

Electronic Warfare In The Information Age

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EW 105: Space Electronic Warfare Universal-Publishers

Look to this informative new reference for an in-depth, comprehensive treatment of the principles of electronic warfare (EW). Written by leading experts in the field, this authoritative book takes a systematic approach to exploring EW theory, mathematical models, and quantitative analysis. You get a detailed examination of the basic targets of EW operations, a thorough presentation of critical radar jamming methods, and definitions of the effectiveness criteria for EW systems and techniques. *Human-Centered Information Fusion* Silverwood Institute

Focusing mainly on engineering aspects of communications electronic warfare (EW) systems, this thoroughly updated and revised edition of a popular Artech House book offers a current and complete introduction to the subject. The second edition adds a wealth of new material, including expanded treatments of two critical areas -- RF noise and effects of signal fading and important topic of jamming performance over fading channels. Provides understanding of how modern direction finders for communication signals work and how to measure performance, defining basic operations necessary for communication EW systems. Provides a technique for geolocation of low probability of intercept/anti-jam targets.

Information Operations, Electronic Warfare, and Cyberwar Artech House Publishers

For military planners, the control of information is critical to military success, and communications networks and computers are of vital operational importance. The use of technology to both control and disrupt the flow of information has been generally referred to by several names, information warfare, electronic warfare, cyberwar, netwar, and Information Operations (IO). This book is a focus on electronic warfare which is defined as a military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. This book consists of public documents which have been located, gathered, combined, reformatted, and enhanced with a subject index, selectively edited and bound to provide easy access.

Introduction to Communication Electronic Warfare Systems Artech House Publishers

Information fusion refers to the merging of information from disparate sources with differing conceptual, contextual and typographical representations. Rather than focusing on traditional data fusion applications which have been mainly concerned with physical military targets, this unique resource explores new human-centered trends, such as locations, identity, and interactions of individuals and groups (social networks). Moreover, the book discusses two new major sources of information: human observations and web-based information. This cutting-edge volume presents a new view of multi-sensor data fusion that seeks to address these new developments, explicitly considering the active role of a human user/analyst. Professionals become knowledgeable about the key inputs into this innovative information fusion process, including traditional sensing resources (S-space), dynamic communities of human observers (H-space), and resources such as archived sensor data, blogs, and dynamic news reports from citizen reporters via the Internet (I-space).

Redefining Information Warfare Boundaries for an Army in a Wireless World Artech House

The modern means of communication have turned the world into an information fishbowl and, in terms of foreign policy and national security in post-Cold War power politics, helped transform international power politics. Information operations (IO), in which time zones are as important as national boundaries, is the use of modern technology to deliver critical information and influential content in an effort to shape perceptions, manage opinions, and control behavior. Contemporary IO differs from traditional psychological operations practiced by nation-states, because the availability of low-cost high technology permits nongovernmental organizations and rogue elements, such as terrorist groups, to deliver influential content of their own as well as facilitates damaging cyber-attacks ("hactivism") on computer networks and infrastructure. As current vice president Dick Cheney once said, such technology has turned third-class powers into first-class threats. Conceived as a textbook by instructors at the Joint Command, Control, and Information Warfare School of the U.S. Joint Forces Staff College and involving IO experts from several countries, this book fills an important gap in the literature by analyzing under one cover the military, technological, and psychological aspects of information operations. The general reader will appreciate the examples taken from recent history that reflect the impact of IO on U.S. foreign policy, military operations, and government organization.

Cognitive Electronic Warfare: An Artificial Intelligence Approach Artech House Publishers

The era of mechanized warfare is rapidly giving way to the battle for information superiority OCo enabled by electronic technologies that provide data for detailed analysis of enemy forces and capabilities. Supported with over 400 four-color photographs and illustrations, this new book is written and designed specifically to help non-specialists quickly understand the complexities of Network Enabled Capability (NEC). It offers you expert guidance on how to achieve information dominance throughout the battlespace by effectively employing the technologies, concepts, and decision-making processes of network enabled warfare. Written in clear, nontechnical language with minimum mathematics, the book explains how to use sensor technologies, including radar and electronic warfare systems, to disseminate information to key decision makers in timely and relevant manner. You learn how these technologies allow for the effective acquisition and dissemination of intelligence, while denying the collection, dissemination and use of intelligence by enemy forces. Providing a complete understanding of the advantages and weaknesses of information warfare, this practical book shows you what factors need to be taken into account when designing systems and equipment for use in a network-enabled environment. Moreover, this forward-looking reference explores what evolving requirements to consider for future air, land, and sea battlespace scenarios. This is an extraordinarily valuable and useful resource for military staff, defense industry engineers and managers, and government officials involved with defense funding decisions."

Electronic Warfare for the Digitized Battlefield Artech House

Cyberspace is one of the major bases of the economic development of industrialized societies and developing. The dependence of modern society in this technological area is also one of its vulnerabilities. Cyberspace allows new power policy and strategy, broadens the scope of the actors of the conflict by offering to both state and non-state new weapons, new ways of offensive and defensive operations. This book deals with the concept of "information war", covering its development over the last two decades and seeks to answer the following questions: is the control of the information space really possible remains or she a utopia? What power would confer such

control, what are the benefits?

Handbook of Defence Electronics and Optronics Artech House

The fifth book in the bestselling Artech House EW 100 series explores electronic warfare (EW) in space. Practical problems - including intercept and jamming of hostile signals transmitted from the Earth's surface and the vulnerability of satellite links to attack from the Earth's surface are discussed. Spherical trigonometry is covered to provide the background necessary to understand the scope of satellite problems. Orbit mechanics, specifically the way the Earth and its satellites revolve around one another, is also explained. The basics of radio propagation and how it applies to communications Electronic Warfare are demonstrated, as well as the special considerations that apply to radio transmission to and from an Earth satellite. Satellite links and link vulnerability are discussed. Readers learn how to calculate the distance over which a satellite can view as a function of its orbital parameters, how long the satellite can see that point, and the frequency shift in signals received by the satellite or an Earth based receiver. EW applications of orbit mechanics, satellite links, radio propagation and link vulnerability. Written by an expert in the field, this book is useful for technical and non-technical professionals.

Introduction to Electronic Defense Systems SciTech Publishing

"This cutting-edge resource arms professionals with the full array of traditional methods and modern high-resolution techniques for acquiring communications targets. The book details how to develop optimum methods for acquiring communications targets for exploitation or countermeasures. Additionally, it teaches how to establish the optimum techniques for detection of deterministic signals with random parameters as well as stochastic signals. Whether designing or operating EW systems, professionals can turn to this guide to measure how effectively their EW systems cope in crowded RF environments." "This practical reference explains how to apply window techniques for spectrum estimation and determine how these techniques affect the target acquisition process. Moreover, it discusses how to efficiently manage target acquisition with such artificial intelligence techniques as fuzzy logic and evidential reasoning. In addition to explaining methods and applications, this book is a complete source for information on designing and evaluating EW target acquisitions systems."--BOOK JACKET. Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

Electronic Warfare Receivers and Receiving Systems Rand Corporation

Since its creation at the beginning of World II, radars have forever transformed the practice of modern warfare. The evolution of countermeasure conducted by electronic warfare systems against radars and radars' corresponding counter countermeasures is an intriguing technical subject. This book provides a very accessible introduction to a broad range of radar and electronic warfare technologies. The subjects covered in this book range from early radar development to later technologies such as stealthy techniques, low probability of intercept radar, and machine learning. Historical events are used to illustrate the principles of electronic warfare and to help readers to apprehend contexts under which radars and corresponding electronic warfare techniques were developed.

EW 101 Artech House

In the U.S. Army as elsewhere, transmission of digitized packets on Internet-protocol and space-based networks is rapidly supplanting the use of old technology (e.g., dedicated analog channels) when it comes to information sharing and media broadcasting. As the Army moves forward with these changes, it will be important to identify the implications and potential boundaries of cyberspace operations. An examination of network operations, information operations, and the more focused areas of electronic warfare, signals intelligence, electromagnetic spectrum operations, public affairs, and psychological operations in the U.S. military found significant overlap that could inform the development of future Army doctrine in these areas. In clarifying the prevailing boundaries between these areas of interest, it is possible to predict the progression of these boundaries in the near future. The investigation also entailed developing new definitions that better capture this overlap for such concepts as information warfare. This is important because the Army is now studying ways to apply its cyber power and is reconsidering doctrinally defined areas that are integral to operations in cyberspace. It will also be critical for the Army to approach information operations with a plan to organize and, if possible, consolidate its operations in two realms: the psychological, which is focused on message content and people, and the technological, which is focused on content delivery and machines.

Tactical Electronic Warfare DIANE Publishing

Written by a prominent expert in the field, this authoritative new resource presents anti-ship missile (ASM) electronic protection (EP) techniques designed to enhance accurate target classification currently being developed by personnel from the People's Republic of China and other nations. This book provides a comprehensive introduction to modern electronic warfare (EW) in an era of information warfare (IW). It explores the capabilities of coherent radar and digital signal processing to rapidly and accurately classify targets. Both naval and air electronic EW are covered in this resource. This book gives insight into modern EW as an information battle and includes guidance on properly testing the effectiveness of electronic attack (EA) systems. Pulsed Doppler radar basics including, electromagnetic pulse, dynamic range, gain control, and Doppler effects are presented. A summary of the ASM sensor and EA model is provided and readers find coverage of the radar range equation, burn through, and the range Doppler map and imaging. Special topic-extended target classifications including, false, decoys, and chaff are explained. Special topic ASM EP waveforms and multiple receiver EP are also covered. This book explores features of algorithms to optimize combining multiple parameters and systems. Moreover, it explains several algorithms proposed by PRC personnel to implement optimal two-channel processing that mitigates cover noise EA.

Cyber Dragon Springer

Information warfare is emerging as the new war fighting paradigm of the U.S. and many of its allies. This book is the first in the field to address communication electronic warfare (EW) systems in the context of information warfare. Authored by a recognized leading authority, the book includes a unique formulation of EW system performance and presents results of system simulations that have not appeared previously in any related literature. Essential reading for EW engineers and researchers working in defense, aerospace, and military capacities, the book explores the properties of information, the properties of information communication means, information theory, EW system architectures, and two operational simulations, one in Northeast Asia and the other in urban terrain.

Radar and Electronic Warfare Principles for the Non-Specialist CRC Press

This authoritative new resource explores the communications aspect of electronic warfare and presents the major technical issues that drive the practice of land EW to help practitioners with their work in the field. The book offers a detailed understanding of the structure of tactical communications electronic warfare systems, the relationship between these systems and their targets, and the likely future development path of land electronic warfare. Written in a clear, easy-to-understand style, with accessible descriptions of tactical communications EW techniques, the book is a useful reference for technical and non-technical professionals alike.

[Information Operations \(Joint Publication 3-13\)](#) Artech House

Receivers systems are considered the core of electronic warfare (EW) intercept systems. Without them, the fundamental purpose of such systems is null and void. This book considers the major elements that make up receiver systems and the receivers that go in them. This resource provides system design engineers with techniques for design and development of EW receivers for modern modulations (spread spectrum) in addition to receivers for older, common modulation formats. Each major module in these receivers is considered in detail. Design information is included as well as performance tradeoffs of various components. Major factors that influence the functioning of the modules are identified and discussed. Key performance parameters are identified as well, and approaches to achieving design goals are considered.

Electronic Warfare Signal Processing Potomac Books, Inc.

The third book in the bestselling Artech House EW 100 series is dedicated entirely to the practical aspects of electronic warfare against enemy communication. From communications math (mainly simple dB formulas), receiving systems, and signals, to communications emitter location, intercept, and jamming, this comprehensive volume covers all the key topics in the field.

The New Wizard War: Challenges and Opportunities for Electronic Warfare in the Information Age John Wiley & Sons

In answer to great demand, Artech House is proud to bring professionals a newly revised and updated edition of the bestselling book *Introduction to Modern EW Systems*. The Second Edition has been greatly expanded to include a wealth of new material, from remote piloted airborne systems, directed energy weapons, and non-cooperative air surveillance...to EW radar band sensor next generation architectures, real-time data links, and smart jamming. This authoritative resource provides engineers and students with the latest electronic warfare (EW) techniques and technologies related to on-board military platforms. Practitioners gain expert design guidance on technologies and equipment used to detect and identify emitter threats, offering an advantage in the never-ending chess game between sensor guided weapons and EW systems. This unique book provides deeper insight into EW systems principles of operation and their mathematical descriptions, arming professionals with better knowledge for their specific design applications. Moreover, readers get

practical information on how to counter modern communications data links which provide connectivity and command flow among the armed forces in the battlefield. Taking a sufficiently broad perspective, this comprehensive volume offers a panoramic view of the various physical domains RF, Infrared, and electronics that are present in modern electronic warfare systems. This in-depth book is supported with over 340 illustrations and more than 450 equations.

Redefining Information Warfare Boundaries for an Army in a Wireless World John Wiley & Sons

Contents: (1) Electronic Warfare Overview; (2) Electronic Warfare in Full Spectrum Operations; (3) Electronic Warfare Organization; (4) Electronic Warfare and the Operations Process; (5) Coordination, Deconfliction, and Synchronization; (6) Integration with Joint and Multinational Operations; (7) Electronic Warfare Capabilities; Appendix A: The Electromagnetic Environment; Appendix B: Electronic Warfare Input to Operation Plans and Orders; Appendix C: Electronic Warfare Running Estimate; Appendix D: Electronic Warfare-Related Reports and Messages; Appendix E: Army and Joint Electronic Warfare Capabilities; Appendix F: Tools and Resources Related to Electronic Warfare; Glossary; References; Index. Illustrations.

Information Operations Createspace Independent Pub

The Electronic Warfare Integrated Reprogramming (EWIR) database is the primary Department of Defense source for technical parametric performance data on noncommunications emitters. It has been identified by the National Air Intelligence Center as difficult to use in its current hierarchical database form. There are two problems addressed by this thesis. First, is an object-oriented EWIR database a superior method for managing complex electronic warfare data collections? Second, is the prototype Object-Oriented Interface (O-OI) developed at the Laboratory for Database System Research in the Naval Postgraduate School capable of supporting a complex object-oriented database such as EWIR? To answer these questions, a subset of the EWIR Objective-Oriented Specification developed in a separate thesis is implemented on the O-OI. Using the O-OI Data Definition Language, the object-oriented EWIR database schema and its associated record data are stipulated and loaded to create the live database. Using the O-OI Data Manipulation Language, nine EWIR transactions are elaborated and executed.

[Electronic Warfare in the Information Age](#) Artech House

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 formulas give you the practical knowledge you need to apply specific techniques in the field.