Flexible 7 inch PEDOT Touch Panel with integrated AM OLED Display

Together with ITRI Taiwan, Heraeus demonstrated the integration of patterned Clevios™ PEDOT conductive polymer touch panel processes with AM OLED technology in a highly flexible device. Touch panel demonstrator passed a test for durability of 5 mm and 3 mm bending radius and 10,000 cycles.

The device was prepared using Clevios™ PEDOT conductive polymer material patterned on FlexUp™ PI (polyimide) substrate from ITRI. Solution processed and printable Clevios™ PEDOT:PSS is used as the transparent electrode in this device.

Device Touch Panel Structure
The Clevios PEDOT:PSS transparent conductor can be seen in the following figure:

![Device Touch Panel Structure](image)

The touch panel is removed from the glass carrier later in the process.
Tested for Flexibility
The flexibility of the PEDOT based touch panel on the FlexUp™ PI film was evaluated using the following parameters:
- Bending radius: 5 mm, cycles 10 K at a rate of 2 sec/cycle time.
- Result: Resistance variation of each Clevios™ PEDOT electrode was below 1%.

Patterning
The Heraeus technology allows invisible patterning of the PEDOT sensor, without requiring optical compensation.

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Function Tests
- The 7 inch fully flexible Clevios™ PEDOT based touch panel successfully demonstrates full multi-touch functionality.
- The technology can be used for shaped or even foldable touch panel applications.