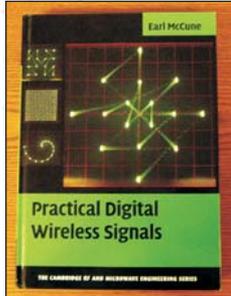


DESIGN NOTES

Two New Books for Engineers Describe The Creation and Application of Signals



Practical Digital Wireless Signals
By *Earl McCune*
Cambridge University Press
www.cambridge.org
ISBN 978-0-521-51630-3

This book is aimed at practitioners in industry who may be new to digital communications. Any architect defining communications features for wireless products should find this book useful. Contents include:

- Ch. 1: Keying, states, and block diagram construction
- Ch. 2: Common issues and signal characterization
- Ch. 3: Important details on results from Shannon, Nyquist, and others
- Ch. 4: Digital amplitude modulation: ASK
- Ch. 5: Digital frequency modulation: FSK
- Ch. 6: Digital phase modulation: PSK
- Ch. 7: Combined digital modulations: QAM and OFDM
- Ch. 8: Spread spectrum
- Ch. 9: Wireless propagation and antenna fundamentals
- Ch. 10: Principles of coding
- Ch. 11: Multiple access techniques
- Ch. 12: Signal tradeoffs and system evolution

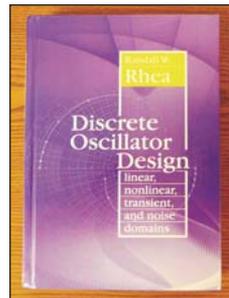
Tutorial appendices include:

- Phasor review*
- Decibels (dB) really are simple*
- Analog modulation basics*
- Quadrature modulation and demodulation principles*
- Polar modulation and demodulation principles*
- The derivative-zeroed pulse family*
- Selected DWG standards and their modulations*

A listing of chapter titles offers a look at the scope of coverage, but is insufficient to show the style and depth of the work. The author's approach is to describe the physical processes first, then apply mathematics as needed to illustrate those processes. This emphasis on descriptive narrative makes this a book you can actually *read*. More experienced readers, especially those who return to the book later on, will find details in the unique explanations that offer greater insight into principles they thought they already knew.

In a recent conversation, McCune explained part of his motivation (and encouragement by others) to write this book: Many engineers he has talked with have described various difficult problems in developing both concept and hardware for digital communications—problems that were solved by McCune and others as long as 25 years ago, but apparently are difficult to find in technical literature.

The answers, or more correctly, providing the means to find those answers, is the goal of this book.



Discrete Oscillator Design
By *Randall W. Rhea*
Artech House
www.artechhouse.com
ISBN 978-1-60807-047-3

This is a book about oscillator *design*—Rhea's approach is to explain circuit operation rather than present a rigorous analysis of the underlying mathematics. He recommends that anyone using the book as a reference should not skip to the design examples, but should start by reading the first four chapters as a review of the fundamentals:

- Ch. 1: Linear Techniques
- Ch. 2: Nonlinear Techniques
- Ch. 3: Transient Techniques
- Ch. 4: Noise

The remaining chapters examine a wide range of oscillator circuits and resonator types, with many examples (more than 40). Computer simulation is used extensively, along with measured data. The simulations are used to illustrate concepts and behaviors, and the reader does not need to have the software at hand to receive value from the book.

- Ch. 5: General Purpose Oscillators
- Ch. 6: Distributed Oscillators
- Ch. 7: Tuned Oscillators
- Ch. 8: Piezoelectric Oscillators

Appendices provide nearly 50 pages of additional data under the titles "Modeling" and "Device Biasing."

This book has significantly greater analytical depth than the author's previous books on the subject, in response to advances in the state-of-the-art (especially simulation capabilities), as well as feedback from readers and seminar students.