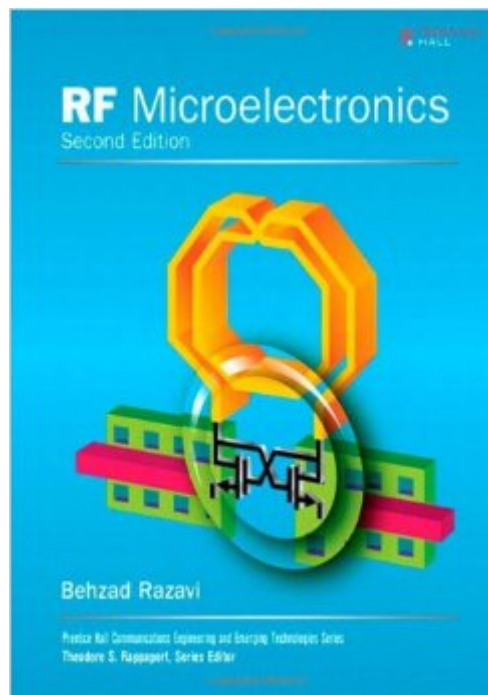


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# RF Microelectronics (2nd Edition) (Prentice Hall Communications Engineering And Emerging Technologies Series From Ted Rappaport)



## Synopsis

The Acclaimed RF Microelectronics Best-Seller, Expanded and Updated for the Newest Architectures, Circuits, and Devices

Wireless communication has become almost as ubiquitous as electricity, but RF design continues to challenge engineers and researchers. In the 15 years since the first edition of this classic text, the demand for higher performance has led to an explosive growth of RF design techniques. In *RF Microelectronics, Second Edition*, Behzad Razavi systematically teaches the fundamentals as well as the state-of-the-art developments in the analysis and design of RF circuits and transceivers. Razavi has written the second edition to reflect today's RF microelectronics, covering key topics in far greater detail. At nearly three times the length of the first edition, the second edition is an indispensable tome for both students and practicing engineers. With his lucid prose, Razavi now offers a stronger tutorial focus along with hundreds of examples and problems. Teaches design as well as analysis with the aid of step-by-step design procedures and a chapter dedicated to the design of a dual-band WiFi transceiver. Describes new design paradigms and analysis techniques for circuits such as low-noise amplifiers, mixers, oscillators, and frequency dividers. This edition's extensive coverage includes brand new chapters on mixers, passive devices, integer-N synthesizers, and fractional-N synthesizers. Razavi's teachings culminate in a new chapter that begins with WiFi's radio specifications and, step by step, designs the transceiver at the transistor level. Coverage includes Core RF principles, including noise and nonlinearity, with ties to analog design, microwave theory, and communication systems. An intuitive treatment of modulation theory and wireless standards from the standpoint of the RF IC designer. Transceiver architectures such as heterodyne, sliding-IF, directconversion, image-reject, and low-IF topologies. Low-noise amplifiers, including cascode common-gate and commonsource topologies, noise-cancelling schemes, and reactance-cancelling configurations. Passive and active mixers, including their gain and noise analysis and new mixer topologies. Voltage-controlled oscillators, phase noise mechanisms, and various VCO topologies dealing with noise-power-tuning trade-offs. All-new coverage of passive devices, such as integrated inductors, MOS varactors, and transformers. A chapter on the analysis and design of phase-locked loops with emphasis on low phase noise and low spur levels. Two chapters on integer-N and fractional-N synthesizers, including the design of frequency dividers. Power amplifier principles and circuit topologies along with transmitter architectures, such as polar modulation and outphasing.

## Book Information

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## Customer Reviews

Well, as I stated in other Dr. Razavi's book reviews, it's my pleasure to own and read every book written by Dr. Razavi. I have been waiting for this new edition for some time, and immediately purchased this 2nd edition from .com once it's published. As an RF/analog engineer, I personally have benefited from all of his masterpieces. Many thanks for the author's great efforts, Dr. Razavi's books have influenced many engineers and students in the RF/analog area. So, how is this 2nd edition? In my opinion, it might be inappropriate to call it "2nd edition" as this is a completely new book with vast improvements from the 1st edition. We have experienced a rapid growth of RF design within last decade, and this book covers most of the fundamentals of RF circuit/system design techniques to deal with today's challenges. It's understandable that some of the readers are not happy with the 1st edition in their reviews, but this new book is totally different (Dr. Razavi says there's only 10% overlap between two editions in his preface to the 2nd edition, it's absolutely true). Here is what I like most: 1. Dedicated chapters for LNA and mixers; 2. Great coverage on passive devices; 3. Three chapters to cover frequency synthesizers, which cover fundamentals, integer-N and fractional-N synthesizers; 4. Step-by-step tutorial of modern RF transceiver design; 5. In addition to all the new materials on RF systems and circuits, one of the biggest improvements is that the author incorporated hundreds examples/problems in the book. Some help readers understand RF fundamentals, and some are very practical issues facing RF engineers. There are several errors in

the book, make an online search you'll be able to find the errata to the 2nd edition.

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