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Organic and Printed Electronics to Counter Product Piracy

Organic and printed electronics offers novel solutions for the brand protection of consumer goods and industrial products. Electrically coded radio tags link back to the legitimate manufacturer to detect falsification at the point of sale.

Brand Protection – No Chance to Plagiators

The elegant sweater strutting a renowned label, the watch of exclusive design, the expensive facial crème – they look genuine. But are they really what they appear to be? Not a cheap imitation, counterfeit, pirated copy? How about this: checking, right at the point of sale, for authenticity.

Exactly this will be doable soon if one ventures a look into the R&D labs of organic and printed electronics. Or visits an exhibition such as LOPE-C, May 31 to June 2, 2010, in Frankfurt, Germany. Authenticity check live via tiny radio chips embedded in the product or printed onto the package. Just scan it with your cell phone, automatically connecting back to the manufacturer. If a green light is returned, the product is authentic. If red, the deal should be off.

A new solution to an age-old problem. At least $250bn in damage, estimates the OECD, was caused in 2009 by counterfeiting material goods. And it's not just consumer goods in global delivery chains that are targeted by pirates. Buyers of industrial components and spare parts too must fight falsifications of dubious quality and reliability.

The Solution: Organic and Printed RFID Tags

Radio chips, or "RFID tags" (Radio Frequency Identification) printed on thin and flexible foils, are the innovative solution to protect branded products and their packaging containers. That's no breeze: producers and forgers are engaged in a fierce, ever accelerating race to come out as a winner.

Messe Frankfurt Ausstellungen GmbH
Barbara Kaelberer
Taunusstr. 7 a
65183 Wiesbaden, Germany
Phone: +49 611 9 51 66-18
barbara.kaelberer@mfa.messefrankfurt.com
www.lope-c.com
www.mfa.de

Organic Electronics Association (OE-A)
A working group within VDMA
Dr. Klaus Hecker
Lyoner Str. 18
60528 Frankfurt am Main, Germany
Phone: +49 69 66 03-13 36
klaus.hecker@vdma.org
www.lope-c.com
www.oe-a.org

Sophisticated high-tech systems are the answer to secure a decisive lead for the legitimate delivery channels. "Dynamic technologies are needed, to be ahead of forgeries by several steps", says Wolfgang Mildner, Managing Director of PolyIC, leading developer of polymer electronics, and chairman of the OE-A. "Standard solutions will rapidly loose their effect."

In the fight against fakes modern printing technology is shaping up as a new force through "functional printing" of tiny micro-electronic systems on organic substrates – thin and flexible plastic foils.

Authenticity Check by Cell Phone

Product identification by standardized optical barcodes read out via laser scanner was established long time ago and is found in every supermarket today. But the new, electrically coded radio tags offer a definite plus: their embedded, covered structure. They are detected and evaluated by compact readout devices - even by cell phones equipped with RF capability.

Smart Packaging

The era of product identification through "smart packaging" is upon us. Embedded radio tags enable packages not just to reveal pricing and use-by date. A radio-tag can trace a product or package back to its manufacturer in real time. "Linking a product with its legitimate manufacturing logistics and delivery chain at the point of sale," says Wolfgang Mildner, "is the topic of RFID technology."

Compared to older ID methods, according to Mildner, authenticity check via printed RFID tags is safer and done automatically: "Electrical coding permits a large variety of proprietary security features. Substituting for optical barcodes will be the killer app of RFID."

Web-Browser Printed on the Package

Packaging is a hotbed of innovation. Take the VTT Technical Research Center of Finland: Their concept of "interactive packaging" involves consumers through Web browser-like functions. "Our know-how enables us to integrate RFID readout devices in cell phones today," says Jani-Mikael Kuusisto, Business Development Manager at VTT. "The initial objective is increased interaction between cell phone and functional surfaces on the package." Embedded radio chips will offer multiple functions selectable via touch control, with links to call up useful consumer information..

Has the package been opened before?

"A bundle of new technologies for printed electronics, including large-are organic light emitting diodes (OLEDs), are being readied in the labs for commercial application," says Kuusisto, "among them automatic proof of opening of a package or container." Unopened, an OLED surface in the package will light up when scanned. Once opened, a warning signal will appear. "A large problem with falsified products," Kuusisto says, "is fraudulent re-use of opened packages."

LOPE-C 2010 in Frankfurt, Germany: The Latest in Brand Protection

The latest process technologies and applications of organic and printed electronics will be on view at LOPE-C 2010 (Large-area, Organic and Printed Electronics Convention), May 31 to June 2, 2010, at the Congress Center of Messe Frankfurt, Germany. The annual conference and exhibition of the OE-A unites researchers, developers, manufacturers, investors as well as users in one place.

About LOPE-C

LOPE-C (Large Area, Organic & Printed Electronics Convention) is the leading, fully industry-sponsored annual conference and exhibition of organic and printed electronics. LOPE-C presents the economic trends and the scope of scientific achievements in the field. The convention focuses on the production and application of organic and printed electronics. LOPE-C 2010 is held May 31 to June 2, 2010, at the Congress Center of Messe Frankfurt, Germany. It is jointly organized by the Organic Electronics Association (OE-A) and Messe Frankfurt Ausstellungen GmbH. www.lope-c.com

About OE-A

Formed in 2004 as a Working Group within VDMA (German Engineering Federation), the OE-A (Organic Electronics Association) is the foremost professional body representing the worldwide organic and printed electronics industry. With more than 120 members throughout Europe, North America, Asia and Australia, OE-A represents the entire industrial value chain. The OE-A Roadmap, fixing time lines for applications and technologies, is now out in its third edition (2009). www.oe-a.org

About Messe Frankfurt Ausstellungen GmbH

Messe Frankfurt Ausstellungen GmbH is a fully owned subsidiary of Messe Frankfurt GmbH. At an annual turnover of €440m (2008), Messe Frankfurt is the world's largest fair company operating their own fair grounds. The globally active holding operates a worldwide network of 28 daughter companies, five branch offices and 52 international distribution partners and representatives. With this broad-based structure, Messe Frankfurt is present in more than 150 countries, with important industry events in more than 30 locations. In 2008 Messe Frankfurt organized a total of 102 fairs, 60 of which took place in foreign countries.

LOPE-C Press Contact

For enquiries regarding LOPE-C 2010 conference topics and events, speaker interviews, etc. please contact:

Werner Schulz
Tel.: +49 (0) 30 81 05 89 59
press@lope-c.com

(Approx. 6,900 characters)

Picture for Press Release:

A High-res version of the picture is available for download from the LOPE-C website: www.lope-c.com.

Authentication through invisibly printed codes and functionalities, detected by handheld RFID reader interacting with PC or smart phone. (Source: VTT/Nicanti Oy)