

Agata tests at Liverpool

September 2018

D. Judson, C. Unsworth, A. Boston,
H. Boston, P. Nolan



A501 – DEGAS capsule

- The new A501 capsule was tested whilst mounted in the Cologne Agata test cryostat at the University of Liverpool in January 2018.
- All segment labels using the IKP labelling scheme.
- Accepted as having passed the CAT and delivered to KTH Sweden.

A501 resolutions

- Core resolution

1.32 keV @ 121 keV

2.31 keV @ 1332 keV

- FWHM/FWTM @1332

1.99 (4.61/2.31)

- Average segment resolution

1.18 keV @ 60 keV

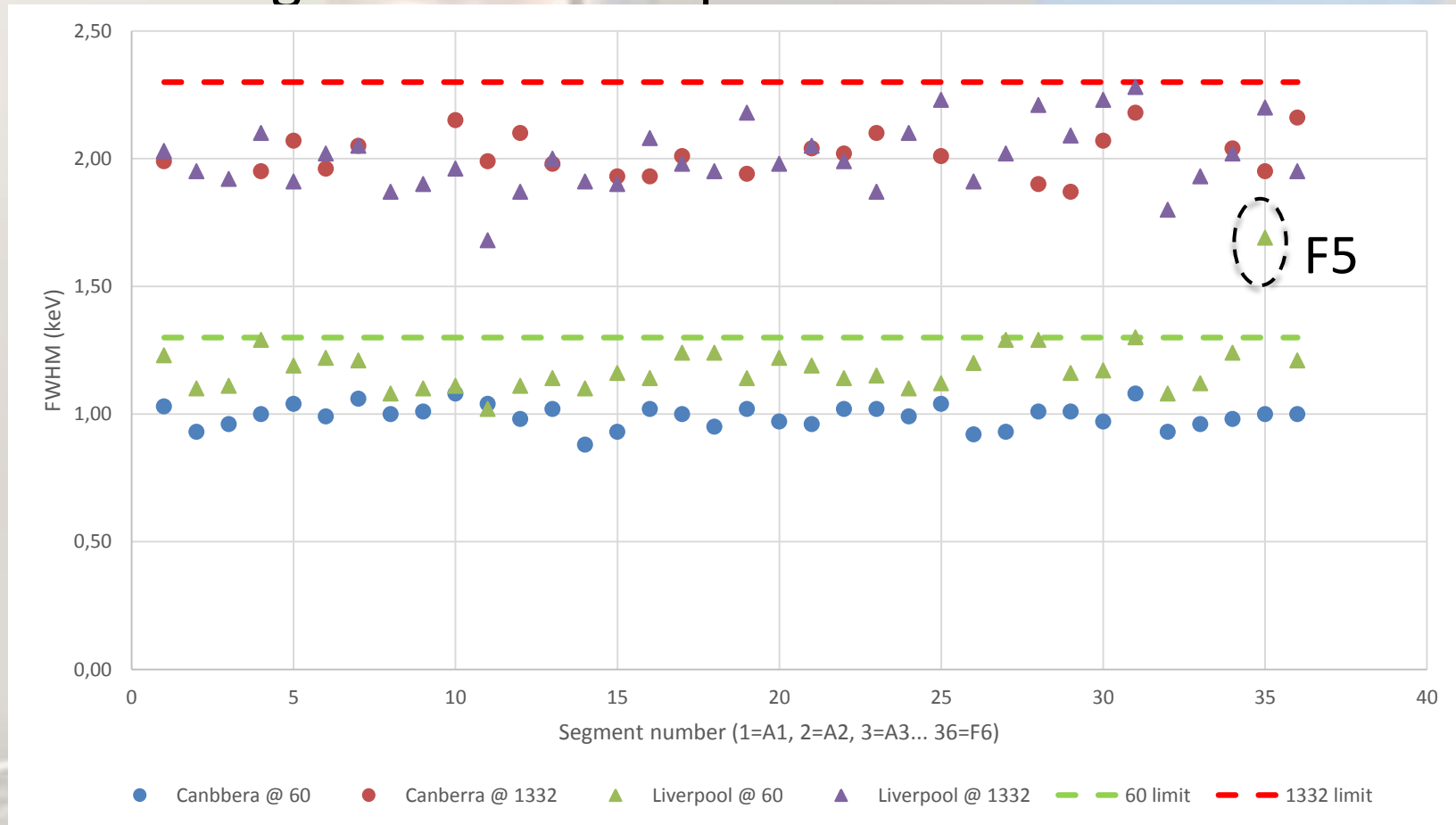
2.00 keV @ 1332 keV

A501 Segment performance

F5 slightly high (1.5keV) at 60 keV due to cryostat electronics

- seen with other recent capsules tested in this cryostat

All other segments within specification



A005

- The A005 capsule was tested whilst mounted in the Cologne test cryostat at the University of Liverpool in September 2018.
- Previously repaired by Canberra due to vacuum leak.
- Significant building works going on around the lab whilst CAT being performed – may induce noise
- Yet to be accepted as having passed the CAT....

A005 resolutions

- Core resolution

1.25 keV @ 121 keV (Canberra 1.16 keV)

2.24 keV @ 1332 keV (Canberra 2.17 keV)

- FWHM/FWTM @1332 keV

1.62 (3.62/2.24)

- Average segment resolution

1.24 keV @ 60 keV

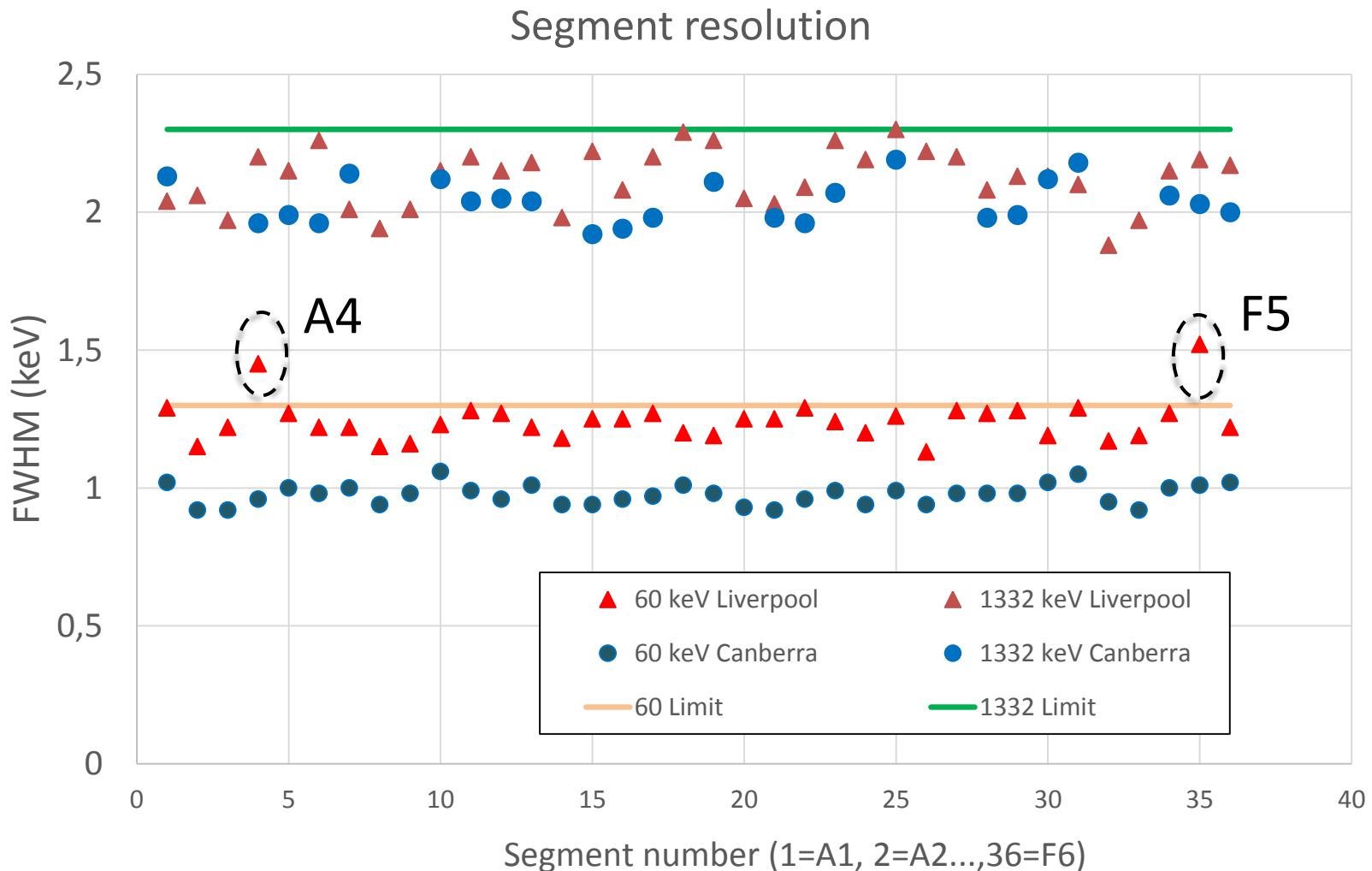
All segments ~ 0.2 keV higher than Canberra measurements

2.12 keV @ 1332 keV

All segments ~ 0.1 keV higher than Canberra measurements

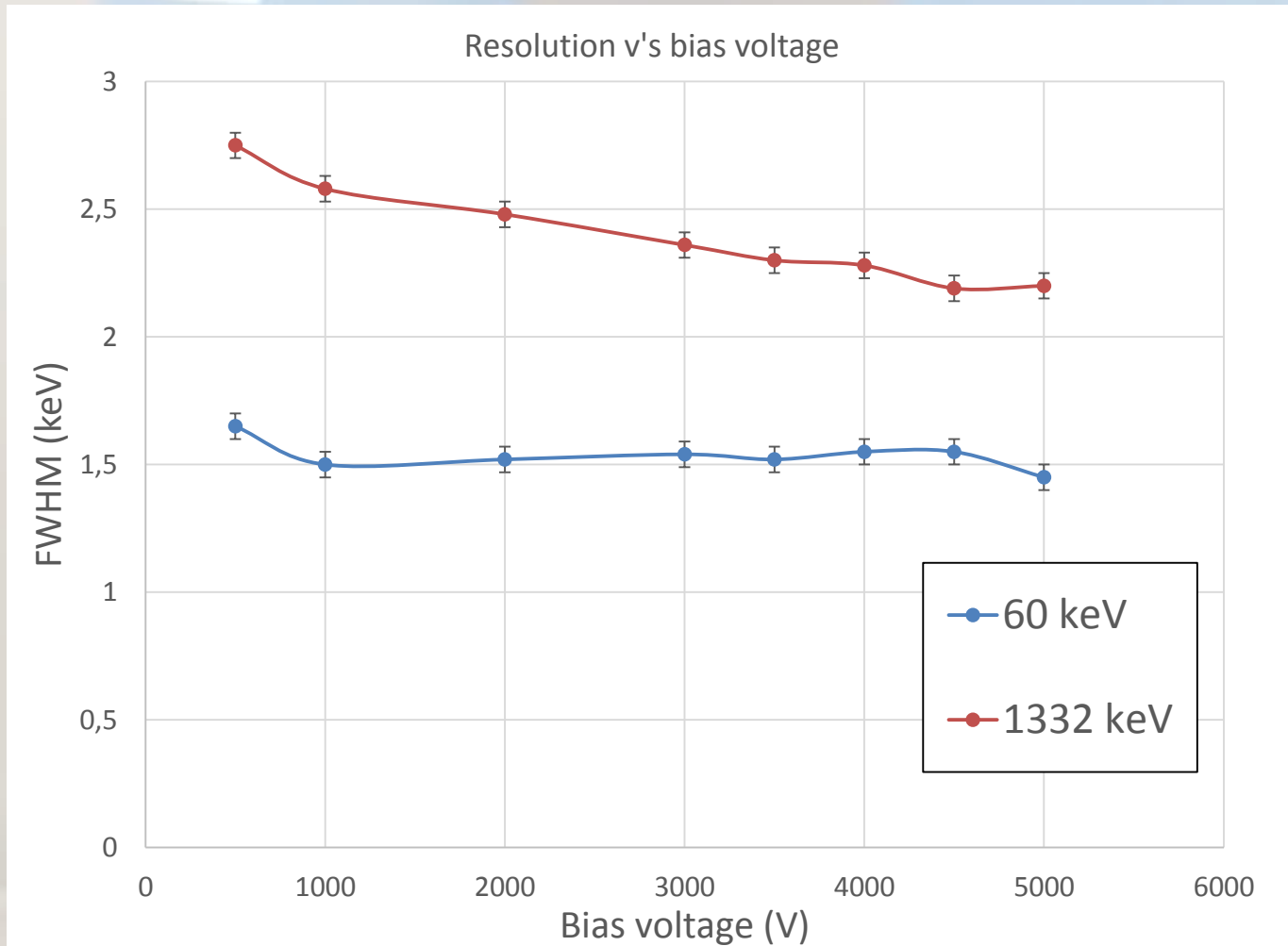
A005

- F5 out of specification due to cryostat electronics
- A4 slightly out of specification (1.45 keV @ best)



A005

- Resolution of A4 as a function of bias voltage
- No change in offset on any segment or core with bias



Segment A4 in more detail

- Measured using a shaping time of 3 and 6 microseconds
- Resolution is much worse using 3 microseconds

Shaping time	FWHM @ 60 keV	FWTM @ 60 keV	FWHM @ 1332 keV	FWTM @ 1332 keV
3us	1.77	2.62	2.54	3.96
6us	1.45	2.30	2.12	3.57

- Unlikely that leakage current causes poor resolution

A005 Summary

- Core within specification at high and low energies
- All segments within specification at high energies
- 2 segments out of spec at low energies (A4 + F5)
- 1 of these (F5) is a cryostat electronics issue
- Average segment resolution is out of spec at low energy (1.24 keV) even excluding A4+F5
- All segments are about 0.2 keV worse at Liverpool than Canberra measured at 60 keV
- No evidence of leakage currents in baseline or reducing shaping time

B006

- Arrived safely in Liverpool 6th Sept 2018



- Awaiting assembly - starting this week

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