

1. Record Nr.	UNINA9910143417303321
Autore	Hansen Robert C
Titolo	Electrically small, superdirective, and superconducting antennas [[electronic resource] /] / R.C. Hansen
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2006
ISBN	1-280-46841-6 9786610468416 0-470-04104-8 0-470-04103-X
Descrizione fisica	1 online resource (182 p.)
Disciplina	621.3824 621.384135
Soggetti	Antennas (Electronics) Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Electrically Small, Superdirective, and Superconducting Antennas; Contents; Preface; 1. Electrically Small Antennas; 1.1 Introduction; 1.2 Fundamental Limitations; 1.2.1 Wheeler-Chu-McLean; 1.2.2 Foster's Reactance Theorem Versus Smith Chart; 1.2.3 Fano's Matching Limitations; 1.3 Electrically Small Antennas: Canonical Types; 1.3.1 Dipole Basic Characteristics; 1.3.1.1 Resistive and Reactive Loading; 1.3.1.2 Other Loading Configurations; 1.3.2 Patch and Partial Sleeve; 1.3.2.1 Titanate or Metaferrite Substrate; 1.3.2.2 Partial Sleeve; 1.3.3 Loop Basic Characteristics; 1.3.3.1 Air Core Loop 1.3.3.2 Multiturn Air Loop1.3.3.3 Magnetic Core Loop; 1.3.3.4 Receiving Loops; 1.3.3.5 Vector Sensor; 1.3.4 Dielectric Resonator Antenna; 1.4 Clever Physics, but Bad Numbers; 1.4.1 Contrawound Toroidal Helix Antenna; 1.4.2 Transmission Line Antennas; 1.4.3 Halo, Hula Hoop, and DDRR Antennas; 1.4.4 Dielectric Loaded Antennas; 1.4.5 Meanderline Antennas; 1.4.6 Cage Monopole; 1.5 Pathological Antennas; 1.5.1 Crossed-Field Antenna; 1.5.2 Snyder Dipole; 1.5.3 Loop-Coupled Loop; 1.5.4 Multiarm Dipole; 1.5.5 Complementary Pair Antenna; 1.5.6 Integrated Antenna; 1.5.7 Antenna in a NIM Shell

1.5.8 Fractal Antennas; 1.5.9 Antenna on a Chip; 1.5.10 Random Segment Antennas; 1.5.11 Multiple Multipoles; 1.5.12 Switched Loop Antennas; 1.6 ESA Summary; References; Author Index; 2. Superdirective Antennas; 2.1 History and Motivation; 2.2 Maximum Directivity; 2.2.1 Apertures; 2.2.2 Arrays; 2.2.2.1 Broadside Arrays of Fixed Spacing; 2.2.2.2 Endfire Arrays; 2.3 Constrained Superdirectivity; 2.3.1 Dolph-Chebyshev Superdirectivity; 2.3.2 Superdirective Ratio Constraint; 2.3.3 Bandwidth or Q Constraint; 2.3.4 Phase or Position Adjustment; 2.3.5 Tolerance Constraint
2.4 Bandwidth, Efficiency, and Tolerances; 2.4.1 Bandwidth; 2.4.2 Efficiency; 2.4.3 Tolerances; 2.5 Miscellaneous Superdirectivity; 2.6 Matching Circuit Loss Magnification; 2.7 Non-Foster Matching Circuits; 2.8 SD Antenna Summary; References; Author Index; 3. Superconducting Antennas; 3.1 Introduction; 3.2 Superconductivity Concepts for Antenna Engineers; 3.3 Dipole, Loop, and Patch Antennas; 3.3.1 Loop and Dipole Antennas; 3.3.2 Microstrip Antennas; 3.3.3 Array Antennas; 3.3.4 Millimeter Wave Antennas; 3.3.4.1 Waveguide Flat Plane Array; 3.3.4.2 Microstrip Planar Array
3.3.5 Submillimeter Antennas; 3.3.6 Low-Temperature Superconductor Antennas; 3.4 Phasers and Delay Lines; 3.5 SC Antenna Summary; References; Author Index; Subject Index

Sommario/riassunto

A seminal reference to electrically small antennas for today's wireless and Wi-Fi world. This book is dedicated to the challenges posed by electrically small antennas and their solutions. Electrically small antennas have characteristics that limit performance: low radiation resistance, high reactance, low efficiency, narrow bandwidth, and increased loss in the matching network. Most of these limitations are shared by two other classes of antennas: superdirective and superconducting antennas. All three classes of antennas are thoroughly treated in three interrelated parts.* Part O
