

Improve the wireless communication environment in hard-to-communicate areas Area construction using radio-wave-transmission control technology

Background and Technical Challenges

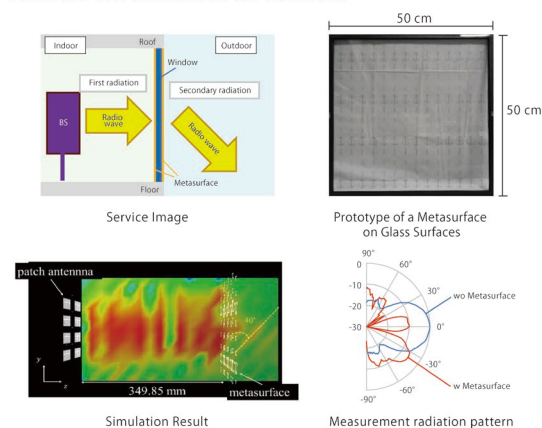
Shaded areas around buildings and indoor spaces become radio-wave dead zones where signals are difficult to reach. In 5G Evolution & 6G, the aim is to achieve high-speed end-to-end communication even in these dead zones.

ガラス面上の3.5GHz帯用メタサーフェス

A 3.5GHz-band Metasurface on Glass Surfaces

特定の周波数のビーム方向を可変させるメタサーフェスの技術をガラスに施工することで、屋内基地局から屋外の建物の足元をsub6帯でエリア化する

By applying metasurface technology that can steer beam direction on glass surface, Creating coverage areas of outdoor building shadow zones from indoor base stations in the sub-6 GHz band.

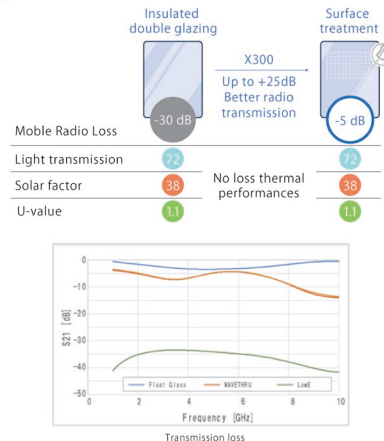


WAVETHRU技術を用いたエリア化

Area Coverage Using WAVETHRU Technology

LowEガラスの金属膜を格子状にはがすことで、LowEガラスの性能を維持したまま特定周波数帯の電波を透過する

By patterning the metal coating of Low-E glass into a grid, it transmits radio waves at specific frequency bands while maintaining the performance of Low-E glass.



R&D Goals and Outcomes

A technology for constructing high-quality areas tailored to customer requirements in the use of radio waves for 5G Evolution & 6G.

Key Technologies

01 Core Technologies

Control radio wave transmission by applying thin metasurface transmission sheets to a glass surface or by directly installing the WAVETHRU technology on window glass.

02 Key Differentiators

This is the first case in Japan to verify the workability and effectiveness of improving the radio wave environment in actual operations, including both low and high frequency bands of 5G Evolution & 6G.

Use Cases Communication Services

R&D phase Research

Technology Schedule FY2026

Commercialization Schedule FY2027

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NTT DOCOMO, Inc.

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