

<<通信系统工程>>

图书基本信息

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前言

The objective of this book is to provide an introduction to the basic principles in the analysis and design of communication systems. It is primarily intended for use as a text for a first course in communications, either at a senior level or at a first year graduate level. **BROAD TOPICAL COVERAGE** Although we have placed a very strong emphasis on digital communications, we have provided a solid introduction to analog communications. The major topics covered are: An introduction to analog signal transmission and reception (Chapters 2 and 3) An introduction to digital communications (Chapters 4 and 8) **EMPHASIS ON DIGITAL COMMUNICATIONS** Our motivation for emphasizing digital communications is due to the technological developments that have occurred during the past five decades. To day, digital communication systems are in common use and generally carry the bulk of our daily information transmission through a variety of communications media, such as wireline telephone channels, microwave radio, fiber optic channels, and satellite channels.

内容概要

《通信系统工程（第2版改编版）》内容：The objective of this book is to provide an introduction to the basic principles in the analysis and design of communication systems. It is primarily intended for use as a text for a first course in communications, either at a senior level or at a first-year graduate level. BROAD TOPICAL COVERAGE Although we have placed a very strong emphasis on digital communications, we have provided a solid introduction to analog communications. The major topics covered are: An introduction to analog signal transmission and reception (Chapters 2 and 3) An introduction to digital communications (Chapters 4-8) EMPHASIS ON DIGITAL COMMUNICATIONS Our motivation for emphasizing digital communications is due to the technological developments that have occurred during the past five decades. To day, digital communication systems are in common use and generally carry the bulk of our daily information transmission through a variety of communications media, such as wireline telephone channels, microwave radio, fiber optic channels, and satellite channels.

书籍目录

PREFACE1 INTRODUCTION1. 1 Historical Review 11.2 Elements of an Electrical Communication System1.2.1
 Digital Communication System 91.2.2 Early Work in Digital Communications 131.3 Communication Channels
 and Their Characteristics1.4 Mathematical Models for Communication Channels1.5 Organization of the Book
 281.6 Further Reading 302 ANALOG SIGNAL TRANSMISSION AND RECEPTION2.1 Introduction to
 Modulation 322.2 Amplitude Modulation (AM) 332.2.1 Double-Sideband Suppressed Carrier AM 332. 2. 2
 Conventional Amplitude Modulation 402.2.3 Single-Sideband AM 44* 2.2.4 Vestigial-Sideband AM 482.2.5
 Implementation of AM Modulators and Demodulators 522.2.6 Signal Multiplexing 582.3 Angle Modulation 612.3.
 1 Representation of FM and PM Signals 622.3.2 Spectral Characteristics of Angle-Modulated Signals 662.3. 3
 Implementation of Angle Modulators and Demodulators 732.4 Radio and Television Broadcasting 812.4.1 AM
 Radio Broadcasting 822.4. 2 FM Radio Broadcasting 842.4.3 Television Broadcasting 872.5 Mobile Radio Systems
 972.6 Further Reading 100Problems 1003 EFFECT OF NOISE ON ANALOG COMMUNICATION SYSTEMS
 1153.1 Effect of Noise on Linear-Modulation Systems 1153.1.1 Effect of Noise on a Baseband System 1163. 1.2
 Effect of Noise on DSB-SC AM 1163. 1.3 Effect of Noise on SSB AM 1183.1.4 Effect of Noise on Conventional
 AM 119*3.2 Carrier-Phase Estimation with a Phase-Locked Loop (PLL) 1243.2. 1 The Phase-Locked Loop (PLL)
 1253.2.2 Effect of Additive Noise on Phase Estimation 1283.3 Effect of Noise on Angle Modulation 1353.3.
 1 Threshold Effect in Angle Modulation 1453.3.2 Pre-emphasis and De-emphasis Filtering 1493.4 Comparison of
 Analog-Modulation Systems 1533.5 Further Reading 154Problems 1554 INFORMATION SOURCES AND
 SOURCE CODING 1614.1 Modeling of Information Sources 1624. 1.1 Measure of Information 1644.1.2 Joint
 and Conditional Entropy 1674.2 Source-Coding Theorem 1694.3 Source-Coding Algorithms 1724.4
 Rate-Distortion Theory 1774. 4. 1 Mutual Information 1784. 4. 2 Differential Entropy 1794.4.3 Rate-Distortion
 Function 1814.5 Quantization 1874.5. 1 Scalar Quantization 188* 4.5.2 Vector Quantization 1984.6 Waveform
 Coding 2014.6. 1 Pulse-Code Modulation (PCM) 2014. 6. 2 Differential Pulse-Code Modulation (DPCM)
 2074.6. 3 Delta Modulation (AM) 2104.7 Digital Audio Transmission and Digital Audio Recording 2134. 7. 1
 Digital Audio in Telephone Transmission Systems 214* 4. 7. 2 Digital Audio Recording 2164.8 Further Reading
 221Problems 2225 DIGITAL TRANSMISSION THROUGH THE ADDITIVE WHITE GAUSSIAN NOISE
 CHANNEL6 DIGITAL TRANSMISSION THROUGH BANDLIMITED AWGN CHANNELS7 CHANNEL
 CAPACITY AND CODING8 WIRELESS COMMUNICATIONSREFERENCESINDES

章节摘录

A large number of information sources are analog sources. Analog sources can be modulated and transmitted directly or can be converted to digital data and transmitted using digital modulation techniques. The notion of analog to digital conversion will be examined in detail in Chapter 4. Speech, image, and video are examples of analog sources of information. Each of these sources is characterized by its bandwidth, dynamic range, and the nature of the signal. For instance, in case of audio, and black and white video, the signal has just one component measuring the pressure or intensity, but in case of color video, the signal has four components measuring red, green, and blue color components, and the intensity. In spite of the general trend toward digital transmission of analog signals, there is still today a significant amount of analog signal transmission, especially in audio and video broadcast. In this chapter, we treat the transmission of analog signals by carrier modulation. The treatment of the performance of these systems in the presence of noise is being deferred to Chapter 3. We consider the transmission of an analog signal by impressing it on either the amplitude, the phase, or the frequency of a sinusoidal carrier. Methods for demodulation of the carrier-modulated signal to recover the analog information signal are also described.

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