V&V Reference Report
L2 ASCDS Version : 7.6.9

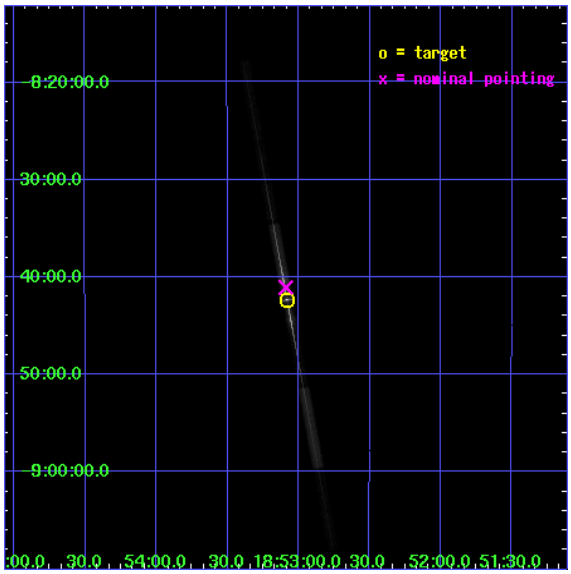
Observation 2746 - L2 Version 001
Chandra X-Ray Center

L2 Processing Date : Sep 28 2006

Contents

1 Front

seq_num	400226
obs_id	2746
title	RESOLVING THE SOFT EXCESS IN 4U 1850-087
observer	Prof. Deepto Chakrabarty
object	4U 1850-087
dtycycle	0
cycle	P
ra_targ	283.27
dec_targ	-8.7055
ra_nom	283.27227754243
dec_nom	-8.6845899158348
roll_nom	259.45232340445
revision	2
ontime	52666.517062902
livetime	49749.759721515
ontime4	52666.517062902
ontime5	52666.517062902
ontime6	52665.035002828
ontime7	52666.517062902
ontime8	52665.776022911
ontime9	52665.776042819
l2events	322179

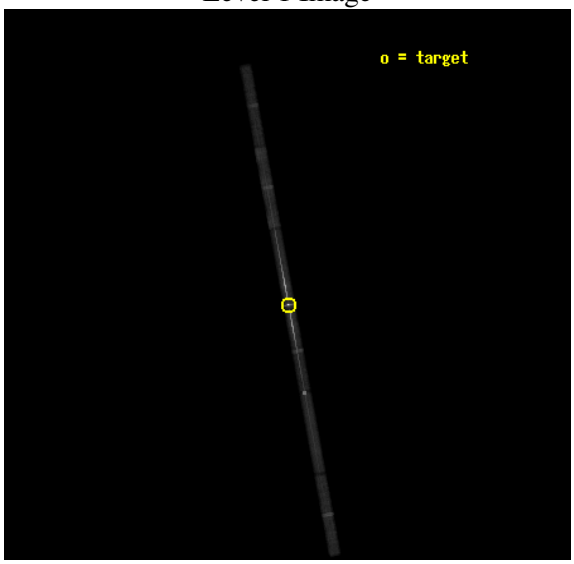


2 OBI

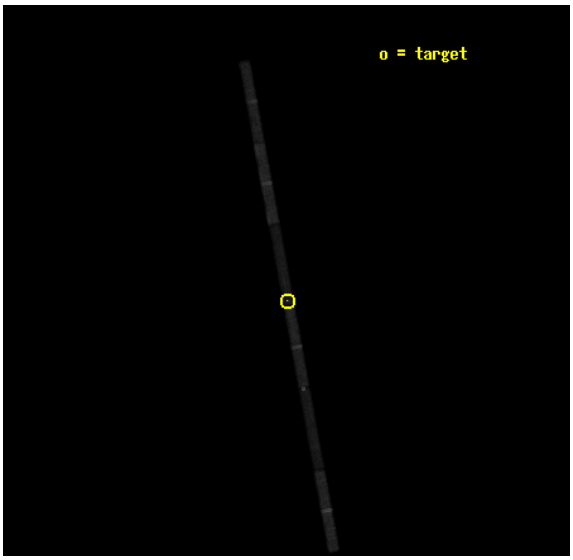
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Bias

Chip 4

Chip 5

Chip 6

Chip 7

Chip 8

Chip 9

2.1.3 Parameters

obi_num	1
ascdsver	7.6.9
caldbver	3.2.3
date	2006-09-28T18:11:22
revision	2

sched_exp_time	52500.000000
ontime	53287.637126505
ontime4	53287.637146443
ontime5	53287.637146443
ontime6	53286.155066431
ontime7	53287.637126505
ontime8	53286.896086514
ontime9	53286.89612636
l1events	669449

2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	68576	83838	138013	234134	87364	57524
rejected events	59605	38733	53342	52456	65603	48964
rejected %	86%	46%	38%	22%	75%	85%

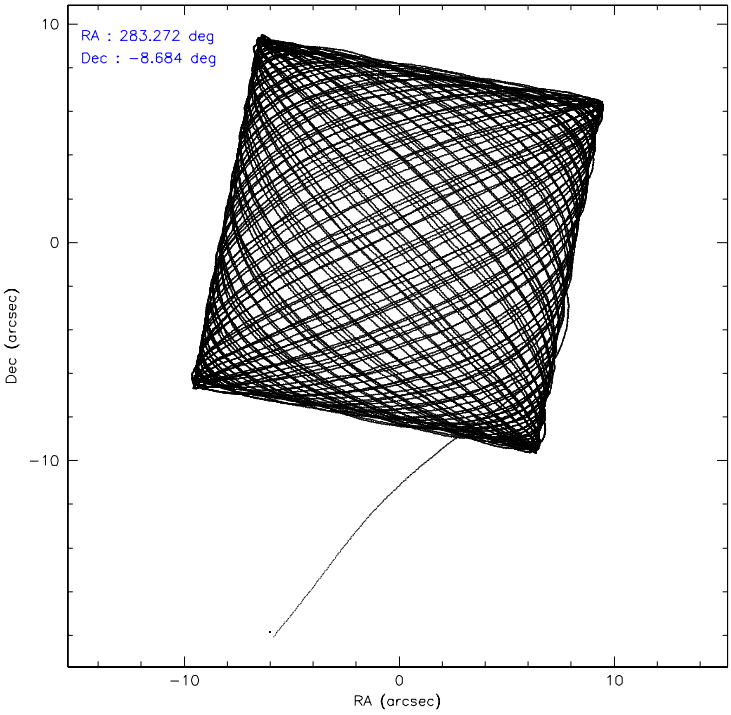
	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	4757	10302	65315	34211	9710	4466
	6%	12%	47%	14%	11%	7%
grade 1 events	24	1544	170	912	37	18
	0%	1%	0%	0%	0%	0%
grade 2 events	1680	12067	9559	45951	3608	1413
	2%	14%	6%	19%	4%	2%
grade 3 events	1140	2970	3807	19354	2423	1248
	1%	3%	2%	8%	2%	2%
grade 4 events	1084	3186	3776	19232	2247	1128
	1%	3%	2%	8%	2%	1%
grade 5 events	1706	4944	1877	9795	2278	1788
	2%	5%	1%	4%	2%	3%
grade 6 events	1245	18104	3293	64544	4763	1185
	1%	21%	2%	27%	5%	2%
grade 7 events	56940	30721	50216	40135	62298	46278
	83%	36%	36%	17%	71%	80%

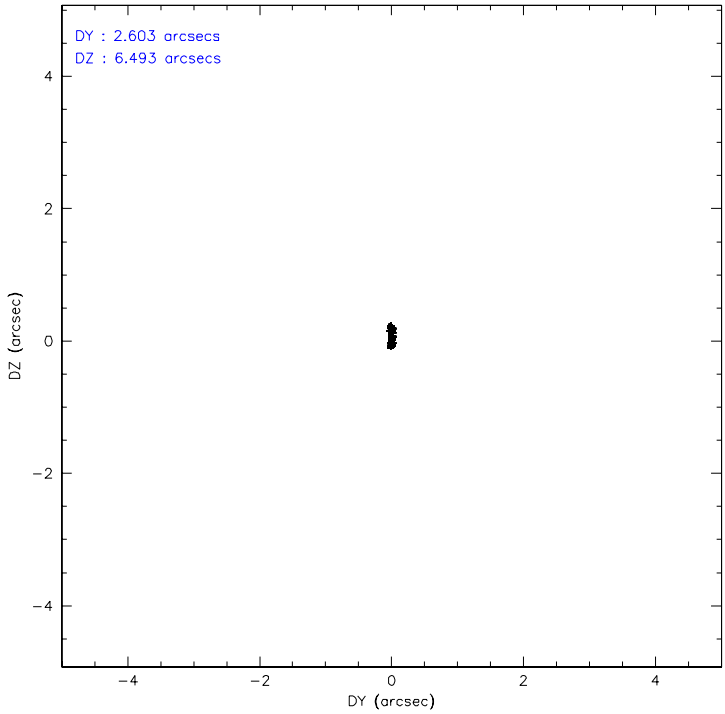
2.2 Compared Parameters

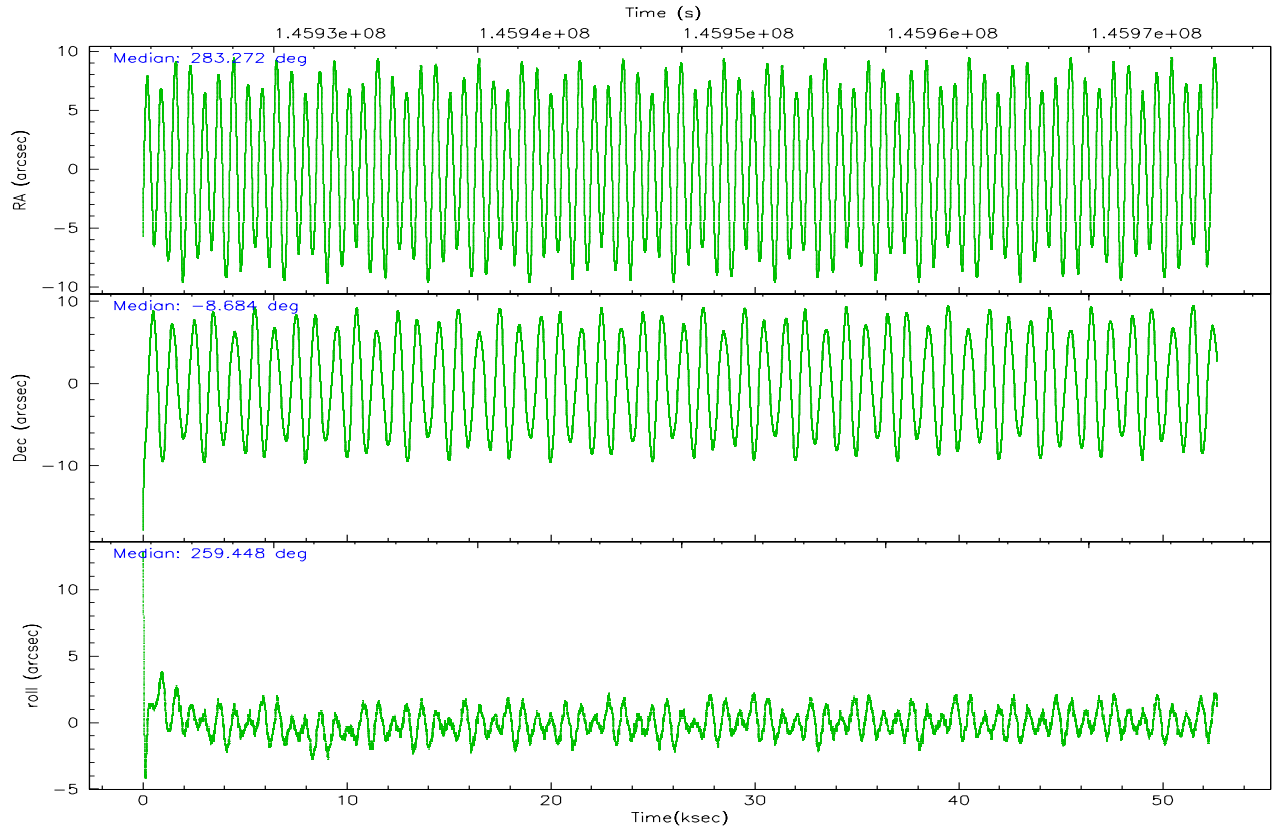
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	LETG	LETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	283.262761	283.2722775424266
Pointing Dec	-8.659031	-8.684589915834806
Pointing Roll	259.294263	259.4523234044523
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-182.132523	-182.1344861297048
SIM translation stage offset (mm)	-8	-7.998036453302973
Observation start time	145923771.184000	145922672.25062
Observation start date	2002-08-16T22:21:47	2002-08-16T22:04:32
Observation end time	145976271.184000	145976825.56535
Observation end date	2002-08-17T12:56:47	2002-08-17T13:07:05
Read mode	TIMED	TIMED

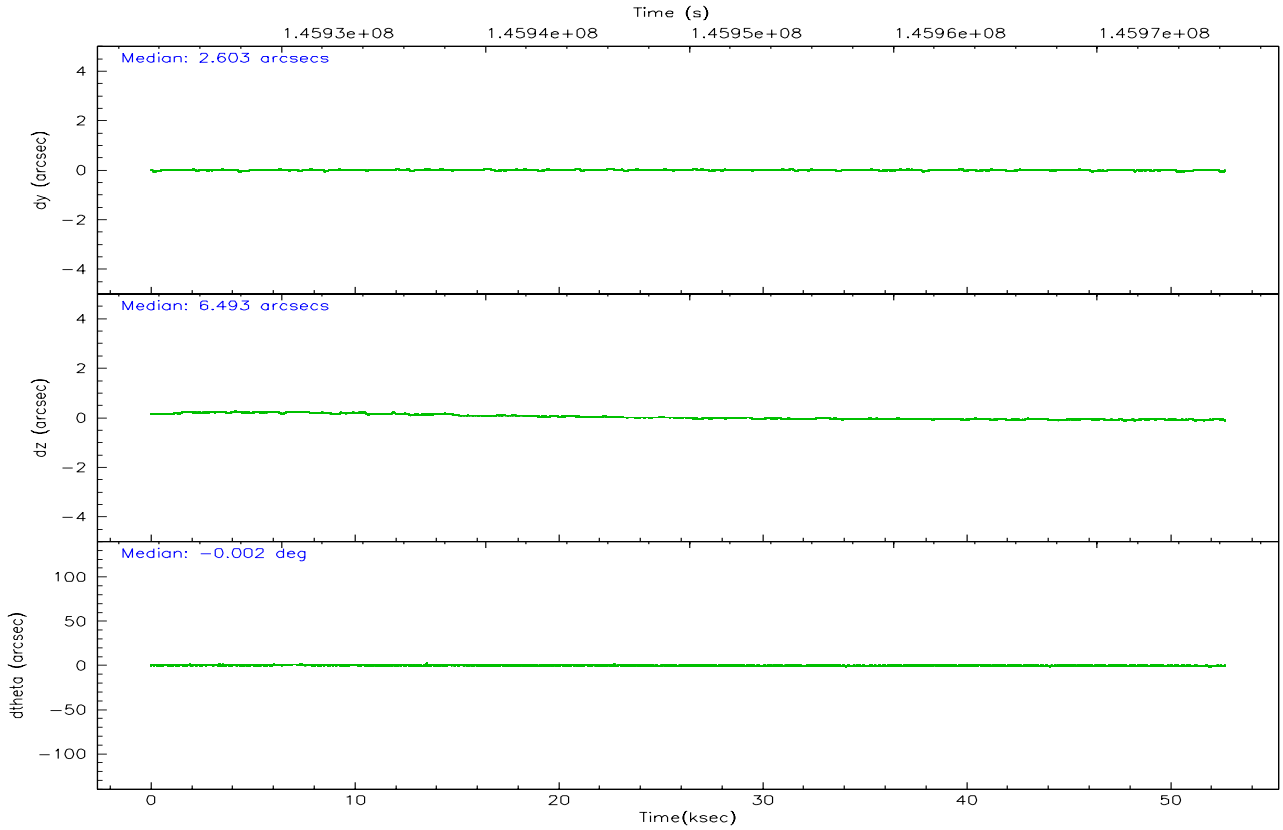
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	CUSTOM	1/8
Subarray start row	113	113
Subarray row count	128	128
Alternating exposures requested	N	N
Primary exposure time	0.000000	0.7

2.3 Aspect


RA : 283.272 deg
Dec : −8.684 deg
10
0
−10
Dec (arcsec)
−10
0
10
RA (arcsec)


DY : 2.603 arcsecs
DZ : 6.493 arcsecs
4
2
0
−2
−4
DZ (arcsec)
−4
−2
0
2
4
DY (arcsec)


Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: 283.272 deg
RA (arcsec)
Median: −8.684 deg
Dec (arcsec)
Median: 259.448 deg
roll (arcsec)
Time(ksec)

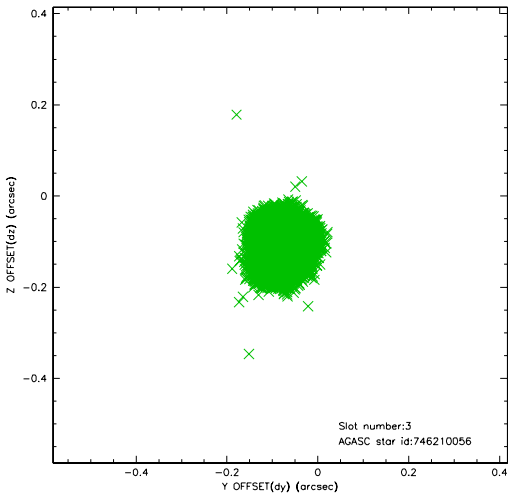

Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: 2.603 arcsecs
dy (arcsec)
Median: 6.493 arcsecs
dz (arcsec)
Median: −0.002 deg
dtheta (arcsec)
Time(ksec)

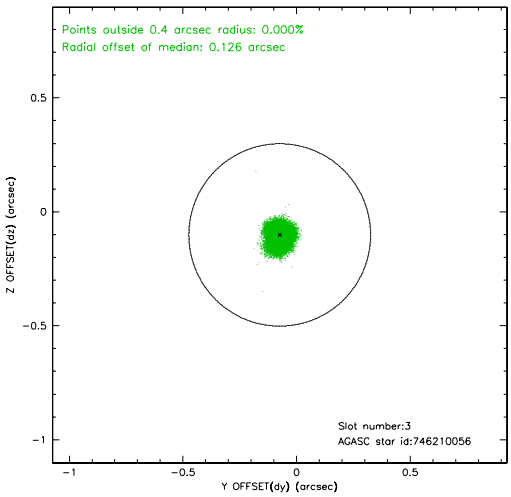
Slot Statistics

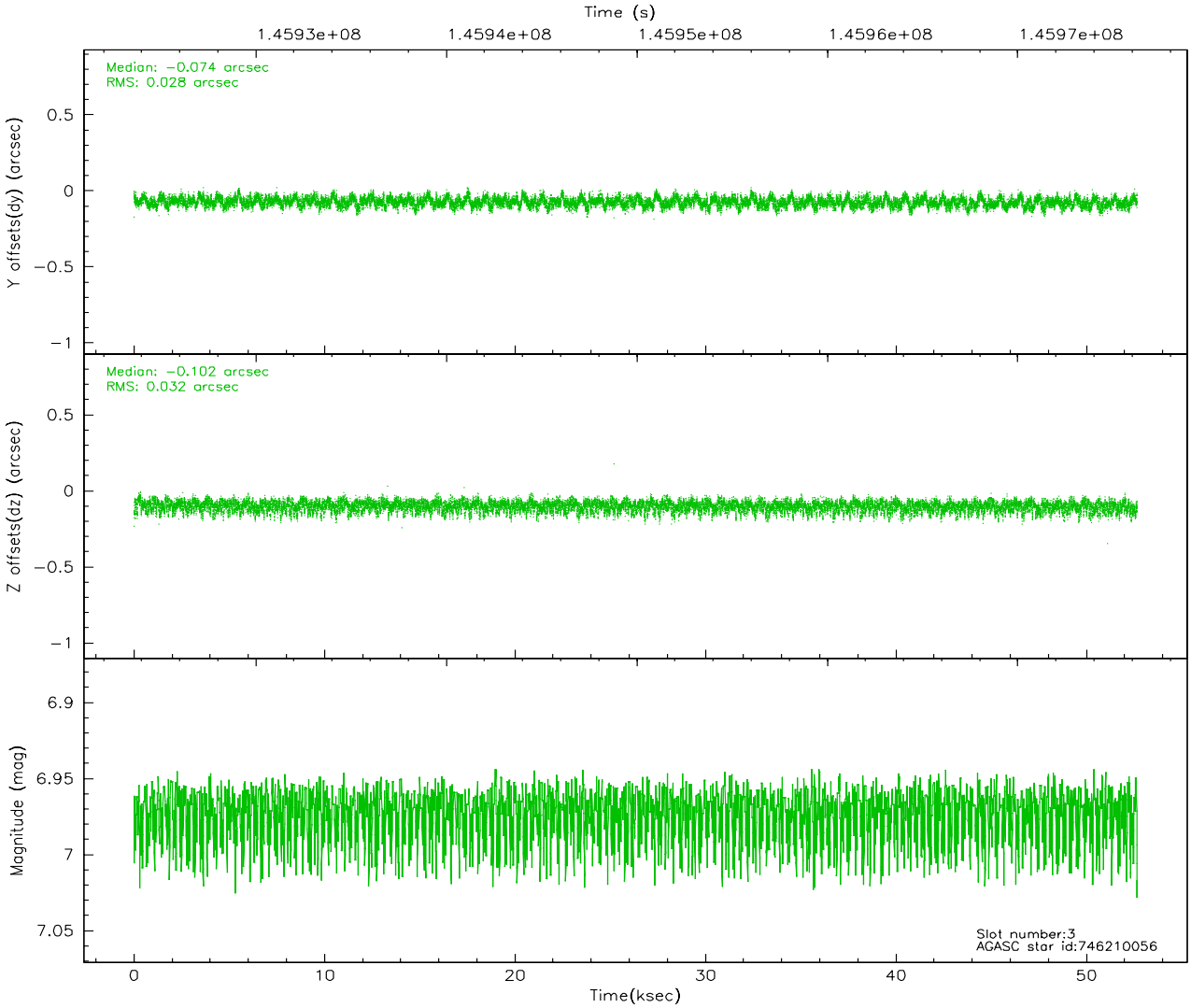
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-3	7.35	12844	-0.071	0.032	0.010	0.016	0.000000	0.000000	58.40	-2021.48
1	FID	ACIS-S-4	7.18	12844	0.029	0.023	0.008	0.014	0.000000	0.000000	2158.72	15.97
2	FID	ACIS-S-5	7.23	12845	0.014	-0.046	0.007	0.011	0.000000	0.000000	-1807.52	9.70
3	GUIDE	746210056	6.97	25693	-0.074	-0.102	0.046	0.073	282.806936	-8.010412	-1990.56	-2029.95
4	GUIDE	747897648	7.24	25692	0.137	0.082	0.043	0.080	283.483122	-9.370309	2371.87	1245.67
5	GUIDE	747978808	7.90	25692	0.043	-0.039	0.060	0.097	283.772244	-8.811168	203.76	1883.56
6	GUIDE	746239504	8.38	25685	0.082	0.114	0.058	0.093	282.830293	-9.257290	2403.77	-1108.71
7	GUIDE	746204760	8.59	25685	-0.188	-0.053	0.072	0.113	282.693368	-7.980313	-2021.31	-2447.98

2.4 Star Slots

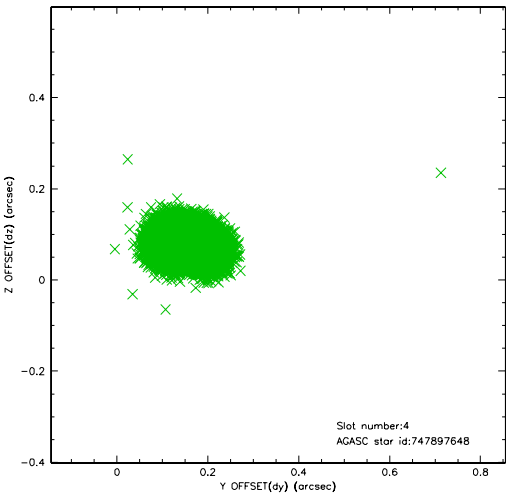
2.4.1 Slot 3

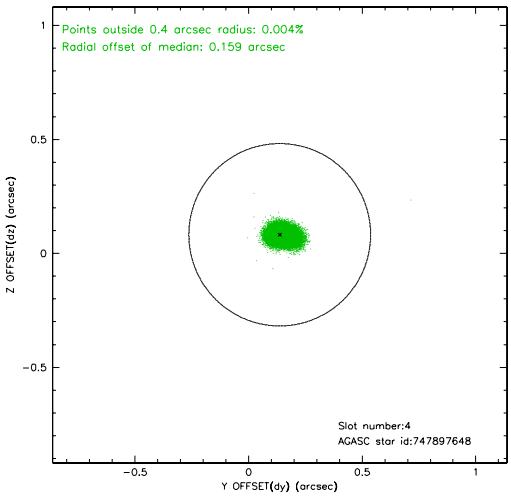


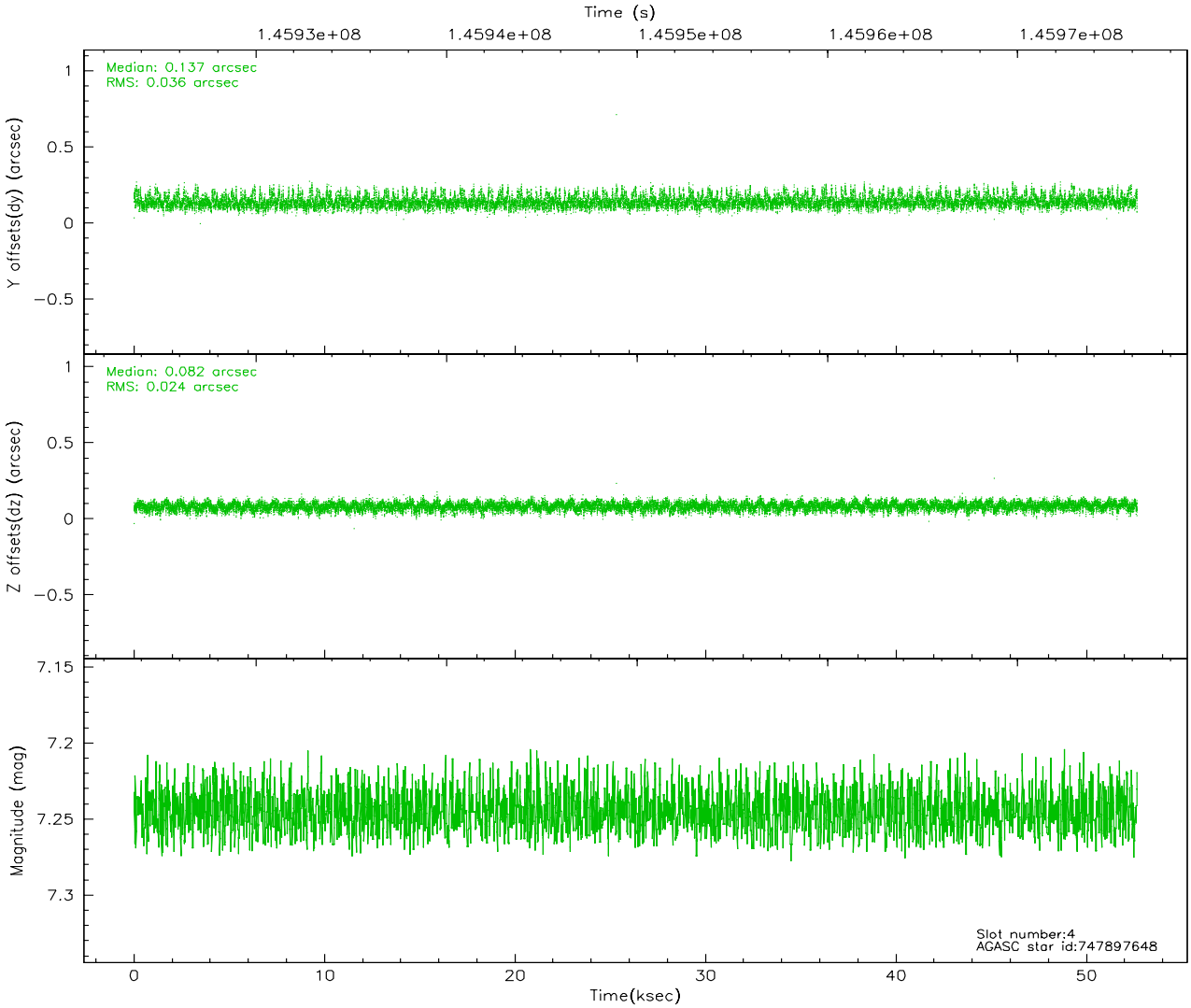




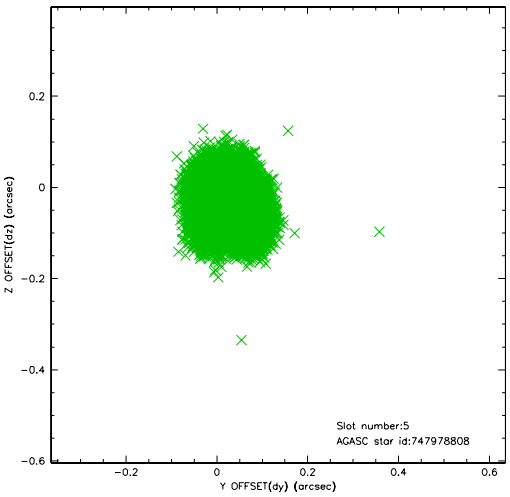
2.4.2 Slot 4

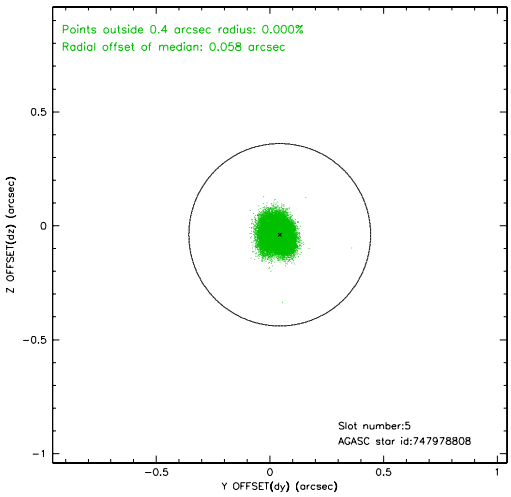

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:747897648

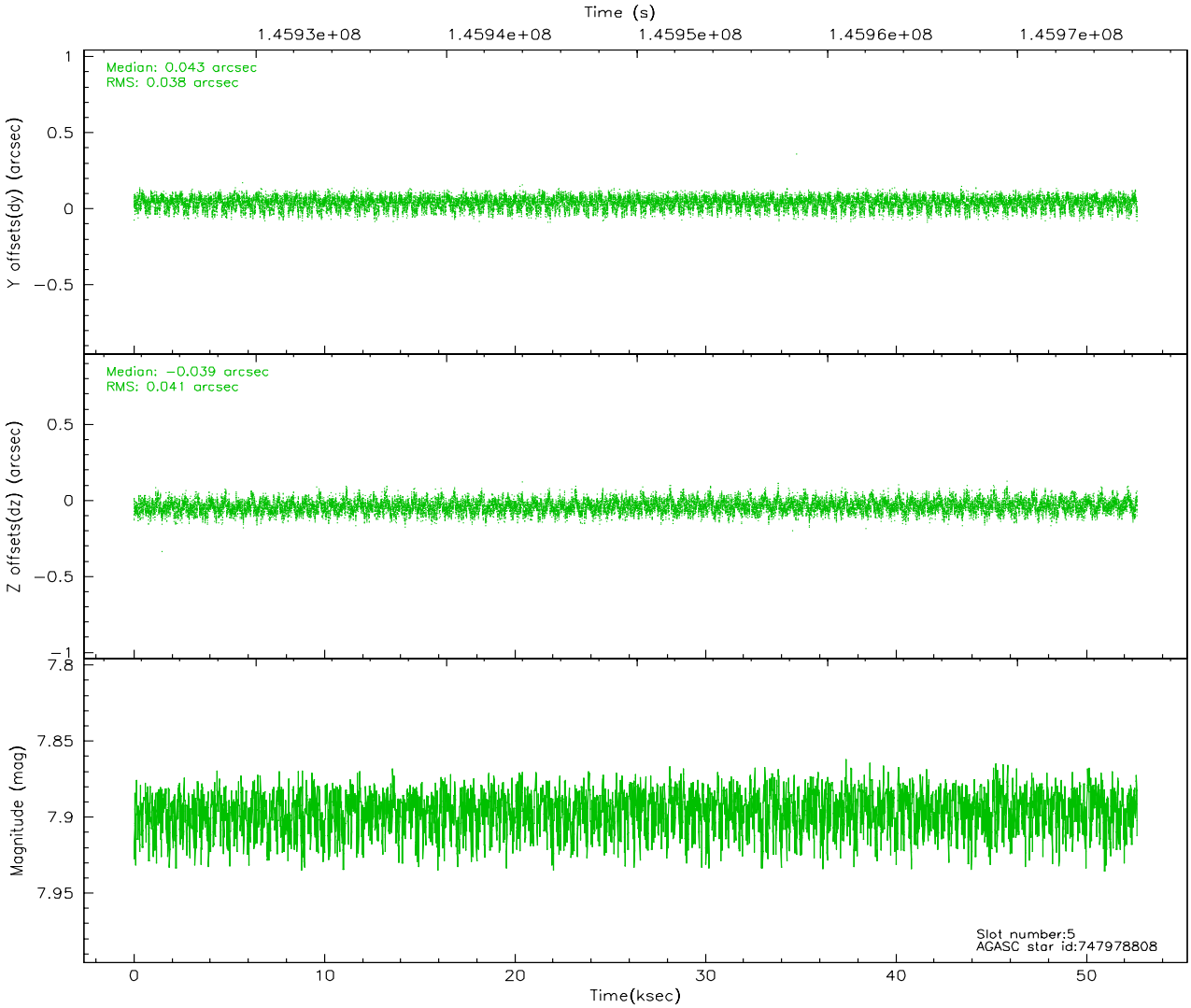

Points outside 0.4 arcsec radius: 0.004%
Radial offset of median: 0.159 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:4
AGASC star id:747897648


Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: 0.137 arcsec
RMS: 0.036 arcsec
Y offsets(dy) (arcsec)
Median: 0.082 arcsec
RMS: 0.024 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:4
AGASC star id:747897648
Time(ksec)

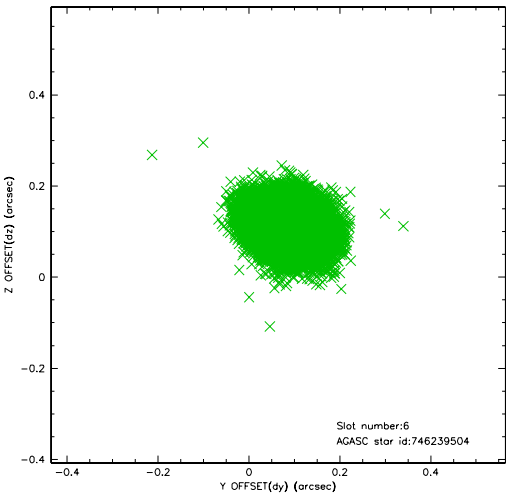
2.4.3 Slot 5

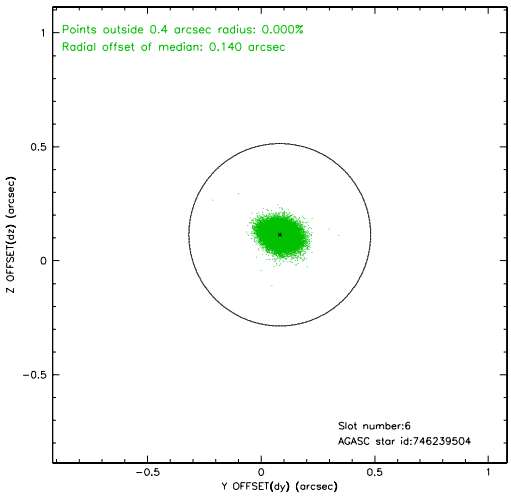

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:747978808

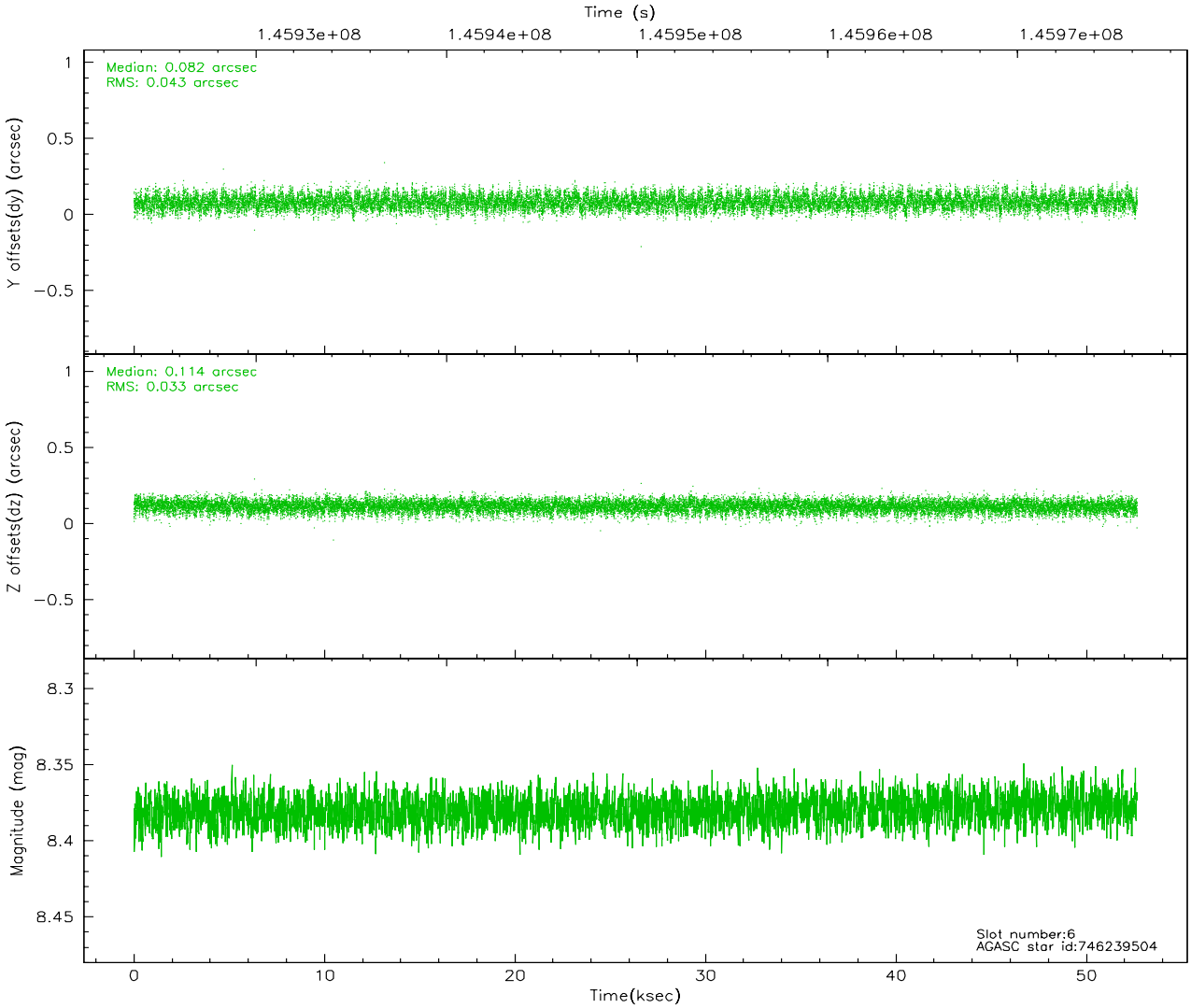

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.058 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:5
AGASC star id:747978808


Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: 0.043 arcsec
RMS: 0.038 arcsec
Y offsets(dy) (arcsec)
Median: −0.039 arcsec
RMS: 0.041 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:5
AGASC star id:747978808
Time(ksec)

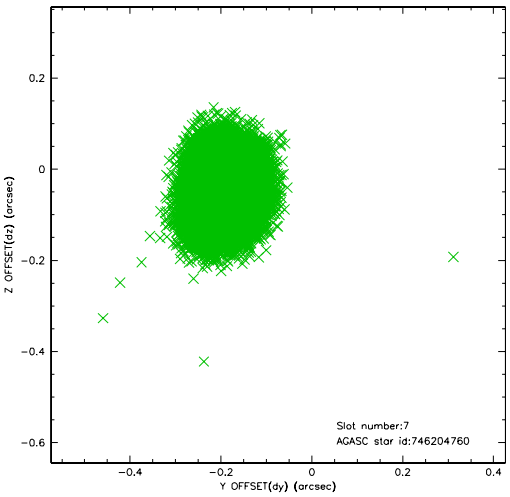
2.4.4 Slot 6

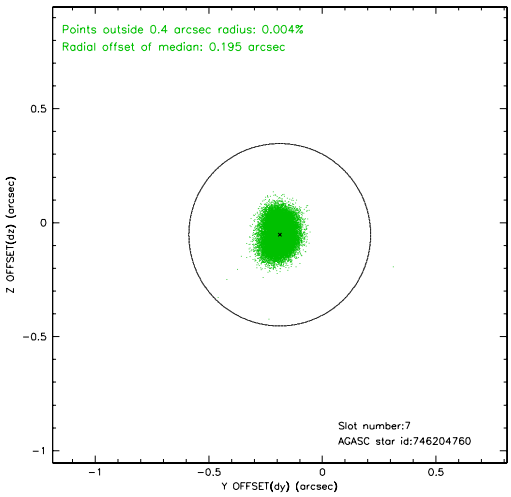

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:746239504

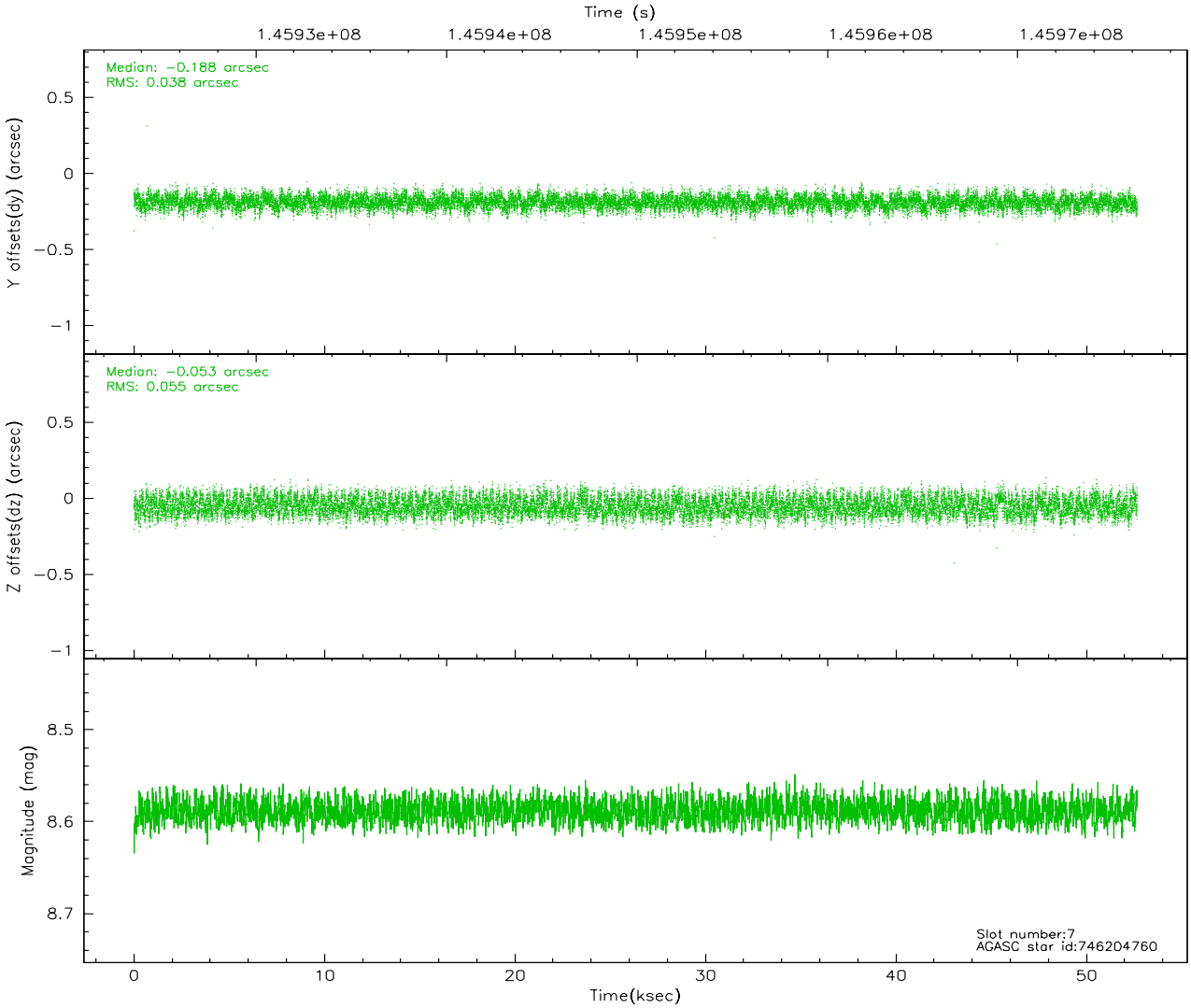

Points outside 0.4 arcsec radius: 0.000%
Radial offset of median: 0.140 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:6
AGASC star id:746239504


Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: 0.082 arcsec
RMS: 0.043 arcsec
Y offsets(dy) (arcsec)
Median: 0.114 arcsec
RMS: 0.033 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:6
AGASC star id:746239504
Time(ksec)

2.4.5 Slot 7

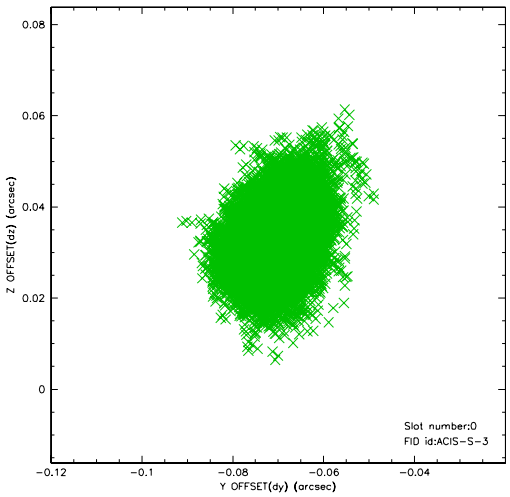

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:746204760

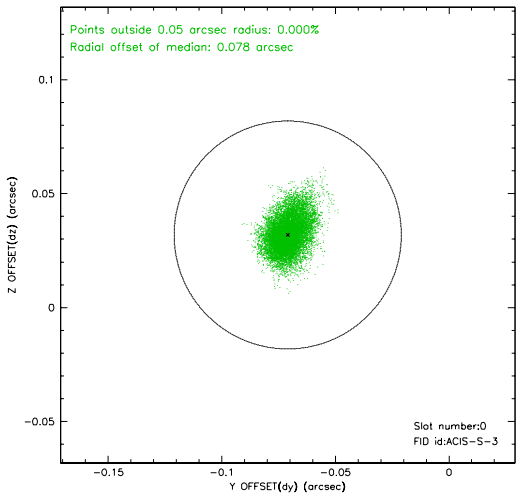

Points outside 0.4 arcsec radius: 0.004%
Radial offset of median: 0.195 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:7
AGASC star id:746204760

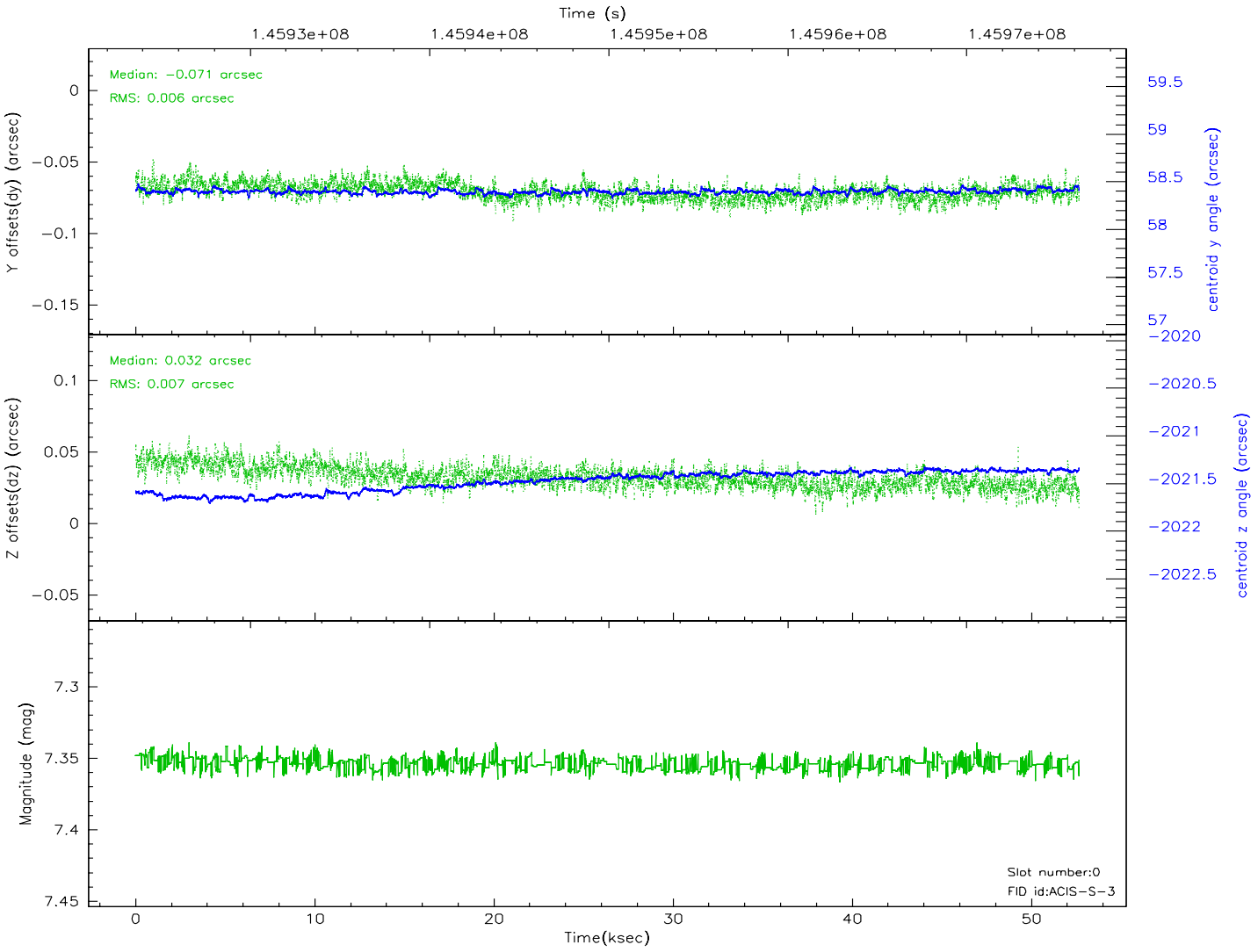

Time (s)
1.4593e+08
1.4594e+08
1.4595e+08
1.4596e+08
1.4597e+08
Median: −0.188 arcsec
RMS: 0.038 arcsec
Y offsets(dy) (arcsec)
Median: −0.053 arcsec
RMS: 0.055 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number:7
AGASC star id:746204760
Time(ksec)

2.5 FID Slots

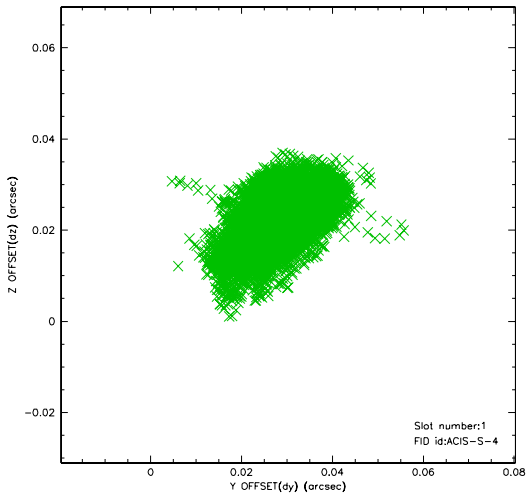
2.5.1 Slot 0

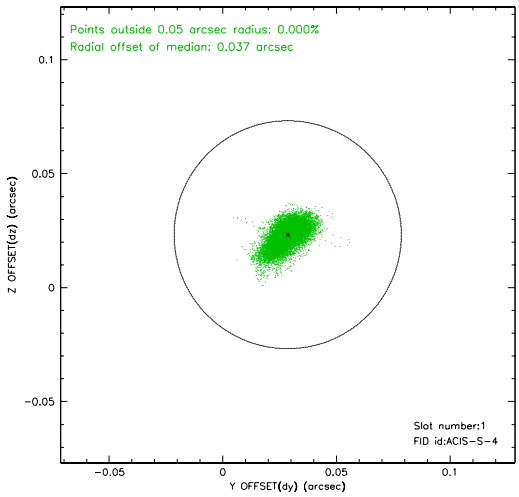


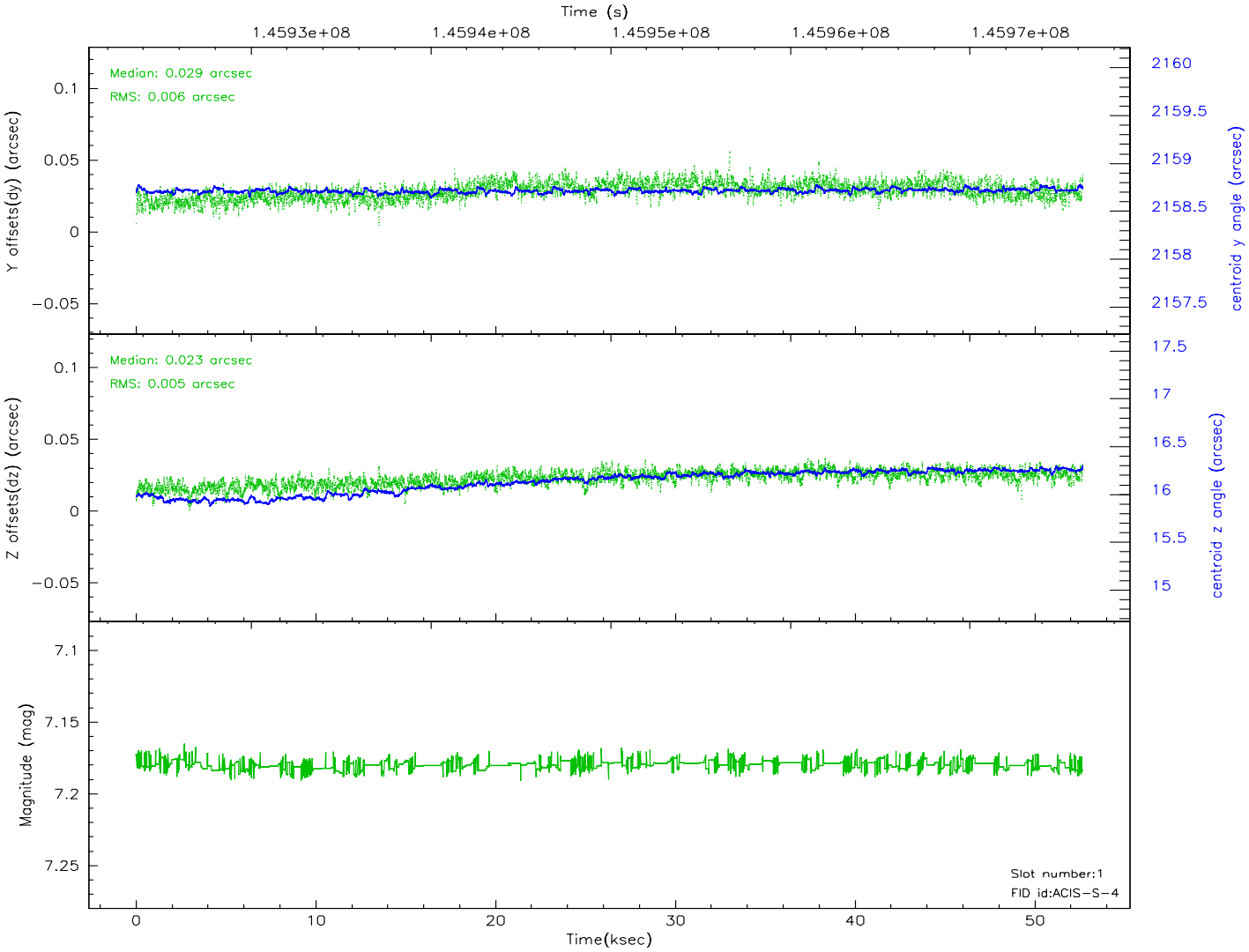




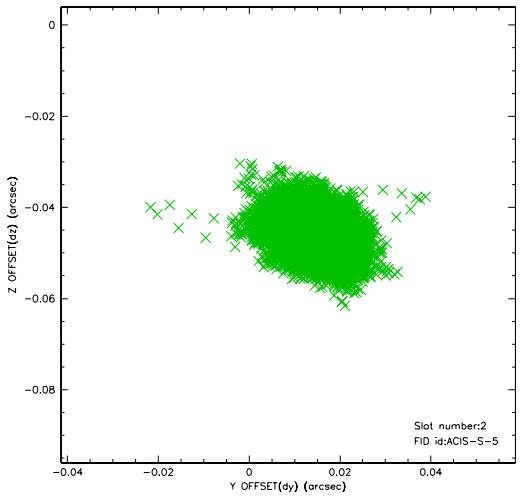
2.5.2 Slot 1

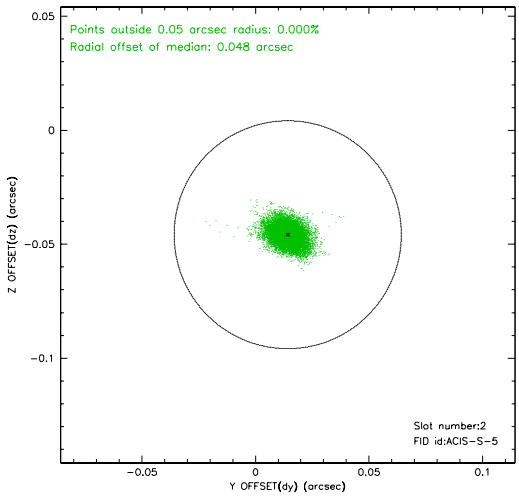

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4

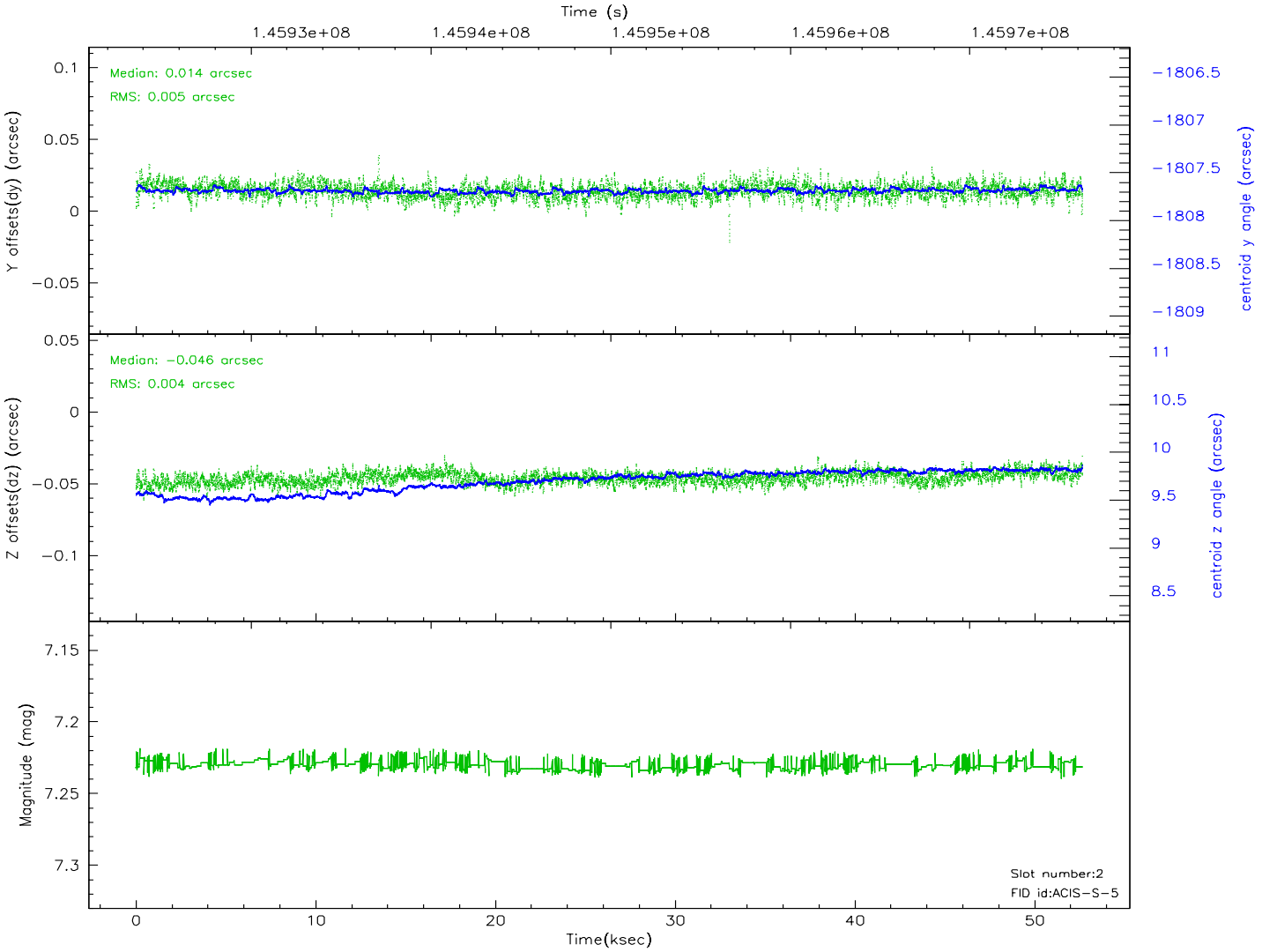

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.037 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:1
FID id:ACIS-S-4


Time (s)
Median: 0.029 arcsec
RMS: 0.006 arcsec
Y offsets(dy) (arcsec)
Median: 0.023 arcsec
RMS: 0.005 arcsec
Z offsets(dz) (arcsec)
centroid y angle (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:1
FID id:ACIS-S-4
Time(ksec)

2.5.3 Slot 2


Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-5

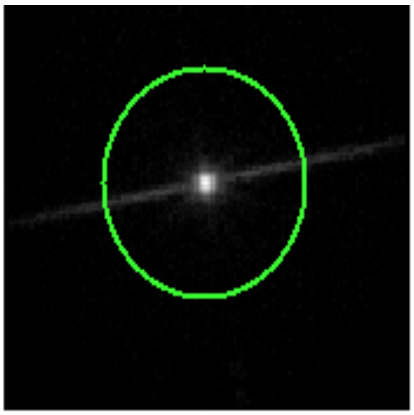

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.048 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number:2
FID id:ACIS-S-5


Time (s)
Median: 0.014 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
Median: −0.046 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid y angle (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number:2
FID id:ACIS-S-5
Time(ksec)

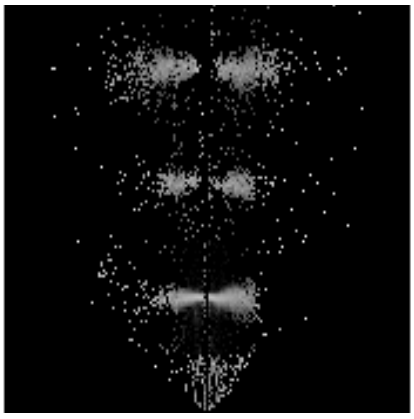
3 Gratings

3.1 LETG Arm

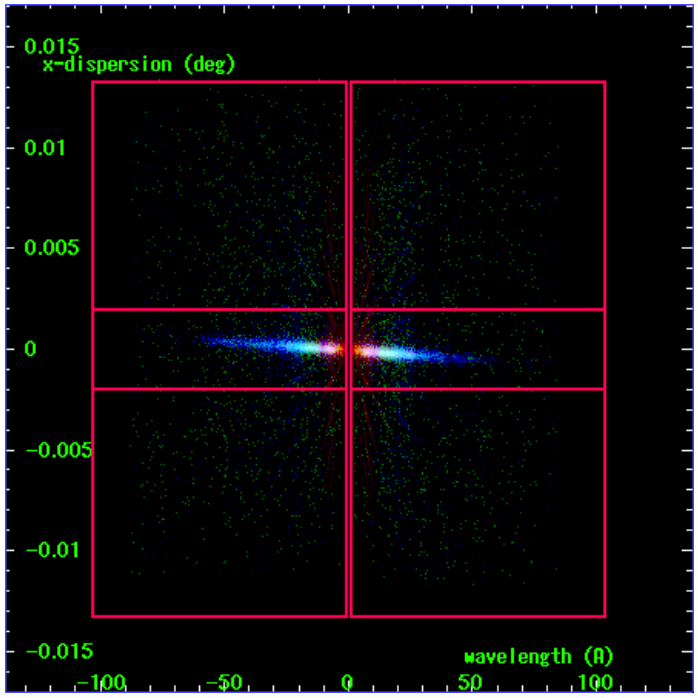
LETG Order Sort 123



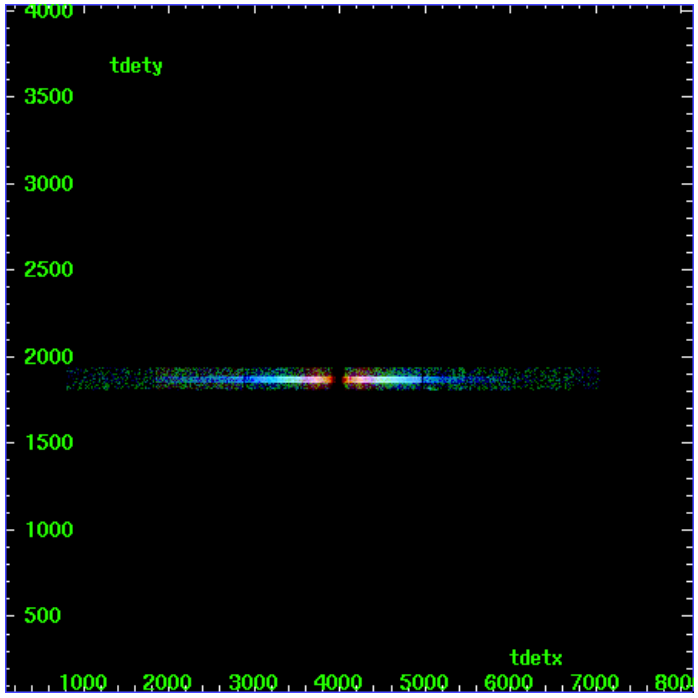
LETG Zero Order



LETG Order Sort ALL

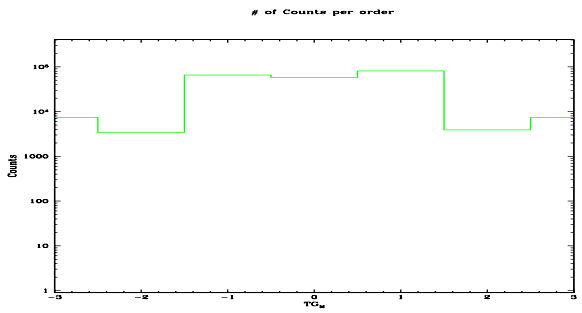


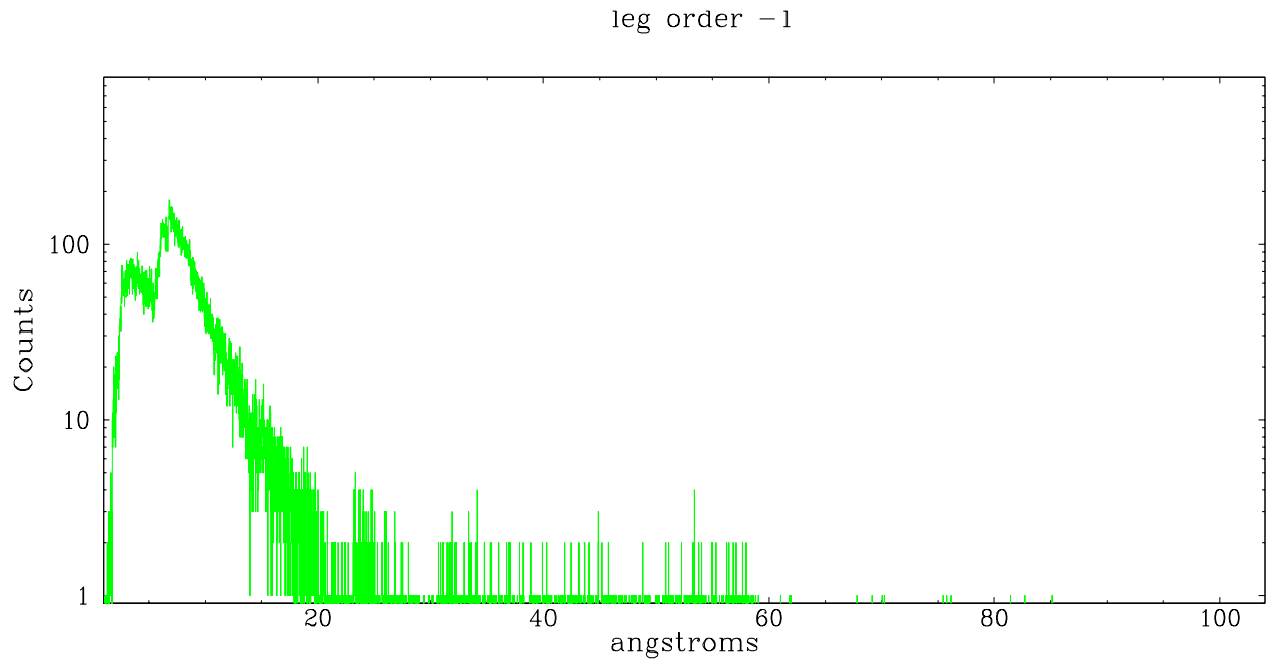
Spot Image LETG

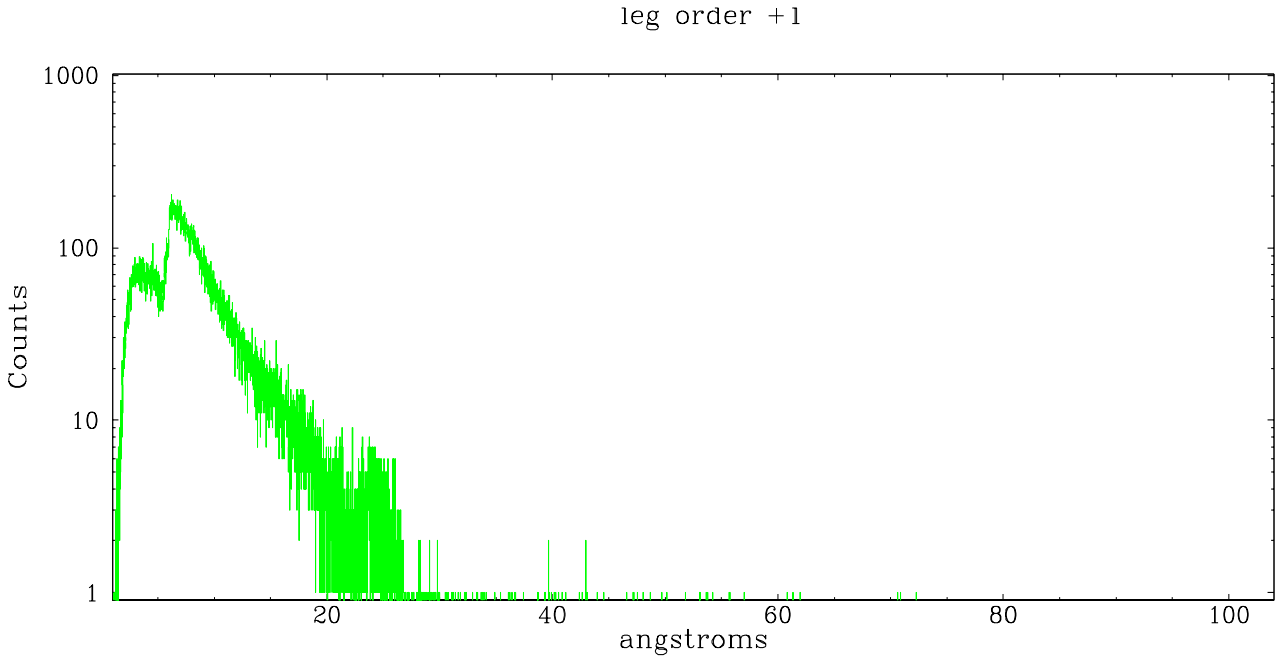


Full Detector LETG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	7425	3440	65949	58183	81187	3912	7381




leg order −1
Counts
100
10
1
20
40
60
80
100
angstroms


leg order +1
Counts
1000
100
10
1
20
40
60
80
100
angstroms

A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2006.10.03
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	52.666

A.2 Comments