



Pentagon Reports: Fast. Definitive. Complete.

[Home](#) [About Us](#) [Contact Us](#) [View Cart](#) [My Account](#) [FAQ](#)

username

**LOGIN**

[New Account »](#)  
[Forgot Password?](#)

chaff



[Advanced Search »](#)

#### Newsletter

To be informed of important news about our site, enter your email here. You can always unsubscribe later. Your address will not be released to others. (Read our Privacy Policy)

Your name

Your email

[Unsubscribe »](#)

**SUBMIT**

Search Results for: chaff

Total Results: 44

Results per page:  
50

Sort by: [Relevancy](#) [Title](#) [Date](#) [Pages](#) Display: [Full Text Only](#)

#### [THE DISPENSING AND BEHAVIOR OF CHAFF IN SPACE](#)

Apr 12, 1961

49 pages

Authors: [J. H. HENSON](#); [J. W. CRAIG](#); [TEXAS UNIV AT AUSTIN DEFENSE RESEARCH LAB](#)

... to determine some possible methods of dispensing **chaff** at very high altitudes. Secondly, the behavior of ... for separating dipoles in a space-like environment, (2) when dispensing fluid-saturated **chaff** in a low-pressure environment, the dipole velocity is approximately linear ... the square root of the fluid vapor pressure, (3) **chaff** dispensed omnidirectionally from a vehicle in a circular geocentric orbit will form a belt around the earth, and (4) **chaff** given a uniform dispensing velocity perpendicular to the original circular orbital velocity will produce a **chaff** cloud which grows and changes in ...

**Full Text**

#### [Optimal Estimation of Target in Clutter \(CHAFF\) from Radar](#)

Dec 1985

80 pages

Authors: [Akylas D. Katsicogiannis](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

This work produced a simulation capable of giving the effectiveness of **chaff** used in the self-protective mode. Signal processing techniques were studied in **chaff** discrimination in crucial missile conditions. A missile-ship-**chaff** model will be constructed to provide the optimum confusion of the missile. The radar included in this simulation is a tracking radar with conical-scan modulation. Results of simulation runs illustrate the effects of varying **chaff** radar cross section when ship and **chaff** are in the same resolution cell.

**Full Text**

#### [Jamming Performance of Infrared Bait/Chaff](#)

Aug 17, 1995

13 pages

Authors: [Gongpei Pan](#); [NATIONAL AIR INTELLIGENCE CENTER WRIGHT-PATTERSON AFB OH](#)

... infrared guidance and radar guidance jamming with infrared bait and **chaff** has been proven in modern high-tech warfare. Their jamming regime ... radiation of the infrared bait, and radar reflective waves from **chaff** to simulate the target (such as aircraft, warships, tanks, and point ... mode. Study of the jamming performance of infrared bait and **chaff** is required in developing the smoke, flame, light, and electric/sourceless jamming ... practical to enhance the jamming performance of infrared bait and **chaff**, as well as to extend the jamming frequency spectrum. ANNOTATION: Jamming Performance ...

**Full Text**

#### [An Empirical Self-Protection Chaff Model](#)

Dec 1984

74 pages

Authors: [Robert J. Rohrs](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING](#)

... , quick running simulation that was desired. This thesis produced a simulation capable of charting the effectiveness of **chaff** used in the self-protective mode. Simulation results can be used to determine which type/design of **chaff/chaff** canister will produce a greater probability of breaklock for a given scenario. The radar included ... the effect of MTI blind speeds. Results of several simulation runs illustrate the effects of varying **chaff** radar cross section and aircraft velocity on the probability of attaining breaklock, Although aircraft ...

**Full Text**

#### [Simulation of Chaff Cloud Signature](#)

Dec 1985

58 pages

Authors: [Richard P. Fray](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING](#)

In this thesis time-varying radar cross sections of **chaff** clouds are generated for use in radar/ECM computer simulations, under the assumption that scattering from **chaff** clouds is a wide sense stationary random process. For a jointly gaussian random ... derived from gaussian variables to present an alternative way of describing the probability distributions of **chaff** cloud cross sections. Topics for further study are suggested. Keywords: **Chaff** simulation, Correlation techniques, Electronic countermeasures, Radar confusion reflectors, and Radar cross sections.

**Full Text**

#### [Environmental Effects of RF Chaff. A Select Panel Report to the Undersecretary of Defense for Environmental Security](#)

Aug 31, 1999

85 pages

Authors: [Barry J. Spargo](#); [NAVAL RESEARCH LAB WASHINGTON DC](#)

This report presents the assessment of the environmental effects of radio-frequency (RF) **chaff** as determined by a Select Panel of university-based research scientists, each with published expertise in ... "upper bounds" (or worst-case) estimates based on the amounts and areas of **chaff** use, analysis of known lecture data related to the effects of RF **chaff**, and reasonable, prudent extrapolations and derivations from these data. The Panel concludes that environmental, human, and agricultural impacts of RF **chaff** as currently used are minimal to be based on all the data, analyses, estimations, and ...

**Full Text**

#### [Chaff Radar Cross Section Studies and Calculations](#)

May 1978

42 pages

Authors: [R. J. Garbacz](#); [OHIO STATE UNIV COLUMBUS ELECTROSCIENCE LAB](#)

The objective of Contract F33615-C-1024 has been to analytically and experimentally investigate **chaff** scattering and the reduction of antenna-related radar cross section. This final report summarizes results obtained during the interim 1 January 1976 through 30 June 1977 on the **chaff** aspect of the effort. Included are summaries of (1) an investigation of scattering by a long wire excited by either a plane wave or by a nearby short dipole with sinusoidal current distribution and (2) an experimental study of small foam shapes very densely coated with **chaff** filaments. (Author)

[Full Text](#)

[Chaff Theoretical/Analytical Characterization and Validation Program](#)

Sep 30, 1981

124 pages

Authors: [E. F. Knott](#); [D. J. Lewinski](#); [S. D. Hunt](#); [GEORGIA INST OF TECH ATLANTA ENGINEERING EXPERIMENT STATION](#)

This report describes the modeling of radar returns from **chaff**. The dipoles are allowed to follow helical paths as they fall, and the signal scintillation characteristics of the entire **chaff** cloud are assumed to be the same as those of a small collection of up to 1000 dipoles. The dipole motion ... computed assuming a bivariate Gaussian distribution for the dipole number density in a plane transverse to the axis of a plume of **chaff**. The computation of the amplitude requires a numerical integration of the product of the radar antenna radiation pattern and ...

[Full Text](#)

[Errors Inherent in Chaff Centroid Tracking.](#)

Jul 1970

38 pages

Authors: [C. R. Mullin](#); [GENERAL RESEARCH CORP SANTA BARBARA CA](#)

An analysis of the errors inherent in tracking the radar-cross-section centroid of a **chaff** cloud shows the centroid to have a random motion in addition to its long-term motion with the **chaff** cloud. This random motion can lead to errors in cloud trajectory estimation. There is a further error caused by the fact that the centroid does not exactly follow a Keplerian orbit. The deviation is slight, however, and can be neglected. (Author)

[Full Text](#)

[Statistics of Electromagnetic Scattering from Chaff Clouds](#)

Apr 1975

58 pages

Authors: [Vittal P. Pyati](#); [AIR FORCE AVIONICS LAB WRIGHT-PATTERSON AFB OH](#)

Starting from first principles, the first and second order probability densities of the scattered field from **chaff** clouds are derived. Auto-correlation functions and power spectra of the received voltage, radar cross section and phase are obtained. All the mathematical ... relation exists between the speed distribution function and the intensity auto-correlation function. The utility of second order statistics in studying the effects of **chaff** clutter fluctuations on advanced radars such as moving target indicator is demonstrated. Finally, numerical results are included both from an actual ...

[Full Text](#)

[Chaff Aerodynamics](#)

Nov 1975

166 pages

Authors: [James Brunk](#); [Dennis Mihora](#); [Peter Jaffe](#); [ALPHA RESEARCH INC SANTA BARBARA CA](#)

The aerodynamic characteristics of thirteen distinct **chaff** dipole configurations were determined from drop tests of individual elements in a special enclosed test chamber. The dipole motion and trajectory were recorded by multi-image photographs taken by orthogonal still cameras equipped with specially designed synchronized rotating shutters. The dynamic behavior and descent rate of the dipoles was found to depend greatly upon the principal cross-section dimensions of the filaments. Aerodynamic forces and moment coefficients for each dipole configuration were computed from the photographic ...

[Full Text](#)

[Bistatic Radar Cross Sections of Horizontally Oriented Chaff](#)

Mar 1984

40 pages

Authors: [Peyton Z. Peebles Jr](#); [FLORIDA UNIV GAINESVILLE ELECTRONIC COMMUNICATIONS LAB](#)

Bistatic Radar Cross sections are determined for scattering from a cloud of randomly positioned resonant dipoles (**chaff**). Dipoles are assumed to be horizontally oriented with axes randomly oriented in the horizontal plane. The cloud is arbitrarily located relative to an illuminating source having an arbitrary (elliptical) polarization. Cloud cross section is found for an arbitrarily located receiver that views the cloud with an antenna of arbitrary polarization. A cross section applicable to the receiver's orthogonal polarization is also found.

[Full Text](#)

[The Use of Chaff in Space as a Jamming Device between Ground Stations and Satellites](#)

Dec 1988

183 pages

Authors: [Alan R. Sterns](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING](#)

This study predicts the time evolution of the attenuation characteristics of a **chaff** cloud deployed in orbit around the earth. The study consists of three parts: applying the statistical mechanics solution of a satellite breakup model by William Heard of the Naval Research Laboratory, solving for particle density at any time after dispensing, and calculating the attenuation of an 8 GHz signal through the cloud. The study shows that significant levels of signal attenuation can be achieved, with attenuations of greater than -50 db lasting for several hours. Theses. (rh)

[Full Text](#)

[Explosive Generation of Chaff](#)

Jun 1979

24 pages

Authors: [I. M. Napier](#); [I. L. Thompson](#); [WEAPONS SYSTEMS RESEARCH LAB ADELAIDE \(AUSTRALIA\)](#)

A new concept for the explosive generation and rapid dispersal of **chaff** for electronic countermeasures has been investigated. Promising results were obtained in static tests but these and theoretical estimates of radar cross section conflicted with the very low values actually obtained in experiments monitored by radar. Very short bloom times were realized in these experiments. (Author)

[Full Text](#)

[MEASUREMENTS USING A POLARIZATION INSTRUMENTATION RADAR ON SELECTED TARGETS](#)

Apr 1962

51 pages

Authors: [I. D. OLIN](#); [F. D. Queen](#); [NAVAL RESEARCH LAB WASHINGTON DC](#)

... of such factors as propeller modulation on polarized component return. An F3H jet aircraft was examined during flight and while dispensing **chaff**. Echo-area calibration indicates nose-on and broadside cross-section areas on the order of 120 and 12,000 sq ft, respectively. The characteristics of **chaff** and sea return were examined in detail. Although the return from **chaff** and the sea appears equally noisy, sea return displays prominent power fading, whereas the **chaff** also displays polarization changes. (Author)

[Full Text](#)

[The Measurement of Dipole Angle Distribution](#)

Jul 1982

41 pages

Authors: [J. H. Wilkin](#); [CRYPTTEC PETERSFIELD \(UNITED KINGDOM\)](#)

**Chaff** has been in existence for more than forty years and it is perhaps remarkable that it is remained a ... advances in electronics and the resulting improvements in the capabilities of radars. The fact that **chaff** remains viable today is demonstrated in its increasing use by all of ... fully exploited, or even understood. Knowledge of even the basic characteristics of **chaff** is very limited and there is a great need to improve our understanding ... the development of Warsaw Pact weapon systems and the extensive use of **chaff** by the countries of the Pact, but perhaps the most compelling reason is the recent ...

[Full Text](#)

[Estimation of Aluminum Contributions of U.S. Navy Flight Training Operations in the Chesapeake Bay](#)

Jun 2000

33 pages

Authors: [Cody L. Wilson](#); [Anis Miladi](#); [Robert L. Carpenter](#); [William K. Alexander](#); [Kenneth R. Still](#); [NAVAL HEALTH RESEARCH CENTER WRIGHT-PATTERSON AFB OH TOXICOLOGY DETACHMENT](#)

This document reports the results from an investigation of the impact of aluminized glass **chaff** countermeasures on environmental aluminum levels in the Chesapeake Bay. This study was ... the potential environmental hazards that might be associated with the release of aluminized glass **chaff** fibers during training exercises by Naval aviators. **Chaff** used to provide protection against radar based attack on aircraft and other military vehicles is composed ... Chesapeake Beach region of the Chesapeake Bay, an area over which **chaff** countermeasure flight training operations have been conducted for nearly a ...

[Full Text](#)

[Final Environmental Assessment for the Defensive Training Initiative, Cannon Air Force Base, New Mexico](#)

Sep 2001

211 pages

Authors: [John K. Austin](#); [G. M. Brown](#); [Maureen Cunningham](#); [Linda DeVine](#); [Dave Dischner](#); [Bill Doering](#); [Jerry Dougherty](#); [Claudia Druss](#); [Michele Fikel](#); [Kimberly Freeman](#); [AIR COMBAT COMMAND LANGLEY AFB VA](#)

... maneuvering, and dispensing of defensive countermeasures. Defensive countermeasures include **chaff** that confuses enemy search radars and radar-guided missiles, and flares ... , the proponent of this action, currently conducts training using **chaff** and flares, but is limited to the restricted airspace associated with the Melrose ... /5105). The 27 FW proposes to conduct defensive training using **chaff** and flares in the existing military airspace designated as Pecos Military ... Assigned Airspace (ATCAA), Summer ATCAA, and Taiban MOA. **Chaff** use also is proposed for defensive training in the northern portion ...

[Full Text](#)

[Characterization of the Ecotoxicity of Five Biodegradable Polymers Under Consideration by NAVAIR for Use in Chaff-Dispensing Systems](#)

Mar 21, 2001

67 pages

Authors: [Darryl P. Arfsten](#); [Cody A. Wilson](#); [Kenneth R. Still](#); [Barry J. Spargo](#); [John Callahan](#); [NAVAL HEALTH RESEARCH CENTER WRIGHT-PATTERSON AFB OH TOXICOLOGY DETACHMENT](#)

The accumulation of discarded **chaff** dispenser styrene piston and endcaps in the environment is a concern of the Department of Defense. Five biodegradable materials are being considered for use in the manufacture of degradable **chaff** cartridges pistons and endcaps. Relative degradability of the materials is being evaluated by measuring total organic carbon (TOC) ... gained from these studies will be used making decisions on which (if any) of the polymers will be suitable for the construction of biodegradable **chaff** cartridges, pistons, and endcaps.

[Full Text](#)

[Robust Detection of Stepping-Stone Attacks](#)

Nov 2006

9 pages

Authors: [Ting He](#); [Lang Tong](#); [CORNELL UNIV ITHACA NY SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING](#)

The detection of encrypted stepping-stone attack is considered. Besides encryption and padding, the attacker is capable of inserting **chaff** packets and perturbing packet timing and transmission order. Based on the assumption that packet arrivals form renewal processes, and a pair of such renewal ... Theory. An efficient algorithm is proposed based on the detector structure to detect renewal processes with linearly correlated interarrival times. It is shown that the proposed algorithm is robust against an amount of **chaff** arbitrarily close to the amount of **chaff** needed to mimic independent processes.

[Full Text](#)

[Polarization Processing Techniques Study](#)

Nov 1979

150 pages

Authors: [Albert Klein](#); [David Hammers](#); [Masaaki Fujita](#); [George Ioannidis](#); [Nhan Levan](#); [ITT GILFILLAN VAN NUYS CA](#)

Polarization serves as a discriminant between radar targets and surrounding **chaff** and clutter. A dual channel system is required to utilize polarization information which exists in the target scattering matrix. Several methods are presented for designing an optimum polarization codes transmit waveform and matched coherent receiver based on target and clutter statistics. Simulation results for various target models against **chaff** show a significant increase in detectability for the two-channel system.

[Full Text](#)

[Signal-Filter Design and System Performance for Polarimetric Radar](#)

Jul 1987

133 pages

Authors: [Richard A. Altes](#); [Stephen F. Connelly](#); [James R. Miller](#); [Kishan G. Mehrotra](#); [H. Liu](#); [ORINCON CORP LA JOLLA CA](#)

... the computational results. Some important insights have been obtained from the SIR expression for distributed planar targets and randomly oriented dipole clutter, i.e., for the typical target in **chaff** problem. These insights have resulted in the design of a new polarimetric clutter canceller which theoretically allows a polarimetric radar to see through **chaff**. Signal-to-interference ratio (SIR) maximization has been used to obtain an optimum signal-filter pair for polarimetric radar when targets and/or clutter exhibit ...

[Full Text](#)

[The Shootdown of Trigger 4](#)

Apr 2001

49 pages

Authors: [Todd P. Harmer](#); [C. R. Anderegg](#); [DEPARTMENT OF THE AIR FORCE WASHINGTON DC](#)

... North Vietnam on 29 July 1972, engaged and shot down a MiG-21, a kill credited to Cadillac 1. Shortly thereafter, Pistol, a flight of four F-4s, escorting a **chaff** mission, engaged and shot down a second MiG-21. Almost immediately thereafter, a third MiG-21 shot down Trigger 4, one of a flight of four that was also escorting the **chaff** mission. However, research conducted at Air University over the past few years challenged the official record by suggesting that Trigger 4 was mistakenly shot down by Cadillac ...

[Full Text](#)[REVIEW OF THE HIGH ALTITUDE RESEARCH PROGRAM \(HARP\)](#)

Jul 1966

37 pages

Authors: [C. H. Murphy](#); [G. V. Bull](#); [ARMY BALLISTIC RESEARCH LAB ABERDEEN PROVING GROUND MD](#)

... from 20 pound, 5- inch projectiles reaching 240,000 feet to 185-pound, 16-inch projectiles reaching 470,000 feet. Single and multiple stage rockets launched from the 16- inch gun have very promising predicted performance and are under development. Scientific results to date are primarily wind profiles measured by radar **chaff**, aluminized balloons and parachutes, and tri-methyl-aluminum trails, although a number of successful 250 MHz and 1750 MHz telemetry flights were made. Sun sensors, magnetometers, and temperature sensors were flown and an electron density sensor was fired in early June.

[Full Text](#)[TEST FIRING SERIES, PROJECT HARP](#)

Jun 1965

249 pages

Authors: [H. J. Luckert](#); [MCGILL UNIV MONTREAL \(QUEBEC\) SPACE RESEARCH INST](#)

... firings during three nights. In three of these rounds a 250 MHz telemetry package was carried with a temperature gauge and a magnetometer for temperature and magnetic field measurements. Modified Martlet 2C vehicles were instrumented with 1750 MHz telemetry and Langmuir probes, as well as with a magnetometer and temperature gauges, for electron density measurements in the upper atmosphere. Ejection tests with S-band **chaff** and parachute-suspended telemetry were also included in this series, and the structural performance of rocket grain at high launch accelerations was tested in two rounds.

[Full Text](#)[WIND MEASUREMENTS IN THE SUBPOLAR MESOPAUSE REGION](#)

Jan 1967

30 pages

Authors: [James E. Morris](#); [ARMY ELECTRONICS COMMAND WHITE SANDS MISSILE RANGE NM ATMOSPHERIC SCIENCES LAB](#)

Mesospheric wind data obtained with a new high altitude Loki system during the summer of 1966 over Fort Greely, Alaska, are presented. Soundings, utilizing very light **chaff** as a wind sensor, were scheduled near noon and midnight for a 50-hour period. These data are from a sparsely sampled region of the atmosphere. The diurnal variations and the high velocities observed give valuable information regarding noctilucent clouds, atmospheric tidal oscillations, and the mean summer flow near the subpolar mesopause.

[Full Text](#)[AEROSPACE APPLICATION OF GUN LAUNCHED PROJECTILES AND ROCKETS](#)

Feb 1968

45 pages

Authors: [Charles H. Murphy](#); [Gerald V. Bull](#); [MCGILL UNIV MONTREAL \(QUEBEC\) SPACE RESEARCH INST](#)

... an approach lies in the very high accelerations experienced by gun-launched payloads. The guns used in Project HARP vary in size from 5-inch and 7-inch extended guns on mobile mounts to transportable fixed 16-inch guns. Altitude performance varies from 20 pound, 5- inch projectiles reaching 240,000 feet to 185-pound, 16-inch projectiles reaching 590,000 feet. Scientific results to date are primarily wind profiles measured by radar **chaff**, aluminized balloons and parachutes, and tri-methyl- aluminum trails, although a number of successful 250 MHz and 1750 MHz telemetry flights have been made.

[Full Text](#)[Adaptive Cancellation of Scattered Interference](#)

Mar 1984

78 pages

Authors: [L. E. Brennan](#); [W. L. Doyle](#); [I. S. Reed](#); [ADAPTIVE SENSORS INC SANTA MONICA CA](#)

This is the final report on a 1 year study of methods of adaptively cancelling scattered jamming. The results contained in this report are relevant to interference scattered into the main beam of a radar or communication system from terrain or **chaff** illuminated by a jammer. These same techniques can be applied to jamming scattered into the sidelobes or main beam of a receiving antenna from scatterers near the antenna, i.e., the multipath problem, which is an important limitation in some adaptive nulling systems.

[Full Text](#)[Preliminary Airworthiness Evaluation of the AH-64A Equipped with the Air to Air Stinger \(ATAS\) Missile System](#)

Dec 1988

118 pages

Authors: [John S. Lawrence](#); [Joseph A. Lyle](#); [Gerald J. Hopkins](#); [ARMY AVIATION ENGINEERING FLIGHT ACTIVITY EDWARDS AFB CA](#)

... symbology, which does not provide the copilot/gunner with accurate missile seeker line of sight relative to the selected sight line of sight except in FLIR wide field of view; reduction in storage space imposed by the ATAS installation in the aft storage bay; location of the repositioned **chaff** fire switch on the cyclic hand grip; and the manual reset feature of the ATAS missile sequencing logic. The absence of an altitude encoding feature in the installation of the AN/APX-100(V) transponder was a shortcoming not associated with the ATAS modification. Seven recommendations specific to the ATAS ...

[Full Text](#)[Stealth Technology in Surface Warships: How This Concept Affects the Execution of the Maritime Strategy](#)

May 18, 1992

33 pages

Authors: [John W. McGillyray](#); [NAVAL WAR COLL NEWPORT RI DEPT OF OPERATIONS](#)

... and discusses how a warship with a much reduced RCS might better execute various naval missions. It was found that actual stealth performance data is highly classified, but much open source literature is available which addresses the technical concepts of stealth. In theory stealth, when employed with **chaff** decoys, has the potential to enhance surface warship defenses against present generation ASCMs. With the proliferation of

[Full Text](#)

modern ASCMs to the Third World, stealth warships with an 'improved' soft kill capability are better suited to conduct various sea control, power projection and crisis ...

### [A Systems Engineering Approach to Aircraft Kinetic Kill Countermeasures](#)

[Technology: Development of an Active Aircraft Defense System for the C/KC-135](#)

Dec 1995

243 pages

[Aircraft. Volume 1](#)

Authors: [Mark C. Cherry](#); [Bruce R. Dewitt](#); [Christopher G. Dusseault](#); [Joel J. Hagan](#); [Brian S. Peterson](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH](#)

**Full Text**

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 missiles (Schaffer, 1993:1). 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 countermeasures technology. This thesis reports the preliminary design of an active aircraft defense system for the ...

### [Joint Suppression of Enemy Air Defenses \(J-SEAD\) Developing a Realistic Strategy for Today's Operational Artist](#)

May 20, 1996

21 pages

Authors: [David B. Woods](#); [NAVAL WAR COLL NEWPORT RI](#)

**Full Text**

... enemy air defenses (SEAD) was the answer to this air power counter History shows the leap frog effect that technology advancements in enemy air defense and SEAD have had on each other. Defense radio detection and ranging (RADAR) equipment facilitated the development of RADAR jamming and **chaff**. RADAR guided surface-to-air missiles (SAM) and antiaircraft artillery (AAA) created the requirement for antiradiation missiles (ARM), drones, and decoys. Linking early warning and acquisition RADARS to SAM sites with radios and data links hastened the development of communication and data link jamming. ...

### [Volume III. Systems Phase, Chapter 6A: Electronic Warfare/Radar Handbook](#)

Jan 1990

48 pages

Authors: [AIR FORCE TEST PILOT SCHOOL EDWARDS AFB CA](#)

**Full Text**

Contents Rules of Thumb, Estimates Conversion Factors Electronic Equipment Designations Frequency Designation Chart ECM Frequency Bands & Channel Codes Receiver Comparisons System Antenna Selection Criteria Antenna Scan Characteristics Symbols, Terms, Abbreviations ECM Techniques Glossary Fundamental Jamming Relationships Free Space Transmission Loss Plane Earth Transmission Loss Minimum Effective Antenna Height Propagation Loss, Detection Range Atmospheric Fading **Chaff** Analysis

### [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](#)

**Full Text**

... 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.

### [A Collaborative High Altitude Flow Facility \(CHAFF\): University Facility for Studies of High Altitude Propulsion Plumes, Liquids and Gas Releases, and Interactions](#)

Sep 30, 1998

38 pages

Authors: [E. P. Muntz](#); [Fred Lutfy](#); [Andrew Ketsdever](#); [Steve Vargo](#); [UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES DEPT OF AEROSPACE ENGINEERING](#)

**Full Text**

Interest in realistic simulation of the space environment as applied to the study of contamination and thruster plumes has led to the development of the CHAFF-4 facility. A multi-fin cryogenically cooled array (approx. 20K) completely envelops the interior of the CHAFF-4 chamber, providing an available condensing surface area of 590 m<sup>2</sup>. It is anticipated that the equivalent altitudes that can be simulated for various electric propulsion systems vary between 150-350 km (depending on type). The effective pumping speed is predicted to be about 9x10<sup>6</sup> liters/sec. The facility is designed to ...

### [Simulations to Predict the Countermeasure Effectiveness of Using Pyrophoric Type Packets Deployed from TALD Aircraft](#)

Sep 1999

116 pages

Authors: [Mihail Demestihias](#); [NAVAL POSTGRADUATE SCHOOL MONTEREY CA](#)

**Full Text**

... . 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.

[Full Text](#)

[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.

[Full Text](#)

[A Systems Engineering Approach to Aircraft Kinetic Kill Countermeasure](#)

[Technology: Development of an Active Air Defense System for the C/KC-135](#)

Dec 1995

282 pages

[Aircraft. Volume 2](#)

Authors: [Mark C. Cherry](#); [Bruce R. Dewitt](#); [Christopher G. Dusseault](#); [Joel J. Hagan](#); [Brian S. Peterson](#); [AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL OF ENGINEERING](#)

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 missiles (Schaffer, 1993:1). 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 countermeasures technology. This thesis reports the preliminary design of an active aircraft defense system for the ...

[Full Text](#)

[Standard Electronic Attack Clearance Request for Ranges](#)

Nov 2002

32 pages

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 ...

[Full Text](#)

[USAF Manned Aircraft Combat Losses 1990-2002](#)

Dec 9, 2002

19 pages

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, unmanned aircraft, and cruise missiles also reduce manned aircraft losses.

[Full Text](#)

[Accelerating Missile Threat Engagement Simulations Using Personal Computer](#)

Mar 2005

170 pages

[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 ...

[Full Text](#)

[Planning for and Applying Military Force: An Examination of Terms](#)

Mar 2006

24 pages

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.

[Full Text](#)

[Army Evaluation of JP-8 and Diesel Fuel Exposed to Anti-Detonation Material](#)

Sep 2005

108 pages

[Filler \(ADMF\) for Fuel Tank Effects](#)

Authors: [Bernard R. Wright](#); [Edwin A. Frame](#); [SOUTHWEST RESEARCH INST SAN ANTONIO TX DEPT OF ENGINES FUELS AND LUBRICANTS](#)

... 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

**Full Text**

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 ...

Total Results: 44

Results per page:  
50

[Home](#) | [About Us](#) | [Contact Us](#) | [View Cart](#) | [Customer Service](#) | [Shipping Terms](#) | [Advanced Search](#) | [Privacy Policy](#) | [Restrictions on PDF Usage](#)

© 2001-2008 Storming Media LLC. All rights reserved.