



Display Monitor

Display Monitor

Special Report - SID 2008

proves optical performance by reducing the number of surfaces.

OLED is a technology that Toshiba has committed to bringing into TV in the future and at the SID there was a very good looking 3.18" 427 x 240 format panel built using a top emission structure and with brightness of 400cd/m².

One of the advantages claimed for OLEDs is the thinness of the display. However, we were impressed with a 2.4" 240 x 320 module for mobile phone applications that is only 0.99mm thick, including the backlight. That's thin!

A number of vendors are now using the 0.2mm and 0.3mm glass that is in some of Toshiba's small notebook panels. The low weight of the PCs on display using this glass is hard to believe.

Can UniPixel Change the Display World?

UniPixel had a meeting room at the show to talk about and demonstrate its Time Multiplexed Optical Shutter (TMOS) technology, which the company believes could radically change the way that the flat panel industry makes displays.

The company has developed a new technology. In the firm's TMOS displays, light from red, green and blue LEDs is injected into a glass substrate of the same thickness as current LCD glass. The light bounces around inside the substrate exploiting the phenomenon of total internal reflection (TIR). The company has developed a special film material which is held away from the surface of the glass, although very close. There are about 60 separate microscopic regions for each TV-scale pixel. When a field is applied across the gap between the film and the glass, the film comes into contact with the glass. The TIR is frustrated by the contact of the film, and the light emerges from the glass. A full range of colours is produced by exposing the LED colour on a sequential basis.

Because the colours can be controlled very accurately, a schema of colour sequencing can be used that avoids the kind of effects that TI found some people were sensitive to when a colour wheel was used on its DLP system.

The system means that the number of transistors can be reduced by three and there is

no colour filter. Response time is claimed to be 1 microsecond. Drive voltage for the technology is said to be 10V or thereabouts.

The big news from Unipixel is that its calculation is that the bill of materials (BOM) cost of the technology could be reduced by 40% to 60%, while as much as 61% of the light produced will make its way out of the TV.

The company has 106 patents already granted. It already has 'two major partners' signed, and expects the technology to get to mass production in two years or so. The firm will make its money from licensing and from sales of the film which it is branding as Opucuity. The film also has good performance in anti-glare, scratch resistance and fingerprint proofing, so the firm plans to sell it for adding to the many touch-based screens that are appearing in the market to bring in income while the main application is being developed.

<http://www.unipixel.com>

At the best SID symposiums of recent years, there has always been at least one company of which we have said, "If they can do what they say they can...". UniPixel is this year's nominee for this statement! If the firm can do what it says it can, the cost of LCD will fall very

dramatically in a couple of years and LCD makers will have another technology which they can exploit with their transistor array fabs. The company has two industry veterans on its board - Ross Young, until recently with DisplaySearch and Bruce Berkoff, still on the board of LG Display. (On the other hand we remember using the 'If they can' phrase with Alien Technologies a number of years ago and this firm pointed out that one of the experts asked to perform due diligence on the company for some VCs had decided to put some of his own money in. However, Alien's technology never made it into displays, although it is still working on RFID, as far as we know - senior ed.) The implications for OLED and PDP could be profound if the efficiencies and cost reductions are anywhere near accurate.

ZBD Combines Novel RF with Displays

ZBD has been developing its TN-based bistable reflective technology for a while. The company has also developed some wireless technology for updating electronic shelf labels. Now the company is starting major roll-outs in its home territory of the UK with labels going to Tesco for pilots and it is also working with Sainsbury's (both are major su-



ZBD is now rolling out its labels in volume