

Scientific basis of recently published IEEE C95.1:2019 exposure limits with focus on 5G mmWaves

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There exist Standards and Guidelines to set the limits for the exposure to electromagnetic fields (EMF) emitted by equipment and devices using radio frequency (RF) of the electromagnetic spectrum. One of the main organizations developing such standard is IEEE, International Committee for Electromagnetic safety (ICES). ICES develops standards for the safe use of electromagnetic energy in the range of 0 Hz to 300 GHz.

With the advance of the new technologies and emerging new scientific data IEEE/ICES started to revise its previous standard which was published in 2005. One of the recent technologies, which took considerable time of assessing the scientific data during revision was 5th Generation (5G) wireless communication technologies. The previous generations of wireless technologies employed frequencies below 6 GHz, which was using Specific Absorption Rate (SAR) as its metrics to limit the RF exposure, whereas the 5G is also using mmWave portion of the electromagnetic spectrum, which is new to wireless communication technologies.

The focus of the talk during the seminar is to discuss how IEEE/ICES reviews the scientific data in making conclusions and drive limits, but focusing on the mmWaves. The main scientific conclusions which has made the basis of the revised mmWaves 5G limits will also be presented.