V&V Reference Report
L2 ASCDS Version : 8.4.5

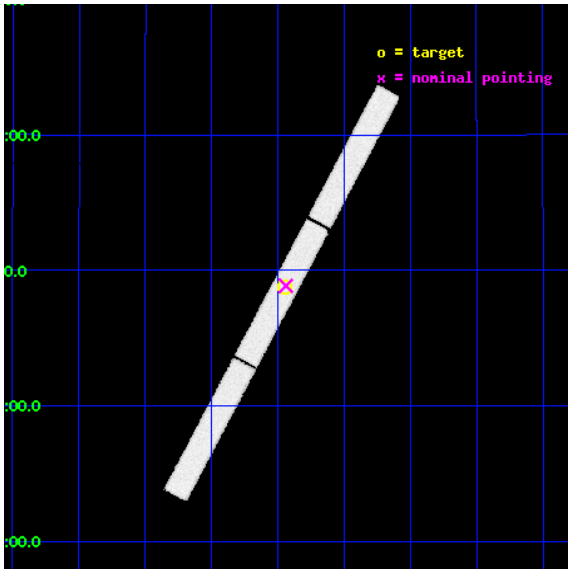
Observation 590 - L2 Version 3
Chandra X-Ray Center

L2 Processing Date : Sep 20 2012

Contents

1 Front

seq_num	100008	Sequence number
obs_id	590	Observation id
title	SOLVING THE PUZZLE OF COMETARY X-RAY ORIGIN: OBSERVATIONS OF COMET 10P/TEMPEL 2	Proposal title
observer	DR W. THOMAS VESTRAND	Principal investigator
object	LINEAR 2001 A2	Source name
ra_targ	349.72187	Observer's specified target RA [deg]
dec_targ	7.438951	Observer's specified target Dec [deg]
ra_nom	349.71950109875	Nominal RA [deg]
dec_nom	7.4435186306624	Nominal Dec [deg]
roll_nom	118.06612922715	Nominal Roll [deg]
revision	3	Processing version of data
ontime	1992.856327951	[s]
livetime	1979.0015348015	Ontime multiplied by DTCOR
l2events	128097	Number of level 2 events

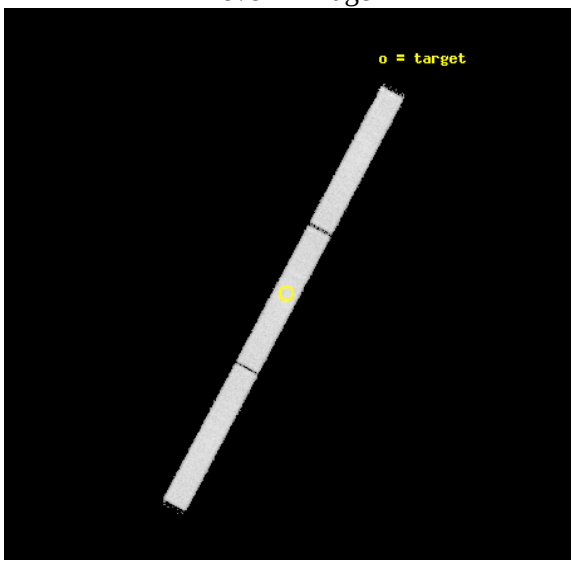


2 OBI

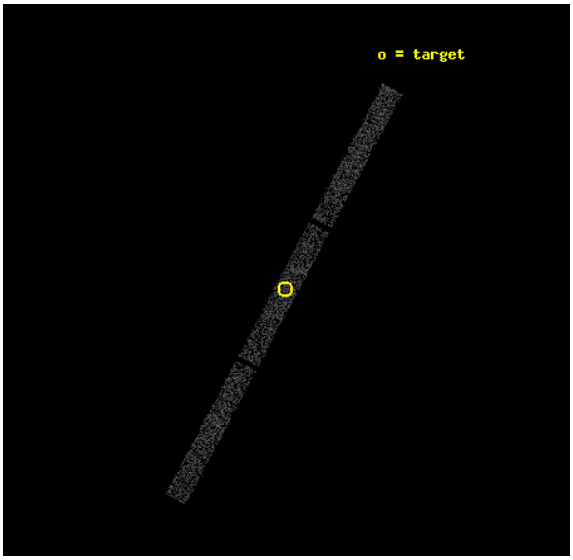
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Parameters

obi_num	0	Obi number
ascdsver	8.4.5	Processing system revision
caldbver	4.5.1.1	
date	2012-09-20T12:45:35	Date and time of file creation
revision	3	Processing version of data

sched_exp_time	2150.000000	[s] Scheduled observation exposure time
ontime	1992.856327951	[s]
l1events	194514	Number of level 1 events

2.1.3 Events

Level 1 Events

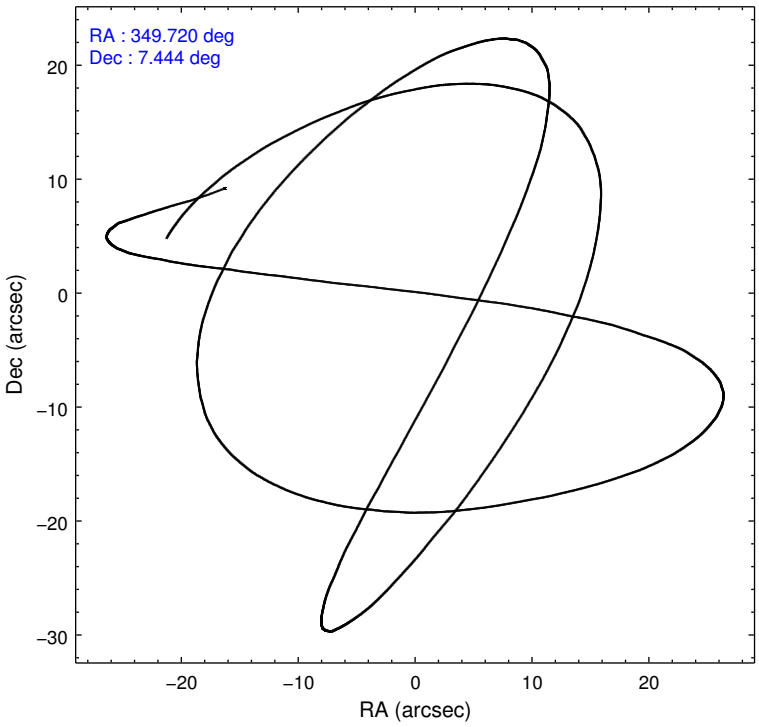
	segment 1	**segment 2**	**segment 3**
level 1 events	64227	64951	65336
rejected events	4917	6845	5149
rejected %	7%	10%	7%

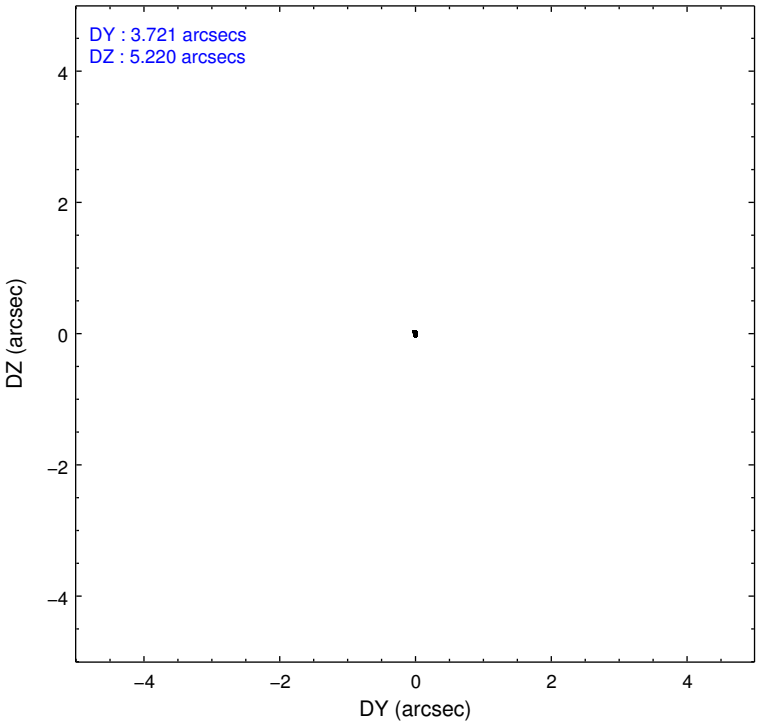
2.2 Compared Parameters

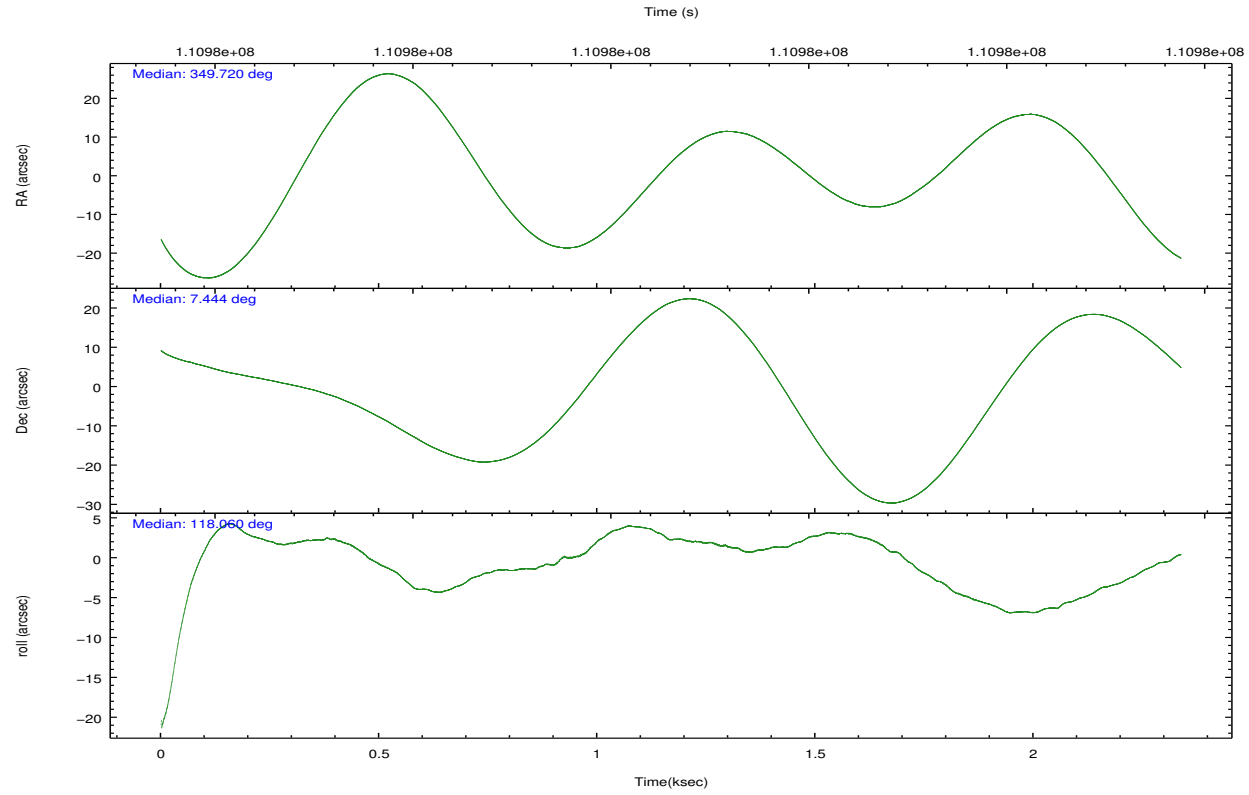
Parameter	Planned	Actual
Instrument	HRC	HRC
Detector	HRC-S	HRC-S
Grating	LETG	LETG
Data mode	OBSERVING	OBSERVING
Observation mode	POINTING	POINTING
[deg] Pointing RA	349.744974	349.7195010987467
[deg] Pointing Dec	7.429242	7.443518630662449
[deg] Pointing Roll	117.995560	118.0661292271466
[s] Window start time (MET)	110419264.184000	110419264.184000
[s] Window stop time (MET)	111024064.184000	111024064.184000
[mm] SIM focus pos	-1.429586	-1.428180813131781
[mm] SIM defocus	0.1037507710433287	0.1051558262725154
[mm] SIM translation stage pos	250.455976	250.466033080201
[mm] SIM translation stage offset	0	-0.01005468664627074
[s] Observation start time (MET)	110978174.184000	110977771.73188
Observation start date	2001-07-08T11:15:10	2001-07-08T11:09:31
[s] Observation end time (MET)	110980324.184000	110980458.25698
Observation end date	2001-07-08T11:51:00	2001-07-08T11:54:18

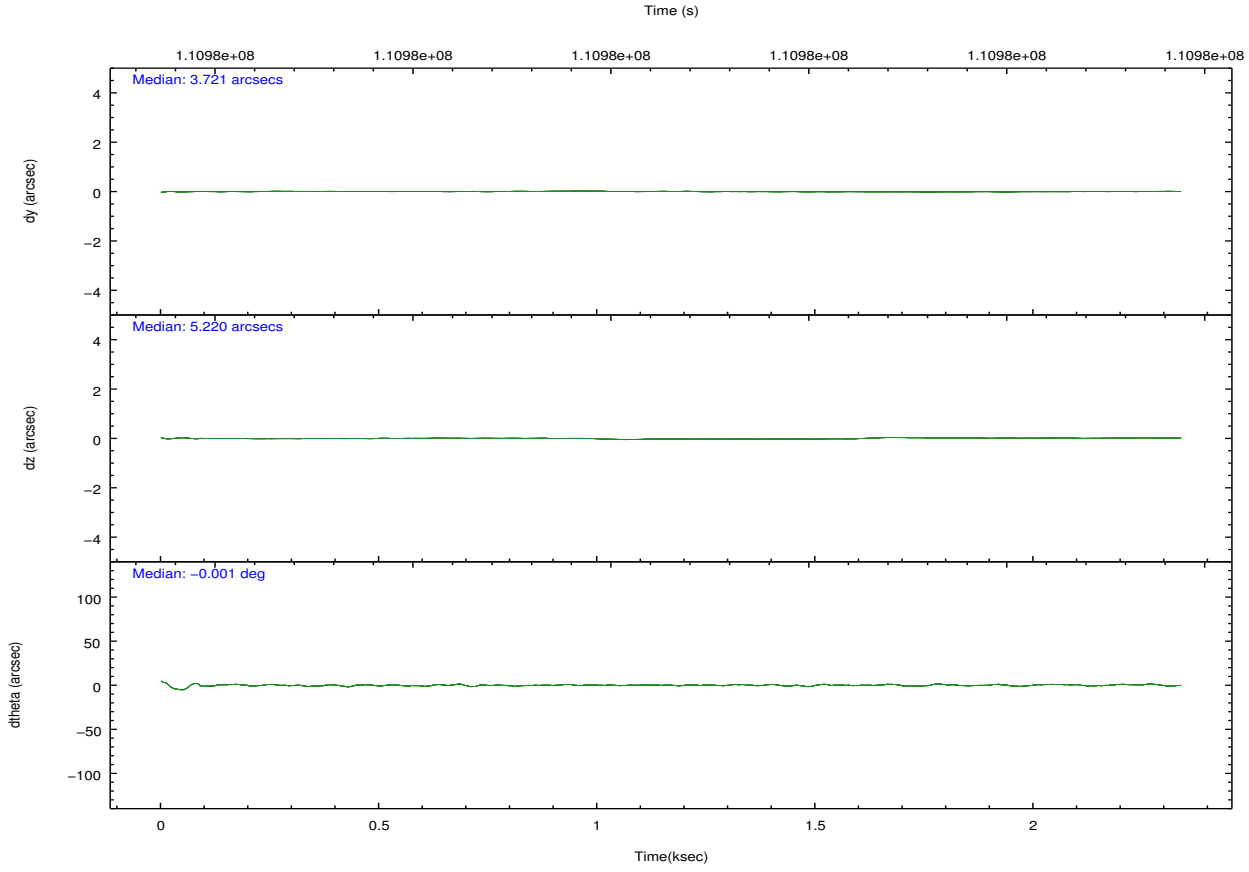
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED

2.3 Aspect


RA : 349.720 deg
Dec : 7.444 deg
Dec (arcsec)
RA (arcsec)
20
10
0
−10
−20
−30
−20
−10
0
10
20


DY : 3.721 arcsecs
DZ : 5.220 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
Median: 349.720 deg
RA (arcsec)
Median: 7.444 deg
Dec (arcsec)
Median: 118.060 deg
roll (arcsec)
Time(ksec)

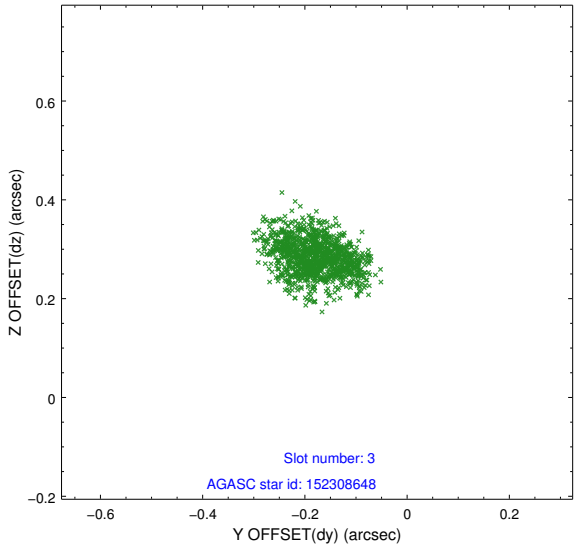

Time (s)
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
1.1098e+08
Median: 3.721 arcsecs
dy (arcsec)
Median: 5.220 arcsecs
dz (arcsec)
Median: −0.001 deg
dtheta (arcsec)
Time(ksec)

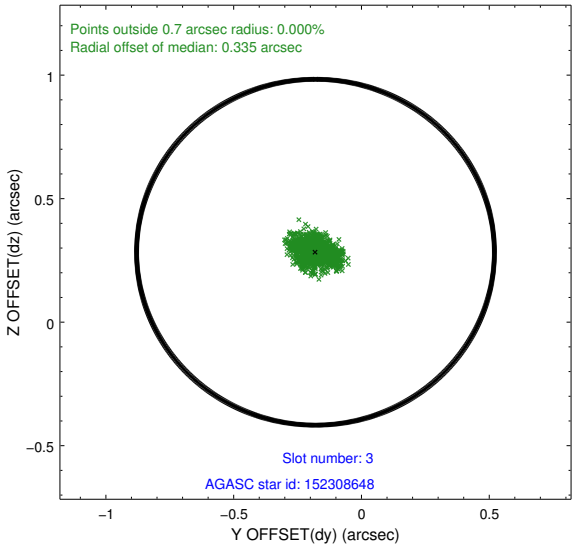
Slot Statistics

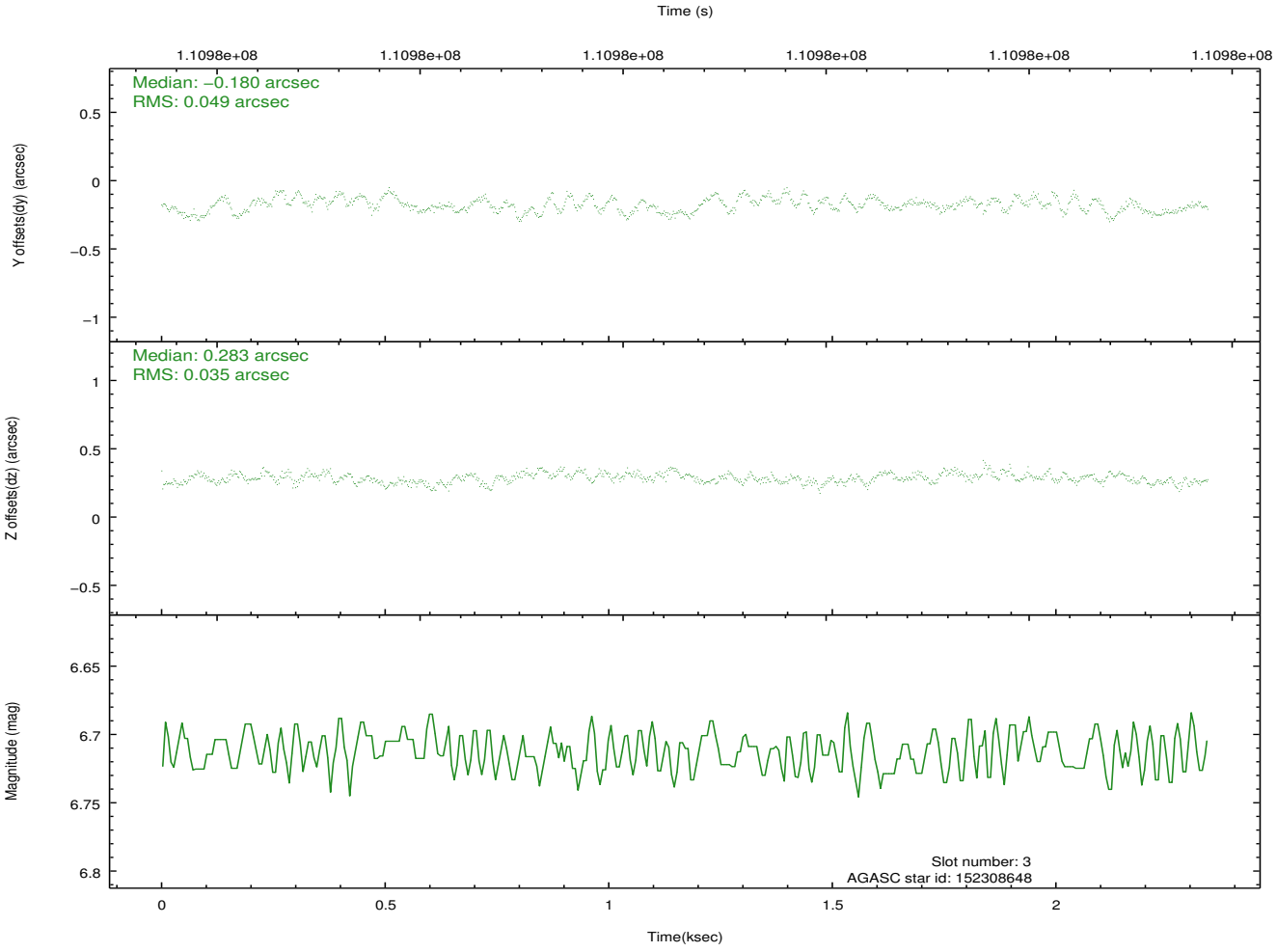
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	HRC-S-2	7.00	571	0.122	-0.149	0.008	0.015	0.000000	0.000000	1241.86	-446.43
1	FID	HRC-S-3	7.02	571	0.177	-0.104	0.005	0.011	0.000000	0.000000	-1158.27	575.10
2	FID	HRC-S-4	6.95	571	0.106	-0.042	0.008	0.015	0.000000	0.000000	1238.43	579.42
3	GUIDE	152308648	6.71	1142	-0.180	0.283	0.067	0.103	349.950276	7.982087	1412.13	-1580.50
4	GUIDE	76420240	7.26	1142	0.119	-0.129	0.058	0.091	349.834746	7.214951	-832.15	76.96
5	GUIDE	152181256	7.77	1142	-0.195	-0.227	0.054	0.084	349.141958	7.580367	1488.92	1643.67
6	GUIDE	76419040	9.11	1141	0.065	-0.209	0.082	0.135	349.315769	7.117648	-270.77	1880.85
7	GUIDE	76548368	9.38	1137	0.191	0.283	0.093	0.149	350.463418	7.237988	-1812.20	-1941.93

2.4 Star Slots

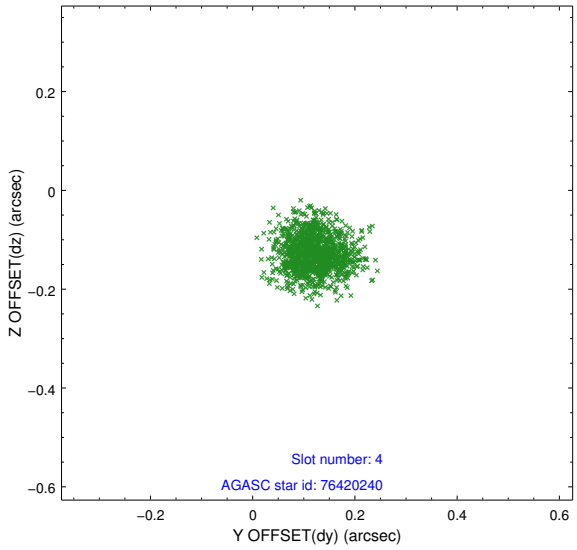
2.4.1 Slot 3

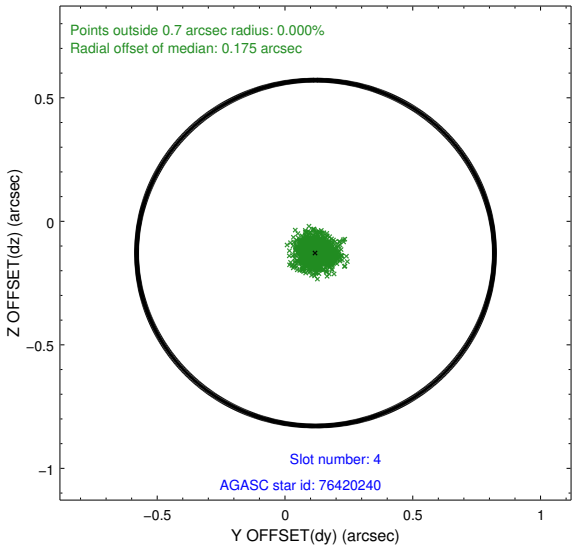


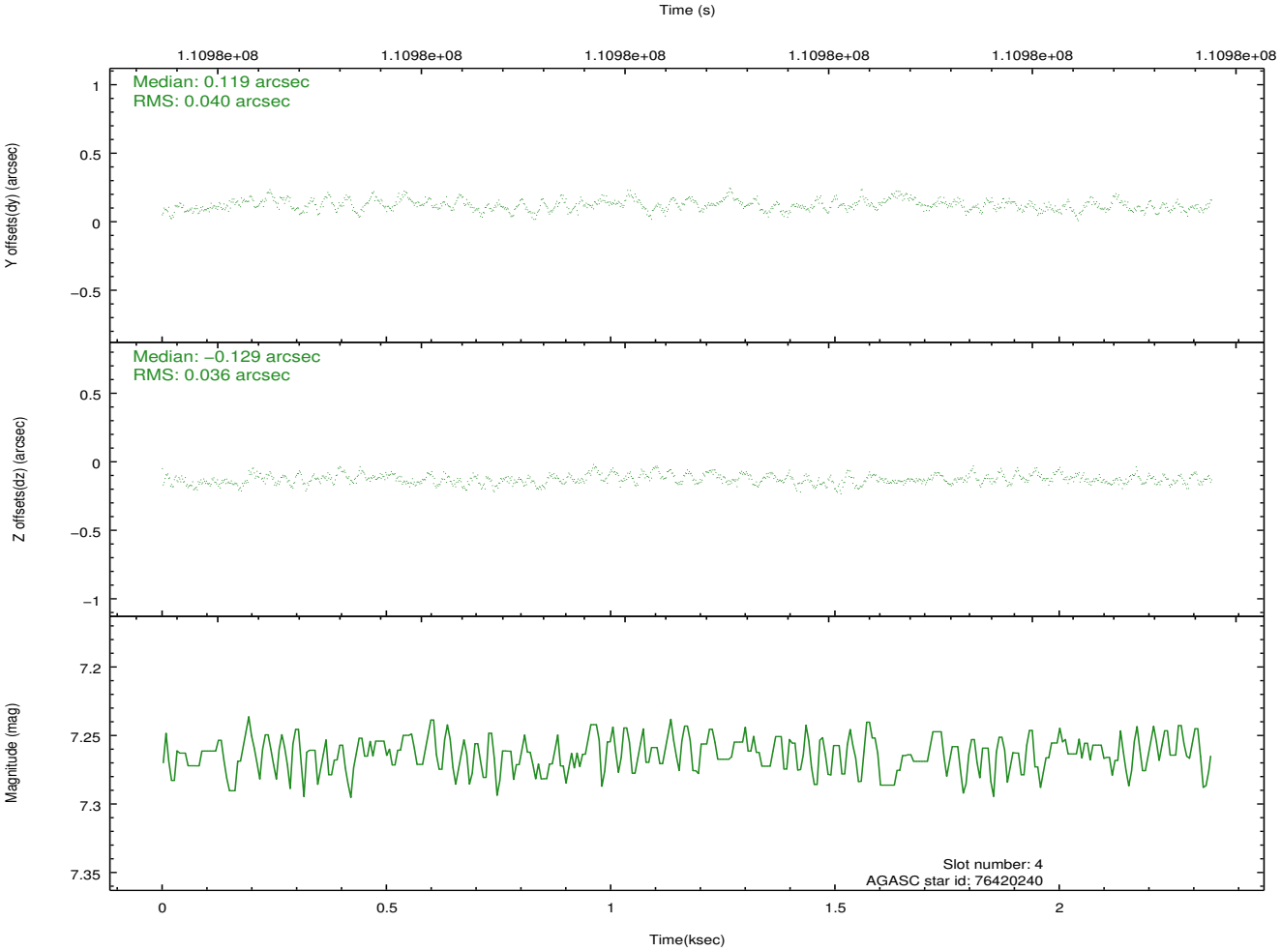




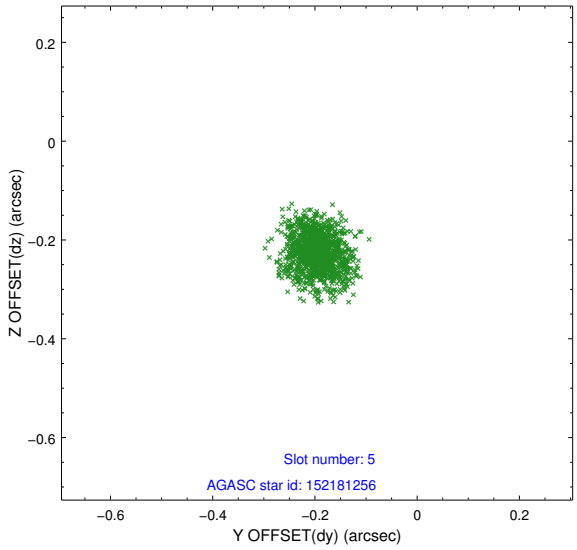
2.4.2 Slot 4

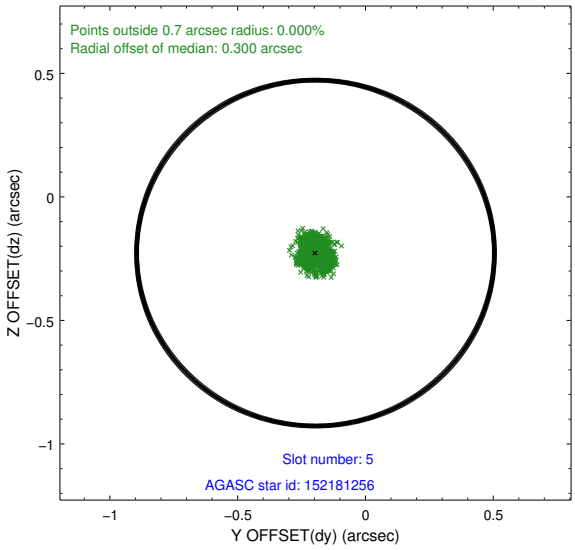

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 76420240

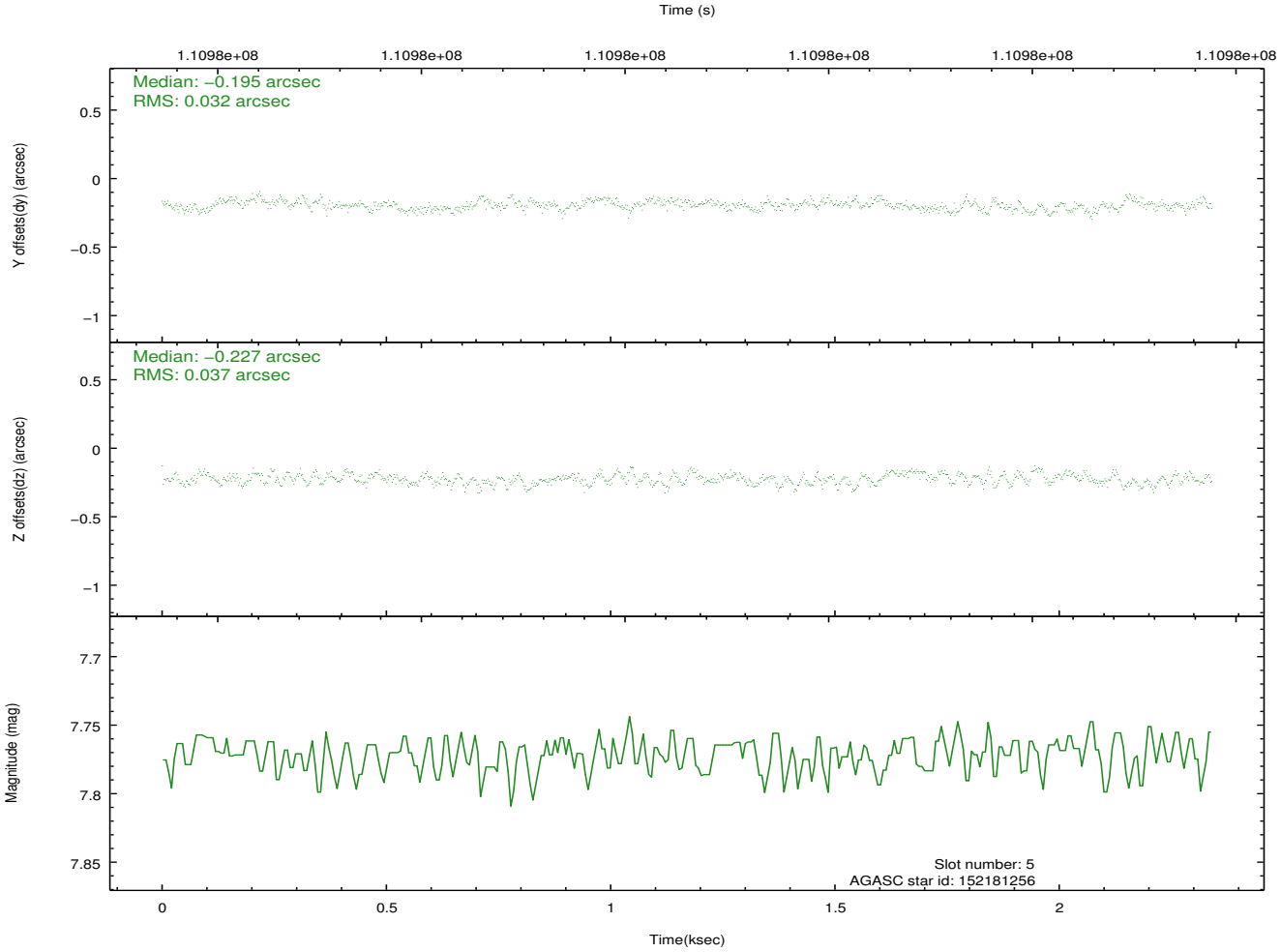

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.175 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 76420240


Time (s)
Median: 0.119 arcsec
RMS: 0.040 arcsec
Y offsets(dy) (arcsec)
Median: −0.129 arcsec
RMS: 0.036 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 76420240
Time(ksec)

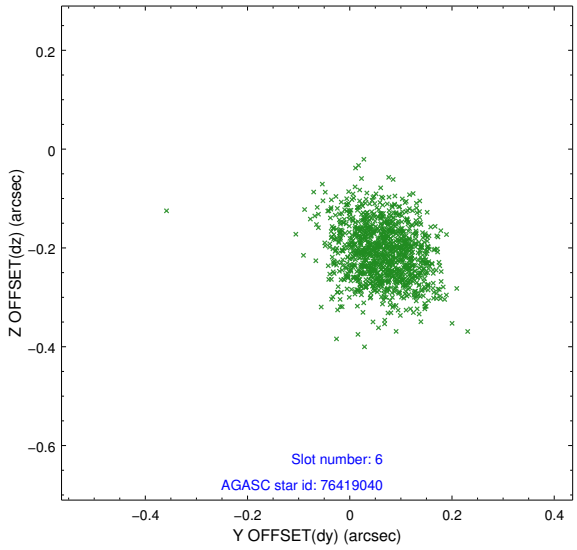
2.4.3 Slot 5

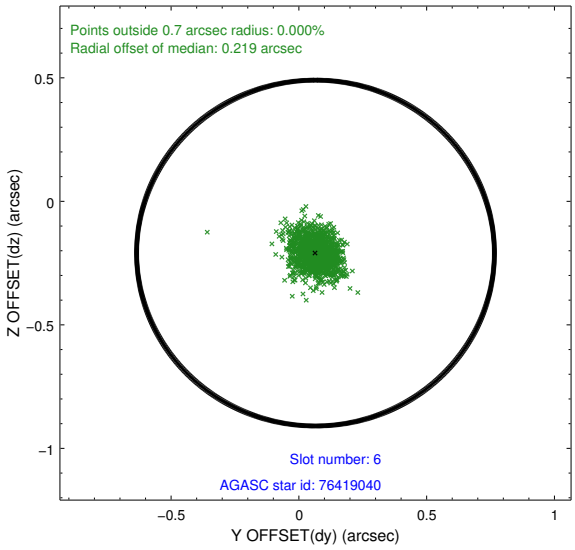

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 152181256

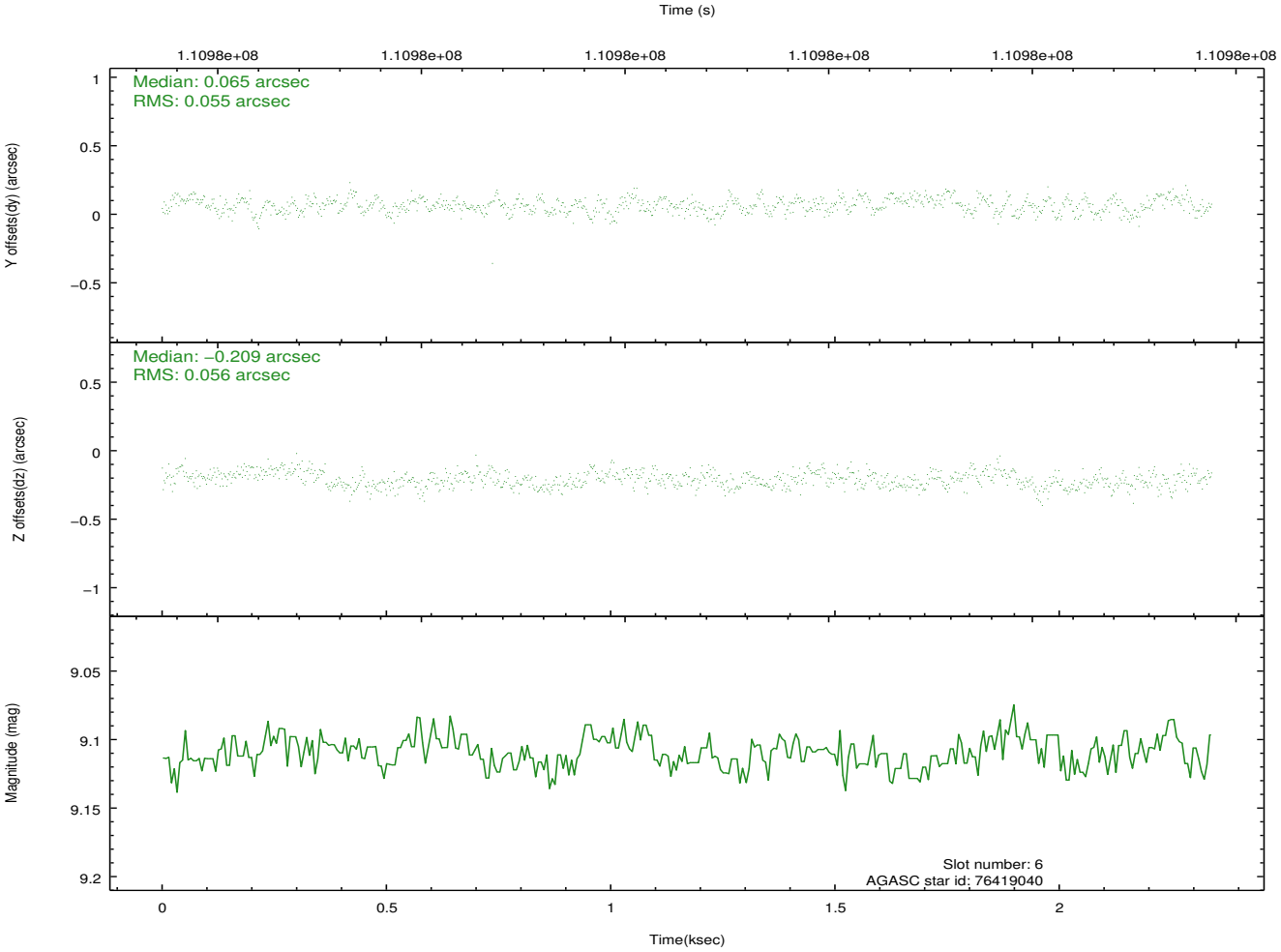

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.300 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 152181256


Time (s)
Median: −0.195 arcsec
RMS: 0.032 arcsec
Y offsets(dy) (arcsec)
Median: −0.227 arcsec
RMS: 0.037 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 152181256
Time(ksec)

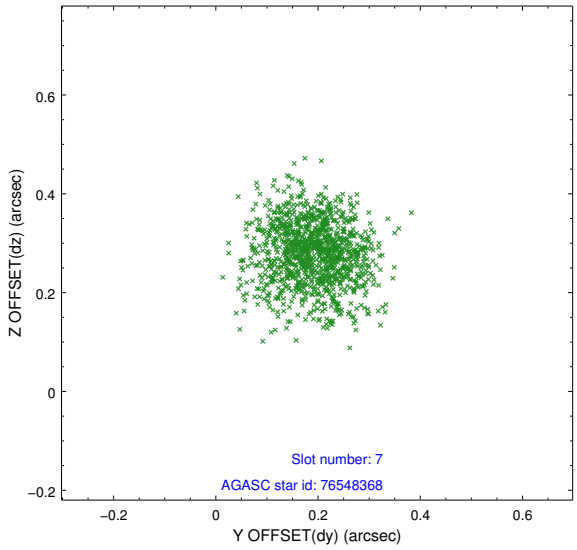
2.4.4 Slot 6

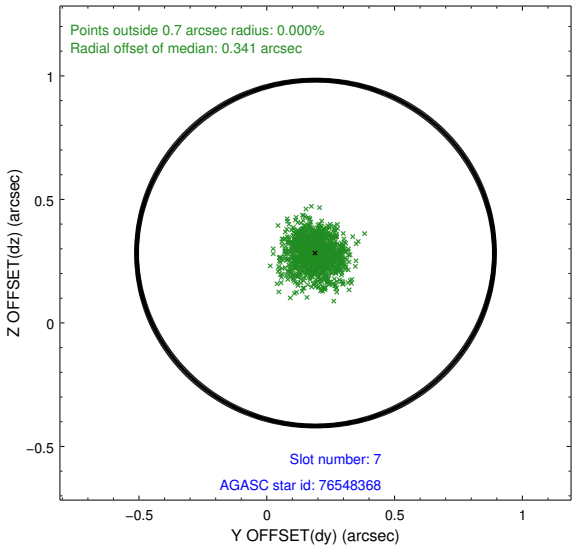

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 76419040

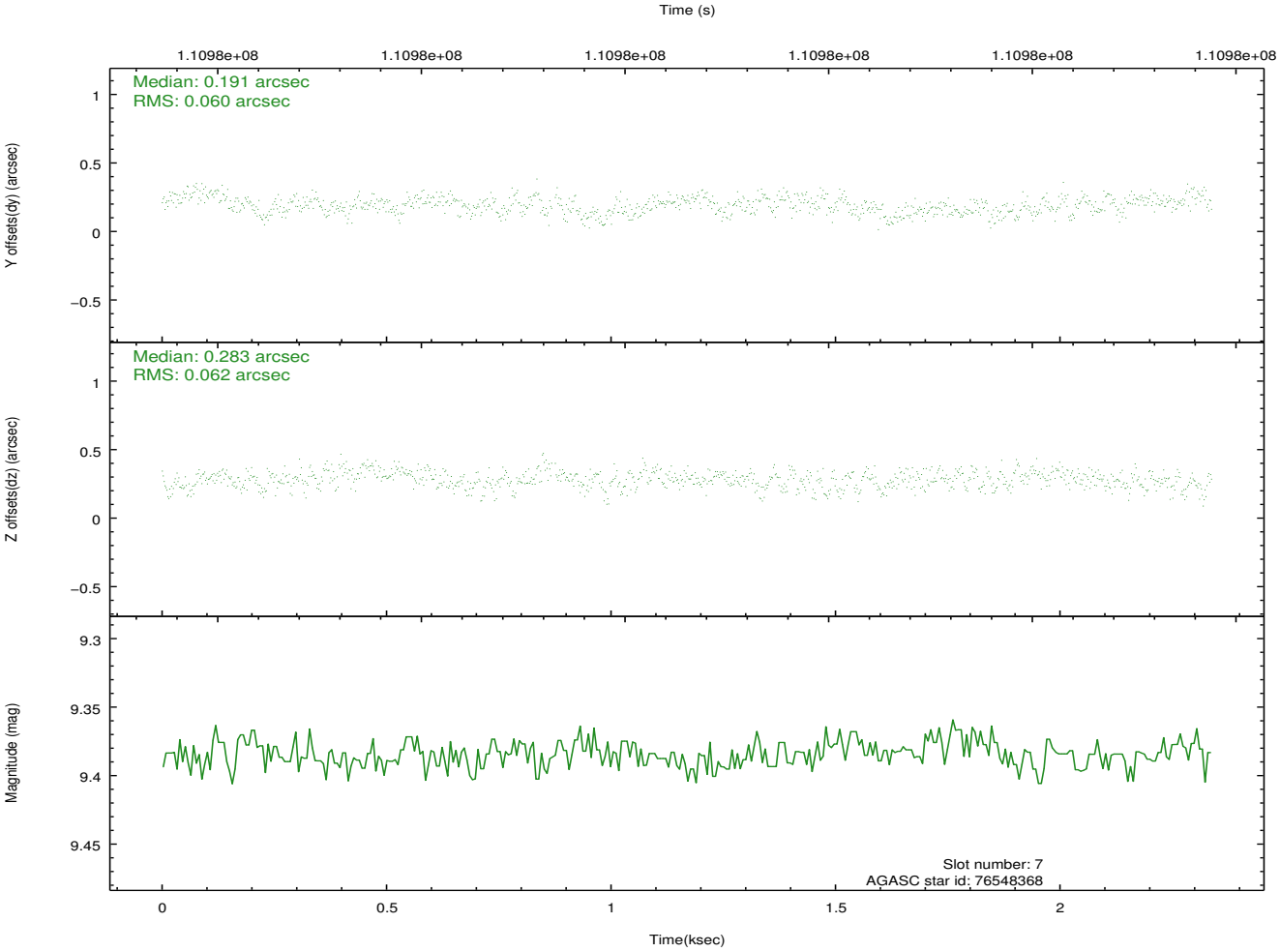

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.219 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 76419040


Time (s)
Median: 0.065 arcsec
RMS: 0.055 arcsec
Y offsets(dy) (arcsec)
Median: −0.209 arcsec
RMS: 0.056 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 76419040
Time(ksec)

2.4.5 Slot 7

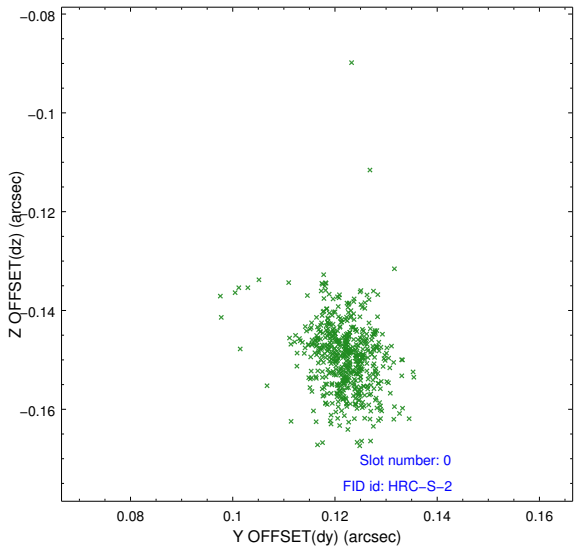

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 76548368

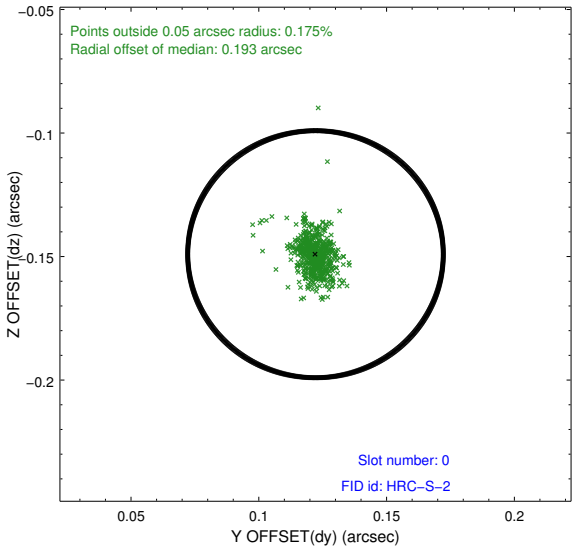

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.341 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 76548368

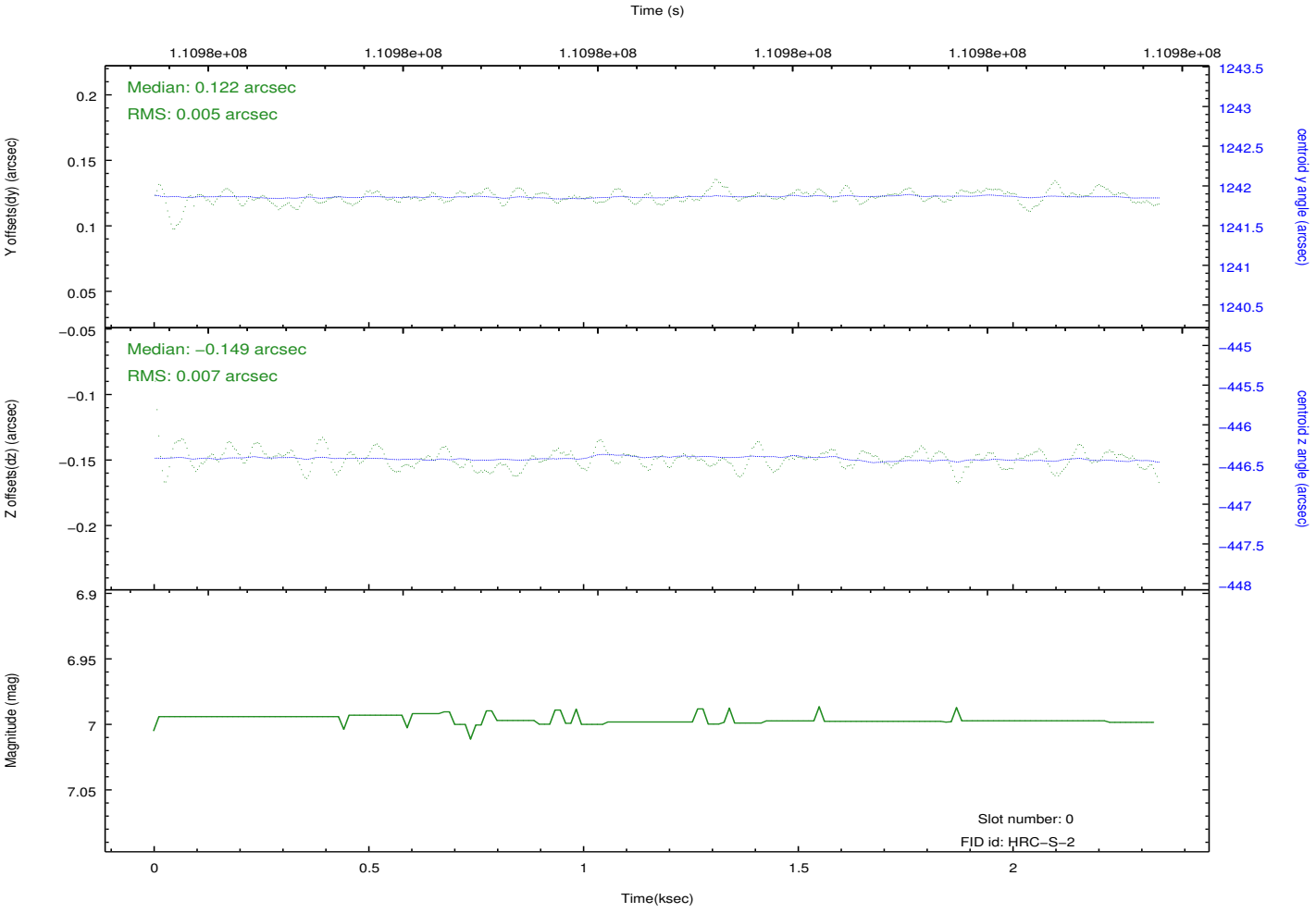

Time (s)
Median: 0.191 arcsec
RMS: 0.060 arcsec
Y offsets(dy) (arcsec)
Median: 0.283 arcsec
RMS: 0.062 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 76548368
Time(ksec)

2.5 FID Slots

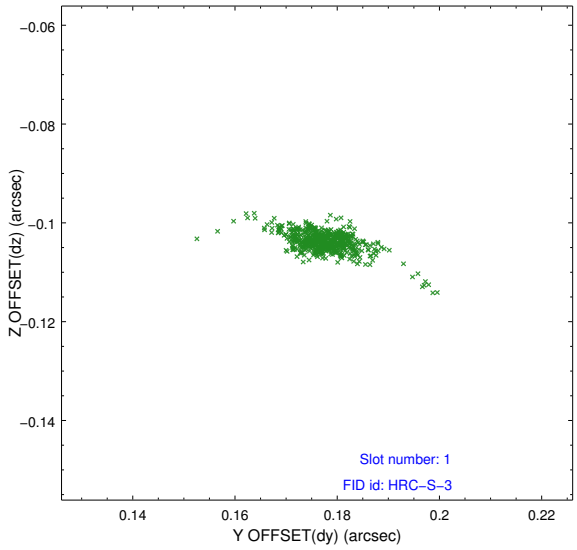
2.5.1 Slot 0

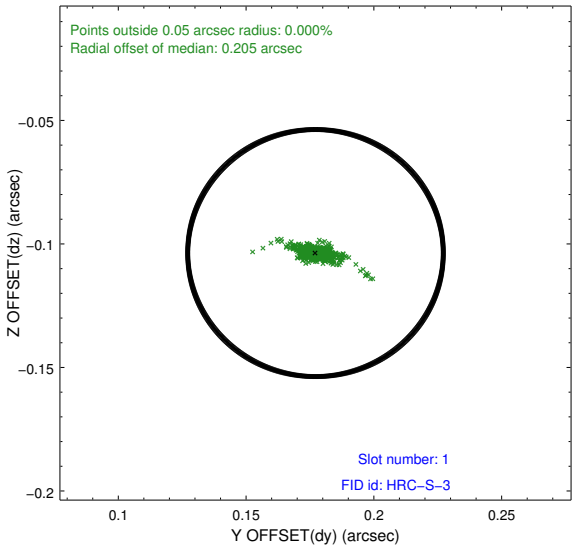


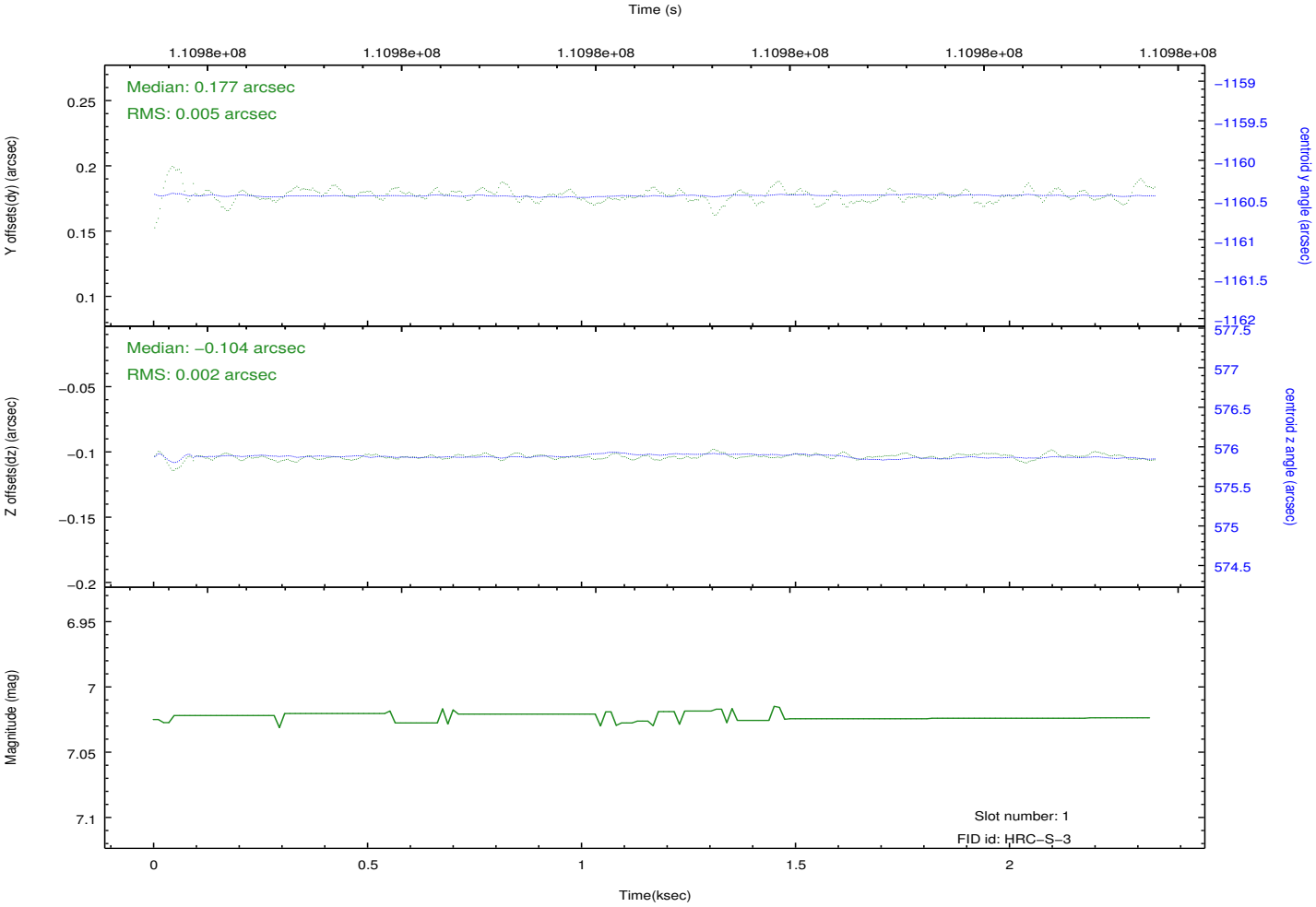




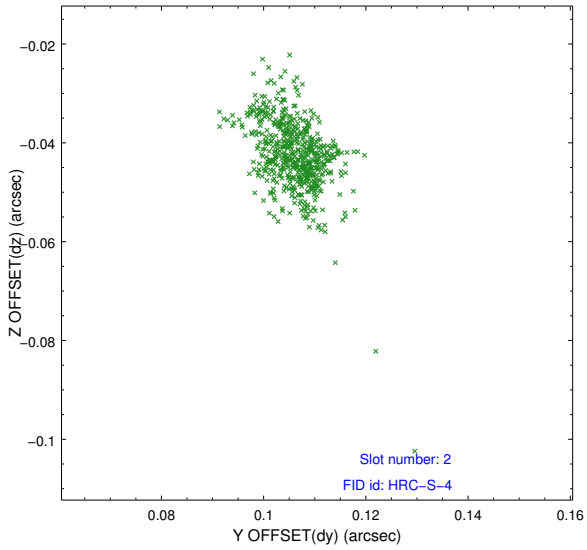
2.5.2 Slot 1

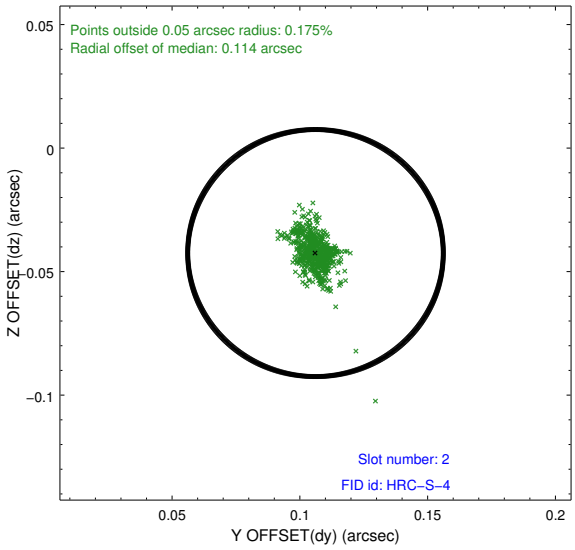

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: HRC−S−3

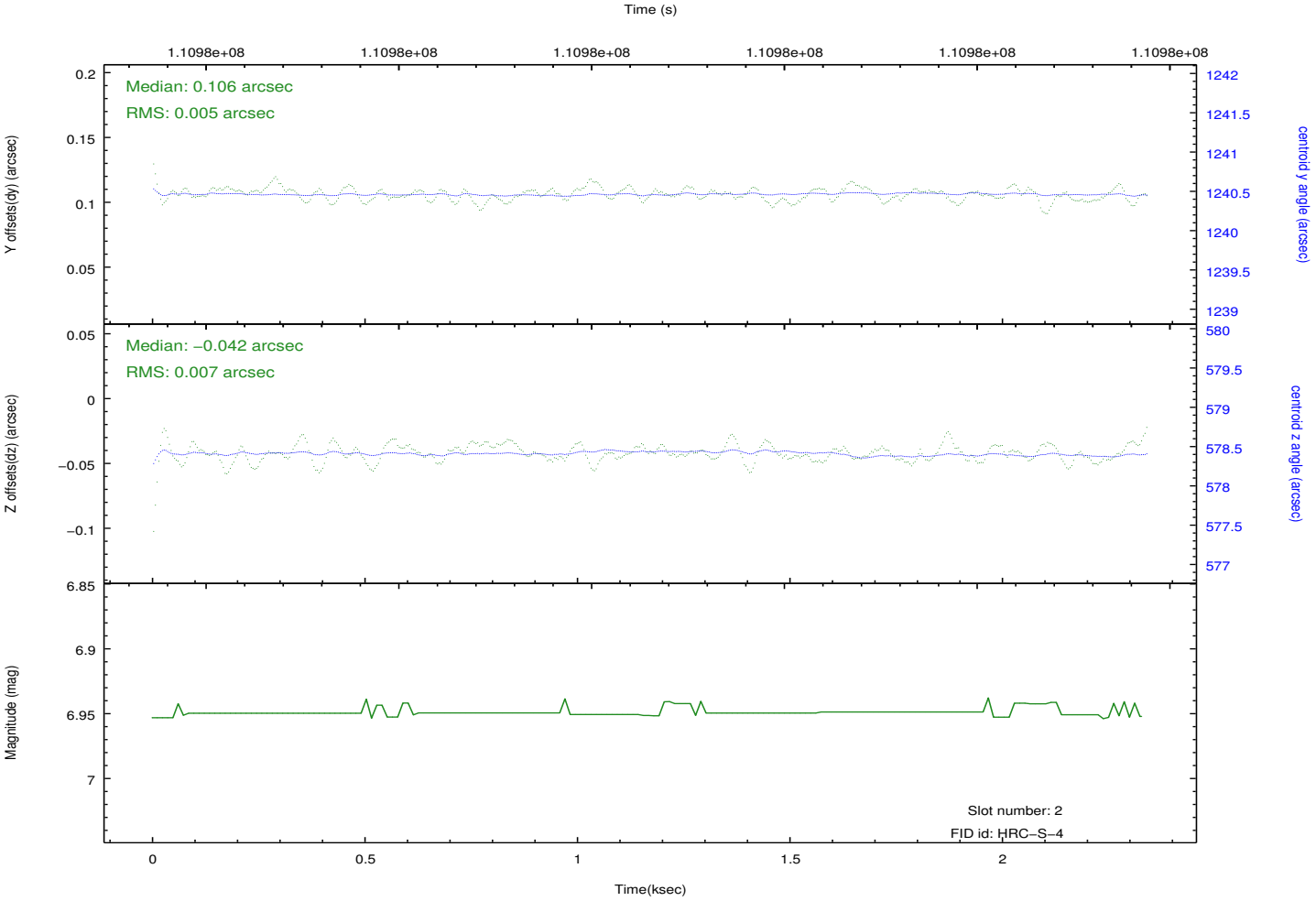

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.205 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: HRC−S−3


Time (s)
Median: 0.177 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.104 arcsec
RMS: 0.002 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: HRC−S−3
Time(ksec)

2.5.3 Slot 2

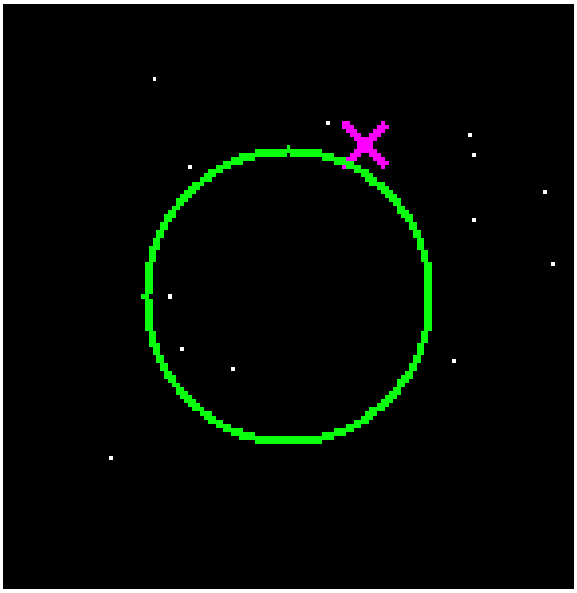

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: HRC−S−4


Points outside 0.05 arcsec radius: 0.175%
Radial offset of median: 0.114 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: HRC−S−4

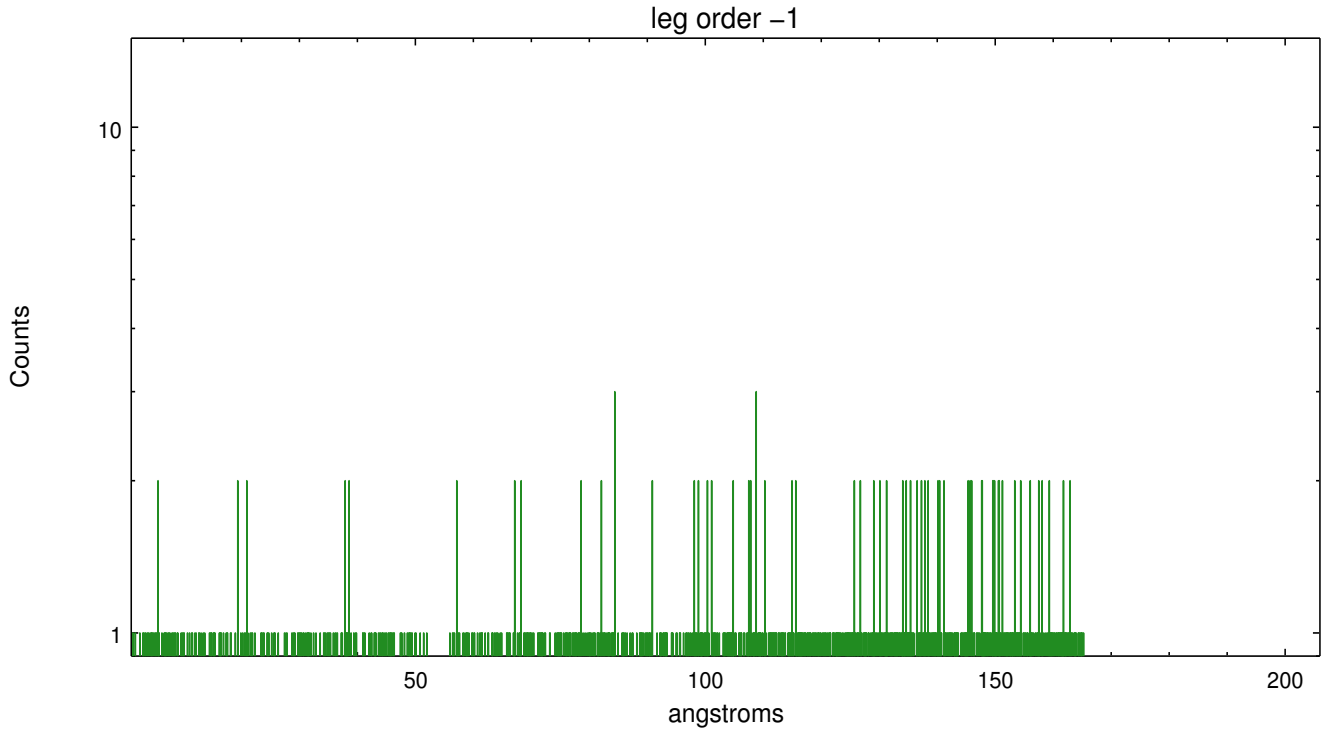

Time (s)
Median: 0.106 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.042 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: HRC−S−4
Time(ksec)

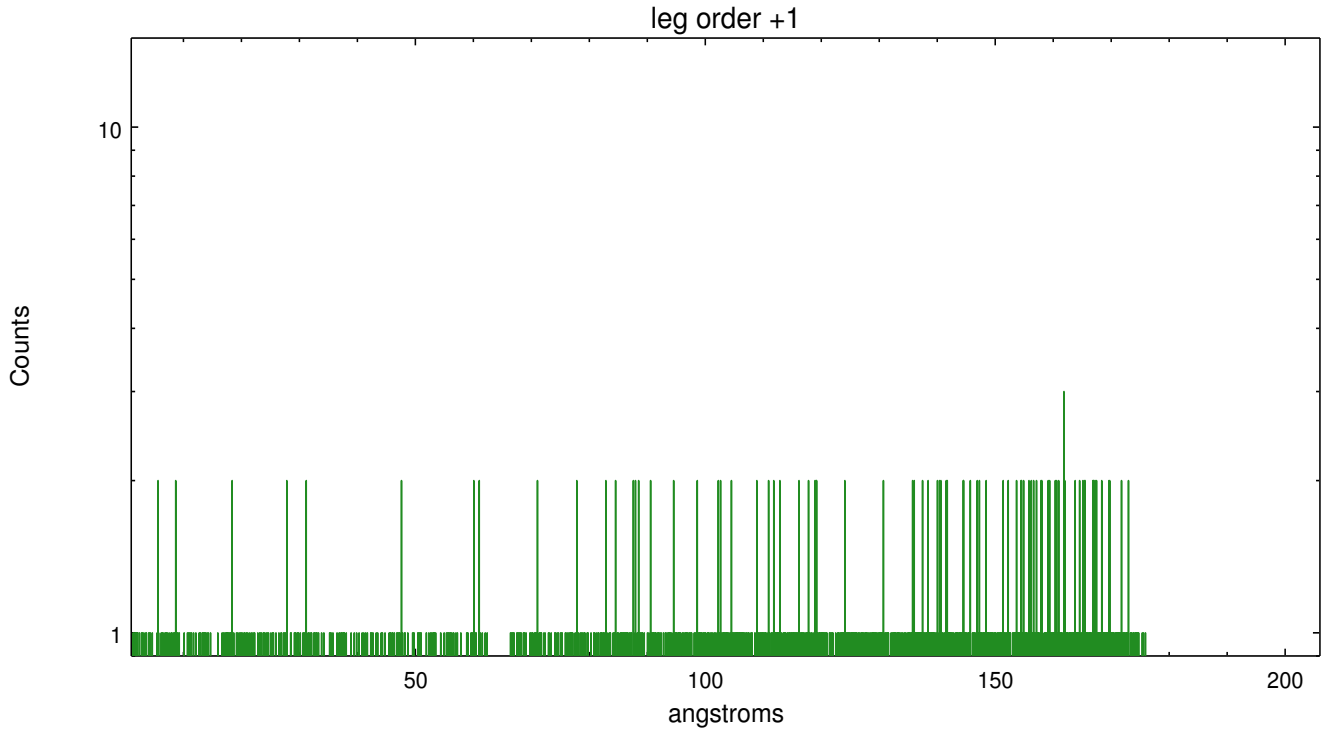
3 Gratings

3.1 LETG Arm



LETG Zero Order


leg order −1
Counts
10
1
50
100
150
200
angstroms


leg order +1
Counts
10
1
50
100
150
200
angstroms

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2012.09.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	1.992

A.2 Comments

```
This is an observation of a moving target. Event positions are in the
reference from of Chandra, not of the comet. Users should run a
software tool such as sso_freeze to reposition the events in the
reference from of the comet, then
run normal data analysis tools such as tgdetect and spectral
extraction.
===
Standard software processing technique using the tool tgdetect failed to
determine an accurate position for the zeroth order for this
observation. The target is moving through the field of view during the
obdservation. The processing software defaulted to the coordinates
supplied by the user for the position of the zeroth order for the
grating spectral extraction. Spectra products from this processing,
which does not include sso_freeze, are not useful.
```