

AIXTRON reaches key milestone on way to producing large-format OLEDs

Demonstrator achieves excellent values with core OLED production parameters: initial customer tests now scheduled

Herzogenrath/Germany, March 22, 2016 – AIXTRON SE (FSE: AIXA; NASDAQ: AIXG), one of the world's leading manufacturers of deposition systems for the semiconductor industry, has reached an important milestone with its new OVPD demonstrator OLAD (*Organic Large Area Demonstrator*). After an internal test phase lasting several months and producing excellent results in some cases, the system is now available for initial customer tests.

AIXTRON aims to use the OLAD system to demonstrate parameters relevant to its customers in an industry-oriented environment. To this end, the proprietary core elements specially designed by AIXTRON for the OVPD process have been scaled and optimized for Generation 8.5 substrate sizes (2250 mm x 2250 mm) and integrated into a suitably-sized process chamber in cooperation with Manz AG. AIXTRON has in this respect also optimized its own source technology STExS™ (Short Thermal Exposure Source) which enables a precisely measured volume of material, dependent on relevant substrate size and requirements to be transformed into the gas phase in a rapid, material-efficient process.

Compared with conventional vacuum vaporization VTE (vacuum thermal evaporation), this source technology also enables vaporization to be initiated within just a few seconds and then stopped again once a substrate has been processed. In conjunction with the deposition rates of 50 angstrom/second (a/sec) already achieved, this makes it possible to obtain very short cycle times while also ensuring the lowest possible volumes of material consumption.

A further key role is played here by AIXTRON's Showerhead technology that is used within the OVPD process. This has also been suitably scaled for the demonstrator and – unlike vacuum vaporization – facilitates area-based deposition of the organic layers. The material flows thereby required in the OVPD process are supplied using the STExS source technology. Working at an effective deposition rate of 50 a/sec, a STExS source vaporizes around 40 milligrams per second. At the same time, the patented design scheme ensures that sensitive and costly organic materials are treated with great care. The tests already performed confirm highly efficient material utilization rates of well over 70 percent. These represent a considerable improvement compared with VTE technology and are thus consistent with the objective of drastically reducing OLED production costs.

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The customer demonstrations already initiated now enable OLED manufacturers for the first time to determine in detail the cost-cutting potential for producing organic light-emitting diodes based on OVPD technology on a scale relevant to industrial production.

“The demonstration capability now achieved by our OLAD demonstrator is an important interim target on the way towards effective and efficient OLED production. We are delighted that we can now provide our customers in the industry with a technology that satisfies all requirements in this respect. OLAD offers further proof of AIXTRON’s innovative strength and has yet again confirmed our company’s ability to successfully bring complex technologies to market maturity”, comments Martin Goetzeler, CEO of AIXTRON SE.

About AIXTRON

AIXTRON SE is a leading provider of deposition equipment to the semiconductor industry. The Company was founded in 1983 and is headquartered in Herzogenrath (near Aachen), Germany, with subsidiaries and sales offices in Asia, United States and in Europe. AIXTRON’s technology solutions are used by a diverse range of customers worldwide to build advanced components for electronic and opto-electronic applications based on compound, silicon, or organic semiconductor materials. Such components are used in a broad range of innovative applications, technologies and industries. These include LED applications, display technologies, data storage, data transmission, energy management and conversion, communication, signaling and lighting as well as a range of other leading-edge technologies.

OVPD® technology has been exclusively licensed to AIXTRON from Universal Display Corporation (UDC), Ewing, N.J. USA for equipment manufacture. OVPD® technology is based on an invention by Professor Stephen R. Forrest et al. at Princeton University, USA, which was exclusively licensed to UDC. AIXTRON and UDC have jointly developed and qualified OVPD® pre-production equipment.

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