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Nota di contenuto	Contents; Preface; Chapter I Review of Maxwell Equations; A. Maxwell's Equations in MKS System of Units; B. General Constitutive Relations; C. External, Surface and Internal Electromagnetic Fields; D. Practical Example; E. Electric Polarization of Microwave Signal; F. Microwave Response and Polarization; SUGGESTED REFERENCES; Example 1; Example 2; Example 3; Chapter II Common Waveguide Structures; A. Parallel Plate Waveguides; B. Coaxial Line; C. Rectangular Waveguide; SUGGESTED REFERENCES; Example 1; Example 2; Example 3; Chapter III Telegraph's Equation; A. Types of Transmission Lines B. Wave EquationC. Connection to Circuit Parameters; D. Formal Solution; E. Electrical Quantities; F. Bounce Diagram; Example of Step Function Transients; Graphical Representation; SUGGESTED REFERENCES; Example 1; Example 2; Example 3; Example 4; Example 5; Chapter IV Analytical Solution; Introduction; A. Lossy case; B. Real Time Solutions; C. Lossless Case; D. Determination of lmax and lmin; 1. Lossless Cases; 2. Lossy Transmission Lines; E. Coupling Between Source and Transmission Line; SUGGESTED REFERENCES; Example 1; Example 2; Example 3; Example 4; Example 5; Chapter V Graphic

Solution

IntroductionA. Mathematical Terminologies; B. Plot of (-l) in Complex Plane; C. Projection of Z(-l) Onto The Complex Plane - Smith Chart; D. Projection of V(-l) on The Smith Chart; E. Projection of I(-l) on Smith Chart; F. Graphical Methods For Lossy Lines; SUGGESTED REFERENCES; Example 1; a.) Graphical determination of Z(-l); b.) Graphical Determination of V(-l); c.) Graphical Determination of I(-l); Example 2; a.) Graphical Determination of Z(-l); b.) Graphical Determination of V(-l); b.) Graphical Determination of I(-l); Example 3; Chapter VI Special Topics in Transmission Lines

IntroductionA. Stub Tuners; B. Graphical Solution; C. Quarter and Half Wavelength Transmission Lines; 1) Quarter Wavelength Transmission Lines; 2) Half Wavelength Transmission Lines; D. Microwave Absorbers; SUGGGESTED REFERENCES; Example 1; Example 2; Example 3; Example 4; Example 5; Example 6; Chapter VII Electromagnetic Scattering Parameters; Introduction; A. Definition of the S-Parameters; A.1. Algebraic Properties of S Matrix; B. Relationship Between Measurements and Network Electrical Parameters; C. Simple Example of Inverse Scattering Problem

D. General Comments About Scattering ParametersSUGGESTED REFERENCE; Example 1; Example 2; Chapter VIII Matrix Representation of Microwave Networks; Introduction; A. Transfer Function Matrix of Two Port Network; B. Transmission Line Analysis Using Matrix Representation; C. Connection Between Scattering Parameters and Matrix Representation; D. General Properties of Matrix Representation; D.1. Single Networks; D.2. Cascaded Networks; D.3. Periodic Network Systems; D.4. Application; E. Some Special Properties of Ferrite Networks; F. Relationship Between Scattering S-Parameters and Matrix Elements

G. Example of Inverse Scattering

Sommario/riassunto

This important book serves as a transition between introductory courses in electromagnetism and realistic concepts employed in the microwave industry. Topics on lossy, multiply connected and ferrite networks are discussed in a simple and direct style to arouse the interest of the novice student, enhance the analytical skills of the practitioner, and invite the perusal of the advanced student to explore the novel concepts developed in the book. In particular, the discussions on ferrite networks are presented as an integral part of the author's theoretical methodology rather than a specialized p