

## Modern Antennas 2nd Edition File Type

The NAB Engineering Handbook is the definitive resource for broadcast engineers. It provides in-depth information about each aspect of the broadcast chain from audio and video contribution through an entire broadcast facility all the way to the antenna. New topics include Ultra High Definition Television, Internet Radio Interfacing and Streaming, ATSC 3.0, Digital Audio Compression Techniques, Digital Television Audio Loudness Management, and Video Format and Standards Conversion. Important updates have been made to incumbent topics such as AM, Shortwave, FM and Television Transmitting Systems, Studio Lighting, Cameras, and Principles of Acoustics. The big-picture, comprehensive nature of the NAB Engineering Handbook will appeal to all broadcast engineers—everyone from broadcast chief engineers, who need expanded knowledge of all the specialized areas they encounter in the field, to technologists in specialized fields like IT and RF who are interested in learning about unfamiliar topics. Chapters are written to be accessible and easy to understand by all levels of engineers and technicians. A wide range of related topics that engineers and technical managers need to understand are covered, including broadcast documentation, FCC practices, technical standards, security, safety, disaster planning, facility planning, project management, and engineering management.

Extensively updated evaluation of current and future network technologies, applications and devices This book follows on from its successful predecessor with an introduction to next generation network technologies, mobile devices, voice and multimedia services and the mobile web 2.0. Giving a sound technical introduction to 3GPP wireless systems, this book explains the decisions taken during standardization of the most popular wireless network standards today, LTE, LTE-Advanced and HSPA+. It discusses how these elements strongly influence each other and how network capabilities, available bandwidth, mobile device capabilities and new application concepts will shape the way we communicate in the future. This Second Edition presents a comprehensive and broad-reaching examination of a fast-moving technology which will be a welcome update for researchers and professionals alike. Key features: Fully updated and expanded to include new sections including VoLTE, the evolution to 4G, mobile Internet access, LTE-Advanced, Wi-Fi security and backhaul for wireless networks Describes the successful commercialization of Web 2.0 services such as Facebook, and the emergence of app stores, tablets and smartphones Examines the evolution of mobile devices and operating systems, including ARM and x86 architecture and their application to voice-optimized and multimedia devices

G. Beutler's *Methods of Celestial Mechanics* is a coherent textbook for students as well as an excellent reference for practitioners. The first volume gives a thorough treatment of celestial mechanics and presents all the necessary mathematical details that a professional would need. The reader will appreciate the well-written chapters on numerical solution techniques for ordinary differential equations, as well as that on orbit determination. In the second volume applications to the rotation of earth and moon, to artificial earth satellites and to the planetary system are presented. The author addresses all aspects that are of importance in high-tech applications, such as the detailed gravitational fields of all planets and the earth, the oblateness of the earth, the radiation pressure and the atmospheric drag. The concluding part of this monumental treatise explains and details state-of-the-art professional and thoroughly-tested software for celestial mechanics.

Aimed at a single-semester course on antennas at the undergraduate level, *Antennas and Wave Propagation* provides a lucid explanation of the fundamentals of antennas and propagation. This student-friendly text also includes simple design procedures along with a large number of examples and exercises.

Addressing the most dynamic areas of the ever-changing telecommunications landscape, the

second edition of the bestselling CRC Handbook of Modern Telecommunications once again brings together the top minds and industry pioneers in wireless communication networks, protocols, and devices. In addition to new discussions of radio frequency identification (RFID) and wireless sensor networks, including cognitive radio networks, this important reference systematically addresses network management and administration, as well as network organization and governance, topics that have evolved since the development of the first edition. Extensively updated and expanded, this second edition provides new information on: Wireless sensor networks RFID Architectures Intelligent Support Systems Service delivery integration with the Internet Information life cycle and service level management Management of emerging technologies Web performance management Business intelligence and analytics The text details the latest in voice communication techniques, advanced communication concepts, network organization, governance, traffic management, and emerging trends. This comprehensive handbook provides telecommunications professionals across all fields with ready access to the knowledge they require and arms them with the understanding of the role that evolving technologies will play in the development of the telecommunications systems of tomorrow.

Modern society thrives on communication that is instant and available at all times, a constant exchange of information that encompasses everything from video streaming to GPS navigation. Experts even suggest that in the near future everything from our cars to our kitchen appliances will be connected to the internet, a feat that would not be possible without advanced wireless technology. Wideband, Multiband, and Smart Reconfigurable Antennas for Modern Wireless Communications showcases current trends and novel approaches in the design and analysis of the antennas that make wireless applications possible, while also identifying unique integration opportunities for antennas and wireless applications to work together. By featuring both theoretical and experimental approaches to integration, this book highlights specific design issues to assist a wide-range of readers including students, researchers, academics, and industry practitioners. This publication features chapters on a broad scope of topics including algorithms and antenna optimization, wireless infrastructure development, wireless applications of intelligent algorithms, antenna architecture, and antenna reconfiguration techniques.

The gold-standard reference on the design and application of classic and modern antennas—fully updated to reflect the latest advances and technologies This new edition of the “bible of antenna engineering” has been updated to provide start-to-finish coverage of the latest innovations in antenna design and application. You will find in-depth discussion of antennas used in modern communication systems, mobile and personal wireless technologies, satellites, radar deployments, flexible electronics, and other emerging technologies, including 5G, terahertz, and wearable electronics. Antenna Engineering Handbook, Fifth Edition, is bolstered by real-world examples, hundreds of illustrations, and an emphasis on the practical aspects of antennas. Featuring 60 chapters and contributions from more than 80 renowned experts, this acclaimed resource is edited by one of the world’s leading antenna authorities. This edition features all of the classic antenna types, plus new and emerging designs, with 13 all-new chapters and important updates to nearly all chapters from past editions. Antenna Engineering Handbook, Fifth Edition, clearly explains cutting-edge applications in WLANs, automotive systems, PDAs, and handheld devices, making it an indispensable companion for today’s antenna practitioners and developers. Coverage includes:

- Antenna basics and classic antennas
- Design approaches for antennas and arrays
- Wideband and multiband antennas
- Antennas for mobile devices and PDAs,

automotive applications, and aircraft•Base station and smart antennas•Beamforming and 5G antennas•Millimeter-wave and terahertz antennas•Flexible, wearable, thin film, origami, dielectric, and on-chip antennas•MIMO antennas and phased arrays•Direction-finding and GPS antennas•Active antennas•Low-profile wideband antennas•Nanoantennas•Reflectors and other satellite and radio-telescope antennas•Low-frequency, HF, VHF, UHF, ECM, and ESM antennas•Impedance-matching techniques and material characteristics•Metastructured and frequency selective surfaces•Propagation and guided structures•Computational techniques and toolsets•Indoor and outdoor measurements

"Contains 275 tutorial articles focused on modern telecommunications topics. The contents include articles on communication networks, source coding and decoding, channel coding and decoding, modulation and demodulation, optical communications, satellite communications, underwater acoustic communications, radio propagation, antennas, multiuser communications, magnetic storage systems, and a variety of standards"--V.1, p. v.

This book addresses the fundamentals and practical implementations of antennas for Global Navigation Satellite Systems (GNSS) In this book, the authors discuss the various aspects of GNSS antennas, including fundamentals of GNSS, design approaches for the GNSS terminal and satellite antennas, performance enhancement techniques and effects of user's presence and surrounding environment on these antennas. In addition, the book will provide the reader with an insight into the most important aspects of the GNSS antenna technology and lay the foundations for future advancements. It also includes a number of real case studies describing the ways in which antenna design can be adapted to conform to the design constraints of practical user devices, and also the management of potential adverse interactions between the antenna and its platform. Key Features: Covers the fundamentals and practical implementations of antennas for Global Navigation Satellite Systems (GNSS) Describes technological advancements for GPS, Glonass, Galileo and Compass Aims to address future issues such as multipath interference, in building operation, RF interference in mobile Includes a number of real case studies to illustrate practical implementation of GNSS This book will be an invaluable guide for antenna designers, system engineers, researchers for GNSS systems and postgraduate students (antennas, satellite communication technology). R&D engineers in mobile handset manufacturers, spectrum engineers will also find this book of interest.

In answer to great demand, Artech House is proud to bring professionals a newly revised and updated edition of the bestselling book Introduction to Modern EW Systems. The Second Edition has been greatly expanded to include a wealth of new material, from remote piloted airborne systems, directed energy weapons, and non-cooperative air surveillance...to EW radar band sensor next generation architectures, real-time data links, and smart jamming. This authoritative resource provides engineers and students with the latest electronic warfare (EW) techniques and technologies related to on-board military platforms. Practitioners gain expert design guidance on technologies and equipment used to detect and identify emitter threats, offering an advantage in the never-ending chess game between sensor guided weapons and EW systems. This unique book provides deeper insight into EW systems principles of operation and their mathematical descriptions, arming professionals with better

knowledge for their specific design applications. Moreover, readers get practical information on how to counter modern communications data links which provide connectivity and command flow among the armed forces in the battlefield. Taking a sufficiently broad perspective, this comprehensive volume offers a panoramic view of the various physical domains RF, Infrared, and electronics that are present in modern electronic warfare systems. This in-depth book is supported with over 340 illustrations and more than 450 equations.

The most up-to-date, comprehensive treatment of classical and modern antennas and their related technologies Modern Antenna Handbook represents the most current and complete thinking in the field of antennas. The handbook is edited by one of the most recognizable, prominent, and prolific authors, educators, and researchers on antennas and electromagnetics. Each chapter is authored by one or more leading international experts and includes cover-age of current and future antenna-related technology. The information is of a practical nature and is intended to be useful for researchers as well as practicing engineers. From the fundamental parameters of antennas to antennas for mobile wireless communications and medical applications, Modern Antenna Handbook covers everything professional engineers, consultants, researchers, and students need to know about the recent developments and the future direction of this fast-paced field. In addition to antenna topics, the handbook also covers modern technologies such as metamaterials, microelectromechanical systems (MEMS), frequency selective surfaces (FSS), and radar cross sections (RCS) and their applications to antennas, while five chapters are devoted to advanced numerical/computational methods targeted primarily for the analysis and design of antennas.

The “bible of antenna engineering” fully updated to provide state-of-the-art coverage in antenna design and applications Edited by John L. Volakis, one of the world's leading authorities in antenna engineering, this trusted resource covers all the classic antenna types plus many new types and designs used in communications systems, satellites, radars, and emerging applications from WLAN to automotive systems to biomedical to smart antennas. You will also find expert discussion of topics critical to successful antenna design and engineering, such as measurement techniques and computational methods, a materials guide, wave propagation basics, microwave circuits, and matching techniques, as well as diversity and MIMO propagation models, frequency selective surfaces, and metamaterials. Packed with 1,500 illustrations, the 4th Edition of Antenna Engineering Handbook presents: Step-by-step guidance on most antennas (modern and classic) 59 chapters with 21 new chapters and 38 fully updated chapters from the previous edition Contributions from over 80 well-known antenna experts Full-color insert illustrating many commercial and military antennas Get Quick Access to All of Today's Cutting-Edge Antennas • Printed and Conformal Antennas • Wideband Patch Antennas • Wideband Arrays • Leaky-Wave Antennas • EBG Antennas • UWB Antennas and Arrays • Portable TV Antennas • Reconfigurable Antennas • Active Antennas • Millimeter Wave and TeraHertz Antennas • Fractal Antennas • Handset and Terminal Antennas • Biomedical Antennas • ECM and ESM antennas • Dielectric Resonator Antennas • Lens Antennas • Radiometer Antennas • Satellite Antennas • Reflector and Earth Station Antennas • and Dozens More!

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. This textbook is intended for a course in electromagnetism for upper undergraduate and graduate students. The main concepts and laws of classical macroscopic electrodynamics and initial information about generalized laws of modern electromagnetics are discussed, explaining some paradoxes of the modern theory. The reader then gets acquainted with electrodynamics methods of field analysis on the basis of wave equation solution. Emission physics are considered using an example of the Huygens-Fresnel-Kirchhoff canonic principle. The representation about strict electrodynamics task statement on the base of Maxwell equations, boundary conditions, emission conditions and the condition on the edge is given. Different classes of approximate boundary conditions are presented, which essentially simplify understanding of process physics. The canonic Fresnel functions are given and their generalization on the case of anisotropic impedance. The free waves in closed waveguides and in strip-slotted and edge-dielectric transmission lines are described. A large number of Mathcad programs for illustration of field patterns and its properties in different guiding structures are provided. The material is organized for self-study as well as classroom use.

Updated with color and gray scale illustrations, a companion website housing supplementary material, and new sections covering recent developments in antenna analysis and design This book introduces the fundamental principles of antenna theory and explains how to apply them to the analysis, design, and measurements of antennas. Due to the variety of methods of analysis and design, and the different antenna structures available, the applications covered in this book are made to some of the most basic and practical antenna configurations. Among these antenna configurations are linear dipoles; loops; arrays; broadband antennas; aperture antennas; horns; microstrip antennas; and reflector antennas. The text contains sufficient mathematical detail to enable undergraduate and beginning graduate students in electrical engineering and physics to follow the flow of analysis and design. Readers should have a basic knowledge of undergraduate electromagnetic theory, including Maxwell's equations and the wave equation, introductory physics, and differential and integral calculus. Presents new sections on flexible and conformal bowtie, Vivaldi

antenna, antenna miniaturization, antennas for mobile communications, dielectric resonator antennas, and scale modeling Provides color and gray scale figures and illustrations to better depict antenna radiation characteristics Includes access to a companion website housing MATLAB programs, Java-based applets and animations, Power Point notes, Java-based interactive questionnaires and a solutions manual for instructors Introduces over 100 additional end-of-chapter problems Antenna Theory: Analysis and Design, Fourth Edition is designed to meet the needs of senior undergraduate and beginning graduate level students in electrical engineering and physics, as well as practicing engineers and antenna designers. Constantine A. Balanis received his BSEE degree from the Virginia Tech in 1964, his MEE degree from the University of Virginia in 1966, his PhD in Electrical Engineering from The Ohio State University in 1969, and an Honorary Doctorate from the Aristotle University of Thessaloniki in 2004. From 1964 to 1970, he was with the NASA Langley Research Center in Hampton, VA, and from 1970 to 1983, he was with the Department of Electrical Engineering of West Virginia University. In 1983 he joined Arizona State University and is now Regents' Professor of Electrical Engineering. Dr. Balanis is also a life fellow of the IEEE.

Continuing in the tradition of the bestselling first edition, this book examines networked surveillance video solutions. It provides the latest details on industry hardware, software, and networking capabilities of the latest cameras and DVRs. It addresses in full detail updated specifications on MPEG-4 and other digital video formats, resolution advantages of analog v. digital, intelligent video capabilities, frame rate control, and indoor/outdoor installations factors. New chapters include cloud computing, standards, and thermal cameras.

Joe Carr has provided radio amateurs and short-wave listeners with the definitive design guide for sending and receiving radio signals with Antenna Toolkit 2nd edition. Together with the powerful suite of CD software, the reader will have a complete solution for constructing or using an antenna - bar the actual hardware! The software provides a simple Windows-based aid to carrying out the design calculations at the heart of successful antenna design. All the user needs to do is select the antenna type and set the frequency - a much more fun and less error prone method than using a conventional calculator to solve formulae. The new edition has been revised to include further cases of propagation, additional antennas and also two new chapters - Small Loop Antennas (a topic of considerable interest, which has been the subject of much recent debate in the amateur radio press); and Yagi Beam Antennas (widely used at HF and VHF). The CD software has also been updated. Joe Carr's expertise in the area of antenna design is legendary. Antenna designers, whether hobbyist or technician, can be assured they need look no further than Antenna Toolkit for the complete guide to understanding the practicalities of using and designing antennas today. A complete solution for antenna design in one package. Includes free CD-ROM with state of the art software for all design calculations. The definitive guide to

antenna design for radio amateurs and short-wave listeners.

"Professor Andreas F. Molisch, renowned researcher and educator, has put together the comprehensive book, *Wireless Communications*. The second edition, which includes a wealth of new material on important topics, ensures the role of the text as the key resource for every student, researcher, and practitioner in the field." —Professor Moe Win, MIT, USA

*Wireless Communications* has grown rapidly over the past decade from a niche market into one of the most important, fast moving industries. Fully updated to incorporate the latest research and developments, *Wireless Communications, Second Edition* provides an authoritative overview of the principles and applications of mobile communication technology. The author provides an in-depth analysis of current treatment of the area, addressing both the traditional elements, such as Rayleigh fading, BER in flat fading channels, and equalisation, and more recently emerging topics such as multi-user detection in CDMA systems, MIMO systems, and cognitive radio. The dominant wireless standards; including cellular, cordless and wireless LANs; are discussed. Topics featured include: wireless propagation channels, transceivers and signal processing, multiple access and advanced transceiver schemes, and standardised wireless systems. Combines mathematical descriptions with intuitive explanations of the physical facts, enabling readers to acquire a deep understanding of the subject. Includes new chapters on cognitive radio, cooperative communications and relaying, video coding, 3GPP Long Term Evolution, and WiMax; plus significant new sections on multi-user MIMO, 802.11n, and information theory. Companion website featuring: supplementary material on 'DECT', solutions manual and presentation slides for instructors, appendices, list of abbreviations and other useful resources.

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.

Equips students with essential industry-relevant knowledge through in-depth explanations, practical applications, examples, and exercises.

Complete recipes spread across 15 chapters to help you overcome commonly faced issues by Python for everybody across the globe. Each recipe takes a problem-solution approach to resolve for effective Python. Key Features: Develop expressive and effective Python programs. Best practices and common idioms through carefully explained recipes. Discover new ways to apply Python for data-focused development. Make use of Python's optional type annotations.

**Book Description** Python is the preferred choice of developers, engineers, data scientists, and hobbyists everywhere. It is a great language that can power your applications and provide great speed, safety, and scalability. It can be used for simple scripting or sophisticated web applications. By exposing Python as a series of simple recipes, this book gives you insight into specific language features in a particular context. Having a tangible context helps make the language or a given standard library feature easier to understand. This book comes with 133 recipes on the latest version of Python 3.8. The recipes will benefit everyone, from beginners just starting out with Python to experts. You'll not only learn Python programming concepts but also how to build complex applications. The recipes will touch upon all necessary Python

concepts related to data structures, object oriented programming, functional programming, and statistical programming. You will get acquainted with the nuances of Python syntax and how to effectively take advantage of it. By the end of this Python book, you will be equipped with knowledge of testing, web services, configuration, and application integration tips and tricks. You will be armed with the knowledge of how to create applications with flexible logging, powerful configuration, command-line options, automated unit tests, and good documentation. What you will learn See the intricate details of the Python syntax and how to use it to your advantage Improve your coding with Python readability through functions Manipulate data effectively using built-in data structures Get acquainted with advanced programming techniques in Python Equip yourself with functional and statistical programming features Write proper tests to be sure a program works as advertised Integrate application software using Python Who this book is for The Python book is for web developers, programmers, enterprise programmers, engineers, and big data scientists. If you are a beginner, this book will get you started. If you are experienced, it will expand your knowledge base. A basic knowledge of programming would help.

This newly revised third edition of an Artech House classic, *Phased Array Antenna Handbook, Second Edition*, offers a complete and up-to-date comprehensive treatment of array antennas and systems. This edition provides a wealth of new material, including expanded coverage of phased array and multibeam antennas. New modern machine learning techniques used for analysis are included. Additional material on wideband antennas and wideband coverage in array antennas are incorporated this book, including new methods, devices, and technologies that have developed since the second edition. A detailed treatment of antenna system noise, sections on antenna pattern synthesis, developments in subarray technology, and in-depth information on array architecture and components are also new features of this book. This book provides complete design details that demonstrate how to size an array system with speed and confidence. Moreover, this book provides expanded coverage of systems aspects of arrays for radar and communications. Supported with numerous equations and illustrations, this practical book helps evaluate basic antenna parameters such as gain, sidelobe levels, and noise. Readers learn how to compute antenna system noise, design subarray geometries for given bandwidth, scan and sidelobe constraints, and choose array illumination tapers for given sidelobe levels.

This highly-anticipated second edition of an Artech House classic covers several key radar analysis areas: the radar range equation, detection theory, ambiguity functions, waveforms, antennas, active arrays, receivers and signal processors, CFAR and chaff analysis. Readers will be able to predict the detection performance of a radar system using the radar range equation, its various parameters, matched filter theory, and Swerling target models. The performance of various signal processors, single pulse, pulsed Doppler, LFM, NLFM, and BPSK, are discussed, taking into account factors including MTI processing, integration gain, weighting loss and straddling loss. The details of radar analysis are covered from a mathematical perspective, with in-depth breakdowns of radar performance in the presence of clutter. Readers will be able to determine the noise temperature of a multi-channel receiver as it is used in active arrays. With the addition of three new chapters on moving target detectors, inverse synthetic aperture radar (ISAR) and constant false alarm rate (CFAR) and new MATLAB codes, this expanded second edition will appeal to the novice as well as the experienced practitioner.

*Handbook of Railway Vehicle Dynamics, Second Edition*, provides expanded, fully updated coverage of railway vehicle dynamics. With chapters by international experts, this work surveys the main areas of rolling stock and locomotive dynamics. Through mathematical analysis and numerous practical examples, it builds a deep understanding of the wheel-rail interface, suspension and suspension component design, simulation and testing of electrical and

mechanical systems, and interaction with the surrounding infrastructure, and noise and vibration. Topics added in the Second Edition include magnetic levitation, rail vehicle aerodynamics, and advances in traction and braking for full trains and individual vehicles. IMDC-SDSP conference offers an exceptional platform and opportunity for practitioners, industry experts, technocrats, academics, information scientists, innovators, postgraduate students, and research scholars to share their experiences for the advancement of knowledge and obtain critical feedback on their work. The timing of this conference coincides with the rise of Big Data, Artificial Intelligence powered applications, Cognitive Communications, Green Energy, Adaptive Control and Mobile Robotics towards maintaining the Sustainable Development and Smart Planning and management of the future technologies. It is aimed at the knowledge generated from the integration of the different data sources related to a number of active real-time applications in supporting the smart planning and enhance and sustain a healthy environment. The conference also covers the rise of the digital health, well-being, home care, and patient-centred era for the benefit of patients and healthcare providers; in addition to how supporting the development of a platform of smart Dynamic Health Systems and self-management.

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.

This book describes both theoretical and practical aspects of advanced broadband patch antennas, providing a comprehensive review of the state of the art in the field. Modern antenna techniques are discussed for single patches, dual linear and circular polarizations designs, and arrays used in mobile

communications. Includes 88 equations, 115 figures, and 200 references. The most complete, current guide to smart antenna design and performance. Featuring new coverage of reconfigurable antennas, vector antennas, and direction-finding antennas, this up-to-date resource offers a rigorous review of the basic electromagnetic principles that drive smart antenna design and deployment. Case studies and worked examples using MATLAB are provided. End-of-chapter assignments reinforce the concepts presented. Thoroughly revised to reflect recent developments and the latest technologies, this is a comprehensive reference for all professionals, students, and researchers in the field of smart antennas. Smart Antennas with MATLAB, Second Edition, covers: Fundamentals of electromagnetic fields Antenna fundamentals Array fundamentals Principles of random variables and processes Propagation channel characteristics Angle-of-arrival estimation Smart antennas Direction finding Electromagnetic vector sensors Smart antenna design and optimization Included in this revised classic are terminologies from the worlds of consumer electronics, optics, microelectronics, communications, medical electronics, and packaging and production. 150 line drawings.

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.

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