Dowa:
Entering an emerging product market through intellectual property and new technology capability transfer

OVERVIEW:
Situation Analysis
To move into new device markets, Dowa Electronics Materials Co., Ltd., a semiconductor materials company, sought to acquire a capability in near-ultraviolet light-emitting diodes (near UV-LEDs). The company had significant materials expertise and in-house R&D, but lacked the knowledge to manufacture and develop this category of LED-based products—and the acquisition of intellectual property alone would not enable them to reach their goal.

PARC Solution
Dowa came to PARC to acquire key intellectual property in fabricating UV-LEDs. The company engaged PARC, which has a world-class competency in optoelectronics, because PARC’s experience includes developing lasers in the infrared, visible, and ultraviolet regions of the optical spectrum. PARC scientists had already demonstrated UV semiconductor light-emitting diodes and lasers—including the industry’s first grown with a specific material. PARC had also created the world’s first multi-beam lasers, helped Xerox become the first printing company to build a blue laser, and enabled the creation of a new company dedicated to manufacturing high-power, semiconductor lasers.
Process
During the five-month engagement that involved technology- and knowledge-transfer, PARC scientists:

- Demonstrated growth of near UV-LED semiconductor devices on Dowa’s preferred substrates
- Hosted senior engineers from Dowa’s headquarters at the PARC facility for serveral months
- Overcame language barriers to train Dowa engineers in configuring the new technology
- Delivered comprehensive documented instruction describing the design, growth, fabrication, and evaluation of UV-LEDs along with equipment setups, specifications, materials, and suppliers

Results
After PARC transferred the LED knowledge and other intellectual property, Dowa announced that it had used the PARC technology to achieve the world’s highest output in the near-UV wavelength range. The company is now developing novel device configurations and intends to enter new device markets.

More Information
Business Development
engage@parc.com