

Contents

EXECUTIVE SUMMARY 1

Part A: Overview 5

1 Introduction and Policy Issues 5

- Request for the Study 6
- Scope of the Study 7
- Background: The NII 8
- Why Wireless? 13
- Policy Environment 25
- Findings and Policy Options 29

2 Mobility and the Implications of Wireless Technologies 47

- Findings 48
- Selected Examples of Mobile Wireless Services 48
- Characteristics of Mobility 52
- Jobs and Mobility 53
- Implications of Increased Mobility 55

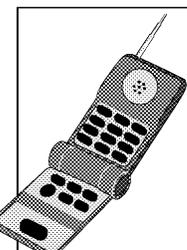
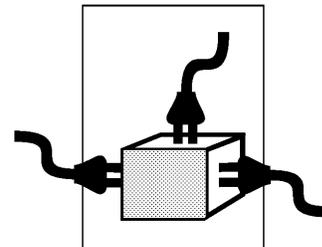
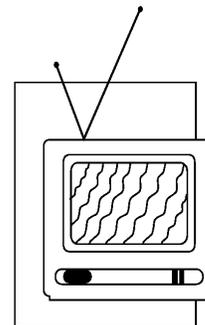
Part B: Wireless Technologies and Applications 65

3 Voice Technologies and Applications 67

- Findings 68
- Mobile Voice Services 69
- Fixed Wireless Technologies 95

4 Wireless Data 99

- Findings 99
- Wireless Data Services 101
- Wireless Data Systems 104
- Issues and Implications 124



5 Broadcast and High-Bandwidth Services 133
 Findings 133
 Background 137
 Radio Broadcasting 137
 Video Programming Services 144
 Emerging High-Bandwidth Services 162

Part C: Issues and Implications 167

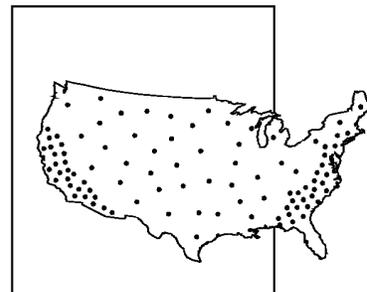
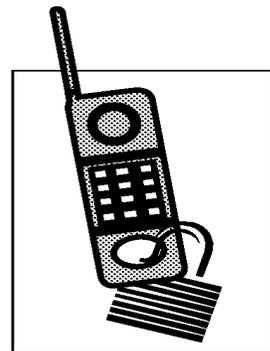
6 Standards and Interoperability 169
 Findings 169
 The Wireless Standards-Setting Process 171
 Cellular and Personal Communications Service Standards 175
 Interoperability of Wireless and Wireline Networks 181

7 Regulation of Interconnection 185
 Findings 185
 LEC Interconnection Obligations 187
 Interconnection Obligations of Wireless Carriers 194

8 Zoning Regulations and Antenna Siting 201
 Finding 202
 Background 203
 General Court Guidelines on Federal Preemption 206
 The Case for Federal Preemption 207
 The Case Against Federal Preemption 209

9 Wireless Technologies and Universal Service 213
 Findings 214
 The Role of Wireless Technologies in Universal Service 215
 Policy Issues 220

10 Privacy, Security, and Fraud 223
 Findings 224
 Confidentiality and Privacy 225
 Cellular and Other Wireless Fraud 233



11	Health Issues	239
	Findings	239
	The Controversy Surrounding Health Effects	241
	Biological and Health Effects of Wireless Telecommunications	243
12	Electromagnetic Interference and Wireless Devices	251
	Finding	251
	Background	252
	Interference With Medical Devices	252
	Interference With Aircraft Control Systems	255
	Unanticipated Interactions Among Large, Complex Systems	257

APPENDIXES

A	Radio Communications Basics	259
B	Federal Government Roles	269
C	Acronyms and Glossary of Terms	275
D	Reviewers and Contributors	279
E	Workshop Participants	283

INDEX	285
--------------	------------