



May 21, 2024

To whom it may concern,

Company: Tamagawa Holdings, Co., Ltd.

Representative: President, Toru Masuzawa

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Notice of Participation in R&D of Flexible Waveguide Technology for Beyond5G

(hereinafter referred to as "Tamagawa Electronics"), a subsidiary of our company, has been participating as a joint proposer in the "Research and Development of Millimeter to Terahertz Band Flexible Waveguide Infrastructure Technology to Support Beyond 5G Communication Infrastructure" commissioned by the National Institute of Information and Communications Technology (NICT, hereinafter referred to as "NICT"). We are pleased to announce that we have signed a contract with NICT.

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Outline

Waseda University, Gifu University, Kyoto Institute of Technology, and Waveguide Technology Laboratory, Inc. will conduct research and development on communications for the practical application of low-loss transmission technology using Japan's unique flexible waveguides for use in the frequency range of "millimeter waves to terahertz waves," which is the intermediate region between low frequency radio waves and high frequency light. The research and development will be conducted toward the practical application of low-loss transmission technology using Japan's unique flexible waveguides.

What is a flexible waveguide?

The core technology of this research and development is "flexible waveguide," a product of Japanese fiber technology. Conventionally, metal waveguides have been used for the waveguides necessary for transmission of the targeted electromagnetic waves, but they are large, heavy, time-consuming to connect, and difficult to handle. The use of "flexible waveguides," which are braided from flat foil threads containing thin metallic layers, solves the current problems of wired transmission and enables the development of peripheral technologies that take advantage of its high flexibility and light weight. In the use of high-frequency bands such as millimeter waves to terahertz waves, it is an extremely versatile new wired transmission method with features that differ from conventional wired transmission while overcoming the shortcomings of wireless transmission that are becoming increasingly apparent (instability due to the radio wave environment and weak security).

3. the role of Tamagawa Electronics Co.

As one of the leading high-frequency technology expert companies in Japan, we are responsible for communication application experiments of flexible waveguides, utilizing our many years of experience and advanced technical capabilities.

Through this research and development, we will contribute to the establishment of a world-leading communication infrastructure for the early practical application of terahertz frequency band communication technology, which has long been considered unexplored, to Beyond5G (6G).

Flexible waveguide



Courtesy of Yonezawa Bussan Co.

Results of the FY2024 Open Call for New Contract Research Proposals under the "Elemental Technology and Seeds Creation Type Program: General Proposals" of the "Innovative Information and Communications Technology (Beyond 5G (6G)) Fund Project"]].
<https://www.nict.go.jp/publicity/topics/2024/02/26-2.html>

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