

V&V Reference Report

L2 ASCDS Version : 10.6

Observation 20819 - L2 Version 1
Chandra X-Ray Center

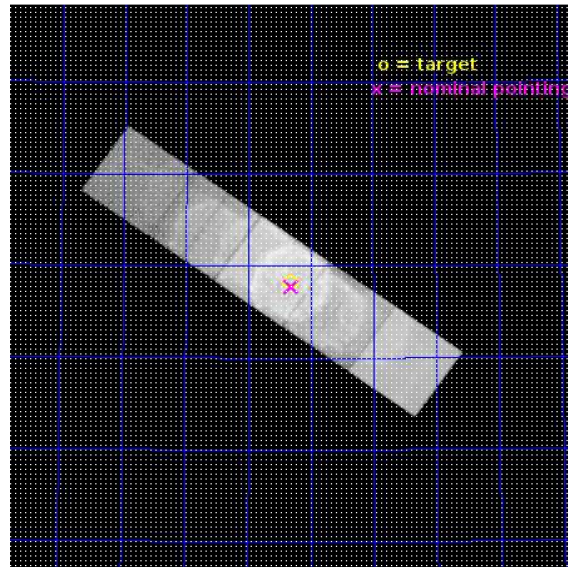
L2 Processing Date : Oct 30 2017

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1 Front

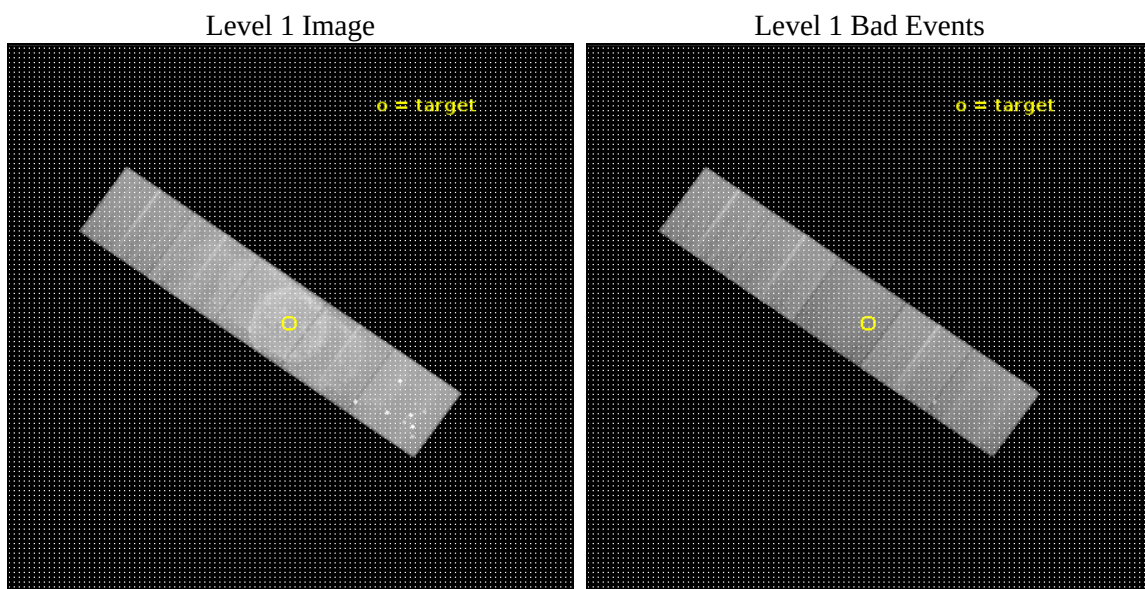
seq_num	502941	Sequence number
obs_id	20819	Observation id
title	Ejecta Kinematics Study of Tycho's SNR With Chandra HETGS	Proposa
observer	SANGWOOK PARK	Principal investigator
object	Tycho's Supernova Remnant	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	6.329167	Observer's specified target RA [deg]
dec_targ	64.136111	Observer's specified target Dec [deg]
ra_nom	6.3265953601741	Nominal RA [deg]
dec_nom	64.129479795148	Nominal Dec [deg]
roll_nom	215.15893750227	Nominal Roll [deg]
revision	1	Processing version of data
ontime	45089.183069348	Sum of GTIs [s]
livetime	44500.059698374	Livetime [s]
ontime5	45089.142029405	Sum of GTIs [s]
ontime6	45082.818858981	Sum of GTIs [s]
ontime7	45089.183069348	Sum of GTIs [s]
ontime8	45082.777758718	Sum of GTIs [s]
ontime9	45085.877828956	Sum of GTIs [s]
l2events	1443307	Number of level 2 events



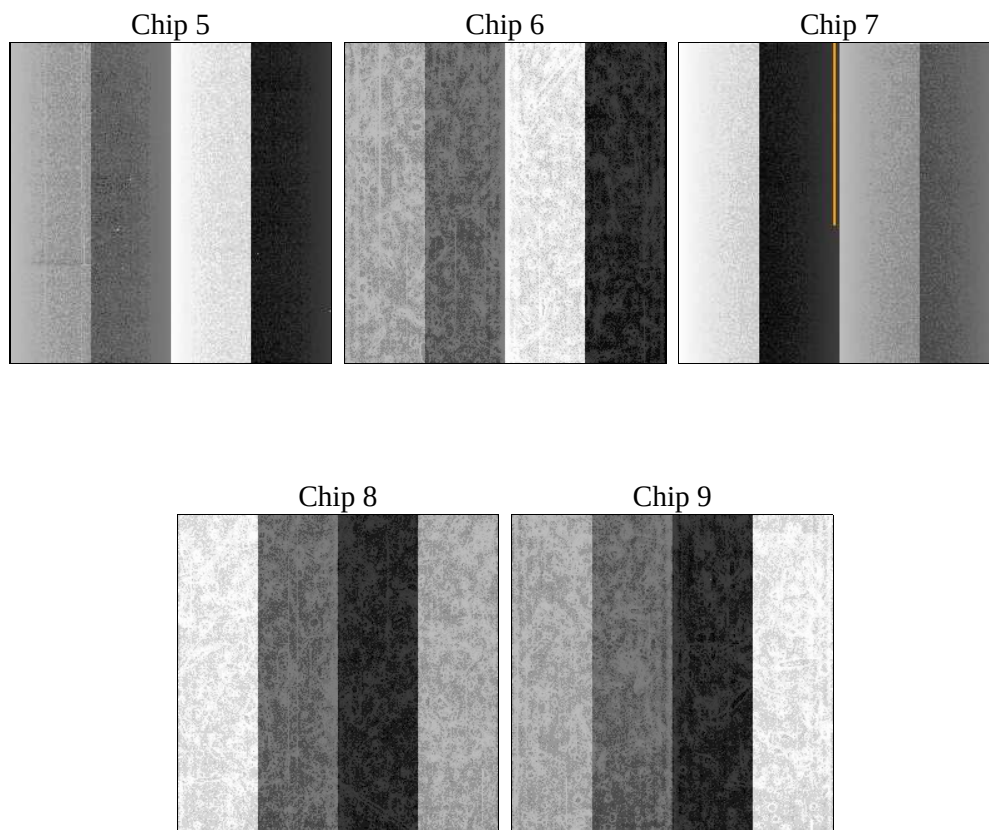
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	45000.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	45089.183069348	Sum of GTIs [s]
caldsver	4.7.6	 	ontime5	45089.142029405	Sum of GTIs [s]
date	2017-10-30T16:11:17	Date and time of file creation	ontime6	45082.818858981	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	45089.183069348	Sum of GTIs [s]
			ontime8	45082.777758718	Sum of GTIs [s]
			ontime9	45085.877828956	Sum of GTIs [s]
			l1events	2850757	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4105.48, 4163.50)	src1a sky pixel position

2.1.4 Events

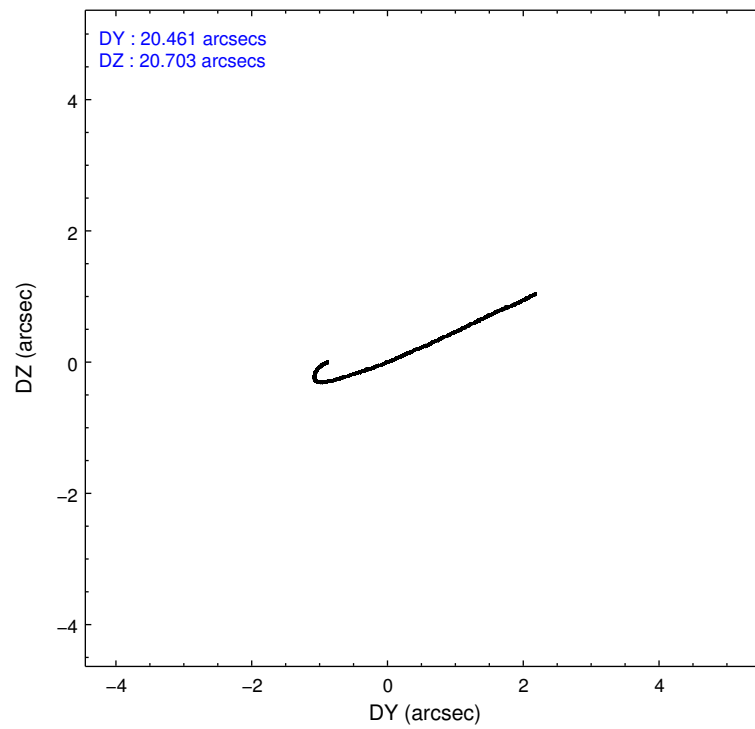
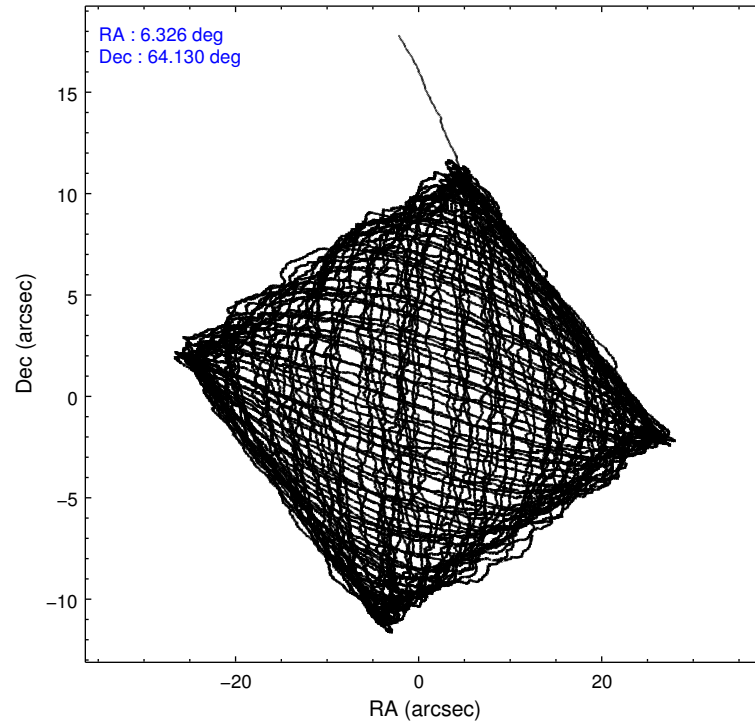
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	578150	607817	832085	513814	318891
rejected events	214455	271114	180492	277166	266552
rejected %	37%	44%	21%	53%	83%

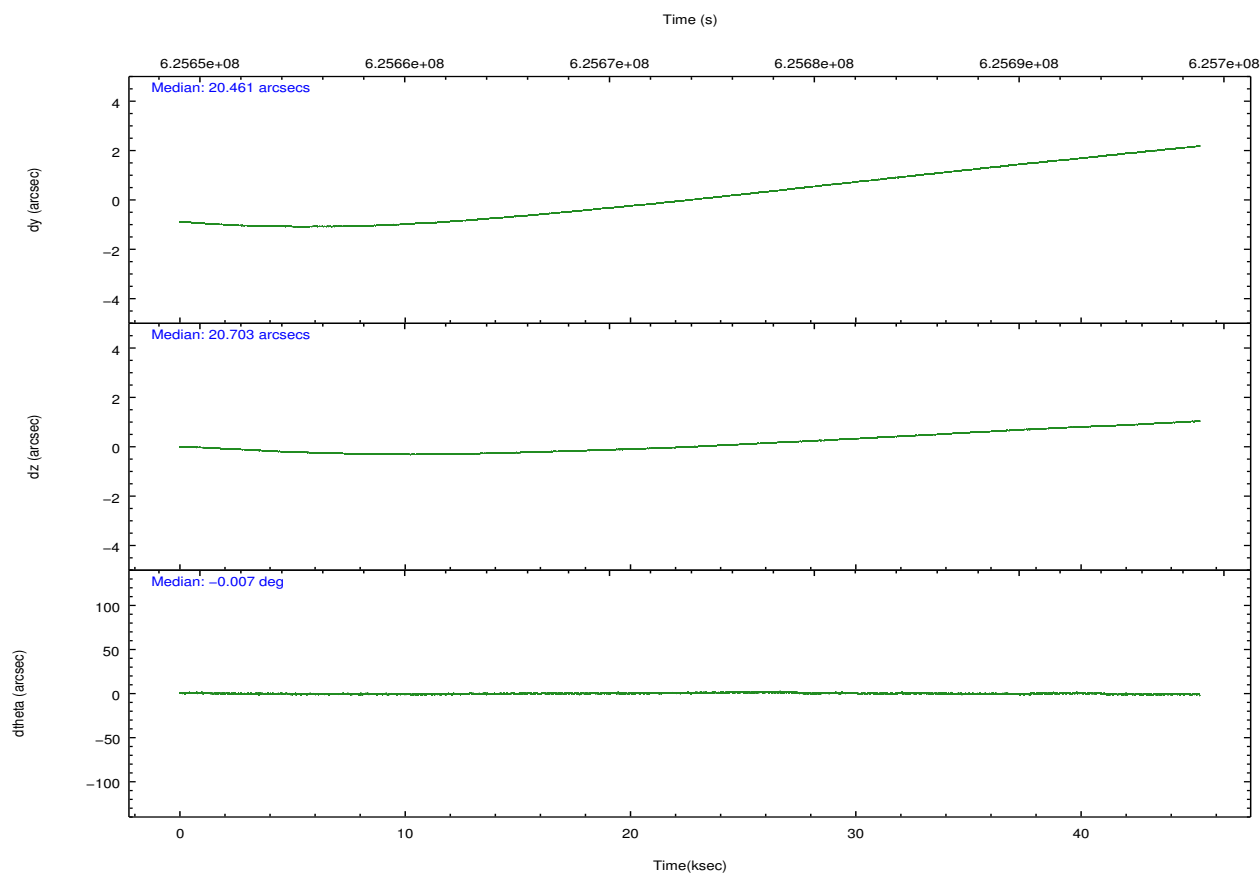
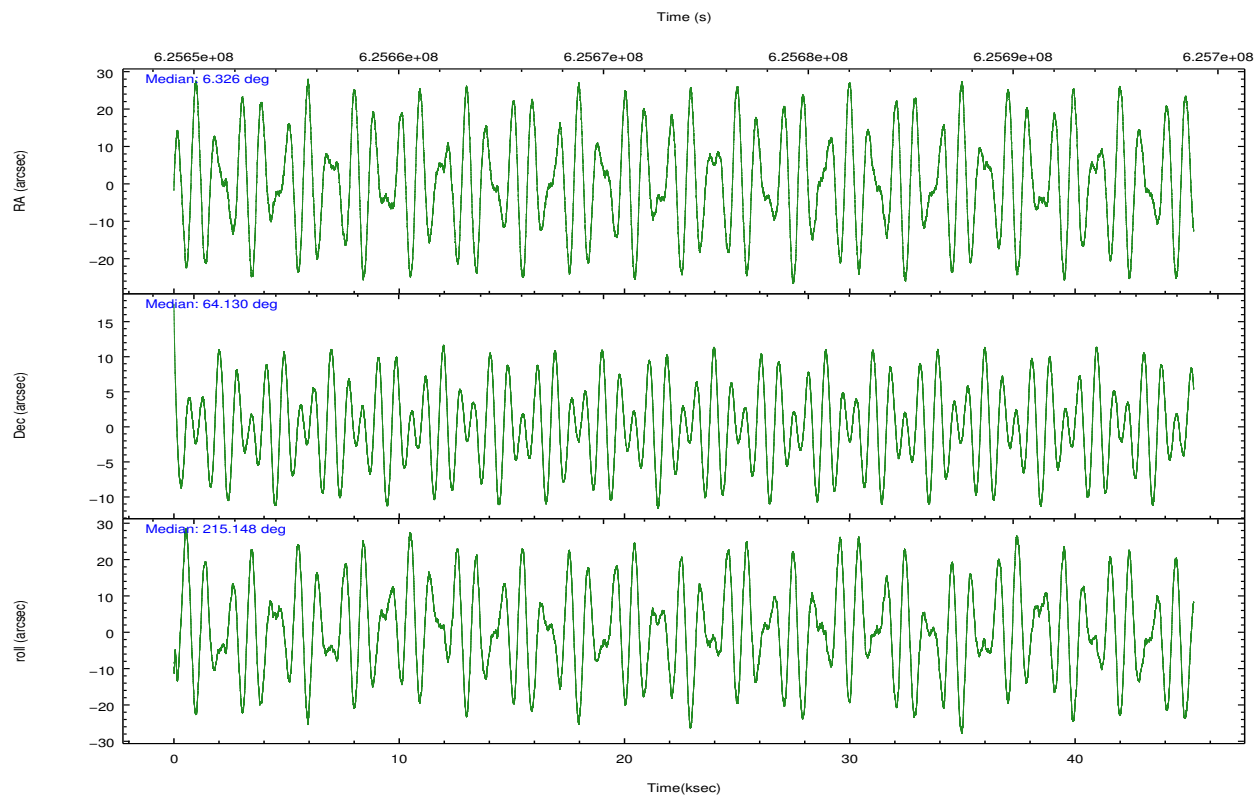
	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	87018	249309	123966	141483	27716
	15%	41%	14%	27%	8%
grade 1 events	1913	1054	724	760	259
	0%	0%	0%	0%	0%
grade 2 events	111653	48869	165942	38146	9224
	19%	8%	19%	7%	2%
grade 3 events	15873	11698	68871	13961	3844
	2%	1%	8%	2%	1%
grade 4 events	15887	11794	68488	13165	3799
	2%	1%	8%	2%	1%
grade 5 events	30395	12546	36805	18802	13010
	5%	2%	4%	3%	4%
grade 6 events	133288	15052	224361	29904	7761
	23%	2%	26%	5%	2%
grade 7 events	182123	257495	142928	257593	253278
	31%	42%	17%	50%	79%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-56789	ACIS-56789	Obspar file type	PREDICTED	ACTUAL
Grating	HETG	HETG	Obspar update status	NONE	UPDATED
Data mode	VFAINT	VFAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	6.352273	6.326595360174132	CCD I2 on	N	N
[deg] Pointing Dec	64.154529	64.12947979514762	CCD I3 on	N	N
[deg] Pointing Roll	214.979206	215.1589375022712	CCD S0 on	O1	N
[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	-190.132523	-190.1400660498719	CCD S3 on	Y	Y
[mm] SIM translation stage offset	0	0.00754346686406393	CCD S4 on	Y	Y
[s] Observation start time (MET)	625651536.184000	625650530.32903	CCD S5 on	Y	Y
Observation start date	2017-10-29T08:04:27	2017-10-29T07:48:50	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	625696536.184000	625697332.85677	On-chip summing requested	N	N
Observation end date	2017-10-29T20:34:27	2017-10-29T20:48:52	Subarray requested	NONE	NONE
Read mode	TIMED	TIMED	Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	3.1

2.3 Aspect



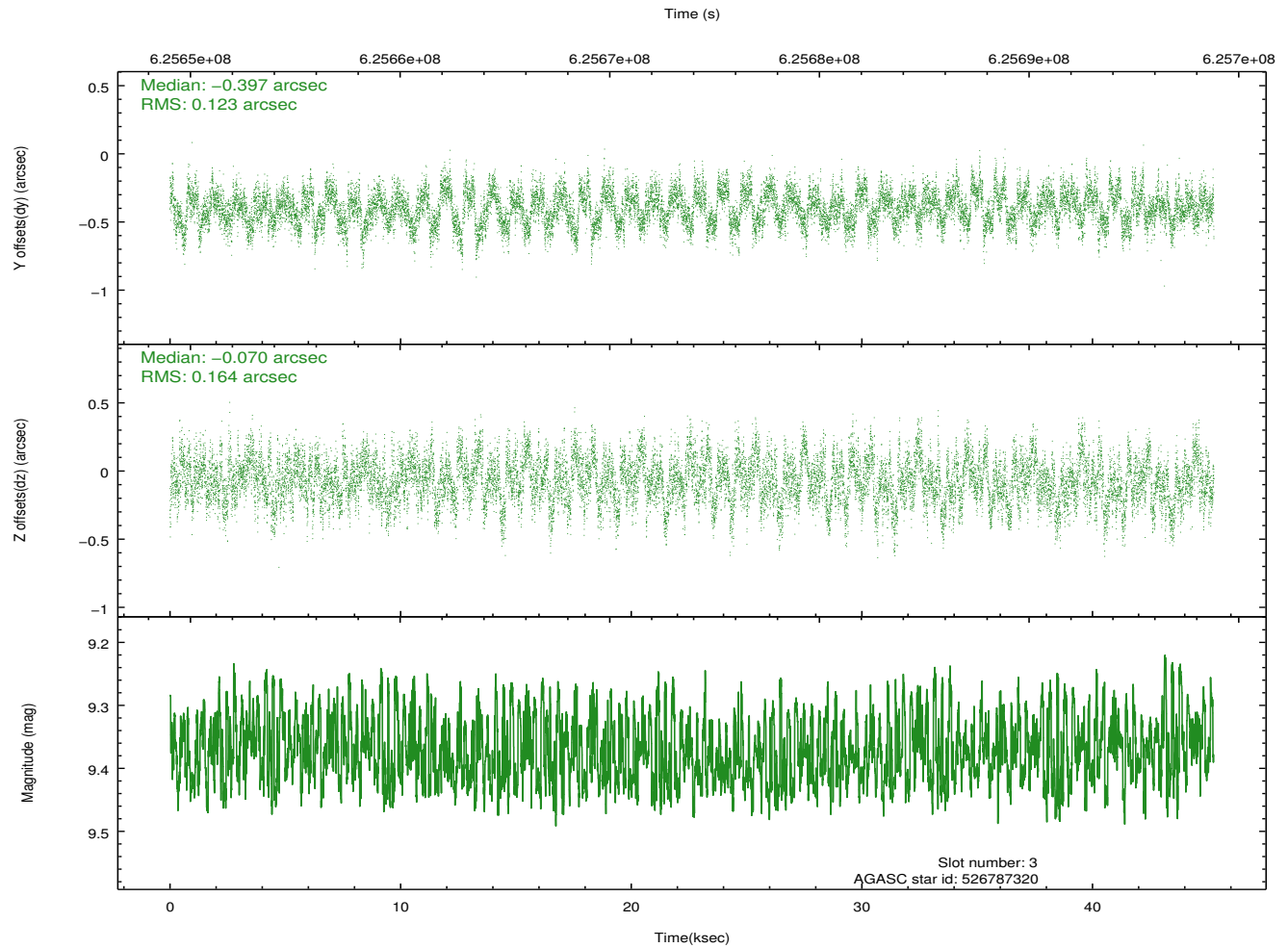
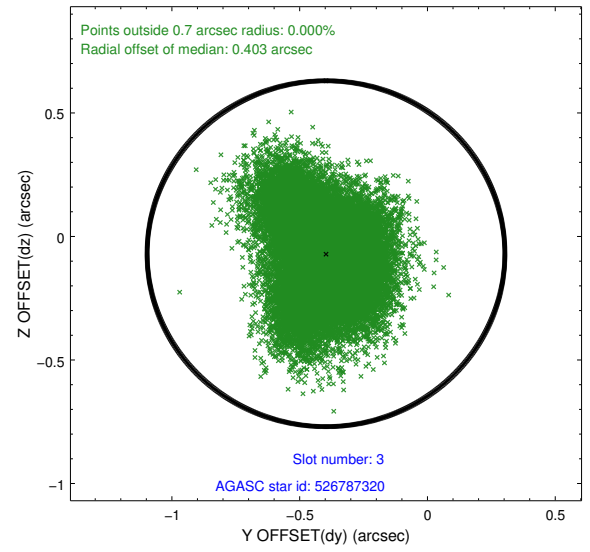
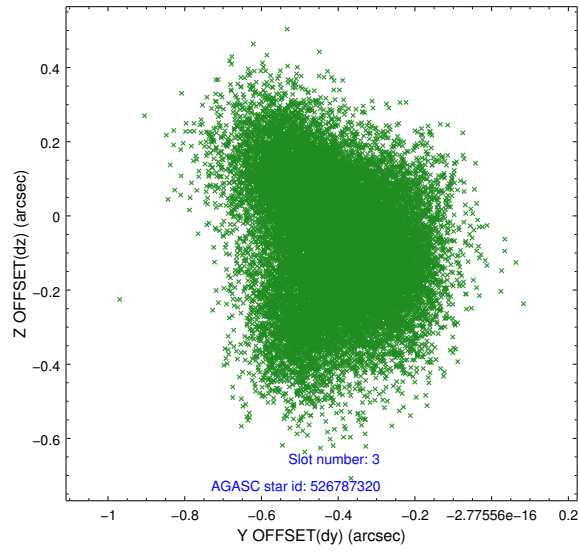


Slot Statistics

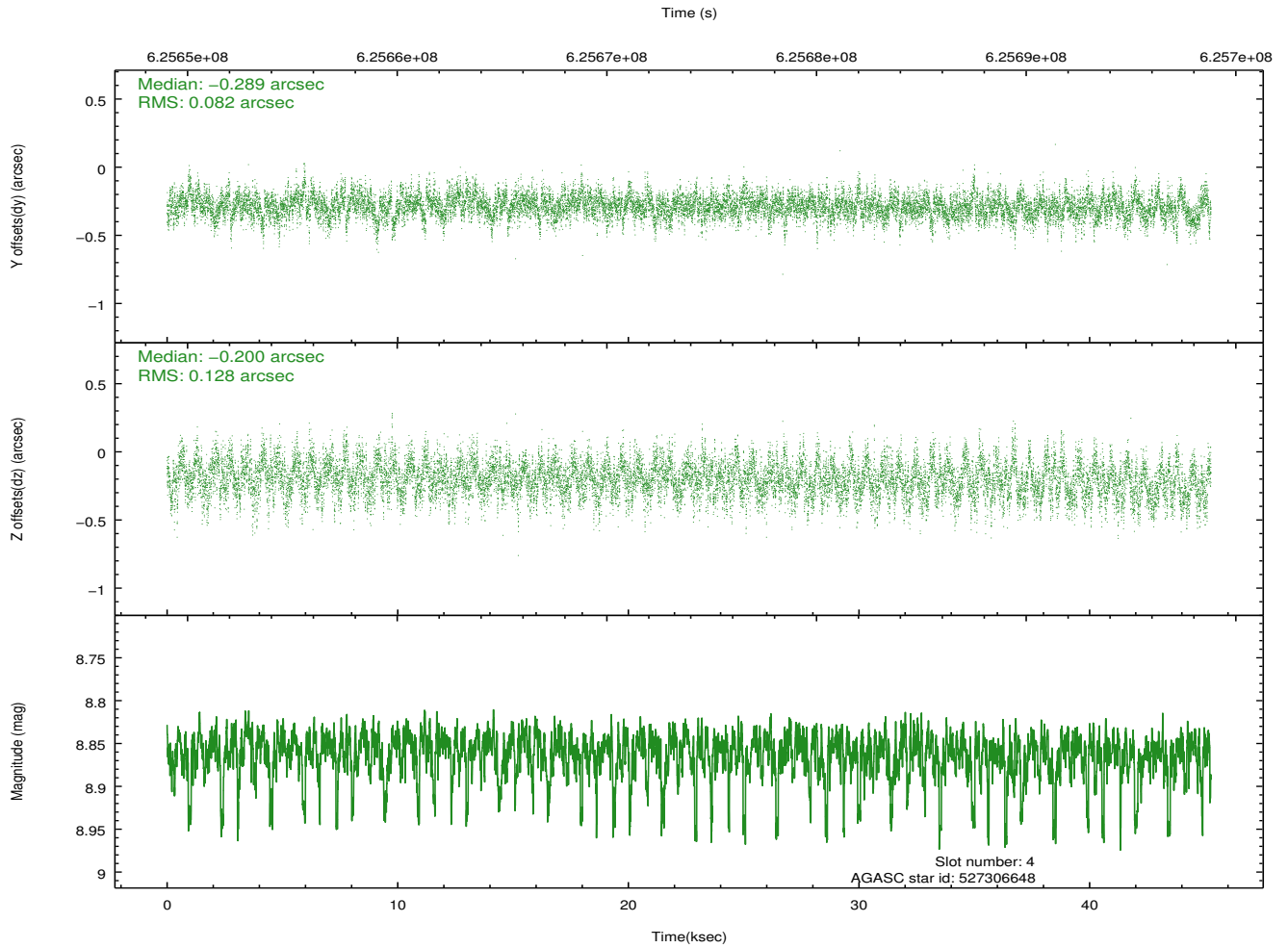
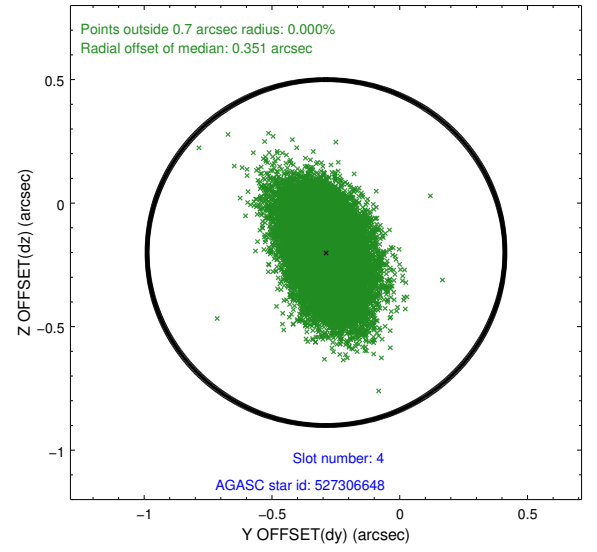
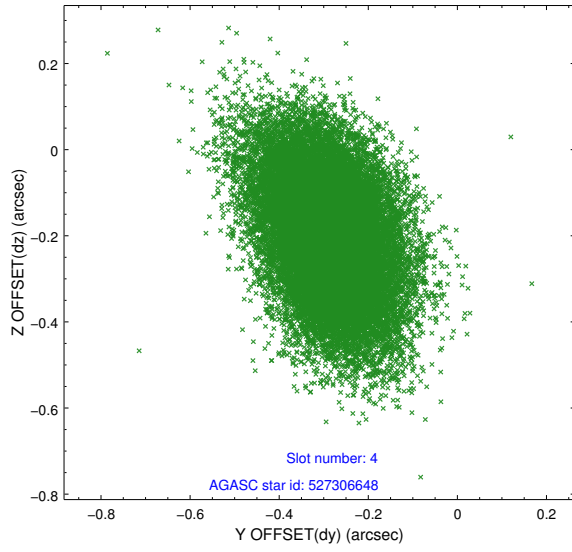
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-1	7.22	11040	0.014	-0.111	0.015	0.041	0.000000	0.000000	922.35	-1738.11
1	FID		ACIS-S-4	7.25	11040	0.435	0.075	0.018	0.032	0.000000	0.000000	2140.10	166.27
2	FID		ACIS-S-5	7.24	11039	-0.479	0.049	0.023	0.044	0.000000	0.000000	-1827.09	159.69
3	GUIDE	used	526787320	9.38	22050	-0.397	-0.070	0.218	0.359	6.103299	63.719181	1222.86	1056.44
4	GUIDE	used	527306648	8.86	22068	-0.289	-0.200	0.158	0.272	6.477351	63.853785	457.82	1000.90
5	GUIDE	used	527307888	8.43	22057	0.117	-0.111	0.185	0.289	4.965121	64.287990	1486.79	-1654.49
6	GUIDE	used	527309096	8.26	22068	0.386	-0.126	0.139	0.237	7.726277	64.064373	-1599.36	1486.73
7	GUIDE	used	527310400	7.72	22072	0.188	0.511	0.137	0.227	6.292387	64.638680	-922.93	-1480.41

2.4 Star Slots

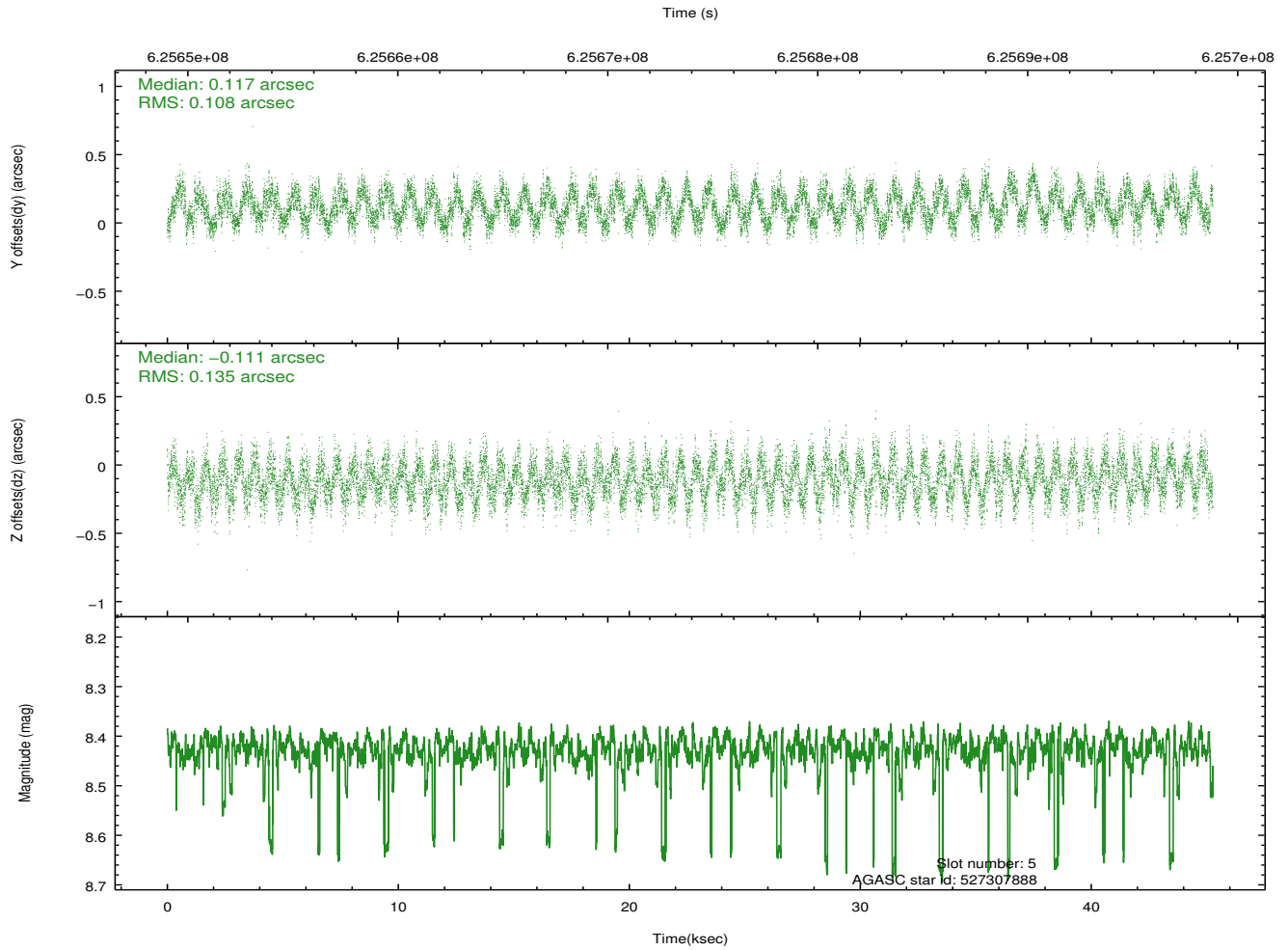
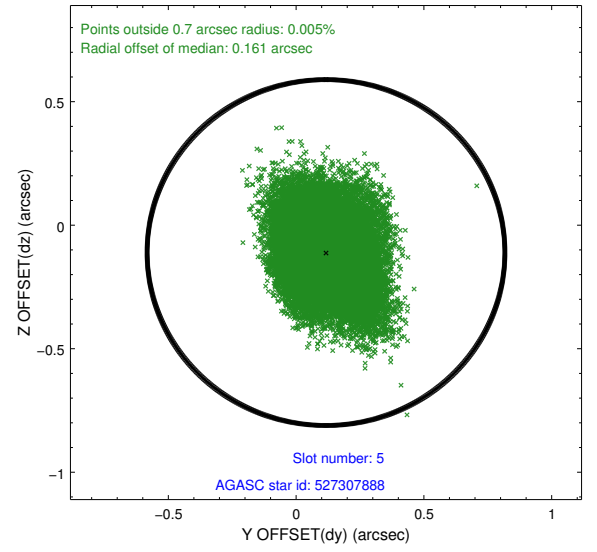
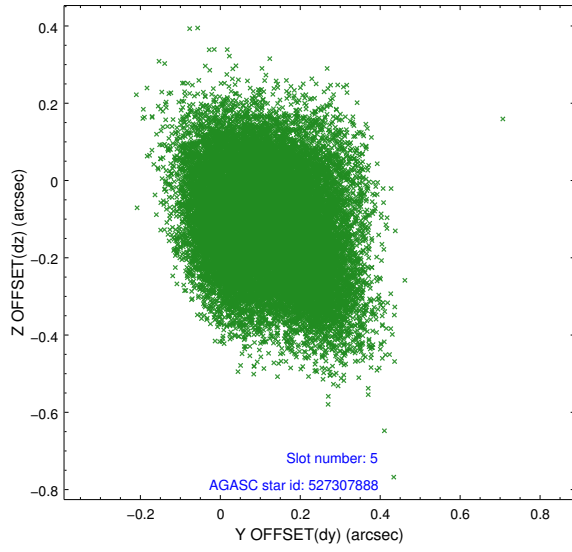
2.4.1 Slot 3



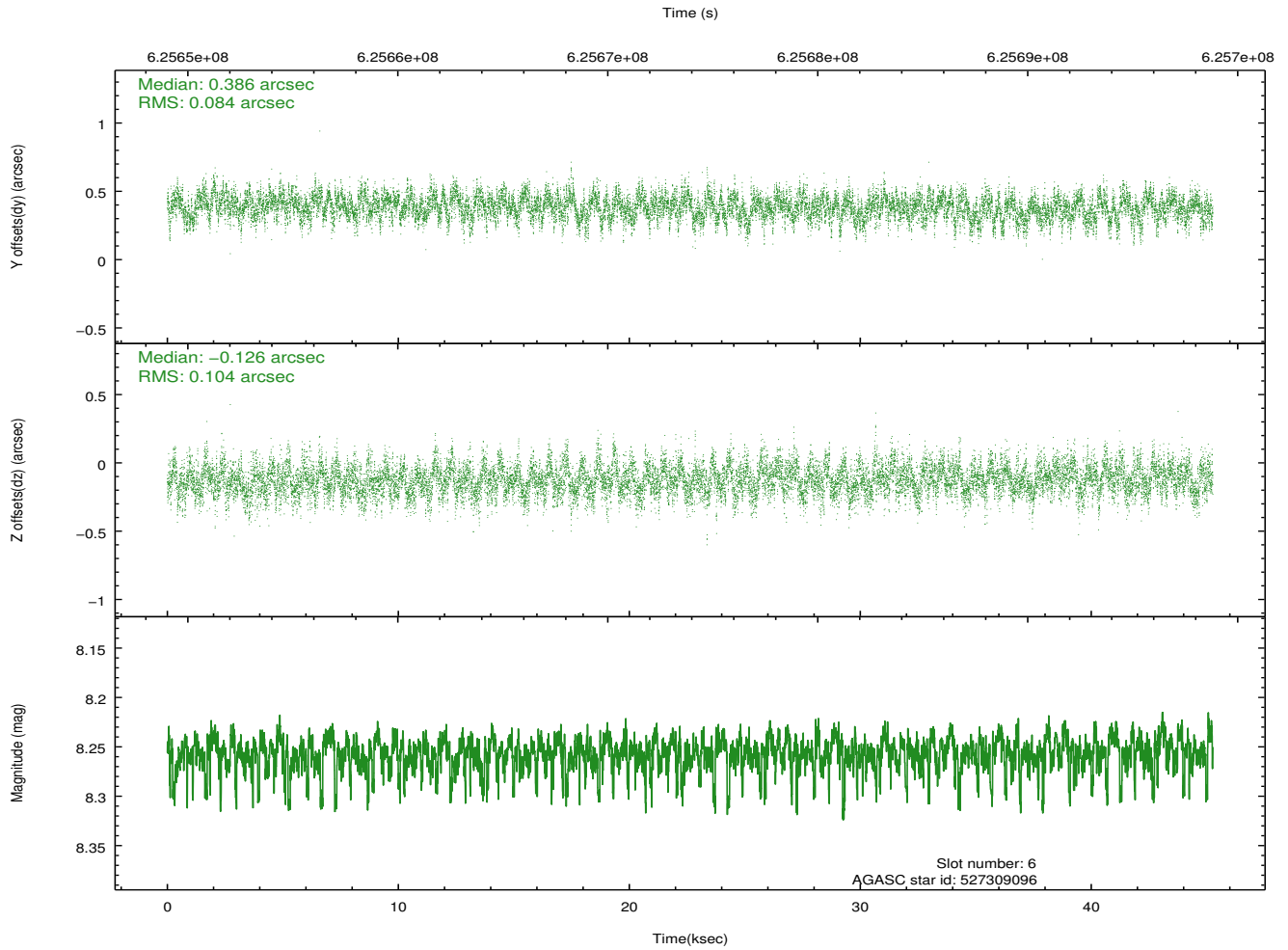
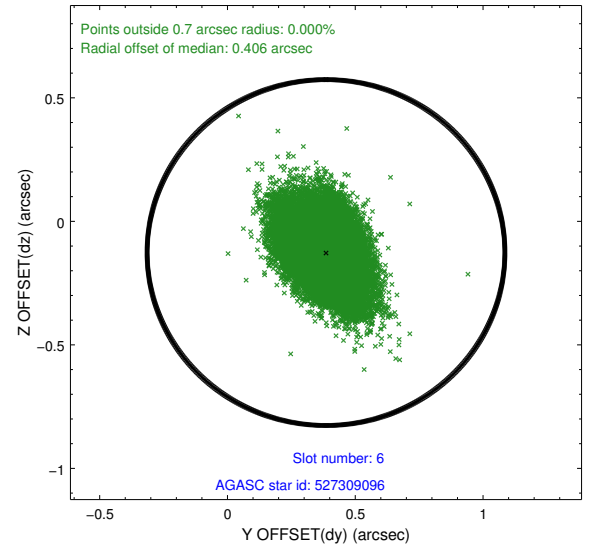
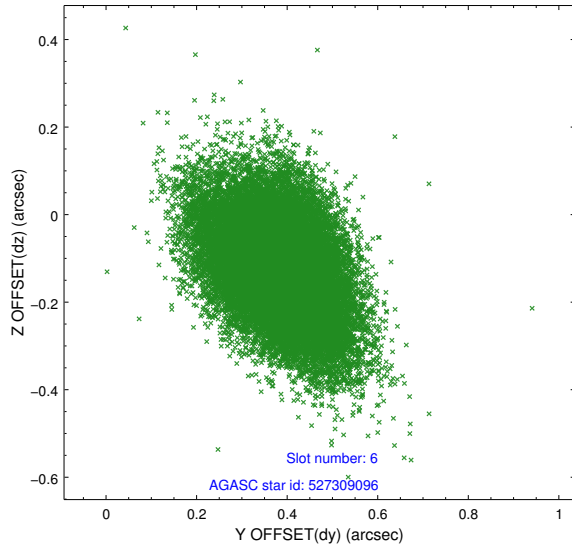
2.4.2 Slot 4



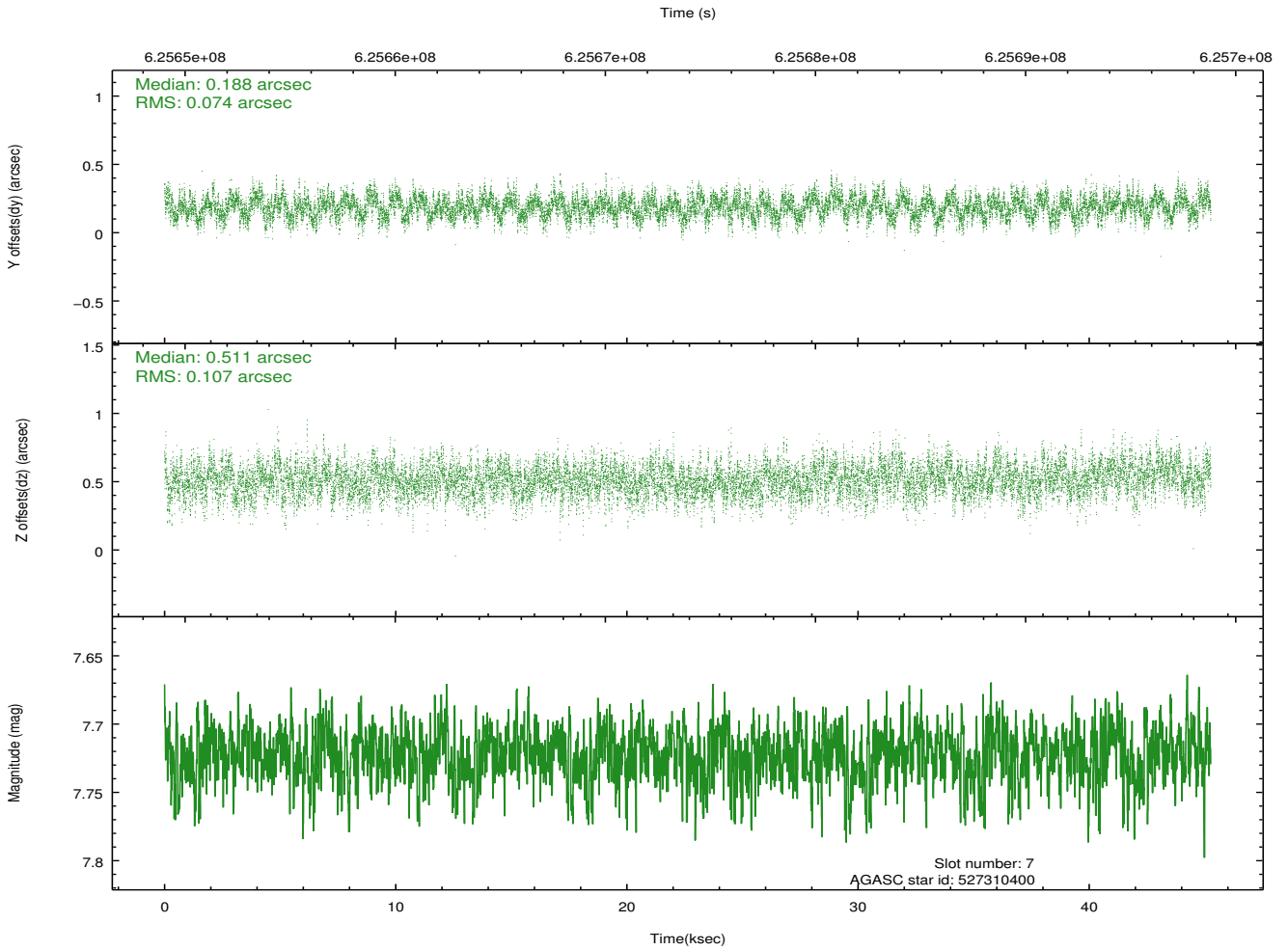
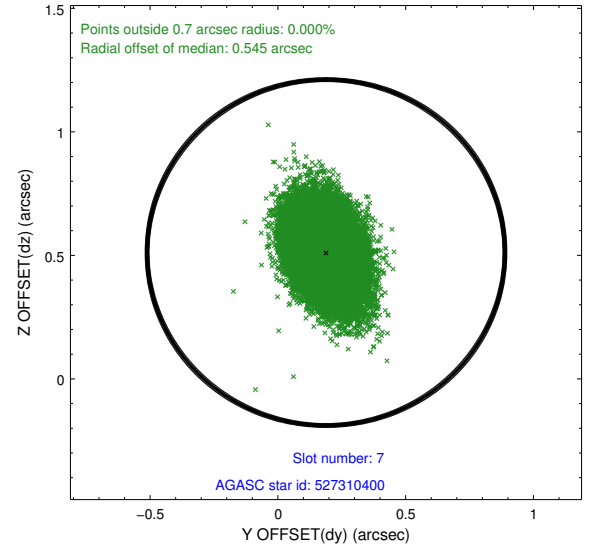
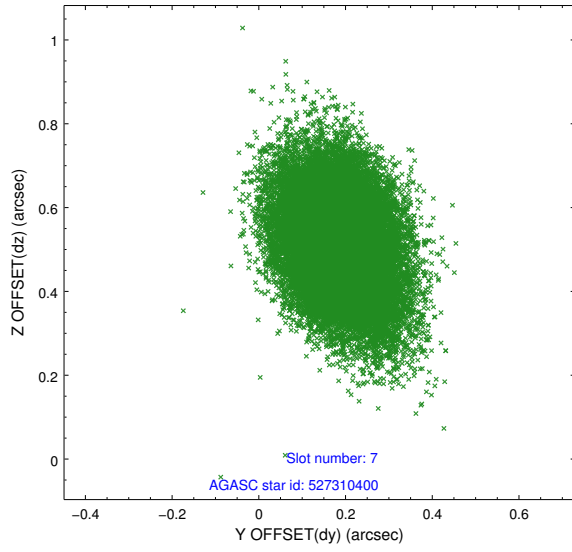
2.4.3 Slot 5



2.4.4 Slot 6

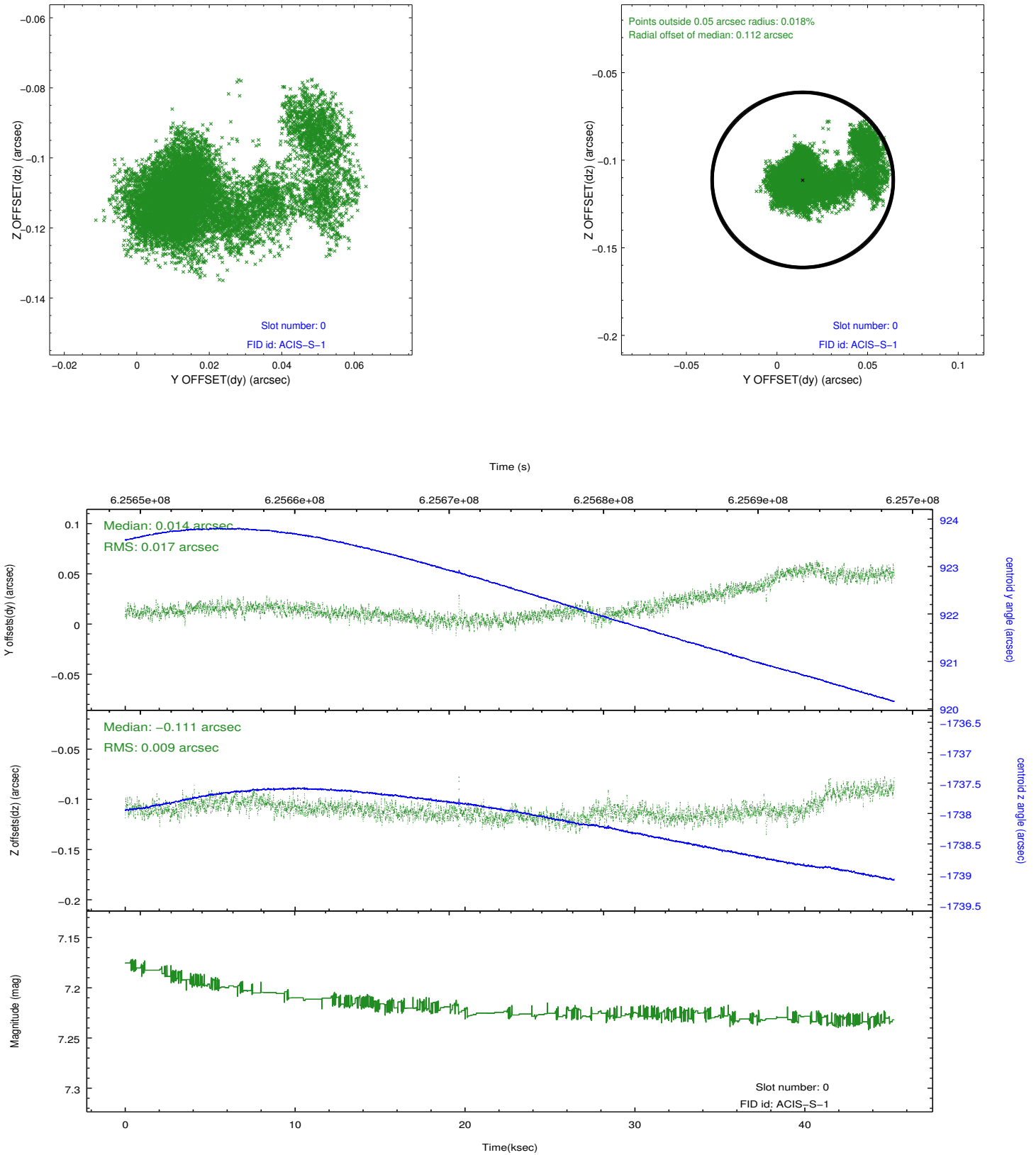


2.4.5 Slot 7

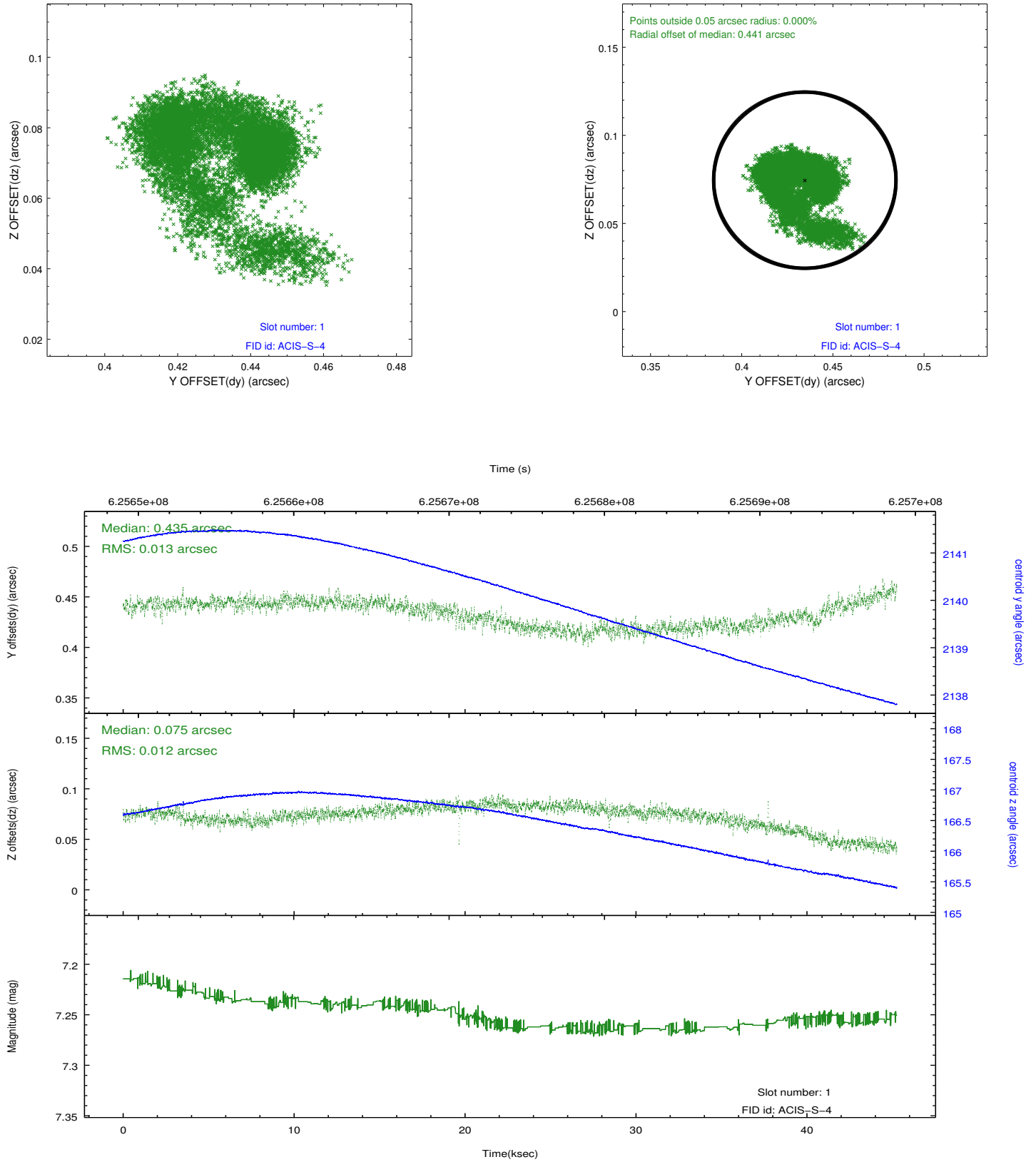


2.5 FID Slots

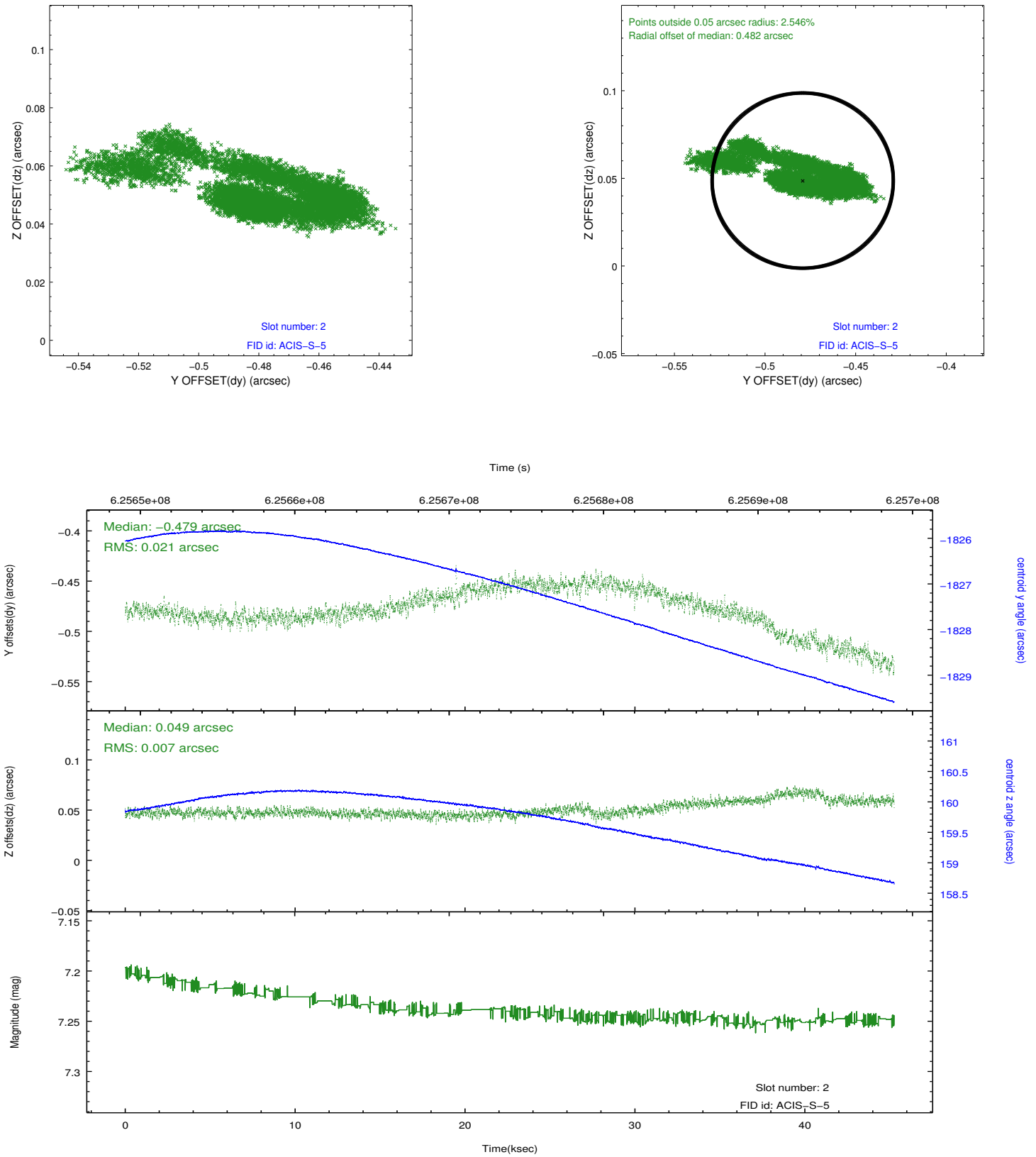
2.5.1 Slot 0



2.5.2 Slot 1

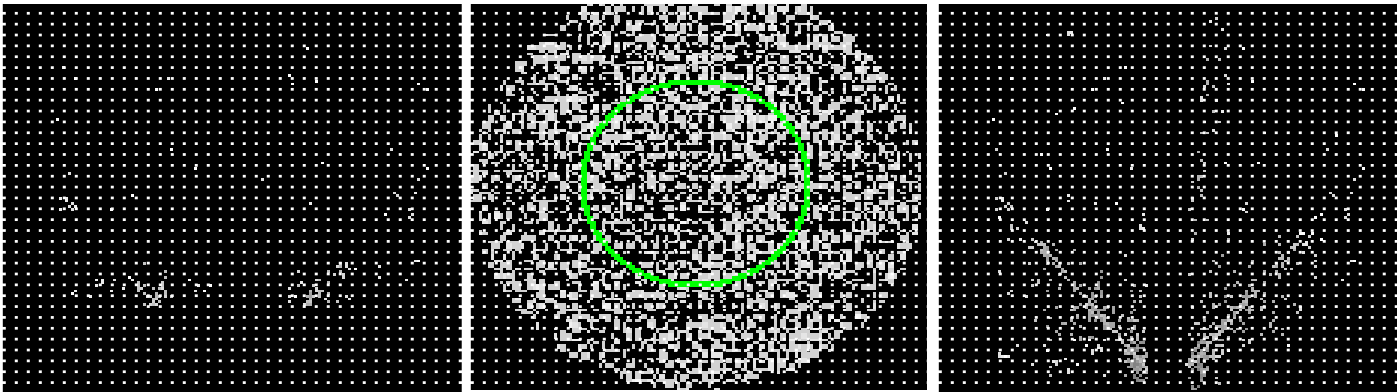


2.5.3 Slot 2



3 Gratings

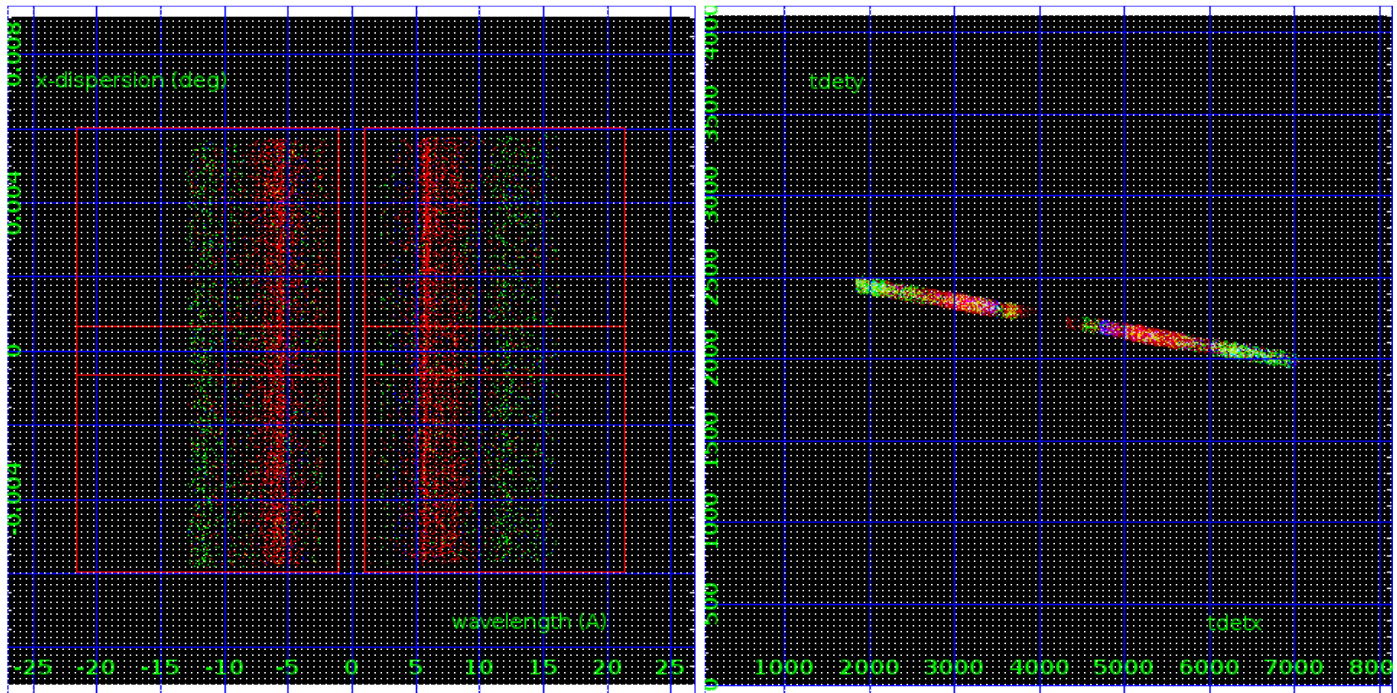
3.1 HEG Arm



HEG Order Sort 123

HEG Zero Order

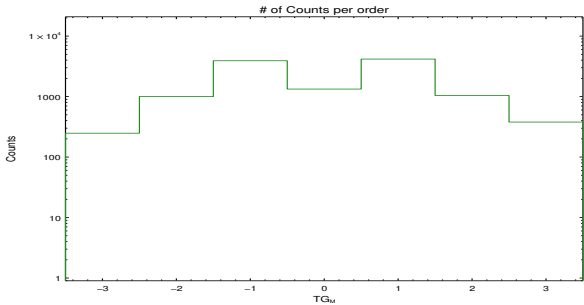
HEG Order Sort ALL

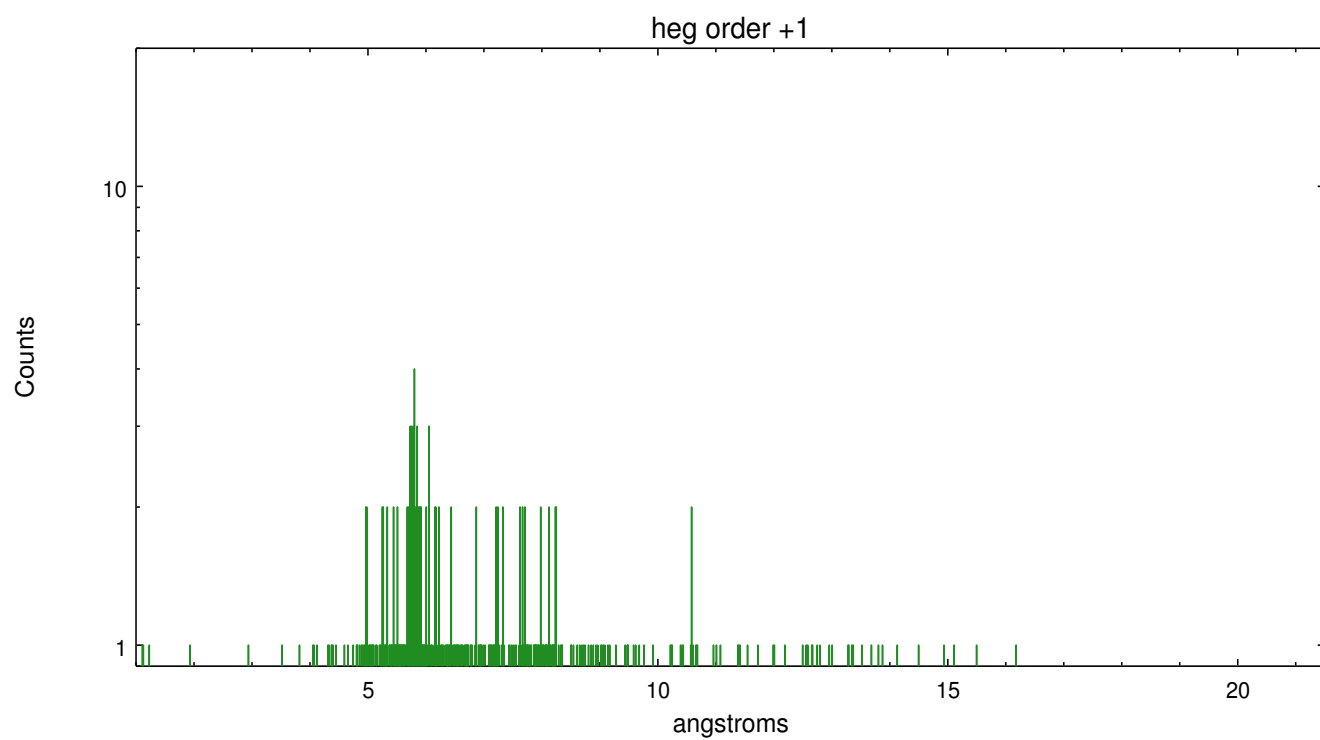
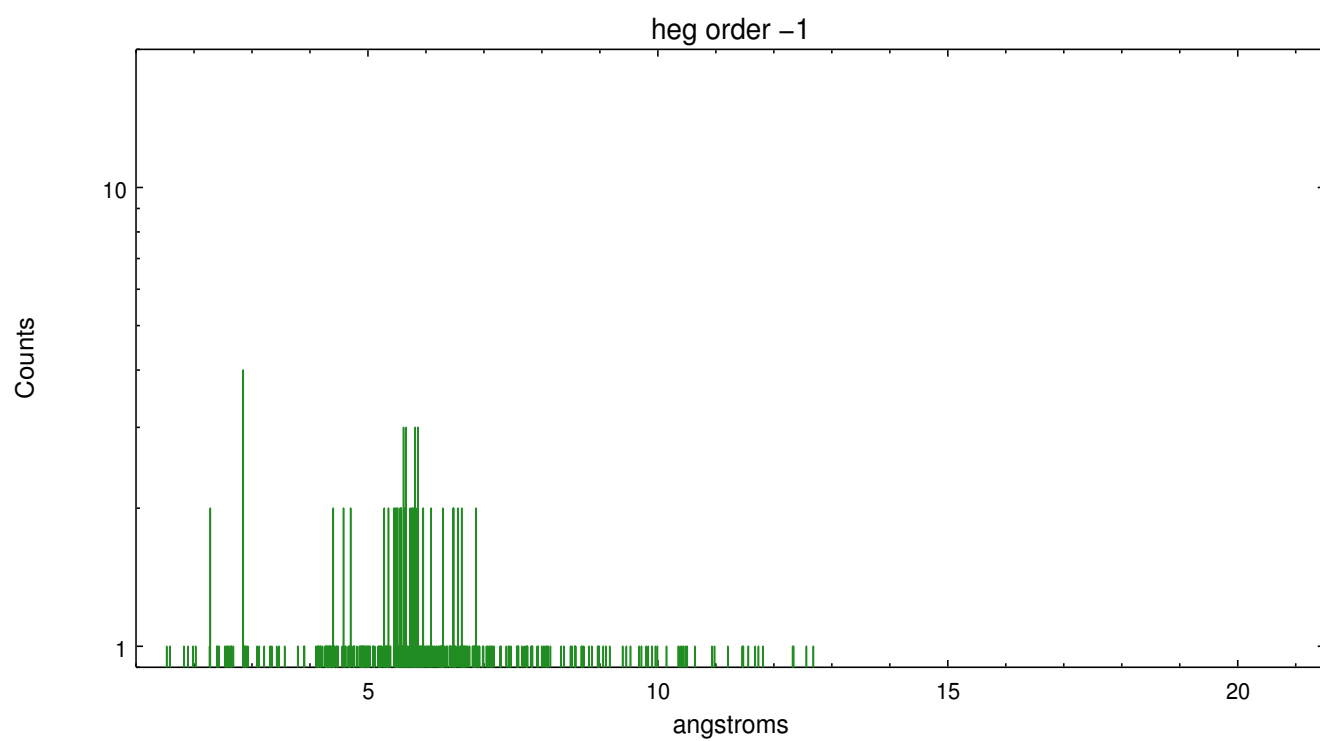


Spot Image HEG

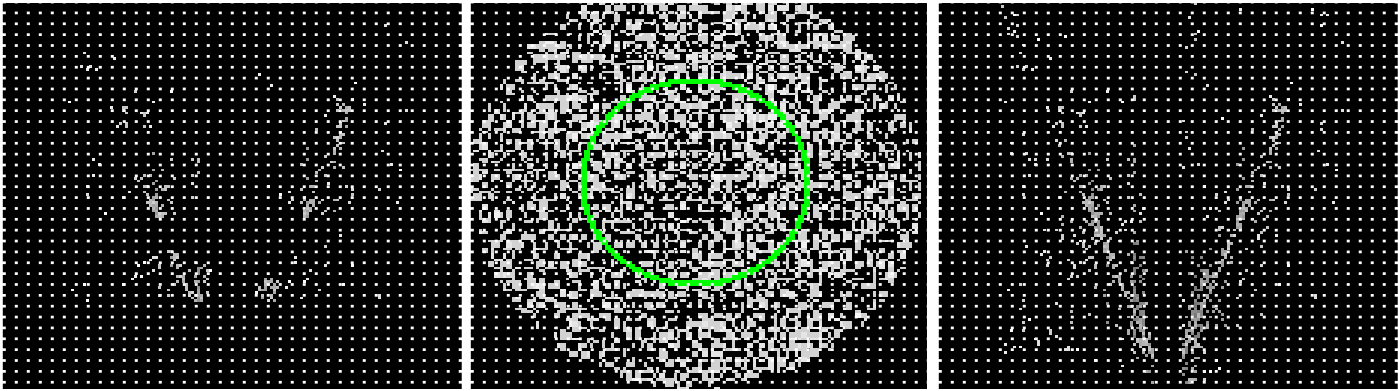
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	248	1001	3915	1331	4173	1043	379





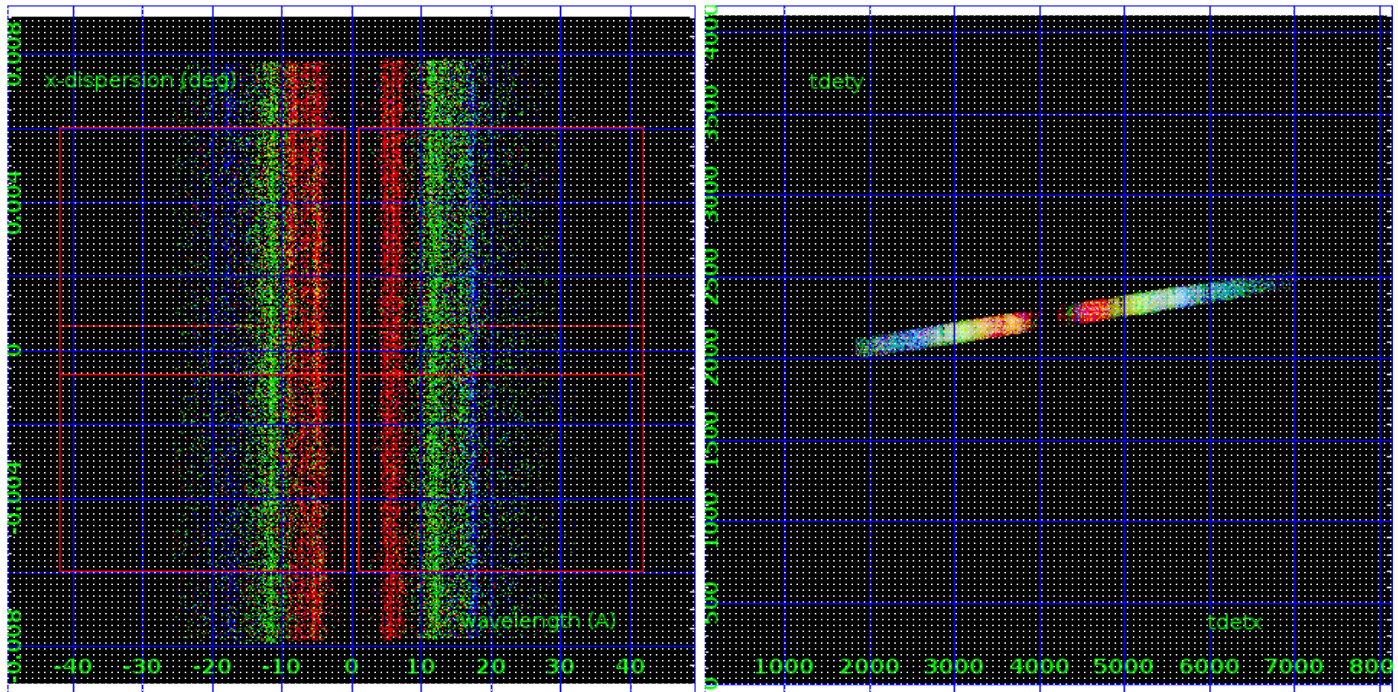
3.2 MEG Arm



MEG Order Sort 123

MEG Zero Order

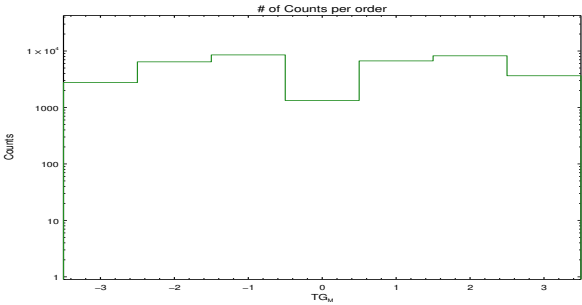
MEG Order Sort ALL

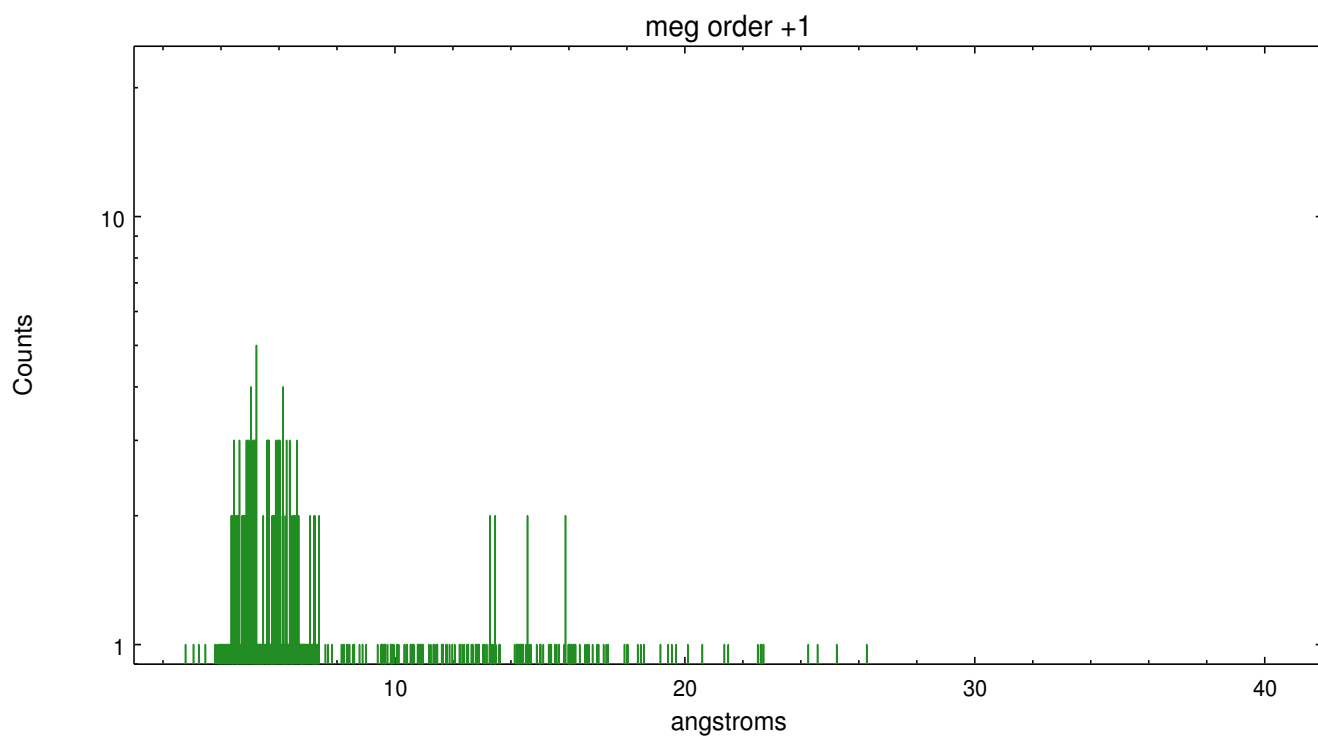
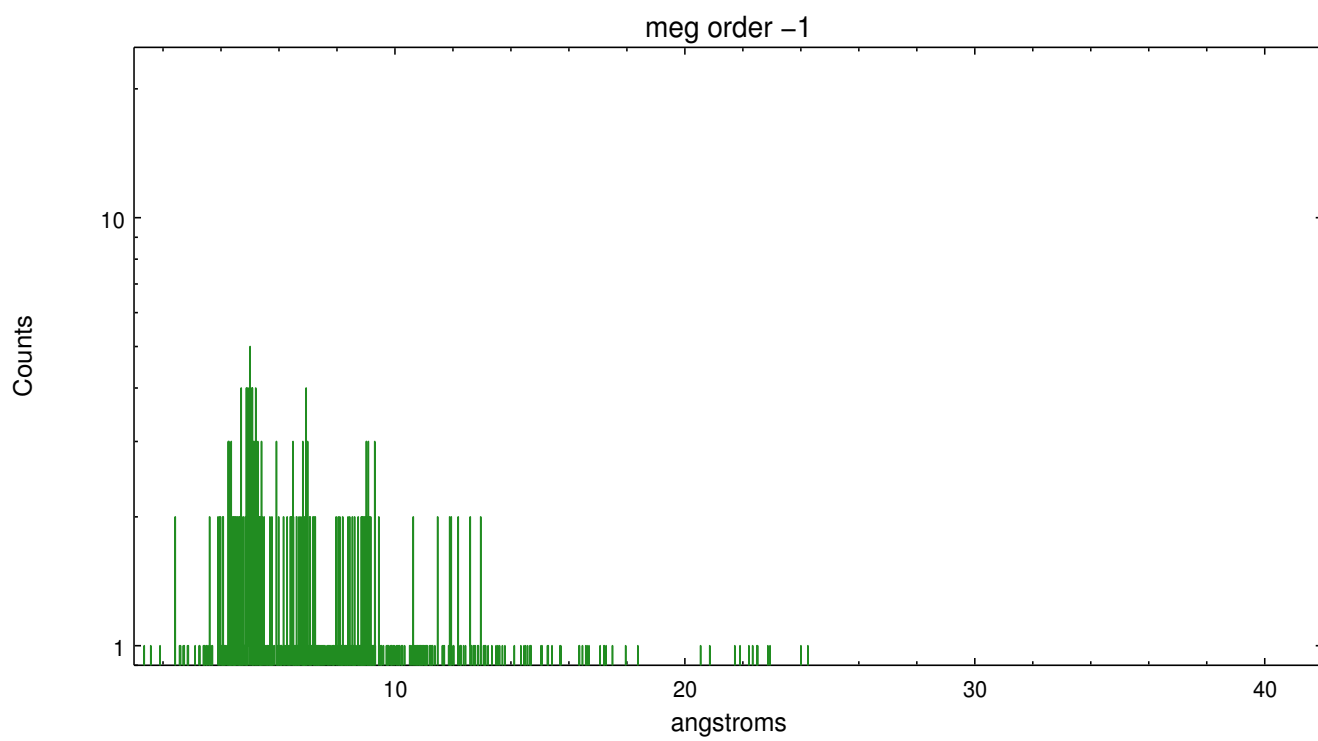


Spot Image MEG

Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	2764	6433	8537	1331	6683	8228	3649





A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2017.10.30
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	45.089183069348

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.