V&V Reference Report
L2 ASCDS Version : 8.1.1

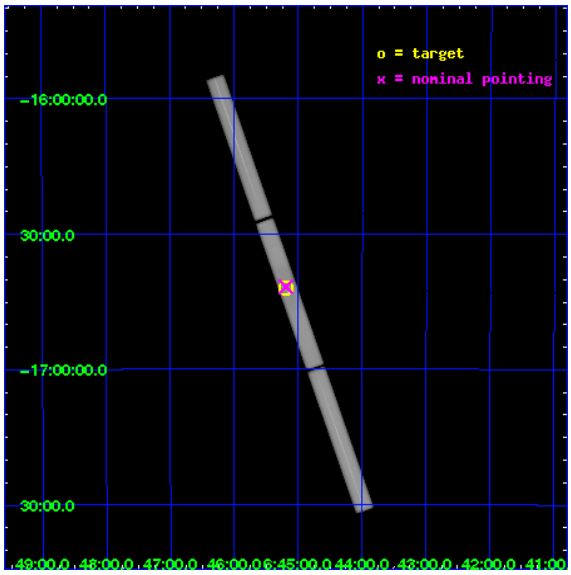
Observation 1421 - L2 Version 5
Chandra X-Ray Center

L2 Processing Date : May 20 2010

Contents

1 Front

seq_num	280371	Sequence number
obs_id	1421	Observation id
title		Proposal title
observer	Dr. CXC Calibration	Principal investigator
object	SIRIUS B	Source name
ra_targ	101.295833	Observer's specified target RA
dec_targ	-16.701389	Observer's specified target Dec
ra_nom	101.2980517868	Nominal RA
dec_nom	-16.696516162108	Nominal Dec
roll_nom	70.573819434045	Nominal Roll
revision	5	Processing version of data
ontime	25265.482161537	[s]
livetime	24709.779900234	Ontime multiplied by DTCOR
l2events	2925632	Number of level 2 events

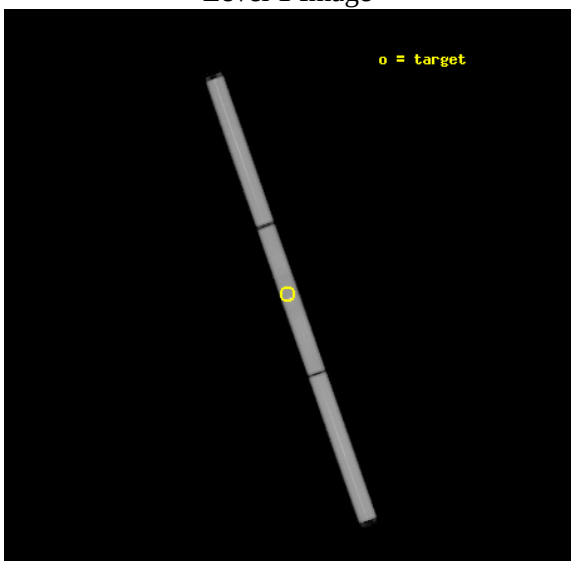


2 OBI

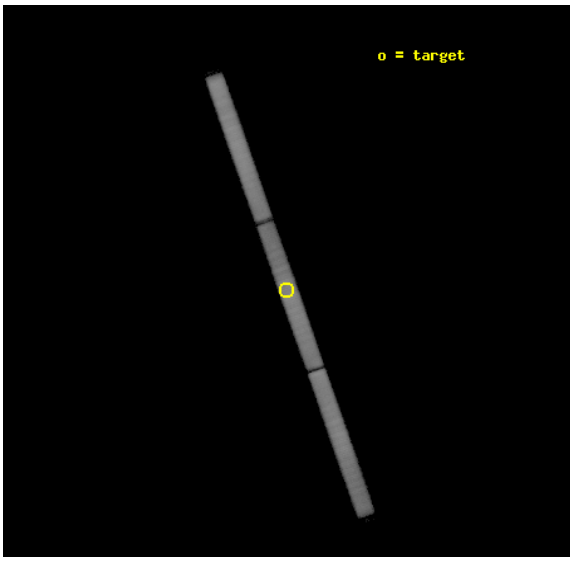
2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events



2.1.2 Parameters

obi_num	0	Obi number
ascdsver	8.2.1	Processing system revision
caldbver	4.1.7	
date	2010-05-20T21:39:51	Date and time of file creation
revision	5	Processing version of data

sched_exp_time	25061.333000	Scheduled observation exposure time
ontime	25265.482161537	[s]
l1events	3869377	Number of level 1 events

2.1.3 Events

Level 1 Events

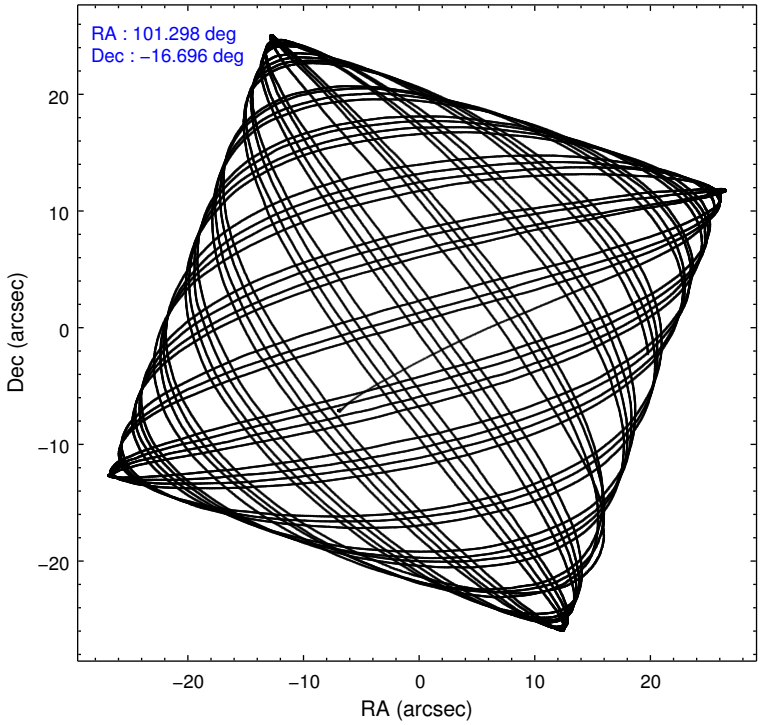
	segment 1	**segment 2**	**segment 3**
level 1 events	1405080	1214371	1249926
rejected events	204602	212578	276424
rejected %	14%	17%	22%

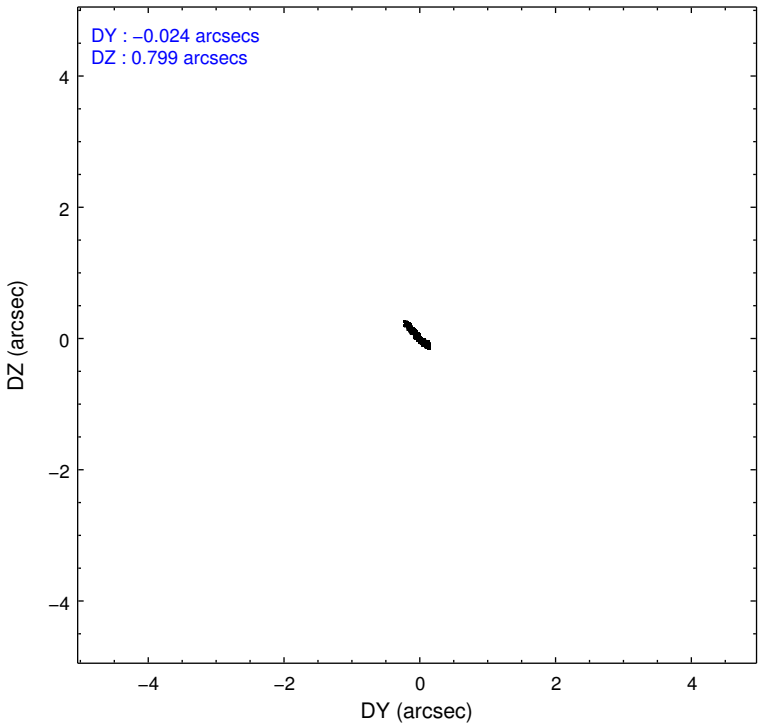
2.2 Compared Parameters

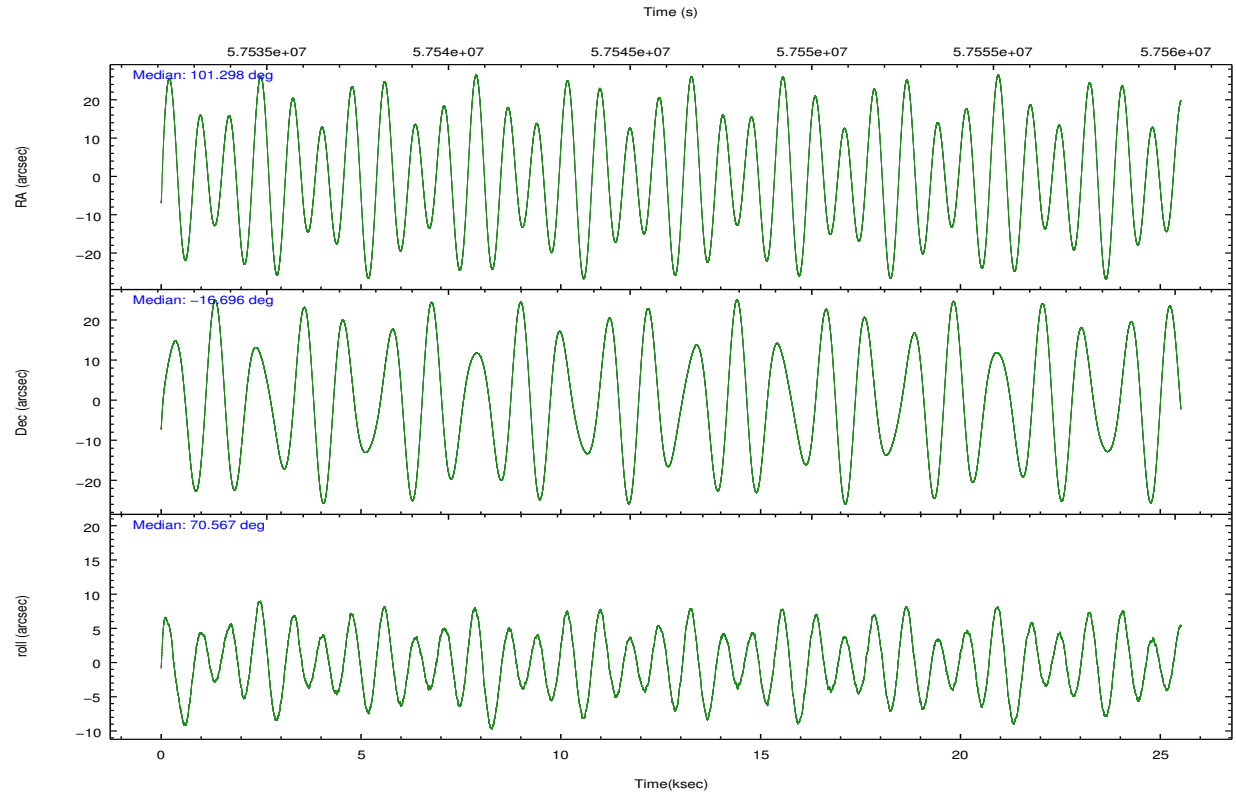
Parameter	Planned	Actual
Instrument	HRC	HRC
Detector	HRC-S	HRC-S
Grating	LETG	LETG
Data mode	OBSERVING	OBSERVING
Observation mode	POINTING	POINTING
Pointing RA	101.304513	101.2980517868036
Pointing Dec	-16.724841	-16.69651616210827
Pointing Roll	70.508339	70.57381943404515
SIM focus pos (mm)	-1.429586	-1.508139491973113
SIM defocus (mm)	0.1037507710433287	0.02519714743118384
SIM translation stage pos (mm)	250.455976	250.466033080201
SIM translation stage offset (mm)	0	-0.01005468664627074
Observation start time	57533822.184000	57532402.635057
Observation start date	1999-10-28T21:35:58	1999-10-28T21:13:22
Observation end time	57558884.184000	57559093.12352
Observation end date	1999-10-29T04:33:40	1999-10-29T04:38:13

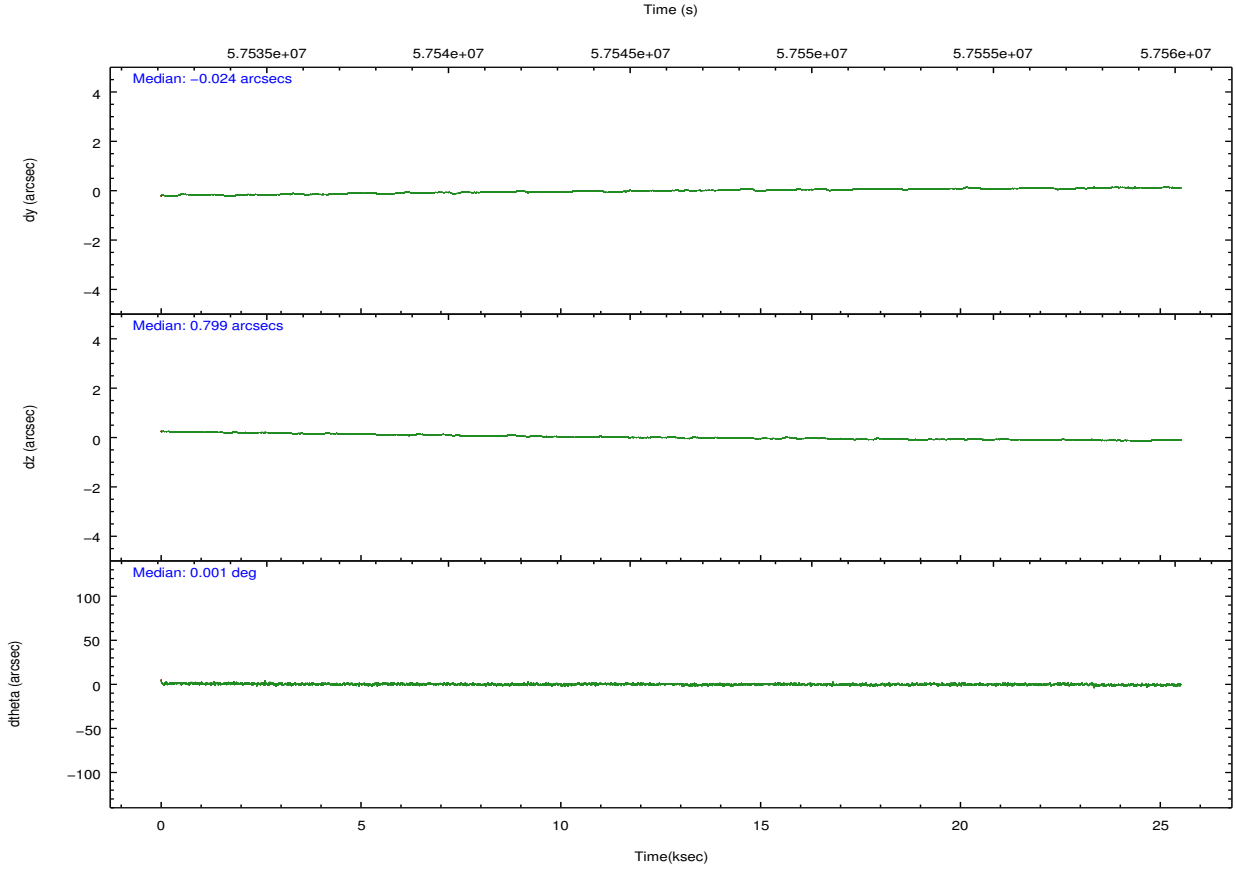
Parameter	Planned	Actual
Obspar format version number	6	6
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED

2.3 Aspect


RA : 101.298 deg
Dec : −16.696 deg
Dec (arcsec)
RA (arcsec)
20
10
0
−10
−20
−20
−10
0
10
20


DY : −0.024 arcsecs
DZ : 0.799 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
5.7535e+07
5.754e+07
5.7545e+07
5.755e+07
5.7555e+07
5.756e+07
Median: 101.298 deg
RA (arcsec)
Median: −16.696 deg
Dec (arcsec)
Median: 70.567 deg
roll (arcsec)
Time(ksec)

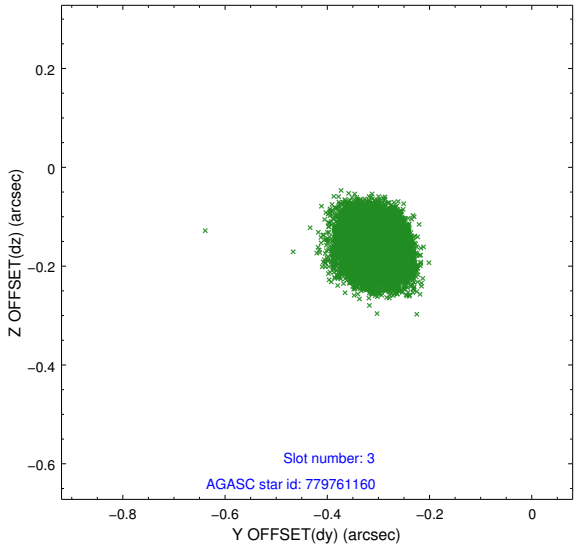

Time (s)
5.7535e+07
5.754e+07
5.7545e+07
5.755e+07
5.7555e+07
5.756e+07
Median: −0.024 arcsecs
dy (arcsec)
Median: 0.799 arcsecs
dz (arcsec)
Median: 0.001 deg
dtheta (arcsec)
Time(ksec)

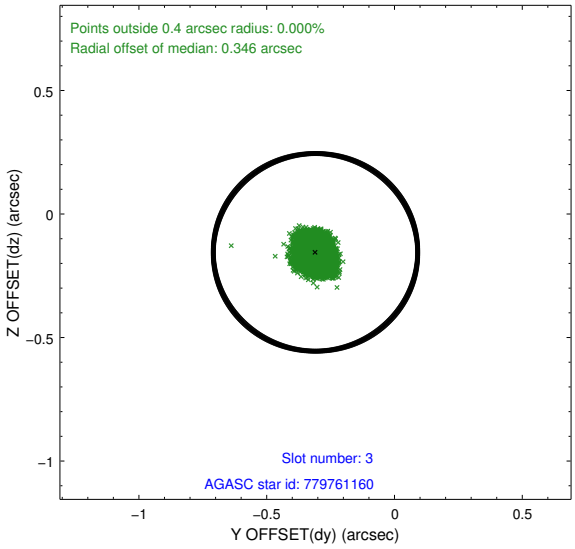
Slot Statistics

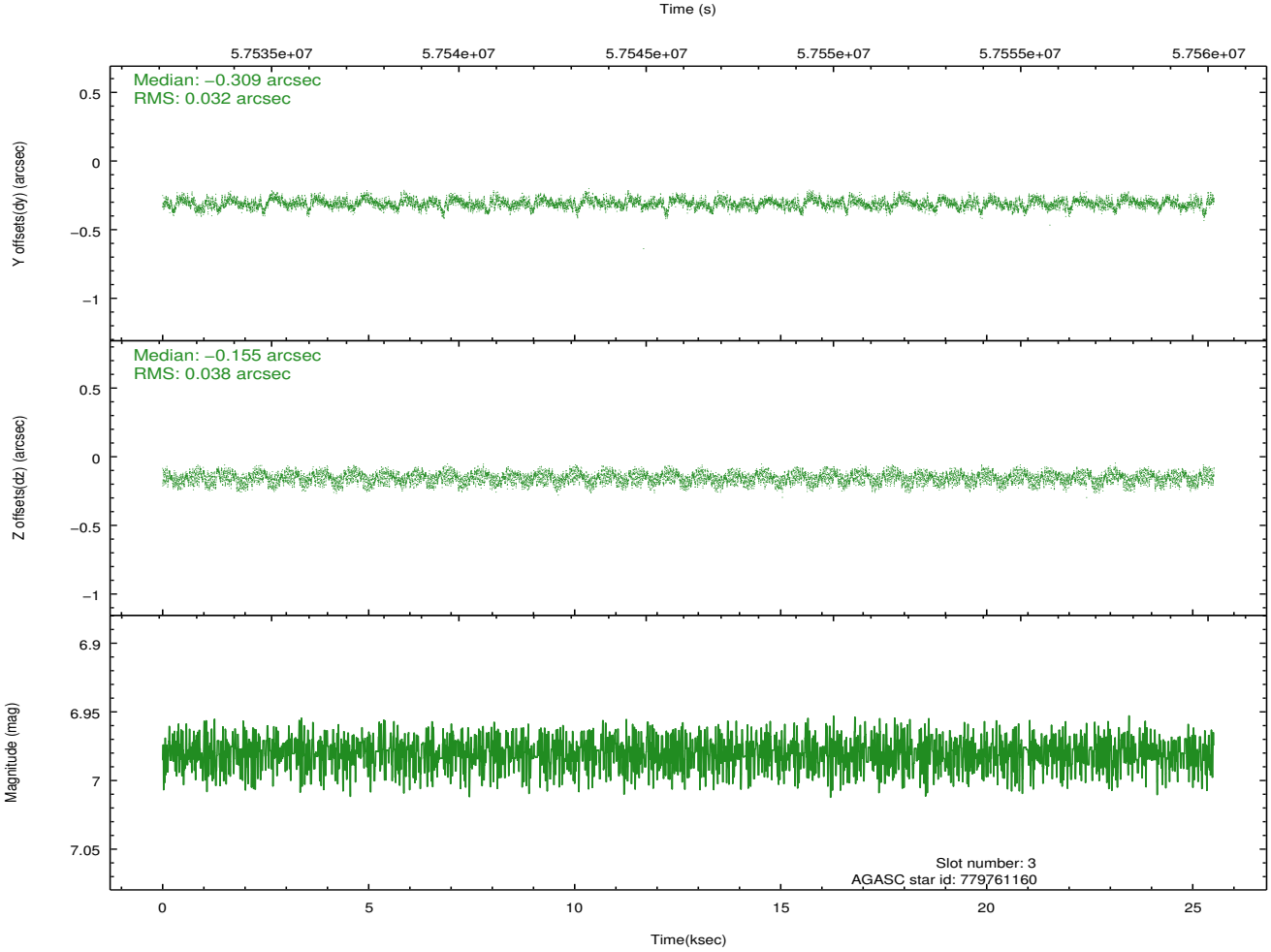
slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	HRC-S-1	6.98	12447	0.139	-0.106	0.005	0.008	0.000000	0.000000	-1153.96	-449.07
1	FID	HRC-S-2	6.96	12446	0.120	-0.034	0.009	0.014	0.000000	0.000000	1245.59	-441.85
2	FID	HRC-S-4	6.97	12447	0.145	-0.163	0.009	0.014	0.000000	0.000000	1244.46	582.74
3	GUIDE	779761160	6.98	12445	-0.309	-0.155	0.054	0.084	100.924262	-16.049952	1849.52	2050.95
4	GUIDE	780283312	8.67	12441	-0.007	0.167	0.064	0.103	101.569387	-16.934625	-408.10	-1111.43
5	OMITTED		0.00	0	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0.00
6	GUIDE	780272032	9.42	12441	0.130	0.159	0.082	0.130	101.484293	-17.270688	-1646.47	-1238.14
7	GUIDE	780284960	9.75	12445	0.193	-0.169	0.132	0.205	100.561029	-16.893065	-1430.44	2210.60

2.4 Star Slots

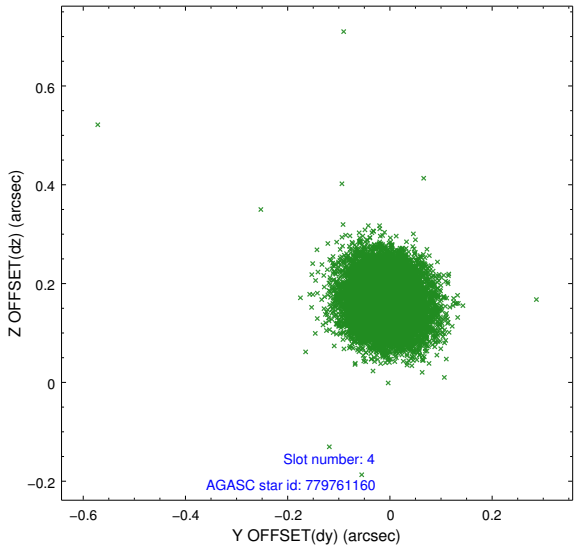
2.4.1 Slot 3

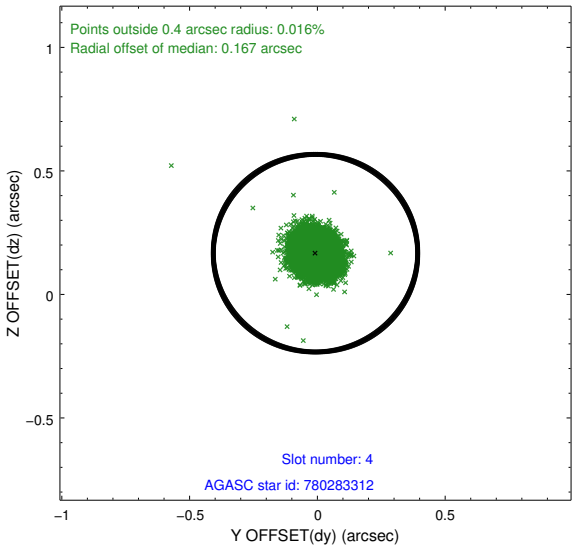


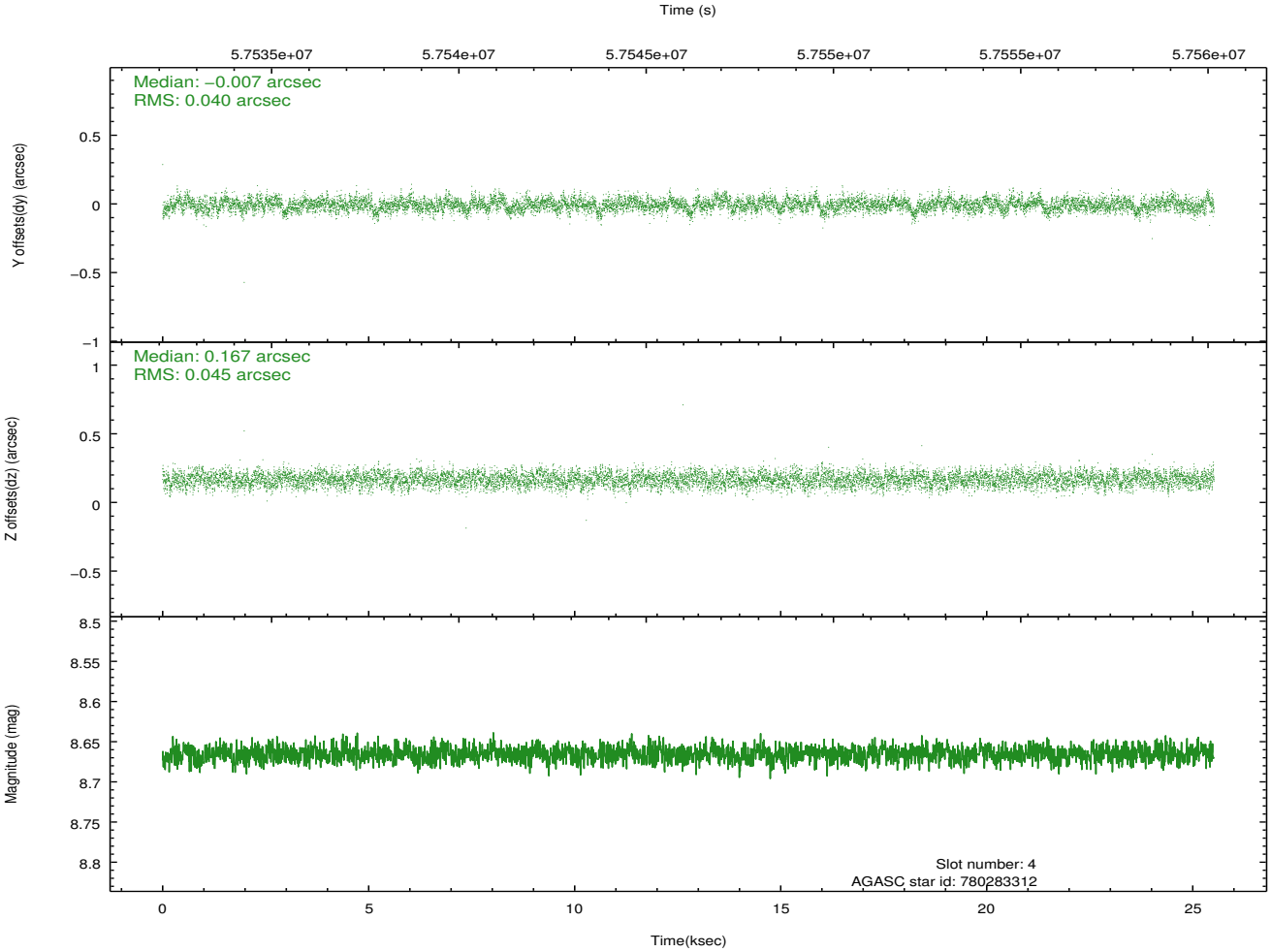




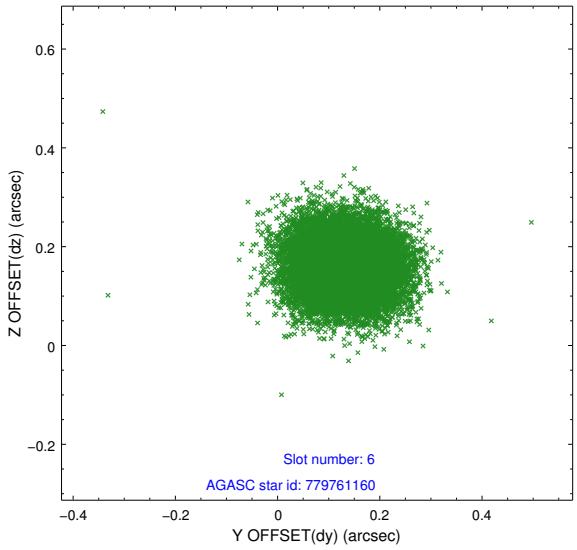
2.4.2 Slot 4

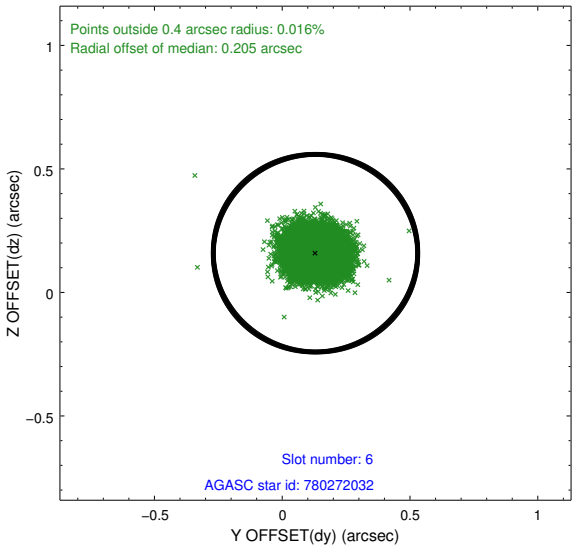

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 779761160

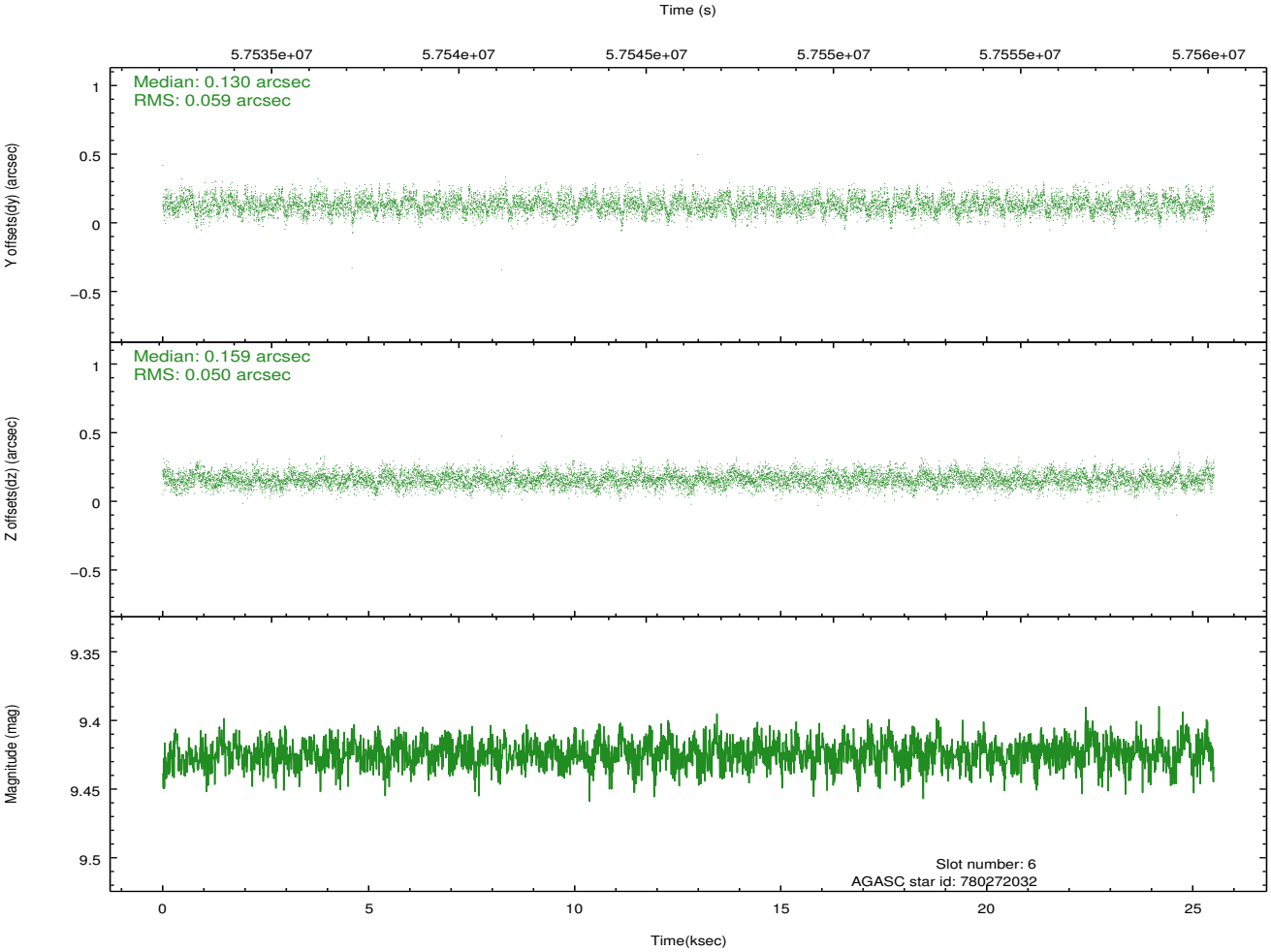

Points outside 0.4 arcsec radius: 0.016%
Radial offset of median: 0.167 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 780283312


Time (s)
Median: −0.007 arcsec
RMS: 0.040 arcsec
Y offsets(dy) (arcsec)
Median: 0.167 arcsec
RMS: 0.045 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 780283312
Time(ksec)

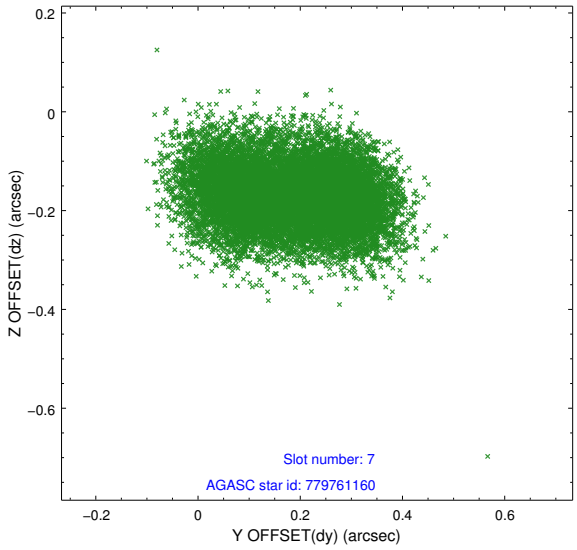
2.4.3 Slot 6

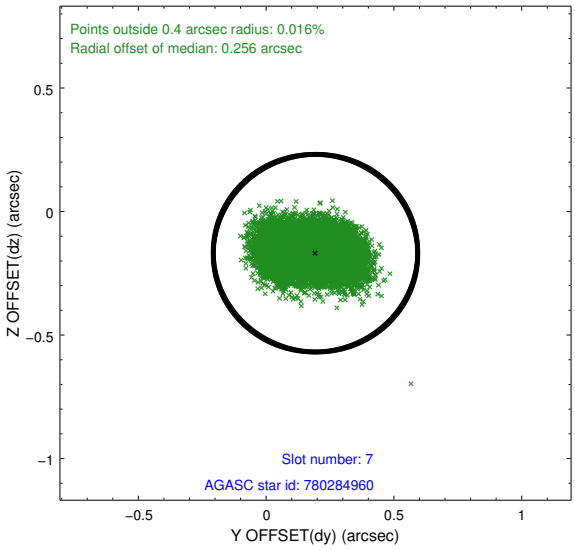

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 779761160

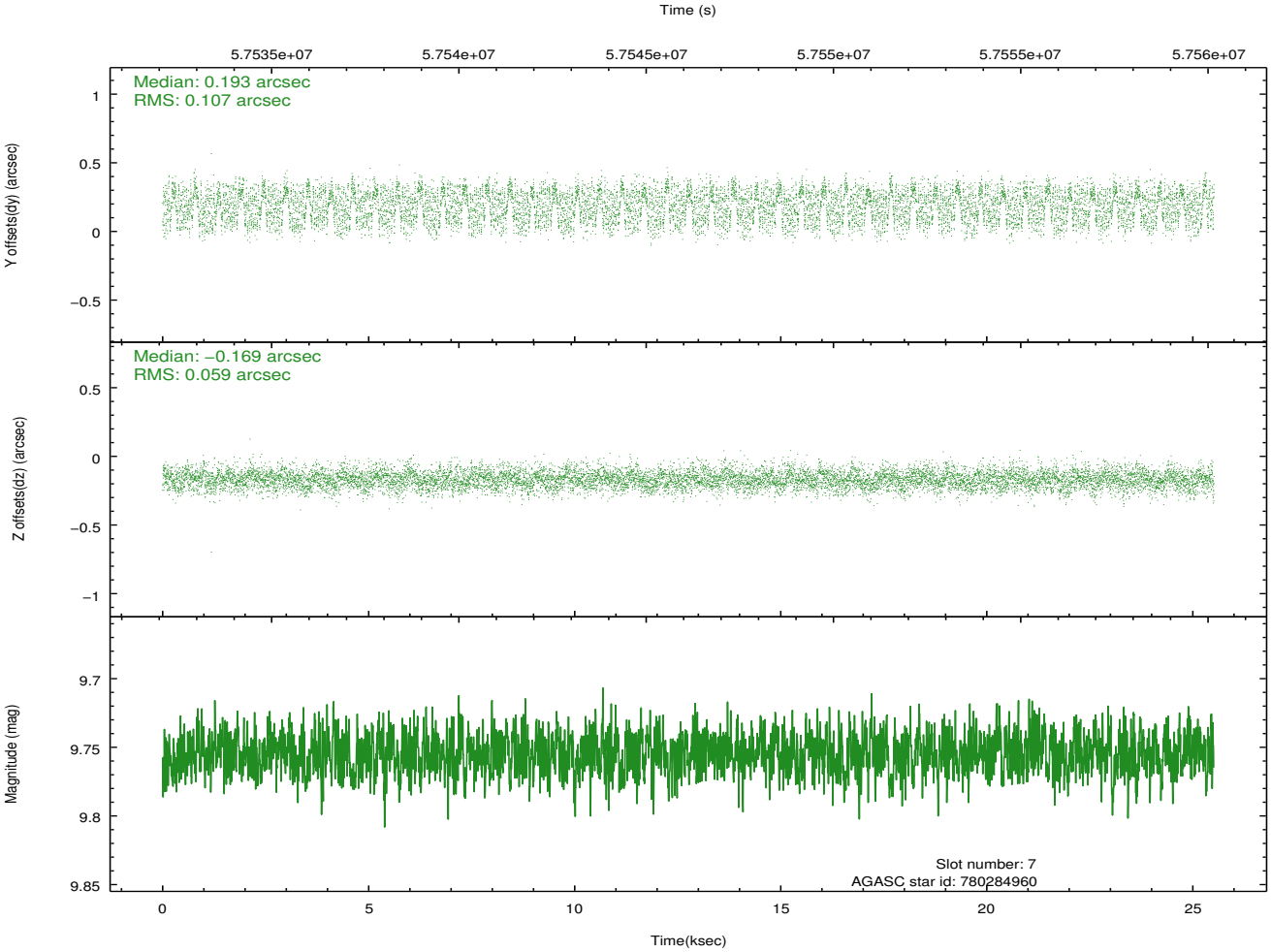

Points outside 0.4 arcsec radius: 0.016%
Radial offset of median: 0.205 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 780272032


Time (s)
Median: 0.130 arcsec
RMS: 0.059 arcsec
Y offsets(dy) (arcsec)
Median: 0.159 arcsec
RMS: 0.050 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 780272032
Time(ksec)

2.4.4 Slot 7

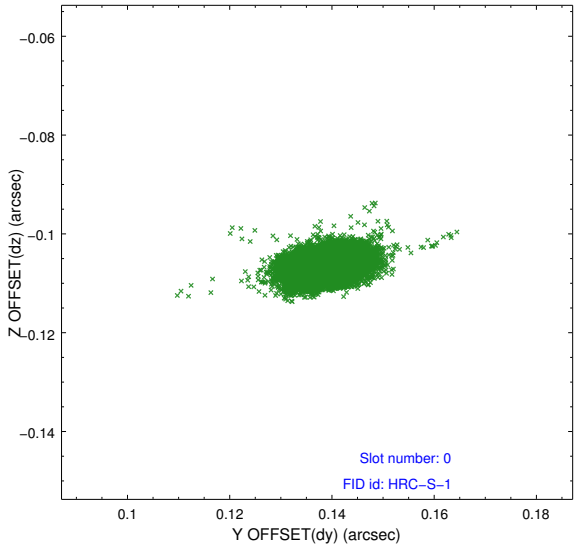

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 779761160

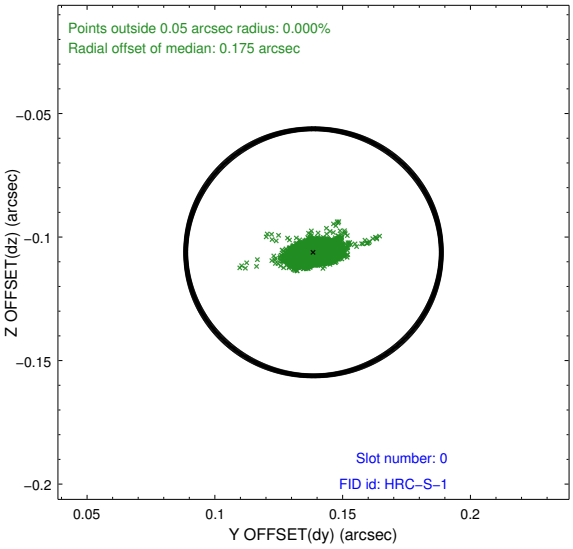

Points outside 0.4 arcsec radius: 0.016%
Radial offset of median: 0.256 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 7
AGASC star id: 780284960

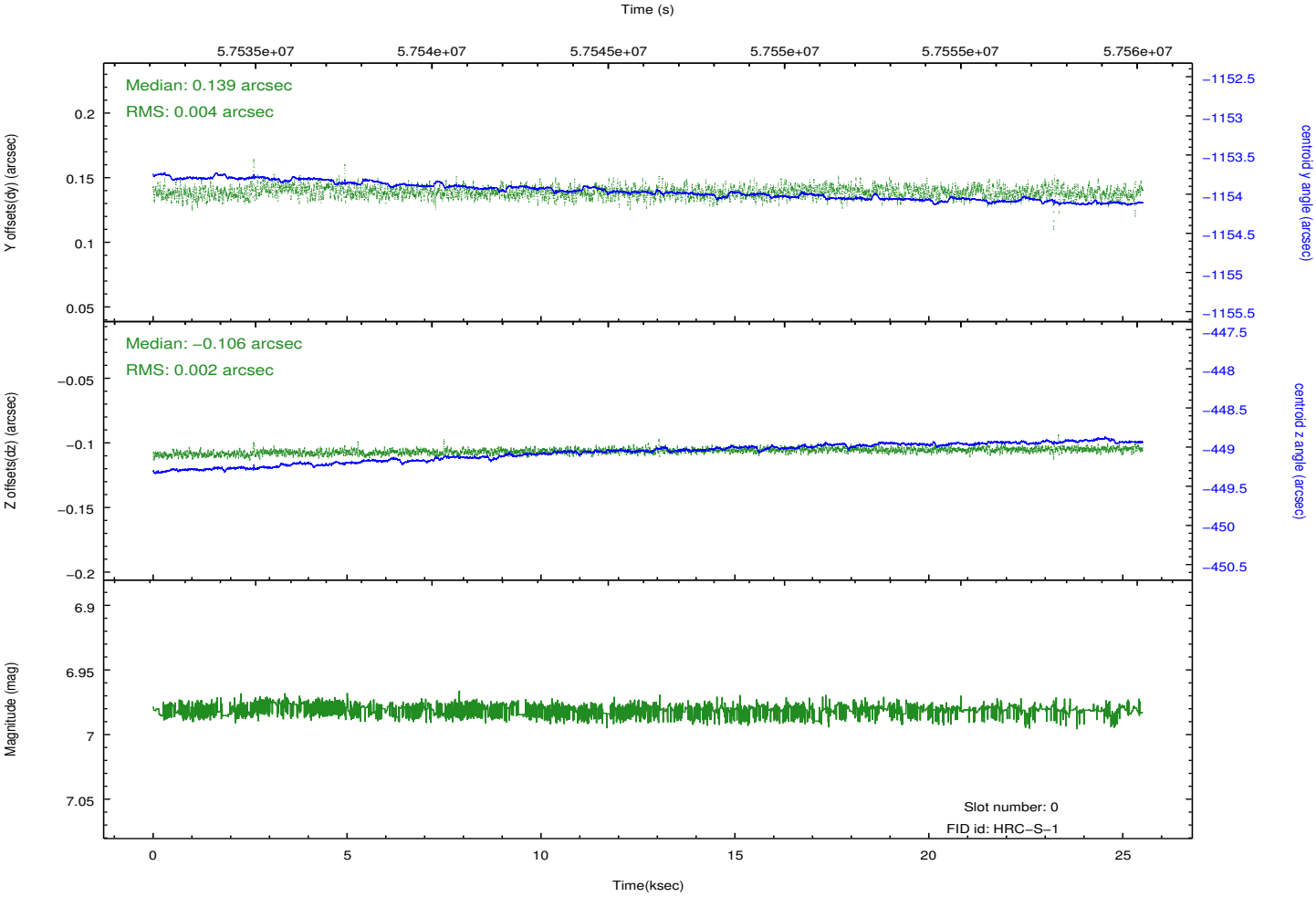

Time (s)
Median: 0.193 arcsec
RMS: 0.107 arcsec
Y offsets(dy) (arcsec)
Median: −0.169 arcsec
RMS: 0.059 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 7
AGASC star id: 780284960
Time(ksec)

2.5 FID Slots

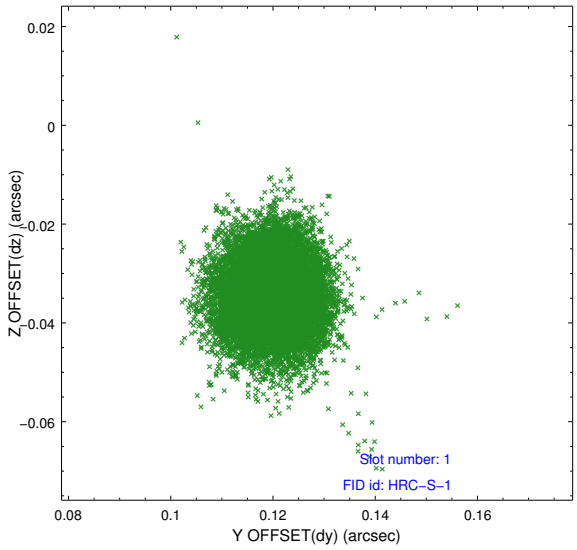
2.5.1 Slot 0

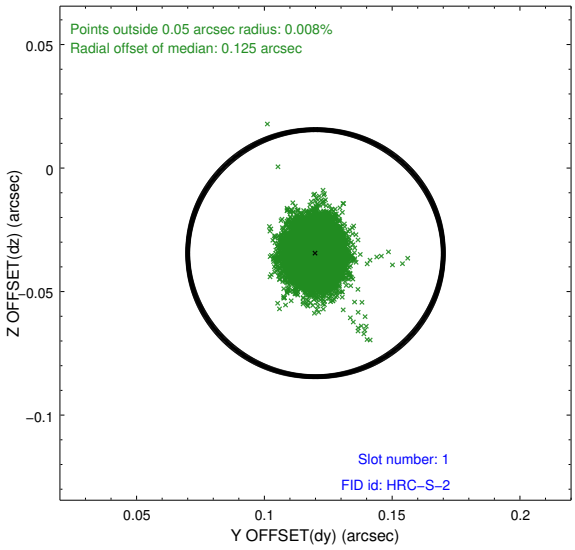


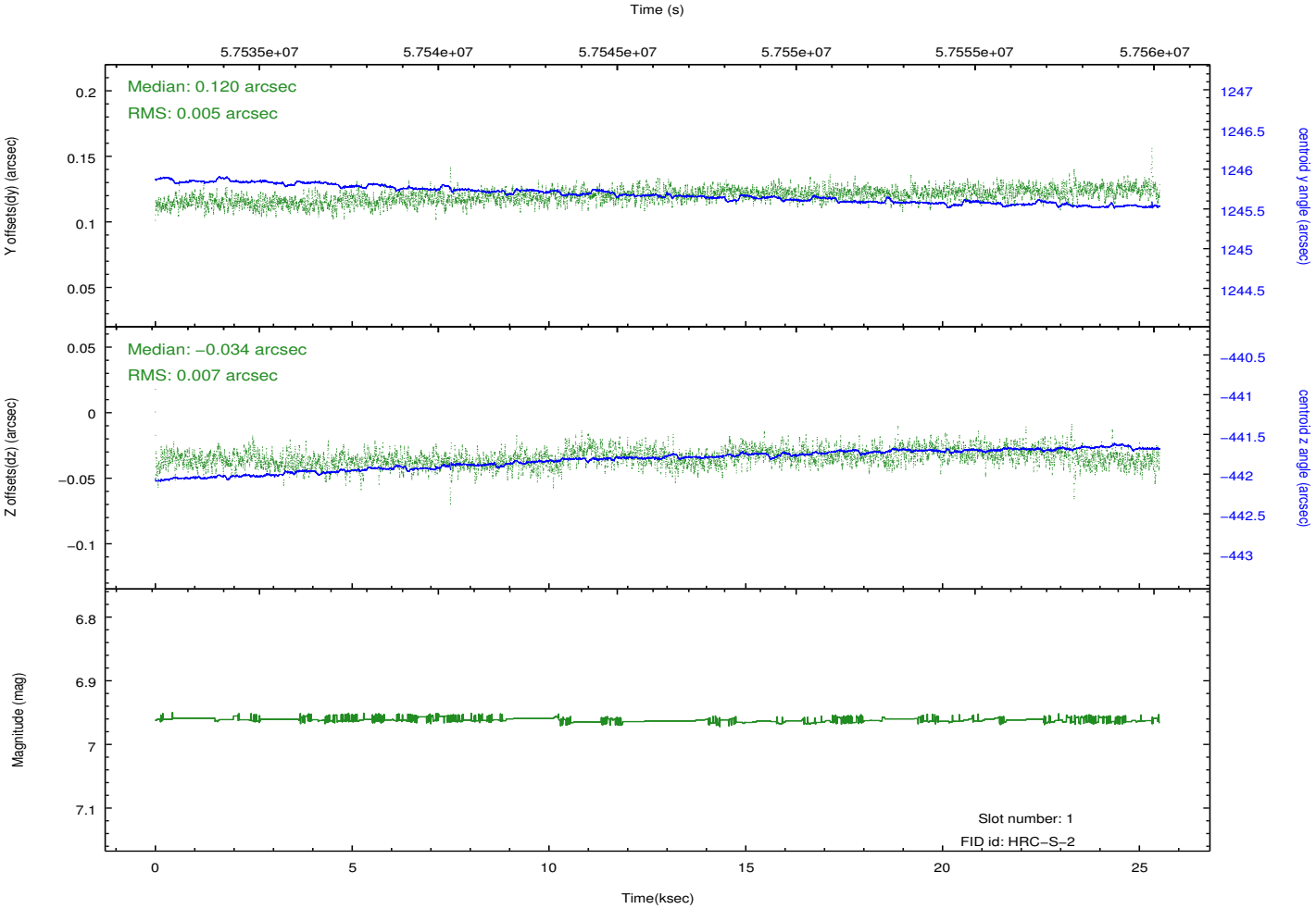




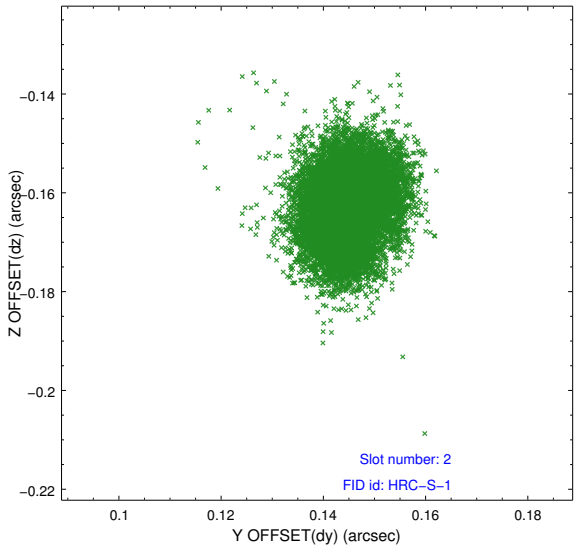
2.5.2 Slot 1

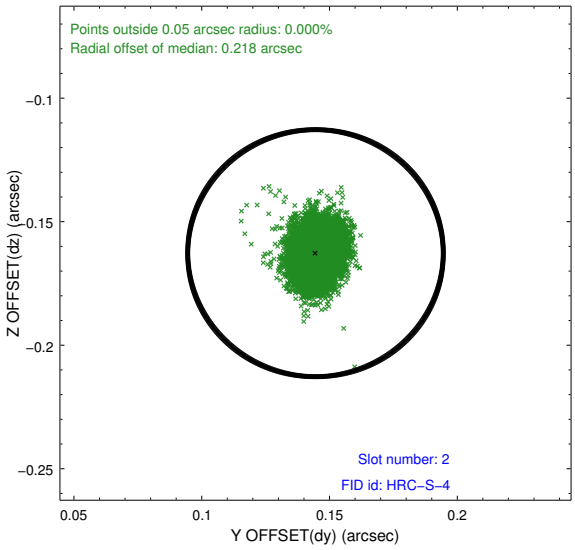

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: HRC−S−1

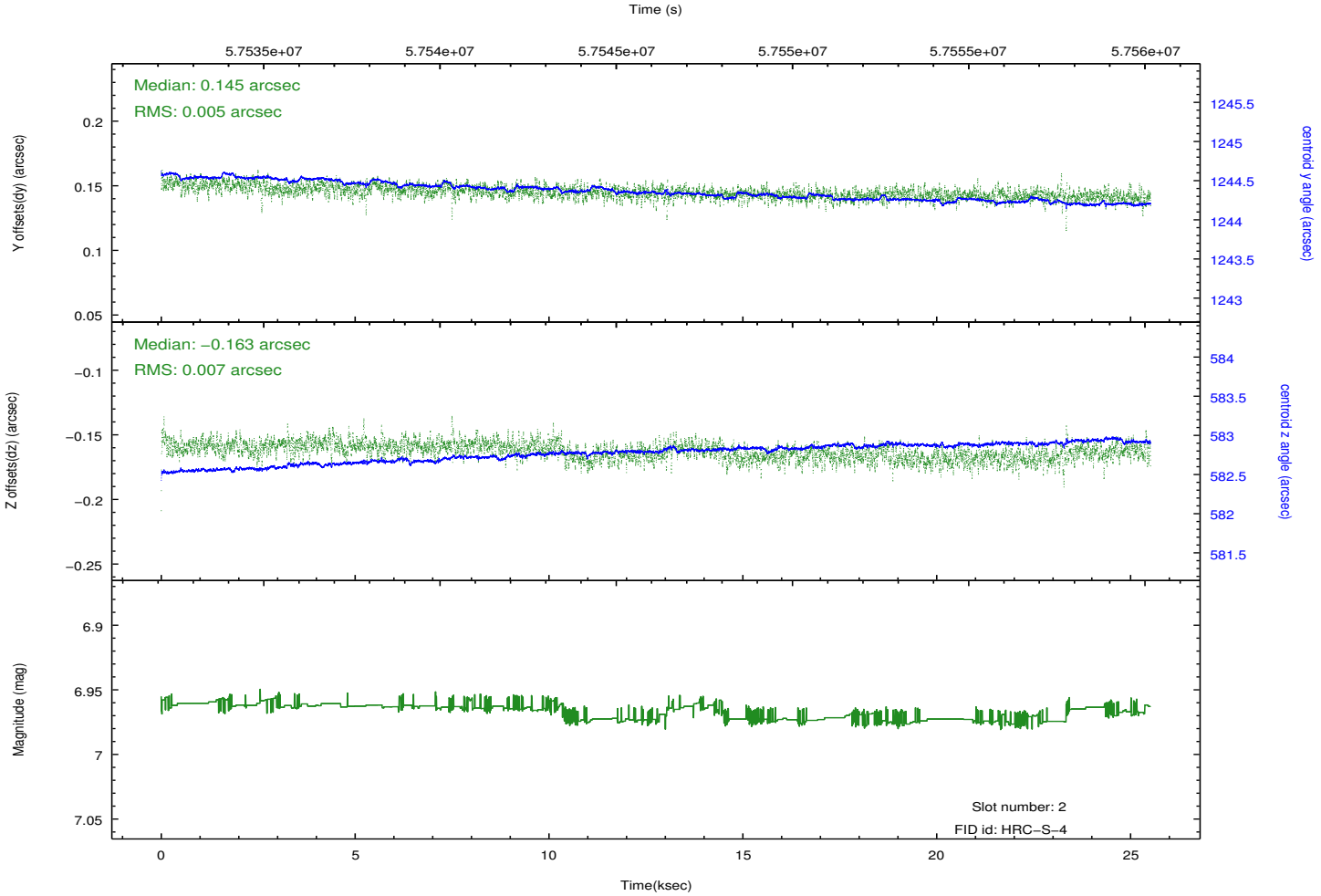

Points outside 0.05 arcsec radius: 0.008%
Radial offset of median: 0.125 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: HRC−S−2


Time (s)
Median: 0.120 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.034 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 1
FID id: HRC−S−2
Time(ksec)

2.5.3 Slot 2

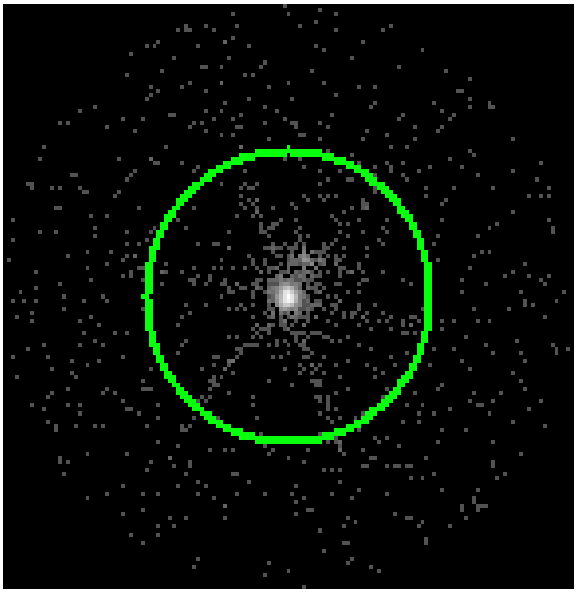

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: HRC−S−1


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.218 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: HRC−S−4

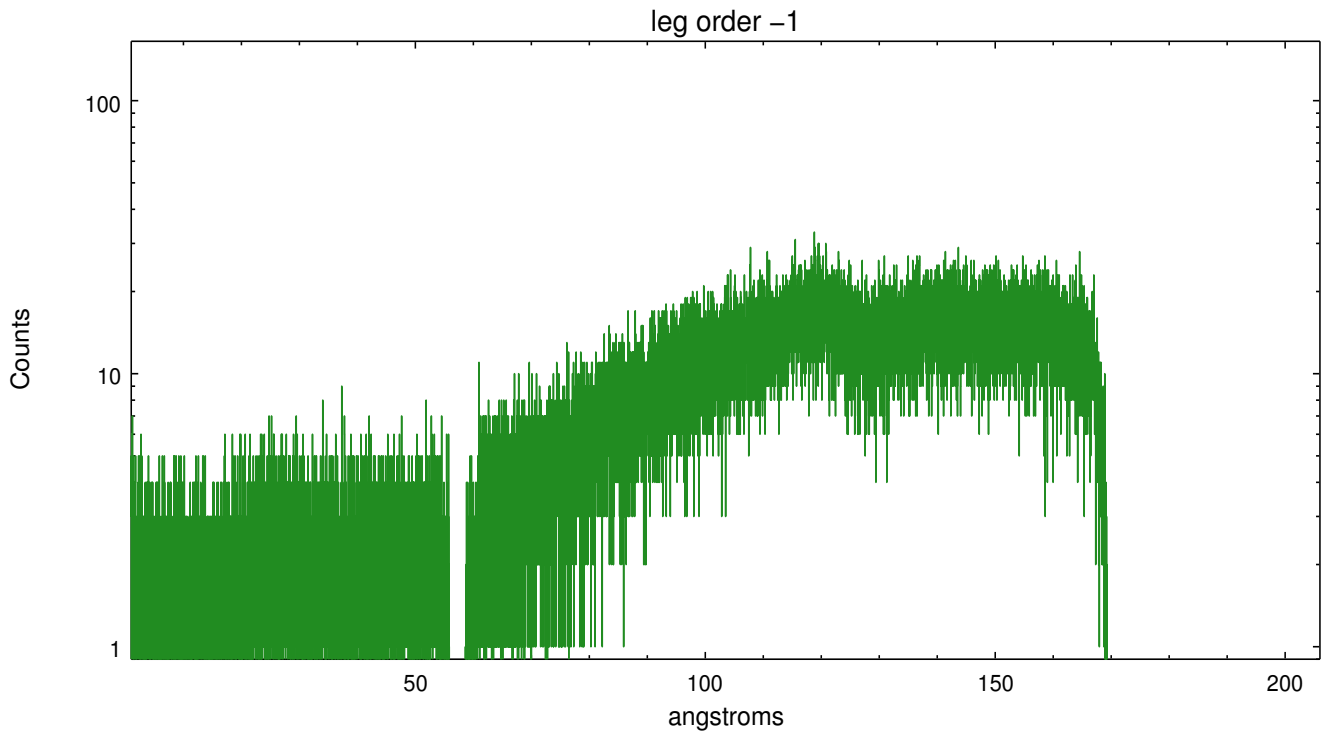

Time (s)
Median: 0.145 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: −0.163 arcsec
RMS: 0.007 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: HRC−S−4
Time(ksec)

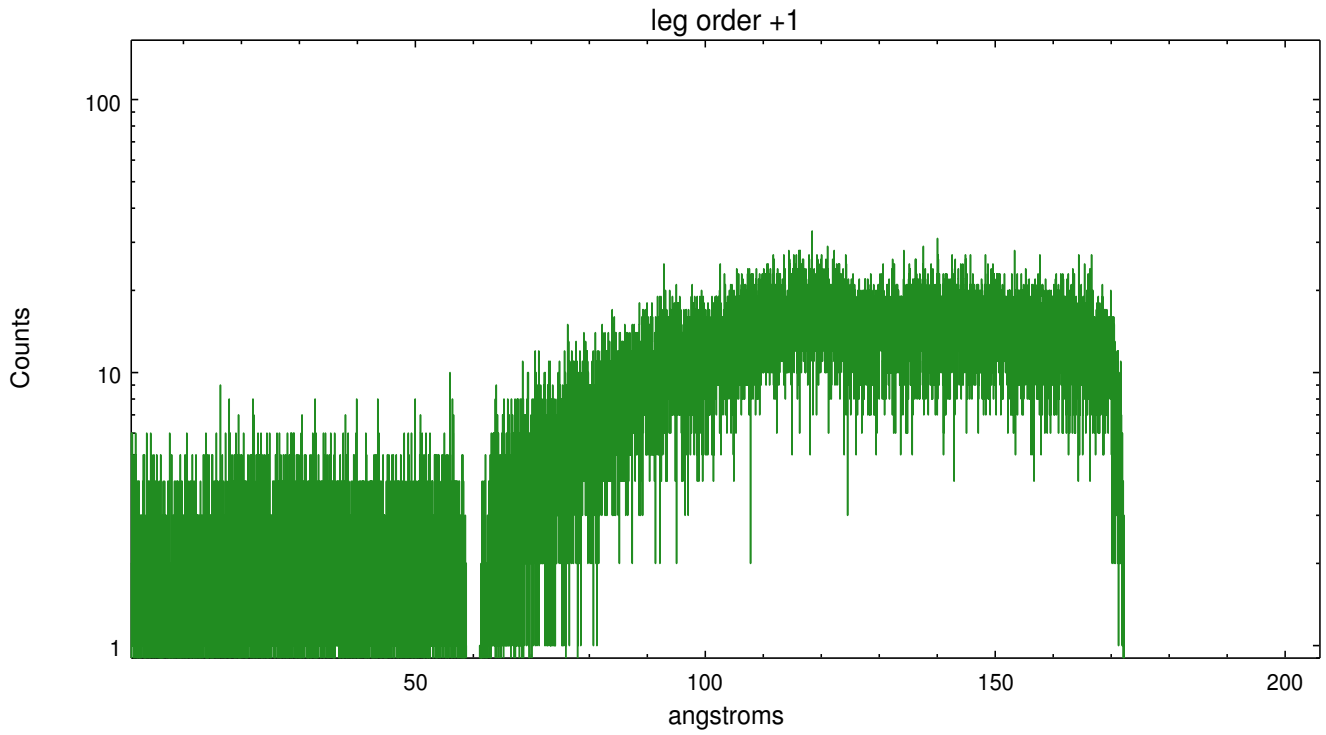
3 Gratings

3.1 LETG Arm



LETG Zero Order


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


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

A Summary

A.1 Status

V&V Scientist	Joy Nichols
V&V Date (YYYY-MM-DD)	2010.07.28
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	25.255

A.2 Comments

```
HRC-S LETG standard candle measurement.
===
Enhanced count rate with associated lower DTF between 13 and 21 ksec
into the
observation due to high radiation environment.
===
The guide star in slot 5 was removed from the aspect solution due to
poor data quality. The aspect solution is not expected to be degraded
by
removing one guide star from the solution.
```