Reproducing Standard SCME Channel Models for Massive MIMO Base Station Radiated Testing

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Abstract—Massive MIMO is a multi-user technology, where radio base stations (BSs) are equipped with a large-scale antenna array to simultaneously serve many terminals in the same time-frequency resource. Performance evaluation of such large-scale antenna systems in the design and development stage is challenging. In this paper, we propose to evaluate massive MIMO BSs with a sectorized multi-probe anechoic chamber (MPAC) setup. A sectorized MPAC setup with 16 probe antennas distributed uniformly within [0°,60°] in azimuth domain is utilized to reproduce target channel models. A 8×8 and a 16×16 uniform planar array at 3.5 GHz are selected as the BS under evaluation, respectively. Radio channel emulation accuracies in terms of power-angular spectrum, spatial correlation and beamforming pattern are investigated for the proposed MPAC setup and desired channel models.

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