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Calculation practical measurement approach to estimate the intensity electromagnetic radiation from base station antennas on human

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Different cellular telecommunication technologies like the GSM900/DCS1800, CDMA2000/UMTS, HSPDA/HSUPA, Wimax/LTE, etc., and their supporting base station antenna have become ubiquitous to ease human life, especially in area of information transmission and reception. With the substantial increase of base station deployment around man, possible health hazards associated with the electromagnetic radiation that emanates from them have become an issue of considerable attention. This work examines the electromagnetic wave radiation intensity compliance level of three GSM base station antennas deployed in residential urban area in Benin, Nigeria. The deployed base stations consisted of three antennas each installed on them and are deployed close to residential buildings in the study location. From the results, the following observation are made. First, the measured field fluctuates and showed high variations in values owing to building blockages and other terrain features between the investigated antennas and the measurement points. Second, the calculated field strength values are quit higher than the measured ones. Third, the highest measured field strength values are 0.66V/m for BS 1, 0.96V/m for BS 2 and 0.68V/m for BS 3, all which about 95% lower the 41V/m maximum standard limits given by the International Commission on Non-ionizing Radiation Protection (ICNIRP) regarding human safety. This implies, the intensity of electromagnetic radiation from the assessed antennas are innocuous for human health.

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