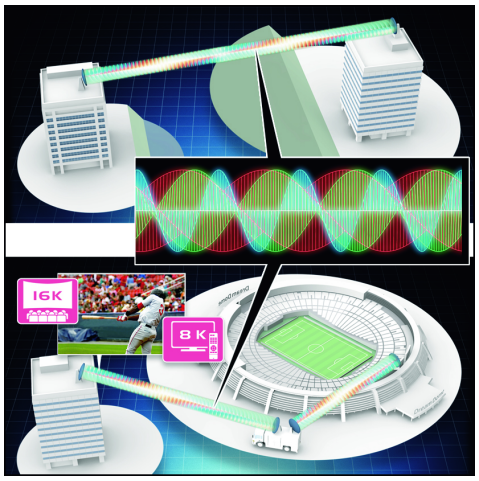
F02

Terabit-class wireless transmission toward 6G/IOWN era

OAM multiplexing wireless transmission technology in the sub-THz band

IOWN Future

Network Technologies Supporting Future Information Distribution



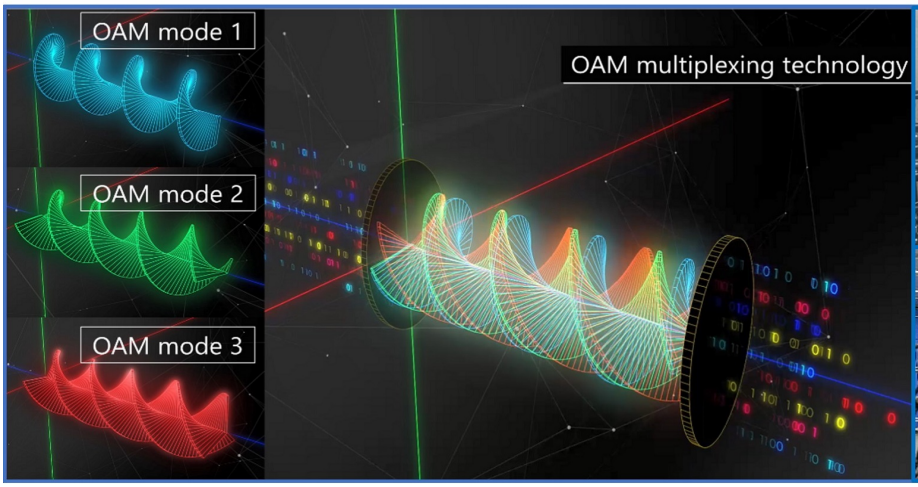
Background

To accommodate continuously increasing wireless traffic toward 6G/IOWN era, we are working on terabit-class wireless transmission technology in the sub-THz band, which has plenty of radio resource but is unexplored because of the difficulty of developing device due to its extremely short wavelength.

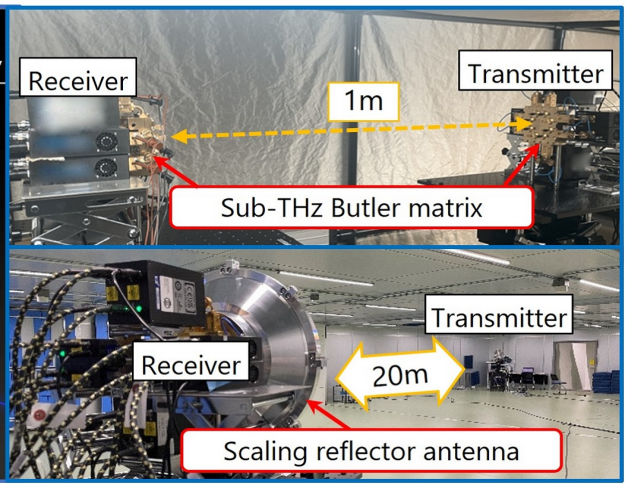
Summary

We implemented a wireless multiplexing transmission technology using orbital angular momentum (OAM) and broadband devices for it in the sub-THz band using 32 GHz bandwidth, more than 100 times wider than current technologies, and succeeded in the world's highest capacity exceeding 1 Tbit/s.

OAM multiplexing wireless transmission



Experimental system in the sub-THz band



Features

- World first over 1.4 Tbit/s wireless transmission by multiplexing radio waves with different OAM modes simultaneously
- Widen the bandwidth of OAM multiplexing transmission over 32 GHz by analog processing using Butler Matrix in the sub -THz band
- Extend transmission distance by using scaling-reflector-antennas, which enable to expand the effective beam width while maintaining the areal electric field distribution of the OAM

Future_benefits

Higher capacity wireless back-/front-haul in future mobile networks will enable wireless transmission of a variety of large-volume content such as uncompressed 8K/16K broadcasts.

Exhibiting Company

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rdforum-exhibition@ml.ntt.com