

Measurement and Modeling of Indoor MIMO-OFDM Channels

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This paper compares measured and simulated multiple-input multiple-output orthogonal frequency division multiplexing (MIMO-OFDM) channels in indoor environments. Standard stochastic MIMO channel models (TGn channel models) are compared with real measurements made on a channel sounder with four transmitters and four receivers operating at 5.24 GHz with 40 MHz bandwidth. The channels are analyzed in terms of spatial fading Rician factors and MIMO subchannel cross correlation. While the standard models assume identical Rician factor for different MIMO subchannels, the measurement reveals that Rician factors can be different for different MIMO subchannels. Measured MIMO subchannel cross correlation is found to be frequency dependent. Comparisons are also made in terms of error rate of MIMO-OFDM packet transmission, which highlights a large variation of performance in typical indoor environments.