

Electromagnetics and pollution of High frequency EM Waves



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Abstract:

Electromagnetics is a subject which deals with the nature and characteristics of EM waves. It is possible to design and analyze transmitting and receiving antennas including channel or medium. In fact, EM theory is only suitable to characterize medium of wireless communication, including radars. The design and analysis of systems is based on Maxwells equations, wave equations and boundary conditions. To carry out such tasks knowledge of mathematical tools is required. The concepts of spherical coordinates FEM, WIPL-D, MOM etc., are essential for applying Electromagnetics widely in optimization. In this keynote address, Maxwells equations in differential and integral form wave equations and boundary conditions are presented in a way to build confidence in solving electromagnetic problems. EM waves create lot of EMR and EMI problems resulting in EM pollution. A brief account of such pollutions is presented to bring awareness among beginners and practisers of electromagnetics.