Compliance Boundaries for LTE Base Station Antennas at 2600 MHz

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Abstract:

Compliance boundaries and allowed output powers based on on the whole body averaged specific absorption rate (SAR) and the 10 g averaged SAR in both the limbs and the head and trunk and the root mean squared electrical field, are determined for three orientations regarding three base station antennas (BSAs) emitting at 2600 MHz. The ICNIRP basic restrictions and reference levels for both the general public and occupational exposure, are used to determine these compliance boundaries. FDTD simulations are carried out using the virtual family male and CAD models of the three antennas. The results for the different basic restrictions and reference levels are compared and we observed that the reference levels are not conservative when the antenna is only partially radiating. The simulation results show that the basic restriction on the 10g averaged SAR in the head and trunk of the body determines the compliance boundaries at lower antenna powers. Combined compliance distances, which ensure compliance with all reference levels and basic restrictions, have been determined for every frequency. The errors on the estimated allowed power are used for an uncertainty analysis for the compliance distances.