

The background features a technical diagram of a "Pinching Antenna" in light gray. It shows a large circular antenna array on the left, a vertical antenna structure with horizontal segments in the center, and another circular antenna array on the right. Various lines and geometric shapes represent the antenna's components and their interaction.

Pinching Antenna

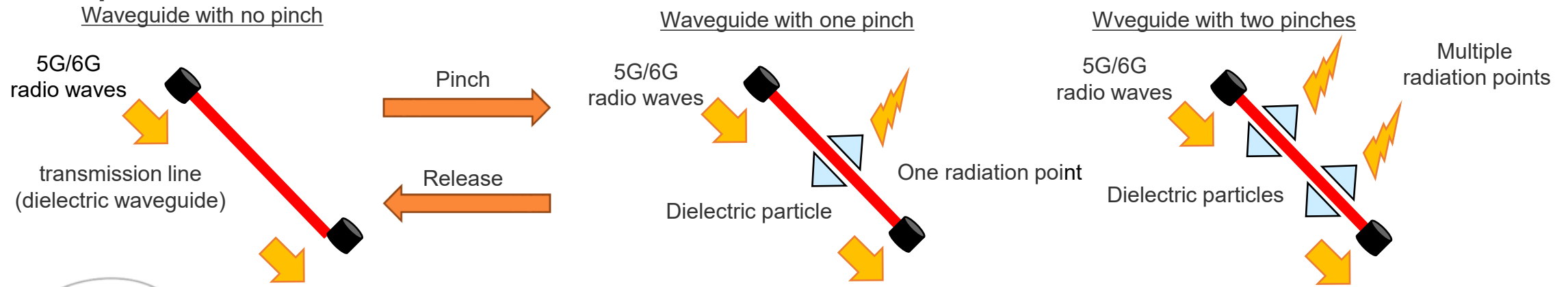
NTT DOCOMO, INC.

A pinching antenna is the dielectric waveguide that works as a leaky-wave antenna by attaching other small dielectric particles on it

Features

- Radio waves are transmitted/received via (pinched) dielectric particles on a dielectric waveguide.
- The method deploys wireless communication areas around the dielectric particles.
- One or more transmission/reception points can be created anywhere along the dielectric waveguide.

Basic Concept



Rod-shaped line made of fluorine resin or similar material

Features

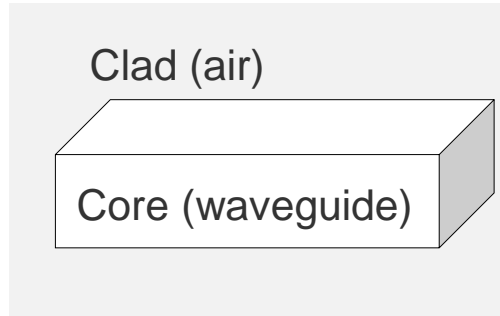
- No core conductor, unlike coaxial cable
- Not covered with metal, unlike basic waveguide
- Consists of core (waveguide) and clad (air or other dielectric), same as optical fiber
- Capable of transmitting millimeter waves (28 GHz band and above)



Coaxial cable



Waveguide



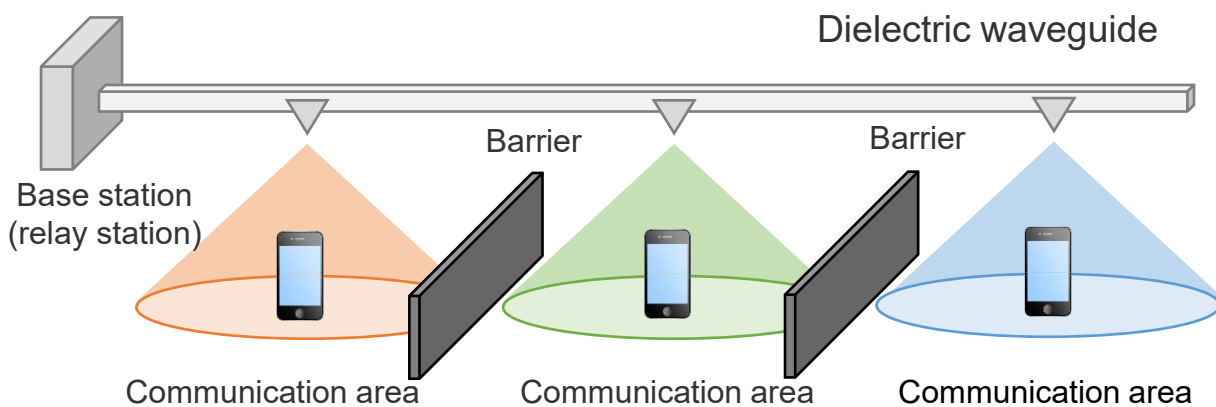
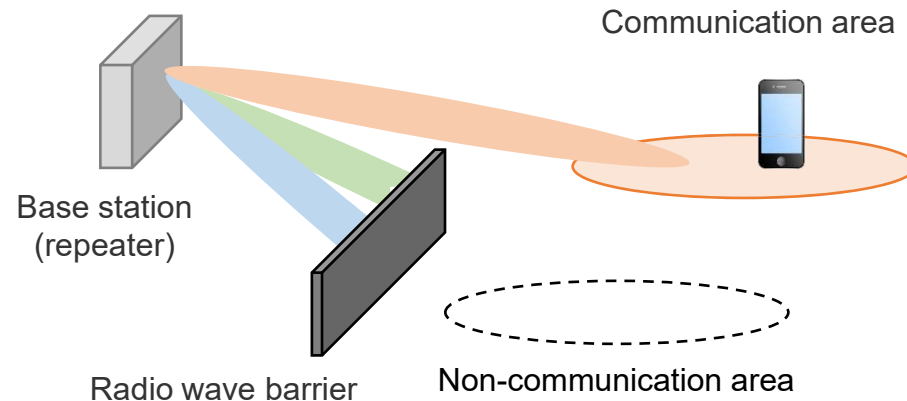
Dielectric waveguide



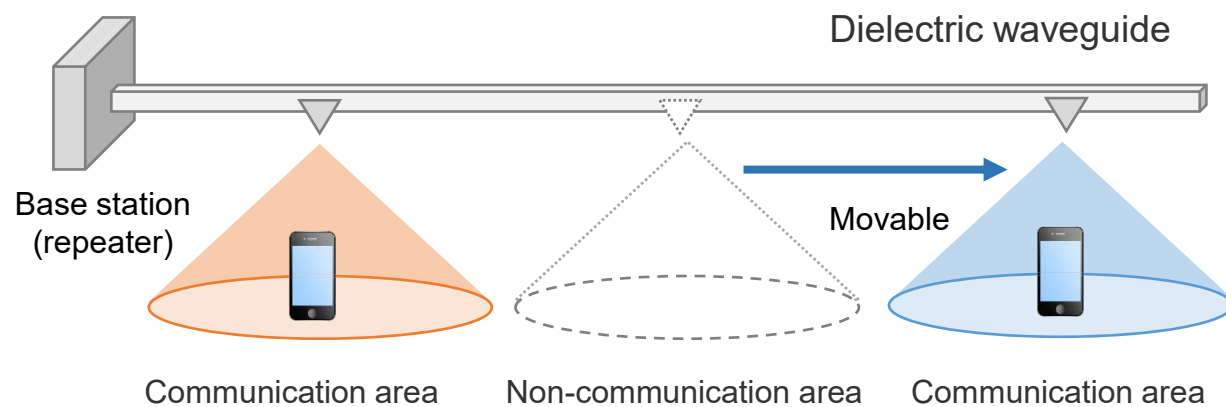
Sample waveguides

Method for overcoming radio-wave barriers

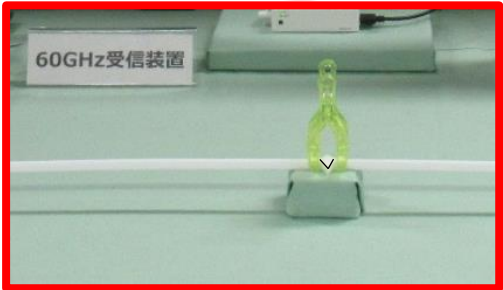
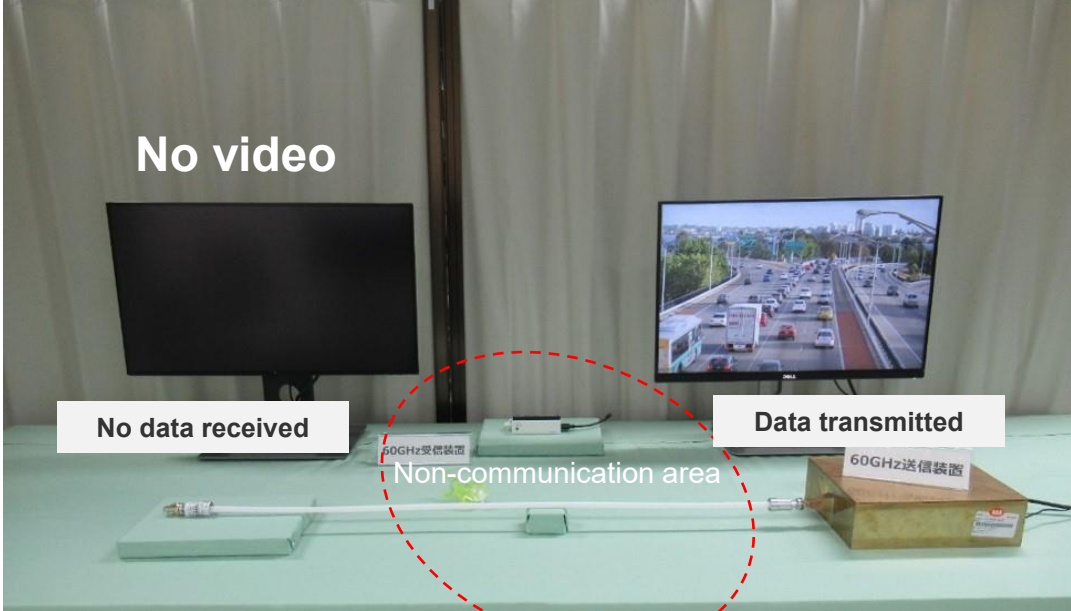
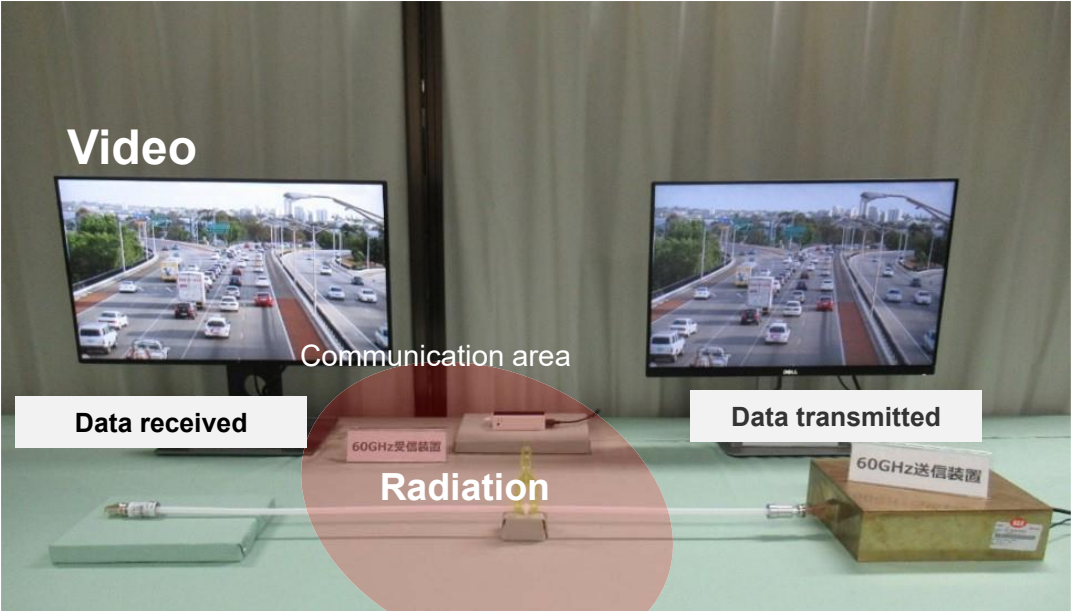
- Deploy wireless communication areas where radio waves from base stations are blocked by barriers.
- Achieve stable line-of-sight communication environments.
- Quickly deploy, move or shift wireless communication areas.



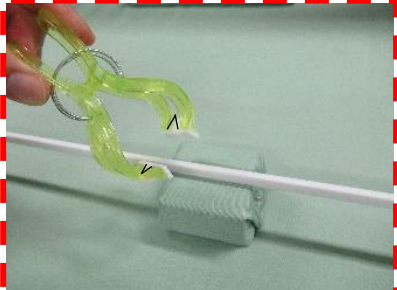
Areas affected by barriers



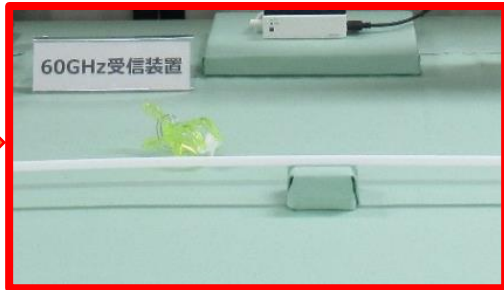
Data Transmission Test using 60GHz Band



Pinching antenna



Antenna attached/released



No pinching antenna

The logo for NTT docomo, featuring the letters "NTT" in a small, red, sans-serif font above the word "docomo" in a larger, red, lowercase sans-serif font. The background of the slide is a light gray with various geometric shapes and patterns, including a large circle with a grid pattern, a triangle with horizontal lines, and several overlapping lines and shapes.

For more information, please contact us at
mwc21_5g_evolution_and_6g@nttdocomo.com