

Organic Light Emitting Diode (OLED) Technology BRINGS ADVANCES IN DIGITAL IMAGING TO LIGHT



Kodak's active matrix OLED screens offer brilliant, saturated color with high contrast for better perceived sharpness. And the high-speed refresh rate (1000X faster than LCD) adds crispness and clarity to full-motion video.

OVERVIEW: BEFORE INFOIMAGING

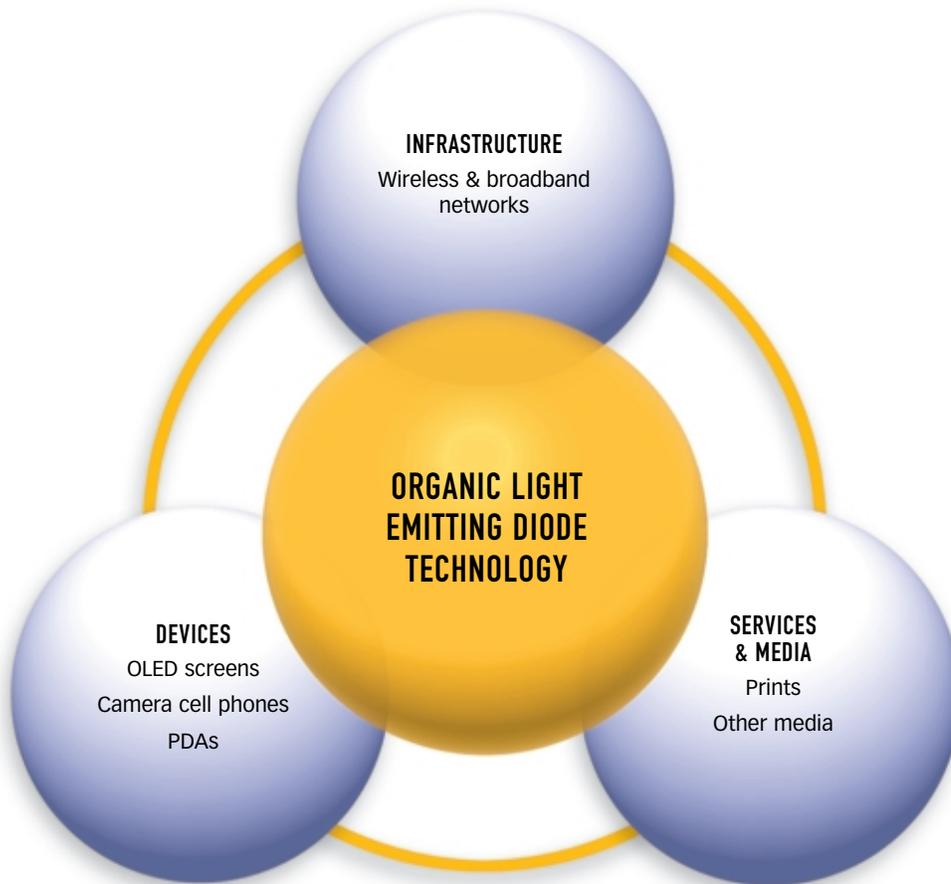
What does the sun have to do with infoimaging? Just ask Kodak scientist Ching Tang. More than 20 years ago, while conducting research on solar cells as a power source, Tang discovered that sending an electrical current through a carbon compound used in a solar cell caused the compound to emit a glow. Thus was born the organic light emitting diode (OLED) — a very thin film of organic material imprinted onto glass backed by a semiconductor circuit that carries electrical charges to the imprinted pixels and causes them to glow, or electro-phosphoresce.

Out of this initial research, Kodak developed longer-lived color materials and the technology to apply them to substrates. Ultimately, these prototypes led to a joint venture with SANYO Electric Co., Ltd.—called SK Display Corp.—to produce full-color active-matrix OLED display screens. The venture combines SANYO's expertise in and capacity to fabricate driver circuits on a glass substrate with Kodak's OLED material and device technologies. Demand for these displays is being driven by the

growing consumer interest in hand-held electronics and the superior brightness, color and speed of these displays. OLED screens are brighter, thinner and more colorful than LCDs, provide an unlimited viewing angle and consume less power.

INFOIMAGING IN ACTION

The full-color active-matrix OLED display screens (**devices**) manufactured through the joint venture with SANYO will be used in **devices** such as next-generation digital cameras, cell phones, portable entertainment gadgets and personal digital assistants (PDAs). This technology can also be extended to produce larger displays for other devices as the market develops. One of the first devices to feature the active-matrix OLED screens is a SANYO camera cell phone in Japan. The superior quality of the displayed images will make it even more attractive for consumers to connect their devices to **services** based on Internet and wireless **infrastructure**, such as web-based image sharing and storage or online ordering of prints and other **media**.



SK Display, the joint manufacturing venture of Kodak and SANYO, is producing screens for OEMs; one product, a cell phone from SANYO, will be available in October 2002.

INFOIMAGING'S IMPACT

- Kodak and SANYO in late 2001 announced the formation of a joint manufacturing venture, SK Display Corp. Its first screens will appear in SANYO camera cell phones available to consumers in Japan in October 2002. This joint venture agreement extends the February 1999 joint development agreement under which Kodak and SANYO successfully developed the world's first active-matrix full-color OLED displays: a 2.4-inch model in September 1999 followed by 5.5-inch displays in May 2000.
- Kodak's active matrix OLED screens offer brilliant, saturated color with high contrast for better perceived sharpness. And the high-speed refresh rate (1000X faster than LCD) adds crispness and clarity to full-motion video.
- Kodak expects to generate \$500 million in OLED display sales by 2005.
- Kodak active-matrix OLED screens are just 1.5 millimeters thick—about the thickness of a quarter—a fraction of the size possible in LCD displays.
- The market for OLED displays, a key product line within Kodak Components, is expected to range from \$900 million to \$3.6 billion by 2005, according to Stanford Resources and DisplaySearch.

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