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Nota di contenuto	HIGH FREQUENCY TECHNIQUES; CONTENTS; Preface; Acknowledgments; 1 Introduction; 1.1 Beginning of Wireless; 1.2 Current Radio Spectrum; 1.3 Conventions Used in This Text; Sections; Equations; Figures; Exercises; Symbols; Prefixes; Fonts; 1.4 Vectors and Coordinates; 1.5 General Constants and Useful Conversions; 2 Review of AC Analysis and Network Simulation; 2.1 Basic Circuit Elements; The Resistor; Ohm's Law; The Inductor; The Capacitor; 2.2 Kirchhoff's Laws; 2.3 Alternating Current (AC) Analysis; Ohm's Law in Complex Form; 2.4 Voltage and Current Phasors; 2.5 Impedance; Estimating Reactance

Addition of Series Impedances 2.6 Admittance; Admittance Definition; Addition of Parallel Admittances; The Product over the Sum; 2.7 LLFPB Networks; 2.8 Decibels, dBW, and dBm; Logarithms (Logs); Multiplying by Adding Logs; Dividing by Subtracting Logs; Zero Powers; Bel Scale; Decibel Scale; Decibels-Relative Measures; Absolute Power Levels-dBm and dBW; Decibel Power Scales; 2.9 Power Transfer; Calculating Power Transfer; Maximum Power Transfer; 2.10 Specifying Loss; Insertion Loss; Transducer Loss; Loss Due to Series Impedance; Loss Due to Shunt Admittance
Loss in Terms of Scattering Parameters 2.11 Real RLC Models; Resistor with Parasitics; Inductor with Parasitics; Capacitor with Parasitics; 2.12 Designing LC Elements; Lumped Coils; High m Inductor Cores-the Hysteresis Curve; Estimating Wire Inductance; Parallel Plate Capacitors; 2.13 Skin Effect; 2.14 Network Simulation; 3 LC Resonance and Matching Networks; 3.1 LC Resonance; 3.2 Series Circuit Quality Factors; Q of Inductors and Capacitors; Q(E), External Q; Q(L), Loaded Q; 3.3 Parallel Circuit Quality Factors; 3.4 Coupled Resonators; Direct Coupled Resonators; Lightly Coupled Resonators
3.5 Q Matching Low to High Resistance; Broadbanding the Q Matching Method; High to Low Resistance; 4 Distributed Circuit Design; 4.1 Transmission Lines; 4.2 Wavelength in a Dielectric; 4.3 Pulses on Transmission Lines; 4.4 Incident and Reflected Waves; 4.5 Reflection Coefficient; 4.6 Return Loss; 4.7 Mismatch Loss; 4.8 Mismatch Error; 4.9 The Telegrapher Equations; 4.10 Transmission Line Wave Equations; 4.11 Wave Propagation; 4.12 Phase and Group Velocities; 4.13 Reflection Coefficient and Impedance; 4.14 Impedance Transformation Equation; 4.15 Impedance Matching with One Transmission Line
4.16 Fano's (and Bode's) Limit Type A Mismatched Loads; Type B Mismatched Loads; Impedance Transformation Not Included; 5 The Smith Chart; 5.1 Basis of the Smith Chart; 5.2 Drawing the Smith Chart; 5.3 Admittance on the Smith Chart; 5.4 Tuning a Mismatched Load; 5.5 Slotted Line Impedance Measurement; 5.6 VSWR = r; 5.7 Negative Resistance Smith Chart; 5.8 Navigating the Smith Chart; 5.9 Smith Chart Software; 5.10 Estimating Bandwidth on the Smith Chart; 5.11 Approximate Tuning May Be Better; 5.12 Frequency Contours on the Smith Chart; 5.13 Using the Smith Chart without Transmission Lines 5.14 Constant Q Circles

Sommario/riassunto

A practical guide for today's wireless engineer High Frequency Techniques: An Introduction to RF and Microwave Engineering is a clearly written classical circuit and field theory text illustrated with modern computer simulation software. The book's ten chapters cover:* The origins and current uses of wireless transmission* A review of AC analysis, Kirchhoff's laws, RLC elements, skin effect, and introduction to the use of computer simulation software* Resonators, Q definitions, and Q-based impedance matching* Transmission lines, waves, VSWR, reflection phenomena, Fano's