

Telecommunication Breakdown

Concepts of Communication Transmitted via Software-Defined Radio



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“The wireless telegraph is not difficult to understand. The ordinary telegraph is like a very long cat. You pull the tail in New York and it meows in Los Angeles. The wireless is the same, only without the cat.”

—A. Einstein

The fundamental principles of telecommunications have remained much the same since Shannon’s time. What has changed, and is continuing to change, is how those principles are deployed in technology. One of the major ongoing changes is the shift from hardware to software. *Telecommunication Breakdown: Concepts of Communication Transmitted via Software-Defined Radio* reflects this trend by focusing on the design of a digital software-defined radio.

Telecommunication Breakdown: Concepts of Communication Transmitted via Software-Defined Radio helps the reader build a complete digital radio that includes each part of a typical digital communication system. Chapter by chapter, the reader creates a MATLAB® realization of the various pieces of the system, exploring the key ideas along the way. In the final chapter, the reader “puts it all together” by building a complete receiver. This is accomplished using only knowledge of calculus, Fourier transforms, and MATLAB.

Key benefits:

- a hands-on approach that provides the reader with a sense of continuity and motivation for exploring communication system concepts
- provides invaluable preparation for industry, where software-defined digital radio is increasingly important
- CD-ROM extras include lesson PDFs; final projects; “received signals” for assignments and projects; all MATLAB code presented in the text; a bonus chapter on QAM Radio

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