

Microstrip Patch Antennas A Designers

Thank you enormously much for downloading **Microstrip Patch Antennas A Designers** .Maybe you have knowledge that, people have see numerous period for their favorite books when this Microstrip Patch Antennas A Designers , but end in the works in harmful downloads.

Rather than enjoying a good book subsequent to a mug of coffee in the afternoon, then again they juggled past some harmful virus inside their computer. **Microstrip Patch Antennas A Designers** is genial in our digital library an online entry to it is set as public for that reason you can download it instantly. Our digital library saves in compound countries, allowing you to acquire the most less latency epoch to download any of our books subsequently this one. Merely said, the Microstrip Patch Antennas A Designers is universally compatible afterward any devices to read.

Microstrip Antennas Modeling for Recent Applications - Amel Boufrioua
2016-09-01

Today, the state of the art antenna technology allows the use of different types and models of antennas, depending on the area of application considered. The rapid progress in wireless communications requires the development of lightweight, low profile, small size, flush-mounted and wideband multi-frequency planar antennas. This book reviews recent advances in designs of various microstrip patch antenna configurations. Microstrip patch antennas have been widely used in the range of microwave frequencies over the past twenty-five years, and over the past few years, single-patch antennas have been extensively used in various communication systems due to their compactness, economical efficiency, light weight, low profile and conformability to any structure. The main drawback to implementing these antennas in many applications is their limited bandwidth. However, the most important challenge in microstrip antenna design is to increase the bandwidth and gain. Theoretical study of various patch antenna configurations will be carried out in this book. The study is performed by using full wave analysis and analytical techniques for the characterization of these structures. Several techniques are used in this book to achieve multi-band performances such as multilayer stacked patches, multiple patches and insertion of

slots of different shapes and sizes in the patch antennas. In addition, some novel patch antenna designs for modern applications are given, and some challenges of patch antenna designs are addressed. This book is divided into seven chapters and presents new research in this dynamic field.

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 Antenna Design - Bhunia Sunandan 2014-01

Besides lot of advantages of Microstrip Patch Antenna some severe limitations like narrow bandwidth, low power output, low gain hindered it to use in some application specially where wideband, high gain & high power is essential. In modern days researchers are concentrated to overcome these limitations. The design of dual or multi-frequency patch antennas are also very much important because any one can use a single antenna instead of two or more antenna operating in the single frequency. Compact microstrip patch antenna design is also important in modern days as the area is a major constrained in the MMIC design. In this book new and novel approaches to design dual, multi-frequency, compact and broadband microstrip patch antennas are discussed which are very new and published in different international journals by the author. This book constitutes of eight chapters among which first three chapters are about the basic concept and the last one is for major findings and future scope of work for the young researchers. Other four chapters are for novel approaches for designing different types of microstrip patch antennas.

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

Printed Antennas - Praveen Kumar Malik 2022-12-15

This collection covers different printed microstrip antenna designs, from rectangular to circular, broadband, dual-band, and millimeter-wave microstrip antennas to microstrip arrays. It further presents a new analysis of the rectangular and circular microstrip antenna efficiency and surface wave phenomena. The book Covers the latest advances and

applications of microstrip antennas Discusses methods and techniques used for the enhancement of the performance parameters of the microstrip antenna Presents low-power wide area network (LPWAN) proximity-coupled antenna for Internet of Things applications. Highlights a new analysis of rectangular and circular microstrip antenna efficiency and surface wave phenomena. Showcases implantable antennas, H-shaped antennas, and wideband implantable antennas for biomedical applications Printed Antennas discusses the latest advances such as the Internet of Things for antenna applications, device-to-device communication, satellite communication, and wearable textile antenna in the field of communication. It further presents methods and techniques used for the enhancement of the performance parameters of the microstrip antenna and covers the design of conformal and miniaturized antenna structures for various applications. It will serve as an ideal reference text for senior undergraduates, graduate students, and researchers in fields including electrical engineering, electronics and communications engineering, and computer engineering.

Broadband Planar Antennas - Zhi Ning Chen 2006-05-01

The increasing demand for wireless communications has revolutionised the lifestyle of today's society and one of the key components of wireless technology is antenna design. Broadband planar antennas are the newest generation of antennas boasting the attractive features required, such as broad operating bandwidth, low profile, light weight, low cost and ease of integration into arrays or Radio Frequency (RF) circuits, to make them ideal components of modern communications systems. Research into small and broadband antennas has been spurred by the rapid development of portable wireless communication devices such as cell phones, laptops and personal digital assistants. This all-encompassing volume, *Broadband Planar Antennas: Design and Applications*, systematically describes the techniques for all planar antennas from microstrip patch antennas, suspended plate antennas and planar inverted-L/F antennas to planar dipole antennas. Also discussed are some of the most recent outcomes such as broadband antenna issues in promising ultra-wideband applications. Clearly describes the

fundamentals of planar antennas and categorises them according to their radiation characteristics Introduces the advanced progress in broadband planar antennas for modern wireless communications Includes a wealth of case studies, design guidelines, figures and tables This text is essential reading for antenna, RF and microwave engineers and manufacturers within the telecommunications industry. Its highly accessible approach will also appeal to researchers, postgraduate students and academic lecturers.

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.

Microstrip Patch Antennas: A Designer's Guide - Rod Waterhouse 2013-04-17

This useful tool provides the reader with a current overview of where microstrip patch antenna technology is at, and useful information on how to design this form of radiator for their given application and scenario. Practical design cases are provided for each goal.

Microstrip Antenna - James R. James 1981

Microstrip Patch Antenna - Habib Habibur Rahman 2012

This book presents the cost effective methods for designing a rectangular micro-strip patch antenna. In the recent years the development in

communication system requires the development of low cost, minimal weight, low profile antennas that are capable of maintaining high performance over a wide spectrum of frequencies. This technological trend has focused much effort into the design of a rectangular micro-strip patch antenna. In this book, the performance in terms of directivity, radiation efficiency, return loss and radiation pattern of a rectangular micro-strip patch antenna have been analyzed and studied at 3 GHz.

Microstrip Antennas - I. J. Bahl 1997

Multiband Monopole and Microstrip Patch Antennas for GSM and DCS Bands - Georgios Giannakopoulos 2011

This book is mainly concerned with the design, construction and testing of a dual-band monopole microstrip patch antenna. A discussion of general antenna theory is included with some basic microstrip antenna theory for rectangular patches is introduced leading to formulas which are computed using the MAPLE computer algebra package. The design of compact monopoles, suitable for mobile phone use, is discussed with particular emphasis on dual-band monopoles. A suitable dual-band monopole is chosen to be analyzed in detail using the Ansoft High Frequency Structure Simulator (HFSS) package. The HFSS package is introduced and tested on a basic rectangular patch antenna to confirm well known results in the theory and literature. A dual-band monopole antenna is fabricated on a microstrip in the laboratory in both unwrapped form and wrapped form using the Proteus ARES package for automatic construction of the PCB boards. The multiband monopole and the microstrip patch antenna are tested in the laboratory of the University. The results are compared with the HFSS results and shown to be in general agreement with each other.

Microstrip Patch Antennas - Kai Fong Lee 2017-07-11

Introduction -- Review of some background materials -- General formulation of the cavity model -- Characteristics of the rectangular patch antenna -- Characteristics of the circular patch antenna -- The annular-ring patch and the equitriangular patch -- Introduction to full wave analysis -- Microstrip patch antennas with adjustable air gaps --

Broadbanding techniques I: general principles, probe compensation, coplanar parasitic patches, stacked parasitic patches -- Broadbanding techniques II: the u-slot patch antenna -- Broadbanding techniques III: the L-probe coupled patch and the meandering-probe fed patch -- Broadbanding techniques IV: aperture coupled patches -- Size reduction techniques -- Dual- and multi-band designs -- Dual polarized patch antenna designs -- Circular polarization -- Reconfigurable microstrip patch antennas -- Microstrip antenna array I: basic principles and examples of design below 5 GHz -- Microstrip antenna array II: sixty (60) GHz antenna array design and applications -- Novel material patch antennas

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

Analysis and Design of Rectangular Microstrip Patch Antenna on Different Substrate Materials in X-Band - Ankit Ponkia 2014-11-24

Research Paper 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 HFSS EM simulator software. Return loss, VSWR plot, smith chart and radiation pattern plots are observed and plotted for all antennas.

Microstrip Patch Antenna Using Metamaterial - Ved Vyas Dwivedi 2012-03

Volumetric miniaturization, compactness, light weight, low cost, low loss, improved efficiency, multiband EM responses are basic design-application issues for innovative technique used for microstrip patch antennas(MSA). Current trend in modern researches is to use double negative metamaterial as substrate to meet the stringent requirements. MSAs inherently have narrow bandwidth. The Size reduction and BW enhancement are usually majorly demanded considerations for practical applications. Future mobile communication systems require smaller antenna to meet the miniaturization requirements. Significant progress in compact MSAs design with broadband, multi-frequency, multi-polarized, multi-band, circularly polarized and gain-enhanced operations to achieve miniaturization, compact and broadband operations are

reported. Various broadband MSA designs for dual/ tri_frequency/ band circularly polarized operations are produced. This book studies the principles, theories, categories, depth of researches, design-applications-fabrication issues and analysis of metamaterials based MSAs. Designing microwave regime MSA using unit cell is discussed for aspirants alongwith exhaustive reference list.

2018 IEEE International RF and Microwave Conference (RFM) - IEEE Staff 2018-12-17

RFM 2018 is a platform researchers, industrials to share research findings in the area of applied electromagnetics in general, covering quite a number of domains including EMC, electromagnetic modelling, computational electromagnetic, radio frequency and microwave in general, antenna, propagation, radar, wireless and mobile, advanced materials, and their applications This is the 7th RFM conference since its birth, organised by the IEEE AP MTT EMC Joint Chapter of Malaysia

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.

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.

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.

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.

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.

Microstrip Patch Antenna Learning using MATLAB. Theory and Implementation - Jagadish Jadhav 2021-07-30

Scientific Study from the year 2021 in the subject Engineering - Communication Technology, , course: M. Tech, language: English,

abstract: Microstrip patch antenna is used to send onboard parameters of article to the ground while under operating conditions. By the study of this book we find out how to investigate a new method of teaching microstrip patch antenna design for undergraduate students by using MATLAB. Effect of changes in basic parameter microstrip patch antenna on its radiation pattern and other parameters to study the effect of resonant frequency and substrate parameters like, relative dielectric constant, substrate thickness on the radiation parameters of bandwidth and physical dimension of the microstrip patch antenna can be determined by using GUI. In this book we develops simple CAD (GUI) formulas that describe the basic properties of microstrip patch antenna using MATLAB. By the usage of this teaching tool we can analyze the behaviour of the microstrip patch antenna and design of it for different material. Satellite communication and wireless communication has been developed rapidly in the past decades and it has already a dramatic impact on human life. In the last few years, the development of wireless local area networks (WLAN) represented one of the principal interests in the information and communication field. Thus, the current trend in commercial and government communication systems has been to develop low cost, minimal weight, low profile antennas that are capable of maintaining high performance over a large spectrum of frequencies. This

technological trend has focused much effort into the design of microstrip (patch) antennas. The variety in design that is possible with microstrip antenna probably exceeds that of any other type of antenna element. In addition, once the shape and operating mode of the patch are selected, designs become very versatile in terms of operating frequency, polarization, pattern, and impedance. They are extremely low profile, lightweight, simple and inexpensive to fabricate using modern day printed circuit board technology, compatible with microwave and millimeter-wave integrated circuits (MMIC), and have the ability to conform to planar and non planar surfaces.

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 books 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.

A Simple Design and Analysis of Coaxial Fed Annular Ring Microstrip Patch Antenna For Wireless Communication Systems -

Ankit Ponkia 2014-07-02

Research Paper from the year 2014 in the subject Engineering - Communication Technology, grade: 10, Shantilal Shah Engineering College, language: English, abstract: In this paper design and analysis of annular or circular ring type microstrip patch antenna and the basic terms related to design aspects and study of proposed antenna is presented. Like many available variations of microstrip patch geometries annular or circular ring widely used due to its broadband nature when operated in TM_{12} mode and has smaller circular counterparts when it is operated in its fundamental mode TM_{11} . In this article theoretical and mathematical analysis related to annular ring patch antenna with design is presented and briefly explained. The designed antenna operates at 2.4 GHz resonant frequency so can be used in ISM (Industrial, Scientific and Medical) band wireless applications. The proposed antenna shows good return loss, VSWR as depicted in the graphs.

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."

Microstrip Antenna and Artificial Neural Network's - Dipak Kr. Neog 2010-09

The microstrip patch antennas are one of the most innovative areas of research work in the wireless technology. The book contains general back ground of the microstrip patch antenna. It is briefly outlined the problems of the microstrip patch antennas so far developed and the needs of present days wireless systems. It is also briefly pointed out the problems of wide band probe-fed microstrip patch antennas in terms of

design as well as modeling techniques. The book includes, the design of new wide band probe fed microstrip patch antenna of single resonance frequency and multi resonance s. A new method to calculate the resonance frequency of microstrip antenna is presented in the book. The book gives an overview of Artificial Neural Network(ANN) and the use of Artificial Neural Network(ANN) to calculate the design parameter microstrip patch antennas. The calculation of antenna parameters using the Artificial Neural Networks(ANNs) is an interesting part of the book. 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 T_c 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.

Design and Optimization of Sensors and Antennas for Wearable Devices: Emerging Research and Opportunities - Singh, Vinod Kumar 2019-09-20
Wearable continuous monitoring systems are necessary in risky environments such as mining and diving and are especially important in the medical monitoring of patients both in medical facilities and at home. All these applications of monitoring with data transmission functions can be achieved by using wearable antennas. Recently, possibilities of connecting completely independent appliances with textiles have emerged. However, full success will be achieved only when antennas and

all related components are entirely converted into 100% textile materials. Design and Optimization of Sensors and Antennas for Wearable Devices: Emerging Research and Opportunities provides innovative insights on the development of adaptable materials and textile antennas that can be used in the construction of wearable devices that are biocompatible and offer high conductivity, low cost, simplistic manufacturing, are comfortable for the wearer, and are water/climate safe and condition amicable. The content within this publication examines data transmission, wearable computing, and medical applications. It is designed for engineers, manufacturers, researchers, academicians, and scientists who are interested in the development of wearable technologies.

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.

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 provides 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

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 leightweight, 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 Patch Antennas: A Designer's Guide - Rodney Waterhouse 2010-12-06

This useful tool provides the reader with a current overview of where microstrip patch antenna technology is at, and useful information on how to design this form of radiator for their given application and scenario. Practical design cases are provided for each goal.

Dual-Frequency Circular Microstrip Patch Antennas for C-Band Apps - Ankit Ponkia 2013

This reference book entitled 'Design and Development of Dual-Frequency Circularly Polarized Circular Microstrip Patch Antenna for C-Band Applications' covers basic equation based design of dual-frequency slotted circular microstrip patch antenna using Finite Element Method (FEM) analysis. It highlights fundamental design concepts, design formulas, numerical and mathematical analysis of circular microstrip patch antenna. All antennas can be applicable for various C-Band (4 GHz-8 GHz) applications.

Advancement in Microstrip Antennas with Recent Applications - Fredrik Jonasen 2016-04-01

In telecommunication, there are several types of microstrip antennas the most common of which is the microstrip patch antenna or patch antenna. Microstrip patch antennas have become the favorite of antenna designers because of its versatility and advantages of planar profile, ease of fabrication, compatibility with integrated circuit technology, and conformability with a shaped surface. A patch antenna is a narrowband, wide-beam antenna fabricated by etching the antenna element pattern in

metal trace bonded to an insulating dielectric substrate, such as a printed circuit board, with a continuous metal layer bonded to the opposite side of the substrate which forms a ground plane. A single patch antenna provides a maximum directive gain of around 6-9 dBi. Common microstrip antenna shapes are square, rectangular, circular and elliptical, but any continuous shape is possible. Some patch antennas do not use a dielectric substrate and instead are made of a metal patch mounted above a ground plane using dielectric spacers; the resulting structure is less rugged but has a wider bandwidth. Because such antennas have a very low profile, are mechanically rugged and can be shaped to conform to the curving skin of a vehicle, they are often mounted on the exterior of aircraft and spacecraft, or are incorporated into mobile radio communications devices. Microstrip antennas are relatively inexpensive to manufacture and design because of the simple 2-dimensional physical geometry. They are usually employed at UHF and higher frequencies because the size of the antenna is directly tied to the wavelength at the resonant frequency. The book, entitled Advancement in Microstrip Antennas with Recent Applications, discusses basic and advanced concepts of microstrip antennas, including design procedure and recent applications. It shall be of immense valuable tool for electrical and computer engineers and other scientists well versed in microstrip antenna technology.

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 Beam-width.

Microstrip Antenna Design - K. C. Gupta 1988

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."

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.

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.