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News Release

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## **OFS AND LUCENT TECHNOLOGIES RECEIVE R&D 100 AWARD FROM R&D MAGAZINE FOR THE TUNABLE DISPERSION COMPENSATOR**

**Atlanta, GA, and Murray Hill, NJ - July 24, 2002** - OFS, designer, manufacturer and supplier of leading edge fiber optic products, and Lucent Technologies (NYSE: LU) today announced they have won R&D Magazine's 2002 R&D 100 Award for development of the RightWave™ Tunable Dispersion Compensator (TDC), a state-of-the-art optical networking component for communication networks. The R&D 100 Award is one of the most prestigious honors in applied research, having previously been given to technological breakthroughs such as the printer, the fax and the automatic teller machine.

Originally invented at Lucent's Bell Labs, the RightWave TDC is a dynamically adjustable, all-optical device that is a key enabler for optical transmission rates of 40 gigabits/second (Gbit/sec). After Lucent's Optical Fiber Solutions business was sold in November 2001, it became known as OFS; many of the device's developers are now part of OFS Laboratories, where they continue to support it through research.

The dispersion compensator addresses the problem of chromatic aberration - the tendency of light pulses traveling through optical fiber to spread out and begin to overlap each other since the individual wavelengths or colors of light that comprise the pulses travel at different speeds through the fiber. The scientists fabricated an all-fiber, all-optical device that can dynamically compensate for chromatic dispersion. The device's compact size, low power consumption, completely non-mechanical operation and superb optical characteristics make this component a robust and important part of an optical transmission system.

"It is very gratifying to be rewarded for the development of the idea of the tunable dispersion compensator," said Benjamin Eggleton, director of the photonic devices research department at OFS Laboratories and research director, Specialty Photonics Division, OFS,

and one the inventors of the device. "We listened to customer needs which led to the development of the flexible TDC."

"It leverages new ideas that originated in basic research efforts at Bell Labs," said John Rogers, director of nanotechnology research at Bell Labs and a co-inventor of the device. "It provides an excellent example of how Bell Labs and OFS Labs scientists move research results quickly out of the labs and into important real-world applications."

The editors of R&D Magazine selected the recipients of this award from entries initially reviewed and screened by outside experts, including professional consultants, university faculty and industry researchers. Recipients of the R&D 100 Award were selected based on technological significance and substantial improvements in new or existing technologies. A complete report including all 100 Award recipients will be published in the September 2002 issue of R&D Magazine.

Past R&D 100 Awards have included products with household names such as Polacolor film (1963), the flashcube (1965), the automated teller machine (1973), the halogen lamp (1974), the fax machine (1975), the liquid crystal display (1980), the printer (1986), the Kodak Photo CD (1991), the Nicoderm antismoking patch (1992), Taxol anticancer drug (1993), lab on a chip (1996) and HDTV (1998).

The TDC has also recently been awarded with Lightwave Magazine's Optical Fiber Conference Attendees Choice Award in the components section.

#### **40 Gbit/sec Enabler**

Previously, variations and uncertainties in the chromatic dispersion of an installed optical fiber span had been viewed as a major technical obstacle to the deployment of 40 Gbit/sec systems. The fixed dispersion compensation provided by dispersion compensating fiber-based modules is effective at data rates of 10 Gbit/sec. These modules are also required for 40 Gbit/sec transmission systems but, alone, are insufficient to deal with the tighter tolerances and time-varying changes in dispersion seen by the higher data rates.

OFS' new device provides a robust solution to this challenge by providing smooth, continuously adjustable tuning of the chromatic dispersion at the optical receiver. This

commercially available device offers stable and reliable management of chromatic dispersion at the tolerances required by 40 Gbit/sec data rates.

### **Adoption by Lucent**

Lucent has recently adopted this component into its recently introduced LambdaXtreme™ Transport, a next-generation DWDM core optical networking solution that offers one platform for both ultra-high-capacity networking and ultra-long-reach networking. LambdaXtreme Transport is capable of sending 64 40-Gbit/sec optical signals (or 2.56 terabits of information per second) up to 1000 km without electrical regeneration, making it the first commercial introduction of a 40Gbit/sec system that can carry information that far without regeneration. By supplying the TDC to Lucent, OFS also marks its own debut into the emerging 40Gbit/sec components market.

### **Technology**

The OFS device employs a linearly chirped fiber Bragg grating in conjunction with a unique heating configuration to exploit the thermo-optic effect within the grating. In this patented device design, tuning is accomplished in a continuous manner with fast response and low power consumption without inducing mechanical strain in the fiber. This highly reliable approach also avoids the use of moving parts and free-space optics.

### **About Lucent Technologies' Bell Labs**

With over 10,000 employees in 16 countries, Bell Labs is the leading source of new communications technologies. Bell Labs has generated more than 28,000 patents since 1925 and has played a pivotal role in inventing or perfecting key communications technologies, including transistors, digital networking and signal processing, lasers and fiber-optic communications systems, communications satellites, cellular telephony, electronic call switching, touch-tone dialing, and modems. Bell Labs scientists have received six Nobel Prizes in Physics, nine U.S. Medals of Science and eight U.S. Medals of Technology. For more information about Bell Labs, visit its Web site at [www.bell-labs.com](http://www.bell-labs.com).

Lucent Technologies, headquartered in Murray Hill, N.J., USA, designs and delivers networks for the world's largest communications service providers. Backed by Bell Labs research and development, Lucent relies on its strengths in mobility, optical, data and voice

networking technologies as well as software and services to develop next-generation networks. The company's systems, services and software are designed to help customers quickly deploy and better manage their networks and create new, revenue-generating services that help businesses and consumers. For more information on Lucent Technologies, visit its Web site at [www.lucent.com](http://www.lucent.com).

## **About OFS**

OFS is a world-leading designer, manufacturer and provider of optical fiber, optical fiber cable, connectivity, FTTx and specialty photonics solutions. Our marketing, sales, manufacturing and research teams provide forward-looking, innovative products and solutions in areas including Telecommunications, Medicine, Industrial Automation, Sensing, Government, Aerospace and Defense applications. We provide reliable, cost effective optical solutions to enable our customers to meet the needs of today's and tomorrow's digital and energy consumers and businesses.

OFS' corporate lineage dates back to 1876 and includes technology powerhouses such as AT&T and Lucent Technologies. Today, OFS is owned by Furukawa Electric, a multi-billion dollar global leader in optical communications.

For more information, please visit [www.ofsoptics.com](http://www.ofsoptics.com).

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