Tohoku Univ. Technology

Radio wave measurement technology

High accuracy measurement of radio wave propagation characteristics in space

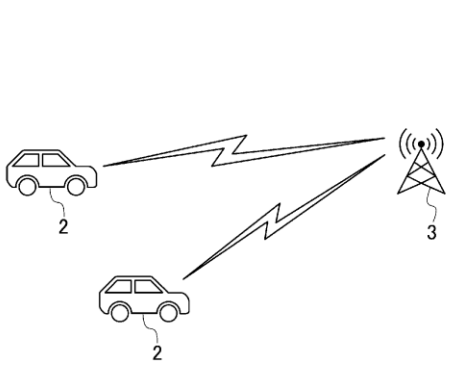
Overview

In the method for measuring/simulating the radio wave propagation characteristics in the space, the simulation is carried out by reflecting the interference to the measurement value derived from the cable caused by the wired connection between the measurement equipment, the specification of the radio communication adopted when the measurement equipment is connected wirelessly, the effect of the shape of the space and the existence of the obstacle in the space, but there was a problem in the accuracy of the simulation result.
In the radio wave measurement technology introduced this time, the above-mentioned problem was solved by carrying out the radio wave measurement using the radio communication between the measurement equipment (base station and mobile terminal).
In this technology, the time, frequency and phase are synchronized with each other between the base station and the mobile terminal, and the propagation characteristics of the radio wave which carries out radio communication between the mobile terminal and the base station moving in the measurement object space are continuously measured in time series in association with each position information of the mobile terminal.
Currently, some principle verification has been carried out on the radio wave measurement result/visualization in the case of propagation failure, etc.

Product Application

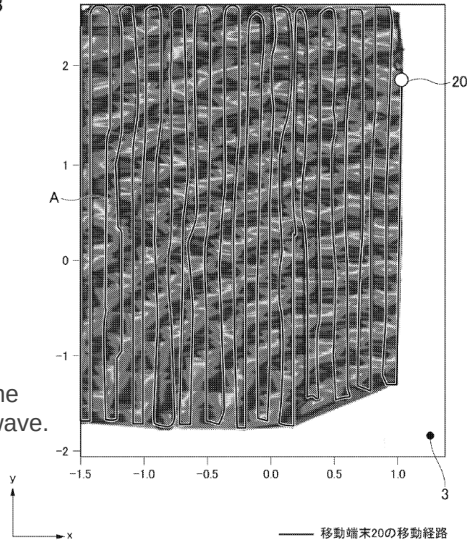
- Real-time checking of radio wave conditions at home and on the go using smartphones, etc.
- Checking radio wave conditions in indoor and outdoor facilities such as factories
- Spectrum analyzer

Features・Outstandings



The above figure shows an image between the base station and the mobile terminal.

The black line in the figure on the right shows the movement path of the mobile terminal, and the sector-like line shows the propagation characteristics of the radio wave.



IP Data

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