- Preface p. ix
- Acknowledgments p. xi
- Introduction p. xiii
- Chapter 1. Point A to Point B p. 1
- 1.1 Basic RF Concerns p. 1
- 1.2 Information and Occupied Bandwidth p. 12
- 1.3 RF Signal Propagation--Basic Concepts p. 14
- 1.4 Scatter and Multipath p. 17
- 1.5 Link Margin p. 22
- 1.6 Chapter 1 Review p. 28
- Chapter 2. Digital Communication Theory p. 31
- 2.1 Modulation Techniques p. 32
- 2.2 Receiver Decisions p. 40
- 2.3 Probability of Bit Error (Pb) p. 43
- 2.4 Auto Correlation and Cross Correlation p. 51
- 2.5 Correlation Detector p. 53
- 2.6 Ec/Io and Frame Error Rate (FER) p. 56
- 2.7 Chapter 2 Review p. 57
- Chapter 3. IS-95 CDMA p. 59
- 3.1 Spreading p. 62
- 3.2 Walsh Codes p. 68
- 3.3 Convolutional Encoder p. 72
- 3.4 Interleaving p. 74
- 3.5 Power Control p. 75
- 3.6 Vocoder p. 79
- 3.7 Half-Chip Delay p. 81
- 3.8 Multipath Revisited and the Rake Receiver p. 82
- 3.9 Phase Delays and Walsh Orthogonality p. 86
- 3.10 Forward-link Overview p. 88
- 3.11 Reverse Link Overview p. 92
- 3.12 Forward-link Reception and Demodulation p. 96
- 3.13 Reverse Link Reception and Demodulation p. 98
- 3.14 Chapter 3 Review p. 99
- Chapter 4. A Day in the Life p. 107
- 4.1 Forward-link Messaging p. 108
- 4.2 Reverse Link Messaging p. 110
- 4.3 Hand-offs p. 113
- 4.4 Cell Shrinkage p. 118
- 4.5 Hashing p. 119
- 4.6 Slotted Mode p. 119
- 4.7 Registrations p. 122
- 4.8 Land-line Interface p. 123
- 4.9 Network Features and Services p. 127
- 4.10 Network Issues p. 128

- 4.11 Chapter 4 Review p. 134
- Chapter 5. System Capacity p. 137
- 5.1 Factors Affecting Capacity p. 137
- 5.2 System Loading and Network Capacity Estimates p. 141
- 5.3 Chapter 5 Review p. 146
- Chapter 6. Overview of IS-2000 1x ("3G"): The Next Generation p. 149
- 6.1 Background p. 149
- 6.2 IS-2000 Channel Structure p. 151
- 6.3 MAC and LAC p. 154
- 6.4 IS-2000 Walsh Coding p. 158
- 6.5 Short PN Code p. 161
- 6.6 Specific IS-2000 Channel Structure p. 163
- 6.7 Radio Configurations (RCs) p. 168
- 6.8 IS-2000 Reverse Link p. 171
- 6.9 Reverse Radio Configurations p. 174
- 6.10 Bearer Service Options p. 178
- 6.11 Chapter 6 Review p. 180
- Appendix A. Spurious Noise and Inter-Mod Products p. 183
- Appendix B. Fourier Mechanics p. 187
- B.1 Fourier Superposition p. 187
- B.2 Fourier Transform p. 190
- B.3 Modulation via Fourier Transform p. 193
- B.4 Fourier Convolutions p. 196
- B.5 Cross Correlation and Auto Correlation p. 197
- B.6 Dispersion p. 198
- Appendix C. Electrodynamics and Maxwell's Equations p. 203
- C.1 Maxwell's Equations p. 205
- C.2 Diffraction p. 218
- C.3 Dispersion and the Lorentz Model p. 226
- C.4 Electrodynamics Summary Comments p. 228
- Appendix D. Doppler Effect p. 231
- Appendix E. Basic Antenna Theory p. 237
- Appendix F. Channel Allocations and Standards p. 245
- F.1 A Brief History of the CDMA Standards Development p. 246
- Appendix G. Specific Absorption Rate (SAR) p. 249
- Appendix H. Authentication p. 253
- Appendix I. Complex Numbers p. 257
- Appendix J. Included Software Tools p. 263
- Appendix K. Review Questions for the Appendices p. 265
- Appendix L. Answers to the Review Questions p. 269
- Bibliography p. 309
- Index p. 311