We have developed a wireless relay shared system using the 920-MHz band. When connected to an existing network such as the LTE*1 line, the system can cover a wide area and accommodate many IoT/M2M terminals efficiently. It is possible to remotely control various actuators in conjunction with many sensors, such as when controlling agricultural machinery and water spraying equipment. We are now planning an agricultural field trial using the system.

Features

- Costs can be reduced by consolidating a large number of agricultural sensors over a wide area (about 1 km in a rural environment*2) to LTE lines.
- The relay base unit manages the transmission timing of the control signal of relay terminals. The transfer delay of the downlink control signal can be suppressed (within a 5-second delay) while achieving low power consumption of the relay terminals.
- A large number of sensor terminals can be accommodated, and shared and remote control of various actuators such as agricultural machines and sprinklers is possible.

Application Scenarios

- Remote monitoring by consolidating environmental information on temperature, humidity, water levels, etc., on the server
- Remote control of agricultural actuators such as sprinklers and water gates based on consolidated environmental information
- Remote control of agricultural machines such as start/stop and operation settings

*1 LTE (Long Term Evolution): 4G standard for mobile phones; high speed communication up to 150 Mbps for downlink
*2 Rural environment: An environment where the user density is sparse such as agricultural communities and mountain villages
*3 Wi-SUN (Wireless Smart Utility Network): Wireless communication standard using 920-MHz band used for smart metering
*4 LPWA (Low Power Wide Area): Various wireless communication systems for IoT (Internet of Things) that realize wide area and low power consumption