

Computational Electromagnetics (RP 4.1.14)

Review of basic EM Field equations

Green's Functions, Green's Theorem, Green's Identity, Tensor Green's Function, Integral Equations, Method of Solution of Integral Equations, Construction of Solutions

The Time-harmonic electric and magnetic fields satisfying the Maxwell's equations

Methods to solve the (a) Maxwell's equations subject to the boundary conditions, (b) Poisson's equation methods to solve the wave equation or Helmholtz equation by (i) Method of separation of variables, (ii) Green's function technique, (iii) Fourier Transform technique, (iv) Perturbation method, (v) Variational method, (vi) Conformal mapping

Model based method (a) Transmission Line model, (b) Cavity model

Computational methods (a) Finite Difference Method, (b) Finite Element Method, (c) Method of Moment

Problems : Electromagnetics in Stripline and Microstripline structures