RoentDek

Handels GmbH

UHV-Detectors
Supersonic Gas Jets
Multifragment Imaging Systems

Application Note:
DLD150_draft   9.05.2012
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# The **RoentDek** DL150 delay-line anode with 150 mm x150 mm active area

For use with Photonis-USA 150mm circular MCP or similar devices

RoentDek has recently ammended its DLD product family by a larger delay-line anode device called **DL150** with 150 mm x 150 mm active detection area. It aims to provide an especially large field-of-view with the Photonis-USA 150mm circular MCP format or other MCP stacks, e.g. arrays of smaller MCP devices.

As preliminary tests have shown the **DL150** delay-line anode's imaging performance equals that of the *DLD120* and *DLD80* devices which dominate the market for large area position-sensitive MCP devices for over 10 years now.

The **DL150** anode fits into a circle of 244 mm diameter and can be mounted on the **RoentDek** *FT12TP250* assembly. First tests were done with a 75 mm MCP from Hamamatsu placed at an off-center position with respect to the anode. The anode shows a good linearity almost up to the outer edge. Since a „2/3"-wire spacing is used (as in the *HEX120*) the pitch delay is comparable to the *DLD80* anode, so that signal damping does not affect the performance. Spatial resolution was not yet tested to the limit but can be expected being similar to the *DLD80* resolution. However, the number of effective pixels per dimension is doubled due to the larger active area.
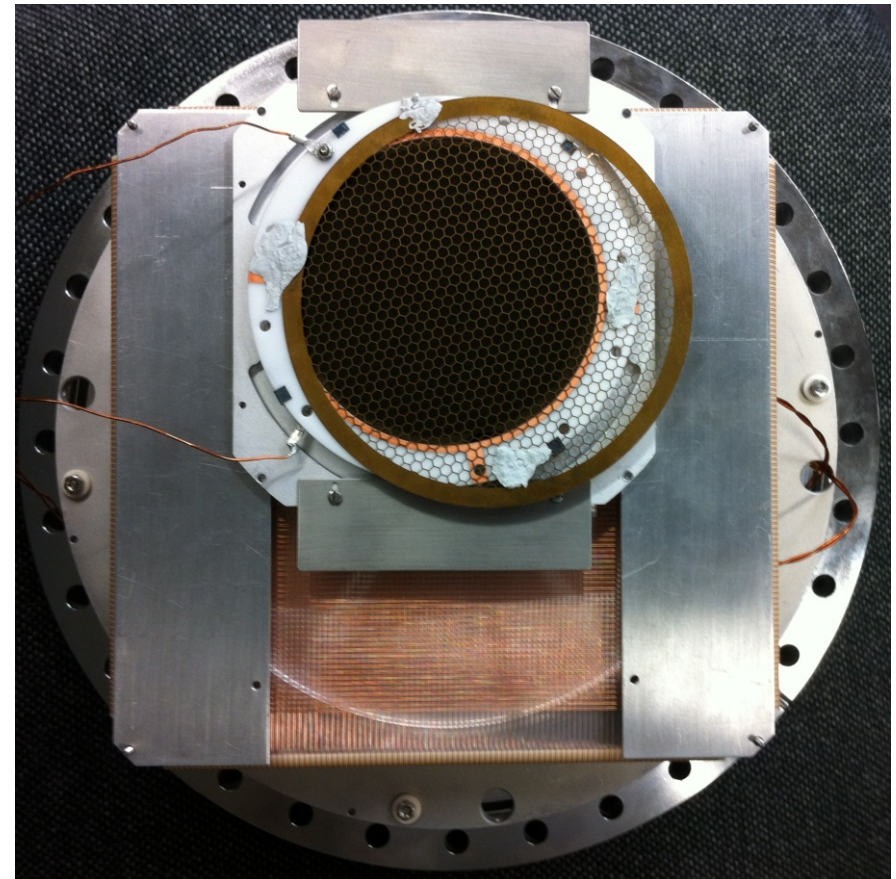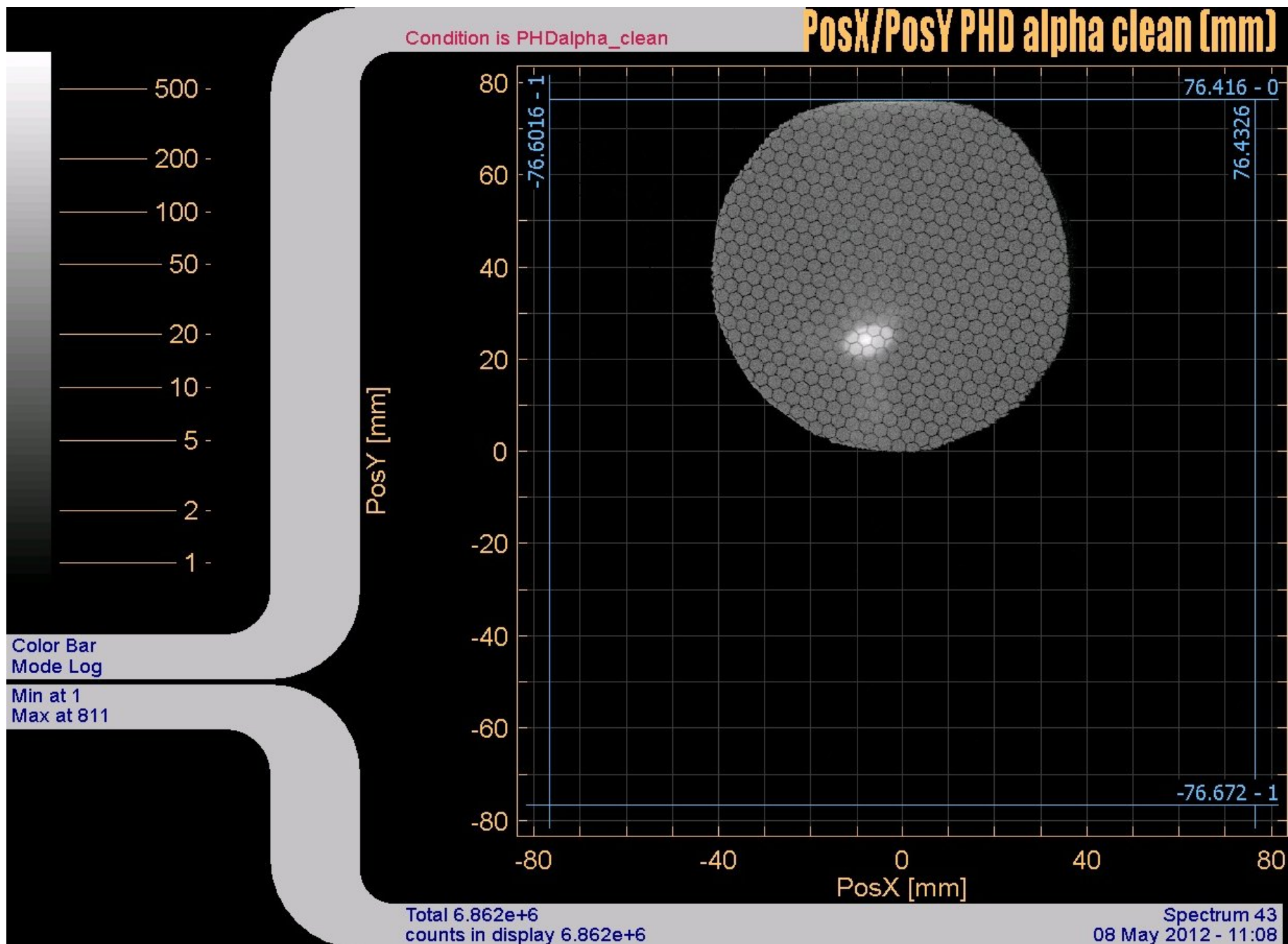
DL150 detector image for irradiation with charged particles of a 75mm MCP through a mesh with hexagonal elements (3 mm pitch, 0.2 mm obstacle). The blue boundary shows the active anode area. The bright spot is an artifact of the used particle source.
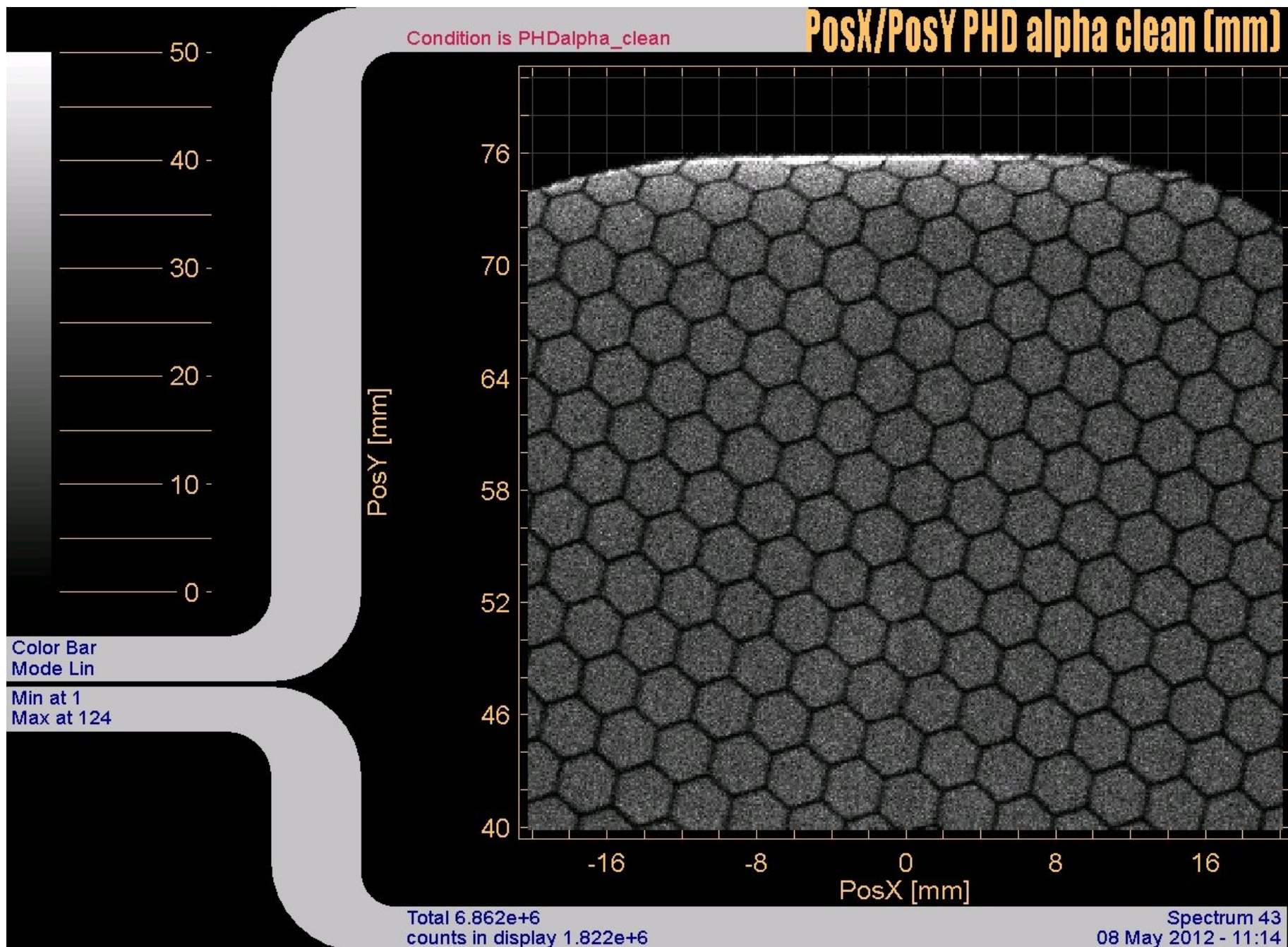
Enlargement of the DL150 detector image (field-of-view 40 mm x 40 mm, linear gray scale). The positioning of the MCP (from anode center to edge) was selected to allow suggesting onto the general imaging properties over the complete anode area.
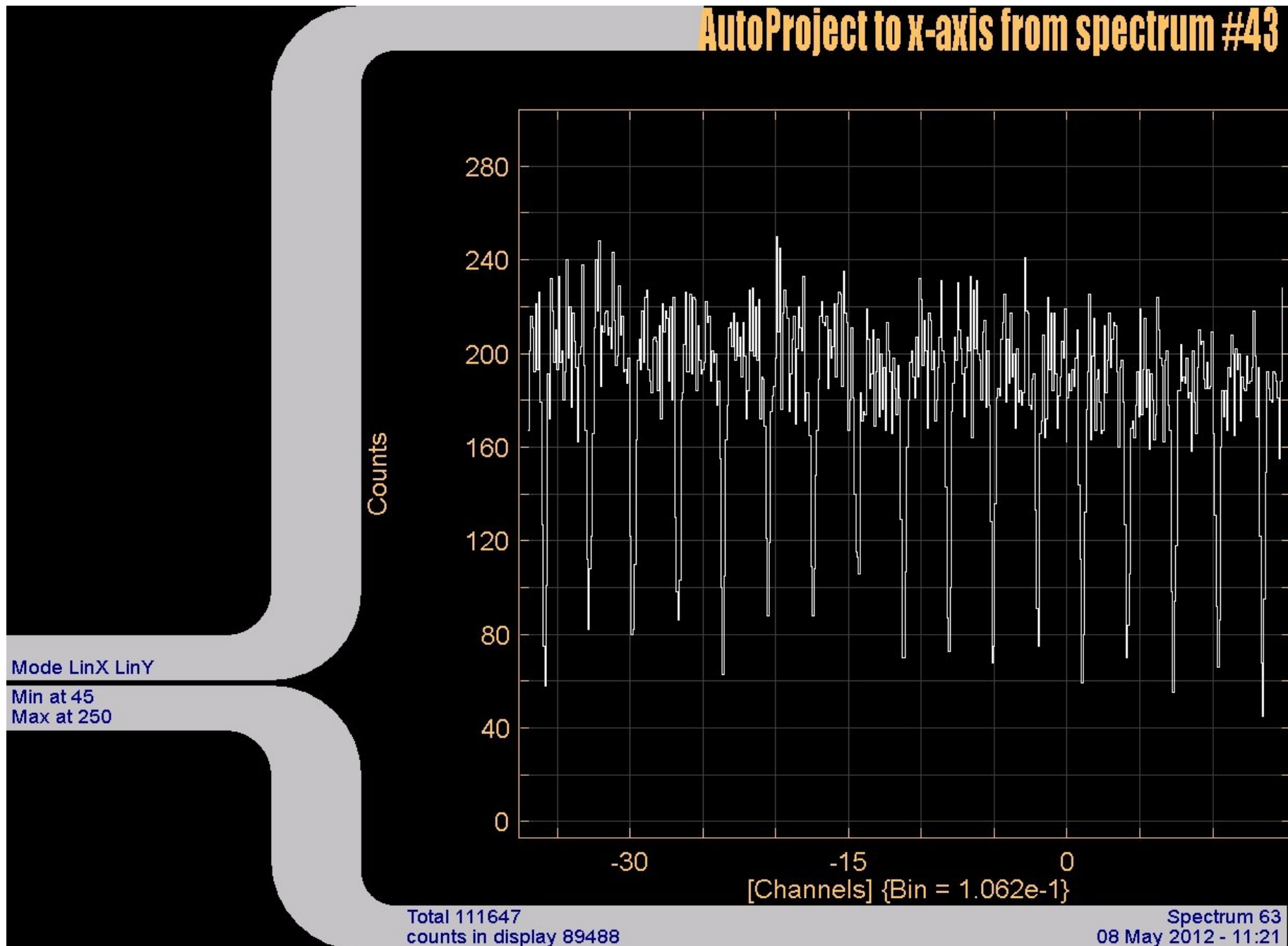
Line scan through the 0.2 mm obstacles of the mask's hexgonal structures. The bin size was chosen as 0.1 mm here, corresponding to 0.1 mm rms resolution (1500x1500 valid pixels) as can also be estimated from the data. We expect a resolution limit of < 50 μm.