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## KEY=APPLICATIONS - COOK RAY

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### ELECTROMAGNETIC COMPATIBILITY IN RAILWAYS

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#### ANALYSIS AND MANAGEMENT

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*Springer Science & Business Media* **A railway is a complex distributed engineering system: the construction of a new railway or the modernisation of a existing one requires a deep understanding of the constitutive components and their interaction, inside the system itself and towards the outside world. The former covers the various subsystems (featuring a complex mix of high power sources, sensitive safety critical systems, intentional transmitters, etc.) and their interaction, including the specific functions and their relevance to safety. The latter represents all the additional possible external victims and sources of electromagnetic interaction. EMC thus starts from a comprehension of the emissions and immunity characteristics and the interactions between sources and victims, with a strong relationship to electromagnetics and to system modeling. On the other hand, the said functions are achieved and preserved and their relevance for safety is adequately handled, if the related requirements are well posed and managed throughout the process from the beginning. The link is represented by standards and their correct application, as a support to analysis, testing and demonstration.**

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#### **TB/T 3539-2018: TRANSLATED ENGLISH OF CHINESE STANDARD. (TBT 3539-2018, TB/T3539-2018, TBT3539-2018)**

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#### **EQUIPMENT FOR ELECTRIC POINT HEATING SYSTEM [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This Standard specifies the technical requirements, test methods, inspection rules, marking, packaging, transportation and storage of relevant products of equipment for electric heating turnout snow-melting system.

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#### **GB/T 24338.5-2018: TRANSLATED ENGLISH OF CHINESE STANDARD. (GBT 24338.5-2018, GB/T24338.5-2018, GBT24338.5-2018)**

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#### **RAILWAY APPLICATIONS - ELECTROMAGNETIC COMPATIBILITY - PART 4: EMISSION AND IMMUNITY OF THE SIGNALLING AND TELECOMMUNICATIONS APPARATUS [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This Part of GB/T 24338 specifies the emission and immunity requirements and performance criteria of signalling and telecommunications apparatus in the railway environment. This Part applies to the apparatus included in GB/T 24338.4 being installed in the railway environment and working normally, and the telecommunications signalling data line and power line connected to the apparatus under test.

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#### **EMC IN RAILWAYS. ELECTROMAGNETIC FIELD MEASUREMENT**

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*ASTM Analysis, Simulation, Test and Measurement* **Railway and metro systems embed modern technologies and interface with external systems, outside world and humans. This book focuses on electromagnetic field coupling and its experimental assessment. Electromagnetics, transmission lines, antennas, the spectrum analyzer, time-frequency transforms, probability, statistics and uncertainty are the background. Six chapters follow that discuss standards, scientific literature, measurement methods, procedures. Emissions of rolling stock, line and substation using 2006 and 2015 versions of EN 50121 are considered, discussing infrastructure influence, variability and synchronization with train operation, consistency. RF emissions of current collection system and impact to radio communications are evaluated by means of joint time-frequency transforms, APD and BER. Low-frequency magnetic field is a possible**

threat to susceptible medical and scientific equipment. For human exposure of personnel and passengers the presence of large power equipment, the relatively short distance and the time-varying nature of sources shall be taken into account with suitable evaluation methods against EN 50550 and ICNIRP limits. The aim is supporting EMC and test engineers, R&D and academic staff in their activities, while planning and preparing on-site tests in modern electrified transportation systems, bridging analysis and simulation. Examples and practical considerations are the result of many years of experience of EMC testing in railways.

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## **THE AGILE SAFETY CASE**

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*Springer* The safety case (SC) is one of the railway industry's most important deliverables for creating confidence in their systems. This is the first book on how to write an SC, based on the standard EN 50129:2003. Experience has shown that preparing and understanding an SC is difficult and time consuming, and as such the book provides insights that enhance the training for writing an SC. The book discusses both "regular" safety cases and agile safety cases, which avoid too much documentation, improve communication between the stakeholders, allow quicker approval of the system, and which are important in the light of rapidly changing technology. In addition, it discusses the necessity of frequently updating software due to market requirements, changes in requirements and increased cyber-security threats. After a general introduction to SCs and agile thinking in chapter 1, chapter 2 describes the majority of the roles that are relevant when developing railway-signaling systems. Next, chapter 3 provides information related to the assessment of signaling systems, to certifications based on IEC 61508 and to the authorization of signaling systems. Chapter 4 then explains how an agile safety plan satisfying the requirements given in EN 50126-1:1999 can be developed, while chapter 5 provides a brief introduction to safety case patterns and notations. Lastly, chapter 6 combines all this and describes how an (agile) SC can be developed and what it should include. To ensure that infrastructure managers, suppliers, consultants and others can take full advantage of the agile mind-set, the book includes concrete examples and presents relevant agile practices. Although the scope of the book is limited to signaling systems, the basic foundations for (agile) SCs are clearly described so that they can also be applied in other cases.

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## **INFRASTRUCTURE DESIGN, SIGNALLING AND SECURITY IN RAILWAY**

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*BoD - Books on Demand* Railway transportation has become one of the main technological advances of our society. Since the first railway used to carry coal from a mine in Shropshire (England, 1600), a lot of efforts have been made to improve this transportation concept. One of its milestones was the invention and development of the steam locomotive, but commercial rail travels became practical two hundred years later. From these first attempts, railway infrastructures, signalling and security have evolved and become more complex than those performed in its earlier stages. This book will provide readers a comprehensive technical guide, covering these topics and presenting a brief overview of selected railway systems in the world. The objective of the book is to serve as a valuable reference for students, educators, scientists, faculty members, researchers, and engineers.

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**GB/T 24338.1-2018: TRANSLATED ENGLISH OF CHINESE STANDARD. (GBT 24338.1-2018, GB/T24338.1-2018, GBT24338.1-2018)**

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**RAILWAY APPLICATIONS - ELECTROMAGNETIC COMPATIBILITY - PART 1: GENERAL [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This Part of GB/T 24338 specifies the structure and content of other parts of GB/T 24338. This Part specifies performance criteria which apply to the whole standard. Chapter 5 gives information on electromagnetic compatibility management. The use of this Part alone is insufficient to judge whether the basic requirements of the electromagnetic compatibility specification are met. It shall be considered in conjunction with other parts of GB/T 24338.

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**GB/T 24338.4-2018: TRANSLATED ENGLISH OF CHINESE STANDARD. (GBT 24338.4-2018, GB/T24338.4-2018, GBT24338.4-2018)**

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**RAILWAY APPLICATIONS - ELECTROMAGNETIC COMPATIBILITY - PART 3-2: ROLLING STOCK - APPARATUS [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This part of GB/T 24338 specifies the emission and immunity requirements for electromagnetic compatibility of electrical and electronic apparatus for railway rolling stock. This part applies to integration of apparatus on rolling stock. The frequency range considered in this part is from 0 GHz ~ 400 GHz. No measurements need to be performed at frequency band where no requirement is specified.

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**RAILWAY SAFETY, RELIABILITY, AND SECURITY: TECHNOLOGIES AND SYSTEMS ENGINEERING**

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**TECHNOLOGIES AND SYSTEMS ENGINEERING**

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*IGI Global* Human errors, as well as deliberate sabotage, pose a considerable danger to passengers riding on the

modern railways and have created disastrous consequences. To protect civilians against both intentional and unintentional threats, rail transportation has become increasingly automated. **Railway Safety, Reliability, and Security: Technologies and Systems Engineering** provides engineering students and professionals with a collection of state-of-the-art methodological and technological notions to support the development and certification of "real-time safety-critical" railway control systems, as well as the protection of rail transportation infrastructures.

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## **NONLINEAR DYNAMICS OF ELECTRONIC SYSTEMS**

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*World Scientific* This volume collects together state-of-the-art contributions to the IEEE workshop on Nonlinear Dynamics of Electronic Systems. Contents: Applications of Chaotic Signal Processing Techniques to Multimedia Watermarking (N Nikolaidis et al.) Return Times and Mixing Properties (S Isola) Some Applications of Nonlinear Methods to Analysis and Design of Analog Circuits (M Ogorzalek) The Formulation of the Fundamental Matrix of a Second-Order Filter with Syllabic Companding Using Dynamic Eigenpairs (M de Anda et al.) Rake-Receiver for Chaos-Based Asynchronous DS-CDMA (G Mazzini et al.) Traffic Modeling and Queueing Performance Analysis Using Chaotic Maps (R J Mondragón et al.) Performance of CSMA Systems with Hidden Terminals and Capture Effects for Poisson and Self-Similar Traffics (M K Shahin et al.) Investigation of Spatio-Temporal Phenomena on Chaotic Oscillators Using Wien-Bridge Oscillator Coupled by One Resistor for Comparison with GCM (H Sekiya et al.) Chaotic Dynamics of Frequency Controlled Oscillator (A S Kuznetsov) Generic RC Realizations of Chua's Circuit (A S Elwakil & M P Kennedy) Kalman Filtering of Strange Attractors (O De Feo & T Schimming) Elaboration of System Specification for a WLAN FM-DCSK Telecommunications System (M P Kennedy & G Kis) Study of Existence of True Trajectories in the Dynamics of a Driven Circuit (S Mitrea) Suppression of Spatio-Temporal Chaos in Excitable Media (G V Osipov) Flash A/D Conversion Based on Wave Propagation: Parameter's Effect on Performance (K Doris et al.) Efficient Coding and Control in Canonical Neocortical Microcircuits (R Stoop) and other papers Readership: Researchers in nonlinear science, chaos, dynamical systems, control theory, electrical & electronic engineering and systems engineering. Keywords:

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## **QB 2583-2003: TRANSLATED ENGLISH OF CHINESE STANDARD. QB2583-2003**

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### **CELLULASES [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This standard specifies the terms and definitions, requirements, test methods, inspection rules and markings, packaging, transportation and storage of cellulase. This standard is applicable to the acidic (or neutral) cellulase which is prepared by refining and purifying microorganisms and their mutants represented by *Trichoderma* which has been subjected to liquid-submerged fermentation or solid culture. It is mainly used in food, textile, paper and other industries. Food grade cellulase can also be used as feed additives.

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## **MODELING AND DESIGN OF ELECTROMAGNETIC COMPATIBILITY FOR HIGH-SPEED PRINTED CIRCUIT BOARDS AND PACKAGING**

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*CRC Press* **Modeling and Design of Electromagnetic Compatibility for High-Speed Printed Circuit Boards and Packaging** presents the electromagnetic modelling and design of three major electromagnetic compatibility (EMC) issues related to the high-speed printed circuit board (PCB) and electronic packages: signal integrity (SI), power integrity (PI), and electromagnetic interference (EMI). The emphasis is put on two essential passive components of PCBs and packages: the power distribution network and the signal distribution network. This book includes two parts. Part one talks about the field-circuit hybrid methods used for the EMC modeling, including the modal method, the integral equation method, the cylindrical wave expansion method and the de-embedding method. Part two illustrates EMC design methods and explores the applications of novel metamaterials and two-dimensional materials on traditional EMC problems. This book is designed to enhance worthwhile electromagnetic theory and mathematical methods for practical engineers and to train students with advanced EMC applications.

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## **INFORMATION AND COMMUNICATIONS FOR DEVELOPMENT 2018**

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### **DATA-DRIVEN DEVELOPMENT**

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*World Bank Publications* The Information and Communications for Development series looks in depth at how information and communications technologies are affecting economic growth in developing countries. This new report, the fourth in the series, examines the topic of data-driven development, or how better information makes for better policies. The objective is to assist developing-country firms and governments in unlocking the value of the data they hold for better service delivery and decision making and to empower individuals to take more control of their personal data. We are undoubtedly experiencing a data revolution in which our ability to generate, process, and utilize information has been magnified many times over by the machines that we increasingly rely upon. This report is about how the data revolution is changing the behavior of governments, individuals, and firms and how these changes affect the nature of development: economic, social, and cultural. How can governments extract value from data to improve service delivery in the same way that private companies have learned to do for profit? Is it feasible for individuals to take ownership of their own data and to use it to improve their livelihoods and quality of life? Can developing-country firms compete with the internet majors on their own turf and be even more innovative in their use of data to serve local customers better? Though the report is aimed primarily at government policy makers, it also has great relevance for individuals

concerned about how their personal data is used and how the data revolution might affect their future job prospects. For private sector firms, particularly those in developing countries, the report suggests how they might expand their markets and improve their competitive edge. For development professionals, the report provides guidance on how they might use data more creatively to tackle long-standing global challenges, such as eliminating extreme poverty, promoting shared prosperity, or mitigating the effects of climate change. The report's chapters explore different themes associated with the supply of data, the technology underlying it, and the demand for it. An overview chapter focuses on government use of data and presentation of definitions. Part I of the report then looks at the "supply side" of the data sector, with chapters on data connectivity and capacity (where data comes from, how it is stored, and where it goes) and data technology (specifically big data analytics and artificial intelligence) and how this is contributing to development. Part II looks at the sector's "demand side," with a chapter on people's use of data and another that examines how firms use digital platforms in the data economy and how that contributes to competitiveness. Part III brings together the policy implications for developing-country stakeholders, with a chapter considering government policies for data, including data protection and privacy. A closing Data Notes appendix looks at statistical indicators associated with the use of data and presents the 2018 update of the Digital Adoption Index (DAI), a composite indicator introduced in the 2016 World Development Report: Digital Dividends.

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## **TRACK DESIGN HANDBOOK FOR LIGHT RAIL TRANSIT**

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*Transportation Research Board* **TCRP report 155** provides guidelines and descriptions for the design of various common types of light rail transit (LRT) track. The track structure types include ballasted track, direct fixation ("ballastless") track, and embedded track. The report considers the characteristics and interfaces of vehicle wheels and rail, tracks and wheel gauges, rail sections, alignments, speeds, and track moduli. The report includes chapters on vehicles, alignment, track structures, track components, special track work, aerial structures/bridges, corrosion control, noise and vibration, signals, traction power, and the integration of LRT track into urban streets.

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## **DIGITAL COMMUNICATIONS WITH EMPHASIS ON DATA MODEMS**

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### **THEORY, ANALYSIS, DESIGN, SIMULATION, TESTING, AND APPLICATIONS**

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*John Wiley & Sons* This book offers an easily accessible treatment of the theory and practice of digital data communications, explaining how to design, implement, and test software-defined radio modems. System analysts and designers will benefit from detailed system performance simulations that ensure compliance with end-user specified requirements under the expected channel conditions. The book features case studies and examples for end-to-end performance evaluations, simulation codes for waveform acquisition and data demodulation, design and analysis techniques, applications for microwave and millimeter wave bands, and much more.

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## **GB/T 21562.3-2015: TRANSLATED ENGLISH OF CHINESE STANDARD. (GBT 21562.3-2015, GB/T21562.3-2015, GBT21562.3-2015)**

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### **RAILWAY APPLICATIONS - SPECIFICATION AND DEMONSTRATION OF RELIABILITY, AVAILABILITY, MAINTAINABILITY AND SAFETY (RAMS) - PART 3: GUIDE TO THE APPLICATION FOR ROLLING STOCK RAM [AFTER PAYMENT, WRITE TO & GET A FREE-OF-CHARGE, UNPROTECTED TRUE-PDF FROM: SALES@CHINESESTANDARD.NET]**

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<https://www.chinesestandard.net> [After payment, write to & get a FREE-of-charge, unprotected true-PDF from: Sales@ChineseStandard.net] This Part of GB/T 21562 provides guidance on applying the RAM requirements in GB/T 21562-2008 to rolling stock during the system life cycle phases from invitation to tender to demonstration in operation.

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## **THE PHYSICAL BASIS OF EMC**

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### **FOUNDATIONS OF ELECTROMAGNETIC COMPATIBILITY**

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### **WITH PRACTICAL APPLICATIONS**

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*John Wiley & Sons* There is currently no single book that covers the mathematics, circuits, and electromagnetics backgrounds needed for the study of electromagnetic compatibility (EMC). This book aims to redress the balance by focusing on EMC and providing the background in all three disciplines. This background is necessary for many EMC practitioners who have been out of study for some time and who are attempting to follow and confidently utilize more advanced EMC texts. The book is split into three parts: Part 1 is the refresher course in the underlying mathematics; Part 2 is the foundational chapters in electrical circuit theory; Part 3 is the heart of the book: electric and magnetic fields, waves, transmission lines and antennas. Each part of the book provides an independent area of study, yet each is the logical step to the next area, providing a comprehensive course through each topic. Practical EMC applications at the end of each chapter illustrate the applicability of the chapter topics. The Appendix reviews the fundamentals of EMC testing and measurements.

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## **EMC FOR SYSTEMS AND INSTALLATIONS**

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*Newnes* This is a guide for the system designers and installers faced with the day-to-day issues of achieving EMC, and



will be found valuable across a wide range of roles and sectors, including process control, manufacturing, medical, IT and building management. The EMC issues covered will also make this book essential reading for product manufacturers and suppliers - and highly relevant for managers as well as technical staff. The authors' approach is thoroughly practical - all areas of installation EMC are covered, with particular emphasis on cabling and earthing. Students on MSc and CPD programmes will also find in this book some valuable real-world antidotes to the academic treatises. The book is presented in two parts: the first is non-technical, and looks at the need for EMC in the context of systems and installations, with a chapter on the management aspects of EMC. The second part covers the technical aspects of EMC, looking at the various established methods which can be applied to ensure compatibility, and setting these in the context of the new responsibilities facing system builders. EMC for Systems and Installations is designed to complement Tim Williams' highly successful EMC for Product Designers. Practical guide to EMC design issues for those involved in systems design and installation Complementary title to Williams' bestselling EMC for Product Designers Unique guidance for installers on EMC topics

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### **ADVANCES IN COMMUNICATIONS-BASED TRAIN CONTROL SYSTEMS**

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*CRC Press* With rapid population explosion, improving rail transit speed and capacity is strongly desirable around the world. Communication-based train control (CBTC) is an automated train control system using high capacity bidirectional train-ground communications to ensure the safe operation of rail vehicles. This book presents the latest advances in CBTC r

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### **SMALL SIGNAL AUDIO DESIGN**

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*CRC Press* Small Signal Audio Design is a highly practical handbook providing an extensive repertoire of circuits that can be assembled to make almost any type of audio system. The publication of Electronics for Vinyl has freed up space for new material, (though this book still contains a lot on moving-magnet and moving-coil electronics) and this fully revised third edition offers wholly new chapters on tape machines, guitar electronics, and variable-gain amplifiers, plus much more. A major theme is the use of inexpensive and readily available parts to obtain state-of-the-art performance for noise, distortion, crosstalk, frequency response accuracy and other parameters. Virtually every page reveals nuggets of specialized knowledge not found anywhere else. For example, you can improve the offness of a fader simply by adding a resistor in the right place- if you know the right place. Essential points of theory that bear on practical audio performance are lucidly and thoroughly explained, with the mathematics kept to an absolute minimum. Self's background in design for manufacture ensures he keeps a wary eye on the cost of things. This book features the engaging prose style familiar to readers of his other books. You will learn why mercury-filled cables are not a good idea, the pitfalls of plating gold on copper, and what quotes from Star Trek have to do with PCB design. Learn how to: make amplifiers with apparently impossibly low noise design discrete circuitry that can handle enormous signals with vanishingly low distortion use humble low-gain transistors to make an amplifier with an input impedance of more than 50 megohms transform the performance of low-cost-opamps build active filters with very low noise and distortion make incredibly accurate volume controls make a huge variety of audio equalisers make magnetic cartridge preamplifiers that have noise so low it is limited by basic physics, by using load synthesis sum, switch, clip, compress, and route audio signals be confident that phase perception is not an issue This expanded and updated third edition contains extensive new material on optimising RIAA equalisation, electronics for ribbon microphones, summation of noise sources, defining system frequency response, loudness controls, and much more. Including all the crucial theory, but with minimal mathematics, Small Signal Audio Design is the must-have companion for anyone studying, researching, or working in audio engineering and audio electronics.

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### **RAILWAY RESEARCH**

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#### **SELECTED TOPICS ON DEVELOPMENT, SAFETY AND TECHNOLOGY**

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*BoD - Books on Demand* This book focuses on selected research problems of contemporary railways. The first chapter is devoted to the prediction of railways development in the nearest future. The second chapter discusses safety and security problems in general, precisely from the system point of view. In the third chapter, both the general approach and a particular case study of a critical incident with regard to railway safety are presented. In the fourth chapter, the question of railway infrastructure studies is presented, which is devoted to track superstructure. In the fifth chapter, the modern system for the technical condition monitoring of railway tracks is discussed. The compact on-board sensing device is presented. The last chapter focuses on modeling railway vehicle dynamics using numerical simulation, where the dynamical models are exploited.

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### **RAILWAY SIGNALING AND COMMUNICATIONS**

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#### **DEPARTMENT OF DEFENSE DICTIONARY OF MILITARY AND ASSOCIATED TERMS**

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#### **DEDICATED MOBILE COMMUNICATIONS FOR HIGH-SPEED RAILWAY**

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*Springer* This book addresses the fundamental theory and key technologies of narrowband and broadband mobile communication systems specifically for railways. It describes novel relaying schemes that meet the different design criteria for railways and discusses the applications of signal classification techniques as well as offline resource scheduling as a way of advancing rail practice. Further, it introduces Novel Long Term Evolution for Railway (LTE-R) network architecture, the Quality of Service (QoS) requirement of LTE-R and its performance evaluation and discusses

in detail security technologies for rail-dedicated mobile communication systems. The advanced research findings presented in the book are all based on high-speed railway measurement data, which offer insights into the propagation mechanisms and corresponding modeling theory and approaches in unique railway scenarios. It is a valuable resource for researchers, engineers and graduate students in the fields of rail traffic systems, telecommunication and information systems.

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## **ELECTROMAGNETIC COMPATIBILITY OF INTEGRATED CIRCUITS**

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### **TECHNIQUES FOR LOW EMISSION AND SUSCEPTIBILITY**

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*Springer Science & Business Media* **Electromagnetic Compatibility of Integrated Circuits: Techniques for Low Emission and Susceptibility** focuses on the electromagnetic compatibility of integrated circuits. The basic concepts, theory, and an extensive historical review of integrated circuit emission and susceptibility are provided. Standardized measurement methods are detailed through various case studies. EMC models for the core, I/Os, supply network, and packaging are described with applications to conducted switching noise, signal integrity, near-field and radiated noise. Case studies from different companies and research laboratories are presented with in-depth descriptions of the ICs, test set-ups, and comparisons between measurements and simulations. Specific guidelines for achieving low emission and susceptibility derived from the experience of EMC experts are presented.

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## **COMPUTERS IN RAILWAYS VII**

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*Wit Pr/Computational Mechanics* **Describing how engineers, planners, designers, manufacturers and operators can benefit from the developments in computers in railways, this text contains the proceedings of the Seventh International Conference on Computer Aided Design, Manufacture and Operation in the Railway.**

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## **SOFTWARE-DEFINED RADIO FOR ENGINEERS**

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*Artech House* **Based on the popular Artech House classic, Digital Communication Systems Engineering with Software-Defined Radio, this book provides a practical approach to quickly learning the software-defined radio (SDR) concepts needed for work in the field. This up-to-date volume guides readers on how to quickly prototype wireless designs using SDR for real-world testing and experimentation. This book explores advanced wireless communication techniques such as OFDM, LTE, WLA, and hardware targeting. Readers will gain an understanding of the core concepts behind wireless hardware, such as the radio frequency front-end, analog-to-digital and digital-to-analog converters, as well as various processing technologies. Moreover, this volume includes chapters on timing estimation, matched filtering, frame synchronization message decoding, and source coding. The orthogonal frequency division multiplexing is explained and details about HDL code generation and deployment are provided. The book concludes with coverage of the WLAN toolbox with OFDM beacon reception and the LTE toolbox with downlink reception. Multiple case studies are provided throughout the book. Both MATLAB and Simulink source code are included to assist readers with their projects in the field.**

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## **MANAGING RAILWAY OPERATIONS AND MAINTENANCE**

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### **BEST PRACTICES FROM KCRC**

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## **PRINCIPLES AND TECHNIQUES OF ELECTROMAGNETIC COMPATIBILITY**

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*CRC Press* **Circuits are faster and more tightly packed than ever, wireless technologies increase the electromagnetic (EM) noise environment, new materials entail entirely new immunity issues, and new standards govern the field of electromagnetic compatibility (EMC). Maintaining the practical and comprehensive approach of its predecessor, Principles and Techniques of Electromagnetic Compatibility, Second Edition reflects these emerging challenges and new technologies introduced throughout the decade since the first edition appeared. What's new in the Second Edition? Characterization and testing for high-speed design of clock frequencies up to and above 6 GHz Updates to the regulatory framework governing EM compliance Additional coverage of the printed circuit board (PCB) environment as well as additional numerical tools An entirely new section devoted to new applications, including signal integrity, wireless and broadband technologies, EMC safety, and statistical EMC Added coverage of new materials such as nanomaterials, band gap devices, and composites Along with new and updated content, this edition also includes additional worked examples that demonstrate how estimates can guide the early stages of design. The focus remains on building a sound foundation on the fundamental concepts and linking this to practical applications, rather than supplying application-specific fixes that do not easily generalize to other areas.**

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## **PRINTED CIRCUIT BOARD DESIGN TECHNIQUES FOR EMC COMPLIANCE**

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### **A HANDBOOK FOR DESIGNERS**

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*Wiley-IEEE Press* **"Electromagnetic compatibility (EMC) is an engineering discipline often identified as "black magic." This belief exists because the fundamental mechanisms on how radio frequency (RF) energy is developed within a printed circuit board (PCB) is not well understood by practicing engineers. Rigorous mathematical analysis is not required to design a PCB. Using basic EMC theory and converting complex concepts into simple analogies helps engineers understand the mitigation process that deters EMC events from occurring. This user-friendly reference covers a broad spectrum of information never before published, and is as fluid and comprehensive as the first edition. The simplified**

approach to PCB design and layout is based on real-life experience, training, and knowledge. Printed Circuit Board Techniques for EMC Compliance, Second Edition will help prevent the emission or reception of unwanted RF energy generated by components and interconnects, thus achieving acceptable levels of EMC for electrical equipment. It prepares one for complying with stringent domestic and international regulatory requirements. Also, it teaches how to solve complex problems with a minimal amount of theory and math. Essential topics discussed include: \* Introduction to EMC \* Interconnects and I/O \* PCB basics \* Electrostatic discharge protection \* Bypassing and decoupling \* Backplanes-Ribbon Cables-Daughter Cards \* Clock Circuits-Trace Routing-Terminations \* Miscellaneous design techniques This rules-driven book-formatted for quick access and cross-reference-is ideal for electrical and EMC engineers, consultants, technicians, and PCB designers regardless of experience or educational background." Sponsored by: IEEE Electromagnetic Compatibility Society

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## **EMC FOR PRINTED CIRCUIT BOARDS**

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### **BASIC AND ADVANCED DESIGN & LAYOUT TECHNIQUES**

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### **ENVIRONMENTAL REQUIREMENTS FOR ELECTROMECHANICAL AND ELECTRICAL EQUIPMENT**

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*Elsevier* Environmental Requirements for Electromechanical and Electrical Equipment is the definitive reference containing all of the background guidance, typical ranges, details of recommended test specifications, case studies and regulations covering the environmental requirements on designers and manufacturers of electrical and electromechanical equipment worldwide. The recent introduction of the European EMC directive is just one aspect of the requirements placed upon manufacturers and designers of electrical equipment. There are numerous national and international standards and specifications that describe the application environment in which equipment must function. Factors that must be taken into account include temperature, solar radiation, humidity, pressure, weather and the effects of water and salt, pollutants and contaminants, mechanical stresses and vibration, ergonomic considerations, electrical safety including EMC, reliability and performance. A broad range of standard tests exist which must be passed by equipment if it is to fulfil the requirements placed upon it. Ray Tricker is the author of a number of books describing the regulatory framework within which the electronics and electrical equipment industry must function, including Quality and Standards in Electronics, also published by Newnes. This latest volume will give the designer or manufacturer a first point of reference when negotiating the minefield that is the global market for their products. Companion to 'Quality and Standards in Electronics' Covers essential tests and regulations for equipment designers and manufacturers Likely to be of interest to major companies worldwide

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### **BASIC LINEAR DESIGN**

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### **EMI TROUBLESHOOTING COOKBOOK FOR PRODUCT DESIGNERS**

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*IET* This hands-on trouble-shooting style book offers step-by-step 'recipes' to assist those who are trying to solve EMI problems, by detailing exactly what to do and how to do it.

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### **EMC ANALYSIS METHODS AND COMPUTATIONAL MODELS**

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*John Wiley & Sons* Describes and illustrates various modeling techniques which are applicable to the area of EMC and includes material previously available only in international reports or other hard-to-obtain references. Electromagnetic topology, lumped-parameter circuit models, the radiation process, scalar diffraction theory for apertures, transmission line modeling, and models for shielding are among the topics discussed. The accompanying disk contains four programs based on the models developed in the text and can be used to calculate diverse transmission line responses.

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### **IBM POWER E1080 TECHNICAL OVERVIEW AND INTRODUCTION**

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*IBM Redbooks* This IBM® Redpaper® publication provides a broad understanding of a new architecture of the IBM Power® E1080 (also known as the Power E1080) server that supports IBM AIX®, IBM i, and selected distributions of Linux operating systems. The objective of this paper is to introduce the Power E1080, the most powerful and scalable server of the IBM Power portfolio, and its offerings and relevant functions: Designed to support up to four system nodes and up to 240 IBM Power10™ processor cores The Power E1080 can be initially ordered with a single system node or two system nodes configuration, which provides up to 60 Power10 processor cores with a single node configuration or up to 120 Power10 processor cores with a two system nodes configuration. More support for a three or four system nodes configuration is to be added on December 10, 2021, which provides support for up to 240 Power10 processor cores with a full combined four system nodes server. Designed to supports up to 64 TB memory The Power E1080 can be initially ordered with the total memory RAM capacity up to 8 TB. More support is to be added on December 10, 2021 to support up to 64 TB in a full combined four system nodes server. Designed to support up to 32 Peripheral Component Interconnect® (PCIe) Gen 5 slots in a full combined four system nodes server and up to 192 PCIe Gen 3 slots with expansion I/O drawers The Power E1080 supports initially a maximum of two system nodes; therefore, up to 16 PCIe Gen 5 slots, and up to 96 PCIe Gen 3 slots with expansion I/O drawer. More support is to be added on December 10, 2021, to support up to 192 PCIe Gen 3 slots with expansion I/O drawers. Up to over 4,000 directly attached serial-attached SCSI (SAS) disks or solid-state drives (SSDs) Up to 1,000 virtual machines (VMs) with logical partitions (LPARs) per system System control unit, providing redundant system master Flexible Service Processor (FSP) Supports IBM Power System Private Cloud Solution with Dynamic Capacity This publication is for professionals who want to acquire a better understanding of Power servers. The intended audience includes the following roles:

Customers Sales and marketing professionals Technical support professionals IBM Business Partners Independent software vendors (ISVs) This paper does not replace the current marketing materials and configuration tools. It is intended as an extra source of information that, together with existing sources, can be used to enhance your knowledge of IBM server solutions.

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### **ATLAS SHRUGGED**

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*Penguin* Peopled by larger-than-life heroes and villains, charged with towering questions of good and evil, **Atlas Shrugged** is Ayn Rand's magnum opus: a philosophical revolution told in the form of an action thriller—nominated as one of America's best-loved novels by PBS's *The Great American Read*. Who is John Galt? When he says that he will stop the motor of the world, is he a destroyer or a liberator? Why does he have to fight his battles not against his enemies but against those who need him most? Why does he fight his hardest battle against the woman he loves? You will know the answer to these questions when you discover the reason behind the baffling events that play havoc with the lives of the amazing men and women in this book. You will discover why a productive genius becomes a worthless playboy...why a great steel industrialist is working for his own destruction...why a composer gives up his career on the night of his triumph...why a beautiful woman who runs a transcontinental railroad falls in love with the man she has sworn to kill. **Atlas Shrugged**, a modern classic and Rand's most extensive statement of Objectivism—her groundbreaking philosophy—offers the reader the spectacle of human greatness, depicted with all the poetry and power of one of the twentieth century's leading artists.

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### **ELLIS' BRITISH RAILWAY ENGINEERING ENCYCLOPAEDIA**

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*Lulu.com* Fourth edition of the industry-renowned **Railway Engineering Encyclopaedia**. Expanded, enhanced, fully cross-referenced and illustrated throughout this is an indispensable book for minister, professional, trainee and enthusiast alike.

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### **LIGHTNING PROTECTION GUIDE**

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