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Volume III. Systems Phase, Chapter 6A: Electronic Warfare/Radar Handbook

Jan 1990 48 pages

Authors: AIR FORCE TEST PILOT SCHOOL EDWARDS AFB CA


Radar Credible Target - 1 (RCT-1) Flight Test: An Innovative Solution for Ground Based Radar - Prototype (BGR-P) Testing

1998 5 pages

Authors: Kent E. Eversmeyer; Jess Henley; Robert Harper; Dan Talbert; Gerald Caruso; TELEDYNE BROWN ENGINEERING HUNTSVILLE AL

... used to design and plan this Target Of Opportunity (TOO) mission as a Minuteman 3 Associated Operation mission is presented. Solutions developed for the fundamental target designs and their truth data instrumentation are presented in context with the deployment schema developed for RCT-1. In addition, an innovative and cost effective chaff target concept to be tested on RCT-1 is presented with respect to possible out year Integrated Flight Test requirements. Emphasis is placed on the lessons learned to date from this process, and applicability to further NMD flight testing.

Simulations to Predict the Countermeasure Effectiveness of Using Pyrophoric Type Packets Deployed from TALD Aircraft

Sep 1999 116 pages

Authors: Mihail Demestihas; NAVAL POSTGRADUATE SCHOOL MONTEREY CA

... The objective of this study was to characterize via simulation the amount of “cover” that can be obtained by dropping from a pre-launched, unmanned tactical air launched decoy (TALD) a sequence of pyrophoric materials to create an IR cloud, analogous to the interference created by microwave chaff, that would protect the manned aircraft from the missile. The performance analysis is based on a simple reticle based model in which the two-dimensional (2D) image is reduced to either a composite signal, created by the aircraft, or a composite noise, created by the pyrophoric expandable. The ...

The Inhalation Toxicity of Glass Fibers - A Review of the Scientific Literature

Oct 1999 36 pages

Authors: Robert L. Carpenter; Cody L. Wilson; NAVAL HEALTH RESEARCH CENTER WRIGHT-PATTERSON AFB OH TOXICOLOGY DETACHMENT

... et al., 1979), creating concern as to the causes of this disease and as to the properties of asbestos leading to this disease. Asbestos exposure can cause other forms of lung intervening 30 years. The purpose of this document is to provide the reader with needed background, summarize those investigations relevant to chaff health effect concerns and provide some insight as to the relevance of those concerns. Fibers differ from more spherical dust particles in their aerodynamic properties. For most dust particles, the particle's diameter and mass govern their persistence in the atmosphere.

Atlantic Test Range. Dynamic RCS Measurement Capability

Jun 28, 2000 34 pages

Authors: NAVAL AIR WARFARE CENTER AIRCRAFT DIV PATUXENT RIVER MD

... (IFF, GPS, and INS), communications (voice and data link), reconnaissance systems, antenna systems, forward looking infrared systems and ASW systems. Also included are electronic support measures (ESM) systems, electronic intelligence (ELINT) systems, radar warning receivers, missile warning systems, communications receivers, and antenna patterns. Additionally, NAWC-AD has the mission to conduct performance testing of ECM and ECCM avionics systems including aircraft signature measurements (RCS), radar and communication Jammer-to-Signal (J/S) ratio measurements, Chaff and decoy measurements.

A Systems Engineering Approach to Aircraft Kinetic Kill Countermeasure Technology: Development of an Active Air Defense System for the C/KC-135 Aircraft. Volume 2

Dec 1995 282 pages

Authors: Mark C. Cherry; Bruce R. Dewitt; Christopher G. Dusseau; Joel J. Hagan; Brian S. Peterson; AIR FORCE INST OF TECH WRIGHT-PATTERSONAFB OH SCHOOL OF ENGINEERING

http://www.stormingmedia.us/search.php?q=chaff&search_x=12&search_y=12&p=2
Modern Surface to Air Missiles (SAMs) present a significant threat to today’s military and civilian aircraft. Current countermeasure systems such as flares and chaff rely on decoying the missile threat and do not provide adequate protection against advanced computerized missile defense systems (Schaffer, 1993). An aircraft defense system that actively seeks out and defeats an incoming missile by placing a physical barrier in the missile’s path offers a promising alternative to current countermeasure technologies. This thesis reports the preliminary design of an active aircraft defense system for the...

**Standard Electronic Attack Clearance Request for Ranges**  
Authors: **RANGE COMMANDERS COUNCIL, WHITE SANDS MISSILE RANGE NM**  
Electronic Attack (EA), formerly known as Electronic Countermeasures (ECM), includes both electronic jamming and chaff dispensing operations. EA is a subdivision of Electronic Warfare, which also consists of Electronic Protection (EP) and Electronic Warfare Support (ES). EA in the United States is an important element of DOD weapons systems testing and military training. The purpose of this document is to furnish guidance on the procedures for obtaining EA clearance for operations on U.S. ranges and within adjoining areas of restricted military air space. EA operations often require the...

**USAF Manned Aircraft Combat Losses 1990-2002**  
Authors: **Daniel L. Haulman; AIR FORCE HISTORICAL RESEARCH AGENCY MAXWELL AFB AL**  
... against both radar-guided and heat-seeking SAMs. Flying high, fast, and at night reduces the risk of destruction by relatively small heat-seeking SAMs or AAA. For aircraft that fly slow and low during daylight, flares and armor provide some protection against heat-seekers and AAA. High-speed anti-radiation missiles (HARMS), electronic jamming, destruction of enemy command and control centers, dispensing chaff, and launching decoys counter larger radar-guided SAMs. Flying unpredictably and using standoff weapons, unarmed aircraft, and cruise missiles also reduce manned aircraft losses.

**Accelerating Missile Threat Engagement Simulations Using Personal Computer Graphics Cards**  
Authors: **Sean E. Jeffers; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING AND MANAGEMENT**  
... to determine the probability of a successful attack. The simulations are computationally expensive, often requiring two-hours for a single 10-second missile engagement. Hundreds of simulations are needed to perform a complete risk assessment which includes evaluating the effectiveness of countermeasures such as flares, chaff, jammers, and missile warning systems. Thus, the need for faster simulations is acute. This research speeds up these mission critical simulations by using inexpensive commodity PC graphics cards to perform intensive image processing computations used to simulate a heat...

**Planning for and Applying Military Force: An Examination of Terms**  
Authors: **Paul K. Van Riper; ARMY WAR COLL STRATEGIC STUDIES INST CARLISLE BARRACKS PA**  
... In so doing, the author finds that current joint planning definitions and concepts tend to confuse more than they inform. In short, they are not ready to be incorporated into formal doctrine, and certainly not into the actual planning process. Hence, concept developers need to go back to the drawing table, and make a concerted effort to separate the proverbial wheat from the chaff. Change is good, but so is tradition. The definitions advanced by Sun Tzu and Clausewitz have stood the test of time for good reasons. If we decide to change them, we should have equally good reasons for doing so.

**Army Evaluation of JP-8 and Diesel Fuel Exposed to Anti-Detonation Material Filler (ADMF) for Fuel Tank Effects**  
Authors: **Bernard R. Wright; Edwin A. Frame; SOUTHWEST RESEARCH INST SAN ANTONIO TX DEPT OF ENGINEERS FUELS AND LUBRICANTS**  
... fuel elements, fuel color, fuel gum, Karl Fisher water, total acid number, jet fuel thermal oxidation test, conductivity, and lubricity (SLBOCLE BOCLE etc.). Two interestingly negative results were in the areas of lubrication and particle contaminants. All metallic mesh material had “chaff” or particles in the matrix of the material. All mesh materials metal mesh and organic foam products produced a significant change in the measured lubricity of the output fuel. Results of these extensive investigations did not identify any problems which could not be overcome (with additional resources) for...

**The Systems Integration of Autonomous Behavior Analysis to Create a Maritime Smart Environment for the Enhancement of Maritime Domain Awareness**  
Authors: **Cleo L Davis; NAVAL POSTGRADUATE SCHOOL MONTEREY CA DEPT OF SYSTEMS ENGINEERING**  
... which is inundated with data from many highly advanced, capable sensors and communication suites. With all these technological data collection and dissemination advances, the information available is just too voluminous for humans alone to process and react to manually, sifting the wheat from the chaff, and be expected to accomplish effective operational decision making regarding maritime threats to national security, as well as to international peace and trade on the high seas. This thesis addresses MDA Joint Integrating Concept capability gaps, MDA-003C and MDA-004C, for aggregating, ...

**Timing-based Localization of In-Band Wormhole Tunnels in MANETs**  
Authors: **Jinsub Kim; Dan Sterne; Rommie Hardy; Roshan K Thomas; Lang Tong; CORNELL UNIV ITHACA NY**  
... tunneled traffic. The detection algorithm is presented and evaluated using synthetic voice over IP (VoIP) traffic generated in a network testbed. After that, we consider multiple hypothesis testing to find the most likely tunnel path among a large number of candidates. We present a tunnel path estimation algorithm and its numerical evaluation using Poisson traffic. A main feature of the proposed algorithms is their robustness against the
presence of chaff packets (possibly introduced to avoid detection), packet loss caused by unreliable wireless links, and clock skew at different nodes.