

1. Record Nr.	UNINA9910830913303321
Titolo	Antennas for portable devices / / [editor] Zhi Ning Chen
Pubbl/distr/stampa	Chichester, England : , : John Wiley & Sons, , c2007 [Piscataway, New Jersey] : , : IEEE Xplore, , [2007]
ISBN	1-280-83943-0 9786610839438 0-470-31964-X 1-60119-370-X 0-470-31965-8
Descrizione fisica	1 online resource (306 p.)
Altri autori (Persone)	ChenZhi Ning
Disciplina	621.3824
Soggetti	Antennas (Electronics) - Design and construction Wireless communication systems - Equipment and supplies - Design and construction
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 index.
Nota di contenuto	Foreword -- Acknowledgements -- List of Contributors -- 1 Introduction (Zhi Ning Chen) -- References -- 2 Handset Antennas (Brian S. Collins) -- 2.1 Introduction -- 2.2 Performance Requirements -- 2.3 Electrically Small Antennas -- 2.4 Classes of Handset Antennas -- 2.5 The Quest for Efficiency and Extended Bandwidth -- 2.5.1 Handset Geometries -- 2.5.2 Antenna Position in the Handset -- 2.5.3 The Effect of the User -- 2.5.4 Antenna Volume -- 2.5.5 Impedance Behavior of a Typical Antenna in the Low Band -- 2.5.6 Fields and Currents on Handsets -- 2.5.7 Managing the Length / Bandwidth Relationship -- 2.5.8 The Effect on RF Efficiency of Other Components of the Handset -- 2.5.9 Specific Absorption Rate -- 2.5.10 Hearing Aid Compliance -- 2.5.11 Economic Considerations -- 2.6 Practical Design -- 2.6.1 Simulations -- 2.6.2 Materials and Construction -- 2.6.3 Recycling -- 2.6.4 Building the Prototype -- 2.6.5 Measurement -- 2.6.6 Design Optimization -- 2.7 Starting Points for Design and Optimization -- 2.7.1 External Antennas -- 2.7.2 Balanced Antennas -- 2.7.3 Antennas for Other Services -- 2.7.4 Dual-Antenna

Interference Cancellation -- 2.7.5 Multiple Input, Multiple Output --
 2.7.6 Antennas for Lower-Frequency Bands / TV and Radio Services --
 2.8 The RF Performance of Typical Handsets -- 2.9 Conclusion --
 References -- 3 RFID Tag Antennas (Xianming Qing and Zhi Ning Chen)
 -- 3.1 Introduction -- 3.2 RFID Fundamentals -- 3.2.1 RFID System
 Configuration -- 3.2.2 Classification of RFID Systems -- 3.2.3
 Principles of Operation -- 3.2.4 Frequencies, Regulations and
 Standardization -- 3.3 Design Considerations for RFID Tag Antennas --
 3.3.1 Near-field RFID Tag Antennas -- 3.3.2 Far-field RFID Tag
 Antennas -- 3.4 Effect of Environment on RFID Tag Antennas -- 3.4.1
 Near-field Tags -- 3.4.2 Far-field Tags -- 3.4.3 Case Study -- 3.5
 Summary -- References -- 4 Laptop Antenna Design and Evaluation
 (Duixian Liu and Brian Gaucher) -- 4.1 Introduction -- 4.2 Laptop-
 Related Antenna Issues.
 4.2.1 Typical Laptop Display Construction -- 4.2.2 Possible Antennas
 for Laptop Applications -- 4.2.3 Mechanical and Industrial Design
 Restrictions -- 4.2.4 LCD Surface Treatment in Simulations -- 4.2.5
 Antenna Orientation in Display -- 4.2.6 The Difference between Laptop
 and Cellphone Antennas -- 4.2.7 Antenna Location Evaluations -- 4.3
 Antenna Design Methodology -- 4.3.1 Modeling -- 4.3.2 Cut-and-Try
 -- 4.3.3 Measurements -- 4.4 PC Card Antenna Performance and
 Evaluation -- 4.5 Link Budget Model -- 4.6 An INF Antenna
 Implementation -- 4.7 Integrated and PC Card Solutions Comparison
 -- 4.8 Dualband Examples -- 4.8.1 An Inverted-F Antenna with
 Coupled Elements -- 4.8.2 A Dualband PCB Antenna with Coupled
 Floating Elements -- 4.8.3 A Loop Related Dualband Antenna -- 4.9
 Remarks on WLAN Antenna Design and Evaluations -- 4.10 Antennas
 for Wireless Wide Area Network Applications -- 4.10.1 INF Antenna
 Height Effects on Bandwidth -- 4.10.2 A WWAN Dualband Example --
 4.11 Ultra-Wide Band Antennas -- 4.11.1 Description of the UWB
 Antenna -- 4.11.2 UWB Antenna Measurement Results -- References
 -- 5 Antenna Issues in Microwave Thermal Therapies (Koichi Ito and
 Kazuyuki Saito) -- 5.1 Microwave Thermal Therapies -- 5.1.1
 Introduction -- 5.1.2 Classification by Therapeutic Temperature --
 5.1.3 Heating Schemes -- 5.2 Interstitial Microwave Hyperthermia --
 5.2.1 Introduction and Requirements -- 5.2.2 Coaxial-Slot Antenna --
 5.2.3 Numerical Calculation -- 5.2.4 Performance of the Coaxial-Slot
 Antenna -- 5.2.5 Temperature Distributions Around the Antennas --
 5.3 Clinical Trials -- 5.3.1 Equipment -- 5.3.2 Treatment by Use of a
 Single Antenna -- 5.3.3 Treatment by Use of an Array Applicator --
 5.3.4 Results of the Treatment -- 5.4 Other Applications -- 5.4.1
 Treatment of Brain Tumors -- 5.4.2 Intracavitary Microwave
 Hyperthermia for Bile Duct Carcinoma -- 5.5 Summary -- References
 -- 6 Antennas for Wearable Devices (Akram Alomainy, Yang Hao and
 Frank Pasveer) -- 6.1 Introduction -- 6.1.1 Wireless Body Area
 Networks.
 6.1.2 Antenna Design Requirements for Wireless BAN/PAN -- 6.2
 Modelling and Characterization of Wearable Antennas -- 6.2.1
 Wearable Antennas for BANs/PANs -- 6.2.2 UWB Wearable Antennas --
 6.3 WBAN Radio Channel Characterization and Effect of Wearable
 Antennas -- 6.3.1 Radio Propagation Measurement for WBANs -- 6.3.2
 Propagation Channel Characteristics -- 6.4 Case Study: A Compact
 Wearable Antenna for Healthcare Sensors -- 6.4.1 Application
 Requirements -- 6.4.2 Theoretical Antenna Considerations -- 6.4.3
 Sensor Antenna Modelling and Characterization -- 6.4.4 Propagation
 Channel Characterization -- 6.5 Summary -- References -- 7 Antennas
 for UWB Applications (Zhi Ning Chen and Terence S.P. See) -- 7.1 UWB
 Wireless Systems -- 7.2 Challenges in UWB Antenna Design -- 7.3

State-of-the-Art Solutions -- 7.3.1 Frequency-Independent Designs -- 7.3.2 Planar Broadband Designs -- 7.3.3 Crossed and Rolled Planar Broadband Designs -- 7.3.4 Planar Printed PCB Designs -- 7.3.5 Planar Antipodal Vivaldi Designs -- 7.4 Case Study -- 7.4.1 Small Printed Antenna with Reduced Ground-Plane Effect -- 7.4.2 Wireless USB -- 7.5 Summary -- References -- Index.

Sommario/riassunto

Offers a comprehensive and practical guide to antenna design and engineering for portable devices. Antennas are often the most bulky components in many portable wireless devices such as mobile phones. Whilst the demand for ever smaller and more powerful wireless devices increases, as does the importance of designing and engineering smaller antennas to fit these devices. *Antennas for Portable Devices* provides a complete and cutting-edge guide to the design and engineering of small antennas for portable electronic devices such as mobile phone handsets, laptop computers, RFID (radio frequency identification), microwave thermal therapies devices, wearable devices, and UWB (ultra-wideband) based consumer devices. This book addresses the practical engineering issues that antenna professionals have to deal with. It explains the immediate demands for existing systems; discusses the antenna technology for the latest and emerging applications, and gives comprehensive coverage of hot topics in the wireless industry. Issues including design considerations, engineering design, measurement setup and methodology, and practical applications are all covered in depth. *Antennas for Portable Devices*: . Covers antennas for all modern portable wireless devices from handsets, RFID tags, laptops, wearable sensors, UWB-based wireless USB dongles, and handheld microwave treatment devices. Explains how to design and engineer applications for miniaturization of antenna technology, utilising practical case studies to provide the reader with an understanding of systems and design skills.. Links the basic antenna theory, with design methodology, and engineering design.. Is amply illustrated with numerous figures and data tables of antenna designs to aid understanding.. Features contributions from industry and research experts in antenna technology and applications. This invaluable resource will provide a comprehensive overview of miniaturizing antenna technology for antenna engineers in industry, and R&D organizations, graduate students, consultants, researchers, RF professionals, technical managers, as well as practitioners working in the area of consumer electronics, RF systems, wireless communications, or bio-medical devices.
