Probe Configurations for 3D MIMO Over-the-Air Testing

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Abstract:

This paper discusses probe configurations for three dimensional (3D) anechoic chamber and fading emulator based MIMO Over-the-Air (OTA) testing. Different 3D and 2.5D probe configurations are assessed with IMT-Advanced channel models extended to 3D. The figure of merit of probe configurations is the rms error on spatial correlation function and the synthesis error calculated based on deviation between the target electric field and the resulting field. Synthesized fields depend both on a channel model and a given probe configuration. The simulation results recommend different practical probe configurations for different test volume sizes. A configuration with 16 dual polarized probes could be sufficient for testing of terminals with diameter of 0.75 or even one wavelengths.