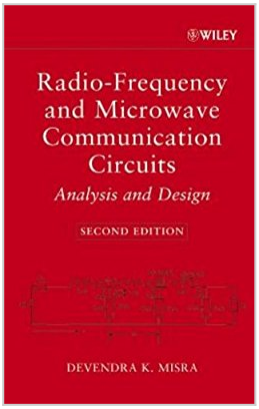

Radio-Frequency and Microwave Communication Circuits: Analysis and Design

By Devendra K. Misra

Radio-Frequency and Microwave Communication Circuits: Analysis and Design By Devendra K. Misra

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.

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Review
"This text for students and engineers...describes the design and analysis of radio-frequency and microwave circuits in modern communications systems." (SciTech Book News Vol. 25, No. 2 June 2001)

From the Back Cover
An accessible treatment of radio-frequency and microwave circuits–thoroughly updated and expanded

In the areas of telemetry, remote monitoring, remote process control, and most significantly wireless communication, radio-frequency and microwave circuits play an elemental role. As the superior performance of RF circuits over infrared technology becomes increasingly clear, a wide array of applications is emerging, from cordless computer keyboards to cell phones. Now in a comprehensively updated second edition, Radio-Frequency and Microwave Communication Circuits considers circuits within the broad context of communications systems. An ideal entry point for both practicing engineers and students studying or transitioning into the high-tech wireless field, this volume does not require prior in-depth knowledge of electromagnetic fields.

The author provides a thorough overview of frequency bands, RF and microwave devices, and applications. The Second Edition includes new or enhanced coverage of transmitters and receivers, digital modulation and demodulation, electromagnetic waves, waveguides including electromagnetic waves and Maxwell equations, oscillator design, and FET mixers. Other key topics covered include:

- Resonant circuits and two-port networks: including concepts of network parameters such as impedence, admittance, hybrid, transmission, and scattering
- Communication systems: terrestrial and satellite systems, antenna terminology, the Friis transmission formula, the radar equation, and Doppler radar
- Oscillator design: feedback concepts; Harley, Colpitts, and Clapp oscillators; crystal oscillators; synthesizers; and transistor oscillator design
- Detectors and mixers: AM and FM signal characteristics and detection schemes; single-diode, FET, and double-balanced mixers; RF detectors; conversion loss; and field-effect transistor mixers

Extensive appendices include logarithmic units, design equations for selected transmission lines, and a list of commonly used abbreviations. An expanded selection of class-tested problem sets at the end of each chapter–275 problems in all–and more than 150 solved, real-world examples with step-by-step explanations are provided. Valuable supplementary resources are also available: a solutions manual, as well as material on CAD techniques that can be accessed at an FTP site. This Second Edition is an ideal introduction for students and a vital reference for practitioners of this fast-growing and in-demand technology.

About the Author
DEVENDRA K. MISRA, PhD, is Professor and Chair of Electrical Engineering in the Department of Electrical Engineering and Computer Science at the University of Wisconsin-Milwaukee. A senior member of the IEEE and associate editor of IEEE Transactions on Instrumentation and Measurement and the Journal of Subsurface Sensing, he received his PhD in Electrical Engineering from Michigan State University.

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