Super Hi-Vision

8K Super Hi-Vision Wireless Links for Program Contribution
For live transmission of 8K video signals

Outline
We are developing wireless transmission equipment (FPU)\(^1\) for live broadcasts of 8K Super Hi-Vision. This exhibit shows FPUs that use radio waves in the millimeter-wave and microwave frequency band and also 8K transmission technology for implementing an FPU system for mobile relay broadcast programs.

Features

- **Millimeter-wave FPU for high-speed transmission**
  This FPU can provide a transmission rate in excess of 200 Mbps by using the 42-GHz band, which provides a wide bandwidth. It achieves high-speed transmission by using wideband radio transmission technology exploiting the 125 MHz bandwidth and dual-polarized MIMO\(^2\) technology.

- **Microwave FPU for long-distance transmission**
  This FPU, which uses the same channels as a 6- to 7-GHz-band Hi-Vision FPU, enables long-distance 8K relays. It achieves a transmission rate of approximately 200 Mbps by using ultra-multilevel OFDM\(^3\) technology and dual-polarized MIMO technology.

- **Antenna for microwave FPUs**
  We have developed a portable parabolic antenna, a transmission antenna for helicopters, and a high-gain receiving antenna mounted on a rotator to support the dual-polarized MIMO technology used for microwave FPUs.

- **Transmission technologies for mobile relay FPUs**
  We are researching transmission technologies using the 1.2-GHz/2.3-GHz band so that 8K video can be transmitted without interruption in mobile relays such as those used to broadcast road races. We have prototyped 4×4 MIMO-OFDM transmission devices that can change transmit and receive beams adaptively according to the propagation channel.

Future plans
Towards practical applications of the FPUs, we will continue to perform various experiments including verification of the practicality of outdoor use.

The research on the mobile relay FPU is being conducted as a government-commissioned project from the Ministry of Internal Affairs and Communications, titled "R&D on highly efficient frequency usage for the next-generation program contribution transmission."

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\(^1\) FPU (Field Pick-up Unit): A portable, wireless transmission device for program contribution transmissions that involve outdoor relays and reporting footage.

\(^2\) MIMO (Multiple-Input Multiple-Output): A wireless transmission scheme that uses multiple antennas for both transmission and reception.

\(^3\) OFDM (Orthogonal Frequency Division Multiplexing): A transmission scheme that arranges multiple carriers orthogonal to each other on the frequency axis.