

STRETCHING THE POINT

LG's flexible display boasts are exaggerated, but could still be momentous

LG has announced that it will bring a new flexible e-paper screen to the market later in 2012. While the company's claims that this is a world first smack of PR puff – and something UK company Plastic Logic would certainly dispute – the fact that it gearing up to ship in high quantities is something to take note of.

The announcement reveals that LG feels ready to mass-produce an e-paper display based on flexible backplane technology. The 6-inch XGA plastic display is extremely durable, and the removal of a glass substrate means there is less chance of any device using it breaking.

Many end users are looking forward to flexible OLED displays, such as the type announced by Samsung, being launched in 2012. However, these

displays will only be enabled when backplane technology to drive the displays can be both flexible and high-performing.

It is the backplane element that makes the LG claims so interesting for the plastic electronics industry. To launch into the consumer market will require reliable, scaled manufacturing of flexible backplane technology.

With LG planning to target the consumer market – namely, e-readers – its efforts could provide an important indicator of the appeal of glass-free devices. The flexible e-paper displays are lighter, thinner and more durable.

A FIRST?

The announcement, while important, should certainly be put into perspective. The claim of being the first to mass-produce such a technology could be made much more compellingly by Cambridge-headquartered Plastic Logic, which recently pioneered its organic semiconductor technology in the PL100, a device used in schools in Russia.

David Barnes, principal at market analysts Bizwiz, comments on the intellectual property (IP) in this area: 'There are several ways of creating the technology, and therefore various ways around different IP. For example, Philips developed Electronics on Plastic by Laser Release to create flexible electrophoretic displays, using conventional manufacturing equipment.



LG'S FLEXIBLE PAPER IS BENDABLE UP TO 40°, AND WILL SPEARHEAD THE COMPANY'S PUSH INTO THE E-READER MARKET
SOURCE: LG

WIRE

STRETCHING THE POINT

- CAMBRIDGE, UK (PLASTIC LOGIC)
- HSINCHU, TAIWAN (E INK)
- SEOUL, SOUTH KOREA (LG)

GOING PUBLIC

- DÜSSELDORF, GERMANY (PHOTONICS21)
- DRESDEN, GERMANY (NOVALED)

THE POWER BEHIND THE PROJECT

- VANTAA, FINLAND (ENFUCELL)
- WESTLAKE, OHIO, US (BLUE SPARK)
- ALAMEDA, CALIFORNIA, US (IMPRINT ENERGY)

A NEW DIMENSION

- VENLO, THE NETHERLANDS (OCÉ)
- SAINT PAUL, MINNEAPOLIS, US (OPTOMECH)
- EDEN PRAIRIE, MINNESOTA, US (STRATASYS)

Companies such as E Ink will have their own developments.'

Another claim to test is the immediacy of LG's launch, planned imminently as *+Plastic Electronics* went to press.

Sriram Peruvemba, market coordinator at E Ink, believes LG will more likely have only around 100 screens ready in May, for demonstrator purposes.

It seems likely that it will be another six months before the South Korean firm is able to supply the technology in large numbers though.

E Ink, the dominant supplier of e-paper displays, is the provider for LG's flexible technology. The company will be supplying the frontplane on a sold-by-cut basis, allowing LG to make screens from 6 inches – as has been pictured in official releases – up to 13 inches.

Though some of the claims do not bear scrutiny, LG's announcement should not be underestimated. LG has the

strength to drive a substantial market for flexible backplanes.

Peruvemba adds: 'LG is aiming to target the e-reader market with this display, and in terms of the current market, this is an important development. With a flexible display, there is one less thing to break, in the glass front. Breakages in the glass substrate alone make up around 10% of those shipped annually.'

FLEXIBLE OLED

And the e-reader market could provide lessons for the wider development of other glass-free or flexible displays, like OLEDs.

Barnes notes: 'There has been long-term development in this area. It certainly offers a good position for flexible displays, and for some developers, will offer a learning vehicle for other flexible displays, perhaps OLED. At this point, people are talking about using a metal foil or polymer, but these have to be glued to a

