Principles Of Communications Satellites

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Synopsis

Explains the reasons, limitations and trade-offs inherent to communications satellites. The first half deals with link power budgets as well as communications hardware and examples of complete link budgets. Spacecraft technology and a description of the objectives and basic operating methods of each of the major supporting subsystems are covered in the last half. Contains end-of-chapter exercises and solutions. An Instructor’s Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

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Customer Reviews

I hesitated a bit before purchasing this book because of the price and my relative inexperience in this field. It is indeed a classic textbook because it begins every topic with a clear explanation of the underlying theory and its importance in understanding satellite communications. The authors have also provided chapter-end exercises to reinforce the key points. Though my college degree is in Chemistry and never had any class in engineering or computer science, the concepts are well understood. I recommend this book to anyone who wants a good theoretical knowledge of satellite communication technology.

This text was required for a college course in Satellite Communications. This book is one of the BEST at explaining satellite operations and space communications principles. I used the
Wertz/Larson "SMAD" book in previous classes and was puzzled by its explanation of several space communications concepts such as EIRP and Power Flux Density. This book gives simple, common-sense explanations for these types of concepts. The first chapter alone gave me more of a complete understanding of communications satellite systems than anything I read in Wertz/Larson. Many of the calculations presented in this book involve decibels and logarithms and a math review would be helpful for most people. Since most communications calculations in general are done in decibels, this math is unavoidable but easily mastered with a little high school math review. A good complement for this text is the book "Silicon Sky" by Gary Dorsey. This is the story of Orbital Sciences Corp/Orbcomm which is attempting to build a private communications satellite system. For a "business history" book, it gets surprisingly deep into the details of communications satellite engineering and provides a good real-world context for understanding the material in "Principles of Communications Satellites".

I bought this book blindly without seeing the contents first (what a stupid mistake!) only because it said 'the first half of the book deals with link power budgets'. So you would think that this book has a lot of details about link budget calculations right? Wrong! Most of the stuff in this book is only in introductory level. The link budget calculation that was boasted as the main feature of the book is very superficial, the kind of stuff that you would find in any satellite communications book out there. If you are looking for a good reference for link budget calculation, I recommend Tri T. Ha’s. It has a Crane’s rain model in there. (But in the real work, people normally use ITU model. So you will need some of the ITU’s recommendation papers that have the model calculations as well. For example, P 620 - just to name one.) In all, this book is a fairly good introduction. I would have given it more stars if it were priced at around [price]. It is simply too expensive. If you want a better introduction book in satellite communications at lower price, go for Dennis Roddy’s.

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