Characterization of Complex Electromagnetic Environment Created by Multiple Sources of Electromagnetic Radiation

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Abstract : This paper considers the characterisation of a complex electromagnetic environment due to multiple sources of electromagnetic radiation as a five-dimensional surface which can be described by a set of several surface sections including: instant EM field intensity distribution maps at a given frequency and altitude, instantaneous spectrum at a given location in space and the time evolution of the electromagnetic field spectrum at a given point in space. This characterization if done over time can enable the exposure levels of Radio Frequency Radiation at every point in the analysis area to be determined and results interpreted based on comparison of the determined RFR exposure level with the safe guidelines for general public exposure given by recognised body such as the International commission on non-ionising radiation protection (ICNIRP), Institute of Electrical and Electronic Engineers (IEEE), the National Radiation Protection Authority (NRPA).

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Keywords : complex electromagnetic environment, electric field strength, mathematical models, multiple sources

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020