

# V&V Reference Report

## L2 ASCDS Version : 10.4

Observation 17696 - L2 Version 3  
Chandra X-Ray Center

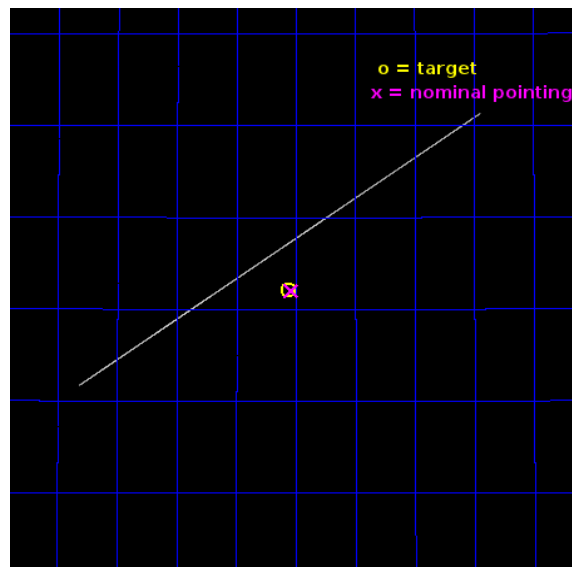
L2 Processing Date : Aug 4 2015

## 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	Parameters . . . . .	4
2.1.3	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	HEG Arm . . . . .	17
3.2	MEG Arm . . . . .	19
<b>A</b>	<b>Summary</b>	<b>21</b>
A.1	Status . . . . .	21
A.2	Comments . . . . .	21

# 1 Front

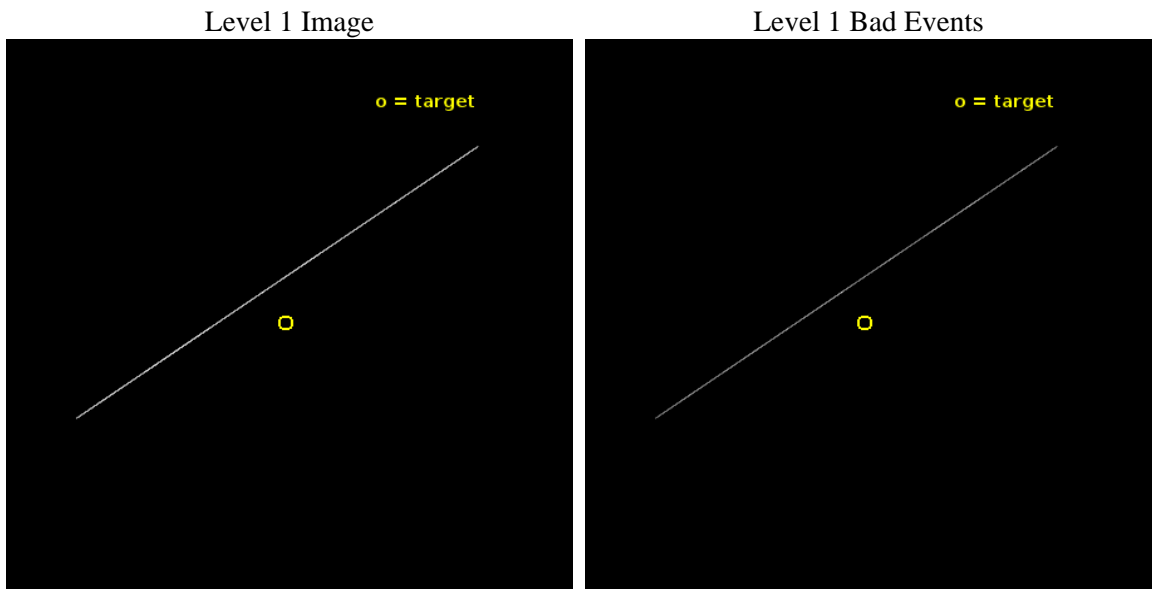
seq_num	401695	Sequence number
obs_id	17696	Observation id
title	Detecting Super-Eddington Driven Winds in V404 Cyg	Proposal title
observer	Dr. Ashley King	Principal investigator
object	v404 Cyg	Source name
ra_targ	306.015833	Observer's specified target RA [deg]
dec_targ	33.867222	Observer's specified target Dec [deg]
ra_nom	306.00932399689	Nominal RA [deg]
dec_nom	33.866862662509	Nominal Dec [deg]
roll_nom	144.76655826113	Nominal Roll [deg]
revision	3	Processing version of data
ontime	29303.786429286	Sum of GTIs [s]
livetime	29189.318513547	Livetime [s]
ontime4	20744.018489361	Sum of GTIs [s]
ontime5	30221.730823398	Sum of GTIs [s]
ontime6	17526.576916218	Sum of GTIs [s]
ontime7	29303.786429286	Sum of GTIs [s]
ontime8	7578.4859951735	Sum of GTIs [s]
ontime9	19659.828597665	Sum of GTIs [s]
l2events	9189566	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	40000.000000	[s] Scheduled observation exposure time
ascdsver	10.4	Processing system revision	ontime	29303.786429286	Sum of GTIs [s]
caldbver	4.6.7	&#160	ontime4	20744.018489361	Sum of GTIs [s]
date	2015-06-24T10:51:00	Date and time of file creation	ontime5	30221.730823398	Sum of GTIs [s]
revision	1	Processing version of data	ontime6	17526.576916218	Sum of GTIs [s]
			ontime7	29303.786429286	Sum of GTIs [s]
			ontime8	7578.4859951735	Sum of GTIs [s]
			ontime9	19659.828597665	Sum of GTIs [s]
			l1events	11914142	Number of level 1 events
			tgmethod	CUSTOM	Method used to create src1a file
			zpc_pos	(4056.10, 4000.54)	src1a sky pixel position

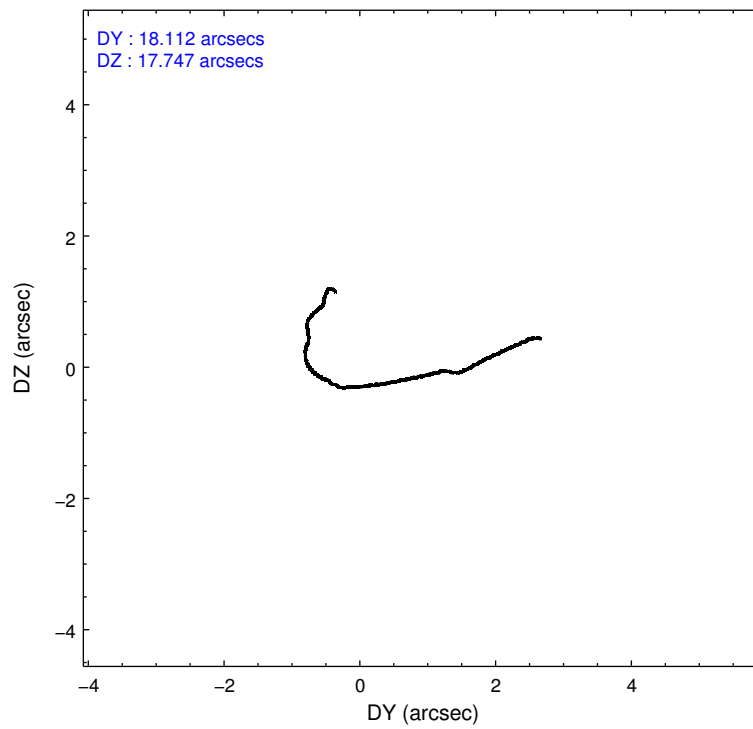
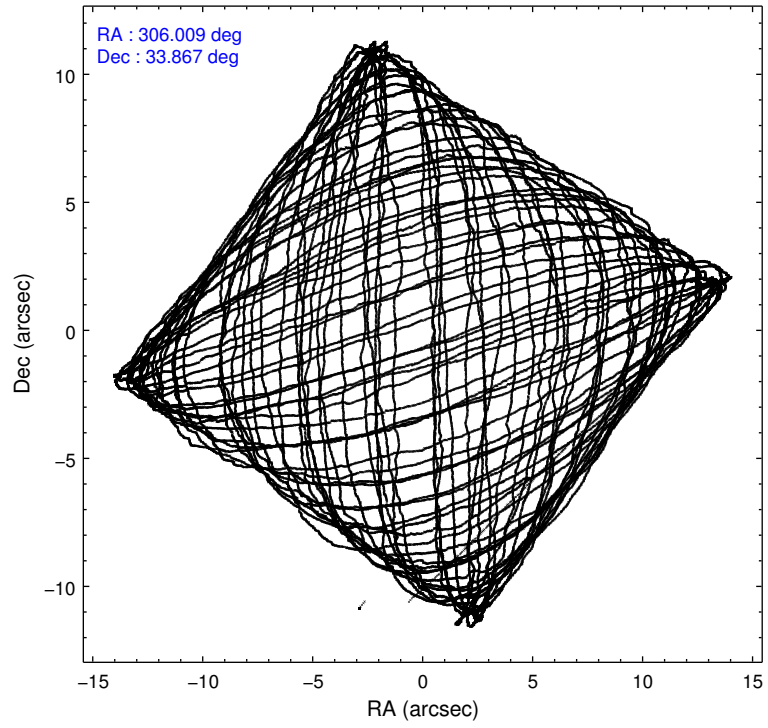
### 2.1.3 Events

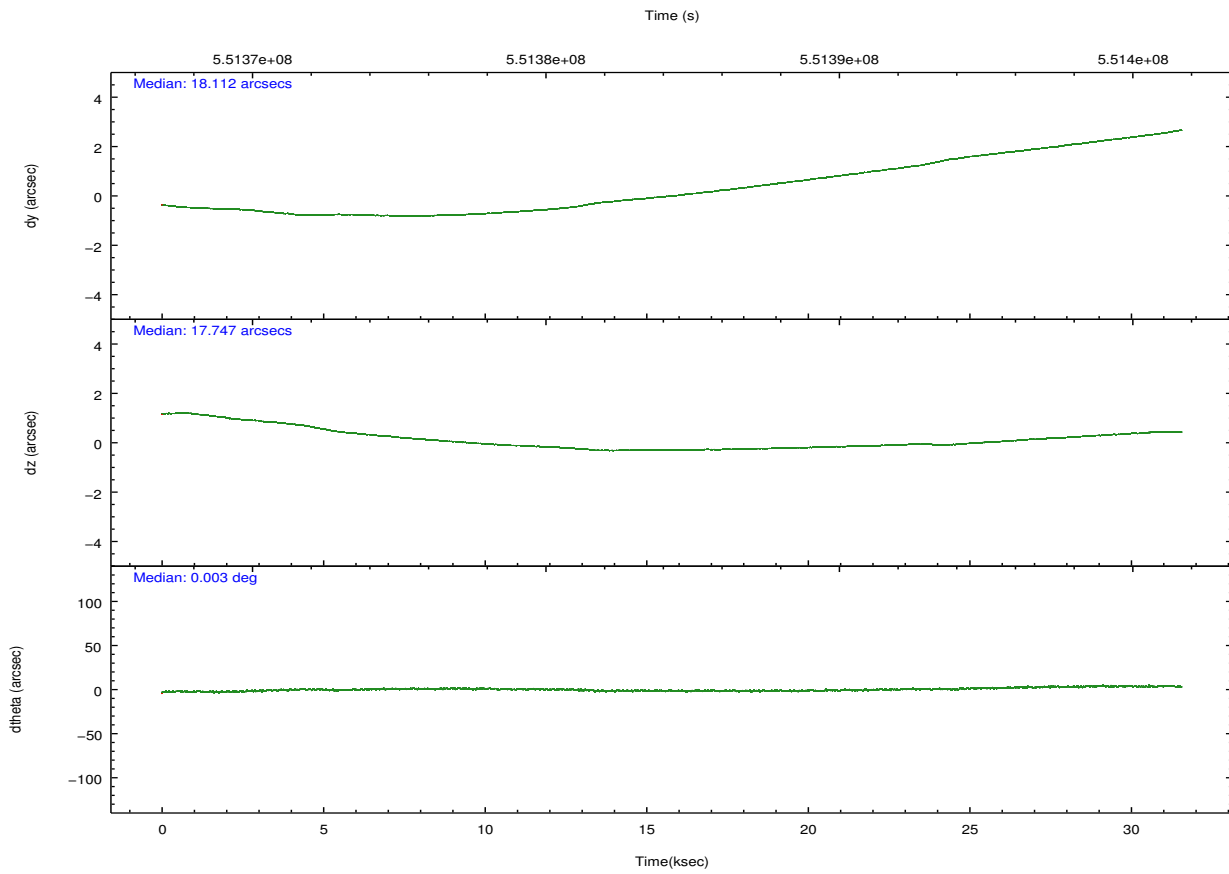
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9		ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	1445343	1387511	2022959	1842307	3433662	1782360	grade 0 events	6090	185212	126015	117251	253357	9726
rejected events	176334	294286	186340	303018	256170	181091		0%	13%	6%	6%	7%	0%
rejected %	12%	21%	9%	16%	7%	10%	grade 1 events	105	1354	712	3193	2296	117
								0%	0%	0%	0%	0%	0%
							grade 2 events	1251519	749304	1651678	922647	2521825	15797
								86%	54%	81%	50%	73%	88%
							grade 3 events	2555	23683	11964	65823	154630	2246
								0%	1%	0%	3%	4%	0%
							grade 4 events	2525	23028	11768	65259	145139	2481
								0%	1%	0%	3%	4%	0%
							grade 5 events	4978	20479	6151	35025	9969	5692
								0%	1%	0%	1%	0%	0%
							grade 6 events	7276	113049	36313	369305	105063	8152
								0%	8%	1%	20%	3%	0%
							grade 7 events	170295	271402	178358	263804	241383	17422
								11%	19%	8%	14%	7%	9%

## 2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-456789	ACIS-456789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	CC33_GRADED	CC33_GRADED	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	306.042258	306.0093239968884	CCD I2 on	N	N
[deg] Pointing Dec	33.864726	33.86686266250901	CCD I3 on	N	N
[deg] Pointing Roll	144.591589	144.7665582611342	CCD S0 on	O1	Y
[mm] SIM focus pos	-0.684267	-0.6828225247311905	CCD S1 on	Y	Y
[mm] SIM defocus	0	0.001444936568705701	CCD S2 on	Y	Y
[mm] SIM translation stage pos	-177.532523	-177.5307748125485	CCD S3 on	Y	Y
[mm] SIM translation stage offset	-12.6	-12.60174777045933	CCD S4 on	Y	Y
[s] Observation start time (MET)	551368667.184000	551367627.84921	CCD S5 on	O2	Y
Observation start date	2015-06-22T13:56:40	2015-06-22T13:40:27	Number of optional ACIS chips dropped	0	0
[s] Observation end time (MET)	551408667.184000	551400067.0510401	On-chip summing requested	N	N
Observation end date	2015-06-23T01:03:20	2015-06-22T22:41:07	Subarray requested	NONE	NONE
Read mode	CONTINUOUS	CONTINUOUS	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	0

## 2.3 Aspect



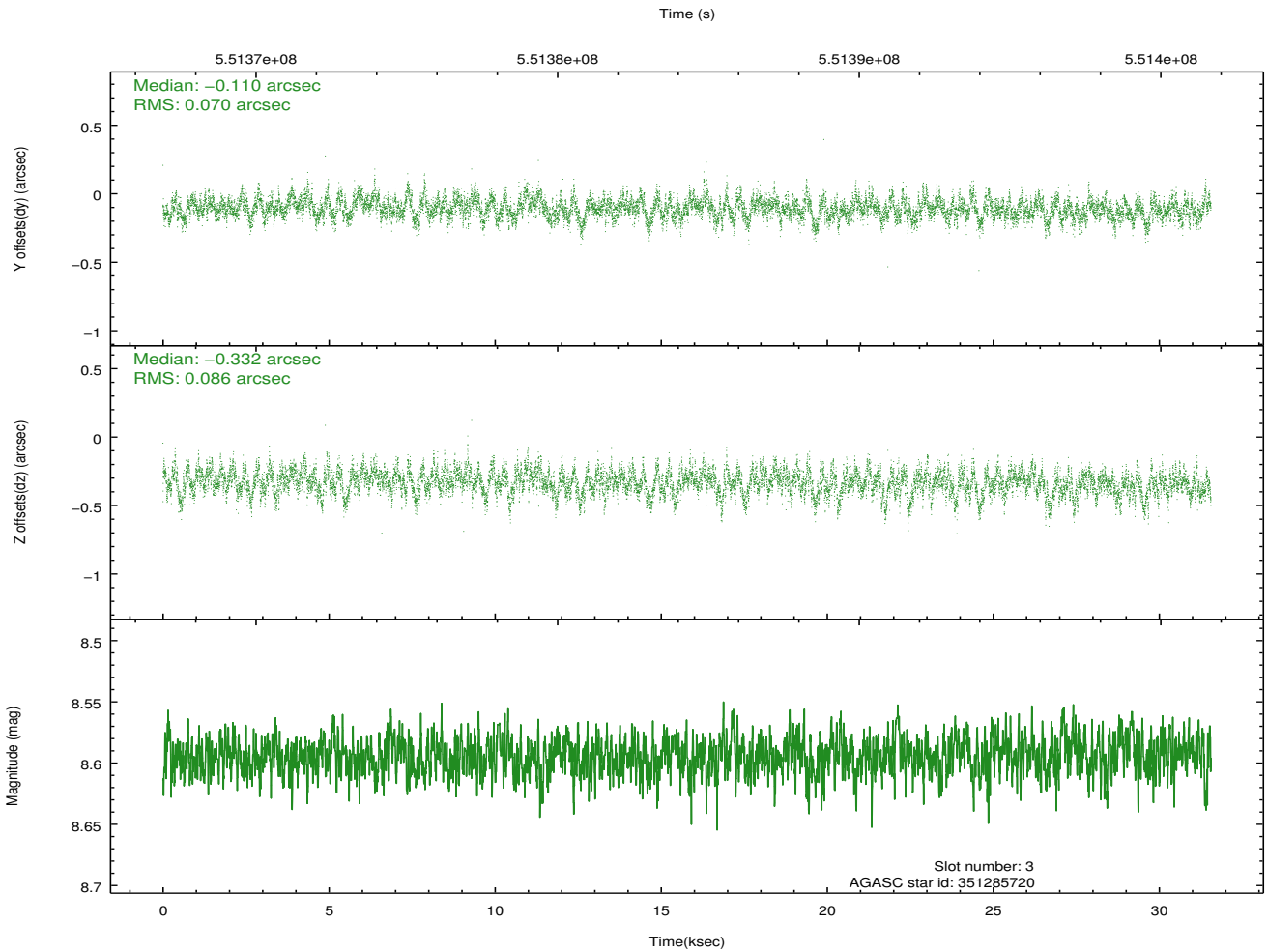
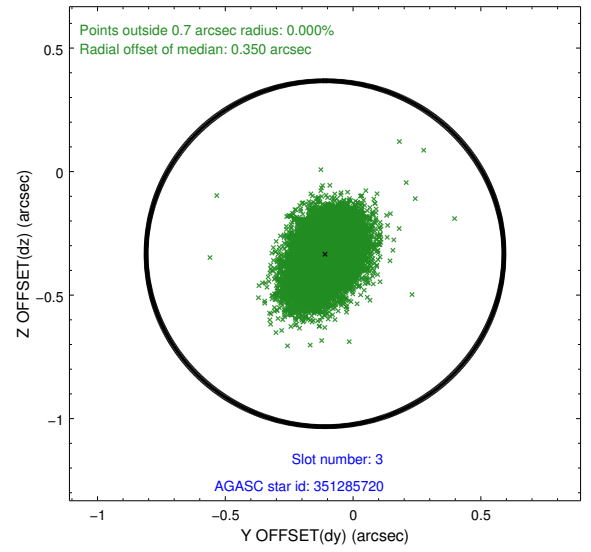
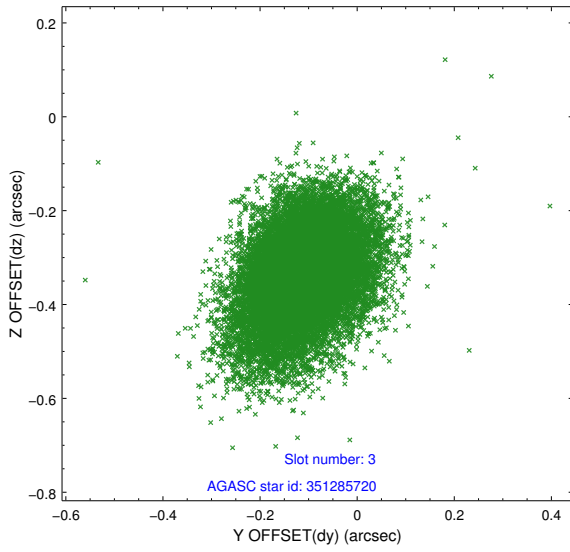


### Slot Statistics

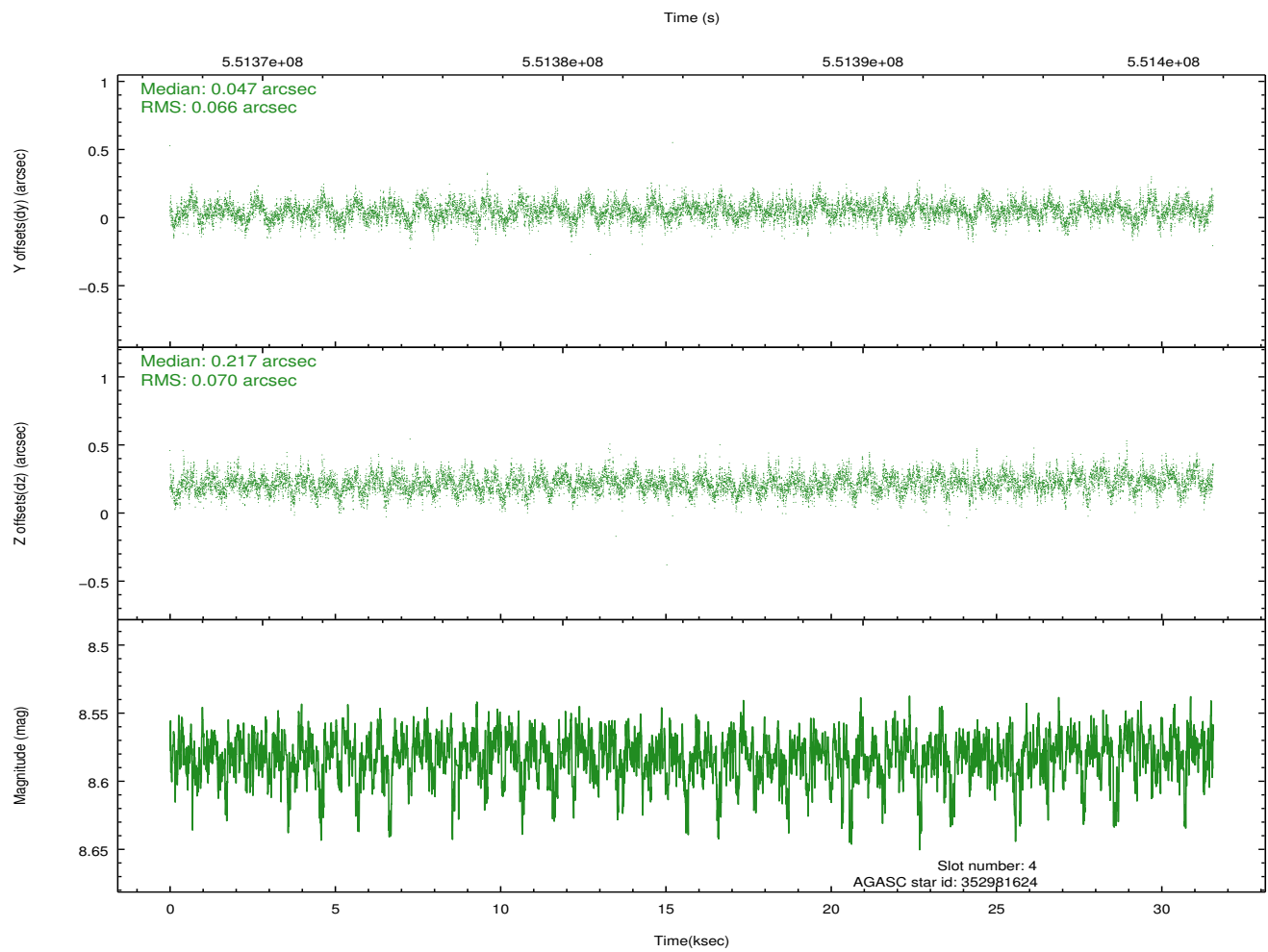
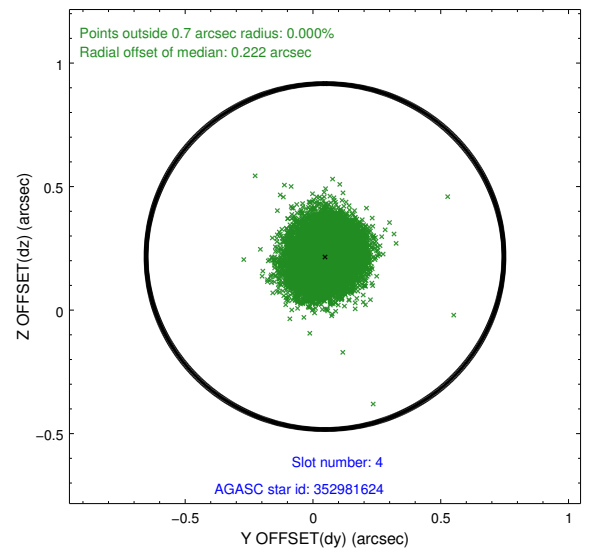
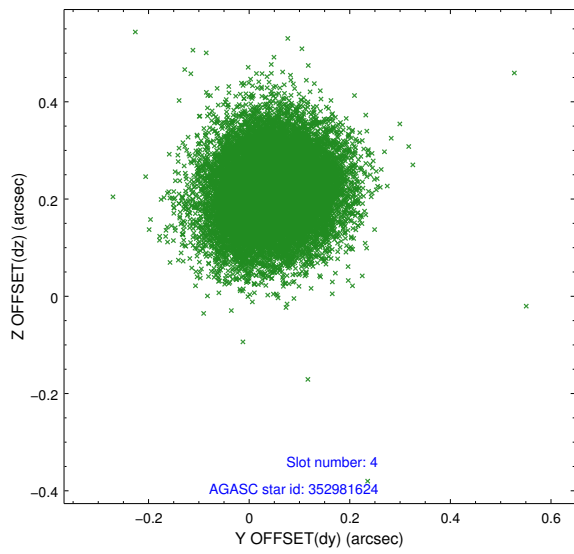
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	6.89	7698	0.074	-0.303	0.023	0.051	0.000000	0.000000	-770.78	-1998.90
1	FID		ACIS-S-5	7.03	7698	-0.145	0.214	0.030	0.061	0.000000	0.000000	-1823.91	-96.41
2	FID		ACIS-S-6	7.20	7698	0.045	0.092	0.025	0.063	0.000000	0.000000	391.07	547.17
3	GUIDE	used	351285720	8.59	15394	-0.110	-0.332	0.115	0.199	305.127244	33.817841	2139.50	1713.22
4	GUIDE	used	352981624	8.58	15391	0.047	0.217	0.102	0.166	306.081516	34.222239	651.26	-1116.20
5	GUIDE	used	352985512	8.89	15392	0.268	0.335	0.109	0.171	306.411799	34.272698	-42.92	-1835.26
6	GUIDE	used	351282120	9.25	15388	-0.195	-0.370	0.133	0.236	305.232648	33.763598	1768.51	1694.57
7	GUIDE	used	351276136	8.77	15387	-0.018	0.149	0.135	0.215	305.889488	34.377539	1440.52	-1241.41

## 2.4 Star Slots

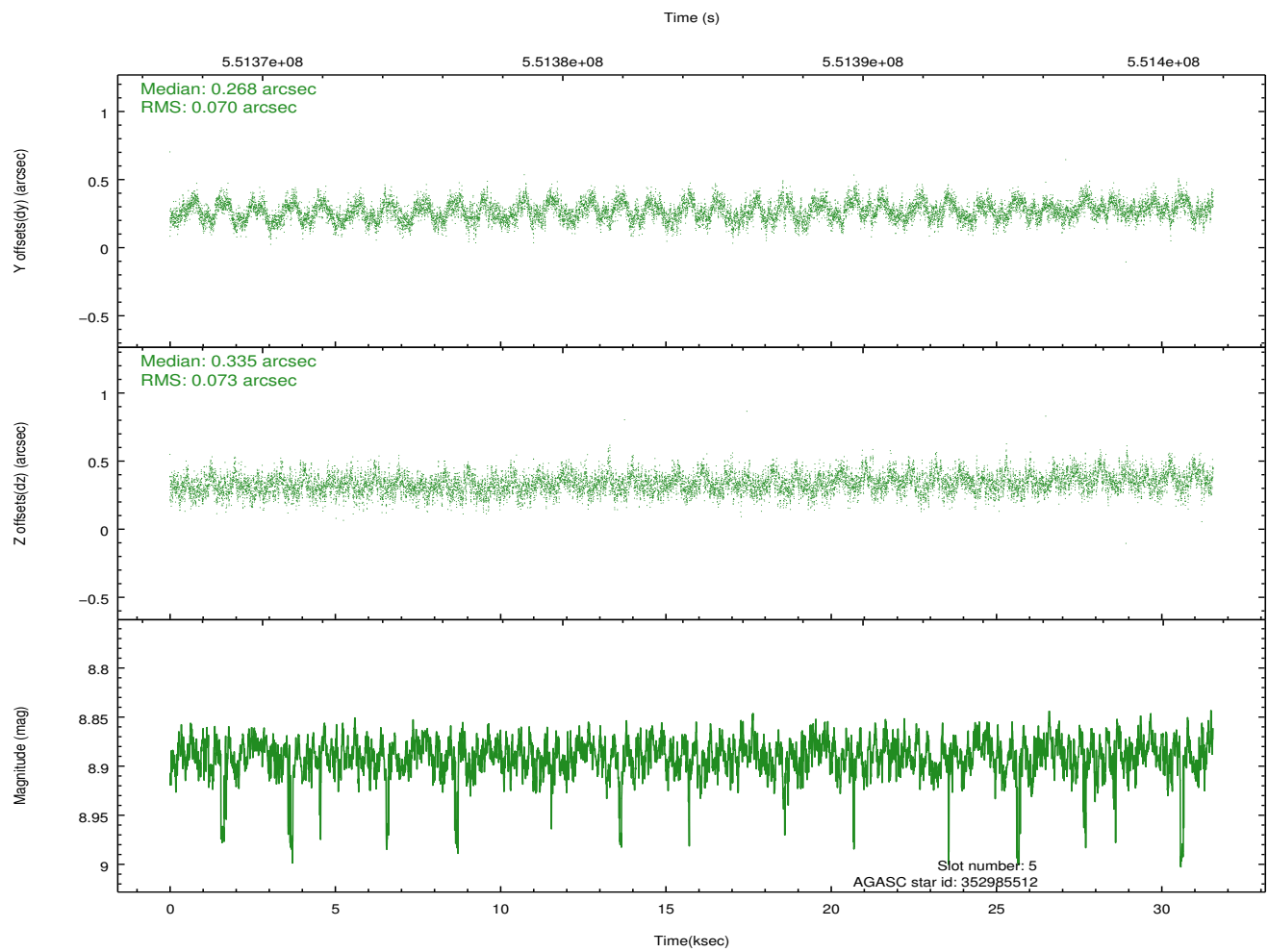
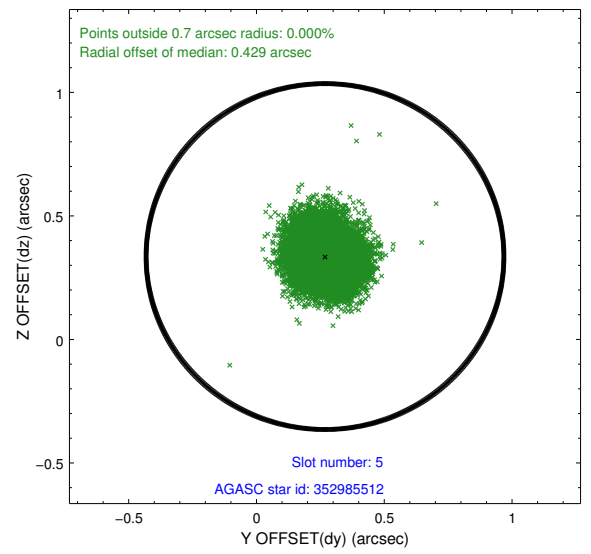
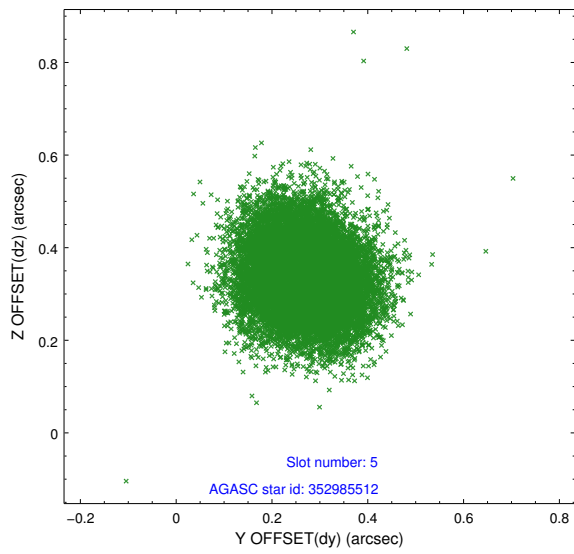
### 2.4.1 Slot 3



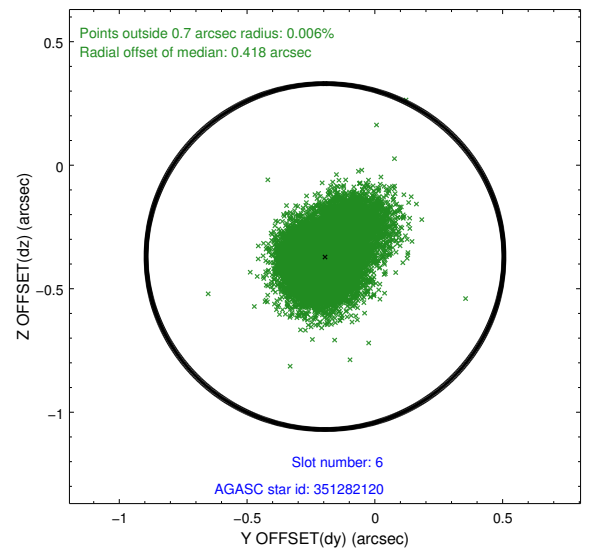
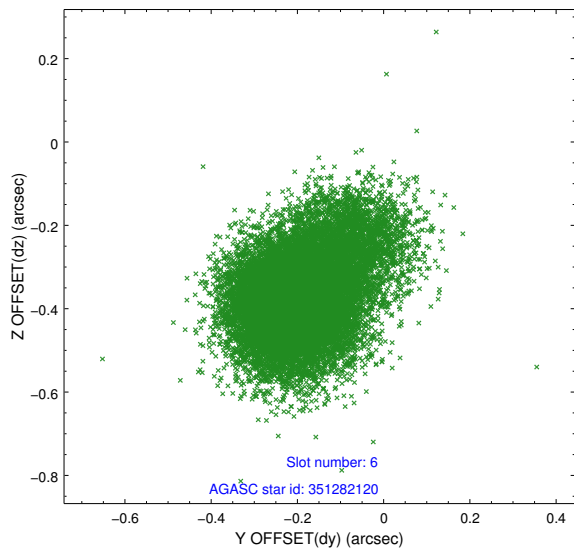
## 2.4.2 Slot 4



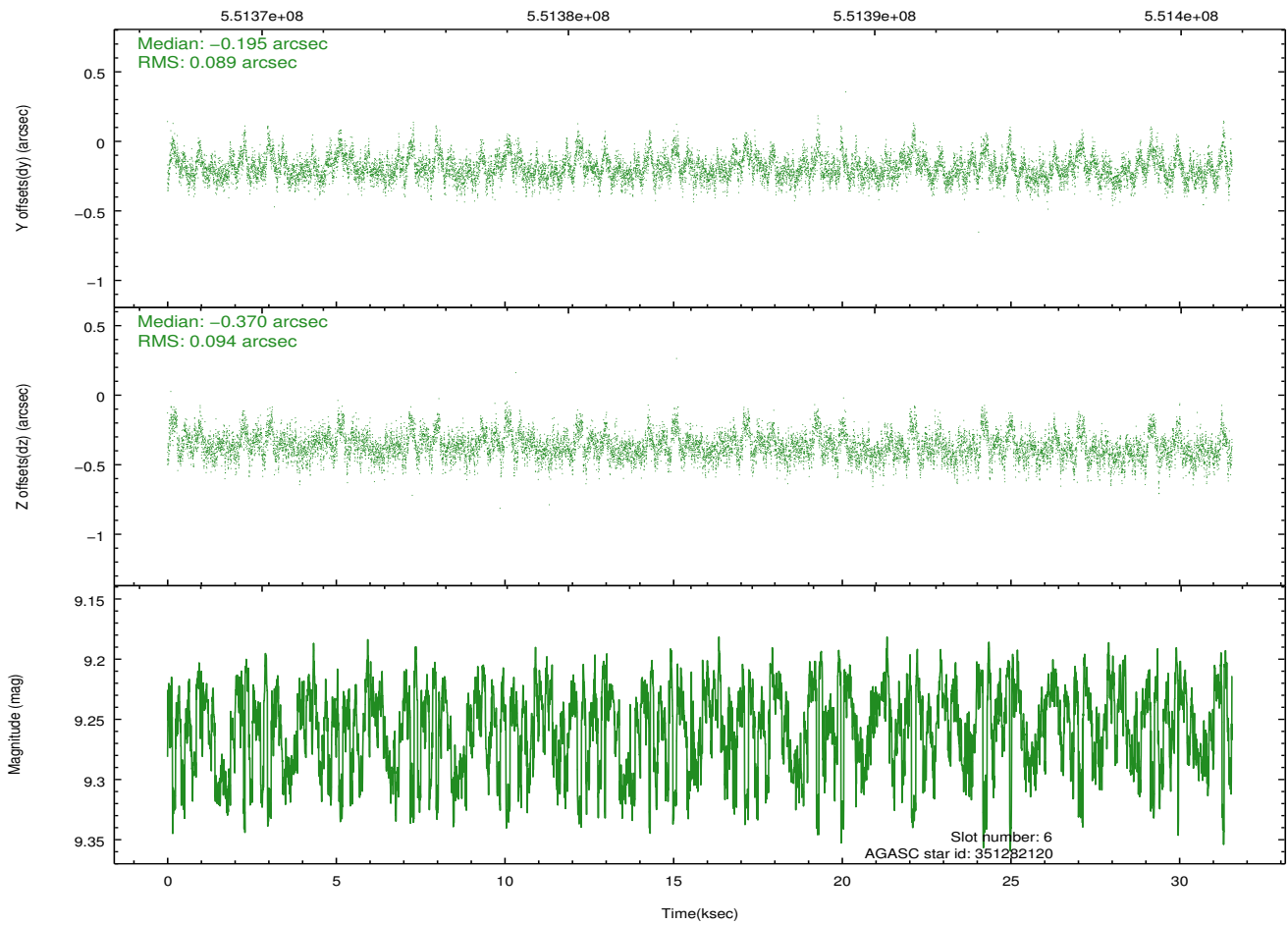
### 2.4.3 Slot 5



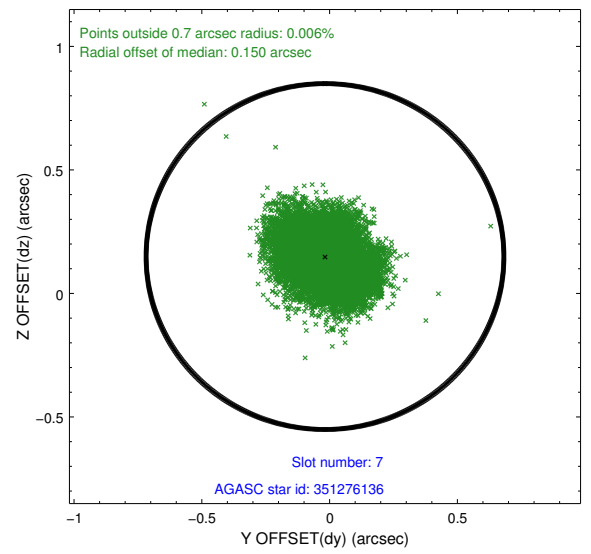
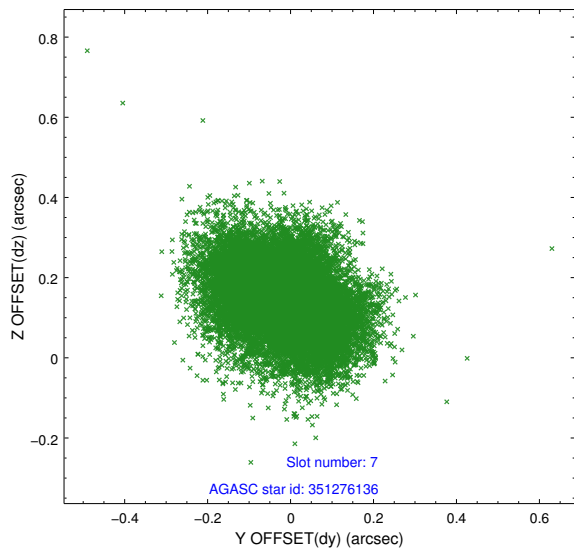
## 2.4.4 Slot 6



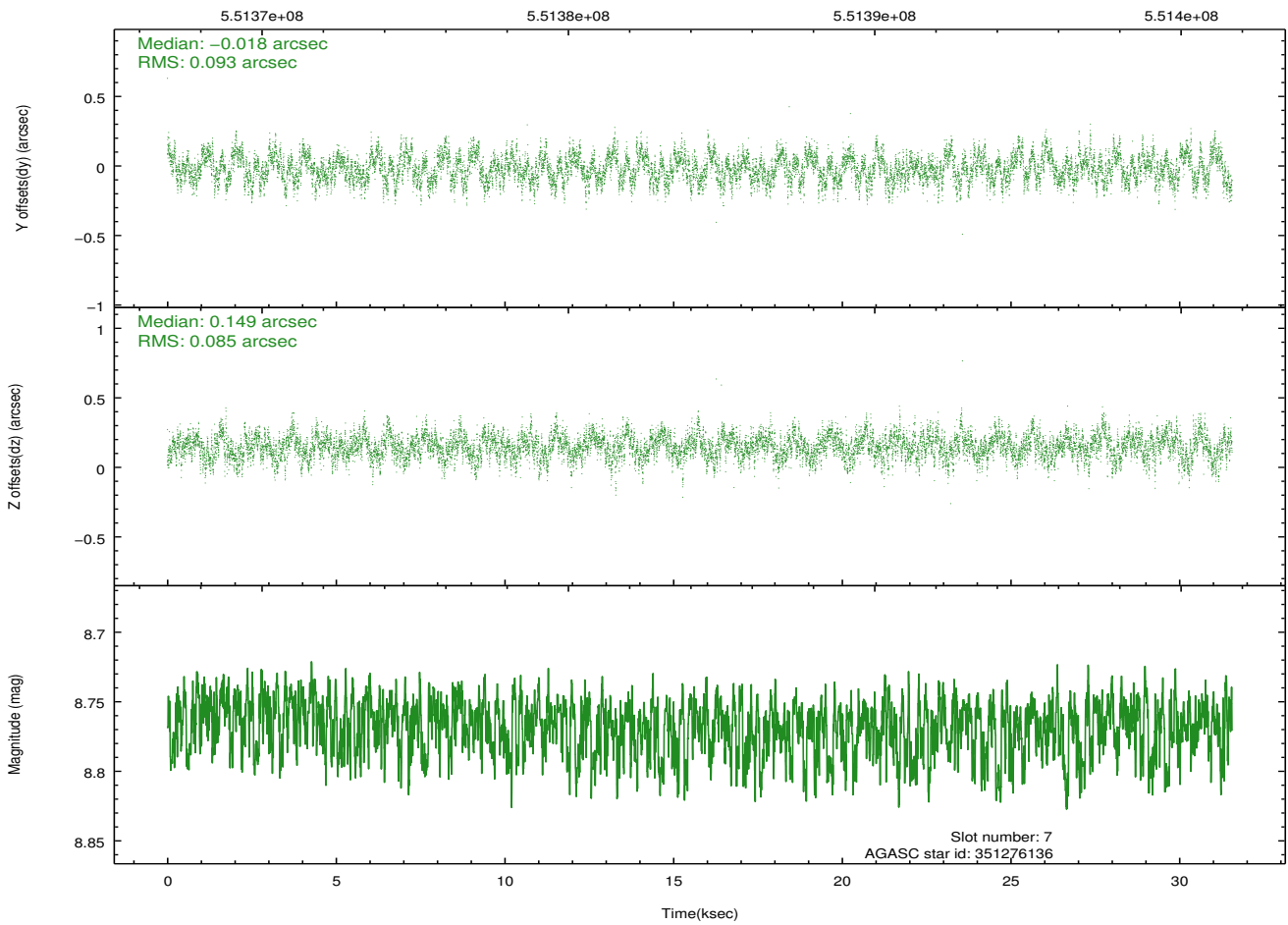
Time (s)



## 2.4.5 Slot 7

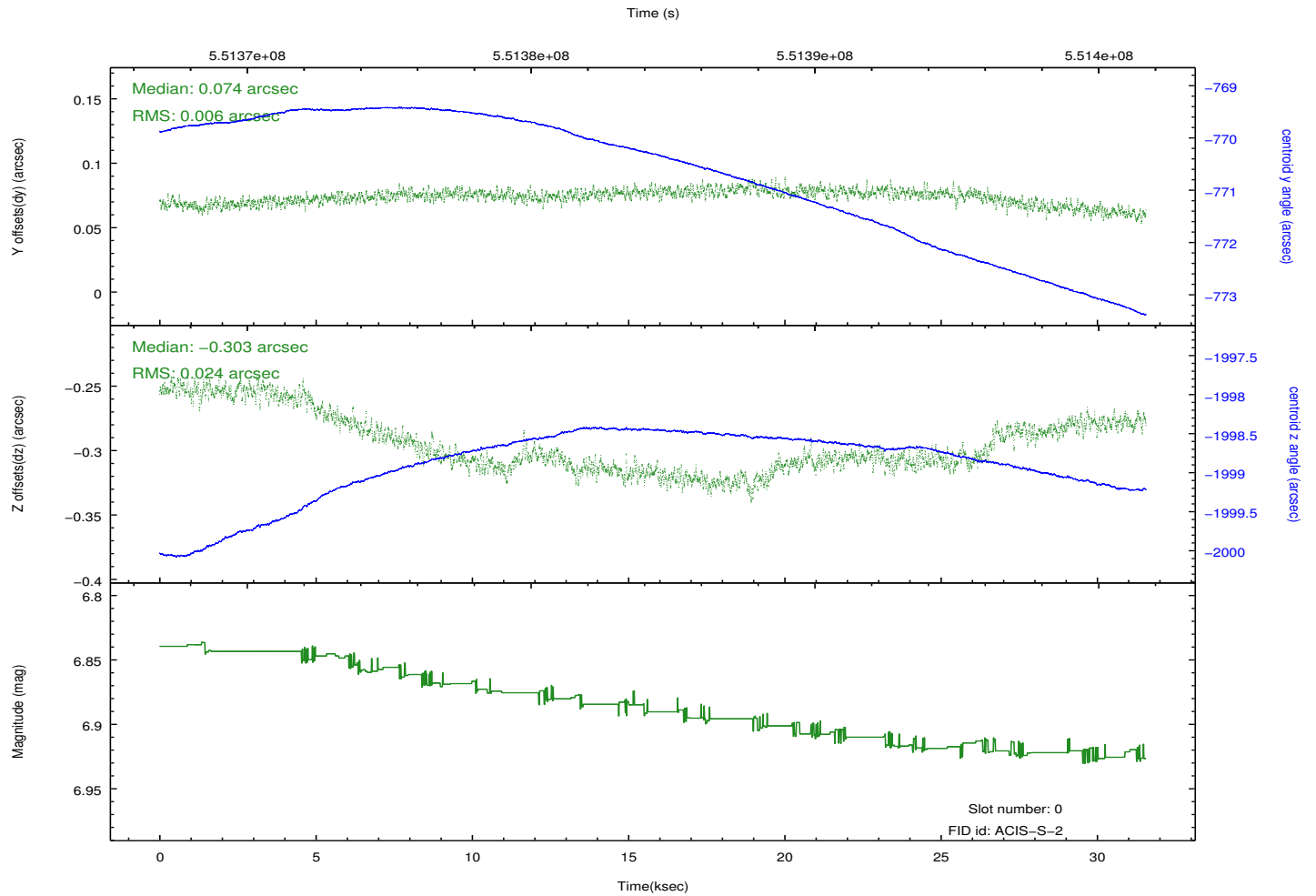
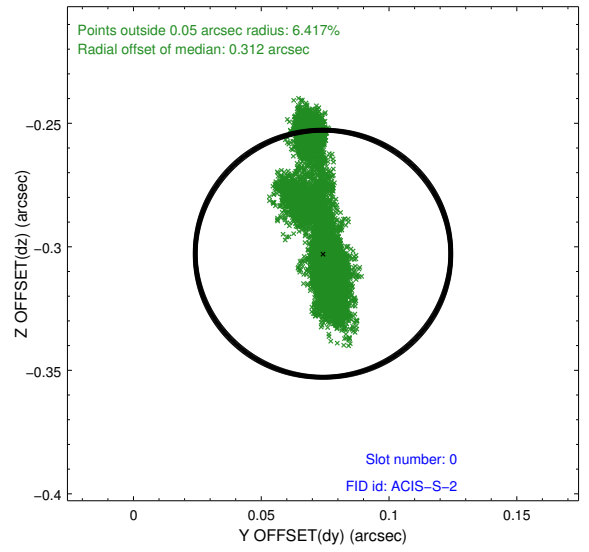
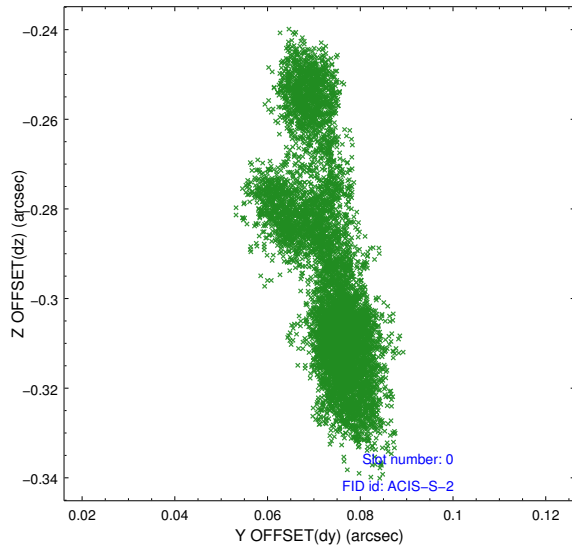


Time (s)

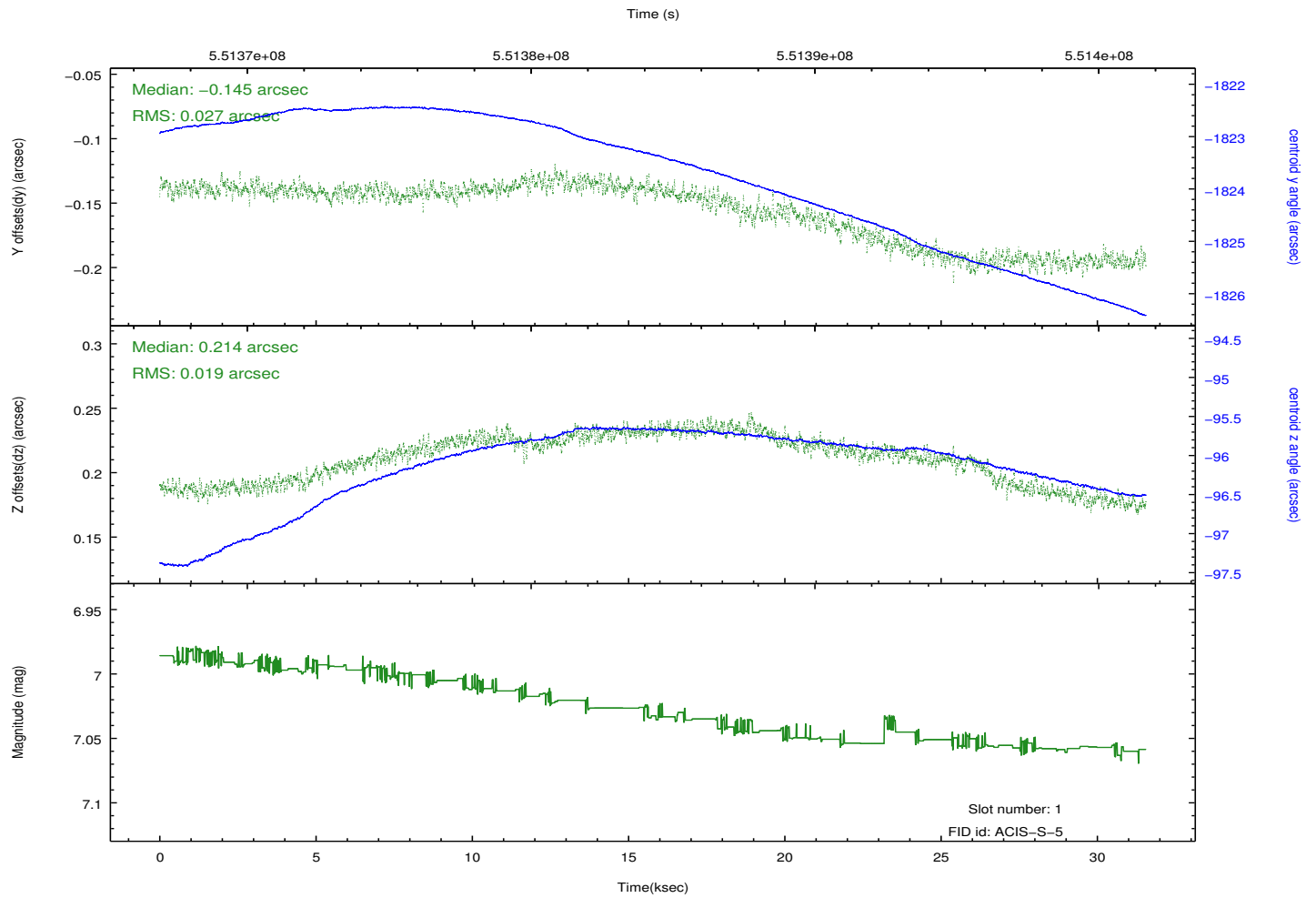
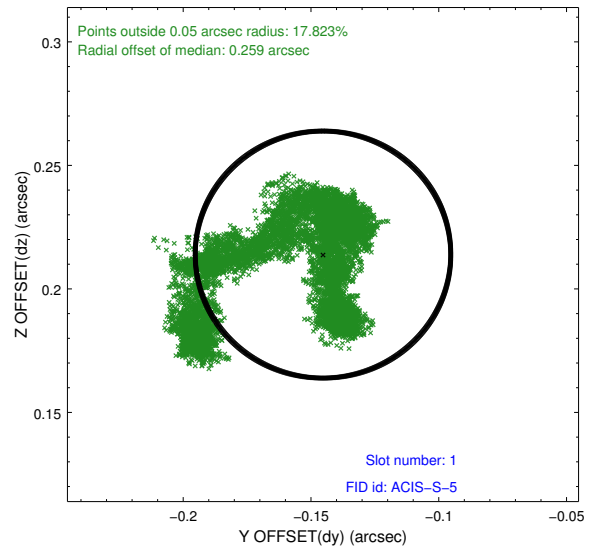
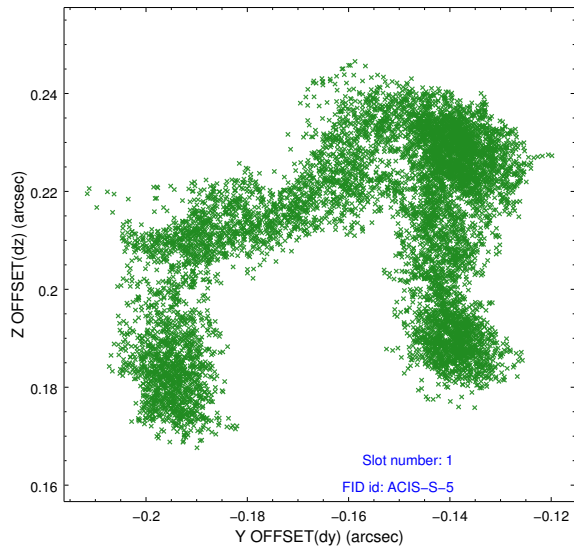


## 2.5 FID Slots

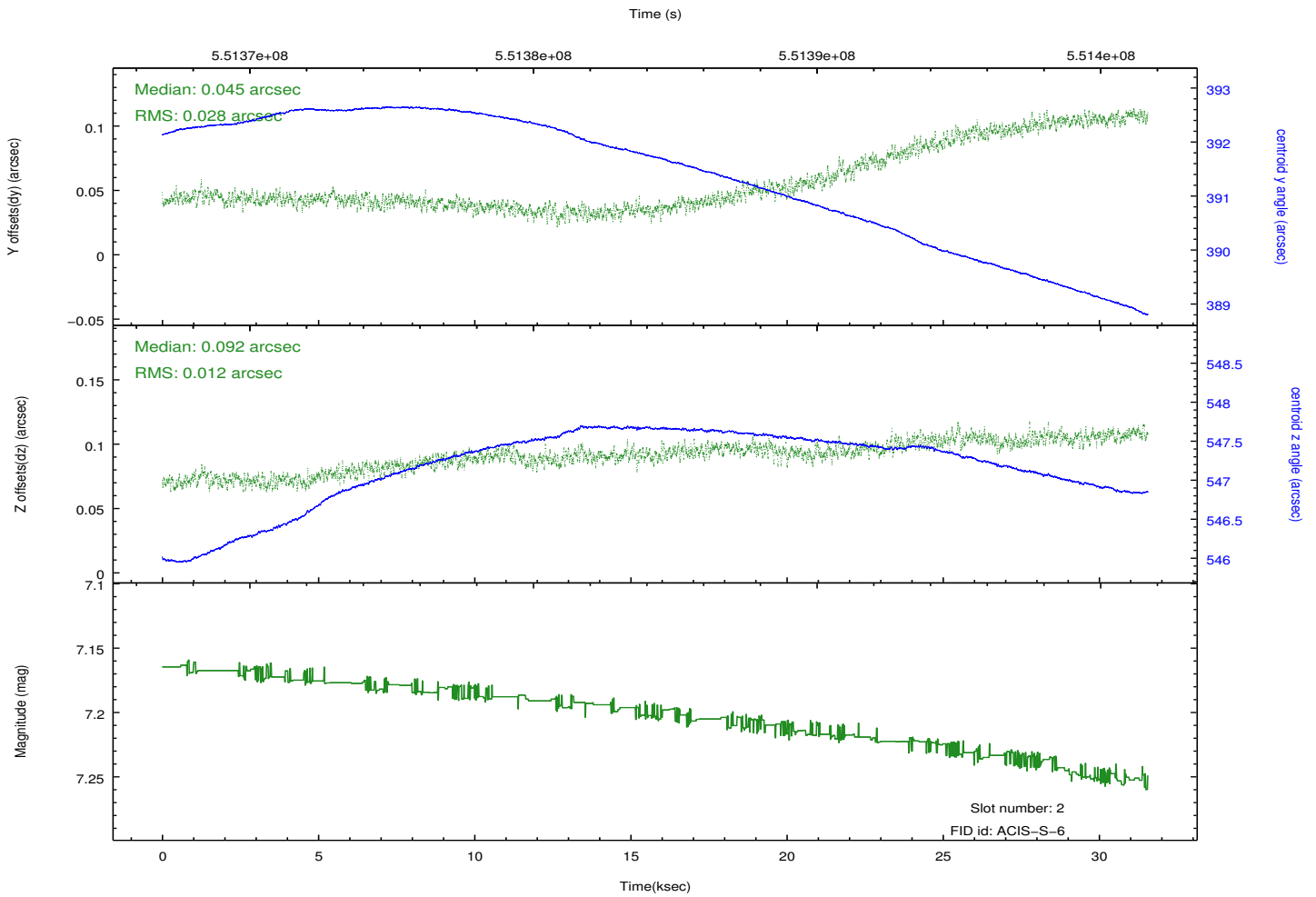
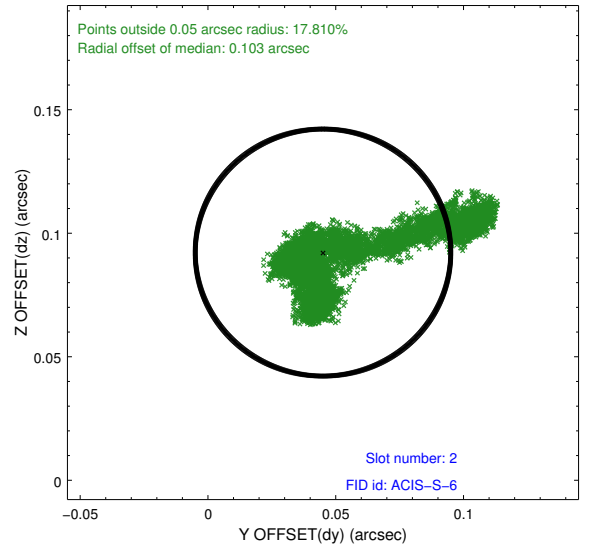
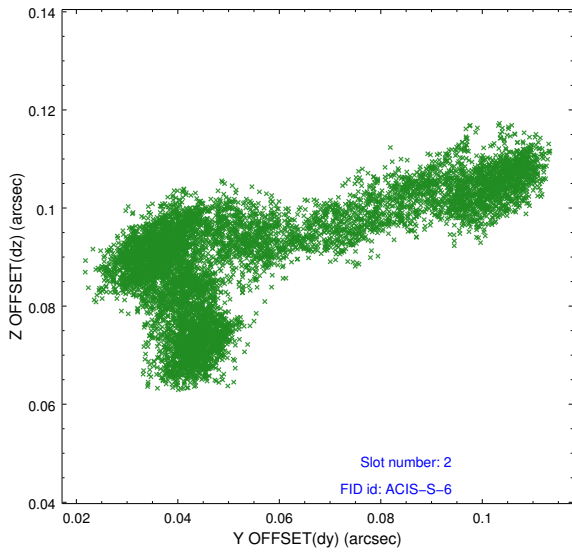
### 2.5.1 Slot 0



## 2.5.2 Slot 1

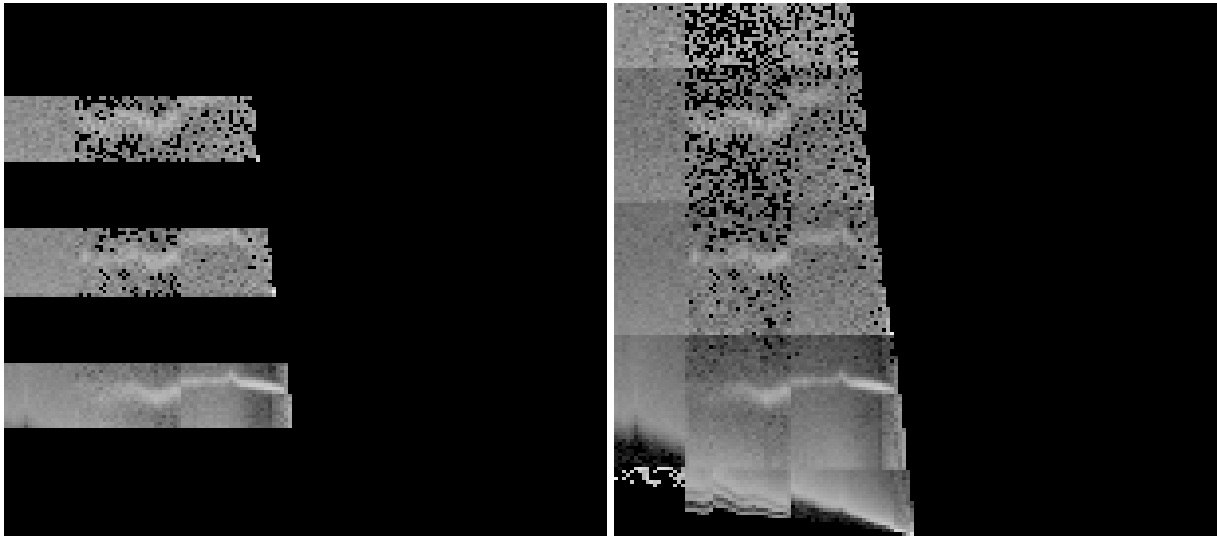


### 2.5.3 Slot 2



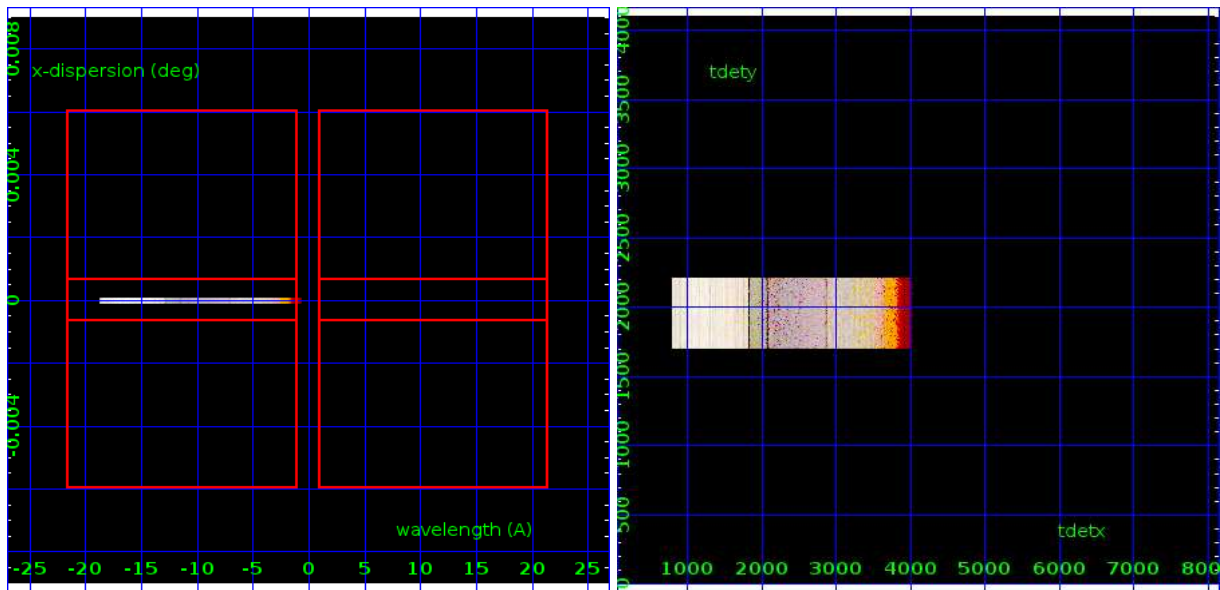
# 3 Gratings

## 3.1 HEG Arm



HEG Order Sort 123

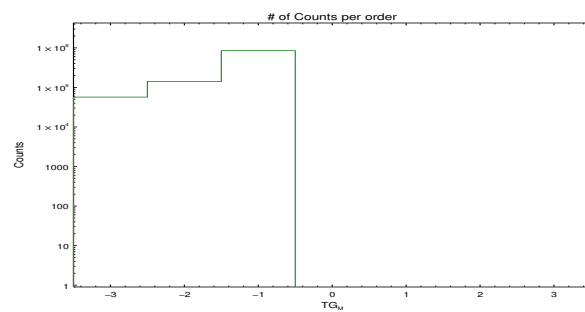
HEG Order Sort ALL

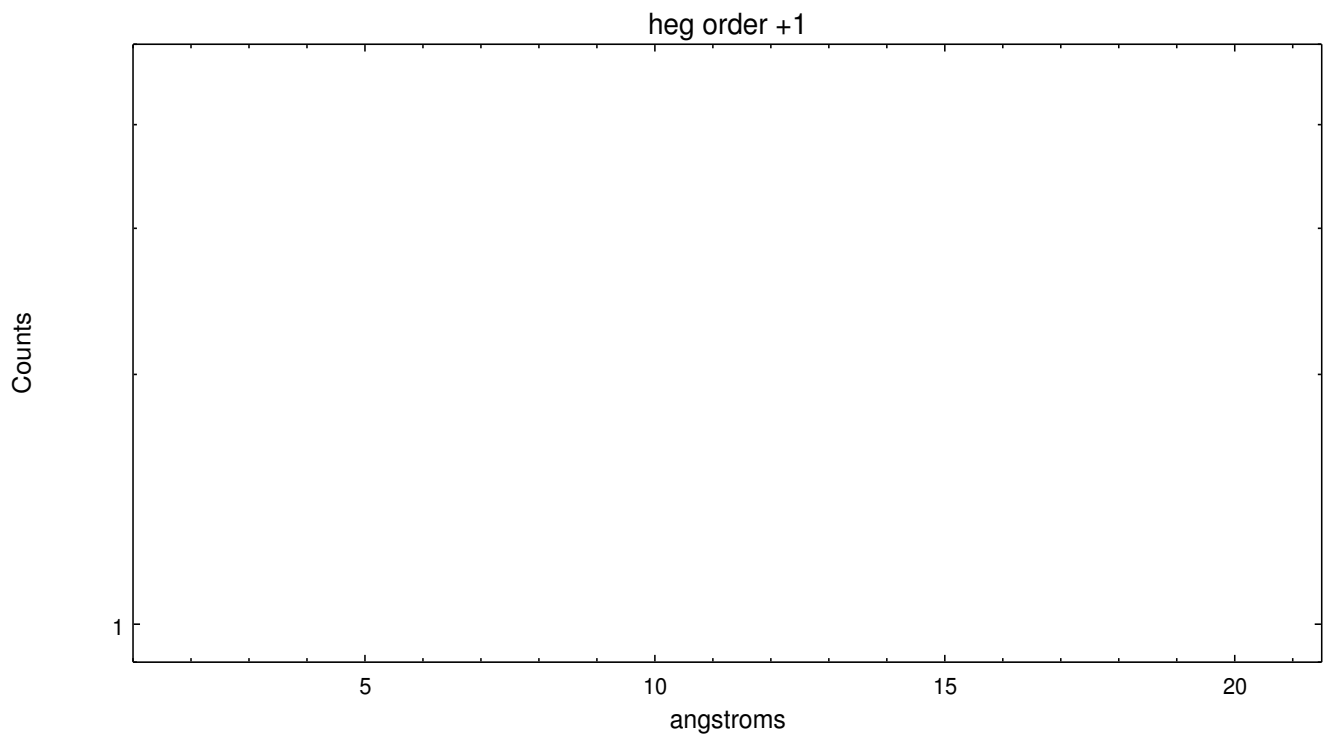
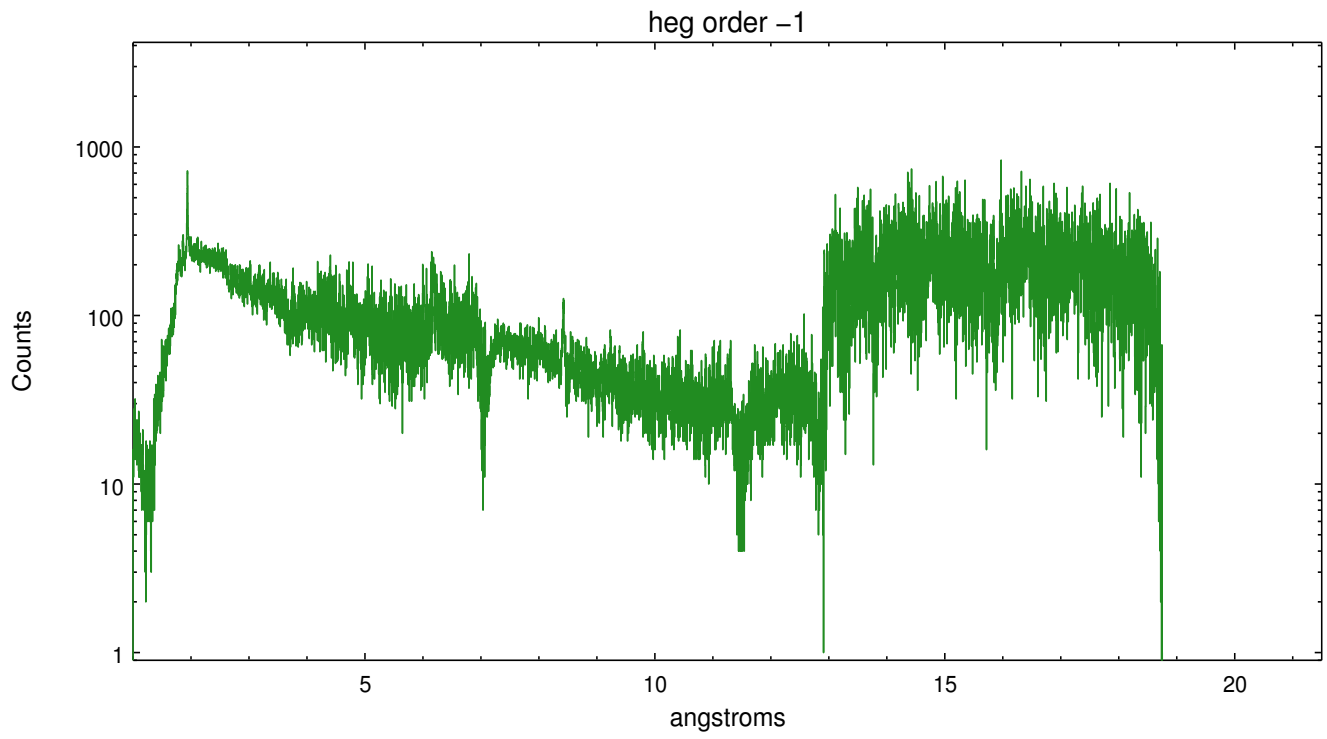


Spot Image HEG

Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	56923	141839	851809	0	0	0	0

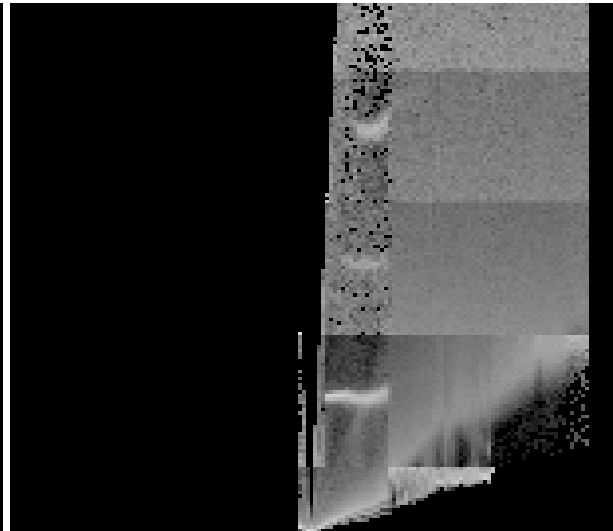




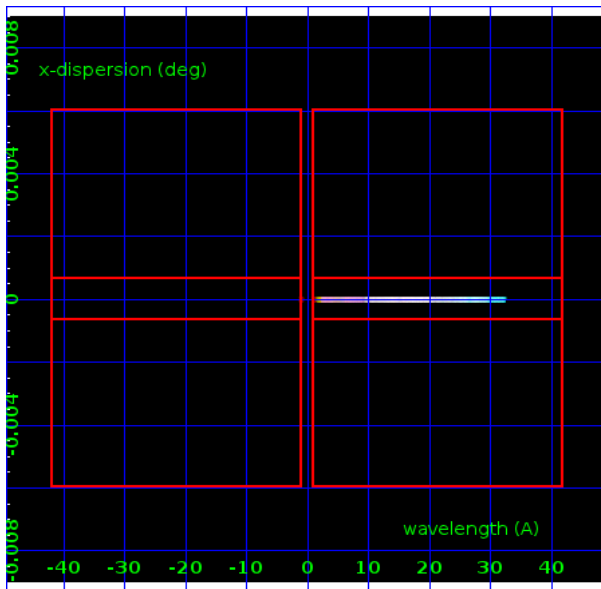
### 3.2 MEG Arm



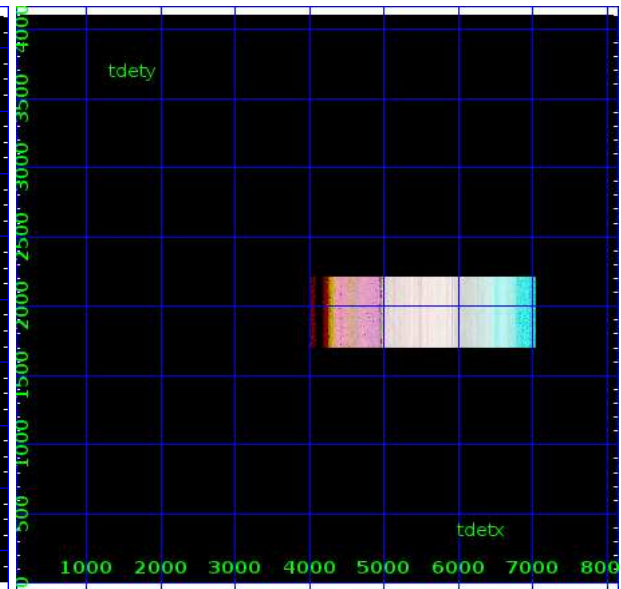
MEG Order Sort 123



MEG Order Sort ALL

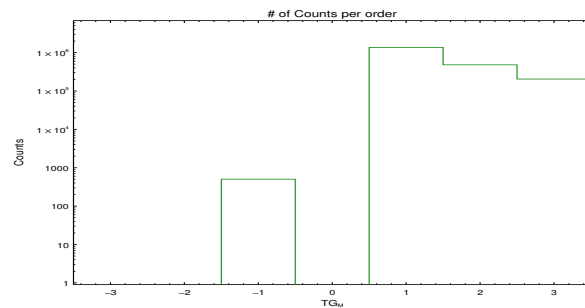


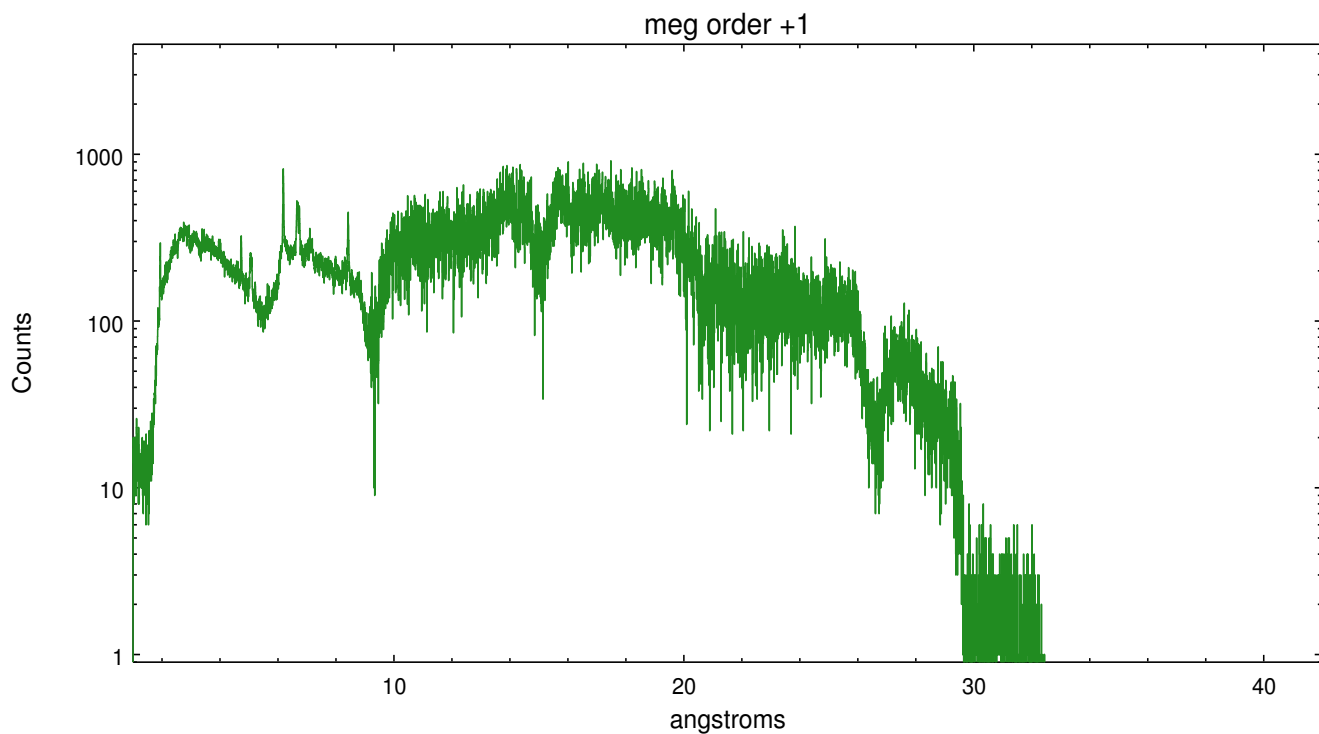
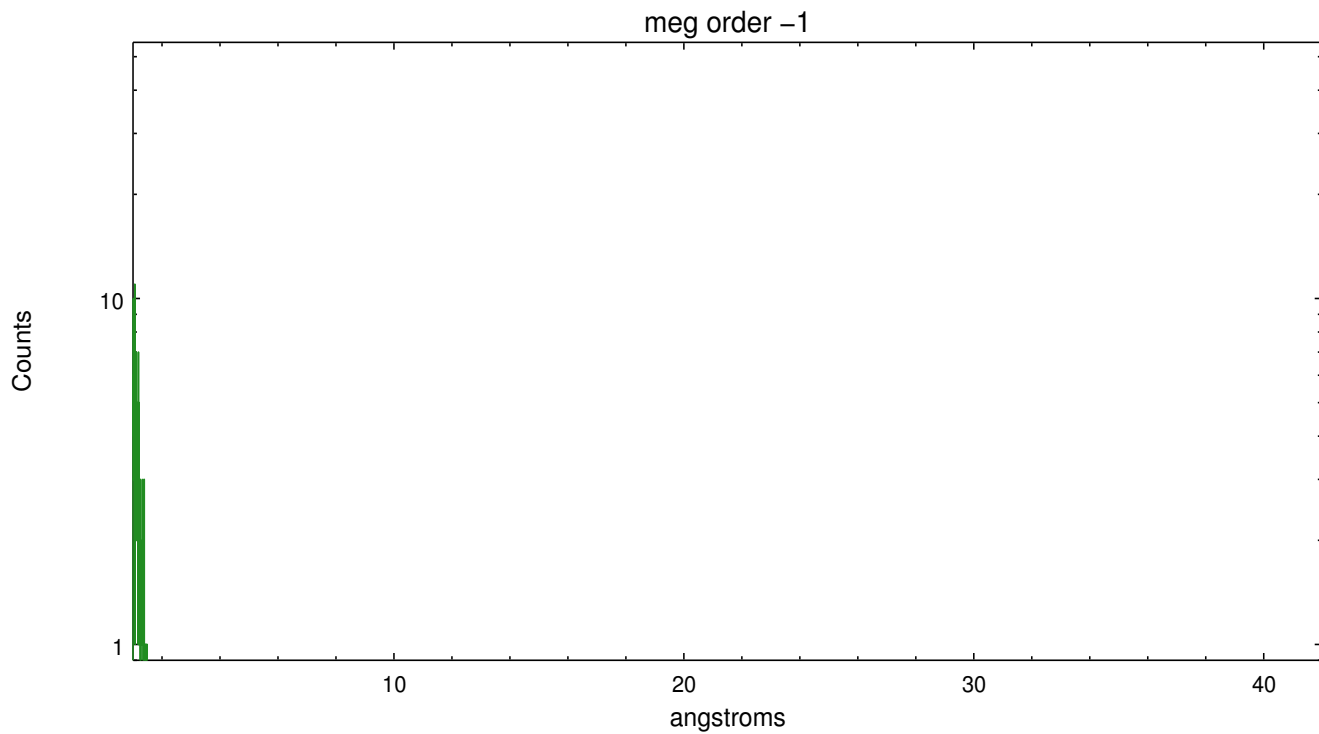
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	503	0	1362961	480779	204514





# A Summary

## A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2015.08.05
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	29.307864

## A.2 Comments

WARNING: this is a difficult observation to analyze and requires special methods to get a good extraction and calibration!

The aim intentionally placed the mean source position (zeroth order) off the detector. Hence the sky x,y event coordinates are mapped to the center of the detectors, and do not intersect the source. For proper extraction and generation of responses, we have used the celestial position of the source, and a very wide mask which encloses the events. Downstream generation of responses should also use that position.

Only HEG negative and MEG positive orders are present.

The CC-mode gain corrections are not accurate when the source position on the detector is not known; hence, the order-sorting with the default tables can clip the data; reprocessing with 'flat' order-sorting tables was used (in 'tg\_resolve\_events'). This accepts more background, however; background was high during this observation.

Flux calibration in parts of the spectrum which dither on/off the array will require a custom mask1 file, particularly the MEG+1 order below about 4A, since the ACIS frame-store mask over the first ~10 CCD rows is transparent, but uncalibrated. (the msk1 file is applied by ciao program mkgrmf).