V&V Reference Report
L2 ASCDS Version : 10.8

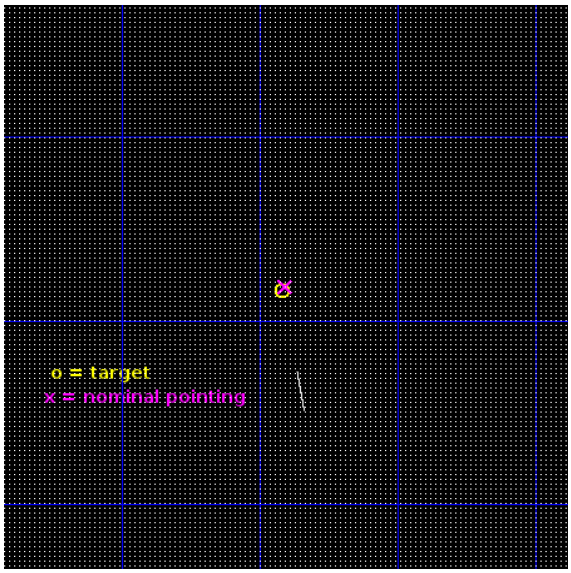
Observation 22111 - L2 Version 2
Chandra X-Ray Center

L2 Processing Date : Jun 21 2019

Contents

1 Front

seq_num	402120	Sequence number
obs_id	22111	Observation id
title	Probing the disc-jet coupling in the neutron star binary Sco X-1	P
observer	Sara Motta	Principal investigator
object	Sco X-1	Source name
ra_targ	244.979583	Observer's specified target RA [deg]
dec_targ	-15.640278	Observer's specified target Dec [deg]
ra_nom	244.97656494091	Nominal RA [deg]
dec_nom	-15.636018168027	Nominal Dec [deg]
roll_nom	80.055990315183	Nominal Roll [deg]
revision	2	Processing version of data
ontime	332.25	Sum of GTIs [s]
livetime	330.9521484375	Livetime [s]
ontime5	332.25	Sum of GTIs [s]
ontime6	332.25	Sum of GTIs [s]
ontime7	332.25	Sum of GTIs [s]
ontime8	332.25	Sum of GTIs [s]
l2events	6619	Number of level 2 events

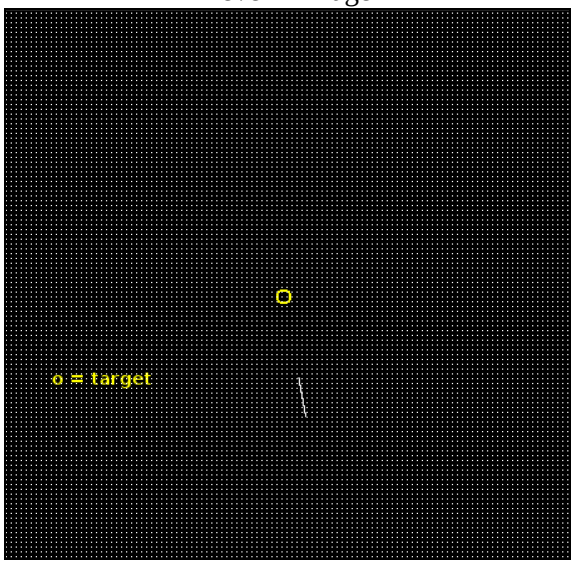


2 OBI

2.1 OBI

2.1.1 Images

Level 1 Image



Level 1 Bad Events

2.1.2 Parameters

obi_num	0	Obi number
ascdsver	10.8	Processing system revision
caldbver	4.8.3	
date	2019-06-20T19:55:08	Date and time of file creation
revision	2	Processing version of data

sched_exp_time	25000.000000	[s] Scheduled observation exposure time
ontime	332.25	Sum of GTIs [s]
ontime5	332.25	Sum of GTIs [s]
ontime6	332.25	Sum of GTIs [s]
ontime7	332.25	Sum of GTIs [s]
ontime8	332.25	Sum of GTIs [s]
l1events	8151	Number of level 1 events
tgmethod	DEADRECKONING	Method used to create src1a file
zo_pos	(4076.20, 4065.24)	src1a sky pixel position

2.1.3 Events

	ccd 5	ccd 6	ccd 7	ccd 8
level 1 events	0	0	8151	0
rejected events	0	0	1494	0
rejected %	0%	0%	18%	0%

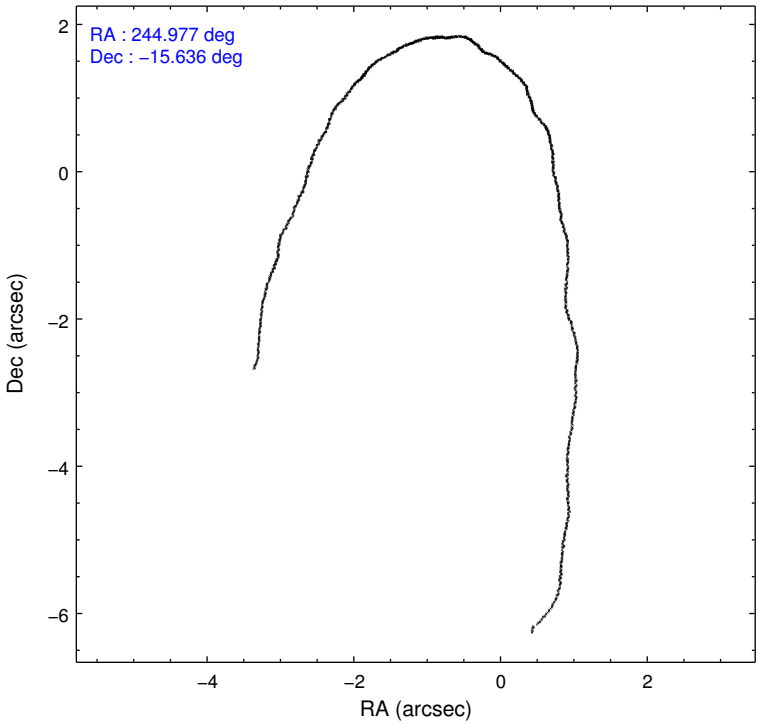
	ccd 5	ccd 6	ccd 7	ccd 8
grade 0 events	0	0	947	0
	0%	0%	11%	0%
grade 1 events	0	0	3	0
	0%	0%	0%	0%
grade 2 events	0	0	2336	0
	0%	0%	28%	0%
grade 3 events	0	0	600	0
	0%	0%	7%	0%
grade 4 events	0	0	491	0
	0%	0%	6%	0%
grade 5 events	0	0	131	0
	0%	0%	1%	0%
grade 6 events	0	0	2628	0
	0%	0%	32%	0%
grade 7 events	0	0	1015	0
	0%	0%	12%	0%

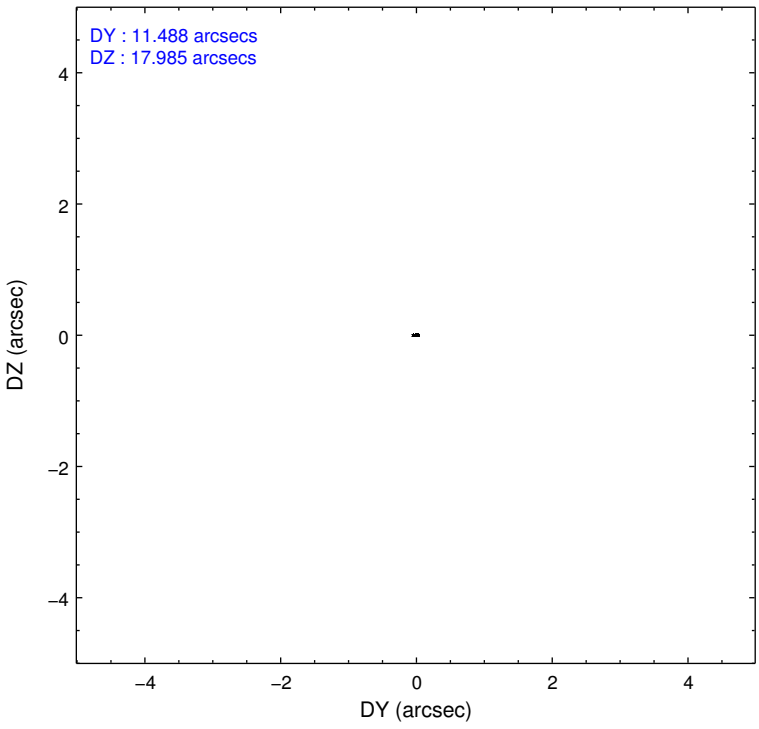
2.2 Compared Parameters

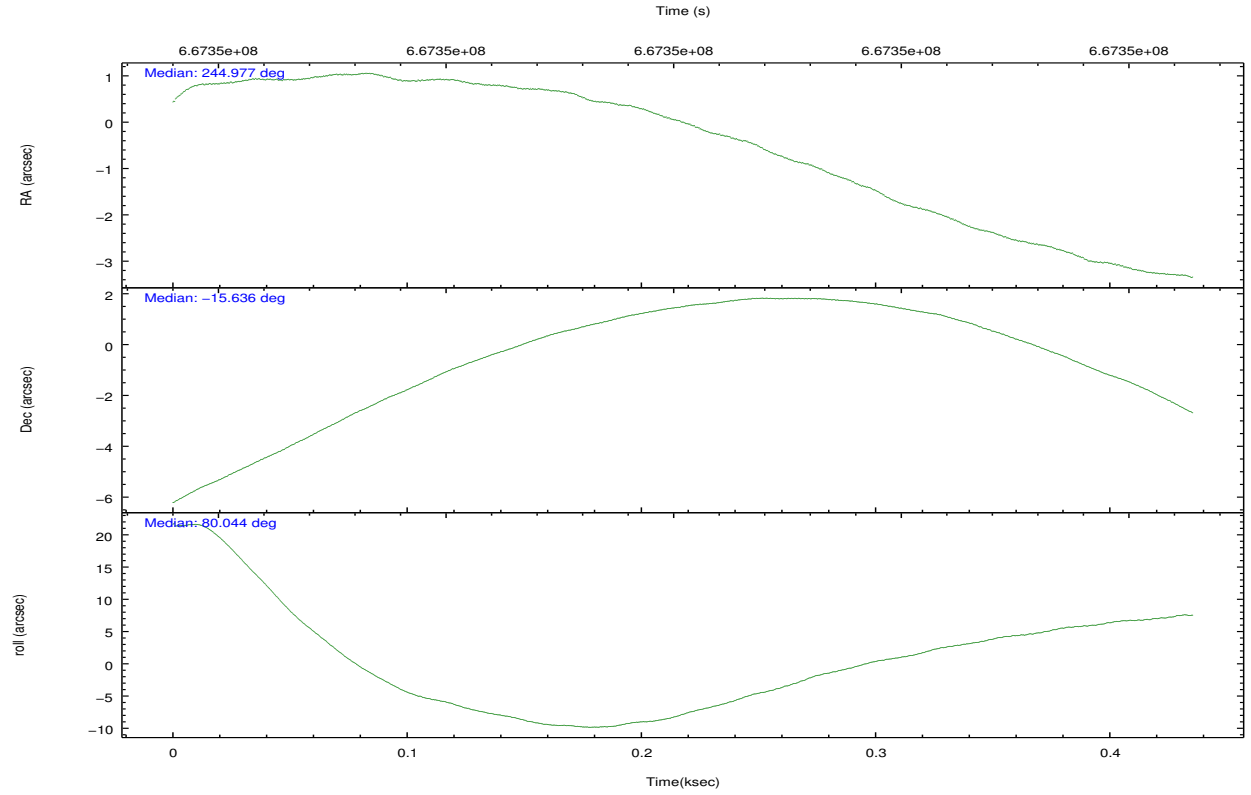
Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-5678	ACIS-5678
Grating	HETG	HETG
Data mode	CC33_GRADED	CC33_GRADED
Observation mode	POINTING	POINTING
[deg] Pointing RA	244.986368	244.9765649409061
[deg] Pointing Dec	-15.663207	-15.63601816802749
[deg] Pointing Roll	79.901829	80.05599031518318
[s] Window start time (MET)	667094529.184000	667094529.184000
[s] Window stop time (MET)	667461669.184000	667461669.184000
[mm] SIM focus pos	-0.684267	-0.6828225247311905
[mm] SIM defocus	0	0.001444936568705701
[mm] SIM translation stage pos	-175.932523	-175.9417275419626
[mm] SIM translation stage offset	-14.2	-14.19079504104525
[s] Observation start time (MET)	667348893.184000	667348310.85302
Observation start date	2019-02-23T22:40:24	2019-02-23T22:31:50
[s] Observation end time (MET)	667373893.184000	667348934.56555
Observation end date	2019-02-24T05:37:04	2019-02-23T22:42:14
Read mode	CONTINUOUS	CONTINUOUS

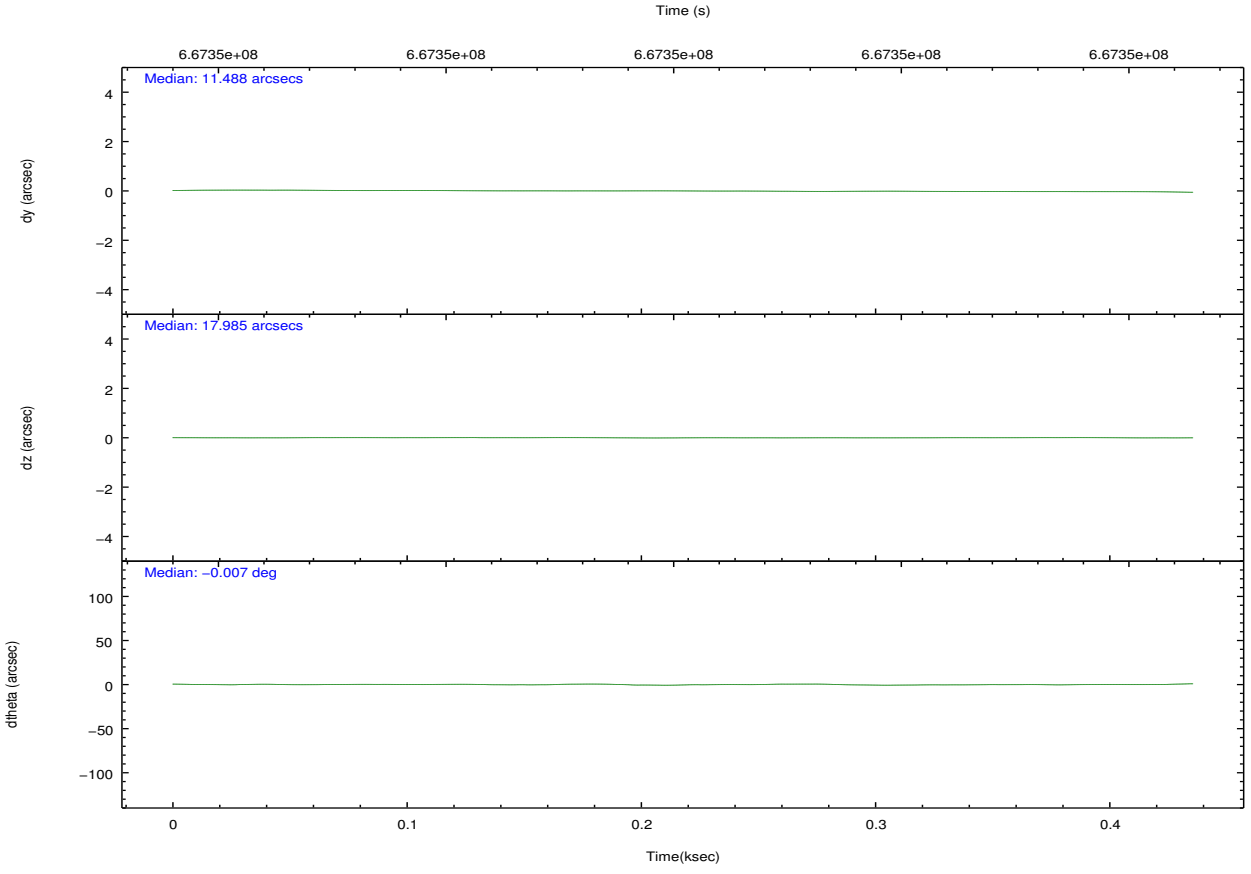
Parameter	Planned	Actual
Obspar format version number	7	7
Obspar file type	PREDICTED	ACTUAL
Obspar update status	NONE	UPDATED
Number of optional ACIS chips dropped	0	0
On-chip summing requested	N	N
Subarray requested	NONE	NONE
Alternating exposures requested	N	N
[s] Primary exposure time	0.000000	0

2.3 Aspect


RA : 244.977 deg
Dec : −15.636 deg
Dec (arcsec)
RA (arcsec)
2
0
−2
−4
−6
−4
−2
0
2


DY : 11.488 arcsecs
DZ : 17.985 arcsecs
DZ (arcsec)
DY (arcsec)
4
2
0
−2
−4
−4
−2
0
2
4


Time (s)
6.6735e+08
6.6735e+08
6.6735e+08
6.6735e+08
6.6735e+08
Median: 244.977 deg
RA (arcsec)
Median: −15.636 deg
Dec (arcsec)
Median: 80.044 deg
roll (arcsec)
Time(ksec)

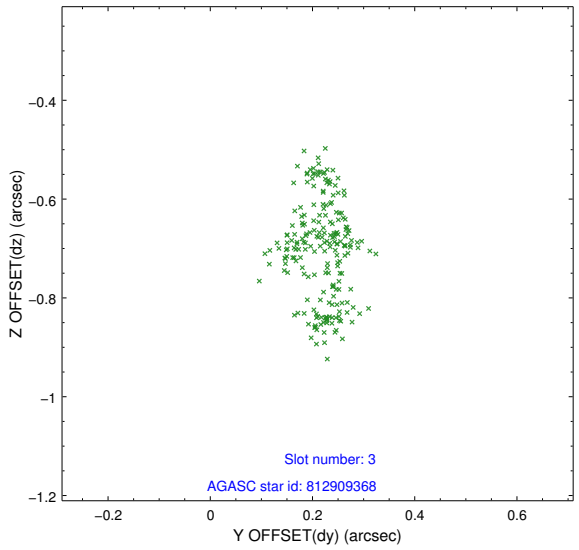

Time (s)
6.6735e+08
6.6735e+08
6.6735e+08
6.6735e+08
6.6735e+08
Median: 11.488 arcsecs
dy (arcsec)
Median: 17.985 arcsecs
dz (arcsec)
Median: −0.007 deg
dtheta (arcsec)
Time(ksec)

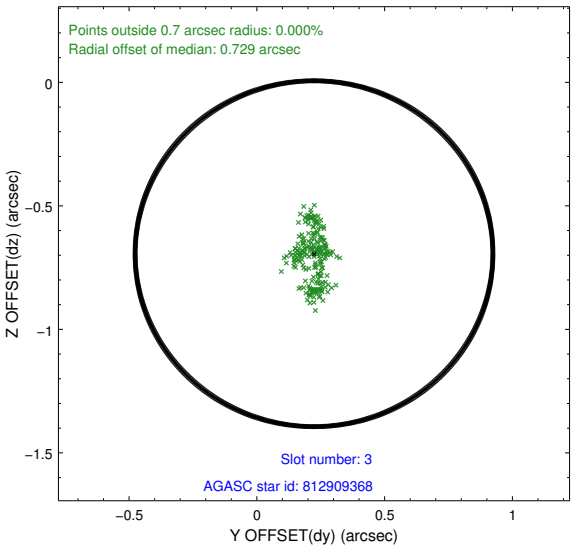
Slot Statistics

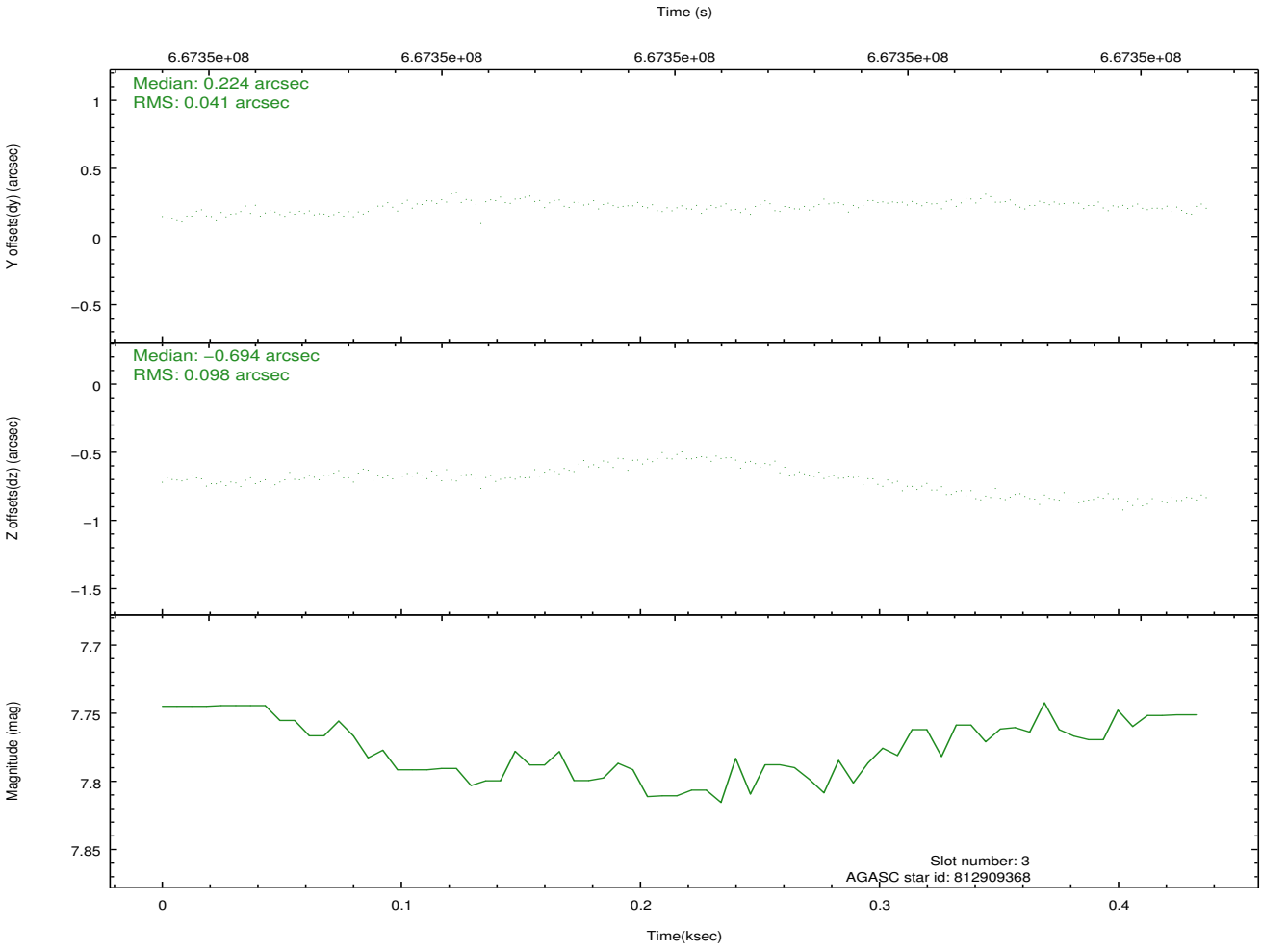
ot	status	used	id	mag	n_pts	frac_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mea
0	FID		ACIS-S-2	7.15	107	1.000	-0.399	-0.620	0.006	0.015	0.000000	0.000000	-763.58	-2032
1	FID		ACIS-S-4	7.21	107	1.000	0.789	0.358	0.006	0.012	0.000000	0.000000	2143.73	-141
2	FID		ACIS-S-5	7.30	107	1.000	-0.421	0.269	0.004	0.009	0.000000	0.000000	-1796.70	-130
3	GUIDE	used	812909368	7.78	214	1.000	0.224	-0.694	0.127	0.173	244.337230	-15.327996	783.87	2428
4	GUIDE	used	812911064	9.65	214	1.000	-0.157	0.953	0.170	0.319	245.567349	-15.296144	1650.57	-1742
5	GUIDE	used	812920352	8.82	214	1.000	-0.125	0.470	0.157	0.272	244.854466	-15.546040	337.10	516
6	GUIDE	used	812914616	9.63	212	1.000	0.077	-0.707	0.189	0.300	244.358365	-15.447124	376.52	2283
7	OMITTED			0.00	0	0.000	0.000	0.000	0.000	0.000	0.000000	0.000000	0.00	0

2.4 Star Slots

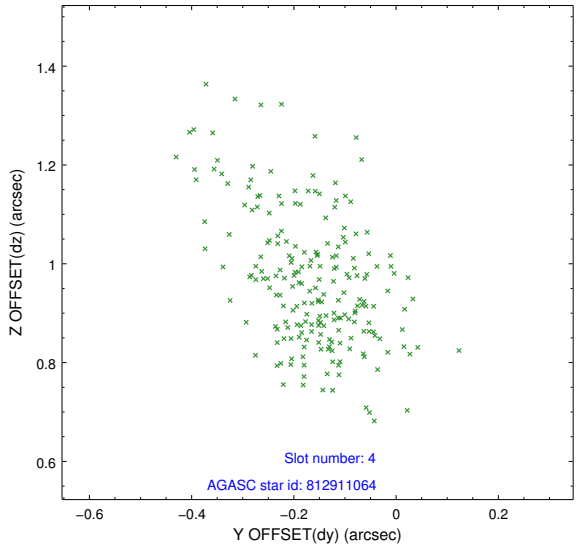
2.4.1 Slot 3

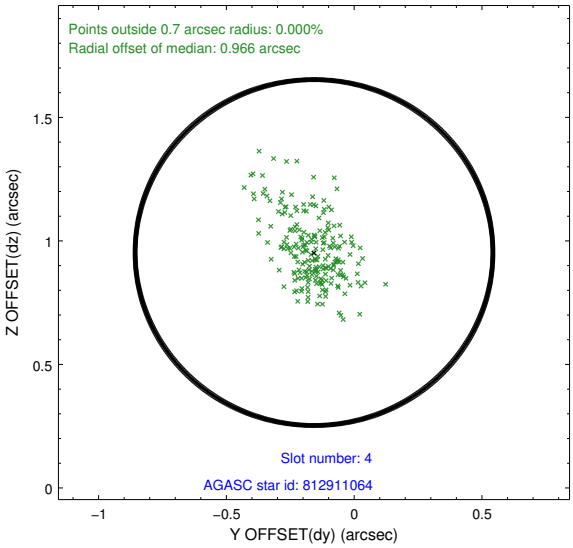


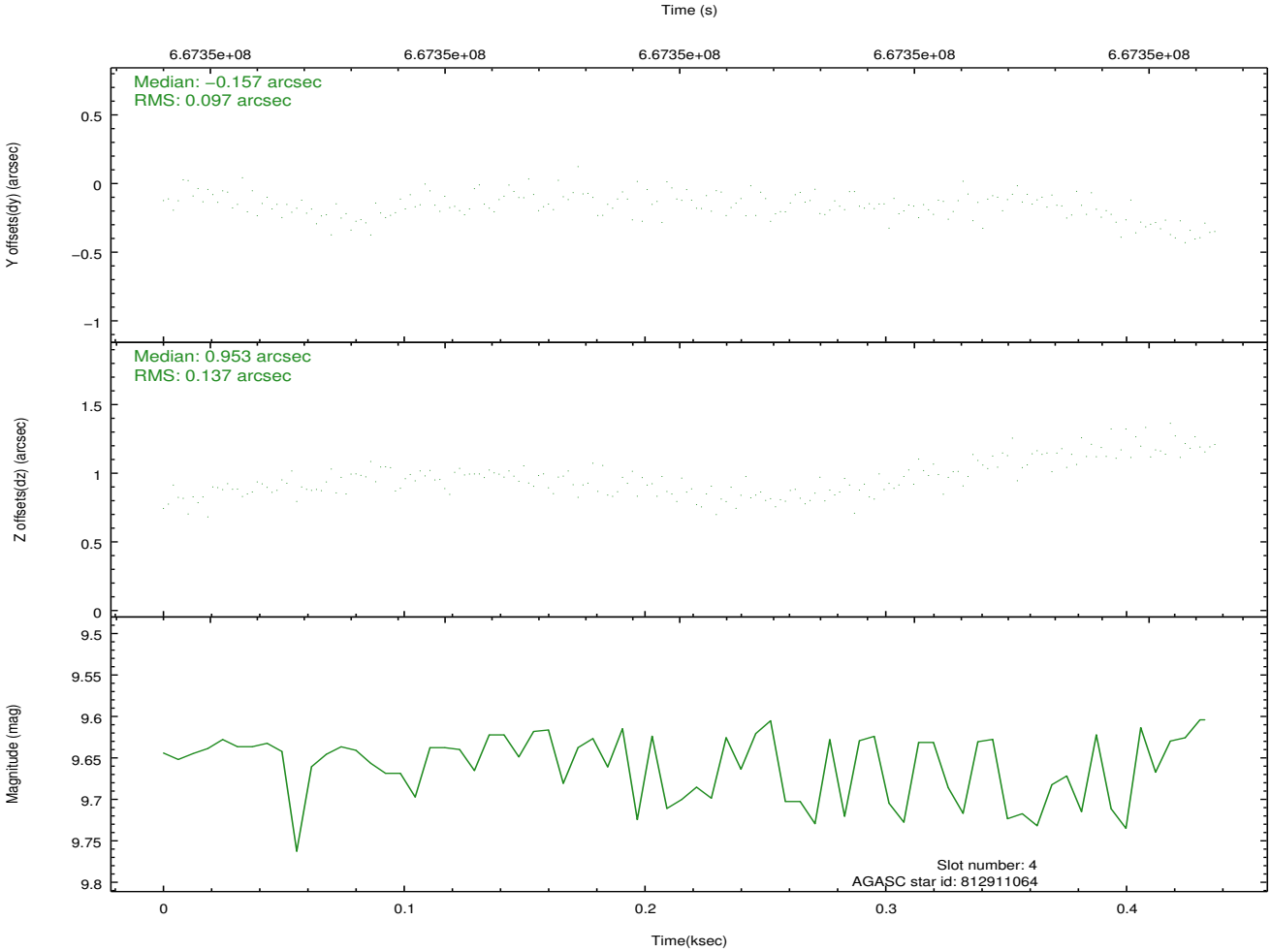




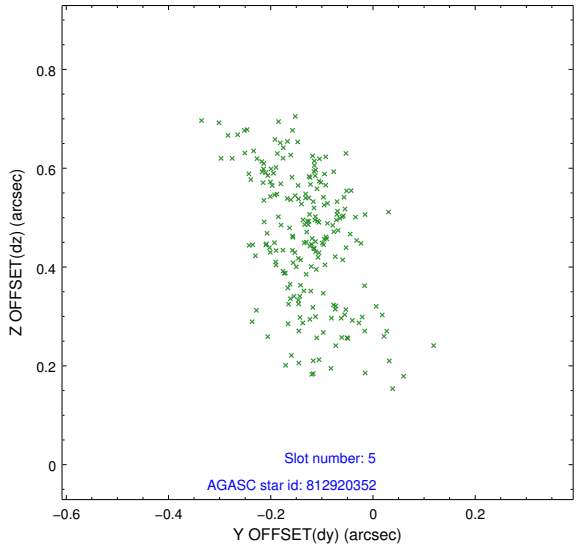
2.4.2 Slot 4

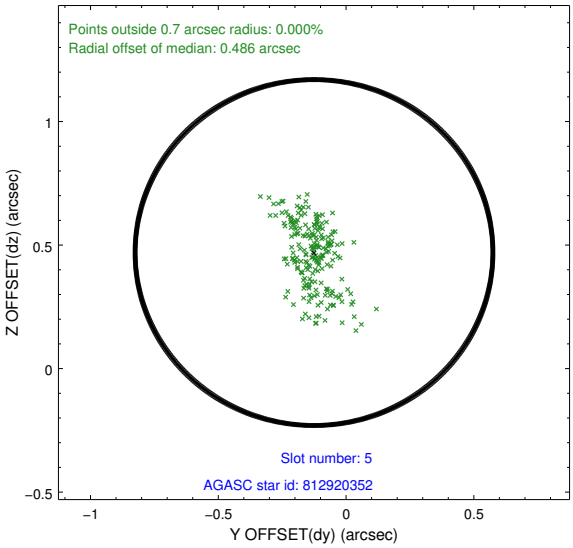

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 812911064

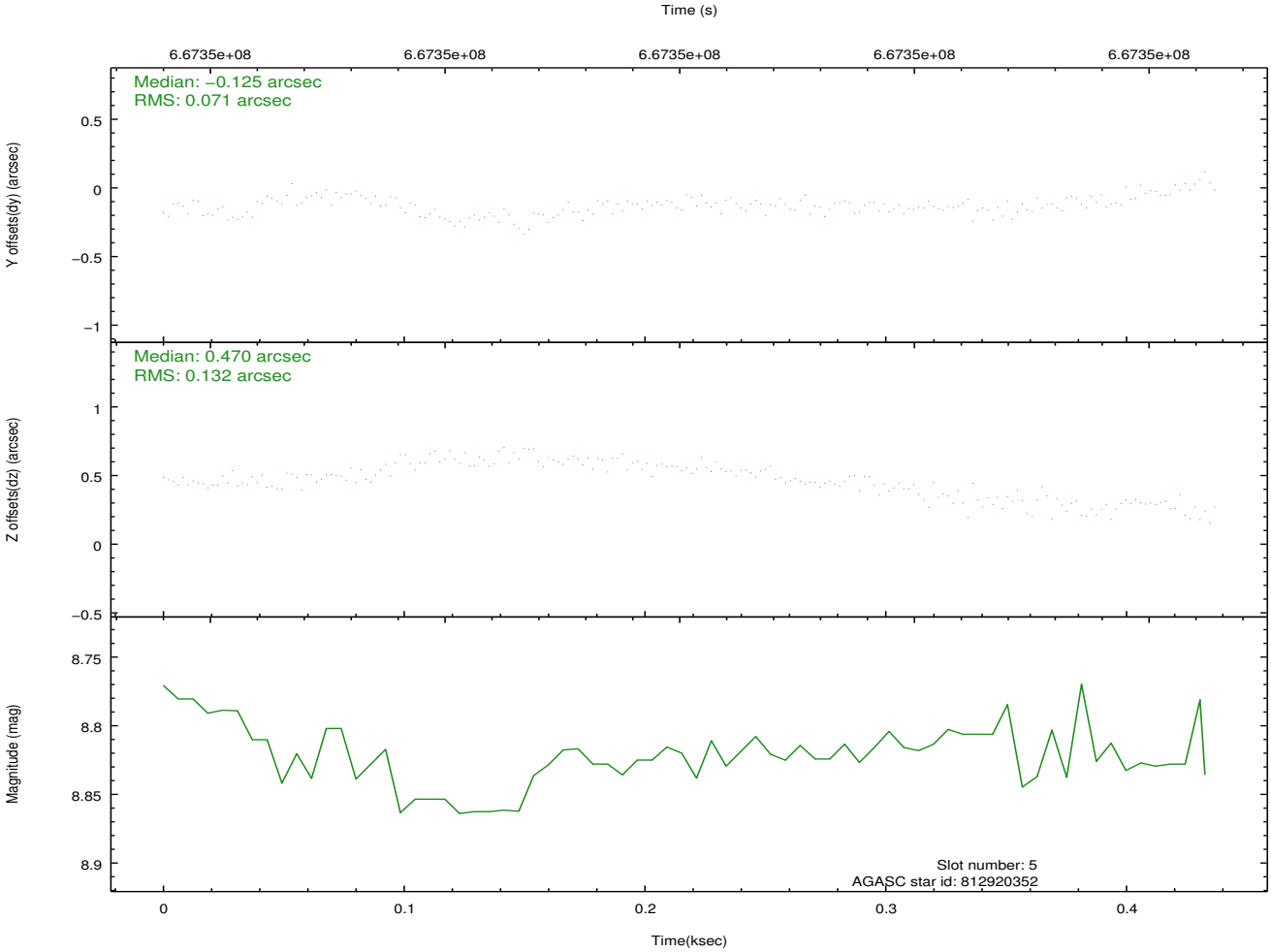

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.966 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 4
AGASC star id: 812911064


Time (s)
Median: −0.157 arcsec
RMS: 0.097 arcsec
Y offsets(dy) (arcsec)
Median: 0.953 arcsec
RMS: 0.137 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 4
AGASC star id: 812911064
Time(ksec)

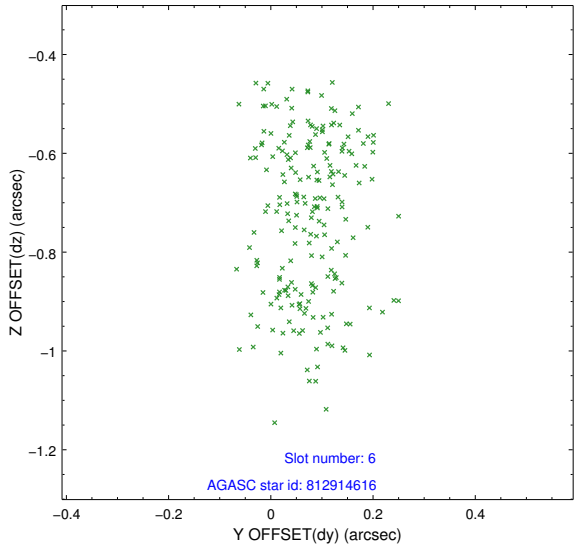
2.4.3 Slot 5

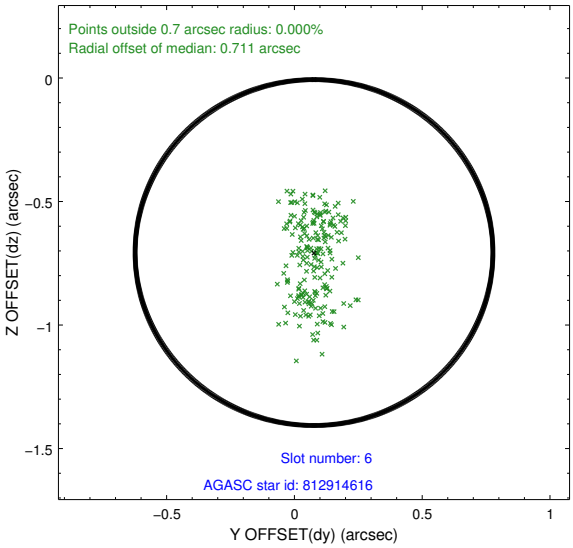

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 812920352

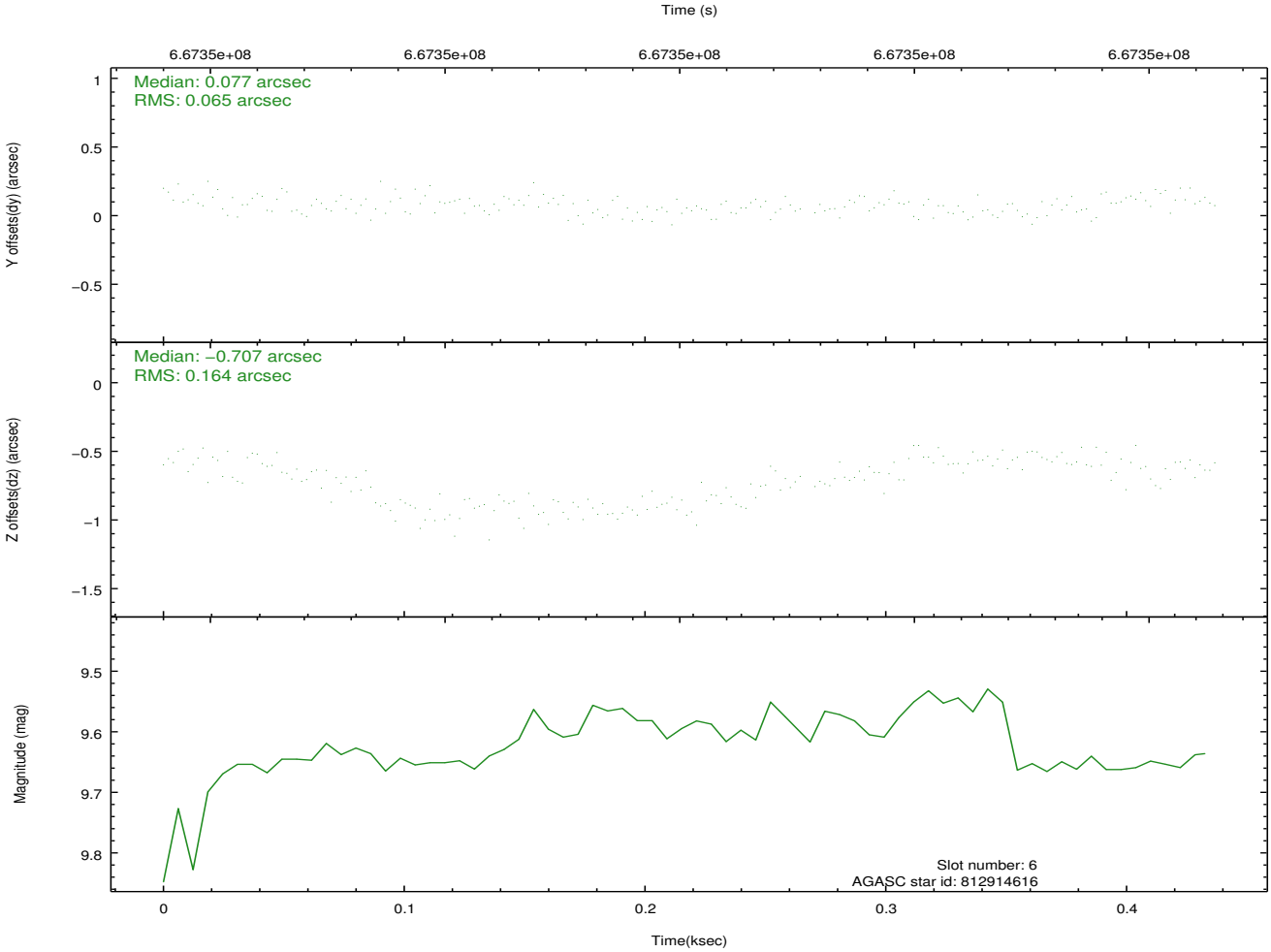

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.486 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 5
AGASC star id: 812920352


Time (s)
Median: −0.125 arcsec
RMS: 0.071 arcsec
Y offsets(dy) (arcsec)
Median: 0.470 arcsec
RMS: 0.132 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 5
AGASC star id: 812920352
Time(ksec)

2.4.4 Slot 6

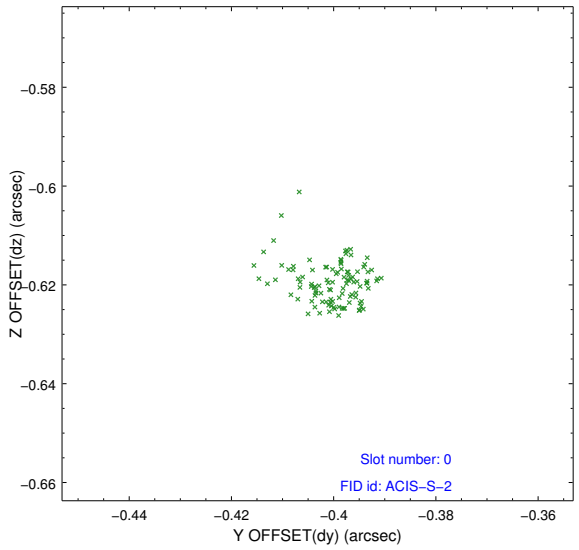

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 812914616

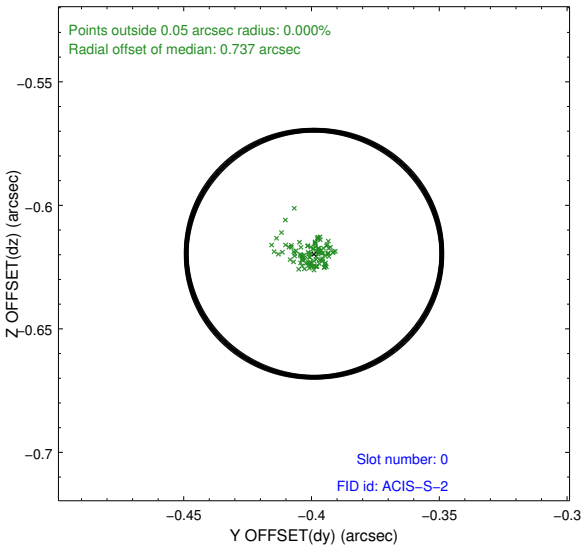

Points outside 0.7 arcsec radius: 0.000%
Radial offset of median: 0.711 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 6
AGASC star id: 812914616

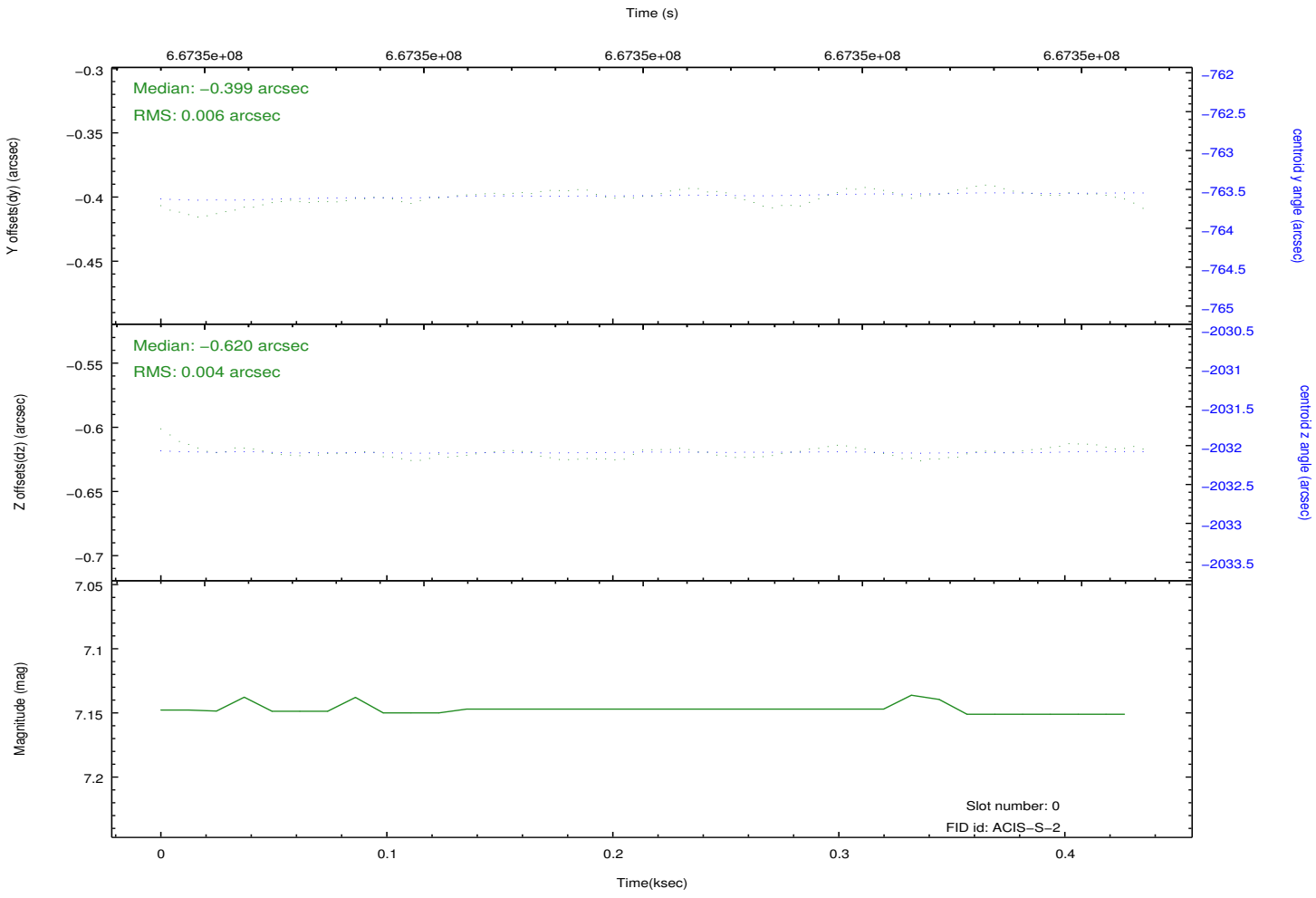

Time (s)
Median: 0.077 arcsec
RMS: 0.065 arcsec
Y offsets(dy) (arcsec)
Median: −0.707 arcsec
RMS: 0.164 arcsec
Z offsets(dz) (arcsec)
Magnitude (mag)
Slot number: 6
AGASC star id: 812914616
Time(ksec)

2.5 FID Slots

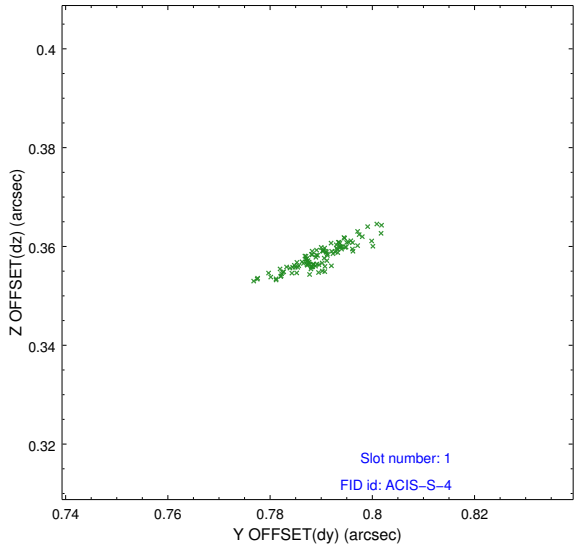
2.5.1 Slot 0

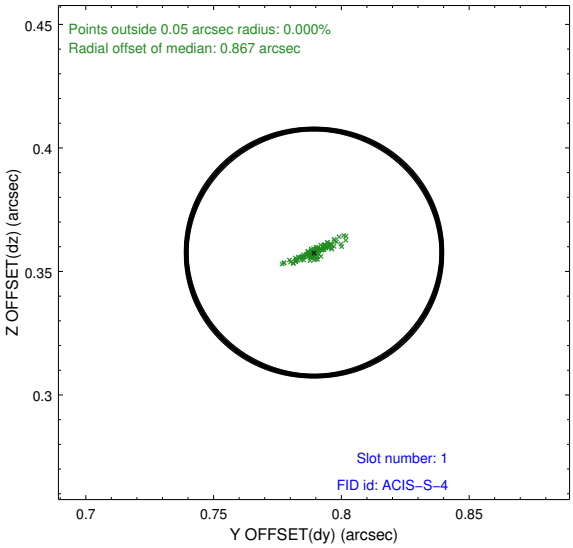


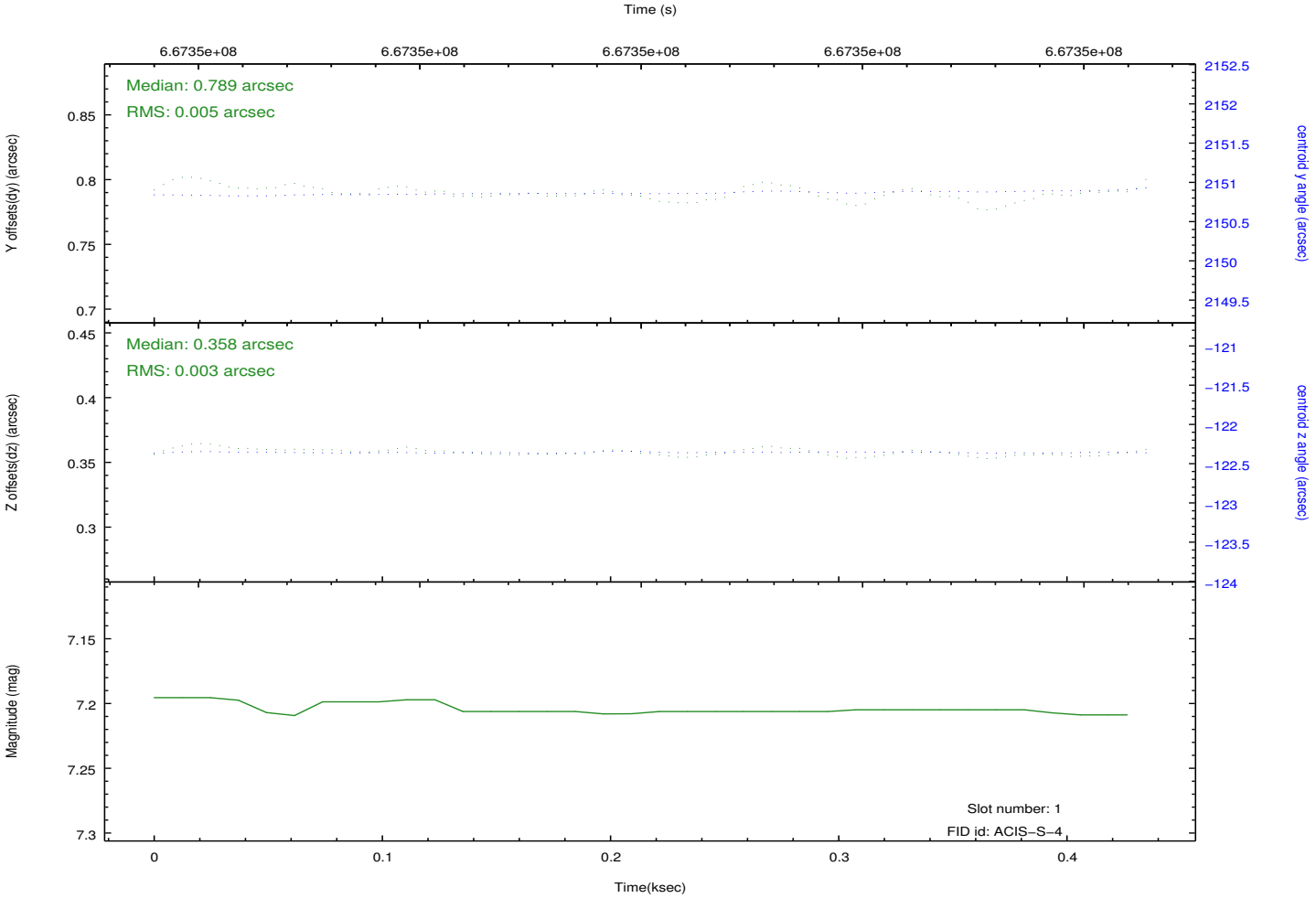




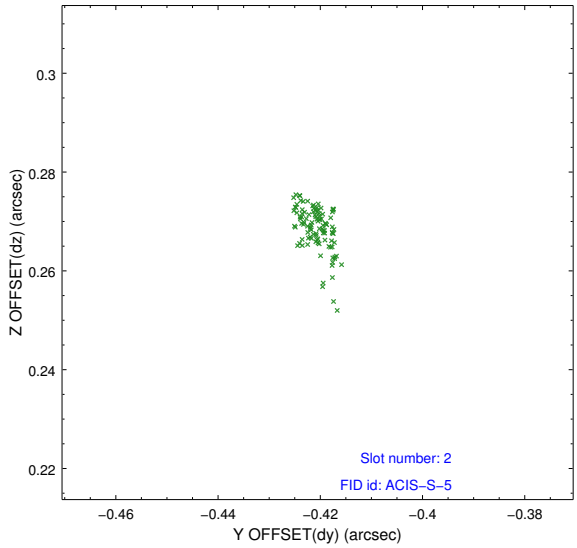
2.5.2 Slot 1

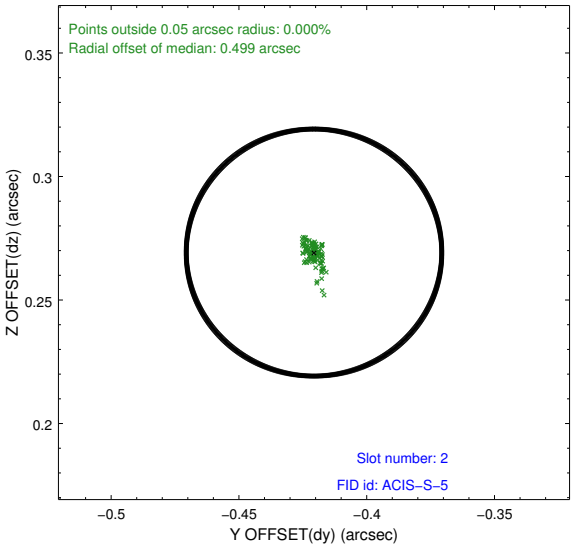

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4

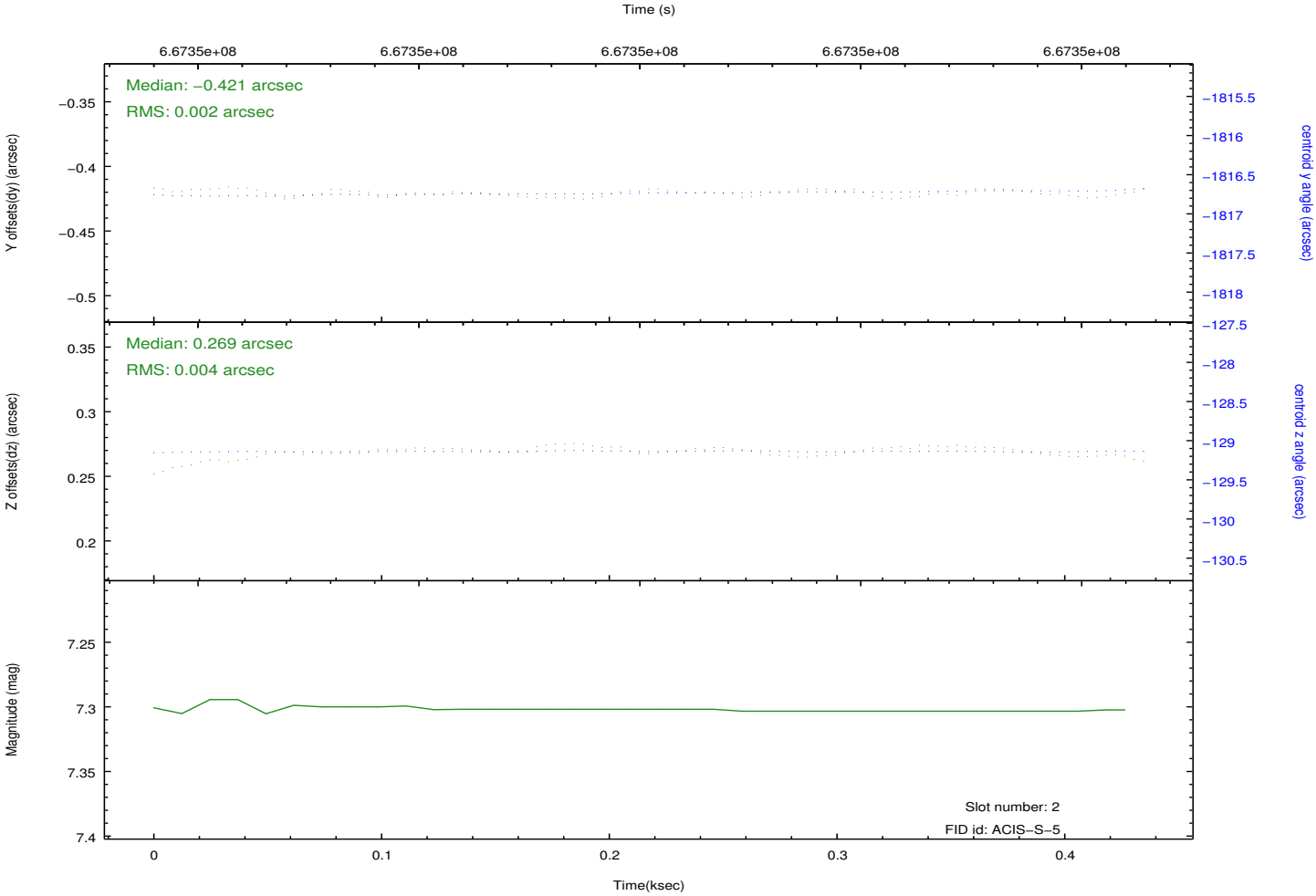

Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.867 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 1
FID id: ACIS−S−4


Time (s)
Median: 0.789 arcsec
RMS: 0.005 arcsec
Y offsets(dy) (arcsec)
Median: 0.358 arcsec
RMS: 0.003 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

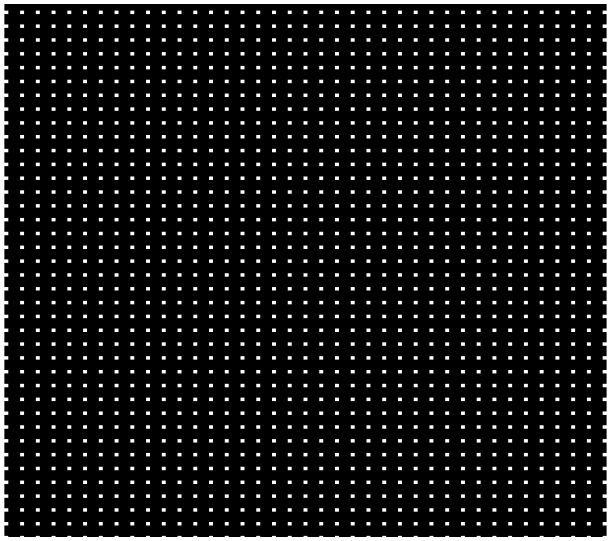

Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5


Points outside 0.05 arcsec radius: 0.000%
Radial offset of median: 0.499 arcsec
Z OFFSET(dz) (arcsec)
Y OFFSET(dy) (arcsec)
Slot number: 2
FID id: ACIS−S−5

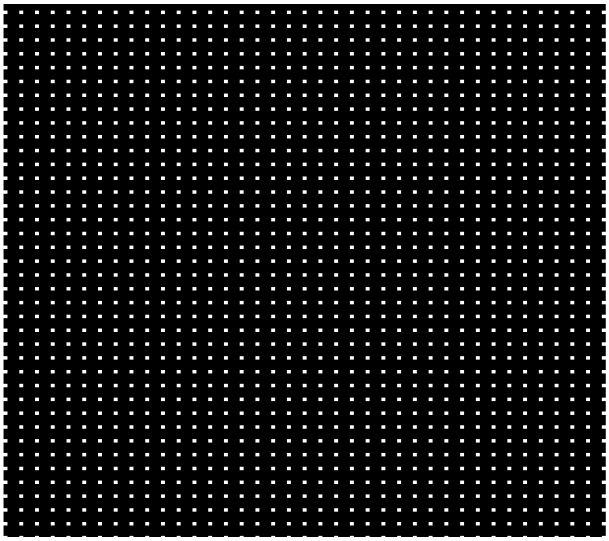

Time (s)
Median: −0.421 arcsec
RMS: 0.002 arcsec
Y offsets(dy) (arcsec)
centroid y angle (arcsec)
Median: 0.269 arcsec
RMS: 0.004 arcsec
Z offsets(dz) (arcsec)
centroid z angle (arcsec)
Magnitude (mag)
Slot number: 2
FID id: ACIS−S−5
Time(ksec)

3 Gratings

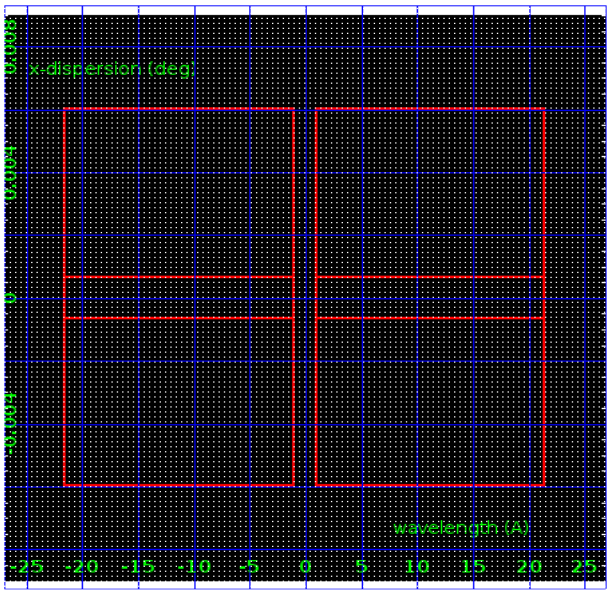
3.1 HEG Arm



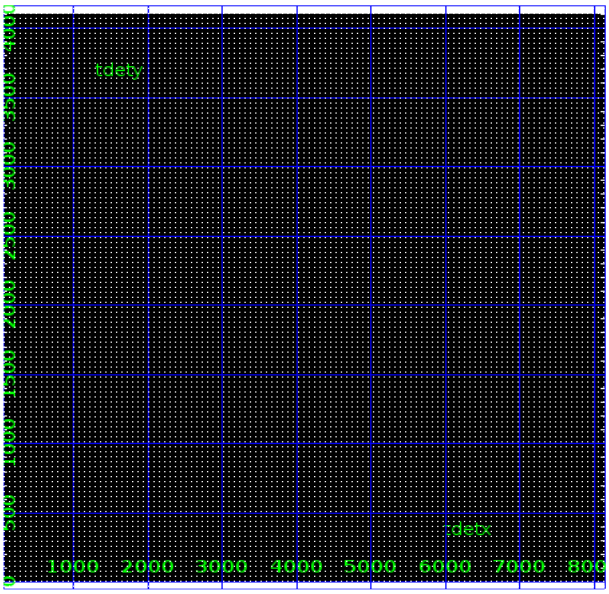
HEG Order Sort 123



HEG Order Sort ALL

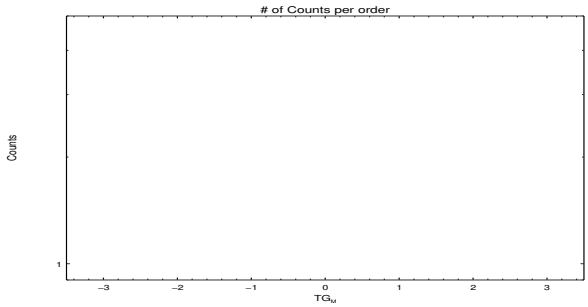


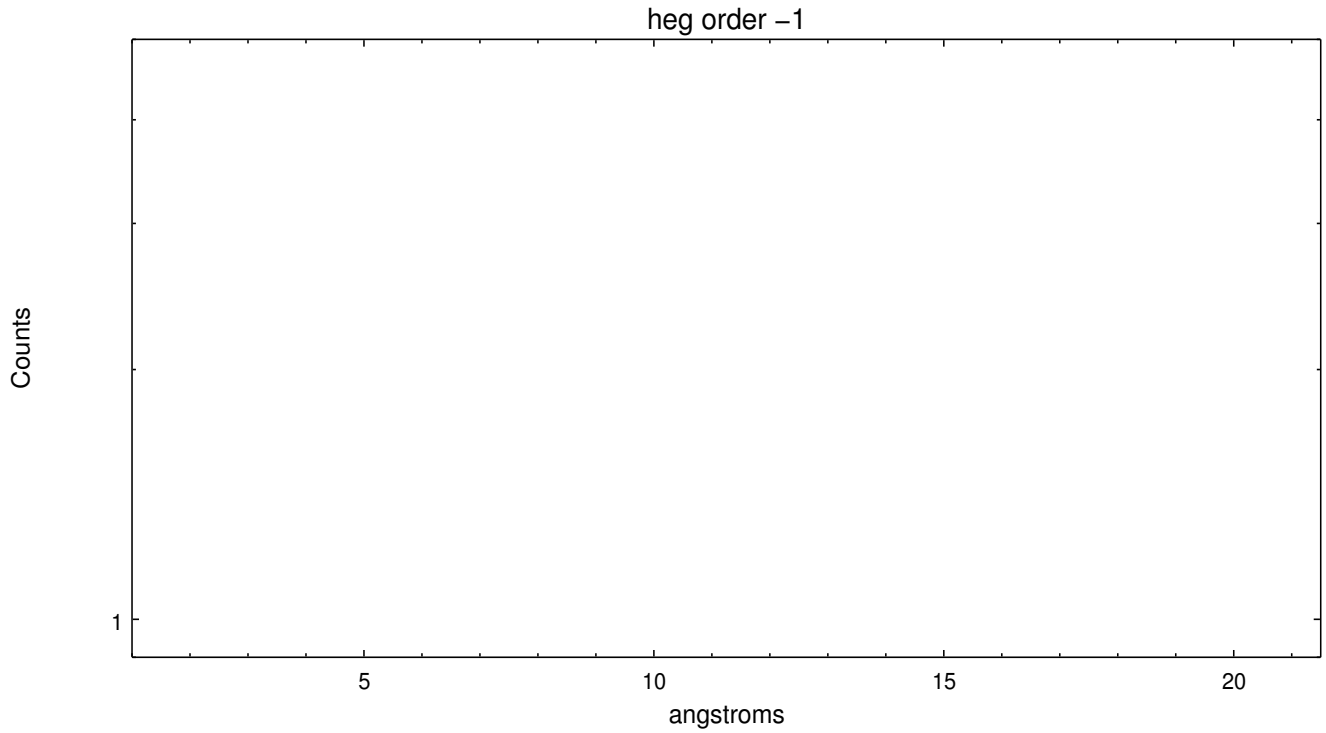
Spot Image HEG

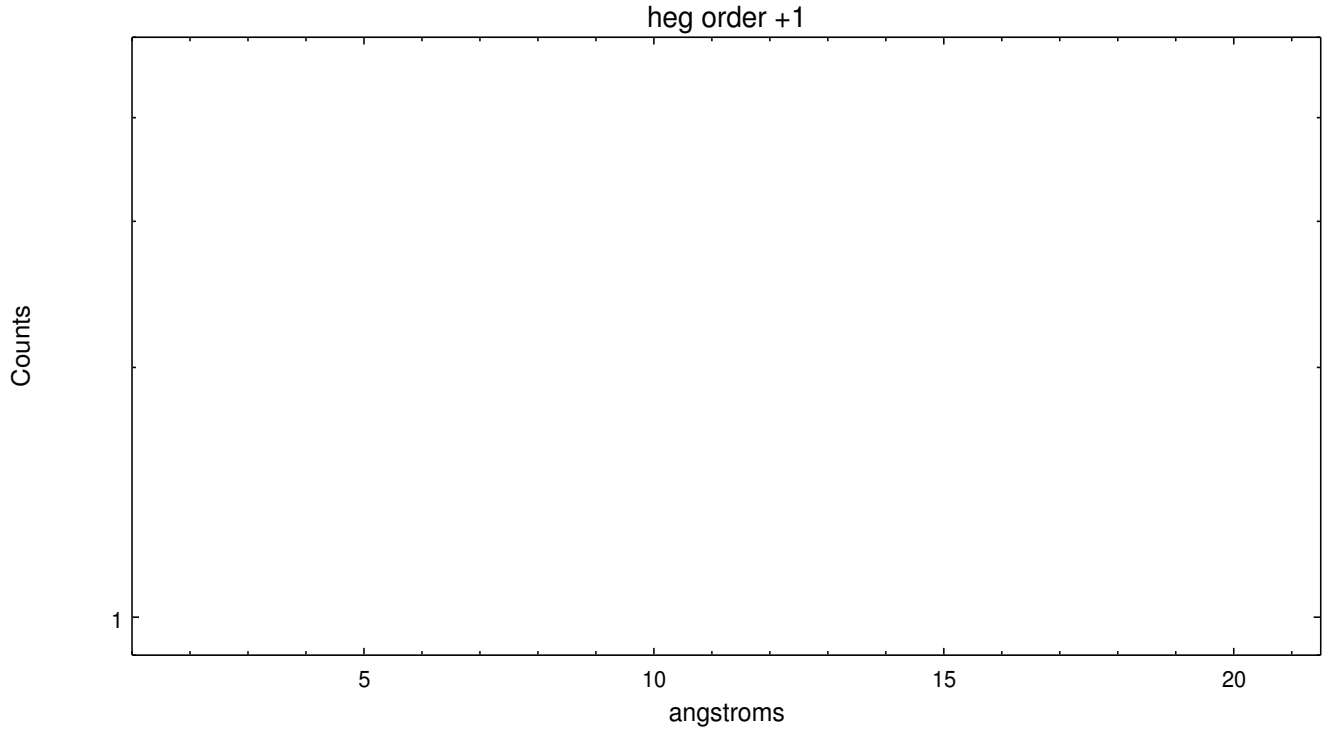


Full Detector HEG

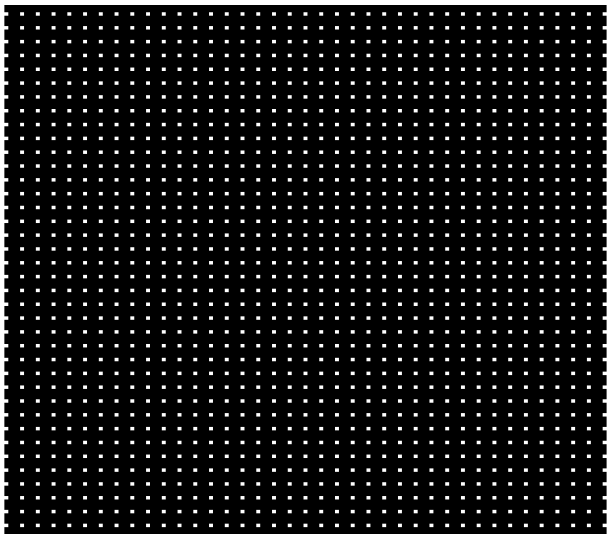
	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	0	0	0	0	0



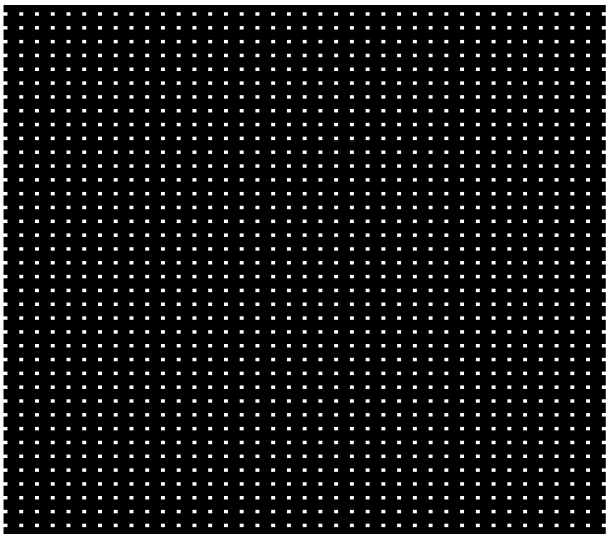

heg order −1
Counts
1
5
10
15
20
angstroms


heg order +1
Counts
1
5
10
15
20
angstroms

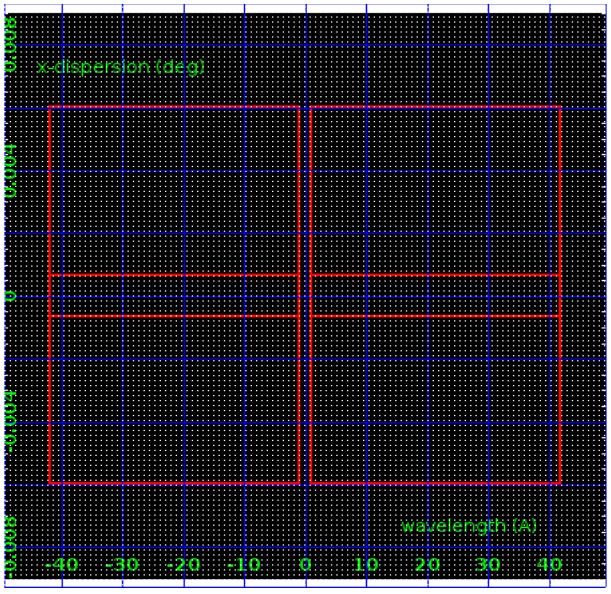
3.2 MEG Arm



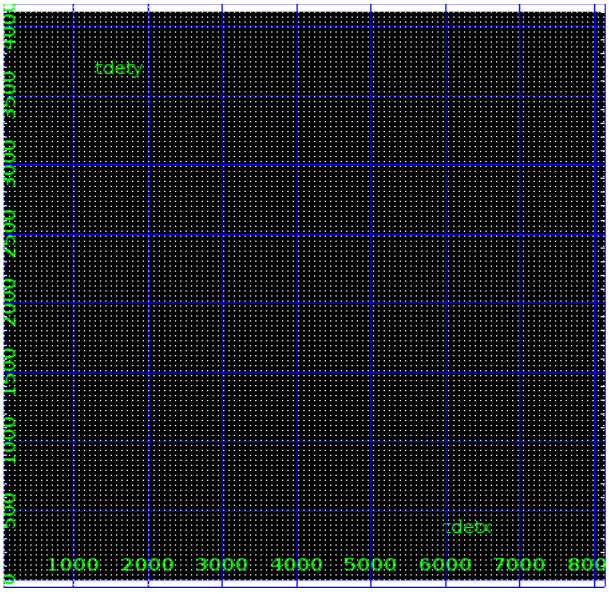
MEG Order Sort 123



MEG Order Sort ALL

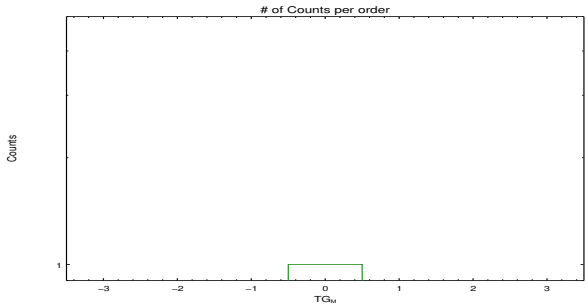


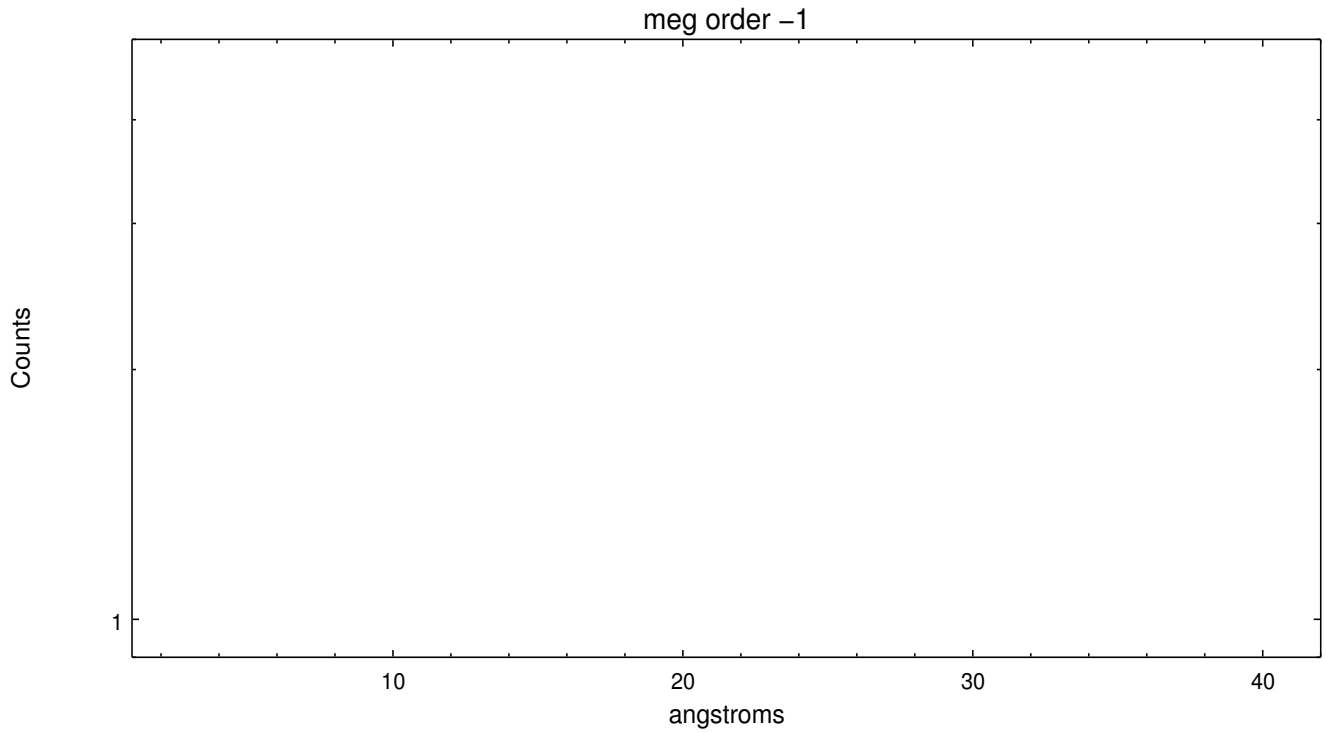
Spot Image MEG

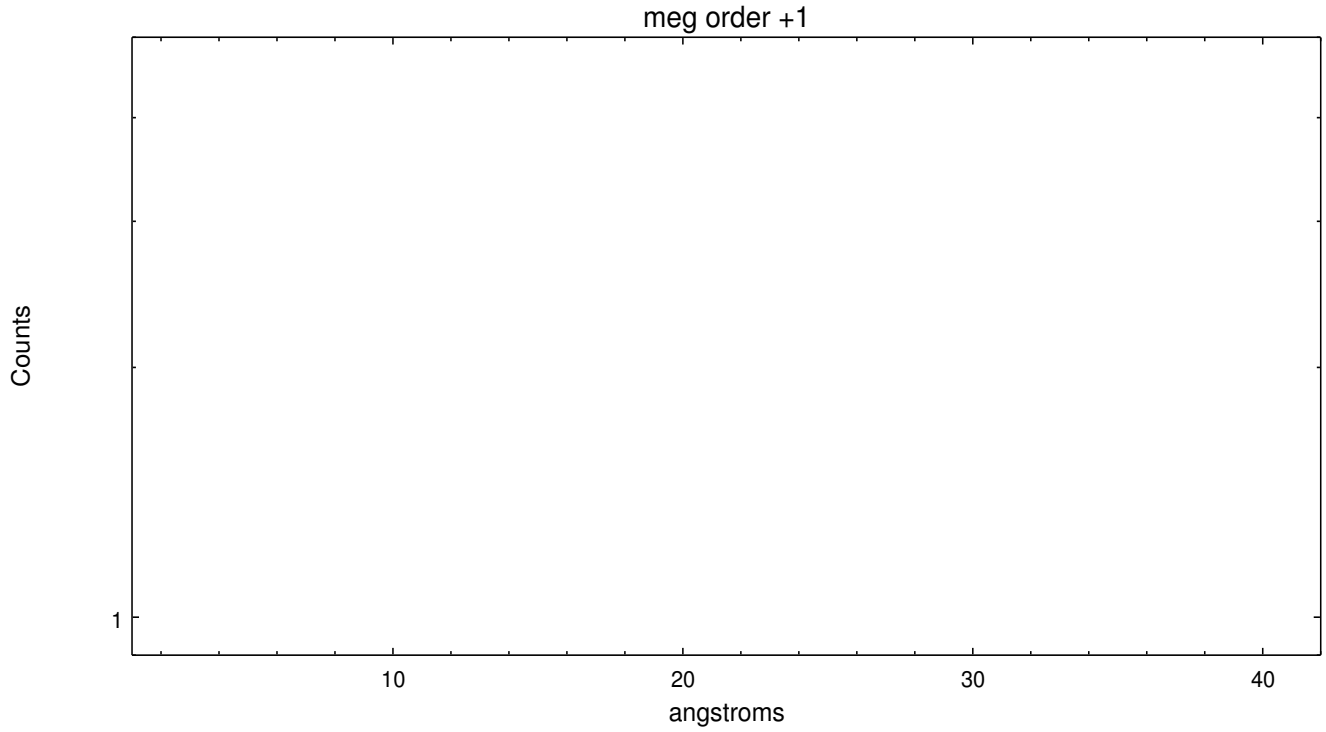


Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	0	0	0	0	0	0	0




meg order −1
Counts
1
10
20
30
40
angstroms


meg order +1
Counts
1
10
20
30
40
angstroms

A Summary

A.1 Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2019.06.25
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	0.33225

A.2 Comments

```
This is the short segment in the wrong mode, restarted as 22140. No
useful science data. About 6600 events, all on S3 (no useful dispersed
events, given zeroth order offset).



Charge time:
ONTIME of 332.25 seconds is less than 85% of expected scheduled time of
25000 seconds
===========
1
The guide star in slot 7 was removed from the aspect solution due to
poor data quality. The aspect solution is improved by the removal of
this guide star from the solution.



Comments for Obi 0
Fid in slot 1 radial offset > 0.850000 arcsec
```