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2.11.1 Coulomb Gauge; 2.11.2 Diffusion Gauge; 2.11.3 Lorentz Gauge; 2.12 Retarded Potentials; 2.13 General Boundary Conditions and Uniqueness Theorem; 2.14 Electric and Magnetic Walls
2.15 The Lagrangian Form of Electromagnetic Field Laws2.15.1 Lagrangian Formulation and Hamilton Variational Principle; 2.15.2 Lagrangian Formulation and Hamilton Variational Principle in Electromagnetics; 2.16 Complex Phasor Notation of Time-Harmonic Electromagnetic Fields; 2.16.1 Poyinting Theorem for Complex Phasors; 2.16.2 Complex Phasor Form of Electromagnetic Wave Equations; 2.16.3 The Retarded Potentials for the Time-Harmonic Fields; 2.17 Transmission Line Theory; 2.17.1 Field Coupling Using Transmission Line Models
2.17.2 Derivation of Telegrapher's Equation for the Two-Wire Transmission Line2.18 Plane Wave Propagation; 2.19 Radiation; 2.19.1 Radiation Mechanism; 2.19.2 Hertzian Dipole; 2.19.3 Fundamental Antenna Parameters; 2.19.4 Linear Antennas; 2.20 References; 3 Introduction to Numerical Methods in Electromagnetics; 3.1 Analytical Versus Numerical Methods; 3.1.1 Frequency and Time Domain Modeling; 3.2 Overview of Numerical Methods: Domain, Boundary, and Source Simulation; 3.2.1 Modeling of Problems via the Domain Methods: FDM and FEM
3.2.2 Modeling of Problems via the BEM: Direct and Indirect Approach3. 3 The Finite Difference Method; 3.3.1 One-Dimensional FDM; 3.3.2 Two-Dimensional FDM; 3.4 The Finite Element Method; 3.4.1 Basic Concepts of FEM; 3.4.2 One-Dimensional FEM; 3.4.3 Two-Dimensional FEM; 3.5 The Boundary Element Method; 3.5.1 Integral Equation Formulation; 3.5.2 Boundary Element Discretization; 3.5.3 Computational Example for 2D Static Problem; 3.6 References; 4 Static Field Analysis; 4.1 Electrostatic Fields; 4.2 Magnetostatic Fields; 4.3 Modeling of Static Field Problems
4.3.1 Integral Equations in Electrostatics Using Sources

Sommario/riassunto

This text combines the fundamentals of electromagnetics with numerical modeling to tackle a broad range of current electromagnetic compatibility (EMC) problems, including problems with lightning, transmission lines, and grounding systems. It sets forth a solid foundation in the basics before advancing to specialized topics, and allows readers to develop their own EMC computational models for applications in both research and industry.