
TIP Project Brief – 100032/11H005

Manufacturing**Process Innovation for High Technology Manufacturing of Flexible Liquid Crystal Displays**

Develop a suite of integrated processes for efficient, roll-to-roll manufacturing of flexible, reflective displays for high-volume product markets.

Sponsor: Kent Displays, Inc.

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- Project Performance Period: 2/1/2011 - 1/31/2014
- Total project (est.): \$6,005 K
- Requested TIP funds: \$2,996 K

With the vast majority of liquid crystal displays (LCDs) now manufactured in Asia, Kent Displays proposes to develop a suite of processes for high-volume production of flexible, low-power displays—an emerging technology that can help U.S. businesses establish a solid foothold in the growing flat-panel market, now totaling about \$150 billion globally. If successful, the project will result in the first U.S. facility for commercial scale manufacturing of high-resolution digital displays of any type. The displays will be made from thin flexible, plastic films, as opposed to the thin-film transistor LCDs made of breakable glass. Used in flat screen TVs, laptop computers, cell phones, and other devices, these glass LCDs account for most of the global market. Rather than challenge the entrenched technology, Kent Displays plans to open new markets by introducing its low-power, high-resolution Reflex™ displays for use on credit cards; as electronic paper for broad-scale applications, such as advertising; in low-cost writing tablets, and for other mass-market offerings. Because they reflect ambient light, Reflex displays do not require backlighting; nor do they require constant refreshing. Both attributes greatly reduce power consumption.

The company recently progressed from batch processing to continuous roll-to-roll manufacturing of Reflex flexible displays, enabling it to produce a first-generation electronic writing tablet in volume for the mass market—the popular Boogie Board™ LCD Writing Tablet. Now it aims to increase production capabilities and lower costs for Reflex flexible displays by developing seven new manufacturing processes. These processes are expected to provide the framework for attaining the high-yield, high-volume production capacity necessary to expand markets for the Boogie Board tablet as well as capture markets for new LCD products that exploit the attributes of Kent Display's flexible technology, including low power, low cost, and high resolution. Kent Displays will maximize the effectiveness of the processes by integrating them into an on-line system where each process rests on the capabilities of the others. Collaborators contributing to the project include the University of Akron and the Manufacturing and Growth Network (MAGNET), as well as a host of other close partners and strategic suppliers.

For project information:

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