

## Development of data transmitter and receiver units using weak radio waves.

# tsuneo yamauchi[1]

[1] RCSVDM

Research Center for Seismology, Volcanology and Disaster Mitigation  
Graduate School of Environmental Studies, Nagoya University  
Development of data transmitter and receiver units using weak radio waves.

A master unit is able to transmit command data to slave units with a weak radio wave, and also to supply electric power. A slave unit is able to transmit data to master unit with two bands weak radio waves. Merits of the units are following;

- 1) The master unit able to supply electric power (1.5A at DC 48V) by a coaxial cable.
- 2) The master unit is able to transmit command data with 1.2 K bits per second, and is able to receive data from slave units with two bands weak radio waves.
- 3) Slave units are able to transmit data with a main line (115.2 K bits per second).
- 4) Slave units are also able to transmit data with a sub line (9.6 K bits per second).
- 5) Crosstalk does not arise with these three radio waves.
- 6) Units are able to transmit the data till 2.5 Km (with 8D2V coaxial cable), 1.8 Km (with 5D2V coaxial cable).
- 7) The master units is able to communicate 10 slave units with a coaxial cable.
- 8) A power consumption of each band 115.2 K bits per secons and 9.6 K bits per second is less than 7 mA (at DC5V).
- 9) Slave unit is able to stand by 0.02mA and receive command data from the master unit.
- 10) The radio wave way protects electric circuits of units from a high voltage impulse noise overlapping the coaxial cable.