Future Trends in Information Displays

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The era of analog TV is coming to an end as countries fade out analog TV in favor of digital TV. As a result, DTV demand and penetration continue to rise, with demand forecasted at 152 million and penetration rate at 71% by 2010(DisplaySearch). This phenomenon will give rise to several trends in the large size display industry that players will have to keep up with if they want to remain competitive. First and foremost on the list is cost innovation. With set prices expected to keep falling at a drastic rate, panel makers must focus on bringing their module prices down. Second, we will see a convergence in picture quality for PDPs and LCDs. Both displays have their own unique merits when it comes to picture quality. LCDs are capable of higher resolution and bright room contrast ratio, where PDPs boast more vivid colors and superior motion picture quality. However, as PDP makers focus its R&D resources on high efficacy and LCD makers on new BLU technologies such as FFL and LED, the performance of these two technologies will converge and numerical performance will no longer have any practical meaning for ordinary consumers. Third, FHD TVs will lead the premium TV market as new FHD devices and content become available. Market research firms are predicting that over 50% of large size TVs sold by 2009 will support 1080p. Lastly, although LCDs will lead the flat panel display market in overall quantity with their full line-up and flexible Fabs, and PDPs will lead in the 50” and above market, projection displays will continue to keep their presence in the large display market by focusing on AV projectors for home theater applications and data projectors for educational and commercial applications. Traditionally thought to be inferior in performance to PDPs and LCDs, they will continue to improve their brightness and contrast ratio using new technologies such as laser light source and LCoS panels.

In mobile displays, a-Si TFT-LCDs are and will remain the dominant display, commanding over 40% market share in 2007 and over 50% by 2010. However, the expanding bandwidth for wireless broadband is giving rise to a wide variety of new applications for mobile devices, leading to new requirements for mobile displays; they must sport high quality pictures, must be able to support unique design, and must be ubiquitous. AMOLED has made a successful entry into the market as the performance requirements for mobile displays get higher, and will continue to grow its market share. However, due to a steep decline in prices for TFT-LCDs, mobile device makers must pay a 40 ~ 50% premium for the higher performance of AMOLEDs. Makers must focus on bringing their prices down (along with solving many technical issues) if they want to compete and survive. As more consumers become design conscious, mobile device makers are looking for slimmer display modules to give them more freedom in design. AMOLEDs have a lead in bringing the thickness of their modules down, but TFT-LCDs are close behind. New displays such as E-paper, flexible displays, and mobile laser projectors have tremendous potential to make information displays more ubiquitous. However they all need a technological breakthrough and a killer application to make a successful debut into the market.