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News Release

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## **OFS AND FURUKAWA ANNOUNCE HIGH-OUTPUT, NARROW-LINEWIDTH, FULL-BAND TUNABLE LASERS AND ITLAS FOR 100 GB/S ULTRA-HIGH SPEED OPTICAL DIGITAL COHERENT TRANSMISSION**

**OFC/ NFOEC 2012, Booth 2125, Los Angeles, California, March 5, 2012** – Furukawa Electric Co., Ltd., and the U.S. based OFS, Specialty Photonics Division, today announce the development and commenced production of high-output, narrow-linewidth, full-band tunable lasers and integrable tunable laser assemblies (ITLAs). These are key components in 100 gigabit-per-second (Gb/s) ultra-high speed optical digital coherent transmission systems that are expected to be widely introduced around the world in 2012 and beyond.

The products will be on display at the OFC/NFOEC 2012, the world's largest international telecommunication conference and exhibition, which will open in Los Angeles on March 6th.

### **Background**

In recent years, communication traffic has been increasing rapidly as a result of the enlargement of wireless backbones following the popularization of smartphones and the widespread application of cloud computing, video transmission, and social networking.

In response to this traffic growth, there are growing moves to expand transmission capacity by improving the transmission speed per wavelength from 40 Gb/s to 100 Gb/s, in addition to expanding conventional optical wavelength multiplexing to 88 channels.

However, data might not be transmitted accurately with ultra-high speed optical transmission at 100 Gbps using the existing two-value (i.e. on/off) intensity modulation, given signal losses on the transmission channel and noise interference.

For 100 Gbps ultra-high speed optical transmission, the Optical Internetworking Forum (OIF)

has standardized two methods. The first is optical digital coherent transmission, which uses the optical phase, which means the status of a wave, instead of on/off light intensity to give resistance to signal deterioration and to noise. The second is multi-value intensity modulation, which allows suppression of the transmission speed.

Optical digital coherent transmission has already been adopted by some telecommunication operators. It is likely that it will be fully adopted starting in 2012, not only in 100 Gb/s applications but also in 40 Gb/s applications.

### **Product description**

In optical digital coherent transmission, phase-modulated signal light interferes with local light on the receiving side to demodulate it into intensity modulation. A high level of interference is required for reducing errors at the time of demodulation. This refers to signal light and local light with low oscillation spectrum width, or narrow-linewidth.

Capitalizing on its technology for full-band tunable lasers of the distributed feedback (DFB) laser array type, which boast a strong track record as a signal light source for optical

network systems, Furukawa Electric has developed a full-band tunable laser with high output of 40 mW or more and a narrow-linewidth of 500 kHz or less. The laser exhibits excellent characteristics for signal light and local light in optical digital coherent transmission.

Full production began after the DFB laser parameters were optimized to stabilize the narrow-linewidth properties.

Furukawa Electric has also developed and commenced volume production of an ITLA with the laser mounted on its control circuit board; the ITLA is compliant with the OIF standard specifications in terms of transmission protocol, external dimensions, and optical electrical properties.



**The high-output narrow-linewidth full-band tunable laser**



**The high-output narrow-linewidth ITLA**

Optimized for the high output and narrow-linewidth features of the full-band tunable laser,

the ITLA facilitates an introduction to optical communication systems.

**About Furukawa Electric Company, Ltd.**

Furukawa Electric Co. Ltd. ([www.furukawa.co.jp/english](http://www.furukawa.co.jp/english)) is an \$11 billion global leader in the design, manufacture and supply of fiber optic products, network products, electronics components, power cables, nonferrous metals, and other advanced technology products. Headquartered in Tokyo, Japan, Furukawa operates production facilities on five continents around the globe, including OFS and the OFS, Specialty Photonics Division, in the USA.

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**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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