

Epub free The handbook of antenna design full online Copy

Antenna Theory and Design Antennas Antenna Fundamentals for Legacy Mobile Applications and Beyond The Handbook of Antenna Design Antenna Design by Simulation-Driven Optimization Multi-objective Design Of Antennas Using Surrogate Models Microstrip Antennas Automotive Antenna Design and Applications Small Antenna Design Antenna Design for Mobile Devices Antennas Next-Generation Antennas The Handbook of Antenna Design Yagi antenna design Modern Antenna Design Digital Convergence in Antenna Design Antenna Theory Antenna Design for Cognitive Radio Practical Antenna Design for Wireless Products Introduction to Antenna Analysis Using EM Simulators Fundamentals of Antennas Antenna Design for Narrowband IoT: Design, Analysis, and Applications Microstrip Antenna Microwave and Millimeter-wave Antenna Design for 5G Smartphone Applications Small Antennas: Miniaturization Techniques & Applications Recent Advances in Antenna Design for 5G Heterogeneous Networks Microstrip Antenna Design Handbook Characteristic Modes Antenna Design Reconfigurable Antenna Design and Analysis Microstrip Antenna Design ANTENNA THEORY AND DESIGN, REVISED ED Microstrip and Printed Antennas: Applications-Based Designs Practical Antenna Design 140-150 MHz VHF Transceivers Third Edition Smart Antennas Ultra Wideband Antennas Novel Millimetre Wave Antennas for MIMO and 5G Applications Recent Advances in Antenna Design for 5G Heterogeneous Networks LTE Communications and Networks Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software

Antenna Theory and Design 2012-05-22

stutzman s 3rd edition of antenna theory and design provides a more pedagogical approach with a greater emphasis on computational methods new features include additional modern material to make the text more exciting and relevant to practicing engineers new chapters on systems low profile elements and base station antennas organizational changes to improve understanding more details to selected important topics such as microstrip antennas and arrays and expanded measurements topic

Antennas 2008-09-15

practical concise and complete reference for the basics of modern antenna design antennas from theory to practice discusses the basics of modern antenna design and theory developed specifically for engineers and designers who work with radio communications radar and rf engineering this book offers practical and hands on treatment of antenna theory and techniques and provides its readers the skills to analyse design and measure various antennas key features provides thorough coverage on the basics of transmission lines radio waves and propagation and antenna analysis and design discusses industrial standard design software tools and antenna measurement equipment facilities and techniques covers electrically small antennas mobile antennas uwb antennas and new materials for antennas also discusses reconfigurable antennas rfid antennas wide band and multi band antennas radar antennas and mimo antennas design examples of various antennas are provided written in a practical and concise manner by authors who are experts in antenna design with experience from both academia and industry this book will be an invaluable resource for engineers and designers working in rf engineering radar and radio communications seeking a comprehensive and practical introduction to the basics of antenna design the book can also be used as a textbook for advanced students entering a profession in this field

Antenna Fundamentals for Legacy Mobile Applications and Beyond 2017-10-03

this book highlights technology trends and challenges that trace the evolution of antenna design starting from 3rd generation phones and moving towards the latest release of lte a the authors explore how the simple monopole and whip antenna from the gsm years have evolved towards what we have today an antenna design that is compact multi band in nature and caters to multiple elements on the same patch to provide high throughput connectivity the scope of the book targets a broad range of subjects including the microstrip antenna pifa antenna and the monopole antenna to be used for different applications over three different mobile generations beyond that the authors take a step into the future and look at antenna requirements for 5g communications which already has the 5g drive in place with prominent scenarios and use cases emerging they examine these and put in place the challenges that lie ahead for antenna design particularly in mm wave design the book provides a reference for practicing engineers and under post graduate students working in this field

The Handbook of Antenna Design 1982

this book presents the fundamental background theory and analytical techniques of antenna design it deals with a very wide range of antenna types operating from very low frequencies to millimetre waves

Antenna Design by Simulation-Driven Optimization 2014-02-12

this brief reviews a number of techniques exploiting the surrogate based optimization concept and variable fidelity em simulations for efficient optimization of antenna structures the introduction of each method is illustrated with examples of antenna design the authors

demonstrate the ways in which practitioners can obtain an optimized antenna design at the computational cost corresponding to a few high fidelity em simulations of the antenna structure there is also a discussion of the selection of antenna model fidelity and its influence on performance of the surrogate based design process this volume is suitable for electrical engineers in academia as well as industry antenna designers and engineers dealing with computationally expensive design problems

Multi-objective Design Of Antennas Using Surrogate Models 2016-11-18

this book addresses computationally efficient multi objective optimization of antenna structures using variable fidelity electromagnetic simulations surrogate modeling techniques and design space reduction methods based on contemporary research it formulates multi objective design tasks highlights related challenges in the context of antenna design and discusses solution approaches specific focus is on providing methodologies for handling computationally expensive simulation models of antenna structures in the sense of their multi objective optimization also given is a summary of recent developments in antenna design optimization using variable fidelity simulation models numerous examples of real world antenna design problems are provided along with discussions and recommendations for the readers interested in applying the considered methods in their design work written with researchers and students in mind topics covered can also be applied across a broad spectrum of aeronautical mechanical electrical biomedical and civil engineering it is of particular interest to those dealing with optimization computationally expensive design tasks and simulation driven design

Microstrip Antennas 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

Automotive Antenna Design and Applications 2017-12-19

the steady evolution of wireless communication technologies continues to pave the way for the implementation of innovative services and devices in modern vehicles these include analog and digital audio broadcasting radio satellite radio gps cell phones and short range communication devices such applications require the use multiple antennas operating in different frequency ranges automotive antenna design and applications thoroughly examines traditional and new advanced automotive antennas including the principles designs and techniques used to reduce antenna dimensions without significant degradation of communication quality the contents of this book are based on cutting edge data collected from numerous technical papers patents and patent applications it presents an overview of many commercially available automotive antennas and covers features that have become standard in automotive applications such as printed on car glass antennas reduced size helical antennas multiband compact printed on dielectric and patch designs in a single package includes simulation examples of antenna parameters that significantly speed up the design process using software packages such as feko nec ie3d and genesys highlighting the practical aspects of antenna design the authors present passive and active designs and describe the entire design process including antenna simulation prototype sample fabrication and laboratory test measurements the book also covers the production adjustments that can result from the demands of the real car environment the presentation of numerous examples of passive and active automotive antennas greatly enhances this reference s value to professionals students and anyone else working in the ever evolving field of antenna design and application

Small Antenna Design 2006-03-22

as wireless devices and systems get both smaller and more ubiquitous the demand for effective but small antennas is rapidly increasing small antenna design describes the theory behind effective small antenna design and give design techniques and examples for small antennas for different operating frequencies design techniques are given for the entire radio spectrum from a very hundred kilohertz to the gigahertz range unlike other antenna books which are heavily mathematical and theoretical douglas miron keeps mathematics to the absolute minimum required to explain design techniques ground planes essential for operation of many antenna designs are extensively discussed author s extensive experience as a practicing antenna design engineer gives book a strong hands on emphasis covers antenna design techniques from very low frequency below 300 khz to microwave above 1 ghz ranges special attention is given to antenna design for mobile portable applications such as cell phones wifi etc

Antenna Design for Mobile Devices 2017-06-13

expanded and updated this practical guide is a one stop design reference containing all an engineer needs when designing antennas integrates state of the art technologies with a special section for step by step antenna design features up to date bio safety and electromagnetic compatibility regulation compliance and latest standards newly updated with mimo antenna design measurements and requirements accessible to readers of many levels from introductory to specialist written by a practicing expert who has hired and trained numerous engineers

Antennas 2021-09-02

antennas from theory to practice comprehensive coverage of the fundamentals and latest developments in antennas and antenna design in the newly revised second edition of antennas from theory to practice renowned researcher engineer and author professor yi huang delivers comprehensive and timely coverage of issues in modern antenna design and theory practical and accessible the book is written for engineers researchers and students who work with radio frequency microwave engineering radar and radio communications the book details the basics of transmission lines radiowaves and propagation antenna theory antenna analysis and design using industrial standard design software tools and the theory of characteristic modes antenna measurement equipment facilities and techniques it also covers the latest developments in special topics like small and mobile antennas wide and multi band antennas automotive antennas rfid uwb metamaterials reconfigurable and mimo antennas and more the new edition includes up to date information on a wide variety of newly relevant topics and trends like adaptive impedance matching the theory of characteristic modes antenna materials and fabrication processes and over the air ota antenna system measurements many questions and examples are provided which enhances the learning experience the book covers an introduction to circuit concepts and transmission lines including lumped and distributed element systems transmission line theory and the smith chart an exploration of field concepts and radiowaves including wave equations and solutions and radiowave propagation mechanisms characteristics and models discussions of antenna basics and popular antennas including wire type antennas aperture type antennas and antenna arrays information about antenna manufacturing and measurements including antenna measurement facilities and methods the use of industrial standard simulation tools for antenna design and analysis perfect for engineers and researchers who work in rf engineering or radar and radio communications antennas from theory to practice second edition will also earn a place on the bookshelves of university students seeking a concise and practical introduction to the basics of antennas and antenna design

Next-Generation Antennas 2021-07-19

next generation antennas advances and challenges the first book in this exciting new series written and edited by a group of international experts in the field this exciting new volume covers the latest advances and challenges in the next generation of antennas antenna design and wireless communication has recently witnessed their fastest growth period ever in history and these trends are likely to continue for the foreseeable future due to recent advances in industrial applications as well as antenna wireless communication and 5g technology we are witnessing a variety of developing and expanding new technologies compact and low cost antennas are increasing the demand for ultra wide bandwidth in next generation 5g wireless communication systems and the internet of things iot enabling the next generation of high frequency communication various methods have been introduced to achieve reliable high data rate communication links and enhance the directivity of planar antennas 5g technology can be used in many applications such as in smart city applications and in smartphones this technology can satisfy the fast rise in user and traffic capacity in mobile broadband communications therefore different planar antennas with intelligent beamforming capability play an important role in these areas the purpose of this book is to present the advanced technology developments and challenges in antennas for next generation antenna communication systems this book covers advances in next generation antenna design and application domain in all related areas it is a detailed overview of cutting edge developments and other emerging topics and their applications in all areas of engineering that have achieved great accuracy and performance with the help of the advancement and challenges in next generation antennas this outstanding new volume covers all the latest developments and future aspects of antenna communication is concisely written lucid and comprehensive practical application based with many informative graphics and schematics will help students researchers as well as systems designers to understand fundamental antenna design and wireless communication compares different approaches in antenna design

The Handbook of Antenna Design 1986

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

Yagi antenna design 1977

digital convergence in antenna design the latest addition to this series presents high quality original research contributions on analytical and practical models and ideas in the field of antennas including a thorough look at rf techniques like antennas rfid and filters with special emphasis on real time applications like e health radar and mobile and satellite communications this book is intended to disseminate recent trends in antenna designs for real time applications that leverage digital convergence the book intends to report the latest research findings as well as the state of the art rf techniques related to antennas rfid filters etc with special emphasis on real time applications like e health radar and mobile and satellite communications the book can be used as a reference for researchers who want to explore the convergence of ai ml dl big data and iot in the areas of antenna and advanced communication technologies for real time applications these real time applications can include e healthcare intelligent transportation aerospace retail manufacturing industrial plants and defense products where communications play a major role

Modern Antenna Design 2005-07-11

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

Digital Convergence in Antenna Design 2024-03-01

this one of a kind new resource presents cognitive radio from an antenna design perspective and introduces the concept of cognitive radio as a protocol that benefits from under utilized regions of the spectrum this book covers topics that govern the operation of a cognitive radio and discusses the use of reconfigurable antennas reconfigurable filtennas and mimo antennas for cognitive radio the analysis and design of different antenna systems are presented compared and evaluated new approaches to improve spectrum efficiency are explored by demonstrating how to design software controlled cognitive radio antenna systems this new resource shows how to communicate using either interweave or underlay cognitive radio and demonstrates the benefits of designing appropriate sensing and communicating antennas the first part of the book introduces the basic concept of cognitive radio and discusses the difference between cognitive radio and software defined radio from the rf system s perspective the second part of the book discusses the main antenna design requirements procedures and challenges for cognitive radio the third part of the book introduces new trends in cognitive radio implementation such as the implementation of mimo antennas on cognitive radio the use of machine learning techniques to optimize the performance of a cognitive radio environment and the implementation of cognitive radar and cognitive radio in space

Antenna Theory 2012-12-03

this comprehensive resource covers both antenna fundamentals and practical implementation strategies presenting antenna design with optimum performance in actual products and systems the book helps readers bridge the gap between electromagnetic theory and its application in the design of practical antennas in real products practical implementation strategies in products and systems will be addressed in order to design antennas in the context of actual product environments including pcb layout component placement and casing design practical design examples on wearable electronic products are presented with a systematic approach to designing antennas for actual products the book introduces antenna fundamentals to provide the basic concepts and necessary mathematics on electromagnetic analysis followed by advanced antenna elements the concept of electromagnetic simulation is presented the advantages and disadvantages of different numerical methods in antenna modeling are also discussed several commercial antenna design and simulation tools are introduced allowing hands on practice of antenna modeling and simulation

Antenna Design for Cognitive Radio 2016-06-30

written for novice engineers and engineering students this easy to comprehend resource offers you thorough introductory level treatment of antenna analysis using electromagnetic em simulators this richly illustrated book shows you how to use em software to analyze and tune

wireless antennas to meet specific requirements you learn important wireless antenna design terminology and gain a detailed understanding of how antennas work moreover the book offers you guidance in troubleshooting problems with wireless antenna designs this authoritative reference also provides you with a complete overview of the many different kinds of antennas and related em tools

Practical Antenna Design for Wireless Products 2019-07-31

annotation this tutorial explains antenna theory and operation and is intended for students engineers and researchers basic wire antennas and array antennas are described in detail and other types are introduced including reflectors lenses horns microstrip yagi and frequency independent antennas

Introduction to Antenna Analysis Using EM Simulators 2011

in internet of things iot applications wireless connectivity is a key factor particularly those that need to be in transition or where wired communication is not effective or practicable for top notch connectivity of the narrowband iot nb iot standard the 900mhz frequency is generally used by most of the vendors the radiation quality not only depends on the antenna geometry but on immediate surroundings additionally the iot product itself and the user of the product can strongly affect the resulting radiation pattern and other characteristics of the antenna on the other hand a suitable antenna should also have high efficiency and adequate bandwidth covering the desired frequency range to take these effects into consideration the whole iot product must be included in the antenna simulations antenna design for narrowband iot design analysis and applications provides the antenna design concept for narrowband internet of things applications performs a detailed analysis of the antenna and discusses the various antenna design concepts and structures covering a range of topics such as antenna design and antenna measurement systems this book is ideal for industry professionals research scholars academicians professors and students

Fundamentals of Antennas 2001

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

Antenna Design for Narrowband IoT: Design, Analysis, and Applications 2022-03-11

in depth and practical coverage of design considerations for 5g antennas in microwave and millimeter wave antenna design for 5g smartphone applications two distinguished researchers deliver a holistic multidisciplinary approach to antenna design methodologies the book covers approaches ranging from sub 6ghz microwave to the millimeter wave spectrum explaining how microwave and millimeter wave 5g antennas coexist and function both independently and collaboratively the book offers coverage of key considerations for designing millimeter wave 5g antennas within space constrained mobile devices as well as practical concerns like cost fabrication yield and heat dissipation readers will also find explorations of the likely future directions of 5g antenna evolution as well as a thorough introduction to basic concepts in 5g fr1 band mobile antenna design including discussions of antenna placement element design and topologies comprehensive explorations of antenna feeding mechanisms and impedance matching including chassis considerations and effects practical discussions of frequency tunable millimeter wave 5g antenna in package fulsome treatments of compact millimeter wave 5g antenna solutions and millimeter wave antenna on display technologies for 5g mobile devices perfect for antenna microwave communications and radio frequency engineers microwave and millimeter wave antenna design for 5g smartphone applications will also benefit graduate students policymakers regulators and researchers with an interest in communications and antennas

Microstrip Antenna 1986

next generation small antenna design techniques this authoritative text provides the most up to date methods on the theory and design of small antennas including an extensive survey of small antenna literature published over the past several years written by experts at the forefront of antenna research small antennas miniaturization techniques applications begins with a detailed presentation of small antenna theory narrowband and wideband and progresses to small antenna design methods such as materials and shaping approaches for multiband and wideband antennas generic miniaturization techniques are presented for narrowband multiband and wideband antennas two chapters devoted to metamaterials antennas and methods to achieve optimal small antennas as well as a chapter on rfid technologies and related antennas are included in this comprehensive volume coverage includes small antenna theory and optimal parameters theory and limits of wideband electrically small antennas extensive literature survey of small antenna designs practical antenna miniaturization approaches conformal wideband antennas based on spirals negative refractive index nri metamaterial and electromagnetic band gap ebg based antennas small antennas based on magnetic photonic and degenerate band edge crystals impedance matching for small antennas using passive and active circuits rfid antennas and technology

Microwave and Millimeter-wave Antenna Design for 5G Smartphone Applications 2023-01-05

the aim of this book is to highlight up to date exploited technologies and approaches in terms of antenna designs and requirements in this regard this book targets a broad range of subjects including the microstrip antenna and the dipole and printed monopole antenna the varieties of antenna designs along with several different approaches to improve their overall performance have given this book a great value in which makes this book is deemed as a good reference for practicing engineers and under postgraduate students working in this field the key technology trends in antenna design as part of the mobile communication evolution have mainly focused on multiband wideband and mimo antennas and all have been clearly presented studied and implemented within this book the forthcoming 5g systems consider a truly mobile multimedia platform that constitutes a converged networking arena that not only includes legacy heterogeneous mobile networks but advanced radio interfaces and the possibility to operate at mm wave frequencies to capitalize on the large swathes of available bandwidth this provides the impetus for a new breed of antenna design that in principle should be multimode in nature energy efficient and above all able to operate at the mm wave band placing new design drivers on the antenna design thus this book proposes to investigate advanced 5g

antennas for heterogeneous applications that can operate in the range of 5g spectrums and to meet the essential requirements of 5g systems such as low latency large bandwidth and high gains and efficiencies

Small Antennas:Miniaturization Techniques & Applications 2009-12-22

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

Recent Advances in Antenna Design for 5G Heterogeneous Networks 2022-01-27

describes how to systematically implement various characteristic mode cm theories into designs of practical antenna systems this book examines both theoretical developments of characteristic modes cms and practical developments of cm based methodologies for a variety of critical antenna designs the book is divided into six chapters chapter 1 provides an introduction and discusses the recent advances of the cm theory and its applications in antenna engineering chapter 2 describes the formulation of the characteristic mode theory for perfectly electrically conducting pec bodies and discusses its numerical implementations chapter 3 presents the cm theory for pec structures embedded in multilayered medium and its applications chapter 4 covers recent advances in cm theory for dielectric bodies and also their applications chapter 5 discusses the cm theory for n port networks and its applications to the design of antenna arrays finally chapter 6 discusses the design of platform integrated antenna systems using characteristic modes this book features the following introduces characteristic mode theories for various electromagnetic structures including pec bodies structures in multilayered medium dielectric bodies and n port networks examines cm applications in electrically small antennas microstrip patch antennas dielectric resonator antennas multiport antennas antenna arrays and platform mounted antenna systems discusses numerical algorithms for the implementation of the characteristic mode theories in computer code characteristic modes theory and applications in antenna engineering will help antenna researchers engineers and students find new solutions for their antenna design challenges

Microstrip Antenna Design Handbook 2001

the avoidance of complicated mathematics makes this introduction to antenna design especially appealing covering every step of the antenna design process from initial selection to final product testing this book provides extensive design examples and hard models which illustrate the simplest most efficient methods of antenna design monser also discusses how to secure patent protection for a design 125 illustrations

Characteristic Modes 2015-05-19

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

Antenna Design 1996-01-01

market desc advance courses in antenna theory and design courses for seniors and first year graduate students in electrical engineering special features provides fundamental methods of analysis that can be used to predict the electromagnetic behavior of nearly everything that radiates provides insightful examples of the application of theory to real design problems it is beautifully and clearly written and is of the highest technical quality this is the leading text on antenna arrays and the author is the leading researcher in this field the text frequently refers to the historical development of antennas which no other text does about the book this text is the classic work in antenna theory and design and is just as relevant to the field today as it was when first published in 1981 it provides an analytic treatment with supporting experimental evidence of the major topics of concern to antenna designers this is a broad ranging text that covers most of the relevant topics in antenna theory providing fundamental methods of analysis that can be used to predict the electromagnetic behavior of nearly everything that radiates this stress on the fundamentals is what makes the text valuable twenty one years after its first publication it not only presents the theory but goes on to show very insightful examples of its application to real design problems

Reconfigurable Antenna Design and Analysis 2021-05-31

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 Antenna Design 1988

this authoritative and well researched book is the only one that will give all of the most important and reliable on vhf antenna construction techniques this unique book offers a superb collection of detailed easy to follow fully illustrated and tested designs covering such types of antennas as omnidirectional antennas gain omni antennas gain directed beams portable antennas yagi antennas stacked arrays stacked collinears wideband omni antennas packed with detailed drawings plans schematics instructions material lists formulas tips and tricks plus the reader is given an extra chapter on converting the designs for other frequency bands making it profitable not just for amateurs but for professionals as well

ANTENNA THEORY AND DESIGN, REVISED ED 2006-08

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

Microstrip and Printed Antennas: Applications-Based Designs 2019-03-31

ultra wideband antennas design methodologies and performance presents the current state of the art of ultra wideband uwb antennas from theory specific for these radiators to guidelines for the design of omnidirectional and directional uwb antennas offering a comprehensive overview of the latest uwb antenna research and development this book discusses the developed theory for uwb antennas in frequency and time domains delivers a brief exposition of numerical methods for electromagnetics oriented to antennas describes solid planar equivalence which allows flat structures to be implemented instead of volumetric antennas examines the impedance matching phase linearity and radiation patterns as design objectives for omnidirectional and directional antennas addresses the time domain signal analysis for uwb antennas from which the distortion phenomenon can be modeled includes illustrative examples design equations cst microwave studio simulations and matlab plot generations compares the performance of different uwb antennas supplying useful insight into particular tendencies and unresolved problems ultra wideband antennas design methodologies and performance provides a valuable reference for the scientific community as uwb antennas have a variety of applications in body area networks radar imaging spectrum monitoring electronic warfare wireless sensor networks and more

Practical Antenna Design 140-150 MHz VHF Transceivers Third Edition 2006-11-20

this book presents state of the art millimetre wave antennas for next generation 5g communications the propagation losses associated with the millimetre waves and the signal blockage due to the objects present between transmitter and receiver require novel antenna topologies to address these issues various aspects of antenna design related to millimetre wave 5g communication including 28 ghz channel characteristics mmwave antenna requirements antenna design strategies for 28 ghz mimo multibeam antennas and mmwave lens antennas are highlighted apart from the general antenna requirements and study related to the 28 ghz frequency band various new metamaterial based antennas employing uniaxial or biaxial anisotropic media that enhance the antenna radiation performance are covered in detail in addition various new antenna systems such as wide scan antenna arrays dual polarized antennas and dual beam multibeam antennas are covered in this book the book concludes with the glimpses of the millimetre wave lens antennas and the design of very thin planar metamaterial lens for 5g massive mimo applications

Smart Antennas 2022-02-03

the aim of this book is to highlight up to date exploited technologies and approaches in terms of antenna designs and requirements in this regard this book targets a broad range of subjects including the microstrip antenna and the dipole and printed monopole antenna the varieties of antenna designs along with several different approaches to improve their overall performance have given this book a great value in which makes this book is deemed as a good reference for practicing engineers and under postgraduate students working in this field the key technology trends in antenna design as part of the mobile communication evolution have mainly focused on multiband wideband and mimo antennas and all have been clearly presented studied and implemented within this book the forthcoming 5g systems consider a truly mobile multimedia platform that constitutes a converged networking arena that not only includes legacy heterogeneous mobile networks but advanced radio interfaces and the possibility to operate at mm wave frequencies to capitalize on the large swathes of available bandwidth this provides the impetus for a new breed of antenna design that in principle should be multimode in nature energy efficient and above all able to operate at the mm wave band placing new design drivers on the antenna design thus this book proposes to investigate advanced 5g antennas for heterogeneous applications that can operate in the range of 5g spectrums and to meet the essential requirements of 5g systems such as low latency large bandwidth and high gains and efficiencies

Ultra Wideband Antennas 2017-12-19

a comprehensive resource to the latest developments of system enhancement techniques of femtocells power management interference mitigation and antenna design lte communications and networks fills a gap in the literature to offer a comprehensive review of the most current developments of lte femtocells and antennas and explores their future growth with contributions from a group of experts that represent the fields of wireless communications and mobile communications signal processing and antenna design this text identifies technical challenges and presents recent results related to the development integration and enhancement of lte systems in portable devices the authors examine topics such as application of cognitive radio with efficient sensing mechanisms interference mitigation and power management schemes for the lte systems they also provide a comprehensive account of design challenges and approaches performance enhancement techniques and effects of user s presence on the lte antennas lte communications and networks also highlights the promising technologies of multiband multimode and reconfigurable antennas for efficient design of portable lte devices designed to be a practical resource this text explores the interference mitigation power control and spectrum management in lte femtocells and related issues contains information on the design challenges different approaches performance enhancement and application case scenarios for the lte antennas covers the most recent developments of system enhancement techniques in terms of femtocells power management interference mitigation and antenna design includes contributions from leading experts in the field written for industry professionals and researchers lte communications and networks is a groundbreaking book that presents a comprehensive treatment to the lte systems in the context of femtocells and antenna design and covers the wide range of issues related to the topic

Novel Millimetre Wave Antennas for MIMO and 5G Applications 2021-11-30

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

Recent Advances in Antenna Design for 5G Heterogeneous Networks 2022

LTE Communications and Networks 2018-04-18

Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software 2014

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