

<<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 firstyear 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 2and3) An introduction to digital communications (Chapters 48) 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.

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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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