

V&V Reference Report

L2 ASCDS Version : 10.6

Observation 20822 - L2 Version 1
Chandra X-Ray Center

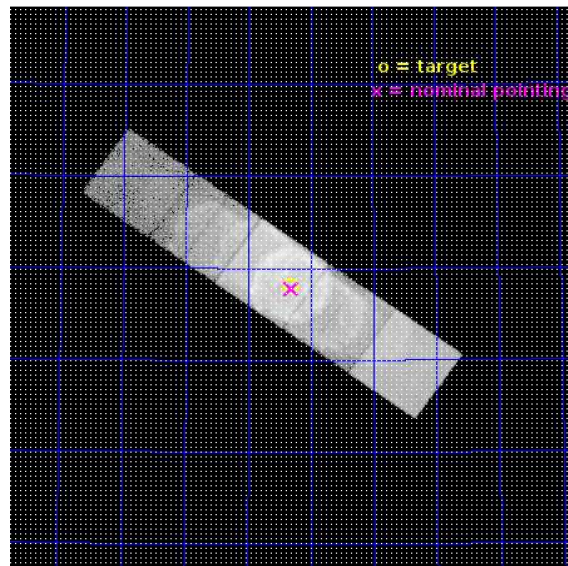
L2 Processing Date : Oct 24 2017

Contents

1	Front	2
2	OBI	3
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
3	Gratings	17
3.1	HEG Arm	17
3.2	MEG Arm	19
A	Summary	21
A.1	Status	21
A.2	Comments	21

1 Front

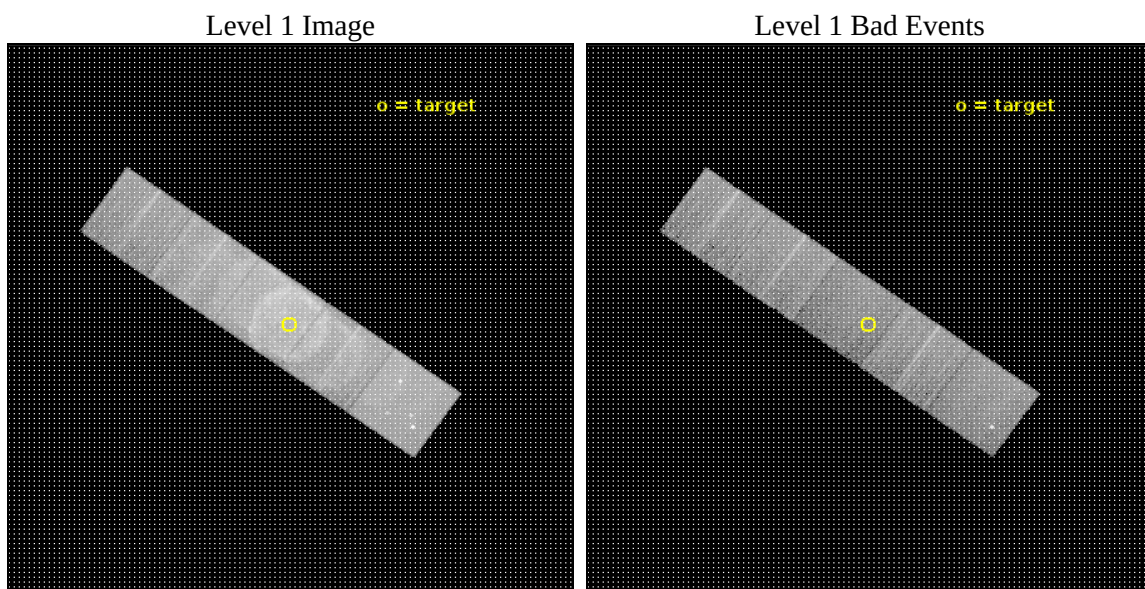
seq_num	502941	Sequence number
obs_id	20822	Observation id
title	Ejecta Kinematics Study of Tycho's SNR With Chandra HETGS	Proposa
observer	SANGWOOK PARK	Principal investigator
object	Tycho's Supernova Remnant	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	6.329167	Observer's specified target RA [deg]
dec_targ	64.136111	Observer's specified target Dec [deg]
ra_nom	6.3271493851338	Nominal RA [deg]
dec_nom	64.12992325178	Nominal Dec [deg]
roll_nom	215.15840357163	Nominal Roll [deg]
revision	1	Processing version of data
ontime	14095.700108528	Sum of GTIs [s]
livetime	13911.529409507	Livetime [s]
ontime5	14095.680866718	Sum of GTIs [s]
ontime6	14092.498786211	Sum of GTIs [s]
ontime7	14095.700108528	Sum of GTIs [s]
ontime8	14092.457845807	Sum of GTIs [s]
ontime9	14095.557746649	Sum of GTIs [s]
l2events	454748	Number of level 2 events



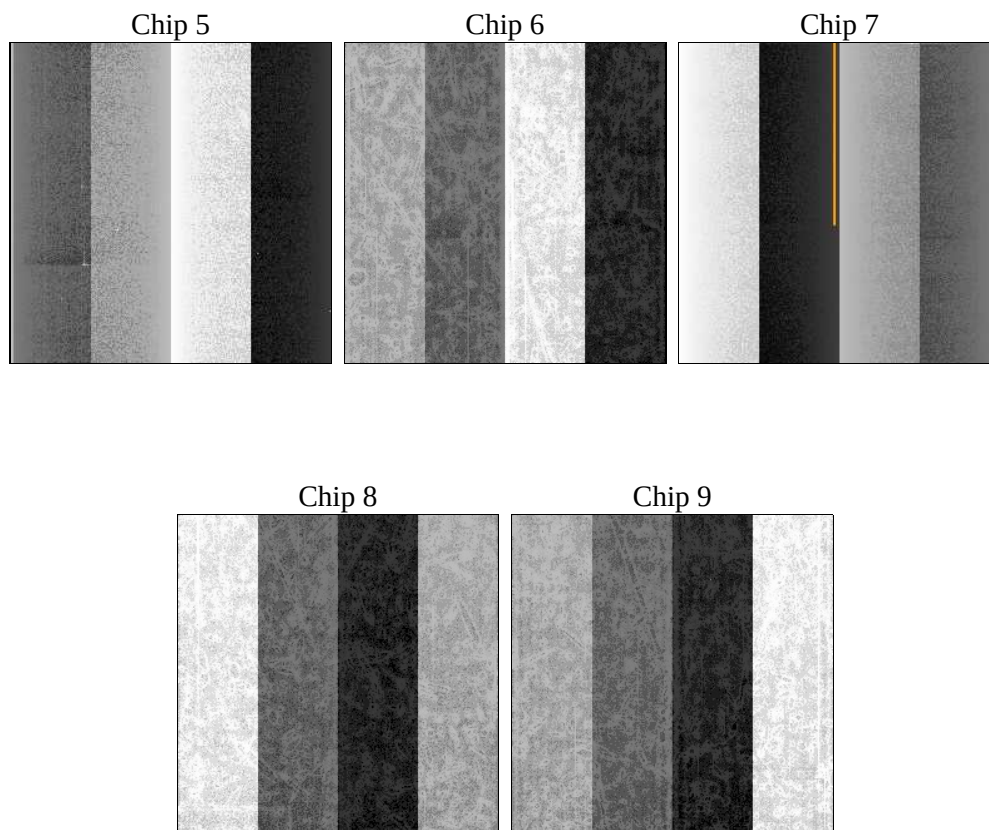
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	14000.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	14095.700108528	Sum of GTIs [s]
caldsver	4.7.6	 	ontime5	14095.680866718	Sum of GTIs [s]
date	2017-10-24T03:12:48	Date and time of file creation	ontime6	14092.498786211	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	14095.700108528	Sum of GTIs [s]
			ontime8	14092.457845807	Sum of GTIs [s]
			ontime9	14095.557746649	Sum of GTIs [s]
			l1events	856832	Number of level 1 events
			tgmethod	USER	Method used to create src1a file
			zo_pos	(4090.14, 4141.80)	src1a sky pixel position

2.1.4 Events

	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	161443	182265	260257	157755	95112
rejected events	67256	76460	54203	82121	78474
rejected %	41%	41%	20%	52%	82%

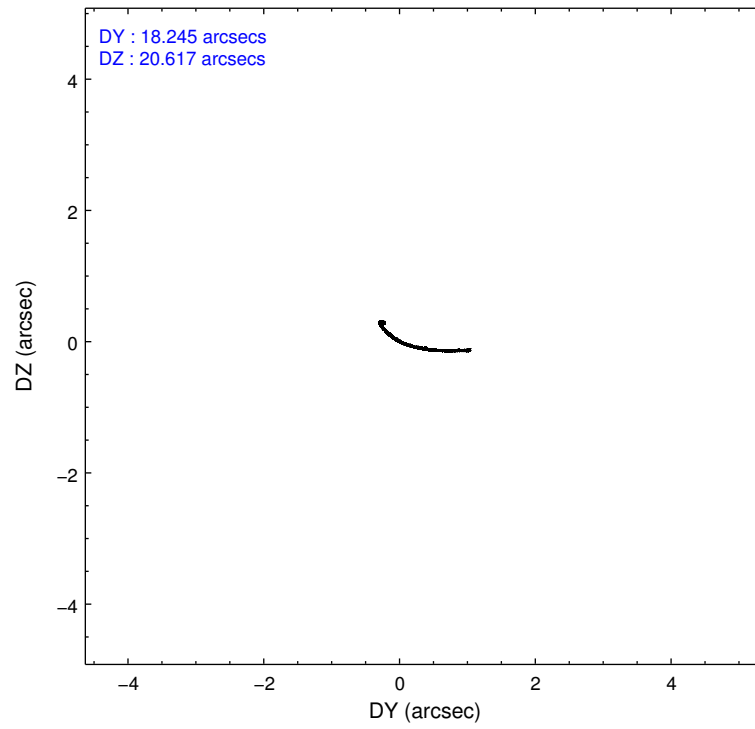
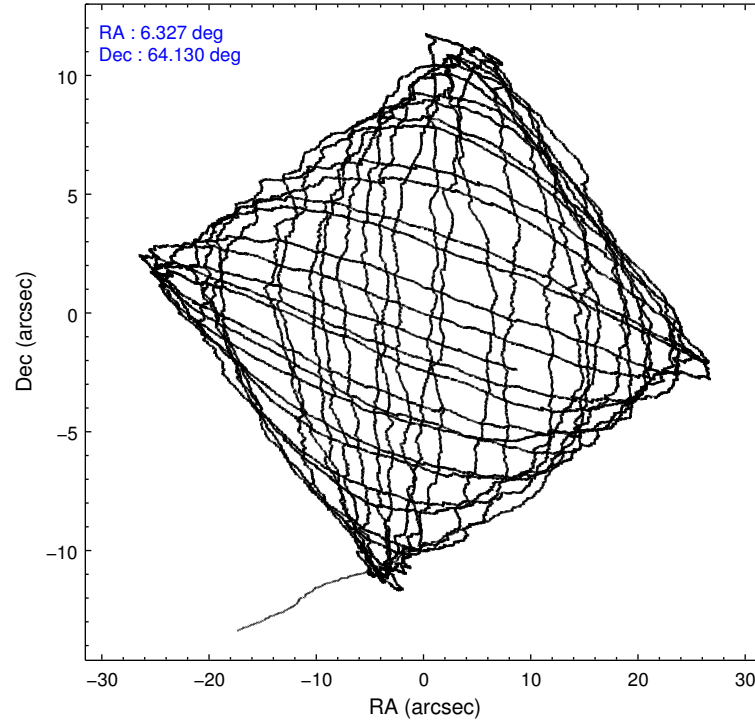
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	15248	80831	39193	45026	8818
	9%	44%	15%	28%	9%
grade 1 events	402	383	240	261	87
	0%	0%	0%	0%	0%
grade 2 events	30802	12751	53313	12028	2951
	19%	6%	20%	7%	3%
grade 3 events	4257	3917	22112	4809	1305
	2%	2%	8%	3%	1%
grade 4 events	4134	3845	21854	4692	1197
	2%	2%	8%	2%	1%
grade 5 events	10684	4093	11557	5907	4334
	6%	2%	4%	3%	4%
grade 6 events	39766	4480	69639	9109	2379
	24%	2%	26%	5%	2%
grade 7 events	56150	71965	42349	75923	74041
	34%	39%	16%	48%	77%

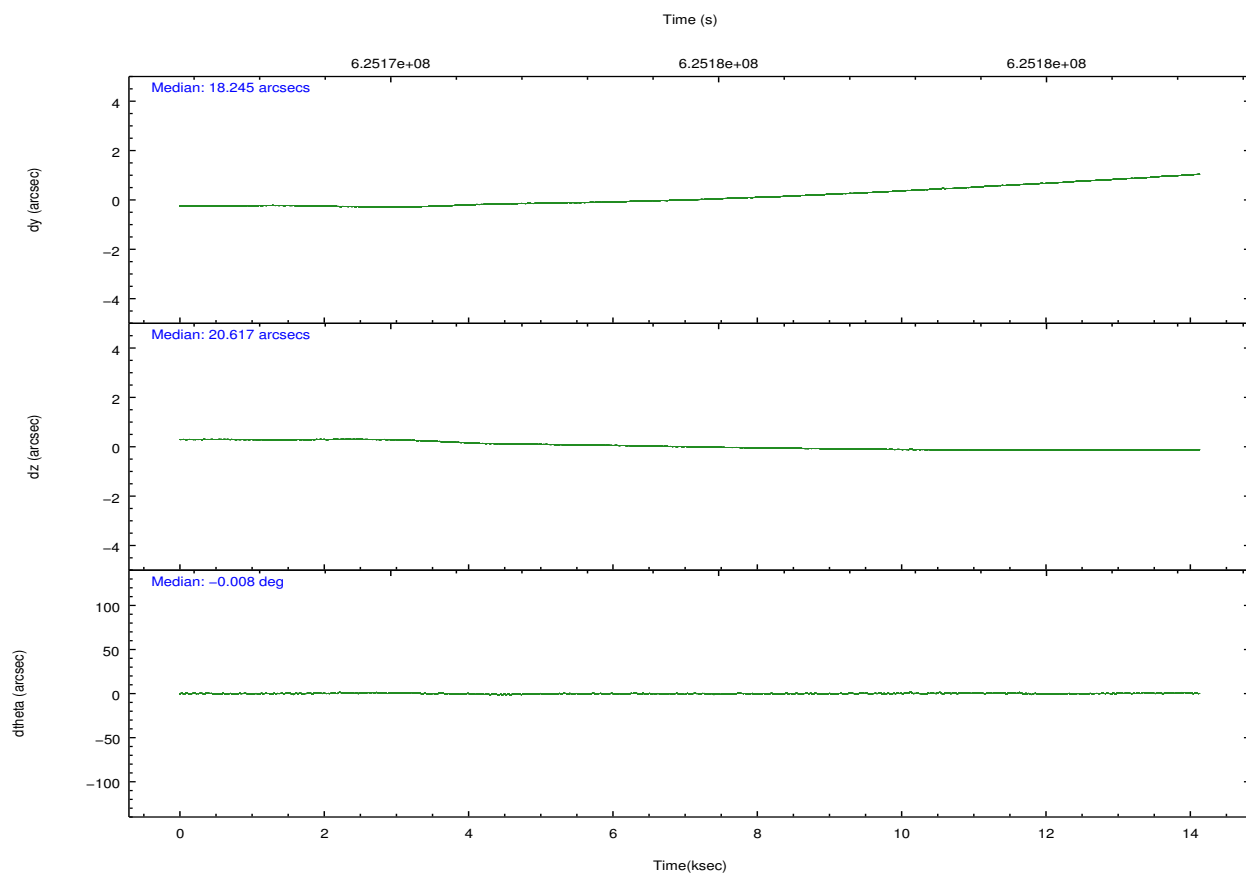
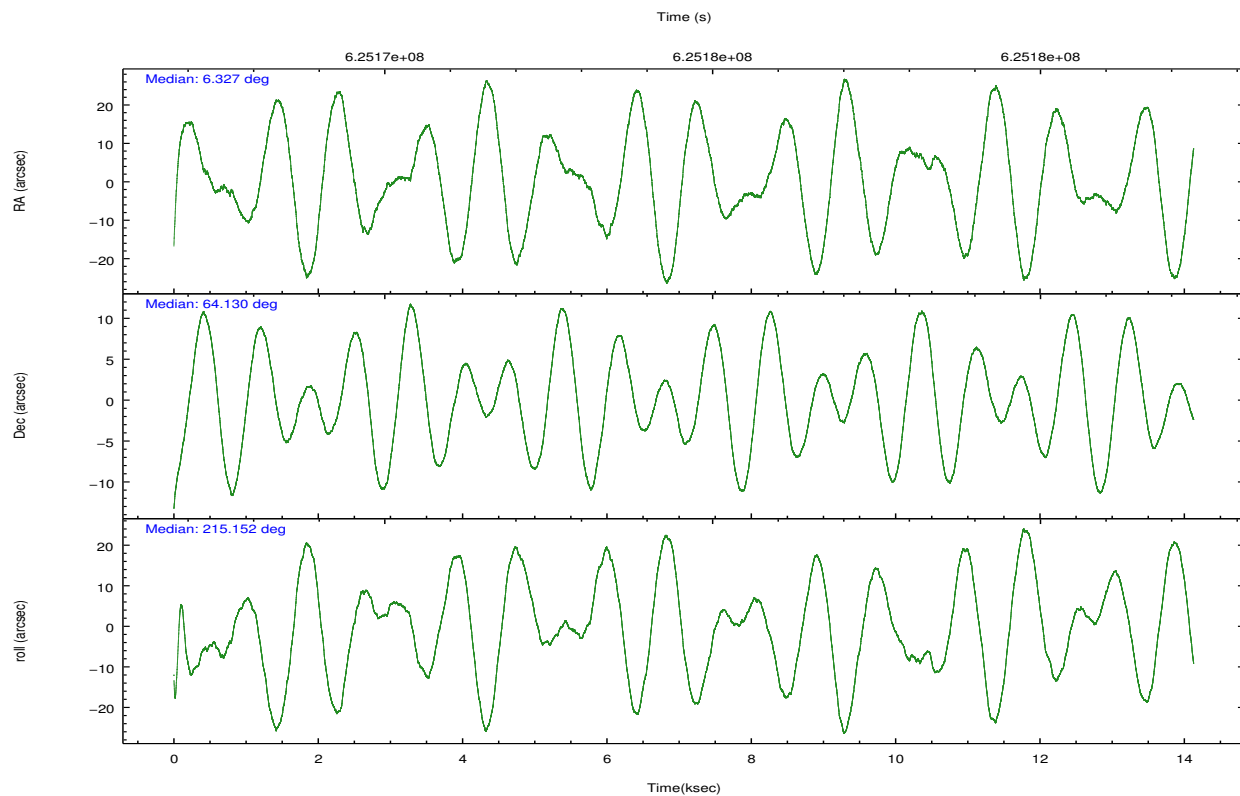
2.2 Compared Parameters

Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-56789	ACIS-56789
Grating	HETG	HETG
Data mode	VFAINT	VFAINT
Observation mode	POINTING	POINTING
[deg] Pointing RA	6.352847	6.327149385133794
[deg] Pointing Dec	64.154985	64.12992325177956
[deg] Pointing Roll	214.978691	215.1584035716267
[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)	625167610.184000	625166276.22565
Observation start date	2017-10-23T17:39:01	2017-10-23T17:17:56
[s] Observation end time (MET)	625181610.184000	625182413.8265899
Observation end date	2017-10-23T21:32:21	2017-10-23T21:46:53
Read mode	TIMED	TIMED

Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
CCD I0 on	N	N
CCD I1 on	N	N
CCD I2 on	N	N
CCD I3 on	N	N
CCD S0 on	O1	N
CCD S1 on	Y	Y
CCD S2 on	Y	Y
CCD S3 on	Y	Y
CCD S4 on	Y	Y
CCD S5 on	Y	Y
Number of optional ACIS chips dropped	1	1
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	3.1

2.3 Aspect



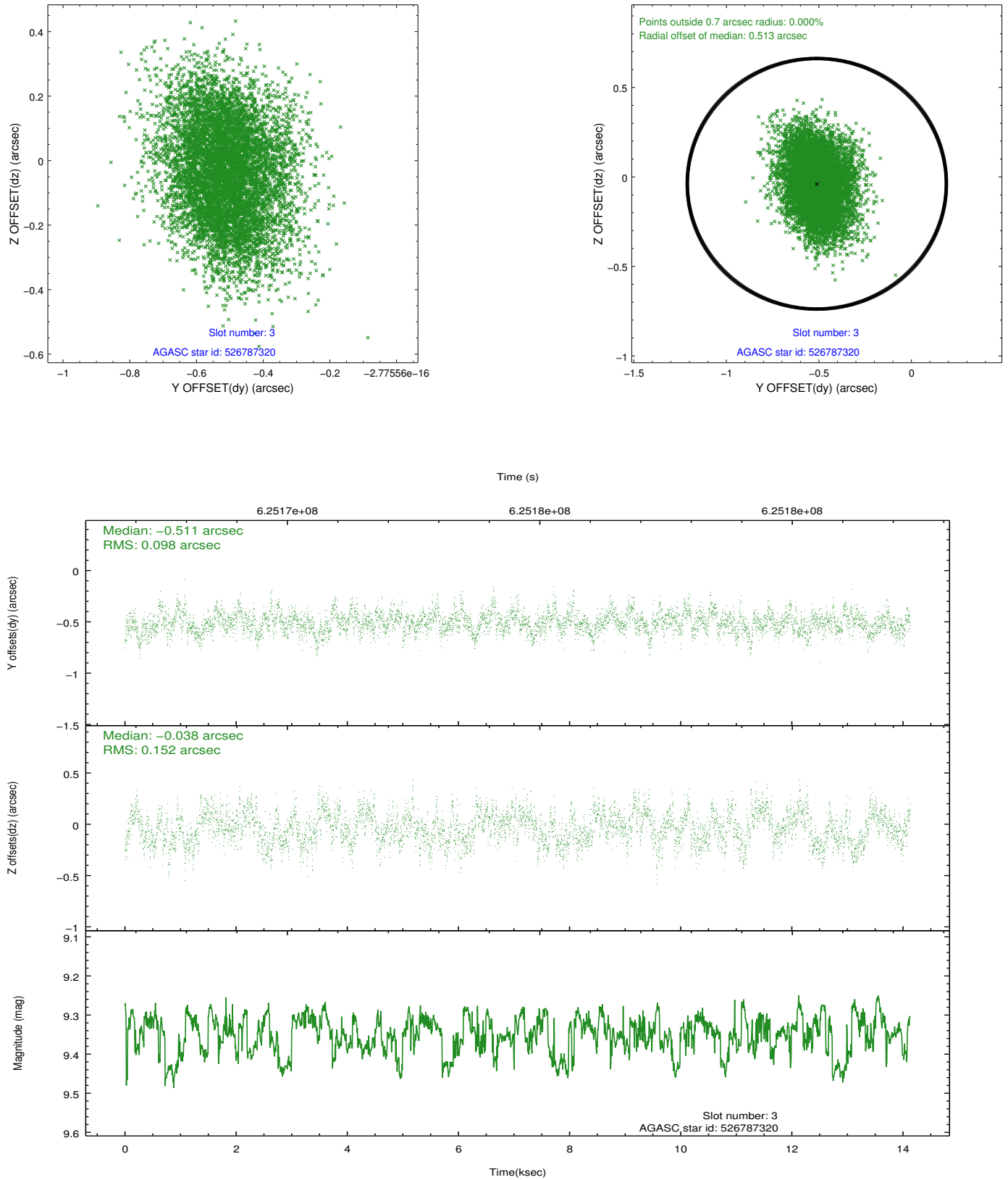


Slot Statistics

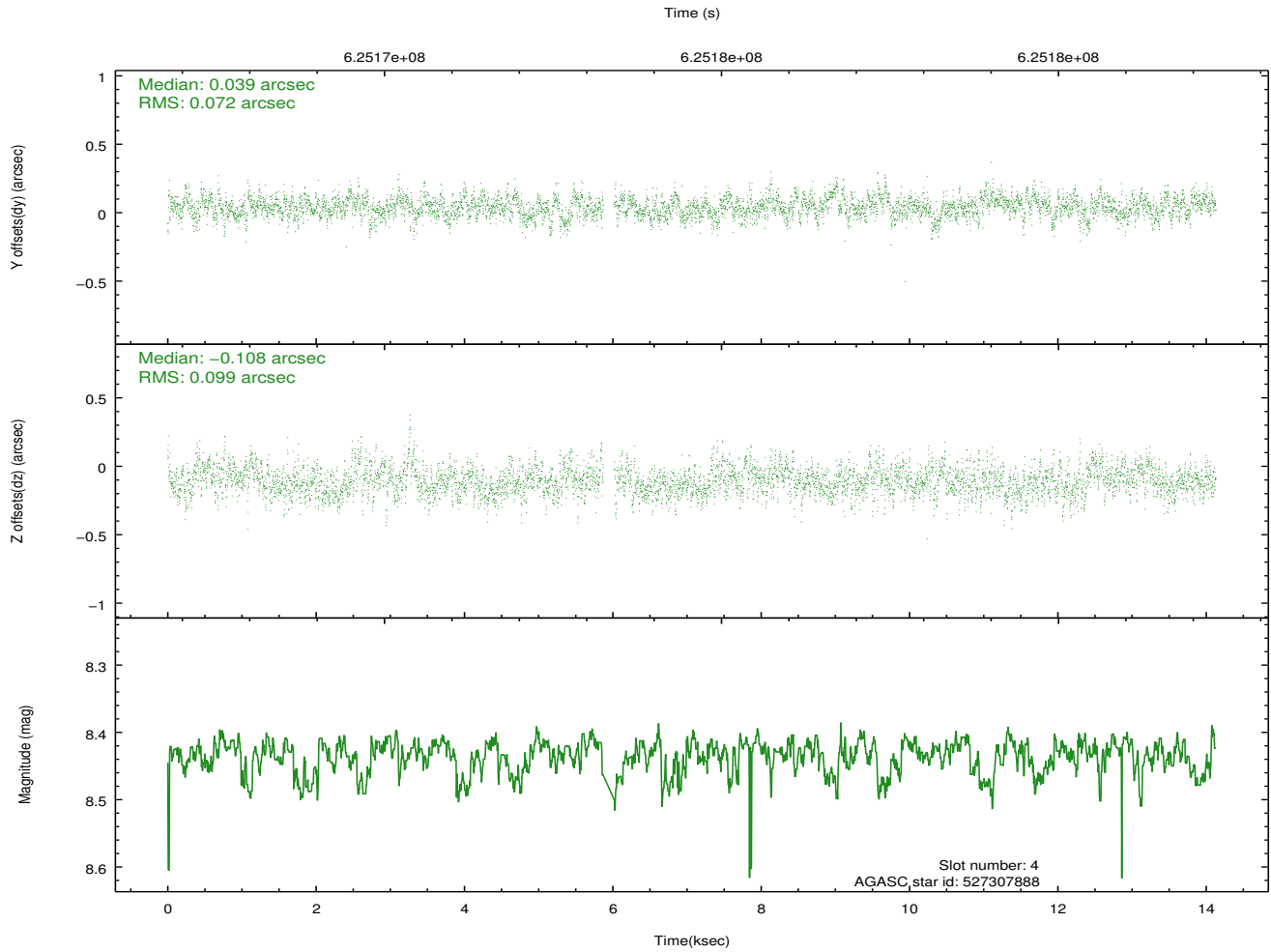
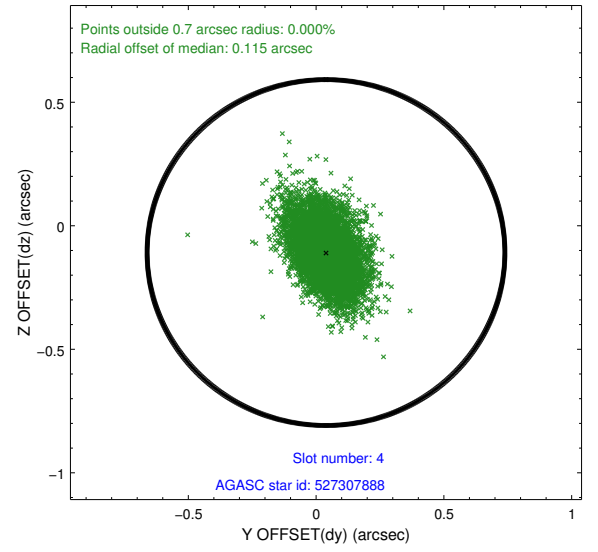
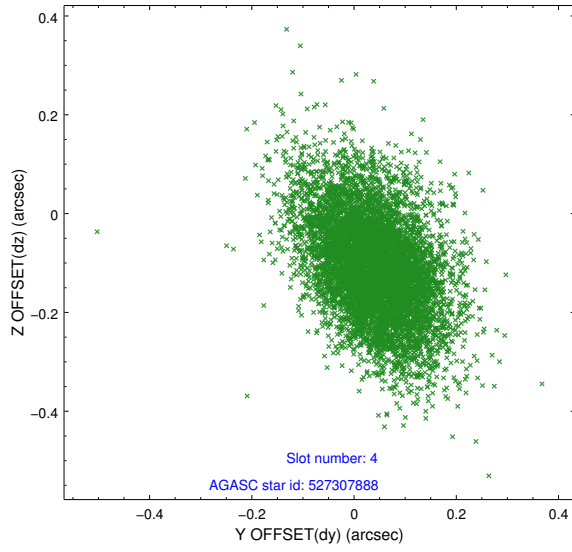
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.05	3446	0.044	-0.103	0.013	0.034	0.000000	0.000000	924.69	-1737.89
1	FID		ACIS-S-4	7.07	3447	0.396	0.056	0.014	0.026	0.000000	0.000000	2142.55	166.14
2	FID		ACIS-S-5	7.06	3447	-0.465	0.060	0.009	0.021	0.000000	0.000000	-1824.34	159.93
3	GUIDE	used	526787320	9.35	6888	-0.511	-0.038	0.192	0.315	6.103299	63.719181	1224.56	1057.12
4	GUIDE	used	527307888	8.43	6820	0.039	-0.108	0.126	0.219	4.965121	64.287990	1488.52	-1653.75
5	GUIDE	used	527309096	8.26	6893	0.272	-0.215	0.121	0.214	7.726277	64.064373	-1597.49	1487.34
6	GUIDE	used	527310400	7.71	6890	0.143	0.442	0.126	0.224	6.292387	64.638680	-921.52	-1479.51
7	GUIDE	used	527306256	9.20	6889	0.047	-0.082	0.182	0.300	5.268550	63.868615	1991.45	-152.69

2.4 Star Slots

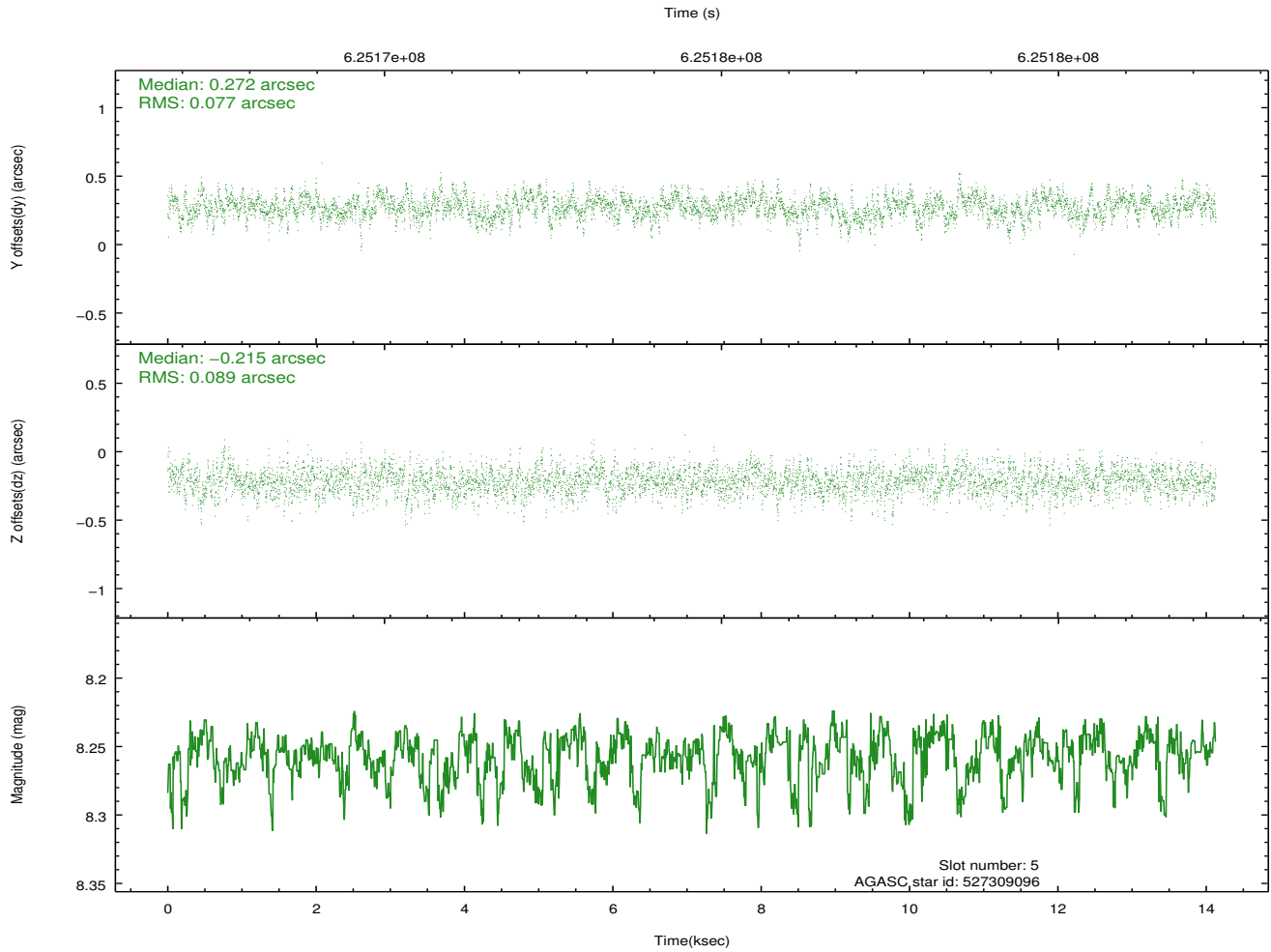
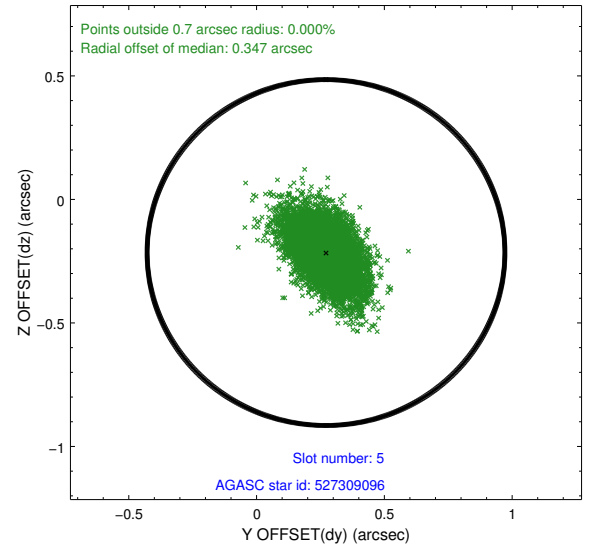
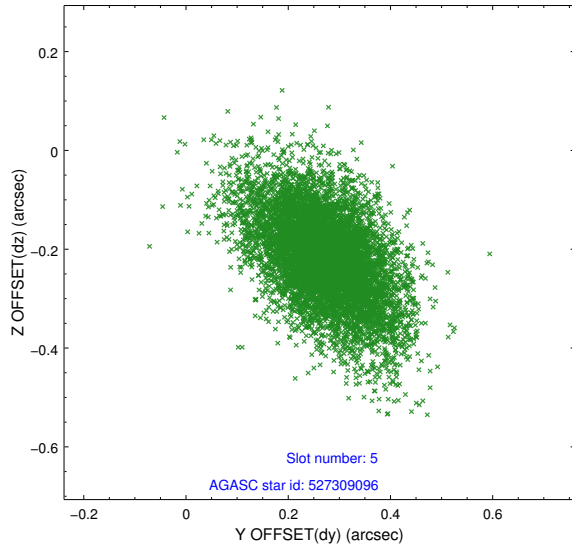
2.4.1 Slot 3



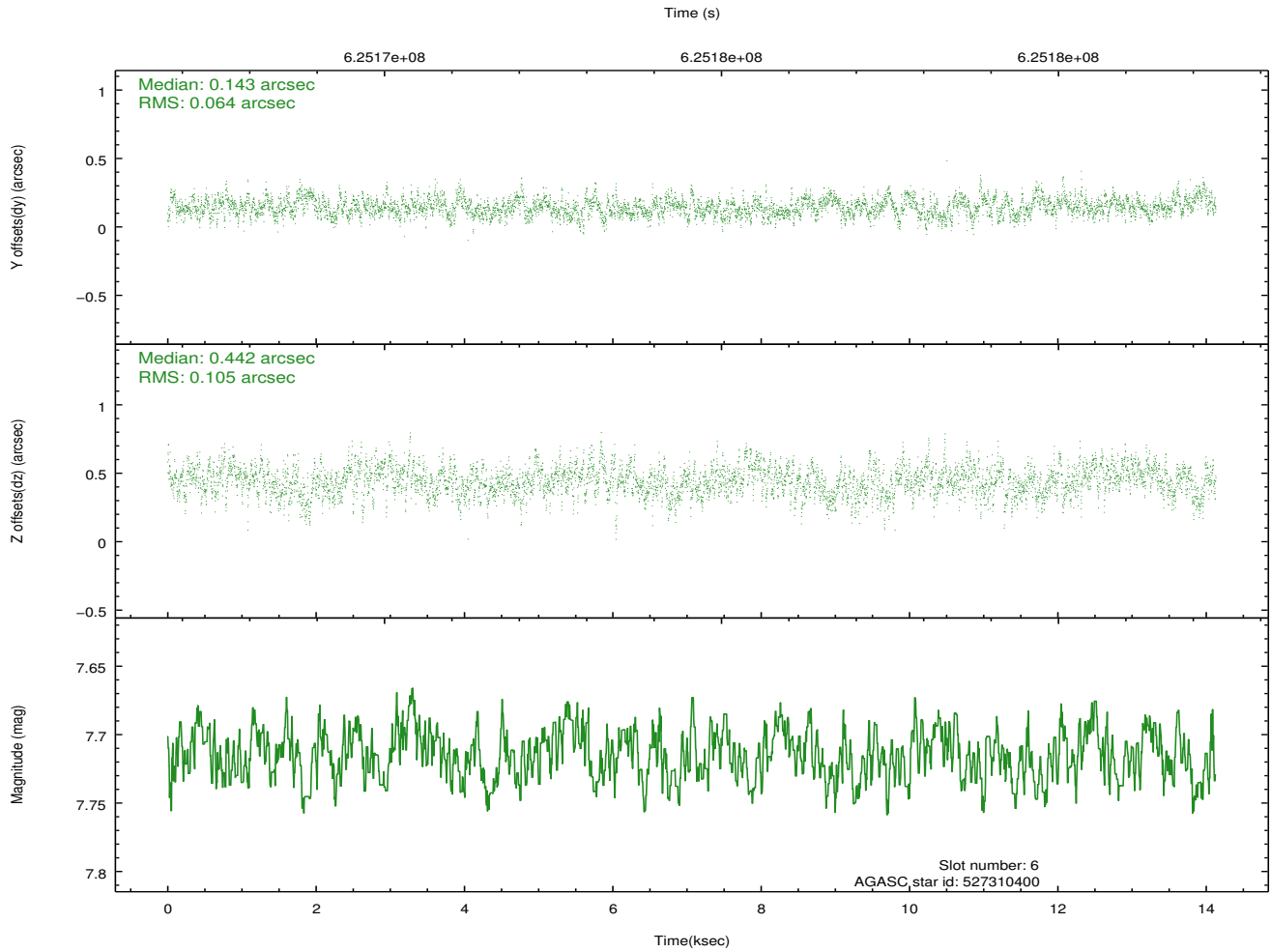
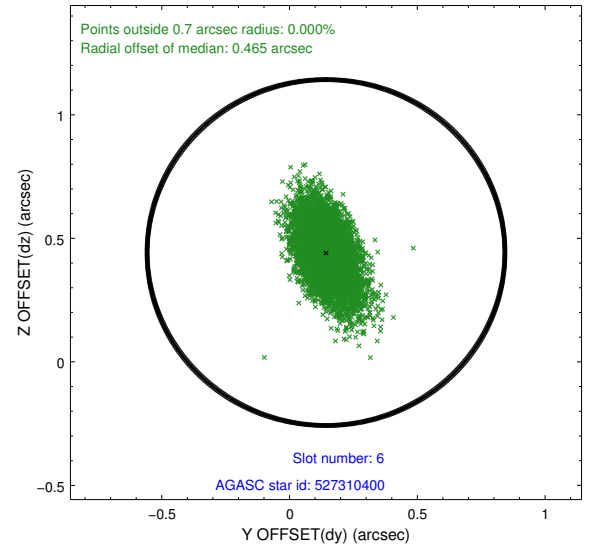
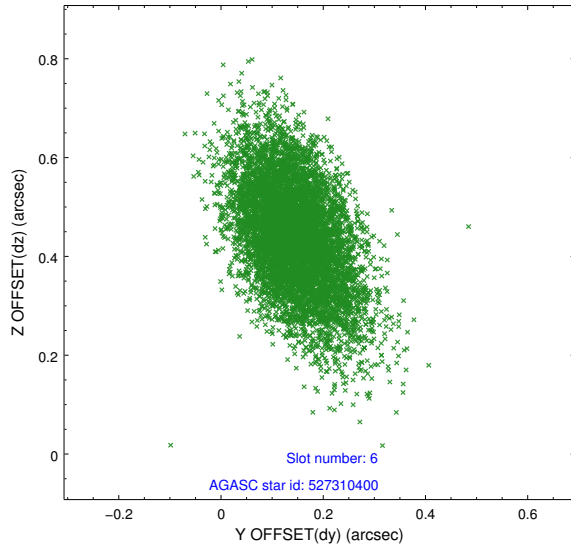
2.4.2 Slot 4



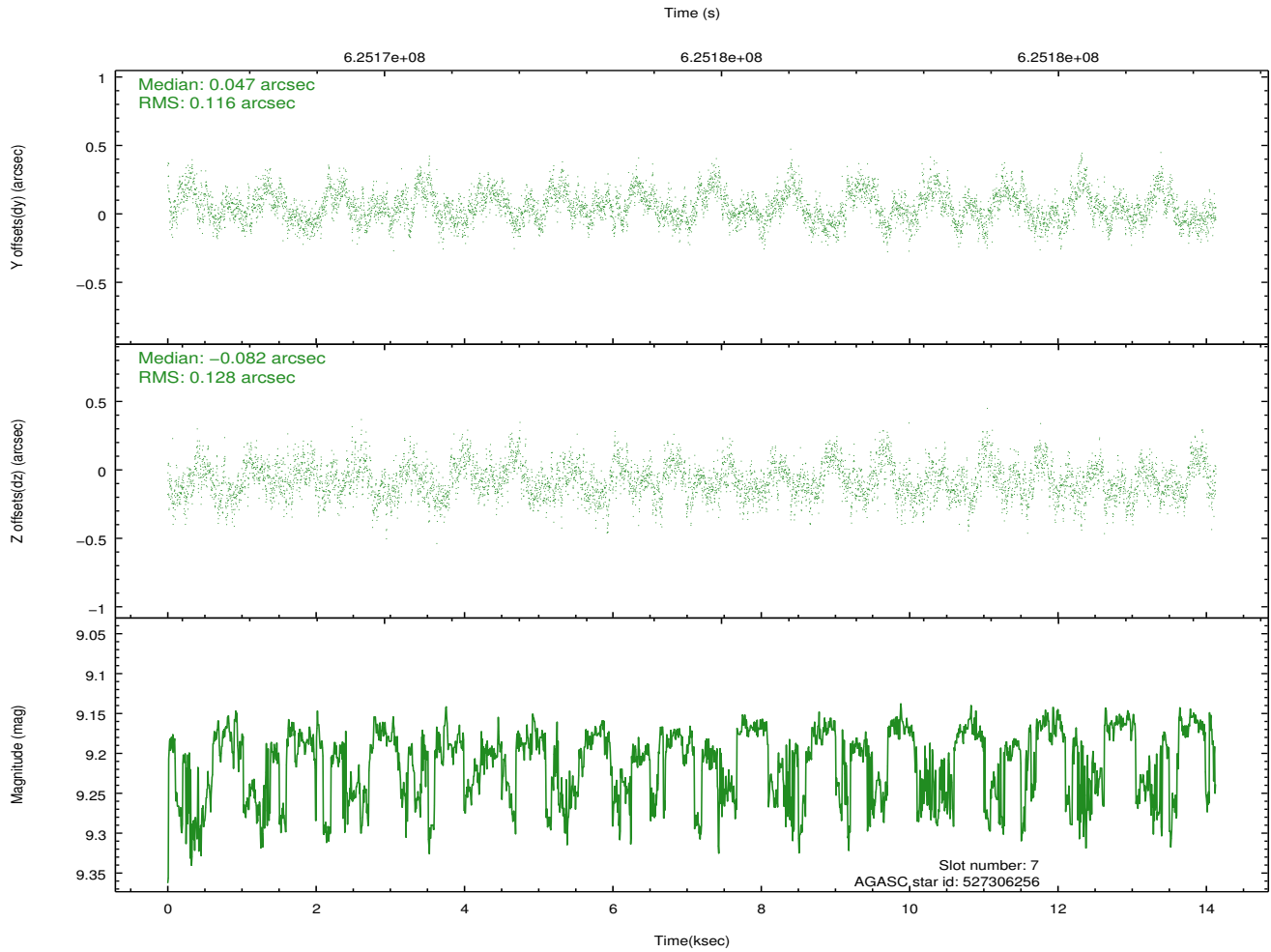
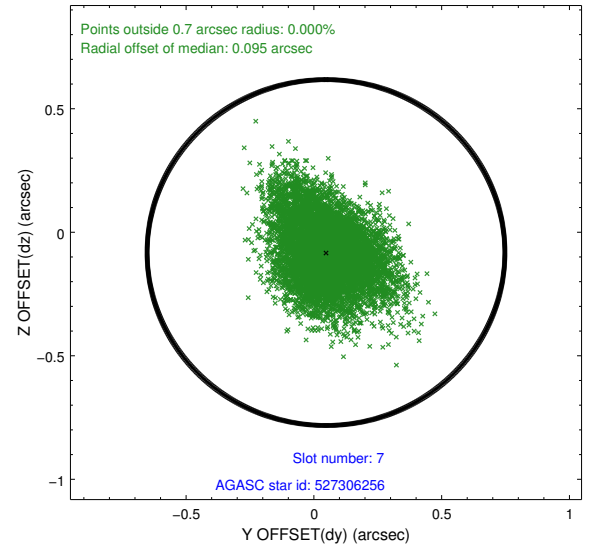
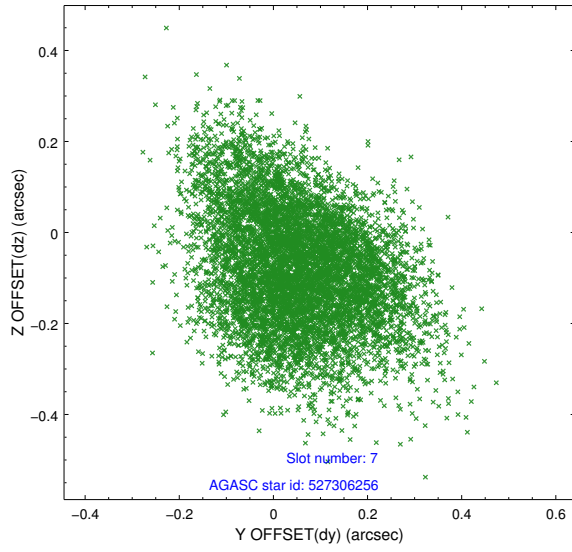
2.4.3 Slot 5



2.4.4 Slot 6

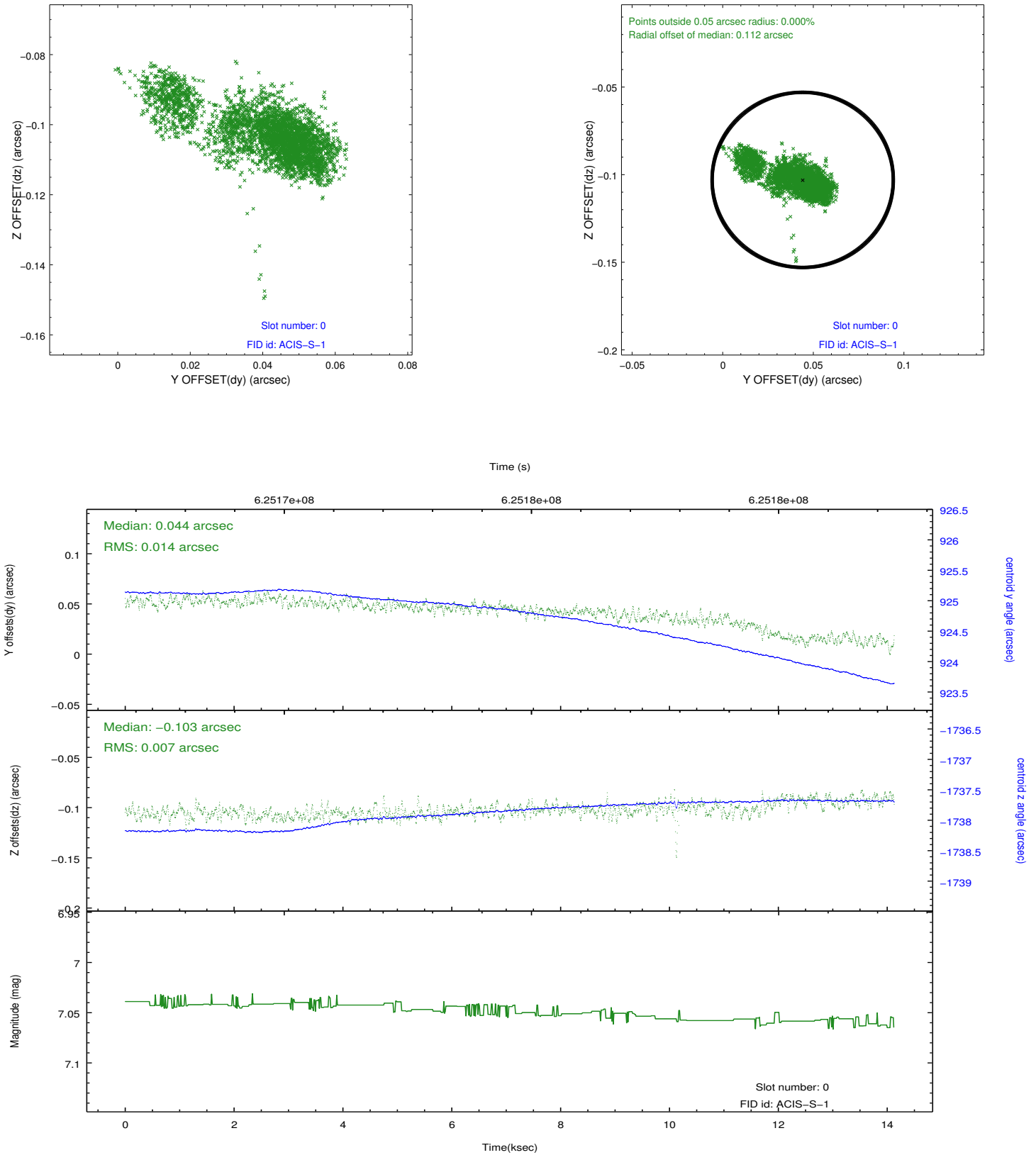


2.4.5 Slot 7

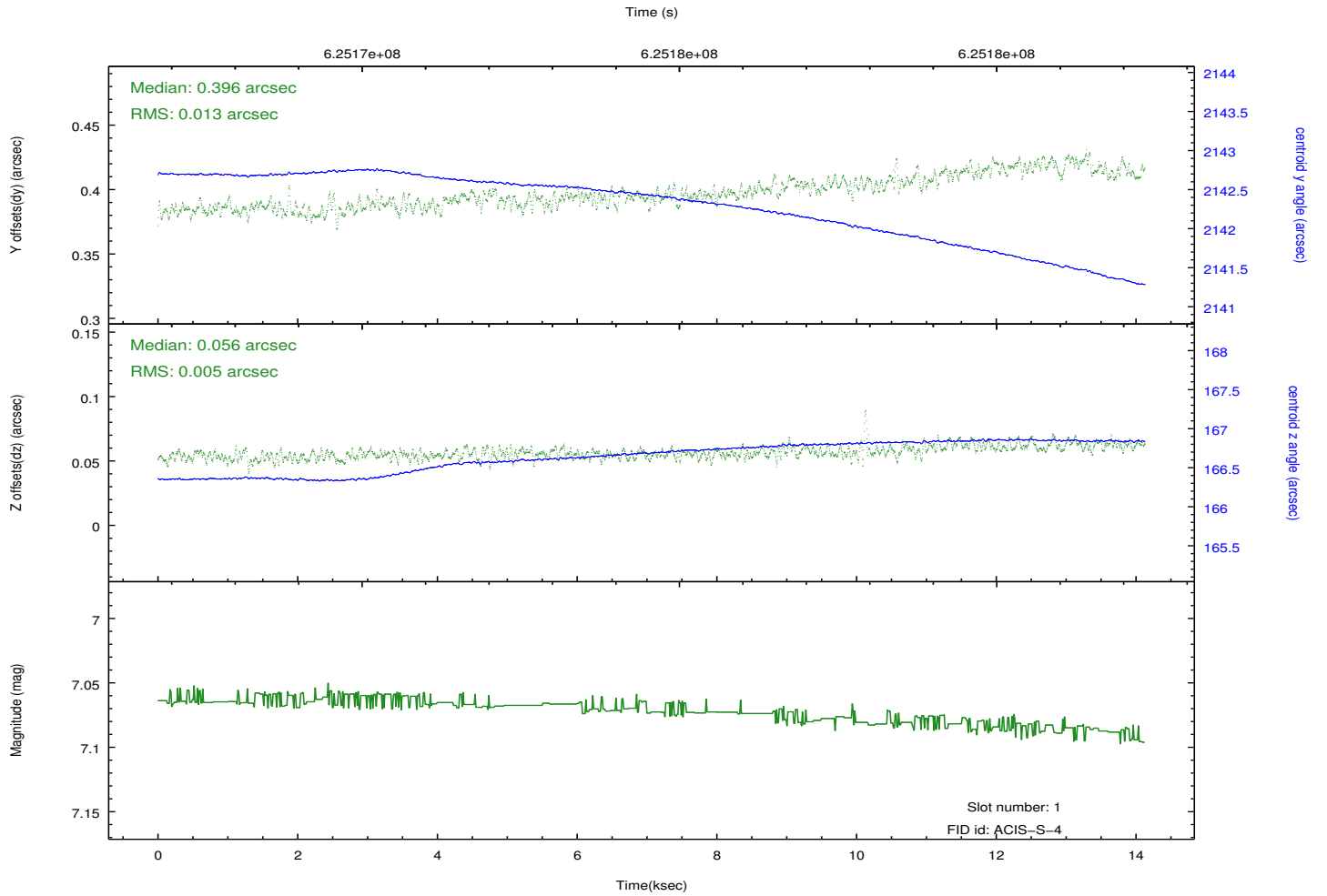
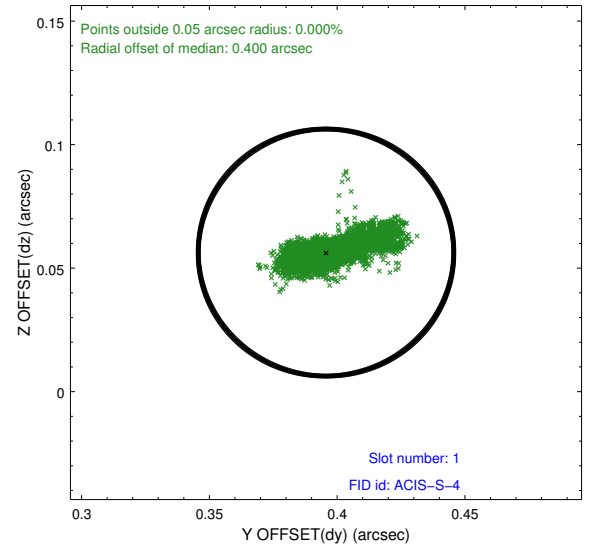
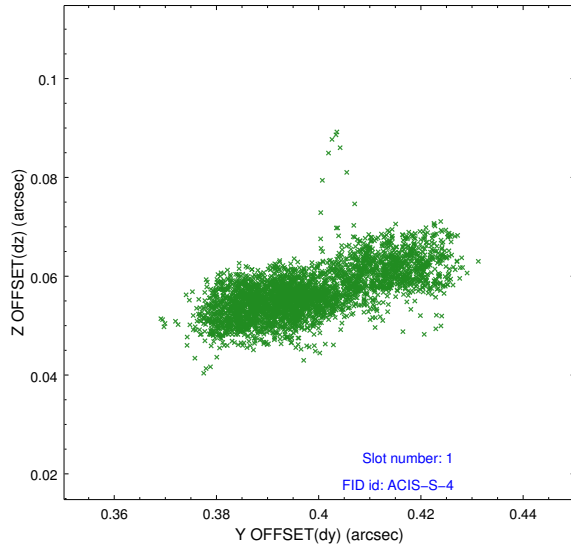


2.5 FID Slots

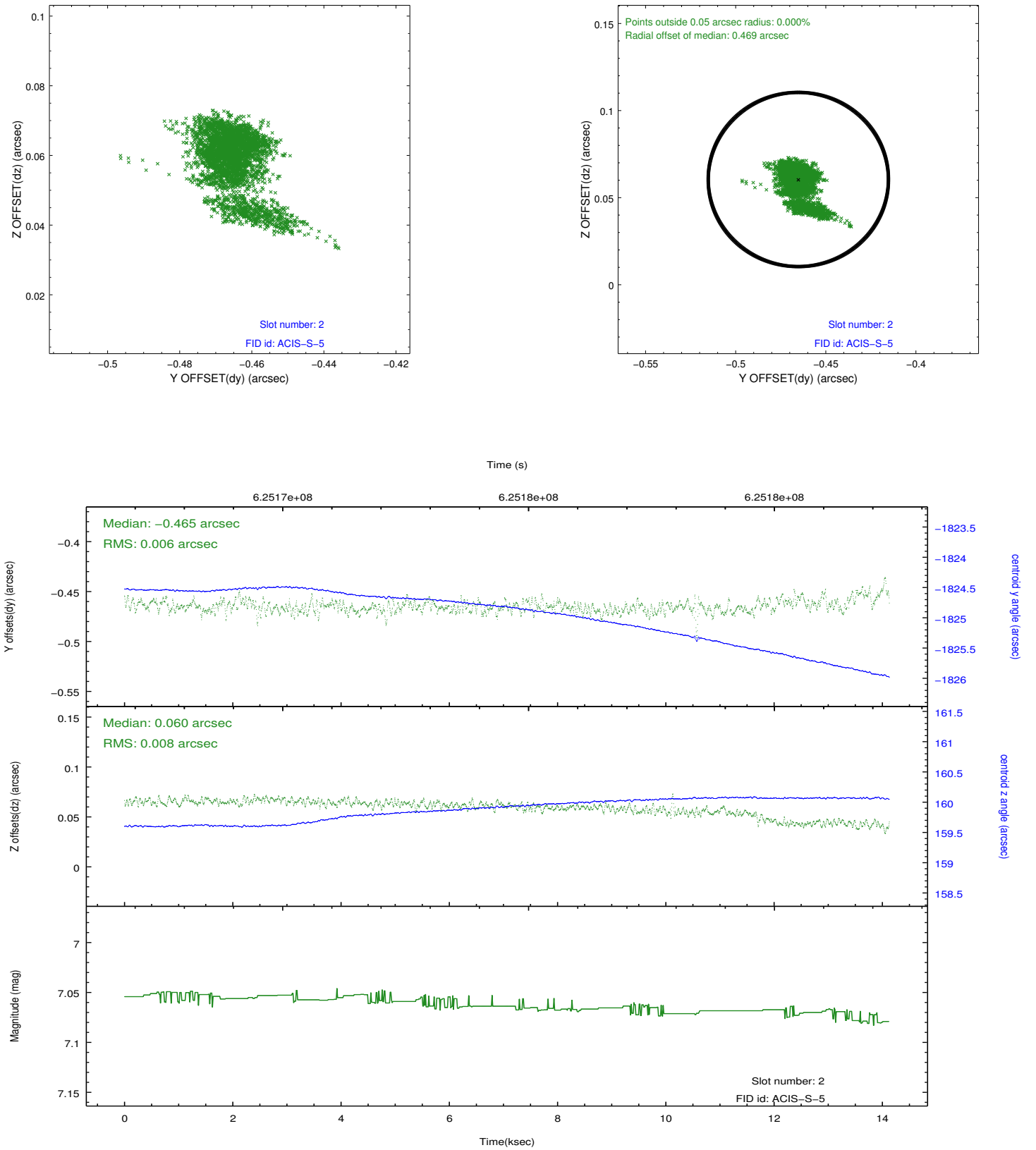
2.5.1 Slot 0



2.5.2 Slot 1

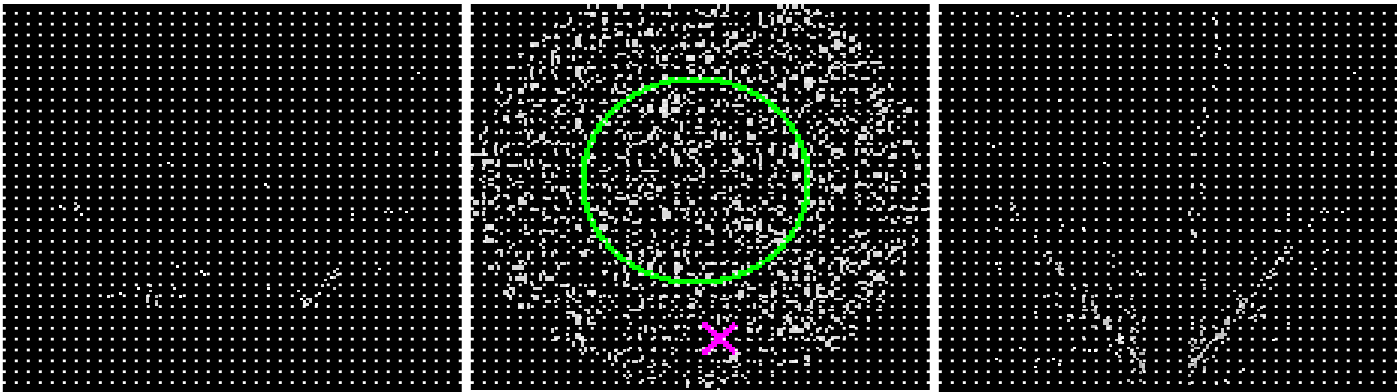


2.5.3 Slot 2



3 Gratings

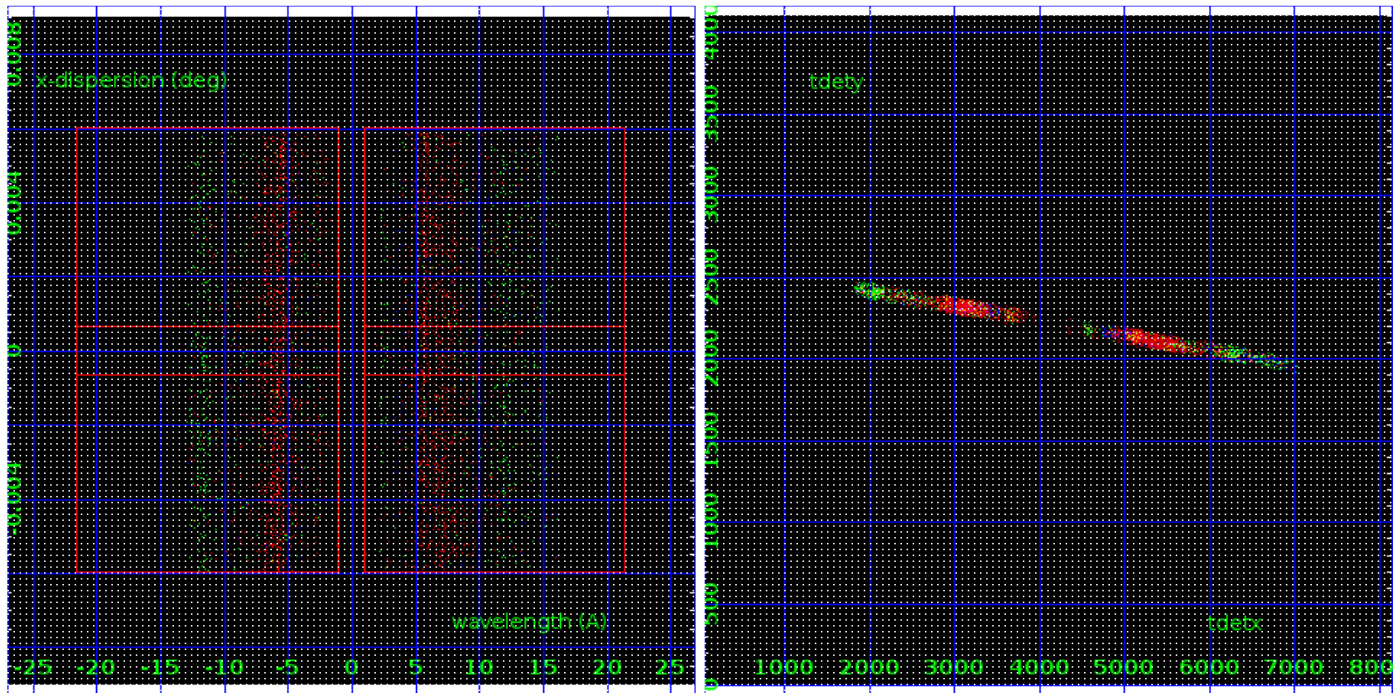
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

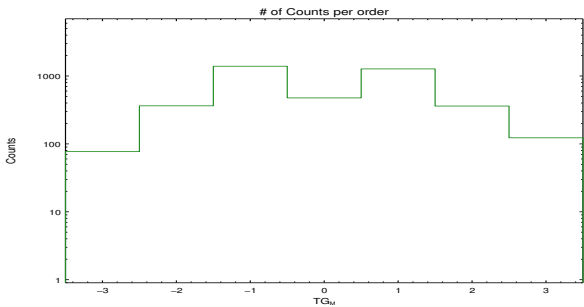
HEG Order Sort ALL

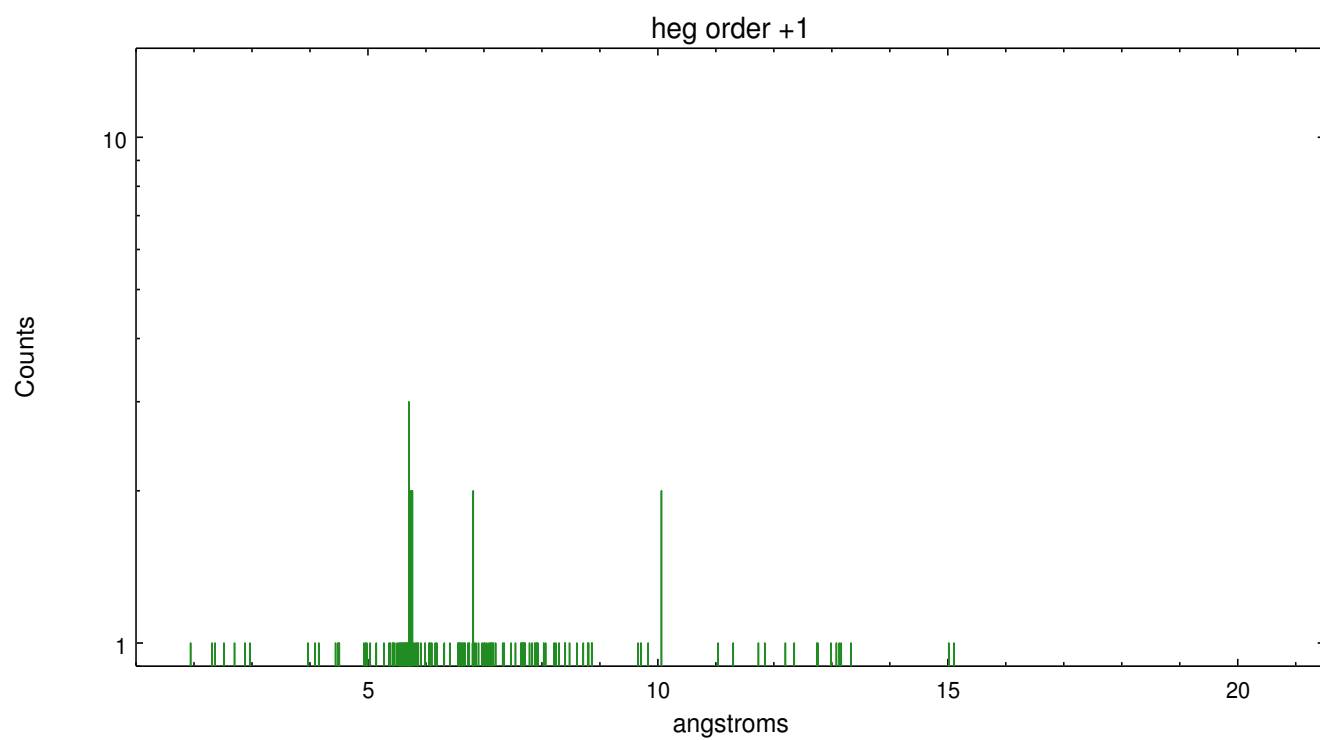
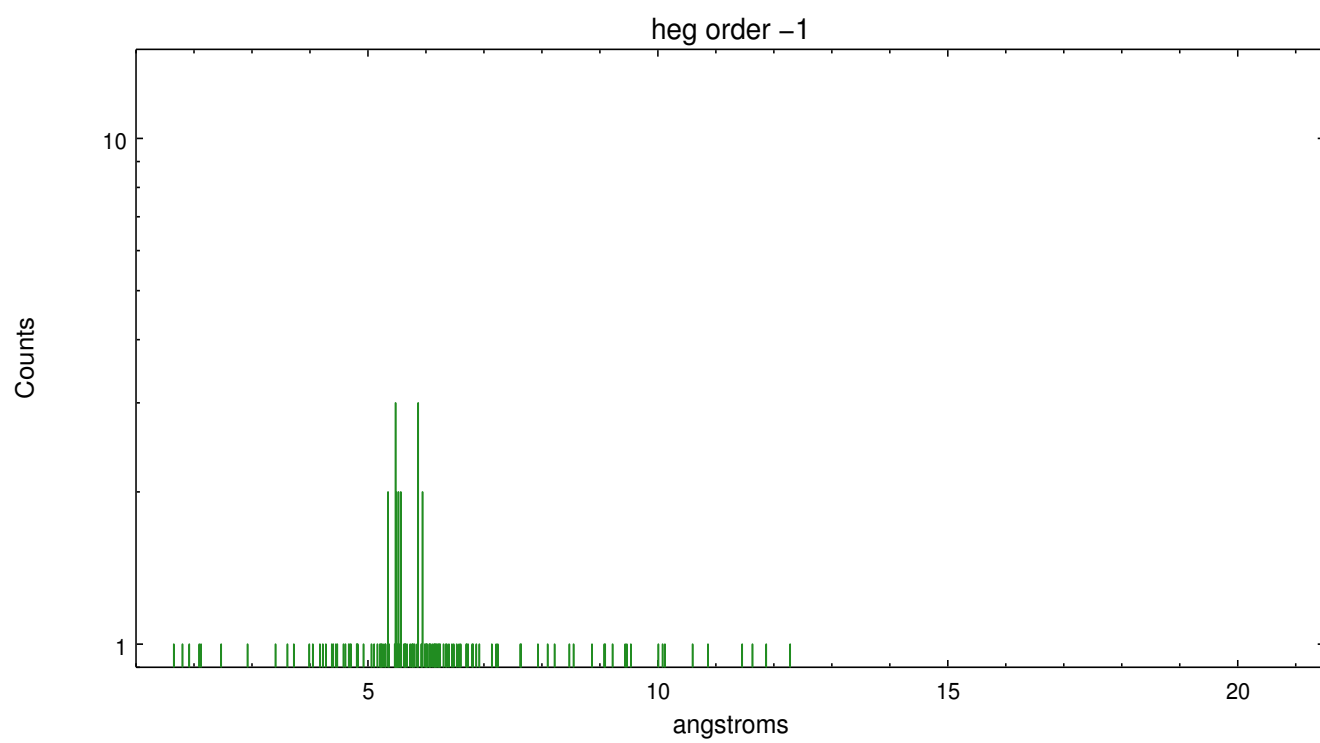


Spot Image HEG

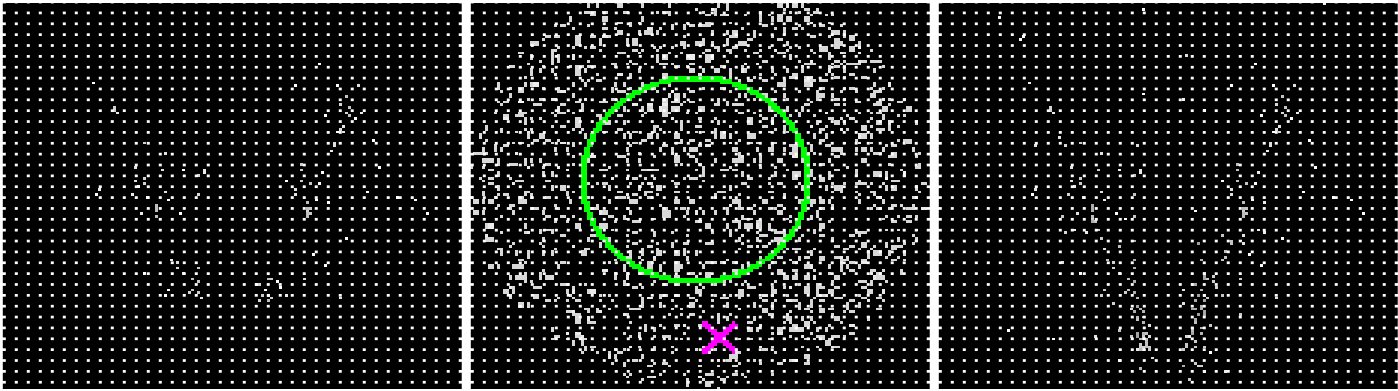
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	77	364	1393	476	1273	361	123





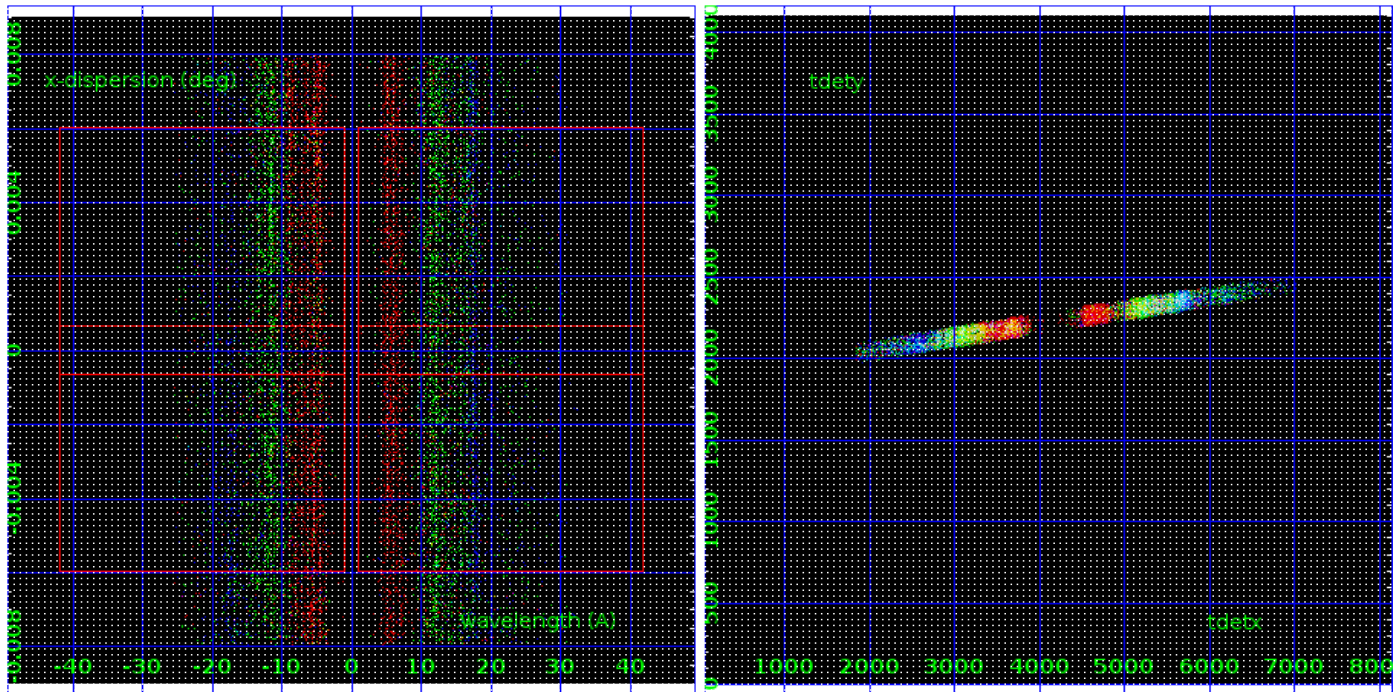
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

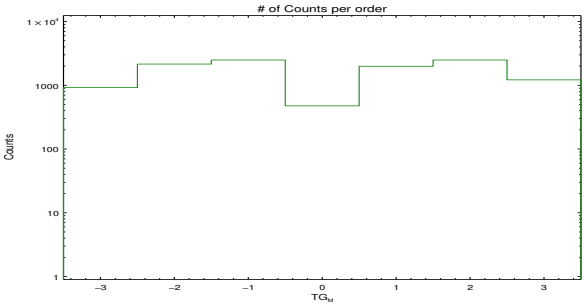
MEG Order Sort ALL

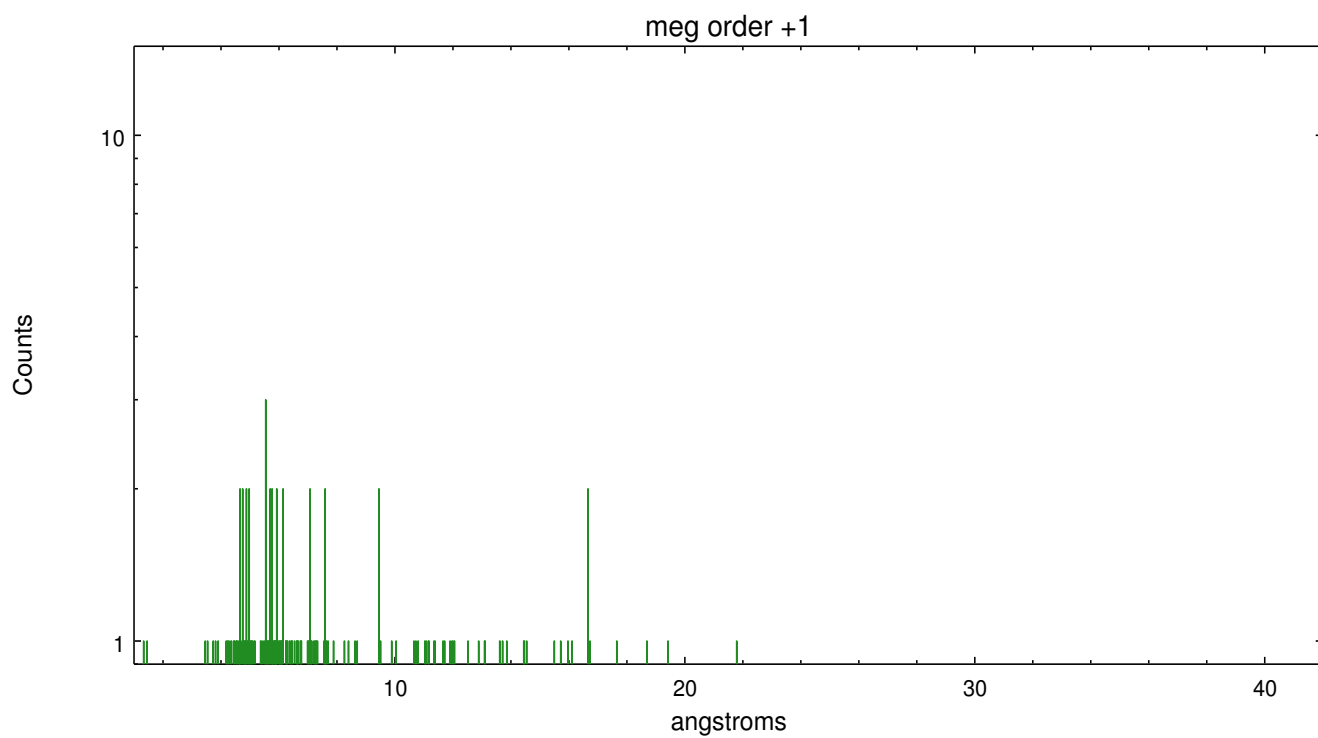
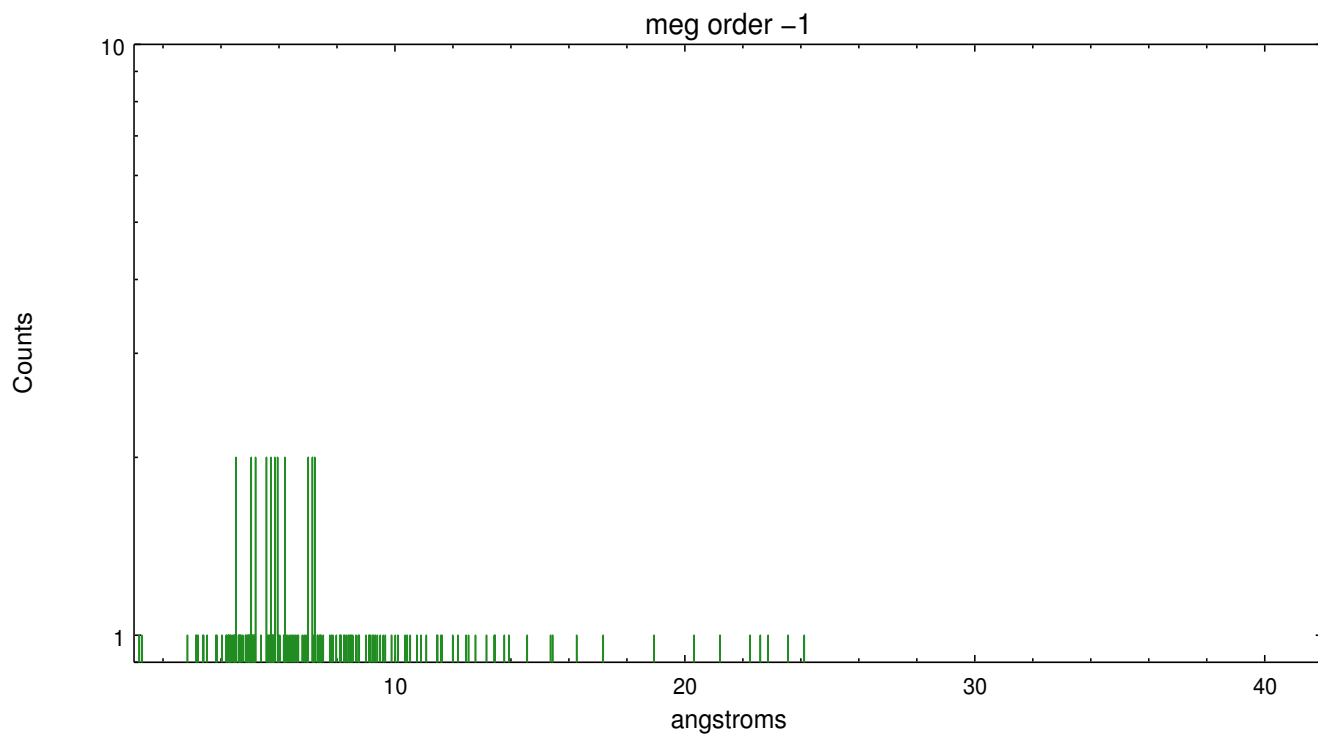


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	921	2152	2494	476	1986	2494	1217





A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2017.10.24
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	14.095700108528

A.2 Comments

WARNING: this is a grating observation of a very extended source. Dispersed spectra are a mix of spatial and spectral information. The default extraction, on the nominal target position, is of no particular significance. Custom analysis will be required to perform extractions on features of interest (e.g., bright knots). Note that there are also no standard responses for analysis of extended sources; the grating RMFs (LSF) are as if point sources, so custom analysis will be required to model profiles, with care to disentangle spatial-spectral features.