Frequency Correlation Investigation of Massive MIMO Channels in a Stadium at 4.45 GHz

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***Abstract*—Massive multiple-input multiple-output (MIMO) is a potential key technology for the 5th generation (5G) of wireless communication systems. A reliable and realistic channel model serves as the enabling foundation for practical design and testing of the massive MIMO communication systems. In this paper, based on the realistic measurement conducted in open stadium environments, the frequency correlation properties are investigated. By using the direct method of calculating from the channel transfer function and the traditional method of derivation via a Fourier transform of the channel's average power delay profile, the frequency correlations are compared. These results reveal the correlation characteristics of massive MIMO channels and provide the basis for the practical deployment of massive MIMO systems.**

***Keywords*— Massive MIMO, wireless channel, channel measurement, correlation bandwidth, frequency correlation.**

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