

Advanced Color ePaper indicates bright turn for low-power displays

26 May 2016, by Nancy Owano



The display market just got a bright presentation option. Said the headline in *Mashable*: "The future of ultra-low-powered displays is finally in living color."

They are talking about the Advanced Color ePaper which has been announced by E Ink, which the company tags as "Advanced" and as a "Breakthrough Technology" for color [electrophoretic display](#) (EPD) [applications](#).

There are numerous terms and acronyms accompanying the technology but they can be explained—and are worth reading about as they relate to the future of displays all around us.

First, electrophoretic: E Ink is the creator of

electrophoretic, or, electronic [ink](#)—the optical [component](#) of a film used in Electronic Paper Displays (EPD).

Electronic ink is like paper, and is actually a straightforward fusion of chemistry, physics and [electronics](#).

The new entry offers a full color reflective display. Why is it a breakthrough? This is the first time ever, according to the company, where an EPD can produce full color at every pixel without the use of a color filter array (CFA).

What is meant by reflective displays: In an LCD, or "emissive display" light from a backlight is [projected](#) through the display towards your eyes...as with any reflective surface, the more ambient light, the brighter the display looks.

The important feature about this reflective approach is that eliminating the need for a backlight significantly increases the battery life versus using a traditional LCD. In an E Ink display, no backlight is used; rather, [ambient light](#) from the environment is reflected from the surface of the display back to your eyes.

The other significant aspect of this new product is colors, colors, colors.

Advanced Color ePaper achieves a full color gamut, including all eight primary colors, using only colored pigments, said the release. Brad Linder in *Liliputing* said, "The improvement allows for up to 32,000 different colors, which 8 times more than E Ink was able to achieve with its previous E Ink [displays](#)."

Lance Ulanoff, chief correspondent at *Mashable*, said they "finally figured out how to create up to 32,000 colors in what is almost the exact same technology." Ulanoff detailed what is actually going on under the hood:

He quoted Giovanni Mancini from E Ink Holding. "We have encapsulated four different things in one micro-cup."

Those four things are four pigments: yellow, cyan, magenta and white.

"In traditional monochromatic E Ink, there were just two colors: black and white. Both microcups work in similar ways, E Ink changes the polarity to move the pigments around. For monochrome, the white and black pigments basically switch places (you see white or black on the reflective screen). However, for the new full-color electrophoretic display, E Ink had to figure out a more sophisticated way to manage the pigments in each tiny [cup](#)."

The company has a market end use in mind for improved color ePaper, focusing on displays and signage. Specifically, the company is targeting attraction toward low-power color displays.

E Ink makes the digital paper used in most eReaders like the Amazon Kindle and B&N Nook Glowlight, said *Liliputing*, but the company has also been branching out into areas like digital signage and even digital luggage tags in recent years.

The company is targeting commercial signage, which wouldn't need to change that often and is also designed to grab attention, an area where color E Ink may excel. According to *Mashable*, Mancini said color E Ink will feature highly saturated colors. "Something close to what you would see on printed poster, paper type of product."

The company defined the eReader market with its ePaper technology, enabling a new multi-billion market in less than 10 years, according to the company release.

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