Nonlinear Distortion in Wireless Systems: Modeling and Simulation with MATLAB (Wiley - IEEE)

By Khaled M. Gharaibeh

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This book covers the principles of modeling and simulation of nonlinear distortion in wireless communication systems with MATLAB simulations and techniques

In this book, the author describes the principles of modeling and simulation of nonlinear distortion in single and multichannel wireless communication systems using both deterministic and stochastic signals. Models and simulation methods of nonlinear amplifiers explain in detail how to analyze and evaluate the performance of data communication links under nonlinear amplification. The book addresses the analysis of nonlinear systems with stochastic inputs and establishes the performance metrics of communication systems with regard to nonlinearity. In addition, the author also discusses the problem of how to embed models of distortion in system-level simulators such as MATLAB and MATLAB Simulink and provides practical techniques that professionals can use on their own projects. Finally, the book explores simulation and programming issues and provides a comprehensive reference of simulation tools for nonlinearity in wireless communication systems.

Key Features:

- Covers the theory, models and simulation tools needed for understanding nonlinearity and nonlinear distortion in wireless systems
- Presents simulation and modeling techniques for nonlinear distortion in wireless channels using MATLAB
- Uses random process theory to develop simulation tools for predicting nonlinear system performance with real-world wireless communication signals
- Focuses on simulation examples of real-world communication systems under nonlinearity
- Includes an accompanying website containing MATLAB code

This book will be an invaluable reference for researchers, RF engineers, and communication system engineers working in the field. Graduate students and

professors undertaking related courses will also find the book of interest.

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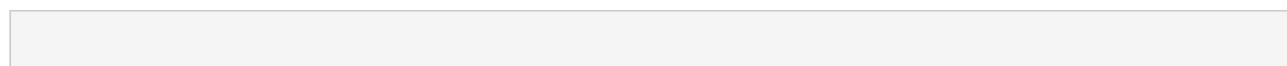
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Editorial Review

Review

"It is appropriate for professionals or graduate students." (*Book News*, 1 April 2012)

About the Author
Khaled M. Gharaibeh, Yarmouk University, Jordan
Khaled M. Gharaibeh received his B.S. and M.S. in Electrical Engineering in 1995 and 1998, respectively, both from Jordan University of Science and Technology, Irbid, Jordan. He received his Ph.D. in Electrical Engineering from North Carolina State University in 2004. From 1996 to 2000, he was a planning Engineer at Jordan Telecom, Amman, Jordan. From January 2004 to 2005, he was a research associate post-doctorate at the Department Electrical and Computer Engineering, North Carolina State University. Currently he is an Assistant Professor of Electrical Engineering at the Hijawi faculty for Engineering Technology of Yarmouk University, Irbid, Jordan. His research interests are in nonlinear system identification, behavioural modelling of nonlinear RF circuits and wireless communications. He is a senior member of the Institute of Electrical and Electronics Engineering (IEEE) and the honour society Eta Kappa Nu.

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