

## Introduction To Electromagnetic And Microwave Engineering Wiley Series In Microwave And Optical Engineering

Filled with illustrations, examples and approximately 300 homework problems, this accessible and informative text provides an extensive treatment of electromagnetism and microwave engineering with particular emphasis on microwave and telecommunications applications. Also stresses computational electromagnetics through the use of MathCad and finite element methods to elucidate design problems, analysis and applications. Tutorials on the use of MathCad and PSpice are included. An accessible textbook for students and valuable reference for engineers already in the field.

This book is a first-year graduate text on electromagnetic fields and waves. It is the translated and revised edition of the Chinese version with the same title published by the Publishing House of Electronic Industry (PHEI) of China in 1994. The text is based on the graduate course lectures on "Advanced Electrodynamics" given by the authors at Tsinghua University. More than 300 students from the Department of Electronic Engineering and the Department of Applied Physics have taken this course during the last decade. Their particular fields are microwave and millimeterwave theory and technology, physical electronics, optoelectronics and engineering physics. As the title of the book shows, the texts and examples in the book concentrate mainly on electromagnetic theory related to microwaves and optoelectronics, or light wave technology. However, the book can also be used as an intermediate-level text or reference book on electromagnetic fields and waves for students and scientists engaged in research in neighboring fields.

Annotation This practical "how to" book is an ideal introduction to electromagnetic field-solvers. Where most books in this area are strictly theoretical, this unique resource provides engineers with helpful advice on selecting the right tools for their RF (radio frequency) and high-speed digital circuit design work

This book describes and provides design guidelines for antennas that achieve compactness by using the slot radiator as the fundamental building block within a periodic array, rather than a phased array. It provides the basic electromagnetic tools required to design and analyse these novel antennas, with sample calculations where relevant. The book presents a focused introduction and valuable insights into the relevant antenna technology, together with an overview of the main directions in the evolving technology of compact planar arrays. While the book discusses the historical evolution of compact array antennas, its main focus is on summarising the extensive body of literature on compact antennas. With regard to the now ubiquitous slot radiator, it seeks to demonstrate how, despite significant antenna size reductions that at times even seem to defy the laws of physics, desirable radiation pattern properties can be preserved. This is supported by an examination of recent advances in frequency selective surfaces and in metamaterials, which can, if handled correctly, be used to facilitate physics-defying designs. The book offers a valuable source of information for communication systems and antenna design engineers, especially thanks to its overview of trends in compact planar arrays, yet will also be of interest to students and researchers, as it provides a focused introduction and insights into this highly relevant antenna technology.

With this self-contained, introductory text, readers will easily understand the fundamentals of microwave and radar image generation. Written with the complete novice in mind, and including an easy-to-follow introduction to electromagnetic scattering theory, it covers key topics such as forward models of scattering for interpreting S-parameter and time-dependent voltage data, S-parameters and their analytical sensitivity formulae, basic methods for real-time image reconstruction using frequency-sweep and pulsed-radar signals, and metrics for evaluating system performance. Numerous application examples and practical tutorial exercises provided throughout allow quick understanding of key concepts, and sample MATLAB codes implementing key reconstruction algorithms accompany the book online. This one-stop resource is ideal for graduate students taking introductory courses in microwave imaging, as well as researchers and industry professionals wanting to learn the fundamentals of the field.

This book is intended to help satisfy an urgent requirement for up-to date comprehensive texts at graduate and senior undergraduate levels on the subjects in non-destructive testing (NDT). The subject matter here is confined to electrical and magnetic methods, with emphasis on the widely used eddy current and magnetic flux leakage methods (including particle inspection), but proper attention is paid to other techniques, such as microwave and AC field applications, which are rapidly growing in importance. Theoretical analyses relating to the various methods are discussed and the depths of presentation are often governed by whether or not the information is readily available elsewhere. Thus, for example, a considerable amount of space is devoted to eddy current theory at what the author considers to be a reasonable standard and not, as usually experienced, in either a too elementary manner or at a level appreciated only by a postgraduate theoretical physicist. The inclusion of the introductory chapter is intended to acquaint the reader with some of the philosophy of NDT and to compare, briefly, the relative performances of the more important methods of testing.

Building on basic undergraduate electronic engineering concepts, this text applies the principles to the design of compatible electronic systems that do not create interference. It includes derivations of formulae and worked examples as well as technical details and practical design information.

Bridges the gap between FDTD theory and the implementation of practical simulation techniques This is the first publication that guides readers step by step through the implementation of electromagnetic simulation techniques based on FDTD methods. These simulation techniques serve as an essential bridge between FDTD methods and their applications. Moreover, the book helps readers better understand the underlying logic of FDTD methods so that they can design FDTD projects using either commercial electromagnetic software packages or their own codes in order to solve practical engineering problems. The book begins with two chapters that introduce the basic concepts of the 3-D Cartesian FDTD method, followed by discussions of advanced FDTD methods such as conformal techniques, dispersive media, circuit elements, and near-to-far field transformation. Next, the book: Presents basic concepts of parallel processing techniques and systems, including parallel FDTD techniques and systems Explores simulation techniques based on FDTD methods Illustrates practical simulation techniques using engineering applications Introduces advanced simulation techniques Each chapter concludes with references to help readers investigate particular topics in greater depth. Each chapter also includes problem sets that challenge readers to put their new FDTD

and simulation skills into practice. By bridging the gap between FDTD theory and practical simulation techniques, this publication is an invaluable guide for students and engineers who need to solve a wide range of design problems in RF, antenna, and microwave engineering.

Electrical and Magnetic Methods of Nondestructive Testing presents a comprehensive account of the electrical and magnetic methods of nondestructive testing (NDT). The book begins with a discussion of the requirements for NDT and the criteria for the choice of a given method, followed by a summary of the general theory relating to electrical and magnetic testing techniques. Subsequent chapters discuss specific methods, including eddy current and flux-leakage techniques and microwave and potential drop methods. The appendix provides some useful programs for eddy current impedance analyses. These programs are in BASIC and can be run on PCs.

Introduction to hybrid-mode feeds. Propagation and radiation characteristics of cylindrical corrugated waveguides. Propagation and radiation characteristics of conical corrugated waveguides. Design of cylindrical and conical corrugated horns. Manufacture and testing of corrugated horns. Rectangular and elliptical corrugated horns.

Part of the McGraw-Hill Core Concepts Series, Microwave Engineering thoroughly covers the basic principles, analysis, design and measurement techniques necessary for an introductory undergraduate or graduate course in microwave engineering. This is a concise less expensive alternative. This series is edited by Dick Dorf.

Richly illustrated and written in an easy-to-comprehend style, this highly accessible resource provides novice engineers and engineering students with a solid introduction to the use of electromagnetics (EM) simulation in RF design. Engineers learn how to use EM software to design microwave circuits and to conduct signal integrity analysis of high-speed digital circuits. This authoritative book describes exactly how microwave and high-speed digital circuits operate, offering practitioners clear troubleshooting guidance for their work with these circuits. Professionals and students also benefit from a thorough overview of the wide range of high-frequency circuits and related EM tools being utilized in the field today.

Introduction: Electromagnetic waves. Waveguides as transmission lines. Elements of network theory. General microwave circuit theorems. Waveguide circuit elements. Resonant cavities as microwave circuit elements. Radial transmission lines. Waveguide junctions with several arms. Mode transformations. Dielectrics in waveguides. The symmetry of waveguide junctions.

\* The first book on the subject. \* Written by an acknowledged expert in the field. \* The techniques discussed have important applications to wireless engineering.

Humanity's ability to produce enough food is mostly due to adoption of new methods and technologies by the agricultural industries as they became available. New information, communication and high speed processing and precision agriculture technologies have the potential to transform the agricultural industry. These technologies incorporate radio-frequency and microwave radiation into their systems. This book presents an overview of how these technologies are being used in agricultural systems. The main purpose of the book is to provide a glimpse of what is possible and encourage practitioners in the engineering and agricultural industries to explore how radio-frequency and microwave systems might further enhance the agricultural industry. The authors have extensive experience in agricultural and microwave engineering, instrumentation and communication systems.

????:Waves and fields in inhomogeneous media

An introduction to the most relevant theoretical and algorithmic aspects of modern microwave imaging approaches Microwave imaging—a technique used in sensing a given scene by means of interrogating microwaves—has recently proven its usefulness in providing excellent diagnostic capabilities in several areas, including civil and industrial engineering, nondestructive testing and evaluation, geophysical prospecting, and biomedical engineering. Microwave Imaging offers comprehensive descriptions of the most important techniques so far proposed for short-range microwave imaging—including reconstruction procedures and imaging systems and apparatus—enabling the reader to use microwaves for diagnostic purposes in a wide range of applications. This hands-on resource features: A review of the electromagnetic inverse scattering problem formulation, written from an engineering perspective and with notations The most effective reconstruction techniques based on diffracted waves, including time- and frequency-domain methods, as well as deterministic and stochastic space-domain procedures Currently proposed imaging apparatus, aimed at fast and accurate measurements of the scattered field data Insight on near field probes, microwave axial tomographs, and microwave cameras and scanners A discussion of practical applications with detailed descriptions and discussions of several specific examples (e.g., materials evaluation, crack detection, inspection of civil and industrial structures, subsurface detection, and medical applications) A look at emerging techniques and future trends Microwave Imaging is a practical resource for engineers, scientists, researchers, and professors in the fields of civil and industrial engineering, nondestructive testing and evaluation, geophysical prospecting, and biomedical engineering.

The aim of this book is to serve as a design reference for students and as an up-to-date reference for researchers. It also acts as an excellent introduction for newcomers to the field and offers established rf/microwave engineers a comprehensive refresher. The content is roughly classified into two – the first two chapters provide the necessary fundamentals, while the last three chapters focus on design and applications. Chapter 2 covers detailed treatment of transmission lines. The Smith chart is utilized in this chapter as an important tool in the synthesis of matching networks for microwave amplifiers. Chapter 3 contains an exhaustive review of microstrip circuits, culled from various references. Chapter 4 offers practical design information on solid state amplifiers, while Chapter 5 contains topics on the design of modern planar filters, some of which were seldom published previously. A set of problems at the end of each chapter provides the readers with exercises which are compiled from actual university exam questions. An extensive list of references is available at the end of each chapter to enable readers to obtain further information on the topics covered.

The flagship monograph addressing the spheroidal wave function and its pertinence to computational electromagnetics Spheroidal Wave Functions in Electromagnetic Theory presents in detail the theory of spheroidal wave functions, its applications to the analysis of electromagnetic fields in various spheroidal structures, and provides comprehensive programming codes for those computations. The topics covered in this monograph include: Spheroidal coordinates and wave functions Dyadic Green's functions in spheroidal systems EM scattering by a conducting spheroid EM scattering by a coated dielectric spheroid Spheroid antennas SAR distributions in a spheroidal head model The programming codes and their applications are provided online and are written in Mathematica 3.0 or 4.0. Readers can also develop their own codes according to the theory or routine described in the book to find subsequent solutions of complicated structures. Spheroidal Wave Functions in Electromagnetic Theory is a fundamental reference for scientists, engineers, and graduate students practicing modern computational electromagnetics or applied physics.



This practical "how to" book is an ideal introduction to electromagnetic field-solvers. Where most books in this area are strictly theoretical, this unique resource provides engineers with helpful advice on selecting the right tools for their RF (radio frequency) and high-speed digital circuit design work.

This book provides a fundamental and practical introduction to radio frequency and microwave engineering and physical aspects of wireless communication. In this book, the author addresses a wide range of radio-frequency and microwave topics with emphasis on physical aspects including EM and voltage waves, transmission lines, passive circuits, antennas, radio wave propagation. Up-to-date RF design tools like RF circuit simulation, EM simulation and computerized Smith charts, are used in various examples to demonstrate how these methods can be applied effectively in RF engineering practice. Design rules and working examples illustrate the theoretical parts. The examples are close to real world problems, so the reader can directly transfer the methods within the context of their own work. At the end of each chapter a list of problems is given in order to deepen the reader's understanding of the chapter material and practice the new competences. Solutions are available on the author's website. Key Features: Presents a wide range of RF topics with emphasis on physical aspects e.g. EM and voltage waves, transmission lines, passive circuits, antennas. Uses various examples of modern RF tools that show how the methods can be applied productively in RF engineering practice. Incorporates various design examples using circuit and electromagnetic (EM) simulation software. Discusses the propagation of waves: their representation, their effects, and their utilization in passive circuits and antenna structures. Provides a list of problems at the end of each chapter. Includes an accompanying website containing solutions to the problems ([http://www.fh-dortmund.de/guStrau\\_rf\\_textbook](http://www.fh-dortmund.de/guStrau_rf_textbook)). This will be an invaluable textbook for bachelor and masters students on electrical engineering courses (microwave engineering, basic circuit theory and electromagnetic fields, wireless communications). Early-stage RF practitioners, engineers (e.g. application engineer) working in this area will also find this book of interest.

This Second Edition focuses on emerging topics and advances in the field of VLSI interconnections. In the decade since High-Speed VLSI Interconnections was first published, several major developments have taken place in the field. Now, updated to reflect these advancements, this Second Edition includes new information on copper interconnections, nanotechnology circuit interconnects, electromigration in the copper interconnections, parasitic inductances, and RLC models for comprehensive analysis of interconnection delays and crosstalk. Each chapter is designed to exist independently or as a part of one coherent unit, and several appropriate exercises are provided at the end of each chapter, challenging the reader to gain further insight into the contents being discussed. Chapter subjects include: \* Preliminary Concepts \* Parasitic Resistances, Capacitances, and Inductances \* Interconnection Delays \* Crosstalk Analysis \* Electromigration-Induced Failure Analysis \* Future Interconnections. High-Speed VLSI Interconnections, Second Edition is an indispensable reference for high-speed VLSI designers, RF circuit designers, and advanced students of electrical engineering.

An excellent primer on the subject, this book gives beginning professionals in satellite newsgathering an introduction to the technologies and processes involved. It will also suit journalists, editors and producers needing to understand this important element of the newsgathering chain. Written for the complete beginner, the book shows how typical transmission chains work and their communication with the studio. It also offers a brief introduction to analogue and digital theory before going on to explain Electronic Newsgathering (ENG) systems: from basic principles: transmission and reception chains, frequencies used and why, through to audio channel, subcarriers and digital modulation, as well as applications: radio cameras, window links, infra-red & laser links. A brief chapter on satellite theory gives an overview of satellite communication and orbits, basic satellite communication theory, transportables ('flyaways') and trucks, as well as analogue vs digital issues, digital compression and MPEG. Systems regulations and operations are also introduced as well as safety and logistics issues. If you're looking for a quick and easy introduction to the subject, this book will act as an essential on the job reference guide.

This classic text provides a thorough coverage of RF and microwave engineering concepts based on fundamental principles of electrical engineering and applied to microwave circuits and devices of practical importance. Coverage includes microwave network analysis, impedance matching, directional couplers and hybrids, microwave filters, ferrite devices, noise, nonlinear effects, and the design of microwave oscillators, amplifiers, and mixers. A large number of examples and end-of-chapter problems test the reader's understanding of the material. Electromagnetic Theory · Transmission Line Theory · Transmission Lines and Waveguides · Microwave Network Analysis · Impedance Matching and Tuning · Microwave Resonators · Power Dividers and Directional Couplers · Microwave Filters · Theory and Design of Ferrimagnetic Components · Noise and Active RF Components · Microwave Amplifier Design · Oscillators and Mixers · Introduction to Microwave Systems

Important new insights into how various components and systems evolved. Premised on the idea that one cannot know a science without knowing its history, History of Wireless offers a lively new treatment that introduces previously unacknowledged pioneers and developments, setting a new standard for understanding the evolution of this important technology. Starting with the background-magnetism, electricity, light, and Maxwell's Electromagnetic Theory-this book offers new insights into the initial theory and experimental exploration of wireless. In addition to the well-known contributions of Maxwell, Hertz, and Marconi, it examines work done by Heaviside, Tesla, and passionate amateurs such as the Kentucky melon farmer Nathan Stubblefield and the unsung hero Antonio Meucci. Looking at the story from mathematical, physics, technical, and other perspectives, the clearly written text describes the development of wireless within a vivid scientific milieu. History of Wireless also goes into other key areas, including: The work of J. C. Bose and J. A. Fleming. German, Japanese, and Soviet contributions to physics and applications of electromagnetic oscillations and waves. Wireless telegraphic and telephonic development and attempts to achieve transatlantic wireless communications. Wireless telegraphy in South Africa in the early twentieth century. Antenna development in Japan: past and present. Soviet quasi-optics at near-mm and sub-mm wavelengths. The evolution of electromagnetic waveguides. The history of phased array antennas. Augmenting the typical, Marconi-centered approach, History of Wireless fills in the conventionally accepted story with attention to more specific, less-known discoveries and individuals, and challenges traditional assumptions about the origins and growth of wireless. This allows for a more comprehensive understanding of how various components and systems

evolved. Written in a clear tone with a broad scientific audience in mind, this exciting and thorough treatment is sure to become a classic in the field.

Introduction to Electromagnetic and Microwave Engineering John Wiley & Sons

Everything readers need to implement and support a wireless point-to-point communications environment In order to cope with the tremendous explosion of the telecommunications market, the field of wireless communications has greatly expanded in the past fifty years, especially in the domains of microwave radio systems including line-of-sight, satellites, and tropospheric-scatter. Now, Microwave Engineering: Land & Space Radio-communications answers the growing worldwide demand for an authoritative book on this important and emerging subject area. In five succinct chapters, the book introduces students and practicing engineers to the main propagation phenomena that are encountered and that must be considered in the design and planning for any given system type and frequency of operation: Electromagnetic wave propagation—An introduction to the fundamental theory of radiation and propagation of electromagnetic waves, polarization, antenna properties, free space attenuation, atmospheric refractivity, diffraction, reflection, multipath and scattering mechanisms, hydrometeor effects, and probability distributions Principles of digital communication systems—Modulation techniques, signal processing, error probability, spectral characteristics, spectrum efficiency, thermal noise, intermodulation, jamming, and interference Microwave line-of-sight systems—Path profile, flat fading and frequency-selective fading, interferometric method for space and frequency diversity techniques, International Standards and ITU Recommendations, optimization of the frequency-plan resource, link budget, quality, reliability, and availability Microwave transhorizon systems—Design of beyond-the-horizon communication systems, properties of scattering and diffraction modes, multipath statistical relations, long-term and short-term field strength variations, quality of service, optimization of antenna alignment, and experimental analysis of various diversity and combining methods Satellite communications—Design of satellite communications systems, orbital parameters, Earth-satellite geometry, uplink and downlink budgets for both space and Earth segments, and total system noise temperature Microwave Engineering: Land & Space Radiocommunications is suitable for engineers involved in wireless telecommunications, as well as for students and members of various seminars and workshops.

The first book on Localized Waves—a subject of phenomenal worldwide research with important applications from secure communications to medicine Localized waves—also known as non-diffractive waves—are beams and pulses capable of resisting diffraction and dispersion over long distances even in non-guiding media. Predicted to exist in the early 1970s and obtained theoretically and experimentally as solutions to the wave equations starting in 1992, localized waves now garner intense worldwide research with applications in all fields where a role is played by a wave equation, from electromagnetism to acoustics and quantum physics. In the electromagnetics areas, they are paving the way, for instance, to ubiquitous secure communications in the range of millimeter waves, terahertz frequencies, and optics. At last, the localized waves with an envelope at rest are expected to have important applications especially in medicine. Localized Waves brings together the world's most productive researchers in the field to offer a well-balanced presentation of theory and experiments in this new and exciting subject. Composed of thirteen chapters, this dynamic volume: Presents a thorough review of the theoretical foundation and historical aspects of localized waves Explores the interconnections of the subject with other technologies and scientific areas Analyzes the effect of arbitrary anisotropies on both continuous-wave and pulsed non-diffracting fields Describes the physical nature and experimental implementation of localized waves Provides a general overview of wave localization, for example in photonic crystals, which have received increasing attention in recent years Localized Waves is the first book to cover this emerging topic, making it an indispensable resource in particular for researchers in electromagnetics, acoustics, fundamental physics, and free-space communications, while also serving as a requisite text for graduate students.

The products that drive the wireless communication industry, such as cell phones and pagers, employ circuits that operate at radio and microwave frequencies. Following on from a highly successful first edition, the second edition provides readers with a detailed introduction to RF and microwave circuits. Throughout, examples from real-world devices and engineering problems are used to great effect to illustrate circuit concepts. \* Takes a top-down approach, describing circuits in the overall context of communication systems. \* Presents expanded coverage of waveguides and FT mixers. \* Discusses new areas such as oscillators design and digital communication. \*An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Introduction to Microwave Remote Sensing offers an extensive overview of this versatile and extremely precise technology for technically oriented undergraduates and graduate students. This textbook emphasizes an important shift in conceptualization and directs it toward students with prior knowledge of optical remote sensing: the author dispels any linkage between microwave and optical remote sensing. Instead, he constructs the concept of microwave remote sensing by comparing it to the process of audio perception, explaining the workings of the ear as a metaphor for microwave instrumentation. This volume takes an “application-driven” approach. Instead of describing the technology and then its uses, this textbook justifies the need for measurement then explains how microwave technology addresses this need. Following a brief summary of the field and a history of the use of microwaves, the book explores the physical properties of microwaves and the polarimetric properties of electromagnetic waves. It examines the interaction of microwaves with matter, analyzes passive atmospheric and passive surface measurements, and describes the operation of altimeters and scatterometers. The textbook concludes by explaining how high resolution images are created using radars, and how techniques of interferometry can be applied to both passive and active sensors.

Provides a hands-on approach to Radio Frequency and Microwave theory and design This book provides engineers with a comprehensive guide to Radio Frequency (RF) circuit analysis and wave propagation in order to be able to design new systems. Emphasis is placed on fundamental concepts, engineering techniques, and the regular and intelligent use of the computer design tools. This book contains a review of wireless history and engineering fundamentals including complex numbers, alternating-current theory, and the logarithmic basis of decibels. The important

topics in microwave design theory are discussed, such as transmission lines, the Smith Chart, and matrix algebra. Computer generated examples are used to provide insight into the basic performance, bandwidth, and manufacturing yield of RF and microwave networks. The author also provides a broad presentation of electromagnetic (EM) field theory tailored to the needs of the microwave and RF engineer. Explains how design challenges would be attacked in a real engineering environment Reviews AC analysis, Kirchhoff's laws, RLC elements, skin effect, and introduction to the use of computer simulation software •Covers filter designs for Butterworth, Chebyshev, Bessel and elliptic responses, Kuroda's identities, and Richard's transformation Provides in-text exercises to emphasize a practical approach Includes access to a companion site hosting an instructor's manual High Frequency Technique: An Introduction to RF and Microwave Design and Computer Simulation is a reference for RF, microwave, and wireless engineers, and graduate students in electrical and computer engineering.

This book is a first year graduate text on electromagnetic fields and waves. At the same time it serves as a useful reference for researchers and engineers in the areas of microwaves and optoelectronics. Following the presentation of the physical and mathematical foundations of electromagnetic theory, the book discusses the field analysis of electromagnetic waves confined in material boundaries, or so-called guided waves, electromagnetic waves in the dispersive media and anisotropic media, Gaussian beams and scalar diffraction theory. The theories and methods presented in the book are foundations of wireless engineering, microwave and millimeter wave techniques, optoelectronics and optical fiber communication.

This work treats the essential elements of radio wave propagation without requiring recourse to advanced electromagnetic concepts and equations. However, it provides sufficient detail to allow those concerned with wireless systems to acquire quickly a practical working knowledge of the important concepts. Radio wave propagation is placed in a practical context by considering the design aspects of communications systems at microwave frequencies. A fuller consideration of the electromagnetic properties of materials is given late in the book rather than as an introductory chapter.

Food engineering is a required class in food science programs, as outlined by the Institute for Food Technologists (IFT). The concepts and applications are also required for professionals in food processing and manufacturing to attain the highest standards of food safety and quality. The third edition of this successful textbook succinctly presents the engineering concepts and unit operations used in food processing, in a unique blend of principles with applications. The authors use their many years of teaching to present food engineering concepts in a logical progression that covers the standard course curriculum. Each chapter describes the application of a particular principle followed by the quantitative relationships that define the related processes, solved examples, and problems to test understanding. The subjects the authors have selected to illustrate engineering principles demonstrate the relationship of engineering to the chemistry, microbiology, nutrition and processing of foods. Topics incorporate both traditional and contemporary food processing operations.

The definitive reference on electromagnetic shielding materials, configurations, approaches, and analyses This reference provides a comprehensive survey of options for the reduction of the electromagnetic field levels in prescribed areas. After an introduction and an overview of available materials, it discusses figures of merit for shielding configurations, the shielding effectiveness of stratified media, numerical methods for shielding analyses, apertures in planar metal screens, enclosures, and cable shielding. Up to date and comprehensive, Electromagnetic Shielding: Explores new and innovative techniques in electromagnetic shielding Presents a critical approach to electromagnetic shielding that highlights the limits of formulations based on plane-wave sources Analyzes aspects not normally considered in electromagnetic shielding, such as the effects of the content of the shielding enclosures Includes references at the end of each chapter to facilitate further study The last three chapters discuss frequency-selective shielding, shielding design procedures, and uncommon ways of shielding—areas ripe for further research. This is an authoritative, hands-on resource for practicing telecommunications and electrical engineers, as well as researchers in industry and academia who are involved in the design and analysis of electromagnetic shielding structures.

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