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Sommario/riassunto

This book addresses a new coding solution to the challenge of communicating more bits of information in the same radio spectrum Bandwidth Efficient Coding addresses the major challenge in communication engineering today: how to communicate more bits of information in the same radio spectrum. Energy and bandwidth are needed to transmit bits, and bandwidth affects capacity the most. Methods have been developed that are ten times as energy efficient at a given bandwidth consumption as simple methods. These employ signals with very complex patterns and are called "coding" solutions. The book begins with classical theory before introducing new techniques that combine older methods of error correction coding and radio transmission in order to create narrowband methods that are as efficient in both spectrum and energy as nature allows. Other topics covered include modulation techniques such as CPM, coded QAM and pulse design. In addition, this book: . Explores concepts and new transmission methods that have arisen in the last 15 years. Discusses the method of faster than Nyquist signaling. Provides self-education resources by including design parameters and short MATLAB routines Bandwidth Efficient Coding takes a fresh look at classical information theory and introduces a different point of view for research and development engineers and graduate students in communication engineering and wireless communication.