

PREFACE

Wireless communications is an area of communications that is expanding very rapidly and is one of the most promising areas of research. Third-generation wireless systems, which provide streaming video, access to the internet and much more, are now becoming commercial realities. Standardization of systems beyond third-generation is already underway. The aim of the new wireless networks is to make personal communications available anywhere, anytime. This book consists of individual chapters written by notable specialists in their fields. It has a bias toward the physical layer. The key objectives of this book are to provide the reader with a broad overview based on:

- The kinds of services can we expect from wireless networks in the 21st century,
- The standardization efforts underway to ensure that such networks will be commercially realized,
- The technology building blocks that are needed, and
- Examples of some new systems that are being deployed.

Preparing an overview text with these broad aims also poses a key difficulty, especially in a dynamic area such as wireless communications. This is because the ideas that were “new” some years ago (when work on this text began) are somewhat dated now. Furthermore, “new” areas are always emerging that may be not covered in this book at all.

This book is aimed at a wide audience consisting of researchers, practising engineers, and design engineers. With this intention, the contributing authors have prepared specialist articles that provide a comprehensive tutorial style overview of the scope of the article. The first part consists of an introductory article written by the editors. This is followed by three visionary chapters on wireless network developments. Standardization efforts are covered in Part 2 by two chapters. Part 3 consists of four chapters on propagation issues, because the vagaries on the radio channel continue to provide a continuous challenge to radio engineers. Part 4 consists of 5 chapters on key technologies that form the building blocks of the physical layer of a wireless system. Parts 5 and 6 consist of 5 chapters on the examples of the new systems being deployed.

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