

# Millimeter-wave Channel Modeling on 28 GHz

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**Abstract:**

Millimeter wave band is considered for the next generation wireless communication system (5G), and a proper model for millimeter wave channel is needed for developing the future 5G cellular system. For constructing a statistical channel model on millimeter wave, more understanding of the channel characteristic including delay and angular spread is required. For this purpose, in this TD, the 28 GHz channel sounder based on horn-antenna for synchronized measurements is introduced. We developed a channel sounder system using time-stamping to measure the relative propagation time from transmitter to receiver, and propose a method to generate an omni-like channel measurements by superimposing all directional measurements. Subsequently, the omni-directional propagation measurement results are provided in an in-building environment similar to a small shopping mall. It is the first sounder and results to obtain the synthesized omni-directional results in millimeter wave 28 GHz band. Furthermore, the spatial-temporal channel characteristics of indoor environment are analyzed for developing the millimeter wave statistical spatial channel model (SSCM) further.