

A Detailed Large-Scale Radio Propagation Characteristics: Approaches with Time and Spatial Ratio

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Abstract— The 3.5GHz band was determined as the mobile communication frequency in IMT-2020. Basically, TD-LTE in small cell environment and supplementary downlink in hotspot area will be used in 3.5GHz band. In addition, the frequency resources are becoming insufficient over time due to the explosive increase in the radio equipment. If we use frequency resources in a time and space based sharing manner, it is expected that we will be able to efficiently use the scarce frequency resources. According to recent trends, the channel sounder for the 3.5GHz band consists of a universal device such as NI equipment for baseband and transceiver and its own modules which are high power amplifier, RF switch, timing module and antenna. In this paper, we introduce the channel sounder and have verified various measurement parameters such as path loss, delay spread, K-factor and channel capacity for actual radio measurements through this channel sounder in urban and suburban areas in the 3.5GHz band. Additionally, we show the result of the path loss modelling with time and space rate using this system.

Keyword— Channel sounder, Radio propagation, Time and spatial ratio, Frequency sharing



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