



## Press release

23. November 2011

### **European research project OLED100.eu on new lighting technology successfully finalized**

- The energy efficiency and lifetime of organic LEDs for large-area lighting applications has been increased **by *Noval technology and materials***
- A large-area OLED luminaire that has been developed in the project will be presented

**Dresden** – Upon its official termination today, the European research project OLED100.eu celebrates the achievement of important advancements in bringing organic light-emitting diodes (OLEDs) closer to market introduction in general lighting. Fifteen companies and research institutes from six European countries have been working on this goal since September 2008. During this period, not only technical issues have been investigated and solved, also the acceptance levels and preferences of end-users with respect to this novel lighting technology have been studied. Moreover, the research consortium has developed a large-area OLED luminaire that consists of nine 33x33 cm<sup>2</sup> OLED tiles.

With OLED100.eu the consortium has focused on the five goals:

- Increase of the luminous efficacy
- Increase of the lifetime
- Up-scaling of the light-emitting area
- Reducing manufacturing cost by optimized processes
- Measurement standardization based on application research

The most relevant results are:

- ***High efficiency OLEDs based on Noval PIN OLED technology and outcoupling materials showing 60 lm/W which are more efficient than energy saving lamps***
- ***Long lifetime OLEDs with Noval knowhow demonstrating*** 100,000 hours comparable to inorganic LED lifetime
- Perception case studies on taste and acceptance of OLEDs as light source
- Industrialisation scenarios and cost calculation of manufacturing processes with an emphasis on cost-efficient technologies like screen printing for substrate structuring
- Work on standardisation of measurement procedures for OLEDs, which now serve as basis for work of the International Commission on Illumination CIE

Today OLED100.eu presents for the first time the large-area OLED luminaire, which consists of nine 33x33 cm<sup>2</sup> OLED tiles with an optimized luminance distribution for application in shop lighting.

„The OLED100.eu research consortium has played a vital part in ensuring that Europe will play a leading role in OLED technology for lighting applications also in the future”, says Dr.

Stefan Grabowski, Senior Scientist at Philips Research Aachen and project manager of OLED100.eu. „The results of OLED100.eu will contribute to further increase the acceptance of OLED technology“, comments Dr. Karsten Diekmann, who is responsible for OLED product and application development at OSRAM. „In the project we gained a better understanding of end-user preferences, a better comparability through standardized measurement procedures, and better OLEDs“

Similar to inorganic LEDs, OLEDs are semiconductor devices, which convert current into light. While inorganic LEDs are point light sources, OLEDs emit light over a large area. OLEDs consist of different organic materials that are deposited on a substrate. The light emitting area has a thickness of only about 400 nanometres, a hundred times thinner than a human hair. In off-state, OLEDs can be either mirror-like, neutral white or transparent.

### **About OLED100.eu**

OLED100.eu an integrated European research project to accelerate the development of organic light-emitting diode (OLED) technology in Europe, was running from 1 September 2008 – 31 August 2011. With an overall budget of 19.95 Mio€ it received 12.5 Mio € funding by the European Community's Seventh Framework Programme to contribute in forming the technological basis for efficient OLED applications for the general lighting industry in Europe.

Partners in the OLED100.eu consortium include:

- Bartenbach LichtLabor GmbH, Austria
- European Photonics Industry Consortium (EPIC), France
- Evonik Degussa GmbH, Germany
- Fraunhofer Institut für Photonische Mikrosysteme (IPMS), Germany
- Microsharp Corporation Limited, U.K.
- Novald AG, Germany
- Océ Technologies B.V., The Netherlands
- OSRAM, Germany
- Philips Technologie GmbH, Business Center OLED Lighting – Lumiblade, Germany
- Philips Technologie GmbH Forschungslaboratorien, Germany
- Physikalisch-Technische Bundesanstalt (PTB), Germany
- Saint-Gobain Recherche S.A., France
- Siemens AG, Germany
- Technische Universität Dresden, Institut für Angewandte Photophysik (IAPP), Germany
- Universiteit Gent, Belgium

Technical data of the presented OLED-tiles:

|                              |   |
|------------------------------|---|
| Size:                        | 33x33 cm <sup>2</sup>                   |
| Light-emitting area:         | 828 cm <sup>2</sup>                     |
| Driving voltage and current: | 45 V / 250 mA                           |
| Luminance:                   | 1000 cd/m <sup>2</sup>                  |
| Efficacy:                    | 27 lm/W                                 |
| Lifetime:                    | 10,000 h (Decrease of luminance to 50%) |

Further information on the research project can be found on the website:  
[www.oled100.eu](http://www.oled100.eu)

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**Abb.1:** OLED100.eu's OLED luminaire consisting of nine  $33 \times 33 \text{ cm}^2$  OLED-tiles, designed for the application scenario shop lighting.



Abb2: The OLED-tiles and their arrangement are optimized for a homogenous illumination of exhibits on display.



Abb. 3: Close-up of the 33x33 cm<sup>2</sup> OLED-tiles.