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Abstract

Satellite technology has come a long way over the past 70 years since it was first proposed by Arthur C. Clarke. Today, satellite systems can provide a variety of services, including broadband communications, audio/television distribution networks, maritime navigation, global customer service and support, as well as military systems. The book focuses on the fundamentals of satellite communication systems, offering the reader an in-depth understanding of how to communicate and transfer information between two or more ground stations using satellites. The aim of the book is to understand the methods of analysis and design of satellite communication systems, focusing on the basic principles and specificities of satellite communication networks, as well as the field of their efficient application. It provides the ability to analyze and design satellite links for various types of services and the familiarity

with terms and techniques related to the evaluation of the performance and availability of such links. Although the subject matter is extensive, Part 1 focuses on orbital engineering, materials technologies, the study of propagation phenomena and, in particular, describes modern transmission and reception techniques, while Part 2 describes today's satellite application systems. The book is aimed primarily at undergraduate and graduate students in higher education, as well as telecommunications engineers, and readers are expected to have a basic knowledge of telecommunications, wireless links, and signals. The format of the book is such that it provides interactive information, application examples, running simulations, as well as multiple-choice questions and answers on satellite system design issues, with the goal of better understanding and consolidation of satellite communications networks.

