

V&V Reference Report

L2 ASCDS Version : 8.4.5

Observation 433 - L2 Version 8
Chandra X-Ray Center

L2 Processing Date : May 31 2013

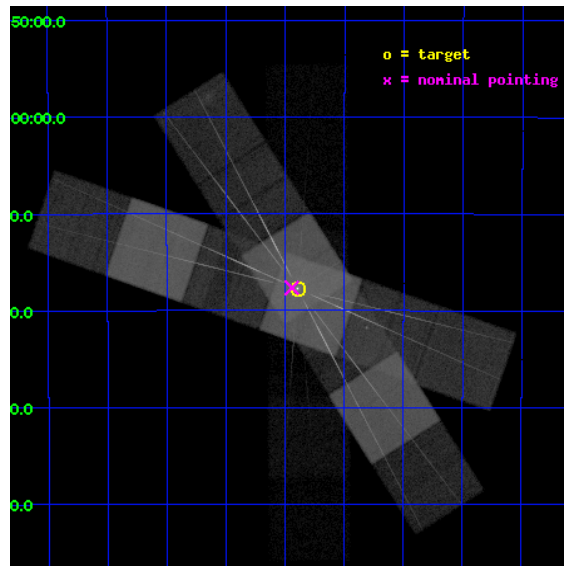
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1 Front

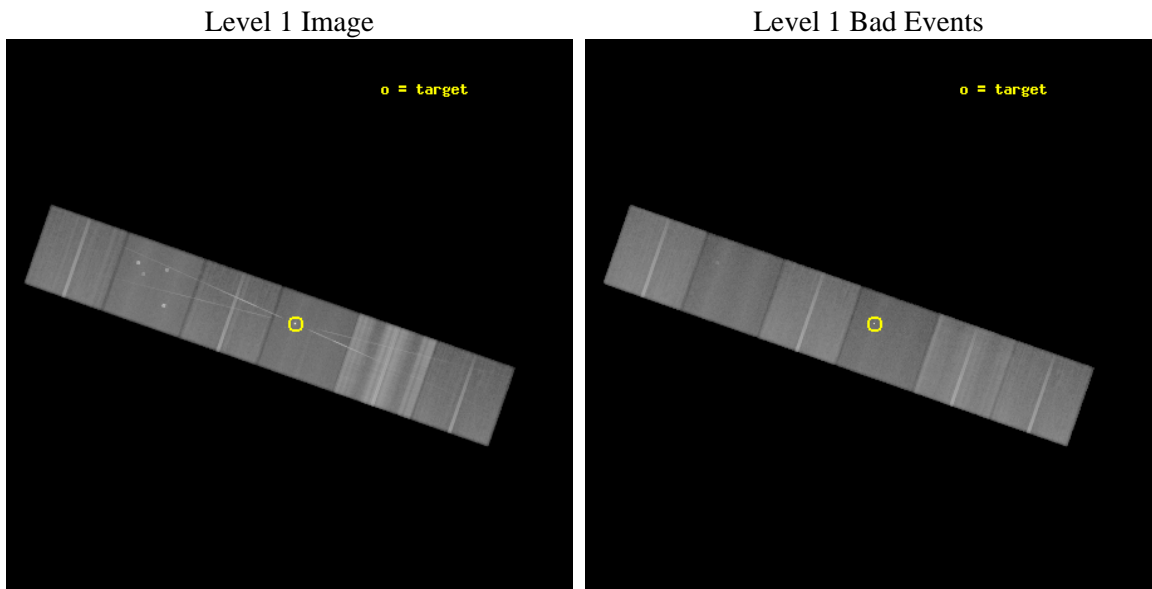
seq_num	700105	Sequence number
obs_id	433	Observation id
title	HETG OBSERVATIONS OF VARIOUS ACTIVE GALACTIC NUCLEI	Proposal title
observer	Canizares Fabian	Principal investigator
object	MCG -6-30-15	Source name
dtycycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	203.97375	Observer's specified target RA [deg]
dec_targ	-34.295833	Observer's specified target Dec [deg]
ra_nom	203.98582032648	Nominal RA [deg]
dec_nom	-34.294325874014	Nominal Dec [deg]
roll_nom	19.149038884454	Nominal Roll [deg]
revision	8	Processing version of data
ontime	133067.65978754	Sum of GTIs [s]
livetime	131382.67695558	Livetime [s]
ontime4	133077.46186262	Sum of GTIs [s]
ontime5	133067.5777674	Sum of GTIs [s]
ontime6	133067.49602629	Sum of GTIs [s]
ontime7	133067.65978754	Sum of GTIs [s]
ontime8	133057.69101569	Sum of GTIs [s]
ontime9	133070.57238793	Sum of GTIs [s]
l2events	1560160	Number of level 2 events



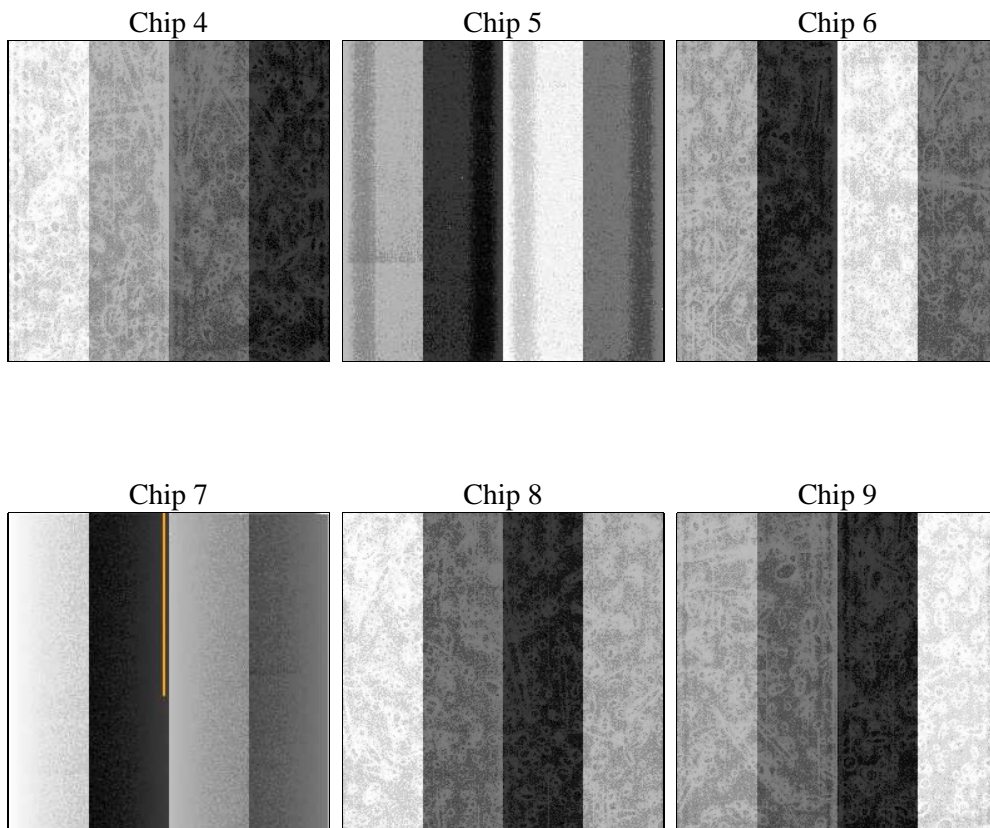
2 OBI

2.1 OBI

2.1.1 Images



2.1.2 Bias



2.1.3 Parameters

obi_num	1	Obi number	sched_exp_time	110000.000000	[s] Scheduled observation exposure time
ascdsver	8.5.1.1	Processing system revision	ontime	65785.107760727	Sum of GTIs [s]
caldbver	4.5.5	 	ontime4	65791.590079933	Sum of GTIs [s]
date	2013-01-23T00:12:13	Date and time of file creation	ontime5	65785.107790664	Sum of GTIs [s]
revision	5	Processing version of data	ontime6	65781.86708954	Sum of GTIs [s]
			ontime7	65785.107760727	Sum of GTIs [s]
			ontime8	65778.626298785	Sum of GTIs [s]
			ontime9	65788.348651186	Sum of GTIs [s]
			l1events	4760339	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	714083	669925	700876	623061	1432585	619809	grade 0 events	42096	48055	50925	31537	217332	28449
rejected events	611215	352713	600012	339345	681830	547746		5%	7%	7%	5%	15%	4%
rejected %	85%	52%	85%	54%	47%	88%	grade 1 events	484	1641	385	1102	1874	250
								0%	0%	0%	0%	0%	0%
							grade 2 events	34040	89422	23497	60434	110623	19222
								4%	13%	3%	9%	7%	3%
							grade 3 events	5800	17322	6476	27320	131252	5600
								0%	2%	0%	4%	9%	0%
							grade 4 events	6243	16902	6386	27456	115624	5251
								0%	2%	0%	4%	8%	0%
							grade 5 events	15576	49360	17989	56635	31838	17638
								2%	7%	2%	9%	2%	2%
							grade 6 events	14926	146343	13864	137744	177474	13746
								2%	21%	1%	22%	12%	2%
							grade 7 events	594918	300880	581354	280833	646568	529653
								83%	44%	82%	45%	45%	85%

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	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	203.964151	203.985820326477	Subarray requested	NONE	NONE
[deg] Pointing Dec	-34.315130	-34.29432587401354	Alternating exposures requested	N	N
[deg] Pointing Roll	18.980188	19.14903888445444	[s] Primary exposure time	3.200000	3.2
[mm] SIM focus pos	-0.684267	-0.6828225247311905			
[mm] SIM defocus	0	0.001444936568705701			
[mm] SIM translation stage pos	-187.132523	-187.1228876879999			
[mm] SIM translation stage offset	-3	-3.009634895007935			
[s] Observation start time (MET)	71323845.184000	71322523.59002499			
Observation start date	2000-04-05T12:09:41	2000-04-05T11:48:43			
[s] Observation end time (MET)	71433845.184000	71435646.181669			
Observation end date	2000-04-06T18:43:01	2000-04-06T19:14:06			
Read mode	TIMED	TIMED			

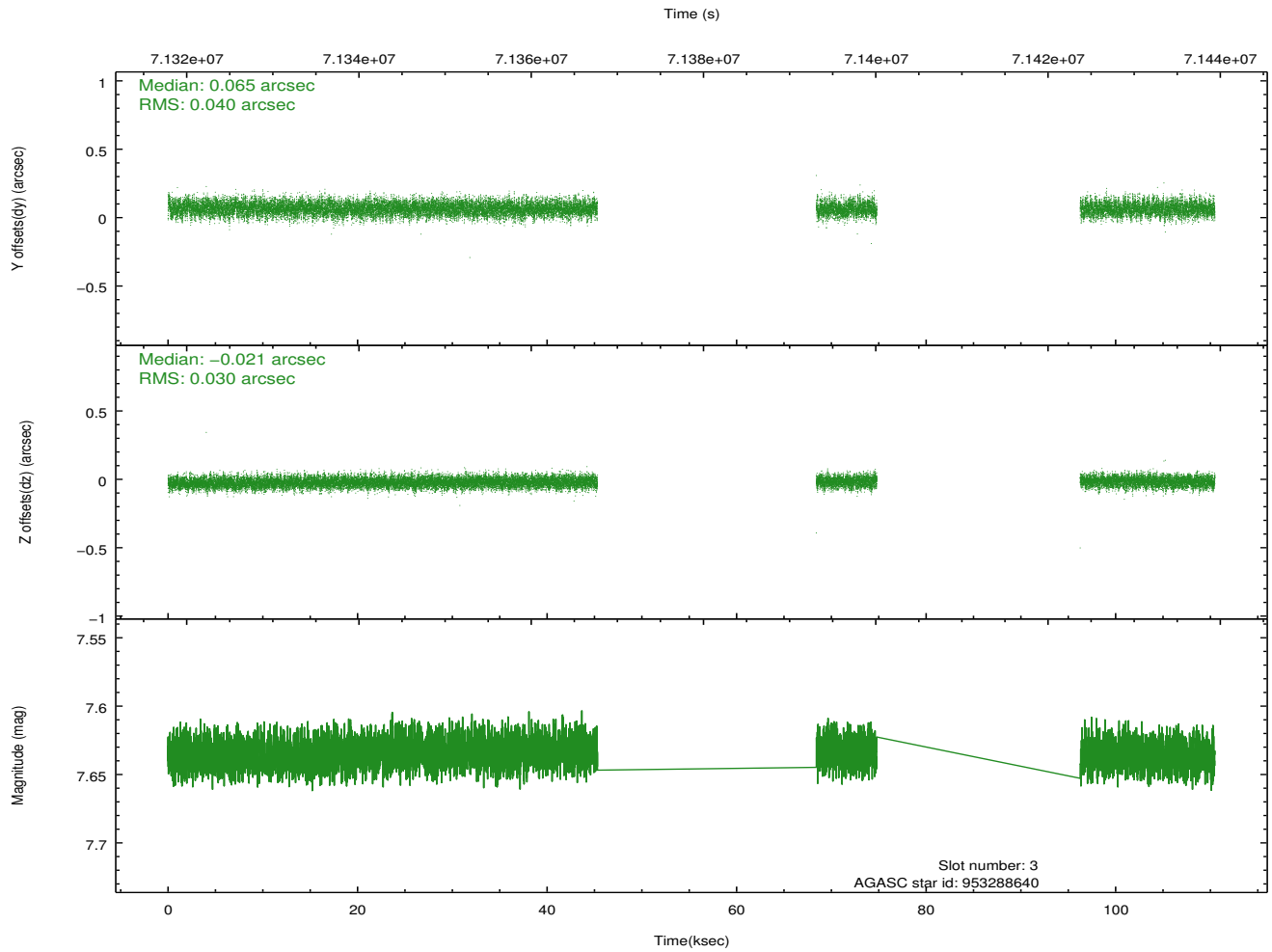
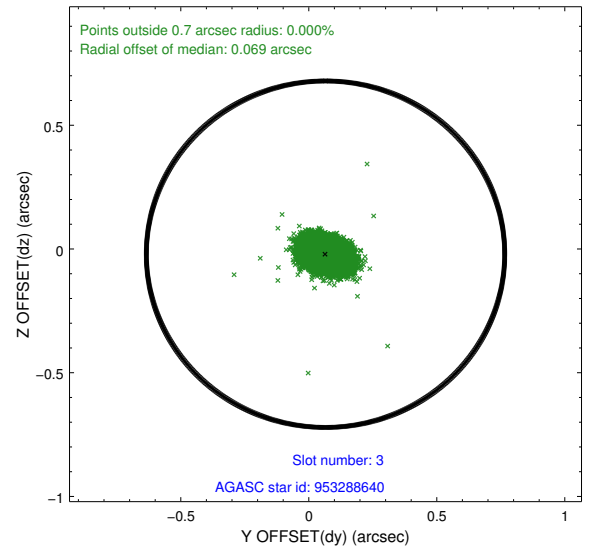
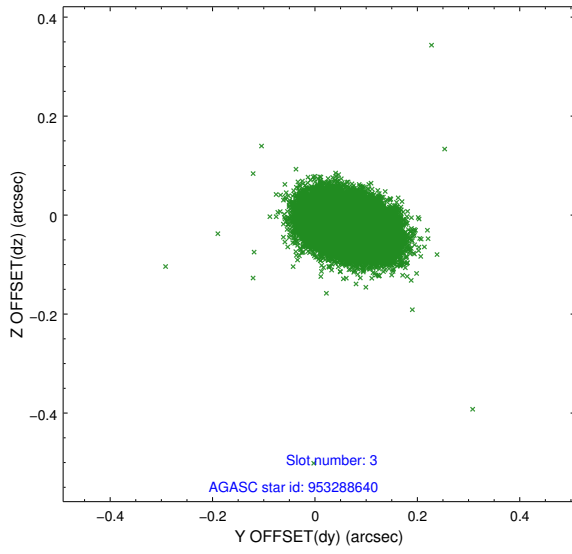
2.3 Aspect

Slot Statistics

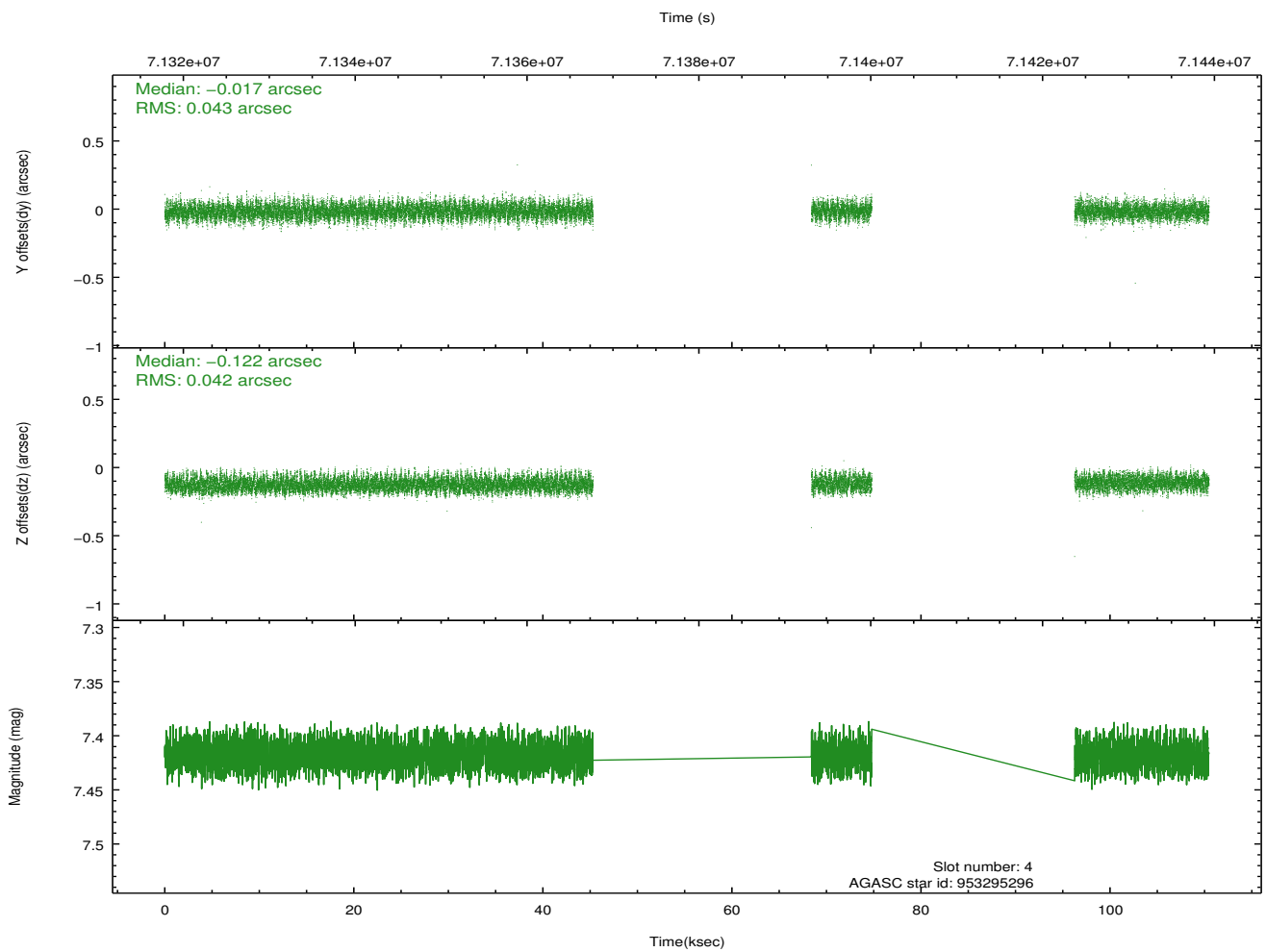
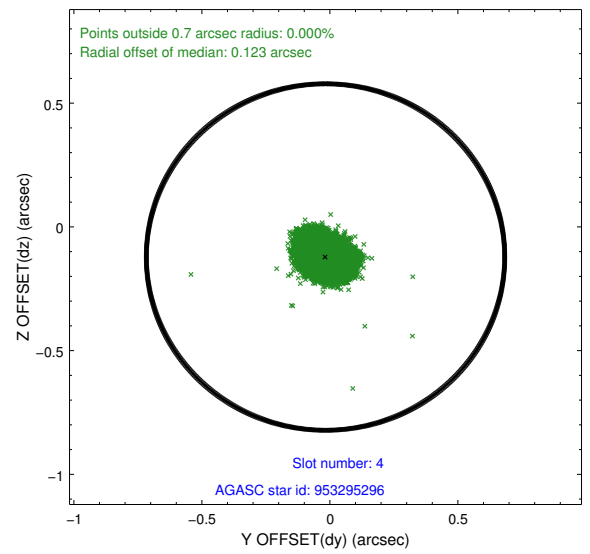
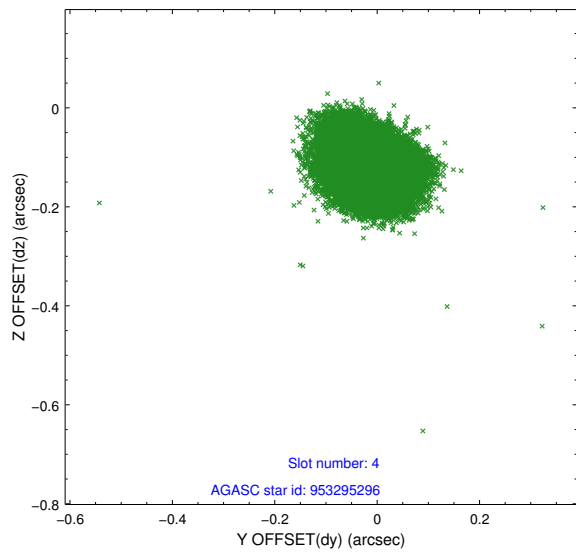
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	16066	-0.056	-0.029	0.008	0.013	0.000000	0.000000	-753.83	-1787.18
1	FID	ACIS-S-4	7.20	16064	0.017	0.035	0.007	0.013	0.000000	0.000000	2159.55	121.40
2	FID	ACIS-S-5	7.23	16068	0.007	0.003	0.008	0.012	0.000000	0.000000	-1806.67	114.99
3	GUIDE	953288640	7.64	32126	0.065	-0.021	0.053	0.087	203.543121	-34.069013	-899.14	1243.36
4	GUIDE	953295296	7.42	32127	-0.017	-0.122	0.064	0.101	203.563852	-34.387568	-1209.18	137.45
5	GUIDE	953288448	7.56	32051	-0.036	-0.041	0.052	0.084	203.869544	-34.017546	82.18	1104.54
6	GUIDE	953294840	8.46	32121	-0.149	0.152	0.076	0.123	204.478170	-34.846425	814.16	-2306.11
7	GUIDE	953296432	8.99	32121	0.135	0.031	0.066	0.110	204.411860	-34.306423	1269.48	-406.13

2.4 Star Slots

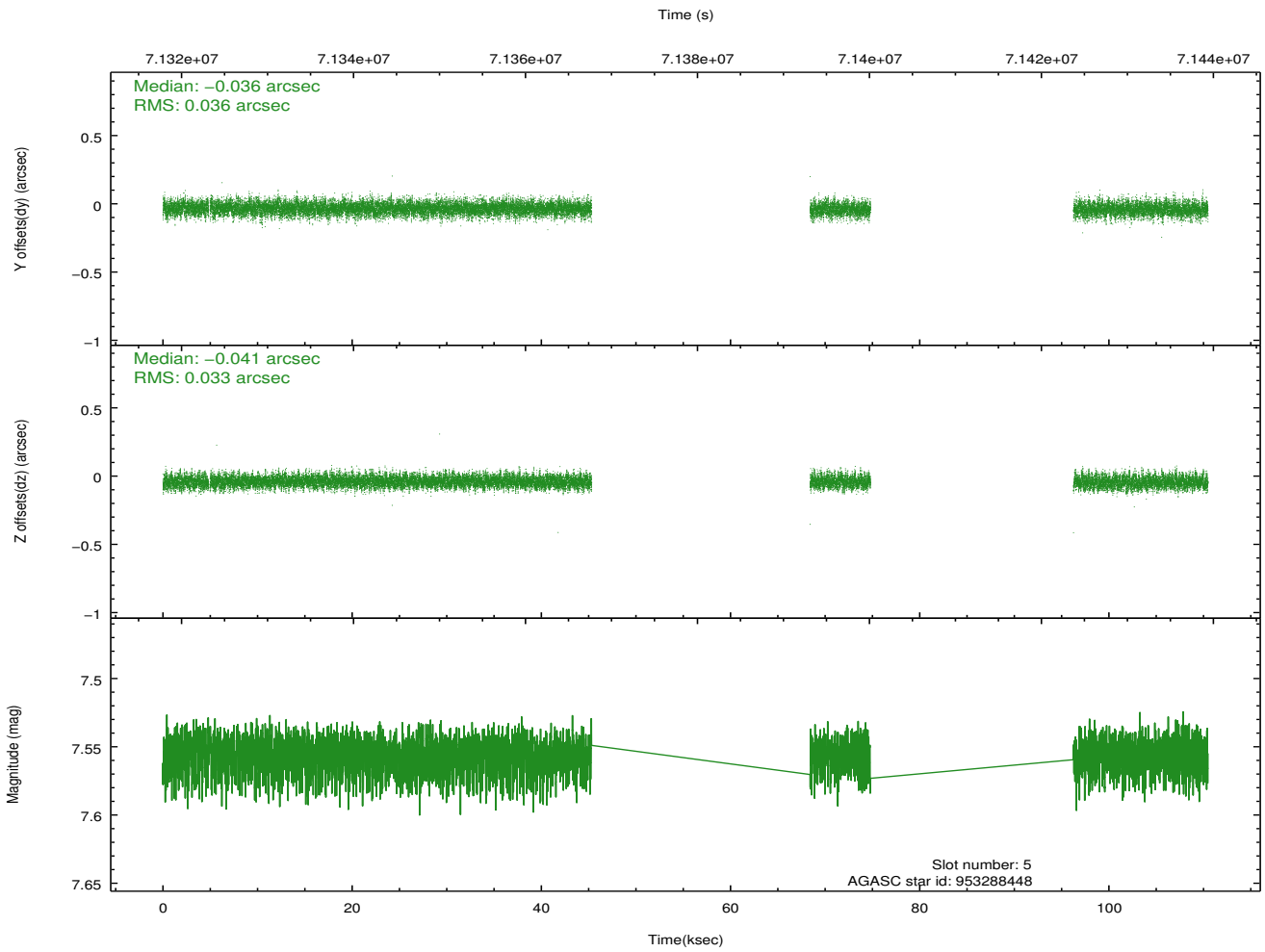
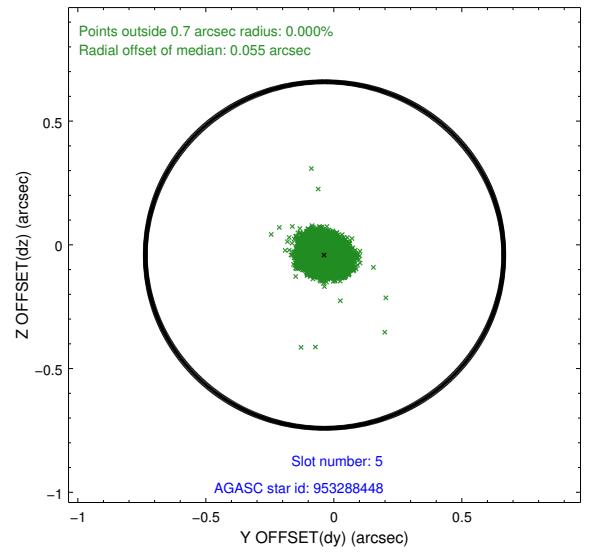
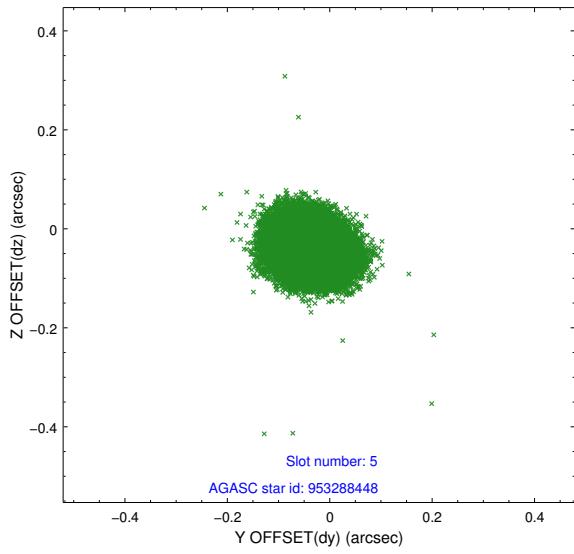
2.4.1 Slot 3



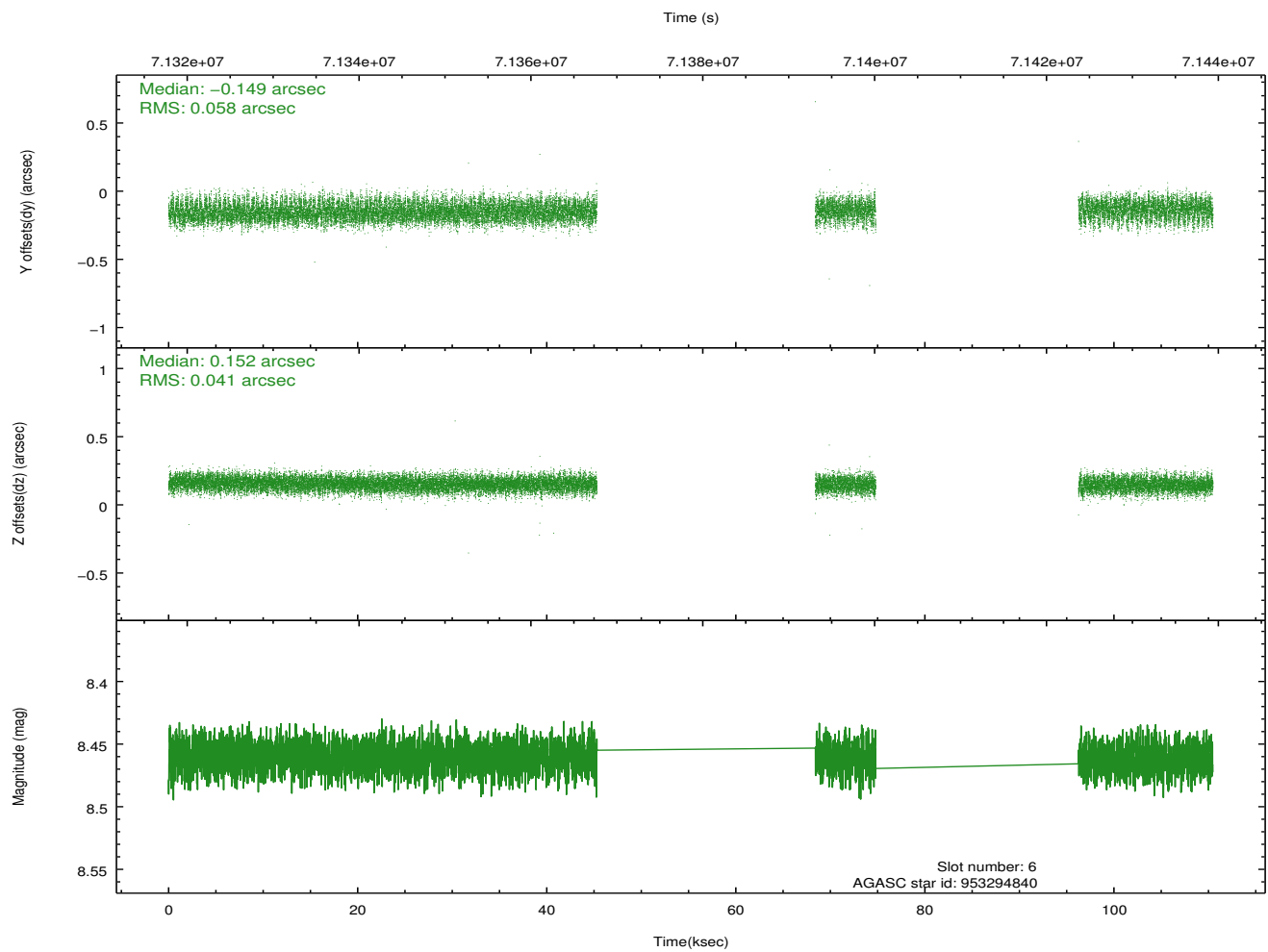
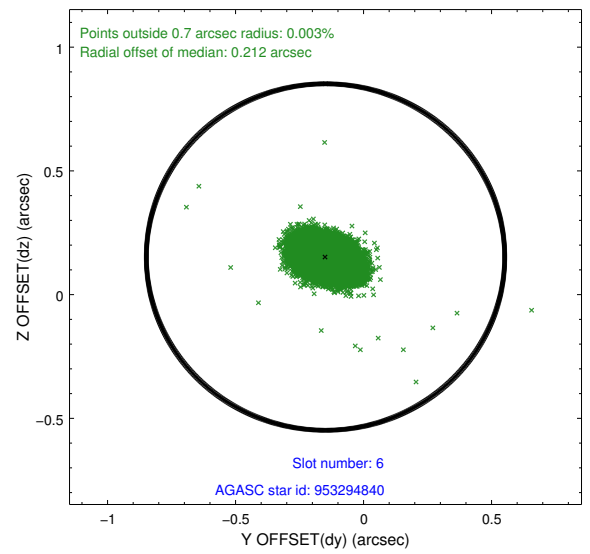
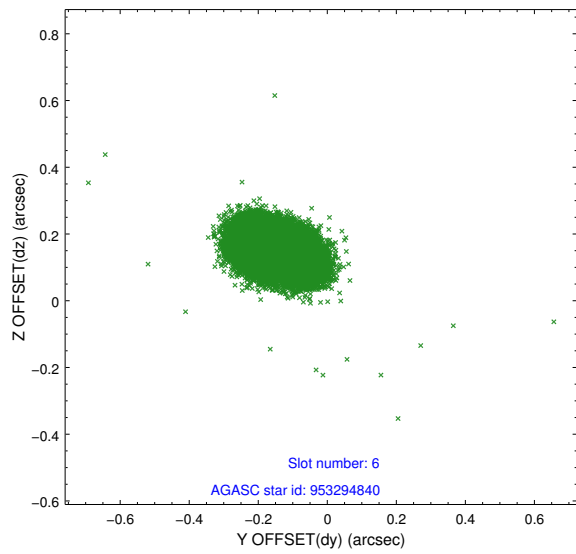
2.4.2 Slot 4



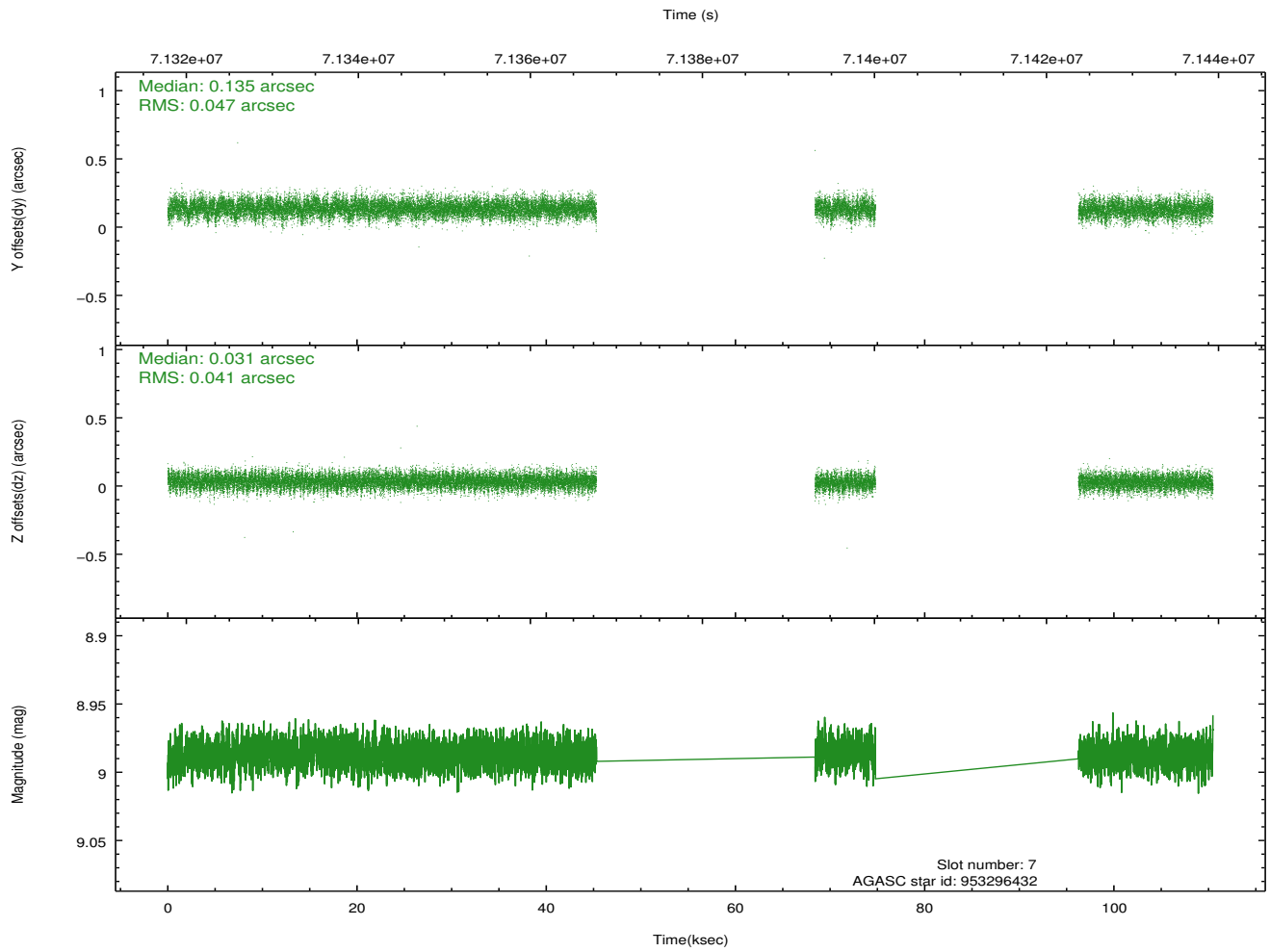
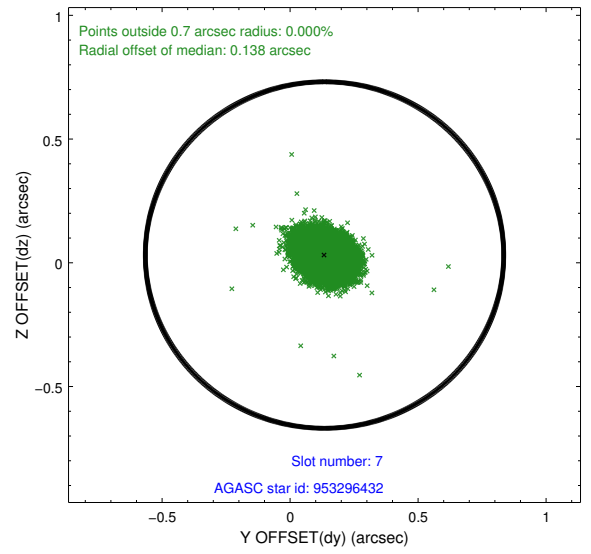
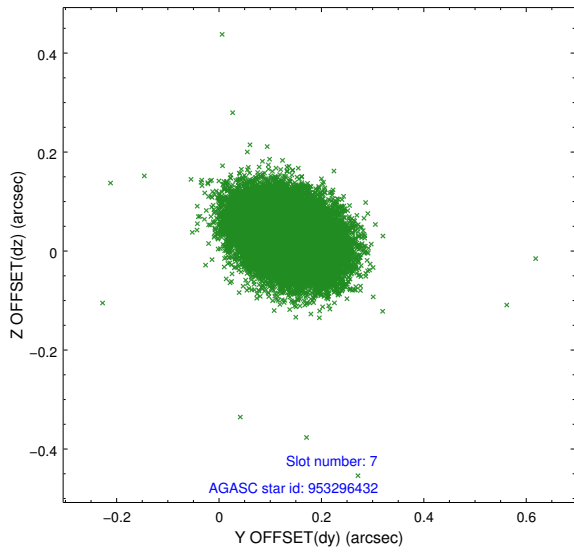
2.4.3 Slot 5



2.4.4 Slot 6

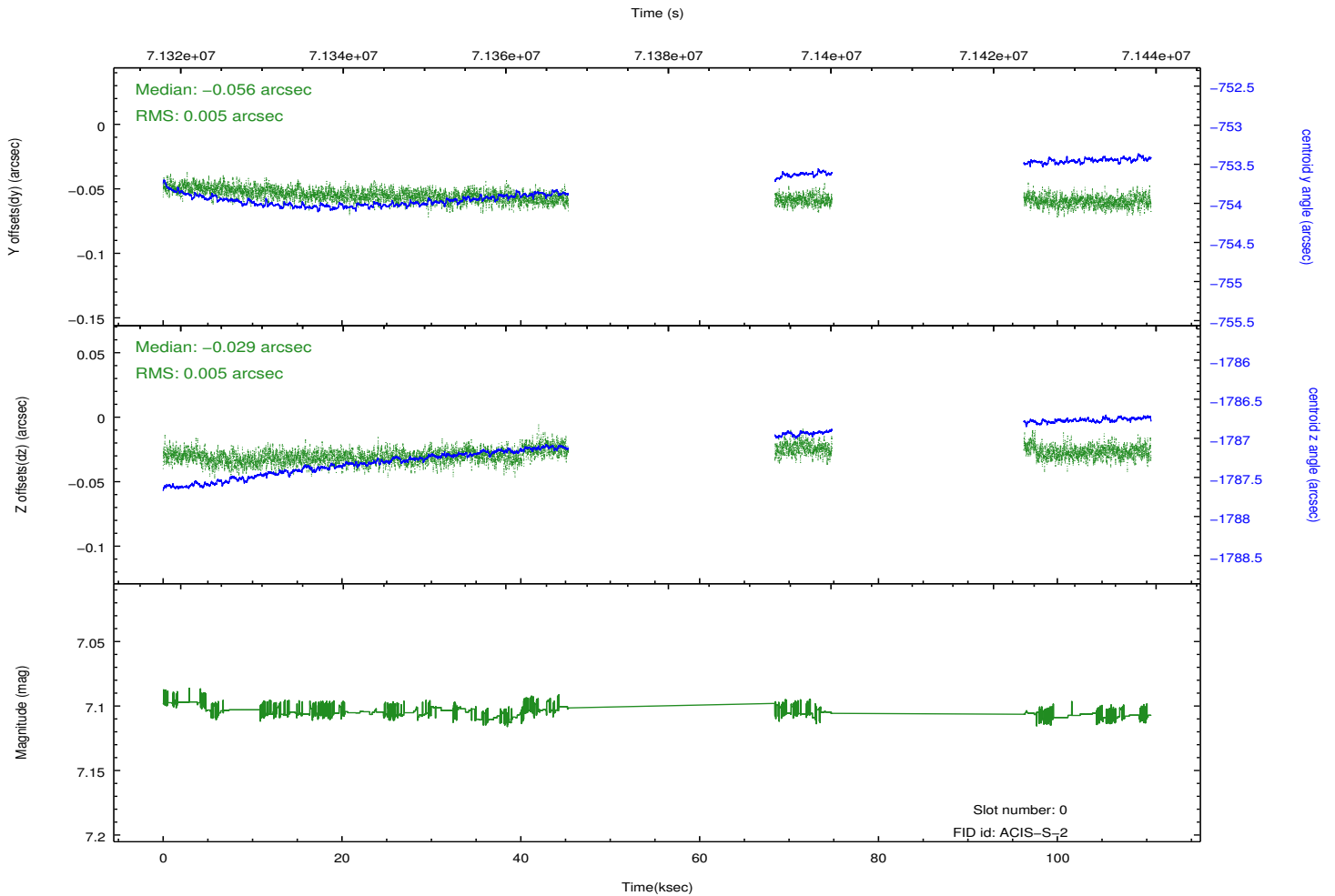
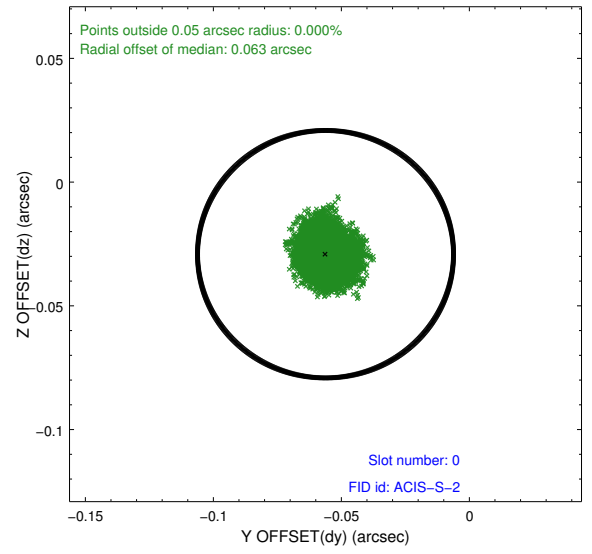
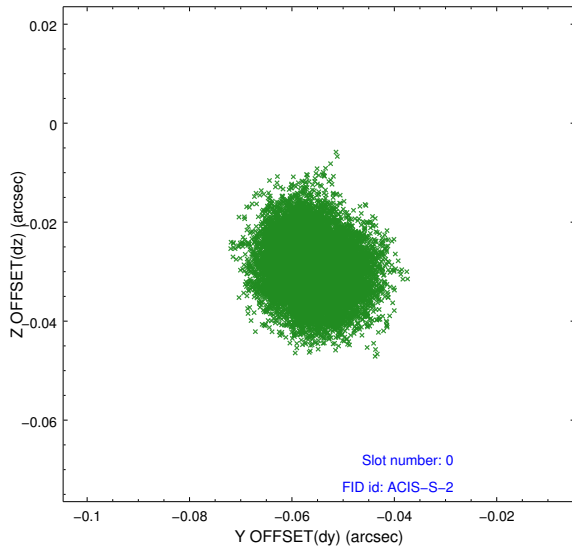


2.4.5 Slot 7

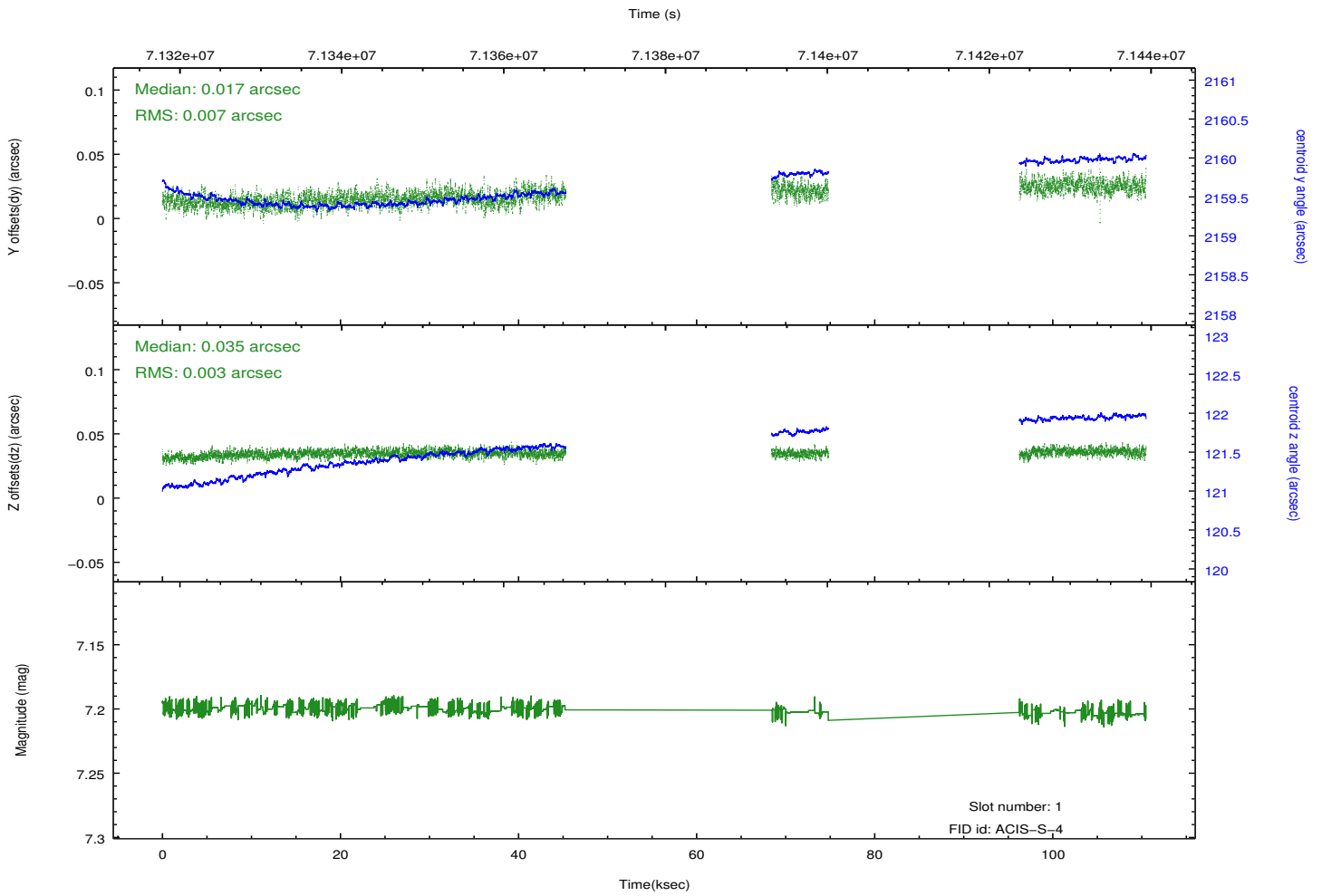
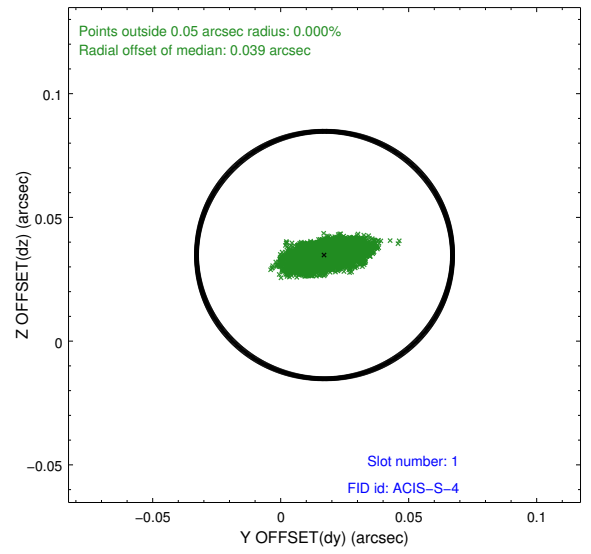
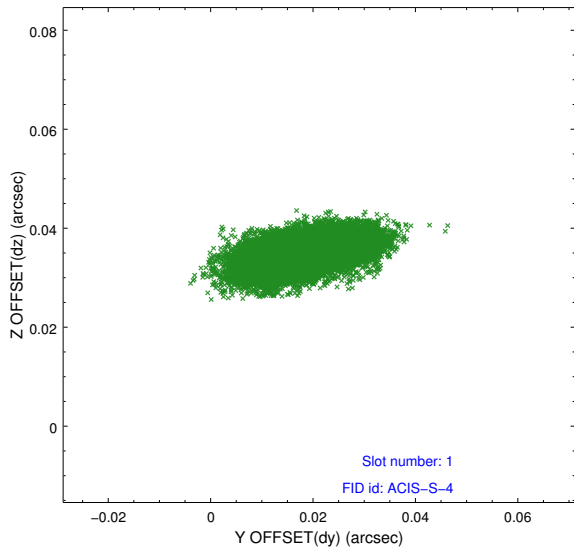


2.5 FID Slots

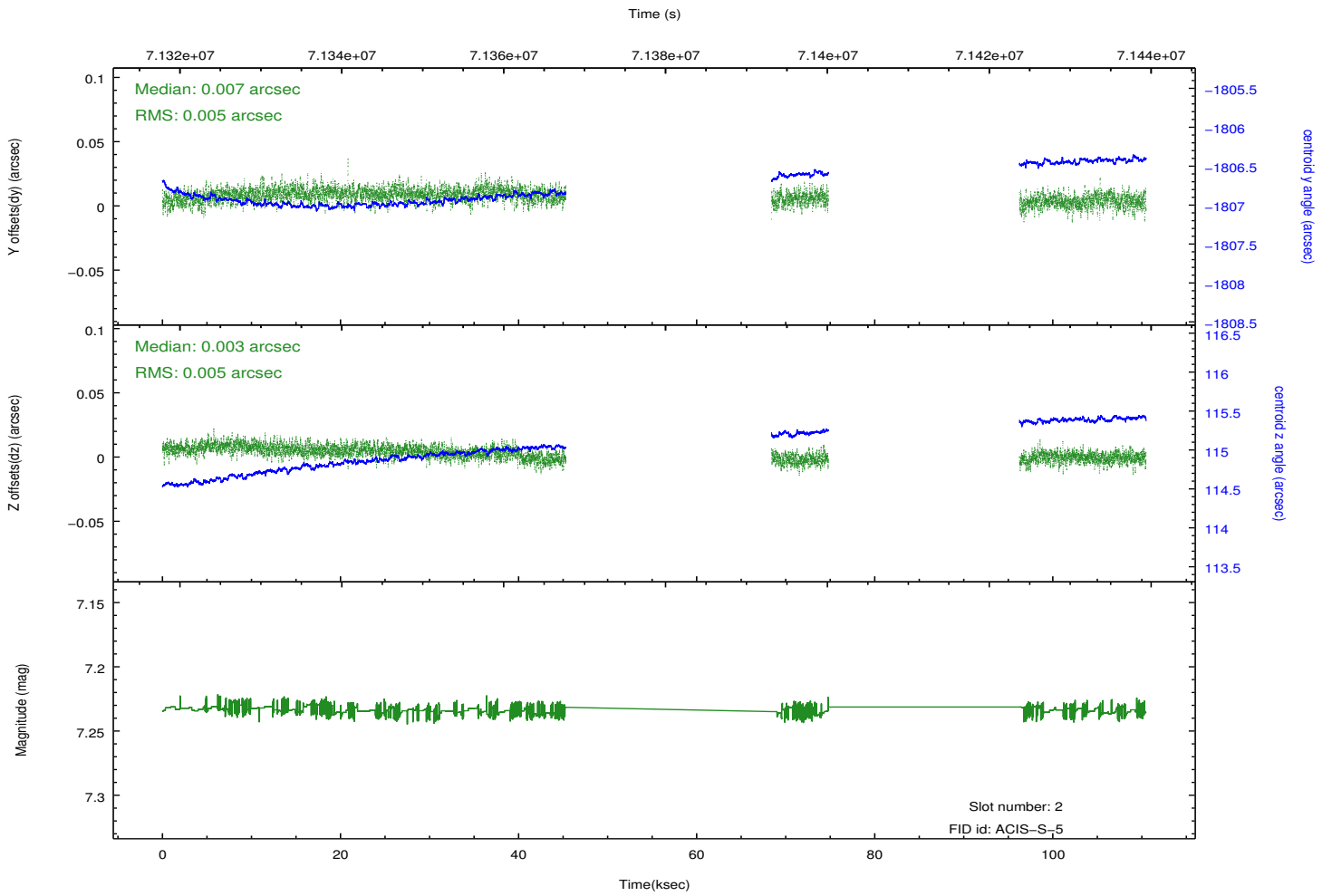
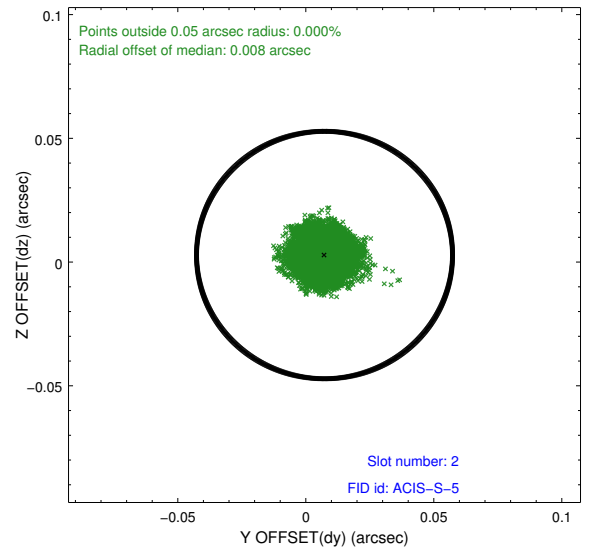
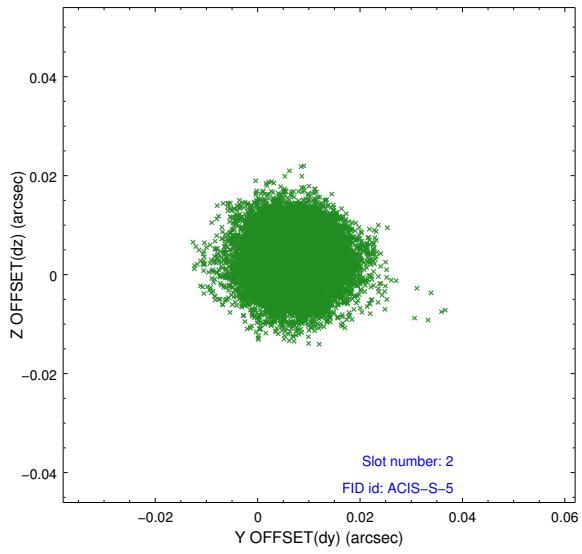
2.5.1 Slot 0



2.5.2 Slot 1



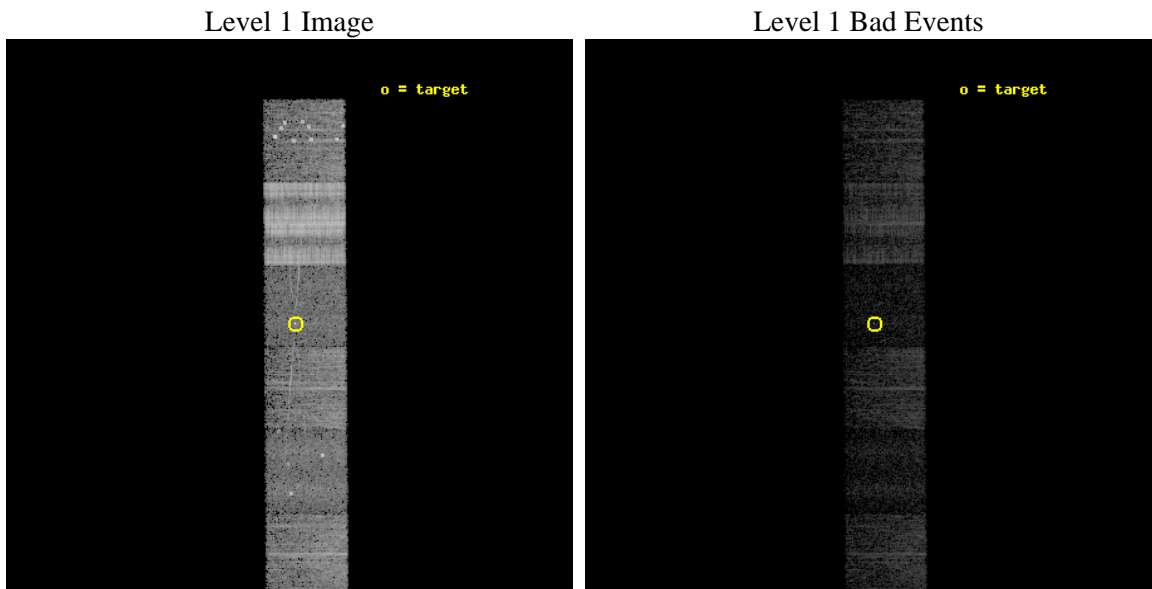
2.5.3 Slot 2



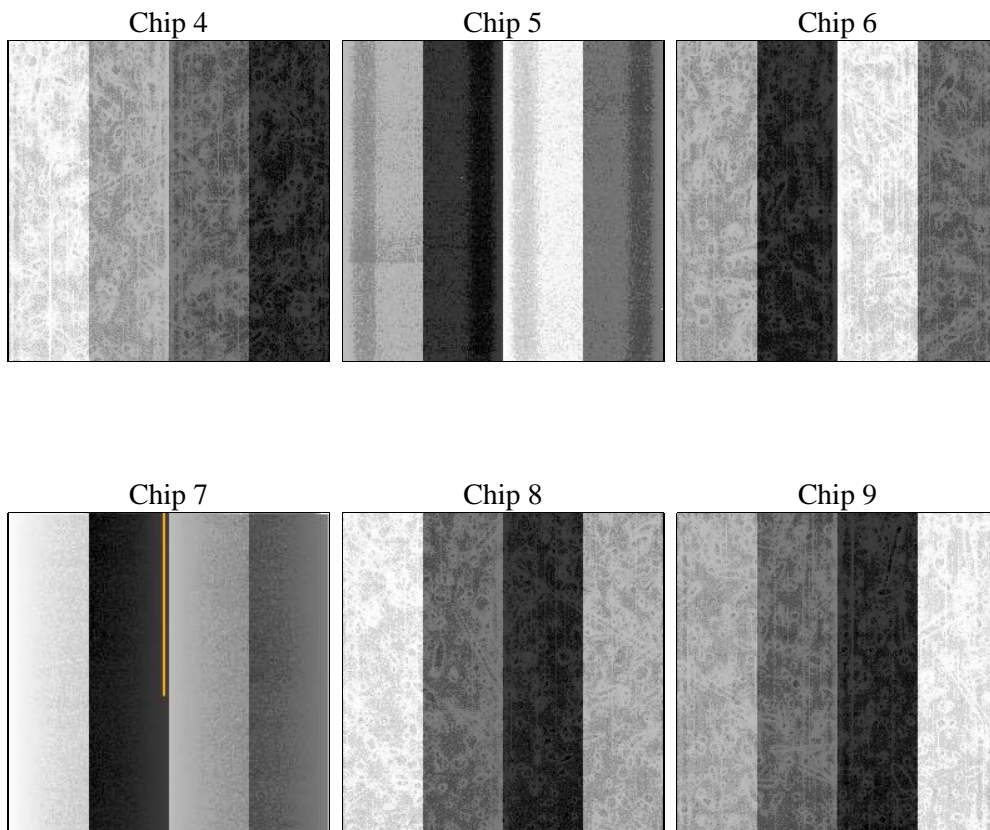
3 OBI

3.1 OBI

3.1.1 Images



3.1.2 Bias



3.1.3 Parameters

obi_num	3	Obi number	sched_exp_time	64190.000000	[s] Scheduled observation exposure time
ascdsver	8.5.1.1	Processing system revision	ontime	1884.7623557895	Sum of GTIs [s]
caldsver	4.5.6	 	ontime4	1884.8000017405	Sum of GTIs [s]
date	2013-05-20T19:28:18	Date and time of file creation	ontime5	1884.7213157862	Sum of GTIs [s]
revision	6	Processing version of data	ontime6	1884.6802757978	Sum of GTIs [s]
			ontime7	1884.7623557895	Sum of GTIs [s]
			ontime8	1884.6392357945	Sum of GTIs [s]
			ontime9	1884.5981957912	Sum of GTIs [s]
			l1events	233499	Number of level 1 events

3.1.4 Events

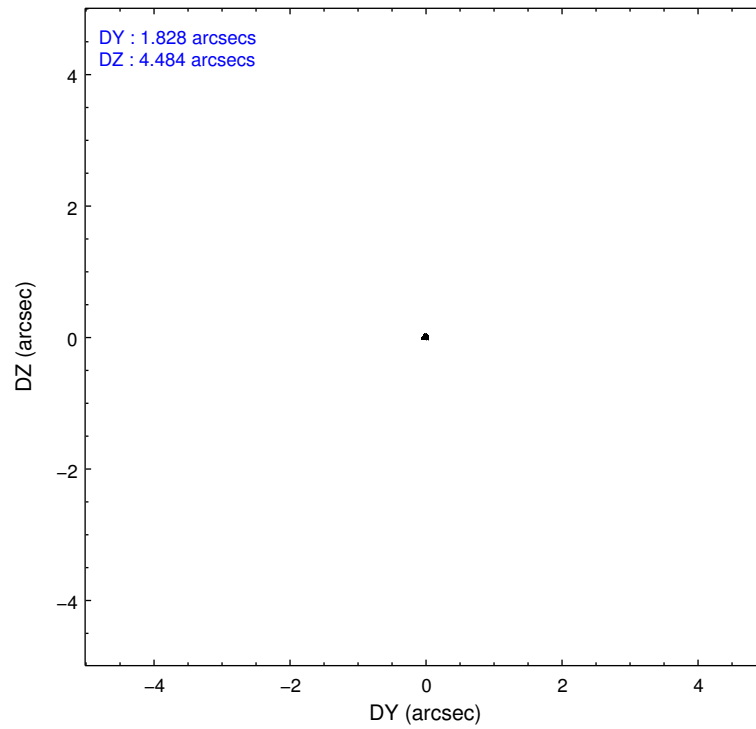
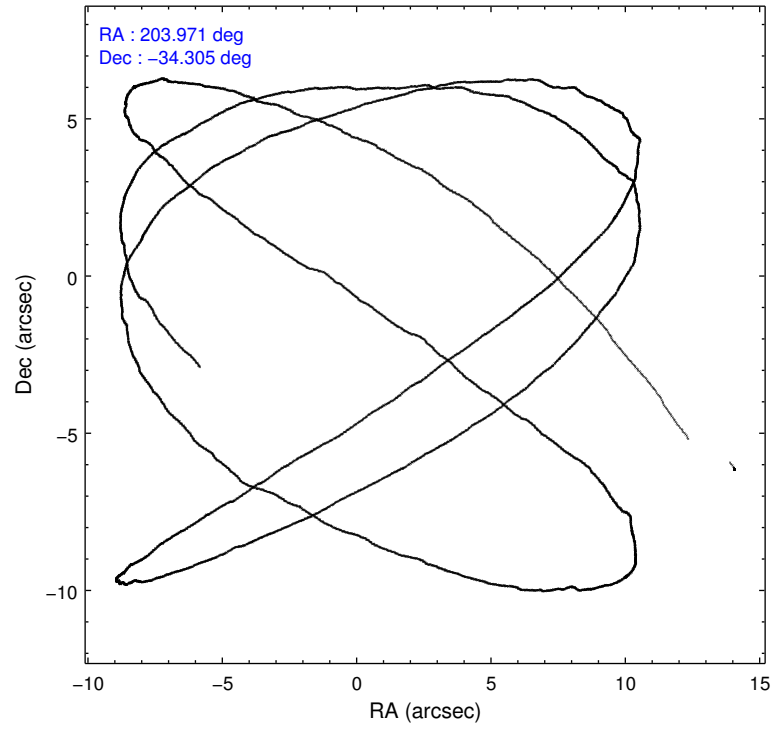
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	31774	22995	31025	20004	95279	32422
rejected events	25660	12197	26438	11008	36896	23480
rejected %	80%	53%	85%	55%	38%	72%

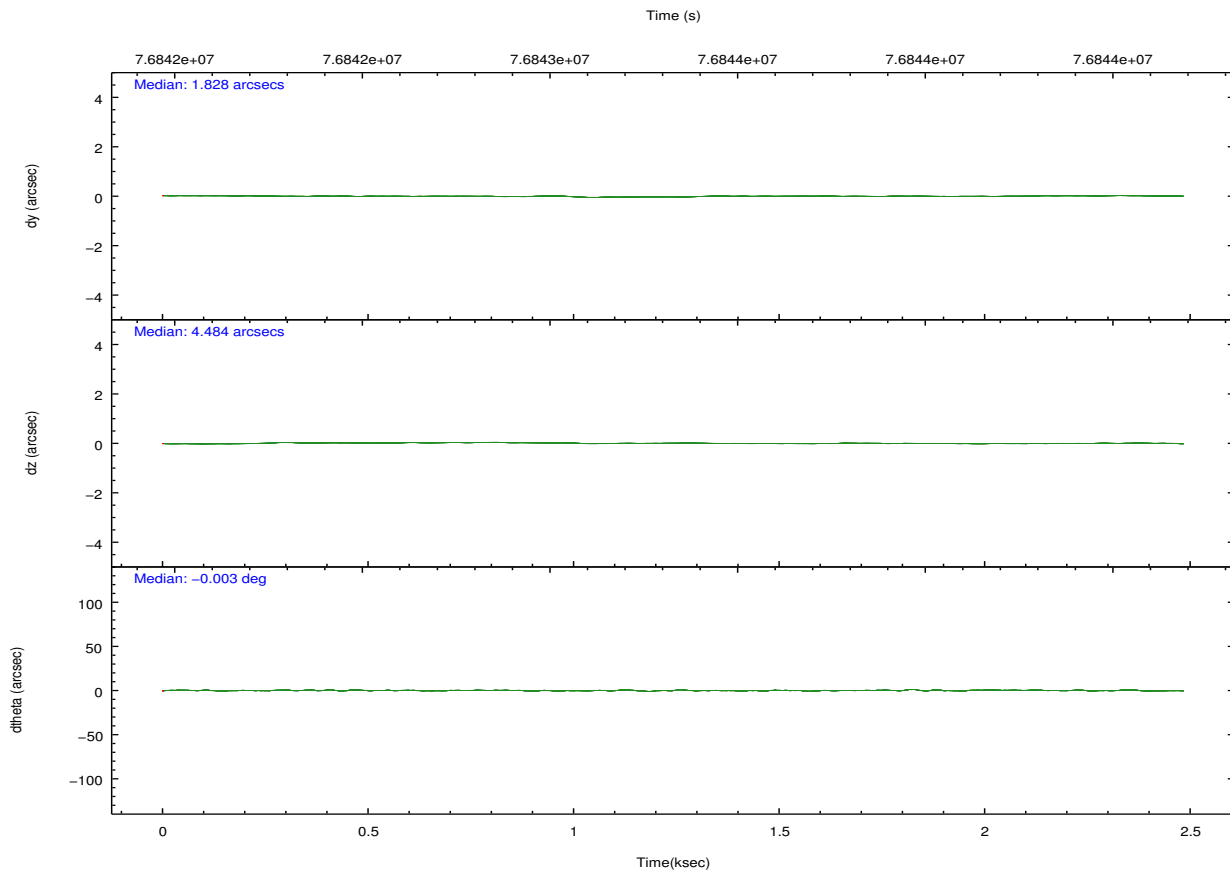
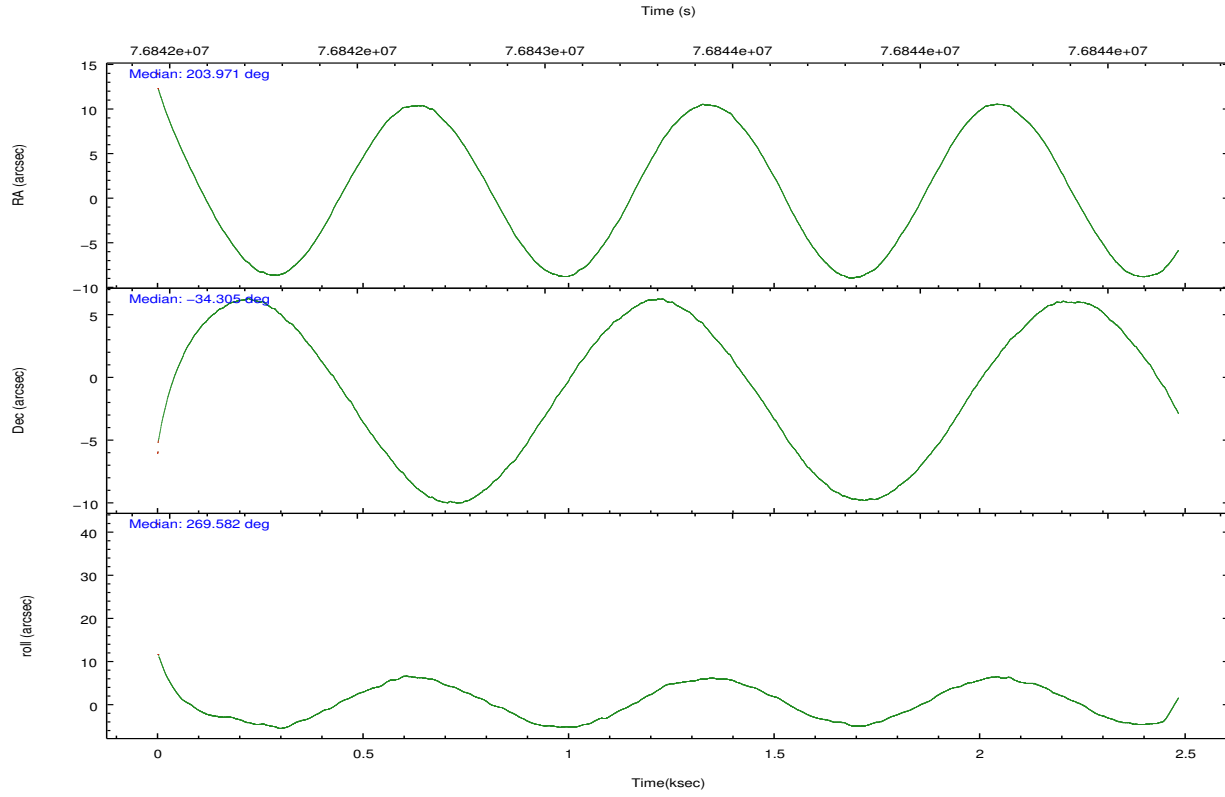
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	2521	2022	2196	1118	17142	5266
	7%	8%	7%	5%	17%	16%
grade 1 events	30	53	8	41	158	95
	0%	0%	0%	0%	0%	0%
grade 2 events	2484	3376	1429	2262	8798	2820
	7%	14%	4%	11%	9%	8%
grade 3 events	210	751	213	895	11073	178
	0%	3%	0%	4%	11%	0%
grade 4 events	261	716	200	928	9789	207
	0%	3%	0%	4%	10%	0%
grade 5 events	447	1541	523	1755	1561	535
	1%	6%	1%	8%	1%	1%
grade 6 events	910	4287	725	4110	14931	766
	2%	18%	2%	20%	15%	2%
grade 7 events	24911	10249	25731	8895	31827	22555
	78%	44%	82%	44%	33%	69%

3.2 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	OVERRIDE	OVERRIDE
Data mode	FAINT	FAINT	Number of optional ACIS chips dropped	0	0
Observation mode	POINTING	POINTING	On-chip summing requested	N	N
[deg] Pointing RA	203.954953	203.9714100170053	Subarray requested	NONE	NONE
[deg] Pointing Dec	-34.281899	-34.30543502989577	Alternating exposures requested	N	N
[deg] Pointing Roll	269.422807	269.5887744425149	[s] Primary exposure time	3.2	3.2
[mm] SIM focus pos	-0.6828225247311905	-0.6828225247311905			
[mm] SIM defocus	0.001444942264670179	0.001444942264670179			
[mm] SIM translation stage pos	-187.1228876879999	-187.1228876879999			
[mm] SIM translation stage offset	-3.009635415967296	-3.009635415967296			
[s] Observation start time (MET)	76842088.317	76842088.317			
Observation start date	2000-06-08T09:01:28	2000-06-08T09:01:28			
[s] Observation end time (MET)	76844573.000000	76844573			
Observation end date	2000-06-08T09:42:53	2000-06-08T09:42:52			
Read mode	TIMED	TIMED			

3.3 Aspect



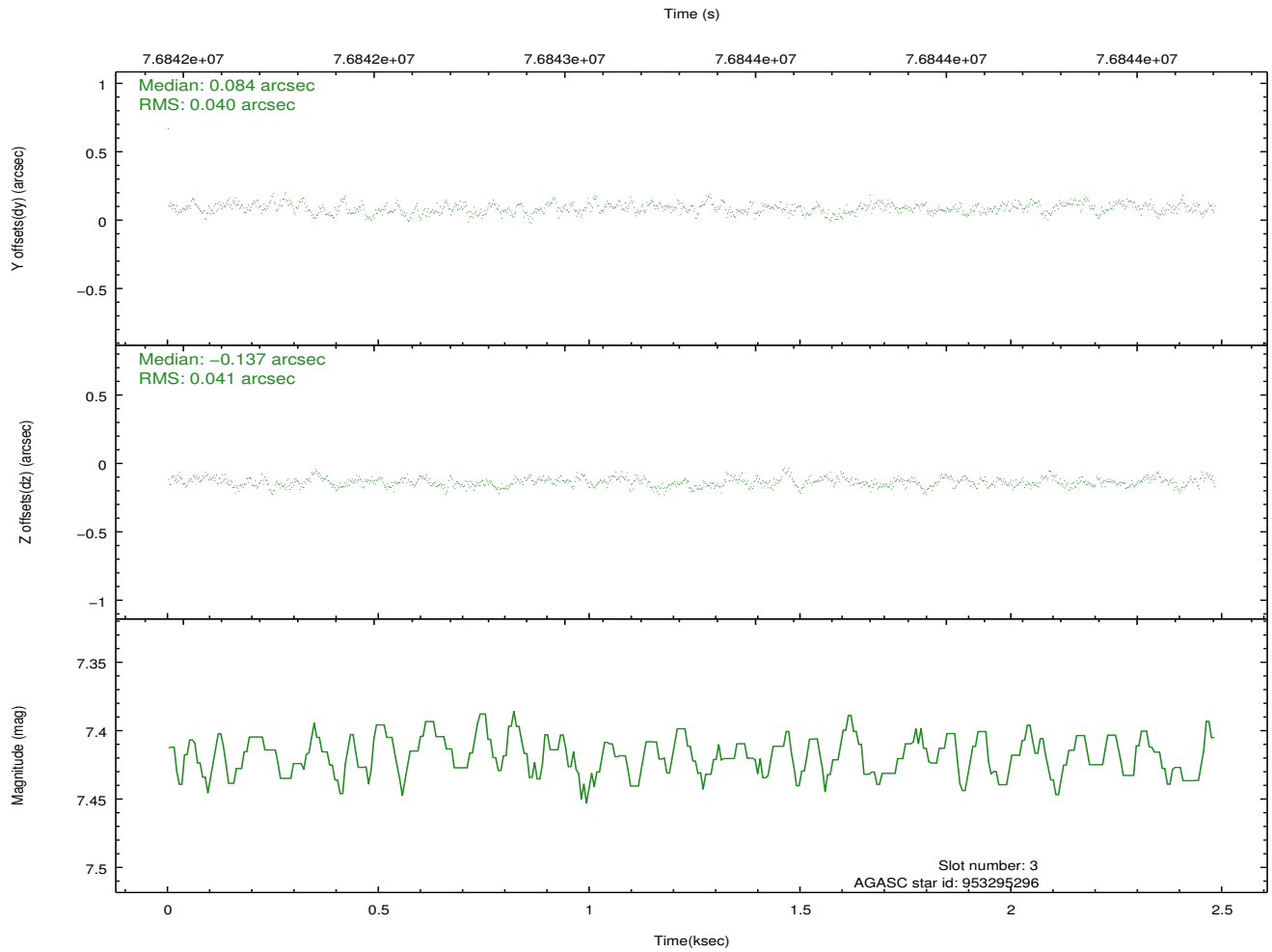
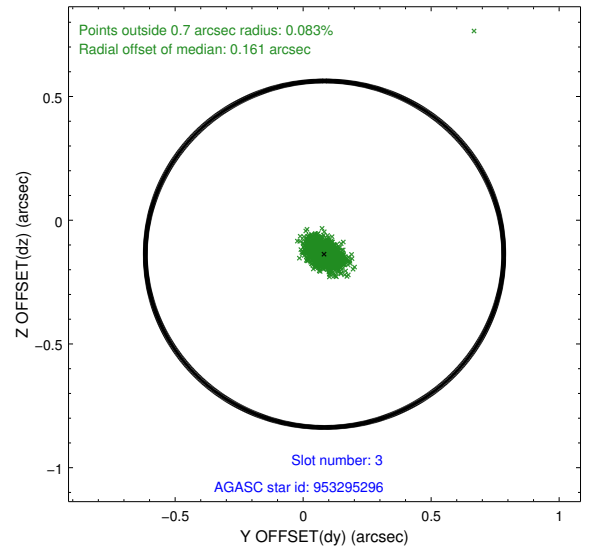
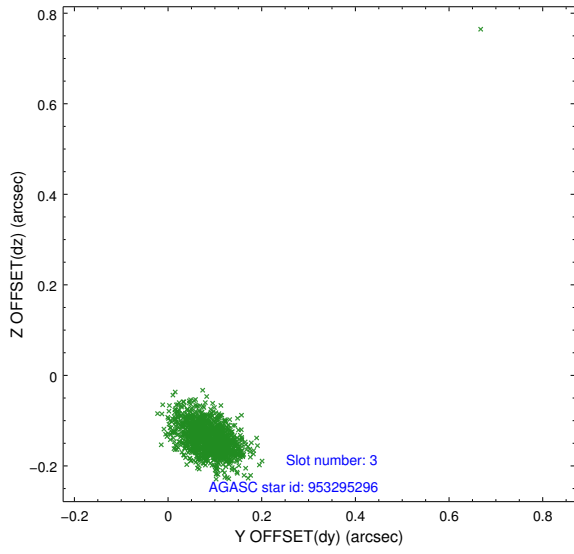


Slot Statistics

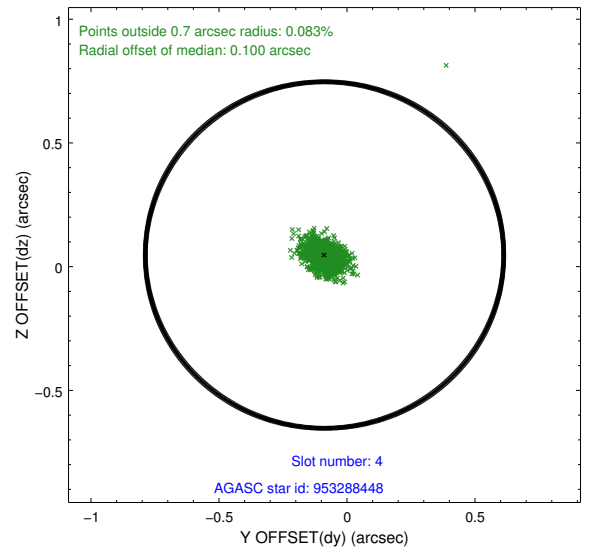
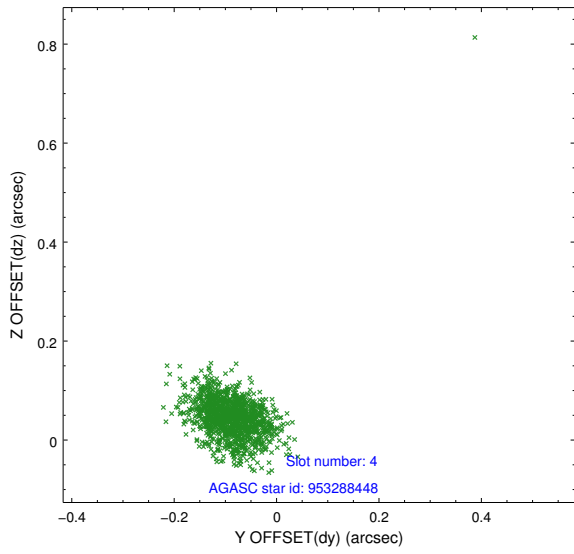
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	16066	-0.056	-0.029	0.008	0.013	0.000000	0.000000	-753.83	-1787.18
1	FID	ACIS-S-4	7.20	16064	0.017	0.035	0.007	0.013	0.000000	0.000000	2159.55	121.40
2	FID	ACIS-S-5	7.23	16068	0.007	0.003	0.008	0.012	0.000000	0.000000	-1806.67	114.99
3	GUIDE	953288640	7.64	32126	0.065	-0.021	0.053	0.087	203.543121	-34.069013	-899.14	1243.36
4	GUIDE	953295296	7.42	32127	-0.017	-0.122	0.064	0.101	203.563852	-34.387568	-1209.18	137.45
5	GUIDE	953288448	7.56	32051	-0.036	-0.041	0.052	0.084	203.869544	-34.017546	82.18	1104.54
6	GUIDE	953294840	8.46	32121	-0.149	0.152	0.076	0.123	204.478170	-34.846425	814.16	-2306.11
7	GUIDE	953296432	8.99	32121	0.135	0.031	0.066	0.110	204.411860	-34.306423	1269.48	-406.13

3.4 Star Slots

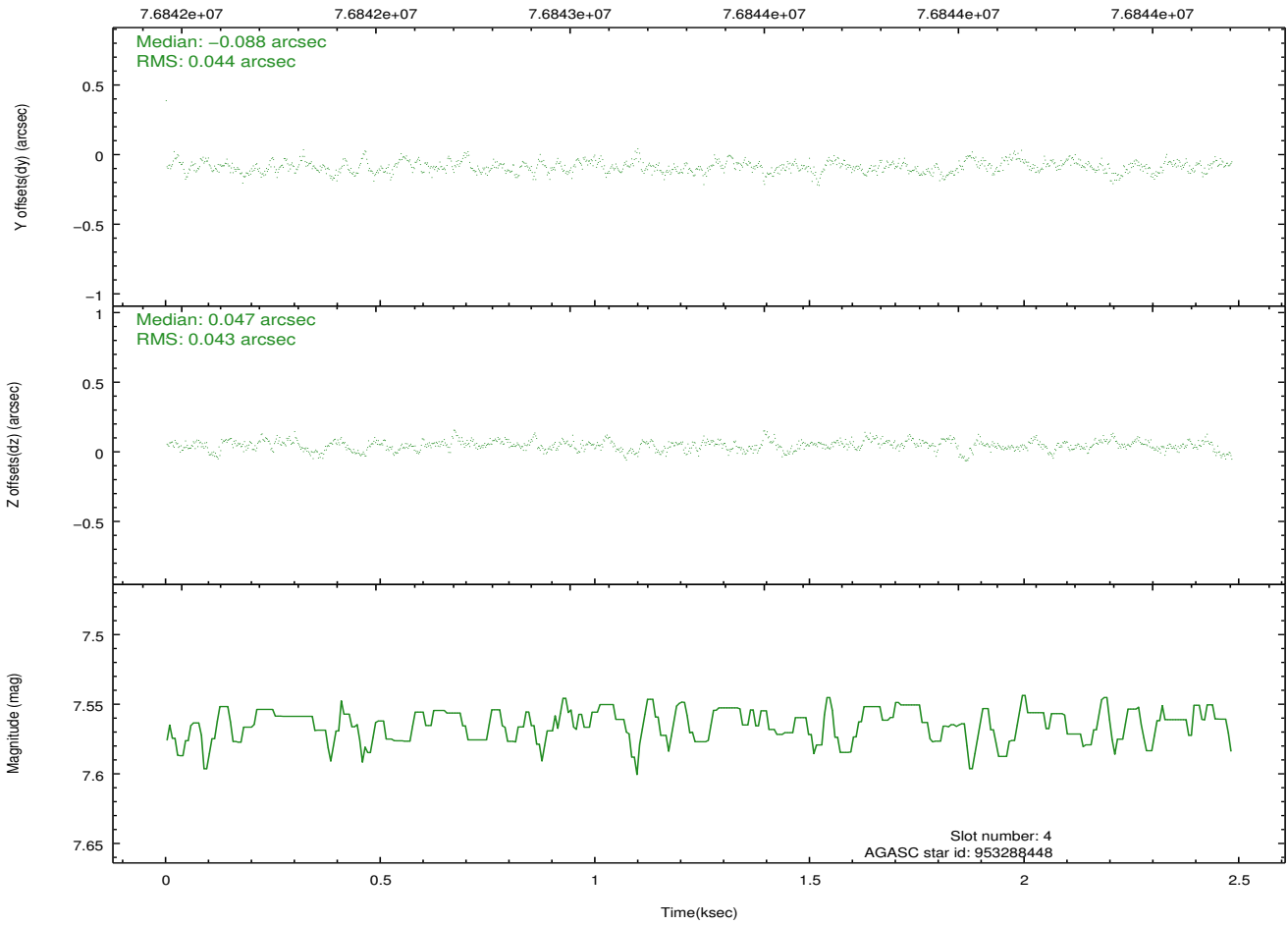
3.4.1 Slot 3



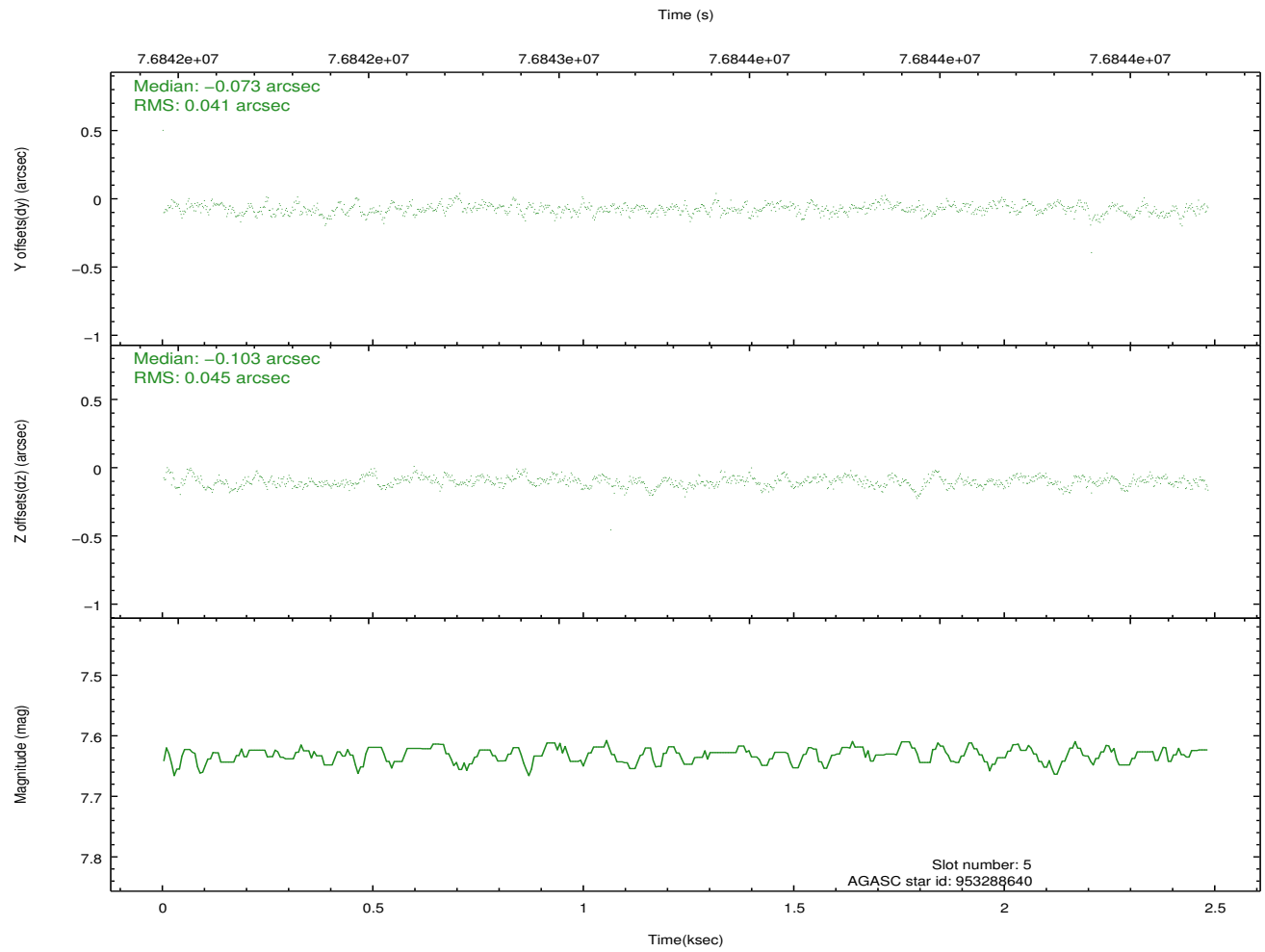
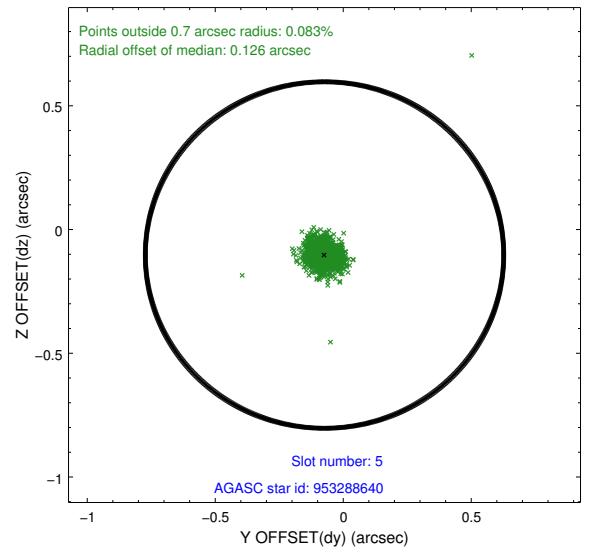
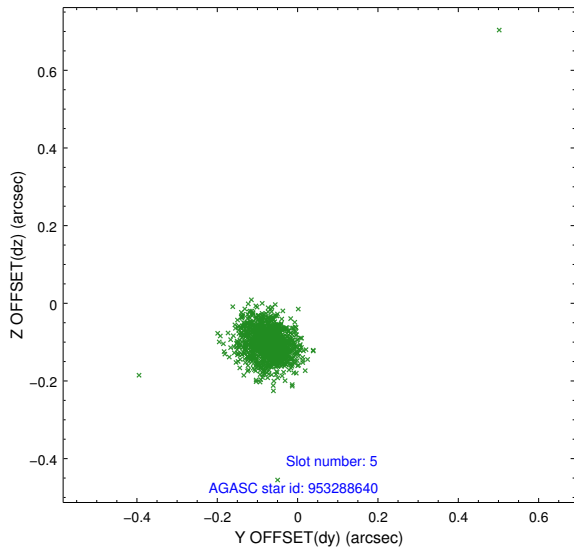
3.4.2 Slot 4



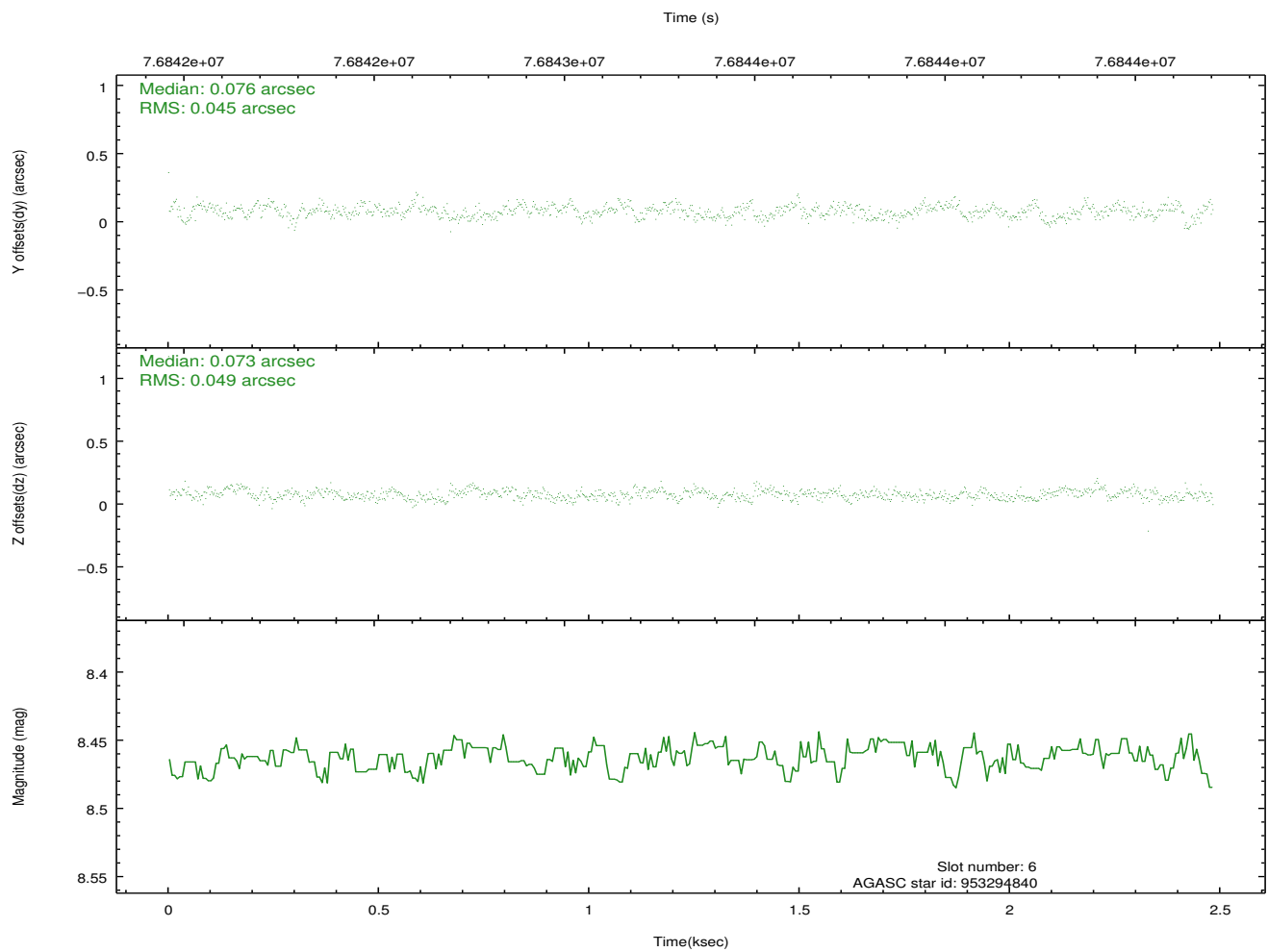
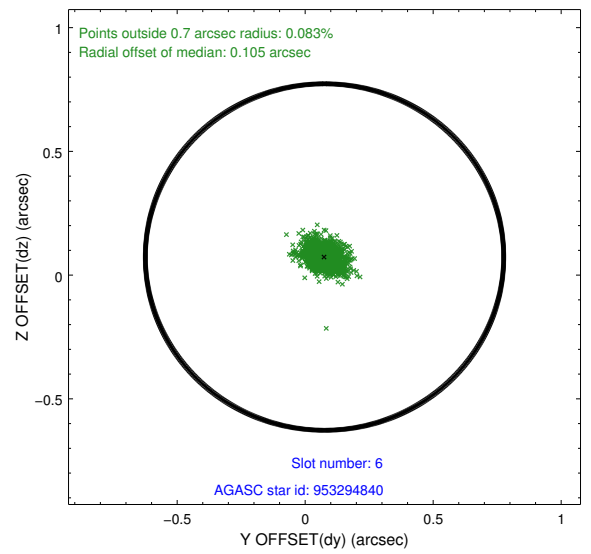
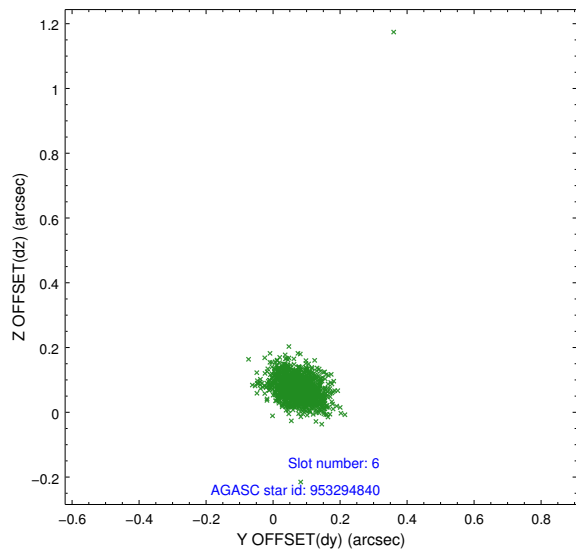
Time (s)



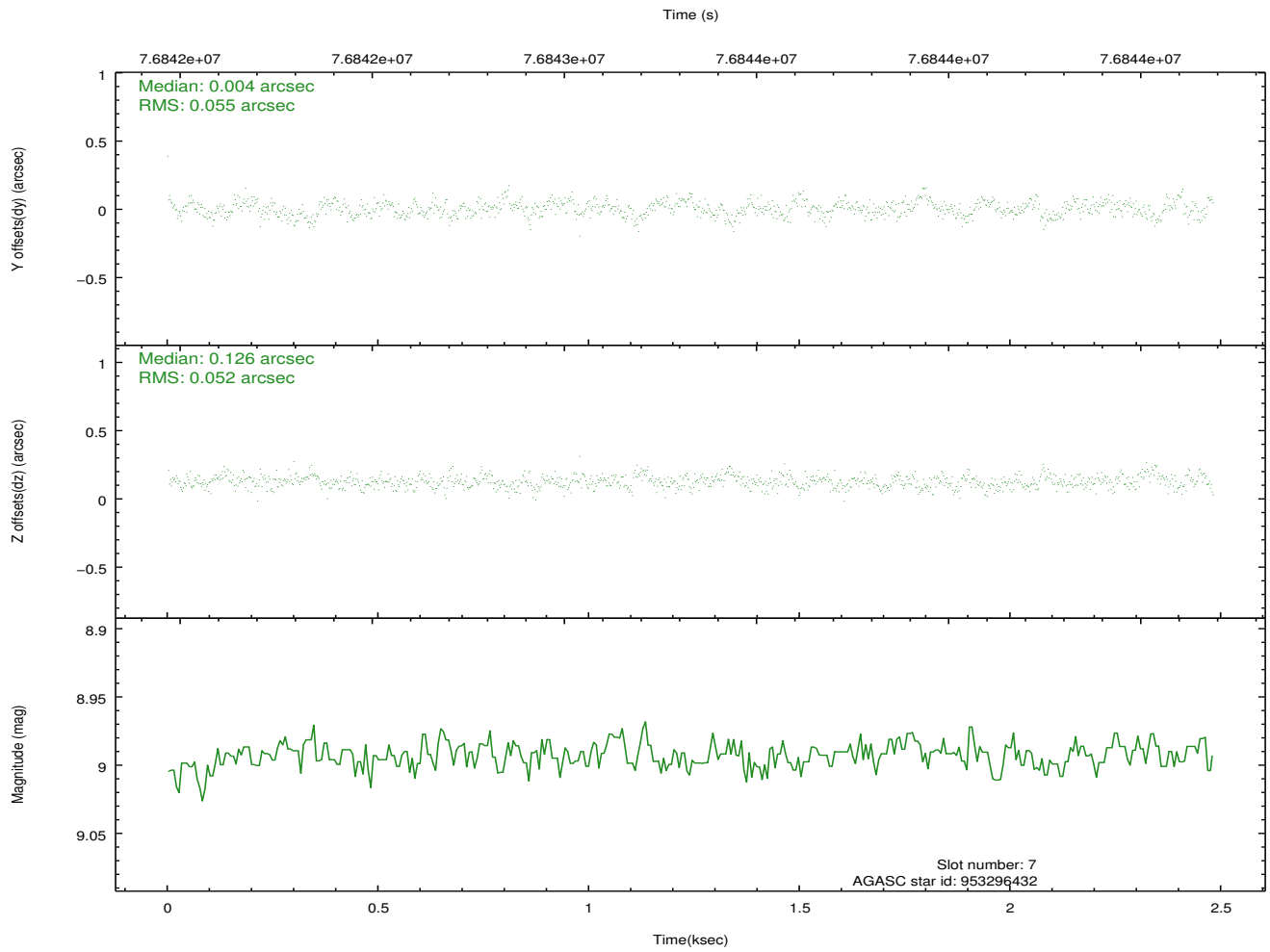
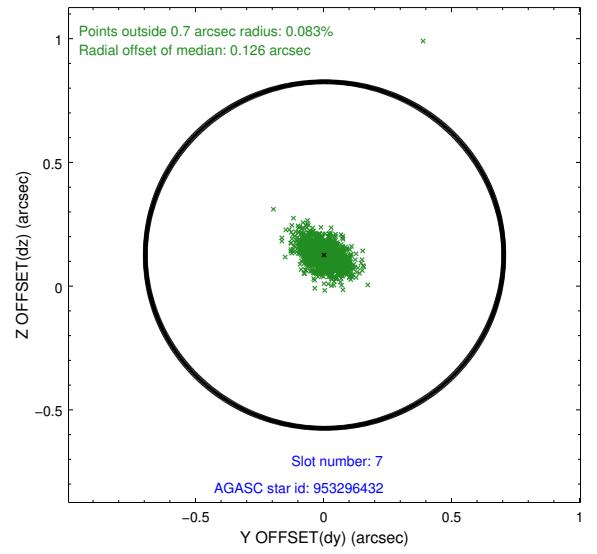
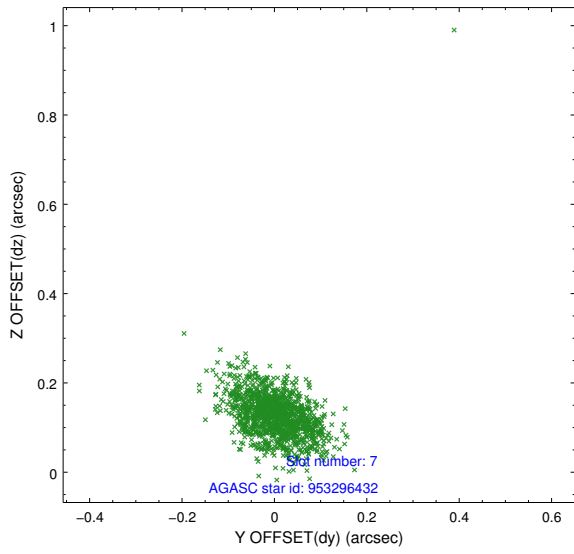
3.4.3 Slot 5



3.4.4 Slot 6

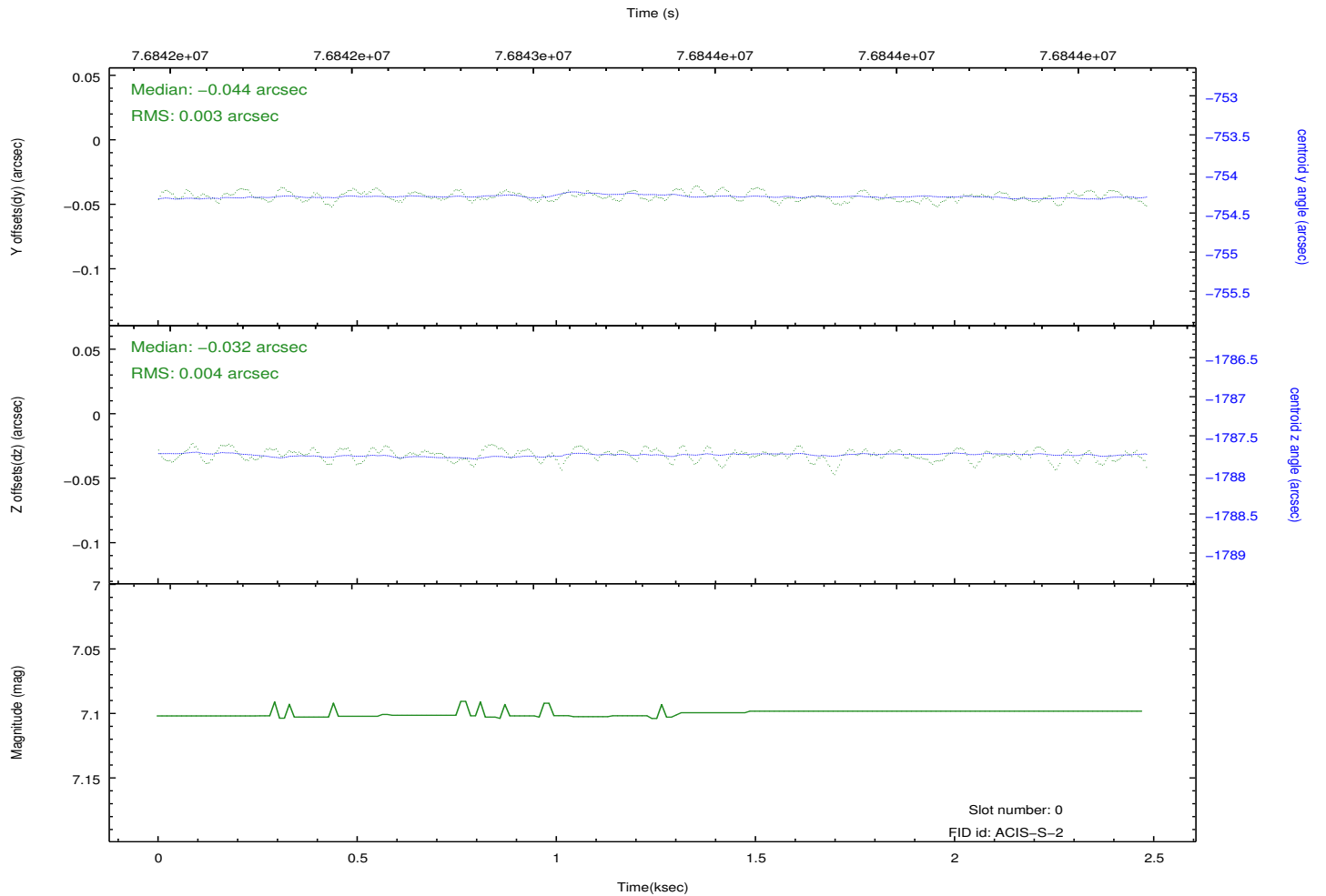
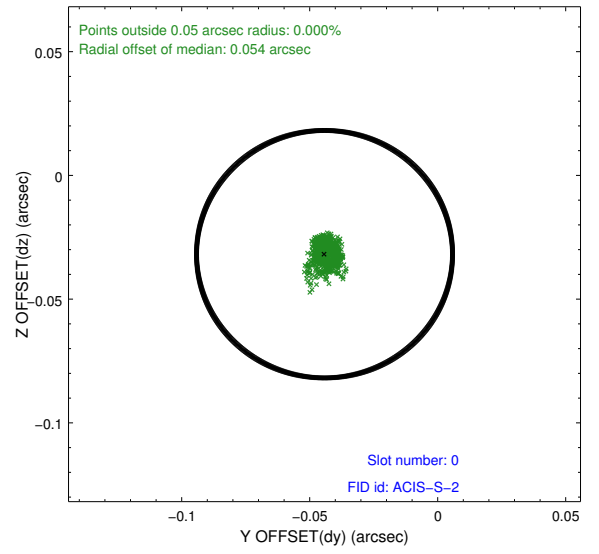
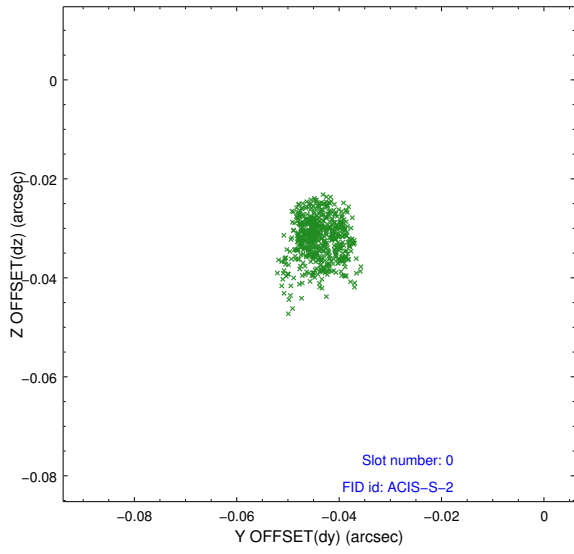


3.4.5 Slot 7

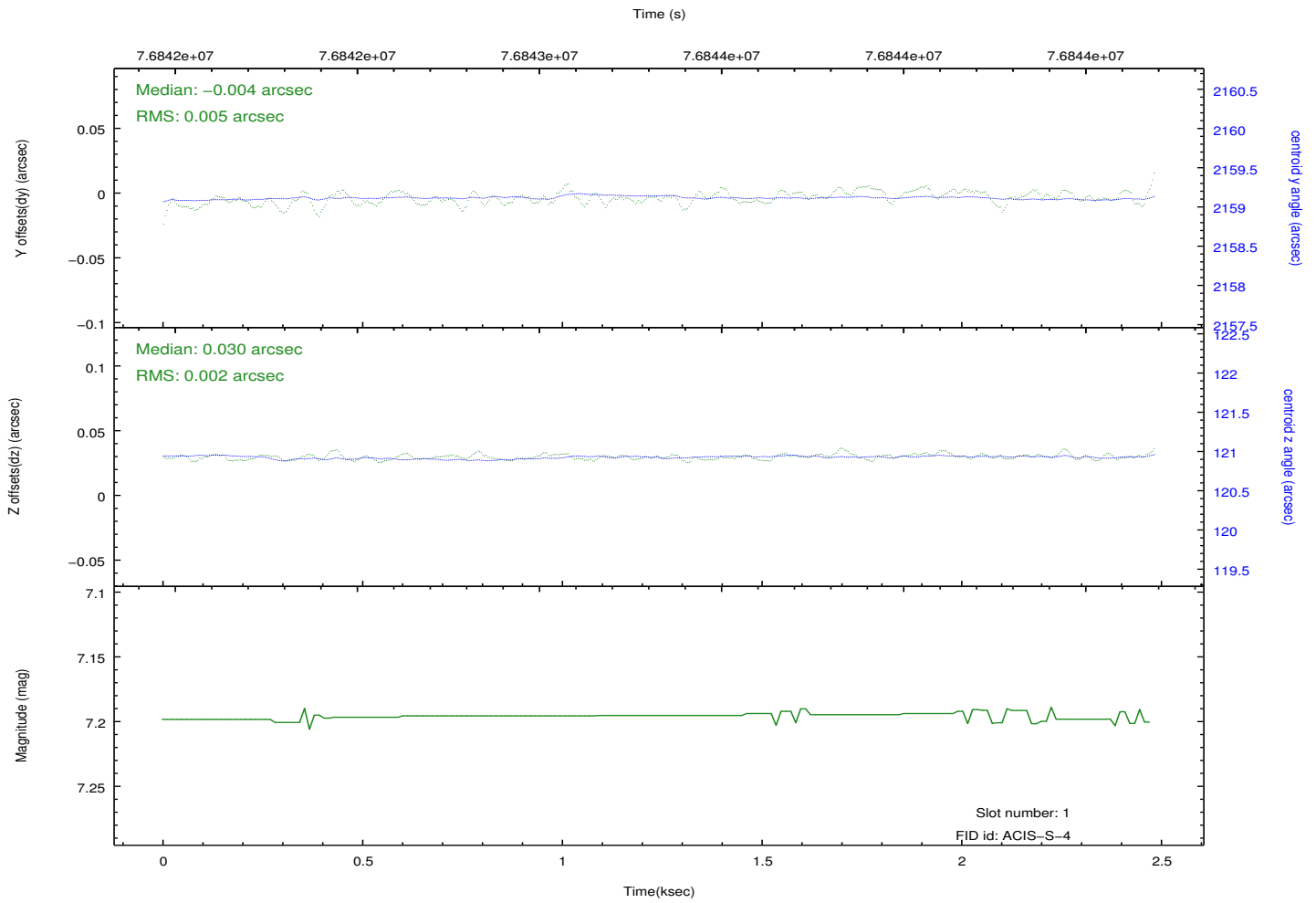
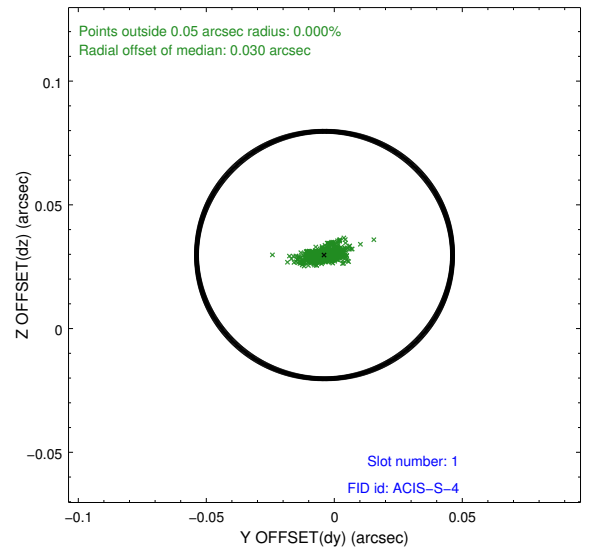
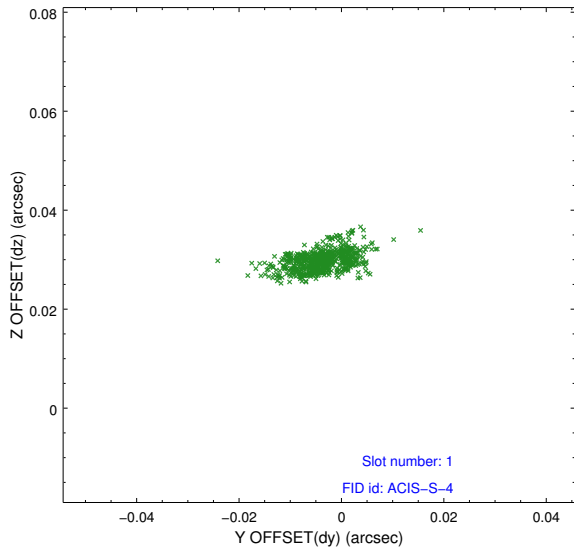


3.5 FID Slots

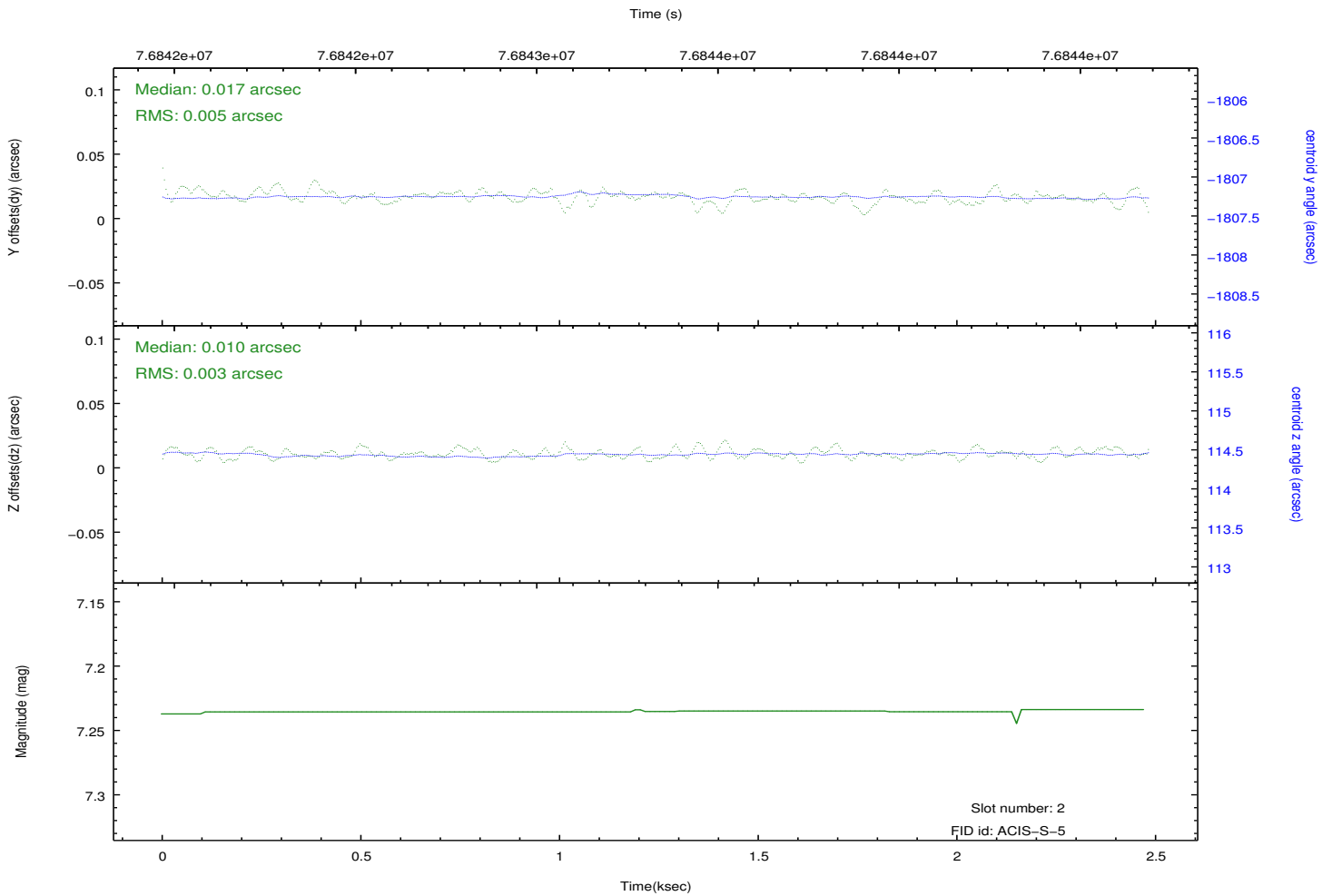
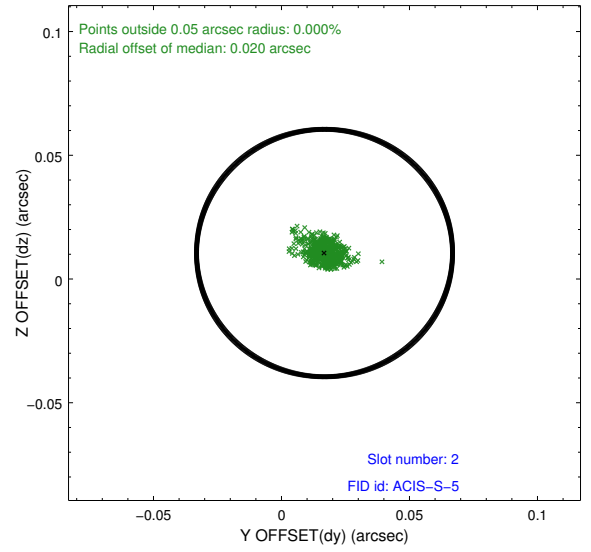
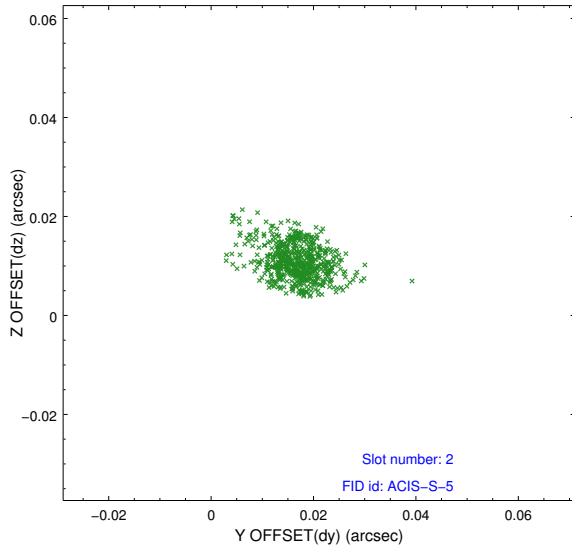
3.5.1 Slot 0



3.5.2 Slot 1



3.5.3 Slot 2

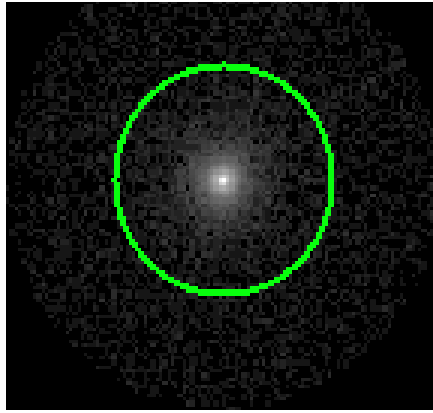


4 Gratings

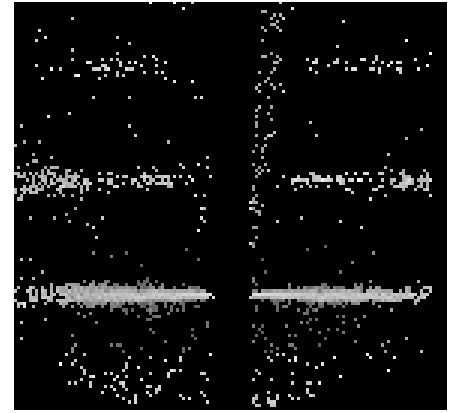
4.1 HEG Arm



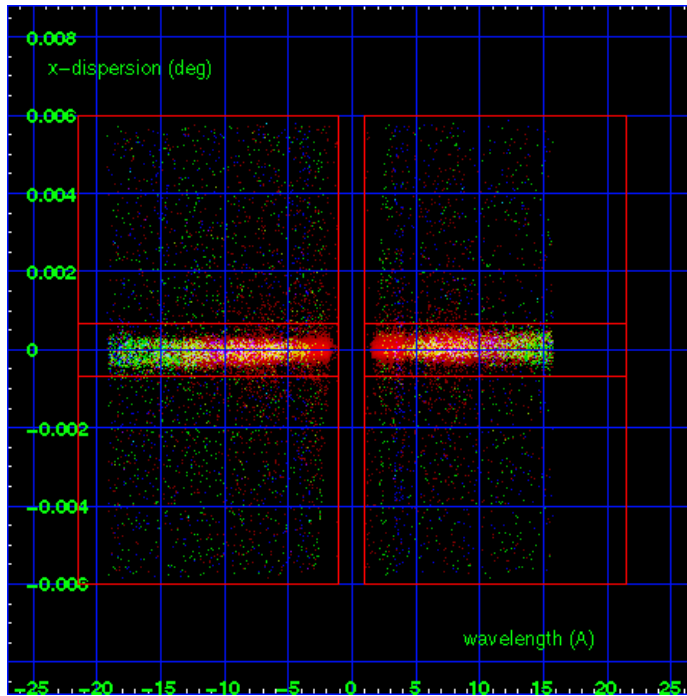
HEG Order Sort 123



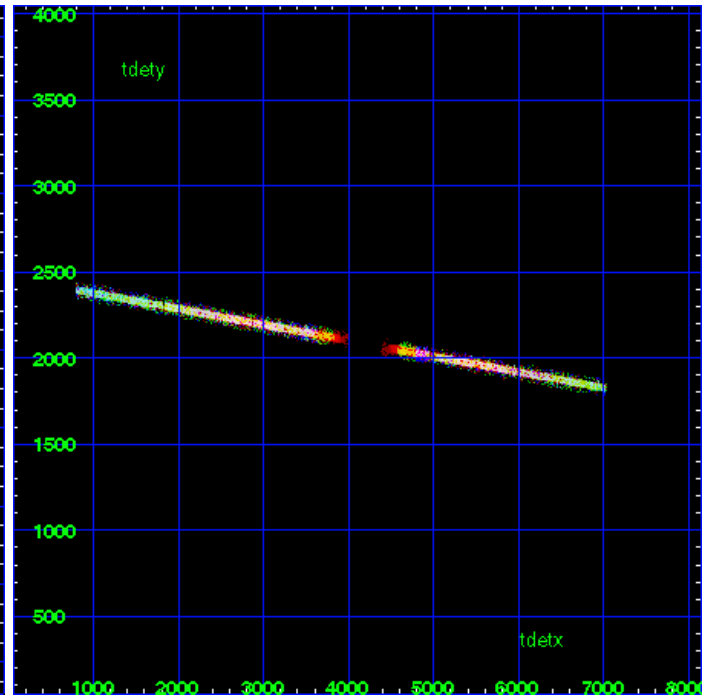
HEG Zero Order



HEG Order Sort ALL

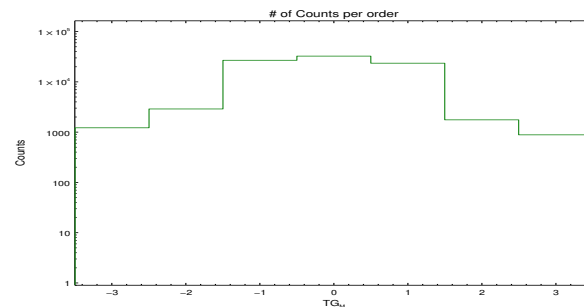


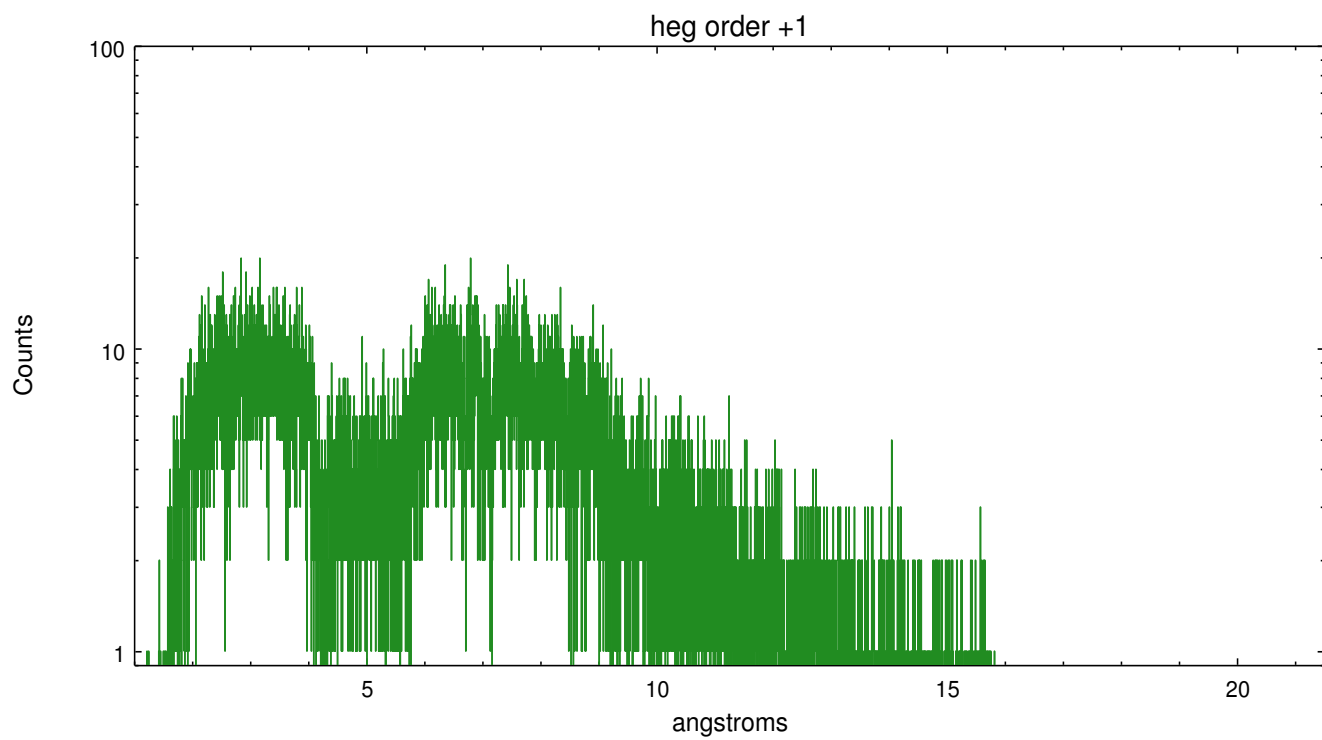
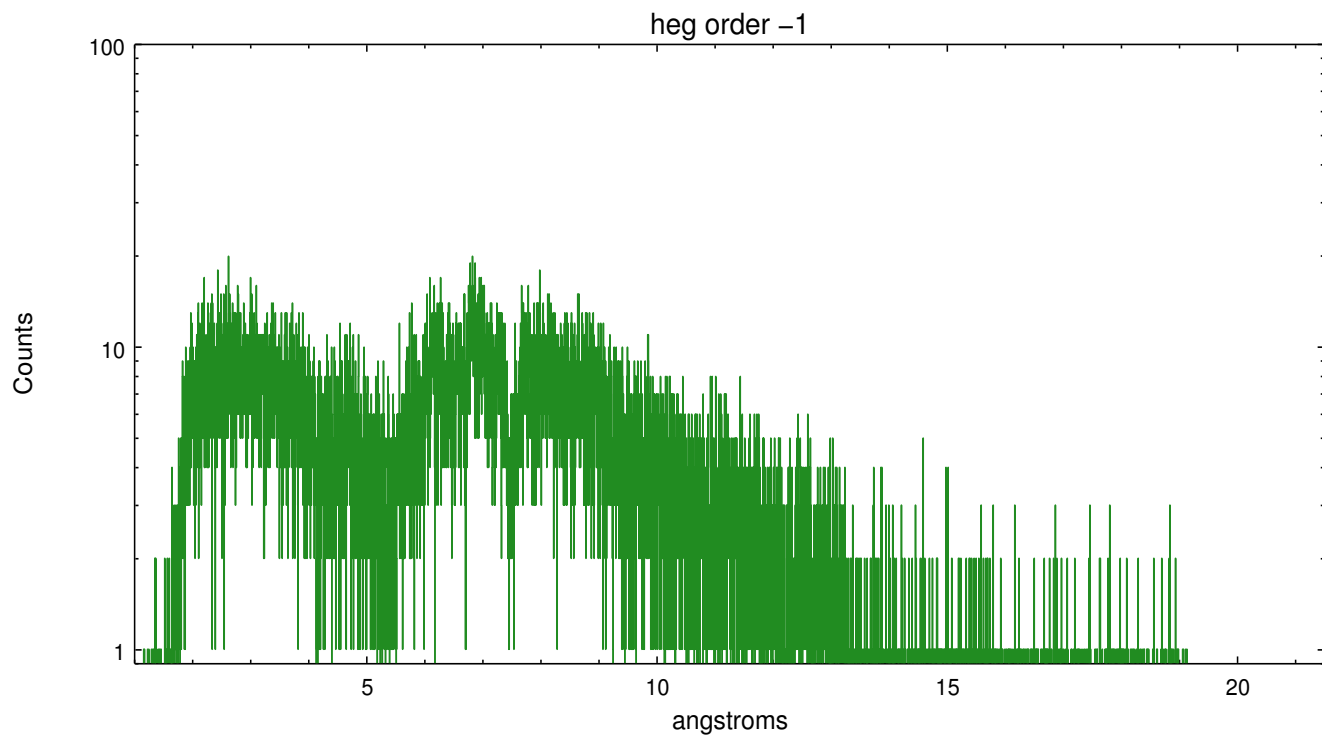
Spot Image HEG



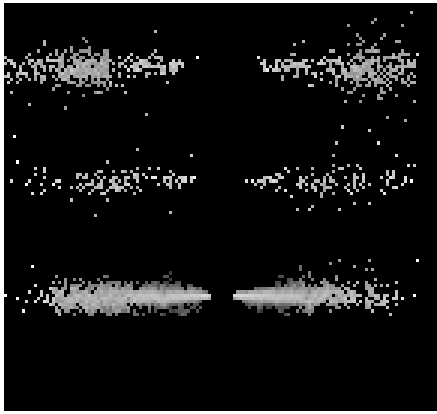
Full Detector HEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1224	2903	27053	32773	23675	1763	886

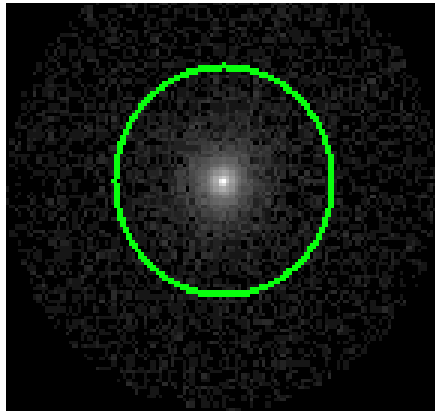




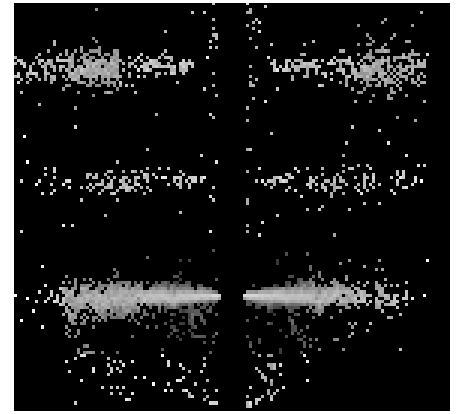
4.2 MEG Arm



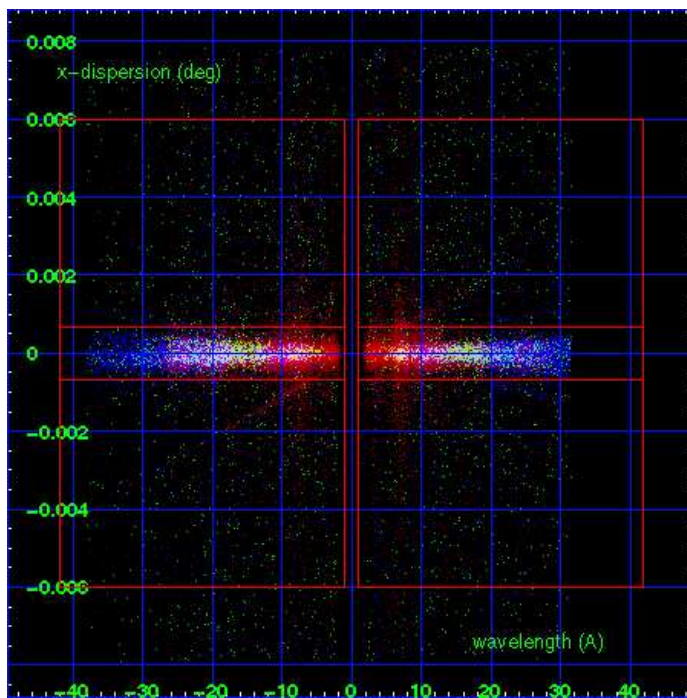
MEG Order Sort 123



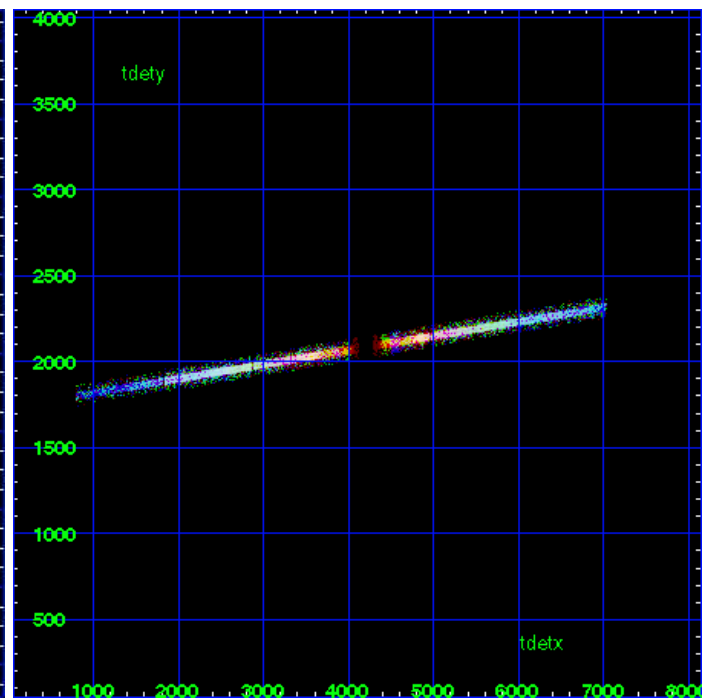
MEG Zero Order



MEG Order Sort ALL

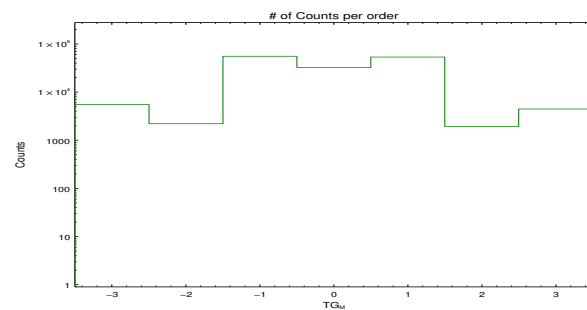


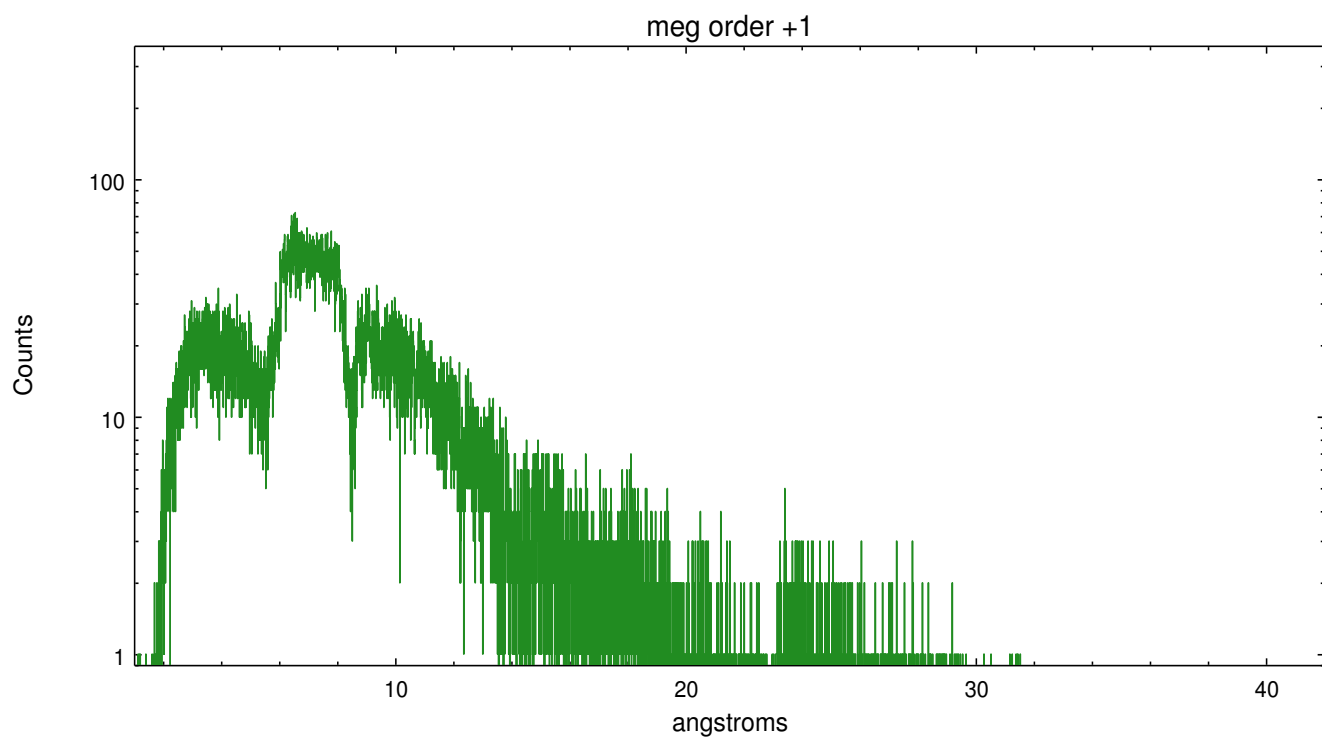
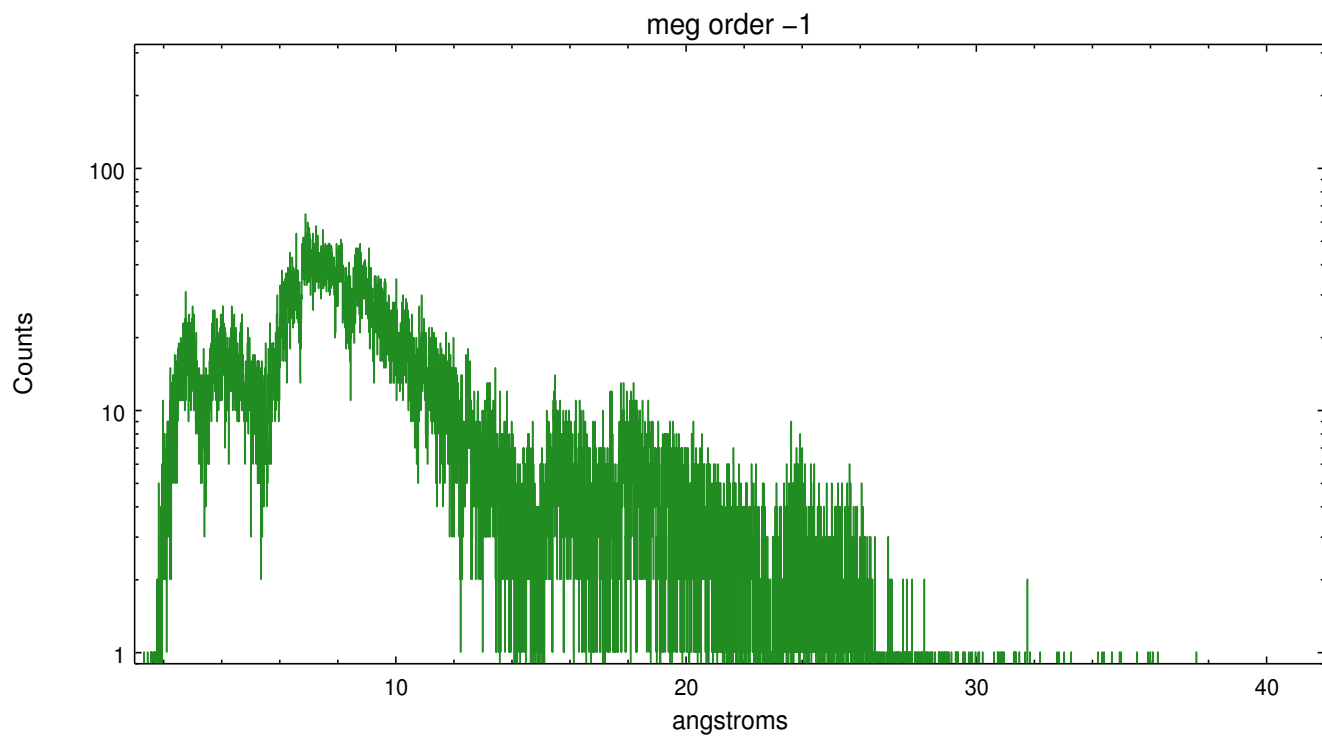
Spot Image MEG



Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	5557	2217	55984	32773	53949	1941	4480





A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2013.06.03
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	128.227

A.2 Comments

WARNING: This is a multi-obi gratings processing. Three separate observations have been combined in the Level 2 event file. The extracted spectrum has also been combined. It is highly recommended that the investigator start the analysis with Level 1 data and treat each separate obi as if it were a separate observation. The spectra should be extracted separately and only combined after appropriate arf and rmf files have been derived for each observation. It is not clear that the combined Level 2 spectral grating data in this processing can be correctly calibrated.

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Charge time for this ObsId remains at previous value of 128.227 ks, although with the current processing the charge time would have been 133.068 ks.

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The first attempt to observe obsid 433 (obi=1) occurred during a significant loss of telemetry, so this obi has several data gaps. The second and third attempts were each interrupted with a spacecraft safing for high radiation. Obi=2 had no data, but obi=3 had some useful data, which are included in this processing. Obi=3 has been reprocessed so that the aspect solution correctly handles the instrument safing and maneuver activities at the end of the observation. Obi=4 executed without problems.