

1. Record Nr.	UNINA9910830033503321
Autore	Paret Dominique
Titolo	RFID at ultra and super high frequencies [[electronic resource]] : theory and application // Dominique Paret
Pubbl/distr/stampa	Hoboken, NJ, : John Wiley & Sons, c2009
ISBN	1-282-46115-X 9786612461156 0-470-68213-2 0-470-68214-0
Descrizione fisica	1 online resource (549 p.)
Disciplina	621.384 621.38411 621.384151
Soggetti	Radio frequency identification systems Radio frequency Wireless communication systems
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	RFID AT ULTRA AND SUPER HIGH FREQUENCIES: Theory and application; Contents; About the Author; Preface; Acknowledgements; Note to Readers; Part One RFID: General Features, Basic Principles and Market; 1 Introduction, Definitions and Vocabulary; 1.1 To Understand Radio Frequency, We Must Know about Frequencies and Their Classification; 1.2 RFID: Who Uses It and What For?; 1.3 History; 1.4 Radio Frequency (or Contactless) Identification and Its Range of Applications; 1.5 The Concept of Contactless Communication; 1.6 The Elements, Terms and Vocabulary of RFID 1.7 Vocabulary: The Many Terms Used for the Elements of RFID 1.8 Appendix: Units and Constants; 2 General Operating Principles of the Base Station-Tag Pair; 2.1 Energy Transfer and Communication Modes; 2.2 Forward Link and Return Link; 2.3 Data Communications; 2.4 The Principle of Communication; 2.5 The Concept of Operating Modes; 2.6 General Operating Problems in Data Transmission; 2.7 More Specific Problems Relating to 'Long Distance' RFID Systems; 3 The Market and

Applications for Contactless Technology; 3.1 The Market for Contactless Technology and RFID; 3.2 Applications for Tags 3.3 Operators and Participants in the MarketPart Two Wave Propagation: Principles, Theories. . . and the Reality; 4 Some Essential Theory; 4.1 The Phenomenon of Propagation and Radiation; 4.2 The Hertzian Dipole; 4.3 Classification of Fields and Regions of Space; 4.4 RFID Applications Using UHF and SHF, i.e. Far Field Applications; 4.5 The Hertzian Dipole and a Dipole of any Length, l/n and $l/2$; 4.6 List of the Main Formulae in this Chapter; 4.7 Appendix 1: Brief Notes on Maxwell's Equations; 4.8 Appendix 2: Brief Notes on Complex Numbers 4.9 Appendix 3: Brief Notes on Powers Expressed as Complex Numbers4.10 Appendix 4: Brief Notes on Vectors; 5 Wave Propagation in Free Space; 5.1 Isotropic and Anisotropic Antennas; 5.2 Antenna Gain; 5.3 Power Flux Density at One Point in Space; 5.4 Effective Radiated Power PERP; 6 Power Recovery at the Terminals of the Tag Antenna; 6.1 Recovering the Transmitted Radiated Power (or Some of It); 6.2 The Concept of Aperture or Surface; 6.3 Definition of the Main Parameters Required for an RFID Application; 7 Reality Check: How to Manage Everyday Problems 7.1 Effects of the Application Environment7.2 Tag Polarization Losses, polarization = p; 7.3 Antenna Load Mismatch Factor, load matching = q; 7.4 Voltage Standing Wave Ratio (VSWR); 7.5 Losses Due to the Physical Design of the Antenna, antenna; 7.6 By Way of Conclusion; 7.7 Real-World Examples of RFID at UHF and 2.45GHz; 7.8 Effects of the Mounting of the Integrated Circuit on the Tag Substrate; 7.9 By Way of Conclusion; 7.10 Example at UHF and SHF; 7.11 Appendix: Fact and Fantasy About UHF Tags and Water; 8 Reflection and/or Reradiation of Waves and RFID Applications 8.1 The Physical Phenomenon of Wave Scattering

Sommario/riassunto

In the past, very little practical information or training has been available for engineers, technicians and students in the area of radio frequency identification (RFID) systems at ultra high frequencies (UHF) and super high frequencies (SHF). Here, Dominique Paret offers you a complete guide to the theory, components, practical application areas and standards in RFID at UHF and SHF. He achieves an expert balance between theory and technology, finance and other aspects, providing a clear view of the entire field. This book deals with the real aspects of contactless applications in
