V&V Reference Report
L2 ASCDS Version : 7.6.9

Observation 1046 - L2 Version 001
Chandra X-Ray Center
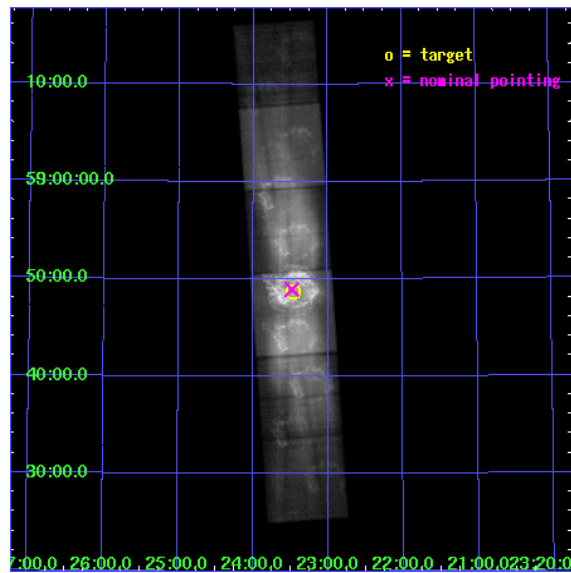
L2 Processing Date : Nov 29 2006

Contents

1 Front

seq_num	500112
obs_id	1046
title	HIGH RESOLUTION SPECTRA OF YOUNG SUPERNOVA REMNANTS
observer	Prof. Claude Canizares
object	CAS A
dtycycle	0
cycle	P
ra_targ	350.866667
dec_targ	58.811806
ra_nom	350.87057410749
dec_nom	58.815806203148
roll_nom	85.955941473876
revision	2
ontime	69942.277184382
livetime	69056.62595649
ontime4	69942.277363941
ontime5	69952.000065148
ontime6	69939.036264181
ontime7	69942.277184382
ontime8	69942.277254254
ontime9	69945.51816465
l2events	8358580

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
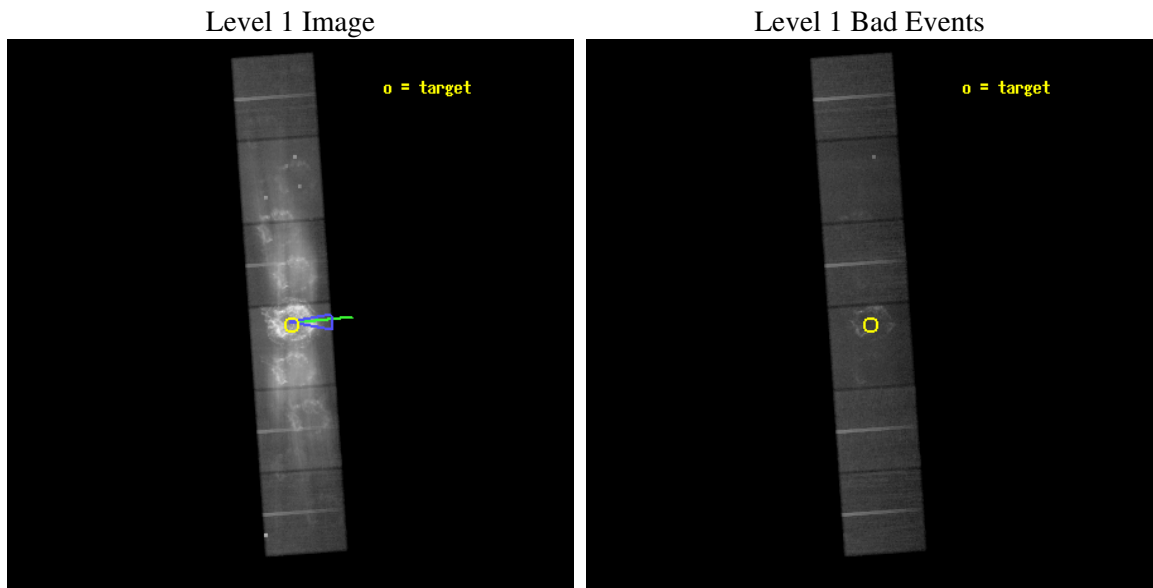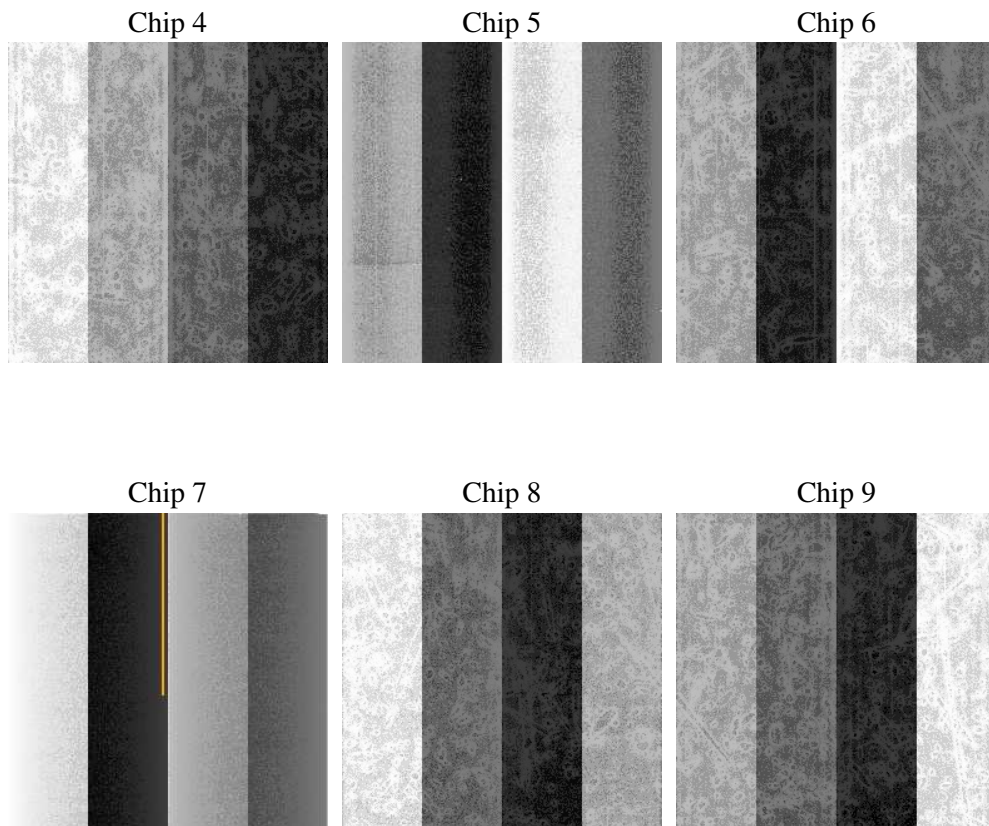
2.1.3 Parameters

obi_num	0
ascdsver	7.6.9
caldbver	3.2.4
date	2006-11-23T08:15:35
revision	2

sched_exp_time	70000.000000
ontime	69947.195893332
ontime4	69947.196072891
ontime5	69956.91880402
ontime6	69943.954973131
ontime7	69947.195893332
ontime8	69947.195993125
ontime9	69950.4368736
l1events	11220213

2.1.4 Events

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
level 1 events	605596	1188198	2343796	4982409	1469918	630296
rejected events	434374	366806	423042	414543	459227	387427
rejected %	71%	30%	18%	8%	31%	61%

	ccd 4	ccd 5	ccd 6	ccd 7	ccd 8	ccd 9
grade 0 events	120122	157030	1539435	868617	783250	182858
	19%	13%	65%	17%	53%	29%
grade 1 events	614	562	6602	2910	3209	783
	0%	0%	0%	0%	0%	0%
grade 2 events	24126	309652	203398	1293742	110090	27539
	3%	26%	8%	25%	7%	4%
grade 3 events	8260	45283	64244	475505	37912	10020
	1%	3%	2%	9%	2%	1%
grade 4 events	8009	42242	63386	469293	36784	9767
	1%	3%	2%	9%	2%	1%
grade 5 events	16083	39120	23684	72005	25631	19643
	2%	3%	1%	1%	1%	3%
grade 6 events	10724	267265	50447	1461378	42734	12712
	1%	22%	2%	29%	2%	2%
grade 7 events	417658	327044	392600	338959	430308	366974
	68%	27%	16%	6%	29%	58%

2.2 Compared Parameters

| Parameter	Planned	Actual
Instrument	ACIS	ACIS
Detector	ACIS-456789	ACIS-456789
Grating	HETG	HETG
Data mode	FAINT	FAINT
Observation mode	POINTING	POINTING
Pointing RA	350.894083	350.8705741074901
Pointing Dec	58.791382	58.815806203148
Pointing Roll	85.779220	85.95594147387561
Roll angle	90.000000	90.000000
Roll tolerance	10.000000	10.000000
Roll constraint allows 180D rotation	N	N
SIM focus pos (mm)	-0.684267	-0.6828225247311905
SIM defocus (mm)	0	0.001444936568705701
SIM translation stage pos (mm)	-190.132523	-190.1400660498719
SIM translation stage offset (mm)	0	0.00754346686406393
Observation start time	107198633.184000	107197520.33445
Observation start date	2001-05-25T17:22:49	2001-05-25T17:05:20
Observation end time	107268633.184000	107269663.93726
Observation end date	2001-05-26T12:49:29	2001-05-26T13:07:43
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	NONE	NONE
Alternating exposures requested	N	N
Primary exposure time	0.000000	3.2

2.3 Aspect

7
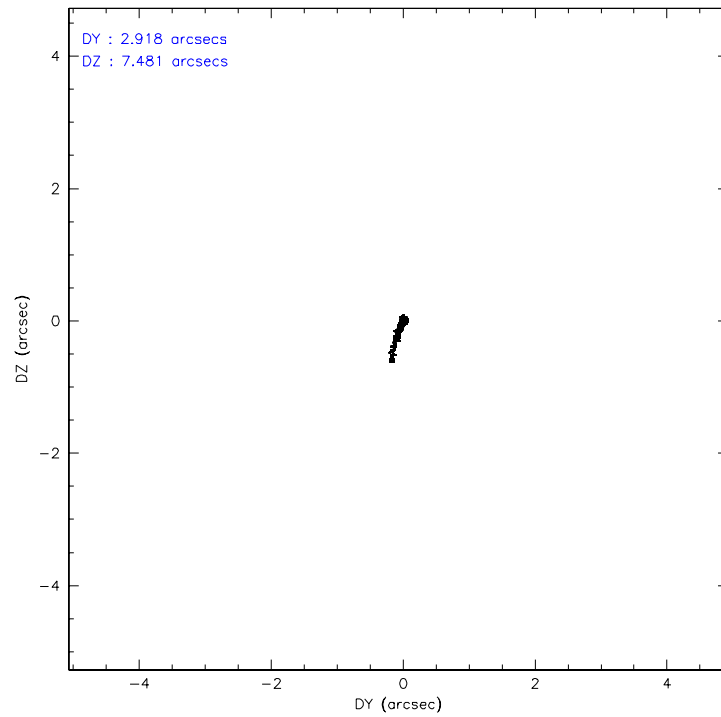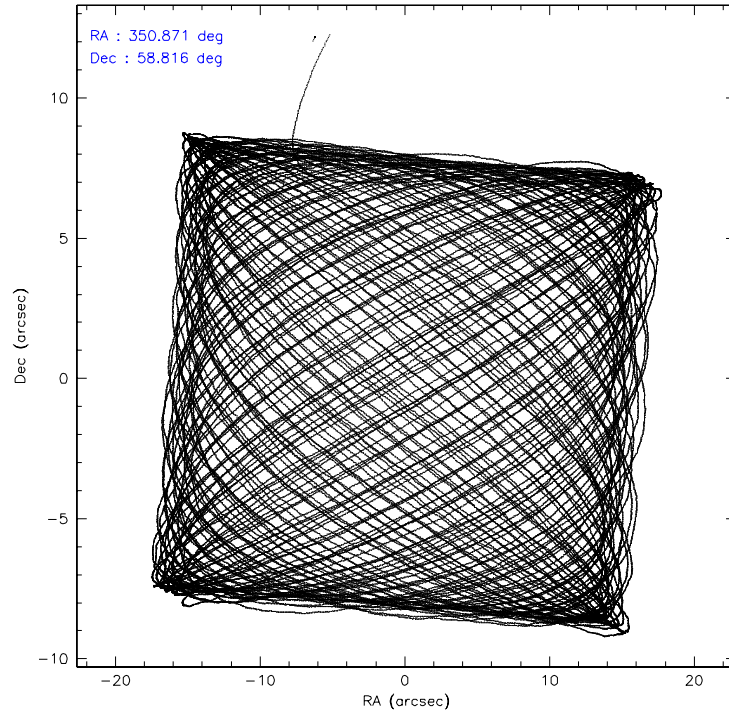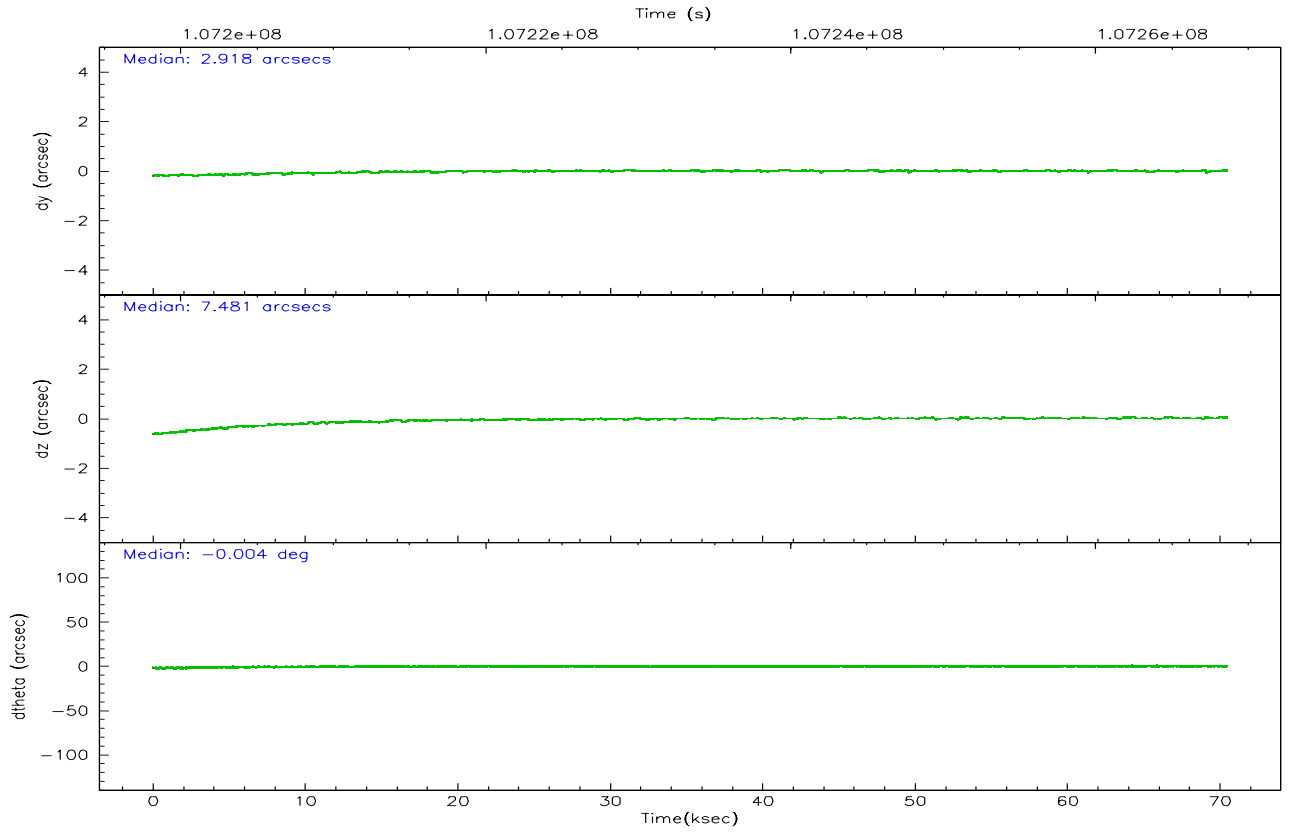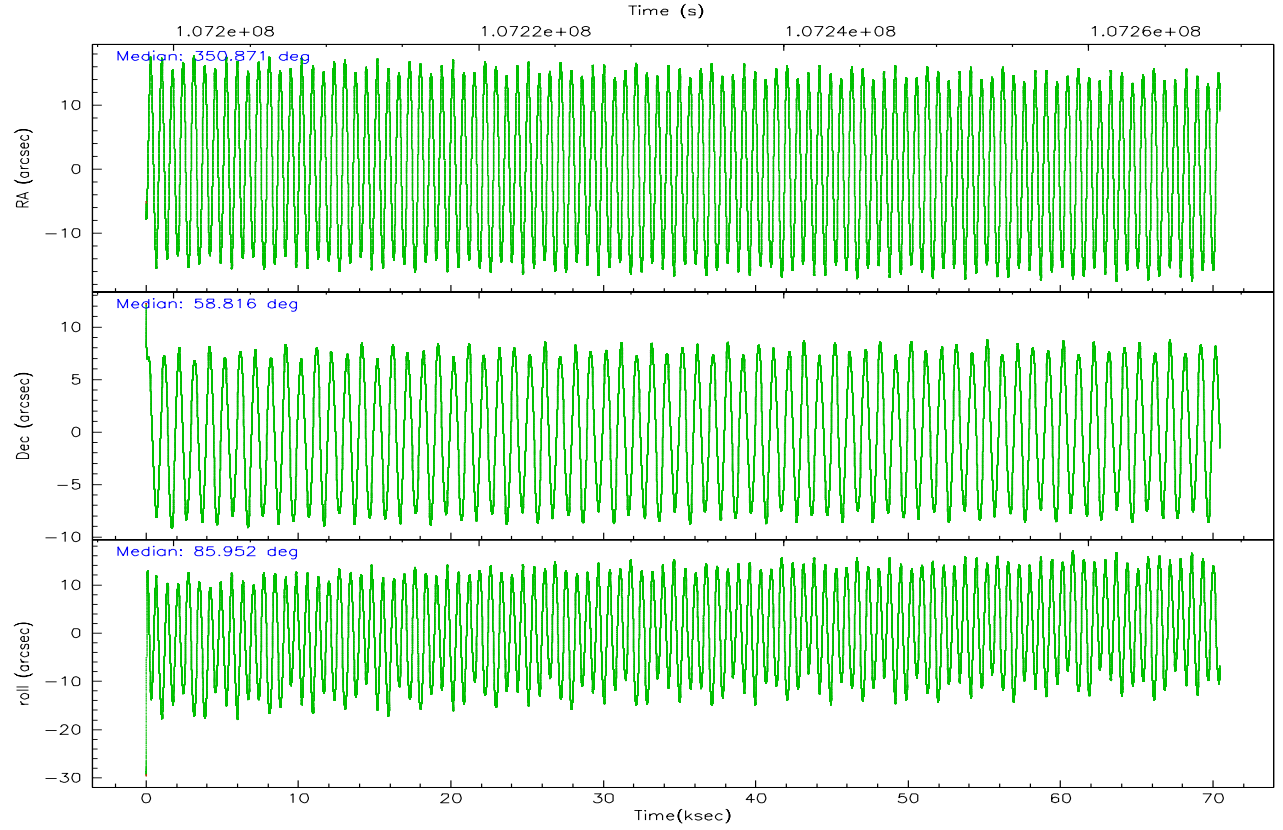
Slot Statistics

slot	status	id	mag	n_pts	med_dy	med_dz	dr1	dr2	ra	dec	mean_y	mean_z
0	FID	ACIS-S-2	7.11	17186	0.008	0.016	0.008	0.014	0.000000	0.000000	-755.53	-1728.58
1	FID	ACIS-S-4	7.19	17186	-0.087	-0.008	0.005	0.010	0.000000	0.000000	2157.68	179.93
2	FID	ACIS-S-5	7.24	17186	0.047	0.001	0.007	0.013	0.000000	0.000000	-1808.41	173.55
3	GUIDE	525732488	8.41	34361	-0.000	-0.087	0.069	0.114	350.087090	58.516915	-1088.23	1441.64
4	GUIDE	525735976	8.87	34355	0.121	-0.028	0.076	0.119	350.142956	58.277622	-1941.43	1283.13
5	GUIDE	525732528	9.37	34347	-0.085	0.013	0.106	0.175	351.607241	59.298932	1925.42	-1171.32
6	GUIDE	525737208	9.38	34359	-0.089	0.061	0.105	0.166	351.154109	59.407897	2249.21	-310.77
7	GUIDE	525734296	9.50	34346	0.044	0.039	0.084	0.136	351.276372	58.418153	-1284.93	-816.81

2.4 Star Slots

2.4.1 Slot 3
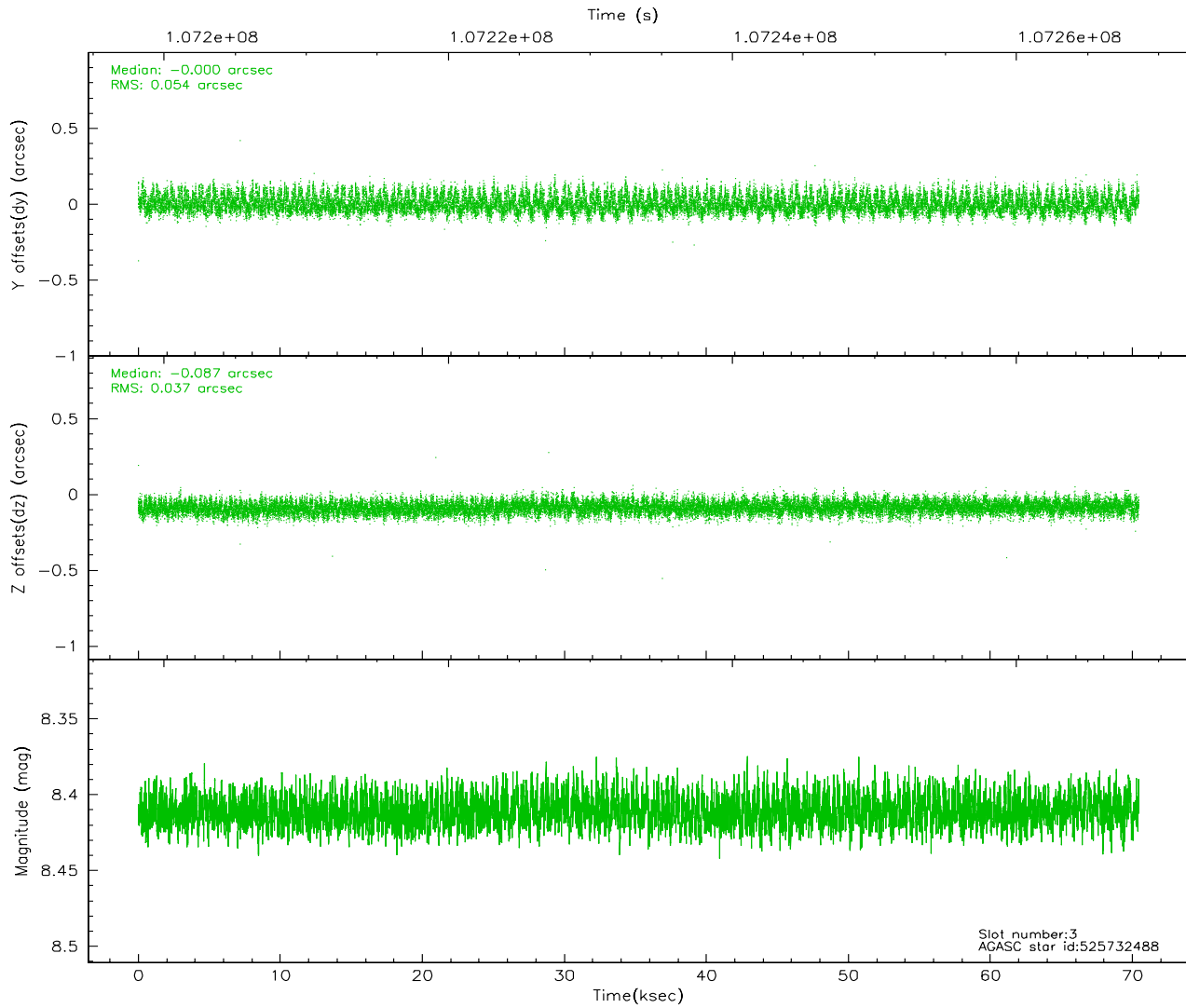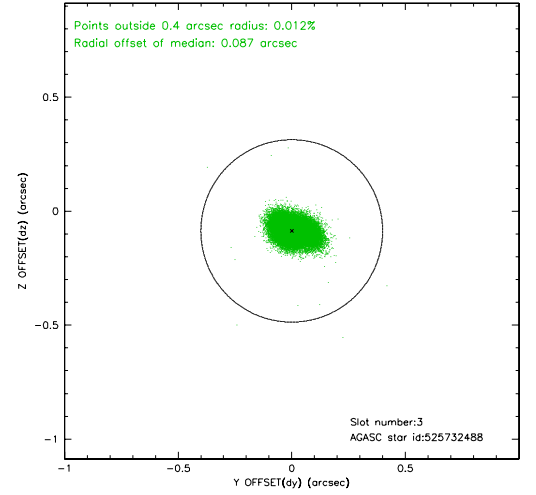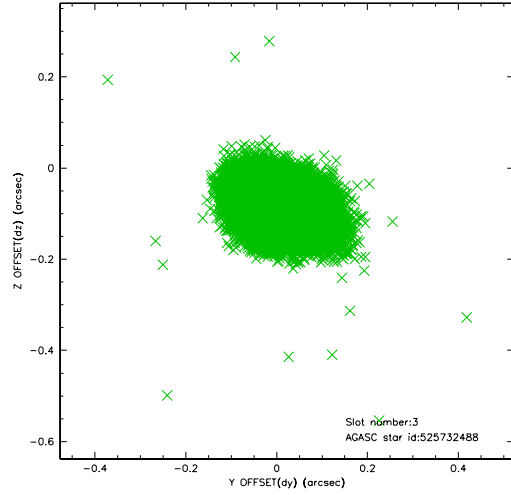
2.4.2 Slot 4
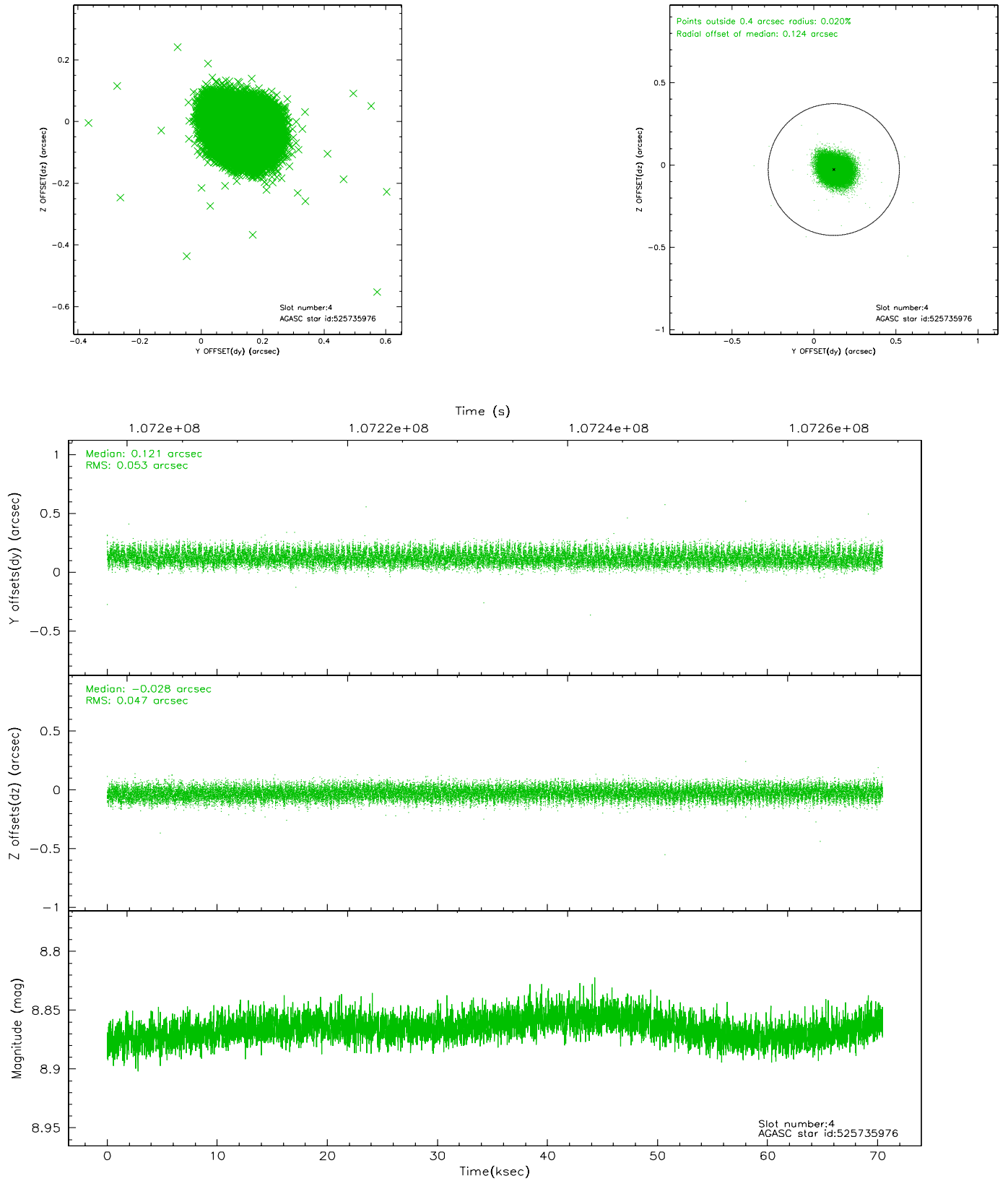
2.4.3 Slot 5
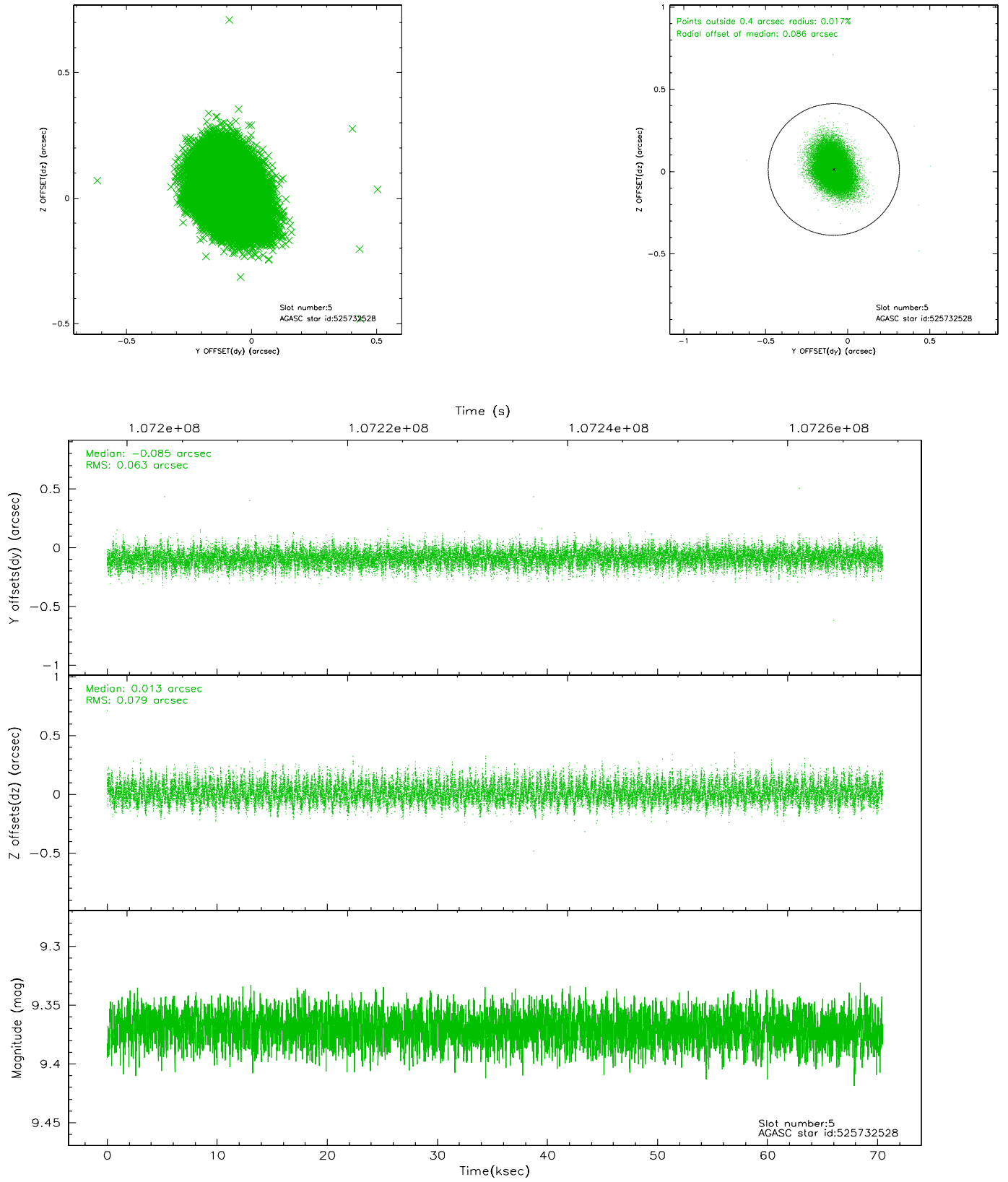
2.4.4   Slot 6
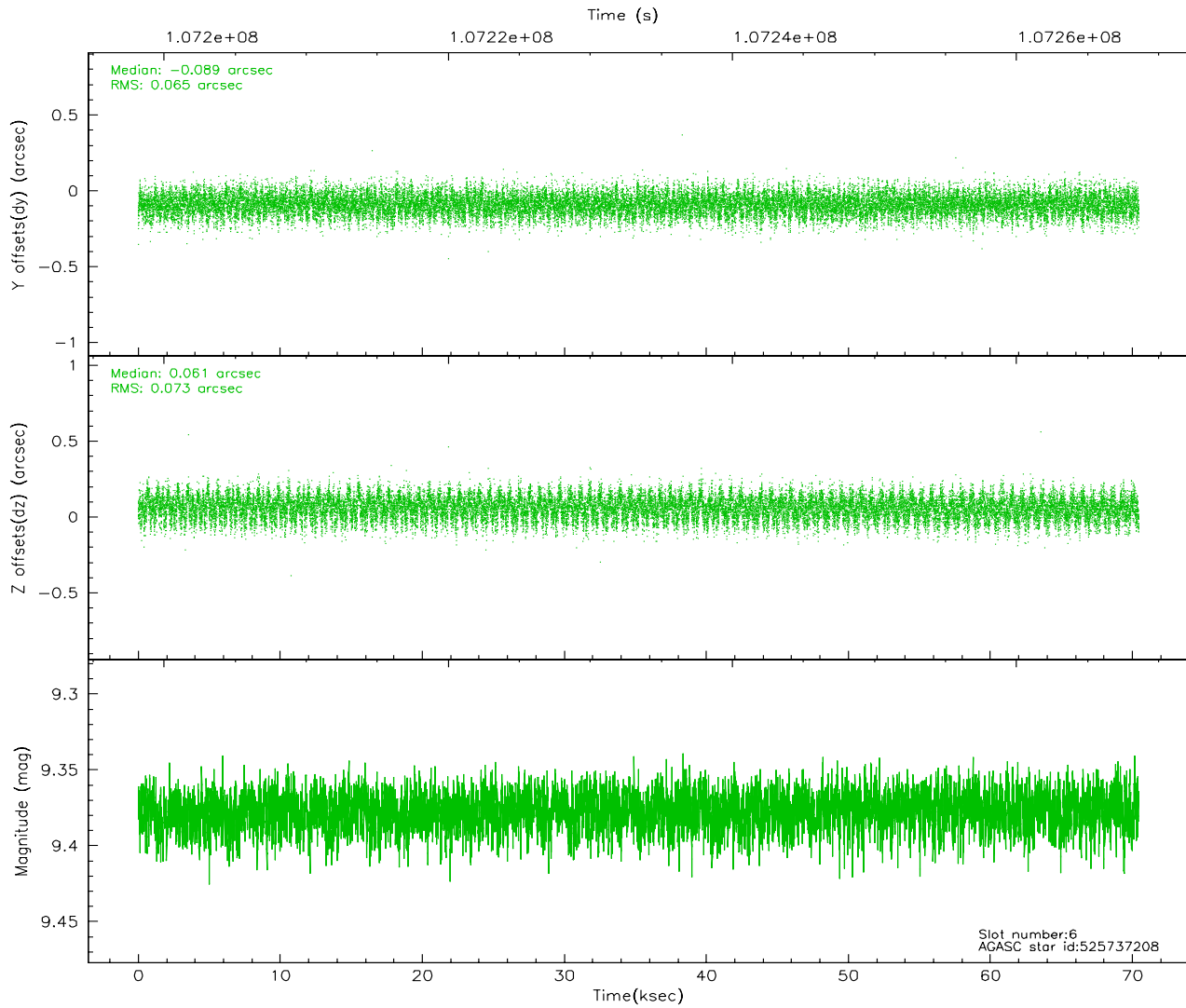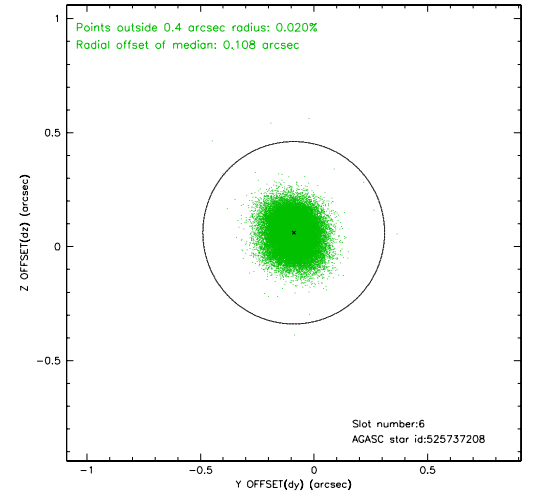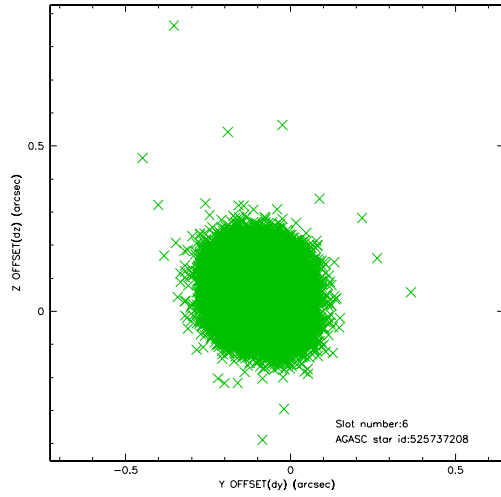
2.4.5   Slot 7
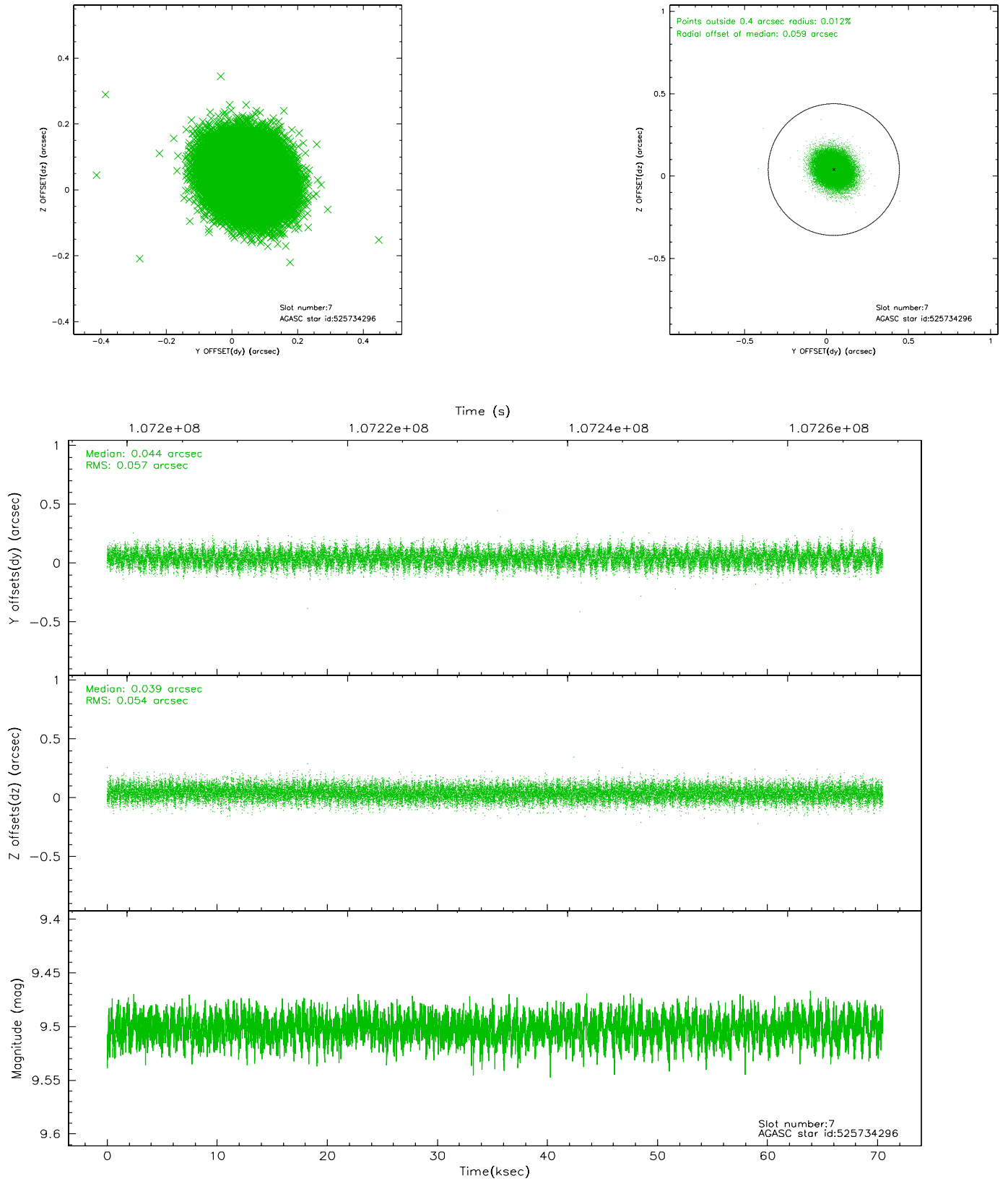
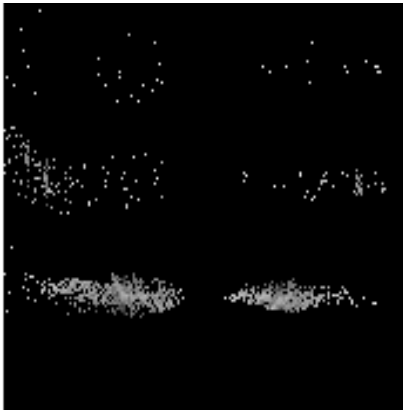## 2.5   FID Slots

2.5.1   Slot 0
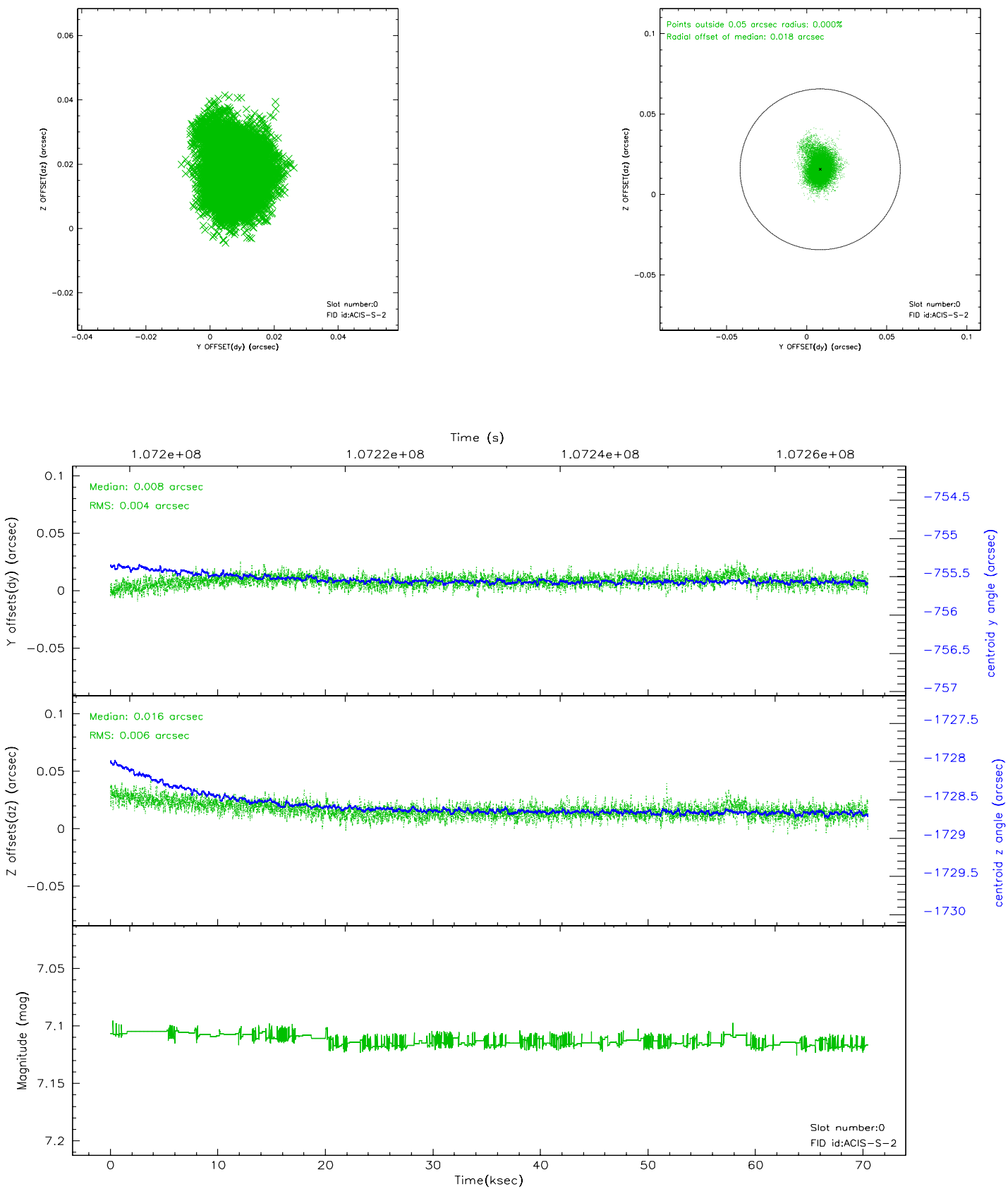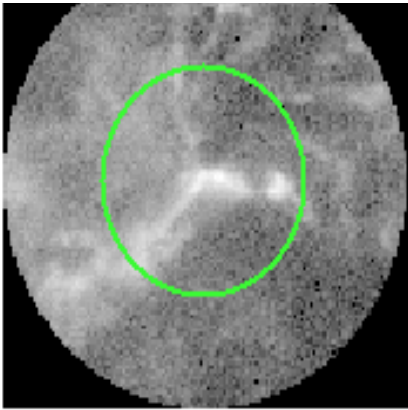
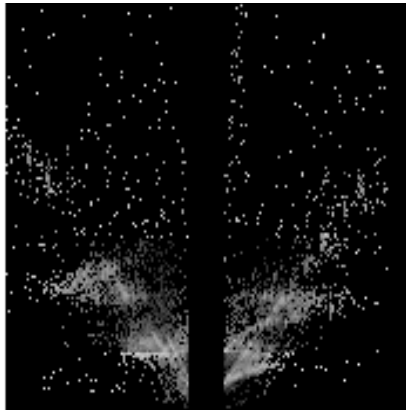## 2.5.2 Slot 1
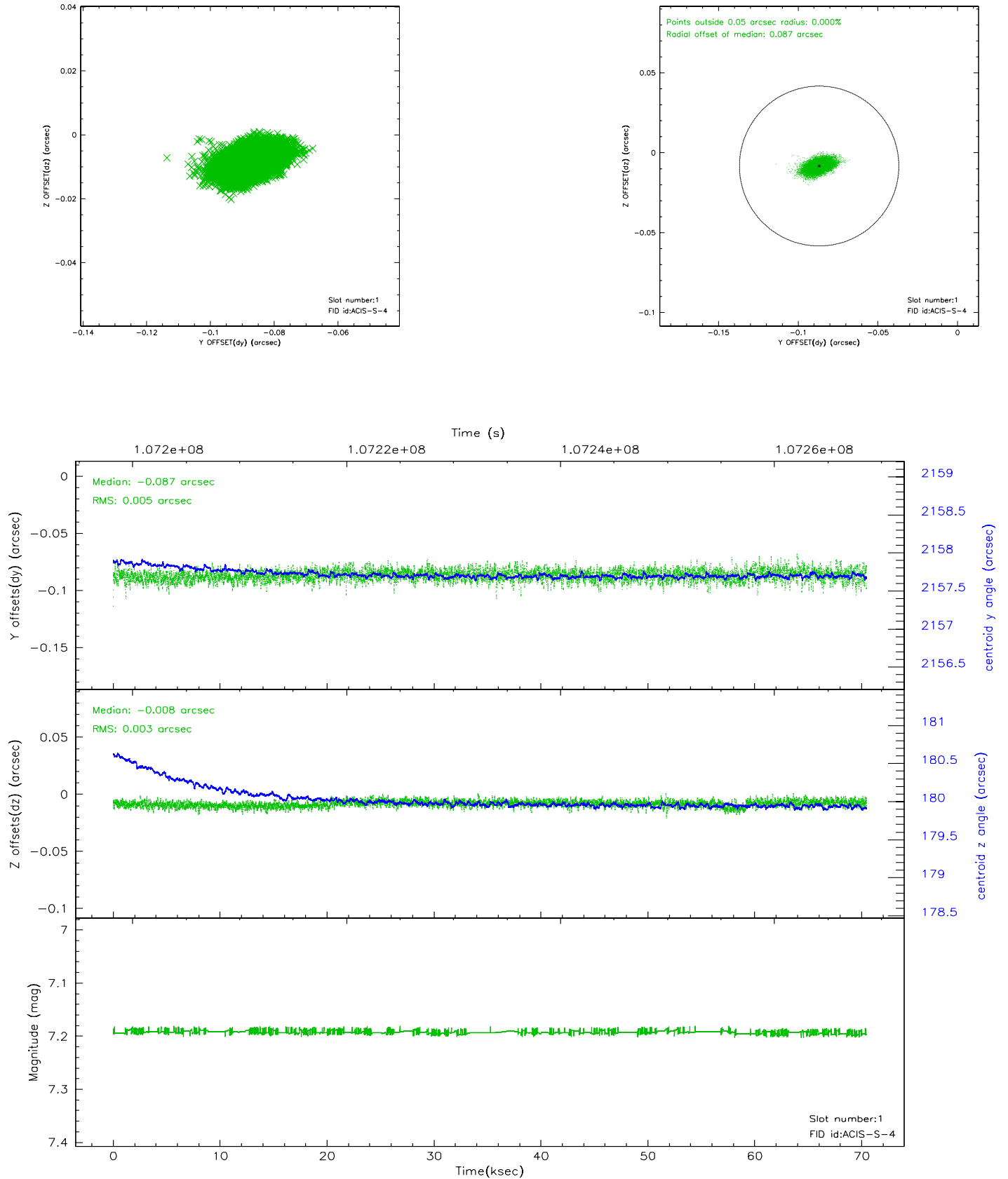
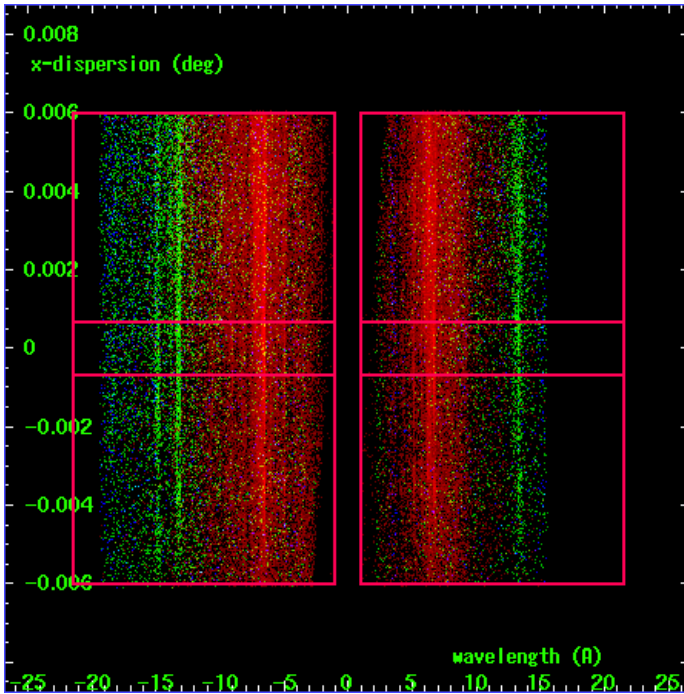## 2.5.3 Slot 2
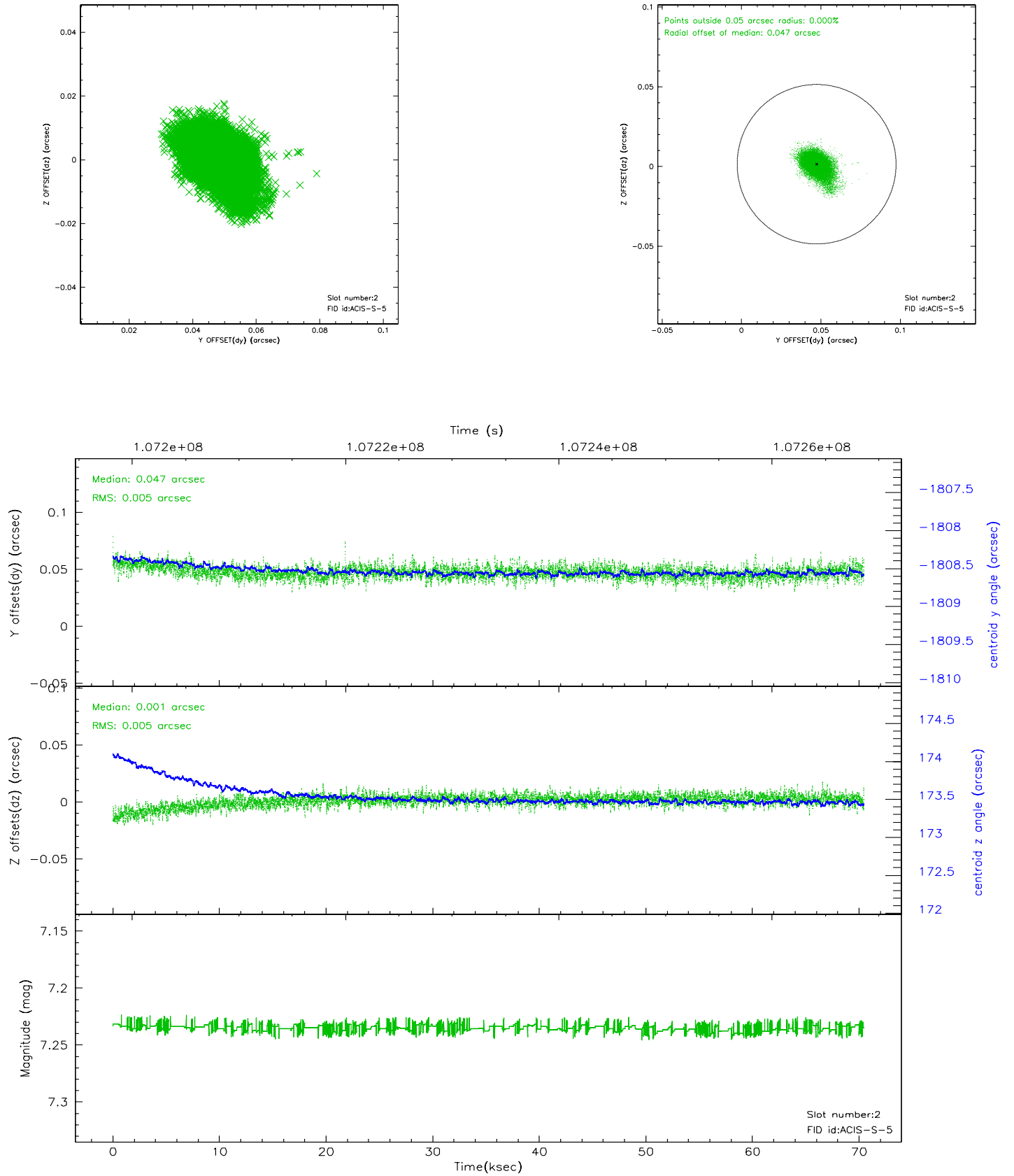
3 Gratings

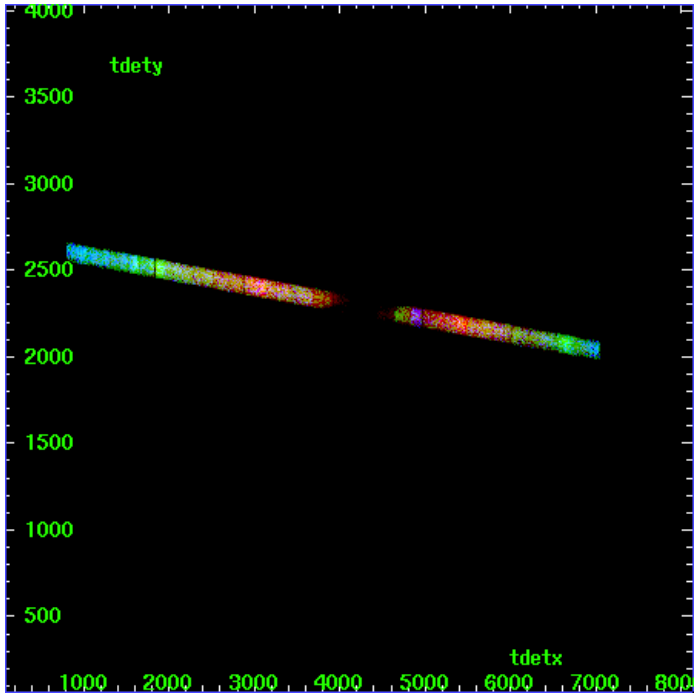## 3.1 HEG Arm

HEG Order Sort 123
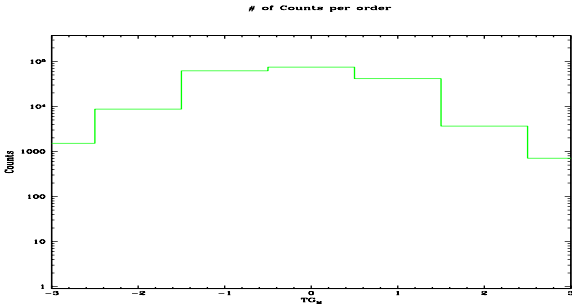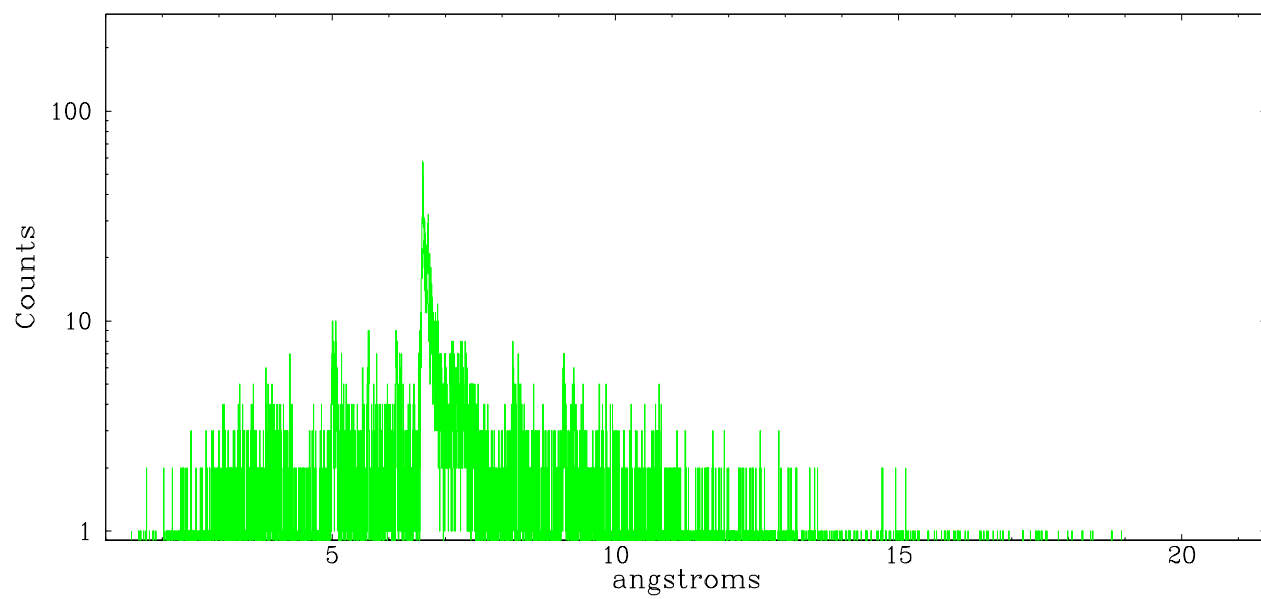

HEG Zero Order

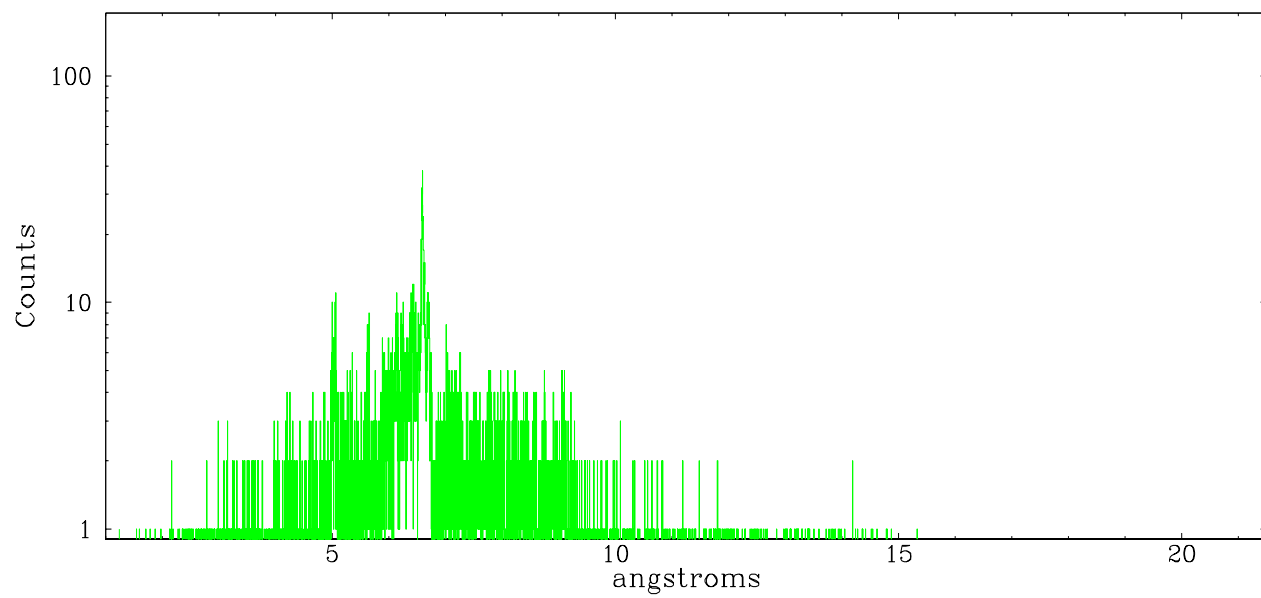

HEG Order Sort ALL

Spot Image HEG

Full Detector HEG

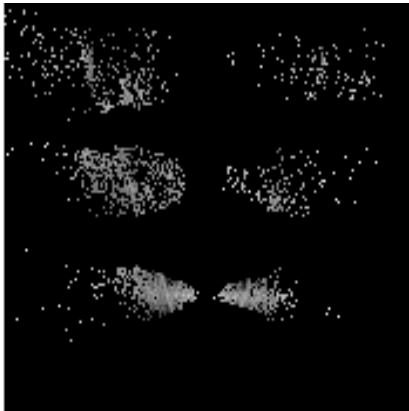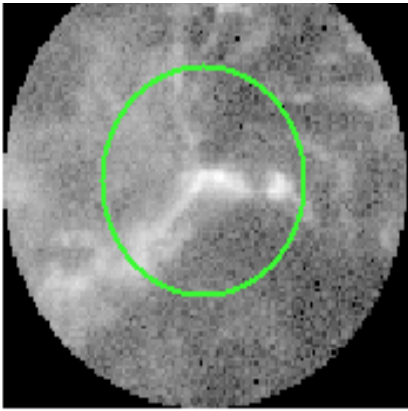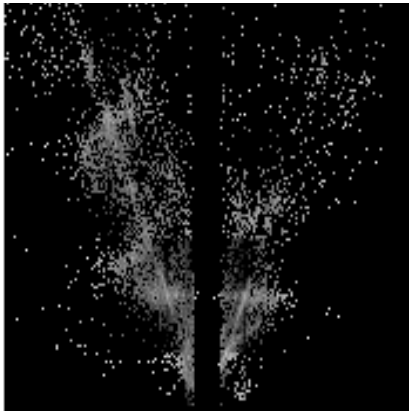|	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	1517	8709	61822	74810	41612	3668	711

heg order −1

heg order +1

3.2 MEG Arm
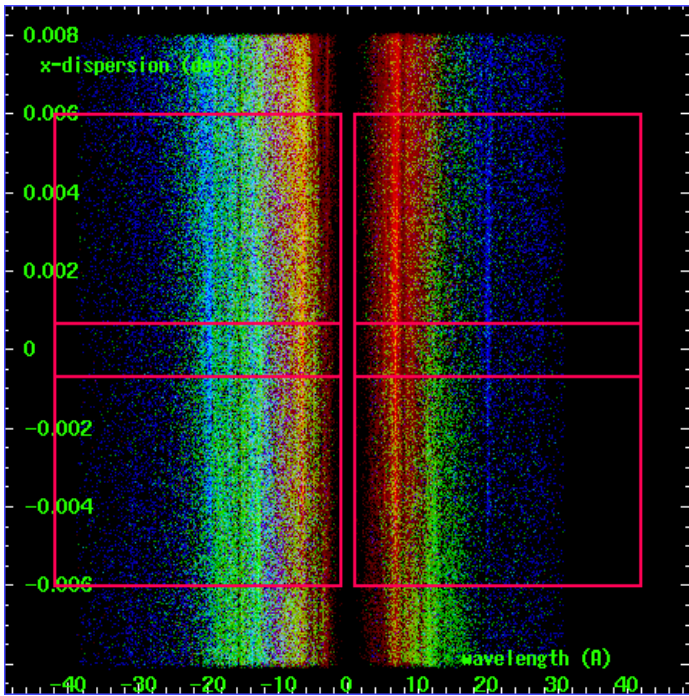

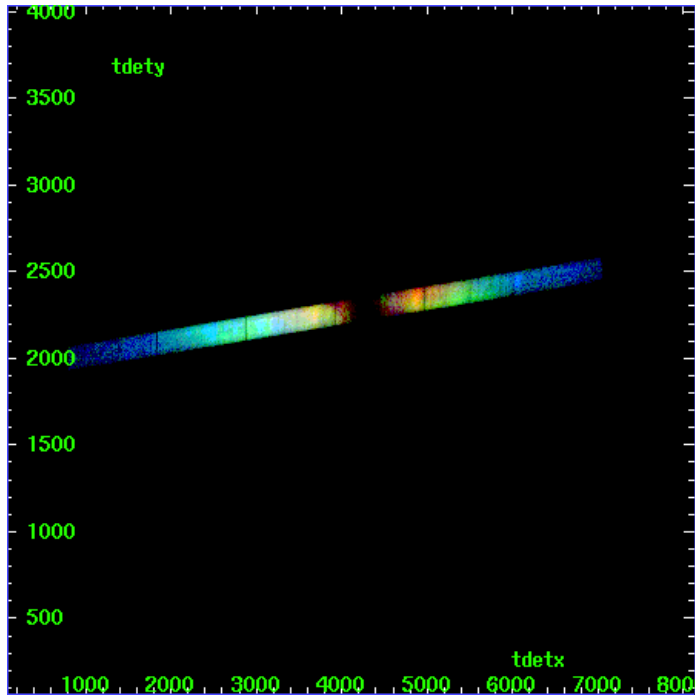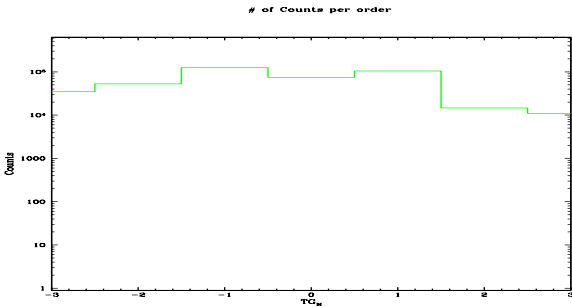MEG Order Sort 123
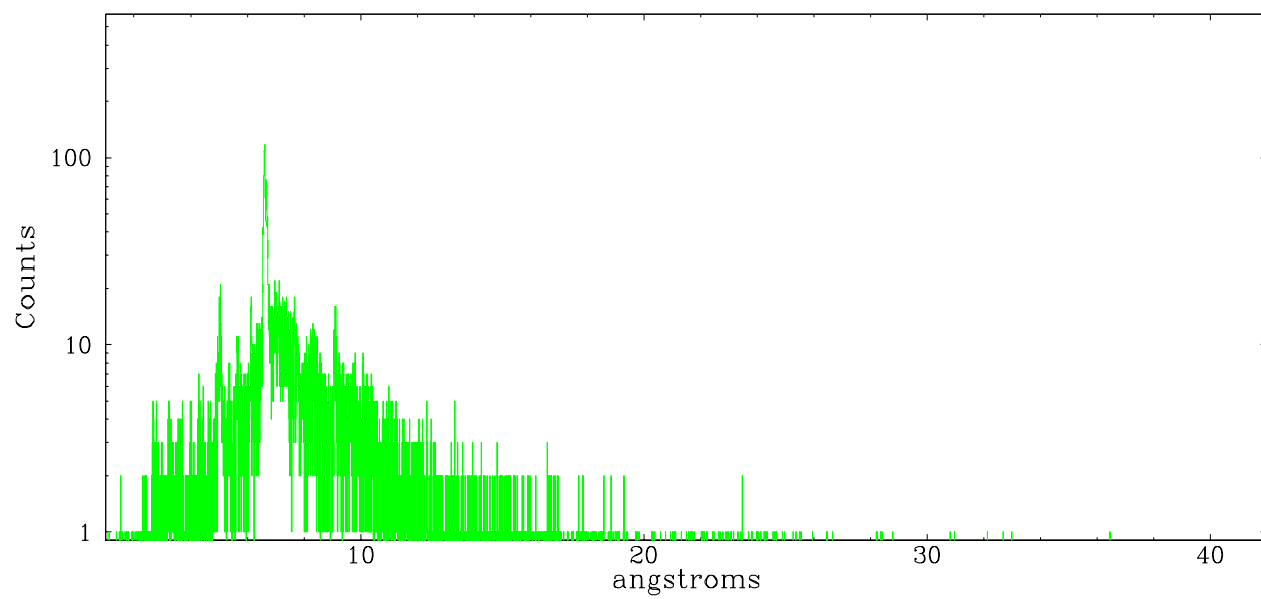

MEG Zero Order

MEG Order Sort ALL

Spot Image MEG

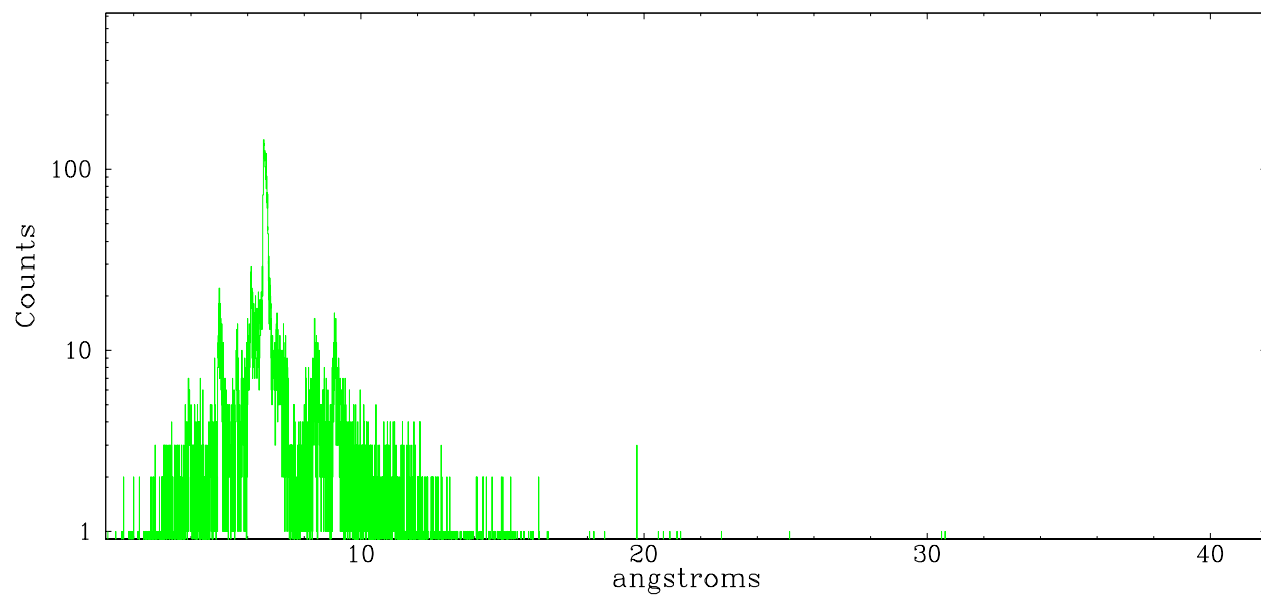Full Detector MEG

	order -3	order -2	order -1	order 0	order 1	order 2	order 3
Events	34849	52879	125684	74810	104850	14594	11017

meg order −1

meg order +1

A   Summary

A.1   Status

V&V Scientist	David Huenemoerder
V&V Date (YYYY-MM-DD)	2006.12.04
V&V Edition	1
V&V Disposition and Status	OK
V&V Charge Time	69.932

A.2   Comments

```
Roll constraint met.

WARNING: there are no standard ciao tools for analysis of grating
spectra
from extended sources. The shape of an emission 'line' will be the
shape of the zero order spatial structure convolved with the
instrumental LSF. Grating extractions can be used, but need to be
combined with custom spatial-spectral analysis, since wavelength is
multi-valued at any particular diffraction angle.

WARNING::Zeroth order selected by pipeline tools is on a bright filament
southeast of the center of the supernova remnant. The user will need to
select a region or source of interest, then use software tools such as
CIAO to specify the coordinates of the zeroth order source of interest
before running the tools to resolve the dispersed events. The spectral
data supplied in this processing are only energy-calibrated for the
emission knot R1 (Lazendic et al. 2006, ApJ, 651, 250). However, it
should be noted that the emission knot R1 that has been selected as the
zeroth order source is filamentary and curved, so the energy assignments
to the events should take the spatial information into account.
The zeroth order used for extracting the spectral data in this
processing is
not located at the position of the brightest X-ray emission in the
filament, but closer to the inner curve of the filament.
```