

Sony develops 'Hybrid FPA', a novel liquid crystal alignment technique for LCD

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Sony has developed "Hybrid FPA (field-induced photo-reactive alignment)", a new liquid crystal alignment technique which enables a significantly faster response time for liquid crystal displays.

Fast responses of less than 3ms have been achieved in test cells through this technology. Aside from contributing to 'picture quality enhancement in 3D and high frame rate video', this technology will improve 'product stability' during the display panel manufacturing process as well as after long-term use. Additionally, this technology will achieve production efficiencies by reducing the manufacturing process and time.

Sony previously developed the "FPA" high-speed liquid crystal response



alignment technique based on vertical alignment (VA) liquid crystal modes. One method for improving liquid crystal <u>response time</u> is to generate pre-tilt of the liquid crystal molecules.

"FPA" technique uses the alignment layer developed by Sony and maintains pre-tilt of liquid crystal molecules by irradiating UV while applying voltage in <u>manufacturing process</u>. This facilitates the stable and even alignment of the liquid crystal molecules, thus achieving improvements in both liquid crystal response time and the contrast ratio. In addition, this has made it possible to eradicate the Mura (uniformity problem) in the display as well as to eliminate the 'sticking image' that can occur after long-term use.

The new "Hybrid FPA" technology is the result of further development of the aforementioned "FPA" technology with its superior features. "Hybrid FPA" technology has achieved an even faster liquid crystal response time by maintained the pre-tilt on just one side of the substrate alignment layer (see illustration). Furthermore, this new technology has succeeded in facilitating drastic improvements in liquid crystal response time, especially faster movement of liquid crystal molecule when decreasing the voltage which was previously difficult to achieve, as well as higher contrast.

More information: This technology will be presented on December 2 at IDW '10 (International Display Workshops), a display technology conference to be held in Fukuoka City, Japan from December 1 to 3. (<u>www.idw.ne.jp/home.html</u>)

Source: Sony

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