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Assessing Measurement Distances for OTA Testing of Massive MIMO Base Station at 28 GHz

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This paper discusses physical dimensions for a multi probe anechoic chamber based (MPAC) over-the-air (OTA) setup aiming for base station (BS) testing. The target frequency of the simulated massive multiple-input-multiple-output (MIMO) BS arrays is 28 GHz. The assessment is performed with two metrics. The first metric is a new power metric based on assumptions of a code book of fixed beams and planar waves. The second one is the multi-user (MU) MIMO sum rate capacity. The intention is to evaluate physical dimensions in metres with respect to different BS array sizes. Simulation results indicate that OTA performance of a BS array with maximum dimension of 0.15m could be measured with a setup having measurement distance of approximately 1m.

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