Perfect kaleidoscope of colours: Sharp develops innovative five-colour display

Red, green and blue – all the colour information on current LCD displays has been based on these three primary colours in the past. Now Sharp has developed a new type of panel in which the classic RGB colour scheme has been expanded to include cyan (C) and yellow (Y) which can also be perceived by the human eye. This prototype based on five primary colours can reproduce 99 per cent of all surface colours, granting the viewer a completely new visual experience. Thanks to more efficient use of the backlight, Sharp's five-colour display enables further energy savings.

Hamburg, October 2009. The emerald green of the sea, the gleaming gold of brass instruments, the scarlet of roses – the human eye has the ability to perceive and discern between even the tiniest variations in shades. Our environment therefore appears to us as a complex, unique interplay of a very wide range of colours. Electronics company Sharp has now developed a technology which can display this broad colour spectrum almost in its entirety via an LCD display. The pixel structure of the new panel type is now based on five colours instead of three as in the past, with cyan1 (C) and yellow (Y) added to the three primary colours of red (R), green (G) and blue (B). The combination therefore includes other colours perceptible to humans and expands the colour gamut of the colour space that can be displayed.

"Our new display type can reproduce 99 per cent of the actual surface colours. By way of comparison: only around 35 to 60 per cent can be displayed using the standard RGB scheme. Cyan, in particular, a colour that occurs in nature as the colour of the sky, water and ice as a result of certain refractions of light, could only previously be displayed with difficulty using the conventional RGB colour scheme of LCD displays. The detailed demarcation between different shades of yellow, such as lemon yellow or the yellow of a sunflower, is imprecise with the colour space of conventional LCD panels," explains Martin Beckmann, PR Manager Consumer Electronics at Sharp Electronics Europe. "Our new five-colour LCD prototype, on the other hand, opens up entirely new possibilities to the human eye with its incredible colour depth and ensures incomparable quality in the LCD display. A 'riot of colour' has therefore taken on a new meaning," Beckmann continues.

The newly developed Sharp display uses "Multi-Primary-Colour Technology" since the RGBCY colour scheme requires special image-processing circuitry. The new colour variety is also good for the environment: thanks to the five-colour technology the backlight can be used even more efficiently, enabling additional energy savings.

[1] Cyan generally designates a colour at the transition from blue to green (in contrast to, for example, orange which is at the transition from red to yellow).

Jeannine Kritsch will answer any queries on behalf of Sharp Electronics (Europe) GmbH
Tel.: +49 (0)40/679446-997, fax: +49 (0)40/679446-11, e-mail: j.kritsch@faktor3.de
FAKTOR 3 AG, Kattunbleiche 35, D-22041 Hamburg

Sharp is currently engaged in further optimising the performance of the new type of display and driving the technology towards market readiness. The company demonstrated the first prototype back in the summer of 2009 at the SID conference[2] in the US. For the future Sharp is planning to incorporate the new display type in both professional monitors and LCD TVs for home use.

Reprint free of charge, please forward a copy.

Further information available at www.sharp.eu

For films and interviews please visit www.youtube.com/user/SharpEurope

With its global environment strategy, Sharp has made environmental protection an integral part of its corporate culture. What we call the Sharp Super Green Strategy covers the production of energy-saving and energy-generating products in ecologically advanced plants, along with responsible recycling. One of the company's main aims on the road to becoming an "environmentally advanced company" is to significantly reduce both direct and indirect CO_2 emissions in our operations and products. Throughout the world, Sharp has defined environmental standards that apply to all our plants and products, and these are being continuously revised and dynamically improved.

You can find more information about Sharp's environmental activities on the Sharp Green Site at www.sharp.de/green_site.

[2] International Display Symposium in San Antonio, Texas, USA (31 May to 5 June 2009)

Jeannine Kritsch will answer any queries on behalf of Sharp Electronics (Europe) GmbH
Tel.: +49 (0)40/679446-997, fax: +49 (0)40/679446-11, e-mail: j.kritsch@faktor3.de
FAKTOR 3 AG, Kattunbleiche 35, D-22041 Hamburg