Fujikura

FUJIKURA NEWS

No.488 2023
01

President's New Year's Message

I would like to express my deep gratitude to you all for your continued loyal patronage.

Looking back on 2022, it seems to me that it was a year of more uncertainty than ever. In addition to factors from the perspective of geopolitical risk, such as the Russian invasion of Ukraine, the intensified conflict between the U.S. and China, and the increasing possibility of a Taiwan contingency within a few years, events that affect the policies of each country and corporate activities are occurring, including energy issues, global inflation, concerns about a recession, and rapid exchange rate fluctuations.

Our group will respond quickly and appropriately to these changes in the environment and do our utmost to achieve sustainable growth.

In the first half of the fiscal year, the Group's operating results were 399.1 billion yen in sales and 35.3 billion yen in operating profit, both of which were record highs for the first half, due to strong demand for data centers and FTTx in the telecommunications business, robust demand for smartphones in the electronics business, and the impact of foreign exchange rates. In the second half, we expect the telecommunications business and electronics business to continue to perform well, and we plan full-year sales of 790 billion yen and operating profit of 68.5 billion yen, both of which would be record highs.

FY2023 is the first year of the new mid-term plan. The new mid-term plan will be a 3-year mid-term plan up to FY2025, and we will give a introduction regarding this mid-term plan in May of this year.

Under the new growth phase of the mid-term plan, we will rebuild the Fujikura Group's DNA, "Fujikura as a technology leader," and further enhance the highest level of technological capabilities possessed by each division to aim at increasing our corporate value. Through "Tsunagu" technology, we contribute to our customers' value creation and society.

We will continue to introduce information on the technologies and products of the Fujikura Group through Fujikura News this year, and we look forward to your continued loyal patronage.

Samples of 60-GHz band millimeter-wave wireless communication modules pre-certified with a technical conformity certification under the Radio Law in Japan have begun being supplied.

Fujikura Ltd. has developed a 60 GHz millimeter-wave wireless communication module that can be independently certified for Technical Regulations Conformity Certification in Japan, which does not require a license, and has started supplying samples. For commercial products, the similar certification required in other countries will be obtained, such as FCC (USA) and CE (EU).

The structure of the newly developed 60 GHz band millimeter-wave wireless communication module has been improved and optimized for it to qualify for the Technical Regulations Conformity Certification. This module will be shipped with the Technical Regulations Conformity Certification mark issued by a certification body. This pre-certification drastically reduces the difficulty of developing communication and industrial equipment with the module.

The newly developed module is planned to be commercialized in Q2 CY2023 while maintaining its key features and world-class performance: automatic beamforming and a throughput of 1 Gbps or more at a distance of 500 m. Fujikura will support the development of communication equipment for customers, identify market needs, and pursue the development of value-added millimeter-wave communication modules for industrial use.

Pre-certified 60 GHz millimeter-wave communication module

* Technical Regulations Conformity Certification
Proof that the specified radio equipment (specified by the Ministry of Internal Affairs and Communications ordinance as radio equipment for use in small-scale radio stations, including mobile phones and wireless LAN equipment) conforms to the technical standards of the Radio Law in Japan. Even though no license is required for 60 GHz band, devices operating in this band still need to obtain the Technical Regulations Conformity Certification stipulated by the Radio Law. However, the difficulty of conducting tests and measurements, and the high cost of measuring equipment currently limit the number of specialized companies that develop such 60 GHz devices. Fujikura solves this issue since the pre-certified module will be shipped with the certification mark issued by a certification body after all the necessary data for the certification have been obtained through the 60 GHz band test environment built in-house.

Specifications of pre-certified 60 GHz millimeter-wave communication module	
Radio interface	57-66 GHz
Interface	PCIe Gen2 x 2 lane
Power supply	DC +12V
Size	62mm(W) x 113mm(H) x 17.4mm(D) / 150g

Millimeter-wave radio communication modules
http://mmwavetech.fujikura.jp

■Points relevant to the 17 SDGs
Our company's 60-GHz-band millimeter-wave radiocommunication module contributes to the development of high-speed, low-cost gigabit-class communication network equipment.

Electronic Technologies R&D Center : mmwavetech@jp.fujikura.com

APMC 2022 Prize has been awarded to a paper on millimeter-wave power amplifier with low distortion characteristics for 5G mobile communication system

A paper written by a Fujikura team including Chihiro Kamidaki as the first author has received the best paper award, APMC 2022 Prize, at the Asia-Pacific Microwave Conference (APMC) 2022 that is a major international academic conference in the field of millimeter-wave and microwave technologies.

The paper has proposed a power amplifier for base stations of the fifth-generation mobile communication system. Both low distortion and high output have been achieved while reducing power consumption by applying a novel circuit and optimizing load conditions. Redesigning together with a transmission/reception switch and a low-noise amplifier, a tranceiver front-end has also been minimized significantly.

Encouraging by this award, we are proceeding further development toward commercialization of our millimeter-wave products.


APMC 2022 Prize

APMC 2022 Prize

is presented to

Chihiro Kamidaki, Yuma Okuyama, Tatsuo Kubo, Wooram Lee, Caglar Ozdag, Bodhisatwa Sadhu, Yo Yamaguchi, Ning Guan

for the paper entitled

A 24-30 GHz Power Amplifier with >20 dBm Psat and <0.1 dB AM-AM Distortion for 5G Applications

presented at the 2022 Asia-Pacific Microwave Conference
November 29 - December 2, 2022, Yokohama, Japan

Noriharu Suematsu
APMC 2022 Award Committee Chair

EiC

■Points relevant to the 17 SDGs
The millimeter-wave communication module under development in our company is a key device for 5G base stations in communication infrastructure.
We will contribute to improve communication energy efficiency and enrich the usage of smartphones.

Electronic Technologies R&D Center : mmwavetech@jp.fujikura.com

Introduction of high-frequency coaxial connector HG series [DM (SMA) type and N type]

With the spread of 5G, demand for connectors with excellent high-frequency characteristics is increasing in communications equipment installed outdoors, such as mobile phone base stations and self-driving antenna facilities. The HG series responds to this.

Based on the concept of "ensuring stable performance up to high-frequency bands," we have realized the commercialization of the HG series with a connector structure that minimizes impedance mismatch and a high level of precision machining technology.

We provide connectors with excellent high-frequency characteristics through thorough quality control.

This connector is ideal not only for communications equipment, but also for product evaluations such as measuring instrument and anechoic chambers.

■Photo 1: Connector appearance

N Type

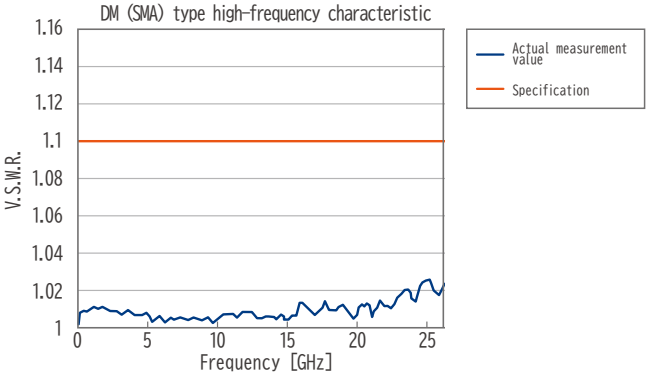
DM (SMA) Type

■Table 1. Product specifications

DM(SMA)型

Characteristic Impedance	50Ω
Voltage Rating	AC500V(r.m.s.)
Dielectric Withstanding Voltage	AC 1000 V (r.m.s.)/min
Insulation Resistance	1000 MΩ min. at DC 500 V
Contact Resistance	3 mΩ max.
Operating Frequency Range	DC to 26.5 GHz
V.S.W.R.	1.1 max.
Operating Temperature Range	-55 ~ +85℃

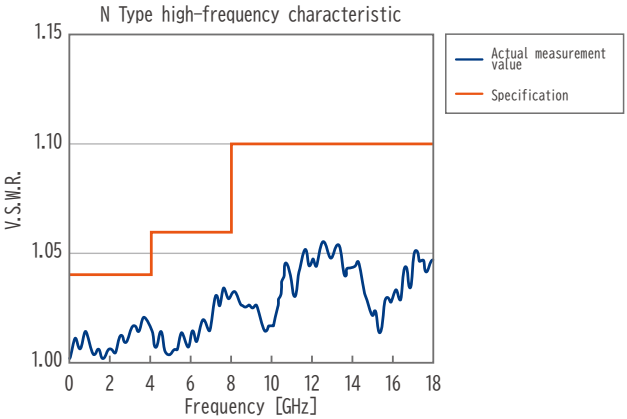
*Specifications may vary depending on the connector type.



N型

Characteristic Impedance	50Ω	
Voltage Rating	AC500V(r.m.s.)	
Dielectric Withstanding Voltage	AC 1500 V (r.m.s.)/min	
Insulation Resistance	1000 MΩ min. at DC 500 V	
Contact Resistance	3 mΩ max	
Operating Frequency Range	DC to 18GHz	
V.S.W.R.	DC to 4GHz	: 1.04 max.
	4 to 8GHz	: 1.06 max.
	8 to 18 GHz	: 1.10 max.
Operating Temperature Range	-40 to +85℃	

*Specifications may vary depending on the connector type.



■Points relevant to the 17 SDGs

We will contribute to the development of social infrastructure by providing our company's connectors with improved high-frequency performance.

Connector Division : ddk.contact@jp.fujikura.com

Renewal of specialty fiber fusion splicers tools

Fujikura Ltd. (CEO Naoki Okada) is pleased to announce the launch the new FSR115 series optical fiber recoaters and the new CT115 series large diameter optical fiber cleavers. These products are used in the optical communication equipment.

We will begin shipping new products in January 2023.

The optical fiber recoater provides an acrylate recoat on the optical fiber slightly larger than the original coating to protect the fusion splicing location.

The FSR115 series consist of three models, the FSR115 without a proof tester, the FSR116 with a proof test function of up to 2.0kgf, and FSR117 with a proof test function up to 10.0kgf.

A new UV curing resin injection mechanism and glass mold design enabled us to reduce the operation time by 25% and achieve a higher recoating length accuracy compared to current models.

The large diameter optical fiber cleaver enables accurate cleaving of large diameter fibers.

The CT115 series consist of three models, the CT114 which can cleave up to 660um diameter optical fibers, CT115 cleaves up to 1250um fibers, and CT116 cleaves up to 1250um fibers with an angled cleaving function.

To cleave large diameter fibers, it is important to set the parts called "backstop" precisely so that the fiber does not bend when the blade pushes fiber. The new CT115/CT116 incorporate an automatic positioning mechanism for the backstop.

It is designed to provide more stable cleaving quality for the special applications.

In addition, all models of the new model CT115 series are equipped with a position change mechanism for the cleaving blade. The blade automatically moves before the blade wears.

All models in these product groups will be equipped with RFID tags.

The FSR115 series read the RFID tag attached to the glass mold and select recommended recoat programs according to the size of the glass mold.

The CT115 series read the RFID tag attached to the newly designed fiber holder and the cleaver selects recommended programs depending on the fiber diameter.

It helps to eliminates failed cleaves due to selecting the incorrect program.

Fujikura will continue to contribute to the growth of the optical communication equipment with these new models.

Optical Fiber Recoater
FSR115 series

Large Diameter Fiber Clever
CT115 series

■Points relevant to the 17 SDGs

Our company contributes to the improvement of productivity of optical components through the connection technology of special optical fibers.

Precision Equipment Division : optfsm@jp.fujikura.com

Announcement of exhibition at the "MWC Barcelona 2023"

MWC Barcelona 2023 will be held in Spain from February 27 to March 2, 2023.

This is the largest exhibition in the mobile industry.

Fujikura will exhibit at this event.

In our booth, 28GHz/60GHz millimeter-wave wireless communication module are demonstrated

The demonstrations will take place in Hall 5 at booth 5J56
We are looking forward to see you in our booth.

Details of the exhibition
https://www.mwcbarcelona.com/

Electronic Technologies R&D Center : mmwavetech@jp.fujikura.com

Fujikura Ltd.

"Tsunagu" Technology Product News No.488/Issue : January 2023
Editor in chief : Kenji Nishide
1-5-1 Kiba, Kot-ku, Tokyo, Japan 135-8512 https://www.fujikura.co.jp
■Inquiries on this issue Public Relation Group TEL : 03-5606-1114