Analysis of curved display technology patents

The 2013 International CES, a global home appliances exhibition, was the arena of competition among next-generation TVs, particularly between Samsung Electronics Co. and LG Electronics Inc. The two South Korean tech giants took the center stage with their own curved organic light-emitting diode (OLED) TVs. In particular, LG Electronics presented its new product, named Curved 3D OLED TV. The company emphasized that the curved OLED TV is a product of the state-of-the-art technology that allows no screen distortion just like when watching an IMAX movie, thanks to the inwardly curved screen.

LG Electronics released the world’s first 55-inch curved OLED TV in April, and two months later Samsung Electronics held a presentation on its strategic TVs for the second half of 2013 where it emphasized the “zero pixel defect (ZPD),” heating up the competition on curved OLED TV between the two companies.

On top of that, Samsung released the Galaxy Round, a smartphone with a curved screen, for the first time in the world. LG Electronics is also planning to release such a kind in November, showing that a curved display is rapidly spreading also in the smartphone market. Smartphone displays have evolved from black-and-white LCD, to color TFT-LCD, active matrix (AM) OLED and to curved display, heralding the competition over the next-generation smartphone display market.

IHS timely published a key patent report on curved displays that contains both curved OLED and curved LCD. This report selected related patents applied in South Korea, Japan, the United States and Europe, and under the Patent Cooperation Treaty (PCT) to analyze patent application trends and patents from major companies. It also extracted key patents from the already selected patents for an in-depth analysis. This report should be of a great help in better understanding general technology development trends in the curved display market and key patented technologies.

Scope and methodology of patent analysis

Patent Application Trends

The application of patents on curved display technology shows an overall increasing trend. Particularly in 2011, the number of application of such patents hit the record. By country, Japan has applied for the greatest number of patents (37%), followed by the United States (36%), Korea (16%), PCT (7%), and Europe (4%).
Key Patent Analysis
Key patents are selected from the patents applied for in the United States and under PCT. After removing overlapped patents among them, 22 patents regarding curved OLED and 32 patents on curved LCD were selected as key patents.

This report is composed of key patent analysis on curved OLED, key patent analysis on curved LCD, and conclusion. It provides an in-depth analysis, containing status of key patents, technology development trends, and key patent abstracts and embodiments.

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