

V&V Reference Report

L2 ASCDS Version : 10.6

Observation 20985 - L2 Version 1
Chandra X-Ray Center

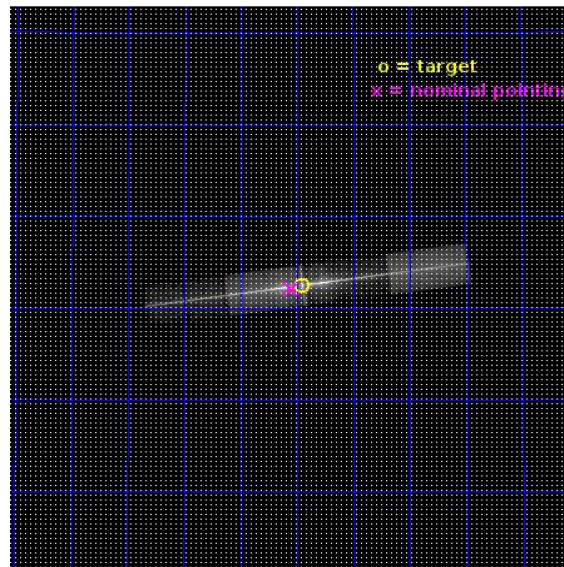
L2 Processing Date : Mar 3 2018

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	LETG Arm	17
A	Summary	19
A.1	Status	19
A.2	Comments	19

1 Front

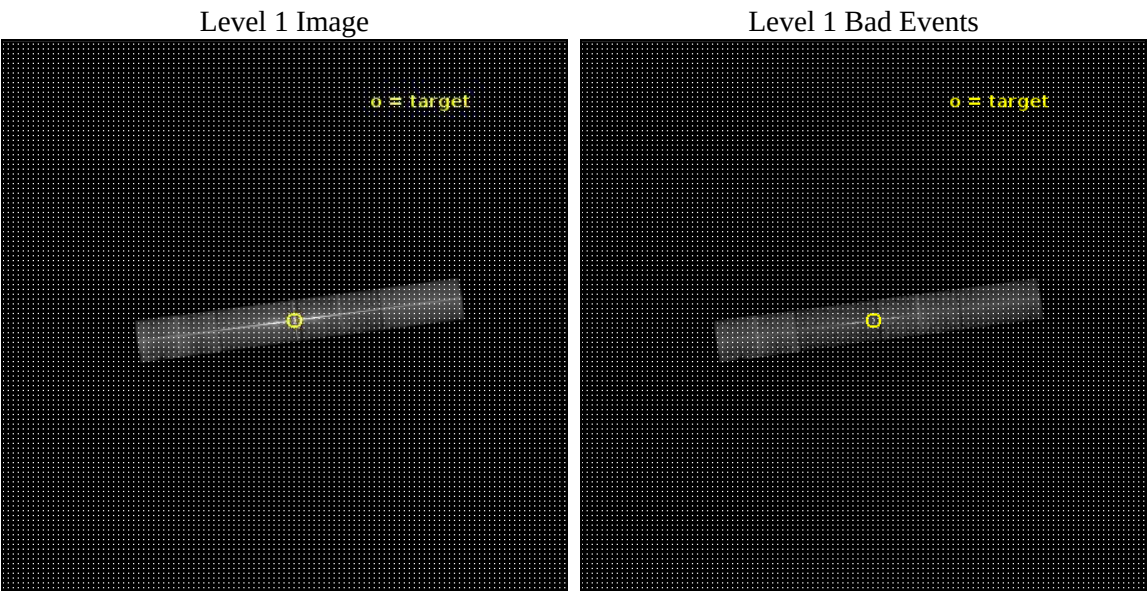
seq_num	790319	Sequence number
obs_id	20985	Observation id
title	AO-19 Big Dither Observation of Mkn421	Proposal title
observer	CXC Calibration	Principal investigator
object	MKN421	Source name
dtcycle	0	
cycle	P	events from which exps? Prim/Second/Both
ra_targ	166.113333	Observer's specified target RA [deg]
dec_targ	38.208806	Observer's specified target Dec [deg]
ra_nom	166.13729913808	Nominal RA [deg]
dec_nom	38.20227578302	Nominal Dec [deg]
roll_nom	172.14178350078	Nominal Roll [deg]
revision	1	Processing version of data
ontime	28288.70061326	Sum of GTIs [s]
livetime	27271.235604875	Livetime [s]
ontime5	28288.70061326	Sum of GTIs [s]
ontime6	28288.70061326	Sum of GTIs [s]
ontime7	28288.70061326	Sum of GTIs [s]
ontime8	28287.559573293	Sum of GTIs [s]
l2events	677629	Number of level 2 events



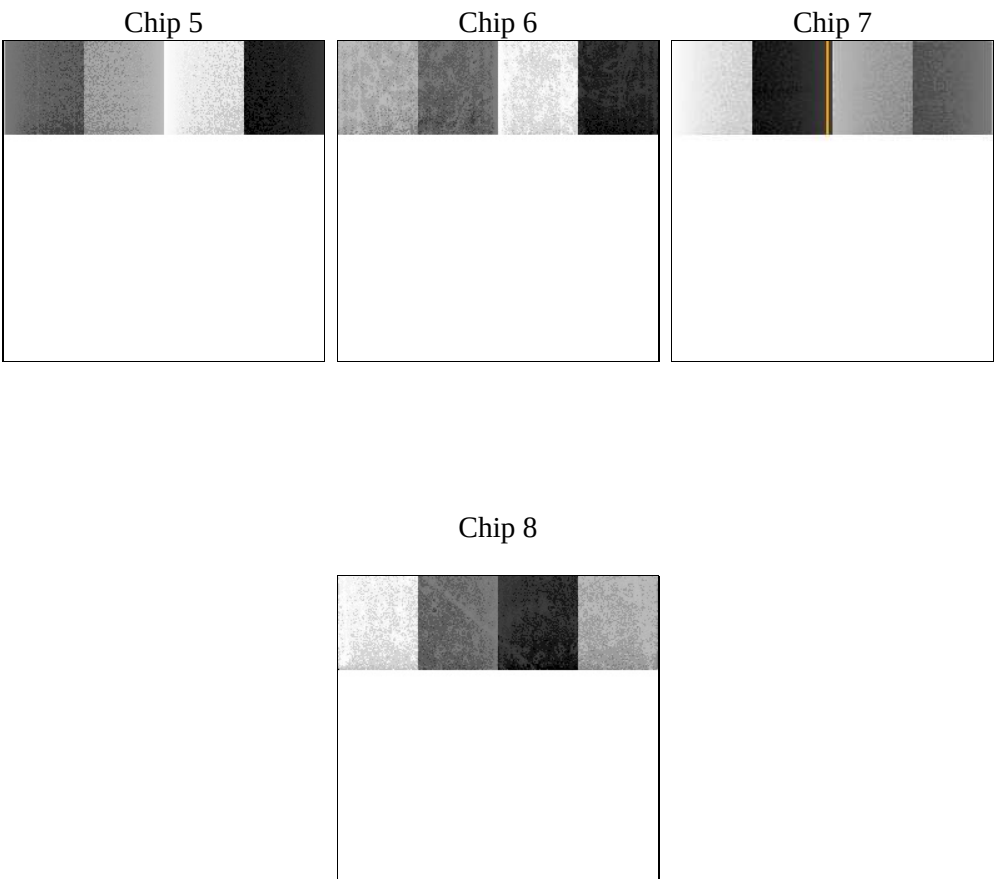
2 OBI

2.1 OBI

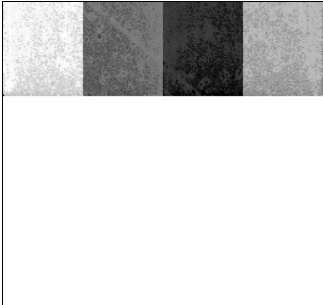
2.1.1 Images



2.1.2 Bias



Chip 8



2.1.3 Parameters

obi_num	0	Obi number	sched_exp_time	28200.000000	[s] Scheduled observation exposure time
ascdsver	10.6	Processing system revision	ontime	28288.70061326	Sum of GTIs [s]
caldsver	4.7.7	 	ontime5	28288.70061326	Sum of GTIs [s]
date	2018-03-03T04:27:19	Date and time of file creation	ontime6	28288.70061326	Sum of GTIs [s]
revision	1	Processing version of data	ontime7	28288.70061326	Sum of GTIs [s]
			ontime8	28287.559573293	Sum of GTIs [s]
			l1events	997654	Number of level 1 events
			tgmethod	FINDZO	Method used to create src1a file
			zo_pos	(4231.08, 4145.94)	src1a sky pixel position
			zo_pos_tgd	(4231.89, 4146.49)	src1a sky pixel position via radetect

2.1.4 Events

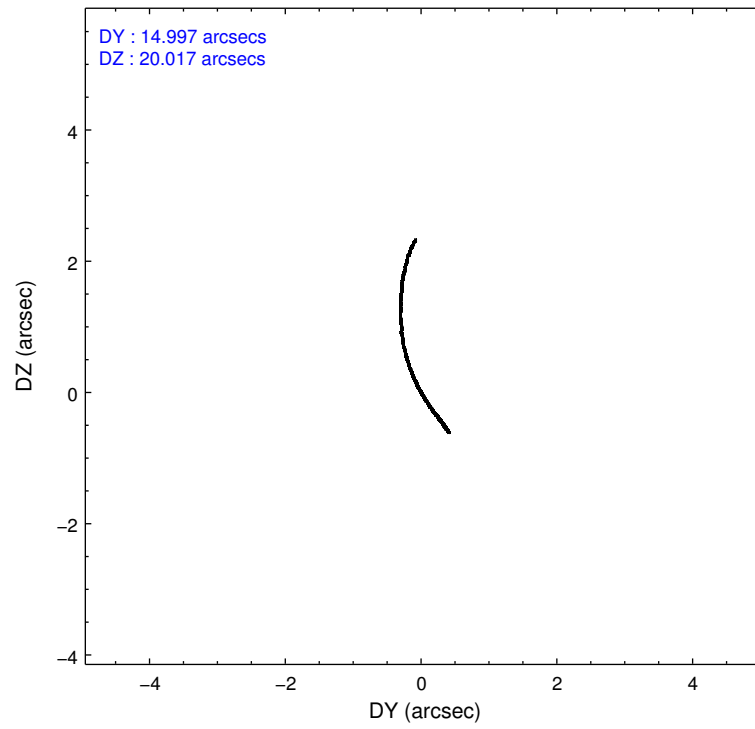
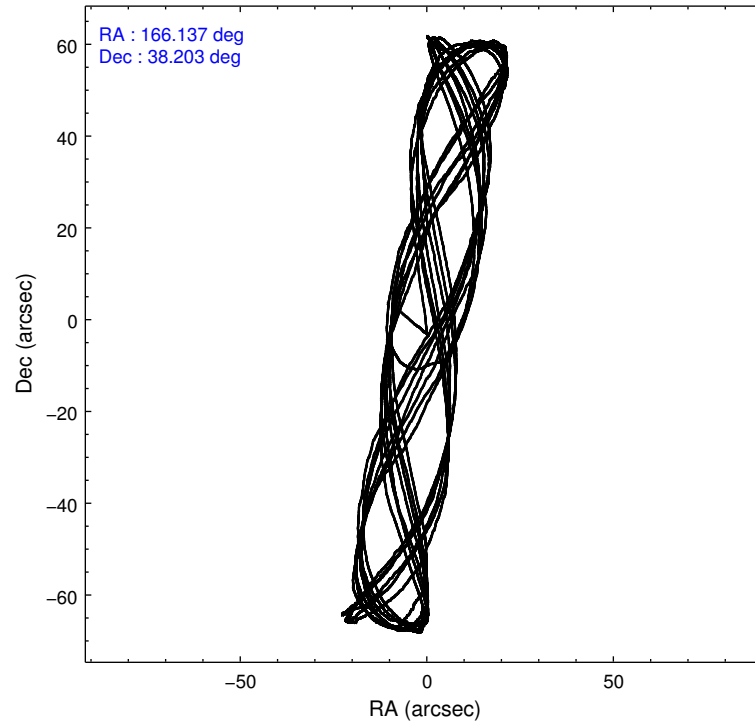
	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	128086	308365	441051	120152
rejected events	57676	71385	78039	79927
rejected %	45%	23%	17%	66%

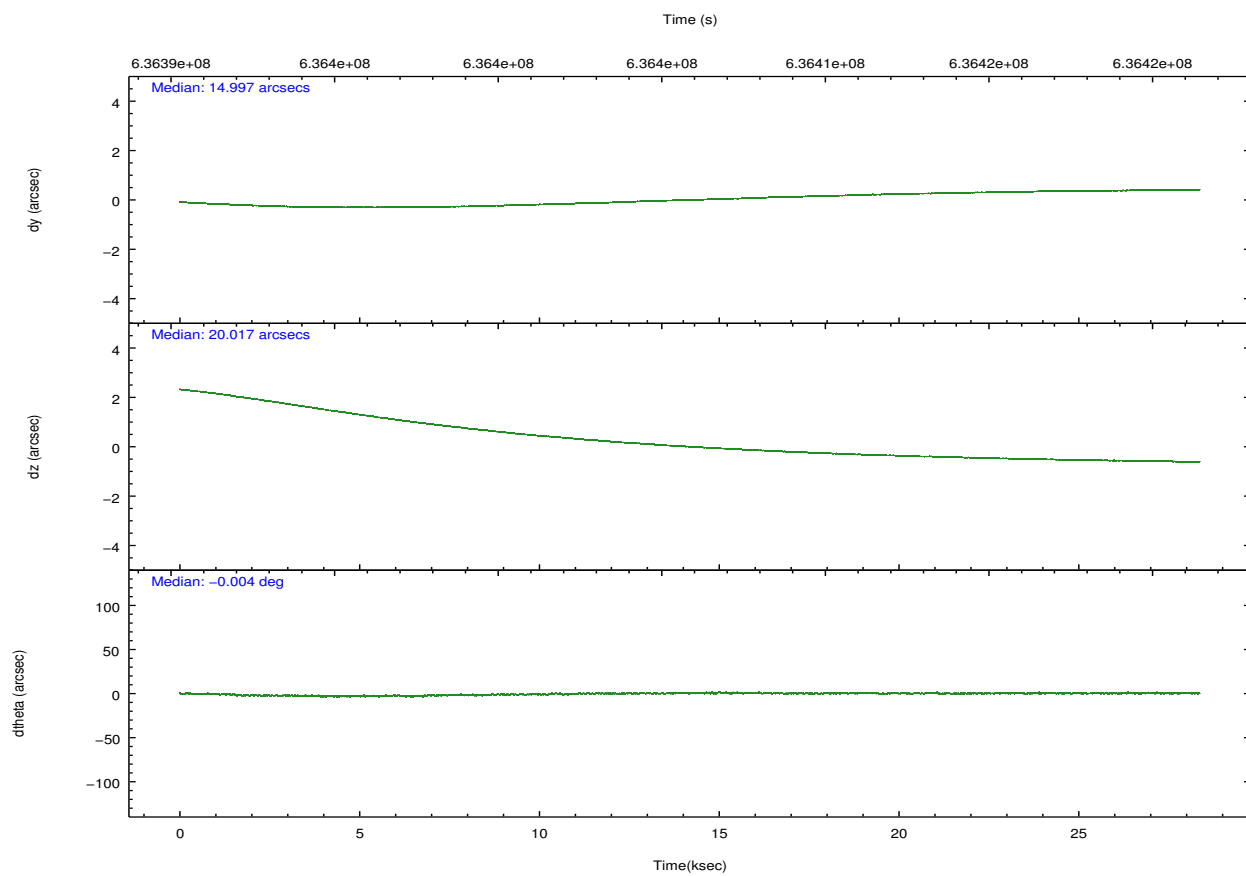
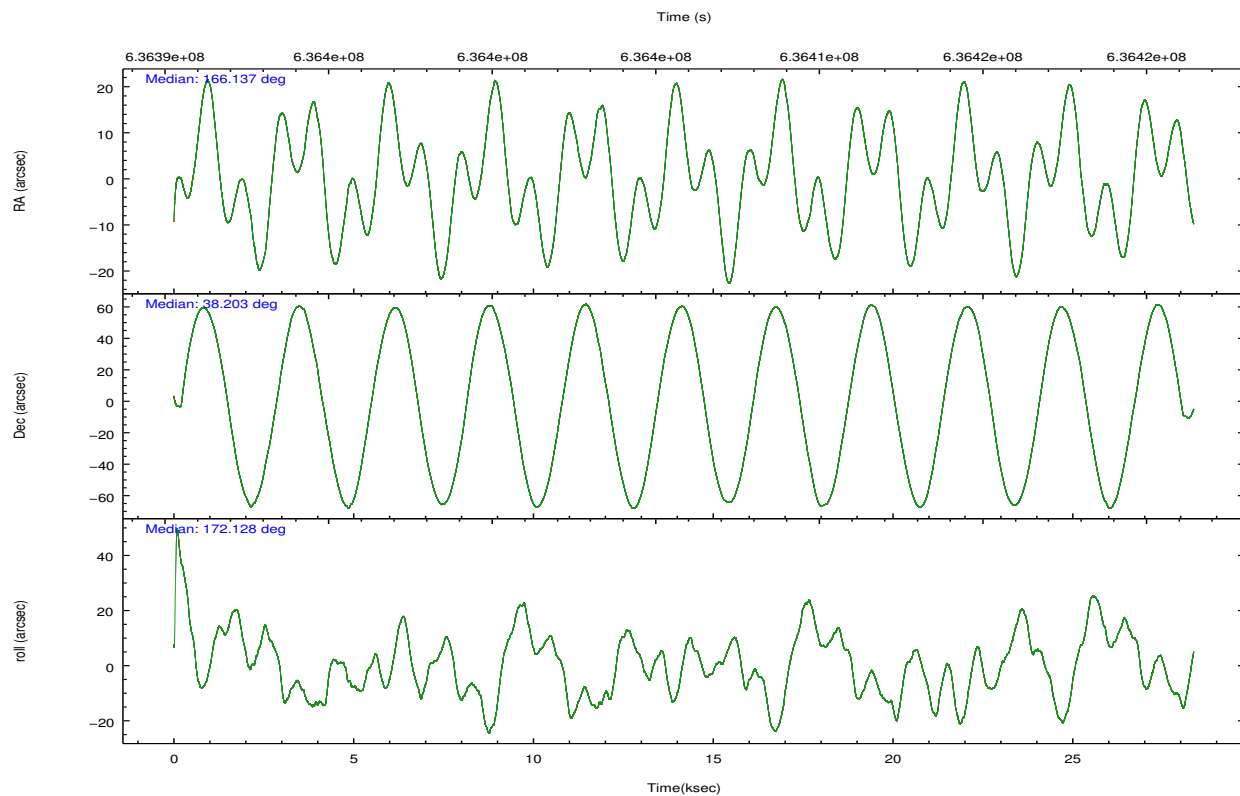
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	12333	186189	88434	19705
	9%	60%	20%	16%
grade 1 events	560	1888	2103	100
	0%	0%	0%	0%
grade 2 events	22272	26695	90754	7106
	17%	8%	20%	5%
grade 3 events	3400	8371	40221	3074
	2%	2%	9%	2%
grade 4 events	3377	8230	39852	2956
	2%	2%	9%	2%
grade 5 events	9202	4578	17584	4951
	7%	1%	3%	4%
grade 6 events	29031	7514	103786	7386
	22%	2%	23%	6%
grade 7 events	47911	64900	58317	74874
	37%	21%	13%	62%

2.2 Compared Parameters

Parameter	Planned	Actual	Parameter	Planned	Actual
Instrument	ACIS	ACIS	Obspar format version number	7	7
Detector	ACIS-5678	ACIS-5678	Obspar file type	PREDICTED	ACTUAL
Grating	LETG	LETG	Obspar update status	NONE	UPDATED
Data mode	FAINT	FAINT	CCD I0 on	N	N
Observation mode	POINTING	POINTING	CCD I1 on	N	N
[deg] Pointing RA	166.169396	166.1372991380824	CCD I2 on	N	N
[deg] Pointing Dec	38.212452	38.20227578301978	CCD I3 on	N	N
[deg] Pointing Roll	171.965322	172.1417835007777	CCD S0 on	N	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	-198.642523	-198.6485090303509	CCD S3 on	Y	Y
[mm] SIM translation stage offset	8.51	8.515986447343124	CCD S4 on	Y	Y
[s] Observation start time (MET)	636391843.184000	636390575.77297	CCD S5 on	O1	N
Observation start date	2018-03-02T15:29:34	2018-03-02T15:09:35	Number of optional ACIS chips dropped	1	1
[s] Observation end time (MET)	636420043.184000	636420910.13726	On-chip summing requested	N	N
Observation end date	2018-03-02T23:19:34	2018-03-02T23:35:10	Subarray requested	CUSTOM	CUSTOM
Read mode	TIMED	TIMED	Subarray start row	725	725
			Subarray row count	300	300
			Alternating exposures requested	N	N
			[s] Primary exposure time	0.000000	1.1

2.3 Aspect



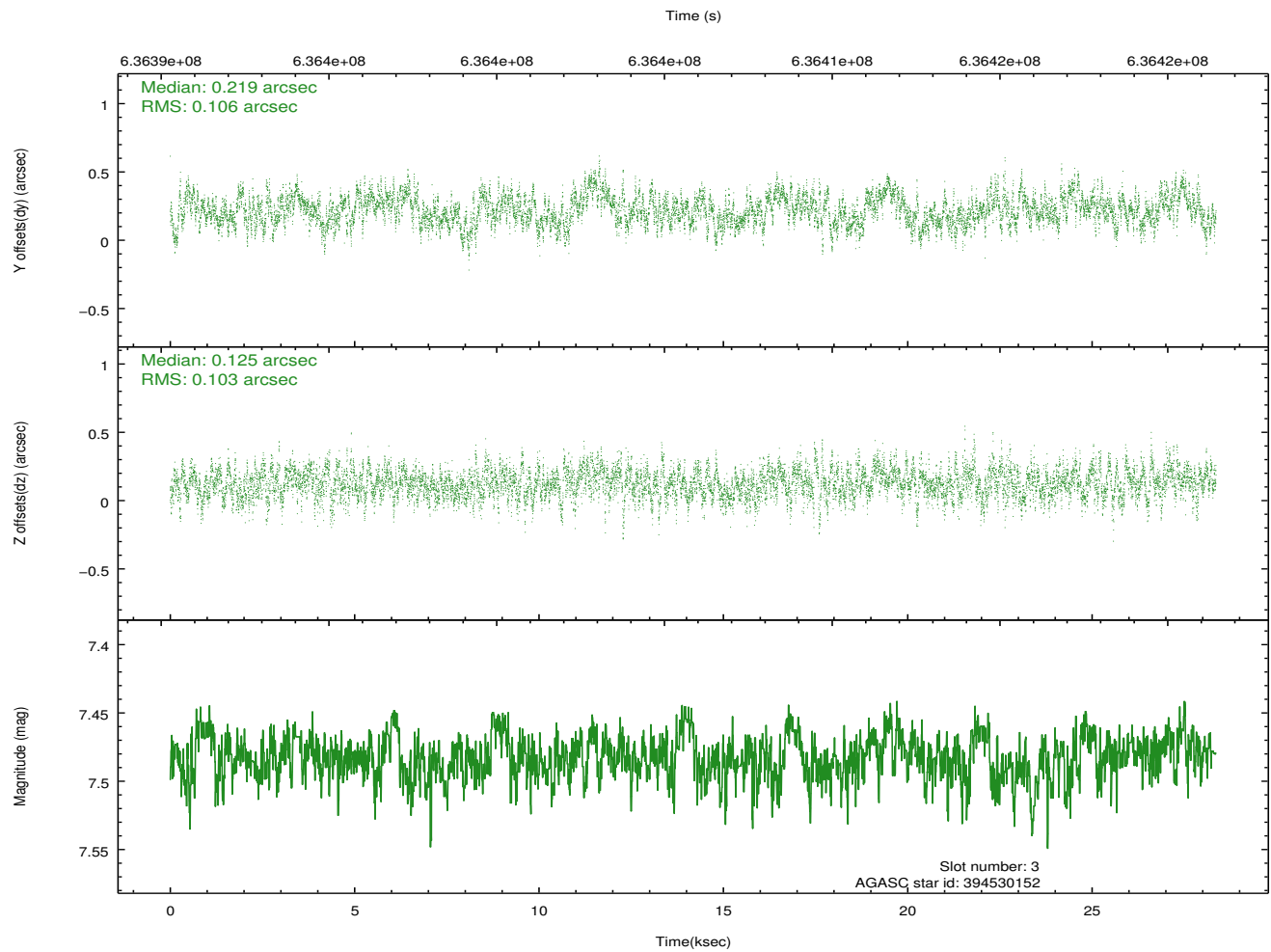
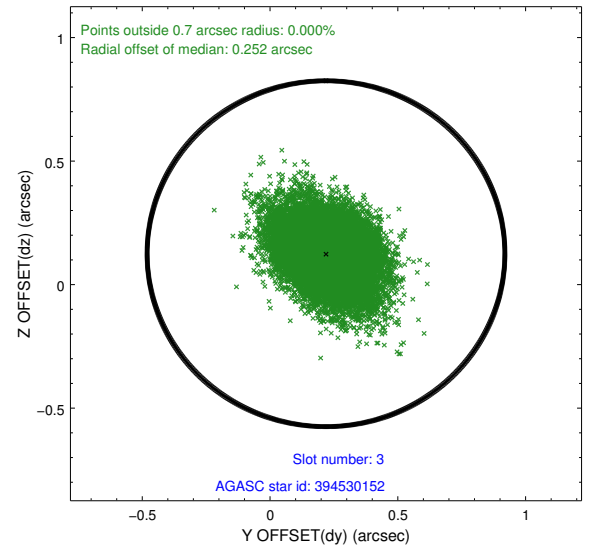
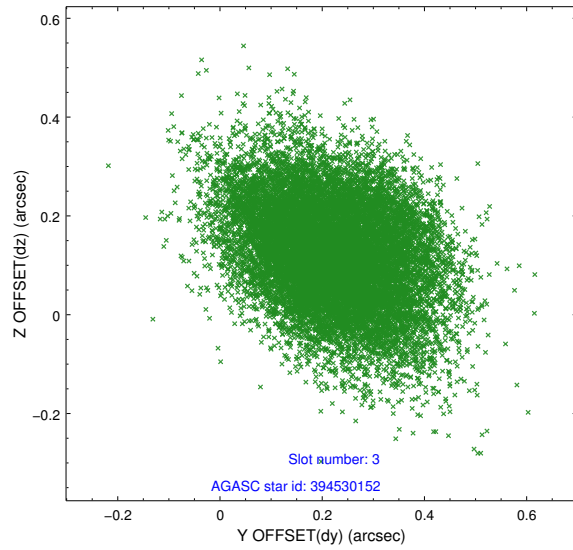


Slot Statistics

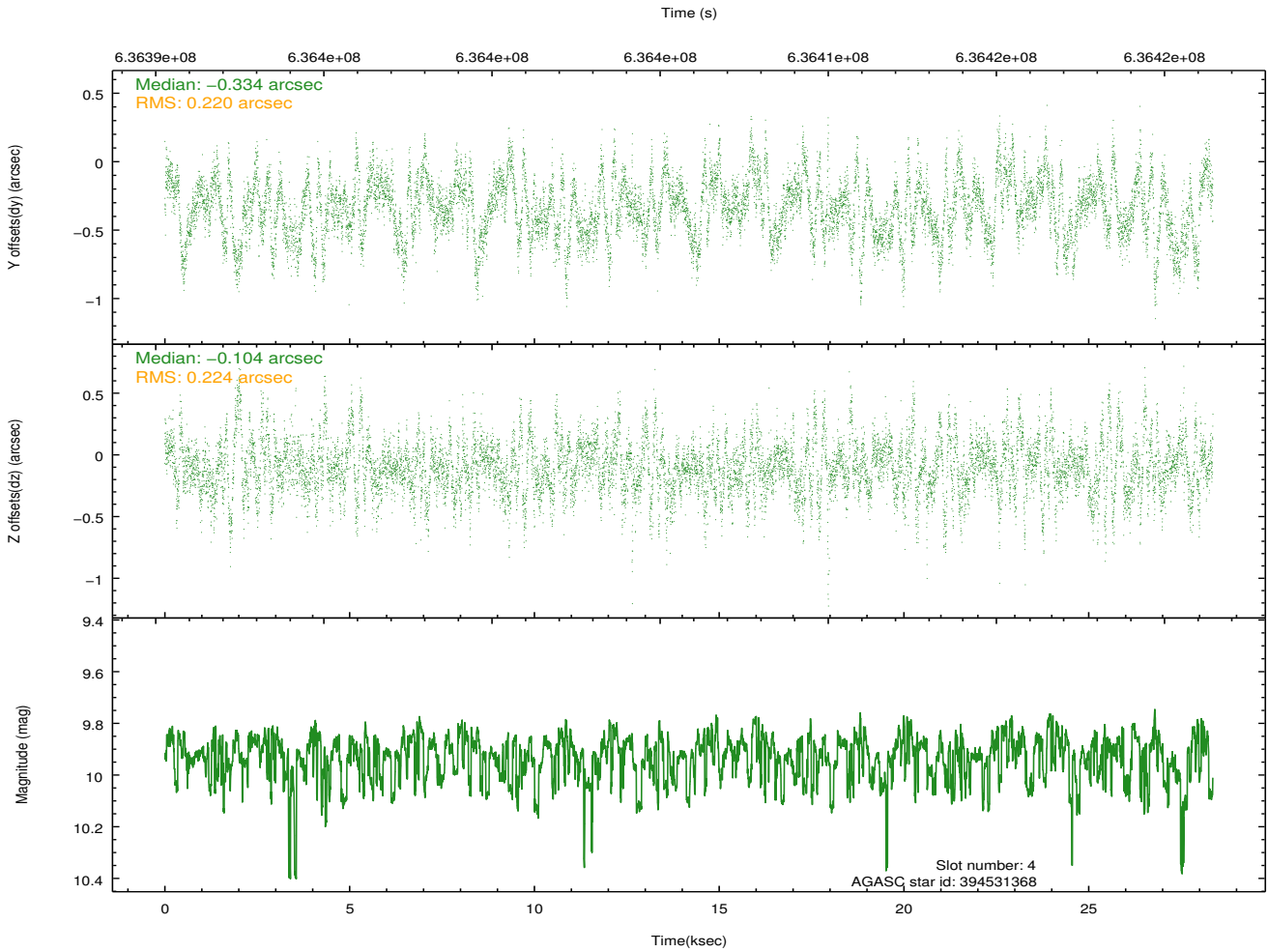
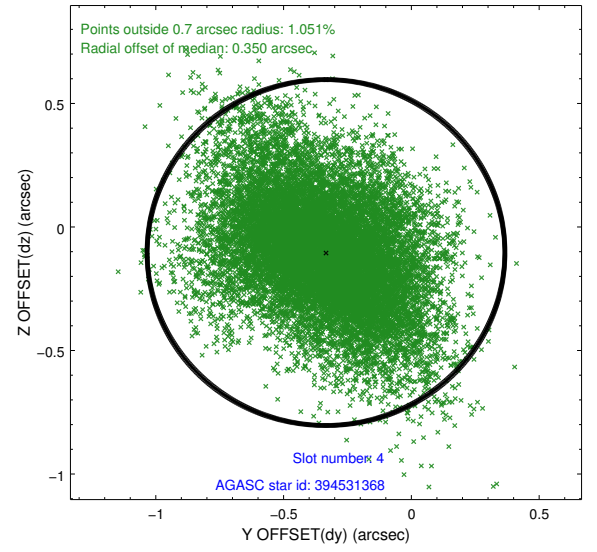
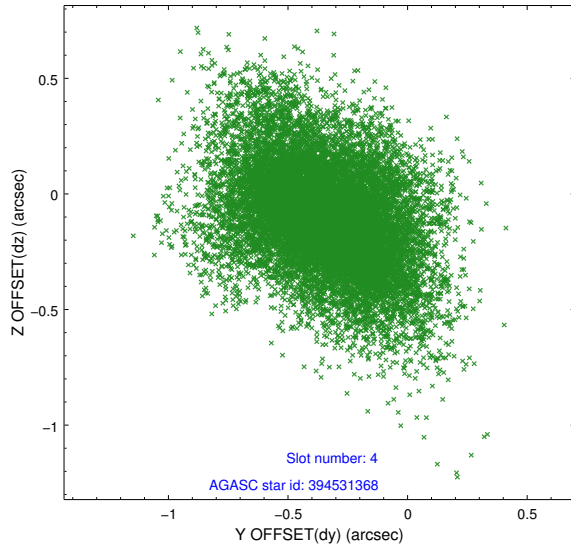
slot	status	used	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID		ACIS-S-2	7.05	6917	-0.122	0.056	0.015	0.026	0.000000	0.000000	-768.63	-1566.31
1	FID		ACIS-S-4	7.12	6918	0.384	0.044	0.007	0.012	0.000000	0.000000	2145.11	342.11
2	FID		ACIS-S-5	7.14	6918	-0.292	-0.091	0.015	0.025	0.000000	0.000000	-1821.54	335.74
3	GUIDE	used	394530152	7.48	13834	0.219	0.125	0.156	0.256	166.075805	38.868252	590.94	-2298.93
4	GUIDE	used	394531368	9.92	13704	-0.334	-0.104	0.329	0.562	165.794613	38.837127	1355.94	-2080.30
5	GUIDE	used	394533848	8.71	13827	-0.280	0.205	0.158	0.271	166.382906	38.276007	-558.94	-309.95
6	GUIDE	used	394543960	9.75	13807	-0.405	-0.348	0.268	0.461	165.802757	37.787371	818.81	1660.87
7	GUIDE	used	394546720	6.42	13834	0.790	0.128	0.182	0.307	166.130115	38.241361	125.77	-85.31

2.4 Star Slots

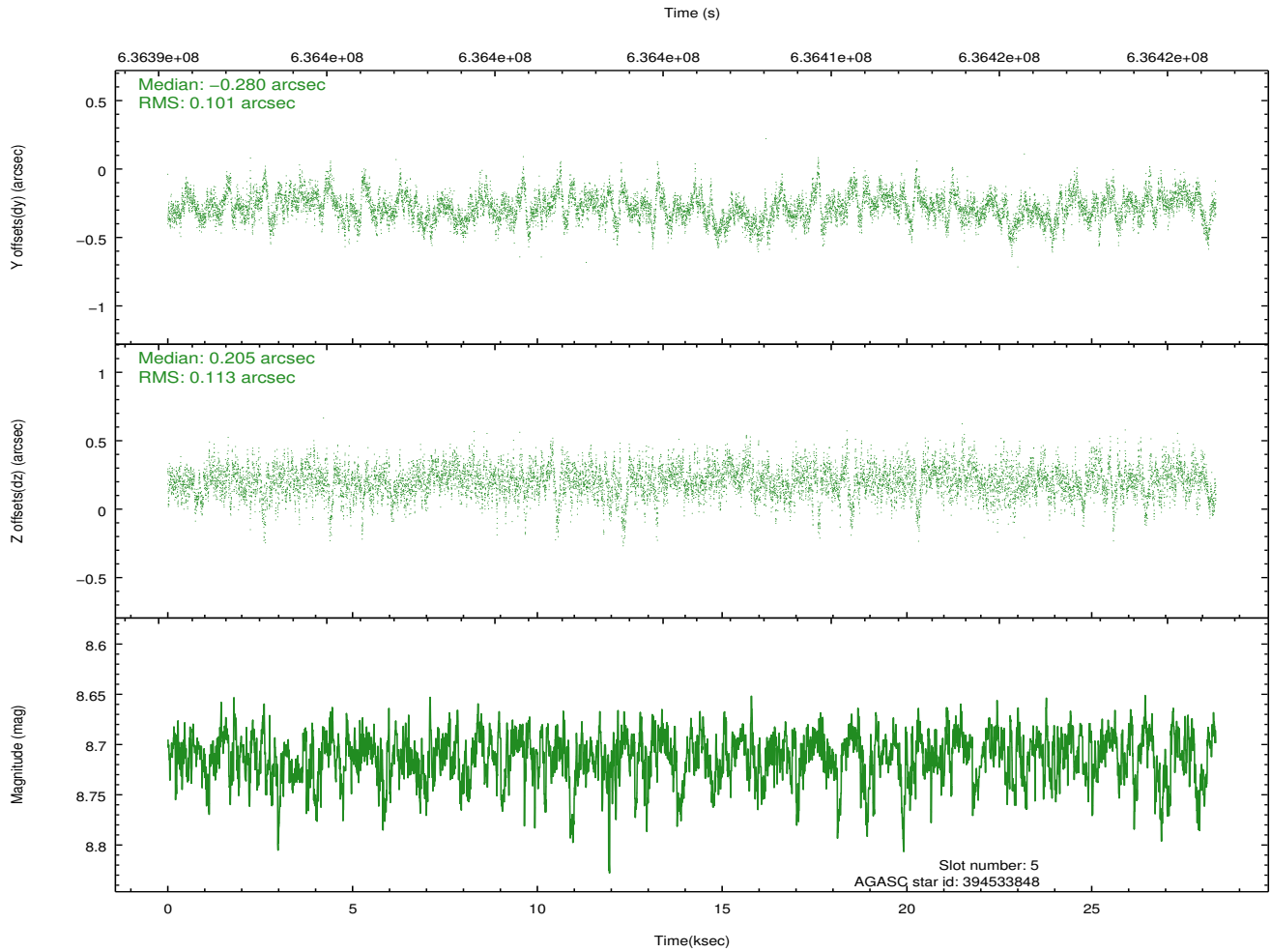
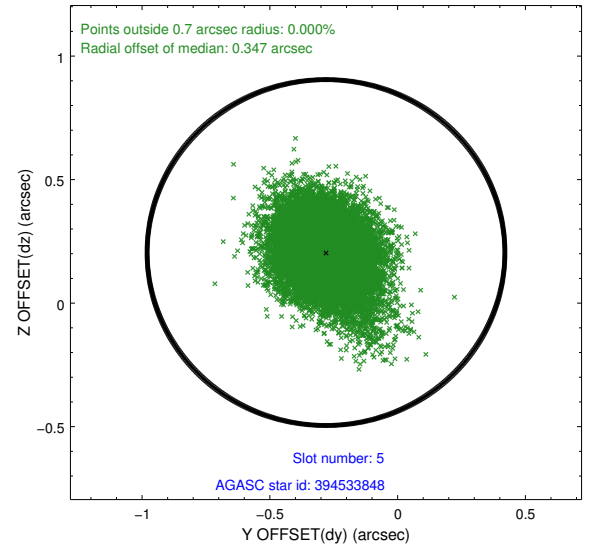
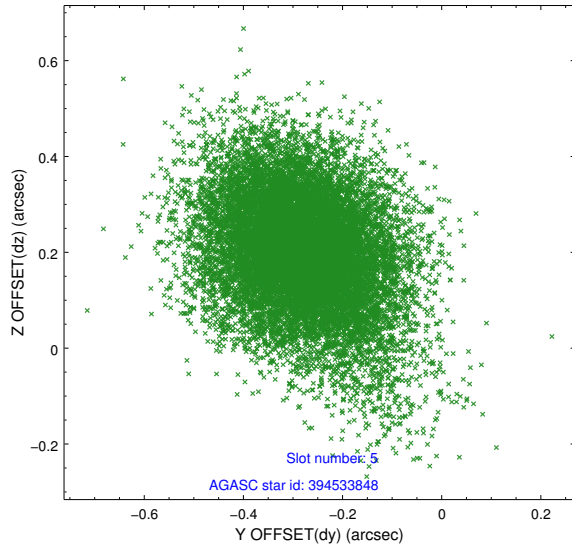
2.4.1 Slot 3



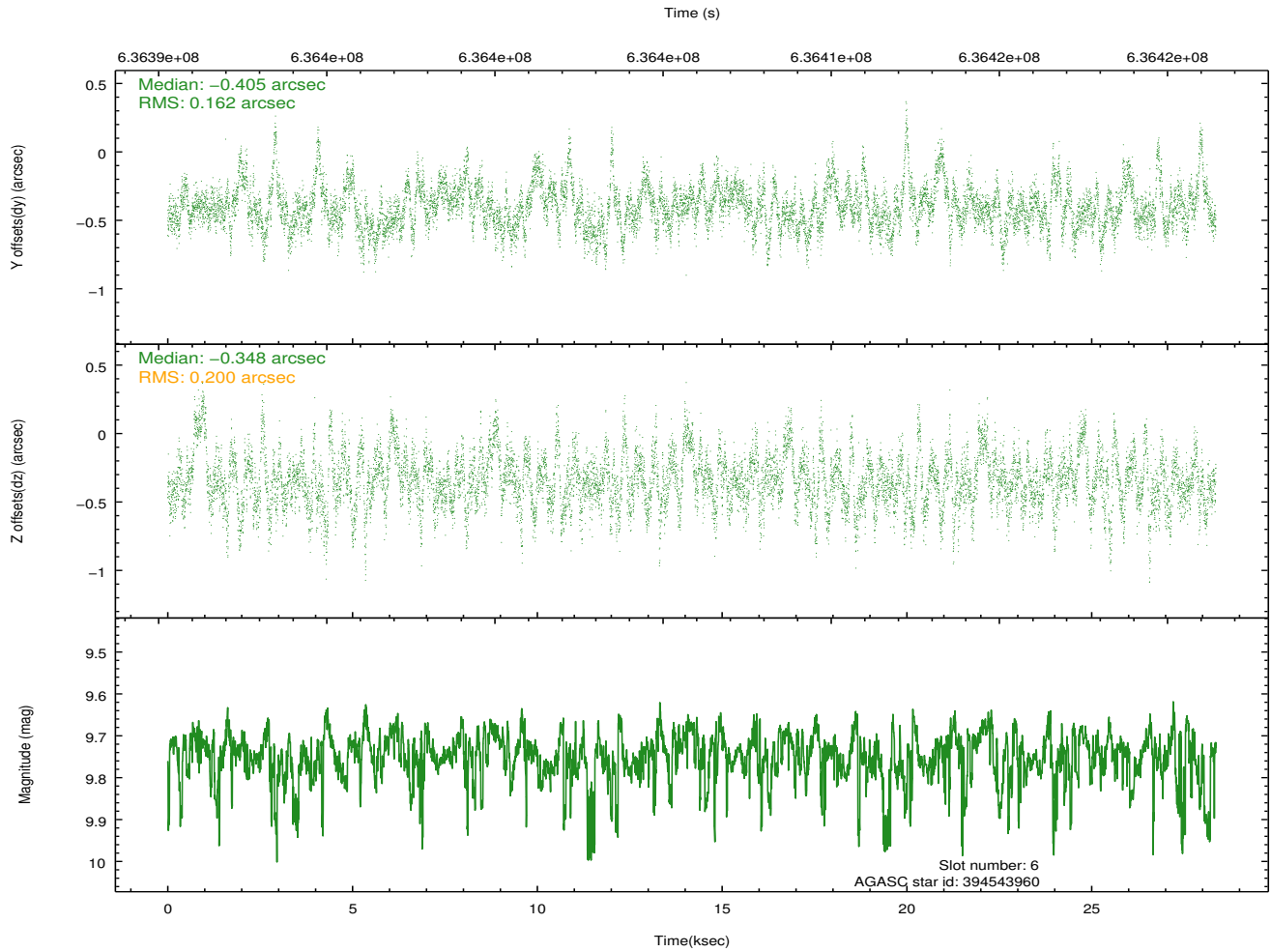
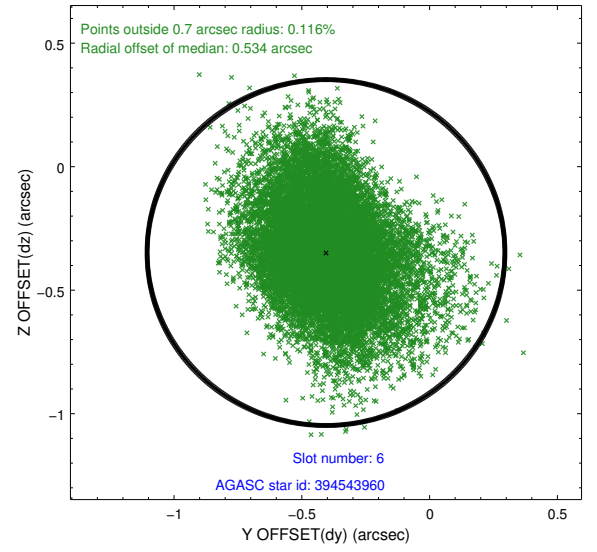
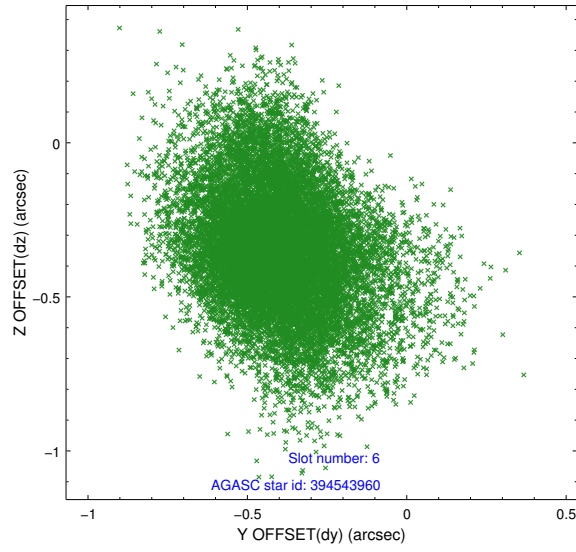
2.4.2 Slot 4



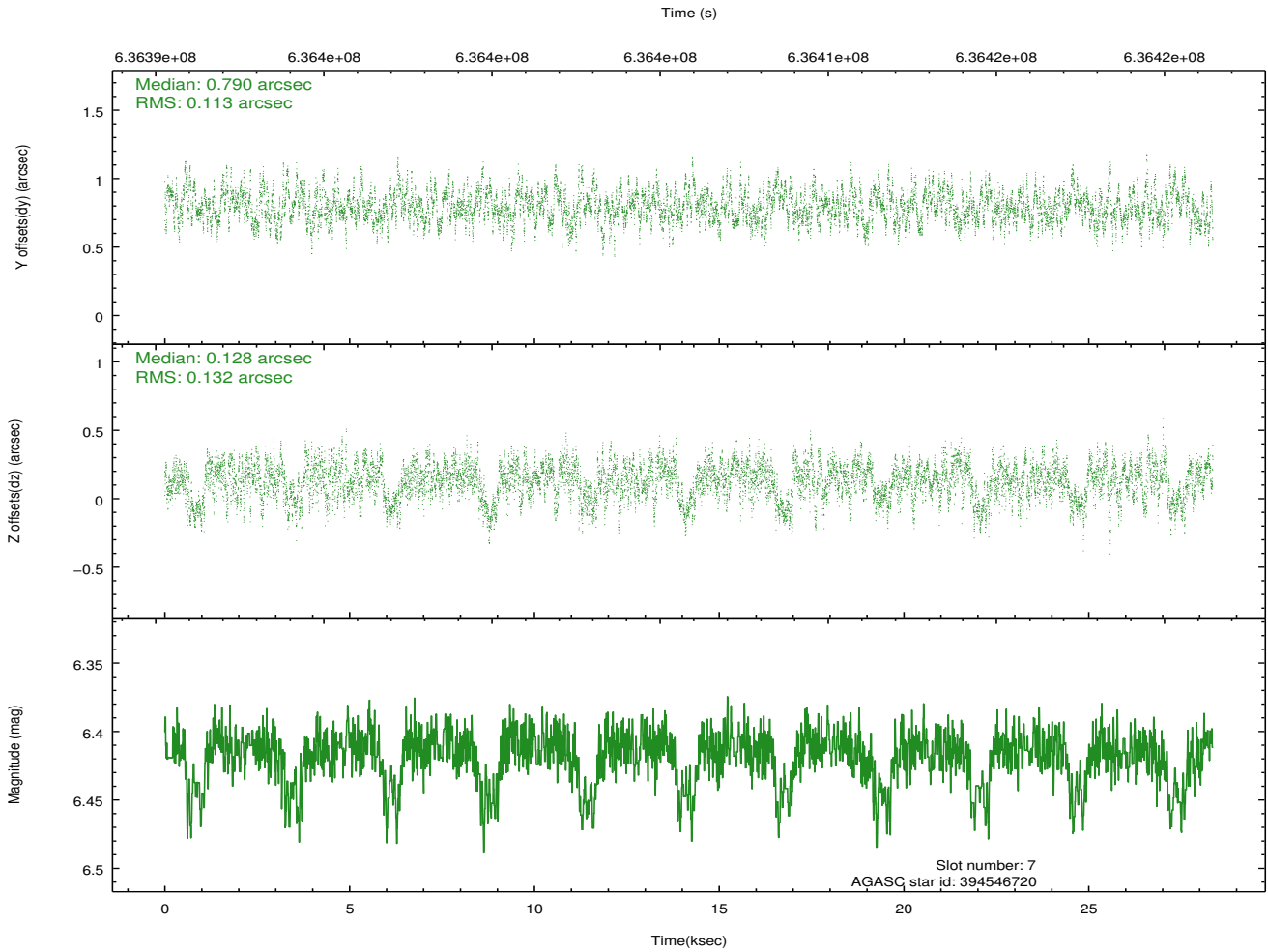
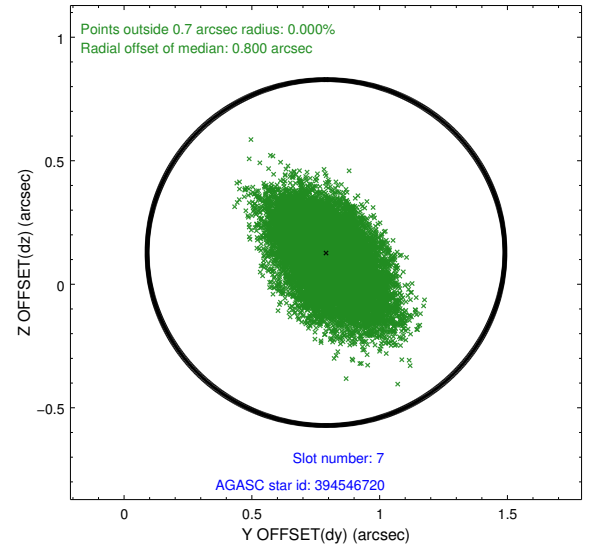
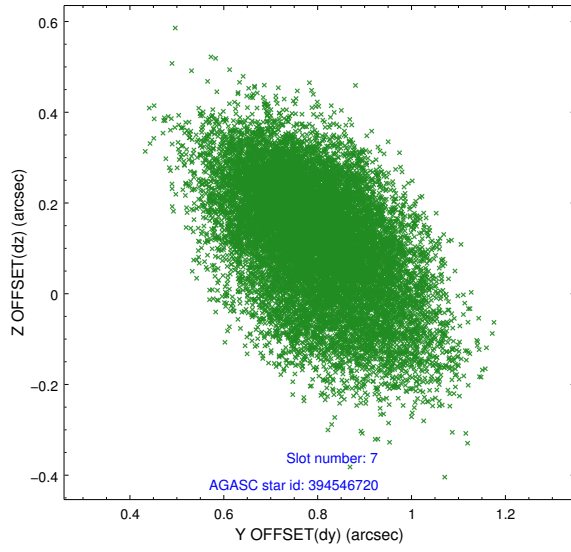
2.4.3 Slot 5



2.4.4 Slot 6

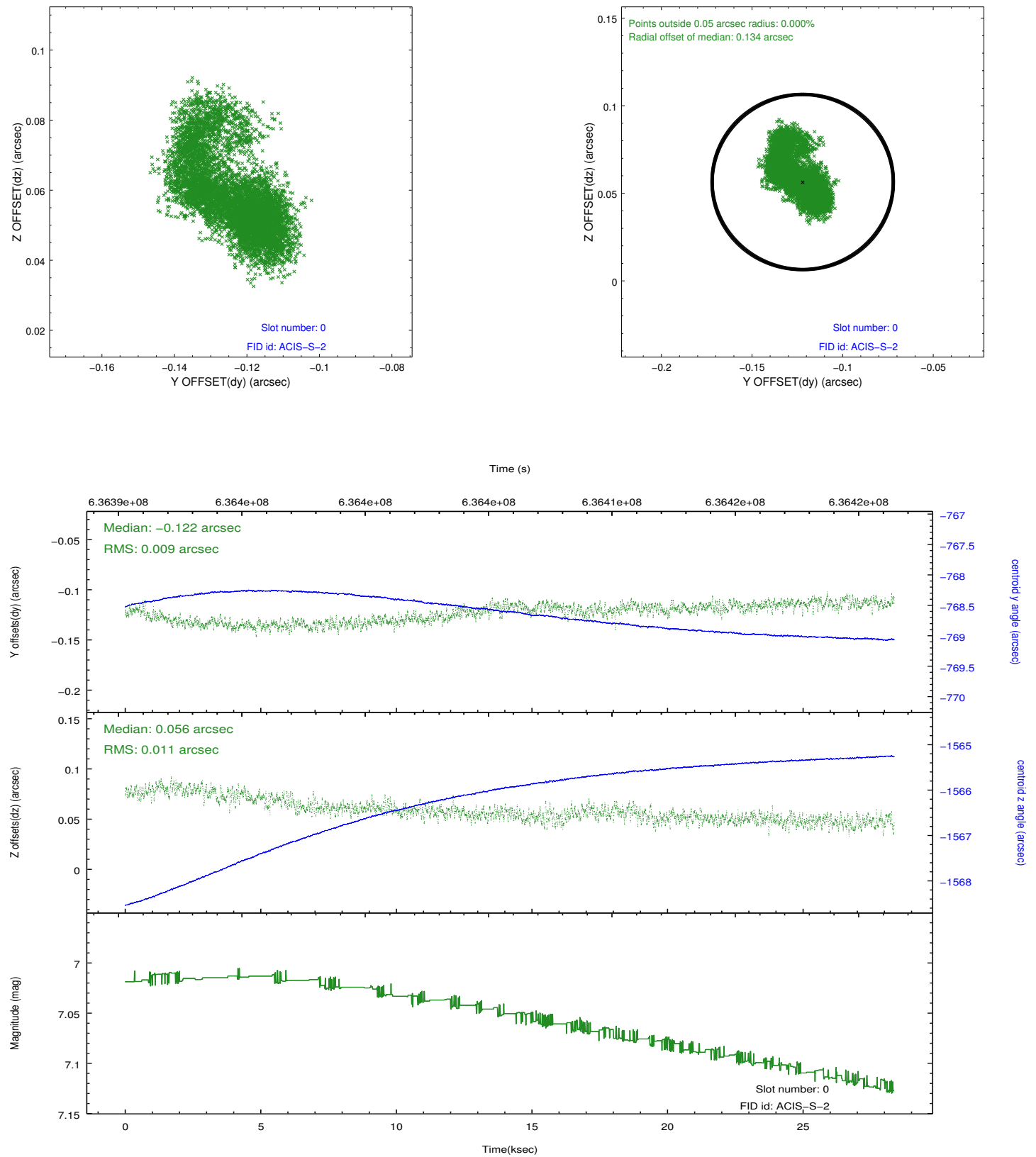


2.4.5 Slot 7

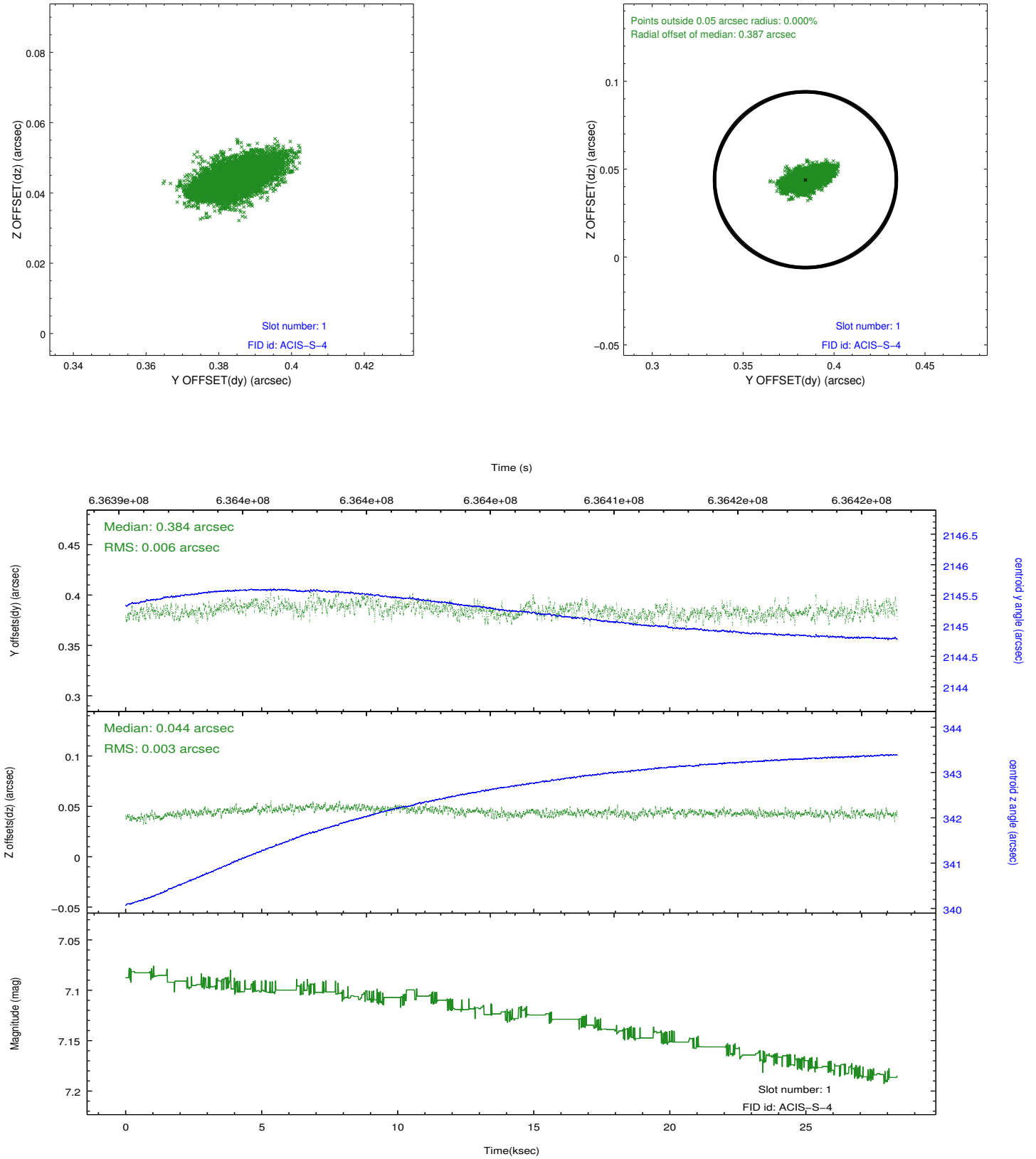


2.5 FID Slots

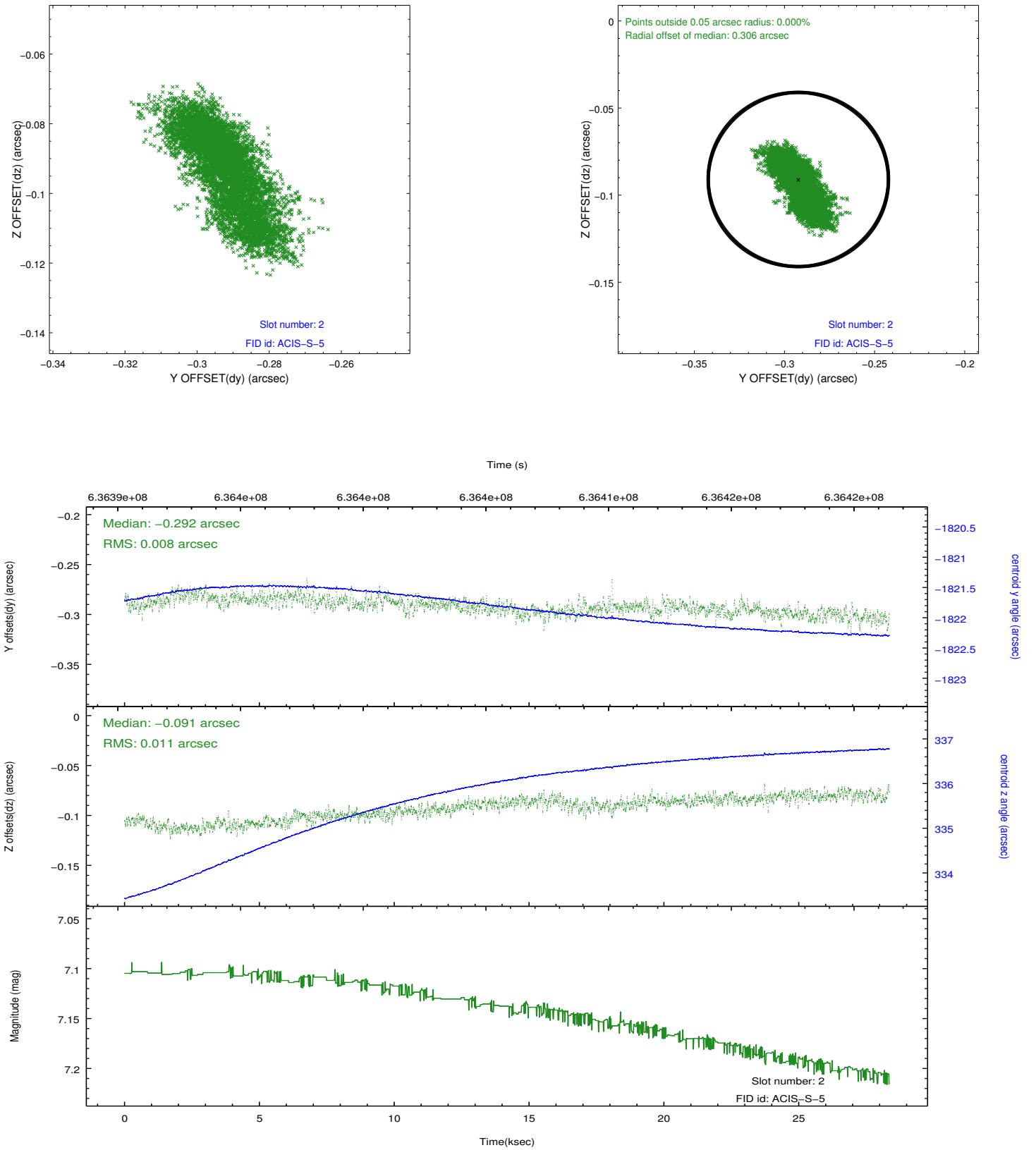
2.5.1 Slot 0



2.5.2 Slot 1

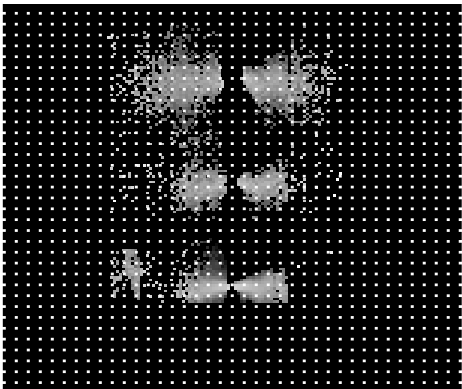


2.5.3 Slot 2

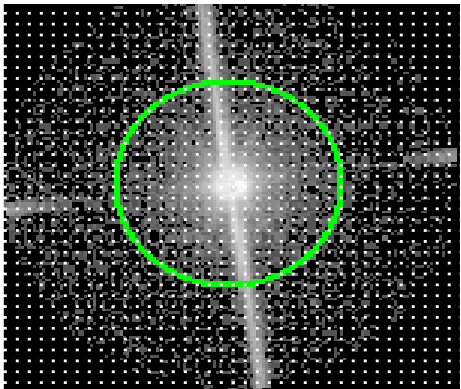


3 Gratings

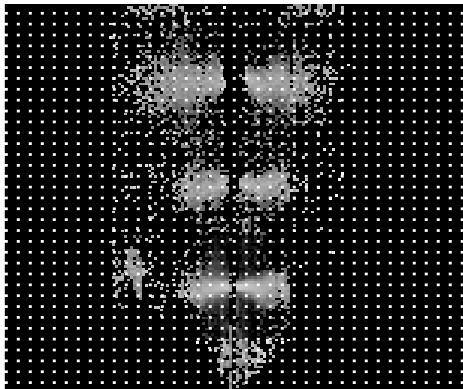
3.1 LETG Arm



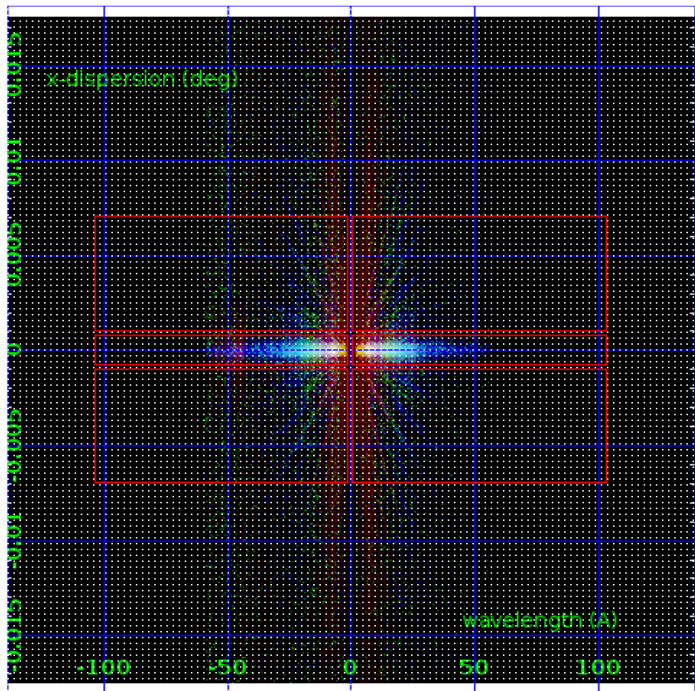
LETG Order Sort 123



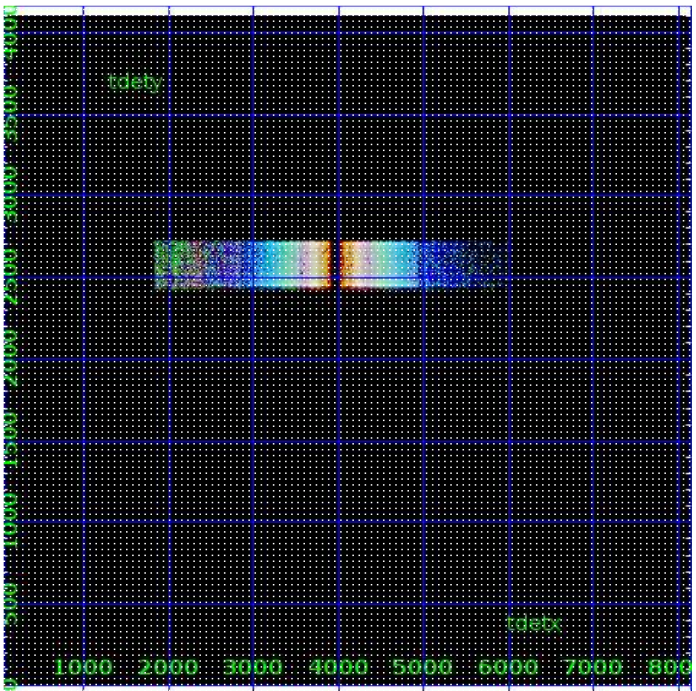
LETG Zero Order



LETG Order Sort ALL

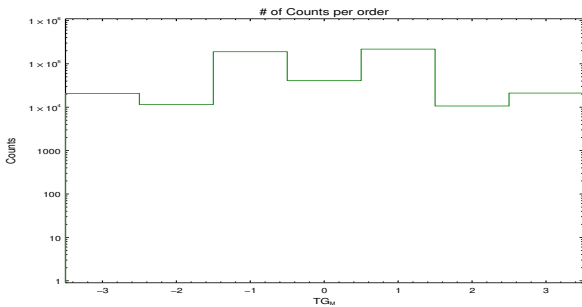


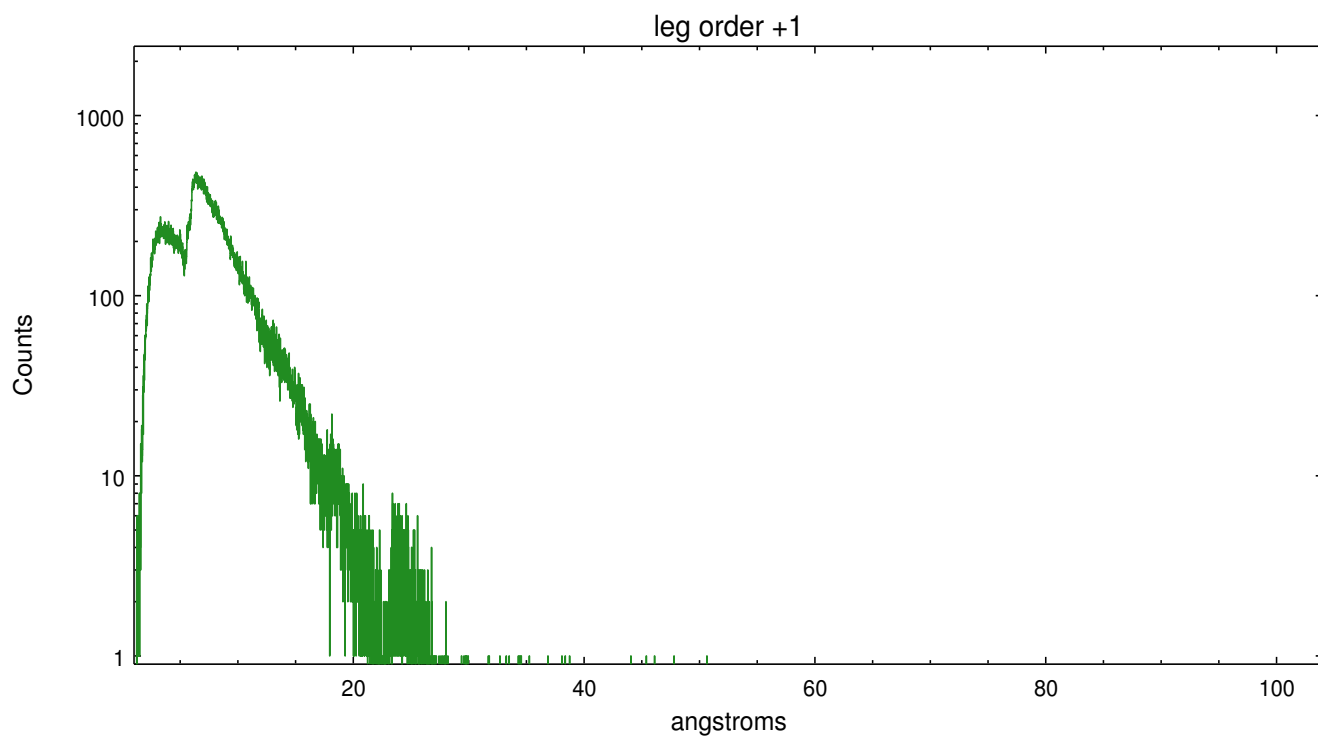
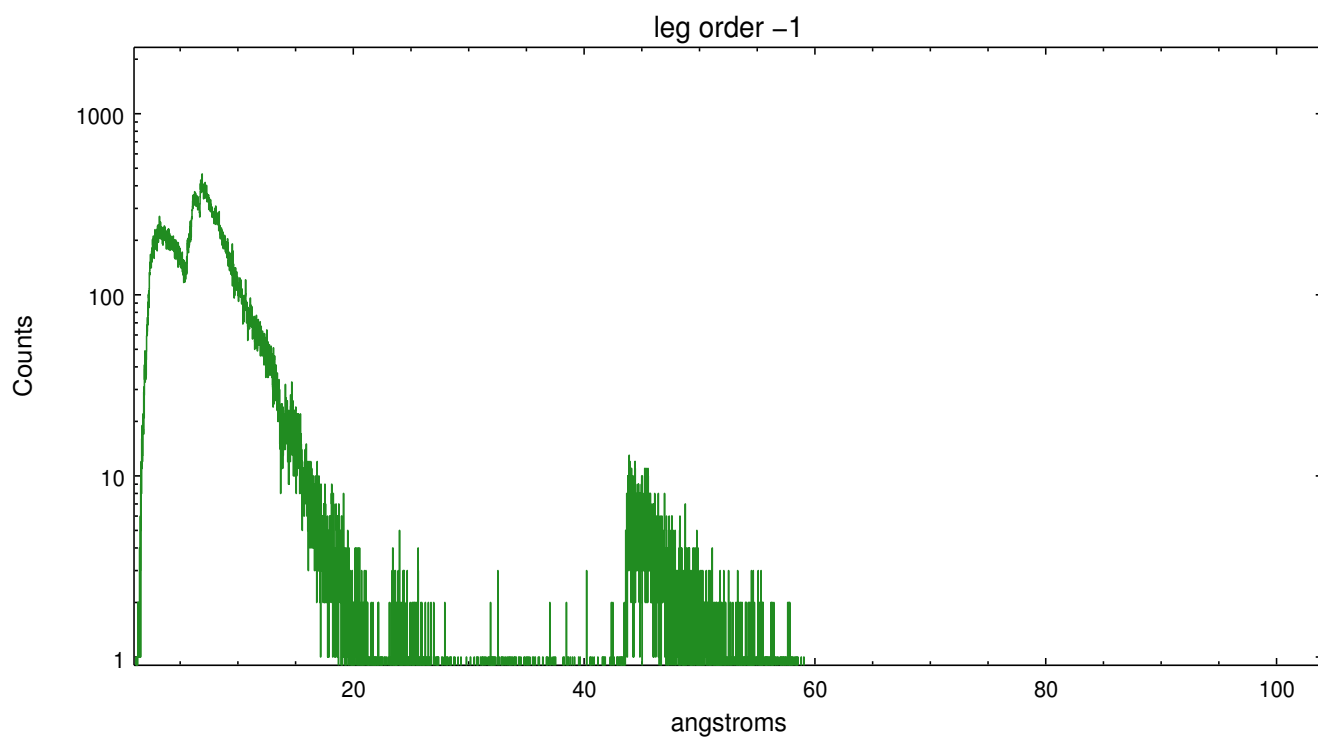
Spot Image LETG



Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	20770	11517	190069	40963	217875	10656	21157





A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2018.03.05
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	28.28870061326

A.2 Comments

Note: this is a "big dither" calibration observation, which uses a large aspect dither amplitude in the cross-dispersion direction to exposure the CCDs at a large range of CHIPY. Hence, the response will depend strongly on time. This effect should be considered during analysis.

Comments for Obi 0

Star in slot 4 has an RMS deviation > 0.200000 arcsec

Star in slot 6 has an RMS deviation > 0.200000 arcsec

ASPECT review: both acceptable.