<<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 princi ples 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 techno logical 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 communi cations media, such as wireline telephone channels, microwave radio, fiber optic channels, and satellite channels.

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内容概要

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书籍目录

章节摘录

A large number of information sources are analog sources. Analog sourcescan be modulated and transmitted directly or can be converted to digitaldata and transmitted using digital modulation techniques. The notion of ana-log to digital conversion will be examined in detail in Chapter 4. Speech, image, and video are examples of analog sources of informa-tion. Each of these sources is characterized by its bandwidth, dynamicrange, and the nature of the signal. For instance, in case of audio, and blackand white video, the signal has just one component measuring the pressureor intensity, but in case of color video, the signal has four components meas-uring red, green, and blue color components, and the intensity. In spite of the general trend toward digital transmission of analog sig-nals, there is still today a significant amount of analog signal transmission,especially in audio and video broadcast. In this chapter, we treat the trans-mission of analog signals by carrier modulation. The treatment of the per-formance of these systems in the presence of noise is being deferred toChapter 3. We consider the transmission of an analog signal by impressing iton either the amplitude, the phase, or the frequency of a sinusoidal carrier.Methods for demodulation of the carrier-modulated signal to recover the an-alog information signal are also described.

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