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## NEWS: Five Million Reasons Why Holograms are Secure

17-10-2017

**OPTAGLIO**, a research centre situated in Lochovice in the Czech Republic has announced it has exceeded **5 million dpi (dots per inch) resolution on holograms**, according to an article in Packaging Europe. The advance enhances visual based protections against counterfeiters, as this level of resolution is beyond the reach of potential attackers, according to the developers.

"This success is backed by long research. It is relatively easy to create a narrow stream of electrons, but it is necessary to deal also with particular technical and physical challenges such as proximity effect," said **Dr Tomas Karenský, senior research manager in OPTAGLIO**. "This technology upgrade enables us to create entirely new visual effects."

The Laboratory is a leader in the development of high-resolution security holograms. It had already achieved a resolution of 2.5 million dpi, which is sufficient to place a **detailed map of the Moon on space of one square centimetre**.

With the new level of resolution, OPTAGLIO has developed a portfolio of unique visual effects. "As far as we are aware, nobody has ever imitated 2.5m dpi security holograms. However, we understood the need for continuing to increase the technological advantage," added Dr Karensky.

Optaglio holograms are created with **e-beam lithography**. This technology works with electron beam instead of a laser. The electron beam can be narrowed and broaden to create special effects while keeping reasonable effectiveness, it says.

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