

Microstrip Antennas The Analysis And Design Of Arrays

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Antenna Theory - Constantine A. Balanis

2012-12-03

The discipline of antenna theory has experienced vast technological changes. In response, Constantine Balanis has updated his classic text,

Antenna Theory, offering the most recent look at all the necessary topics. New material includes smart antennas and fractal antennas, along with the latest applications in wireless communications. Multimedia material on an

accompanying CD presents PowerPoint viewgraphs of lecture notes, interactive review questions, Java animations and applets, and MATLAB features. Like the previous editions, Antenna Theory, Third Edition meets the needs of electrical engineering and physics students at the senior undergraduate and beginning graduate levels, and those of practicing engineers as well. It is a benchmark text for mastering the latest theory in the subject, and for better understanding the technological applications. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Design and Analysis of a Rectangular Microstrip Patch Antenna - Nahid Sultan 2013

Microstrip patch antennas are becoming increasingly useful because they can be printed directly onto a circuit board. Microstrip antennas are becoming very widespread within the mobile phone market. Patch antennas are low cost, have a low profile and are easily

fabricated. The aim of this book is to clarify the design and Analysis process of a rectangular Microstrip Patch Antenna and study the effect of antenna dimensions Length (L), Width (W) and substrate parameters relative Dielectric constant, substrate thickness (t) on the Radiation parameters of Bandwidth and Beamwidth.

Design of Nonplanar Microstrip Antennas and Transmission Lines - Kin-Lu Wong

2004-04-07

A one-stop reference to the design and analysis of nonplanar microstrip structures. Owing to their conformal capability, nonplanar microstrip antennas and transmission lines have been intensely investigated over the past decade. Yet most of the accumulated research has been too scattered across the literature to be useful to scientists and engineers working on these curved structures. Now, antenna expert Kin-Lu Wong compiles and organizes the latest research results and other cutting-edge

developments into an extensive survey of the characteristics of microstrip antennas mounted on canonical nonplanar surfaces. Demonstrating a variety of theoretical techniques and deducing the general characteristics of nonplanar microstrip antennas from calculated results, Wong thoroughly addresses the problems of cylindrical, spherical, and conical structures and gives readers powerful design and optimization tools. Up-to-date topics range from specific applications of spherical and conical microstrip arrays to the curvature effects on the analysis of cylindrical microstrip lines and coplanar waveguides. With 256 illustrations and an exhaustive list of references, **Design of Nonplanar Microstrip Antennas and Transmission Lines** is an indispensable guide for antenna designers in wireless and personal communications and in radar systems, and an invaluable reference for researchers and students interested in this important technology.

Microstrip Antenna Design Handbook -

Ramesh Garg 2001

Based on Bahl and Bhartia's popular 1980 classic, **Microstrip Antennas**, this all new book provides the detail antenna engineers and designers need to design any type of microstrip antenna. After addressing essential microchip antenna theory, the authors highlight current design and engineering practices, emphasizing the most pressing issues in this area, including broadbanding, circular polarization, and active microstrip antennas in particular. Special design challenges, ranging from dual polarization, high bandwidth, and surface wave mitigation, to choosing the proper substrate, and shaping an antenna to achieve desired results are all covered.

ANTENNA THEORY: ANALYSIS AND DESIGN, 2ND ED - Balanis 2007-09

Market_Desc: · Electrical Engineers · Advanced Undergraduate · Graduate Students in Electrical Engineering
Special Features: · Computer programs at the end of each chapter and the

accompanying disk assist in problem solving, design projects and data plotting. Includes updated material on moment methods, radar cross section, mutual impedances, aperture and horn antennas, and antenna measurements. Outstanding 3-dimensional illustrations help readers visualize the entire antenna radiation pattern. About The Book: This edition provides the most-up-to-date resource available for a complete knowledge of antenna theory and design. Expanded coverage of design procedures and equations makes meeting ABET design requirements easy and prepares readers for authentic situations in industry. New coverage of microstrip antennas exposes readers to information vital to a wide variety of practical applications.

Emerging Materials and Advanced Designs for Wearable Antennas - Singh, Vinod Kumar
2021-03-19

Bendable wearable materials like conductive strands, fluid metallic mixes, and polymer in

paper are generally utilized as a part of the current adaptable electronic gadgets. Extra necessities are implemented in wearable applications. Characteristic elastic, for example, is an appealing exchange adaptable material that is biocompatible and offers high conductivity, low cost, simplicity to make, and most importantly, it is water/climate safe and condition amicable. The wearable antenna is one of the key components to establish body area network (BAN) for wireless communication, which is why it has become such an important part of antenna research. Wearable antennas are being applied successfully in various parts of life such as health monitoring, physical training, navigation, RFID, medicine, military, and more. Emerging Materials and Advanced Designs for Wearable Antennas explores how wearable antenna technology is being employed to enhance the quality of life in various industries. The technologies implemented and success of these antenna technologies is essential in the

emerging field of wearable computing and is discussed in detail within the contents of this book. While covering essential topics such as the optimization of antenna material, improvement in flexible antenna performance, synthesis and design aspects of antennas, and transmission and receiving of the bendable antenna, this book is ideal for the military field, scientists, the medical field, practitioners, stakeholders, researchers, academicians, and students looking for the most advanced and updated research on the technology and implementation of wearable antennas spanning multiple industries.

Antenna Theory - Constantine A. Balanis
1996-06-12

The Latest Resource for the Study of Antenna Theory! In a discipline that has experienced vast technological changes, this text offers the most recent look at all the necessary topics.

Highlights include: * New coverage of microstrip antennas provides information essential to a wide variety of practical designs of rectangular

and circular patches, including computer programs. * Applications of Fourier transform (spectral) method to antenna radiation. * Updated material on moment methods, radar cross section, mutual impedances, aperture and horn antennas, compact range designs, and antenna measurements. A New Emphasis on Design! Balanis features a tremendous increase in design procedures and equations. This presents a solid solution to the challenge of meeting real-life situations faced by engineers. Computer programs contained in the book and accompanying software have been developed to help engineers analyze, design, and visualize the radiation characteristics of antennas.

[Analysis and design of rectangular microstrip patch antenna on different substrate materials in X-Band](#) - Ankit Ponkia 2014-03-17

Research Paper (postgraduate) from the year 2014 in the subject Engineering - Communication Technology, grade: 10.0, , course: Electronics and Communication

Engineering, language: English, abstract: In this paper software based design and analysis has been carried out for a rectangular patch antenna using different substrate materials. A coaxial probe fed rectangular microstrip patch antenna operating at X-band (8 to 12 GHz) is analyzed on different substrate materials like Rogers RT/duroid 5880, Rogers RT/duroid 5870, Neltec NX9240, Arlon DiClad 522, and FR4_epoxy. The design is analyzed by Finite Element Method (FEM) based HFSSTM EM simulator software. Return loss, VSWR plot, smith chart and radiation pattern plots are observed and plotted for all antennas.

Planar Antennas - Praveen Kumar Malik
2021-10-21

This comprehensive reference text discusses fundamental concepts, applications, design techniques, and challenges in the field of planar antennas. The text focuses on recent advances in the field of planar antenna design and their applications in various fields of research,

including space communication, mobile communication, wireless communication, and wearable applications. This resource presents planar antenna design concepts, methods, and techniques to enhance the performance parameters and applications for IoTs and device-to-device communication. The latest techniques used in antenna design, including their structures defected ground, MIMO, and fractal design, are discussed comprehensively. The text will be useful for senior undergraduate students, graduate students, and academic researchers in fields including electrical engineering, electronics, and communication engineering.
Modern Antenna Design - Thomas A. Milligan
2005-07-08

A practical book written for engineers who design and use antennas. The author has many years of hands on experience designing antennas that were used in such applications as the Venus and Mars missions of NASA. The book covers all important topics of modern antenna design for

communications Numerical methods will be included but only as much as are needed for practical applications

Intelligent Data Communication Technologies and Internet of Things - D. Jude Hemanth 2019-11-10

This book focuses on the emerging advances in distributed communication systems, big data, intelligent computing and Internet of Things, presenting state-of-the-art research in frameworks, algorithms, methodologies, techniques and applications associated with data engineering and wireless distributed communication technologies. In addition, it discusses potential topics like performance analysis, wireless communication networks, data security and privacy, human computer interaction, 5G Networks, and smart automated systems, which will provide insights for the evolving data communication technologies. In a nutshell, this proceedings book compiles novel and high-quality research that offers innovative

solutions for communications in IoT networks. Microstrip and Printed Antenna Design - Randy Bancroft 2009-06-30

Offering extensive coverage of microstrip antennas, from rectangular and circular to broadband and dual-band, this text gives a complete introduction to useful designs and the implementation aspects of these types of antennas.

Microstrip Antenna Design for Wireless Applications - Praveen Kumar Malik 2021-11-30
This book focuses on recent advances in the field of microstrip antenna design and its applications in various fields including space communication, mobile communication, wireless communication, medical implants and wearable applications. Scholars as well as researchers and those in the electronics/ electrical/ instrumentation engineering fields will benefit from this book. The book shall provide the necessary literature and techniques using which to assist students and researchers would design antennas for the

above- mentioned applications and will ultimately enable users to take measurements in different environments. It is intended to help scholars and researchers in their studies, by enhancing their the knowledge and skills in on the latest applications of microstrip antennas in the world of communications such as world like IoT, D2D, satellites and wearable devices, to name a few. FEATURES Addresses the complete functional framework workflow in printed antenna design systems Explores the basic and high-level concepts, including advanced aspects in planer design issues, thus serving as a manual for those in the the industry while also assisting beginners Provides the latest techniques used for antennas in terms of structure, defected ground, MIMO and fractal designs Discusses case studies related to data-intensive technologies in microchip antennas in terms of the most recent applications and similar uses for the Internet of Things and device-to-device communication

Antenna Theory and Microstrip Antennas - D. G. Fang 2017-12-19

Antenna Theory and Microstrip Antennas offers a uniquely balanced analysis of antenna fundamentals and microstrip antennas. Concise and readable, it provides theoretical background, application materials, and details of recent progress. Exploring several effective design approaches, this book covers a wide scope, making it an ideal hands-on resource for professionals seeking a refresher in the fundamentals. It also provides the basic grounding in antenna essentials that is required for those new to the field. The book's primary focus is on introducing practical techniques that will enable users to make optimal use of powerful commercial software packages and computational electromagnetics used in full wave analysis and antenna design. Going beyond particular numerical computations to teach broader concepts, the author systematically presents the all-important spectral domain

approach to analyzing microstrip structures including antennas. In addition to a discussion of near-field measurement and the high-frequency method, this book also covers: Elementary linear sources, including Huygen's planar element, and analysis and synthesis of the discrete and continuous arrays formed by these elementary sources The digital beam-forming antenna and smart antenna Cavity mode theory and related issues, including the design of irregularly shaped patches and the analysis of mutual coupling Based on much of the author's own internationally published research, and honed by his years of teaching experience, this text is designed to bring students, engineers, and technicians up to speed as efficiently as possible. This text purposefully emphasizes principles and includes carefully selected sample problems to ease the process of understanding the often intimidating area of antenna technology. Paying close attention to this text, you will be able to confid

Broadband Microstrip Antennas - Girish Kumar
2003

A guide to broadband microstrip antennas, offering information to help you choose and design the optimum broadband microstrip antenna configurations for your applications, without sacrificing other antenna parameters. The text shows you how to take advantage of the light-weight, low volume benefits of these antennas, by providing explanations of the various configurations and simple design equations that help you analyze and design microstrip antennas with speed and confidence. This practical resource presents an understanding of the radiation mechanism and characteristics of microstrip antennas, and provides guidance on designing new types of planar monopole antennas with multi-octave bandwidth. The authors explore how to select and design proper broadband microstrip antenna configurations for compact, tunable, dual-band and circular polarization applications.

Moreover, the work compares all the broadband techniques and suggests the most attractive configuration.

Microstrip Patch Antennas (Second Edition) - Kai Fong Lee 2017-07-10

Microstrip patch antennas have become the favorite of antenna designers because of their versatility and having the advantages of planar profile, ease of fabrication, compatibility with integrated circuit technology, and conformability with a shaped surface. There is a need for graduate students and practicing engineers to gain an in depth understanding of this subject. The first edition of this book, published in 2011, was written with this purpose in mind. This second edition contains approximately one third new materials. The authors, Prof KF Lee, Prof KM Luk and Dr HW Lai, have all made significant contributions in the field. Prof Lee and Prof Luk are IEEE Fellows. Prof Lee was the recipient of the 2009 John Kraus Antenna Award of the IEEE Antennas and Propagation Society

while Prof. Luk receives the same award in 2017, both in recognition of their contributions to wideband microstrip antennas.

Microstrip Antennas - I. J. Bahl 1997

Microstrip Antenna - J. R. James 1986

In the past few years, the concept of creating microwave antennas using microstrip has attracted increasing attention and viable practical designs are now emerging. The purpose of this monograph is to present the reader with an appreciation of the underlying physical action, up-to-date theoretical treatments, useful antenna design approaches and the overall state-of-the-art situation. The emphasis is on antenna engineering design, but to achieve this goal it has been necessary to delve into the behaviour of microstrip in a much wider sense and also include aspects of electromagnetic analysis. As a consequence, the monograph will also be of interest to microstrip circuit designers and to some extent those

seeking electromagnetic problems of a challenging nature. The astronomical progress in miniaturising and integrating electronic circuits in the past decade has recently created a positive demand for a new generation of antenna systems. In principle, microstrip antennas are thin planar configurations that are lightweight, low cost, easy to manufacture and can be made conformal with the surfaces of vehicles, missiles etc. The compatibility of microstrip antennas with integrated electronics is another great advantage. However, the microstrip wavetrapping effects inhibit the radiation mechanism and must be taken into account in antenna design. Wave-trapping effects in substrates involve the study of surface waves and discontinuities in open waveguide structures. The microstrip antenna designer must therefore encompass many more effects than previously considered by microstrip circuit designers. It is for these reasons that the scope of this monograph is necessarily somewhat

wider than the title may suggest. The ten chapters are a blend of introductory, practical and theoretical treatments and likely future developments are also highlighted. A good selection of past and current references are given and each chapter concludes with a helpful summary comment.

Microstrip Antennas - David M. Pozar
1995-05-15

"This anthology combines 15 years of microstrip antenna technology research into one significant volume and includes a special introductory tutorial by the co-editors. Covering theory, design and modeling techniques and methods, this source book is an excellent reference tool for engineers who want to become more familiar with microstrip antennas and microwave systems. Proven antenna designs, novel solutions to practical design problems and relevant papers describing the theory of operation and analysis of microstrip antennas are contained within this convenient reference."

Handbook of Microstrip Antennas - J[ames] R[oderick] James 1989

The book reviews developments in the following fields: circular microstrip antennas; microstrip patch antennas; circular polarisation and bandwidth; microstrip dipoles; multilayer and parasitic configurations; wideband flat dipole and short-circuit microstrip patch elements and arrays; numerical analysis; multiport network approach; transmission-line model; rectangular microstrip antennas; low-cost printed antennas; printed phased-array antennas; circularly polarised antenna arrays; microstrip antenna feeds; substrate technology; computer-aided design of microstrip and triplate circuits; resonant microstrip antenna elements and arrays for aerospace applications; mobile and satellite systems; conical conformal microstrip tracking antenna; and microstrip field diagnostics.

Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software - Atef

Z. Elsherbeni 2014

This book combines theory with practical applications for the analysis and design of a wide variety of antenna configurations simulated on FEKO, the leading real-world commercial software programme.

Advancement in Microstrip Antennas with Recent Applications - Ahmed Kishk 2013-03-06

The book discusses basic and advanced concepts of microstrip antennas, including design procedure and recent applications. Book topics include discussion of arrays, spectral domain, high Tc superconducting microstrip antennas, optimization, multiband, dual and circular polarization, microstrip to waveguide transitions, and improving bandwidth and resonance frequency. Antenna synthesis, materials, microstrip circuits, spectral domain, waveform evaluation, aperture coupled antenna geometry and miniaturization are further book topics. Planar UWB antennas are widely covered and new dual polarized UWB antennas are newly

introduced. Design of UWB antennas with single or multi notch bands are also considered. Recent applications such as, cognitive radio, reconfigurable antennas, wearable antennas, and flexible antennas are presented. The book audience will be comprised of electrical and computer engineers and other scientists well versed in microstrip antenna technology.

Compact and Broadband Microstrip Antennas - Kin-Lu Wong 2004-04-07

Compact microstrip antennas are of great importance in meeting the miniaturization requirements of modern portable communications equipment This book is a comprehensive treatment of design techniques and test data for current compact and broadband microstrip designs Summarizes the work of the author and his graduate students who have published over 80 refereed journal articles on the subject in the past few years Advanced designs reported by various other prestigious antenna designers are incorporated

as well

Design of Microstrip Antenna in Wireless Communication - Barun Mazumdar 2012

Microstrip antennas are become popular now a days in wireless Communication. Wireless communications is rapidly progress due the development of lightweight, low profile, flush-mounted and single-feed antennas. Also, it is highly desirable to integrate several RF modules for different frequencies into one piece of equipment. Hence, multi-band antennas that can be used simultaneously in different standards have been in the focus points of many research projects. This book, therefore gives the idea of microstrip line & Coaxial feeding technique to design a simple microstrip antenna. The analysis should help shed some light on this new and exciting advertising environment, and should be especially useful to professionals in Communications .

CAD of Microstrip Antennas for Wireless Applications - Robert A. Sainati 1996

Increasing demand for commercial applications requiring small, low-cost, easy-to-use RF/microwave systems is driving innovations in antenna technology. This "how-to" book explains why microstrip antennas are the solution for the future.

Reconfigurable Antenna Design and Analysis -
Mohammad Ali 2021-05-31

This exciting new book focuses on the analysis and design of reconfigurable antennas for modern wireless communications, sensing, and radar. It presents the definitions of basic antenna parameters, an overview of RF switches and explains how to characterize their insertion loss, isolation, and power handling issues. Basic reconfigurable antenna building blocks, such as dipoles, monopoles, patches and slots are described, followed by presentations on frequency reconfigurable antennas, pattern reconfigurable antennas, and basic scanning antenna arrays. Switch biasing in an electromagnetic environment is discussed, as

well as simulation strategies of reconfigurable antennas, and MIMO (Multiple Input Multiple Output) reconfigurable antennas. Performance characterization of reconfigurable antennas is also presented. The book provides information for the technical professional to design frequency reconfigurable, pattern reconfigurable, and MIMO antennas all relevant for modern wireless communication systems. Readers learn how to select switching devices, bias them properly, and understand their role in the overall reconfigurable antenna design. The book presents practical experimental implementation issues, including losses due to switches, materials, and EMI (Electromagnetic Interference) and shows how to address those.

Design and Implementation of Rectangular Patch Antenna for Tri-Band operation - Prashant S. Mahajan 2015-04-14

Master's Thesis from the year 2013 in the subject Electrotechnology, grade: First Class, , course: Master Of Engineering, language:

English, abstract: In today's modern communication industry, antennas are the most important components required to create a communication link. Microstrip antennas are the most suited for aerospace and mobile applications because of their low profile, light weight and low power handling capacity. These antennas can be designed in a variety of shapes in order to obtain enhanced gain and bandwidth for dual band and tri-band operation. This book focus on a detailed study of how to design and simulate a microstrip fed rectangular patch antenna using IE3D software with effect of antenna dimensions length (L), width (W), relative dielectric constant , substrate thickness (t) on the radiation parameters of bandwidth and gain. The design parameters of the antenna calculated using the transmission line model. Here antenna operates for tri- band operation, the operating bands are GSM , PCA and UTMS for antenna geometry -I and WLAN and WiMAX for antenna geometry -II. The fractional

bandwidths (FB) after simulation obtain under criterion (S_{11}

Advances in Electronics, Communication and Computing - Akhtar Kalam 2017-10-27

This book is a compilation of research work in the interdisciplinary areas of electronics, communication, and computing. This book is specifically targeted at students, research scholars and academicians. The book covers the different approaches and techniques for specific applications, such as particle-swarm optimization, Otsu's function and harmony search optimization algorithm, triple gate silicon on insulator (SOI)MOSFET, micro-Raman and Fourier Transform Infrared Spectroscopy (FTIR) analysis, high-k dielectric gate oxide, spectrum sensing in cognitive radio, microstrip antenna, Ground-penetrating radar (GPR) with conducting surfaces, and digital image forgery detection. The contents of the book will be useful to academic and professional researchers alike. *Analysis, Design, and Measurement of Small and*

Low-profile Antennas - Kazuhiro Hirasawa 1992
Tutorial in nature, this book is based on a series of papers presented at a workshop in Japan. It constitutes the first single-volume guide to the basic methods of analyzing microstrip patch antennas, and the characteristics of rectangular, circular and arbitrarily shaped patch antennas. Supported by 273 equations, tables and illustrations this book should prove a useful tool for anyone doing applied research in antennas.

Microstrip Antennas - N Nasimuddin
2011-04-04

In the last 40 years, the microstrip antenna has been developed for many communication systems such as radars, sensors, wireless, satellite, broadcasting, ultra-wideband, radio frequency identifications (RFIDs), reader devices etc. The progress in modern wireless communication systems has dramatically increased the demand for microstrip antennas. In this book some recent advances in microstrip antennas are presented.

Reflectarray Antennas - John Huang
2007-11-09

Describes the configuration and principles of a reflectarray antenna, its advantages over other antennas, the history of its development, analysis techniques, practical design procedures, bandwidth issues and wideband techniques, as well as applications and recent developments. Both authors are well respected practitioners who have build these antennas and developed them for space flight.

Microstrip Antennas - David M. Pozar
1995-05-15

"This anthology combines 15 years of microstrip antenna technology research into one significant volume and includes a special introductory tutorial by the co-editors. Covering theory, design and modeling techniques and methods, this source book is an excellent reference tool for engineers who want to become more familiar with microstrip antennas and microwave systems. Proven antenna designs, novel

solutions to practical design problems and relevant papers describing the theory of operation and analysis of microstrip antennas are contained within this convenient reference."

Recent Trends in Communication, Computing, and Electronics - Ashish Khare
2018-12-06

This book presents select papers from the International Conference on Emerging Trends in Communication, Computing and Electronics (IC3E 2018). Covering the latest theories and methods in three related fields - electronics, communication and computing, it describes cutting-edge methods and applications in the areas of signal and image processing, cyber security, human-computer interaction, machine learning, electronic devices, nano-electronics, wireless sensor networks, antenna and wave propagation, and mobile communication. The contents of this book will be beneficial to students, researchers, and professionals working in the field of networks and communications.

Microstrip Antennas - Sudipta Chattopadhyay
2017-11-15

The progress in modern tiny multifunctional wireless devices has dramatically increased the demand for microstrip antennas in recent years. Furthermore, in the last few years, such microstrip antennas found numerous applications in both the military and the commercial sectors. Therefore, microstrip patch antenna has become a major focus to the researchers in the field of antenna engineering. In this book, some recent advances in microstrip antennas are presented. This book contains mainly three sections. In the first section, some new approaches to modern analytical techniques rather than the conventional cavity model, transmission line model, or spectral domain analysis have been discussed. In the second section of the book, a light has been showered on some new techniques for bandwidth enhancement of microstrip radiators. In the last section of the book, the recent trends in

microstrip antenna research have been showcased. Some newfangled application-oriented approach to this field is vividly discussed. The book's main objective is to facilitate the microstrip antenna researchers for exploring the subject in more vibrant manner and also to revolutionize wireless communications. A sufficient number of topics have been covered, some for the first time in a research handbook. I hope that the book will surely be beneficial for scientists, practicing engineers, and researchers working in the field of microstrip antennas.

Antennas - Boris Levin 2021-04-02

The book comprises a new method of solving the integral equation of Leontovich, the most rigorous and most effective equation for the current in thin linear antennas. The book describes the features of the new method in its application in various types of antennas. It considers new ways of analyzing antennas, in particular in the calculation of an antenna gain

based on main radiation patterns and the calculation of the directional characteristics of radiators with known distribution of current amplitude. The method of electrostatic analogy proposed by the author, provides the base for comparison of electromagnetic fields of high-frequency currents and electrostatic charges located on linear conductors to improve the directional characteristics of log-periodic and director-type antennas. A new approach to the analysis of the electrical characteristics of a microstrip antenna, which allows expansion of its operation range, is substantiated and developed. New results of antenna synthesis are obtained. The second part of the book is devoted to specific types of antennas (the author had a significant role in their creation). Particular attention is given to ship antennas for different frequency ranges. The book is intended for professionals, working in electrodynamics and those working on development, placement and exploitation of antennas. It will be useful for

lecturers (university-level professors), teachers, students of radio engineering and researchers working in various fields of radio electronics and interested in an in-depth study of theoretical problems and designs of antennas. It can also be used for short university courses.

Smart Antennas - Praveen Kumar Malik 2022

This book presents the latest techniques for the design of antenna, focusing specifically on the microstrip antenna. The authors discuss antenna structure, defected ground, MIMO, and fractal design. The book provides the design of microstrip antenna in terms of latest applications and uses in areas like IoT and device-to-device communication. The book also provides the current methods and techniques used for the enhancement of the performance parameters of the microstrip antenna. Chapters enhance the knowledge and skills of students and researchers in the latest in the communications world like IoT, D2D, satellite, wearable devices etc. The authors discuss

applications such as microwave imaging, medical implants, hyperthermia treatments, and wireless wellness monitoring and how a decrease in size of antenna help facilitate application potential. Provides the latest techniques used for the design of antenna in terms of its structure, defected ground, MIMO and fractal design; Outlines steps to resolve issues with designing antenna, including the latest design and design parameters for microstrip antenna; Presents the design of conformal and miniaturized antenna structures for various applications.

Antenna Theory - Constantine A. Balanis
2005-04-04

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communications. Multimedia material on an accompanying CD presents PowerPoint viewgraphs of lecture notes, interactive review questions, Java animations and applets, and MATLAB features. Like the previous editions, Antenna Theory, Third Edition meets the needs of electrical engineering and physics students at the senior undergraduate and beginning graduate levels, and those of practicing engineers as well. It is a benchmark text for mastering the latest theory in the subject, and for better understanding the technological applications. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Microstrip and Printed Antennas:

Applications-Based Designs - Anil Pandey

2019-03-31

This comprehensive resource presents antenna fundamentals balanced with the design of printed antennas. Over 70 antenna projects, along with design dimensions, design flows and

antenna performance results are discussed, including antennas for wireless communication, 5G antennas and beamforming. Examples of smartphone antennas, MIMO antennas, aerospace and satellite remote sensing array antennas, automotive antennas and radar systems and many more printed antennas for various applications are also included. These projects include design dimensions and parameters that incorporate the various techniques used by industries and academia. This book is intended to serve as a practical microstrip and printed antenna design guide to cover various real-world applications. All Antenna projects discussed in this book are designed, analyzed and simulated using full-wave electromagnetic solvers. Based on several years of the author's research in antenna design and development for RF and microwave applications, this book offers an in-depth coverage of practical printed antenna design methodology for modern applications.

Microstrip and Printed Antennas - Debatosh Guha 2011-02-02

This book focuses on new techniques, analysis, applications and future trends of microstrip and printed antenna technologies, with particular emphasis to recent advances from the last decade. Attention is given to fundamental concepts and techniques, their practical applications and the future scope of developments. Several topics, essayed as individual chapters include reconfigurable antenna, ultra-wideband (UWB) antenna, reflectarrays, antennas for RFID systems and also those for body area networks. Also included are antennas using metamaterials and defected ground structures (DGSs). Essential aspects including advanced design, analysis and optimization techniques based on the recent developments have also been addressed. Key

Features: Addresses emerging hot topics of research and applications in microstrip and printed antennas. Considers the fundamental concepts, techniques, applications and future scope of such technologies. Discusses modern applications such as wireless base station to mobile handset, satellite earth station to airborne communication systems, radio frequency identification (RFID) to body area networks, etc. Contributions from highly regarded experts and pioneers from the US, Europe and Asia. This book provides a reference for R&D researchers, professors, practicing engineers, and scientists working in these fields. Graduate students studying/working on related subjects will find this book as a comprehensive literature for understanding the present and future trends in microstrip and printed antennas.

Microstrip Antenna - James R. James 1981