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Nota di contenuto	Front Cover; Small Antenna Design; Copyright Page; Contents; Preface; About the Author; What's on the CD-ROM?; Chapter 1: Introduction; 1.1 What Is Small?; 1.2 What Are the Problems?; 1.3 Some Historical Small Antenna Types and Applications; 1.4 Some Present and Future Small Antennas; References; Chapter 2: Antenna Fundamentals I; 2.1 Electromagnetic Waves; 2.2 Polarization; 2.3 The Short Dipole; 2.4 The Small Loop; 2.5 Directionality, Efficiency, and Gain; References; Chapter 2 Problems; Chapter 3: Antenna Fundamentals II; 3.1 Bandwidth and Quality Factor, Q 3.2 Impedance Matching and System Efficiency 3.3 Reception; 3.4 Ground Effects; 3.5 Improvements; References; Chapter 3 Problems; Chapter 4: Introduction to Numerical Modeling of Wire Antennas; 4.1 General Concepts; 4.2 The Mathematical Basics of the Numerical Electromagnetic Code (NEC); 4.3 Using NEC in the Command Window; 4.4 Modeling Guidelines; 4.5 NEC in a Graphical User Interface (GUI); 4.6 Examples from Chapters 2 and 3; References; Chapter 4 Problems; Chapter 5: Programmed Modeling; 5.0 Introduction; 5.1 Using Wire-List Generators in NEC; 5.2 Using Code to Generate a Wire List Chapter 5 Problems Chapter 6: Open-Ended Antennas; 6.0 Introduction; 6.1 Thick Monopoles; 6.2 Top Loading; 6.3 Coil Loading; 6.4 Using Resonance; 6.5 Summary; References; Chapter 6 Problems; Chapter 7: Loops and Other Closed-Wire Antennas; 7.0 Introduction; 7.1 Thick Loops; 7.2 Solenoid Antennas; 7.3 The Contrawound Toroidal Helix

Antenna (CTHA); 7.4 The Folded Spherical Helix Monopole; 7.5 Final Comments; References; Chapter 7 Problems; Chapter 8: Receiving Antennas; 8.0 Introduction; 8.1 External Noise; 8.2 The Ferrite Rod Antenna; 8.3 Active Receiving Antennas; References Chapter 8 Problems Chapter 9: Measurements; 9.1 What Are You Measuring?; 9.2 Measurements Through a Transmission Line; 9.3 Ranges and Test Enclosures; 9.4 The Wheeler Cap and Variations; References; Chapter 9 Problems; Appendix A: The Mathematics of Antenna Orientation; A.1 Unit-Vector and Coordinate Variable Relations; A.2 The Horizontal Dipole; A.3 The Vertical Loop; Appendix A Problems; Appendix B: The Parallel-Ray Approximation; Appendix B Problems; Appendix C: The Small Loop; Appendix C Problems; Appendix D: The Proximity Effect; D.1 Current Distribution; D.2 Power and Resistance References Appendix E: What Every EE Student Should Know About Mathematics by the Senior Year; E.1 What Is Mathematics to an Engineer?; E.2 The Process Is as Important as the Result; E.3 Facts and Idioms; E.4 Integrals and Derivatives; E.5 Radians or Degrees?; E.6 Matrix Notation and Operations; E.7 Answers for Section E.3; Index; Elsevier Science CD-ROM License Agreement

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#### Sommario/riassunto

As wireless devices and systems get both smaller and more ubiquitous, the demand for effective but small antennas is rapidly increasing. This book will describe the theory behind effective small antenna design and give design techniques and examples for small antennas for different operating frequencies. Design techniques are given for the entire radio spectrum, from a very hundred kilohertz to the gigahertz range. Unlike other antenna books which are heavily mathematical and theoretical, Douglas Miron keeps mathematics to the absolute minimum required to explain design techniques. Grou

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