

DuPont Delivers New TV OLED Technology With Record Lifetime Performance

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DuPont announced that it has achieved record performance in printed organic light emitting diode (OLED) displays, sufficient to enable future adoption of OLED television (TV). Using proprietary DuPont Gen 3 solution OLED materials, DuPont has for the first time demonstrated a solution-based manufacturing process in which OLEDs can be cost effectively printed while delivering the necessary performance and lifetime.

OLEDs are an inherently more sustainable display technology when compared with liquid crystal displays (LCDs). OLEDs have the potential for lower [power consumption](#) and eliminate the need for many of the LCD components, such as backlights and color filters. OLEDs also can offer consumers an improved viewing experience through higher contrast ratios and faster response times.

“OLED displays are in portable devices available in the market today, but the current high-cost of manufacturing with evaporated materials has limited market adoption, and constrained OLED manufacturing for larger size displays,” said David B. Miller, president - DuPont Electronics & Communications. “Now, with DuPont printed OLED materials and process technology, fabrication costs can be significantly reduced, and manufacturing can be scaled to accommodate TV-size displays.”

DuPont previously announced the development of solution-based OLED materials with record-setting lifetime performance. With the new results,

DuPont has now translated its advances in materials science to a scalable manufacturing process where an [OLED](#) television operating eight hours per day would last over 15 years.

To report these results, DuPont made printed test devices which can be operated at elevated luminance for an accelerated lifetime test. Printed devices using the DuPont process have reliably achieved lifetimes to 50 percent of initial luminance of 29,000 hours for red, 110,000 hours for green and 34,000 hours for blue at typical television brightness levels.

Lifetime is T50 adjusted display lifetime (based on accelerated lifetime testing), at 100 percent duty cycle, at the individual sub-pixel luminances required for 200 nits front-of-screen brightness, at 40 percent aperture ratio, 46 percent transmission circular polarizer, white color (0.31, 0.33); the data are reported at 20 degrees C. The printed red device has a demonstrated current efficiency of 15 cd/A with color coordinates of (0.65, 0.35); green devices a current efficiency of 22 cd/A and color coordinates of (0.26, 0.64); and blue devices a current efficiency of 6 cd/A and color coordinates of (0.14, 0.14).

Source: DuPont

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