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LTPS Capacity Status

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■ **LTPS Utilization Status**

In the year of 2015, global LTPS fabs' average utilization was maintained at above 75~80% because of worldwide smartphone market demand. Amid them, Apple's iPhone series demand was the major portion, which made the Japanese and Korean panel makers' LTPS utilization rate stay at higher levels. With the increasing demand from the China market and rising smartphone brands of China, the LTPS technology of China's panel makers are rising as well. Chinese makers have performed quite well in the last one year because they got trained by its domestic market, their yield rates got improved, and they operated with aggressive pricing strategies. Tianma's fabs utilization rates were still maintained at nearly 100% level. Though BOE did not perform as brilliantly as Tianma did, BOE got quite a lot of orders. Thus, its fabs utilization rate was improved. Amid Taiwanese panel makers, AUO have developed its LTPS technology for quite some time, and its fab capacities of Gen. 3.5 and Gen. 4.5 are not enormous. Hence, when the market demand is not bad, its utilization rates were able to stay at nearly 100% levels. Contrarily, for a long time, Innolux only has one Gen. 3.5 fab. Its backplane size was small, and its initial technology capability still needed time to catch up with higher resolution specification. Hence, Innolux's utilization has been sluggish for a long time, at merely about 50% level.

In 1Q16, because Apple slashed its orders, its major suppliers, such as Japanese maker JDI and Sharp, and Korean maker LGD, all suffered to a certain extent, and their orders plunged for over 20%. Therefore, Gen. 6 fabs' average utilization rates plummeted about 20~30%. The only cheering news in these panel makers was that 4" panels demand rose. That was because Apple stocked up for its new models. This move slightly made up the gap formed by the plummeting demand of 4.7" and 5.5" panels. China panel makers' total utilization rate was kept on a relatively stable high level because China's smartphone brands started a wave of new models stocking up demand after the Chinese New Year. For Taiwanese makers, AUO's Gen. 3.5 fabs' cost competitiveness was not good enough, and its products could not compete against Gen. 6's same size products. Thus, AUO decided to stop the production of Gen. 3.5 LTPS fabs. Rather, it will use Gen. 4.5 fabs to be its current major fabs, in order to mostly supply the demand of Chinese customers. Innolux's Gen. 3.5 fabs' utilization was maintained relatively lower, but its Gen. 5 fabs became the major fabs to produce a-Si 5.5" FHD models. On a whole, 1Q16's worldwide LTPS fabs' input by area was about 1,339Km^2, down 15.6% from 4Q15's. Proportion of Input by area from Japanese panel makers dropped from previous quarter's 52.6% to 42.4% this quarter. Chinese makers' proportion of input by area rose from previous quarter's 16.4% to this quarter's 21.0%. These data showed that Chinese makers' influence to total LTPS products has been on the rise. WitsView estimated that in 2Q16, there will be gradually newly added capacities in the mass production phase. Hence, the total LTPS input by area in 2016 will reach 6,809Km^2, up 7.1% from the year of 2015.

■ Forthcoming Capacity

For future newly added capacities, this year there will be 5 new fabs of Gen. 6, including Honhai, CSOT, JDI, AUO and Tianma. The total added capacities will be 120K/month around. Glut ratio will be pressured significantly into skyrocketing. Hence, WitsView projected that, on a whole, LTPS panel prices will continue to drop. Moreover, because of glut issue and AMOLED technology's increasing popularity, some panel makers started to evaluate that LTPS' new fabs supposed to enter mass production phase in 2017 should be converted into AMOLED panel fabs directly. For this phenomena, currently Chinese panel makers have been the most proactive. This move might ease the huge pressure of LTPS' glut issue. Nonetheless, the rise of AMOLED technology will start to influence the demand scale of traditional TFT-LCD. The future changes are worth watching.