

Brief Contents

Preface xvii

Publisher Acknowledgments xxiv

Editors and Contributors xxvii

List of Acronyms xxxi

List of Common Symbols xxxiv

PART I Overview

- 1 Introduction and Radar Overview 3
- 2 The Radar Range Equation 59
- 3 Radar Search and Overview of Detection in Interference 87

PART II External Factors

- 4 Propagation Effects and Mechanisms 117
- 5 Characteristics of Clutter 165
- 6 Target Reflectivity 211
- 7 Target Fluctuation Models 247
- 8 Doppler Phenomenology and Data Acquisition 273

PART III Subsystems

- 9 Radar Antennas 309
- 10 Radar Transmitters 347
- 11 Radar Receivers 391
- 12 Radar Exciters 417
- 13 The Radar Signal Processor 459

PART IV Signal and Data Processing

- 14 Digital Signal Processing Fundamentals for Radar 495
- 15 Threshold Detection of Radar Targets 547
- 16 Constant False Alarm Rate Detectors 589
- 17 Doppler Processing 625
- 18 Radar Measurements 677
- 19 Radar Tracking Algorithms 713
- 20 Fundamentals of Pulse Compression Waveforms 773
- 21 An Overview of Radar Imaging 835

Appendix A: Maxwell's Equations and Decibel Notation 893

Appendix B: Answers to Selected Problems 899

Index 905