Achieving Advancements in AMOLED

Korea to lead AMOLED panel industry through 2015

The rapid growth of the smartphone market since 2010 has driven the sharp rise of the global AMOLED panel market. A strategy targeting high-end smartphones with larger screens, differentiating itself from TFT-LCD panels, also contributed to the growth of the AMOLED panel market.

Panel makers that have mainly focused on TFT-LCD technology during the past few years are now re-evaluating the potential of AMOLED panels, especially in terms of its usage in smartphones and televisions. They are now speeding up related technology development and investment plans, even though they’re behind Korean competitors.

In particular, the excessive supply of TFT-LCD panels increased price competition over the past years, weakening business. That is why China, Taiwan and Japan have been trying to boost their AMOLED panel industry on a national level.

Korean panel markets are, at present, dominating the AMOLED panel market. But companies are striving to develop even more advanced AMOLED panels to win out over latecomers. Korean companies are conducting research projects in various fields, such as next-generation products that include large-sized, transparent and flexible displays, as well as in developing high-efficient light-emitting layers and next-generation production methods.

In 2013, Korean panel makers will likely continue to invest aggressively in the AMOLED market. Samsung Display has a monthly supply capacity of more than 90k sheets, mostly from its 5.5G AMOLED production lines, as of the first quarter of 2013. It plans to expand facilities even further to include A2 Phase 4 and Phase 5 within the year. Also, LG Display is to expand its 4.5G AMOLED production facilities for the first time in the world, with the aim to start mass production in the first quarter of 2014.

On the other hand, even if latecomers from China, Taiwan and Japan were to all meet their production target dates, they would not be able to threaten their Korean rivals at least until 2015 in terms of actual supply capacity (by area). This is because the latecomers lack the technology and financial capabilities needed to aggressively invest in production facilities.

Another major factor that would slow down the latecomers’ market entry is that they need to avoid infringing on AMOLED manufacturing process patents, which Korean panel makers possess exclusively. This is because the manufacturing process for AMOLED is largely determined by know-how in base materials technology and processing technology, which makes the market entry barrier high compared to the TFT-LCD industry.

The IHS forecasts that the world’s actual supply capacity (by area) for AMOLED panels will be about 1,000 ksqm (5-inch production basis) for 6G or lower facilities in the fourth quarter of 2015, and about 500 ksqm (55-inch production basis) for facilities that are higher than 6G. Also, Korean companies will make up about 80 percent and 95 percent of the markets, respectively.

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NET Capacity Forecast of AMOLED FAB at 6G or Lower
(Based on 5-Inch Panel Production)

NET Capacity Forecast of AMOLED FAB over 6G
(Based on 55-Inch Panel Production)