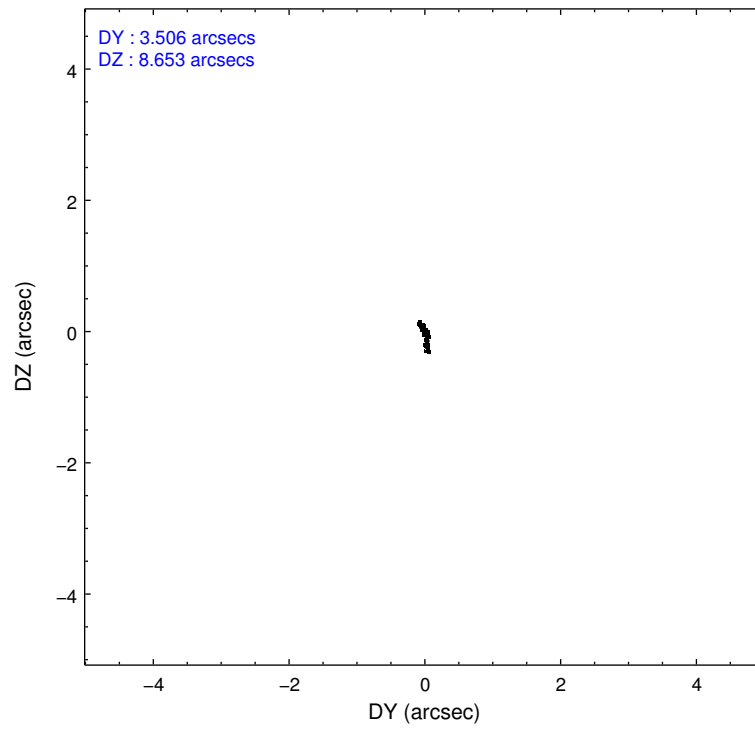
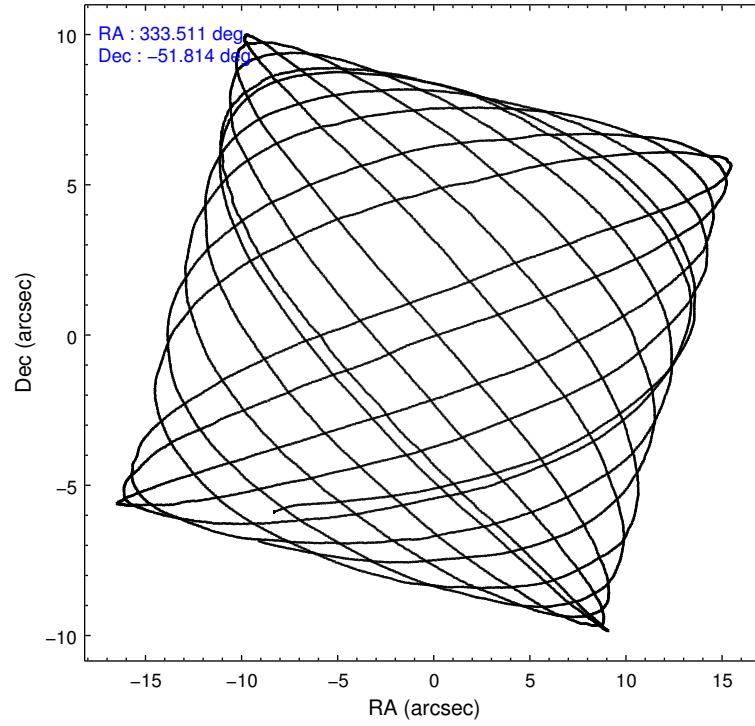
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	45600	36204	13946	38914	6885	82539
rejected events	42733	34877	3827	36311	1352	40797
rejected %	93%	96%	27%	93%	19%	49%

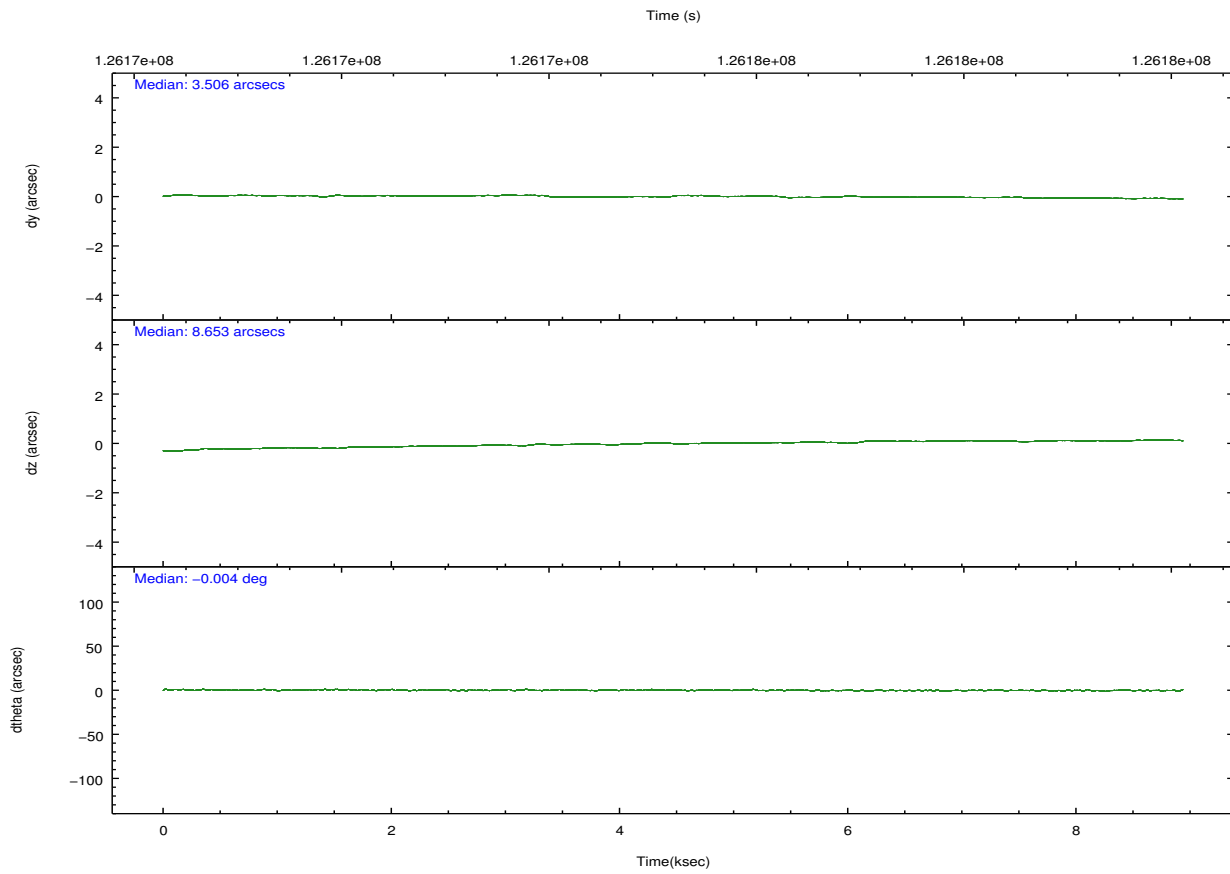
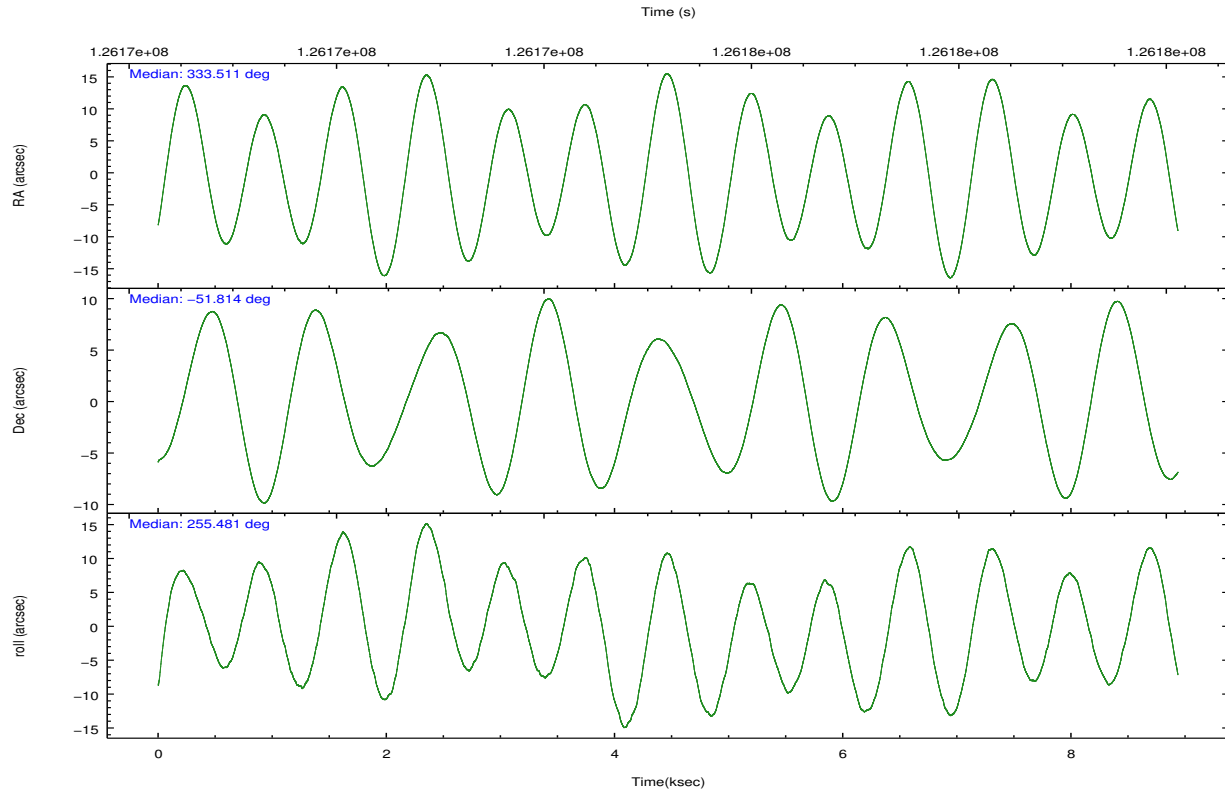
	ccd 2	ccd 3	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	1271	621	4654	1462	1435	13087
	2%	1%	33%	3%	20%	15%
grade 1 events	18	7	242	24	20	119
	0%	0%	1%	0%	0%	0%
grade 2 events	825	218	2947	621	1886	5403
	1%	0%	21%	1%	27%	6%
grade 3 events	226	204	849	204	790	7879
	0%	0%	6%	0%	11%	9%
grade 4 events	313	193	883	213	775	7026
	0%	0%	6%	0%	11%	8%
grade 5 events	87	21	583	33	223	632
	0%	0%	4%	0%	3%	0%
grade 6 events	234	92	793	103	649	8361
	0%	0%	5%	0%	9%	10%
grade 7 events	42626	34848	2995	36254	1107	40032
	93%	96%	21%	93%	16%	48%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-235678	ACIS-235678	Obspar file type	PREDICTED	ACTUAL
Grating	LETG	LETG	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	333.498594	333.5109470524942	Subarray requested	NONE	NONE
[deg] Pointing Dec	-51.787210	-51.81340224815452	Alternating exposures requested	N	N
[deg] Pointing Roll	255.317328	255.483662238961	[s] Primary exposure time	0.000000	3.2
[s] Window start time (MET)	126144064.184000	126144064.184000			
[s] Window stop time (MET)	126230404.184000	126230404.184000			
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-190.132523	-190.1400660498719			
[mm] SIM translation stage offset	0	0.00754346686406393			
[s] Observation start time (MET)	126170917.184000	126170540.65943			
Observation start date	2001-12-31T07:27:33	2001-12-31T07:22:20			
[s] Observation end time (MET)	126179667.184000	126179800.50981			
Observation end date	2001-12-31T09:53:23	2001-12-31T09:56:40			
Read mode	TIMED	TIMED			

## 2.3 Aspect



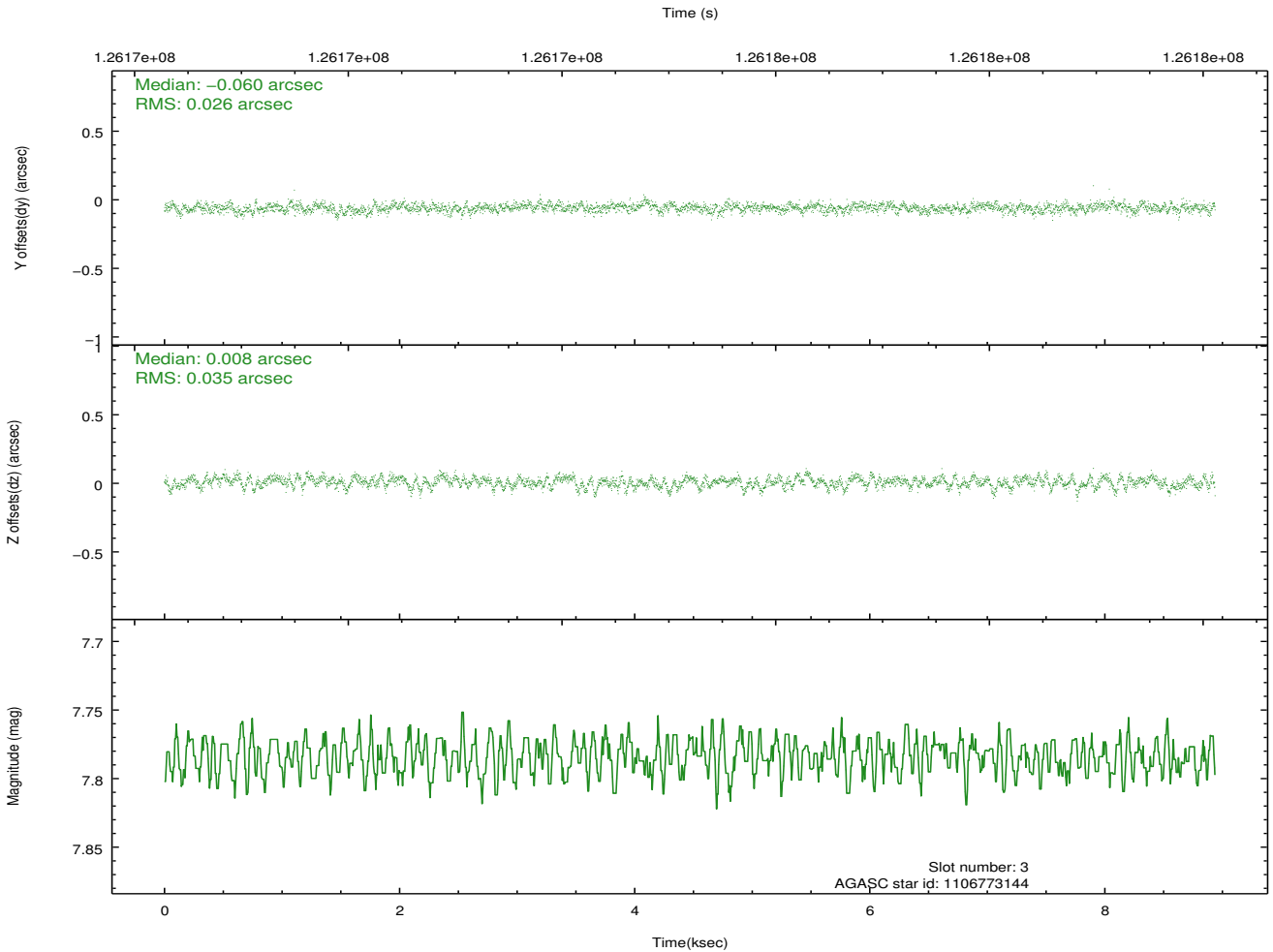
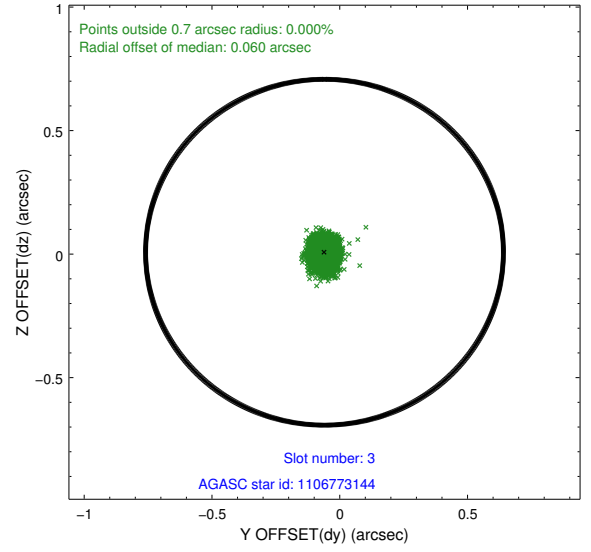
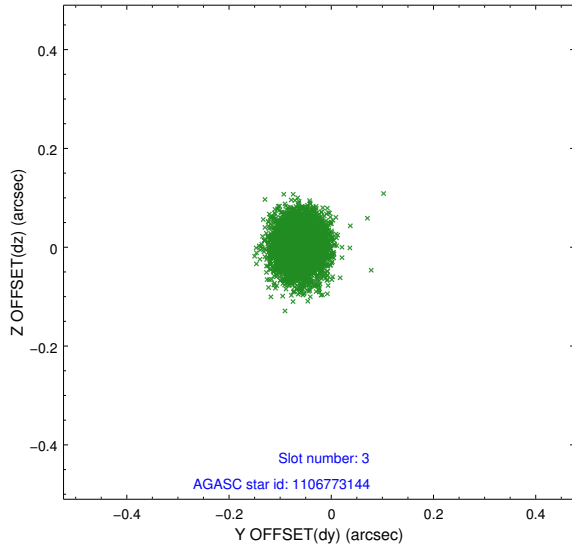


### Slot Statistics

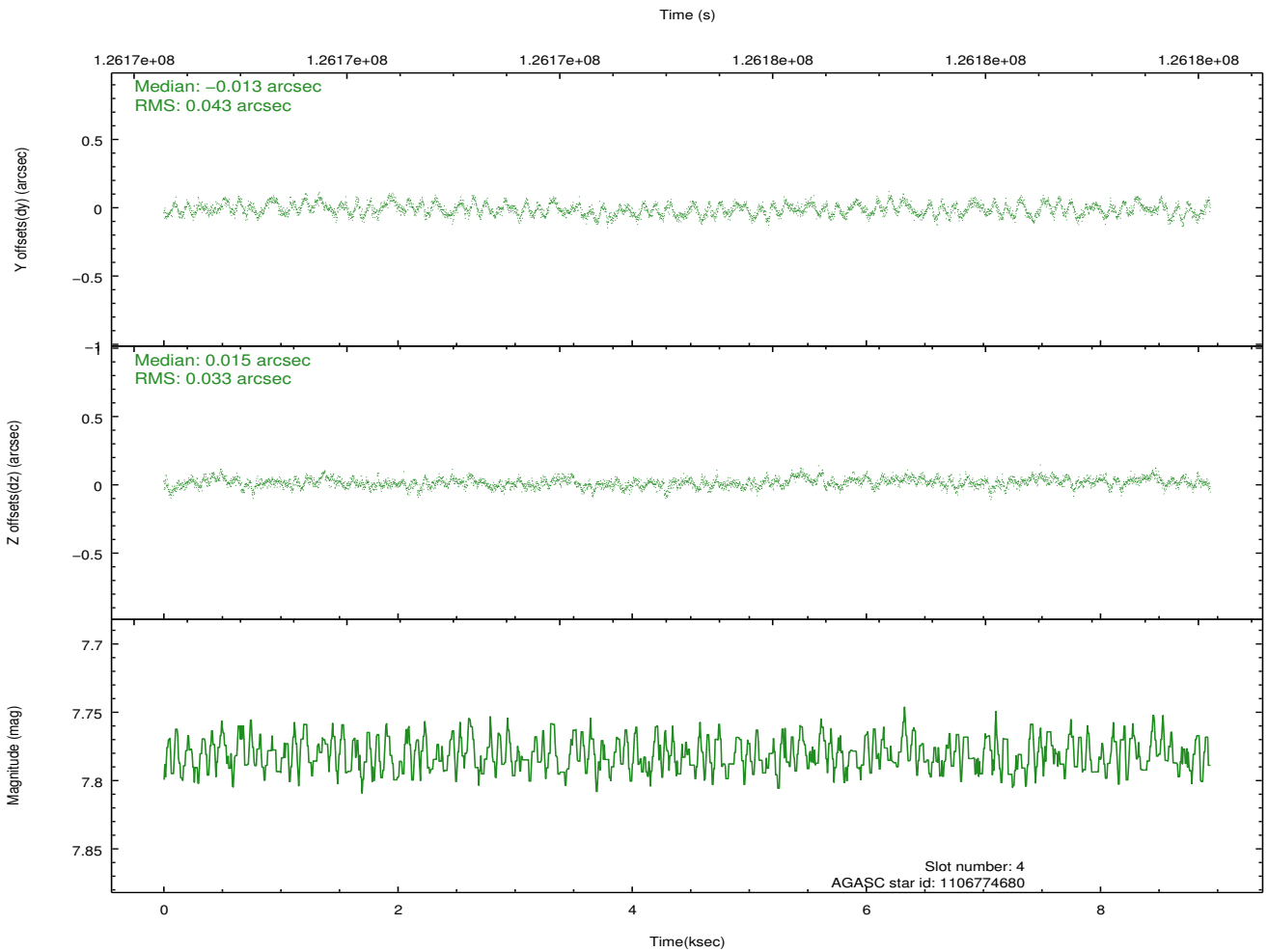
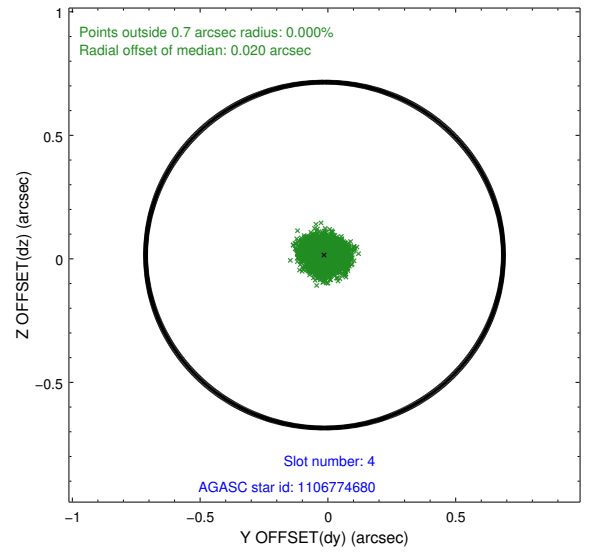
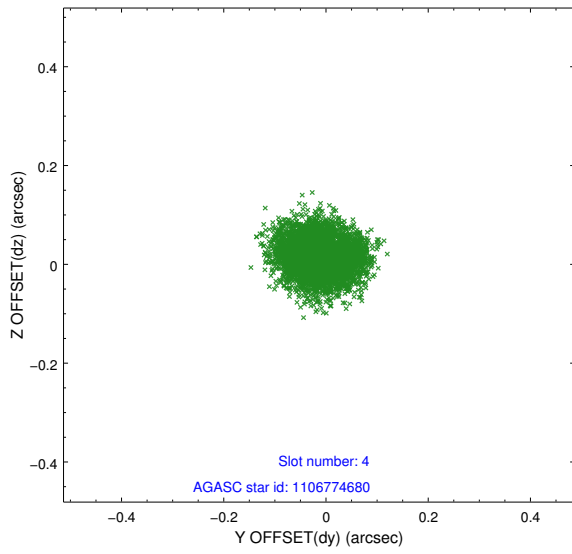
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	2178	-0.013	-0.011	0.007	0.013	0.000000	0.000000	-756.17	-1729.85
1	FID	ACIS-S-4	7.20	2178	-0.014	0.009	0.006	0.010	0.000000	0.000000	2156.83	178.03
2	FID	ACIS-S-5	7.24	2180	-0.005	0.011	0.007	0.013	0.000000	0.000000	-1808.22	172.39
3	GUIDE	1106773144	7.78	4360	-0.060	0.008	0.046	0.075	333.747596	-52.196523	1286.54	904.00
4	GUIDE	1106774680	7.78	4360	-0.013	0.015	0.059	0.091	332.589342	-51.960089	1125.53	-1790.78
5	GUIDE	1106774016	8.48	4359	0.060	-0.022	0.056	0.089	333.431255	-52.253176	1660.31	280.06
6	GUIDE	1106907400	9.06	4354	-0.020	-0.023	0.078	0.123	334.001770	-51.303937	-1966.32	654.21
7	GUIDE	1106904104	10.30	4353	0.033	0.026	0.127	0.208	334.211836	-51.784252	-406.24	1534.81

## 2.4 Star Slots

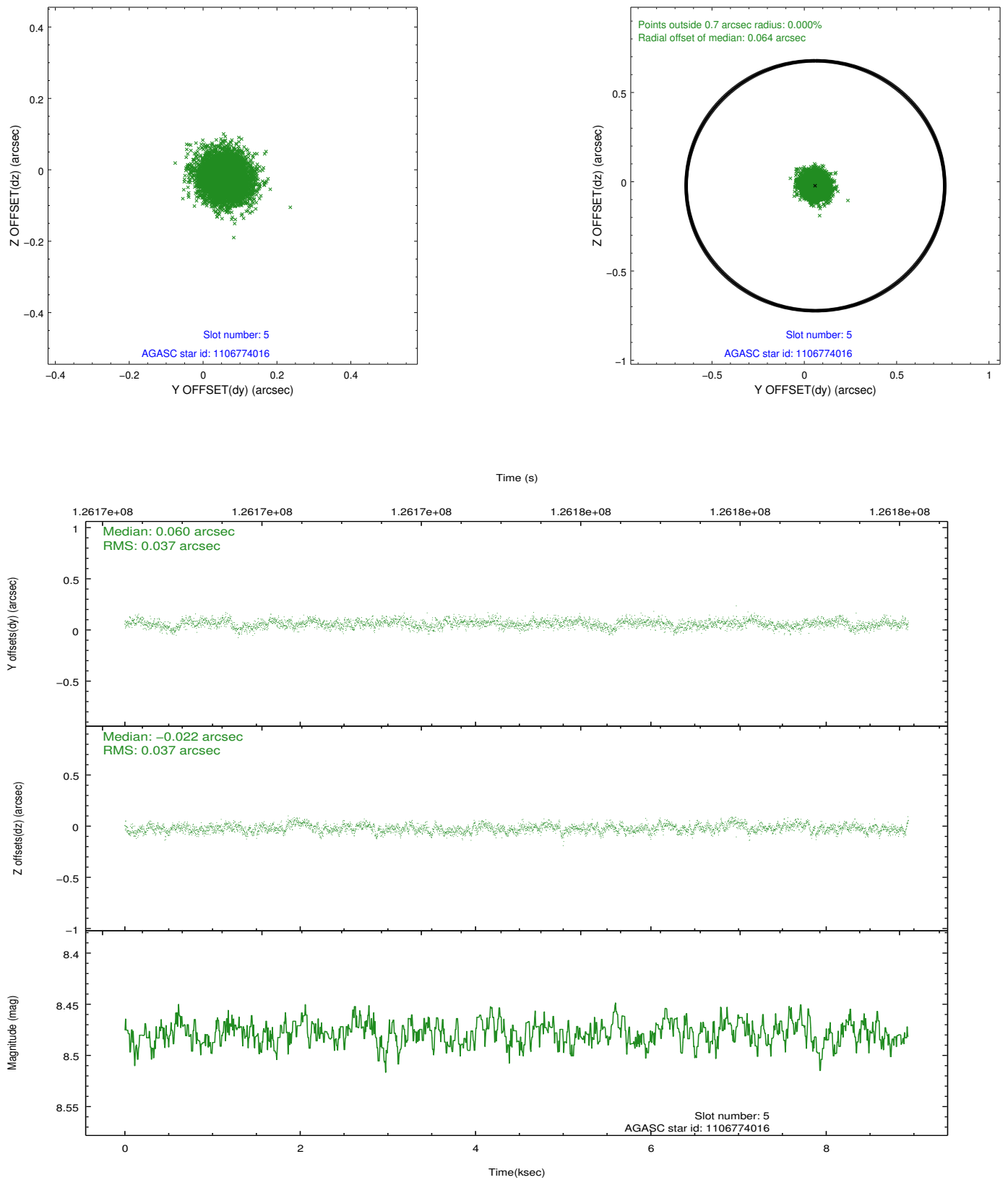
### 2.4.1 Slot 3



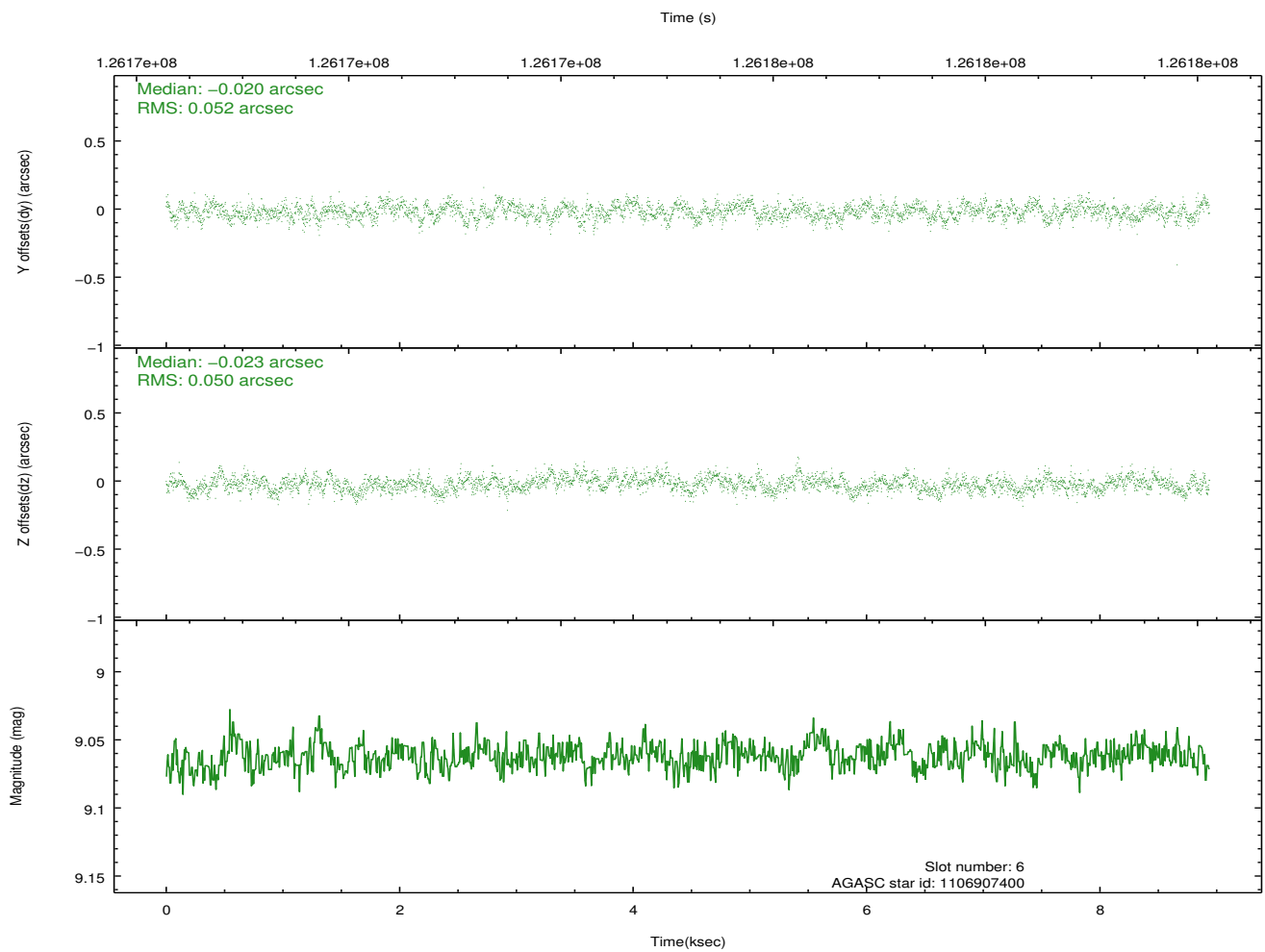
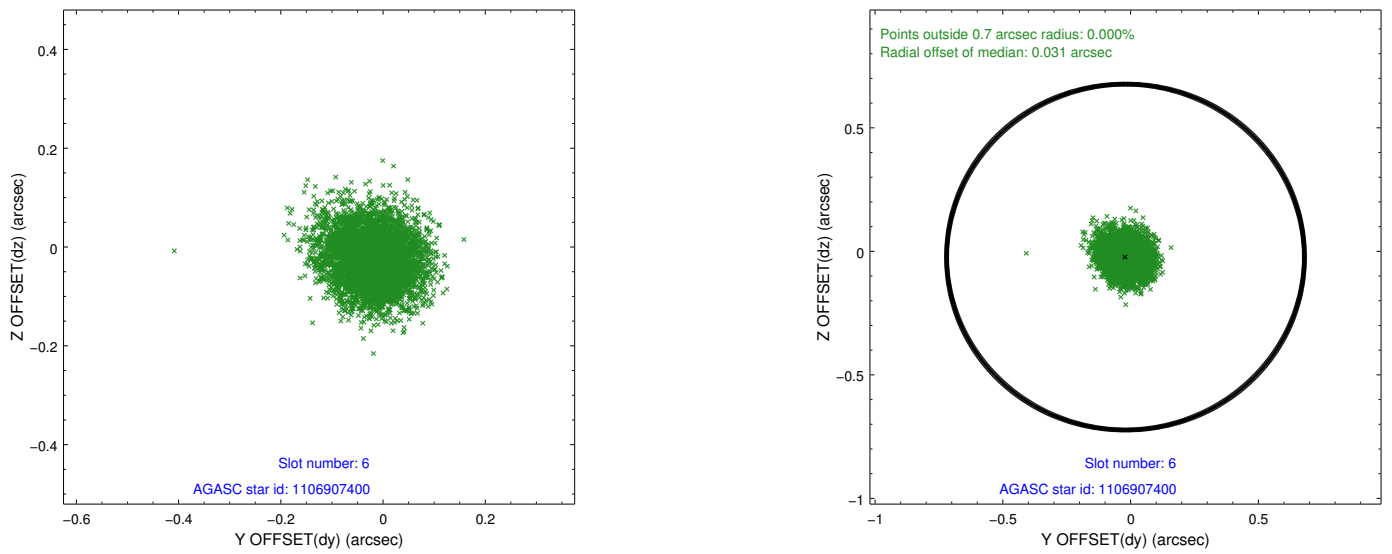
### 2.4.2 Slot 4



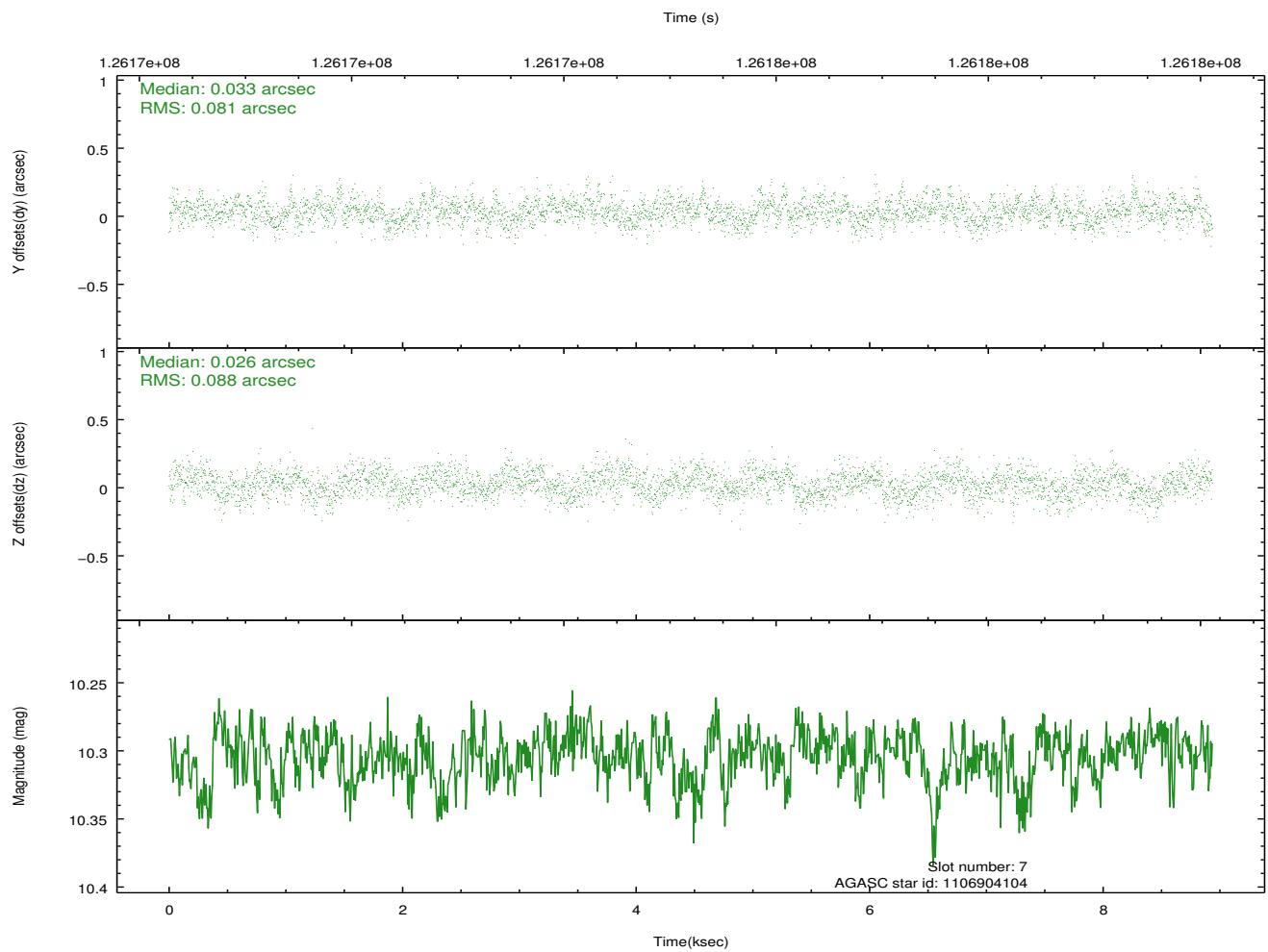
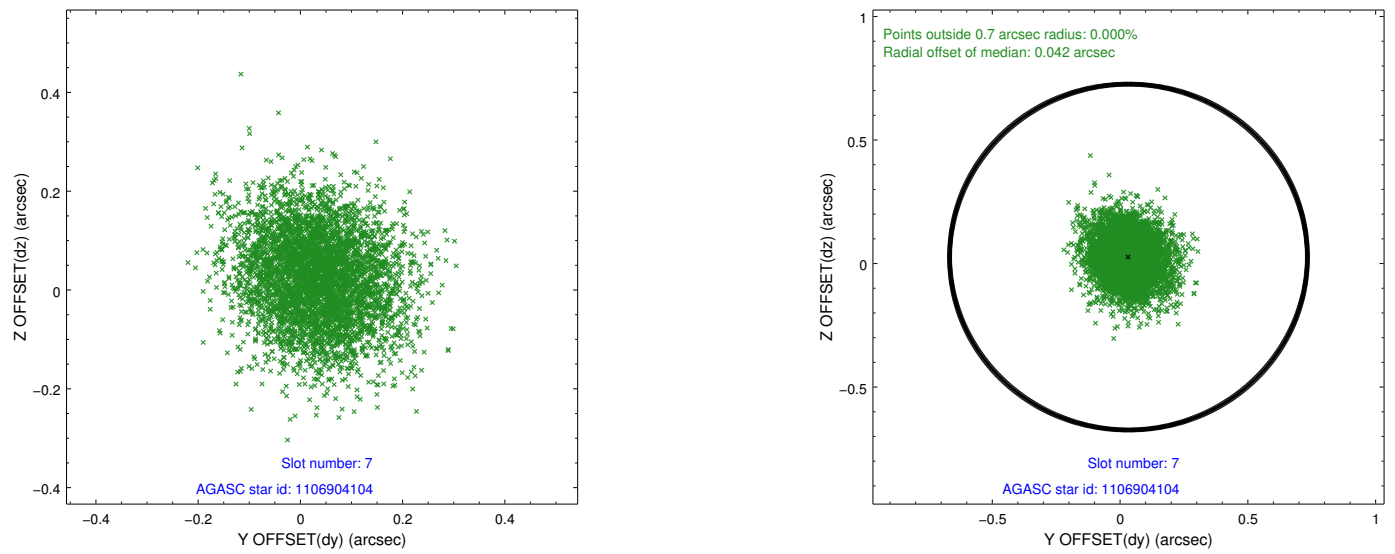
### 2.4.3 Slot 5



## 2.4.4 Slot 6

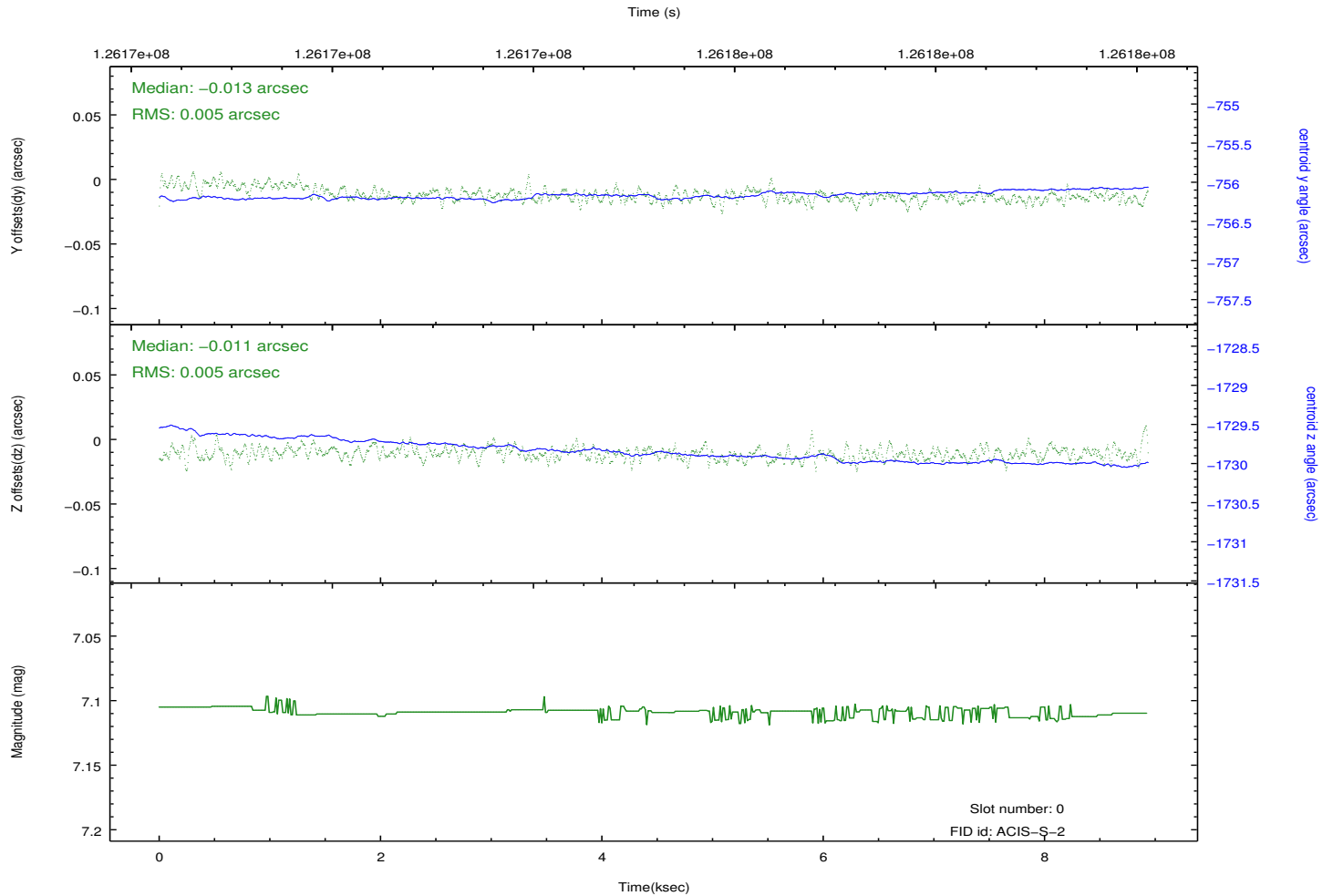
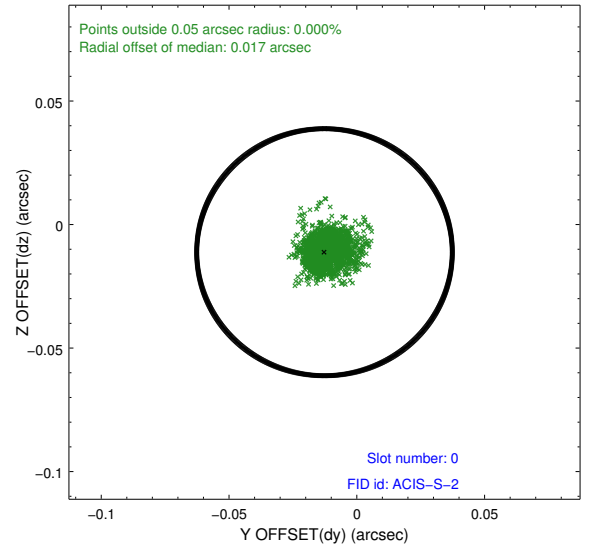
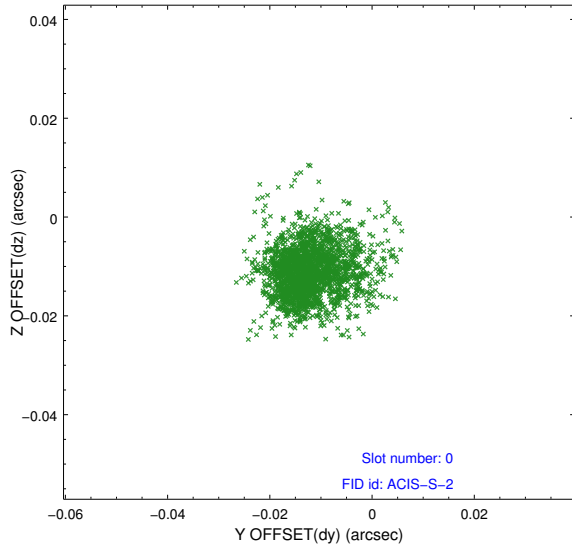


## 2.4.5 Slot 7

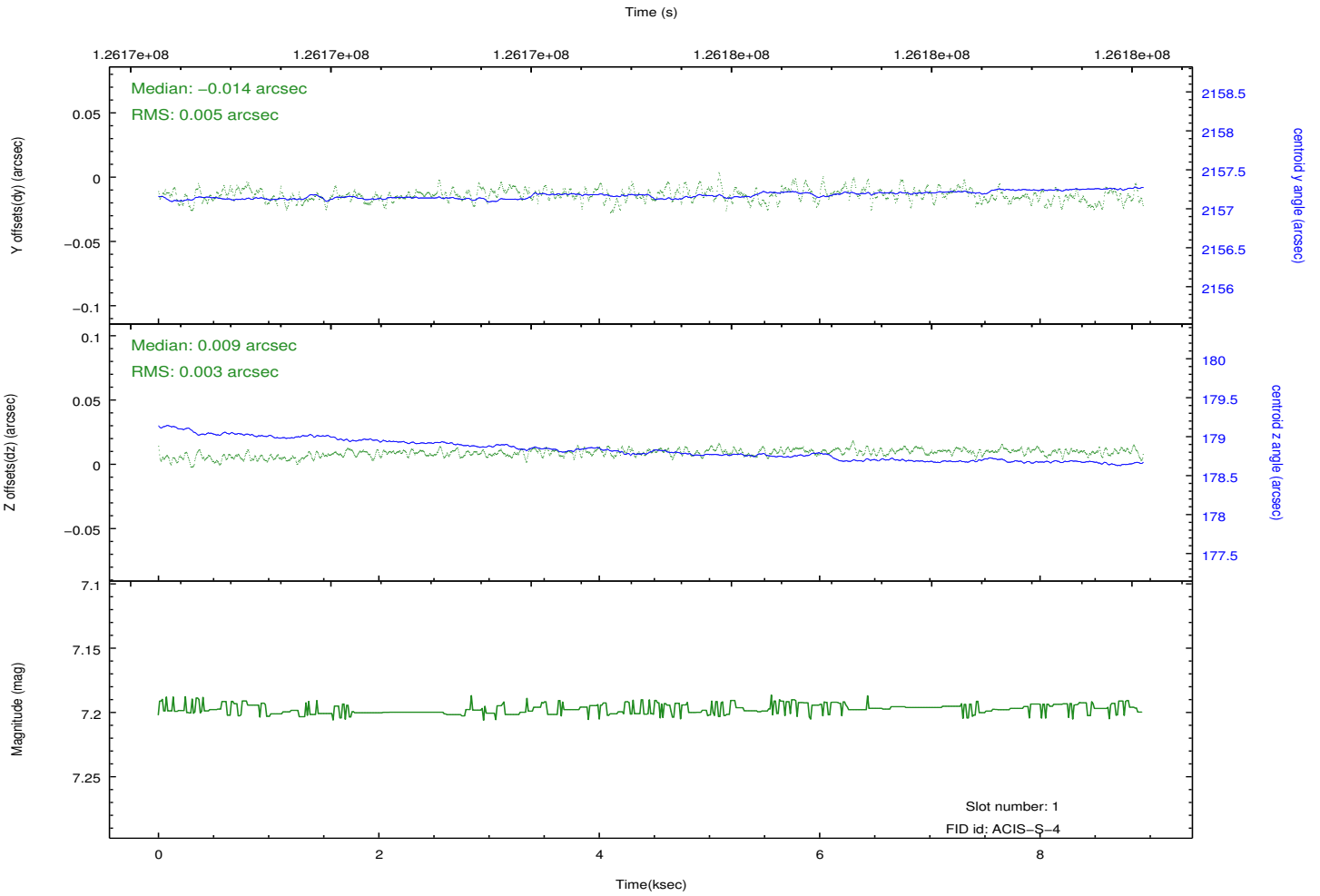
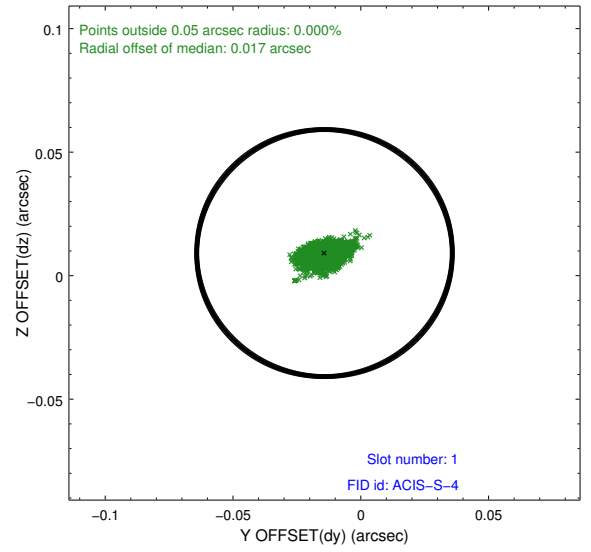
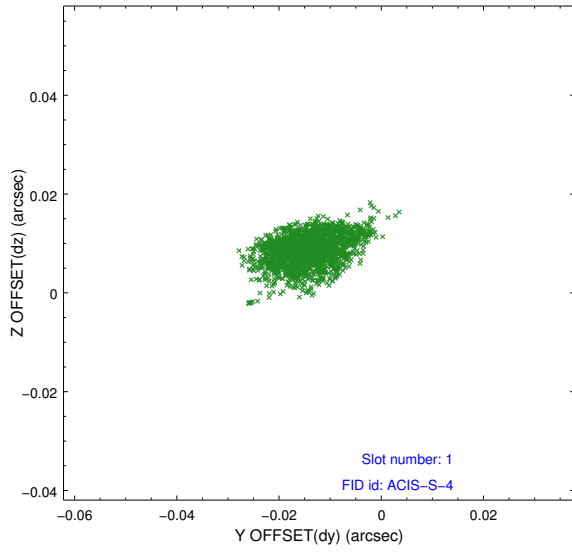


## 2.5 FID Slots

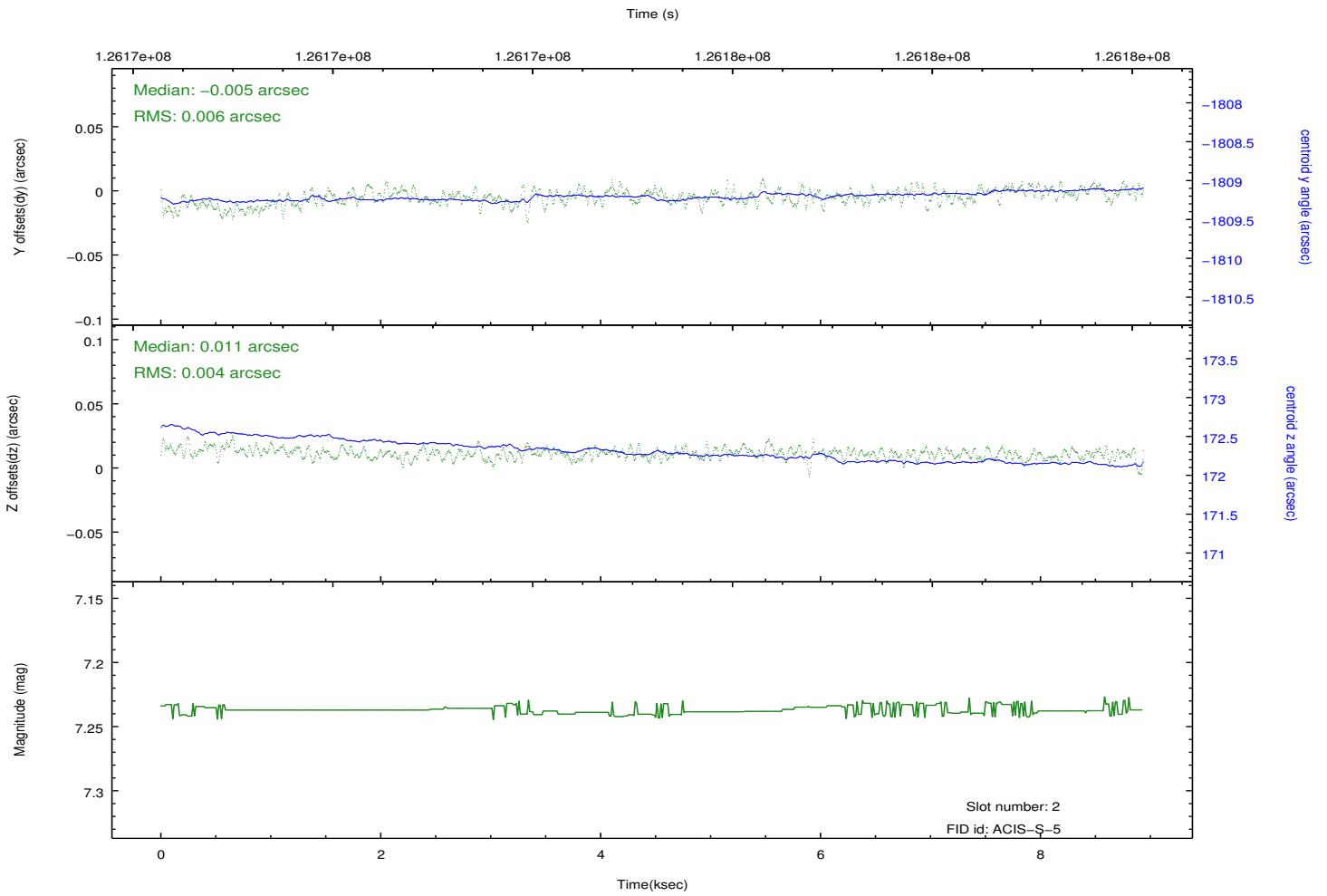
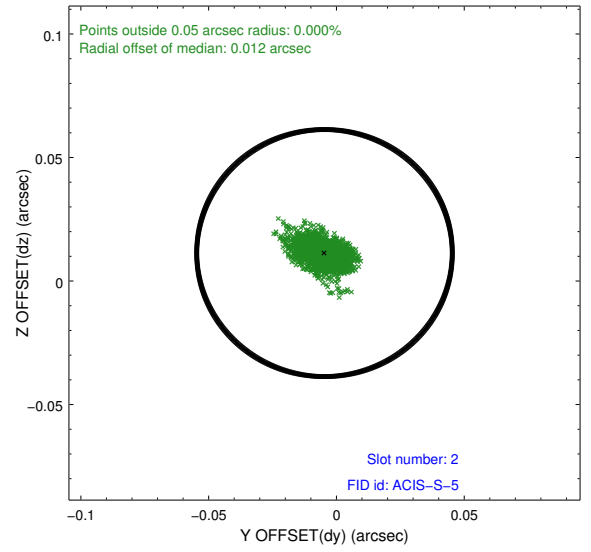
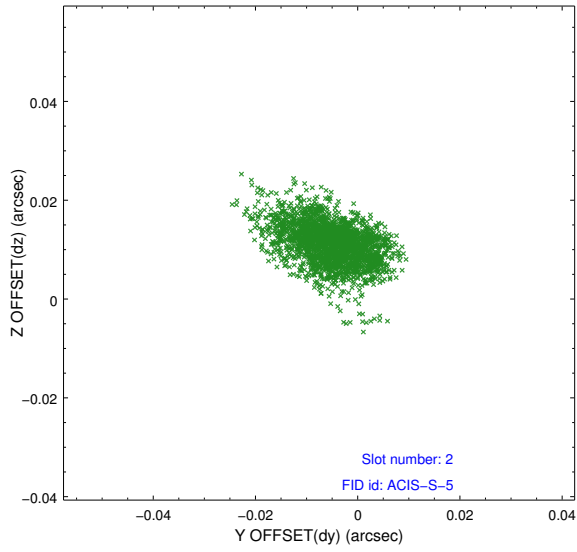
### 2.5.1 Slot 0



## 2.5.2 Slot 1

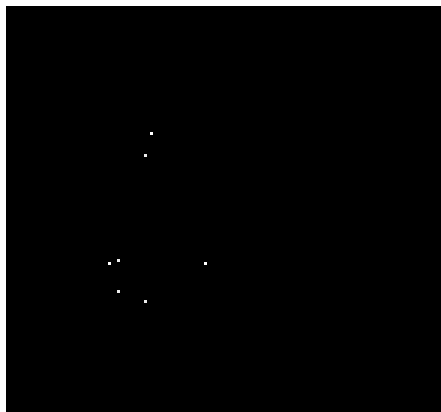


### 2.5.3 Slot 2

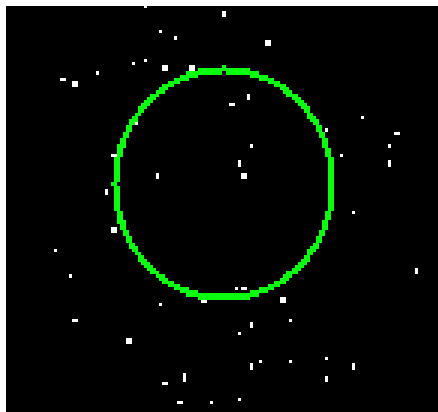


### 3 Gratings

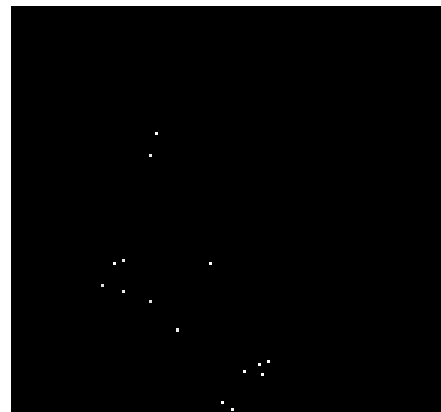
#### 3.1 LETG Arm



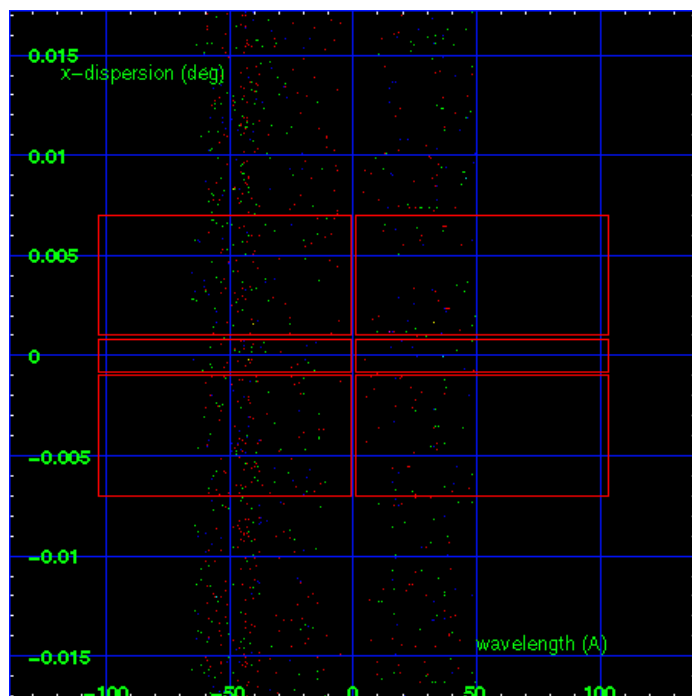
LETG Order Sort 123



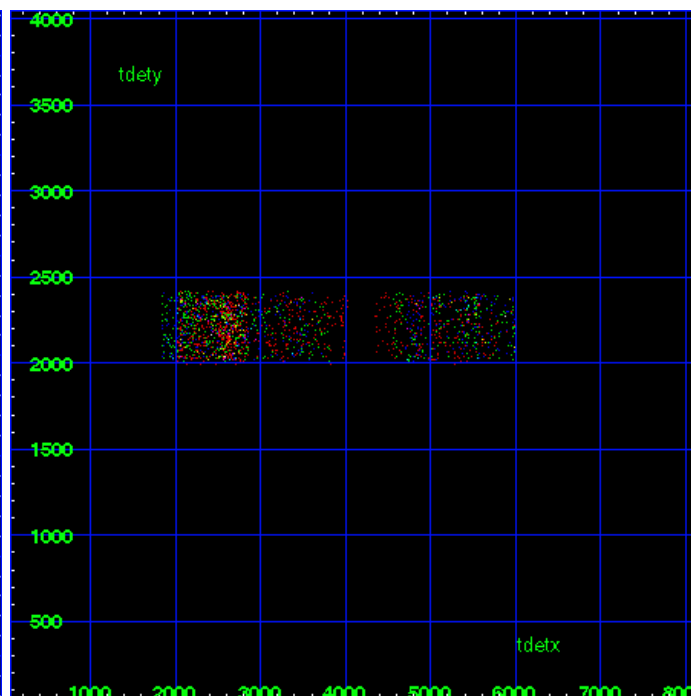
LETG Zero Order



LETG Order Sort ALL

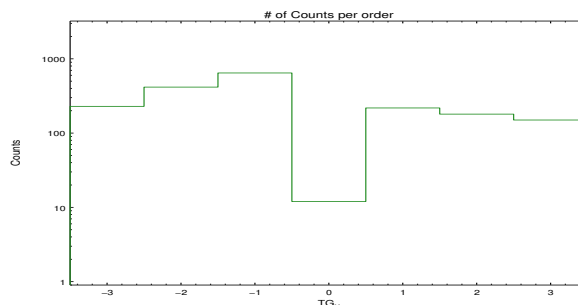


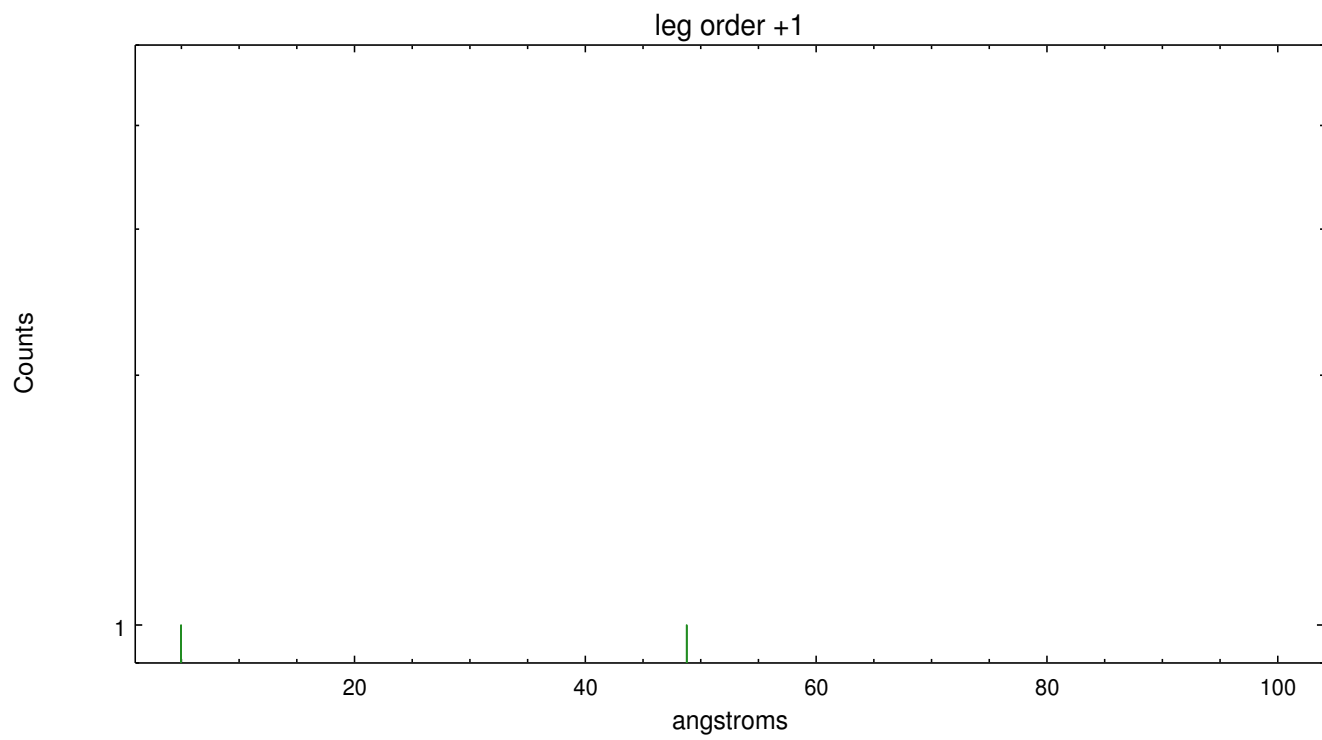
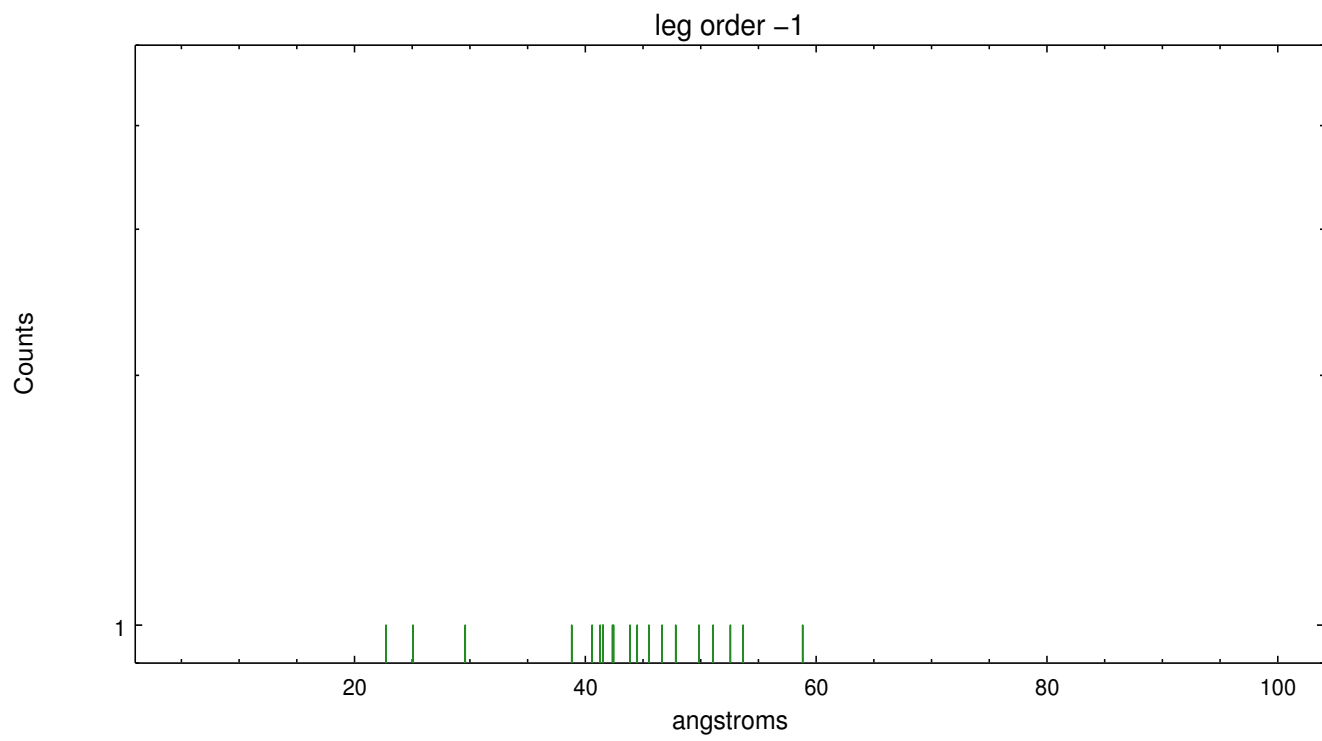
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	229	416	645	12	218	180	150





# A Summary

## A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.10.05
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	8.508

## A.2 Comments

This is an observation of a moving target. Event positions are in the reference from of Chandra, not of the comet. Users should run a software tool such as `sso_freeze` to reposition the events in the reference from of the comet, then run normal data analysis tools such as `tgdetect` and spectral extraction.

===

Energy filter allowed only events with energies 0.1 to 2.0 keV to be recorded.

===

Standard software processing technique using the tool `tgdetect` failed to determine an accurate position for the zeroth order for this observation. The target is moving through the field of view during the observation. The processing software defaulted to the coordinates supplied by the user for the position of the zeroth order for the grating spectral extraction. Spectra products from this processing, which does not include `sso_freeze`, are not useful.

===

Gain and CTI correction are not well calibrated on CCD\_ID 5 (ACIS-S1). Default order sorting can clip some regions, particularly longward of 30A (first order). User-specified custom processing parameters may be required in `tg_resolve_events` (`osipfile=None`, `osort_lo`, `osort_hi ~0.5`) though this can allow more zeroth order background at short wavelengths.