PART TWO Principle of Wireless Network Operation

Part Two of the book is devoted to technical aspects of fixed infrastructure of the wireless networks. This part consists of two chapters addressing deployment and operation of wireless networks, respectively.

CHAPTER 5 NETWORK PLANNING

Wireless service providers often start with a minimal infrastructure and antenna sites. As the number of subscribers grows, the service provider expands the wireless infrastructure and migrates to more advanced technologies to increase the capacity and improve the quality. Chapter 5 presents the technologies related to the initial deployment and later expansion of the infrastructure for wireless networks. Different topologies, channel allocation techniques, and architectural methods used for expansion of the network and issues related to migration to CDMA technology are explained in this chapter.

CHAPTER 6 WIRELESS NETWORK OPERATION

Chapter 6 is devoted to functionalities of the fixed network infrastructure that are needed to support mobile operation. These functionalities are divided into three categories: mobility management, radio resource and power management, and security management. Mobility management defines how a mobile terminal registers with the network at different locations and how network tracks the mobile as it changes its access to the network from one antenna to another. Radio resource and power management is the technology used for controlling the transmitted power of the terminals. Security management of wireless networks is implemented by authentication and ciphering. Authentication is a process between the network and the terminal checking the authenticity of the terminal, and ciphering scrambles the transmitted bits to prevent eavesdropping.