V&V Reference Report
L2 ASCDS Version : 7.6.8

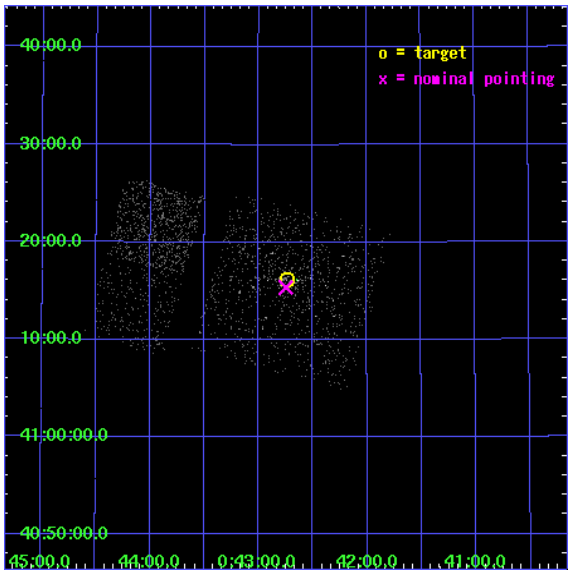
Observation 4680 - L2 Version $_e$1
Chandra X-Ray Center

L2 Processing Date : Jun 22 2006

Contents

1 Front

seq_num	600335
obs_id	4680
title	Searching for Black Hole X-ray Nova in M31
observer	Dr. Stephen Murray
object	M31-Center
dtycycle	0
cycle	P
ra_targ	10.685
dec_targ	41.268972
ra_nom	10.687116059296
dec_nom	41.256250379686
roll_nom	285.12194184854
revision	2
ontime	990.95360040665
livetime	156.00000006401
ontime0	991.04155114293
ontime1	991.00051116943
ontime2	990.95947116613
ontime3	990.95360040665
ontime6	990.95360040665
ontime7	990.95360040665
l2events	2386

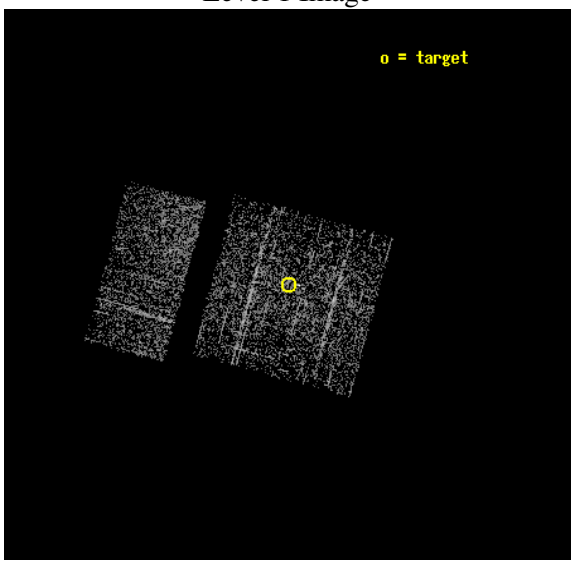


2 OBI Primary

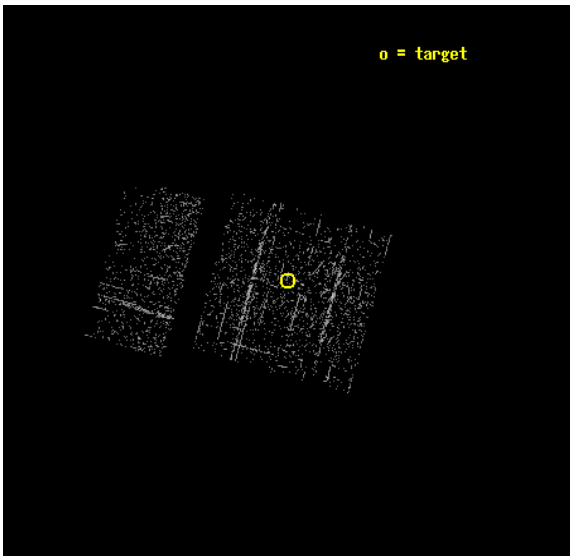
2.1 OBI

2.1.1 Images

Level 1 Image

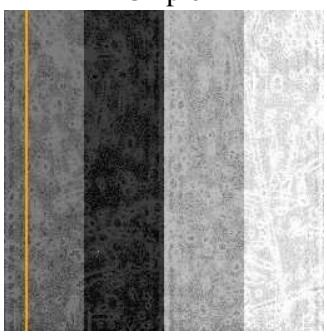


Level 1 Bad Events

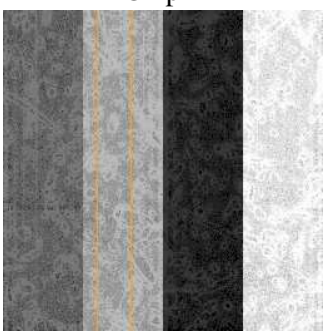


2.1.2 Bias

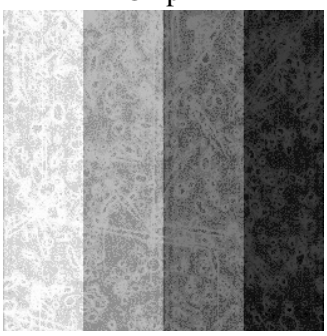
Chip 0



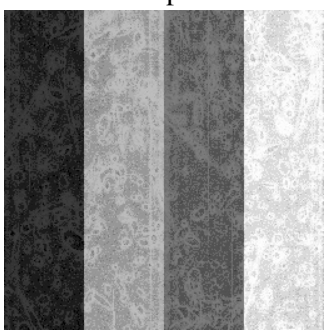
Chip 1



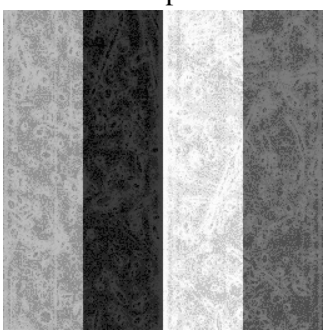
Chip 2



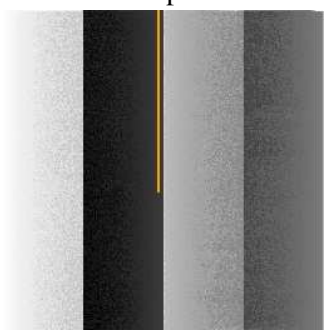
Chip 3



Chip 6



Chip 7



2.1.3 Parameters

obi_num	1
ascdsver	7.6.8
caldbver	3.2.2
date	2006-06-22T09:37:53
revision	2

sched_exp_time	5200.000000
ontime	998.57632040977
ontime0	998.57632040977
ontime1	998.57632040977
ontime2	998.57632040977
ontime3	998.57632040977
ontime6	998.57632040977
ontime7	998.57632040977
l1events	18867

2.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	3097	3278	3323	2960	3009	3200
rejected events	2756	2773	2972	2514	2737	2408
rejected %	88%	84%	89%	84%	90%	75%

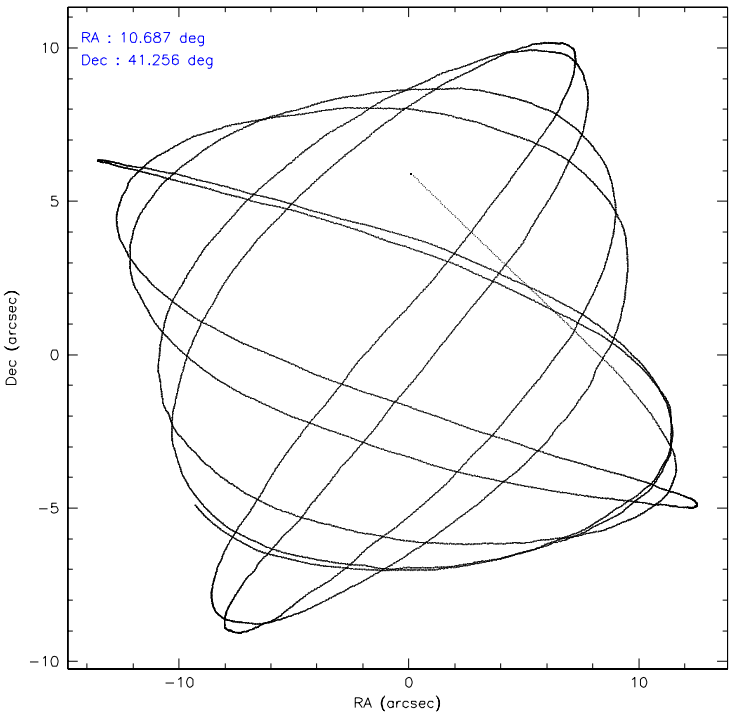
	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	151	263	160	255	67	51
	4%	8%	4%	8%	2%	1%
grade 1 events	0	3	2	1	1	2
	0%	0%	0%	0%	0%	0%
grade 2 events	63	88	63	72	75	219
	2%	2%	1%	2%	2%	6%
grade 3 events	43	40	36	35	32	46
	1%	1%	1%	1%	1%	1%
grade 4 events	40	47	35	41	39	44
	1%	1%	1%	1%	1%	1%
grade 5 events	90	109	107	92	119	196
	2%	3%	3%	3%	3%	6%
grade 6 events	47	75	57	53	60	437
	1%	2%	1%	1%	1%	13%
grade 7 events	2663	2653	2863	2411	2616	2205
	85%	80%	86%	81%	86%	68%

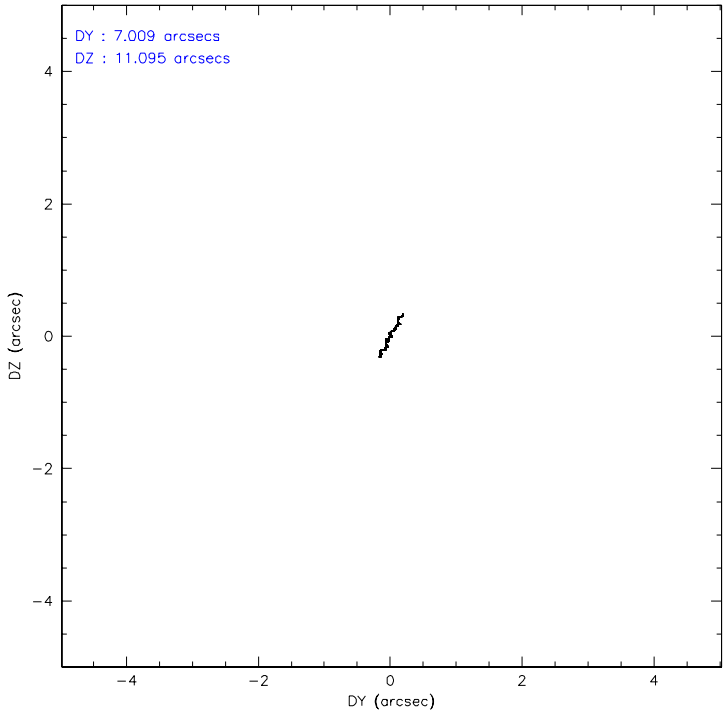
2.2 Compared Parameters

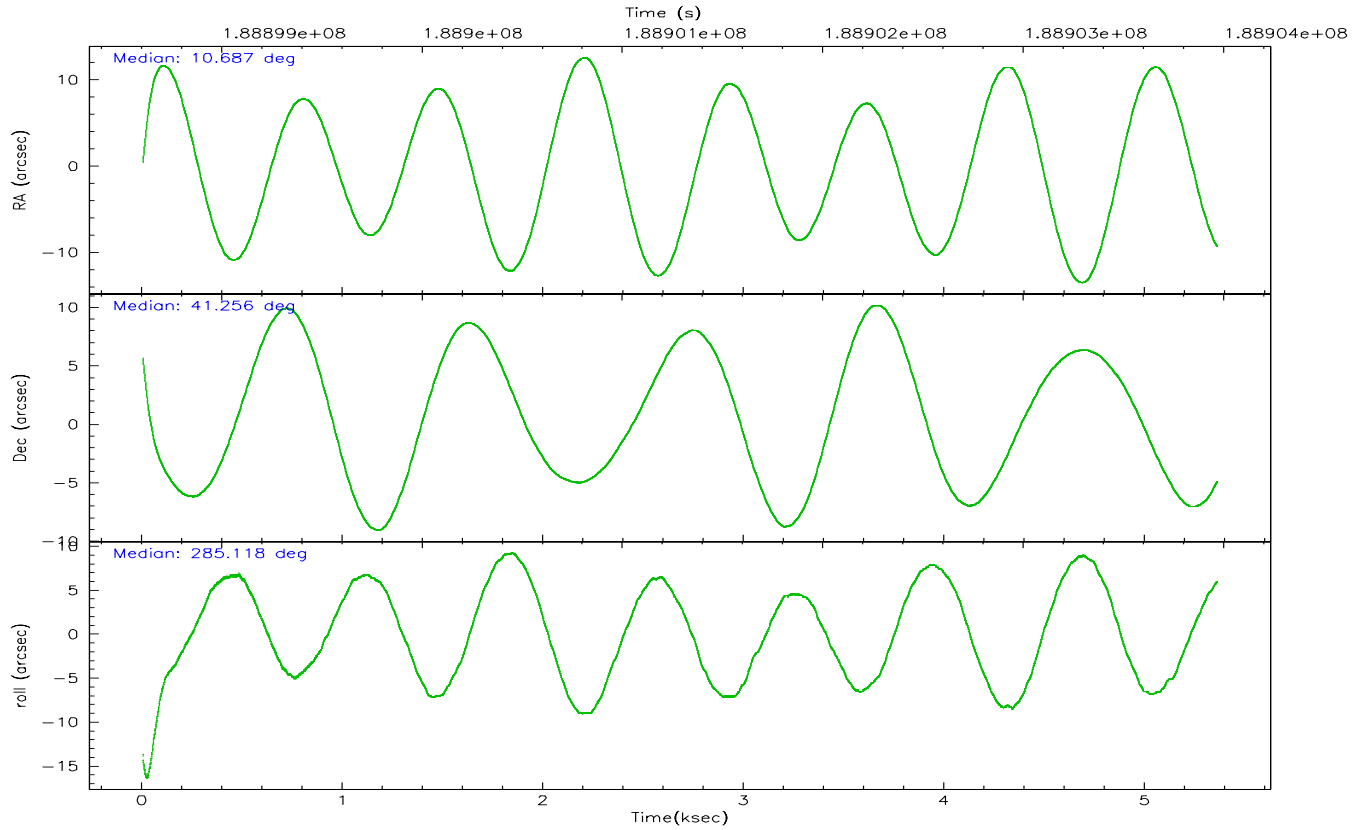
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-012367	ACIS-012367
Grating	NONE	NONE
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	10.661096	10.68711605929614
Pointing Dec	41.275568	41.25625037968576
Pointing Roll	284.930447	285.1219418485352
Window start time	188438464.184000	188438464.184000
Window stop time	189043264.184000	189043264.184000
SIM focus pos (mm)	-0.782348	-0.7809083437167272
SIM defocus (mm)	0	0.001439871863259334
SIM translation stage pos (mm)	-233.592463	-233.5874344608287
SIM translation stage offset (mm)	0	-0.005018542100998502
Observation start time	188898771.184000	188897728.63036
Observation start date	2003-12-27T07:51:47	2003-12-27T07:35:28
Observation end time	188903971.184000	188905066.60568
Observation end date	2003-12-27T09:18:27	2003-12-27T09:37:46
Read mode	TIMED	TIMED

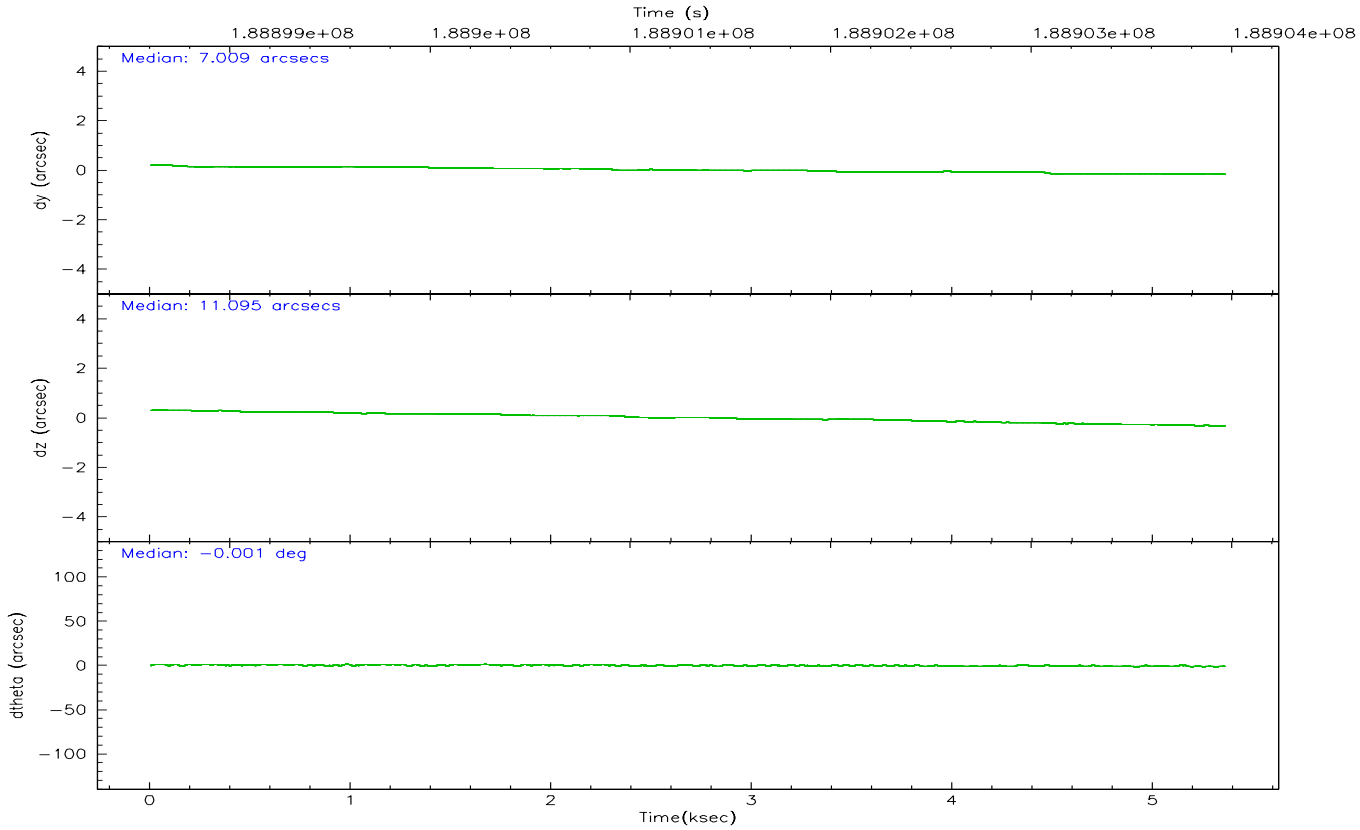
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	Y	Y
Primary exposure time	0.600000	0.6
Secondary exposure time	3.200000	3.2
Duty cycle	5	5

2.3 Aspect


RA : 10.687 deg
Dec : 41.256 deg
Dec (arcsec)
RA (arcsec)
10
5
0
−5
−10
−10
0
10


DY : 7.009 arcsecs
DZ : 11.095 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
1.88899e+08
1.889e+08
1.88901e+08
1.88902e+08
1.88903e+08
1.88904e+08
Median: 10.687 deg
RA (arcsec)
Median: 41.256 deg
Dec (arcsec)
Median: 285.118 deg
roll (arcsec)
Time(ksec)

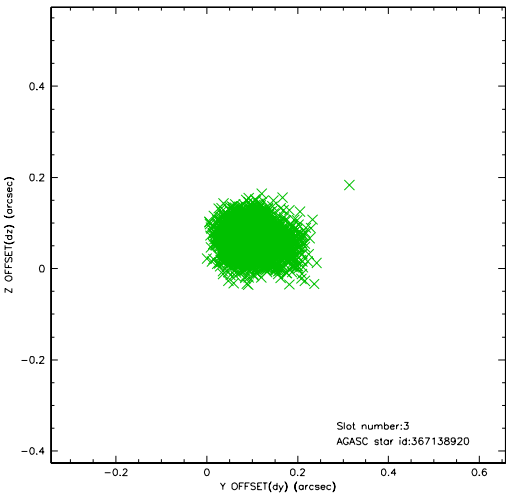

Time (s)
1.88899e+08
1.889e+08
1.88901e+08
1.88902e+08
1.88903e+08
1.88904e+08
Median: 7.009 arcsecs
dy (arcsec)
Median: 11.095 arcsecs
dz (arcsec)
Median: −0.001 deg
dtheta (arcsec)
Time(ksec)

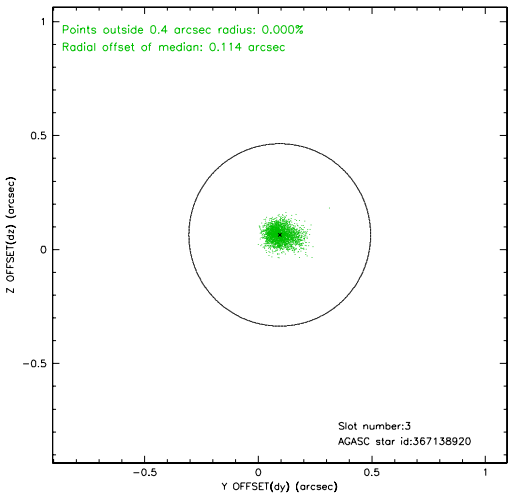
Slot Statistics

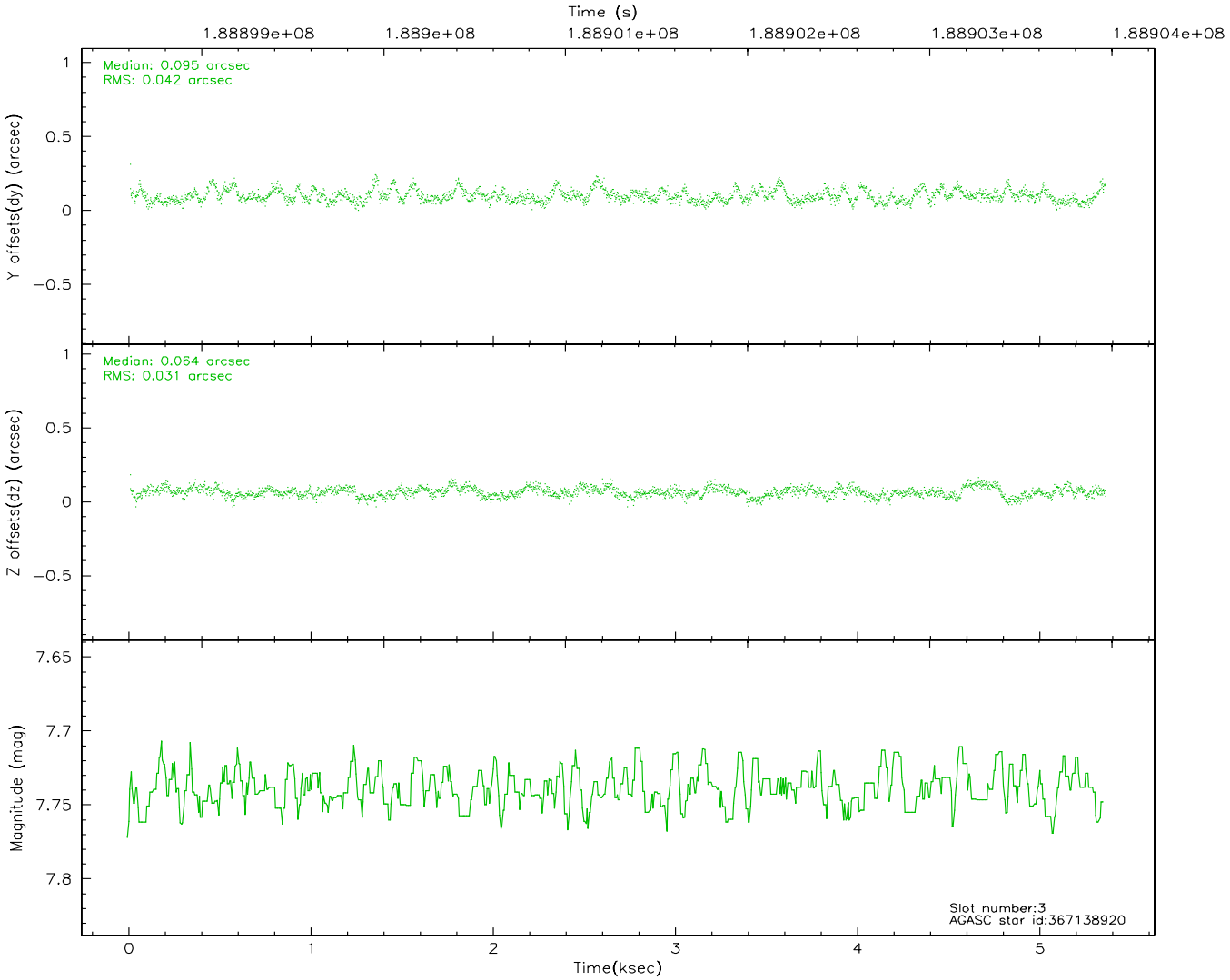
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-I-1	7.24	1307	0.005	0.019	0.008	0.013	0.000000	0.000000	932.65	-834.60
1	FID	ACIS-I-5	7.23	1307	-0.106	0.042	0.008	0.012	0.000000	0.000000	-1814.90	1062.41
2	FID	ACIS-I-6	7.25	1307	0.010	0.009	0.008	0.012	0.000000	0.000000	397.03	1708.11
3	GUIDE	367138920	7.74	2614	0.095	0.064	0.054	0.092	11.513485	40.808909	2210.89	1814.74
4	GUIDE	367148872	7.22	2614	0.076	-0.053	0.064	0.096	10.505940	40.688258	1934.53	-953.36
5	GUIDE	367658664	9.61	2612	-0.047	-0.010	0.082	0.133	10.374070	41.369746	-528.03	-662.08
6	GUIDE	367663272	9.28	2612	-0.107	-0.036	0.076	0.124	10.656279	41.699429	-1478.13	379.80
7	GUIDE	367674552	8.85	2612	-0.023	0.035	0.066	0.106	11.016238	41.570845	-783.33	1198.67

2.4 Star Slots

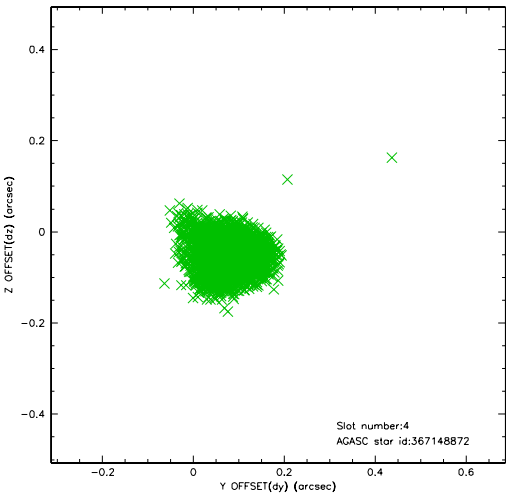
2.4.1 Slot 3

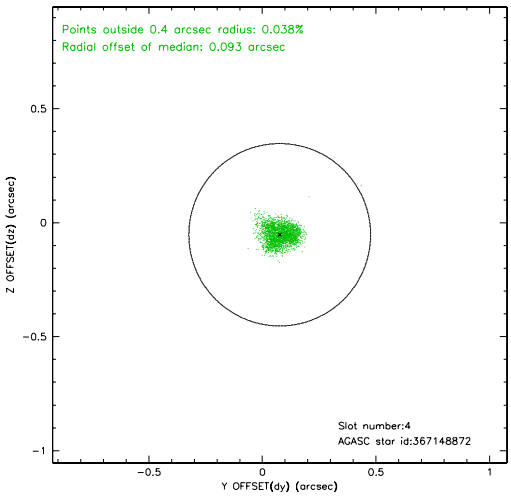


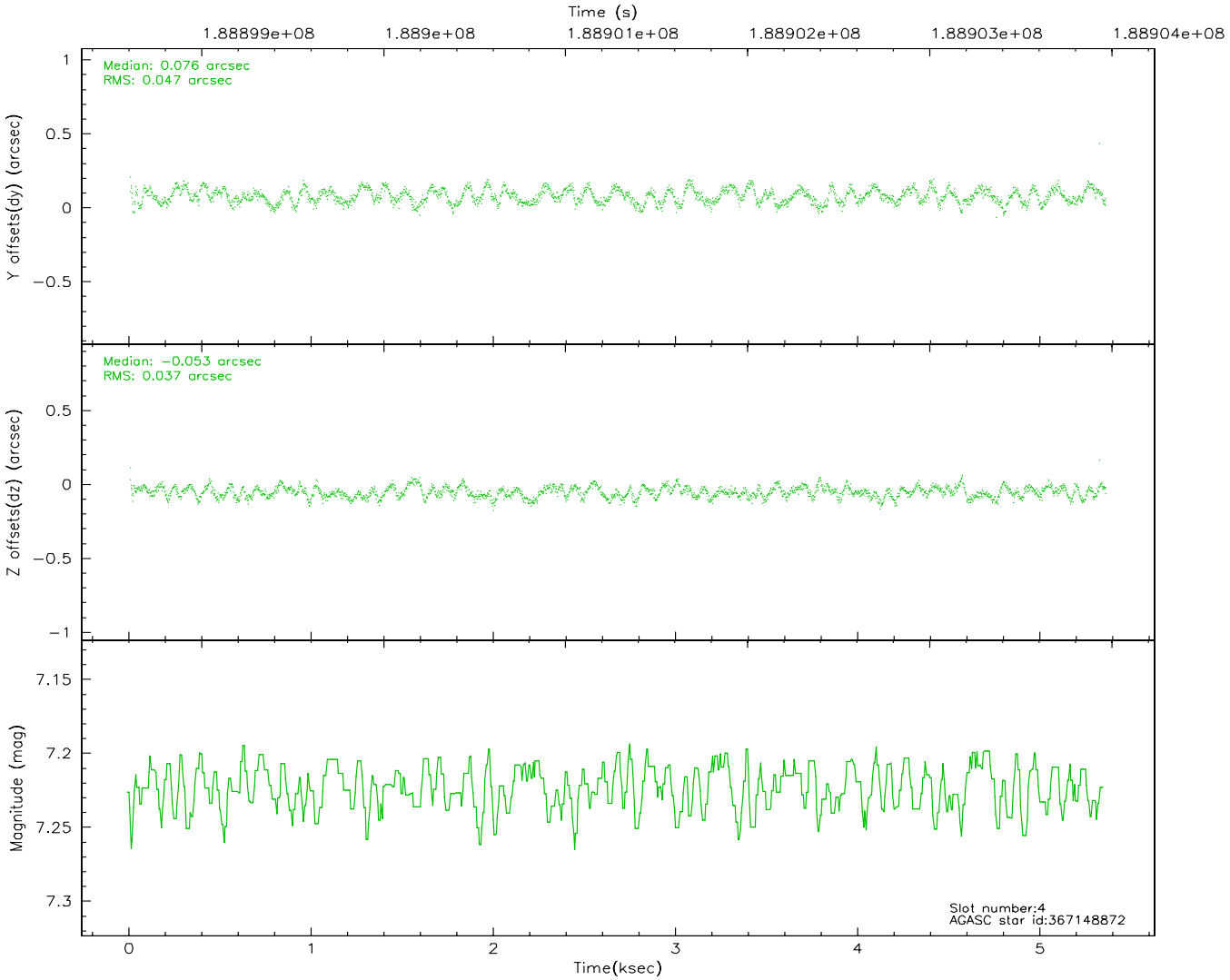




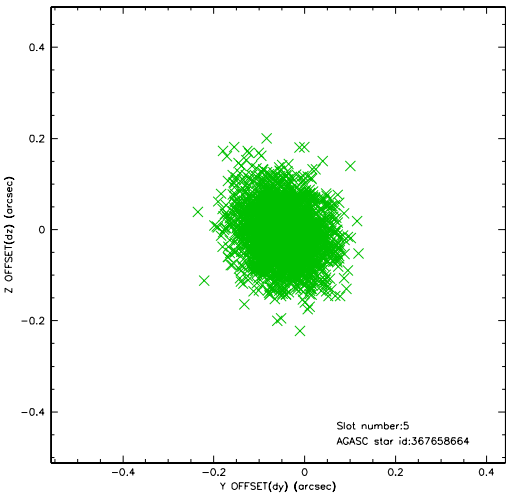
2.4.2 Slot 4


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:367148872


Points outside 0.4 arcsec radius: 0.038%
Radial offset of median: 0.093 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:367148872


Time (s)
Median: 0.076 arcsec
RMS: 0.047 arcsec
Y offsets(dy) (arcsec)
Median: −0.053 arcsec
RMS: 0.037 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:367148872
Time(ksec)

2.4.3 Slot 5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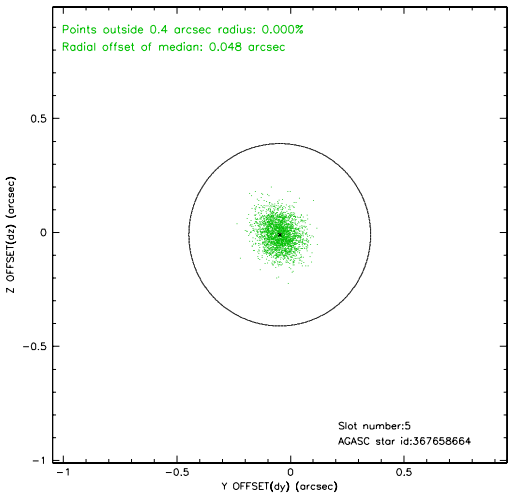
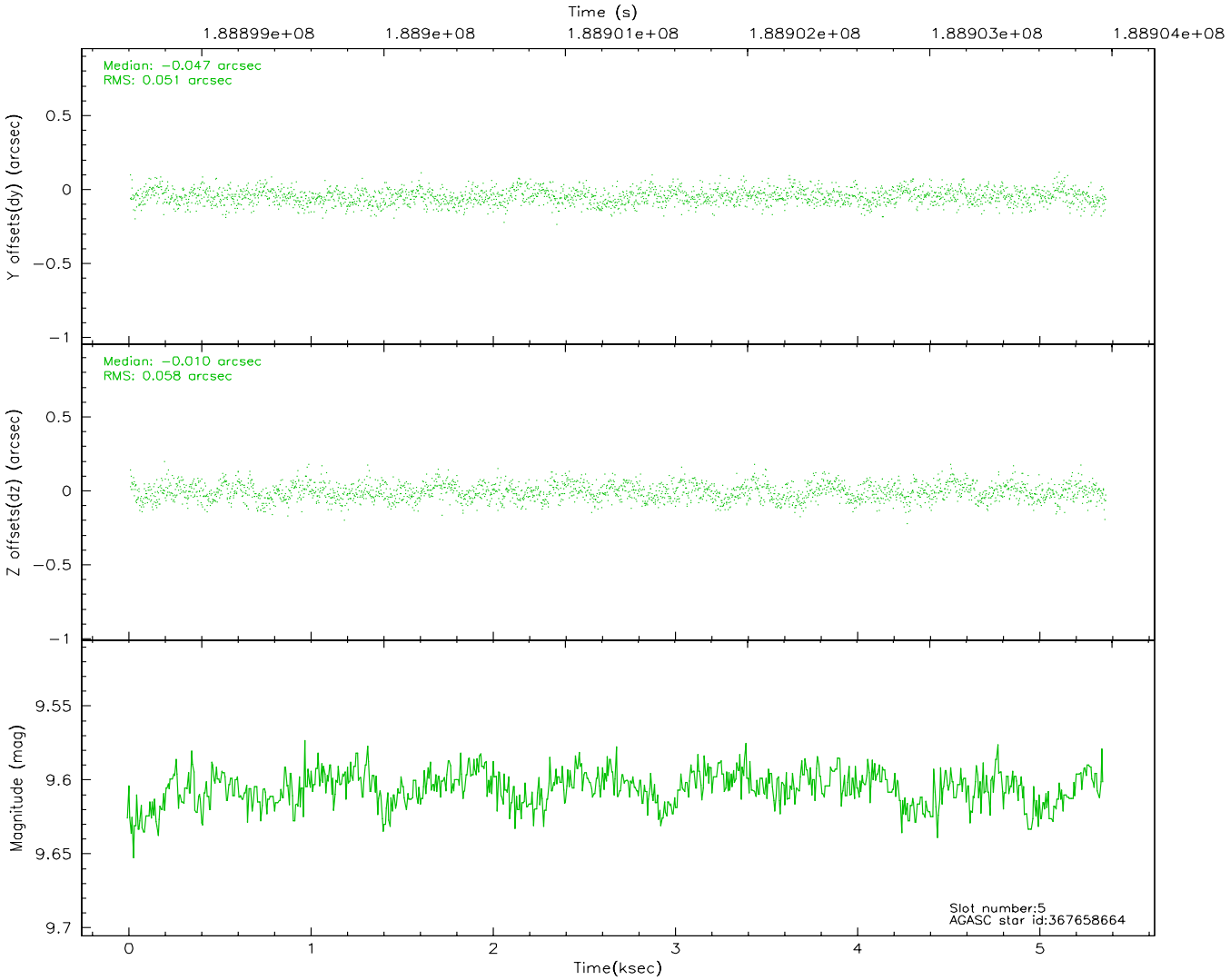
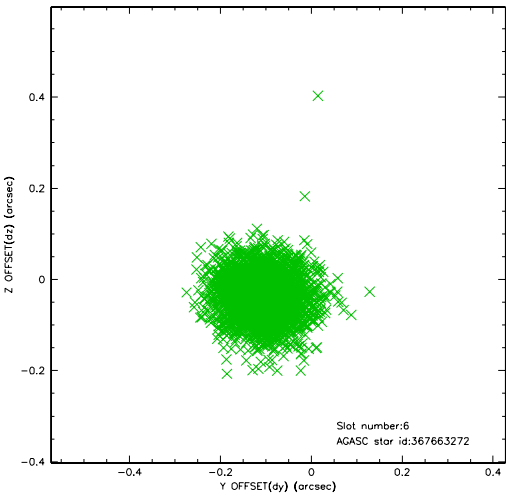
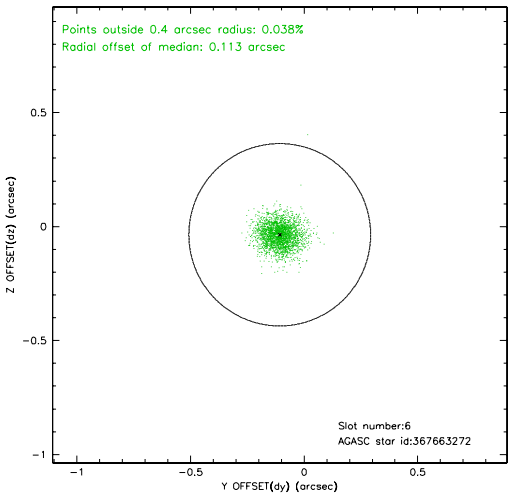
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:367658664

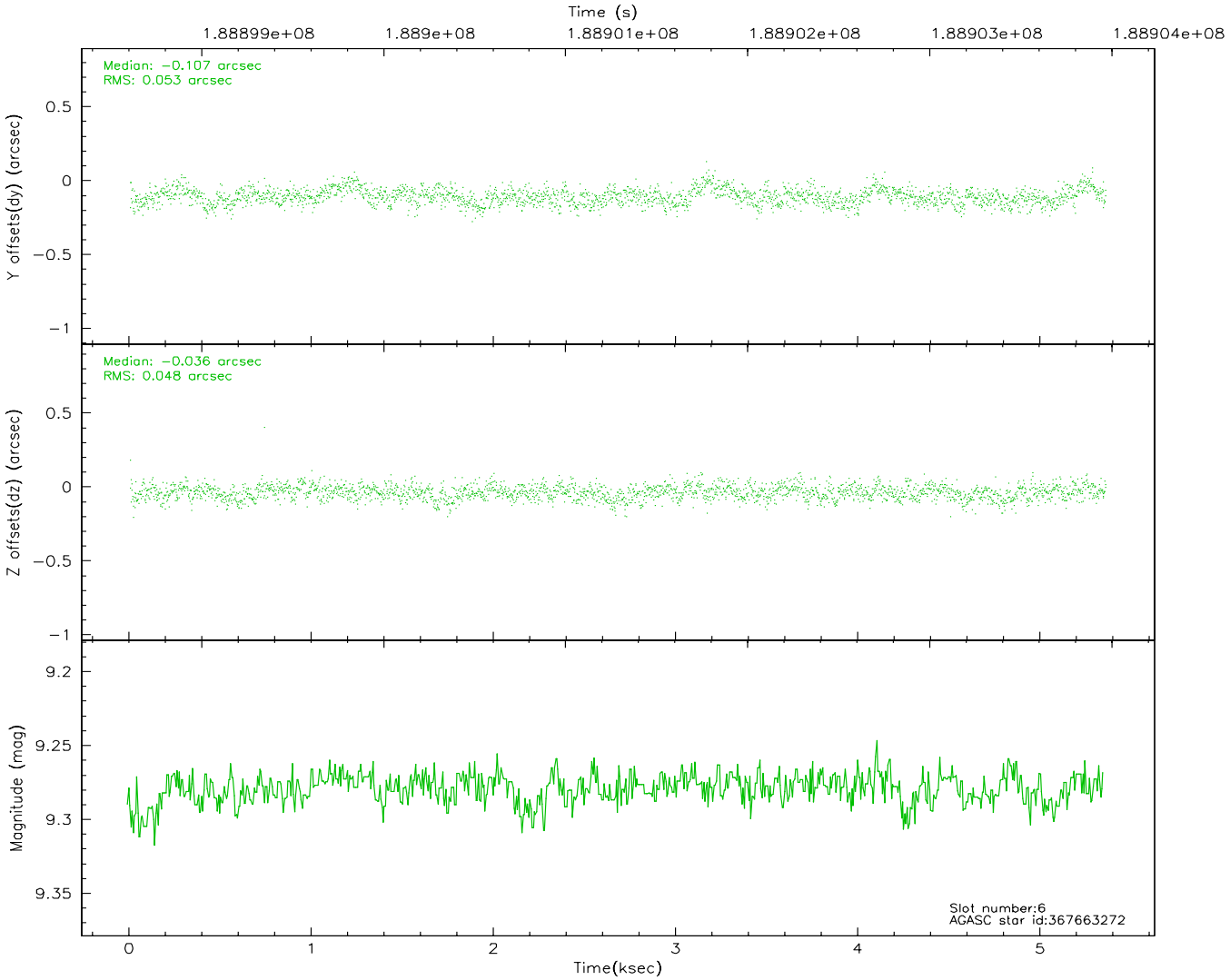

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.048 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:367658664


Time (s)
1.88899e+08
1.889e+08
1.88901e+08
1.88902e+08
1.88903e+08
1.88904e+08
Median: −0.047 arcsec
RMS: 0.051 arcsec
Y offsets(dy) (arcsec)
Median: −0.010 arcsec
RMS: 0.058 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:367658664
Time(ksec)

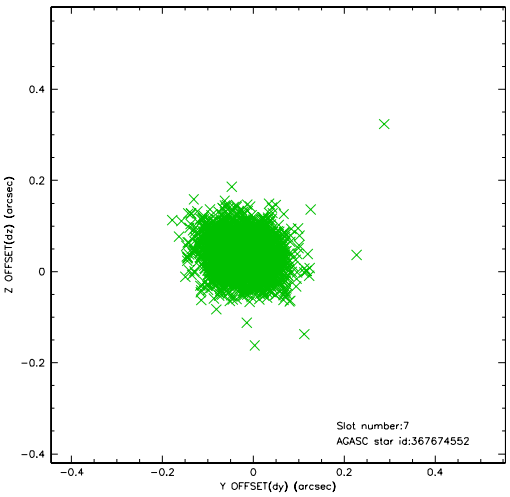
2.4.4 Slot 6

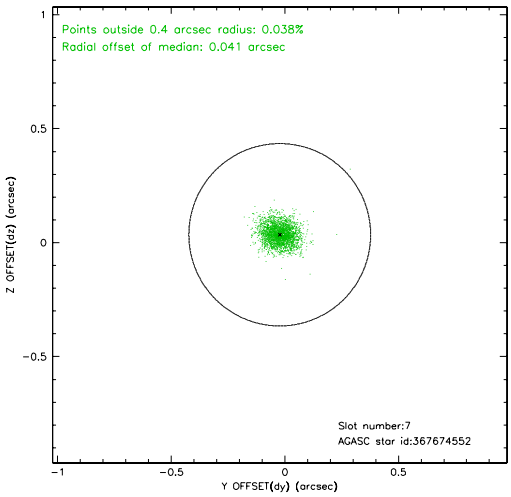

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:367663272

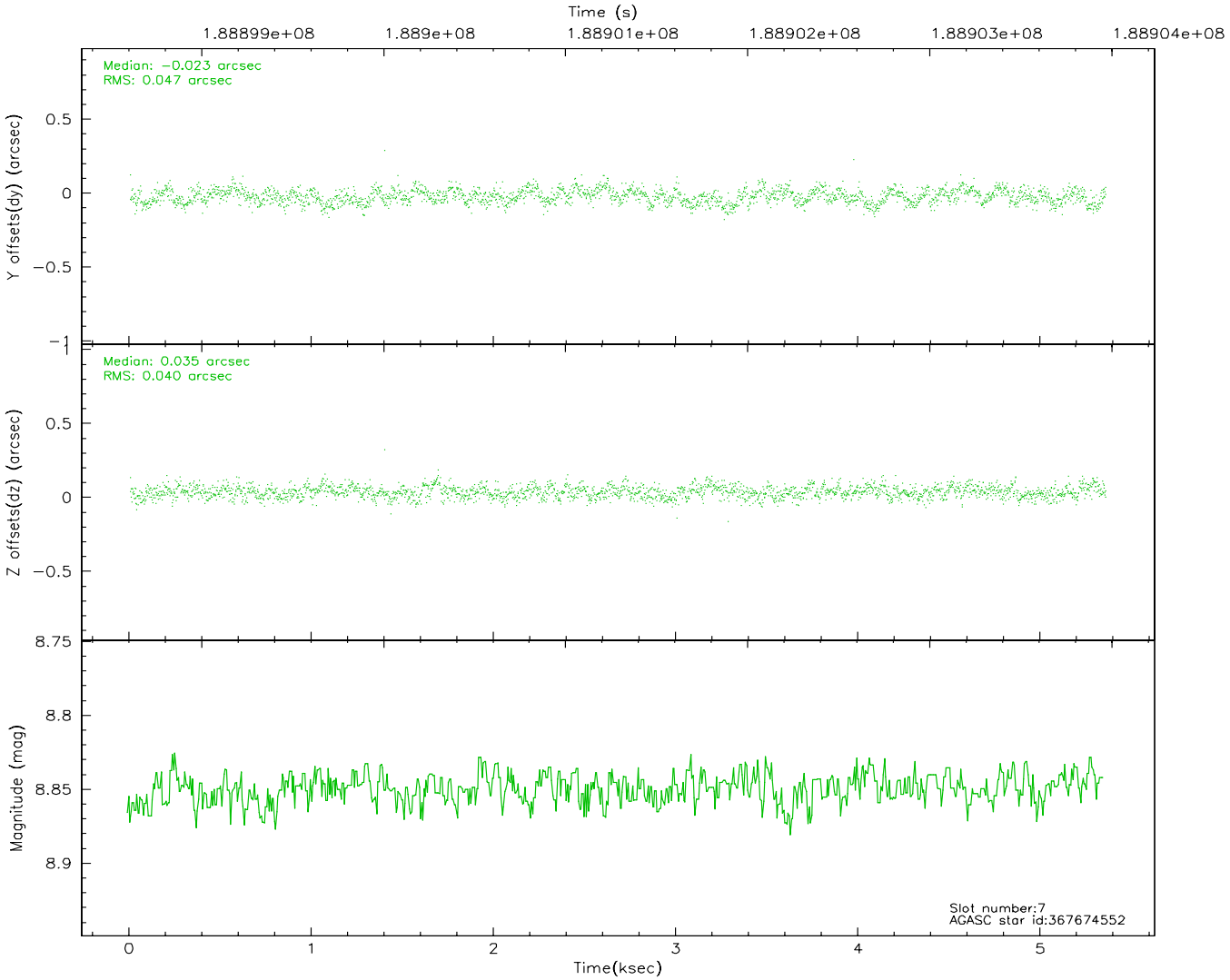

Points outside 0.4 arcsec radius: 0.038%
Radial offset of median: 0.113 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:367663272


Time (s)
Median: −0.107 arcsec
RMS: 0.053 arcsec
Y offsets(dy) (arcsec)
Median: −0.036 arcsec
RMS: 0.048 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:367663272
Time(ksec)

2.4.5 Slot 7

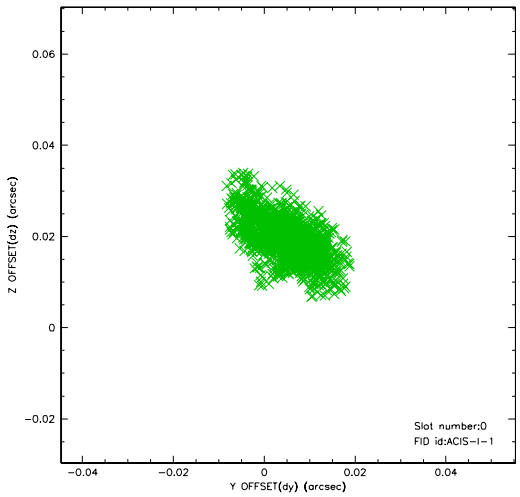

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:367674552

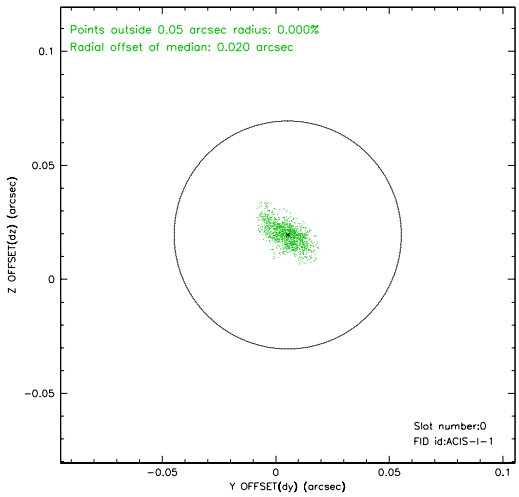

Points outside 0.4 arcsec radius: 0.038%
Radial offset of median: 0.041 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:367674552

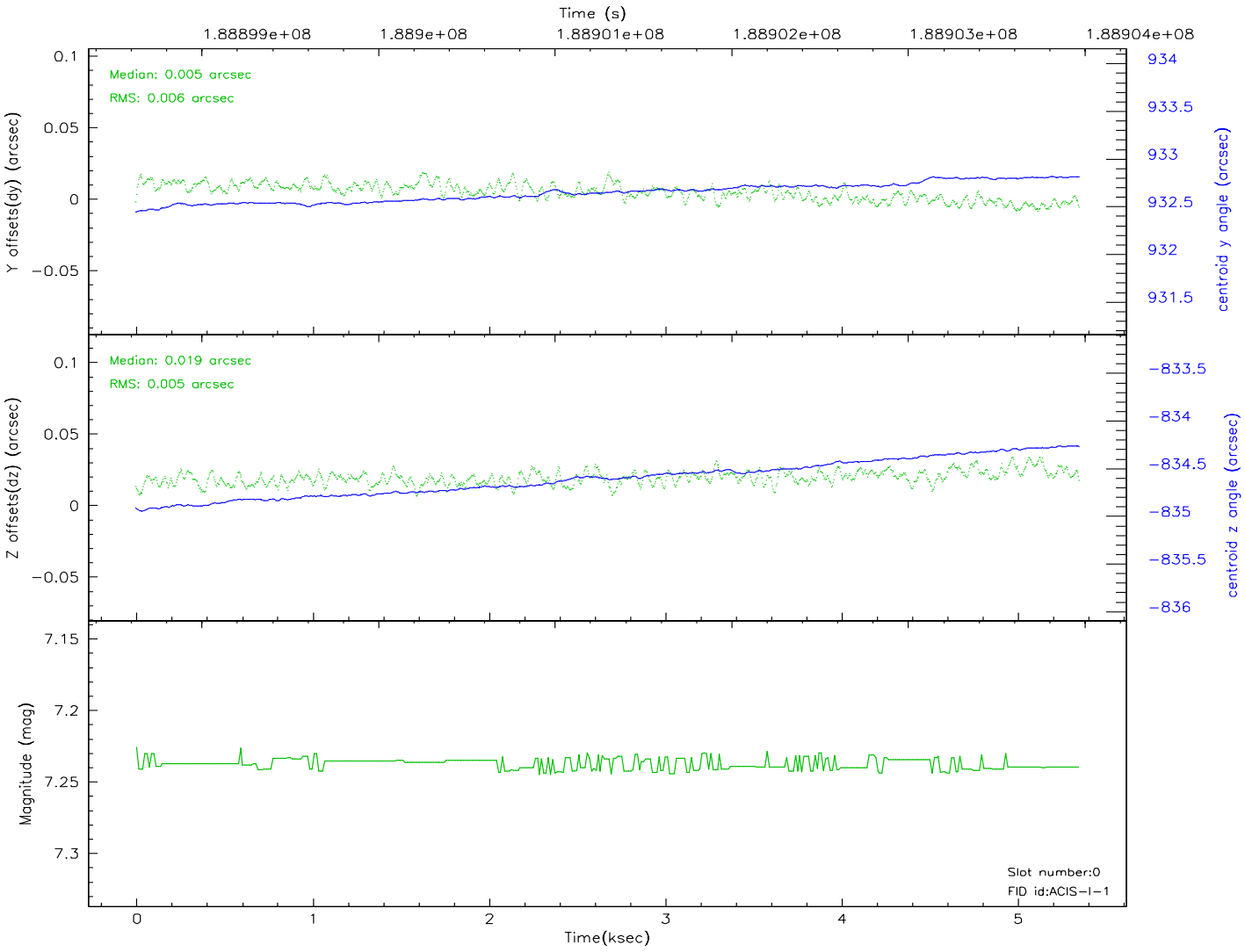

Time (s)
Median: −0.023 arcsec
RMS: 0.047 arcsec
Y offsets(dy) (arcsec)
Median: 0.035 arcsec
RMS: 0.040 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:367674552
Time(ksec)

2.5 FID Slots

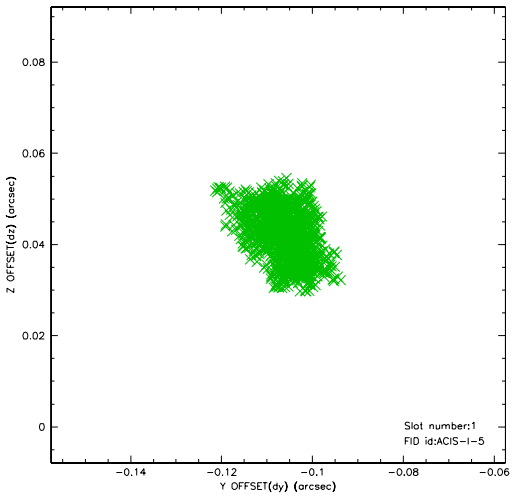
2.5.1 Slot 0

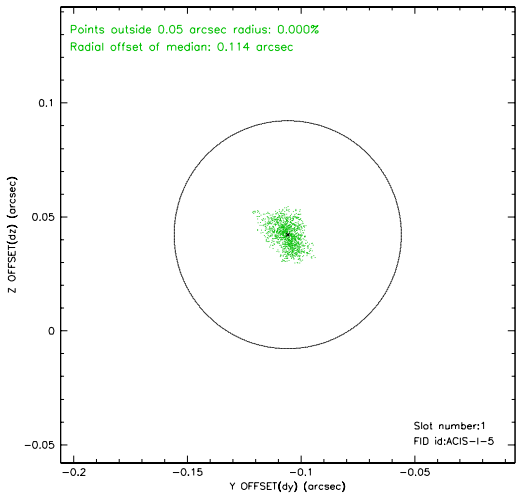


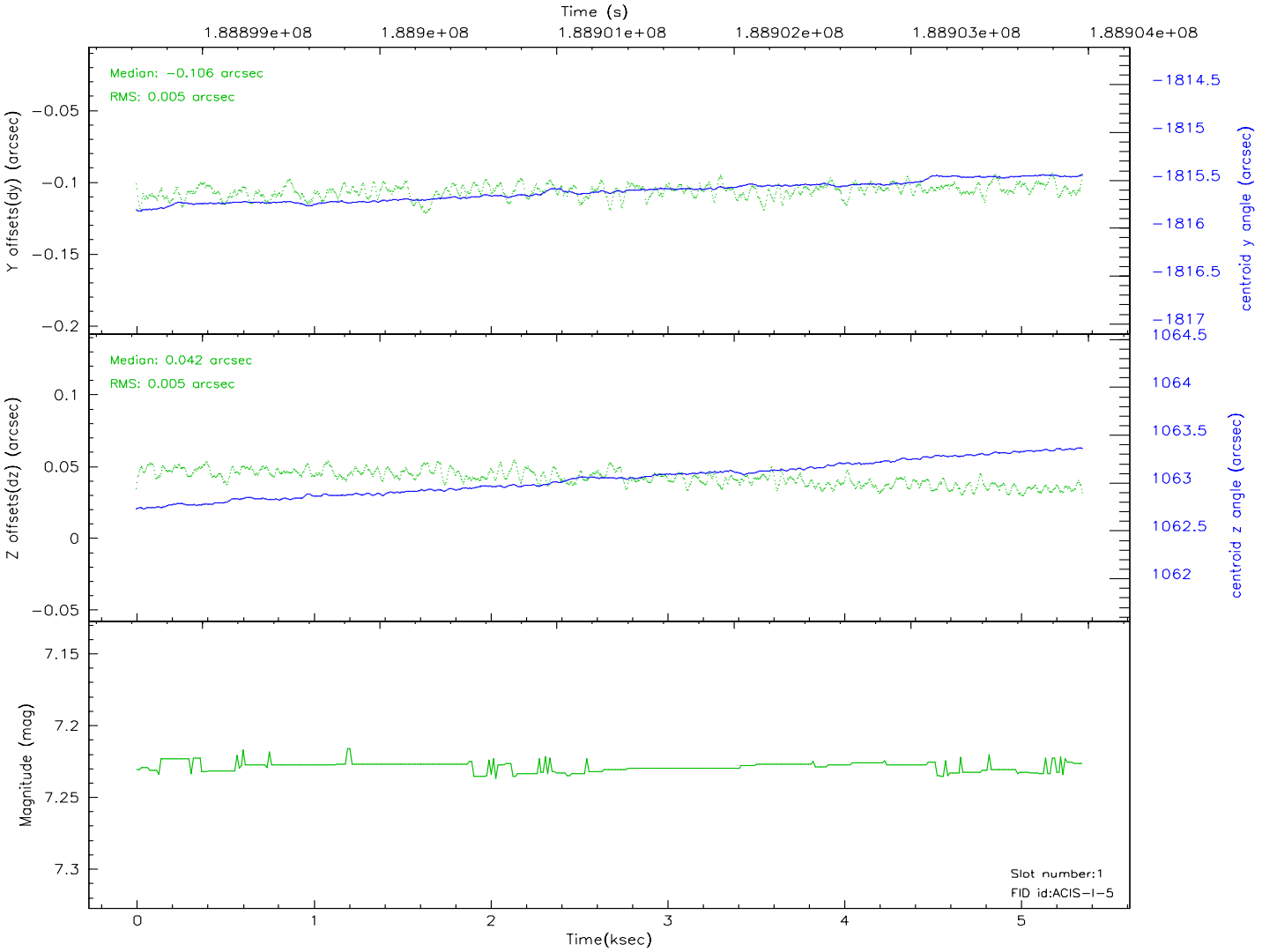




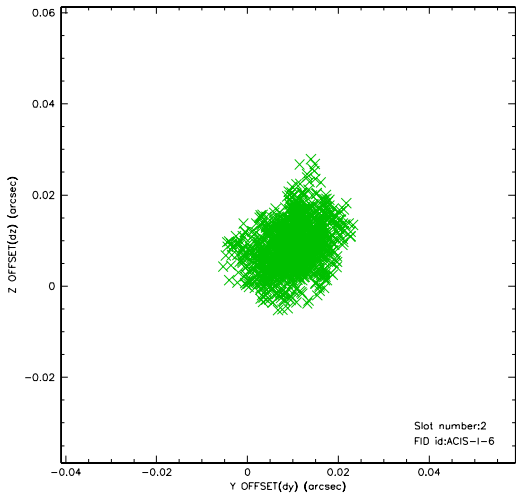
2.5.2 Slot 1

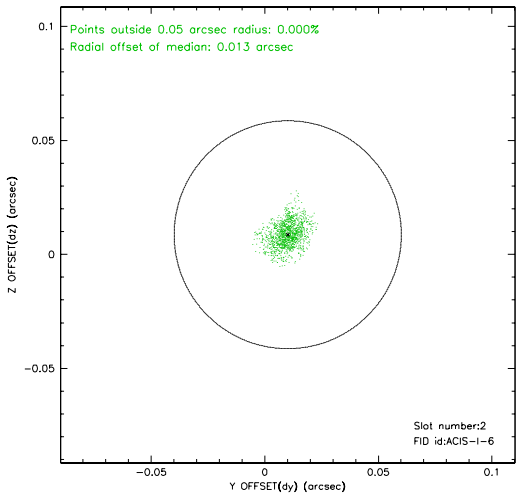

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-I-5

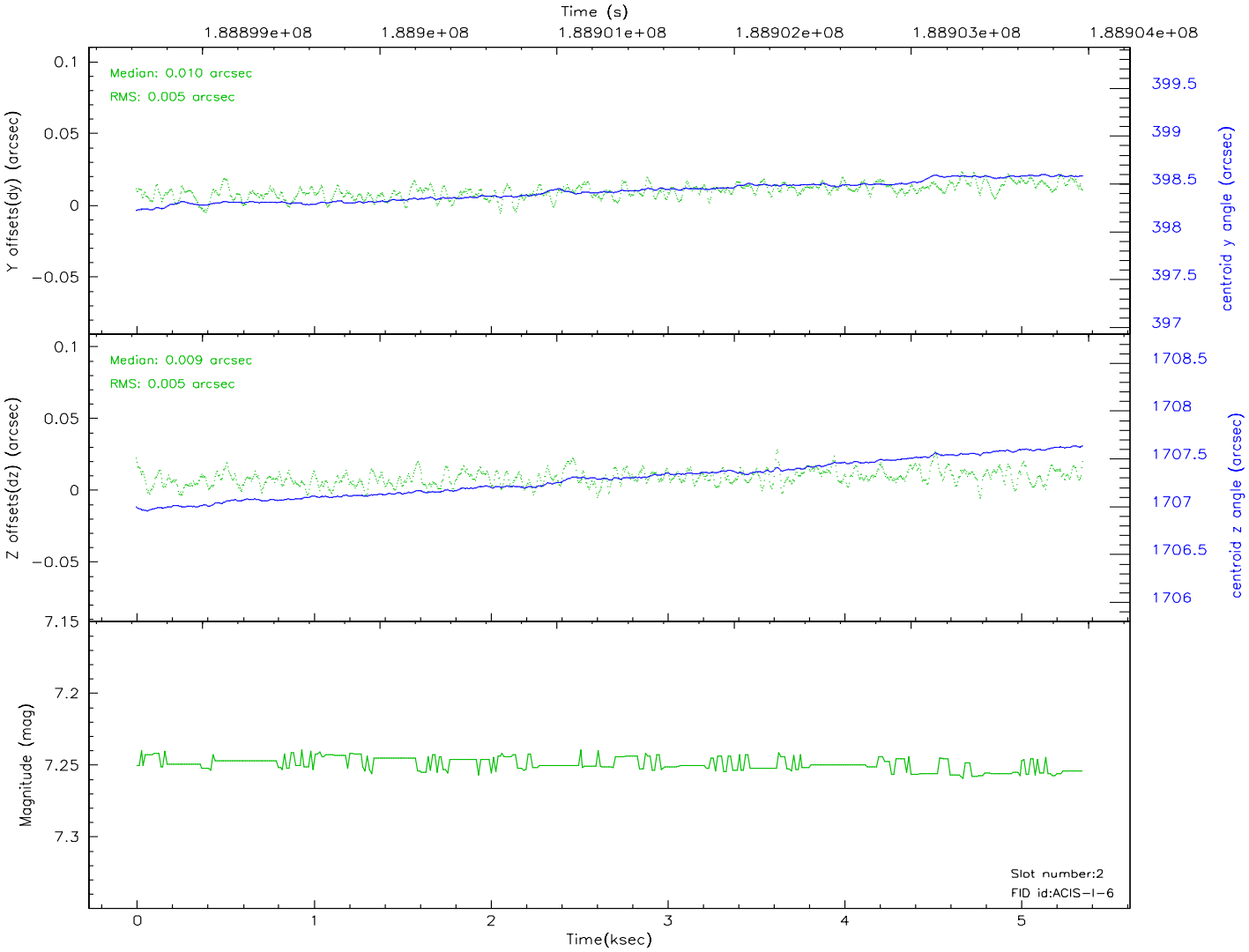

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.114 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-I-5


Time (s)
Median: −0.106 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.042 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:1
FID id:ACIS-I-5
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-I-6


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.013 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-I-6

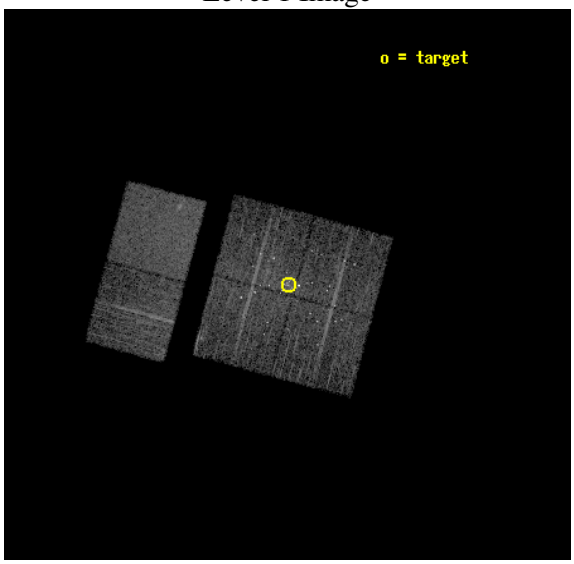

Time (s)
Median: 0.010 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.009 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-I-6
Time(ksec)

3 OBI Secondary

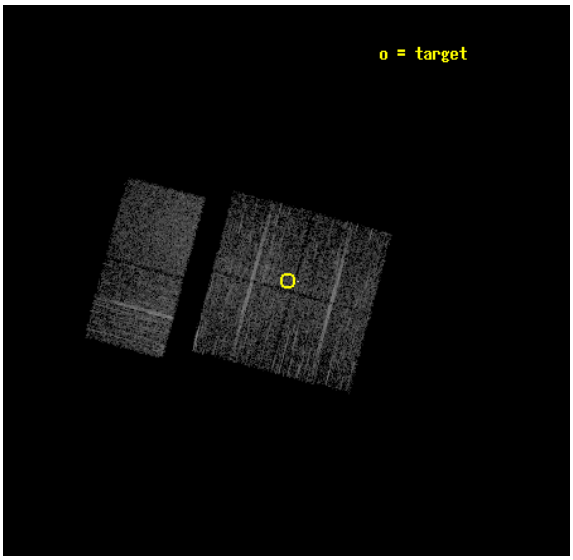
3.1 OBI

3.1.1 Images

Level 1 Image

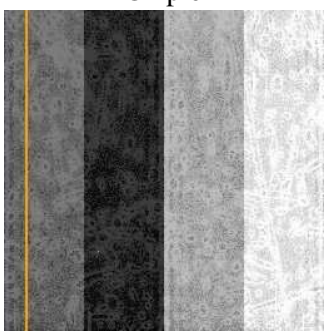


Level 1 Bad Events

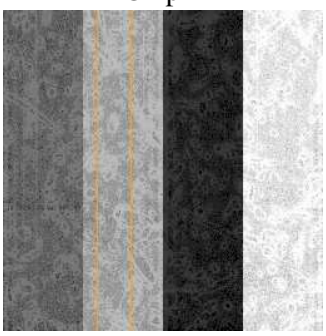


3.1.2 Bias

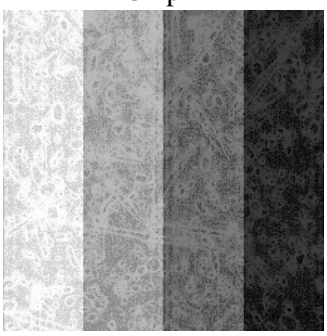
Chip 0



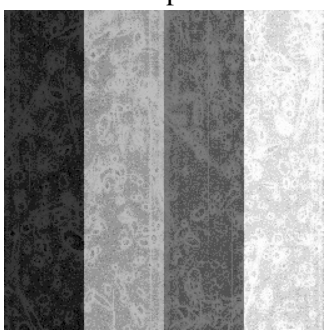
Chip 1



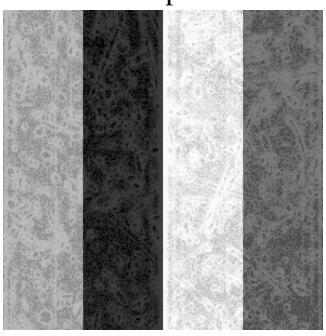
Chip 2



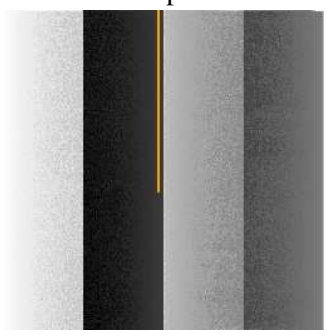
Chip 3



Chip 6



Chip 7



3.1.3 Parameters

obi_num	1
ascdsver	7.6.8
caldbver	3.2.2
date	2006-06-22T09:51:57
revision	2

sched_exp_time	5200.000000
ontime	4255.4445663691
ontime0	4255.444516331
ontime1	4255.4445964396
ontime2	4255.4445461035
ontime3	4255.4445663691
ontime6	4255.4446260035
ontime7	4255.4445262849
l1events	177241

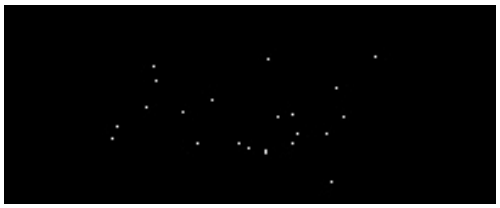
3.1.4 Events

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
level 1 events	25940	27768	28508	30081	28022	36922
rejected events	20976	20533	23303	22457	24595	22416
rejected %	80%	73%	81%	74%	87%	60%

	ccd 0	**ccd 1**	**ccd 2**	**ccd 3**	**ccd 6**	**ccd 7**
grade 0 events	2793	4273	3066	5148	1414	942
	10%	15%	10%	17%	5%	2%
grade 1 events	29	173	34	58	12	18
	0%	0%	0%	0%	0%	0%
grade 2 events	852	1154	857	1006	739	3614
	3%	4%	3%	3%	2%	9%
grade 3 events	372	499	349	431	291	798
	1%	1%	1%	1%	1%	2%
grade 4 events	336	496	364	386	286	734
	1%	1%	1%	1%	1%	1%
grade 5 events	1059	1245	1053	1204	1324	2436
	4%	4%	3%	4%	4%	6%
grade 6 events	616	823	578	661	701	8425
	2%	2%	2%	2%	2%	22%
grade 7 events	19883	19105	22207	21187	23255	19955
	76%	68%	77%	70%	82%	54%

4 Point Sources

4.13 arcmin



A Summary

A.1 Status

V&V Scientist	Jen Lauer
V&V Date (YYYY-MM-DD)	2006.06.22
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	5.242

A.2 Comments

```
Window constraint met.

On day 356 at about 00:30, the OBA heater stuck in the 'on' position.
This situation affected obsid 4901 and all subsequent observations
to this point. The result of this anomaly could be a displacement
of the target on the chip in the z direction. The displacement
will be small because everything is still within spec, but the target
may be spatially displaced, have a different point spread function, or
trail across the chip.
```