

Furukawa Electric Announces the Extension of the Nano-ITLA for Optical Digital Coherent Communications by Expanding Wavelength Range in the Super C-band and L-band

Contributes to the realization of ultra-high speed transmission systems for medium to long-range optical communication networks by extending the bandwidth

OFC 2023, Booth 3229, San Diego, California, February 24, 2023 - Furukawa Electric Co., Ltd. (FEC) announces the extension of the bandwidth of the ultra-small, narrow linewidth tunable light source, Nano-ITLA, product lineup with the development of a new ultra-small, narrow linewidth tunable light source that supports the super C-band and L-band in addition to the current C-band. The further development of this tunable light source, will contribute to the realization of ultra-high speed transmission systems for medium to long-range optical communications networks, including post-5G services involving larger data load than 5G, by increasing the number of usable channels.

Utilizing Furukawa's laser manufacturing technology accumulated over the past 20 years, including crystal growth and precision optical semiconductor processing, FEC optimized the waveguide design, and made it possible to extend the bandwidth of the Nano-ITLA. In addition to the current C-band: 191.300-196.100THz (4.8THz width), the newly developed Nano-ITLA supports the super C-band: 190.675-196.675THz (6THz width) and also the L-band: 186.350-190.700THz (4.35THz width) (Fig. 2 & Table 1). This development will contribute to the realization of ultra-high speed transmission systems for medium to long-range optical communications networks.

■ Background

Due in part to increased smartphone use, cloud computing, and video streaming in recent years, data traffic on the mainline communications networks and between data centers is growing around the world, and with the advent of 5G, this traffic is expected to dramatically increase even further. In order to support this increased data traffic, ultra-high speed transmission systems using optical digital coherent technology are being installed. Going forward, it is expected that post-5G service will be introduced, and since Post-5G requires greatly larger volumes of data than 5G, it will be necessary to increase the capacity of the medium to long-range optical communications networks. However, as transmission speed increases, the

required bandwidth per channel exceeds the current 50GHz span. Since this trend will reduce the number of available channels, consideration is underway toward expanding the overall bandwidth.

■ Details

Utilizing Furukawa's laser manufacturing technology accumulated over the past 20 years, including crystal growth and precision optical semiconductor processing, we optimized the waveguide design, and it was possible to extend the bandwidth of the Nano-ITLA. In addition to the current C-band: 191.300-196.100THz (4.8THz width), the newly developed Nano-ITLA supports the super C-band: 190.675-196.675THz (6THz width) and also the L-band: 186.350-190.700THz (4.35THz width) (Fig. 2 & Table 1). This development will contribute to the realization of ultra-high speed transmission systems for medium to long-range optical communications networks.

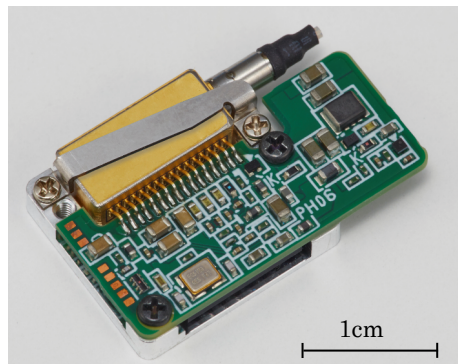
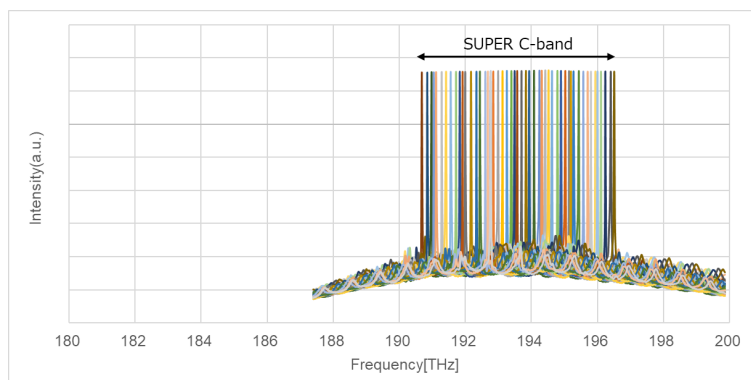


Fig. 1 Nano-ITLA



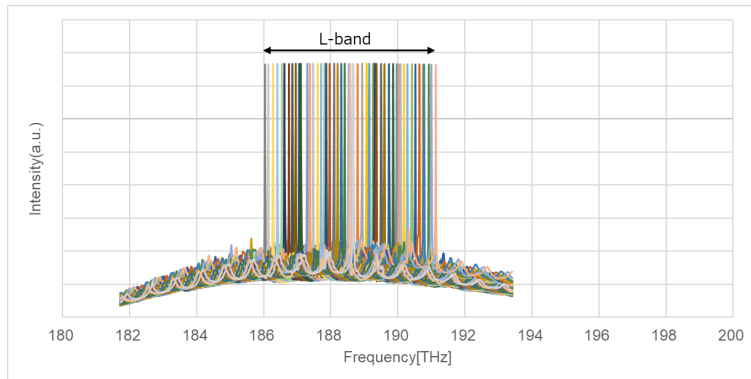


Fig. 2 Spectral characteristics of the super C-band and L-band

	Existing product (C-band)	Newly developed product (Super C-band)	Newly developed product (L-band)
Frequency range (THz)	191.300-196.100	190.675-196.675	186.350-190.700
Optical output strength (dBm)	17	17	16
Linewidth (kHz)	< 150		
Wavelength stability (GHz)	< ±1.5		
Power consumption (W)	3.7		
Dimensions (mm)	25(L)×15.6(W)×5.7(H)		

Table 1 Comparison with the existing product

The Nano ITLA will be exhibited at OFC, March 7-9, 2023, in San Diego at OFS booth 3229.

■ **Related news releases**

Nano ITLA developed for Optical Digital Coherent Communications

https://www.furukawa.co.jp/en/release/2019/comm_190920.html

■ **Furukawa Electric Group’s efforts toward the SDGs**

Based on the “Sustainable Development Goals (SDGs)” adopted by the United Nations, Furukawa Electric Group has formulated the “Furukawa Electric Group Vision 2030” which sets forth the year 2030 as its target and is advancing efforts with the aim to “Build a sustainable world and make people’s life safe, peaceful and rewarding, Furukawa Electric Group will create solutions for the new generation of global infrastructure combining information, energy, and mobility.” Toward the achievement of our Vision 2030, we will take open, agile and innovative approaches to promote ESG management that aims to increase corporate value over the medium to long-term and will contribute to the achievement of the SDGs.

Furukawa Electric Group's efforts toward the SDGs

<https://furukawaelectric.disclosure.site/ja/themes/182>

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