

The Flexible Display Center and Universal Display Corporation Produce Flexible, Full-Color AMOLED Prototype Displays

Full-motion video displays are in development for soldier-portable devices

TEMPE, Ariz. and EWING, NJ - May 16, 2011 - The [Flexible Display Center](#) (FDC) at Arizona State University and [Universal Display Corporation](#) (NASDAQ: PANL) today announced that they have successfully fabricated the first full-color, flexible active matrix organic light emitting diode (AMOLED) display prototypes using the Center's bond/de-bond manufacturing process, in combination with Universal Display's full-color, top-emission phosphorescent OLED technology and materials. The displays also use Universal Display's patented, proprietary single-layer encapsulation technology to seal the OLEDs made on DuPont Teijin Films Teonex® polyester film. Successful fabrication of the displays involved incorporating materials and technologies concurrently developed by several additional members of the FDC's 30-member industrial consortium.

Funded by the US Army, the FDC is developing the full-color, flexible OLED displays for use in thin, lightweight, bendable and unbreakable devices capable of displaying full-color full-motion video. The lower power consumption of Universal Display's phosphorescent OLEDs compared to other full-color video display technologies is an important advantage for ultralight soldier-portable devices, and a range of OLED display products based on this technology are already in the marketplace.

A key enabler of the flexible displays announced today is Universal Display's recently introduced single-layer encapsulation technology that was designed for plastic substrate systems and thin-film devices, including flexible OLED displays. The encapsulation layer provides an effective barrier to protect thin film devices from environmental conditions, such as moisture and oxygen, which is critical for the long-term performance of OLED displays. Using environmentally benign and non-toxic materials in a potentially low-cost process, the barrier film technology has demonstrated its suitability for high-performance, flexible plastic substrate systems in these new AMOLED displays.

“Demonstrating the first flexible color phosphorescent AMOLED display that integrates

Universal Display's encapsulation technology with the FDC's bond/de-bond manufacturing process represents a tremendous step forward in the advancement of flexible OLED displays," said Dr. Mike Hack, General Manager OLED Lighting and Custom Displays, Vice President of Universal Display and a member of the FDC Board of Governors. "In addition to working toward the targets set by the U.S. Department of Defense, flexible OLEDs have the potential to open up a vast array of product opportunities in the commercial and consumer sectors in the foreseeable future."

The displays are in a 3.8-inch diagonal QVGA format (320x240 pixels) and use Universal Display's phosphorescent red, green and blue OLED materials, which have already been proven to significantly reduce power consumption in numerous glass-based AMOLED products. The displays use an active matrix array of thin film transistors fabricated on DuPont Teijin Films Teonex[®] film using substrate handling and processing technologies developed at the FDC. Versions using transistors made with both low-temperature amorphous silicon and higher performance indium-gallium-zinc-oxide have been produced.

"The combined effort with Universal Display and our other industry partners to successfully produce flexible, full-color AMOLED displays validates our bond/de-bond manufacturing technology," said Nick Colaneri, Director of the FDC. "The display industry is actively evaluating a variety of approaches to handling flexible plastic substrates in conventional manufacturing equipment, which is a critical step towards enabling the mass production of flexible displays. The FDC's bond/de-bond process with re-usable carriers adds minimal incremental cost, allows the use of a variety of high-performance plastic substrate materials, and has been proven up to Gen II scale at the FDC's pilot line, making it a leading candidate production technique as flexible electronics continue to evolve."

Demonstrations of the new full-color display will take place at the FDC booth #1409 at SID from May 17 to 19, 2011 at the Los Angeles Convention Center in Los Angeles. Please visit Universal Display at booth #1212 to learn more about its novel thin film encapsulation and other flexible OLED technologies.

Flexible Display Center at Arizona State University

The FDC is a government - industry - academia partnership that's advancing full-color flexible display technology and fostering development of a manufacturing ecosystem to support the rapidly growing market for flexible electronic devices. FDC partners include many of the world's leading providers of advanced display technology, materials and process equipment.

The FDC is unique among the U.S. Army's University centers, having been formed through a 10-year cooperative agreement with Arizona State University in 2004. This adaptable agreement has enabled the FDC to create and implement a proven collaborative partnership model with over 30 active industry members, and to successfully deploy world class wafer-scale R&D and GEN-II display-scale pilot production lines for rapid flexible technology development and manufacturing supply chain commercialization. More information on the FDC can be found at flexdisplay.asu.edu.

Universal Display Corporation

Universal Display Corporation (NASDAQ: PANL) is a leader in developing and delivering state-of-the-art, organic light emitting device (OLED) technologies, materials and services to the display and lighting industries. Founded in 1994, the company currently owns or has exclusive, co-exclusive or sole license rights with respect to more than 1,000 issued and pending patents worldwide. Universal Display licenses its proprietary technologies, including its breakthrough high-efficiency UniversalPHOLED® phosphorescent OLED technology, that can enable the development of low power and eco-friendly displays and white lighting. The company also develops and offers high- quality, state-of-the-art UniversalPHOLED materials that are recognized as key ingredients in the fabrication of OLEDs with peak performance. In addition, Universal Display delivers innovative and customized solutions to its clients and partners through technology transfer, collaborative technology development and on-site training.

Based in Ewing, New Jersey, Universal Display works and partners with a network of world-class organizations, including Princeton University, the University of Southern California, the University of Michigan, and PPG Industries, Inc. The company has also established relationships with companies such as AU Optronics Corporation, Chimei Innolux Corporation, DuPont Displays, Inc., Konica Minolta Technology Center, Inc., LG Display Co., Ltd., Moser Baer Technologies Inc., Samsung Mobile Display Co, Ltd., Seiko Epson Corporation, Sony Corporation, Showa Denko K.K., and Tohoku Pioneer Corporation. To learn more about Universal Display, please visit www.universaldisplay.com.

Media Contact:

Amy Smith
Impress Public Relations
Tel: +1 401-369-9266
amy@impress-pr.com

FDC Contact:

Nick Colaneri
Flexible Display Center
Tel: +1 480-727-8971
nicholas.colaneri@asu.edu

UDC Media Contact:

Matt McLoughlin
Gregory FCA
Tel: +1 610-228-2123
matt@gregoryfca.com