

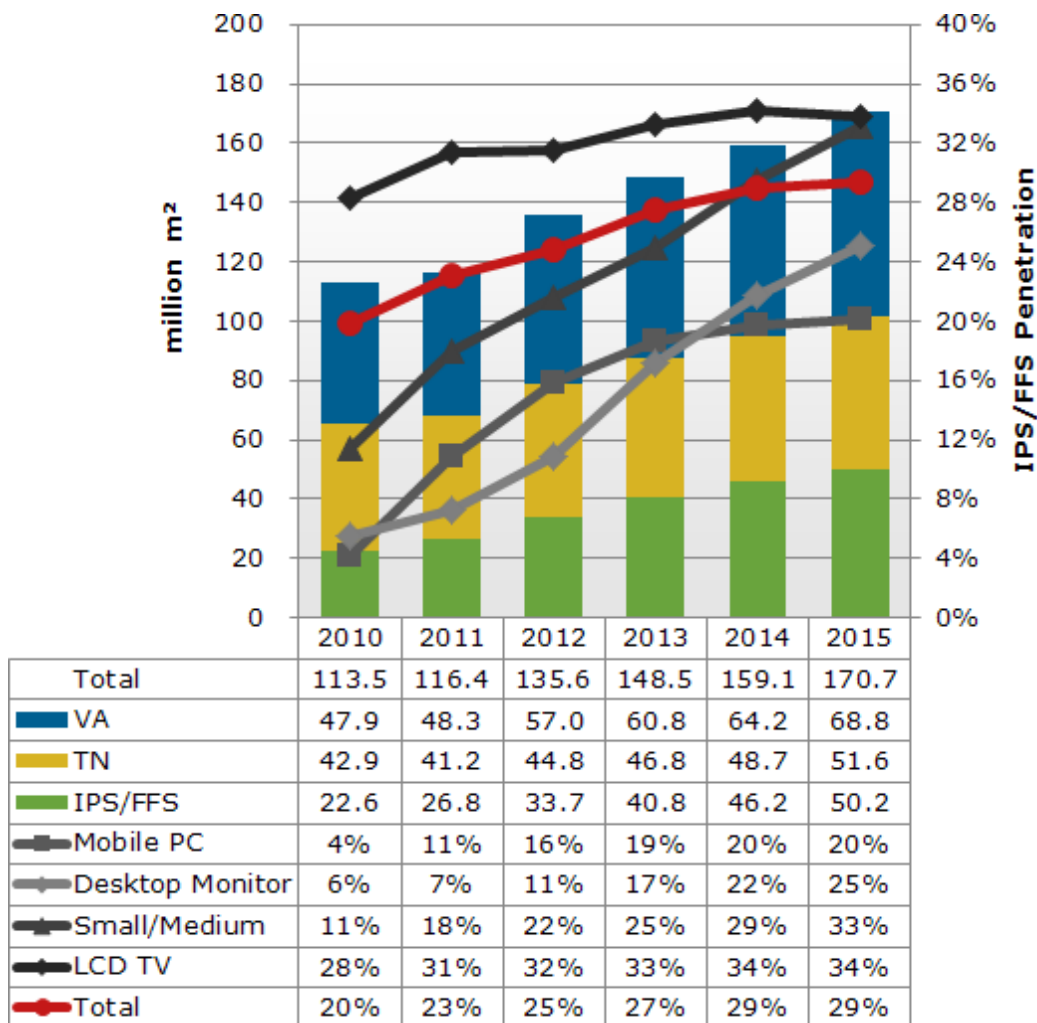
## Wide Viewing Angle LCD Technologies Gain Share Due to Tablet PC Demand

Santa Clara, Calif., January 19, 2012—With the increasing use of tablet PCs and smart phones to view and share video, wide viewing angle performance is becoming a requirement in TFT LCDs. Two of the most common technologies for achieving wide viewing angle performance in TFT LCDs are IPS (in-plane switching) and FFS (fringe-field switching). According to the NPD DisplaySearch [Quarterly Wide Viewing Angle Technology Shipment and Forecast Database](#), the penetration of IPS/FFS LCD panels in the mobile PC market (including notebook, tablet, and mini-note PCs) is increasing and expected to reach 20% penetration in 2014, up from 11% in 2011.

In the LCD TV market, wide viewing angle performance has always been a key feature; penetration of IPS/FFS LCD panels reached 31% in 2011. In the monitor market, IPS/FFS LCD panels have traditionally been used in special applications such as medical equipment; in 2011, the penetration of IPS/FFS in monitors was 7%. However, DisplaySearch forecasts that figure will increase to 25% by 2015, due to plans by LG Display, the leader in IPS panel manufacturing, to make IPS the standard in desktop monitor panels.

In the small/medium panel market, IPS/FFS LCD panels have increasingly been applied to smart phones, digital still cameras, automotive monitors, camcorders, and tablet PCs, as these applications require high picture quality to display pictures and video. Therefore, DisplaySearch expects IPS/FFS penetration to continue increasing in these applications.

Figure 1: TFT LCD Panel Shipments (Area-Basis) by LCD Mode and IPS/FFS Penetration



Source: NPD DisplaySearch [Quarterly Wide Viewing Angle Technology Shipment and Forecast Database](#); [Quarterly Small/Medium Shipment and Forecast Report](#)

LG Display is the leading supplier of wide viewing angle LCDs, shipping over 80% of IPS/FFS panels 9.1" and larger by area, followed by Panasonic LCD. While TV accounts for most IPS/FFS area shipments, LG Display is planning to shift its monitor panels to its AH-IPS technology over the next few years. Following the lead of LG Display, Samsung and several Taiwanese manufacturers also intend to take IPS LCD monitor panels to the market, while BOE will introduce

FFS LCD panels for monitors. In 2011, BOE started shipping 32" FFS panels for TV; IPS/FFS penetration into the TV market will continue to increase.

In small/medium, LG Display has also been the leading producer of IPS/FFS panels, with nearly 25% share of 9.0" and smaller panels shipped on a unit basis. However, Hitachi, Sony, and Toshiba each have significant market share, and when they combine into Japan Display this year, will become the largest supplier of small/medium IPS/FFS panels.

IPS LCD panels were originally produced by LG Display and Panasonic LCD at their Gen 6 and larger fabs, primarily for TV. In response to increasing demand for wide viewing angle tablet PC panels, IPS/FFS panels are now being produced at Gen 6 to Gen 8 fabs, for example, by LG Display and Sharp. Panasonic LCD is expected to sell its Gen 6 fab to Japan Display, potentially shifting IPS/FFS capacity from large-area to small/medium panels.

Increased demand for LCDs with expanded viewing angles brings increased options and applications ranging from LCDs in notebook PCs, monitors, and TVs. The DisplaySearch [\*Quarterly Wide Viewing Angle Technology Shipment and Forecast Database\*](#) tracks current and forecasted wide viewing technology trends, volumes and demand. This report covers all four types of view angle technologies—TN, TN+WVF (Wide View Film), IPS/FFS and VA,—and covers all panel makers, all sizes and all applications.

For more information on this report, please contact Charles Camaroto at 1.888.436.7673 or 1.516.625.2452, or [contact@displaysearch.com](mailto:contact@displaysearch.com) or contact your [regional DisplaySearch office](#) in China, Japan, Korea or Taiwan.

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