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Nota di contenuto	APPLIED ELECTROMAGNETICS AND ELECTROMAGNETIC COMPATIBILITY; CONTENTS; Preface; Acknowledgments; 1 General Considerations; 1.1 Introduction; 1.2 Definitions; 1.3 Interference mechanisms; 1.4 Examples; 1.5 Discussion; References; 2 The Electromagnetic Environment; 2.1 Introduction; 2.2 Natural Noise; 2.3 Man-Made Noise; 2.4 CW and Transient Sources; 2.5 Characteristic Parameters of Authorized Radiators; 2.6 Noise Emission Intensity; 2.7 Home Environment; 2.8 Discussion of Noise Sources; 2.9 Subject Matter of the Book; References; 3 Fundamentals of Fields and Waves; 3.1 Introduction 3.2 Basic Parameters3.3 Time Dependent Relations; 3.3.1 Continuity of Current and Conservation of Charge; 3.3.2 Faraday's Law; 3.3.3 Ampere's Circuital Law; 3.3.4 Lorentz Force Law; 3.3.5 Maxwell's Equations; 3.3.6 Historical Comments on Maxwell's Equations; 3.3.7 Media Considerations; 3.3.8 Boundary Conditions; 3.3.9 Energy Flow and Poynting's Theorem; 3.3.10 Uniqueness Theorem; 3.4 Harmonically Oscillating Fields; 3.4.1 Introduction; 3.4.2 Phasors; 3.4.3 Time Harmonic Relations; 3.4.4 Complex Permittivity; 3.4.5 Boundary

Conditions Again; 3.4.6 Notes on the Solution  
3.4.7 The Complex Poynting Theorem  
3.5 The Wave Equation; 3.5.1 Time Dependent Case; 3.5.2 Time Harmonic Case; 3.6 Uniform Plane Waves; 3.6.1 General Considerations; 3.6.2 Energy Considerations; 3.6.3 Group Velocity; 3.6.4 Summary; 3.6.5 General Representation of TEM Waves; 3.6.6 Plane Waves in Lossy Media; 3.6.7 Skin Effect; 3.6.8 Polarization of Plane Waves; 3.7 Reflection and Refraction (Transmission) of Plane Waves; 3.7.1 Normal Incidence on a Plane Interface; 3.7.2 Oblique Incidence; References; Problems; 4 Signal Waveform and Spectral Analysis; 4.1 Introduction  
4.2 Classification of Signals  
4.3 Energy Signals; 4.3.1 Definitions; 4.3.2 A Rectangular Pulse; 4.4 Power Signals; 4.4.1 Periodic Signals; 4.4.2 Trapezoidal Waveform; 4.5 Examples of Some Signals; References; Problems; 5 Transmission Lines; 5.1 Introduction; 5.2 Basic Discussion; 5.3 Transverse Electromagnetic (TEM) Transmission Lines; 5.4 Telegrapher's Equations: Quasi-Lumped Circuit Model; 5.5 Wave Equations; 5.6 Frequency Domain Analysis; 5.6.1 General Solution; 5.6.2 Further Discussion of Propagation Constant and Characteristic Impedance; 5.6.3 Voltage, Current, and Impedance Relations  
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5.7.1 Coaxial Line; 5.7.2 Parallel Wire Line; 5.7.3 Parallel Plate Line; 5.7.4 Circular Wire above a Ground Plane; 5.7.5 Microstrip Line; 5.7.6 Stripline; 5.7.7 Comments; 5.8 Transients on Transmission Lines; 5.8.1 Initial and Final (Steady State) Values; 5.8.2 Transient Values; 5.9 Measurements; 5.9.1 Slotted Line Measurements; 5.9.2 Network Analyzer Measurement; References; Problems; 6 Antennas and Radiation; 6.1 Introduction; 6.2 Potential Functions; 6.3 Radiation from a Short Current Element; 6.3.1 Complete Fields; 6.3.2 Near Zone and Far Zone Considerations  
6.3.3 Near Zone and Far Zone Fields

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## Sommario/riassunto

Applied Electromagnetics and Electromagnetic Compatibility deals with Radio Frequency Interference (RFI), which is the reception of undesired radio signals originating from digital electronics and electronic equipment. With today's rapid development of radio communication, these undesired signals as well as signals due to natural phenomena such as lightning, sparking, and others are becoming increasingly important in the general area of Electro Magnetic Compatibility (EMC). EMC can be defined as the capability of some electronic equipment or system to be operated at desired levels of performan

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