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Nota di contenuto	EW 101 A First Course in Electronic Warfare; Contents; Preface; 1 Introduction; The Scope of the Book; More Detailed Information; Generalities About EW; How to Understand Electronic Warfare; On to the Specifics; 2 Basic Mathematical Concepts; 2.1 dB Values and Equations; 2.1.1 Conversion to and from dB Form; 2.1.2 Absolute Values in dB Form; 2.1.3 dB Equations; 2.2 The Link Equation for All EW Functions; 2.2.1 The "One-Way Link"; 2.2.2 Propagation Losses; 2.2.3 Receiver Sensitivity; 2.2.4 Effective Range; 2.3 Link Issues in Practical EW Applications; 2.3.1 Power Out in the Ether Waves

2.3.2 Sensitivity in V/m; 2.3.3 "Links" in Radar Operation; 2.3.4 Interfering Signals; 2.3.5 Low-Frequency Signals Close to the Earth; 2.4 Relations in Spherical Triangles; 2.4.1 The Role of Spherical Trigonometry in EW; 2.4.2 The Spherical Triangle; 2.4.3 Trigonometric Relationships in Any Spherical Triangle; 2.4.4 The Right Spherical Triangle; 2.5 EW Applications of Spherical Trigonometry; 2.5.1 Elevation-Caused Error in Azimuth-Only DF System; 2.5.2 Doppler Shift; 2.5.3 Observation Angle in 3-D Engagement; 3. Antennas; 3.1 Antenna Parameters and Definitions; 3.1.1 First, Some Definitions; 3.1.2 The Antenna Beam; 3.1.3 More About Antenna Gain; 3.1.4 About Polarization; 3.2 Types of Antennas; 3.2.1 Selecting an Antenna to Do the Job; 3.2.2 General Characteristics of Various Types of Antennas; 3.3 Parameter Tradeoffs in Parabolic Antennas; 3.3.1 Gain Versus Beamwidth; 3.3.2 Effective Antenna Area; 3.3.3 Antenna Gain as a Function of Diameter and Frequency; 3.3.4 Gain of Nonsymmetrical Antennas; 3.4 Phased Array Antennas; 3.4.1 Phased Array Antenna Operation; 3.4.2 Antenna Element Spacing; 3.4.3 Phased Array Antenna Beamwidth; 3.4.4 Phased Array Antenna Gain; 3.4.5 Beam Steering Limitation; 4. Receivers; 4.1 Crystal Video Receiver; 4.2 IFM Receiver; 4.3 Tuned Radio Frequency Receiver; 4.4 Superheterodyne Receiver; 4.5 Fixed Tuned Receiver; 4.6 Channelized Receiver; 4.7 Bragg Cell Receiver; 4.8 Compressive Receiver; 4.9 Digital Receivers; 4.10 Receiver Systems; 4.10.1 Crystal Video and IFM Receivers Combined; 4.10.2 Receivers for Difficult Signals; 4.10.3 Special Receiver Time Shared by Several Operators; 4.11 Receiver Sensitivity; 4.11.1 Where Sensitivity Is Defined; 4.11.2 The Three Components of Sensitivity; 4.12 FM Sensitivity; 4.12.1 FM Improvement Factor; 4.13 Digital Sensitivity; 4.13.1 Output SNR; 4.13.2 Bit Error Rate; 5. EW Processing; 5.1 Processing Tasks; 5.1.1 RF Threat Identification; 5.1.2 Logic Flow in Threat Identification; 5.2 Determining Values of Parameters; 5.2.1 Pulse Width; 5.2.2 Frequency; 5.2.3 Direction of Arrival; 5.2.4 Pulse Repetition Interval; 5.2.5 Antenna Scan; 5.2.6 Receiving Pulses in the Presence of CW; 5.3 Deinterleaving; 5.3.1 Pulse on Pulse; 5.3.2 Deinterleaving Tools; 5.3.3 Digital Receivers; 5.4 Operator Interface; 5.4.1 In General (Computers Versus Humans); 5.4.2 Operator Interface in the Integrated Aircraft EW Suite

Sommario/riassunto

This popular series of tutorials, featured over a period of years in the Journal of Electronic Defense, is now available in a single volume. Organized into chapters with new introductory and supplementary material from the author, you get clear, concise and well-illustrated examinations of critical topics such as antenna parameters, receiver sensitivity, processing tasks, and search strategies, LPI signals, jamming, communication links, and simulation. The chapters define key terms and explain how and why particular technologies are relevant to electronic defense. Detailed charts, diagrams and
